Figures

- Figure 1 Map of Proposed Project Area
- Figure 2 Area Wetlands
- Figure 3 Floodplain
- Figure 4 PFAS Sampling Map
- Figure 5 Zoning Map
- Figure 6 Present Worth Analysis













FEMA Flood Hazard Areas 1% Annual Chance Flood Hazard

CITY OF KALAMAZOO RICHLAND AND ROSS TOWNSHIPS, KALAWAZOO COUNTY, M

FEMA FLOOD HAZARD AREAS

2024 DWRF APPLICATION

Prein&Newhof





CITY OF KALAMAZOO DWRF PROJECT PLAN PRESENT WORTH ANALYSIS

FIGURE 6

Present Worth Analysis

| | Project 1 | | | |
|---|---------------------------------------|--|--|--|
| Project Description | Richland/Ross Water Main Extension | | | |
| | FY2025 | | | |
| | | | | |
| Capital Costs (including ELAC) | | | | |
| Structures | \$38,299,650 | | | |
| Equipment | \$0 | | | |
| Planning | \$0 | | | |
| Design / Construction Engineering | \$5,744,948 | | | |
| Project Cost | \$44,044,598 | | | |
| (A) 20-yr Present Worth of Capital Costs ¹ | \$17,577,577 | | | |
| Operation, Maintenance & Replacement (OM&R) | | | | |
| Energy Cost Savings | \$0 | | | |
| OM&R | \$0 | | | |
| Annual OM&R ² | \$0 | | | |
| (B) 20-yr Present worth of OM&R ¹ | \$0 | | | |
| (C) 20-yr Present worth of Energy Cost Savings ³ | \$0 | | | |
| Salvage Value of Capital | | | | |
| Salvage value at 20 years | \$22,979,790 | | | |
| (D) 20-yr Present worth of Salvage ¹ | \$9,170,910 | | | |
| Total Present Worth $(A + B + C - D)$ | \$8,406,668 | | | |
| Equivalent Annual Cost (based on Total Present Worth) | \$657,521 | | | |

Appendices

- Appendix A THPO Review
- Appendix B SHPO Review
- Appendix C National Fish and Wildlife Service Review
- Appendix D Project Costs
- Appendix E Public Meeting Documentation
- Appendix F Project Plan Resolution
- Appendix G Water Modeling Memorandum
- Appendix H Environmental Corridor Review
- Appendix I Overburdened Worksheet



Appendix A

THPO Review

Prein&Newhof



Match-E-Be-Nash-Shee-Wish Band of Pottawatomi Indians 2872 Mission Drive Shelbyville, MI 49344 <u>lakota.hobia@glt-nsn.gov</u> <u>kaila.akina@glt-nsn.gov</u> <u>shawn.mckenney@glt-nsn.gov</u>

RE: Notice and Opportunity to Comment City of Kalamazoo Water Main Installation

Lakota/Kaila/Shawn:

On behalf of the City of Kalamazoo, we are submitting the information noted below for the City of Kalamazoo Water Main Project for which we are completing a Section 106 review. This is required as part of the environmental review process associated with a State of Michigan Drinking Water State Revolving Fund (DWSRF) project. The City will be using the DWSRF funds to install water main throughout the Richland and Ross Townships.

We are proposing to install water main within Sections 11, 12, 13, 14, 24, and 25 in Township 1 South, Range 10 West and Sections 14 and 19 in Township 1 South, Range 9 West. The work will include trenching for water main within the right of way and running service lines to homes and businesses. The service lines will be connected using directional drills, so the project will involve disturbance to the surface within the right of way with minimized disturbance directly above the proposed services. A project phase map is attached. Please note that we are requesting review for Phase 1 only.

We would appreciate your response within 30 days of this request, so that we might include the correspondence with the environmental application submittal and have time to respond to any questions you might have.

We appreciate your time to review this matter. If you need any additional information to complete your review, please feel free to contact me at (616) 364-8491, bvilmont@preinnewhof.com.

Sincerely,

Prein&Newhof

Suin & Vilmont

Brian Vilmont, P.E.

JMD:BGV:dlj

Enclosure: Project Location Maps



Hannahville Potawatomi Indian Community N-14911 Hannahville B-1 Road Wilson, MI 49896 <u>mschuster@hicservices.org</u> <u>csagataw@hicservices.org</u> <u>molly.meshigaud@hannahville.org</u>

RE: Notice and Opportunity to Comment City of Kalamazoo Lead Service Line Replacement

Michael/Cory/Molly:

On behalf of the City of Kalamazoo, we are submitting the information noted below for the City of Kalamazoo Water Main Project for which we are completing a Section 106 review. This is required as part of the environmental review process associated with a State of Michigan Drinking Water State Revolving Fund (DWSRF) project. The City will be using the DWSRF funds to install water main throughout the Richland and Ross Townships.

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We would appreciate your response within 30 days of this request, so that we might include the correspondence with the environmental application submittal and have time to respond to any questions you might have.

We appreciate your time to review this matter. If you need any additional information to complete your review, please feel free to contact me at (616) 364-8491, bvilmont@preinnewhof.com.

Sincerely,

Prein&Newhof

Suin & Vilmont

Brian Vilmont, P.E.

JMD:BGV:dlj

Enclosure: Project Location Maps



Little River Band of Ottawa Indians 2608 Governmental Center Drive Manistee, MI 49660 jonniesam@lrboi-nsn.gov williambeaver@lrboi-nsn.gov

RE: Notice and Opportunity to Comment City of Kalamazoo Lead Service Line Replacement

Jay/Frank:

On behalf of the City of Kalamazoo, we are submitting the information noted below for the City of Kalamazoo Water Main Project for which we are completing a Section 106 review. This is required as part of the environmental review process associated with a State of Michigan Drinking Water State Revolving Fund (DWSRF) project. The City will be using the DWSRF funds to install water main throughout the Richland and Ross Townships.

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We appreciate your time to review this matter. If you need any additional information to complete your review, please feel free to contact me at (616) 364-8491, bvilmont@preinnewhof.com.

Sincerely,

Prein&Newhof

Dian & Vilmont

Brian Vilmont, P.E.

JMD:BGV:dlj

Enclosure: Project Location Maps



Nottawaseppi Huron Band of Pottawatomi Indians 1301 T Drive South Fulton, MI 49052 <u>douglas.taylor@nhbp-nsn.gov</u> <u>environmental@nhbp-nsn.gov</u>

RE: Notice and Opportunity to Comment City of Kalamazoo Lead Service Line Replacement

Douglas/Nottawaseppi Environmental:

On behalf of the City of Kalamazoo, we are submitting the information noted below for the City of Kalamazoo Water Main Project for which we are completing a Section 106 review. This is required as part of the environmental review process associated with a State of Michigan Drinking Water State Revolving Fund (DWSRF) project. The City will be using the DWSRF funds to install water main throughout the Richland and Ross Townships.

We are proposing to install water main within Sections 11, 12, 13, 14, 24, and 25 in Township 1 South, Range 10 West and Sections 14 and 19 in Township 1 South, Range 9 West. The work will include trenching for water main within the right of way and running service lines to homes and businesses. The service lines will be connected using directional drills, so the project will involve disturbance to the surface within the right of way with minimized disturbance directly above the proposed services. A project phase map is attached. Please note that we are requesting review for Phase 1 only.

We would appreciate your response within 30 days of this request, so that we might include the correspondence with the environmental application submittal and have time to respond to any questions you might have.

We appreciate your time to review this matter. If you need any additional information to complete your review, please feel free to contact me at (616) 364-8491, bvilmont@preinnewhof.com.

Sincerely,

Prein&Newhof

Suin & Vilmont

Brian Vilmont, P.E.

JMD:BGV:dlj

Enclosure: Project Location Maps



Pokagon Band of Potawatomi Indians 59291 Indian Lake Road P.O. Box 180 Dowagiac, MI 49047 <u>matthew.bussler@pokagonband-nsn.gov</u> jennifer.kanine@pokagonband-nsn.gov

RE: Notice and Opportunity to Comment City of Kalamazoo Lead Service Line Replacement

Matthew/Jennifer:

On behalf of the City of Kalamazoo, we are submitting the information noted below for the City of Kalamazoo Water Main Project for which we are completing a Section 106 review. This is required as part of the environmental review process associated with a State of Michigan Drinking Water State Revolving Fund (DWSRF) project. The City will be using the DWSRF funds to install water main throughout the Richland and Ross Townships.

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We appreciate your time to review this matter. If you need any additional information to complete your review, please feel free to contact me at (616) 364-8491, bvilmont@preinnewhof.com.

Sincerely,

Prein&Newhof

Suin & Vilmont

Brian Vilmont, P.E.

JMD:BGV:dlj

Enclosure: Project Location Maps



Appendix B

SHPO Review

Prein&Newhof



Submit one application for each project for which comment is requested. Consult the *Instructions for the Application for SHPO Section 106 Consultation Form* when completing this application.

Submit application materials online at <u>www.michigan.gov/shposection106</u> or mail to: Michigan State Historic Preservation Office, 300 North Washington Square, Lansing, MI 48913

I. GENERAL INFORMATION 🛛 New submittal

□ More information relating to SHPO ER# SHPO Project #

□ Submitted under a Programmatic Agreement (PA)

PA Name/Date: PA name/date, if applicable

a. Project Name: Richland and Ross Township Waterline

b. Project Location(s):

If there is more than one location for your project, additional rows may be added to the table below. Township, Range, Section/Private Claim refer to the public land survey sections. Each Township/Range group must have its own row in the table below and must include the corresponding county and municipal unit.

| County | Municipality | Street Address | Township (N/S) | Range (E/W) | Section(s) or Private Claim |
|-----------|----------------------|----------------|-------------------|----------------|--------------------------------|
| Kalamazoo | Ross Township | N/A | 01S | 09W | 18 and 19 |
| Kalamazoo | Richland Township | N/A | 01S | 10W | 11, 12, 13, 14, and 24 |

II. FEDERAL AGENCY INVOLVEMENT AND RESPONSE CONTACT INFORMATION

a. Federal Agency: Michigan Department of Environment, Great Lakes, and Energy (EGLE)
 Contact Name: Jonathan M. Berman, State Revolving Fund Compliance Specialist
 Contact Address: P.O. Box 30457, Lansing, Michigan 48909-7957 City: Lansing State: MI Zip: 48909-7957

Email: <u>BermanJ@Michigan.gov</u> Specify the federal agency involvement in the project: Funding Source

- b. If HUD is the Federal Agency: 24 CFR Part 50
 or Part 58
 Responsible Entity (RE): Name of the entity that is acting as the Responsible Entity Contact Name: RE Contact name
 Contact Address: RE mailing address City: RE city State: RE State Zip: RE zip code
 RE Email: RE contact's email
 Phone: RE contact's phone #
- c. State Agency Contact (*if applicable*): Michigan Department of Environment, Great Lakes, and Energy Contact Name: Ms. Valorie White



Contact Address: PO Box 30457 City: Lansing State: MI Zip: 48909-7957 Email: whitev1@michigan.gov Phone: 517-599-5879

- d. Applicant (if different than federal agency): City of Kalamazoo Contact Name: Anna Crandall, P.E.
 Contact Address: 415 Stockbridge Ave. City: Kalamazoo State: MI Zip: 49001 Email: crandalla@kalamazoocity.org Phone: 269-337-8055
- e. Consulting Firm (if applicable): Prein&Newhof
 - f. Contact Name: Brian Vilmont
 - g. Contact Address: 3355 Evergreen Drive NE City: Grand Rapids State: MI Zip: 49525
 - h. Email: bvilmont@preinnewhof.com Phone: 616-364-8491

III. PROJECT INFORMATION

a. Project Work Description

Describe all work to be undertaken as part of the project:

Installation of public water main within public road right-of-way including water services to individual structures.

b. Project Location and Area of Potential Effect (APE)

i. Maps. Please indicate all maps that will be submitted as attachments to this form.

Street map, clearly displaying the direct and indirect APE boundaries
 Site map
 USGS topographic map Name(s) of topo map(s): Kalamazoo
 Aerial map
 Map of photographs
 Other: Identify type(s) of map(s)

ii. Site Photographs

iii. Describe the APE:

The Area of Potential Effects for direct effects includes the limits of construction, which lies within the existing road right-of-way (ROW). The project design is ongoing, but the construction limits typically extend up to 10 feet from the edge of pavement. If utilities or topography prevents this, then the construction will occur under the existing road.

The APE for indirect effects includes the area adjacent to the construction limits where temporary noise, visual, and traffic impacts will occur.

i. Describe the steps taken to define the boundaries of the APE:



The APE for direct effects was defined by the extent of construction activities. The APE for indirect effects was defined as the extent of temporary visual and noise from construction activities because the proposed improvement involves activities in the ground.

IV. IDENTIFICATION OF HISTORIC PROPERTIES

a. Scope of Effort Applied

i. List sources consulted for information on historic properties in the project area (including but not limited to SHPO office and/or other locations of inventory data).

MSHPO records, aerial images, historic maps

- ii. Provide documentation of previously identified sites as attachments.
- iii. **Provide a map** showing the relationship between the previously identified properties and sites, your project footprint and project APE.
- iv. Have you reviewed existing site information at the SHPO: $\boxtimes {\sf Yes} \ \ \Box \ {\sf No}$
- v. Have you reviewed information from non-SHPO sources: \square Yes \square No

b. Identification Results

- i. Above-ground Properties
 - A. Are you submitting above-ground identification information? \boxtimes Yes \Box No
 - B. If yes, please indicate level:

☑ Literature Review □ Reconnaissance Survey Report □ Intensive Survey Report

- C. Total number of properties surveyed Zero:
- D. Total number of previously identified Historic Properties in your APE Zero
- E. Total number of newly identified properties recommended eligible for listing in the National Register of Historic Places Zero
- F. Summarize, briefly, your findings for above-ground resources.See the cultural resources desktop review.



- G. Attach the appropriate Michigan SHPO Architectural Identification Form for each resource or site 50 years of age or older in the APE. Refer to the *Instructions for the Application for SHPO* Section 106 Consultation Form for guidance on this. N/A
- H. Provide the name and qualifications of the person who made recommendations of eligibility for the above-ground identification forms.

Name Mollie Olynik Agency/Consulting Firm: The Mannik & Smith Group

Is the individual a 36CFR Part 61 Qualified Historian or Architectural Historian \boxtimes Yes \Box No

Are their credentials currently on file with the SHPO? \boxtimes Yes \Box No

If NO attach this individual's qualifications form and resume.

ii. Archaeology

Submit the following information using attachments, as necessary.

- A. Are you submitting archaeological information? 🛛 Yes 🗆 No
- B. If yes, please indicate: Assessment (Desktop Review)
- C. Width(s), length(s), and depth(s) of proposed ground disturbance(s): Water main replacement may disturb a 10'wide by 6' deep excavation trench along the length of the water main
- D. Is a portion of the APE underwater? □ Yes ⊠ No
 If the assessment did not include the underwater portions of the APE, please briefly justify:
 Justification for not assessing the potential for submerged historic resources:
- E. Potential to adversely affect significant archaeological resources:

 \Box Low \boxtimes Moderate \Box High

Is fieldwork recommended? \boxtimes Yes \square No

Briefly justify the recommendation:

There are known sites in or near the project area and ground disturbing activities may occur in intact soils.

- F. Have you attached an Archaeological Sensitivity Map?
 Ves
 No
- G. Summary of previously reported archaeological sites and surveys:

See the cultural resources desktop review

H. Summarize past and present land use:



The project occurs in existing road right-of-way in rural Ross and Richland Townships.

I. If archaeological fieldwork has been conducted, please attach a copy of the report copy and provide full report reference here:

Full report reference

J. Provide the name and qualifications of the person who provided the information for the Archaeology section:

Name: J Ryan Duddleson **Agency/Firm:** Orbis Environmental Consulting Is the person a 36CFR Part 61 Qualified Archaeologist? \boxtimes Yes \Box No Are their credentials currently on file with the SHPO? \boxtimes Yes \Box No *If NO*, attach this individual's qualifications form and resume.

Archaeological site locations are legally protected.

This application may not be made public without first redacting sensitive archaeological information.

V. IDENTIFICATION OF CONSULTING PARTIES

a. **Provide a list of** *all* **consulting parties,** including Native American tribes, local governments, applicants for federal assistance/permits/licenses, parties with a demonstrated interest in the undertaking, and public comment:

Prein&Newhof

b. Provide a summary of consultation with consultation parties:

Prein&Newhof provides water main design and construction document preparation for the project.

c. Provide summaries of public comment and the method by which that comment was sought:

Public meeting was held on April 15, 2024 to receive public comment. All present were in favor of applying for State of Michigan DWRF funding.

VI. DETERMINATION OF EFFECT

Guidance for applying the Criteria of Adverse Effect can be found in *the Instructions for the Application for SHPO Section 106 Consultation Form*.

a. Basis for determination of effect:



MSHPO records show one historic resource and seven archaeological sites within the study area. One historic structure, the Yorkville House, and one archaeological site, 20Kz88, are located immediately adjacent to the project area. There have been three previous cultural resources survey within the study area, but the project area has not been surveyed.

While many of the known archaeological sites have not been field verified, records indicate substantial precontact occupation in Ross and Richland Townships. Historic atlas maps show structures along the existing roads, including residences, a school, a church, and a tavern/inn. The maps also show a cemetery near the project.

Archaeological materials associated with these pre-and post-contact occupations may occur in any intact soils in the project area. These materials may be associated with precontact Native populations in the area and could range from individual artifacts or deposits associated with longer term use of the area, such as the noted garden beds, mounds, and villages. There may also be materials associated with Euroamerican settlement and occupation of Ross and Richland Townships, specifically associated with the structures shown on the atlas maps. The cemetery shown on the maps is over 400 feet east of the project and is unlikely to be affected.

The Area of Potential Effects for direct effects includes the limits of construction, which lies within the existing road right-of-way (ROW). The project design is ongoing, but the construction limits typically extend up to 10 feet from the edge of pavement. If utilities or topography prevents this, then the construction will occur under the existing road. The APE for indirect effects includes the area adjacent to the construction limits where temporary noise, visual, and traffic impacts will occur. The proposed waterline is unlikely to affect significant above-ground resources, but we recommend a Phase I Archaeological survey to determine the presence or absence of intact archaeological deposits in the APE.

b. Determination of effect

- □ No historic properties will be affected
- □ **Historic properties will be affected** and the project will (check one):
 - □ have **No Adverse Effect** on historic properties within the APE.

□ have an **Adverse Effect** on one or more historic properties in the APE and the federal agency, or federally authorized representative, will consult with the SHPO and other parties to resolve the adverse effect under 800.6.

More Information Needed: We are initiating early consultation. A determination of effect will be submitted to the SHPO at a later date, pending results of survey.



Federally Authorized Signature: Jonathan M. Berman Date: 05/06/2024

Type or Print Name: Jonathan M. Berman

Title: State Revolving Fund Compliance Specialist



ATTACHMENT CHECKLIST

Identify any materials submitted as attachments to the form:

- Additional federal, state, local government, applicant, consultant contacts
- \boxtimes Maps of project location

Number of maps attached: 10

- \boxtimes Site Photographs
 - ⊠Map of photographs
- \boxtimes Plans and specifications
- □ Other information pertinent to the work description: Identify the type of materials attached
- □ Updated documentation of previously identified historic properties
- □ New Architectural Properties Identification Forms
- Map showing the relationship between identified historic properties, your project footprint, and project APE
- □ Above-ground qualified person's qualification form and resume
- □ Above-ground survey report
- ⊠ Archaeological sensitivity map
- ⊠ Archaeology survey report
- □ Archaeologist and Historian qualifications and resume- if not on file already.
- □ Other: cultural resources desktop review

Appendix C

USFWS Review





United States Department of the Interior

FISH AND WILDLIFE SERVICE Michigan Ecological Services Field Office 2651 Coolidge Road Suite 101 East Lansing, MI 48823-6360 Phone: (517) 351-2555 Fax: (517) 351-1443



In Reply Refer To: Project Code: 2024-0048649 Project Name: FY 2025 Richland Ross Townships Water Main February 13, 2024

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Official Species List

The attached species list identifies any Federally threatened, endangered, proposed and candidate species that may occur within the boundary of your proposed project or may be affected by your proposed project. The list also includes designated critical habitat if present within your proposed project area or affected by your project. This list is provided to you as the initial step of the consultation process required under section 7(c) of the Endangered Species Act, also referred to as Section 7 Consultation.

Under 50 CFR 402.12(e) (the regulations that implement section 7 of the Endangered Species Act), the accuracy of this species list should be verified after 90 days. You may verify the list by visiting the IPaC website (<u>https://ipac.ecosphere.fws.gov/</u>) at regular intervals during project planning and implementation. To update an Official Species List in IPaC: from the My Projects page, find the project, expand the row, and click Project Home. In the What's Next box on the Project Home page, there is a Request Updated List button to update your species list. Be sure to select an "official" species list for all projects.

Consultation requirements and next steps

Section 7 of the Endangered Species Act of 1973 requires that actions authorized, funded, or carried out by Federal agencies not jeopardize Federally threatened or endangered species or adversely modify designated critical habitat. To fulfill this mandate, Federal agencies (or their designated non-Federal representative) must consult with the Fish and Wildlife Service if they determine their project may affect listed species or critical habitat.

There are two approaches to evaluating the effects of a project on listed species.

<u>Approach 1. Use the All-species Michigan determination key in IPaC.</u> This tool can assist you in making determinations for listed species for some projects. In many cases, the determination key

will provide an automated concurrence that completes all or significant parts of the consultation process. Therefore, we strongly recommend screening your project with the **All-Species Michigan Determination Key (Dkey)**. For additional information on using IPaC and available Determination Keys, visit <u>https://www.fws.gov/media/mifo-ipac-instructions</u> (and click on the attachment). Please carefully review your Dkey output letter to determine whether additional steps are needed to complete the consultation process.

Approach 2. Evaluate the effects to listed species on your own without utilizing a determination key. Once you obtain your official species list, you are not required to continue in IPaC, although in most cases using a determination key should expedite your review. If the project is a Federal action, you should review our section 7 step-by-step instructions before making your determinations: https://www.fws.gov/office/midwest-region-headquarters/midwest-section-7-technical-assistance. If you evaluate the details of your project and conclude "no effect," document your findings, and your listed species review is complete; you do not need our concurrence on "no effect" determinations. If you cannot conclude "no effect," you should coordinate/consult with the Michigan Ecological Services Field Office. The preferred method for submitting your project description and effects determination (if concurrence is needed) is electronically to EastLansing@fws.gov. Please include a copy of this official species list with your request.

For all **wind energy projects** and **projects that include installing communications towers** >**450 feet that use guy wires**, please contact this field office directly for assistance, even if no Federally listed plants, animals or critical habitat are present within your proposed project area or may be affected by your proposed project.

Migratory Birds

Please see the "Migratory Birds" section below for important information regarding incorporating migratory birds into your project planning. Our Migratory Bird Program has developed recommendations, best practices, and other tools to help project proponents voluntarily reduce impacts to birds and their habitats. The Bald and Golden Eagle Protection Act prohibits the take and disturbance of eagles without a permit. If your project is near an eagle nest or winter roost area, see our Eagle Permits website at https://www.fws.gov/program/eagle-management/eagle-permits to help you avoid impacting eagles or determine if a permit may be necessary.

Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your consideration of threatened and endangered species during your project

planning. Please include a copy of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Michigan Ecological Services Field Office

2651 Coolidge Road Suite 101 East Lansing, MI 48823-6360 (517) 351-2555

PROJECT SUMMARY

| Project Code: | 2024-0048649 |
|----------------------|--|
| Project Name: | FY 2025 Richland Ross Townships Water Main |
| Project Type: | Water Supply Pipeline - New Constr - Below Ground |
| Project Description: | The Kalamazoo water system is proposed to be extended into Richland |
| | and Ross Townships. The new water main will be installed within the road |
| | right-of-way, and services will be constructed using directional drill |
| | technology. |

Project Location:

The approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/@42.38180525,-85.40672482813036,14z</u>



Counties: Kalamazoo County, Michigan

ENDANGERED SPECIES ACT SPECIES

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

| NAME | STATUS |
|--|------------------------|
| Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <u>https://ecos.fws.gov/ecp/species/5949</u> General project design guidelines: <u>https://ipac.ecosphere.fws.gov/project/CBIWNRWTXJB7XCTB5Z7W7OT2LA/</u> <u>documents/generated/6982.pdf</u> | Endangered |
| Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/9045</u> | Endangered |
| Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/10515</u> | Proposed Endangered |

BIRDS

| NAME | STATUS |
|---|--------------|
| Whooping Crane Grus americana | Experimental |
| Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, | Population, |
| NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) | Non- |
| No critical habitat has been designated for this species. | Feential |
| Species profile: <u>https://ecos.fws.gov/ecp/species/758</u> | Essential |

NAME

Eastern Massasauga (=rattlesnake) Sistrurus catenatus

No critical habitat has been designated for this species.

This species only needs to be considered under the following conditions:

- For all Projects:Project is within Tier1 Habitat
- For all projects:Project is within Tier2 Habitat
- For all Projects: Project is within EMR Range

Species profile: <u>https://ecos.fws.gov/ecp/species/2202</u> General project design guidelines:

https://ipac.ecosphere.fws.gov/project/CBIWNRWTXJB7XCTB5Z7W7OT2LA/ documents/generated/5280.pdf

INSECTS

| NAME | STATUS |
|---|------------|
| Mitchell's Satyr Butterfly Neonympha mitchellii mitchellii | Endangered |
| No critical habitat has been designated for this species. | |
| Species profile: <u>https://ecos.fws.gov/ecp/species/8062</u> | |
| Monarch Butterfly Danaus plexippus | Candidate |
| No critical habitat has been designated for this species. | |
| Species profile: <u>https://ecos.fws.gov/ecp/species/9743</u> | |
| | |

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> 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 OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act¹ and the Migratory Bird Treaty Act².

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider

STATUS

Threatened

implementing appropriate conservation measures, as described in the links below. Specifically, please review the <u>"Supplemental Information on Migratory Birds and Eagles"</u>.

- 1. The <u>Bald and Golden Eagle Protection Act</u> of 1940.
- 2. The Migratory Birds Treaty Act of 1918.
- 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are bald and/or golden eagles in your project area.

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.

| 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 |
| Golden Eagle <i>Aquila chrysaetos</i> 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. | Breeds elsewhere |

https://ecos.fws.gov/ecp/species/1680

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 <u>"Supplemental Information on Migratory Birds and Eagles</u>", 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 (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (

Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort ()

Vertical black lines; 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.

| | | | | probability of presence breeding season | | | | | | survey effort | | – no data |
|---------------------------------------|------|--------------|--------------|---|--------------|------|------|--------------|------|-----------------------|------|------------|
| SPECIES | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| Bald Eagle Non-BCC Vulnerable | | | U | | ┿ ╪┼┿ | ┼┼╪╪ | ┼┼≢≢ | ŧ ┼∎ŧ | ¢#¢# | <u><u><u></u></u></u> | **** | |
| Golden Eagle Non-BCC Vulnerable | ++++ | ₩ ┼┼┼ | •## + | ┼┿┼┼ | ++++ | ++++ | ++++ | ++++ | ++++ | ++++ | ┼┼╪┼ | ++++ |

Additional information can be found using the following links:

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

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the <u>"Supplemental Information on Migratory Birds and Eagles"</u>.

- 1. The Migratory Birds Treaty Act of 1918.
- 2. The <u>Bald and Golden Eagle Protection Act</u> of 1940.
- 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

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.

| NAME | BREEDING SEASON |
|---|----------------------------|
| American Golden-plover <i>Pluvialis dominica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10561 | Breeds elsewhere |
| 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 |
| Black Tern <i>Chlidonias niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/3093</u> | Breeds May 15 to Aug 20 |
| Black-billed Cuckoo Coccyzus erythropthalmus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399 | Breeds May 15 to Oct 10 |
| Bobolink Dolichonyx oryzivorus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9454</u> | Breeds May 20 to Jul 31 |
| Canada Warbler <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9643</u> | Breeds May 20 to Aug 10 |
| Chimney Swift Chaetura pelagica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9406</u> | Breeds Mar 15 to Aug 25 |
| Golden Eagle Aquila chrysaetos 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/1680 | Breeds elsewhere |
| Golden-winged Warbler Vermivora chrysoptera This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8745 | Breeds May 1 to Jul 20 |

| NAME | BREEDING SEASON |
|---|----------------------------|
| Henslow's Sparrow Ammodramus henslowii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3941 | Breeds May 1 to Aug 31 |
| Lesser Yellowlegs <i>Tringa flavipes</i> 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. <u>https://ecos.fws.gov/ecp/species/9561</u> | Breeds elsewhere |
| Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9398</u> | Breeds May 10 to Sep 10 |
| Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <u>https://ecos.fws.gov/ecp/species/9478</u> | Breeds elsewhere |
| Short-billed Dowitcher <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9480</u> | Breeds elsewhere |
| Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431 | Breeds May 10 to Aug 31 |

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 <u>"Supplemental Information on Migratory Birds and Eagles"</u>, 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 (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (=)

Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort ()

Vertical black lines; 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.

| | | | | prob | ability o | f presenc | ce 📕 br | eeding s | eason | survey | effort - | – no data |
|---|-------------|--------------|---------------|-------------|---------------------|-------------|----------------------|--------------------|--------------|--------------------|-------------|-------------|
| SPECIES American Golden- plover BCC Rangewide (CON) | JAN ++++ | FEB ++++ | MAR ++++ | APR ++++ | MAY ∎+++ | JUN ++++ | JUL +++++ | AUG ++++ | SEP ++++ | OCT ↓+++ | NOV ++++ | DEC ++++ |
| Bald Eagle Non-BCC Vulnerable | | | I IIII | | ┿┿ ┼┿ | ┼┼╪╡ | ┼┼╋╋ | ∎+∎≢ | # ### | U UUUU | *** | |
| Black Tern BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | ┼ <mark>╪</mark> ┼┼ | ++++ | | +++ | ++++ | ++++ | ++++ | ++++ |
| Black-billed Cuckoo BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | + <mark>∳∳</mark> ∥ | ↓ ┼┼ | ┼┼┼ | +++ | ++++ | <mark>┼┼</mark> ┼┼ | ++++ | ++++ |
| Bobolink BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | •••••• | | ♦ ┼┼ ⋬ | ₩┼┿₩ | ++++ | ++++ | ++++ | ++++ |
| Canada Warbler BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | ┼ <mark>╪</mark> ╪┼ | ++++ | | <mark>┼┼</mark> ┼ф | ┼┼빠┼ | ++++ | ++++ | ++++ |
| Chimney Swift BCC Rangewide (CON) | ++++ | ++++ | ┼╂╂╂ | ┼┼┼╡ | | | | | ┼┼ ₩₿ | I ₩++++ | ++++ | ++++ |
| Golden Eagle Non-BCC Vulnerable | ++++ | # +++ | ••••• | ┼┿┼┼ | ++++ | ++++ | ++++ | ++++ | ++++ | ++++ | ┼┼╪┼ | ++++ |
| Golden-winged Warbler BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | ∳ ┼┼∔ | ++++ | <mark>┼┼┼</mark> ┼ | ++++ | ++++ | ++++ | ++++ | ++++ |
| Henslow's Sparrow BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | ╪╪┼┼ | ∎┼┼┤ | ++++ | ++++ | ++++ | ++++ | ++++ | ++++ |
| Lesser Yellowlegs BCC Rangewide (CON) | ++++ | ++++ | ++++ | ┼┼┼║ | ### + | ++++ | # ### | | ║┼╪╪ | ### + | ++++ | ++++ |
|---|------|------|------|---|--------------|------|--------------|--------------|----------------------|--------------|------|------|
| Pectoral Sandpiper BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | ₩┼₩+ | ++++ | +∭∔∭ | ++++ | ++ | ₩ ₩++ | ++++ | ++++ |
| SPECIES Red-headed Woodpecker BCC Rangewide (CON) | JAN | FEB | MAR | APR | MAY | | | AUG | SEP | OCT | NOV | DEC |
| Rusty Blackbird BCC - BCR | ++++ | ┼┼┿┼ | ┼╪╪╪ | ∳ <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> + <u>+</u> <u>+</u> <u>+</u> <u>+</u> <u>+</u> <u>+</u> <u>+</u> <u>+</u> <u>+</u> | ++++ | ++++ | ++++ | ++++ | ++++ | ┼┼┼╇ | ┼╪┼┼ | ++++ |
| Short-billed Dowitcher BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | ┼ᡎ┼┼ | ++++ | ₩ ♥++ | # +++ | ++++ | ++++ | ++++ | ++++ |
| Wood Thrush BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | ↓↓↓ | ŧŧ¦ŧ | ∎∎∔∔ | ++++ | ₩ ₩₩+ | ++++ | ++++ | ++++ |

Additional information can be found using the following links:

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

WETLANDS

Impacts to <u>NWI wetlands</u> 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>U.S. Army Corps of</u> <u>Engineers District</u>.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER POND

PUBGx

- PABF
- PUBG

FRESHWATER EMERGENT WETLAND

- PEM1F
- PEM1C

FRESHWATER FORESTED/SHRUB WETLAND

• PFO1C

RIVERINE

• R5UBH

IPAC USER CONTACT INFORMATION

Agency:Kalamazoo cityName:John StandingerAddress:3355 EVERGREEN DR NECity:Grand RapidsState:MIZip:49525Emailjstandinger@preinnewhof.comPhone:6163648491

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Michigan Department of Environment, Great Lakes, and Energy

Name: Willard Thomas

Phone: 2693373900

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.

Project information

NAME

FY 2025 Richland Ross Townships Water Main

LOCATION

Kalamazoo County, Michigan



DESCRIPTION

Some(The Kalamazoo water system is proposed to be extended into Richland and Ross Townships. The new water main will be installed within the road right-of-way, and services will be constructed using directional drill technology.)

Local office

Michigan Ecological Services Field Office

▶ (517) 351-2555
▶ (517) 351-1443

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

https://ipac.ecosphere.fws.gov/project/CBIWNRWTXJB7XCTB5Z7W7OT2LA/resources#endangered-species

NOTFORCONSULTATIO

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. Log in to IPaC.
- 2. Go to your My Projects list.
- 3. Click PROJECT HOME for this project.
- 4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the <u>Ecological Services Program</u> of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

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

- Species listed under the <u>Endangered Species Act</u> are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the <u>listing status page</u> for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
- 2. <u>NOAA Fisheries</u>, 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. <u>https://ecos.fws.gov/ecp/species/5949</u> | Endangered |
| Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. <u>https://ecos.fws.gov/ecp/species/9045</u> | 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 |
| Birds | ςτατι ις |
| Whooping Crane Grus americana No critical habitat has been designated for this species. <u>https://ecos.fws.gov/ecp/species/758</u> | EXPN |
| Reptiles | |
| NAME | STATUS |
| Eastern Massasauga (=rattlesnake) Sistrurus catenatus Wherever found This species only needs to be considered if any of the following conditions apply: For all Projects:Project is within Tier1 Habitat For all projects:Project is within Tier2 Habitat For all Projects: Project is within EMR Range | Threatened |
| No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2202 | |

Insects

| NAME | STATUS |
|--|------------|
| Mitchell's Satyr Butterfly Neonympha mitchellii mitchellii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8062 | Endangered |
| Monarch Butterfly Danaus plexippus | Candidate |

Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743

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 Act¹ and the Migratory Bird Treaty Act².

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the <u>"Supplemental Information on Migratory Birds and Eagles"</u>.

Additional information can be found using the following links:

- Eagle Management <u>https://www.fws.gov/program/eagle-management</u>
- Measures for avoiding and minimizing impacts to birds <u>https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-</u><u>migratory-birds</u>

- Nationwide conservation measures for birds <u>https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf</u>
- Supplemental Information for Migratory Birds and Eagles in IPaC <u>https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action</u>

There are bald and/or golden eagles in your project area.

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.

| NAME | BREEDING SEASON |
|--|--|
| Bald Eagle Haliaeetus leucocephalus | Breeds Dec 1 to Aug 3 |
| This is not a Bird of Conservation Concern (BCC but warrants attention because of the Eagle Act | :) in this area, t or for potential |
| development or activities. | ypes of |
| | SUL |

Golden Eagle Aquila chrysaetos

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/1680 Breeds elsewhere

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 <u>"Supplemental Information on Migratory Birds and Eagles"</u>, 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.

IPaC: Explore Location resources

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.

| | | | ■ pr | obabilit | y of pre | sence | breed | ling seas | son Is | urvey ef | fort – | no data |
|-------------------------------------|-----|-----|------------|-------------|---------------|-------|-------|-----------|--------|----------|--------|------------|
| SPECIES | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| Bald Eagle Non-BCC Vulnerable | | | | | ₩ ₽₽₽₽ | ┼┼╪╪ | ┼┼╪╪ | ŧ┼∎ŧ | *** | **** | **** | |

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 <u>Avian Knowledge Network (AKN</u>). The AKN data is based on a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen science datasets</u> 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 a BCC species in that area, an eagle (<u>Eagle Act</u> requirements may apply). To see a list of all birds potentially present in your project area, please visit the <u>Rapid Avian Information Locator (RAIL) Tool</u>.

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

The Migratory Bird Resource List is comprised of USFWS <u>Birds of Conservation Concern (BCC)</u> and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the <u>Avian Knowledge</u> <u>Network (AKN)</u>. The AKN data is based on a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen science</u> <u>datasets</u> 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 a BCC species in that area, an eagle (<u>Eagle Act</u> 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, please visit the <u>Rapid Avian Information Locator (RAIL) Tool</u>.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the <u>Eagle Act</u> should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the <u>"Supplemental Information on Migratory Birds and Eagles"</u>.

- 1. The <u>Migratory Birds Treaty Act</u> of 1918.
- 2. The <u>Bald and Golden Eagle Protection Act</u> 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 <u>https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds</u>
- Nationwide conservation measures for birds <u>https://www.fws.gov/sites/default/files/</u> <u>documents/nationwide-standard-conservation-measures.pdf</u>
- Supplemental Information for Migratory Birds and Eagles in IPaC <u>https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action</u>

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the <u>E-bird data mapping tool</u> (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found <u>below</u>.

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.

| NAME | BREEDING SEASON |
|---|------------------------|
| American Golden-plover Pluvialis dominica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds elsewhere |
| 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. | Breeds Dec 1 to Aug 31 |

| Black Tern Chlidonias niger This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/3093</u> | Breeds May 15 to Aug 20 |
|--|-------------------------|
| Black-billed Cuckoo Coccyzus erythropthalmus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9399</u> | Breeds May 15 to Oct 10 |
| 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 |
| Canada Warbler Cardellina canadensis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds May 20 to Aug 10 |
| Chimney Swift Chaetura pelagica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds Mar 15 to Aug 25 |
| Golden Eagle Aquila chrysaetos 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. <u>https://ecos.fws.gov/ecp/species/1680</u> | Breeds elsewhere |
| Golden-winged Warbler Vermivora chrysoptera This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/8745</u> | Breeds May 1 to Jul 20 |
| Henslow's Sparrow Ammodramus henslowii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/3941</u> | Breeds May 1 to Aug 31 |

| Lesser Yellowlegs Tringa flavipes | |
|--|---|
| This is a Bird of Conservation Concern (BCC) throughout it | S |
| range in the continental USA and Alaska. | |
| https://ecos.fws.gov/ecp/species/9679 | |

Pectoral Sandpiper Calidris melanotos This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Rusty Blackbird Euphagus carolinus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Short-billed Dowitcher Limnodromus griseus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9480</u>

Wood Thrush Hylocichla mustelina 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 <u>"Supplemental Information on Migratory Birds and Eagles"</u>, 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.

Breeds elsewhere

Breeds elsewhere

Breeds May 10 to Sep 10

Breeds elsewhere

Breeds elsewhere

Breeds May 10 to Aug 31

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.

| | | | ■ pr | obabilit | y of pre | sence | breed | ling seas | son İs | urvey ef | fort – | no data |
|---|------|------|------|----------|--------------|-------|-------|-----------|--------|--------------|--------|---------|
| SPECIES | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | ОСТ | NOV | DEC |
| American Golden-plover BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | ₩ ∔++ | ++++ | ++++ | ++++ | ++++ | # +++ | ++++ | ++++ |

| Bald Eagle Non-BCC Vulnerable | | ↓↓ ↓ | ∎∔∔≢ | ↓ ∎↓↓ | ┿ ╪┼┿ | ┼┼╪╪ | ┼┼╪╪ | ↓ ┼∎∳ | +#+# | **** | **** | 1111 |
|--|------|--------------|--------------|--------------|---------------------|------------------------|--------------|--------------------|----------------------|-----------------------|-----------|------|
| Black Tern BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | ┼╪┽┼ | ++++ | ++++ | ++++ | ++++ | ++++ | ++++ | ++++ |
| Black-billed Cuckoo BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | ┼╈┿╢ | • +++ | ┼┼┼ ≢ | ++++ | ++++ | <mark>┼┼</mark> ┼┼ | ++++ | ++++ |
| Bobolink BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | ++ <mark> </mark> | 1111 | ↓ ┼┼↓ | # + ## | ++++ | ++++ | ++++ | ++++ |
| Canada Warbler BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | ┼ <mark>╪</mark> ╪┼ | ++++ | ++++ | <mark>┼┼</mark> ┼蛼 | ++#+ | ++++ | ++++ C | ++++ |
| Chimney Swift BCC Rangewide (CON) | ++++ | ++++ | ┼┼┼┼ | ┼┼┼╪ | | 1111 | | | ++++ | ∳ + <u>+</u> } | ++++ | ++++ |
| Golden Eagle Non-BCC Vulnerable | ++++ | ₩ +++ | *** + | ++++ | ++++ | ++++ | 5 | ++++ | ++++ | ++++ | ++++++ | ++++ |
| Golden-winged Warbler BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | |) { \ ++ | ++++ | ++++ | ++++ | ++++ | ++++ | ++++ |
| Henslow's Sparrow BCC Rangewide (CON) | ++++ | +++(| ++++ | +++# | ┿ ┿┼┼ | u +++ | ++++ | ++++ | ++++ | ++++ | ++++ | ++++ |
| Lesser Yellowlegs BCC Rangewide (CON) | ++++ | ++++ | ++++ | +++# | ### + | ++++ | *#** | | ▋┼申申 | *** | ++++ | ++++ |
| Pectoral Sandpiper BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | ₩+₩+ | ++++ | +₩∔₩ | ++++ | 1 ++ 1 | ₩ ₩++ | ++++ | ++++ |
| SPECIES | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| Red-headed Woodpecker BCC Rangewide (CON) | **** | | **** | **** | 111 | 1111 | | | | **** | **** | **** |
| Rusty Blackbird BCC - BCR | ++++ | ┼┼╪┼ | ┼╪╪╪ | • +++ | ++++ | ++++ | ++++ | ++++ | ++++ | ++++ | ┼╪┼┼ | ++++ |

(CON)

| Short-billed Dowitcher BCC Rangewide (CON) | ++++ | ++++ | ++++ | ++++ | ₩ ++ | ++++ | ∦ ♥++ | # +++ | ++++ | ++++ | ++++ | ++++ |
|---|------|------|------|------|-------------|--------------|--------------|--------------|--------------|------|------|------|
| Wood Thrush BCC Rangewide | ++++ | ++++ | ++++ | ++++ | | ŧ ŧ¦ŧ | ∎∎∔∔ | ++++ | ### + | ++++ | ++++ | ++++ |

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

<u>Nationwide Conservation Measures</u> describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. <u>Additional measures</u> or <u>permits</u> 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 USFWS <u>Birds of Conservation Concern (BCC)</u> and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the <u>Avian Knowledge</u> <u>Network (AKN)</u>. The AKN data is based on a growing collection of <u>survey</u>, <u>banding</u>, <u>and citizen science</u> <u>datasets</u> 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 a BCC species in that area, an eagle (<u>Eagle Act</u> 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, please visit the <u>Rapid Avian Information Locator (RAIL) Tool</u>.

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 <u>Avian Knowledge Network (AKN)</u>. This data is derived from a growing collection of <u>survey, banding, and</u> <u>citizen science datasets</u>.

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 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?

IPaC: Explore Location resources

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the <u>RAIL Tool</u> and look at 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 migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, 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 <u>Birds of Conservation Concern</u> (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 <u>Eagle Act</u> 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 try 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 eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

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 <u>Northeast Ocean Data</u> <u>Portal</u>. 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 <u>NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird</u> <u>Distributions and Abundance on the Atlantic Outer Continental Shelf</u> project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the <u>Diving Bird Study</u> and the <u>nanotag studies</u> or contact <u>Caleb Spiegel</u> or <u>Pam Loring</u>.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to <u>obtain a permit</u> to avoid violating the Eagle Act should such impacts occur.

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

IPaC: Explore Location resources

presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). 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 is not perfect; 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 present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> 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 <u>NWI wetlands</u> 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>U.S. Army Corps of</u> <u>Engineers District</u>.

ATIO

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

PEM1C PEM1F

FRESHWATER FORESTED/SHRUB WETLAND PFO1C

FRESHWATER POND

<u>PUBGx</u> <u>PUBG</u>

<u>PABF</u>

RIVERINE <u>R5UBH</u>

A full description for each wetland code can be found at the <u>National Wetlands Inventory</u> <u>website</u>

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

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 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

IPaC: Explore Location resources

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 NOTFORCONSULTATION seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix D

Project Costs

Prein&Newhof

City of Kalamazoo FY2025 DWRF Project Plan Richland/Ross Water Main Extension

| Item | Description | Qty | Unit | UNIT PRICE | TOTAL |
|------|--|--------|----------|-------------------|-----------------|
| 1 | Mobilization (5% max) | 1 | LS | \$500,800.00 | \$500,800.00 |
| 2 | Testing | 1 | Allowanc | \$42,500.00 | \$42,500.00 |
| 3 | Traffic Control | 1 | LS | \$463,000.00 | \$463,000.00 |
| 4 | Soil Erosion Control | 1 | LS | \$127,000.00 | \$127,000.00 |
| 5 | Removal, Curb and Gutter | 1,000 | LF | \$15.00 | \$15,000.00 |
| 6 | Removal, Sidewalk | 1,000 | LF | \$10.00 | \$10,000.00 |
| 7 | Removal, HMA Roadway | 48,000 | LF | \$22.00 | \$1,056,000.00 |
| 8 | Remove and Replace Unsuitable Soil | 1,000 | CYD | \$50.00 | \$50,000.00 |
| 9 | Removal, Driveway | 260 | EA | \$350.00 | \$91,000.00 |
| 10 | Removal, Tree, 8-18" | 1,000 | EA | \$900.00 | \$900,000.00 |
| 11 | Removal, Tree, 19"-24" | 500 | EA | \$2,300.00 | \$1,150,000.00 |
| 12 | Removal, Tree, 25"+ | 200 | EA | \$3,700.00 | \$740,000.00 |
| 13 | Removal, Stump | 50 | EA | \$525.00 | \$26,250.00 |
| 14 | Water Main, 8" DI | 4,800 | LF | \$140.00 | \$672,000.00 |
| 15 | Water Main, 12" DI | 42,000 | LF | \$235.00 | \$9,870,000.00 |
| 16 | Directional drilling | 3,200 | LF | \$1,000.00 | \$3,200,000.00 |
| 17 | Water Main, 8" Fitting | 50 | EA | \$1,400.00 | \$70,000.00 |
| 18 | Water Main, 12" Fitting | 120 | EA | \$2,200.00 | \$264,000.00 |
| 19 | Water Main, 8" Valve and Box | 20 | EA | \$3,500.00 | \$70,000.00 |
| 20 | Water Main, 12" Valve and Box | 50 | EA | \$6,900.00 | \$345,000.00 |
| 21 | Fire Hydrant | 157 | EA | \$10,000.00 | \$1,570,000.00 |
| 22 | Water Main, Air Release Chamber | 10 | EA | \$13,600.00 | \$136,000.00 |
| 23 | Water Main, 1-1/4" Service, Short Side | 130 | EA | \$2,500.00 | \$325,000.00 |
| 24 | Water Main, 1-1/4" Service, Long Side | 130 | EA | \$3,650.00 | \$474,500.00 |
| 25 | Water Main, 1-1/4" Service, Outside of ROW | 52,000 | LF | \$45.00 | \$2,340,000.00 |
| 26 | Polyethylene Service Encasement | 300 | LF | \$50.00 | \$15,000.00 |
| 27 | Water Main, 2" Service | 30,000 | LF | \$73.00 | \$2,190,000.00 |
| 28 | Water Main, 1-1/4" Meter Pit | 100 | EA | \$1,500.00 | \$150,000.00 |
| 29 | Water Main, House Service Connection | 260 | EA | \$1,600.00 | \$416,000.00 |
| 30 | Water Main, Polyethylene Encasement | 46,800 | LF | \$32.00 | \$1,497,600.00 |
| 31 | Auto-Flusher | 4 | EA | \$61,000.00 | \$244,000.00 |
| 32 | Restoration, HMA Roadway | 48,000 | LF | \$152.00 | \$7,296,000.00 |
| 33 | Restoration, Drive Replacement | 260 | EA | \$3,600.00 | \$936,000.00 |
| 34 | Restoration, Turf Over Water Main | 28,000 | LF | \$20.00 | \$560,000.00 |
| 35 | Restoration, Landscape Area | 40 | EA | \$7,300.00 | \$292,000.00 |
| 36 | Remove and Replace Drive Culvert | 50 | EA | \$1,400.00 | \$70,000.00 |
| 37 | Restoration, Concrete Curb and Gutter | 1,000 | LF | \$65.00 | \$65,000.00 |
| 38 | Restoration, Sidewalk | 1,000 | LF | \$60.00 | \$60,000.00 |
| | - | - | - | Construction | \$38,299,650.00 |
| | | | | Engineering (15%) | \$5,744,947.50 |
| | | | | Contingency (5%) | \$1,914,982,50 |

TOTAL

\$45,959,580.00

Appendix E

Public Meeting

Prein&Newhof

NOTICE OF PUBLIC MEETING

City of Kalamazoo, Richland Township, and Ross Township Potential Public Water Main Extension

The City of Kalamazoo will present the Project Plan for the Fiscal Year 2025 Drinking Water Revolving Fund application for the purpose of receiving comments from interested persons.

The meeting will be held on Monday, April 15, 2024 at 6 p.m. EST at Gracespring Bible Church located at 8643 Gull Rd, Richland, MI 49083.

The purpose of the proposed project is to extend the existing Kalamazoo Area Public Water System in sections of both Richland Township and Ross Township in response to PFAS contamination in some areas of the local groundwater. The project would also extend individual water services to each resident requesting service (or as required due to well contamination) in the project area.

The project will have temporary impacts to individual homes while their water service is installed. There will also be temporary traffic impacts in the areas of work.

The full project plan includes lead service replacements and water treatment upgrades in other areas of the water system. If fully loan funded, the estimate costs to water system customers is expected to be around \$11.24 per billing quarter.

The Project Plan document is available for viewing on the City website at www.kalamazoocity.org

Written comments received in writing before the meeting or received verbally during the meeting will receive responses in the final Project Plan. Written comments should be sent to:

Kalamazoo Public Service Department c/o Department Director 415 East Stockbridge Avenue Kalamazoo MI 49007 MLive Media Group 169 Monroe Ave NW Suite 200 Grand Rapids, MI 49503



Kalamazoo Gazette

CITY OF KALAMAZOO, ACCOUNTS PAYABLE 241 W S ST KALAMAZOO, MI 49007

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Sales Rep: Kathryn Young Account Number:1000505349 AD#: 0010851213

Remit Payment to: MLive Media Group Dept 77571 P.O. Box 77000 Detroit, MI 48277-0571

Page 1 of 2

| Date | Position | Description | P.O. Number | Ad Size | Costs |
|------------|-------------------|---|------------------------------|------------------------------|----------|
| 04/06/2024 | Public Notices MI | NOTICE OF PUBLIC MEETING City of Kalamazoo, Richland Township, and | Sue Borgeson, Prein & Newhof | 1 x 79 L | |
| | | | Affidavit No | otary Fee - 04/06/2024 | \$10.00 |
| | | | Basic A | Basic Ad Charge - 04/06/2024 | |
| | | | | Total | \$111.67 |

FOR QUESTIONS CONCERNING THIS AFFIDAVIT, PLEASE CALL 616-254-2030 or 877-222-5423



Kalamazoo Gazette

Total

LEGAL AFFIDAVIT

AD#: 0010851213

\$111.67

State of Michigan,) ss County of Kalamazoo)

Nancy Block being duly sworn, deposes that he/she is principal clerk of MLive Media Group; that Kalamazoo Gazette is a public newspaper published in the city of Kalamazoo, with general circulation in Kalamazoo county, and this notice is an accurate and true copy of this notice as printed in said newspaper, was printed and published in the regular edition and issue of said newspaper on the following date(s):

Kalamazoo Gazette 04/06/2024

NC

Principal Clerk of the Publisher

Sworn to and subscribed before me this 15th day of April 2024

Notary Public

NOTICE OF PUBLIC MEETING City of Kalamazoo, Richland Township, and Ross Township Potential Public Water Main Extension

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- The project will have temporary impacts to individual homes while their water service is installed. There will also be temporary traffic impacts in the areas of work.
- The full project plan includes lead service replacements and water treatment upgrades in other areas of the water system. If fully loan funded, the estimate costs to water system customers is expected to be around \$11.24 per billing quarter.

The Project Plan document is available for viewing on the City website at www.kalamazoocity.org

Written comments received in writing before the meeting or received verbally during the meeting will receive responses in the final Project Plan. Written comments should be sent to: Kalamazoo Public Service Department c/o Department Director 415 East Stockbridge Avenue Kalamazoo MI 49007 TEASHA R. PAYNE NOTARY PUBLIC, STATE OF MI COUNTY OF MECOSTA COMMISSION EXP FEB 24 2026 ACTING IN COUNTY OF hen

City of Kalamazoo Fiscal Year 2025 Drinking Water State Revolving Loan Program

Richland/Ross Public Water Main Extensions

- Purpose of the meeting April 15, 2025
 - Review and receive comments on the Project Plan which is a funding application to the State of Michigan
- Drinking Water State Revolving Loan Program
 - Low interest loan program to help fund water system projects
 - Competitive process Often more communities apply than can be funded
 - Targeted Funding Some portions of the funding are targeted to lead service replacements and contamination response
 - \circ $\;$ Funding may cover all or portions of the project cost $\;$
 - Funding may be in the form of low interest loan, grant or a mix of both
 - Application due May 1, 2024 and a final funding list should be available by September 2024.
- Project Overview
 - Previous public meetings reviewed the discovery of PFAS in the groundwater which is moving eastward from the closed Production Plated Plastics facility on M-89.
 - The proposed project plan includes water main extensions through Richland Township and into Ross Township to make public water available to those impacted by the contamination or those desiring public water.
 - Water services will be installed from the water main to the property line for all existing homes so that service extensions are readily available.
 - For those desiring or needing to connect, water service will be extended from the property line and into the home, with a water meter being set and connection to the existing house plumbing made. At that time, the project will also remove the in-home pressure tank and take care of the well abandonment.
- Project Impacts
 - Watermains are typically placed approximately 10 feet off the edge of the roadway pavement and on either the north or east side of a road. Driveways and lawn areas affected by the open trench installation of the water mains will be repaired/replaced with like materials.
 - Trees within the public right-of-way in the influence of the water main alignment will be removed.
 - There will be travel/access delays in the immediate area of the water main installation crews. Final surface restoration will take place after water main segments have passed both pressure and bacteriological testing.
 - Clean and safe public water will be available once the project is completed.
 - Construction could begin in fall of 2025.
 - Once connected to the public water system, a resident will receive a quarterly water bill.



City of Kalamazoo FY25 DWSRF

Richland/Ross Water Main Extension Public Meeting

Monday, April 15, 2024 at 6 p.m. EST at Gracespring Bible Church located at 8643 Gull Rd, Richland, MI 49083.

Q: Where are lead service lines proposed for replacement?

A: For this project plan application, the replacements will be in the corporate limits of the City of Kalamazoo.

Q: Who pays for the project?

A: It depends on if and what type of funding is awarded. Once that is decided, the municipal entities will decide if the project will move forward. If the project, or portion thereof is loan, then the loan payments are put into the user rates of everyone in the water system.

Q: Will anyone from the State reach out about the project?

A: No. The purpose of this public meeting is to receive input on the project plan.

Q: Will my taxes be raised to pay for the project?

A: No. If a loan is required, the loan payments will be put into the water use rates.

Q: Where exactly is the PFAS plume?

A: The State of Michigan has done sampling and identified the locations and depths of the PFAS at specific points. The project plan has a map of those points. Any additional or more detailed information would need to come from the State.

Q: What's to stop the Township or City in the future from mandating connections to pay for the project?

A: The Utility Policy Committee, made up of representative from the City and the partner communities, will be the deciding body regarding the project either moving forward and how it is funded.

Q: Will this water main project require additional wells to be drilled for supply?

A: No. Existing wells have enough supply for the projected demand.

Q: What is being done to get closure on the Production Plated Plastics facility?

A: That information would need to come from the State of Michigan as it is not part of this project plan.

Q: Is the City of Kalamazoo pursuing this application on their own?

A: No. The City has been asked by the UPC to prepare this Project Plan because the City has the resources to fund the PP.

Q: Why are we going to put in the water mains and instead use the money for site remediation at Production Plated Plastics?

A: The DWRF funding is for water system work. The State of Michigan is reviewing what remedial action may be taken at the PPP facility.

Q: Is it mandatory that private wells are tested for PFAS.

A: No

Q: Are farm field wells tested?

A: High capacity wells are permitted through the State so testing requirements are dictated by the State and not part of this project.

Q: Is the UPC taking comments on the project from the public?

A: UPC meetings are held at Oshtemo Township hall and those are open to the public.

Q: How many contaminated wells need to be shut down?

A: Current testing coordination between the Health Department and the State indicate around 5 residential wells above current MCLs.

Q: Will this project get grant funding?

A: We don't know until we apply.

Q: Is Gull Lake Sewer Water Authority involved in this project?

A: GLSWA is part of the UPC and is involved to that extent.

Q: How is the work done so far been funded?

A: The City of Kalamazoo has volunteered to fund the preliminary engineering and the Project Plan preparation.

Q: What is the total project cost?

A: Current cost estimates show \$80M for the three project PP, \$27M for Richland/Ross portion

Q: Can people put in Reverse Osmosis or stick with carbon filters?

A: The State has decided that filters are not a preferred long term solution.

Appendix F

Project Plan Resolution

Prein&Newhof

CITY OF KALAMAZOO

RESOLUTION NO.

A RESOLUTION ADOPTING A FINAL PROJECT PLAN FOR WATER SYSTEM IMPROVEMENTS AND DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

Minutes of a regular meeting of the City Commission of the City held on May 20, 2024, at 7:00 o'clock p.m., local time, at City Hall.

PRESENT, Commissioners:

ABSENT, Commissioners:

WHEREAS, the City of Kalamazoo recognizes the need to make improvements to its existing water treatment and distribution system; and

WHEREAS, the City of Kalamazoo authorized Prein&Newhof, Inc. to prepare a Project Plan, which recommends the extension of public water main in Richland and Ross Townships; and

WHEREAS, said Project Plan was presented at a Public Meeting held on April 15, 2024 and all public comments have been considered and addressed; and

NOW THEREFORE BE IT RESOLVED, that the City of Kalamazoo formally adopts said Project Plan and agrees to implement the extension of public water main in Richland and Ross Townships.

BE IT FURTHER RESOLVED, that the City Engineer, a position currently held by James J. Baker, P.E., is designated as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Plan as the first step in applying to the State of Michigan for a Drinking Water Revolving Fund Loan to assist in the implementation of the selected alternative.

| The above resolution was offered by | and supported by . |
|-------------------------------------|--------------------|
| Yeas: | |

Nays:

I certify that the above Resolution was adopted the City of Kalamazoo on May 20, 2024.

BY:

Name and Title (please print or type)

Signature

Date

Appendix G

Water Modeling Memorandum

Prein&Newhof



Memorandum

| Date: | September 5, 2023 | | |
|------------|--|--|--|
| To: | James Baker, P.E. | | |
| Company: | City of Kalamazoo – Department of Public Services | | |
| From: | Julie Feria, P.E. | | |
| Project #: | 2180076 | | |
| Re: | Model Analysis for Proposed Transmission and Distribution Main Extensions in Richland and Ross Townships | | |

Purpose

The City of Kalamazoo's water distribution system hydraulic model was used to analyze projected pressures, available fire flow, and water age for a proposed water main extension in Richland and Ross Townships. This water main extension is intended to expand the municipal drinking water supply to properties with groundwater wells that could be impacted by PFAS contamination.

The proposed water main extension is in the East Side High pressure district and is shown in Figure 1. Transmission and distribution main between North 37th Street and the existing Richland Township water distribution system was modeled as "Phase 1", and includes five connection points to existing 12-inch water main. An additional transmission loop west of North 37th Street through Yorkville to the intersection of North 40th Street and M-89 was modeled as "Phase 2".

Model Development

The proposed water main was added to the City of Kalamazoo's InfoWater model as future pipe in two phases. The proposed water main was split every 300 feet to allow for analysis of available hydrant flow and system pressures along the proposed water main. The USGS 1-meter digital elevation model was used to assign elevations to new model nodes.

Current Demands

Potential new customers along the proposed water main extension route were divided into two categories: Current and Buildout. Existing homes and businesses along the proposed water main extension were incorporated into the model as current demands, and were modeled as existing demands in the proposed scenarios. Houses were counted as 1 Residential Equivalence Unit (REU), and other structures were assigned an estimated REU based on size and function.

Buildout Demands

Vacant parcels adjacent to the proposed water main extension were counted as future buildout customers. The zoning category for each parcel and the minimum lot size in the
> zoning ordinance for Richland and Ross Townships was used to estimate an REU per acre for each vacant parcel. Zoning categories predicted a higher customer demand than Future Land Use categories, and therefore were used for estimating future buildout demands. For the buildout demand scenarios, the existing Kalamazoo distribution system was modeled using the 20-year projected demands from the 2017 Water System Reliability Study.

Demand Assumptions

Using an estimated 210 gallons per day per REU of average day water use, and an assumed maximum day demand multiplier of 2.5 times the average day demand, the demands from current structures and potential buildout were determined as shown in Table 1. Demands from each parcel were assigned to the closest model node.

| | Current Demand (gpm) | | Buildout Demand (gpm) | |
|-----------------------------|----------------------|-----|-----------------------|-----|
| Township and Phase | ADD | MDD | ADD | MDD |
| Richland Township (Phase 1) | 11 | 27 | 122 | 306 |
| Ross Township (Phase 1) | 27 | 69 | 67 | 168 |
| Ross Township (Phase 2) | 16 | 39 | 101 | 252 |
| Total Demand (Phase 1) | 38 | 95 | 190 | 474 |
| Total Demand (Phases 1 & 2) | 54 | 135 | 291 | 727 |

| Table 1. Esti | mated Demands | s from Current | Structures and | Future Buildout |
|---------------|---------------|----------------|----------------|-----------------|
|---------------|---------------|----------------|----------------|-----------------|

Notes:

1. Richland Township REU per acre assumptions based on zoning are as follows: A-Single Family Residential (3.5 REUs/acre), A-1 (1 REU/acre), B-1 (11 REUs/acre), D (3.5 REUs/acre).

2. Ross Township REU per acre assumptions based on zoning are as follows: R-R (1 REU/acre), R-1 (2.5 REUs/acre), R-2 (3 REUs/acre), R-3 (5.5 REUs/acre), C-1 (3.5 REUs/acre), A (0 REUs/acre).

Hydraulic Analysis Assumptions

Pressures at the connection points and within the proposed development were modeled under steady state average day demand and maximum day demand conditions. Tanks were assumed to be at 5 feet below full for the steady state pressure and available fire flow scenarios. Available fire flows were modeled assuming maximum day demand conditions. Water age was modeled using average day demand conditions.

Modeled Scenarios

The proposed water main extension was modeled using both existing and projected future demands to analyze system pressures and available fire flow. The system was modeled both with and without the additional Yorkville transmission loop (Phase 2), and with and without the 33rd Street High / East Side High water main connection in place.

Water age was also modeled to estimate the impact of new transmission main with potentially low water demands on water age and therefore water quality.

Model Results

Pressure

Tables 2 and 3 provide the model results for average day and maximum day pressures at select nodes with the proposed water main extensions in place. Existing system pressures are also shown for comparison. Average day pressures in the proposed system range from 45 to 74 psi under current demand conditions, and maximum day pressures range from 44 to 73 psi. A map of maximum day pressures is provided in Figure 2.

Under buildout maximum day demand conditions, the minimum pressure drops to 41 psi at the high elevation point along West Gull Lake Road. As demands increase in Richland and Ross Townships and throughout the Kalamazoo distribution system, improvements in pumping capacity and/or transmission may be needed to maintain normal operating pressures above 35 psi both in the proposed main and in the existing system serving the Village of Richland.

The model results show that system pressures in the proposed system are adequate under current conditions. In addition, the proposed transmission main extension had a negligible impact on the existing filling and emptying rate of the Gull Road Tank.

| Table 2. Averag | e Day Pressure | at Select | Locations |
|-----------------|----------------|-----------|-----------|
| | | | |

| Node ID | Location | Municipality | Existing System | Current Demands (Phase 1) | Current Demands (Phase 2) | Buildout Demands (Phase 1) | Buildout Demands (Phase 2) |
|------------|---|------------------------|--------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|
| J15238 | N 32 nd St. & E D Ave. | Village of Richland | 46 | 46 | 46 | 45 | 45 |
| J16580 | N 30 th St. & E C Ave. | Village of Richland | 46 | 46 | 46 | 46 | 46 |
| J14990 | N 30 th St. & Gull Rd. | Richland Twp. | 52 | 52 | 52 | 52 | 52 |
| J15182 | M-89 existing dead end | Richland Twp. | 59 | 59 | 59 | 58 | 58 |
| J16902 | E D Ave. existing dead end | Richland Twp. | 59 | 59 | 59 | 59 | 59 |
| J16904 | N 35th St. & E CD Ave. | Richland Twp. | 49 | 49 | 49 | 49 | 48 |
| J15350 | N 32nd St. & E C Ave. | Richland Twp. | 42 | 42 | 42 | 41 | 41 |
| J16544 | E DE Ave. existing Dead end | Richland Twp. | 73 | 73 | 73 | 73 | 73 |
| J16982 | E C Ave. & West Gull Lake Dr. | Richland Twp. | NA | 55 | 55 | 55 | 55 |
| J17106 | Merrimac St. dead end | Ross Twp. | NA | 64 | 64 | 64 | 63 |
| J17108 | Delmar St. dead end | Ross Twp. | NA | 62 | 62 | 61 | 61 |
| J17110 | Littlefield Ave. dead end | Ross Twp. | NA | 48 | 48 | 47 | 47 |
| J17112 | N 37th St. & E CD Ave. | Ross Twp. | NA | 47 | 47 | 47 | 46 |
| J17146 | N 37th St & E D Ave. (East) | Ross Twp. | NA | 58 | 58 | 58 | 58 |
| J16912 | N 37th St. & M89 | Ross Twp. | NA | 60 | 60 | 60 | 60 |
| J16930 | Lake Vista Dr. dead end | Ross Twp. | NA | 48 | 48 | 48 | 47 |
| J17268 | E D Ave. between 39th St. & 40th St. | Ross Twp. | NA | NA | 50 | NA | 50 |
| J17070 | West Gull Lake Drive high elevation point | Richland Twp. | NA | 45 | 45 | 45 | 45 |
| J17124 | N 37th Street high elevation point | Ross Twp. | NA | 46 | 46 | 46 | 45 |
| J17214 | E DE Ave. low elevation point | Ross Twp. | NA | 74 | 74 | 74 | 74 |

Notes:

1. Average day demand conditions were modeled both with and without the 33rd Street transmission main in service. The difference in pressures with the main in service and out of service was negligible.

2. For future buildout demand scenarios, no water main, booster station, or pump station improvements in the remainder of the distribution system were included in the simulation.

| | Table 3. Maximum D | ov Pressure at Sel | ect Locations |
|--|--------------------|--------------------|---------------|
|--|--------------------|--------------------|---------------|

| Node ID | Location | Municipality | Existing System | Current Demands (Phase 1) | Current Demands (Phase 2) | Buildout Demands (Phase 1) | Buildout Demands (Phase 2) |
|------------|---|------------------------|--------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|
| J15238 | N 32 nd St. & E D Ave. | Village of Richland | 45 | 45 | 45 | 43 | 42 |
| J16580 | N 30 th St. & E C Ave. | Village of Richland | 46 | 46 | 46 | 44 | 43 |
| J14990 | N 30 th St. & Gull Rd. | Richland Twp. | 52 | 52 | 52 | 51 | 50 |
| J15182 | M-89 existing dead end | Richland Twp. | 58 | 58 | 58 | 56 | 55 |
| J16902 | E D Ave. existing dead end | Richland Twp. | 58 | 58 | 58 | 56 | 55 |
| J16904 | N 35th St. & E CD Ave. | Richland Twp. | 48 | 48 | 48 | 46 | 45 |
| J15350 | N 32nd St. & E C Ave. | Richland Twp. | 41 | 41 | 41 | 39 | 38 |
| J16544 | E DE Ave. existing Dead end | Richland Twp. | 73 | 72 | 72 | 70 | 69 |
| J16982 | E C Ave. & West Gull Lake Dr. | Richland Twp. | NA | 54 | 54 | 53 | 52 |
| J17106 | Merrimac St. dead end | Ross Twp. | NA | 63 | 63 | 61 | 60 |
| J17108 | Delmar St. dead end | Ross Twp. | NA | 61 | 61 | 59 | 58 |
| J17110 | Littlefield Ave. dead end | Ross Twp. | NA | 47 | 47 | 45 | 44 |
| J17112 | N 37th St. & E CD Ave. | Ross Twp. | NA | 46 | 46 | 44 | 43 |
| J17146 | N 37th St & E D Ave. (East) | Ross Twp. | NA | 57 | 57 | 55 | 54 |
| J16912 | N 37th St. & M89 | Ross Twp. | NA | 60 | 60 | 58 | 57 |
| J16930 | Lake Vista Dr. dead end | Ross Twp. | NA | 47 | 47 | 45 | 44 |
| J17268 | E D Ave. between 39th St. & 40th St. | Ross Twp. | NA | NA | 49 | NA | 42 |
| J17070 | West Gull Lake Dr. high elevation point | Richland Twp. | NA | 44 | 44 | 42 | 41 |
| J17124 | N 37th St. high elevation point | Ross Twp. | NA | 45 | 45 | 43 | 42 |
| J17214 | E DE Ave. low elevation point | Ross Twp. | NA | 73 | 73 | 72 | 70 |

Notes:

 Maximum day demand conditions were modeled both with and without the 33rd Street transmission main in service. The difference in pressures with the main in service and out of service was at most 1 psi lower with the 33rd Street Transmission Main in service.

2. For future buildout demand scenarios, no water main, booster station, or pump station improvements in the remainder of the distribution system were included in the simulation.

Available Fire Flow

Available fire flow results are provided in Table 4 for select nodes and mapped in Figure 3 for all hydrant locations. Fire flows range from 1,500 gpm at the proposed 8-inch dead end of Lake Vista Drive to 3,300 gpm at N 37th Street and M-89, assuming all 12-inch transmission main.

| Node ID | Location | Municipality | Existing System | Current Demands (Phase 1) | Current Demands (Phase 2) | Buildout Demands (Phase 1) | Buildout Demands (Phase 2) |
|------------|---|------------------------|--------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|
| J15238 | N 32 nd St. & E D Ave. | Village of Richland | 4,180 | 4,080 | 4,040 | 3,080 | 2,840 |
| J16580 | N 30 th St. & E C Ave. | Village of Richland | 2,640 | 2,760 | 2,740 | 2,230 | 2,110 |
| J14990 | N 30 th St. & Gull Rd. | Richland Twp. | 6,550 | 6,460 | 6,410 | 5,160 | 4,880 |
| J15182 | M-89 existing dead end | Richland Twp. | 2,470 | 3,430 | 3,420 | 2,870 | 2,630 |
| J16902 | E D Ave. existing dead end | Richland Twp. | 2,620 | 3,460 | 3,440 | 2,710 | 2,480 |
| J16904 | N 35th St. & E CD Ave. | Richland Twp. | 2,980 | 3,370 | 3,340 | 2,630 | 2,420 |
| J15350 | N 32nd St. & E C Ave. | Richland Twp. | 2,420 | 2,800 | 2,780 | 2,190 | 2,040 |
| J16544 | E DE Ave. existing Dead end | Richland Twp. | 2,040 | 3,050 | 3,030 | 2,500 | 2,340 |
| J16982 | E C Ave. & West Gull Lake Dr. | Richland Twp. | NA | 2,850 | 2,830 | 2,300 | 2,140 |
| J17106 | Merrimac St. dead end | Ross Twp. | NA | 2,010 | 2,000 | 1,840 | 1,790 |
| J17108 | Delmar St. dead end | Ross Twp. | NA | 1,900 | 1,890 | 1,740 | 1,690 |
| J17110 | Littlefield Ave. dead end | Ross Twp. | NA | 1,630 | 1,630 | 1,450 | 1,380 |
| J17112 | N 37th St. & E CD Ave. | Ross Twp. | NA | 2,880 | 2,860 | 2,350 | 2,180 |
| J17146 | N 37th St & E D Ave. (East) | Ross Twp. | NA | 3,360 | 3,320 | 2,680 | 2,460 |
| J16912 | N 37th St. & M89 | Ross Twp. | NA | 3,420 | 3,370 | 2,780 | 2,520 |
| J16930 | Lake Vista Dr. dead end | Ross Twp. | NA | 1,530 | 1,530 | 1,370 | 1,300 |
| J17268 | E D Ave. between 39th St. & 40th St. | Ross Twp. | NA | NA | 2,350 | NA | 1,860 |

Table 4. Available Fire Flow at Select Locations

Notes:

1. Available fire flow was modeled with maximum day demands, tanks at 5 feet below full, and with a minimum residual pressure of 20 psi.

 Available fire flows were modeled both with and without the 33rd Street transmission main in service. The difference in available fire flows with the main in service and out of service was at most 3% lower with the 33rd Street Transmission Main in service.

3. For future buildout demand scenarios, no water main, booster station, or pump station improvements in the remainder of the distribution system were included in the simulation.

4. Available fire flow values are color coded using the following groups: 1,000 gpm to 1,999 gpm; 2,000 to 3,499 gpm; greater than 3,500 gpm.

Water Age

Water age results are provided in Table 5. Water age is simulated based on current, automated operations. It does not account for changes in operation, and it has not been calibrated to data which can represent water age, such as chlorine residual concentrations in the distribution system. The age data in Table 5 provides a comparison between different scenarios and can illustrate which locations are more susceptible to higher water age. The model results show that the transmission main extension does not have a significant impact on water age in the existing distribution system, except at the existing transmission main dead ends on E D Avenue and E DE Avenue, where water age is significantly improved.

Transmission Main Sizing Analysis

Smaller transmission main reduces the volume of the water system and therefore reduces overall water age and improves water quality. Additional analysis was performed with 8-inch water main on M-89 between the existing system and North 37th Street and on West Gull Lake Drive between East C Avenue and East CD Avenue. Available fire flows remain above 1,500 gpm at all locations in the Existing Demands (Phase 2) scenario. Table 6 shows the available fire flow comparison with the reduced water main diameter at select nodes.

The water age analysis shown in Table 5 illustrates that reducing the proposed water main size on on M-89 between the existing system and North 37th Street and on West Gull Lake Drive between East C Avenue and East CD Avenue does not have a significant impact on water age in the Richland and Ross Township distribution system. Smaller diameter water main will reduce the overall age of the water system, but the model simulations show the impact within the proposed transmission area is not significant.

| | | | | 0 | | Current |
|--------|--------------------------------------|------------------------|----------|--------------------------|---------------------------|--------------------------|
| | | | | Current | Current | (Phase 1) |
| | | | | (Phase 1) | Demands | with 33 rd St |
| | | | | without 33 rd | (Phase 1) | Transmission |
| Node | | | Existing | St. | with 33 rd St. | and Reduced |
| ID | Location | Municipality | System | Transmission | Transmission | Main Size ² |
| J15238 | N 32 nd St. & E D Ave. | Village of Richland | 12 | 11 | 12 | 12 |
| J16580 | N 30 th St. & E C Ave. | Village of Richland | 12 | 11 | 12 | 12 |
| J14990 | N 30 th St. & Gull Rd. | Richland Twp. | 11 | 10 | 11 | 11 |
| J15182 | M-89 existing dead end | Richland Twp. | 12 | 11 | 8 | 9 |
| J16902 | E D Ave. existing dead end | Richland Twp. | 85 | 9 | 10 | 11 |
| J16904 | N 35th St. & E CD Ave. | Richland Twp. | 12 | 10 | 12 | 9 |
| J15350 | N 32nd St. & E C Ave. | Richland Twp. | 13 | 23 | 23 | 24 |
| J16544 | E DE Ave. existing Dead end | Richland Twp. | 61 | 5 | 4 | 13 |
| J16982 | E C Ave. & West Gull Lake Dr. | Richland Twp. | NA | 17 | 14 | 14 |
| J17106 | Merrimac St. dead end | Ross Twp. | NA | 20 | 22 | 21 |
| J17108 | Delmar St. dead end | Ross Twp. | NA | 20 | 17 | 20 |
| J17110 | Littlefield Ave. dead end | Ross Twp. | NA | 24 | 20 | 22 |
| J17112 | N 37th St. & E CD Ave. | Ross Twp. | NA | 14 | 11 | 12 |
| J17146 | N 37th St & E D Ave. (East) | Ross Twp. | NA | 12 | 11 | 10 |
| J16912 | N 37th St. & M89 | Ross Twp. | NA | 10 | 11 | 13 |
| J16930 | Lake Vista Dr. dead end | Ross Twp. | NA | 18 | 17 | 17 |

Table 5. Modeled Water Age (Days) at Select Locations

Notes:

1. Water age was modeled with existing average day demands and current system pump and tank controls.

 See description of modeled water main sizing alternative in the next section: Transmission Main Sizing Analysis. The proposed 12-inch transmission on M-89 between the existing system and N 37th Street and on West Gull Lake Drive was modeled as 8-inch main to determine the impact on available fire flow and water age.

3. Water age has not been calibrated or compared to chlorine residual data. Age results should only be used for comparison between scenarios and to identify potential problem areas.

| Node ID | Location | Municipality | Current Demands (Phase 2) – All 12" | Current Demands (Phase 2) – 8" on West Gull Lake Dr. and M-89 | Available Fire Flow Change in gpm (% Change) |
|------------|---|---------------|---|--|---|
| J15182 | M-89 existing dead end | Richland Twp. | 3,390 | 2,880 | 510 (15%) |
| J16902 | E D Ave. existing dead end | Richland Twp. | 3,400 | 3,310 | 90 (3%) |
| J16904 | N 35th St. & E CD Ave. | Richland Twp. | 3,310 | 3,290 | 20 (1%) |
| J15350 | N 32nd St. & E C Ave. | Richland Twp. | 2,750 | 2,740 | 10 (0%) |
| J16544 | E DE Ave. existing Dead end | Richland Twp. | 3,000 | 2,950 | 50 (2%) |
| J16982 | E C Ave. & West Gull Lake Dr. | Richland Twp. | 2,790 | 2,530 | 260 (9%) |
| J17106 | Merrimac St. dead end | Ross Twp. | 1,990 | 1,920 | 70 (4%) |
| J17108 | Delmar St. dead end | Ross Twp. | 1,880 | 1,820 | 60 (3%) |
| J17110 | Littlefield Ave. dead end | Ross Twp. | 1,610 | 1,580 | 30 (2%) |
| J17112 | N 37th St. & E CD Ave. | Ross Twp. | 2,830 | 2,750 | 80 (3%) |
| J17146 | N 37th St & E D Ave. (East) | Ross Twp. | 3,290 | 3,090 | 200 (6%) |
| J16912 | N 37th St. & M89 | Ross Twp. | 3,340 | 3,100 | 240 (7%) |
| J16930 | Lake Vista Dr. dead end | Ross Twp. | 1,510 | 1,500 | 10 (1%) |
| J17268 | E D Ave. between 39th St. & 40th St. | Ross Twp. | 2,330 | 2,250 | 80 (4%) |

Table 6. Available Fire Flow at Select Locations with Less Transmission Main

Notes:

1. Available fire flow was modeled with maximum day demands, tanks at 5 feet below full, and with a minimum residual pressure of 20 psi.

2. Available fire flows in this table were modeled with the 33rd Street transmission main in service.

Conclusions

Under existing demand conditions, pressures are maintained above 44 psi in the proposed system extension, and available fire flows are above 1,500 gpm at all locations. The addition of the Phase 2 water main loop through Yorkville has a negligible impact on pressures and available fire flow.

Future buildout demand scenarios show pressures dropping to 38 psi in the existing Richland Township system and 41 psi in the proposed system extension. As demands increase, pressures should be monitored and improvements to the pumping capacity or transmission capacity of the water distribution system should be considered to maintain normal operating pressures above 35 psi. Available fire flows are maintained above 1,000 gpm at all locations in the proposed system extension under future demands.

Water age at the existing dead end mains is improved with the proposed transmission extension, although the overall age of water in the distribution system as a whole will increase if additional demands are smaller than the added volume of the new transmission main.







Appendix H

Environmental Corridor Memorandum



Memorandum

| Date: | March 29, 2024 |
|------------|---|
| To: | Mr. John Standinger and Mr. Brian Vilmont, P.E. |
| Company: | Prein&Newhof |
| From: | Tim Woodburne, CPG and Chris Cruickshank, P.E. |
| Project #: | 2230982 – Ross Township Water Main |
| Re: | Environmental Corridor Study – Ross Township Water Main |

1 INTRODUCTION

The purpose of this Environmental Corridor Study is to determine if known sites of environmental contamination exist along or in the vicinity of the construction area for water main proposed in Ross Township located west of Gull Lake. The Environmental Corridor Study has two main components that include a site visit along the proposed route to view adjacent sites from the road right-of-way, and a search of environmental sites of known or suspected environmental contamination on the Michigan Environmental Mapper maintained by the Michigan Department of Environment, Great Lakes, and Energy (EGLE). The environmental sites identified were evaluated to determine the potential environmental impact to the proposed Project. The preliminary construction location is shown on maps in Appendix A.

2 SITE VISIT

Adjacent properties were reviewed by driving with occasional walking along the proposed route on March 12, 2024. Photographs were taken as the survey progressed with selected photographs included in Appendix B.

The site visit began at the south end of project near address 10921 East DE Avenue at the west end of East DE Avenue and proceeded east to N 37 Street. This area had wooded land and occasional residences and some farmland.

The visit proceeded north along N 37 Street to M-89 and this section had residences on the west side of the street and vacant wooded land on the east side of the street.

The portion of the project along M-89 was mostly vacant land and two residences at the west end of M-89 at the west end of the project.

The section along N 37 Street north of M-89 to E D Avenue had residential homes.

The Project turns west on E D Avenue from N 37th Street and extends over Gull Creek, then turns north and then turns west at the intersection of West Gull Lake Drive. At this intersection Mac's Garage, an automotive repair shop, was observed at the address of 11574 E D Avenue. As shown below this site is a closed UST site. A pump dispenser island presumably for the closed USTs was observed between the building and the road, as shown in the photographs. Review of the UST closure documents is included below because this site is adjacent to the project.

The inspection continued along East D Avenue to approximately the address of 10876 East D Avenue. This section of the project is entirely residential parcels.

At N 37th Street the Project turns north from E D Avenue to E CD Avenue. A church was observed on the northeast corner of N 37th Street at E D Avenue. Agricultural land is along the west side of the street and residential homes are along the east side of the street. The north end of the street has residences on both sides of the street.

E CD Avenue from N 37 Street to N 35 Street had residential parcels and vacant land. A residence at the address of 11272 E CD Avenue had orchards on the east and west sides of the house. Fruit orchards are an environmental concern due to the potential for the application of the spray known as lead-arsenate, which is no longer allowed to be used. Given that the project will be in the road right of way the impact from the orchards is not expected.

N 36 the Street north of E CD Avenue becomes West Gull Lake Drive and extends north to E C Avenue. The area is entirely residential.

E C Avenue to N 32nd Street has agricultural land and residential parcels, and no environmental issues were identified.

N 35 Street extends south from E C Av to E CD Avenue and has agricultural and residential parcels. A farm with cattle is located at the northwest corner of E CD Avenue and N 35 Street.

3 ENVIRONMENTAL MAPPER REVIEW

Sites of known or suspected contamination on the EGLE Environmental Mapper were reviewed to identify sites along or within the vicinity of the Project. The map from Environmental Mapper identifying the environmental sites is shown in Appendix C. The sites labeled as "Closed USTs" and Closed LUST are not expected to have a direct environmental impact on the Project. A UST site adjacent to the project is reviewed as noted below. The BEA site and open LUST east of the project are not expected to have a direct environmental impact based on the distance of greater than ½ mile and their location adjacent to Gull Lake where the groundwater flow would be expected to be toward Gull Lake or away from the Project. Only one site with a restrictive covenant was located within the Village of Richland boundary and this site was not included in the review due to the distance of greater than 1/2 mile from the project. The remaining sites within approximately one to the west of the Project were reviewed. The sites reviewed are tabulated below with summaries following for these sites.

| Database Listed | Site Name and Address | Location relative to the Project |
|------------------|--|--|
| Part 201 | North 34 th Street - MPART | Address located approximately |
| MPART | Production Plated Plastics | 3/4 mile west-northwest of |
| | 9899 E D Ave | Project at M-89 |
| BEA and Part 201 | 145 Acres of Agricultural Land north of M-89 and west of N 32 nd Street | $1/4 - 1/2$ mile west of E C Ave and N 32^{nd} Street intersection |
| BEA | 9776 E D Ave | Approximately 0.9 mile west of Project at M-89 |

Summary of Environmental Sites Reviewed

| Database Listed | Site Name and Address | Location relative to the Project |
|------------------|---------------------------------|-----------------------------------|
| BEA and Part 201 | Gull Lake Community Schools | Approximately 0.9 Miles west of |
| | 9724 - 9766 East M-89 | the project |
| BEA and Part 201 | Village Laundry | Approximately 1/2 Miles west of |
| | 7800 N. 34 th Street | the project |
| BEA and Part 201 | Gull Lake Animal & Boarding | Approximately 1/2 Miles west of |
| _ | 7820 North 34th Street | the project |
| UST – Closed | Mac's Automotive | South side of D Avenue at Gull |
| _ | 11574 E D Ave | Lake Road |
| UST – Closed | Gilmore Enterprises Farm | Site is miss plotted on EGLE |
| | 7966 E C Ave | Mapper – actual location is ± 1.1 |
| | | miles west of Project at E C Ave. |

MPART Site – North 34th Street, Production Plated Plastics, 9899 East D Avenue

The Michigan PFAS Action Response Team (MPART) has included the Production Plated Plastics site in a larger area being investigated known as North 34th Street. This is the only MPART site in the area of the Project as shown on the MPART Map in Appendix C. A request under FOIA was made for the most up-to-date information and the information was provided on March 22, 2024.

Production Plated Plastics manufactured painted and chrome-plated plastic parts primarily for the automotive industry. Production Plated Plastics operated at this address from approximately 1966 until bankruptcy in 1991. Historic releases of waste treatment and process solutions into the facility subsurface soils has resulted in elevated concentrations of hexavalent chromium (Cr VI) and nickel in soil and groundwater.

Chlorinated volatile organic compounds were identified in 1985 in the area and determined to be originating from Production Plated Plastics as well as the Village Cleaners site, a drycleaning business. The groundwater flow direction was determined to be east-southeasterly generally toward the proposed Project. The heavy metals nickel and hexavalent chromium were delineated to the east of the proposed Project.

In the 1980s, the Production Plated Plastics started operating a groundwater extraction and treatment system. Municipal water was extended to the Production Plated Plastics area in 1988 and the water wells were abandoned after connecting to the municipal water. In 1991 Production Plated Plastics declared bankruptcy, so the State of Michigan took over the environmental response activities.

Polyfluoroalkyl substances (PFAS) were discovered from this site in April 2018 from a surface water investigation when a sample was collected from an Industrial Pretreatment Program a.k.a. "IPP" sample from an extraction well designed to capture the chromium and nickel plumes in the shallow and deep aquifers at the site. The extraction system was permitted to discharge to the City of Kalamazoo Water Reclamation plant. The sample detected 9,640 ng/L perfluorooctanesulfonic acid (PFOS) in the discharge sample. After this sample result, an emergency PFAS treatment system consisting of granulated activated

carbon (GAC) was installed and started operating by July 31, 2018 with the treated water discharged to the publicly owned Kalamazoo Water Reclamation Plant.

As a result, additional remedial investigation phases have been conducted by EGLE including soil and groundwater investigations, surface water sampling, and residential well sampling. Other than an incremental sampling report of soil sampling at the PPP site, no other reports of the PFAS results were provided. Several draft maps and cross sections from the investigations were provided as a result of the FOIA and select documents are attached in Appendix D. Two groundwater contour maps show a shallow and deeper interval of groundwater. The groundwater in the area is generally flows towards the Project in the eastsoutheasterly direction and then gradually turns and flows to the southeast direction, as shown on the maps in Appendix. As shown in several maps and cross sections, the groundwater is impacted with PFAS. The most recent map showing the locations compared to their Part 201 PFAS Criteria shows that exceedances extent to the project area as shown on the draft map dated March 29, 2021 by AECOM. Based on this review the PFAS is impacting groundwater in the area of the Project. Attached for review are two groundwater contour maps from measurements in February 2023; the most recent March 2021 PFAS map showing groundwater concentrations; 2023 maps showing groundwater sampling results for PFAS, VOCs, chromium, and nickel; and several cross sections. The VOCs, Cr VI, and nickel appear to be defined and do not appear to be impacting groundwater in the area of the Project.

BEA on Village Laundry 7800 N. 34th Street, Richland, Michigan

The BEA site had been used as a laundry business. The BEA was prepared for Dr. Michael Sharp, DDS, which intended to occupy the parcel for a dentist office. The BEA was completed on May 18, 1998 by American Hydrogeology Corporation (AHC). The BEA was based on previous contamination from the uses as Village Laundry. The contamination identified in the BEA was identified in environmental reports by Brown & Root Environmental, which detected chlorinated VOCs from the past laundry usage including perchloroethylene (PCE) trichloroethylene (TCE) 1,1-dichloroethane, 1,1-dichloroethylene (1,1-DCE) and cis 1,2-dichloroethylene, and trans 1,2- dichloroethylene, chloroform, and toluene. The depth to groundwater was not provided in the BEA. Given the location of the subject property at least 1/4 mile from the project site, this BEA site and contamination are not expected to have a direct impact on the project site.

BEA on Gull Lake Animal & Boarding 7820 N. 34th Street, Richland, Michigan

The BEA site was a veterinary hospital and animal boarding facility. The intended use of the parcel is for National Veterinary Associates to continue to operate a veterinary hospital and boarding facility in the subject building. The BEA was completed on March 25, 2022 by Partner Engineering and Science, Inc. The BEA was based on previous contamination identified in environmental reports by Brown & Root Environmental (1994 report) which detected chlorinated VOCs from the Village Cleaners Site in the area and heavy metals from the nearby Production Plated Plastics facility at 9899 East D Avenue. The BEA reported on the subject parcel that recent groundwater sampling from the subject parcel had 1,1,1-TCA and 1,1-dichloroethylene (1,1-DCE) and 1,1-dichloroethane (1,1-DCA) detected in the groundwater at levels that exceeded their Part 201 GRCC. the heavy metals arsenic and lead, and hexavalent chromium and nickel were also detected in groundwater samples above Part 201 GRCC. The BEA report also indicated that PFAS contamination in groundwater have been detected in the area of the subject parcel

being investigated by EGLE and associated with Production Plated Plastics property. The depth to groundwater was not provided in the BEA. Given the location of the subject property at least 1/4 mile from the project site, this BEA site and contamination are not expected to have a direct impact on the project site.

BEA – 145 Acres of Agricultural Land, north of M-89, Richland Township

The BEA site and a Part 201 Site on the Michigan's Environmental Mapper is located at north of E C Avenue and approximately 1/4 mile west of North 32nd Street and so this site is not directly adjacent to the project. The BEA was completed on February 24, 2004 by Soil and Materials Engineers, Inc (SME). The Phase 1 Environmental Site Assessment (ESA) on the Property identified residential well supplies on the adjoining parcels had historically high levels of nitrates identified as the sole REC. A limited Phase II ESA involving soil and groundwater samples from two drilling locations identified nitrate in the groundwater samples from the subject property at levels the exceeded the Part 201 Generic residential cleanup criteria, so the BEA was submitted to the State of Michigan. The depth to groundwater was between 29 and 31 feet below ground level when the samples were collected. Given the depth to groundwater and the location of the subject property at least 1/4 mile from the project site, this BEA site and contamination are not expected to have a direct impact on the project site.

BEA on Gull Lake Community Schools, 9724 - 9766 East M-89

The environmental site located at is located on the south side of East M-89, approximately 0.7 miles east of the Village of Richland's central business district. A Phase 1 ESA was conducted on this property June 16, 2023 by SES for the benefit of Gull Lake Community Schools which purchased the property. According to the Phase I ESA, the following RECs were identified at the subject parcel, as paraphrased: soil contamination from arsenic, cobalt, and iron identified in a 2012 BEA; heating oil UST(s) identified in 2012 BEA; and commercial small engine service operations building connected to a septic system creating the potential source of subsurface contamination by discharge to the septic system.

To assess the RECs identified, SES completed eight soil borings (i.e., SB-1 through SB-8) on July 13, 2023. Sixteen soil samples were collected and submitted for laboratory chemical analysis of volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PNAs), polychlorinated biphenyls (PCBs), and Michigan 10 Metals (i.e., arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc), or some combination thereof, to assess the RECs described previously. Soil borings were drilled to 20 feet and no groundwater was encountered. The subject property is classified as a "facility" because concentrations of the arsenic, cobalt, iron, and selenium were detected in soil exceeding EGLE Part 201 Residential Generic Cleanup Criteria.

The contamination was reported to be in the soil from this site. No groundwater samples were collected and the depth to groundwater was reported greater than 20 feet at this site. While the potential for groundwater contamination cannot be ruled out, this site is not expected to have a direct environmental impact to the Project due to the horizontal distance of approximately 0.9 miles from the project.

BEA site located at 9776 E D Avenue

A BEA was completed on this parcel by Superior Environmental Corp (SEC) on October 19, 2007. According to the BEA, this parcel had a single-family residence that had been converted for retail purposes. The potential for migrating contamination from the adjacent site Production Plated Plastics Inc. at 9899 East D Avenue was the only environmental concern identified. SEC

advanced three borings on the northeast portion of the property to evaluate the potential migrating contamination. A total of three groundwater samples were collected for VOCs PNAs, and metals testing. Groundwater was encountered at approximately 29.5 feet bgs. Based on the analysis, concentration of lead in one groundwater sample exceeded the current EGLE clean-up criteria. In a follow up letter, the Michigan Department of Environmental Quality (now EGLE), indicated that the BEA was not accepted, as there was insufficient information to demonstrate that the property is a facility as defined by Part 201. As such, this site is not expected to have an environmental impact on the proposed project.

Closed UST site at Mac's Automotive, 11574 E D Avenue

The according to the EGLE's Remediation Information Data Exchange (RIDE) database listing this underground storage tank (UST) was registered to Carl M. Waldorf and last used in May 20, 1991. The UST was removed from the ground on May 22, 1991. RIDE reported four USTs of 1,000-gallon capacity for gasoline storage. Three of these USTs were installed on April 26, 1956 and one was installed April 27, 1971. Each UST was removed from the ground on November 5, 1990. No release was reported from the tanks; therefore, it was closed by the State of Michigan. When a tank is closed and there is no release, the site is not considered a site of environmental contamination. Based on the closed status of this UST, this site is not expected to have an environmental impact on the Project.

Closed UST site at Gilmore Enterprises Farm, 7966 East C Avenue

This site is incorrectly plotted at the corner of 32nd Street and East C Avenue on the EGLE Environmental Mapper, which appeared to be adjacent to the Project. Because EGLE Environmental Mapper plotted this site adjacent to the Project, the LARA file for this UST Closure was obtained and reviewed. Based on the information in the LARA file, it was determined that the actual location is near the intersection of 30th Street and East C Avenue, which is more than 1 mile west of the Project and not adjacent to the Project. Given that this is a closed UST and more than one mile away from the Project, it is not expected to have a direct environmental impact to the project.

4 CONCLUSIONS

The proposed Project will be constructed along the route referenced in this report. Soil will need to be excavated and temporarily stockpiled while the utility is constructed, and then the area will be backfilled. The sites reviewed are not expected to have soil contamination that will impact the construction of the water main. This site visit and the review of the environmental contamination has the following findings:

- The MPART site known as North 34th Street area at Production Plated Plastics, 9899
 East D Avenue, is being investigated for PFAS contamination. The PFAS has
 migrated in groundwater easterly toward the project. For this reason, the water main
 associated with this Project is being designed and will be constructed as a remedy.
 Because of the potential impact to the project, three temporary well locations are
 planned for PFAS testing to determine management of dewatering water.
- 2. Fruit orchards were observed south of East CD Avenue on east and west sides of the residence at the address of 11272 E CD Avenue. Fruit orchards are an environmental concern due to the potential for the application of the spray known as lead-arsenate,

> which is no longer allowed to be used. Given that the project will be in the road right of way, and not directly through the orchard, the impact from the orchards is not expected in the road right of way, and no further evaluation is warranted in the road right of way.

3. A UST site along the project known as Mac's Automotive at 11574 E D Avenue has a pump dispenser island visible from the site visit. A pump dispenser is considered a part of the "UST System". This UST is closed by the State of Michigan, so the pump dispenser is also closed, so no contamination is expected from this closed UST site.

Appendix A

Figure for Ross Township Water Main Extensions



Appendix B

Photographic Log

2230982 - Photographic log of site visit for Phase I water main, Ross Township, Kalamazoo County, Michigan. Photographs taken March 12, 2024 by Tim Woodburne.



Looking northerly along E D Avenue.



View of a pump dispenser island at Mac's Garage.



These two photographs form a panoramic view of orchards looking easterly and then south near 11272 E CD Avenue.



Mac's Automotive at 11574 E D Avenue.



Looking west along E CD Avenue.



Appendix C

EGLE Environmental Mapper and MPART Map

Environmental Mapper





Active Tanks

Sites of Environmental Contamination (Part 201)

Open

Closed

Map by: State of Michigan - CSS

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c)

2 km

0.5

OpenStreetMap contributors, and the GIS User Community

Λ

MPART: PFAS Information System









Fish Contaminant Monitoring Program Sampling Sites and Select Results



Esri, TomTorn, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

Appendix D

Select Maps from North 34th Street – MPART – Production Plated Plastics Environmental Investigations







Buffer Zone

RICHLAND, MI

Miles

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Project #: 60582450



| | | CAR BUNCES | |
|---------------------------|-------------|--|--|
| | | | |
| Drawn: DP Date: 8/30/2022 | Kal ama zoo | Legend N Monitoring Well Image: Non-Detect for Part 201 PFAS Compounds Image: Potential Detection below Part 201 PFAS Criteria, but no Exceedance Image: Non-Detect for Part 201 PFAS Criteria, but no Exceedance Image: Potential Detection Detect for Part 201 PFAS Criteria Exceeded Image: Non-Detect for Part 201 PFAS Criteria | QUARTER 1 SAMPLING PFAS HEAT MAP DRAFT |
| Project #: 60582450 | Portage | Production Plated Plastics 0 0.2 0.4 Study Area Miles | RICHLAND, MI |

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| | | | 1-04 | | |
|-----------------------------|---|---|-----------------------------|--------------------------------|------------------------------------|
| AECOM | | Legend Monitoring Well All analyzed VOC contaminatns are One or more VOC contaminants De | Non-Detect = Proc Lected | ly N duction ed Plastics | QUARTER 4 SAMPLING VOC HEAT MAP |
| Drawn: DP Date: 5/2/2023 | One or more VOC contaminants exceed DWC | | | | DRAFT |
| Approved: JB Date: 5/2/2023 | Portage | One or more VOC contaminants exc screening levels | | | |
| Project #: 60582450 | V | Not Sampled | 0 0.1 | 0.2 Miles | RICHLAND, MI |



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Document Path: L:\DCS\GIS\ArcMap_GeoDB_Projects\ENV\GIS_Data\GIS\Richland\MXDs\Feb2023_Deep_GW_Contours.mxd

Aerial imagery: 2022 NAIP Imagery



Aerial imagery: 2014 NAIP Imagery



Aerial imagery: 2014 NAIP Imagery





٦ **GEOLOGIC CROSS SECTION A**

RICHLAND PFAS EVALUATION RICHLAND, MICHIGAN

Date: 2019-06-22

Project No.: 60582450



Index Map







ā **GEOLOGIC CROSS SECTION B -**

RICHLAND PFAS EVALUATION RICHLAND, MICHIGAN



Date: 2019-06-22

Project No.: 60582450





GEOLOGIC CROSS SECTION C -

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RICHLAND PFAS EVALUATION RICHLAND, MICHIGAN

Date: 2019-06-22

Project No.: 60582450

Index Map





۵ **GEOLOGIC CROSS SECTION D -**

RICHLAND PFAS EVALUATION RICHLAND, MICHIGAN

Date: 2019-06-22

Project No.: 60582450

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Index Map



SECTION F - F' **GEOLOGIC CROSS**

RICHLAND PFAS EVALUATION RICHLAND, MICHIGAN

Date: 2019-06-22 Project No.: 60582450





Overburdened Calculation

SEE OVERBURDENED WORKSHEET PROVIDED IN THE FRONT END OF THE COMPILED THREE AREA PROJECT PLAN

Prein&Newhof