ENVIRONMENTAL ASSESSMENT
FOR CDBG-FUNDED PROJECTS

Recommended format per 24 CFR 58.36, revised January 2014
[Previously recommended EA formats are obsolete].

Project Identification: **LG Energy Solution Expansion**

Preparer: **Environmental Consulting Solutions (ECS)523 W. Sunnybrook Drive, Royal Oak, MI Attn: Andrew J. Foerg 248-763-3639 AFoerg@environmentalconsultingsolutions.com**

Responsible Entity: **Allegan County**

Month/Year: **February 2022**

ENVIRONMENTAL ASSESSMENT

Responsible Entity [24 CFR 58.2(a)(7)]	**Allegan County**
Certifying Officer [24 CFR 58.2(a)(2)]	**Robert Sarro, County Administrator**
Project Name	**LG Energy Solution Expansion**
Project Location	**875 and 901 E. 48th Street, Holland, MI**
Estimated total project cost	**$ 1,709,500,000**
Grant Recipient [24 CFR 58.2(a)(5)]	**Allegan County Attn: Jim Storey**
Recipient Address	**3283 122nd Avenue, Holland, MI 49010**
Project Representative	**Mr. Dan Wedge**
Telephone Number	**269-686-4529**

Conditions for Approval: (List all mitigation measures adopted by the responsible entity to eliminate or minimize adverse environmental impacts. These conditions must be included in project contracts and other relevant documents as requirements). [24 CFR 58.40(d), 40 CFR 1505.2(c)]

Historic Properties

An application for Section 106 Review will be completed and submitted for review pending receipt of the requested information from SHPO. A previous review of the proposed expansion (dated January 28, 2021 prepared on behalf of the Department of Energy) indicated that the Project "will have no adverse effect". It is anticipated the SHPO response to our request for review, once submitted, will be consistent with the no adverse effect finding.

Contamination/Toxic Sites

The following items were identified in the Phase I ESA that warrant further discussion.

- A release of acetone was noted in the EDR Radius Map Report circa 2011. The SPILLS listing identified a pipe from inside the building to the outside, with a spot visible on the concrete where some acetone spilled out. No additional details were provided with respect to the extent of impact, if any.
- According to the EDR Radius Map Report, there was a fire in the activated carbon scrubber tower. The fire department came out and flushed it out and the water and carbon went into the drains that are connected to the retention ponds. The spill occurred in June 2012. No additional details were provided with respect to extent of impact, if any.

Additional discussion is warranted to further address the extent of impact, if any, from the two SPILLS listings.

FINDING: [58.40(g)]

☒ **Finding of No Significant Impact**
(The project will not result in a significant impact on the quality of the human environment.)

☐ **Finding of Significant Impact**
(The project may significantly affect the quality of the human environment.)

PREPARER SIGNATURE 	2/28/2022
Andrew J. Foerg, Owner, Environmental Consulting Solutions, Inc.	Date

RE APPROVING OFFICIAL SIGNATURE 	3/3/2022
Mr. Robert Sarro, County Administrator	Date

Statement of Purpose and Need for the Proposal:
[40 CFR 1508.9(b)]

The Project meets a National Objective: LMI Job Creation; benefits persons of low and moderate income. LG Energy Solution Michigan, Inc. currently owns and operates a lithium-ion battery manufacturing facility in Holland, Michigan.

This project benefits the community and furthers Holland and Allegan County community goals by:

- Creating well-paying jobs with good benefits that will directly benefit the City, the County, and the surrounding communities;
- Through LG Energy Solution targeting of local suppliers, contractors and professional service providers for the project, it will result in community economic growth and additional indirect job creation; and
- Encouraging LG Energy Solution's future growth and expansion to take place within the Holland, Allegan County, community and State of Michigan.

Description of the Proposal: Include all contemplated actions, which logically are either geographically, or functionally a composite part of the project, regardless of the source of funding. [24 CFR 58.32, 40 CFR 1508.25]

Project name: LG Energy Solution Expansion

Project type: CDGB Funds – LMI Job Creation

Project description:

With this Project, LG Energy Solution plans to expand its manufacturing operations thorough the construction of several buildings in aggregate sum of 1.4 million square feet in a vacant land owned by LG Energy Solution Michigan, which has the purpose of manufacturing lithium-ion battery components for electric vehicles.

The new buildings & related infrastructure will be dedicated to the production of lithium ion batteries for use in the automotive industry. This expansion will quintuple LG Energy Solution's plant capacity to provide the means to produce battery components now and into the future as the electric vehicle industry grows. The new expansion will provide the means to produce battery components to meet future industry & customer demands.

LG Energy Solution Michigan will be able to increase the volume, and in turn their customers such as GM, Stellantis, and Ford will be able to fulfill consumer market demands of EVs. This project will also bring 1,200 jobs to the local communities, which will induce and benefit the economic growth of localities and the State of Michigan.

Construction of all buildings & infrastructure to expand its foothold by 1.4 million sq. ft. Expansion will include all "state of the art" manufacturing equipment for production of lithium-ion batteries that will increase capacity of current production.

Existing Conditions and Trends: Describe the existing conditions of the project area and its surroundings, and trends likely to continue in the absence of the project. [24 CFR 58.40(a)]

Without CDGG funds (or other incentives available to the project) expansion of the LG Energy Solution facility in Michigan may not be economically feasible and LG Energy would have to consider moving these facilities to an out of state location. The result for the City of Holland and Allegan County and the surrounding community would have been a loss of well-paying jobs and the indirect economic growth (jobs created for suppliers and contractors hired to work on the project, additional consumer spending in the community, etc.) that is anticipated to arise from this project. With the use of CDBG funds to defray expenditures for machinery and equipment for this project, LG Energy will be able to shift funds to support the expansion as well as invest in programs to attract and retain talent in the current highly competitive job market.

ENVIRONMENTAL ASSESSMENT CHECKLIST

[Environmental Review Guide HUD CPD 782, 24 CFR 58.40; Ref. 40 CFR 1508.8 &1508.27]

Evaluate the significance of the effects of the proposal on the character, features and resources of the project area. Enter relevant base data and verifiable source documentation to support the finding. Then enter the appropriate impact code from the following list to make a determination of impact.

Impact Codes:
1) - No impact anticipated
2) - Potentially beneficial
3) - Potentially adverse
4) - Requires mitigation
5) - Requires project modification.

Note names, dates of contact, telephone numbers and page references.
Attach additional material as appropriate.
Note conditions or mitigation measures required.

LAND DEVELOPMENT	CODE	SOURCE OR DOCUMENTATION
Conformance with Comprehensive Plans and Zoning	1	The Project conforms with planning efforts being put forth in Holland, Allegan County, Michigan. The Project is not known to be in conflict with any land use policy, plan or zoning regulation. The Project has gone through the site plan approval process with the City of Holland. Site use is consistent with current zoning codes. Attachment 2.
Compatibility and Urban Impact	1	The architectural firm completed the design and planning of the Project, paying attention to the City's standard of design and neighborhood features. Attachments 1 and 2.
Slope	1	No sloping issues will be caused by the Project. Refer to Attachment 2.
Erosion	1	Erosion will not be an issue during development. The general contractor will comply with state and county soil erosion regulations and manage erosive soils during construction.
Soil Suitability	1	The Project is suitable for development. The area has supported industrial development. According to EGLE online resources the geology consists of fine-textured glacial till. A geotechnical study dated January 2010 identified soil conditions consisted primarily of clayey soils with varying amounts of sand and gravel. Attachment 3 Phase I ESA Sections 5.2 and 7.3.
Hazards and Nuisances including Site Safety	1	The site is not in an area which is expected to be influenced by natural hazards. Potential man-made site hazards are associated with construction activities. Attachment 3 Phase I ESA Appendix A photographs.
Energy Consumption	1	Energy consumption will be consistent with industrial use in the surrounding area. Holland BPW and Semco are the providers of electricity and natural gas at the site. (Hct.holland.mi.us)
Noise Contribution to Community Noise Levels	1	Temporary construction phase noise will be managed by standard procedures. The Site is not located in a noise sensitive area. Attachment 3 Phase I ESA Appendix A photographs.
Air Quality Effects of Ambient Air Quality on Project and Contribution to Community Pollution Levels	1	The Project is located in Allegan County, and is in attainment status for all criteria pollutants except Ozone. The Project temporary construction and final build is not anticipated to negatively affect community pollution levels. Based on the estimated emissions levels of the project for criteria pollutants (as summarized in client provided documentation), the project will not exceed de minimis or threshold emissions levels or screening levels. Refer to Attachment 4.

Environmental Design Visual Quality - Coherence, Diversity, Compatible Use and Scale	1	The architectural firm completed the design and planning of the Project paying attention to coherence and compatibility with the existing plant features. Attachment 2 Site Plans.

SOCIOECONOMIC	CODE	SOURCE OR DOCUMENTATION
Demographic Character Changes	1	No reduction or significant alternation of racial, ethnic or income attributes will occur.
Displacement	1	The project will not introduce barriers that would isolate a particular neighborhood or population group, nor will it destroy or harm any community institution. Displacement will not occur as a result of the project.
Employment and Income Patterns	2	The Project is expected to create temporary construction jobs as well as future employment opportunities.

COMMUNITY FACILITIES AND SERVICES	CODE	SOURCE OR DOCUMENTATION
Educational Facilities	1	Several educational options are located through City of Holland. Private and charter school options are available throughout the area. The proposed project will not negatively impact local educational facilities; plant expansion would not tax existing capacities. (Google maps)
Commercial Facilities	2	The project site is located near several main corridors containing restaurants, automotive service shops, professional services, and pharmacies. The proposed project will not negatively impact local commercial facilities; development would not tax existing capacities and would provide additional customers to benefit local business. (Google maps)
Health Care	1	There are numerous health care facilities in the area—including the Holland Hospital Lakeshore Medical Campus approximately 3.5 miles from the site, offering hospital and physician services. These facilities provide access to physicians, emergency services, and/or specialized medical clinics. Several public health services are located within 5 milesof the site, including the Holland Community Health Center, Ottawa County Department of Health and Human Services, Ottawa County Suicide Prevention, Ottawa County Communicable Disease Department. (Google Maps).
Social Services	1	Churches, community centers, senior services, and daycare centers are located within three (3) miles of the project. The Project will not negatively impact social services or unduly tax existing capacities. (Google Maps).
Solid Waste	1	During construction, contracted disposal containers will be used for trash collection which will be emptied/removed by a contracted collection service. Following construction, contracted disposal containers will be used for trash collection which will be emptied/ removed by a contracted collection service. The Project will comply with local, state and federal solid waste disposal requirements. The facility is a large quantity generator of hazardous waste. The Project expansion would not change the generator status. The facility has a hazardous waste contingency plan that covers the various hazardous waste streams including storage, labeling and inspections. This plan would be expanded to address the proposed expansion.

Waste Water	1	Holland provides waste water sanitary sewer services to the site. Waste water generated by the plant is directed to the WWTP for processing. The proposed expansion use will not negatively impact the municipal facilities; development would not tax existing capacities. (Hct.holland.mi.us)
Storm Water	1	The Project is not in a floodplain (see page 7). Stormwater is directed to an onsite water retention system. The Project will expand the existing stormwater retention system to accommodate the proposed development. Attachments 2 and 5.
Water Supply	1	The water supply is provided and maintained by City of Holland. According to the 2020 Water Quality Report, drinking water meets all state and federal guidelines for safe drinking water. Attachment 6.
Public Safety – Police	1	The Holland Township Police Department provides Police services to the area, located at 89 W 8th Street, approximately 4.3 miles to the north. (Google Maps)
Public Safety – Fire	1	The Holland Township Fire Department provides Fire services to the area. The Holland Fire Department situated at 761 S. Waverly Road is situated approximately 1.5 miles to the north. (Google Maps)
Public Safety – Emergency Medical	1	Holland Township provides full Emergency Medical services to the area. Ambulance services are provided by 911 assistance. There are several hospitals and emergency facilities located within 5 miles of the development. (Google Maps).
Open Space and Recreation - Open Space	1	The proposed Project is located within five miles of open space areas including Van Raalte Farm Park, Smallenburg Park and Prospect Park. The proposed expansion will not negatively impact community open space. (Google Maps).
- Recreation	1	Recreation centers are located within three (3) miles of the Project including the Holland Township Recreation Center and Matt Urban Recreation Complex. The Project will not negatively impact recreation areas. (Google Maps)
- Cultural Facilities	1	Cultural facilities are located within 5 miles of the Project. The Holland Area Arts Council and DeWitt Center provide local cultural opportunity. The Project will not negatively impact cultural facilities. (Google Maps)
Transportation	1	The project is located in a moderately developed urban industrial area. The proposed Project will only minimally increase the traffic in the area. Transportation in thearea consists primarily of private vehicle transportation as well as sidewalks. (Google Maps)

NATURAL FEATURES	CODE	SOURCE OR DOCUMENTATION
Water Resources	1	The project will not deplete groundwater supplies or interfere with groundwater recharge and will not result in alteration of the course of a stream or river in a manner that could potentially result in substantial erosion or siltation on or off-site or result in downstream flooding. There are no sole source aquifers located at the subject site. Attachment 7.
Surface Water	1	There is a storm water detention pond system currently located on the existing industrial property. The proposed expansion will make necessary changes to ensure proper stormwater management. There are no natural surface waters on site. The North Branch of the Macatawa River adjoins the Property to the east. Attachment 1, figures and plans.

Unique Natural Features and Agricultural Lands	1	The Project does occur on prime farmland, prime farmland if drained and farmland of local importance. The Site was purchased in 2010 and partially developed for industrial land use in 2011. The project is not subject to the Farmland Protection Policy Act (FPPA) . The Act does not apply to projects on land already in or committed to urban development. A formal wetland and waterbody delineation of the east parcel is recommended in coordination with EGLE. Attachments 8 and 9.
Vegetation and Wildlife	1	Based on a review of US Fisheries and Wildlife Services information, endangered species and threatened species were identified in Allegan County; however no critical habitat was identified on the Site. The Project will have no effect on vegetation and wildlife. Attachment 10.

OTHER FACTORS	**CODE**	**SOURCE OR DOCUMENTATION**
Flood Disaster Protection Act [Flood Insurance] [§58.6(a)]	1	According to the Federal Emergency Management Association (FEMA) a study to determine flood hazard for the subject property location has not been completed. A flood map has not been published at this time. ECS evaluated the USDA online resources and confirmed the Flooding Frequency Class was identified as "none" . Refer to Attachment 5 FEMA Flood Map Service Center, Panel 26139C0315E and USDA Flood Frequency documentation.
Airport Runway Clear Zone or Clear Zone Disclosure [§58.6(d)]	1	The Project is not located in a Runway Protection Zone/Clear Zone. The Project is not located within 15,000 feet of a military airport or 2,500 feet of a civilian airport. Refer to Attachment 11.
Coastal Barrier Resources Act/Coastal Barrier Improvement Act [§58.6(c)]	1	The Project is not located in a Coastal Barrier Resources System. Attachment 12.
Other Factors		
Contamination/Toxic Sites	4	A Phase I ESA dated February 25, 2022 was conducted at the Site. Refer to Attachment 3. The assessment revealed no evidence of RECs in connection with the subject property, with the exception of the following: • The subject property is a "facility" with a BEA report prepared and submitted in 2010 at the time of purchase. Arsenic in one soil sample and bis(2-ethylhexyl)phthalate in one groundwater sample above Residential Cleanup Criteria. The following items were also identified that warrant further discussion. • A release of acetone was noted in the EDR Radius Map Report circa 2011. The SPILLS listing identified a pipe from inside the building to the outside, with a spot visible on the concrete where some acetone spilled out. No additional details were provided with respect to the extent of impact, if any. • According to the EDR Radius Map Report, there was a fire in the activated carbon scrubber tower. The fire department came out and flushed it out and the water and carbon went into the drains that are connected to the retention ponds. The spill occurred in June 2012. No additional details were provided with respect to extent of impact, if any. Recommendations: No further assessment appears warranted with respect the "facility" listing. Previous Phase II ESA activities were conducted at the time of property purchase in 2010. The Arsenic and bis(2-ethylhexyl)phthalate

		detected do not present unacceptable human exposures for current or proposed site use. Additional discussion is warranted to further address the extent of impact, if any, from the two SPILLS listings. The Site is industrial (no human habitation). Lead based paint and Radon are not potential hazards at the Site.

Attachments

Attachment 1 Figures and Plans
Attachment 2 Zoning Map, Site Plan Approval (selected portions)
Attachment 3 Phase I ESA (Selected Portions)
Attachment 4 Air Quality
Attachment 5 Floodplain Documentation
Attachment 6 Water Quality
Attachment 7 Sole Source Aquifer
Attachment 8 Farmland Protection
Attachment 9 Wetlands
Attachment 10 Endangered Species
Attachment 11 Airports
Attachment 12 Coastal Barrier Resources

SUMMARY OF FINDINGS AND CONCLUSIONS

ALTERNATIVES TO THE PROPOSED ACTION

Alternatives and Project Modifications Considered [24 CFR 58.40(e), Ref. 40 CFR 1508.9] (Identify other reasonable courses of action that were considered and not selected, such as other sites, design modifications, or other uses of the subject site. Describe the benefits and adverse impacts to the human environment of each alternative and the reasons for rejecting it.)

Variations in site development specifics have been proposed to accommodate demands. The Project is related to funding opportunity to increase job creation. Consideration of alternatives is limited to technically acceptable applications and a no-action alternative.

No Action Alternative [24 CFR 58.40(e)]
(Discuss the benefits and adverse impacts to the human environment of not implementing the preferred alternative).

Without CDGG funds (or other incentives available to the project) expansion of the LG Energy Solution facility in Michigan may not be economically feasible and LG Energy would have to consider moving these facilities to an out of state location. The result for the City of Holland and Allegan County and the surrounding community would have been a loss of well-paying jobs and the indirect economic growth (jobs created for suppliers and contractors hired to work on the project, additional consumer spending in the community, etc.) that is anticipated to arise from this project. With the use of CDBG funds to defray expenditures for machinery and equipment for this project, LG Energy will be able to shift funds to support the expansion as well as invest in programs to attract and retain talent in the current highly competitive job market.

MITIGATION MEASURES RECOMMENDED [24 CFR 58.40(d), 40 CFR 1508.20]

(Recommend feasible ways in which the proposal or its external factors should be modified in order to minimize adverse environmental impacts and restore or enhance environmental quality.)

Historic Properties

An application for Section 106 Review will be completed and submitted for review pending receipt of the requested information from SHPO. A previous review of the proposed expansion (dated January 28, 2021 prepared on behalf of the Department of Energy) indicated that the Project "will have no adverse effect". It is anticipated the SHPO response to our request for review, once submitted, will be consistent with the no adverse effect finding.

Contamination/Toxic Sites

The following items were identified in the Phase I ESA that warrant further discussion.

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Additional discussion is warranted to further address the extent of impact, if any, from the two SPILLS listings.

ADDITIONAL STUDIES PERFORMED
(Attach studies or summaries)

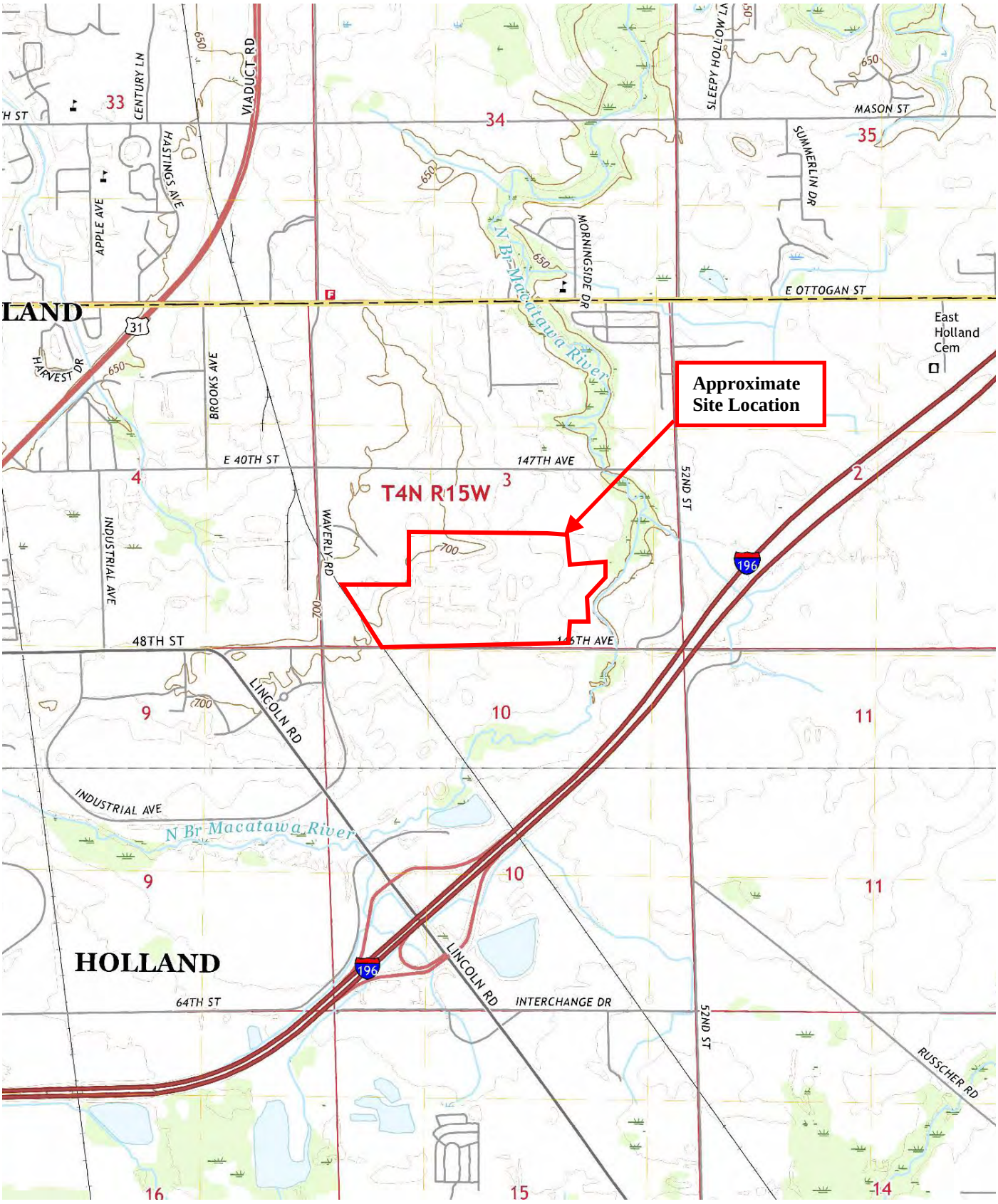
Phase I ESA dated February 26, 2022, completed by ECS.
Statutory Checklist (MEDC form 05-f) dated February 2022

LIST OF SOURCES, AGENCIES AND PERSONS CONSULTED
[40 CFR 1508.9(b)]

Michigan Economic Development Corporation
HUD Exchange
State Historic Preservation Office Correspondence
Federal Emergency Management Agency (FEMA)
Michigan Department of Environment, Great Lakes and Energy (EGLE)
Michigan Department of Natural Resources
National Wetlands Inventory (NWI)
United States Fisheries and Wildlife (USFWS)
United States Environmental Protection Agency Water Management Division, Region V
Client Provided Documentation
Holland
Allegan County
Google Maps

Attachment 1

Figures and Plans



ecs environmental consulting solutions

Figure 1: Site Location Map

LG Energy Solutions Expansion

875 and 901 E. 48th Street, Holland, MI

ECS Project A118-0001

Source: Holland East, 2019 USGS Map

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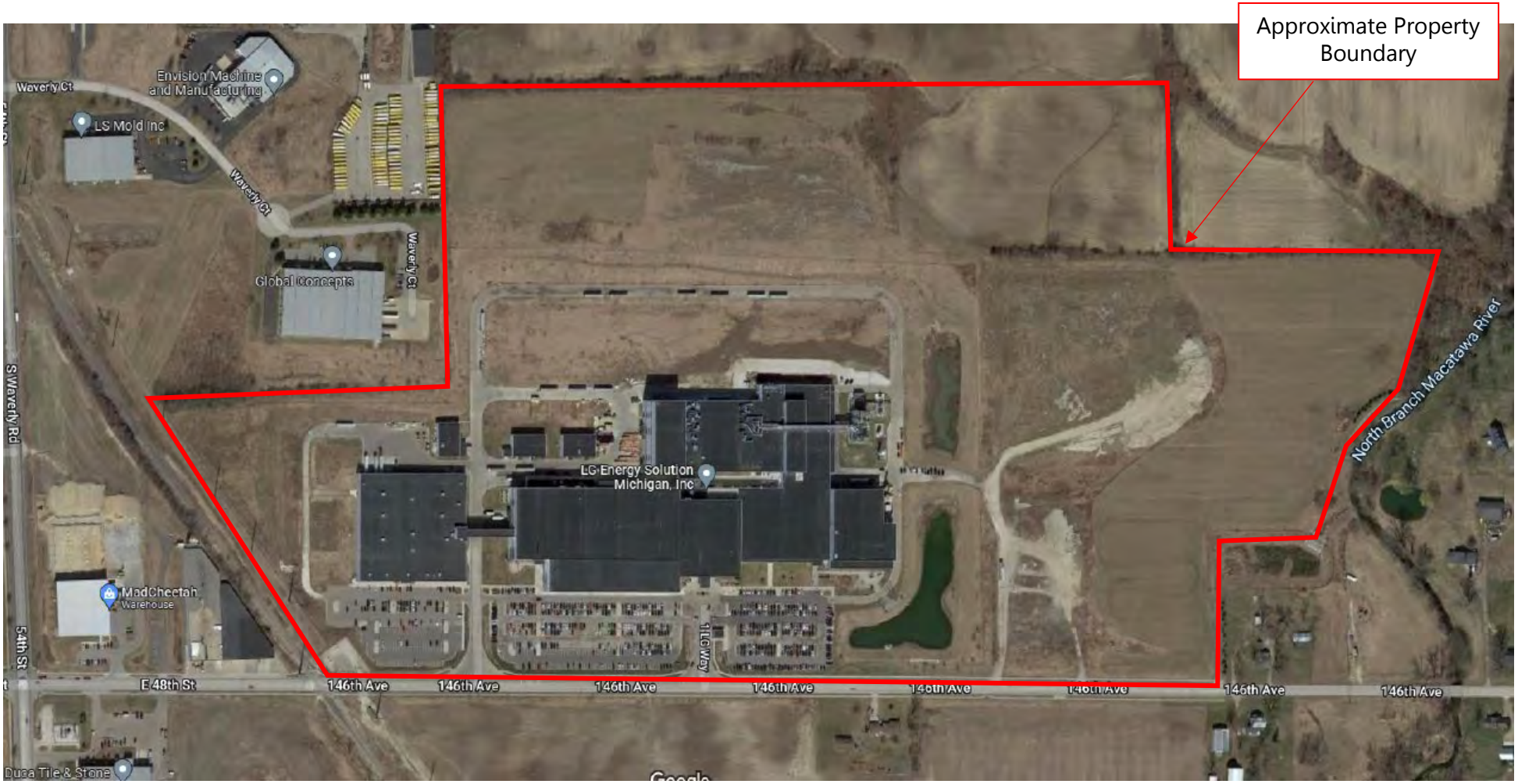
NTS



Legend

Approximate Property Boundary

ecs environmental consulting solutions

Figure 2: Aerial Site Map
LG Energy Solutions Expansion
875 and 901 E. 48th Street, Holland, MI
ECS Project A118-0001
Source: Allegan County GIS Maps

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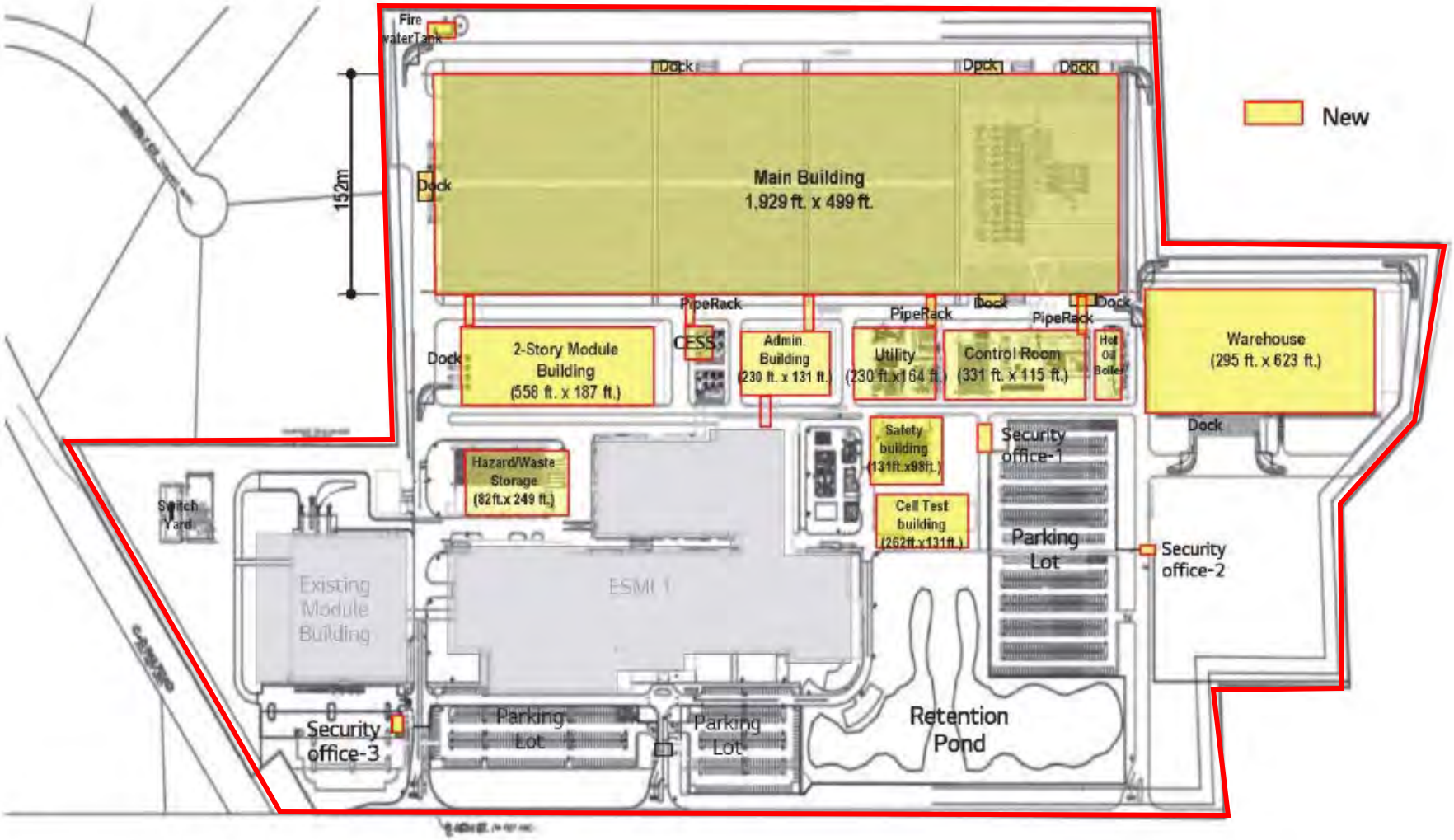

Legend

Approximate Property Boundary

ecs environmental consulting solutions

Figure 3: Proposed Site Plans
LG Energy Solutions Expansion
875 and 901 E. 48th Street, Holland, MI
ECS Project A118-0001
Source: Allegan County Contract #1375-22

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1. PROPERTY ADDRESS: 859 E 48TH STREET, HOLLAND, MICHIGAN 49423.

2. LOT NUMBER:
TAX ID#: 03-02-03-300-015
AREA = 120.10 ACRES (5,231,355 SFT)

3A. OWNER: LG ENERGY SOLUTIONS
1 Lg Way
Holland MI, 49423

3B. SITE PLAN PREPARED BY: GHAFARI ASSOCIATES, LLC
17101 MICHIGAN AVE.
DEARBORN, MI 48126
(313) 441-3000

4. ZONING CLASSIFICATION:
I-2, INDUSTRIAL PARK (CITY OF HOLLAND)

5. SETBACKS AND BUILDING HEIGHT: (SECTION 39-38 OF CITY OF HOLLAND MUNICIPAL ORDINANCE)

REQUIRED FRONT YARD SETBACK - 25'.
FRONT YARD SETBACK PROVIDED - SEE PLAN.
REQUIRED SIDE YARD SETBACK - 30'.
SIDE YARD SETBACK PROVIDED - SEE PLAN.
REQUIRED REAR YARD SETBACK - 24'.
REAR YARD SETBACK PROVIDED - SEE PLAN.
MAXIMUM BUILDING HEIGHT -

5. PARKING SPACES: (SECTION 39-48 OF CITY OF HOLLAND MUNICIPAL ORDINANCE)

5A. PARKING CAPACITY BASED ON NUMBER OF EMPLOYEES

BUILDING	EMPLOYEE COUNT	REMARKS
ESMI 1	1274	
ESMI 2	732	Headcounts delivered in email in Aug 2021
TOTAL	2006	
REQUIRED SPACES PER EMPLOYE	0.5	SECTION 39-48 OF ORDINANCE
TOTAL REQUIRED SPACES	1003	

5B. PARKING CAPACITY PROPOSED: (SEE TABLE FOR DETAILS)

PARKING LOT	PARKING SPACES INSIDE SECURITY FENCE		PARKING SPACES OUTSIDE SECURITY FENCE		TOTAL
	NON-ACCESSIBLE	ACCESSIBLE	NON-ACCESSIBLE	ACCESSIBLE	
A	58	12	168	0	238
B	59	4	302	5	370
C	41	7	166	0	214
D	0	0	629	13	642
TOTAL	158	23	1,265	18	1,464

*NOTE: ACCESSIBLE PARKING REQUIREMENTS ARE BASED ON TABLE 208.2 OF ADA STANDARDS FOR ACCESSIBLE DESIGN (2010)

6. USE STATEMENT: THE PROPOSED FACILITY IS FOR THE PURPOSE OF MANUFACTURING AND ASSEMBLY OF BATTERIES FOR AUTOMOTIVE VEHICLES.

7. PROJECT DESCRIPTION: CONSTRUCTION OF A TOTAL OF APPROXIMATELY 1,315,850 SQ. FT OF FACILITIES FOR THE MANUFACTURE OF BATTERIES. TO SUPPORT NEW PROPOSED FACILITY, PLANT EXPANSION WILL INCLUDE, EXPANDED UTILITIES, SITE ROADS, GRADING AND STORM WATER DRAINAGE.

8. TOTAL SITE ACREAGE: 120.10 ACRES (5,231,355 sft)
TOTAL BUILDINGS (EXISTING AND PROPOSED) = 39.89 ACRES (33.2%)
TOTAL PAVEMENT (EXISTING AND PROPOSED) = 27.15 ACRES (22.6%)
ALLOWED BUILDING COVERAGE SHALL NOT EXCEED 60% OF THE GROSS AREA OF THE PARCEL IN WHICH THE BUILDING IS SITUATED (SECTION 39-85 OF THE CITY OF HOLLAND ORDINANCE).

SOILS INFORMATION:
ACCORDING TO NATURAL RESOURCES CONSERVATION SERVICE (NRCS) WEB SOIL SURVEY DATED MAY 21, 2020, THE SITE IS COMPOSED PRIMARILY OF THE FOLLOWING SOIL TYPES:
- BLOUNT SILT LOAM, 1 TO 4% SLOPES (APPROX. 57% OF SITE).
- CORUNNA SANDY LOAM (APPROX. 23% OF SITE).
- RIMER LOAMY SAND, 0 TO 4% SLOPES (APPROX 19% OF THE SITE).

LEGAL DESCRIPTION:

DESCRIPTION OF A 69.16 ACRE PARCEL
IN THE SW 1/4 OF SECTION 3,
T4N, R15W, CITY OF HOLLAND,
ALLEGAN COUNTY, MICHIGAN
(CONTAINS PARCELS I & II)

COMMENCING AT THE SOUTHWEST CORNER OF SECTION 3, T4N, R15W, CITY OF HOLLAND, ALLEGAN COUNTY, MICHIGAN; THENCE S88°56'10"E 1072.26 FEET ALONG THE SOUTH LINE OF SAID SECTION 3 AND THE CENTERLINE OF 48TH STREET (66 FEET WIDE) FOR A PLACE OF BEGINNING; THENCE N34°42'55"W 176.72 FEET; THENCE S55°17'05"W 100.00 FEET; THENCE N34°42'55"W 659.38 FEET ALONG THE EASTERLY RIGHT-OF-WAY LINE OF C&O RAILROAD (100 FEET WIDE) AS SHOWN ON VAL MAP NUMBER V22593, REVISED MAY 2, 1972; THENCE CONTINUING ALONG THE EASTERLY RIGHT-OF-WAY LINE OF SAID C&O RAILROAD 275.68 FEET ALONG THE ARC OF THE A 5679.58 FOOT RADIUS CIRCULAR CURVE TO THE RIGHT, WITH A CENTRAL ANGLE OF 02°46'52", HAVING A CHORD WHICH BEARS N33°19'29"W 275.65 FEET; THENCE S88°44'02"E 952.56 FEET ALONG THE SOUTH LINE OF "SOUTH WAVERLY INDUSTRIAL PLAT" AS RECORDED IN LIBER 14 OF PLATS, PAGES 39 AND 40, ALLEGAN COUNTY RECORDS; THENCE N01°25'41"W 1000.31 FEET ALONG THE EAST LINE OF THE WEST 1/2 OF THE SOUTHWEST 1/4 OF SAID SECTION 3 AS SHOWN ON SAID "SOUTH WAVERLY INDUSTRIAL PLAT"; THENCE S88°50'06"E 1333.07 FEET ALONG THE NORTH LINE OF THE SOUTH 16 ACRES OF THE NORTHEAST 1/4 OF THE SOUTHWEST 1/4 OF SAID SECTION 3; THENCE S01°31'05"E 1842.84 FEET ALONG THE NORTH-SOUTH 1/4 LINE OF SAID SECTION 3 TO THE SOUTH 1/4 CORNER OF SAID SECTION 3; THENCE N88°56'10"W 1599.50 FEET ALONG THE SOUTH LINE OF SAID SECTION 3 AND THE CENTERLINE OF SAID 48TH STREET TO THE PLACE OF BEGINNING, BEING A PART OF THE SOUTHWEST 1/4 OF SAID SECTION 3, CONTAINING 69.16 ACRES OF LAND, MORE OR LESS. SUBJECT TO THE RIGHTS OF THE PUBLIC OVER THE SOUTHERLY 33 FEET THEREOF AS OCCUPIED BY SAID 48TH STREET AND SUBJECT TO EASEMENTS, CONDITIONS, RESTRICTIONS AND EXCEPTIONS OF RECORD, IF ANY.

LEGAL DESCRIPTION (PARCEL III) AS PROVIDED BY OTHERS:

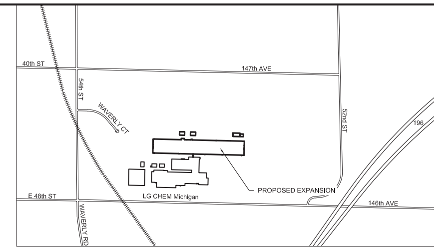
DESCRIPTION OF A 7.22 ACRE PARCEL
IN THE SE 1/4 OF SECTION 3,
T4N, R15W, FILLMORE TOWNSHIP,
ALLEGAN COUNTY, MICHIGAN

PART OF THE SOUTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 3, TOWN 4 NORTH, RANGE 15 WEST, FILLMORE TOWNSHIP, ALLEGAN COUNTY, MICHIGAN, DESCRIBED AS BEGINNING AT THE SOUTH 1/4 CORNER OF SECTION 3; THENCE NORTH 01°31'09" WEST 1319.58 FEET ALONG THE NORTH-SOUTH 1/4 LINE TO THE NORTH LINE OF THE SOUTHWEST 1/4 OF THE SOUTHEAST ¼; THENCE SOUTH 88°34'20" EAST 274.39 FEET ALONG SAID NORTH LINE; THENCE SOUTH 01°34'56" WEST 1318.39 FEET TO THE SOUTH LINE OF THE SOUTHEAST ¼; THENCE NORTH 88°25'01" WEST 203.00 FEET ALONG SAID SOUTH LINE TO THE POINT OF BEGINNING, CONTAINING 7.22 ACRES.

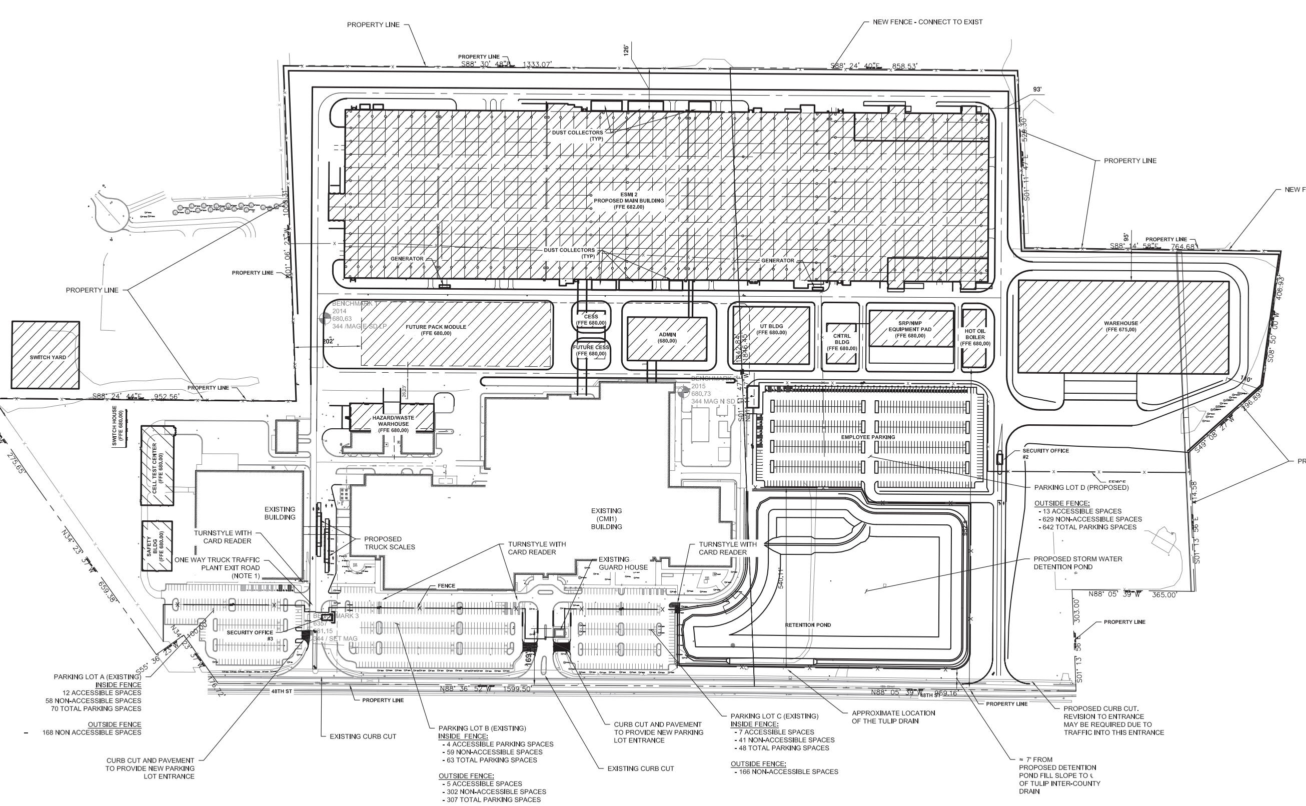
LEGAL DESCRIPTION (PARCEL IV) AS PROVIDED BY OTHERS:

DESCRIPTION OF A 3.49 ACRE PARCEL
IN THE SE 1/4 OF SECTION 3,
T4N, R15W, FILLMORE TOWNSHIP,
ALLEGAN COUNTY, MICHIGAN

PART OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 3, TOWN 4 NORTH, RANGE 15 WEST, FILLMORE TOWNSHIP, ALLEGAN COUNTY, MICHIGAN, DESCRIBED AS COMMENCING AT THE SOUTH 1/4 CORNER OF SECTION 3; THENCE NORTH 01°31'09" WEST 1319.58 FEET ALONG THE NORTH-SOUTH 1/4 LINE TO THE SOUTHWEST CORNER OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 AND THE POINT OF BEGINNING; THENCE CONTINUING NORTH 01°31'09" WEST 526.87 FEET; THENCE SOUTH 88°44'02" EAST 302.90 FEET; THENCE SOUTH 01°34'56" WEST 527.03 FEET TO THE SOUTH LINE OF THE NORTHWEST 1/4 OF THE SOUTHEAST ¼; THENCE NORTH 88°34'20" WEST 274.39 FEET ALONG SAID SOUTH LINE TO THE POINT OF BEGINNING, CONTAINING 3.49 ACRES.



LOCATION MAP
NOT TO SCALE
NORTH



OVERALL SITE PLAN
SCALE: 1"=150'-0"
NORTH

LG Energy Solution Michigan, Inc.

LGES MI2 - Holland Expansion

1 LG WAY
HOLLAND, MI 49423

YATES CONSTRUCTION

GHAFARI
17101 MICHIGAN AVENUE DEARBORN, MI 48126-2736 USA
TEL +1.313.441.3000 www.ghafari.com

REGISTRATION SEAL

STATE OF MICHIGAN — DAVID E. PAMULA — ENGINEER — LICENSED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE
	DOC REL 08 - IFP	01/21/22
	DOC REL 03 - ISSUE FOR PRICING	11/10/21
	DOC REL 01 - SESC IFP	10/12/21
REV	DOC REL ## - DESCRIPTION	DATE

ISSUES & REVISIONS

BUILDING NAME

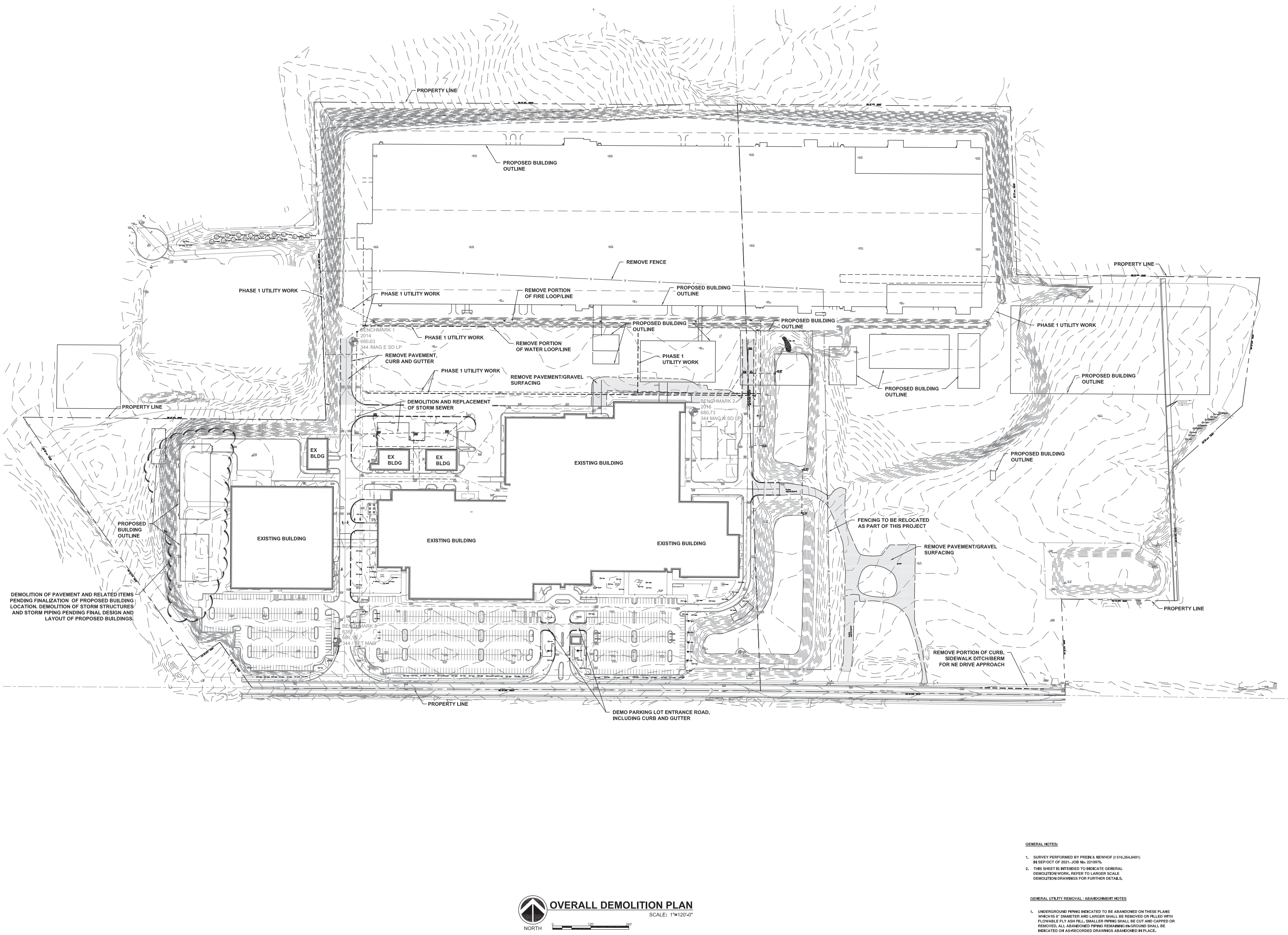
DRAWING TITLE

OVERALL SITE PLAN

CIVIL

GHAFARI

APPROVED BY	PROJECT MANAGER: M. KRAFT
CHECKED BY	APPROVED BY: D. PAMULA
TECH. COORD.	CHECKED BY: D. PAMULA
DRAWN BY	DESIGNED BY: T. PITSCH
DRAWN BY	DRAWN BY: D. CALLOW
JOB NUMBER: 2164032	DRAWING NO.
DATE / SCALE	CS0-01-01



OVERALL DEMOLITION PLAN

SCALE: 1"=120'-0"

NORTH

GENERAL NOTES:

1. SURVEY PERFORMED BY PREIN & NEWHOF (t 616.364.8491) IN SEP/OCT OF 2021. JOB No. 2210976.
2. THIS SHEET IS INTENDED TO INDICATE GENERAL DEMOLITION WORK. REFER TO LARGER SCALE DEMOLITION DRAWINGS FOR FURTHER DETAILS.

GENERAL UTILITY REMOVAL / ABANDONMENT NOTES

1. UNDERGROUND PIPING INDICATED TO BE ABANDONED ON THESE PLANS WHICH IS 8" DIAMETER AND LARGER SHALL BE REMOVED OR FILLED WITH FLOWABLE FLY ASH FILL. SMALLER PIPING SHALL BE CUT AND CAPPED OR REMOVED. ALL ABANDONED PIPING REMAINING IN-GROUND SHALL BE INDICATED ON AS-RECORDED DRAWINGS ABANDONED IN PLACE.
2. EXISTING PIPES IN AND OUT OF DRAINAGE STRUCTURES INDICATED TO BE REMOVED SHALL BE BULKHEADED, FILLED WITH FLOWABLE FILL AND ABANDONED IN PLACE OR REMOVED AT CONTRACTOR'S OPTION AND AS SPECIFIED NOTE 1.
3. DRAINAGE STRUCTURES INDICATED TO BE ABANDONED IN PLACE SHALL BE BROKEN DOWN TO A MINIMUM OF 18" BELOW PROPOSED FINISH GRADE AND FILLED WITH COMPACTED NATURAL SAND OR FLOWABLE FILL.

GENERAL SITE DEMOLITION NOTES

1. CLEAR, GRUB AND STRIP TOPSOIL 10'-0" BEYOND PAVEMENT, 5'-0" BEYOND BOTTOM OF FILL SLOPE OR AT THE TOP OF A CUT SLOPE.
2. IF CONTAMINATED SOILS ARE ENCOUNTERED, CONTRACTOR SHALL EXCAVATE AND STOCKPILE QUESTIONABLE SOIL FOR TESTING BY OWNER. CONTAMINATED SOILS WILL BE CONFIRMED BY OWNER. AFTER CONFIRMATION AND CHARACTERIZATION FOR DISPOSAL, CONTRACTOR SHALL LOAD CONTAMINATED SOILS FOR DISPOSAL BY OWNER.

PAVEMENT REMOVAL AREA

811

KNOW WHAT'S BELOW

72 HOURS
3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
OR
811

(TOLL FREE) FOR THE LOCATION OF UNDER GROUND FACILITIES.

UNDERGROUND UTILITY NOTE

THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER OF FIELD CONDITIONS THAT DIFFER FROM CONDITIONS AS SHOWN ON THESE DRAWINGS.

LG Energy Solution Michigan, Inc.

LGES MI2 - Holland Expansion

1 LG WAY
HOLLAND, MI 49423

YATES CONSTRUCTION

GHAFARI

17101 MICHIGAN AVENUE DEARBORN, MI 48126-2736 USA
TEL +1.313.441.3000 www.ghafari.com

REGISTRATION SEAL

STATE OF MICHIGAN · DAVID E. PAMULA · ENGINEER · NO. 31992 · LICENSED PROFESSIONAL ENGINEER

REV	DESCRIPTION	DATE
	DOC REL 08 - IFP	01/21/22
	DOC REL 03 - ISSUE FOR PRICING	11/10/21
	DOC REL ## - DESCRIPTION	DATE

ISSUES & REVISIONS

BUILDING NAME

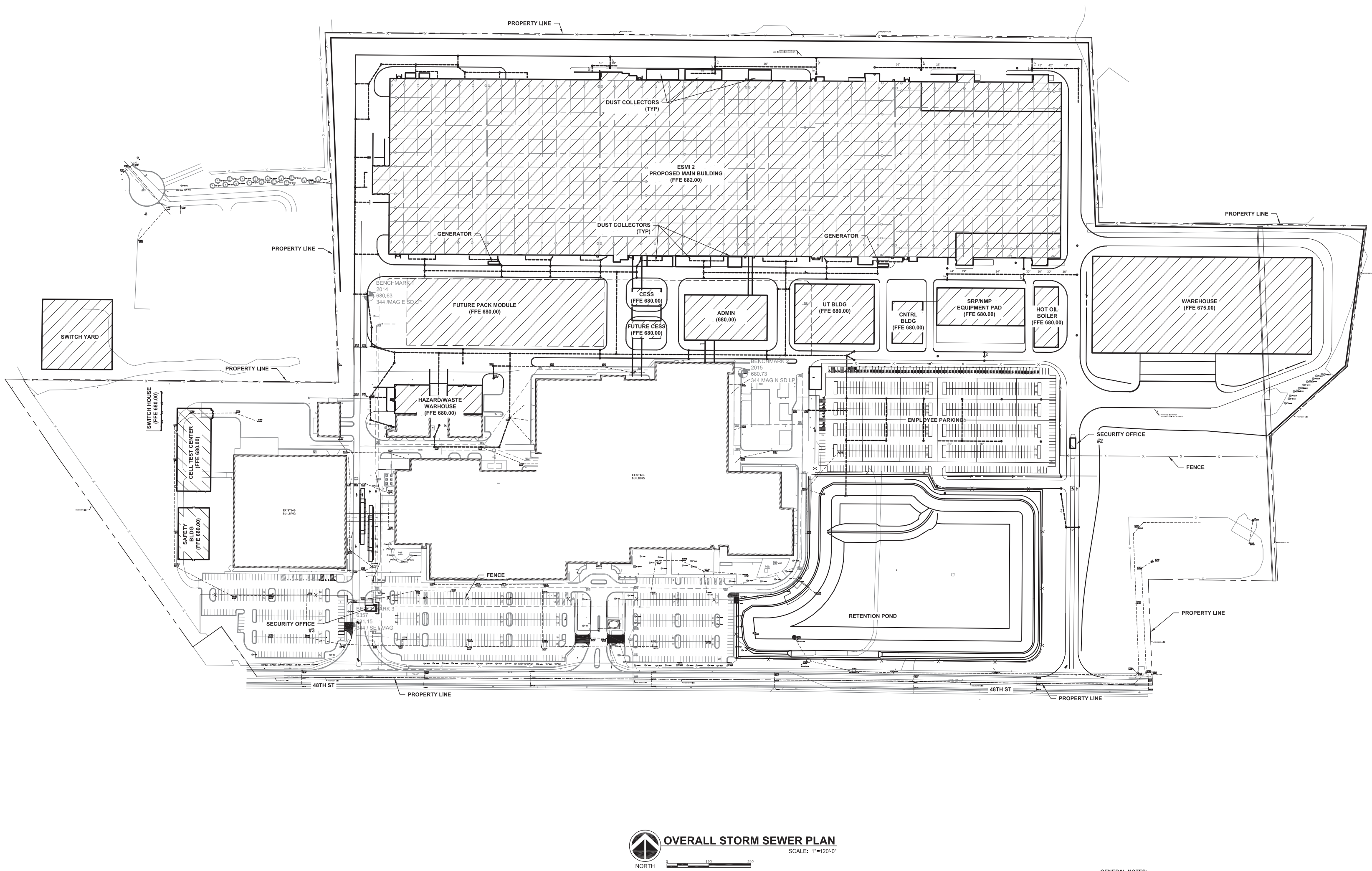
DRAWING TITLE

OVERALL DEMOLITION PLAN

CIVIL

GHAFARI

APPROVED BY	PROJECT MANAGER: M. KRAFT
CHECKED BY	APPROVED BY: D. PAMULA
TECH. CORD.	CHECKED BY: D. PAMULA
DRAWN BY	DESIGNED BY: T. PITSCH
DRAWN BY	DRAWN BY: D. CALLOW
JOB NUMBER: 2164032	DRAWING NO.
DATE / SCALE	CD0-01-01



OVERALL STORM SEWER PLAN

SCALE: 1"=120'-0"

NORTH

GENERAL NOTES:

1. THIS SHEET IS INTENDED TO INDICATE GENERAL UNDERGROUND UTILITY WORK. REFER TO LARGER SCALE UNDERGROUND DRAWINGS FOR FURTHER DETAILS.

811 KNOW WHAT'S BELOW

72 HOURS
3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
OR
811

UNDERGROUND UTILITY NOTE

THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER OF FIELD CONDITIONS THAT DIFFER FROM CONDITIONS AS SHOWN ON THESE DRAWINGS.

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TEL +1.313.441.3000 www.ghafari.com

REGISTRATION SEAL

REV	DESCRIPTION	DATE
	DOC REL 08 - IFP	01/21/22
	DOC REL 03 - ISSUE FOR PRICING	11/10/21

ISSUES & REVISIONS

BUILDING NAME

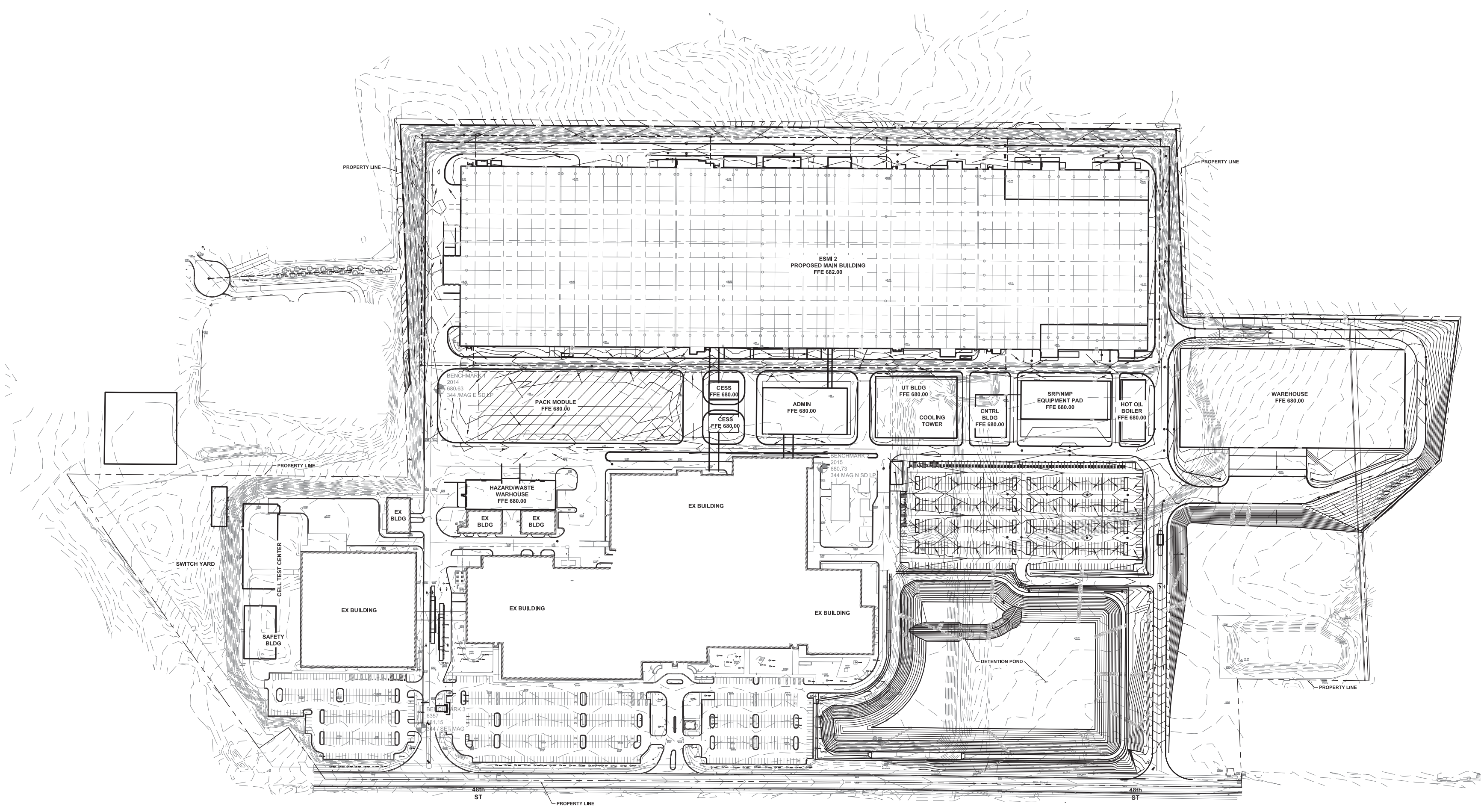
DRAWING TITLE

OVERALL STORM SEWER PLAN

CIVIL

GHAFARI

APPROVED BY	PROJECT MANAGER: M. KRAFT
CHECKED BY	APPROVED BY: D. PAMULA
TECH. CORD.	CHECKED BY: D. PAMULA
DRAWN BY	DESIGNED BY: T. PITSCH
DRAWN BY	DRAWN BY: D. CALLOW
JOB NUMBER: 2164032	DRAWING NO.
DATE / SCALE	CU0-01-01



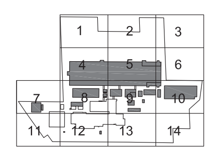
OVERALL GRADING PLAN

SCALE: 1"=120'-0"

NORTH

GENERAL NOTES:

1. THIS SHEET IS INTENDED TO INDICATE OVERALL SITE GRADING WORK. REFER TO LARGER SCALE GRADING DRAWINGS FOR FURTHER DETAILS.



KEY PLAN

SCALE: NONE

NORTH

LG Energy Solution Michigan, Inc.

LGES MI2 - Holland Expansion

1 LG WAY
HOLLAND, MI 49423

YATES CONSTRUCTION

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REGISTRATION SEAL

STATE OF MICHIGAN
DAVID E. PAMULA
ENGINEER
NO.
LICENSED PROFESSIONAL ENGINEER

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ISSUES & REVISIONS

BUILDING NAME

DRAWING TITLE

OVERALL GRADING PLAN

CIVIL

GHAFARI

APPROVED BY	PROJECT MANAGER M. KRAFT
CHECKED BY	APPROVED BY D. PAMULA
TECH. CORD.	CHECKED BY D. PAMULA
DRAWN BY	DESIGNED BY T. PITSCH
DRAWN BY	DRAWN BY D. CALLOW
JOB NUMBER 2164032	DRAWING NO.
DATE / SCALE	CG0-01-01

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Attachment 2

Zoning Map, Site Plan Approval (selected portions)

Holland
MICHIGAN

SITE PLAN REVIEW APPLICATION

Name of Applicant Ghafari Associates, LLC./ Matthew Kraft

Email & Phone Number of Applicant mkraft@ghafari.com, 248-514-1201

Name & Address of Owner LG Energy Solutions, 859 E 48th Street, Holland, MI 49423

Legal Interest of Applicant in Subject Property Architect/ Engineer of Record

Address of Subject Property 859 E 48th Street, Holland, MI 49423 (Building Addition)

Permanent Parcel No 03-02-03-300-015

Zoning District I-2 Industrial Park (City of Holland)

Lot Dimensions/Acreage 120.10 Acres/ 5,231,355 sq.ft.

Description of Proposed Site Plan with Square Footage

Proposed construction on the existing site of approximately 1,315,800 sft of new facilities including a manufacturing building of approximately 977,000 sq.ft. for the production of batteries to support the automotive industry. The plant expansion will include support buildings, expanded utilities, roads, parking, paving, landscaping, grading and storm water drainage.

SUBMITTAL REQUIREMENTS

- ☐ A completed site plan review application (p. i-ii)
- ☐ Application fee
- ☐ One digital PDF copy
- ☐ Two folded hardcopies of the site plan
- ☐ Written project summary (p. ii)
- ☐ Sustainability Principles Checklist (p. 2-3)
- ☐ Public Outreach Workshop summary (if applicable)
- ☐ All required OPRs to be identified & provide rationale

Required Site Plan Details:

- North arrow; scale bar; date of plan & revisions
- Legal description; address; property tax parcel number
- Clear legend, call hydrants out in plan
- Plans based on accurate land survey
- Property lines & dimensions included
- Existing & Proposed Structures: Location, square footage & dimensions
- Acreage & square footage
- Elevation drawings of all façades & height dimensions; construction materials specified

- A written project summary including:
  - Percentage of site allocated to impervious surfaces
  - Key Sustainability Principles included
  - Number, type & density of dwelling units, bedrooms, and the proposed market to be served (if residential)
  - Impact on Public Services including: Schools, police, fire protection, utilities & traffic
  - Expected phases of development
  - List of all State, Federal, or other regulatory approvals
  - Discussion of relationship to surrounding properties & uses
  - Discussion of any impacts such as noise, vibration, smoke, light, glare, etc.
  - Other information may be requested to evaluate the site plan

Signature of Applicant _____

Date January 24, 2022

I hereby state that all the above statements and all the accompanying information are true and correct.

Please note: Planning Commission meets every second Tuesday of the month. Applications are due before 5:00 p.m. 21 days prior to the meeting. Visit www.cityofholland.com for information.

Fees:

- All costs to be paid by the applicant
  - $500.00: Planning Commission Site/Development/Condominium Plan Review
  - $300.00: Administrative Site Plan Review
  - $300.00: Amendment to Planning Commission Site/Development/Condo Plan Review
  - $400.00: Rezoning or Text Amendment Request for Planning Commission & City Council
  - $600.00: Planning Commission Site/Development/Condominium Plan Review **AND** Rezoning Request for Planning Commission & City Council (submit both applications)

Questions?

Contact Planning at (616) 355-3133 or j.elswick@cityofholland.com

Sustainability Principles Checklist

Project Name: LG Energy Solutions - MI2 Holland Expansion

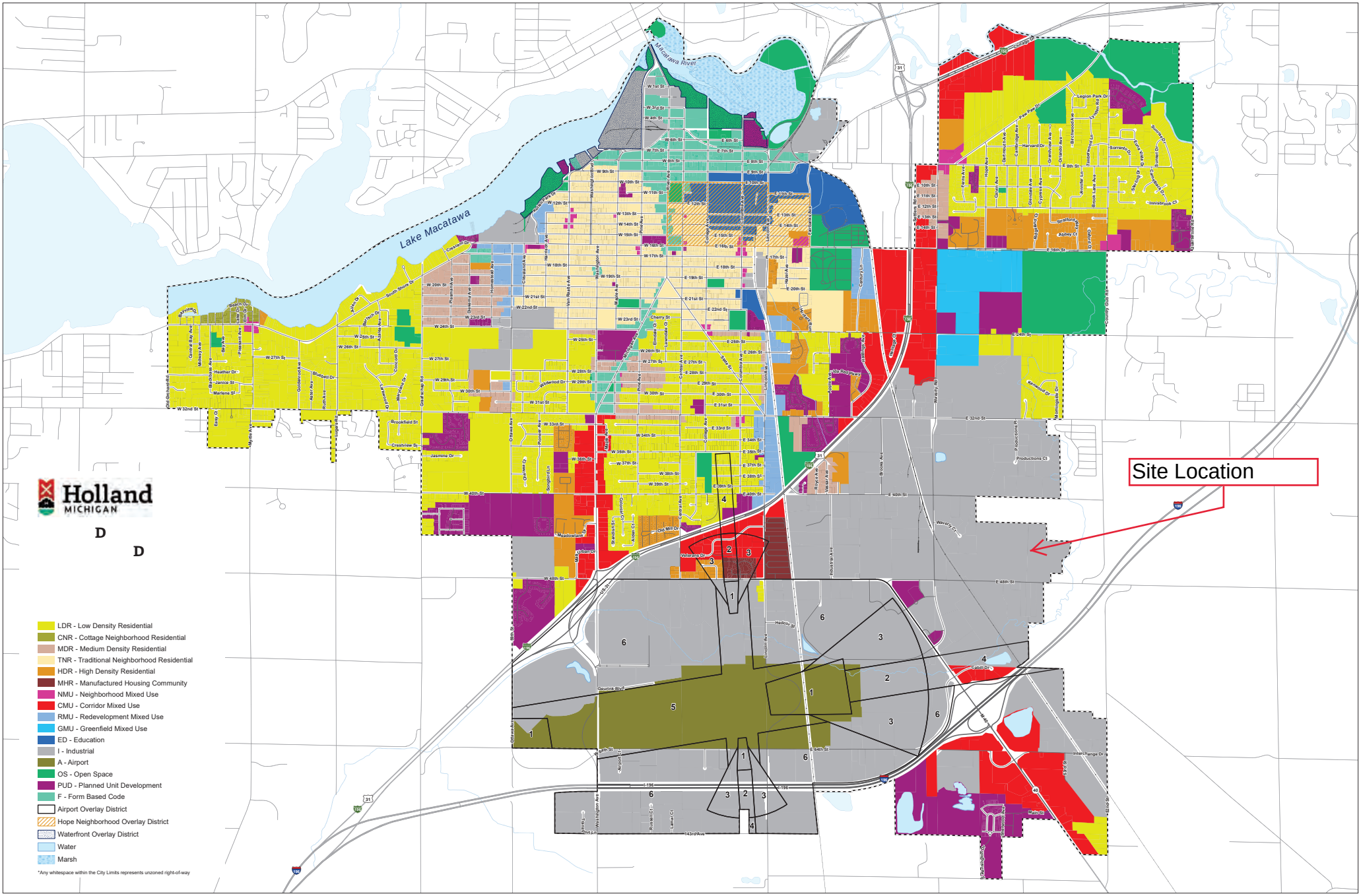
Required: review and incorporate as many principles as possible, and **provide with application**.

Principles	Actions	
Livability	☒ Green/Open Space ☒ Plazas/Pocket Parks ☒ Accessible Spaces ☒ Healthy Food Access ☒ Surface Water Quality ☐ Reduce Waste ☐ Improve Air Quality ☒ Emphasize Urban & Natural Connections ☒ Gathering/Open Space ☐ Public-Private Partnerships	☐ Alternative Lighting ☐ Smart Energy ☐ Smart Zones ☐ Green Construction ☐ Affordable Housing ☒ Energy Conservation ☐ Resiliency Planning ☐ Reduce Energy Demand & Natural Resource Consumption ☐ Green Infrastructure ☒ Economic Development
Walkability	☐ Complete Streets ☐ Green Streets ☒ Tree-Lined Streets ☐ Higher Walkscores ☐ Public Art ☐ Urban Tree Canopy ☐ Attention to Street-level Building Design ☐ Extend Snowmelt	☐ Walkable Neighborhoods ☐ Cyclist & Pedestrian Priority ☒ Lighting for Safety & Design ☐ Sittable Places/Places of Respite ☐ Interesting Sidewalk Environment with Continuity ☐ Prioritize Continuity & Connections to Lake Macatawa
Multimodal Transportation	☒ Increase Access & Safety ☒ Shared Parking ☐ Alternative Energy Vehicles/Charging Stations ☐ Traffic Calming ☐ Public Transport Usage ☒ Soften Site Edges with Landscaping	☐ Embedded Parking Integrated with Adjacent Uses ☒ Commercial Parking ☐ Residential Parking ☒ Improve/Expand Infrastructure

Mixed-Use N/A	☐ Street-level Active Uses ☐ Creative Combinations (Active Use with Office & Residential Above) ☐ Synergy with Adjacent Uses ☐ Affordable Housing	☐ Small Urban Greenspace ☐ Encourage New Businesses ☐ Employment Opportunities ☐ Provide Site Amenities
Building Designs	☐ Green Construction ☐ Integration of Ground Floor & Street Life ☐ Distinct Placemaking ☒ Integration of Parking & Building Functions ☒ Attention to Corners ☒ Attention to Back, Middle, & Top ☒ Attention to Site Edges ☐ Build to Streets	☒ Engage Street Front ☐ Build Entrance Alcoves ☐ Scale & Massing to Comfortably Fit with Neighboring Buildings ☐ Window Coverage ☐ Historic Preservation ☐ Include Cornice Lines & Projecting Elements ☐ Shade & Shadows Created by Building Setbacks

Project Summary:

LG Energy Solutions is in the process of planning a new building addition (CMI2) which will support the existing plant (CMI-1) with the production of lithium ion batteries, manufactured to support electrical vehicles for the automotive industry. The existing master site plan will be developed to expand the support buildings, site utilities, paving, roads, parking, landscaping, grading and also to handle the storm water runoff requirements.The CMI2 building and required outbuildings will meet all applicable City of Holland ordinances including building height and setback requirements. The required parking with the new building will be 910 spaces and our master site plan will provide 1,820, including the appropriate ADA spaces. The 120.10 acre site consists of buildings which represent 25.28 acres, or 21.1% of the total site area and paving which represents 22.52 acres, or 18.8% of the total site area.The new manufacturing facility will match the operations currently being performed within the existing facility. With regard to the surrounding site areas and properties, there will be no new impacts created such as; glare, noise, vibrations, smoke, etc.


Holland
MICHIGAN
D
D
Site Location
Lake Macatawa
Macatawa River
LDR - Low Density Residential
CNR - Cottage Neighborhood Residential
MDR - Medium Density Residential
TNR - Traditional Neighborhood Residential
HDR - High Density Residential
MHR - Manufactured Housing Community
NMU - Neighborhood Mixed Use
CMU - Corridor Mixed Use
RMU - Redevelopment Mixed Use
GMU - Greenfield Mixed Use
ED - Education
I - Industrial
A - Airport
OS - Open Space
PUD - Planned Unit Development
F - Form Based Code
Airport Overlay District
Hope Neighborhood Overlay District
Waterfront Overlay District
Water
Marsh
*Any whitespace within the City Limits represents unzoned right-of-way

Attachment 3

Phase I ESA (Selected Portions)

PHASE I ENVIRONMENTAL SITE ASSESSMENT

LG ENERGY SOLUTIONS EXPANSION
875 AND 901 E. 48TH STREET
HOLLAND, ALLEGAN COUNTY, MICHIGAN

ECS PROJECT A118-0001

FEBRUARY 26, 2022

Prepared for:

ALLEGAN COUNTY
3283 122ND AVENUE
ALLEGAN, MI 49010
ATTN: DAN WEDGE

Submitted by:

523 W. SUNNYBROOK DRIVE
ROYAL OAK, MICHIGAN 48073
(248) 763-3639
www.environmentalconsultingsolutions.com

ecS
environmental consulting solutions

February 26, 2022 ECS Project A118-0001

Allegan County
3283 122nd Avenue
Allegan, MI 49010
Attn: Dan Wedge

RE: Phase I Environmental Site Assessment
LG Energy Solutions Expansion
875 and 901 E. 48th Street
Holland, Allegan County, Michigan

Dear Mr. Wedge:

Environmental Consulting Solutions, LLC (ECS) has completed a Phase I Environmental Site Assessment (ESA) of the property located at 875 and 901 E. 48th Street in Holland, Allegan County, Michigan. The results of the Phase I ESA are presented in the attached Report.

We are pleased to provide this service and hope that we can be of service in the future. Should you have any questions or require further information, please do not hesitate to call us at (248) 763-3639.

Respectfully submitted,
Environmental Consulting Solutions, LLC

Julie Anna Pratt
Senior Project Professional

President

Enclosures

TABLE OF CONTENTS

List of Figures

List of Appendices

EXECUTIVE SUMMARY

Environmental Consulting Solutions, LLC (ECS) was retained by Allegan County, to perform a Phase I Environmental Site Assessment (ESA) of the LG Energy Solutions Expansion property (subject property) located at 875 and 901 48th Street in Holland, Allegan County, Michigan. The subject property location is presented in Figure 1. The Phase I ESA was performed in general accordance with All Appropriate Inquiry (AAI) and the American Society for Testing Materials (ASTM) Designation E 1527-13 guidelines for Phase I ESAs, except as noted under the Limitations and Exceptions.

Purpose:

The Phase I ESA was conducted in support of Community Development Block Grant (CDBG) Funding associated with proposed site development and was intended to identify the actual or potential existence of ASTM Recognized Environmental Conditions (RECs) at the subject property. The Report was prepared for use by Allegan County and the Michigan Economic Development Corporation (MEDC) who may rely upon the findings of the Report.

As defined in the ASTM Designation E 1527-13, the term *Recognized Environmental Condition* means, "…"the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment."

ECS endeavored to perform All Appropriate Inquiries (40 CFR 312 and industry standards) in allowing a user to satisfy the requirements to qualify for one of the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) liability, as documented in 40 CFR Part 300. Performance of this Phase I ESA is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs in connection with the subject property.

Scope of Work:

The Phase I ESA is a compilation of information obtained from, but not limited to, a site reconnaissance, a review of available municipal information, inquiry into the current and past uses of the subject property, historical aerial photographs, historical topographic maps, address cross index directories, Sanborn fire insurance maps, interviews with knowledgeable parties and a review of environmental databases of regulated properties.

General Site Information:

The subject property is an irregular shaped property (~120 acres) located on the north side of 48th Street, to the east of Waverly Road in Holland, Allegan County, Michigan. The subject property is comprised of two parcels of land, both currently owned by Compact Power Inc. The east parcel is vacant land and the west parcel is developed with the LG Energy Solutions industrial/manufacturing complex. Site operations include manufacturing lithium-ion battery components for electric vehicles.

The existing LG Energy Solutions plant was constructed circa 2011 with subsequent expansions and renovations. The proposed development includes construction of several buildings in aggregate sum of 1.4 million square feet, situated on the north portion of the west parcel and across the east parcel.

The subject property details as obtained from Holland Assessing Department and Client provided documentation are summarized in the following table:

Parcel	Address	Owner	Details
53-02-03-300-018	875 E. 48th Street	Compact Power, Inc.	~80 acres, ~638,633 ft^2 main building gross area with additional outbuildings
53-02-03-300-019	901 E. 48th Street		~40 acres, vacant land

Historical documentation indicates the subject property was mostly agricultural land, with a small homestead near the southwest portion of the subject property as early as circa 1929 (topographic maps and aerial photographs). The subject property was redeveloped for its current use as an industrial/manufacturing building circa 2010, with subsequent additions and renovations.

The subject property was identified in the EDR database search. The subject property was listed as LG Chem Michigan, Inc. and Compact Power, Inc, and was listed in numerous governmental databases: TSCA, ICIS, FINDS, ECHO, US AIRS, SPILLS and AST. Most of these listings are administrative in nature. No references to any spills, releases or violations were noted in the listings, with the exception of the SPILLS listing. According to the report, there was a fire in activated carbon scrubber tower. The fire department came and flushed it out and the water and carbon went into the drains that are connected to the retention ponds. The spill occurred in June 2012. No additional details were provided.

Two additional addresses were identified as corresponding to the subject property. The address of 859 E. 48th Street was listed as an Inventory and BEA site, with a BEA submitted in 2010. The listing identifies Arsenic in one soil sample and bis(2-ethylhexyl)phthalate in one groundwater sample above Residential Cleanup Criteria. The address of 1 LG Way was listed in numerous databases including TRIS, FINDS, ECHO, RCRA-LQG, SPILLS, NPDES, and WDS. Some of these listings were administrative in nature. The RCRA-LQG listing identified numerous hazardous waste materials associated with site operations. No violations were noted. The SPILLS listing identified a pipe from inside the building to the outside, with a spot visible on the concrete where some acetone spilled out circa 2011. No further details were provided.

Site observations confirmed the use, storage and handling of chemicals associated with industrial manufacturing. In general, there are four main processes in the plant the use chemicals: anode and cathode mixing, n-methyl pyrrolidone (NMP) recycling, electrolyte addition and solvent based cleaning. The interior housekeeping was exceptional, with heavily controlled processes. There was no evidence of spills or leaks noted in any of the storage areas, utility areas, mechanical rooms situated throughout the building. Interior storage was noted in various areas throughout the main building associated with manufacturing processes. Numerous drums, totes and tanks were noted. Interior storage of non-hazardous and hazardous materials, including drums, totes and tanks, is also located within the hazardous materials storage building located north of the main building.

Bulk exterior storage of materials was noted in the tank farm area northeast of the building. This area is also equipped with secondary containment in the event of a spill or release.

Chemicals used in the manufacturing process are summarized in the Spill Prevention Pollution Plan and Pollution Incident Prevention Plan that cover chemical management, routes of possible spills and spill prevention measures.

With respect to potential impact from adjoining or nearby properties, ECS evaluated the information provided in the governmental databases, in addition to reviewing available FOIA documentation requested from EGLE. Based on the information provided, the potential for negative impact to the subject property from offsite sources appears minimal.

Conclusions:

In the professional opinion of ECS, appropriate inquiry has been made into the current and past uses of the subject property consistent with good commercial and customary practice in an effort to minimize liability.

ECS has performed a Phase I ESA in conformance with the scope and limitations of AAI and ASTM E 1527-13 of the subject property located at 875 and 901 E. 48th Street in Holland Township, Allegan County, Michigan. Any exceptions to, or deletions from, this practice are described in Section 11.2 of this Report.

This assessment has revealed no evidence of RECs in connection with the subject property, with the exception of the following:

- The subject property is a "facility" with a BEA report prepared and submitted in 2010 at the time of purchase. Arsenic in one soil sample and bis(2-ethylhexyl)phthalate in one groundwater sample above Residential Cleanup Criteria.

The following items were also identified that warrant further discussion.

- A release of acetone was noted in the EDR Radius Map Report circa 2011. The SPILLS listing identified a pipe from inside the building to the outside, with a spot visible on the concrete where some acetone spilled out. No additional details were provided with respect to the extent of impact, if any.
- According to the EDR Radius Map Report, there was a fire in activated carbon scrubber tower. The fire department came out and flushed it out and the water and carbon went into the drains that are connected to the retention ponds. The spill occurred in June 2012. No additional details were provided with respect to extent of impact, if any.

Recommendations:

No further assessment appears warranted with respect the "facility" listing. Previous Phase II ESA activities were conducted at the time of property purchase in 2010. The Arsenic and bis(2-ethylhexyl)phthalate detected do not present unacceptable human exposures to current or proposed site use.

Additional discussion is warranted to further address the extent of impact, if any, from the two SPILLS listings.

LIMITATIONS AND EXCEPTIONS

This report was prepared for, and can be relied upon by, those authorized parties who have been specifically identified herein. Other use or reliance, implied or otherwise, by any other party is strictly prohibited unless authorized and acknowledged by ECS in writing.

Performance of this Phase I ESA is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs in connection with the subject property. ECS has used and incorporated information provided by private organizations and individuals, as well as municipal, state and federal agencies. However, the Phase I ESA scope of work does not include the independent verification or confirmation of the reliability of this information.

This report is intended to serve only as an indicator of the potential for environmental impairment arising from readily discoverable, improper chemical, waste management and/or disposal activities conducted at the subject property or in the immediate vicinity of the subject property. Regardless of the findings stated in this report, ECS is not responsible for consequences or conditions arising from facts that were concealed, withheld, not fully disclosed, or not readily accessible at the time the assessment was conducted.

Given the availability of data, probable future adjustments in industry standards, the limited scope of a due diligence investigations, the future inclusion of new contaminated sites to agency databases, and the further development of information resources, the resulting environmental liability disposition of the subject property is subject to change with time and this Phase I ESA does not guarantee a zero-risk level of environmental impairment liability.

The Executive Summary to the Phase I ESA is intended to be used as an overview of the complete Report findings. The Executive Summary is not intended to be used as a stand-alone document. Interpretation of the conclusions and recommendations should be based on the Report in its entirety. The Phase I ESA report does not represent a legal opinion. Legal opinions regarding potential environmental liability issues as they relate to the subject property and the Phase I ESA should be obtained from a qualified attorney.

1.0 INTRODUCTION

Environmental Consulting Solutions, LLC (ECS) was retained by Allegan County, to perform a Phase I Environmental Site Assessment (ESA) of the LG Energy Solutions Expansion property (subject property) located at 875 and 901 48th Street in Holland, Allegan County, Michigan. The subject property location is presented in Figure 1. The Phase I ESA was performed in general accordance with All Appropriate Inquiry (AAI) and the American Society for Testing Materials (ASTM) Designation E 1527-13 guidelines for Phase I ESAs, except as noted under the Limitations and Exceptions.

1.1 ASSESSMENT OBJECTIVES

The objective of the Phase I ESA is to identify recognized environmental conditions associated with the current and historical uses of a property and identify potential indicators of environmental concern which would suggest the need for additional investigation.

This Phase I ESA study was conducted in general accordance with the scope and limitations recommended by the American Society for Testing and Materials (ASTM) in their document E 1527-13, titled: "*Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process"*. In addition, ECS acts in accordance with the United States Environmental Protection Agency's (USEPA) rule identifying federal standards and processes for conducting All Appropriate Inquiry (AAI) codified in Federal Regulation - *40 Code of Federal Regulations (CFR) Part 312 - Standards and Practices for All Appropriate Inquiries*.

According to Section 1.1 of the cited standard, "...the purpose of this practice... is to define good commercial and customary practice in the United States of America for conducting an environmental site assessment of a parcel of real estate with respect to the range of contaminants within the scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and petroleum products". As such, this practice is intended to permit a user to satisfy due diligence requirements to qualify for the innocent landowner defense to CERCLA liability; that is, the practices that constitute "all appropriate inquiry into the previous ownership and use of the property consistent with good commercial or customary practice" as defined in 42 USC § 9601(35)(B).

The Phase I ESA was conducted in support of CDBG Funding associated with proposed site development.

1.2 PHASE I ESA SCOPE OF WORK

The Scope of Services for conducting a Phase I ESA outlined in ASTM practice E 1527-13 and EPA's standards for AAI outlined in *40 CFR Part 312* typically includes the following four components: a site walk-through and visual survey of the subject property*;* a review of pertinent records for evidence of present or historical use of the subject property and adjacent properties; interviews with current owners or operators and local government officials; and evaluation of information collected and development of a report.

In order to fulfill the objectives of this Phase I ESA and meet or exceed due diligence requirements, the following tasks were completed:

- A visual survey of the subject property to identify areas of potential environmental concern. Color photographs were taken to document conditions of the subject property at the time of the site reconnaissance.
- A visual observation of neighboring properties or facilities from the subject property or public access areas to assess whether surface conditions on these properties may have adverse environmental impact on the subject property.
- Historical land use review of the subject property back to 1940 or the first developed use, whichever occurred earlier.
- Collection and review of existing published information relating to general geology, hydrogeology, and topographical information for the subject property.
- A regulatory agency file search to identify federal and state listed sites of known or potential environmental concern located within the minimum search distances from the Site as specified in ASTM E 1527-13 and EPA's All Appropriate Inquiry codified in federal regulation - *40 CFR, Part 312*.
- Interviews with the site owner, the owner's representative(s), representatives of the state, county, and local regulatory agencies, or other persons with knowledge of the site.
- Evaluation of compiled information and preparation of a report.

The scope of work does not fulfill the requirements for a regulatory compliance audit, nor does it guarantee a zero-risk level of environmental impairment liability.

This Phase I ESA does not purport to address safety concerns, if any, at the Site. It also does not establish appropriate safety and health practices, or determine the applicability of health and safety regulatory limitations at the subject property.

1.3 PHASE I ESA SIGNIFICANT ASSUMPTIONS

ECS has used and incorporated information provided by private organizations and individuals, as well as municipal, state and federal agencies. However, the Phase I ESA scope of work does not include the independent verification or confirmation of the reliability of this information.

1.4 RELIANCE STATEMENT

ECS realizes that the Report was prepared for use by Allegan County and the Michigan Economic Development Corporation (MEDC). The named parties may rely upon the findings of the Report.

2.0 SUBJECT PROPERTY DESCRIPTION

2.1 SUBJECT PROPERTY LOCATION AND LEGAL DESCRIPTION

The subject property is an irregular shaped property (~120 acres) located on the north side of 48th Street, to the east of Waverly Road in Holland, Allegan County, Michigan. The subject property is comprised of two parcels of land, both currently owned by Compact Power Inc. The east parcel is vacant land and the west parcel is developed with the LG Energy Solutions industrial/manufacturing complex.

Site operations include manufacturing lithium-ion battery components for electric vehicles. Parking areas are currently situated across the southern portion of the west parcel. Retention ponds are situated to the east of the main building.

The subject property details as obtained from Holland Assessing Department and Client provided documentation are summarized in the following table:

Parcel	Address	Owner	Details
53-02-03-300-018	875 E. 48th Street	Compact Power, Inc.	~80 acres, ~638,633 ft^2 main building gross area with additional outbuildings
53-02-03-300-019	901 E. 48th Street		~40 acres, vacant land

The following table provides legal descriptions for the subject property parcels as obtained from Allegan County:

Parcel ID # 53-02-03-300-018
BEGINNING AT THE SOUTH ¼ CORNER OF SECTION 3; THENCE NORTH 88° 56′ 10″ WEST 1599.61′ FEET ALONG THE SOUTH LINE OF THE SOUTHWEST ¼ THENCE NORTH 34° 42′ 33″ WEST 176.72 FEET THENCE SOUTH 55° 17′ 27″ WEST 100.00 FEET THENCE NORTH 34° 42′ 33″ WEST 659.32 FEET ALONG EASTERLY LINE OF THE C&O RAILROAD THENCE NORTHWESTERLY 275.95 FEET ON A 5679.65 FOOT RADIUS NON-TANGENTIAL CURVE TO THE RIGHT, THE CHORD OF WHICH BEARS NORTH 33° 24′ 23″ WEST 275.93 FEET TO THE SOUTH LINE OF SOUTH WAVERLY INDUSTRIAL PLAT THENCE SOUTH 88° 44′ 02″ EAST 953.04 FEET TO THE SOUTHEAST CORNER OF SAID PLAT THENCE NORTH 01° 25′ 40″ WEST 1006.27 FEET ALONG THE EAST LINE OF SAID PLAT THENCE SOUTH 88° 44′ 02″ EAST 1636.04 FEET THENCE SOUTH 01° 34′ 56″ WEST 1845.42 FEET THENCE NORTH 88° 25′ 01″ WEST 203.00 FEET TO THE POINT OF BEGINNING. SURVEY: 80.01 ACRES OF LAND. SEC 3 T4N R15W SPLIT ON 06/01/2010 FROM 03-02-03-300-015, 03-02-03-300-017 AND PART OF ANNEXED PARCELS FROM FILLMORE TWP: 03-06-003-027-10 AND 03-06-003-020-00 (PT); TAX MAP: 79.84 AC
Parcel ID # 53-02-03-300-019
COM AT THE SOUTH ¼ CORNER OF SECTION 3; THENCE SOUTH 88° 25′ 01″ EAST 203.00 FEET ALONG THE SOUTH LINE OF THE SOUTHEAST ¼ TO THE POINT OF BEGINNING THENCE NORTH 01° 34′ 56″ EAST 1845.42 FEET THENCE SOUTH 88° 44′ 02″ EAST 555.63 FEET THENCE SOUTH 01° 31′ 09″ EAST 529.30 FEET THENCE SOUTH 88° 34′ 20″ EAST 764.68 FEET THENCE SOUTH 08° 30′ 38″ WEST 406.93 FEET THENCE SOUTH 48° 49′ 05″ WEST 296.89 FEET THENCE SOUTH 01° 33′ 18″ EAST 414.58 FEET THENCE NORTH 88° 25′ 01″ WEST 365 FEET THENCE SOUTH 01° 33′ 18″ EAST 303.00 FEET TO THE SOUTH LINE OF THE SOUTHEAST ¼ THENCE NORTH 88° 25′ 01″ WEST 756.15 FEET ALONG SAID SOUTH LINE TO THE POINT OF BEGINNING. SURVEY: 40.23 ACRES OF LAND. SEC 3 T4N R15W SPLIT ON 06/01/2010 FROM 03-02-03-300-015, 03-02-03-300-017 AND PART OF ANNEXED PARCELS FROM FILLMORE TWP: 03-06-003-027-10 AND 03-06-003-020-00 (PT); TAX MAP: 40.22 AC

Refer to Figure 2 for an Aerial Site Map depicting additional details regarding subject property location.

2.2 SUBJECT PROPERTY AND VICINITY CHARACTERISTICS

Based on review of records and visual observations at the time of the site reconnaissance, the subject property consists of a developed industrial/manufacturing complex with a main plant building, several outbuildings, vehicle parking areas, truck loading/unloading, storm water retention ponds and vacant land. The surrounding properties include mixed use residential and commercial/industrial use.

2.3 CURRENT SUBJECT PROPERTY USE

The east parcel is vacant land and the west parcel is developed with the LG Energy Solutions industrial/ manufacturing complex. Site operations include manufacturing lithium-ion battery components for electric vehicles.

2.4 DESCRIPTION AND CONDITION OF STRUCTURES AND OTHER SUBJECT PROPERTY IMPROVEMENTS

The subject property is developed with an 638,633 ft^2 industrial manufacturing building that was constructed circa 2011 with subsequent additions and renovations. The building is equipped with a wide range of state of the art manufacturing equipment. The building is slab on grade construction; no basements were identified during the site reconnaissance. Some evidence of sub-grade pits were noted, but were observed to facilitate physical access, with no evidence of chemical containment.

The hazardous materials storage building and safety building are located to the north and northwest of the main building, respectively, and are both approximately 6,700 ft^2 in floor area. The general storage building is approximately 7,335 ft^2 and also located north of the main building. The security building is approximately 862 ft^2 and situated south of the main building regulating vehicle access from 48th Street. The out buildings are slab on grade construction.

In addition to the industrial/manufacturing building, the subject property is developed with vehicle parking areas, loading/unloading areas, and a storm water retention system.

Overall condition of the structure and other property improvements is excellent. The property is well maintained and is relatively new with respect to industrial development.

2.5 CURRENT USES OF ADJACENT PROPERTIES

A summary of current uses of adjoining properties relative to the subject property is listed below:

	Adjoining Properties
North	Vacant land, followed by residential/farmsteads.
South	48th Street, followed by vacant land and residential/farmsteads.
East	Vacant land, followed by residential/farmsteads.
West	Commercial/industrial properties.

ECS observed the adjacent properties from the subject property or public access areas, as accessible. Based upon observations made at the time of ECS's site reconnaissance, the current uses of adjoining properties are not of environmental concern in relation to the subject property. The western adjoining properties were commercial/industrial in nature, however, no obvious evidence of exterior chemical storage or obvious environmental concerns were noted.

3.0 USER/CLIENT PROVIDED INFORMATION

Consistent with the requirement of AAI and ASTM E1527-13, ECS provided the user(s) of the Phase I ESA with a questionnaire regarding their specific knowledge of subject property environmental conditions. Mr. Joseph Morgan, representing LG Energy Solutions, completed the User/Client Questionnaire.

3.1 ENVIRONMENTAL LIENS OR ACTIVITY AND USE LIMITATIONS

ECS was not provided any information pertaining to environmental liens or activity and land use limitations associated with the subject property.

ECS obtained a copy of the current Michigan Department of Environment, Great Lakes and Energy (EGLE) Remediation and Redevelopment Division *Perfected Lien List*. The subject property was not identified. This list does not include any lien(s) that may have been perfected by another EGLE Division or other entity.

ECS also evaluated the EGLE online Environmental Mapper for additional details regarding activity and use limitations in the area. The subject property was not identified as having land use restrictions.

3.2 TITLE RECORDS

Title records were not provided.

3.3 USER SPECIALIZED KNOWLEDGE

Mr. Morgan indicated that LG Energy Solutions has produced lithium ion batteries on the site since 2010. Their engineers and staff are fully aware and knowledgeable in the materials, chemicals and processes involved in the battery production process. ECS was not provided with any other User specialized knowledge.

3.4 COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION

ECS was not provided with any commonly known or reasonable ascertainable information regarding the subject property.

3.5 VALUATION REDUCTION FOR ENVIRONMENTAL ISSUES

ECS was not provided with information pertaining to a valuation reduction of the subject property for environmental issues.

3.6 REASON FOR PERFORMING THE PHASE I ESA

The Phase I ESA was conducted to provide a viable Phase I ESA associated with CDBG funding requirements.

3.7 OTHER USER INFORMATION

Mr. Morgan indicated that there were no obvious indicators that point to the presence or likely presence of releases at the subject property. No other information regarding possible environmental conditions at the subject property was provided by the User/Client.

4.0 PREVIOUS REPORTS

Previous environmental reports were not provided. Additional reports associated with proposed site development were provided by Allegan County, including but not limited to permitting, wetlands determination, and a previous environmental assessment associated with federal funding. These documents did not contain information specific to environmental concerns on the subject property.

5.0 ENVIRONMENTAL REGULATORY RECORDS SEARCH

As part of the current study, readily available regulatory database information was reviewed to assess the possible risk for environmental liabilities from regulatory action, hazardous material spills, or documented hazardous waste disposal at the subject property or surrounding properties located within ASTM-specified search distances and the search distances specified in EPA's standards for AAI.

5.1 STANDARD ENVIRONMENTAL DATABASE SEARCH REPORT

Environmental Data Resources Inc. (EDR) was retained to perform a regulatory agency database search to evaluate the possible presence of federal and state listed sites of known or potential environmental concern that may be located within the recommended minimum search distances from the subject property as specified in ASTM E 1527-13 and EPA's final rule for AAI.

A list of the federal and state databases researched by EDR for the current study, including a brief description of each database searched and their respective search distance radius is presented Appendix C, EDR Radius Map™ Report.

5.1.1 SITE SUMMARY

The subject property was identified in the EDR database search. The subject property was listed as LG Chem Michigan, Inc. and Compact Power, Inc, and was listed on the following databases:

- TSCA: Toxic Substances Control Act - TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

- ICIS: Integrated Compliance Information System - The ICIS supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

- FINDS: Facility Index System/Facility Registry System – FINDS is a central and common inventory of facilities monitored or regulated by the EPA.

- ECHO: Enforcement and Compliance History Information. Compliance and enforcement database for EPA regulated facilities.

- US AIRS: Aerometric Information Retrieval System - contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies.

- SPILLS - Environmental pollution emergencies reported to the Department of Environmental Quality such as tanker accidents, pipeline breaks, and release of reportable quantities of hazardous substances.

- AIRS: Aerometric Information Retrieval System – permit and emissions inventory data.

- AST: Above Ground Storage Tanks – Registered ASTs.

The above database listings are mostly administrative in nature. No references to any spills, releases or violations were noted in the listings, with the exception of the SPILLS listing. According to the report, there was a fire in activated carbon scrubber tower. The fire department came and flushed it out with water, and the water and carbon went into the drains that are connected to the retention ponds. The spill occurred in June 2012. No additional details were provided.

In addition, two additional addresses were identified as corresponding to the subject property. The address of 859 E. 48th Street was listed as an Inventory and BEA site. Further evaluation of the listing indicates that this corresponds to the subject property, with a BEA submitted in 2010. The listing identifies Arsenic in soil and bis(2-ethylhexyl)phthalate in groundwater. The address of 1 LG Way was listed in numerous databases including TRIS (Toxics Release Inventory System), FINDS, ECHO, RCRA-LQG (Resource Conservation and Recovery Act – Large Quantity Generator), SPILLS, NPDES (National Pollutant Discharge Elimination System), and WDS (Waste Data System). Some of these listings were administrative in nature. The RCRA-LQG listing identified numerous hazardous waste materials associated with site operations. No violations were noted. The SPILLS listing identified a pipe from inside the building to the outside, with a spot visible on the concrete where some acetone spilled out circa 2011. No further details were provided.

5.1.2 SURROUNDING PROPERTY SUMMARY

A total of 63 separate listings (some properties listed multiple times) were identified in the environmental records on the database report. Eleven of those listings were identified as the subject property address, with the remaining listings identified as nearby properties within the ASTM search distances.

ECS utilized the EDR Lightbox online resource to further evaluate the database listings and confirm the actual distance from the subject property using Google Maps and Lightbox tools. One listing, the Donnelly Corp., was plotted at the southeast border of the subject property. However, visual observations and online research confirmed this location is incorrect and is not located in proximity to the subject property.

The remaining database listings appear to be located to the west and north west of the subject property. The following listings were further evaluated based on actual boundary to boundary distance from the subject property.

SITE NAME	ADDRESS	DATABASES	Direction
Venttis Technologies	1261 S. Waverly	RCRA-VSQG	West of railroad
	NAICS Code 541712, R&D in physical engineering and life sciences. No violations.		
GLW Finishing, LLC and KC Industries	741 Waverly Ct.	US Brownfields, RCRA NonGen/NLR, US AIRS, FINDS, Inventory, AIRS, BEA and WDS	Northwest ~500 feet
	NAICS Code 337211, Wood Office Furniture Manufacturing. Wet coat finishing operations listed. Violations noted in 2009. BEA completed in 2018		
760 E. 40th Street	760 E. 40th	Inventory, BEA	Northwest ~200 feet
	BEA submitted 2016. Historical RECs identify the site as a closed LUST site when two USTs (gasoline & diesel) were removed in 1989		
USF Holland-HO	750 E. 40th	LUST, UST Inventory	Northwest ~573 feet
	Release reported in 1989, LUST closed status in 1991. USTs removed.		

The listing of the adjoining Venttis Technologies property does not appear to present a concern to the subject property. No violations, spills or releases were noted associated with the adjoining site use. The remaining three listings identified in the previous table have documented releases and subsurface contamination reported based on type of database.

5.1.3 ORPHAN SITES

An orphan site is a property that has been identified by EDR as a site within a zip code that has insufficient address information available to accurately plot the property on their map. A review of the EDR Radius Map™ Report indicates that one orphan site was identified during their regulatory database search. The listing had limited information, located on 48th street in the CDL database. CDL (National clandestine laboratory register) is associated with clandestine drub lab locations, where law enforcement reports finding chemicals or drugs.

5.2 MUNICIPAL RECORDS

Historic records for the subject property address were requested from the Holland municipal offices and provided to ECS. A records request was submitted to the City Clerk requesting available documentation from the Assessing, Building and Fire Departments. As of the date of this report, Fire Department records were not yet received.

The following items were noted in the documentation obtained from the Assessing and Building Departments:

- Compact Power, Inc. purchased both parcels from the City of Holland in May 2010.
- The main building was constructed circa 2011 on the west parcel, with subsequent additions and remodeling.
- The east parcel remains vacant land. Permits were pulled for this parcel associated with west parcel development.
- Numerous plans and permits associated with construction, renovations and additions.

- Aerial photographs document the majority of both parcels as vacant agricultural land, with the exception of a small farmstead near the southwest corner of the west parcel.
- A geotechnical study dated January 2010 identified soil conditions consisted primarily of clayey soils with varying amounts of sand and gravel.

A review of the numerous records did not identify any obvious environmental concerns, such as underground storage tanks, septic system, or spills or releases to the environment. A copy of selected portions of the Holland municipal records is included in Appendix D.

5.3 STATE/FEDERAL INFORMATION

The subject property was identified in the EDR Radius Report in several databases. ECS submitted a FOIA request to EGLE to obtain available documentation for the subject property. The BEA report submitted in 2010 was provided to ECS for review. The following items were noted:

- Only the 875 Holland parcel was identified as a "facility".
- Historic records indicated the site was undeveloped agricultural land since at least 1932. Prior to 1932, a residential dwelling and associate outbuildings were constructed on the southwest portion of the site which were demolished circa 1995.
- The Phase I ESA conducted in 2009 prior to purchase identified RECs associated with potential offsite properties.
- Numerous metals were detected in soil samples analyzed; only Arsenic exceeded Generic Residential Cleanup Criteria (GRCC).
- One PNA compound, bis(2-ethylhexyl)phthalate, was detected in one groundwater sample at a concentration greater than the GRCC.
- Evidence of oil/gas production well was located near the southwest portion of the site. The well as noted to be a dry well; no petroleum was identified at the location. An oil/gas well was also identified northeast of the property. The oil/gas wells were not identified as RECs.

Based on the information presented in the BEA, evidence of limited contamination was documented to qualify the subject property as a "facility". Comparison of the arsenic and bis(2-ethylhexyl)phthalate concentrations to their respective applicable non-residential cleanup criteria indicates no exceedances are noted and no potential unacceptable exposures were identified.

With respect to the nearby properties previously identified as sites of contamination, ECS submitted a FOIA request for records. As of the date of this report, a response is pending for the 750 and 760 E. 40th Street addresses. However, based on the information in the governmental database report listings and dates of historic RECs and releases (circa 1980's and 1990's), the Phase II ESA conducted on the subject property in 2010 evaluated for potential migration of contamination from these offsite sources.

Records were available for the 741 Waverly Ct. address. A BEA was prepared in May 2018. The report identified the historic use of the property for wood finishing operations since 1996 as a REC. In addition, potential for migration of the contamination onto the property from an offsite source was listed as a REC. The Phase II conducted included six soil borings to collect soil and/or groundwater samples for analysis for VOCs, PNAs, and 10 Michigan Metals. VOCs and PNAs were not detected in the soil samples

analyzed. Metals (being naturally occurring) were detected in the soil samples; Arsenic was detected at a "facility" concentration. With respect to groundwater, PNAs and metals were not detected. One VOC compound, tetrachloroethene was detected at a concentration of 2.7 ppb, less than the Part 201 GRCC published at that time.

ECS further evaluated the tetrachloroethene results by comparing the 2.7 ppb concentration to the current EGLE recommended Volatilization to Indoor Air Pathway (VIAP) Screening Levels published in September 2020. The Residential shallow (10 feet or less) screening level of 1.5 ppb was exceeded. However, the non-residential screening level of 35 ppb (5 feet or less) was not exceeded. Based on the distance from the subject property and contaminant concentrations observed, the potential for negative impact to the subject property is minimal.

Refer to **Appendix E** for copies of selected FOIA documentation.

5.4 TITLE RECORDS AND ENVIRONMENTAL LIENS

No land title records were provided to ECS for review.

ECS obtained a copy of the current EGLE Remediation and Redevelopment Division *Perfected Lien List*. The subject property was not identified. This list does not include any lien(s) that may have been perfected by another EGLE Division or other entity.

ECS also evaluated the EGLE online Environmental Mapper for additional details regarding activity and use limitations in the area. The subject property was not identified having activity or land use limitations.

6.0 HISTORICAL SITE USE REVIEW

Historical usage of the subject property and adjoining properties was referenced through reasonably ascertainable records which may have included, but were not necessarily limited to, municipal information, aerial photographs, historic fire insurance maps (when available), city directories, interviews with persons knowledgeable of subject property conditions, and previous site assessments. See Section 13.0 for references for the records that were reviewed.

6.1 AERIAL PHOTOGRAPHS

Aerial photographs of the subject property and surrounding area, provided by Environmental Data Resources, Inc. (EDR) were reviewed. In addition, current aerial photographs were reviewed through Google Maps (google.com/maps) and Allegan County GIS. The aerial photographs depicted the following:

1938-1967: The subject property is mostly agricultural land. A homestead/farm is located at the southwest portion of the subject property. Adjoining land is agricultural with some homesteads.

1975: The subject property is similar to previous photographs. Only partial coverage is available.

1981-1986: The subject property remains mostly agricultural land with the homestead at the southwest portion. Some non-residential development is noted northwest of the subject property along 40th Street to the north.

1997: The quality of the photograph is poor; the site appears similar, with increased developed to the northwest and southwest.

2006-2009: The subject property is vacant land. Additional commercial/industrial development is noted to the northwest and southwest.

2012-2016: The subject property is developed with the LG Energy Solutions buildings and adjoining parking areas. The stormwater detention ponds are present east of the building and at the southeast corner of the east parcel. The north portion of the west parcel and portions of the east parcel have some land clearing, likely associated with site development.

Except as discussed above, the scale and resolution of the aerial photographs limited observation of special site features, such as relief, areas of staining, soil disturbances or areas of outdoor storage.

The subject property was mostly agricultural with a homestead/farm prior to development of the existing structures circa 2010. Based on the historical review, there were no indications of the presence of on-site agricultural chemical mixing areas, bulk storage areas or evidence that chemical dumping or improper storage has occurred.

Copies of the aerial photographs are presented in Appendix F.

6.2 HISTORICAL TOPOGRAPHIC MAPS

Historical topographic maps of the subject property and surrounding area were provided by EDR. The topographic maps depicted the following:

1929-1932: The subject property is located in a rural area in Allegan County. A small structure is noted at the southwest portion of the property. A surface water drain parallels the eastern boundary. A railroad parallels the western boundary.

1972-1980: The subject property is mostly vacant land with small structures/out buildings near the southwest portion and to the east. The site elevation was noted at 700 feet above mean sea level, and slightly sloping to the southeast. The Overisel Oil Field is noted approximately one mile to the north/northeast.

2014-2019: The most recent topographic maps don't depict any buildings or structures. The adjoining surface water along the eastern boundary is the N. B. Macatawa River.

No indications of obvious RECs were identified on the historical topographic maps reviewed. Copies of the historical topographic maps in presented in Appendix G.

6.3 SANBORN FIRE INSURANCE MAPS

ECS contracted EDR to perform a search for Sanborn maps for the subject property. EDR provided a search report noting the subject property was unmapped property. A copy of the Sanborn Report documenting no coverage is provided in Appendix H.

6.4 CITY DIRECTORIES

Historical city address directories of the subject property and surrounding area, provided by EDR, in five year intervals from 1961 to 2017 were reviewed. Addresses were evaluated along E. 48th Street and 146th Avenue. Based on the limited information available in the City Directory resources, no obvious RECs were noted. A copy of the City Directories is provided in Appendix I.

6.5 HISTORICAL USE SUMMARY

The historical use of the subject property was determined during the review of the historical resources outlined above. No other historical resources were readily available or were deemed necessary to determine the prior use of the subject property.

Historical documentation indicates the subject property was mostly agricultural land, with a small homestead near the southwest portion of the subject property as early as circa 1929 (topographic maps and aerial photographs). The subject property was redeveloped for its current use as an industrial/manufacturing building circa 2010, with subsequent additions and renovations.

7.0 PHYSICAL SETTING

7.1 SITE LOCATION

The subject property is an irregular shaped property consisting of two adjoining parcels of land located on the north side of E. 48th Street in Holland, Allegan County, Michigan. The subject property is located across the southeast and southwest quarters of Section 03, T04N R15W. See Figure 1 for the Site Location Map.

7.2 TOPOGRAPHY

Based on the site reconnaissance and review of the USGS Holland East, Michigan Topographic Maps, the topography of the area is slightly sloping, with a mild downward topographic gradient to the southeast. The subject property elevation ranges from approximately 700 feet above mean sea level (AMSL) to 650 feet AMSL at the eastern boundary near the adjoining river. Visual observations identified the developed portion of the subject property as fairly level, with no obvious significant changes in elevation.

7.3 GEOLOGY

The Quaternary Geology obtained through EGLE GeoWebFace online resources indicated the surficial geology in the vicinity of the subject property consisted of fine-textured glacial till. The Bedrock Geology was identified as Coldwater Shale and the Marshall Formation.

7.4 DRAINAGE PATTERNS

Based on the USGS Holland East, MI Topographic Maps, and the EDR Radius Map report Geocheck physical setting, the drainage in the area surrounding the subject property was primarily to the east/southeast. Based on a review of historical topographic maps, the Macatawa River adjoins a portion of the east property boundary. Surface water is also directed towards retention basins on site.

7.5 LOCAL GROUNDWATER FLOW

Generally, groundwater flow direction would be expected to be consistent with surface water flow and local topography and dependent upon seasonal variation in precipitation. Therefore, it is likely that the groundwater flow direction in the area of the subject property will be toward the east/southeast.

8.0 SITE AND AREA RECONNAISSANCE

The site reconnaissance was performed on February 14, 2022, by Ms. Julie Pratt of ECS. See Appendix A for the Site Photographs obtained during the visual reconnaissance and Figure 2 for the Aerial Site Map.

8.1 METHODOLOGY AND LIMITING CONDITIONS

The subject property and adjoining properties were visually observed for visible evidence of ASTM RECs in an effort to determine if a release of petroleum or other hazardous materials has occurred to the subject property surface, soil, surface water or groundwater. Indications of RECs may include, but are not limited to, evidence of buried or discarded drums or containers, stained, discolored or disturbed soils, stressed vegetation, evidence of pipes or other objects protruding from the ground, and evidence of aboveground and underground storage tanks.

The site reconnaissance was conducted in a manner that allowed for visual observations and of identification of site features, including site structures, open areas, site boundaries, and adjoining properties. No limitations were encountered during the site reconnaissance with the exception of the following:

- Limited access to the undeveloped portions of the subject property due to winter weather conditions.
- Snow cover and ice limiting observations on the ground surface.
- Interior photographs were limited for proprietary reasons.
- Interior access was limited due to active production activities.

8.2 GENERAL SITE INFORMATION

The east parcel is vacant land and the west parcel is developed with the LG Energy Solutions industrial/manufacturing complex. Site operations include manufacturing lithium-ion battery components for electric vehicles. Site operations associated with cell assembly include the electrode process, activation process and assembly process.

In addition to the large industrial manufacturing building and associated outbuildings, the subject property is developed with vehicle parking areas, truck loading/unloading areas, as well as surface water detention ponds. The subject property is accessible from 48th Street. The Site is presented in Figure 2, Aerial Site Map, which depicts the general features observed at the Site.

8.3 SITE BUILDINGS

The subject property is developed with an 638,633 ft^2 industrial manufacturing building that was constructed circa 2011 with subsequent additions and renovations. The building is equipped with a wide range of state of the art manufacturing equipment. The building is slab on grade construction; no basements or sub-grade components were identified during the site reconnaissance. Some evidence of sub-grade pits were noted, but were observed to facilitate physical access, with no evidence of chemical storage.

The hazardous materials storage building and safety building are located to the north and northwest of the main building, respectively, and are both approximately 6,700 ft^2 in floor area. The general storage building is approximately 7,335 ft^2 and also located north of the main building. The security building is approximately 862 ft^2 and situated south of the main building regulating vehicle access from 48th Street. The out buildings are slab on grade construction.

8.4 OUTDOOR OBSERVATIONS

Paved parking areas are situated to the south of the main building, accessible from E. 48th Street. A vehicle access drive extends around the building perimeter. A construction staging area was noted east of the building on the west parcel. Detention ponds are situated to the east of the building. The north portion of the west parcel and the eastern parcel was observed to be vacant and snow covered.

Main truck access is provided from E. 48th Street to the south. Exterior storage and delivery areas are located to the north and east of the main building.

8.5 CHEMICAL USE AND STORAGE

The current site operations did identify the use, storage and/or handling of petroleum products and other chemicals. In general, there are four main processes in the plant the use chemicals: anode and cathode mixing, n-methyl pyrrolidone (NMP) recycling, electrolyte addition and solvent based cleaning. During the process to mix the anode and cathode slurries, various dry powders are combined with liquids to create the slurries. The NMP used in the cathode slurry is reclaimed during a solvent recovery process and is reused. Electrolyte is added to the cells in the assembly process. Acetone and isopropyl alcohol are used to clean the facility.

The interior housekeeping was exceptional, with heavily controlled processes. There was no evidence of spills or leaks noted in any of the storage areas, utility areas, mechanical rooms situated throughout the building.

Interior storage was noted in various areas throughout the main building associated with manufacturing processes. Numerous drums, totes and tanks were noted.

Interior storage of non-hazardous and hazardous materials, including drums, totes and tanks, is also located within the hazardous materials storage building located north of the building.

Bulk exterior storage of materials was noted in the tank farm area northeast of the building. This area is also equipped with secondary containment in the event of a spill or release.

Chemicals used in the manufacturing process are summarized in the Spill Prevention Control and Countermeasures and Pollution Incident Prevention Plan (SPCC-PIPP) that cover chemical management, routes of possible spills and spill prevention measures. A copy of selected portions of the plan is included as an attachment in Appendix B. The following tables were copied from the SPCC-PIPP that provide a summary of onsite chemical storage.

Equipment Name	Chemical Name	Quantity	Remarks
Activated Carbon Filter Unit	Carbon	3575 lbs.	Outside north of safety building
Hazardous Materials Storage	Waste & Chemicals	10,000 gal	Electrolyte Waste, NMP, Other
West Emergency Generator	Diesel	100 gal	1stFloor Zone 1A
NMP Storage Tank	NMP	700 gal	3rdFloor Zone 5A
Activated Carbon Filter Unit	Carbon	10,000 lbs.	Outside North of Electrode Zone 5A
Hot Oil Boiler	Heat Transfer Oil	18,000 gal max	1stFloor Zone 5A –Room 1509
Activated Carbon Filter Unit	Carbon	7,400 lbs.	Outside Assembly Zone 2B
East Emergency Generator	Diesel	100 gal	Zone 4
SRP System	NMP	23,550 gal	In tank farm to the East Zone 4
2 NMP Storage Tanks	NMP	11,800 gal ea.	In tank farm to the East Zone 4
Acetone Storage Tank	Acetone	13,209 gal	In tank farm to the East Zone 4
Nitrogen Storage Tank	Nitrogen	11,000 gal	In tank farm to the East Zone 4
Activated Carbon Filter Unit	Carbon	3183 lbs.	Outside to the north of Zone 3
Electrolyte Storage	Electrolyte	115 gal	Assembly Production Zone 2A; 1stFloor
Electrolyte Storage	Electrolyte	110 gal	Assembly Production Zone 2A; 1stFloor
Fire Suppression Pump	Diesel	288 gal	West of the general storage warehouse
Wind Tunnel Emergency Generator	Diesel	358 gal	South of the fire brigade room entrance

8.6 SOLID WASTE DISPOSAL

No obvious evidence of burying or landfilling of waste was observed.

8.7 STORAGE TANK SYSTEMS

The subject property was visually observed for signs of current or former underground storage tanks (USTs) and aboveground storage tanks (ASTs). Typical indicators of USTs include pump islands, fill or vent piping, excavations, patches in pavement, etc. Evidence of a UST was noted on the subject property; the tank is empty and is intended for use in the event of emergency containment of leaks/spilled materials.

Bulk exterior storage of materials was noted in the tank farm area northeast of the building. This area is also equipped with secondary containment in the event of a spill or release.

8.8 PITS, PONDS, AND LAGOONS

Detention ponds are located east of the building and near the southeast corner of the subject property. Vegetation surrounds the ponds.

8.9 VEGETATION

No evidence of any stressed vegetation or areas of staining/discoloration were noted. The subject property was completely covered with snow and ice.

8.10 UTILITIES, WELLS AND SEPTICS

No obvious visual indications of drinking water wells or septic systems were noted at the subject property. Utilities identified at the subject property include municipal water and sewer service, natural gas, and electric service.

8.11 OIL AND GAS WELLS OR PIPELINES

No indication of oil and gas well or pipeline activity was found on the subject property.

ECS evaluated the EGLE GeoWebFace online resource to evaluate for oil and gas wells. One plugged well was identified near the southwest corner of the west parcel. This well log information was provided in the previously Phase I ESA conducted at the time Compact Power purchased the property; the well was identified as a dry well. No evidence of petroleum indicator parameters was noted during the Phase II ESA conducted on the subject property. In addition, no evidence of oil/gas wells was noted on any of the aerial photographs reviewed.

8.12 SUSPECTED POLYCHLORINATED BIPHENYL-CONTAINING EQUIPMENT

The subject property was observed for suspected polychlorinated biphenyl (PCB) containing equipment, such as electrical transformers and capacitors. Numerous transformers and electrical equipment are located across the subject property. Based on the date of site development, it is not likely PCB containing equipment is used on site. The SPCC plan indicates transformers are dry.

8.13 AREA RECONNAISSANCE

A limited visual reconnaissance of the adjoining and nearby properties was performed. The reconnaissance was limited to observation of areas visible from the subject property or areas of public access. A summary of current uses of adjoining properties relative to the subject property is listed below:

	Adjoining Properties
North	Vacant land, followed by residential/farmsteads.
South	48th Street, followed by vacant land and residential/farmsteads.
East	Vacant land, followed by residential/farmsteads.
West	Commercial/industrial properties.

ECS observed the adjacent properties from the subject property or public access areas, as accessible. Based upon observations made at the time of ECS's site reconnaissance, the current uses of adjoining properties are not of environmental concern in relation to the subject property. The western adjoining properties were commercial/industrial in nature, however, no obvious evidence of exterior chemical storage or obvious environmental concerns were noted.

9.0 OWNER/OCCUPANT INTERVIEWS

During the site reconnaissance, Mr. Joseph Morgan, Senior Manager Facilities and SHE, representing the current operator, provided information regarding the subject property.

9.1 INTERVIEW WITH SITE OWNER

Mr. Morgan was not aware of any potential environmental concerns associated with the subject property.

9.2 INTERVIEW WITH SITE OPERATOR/OCCUPANT

Mr. Morgan provided information pertaining to utilities at the subject property. Water and sanitary service are municipal sourced. Storm water is managed with an onsite storm water retention system. Semco is the gas utility provider, Holland BPW is the electric utility provider.

9.3 INTERVIEW WITH SITE MANAGER/OTHER

Ms. Shellie Ritsema, Environmental and Sustainability Assistant Manager, also provided information for the subject property. A copy of the SPCC/PIP Plan was provided for reference.

9.4 INTERVIEWS WITH STATE LOCAL AND GOVERNMENT OFFICIALS

As previously discussed in Sections 5.2 through 5.4, Holland had limited records pertaining to the subject property. No other interviews with state or local governmental officials was conducted.

10.0 ASSESSMENT OF POTENTIAL VAPOR ENCROACHMENT CONDITIONS (VECs)

ECS completed a Tier I and non-invasive Tier II Vapor Encroachment Screen (VES) of the subject property. The Tier I and non-invasive Tier II VES was conducted in general accordance with the guidelines established by the American Society for Testing and Materials (ASTM) in the Standard Practice for Assessment of Vapor Intrusion into Structures on Property Involved in Real Estate Transactions Designation E 2600-10 (ASTM Standard Practice E 2600-10).

The purpose of the VES was to determine if potential Vapor Encroachment Concerns (pVECs) or Vapor Encroachment Concerns (VECs) exist in association with the subject property. ASTM's Standard Practice E 2600-10 defines the term VEC as the presence or likely presence of any contaminant of concern (COC) in the indoor air environment of existing or planned structures on a property caused by the release of vapor from contaminated soil or groundwater either on the property or within close proximity to the property, at a concentration that presents or may present an unacceptable health risk to occupants.

A VEC can be further defined as any COC within 100 feet for soil impacts or ground water impacts of an existing/planned structure or to the target property boundary if there are no planned structures.

The scope of this Tier I VES included a review of the geologic, hydrologic, hydrogeologic, topographic maps, aerial photography, city directories and a review of regulatory databases and other pertinent data obtained during the preparation of the Phase I.

The Tier II component of this VES included the use of professional judgment for additional nearby properties outside of the scope of a typical Phase I records review. No subsurface investigation of the property was undertaken as part of this Tier I and non-invasive Tier II VES.

Based on the findings summarized in the governmental database review, and distances from the subject property, the potential for vapor intrusion from an offsite source is minimal. The historic RECs and releases from the nearby 750 and 760 E. 40th Street listings were assessed during the 2010 Phase II ESA conducted on the subject property. In addition, the FOIA file review of the nearby 741 Waverly Ct. BEA site identified tetrachloroethene at a distance of greater than 500 feet from the subject property. The concentrations observed were at levels significantly less than the non-residential VIAP.

Based on a review of the chemicals identified at "facility" concentrations, during previous assessment at the subject property, Arsenic in soil and bis(2-ethylhexyl)phthalate in groundwater are not volatile compounds.

11.0 NON-SCOPE CONSIDERATIONS

Environmental concerns, which are beyond the scope of a Phase I ESA as defined by ASTM include the following: ACMs, lead based paint, radon, water infiltration, mold and wetlands. These issues may affect environmental risk at the subject property and may warrant discussion and/or assessment; however, they are considered non-scope issues.

12.0 ASTM DATA FAILURE AND DEVIATIONS

12.1 DATA FAILURE

No data failures as defined in ASTM E 1527-13 were encountered during the completion of the Phase I ESA. No limitations were noted during the site reconnaissance, with the exception of the following:

- Limited access to the undeveloped portions of the property due to winter weather conditions.
- Snow cover and ice limiting observations on the ground surface.
- Interior photographs were limited for proprietary reasons.
- Interior access was limited due to active production activities.

12.2 DEVIATIONS

No deviations to the stated scope of work, Section 1.2, were identified during the completion of the Phase I ESA.

13.0 CONCLUSIONS AND RECOMMENDATIONS

13.1 CONCLUSIONS

In the professional opinion of ECS, appropriate inquiry has been made into the current and past uses of the subject property consistent with good commercial and customary practice in an effort to minimize liability.

ECS has performed a Phase I ESA in conformance with the scope and limitations of AAI and ASTM E 1527-13 of the subject property located at 875 and 901 E. 48th Street in Holland, Allegan County, Michigan. Any exceptions to, or deletions from, this practice are described in Section 11.2 of this Report.

The subject property is an irregular shaped property (~120 acres) located on the north side of 48th Street, to the east of Waverly Road in Holland, Allegan County, Michigan. The subject property is comprised of two parcels of land, both currently owned by Compact Power Inc. The east parcel is vacant land and the west parcel is developed with the LG Energy Solutions industrial/manufacturing complex. Site operations include manufacturing lithium-ion battery components for electric vehicles.

The existing LG Energy Solutions plant was constructed circa 2011 with subsequent expansions and renovations. The proposed development includes construction of several buildings in aggregate sum of 1.4 million square feet, situated on the north portion of the west parcel and across the east parcel.

The subject property details as obtained from Holland Assessing Department and Client provided documentation are summarized in the following table:

Parcel	Address	Owner	Details
53-02-03-300-018	875 E. 48th Street	Compact Power, Inc.	~80 acres, ~638,633 ft^2 main building gross area with additional outbuildings
53-02-03-300-019	901 E. 48th Street		~40 acres, vacant land

Historical documentation indicates the subject property was mostly agricultural land, with a small homestead near the southwest portion of the subject property as early as circa 1929 (topographic maps and aerial photographs). The subject property was redeveloped for its current use as an industrial/manufacturing building circa 2010, with subsequent additions and renovations.

The subject property was identified in the EDR database search. The subject property was listed as LG Chem Michigan, Inc. and Compact Power, Inc, and was listed in numerous governmental databases: TSCA, ICIS, FINDS, ECHO, US AIRS, SPILLS and AST. Most of these listings are administrative in nature. No references to any spills, releases or violations were noted in the listings, with the exception of the SPILLS listing. According to the report, there was a fire in activated carbon scrubber tower. The fire department came and flushed it out and the water and carbon went into the drains that are connected to the retention ponds. The spill occurred in June 2012. No additional details were provided.

Two additional addresses were identified as corresponding to the subject property. The address of 859 E. 48th Street was listed as an Inventory and BEA site, with a BEA submitted in 2010. The listing identifies Arsenic in one soil sample and bis(2-ethylhexyl)phthalate in one groundwater sample above Residential Cleanup Criteria. The address of 1 LG Way was listed in numerous databases including TRIS, FINDS, ECHO, RCRA-LQG, SPILLS, NPDES, and WDS. Some of these listings were administrative in nature. The RCRA-LQG listing identified numerous hazardous waste materials associated with site operations. No violations were noted. The SPILLS listing identified a pipe from inside the building to the outside, with a spot visible on the concrete where some acetone spilled out circa 2011. No further details were provided.

Site observations confirmed the use, storage and handling of chemicals associated with industrial manufacturing. In general, there are four main processes in the plant the use chemicals: anode and cathode mixing, n-methyl pyrrolidone (NMP) recycling, electrolyte addition and solvent based cleaning. The interior housekeeping was exceptional, with heavily controlled processes. There was no evidence of spills or leaks noted in any of the storage areas, utility areas, mechanical rooms situated throughout the building. Interior storage was noted in various areas throughout the main building associated with manufacturing processes. Numerous drums, totes and tanks were noted. Interior storage of non-hazardous and hazardous materials, including drums, totes and tanks, is also located within the hazardous materials storage building located north of the main building.

Bulk exterior storage of materials was noted in the tank farm area northeast of the building. This area is also equipped with secondary containment in the event of a spill or release.

Chemicals used in the manufacturing process are summarized in the Spill Prevention Pollution Plan and Pollution Incident Prevention Plan that cover chemical management, routes of possible spills and spill prevention measures.

With respect to potential impact from adjoining or nearby properties, ECS evaluated the information provided in the governmental databases, in addition to reviewing available FOIA documentation requested from EGLE. Based on the information provided, the potential for negative impact to the subject property from offsite sources appears minimal.

This assessment has revealed no evidence of RECs in connection with the subject property, with the exception of the following:

- The subject property is a "facility" with a BEA report prepared and submitted in 2010 at the time of purchase. Arsenic in one soil sample and bis(2-ethylhexyl)phthalate in one groundwater sample above Residential Cleanup Criteria.

The following items were also identified that warrant further discussion.

- A release of acetone was noted in the EDR Radius Map Report circa 2011. The SPILLS listing identified a pipe from inside the building to the outside, with a spot visible on the concrete where some acetone spilled out. No additional details were provided with respect to the extent of impact, if any.

- According to the EDR Radius Map Report, there was a fire in activated carbon scrubber tower. The fire department came out and flushed it out and the water and carbon went into the drains that are connected to the retention ponds. The spill occurred in June 2012. No additional details were provided with respect to extent of impact, if any.

13.2 RECOMMENDATIONS

No further assessment appears warranted with respect the "facility" listing. Previous Phase II ESA activities were conducted at the time of property purchase in 2010. The Arsenic and bis(2-ethylhexyl)phthalate detected do not present unacceptable human exposures to current or proposed site use.

Additional discussion is warranted to further address the extent of impact, if any, from the two SPILLS listings.

14.0 REFERENCES

ASTM Standard E1527-13, 2033, " Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process," ASTM International, West Conshohocken, PA, 2013, DOI: 10.1520/E1527, www.astm.org.

Code of Federal Regulations. "National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR, Part 300), Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)", July 2003.

Environmental Data Resources (EDR), Inc. "EDR-Radius Map™ February 2022.
---. *EDR Aerial Photo Decade Package*
---. *EDR Historical Topographic Map Report*
---. *Certified Sanborn® Map Report*
---. *EDR City Directory Image Report*

Michigan Legislature. "Natural Resources and Environmental Protection Act (Act 451), Environmental Remediation (Part 201)", 1994.

State of Michigan. Department of Environment, Great Lakes and Energy, GeoWebFace and Environmental Mapper online resources.

15.0 QUALIFICATIONS AND ENVIRONMENTAL PROFESSIONAL STATEMENT

We declare that, to the best of our knowledge and belief, we meet the definition of Environmental Professional as defined in 312.10 of 40 CFR 312 and we have the specific qualifications based on education, training and experience to assess a property of the nature, history and setting of the Subject Property. We have developed and performed the all appropriate inquires in conformance with the standards and practices set forth in 40 CFR Part 312.

The Phase I ESA Site reconnaissance was performed by Ms. Julie Pratt and this Phase I ESA was written by Ms. Julie Pratt. Mr. Andrew Foerg, provided oversight and report review. Ms. Pratt has over 25 years of experience performing Phase I ESAs. Mr. Foerg has over 30 years of experience performing Phase I ESAs.

All work associated with the research and development of this report was performed by qualified personnel and was performed in general accordance with ASTM E 1527-13 and EPA's standards for AAI described in *40 CFR Part 312*.

All of which is respectfully submitted,

Julie Anna Pratt
Senior Project Professional

Andrew J. Foerg, CPG
President

Enclosures

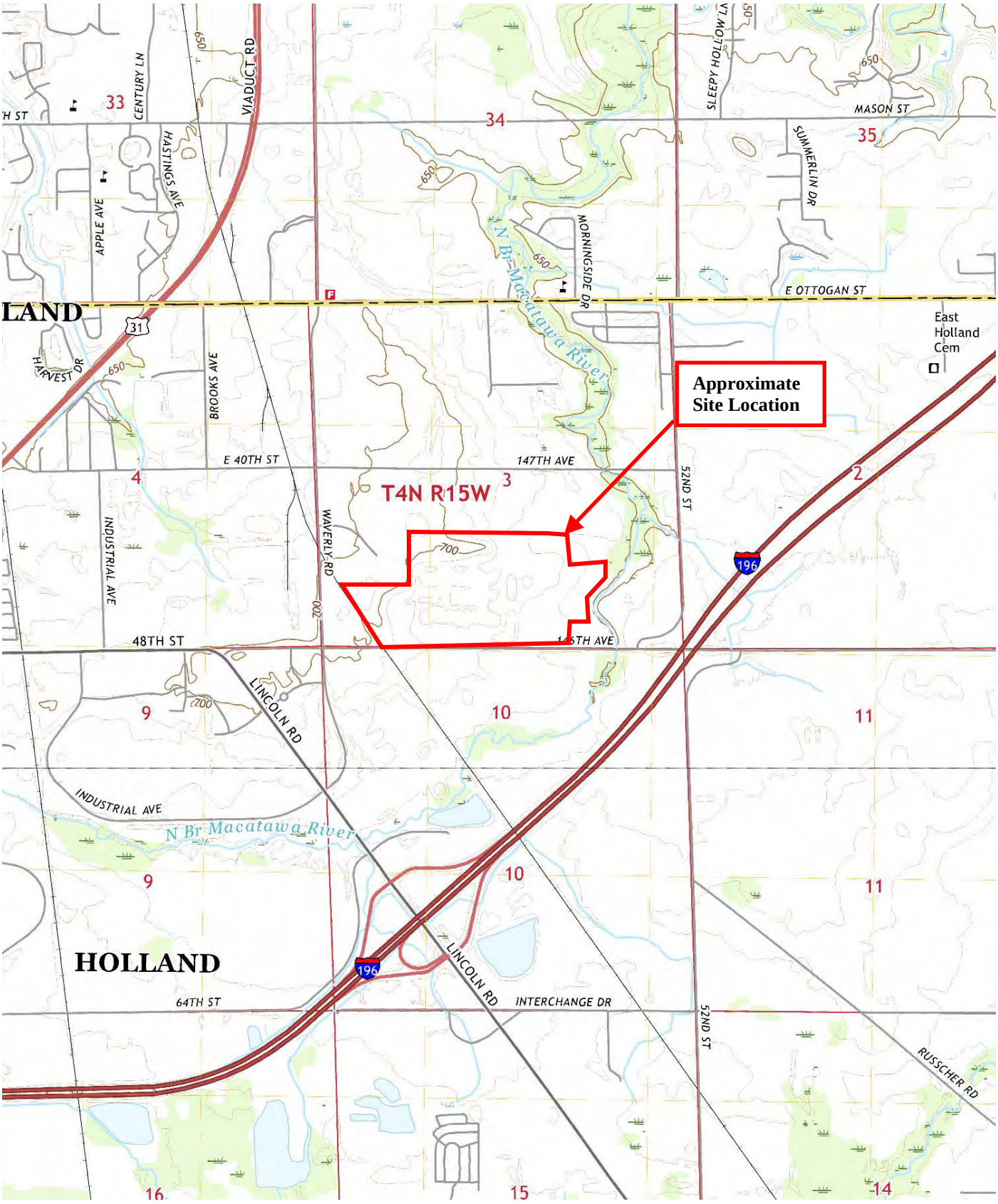


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Figure 1: Site Location Map

LG Energy Solutions Expansion

875 and 901 E. 48th Street, Holland, MI

ECS Project A118-0001

Source: Holland East, 2019 USGS Map

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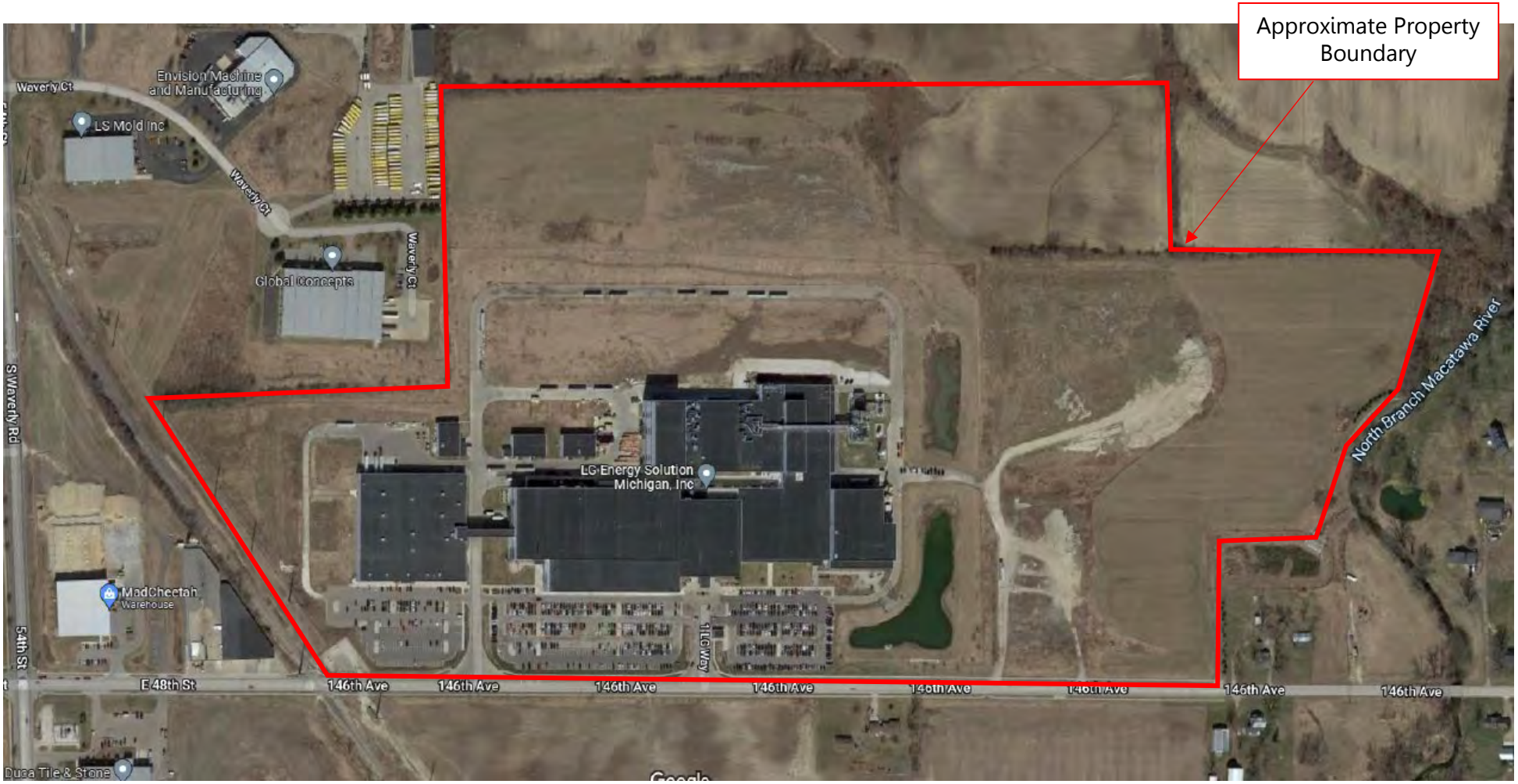

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Approximate Property Boundary

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Figure 2: Aerial Site Map
LG Energy Solutions Expansion
875 and 901 E. 48th Street, Holland, MI
ECS Project A118-0001
Source: Allegan County GIS Maps

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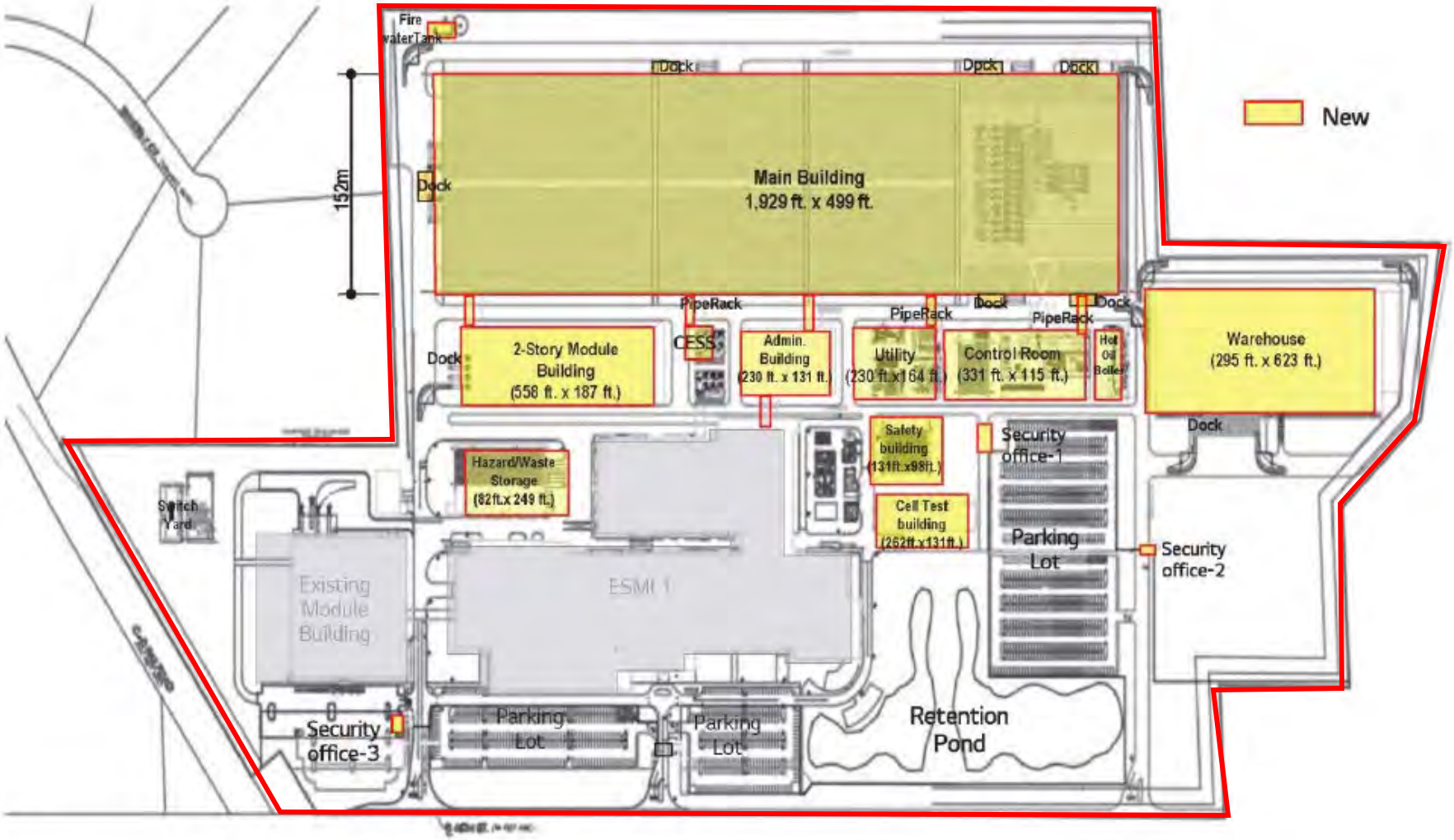

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Approximate Property Boundary

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Figure 3: Proposed Site Plans
LG Energy Solutions Expansion
875 and 901 E. 48th Street, Holland, MI
ECS Project A118-0001
Source: Allegan County Contract #1375-22

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APPENDIX A

Site Photographs

Photograph 1: Near the southeast corner of the building looking west.

Photograph 2: Looking north along east building elevation.

Photograph 3: View across southwest parking area, looking east towards the security building.

Photograph 4: View looking towards the southwest portion of the property.

Photograph 5: View near northeast corner of the building.

Photograph 6: SRP system, near the northeast corner of the building.

Photograph 7: Looking west along the north building elevation.

Photograph 8: CO_2 and Activated Carbon Filter Unit, north side of the building.

Photograph 9: Vent pipe and access cover for empty UST (used for emergency containment).

Photograph 10: View looking south, towards the north building elevation.

Photograph 11: View looking west towards the hazardous material storage building and general storage warehouse.

Photograph 12: South side of hazardous materials building.

Photograph 13: SRP system and storage tanks northeast of the building.

Photograph 14: View from SRP storage area looking south.

Photograph 15: Nitrogen storage tank.

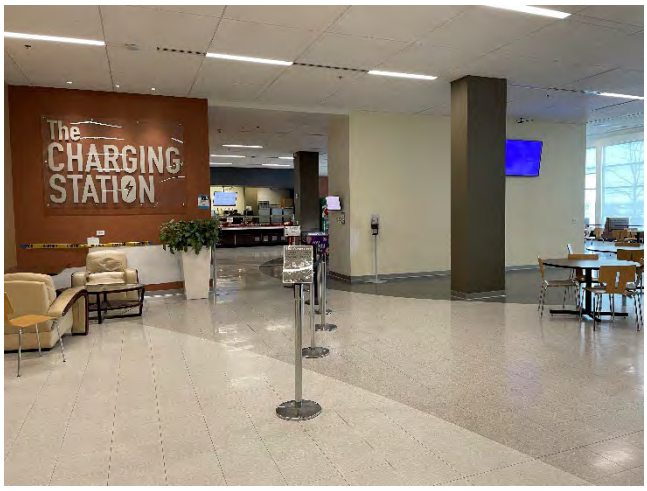
Photograph 16: View looking across the north portion of the west parcel.

Photograph 17: View looking towards the south portion of the west parcel.

Photograph 18: View looking across the south portion of the east parcel.

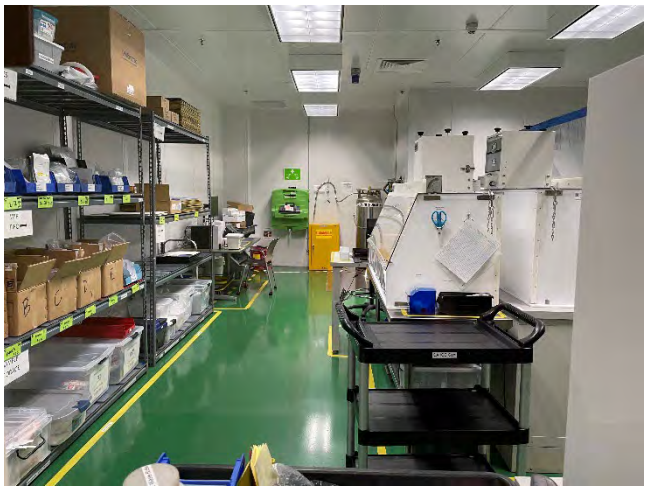
Photograph 19: View looking east across the east parcel.

Photograph 20: View looking across the southeast portion of the east parcel.



Photograph 21: Interior view, main building.

Photograph 22: Interior view, main building.



Photograph 23: Interior view, main building.

Photograph 24: Interior view, main building.

Photograph 25: Interior view, hazardous materials storage building.

Photograph 26: Interior view, hazardous materials storage building.

Photograph 27: Interior view, hazardous materials storage building.

Attachment 4

Air Quality

OMB No. 2506-0177
(exp.9/30/2021)

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

This Worksheet was designed to be used by those "Partners" (including Public Housing Authorities, consultants, contractors, and nonprofits) who assist Responsible Entities and HUD in preparing environmental reviews, but legally cannot take full responsibilities for these reviews themselves. Responsible Entities and HUD should use the RE/HUD version of the Worksheet.

Air Quality (CEST and EA) – PARTNER

https://www.hudexchange.info/environmental-review/air-quality

1. **Does your project include new construction or conversion of land use facilitating the development of public, commercial, or industrial facilities OR five or more dwelling units?**

   ☒ Yes → *Continue to Question 2.*

   ☐ No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Provide any documents used to make your determination.*

2. **Is your project's air quality management district or county in non-attainment or maintenance status for any criteria pollutants?**
   Follow the link below to determine compliance status of project county or air quality management district:
   http://www.epa.gov/oaqps001/greenbk/

   ☐ No, project's county or air quality management district is in attainment status for all criteria pollutants
   → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.*

   ☒ Yes, project's management district or county is in non-attainment or maintenance status for one or more criteria pollutants. → *Continue to Question 3.*

3. **Determine the estimated emissions levels of your project for each of those criteria pollutants that are in non-attainment or maintenance status on your project area. Will your project exceed any of the *de minimis or threshold* emissions levels of non-attainment and maintenance level pollutants or exceed the screening levels established by the state or air quality management district?**

   ☒ No, the project will not exceed *de minimis* or threshold emissions levels or screening levels
   → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Explain how you determined that the project would not exceed de minimis or threshold emissions.*

☐ Yes, the project exceeds *de minimis* emissions levels or screening levels.

→ *Continue to Question 4. Explain how you determined that the project would not exceed de minimis or threshold emissions in the Worksheet Summary.*

4. **For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.**
   Click here to enter text.

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

Click here to enter text.

designated the Black-Macatawa hydrologic unit (HUC 04050002). No Federal Emergency Management Agency floodplains were identified at the Site as it is located in an area that is currently unmapped.

Project construction would be performed under terms required by a National Pollutant Discharge Elimination System permit for construction stormwater discharge, as well as an Allegan County SESC permit. As part of these permitting processes, LGCMI has developed an SESC Plan to minimize offsite erosion and sedimentation during Project construction. Controls that would be implemented include installing a silt fence around the perimeter of the area that would be disturbed by the Project. See Appendix B for more details.

The Project would cause an additional 23.42 acres of the Site to be covered by impervious surfaces, including the new building and paved parking, driveway, and sidewalk areas. Approximately 28 acres of the Site are currently covered by impervious surfaces. The effect on stormwater infiltration in the vicinity of the Site would not be significant in light of the remaining open space near the facility and the expanded stormwater retention pond that is sized to accommodate the proposed new facility. LGCMI's current stormwater retention facilities at the Site are permitted under Industrial Stormwater Permit No. MIS220096, and LGCMI would add the Project to this existing permit. Per the conditions of this permit, LGCMI employs an industrial stormwater-certified operator who has supervision over the stormwater treatment and control measures at the facility. In addition, the facility maintains a Storm Water Pollution Prevention Plan, which describes the nonstructural and structural controls implemented onsite to eliminate unauthorized non-stormwater discharges.

During operations, LGCMI would protect surface water by managing all hazardous liquids either inside the facility, in tanks, or in closed containers stored within secondary containment structures (see Section 3.9.2). Potential spills or releases of liquids during delivery would be minimized using the controls described by the Spill Prevention Pollution Plan and Pollution Incident Prevention Plan that is in place for the existing facility (see Section 3.9.2).

Because of the current plans for municipal water use, the absence of identified floodplains, anticipated stormwater control and treatment during construction and operation, and the control of onsite hazardous liquids, impacts on groundwater or surface water as a result of the proposed Project would not be significant.

3.4 Air Quality

The Project is located in Allegan County, Michigan, which has been designated as a nonattainment area for ozone (8-hour standard) under the National Ambient Air Quality Standards. Conformity with the EPA-approved Michigan State Implementation Plan is demonstrated if the Project emissions fall below the threshold value *de minimis* emissions.[5] The threshold values as set by the State Implementation Plan for Allegan County are 100 tons per year (tpy) for the ozone precursor nitrogen oxides (NOx) or 100 tpy for the ozone precursor volatile organic compounds (VOCs) (40 CFR 93 § 153). The estimated annual NOx Project emissions would be about 62.1 tpy, and the estimated annual emissions of VOCs would be about 69 tpy, both less than the threshold *de minimis* values for these pollutants (Table 1). As a result, the Project falls into conformity with the State Implementation Plan.

LGCMI has submitted a Permit To Install application to EGLE for the Project. The Project does not have the potential to emit above any of the major source thresholds, and the Project is not considered a major source of air contamination subject to federal Title V requirements. Likewise, the Project is not a major source under Part 18, Prevention of Significant Deterioration of Air Quality. The Project is not a major

[5] EPA (U.S. Environmental Protection Agency). 2009. General Conformity *De Minimis* Levels. Available at http://www.epa.gov/air/genconform/deminimis.htm.

modification subject to Prevention of Significant Deterioration because it would not cause a significant emissions increase and/or a significant net emissions increase. Following is a table of anticipated air emissions from the proposed Project.

Table 1: Project Potential to Emit

Pollutant	Current Facility		Proposed Project		Total	
	pounds per year	tpy	pounds per year	tpy	pounds per year	tpy
SO_2	1,220	0.61	960 – 1180	0.48 – 0.59	2,180 – 2,400	1.09 – 1.20
NOx	97,220	48.6	22,400 – 48,500	11.2 – 24.2	119,620 – 145,720	59.8 – 72.8
VOC[1]	92,920	46.5	109,500 – 111,540	54.8 – 55.8	166,900 – 168,940	83.5 – 84.5
PM10	7,370	3.68	4,150 – 6,970	2.08 – 3.48	11,520 – 14,340	5.76 – 7.16
PM2.5	7,370	3.68	4,150 – 6,970	2.08 – 3.48	11,520 – 14,340	5.76 – 7.16
CO	83,620	41.8	48,080 – 79,280	24.0 – 39.6	131,700 – 162,900	65.8 – 81.4

CO= carbon monoxide; NOx = nitrogen oxides; PM10 = particulate matter with diameters 10 microns and smaller; PM2.5 = particulate matter with diameters 2.5 microns and smaller; SO_2 = sulfur dioxide; tpy = tons per year; VOC = volatile organic compound

1. *The total VOC emissions includes a proposed reduction of 17.76 tpy from the current facility.*

Controls that would be implemented during Project operation to minimize potential air quality impacts include:

- Dust collectors on mixing equipment with removal efficiency of up to approximately 99.99 percent each for particulate matter with diameters 10 microns and smaller (PM10) and particulate matter with diameters 2.5 microns and smaller (PM2.5) emissions;
- Absorber on slurry application line with approximately 99.7 percent efficiency rating for VOC emissions; and
- Dust collectors on notching equipment with removal efficiency of up to approximately 99.99 percent for PM10 and PM2.5 emissions.

Fugitive dust emissions during Project construction may temporarily impact air quality at the Site and in the surrounding area; however, these impacts would be minor and temporary. Per the SESC Plan, controls would be implemented to minimize fugitive dust emissions during construction such as watering as needed and the use of temporary construction entrances.

Carbon dioxide, considered a GHG, is not regulated in the same manner as the criteria pollutants shown in Table 1. Only major sources of carbon dioxide (emission greater than 100,000 tpy) are regulated in Michigan. The Project would result in 30,000 to 55,000 tpy of carbon dioxide emissions, which is well below the major source threshold.

Because of the location of the Project site and existing air quality conditions, the amount of anticipated air emissions, and the controls that would be implemented during Project construction and operation, impacts on air quality as a result of the proposed Project would not be significant.

3.5 Noise

The Project location is zoned industrial, with substantial industrial development in the surrounding area. Neighboring properties are host to a trucking company, railroad, various light industrial businesses, agricultural land, and a few residences. Existing sources of noise at the Site include vehicular traffic,

Attachment 5

Floodplain Documentation

FEMA (//www.fema.gov/)

FEMA Flood Map Service Center: Search By Address

Navigation

Search

Languages

Enter an address, place, or coordinates:

875 E 48th Street, Holland, MI

Search

Whether you are in a high risk zone or not, you may need flood insurance (https://www.fema.gov/national-flood-insurance-program) because most homeowners insurance doesn't cover flood damage. If you live in an area with low or moderate flood risk, you are 5 times more likely to experience flood than a fire in your home over the next 30 years. For many, a National Flood Insurance Program's flood insurance policy could cost less than $400 per year. Call your insurance agent today and protect what you've built.

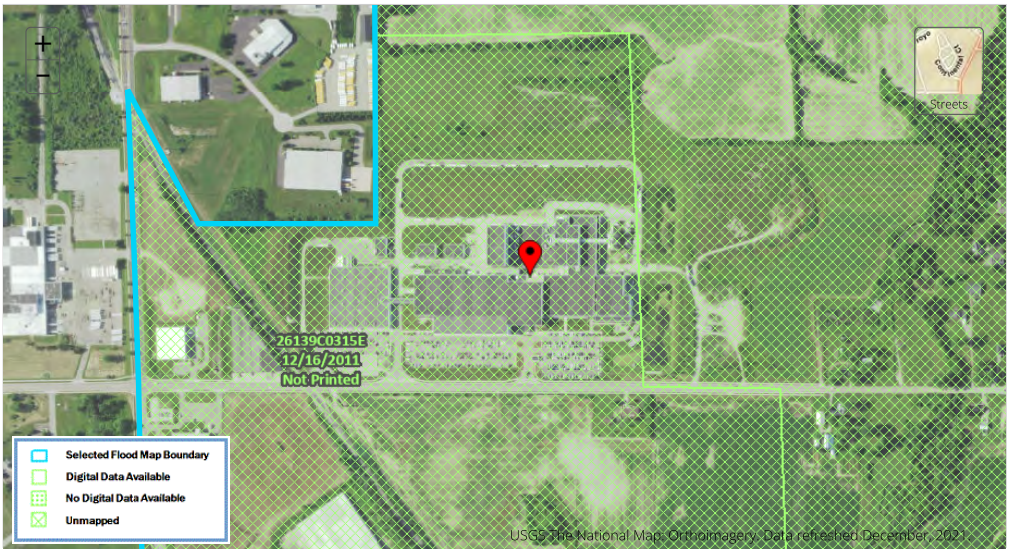
Learn more about steps you can take (https://www.fema.gov/what-mitigation) to reduce flood risk damage.

Search Results—Products for **HOLLAND, CITY OF**

Show ALL Products » (https://msc.fema.gov/portal/availabilitySearch?addcommunity=260006&communityName=HOLLAND, CITY OF#searchresul

FEMA has not completed a study to determine flood hazard for the selected location; therefore, a flood map has not been published at this time. You can contact your community or the FEMA FMIX for more information about flood risk and flood insurance in your community.

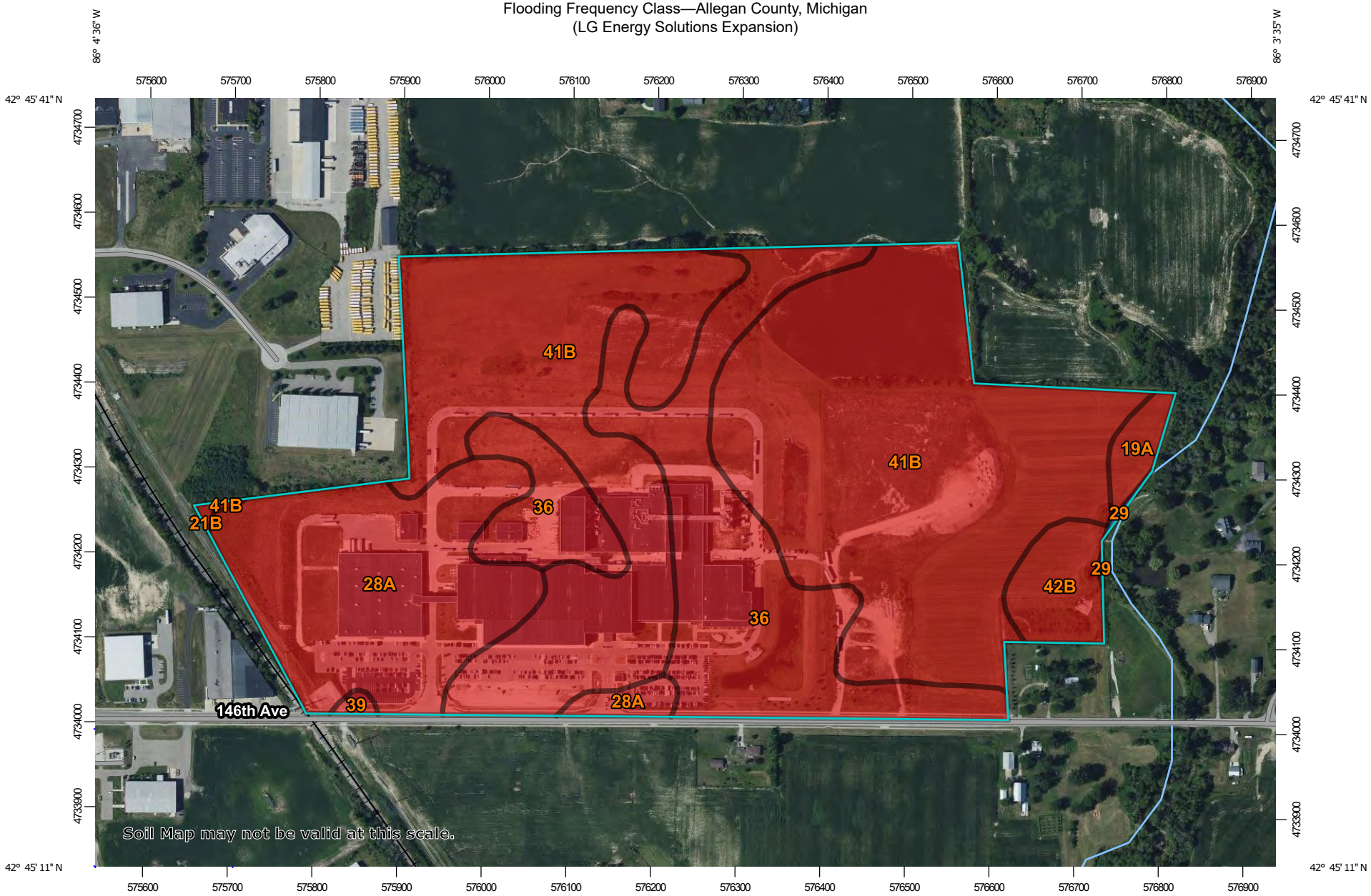
You can choose a new flood map or move the location pin by selecting a different location on the locator map below or by entering a new location in the search field above. It may take a minute or more during peak hours to generate a dynamic FIRMette. If you are a person with a disability, are blind, or have low vision, and need assistance, please contact a map specialist (https://msc.fema.gov/portal/resources/contact).



Share This Page.

(https://www.oig.dhs.gov/hotline)

Official website of the Department of Homeland Security



Map Scale: 1:6,380 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- None
- Very Rare
- Rare
- Occasional
- Frequent
- Very Frequent
- Not rated or not available

Soil Rating Lines
- None
- Very Rare
- Rare
- Occasional
- Frequent
- Very Frequent
- Not rated or not available

Soil Rating Points
- None
- Very Rare
- Rare
- Occasional
- Frequent
- Very Frequent
- 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:
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: Allegan County, Michigan
Survey Area Data: Version 19, Sep 2, 2021

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

Date(s) aerial images were photographed: Aug 12, 2020—Nov 3, 2020

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.

Flooding Frequency Class

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
19A	Brady sandy loam, 0 to 3 percent slopes	None	1.5	1.2%
21B	Capac-Wixom complex, 1 to 4 percent slopes	None	0.1	0.1%
28A	Rimer loamy sand, 0 to 4 percent slopes	None	20.5	17.4%
29	Cohoctah silt loam	Frequent	0.1	0.1%
36	Corunna sandy loam	None	24.7	20.9%
39	Granby loamy sand, lake plain, 0 to 2 percent slopes	None	0.3	0.2%
41B	Blount silt loam, 1 to 4 percent slopes	None	67.5	57.1%
42B	Metamora sandy loam, 1 to 4 percent slopes	None	3.5	3.0%
Totals for Area of Interest			**118.2**	**100.0%**

Description

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent.

"None" means that flooding is not probable. The chance of flooding is nearly 0 percent in any year. Flooding occurs less than once in 500 years.

"Very rare" means that flooding is very unlikely but possible under extremely unusual weather conditions. The chance of flooding is less than 1 percent in any year.

"Rare" means that flooding is unlikely but possible under unusual weather conditions. The chance of flooding is 1 to 5 percent in any year.

"Occasional" means that flooding occurs infrequently under normal weather conditions. The chance of flooding is 5 to 50 percent in any year.

"Frequent" means that flooding is likely to occur often under normal weather conditions. The chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year.

"Very frequent" means that flooding is likely to occur very often under normal weather conditions. The chance of flooding is more than 50 percent in all months of any year.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: More Frequent

Beginning Month: January

Ending Month: December

Attachment 6

Water Quality

Holland Board of Public Works

WATER QUALITY REPORT

This report covers the drinking water quality for Holland Board of Public Works for the 2020 calendar year. This information is a snapshot of the quality of the water that we provided to you in 2020. Included are details about where your water comes from, what it contains, and how it compares to United States Environmental Protection Agency (U.S. EPA) and state standards.

MONITORING AND REPORTING

TO THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) REQUIREMENTS

The State of Michigan and the U.S. EPA require us to test our water on a regular basis to ensure its safety. We will update this report annually and will keep you informed of any problems that may occur throughout the year as they happen.

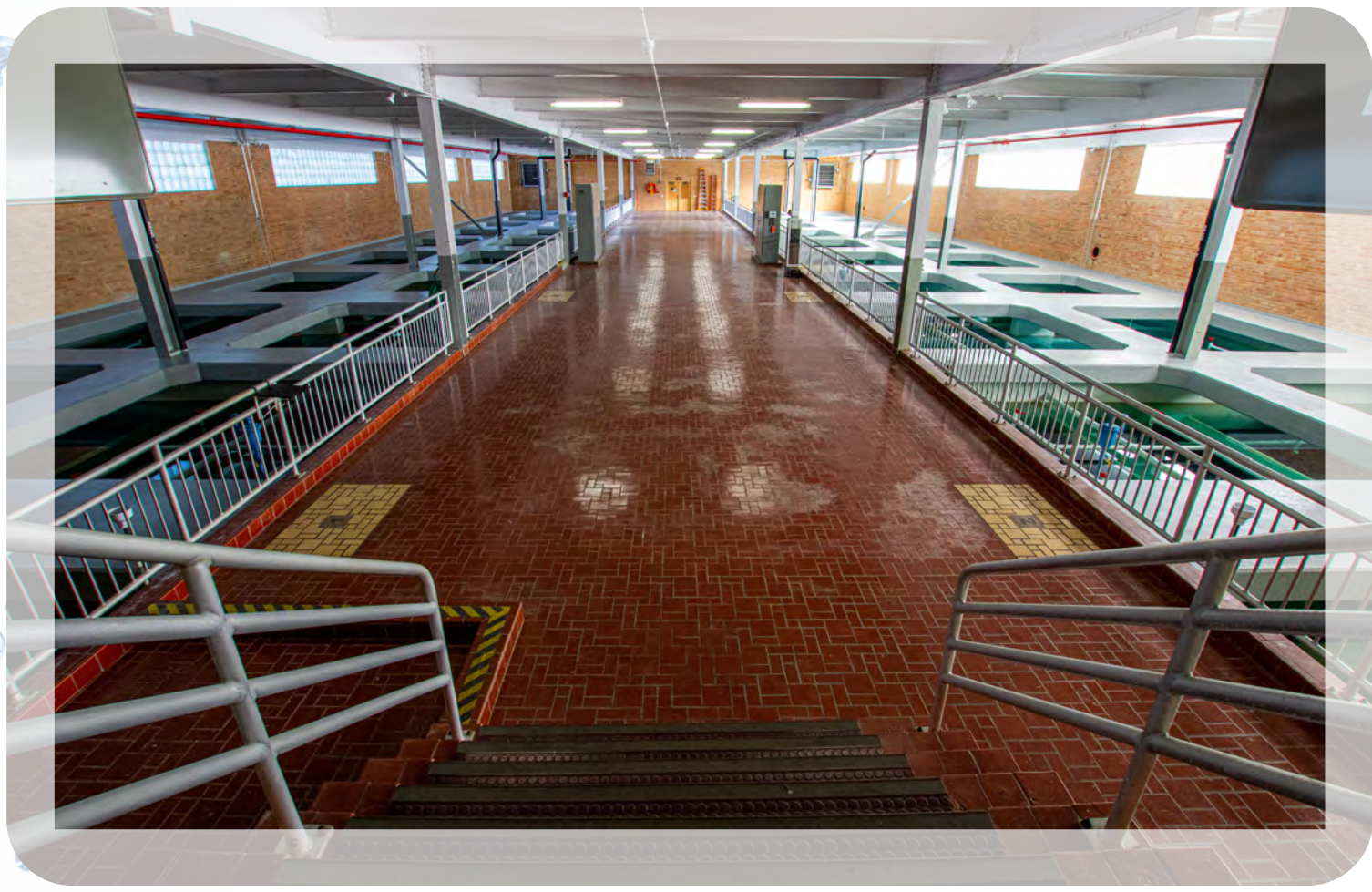
Download Water Quality Report at
https://www.hollandbpw.com/en/waterqualityreport

Printed copies are available
Holland BPW, 625 Hastings Ave., Holland, MI 49423

We invite public participation in decisions that affect drinking water quality. We welcome your comments and participation at our public board meetings at the HBPW Service Center, 625 Hastings Ave., on the Monday *between the first and second Wednesday of each month* at 4:00 p.m. We recommend that you call to confirm the meeting time, date and location prior to arriving or visit our website at hollandbpw.com for details about the meetings.

- For more information about your water or the contents of this report, contact Holland Water Treatment Plant, 616.355.1589.
- For more information about safe drinking water, visit the U.S. EPA at www.epa.gov/safewater

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.



HOLLAND WATER TREATMENT PLANT

46 N. Lakeshore Drive
Holland, Michigan 49424
Telephone: 616.355.1589

To report a water emergency, call: 616.355.1500

To arrange a tour of facilities, call: 616.355.1500

For information on water conservation, visit: www.hollandbpw.com

For the EPA's Safe Drinking Water Hot line: 800.426.4791, www.epa.gov/safewater

American Water Works Association: 800.926.7337, www.awwa.org

Federal Emergency Management Agency: www.fema.gov

CONTAMINANTS AND THEIR PRESENCE IN WATER

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water hotline (800-426-4791) or at www.epa.gov/safewater.

SOURCES OF DRINKING WATER

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. Our water comes from Lake Michigan. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

Pesticides and herbicides, which may come from a variety of sources such as agriculture and residential uses.

Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

In order to ensure that tap water is safe to drink, the U.S. EPA prescribes regulations that limit the levels of certain contaminants in water provided by public water systems. Federal Food and Drug Administration regulations establish limits for contaminants in bottled water which provide the same protection for public health.

VULNERABILITY OF SUB-POPULATIONS

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune systems disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. U.S. EPA/Center for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water hotline (800-426-4791) or at www.epa.gov/safewater.

SOURCE WATER PROTECTION

The State performed an assessment of our source water, Lake Michigan, in 2003, to determine the susceptibility or the relative potential of contamination. The susceptibility rating is on a seven-tiered scale from "very-low" to "very-high" based on geologic sensitivity, water chemistry and contamination sources. The State rated the HBPW's intake as "moderately sensitive" and the source water as having a "moderately high" susceptibility to contamination.

The State identified 364 potential sources of contamination within the total watershed of 175 square miles that could impact our water source. The report further states, "Historically, the Holland Board of Public Works Water Treatment Plant has effectively treated this water source to meet drinking water standards. There have been no detections of synthetic or volatile organic contaminants in the system's raw water." A copy of the full report can be obtained by calling HBPW at 616.355.1500.

SOURCE WATER PROTECTIONS CONTINUE

After this Source Water Assessment Program (SWAP) concluded, Holland BPW initiated the creation and implementation of a Surface Water Intake Protection Plan (SWIPP), which has been developed in accordance with the guidelines of the SWAP and is an extension of those efforts. It is a voluntary program encouraged by the USEPA and the Michigan Department of Environment, Great Lakes and Energy (EGLE). Its purpose is to utilize the information provided by the mandatory SWAP program in order to allow regional participation of communities to protect their drinking water sources. For more information about the ongoing efforts of the SWIPP, please call the water treatment plant at 616.355.1589.

TERMS AND ABBREVIATIONS USED IN THIS REPORT

Maximum Contaminant Level Goal (MCLG):
The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Contaminant Level (MCL):
The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Residual Disinfectant Level (MRDL):
The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG):
The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not deflect the benefits of the use of disinfectants to control microbial contaminants.

Treatment Technique (TT):
A required process intended to reduce the level of a contaminant in drinking water.

ppt: Parts per trillion or nanograms per liter

ppb: Parts per billion or micrograms per liter

ppm: Parts per million or milligrams per liter

Action Level (AL):
The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Lifetime Health Advisory (LHA):
Refers to a concentration that is not expected to cause adverse health effects over a lifetime of consistent daily exposure at that level. This is based on a 154 pound adult consuming two liters of water each day. These advisories are not enforceable standards, but are meant to serve as guidance and are based on scientific studies.

Unregulated Contaminants:
Contaminants that are suspected to be present in drinking water and do not have health-based standards set under the Safe Drinking Water Act (SDWA).

Highest Local Running Average:
The highest average of a specific contaminent over the annual sampling period from a single sampling point. This measure is used in reporting TTHM and HAA5.

INFORMATION ABOUT LEAD

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Holland Board of Public Works is responsible for providing high quality drinking water but cannot control the variety of materials used in private plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you have been notified that you have a service line with lead components, it is recommended that you run your water for at least 5 minutes to flush water from both your home plumbing and the service line.

If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water hotline at 1-800-426-4791 or at www.epa.gov/safewater/lead.

Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

QUANTITY OF SERVICE TYPES IN 2020

Service Description	City of Holland	Holland Township*	Laketown Township*	Park Township*	Total
Copper, Plastic, and other Non-Lead	6762	546	1101	3871	12280
Lead Service: Lead Pipe	0	0	0	0	0
Lead Service: Galvanized Pipe with Lead Gooseneck	1950	30	0	0	1980
Lead Service: Galvanized Pipe Previously Connected to Lead Gooseneck	1730	11	0	0	1742
Unknown Material	281	21	60	447	809
Total	10723	608	1161	4319	16811

**HBPW Service Areas Only*

WATER QUALITY DATA

This table lists all the drinking water contaminants that we detected during the 2020 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The data presented in this table is from testing done Jan. 1 through Dec. 31, 2020.

HOLLAND WATER TREATMENT PLANT WATER QUALITY DATA FOR 2020 (WSSN 3190)

Regulated at the Water Treatement Plant

Regulated Contaminant	Highest Level Detected	EPA'S MCL	EPA'S MCLG	Violations	Range of Detection	Typical Source of Contaminant
Fluoride (ppm)	0.80	4.00	4.00	None	0.18 - 0.8	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate (ppm)	0.61	10	10	None	0.34 - 0.61	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Turbidity (NTU)	0.42	1.0	N/A	None	0.015 - 0.418	Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

Unregulated Contaminants[1]

Unregulated Contaminants:These are contaminates for which the EPA has not established drinking water standards. The purpose of the unregulated contaminates monitoring is to assist EPA in determining the occurrence of unregulated contaminates in drinking water.

Sodium (ppm)	12.1	Not Regulated	Not Regulated	None	10.0 - 12.1	Erosion of natural deposits

Holland BPW performed additional testing for other unregulated contaminants; no detections were found. Results of these tests are available by contacting the Water Treatment Plant at 616-355-1589.

HOLLAND BPW DISTRIBUTION SYSTEM WATER QUALITY DATA (WSSN 3190)

Regulated At Customer's Tap

Inorganic Contaminant Subject to Action Levels (AL)	Year Sampled	90th Percentile[2]	EPA's Action Level	MCLG	# of Tests With Levels above EPA's AL	Range of Detection	Typical Sources of Contaminant
Copper (ppm)	2019	0.0	1.3	1.3	None	0.00100 - 0.0423	Corrosion of household plumbing systems; Erosion of natural deposits.
Lead (ppb)	2019	1.0	15	0.0	None	0 - 3	Lead service line, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits.

Regulated in the Distribution System

Regulated Contaminant	Highest Local Running Annual Average	Highest Level Detected	EPA'S MCL	EPA'S MCLG	Violations	Range of Detection	Typical Source of Contaminant
Chlorine [Cl2] (ppm)	1.22	1.63	4.0 MRDL	4.0 MRDLG	None	0.03 - 1.63	Water additive used to control microbes
Total Trihalomethanes [TTHM] (ppb)	47.1	58.5	80	0	None	27.8 - 58.5	Byproduct of drinking water disinfection
Haloacetic Acids [HAA5] (ppb)[3]	27.0	47.7	60	None	None	15.6 - 47.7	Byproduct of drinking water disinfection
Total Coliform Bacteria		0	<5%	0%	None	0 - 0	Naturally present in the environment

[1] Holland BPW performed additional testing for other regulated and unregulated contaminants; no detections were found. More information about these tests are available by contacting the Water Treatment Plant at 616-355-1589.
[2] Ninety (90) percent of the samples collected were at or below the level reported for our water. [3] Additional HAA5 samples were collected for the UCMR4 program and are shown in the 2020 UCMR4 Sampling table on the next page.

LAKETOWN TOWNSHIP DISTRIBUTION SYSTEM WATER QUALITY DATA FOR 2020 (WSSN 3747)

Regulated at the Customer's Tap

Inorganic Contaminant Subject to Action Levels (AL)	90th Percentile	EPA's Action Level	MCLG	# of Tests With Levels above EPA's AL	Range of Detection	Typical Sources of Contaminant
Copper (ppm)	0.02	1.3	1.3	None	0.0032 - 0.0209	Corrosion of household plumbing systems; Erosion of natural deposits.
Lead (ppb)	0.0	15	0.0	None	0 - 0	Lead service line, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits.

Regulated in the Distribution System

Regulated Contaminant	Highest Local Running Annual Average	Highest Level Detected	EPA'S MCL	EPA'S MCLG	Violations	Range of Detection	Typical Source of Contaminant
Chlorine [Cl2] (ppm)	1.24	1.45	4.0 MRDL	4.0 MRDLG	None	0.84 - 1.45	Water additive used to control microbes
Total Trihalomethanes [TTHM] (ppb)	42.1	53.3	80	0	None	18.6 - 53.3	Byproduct of drinking water disinfection
Haloacetic Acids [HAA5] (ppb)	25.4	43.0	60	None	None	18.6 - 43.0	Byproduct of drinking water disinfection
Total Coliform Bacteria		1	<5%	0%	None	0 - 0	Naturally present in the environment

PARK TOWNSHIP DISTRIBUTION SYSTEM WATER QUALITY DATA FOR 2020 (WSSN 5203)

Regulated in the Distribution System

Regulated Contaminant	Highest Local Running Annual Average	Highest Level Detected	EPA'S MCL	EPA'S MCLG	Violations	Range of Detection	Typical Source of Contaminant
Chlorine [Cl2] (ppm)	1.23	1.53	4.0 MRDL	4.0 MRDLG	None	0.13 - 1.53	Water additive used to control microbes
Total Trihalomethanes [TTHM] (ppb)	33.9	49.6	80	0	None	15.1 - 49.6	Byproduct of drinking water disinfection
Haloacetic Acids [HAA5] (ppb)	22.8	36.8	60	None	None	9.4 - 36.8	Byproduct of drinking water disinfection
Total Coliform Bacteria		0	<5%	0%	None	0 - 0	Naturally present in the environment

COPPER

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

ADDITIONAL MONITORING (UCMR4)
UNREGULATED CONTAMINANT MONITORING RULE 4

The 1996 Safe Drinking Water Act (SDWA) amendments require that once every five years the EPA is to issue a new list of no more than 30 unregulated contaminants to be monitored by public water systems (PWSs).

The fourth Unregulated Contaminant Monitoring Rule (UCMR 4) was published in the Federal Register on December 20, 2016. UCMR 4 requires monitoring for 30 chemical contaminants between 2018 and 2020 using analytical methods developed by EPA and consensus organizations. This monitoring provides a basis for future regulatory actions to protect public health.

For more information about UCMR4 see:
www.epa.gov/dwucmr/fourth-unregulated-contaminant-monitoring-rule

2020 UCMR4 SAMPLING

Unregulated Contaminant	Lowest Level (ppb)	Highest Level (ppb)	Average
HAA5[4]	34.30	37.00	35.65
HAA6Br	13.40	13.90	13.65
HAA9	46.80	49.90	48.35
Chlorodibromoacetic	1.20	1.20	1.20
Dibromoacetic Acid	0.66	0.67	0.67
Dichloracetic Acid	14.70	15.50	15.10
Trichloroactic	18.90	20.50	19.70
Bromochloroacetic Acid	4.60	4.60	4.60
Bromodichloroacetic Acid	6.90	7.40	7.15
Manganese	0.26	0.26	0.26
Total Organic Carbon (TOC)	600	600	600

ppb = parts per billion
Only contaminants that were detected are listed.

[4] HAA5 is currently regulated and our routine monitoring results are in the table at the top of page 2. However, the samples presented in this table were collected for the UCMR4 program in addition to the routine monitoring and during months other than required by routine monitoring.

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

Per- and polyfluoroalkyl substances (PFAS), sometimes called PFCs, are a group of chemicals that are resistant to heat, water, and oil. PFAS have been classified by the United States Environmental Protection Agency (U.S. EPA) as an emerging contaminant on the national landscape. For decades, they have been used in many industrial applications and consumer products such as carpeting, waterproof clothing, upholstery, food paper wrappings, fire-fighting foams, and metal plating. They are still used today. PFAS have been found at low levels both in the environment and in blood samples from the general U.S. population.

These chemicals are persistent, which means they do not break down in the environment. They also bioaccumulate, meaning the amount builds up over time in the blood and organs. Although our understanding of these emerging contaminants is constantly evolving, elevated levels of PFAS have the potential to cause increased cholesterol, changes in the body's hormones and immune system, decreased fertility, and increased risk of certain cancers. Links to these health effects in humans are supported by epidemiologic studies and by laboratory studies in animal models.

VOLUNTARY PFAS MONITORING
NOT REGULATED BY USEPA OR EGLE

Unregulated Contaminant	Year Sampled	Highest Level (ppt)	Range (ppt)	Lifetime Health Advisory (LHA)
PFOA	2019	3	0-3	70 ppt
PFOS	2019	2	0-2	
Total PFAS	2019	3	0-3	

ppt = parts per trillion

Samples were collected from May-September 2019.

ARE THERE HEALTH ADVISORY LEVELS?

The U.S. EPA has not established enforceable drinking water standards, called maximum contaminant levels (MCLs), for these chemicals. However, the U.S. EPA has set a lifetime health advisory (LHA) level in drinking water for two PFAS: perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). The PFOA and PFOS LHA is the level, or amount, below which no harm is expected from these chemicals. The LHA level is 70 parts per trillion (ppt) for PFOA and 70 ppt for PFOS. If both PFOA and PFOS are present, the LHA is 70 ppt for the combined concentration.

The amount of PFOA and PFOS combined in the sample collected from the Holland Water Treatment Plant raw water intake and distribution system entry point ranged from 0 to 3 ppt (parts per trillion), which is more than 23 times lower than the LHA for the combination of these two chemicals. There are many other PFAS compounds that currently do not have LHA levels.

While the U.S. EPA has not established MCLs, the Michigan Department of Environment, Great Lakes, and Energy (EGLE) recently developed MCLs for seven PFAS compounds in drinking water for Michigan, which took effect in August 2020. These MCLs amend existing rules for public drinking water supplies under Michigan's Safe Drinking Water Act (SDWA), affecting approximately 2,700 public water supplies statewide. Based on the results from the initial voluntary sampling performed in 2019, the first set of compliance samples from the Holland Water Treatment Plant were taken early in 2021. Results from this sampling event can be found at www.michigan.gov/pfasresponse and will be included in the 2021 Water Quality Report.

For information on PFOA, PFOS, and other PFAS, including possible health outcomes, you may visit these websites:

- www.epa.gov/pfas
- www.atsdr.cdc.gov/pfas
- www.michigan.gov/pfasresponse

WHY WAS HOLLAND BPW'S SOURCE WATER TESTED FOR PFAS?

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) has coordinated a statewide initiative to test drinking water from all schools that use well water and community water supplies for PFAS. EGLE is taking this precautionary step of testing these drinking water sources to determine if public health actions are needed.

WHO CAN I CALL IF I HAVE QUESTIONS ABOUT PFAS IN MY DRINKING WATER?

If any resident has additional questions regarding this issue, the State of Michigan Environmental Assistance Center can be contacted at 800-662-9278. Representatives may be reached to assist with your questions Monday through Friday, 8:00 AM to 4:30 PM.

IS IT SAFE TO EAT FISH IN THESE AREAS?

Wild fish samples are being collected from local lakes and rivers. These samples will be analyzed to determine the levels of PFAS in fish and make recommendations on how much is safe to eat.

Some information is already available in the State of Michigan Eat Safe Fish guides, which are available at: www.michigan.gov/eatsafefish.

MAY I BATHE OR SWIM IN WATER CONTAINING PFAS?

Yes, information currently available suggests that this is not a major contributor to overall exposure.

HOW CAN PFAS AFFECT PEOPLE'S HEALTH?

Some scientific studies suggest that certain PFAS may affect different systems in the body. The National Center for Environmental Health (NCEH)/Agency for Toxic Substances and Disease Registry (ATSDR) is working with various partners to better understand how exposure to PFAS might affect people's health.

If you are concerned about exposure to PFAS in your drinking water, please contact

- Michigan Department of Health and Human Services Toxicology hotline at 800-648-6942
- Center for Disease Control and Prevention/ATSDR at www.cdc.gov/cdc-info or 800-232-4636.

Currently, scientists are still learning about the health effects of exposures to PFAS, including exposure to mixtures

WHAT OTHER WAYS COULD I BE EXPOSED TO PFOA, PFOS AND OTHER PFAS COMPOUNDS?

PFAS are used in many consumer products. They are used in food packaging such as fast-food wrappers and microwave popcorn bags; waterproof and stain-resistant fabrics such as outdoor clothing, upholstery, and carpeting; nonstick coatings on cookware; and cleaning supplies including some soaps and shampoos. People can be exposed to these chemicals in house dust, indoor and outdoor air, food, and drinking water. There is still uncertainty regarding these routes of exposure and more research is necessary.

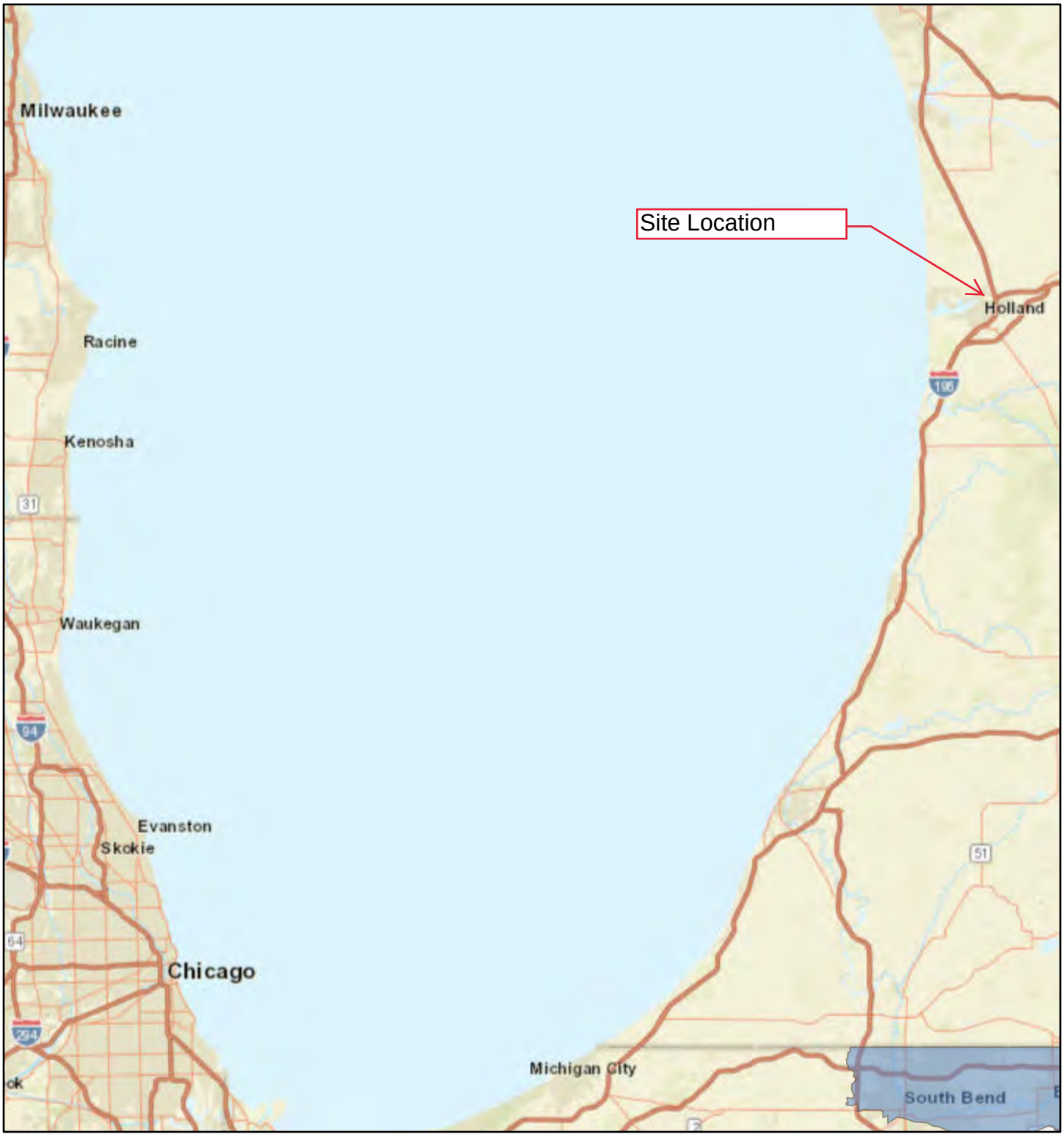
HOW CAN I STAY UPDATED ON THE SITUATION?

The state of Michigan has created a website where you can find information about PFAS contamination and efforts to address it in Michigan. The site will be updated as more information becomes available.
The website address is: www.michigan.gov/pfasresponse

Attachment 7

Sole Source Aquifers

ArcGIS Web AppBuilder



11/15/2021, 2:28:05 PM

1:1,155,581

0 5 10 20 mi

0 10 20 40 km

Sole_Source_Aquifers

There are no Sole Source Aquifers in Michigan.

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

Attachment 8

Farmland Protection

Search

Soil Reports

Open All | Close All

- AOI Inventory
- Building Site Development
- Construction Materials
- Disaster Recovery Planning
- **Land Classifications**
  - Conservation Tree and Shrub Suitability Groups
  - Forage Suitability Groups
  - Hydric Soil List - All Components
  - Hydric Soils
  - Land Capability Classification
  - NCCPI Overall
  - Prime and other Important Farmlands

    View Description | View Soil Report

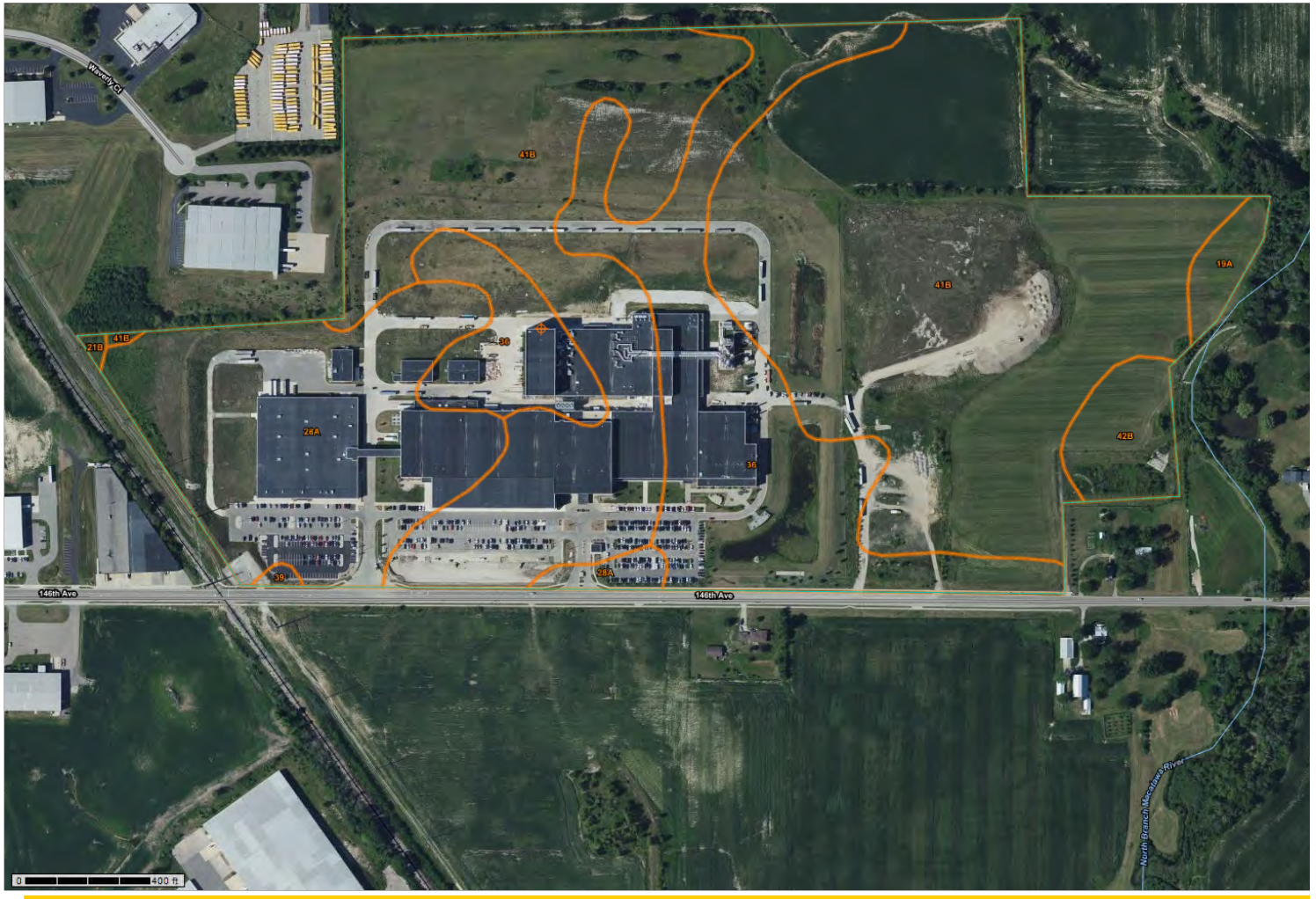
    Options

    This report has no options.

    View Description | View Soil Report
  - Taxonomic Classification of the Soils
- Land Management
- Recreational Development
- Sanitary Facilities
- Soil Chemical Properties
- Soil Erosion
- Soil Health
- Soil Physical Properties
- Soil Qualities and Features
- Vegetative Productivity
- Waste Management
- Water Features
- Water Management

Soil Map

Scale (not to scale)



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

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil surveys that comprise your AOI were mapped design of map units and the level of detail shown in the resulting soil map are dependent on that map 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 so been shown at a more detailed scale.

Report — Prime and other Important Farmlands

Allegan County, Michigan

Map Symbol	Map Unit Name	Farmland Classification
19A	Brady sandy loam, 0 to 3 percent slopes	All areas are prime farmland
21B	Capac-Wixom complex, 1 to 4 percent slopes	Prime farmland if drained
28A	Rimer loamy sand, 0 to 4 percent slopes	Farmland of local importance
36	Corunna sandy loam	Prime farmland if drained
39	Granby loamy sand, lake plain, 0 to 2 percent slopes	Farmland of local importance
41B	Blount silt loam, 1 to 4 percent slopes	Prime farmland if drained
42B	Metamora sandy loam, 1 to 4 percent slopes	Prime farmland if drained

Description — Prime and other Important Farmlands

Prime and Important Farmland

This table lists the map units in the survey area that are considered important farmlands. Important farmlands consist of prime farmland, unique farmland, and farmland of statewide or local importance. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation's food supply.

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

For some of the soils identified in the table as prime farmland, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures.

A recent trend in land use in some areas has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. It has the special combination of soil quality, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable high yields of these crops when properly managed. The water supply is dependable and of adequate quality. Nearness to markets is an additional consideration. Unique farmland is not based on national criteria. It commonly is in areas where there is a special microclimate, such as the wine country in California.

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

In some areas that are not identified as having national or statewide importance, land is considered to be *farmland of local importance* for the production of food, feed, fiber, forage, and oilseed crops. This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance.

Farmland Protection Policy Act

To learn more about the Farmland Protection Policy Act, you can play the webinar below or download the webinar's slides as a PDF.

Background

The National Agricultural Land Study of 1980-81 found that millions of acres of farmland were being converted in the United States each year. The 1981 Congressional report, Compact Cities: Energy-Saving Strategies for the Eighties, identified the need for Congress to implement programs and policies to protect farmland and combat urban sprawl and the waste of energy and resources that accompanies sprawling development.

The Compact Cities report indicated that much of the sprawl was the result of programs funded by the Federal Government. With this in mind, Congress passed the Agriculture and Food Act of 1981 (Public Law 97-98) containing the Farmland Protection Policy Act (FPPA) subtitle I of Title XV, Section 1539-1549. On June 17, 1994, the final rules and regulations were published in the Federal Register.

Purpose

The FPPA is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that to the extent possible federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years.

The FPPA does not authorize the Federal Government to regulate the use of private or nonfederal land or, in any way, affect the property rights of owners.

For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

Projects and Activities

Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a Federal agency or with assistance from a Federal agency.

Assistance from a Federal agency includes:

- Acquiring or disposing of land.
- Providing financing or loans.
- Managing property.
- Providing technical assistance

Activities that may be subject to FPPA include:

- State highway construction projects, (through the Federal Highway Administration)
- Airport expansions
- Electric cooperative construction projects
- Railroad construction projects
- Telephone company construction projects
- Reservoir and hydroelectric projects
- Federal agency projects that convert farmland
- Other projects completed with Federal assistance.

Activities not subject to FPPA include:

- Federal permitting and licensing
- Projects planned and completed without the assistance of a Federal agency
- Projects on land already in urban development or used for water storage
- Construction within an existing right-of-way purchased on or before August 4, 1984
- Construction for national defense purposes
- Construction of on-farm structures needed for farm operations
- Surface mining, where restoration to agricultural use is planned
- Construction of new minor secondary structures such as a garage or storage shed.

Farmland Conversion Impact Rating Form

If you represent a Federal agency in a project that has the potential to convert important farmland to non-farm use, please contact your local office of the Natural Resources Conservation Service (NRCS) or USDA Service Center. NRCS uses a land evaluation and site assessment (LESA) system to establish a farmland conversion impact rating score on proposed sites of Federally funded and assisted projects. This score is used as an indicator for the project sponsor to consider alternative sites if the potential adverse impacts on the farmland exceed the recommended allowable level.

The assessment is completed on form AD-1006, Farmland Conversion Impact Rating. The sponsoring agency completes the site assessment portion of the AD-1006, which assesses non-soil related criteria such as the potential for impact on the local agricultural economy if the land is converted to non-farm use and compatibility with existing agricultural use.

Program Contacts

Attachment 9

Wetlands

U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands

February 25, 2022

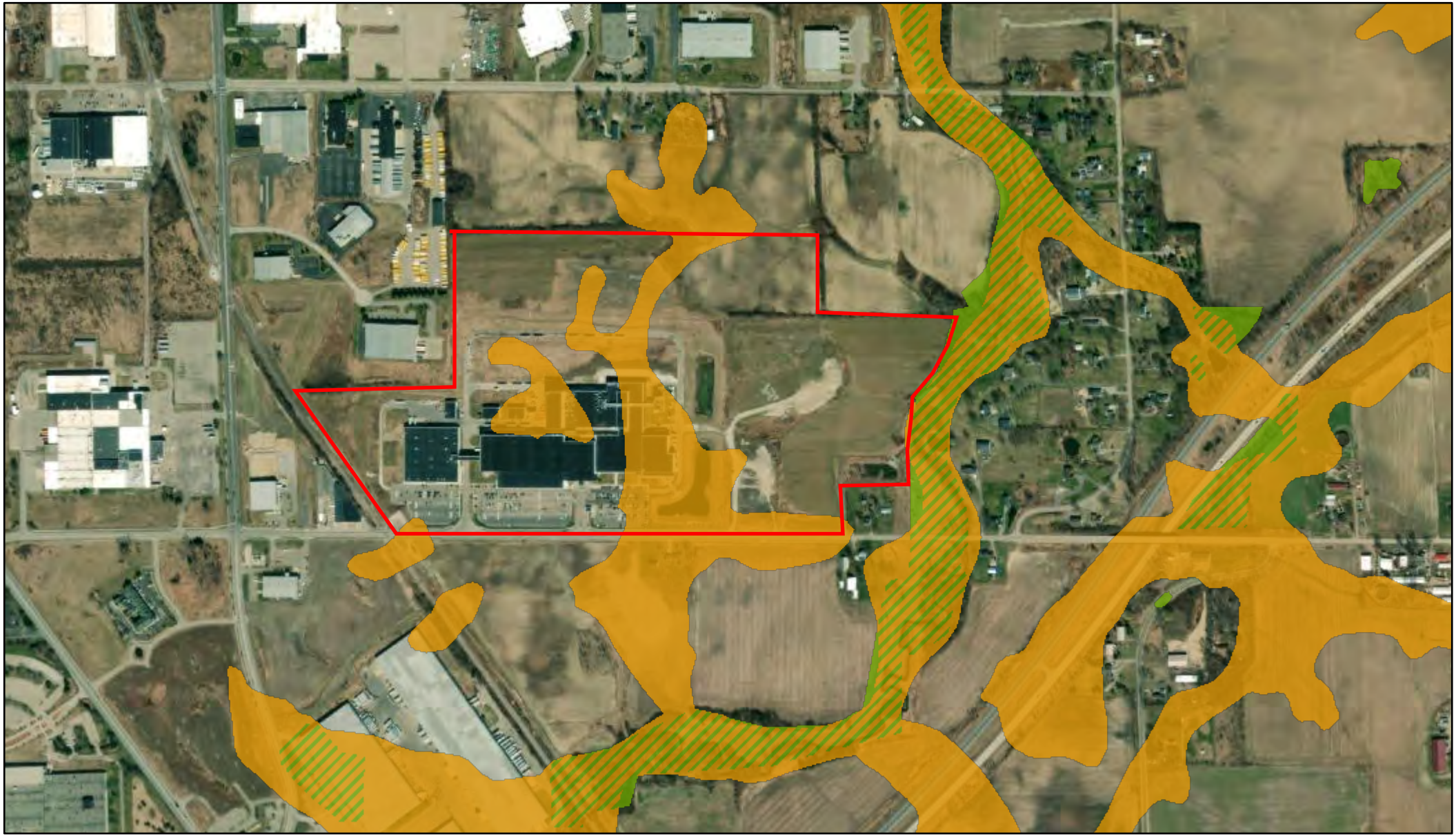
Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Wetlands Map Viewer



February 24, 2022

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

1:9,391

0 0.07 0.15 0.3 mi

0 0.13 0.25 0.5 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap

Notice of Authorization

Permit Number 10-03-0007-P

Issued: 05/14/2010
Expiration Date: 05/14/2015

The State of Department of Natural Resources and Environment, Land and Water Management Division, P. O. Box 30458, Lansing, Michigan 48909-7958, 517-335-3183, under provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and specifically:

- ☐ Part 31 Floodplain/Water Resources Protection.
- ☐ Part 301 Inland Lakes and Streams.
- ☒ Part 303 Wetland Protection.
- ☐ Part 315 Dam Safety.
- ☐ Part 325 Great Lakes Submerged Lands.
- ☐ Part 323 Shorelands Protection and Management.
- ☐ Part 353 Sand Dune Protection and Management.

Authorized activity:

Excavate approximately 8,058 cubic yards of material from 1.03 acres of wetland. Place 8,795 cubic yards of fill in 1.18 acres of wetland. Total wetland impact is 2.21 acres. Work is for the construction of a commercial development. Create 3.5 acres of wetland from an upland area as mitigation for the permitted wetland impact. All work shall be completed in accordance with the attached plans and conditions of this permit.

To be conducted at property located: Allegan County, Waterbody: wetland
Section 3 , Town 4N, Range 15W, Fillmore Township

Permittee: Compact Power Inc
1857 Technology Drive
Troy, MI 48083

Rebecca A. Humphries, Director
Department of Natural Resources and Environment

(for)

Katie Fairchild
District Representative

This notice must be displayed at the site of work.
Laminating this notice or utilizing sheet protectors is recommended.

Please refer to the above Permit Number with any questions or concerns.

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT
PERMIT

ISSUED TO:

Compact Power Inc
1857 Technology Drive
Troy, MI 48083

Permit No.	10-03-0007-P
Issued	May 14, 2010
Extended	
Revised	
Expires	May 14, 2015

This permit is being issued by the Michigan Department of Natural Resources and Environment (MDNRE) under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA) and specifically:

- ☐ **Part 301 Inland Lakes and Streams**
- ☐ **Part 315 Dam Safety**
- ☐ **Part 325 Great Lakes Submerged Lands**
- ☐ **Part 323 Shorelands Protection and Management**
- ☒ **Part 303 Wetlands Protection**
- ☐ **Part 353 Sand Dune Protection and Management**
- ☐ **Part 31 Floodplain/Water Resources Protection**

Permission is hereby granted, based on permittee assurance of adherence to State requirements and permit conditions to:

Permitted Activity:

Excavate approximately 8,058 cubic yards of material from 1.03 acres of wetland. Place 8,795 cubic yards of fill in 1.18 acres of wetland. Total wetland impact is 2.21 acres. Work is for the construction of a commercial development. Create 3.5 acres of wetland from an upland area as mitigation for the permitted wetland impact. All work shall be completed in accordance with the attached plans and conditions of this permit.

Water Course Affected: wetland
Property Location: Allegan **County,** Fillmore Township, **Section** 3
Subdivision, Lot **Town/Range** 4N, 15W **Property Tax No.** 03-02-03-300-017+

Authority granted by this permit is subject to the following limitations:

A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.
B. The permittee in exercising the authority granted by this permit shall not cause unlawful pollution as defined by Part 31, Floodplain/Water Resources Protection of the NREPA.
C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
D. All work shall be completed in accordance with the plans and the specifications submitted with the application and/or plans and specifications attached hereto.
E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved herein.
F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with Act 53 of the Public Act of 1974 and comply with each of the requirements of that act.
G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits or complying with other state statutes.
H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
I. Permittee shall notify the MDNRE within one week after the completion of the activity authorized by this permit, by completing and forwarding the attached, preaddressed post card to the office addressed thereon.
J. This permit shall not be assigned or transferred without the written approval of the MDNRE.
K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific State Act, Federal Act and/or Rule under which this permit is granted.
L. Work to be done under authority of this permit is further subject to the following special instructions and specifications:

Wetland Mitigation

The permittee shall, as a primary condition of this permit, mitigate the loss of 2.21 acres of wetland, consisting of 2.19 acres of emergent and 0.02 acres of scrub-shrub wetland. The authorization granted by this permit is contingent upon the completion of mitigation as follows:

a. A new 3.5 acre wetland area, consisting of 1.75 acres of emergent, 1.72 acres of sedge meadow, and 0.03 acres of scrub-shrub wetland, shall be created in accordance with plans approved by the MDNRE. If the permit conditions modify the mitigation plan, the permit conditions shall take precedence over the mitigation plan.

b. The mitigation grading, planting, and introduction of hydrology shall be constructed prior to or concurrent with initiating any other permitted activities.

c. The permittee has provided a bond or letter of credit to the MDNRE in a form identical to the financial assurance models on the MDNRE's website at www.michigan.gov/deqwetlands in the amount of $175,000 to ensure that the replacement wetland is constructed, the conservation easement is recorded, monitoring is completed, and corrective actions are performed as required to comply with the mitigation requirements and conditions of this permit. The financial assurance document has been provided and accepted by the MDNRE prior to signature of this permit by the MDNRE.

   Prior to the transfer of this permit to another person, the new person must obtain and provide a financial instrument acceptable to the MDNRE in the name of the new person and in the amount required by this permit.

   Upon request of the permittee and with the submittal of adequate proofs, the MDNRE may release portions of the financial instrument in accordance with the following guidelines:

   50 percent of the financial instrument may be released after the MDNRE concurs that the mitigation grading and planting have been completed, and that proper hydrology has been established for a minimum of two years after construction of the mitigation wetland.

   The remaining 50 percent of the financial instrument will be released upon all of the following:

   i. Submittal of all the required monitoring reports,
   ii. Substantial compliance with the performance standards as outlined in this permit, and
   iii. Final approval by the MDNRE.

d. The permittee shall execute a conservation easement over the mitigation area as shown on the permit plans in a form identical to the conservation easement model on the MDNRE's website at www.michigan.gov/deqwetlands. The original executed conservation easement and associated exhibits must be sent to the MDNRE for review and recording prior to initiation of any permitted activities. Send to: Conservation Easement Coordinator, MDNRE, Land and Water Management Division, P.O. Box 30458, Lansing, Michigan, 48909, with a copy of the executed easement mailed to the District Office's address above.

   An acceptable executed conservation easement must be submitted to the MDNRE by the permittee prior to commencement of any permitted work within regulated areas.

   The conservation easement boundary shall be demarcated by the placement of signs along the perimeter. The signs shall be placed at an adequate frequency, visibility, and height for viewing, made of a suitable material to withstand climatic conditions, and should be replaced as needed. The signs shall include the following language:

WETLAND CONSERVATION EASEMENT
NO CONSTRUCTION OR PLACEMENT OF STRUCTURES ALLOWED.
NO MOWING, CUTTING, FILLING, DREDGING OR
APPLICATION OF CHEMICALS ALLOWED.
MICHIGAN DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENT

To protect the wetland mitigation from encroachment, the permittee may establish a split rail fence or similar structure approved by the MDNRE, along the conservation easement boundary.

Except as otherwise provided by this permit or approved in writing by the MDNRE, the following activities are prohibited in perpetuity within the mitigation area: alteration of topography, creation of paths, trails, or roads; placement of fill, dredging, or excavation; drainage of surface or groundwater; construction or placement of any structure; plowing, tilling, or cultivating the soils or vegetation; cutting, removal, or alteration of vegetation; including the planting of non-native plant species; construction of unauthorized utility or petroleum lines; storage or disposal of garbage, trash, debris, abandoned equipment; accumulation of machinery or other waste materials; use or storage of off-road vehicles; placement of billboards or signs; or the use of the wetland for the dumping of storm water (except as otherwise allowed in this permit).

e. The mitigation site shall not be fine graded, but shall be left in a rough grade state (allowing for the establishment of micro-topography). Any planting or seeding of the mitigation site must consist of native Michigan plant materials.

f. It is recommended that the permittee install a water control structure that can manipulate the water levels in 2-6 inch increments. The failure to install adequate water control structures may lead to the need to re-grade the entire mitigation area should the hydrology establish differently than shown on the approved mitigation plans.

g. The permittee shall notify the MDNRE's District Office, in writing and within 20 days of completion of each of the following items:

    1) final grading
    2) seeding and plant installation

h. In the event the permitted activity is begun but not completed, the permittee or owner of record shall remain responsible for completion of the mitigation wetland and associated conditions, as determined by the MDNRE. Such determinations shall be based upon the extent of the disturbance to the existing wetlands.

i. Should the mitigation wetland fail to become established after two complete growing seasons, or fail to progress satisfactorily towards a self-sustaining wetland system as required by this permit, the permittee shall:

    i. Assess the problem and its probable causes;
    ii. develop reasonable and necessary corrective measures as a revision to original plans;
    iii. submit proposed corrective measures to the MDNRE for confirmation and approval within 60 days of identification of the problem; and
    iv. upon MDNRE approval, implement corrective measures.

Additional mitigation monitoring may be required to evaluate the success of the corrective measures.

Wetland Mitigation Performance Standards

The following performance standards will be used to evaluate the mitigation wetland:

a. Construction has been completed in accordance with the MDNRE's approved plans and specifications included in the permit and mitigation plan.

b. The mitigation wetland is characterized by the presence of water at a frequency and duration sufficient to support a predominance of wetland vegetation and the wetland types specified at the end of the monitoring period.

c. A layer of high-quality topsoil, from the A horizon of an organic or loamy surface texture soil, is placed (or exists) over the entire wetland mitigation area at a minimum thickness of six (6) inches.

d. The mitigation wetland shall be free of oil, grease, debris, and all other contaminants.

e. A minimum of six (6) habitat structures, consisting of at least three (3) types, have been placed per acre of mitigation wetland. At least 50 percent of each structure shall extend above the normal water level. The types of acceptable wildlife habitat structures are:

   i. Tree stumps laid horizontally within the wetland area. Acceptable stumps shall be a minimum of 6 feet long (log and root ball combined) and 12 inches in diameter.
   ii. Logs laid horizontally within the wetland area. Acceptable logs shall be a minimum of 10 feet long and 6 inches in diameter.
   iii. Whole trees laid horizontally within the wetland area. Acceptable whole trees shall have all of their fine structure left intact (i.e., not trimmed down to major branches for installation), be a minimum of 20 feet long (tree and root ball), and a minimum of 12 inches in diameter at breast height (DBH).
   iv. Snags which include whole trees left standing that are dead or dying, or live trees that will be flooded and die, or whole trees installed upright into the wetland. A variety of tree species should be used for the creation of snag habitat. Acceptable snags shall be a minimum of 20 feet tall (above the ground surface) and a minimum of 12 inches DBH. Snags should be grouped together to provide mutual functional support as nesting, feeding, and perching sites.
   v. Sand mounds at least 18 inches in depth and placed so that they are surrounded by a minimum of 30 feet of water measuring at least 18 inches in depth. The sand mound shall have at least a 200 square foot area that is 18 inches above the projected high water level and oriented to receive maximum sunlight.

f. The mean percent cover of native wetland species in the herbaceous layer at the end of the monitoring period is not less than:

   60 percent for emergent wetland.
   80 percent for scrub-shrub wetland.
   80 percent for wet meadow wetland.
   80 percent for forested wetland.

   Extensive open water and submergent vegetation areas having no emergent and/or floating vegetation shall not exceed 20 percent of the mitigation wetland area. Extensive areas of bare soil shall not exceed five percent of the mitigation wetland area. For the purposes of these performance standards, extensive refers to areas greater than 0.01 acre (436 square feet) in size.

   The total percent cover of wetland species in each plot shall be averaged for plots taken in the same wetland type to obtain a mean percent cover value for each wetland type. Plots within identified extensive open water and submergent areas, bare soil areas, and areas without a predominance of wetland vegetation shall not be included in this average. Wetland species refers to species listed as facultative and wetter (FAC, FAC+, FACW-, FACW, FACW+, OBL) on the U.S. Fish and Wildlife Service's "National List of Plant Species That Occur in Wetlands" for Region 3.

g. The mitigation wetland supports a predominance of wetland vegetation (as defined in the "MDNRE Wetland Identification Manual") in each vegetative layer, represented by a minimum number of native wetland species, at the end of the monitoring period. The minimum number of native wetland species per wetland type shall not be less than:

15 species within the emergent wetland.
15 species within the scrub-shrub wetland.
20 species within the wet meadow wetland.
15 species within the forested wetland.

The total number of native wetland plant species shall be determined by a sum of all species identified in sample plots of the same wetland type.

h. At the end of the monitoring period, the mitigation wetland supports a minimum of:

Three hundred (300) individual surviving, established, and free-to-grow trees per acre in the forested wetland that are classified as native wetland species and consisting of at least three different plant species. Three hundred (300) individual surviving, established, and free-to-grow shrubs per acre in the scrub-shrub wetland that are classified as native wetland species and consisting of at least four different plant species. Eight (8) native wetland species of grasses, sedges, or rushes in the wet meadow wetland.

i. The mean percent cover of invasive species including, but not limited to, *Phragmites australis* (Common Reed), *Lythrum salicaria* (Purple Loosestrife), and *Phalaris arundinacea* (Reed Canary Grass) shall in combination be limited to no more than ten (10) percent within each wetland type. Invasive species shall not dominate the vegetation in any extensive area of the mitigation wetland.

If the mean percent cover of invasive species is more than ten (10) percent within any wetland type or if there are extensive areas of the mitigation wetland in which an invasive species is one of the dominant plant species, the permittee shall submit an evaluation of the problem to the MDNRE. If the permittee determines that it is infeasible to reduce the cover of invasive species to meet the above performance standard, the permittee must submit an assessment of the problem, a control plan, and the projected percent cover that can be achieved for review by the MDNRE. Based on this information, the MDNRE may approve an alternative invasive species standard. Any alternative invasive species standard must be approved in writing by the MDNRE.

If the mitigation wetland does not satisfactorily meet these standards by the end of the monitoring period, or is not satisfactorily progressing during the monitoring period, the permittee will be required to take corrective actions.

Wetland Mitigation Monitoring

The permittee shall monitor the wetland mitigation for a minimum of five (5) years following grading, planting, and introduction of hydrology. A monitoring report, which compiles and summarizes all data collected during the monitoring period, be submitted annually by the permittee. Monitoring reports shall cover the period of January 1 through December 31 and be submitted to the MDNRE prior to January 31 of the following year. The permittee shall conduct the following activities and provide the information collected in the monitoring reports:

a. Measure inundation and saturation at all staff gauges, monitoring wells, and other stationary points shown in the mitigation plan monthly during the growing season. Hydrology data shall be measured and provided at sufficient sample points to accurately depict the water regime of each wetland type.

b. Sample vegetation in plots located along transects shown in the mitigation plan once between July 15 and August 31. The number of sample plots necessary within each wetland type shall be determined by use of a species-area curve or other approach approved by the MDNRE. The minimum number of sample plots for each wetland type shall be no fewer than five (5). Sample plots shall be located on the sample transect at evenly spaced intervals or by another approach acceptable to the MDNRE. If additional or alternative sample transects are needed to sufficiently evaluate each wetland type, they must be approved in advance in writing by the MDNRE.

   The herbaceous layer (all non-woody plants and woody plants less than 3.2 feet in height) shall be sampled using a 3.28 foot by 3.28 foot (one square meter) sample plot. The shrub and tree layer shall be sampled using a 30-foot radius sample plot. The data recorded for each herbaceous layer sample plot shall include a list of all living plant species, and an estimate of percent cover in five (5) percent intervals for each species recorded, bare soil areas, and open water relative to the total area of the plot. The number and species of surviving, established, and free-to-grow trees and surviving, established, and free-to-grow shrubs shall be recorded for each 30-foot radius plot.

   Provide plot data and a list of all the plant species identified in the plots and otherwise observed during monitoring. Data for each plant species must include common name, scientific name, wetland indicator category from the U.S. Fish and Wildlife Service's "National List of Plant Species That Occur in Wetlands" for Region 3, and whether the species is considered native according to the Michigan Floristic Quality Assessment (Michigan Department of Natural Resources, 2001). Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (1991).

   The locations of sample transects and plots shall be identified in the monitoring report on a plan view showing the location of wetland types. Each transects shall be permanently staked at a frequency sufficient to locate the transect in the field.

c. Delineate any extensive (greater than 0.01 acre in size) open water areas, bare soil areas, areas dominated by invasive species, and areas without a predominance of wetland vegetation, and provide their location on a plan view.

d. Document any sightings or evidence of wading birds, songbirds, waterfowl, amphibians, reptiles, and other animal use (lodges, nests, tracks, scat, etc.) within the wetland noted during monitoring. Note the number, type, date, and hour of the sightings and evidence.

e. Inspect the site, during all monitoring visits and inspections, for oil, grease, man-made debris, and all other contaminants and report findings. Rate (e.g., poor, fair, good, excellent) and describe the water clarity in the mitigation wetland.

f. Provide annual photographic documentation of the development of the mitigation wetland during vegetation sampling from permanent photo stations located within the mitigation wetland. At a minimum, photo stations shall be located at both ends of each transect. Photos must be labeled with the location, date photographed, and direction.

g. Provide one-time photographic documentation during construction of the placement of at least six (6) inches of high quality soil, from the A horizon of an organic or loamy surface texture soil, across the site.

h. Provide the number and type of habitat structures placed and representative photographs of each structure type.

i. Provide a written summary of data from previous monitoring periods and a discussion of changes or trends based on all monitoring results. This summary shall include a calculation of the acres of each wetland type established, a plan view drawing depicting each ecological type, and identification of all performance standards and whether each standard has been met.

j. Provide a written summary of all the problem areas that have been identified and potential corrective measures to address them.

A qualified individual able to identify plants to genus and species must conduct the wetland monitoring. The MDNRE reserves the right to reject reports with substandard monitoring data.

The MDNRE will determine if the performance standards have been met. If the performance standards have not been met, the MDNRE may require subsequent annual monitoring until final approval from the MDNRE can be granted.

Prior to final written approval of the mitigation by the MDNRE, the permittee shall submit the following:

i. A written statement that the mitigation is complete and request for final approval of the mitigation.
ii. A copy of the permit.
iii. "As-built" plans and specifications signed and sealed by a registered surveyor or licensed engineer.
ii. A surveyed boundary of the established wetland within the mitigation area, including the total acreage of the mitigation wetland and the acreage of each type of wetland created.
iii. Complete all monitoring requirements including the submittal of all required monitoring reports.

If the construction of the wetland mitigation has not been completed due to the fact that the activities authorized by this permit have not been initiated, then the permittee shall provide a written status report by December 1 each year until the wetland mitigation construction is complete. The written status report shall document the anticipated start date and completion date of wetlands mitigation construction. The status report shall not be considered in lieu of or as a substitution for any of the annual monitoring reports required by this permit.

Documentation of Ownership

The permittee shall provide the following documentation of ownership for the wetland mitigation site. This documentation must be submitted with the original executed conservation easement to the address above.

- A 50-year ownership history including copies of all deeds, encumbrances, easements, severed mineral rights, and other pertinent documents.
- A written statement from the property owner that there are no easements, encumbrances, or transfers of the property, in whole or in part, not disclosed in the title search.
- Subordination of any property interest (e.g., mineral rights, mortgages, easements) which would interfere with establishment and protection of the conservation easement.
- A title insurance policy insuring the conservation easement area in the name of the MDNRE, in an amount determined by the MDNRE.
- If the property owner is a company, documentation that the person executing the conservation easement has the authority to convey land on behalf of the company.

General Conditions

1. Prior to initiating construction, authorized by this permit, the permittee is required to provide a copy of the permit to the contractor(s) for review.

2. The property owner, contractor(s), **and any agent involved in exercising this permit** are held responsible to ensure the project is constructed in accordance with all drawings and specifications

contained in this permit. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by this permit.

3. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent (CEA). To locate the Soil Erosion Program Administrator for your county visit www.deq.state.mi.us/sesca/.

4. A storm water discharge permit may be required under the Federal Clean Water Act for construction activities that disturb one or more acres of land and discharge to surface waters. For sites over five (5) acres, the permit coverage may be obtained by a Part 91, Soil Erosion and Sedimentation Control (SESC), permit and filing a "Notice of Coverage" form to the MDNRE's Water Bureau. For sites with disturbance from one acre up to five acres, storm water coverage is automatic once the SESC permit is obtained. These one to five acre sites are not required to apply for coverage, but are required to comply with storm water discharge permit requirements. Information on the storm water discharge permit is available from the Water Bureau's Storm Water Permit Program by calling 517-373-8088 or at www.michigan.gov/deqwater. Select "surface water" and then select "storm water."

5. All excavated spoils including organic and inorganic soils, vegetation, and other material removed shall be placed on upland (non-wetland, non-floodplain or non-bottomland), prepared for stabilization, and stabilized with sod and/or seed and mulch in such a manner to prevent and ensure against erosion of any material into any waterbody, wetland, or floodplain.

6. All fill shall consist of clean inert material that will not cause siltation nor contain soluble chemicals, organic matter, pollutants, or contaminants. All fill shall be CONTAINED in such a manner so as not to erode into any surface water, floodplain, or wetland. All raw areas associated with the permitted activity shall be STABILIZED with sod and/or seed and mulch, riprap, or other technically effective methods as necessary to prevent erosion.

7. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.

8. In issuing this permit, the MDNRE has relied on the information and data that the permittee has provided in connection with the permit application. If, subsequent to the issuance of this permit, such information and data prove to be false, incomplete, or inaccurate, the MDNRE may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.

9. The authority to conduct the activity as authorized by this permit is granted solely under provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state, or federal approval or authorizations necessary to conduct the activity.

10. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representatives of the permittee, undertaken in connection with this permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.

11. This permit is being issued for the maximum time allowed under Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, PA 451 of 1994, as amended, including all permit extensions allowed under the administrative rule R 281.923. Therefore, no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by the MDNRE, will be for a five-year period beginning at the date of issuance.

12. This permit shall become effective on the date of the MDNRE representative's signature. Upon signing by the permittee named herein, this permit must be returned to the MDNRE's Land and Water Management Division, Kalamazoo District Office, 7953 Adobe Road, Kalamazoo, Michigan, 49009 for final execution.

Permittee hereby accepts and agrees to comply with the terms and conditions of this permit.

X Hee Yil Ro May 13, 2010
Permittee Date

X Hee Yil Ro / President of Cell manufacturing
Printed Name and Title of Permittee

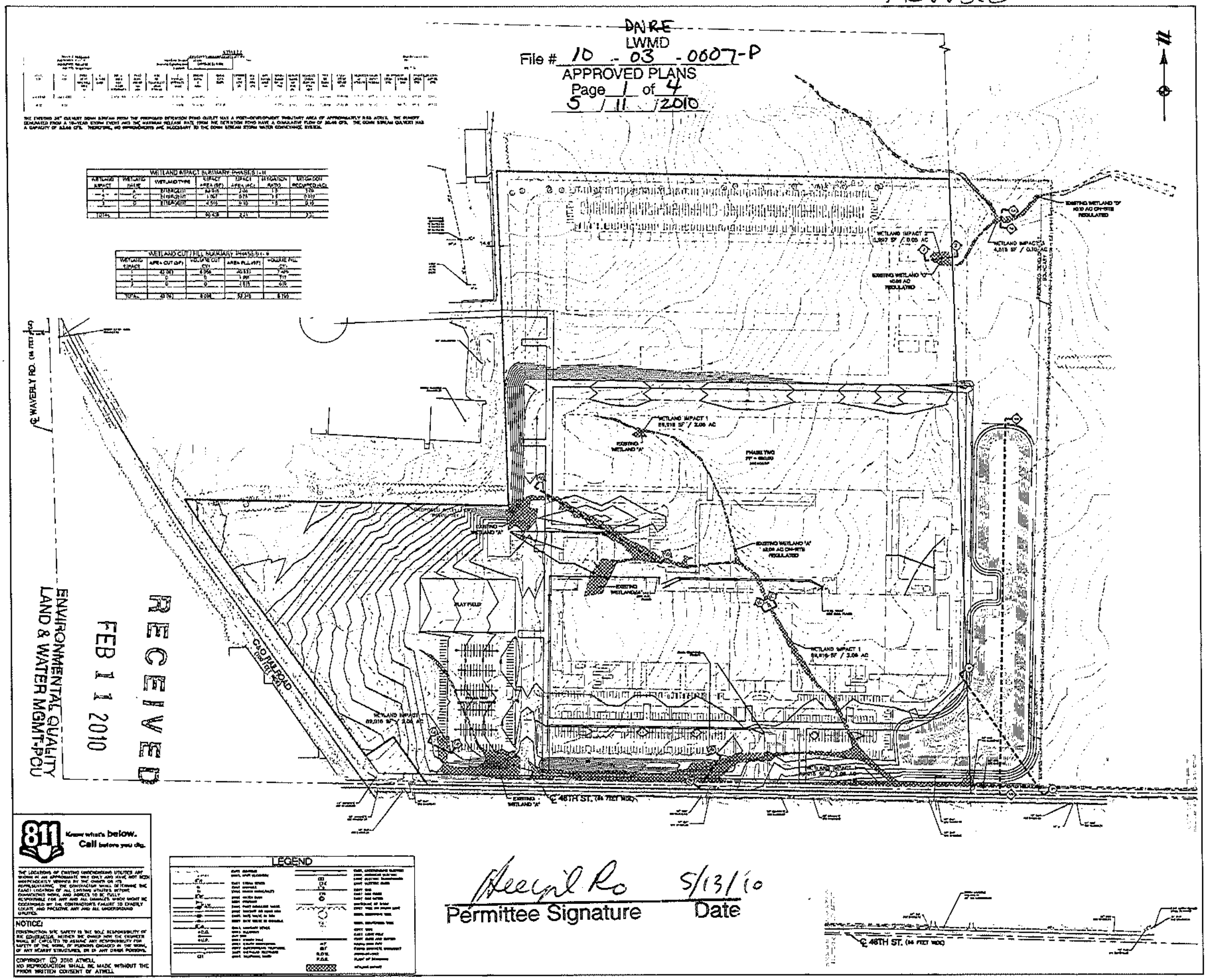
Rebecca A. Humphries, Director
Michigan Department of Natural Resources and Environment

By (for)
Kathleen Fairchild
Land and Water Management Division
269-567-3567

cc: Allegan CEA
Fillmore Township
City of Holland
Ms. Colleen O'Keefe, MDNRE
Ms. Bobbi Roberson, Atwell, LLC

Revised

File # 10 - 03 - 0007-P
~~DNRE~~ LWMD
APPROVED PLANS
Page 1 of 4
5 / 11 / 2010



WETLAND IMPACT SUMMARY PHASES I - III						
WETLAND IMPACT	WETLAND NAME	WETLAND TYPE	IMPACT AREA (SF)	IMPACT AREA (AC)	MITIGATION RATIO	MITIGATION REQUIRED (AC)
1	A	EMERGENT	[illegible]	[illegible]	[illegible]	[illegible]
2	C	EMERGENT	[illegible]	[illegible]	[illegible]	[illegible]
3	D	EMERGENT	[illegible]	[illegible]	[illegible]	[illegible]
TOTAL			[illegible]	[illegible]		[illegible]

WETLAND CUT / FILL SUMMARY PHASES I - III				
WETLAND IMPACT	AREA CUT (SF)	VOLUME CUT (CY)	AREA FILL (SF)	VOLUME FILL (CY)
1	[illegible]	[illegible]	[illegible]	[illegible]
2	0	0	[illegible]	[illegible]
3	0	0	[illegible]	[illegible]
TOTAL	[illegible]	[illegible]	[illegible]	[illegible]

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LAND & WATER MGMT-PCU

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LEGEND

[signature] 5/13/10
Permittee Signature Date

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PHASES I - III

HOLLAND, MI

ATWELL

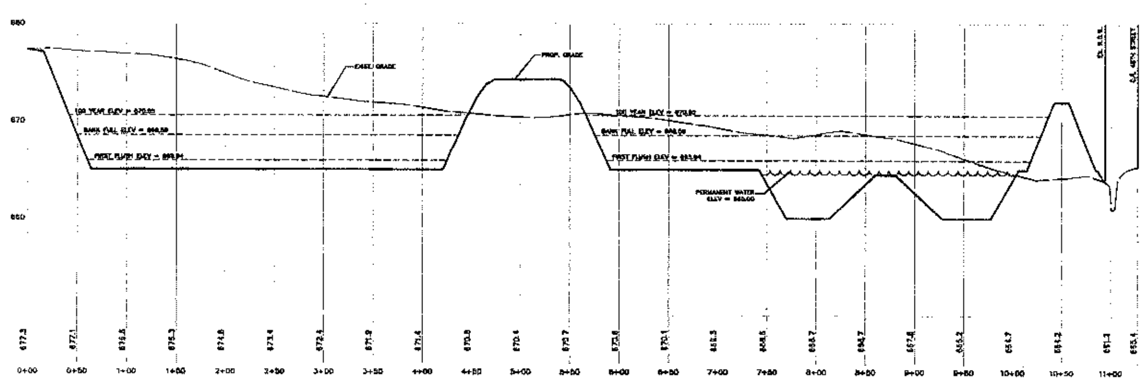
No.	Description	Date
1	MDEQ REVISIONS	2.10.10

Wetland Impact Plan

Date January 22, 2010
Scale 0 50 100
1" = 100 Feet

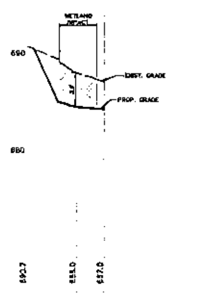
03

Revised



DETENTION POND SECTION 5-5'

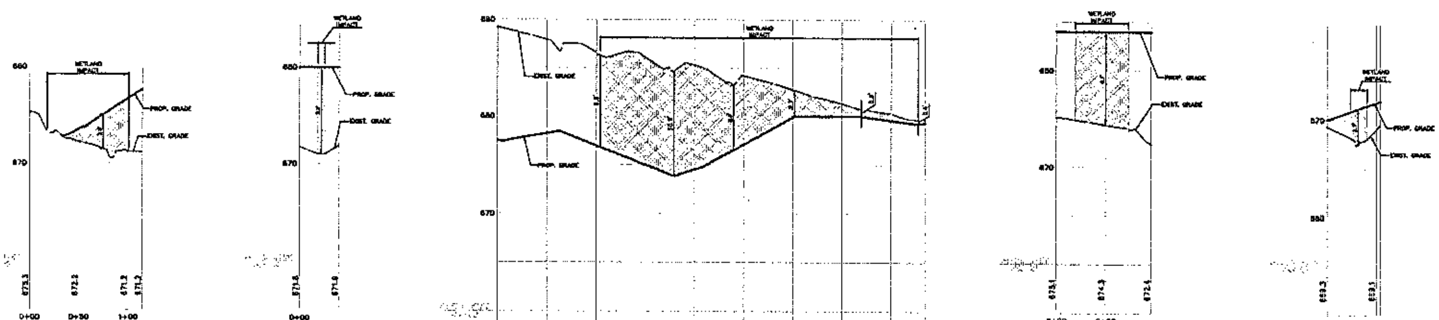
POND CONSTRUCTION EARTH WORK			
CUT (cu. yds)	FILL (cu. yds)	NET (cu. yds)	
27,150	7,850	19,300	Cut
POND AREA = 3.80 ACRES			



WETLAND IMPACT 1A-1A'

DNRE
LWMD
File # 10 - 03 - 0007-P
APPROVED PLANS
Page 2 of 4
5 / 11 / 2010

Permittee Signature 5/13/10
Date



WETLAND IMPACT 1B-1B'

WETLAND IMPACT 1C-1C'

WETLAND IMPACT 1D-1D'

WETLAND IMPACT 2-2'

WETLAND IMPACT 3-3'

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PHASES I - III

HOLLAND, MI

ATWELL

No.	Description	Date
1	MDEQ REVISIONS	2.10.10

Wetland Impacts Cross Sections

January 22, 2010

Scale: As Noted

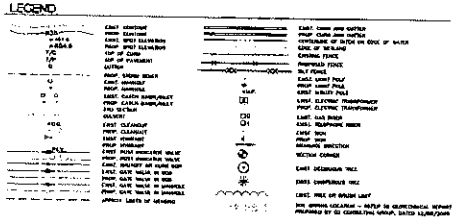
04

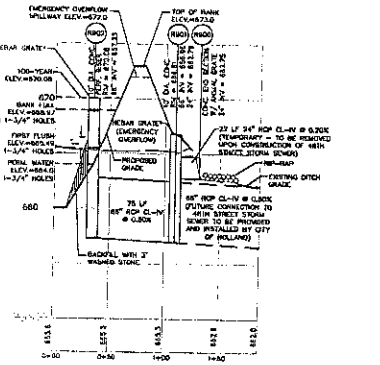
DNRE
LWMD
File # 10 -03 -0007-P
APPROVED PLANS
Page 4 of 4
5 / 11 / 2010

Permittee Signature

5/13/10
Date

LEGEND





DETENTION POND OUTLET
HOLE SCALE: 1" = 50'
VENT. SCALE: 1" = 5'

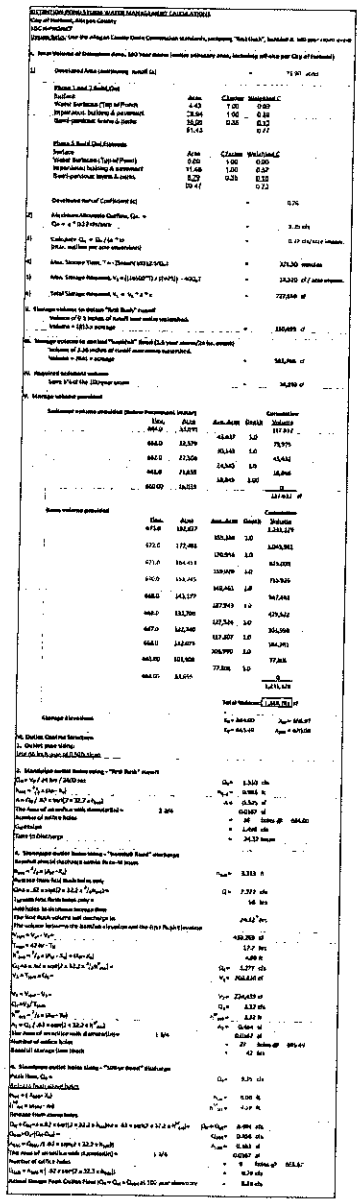
* REBAR GRATE TO HAVE 6"x6" OPENINGS AND HAVE A 24"x24" HINGED ACCESS HATCH FABRICATED NEAR EDGE OF STRUCTURE (TO ALIGN WITH MANHOLE STEPS). CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR APPROVAL.

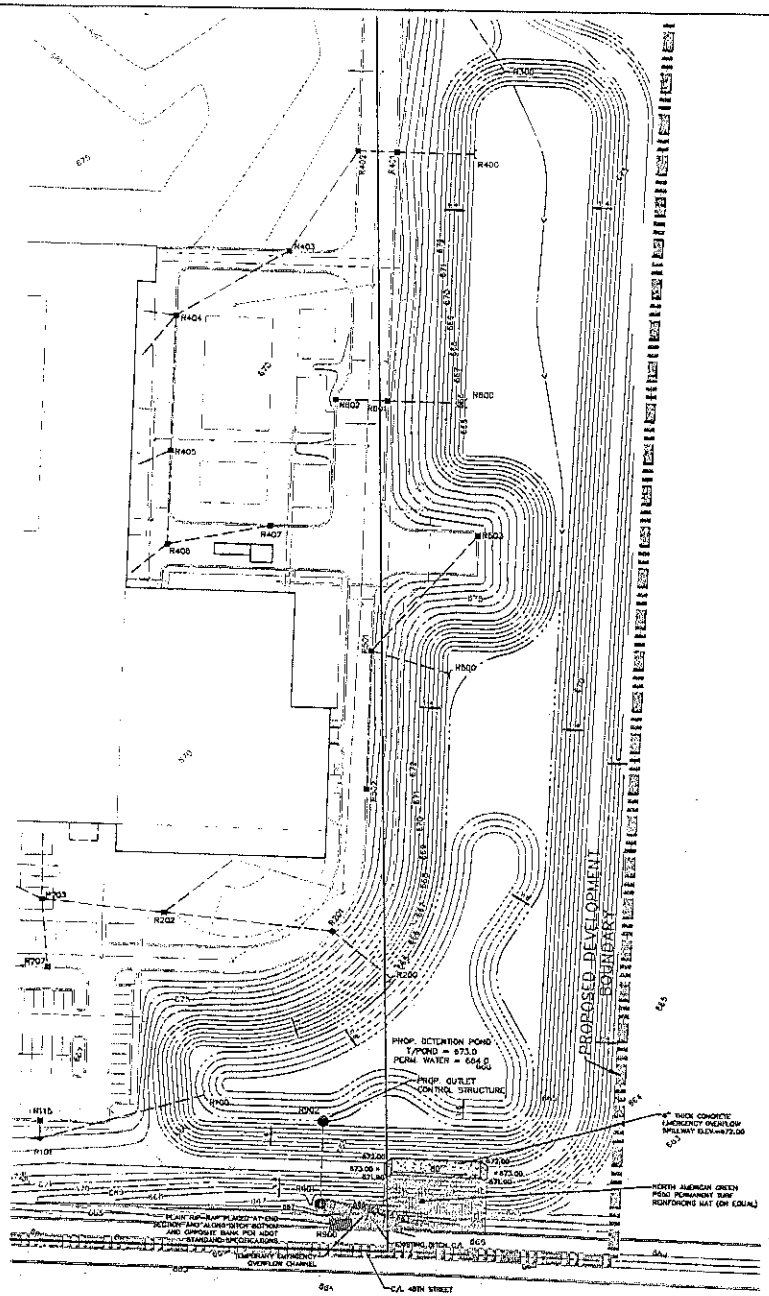
Channel Flow - Overflow Spillway Design

Trapezoidal	
Base Width	80.00 ft
Depth	1.00 ft
Side Slope (z)	0 on 1
Side Length	0.00 ft
Top Width	80.00 ft
Area (A)=	80.00 sf
Wetted Perimeter (P)=	82.17 ft
Hydraulic Radius (R)=	0.93
Roughness Coefficient (n)=	0.013
Slope (S)=	0.00%
Velocity Flowing Full (V)=	7.74 cfs
Capacity (Q)=	565.59 CFS
Drainage Area	71.00 Ac
Runoff Coeff = C	0.76
Rainfall Intensity = I	4.56 in/hr
Required Capacity (Q) =	246.16 cfs

Weir Flow - Overflow Spillway Design

Trapezoidal	
Base Weir Length	80.00 ft
Depth	1.00 ft
Side Slope (S)	1 on 0
Discharge Coefficient (C)=	3
Capacity (Q)=	253.60 CFS
Drainage Area	71.00 Ac
Runoff Coeff = C	0.76
Rainfall Intensity = I	4.56 in/hr
Required Capacity (Q) =	246.16 cfs





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THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE THE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE: CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF ANY WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

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PHASE I

HOLLAND, MI

ATWELL

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No.	Description	Date
1	DETAILED ENGINEERING	4.19.10
2	B.E./LC. PLAN SUBMITTAL	4.21.10
3	REVISIONS PER CITY REVIEW	4.26.10

Key Plan

Detention Pond Details

Date: April 8, 2010
Project Number: 09091778
Scale: 0 25 50, 1" = 50 Feet

C-536

Wecyil Ro 5/13/10

Permittee Signature Date

LEGEND

LG Offsite Wetland Mitigation
Water Budget

Month	Avg Precip (in.)	SRO (in.)	Adjusted Evaporation (in.)	ET Grasses (in.)	Seepage (in/mo)	Level** (in.)
						4.80
January	2.13	0.20	0.00	0.00	0	7.10
February	1.49	0.18	0.00	0.00	0	8.74
March	2.10	0.80	0.00	0.00	0	12.00
April	3.15	0.30	0.00	1.67	1.8	12.00
May	3.43	0.60	4.50	2.76	3.6	7.93
June	3.60	0.22	5.00	4.20	3.6	3.15
July	2.57	0.38	5.75	6.60	3.6	0.00
August	3.48	0.40	4.50	5.49	3.6	0.00
September	4.00	0.95	3.00	3.16	3.6	0.00
October	2.97	0.71	2.25	1.29	3.6	0.00
November	3.38	0.36	0.00	0.03	1.8	1.34
December	2.98	0.30	0.00	0.00	0	4.80
	38.10	4.76	25.00	25.07		

*Based on clay loam soils with a permeability of 1x10-6cm/sec. Soil Survey indicates a saturation zone 1 foot below surface so no infiltration assumed between mid November and mid April
**Starting water level is assumed from end of December Balance
Precipitation Data from WETS Station, Holland MI

Calculate Min precipitation event that will generate runoff

S=(1000/cn-10) 2.06

P=.2S 0.53 Minimum Precip for Runoff

SRO=(P-.2S)^2/(P+0.8S)

SRO is based on daily rainfall data from 2001-2009 for events in excess of 0.53". SRO values shown are doubled to adjust for size of upstream tributary area (6ac) to size of wetland (3 ac)

CUT / FILL ANALYSIS

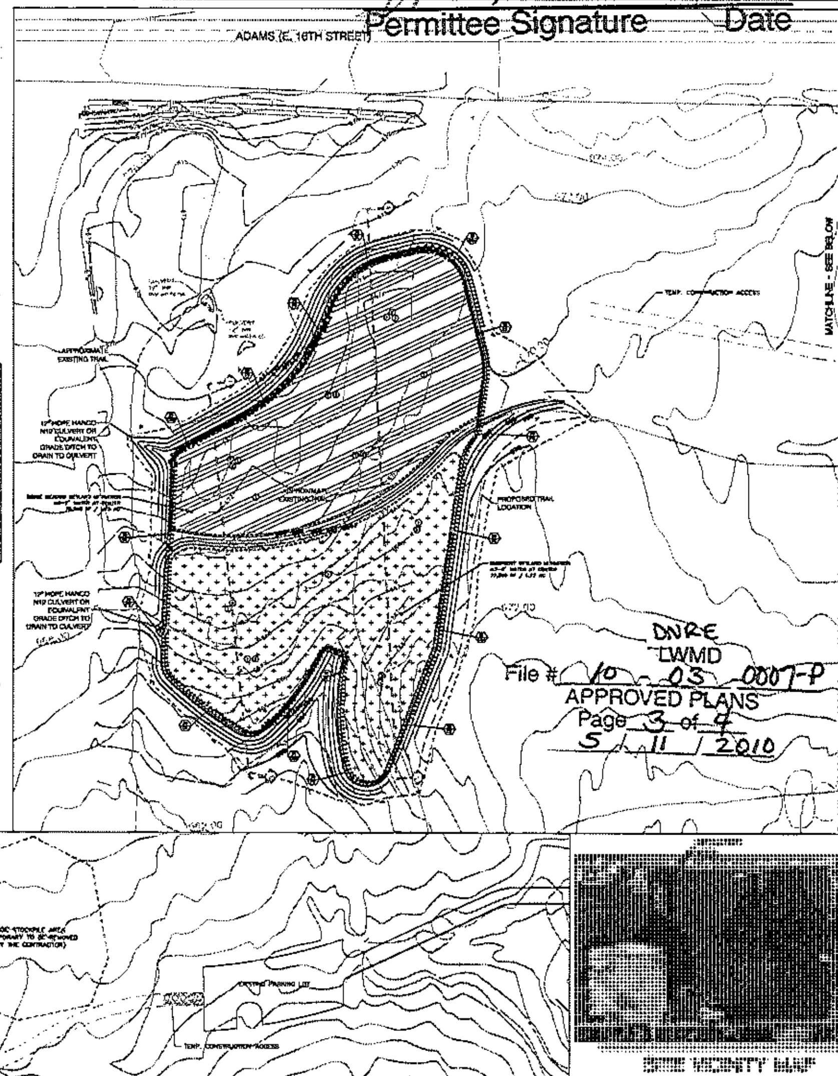
Wetland Mitigation Area Species List

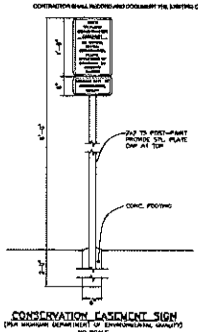
SHRUB PLANTING SCHEDULE

HABITAT STRUCTURE SPECIFICATIONS

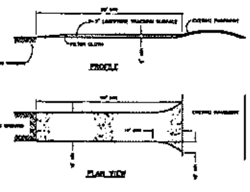
1. Log habitat structures are to be laid horizontally within the wetland. Logs shall be a minimum of 10 feet long and 6 inches in diameter. No use of Green Ash is permitted.
2. Tree stump habitat structures are to be laid horizontally within the wetland. Stumps shall be a minimum of 6 feet long (including log and root ball) and 12 inches in diameter. No use of Green Ash is permitted.
3. Whole Tree habitat structures are to be laid horizontally within the wetland. Trees shall have the first structure intact and be a minimum of 20 feet long (including log and root ball) and a minimum of 12 inches in diameter. No use of Green Ash is permitted.
4. Habitat structures are to be installed for all mitigation areas as illustrated on the Habitat Structure Plan.
5. Habitat structures are to be installed with heavy equipment during a wet period in the fall to create pits and micro-topography within the wetland.
6. A qualified specialist will be present to inspect material prior to the installation of the habitat structures.

BREAKDOWN OF CONSTRUCTION ACTIVITIES



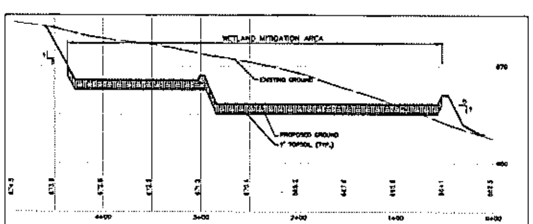


CONSERVATION EASEMENT SIGN

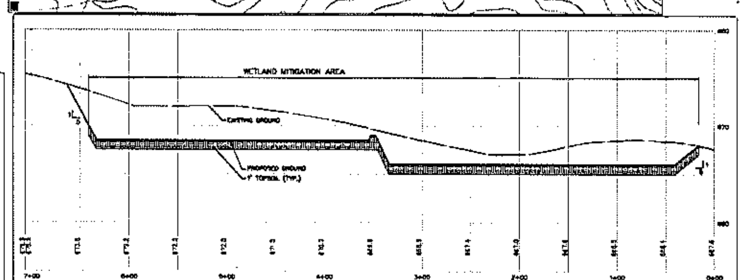


TEMPORARY CONSTRUCTION ENTRANCE
NO SCALE

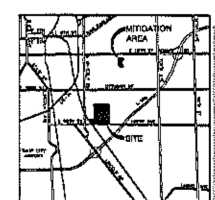
10' WIDE TRAIL
NO SCALE



SECTION A-A



SECTION B-B



VICINITY MAP

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BATTERY PROJECT
PHASES I - III

HOLLAND, MI

ATWELL

No.	Description	Date
	WETLAND MITIGATION REV	5.10.10

Off-Site Mitigation Plan

January 28, 2010

09001770

Scale 0 30 60
1" = 60 Feet

05

WETLAND DETERMINATION AND DELINEATION REPORT

for

THE ±69 ACRE PROPERTY LOCATED
Northeast of the Intersection of
S. Waverly Road & 48th Avenue
Fillmore Township
Allegan County, Michigan

Prepared for:

ROSSETTI
ARCHITECTURE | INTERIORS | GRAPHICS
PLANNING
TWO TOWNE SQUARE; SUITE 200
SOUTHFIELD, MI 48076

Atwell-Hicks, LLC Project No. 09001770

October 8, 2009

ATWELL
www.atwell-group.com
866.850.4200

TABLE OF CONTENTS

APPENDICES

EXECUTIVE SUMMARY

Atwell-Hicks, LLC (Atwell) has completed a wetland determination and delineation for the approximately 69-acre property located northeast of the intersection of S. Waverly Road and 48th Avenue in Section 03 of Fillmore Township (T4N – R15W), Allegan County, Michigan. The Wetland Determination and Delineation follows the scope of services presented in Section 1.1, *Scope of Service*.

This executive summary is intended to be taken in context with the complete report and is not designed to be used as a separate document. The following summarizes the findings of the Wetland Determination.

This document is a determination of the regulatory status of any wetlands, significant bodies of water, watercourses and/or floodplain located on the subject property, based on the Natural Resources and Environmental Protection Act, 1994 PA 451 (NREPA). This regulatory act includes three parts concerning this wetland determination and delineation. The first, Part 301, Inland Lakes and Streams, states that any watercourse, which has definable banks, a bed and visible evidence of a continued flow or continued occurrence of water, would be regulated. Additionally, any body of water with a surface area greater than five (5) acres would be regulated. The second, Part 303, Wetlands Protection, states that if a wetland is five (5) acres or larger or located within 500 feet of any regulated body of water or watercourse, it would be regulated. Both the above parts prohibit the fill, dredge, removal of soils, construction, placement or removal of structures, redirection of water and artificial drainage of any regulated wetland, body of water or waterway without a Michigan Department of Environmental Quality (MDEQ) issued permit. The third, Part 31, Water Resources Protection, states that a person shall not occupy or permit the occupation of land for residential, commercial or industrial purposes or fill or grade or permit the filling or grading for a purpose other than agricultural land in a floodplain, stream bed or channel of a stream, as ascertained and determined for the record by the department.

The site consists of an undeveloped, irregular-shaped property, which contains a mix of agricultural fields, hedgerows, shrubs and young forested areas. An old abandoned farmstead is located near the southwestern corner of the site (accessed from 48th Avenue). The information gathered from site reconnaissance and the review of historical and current documents indicates that three (3) wetland systems (Wetland A, B, & C) are located on the subject property. Wetlands A and C appear to meet the requirements of Part 303, Wetlands Protection of the Natural Resources and Environmental Protection Act, 1994 PA 451 (NREPA) and would be considered regulated by the Michigan Department of Environmental Quality (MDEQ).

Part 303, Wetlands Protection, clearly states that a wetland is considered regulated if it is five (5) acres or larger or if it is connected to or located within 500 feet of a lake, pond, river, stream or watercourse. The on-site acreage of Wetland A equals 2.02-acres but is interconnected with the Macatawa River (North Branch). Therefore, Wetland A would be considered regulated and subject to permitting by the MDEQ. The same applies to Wetland C (0.05-acres) in that it is interconnected with this same watercourse. Off-site Wetland D appears to be connected to

Wetland C. Wetland B (0.13-acres), however, is an isolated wetland and would not be regulated by the MDEQ.

Part 301, Inland Lakes and Streams, states that a feature is considered a regulated watercourse if it possesses a defined bed, banks and evidence of continued flow or continued occurrence of water. No continuous, defined channel continues through the aforementioned wetland areas. Consequently, it is Atwell's opinion that the on-site feature should be categorized as a linear wetland. As a result, the feature should be regulated under Part 303, Wetlands Protection, not Part 301, Inland Lakes and Streams.

Please be advised that MDEQ has the final authority on the extent and classification of regulated wetlands, lakes and streams in the state of Michigan.

A permit is required by the MDEQ for any proposed work (*e.g.*, filling, dredging, construction, draining and/or other wetland development) that takes place within the boundaries of a regulated wetland, body of water or floodplain. Any construction activities that take place outside of these boundaries do not require a permit from the MDEQ. Atwell's review of the proposed development plan indicates that wetland impact occurring to regulated features will occur during development. A permit with the MDEQ is anticipated. In addition due to the amount of impact, i.e. over one-third of an acre, wetland compensatory mitigation should be required to obtain a wetland permit for the site. Please note that impacts to the regulated features on site will require a 1.5 to 1.0 replacement ratio for impacted wetlands.

No state listed threatened or endangered species (TES) were documented within the vicinity of the project. Federal funding of the project will initiate compliance with the National Environmental Protection Act (NEPA). Prior to receiving NEPA approval, MDEQ, MDNR and other state and local permitting will need to be in the process of approval and/or approved. NEPA requirements may require additional natural resource services prior to approval including but not limited to federally listed TES review and specific species surveys, negotiation and coordination with federal agencies, such as the United States Fish and Wildlife Services (USFWS), United States Environmental Protection Agency (US EPA) and the Army Corps of Engineers (ACOE).

1.0-INTRODUCTION

Atwell-Hicks, LLC (Atwell) was contracted to perform a wetland determination and delineation for the approximately 69-acre property located northeast of the intersection of 48th Avenue and Waverly Road in Section 03 of Fillmore Township (T4N – R15W), Allegan County, Michigan.

The purpose of the site inspection and delineation was to determine if any wetlands, significant bodies of water, watercourses and/or floodplain are currently present on the subject property, and, if found, to establish if the entities would fall under the jurisdiction of the Michigan Department of Environmental Quality (MDEQ) by Part 303, Wetlands Protection, Part 301, Inland Lakes and Streams, and/or Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451 (NREPA). Additionally, an extensive review of current and historical documentation, which included available aerial photographs, National Wetland Inventory maps and soil survey maps for the property, took place in order to evaluate site specific characteristics. The following report discusses the findings and conclusions.

The wetland determination and delineation was performed in accordance with the MDEQ Wetland Identification Manual, *A Technical Manual for Identifying Wetlands in Michigan* (March 2001) and the Army Corps of Engineers *Wetlands Delineation Manual* (January 1987). The determination of any wetland depends on three basic parameters. These parameters are: 1) the presence of hydrophytic vegetation (plants adapted to living in saturated soils), 2) hydric soils (distinctive soil types that develop under saturated conditions), and 3) wetland hydrology (the presence of water at or near the surface for a specific period of time) (*Michigan Wetlands*, Tip of the Mitt Watershed Council, 1992). The above parameters are virtually always inter-related and present in wetland systems.

1.1 Scope of Service

Elements of the wetland determination and delineation include the site inspection, delineation of wetland boundaries, current and historical document review, and submittal of this report, which discusses the property's specific characteristics, including any wetland areas if encountered. Specifically, the Wetland Determination and Delineation included the following services:

- Perform a background documentation review that includes a review of the National Wetland Inventory Map, FIRM Floodplain Map, USGS Topographic Map, Allegan County Soil Survey and aerial photographs.
- Perform site reconnaissance, which evaluates specific site characteristics and features.
- Delineate (flag) the boundaries of the existing wetland area(s), which provides the size, shape and location of any wetland(s) on the subject property, as defined by Parts 301 and 303 of the NREPA.

- Prepare and submit this report summarizing the findings of the above-described tasks, evaluating the wetland characteristics and determining the wetland regulation(s), which may or may not apply to the wetland system(s) present on the subject property.

2.0 SITE DESCRIPTION

The subject property, consisting of approximately 69-acres, is located northeast of the intersection of S. Waverly Road and 48th Avenue in Fillmore Township, Allegan County, Michigan. Specifically, the property is located in the southern half of Section 03 (T4N – R15W). The property is currently an actively farmed agricultural landscape surrounded by a mix of industrial and residential areas. The site is bordered by 147th Avenue to the north along with a mix of industrial/corporate complexes and rural residential areas. To the east, the site is bound by the North Branch of the Macatawa River and rural residential areas (along 52nd Street just east of the river). Agricultural fields and isolated rural residences along 48th Avenue occupy the southern site boundary. A large industrial complex and a railroad right-of-way (intersecting both S. Waverly Road and 48th Avenue in a northwest to southeast direction) border the site to the west. Refer to the *Site Location Map* and *Property Features Map* included in *Appendix I.*

3.0 SITE RECONNAISSANCE & CHARACTERISTICS

Atwell conducted a site inspection and wetland determination and delineation on September 5, 2009. The site consists mainly of an irregularly shaped agricultural (planted in corn at time of inspection) property totaling approximately 69-acres. A large industrial complex and a transmission line right-of-way that parallels a railroad occupy the western boundary of the project. An old abandoned farmstead, demarcated by an unimproved dirt lane and a long-established grove of trees, is located towards the southwestern corner of the property. A treed hedgerow (west to east) is located in the northern portion of the property.

The topography of the site is relatively flat but tends to slope to the southeast towards the North Branch of the Macatawa River, which borders the property to the east. Topography, in addition to the sandy soils of the site, help contribute to a substantial drainage pattern that follows this southward slope and connects with a drainage ditch running parallel to and on the north side of 48th Avenue. This drainage ditch empties into the Macatawa River. A portion of the drainage system consists of a well-vegetated swale that lies just to the northeast of the abandoned farmstead (detectable on aerial images; **Appendix I**), which consists of shrub-scrub wetland type dominated by willows (*Salix sp.)*, cattails *(Typha sp.),* and other wetland plant species. The northeastern portion of the farmstead consists of a low depression with associated wetland vegetation but is likely not interconnected with the site's drainage system.

With the exception of wetland vegetation contained in each of the four wetlands, the site mainly consists of agricultural row crops. Upland vegetation is confined to the fencerows and the abandoned farmstead and is typical of that found in these types of locations. Vegetation in the upland portions include species such as tall goldenrod (*Solidago altissima*), silver maple (*Acer saccharinum*), Austrian pine (*Pinus nigra*), green ash (*Fraxinus pennsylvanica*), red maple (*Acer rubrum*), northern catalpa (*Catalpa speciosa*), osage orange (*Maclura pomifera*), American

basswood (*Tilia americana*), boxelder (*Acer negundo*), black cherry (*Prunus serotina*), American elm (*Ulmus americana*), red mulberry (*Morus rubra*), hawthorne (*Crataegus* spp.), apple (*Malus pumila*), red oak (*Quercus rubra*), and bitternut hickory (*Carya cordiformis*).

The information gathered from the delineation and the review of historical and current documents indicates that three (3) wetland systems are located on the subject property. These wetlands have been labeled Wetlands A-C. Refer to the *Wetland Location Map* presented in **Appendix III**. A discussion of this system follows:

Wetland A consists of an 2.02-acre emergent wetland dominated by field nut sedge (*Cyperus esculentus*), bigseed smartweed (*Polygonum pensylvanicum*), cattail (*Typha latifolia*), reed canary grass (*Phalaris arundinacea*), barnyard grass (*Echinochloa crusgalli*), New England aster (*Aster novae-angliae*), blue vervain (*Verbena hastata*), and sandbar willow (*Salix exigua*). Refer to the *Photographic Log* in **Appendix II**. This wetland is located within the southern portion of the property and extends to the north into agricultural field. Refer to the *Wetland Location Map* in **Appendix III**. These species range in wetland indicator status from FACW to OBL (see *Common Wetland Definitions* at the end of this report). At the time of the site visit, the majority of Wetland A contained saturated soils with small areas of inundation. The wetland appears to receive hydrology from precipitation and runoff from adjacent uplands. Refer to the *MDEQ Wetland Data Form* in **Appendix IV.**

Due to the sandy nature of the soils with Wetland A, the flowing water has created small drainage swales through the wetland. These multiple drainage swales connect and appear to outlet water into the road site ditch along the north side of 48th Avenue. The site visit revealed that the road site ditch connects and outlets into the Macatawa River (North Branch). Refer to the *Photographic Log* in **Appendix II**.

Wetland B consists of a small 0.13-acre isolated scrub-shrub wetland located in the northeast corner of the old farmstead. Refer to the *Wetland Location Map* in **Appendix III**. The dominated species include field nut sedge, bigseed smartweed, barnyard grass, sandbar willow, and cottonwood (*Populus deltoides*) saplings. Refer to the *Photographic Log* in **Appendix II**. These species range in wetland indicator status from FAC+ to OBL (see *Common Wetland Definitions* at the end of this report). At the time of the site visit, the majority of Wetland B contained saturated soils. The wetland appears to receive hydrology from precipitation and runoff from adjacent uplands. Refer to the *MDEQ Wetland Data Form* in **Appendix IV.**

Wetland C consists of a small emergent approximately 0.05-acre wetland. Wetland C appears to be connected to Wetland D through an agricultural drainage tile. The dominant vegetation includes barnyard grass, bigseed smartweed, and common cocklebur. These species range in wetland indicator status from FAC to FACW+ (see *Common Wetland Definitions* at the end of this report). At the time of the site visit, the wetland contained saturated soils. The wetland appears to receive hydrology from precipitation and runoff from adjacent uplands. Refer to the *MDEQ Wetland Data Form* in **Appendix IV.**

Off-site Wetland D would be considered a linear emergent wetland. This wetland is located northeast of the subject property. Refer to the *Wetland Location Map* in **Appendix III**. This wetland appears to facilitate water drainage and eventually outlets/connects to Macatawa River (North Branch). Very little vegetation is growing within the wetland; however, the dominant vegetation includes barnyard grass, bigseed smartweed, and common cocklebur (*Xanthium strumarium*). Refer to the *Photographic Log* in **Appendix II**. These species range in wetland indicator status from FAC to FACW+ (see *Common Wetland Definitions* at the end of this report). At the time of the site visit, the wetland A contained saturated soils. The wetland appears to receive hydrology from precipitation and runoff from adjacent uplands. Refer to the *MDEQ Wetland Data Form* in **Appendix II.**

4.0 NATIONAL WETLAND INVENTORY MAP REVIEW

A review of the National Wetland Inventory Map (NWI) and Allegan County Wetland Map was conducted to determine the likely presence, location, size and type of wetlands that may be located on the subject property. The U.S. Fish and Wildlife Service generates the NWI maps through interpretation of topographic data and aerial photographs. The Allegan County Wetland Map is provided by the MDEQ. The MDEQ produces wetland inventory maps for the state of Michigan on a county-by-county basis through compilation of data from NWI, land cover and soil survey maps. Copies of the *National Wetland Inventory Map* and *Allegan County Wetland Map* are included in **Appendix V** for review.

The NWI map depicts no areas, outside of riparian areas associated with the Macatawa River (North Branch), within the boundary of the subject property that would be characteristic of land that typically supports wetland systems.

The Allegan County Wetland Map also shows no specific wetlands within the property boundaries. However, the County Wetland Map indicates that an extensive region of hydric soils is located just to the east of the abandoned farmstead. Farther to east is a more extensive hydric soil that spans the north-south length of the property, eventually intersecting to the south with 48th Avenue and then heading eastward toward the Macatawa River. These wetland soils correspond, for the most part, with Wetlands A, C, and D.

The wetland inventory maps show areas that are characteristic of land that typically supports wetland systems. NWI maps may not show accurately the extent or existence of wetland systems in a specific area or correctly identify the wetlands present. NWI maps are utilized for preliminary analysis only. Actual field reconnaissance is necessary to determine the actual existence and type of wetlands on a site.

5.0 FIRM FLOODPLAIN MAP REVIEW

A review of the FIRM floodplain map was conducted to determine the existence, location, and zone of any floodplain that may be located within the project corridor. FIRMs are maps that show floodplain areas along rivers and tributaries. The maps record the following data: 100 year (1% chance of annual flooding) and 500 year (0.2% annual chance of flooding) floodplains, the

height of the base flood (Base Flood Elevations), and the risk premium zones developed from topographical information across a floodplain. The FEMA generates FIRM floodplain maps for flood insurance purposes. The FIRM map for the assessment areas indicates that the site is unmapped. A copy of the *FIRM Floodplain Map* is included in **Appendix VI.**

6.0 USGS TOPOGRAPHIC MAP REVIEW

The USGS 7.5' Topographic Quadrangle for Holland East, Michigan (1972; Photorevised 1980) indicates that the subject property is at elevations between 700 and 660 feet above sea level. Overall, the site appears to drain to the southeast. The map shows that the lowest points of property flank the Macatawa River (North Branch). The property is shown as vacant with the exception of buildings that once were a part of the now abandoned farmstead. No forested areas are shown on-site, although areas of scrub-shrubs, treed fencerows, and abandoned farmstead tree plantings were observed on site. Apart from the Macatawa River (North Branch) on the properties eastern boundary, no watercourses, intermittent streams, or other wetlands are shown on-site.

Similar to the NWI maps, USGS maps typically show only the most distinct areas of wetland systems, and are utilized for preliminary analysis only. Once again, actual field reconnaissance is necessary to determine the actual existence, size, and type of a wetland on a site. A copy of the *USGS Topographic Map* is included in *Appendix VII.*

7.0 AERIAL PHOTOGRAPH REVIEW

Aerial photographs dated 1997, 1998, and 2005 were obtained from TerraServer and the State of Michigan TerraServer, respectively. These photographs were utilized to determine specific site characteristics. The 2005 aerial shows the subject property relatively the same as it appeared during the site inspections. See the *Property Features Map* in **Appendix I.** The property appears vacant with a mix of landscape types. The access drive that extends to the abandoned farmstead is visible. The photograph also shows the series of treed fencerows within the northern portion of the property. This corresponds with the conditions observed during the site inspections. Additionally, areas characteristic of the site's drainage system and associated wetland systems (i.e., the scrub-shrub swale) are visible on the 1998 aerial photograph. These areas correspond with the areas identified during the wetland delineation. Refer to the *Wetland Location Map* presented in **Appendix III**.

8.0 SITE SOILS & CHARACTERISTICS

According to the Soil Survey of Allegan County, four (4) major soil series area found on the subject property. These soils are Rimer loamy sand (28A), Corunna sandy loam (36), Granby loamy sand (39), and Blount silt loam 1 to 4 percent slopes (41B). Corunna sandy loam and Granby loamy sand are classified as Michigan hydric soils according to the Natural Resources Conservation Service. The term hydric indicates that the soil favors the growth and regeneration of hydrophytic (wetland) vegetation by its ability to hold water for extended periods of time. A

discussion of each soil type follows. Refer to the *Allegan County Soil Survey Map* presented in *Appendix VII* for the location of each soil within the property.

Corunna sandy loam (36) is a poorly drained soil type on till plains. A representative profile is sandy loam underlain by clay loam (33-60 inches deep). This type has a moderate available water capacity. Runoff is very slow, and the soil is ponded frequently over the majority of the year (March-May & November-February). This soil is extensive in the eastern portion of the property and extends in a north to south direction. A large portion of Wetland A corresponds to this soil type.

Granby loamy sand (39) is a poorly drained soil type on outwash plains. A representative profile consists of a layer of loamy sand underlain by sand (11 to 60 inches deep). This soil is subject to frequent ponding for long periods of time over 8 months of a calendar year (March-June & November-February). This soil type occupies a minor portion of the property in the extreme southwestern corner of the site and only corresponds with a small portion of the western fringe of Wetland A.

Rimer loamy sand (28A) is a poorly drained soil type found on till plains and low depressions. A representative profile consists of dark brown loam underlain by gray clay loam and gray loam. Runoff is very slow, and the soil is ponded at times. Permeability is moderately slow to moderate, and available moisture capacity is high. This soil occupies the majority of the southwestern portion of the property. This corresponds with the western extent of Wetland A and the isolated Wetland B.

Blount silt loam 1 to 4 percent slopes (41B) is a somewhat poorly drained sold type found on till plains. A representative profile consists of a thin layer of silt loam underlain by silty clay loam (6 to 60 inches deep). Runoff is fairly rapid, and the soil does not readily pond. This soil occupies the majority of the eastern portion of the property. A minimal portion of the site's drainage system is associated with this site, resulting in small sections of Wetland A occupying this soil type.

9.0 CONCLUSIONS & RECOMMENDATIONS

In conclusion, based on information gathered from site reconnaissance and the review of historical and current documents there are three (3) wetland systems (Wetland A, B, & C) located on the subject property. Wetlands A and C appear to meet the requirements of Part 303, Wetlands Protection of the Natural Resources and Environmental Protection Act, 1994 PA 451 (NREPA) and would be considered regulated by the Michigan Department of Environmental Quality (MDEQ).

Part 303, Wetlands Protection, clearly states that a wetland is considered regulated if it is five (5) acres or larger or if it is connected to or located within 500 feet of a lake, pond, river, stream or watercourse. The on-site acreage of Wetland A equals 2.02-acres but is interconnected with the Macatawa River (North Branch). Therefore, Wetland A would be considered regulated and subject to permitting by the MDEQ. The same applies to Wetland C (0.05-acres) in that it is

interconnected with this same watercourse. Off-site Wetland D appears to be connected to Wetland C which eventually connects to the Macatawa River (North Branch). Wetland B (0.13-acres), however, is an isolated wetland and would not be regulated by the MDEQ.

Part 301, Inland Lakes and Streams, states that a feature is considered a regulated watercourse if it possesses a defined bed, banks and evidence of continued flow or continued occurrence of water. No continuous, defined channel continues through the aforementioned wetland areas. Consequently, it is Atwell's opinion that the on-site feature should be categorized as a linear wetland. As a result, the feature should be regulated under Part 303, Wetlands Protection, not Part 301, Inland Lakes and Streams.

Please be advised that MDEQ has the final authority on the extent and classification of regulated wetlands, lakes and streams in the state of Michigan.

A permit is required by the MDEQ for any proposed work (*e.g.*, filling, dredging, construction, draining and/or other wetland development) that takes place within the boundaries of a regulated wetland, body of water or floodplain. Any construction activities that take place outside of these boundaries do not require a permit from the MDEQ. Atwell's review of the proposed development plan indicates that wetland impact occurring to regulated features will occur during development. A permit with the MDEQ is anticipated. In addition due to the amount of impact, i.e. over one-third of an acre, wetland compensatory mitigation should be required to obtain a wetland permit for the site. Please note that impacts to the regulated features on site will require a 1.5 to 1.0 replacement ratio for impacted wetlands.

No state listed threatened or endangered species (TES) were documented within the vicinity of the project. Federal funding of the project will initiate compliance with the National Environmental Protection Act (NEPA). Prior to receiving NEPA approval, MDEQ, MDNR and other state and local permitting will need to be in the process of approval and/or approved. NEPA requirements may require additional natural resource services prior to approval including but not limited to federally listed TES review and specific species surveys, negotiation and coordination with federal agencies, such as the United States Fish and Wildlife Services (USFWS), United States Environmental Protection Agency (US EPA) and the Army Corps of Engineers (ACOE).

The information used in determining the location of wetland areas contained within any given property is established by the *1987 Manual*. The following documents were also used to support our position.

Allegan County Soil Survey
Hydric Soils of Michigan
USGS Topographic Map – Holland East, Mich. Quadrangle
National Wetlands Inventory Map – Holland East, Mich. Quadrangle
FIRM Floodplain Map
1997, 1998 and 2005 Aerial Photographs of the subject property

If you have any questions regarding this or any other matter, please feel free to contact our offices at (734) 994-4000.

Sincerely,
ATWELL-HICKS, LLC

Aaron Boone
Ecological Specialist
Natural Resources Group

Bobbi Roberson
Project Manager
Natural Resources Group

COMMON WETLAND DEFINITIONS

Atypical wetland: This term refers to areas in which one or more parameters (vegetation, soil and/or hydrology) have been sufficiently altered by human activities or natural events to preclude the presence of wetland indicators of the parameter.

Emergent Wetland: Vegetative classification of a wetland system based on the dominate vegetation consisting of rooted herbaceous plant species that have parts extending above a water surface.

100-year flood: means a flood with a magnitude, which has a 1% chance of occurring or being exceeded in any given year.

Floodplain: The area of land adjoining a river or steam that will be inundated by a 100-year flood.

Floodway: The channel of a river or stream and the portions of the floodplain adjoining the channel that are reasonably required to carry and discharge a 100-year flood.

Inland lake or stream: "...any natural or artificial lake, pond or impoundment which has a surface area of 5 acres or greater; a river, stream or creek which may or may not be serving as a drain; any body of water which has definite banks, a bed and visible evidence of a continued flow or continued occurrence of water..." as defined by Part 301, Inland Lakes and Streams, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Hydric soil: Soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part (1991 National Technical Committee on Hydric Soils definition).

Hydrophytes: A plant species that grows in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content; plants typically found in wet habitats.

Scrub/Shrub Wetland: Vegetative classification of a wetland system based on the dominate vegetation consisting of woody plants less than 3 inches in diameter but greater than 3 feet in height.

Typical situation: That, which normally, usually, or commonly occurs.

Vernal Pool: Shallow, intermittently flooded forested wetland, generally dry for most of the summer and fall

Wooded (Forested) Wetland: Vegetative classification of a wetland system based on the dominate vegetation consisting of woody plants 3 inches in diameter or greater regardless of height.

Wetland: "...land characterized by the presence of water at a frequency and duration sufficient to support and that under normal circumstances does support wetland vegetation or aquatic life and is commonly referred to as a bog, swamp, or marsh..." as defined by Part 303 Wetlands Protection of the Natural Resources and Environmental Protection Act, 1994 PA 451.

Wetland hydrology: Hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at sometime during the growing season.

Wetland Indicator List:

OBL: Obligate wetland plant that occurs almost always, 99%of the time, in wetlands under natural conditions, but which rarely occur in non-wetlands.

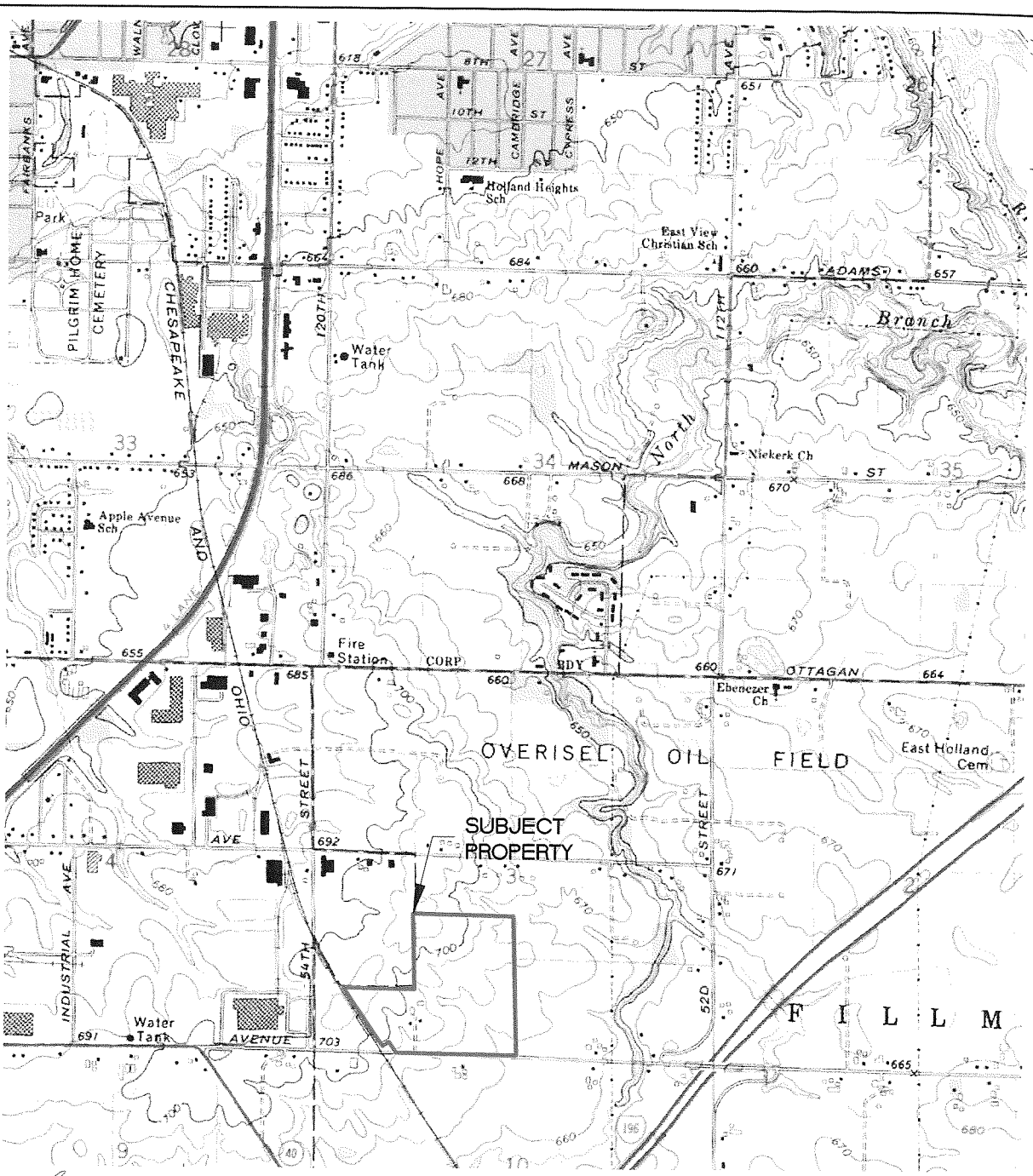
FACW: Facultative wetland plant, that occurs usually, 67% to 99% of the time, in wetlands, but also occurs 1% to 33% in non-wetlands.

FAC: Facultative plant, that occurs in both wetlands and non-wetlands 33% to 67% of the time.

FACU: Plant that occurs sometimes 1% to 33% of the time in wetlands but occurs more often, 67% to 99% in non-wetlands.

APPENDIX I

Site Location Map
&
Property Features Map



SITE LOCATION MAP
FILLMORE TOWNSHIP
ALLEGAN COUNTY, MICHIGAN

SCALE 0 1000 2000

1" = 2000 FEET

REFERENCE
USGS 7.5 MIN TOPOGRAPHIC QUADRANGLE
HOLLAND EAST, MICHIGAN QUADRANGLE
DATED: 1972, PHOTOREVISED: 1980
SECTION 3

PROJECT: 09001770
DATE: OCTOBER 6, 2009
DRAWN: FOD
CHECKED: BR
CAD FILE: 09001770EC-01

ATWELL-HICKS
www.atwell-hicks.com
ARIZONA ARKANSAS FLORIDA ILLINOIS
MICHIGAN OHIO PENNSYLVANIA
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Engineering Environmental
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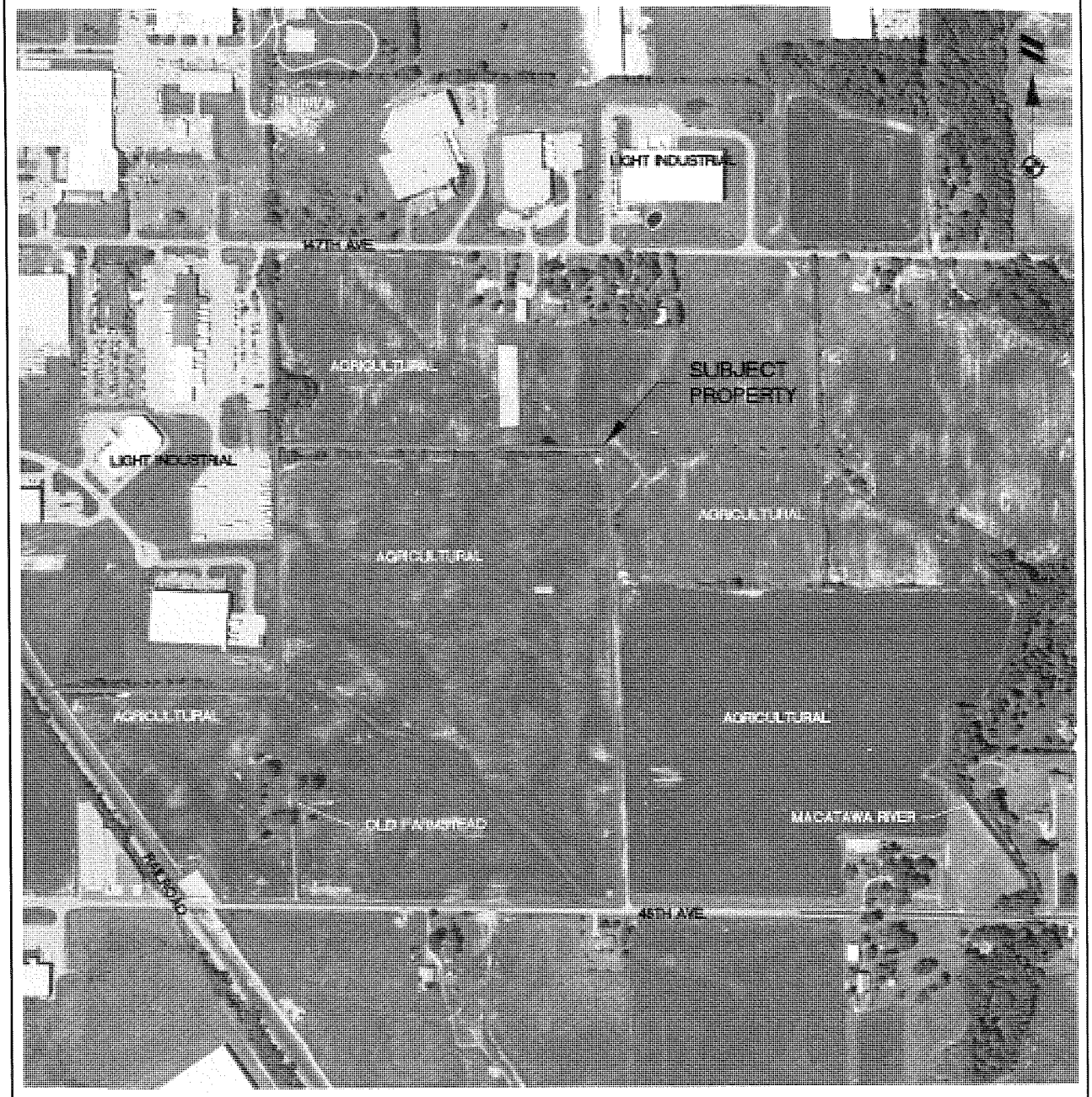
Planning Water Resources



PROPERTY FEATURES MAP
FILLMORE TOWNSHIP
ALLEGAN COUNTY, MICHIGAN

SCALE 0 300 600

1" = 600 FEET

LEGEND:

SUBJECT PROPERTY

OPEN WATER OR STREAM

REFERENCE
AERIALS EXPRESS, LLC
2005 AERIAL PHOTOGRAPH
AERIAL IMAGERY AND GIS VIEWER, GRAND RAPIDS
ALLEGAN COUNTY, MICHIGAN

PROJECT: 09001770
DATE: OCTOBER 6, 2009
DRAWN: FOD
CHECKED: BR
CAD FILE: 09001770EC-01

ATWELL-HICKS
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TENNESSEE
866 850 4200
Engineering Environmental
Surveying Ecological
Planning Water Resources

K:\09001770\dwg\Ecological\09001770-EC-01.dwg, 12/15/2009 9:30:01 AM, bthomas

APPENDIX II

Photographic Log

PHOTOGRAPHIC LOG

A view looking north across the location of the old farmstead.

A view looking east across Wetland A.

PHOTOGRAPHIC LOG

A view looking north at a drainage swale portion of Wetland A.

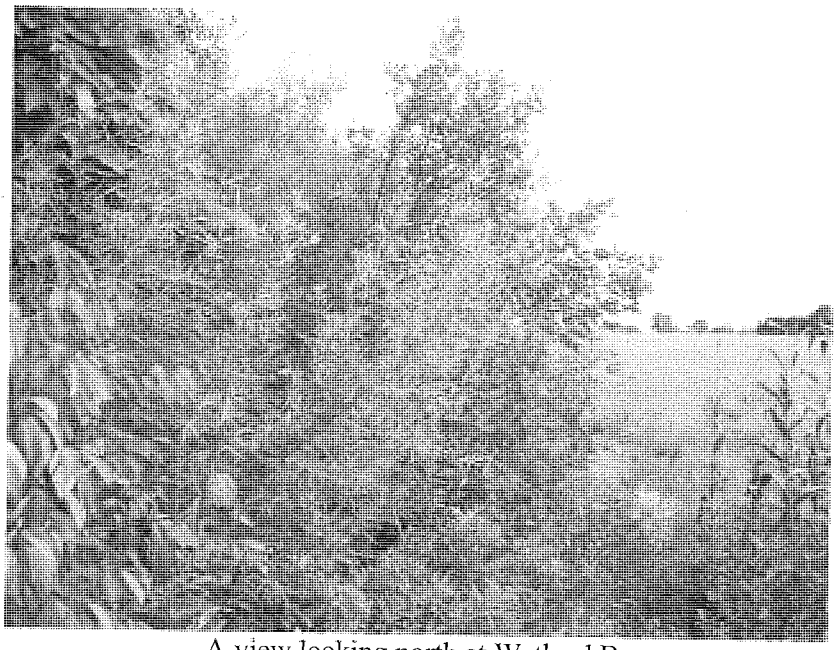
A view looking north at the small scrub-shrub portion of Wetland A.

PHOTOGRAPHIC LOG

A view looking east at the road side ditch along the north side of 146th Avenue.

A view looking west at the road side ditch as it outlets into the North Branch of the Macatawa River.

PHOTOGRAPHIC LOG



A view looking north at Wetland B.

A view looking northwest across a drain swale portion of Wetland C.

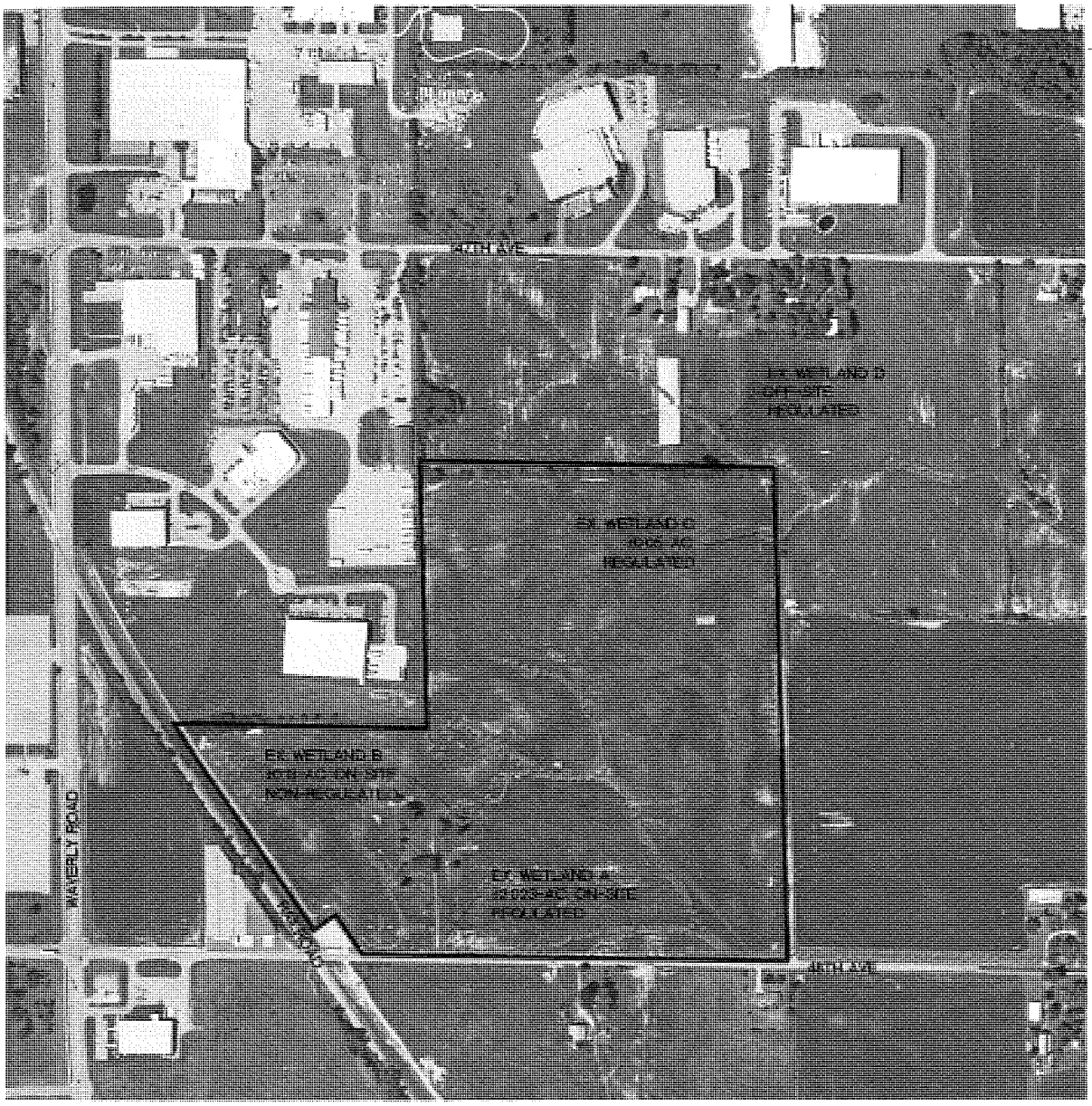
PHOTOGRAPHIC LOG

A view looking east across a drain swale portion of Wetland C.

A view looking west across Wetland D.

APPENDIX III

Wetland Location Map



WETLAND LOCATION MAP

FILLMORE TOWNSHIP
ALLEGAN COUNTY, MICHIGAN

SCALE 0 300 600

1" = 600 FEET

LEGEND:

SUBJECT PROPERTY

SURVEYED WETLAND BOUNDARY

NOTE: ATWELL-HICKS PERFORMED A WETLAND DELINEATION ON OCTOBER 5, 2009.

REFERENCE

MICHIGAN GEOGRAPHIC DATA LIBRARY
CENTER FOR GEOGRAPHIC INFORMATION
DIGITAL ORTHOGRAPHIC QUAD-2005 SERIES
ALLEGAN COUNTY

PROJECT: 09001770
DATE: OCTOBER 6, 2009
DRAWN: FOD
CHECKED: BR
CAD FILE: 09001770EC-01

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APPENDIX IV

MDEQ Wetland Data Form

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant LG Chem	*For DEQ Use:* File: __ __-__ __-__ __ __ __ __ - __
County: Allegan T 4N R 15W S 3	Date: 10 / 05 / 2009
Form Completed By: Bourke Thomas	Wetland Area: A

Instructions:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/**N**) Is the site significantly disturbed? If yes, describe: _____

N (Y/**N**) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual? If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation on *Wetland Side* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Cyperus esculentus	Field nut sedge	H	FACW
ECHINOCHLOA CRUSGALLI	Barnyard grass	H	FACW
Polygonum pensylvanicum	Bigseed smartweed	H	FACW+
Typha latifolia	Cattail	H	OBL
Aster novae-angliae	New England Aster	H	FACW
Phalaris arundinacea	Reed canary grass	H	FACW+
Verbena hastata	Blue vervain	H	FACW+
Penthorum sedoides	Ditch stonecrop	H	OBL
Salix exigua	Sandbar willow	S	OBL

Aquatic Life Observed _____

Dominant Vegetation on Upland Side of the Boundary: (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
ZEA MAYS	Corn	H	UPL

* Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

__X__ (√) Visible observation of inundation (Depth __3__ in.)
__X__ (√) Visible observation of soil saturation (Depth __Surface__ in.)
_____ (√) Hydraulic soils (√ below)
_____ (√) Watermarks
_____ (√) Drift lines
_____ (√) Sediment deposits
_____ (√) Drainage patterns within wetlands

Secondary Indicators:

_____ (√) Oxidized rhizospheres in upper 12"
_____ (√) Water stained leaves
_____ (√) Confirm soil profile matches hydric soil list
_____ (√) FAC-Neutral test
__X__ (√) Bare soil areas
_____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils

_____(√) Organic soils (Histosols)
_____(√) Histic epipedon
_____(√) Sulfidic material (H_2S odor)
_____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  _____(√) Matrix chroma of 2 or less in mottled soils
  _____(√) Matrix chroma of 1 or less in unmottled soils
  _____(√) Black mineral soil with gray mottles at ≤ 10 inches
_____(√) Confirm soil profile matches local hydric soil test
_____(√) Iron and manganese concretions
_____(√) Reducing soil conditions (ferrous iron test)
_____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

_____(√) High organic matter in the surface horizon
__X__(√) Streaking of subsurface horizons by organic matter
_____(√) Organic pans: at depth of _____ inches

Supplement Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

_____

_____

_____

Morphological Plant Adaptations Observed(√): __X__Adventitious roots _____Shall root system _____Floating leaves
__X__Inflated leaves, stems, or root _____Polymorphic leaves _____Oxygen pathway to roots _____ Floating stem
_____Hypertrophied lenticels _____Multiple trunks or stooling _____Buttressed tree trunks _____ Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary
Map Unit from Soil Survey: Blount Silt Loam (41B)

Depth (inches)	Matrix color (hue/value/chroma)	Motte Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10YR 3/2		Loam	
3-8	10YR 6/3		Loam	

Soil Profile on *Upland Side* of the Boundary
Map Unit from Soil Survey: Blount Silt Loam (41B)

Depth (inches)	Depth (inches)	Depth (inches)	Depth (inches)	Notes
0-3	0-3	0-3	0-3	
3-8	3-8	3-8	3-8	

WETLAND DETERMINATION

__X__(√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
__X__(√) Wetland hydrology and/or hydric soil present

__Y__ (Y/N) Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
__Y__ (Y/N) Is the area REGULATED wetland (refer to *Part 303 – Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

__X__(√) Emergent Marsh __X__(√) Deciduous Swamp _____(√) Fen _____(√)Shrub Swamp
_____(√) Wet Meadow _____(√) Coniferous Swamp _____(√) Bog/Muskeg _____(√) Floodplain Forest
_____(√) Wet Prairie _____(√) Deciduous Forest _____(√) Great Lakes Marsh _____(√) Submergent Marsh
Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

DEQ MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant LG Chem	*For DEQ Use:* File: __ __-__ __-__ __ __ __ - __
County: Allegan T 4N R 15W S 3	Date: 10 / 05 / 2009
Form Completed By: Bourke Thomas	Wetland Area: B

Instructions:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual? If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation on *Wetland Side* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Cyperus esculentus	Field nut sedge	H	FACW
ECHINOCHLOA CRUSGALLI	Barnyard grass	H	FACW
Polygonum pensylvanicum	Bigseed smartweed	H	FACW+
Salix exigua	Sandbar willow	S	OBL
Populus deltoides	Cottonwood	O	FAC+

Aquatic Life Observed _____

Dominant Vegetation on Upland Side of the Boundary: (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
ZEA MAYS	Corn	H	UPL

* Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

____ (√) Visible observation of inundation (Depth ____ in.)
__X__ (√) Visible observation of soil saturation (Depth Surface in.)
_____ (√) Hydraulic soils (√ below)
_____ (√) Watermarks
_____ (√) Drift lines
_____ (√) Sediment deposits
_____ (√) Drainage patterns within wetlands

Secondary Indicators:

_____ (√) Oxidized rhizospheres in upper 12"
_____ (√) Water stained leaves
_____ (√) Confirm soil profile matches hydric soil list
____ (√) FAC-Neutral test
__X__ (√) Bare soil areas
_____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils

_____(√) Organic soils (Histosols)
_____(√) Histic epipedon
_____(√) Sulfidic material (H_2S odor)
_____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  _____(√) Matrix chroma of 2 or less in mottled soils
  _____(√) Matrix chroma of 1 or less in unmottled soils
  _____(√) Black mineral soil with gray mottles at ≤ 10 inches
_____(√) Confirm soil profile matches local hydric soil test
_____(√) Iron and manganese concretions
_____(√) Reducing soil conditions (ferrous iron test)
_____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

_____(√) High organic matter in the surface horizon
__X__(√) Streaking of subsurface horizons by organic matter
_____(√) Organic pans: at depth of _____ inches

Supplement Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

_____
_____
_____

Morphological Plant Adaptations Observed(√): __X__Adventitious roots _____Shall root system _____Floating leaves
__X__Inflated leaves, stems, or root _____Polymorphic leaves _____Oxygen pathway to roots _____ Floating stem
_____Hypertrophied lenticels __X__Multiple trunks or stooling _____Buttressed tree trunks _____ Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary
Map Unit from Soil Survey: Corunna Sandy Loam (36)

Depth (inches)	Matrix color (hue/value/chroma)	Motte Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-11	10YR 2/1		Sandy loam	
11-21	10YR 5/1		Sandy loam	

Soil Profile on *Upland Side* of the Boundary
Map Unit from Soil Survey: Blount Silt Loam (41B)

Depth (inches)	Matrix color (hue/value/chroma)	Motte Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10YR 3/2		Loam	
3-8	10YR 6/3		Loam	

WETLAND DETERMINATION

__X__(√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
__X__(√) Wetland hydrology and/or hydric soil present

__Y__ (Y/N) Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
__Y__ (Y/N) Is the area REGULATED wetland (refer to *Part 303 – Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

_____(√) Emergent Marsh __X__(√) Deciduous Swamp _____(√) Fen _____(√) Shrub Swamp
_____(√) Wet Meadow _____(√) Coniferous Swamp _____(√) Bog/Muskeg _____(√) Floodplain Forest
_____(√) Wet Prairie _____(√) Deciduous Forest _____(√) Great Lakes Marsh _____(√) Submergent Marsh
Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, LAND AND WATER MANAGEMENT DIVISION

PART 303 – WETLAND DATA FORM

This information is collected pursuant to Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

Applicant LG Chem	*For DEQ Use:* File: __ __-__ __-__ __ __ __ - __
County: Allegan T 4N R 15W S 3	Date: 10 / 05 / 2009
Form Completed By: Bourke Thomas	Wetland Area: B

Instructions:

Fill out all pertinent information on the following worksheets to substantiate your review. All methods should be in accordance with the *MDEQ Wetland Identification Manual: A Technical Manual for Identifying Wetlands in Michigan* and Part 303. Nomenclature shall follow Voss (1972, 1985, and 1996) or Gleason and Cronquist (2004).

SITE REVIEW:

N (Y/N) Is the site significantly disturbed? If yes, describe: _____

N (Y/N) Is there a potential Problem Area as described in the MDEQ Wetland Identification Manual?

If yes, describe: _____

VEGETATION AND AQUATIC LIFE:

Dominant Vegetation on *Wetland Side* of the Boundary (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
Cyperus esculentus	Field nut sedge	H	FACW
ECHINOCHLOA CRUSGALLI	Barnyard grass	H	FACW
Polygonum pensylvanicum	Bigseed smartweed	H	FACW+
Salix exigua	Sandbar willow	S	OBL
Populus deltoides	Cottonwood	O	FAC+

Aquatic Life Observed _____

Dominant Vegetation on Upland Side of the Boundary: (use additional sheets if necessary)

Genus/Species	Common Name	Stratum*	Indicator Status
ZEA MAYS	Corn	H	UPL

* Stratum: H = Herbaceous (woody and herbaceous plants <3.2 ft. tall); S = Sapling/Shrub (≥3.2 ft. tall AND <3" DBH); O = Overstory (≥3" DBH)

HYDROLOGY (Requires One Primary or Two Secondary Indicators):

Primary Indicators:

____ (√) Visible observation of inundation (Depth ____ in.)
__X__ (√) Visible observation of soil saturation (Depth __Surface__ in.)
_____ (√) Hydraulic soils (√ below)
_____ (√) Watermarks
_____ (√) Drift lines
_____ (√) Sediment deposits
_____ (√) Drainage patterns within wetlands

Secondary Indicators:

_____ (√) Oxidized rhizospheres in upper 12"
_____ (√) Water stained leaves
_____ (√) Confirm soil profile matches hydric soil list
____ (√) FAC-Neutral test
__X__ (√) Bare soil areas
_____ (√) Morphological plant adaptations (√ below)

Other: _____

Hydric Indicators for Non-Sandy Soils

_____(√) Organic soils (Histosols)
_____(√) Histic epipedon
_____(√) Sulfidic material (H_2S odor)
_____(√) Soil color (immediately below A-horizon or within 10 inches of the surface, whichever is shallower)
  _____(√) Gleyed (gray) soil (i.e. matches Gley page)
  _____(√) Matrix chroma of 2 or less in mottled soils
  _____(√) Matrix chroma of 1 or less in unmottled soils
  _____(√) Black mineral soil with gray mottles at ≤ 10 inches
_____(√) Confirm soil profile matches local hydric soil test
_____(√) Iron and manganese concretions
_____(√) Reducing soil conditions (ferrous iron test)
_____(√) Aquic or peraquic moisture regime

Additional Hydric Indicators for Sandy Soils

_____(√) High organic matter in the surface horizon
__X__(√) Streaking of subsurface horizons by organic matter
_____(√) Organic pans: at depth of _____ inches

Supplement Indicators of Hydric Soils:
(e.g., NRCS Field Indicators of Hydric Soils):

_____
_____
_____

Morphological Plant Adaptations Observed(√): __X__Adventitious roots _____Shall root system _____Floating leaves
__X__Inflated leaves, stems, or root _____Polymorphic leaves _____Oxygen pathway to roots _____ Floating stem
_____Hypertrophied lenticels __X__Multiple trunks or stooling _____Buttressed tree trunks _____ Pneumatophores

SOIL PROFILE NOTES:

Soil Profile on *Wetland Side* of the Boundary
Map Unit from Soil Survey: Corunna Sandy Loam (36)

Depth (inches)	Matrix color (hue/value/chroma)	Motte Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-11	10YR 2/1		Sandy loam	
11-21	10YR 5/1		Sandy loam	

Soil Profile on *Upland Side* of the Boundary
Map Unit from Soil Survey: Blount Silt Loam (41B)

Depth (inches)	Matrix color (hue/value/chroma)	Motte Color (if present)	Texture (e.g., sandy loam, etc.)	Notes
0-3	10YR 3/2		Loam	
3-8	10YR 6/3		Loam	

WETLAND DETERMINATION

__X__(√) Predominance of wetland vegetation (Fac, Fac+, FacW-, FacW, FacW+, OBL) or aquatic life
__X__(√) Wetland hydrology and/or hydric soil present

__Y__ (Y/N) Is the area wetland (both wetland hydrology/soils and a predominance of wetland vegetation present)?
__Y__ (Y/N) Is the area REGULATED wetland (refer to *Part 303 – Wetland Jurisdictional Determination Form*)?

Wetland Types (√ all that are present):

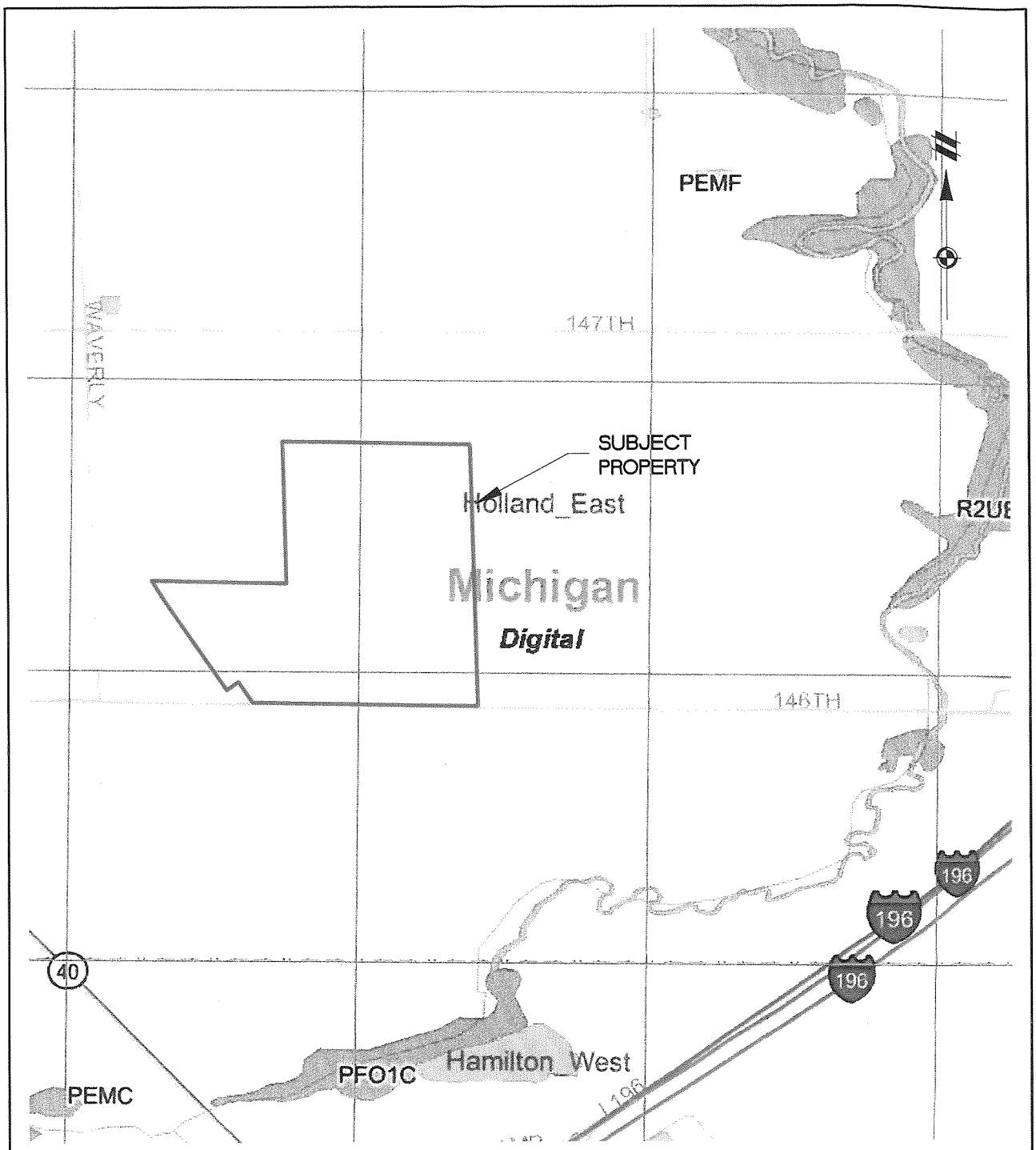
_____(√) Emergent Marsh __X__(√) Deciduous Swamp _____(√) Fen _____(√)Shrub Swamp
_____(√) Wet Meadow _____(√) Coniferous Swamp _____(√) Bog/Muskeg _____(√) Floodplain Forest
_____(√) Wet Prairie _____(√) Deciduous Forest _____(√) Great Lakes Marsh _____(√) Submergent Marsh
Other (e.g. rare and imperiled community, reed canary grass dominated, highly disturbed): _____

Comments: _____

_____

APPENDIX V

Wetland Inventory Maps



NATIONAL WETLAND INVENTORY

FILLMORE TOWNSHIP
ALLEGAN COUNTY, MICHIGAN

SCALE 0 500 1000

1" = 1000 FEET

LEGEND
P: PALUSTRINE
SS: SCRUB SHRUB
EM: EMERGENT
Y: SATURATED/SEMIPERMANENT/SEASONAL

REFERENCE
US FISH AND WILDLIFE SERVICE
HOLLAND EAST, MICH. QUADRANGLE
DATED: 19--

PROJECT: 09001770
DATE: OCTOBER 6, 2009
DRAWN: FOD
CHECKED: BR
CAD FILE: 09001770EC-01

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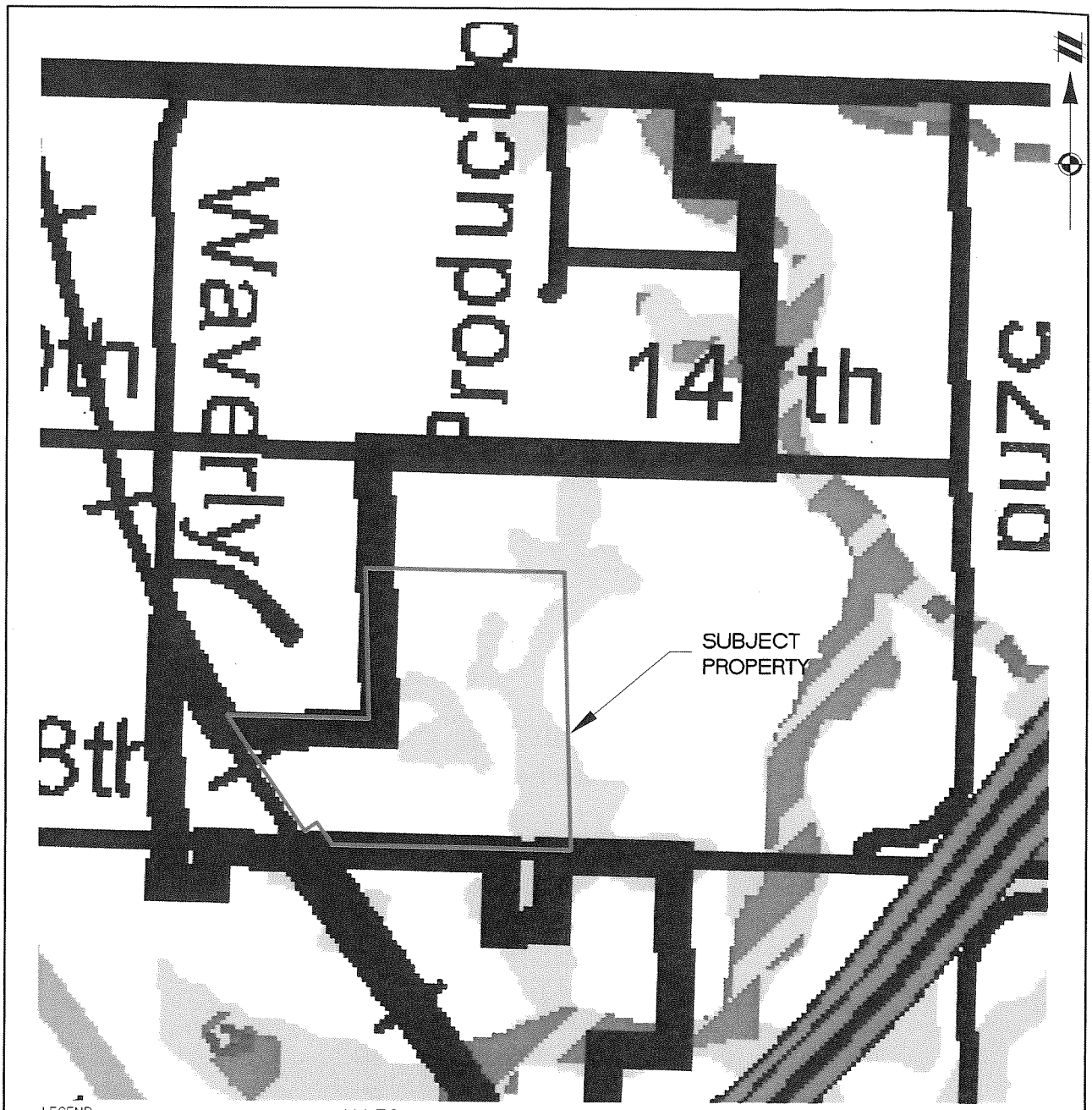
Environmental Ecological Water Resources



LEGEND:

- Interstate Highways
- US Highways
- State Highways
- Railways
- Open Water
- Rivers
- Drains
- 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
- County Boundary

ALLEGAN COUNTY WETLAND INVENTORY

FILLMORE TOWNSHIP
ALLEGAN COUNTY, MI

SCALE 0 500 1000

1" = 1000 FEET

REFERENCE

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
COUNTY WETLAND INVENTORY MAPS
DATED: DECEMBER 15, 2006

PROJECT: 09001770
DATE: OCTOBER 6, 2009
DRAWN: FOD
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CAD FILE: 09001770EC-01

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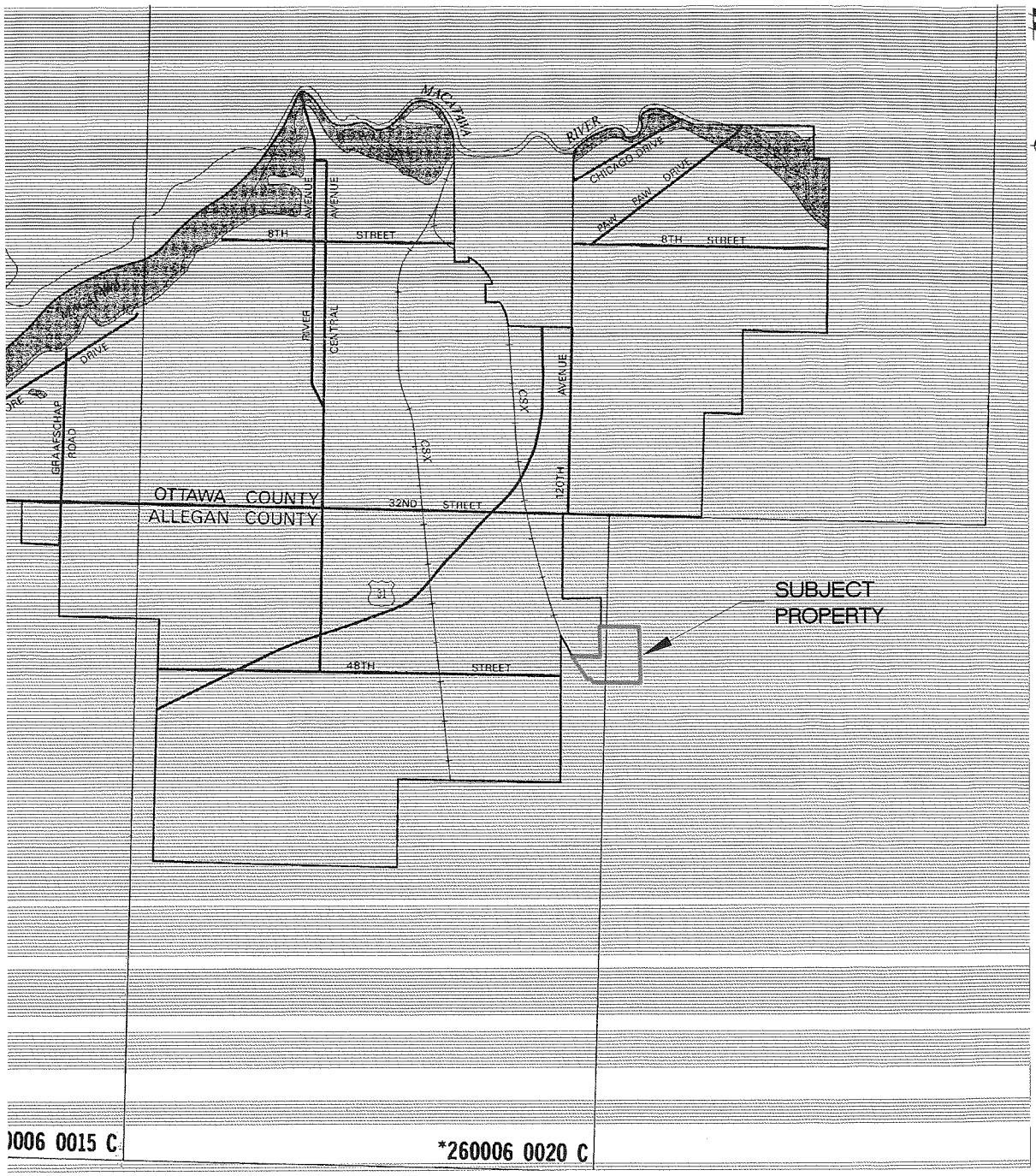
K:\09001770\dwg\Ecological\09001770-EC-01.dwg, 10/8/2009 9:04:15 AM, bthomas

APPENDIX VI

FEMA Flood Insurance Rate Map



FLOOD INSURANCE RATE MAP
FILLMORE TOWNSHIP
ALLEGAN COUNTY, MICHIGAN

LEGEND
ZONE A: AREAS WITHIN 100-YEAR FLOODPLAIN
ZONE X: AREAS OUTSIDE 100-YEAR FLOODPLAIN

SCALE 0 2500 5000
1" = 5000 FEET

REFERENCE
FEDERAL EMERGENCY MANAGEMENT AGENCY
PANEL NUMBER: 260006 0005-0020
EFFECTIVE DATE: SEPTEMBER 25, 1998

PROJECT: 09001770
DATE: OCTOBER 6, 2009
DRAWN: FOD
CHECKED: BR
CAD FILE: 09001770EC-01

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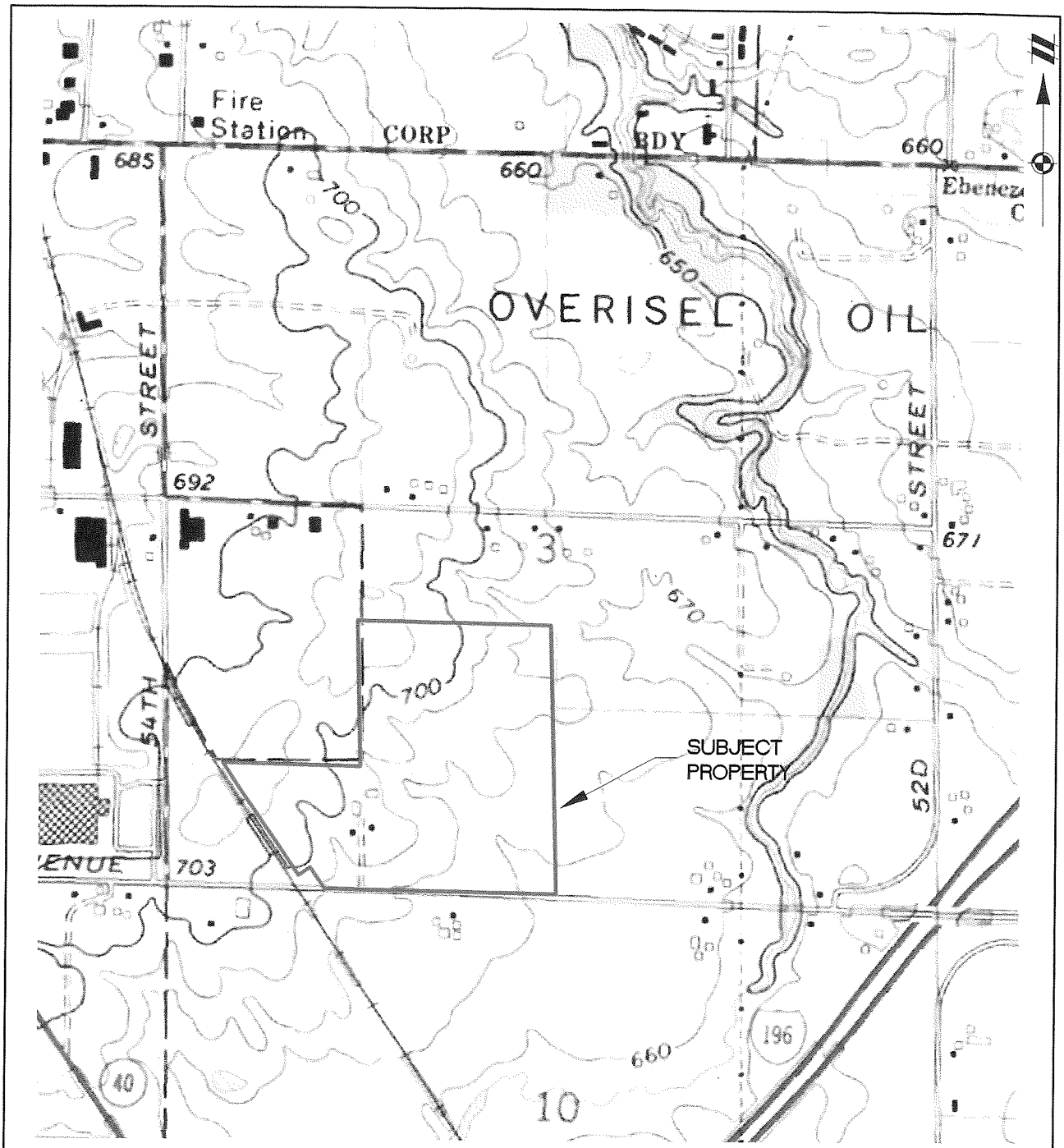
Environmental Ecological Water Resources

APPENDIX VII

USGS Topographic Map



USGS TOPOGRAPHIC MAP
FILLMORE TOWNSHIP
ALLEGAN COUNTY, MICHIGAN

SCALE 0 500 1000

1" = 1000 FEET

REFERENCE

USGS 7.5 MIN TOPOGRAPHIC QUADRANGLE
HOLLAND EAST, MICHIGAN QUADRANGLE
DATED: 1972, PHOTOREVISED: 1980

SECTION 3

PROJECT: 09001770
DATE: OCTOBER 6, 2009
DRAWN: FOD
CHECKED: BR
CAD FILE: 09001770EC-01

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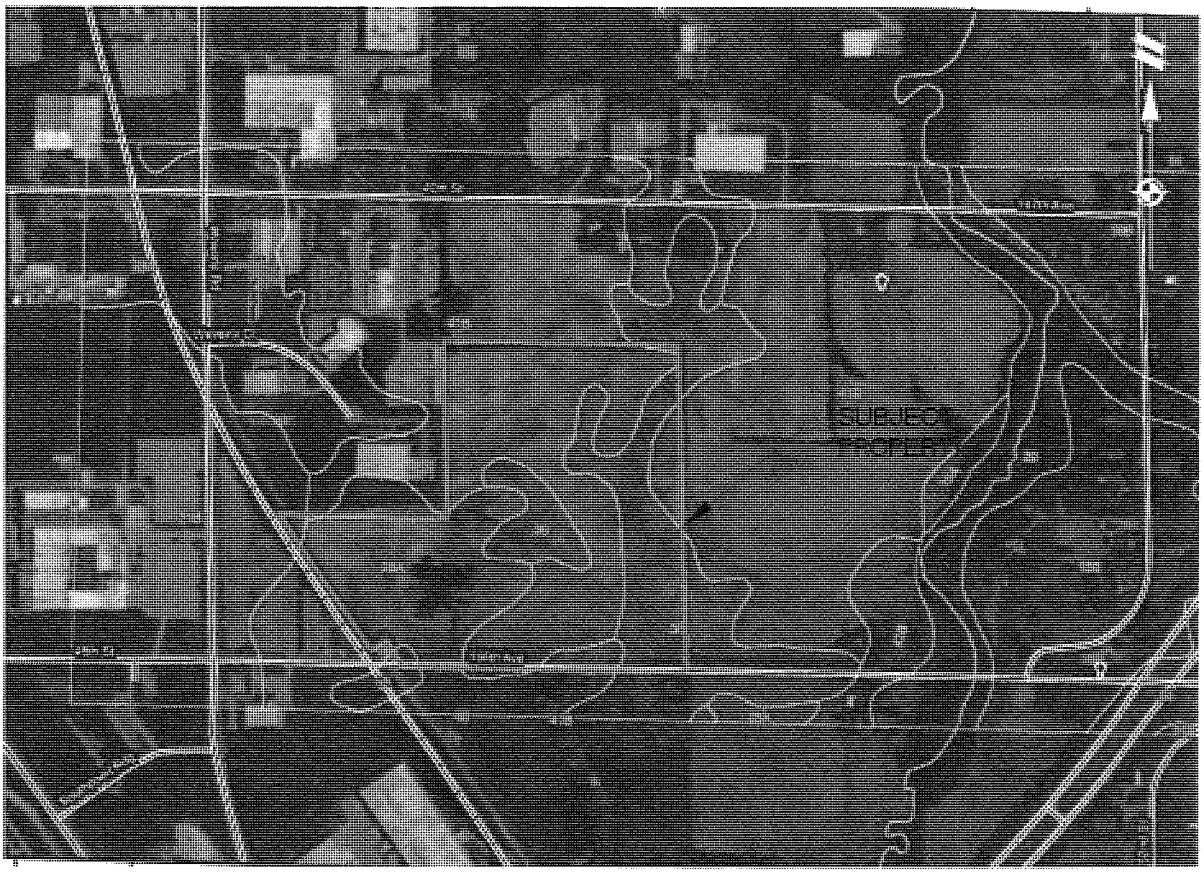
APPENDIX VIII

Allegan County Soil Survey Map



ALLEGAN COUNTY SOIL SURVEY MAP

FILLMORE TOWNSHIP
ALLEGAN COUNTY, MICHIGAN

LEGEND:
16B: Capac Loam, 0 to 6 percent slopes
19A: Brady Sandy Loam, 0 to 3 percent slopes
21B: Capac–Wixom Complex, 1 to 4 percent slopes
28A: Rimer Loamy Sand, 0 to 4 percent slopes
29: Cohoctah Silt Loam
36: Corunna Sandy Loam*
39: Granby Loamy Sand*
41B: Blount Silt Loam, 1 to 4 percent slopes
42B: Metamora Sandy Loam, 1 to 4 percent slopes
48: Belleville Loamy Sand*
64: Belleville–Brookston Complex*

*Indicates hydric soils as determined by the Natural Resource Conservation Service.

SCALE 0 500 1000

1" = 1000 FEET

REFERENCE
WEB SOIL SURVEY
NATURAL RESOURCE CONSERVATION SERVICE
http://websoilsurvey.nrcs.usda.gov/app/

PROJECT: 09001770
DATE: OCTOBER 6, 2009
DRAWN: FOD
CHECKED: BR
CAD FILE: 09001770EC-01

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TENNESSEE
866 850 4200
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Planning Water Resources

Attachment 10

Endangered Species

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Michigan Ecological Services Field Office
2651 Coolidge Road Suite 101
East Lansing, MI 48823-6360
Phone: (517) 351-2555 Fax: (517) 351-1443
http://www.fws.gov/midwest/EastLansing/

In Reply Refer To:
Project code: 2022-0012641
Project Name: LG Energy Expansion

February 25, 2022

Subject: Consistency letter for 'LG Energy Expansion' for threatened and endangered species that may occur in your proposed project location consistent with the Michigan Endangered Species Determination Key (Michigan DKey)

Dear Julie Pratt:

The U.S. Fish and Wildlife Service (Service) received on **February 25, 2022** your effect determination(s) for the 'LG Energy Expansion' (the Action) using the Michigan DKey within the Information for Planning and Consultation (IPaC) system. The Service developed this system in accordance with the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based on your answers and the assistance of the Service's Michigan DKey, you determined the proposed Action will have "No Effect" on the following species.

Species	Listing Status	Determination
Eastern Massasauga (=rattlesnake) (*Sistrurus catenatus*)	Threatened	No effect
Indiana Bat (*Myotis sodalis*)	Endangered	No effect
Karner Blue Butterfly (*Lycaeides melissa samuelis*)	Endangered	No effect
Northern Long-eared Bat (*Myotis septentrionalis*)	Threatened	No effect
Piping Plover (*Charadrius melodus*)	Endangered	No effect
Pitcher's Thistle (*Cirsium pitcheri*)	Threatened	No effect
Red Knot (*Calidris canutus rufa*)	Threatened	No effect
Whooping Crane (*Grus americana*)	Experimental Population, Non-Essential	No effect

Your agency has met consultation requirements for these species by informing the Service of the "No Effect" determinations. Please email a copy of this letter to MIFO_Dkey@fws.gov for our record keeping (include "No Effect for Project Name" in the subject line).

For non-Federal representatives: Please note that when a project requires consultation under section 7 of the Act, the Service must consult directly with the Federal action agency unless that agency formally designates a non-Federal representative (50 CFR 402.08). Non-Federal representatives may prepare analyses or conduct informal consultations; however, the ultimate responsibility for section 7 compliance under the Act remains with the Federal agency. If the Federal agency concurs with your determination, the project as proposed has completed section 7 consultation. All documents and supporting correspondence should be provided to the Federal agency for their records.
Please provide sufficient project details on your project homepage in IPaC (Define Project, Project Description) to support your conclusions. Failure to disclose important aspects of your project that would influence the outcome of your effects determinations may negate your determinations and invalidate this letter. If you have site-specific information that leads you to believe a different determination is more appropriate for your project than what the Dkey concludes, you can and should proceed based on the best available information.

The Service recommends that you contact the Service or re-evaluate the project in IPaC if: 1) the scope or location of the proposed Action is changed; 2) new information reveals that the action may affect listed species or designated critical habitat in a manner or to an extent not previously considered; 3) the Action is modified in a manner that causes effects to listed species or designated critical habitat; or 4) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Service should take place before project changes are final or resources committed.

Bald and Golden Eagles:
Bald eagles, golden eagles, and their nests are protected under the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended, 16 U.S.C. 668a-d) (Eagle Act). The Eagle Act prohibits, except when authorized by an Eagle Act permit, the “taking” of bald and golden eagles and defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” The Eagle Act’s implementing regulations define disturb as “…to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

If the Action may impact bald or golden eagles, additional coordination with the Service under the Eagle Act may be required. For more information on eagles and conducting activities in the vicinity of an eagle nest, please visit https://www.fws.gov/midwest/eagle/. In addition, the Service developed the National Bald Eagle Management Guidelines (May 2007) in order to assist landowners in avoiding the disturbance of bald eagles. The full Guidelines are available at http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf.

If you have further questions regarding potential impacts to eagles, please contact Chris Mensing, Chris_Mensing@fws.gov or 517-351-2555.

Wetland impacts:
Section 404 of the Clean Water Act of 1977 (CWA) regulates the discharge of dredged or fill material into waters (including wetlands) of the United States. Regulations require that activities

permitted under the CWA (including wetland permits issued by the Michigan Department of Environment, Great Lakes, and Energy (EGLE)) not jeopardize the continued existence of species listed as endangered or threatened. Permits issued by the U.S. Army Corps of Engineers must also consider effects to listed species pursuant to section 7 of the Endangered Species Act. The Service provides comments to the agencies that may include permit conditions to help avoid or minimize impacts to wildlife resources including listed species. For this project, we consider the conservation measures you agreed to in the determination key and/or as part of your proposed action to be non-discretionary. If you apply for a wetland permit, these conservation measures should be explicitly incorporated as permit conditions. Include a copy of this letter in your wetland permit application to streamline the threatened and endangered species review process.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

LG Energy Expansion

2. Description

The following description was provided for the project 'LG Energy Expansion':

> Project contains construction of several buildings in aggregate sum of 1.4 million square feet in a vacant land owned by LG Energy Solution Michigan, Inc., which has a purpose of manufacturing lithium-ion battery components for electric vehicles.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.757245850000004,-86.06753036448572,14z

Qualification Interview

1. This determination key is intended to assist the user in the evaluating the effects of their actions on Federally listed species in Michigan. It does not cover other prohibited activities under the Endangered Species Act (e.g., for wildlife: import/export, Interstate or foreign commerce, possession of illegally taken wildlife, purposeful take for scientific purposes or to enhance the survival of a species, etc.; for plants: import/export, reduce to possession, malicious destruction on Federal lands, commercial sale, etc.) or other statutes. Click yes to acknowledge that you must consider other prohibitions of the ESA or other statutes outside of this determination key.

   Yes

2. Is the action the approval of a long-term (i.e., in effect greater than 10 years) permit, plan, or other action?

   No

3. Is the action being funded, authorized, or carried out by a Federal agency?

   Yes

4. Does the action involve the installation or operation of wind turbines?

   No

5. Does the action involve purposeful take of a listed animal?

   No

6. Does the action involve a new communication tower?

   No

7. Does the activity involve aerial or other large-scale application of any chemical (including insecticide, herbicide, etc.)?

   No

8. Will your action permanently affect local hydrology by impacting 1/2 acre or more of wetland; or by increasing or decreasing groundwater or surfacewater elevations?

   Yes

9. Does your project have the potential to indirectly impact the stream/river or the riparian zone (e.g., cut and fill, horizontal directional drilling, hydrostatic testing, construction, vegetation removal, discharge, etc.)?

   No

10. Will your action disturb the ground or existing vegetation? This includes any off road vehicle access, soil compaction, digging, seismic survey, directional drilling, heavy equipment, grading, trenching, placement of fill, pesticide application, vegetation management (including removal or maintenance using equipment or chemicals), cultivation, development, etc.

    Yes

11. Does your action area occur entirely within an already developed area with no natural habitat or trees present? For the purposes of this question, "already developed areas" are already paved, covered by existing structures, manicured lawns, industrial sites, or cultivated cropland, AND do not contain trees that could be roosting habitat. Be aware that listed species may occur in areas with natural, or semi-natural, vegetation immediately adjacent to existing utilities (e.g. roadways, railways) or within utility rights-of-way such as overhead transmission line corridors, and can utilize suitable trees, bridges, or culverts for roosting even in urban dominated landscapes (so these are NOT considered "already developed areas" for the purposes of this question).

    Yes

12. Does the action have potential indirect effects to listed species or the habitats they depend on (e.g., water discharge into adjacent habitat or waterbody, changes in groundwater elevation, introduction of an exotic plant species)?

    No

13. [Hidden Semantic] Does the action area intersect the Indiana bat AOI?

    Automatically answered
    Yes

14. Federally listed bats infrequently use anthropogenic structures for roosting, such as buildings, barns, sheds, and bat boxes. Are bats known to be roosting in a structure that occurs within your action area?

    No

15. [Hidden Semantic] Does the action intersect the Eastern massasauga rattlesnake area of influence?

    Automatically answered
    Yes

16. [Hidden Semantic] Does the action intersect the Karner blue butterfly area of influence?

    Automatically answered
    Yes

17. [Hidden Semantic] Does the action area intersect the piping plover area of influence?

    Automatically answered
    Yes

18. [Hidden Semantic] Does the action area intersect the rufa red knot area of influence?

    Automatically answered
    Yes

19. [Hidden Semantic] Does the action area intersect the whooping crane (ex. Pop) area of influence?

    Automatically answered
    Yes

20. [Hidden Semantic] Does the action area intersect the area of influence for Pitcher's thistle?

    Automatically answered
    Yes

21. [Hidden Semantic] Does the action area intersect the Indiana bat area of influence?

    Automatically answered

    Yes

22. [Hidden Semantic] Does this project intersect the northern long-eared bat area of influence?

    Automatically answered

    Yes

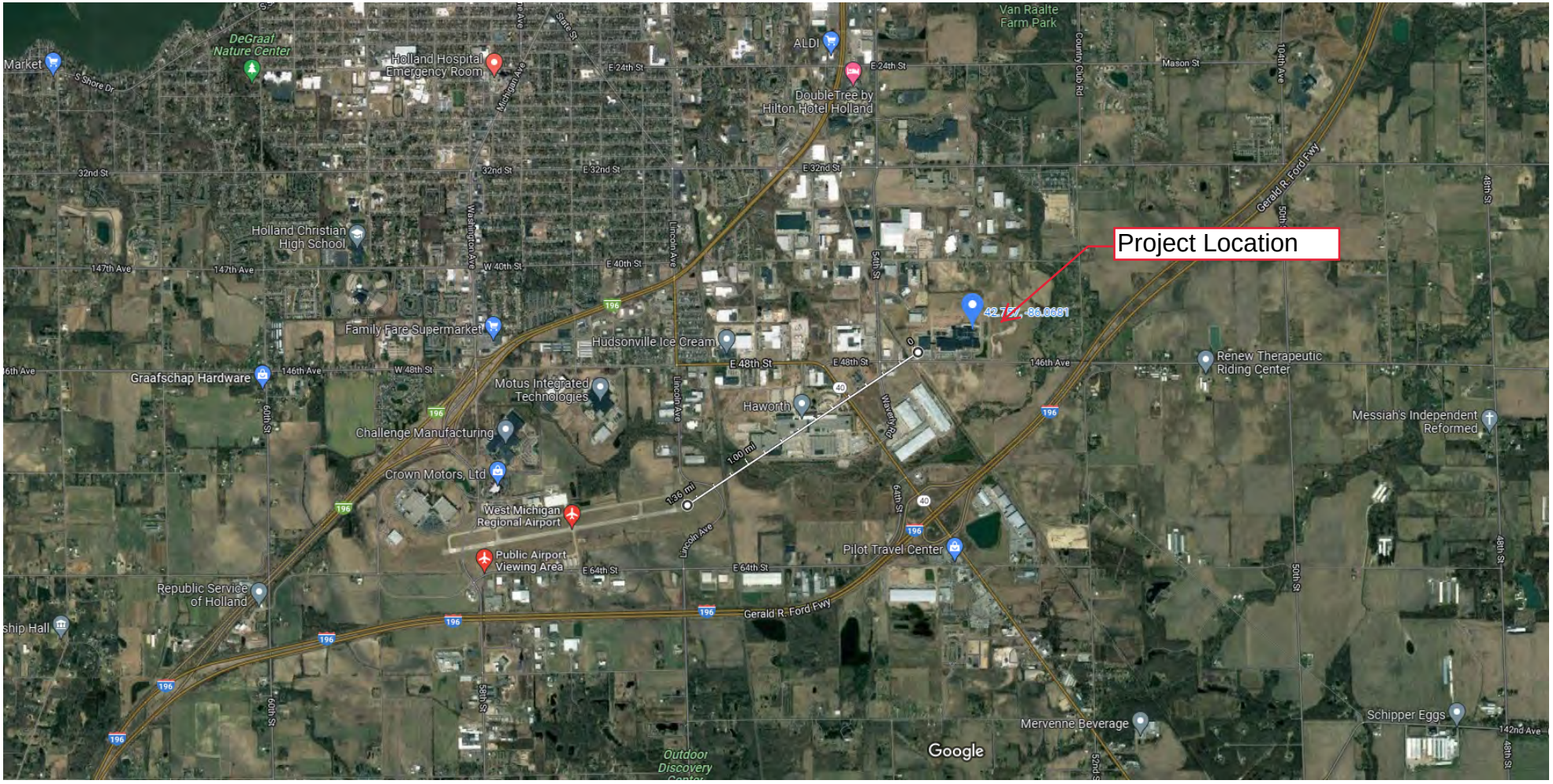
IPaC User Contact Information

Name: Julie Pratt
Address: 523 W. Sunnybrook Drive
City: Royal Oak
State: MI
Zip: 48034
Email jpratt@environmentalconsultingsolutions.com
Phone: 5864247355

Attachment 11

Airports

Google Maps airport



Imagery ©2022 Landsat / Copernicus, Maxar Technologies, NOAA, USDA Farm Service Agency, Map data ©2022 2000 ft

Rating All filters

West Michigan Regional Airport
4.2 (28)
Airport · 60 Geurink Blvd
(616) 392-7831
Website Directions

West Michigan Regional Airport
1.0 (1)
Airport · 270 S River Ave
(616) 392-7831
Website Directions

Kalamazoo/Battle Creek

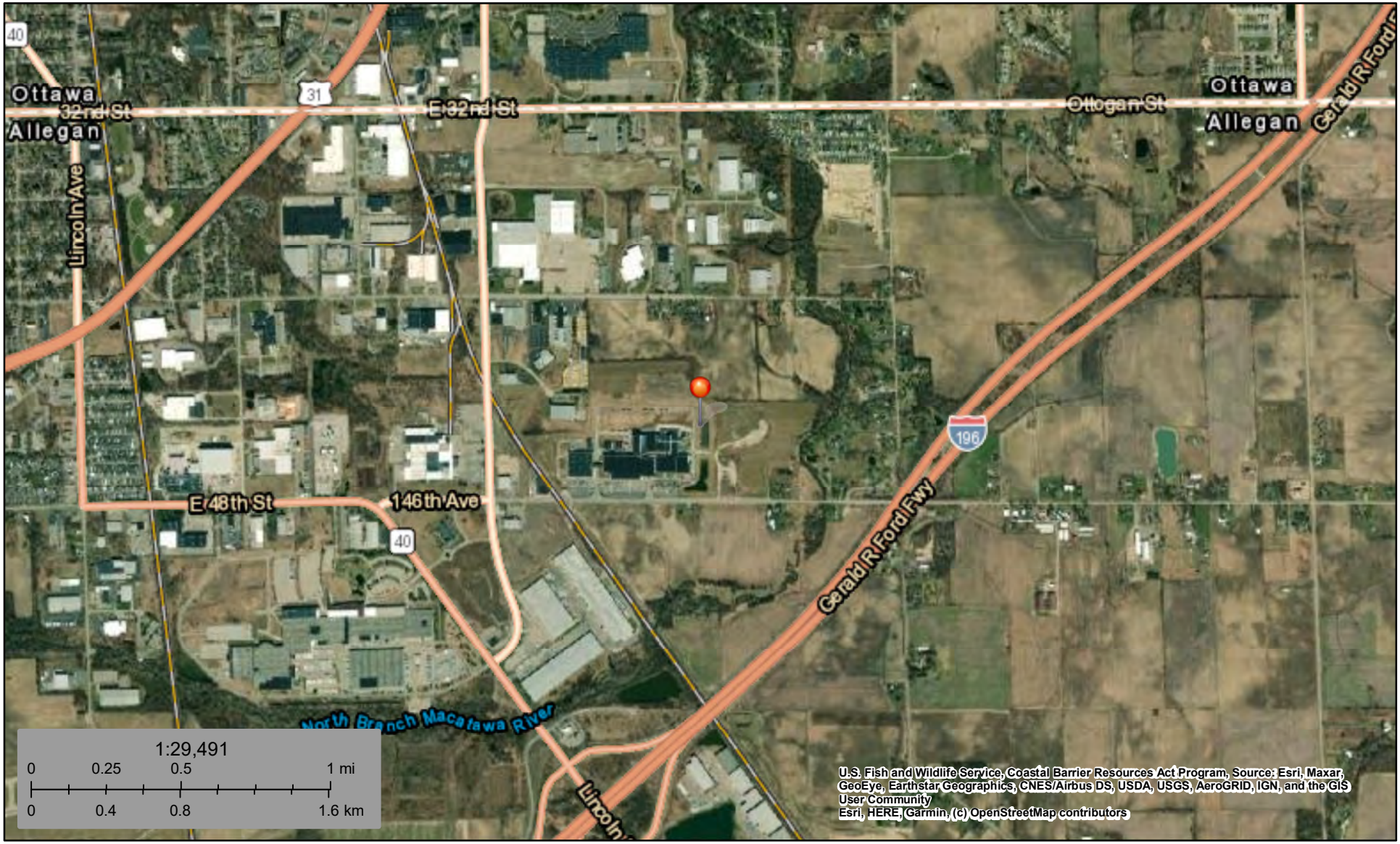
The Project is not located within 15,000 feet of a military airport or 2,500 feet of a civilian airport.

Attachment 12

Coastal Barrier Resources

U.S. Fish and Wildlife Service
Coastal Barrier Resources System

CBRS



February 25, 2022

CBRS Buffer Zone

System Unit

CBRS Units

Otherwise Protected Area

This map is for general reference only. The Coastal Barrier Resources System (CBRS) boundaries depicted on this map are representations of the controlling CBRS boundaries, which are shown on the official maps, accessible at https://www.fws.gov/cbra/maps/index.html. All CBRS related data should be used in accordance with the layer metadata found on the CBRS Mapper website.

The CBRS Buffer Zone represents the area immediately adjacent to the CBRS boundary where users are advised to contact the Service for an official determination (http://www.fws.gov/cbra/Determinations.html) as to whether the property or project site is located "in" or "out" of the CBRS.

CBRS Units normally extend seaward out to the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS mapper.