CRAIG A. MILLER & ASSOCIATES LLC

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ELECTRONICALLY FILED

July 9, 2026

U-22119

Michigan Public Service Commission
7109 Saginaw Highway
P.O. Box 30221
Lansing, MI 48909

Attn: Ms. Lisa Felice
Executive Secretary

RE: In the Matter of the Application of Peoples LFG, LLC for Approval to Construct, Own and Operate the "Peoples LFG Pipeline" beginning in Section 15 of Taymouth Township, T10N, R5E Saginaw County, State of Michigan and continuing west and south to an interconnect with TC Energy's GLGT 36" pipeline in Section 27 of Taymouth Township, T10N, R5E Saginaw County, State of Michigan.

Dear Ms. Felice:

Enclosed is a check in the amount of **$2000.00 in** payment of the filing fee for the Application of Peoples LFG, LLC. Please note, this Application along with the Exhibits have been electronically filed. The original notarized verification is also enclosed with this cover letter.

If there are any questions or concerns regarding this Application, do not hesitate to contact the undersigned at 231-590-4053.

Sincerely,

Craig A. Miller
Consultant

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the Matter of the Application of
Peoples LFG, LLC for a Certificate of Public
Convenience and Necessity to Construct and
Operate a Natural Gas Pipeline, the Peoples
LFG Pipeline, in Saginaw County, Michigan

Case No. U- 22119

APPLICATION

Peoples LFG, LLC ("Peoples LFG" or "Applicant") applies for authority pursuant to 1929 PA 9, MCL 483.101 *et seq,* as amended ("Act 9"), to construct, own and operate a natural gas pipeline, the "Peoples RNG Pipeline", beginning at the corner of the RNG facility in Section 15 of Taymouth Township, T10N, R5E Saginaw County, State of Michigan and continuing west and south to an interconnect with TC Energy's GLGT 36" pipeline in Section 27 of Taymouth Township, T10N, R5E Saginaw County, State of Michigan:

1. Applicant.

Applicants are a limited liability company duly authorized under the laws of the State of Michigan, with its principal office at 4 Carter Green, Suite 250, Carmel, Indiana 46032.

2. Pipeline Description.

Applicant proposes to construct approximately 3.21 miles of 4" SDR 11 HDPE (PE 4710) natural gas pipeline.

The route of the Peoples LFG Pipeline is attached and incorporated herein as Exhibit A.

The proposed pipeline will be constructed in the road right of way beginning at the RNG facility on E Rathbun Rd., thence west to Pettit Rd., thence south to Canada Rd., thence west to Morseville Rd., thence south across Birch Run Rd. to McIntosh Rd., thence east to the interconnect with TC Energy's GLGT 36" pipeline in Section 27 of Taymouth Township, T10N, R5E Saginaw County, State of Michigan.

3. Purpose of Pipeline

The Peoples LFG Pipeline is intended to transport RNG produced from the gas upgrading facility at 4347 East Rathbun Road, Birch Run, MI 48415. The facility will produce up to 1,150 mcf/d when fully operational.

Ultimately, the gas transported by the Peoples LFG Pipeline will be available to residents and businesses that transport gas on the interstate pipeline system. Without this pipeline, approximately 0.7 Bcf of gas annually would not be recovered, which is a waste of a natural resource and would increase the amount of greenhouse gas emissions.

4. Right-of-Way and/or Easement Description.

The Peoples LFG Pipeline will be constructed within the county road right of way and across the private easements listed below that will be recorded at the Register of Deeds in Saginaw County. Peoples LFG has filed an application for a right-of-way permit from Saginaw County Road Commission for pipe installation within the road right-of-way. Based on prior experience, the necessary easements and permits to construct, own and operate the pipeline in the road right of way will be approved so long as this certificate is issued. Applicants will acquire other construction permits from local government entities pending Act 9 approval.

Private Easement Parcels

WASTE MANAGEMENT
27-10-5-15-2001-000
27-10-5-15-2002-000

IRISH FAMILY FARMS
27-10-5-27-2001-003
27-10-5-27-2001-005
27-10-5-27-2007-000

5. Specifications/Engineering/Safety.

The engineering specifications for the new Peoples LFG Pipeline are attached and incorporated herein as Exhibit B. The entire Peoples LFG Pipeline will be constructed, tested and operated in a manner that meets or exceeds the requirements of the Michigan Gas Safety Standards 27th edition.

6. Construction Cost Estimate.

Exhibit C, attached and incorporated herein, contains an initial cost estimate for constructing the pipeline. The total Peoples LFG Pipeline project cost is currently estimated to be approximately $6,832,845.00 (six million, eight hundred thirty-two thousand eight hundred forty-five dollars and zero cents). This cost estimate assumes late summer/fall construction; winter construction would add approximately twenty-five percent more to the total cost.

7. Operating Expenses and Revenues.

Applicants anticipate that the pipeline will serve only its own RNG facility, thereby negating the need for an initial rate. If other RNG producers in the vicinity of this pipeline desire to transport their gas on the Peoples LFG Pipeline, then Applicant will provide transportation services in compliance with the 1929 PA 9 and file the executed transportation agreements with the Commission.

8. Public Convenience and Necessity

The purpose of the Peoples LFG Pipeline is to transport recovered renewable natural gas in the most efficient and cost-effective means to the market. The public convenience and necessity will be served by the recovery of this valuable natural resource and the reduction in greenhouse gas emissions from the landfill.

9. Environmental Impact Report.

Exhibit D attached and incorporated herein addresses the environmental aspects of the Peoples LFG Pipeline. The report concludes that the overall impact for the proposed pipeline will be minimal.

10. Schedule.

Applicant proposes installing the Peoples LFG Pipeline as an Act 9 pipeline in the fourth quarter of 2026 and operate in February 2027 if the Commission grants authorization for this project.

WHEREFORE, Applicant respectfully requests the Commission to:

A. Issue its Order finding the proposed Peoples LFG Pipeline will serve the public convenience and necessity.

B. Issue to the Applicant a Certificate of Public Convenience and Necessity in appropriate form authorizing the Applicant to construct, install, own and operate the proposed Peoples LFG Pipeline as an Act 9 pipeline.

C. Approve the route as described, and depicted in the map attached as Exhibit A, subject to such changes in location as may be reasonable and necessary upon actual construction.

D. Approve the general engineering specifications, design, construction and operation reflected in Exhibit B.

E. Approve the terms and conditions in this Application.

F. Determine the proposed Peoples LFG Pipeline will not have an adverse effect on the environment as shown in Exhibit D.

G. Find the pipeline, when constructed, tested and operated as proposed herein, will meet the Michigan Gas Safety Standards 27th edition.

H. Find that the public interest will be adequately protected without the time and expense involved in a public hearing and expeditiously grant *ex parte* approval of this Application.

I. Grant such other relief as is just and appropriate.

Respectfully submitted,
Craig A. Miller & Associates LLC

Dated: July 8, 2026 _____ By: Craig A. Miller
Craig A. Miller Managing Member

In the matter of the Application of
Peoples LFG, LLC, for authority to
construct and operate the Peoples LFG Pipeline
in Taymouth Township, Saginaw County, State of Michigan.

Case No. U- 22119

VERIFICATION

STATE OF MICHIGAN

COUNTY OF Kalkaska)

Craig A. Miller being sworn, says that he is a Consultant of the Applicant, Peoples LFG, LLC, that he executed the foregoing Application with full authority to do so; and that the statements therein are true to his best information, knowledge, and belief.

Craig A. Miller
Managing Member Craig A. Miller & Associates LLC

Subscribed and sworn to before me, a Notary Public in and for said county of Kalkaska, on the 2nd day of July, 2026

My commission expires: July 5th, 2032 Signature:

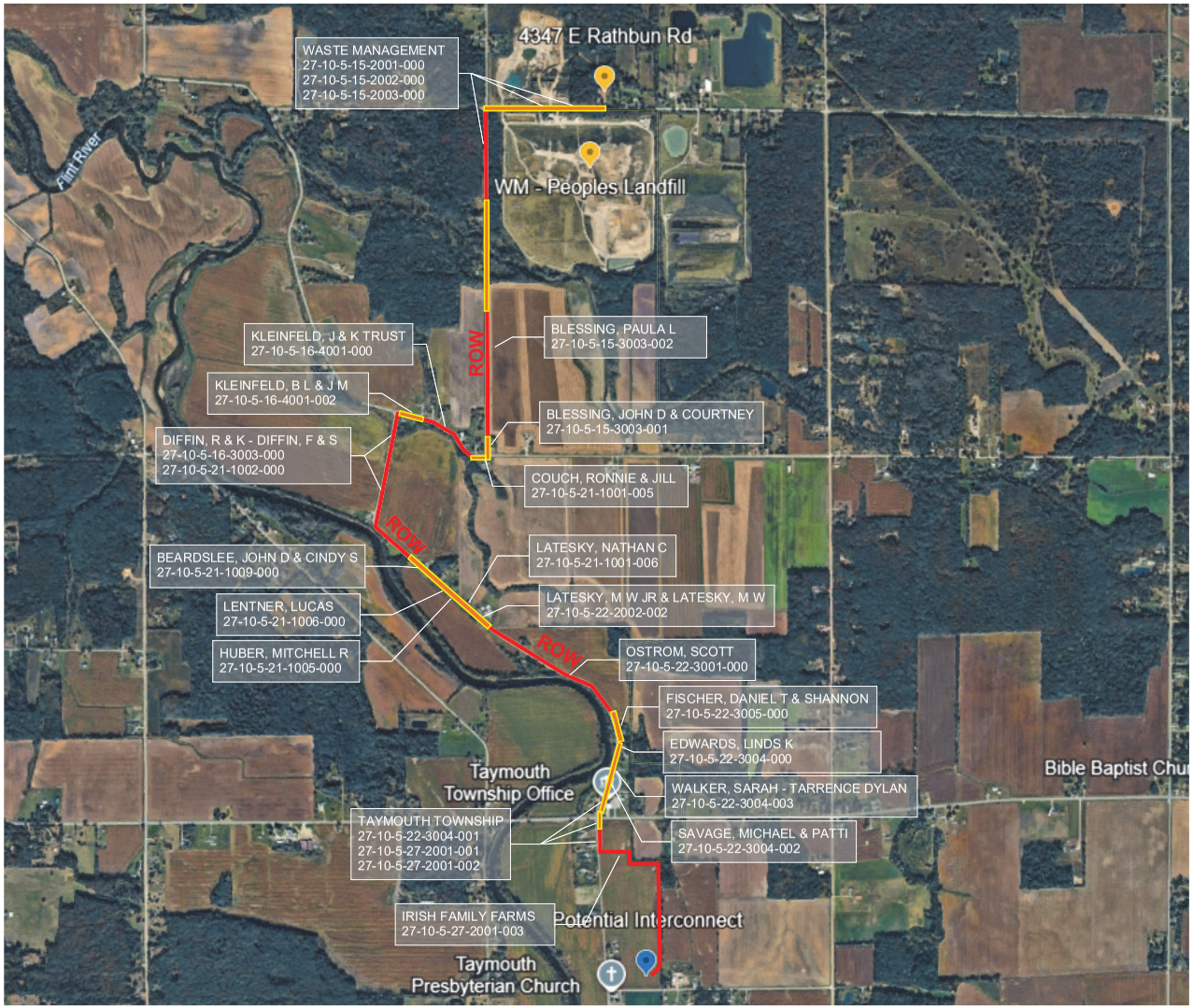
ALESHIA NAEYAERT
Notary Public - State of Michigan
County of Kalkaska
My Commission Expires Jul 5, 2032
Acting in the County of Kalkaska

Notary public, State of Michigan County of Kalkaska

EXHIBIT A

Route

See Map Attached



ACT 9 Route
19,995 lnft

Bore Locations
6,550 lnft

GENERAL NOTES

RESERVED FOR
EOR LOGO

REVISION HISTORY

REV	BY	DATE	REVISION
0	JBW	6.29.2026	Road ROW w Prop Owners

Sagepoint Energy
4 Carter Green, Suite 250, Carmel, IN 46032

PEOPLES LFG, LLC
RENEWABLE NATURAL GAS PLANT
BIRCH RUN, MI

LFG TO RNG FACILITY
PRELIMINARY SALES GAS PIPELINE ROUTING

LINE NUMBER: N/A

DRAWN: | DRAWN DATE: | SHEET: 1 OF 1

DRAWING NUMBER: PLFG-850-C-001

REV. 0

EXHIBIT B

PIPELINE SPECIFICATIONS

PROPOSED PEOPLES RNG PIPELINE

I. OVERVIEW OF PROJECT

The proposed pipeline will transport dehydrated renewable natural gas from the RNG facility in Section 15 of Taymouth Township, T10N, R5E Saginaw County, State of Michigan and continuing west and south to an interconnect with TC Energy's GLGT 36" pipeline in Section 27 of Taymouth Township, T10N, R5E Saginaw County, State of Michigan.

The pipeline lies within a rural area along Morseville Road. The pipeline does not traverse through any incorporated or unincorporated village or town, designated public place or designated subdivision, community development or shopping center or similar public place. The proposed pipeline will be designed to meet the requirements of a Class 3 area as defined by Title 49, Code of the Federal Regulations (49 CFR) Part 192, Subpart A as adopted by the Michigan Gas Safety Standards.

The Applicant attests that the new line will be constructed to standards that meet or exceed the Michigan Gas Safety Standards 27th edition.

II. ROUTE

The proposed pipeline will be constructed in the road right of way beginning at the RNG facility on E Rathbun Rd., thence west to Pettit Rd., thence south to Canada Rd., thence west to Morseville Rd., thence south across Birch Run Rd. to McIntosh Rd., thence east to the interconnect with TC Energy's GLGT 36" pipeline in Section 27 of Taymouth Township, T10N, R5E Saginaw County, State of Michigan.

III. MATERIALS

The following materials will be used in the construction of the new pipeline:

Pipe Specification	ASTM A53, API 5L PSL2 or ASTM A106
Pipe Outside Diameter	4.5"
Avg. Wall Thickness	.237
Specified Minimum Yield	Grade B 35,000 psi
Joint Type	ERW or Seamless
Joint Length	Double Random
Pipe Coating	Fusion Bonded Epoxy
Joint Coating	Denso 7200ANSI 150
Flange Fittings	1000# Minimum
Threaded Fittings	
	SDR11 ASTM D2513 PE4710
Pipe Specification	4.5 in.
Pipe Outside Diameter	0.409 in.
Min Wall Thickness	3.63 in.
Average Inside Diameter	2.31 lbs./ft
Weight (Approx.)	Heat Fusion or Electro Fusion
Joining	12AWG
Tracer Wire	

The above pipe specification meets the requirements of the Michigan Gas Safety Standards, 27th Edition. The pipe utilized in the new construction will be new pipe.

IV. OPERATING DATA

The data below represents expected operating conditions.

A.	Maximum Allowable Operating Pressure	125 psig
B.	Normal Operating Pressure	100 psig
C.	Shut In Pressure	125 psig
D.	Meter Type	Orifice
E.	Minimum Ground Cover	36" minimum
F.	Ground Cover at Ditches	36" minimum
G.	Line Crossing Clearance	12" minimum
H.	Road Crossings	3 existing
I.	Maximum Design Temperature	100° F
J.	Minimum Design Temperature	-20° F
K.	Expected Operating Temperature	30° F to 100° F

V. PIPE DESIGN

The design factor for the entire line will be selected as .50 suitable for Class 3 locations, which will allow for future development along the route without reducing MAOP. The operating temperature design factor is 1. The longitudinal joint factor for the pipe is 1.0. For the new pipe proposed, the maximum allowable operating pressure is 285 psig. ANSI 150 fittings limit pressure to 285 psig at 100F. Overpressure protection will be provided by the compressor high pressure shut off device and the dehydrator relief valve at the RNG facility.

VI. FLOW METERING

An orifice meter in accordance with AGA Report No. 3 latest edition will meter the flow into the pipeline. Electronic transmitters and recorders will document the flow.

VII. PIPELINE MAXIMUM DESIGN AND EXPECTED OPERATING PRESSURE

Assuming a minimum test pressure of 250 psig, the maximum allowable operating pressure for the pipeline will be 125 psig based on a 1.50 test factor. This is based on Rule 192.619 for a Class 3 location i.e. a test factor of 1.50 multiplied times the maximum desired operating pressure.

ANSI 150 fittings have a maximum allowable operating pressure of 285 psig at 100˚F.

VIII. TESTING OF INSTALLATION

A.	Test Medium	Water
B.	Minimum Test Pressure	250 psig
C.	Test Duration	1 hour minimum
D.	Pressure Charting Method	Digital Test Gauge with Chart Recorder
E.	New Fusion Weld Inspection	100% Visual
F.	New Weld Joint Inspection	As required by Michigan Gas Safety Standards 25th Edition
G.	Pipe Inspection	100% for gouges and imperfections

The test outlined above complies with or exceeds Rules 192.241, 192.243 and 192.505.

IX. CORROSION PROTECTION

The pipeline will be electrically isolated at the receipt and delivery points with insulation gaskets, stud sleeves and washers.

The Peoples LFG Pipeline steel transitions will be cathodically protected by use of sacrificial anodes in compliance with Subpart I of the Michigan Gas Safety Standards. Corrosion inhibitors shall be used as needed to prevent internal corrosion.

X. ROAD AND HIGHWAY CROSSINGS

Road crossings will be bored and uncased unless the county road commission or MDOT dictates a cased crossing.

XI. STREAM AND DRAIN CROSSINGS

There are several drain crossings in the new pipeline segment that will be installed by horizontal directional drilling & boring, 6 feet below hard pan of drain.

XII. RAILROAD CROSSINGS

There are no railroad crossings in the new pipeline segment.

XIII. BENDS

Not applicable to HDPE pipe. Fittings will be used where necessary

XIV. TRENCHING AND PIPE LAYING

The proposed Peoples LFG Pipeline will be installed via trenching and horizontal directional drilling & boring. A minimum of 36” cover will be provided. If required, backfill will be placed so that settlement does not occur after restoration of the right of way.

XV. PIPE FABRICATION AND JOINING SPECIFICATIONS

All fabrication shall be welded except for any control devices or instrumentation. Welded joints will meet or exceed the standards outlined in the Michigan Gas Safety Standards and the quality standards of API Standard 1104. The weld acceptance criterion shall meet or exceed the standard for API Standard 1104 latest edition.

XVI. MAPS AND RECORDS

Within 60 days of completion, an as-built map and construction records will be filed with the Commission with the exact location of the pipeline, GPS coordinates of girth welds, GPS coordinates of anode beds and test stations, results of an above ground electrical survey to identify defects in pipeline coating, results of the post installation internal gauge pig run, details of construction, and pipe specifications.

EXHIBIT C

EXHIBIT C - PIPELINE COST ESTIMATE

ITEM	COST
ENGINEERING & SURVEYING	$99,800
LEGAL	$40,000
PERMIT COSTS	$5,000
INSPECTION	$50,000
RADIOGRAPHIC INSPECTION	$15,000
INSTALLATION & FABRICATION	$1,405,800
CATHODIC INSPECTION & INSTALLATION	$7,500
PIPE, FITTINGS & MATERIALS	$225,000
INTER-CONNECT & METERING at TC ENERGY GLGT TAP	$4,366,286
SUPERVISION, OVERHEAD & CONTINGENCIES	$618,458
TOTAL:	**$6,832,845**

Exhibit D

ENVIRONMENTAL IMPACT REPORT

I. INTRODUCTION

An Environmental Assessment Report was prepared by Connerstone Environmental Group, LLC, a Tetra Tech Company. See Section X for the complete report.
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II. DESCRIPTION OF THE NEW PIPELINE SEGMENT

Approximately 19,995 feet of nominal 4" SDR 11 HDPE pipe will be installed to transport renewable natural gas recovered from the People's landfill to inter-connect with TC Energy west of Birch Run, Michigan.

The proposed pipeline will be constructed in the road right of way beginning at the RNG facility on E Rathbun Rd., thence west to Pettit Rd., thence south to Canada Rd., thence west to Morseville Rd., thence south across Birch Run Rd. to McIntosh Rd., thence east to the interconnect with TC Energy's GLGT 36" pipeline in Section 27 of Taymouth Township, T10N, R5E Saginaw County, State of Michigan

III. PERMITS

Permits required for the construction of the pipeline shall be obtained before commencement of construction activities. Road crossing permits will be obtained from Saginaw County Road Commission. Drain crossing permits and an SESC soil erosion permit will be obtained from the Saginaw County Drain Commission.

IV. LAND USE AND FEATURES

The land along the proposed route is mostly agricultural land with rural residences, a private business, and portions of undeveloped land. There are 0 designated historical sites within the project area listed on the National Register of Historic Places in Saginaw County, Michigan. The proposed pipeline will have minimal impact on archaeological, cultural, or historic resources.

V. SPECIES AND ECOSYSTEMS

Numerous animal species common to Michigan's southern Lower Peninsula may inhabit the undeveloped section of the proposed pipe segment. An analysis of endangered species determined there are no endangered species in Saginaw County.
[*Sic*] State of Michigan's Department of Agricultural & Rural Development (MDARD)
https://www.michigan.gov/mdard/0,4610,7-125-1569_16988_35287-126817--,00.html#Saginaw

VI. CONSTRUCTION ACTIVITIES EFFECT ON THE ENVIRONMENT

The segments of pipeline that will be bored will have minimal impact on the environment. Installation of the pipeline next to the road right of way will also have negligible effect on adjacent land. Reseeding and other restoration techniques will be applied as necessary. Total construction time will be approximately 8 weeks.

VII. MEASURES TO MINIMIZE NEGATIVE ENVIRONMENTAL IMPACT

In compliance with Michigan's Soil Erosion and Sedimentation Control Act of 347, P.A. 1972, the pipeline right of way will be stabilized by reseeding as needed.

VIII. EVALUATION OF ALTERNATIVES

The only alternative to the proposed route is to cross private land. Utilizing private land would disturb more farmland compared to the proposed route. Landowners were not open to easements across their property. Any other route would entail installing additional pipe which would be wasteful. Without this pipeline, approximately 0.7 Bcf of gas annually will not be recovered, which is a waste of a natural resource and would increase the amount of greenhouse gas emissions.

IX. CONCLUSION

The proposed route and installation methods will have the least environmental impact for the transportation of renewable natural gas from the Landfill gas upgrading facility.

X. ENVIRONMENTAL ASSESSMENT REPORT

TETRA TECH

Environmental Assessment (EA) Report

Peoples LFG, LLC – Birch Run, Michigan

June 9, 2026

209-4261502

Environmental Assessment (EA) Report

Peoples LFG, LLC – Birch Run, Michigan

June 9, 2026

209-4261502

PRESENTED TO

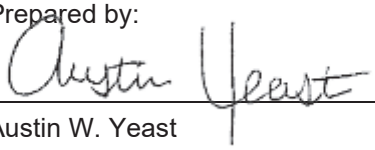
Sagepoint Energy – Peoples LFG, LLC
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Carmel, Indiana 46032

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Prepared by:



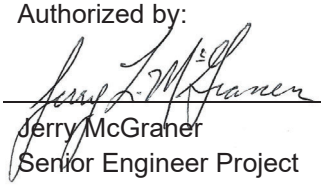
Austin W. Yeast 6/9/2026
Project Engineer

Reviewed by:



David K. Sonne 6/9/2026
Senior Project Manager

Authorized by:



Jerry McGraner 6/9/2026
Senior Engineer Project Manager

File name: Peoples LFG Pipeline EA Report.docx

EXECUTIVE SUMMARY

Tetra Tech prepared this Environmental Assessment (EA) on behalf of Sagepoint Energy – Peoples LFG, LLC (Peoples LFG) for the proposed renewable natural gas (RNG) pipeline project in Birch Run, Saginaw County, Michigan. The EA was developed following the format and general guidance of 18 Code of Federal Regulations (CFR) Part 380, Appendix A to provide a comprehensive environmental review. The proposed pipeline will be designed, constructed, and operated in accordance with applicable state regulations under Michigan Act 9 (Act 9 of 1929), as implemented through the Michigan Gas Safety Code (R460.20603 through R460.20606).

The proposed pipeline project consists of approximately 19,995 linear feet (3.8 miles) of buried pipeline extending from the proposed RNG facility at 4347 Rathburn Road to a downstream interconnection point. The pipeline will transport RNG derived from landfill gas for beneficial use. The project is located in a predominantly rural area characterized by agricultural land use, with limited forested areas, wetlands, and small surface water features. Construction will result in approximately 23.0 acres of temporary disturbance, after which the right-of-way will be restored and maintained as a narrower corridor. A compressor station is proposed at the interconnection with the Great Lakes Transmission Line and will be located on private property owned by the project developer, Sagepoint Energy.

Evaluation of environmental resources indicates that impacts associated with the proposed pipeline project will be minor, localized, and primarily temporary. The alignment crosses three surface waterbodies; Silver Creek, Pine Run, and an unnamed tributary to the Flint River; all classified as warmwater streams without special regulatory designations. Horizontal directional drilling (HDD) will be employed at these crossings to avoid in-stream disturbance and maintain water quality and aquatic habitat. Wetlands encountered along the alignment are limited in extent and will similarly be avoided or minimized through the use of HDD and adherence to Federal Energy Regulatory Commission (FERC) Wetland and Waterbody Construction and Mitigation Procedures.

Biological resources within the project area consist primarily of disturbed habitats supporting common wildlife species. Although federally listed species were identified through U.S. Fish and Wildlife Service review, the proposed pipeline project is expected to result in no effect or may affect, not likely to adversely affect determinations. No Essential Fish Habitat is present in the project area. Land use along the corridor is largely agricultural, and no designated natural areas, conservation lands, coastal zone management areas, or wild and scenic rivers are crossed. A single municipally owned parcel in Taymouth Township will be temporarily affected during construction and restored to pre-construction conditions.

Geologic conditions consist of unconsolidated glacial deposits, and no significant geologic hazards are present. Soil impacts will be temporary and mitigated through standard construction practices, including topsoil segregation, erosion control, and revegetation in accordance with Michigan's Soil Erosion and Sedimentation Control (SESC) standards. The proposed compressor will be electric, and therefore no air emissions controls or permits are anticipated. The compressor unit will be enclosed, resulting in negligible long-term impacts to air quality, noise, and visual resources.

The pipeline will be designed, constructed, operated, and maintained in accordance with Michigan Gas Safety Standards, 27th edition, U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations (49 CFR Part 192), and applicable industry standards to ensure public safety including: system monitoring, corrosion control, inspection programs, and emergency response procedures.

Certain resource report sections identified under 18 CFR § 380.12 are not applicable due to the limited scope of the project. These include detailed air quality and noise analyses associated with compressor stations, socioeconomic impact analyses for major aboveground facilities, underground storage and LNG facility requirements, and PCB contamination considerations. A detailed alternatives analysis was not developed due to the defined project alignment and limited environmental constraints. Survey-based elements, such as cultural resource documentation, will be completed as part of ongoing agency coordination, as appropriate. Although not

all federal resource report elements apply to this project, this Environmental Assessment has been prepared in full compliance with applicable state regulatory requirements. The analysis supports adherence to Michigan Act 9 of 1929 and other relevant state standards governing the design, construction, and operation of the proposed pipeline. Overall, the proposed pipeline project is limited in scale, located primarily within previously disturbed areas, and incorporates avoidance and minimization measures, including the use of HDD at sensitive crossings. Based on the analysis presented in this EA, the project is expected to result in no significant long-term adverse impacts to environmental resources or public safety and is considered environmentally acceptable as proposed.

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1.3.7 Identify all federally listed essential fish habitat (EFH) that potentially occurs in the vicinity of the project and the results of abbreviated consultations with NMFS, and any resulting EFH assessments. 1-12

1.3.8 Describe any significant biological resources that would be affected. Describe impact and any mitigation proposed to avoid or minimize that impact. 1-12

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1.5.2 Identify any geologic hazards to the proposed facilities. 1-14

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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
BCC	Bird of Conservation Concern
BLM	Bureau of Land Management
CZM	Coastal Zone Management
EA	Environmental Assessment
EFH	Essential Fish Habitat
EGLE	Michigan Department of Environment, Great Lakes, and Energy
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
HDD	Horizontal Directional Drilling
HUC	Hydrologic Unit Codes
IPaC	Information for Planning and Consultation
LFG	Landfill Gas
MCMP	Michigan Coastal Zone Management Program
MDNR	Michigan Department of Natural Resources
MIRIS	Michigan Resource Inventory System
NNL	National Natural Landmarks
NPS	National Park Service
NRCS	Natural Resource Conservations Service
NWI	National Wetland Inventory
OSRWs	Outstanding State Resource Waters
PHMSA	U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration
RNG	Renewable Natural Gas
ROW	Right-Of-Way
SHPO	State Historic Preservation Office
SWIPAs	Surface Water Intake Protection Areas
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service

Acronyms/Abbreviations	Definition
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 ENVIRONMENTAL ASSESSMENT

Tetra Tech is providing this Environmental Assessment (EA) Report for the Sagepoint Energy – Peoples LFG, LLC (Peoples LFG) pipeline based on a review framework informed by the environmental resource categories outlined in Title 18 Code of Federal Regulations (CFR) Part 380, Appendix A. While this federal framework was used to guide the organization and scope of the assessment, the proposed pipeline is not subject to federal regulatory jurisdiction and will be designed, constructed, and operated in accordance with applicable state requirements under Michigan Act 9 (Act 9 of 1929), as implemented through the Michigan Gas Safety Code (R460.20603 through R460.20606) which is provided as Appendix A for reference.

Peoples LFG is proposing a Renewable Natural Gas (RNG) pipeline extending from the proposed RNG Plant (located at 4347 Rathburn Road, Birch Run, Michigan 48415) to a pipeline interconnection point, as shown in Appendix B.1 and Appendix B.2 on Drawing PLFG-850-C-001 and Drawing PFG-850-C-003, respectively. The facility will process landfill gas (LFG) to produce RNG. An environmental review was conducted for the proposed ACT 9 Route, which consists of approximately 19,995 linear feet and reflects the pipeline alignment subject to Michigan Act 9 jurisdiction. The proposed work is located northwest of Birch Run, Michigan, within Saginaw County.

The report has been divided into the applicable Resource Reports following the outline provided in 18 CFR Part 380, Appendix A.

1.1 RESOURCE REPORT 1 – GENERAL PROJECT DESCRIPTION

1.1.1 Provide a detailed description and location map of the project facilities.

Peoples LFG proposes construction and operation of a Renewable Natural Gas (RNG) pipeline to transport processed landfill gas-derived RNG from the proposed RNG Plant at 4347 Rathburn Road, Birch Run, Michigan 48415, to the proposed pipeline interconnect. The proposed pipeline alignment transports landfill gas (LFG) primarily along existing roadway ROWs, with limited segments crossing approved private property, delivering the gas to the electric compressor station at the interconnection with the Great Lakes Transmission Line located at 12460 Morseville Road, Birch Run, Michigan. The proposed interconnect and compressor are proposed to be located approximately 125 feet north of McIntosh Road. The RNG Plant processes LFG into RNG for beneficial use.

The proposed project is located northwest of Birch Run, in Saginaw County, Michigan. The project extends from the proposed RNG Plant to the interconnect location identified in Appendix B.1 on Drawing PLFG-850-C-001. The ACT 9 Route was evaluated for environmental review and is approximately 19,995 linear feet. The proposed work includes the pipeline alignment, associated tie-in locations, electric compressor installation, and the interconnect point within the project corridor northwest of Birch Run. The proposed alignment includes approximately 16,750 linear feet of pipeline to be installed within existing ROWs along Pettit Road, Canada Road, and Morseville Road. The remaining approximately 3,245 linear feet of pipeline will be installed within approved property limits currently owned by Taymouth Township and Irish Family Farms, LLC.

1.1.2 Describe any nonjurisdictional facilities that would be built in association with the project.

Nonjurisdictional facilities associated with the proposed project are limited to those required to support construction, installation, and operation of the pipeline. These facilities may include temporary construction

workspaces, access and staging areas, laydown areas, erosion and sediment control measures, and other temporary construction support areas required to facilitate pipeline installation.

In addition, the project may include minor appurtenant features such as valves, fittings, markers, and other aboveground components necessary for operation and maintenance of the pipeline. To the extent required, temporary traffic control devices and construction signage may also be installed during construction activities.

All nonjurisdictional facilities would be limited to the project construction corridor or immediately adjacent areas, as practicable, and would be removed or restored following construction, unless otherwise required for ongoing project operation.

1.1.3 Provide current original U.S. Geological Survey (USGS) 7.5-minute-series topographic maps with mileposts showing the project facilities.

Current original USGS 7.5-minute-series topographic maps have been prepared for the project area and depict the proposed pipeline facilities, including the RNG Plant, project corridor, interconnect location, and stationing references. The USGS 7.5-minute-series map is provided as Figure 1. The maps also show relevant topographic, hydrologic, transportation, and land use features within and adjacent to the project area.

Throughout the EA report, stationing was utilized in place of milepost marking to allow greater accuracy due to the proposed pipeline accounting for approximately 19,995 linear feet (approximately 3.8 miles). Stationing is identified along the proposed alignment to provide location reference points for project planning, environmental review, and construction documentation as provided in Appendix B.1 on Drawing PLFG-850-C-001. The topographic mapping supports evaluation of the proposed route alternatives and provides a geographic framework for the project facilities.

1.1.4 Provide aerial images or photographs or alignment sheets based on these sources with mileposts showing the project facilities.

Aerial imagery and/or alignment sheets have been prepared to depict the proposed project facilities, route alternatives, and associated stationing information. These materials provide a visual representation of the existing ground conditions, the proposed pipeline corridor, and the relationship of the alignment to nearby roads, properties, water resources, and other relevant site features. Stationing is shown along the route to provide location reference points for construction planning, environmental review, and field verification as provided in Appendix B.1 on Drawing PLFG-850-C-001. Stationing starts at the connection to the RNG facility at the northern end of the orientation and end at the interconnect location to the south at 19,995 linear feet. Aerial imagery, road and water crossings and land use zoning are provided as Figures 2, 3 and 4, respectively.

1.1.5 Provide plot/site plans of compressor stations showing the location of the nearest noise-sensitive areas (NSA) within 1 mile.

The proposed pipeline project includes the installation of an enclosed, electrically driven compressor station (rated at approximately 250 horsepower), which is not expected to generate operational noise levels comparable to traditional gas-fired compression equipment. As such, operational noise impacts are anticipated to be negligible. The compressor station will be set back approximately 125 feet from McIntosh Road and will incorporate standard perimeter fencing for visual screening measures as described further in Section 1.7.12.

Given the low noise profile of the proposed electric compressor, the project is not expected to result in noise impacts requiring detailed evaluation under 18 CFR § 380.12(c)(3) and (4). If warranted, appropriate noise mitigation measures will be implemented to ensure compliance with applicable standards and to minimize

potential impacts. The proposed interconnect site layout is represented in Appendix B.2 on Drawing PLFG-850-C-003.

1.1.6 Describe construction and restoration methods.

Construction of the proposed pipeline would generally be completed using standard pipeline installation practices. The construction corridor would be cleared and graded as necessary to allow safe and efficient installation of the pipeline. Pipeline construction activities may include survey and staking, clearing and grading, trenching, stringing, welding, coating, lowering-in, backfilling, hydrostatic testing, and commissioning. Temporary workspaces, access areas, and staging areas may be used to facilitate construction.

Where the alignment crosses environmentally sensitive features or other site constraints, construction methods would be adjusted as necessary to minimize disturbance and maintain compliance with applicable permit conditions and best management practices. Soil segregation, erosion and sediment controls, and stormwater management measures would be implemented during construction as appropriate. Horizontal directional drilling (HDD) will be utilized as necessary in areas to limit ground surface disturbance. The proposed HDD stationing, as shown on Drawing PLFG-850-C-001 in Appendix B.1, is located at the following intervals along the piping alignment: 0+00 to 17+97, 31+67 to 48+69, 67+59 to 70+69, 70+69 to 73+48, 82+79 to 86+62, 110+98 to 127+08, 149+99 to 154+73 and 154+75 to 167+50 and consisting of approximately 7,830 feet in total. Actual HDD intervals will be determined prior to construction and will be confirmed to include HDD through all wetlands as discussed in Section 1.2.5.

Following installation, disturbed areas would be restored to pre-construction or comparable conditions to the extent practicable. Restoration activities would generally include final grading, replacement of topsoil, reseeding or revegetation, installation or maintenance of erosion control materials, and restoration of disturbed drainage patterns and surface features, as applicable. Temporary workspaces would be restored in accordance with applicable landowner, agency, and permit requirements.

1.1.7 Identify the permits required for construction across surface waters.

To the extent the proposed project crosses surface waters, construction would be subject to all applicable federal, state, and local permitting requirements. Permits that may be required include, as applicable:

- U.S. Army Corps of Engineers (USACE) Section 404 authorization under the Clean Water Act for the discharge of dredged or fill material into waters of the United States;
- Michigan Department of Environment, Great Lakes, and Energy (EGLE) permits or authorizations, as applicable, for impacts to regulated wetlands, inland lakes, streams, or other jurisdictional waters;
- County drain commissioner or local agency approvals, if required for work within county drains or locally regulated watercourses;
- Local agencies having jurisdiction over the roads for pipeline crossing or occupying existing ROW.
- Erosion and sediment control permits or approvals, as applicable, for soil disturbing activities associated with waterbody crossings.

The final permit package would be determined based on the selected route, field delineations, engineering design, and jurisdictional determinations in effect at the time of construction. Figure 3 displays all surface water crossings associated with each alternative route. The following are surface waters that cross through the ACT 9 route:

- Silver Creek
- Pine Run

- One unnamed surface water flowage

1.1.8 Provide the names and address of all affected landowners and certify that all affected landowners will be notified.

The proposed project route crosses or is adjacent to property owned by multiple private and public landowners within Saginaw County, Michigan. The names and mailing addresses of all affected landowners are provided in the project landowner list within Appendix C. These landowners include those whose property would be directly crossed by the proposed pipeline route, as well as those whose property may be affected by temporary construction workspaces, access requirements, or associated project activities.

Peoples LFG certifies that all affected landowners will be notified and any other applicable notice requirements prior to construction, as required. Notification will be provided in the manner prescribed by the applicable regulatory framework and project schedule.

1.2 RESOURCE REPORT 2 – WATER USE AND QUALITY

1.2.1 Identify all perennial surface waterbodies crossed by the proposed project and their water quality classification.

The pipeline project crosses three perennial surface waterbodies located in Birch Run Township, Michigan between Rathburn Road and Birch Run Road, east of Morseville Road (Figure 3). These waterbodies are:

- Silver Creek
- Pine Run
- Unnamed minor surface water flowage, a tributary to the Flint River

All crossed waterbodies are perennial streams and are designated as warmwater fisheries under Michigan water quality standards, with protected uses that include aquatic life, wildlife, and recreation. No Outstanding State Resource Waters (OSRWs) or cold-water fisheries are identified within the project crossing locations.

1.2.2 Identify all waterbody crossings that may have contaminated waters or sediments.

As discussed in Section 1.2.1, the proposed Act 9 Route crosses Silver Creek, Pine Run, and an unnamed tributary to the Flint River.

These waterbodies are located within the Flint River watershed, a system that has been subject to ongoing water quality monitoring and assessment by the Michigan EGLE.

Upon review of EPA's *How's My Waterway* online portal, two permitted dischargers and two pollutant storage tanks were identified near the footprint of the proposed pipeline, see Figure 5.

Pine Run, Silver Creek, and the unnamed tributary to the Flint River are not currently known to contain site-specific contamination at the crossing locations; however, due to their location within the Flint River watershed, which includes impaired water segments, they are considered to have potential for contaminated waters or sediments for the purposes of § 380.12(d)(1). Appropriate best management practices and further verification will be implemented during project development. Environmental records were not able to be reviewed to identify waterbody crossings that may be affected by contaminated waters or sediments.

1.2.3 Identify watershed areas, designated surface water protection areas, and sensitive waterbodies crossed by the proposed project.

The pipeline alignment crosses three perennial surface waterbodies: Silver Creek, Pine Run, and an unnamed tributary to the Flint River. All identified waterbody crossings are located within the Flint River watershed, which is part of the larger Saginaw Bay Basin (Lake Huron watershed). Based on review of EPA's *How's My Waterway* online portal the following Hydrologic Unit Codes (HUC) were identified along with the associated map and waterbody report:

- HUC 040802040510 (Pine Run) – tributary to the Flint River (Figure 6 and Appendix D.1)
- HUC 040802040511 (Silver Creek) – tributary within the Flint River sub watershed (Figure 7 and Appendix D.2)
- HUC 040802040513 (Unnamed ravine) – direct tributary to the Flint River (Figure 8 and Appendix D.3 and D.4)

Flows from these streams ultimately discharge to the Flint River, which drains into the Saginaw River and then to Saginaw Bay of Lake Huron.

Designated Surface Water Protection Areas

A review of available designation categories indicates:

- Surface Water Intake Protection Areas (SWIPAs):
  - No mapped municipal surface water intake protection areas are present at or immediately downstream of the project crossing locations.
- Source Water Protection Areas (Wellhead/Drinking Water):
  - No designated surface water source protection zones are intersected by the project alignment.
- Outstanding State Resource Waters (OSRWs):
  - None of the crossed waterbodies (Silver Creek, Pine Run, unnamed tributary) are designated as OSRWs.
- Wild and Scenic Rivers:
  - The project area does not intersect any federally or state-designated Wild and Scenic Rivers.

Sensitive Waterbodies

Sensitive waterbodies generally include those with special ecological, recreational, or regulatory significance (e.g., cold-water fisheries, high-quality streams, impaired waters, or habitats for protected species).

- Silver Creek:
  - Classified as a warmwater stream; no designation as a cold-water fishery or high-quality (Tier 2/3) waterbody has been identified at the crossing. No sensitive designations are known at this location.
- Pine Run:
  - Also classified as a warmwater stream. While the Pine Run system may provide aquatic habitat, no specific sensitive waterbody designation (e.g., trout stream, critical habitat) is documented at the crossing location.
- Unnamed Tributary to the Flint River:
  - A minor drainage feature with no mapped sensitive designation. It functions as a local tributary supporting general aquatic life within the Flint River watershed.

- Impaired Waters Consideration:
  - Portions of the broader Flint River watershed have documented impairments (e.g., nutrients, pathogens); however, no specific listings indicate that the project crossing locations themselves are designated as impaired segments requiring special classification as sensitive waterbodies.

Summary

- The project is entirely within the Flint River watershed (Saginaw Bay Basin).
- No designated surface water protection areas (e.g., intake protection zones or OSRWs) are crossed by the alignment.
- The crossed waterbodies (Silver Creek, Pine Run, and the unnamed tributary) are not identified as sensitive waterbodies and are classified as warmwater streams supporting general aquatic life and recreational uses.

Overall, the project does not intersect any specially designated or highly sensitive surface water resources beyond standard regulated waters of the State.

1.2.4 Provide a table (based on NWI maps if delineations have not been done) identifying all wetlands, by milepost and length, crossed by the project (including abandoned pipeline), and the total acreage and acreage of each wetland type that would be affected by construction.

According to National Wetland Inventory (NWI) and Michigan Resource Inventory System (MIRIS), the proposed piping routing will cross designated freshwater wetlands in two locations. The wetland crossings are designated as PFO1C wetlands (Palustrine, forested, broad-leaved deciduous, seasonally flooded). Part 303 Final Wetland inventory noted hydric soils and wetland soils throughout various locations along the proposed piping routing. Refer to the NWI and Part 303 Wetland Maps provides as Figure 9 and 10, respectively.

Stationing information as provided in Appendix B.1 on Drawing PLFG-850-C-001, wetland crossing occurring approximately from 42+50 to 45+00 and 82+75 to 85+00 as defined by NWI on Figure 9.

1.2.5 Discuss construction and restoration methods proposed for crossing wetlands and compare them to staff's Wetland and Waterbody Construction and Mitigation Procedures.

Construction of the ACT 9 Route across wetlands will be conducted in accordance with the Federal Energy Regulatory Commission (FERC) Wetland and Waterbody Construction and Mitigation Procedures (current version) and applicable Michigan Department of EGLE requirements. While the use of FERC Procedures provides a consistent framework for avoidance and minimization of environmental impacts, the proposed pipeline will be constructed and regulated in accordance with applicable state requirements under Michigan Act 9 and EGLE oversight. The following summarizes the proposed construction and restoration methods.

Wetland crossings along the ACT 9 Route will be completed using HDD, where practicable, to avoid direct disturbance of wetland resources. The HDD method is consistent with, and in many respects exceeds, the avoidance and minimization measures outlined in the FERC Wetland and Waterbody Construction and Mitigation Procedures (Procedures) which complies with applicable Michigan Department of EGLE requirements. Because HDD avoids direct disturbance to wetlands, restoration requirements are minimal compared to open-cut crossings.

1.2.6 Describe the proposed waterbody construction, impact mitigation, and restoration methods to be used to cross surface waters and compare to the staff's Wetland and Waterbody Construction and Mitigation Procedures.

HDD cross method avoids direct wetland disturbance, eliminating the need for trenching, grading and soil handling and therefore no direct wetland restoration is anticipated. HDD entry and exit workspaces will be restored to preconstruction contours following pipeline installation. Temporary erosion and sediment control measures will remain in place until stabilization is achieved. Disturbed upland areas will be reseeded or revegetated using appropriate seed mixes.

1.2.7 Provide original National Wetlands Inventory (NWI) maps or the appropriate state wetland maps, if NWI maps are not available, that show all proposed facilities and include milepost locations for proposed pipeline routes.

Wetland crossings are noted in Section 1.2.4 above. Refer to the NWI and Part 303 Wetland Maps provides as Figure 9 and 10, respectively.

1.2.8 Identify all U.S. Environmental Protection Agency (EPA)- or state-designated aquifers crossed.

A review was conducted to identify any U.S. Environmental Protection Agency (EPA) – designated Sole Source Aquifers or state-designated aquifers within the project area in Birch Run, Michigan. This review included available EPA mapping resources and applicable state-level hydrogeologic information.

Based on this review, no EPA-designated Sole Source Aquifers are crossed or located within the vicinity of the proposed pipeline project. Additionally, no state-designated aquifers were identified within the project area based on available documentation.

Accordingly, the proposed pipeline project will not affect any federally or state-recognized sensitive aquifer resources, and no mitigation measures specific to designated aquifers are required.

1.3 RESOURCE REPORT 3 – VEGETATION AND WILDLIFE

This section evaluates potential project-related impacts, using FERC guidance as a framework to inform analysis methods and best management practices; however, the project is subject to regulatory oversight and compliance under Michigan Act 9 and the authority of the Michigan Department of EGLE. The design and implementation of the proposed project are consistent with Michigan Act 9 and Michigan Department of EGLE requirements.

1.3.1 Classify the fishery type of each surface waterbody that would be crossed, including fisheries of special concern.

The three (3) waterbodies crossed by the proposed project—Silver Creek, Pine Run, and the unnamed tributary to the Flint River—are classified as warmwater fisheries. No cold-water fisheries or fisheries of special concern have been identified at the crossing locations.

Fishery classifications for Michigan surface waters are determined using Michigan Department of Natural Resources (MDNR) fisheries designations and Michigan water quality standards.

- Silver Creek

  - Based on review of available MDNR trout stream maps and Fisheries Orders, Silver Creek is not identified as a designated trout stream.
  - Therefore, it is classified as a warmwater fishery, supporting species such as bass, pike, and panfish.
  - Fisheries of special concern: None identified.
- Pine Run
  - Pine Run is not identified as a designated trout stream in MDNR Fisheries Orders or GIS datasets.
  - It is therefore classified as a warmwater fishery.
  - Fisheries of special concern: None identified.
- Unnamed Tributary to the Flint River
  - This minor tributary is not listed as a designated trout stream.
  - It is classified as a warmwater fishery consistent with Michigan's default designation for inland streams.
    - Fisheries of special concern: None identified.

1.3.2 Describe terrestrial and wetland wildlife and habitats that would be affected by the project.

The pipeline project area is predominately agricultural with interspersed grasslands, hedgerows, and localized forested tracts as displayed in Figure 2. Terrestrial habitats consist primarily of cultivated cropland and early successional vegetation that support common, disturbance-tolerant wildlife species. Limited forested habitat may be encountered along the proposed route. Consistent with FERC guidance under 18 CFR § 380.12 and the Commission's Upland Erosion Control, Revegetation, and Maintenance Plan, clearing within forested areas will be minimized to the extent practicable by restricting the construction ROW width, limiting the working face, and avoiding unnecessary tree removal. Following construction, temporarily disturbed areas will be restored and revegetated, and forested areas outside the maintained ROW will be allowed to naturally regenerate.

Wetland habitats typical of the region, including emergent and seasonally saturated features, may also be present within the project area. In accordance with FERC's Wetland and Waterbody Construction and Mitigation Procedures, the project will avoid and minimize impacts to wetlands where practicable. HDD will be utilized, where feasible, to avoid direct disturbance to wetland resources and maintain hydrologic and ecological function. Any unavoidable temporary impacts will be minimized through implementation of best management practices and post-construction restoration.

Overall, impacts to terrestrial and wetland habitats and associated wildlife are expected to be minor, localized, and temporary, with no significant long-term adverse effects anticipated.

1.3.3 Describe the major vegetative cover types that would be crossed and provide the acreage of each vegetative cover type that would be affected by construction.

The proposed pipeline project will traverse a landscape dominated by maintained grasses, agricultural and other previously disturbed land uses, with smaller areas of herbaceous, shrub, and forested vegetation. Aerial imagery is provided as Figure 2 and Appendix B.1 – Drawing PLFG-850-C-001. Major vegetative cover types within the proposed construction workspace include: (1) maintained grasslands (e.g., roadsides and utility corridors), (2) cultivated cropland, (3) shrub/hedgerow communities, and (4) limited forested areas.

Estimated acreages of temporary construction disturbance by cover type are as follows (to be finalized upon completion of detailed surveys and alignment refinement):

- Maintained Grassland: approximately 17.8 acres
- Cultivated Cropland: approximately 2.5 acres
- Shrub/Hedgerow: approximately 2.2 acres
- Forested Land: approximately 0.5 acres

Construction impacts will be primarily temporary and confined to the approved ROW and associated workspaces. In accordance with 18 CFR § 380.12 and FERC's Upland Erosion Control, Revegetation, and Maintenance Plan, disturbance to vegetative cover will be minimized by limiting the width of clearing, segregating and stabilizing topsoil, and restricting the working side in sensitive areas. In forested areas, clearing will be limited to that necessary for safe construction and operation, with the maintained ROW restricted to the minimum width required.

Following construction, all temporarily disturbed areas will be restored in accordance with applicable FERC procedures. Agricultural lands will be returned to pre-construction use, and non-agricultural areas will be reseeded with appropriate species. Forested areas outside of the permanently maintained ROW will be allowed to naturally revegetate, consistent with Commission guidance. No significant permanent conversion of vegetative cover types is anticipated beyond the maintained operational corridor.

1.3.4 Describe the effects of construction and operation procedures on the fishery resources and proposed mitigation measures.

The waterbodies crossed include, as discussed in Section 1.3.1 above, Silver Creek, Pine Run, and an unnamed tributary to the Flint River. These waterbodies provide habitat for common forage fish, macroinvertebrates, and other aquatic species adapted to moderately disturbed systems.

Consistent with 18 CFR § 380.12 and FERC's Wetland and Waterbody Construction and Mitigation Procedures, the proposed pipeline project will utilize HDD for all waterbody crossings, where practicable. Use of HDD will avoid direct in-stream disturbance, thereby minimizing potential impacts to stream substrates, aquatic habitat, and water quality. As a result, no significant effects to fish populations, spawning habitat, or benthic communities are anticipated.

Operation of the pipeline will not involve in-stream infrastructure or routine discharges and is not expected to affect fishery resources. Overall, due to the use of HDD and adherence to FERC procedures, impacts to fisheries resources are expected to be negligible, short-term, and not result in measurable degradation of aquatic habitat or fish populations.

1.3.5 Evaluate the potential for short-term, long-term, and permanent impact on the wildlife resources and state-listed endangered or threatened species caused by construction and operation of the project and proposed mitigation measures.

As discussed in Section 1.3.3 above, the proposed pipeline project is characterized predominantly by agricultural and previously disturbed lands, with limited occurrences of forested and wetland habitats. These environments support primarily common, disturbance-tolerant wildlife species. Based on the U.S. Fish and Wildlife (USFWS) Information for Planning and Consultation (IPaC) review (Appendix E) conducted on May 26, 2026, state-listed threatened and endangered species (including migratory birds) have been identified; however, suitable habitat is expected to be limited. A summary of the findings are presented in Table 1-1.

Table 1-1. Summary of IPaC Review of Endangered or Threatened Species

Species	Status / Breeding Season	Habitat Condition
Endangered Species		
Indiana Bat (*Myotis sodalist*)	Endangered	There is **final** critical habitat for this species. The project location does not overlap the critical habitat.
Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	No critical habitat has been designated for this species.
Tricolored Bat (*Perimyotis subflavus*)	Proposed Endangered	No critical habitat has been designated for this species.
Rufa Red Knot (*Calidris canutus tufa*)	Threatened	There is **proposed** critical habitat for this species. The project location does not overlap the critical habitat.
Eastern Massasauga, rattlesnake (*Sistrurus catenatus*)	Threatened	No critical habitat has been designated for this species.
Monarch Butterfly (*Danaus plexippus*)	Proposed Threatened	There is **proposed** critical habitat for this species. The project location does not overlap the critical habitat.
Eastern Prairie Fringed Orchid (*Plantanthera leucophaea*)	Threatened	No critical habitat has been designated for this species.
Migratory Birds		
Bald Eagle (*Haliaeetus leucocephalus*)	Breeds December 1 to August 31	This is not a Bird of Conservation Concern (BCC) in this area but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
Bobolink (*Dolichonyx oryzivorus*)	Breeds May 20 to July 31	This is a BCC throughout its range in the continental USA and Alaska.
Lesser Yellowlegs (*Tringa flavipes*)	Breeds elsewhere	This is a BCC throughout its range in the continental USA and Alaska.
Pectoral Sandpiper (*Calidris melanotos*)	Breeds elsewhere	This is a BCC throughout its range in the continental USA and Alaska.
Rusty Blackbird (*Euphagus carolinus*)	Breeds elsewhere	This is a BCC only in particular Bird Conservation Regions in the continental USA.
Short-billed Dowitcher (*Limnodromus griseus*)	Breeds elsewhere	This is a BCC throughout its range in the continental USA and Alaska.

Species	Status / Breeding Season	Habitat Condition
Wood Thrush (*Hylocichla mustelina*)	Breeds May 10 to August 31	This is a BCC throughout its range in the continental USA and Alaska.

The IPaC review also noted “no critical habitats”, “no refuge lands” and “no fish hatcheries” throughout the project location.

The evaluation of potential impacts to wildlife resources and state-listed species is as follows:

1.3.5.1 Short-Term Impacts (Construction Phase)

Construction activities, including vegetation clearing, equipment operation, and increased human presence, may result in temporary displacement of wildlife. Disturbance will be confined to the approved construction ROW and associated workspaces. Temporary impacts to suitable habitat for state-listed species may occur; however, these impacts are expected to be minimal due to the limited extent and duration of disturbance.

1.3.5.2 Long-Term Impacts (Operation and Maintenance)

Long-term effects will be associated with maintenance of the pipeline ROW in an herbaceous condition. In accordance with FERC’s Upland Erosion Control, Revegetation, and Maintenance Plan, clearing of forested areas will be minimized to the extent practicable, and only the minimum width necessary for safe operation will be maintained. Vegetation outside of the maintained corridor will be allowed to naturally regenerate, thereby reducing long-term effects on habitat continuity.

1.3.5.3 Permanent Impacts

Permanent impacts will be limited to the conversion of a narrow corridor of woody vegetation to herbaceous cover within forested areas. Given the limited and fragmented nature of forested habitats in the project area, these effects are not expected to result in significant habitat loss, fragmentation, or measurable impacts to wildlife populations or state-listed species.

1.3.5.4 Mitigation Measures

- Limit clearing and grading to the minimum area necessary for safe construction and operation.
- Restrict the construction workspace (working side) in environmentally sensitive areas, including forested and wetland habitats.
- Implement restoration measures consistent with FERC’s Upland Erosion Control, Revegetation, and Maintenance Plan.
- Conduct pre-construction review of known occurrences of state-listed species and coordinate with the MDNR, as appropriate.
- Implement avoidance, minimization, or timing restrictions if required to protect sensitive species or habitats.

Overall, with implementation of these measures and adherence to applicable FERC procedures under 18 CFR § 380.12, the proposed pipeline project is not expected to result in significant short-term, long-term, or permanent adverse impacts to wildlife resources or state-listed threatened and endangered species.

1.3.6 Identify all federally listed or proposed endangered or threatened species that potentially occur in the vicinity of the project and discuss the results of the consultations with other agencies. Include survey reports.

As discussed in Section 1.3.5, a review of the USFWS IPaC was completed which identified endangered and threatened species and critical habitats within the project area as displayed on Table 1-1 and Appendix E. The proposed pipeline project is anticipated to result in no effect or may affect, not likely to adversely affect determinations for federally listed species due to the scope of the project and being a predominately disturbed setting. Minimization techniques will be utilized as discussed throughout the EA report. Survey reports were not identified to be required during the application by USFWS. If survey efforts are to be required, they will be conducted in accordance with approved protocols.

1.3.7 Identify all federally listed essential fish habitat (EFH) that potentially occurs in the vicinity of the project and the results of abbreviated consultations with NMFS, and any resulting EFH assessments.

A review was conducted to identify federally designated EFH, as defined under the Magnuson-Stevens Fishery Conservation and Management Act, within the vicinity of the project in Birch Run, Michigan. The proposed pipeline project area is located within an inland freshwater system in Saginaw County and does not occur within or adjacent to marine or anadromous fish habitats under the jurisdiction of the National Marine Fisheries Service (NMFS).

Based on available information and the geographic setting of the proposed pipeline project, no EFH is present within the project area, including at crossings of Silver Creek, Pine Run, and the unnamed tributary to the Flint River. These waterbodies are inland freshwater systems that do not support federally managed marine fisheries.

Furthermore, the use of HDD ensures that no impacts to aquatic habitats will occur.

1.3.8 Describe any significant biological resources that would be affected. Describe impact and any mitigation proposed to avoid or minimize that impact.

Biological resources within the project area include terrestrial and aquatic habitats and the plant and animal communities they support, consistent with the definition provided under 18 CFR § 380.12(e)(4) and (7). These resources are primarily associated with agricultural lands, early successional vegetation, localized forested areas, wetlands, and small waterbodies, including Silver Creek, Pine Run, and an unnamed tributary to the Flint River. No regionally significant or high-value ecological communities have been identified within the project footprint; however, certain habitats provide localized ecological functions.

1.3.8.1 Forested Habitat

Forested areas represent a biological resource that provides wildlife habitat and contributes to ecological diversity. Construction of the proposed pipeline project may result in limited clearing within the construction ROW, causing temporary disturbance and minor permanent conversion of woody vegetation to herbaceous cover within the maintained corridor. Consistent with FERC guidance, impacts will be minimized by restricting clearing to the minimum necessary for safe construction and operation, limiting the working side, and allowing natural revegetation outside the maintained corridor.

1.3.8.2 Wetlands

Wetlands within the project area provide important ecological functions, including wildlife habitat, hydrologic storage, and water quality benefits. These resources are considered sensitive biological resources under § 380.12. Direct impacts will be avoided or minimized through the use of HDD, where practicable. The proposed pipeline project will implement FERC's Wetland and Waterbody Construction and Mitigation Procedures to maintain wetland function and restore any temporarily disturbed areas to pre-construction conditions.

1.3.8.3 Waterbodies and Aquatic Habitat

Silver Creek, Pine Run, and the unnamed tributary to the Flint River are aquatic biological resources that support fish and macroinvertebrate communities. The proposed pipeline project will utilize HDD at these crossings to avoid in-stream disturbance, thereby minimizing impacts to aquatic habitat, stream substrates, and water quality. As a result, no measurable degradation of aquatic biological resources is anticipated.

1.3.8.4 Listed Species and Sensitive Habitat

State- and federally listed species and their habitats are included within the definition of biological resources under § 380.12(e). Suitable habitat may occur within forested and wetland areas; however, impacts from the proposed pipeline project are expected to be limited and temporary. Avoidance and minimization measures will include pre-construction review of known occurrences, coordination with appropriate agencies, restriction of the construction workspace, and implementation of any necessary timing limitations.

Overall, through project design and adherence to FERC-required mitigation measures, impacts to biological resources are expected to be minor, localized, and primarily temporary, with no significant long-term adverse effects anticipated.

1.4 RESOURCE REPORT 4 – CULTURAL RESOURCES

1.4.1 Initial cultural resources consultation and documentation, and documentation of consultation with Native Americans.

A records search was performed using available databases, including the Michigan State Historic Preservation Office (SHPO) records, to identify any previously recorded archaeological sites, historic structures, or districts within or near the project corridor. Available records were obtained online utilizing the Cultural Resource Information System (CRIS) which is an online database and Geographic Information System (GIS) developed by the SHPO to manage and provide access to information on Michigan's historic and archaeological resources. Access to archaeological data is restricted to federally qualified archaeologists. At the time of this writing, Tetra Tech was provided access to the above-ground data only. The above ground property search did not indicate the presence of features listed on the National Register of Historic Places which are located within the pipeline project limits.

SHPO was contacted on May 14, 2026 to request a consultation under Section 106. A project involves any ground disturbing work, the Section 106 team will request an archaeological assessment of your area of potential effects. Information obtained from CRIS for the Above Ground data is provided in Appendix F along with Instructions and the Application Form to Request a Section 106 Consultation with SHPO.

Initial cultural resources review indicates no previously recorded historic properties within the immediate project footprint, though proximity to waterbodies suggests moderate archaeological sensitivity. Consultation with SHPO and federally recognized tribes will be completed in compliance with Section 106 requirements.

1.4.2 Overview/Survey Report(s).

Information obtained from CRIS for the Above Ground data is provided in Appendix F along with Instructions and the Application Form to Request a Section 106 Consultation with SHPO.

1.5 RESOURCE REPORT 6 – GEOLOGICAL RESOURCES

1.5.1 Identify the location (by milepost) of mineral resources and any planned or active surface mines crossed by the proposed facilities.

A review of aerial imagery was conducted to confirm the absence of active mining operations along the alignment.

1.5.2 Identify any geologic hazards to the proposed facilities.

No significant geologic hazards have been identified along the proposed ACT 9 Route. Minor risks associated with erosion and localized flooding will be effectively mitigated through project design and standard construction practices. As a result, geologic conditions are not expected to adversely affect the construction or operation of the proposed facilities.

A review of USGS geologic mapping, Federal Emergency Management Agency (FEMA) floodplain data, and U.S. Department of Agriculture (USDA) Natural Resource Conservations Service (NRCS) soils data indicates no significant geologic hazards along the alignment. FEMA flood maps included map numbers 26145C0365E, 26145C0345E and 26145C0505E (revised August 15, 2023) which crosses a Zone A and Zone AE floodplain along the pipeline orientation three times at Silver Creek, Pine Run and an unnamed tributary of the Flint River. Floodplain maps are provided as Figure 11, 12 and 13. Based on review of NRCS soil data, bedrock is not expected to be encountered as bedrock is not present within 80 inches below ground surface for each soil unit as discussed in Section 1.7.1 below. An NRCS soils map for the proposed project is provided as Figure 14.

1.5.3 Discuss the need for and locations where blasting may be necessary in order to construct the proposed facilities.

The project corridor lies within a predominantly rural and agricultural setting underlain by glacial deposits typical of the region, including sands, silts, clays, and occasional gravel lenses.

Based on available geologic mapping and regional soil conditions, bedrock is not anticipated to be shallow or laterally continuous within the project area. The subsurface conditions are expected to consist primarily of unconsolidated materials that are generally suitable for conventional trenching methods using standard excavation equipment.

Accordingly, blasting is not expected to be required for construction of the proposed facilities under normal conditions.

However, localized blasting could be necessary if subsurface investigations conducted during final design or encountered during construction identify:

- Isolated zones of dense glacial till or cemented soils,
- Buried cobble or boulder fields, or
- Shallow bedrock outcrops not identified in preliminary mapping.

If such conditions are encountered, controlled blasting or alternative mechanical methods (e.g., hydraulic rock breaking) may be evaluated to facilitate trench excavation.

Potential Locations

No specific locations along the proposed alignment, including at the crossings of Silver Creek, Pine Run, or the unnamed tributary to the Flint River- have been identified as requiring blasting based on currently available information.

The potential for blasting, if needed, would be:

- Limited in extent,
- Highly localized, and
- Determined during final geotechnical investigation or construction activities.

Particular attention would be given to minimizing the need for blasting in environmentally sensitive areas such as waterbody crossings and associated riparian zones, where alternative excavation methods would be prioritized.

Summary

- Blasting is not anticipated to be required for the proposed project based on known geologic conditions.
- If encountered, the need for blasting would be limited to isolated areas of shallow rock or dense subsurface materials.
- No specific blasting locations are currently identified, and standard construction methods are expected to be sufficient for the majority of the alignment.
- Any blasting, if required, would be conducted in accordance with applicable safety and environmental regulations and would be minimized to the greatest extent practicable.

1.5.4 For underground storage facilities, how drilling activity by others within or adjacent to the facilities would be monitored, and how old wells would be located and monitored within the facility boundaries.

Not applicable to this proposed pipeline project.

1.6 RESOURCE REPORT 7 – SOILS

1.6.1 Identify, describe, and group by milepost the soils affected by the proposed pipeline and aboveground facilities.

The USDA NRCS Soil Survey for Saginaw County was reviewed and provided surficial soil conditions for the proposed route. The NRCS identified the presence of nine (9) soil types along the pipeline orientations. Soil data as provided by the NRCS for the ACT 9 Route are presented in Table 1-2. Stationing along the pipeline in accordance to Drawing PLFG-850-C-001. An NRCS soils map for the proposed project is provided as Figure 14.

Table 1-2. ACT 9 Route Soil Information

Stationing	Map Symbol / Description	Hydrologic Soil Group	Slope (%)	Soil Profile		Ksat Value	Depth to Water Table
				Depth (in)	USDA Texture		
0 to 2+50 22+50 to 25+00	Granby fine sand (33)	A/D	0-2	0-12 (Ap) 12-20 (Bg)	Fine sand		About 0 inches

Stationing	Map Symbol / Description	Hydrologic Soil Group	Slope (%)	Soil Profile		Ksat Value	Depth to Water Table
				Depth (in)	USDA Texture		
				20-48 (Bw)		High to very high (6-20 in/hr)	
				48-80 (Cg)			
2+50 to 15+00 25+00 to 37+50	Pipestone sand, Erie-Huron Lake Plain (31A)	A/D	0-3	0-5 (Ap)	Sand	Moderately high to high (1.42 to 14.17 in/hr)	About 6-8 inches
				5-11 (E)			
				11-22 (Bo)			
				22-35 (BC)			
				35-80 (C)			
15+00 to 22+50	Pella silt loam (14)	C/D	0-2	0-9 (Ap)	Silt loam	Moderately low to high (0.06-2.00 in/hr)	About 0 inches
				9-16 (Bg1)			
				16-24 (Bg2)			
				24-80 (2C)	Silty clay loam to silt loam		
37+50 to 42+50	Sloan silt loam (29)	C/D	0-2	0-12 (Ap)	Silt loam	Moderately high to high (0.20-1.98 in/hr)	About 0 inches
				12-24 (A)	Fine sandy loam		
				24-42 (Bg)	Silty clay loam		
				42-80 (Cg)	Stratified very fine sandy loam to silt loam		
42+50 to 75+00 92+50 to 152+50	Arkona sand (60B)	C/D	0-4	0-10 (Ap)	Sand	Moderately low to moderately high (0.06-0.20 in/hr)	About 6 inches
				10-17 (Bs1)			
				17-25 (Bs2)			
				25-27 (E)			
				27-35 (2Btg)	Silty clay loam		
				35-80 (2C)			
75+00 to 92+50 152+50 to 157+50	Sloan-Ceresco complex (44)	C/D	0-2	0-12 (Ap)	Silt loam	Moderately high to high (0.20-1.98 in/hr)	About 0 inches
				12-24 (A)	Fine sandy loam		
				24-42 (Bg)	Silty clay loam		

Stationing	Map Symbol / Description	Hydrologic Soil Group	Slope (%)	Soil Profile		Ksat Value	Depth to Water Table
				Depth (in)	USDA Texture		
				42-80 (Cg)	Stratified very fine sandy loam to silt loam		
157+50 to 172+50 185+00 to 199+95	Selfridge loamy sand (124A)	C/D	0-3	0-9 (Ap)	Loamy sand	Moderately low to moderately high (0.01-1.42 in/hr)	About 6-12 inches)
				9-17 (E)	Sand		
				17-27 (Bw)			
				27-30 (Bt1)	Sandy loam		
				30-35 (2Bt2)	Clay loam		
				35-79 (2Cg)			
172+50 to 177+50	Poseyville loamy fine sand (98A)	B/D	0-3	0-10 (Ap)	Loamy fine sand	Moderately high to high (0.2-2 in/hr)	About 6 inches
				10-12 (E)	Sand		
				12-17 (Bt)	Sandy loam		
				17-80 (Cg)	Loam		
177+50 to 185+00	Parkhill loam (24)	C/D	0-1	0-9 (Ap)	Loam	Very low (0 in/hr)	About 0 inches
				9-29 (Bg)	Clay loam		
				29-57 (C)	Loam		
				57-80 (2Cd)			

The NRCS defines the hydrologic soil groups as follows:

Type A Soils: Soils having a high infiltration rate and low runoff potential when thoroughly wet. These soils consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a moderate rate of water transmission.

Type B Soils: Soils having a moderate infiltration rate when thoroughly wet and consists mainly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately course textures. These soils have a moderate rate of water transmission.

Type C Soils: Soils having a low infiltration rate when thoroughly wet. These soils consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine-to-fine texture. These soils have a low rate of water transmission.

Type D Soils: Soils having a very low infiltration rate and high runoff potential when thoroughly wet. These soils consist chiefly of clays that have high shrink-swell potential, soils that have a permanent high water table, soils that have a clay pan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very low rate of water transmission.

1.6.2 For aboveground facilities that would occupy sites over 5 acres, determine the acreage of prime farmland soils that would be affected by construction and operation.

Not applicable as no major aboveground facilities are proposed with this project.

1.6.3 Describe, by milepost, potential impacts on soils.

Construction of the proposed pipeline would result in temporary disturbance of soils within the construction corridor, including clearing, grading, trenching, backfilling, and restoration activities. Soil impacts would be limited primarily to the workspace and access areas required for installation and would vary by location depending on terrain, soil condition, drainage conditions, and the presence of sensitive features.

Where the proposed pipeline crosses wetlands, soil disturbance would be further minimized through the use of directional drilling or a similar trenchless construction technique where practicable. In such locations, surface disturbance would generally be limited to entry and exit work areas, while the pipeline would be installed below the wetland resource without open-cut excavation through the wetland itself. Where trenchless methods are not practicable and an open-cut crossing is required, impacts may include temporary disturbance of hydric soils, localized rutting, compaction, soil mixing, and short-term exposure of bare soil. Such impacts would be confined to the minimum area necessary for construction and would be restored following installation.

Potential soil impacts may also include removal and mixing of topsoil and subsoil, compaction from construction equipment, localized rutting in wetter areas, loss of vegetative cover, and short-term exposure of bare soil to erosion. In areas of steeper slopes, poorly drained soils, or saturated ground conditions, the potential for erosion and sediment transport would be greater and would require enhanced stabilization measures.

Refer to the wetland and soil map as presented as Figure 9 and Figure 14, respectively.

1.6.4 Identify proposed mitigation to minimize impact on soils, and compare with the staff's Upland Erosion Control, Revegetation, and Maintenance Plan.

To minimize impacts on soils, construction would be conducted in a manner that limits the width and duration of disturbance to the extent practicable. Prior to construction, topsoil would be stripped and segregated, and soil handling would be managed to reduce mixing, compaction, and displacement. Construction traffic would be restricted to designated work areas and access routes, and soil disturbance would be stabilized promptly following installation activities.

At wetland crossings, the project would use directional drilling or a similar trenchless installation method where practicable to avoid direct disturbance of wetland soils and maintain wetland hydrology. Where open-cut

construction is necessary, additional mitigation measures may include the use of low-ground-pressure equipment, timber mats or construction mats, segregated topsoil handling where feasible, spoil containment, trench plugs, temporary work stoppages during unsuitable soil conditions, and prompt backfilling following pipe installation. Disturbed areas would be regraded to preconstruction contours where practicable, topsoil would be replaced where applicable, and affected areas would be reseeded or revegetated in accordance with landowner requirements and applicable regulatory conditions. Ongoing monitoring and maintenance would be implemented until stabilization is achieved.

These measures are consistent with the intent of the staff's Upland Erosion Control, Revegetation, and Maintenance Plan and are designed to minimize the extent and duration of disturbance, protect soil structure, and reduce the potential for erosion and sediment transport. Where site-specific conditions require deviation from standard methods, the selected approach would be implemented in a manner that remains protective of soil resources and wetland functions.

1.7 RESOURCE REPORT 8 – LAND USE, RECREATION AND AESTHETICS

1.7.1 Classify and quantify land use affected by:

1.7.1.1 Pipeline construction and permanent rights-of-way;

Pipeline construction would require a temporary construction ROW, typically ranging from 75 to 100 feet in width. Following construction, a narrower permanent ROW (generally 50 feet in width) would be maintained for pipeline operation and maintenance.

Previously constructed and maintained ROWs will be utilized along roadways as shown in Appendix B.1 on Drawing PLF-850-C-001. ROWs will be utilized along Pettit Road (minor/local road), Canada Road (minor/local road) and Morseville Road (major/primary highway). Within existing ROWs, no additional permanent ROW is anticipated; however, depending on field conditions during construction a temporary easement ROW may be utilized.

1.7.1.2 Extra work/staging areas;

Construction of the proposed pipeline may require the use of temporary extra workspaces and staging areas to support safe and efficient construction activities. These areas are separate from, but adjacent to or near, the standard construction ROW and would be used on a short-term basis.

Typical uses of extra work/staging areas include:

- Pipe stringing and storage
- Equipment parking and maintenance
- Contractor offices and materials storage
- Spoil storage in constrained areas
- Assembly of trenchless crossing equipment (if needed)

Extra work and staging areas would be strategically located along the project corridor between Rathburn Road and Birch Run Road, east of Morseville Road, in Birch Run Township, Michigan. Anticipated placement includes:

- Along or adjacent to the construction ROW in predominantly agricultural fields, where adequate space exists and access is readily available

- At or near road crossings (e.g., Rathburn Road, Birch Run Road, and local access roads) to facilitate equipment mobilization and traffic management
- Near waterbody crossings (Silver Creek, Pine Run, and the unnamed tributary to the Flint River), if required to support specialized construction methods or equipment staging
- At contractor-selected upland sites, preferably in previously disturbed or actively farmed areas to minimize environmental impacts

No extra workspaces are anticipated to be located within environmentally sensitive features (e.g., wetlands or streams) unless absolutely necessary, and impacts would be minimized and permitted as required.

The total number and acreage of yards would be finalized during detailed engineering and contractor selection but would represent a small portion of the overall project area.

Pipe and contractor yards would be temporary facilities, used only during the active construction phase. The duration of use is expected to align with pipeline construction sequencing (typically several weeks to a few months per location).

1.7.1.3 Access roads;

Construction and operation of the proposed pipeline in Birch Run Township, Michigan (extending between Rathburn Road and Birch Run Road, east of Morseville Road), would require the use of existing access roads and, where necessary, the development of temporary access roads to safely transport personnel, equipment, and materials to the construction ROW.

Existing Public Roads

- Primary access to the project area would be provided by existing roadways, including:
  - Rathburn Road
  - Birch Run Road
  - Morseville Road
  - Other local township roads including:
    - Pettit Road
    - Canada Road
    - McIntosh Road

These roads would be used for general ingress/egress, worker transportation, and delivery of materials.

Where available, existing farm lanes and field access paths would be utilized to minimize the need for new disturbance. Coordination with landowners would ensure appropriate use and restoration.

Short segments of temporary access roads may be constructed where existing access is insufficient and would typically connect public roads to the construction ROW or staging areas.

1.7.1.4 Pipe and contractor yards; and

Construction of the proposed pipeline in Birch Run Township, Michigan (between Rathburn Road and Birch Run Road, east of Morseville Road), would require the use of temporary pipe storage yards and contractor yards to support staging, material handling, and construction operations.

Pipe yards would be used to store pipe segments prior to stringing along the ROW and for inspecting / preparing pipe.

1.7.1.5 Aboveground facilities.

No aboveground facilities are proposed with this project at this time.

1.7.2 Identify by milepost all locations where the pipeline right-of-way would at least partially coincide with existing right-of-way, where it would be adjacent to existing rights-of-way, and where it would be outside of existing right-of-way.

The proposed pipeline project has been evaluated to determine the extent to which the alignment coincides with, is adjacent to, or is outside of existing ROWs along the route.

The pipeline will partially coincide with an existing ROW between approximately stationing 50+00 and 150+00 as displayed on Drawing PLF-850-C-001. Within this segment, the proposed alignment utilizes or overlaps with an existing corridor, thereby minimizing the need for new disturbance and reducing potential impacts to surrounding land uses.

Outside of this segment, the proposed pipeline alignment is generally located outside of existing ROWs, traversing predominantly privately owned agricultural and previously disturbed lands. In these areas, a new temporary construction ROW will be established, with a reduced permanent ROW maintained following construction.

Overall, the selective use of existing ROWs, where practicable, reduces the overall environmental footprint of the proposed pipeline project and is consistent with FERC and Michigan Act 9 of 1929 guidance to minimize land disturbance.

1.7.3 Provide detailed typical construction right-of-way cross-section diagrams showing information such as widths and relative locations of existing rights-of-way, new permanent right-of-way, and temporary construction right-of-way.

Final dimensions and configurations will be refined during final engineering and landowner negotiations. Actual cross section ROW widths and configurations will be refined based on:

- Detailed engineering design
- Environmental surveys
- Landowner agreements
- Regulatory requirements

In all cases, the Project will:

- Minimize disturbance outside the permanent ROW
- Restore temporary workspace areas following construction

Alignment shifts during final design may affect the relative position of ROW components and temporary workspaces that may require additional temporary workspace outside of the ROW.

1.7.4 Summarize the total acreage of land affected by construction and operation of the project.

The proposed pipeline project will consist of approximately 19,995 linear feet of pipeline installed within a 50-foot-wide construction ROW. The total area of land disturbed during construction is therefore estimated at approximately 23.0 acres.

This acreage represents the total temporary construction disturbance. Following construction, the ROW will be restored in accordance with applicable FERC, Michigan Act 9 of 1929, and Michigan Department of EGLE requirements, with only a maintained operational corridor remaining for long-term use. Permanent impacts will be limited to the maintained pipeline ROW, which will be kept in an herbaceous condition to allow for inspection and maintenance.

No additional land is required for aboveground facilities beyond minimal appurtenant components at the interconnection location. Overall, land disturbance associated with the proposed pipeline project is limited in extent and primarily temporary in nature.

1.7.5 Identify by milepost all planned residential or commercial/business development and the time frame for construction.

Available land use information, aerial imagery, and general planning data for the project vicinity indicate that the proposed pipeline project corridor is predominantly rural and agricultural in character, with scattered existing residential structures and no evidence of active subdivision or commercial expansion within the immediate area.

No planned residential, commercial, or business developments have been identified within or immediately adjacent to the proposed pipeline ROW that would be affected by construction. As such, no locations requiring identification by milepost are applicable, and no known development schedules have been identified that would conflict with construction of the proposed pipeline project.

The proposed pipeline project is not expected to interfere with reasonably foreseeable land use development, and future residential or commercial growth within the broader area would be compatible with the presence of a buried pipeline ROW.

1.7.6 Identify by milepost special land uses (e.g., sugar maple stands, specialty crops, natural areas, national and state forests, conservation land, etc.).

Special land uses were reviewed along the proposed pipeline project. Special land uses include areas such as specialty agricultural resources, managed forest lands, conservation lands, and other designated or sensitive land use classifications.

Based on available information and field characterization, the proposed pipeline project traverses predominantly agricultural and previously disturbed lands. No specialty crops (e.g., orchards, vineyards, or maple sugar stands), designated natural areas, state or national forests, or conservation lands have been identified within the project footprint.

No other special land uses, as defined under § 380.12(j)(4), are present within or crossed by the proposed pipeline project. Accordingly, identification is not applicable, and no significant impacts to special land uses are anticipated.

1.7.7 Identify by beginning milepost and length of crossing all land administered by Federal, state, or local agencies, or private conservation organizations.

A review was conducted to identify lands administered by federal, state, or local agencies, as well as private conservation organizations, within or crossed by the proposed pipeline project in Birch Run, Saginaw County, Michigan. This review included publicly available mapping resources and regional land ownership information.

Based on this review, the proposed pipeline project is located primarily within privately owned agricultural and previously disturbed lands. No federally administered lands, state-managed lands, or properties owned by private conservation organizations have been identified within the project area.

The proposed pipeline project will cross a locally administered property owned by Taymouth Township. This crossing occurs from approximately stationing 162+50 to 167+00 and includes land associated with the Taymouth Township Police and Fire Station and the Taymouth Township Office as displayed on Drawing PLF-850-C-001 and Figure 15. The crossing of this municipally owned property will be temporary in nature during construction, and the site will be restored to pre-construction conditions following completion of installation activities.

No other publicly administered or conservation lands are crossed by the proposed pipeline project. Accordingly, impacts to such lands are expected to be minimal and limited to temporary construction disturbance, with no long-term adverse effects anticipated.

1.7.8 Identify by milepost all natural, recreational, or scenic areas, and all registered natural landmarks crossed by the project.

A review was conducted to identify any designated natural, recreational, or scenic areas, as well as registered National Natural Landmarks (NNL), within or crossed by the proposed pipeline project. This review included publicly available federal and state resources, county park listings, and regional conservation data.

Based on available information and the localized footprint of the project, no designated or proposed natural areas, scenic areas, recreational areas of special designation, or registered NNL are crossed by or occur within the project area. Therefore, identification is not applicable.

Accordingly, the proposed pipeline project will not affect resources protected under § 380.12(j)(4) and (6), and no mitigation measures are required.

1.7.9 Identify all facilities that would be within designated coastal zone management areas. Provide a consistency determination or evidence that a request for a consistency determination has been filed with the appropriate state agency.

Under the authority of the Michigan Coastal Zone Management Program (MCZMP), a review was conducted to determine whether any portion of the proposed pipeline project is located within a designated Coastal Zone Management (CZM) area.

The project is located in Birch Run, Saginaw County, Michigan, which is inland and outside of Michigan's designated coastal zone boundaries associated with the Great Lakes and connected coastal resources. Based on this review, no project facilities are located within a designated coastal zone management area.

Accordingly, a federal consistency determination is not required, and no coordination with the Michigan EGLE Coastal Management Program is necessary for this project under § 380.12(j)(4) and (7).

1.7.10 Identify by milepost all residences that would be within 50 feet of the construction right-of-way or extra work area.

The proposed pipeline project corridor is located within a predominantly rural and agricultural setting that includes scattered residential development in proximity to the alignment.

Six residences have been identified within 50 feet of the proposed ROW and/or designated extra workspaces at select locations along the proposed alignment. The list of property owners is included within Appendix C. HDD will be utilized for construction at environmentally sensitive areas and residences that are located along existing roadway ROWs. For this reason, property owners along an existing roadway ROW are excluded from Appendix C as temporary construction disturbance will be minimal. The permanent ROW will be within the existing ROW at these locations. Upon pipeline routing finalization, all homeowners within construction ROWs will be notified if necessary.

Construction-related impacts to nearby residences may include temporary increases in noise, dust, and traffic. These effects will be short-term and limited to the duration of construction activities. The proposed pipeline project will implement standard construction best management practices and adhere to applicable Michigan Act 9 of 1929 procedures to minimize potential disturbances to nearby residents.

No permanent displacement of residences or long-term impacts to residential land use are anticipated.

1.7.11 Identify all designated or proposed candidate National or State Wild and Scenic Rivers crossed by the project.

A review was conducted to identify any federally or state designated or congressionally authorized study rivers under the National Wild and Scenic Rivers System (NWSRS), as well as any state-designated or candidate Wild and Scenic Rivers within the vicinity of the proposed pipeline project in Birch Run, Michigan.

Based on this review, no NWSRS, study rivers, or state-designated Wild and Scenic Rivers are crossed or located within the project area. Waterbodies crossed by the proposed pipeline project, including Silver Creek, Pine Run, and an unnamed tributary to the Flint River, are not designated or proposed for inclusion in the NWSRS or any comparable state program.

Accordingly, the proposed pipeline project will not affect any designated or candidate Wild and Scenic River resources, and no additional evaluation or mitigation measures are required under § 380.12(j)(6).

1.7.12 Describe any measures to visually screen aboveground facilities, such as compressor stations.

The proposed pipeline project includes a compressor station at the interconnection. The station will incorporate standard screening measures, including perimeter fencing, and is set back approximately 125 feet from McIntosh Road, a low-traffic local roadway. This setback reduces its overall visual prominence. Aboveground components associated with the interconnect will be minimal and consistent with existing utility infrastructure in the area.

Due to the limited scale and context of these components, no significant visual impacts are anticipated, and additional visual screening measures are not proposed at this time. The proposed interconnect site layout is represented in Appendix B.2 on Drawing PLFG-850-C-003.

1.7.13 Demonstrate that applications for rights-of-way or other proposed land use have been or soon will be filed with Federal land-managing agencies with jurisdiction over land that would be affected by the project.

The project area has been reviewed to identify the presence of federally managed lands that may be affected by construction or operation of the proposed facilities. Land ownership within the project corridor is primarily private (agricultural and rural residential) with local road ROWs under township or county jurisdiction.

Federal Land Jurisdiction

Based on available mapping and land ownership data:

The project alignment does not cross or occupy lands administered by any Federal land-managing agency, including but not limited to:

- U.S. Forest Service (USFS)
- Bureau of Land Management (BLM)
- U.S. Fish and Wildlife Service (USFWS)
- National Park Service (NPS)
- USACE fee-owned lands

Because no federally managed lands are crossed or otherwise affected by the project, applications for ROWs, special use permits, or land use authorizations from Federal land-managing agencies are not required or not been filed.

If project design modifications were to result in the use of federal lands or if previously unidentified federal interests are encountered, the applicant would:

- Initiate coordination with the appropriate federal land-managing agency, and
- Submit required ROW applications or permits prior to construction in those areas.

The proposed project does not affect federally managed lands, and therefore no applications for federal ROWs or land use authorizations are necessary. All land requirements for the project are limited to private and local jurisdictional lands, which are being addressed through appropriate easements and agreements with landowners and local authorities.

1.8 RESOURCE REPORT 11 – RELIABILITY AND SAFETY

1.8.1 Describe how the project facilities would be designed, constructed, operated, and maintained to minimize potential hazard to the public from the failure of project components as a result of accidents or natural catastrophes.

The proposed pipeline project will be designed, constructed, operated, and maintained in a manner that minimizes potential hazards to the public resulting from facility failure due to accidental events or natural catastrophes, in accordance with applicable federal and state safety standards including Michigan Gas Safety Code (R460.20603 through R460.20606).

1.8.1.1 Design Measures

The pipeline will be designed in accordance with Michigan Gas Safety Standards, 27th edition and U.S. Department of Transportation PHMSA regulations under 49 CFR Part 192. Design considerations will include appropriate material selection, wall thickness, operating pressure limits, and incorporation of safety factors to account for external loads, corrosion potential, and environmental conditions. The pipeline will be buried at depths meeting or exceeding regulatory requirements to reduce the risk of third-party damage and exposure to surface hazards.

1.8.1.2 Construction Practices

Construction of the proposed pipeline project will follow established industry standards, FERC guidance to ensure system integrity, and Michigan Act 19 of 1929 for natural gas pipeline construction. This includes implementation of quality control and inspection procedures, proper welding and coating techniques, and post-construction testing such as hydrostatic pressure testing to verify pipeline strength and leak tightness. Construction activities will be managed to minimize risks associated with soil instability, flooding, or other site-specific conditions.

1.8.1.3 Operational Controls

During operation, the pipeline will be monitored and maintained in accordance with PHMSA requirements. Operational safety measures will include routine inspections, corrosion control (e.g., cathodic protection systems), and leak detection protocols. Emergency shutdown capability and isolation valves will be incorporated, as appropriate, to limit the extent of any accidental release.

1.8.1.4 Maintenance and Integrity Management

The proposed pipeline project will be subject to ongoing maintenance and integrity management programs designed to identify and address potential issues before they result in failure. These measures include periodic patrols, inline inspections (as applicable), and prompt repair of identified anomalies. Vegetation management within the ROW will be maintained to allow access for inspection and emergency response.

1.8.1.5 Hazard Mitigation

The design and operation of the proposed pipeline project will consider potential natural hazards, including flooding, erosion, and extreme weather conditions. Appropriate siting, burial depth, and stabilization measures will be implemented to minimize risks associated with these events. In addition, the project will comply with applicable one-call notification systems to reduce the likelihood of third-party damage.

Through implementation of these measures, the proposed pipeline project will minimize the potential for accidental releases or system failures and reduce risks to public safety to the extent practicable, consistent with the requirements of § 380.12(m).

2.0 LIMITATIONS

The work product included in the attached was undertaken in full conformity with generally accepted professional consulting principles and practices and to the fullest extent as allowed by law we expressly disclaim all warranties, express or implied, including warranties of merchantability or fitness for a particular purpose. The work product was completed in full conformity with the contract with our client and this document is solely for the use and reliance of our client (unless previously agreed upon that a third party could rely on the work product) and any reliance on this work product by an unapproved outside party is at such party's risk.

The work product herein (including opinions, conclusions, suggestions, etc.) was prepared based on the situations and circumstances as found at the time, location, scope and goal of our performance and thus should be relied upon and used by our client recognizing these considerations and limitations. Cornerstone Environmental Group, LLC - A Tetra Tech Company shall not be liable for the consequences of any change in environmental standards, practices, or regulations following the completion of our work and there is no warrant to the veracity of information provided by third parties, or the partial utilization of this work product.

FIGURES

Figure 1. USGS 7.5-minute Topographic Map
Figure 2. Saginaw County Aerial Imagery
Figure 3. Road and Water Crossings Map
Figure 4. Zoning and Land Use Map
Figure 5. Permitted Dishargers Map
Figure 6. Watershed Map – Pine Run (HUC 040802040510)
Figure 7. Watershed Map – Silver Creek (HUC 040802040511)
Figure 8. Watershed Map – Spring Brook Drain – Flat River (HUC 040802040513)
Figure 9. NWI Map
Figure 10. Wetland Part 303 Map
Figure 11. FEMA Floodplain Map (Northern Piping)
Figure 12. FEMA Floodplain Map (Western Piping)
Figure 13. FEMA Floodplain Map (Southern Piping)
Figure 14. USDA NRCS Soils Map with Pipeline Routing
Figure 15. Landmark Map

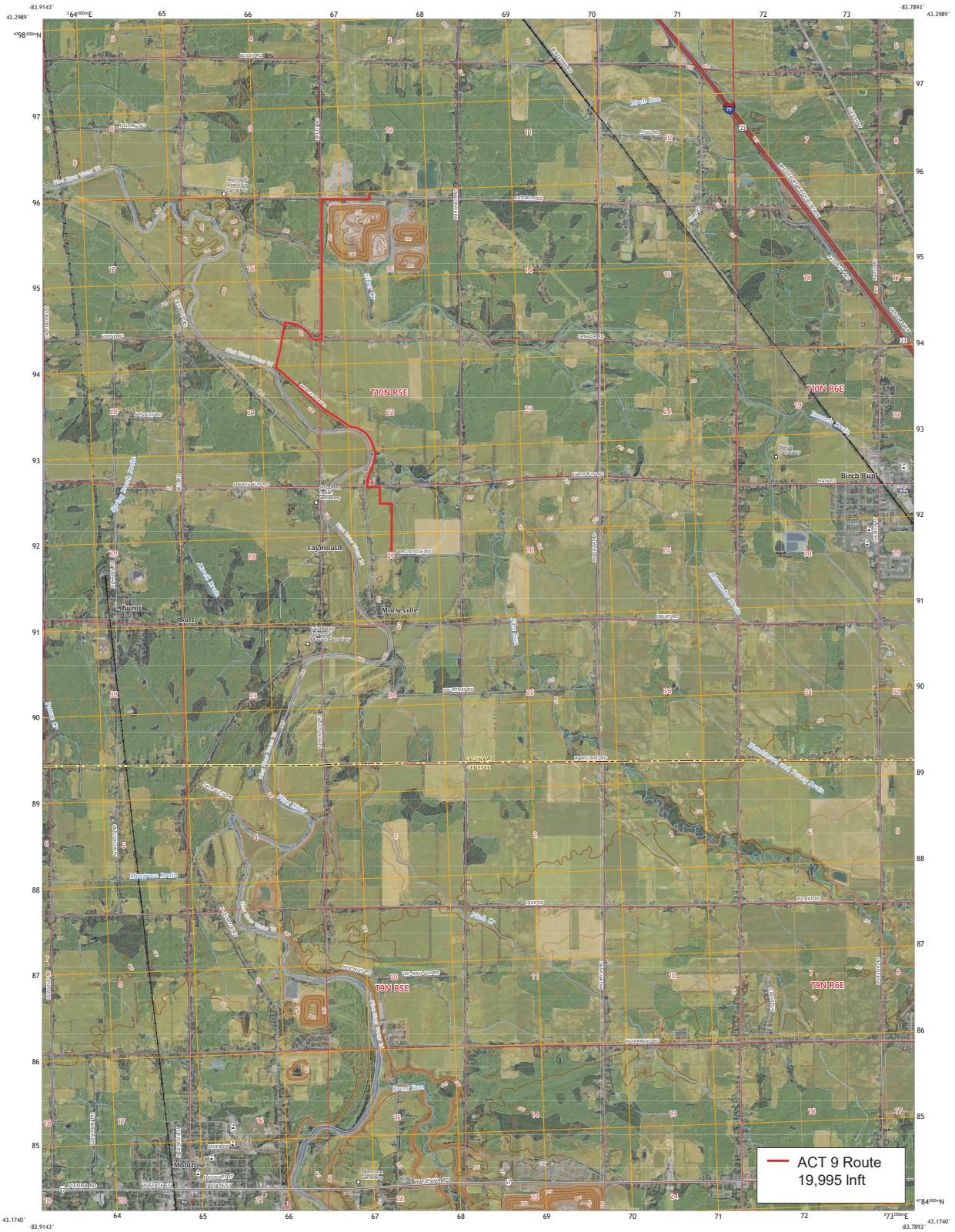
Figure 1

USGS 7.5-minute Topographic Map

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map
OnDemand Topo

7.5-MINUTE TOPO QUADRANGLE
MICHIGAN - CUSTOM EXTENT
7.5-MINUTE TOPO



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid: UNIVERSAL TRANSVERSE MERCATOR, ZONE 17T

Data is provided by The National Map (TNM), is the best available at the time of map generation, and includes data content from supporting themes of Elevation, Hydrography, Geographic Names, Boundaries, Transportation, Structures, Land Cover, and Orthoimagery. Refer to associated Federal Geographic Data Committee (FGDC) Metadata for additional source data information.

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands. Temporal changes may have occurred since these data were collected and some data may no longer represent actual surface conditions.

Learn About The National Map: https://nationalmap.gov

UTM GRID AND 2026 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 – m Square ID
KH
Grid Zone Designation
17T

SCALE 1:24 000

KILOMETERS 1 0.5 0 1 2
METERS 1000 500 0 1000 2000
MILES 1 0.5 0
FEET 1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
CONTOUR SMOOTHNESS = Medium

QUADRANGLE LOCATION



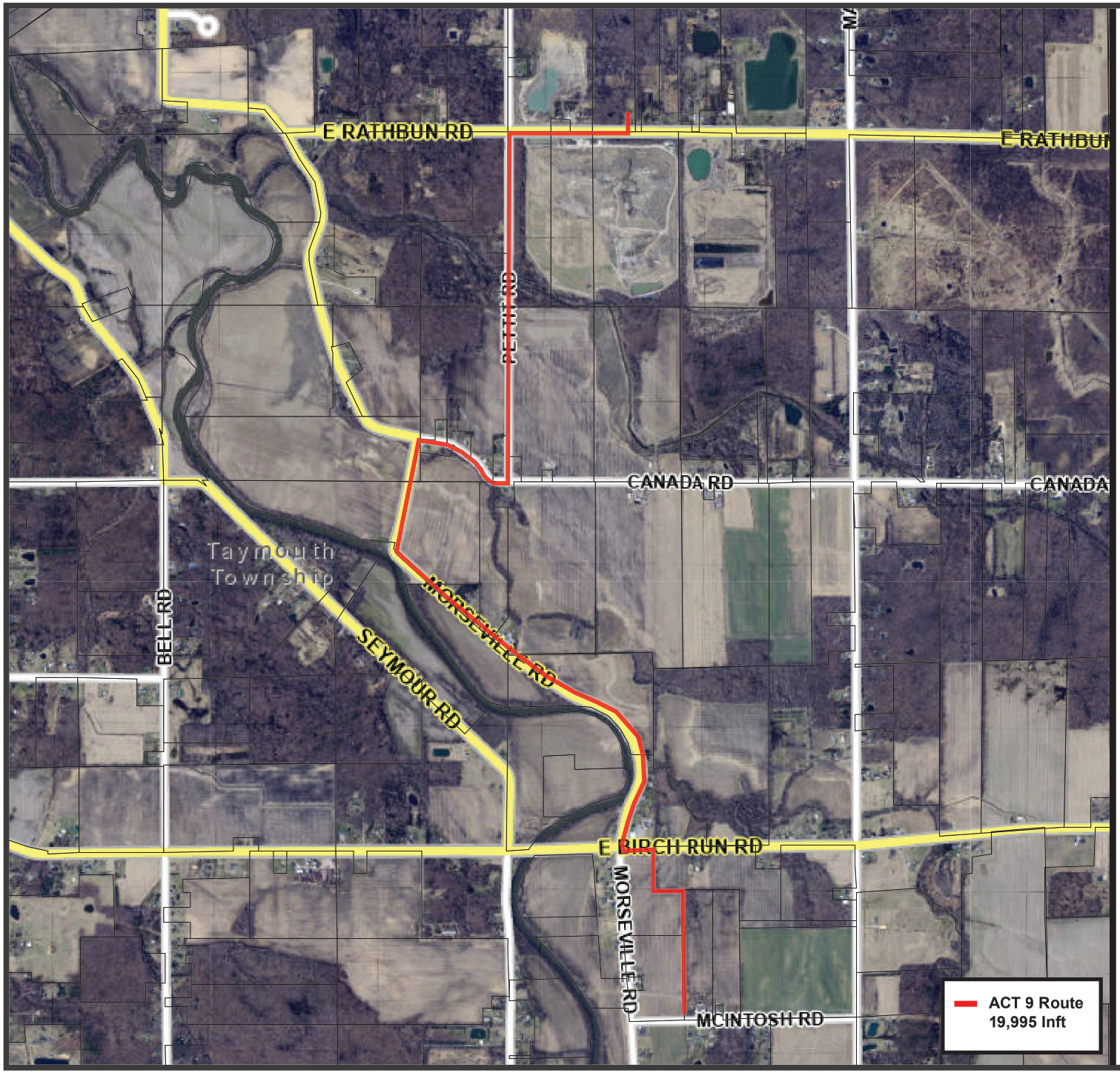
ADJOINING QUADRANGLES

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

7.5-MINUTE TOPO, MI
2026

Figure 2

Saginaw County Aerial Imagery



SAGA
Saginaw Area GIS Authority
www.sagagis.org

Peoples LFG, LLC

Aerial Imagery

Map Publication:
05/26/2026 9:33 AM

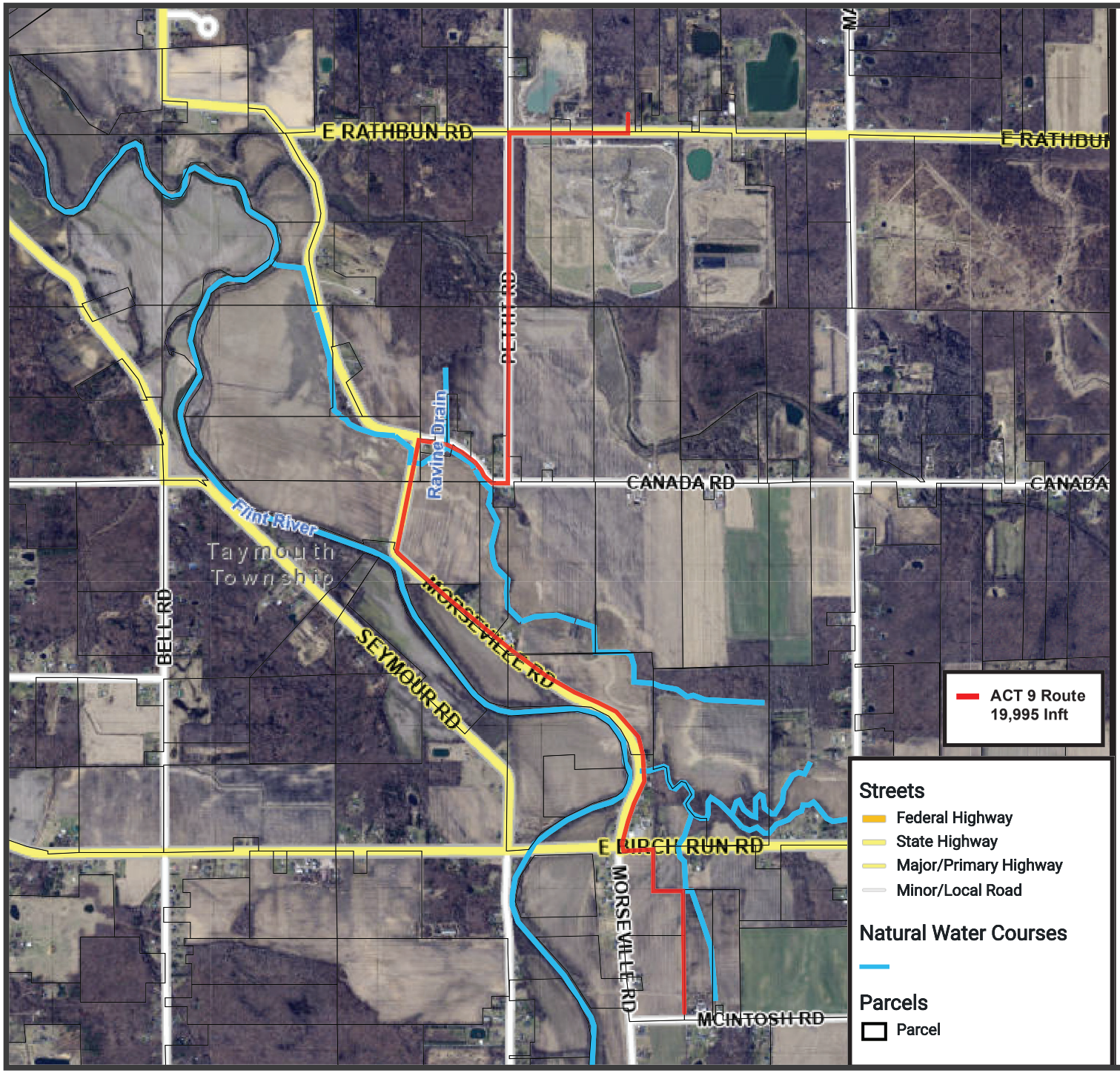
0.6km
0.4mi

powered by FetchGIS

Disclaimer: This map does not represent a survey or legal document and is provided on an "as is" basis. Saginaw County expresses no warranty for the information displayed on this map document.

Figure 3

Road and Water Crossings Map



SAGA
Saginaw Area GIS Authority
www.sagagis.org

Peoples LFG, LLC

Pipe Routing - Road and Water Crossing

Map Publication:
05/26/2026 9:37 AM

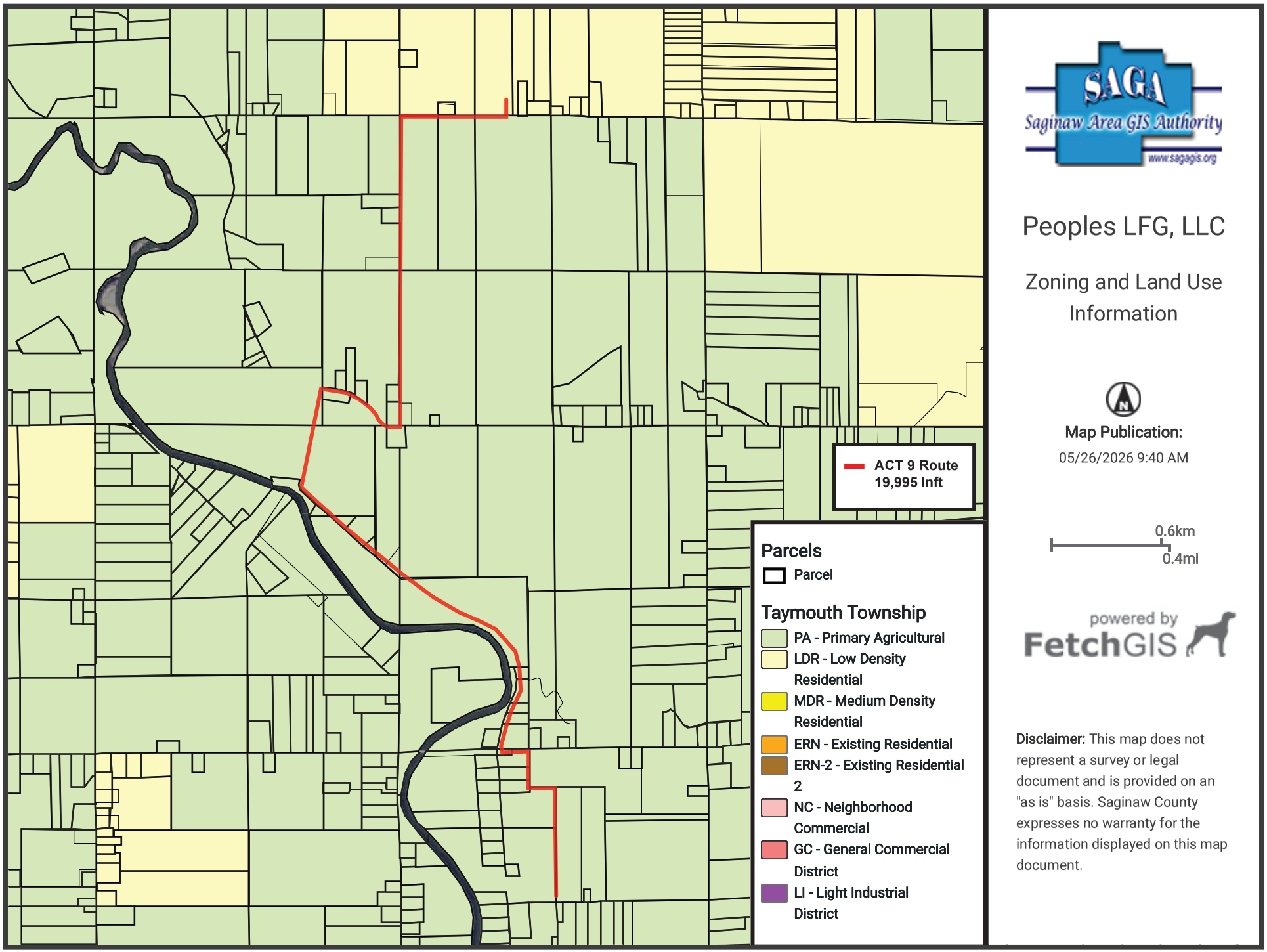
0.6km
0.4mi

powered by FetchGIS

Disclaimer: This map does not represent a survey or legal document and is provided on an "as is" basis. Saginaw County expresses no warranty for the information displayed on this map document.

Figure 4

Zoning and Land Use Map



SAGA
Saginaw Area GIS Authority
www.sagagis.org

Peoples LFG, LLC

Zoning and Land Use Information

Map Publication:
05/26/2026 9:40 AM

0.6km
0.4mi

powered by FetchGIS

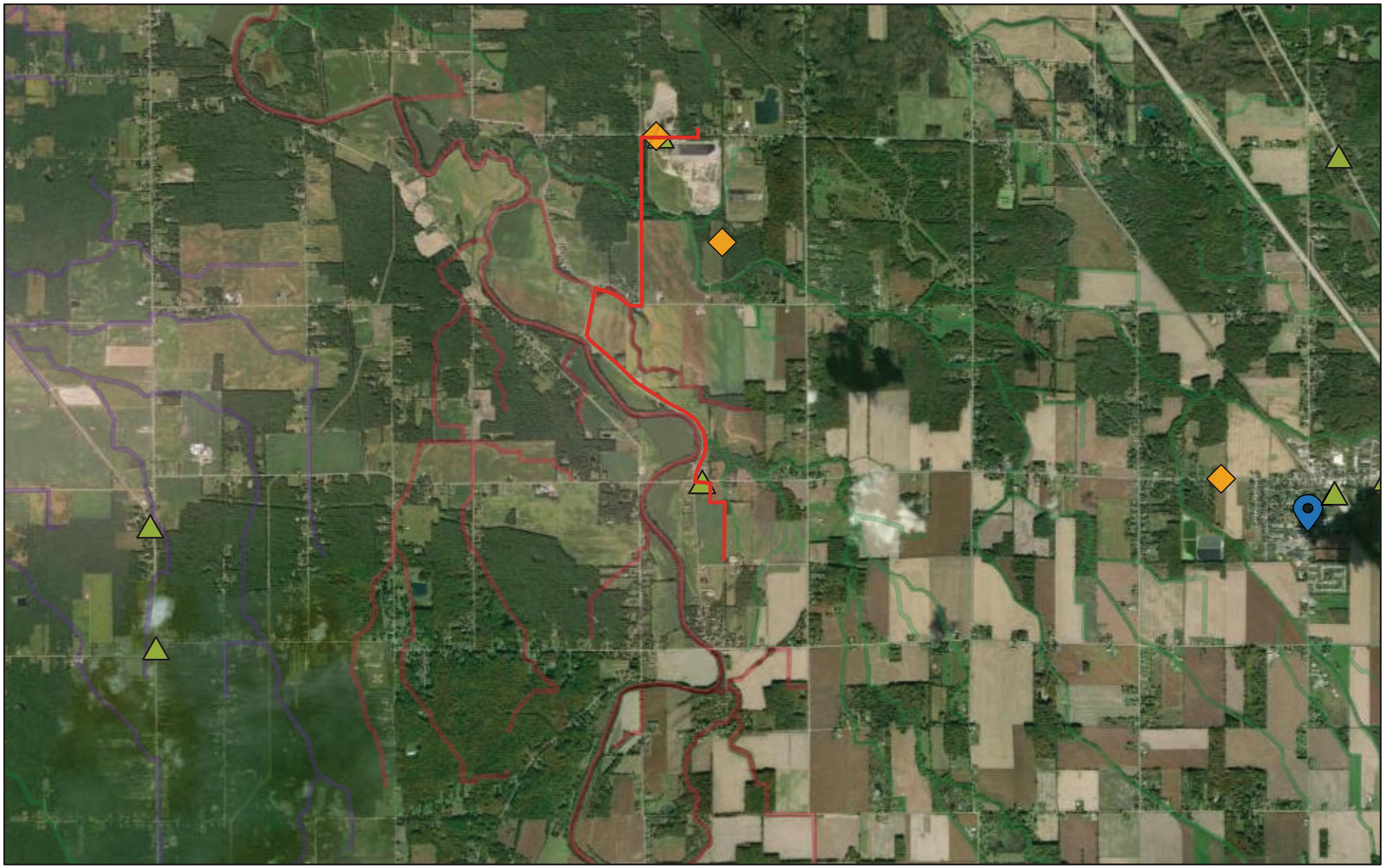
Disclaimer: This map does not represent a survey or legal document and is provided on an "as is" basis. Saginaw County expresses no warranty for the information displayed on this map document.

Figure 5

Permitted Dischargers Map

Discharges - Peoples LFG

ACT 9 Route
19,995 lnft



5/14/2026

Waterbody: Good

Waterbody: Condition Unknown

Searched Location

Waterbody: Impaired

Permitted Discharger

Pollutant Storage Tanks

1:72,224

0 0.45 0.9 1.8 mi

0 0.5 1 2 km

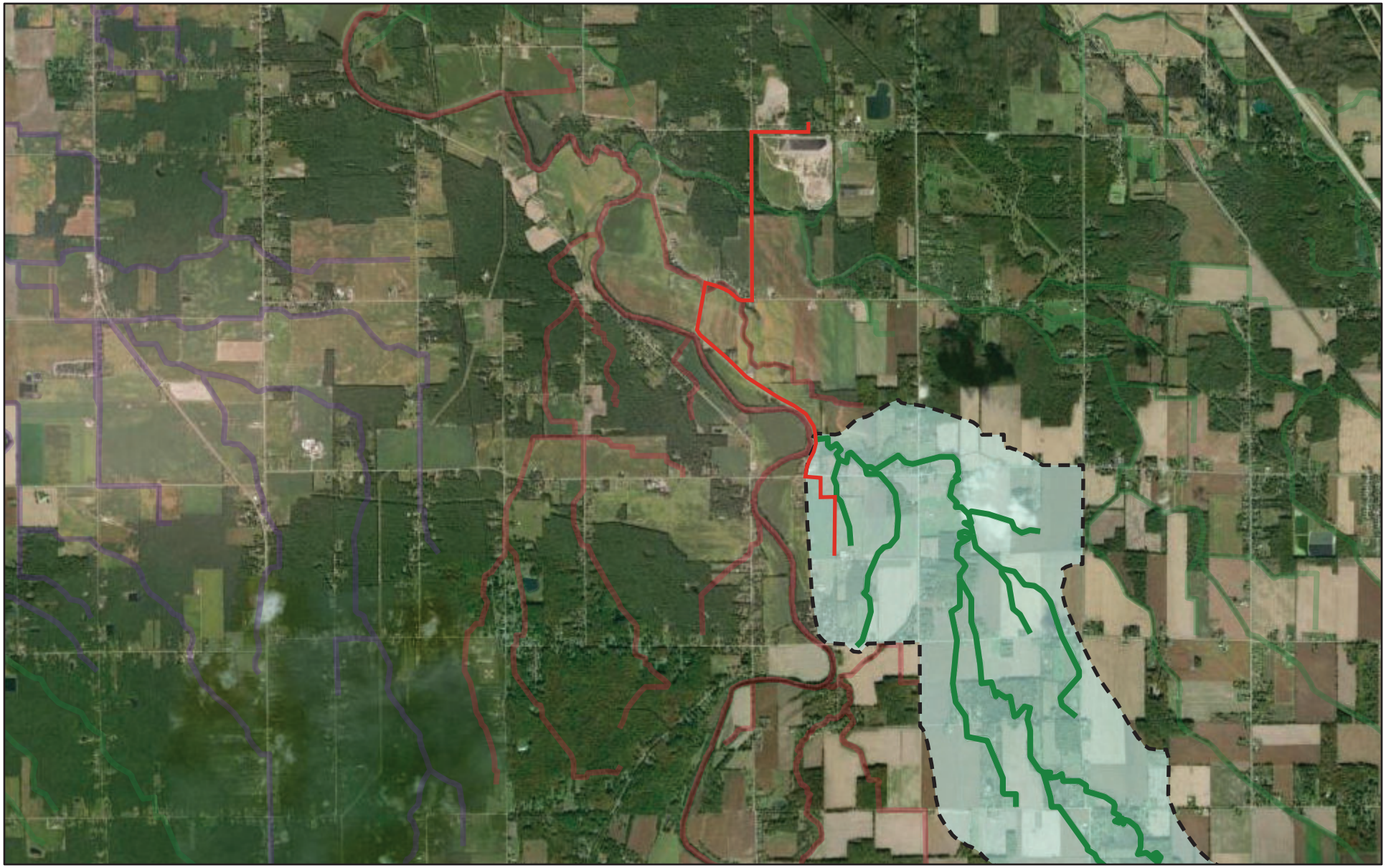
Alabama Department of Environmental Management's Groundwater Branch, Alaska's Department of Environmental Conservation's Prevention

Figure 6

Watershed Map – Pine Run (HUC 040802040510)

Watershed Map - Pine Run (040802040510)

ACT 9 Route
19,995 lnft



5/13/2026

Waterbody: Good

Waterbody: Impaired

Waterbody: Condition Unknown

HUC12 Boundaries

1:72,224

0 0.45 0.9 1.8 mi

0 0.5 1 2 km

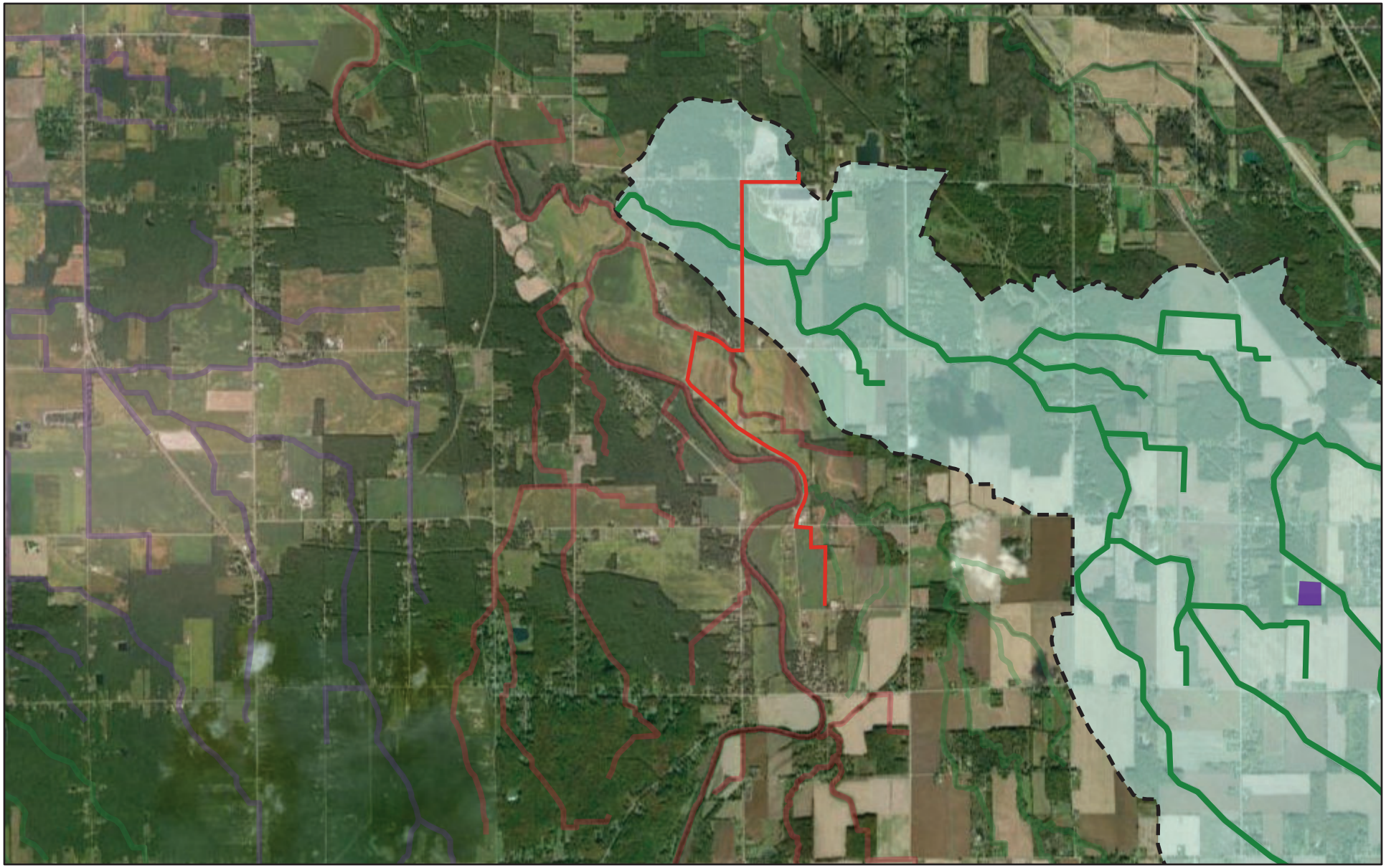
Earthstar Geographics

Figure 7

Watershed Map – Silver Creek (HUC 040802040511)

Watershed Map - Silver Creek

ACT 9 Route
19,995 lnft



5/13/2026

Waterbody: Good

Waterbody: Impaired

Waterbody: Condition Unknown

HUC12 Boundaries

1:72,224

0 0.45 0.9 1.8 mi

0 0.5 1 2 km

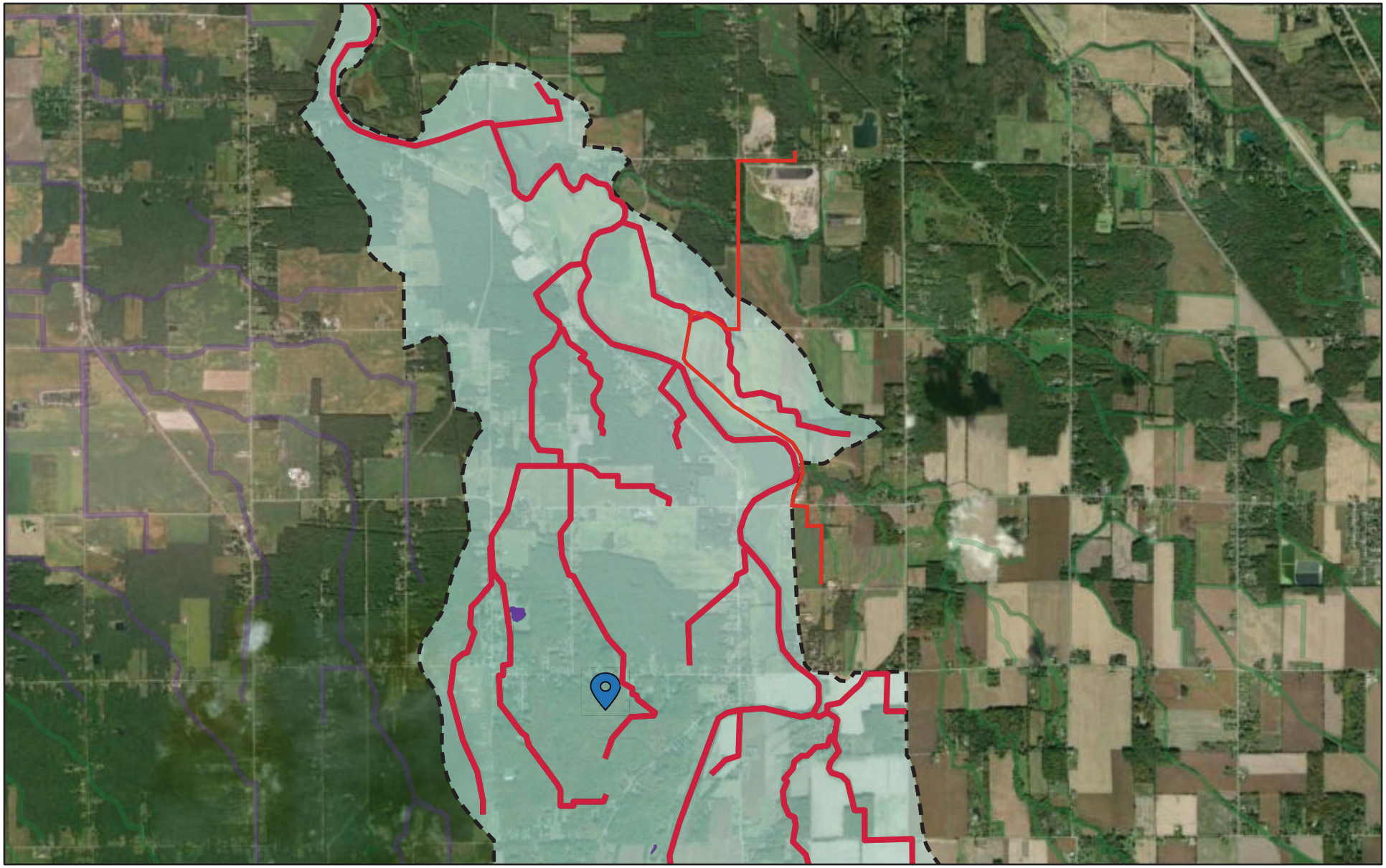
Earthstar Geographics

Figure 8

Watershed Map – Spring Brook Drain – Flat River (HUC 040802040513)

Watershed Map - Spring Brook Drain-Flat River (040802040513)

ACT 9 Route
19,995 lnft



5/13/2026

Waterbody: Good

Waterbody: Impaired

Waterbody: Condition Unknown

HUC12 Boundaries

1:72,224

0 0.45 0.9 1.8 mi

0 0.5 1 2 km

Earthstar Geographics

Figure 9

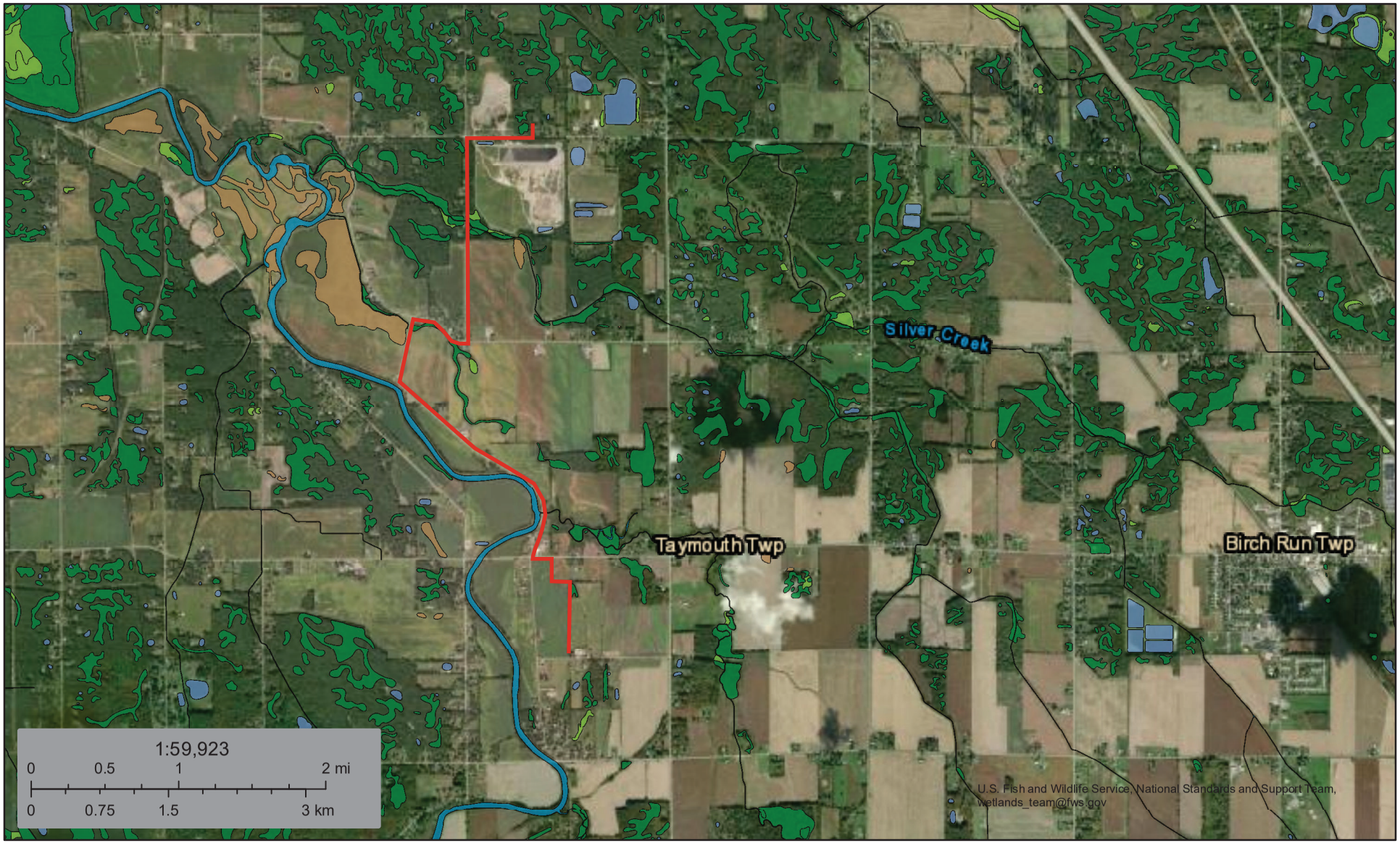
NWI Map

U.S. Fish and Wildlife Service

National Wetlands Inventory

Peoples LFG, LLC

ACT 9 Route
19,995 lnft



April 29, 2026

Wetlands

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

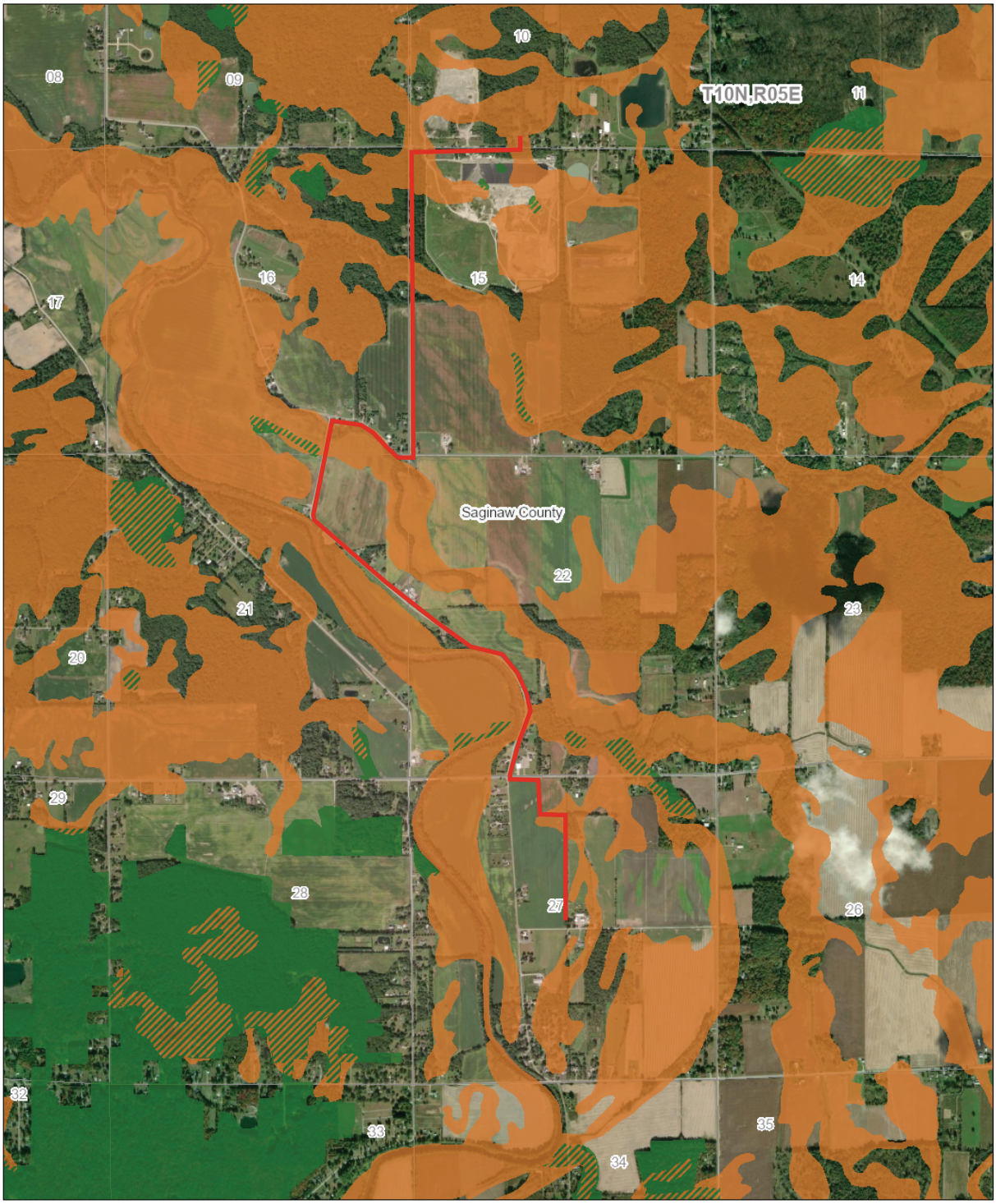
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

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

Figure 10

Wetland Part 303 Map

Part 303 Final Wetlands Inventory



5/13/2026, 1:36:37 PM

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
- Town Range
- Sections
- Michigan Counties - Counties

1:26,168

0 0.23 0.45 0.9 mi

0 0.35 0.7 1.4 km

Vantor

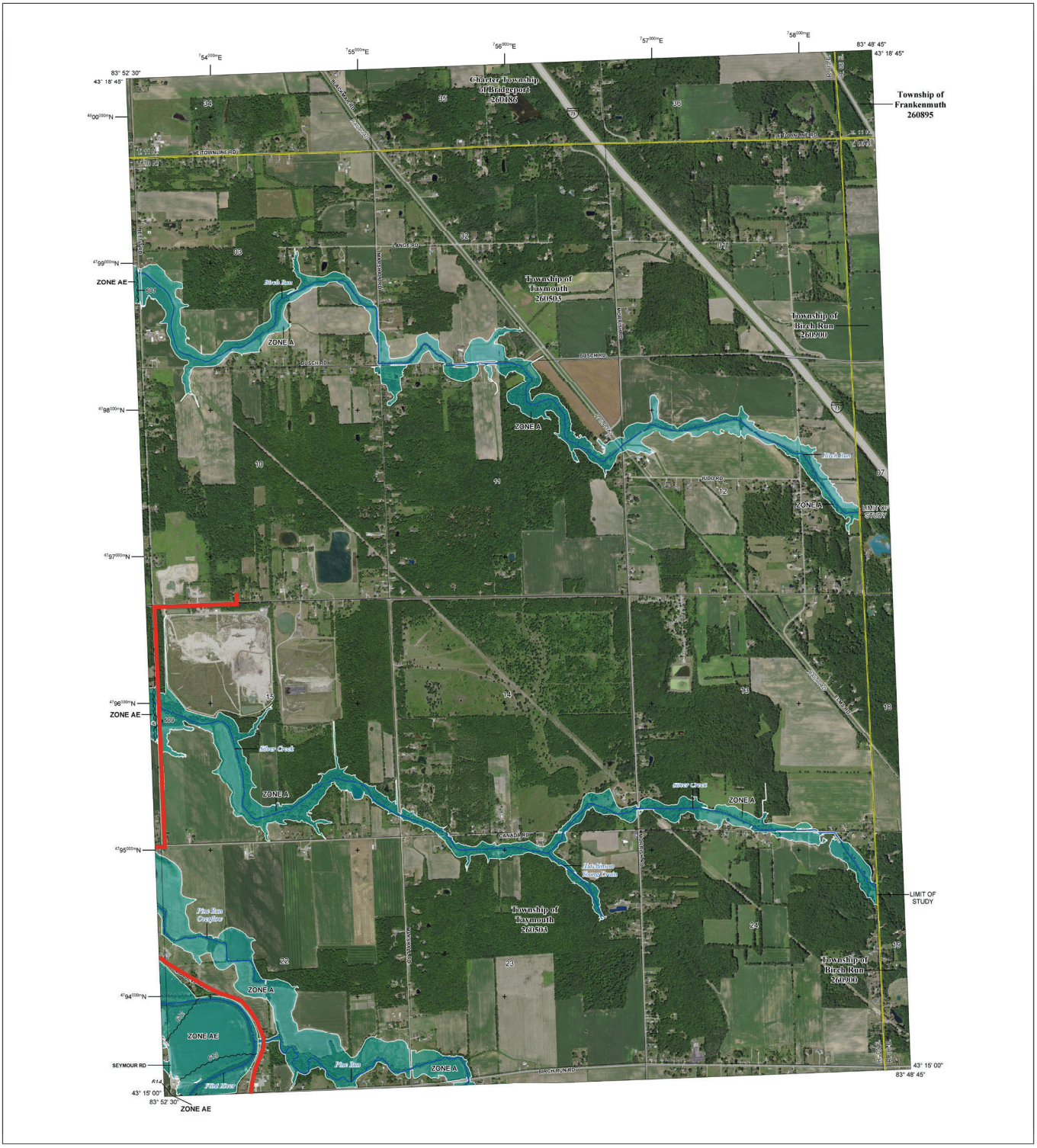
ACT 9 Route
19,995 lnft

Figure 11

FEMA Floodplain Map (Northern Piping)

Map Number: 26145C0365E

Map Revised: August 15, 2023



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTPS://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Areas of Minimal Flood Hazard *Zone X*
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Mapping and Insurance eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format by the United States Department of Agriculture Natural Resources Conservation Service (USDA-NRCS). This information was derived from digital orthophotography at a 1-meter resolution from photography dated 2018.

ACT 9 Route (North)
19,995 lnft

SCALE

Map Projection:
Universal Transverse Mercator Zone 16N; North American Datum 1983
Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 1,000 feet 1:12,000

0 1,000 2,000 4,000 Feet

0 250 500 1,000 Meters

PANEL LOCATOR



* PANEL NOT PRINTED

FEMA National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

SAGINAW COUNTY, MICHIGAN
All Jurisdictions

PANEL 365 OF 550

FEMA

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
BIRCH RUN, TOWNSHIP OF	260900	0365	E
BRIDGEPORT, CHARTER TOWNSHIP OF	260186	0365	E
FRANKENMUTH, TOWNSHIP OF	260895	0365	E
TAYMOUTH, TOWNSHIP OF	260503	0365	E

VERSION NUMBER
2.5.3.0

MAP NUMBER
26145C0365E

MAP REVISED
AUGUST 15, 2023

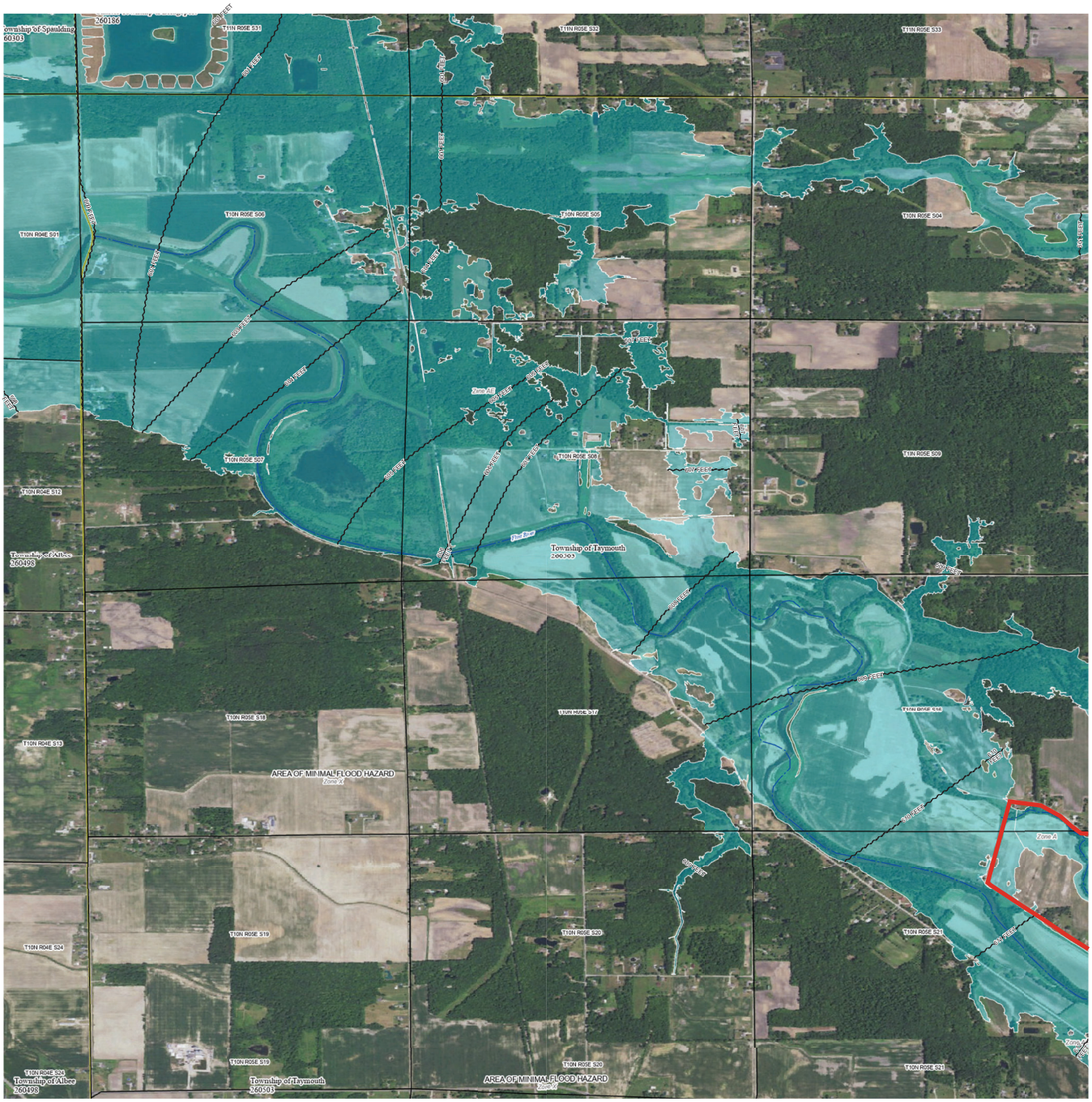
Figure 12

FEMA Floodplain Map (Western Piping)

Map Number: 26145C0345E

Map Revised: August 15, 2023

83°56'15.87"W 43°18'58.21"N



83°52'29.16"W 43°14'46.85"N

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

LINK </CLR>for official maps and additional

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates, refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Basemap information shown on this FIRM was provided in digital format by USDA, Farm Service Agency (FSA). This information was dated April 11, 2018.

This map was exported from FEMA's National Flood Hazard Layer (NFHL) on **5/28/2026 3:20 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at https://www.fema.gov/media-library/assets/documents/118418

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards. This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date.

ACT 9 Route (West)
19,995 lnft

SCALE

Map Projection:
GCS, Geodetic Reference System 1980;
Vertical Datum: NAVD88
For information about the specific vertical datum for elevation features, datum conversions, or vertical monuments used to create this map, please see the Flood Insurance Study (FIS) Report for your community at https://msc.fema.gov

1 inch = 1,000 feet 1:12,000

0 500 1,000 2,000 3,000 4,000 Feet

N

0 105 210 420 630 840 Meters

FEMA National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP
PANEL 345 OF 505

Panel Contains:

COMMUNITY	NUMBER	PANEL
TOWNSHIP OF TAYMOUTH	260503	0345
TOWNSHIP OF SPAULDING	260303	0345
TOWNSHIP OF ALBEE	260498	0345
CHARTER TOWNSHIP OF BRIDGEPORT	260186	0345

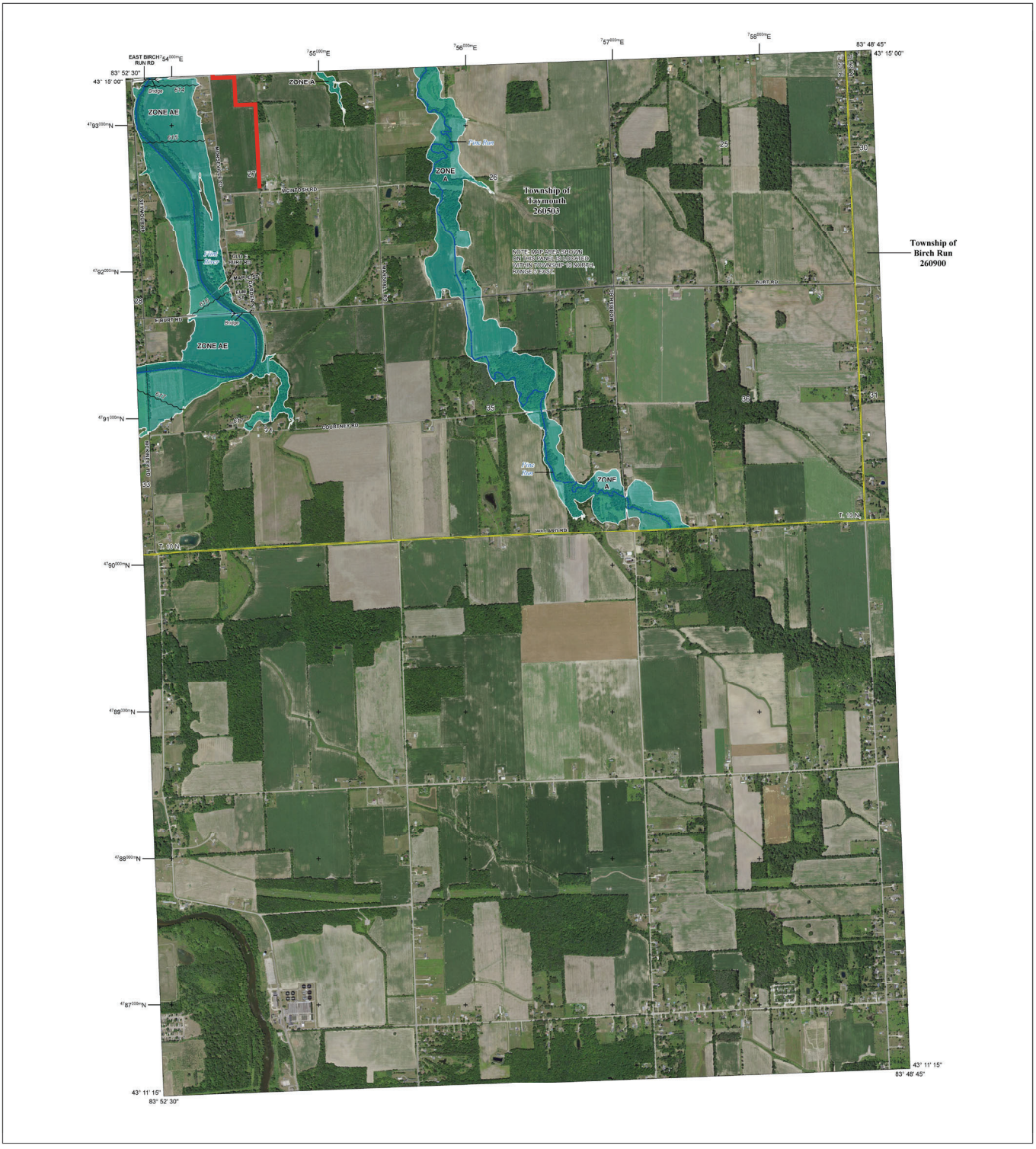
MAP NUMBER
26145C0345E
EFFECTIVE DATE
August 15, 2023

Figure 13

FEMA Floodplain Map (Southern Piping)

Map Number: 26145C0505E

Map Revised: August 15, 2023



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTPS://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Areas of Minimal Flood Hazard *Zone X*
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 18.2 / 17.5 — Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Mapping and Insurance eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format by the United States Department of Agriculture Natural Resources Conservation Service (USDA-NRCS). This information was derived from digital orthophotography at a 1-meter resolution from photography dated 2018.

ACT 9 Route (South)
19,995 lnft

SCALE

Map Projection:
Universal Transverse Mercator Zone 16N; North American Datum 1983
Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 1,000 feet 1:12,000

0 1,000 2,000 4,000 Feet

0 250 500 1,000 Meters

PANEL LOCATOR



* PANEL NOT PRINTED

FEMA National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

SAGINAW COUNTY, MICHIGAN
All Jurisdictions

PANEL 505 OF 550

FEMA

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
BIRCH RUN, TOWNSHIP OF	260900	0505	E
TAYMOUTH, TOWNSHIP OF	260503	0505	E

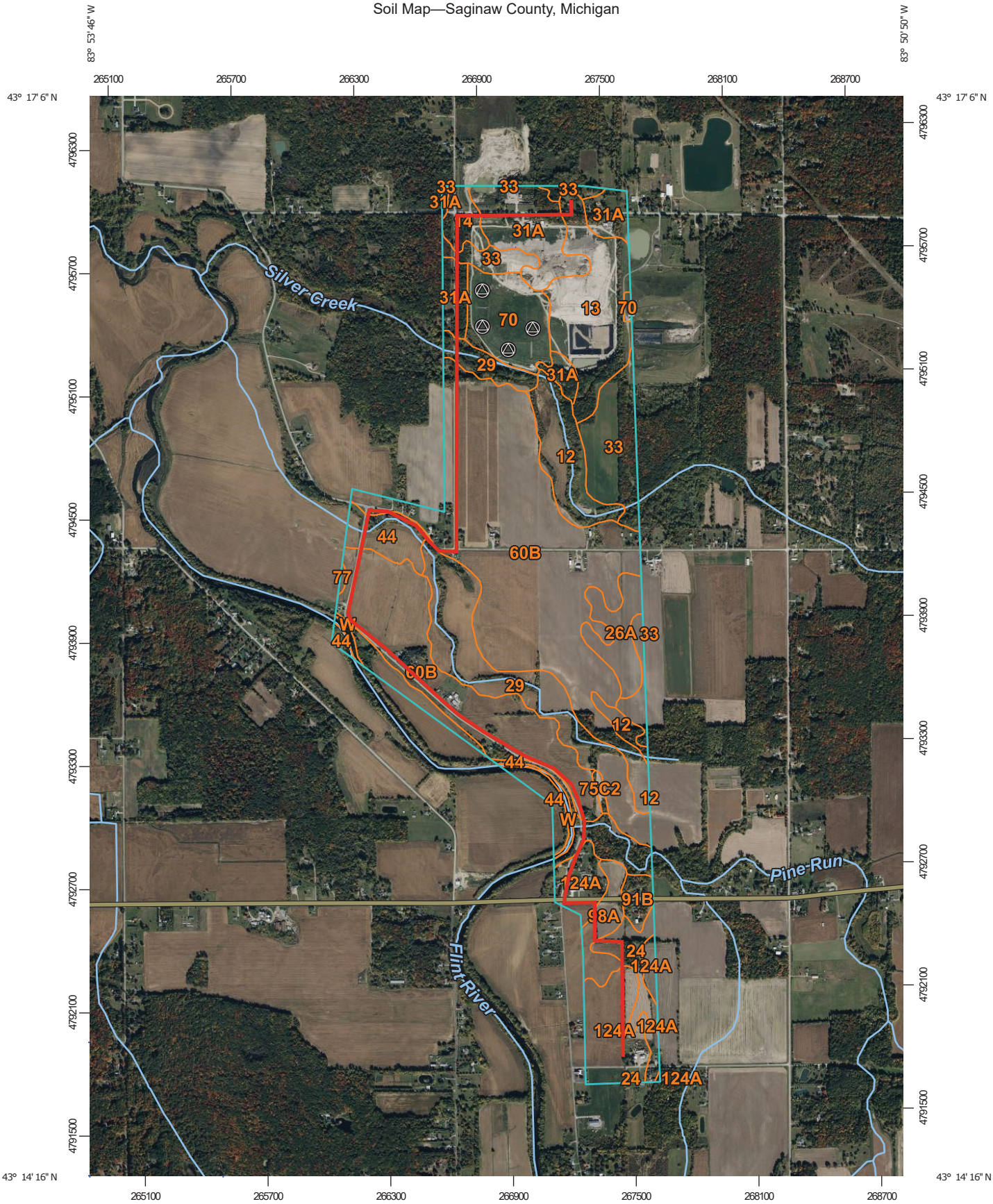
VERSION NUMBER
2.5.3.0

MAP NUMBER
26145C0505E

MAP REVISED
AUGUST 15, 2023

Figure 14

USDA NRCS Soils Map



Map Scale: 1:25,600 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 350 700 1400 2100

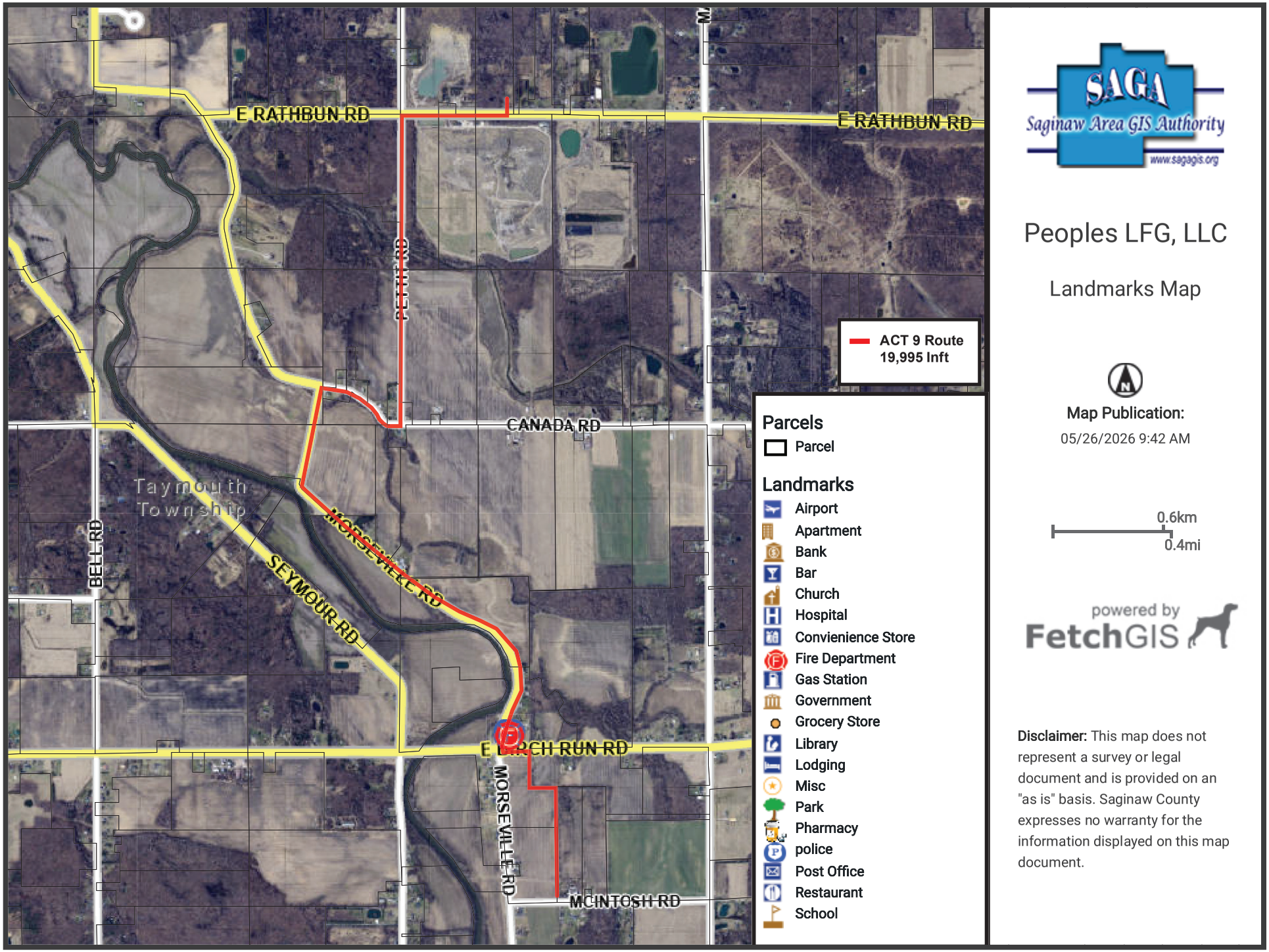
Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

ACT 9 Route
19,995 lnft

Figure 15

Landmark Map



SAGA
Saginaw Area GIS Authority
www.sagagis.org

Peoples LFG, LLC

Landmarks Map

Map Publication:
05/26/2026 9:42 AM

0.6km
0.4mi

powered by FetchGIS

Disclaimer: This map does not represent a survey or legal document and is provided on an "as is" basis. Saginaw County expresses no warranty for the information displayed on this map document.

APPENDIX A: STATE REGULATIONS – MICHIGAN ACT 9 OF 1929

DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS

PUBLIC SERVICE COMMISSION

GAS SAFETY

(By authority conferred on the public service commission by section 2 of 1969 PA 165, MCL 483.152, and section 231 of the Executive organization act of 1965, 1965 PA 380, MCL 16.331, and Executive Reorganization Order Nos. 1996-2, 2003-1, 2008-4, 2011-4, and 2015-3, MCL 445.2001, 445.2011, 445.2025, 445.2030, and 460.21)

PART 1. GENERAL PROVISIONS

R 460.20101 Applicability of rules.

Rule 101. (1) These rules apply to the design, fabrication, installation, inspection, testing, and safety aspects of the operation and maintenance of gas pipeline facilities used in the transportation of gas.

(2) These rules do not apply to either of the following:

(a) The onshore gathering of gas under either of the following conditions:

(i) Through a pipeline that operates at less than 0 psig.

(ii) Through a pipeline that is not a regulated onshore gathering line as determined by 49 C.F.R. § 192.8.

(b) Any pipeline system that transports only petroleum gas or petroleum gas and air mixtures under either of the following circumstances:

(i) The pipeline has fewer than 10 customers and no portion of the system is located in a public place.

(ii) The pipeline has only 1 customer.

(3) The work performed within the scope of these rules shall meet or exceed all of the safety standards in these rules.

History: 1998-2000 AACS; 2009 AACS; 2014 AACS.

R 460.20102 Definitions.

Rule 102. As used in these rules:

(a) "Commission" means the Michigan public service commission.

(b) "Corrosion" means the destruction or deterioration of a material, usually a metal, by an electrochemical process, due to a reaction with the material's environment.

(c) "Customer" means a person or company who purchases gas from a distributor for the person's or company's own use or for the use of a tenant, or both.

(d) "Hoop stress" means the stress in a pipe wall which acts circumferentially in a plane perpendicular to the longitudinal axis of the pipe and which is produced by the pressure of the fluid in the pipe.

(e) "Leak" means the unintentional escape of gas from a pipeline facility or a customer's facility.

(f) "Leakage survey" means a systematic inspection that is made to locate leaks in a gas pipeline.

(g) "Pressure" means gauge pressure, unless otherwise stated, expressed in pounds per square inch above atmospheric pressure and is abbreviated "psig."

(h) "Sour gas" means gas containing a concentration of hydrogen sulfide (H_2S) greater than or equal to 300 parts per million (ppm.).

(i) "System" means all pipeline facilities used by a particular operator in the transportation of gas, including all of the following:

(A) Line pipe.

(B) Valves.

(C) Other appurtenances connected to line pipe.

(D) Compressor units.

(E) Fabricated assemblies associated with compressor units.

(F) Metering.

(G) Customers' meters.

(H) Delivery stations.

(I) Fabricated assemblies in metering and delivery stations.

(j) "Vault" means an underground structure that may be entered and that is designed to contain piping and piping components, such as valves and pressure regulators. The terms "vault"and "pit" are used interchangeably in these rules.

History: 1998-2000 AACS.

R 460.20103 Adoption of documents by reference generally.

Rule 103. (1) Any documents or parts of documents adopted by reference in these rules are a part of these rules as though set out in full. When only a portion of a document is referenced, the remainder is not adopted in these rules.

(2) Copies of all adopted documents are available at the addresses provided in R 460.20602.

(3) The full titles for the publications adopted by reference in these rules are provided in R 460.20603 to R 460.20606. Numbers in parentheses indicate applicable editions of the publications. Earlier editions of documents listed or editions of documents formerly listed in the Michigan gas safety code (R 460.14001 to R 460.14999) or these rules may be used for materials and components manufactured, designed, or installed in accordance with the earlier editions or earlier documents at the time they were listed. The user shall refer to the appropriate previous version of the Michigan gas safety code or these rules for a listing of the earlier listed editions or documents.

(4) Standards and specifications cited in R 460.20603 to R 460.20606 may be supplemented by specific requirements elsewhere in these rules. Users of these rules are advised against attempting direct application of any of these standards without carefully observing the rule's reference to that standard.

History: 1998-2000 AACS.

R 460.20104 Rescission.

Rule 104. R 460.14001 to R 460.14999 of the Michigan Administrative Code, noted on page 1027 of the 1997 Annual Supplement to the 1979 Michigan Administrative Code and appearing on pages 630 to 642 of the 1986 Annual Supplement to the Code, pages 900 to 917, 919 to 921, and 923 to 925 of the 1991 Annual Supplement to the Code, and pages 1175 to 1199 of the 1995 Annual Supplement to the Code, are rescinded.

History: 1998-2000 AACS; 2022 AACS.

PART 2. SAFETY STANDARDS AND TESTING REQUIREMENTS

R 460.20201 Pipeline safety standards; adoption by reference.

Rule 201(1) Except for 49 C.F.R. §192.1, an operator shall ensure that a gas pipeline is in compliance with all of the minimum safety standards contained in 49 C.F.R. part 192 entitled “Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards,” which are adopted by reference in R 460.20606.

(2) An operator shall ensure that a pipeline that is subject to the standards specified in subrule (1) of this rule is also in compliance with all of the additional safety standards contained in R 460.20301 to R 460.20338.

(3) In addition to the requirements imposed by subrules (1) and (2) of this rule, an operator shall ensure that a pipeline which transports sour gas is also in compliance with the additional safety standards contained in R 460.20401 to R 460.20431.

History: 1998-2000 AACS; 2003 AACS; 2019 AACS.

R 460.20202 Drug and alcohol testing requirements.

Rule 202. (1) An operator shall meet the drug and alcohol testing requirements in 49 C.F.R. part 199 entitled "Drug and Alcohol Testing," which is adopted by reference in R 460.20606.

(2) An operator shall conduct the drug and alcohol testing required by subrule (1) of this rule according to the requirements of 49 C.F.R. part 199 and the procedures prescribed in 49 C.F.R. part 40 entitled "Procedures for Transportation Workplace Drug and Alcohol Testing Programs," which is adopted by reference in R 460.20606.

(3) Subrule (1) of this rule applies only to operators who operate facilities subject to the natural gas pipeline safety act of 1968, 49 U.S.C.§60101 et seq., as amended.

History: 1998-2000 AACS.

PART 3. ADDITIONAL MINIMUM SAFETY STANDARDS

R 460.20301 Scope.

Rule 301. (1) The rules contained in this part are additional requirements for the design, fabrication, installation, inspection, testing, and safety aspects of the operation and maintenance of gas pipeline facilities operated within the state of Michigan.

(2) Operators of pipeline facilities used in the transportation of gas that are under the jurisdiction of the commission shall meet all of the requirements of 49 C.F.R. §192, which is adopted by reference in R 460.20606, and all of the additional requirements in this part.

History: 1998-2000 AACS.

R 460.20302 Compressor station piping.

Rule 302. (1) An operator shall install and test gas piping, other than instrument, control, and sample piping, in accordance with these rules.

(2) An operator shall identify all emergency valves and controls by signs. An operator shall identify important gas pressure piping by signs or color coding to indicate its function.

(3) An operator shall ensure that fuel gas lines within a compressor station conform to both of the following provisions:

(a) Are provided with master shutoff valves located outside of a building.

(b) Are equipped with pressure limiting devices to prevent the maximum allowable operating pressure from being exceeded by more than 10%.

(4) An operator shall equip the air piping within a compressor station that is part of an air starter with a check valve in the starting air line near each engine to prevent backflow from the engine into the air piping system. An operator shall also place a similar check valve in the main air line on the immediate outlet side of the air tank or tanks. An operator shall install equipment for cooling the air and removing the moisture and entrained oil between the starting air compressor and the air storage tank.

History: 1998-2000 AACS; 2009 AACS.

R 460.20303 Vault and pit sealing, venting, and ventilation.

Rule 303. In addition to the requirements contained in 49 C.F.R.§192.187(a)(3), which is adopted by reference in R 460.20606, an operator shall ensure that the outside end of the ventilation ducts of an underground vault or closed top pit is equipped with a suitable weatherproof fitting or vent head designed to prevent foreign matter from entering or obstructing the duct.

History: 1998-2000 AACS.

R 460.20304 Welding procedures.

Rule 304. In addition to the requirements contained in 49 C.F.R. §192.225, which is adopted by reference in R 460.20606, an operator shall ensure that a welding procedure meets all of the following requirements:

(a) Is qualified under section IX of the ASME boiler and pressure vessel code, which is adopted

by reference in R 460.20604, or section 5, section 12, or appendix A of API standard 1104, which is adopted by reference in R 460.20603, whichever is appropriate to the function of the weld.

(b) Is qualified under appendix B of API standard 1104, which is adopted by reference in R 460.20603 for pipelines operating at greater than 60 psig.

(c) A copy of the welding procedure being followed is on the jobsite when welding is performed.

History: 1998-2000 AACS; 2009 AACS; 2014 AACS; 2019 AACS.

Editor's Note: An obvious error in R 460.20304 was corrected at the request of the promulgating agency, pursuant to Section 56 of 1969 PA 306, as amended by 2000 PA 262, MCL 24.256. The rule containing the error was published in Michigan Register, 2019 MR 1. The memorandum requesting the correction was published in Michigan Register, 2019 MR 1.

R 460.20305 Welder qualification records.

Rule 305. An operator shall establish and maintain a record of all qualified welders that indicates the date and results of tests. The record shall specifically include the welding procedure for which each welder has qualified. An operator shall make the record available for inspection at each jobsite.

History: 1998-2000 AACS.

R 460.20306 Nondestructive testing.

Rule 306. (1) In addition to the nondestructive testing required under 49 C.F.R. §192.243(d), which is adopted by reference in R 460.20606, an operator shall also ensure that 100% of each day’s field butt welds are nondestructively tested over their entire circumferences in the following locations:

(a) Regulating stations.

(b) Measuring stations.

(c) Compressor stations.

(2) If it is not practical to test 100% of each day's field butt welds as required by subrule (1) of this rule, then an operator shall nondestructively test at least 90% of each day's field butt welds selected at random at the locations specified in subrule (1) of this rule.

History: 1998-2000 AACS; 2010 AACS; 2019 AACS.

R 460.20307 Welding preheating.

Rule 307. In addition to the requirements contained in 49 C.F.R.§192.235, which is adopted by reference in R 460.20606, if preheating is required, then an operator shall monitor the preheat temperature to ensure that the required preheat temperature is reached before beginning, and is maintained during, the welding operation.

History: 1998-2000 AACS.

R 460.20308 Customer meters and regulators; location.

Rule 308. The requirements contained in 49 CFR 192.353, which is adopted by reference in R 460.20606, are superseded by all of the following provisions:

(a) An operator shall install a customer's meter and regulator outside the building, unless any of the following apply:

(i) The distribution system operates at 10 psig or less and an outside meter set assembly is not practical.

(ii) The building is a commercial building, industrial building, or apartment building and an outside meter set assembly is not practical.

(iii) The building is a row-type house or house where the proximity of adjoining buildings makes outside meter set assemblies impractical.

(b) A service line excluded under subdivision (a) of this rule must include an outside above grade riser, if practical.

(c) If an outside meter set assembly or an outside above grade riser is installed, then the

above grade piping must be designed to prevent an external force applied to the service line from being transferred to and damaging the inside piping.

(d) An operator shall install a meter and service regulator, whether inside or outside of a building, in a readily accessible location and shall protect the meter and regulator from corrosion and other damage, including but not limited to, vehicular damage if installed outside a building. An operator shall not install a meter in a bedroom, closet, bathroom, under a combustible stairway, or in an unventilated or inaccessible place.

(e) An operator shall ensure that a service regulator installed inside a building is located as near as practical to the point of service line entrance.

(f) An operator shall ensure that a meter installed inside a building is located in a ventilated place not less than 3 feet from a source of ignition or heat that might damage the meter.

(g) An operator shall ensure that the upstream regulator in a series is located outside of a building unless it is located in a separate metering or regulating building.

History: 1998-2000 AACS; 2019 AACS; 2022 AACS.

R 460.20309 Service lines; valve location.

Rule 309. (1) In addition to the requirements contained in 49 C.F.R.§192.365, which is adopted by reference in R 460.20606, an operator shall ensure that service lines are equipped with a valve located on the service line outside the building if any of the following provisions apply:

(a) The service line operates at a pressure of more than 10 psig.

(b) The service line is 2 inches or larger in diameter.

(c) The service line supplies any of the following:

(i) A hospital.

(ii) A church.

(iii) A theater.

(iv) A school.

(v) A building of public assemblage similar to the buildings listed in paragraphs (i) to (iv) of this subdivision.

(vi) A commercial or industrial building.

(vii) A dwelling that houses more than 4 families.

(2) An operator shall ensure that an outside valve required by subrule (1) of this rule is located aboveground in an accessible place, if feasible.If an aboveground location is not feasible, then the operator shall ensure that a curb valve or other remote valve is installed.

(3) If a curb valve is installed, then the operator shall establish a planned procedure which permits accurately locating the service line valve within a reasonable period of time when the service line valve is not plainly visible at the surface of the ground during all periods of the year.

History: 1998-2000 AACS; 2009 AACS.

R 460.20310 Galvanized or aluminum pipe prohibited for direct burial or submerged use.

Rule 310. (1) In addition to the requirements contained in 49 C.F.R.§192.461, which is adopted by reference in R 460.20606, an operator shall not utilize galvanized pipe for direct burial or submerged use.

(2) The requirements contained in 49 C.F.R. §192.455(e), which is adopted by reference in R 460.20606, are superseded by the requirement that an operator shall not utilize aluminum pipe for direct burial or submerged use.

History: 1998-2000 AACS; 2019 AACS.

R 460.20311 Test Requirements for pipelines operating below 100 psig.

Rule 311. The requirements contained in 49 CFR 192.509(b), which is adopted by reference in R 460.20606, are superseded by both of the following provisions:

(a) An operator shall ensure that all mains are to be pressured tested to at least 90 psig or 1 ½ times the proposed maximum allowable operating pressure, whichever is greater.

(b) An operator shall ensure that the test pressure is maintained at or above the test pressure requirement for the pipeline being tested for not less than 1 hour. However, the operator shall test a relatively short segment for not less than 30 minutes.

History: 1998-2000 AACS; 2022 AACS.

R 460.20312 Test requirements; service lines other than plastic.

Rule 312. The requirements contained in 49 C.F.R.§192.511(b) and (c), which are adopted by reference in R 460.20606 are superseded by the requirement that an operator shall test all service lines**,** other than plastic service lines, to a minimum pressure of 90 psig, but not less than 150% of the maximum allowable operating pressure, for not less than 10 minutes. Each segment of a steel service line stressed to 20% or more of specified minimum yield strength must still be tested in accordance with 49 C.F.R. § 192.507, which is adopted by reference in R 460.20606.

History: 1998-2000 AACS; 2019 AACS.

Editor's Note: An obvious error in R 460.20312 was corrected at the request of the promulgating agency, pursuant to Section 56 of 1969 PA 306, as amended by 2000 PA 262, MCL 24.256. The rule containing the error was published in Michigan Register, 2019 MR 1. The memorandum requesting the correction was published in Michigan Register, 2019 MR 1.

R 460.20313 Minimum test duration; plastic pipelines.

Rule 313. In addition to the requirements contained in 49 C.F.R.§192.513, which is adopted by reference in R 460.20606, an operator shall test plastic pipelines according to all the following:

(a) Except for plastic service lines, the test must be maintained at or above the pressure requirement for not less than one hour. However, an operator may test a relatively short segment for not less than 30 minutes.

(b) All plastic service lines must be pressure tested for not less than 10 minutes.

History: 1998-2000 AACS; 2019 AACS.

R 460.20314 Test records.

Rule 314. In addition to the requirements contained in 49 C.F.R.§192.517(a), which is adopted by reference in R 460.20606, an operator shall retain the following test record information:

(a) The proposed maximum allowable operating pressure of the pipeline.

(b) Except for distribution facilities, the existing class location of the area in which the pipeline will be installed.

(c) The date the test was performed.

History: 1998-2000 AACS; 2019 AACS.

R 460.20315 Leaks occurring during uprating; repairs and monitoring required.

Rule 315. (1) In addition to the requirements contained in 49 C.F.R. §192.553, which is adopted by reference in R 460.20606, if the new and higher maximum allowable operating pressure will be more than 10 psig, then an operator shall expose and repair and monitor a leak that is detected during the uprating operation.

(2) An operator shall file a complete copy of the written plan described in 49 C.F.R. §192.553(c), which is adopted by reference in R 460.20606, with the commission not less than 30 calendar days before commencement of a project.

History: 1998-2000 AACS; 2014 AACS.

R 460.20316 Leakage survey and repair requirement before uprating.

Rule 316. (1) In addition to the requirements contained in 49 C.F.R.§192.555(b)(2), which is adopted by reference in R 460.20606, an operator shall conduct a leakage survey and repair all leaks found before the operator begins uprating any segment of a steel pipeline to an operating pressure that will produce a hoop stress of 30% or more of the specified minimum yield strength for the pipeline.

(2) The provisions contained in 49 C.F.R. §192.557(b)(2), which is adopted by reference in R 460.20606, are superseded by the requirement that before an operator begins uprating any segment of a steel pipeline to an operating pressure that will produce a hoop stress of less than 30% of the specified minimum yield strength, a leakage survey must be conducted and all leaks found shall be repaired.

History: 1998-2000 AACS; 2019 AACS.

Editor's Note: An obvious error in R 460.20316 was corrected at the request of the promulgating agency, pursuant to Section 56 of 1969 PA 306, as amended by 2000 PA 262, MCL 24.256. The rule containing the error was published in Michigan Register, 2019 MR 1. The memorandum requesting the correction was published in Michigan Register, 2019 MR 1.

R 460.20317 Rescinded.

History: 1998-2000 AACS; 2019 AACS.

Editor's Note: An obvious error in R 460.20316 was corrected at the request of the promulgating agency, pursuant to Section 56 of 1969 PA 306, as amended by 2000 PA 262, MCL 24.256. The rule containing the error was published in Michigan Register, 2019 MR 1. The memorandum requesting the correction was published in Michigan Register, 2019 MR 1.

R 460.20318 Gas leak investigation; establishment of service; customer leak complaint records.

Rule 318. (1) An operator shall conduct an investigation of every gas leak report received as soon as possible. If the investigation reveals a hazardous situation, then the operator shall take immediate action to evacuate, repair, or isolate the facilities involved to reduce any danger to the public.

(2) A distribution utility shall not establish gas service to an applicant until the utility has made a leakage test, using gas at utilization pressure, to ensure that the applicant's fuel line is gastight and has made a determination that gas odor is detectible, where applicable. If fuel lines are not present upon completion of meter installation, the operator shall comply with all of the following:

(a) A valve shall be installed on the outlet piping of the meter. This valve shall be in the closed position.

(b) The valve shall be tagged with contact information of the distribution utility and notice that the fuel line installation must comply with applicable fuel piping codes.

(c) A mechanical device or fitting that will prevent the flow of gas shall be installed at the outlet piping.

(3) An operator shall keep records of all customer leak complaints and the disposition of the complaints.

History: 1998-2000 AACS; 2014 AACS.

R 460.20319 Filing of operation and maintenance manual with commission staff required.

Rule 319. In addition to the requirements contained in 49 CFR 192.605, which is adopted by reference in R 460.20606, an operator shall file the procedures, program, or operation and maintenance manual required by 49 CFR 192.12, 192.605, 192.805, 192.907, and 192.1005 with the commission staff in paper or electronic form. The operation and maintenance manual must include procedures that address both the federal rules and the rules contained in the gas safety standards of this state. An operator shall file a change in the operation and maintenance manual with the commission staff within 90 calendar days after the change is made. An operator shall identify the specific changes.

History: 1998-2000 AACS; 2014 AACS; 2019 AACS; 2026 MR 9, Eff. May 4, 2026.

R 460.20320 Rescinded.

History: 1998-2000 AACS; 2009 AACS.

R 460.20321 Rescinded.

History: 1998-2000 AACS; 2009 AACS.

R 460.20322 Maximum allowable operating pressure of pipeline containing cast-iron pipe.

Rule 322. The requirement contained in 49 CFR 192.621(a)(3), which is adopted by reference in R 460.20606, is superseded by the requirement that a person shall not operate any segment of a pipeline containing cast-iron pipe that has unreinforced bell and spigot joints at a pressure of more than 10 psig.

History: 1998-2000 AACS; 2022 AACS.

R 460.20323 Odorization of gas; records maintenance.

Rule 323. In addition to the requirements contained in 49 C.F.R.§192.625, which is adopted by reference in R 460.20606, an operator shall establish and maintain adequate records to establish compliance with the requirements of 49 C.F.R. §192.625, including the quantity of odorant used per million cubic feet of gas and sampling to determine the effectiveness of odorization.

History: 1998-2000 AACS.

R 460.20324 Fenced areas; alternate means of exit.

Rule 324. An operator shall ensure that a fence which may hamper or prevent the escape of persons from the vicinity of a meter or regulator station in an emergency has an alternate means of exit, such as a second gate, exit ladder, or platform.

History: 1998-2000 AACS.

R 460.20325 Transmission line patrolling.

Rule 325. In addition to the requirements contained in 49 C.F.R.§192.705, which is adopted by reference in R 460.20606, at intervals of not more than 6 weeks, but not less than 12 times each calendar year, an operator shall patrol all transmission lines that are operating at 40% or more of specified minimum yield strength to observe surface conditions on, and adjacent to, the transmission line right-of-way for indications of leaks, construction activity, and other factors affecting safety and operation.

History: 1998-2000 AACS.

R 460.20326 Transmission lines; permanent field repair of leaks.

Rule 326. (1) The requirements contained in 49 C.F.R. §192.717(b)(3), which is adopted by reference in R 460.20606, are superseded by the requirement that an operator shall not repair a transmission pipeline through the use of a welded patch.

(2) The requirements of 49 C.F.R. § 192.711(c) are superseded by the requirement that an operator shall not repair a leak through the use of a welded patch.

History: 1998-2000 AACS; 2009 AACS; 2019 AACS.

R 460.20327 Distribution system; leakage surveys and procedures.

Rule 327. In addition to the requirements contained in 49 C.F.R. §192.723, which is adopted by reference in R 460.20606, all of the following requirements apply:

(a) A gas leak located by a survey that, due to its location or relative magnitude, constitutes a hazard or potential hazard to the public or to buildings shall receive immediate corrective action. Immediate corrective action shall consist of an immediate effort to protect life and property and continuous remedial action thereafter until the condition is no longer hazardous.

(b) An operator shall schedule a gas leak which does not constitute an immediate hazard to the public or to buildings, but which requires scheduled repair within the operator's maintenance manual, for repair within 1 year.

(c) An operator shall ensure that a gas leak which is located by a survey, other than a leak covered by subdivision (a) or (b) of this rule, is subjected to regular surveillance at intervals not exceeding 15 months, but at least once each calendar year**.**

History: 1998-2000 AACS; 2014 AACS.

R 460.20328 Pressure-limiting and pressure-regulating stations; inspection and testing.

Rule 328. In addition to the requirements contained in 49 C.F.R.§192.739, which is adopted by reference in R 460.20606, an operator shall tag a pressure-limiting or pressure-relief device installed to provide overpressure protection to a transmission line or distribution main to indicate the maximum allowable operating pressure of the facilities being protected and the set pressure or shall make a record of the information available at each location.

History: 1998-2000 AACS.

R 460.20329 Valve maintenance; distribution systems.

Rule 329. In addition to the requirements contained in 49 CFR 192.747, which is adopted by reference in R 460.20606, an operator shall partially operate a valve

that may be necessary for the safe operation of a distribution system, other than plastic valves, at intervals of not more than 15 months, but at least each calendar year.

History: 1998-2000 AACS; 2022 AACS.

R 460.20330 Prevention of accidental ignition.

Rule 330. In addition to the requirements contained in 49 C.F.R.§192.751, which is adopted by reference in R 460.20606, before welding in or around a vault, pit, or other structure or area containing gas facilities, an operator shall make a thorough check to determine the possible presence of a combustible gas mixture. Welding shall begin only when safe conditions are indicated.

History: 1998-2000 AACS.

R 460.20331 Caulked bell and spigot joints.

Rule 331. The requirements contained in 49 C.F.R.§192.753(a), which is adopted by reference in R 460.20606, are superseded by the following:

(a) An operator shall seal a cast-iron, caulked bell and spigot joint subject to pressures of more than 10 psig with either of the following:

(i) A mechanical leak clamp.

(ii) A material or device that has all of the following characteristics:

(A) Does not reduce the flexibility of the joint.

(B) Permanently bonds, either chemically or mechanically, or both, with the bell and spigot metal surfaces or adjacent pipe metal surfaces.

(C) Seals and bonds in a manner that meets the strength, environmental, and chemical compatibility requirements of 49 C.F.R.§192.53 and 49 C.F.R. §192.143, which are adopted by reference in R 460.20606.

History: 1998-2000 AACS; 2019 AACS.

R 460.20332 Discontinuation of inactive service lines.

Rule 332. (1) In addition to complying with the requirements contained in 49 C.F.R. § 192.727, which is adopted by reference in R 460.20606, an operator shall, within 9 months after a service line becomes inactive, discontinue gas service for any inactive service line with components located inside a structure pursuant to the methods specified in either of the following regulations:

(i) In accordance with 49 C.F.R. § 192.727(d)(1) and (d)(2).

(ii) In accordance with 49 C.F.R. § 192.727(d)(3) by physically disconnecting the service line outside the building.

(2) As used in subrule (1) of this rule, “inactive service line” means a service line where there has been no customer of record for a continuous 24-month period and gas service to the premises has not been discontinued.

History: 2014 AACS; 2019 AACS.

R 460.20335 Master meter systems.

Rule 335. (1) The definition of “master meter system” contained in 49 C.F.R. §191.3, which is adopted by reference in R 460.20606, is superseded by the following:

(a) As used in these rules, “master meter system” means a distribution pipeline system that receives metered gas from an outside source and that is used for distributing gas within a definable area, including but not limited to, a mobile home park, vacation rental housing complex, apartment complex, college campus, or prison. The master meter system supplies the ultimate consumer of the gas whether the gas is purchased or supplied at no cost.

(b) As used in this rule, “distribution pipeline system” means a system of main and service lines including all parts of those physical facilities through which gas moves in transportation, including but not limited to, pipe, valves, and other appurtenance attached to pipe, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies. The distribution pipeline system ends at the outlet of the sub-meter, the outlet of the service regulator, or the building wall, whichever is furthest downstream.

(c) As used in this rule, “ultimate consumer” means a third-party end-user occupying an area containing distribution piping from the distribution pipeline system who routinely consumes gas from the system.

(d) As used in this rule, “sub-meter” means 1 of 2 or more meters for measuring different sections of gas supply that is located downstream from a master meter.

(2) An operator shall not supply gas to any new master meter system established on or after January 1, 2019 unless the commission has provided a waiver.

(3) The design, construction, inspection, and testing of additions to existing master meter systems are the responsibility of the operator with the direct costs paid by the owner, unless the commission has provided a waiver.

(4) Unless the commission has provided a waiver, for master meter systems that were established before January 1, 2019, an operator shall make efforts to negotiate an operations and maintenance agreement with the master meter system owner that ensures compliance with all applicable requirements of the gas safety standards for that system. The direct cost to the operator for services performed under this agreement, including an appropriate administrative overhead, may be charged to the owner of the master meter system. The monthly charge per service line must not exceed the residential meter charge or customer charge included in the operator’s tariffs on January 1, 2018. An operator shall apply for any necessary waivers under this subrule by January 1, 2020.

(5) Beginning March 15, 2019, all operators shall provide an annual report to the commission describing the location, type of facility served, number of services at each known master meter system in service at the end of the previous calendar year, and the names and contact information for all known master meter system

owners with whom the operator is unable to execute an operations and maintenance contract.

History: 2019 AACS.

R 460.20338 Farm taps.

Rule 338. (1) As used in this rule, “farm tap” means a distribution line directly connected to a production, gathering, or transmission pipeline not operated as part of a distribution system, or to a natural gas producing well, compressor station, or gas processing facility that delivers gas to a landowner or occupant other than the operator.

(2) Effective January 1, 2019, an operator shall not construct any new farm taps unless all of the following apply:

(a) The operator is a public utility as defined in section 1 of 1972 PA 299, MCL 460.111.

(b) The farm tap complies with all of the requirements of the gas safety standards. (c) The gas supplied meets the requirements for gas quality set forth in part 8 of the technical standards for gas service, R 460.2381 and R 460.2382.

(3) This rule does not apply to domestic wells. As used in this rule, “domestic well” means a well that produces gas and that is owned by the owner of the surface estate on which the well is located and that is used only to provide gas for the owner’s domestic use.

(4) Beginning March 15, 2019, all operators supplying gas to 1 or more farm taps shall provide an annual report on the status of farm taps connected to the operator’s facilities. The report must include the location of each farm tap connection, safety equipment installed on each connection, and the source of gas supply. This reporting requirement does not apply to farm taps connected to transmission pipelines operated by distribution utilities.

History: 2019 AACS.

Editor's Note: An obvious error in R 460.20338 was corrected at the request of the promulgating agency, pursuant to Section 56 of 1969 PA 306, as amended by 2000 PA 262, MCL 24.256. The rule containing the error was published in Michigan Register, 2019 MR 1. The memorandum requesting the correction was published in Michigan Register, 2019 MR 1.

PART 4. SOUR GAS PIPELINES

R 460.20401 Scope; conversion of existing pipeline to sour gas service.

Rule 401. (1) The rules in this part are additional requirements for the design, fabrication, installation, inspection, testing, and safety aspects of the operation and maintenance of gas pipeline facilities used in the transportation of sour gas.

(2) Operators of pipeline facilities used for the transportation of sour gas that are under the jurisdiction of the commission shall meet all of the requirements in parts 2, 3, and 5 of these rules, all of the requirements in 49 C.F.R. Part 192, which is adopted by reference in R 460.20606, and all of the additional requirements in this part.

(3) Existing pipeline facilities not designed and built for the transportation of sour gas shall not be converted for use in the transportation of sour gas without prior review and approval of the commission.

History: 1998-2000 AACS; 2003 AACS.

R 460.20402 Materials for pipe and components; requirements.

Rule 402. In addition to the requirements in 49 CFR 192.55, which is adopted by reference in R 460.20606, metallic materials for pipe and other components used to transport sour gas must meet the requirements in the National Association of Corrosion Engineers international standard NACE MR0175/ISO 15156, which are adopted by reference in R 460.20605.

History: 1998-2000 AACS; 2003 AACS; 2009 AACS; 2010 AACS; 2022 AACS.

R 460.20403 Steel pipe; design formula.

Rule 403. In addition to the requirements set forth in 49 C.F.R. §192.105 through §192.115, which are adopted by reference in R 460.20606, steel pipe designed for use in the transportation of sour gas shall use a design factor of 0.40.

History: 1998-2000 AACS; 2003 AACS.

R 460.20404 Purging of sour gas pipelines; plan; personnel.

Rule 404. In addition to satisfying the requirements set forth in 49 C.F.R. §192.629, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall comply with both of the following provisions:

(a) The purging of sour gas from a pipeline shall be accomplished by burning or by equivalent control of H_2S.

(b) All purging and blowing down of sour gas pipelines shall be done in accordance with a written plan. The plan shall include public and operator personnel safety and environmental protection considerations. Properly equipped personnel who are trained and familiar with the potential hazards of sour gas shall perform all purging and blowing down operations.

History: 1998-2000 AACS; 2003 AACS.

R 460.20405 Valves; qualification for sour gas.

Rule 405. An operator shall ensure that valves that are used for sour gas service are qualified for sour gas service in accordance with the National Association of Corrosion Engineers international standard MR-175/ISO 15156, which is adopted by reference in R 460.20605.

History: 1998-2000 AACS; 2003 AACS; 2009 AACS; 2010 AACS; 2022 AACS.

R 460.20406 Compressor station; emergency shutdown.

Rule 406. In addition to the requirements set forth in 49 C.F.R.§192.167(a)(2), which is adopted by reference in R 460.20606, if there is an emergency shutdown, all gas released from sour gas pipeline facilities shall be flared in a manner that minimizes the danger to the general public.

History: 2003 AACS.

R 460.20407 Sectionalizing block valves.

Rule 407. In addition to the requirements in 49 C.F.R. §192.179, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall comply with all of the following requirements for any portion of the pipeline that contains more than 10 pounds of H2S per mile, with the weight calculated according to the formula:

$$W=9.318\times10^{-8}\frac{PxVxMxH}{T}, \text{ where:}$$

W=Weight of H2S in pounds per mile of pipe,
P=Absolute pressure in pounds per square inch,
V=Volume of one mile of pipe in cubic feet,
M=Molecular weight of the gas in grams per mole,
H= Quantity of H2S in the gas in parts per million,
T=Temperature in degrees Rankine.

(a) Sectionalizing block valves must be installed and located so that each point on the pipeline is within 3 miles of a sectionalizing block valve with a block valve located at each end of the pipeline.

(b) A pipeline must incorporate block valve automation so that block valves will automatically close upon the registering of low pressure readings. The system must be designed to operate even in the event of a power failure or malfunction of electronic devices and must be designed to fail in a closed position.

(c) A pipeline must incorporate a supervisory control and data acquisitions (SCADA) system that complies with all of the following provisions:

(i) Is monitored by the operator to ensure appropriate response to emergencies.

(ii) Is programmed to automatically close block valves based on operating data gathered at each metering site and at each automated block valve.

(iii) Automatically closes the upstream and downstream sectionalizing block valves surrounding any sectionalizing block valve that is in an alarm condition.

(iv) Allows the operator monitoring the SCADA system to close, but not open, any or all of the block valves and metering points.

(d) H2S sensors must be located at all sectionalizing block valve sites. The sensors must provide a warning to the SCADA system at H2S levels of 10 ppm and shall close the block valve at H2S levels of 30 ppm.

(e) Control valves must be installed at appropriate locations at well sites or laterals to automatically shut off the flow of gas into the pipeline in the event of a line break or over pressure conditions.

History: 2003 AACS; 2009 AACS; 2010 AACS; 2019 AACS.

R 460.20408 Qualification of welding procedures.

Rule 408. In addition to the requirements 49 CFR 192.225, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall use welding procedures that conform to the welding provisions of the National Association of Corrosion Engineers international standard NACE MR0175/ISO 15156, which is adopted by reference in R 460.20605.

History: 2003 AACS; 2009 AACS; 2010 AACS; 2022 AACS.

R 460.20409 Inspection and testing of welds.

Rule 409. In addition to the requirements set forth in 49 C.F.R.§192.241(b), which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall engage in nondestructive testing of 100% of all girth butt welds. Nondestructive testing of welds shall be performed by any process that clearly indicates all defects in the welds.

History: 2003 AACS; 2019 AACS.

R 460.20410 Threaded joints.

Rule 410. In addition to the requirements set forth in 49 C.F.R.§192.273, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall not use threaded joints to join any sections or other components of a buried pipeline.

History: 2003 AACS.

R 460.20411 Repair of steel pipe.

Rule 411. In addition to the requirements set forth in 49 C.F.R.§192.309, which is adopted by reference in R 460.20606, an operator of pipeline facilities

used in the transportation of sour gas shall remove any imperfection or damage discovered during construction that impairs the serviceability of a length of steel pipe by cutting out the damaged portion of the pipe as a cylinder and replacing it with an undamaged piece of pipe which meets or exceeds the specifications of the original pipe.

History: 2003 AACS.

R 460.20412 Strength test requirements.

Rule 412. In addition to the requirements set forth in 49 C.F.R.§192.505, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall pressure test in place all sour gas pipelines to not less than 2 times their maximum allowable operating pressure (MAOP) for not less than 8 hours.

History: 2003 AACS.

R 460.20413 Underground clearances.

Rule 413. In addition to the requirements set forth in 49 C.F.R.§192.325, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall, if practical, install the pipeline with not less than 48 inches of clearance from all other underground structures not associated with the pipeline. If this clearance cannot be practicably attained, the pipeline shall be protected from damage that might result due to its proximity to the other structure or structures.

History: 2003 AACS.

R 460.20414 Cover.

Rule 414. In addition to the requirements set forth in 49 C.F.R.§192.327, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall comply with all of the following provisions:

(a) Pipelines shall be buried, except where special conditions of usage necessitate above ground construction.

(b) A buried pipeline shall be installed with a minimum cover of 48 inches.

(c) When practical, a warning tape shall be installed not less than 12 inches directly above the pipeline, but not more than 36 inches below grade, for the purpose of warning excavators of the existence of the pipeline and the hazardous nature of sour gas.

History: 2003 AACS.

R 460.20415 Pipeline location.

Rule 415. In addition to the requirements set forth in 49 C.F.R.§192.327, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall comply with both of the following provisions:

(a) A pipeline shall be routed to avoid class 3 and 4 locations, if practical.

(b) Use of road rights-of-way shall be avoided, if practical.

History: 2003 AACS.

R 460.20416 Internal corrosion control; generally.

Rule 416. In addition to the requirements set forth in 49 C.F.R.§192.475, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall not transport by pipeline any gas containing H_2S, unless the corrosive effect of the H_2S has been investigated and steps have been taken to minimize internal corrosion for the pipeline facilities.

History: 2003 AACS.

R 460.20417 Internal corrosion control; monitoring.

Rule 417. In addition to the requirements set forth in 49 C.F.R.§192.477, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall use coupons or other suitable means to determine the effectiveness of the steps taken to minimize internal corrosion. Initially, each coupon or other means of monitoring internal corrosion shall be checked 4 times each calendar year, but with intervals of not more than 3 1/2 months until a monitoring schedule can be developed that will adequately identify internal corrosion. The monitoring schedule shall not exceed the schedule set forth in 49 C.F.R. §192.477.

History: 2003 AACS.

R 460.20418 Remedial measures.

Rule 418. In addition to the requirements set forth in 49 C.F.R.§192.485, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall remove from service and replace every segment of a pipeline that has general corrosion resulting in a remaining wall thickness less than that required for the MAOP of the pipeline.

History: 2003 AACS.

R 460.20419 Sour gas pipeline operating and maintenance manual; contents.

Rule 419. The manual required by 49 C.F.R. §192.605, which is adopted by reference in R 460.20606 and which shall be filed with the commission and updated as specified in R 460.20319, shall address all hazards inherent with the transportation of sour gas and shall contain plans and procedures to minimize the health risk to the operator's employees and the general public during normal operating conditions.

History: 2003 AACS; 2014 AACS.

R 460.20420 Safety procedures for abnormal operating conditions.

Rule 420. The manual required by 49 C.F.R. §192.605, which is adopted by reference in R 460.20606 and which shall be filed with the commission and updated as specified in R 460.20319, shall also address the hazards inherent with the transportation of sour gas and shall include plans and procedures to minimize the health risk to the operator's employees and the general public during abnormal operating conditions.

History: 2003 AACS; 2014 AACS.

R 460.20421 Damage prevention program.

Rule 421. In addition to the requirements set forth in 49 C.F.R.§192.614, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall comply with both of the following provisions:

(a) When notified by the "One-Call" system or by other means of possible excavation activity in the pipeline right-of-way, the pipeline operator shall monitor the excavation activity using on-site personnel.

(b) When responding to requests to mark the pipeline location, the operator shall notify the excavator of the hazards inherent in the release of sour gas.

History: 2003 AACS.

R 460.20422 Emergency procedures.

Rule 422. The plan required by 49 C.F.R. §192.615, which is adopted by reference in R 460.20606, shall address the hazards inherent with the transportation of sour gas and shall include plans and procedures to minimize the health risk to the operator's employees and the general public in the event of an emergency.

History: 2003 AACS.

R 460.20423 Sour gas education programs.

Rule 423. In addition to the requirements set forth in 49 C.F.R.§192.616, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall establish continuing education programs that enable the public, appropriate government organizations, and persons engaged in excavation-related activities to accomplish both of the following:

(a) Recognize a sour gas pipeline emergency for the purpose of reporting it to the operator or other appropriate public officials.

(b) Take appropriate action in the event of an unplanned release of sour gas.

History: 2003 AACS.

R 460.20424 Telephonic notice to the commission of sour gas leak.

Rule 424. In addition to each of the reporting requirements set forth in R 460.20503, an operator of pipeline facilities used in the transportation of sour gas shall, at the earliest practicable moment, but not more than 8 hours following the release of any quantity of sour gas that has the potential to harm the public, give telephonic notice to the commission staff of the release.

History: 2003 AACS.

R 460.20425 Sour gas pipeline patrolling.

Rule 425. In addition to the requirements set forth in 49 C.F.R.§192.705, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall, at intervals of not more than 6 weeks, but not less than 12 times each calendar year, patrol all pipelines that are used in the transportation of sour gas.

History: 2003 AACS; 2009 AACS.

R 460.20426 Leakage surveys.

Rule 426. In addition to the requirements set forth in 49 C.F.R.§192.706, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall conduct leak surveys of those pipeline facilities using leak detection equipment at intervals of not more than 7 1/2 months, but not less than 2 times each calendar year, for all areas falling within the class 1 and class 2 location designations set forth in 49 C.F.R. §192.5, which is adopted by reference in R 460.20606.

History: 2003 AACS.

R 460.20427 Line markers for sour gas pipelines.

Rule 427. In addition to the requirements set forth in 49 C.F.R.§192.707, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall comply with both of the following provisions:

(a) Line markers shall be placed and maintained as close as practical over a sour gas pipeline and shall clearly identify the pipeline as a carrier of sour gas.

(b) Where practical, at least 1 line marker shall be visible from any location on the sour gas pipeline.

History: 2003 AACS.

R 460.20428 Prohibition on temporary repairs.

Rule 428. (1) In addition to the requirements set forth in 49 C.F.R.§192.711, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall comply with all of the following provisions:

(a) Temporary repairs are not allowed on pipeline facilities used in the transportation of sour gas.

(b) Sour gas pipeline facilities in need of repair shall be removed from service until permanent repairs can be made.

(2) This rule does not prohibit emergency repairs solely designed to protect the operator's employees and the public from a release of sour gas.

History: 2003 AACS.

R 460.20429 Permanent field repair of leaks.

Rule 429. In addition to the requirements set forth in 49 C.F.R.§192.717, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall perform a permanent field repair of a leak by cutting out a cylindrical piece of pipe and replacing it with pipe of similar or greater design strength which meets the design criteria for facilities used in the transportation of sour gas.

History: 2003 AACS.

R 460.20430 Inspection of pressure limiting and pressure regulating stations.

Rule 430. In addition to the requirements set forth in 49 C.F.R.§192.739, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall inspect all pressure limiting and

pressure regulating devices at intervals of not more than 7 ½ months, but not less than twice each calendar year.

History: 2003 AACS; 2009 AACS.

R 460.20431 Valve maintenance; sour gas pipelines.

Rule 431. In addition to the requirements set forth in 49 C.F.R.§192.745, which is adopted by reference in R 460.20606, an operator of pipeline facilities used in the transportation of sour gas shall inspect and partially operate each pipeline valve that might be required during an emergency at intervals of not more than 7 1/2 months, but not less than twice each calendar year.

History: 2003 AACS.

PART 5. RECORDS AND REPORTS

R 460.20501 Records.

Rule 501. (1) An operator shall maintain the information generated by any recordkeeping requirement in these rules within the state at the operating headquarters office of each service area and shall make the information available to the commission and its staff for inspection and copying upon request.

(2) An operator shall maintain all of the following additional records:

(a) Maps and records showing the locations of pipelines and service lines, including lines that have been abandoned but not removed.

(b) An up-to-date schematic drawing of station piping, which must be available at each aboveground pressure-regulating station containing buried station components.

(3) In addition to the requirements contained in 49 CFR 192.603(b), which is adopted by reference in R 460.20606, an operator shall establish and maintain records, make reports, and record such information as may be reasonably required to demonstrate that the operator has acted or is acting in compliance with these rules and 49 CFR part 192. The operator shall maintain these records and reports for the time periods prescribed in 49 CFR Part 192; for a minimum of 2 inspection cycles, if applicable; or for a minimum of 5 years, whichever is longer.

(4) The specific record retention requirements for each rule or subrule, if required, are listed in Table 1, and are as follows:

TABLE 1
GAS SAFETY RECORD RETENTION SCHEDULES

Rule	Record Required	Required Retention Time	Additional Instructions

PART 1: GENERAL PROVISIONS			
460.20101 (1)	No	N/A	None
460.20101 (2)	No	N/A	None
460.20101 (3)	No	N/A	None
460.20102 (a)	No	N/A	None
460.20102 (b)	No	N/A	None
460.20102 (c)	No	N/A	None
460.20102 (d)	No	N/A	None
460.20102 (e)	No	N/A	None
460.20102 (f)	No	N/A	None
460.20102 (g)	No	N/A	None
460.20102 (h)	No	N/A	None
460.20102 (i)	No	N/A	None
460.20102 (j)	No	N/A	None
460.20103 (1)	No	N/A	None
460.20103 (2)	No	N/A	None
460.20103 (3)	No	N/A	None
460.20103 (4)	No	N/A	None
460.20104	No	N/A	None
PART 2: SAFETY STANDARDS AND TESTING REQUIREMENTS			
460.20201 (1)	No	N/A	None
460.20201 (2)	No	N/A	None
460.20201 (3)	No	N/A	None
460.20202 (1)	No	N/A	None
460.20202 (2)	No	N/A	None
460.20202 (3)	No	N/A	None
PART 3: ADDITIONAL MINIMUM SAFETY STANDARDS			
460.20301 (1)	No	N/A	None
460.20301 (2)	No	N/A	None
460.20302 (1)	No	N/A	None
460.20302 (2)	No	N/A	None
460.20302 (3)	No	N/A	None
460.20302 (4)	No	N/A	None
460.20303	No	N/A	None
460.20304 (a)	Yes	5 year minimum (See additional instructions.)	Consideration shall be given by the operators to maintain these records for the life of the pipeline.
460.20304 (b)	Yes	5 year minimum (See additional instructions.)	Consideration shall be given by the operators to maintain these records for the life of the pipeline.
460.20304 (c)	No	N/A	None

460.20305	Yes	5 year minimum (See additional instructions.)	Operators shall maintain records demonstrating that welders welding pursuant to 49 CFR 192.229(a) have maintained their qualification back to their last destructive test, if longer than 5 years.
460.20306 (1)	Yes	Life of pipeline	None
460.20306 (2)	Yes	Life of pipeline	None
460.20307	No	N/A	None
460.20308 (a)	No	N/A	None
460.20308 (b)	No	N/A	None
460.20308 (c)	No	N/A	None
460.20308 (d)	No	N/A	None
460.20308 (e)	No	N/A	None
460.20308 (f)	No	N/A	None
460.20308 (g)	No	N/A	None
460.20309 (1)	No	N/A	None
460.20309 (2)	No	N/A	None
460.20309 (3)	No	N/A	None
460.20310 (1)	No	N/A	None
460.20310 (2)	No	N/A	None
460.20311 (a)	Yes	5 year minimum	None
460.20311 (b)	Yes	5 year minimum	None
460.20311 (c)	Yes	5 year minimum	None
460.20311 (d)	Yes	5 year minimum	None
460.20312	Yes	5 year minimum (See additional instructions.)	Except that each segment of a steel service line stressed to 20% or more of specified minimum yield strength must be tested pursuant to 49 CFR 192.507. This record must be retained for the life of the facility (49 CFR 192.517(a)).
460.20313 (a)	Yes	5 year minimum	None
460.20313 (b)	Yes	5 year minimum	None
460.20314 (a)	Yes	Life of pipeline	None
460.20314 (b)	Yes	Life of pipeline	None
460.20314 (c)	Yes	Life of pipeline	None
460.20315 (1)	Yes	Life of pipeline	None
460.20315 (2)	Yes	Life of pipeline	None
460.20316 (1)	Yes	Life of pipeline	None
460.20316 (2)	Yes	Life of pipeline	None
460.20317		RESCINDED	
460.20318 (1)	Yes	5 year minimum	None

460.20318 (2)	Yes	5 year minimum	None
460.20318 (3)	Yes	5 year minimum	None
460.20319	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain the most current submission of this record to the commission.
460.20320		RESCINDED	
460.20321		RESCINDED	
460.20322	No	N/A	None
460.20323	Yes	5 year minimum	None
460.20324	No	N/A	None
460.20325	Yes	5 year minimum	None
460.20326 (1)	No	N/A	None
460.20326 (2)	No	N/A	None
460.20327 (a)	Yes	5 year minimum	None
460.20327 (b)	Yes	5 year minimum	None
460.20327 (c)	Yes	5 year minimum	None
460.20328	No	N/A	None
460.20329	Yes	5 year minimum	None
460.20330	No	N/A	None
460.20331 (a)	Yes	Life of pipeline	None
460.20332 (1)	Yes	5 year minimum	None
460.20332 (2)	Yes	5 year minimum	None
460.20335 (1)	No	N/A	None
460.20335 (2)	No	N/A	None
460.20335 (3)	No	N/A	None
460.20335 (4)	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain the most current submission of this record to the commission.
460.20335 (5)	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain the most current submission of this record to the commission.
460.20338 (1)	No	N/A	None
460.20338 (2)	No	N/A	None
460.20338 (3)	No	N/A	None
460.20338 (4)	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain the most current submission of this record to the commission.
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460.20401 (1)	No	N/A	None
460.20401 (2)	No	N/A	None

460.20401 (3)	Yes	Life of pipeline	None
460.20402	No	N/A	None
460.20403	Yes	Life of pipeline	None
460.20404 (a)	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain this record for the duration of the work requiring the procedure.
460.20404 (b)	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain this record for the duration of the work requiring the procedure.
460.20405	No	N/A	None
460.20406	No	N/A	None
460.20407 (a)	No	N/A	None
460.20407 (b)	No	N/A	None
460.20407 (c)	No	N/A	None
460.20407 (d)	No	N/A	None
460.20407 (e)	No	N/A	None
460.20408	Yes	5 year minimum (See additional instructions.)	Consideration shall be given by the operators to maintain these records for the life of the pipeline.
460.20409	Yes	Life of pipeline	None
460.20410	No	N/A	None
460.20411	No	N/A	None
460.20412	Yes	Life of pipeline	None
460.20413	No	N/A	None
460.20414 (a)	No	N/A	None
460.20414 (b)	No	N/A	None
460.20414 (c)	No	N/A	None
460.20415 (a)	No	N/A	None
460.20415 (b)	No	N/A	None
460.20416	Yes	Life of pipeline	None
460.20417	Yes	5 year minimum	None
460.20418	Yes	5 year minimum (See additional instructions.)	For transmission lines, repair records must be maintained pursuant to 49 CFR 192.709.
460.20419	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain the most current submission of this record to the commission.
460.20420	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain the most current submission of this record to the commission.

460.20421 (a)	Yes	5 year minimum	None
460.20421 (b)	Yes	5 year minimum	None
460.20422	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain the most current submission of this record to the commission.
460.20423 (a)	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain the most current submission of this record to the commission.
460.20423 (b)	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain the most current submission of this record to the commission.
460.20424	Yes	5 year minimum	None
460.20425	Yes	5 year minimum	None
460.20426	Yes	5 year minimum	None
460.20427 (a)	No	N/A	None
460.20427 (b)	No	N/A	None
460.20428 (1)	Yes	5 year minimum (See additional instructions.)	For transmission lines, repair records must be maintained pursuant to 49 CFR 192.709.
460.20428 (2)	Yes	5 year minimum (See additional instructions.)	For transmission lines, repair records must be maintained pursuant to 49 CFR 192.709.
460.20429	Yes	5 year minimum (See additional instructions.)	For transmission lines, repair records must be maintained pursuant to 49 CFR 192.709.
460.20430	Yes	5 year minimum	None
460.20431	Yes	5 year minimum	None
PART 5: RECORDS AND REPORTS			
460.20501 (1)	No	N/A	None
460.20501 (2)(a)	Yes	Life of pipeline (See additional instructions.)	This record must be maintained for pipelines that are abandoned and not removed.
460.20501 (2)(b)	No	N/A	None
460.20501 (3)	No	N/A (See additional instructions)	Requires an operator to maintain records as may be reasonably required to demonstrate compliance with these rules and 49 CFR part 192. Records shall be maintained for a minimum of 2 inspection cycles or 5 years, whichever is longer; or as otherwise directed on this table.

460.20502 (1)	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain this record for the duration of the project.
460.20502 (2)	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain this record for the duration of the project.
460.20502 (3)	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain this record for the duration of the project.
460.20502 (4)	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain this record for the duration of the project.
460.20502 (5)	No	N/A	None
460.20502 (6)	No	N/A	None
460.20503 (1)	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain this record for the duration of the incident investigation.
460.20503 (2)	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain this record for the duration of the incident investigation.
460.20503 (3)	Yes	5 year minimum	None
460.20504 (1)	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain the most current submission of this record to the commission.
460.20504 (2)	No	N/A (See additional instructions.)	Consideration shall be given by the operators to maintain the most current submission of this record to the commission.
PART 6: ADOPTION OF STANDARDS			
460.20601 (1)	No	N/A	None
460.20601 (2)	No	N/A	None
460.20602 (a)	No	N/A	None
460.20602 (b)	No	N/A	None
460.20602 (c)	No	N/A	None
460.20602 (d)	No	N/A	None
460.20603	No	N/A	None
460.20604	No	N/A	None
460.20605	No	N/A	None

460.20606 (1)	No	N/A	None
460.20606 (2)	No	N/A	None

History: 1998-2000 AACS; 2019 AACS; 2022 AACS.

R 460.20502 Construction filings and reports.

Rule 502. (1) In addition to the requirements contained in 49 C.F.R. § 191.22, which is adopted by reference in R 460.20606, an operator or other person proposing to construct a gas pipeline or gas pipeline facility shall notify the commission staff not less than 60 days before any of the following begins:

(a) Construction or any planned rehabilitation, replacement, modification, upgrade, uprate, or update of a facility, other than a section of line pipe, that costs $1 million or more.

(b) Construction of any of the following gas facilities connected to a transmission pipeline system:

(i) Metering station.

(ii) Regulating station.

(iii) Treatment plant.

(iv) Production plant.

(v) Compressor unit.

(c) Construction of a gas transmission pipeline wherein the maximum allowable operating pressure will result in a hoop stress of 30% or more of the specified minimum yield strength.

(d) Construction of 1 or more miles of contiguous new or replacement pipeline, excluding the length associated with service lines.

(2) As part of the notification required under subrule (1)(a) to (c) of this rule, an operator or other person proposing to construct a gas pipeline or gas pipeline facility shall file all of the following before construction begins:

(a) A facility schematic or map showing the proposed route of the line on a scale not less than 3/8 of an inch to 1 mile.

(b) Engineering specifications covering design, construction, materials, and testing and operating pressures.

(c) Certification that the facilities will be in compliance with these rules.

(3) As part of the notification required under subrule (1)(d) of these rules, an operator or other person proposing to construct a gas pipeline shall comply with the requirements in subrule (2) of these rules upon request.

(4) An application filed under 1929 PA 9, MCL 483.101 to 483.120, 1929 PA 69, MCL 460.501 to 460.506, 1923 PA 238, MCL 486.251 to MCL 486.255, or pursuant to a commission order meets the requirements of subrules (1) and (2) of this rule.

(5) Except for distribution facilities, within 60 days following the completion of construction and testing of facilities covered by subrules (1), (2), and (3) of this rule, an operator shall file a report with the commission containing the information required under 49 C.F.R. § 192.517, adopted by reference in R 460.20606 of these rules, and R 460.20314, and a route map of the as-built pipeline.

(6) If notification under subrule (1) of this rule is not possible due to an emergency, an operator shall notify the commission staff as soon as feasible.

History: 1998-2000 AACS; 2003 AACS; 2010 AACS; 2019 AACS.

Editor's Note: An obvious error in R 460.20502 was corrected at the request of the promulgating agency, pursuant to Section 56 of 1969 PA 306, as amended by 2000 PA 262, MCL 24.256. The rule containing the error was published in Michigan Register, 2019 MR 1. The memorandum requesting the correction was published in Michigan Register, 2019 MR 1.

R 460.20503 Reports of incidents; telephonic notice to the commission staff.

Rule 503. (1) At the earliest practicable moment following discovery, an operator shall notify the commission staff of the following situations:

(a) An incident that is reportable pursuant to 49 CFR 191.5, which is adopted by reference in R 460.20606.

(b) An event resulting in estimated property damage of $25,000.00 or more including loss to the operator and others, or both, but excluding the cost of gas lost. As used in this subdivision, an “event” means on or relating to an operator’s facilities that may or may not involve a release of gas.

(c) An event resulting in the loss of service to more than 100 customers.

(d) An event involving a customer's gas facility that results in a fatality or an explosion causing structural damage.

(e) An event resulting in an unintentional release of gas estimated by the operator to be 1 million cubic feet or more or an unintentional activation of an emergency shutdown system of a portion of a compressor station involving a release of gas.

(f) An event that causes the pressure of a portion of a pipeline system to rise above its maximum allowable operating pressure plus the build-up allowed for operation of pressure limiting or control devices.

(g) An event that receives or is likely to receive extensive news coverage or is significant in the judgment of the operator, even though it did not meet the criteria of subdivision (a), (b), (c), (d), (e) or (f) of this subrule. This subdivision is not subject to the penalty provisions of section 11 of 1969 PA 165, MCL 483.161.

(2) If additional information is received by the operator after the initial report that indicates a different cause, more serious injury, or more serious property damage than was initially reported, then the operator shall make a supplemental telephone report to the commission staff as soon as practicable.

(3) When requested by the commission staff, an operator shall supplement a report made in accordance with subrule (1) of this rule within a reasonable time, with a written report giving full details, such as the cause of the incident or occurrence, the extent of injuries or damage, and the steps taken, if any, to prevent a recurrence of the incident or occurrence.

History: 1998-2000 AACS; 2014 AACS; 2019 AACS; 2022 AACS; 2026 MR 9, Eff. May 4, 2026.

R 460.20504 Reports.

Rule 504. (1) An operator shall concurrently submit a written report that is required to be filed with any federal agency by 49 CFR part 191, which is adopted by reference in R 460.20606, to the commission at P.O. Box 30221, Lansing, Michigan 48909-0221 or as directed by the commission staff.

(2) An operator required to submit an annual report in accordance with 49 CFR 191.11 and 49 CFR 191.17, which are adopted by reference in R 460.20606 of these rules, shall also submit a supplemental report to the commission staff. In the supplemental report, the operator shall subdivide the information in the reports required under 49 CFR 191.11 and 49 CFR 191.17 into specific regions identified by the commission staff. The staff shall identify and communicate these regions to the operator by the end of the calendar year for which the reports are being submitted. As used in this rule, "regions" means geographical, operational, or functional areas of the operator's system. These supplemental reports are to be submitted no later than the dates required in 49 CFR 191.11 and 49 CFR 191.17 and in a similar format.

History: 1998-2000 AACS; 2019 AACS; 2022 AACS.

PART 6. ADOPTION OF STANDARDS

R 460.20601 Adoption by reference.

Rule 601. (1) The publications listed in R 460.20603 to R 460.20606 are adopted by reference and are a part of these rules, except where they are inconsistent with these rules. Publications identified as published by a specific organization are available from the organization at the addresses specified in R 460.20602. The public service commission also has copies of the publications available for inspection and distribution at cost at its offices located 7109 W. Saginaw Hwy., Lansing, Michigan 48917-1120. The mailing address is Michigan Public Service Commission, P.O. Box 30221, Lansing, Michigan 48909-0221.

(2) The numbers in parentheses following the publications adopted by reference indicate the applicable editions.

History: 1998-2000 AACS; 2003 AACS; 2019 AACS.

R 460.20602 Names, addresses, and phone numbers of organizations.

Rule 602. The names, addresses, and phone numbers of organizations that sponsor or publish documents that have been adopted by reference in these rules are as follows:

(a) American Petroleum Institute (API), 200 Massachusetts Avenue, Washington, D.C. 20001-5571, (Phone number: 202-682-8000).

(b) American Society of Mechanical Engineers (ASME), Two Park Avenue, New York, New York 10016-5990, (Phone number: 800-843-2763), or contact its

publishing division, 22 Law Drive, P.O. Box 2900, Fairfield, New Jersey 07007, (Phone number: 973-882-1167).

(c) National Association of Corrosion Engineers International (NACE), 15385 Park Ten Place, Houston, Texas 77084, (Phone number: 281-228-6200) or (Phone number: 800-797-6223).

(d) U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA), East Building, 2nd Floor, 1200 New Jersey Avenue, SE, Washington, D.C. 20590, (Phone number: 202-366-0656) or (Phone number: 800-467-4922). To order a standard published in the Code of Federal Regulations (CFR), contact the Government Publishing Office, Superintendent of Documents, Attention: New Orders, P.O. Box 371954, Pittsburgh, Pennsylvania 15250-7954, (202-512-1803), or visit the website at http://bookstore.gpo.gov.

History: 1998-2000 AACS; 2003 AACS; 2009 AACS; 2010 AACS; 2019 AACS; 2022 AACS.

R 460.20603 American petroleum institute standard; adoption by reference.

Rule 603. The following American Petroleum Institute standard is adopted by reference in these rules and is available at the price listed:

API standard 1104 titled "Welding of Pipelines and Related Facilities," (20th edition, October 2005, including errata 1 (2007) and errata 2 (2008)), at a cost as of the time of adoption of these rules of $304.00. Registered and authorized representatives of regulated pipeline operators may also view this edition of API standard 1104 without charge on the API website at www.api.org.

History: 1998-2000 AACS; 2003 AACS; 2009 AACS; 2010 AACS; 2014 AACS; 2019 AACS; 2022 AACS.

R 460.20604 American society of mechanical engineers standard; adoption by reference.

Rule 604. The following American society of mechanical engineers standard is adopted by reference in these rules and is available at the price listed:

ASME boiler and pressure vessel code, section IX, titled "Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators" (2007 edition, July 1, 2007), at a cost as of the time of adoption of these rules of $495.00.

History: 1998-2000 AACS; 2003 AACS; 2009 AACS; 2014 AACS; 2019 AACS.

R 460.20605 National association of corrosion engineers international standard; adoption by reference.

Rule 605. The following national association of corrosion engineers international standard is adopted by reference in these rules and is available at the price listed:

NACE MR0175/ISO 15156, 2015, titled “Petroleum and natural gas industries –Materials for use in H2S-containing environments in oil and gas production” at a cost as of the time of adoption of these rules of $255.00.

History: 1998-2000 AACS; 2003 AACS; 2009 AACS; 2010 AACS; 2014 AACS; 2019 AACS.

R 460.20606 Pipeline and hazardous materials safety administration standards; adoption by reference.

Rule 606. (1) The following pipeline and hazardous materials safety administration standard is adopted by reference in these rules and is available from the U.S. Government Publishing Office at **www.eCFR.gov** at no charge at the time of adoption of these rules and is also available for public inspection from the Michigan Public Service Commission, 7109 West Saginaw Highway, Lansing, Michigan 48917: 49 CFR part 40 entitled “Procedures for Transportation Workplace Drug and Alcohol Testing Programs,” (revised October 1, 2024 edition).

(2) The following Office of Pipeline and Hazardous Materials Safety Administration standards are adopted by reference in these rules and may be ordered from the U.S. Government Publishing Office at **www.eCFR.gov** at no charge at the time of adoption of these rules and are also available for public inspection from the Michigan Public Service Commission, 7109 West Saginaw Highway, Lansing, Michigan 48917:

(a) 49 CFR part 191 entitled “Transportation of Natural and Other Gas by Pipeline: Annual Reports, Incident, and Other Reporting,” (October 1, 2025 edition).

(b) 49 CFR part 192 entitled “Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards,” (October 1, 2025 edition).

(c) 49 CFR part 199 entitled “Drug and Alcohol Testing,” (October 1, 2025 edition).

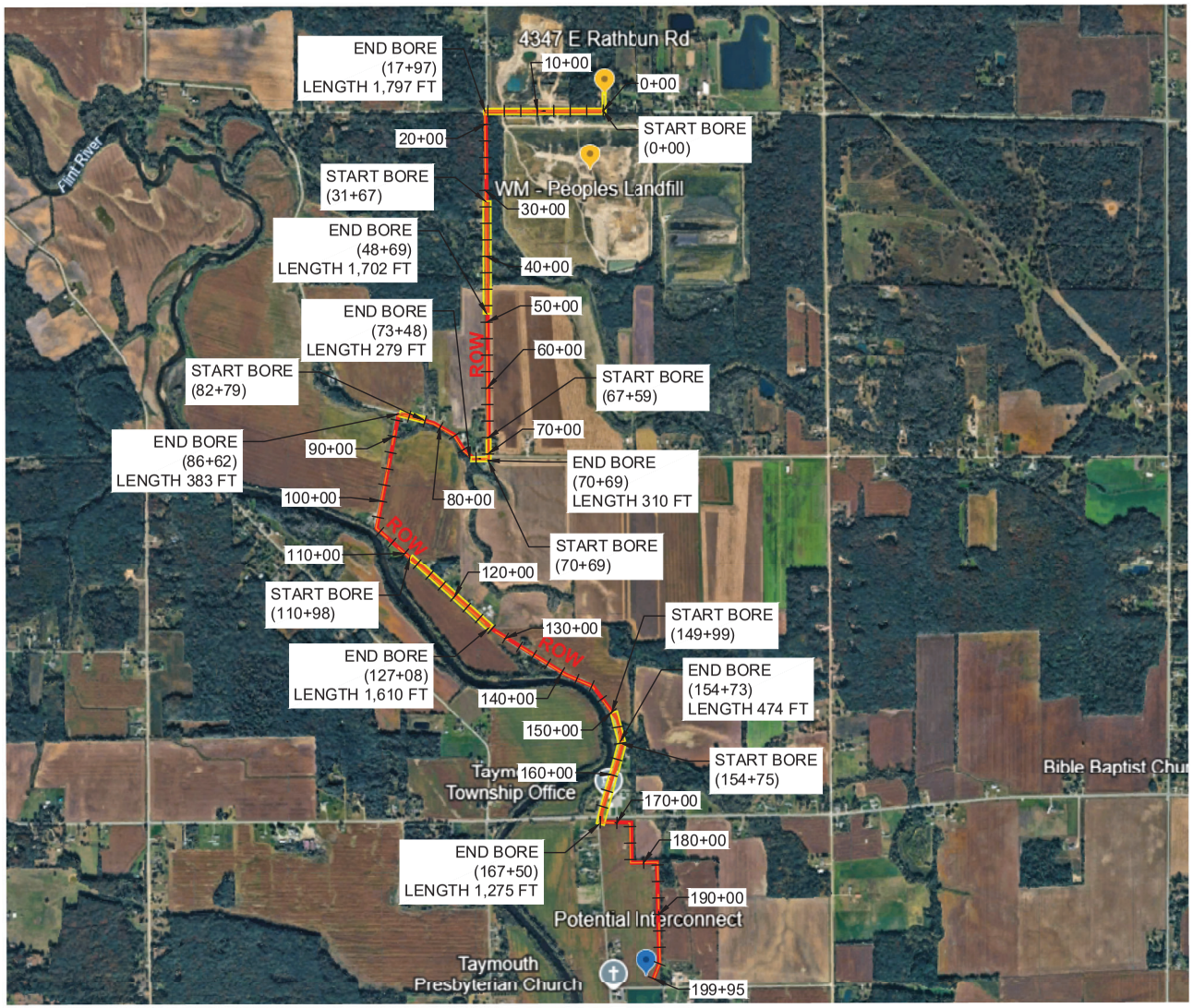
History: 1998-2000 AACS; 2001 AACS; 2003 AACS; 2006 AACS; 2009 AACS; 2010 AACS; 2014 AACS; 2019 AACS; 2022 AACS; 2023 AACS; 2026 MR 9, Eff. May 4, 2026.

Editor's Note: An obvious error in R 460.20606 was corrected at the request of the promulgating agency, pursuant to Section 56 of 1969 PA 306, as amended by 2000 PA 262, MCL 24.256. The rule containing the error was published in Michigan Register, 2026 MR 9. The memorandum requesting the correction was published in Michigan Register, 2026 MR 9.

APPENDIX B: DRAWINGS

Appendix B.1: *Drawing PLFG-850-C-001*
Appendix B.2: *Drawing PLFG-850-C-003*

APPENDIX B.1: DRAWING PLFG-850-C-001



ACT 9 Route
19,995 lnft

Bore Locations
6,550 lnft

NOTE:

1. BORING LENGTHS ARE APPROXIMATE AND TO BE DETERMINED BASED ON ACTUAL ALIGNMENT.

GENERAL NOTES

RESERVED FOR EOR LOGO

REVISION HISTORY

REV	BY	DATE	REVISION
E	JBW	5.15.2026	ROW LAYOUT
F	JBW	5.20.2026	Added Bore Locations

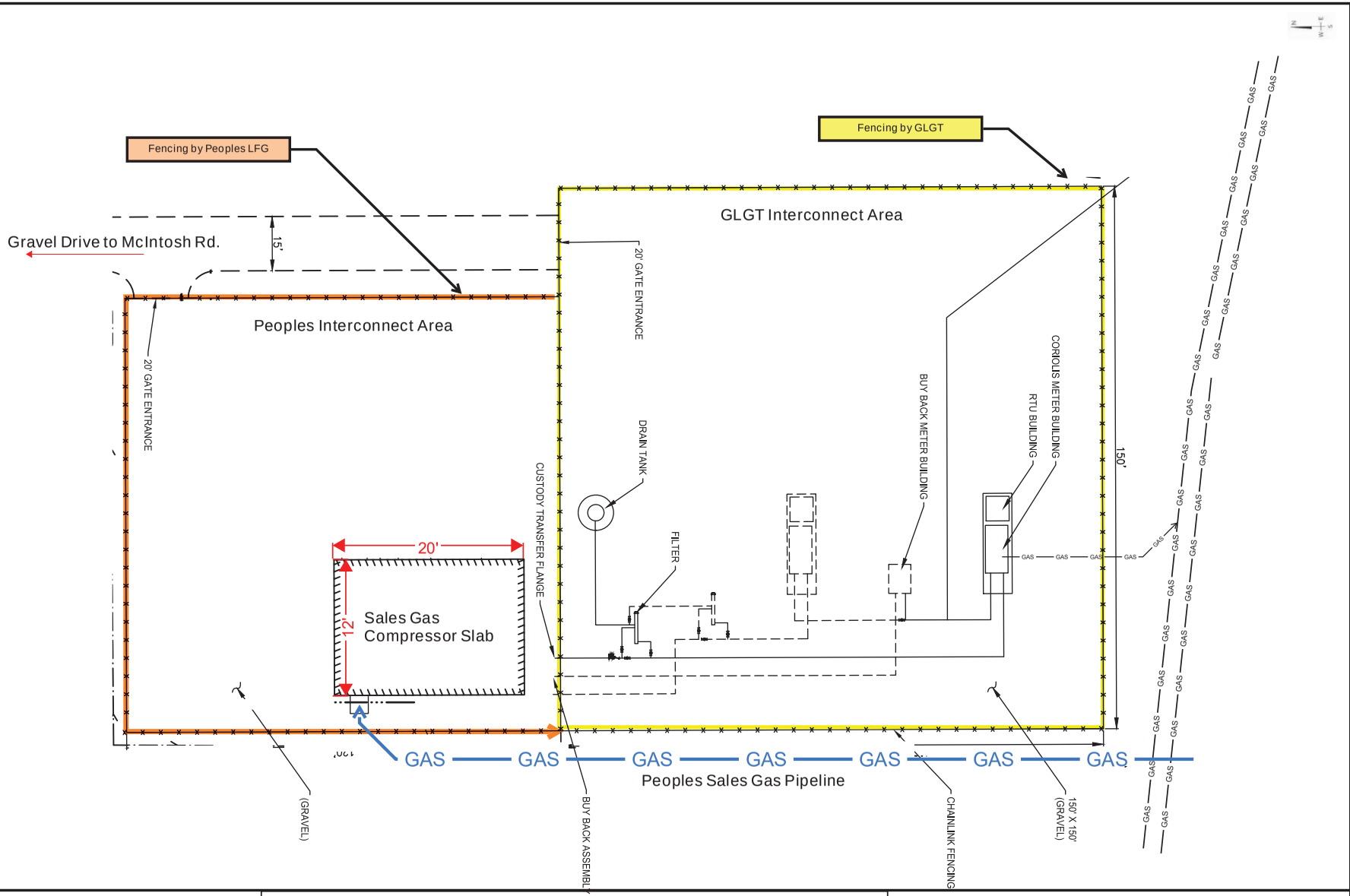
Sagepoint Energy
4 Carter Green, Suite 250, Carmel, IN 46032

PEOPLES LFG, LLC
RENEWABLE NATURAL GAS PLANT
BIRCH RUN, MI

LFG TO RNG FACILITY
PRELIMINARY SALES GAS PIPELINE ROUTING

LINE NUMBER: N/A
DRAWN:
DRAWN DATE:
SHEET: 1 OF 1
DRAWING NUMBER: PLFG-850-C-001
REV: F

APPENDIX B.2: DRAWING PLFG-850-C-003



GENERAL NOTES

RESERVED FOR EOR LOGO

REVISION HISTORY

REV	BY	DATE	REVISION
D	CMH	11.11.25	PRELIM LAYOUT

Sagepoint Energy
4 Carter Green, Suite 250, Carmel, IN 46032

PEOPLES LFG, LLC
RENEWABLE NATURAL GAS PLANT
BIRCH RUN, MI

INTERCONNECT SITE LAYOUT

LINE NUMBER: N/A

DRAWN: | DRAWN DATE: | SHEET: 1 OF 1

DRAWING NUMBER: PLFG-850-C-003

REV. D

APPENDIX C: LANDOWNER INFORMATION

ACT 9 ROUTE GIS PROPERTY OWNERS

Property Details	Property Address	Owner	Owner Address
27-10-5-15-2003-000	4000 Rathbun Rd, Birch Run, MI 48415	Waste Management, Inc.	P.O. Box 1450 Chicago, IL 60690-1450
27-10-5-16-1007-002	10494 Pettit Rd, Birch Run, MI 48415	Brackins, Dana R	Not available
27-10-5-16-1008-000	10274 Pettit Rd, Birch Run, MI 48415	Tackabury, E D & J L Trust	Not available
27-10-5-16-1009-000	10330 Pettit Rd, Birch Run, MI 48415	Wood, Jason & Kelly Jo	Not available
27-10-5-16-4001-001	3831 Canada Rd, Birch Run, MI 48415	Blessing, Kelly	3831 Canada Rd, Birch Run, MI 48415
27-10-5-16-4001-004	3801 Canada Rd, Birch Run, MI 48415	Kelly, Julie R	Not available
27-10-5-16-4003-000	3969 Canada Rd, Birch Run, MI 48415	Rick, L & J	Not available
27-10-5-21-1010-000	11216 Morseville Rd, Birch Run, MI 48415	Rabideau, Doug & Tonya	11216 Morseville Rd, Birch Run, MI 48415
27-10-5-22-2002-002	11477 Morseville Rd, Birch Run, MI 48415	Latesky, M. W. & M. W. Latesky, Jr.	11477 Morseville Rd Birch Run, MI 48415
27-10-5-22-3004-005	11990 Morseville Rd, Birch Run, MI 48415	Lingenfelter, Dale A & Patricia J	Not available
27-10-5-27-1001-003	4520 Birch Run Rd, Birch Run, MI 48415	Woodward, Joshua L. & Rachel M.	4520 Birch Run Road Birch Run, MI 48415
27-10-5-27-1003-002	4515 Mcintosh Rd, Birch Run, MI 48415	Jones, Duane T & Suzanne W	4515 Mcintosh Rd, Birch Run, MI 48415
27-10-5-27-2001-005	Morseville Rd, Birch Run, MI 48415	Irish Family Farms, LLC.	1285 East Birch Run Rd Burt, MI 48417
27-10-5-27-2002-001	12020 Morseville Rd, Birch Run, MI 48415	Lozo, Robert A & Rachel	Not available
27-10-5-27-2002-002	12084 Morseville Rd, Birch Run, MI 48415	Schultz, Laura M & William K	Not available
27-10-5-27-2002-003	12110 Morseville Rd, Birch Run, MI 48415	McClanahan, Jason	Not available
27-10-5-27-2007-000	12460 Morseville Rd, Birch Run, MI 48415	Irish Family Farms, LLC.	1285 East Birch Run Road Burt, MI 48417

Note: Limited to the properties along the Red Route (Act 9 Route). Additional Landowners are other side of road and pipeline are included. Property Identification Number and Owner Information obained from Fetch GIS - Saginaw Area GIS

APPENDIX D: EPA WATERBODY REPORTS

Appendix D.1: Waterbody Report - Pine Run (HUC 040802040510)
Appendix D.2: Waterbody Report - Silver Creek (HUC 040802040511)
Appendix D.3: Waterbody Report - Flint River (HUC 040802040513)
Appendix D.4: Waterbody Report - Spring Brook (HUC 040802040513)

APPENDIX D.1: WATERBODY REPORT - PINE RUN (HUC 040802040510)

An official website of the United States government

How's My Waterway?

Explore, Discover and Learn about your water.

Waterbody Report

Rivers/Streams in HUC 040802040510

Assessment Unit ID: MI040802040510-01

Waterbody Condition: Impaired (Issues Identified)

Existing Plans for Restoration: Yes

303(d) Listed: No

Year Reported: 2024

303(d) List Status: EPA Final Action

Other Years Reported:
2018 <https://epa.gov/waterbody-report/21mich/mi040802040510-01/2018>, 2020 <https://epa.gov/waterbody-report/21mich/mi040802040510-01/2020>, 2022 <https://epa.gov/waterbody-report/21mich/mi040802040510-01/2022> (opens new browser tab)

Organization Name (ID): Michigan (21MICH)

What type of water is this?

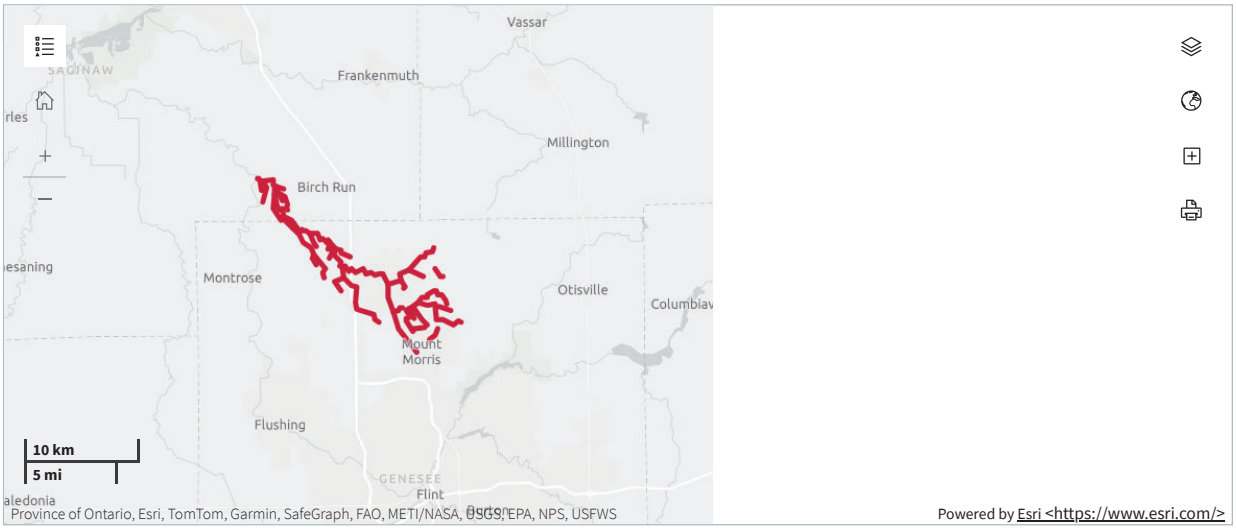
River (59.1131 Miles)

Where is this water located?

Includes: Benjamin Run, Parker Creek and Pine Run

Advanced Filtering
(opens new browser tab)

Download Waterbody Data (2024)



Assessment Information from 2024

State or Tribal Nation specific designated uses:

Information on Water Quality Standards <https://www.epa.gov/wqs-tech/state-specific-water-quality-standards-effective-under-clean-water-act-cwa> Expand All

Agriculture	Good
Cold Water Fishery	Not Assessed
Fish Consumption	Impaired

Identified Issues for Use

Impaired Parameters	Plan in Place
Pcbs in Fish Tissue	Yes
Polychlorinated Biphenyls (Pcbs)	Yes

Other Water Quality Parameters Evaluated

No other parameters evaluated for this use.

Industrial Water Supply	Good
Navigation	Good
Other Indigenous Aquatic Life and Wildlife	Good
Partial Body Contact Recreation	Not Assessed
Total Body Contact Recreation	Not Assessed
Warm Water Fishery	Not Assessed

Probable sources contributing to impairment from 2024:

Click a column heading to sort... Clear Filters

Source	Parameter	Confirmed
Filter...	Filter...	Filter...
Atmospheric Deposition - Toxics	Pcbs in Fish Tissue	Yes
Atmospheric Deposition - Toxics	Polychlorinated Biphenyls (Pcbs)	Yes

Click a column heading to sort... Clear Filters

Assessment Documents

No documents are available

Plans to Restore Water Quality

What plans are in place to protect or restore water quality?

Links below open in a new browser tab.

Plan	Impairments	Type	Completion Date
Statewide Michigan Pcb Tmdl <https://epa.gov/plan-summary/21mich/68285>	Chlordane, Dioxin, Dioxin (Including 2,3,7,8-Tcdd), Fish and Macroinvertebrate Communities Rated Poor, Fish Community Rated Poor, Fish Consumption Advisory - Chlordane, Fish Consumption Advisory - Dioxin, Fish Consumption Advisory - Mercury, Fish Consumption Advisory - Pcbs, Fish Consumption Advisory - Tcdd (Dioxins), Fish Kill(s), Macroinvertebrate Community Rated Poor, Mercury, Mercury in Fish Tissue, Mercury in Water Column, Pcb in Water Column, Pcbs in Fish Tissue, Perfluorooctane Sulfonate (Pfos) in Fish Tissue, Polychlorinated Biphenyls (Pcbs)	TMDL	2017-09-26

APPENDIX D.2: WATERBODY REPORT - SILVER CREEK (HUC 040802040511)

An official website of the United States government

How's My Waterway?

Explore, Discover and Learn about your water.

Waterbody Report

Rivers/Streams in HUC 040802040511

Assessment Unit ID: MI040802040511-01

Waterbody Condition: Impaired (Issues Identified)

Existing Plans for Restoration: Yes

303(d) Listed: No

Year Reported: 2024

303(d) List Status: EPA Final Action

Other Years Reported:
2018 <https://epa.gov/waterbody-report/21mich/mi040802040511-01/2018>, 2020 <https://epa.gov/waterbody-report/21mich/mi040802040511-01/2020>, 2022 <https://epa.gov/waterbody-report/21mich/mi040802040511-01/2022> (opens new browser tab)

Organization Name (ID): Michigan (21MICH)

What type of water is this?

River (59.542 Miles)

Where is this water located?

Includes: Alexander Drain, Bogart Drain, Hutchinson And Young Drain, Silver Creek and Silver Creek Drain

Advanced Filtering
(opens new browser tab)

Download Waterbody Data (2024)



Assessment Information from 2024

State or Tribal Nation specific designated uses:

Information on Water Quality Standards <https://www.epa.gov/wqs-tech/state-specific-water-quality-standards-effective-under-clean-water-act-cwa> Expand All

Agriculture	Good
Cold Water Fishery	Not Assessed
Fish Consumption	Impaired

Identified Issues for Use

Impaired Parameters	Plan in Place
Pcbs in Fish Tissue	Yes
Polychlorinated Biphenyls (Pcbs)	Yes

Other Water Quality Parameters Evaluated

No other parameters evaluated for this use.

Industrial Water Supply	Good
Navigation	Good
Other Indigenous Aquatic Life and Wildlife	Good
Partial Body Contact Recreation	Not Assessed
Total Body Contact Recreation	Not Assessed
Warm Water Fishery	Not Assessed

Probable sources contributing to impairment from 2024:

Click a column heading to sort... Clear Filters

Source	Parameter	Confirmed
Filter...	Filter...	Filter...
Atmospheric Deposition - Toxics	Pcbs in Fish Tissue	Yes
Atmospheric Deposition - Toxics	Polychlorinated Biphenyls (Pcbs)	Yes

Click a column heading to sort... Clear Filters

Assessment Documents

No documents are available

Plans to Restore Water Quality

What plans are in place to protect or restore water quality?

Links below open in a new browser tab.

Plan	Impairments	Type	Completion Date
Statewide Michigan Pcb Tmdl <https://epa.gov/plan-summary/21mich/68285>	Chlordane, Dioxin, Dioxin (Including 2,3,7,8-Tcdd), Fish and Macroinvertebrate Communities Rated Poor, Fish Community Rated Poor, Fish Consumption Advisory - Chlordane, Fish Consumption Advisory - Dioxin, Fish Consumption Advisory - Mercury, Fish Consumption Advisory - Pcbs, Fish Consumption Advisory - Tcdd (Dioxins), Fish Kill(s), Macroinvertebrate Community Rated Poor, Mercury, Mercury in Fish Tissue, Mercury in Water Column, Pcb in Water Column, Pcbs in Fish Tissue, Perfluorooctane Sulfonate (Pfos) in Fish Tissue, Polychlorinated Biphenyls (Pcbs)	TMDL	2017-09-26

APPENDIX D.3: WATERBODY REPORT - FLINT RIVER (HUC 040802040513)

An official website of the United States government

How's My Waterway?

Explore, Discover and Learn about your water.

Waterbody Report

Rivers/Streams in HUC 040802040513

Assessment Unit ID: MI040802040513-02

Waterbody Condition: Impaired (Issues Identified)

Existing Plans for Restoration: Yes

303(d) Listed: Yes

Year Reported: 2024

303(d) List Status: EPA Final Action

Other Years Reported:
2018 <https://epa.gov/waterbody-report/21mich/mi040802040513-02/2018>, 2020 <https://epa.gov/waterbody-report/21mich/mi040802040513-02/2020>, 2022 <https://epa.gov/waterbody-report/21mich/mi040802040513-02/2022> (opens new browser tab)

Organization Name (ID): Michigan (21MICH)

What type of water is this?

River (10.2671 Miles)

Where is this water located?

Includes: Flint River

Advanced Filtering
(opens new browser tab)

Download Waterbody Data (2024)



Assessment Information from 2024

State or Tribal Nation specific designated uses:

Information on Water Quality Standards <https://www.epa.gov/wqs-tech/state-specific-water-quality-standards-effective-under-clean-water-act-cwa>

Expand All

Agriculture — Good

Cold Water Fishery — Not Assessed

Fish Consumption — Impaired

Identified Issues for Use

Impaired Parameters	Plan in Place
Mercury in Water Column	Yes
Pcbs in Fish Tissue	Yes
Perfluorooctane Sulfonate (Pfos) in Fish Tissue	No
Polychlorinated Biphenyls (Pcbs)	Yes

Other Water Quality Parameters Evaluated

Assessed Good

- Mercury in Fish Tissue
- Perfluorooctane Sulfonate (Pfos)

Industrial Water Supply — Good

Navigation — Good

Other Indigenous Aquatic Life and Wildlife — Impaired

Identified Issues for Use

Impaired Parameters	Plan in Place
Eutrophication, Nutrients	No
Mercury in Water Column	Yes
Polychlorinated Biphenyls (Pcbs)	Yes

Other Water Quality Parameters Evaluated

Assessed Good

- Cadmium
- Chloride
- Chromium
- Copper
- Lead
- Nickel
- Per- and Polyfluoroalkyl Substances (Pfas)
- Perfluorooctanoic Acid (Pfoa)
- pH
- Sulfate
- Zinc

Partial Body Contact Recreation — Not Assessed

Total Body Contact Recreation — Not Assessed

Warm Water Fishery Good >

Probable sources contributing to impairment from 2024:

Click a column heading to sort... **Clear Filters**

Source	Parameter	Confirmed
Filter...	Filter...	Filter...
Atmospheric Deposition - Toxics	Mercury in Water Column	Yes
Atmospheric Deposition - Toxics	Pcbs in Fish Tissue	Yes
Atmospheric Deposition - Toxics	Polychlorinated Biphenyls (Pcbs)	Yes
Discharges From Municipal Separate Storm Sewer Systems (Ms4)	Perfluorooctane Sulfonate (Pfos) in Fish Tissue	Yes
Industrial Point Source Discharge	Perfluorooctane Sulfonate (Pfos) in Fish Tissue	Yes

Click a column heading to sort... **Clear Filters**

Assessment Documents

No documents are available

Plans to Restore Water Quality

What plans are in place to protect or restore water quality?

Links below open in a new browser tab.

Plan	Impairments	Type	Completion Date
Michigan Statewide Mercury Tmdl <https://epa.gov/plan-summary/21mich/mi-2018-002>	Mercury in Fish Tissue, Mercury in Water Column	TMDL	2018-06-19
Statewide Michigan Pcb Tmdl <https://epa.gov/plan-summary/21mich/68285>	Chlordane, Dioxin, Dioxin (Including 2,3,7,8-Tcdd), Fish and Macroinvertebrate Communities Rated Poor, Fish Community Rated Poor, Fish Consumption Advisory - Chlordane, Fish Consumption Advisory - Dioxin, Fish Consumption Advisory - Mercury, Fish Consumption Advisory - Pcbs, Fish Consumption Advisory - Tcdd (Dioxins), Fish Kill(s), Macroinvertebrate Community Rated Poor, Mercury, Mercury in Fish Tissue, Mercury in Water Column, Pcb in Water Column, Pcbs in Fish Tissue, Perfluorooctane Sulfonate (Pfos) in Fish Tissue, Polychlorinated Biphenyls (Pcbs)	TMDL	2017-09-26

Budget & Performance
<https://www.epa.gov/planandbudget>

Contracting
<https://www.epa.gov/contracts>

EPA www Web Snapshot
<https://www.epa.gov/home/wwwepagov-snapshots>

Grants <https://www.epa.gov/grants>

No FEAR Act Data
<https://www.epa.gov/ocr/no-fear-act-data>

Plain Writing <https://www.epa.gov/web-policies-and-procedures/plain-writing>

Privacy and Security Notice
<https://www.epa.gov/privacy/privacy-and-security-notice>

Jobs <https://www.epa.gov/careers>

Newsroom
<https://www.epa.gov/newsroom>

Regulations.gov
<https://www.regulations.gov/>

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<https://www.whitehouse.gov/>

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<https://www.epa.gov/web-procedures/epa-disclaimers

Hotlines
<https://www.epa.gov/abou

FOIA Requests
<https://www.epa.gov/foia>

Frequent Questio
<https://www.epa.gov/hom
specific-epa-programstopic

Follow.

APPENDIX D.4: WATERBODY REPORT - SPRING BROOK (HUC 040802040513)

How's My Waterway?

Explore, Discover and Learn about your water.

Waterbody Report

Rivers/Streams in HUC 040802040513

Assessment Unit ID: MI040802040513-01

Waterbody Condition: Impaired (Issues Identified)

Existing Plans for Restoration: Yes

303(d) Listed: Yes

Year Reported: 2024

303(d) List Status: EPA Final Action

Other Years Reported:
2018 <https://epa.gov/waterbody-report/21mich/mi040802040513-01/2018>, 2020 <https://epa.gov/waterbody-report/21mich/mi040802040513-01/2020>, 2022 <https://epa.gov/waterbody-report/21mich/mi040802040513-01/2022> (opens new browser tab)

Organization Name (ID): Michigan (21MICH)

What type of water is this?

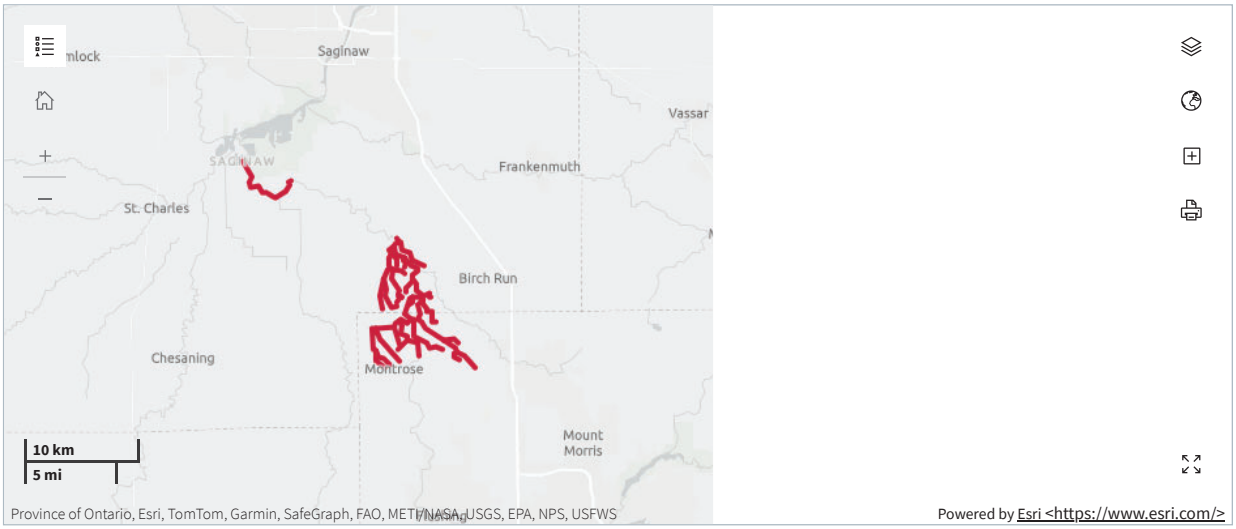
River (52.2503 Miles)

Where is this water located?

Includes: Atwell Drain, Flint River, Pitch Creek and Spring Brook Drain

Advanced Filtering
(opens new browser tab)

Download Waterbody Data (2024)



Assessment Information from 2024

State or Tribal Nation specific designated uses:

Information on Water Quality Standards <https://www.epa.gov/wqs-tech/state-specific-water-quality-standards-effective-under-clean-water-act-cwa>

Expand All

Agriculture — Good

Cold Water Fishery — Not Assessed

Fish Consumption — Impaired

Identified Issues for Use

Impaired Parameters	Plan in Place
Mercury in Water Column	Yes
Pcbs in Fish Tissue	Yes
Perfluorooctane Sulfonate (Pfos) in Fish Tissue	No
Polychlorinated Biphenyls (Pcbs)	Yes

Other Water Quality Parameters Evaluated

Assessed Good

- Mercury in Fish Tissue

Industrial Water Supply — Good

Navigation — Good

Other Indigenous Aquatic Life and Wildlife — Impaired

Identified Issues for Use

Impaired Parameters	Plan in Place
Eutrophication, Nutrients	No
Mercury in Water Column	Yes
Polychlorinated Biphenyls (Pcbs)	Yes

Other Water Quality Parameters Evaluated

Assessed Good

- Chloride
- pH
- Sulfate

Partial Body Contact Recreation — Not Assessed

Total Body Contact Recreation — Not Assessed

Warm Water Fishery — Good

Probable sources contributing to impairment from 2024:

Click a column heading to sort...

Clear Filters

Source	Parameter	Confirmed
Filter...	Filter...	Filter...
Atmospheric Deposition - Toxics	Mercury in Water Column	Yes
Atmospheric Deposition - Toxics	Pcbs in Fish Tissue	Yes
Atmospheric Deposition - Toxics	Polychlorinated Biphenyls (Pcbs)	Yes
Discharges From Biosolids (Sludge) Storage, Application or Disposal	Perfluorooctane Sulfonate (Pfos) in Fish Tissue	Yes
Industrial Point Source Discharge	Perfluorooctane Sulfonate (Pfos) in Fish Tissue	Yes

Click a column heading to sort...

Clear Filters

Assessment Documents

No documents are available

Plans to Restore Water Quality

What plans are in place to protect or restore water quality?

Links below open in a new browser tab.

Plan	Impairments	Type	Completion Date
Michigan Statewide Mercury Tmdl <https://epa.gov/plan-summary/21mich/mi-2018-002>	Mercury in Fish Tissue, Mercury in Water Column	TMDL	2018-06-19
Statewide Michigan Pcb Tmdl <https://epa.gov/plan-summary/21mich/68285>	Chlordane, Dioxin, Dioxin (Including 2,3,7,8-Tcdd), Fish and Macroinvertebrate Communities Rated Poor, Fish Community Rated Poor, Fish Consumption Advisory - Chlordane, Fish Consumption Advisory - Dioxin, Fish Consumption Advisory - Mercury, Fish Consumption Advisory - Pcbs, Fish Consumption Advisory - Tcdd (Dioxins), Fish Kill(s), Macroinvertebrate Community Rated Poor, Mercury, Mercury in Fish Tissue, Mercury in Water Column, Pcb in Water Column, Pcbs in Fish Tissue, Perfluorooctane Sulfonate (Pfos) in Fish Tissue, Polychlorinated Biphenyls (Pcbs)	TMDL	2017-09-26

EPA www Web Snapshot
<https://www.epa.gov/home/wwwepagov-snapshots>

Grants <https://www.epa.gov/grants>

No FEAR Act Data
<https://www.epa.gov/ocr/no-fear-act-data>

Plain Writing
<https://www.epa.gov/web-policies-and-procedures/plain-writing>

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<https://www.epa.gov/home/frequent-questions-specific-epa-programstopics>

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APPENDIX E: USFWS IPAC REVIEW

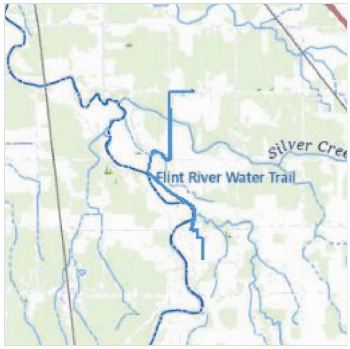
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Saginaw County, Michigan



Local office

Michigan Ecological Services Field Office

(517) 351-2555
(517) 351-1443

2651 Coolidge Road Suite 101
East Lansing, MI 48823-6360

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Indiana Bat Myotis sodalis Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat Perimyotis subflavus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

NOT FOR CONSULTATION

Birds

NAME	STATUS
Rufa Red Knot Calidris canutus rufa Wherever found This species only needs to be considered if the following condition applies: • Only actions that occur in large wetland complexes during the Red knot migratory window of MAY 1 - SEPTEMBER 30. There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1864	Threatened

Reptiles

NAME	STATUS
Eastern Massasauga (=rattlesnake) Sistrurus catenatus Wherever found This species only needs to be considered if the following condition applies: • For all Projects: Project is within EMR Range No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2202	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

Flowering Plants

NAME	STATUS
Eastern Prairie Fringed Orchid Platanthera leucophaea No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/601	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

NOT FOR CONSULTATION

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs
The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

NOT FOR CONSULTATION

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

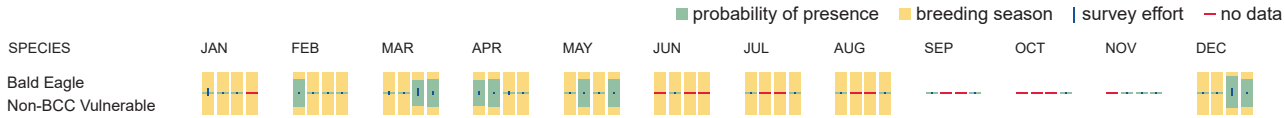
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report
On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

NOT FOR CONSULTATION

Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases birds of concern, including Birds of Conservation Concern (BCC), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the Nationwide avoidance and minimization measures for birds document, and any other project-specific avoidance and minimization measures suggested at the link Measures for avoiding and minimizing impacts to birds for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles document, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Bobolink Dolichonyx oryzivorus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Pectoral Sandpiper Calidris melanotos This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Rusty Blackbird Euphagus carolinus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Short-billed Dowitcher Limnodromus griseus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere

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Wood Thrush Hylocichla mustelina — Breeds May 10 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

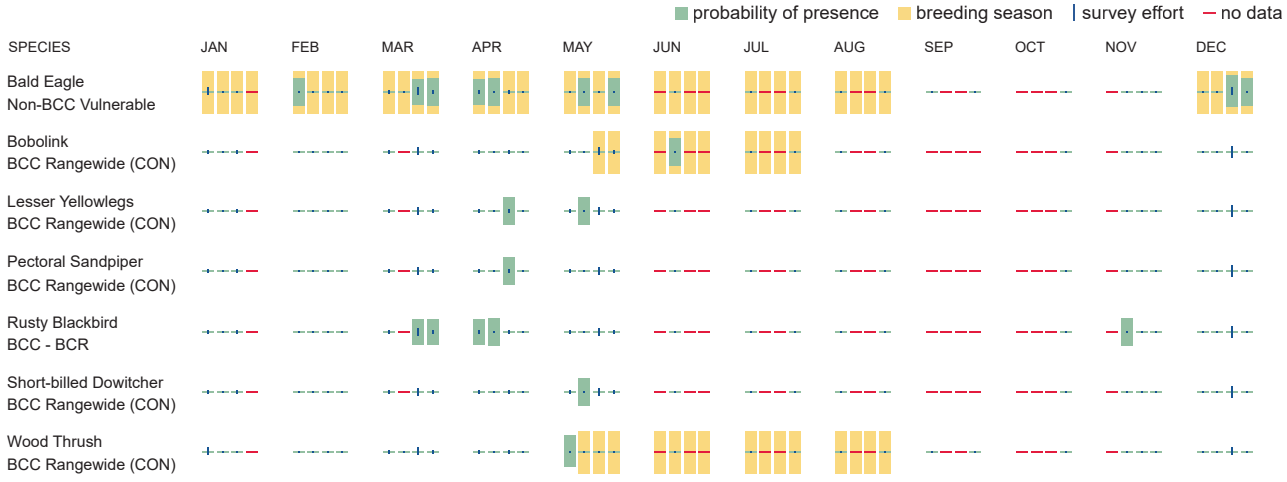
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

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Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as "Vulnerable". See the FAQ "What are the levels of concern for migratory birds?" for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your "IPaC PROBABILITY OF PRESENCE SUMMARY" at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ "Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be

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present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs
Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland

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boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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APPENDIX F: MICHIGAN SHPO REVIEW

MICHIGAN

STATE HISTORIC PRESERVATION OFFICE

INSTRUCTIONS FOR THE *APPLICATION FOR SHPO SECTION 106 CONSULTATION* FORM

If your project utilizes federal funds or requires a federal license or permit, it will likely require Section 106 consultation to determine if it has the potential to affect historic resources.

Section 106 of the National Historic Preservation Act (NHPA) of 1966, requires all federal agencies to take into account the effects of their undertakings on historic properties and to consult with the State Historic Preservation Officer (SHPO) regarding the undertaking. An undertaking is any action by or on behalf of a federal agency that has the potential to affect historic properties and includes funding, permits, licenses, or other approvals. Although the federal agency is responsible for initiating and completing the Section 106 review process, under certain circumstances, state or local governmental bodies may act as the responsible agency or delegated authority. Consultants can be used to conduct associated cultural resource investigations and provide the agency with the required information; however, they are not recognized as federally delegated authorities.

Federal agencies are required to identify historic properties that may be affected and to avoid, minimize, or mitigate any adverse effects. Section 106 regulations are codified in 36 CFR 800 and are available from the Advisory Council on Historic Preservation website at http://www.achp.gov/regs-rev04.pdf.

If you have a question regarding whether your project has federal involvement, please contact the agency requesting consultation.

To Learn More About the Section 106 Process...

More information can be found on the Michigan State Historic Preservation Office's website: www.michigan.gov/shposection106.

Additionally, the Advisory Council on Historic Preservation (ACHP) is an independent federal agency that promotes the preservation, enhancement, and productive use of our nation's historic resources and advises the President and Congress on national historic preservation policy. The ACHP's Federal Agency Programs administer the National Preservation Act's Section 106 review process and provide guidance on the process: http://www.achp.gov/work106.html.

BEFORE YOU GET STARTED

Submission of a completed ***Application for Section 106 Consultation*** form with adequate information and attachments constitutes a request pursuant to Section 106 of the National Historic Preservation Act of 1966 (as amended). Submit one application for each project for which a review is requested.

- **The application form is required**. Compliance reports and other documentation submitted for review without an application form will not be reviewed.

- **Answer every question thoroughly**. Sufficient information must be provided to allow SHPO to make an informed decision about a project's potential to affect historic properties. If sufficient information is not provided, review will be delayed until the SHPO receives the required information.

- **Applications and supporting documentation must be complete for review to begin**. The SHPO cannot concur with projects submitted with incomplete or missing information. Supplemental materials submitted for review will not be returned. Review of the project will begin only after all missing information has been received.

- **Section 106 regulations allow for a 30-day response time by the SHPO from the date of receipt of complete information.** To avoid unnecessary delays for your project, provide all information requested and provide any supporting documentation as appropriate. The 30-day clock stops when the SHPO asks for missing information and resets when that information is received.

- **Include mailing addresses for each party requiring a copy of our response.** At minimum SHPO must have mailing addresses for the applicable federal and/or state agencies to provide copies of the response letters. However official SHPO correspondence will be emailed if an email address is provided, in lieu of hard copy mail. Failure to provide complete, accurate addresses and/or email addresses may delay the response to your submission.

- **Materials not submitted by federal agencies must be accompanied by documentation from the federal agency allowing the submitting entity to consult with the SHPO as the federal agency's delegate.** Consultation under Section 106 of the National Historic Preservation Act of 1966, as amended, is between the federal agency and the SHPO. If the federal agency itself does not submit the material, the SHPO will need documentation from the federal agency allowing the SHPO to consult with another party on the federal agency's behalf. The federal agency remains responsible for all determinations of eligibility and effect.

- **The form is a fillable Word document.** The check boxes are clickable. To enter text into the form, click on the appropriate area with blue text. As you type, the boxes will expand. The font is set differently in those text boxes to allow the SHPO reviewer to more easily distinguish the questions from the responses, allowing for a more efficient review. If you have text that is too long to fit in the form, or will be cumbersome to insert – such as a table or graphics – indicate in the text box that the information will be provided as an attachment and note the attachment on the Attachment Checklist at the end of the form.

PREPARING THE APPLICATION FOR SHPO SECTION 106 CONSULTATION

I. GENERAL INFORMATION

The Application for SHPO Section 106 Consultation requests applicants to indicate whether this project is a new submittal or more information on an existing project. Also indicate whether a project is submitted under a programmatic agreement or other agency agreements, including the name and date of that agreement.

a. PROJECT NAME

The project name should be something that briefly, but clearly, provides a summary of the project. Project names should include a statement of action.

Examples:

- Michigan Avenue Reconstruction between State Street and Main Street Project
- Johnson Health Center New Construction Project; ABC Industrial Park New Construction
- Old Town Infrastructure Project.

b. PROJECT LOCATION(S)

COUNTY

Be sure to provide **all** counties included in the project footprint.

PROJECT MUNICIPALITY

The municipality is the city, village, or township where the project is located. The municipal unit is not necessarily the mailing address. For example, if a mailing address lists Lansing as the city, yet the project is outside the city limits, then the township is the municipal unit.

PROJECT Location(s)

The application includes an editable table for project location information. If more than one municipality, county, or Township, Range, and Section are within the APE, then add as many lines as necessary.

If you do not have a single address for the project (for example, streetscapes, utility improvements, new industrial parks, etc.), list the streets where the project will be located or provide clear verbal boundaries for the street address column.

Examples:

- Streetscapes, utility improvements, street repaving/reconstruction, etc.: Michigan Ave between 1st and 10 Streets. Union St and Townsend Ave between Main St and Liberty Rd.

- Rural projects without addresses and or extremely large projects: 14 blocks roughly bounded by Dunkley to the north, Edwards to the east, Paterson to the south, and Church to the west.

TOWNSHIP/RANGE/SECTION OR PRIVATE CLAIM (TRS)

The TRS must be included for all projects with ground disturbance. If you are not using GIS for your project planning, the Public Land Survey Sections can be found in the State of

Michigan GIS Open Data at https://gis-michigan.opendata.arcgis.com/datasets/Michigan::public-land-survey-sections . Each Township and Range grouping must be on separate rows in the table and include corresponding county and municipal unit information.

Example location table:

County	Municipality	Street Address	Township (N/S)	Range (E/W)	Section(s) or Private Claim
Clinton	City of DeWitt/Dewitt Township	North and south sides of Herbison Road between Faiver and Schavey Road	T05N	R02W	S07, 18

II. FEDERAL AGENCY INVOLVEMENT AND RESPONSE CONTACT INFORMATION

This section will provide the SHPO with the names of all agencies that should receive a copy of our response, as well as the contacts to whom the copies should be directed and mailing addresses. We cannot guarantee a copy will go to anyone for whom we are lacking a correct and complete mailing and/or email address.

Consultation under Section 106 of the National Historic Preservation Act of 1966, as amended, is between the SHPO and the federal agency. With the exception of HUD Part 58 funded projects, the SHPO's response must be addressed to the federal agency.

a. FEDERAL AGENCY

Every Section 106 project has a federal funding, licensing, or permitting agency. Projects neither receiving federal assistance nor requiring either a federal permit or license are not subject to Section 106 review. If you do not know your federal agency, contact the party requiring you to apply for Section 106 review for this information. The SHPO is required to consult with the federal agency or their federally delegated representative. In order to respond to a request for consultation, the SHPO must have mailing and email addresses for the federal agency as well as a person to whom the letter must be addressed.

Identify the federal agency involved. If there is more than one federal agency involved in the project, list contact information for each federal agency. This can be accomplished on the application by copying and pasting this section, if necessary.

ii.-iii. Provide the name and address for the project's contact at the federal agency. SHPO must respond, in most cases, directly to the federal agency. As such, we must have a contact name and mailing address to provide a response.

iv. Provide a valid email address for the federal agency contact.

v. Indicate what type of federal involvement – federal funding, license/permit, or other. Provide the name of the specific source of federal funding, license, or permit.

b. HUD-FUNDED PROJECTS

Identify HUD's designated Responsible Entity (RE). The SHPO must address their response to the RE if Part 58 funds are used. If Part 50 funds are used, the SHPO must address their response to HUD. You must include a mailing address, email address, and a contact name, as well as the name of the entity. This contact is often a local unit of government. Consultants, grant managers, contractors, non-profit entities, and building owners cannot be responsible

entities. ***Failure to include this information for HUD-funded projects will delay review of your project.*** Provide the HUD program name, for example CDBG, HOME, etc., in section II.a.iv., above, as they type of federal involvement with the project.

c. STATE AGENCY

If the federal funding is being passed through a state agency, identify the agency and provide the name(s) of the contact person(s) and contact information for the state agency. If there is no state agency involved in your project, simply leave this section blank.

d. APPLICANT

The applicant is the party applying for federal agency assistance, not a consultant. The applicant can be a private party applying for a federal license, or it could be a local unit of government applying for federal assistance. If applicable, complete this section by providing contact information for the party receiving federal assistance. If the federal agency is the applicant, simply leave this section blank.

Applications may be submitted by those with delegated authority from a federal agency. An applicant will need to either obtain a letter from the federal agency formally delegating authority to consult with the Michigan SHPO or the application will need to come directly from the federal agency.

e. CONSULTANTS

If a consultant prepared the information for Section 106 review, please provide the consultant's information. If a consultant was not involved in the preparation of this information, simply leave this section blank.

Applications submitted after July 1, 2020, must include identification efforts as outlined under 36 CFR 800.4 completed by individuals meeting the applicable federal qualification(s). Consultants who meet the federal qualifications established in 36 CFR Part 61 and are not currently included on the *Archaeologist/Historian/Architectural Historian Consultant List* should verify whether the SHPO has their qualifications on file prior to submitting their application. If qualifications are not on file, please complete the applicable *Archaeologist/Historian/Architectural Historian Consultant List Update Form* found on the SHPO website at https://www.miplace.org/historic-preservation/research-resources/consultant-resources/ and include the form with your Section 106 application packet.

NOTE: Mailing and/or email addresses *must* be included in order to provide a copy of the SHPO's response letter. Due to the volume of projects we review, the SHPO cannot ensure a copy will go to anyone lacking current contact information in the application form.

III. PROJECT INFORMATION

a. PROJECT WORK DESCRIPTION

Provide a detailed description of all work that will be undertaken as part of the project including both federally funded and non-federally funded activities. Include any information about the scope of the work, building removals, rehabilitation, and landscape alterations such as sidewalk or tree removals.

Plans and specifications or other materials cannot be substituted for this project work description; however, it may be necessary to include them to fully illustrate the scope and nature of the project. If there are historic properties in your APE, the SHPO will require more detailed project information, including project plans and specifications, to fully assess the effects your project may have on those historic properties.

The work description should include all actions that may impact above or below ground components of the project area or its area of potential effect. Include information about the project support work, including but not limited to building removals, rehabilitation, new construction, relocations, landscape alteration, tree/vegetation removals, excavations, temporary workspaces, access roads, work site parking, work trailer locations, equipment and materials storage areas, staging, street or sidewalk removal, repair replacement, and the like.

Be explicit in describing the work, for instance if a material or object is being replaced is it in-kind? Will it be placed in the same location? If ground disturbing work is occurring, what changes will occur to the landscape as a result? Remember that SHPO staff are not familiar with your project, so be as specific as possible.

The economic benefits of a project which do not impact historic properties, either architectural, cultural, or archaeological, while important to the project itself, may not be relevant to the section 106 review. If the economic benefit is such that it will result in a change of land use, traffic patterns, public access, etc., that is something that could have an indirect impact on historic properties and should be included. If the economic benefits will be limited and not have an impact, either directly or indirectly, on the physical environment, then it is not necessary to discuss those economic benefits.

b. PROJECT LOCATION AND AREA OF POTENTIAL EFFECTS (APE)

i. MAPS

All projects must provide a minimum of one map to identify the project location. In most cases, more than one map will be necessary to adequately convey both the project footprint and the Area of Potential Effects (APE). Maps need to allow a reviewer who is not familiar with either your project or its location to clearly understand the exact location where the project will take place as well as the extent of the APE. Maps must have your project footprint/direct effects as well as the extent of indirect effects APE clearly marked and labeled. Street names at the cross streets nearest your project must be visible. If necessary for clarity, separate maps may be submitted for project location and APE, but these must be clearly labeled.

Maps must include a scale, a north arrow, the city(ies)/township(s) and county(ies) contained on the map, and any streets or geographic features that are labeled must be legible.

Projects that have a ground-disturbing component **must** also include a 7.5’ USGS topographic quadrangle map graphic marked with the project footprint and APE. These maps can be downloaded for free at the USGS Topo View website (https://ngmdb.usgs.gov/topoview/). This map should be appropriately cropped and zoomed to clearly show the relevant area(s) and project information. Label this graphic with the official USGS map name. See Section IV Archaeology.

Photographs (see below) must also be marked on a map, with the number of the photograph, and an arrow indicating the direction the camera was facing when the photo was taken.

Aerial images may be included as supplemental documents but will not be accepted in place of the maps required above. Hand-drawn maps are not acceptable, unless they are to scale and used to supplement other maps. An example of an acceptable hand-drawn map would be a site map indicating the location of buildings on a rural property. Hand-drawn maps cannot be substituted for required maps.

ii. SITE PHOTOGRAPHS

Photographs must provide clear views (i.e., subject of the photograph should not be obscured by shadows, trees, cars, or any other type of obstruction) of the site of the project and the Area of Potential Effects. If the project covers a large area, provide several views. Aerial photographs are not a substitute for ground-level photographs, although they may be submitted as supplemental to those photographs. Key all photographs to your localized map.

Historic photographs of your APE may be required in certain instances. If your project involves the rehabilitation of a historic property, especially a commercial property, historic photographs should be submitted. Submissions for streetscape projects should also include historic photographs, especially those that show historic lights and street furniture.

Photographs may be color or black and white and may be pronged on regular paper. It is not necessary to use photographic paper when printing digital photos. The printed photos must have a high dpi and clear resolution and should be printed at an appropriate scale to see the content of the photo. Photographs may be printed no more than two per page. Submitting grainy, dark, washed out, or blurry photographs will delay review of your project until the SHPO receives clear photographs. Faxed or photocopied photographs are not acceptable.

For projects submitted digitally, photographs should be placed within a PDF document, with clearly labeled captions. No more than two photographs per page.

iii. and iv. AREA OF POTENTIAL EFFECTS (APE)

The APE is defined as the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties. It is critically important to note that the APE is not simply the project's physical boundaries or right-of-way. In defining the APE, you must consider not only the potential for physical effects but also the potential for visual, auditory, vibratory, and sociocultural (i.e. land use, traffic patterns, public access) effects.

As the APE is influenced by the scale and nature of an undertaking, it will be different for different types of projects. For example, the APE for a new bypass will be larger than the APE for a single site development project.

iii. DESCRIBE THE APE

Provide a brief verbal description of the APE as it exists now, what types of effects are expected to be caused by the project, and what changes may result from those effects. Verbally identify the boundaries of the APE. If the APE for direct impacts differs from the APE for indirect impacts, identify the boundaries of each.

iv. DESCRIBE THE STEPS TAKEN TO DEFINE THE APE BOUNDARIES CHOSEN

Provide a written narrative describing the steps that were taken to identify the APE and justify the boundaries chosen.

IV. IDENTIFICATION OF HISTORIC PROPERTIES

Historic properties are defined as any prehistoric or historic district, site, building, structure, object, or landscape listed in, or ***eligible*** for inclusion in, the National Register of Historic Places. It is ***the federal agency's*** responsibility to make a reasonable and good faith effort to carry out appropriate identification efforts, which could include background research, consultation, oral history interviews, sample field investigation, and field survey. Failure to identify historic

properties may result in the SHPO requesting additional information and could delay the review of your project.

THE SHPO DOES NOT CONDUCT RESEARCH FOR AGENCIES. Merely checking the National Register for listed properties does not fulfill the requirements of Section 106 to identify properties within your APE that are eligible for listing on the National Register.

The regulations state, "Section 112(a)(1)(A) of the act requires each Federal agency responsible for the protection of historic resources, including archaeological resources, to ensure that all actions taken by employees of contractors of the agency shall meet the professional standards under regulations developed by the Secretary." (36 CFR Part 800.2(a)(1))

SHPO requires that identification and evaluation of historic properties be done by professionals who meet the Secretary of the Interior's Professional Standards in the appropriate field. For projects involving ground disturbance, agencies must utilize a federally qualified archaeologist; for projects that have the potential to directly or indirectly affect above-ground historic properties, agencies must utilize a federally qualified architectural historian. For agencies that do not have qualified professionals on staff, SHPO maintains lists of consultants meeting the federal qualifications on their website at https://www.miplace.org/historic-preservation/research-resources/consultant-resources/

Individuals who meet the federal qualifications established in 36 CFR Part 61 and are not currently included on the *Archaeologist/Historian/Architectural Historian Consultant List* should verify whether the SHPO has their qualifications on file prior to submitting their application. If qualifications are not on file, complete the applicable *Archaeologist/Historian/Architectural Historian Consultant List Update Form* found on the SHPO website at https://www.miplace.org/historic-preservation/research-resources/consultant-resources/. If the qualified professional does not wish to be included on our publicly available lists, indicate this on the form. Inclusion on those lists is not mandatory.

36 CFR Part 800.11(a) requires that any determinations under Section 106 be supported by sufficient documentation to enable any reviewing parties to understand its basis. Include copies of any pertinent resources used to identify historic properties. These could include excerpts from survey reports, copies of Sanborn maps, copies of information found in county histories, etc. Any documentation submitted in support of recommendations of eligibility for the National Register must clearly identify the source of the materials.

a. SCOPE OF EFFORT APPLIED

Provide a list of sources consulted for information on historic properties in the project area (including but not limited to the SHPO office and/or other locations of inventory data). Additional repositories of data could include local historical societies, local libraries, the Library of Michigan, universities, and Tribal Historic Preservation Offices or Tribal Cultural Resources Specialist.

The SHPO maintains an inventory of previously identified architectural properties and districts that have been determined to be eligible for listing in the National Register. The SHPO's State Archaeological Site File is the only comprehensive listing of previously reported archaeological sites and surveys in the state. These resources are not yet available online. Access to these resources is limited to review in the SHPO office and is by appointment only. Appointments can be made by federally qualified professionals by submitting a request through our online research portal. A preliminary research request must be submitted by the qualified individual following the steps outlined on the SHPO website, https://www.miplace.org/historic-

preservation/research-resources/consultant-resources/schedule-a-research-appointment/.
Federally qualified archaeologists may submit requests for architectural information as this is publicly available information, but our expectation is that federally qualified architectural historians will make recommendations regarding eligibility for architectural resources. If your project requires both archaeological and architectural records, please coordinate and reduce the number of requests when possible.

Provide information on previously identified historic properties located within your APE using maps and the appropriate *Michigan SHPO Identification Form*. The map should show the relationships between the direct and indirect APEs and the previously identified historic properties. Include photographs and indicate whether there will be direct or indirect impacts to each of these historic properties.

b. IDENTIFICATION RESULTS
i. ABOVE-GROUND HISTORIC PROPERTIES

It is ***the federal agency's*** responsibility to make a reasonable and good faith effort to carry out appropriate identification efforts, which could include background research, consultation, oral history interviews, sample field investigation, and field survey. ***The SHPO does not conduct research.*** Simply checking the National Register for listed properties does not meet the requirements of Section 106 to identify properties within your APE that are eligible for listing on the National Register. Failure to identify all historic properties in the project APE may result in the SHPO requesting additional information and could delay the review of your project.

The scope of identification efforts should be based on the scope and size of the project. If you are unsure of the level of identification required for your project, please contact SHPO staff to discuss. Depending on the scope and nature of the project, additional identification efforts may be required after preliminary materials are reviewed by the SHPO.

A . Are you submitting above-ground identification information?

Please note whether above-ground identification information has been completed. Some projects may not have above-ground resources in the APE. If that is the case, it should be explicitly stated.

B. If yes, please indicate the level:

Use this section to indicate the level of above-ground identification completed.

Literature Review means research data has been compiled on known historic properties, but fieldwork has not been conducted to identify historic properties.

Reconnaissance Survey Report is the most common level of identification for Section 106 consultation. This is a brief report that includes a localized historic context and inventories all above-ground resources in the APE. The inventory includes recommendations for National Register eligibility based on the historic context and apparent architectural details.

Intensive Survey Report outlines a comprehensive history of each individual property in the APE, including the histories of individual owners and occupants as well as a localized context.

We recommend contacting SHPO before determining the appropriate level of identification for the undertaking.

C. Total number of properties surveyed:

Note the number of properties surveyed in the APE. This should include updated recommendations for previously identified resources, as well as newly identified resources. “Properties” in this section means the number of individual properties inventoried. A single property may have more than one historic resource. An easy way to tally the properties is to add up the number of *Michigan SHPO Identification Forms* included in the report.

D. Total number previously identified historic properties in your APE:

Indicate the number of properties that have been previously recommended or determined eligible, or listed in the National Register of Historic Places. Please provide updated photography and eligibility recommendations, as the resources may have changed from when the properties were first identified.

E. Total number of newly identified properties recommended eligible for listing in the National Register of Historic Places:

Note the number of eligible properties newly identified as part of this survey effort.

F. Summarize, briefly, your findings for above-ground resources:

Provide a brief overview of the effort to identify above-ground resources. If there are important details about the survey you want the reviewer to consider, please include them. If there were no resources over 50 years old within the APE, this is the place to note it.

G. Michigan SHPO Identification Forms

As part of your application package, complete the appropriate *Michigan SHPO Identification Form* for each resource over 50 years of age. This includes at a minimum the following information: address, municipality, county, property type, photograph, architectural information (when available for buildings), eligibility recommendation, integrity, survey date/recorder, architectural description, and statement of significance. The architectural description should be a brief description of the building, structure, or object. Provide information on existing materials, outbuildings, building form and style, as applicable. The Statement of Significance should include a description of the reasons the property is or is not eligible for inclusion in the National Register, based on the National Register criteria.

If the APE contains an eligible historic district complete a *Michigan SHPO Architectural District/Complex Identification Form* including a description of the district, map or aerial photograph with boundaries, district type, eligibility, integrity, survey date/recorder, statement of significance, and list of historic resources. In this case, do not complete an individual form for each property.

If your APE contains a landscape, use the *Michigan SHPO Cultural Landscape Identification Form* to access the significance of the landscape and associated features.

If your APE has a large (more than 25) number of previously unidentified resources consult with SHPO staff prior to completing identification forms to develop a plan appropriate to the scope of work. When looking at larger areas, it is expected that potential for historic districts should be considered, rather than simply looking at individual eligibility for buildings.

If your research in the SHPO files returned properties that were in the APE and had missing information, we expect that you will provide the missing materials. For example, if the materials have not been identified, or if the exterior materials have changed, please update the form before resubmitting it. If the Current National Register Status indicates that more information is needed, please provide additional information to support your

recommendation of eligibility. If there is no image of the property, please provide one. It is not acceptable to use Google Streetview images as the only source; the SHPO requires current information to make decisions. It is expected that the materials submitted to the SHPO for Section 106 review will not simply be a regurgitation of the materials collected from our office during the research phase.

APPLYING THE NATIONAL REGISTER CRITERIA

For each identified resource, include a recommendation for eligibility by applying the National Register Criteria for Evaluation found in *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* on the National Park Service website. (https://www.nps.gov/subjects/nationalregister/index.htm) All identification forms must include a brief statement from the qualified professional recommending the whether the property is eligible or not for the National Register, including which of the criteria have been met or not and how they are applicable or not.

ii. ARCHAEOLOGY

Projects including ground disturbance, even temporary or minimal disturbance, must complete this section with the assistance of a federally qualified archaeologist.

A. Indicate if archaeological information is included in the consultation application. Not all projects will have ground disturbance, and this is the place to note if archaeological resources were considered.

B. Indicate the level of reporting. An *Archaeological Assessment* considers the sensitivity of the APE and includes a recommendation on whether or not further survey work is required. This is based on environmental context, as well as historic and prehistoric contexts that are localized to the APE. An *Archaeological Report* also includes the aforementioned contexts and details the results of an archaeological survey.

C. Describe width(s), length(s), and depth(s) of proposed ground disturbance(s). This may be presented in a table if multiple activities require varying disturbance. Include permanent, temporary (e.g. workspaces or staging areas), and minimal disturbance.

D. Much of Michigan's territory is below water, and many archaeological resources are submerged. If your APE includes underwater areas, please note if an underwater assessment was included in the information submitted.

Summarize any previously reported archaeological sites and surveys in the project area; this information may be presented in a table. This summary will key directly to the Archaeological Sensitivity Map.

E. Considering the background research, the overall environmental context, and the proposed scope of work, assess the project's potential (low, moderate, or high) to adversely affect significant archaeological resources, both previously reported and yet undiscovered. This is your research-based opinion. For moderate and high assessments, briefly justify whether archaeological fieldwork is recommended. If fieldwork is recommended, briefly describe what is prescribed (e.g. pedestrian and/or shovel test survey, deep testing, or monitoring). Note that if an adequate survey is conducted, rarely do we support additional monitoring (an exception may be reported human remains in the immediate area).

Note that archaeological fieldwork is not required for every project, nor is it appropriate for many projects. The need for fieldwork, typically survey, should be determined by the federal agency, often in consultation with consulting parties, such as the SHPO. The archaeological consultant

contributing to this form will produce the baseline information to inform these decisions; the consultant cannot require survey.

F. As specified in the mapping section, remember to attach a 7.5' USGS topographic quadrangle map showing both the direct and indirect effect APE boundaries, the contextual research radius employed, and the boundaries of any associated previously reported archaeological sites and surveys. Label the graphic Archaeological Sensitivity Map (Not for Public Distribution) and caption with the official quadrangle map name(s). Appropriate base maps can be downloaded free from the USGS TopoView website; alternative base maps (e.g. street maps or aerials) may not be substituted but may be included as supplemental. This map should be appropriately cropped and zoomed to clearly show the relevant area(s). This map demonstrates the spatial relationships between the project, reported archaeological sites and surveys, and the larger environmental context, and is the main visual exhibit supporting the related determination of effect.

G. Briefly summarize previously reported archaeological sites and surveys in the APE. This will require, at a minimum, reviewing the Michigan Archaeological Site Files within SHPO.

H. Briefly summarize the past and present land use of the project area (any relevant supporting documentation should be submitted as attachments). This research effort should be proportional to the scope of work. This helps us assess the potential for impacting historically referenced properties that could retain significant archaeological signatures and the horizontal and vertical extent of prior soil disturbance.

I. Sometimes fieldwork is conducted for a new project prior to the initiation of SHPO consultation (e.g. some telecommunications projects or when otherwise required by a federal agency). If this is the case, check Yes, provide the full report reference on the form, and attach both a standalone color hardcopy and a consolidated/single PDF (on USB drive or CD) of the new report for review and file.

J. Unless this individual already appears on our qualified consultants list, attach a SHPO archaeological qualifications form and resume for this consultant. SHPO staff may refer to this documentation but note that federal agencies are responsible for assuring the use of qualified consultants.

V. IDENTIFICATION OF CONSULTING PARTIES

The SHPO is only one of the mandated consulting parties under Section 106; according to 36 CFR 800.2(c) federal agencies **must** consult with Native American tribes, representatives from local government, applicants for federal assistance/permits/licenses, parties with a demonstrated interest in the undertaking due to the nature of their relationship to the project or affected properties, or their concern with the undertaking's effects on historic properties. The public is also considered a consulting party.

For projects in which there are historic properties in the APE, the agency must notify **all** consulting parties of the finding – whether no adverse effect or adverse effect – and provide each party with 1) a description of the project, specifying the federal involvement, and its APE, including photographs, maps, and drawings, as necessary; 2) a description of the steps taken to identify historic properties; 3) a description of the affected historic properties, including information on the characteristics that qualify them for the National Register; 4) a description of the project's effects on historic properties; 5) an explanation of why the criteria of adverse effect were found applicable or inapplicable, including any conditions or future actions to avoid,

minimize, or mitigate adverse effects; and 6) copies or summaries of any views provided by consulting parties and the public.

a. Provide a list of all consulting parties and the parties' contact information.
Identify all Native American Tribes and/or Tribal Historic Preservation Offices (THPOs) contacted for the project. Include the name of the Tribe, the person to whom your consultation request was addressed, a mailing address, and an email address.

If you are unsure which Tribes to consult, we recommend contacting the applicable federal agency contact. More information on tribal consultation can be found on the Advisory Council on Historic Preservation's website, https://www.achp.gov.

Provide names, mailing addresses, and if possible, email addresses for any other consulting parties identified per 36 CFR part 800.2(c). Possible consulting parties that should be considered are identified at 36 CFR Part 800.2(c)(3-5).

Local governments should be consulted for projects in their jurisdiction. This includes local units of government that participate in the National Park Service's Certified Local Government (CLG) program. The SHPO has a list of Michigan's current CLG communities and contact information on its website at www.Michigan.gov/shpo. If your project is located within those communities, please consult with the appropriate contact. For non-CLG communities, the SHPO does not maintain a list of contacts.

b. Brief summary of consultation with consulting parties
Provide information related to parties consulted, correspondence sent to those parties, responses received, and contact information.

c. Public comment
Provide summaries of public comment and describe the steps taken to notify the public about the project and solicit public comment.

VI. DETERMINATION OF EFFECT

Following a reasonable and good faith effort to identify historic properties within the project's APE (area of potential effects), the Agency is responsible for providing the SHPO with its finding of effect upon historic properties within the project's APE. While project effects can potentially be either positive or negative, the Section 106 process requires special attention to those impacts that could negatively affect historic resources.

CRITERIA OF ADVERSE EFFECT

An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the national Register. More specifically, the project's effect on the integrity of the property's location, design, setting, materials, workmanship, feeling, or association, including those characteristics that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the project that may occur later intime, be farther removed in distance, or be cumulative.

Examples of adverse effects include, but are not limited to:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that

is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;

- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
- Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

DETERMINATIONS

After applying the criteria, select the appropriate determination and provide required justification or documentation.

- For a determination of no historic properties affected (36 CFR Part 800.4(d)(1)) in which there are either no historic properties present, or no historic properties affected, include the basis for this determination.
- For a determination of no adverse effect (36 CFR Part 800.5(b)), explain why the criteria of adverse effect (36 CFR Part 800.5(a)(1)) were not found applicable and include any conditions to avoid, minimize, or mitigate adverse effects.
- For a determination of adverse effect (36 CFR Part 800.5(d)(2)), explain why the criteria of adverse effect (36 CFR Part 800.5(a)(1)) were found applicable and include any conditions to avoid, minimize, or mitigate adverse effects. Adverse effects must be resolved in consultation with the SHPO pursuant to 36 CFR Part 800.6.
- For projects where the federally qualified professional has recommended archaeological or architectural survey(s), and survey has not yet been conducted, a determination of More Information Needed should be selected. The SHPO will review the recommendation and provide comments. If survey is agreed to be appropriate, the results of the survey(s) and the final Determination of Effect must be submitted to SHPO for review and concurrence.

You must provide a statement explaining the basis for the determination of effect above. If your determination is No Adverse Effect or Adverse Effect, you must include copies or summaries of public comment on the affects to historic properties. Applications without this statement will be considered incomplete and cannot be reviewed until the statement is provided.

The official responsible for the determinations must sign the form. This is either the federal agency member who has reviewed and approved the finding, or their designated responsible party. In the case of HUD Part 58, this is the Responsible Entity.

ATTACHMENT CHECKLIST

The attachment checklist is provided as a quick reference to ensure that all of the expected attachments are included with the submission. It will also allow the SHPO reviewer to confirm that all intended maps, qualifications, reports, etc., have been received.

ONLINE SUBMISSION

To submit, visit our online portal, and follow the instructions.

CONTACT THE SHPO

300 North Washington Square
Lansing MI 48913
517-335-9840 **preservation@michigan.gov** **Michigan.gov/SHPO**

THIS APPLICATION AND INSTRUCTIONS ARE SUBJECT TO UPDATES, PLEASE CHECK OUR WEBSITE FREQUENTLY FOR THE LATEST VERSION.

Updated 10.16.2023

SHPO - Above Ground



5/15/2026

1:34,420

0 0.2 0.4 0.8 mi

0 0.33 0.65 1.3 km

Buildings, Objects, Structures

Listed in the National Register of Historic Places (none)

Districts, Sites, Complexes

More Information Needed/Unevaluated

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Vantor

APPENDIX G: WEB SOIL SURVEY REPORT

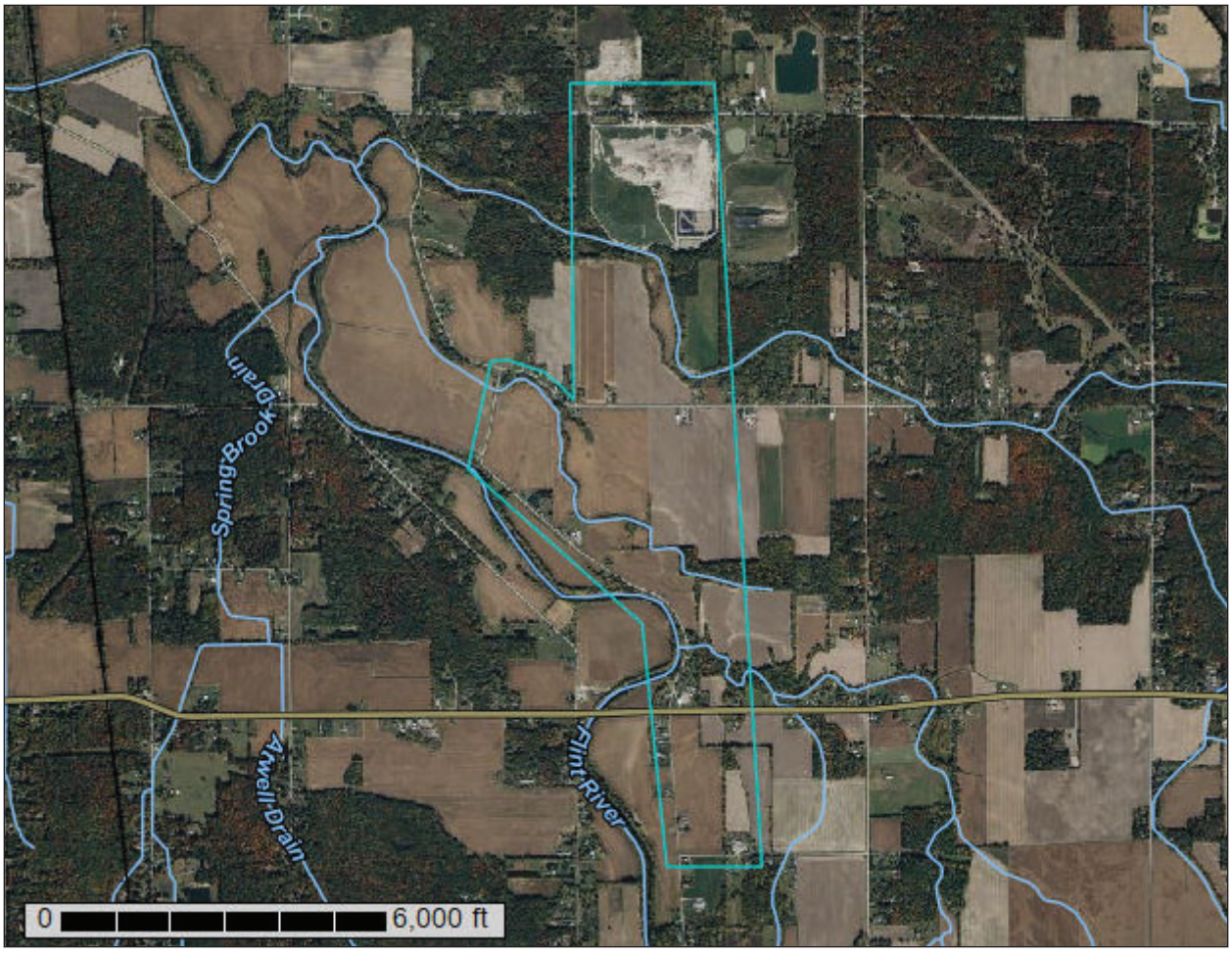
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Saginaw County, Michigan



May 28, 2026

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

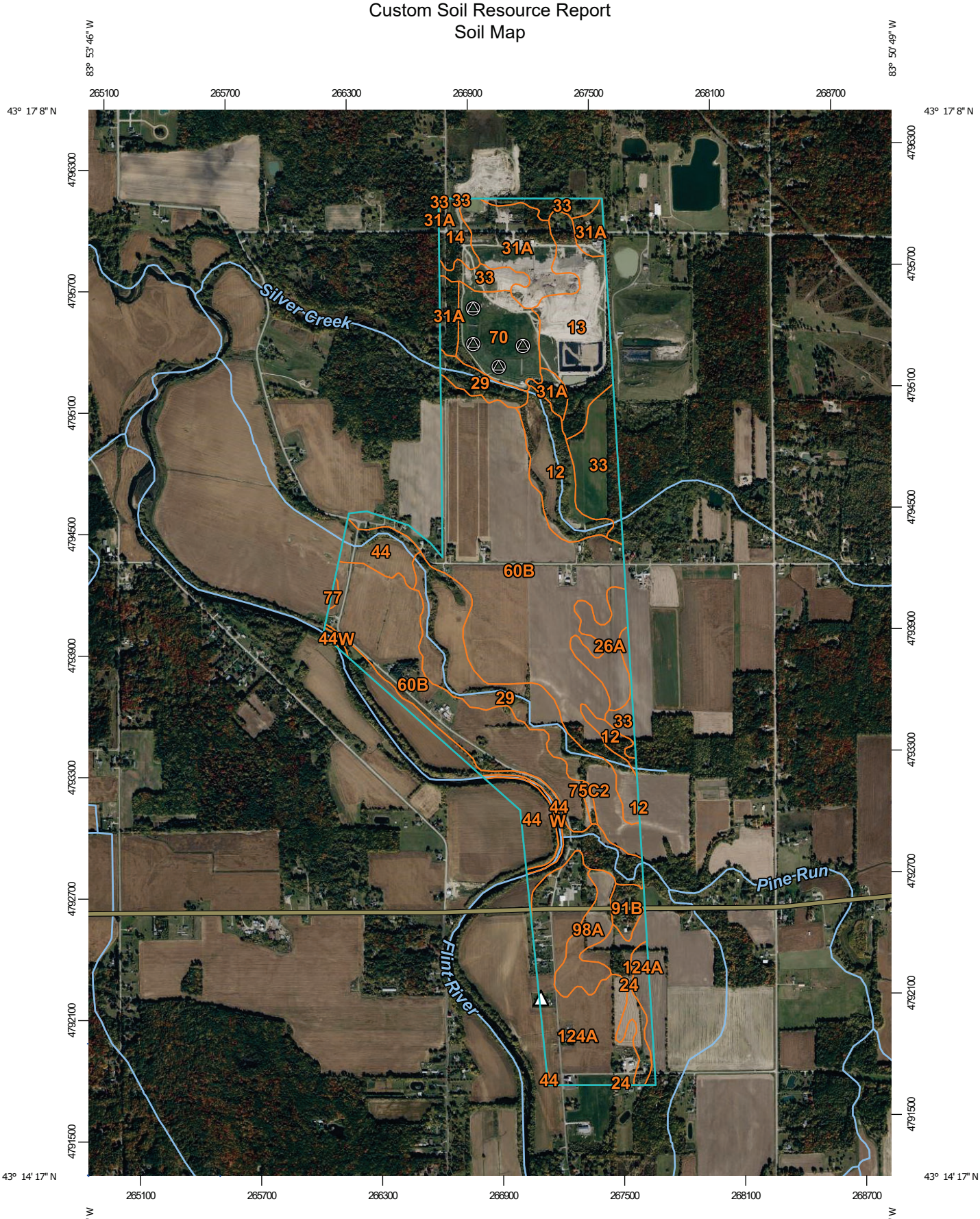
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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:25,600 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 350 700 1400 2100

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

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.

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: Saginaw County, Michigan
Survey Area Data: Version 25, Sep 4, 2025

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

Date(s) aerial images were photographed: Oct 10, 2022—Nov 3, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
12	Corunna sandy loam	42.1	4.4%
13	Belleville fine sand	61.0	6.4%
14	Pella silt loam	12.0	1.3%
24	Parkhill loam, 0 to 1 percent slopes	20.8	2.2%
26A	Pipestone sand, loamy substratum, 0 to 3 percent slopes	22.9	2.4%
29	Sloan silt loam, frequently flooded	89.5	9.4%
31A	Pipestone sand, Erie-Huron Lake Plain, 0 to 3 percent slopes	63.4	6.7%
33	Granby fine sand	57.3	6.0%
44	Sloan-Ceresco complex, frequently flooded	69.8	7.4%
60B	Arkona sand, 0 to 4 percent slopes	338.9	35.7%
70	Udipsamments, undulating	40.9	4.3%
75C2	Strawn silt loam, 6 to 12 percent slopes, eroded	2.0	0.2%
77	Chesaning-Cohoctah complex, frequently flooded	1.0	0.1%
91B	Branch sand, loamy substratum, 0 to 6 percent slopes	8.5	0.9%
98A	Poseyville loamy fine sand, 0 to 3 percent slopes	21.6	2.3%
124A	Selfridge loamy sand, 0 to 3 percent slopes	92.0	9.7%
W	Water	5.2	0.5%
Totals for Area of Interest		**948.9**	**100.0%**

Map Unit Descriptions

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

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic

class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

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

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

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

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

Saginaw County, Michigan

12—Corunna sandy loam

Map Unit Setting

National map unit symbol: 6877
Elevation: 580 to 730 feet
Mean annual precipitation: 32 to 32 inches
Mean annual air temperature: 47 to 48 degrees F
Frost-free period: 137 to 189 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Corunna and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Corunna

Setting

Landform: Broad flats till-floored lake plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy till

Typical profile

Ap - 0 to 11 inches: sandy loam
Bg - 11 to 27 inches: sandy loam
2C - 27 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F099XY013MI - Wet Lake Plain Flats
Hydric soil rating: Yes

Minor Components

Wixom

Percent of map unit: 5 percent

Landform: Low knolls till-floored lake plains, Till plains, Lake plains
Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY005MI - Cool Moist Sandy Depression
Hydric soil rating: No

Capac

Percent of map unit: 5 percent
Landform: Low knolls till-floored lake plains
Landform position (two-dimensional): Summit, footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY007MI - Lake Plain Flats
Hydric soil rating: No

13—Belleville fine sand

Map Unit Setting

National map unit symbol: 6878
Elevation: 580 to 720 feet
Mean annual precipitation: 31 to 32 inches
Mean annual air temperature: 47 to 48 degrees F
Frost-free period: 137 to 189 days
Farmland classification: Not prime farmland

Map Unit Composition

Belleville and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Belleville

Setting

Landform: Broad flats, depressions till-floored lake plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciolacustrine deposits over loamy till

Typical profile

Ap - 0 to 12 inches: fine sand
Bg - 12 to 17 inches: sand
Cg1 - 17 to 23 inches: fine sand
2Cg2 - 23 to 30 inches: clay loam
2Cg3 - 30 to 80 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F099XY012MI - Cool Wet Sandy Depression
Hydric soil rating: Yes

Minor Components

Wixom

Percent of map unit: 5 percent
Landform: Low knolls till-floored lake plains, Till plains, Lake plains
Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY005MI - Cool Moist Sandy Depression
Hydric soil rating: No

Pipestone

Percent of map unit: 5 percent
Landform: Deltas, Low knolls lake plains
Landform position (two-dimensional): Summit, shoulder, footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY005MI - Cool Moist Sandy Depression
Hydric soil rating: No

14—Pella silt loam

Map Unit Setting

National map unit symbol: 6879
Elevation: 570 to 690 feet
Mean annual precipitation: 31 to 32 inches
Mean annual air temperature: 47 to 48 degrees F

Frost-free period: 137 to 189 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Pella and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pella

Setting

Landform: Broad flats, drainageways till-floored lake plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy glaciolacustrine deposits

Typical profile

Ap - 0 to 9 inches: silt loam
Bg1 - 9 to 16 inches: silt loam
Bg2 - 16 to 24 inches: silt loam
2C - 24 to 80 inches: stratified silty clay loam to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 2.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: Very high (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F099XY013MI - Wet Lake Plain Flats
Hydric soil rating: Yes

Minor Components

Capac

Percent of map unit: 5 percent
Landform: Low knolls till-floored lake plains
Landform position (two-dimensional): Summit, footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY007MI - Lake Plain Flats
Hydric soil rating: No

Wixom

Percent of map unit: 5 percent
Landform: Low knolls till-floored lake plains, Till plains, Lake plains
Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY005MI - Cool Moist Sandy Depression
Hydric soil rating: No

24—Parkhill loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tx84
Landscape: Till plains, lake plains
Elevation: 580 to 890 feet
Mean annual precipitation: 28 to 38 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 150 to 230 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Parkhill and similar soils: 87 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Parkhill

Setting

Landscape: Till plains, lake plains
Landform: Wave-worked till plains, Drainageways, Depressions on moraines, Till-floored lake plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Loamy lodgment till

Typical profile

Ap - 0 to 9 inches: loam
Bg - 9 to 29 inches: clay loam
C - 29 to 57 inches: loam
2Cd - 57 to 80 inches: loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 36 to 63 inches to densic material
Drainage class: Poorly drained
Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 30 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline (0.1 to 0.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F099XY013MI - Wet Lake Plain Flats
Hydric soil rating: Yes

Minor Components

Crosier

Percent of map unit: 7 percent
Landscape: Till plains, lake plains
Landform: Low knolls on wave-worked till plains, Low knolls on drainageways, Moraines, Till-floored lake plains
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY007MI - Lake Plain Flats
Hydric soil rating: No

Corunna

Percent of map unit: 5 percent
Landscape: Till plains, lake plains
Landform: Wave-worked till plains, Drainageways, Depressions on moraines, Till-floored lake plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F099XY013MI - Wet Lake Plain Flats
Hydric soil rating: Yes

Ziegenfuss

Percent of map unit: 1 percent
Landscape: Till plains, lake plains
Landform: Wave-worked till plains, Drainageways, Depressions on moraines, Till-floored lake plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F099XY013MI - Wet Lake Plain Flats
Hydric soil rating: Yes

26A—Pipestone sand, loamy substratum, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 687k
Elevation: 580 to 720 feet
Mean annual precipitation: 31 to 32 inches
Mean annual air temperature: 47 to 48 degrees F
Frost-free period: 137 to 189 days
Farmland classification: Not prime farmland

Map Unit Composition

Pipestone, loamy substratum, and similar soils: 93 percent
Minor components: 7 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pipestone, Loamy Substratum

Setting

Landform: Deltas, Low knolls lake plains
Landform position (two-dimensional): Summit, shoulder, footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Sandy glaciolacustrine deposits over loamy till

Typical profile

Ap - 0 to 10 inches: sand
E - 10 to 12 inches: sand
Bs1 - 12 to 21 inches: sand
Bs2 - 21 to 26 inches: sand
BC - 26 to 45 inches: sand
C1 - 45 to 52 inches: fine sand
2C2 - 52 to 80 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 6 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: A/D
Ecological site: F099XY005MI - Cool Moist Sandy Depression
Hydric soil rating: No

Minor Components

Capac

Percent of map unit: 4 percent
Landform: Low knolls till-floored lake plains
Landform position (two-dimensional): Summit, footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY007MI - Lake Plain Flats
Hydric soil rating: No

Parkhill

Percent of map unit: 3 percent
Landform: Broad flats, depressions till-floored lake plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F099XY013MI - Wet Lake Plain Flats
Hydric soil rating: Yes

29—Sloan silt loam, frequently flooded

Map Unit Setting

National map unit symbol: 687m
Elevation: 570 to 710 feet
Mean annual precipitation: 31 to 32 inches
Mean annual air temperature: 47 to 48 degrees F
Frost-free period: 137 to 189 days
Farmland classification: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Sloan, frequently flooded, and similar soils: 93 percent
Minor components: 7 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sloan, Frequently Flooded

Setting

Landform: Broad flats flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Loamy alluvium

Typical profile

Ap - 0 to 12 inches: silt loam
A - 12 to 24 inches: fine sandy loam
Bg - 24 to 42 inches: silty clay loam
Cg - 42 to 80 inches: stratified very fine sandy loam to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C/D
Ecological site: F099XY009MI - Wet Floodplain
Hydric soil rating: Yes

Minor Components

Cohoctah, frequently flooded

Percent of map unit: 4 percent
Landform: Broad flats flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F099XY009MI - Wet Floodplain
Hydric soil rating: Yes

Ceresco, frequently flooded

Percent of map unit: 3 percent
Landform: Low knolls flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY009MI - Wet Floodplain
Hydric soil rating: Yes

31A—Pipestone sand, Erie-Huron Lake Plain, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2wb2c
Landscape: Lake plains
Elevation: 580 to 850 feet
Mean annual precipitation: 28 to 38 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 135 to 210 days
Farmland classification: Not prime farmland

Map Unit Composition

Pipestone and similar soils: 87 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pipestone

Setting

Landscape: Lake plains
Landform: Till-floored lake plains, Glacial deltas
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciolacustrine deposits

Typical profile

Ap - 0 to 5 inches: sand
E - 5 to 11 inches: sand
Bo - 11 to 22 inches: sand
BC - 22 to 35 inches: sand
C - 35 to 80 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: About 6 to 8 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 0.5 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Ecological site: F099XY005MI - Cool Moist Sandy Depression

Hydric soil rating: No

Minor Components

Kingsville

Percent of map unit: 7 percent
Landscape: Lake plains
Landform: Till-floored lake plains, Glacial deltas
Microfeatures of landform position: Open depressions
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: F099XY012MI - Cool Wet Sandy Depression
Hydric soil rating: Yes

Covert

Percent of map unit: 4 percent
Landscape: Lake plains
Landform: Till-floored lake plains, Glacial deltas
Microfeatures of landform position: Rises
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY005MI - Cool Moist Sandy Depression
Hydric soil rating: No

Wixom

Percent of map unit: 2 percent
Landscape: Lake plains
Landform: Till-floored lake plains, Glacial deltas
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F099XY005MI - Cool Moist Sandy Depression
Hydric soil rating: No

33—Granby fine sand

Map Unit Setting

National map unit symbol: 687p
Elevation: 580 to 720 feet
Mean annual precipitation: 31 to 32 inches
Mean annual air temperature: 47 to 48 degrees F
Frost-free period: 137 to 189 days
Farmland classification: Farmland of local importance

Map Unit Composition

Granby and similar soils: 93 percent
Minor components: 7 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Granby

Setting

Landform: Broad flats, depressions lake plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciolacustrine deposits

Typical profile

Ap - 0 to 12 inches: fine sand
Bg - 12 to 20 inches: fine sand
Bw - 20 to 48 inches: fine sand
Cg - 48 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 25 percent
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D
Ecological site: F099XY012MI - Cool Wet Sandy Depression
Hydric soil rating: Yes

Minor Components

Wixom

Percent of map unit: 3 percent
Landform: Low knolls till-floored lake plains, Till plains, Lake plains
Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY005MI - Cool Moist Sandy Depression
Hydric soil rating: No

Parkhill

Percent of map unit: 2 percent
Landform: Broad flats, depressions till-floored lake plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear

Ecological site: F099XY013MI - Wet Lake Plain Flats
Hydric soil rating: Yes

Capac

Percent of map unit: 2 percent
Landform: Low knolls till-floored lake plains
Landform position (two-dimensional): Summit, footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY007MI - Lake Plain Flats
Hydric soil rating: No

44—Sloan-Ceresco complex, frequently flooded

Map Unit Setting

National map unit symbol: 687r
Elevation: 570 to 710 feet
Mean annual precipitation: 31 to 32 inches
Mean annual air temperature: 47 to 48 degrees F
Frost-free period: 137 to 189 days
Farmland classification: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Sloan, frequently flooded, and similar soils: 47 percent
Ceresco, frequently flooded, and similar soils: 40 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sloan, Frequently Flooded

Setting

Landform: Broad flats flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

Ap - 0 to 12 inches: silt loam
A - 12 to 24 inches: fine sandy loam
Bg - 24 to 42 inches: silty clay loam
Cg - 42 to 80 inches: stratified very fine sandy loam to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C/D
Ecological site: F099XY009MI - Wet Floodplain
Hydric soil rating: Yes

Description of Ceresco, Frequently Flooded

Setting

Landform: Low knolls flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy alluvium

Typical profile

Ap - 0 to 11 inches: silt loam
Bw - 11 to 19 inches: silt loam
Cg - 19 to 54 inches: stratified silt loam to very fine sand
2C - 54 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 6 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: Very high (about 13.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Ecological site: F099XY009MI - Wet Floodplain
Hydric soil rating: Yes

Minor Components

Pipestone

Percent of map unit: 5 percent
Landform: Deltas, Low knolls lake plains
Landform position (two-dimensional): Summit, shoulder, footslope, toeslope

Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY005MI - Cool Moist Sandy Depression
Hydric soil rating: No

Londo

Percent of map unit: 4 percent
Landform: Broad flats, low knolls till-floored lake plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY007MI - Lake Plain Flats
Hydric soil rating: No

Capac

Percent of map unit: 4 percent
Landform: Low knolls till-floored lake plains
Landform position (two-dimensional): Summit, footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY007MI - Lake Plain Flats
Hydric soil rating: No

60B—Arkona sand, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: 6881
Elevation: 580 to 730 feet
Mean annual precipitation: 31 to 32 inches
Mean annual air temperature: 47 to 48 degrees F
Frost-free period: 137 to 189 days
Farmland classification: Farmland of local importance

Map Unit Composition

Arkona and similar soils: 93 percent
Minor components: 7 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arkona

Setting

Landform: Low knolls till-floored lake plains
Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear

Across-slope shape: Convex
Parent material: Sandy glaciolacustrine deposits over clayey till

Typical profile

Ap - 0 to 10 inches: sand
Bs1 - 10 to 17 inches: sand
Bs2 - 17 to 25 inches: sand
E - 25 to 27 inches: sand
2Btg - 27 to 35 inches: silty clay loam
2C - 35 to 80 inches: silty clay

Properties and qualities

Slope: 0 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F099XY005MI - Cool Moist Sandy Depression
Hydric soil rating: No

Minor Components

Belleville

Percent of map unit: 4 percent
Landform: Broad flats, depressions till-floored lake plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F099XY012MI - Cool Wet Sandy Depression
Hydric soil rating: Yes

Tappan

Percent of map unit: 3 percent
Landform: Broad flats, depressions till-floored lake plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F099XY013MI - Wet Lake Plain Flats
Hydric soil rating: Yes

70—Udipsamments, undulating

Map Unit Setting

National map unit symbol: 6889
Elevation: 570 to 710 feet
Mean annual precipitation: 31 to 32 inches
Mean annual air temperature: 47 to 48 degrees F
Frost-free period: 137 to 189 days
Farmland classification: Not prime farmland

Map Unit Composition

Udipsamments and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udipsamments

Setting

Landform: Broad flats, low knolls outwash plains, Broad flats, low knolls lake plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Sandy glaciolacustrine deposits and/or glaciofluvial deposits

Typical profile

A - 0 to 4 inches: sand
C - 4 to 80 inches: sand

Properties and qualities

Slope: 0 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Hydrologic Soil Group: A
Ecological site: F099XY006MI - Cool Dry Sandy Ridge
Hydric soil rating: No

Minor Components

Granby

Percent of map unit: 3 percent
Landform: Broad flats, depressions lake plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F099XY012MI - Cool Wet Sandy Depression
Hydric soil rating: Yes

Belleville

Percent of map unit: 2 percent
Landform: Broad flats, depressions till-floored lake plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F099XY012MI - Cool Wet Sandy Depression
Hydric soil rating: Yes

75C2—Strawn silt loam, 6 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: 688h
Elevation: 580 to 730 feet
Mean annual precipitation: 31 to 32 inches
Mean annual air temperature: 47 to 48 degrees F
Frost-free period: 137 to 189 days
Farmland classification: Farmland of local importance

Map Unit Composition

Strawn, moderately eroded, and similar soils: 93 percent
Minor components: 7 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Strawn, Moderately Eroded

Setting

Landform: Till plains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy till

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 20 inches: silty clay loam

C1 - 20 to 28 inches: silt loam
C2 - 28 to 80 inches: silt loam

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: Very high (about 12.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F099XY007MI - Lake Plain Flats
Hydric soil rating: No

Minor Components

Londo

Percent of map unit: 7 percent
Landform: Broad flats, low knolls till-floored lake plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY007MI - Lake Plain Flats
Hydric soil rating: No

77—Chesaning-Cohoctah complex, frequently flooded

Map Unit Setting

National map unit symbol: 688l
Elevation: 570 to 680 feet
Mean annual precipitation: 32 to 32 inches
Mean annual air temperature: 47 to 48 degrees F
Frost-free period: 137 to 189 days
Farmland classification: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Chesaning, frequently flooded, and similar soils: 47 percent
Cohoctah, frequently flooded, and similar soils: 40 percent
Minor components: 13 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chesaning, Frequently Flooded

Setting

Landform: Low knolls flood plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy over sandy alluvium

Typical profile

A - 0 to 6 inches: silt loam
C - 6 to 18 inches: very fine sandy loam
Cg - 18 to 22 inches: sandy loam
C' - 22 to 28 inches: sandy loam
2C1 - 28 to 44 inches: loamy sand
2C2 - 44 to 53 inches: sand
2Cg - 53 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Available water supply, 0 to 60 inches: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Ecological site: F099XY009MI - Wet Floodplain
Hydric soil rating: Yes

Description of Cohoctah, Frequently Flooded

Setting

Landform: Broad flats flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

A - 0 to 10 inches: very fine sandy loam
Cg1 - 10 to 22 inches: very fine sandy loam
Cg2 - 22 to 27 inches: sandy loam
2Cg3 - 27 to 40 inches: sand
2Cg4 - 40 to 50 inches: sand
2Cg5 - 50 to 80 inches: coarse sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Ecological site: F099XY009MI - Wet Floodplain
Hydric soil rating: Yes

Minor Components

Capac

Percent of map unit: 5 percent
Landform: Low knolls till-floored lake plains
Landform position (two-dimensional): Summit, footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY007MI - Lake Plain Flats
Hydric soil rating: No

Pipestone

Percent of map unit: 4 percent
Landform: Deltas, Low knolls lake plains
Landform position (two-dimensional): Summit, shoulder, footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY005MI - Cool Moist Sandy Depression
Hydric soil rating: No

Londo

Percent of map unit: 4 percent
Landform: Broad flats, low knolls till-floored lake plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY007MI - Lake Plain Flats
Hydric soil rating: No

91B—Branch sand, loamy substratum, 0 to 6 percent slopes

Map Unit Setting

National map unit symbol: 688s
Elevation: 600 to 730 feet
Mean annual precipitation: 32 to 32 inches
Mean annual air temperature: 47 to 48 degrees F
Frost-free period: 137 to 189 days
Farmland classification: Not prime farmland

Map Unit Composition

Branch, loamy substratum, and similar soils: 87 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Branch, Loamy Substratum

Setting

Landform: Beach ridges on till-floored lake plains
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciolacustrine deposits over loamy till

Typical profile

Ap - 0 to 8 inches: sand
E1 - 8 to 18 inches: sand
E2 - 18 to 27 inches: sand
Bt - 27 to 34 inches: gravelly sandy loam
C1 - 34 to 45 inches: sand
2C2 - 45 to 49 inches: very gravelly sand
3C3 - 49 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Ecological site: F099XY005MI - Cool Moist Sandy Depression
Hydric soil rating: No

Minor Components

Fabius

Percent of map unit: 7 percent
Landform: Beach ridges on lake plains
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY007MI - Lake Plain Flats
Hydric soil rating: No

Boyer

Percent of map unit: 6 percent
Landform: Beach ridges on till-floored lake plains
Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Interfluve, head slope, nose slope, side slope, base slope, crest
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F099XY007MI - Lake Plain Flats
Hydric soil rating: No

98A—Poseyville loamy fine sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 688y
Elevation: 580 to 680 feet
Mean annual precipitation: 32 to 32 inches
Mean annual air temperature: 47 to 48 degrees F
Frost-free period: 137 to 189 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Poseyville and similar soils: 93 percent
Minor components: 7 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Poseyville

Setting

Landform: Low knolls till-floored lake plains
Landform position (two-dimensional): Summit, shoulder, footslope, toeslope
Landform position (three-dimensional): Rise

Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Sandy glaciolacustrine deposits over loamy till

Typical profile

Ap - 0 to 10 inches: loamy fine sand
E - 10 to 12 inches: sand
Bt - 12 to 17 inches: sandy loam
Cg - 17 to 80 inches: loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 6 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F099XY007MI - Lake Plain Flats
Hydric soil rating: No

Minor Components

Belleville

Percent of map unit: 3 percent
Landform: Broad flats, depressions till-floored lake plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F099XY012MI - Cool Wet Sandy Depression
Hydric soil rating: Yes

Parkhill

Percent of map unit: 2 percent
Landform: Broad flats, depressions till-floored lake plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F099XY013MI - Wet Lake Plain Flats
Hydric soil rating: Yes

Tappan

Percent of map unit: 2 percent
Landform: Broad flats, depressions till-floored lake plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf

Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F099XY013MI - Wet Lake Plain Flats
Hydric soil rating: Yes

124A—Selfridge loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2whvw
Landscape: Lake plains
Elevation: 540 to 830 feet
Mean annual precipitation: 28 to 38 inches
Mean annual air temperature: 45 to 52 degrees F
Frost-free period: 135 to 210 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Selfridge and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Selfridge

Setting

Landscape: Lake plains
Landform: Wave-worked till plains, Nearshore zones (relict), Water-lain moraines, Glacial drainage channels, Glacial deltas
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear, convex
Across-slope shape: Convex, linear
Parent material: Sandy and loamy glaciolacustrine deposits over loamy till

Typical profile

Ap - 0 to 9 inches: loamy sand
E - 9 to 17 inches: sand
Bw - 17 to 27 inches: sand
Bt1 - 27 to 30 inches: sandy loam
2Bt2 - 30 to 35 inches: clay loam
2Cg - 35 to 79 inches: clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: None

Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F099XY005MI - Cool Moist Sandy Depression
Hydric soil rating: No

Minor Components

Belleville

Percent of map unit: 5 percent
Landscape: Lake plains
Landform: Nearshore zones (relict), Wave-worked till plains, Water-lain moraines, Glacial drainage channels, Glacial deltas
Microfeatures of landform position: Open depressions
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Concave, linear
Across-slope shape: Concave
Ecological site: F099XY012MI - Cool Wet Sandy Depression
Hydric soil rating: Yes

Parkhill

Percent of map unit: 3 percent
Landscape: Lake plains
Landform: Wave-worked till plains, Glacial deltas, Glacial drainage channels, Water-lain moraines, Nearshore zones (relict)
Microfeatures of landform position: Open depressions
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear, concave
Across-slope shape: Concave
Ecological site: F099XY013MI - Wet Lake Plain Flats
Hydric soil rating: Yes

Capac

Percent of map unit: 2 percent
Landscape: Lake plains
Landform: Nearshore zones (relict), Wave-worked till plains, Water-lain moraines, Glacial drainage channels, Glacial deltas
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F099XY007MI - Lake Plain Flats
Hydric soil rating: No

W—Water

Map Unit Setting

National map unit symbol: 6890
Elevation: 570 to 1,970 feet
Mean annual precipitation: 25 to 40 inches
Mean annual air temperature: 37 to 55 degrees F
Frost-free period: 80 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf