ECT

Environmental Consulting & Technology, Inc.

WETLAND DETERMINATION REPORT

for

Faucher Property
Saginaw County, Michigan

Prepared for:

Spicer Group, Inc.
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Report Date:
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EXECUTIVE SUMMARY

Environmental Consulting & Technology, Inc. (ECT) has completed a wetland investigation at the approximately 234.5-acre parcel, in part of the northeast ¼ of Section 29 and the southeast ¼ of Section 20 (T12N, R3E) in Thomas Township, Saginaw County, Michigan. The site is at the corner of highways M-46 (Gratiot Road) and M-52 (Graham Road) (Figure 1). ECT visited the site on December 2, 2009 to identify and characterize all wetland resources and assess their likely regulatory status. The wetland investigation was done in advance of a proposed renewable energy project. This information is provided for use in site planning by Spicer and its designated agents.

The vast majority of the subject site is under regular cultivation and appears to have been recently disked for winter fallow. Three wetland areas, two small linear wetlands located in drainage swales, and one large forested wetland were flagged near the west side of the property and surveyed using map-grade Global Positioning System (GPS).

ECT believes that the three wetlands are regulated by the Michigan Department of Environmental Quality (MDEQ) for the reason that they are contiguous to a tributary of Williams Creek, which is a tributary to the Saginaw River. Wetland contiguity, for regulatory purposes, means that the wetlands are either directly connected to or within 500-feet of a lake, stream, or pond.

It is unlawful to deposit or allow the placing of fill material in a wetland without a permit. It is unlawful to dredge or allow dredging of soil from a wetland without a permit. It is unlawful to drain surface water from a wetland, or construct a development in a wetland without a permit from the MDEQ. It is ECT's opinion that any proposed development involving grade-changing earthwork in the subject wetlands described in this report would require a permit from the Michigan Department of Environmental Quality (MDEQ).

Floodplain considerations were not addressed in this preliminary wetland analysis. However, if areas within the project area include floodplain, then an MDEQ permit would likely be required to fill, dredge, or build within the floodplain.

Wetlands in Michigan are regulated primarily by the MDEQ and in some cases (within 1,000-feet of the Great Lakes, Lake St. Clair, and the Detroit River), by the U.S. Army Corps of Engineers (USACE), and the Environmental Protection Agency (EPA). These agencies make independent determinations as to what is and what is not a wetland. The determination of wetland boundaries by these agencies can vary depending upon many factors including, but not limited to, the agency representative conducting the determination, wetland policy, and the time of year the site was examined. In addition, the wetland boundaries and extent on the site can change from time to time depending upon numerous factors including, but not limited to, changes in vegetation, drainage, weather patterns, and activities on adjacent parcels that may alter the pattern of the wetland on the subject property. The wetland determination herein is based on the condition of the site at the time of our investigation, our past experiences with regulatory agencies, and current policy regarding the procedures used to delineate wetlands.

ECT recommends that, if wetland impacts are proposed, the wetlands surveyed on the property be evaluated by the MDEQ through their Level 3 Wetland Identification Program, or through application for an MDEQ Wetland Use Permit.

1.0 INTRODUCTION AND METHODS

Environmental Consulting & Technology, Inc. (ECT) has conducted a wetland investigation at the approximately 234.5-acre parcel, in part of the northeast ¼ of Section 29 and the southeast ¼ of Section 20 (T12N, R3E) in Thomas Township, Saginaw County, Michigan. The site is at the northwest corner of highways M-46 (Gratiot Road) and M-52 (Graham Road) (Figure 1). ECT visited the site on December 2, 2009 to identify and characterize all wetland resources and assess their likely regulatory status. This information is provided for use in site planning by Spicer and its designated agents.

The methodology used to identify wetlands was typical of MDEQ and USACE wetland determinations, as outlined in the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* (March 2001), as amended, and USACE's *Wetlands Delineation Manual – Technical Report Y-87-1* (January 1987). No local wetland ordinances pertain to the site.

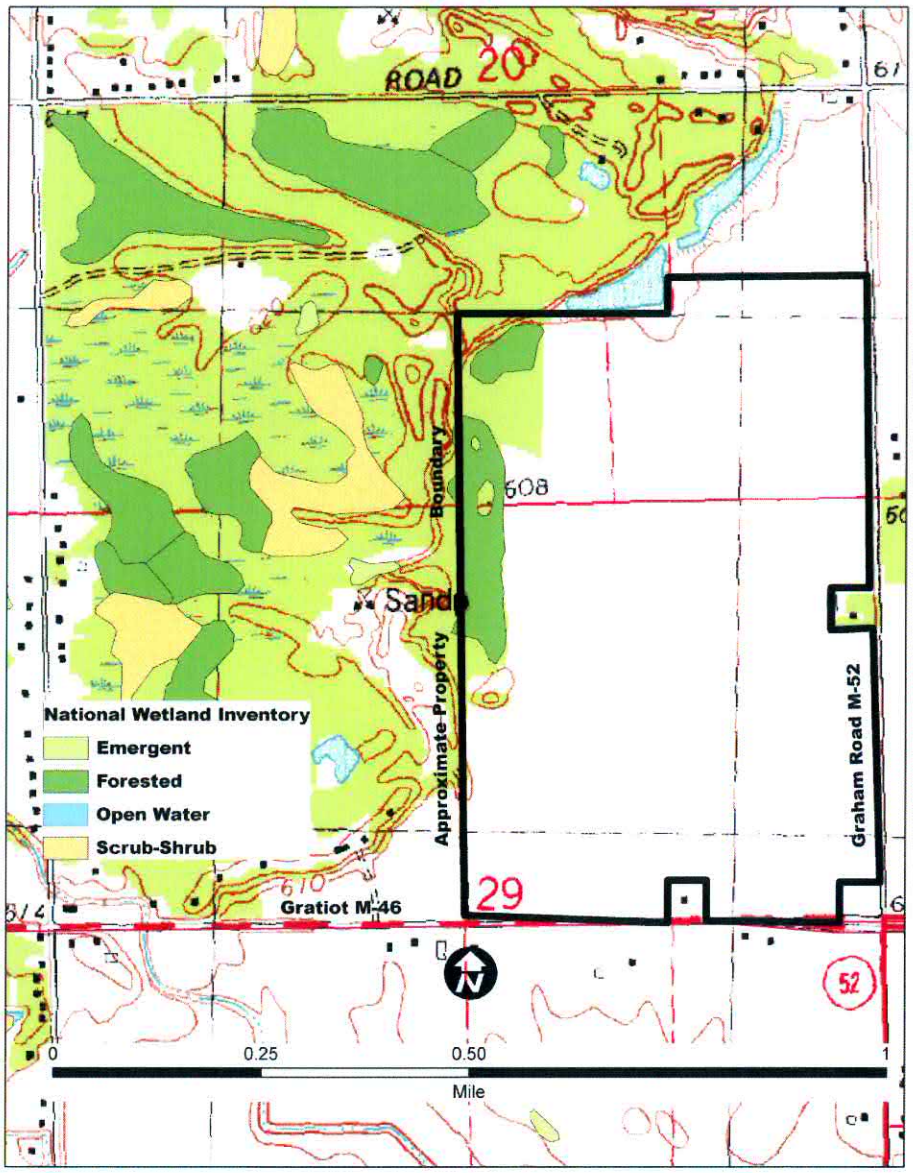
Wetlands were characterized according to three diagnostic parameters: vegetation, soils, and hydrology. Plant species associated with wetland versus upland conditions were identified and checked against either the *National List of Plant Species* (Reed, 1988) or the *Michigan Plant Database* (Penskar, et al. 2001). Soil profiles were examined by using a soil auger to dig to a depth of approximately 20 inches below the ground surface. Horizon thickness, color, texture, and presence of hydromorphic (water-formed) features were noted and compared against the *Field Indicators of Hydric Soils in the United States* (USDA-NRCS 1998 and MDEQ 2001). Primary and secondary indicators of hydrology, as described in the USACE's *Wetland Delineation Manual* (Environmental Laboratory, 1987) and *MDEQ Wetland Identification Manual* (MDEQ, 2001), were used as criteria to confirm wetland hydrology.

2.0 GENERAL COMMENTS

USGS and National Wetland Inventory Data

United States Geological Survey (USGS) topographic data for the proposed project site indicates a mainly flat ground surface cleared of forest cover (Figure 1). At the time of ECT's site visit, the site appeared to have been disked after harvesting soy beans, leaving the field in winter fallow condition. The U.S. Fish & Wildlife Service National Wetland Inventory (NWI) map indicates wetland habitat in the forested area at the west side of the parcel.

Figure 1. USGS Topographic base map with NWI data. NWI wetlands are mapped in the wooded area on the west side of the site. Site location is approximate.



NRCS Soils Data

The Natural Resources Conservation Service (NRCS) shows six major soil map units on the site (Figure 2), summarized in the table below.

Symbol	Soil Map Unit Name	Drainage Class	Hydric?
14	Pella silt loam	Poorly drained	Yes
18	Lenawee silty clay loam	Poorly drained	Yes
15B	Wixom sand 0-4 percent slopes	Somewhat poorly drained	No
31A	Pipestone sand, 0-3 percent slopes	Somewhat poorly drained	No
57B	Pella-Frankenmuth complex	Poorly drained	Yes
64A	Sanilac very fine sandy loam	Somewhat poorly drained	No

Hydric soils have characteristics associated with prolonged saturation and anaerobic conditions and are generally associated with wetlands and drained wetlands. NRCS soil maps are generalizations with approximate boundaries and not accurate enough for site-specific determinations. ECT believes the hydric soils mapped in the cultivated fields on site are effectively drained.

Figure 2. Source: NRCS *Web Soil Survey 2.0*. Site location is approximate.

3.0 RESULTS

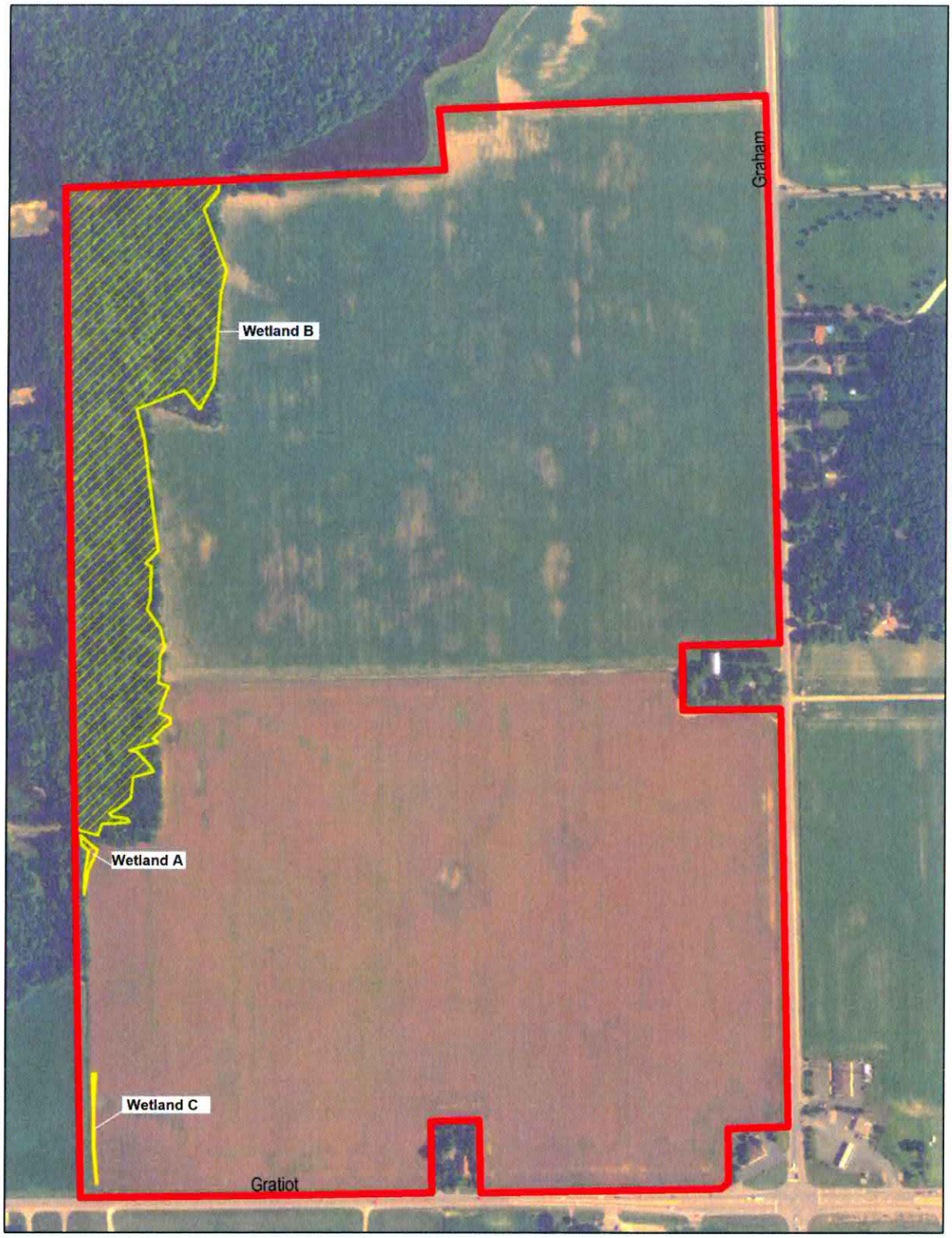
3.1 Wetland Conditions

Three wetland boundaries were flagged onsite using pink and black "wetland delineation" tape. The mapped boundaries of these wetlands are shown in a schematic sketch, Figure 3. Photos of the wetlands are found in the Appendix of this document. A brief description of each wetland along with data collected at the site regarding vegetation, soils, and hydrology is presented in Table 1, below.

Table 1. Wetland Summary Data

Wetland ID	Dominant Vegetation	Dominant Soils	Hydrology	Anticipated MDEQ Regulatory Status
A	*Reed canary grass (Phalarus arundinacae)*	**A** 0-5 inches: very dark brown (10YR 2/2) sandy loam with common prominent brown (7.5YR 5/6) concentrations. **Bg1** 5-10 inches: grayish brown (10YR 4/2) silt loam with many prominent strong brown (7.5YR 5/6) concentrations.	Saturated within 12-inches of the ground surface. .	Regulated, within 500-feet of a tributary to Williams Creek
B	Silver maple (*Acer saccharinum*), Eastern cottonwood (*Populus deltoides*), sensitive fern (*Onoclea sensibilis*), Fowl manna grass (*Glyceria striata*)	**A** 0-8 inches: very dark brown (10YR 2/2) loam with common prominent brown (7.5YR 5/6) concentrations. **Bg1** 8-15 inches: grayish brown (10YR 4/2) silt loam with many prominent strong brown (7.5YR 5/6) concentrations. **Bg2** 15-20 inches: grayish brown (10YR 5/2) silt loam with many prominent strong brown (7.5YR 5/6) concentrations.	Water stained leaves, drainage pattern, water marks.	Regulated, greater than 5-acres
C	*Reed canary grass (Phalarus arundinacae)*	**A** 0-5 inches: very dark brown (10YR 2/2) sandy loam with common prominent brown (7.5YR 5/6) concentrations. **Bg1** 5-10 inches: grayish brown (10YR 4/2) silt loam with many prominent strong brown (7.5YR 5/6) concentrations. **Bg2** 10-20 inches: grayish brown (10YR 5/2) silt loam with many prominent strong brown (7.5YR 5/6) concentrations.	Saturated within 12-inches of the ground surface. .	Regulated within 500-feet of a tributary to Williams Creek.

Figure 3. GPS-surveyed wetland boundary (yellow) at the study site. Not to scale, north at the top of the page.



3.2 Upland Conditions

Upland areas at the site appeared to be dominated by recently disked soybeans and or corn. Areas not disked contained tall goldenrod (*Solidago altissima*), Queen Anne's lace (*Daucus carota*), black cherry (*Prunus serotina*), raspberry (*Rubus spp.*), and burdock (*Arctium minus*). Soils in the cultivated portions of the study site had lighter topsoil and were browner with fewer redoximorphic concentrations. The upland areas also lacked saturation and were found on flat or slightly convex, better drained surfaces (Photo 3.2.1).

Photo 3.2.1. Upland plowed soybean field, facing northeast from near Gratiot Road toward Graham Road.

4.0 CONCLUSIONS & REGULATORY STATUS

Based on the criteria outlined in Part 303, Wetland Protection, of the Natural Resources and Environmental Protection Act of 1994 (1994 P.A. 451, as amended), All wetlands flagged in the field by ECT and identified in this report are believed to be MDEQ regulated due to their being connected to or within 500-feet of Williams Creek, a tributary to the Saginaw River. Wetland functions and values offered by the wetlands on this property are primarily limited stormwater storage and erosion and sediment control.

If wetland impacts are proposed, ECT recommends that the wetlands on the property be evaluated by the MDEQ through the process of a Wetland Use Permit application, or through their Level 3 Wetland Identification Program.

It is unlawful to deposit or allow the placing of fill material in a wetland without a permit. It is unlawful to dredge or allow dredging of soil from a wetland without a permit. Likewise it is unlawful to fill or allow placement of fill in a regulated wetland without a permit. It is unlawful to drain surface water from a wetland, or construct a development in a wetland without a permit from the MDEQ. It is ECT's opinion that any proposed development in the subject wetlands described in this report would require a permit from the MDEQ.

Floodplain considerations were not addressed in this preliminary wetland analysis. However, if areas within the project area include floodplain, then an MDEQ permit would likely be required.

Survey for threatened and endangered species (T&E) was not part of this investigation

The regulation of wetlands in Thomas Township in Saginaw County is under the jurisdiction of the EPA, the USACE, and the MDEQ. ECT believes that the MDEQ has primary jurisdiction over the wetlands on the subject property. These agencies make independent determinations as to what is and is not a wetland. The determination of a wetland boundary by these agencies can vary depending upon many factors including, but not limited to, the agency representative conducting the determination, wetland policy, and the time of year the site was examined. In addition, the wetland boundaries and extent on the site can change from time to time depending upon numerous factors including, but not limited to, changes in vegetation, drainage, weather patterns, and activities on adjacent parcels that may alter the pattern of the wetland on the subject property. The wetland determination is based on the condition of the site at the time of our investigation, our past experiences with regulatory agencies, and current policy regarding the procedures used to delineate wetlands.

Respectfully,

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APPENDIX

Photo 1. Wetland A facing north.

Photo 2. Wetland B facing west.

Photo 3. Wetland C (drain) facing north.