

Wetland Delineation Report

Miller Creek Drive

Traverse City, Michigan

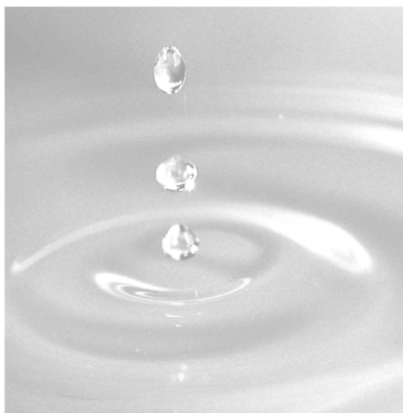
Submitted to:

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Grand Traverse Engineering
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Traverse City, MI 49685

Submitted by:

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July 9, 2024
Project No. 2403940



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1. Introduction

1.1. Background

At the request of Mr. Jeff Cockfield of Grand Traverse Engineering, LLC, GEI Consultants of Michigan, P.C. (GEI) conducted a wetland delineation and assessment for watercourses and waterbodies of approximately one and a half acres of land (site) directly north of Miller Creek Drive in Traverse City, Grand Traverse County, Michigan (Figure 1; previously delineated by GEI in 2018). The purpose of this field site assessment was to determine the presence or absence of wetlands and water features within the site, and if present, to delineate and document their boundaries and determine their regulatory status pursuant to Part 303, Wetlands Protection and/or Part 301, Inland Lakes and Streams, of the Natural Resources and Environmental Protection Act (NREPA), P.A. 451 of 1994, as amended.

2. Methods

2.1. Office Assessments

Before visiting the site, GEI reviewed several resource reference maps of the project area. These included the U.S. Geologic Survey (USGS) Topographic Map Series and National Hydrography Dataset (NHD), U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI), Department of Environment, Great Lakes, and Energy (EGLE) Wetlands Map Viewer (WMV), and U.S. Department of Agriculture Natural Resources Conservation Service (USDA NRCS) Web Soil Survey. These maps helped identify potential drainage ways, wetlands, watercourses, waterbodies, and hydric soil units in and adjacent to the project area.

2.2. Field Assessments

GEI walked the entire site and areas immediately adjacent to determine the extent and regulatory status of any wetlands and/or water features present. Changes to Part 303, Wetlands Protection, of NREPA, P.A. 451 of 1994, as amended, has the office of EGLE (formerly MDEQ) utilizing the United States Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual (Environmental Laboratory 1987) and the Northeast Northcentral Regional Supplement (USACE 2012) for the identification and delineation of wetlands. GEI Biologists utilized the methods and procedures in these references to identify and delineate wetlands on-site.

The perimeter of the wetlands was marked on-site with pink survey ribbons and recorded using sub-meter GPS technology. Flags were tied to vegetation or woody material so that they vertically hang to indicate the wetland boundary; and not necessarily the base of a tree, shrub, or other object they may be tied to. Each separate wetland was alphabetically assigned a letter designation, beginning with “A” and flags were numbered alphanumerically, “A1”, “A2”, and so on, to identify boundary locations.

GEI biologists selected upland and wetland data points that were representative of the wetland community type(s) and their upland/wetland boundary. Information was collected at each upland and wetland data point to support and document the biologist’s delineation decision. The USACE Northeast and Northcentral Wetland Determination Forms were used to document and summarize the field findings, including, but not limited to, dominant plant species in each stratum, visual signs of hydrology at the surface and below, and field indicators of hydric soil (if present).

Visual estimates of the absolute percent cover of vegetation located within each vegetative stratum (i.e., tree, sapling/shrub, herb, and woody vine stratum) were recorded. The size of sample plots within each stratum varied; 30-foot radius plots were used to assess the tree and woody vine stratum, 15-foot radius plots for the sapling/shrub stratum, and 5-foot radius plots for the herb stratum. Wetland vegetation was determined to be dominant based upon the 50/20 rule described in the 1987 USACE Manual and wetness ratings assigned to dominant and other plant species present within the various plots. Plant species were identified in the field by competent GEI botanists/wetland ecologists and unknown species were identified and/or confirmed using Michigan Flora Online (University of Michigan Herbarium), Field Manual of Michigan Flora (Voss, Reznicek 2012), and other plant identification references. Scientific nomenclature

and regional wetland indicator status for each plant species used in the USACE Wetland Determination Forms used the ratings from the National Wetland Plant List (NWPL 2020 v3.5).

Procedures for documenting and evaluating soil profiles and field indicators of hydric soils followed the 1987 USACE Manual, the Northcentral Northeast Regional Supplement (USACE 2012), and Field Indicators of Hydric Soils in the United States (USDA NRCS 2016 version 8.1). At each data point, a soil pit a minimum of 18 inches in depth was dug to examine and document the soil profile, its soil textures, hues, chromas, values, and percent of redoximorphic features that may be present within the various depths of the soil profile.

Visual signs of wetland hydrology at the ground surface and within the soil profile were also examined in accordance with the 1987 USACE Manual and the Northcentral Northeast Regional Supplement (USACE 2012). At each data point indicators of wetland hydrology and presence/absence of water and saturation at the surface and within the soil profile were assessed and recorded using the USACE Wetland Determination Forms.

3. Results

3.1. Office Assessments

GEI's review of the USDA NRCS Web Soil Survey maps, USFWS NWI maps, and EGLE WMV maps were helpful in identifying the potential presence and type of wetlands and water bodies associated within and adjacent to the site. These maps are intended as advisory resources; they serve as a general representation of the site and may be inconsistent with GEI's on-site observations.

3.1.1. USDA NRCS Web Soil Survey

The USDA NRCS Web Soil Survey map (Figure 2) identified two soil types within the site, both of which are hydric (Table 1). Carlisle muck, the dominant soil type, is a very deep, dark, very poorly drained soil which often consists of partially decomposed organic material and woody fragments near the soil surface.

Table 1. Hydric soil ratings within area of interest (AOI) created via USDA NRCS Web Soil Survey

Map Unit Symbol	Map Unit Name	Rating	Acres in AOI	Percent of AOI
CaraeA	Carlisle muck, lake moderated snowy, 0 to 2 percent slopes	100	0.8	55.8%
Tm	Tonkey mucky sandy loam	95	0.6	44.2%

3.1.2. USFWS National Wetlands Inventory (NWI)

The USFWS NWI map (Figure 3) identified no wetlands within the site. A large, forested wetland complex was identified immediately to the west of the site.

3.1.3. EGLE Wetlands Map Viewer

The EGLE Wetland Map Viewer map (Figure 4) was created using an overlay of EGLE's Part 303 Final Wetland Inventory (inclusive of USFWS NWI, MIRIS, USDA NRCS Hydric Soils) and USFWS 2005 NWI. The data layers within the EGLE Part 303 Final Wetland Inventory does show the presence of wetland and hydric soils across the site.

3.2. Field Assessments

On May 16, 2024, a GEI wetland ecologist assessed the property and determined the presence of two wetlands at the site (Figure 5). Wetland A is a large forested/scrub-shrub wetland complex which extends off the property and surrounds the property and occupies the northern, western and eastern outer margins of the site. Wetland B is a small, isolated wetland pocket surrounded by upland near the eastern boundary of the site. Detailed descriptions of all wetlands and uplands at the site are included in the proceeding sections.

Sets of USACE/EGLE data forms were completed at representative locations within and adjacent to wetlands at the site (Appendix A). The locations of these data points are shown in Figure 5. Additional plant community and Floristic Quality Assessment (FQA) information is included in Appendix B.

Representative photographs of the site are included in Appendix C. Additional photographs of the site and data points were taken but not included in this report for brevity; these photographs are available upon request.

3.2.1. Wetlands

Wetland A is a palustrine scrub-shrub (PSS) wetland interspersed with small groves of larger trees. Common components of the shrub layer include silky dogwood (*Cornus amomum*), sandbar willow (*Salix exigua*), and Bebb's willow (*Salix bebbiana*). The herbaceous layer often includes late goldenrod (*Solidago gigantea*), common horsetail (*Equisetum arvense*), and virgin's bower (*Clematis virginiana*). Scattered trees within Wetland A include northern white cedar (*Thuja occidentalis*), trembling aspen (*Populus tremuloides*), balsam fir (*Abies balsamea*), and red maple (*Acer rubrum*). The non-native shrub, Morrow honeysuckle (*Lonicera morrowii*), is also common within the wetland. Near Miller Creek Road, the wetland follows a small stream corridor which eventually flows east to Miller Creek.

Wetland B is an isolated patch of wetland potentially created by historic excavation within uplands. The wetland is dominated by dense shrubs along the margins including silky dogwood, green ash saplings (*Fraxinus pennsylvanica*), and stunted northern white cedar. The wetland lacks an herbaceous layer, and dark mucky soils are exposed throughout.

3.2.2. Uplands

Uplands at the site are highly disturbed and dominated by weedy non-native forbs and grasses including common mullein (*Verbascum thapsus*), smooth brome (*Bromus inermis*), and orchard grass (*Dactylus glomerata*). Non-native shrubs such as Morrow honeysuckle and autumn-olive (*Elaeagnus umbellata*) form dense patches across the site. Along the eastern wetland boundary, white pine (*Pinus strobus*) trees and bracken fern (*Pteridium aquilinum*) occupy a steep ridge above the wetland.

3.2.3. Consistency with Past Wetland Delineation

Wetland boundaries at the site were generally consistent with those mapped by GEI in 2018 and subsequently confirmed by EGLE (Figure 6). Wetland boundaries at the south end of the site along Miller Creek Drive (the area of concern for development) were unchanged. The only changes noted from 2018 were located in the northeast portion of the site, where one portion of the wetland was mapped to be slightly smaller than in the previous wetland delineation. The 2018 WIP report completed by EGLE (then DEQ) is included as Appendix D.

4. Summary and Conclusions

It is GEI's professional opinion that all wetlands at the site are regulated by EGLE pursuant to Part 303 of NREPA. Both Wetland A and Wetland B are within 500 feet of a small defined stream which flows east along Miller Creek Drive. Wetland A is part of a larger wetland complex which surrounds the site and is larger in size than 5 acres. GEI also opines that the wetland boundaries are largely unchanged from the previous delineation in 2018, and that EGLE would again concur with our current boundaries.

Wetlands are considered contiguous and regulated by Part 303 of NREPA if they meet any of the following criteria:

1. A permanent surface water connection or other direct physical contact with an inland lake or stream, a pond, a river, one of the Great Lakes, or the connecting waters of the Great Lakes;
2. A seasonal or intermittent direct surface water connection to an inland lake or stream, a pond, river, one of the Great Lakes, or the connecting waters of the Great Lakes;
3. Partially or entirely located within 500 feet of the ordinary high watermark of an inland lake or stream, a pond, or a river or is within 1,000 feet of the ordinary high watermark of one of the Great Lakes or the connecting waters of the Great Lakes, unless it is determined by EGLE that there is no surface water or groundwater connection to these waters; or
4. Two or more areas of wetland separated only by unnatural barriers, such as dikes, roads, berms, or other similar constructed features, but with any of the wetland areas contiguous under the criteria described in this definition. The connecting waters of the Great Lakes shall be considered part of the Great Lakes for purposes of this definition.
5. The wetland is not connected to one of the Great Lakes or Lake St. Clair, or an inland lake, pond, stream, or river, but is more than 5 acres in size.
6. The wetland is not connected to one of the Great Lakes or Lake St. Clair, or an inland lake, pond, stream, or river, and less than 5 acres in size, but EGLE has determined that these wetlands are essential to the preservation of the state's natural resources and has notified the property owner.

Pursuant to Part 303 of NREPA, a permit would be required from EGLE for any proposed dredging, filling, draining, or maintained use or development within a regulated wetland. A permit from EGLE would not be required if regulated wetlands are avoided and none of the forementioned activities are proposed within them.

Due to the dynamic nature of wetland and water resources, this study reflects wetland boundaries and presence of water bodies as they existed during the time the field investigation was completed. Please be advised this regulatory delineation represents our professional opinion based on application of established regulatory methodologies. EGLE is the state agency and the USACE is the federal agency with overlapping regulatory authority within Section 10 Waters and they have final discretionary authority relative to wetland boundaries and jurisdictional determinations of "waters of the United States".

5. References

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineations Manual*. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

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United States Army Corps of Engineers. 2020. National Wetland Plant List, version 3.5.
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United States Army Corps of Engineers. 2012. *Regional Supplements to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (version 2.0). ERDC/EL TR-12-1, U.S. Army Research and Development Center, Vicksburg, Mississippi.

United States Department of Agriculture, Natural Resources Conservation Service. 2018. *Field Indicators of Hydric Soils in the United States*. Version 8.2 L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

Voss, E.G. and A. Reznicek. 2012. *Field Manual of Michigan Flora*. University of Michigan. USA: The University of Michigan Press.

Figures

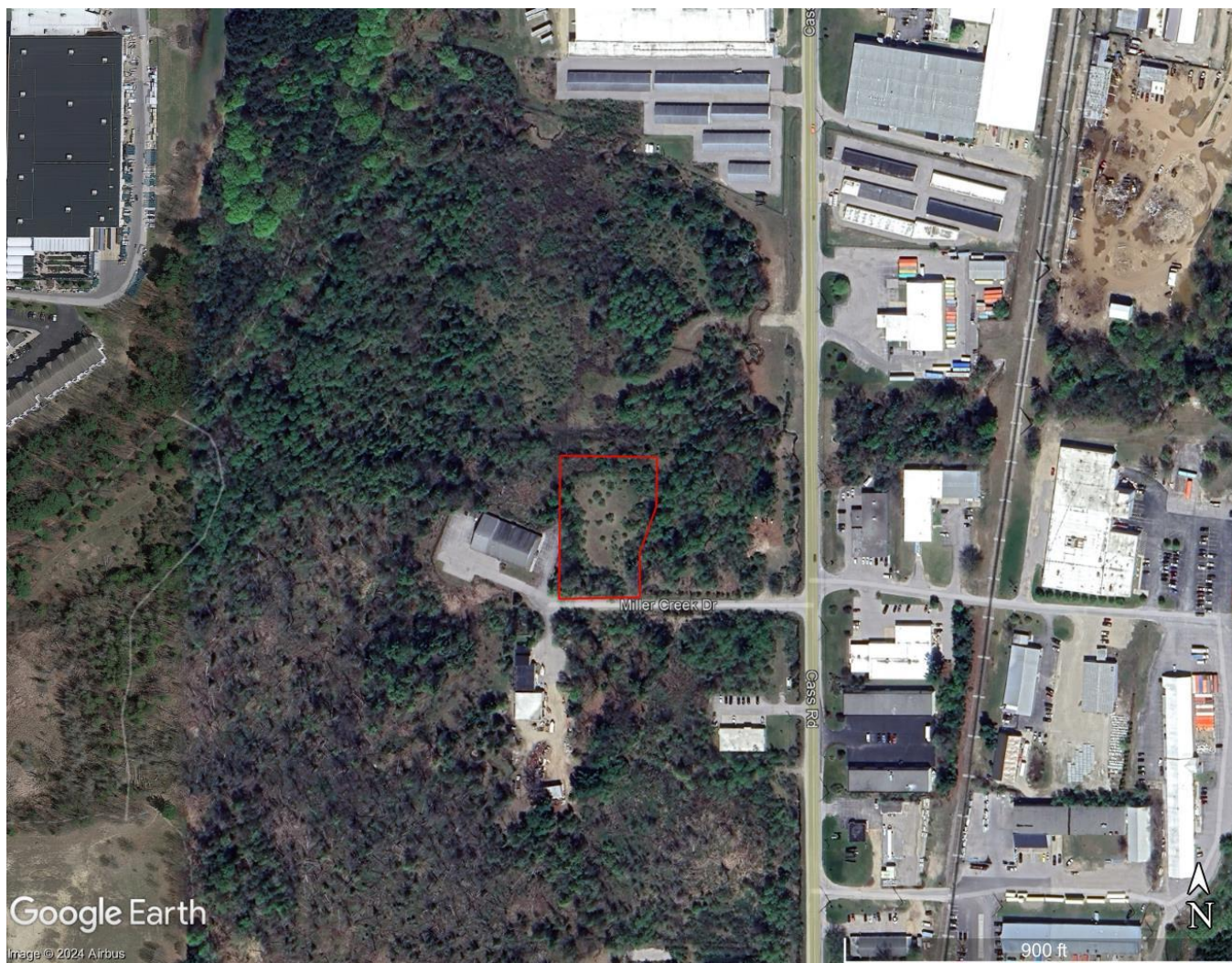


Figure 1. Site Location and Assessment Area Map



Figure 2. USDA NRCS Web Soil Survey Map

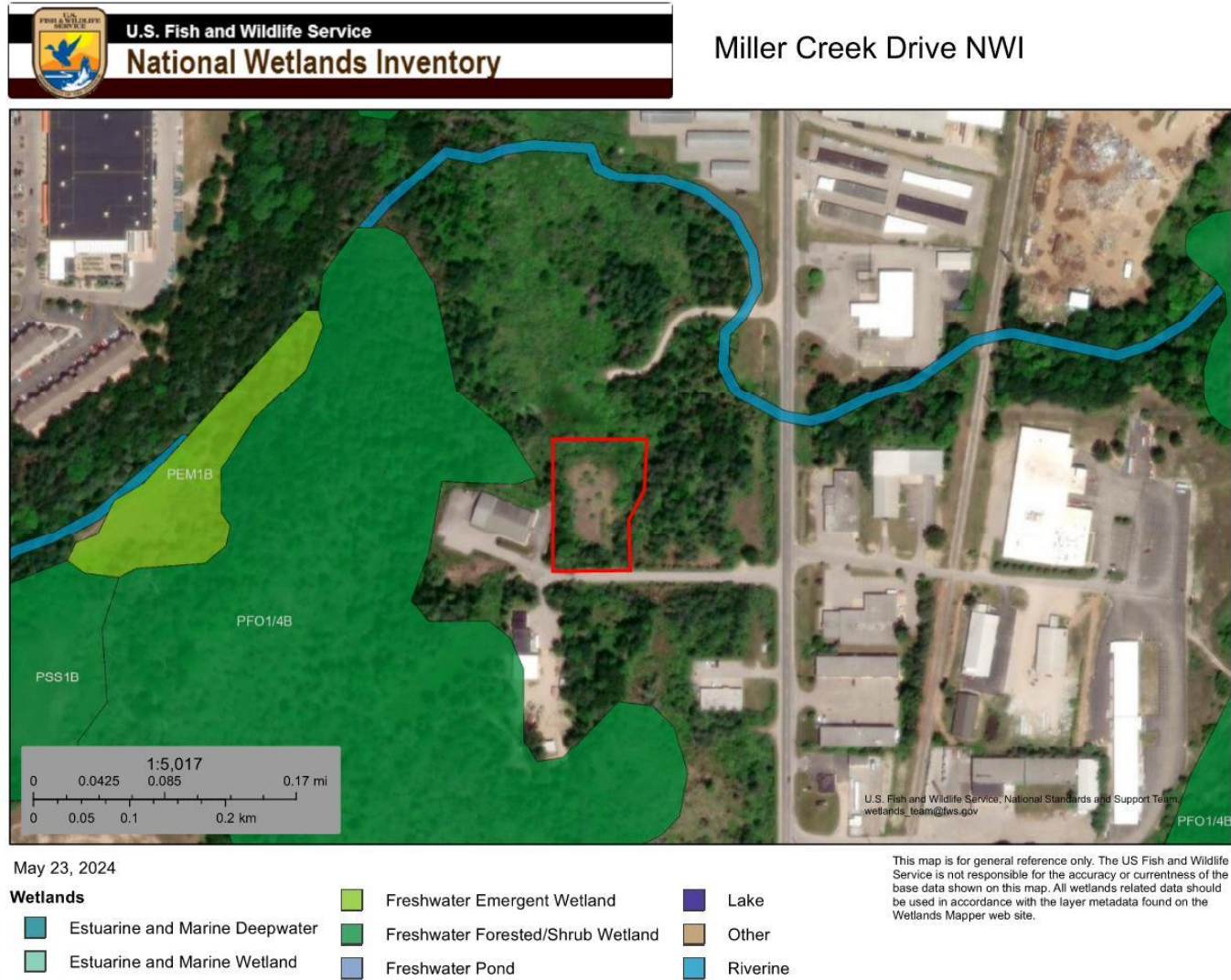


Figure 3. USFWS National Wetlands Inventory Map (site boundary outlined in red)



May 24, 2024

Part 303 Final Wetlands Inventory

- Wetlands as identified on NWI and MIRIS maps
- Soil areas which include wetland soils
- Wetlands as identified on NWI and MIRIS maps and soil areas which include wetland soils

1:5,785
0 0.05 0.1 0.2 mi
0 0.07 0.15 0.3 km
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community. Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Disclaimer: This map is not intended to be used to determine the specific

Figure 4. EGLE Wetlands Map Viewer (overlay of NWI, MIRIS, USDA NRCS Hydric Soils, and 2005 NWI; site boundary outlined in red)

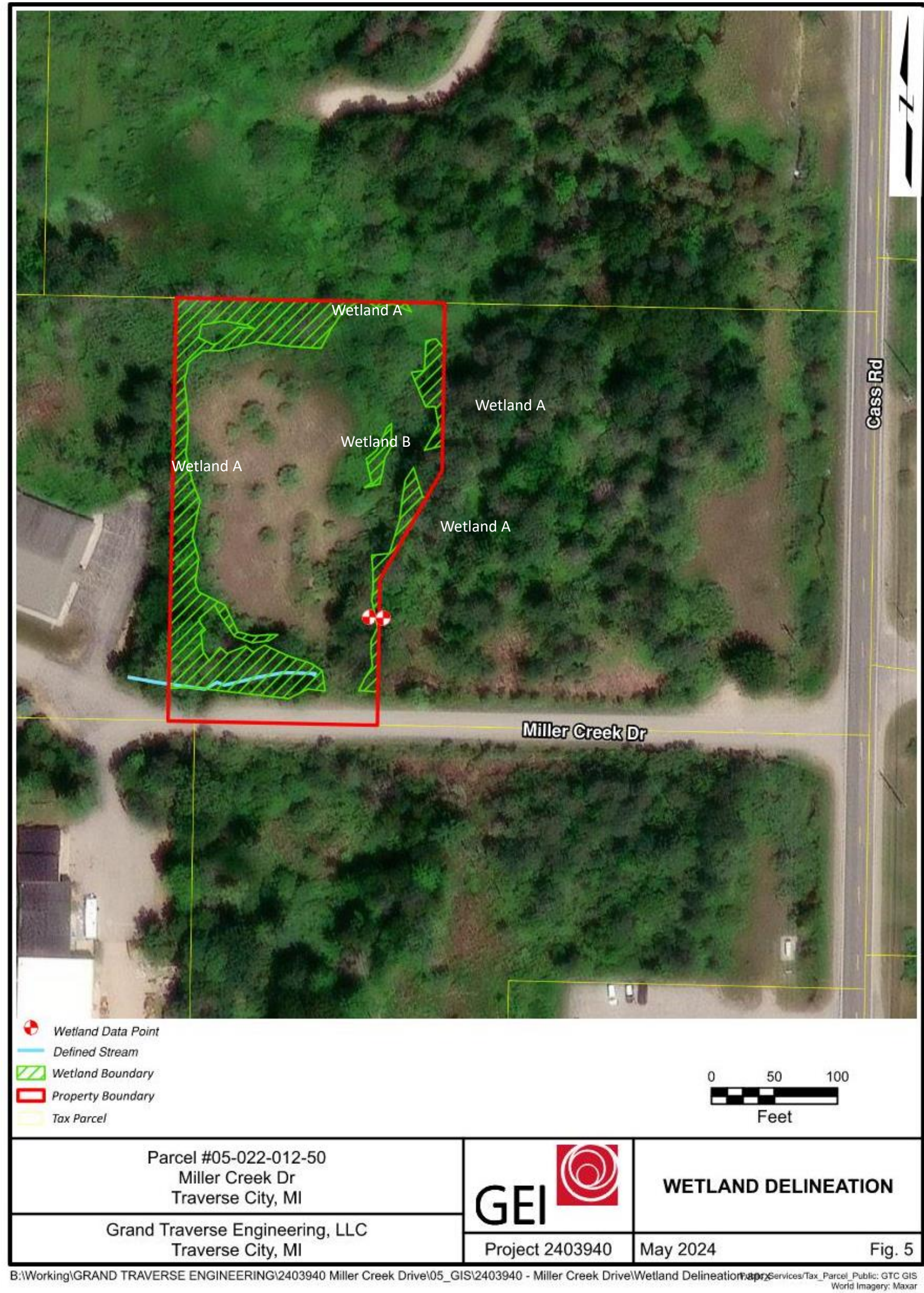
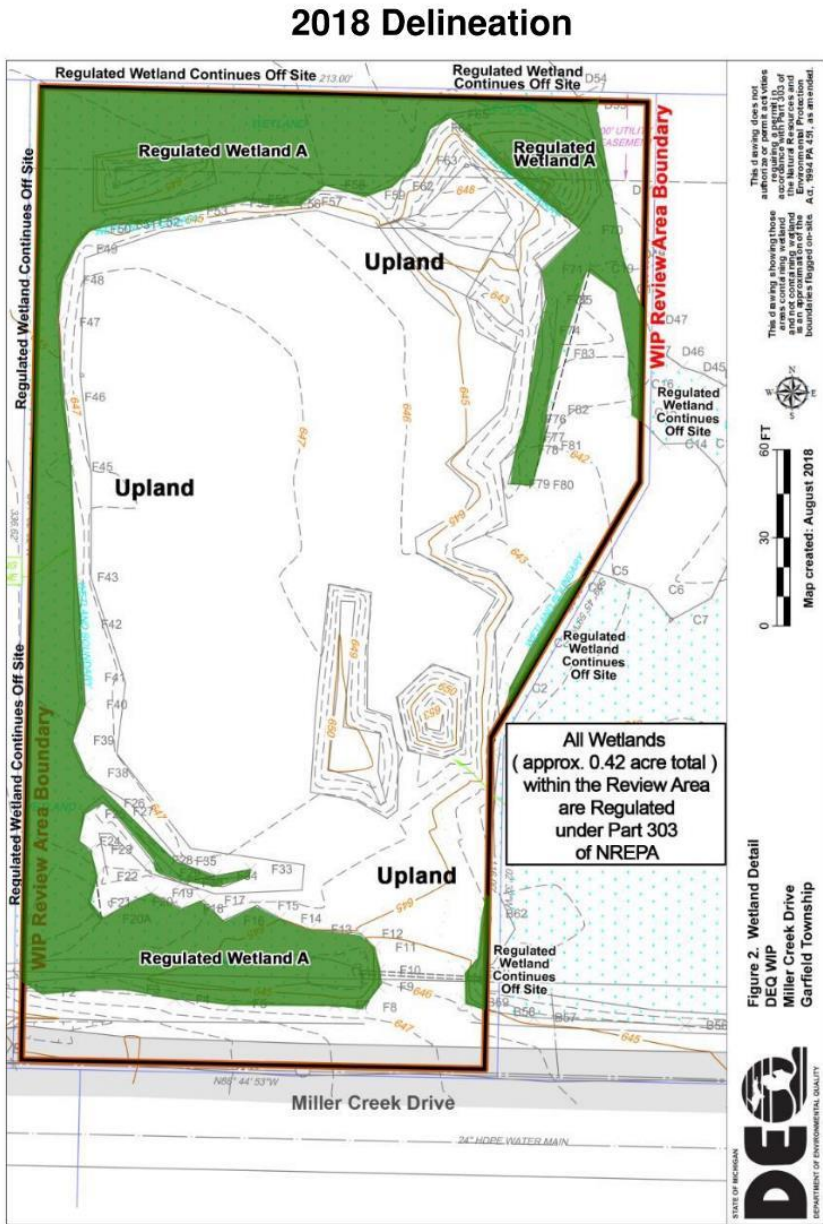


Figure 5. GEI Field Delineated Wetlands



Appendix A Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Miller Creek Drive City/County: Traverse City/Grand Traverse County Sampling Date: 5/16/24
Applicant/Owner: Grand Traverse Engineering State: MI Sampling Point: DP01
Investigator(s): Zack Pitman Section, Township, Range: S22, T27N, R11W
Landform (hillside, terrace, etc.): Plain Local relief (concave, convex, none): none Slope %: 0
Subregion (LRR or MLRA): LRR L Lat: 44.72200799 Long: -85.62733457 Datum: NAD
Soil Map Unit Name: Carlisle muck, lake moderated snowy, 0 to 2 percent slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u> If yes, optional Wetland Site ID: <u> </u>
Hydric Soil Present?	Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present?	Yes <u>X</u> No <u> </u>	
Remarks: (Explain alternative procedures here or in a separate report.)		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations:			
Surface Water Present?	Yes <u> </u> No <u> </u>	Depth (inches):	<u> </u>
Water Table Present?	Yes <u>X</u> No <u> </u>	Depth (inches):	<u>4</u>
Saturation Present?	Yes <u>X</u> No <u> </u>	Depth (inches):	<u>0</u>
(includes capillary fringe)			
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

VEGETATION – Use scientific names of plants.

Sampling Point: DP01

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Fraxinus pennsylvanica</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
<u>5</u> =Total Cover			

Sapling/Shrub Stratum (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Fraxinus pennsylvanica</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>
2. <u>Cornus amomum</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Salix bebbiana</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>
4. <u>Viburnum opulus</u>	<u>5</u>	<u>No</u>	<u>FACW</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
<u>40</u> =Total Cover			

Herb Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Scirpus cyperinus</u>	<u>10</u>	<u>No</u>	<u>OBL</u>
2. <u>Equisetum arvense</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
3. <u>Parthenocissus quinquefolia</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
4. <u>Lycopus americanus</u>	<u>5</u>	<u>No</u>	<u>OBL</u>
5. <u>Solidago gigantea</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>
6. <u>Carex stricta</u>	<u>25</u>	<u>Yes</u>	<u>OBL</u>
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
<u>75</u> =Total Cover			

Woody Vine Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
_____ =Total Cover			

Remarks: (Include photo numbers here or on a separate sheet.)
Exposed muck soils ~25%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>40</u>	x 1 = <u>40</u>
FACW species <u>60</u>	x 2 = <u>120</u>
FAC species <u>15</u>	x 3 = <u>45</u>
FACU species <u>5</u>	x 4 = <u>20</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>120</u> (A)	<u>225</u> (B)
Prevalence Index = B/A = <u>1.88</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

Wetland Delineation Report
Miller Creek Drive
Traverse City, Michigan
July 9, 2024

SOIL

Sampling Point: DP01

[illegible]

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Miller Creek Drive City/County: Traverse City/Grand Traverse County Sampling Date: 5/16/24
Applicant/Owner: Grand Traverse Engineering State: MI Sampling Point: DP02
Investigator(s): Zack Pitman Section, Township, Range: S22, T27N, R11W
Landform (hillside, terrace, etc.): Hillside Local relief (concave, convex, none): none Slope %: 6
Subregion (LRR or MLRA): LRR L Lat: 44.72200936 Long: -85.62737847 Datum: NAD
Soil Map Unit Name: Carlisle muck, lake moderated snowy, 0 to 2 percent slopes NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u> If yes, optional Wetland Site ID: <u> </u>
Hydric Soil Present?	Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present?	Yes <u> </u> No <u>X</u>	
Remarks: (Explain alternative procedures here or in a separate report.) Edge of slope above wetland		

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u> </u> Surface Soil Cracks (B6)
<u> </u> Surface Water (A1)	<u> </u> Water-Stained Leaves (B9)	<u> </u> Drainage Patterns (B10)
<u> </u> High Water Table (A2)	<u> </u> Aquatic Fauna (B13)	<u> </u> Moss Trim Lines (B16)
<u> </u> Saturation (A3)	<u> </u> Marl Deposits (B15)	<u> </u> Dry-Season Water Table (C2)
<u> </u> Water Marks (B1)	<u> </u> Hydrogen Sulfide Odor (C1)	<u> </u> Crayfish Burrows (C8)
<u> </u> Sediment Deposits (B2)	<u> </u> Oxidized Rhizospheres on Living Roots (C3)	<u> </u> Saturation Visible on Aerial Imagery (C9)
<u> </u> Drift Deposits (B3)	<u> </u> Presence of Reduced Iron (C4)	<u> </u> Stunted or Stressed Plants (D1)
<u> </u> Algal Mat or Crust (B4)	<u> </u> Recent Iron Reduction in Tilled Soils (C6)	<u> </u> Geomorphic Position (D2)
<u> </u> Iron Deposits (B5)	<u> </u> Thin Muck Surface (C7)	<u> </u> Shallow Aquitard (D3)
<u> </u> Inundation Visible on Aerial Imagery (B7)	<u> </u> Other (Explain in Remarks)	<u> </u> Microtopographic Relief (D4)
<u> </u> Sparsely Vegetated Concave Surface (B8)		<u> </u> FAC-Neutral Test (D5)
Field Observations:		Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
Surface Water Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u>	Water Table Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u>	
Saturation Present? Yes <u> </u> No <u> </u> Depth (inches): <u> </u>	(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION – Use scientific names of plants.

Sampling Point: DP02

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Pinus strobus</u>	<u>30</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Populus tremuloides</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
<u>60</u> =Total Cover			

Sapling/Shrub Stratum (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Elaeagnus umbellata</u>	<u>10</u>	<u>Yes</u>	<u>UPL</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
<u>10</u> =Total Cover			

Herb Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Poa compressa</u>	<u>30</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Equisetum arvense</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
3. <u>Quercus rubra</u>	<u>2</u>	<u>No</u>	<u>FACU</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
<u>37</u> =Total Cover			

Woody Vine Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
_____ =Total Cover			

Remarks: (Include photo numbers here or on a separate sheet.)
 Sparse herbaceous cover under dense pine needles.

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>35</u>	x 3 = <u>105</u>
FACU species <u>62</u>	x 4 = <u>248</u>
UPL species <u>10</u>	x 5 = <u>50</u>
Column Totals: <u>107</u> (A)	<u>403</u> (B)
Prevalence Index = B/A = <u>3.77</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No X

Wetland Delineation Report
Miller Creek Drive
Traverse City, Michigan
July 9, 2024

SOIL

Sampling Point: DP02

[illegible]

Appendix B Floristic Quality Assessment (FQA) & Plant Lists

FQA

Conservation-Based Metrics:	Wetlands	Uplands
Total Mean C:	2.4	1.1
Native Mean C:	2.5	2.4
Total FQI:	12.7	5
Native FQI:	12.7	7.6

Species Richness:	Wetlands	Uplands
Total Species:	28	21
Native Species:	26	10
Non-native Species:	2	11

Wetland Plant List

Scientific name	Common name	Native or Non-Native	Coefficient of Conservatism	Wetland Rating	Physiognomy
<i>Abies balsamea</i>	balsam fir	native	3	0	tree
<i>Acer rubrum</i>	red maple	native	1	0	tree
<i>Agrimonia parviflora</i>	swamp agrimony	native	4	0	forb
<i>Calamagrostis canadensis</i>	blue-joint	native	3	-5	grass
<i>Carex stricta</i>	sedge	native	4	-5	sedge
<i>Clematis virginiana</i>	virgin's bower	native	4	0	vine
<i>Cornus amomum</i>	silky dogwood	native	2	-3	shrub
<i>Equisetum arvense</i>	common horsetail	native	0	0	fern
<i>Fragaria virginiana</i>	wild strawberry	native	2	3	forb
<i>Fraxinus pennsylvanica</i>	green ash	native	2	-3	tree
<i>Geum canadense</i>	white avens	native	1	0	forb
<i>Larix laricina</i>	tamarack	native	5	-3	tree
<i>Lonicera morrowii</i>	morrow honeysuckle	non-native	0	3	shrub
<i>Lycopus americanus</i>	common water horehound	native	2	-5	forb
<i>Onoclea sensibilis</i>	sensitive fern	native	2	-3	fern
<i>Populus balsamifera</i>	balsam poplar	native	2	-3	tree
<i>Populus tremuloides</i>	quaking aspen	native	1	0	tree
<i>Rubus pubescens</i>	dwarf raspberry	native	4	-3	shrub
<i>Salix bebbiana</i>	bebb's willow	native	1	-3	shrub
<i>Salix exigua</i>	sandbar willow	native	1	-3	shrub
<i>Sambucus canadensis</i>	elderberry	native	3	-3	shrub
<i>Scirpus cyperinus</i>	wool-grass	native	5	-5	sedge
<i>Solidago gigantea</i>	late goldenrod	native	3	-3	forb
<i>Thuja occidentalis</i>	northern white cedar	native	4	-3	tree
<i>Toxicodendron radicans</i>	poison-ivy	native	2	0	vine
<i>Typha angustifolia</i>	narrow-leaved cattail	non-native	0	-5	forb
<i>Ulmus americana</i>	American elm	native	1	-3	tree
<i>Vitis riparia</i>	riverbank grape	native	3	0	vine

Upland Plant List

<i>Scientific name</i>	Common name	Native or Non-Native	Coefficient of Conservatism	Wetland Rating	Physiognomy
<i>Anemone canadensis</i>	Canada anemone	native	4	-3	forb
<i>Arctium minus</i>	common burdock	non-native	0	3	forb
<i>Bromus inermis</i>	smooth brome	non-native	0	5	grass
<i>Carex gracillima</i>	sedge	native	4	3	sedge
<i>Centaurea stoebe</i>	spotted knapweed	non-native	0	5	forb
<i>Cirsium arvense</i>	Canada thistle	non-native	0	3	forb
<i>Dactylis glomerata</i>	orchard grass	non-native	0	3	grass
<i>Elaeagnus umbellata</i>	autumn-olive	non-native	0	3	shrub
<i>Lonicera morrowii</i>	Morrow honeysuckle	non-native	0	3	shrub
<i>Lonicera tatarica</i>	Tartarian honeysuckle	non-native	0	3	shrub
<i>Parthenocissus quinquefolia</i>	Virginia creeper	native	5	3	vine
<i>Pinus strobus</i>	white pine	native	3	3	tree
<i>Poa compressa</i>	Canada bluegrass	non-native	0	3	grass
<i>Populus balsamifera</i>	balsam poplar	native	2	-3	tree
<i>Prunus serotina</i>	wild black cherry	native	2	3	tree
<i>Pteridium aquilinum</i>	bracken fern	native	0	3	fern
<i>Rubus occidentalis</i>	black raspberry	native	1	5	shrub
<i>Solidago altissima</i>	tall goldenrod	native	1	3	forb
<i>Taraxacum officinale</i>	common dandelion	non-native	0	3	forb
<i>Toxicodendron radicans</i>	poison-ivy	native	2	0	vine
<i>Verbascum thapsus</i>	common mullein	non-native	0	5	forb

Appendix C Representative Site Photographs



Photograph 1. View east of roadside ditch at southwest property corner.



Photograph 2. View north into wetlands from Miller Creek Drive.



Photograph 3. View north of uplands at the center of the site.



Photograph 4. View northwest of wetland boundary at western end of the site.



Photograph 5. View northwest of wetlands continuing west of site.



Photograph 6. View north along wetland boundary at eastern end of site.



Photograph 7. View east of wetlands beyond the eastern property boundary.



Photograph 8. View southeast of wetlands from the eastern wetland boundary.

Appendix D 2018 DEQ WIP Report



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING



C. HEIDI GRETHER
DIRECTOR

August 22, 2018

Mr. Jeff Cockfield, Project Engineer
Grand Traverse Engineering
P.O. Box 227
Traverse City, Michigan 49685

Dear Mr. Cockfield:

SUBJECT: Wetland Identification Report
Wetland Identification Site Name: 28-Miller Creek Drive-Garfield Township
MiWaters Submission Number: HNF-QMYX-Y6ZT0

The Department of Environmental Quality (DEQ) conducted a Level 3 Wetland Identification Review of approximately 1.5 acres on property (Property Tax Identification Number 05-022-012-50) located in Town 27 North, Range 11 West, Section 22, Garfield Charter Township, Grand Traverse County, on August 15, 2018. The wetland identification was conducted in accordance with Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), and Rule 4 (1), Wetland Identification and Assessment (R 281.924), of the Administrative Rules for Part 303. This is a report of our findings in response to your Wetland Identification Program (WIP) application.

Based on our on-site investigation which included a review of plants, hydrology, and soils, the DEQ confirms the wetland boundary lines flagged by your consultant. The DEQ also reviewed other pertinent information such as aerial imagery, soil survey data, topographic mapping data, and surface hydrology data.

The site map (Figure 2) of the review area was created by combining information from your consultant and the DEQ. The new map identifies areas containing regulated wetland and non-wetland (upland).

Approximately 0.42 acre [all] of the wetland within the WIP review area is regulated by the DEQ because of wetland size and/or proximity to a pond, lake, or stream/drain. For the area identified as regulated wetland on the site map, specifically **Wetland A**, please be advised that any of the following activities require a permit under Part 303:

- a) Deposit or permit the placing of fill material in a regulated wetland.
- b) Dredge, remove, or permit the removal of soil or minerals from regulated wetland.
- c) Construct, operate, or maintain any use or development in a regulated wetland.
- d) Drain surface water from a regulated wetland.

For those areas identified as non-wetland (upland) on the site map, the DEQ lacks jurisdiction under Part 303 for activities occurring in those areas.

This Wetland Identification Report is limited to findings pursuant to Part 303 and does not constitute a determination of jurisdiction under other DEQ-administered programs. Any land use activities undertaken within the review area may be subject to regulation pursuant to the NREPA under Part 91, Soil Erosion and Sedimentation Control.

Please be aware that this wetland identification report does not constitute a determination of the jurisdiction under local ordinances or federal law. The United States Army Corps of Engineers (USACE) retains regulatory authority over certain wetlands pursuant to Section 404 of the Clean Water Act (CWA), and specifically those wetlands associated with traditionally navigable waters of the state. Navigable waters are generally the Great Lakes, their connecting waters, and river systems and lakes connected to these waters. In other areas of the state, the DEQ is responsible for identification of wetland boundaries for purposes of compliance with the CWA under an agreement with the United States Environmental Protection Agency. Your review area does not appear to be within those areas also regulated by the USACE. Additional information may be obtained by contacting the USACE at 313-226-2218.

You may request the DEQ reassess the wetland boundaries and regulatory status of wetlands within any portion of the review area, should you disagree with the findings, within 60 days of the date of this report. A written request to reassess the Wetland Identification review area must be accompanied by supporting evidence with regard to wetland vegetation, soils, or hydrology different from, or in addition to, the information relied upon by DEQ staff in preparing this report. The request should be submitted to:

Wetland Identification Program
Department of Environmental Quality
Water Resources Division
P.O. Box 30458
Lansing, Michigan 48909-7958

The findings contained in this report do not convey, provide, or otherwise imply approval of any governing act, ordinance, or regulation, nor does it waive the obligation to acquire any applicable federal, state, county, or local approvals. This Wetland Identification Report is not a permit for any activity that requires a permit from the DEQ.

Should you need to apply for a permit for future work within this site, please use the same site name listed within the subject line of this letter when you are listing the site location within the MiWaters online permit application.

Mr. Jeff Cockfield
Page 3
August 22, 2018

The findings contained in this report are binding on the DEQ until August 22, 2021, a period of three years from the date of this Wetland Identification Report unless a reassessment has been conducted. Please contact me at 517-243-5002; gyekisk@michigan.gov; or DEQ, P.O. Box 30458, Lansing, Michigan 48909-7958, if you have any questions regarding this report.

Sincerely,

A handwritten signature in black ink, reading "Keto Gyekis". The signature is fluid and cursive, with the first name "Keto" being more prominent and the last name "Gyekis" following in a similar style.

Keto Gyekis
Wetland Identification Program Coordinator
Water Resources Division

Enclosures

cc: Grand Traverse County Soil Erosion Enforcement Agent (CEA)
Grand Traverse County Health Department
Garfield Charter Township Clerk
Mr. Stu Kogge, GEI Consultants of Michigan
Mr. Brian Jankowski, DEQ
Ms. Robyn Schmidt, DEQ

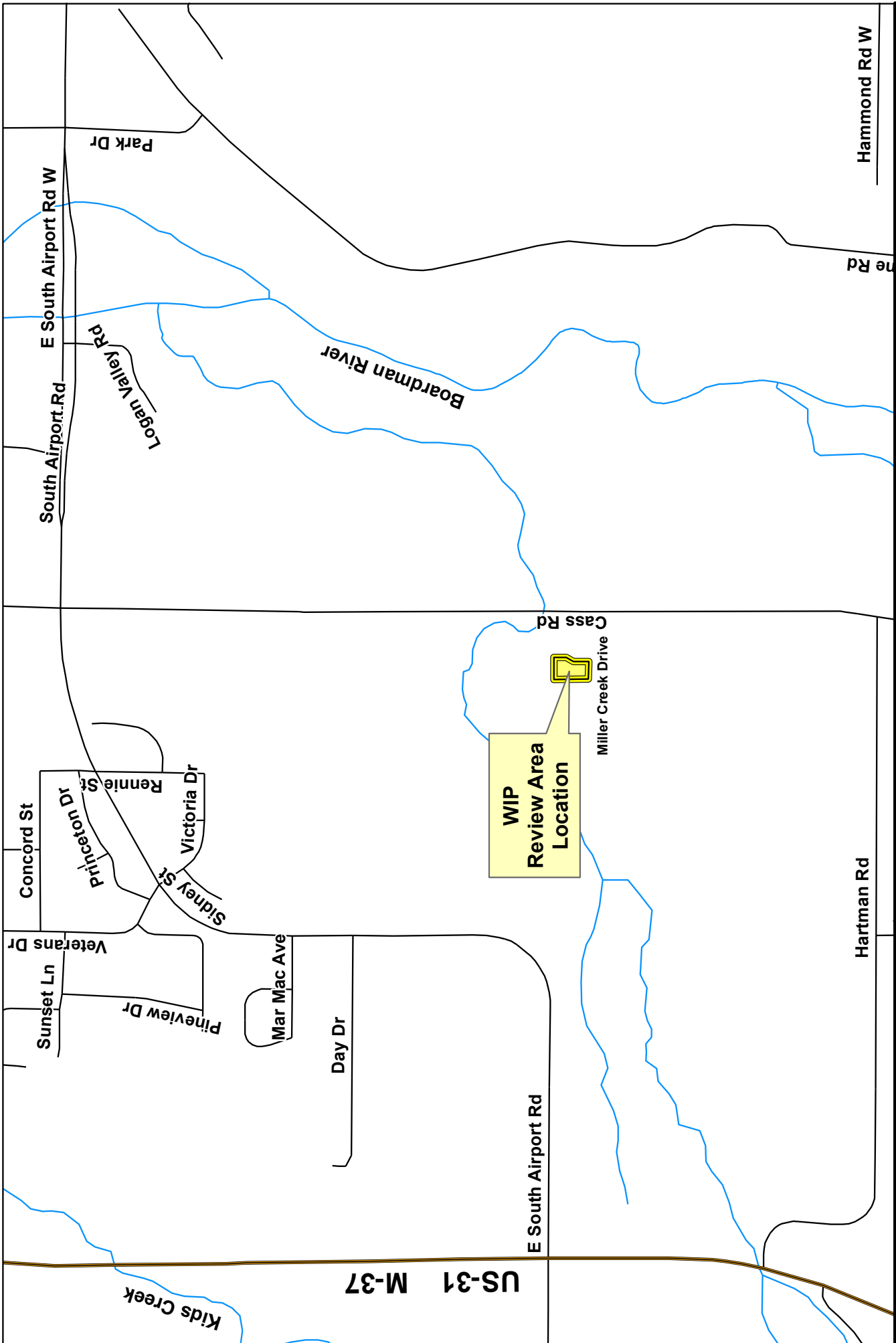


Figure 1.
DEQ Wetland Identification Location
Miller Creek Drive
Garfield Township

WIP Review Area

G. Traverse County

DEQ
STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
Map created: August 2018
K. Gyekeis,
Wetlands, Lakes,
and Streams Unit, DEQ WRD

Feet
0 250 500 1,000 1,500 2,000

