DRAFT

Ypsilanti Pumping Station Improvements
GLWA CS-267

Drinking Water Revolving Fund (DWRF)
Project Plan
May 2021

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List of Abbreviations

AACE	Association for the Advancement of Cost Engineering
AMP	Asset Management Plan
APE	Area of Potential Effects
AWWA	American Water Works Association
BC	Brown and Caldwell
CIP	Capital Improvement Program
CMAR	Construction Manager at Risk
CMMS	Computerized Maintenance Management System
Co.	County
CWMP	Comprehensive Water Master Plan
DWRF	Drinking Water Revolving Fund
DWSD	Detroit Water and Sewage Department
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FPDB	Fixed-Price Design-Build
FSP	Financial Sustainability Plan
GLWA	Great Lakes Water Authority
GPM	Gallons per Minute
HP	Horsepower
HUD	United States Department of Housing and Urban Development
JOY	Joy Road Pump Station
M	Million
MDEGLE	Michigan Department of Environment, Great Lakes, and Energy
MDNRE	Michigan Department of Natural Resources and Environment
MG	Million Gallons
MGD	Million Gallons per Day
MI	Michigan
MPHI	Michigan Public Health Institute
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NPV	Net Present Value
NREPA	Natural Resources and Environmental Protection Act
NRHP	National Register of Historic Places
O&M	Operation and Maintenance
PDB	Progressive Design-Build
PEAS	Pollutant Emergency Alerting System
POR	Preferred Operating Range
PSI	Pounds per Square Inch
R&R	Replacement and Repair
RFP	Request for Proposal
SEMCOG	Southeast Michigan Council of Governments
SESC	Soil Erosion and Sedimentation Control
T&O	Taste and Odor
TDH	Total Dynamic Head
THPO	Tribal Historic Preservation Office
Twp	Township
US	United States
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VFD	Variable Frequency Drive
WAM	Work and Asset Management
WCK	Wick Road Pump Station
WRRDA	Water Resources Reform and Development Act
WSE	Water Surface Elevation
WTP	Water Treatment Plant
WWP	Water Works Park
YCUA	Ypsilanti Community Utilities Authority
YPS	Ypsilanti Pump Station

Section 1

Introduction

This document has been prepared in accordance with the planning guidelines adopted by the Michigan Department of Environment, Great Lakes, and Energy (MDEGLE) for the Drinking Water Revolving Fund (DWRF) low interest loan program. It is the intent of the Great Lakes Water Authority (GLWA) to seek low interest loan assistance under the DWRF program for the recommended work.

GLWA retained Brown and Caldwell (BC) to complete a DWRF Project Plan for improvements to the Ypsilanti Pump Station (YPS), a component of GLWA's potable water transmission system that serves over 4 million customers in Southeastern Michigan.

The existing YPS is an in-line booster PS located in Van Buren Township on an 11-acre site adjacent to the Willow Run Airport. The main functional purpose of the YPS is to boost pressure being delivered to the Ypsilanti Community Utilities Authority (YCUA), which is under contract to receive drinking water from GLWA until 2038. The station can be bypassed during typical conditions (average-day) but must operate during peak flow conditions to meet the demands of YCUA.

Currently, much of the major equipment in the YPS is near or beyond its useful life and needs to be replaced/refurbished. The purpose of the GLWA-CS-267 Ypsilanti Pumping Station Improvements project is to replace the current YPS with a new pumping station that meets current codes and GLWA flow requirements and is flexible and expandable with additional pumps and a possible future reservoir to provide additional flow if needed in the future.

GLWA is proposing to undertake these issues with DWRF funding.

The purpose of this document is to present the Project Plan and meet the project planning requirements of the MDEGLE. The MDEGLE stipulates a planning period of 20 years. This report is based on the period from 2021 through 2041.

The Project Plan also serves as the basis for public review and comment on the proposed work in accordance with the public participation requirements of the DWRF program.

Section 2

Project Background

The YPS is part of the Great Lakes Water Authority (GLWA) water system, which consists of water treatment plants (WTPs), reservoir storage facilities, high-lift pumping stations (PSs), transmission mains, booster pumping stations, pressure-regulating facilities, and a wholesale automated meter reading (WAMR) system that measures flow and pressure. The system was developed over a period of 100-years and serves customers throughout the Metro Detroit area. Customers in the southwestern communities near Ypsilanti including the City of Ypsilanti, Ypsilanti Township, Augusta Township, Pittsfield Township and Superior Township are served by the Ypsilanti Community Utilities Authority (YCUA). The YCUA water distribution system is supplied by the GLWA YPS, as well as a network of related facilities and systems.

The existing YPS is an in-line booster PS with a firm capacity of 36 million gallons per day (mgd) and an installed capacity of 54 mgd. The station is in Van Buren Township on an 11-acre site adjacent to the Willow Run Airport and was constructed in the mid-1980's to replace an older, temporary PS to boost the pressure of water supplied from the Wick Road PS (WCK). In the mid-1990's the City of Ypsilanti decommissioned their aging water treatment plant and switched to what is now the GLWA water system. During this time, a connection to a transmission main supplied by the Joy Road PS (JOY) was added to the YPS to provide a continuous supply of water to the YPS service area from either WCK, JOY, or both, in the event of an interruption at YPS.

The major process components of the existing YPS include transmission piping, yard piping, valves and the pump house. The pump house includes three 18 mgd / 1,000 horsepower (HP) Line Pump Units with variable speed drives and associated mechanical and electrical equipment. The YPS suction header is connected to a 42-inch water transmission main coming from the WCK and to a 42-inch water main coming from the JOY (via two 16-inch division valves).

The main functional purpose of the YPS is to boost pressure being delivered to YCUA. The station can be bypassed during typical conditions (average-day) but must operate during peak flow conditions to meet the demands of YCUA.

Currently, much of the major equipment in the YPS is near or beyond its useful life and needs to be replaced/refurbished. The purpose of the GLWA-CS-267 Ypsilanti Pumping Station Improvements project is to replace the current YPS with a new pumping station that meets current codes and GLWA flow requirements and is flexible and expandable to provide additional flow if needed in the future.

This DWRF Project Plan will analyze the following alternatives:

- Alternative 1 – No action. Continue utilizing the existing infrastructure without making immediate large-scale improvements.
- Alternative 2 – New YPS on the existing YPS site property, adjacent to the existing YPS.
- Alternative 3 – Construct a new PS near Wick Road PS (WICK) to accommodate the combined pumping needs of the existing YPS and WICK. Decommission the existing YPS and WICK.
- Alternative 4 - Construct a new PS on a portion of the Willow Run Airport on the northwest corner of the corner of D Street and Beck Road.

2.1 Study Area and Project Zone

The study area includes the service area of the YPS, which includes the following YCUA communities: City of Ypsilanti, Charter Township of Ypsilanti, Pittsfield Township, Augusta Township, Superior Township, York Township, and Willow Run Airport and Cape Apartment in Van Buren Township. The study area also will include the City of Ann Arbor. Although Ann Arbor has their own Water Treatment Plant, GLWA sees the City as a potential future customer. GLWA has directed BC to design the new YPS with the expandability to meet Ann Arbor's water demands at a future time in addition to projected future demand from the current YPS service area.

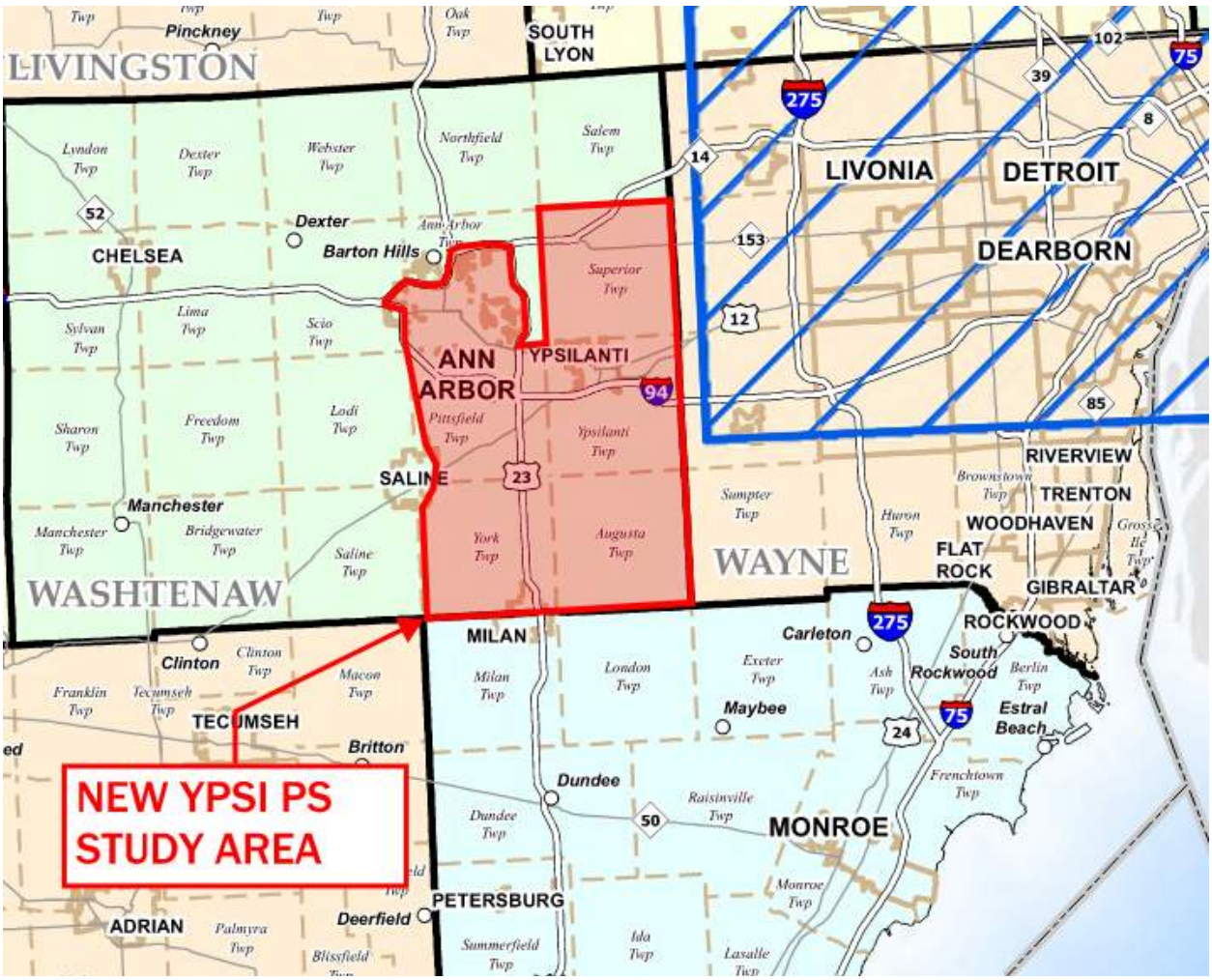

Figure 2-1. Study Area for the proposed New YPSI PS

2.2 Population Projections

Historic and projected future county populations to the year 2035 have been pulled from the Detroit Water and Sewage Department (DWSD) Comprehensive Water Master Plan (CWMP), published in August 2015. To estimate the 2041 population, the 2030-2035 growth rate was assumed as a constant for the subsequent 6-year period. The DWSD CWMP acquired the population projections from the Southeast Michigan Council of Governments (SEMCOG) estimates.

Historic and projected future City of Ann Arbor populations to the year 2041 were formulated by assuming the 2010-2020 growth rate as a constant for the planning period. The 2021 population was pulled from the US Census.

Table 2-1. Planning Period Customer and Potential Customer Populations

County	2021	2026	2031	2036	2041
City of Ann Arbor	119,980	123,160	126,423	129,773	133,212
Washtenaw County (Only areas currently served by GLWA)	140,344	142,615	147,078	152,117	157,329
Total Potential Service Area Population	260,324	265,774	273,501	281,890	290,541

2.3 Climactic Factors

Climate change has multiple potential impacts on water quality and water quantity. Therefore, it is important to consider and plan for these impacts. In the Great Lakes area, reports of increased storm severity leading to rapidly fluctuating water quality and reports of increased cyanobacteria (blue-green algae) blooms leading to concerns over taste and odor and microcystin production. There is a significant uncertainty associated with both the extent and timing of impacts so that it is difficult to predict the exact impacts over the next 20 years.

The United States Environmental protection Agency (USEPA) anticipates that the Midwest could see increasing frequency and intensity of precipitation due to climate change. Excess runoff and snow melt could add to the extent of water quality changes. Among the potential impacts of climate change for GLWA are:

- Source water quality changes in concentrations and increasing fluctuations [power of hydrogen (pH), temperature, new pollutants]
- Increase in total organic carbon (TOC), pathogens, nutrients, and cyanobacteria (microcystin production)
- Decrease in raw water alkalinity
- Elevated and fluctuating raw water turbidity
- Impacts of water quality changes on water treatment processes and distribution
- Changes in water demand due to changing precipitation patterns.

GLWA currently monitors most of these parameters and will continue to monitor and assess results at five-year intervals. The most pertinent of these potential impacts with respect to potable water pump station design is the changes in water demand. GLWA and BC will factor in these changes into water demand forecasting, which also includes traditional factors such as population change, projected leakage, infrastructure quality, industry and agriculture, commercial zones, geography, and government policy,

Section 3

Existing Facilities

3.1 Existing YPSI PS

The existing YPS is an in-line booster pumping station with a firm capacity of 36 million gallons per day (mgd) and an installed capacity of 54 mgd. The station is in Van Buren Township on an 11-acre site adjacent to the Willow Run Airport and was constructed in the mid-1980's to replace an older, temporary pumping station to boost the pressure of water supplied from the Wick Road PS. The major process components of the existing YPS include yard piping /valves and the pump house. The pump house includes three 18 mgd / 1,000 horsepower (HP) Line Pump Units with variable speed drives and associated mechanical and electrical equipment. The YPS suction header is connected to a 36-inch water main coming from the Wick Road PS and to a 42-inch water main coming from the Joy Road PS (via two 16-inch division valves). The main functional purpose of the YPS is to boost pressure during periods of peak demand.

3.2 Wick Road PS

The Wick Road Pump Station is located at 32280 Wick Road in Romulus and was constructed in 1978. The station is equipped with five single stage, horizontally mounted axially split double suction pumps are all located in the one pump room, positioned side by side on both sides of the discharge header. There are 2 line pumps that have a rated pumping capacity of 18 mgd. There is also one swing pump and 2 reservoir pumps rated at approximately 12 mgd. The Line pumps are directly connected to the 48-inch main on Wick Road. The Station operates between GLWA Operational Zone 6 on the influent/suction side and discharges into GLWA Operational Zone 12. The Wick Road facility provides suction pressure to the Ypsilanti Pump Station and receives pressure from the Southwest Water Treatment Plant high lift pumps. The WCK sends flow west through the Wick Road Transmission Main.

3.3 Wick Road Transmission Main

Conveys flow westward from WCK to YPSI. The Wick Road TM terminates at the existing YPSI suction header.

3.4 Joy Road PS

The Joy Road Pump Station is located at 43127 Joy Road, Canton Township and was built in 1970. The station has Three line pumps, two five million gallon storage reservoirs and 3 reservoir pumps. The station was originally designed to supply pressure to Plymouth Township, Canton Township, Northville Township, and the City of Northville. Two line pumps L1 and L2 are single stage Ebara pumps designed for 15.88 MGD at 288' TDH. The third line pump is also signal stage but is manufactured by Worthington with a design of 7.14 MGD at 286' TDH. The facility operates between the GLWA Operational Zone 11 on the influent/suction side and GLWA Operational Zone 10 on the discharge side of the facility. The Joy Road Pump Station balances its supply to the western communities with both the Newburgh and Ypsilanti Stations. The JOY sends flow north, west, and south to the northern portion of the YCUA service area via the Ridge Road Transmission Main. Under future operating conditions, the new YPS could have the capacity to serve GLWA's customers to the

west (YCUA) with added capacity to serve customers to the north. This would relieve JOY of demand to its south and allow it send more flow to the north as needed.

3.5 Southwest GLWA Transmission System

Figure 3-2 provides an overview of GLWA's supply, pumping and transmission system in the southwest area around the YPSI.

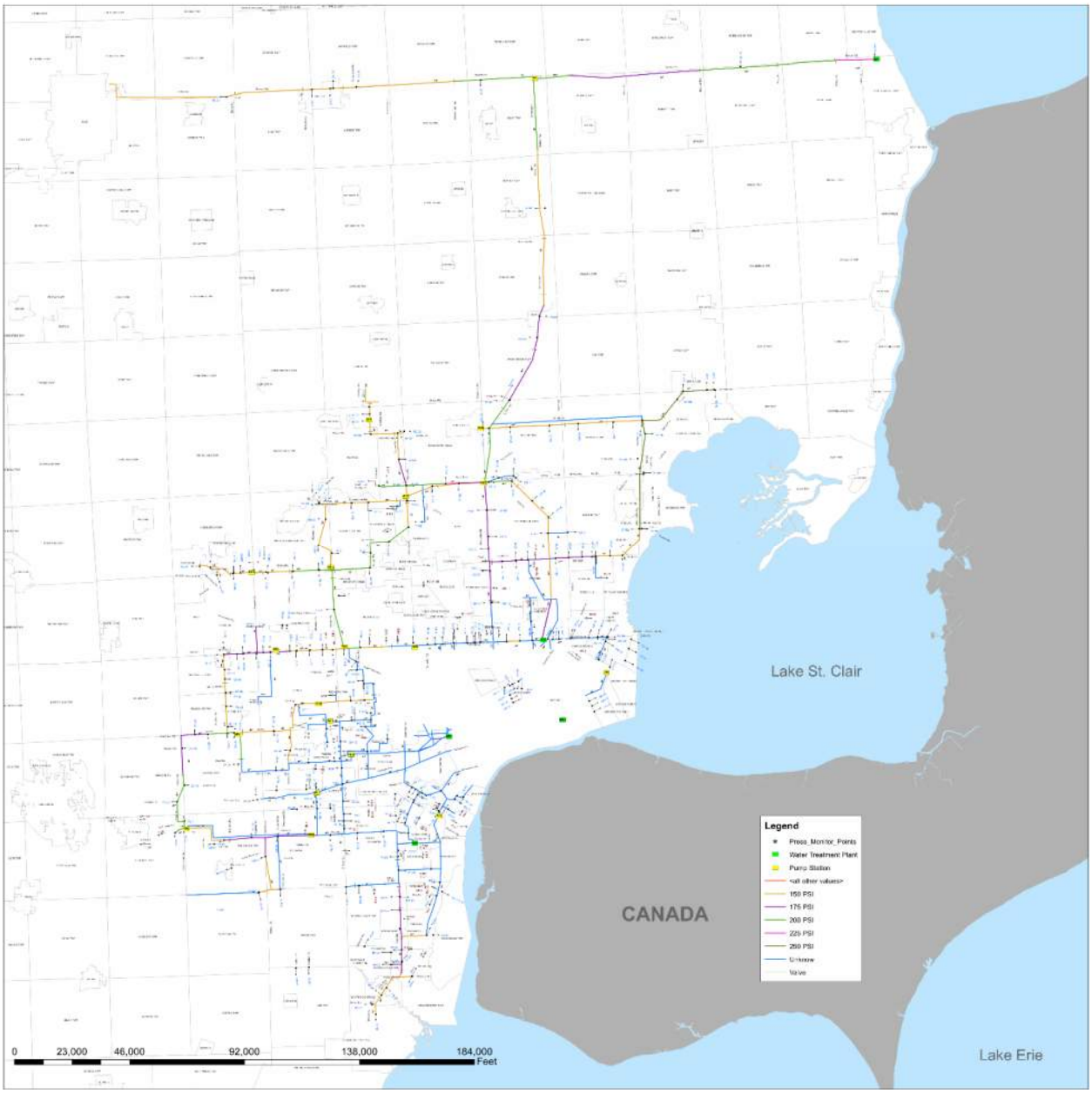

Figure 3-1. Overall GLWA Water Transmission System

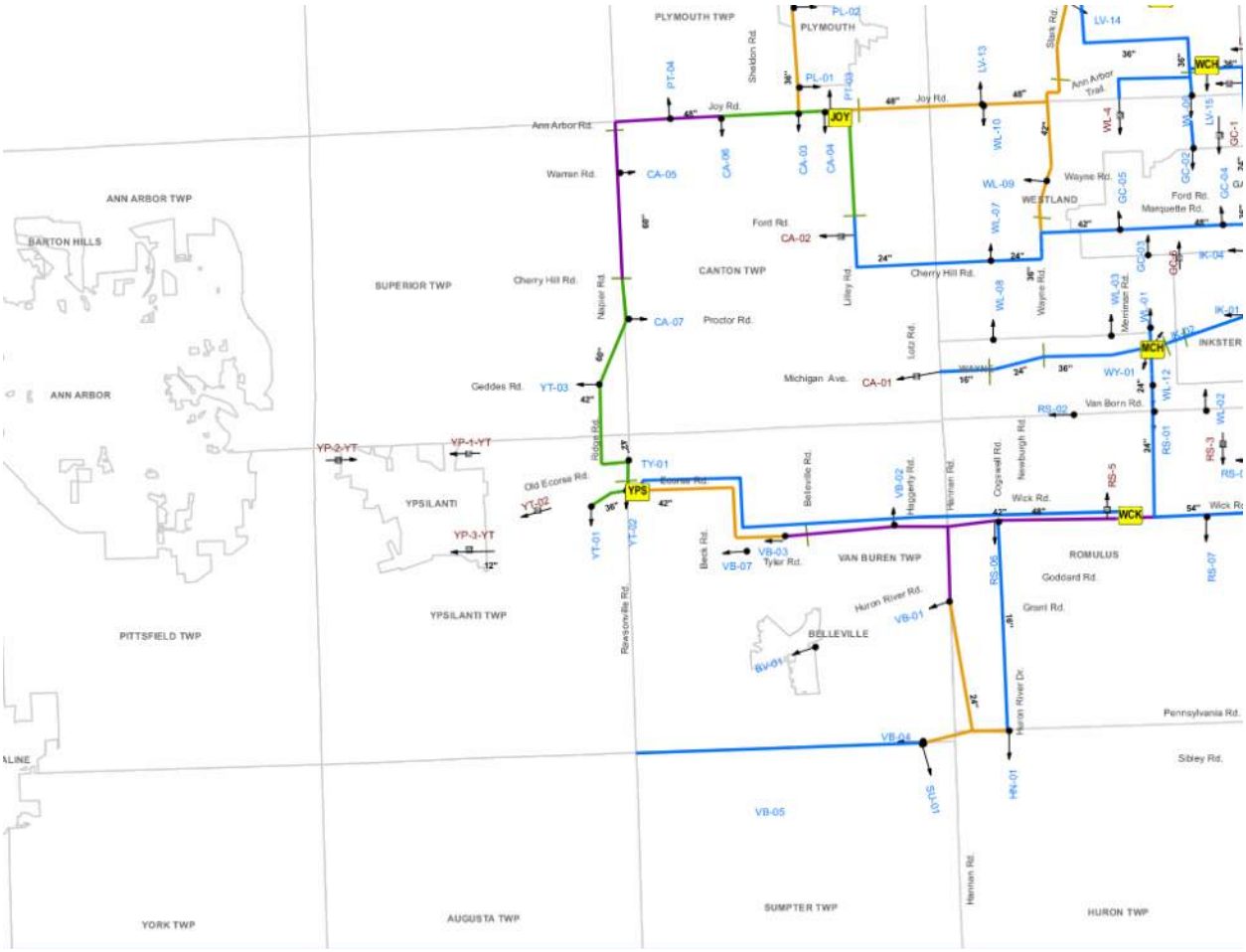

Figure 3-2. GLWA Water Transmission Network (Southwestern Region)

Section 4

Project Need

Currently, much of the major equipment in the YPS is near or beyond its useful life and needs to be replaced/refurbished. Additionally, separate planning and needs assessment investigations conducted in the last five years have already identified some major elements requiring correction, including stand-by generator replacement, pumping unit replacement, and major electrical equipment replacement. The purpose of the GLWA-CS-267 Ypsilanti Pumping Station Improvements project is to provide improvements that enhance the reliability, maintainability, and operability of the facility for the long-term.

4.1 Summary of Site Issues at Existing YPS

The following bullets constitute a summary of site-related issues at the existing YPS Site:

Old Generator Removal - Generator and associated equipment need to be removed.

- Septic Field / Sanitary Sewer Connection - The septic field needs to be decommissioned and replaced with a new sanitary sewer connection.
- Stormwater Improvements - Valve vault sumps are not connected to site stormwater system causing pump cycling and flooding vaults.
- Station Flow Metering – Existing Meter is non-functional and needs to be replaced.
- Generator - A new stand-by generator is needed.
- Access Road - Paving needed for roads, parking, and sidewalks.
- Yard Valves and Vaults - Concrete restoration and drainage improvements are needed. Butterfly and gate valves are 40+ years old.
- Groundwater - Groundwater may be impacted by migration of contaminant plumes from adjacent airport.
- Old PS Piping - Abandoned piping from the temporary pump station needs to be removed or decommissioned.

4.2 Summary of Existing YPS Pump House Issues

The following bullets constitute a summary of issues plaguing that existing YPS pump house:

- Pumping Units - Abandoned piping from the temporary pump station needs to be removed or decommissioned.
- Existing Electrical System - Existing electrical system is near the end of its useful life and needs replacement.
- HVAC - Existing HVAC will need to be upgraded to support the new electrical equipment. Existing HVAC may interfere with future equipment handling improvements.
- Process Valves and Operators - The existing butterfly valves do not provide complete isolation. Discharge cone valve operator closure time and closure prof le for start-up and closure are a critical issue for minimizing hydraulic transient pressure waves that can be damaging to equipment and the transmission system.

- Roof Hatches / Equipment Handling - Handling major equipment is diff cult without a permanently installed crane. Using roof hatches and large mobile crane is less desirable due to FAA permit requirements as a result of the proximity to the airport.
- Air Compressor - The existing unit is difficult to access and needs to be replaced/relocated.
- Coating Systems - Existing paint and coating systems on piping and equipment is deteriorating.
- Lighting Systems - The lighting system needs to be upgraded to an LED system.
- Plumbing System - Floor drains (Seal/cooling water) currently discharge to the storm water system. Local codes will likely require this be routed to the sanitary system in the future.

4.3 Operational Considerations

Currently, YPS is critical only during high demand periods of each day or during emergencies. Other times, YPS is not required to deliver flows to YCUA (see Figure 4-1) because pressure from Joy Road PS can deliver the flows. GLWA will be implementing improvements to this portion of the system that will impact the current pump station operations. For example, the new 14 Mile Road Transmission Main Loop project will redirect flow from Newburgh PS, which normally boosts pressure to customers west along 8 Mile Road, to supply demands along 14 Mile Road. This demand will be even more acute during emergency conditions that impact the supply along 14 Mile Road from Franklin PS. This new demand on Newburg PS may impact the station's ability to supply flows along 8 Mile Road, which would place additional demands on Joy Road PS. GLWA and BC have undertaken the design portion of this project with heavy consideration to the fit of the YPS in the greater system. The new YPS will be designed robustly to handle different operating scenarios.

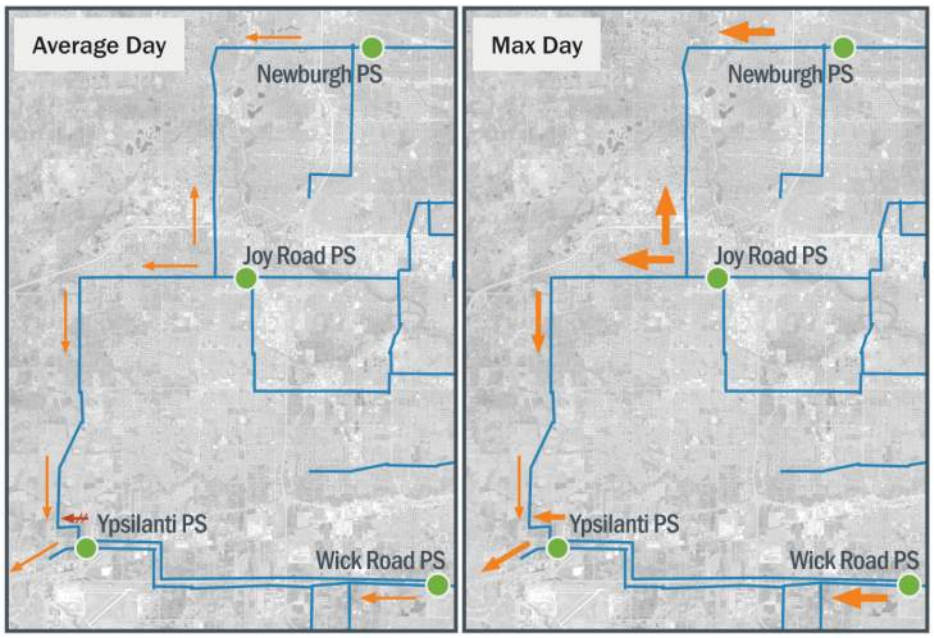

Figure 4-1. Average Day and Max Day Pump Station Supplies for Southwest Portion of GLWA System.

According to 24-hour model simulations for Average Day simulations, YPS only provides flow less than 10 hours of each day.

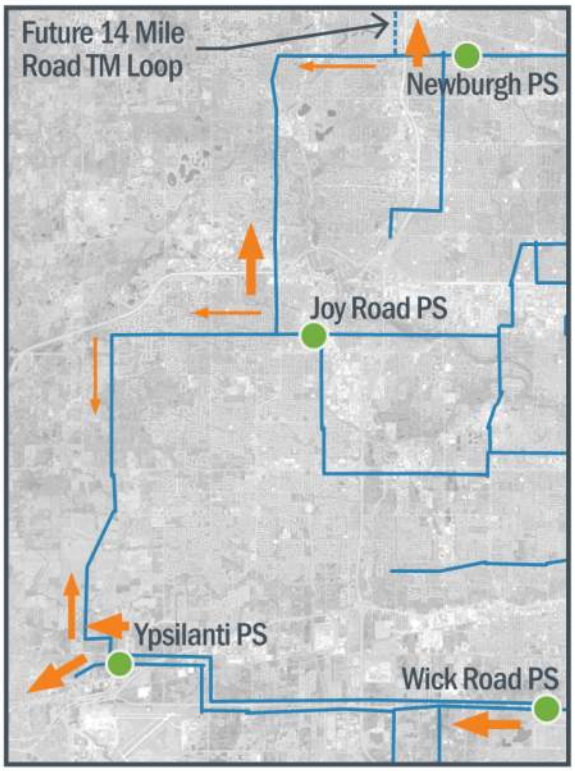

Figure 4-2. Future Max Day Pump Station Supplies for Southwest Portion of GLWA System.

The figure shows the new flow to 14 Mile Road from the Newburg PS, which will increase the flows from Joy Road PS to 8 Mile Road. YPS can be improved to provide additional flow into the system and possibly reduce the impact on other pump stations.

YPS represents an opportunity to develop an important piece of the future supply system, one that could reduce the need for improvements at other pump stations and increase the benefits of any improvements to YPS. Figure 4-2 shows one potential benefit from Ypsilanti PS under the future conditions: providing flow north toward Joy Road PS in addition to meeting all the demands to YCUA.

4.3.1 Planning for New GLWA Customers

GLWA has directed BC to design the new YPS to accommodate the potential future expansion needed to serve the City of Ann Arbor, the fifth most populous city in Michigan.

Section 5

Analysis of Alternatives

5.1 Summary of Alternatives

The four alternatives considered in this section are as follows:

1. Alternative 1 – No Action
2. Alterative 2 – Construct a new pump station to replace the existing YPS on the same property, adjacent to the existing facility.
3. Alternative 3 – Construct a new pump station near the existing WICK to replace both the existing WICK and YPS.
4. Alternative 4 – Construct a new pump station near the intersection of Beck Rd. and D St. to replace the existing YPS.

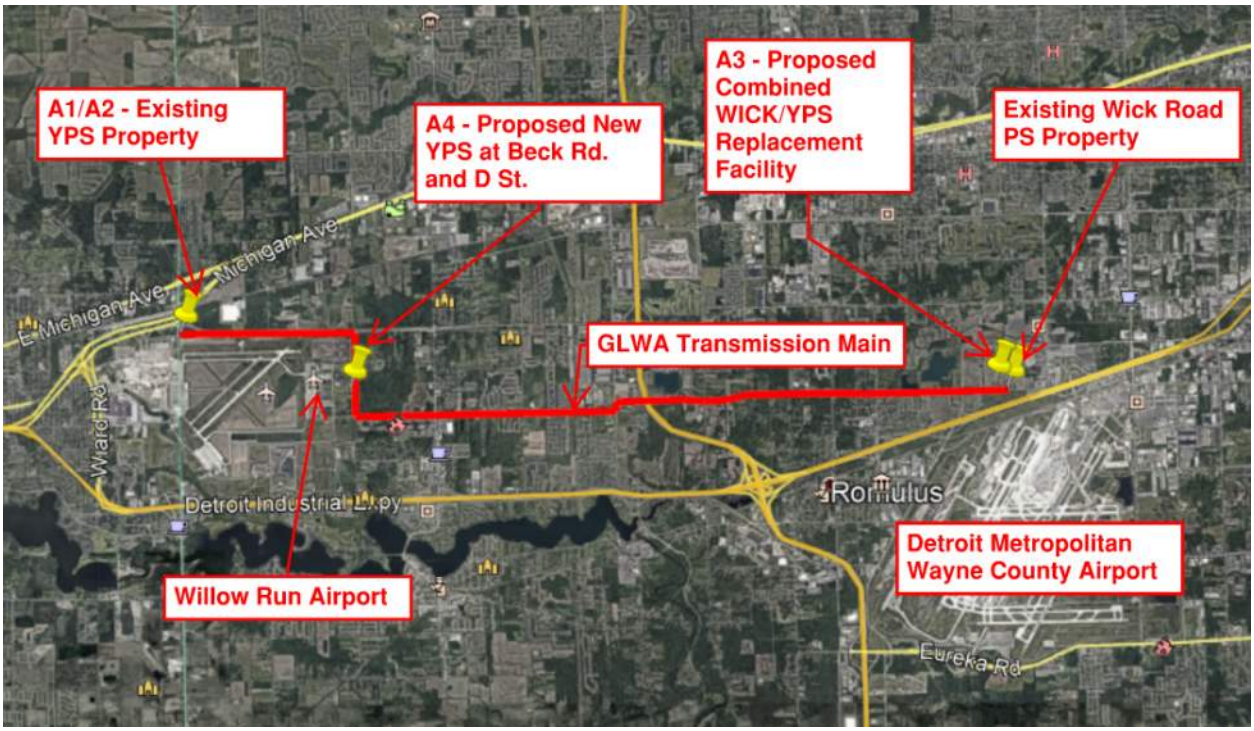

Figure 5-1. Alternatives Map

5.2 Selection Criteria

BC carefully weighed the pros and cons of each alternative based on the following criteria:

- Property Acquisition
- Property Size
- Site Access
- Hydraulic/System Operations
- Sewer and Utilities Access
- Constructability
- Impacts to Adjacent Landowners
- FAA Requirements
- Environmental/Wetlands
- JHAs
- Expandability

5.3 Alternative 1 – No Action

The "No Action" alternative does not call for any rehabilitation or improvements. GLWA would likely still incur costs from this option due to significantly increased equipment maintenance and unexpected equipment replacement. In addition, GLWA would risk paying fines and even be subject to lawsuits from customers and environmental regulators if the pump station were to experience a critical failure rendering it inoperable for a significant period of time. As discussed in Section 3 of this report, there are numerous deficiencies at the existing YPS that could jeopardize its ability to operate as intended, in particular the pump station's electrical system, which is nearing the end of its design life and requires immediate replacement. While technically feasible, replacing the electrical system without replacing other key components of the pump station would be expensive and would also prohibit GLWA from adjusting the pump station's output capacity for changes to population, service area, and other factors.

5.4 Alternative 2– New YPS At the Current YPS Property, Adjacent to the Existing YPS

Build a new pump station on the current YPS property, east of the current YPS on a cleared area.

Figure 5-2. Alternative 2 – New YPS Within the Existing Property Boundary

5.4.1 Property Acquisition

The property is currently owned by GLWA.

5.4.2 Property Size

The overall site is approximately 11.46 acres. If this site can be utilized, once the new PS is built and operational, the existing PS can be decommissioned and demolished.

5.4.3 Site Access

In order to access this site, the access road will need to be extended through the current site. The current site is accessed from Rawsonville Road which is a dirt road from Ecorse Road. Trucks entering the site will not back up the main traffic on Ecorse road.

5.4.4 Hydraulic/System Operations

A new YPS at this site would have similar hydraulic and system operations to those of the current PS. Changes to the existing WAMR pressures and flows would not be anticipated and the system would also be able to be flexible to provide water to future users if needed.

5.4.5 Sewer and Utilities Access

Site utilities would be unchanged, requiring the installation of a new sewer line to a location offsite, approximately 3,300 feet away.

Electrical service is currently provided to the site from two feeds from the Mott substation which is shown on Figure 1 and is approximately 1.7 miles away. If desired, a secondary feed could be provided from the Homer substation, which is approximately 3.6 miles away.

5.4.6 Constructability Issues

In order to build a new PS, the parallel transmission line to Wick Road will need to be relocated at the beginning of construction to facilitate continued operation of the existing YPS during construction.

In addition, new sewer construction would be required prior to the PS remaining operational.

5.4.7 Impacts to Adjacent Landowners

The current adjacent landowners are industrial businesses and the Willow Run Airport. No additional impacts are anticipated.

5.4.8 FAA Requirements

The current site is within the instrument approach for YIP airport and requires a FAA aeronautical study. The structure is also in proximity of a navigational facility and that may impact navigation. Each require that an FAA permit be acquired for construction. However, the building is being designed so a permit is not necessary for maintenance activities.

5.4.9 Wetland Issues

Much of the site has a delineated scrub-shrub wetland. The area within the tree line is labeled as wetland based on the National Wetland Inventory. This option will impact approximately 2.0-acres of wetland. The wetland appears isolated from a federally-jurisdictional stream and therefore may not be federally regulated, but it will likely be regulated by the state.

5.4.10 Environmental Issues

GLWA has indicated that they believe there may be residual environmental concerns on the existing property. BC completed a review of available environmental records to determine known impacts to the site. The review indicated that the site previously had an underground storage tank on the site and that GM Hydramatic which is adjacent to the site are the only potential sources for environmental issues. The record and data base indicates that the likelihood of environmental impacts is low. However, additional sampling of the site will be required to fully delineate any environmental issues with the site.

5.4.11JHAs

The existing site is in Van Buren (Charter Township and Wayne County. It is currently zone Airport (AP) and will likely need rezoning based on the zoning requirements.

5.4.12 Expandability

If this site is retained, the site is expandable once the current site is decommissioned and reconfigured. The size of the wetland complicates additional work on the site.

5.5 Alternative 3 – New Combined PS, Replaces Existing WCK and YPS

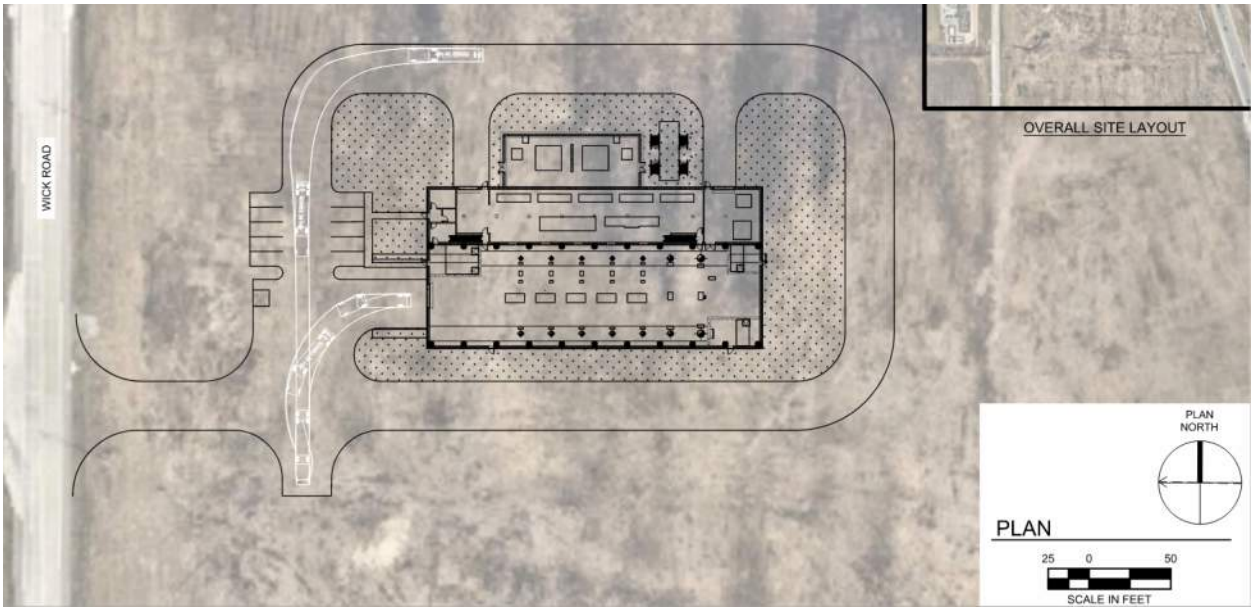

Figure 5-3. Alternative 3 – Combined PS To Replace Existing YPS and WCK

5.5.1 Property Acquisition

Properties around WCK are not currently for sale and would require acquisition. The 212.46-acre parcel immediately surrounding the station has recently sold. The two parcels across the street, a 33.15-acre parcel and 19.86-acre parcel, are not for sale and have not been in the recent past.

5.5.2 Property Size

Either parcel across the street would be appropriately sized for expansion and flexibility.

5.5.3 Site Access

Properties adjacent to WCK could be improved to meet the access requirements of GLWA.

5.5.4 Hydraulic/System Operations

Hydraulic modeling of a combined YPS and WCK was performed to determine the feasibility of combining the two stations at this point in the GLWA system. Modeling indicates that the pump station could be designed to provide the required WAMR pressure and flow rates between the WCK and YPS if a high-pressure and low-pressure side of the pump station were created. The high-pressure side would be dedicated to supplying the area near the existing YPS and beyond if possible. The low-pressure side would be dedicated to supply the WAMR locations between WCK and YPS.

However, this station would not be able to complete the following operations:

- It would not be able to provide YCUA with max flow at max pressure. The transmission system pressure would exceed the design pressure for the pipe at this specific condition.
- There is no excess capacity with this arrangement to push flow past YCUA towards Joy which may limit flexibility of the transmission system in this location.
- Provide flow to Ann Arbor or other future customer without the construction of an additional pump station in a location near the current YPS.

5.5.5 Sewer and Utilities Access

The site utilities would be unchanged from the current WCK. If a second feed is desired, an additional substation nearby would need to be discussed with DTE.

5.5.6 Constructability Issues

This site is large and gives the opportunity to place the new pump station in many different locations, which will reduce constructability issues. The new station can be constructed, tied in, and commissioned before decommissioning the existing system. This option would require that the transmission lines be connected to within the current Wick Road ROW.

5.5.7 Impacts to Adjacent Landowners

The current adjacent properties are vacant. However, the site surrounding WCK has recently been sold and likely will be developed as an industrial site.

5.5.8 FAA Requirements

The current site lies within the instrument approach for DTW airport and requires a FAA aeronautical study. The structure is also in proximity of a navigational facility and that may impact navigation. These permits will be required during construction. However, the new building is being design so that FAA clearance is not required for maintenance activities.

5.5.9 Wetland Issues

The larger parcel to the south has two larger wetlands that would impact construction on the site. The smaller parcel has a drainage but no known wetland as shown in Attachment D. There is also mapped perennial drainage feature, Rawson Drain, across the northern boundary of the southern parcels, along Wick Road. There are no NWI-mapped wetlands on the smaller southern parcel, but emergent or scrub-shrub wetlands are potentially present based on review of aerial imagery.

5.5.10 Environmental Issues

BC conducted a review of available environmental records to determine known impacts to the site. The review indicated that the site was historically agricultural. There are eight facilities that are nearby and appear in the area of concern for the site. The records do not indicate that there are likely environmental concerns on the site.

5.5.11 JHAs

The site is located in the City of Romulus in Wayne County. The site is zoned Regional Center (Business), RC

that will not require rezoning.

5.5.12 Expandability

Either site is large enough and would be expandable and flexible for future pump stations. However, the existing transmission system would not be able to support additional flow at this location. Therefore, the site is not expandable due to the transmission system.

5.6 Alternative 4 – New YPS At A New Property (Northwest Corner of Beck Road and D Street)

Construct a new PS on a portion of the Willow Run Airport on the northwest corner of the corner of D Street and Beck Road as shown of Figure 5-4.

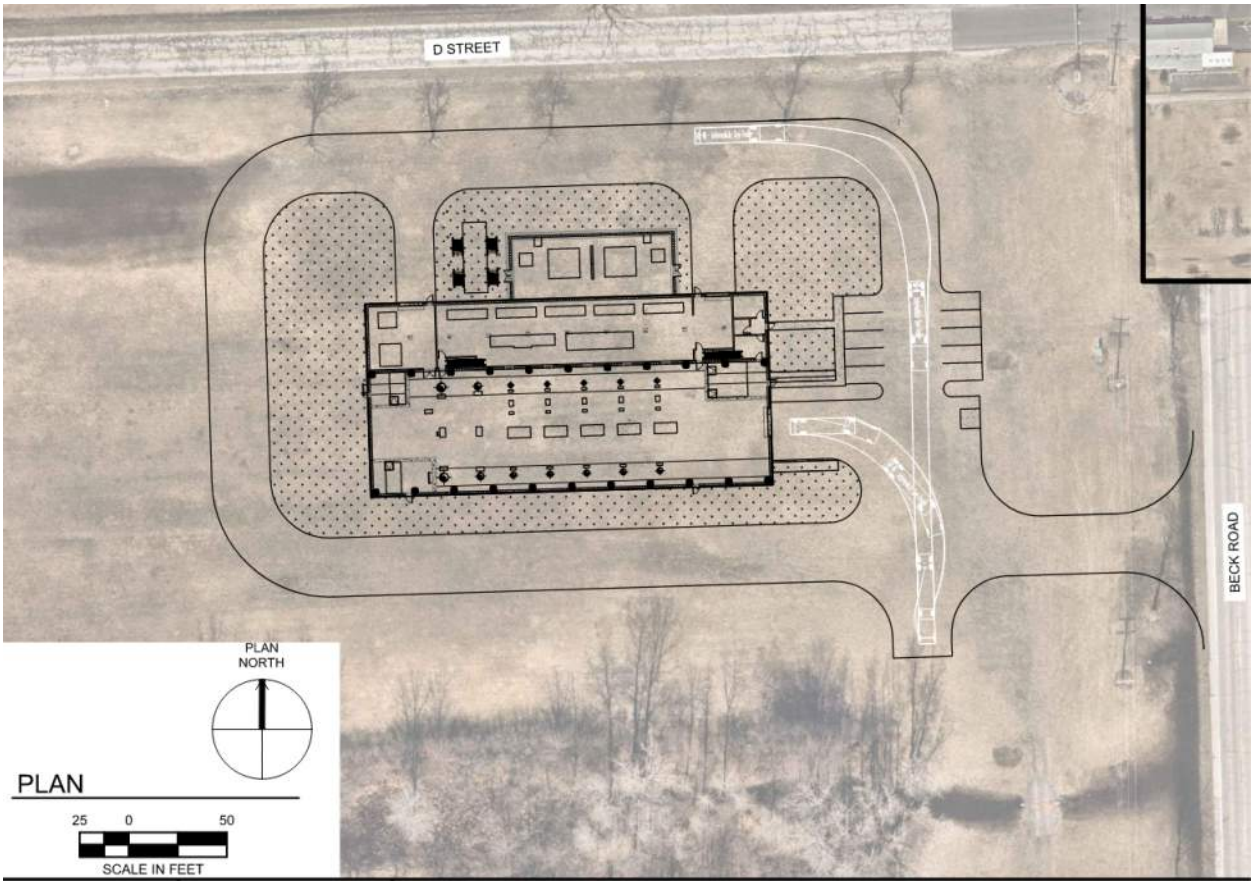

Figure 5-4. Alternative 4 – New YPS At A New Property

(9399 Beck Rd., Belleville, MI 48111)

5.6.1 Property Acquisition

GLWA is working with Wayne County Airport Authority to negotiate the sale of 21.5 acres of the Willow Run Airport to accommodate the new PS.

5.6.2 Property Size

The site is approximately 21.5 acres, which would provide plenty of space for expansion and flexibility of use.

5.6.3 Site Access

The size and location of the site access provides an entrance that will allow trucks to pull into the gate area and be out of the traffic. It may be possible to construct two access entrances for the site.

5.6.4 Hydraulic/System Operations

A new pump station in this location would be hydraulically similar to the existing YPS. It is located

past the final WAMR location on the Wick transmission system therefore would not disrupt GLWA customers between Wick and YPS and pumps could be sized appropriately to meet the demands downstream of this location.

A pumps station in this location would also be able to be expanded to provide future flows to additional customer. In addition, there are two parallel transmission mains between the existing YPS and this location. One of these lines could be used to feed JOY flows from the existing site to this location where they could be pumped to provide the necessary YCUA needs.

5.6.5 Sewer and Utilities Access

The site has all major utilities, including sewer.

The closest DTE substation is the Homer substation and is approximately 1.0 miles away. If desired, a secondary feed could be provided from the Zachary substation, which is approximately 3.0 miles away.

5.6.6 Constructability Issues

This site is large and gives the opportunity to place the new pump station in many different locations within the site which will reduce constructability issues. The new station can be constructed, tied in, and commissioned before decommissioning the existing YPS. This option would not require work within either D Street or Beck Road to connect to the parallel transmission lines. The transmission lines are located on the west side of Beck road and run within the parcel being investigated for this option.

5.6.7 Impacts to Adjacent Landowners

The current adjacent landowners are the airport. No impacts are anticipated.

5.6.8 FAA Requirements

The current site is in proximity of a navigational facility and that may impact navigation, which requires that an FAA permit be acquired for construction. The building is being design so that maintenance would not require a permit.

5.6.9 Wetland Issues

The site does not have mapped wetlands. However, a review of aerial imagery also suggests that unmapped wetlands are potentially present on the site. It is likely that these could be avoided during the design process.

5.6.10 Environmental Issues

BC completed a review of available environmental records to determine known impacts to the site. The review indicated that the site was historically agricultural. The records indicate that US Air Force has a site across the street that they operated from 1949 to 1960. This facility had underground storage tanks that were removed in 1991.

5.6.11 JHAs

This site is in Van Buren (Charter Township) and Wayne County. It is zoned Airport (AP) and will likely need rezoning based on the zoning requirements.

5.6.12 Expandability

Due to the size and layout, the site is large enough to provide flexibility and expandability. Large reservoirs could also be located on this site at some future time if this became a need. In addition, the site can provide future flows to additional customers at this location.

Table 5-1. Summary of Alternatives

	Alternative 1: No Action	Alternative 2: New YPS At The Current YPS Property, Within The Current Property Boundary	Alternative 3: New Combined PS To Replace Existing Wick Road PS and Ypsilanti PS	Alternative 4: New YPS At A New Property (Northwest Corner of Beck Road and D Street)
Features	• Firm capacity - 35 MGD • Three single stage line pumps on VFDs	• Firm capacity - 40 MGD with room for expansion • State Of The Art process mechanical and electrical systems. • 11.46 acres of land	• High pressure side for sending flow west to YCUA. Low pressure side to serve customers in between the existing WCK and existing YPS locations. • State Of The Art process mechanical and electrical systems	• Firm capacity - 40 MGD with room for expansion • State Of The Art process mechanical and electrical systems • 21.5 acres of land
Advantages	• No construction costs • No new property acquisition required. • Hydraulically viable location (post construction)	• No new property acquisition required. • Mapped wetlands present, likely state regulated and possibly federally regulated. • Hydraulically viable location (post construction) • Rezoning likely would not be required.	• Consolidation of two pump stations into one would yield reduced maintenance costs. • Rezoning likely would not be required.	• Hydraulically viable location (post construction) • No mapped wetlands and avoidable unmapped wetlands • Most space for expansion and to design around above-ground or buried obstacles. • Property purchase required, but GLWA has already been solicited by the property owner..
Disadvantages	• Using the YPS when many of its critical systems are past their life expectancies puts the GLWA Water System at extreme risk. • Reduces overall flexibility of GLWA's system. • Limits GLWA Water System's ability to serve potential new customers such as City of Ann Arbor. • Increase maintenance needs and equipment repairs • Adjacent to Willow Run Airport, increased difficulty to attain required FAA permits.	• New 3300 foot sewer connection required • Wetlands present in the proposed location of the new YPS • Parallel transmission pipe would need to be rerouted prior to construction of the new YPS so that the existing YPS could stay online. • Construction of the new sewer would need to be completed before the new YPS can begin to operations.	• Highest upfront construction cost • Limits GLWA Water System's ability to serve potential new customers such as City of Ann Arbor. • Properties around WCK are not currently for sale. Property acquisition is difficult and not guaranteed for this option. • Unable to provide max flow at max pressure to YCUA because the transmission system would exceed its pressure capacity. • There is no nearby secondary electrical substation if a backup power feed is required. In that case, GLWA could have to pay for design/construction of a new one.	• Rezoning likely required

The following sections describe the analysis of the alternatives based on their ability to meet the functional requirements and based on cost.

Section 6

Principal Alternatives

6.1 Technical Considerations

Table 6-1 presents the ability of each of the five alternatives to meet the recommended operational functional requirements.

Table 6-1. Alternatives Ability to Meet Functional Requirements

Functional Requirement	Alternative 1: No Action	Alternative 2: New YPS Within The Current Property Boundary	Alternative 3: New Combined PS To Replace Existing Wick Road PS and Ypsilanti PS	Alternative 4: New YPS Northwest Corner of Beck Road and D Street
No. 1 Property Acquisition	5	4	4	3
No. 4 Hydraulics/System Operations	1	5	4	5
No. 5 Sewer/Utilities Access	4	3	5	5
No. 6 Constructability	1	4	3	4
No. 9 Wetlands Issues	5	4	4	4
No. 10 Environmental Issues	5	4	3	3
No. 11 JHA Items	5	3	4	3
No. 12 Expandability	4	4	3	5
Average Score	3.25	3.4	3.5	4.0

Scale: 1 = ○, 2 = ◔, 3 = ◑, 4 = ◕, 5 = ●

After reviewing and ranking each alternative against the criteria there are a couple of clear conclusions:

- Alternative 4 provides GLWA with options that each meets the criteria set forth.
- Alternative 3 can provide flow and pressure under existing conditions. It could also combine two stations into one. However, this combined station is limited by the transmission system in the area and does not provide flexibility in this portion of the GLWA system. Future needs would require transmission upgrades or the addition of an additional pump station near the existing YPS.

- Alternative 2 – While this site is Owned by GLWA the need to build a long sewer system and likelihood of needing to do wetland mitigation do not allow this to be the top choice.
- Alternative 1 is not a feasible option from the standpoint of operations, maintenance, and health and safety. Critical systems in the existing YPS are past their lifespan and should not be relied upon.

Based on the additional information collected and the ranking criteria BC recommends Alternative 4. The proposed layouts of the new pump stations in Alternatives 2, 3, and 4 are essentially identical technically. While the combination of the Wick and YPS station into one combined facility is desirable and hydraulically possible this option only meets the come of the current operational demands and reduces operational flexibility for serving WAMR location between YPS and JOY. It also has no flexibility for the future.

6.2 Project Costs

6.2.1 Methodology

BC expects that the construction costs to implement Alternatives 2, 3, and 4 as defined in this report are within 10% of each other. Alternative 2 is viable but not preferred due to wetland and utility issues. While Alternative 3 would yield life cycle cost savings in the form of reduced maintenance and energy savings through consolidation of facilities, it is not viable due to hydraulic constraints and issues with expandability. Therefore, only the costs for Alternative 4, the preferred alternative, are considered in this section.

6.2.2 Class of Estimate

In accordance with the Association for the Advancement of Cost Engineering (AACE) International criteria, the estimate prepared for this plan is a AACE Class 5 estimate. A Class 5 estimate is defined as a Concept Screening Estimate. Typically, engineering is from 0 to 2 percent complete.

Expected accuracy for AACE Class 5 estimates typically range from -50 percent to +100 percent, depending on the technological complexity of the project, appropriate reference information and the inclusion of an appropriate contingency determination. In unusual circumstances, ranges could exceed those shown.

Estimate was made with assumption that no equipment will be salvaged from the existing YPS. Interest during construction would not significantly alter the evaluation, this was also left out of the construction cost estimate for this reason.

This will be a conventional design, bid, build project. No Construction Manager at Risk (CMAR), Progressive Design-Build (PDB), or Fixed-Price Design-Build (FPDB) delivery methods needed to be considered in the construction cost estimate.

6.2.3 Cost Summary

Table 4-3 presents the cost estimate of the preferred alternative.

Table 6-2. Summary of Cost	
Cost Item	Alternative 4: Construct New YPS at D Street and Beck Road
Construction Cost*	$35 Million
Estimate Range*	$17.5 - $70 Million
Design/Planning Cost	$3,000,000
Construction Administration	$700,000

**Based on a AACE Class 5 estimate with an accuracy range of -50% to +100%.*

6.3 Schedule for Design and Construction

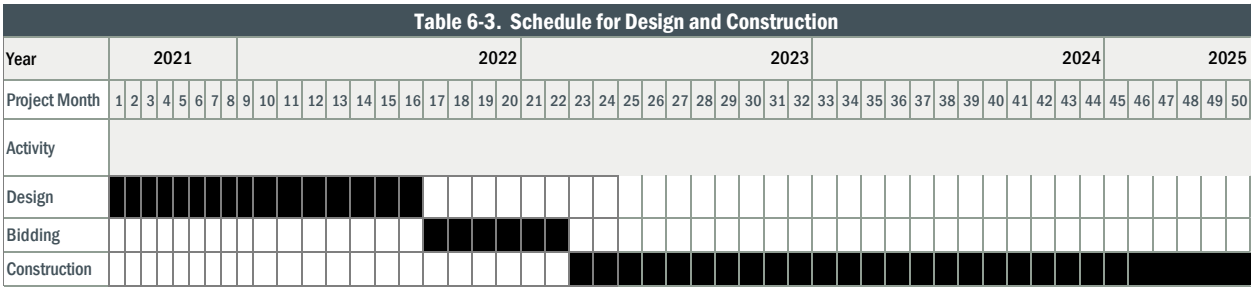

Table 6-4. Project Schedule	
Item	Date
Design Notice to Proceed	01/15/2020
60% Design	10/01/2021
90% Design	03/18/2022
100% Design	07/05/2022
Bid Opening	08/22/2022
Construction Notice to Proceed	02/22/2023
Construction Substantial Completion	03/25/2025
Construction Final Completion	09/25/2025

6.4 User Costs

The Ypsilanti Pumping Station Improvements Project recommended in this Project Plan is targeted for low interest loan assistance through the DWRF program. The availability of loan funds is dependent on annual appropriations and the placement of the projects on the Priority List prepared annually by MDEGLE.

Repayment of the DWRF loan through annual debt retirement payments will impact the customer rates resulting in increased user costs. This impact to customer rates is generally determined by

dividing the additional expenses among the users in the service area as summarized in Table 6-3. The annualized cost of the project was calculated using the conversion factor 0.0604 and the following formula:

$$A = PW \times \left[\frac{i \times (1+i)^n}{(1+i)^n - 1}\right]$$

Where:

$A = Equivalent\ Annual\ Cost$

$PW = Present\ Worth$

$i = Interest\ Rate\ through\ DWRF\ Loan\ (1.875\%)$

$n = Number\ of\ Years\ (20)$

$$\left[\frac{i \times (1+i)^n}{(1+i)^n - 1}\right] = Conversion\ Factor\ (0.0604)$$

Table 6-5. User Cost Impact for the Ypsilanti Pumping Station Improvements Project

Item	Improvements ($)
Total Cost of Project	$38,700,000.00
Annualized Cost of Project (Assuming DWRF Interest Rate of 2% Over 20 Years)	$2,338,311.00
Service Area Households*	1,538,000
Estimated Household User Cost (per Year)	$1.52

*Service Area Households is determined by the population services by GLWA (3.8M) divided by the average number of persons per household which is 2.47 per the US Census.

If the DWRF loans are not available, GLWA will need to finance the cost of the Rehabilitation of the LHWTP – Raw Sludge Clarifiers and Raw Sludge Pumping System Improvements Project as part of its CIP through revenue bonds.

6.5 Ability to Implement the Selected Alternative

GLWA is responsible for the legal, financial, and managerial aspects of the existing water supply system. These responsibilities will extend to any new components of the system.

Section 7

Environmental Evaluation

The following is a brief discussion of the anticipated environmental impacts resulting from implementing the recommendations of this Project Plan.

7.1 National Historic Preservation Act (NHPA) Section 106 - Historical and Archaeological Resources

The 106Group, a qualified cultural and historical studies firm, completed a study to determine the impacts the project would have on historical and archaeological resources in the area. Overall, the construction of the new YPS proposed project is not expected to have an adverse effect on historical, archaeological, geographic, or cultural areas. Construction will take place in areas not previously disturbed by construction. A full report, by the 106Group, is included in Appendix A and summary of the results is located below.

7.1.1 Archaeological Resources

The objective of the archaeological assessment was to assess whether the archaeology APE has the potential to contain any unknown intact archaeological resources that may be potentially eligible for listing in the National Register of Historic Places (NRHP). The results of this investigation aid in determining what, if any, additional cultural resources studies or mitigation may need to be completed to comply with federal and state law. All work was conducted in accordance with The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation [48 Federal Register 44716-44740] and the Michigan Above Ground Survey Manual (National Park Service [NPS] 1983; Kolokithas and Tuinstra 2018).

There is one historic period archaeological site, 20WN626, recorded within one mile of the archaeology Area of Potential Effects (APE). One historic period archaeological site, 20WN1166, may have been recorded within the archaeology APE. However, precise location information for site 20WN1166 is not available and, therefore, it is uncertain whether the site is located within the archaeology APE. The site consisted of 42 concrete and asphalt slabs that were constructed as part of the 3509th Army Air Force Base in 1942 (Jacobsen Daniels Associates 2013; Jacobsen / Daniels Associates 2014). The site was previously determined to be ineligible for listing in the NRHP.

The archaeology APE is assessed as possessing low potential to contain significant intact archaeological resources and, therefore, no further archaeological work or mitigation is recommended for the Project as it is currently planned.

7.1.2 Above Ground Historical Resources

Potential physical, auditory, and atmospheric effects will likely be limited to the Project area, however the greatest extent for potential indirect effects would be from the visibility of a new 42-foot-5-inch-tall pumping station building, which would be approximately two to three times the height of any of the surrounding buildings, and would be very visible due to the relatively flat topography of the surrounding area.

Research indicates that the Willow Run Historic District (P51123), which is inclusive of all historically significant above ground Willow Run Airport structures, was previously determined not eligible for listing in the NRHP due to the demolition of Hangar 2 and the Bomber Plant, which adversely

affected the historical integrity of the district (Letter from Brian D. Conway, State Historic Preservation Officer, to Ernest P. Gubry, FAA, April 24, 2014). The determined not eligible Willow Run Historic District includes all buildings and structures located within the APE for above-ground resources. Therefore, no additional above-ground resources documentation or mitigation is recommended for the Project as it is currently planned.

7.2 Tribal Resources

Additionally, the twelve tribes listed on the Tribal Contact List from the MDEGLE were contacted to advise them of the 2021 DWRF Project Plan. The letters sent to the Native American tribes are provided as Appendix D, along with the responses received as of the publication date of this plan.

7.3 The Natural Environment

The proposed project will not detrimentally affect the water quality of the area, air quality, wetlands, endangered species, wild and scenic rivers, or unique agricultural lands.

7.3.1 Flora and Fauna Impacts

BC utilized the Michigan Natural Features Inventory (MFNI) to identify endangered species near the proposed project site and determine protocol for mitigating impacts from construction to those species. The search determined that there are 8 federally listed species present in the general region of the project site that are either endangered or threatened:

- Indiana bat (endangered)
- Northern riffleshell (endangered)
  - Unlikely that a suitable habitat exists within 1.5 miles of the project area.
- Piping plover (endangered)
  - Unlikely that a suitable habitat exists within 1.5 miles of the project area.
- Rayed bean mussel (endangered)
  - Unlikely that a suitable habitat exists within 1.5 miles of the project area.
- Northern long-eared bat (threatened)
- Eastern prairie fringed orchid (threatened)
  - Unlikely that a suitable habitat exists within 1.5 miles of the project area.
- Rufa red knot (threatened)
  - Unlikely that a suitable habitat exists within 1.5 miles of the project area.
- Eastern massasauga rattlesnake (threatened)

Of these 8 species, 6 are unlikely to dwell within 1.5 miles of the project area. Refer to Appendix B for a full description of these flora and fauna, including precautions that will be taken if the species are encountered at any point during the project. There are no critical habitats in the project area.

7.3.2 Climate

Seasonal climate will not affect construction of the proposed improvements. Historical climate data for the region is provided in Appendix E.

7.3.3 Floodplains

According to the United States Department of Housing and Urban Development (HUD), the proposed property for the new YPS lies in a flood zone matrix of designation “Zone X.” “Zone X” indicates there is a minimal flood hazard given that the project vicinity is outside of both the 100-year floodplain and

the 500-year floodplain. A Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) of the project vicinity is presented in Figure 7-1.

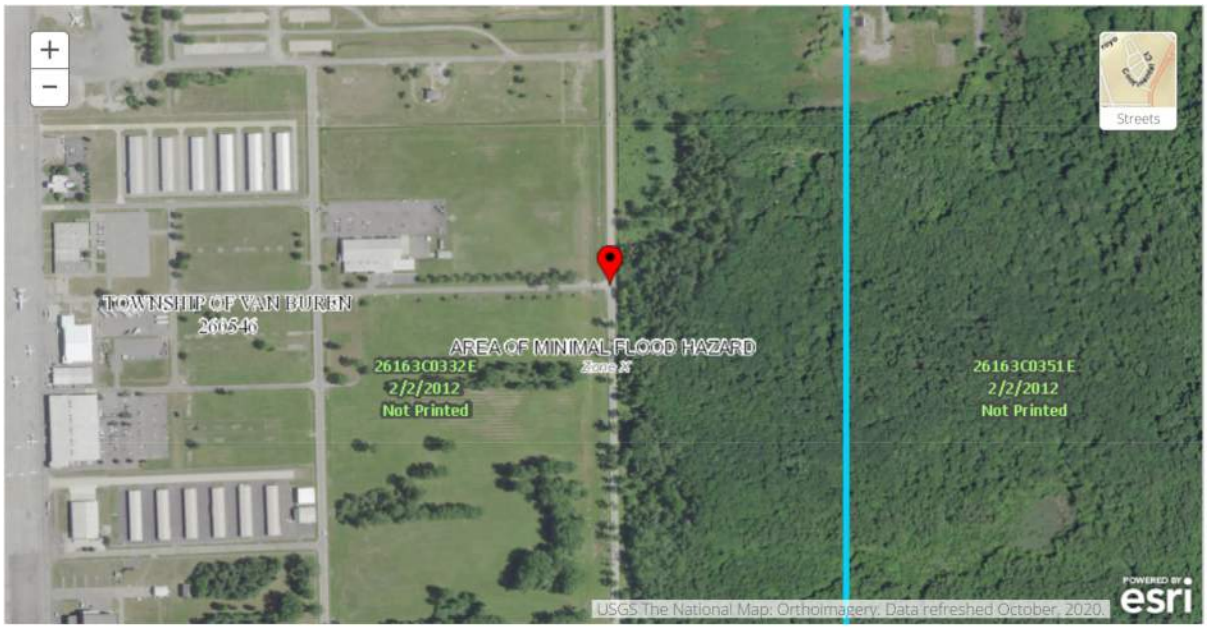

Figure 7-1. FEMA FIRM of the Project Vicinity.

7.4 Social/Economic Impact

Noise and dust will be generated during construction of the proposed improvements but will be limited to the YPS Property. The aesthetics of the area will be temporarily affected until restoration is complete. The economic impact that the implementation the project described in this Project Plan will have on GLWA's customers is discussed in detail in Section 6.4 of this document, User Costs.

7.5 Construction/Operational Impact

The proposed improvements will significantly improve GLWA's capability to operate a reliable water supply system, particularly in the southwestern portion of GLWA's customer base. Implementation of the improvements will also generate construction-related jobs, and local contractors will have an opportunity to bid contract work.

Noise and dust will be generated during construction of the proposed improvements but will be limited to the YPS Property. However, the contractor will be required to implement efforts to minimize noise, dust, and related temporary construction byproducts. Some minor street congestions and disruption of vehicular movement may occur for short periods of time on the roads adjacent to the YPS property. For work resulting in the need to have open trenches in the ground, soils from open trenches will be subject to erosion; the contractor will thereby be required to implement a Soil Erosion and Sedimentation Control (SESC) Program as described and regulated under Michigan's Part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act (NREPA). Utility service interruptions to surrounding properties will be nonexistent or minor. They will be minimized to the extent possible. Resources will be lost in the production of materials used in construction, and fossil fuels will also be utilized during construction activities. Construction will be within the boundaries of the YPS with minimal impact on the surrounding community.

7.6 Analysis of Impacts

7.6.1 Direct Impacts

Construction of the proposed project is not expected to have an adverse effect on historical, archaeological, geographic, or cultural areas, as the construction activities will occur in the areas within the YPS boundaries. Areas that have not been disturbed by prior construction. The proposed project will not detrimentally affect the water quality of the area, air quality, wetlands, endangered species, wild and scenic rivers, or unique agricultural lands.

7.6.2 Indirect Impacts

It is not anticipated that GLWA's proposed improvements to the Ypsilanti Pumping Station alter the ongoing pattern of growth and development in the study area. Growth patterns in the service area are subject to local use and zoning plans, thus providing further opportunity to minimize indirect impacts.

7.6.3 Cumulative Impacts

The improvements resulting in the improved reliability and efficiency, both in the present and in the long-term future, of the YPS as it relates to the GLWA water supply system are the primary cumulative beneficial impacts anticipated from the implementation of the proposed project.

Section 8

Mitigation Measures

Where adverse impacts cannot be avoided, mitigation methods will be implemented. Mitigating measures for the projects such as soil erosion control, if required, will be utilized as necessary and in accordance with applicable laws. Details will be further specified in the construction contract documents used for the project.

8.1 Short Term Impacts

Short-term impacts due to construction activities such as noise, dust, and minor traffic disruption cannot be avoided. However, efforts will be made to minimize the adverse impacts by use of thorough design and well-planned construction sequencing. Site restoration will minimize the adverse impacts of construction, and adherence to the Soil Erosion and Sedimentation Act will minimize the impacts due to disturbance of the soil structure, if such disturbance is found to be necessary. Specific techniques will be specified in the construction contract documents.

8.2 Long Term Impacts

Adverse long term impacts due to the proposed project are not anticipated. The aesthetic impacts of construction within the boundaries of the YPS will be mitigated by site restoration. Though there will be long term aesthetic impacts, BC and 106Group determined that there are no NRHP eligible landmarks within that APE that will be effected by visual changes to the landscape.

8.3 Indirect Impacts

In general, it is not anticipated that mitigative measures to address indirect impacts will be necessary for the recommended improvements addressed in this Project Plan. The proposed improvements are to a pump station that serves an already densely area, the YCUA. The pump station capacity and service area are not being expanded at this time, only replaced and updated to provide more reliable service. Rezoning the property for Light Industrial applications will not dramatically impact the development trajectory of the area.

Section 9

Public Participation

9.1 Public Hearing Advertisement

A Public Hearing Notice will be published on May XX, 2021 to alert parties interested in the Project Plan and request input at least 30 days prior to its adoption, Appendix F.

(To be updated after the Public Hearing on June 23, 2021).

9.2 Public Hearing

A formal public hearing on the Draft Project Plan will be held before the GLWA Board of Water Commissioners on June 23,2021. The hearing will include a presentation on the project, as well as an opportunity for public comment and questions.

(To be updated after the Public Hearing on June 23, 2021).

9.3 Public Hearing Transcript

The public hearing transcript will be included in Appendix H along with the attendance list.

(To be updated after the Public Hearing on June 23, 2021).

9.4 Public Hearing Contents

A copy of the visual aids (handout) used during the presentation at the Public Hearing will be included in Appendix I.

(To be updated after the Public Hearing on June 23, 2021).

9.5 Comments Received and Answered

(To be updated after the Public Hearing on June 23, 2021).

9.6 Adoption of the Project Plan

The Project Plan is expected to be approved by GLWA Board of Water Commissioners, which is expected to adopt a Resolution at its meeting on June 23, 2021, authorizing GLWA to proceed with official filing of the Project Plan for purposes of securing low interest loan assistance under the DWRF Program. An executed copy of the Board of Water Commissioners' Resolution approval for the Project Plan will be included in Appendix J of this document.

(To be updated after the Public Hearing on June 23, 2021).

Appendix A: 106Group Historical and Archaeological Resource Impact Study

106GROUP

Connecting People + Place + Time

CULTURAL RESOURCES LITERATURE REVIEW AND ARCHAEOLOGICAL ASSESSMENT FOR THE YPSILANTI PUMPING STATION IMPROVEMENTS PROJECT

Van Buren Township, Wayne County, Michigan

May 2021

CONFIDENTIAL CULTURAL RESOURCES INFORMATION – NOT FOR PUBLIC DISTRIBUTION

CULTURAL RESOURCES LITERATURE REVIEW AND ARCHAEOLOGICAL ASSESSMENT FOR THE YPSILANTI PUMPING STATION IMPROVEMENTS PROJECT

Van Buren Township, Wayne County, Michigan

SHPO File No. Pending
Brown and Caldwell Project No. 154135
106 Group Project No. 2894

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May 2021

MANAGEMENT SUMMARY

During March and April 2021, the 106 Group conducted a cultural resources literature review and archaeological assessment for the Ypsilanti Pumping Station (YPS) Improvements project (Project) located in Van Buren Township, Wayne County, Michigan. The proposed Project includes the construction of a new pumping station, which will be located to the east of the Willow Run Airport. The proposed pumping station building will be 203 feet long, by 98 feet 8 inches wide, and at its highest point 42 feet 5 inches tall. The building will be clad in brick and covered by a gabled standing seam metal roof. The Great Lakes Water Authority (GLWA) is applying for a low interest loan through the Drinking Water State Revolving Fund, which are federal funds administered by the Michigan Department of Environment, Great Lakes, and Energy (EGLE). Therefore, the Project must comply with Section 106 of the National Historic Preservation Act of 1966, as amended, and applicable state cultural resource laws.

The project area is located in Section 8, Township 3 South, Range 8 East, Wayne County, Michigan. An appropriate Area of Potential Effects (APE) for archaeology includes all areas of proposed construction activities or other potential ground disturbing activities associated with construction, and includes 22.5 acres (9.1 hectares [ha]) adjacent to Willow Run Airport. The archaeological investigation included a literature review and desktop assessment. The literature review consisted of a review of documentation of previously identified archaeological sites within the archaeology APE and within one mile (1.6 kilometers [km]) of the archaeology APE, and of surveys previously conducted within the archaeology APE. Historical maps and aerial photographs were also reviewed to aid in the archaeological investigation. The desktop assessment identified whether the archaeology APE has the potential to contain unknown intact archaeological resources that may be potentially eligible for listing in the National Register of Historic Places (NRHP).

Research indicates that no archaeological surveys have been conducted within the archaeology APE. One historic period archaeological site (20WN1166) may have been recorded within the archaeology APE; however, its exact location is uncertain. However, this site was previously determined not eligible for listing in the NRHP. The archaeology APE is assessed as possessing low potential to contain significant intact archaeological resources and, therefore, no further archaeological work is recommended for the Project as it is currently planned.

An appropriate APE for above-ground resources accounts for any physical, auditory, atmospheric, or visual impacts to historic properties. Potential physical, auditory, and atmospheric effects will likely be limited to the Project area. The greatest extent for potential indirect effects would be from the visibility of a new 42-foot-5-inch-tall pumping station building, which would be approximately two to three times the height of any of the surrounding buildings, and would be very visible due to the relatively flat topography of the surrounding area. Therefore, an appropriate APE for above-ground resources encompasses a buffer of a quarter-mile from the Project area in order to account for potential direct and indirect effects. The APE for above-ground resources includes 271.8 acres (110 ha). The literature review consisted of a review of documentation of previously identified above-ground resources within the APE, and of surveys previously conducted within the APE. Research indicates that all buildings and structures located within

the APE for above-ground resources are part of the previously determined not eligible Willow Run Historic District (P51123) and, therefore, no additional above-ground resources documentation is recommended for the Project as it is currently planned.

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1.0 INTRODUCTION

During March and April 2021, the 106 Group conducted a cultural resources literature review and archaeological assessment for the Ypsilanti Pumping Station (YPS) Improvements project (Project) located in Van Buren Township, Wayne County, Michigan. The proposed Project includes the construction of a new pumping station, which will be located to the east of the Willow Run Airport. The proposed pumping station building will be 203 feet long, by 98 feet 8 inches wide, and at its highest point 42 feet 5 inches tall. The building will be clad in brick and covered by a gabled standing seam metal roof. The Great Lakes Water Authority (GLWA) is applying for a low interest loan through the Drinking Water State Revolving Fund, which are federal funds administered by the Michigan Department of Environment, Great Lakes, and Energy (EGLE). Therefore, the Project must comply with Section 106 of the National Historic Preservation Act of 1966, as amended, and applicable state cultural resource laws.

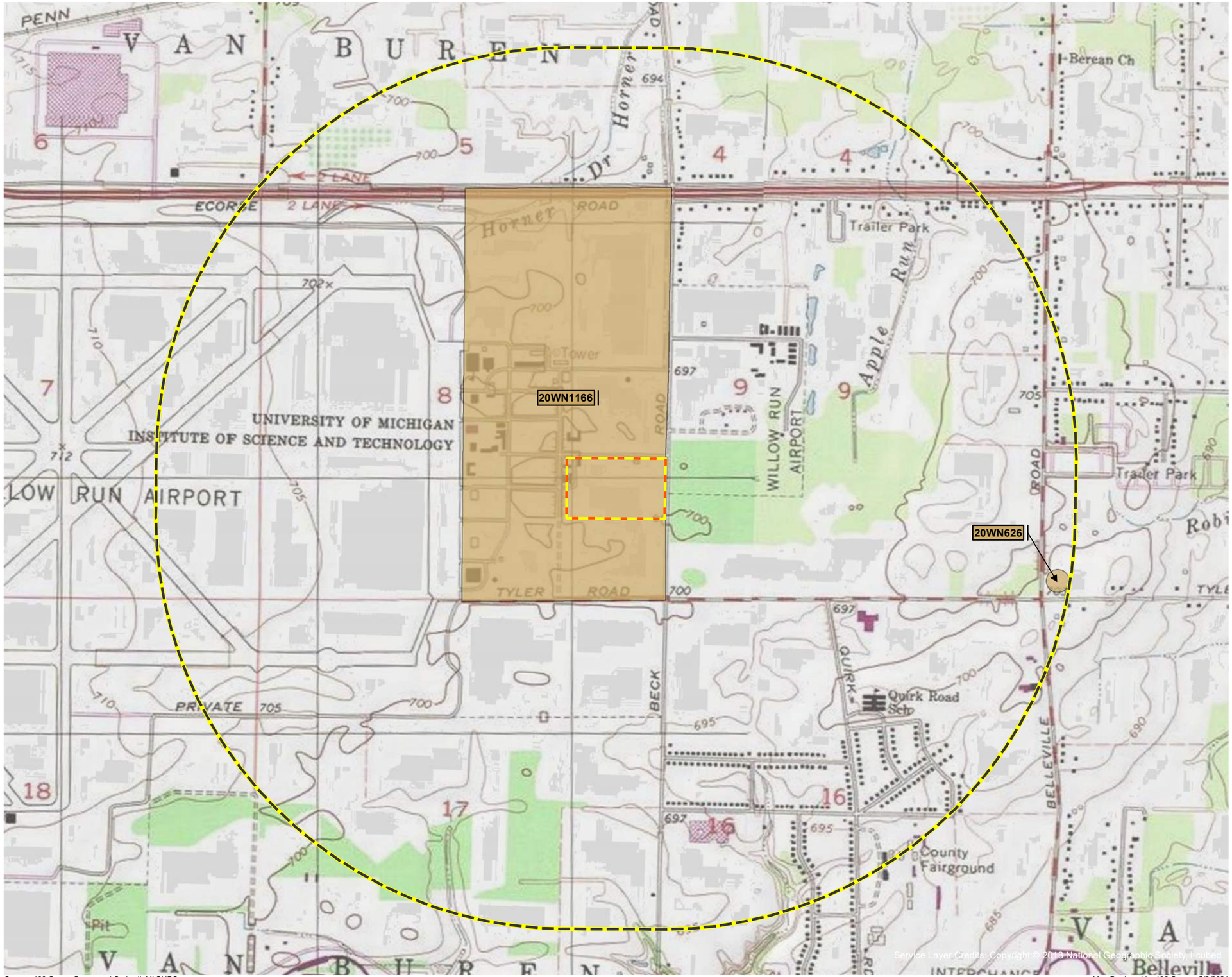
The project area is located in Section 8, Township 3 South, Range 8 East, Wayne County, Michigan (Figure 1; Table 1). An appropriate Area of Potential Effects (APE) for archaeology includes all areas of proposed construction activities or other potential ground disturbing activities associated with construction, and includes 22.5 acres (9.1 hectares [ha]) adjacent to Willow Run Airport. The archaeological investigation included a literature review and desktop assessment. The literature review consisted of a review of documentation of previously identified archaeological sites within the archaeology APE and within one mile (1.6 kilometers [km]) of the archaeology APE, and of surveys previously conducted within the archaeology APE. Historical maps and aerial photographs were also reviewed to aid in the archaeological investigation. The desktop assessment identified whether the archaeology APE has the potential to contain unknown intact archaeological resources that may be potentially eligible for listing in the National Register of Historic Places (NRHP).

Table 1. Legal Description of Sections Included in the archaeology APE

County	Township	Range	Section
Wayne	3S	8E	8

An appropriate APE for above-ground resources accounts for any physical, auditory, atmospheric, or visual impacts to historic properties (Figure 2). Potential physical, auditory, and atmospheric effects will likely be limited to the Project area. The greatest extent for potential indirect effects would be from the visibility of a new 42-foot-5-inch-tall pumping station building, which would be approximately two to three times the height of any of the surrounding buildings, and would be very visible due to the relatively flat topography of the surrounding area. Therefore, an appropriate APE for above-ground resources encompasses a buffer of a quarter-mile from the Project area in order to account for potential direct and indirect effects. The APE for above-ground resources includes 271.8 acres (110 ha). The literature review consisted of a review of documentation of previously identified above-ground resources within the APE, and of surveys previously conducted within the APE.

The following report describes Project methodology, environmental setting, previous investigations, results, archaeological assessment, and recommendations for the Ypsilanti Pumping Station Improvements Project. Appendix A contains a list of Project personnel.



Source: 106 Group; Brown and Cadwell; MI SHPO

Map Produced by 106 Group 5/6/2021

Ypsilanti Pumping Station Improvements Project Cultural Resources Literature Review and Archaeological Assessment

Van Buren Township, Wayne County, Michigan

- Project Area/Archaeology APE
- One-Mile Context Area
- Previously Identified Archaeological Site

0 290 Meters

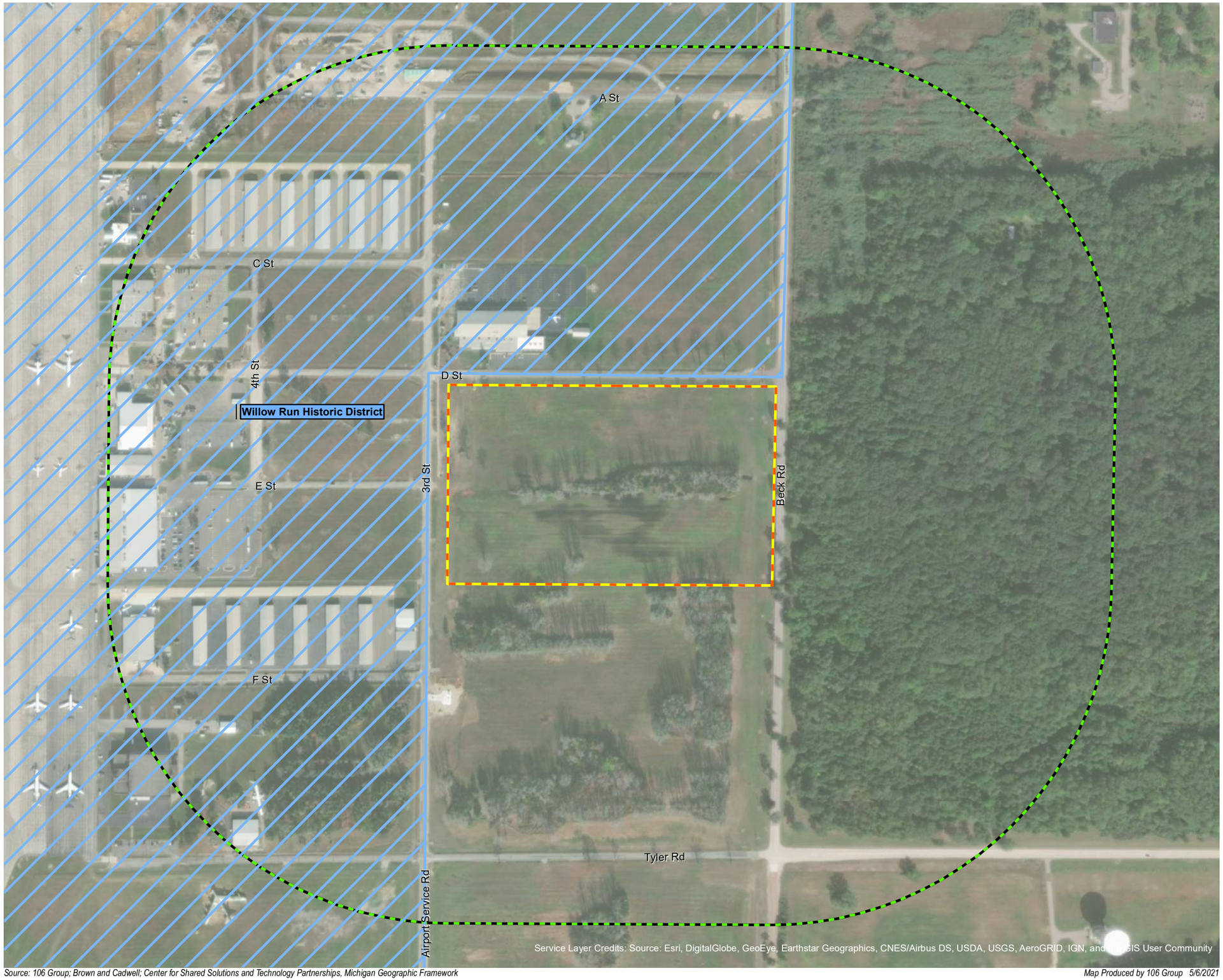
0 780 Feet

1:15,000

106GROUP

Project Location and Archaeological Literature Review Results

Figure 1



Ypsilanti Pumping Station Improvements Project Cultural Resources Literature Review and Archaeological Assessment

Van Buren Township, Wayne County, Michigan

Project Area/Archaeology APE

Above-Ground Resources APE

Determined Not Eligible*

*Approximate historic district boundary based on the Cultural Resources Management Plan for the Willow Run Airport.

0 90 Meters

0 230 Feet

1:4,500

106GROUP

Above-Ground Resources APE and Literature Review Results

Figure 2

Source: 106 Group; Brown and Cadwell; Center for Shared Solutions and Technology Partnerships, Michigan Geographic Framework

Map Produced by 106 Group 5/6/2021

2.0 METHODS

2.1 Objectives

The primary objective of the literature review was to identify whether there are any known archaeological sites or above-ground resources within their respective APEs, and to identify whether any portion of the APEs may have been previously surveyed. The objective of the archaeological assessment was to assess whether the archaeology APE has the potential to contain any unknown intact archaeological resources that may be potentially eligible for listing in the NRHP. The results of this investigation aid in determining what, if any, additional cultural resources studies may need to be completed to comply with federal and state law. All work was conducted in accordance with *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* [48 Federal Register 44716-44740] and the *Michigan Above-Ground Survey Manual* (National Park Service [NPS] 1983; Kolokithas and Tuinstra 2018).

2.2 Area of Potential Effects

2.2.1 Archaeology

An appropriate APE for archaeology includes all areas of proposed construction activities or other potential ground disturbing activities associated with construction, and includes 22.5 acres (9.1 ha) adjacent to Willow Run Airport.

2.2.2 Above-Ground Resources

An appropriate APE for above-ground resources accounts for any physical, auditory, atmospheric, and visual impacts to historic properties. Potential physical, auditory, and atmospheric effects will likely be limited to the Project area, however the greatest extent for potential indirect effects would be from the visibility of a new 42-foot-5-inch-tall pumping station building, which would be approximately two to three times the height of any of the surrounding buildings, and would be very visible due to the relatively flat topography of the surrounding area. Therefore, an appropriate APE for above-ground resources encompasses a buffer of a quarter-mile from the project area in order to account for potential direct and indirect effects (see Figure 2). The APE includes 271.8 acres (110 ha).

2.3 Background Research

A literature review, including remote research at the Michigan State Historic Preservation Office (SHPO), was completed for the project in April 2021 to obtain information regarding previously identified archaeological sites and above-ground resources within their respective APEs.[1] Information was gathered on archaeological sites within a one-mile (1.6-km) radius of the archaeology APE in order to provide a broader context and to provide a basis to assess the general potential for archaeological sites in the vicinity of the archaeology APE. Reports of previous archaeological and above-ground resources

[1] For background research regarding known historic properties and previously conducted cultural resource surveys, we rely primarily on the information on file at SHPO. The 106 Group cannot guarantee the accuracy and reliability of the data provided.

investigations were also reviewed to determine if any portion of the APEs had been previously surveyed and, therefore, would not require further investigation. In addition, multiple documentary sources were consulted, including United States Geological Survey (USGS) topographic quadrangles, historical plat maps, and aerial photographs, in order to identify portions of the archaeology APE that possess a higher potential for containing intact significant archaeological sites. Additionally, the *Final Environmental Assessment for the Runway 14-32 Closure and Removal* from June 2014 and the *Willow Run Airport 2017 Master Plan Update* were consulted (Jacobsen / Daniels Associates 2014; Mead & Hunt and Jacobsen / Daniels Associates 2017).

2.4 Archaeological Assessment

The assessment was based on the results of the background research only, and no site visit was conducted.

Areas generally assessed as having a greater probability to contain intact archaeological sites included undisturbed portions of the archaeology APE that are:

- located within 500 feet (ft) (150 meters [m]) of an existing or former water source of 40 acres (19 ha) or greater in extent, or within 500 ft (150 m) of a former or existing perennial stream;
- located on topographically prominent landscape features;
- located within 300 ft (100 m) of a previously reported site; or
- located within 300 ft (100 m) of a former or existing historical structure or feature (such as a building foundation or cellar depression).

Areas assessed as having a relatively low potential for containing intact archaeological resources included inundated areas, former or existing wetland areas, poorly drained areas, areas with slope of 20 degrees or greater, and areas of extensive disturbance.

3.0 LITERATURE REVIEW

3.1 Archaeology

3.1.1 Previous Studies

Research indicates that no previous archaeological surveys have been conducted within the archaeology APE.

3.1.2 Previously Identified Resources

Two archaeological sites have been recorded within one mile (1.6 km) of the archaeology APE, one of which may be located within the archaeology APE (Table 2; Figure 1). Site 20WN626 is located within one mile of the archaeology APE and is a nineteenth-century dwelling, which has not been evaluated for listing in the NRHP (SHPO 2015a). Another site, 20WN1166, may potentially be located within the archaeology APE. According to the site form, the boundaries for site 20WN1166 are located within the eastern half of Section 8, which includes the archaeology APE (SHPO 2015b). However, more precise location information for the site is not available and, therefore, its exact location is uncertain (Personal communication with Kathrine Kolokithas, Survey Coordinator, SHPO, April 22, 2021). Research indicated that site 20WN1166 was identified during a Phase I survey of a portion of Willow Run Airport in 2013. The site consisted of 42 concrete and asphalt slabs that were constructed as part of the 3509th Army Air Force Base in 1942 (Jacobsen Daniels Associates 2013; Jacobsen / Daniels Associates 2014). No associated artifacts were observed during the survey and the site was recommended not eligible for listing in the NRHP (Jacobsen Daniels Associates 2013). The Michigan SHPO concurred with this recommendation (Letter from Brian D. Conway, State Historic Preservation Officer, to Ernest P. Gubry, Federal Aviation Administration [FAA], January 22, 2014).

Table 2. Previously Identified Archaeological Sites within One Mile of the Archaeology APE

Site No.	Site Name	Township	Range	Section	¼ Section	Description
20WN626	Eaton's House	03S	08E	10	SW-SW-SW	Dwelling
20WN1166	Willow Run 3509th Army Air Force Base	03S	08E	8	East ½	-

3.2 Above-Ground Resources

3.2.1 Previous Studies & Identified Resources

Research indicates that one above-ground resources survey has been previously conducted within the above-ground resources APE. In 2013, the Wayne Couty Airport Authority initiated a *Cultural Resources Management Plan for the Willow Run Airport*, which documented all buildings and structures at the airport. This included documentation of all above-ground resources located within the above-ground resources APE for this Project (see Figure 2) (Jacobsen Daniels Associates, LLC 2013). Initially, SHPO

determined "the resources within the airport from the WWII context period, including the runways and taxiways (much of the historic pattern remains evident), Hangars 1 and 2, the Packard Hangar, and the Active Aero Garage/Partial Gun Abutment, are all National Register eligible, but combined as a complex rather than individually" (Letter from Brian D. Conway, State Historic Preservation Officer, to Ernest P. Gubry, FAA, January 22, 2014). However, due to subsequent demolition of Hangar 2 and the Bomber Plant, which adversely affected the historical integrity of the district, the SHPO determined the Willow Run Historic District (P51123) as not eligible for listing in the NRHP (Letter from Brian D. Conway, State Historic Preservation Officer, to Ernest P. Gubry, FAA, April 24, 2014).

3.3 Environmental History Overview

The archaeology APE is located in an industrial area, adjacent to Willow Run Airport. It is bounded by 3rd Street to the west, D Street to the north, and Beck Road to the east. To the south of the archaeology APE is an undeveloped field with a few groves of trees. Tyler Road lies approximately 1,560 ft (477 m) south of the archaeology APE. The nearest water source is the Huron River, approximately 8,000 ft (2,430 m) to the south. Soil associations for the archaeology APE include Thetford loamy sand, 0 to 2 percent slopes (74 percent of the archaeology APE) and Granby loamy fine sand (26 percent of the archaeology APE) (Natural Resources Conservation Service [NRCS] 2021). The NRCS describes Thetford loamy sand as being found in drainageways on strand plains, somewhat poorly drained, with little slope (NRCS 2021). Granby loamy fine sand is described as occurring in depressions on strand plains, poorly drained, with little slope.

The archaeology APE is in the Maumee Lake Plain of the Huron/Erie Lake Plains Ecoregion 57, characterized by flat topography and poorly-drained fertile soils (United States Environmental Protection Agency [EPA] 2021). Prior to Euroamerican settlement, the Huron/Erie Lake Plains Ecoregion was dominated by closed-canopy forests of elm-ash swamp and beech. Today, much of the area has been cleared and artificially drained, containing highly productive farmland (EPA 2021).

3.4 Historical Research

The earliest map available that depicts the archaeology APE is a Bureau of Land Management General Land Office (BLM GLO) plat from 1819. On this map, the archaeology APE is located in a wilderness, with a river to the south (BLM GLO 1819). On a later map, from 1873, roads, town names, and township divisions are noted around the archaeology APE. Railroads are depicted to the north and the east of the archaeology APE, and the river to the south of the archaeology APE is labeled as the Huron River (Walling 1873). A plat map from 1915 shows structures and names of landowners in the area of the archaeology APE; however, no structures are shown within the archaeology APE (Sauer 1915). Landowner names are further depicted in the area of the archaeology APE on a map from 1936; Henry Ford is labeled as the owner of the land where the archaeology APE is located (W.S. McAlpine Map Co. 1936). On a 1956 map, the Willow Run Airport is depicted adjacent to the west of the archaeology APE. Highways and other roads are also depicted surrounding the archaeology APE (Shell Oil Company 1956).

In 1941, the Willow Run Airport was developed by the Ford Motor Company on farmland that had previously belonged to Henry Ford. Together with Charles Lindbergh, Ford created a bomber factory at

the site, producing approximately 9,000 B-24 bombers during World War II (Detroit Historical Society 2021). After the war, the airport served commercial air traffic and, today, it serves cargo, corporate, and general aviation (Willow Run Airport 2021).

A USGS topographic map from 1902 depicts the archaeology APE in a marshy area, with the Huron River to the South and the Willow Run branching off to the northeast. Also depicted on the map is the town of Rawsonville to the south of the archaeology APE, the town of Ypsilanti to the west, and two railroads stretching from Ypsilanti, in a general east-west orientation (USGS 1902). A few structures dot the section lines surrounding the area of the archaeology APE (USGS 1902). By 1942, the area was less marshy, and hard-surfaced roads are depicted to the north and west of the archaeology APE (USGS 1942). Subsequent topographic maps from 1953, 1967, and 1996 further show development, with the area appearing generally as it does today. These maps show the Willow Run Airport, including the area that is now the archaeology APE. There are at least three structures depicted in the northwest corner of the archaeology APE (USGS 1953, 1967, 1996).

Aerial photography from Environmental Data Resources, Inc. (EDR) was also reviewed. The earliest aerial photograph available is from 1937, and shows the archaeology APE in a wooded area, with a road bordering the eastern boundary of the archaeology APE, and a road and structure approximately 1,000 ft (305 m) to the south. Another structure is approximately 2,000 ft (610 m) to the north of the archaeology APE (EDR 1937). By 1949, the next available aerial photograph, significant change is apparent around the archaeology APE, as airport buildings and roads appear to the north and west of the archaeology APE (EDR 1949). Within the archaeology APE itself, there are four structures and access roads and driveways in the northwest corner (EDR 1949). A 1959 oblique aerial photograph provides a clearer image of the structures within the archaeology APE that were depicted in the 1949 aerial, showing what appear to be several industrial or administrative buildings (Ann Arbor District Library 1959). Subsequent aerials continue to show the development of structures and roads in the area, but the archaeology APE remains relatively unchanged until 2002, when the structures in the northwest corner are no longer there (Nationwide Environmental Title Research [NETR] 2002). The most recent aerial, from 2016, shows the archaeology APE devoid of any structures or other development, and the remnants of the access roads and driveways to the former buildings in the northwest corner can be seen (EDR 2016).

Recent imagery from Google Earth, from March 2020, shows the archaeology APE unchanged from the 2016 aerial; however, it does show disturbance along the western boundary of the archaeology APE. Heavy machinery is pictured in an excavated area along 3rd Street, and what looks like piping can be seen next to the machinery (Google Earth 2021). However, this disturbance seems to be confined to just along the roadway and not within the archaeology APE.

4.0 ARCHAEOLOGICAL ASSESSMENT

This assessment addresses the potential for the archaeology APE to contain unknown intact archaeological resources. There are no previously recorded prehistoric period archaeological sites within the archaeology APE or within one mile (1.6 km) of the archaeology APE. There are no existing or former water sources or perennial streams within 500 ft (150 m) of the archaeology APE and USGS maps depict no prominent landscape features within the archaeology APE. Therefore, the potential for previously unidentified prehistoric period archaeological resources to exist within the archaeology APE is assessed as low (Figure 3).

There is one historic period archaeological site, 20WN626, recorded within one mile of the archaeology APE. One historic period archaeological site, 20WN1166, may have been recorded within the archaeology APE. However, precise location information for site 20WN1166 is not available and, therefore, it is uncertain whether the site is located within the archaeology APE. The site consisted of 42 concrete and asphalt slabs that were constructed as part of the 3509th Army Air Force Base in 1942 (Jacobsen Daniels Associates 2013; Jacobsen / Daniels Associates 2014). The site was previously determined to be ineligible for listing in the NRHP.

Three structures appeared in the northwest corner of the archaeology APE on historical topographic maps and aerial photographs from the late 1940s until 2002. Based on historical aerial photographs, the structures were constructed at some point between 1937 and 1949 (EDR 1937 and 1949). The exact date of construction, function, and historical association of these buildings is unclear, but due to their size, design, and location at the periphery of the airport, they were likely airport-related office or administration buildings. It is possible that the structures were constructed as part of the 3509th Army Air Force Base in 1942, and may be associated with site 20WN1166, which was previously determined not eligible for listing in the NRHP. However, regardless of whether the structures are associated with the Army Air Force Base or the later commercial airport, it is unlikely that any foundations or other archaeological features associated with the structures, if such features exist, would contribute important information regarding these well-documented historical periods, and thus, they would be unlikely to be eligible for listing in the NRHP.

Ypsilanti Pumping Station Improvements Project Cultural Resources Literature Review and Archaeological Assessment

Van Buren Township, Wayne County, Michigan

Project Area/Archaeology APE

Low Potential for Archaeological Resources

0 40 Meters

0 100 Feet

1:2,000

106GROUP

Archaeological Assessment Results

Figure 3

Source: 106 Group; Brown and Cadwell; Center for Shared Solutions and Technology Partnerships, Michigan Geographic Framework

Map Produced by 106 Group 5/6/2021

5.0 RECOMMENDATIONS

5.1 Archaeology

Research indicates that no archaeological surveys have been conducted within the archaeology APE. One historic period archaeological site (20WN1166) may have been recorded within the archaeology APE; however, its exact location is uncertain. However, this site was previously determined not eligible for listing in the NRHP. The archaeology APE is assessed as possessing low potential to contain significant intact archaeological resources and, therefore, no further archaeological work is recommended for the Project as it is currently planned.

5.2 Above-Ground Resources

Research indicates that the Willow Run Historic District (P51123) was previously determined not eligible for listing in the NRHP due to the demolition of Hangar 2 and the Bomber Plant, which adversely affected the historical integrity of the district (Letter from Brian D. Conway, State Historic Preservation Officer, to Ernest P. Gubry, FAA, April 24, 2014). The determined not eligible Willow Run Historic District includes all buildings and structures located within the APE for above-ground resources. Therefore, no additional above-ground resources documentation is recommended for the Project as it is currently planned.

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APPENDIX A: PROJECT PERSONNEL

LIST OF PERSONNEL

Project Manager	Saleh Miller, M.S.
Principal Investigator for Archaeology	Madeleine Bray, M.A., RPA
Principal Investigator for Above-Ground Resources	Saleh Miller, M.S.
Researcher and Report Authors	Jason Rufledt, B.A. Saleh Miller, M.S.
Graphics and GIS	Molly McDonald, MGIS

Appendix B: MNFI Flora and Fauna Impact Study

Section 7 Comments for Rare Species Review #2870
Brown and Caldwell
Great Lakes Water Authority
April 13, 2021

For projects involving Federal funding or a Federal agency authorization

The following information is provided to assist you with Section 7 compliance of the Federal Endangered Species Act (ESA). The ESA directs all Federal agencies "to work to conserve endangered and threatened species. Section 7 of the ESA, called "Interagency Cooperation, is the means by which Federal agencies ensure their actions, including those they authorize or fund, do not jeopardize the existence of any listed species."

The proposed project falls within the range of eight (8) federally listed which have been identified by the U.S. Fish and Wildlife Service (USFWS) to occur in Wayne County, Michigan:

Federally Endangered

Indiana bat – there appears to be suitable habitat within the 1.5-mile search buffer. Indiana bats (*Myotis sodalis*) are found only in the eastern United States and are typically confined to the southern three tiers of counties in Michigan. Indiana bats that summer in Michigan winter in caves in Indiana and Kentucky. This species forms colonies and forages in riparian and mature floodplain habitats. Nursery roost sites are usually located under loose bark or in hollows of trees near riparian habitat. Indiana bats typically avoid houses or other artificial structures and typically roost underneath loose bark of dead elm, maple and ash trees. Other dead trees used include oak, hickory and cottonwood.

Foraging typically occurs over slow-moving, wooded streams and rivers as well as in the canopy of mature trees. Movements may also extend into the outer edge of the floodplain and to nearby solitary trees. A summer colony's foraging area usually encompasses a stretch of stream over a half-mile in length. Upland areas isolated from floodplains and non-wooded streams are generally avoided.

Conservation and Management: the suggested seasonal tree cutting range for Indiana bat is between October 1 and March 31 (i.e., no cutting April 1-September 30). This applies throughout the Indiana bat range in Michigan.

Northern riffleshell – there does not appear to be suitable habitat within 1.5-miles of the project site. The northern riffleshell *(Epioblasma torulosa-angiana)* mussel inhabits medium to large rivers in gravel riffles, where the water is highly oxygenated. This species was formerly widespread in the Midwest, but it has declined in range by more than 95% and now exists in only eight to ten isolated populations, most of which are small and peripheral.

Conservation and Management: members of the genus *Epioblasma* seem to be particularly sensitive to impacts from impoundment, which include population fragmentation and streamflow alteration. Other threats include habitat destruction (e.g. channelization, dredging, bulkheading), exotic species introductions, siltation, pollution, and modified streamflows due to wetland loss, dam operation, and intensive landscape modification. The other two subspecies of *E. torulosa*, *E. torulosa torulosa* and *E. torulosa gubernaculum*, appear to have already gone extinct due to modification and degradation of river systems.

Piping plover – there does not appear to be suitable habitat within 1.5-miles of the project site. In the Great Lakes region, the federal and state endangered piping plover *(Charadrius melodus)* prefers to nest and forage

on sparse or non-vegetated sand-pebble beaches with less than 5% vegetative cover. Nests are simple depressions in the sand are generally placed in level areas between the water's edge and the first dune. Associated bodies of water and interdunal wetlands enhance these areas by increasing food availability. Optimal foraging areas are especially crucial along Lake Superior, where shoreline and benthic invertebrate communities are known to be naturally sparse. While feeding, open shoreline is preferred to vegetated beach areas. Piping plovers begin arriving in mid- to late-April. The nesting season is under way by mid-May and lasts until mid-August.

Conservation and Management - this species is declining throughout the Midwest due to habitat destruction and disturbance. The nests are simple depressions in the sand and are difficult to see. People walking on the beach may inadvertently destroy nests. Dogs on the beach can be especially dangerous for chicks and adults. Piping plovers are protected under the Federal Endangered Species Act and are very sensitive to human disturbance. Please avoid activity along the shoreline in this compartment between May and September.

Rayed bean mussel – there does not appear to be suitable habitat within 1.5-miles of the project site. The federally and state endangered rayed bean mussel *(Villosa fabalis)* is found in fine mud substrates and riffles among roots of aquatic vegetation. Limits of the breeding season are not known but gravid specimens have been found in May.

Conservation and Management: like other mussels, threats to the rayed bean include: natural flow alterations, siltation, channel disturbance, point and non-point source pollution, and exotic species. Maintenance or establishment of vegetated riparian buffers can help protect mussel habitats from many of their threats. Control of zebra mussels is critical to preserving native mussels. And as with all mussels, protection of their hosts habitat is also crucial.

Federally Threatened

Northern long-eared bat - although no known hibernacula or roost trees have been documented within 1.5 miles of the project site, this activity occurs within the designated WNS zone (i.e., within 150 miles of positive counties/districts impacted by WNS. In addition, suitable habitat does exist in and outside of our 1.5-mile search buffer. The USFWS has prepared a dichotomous key to help determine if this action may cause prohibited take of this bat. Please consult the USFWS Endangered Species Page for more information.

Northern long-eared bat (*M. septentrionalis*) numbers in the northeast US have declined up to 99 percent. Loss or degradation of summer habitat, wind turbines, disturbance to hibernacula, predation, and pesticides have contributed to declines in Northern long-eared bat populations. However, no other threat has been as severe to the decline as White-nose Syndrome (WNS). WNS is a fungus that thrives in the cold, damp conditions in caves and mines where bats hibernate. The disease is believed to disrupt the hibernation cycle by causing bats to repeatedly awake thereby depleting vital energy reserves. This species was federally listed in May 2015 primarily due to the threat from WNS.

Also called northern bat or northern myotis, this bat is distinguished from other *Myotis* species by its long ears. In Michigan, northern long-eared bats hibernate in abandoned mines and caves in the Upper Peninsula; they also commonly hibernate in the Tippy Dam spillway in Manistee County. This species is a regional migrant with migratory distance largely determined by locations of suitable hibernacula sites.

Northern long-eared bats typically roost and forage in forested areas. During the summer, these bats roost singly or in colonies underneath bark, in cavities or in crevices of both living and dead trees. These bats seem to select roost trees based on suitability to retain bark or provide cavities or crevices. Common roost trees in

southern Lower Michigan included species of ash, elm, and maple. Foraging occurs primarily in areas along woodland edges, woodland clearings, and over small woodland ponds. Moths, beetles, and small flies are common food items. Like all temperate bats this species typically produces only 1-2 young per year.

Conservation and Management: when there are no known roost trees or hibernacula in the project area, we encourage you to conduct tree-cutting activities and prescribed burns in forested areas during October 1 through March 31 when possible, but you are not required by the ESA to do so. When that is not possible, we encourage you to remove trees prior to June 1 or after July 31, as that will help to protect young bats that may be in forested areas but are not yet able to fly.

Eastern prairie fringed orchid – there does not appear to be suitable habitat within the 1.5-mile search buffer. The eastern prairie fringed orchid (*Platanthera leucophaea*) occurs in a wide variety of habitats, from mesic prairie to wetlands such as sedge meadows, marsh edges, even bogs. It requires full sun for optimum growth and flowering and a grassy habitat with little or no woody encroachment. The white blossoms produce a heavy fragrance at dusk that attracts many moths, including the primary pollinators of *P. leucophaea*, hawkmoths (Lepidoptera: Sphingidae). Hawkmoths are likely co-adapted pollinators, since their tongues are long enough to reach the nectar that lies deep in the spur of the flower. Capsules mature in September, releasing hundreds of thousands of airborne seeds. Plants may not flower every year but frequently produce only a single leaf above ground, possibly even becoming dormant when conditions are unsuitable, such as the onset of drought.

Conservation and Management: this species requires the maintenance of natural hydrological cycles and open habitat. Activities such as shrub removal are likely to benefit the species, but other management such as prescribed fire is not well understood. Caution and proper monitoring should be employed if using prescribed fire in occupied habitat. Spring fires should be conducted prior to emergence (mid-April). Poaching is also a threat.

Rufa red knot – there does not appear to be suitable habitat within the 1.5-mile search buffer. The rufa red knot (*Calidris canutus rufa*) is one of the longest-distance migrants in the animal kingdom, flying some 18,000 miles annually between its breeding grounds in the Canadian Arctic to the wintering grounds at the southern-most tip of South America. Primarily occurring along the Atlantic and Gulf coasts, small groups of this shorebird regularly use the interior of the United States such as the Great Lakes during the annual migration. The Great Lakes shorelines provide vital stopover habitat for resting and refueling during their long annual journey.

The largest concentration of rufa red knots is found in May in Delaware Bay, where the birds stop to gorge on the eggs of spawning horseshoe crabs; a spectacle attracting thousands of birdwatchers to the area. In just a few days, the birds nearly double their weight to prepare for the final leg of their long journey to the Arctic. This species may be especially vulnerable to climate change which affects coastal habitats due to rising sea levels.

Conservation and Management: applies to actions that occur along coastal areas during the Red Knot migratory window of MAY 1 - SEPTEMBER 30.

Eastern massasauga rattlesnake (EMR) – this project falls outside of Tier 1 and Tier 2 EMR habitat as designated by the US Fish and Wildlife Service. The eastern massasauga rattlesnake *(Sistrurus catenatus)* is Michigan's only venomous snake and is found in a variety of wetland habitats including bogs, fens, shrub swamps, wet meadows, marshes, moist grasslands, wet prairies, and floodplain forests. Eastern massasaugas occur throughout the Lower Peninsula but are not found in the Upper Peninsula. Populations in southern Michigan are typically associated with open wetlands, particularly prairie fens, while those in northern

Michigan are better known from lowland coniferous forests, such as cedar swamps. These snakes normally overwinter in crayfish or small mammal burrows often close to the groundwater level and emerge in spring as water levels rise. During late spring, these snakes move into adjacent uplands they spend the warmer months foraging in shrubby fields and grasslands in search of mice and voles, their favorite food.

Often described as “shy and sluggish”, these snakes avoid human confrontation and are not prone to strike, preferring to leave the area when they are threatened. However, like any wild animal, they will protect themselves from anything they see as a potential predator. Their short fangs can easily puncture skin and they do possess potent venom. Like many snakes, the first human reaction may be to kill the snake, but it is important to remember that all snakes play vital roles in the ecosystem. Some may eat harmful insects. Others like the massasauga consider rodents a delicacy and help control their population. Snakes are also a part of a larger food web and can provide food to eagles, herons, and several mammals.

Conservation and Management: any sightings of these snakes should be reported to the Michigan Department of Natural Resources, Wildlife Division. If possible, a photo of the live snake is also recommended.

USFWS Section 7 Consultation Technical Assistance can be found at:

https://www.fws.gov/midwest/endangered/section7/s7process/index.html

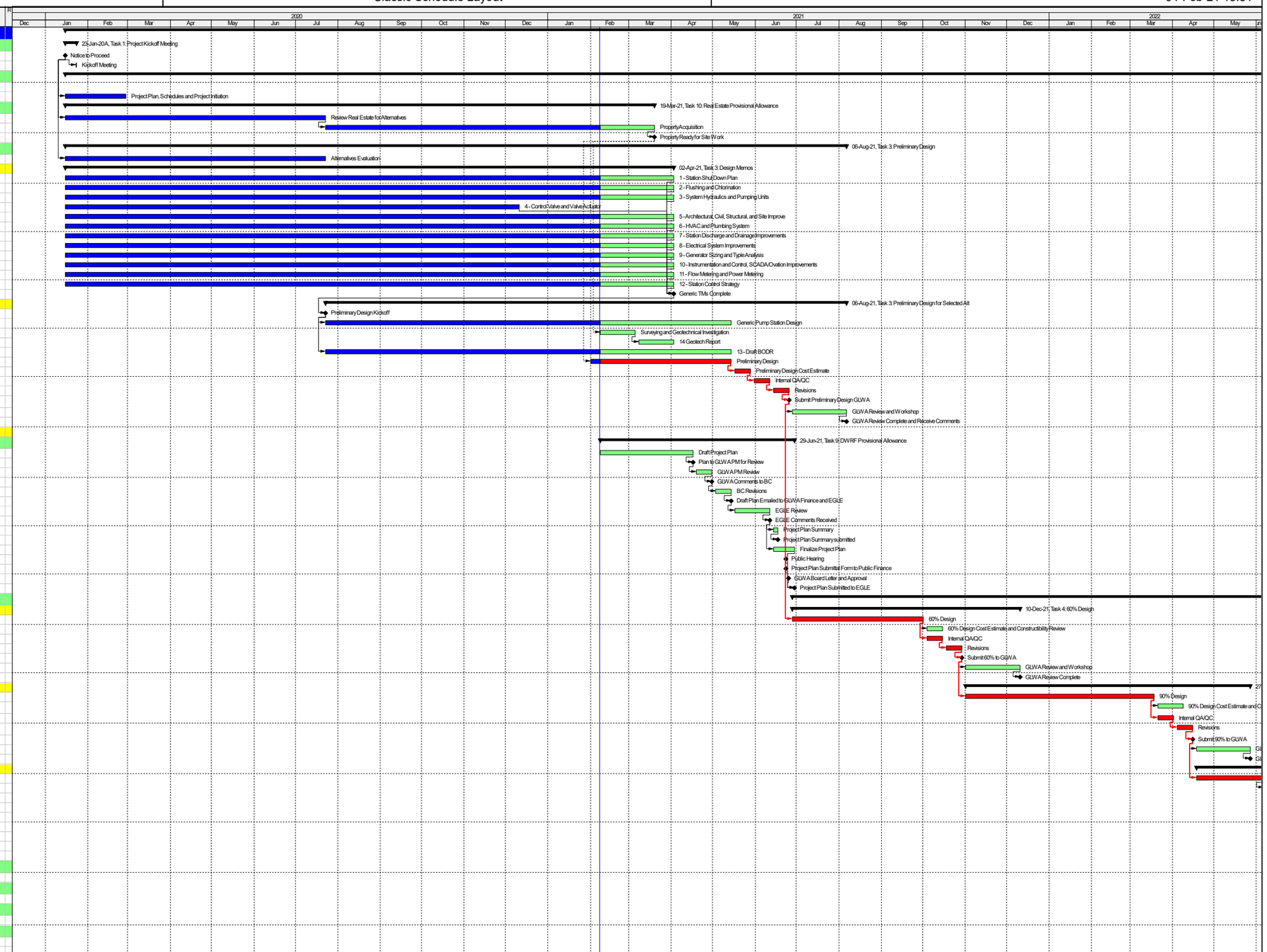
The website offers step-by-step instructions to guide you through the Section 7 consultation process with prepared templates for documenting “no effect.” as well as requesting concurrence on "may affect, but not likely to adversely affect" determinations.

Please let us know if you have questions.

Michael Sanders
Environmental Review Specialist/Zoologist
Sander75@msu.edu
Cell: 517-980-5632

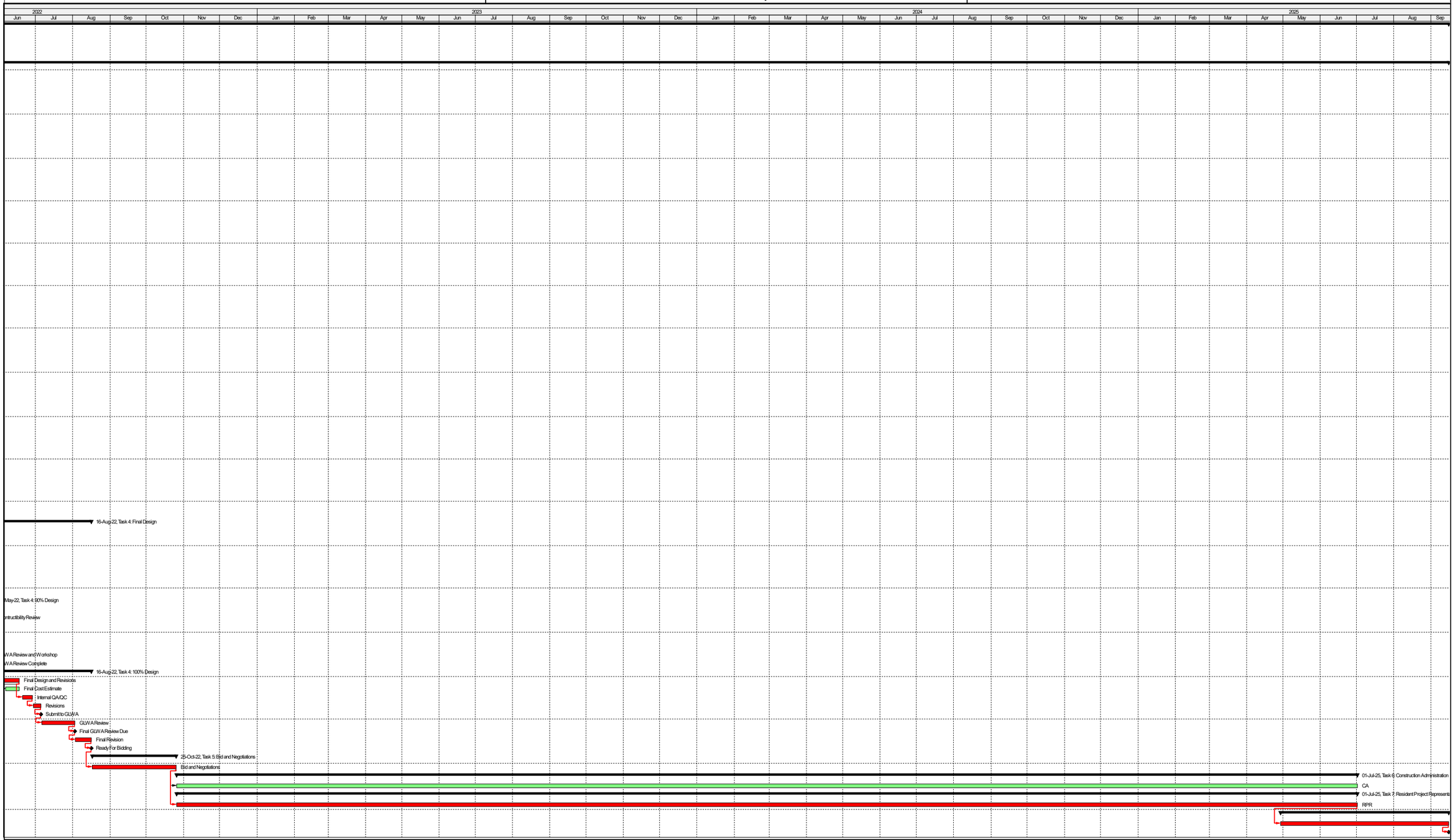
Appendix C: Design and Construction Schedule

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish
YPS - BC Detailed Schedule		1479	1201	15-Jan-20A	15-Sep-25
Task 1: Project Kickoff Meeting		7	0	15-Jan-20A	23-Jan-20A
A1000	Notice to Proceed	0	0	15-Jan-20A	
A1010	Kickoff Meeting	1	0	23-Jan-20A	23-Jan-20A
Task 2: Project Management		1479	1201	15-Jan-20A	15-Sep-25
A1020	Project Management	1479	1201	15-Jan-20A	15-Sep-25
A1030	Project Plan, Schedules and Project Initiation	33	0	15-Jan-20A	28-Feb-20A
Task 10: Real Estate Provisional Allowance		308	30	15-Jan-20A	19-Mar-21
A1070	Review Real Estate for Alternatives	60	0	15-Jan-20A	23-Jul-20A
A1080	Property Acquisition	160	30	23-Jul-20A	19-Mar-21
A1420	Property Ready for Site Work	0	0		19-Mar-21
Task 3: Preliminary Design		478	130	15-Jan-20A	06-Aug-21
A1040	Alternatives Evaluation	60	0	15-Jan-20A	23-Jul-20A
Task 3: Design Memos		318	40	15-Jan-20A	02-Apr-21
A1250	1 - Station Shut Down Plan	60	40	15-Jan-20A	02-Apr-21
A1260	2 - Flushing and Chlorination	60	40	15-Jan-20A	02-Apr-21
A1270	3 - System Hydraulics and Pumping Units	60	40	15-Jan-20A	02-Apr-21
A1280	4 - Control Valve and Valve Actuator	60	0	15-Jan-20A	11-Dec-20 A
A1290	5 - Architectural, Civil, Structural, and Site Improve	60	40	15-Jan-20A	02-Apr-21
A1300	6 - HVAC and Plumbing System	60	40	15-Jan-20A	02-Apr-21
A1310	7 - Station Discharge and Drainage Improvements	60	40	15-Jan-20A	02-Apr-21
A1320	8 - Electrical System Improvements	60	40	15-Jan-20A	02-Apr-21
A1330	9 - Generator Sizing and Typle Analysis	60	40	15-Jan-20A	02-Apr-21
A1340	10 - Instrumentation and Control, SCADA/Ovation Improveme	60	40	15-Jan-20A	02-Apr-21
A1350	11 - Flow Metering and Power Metering	60	40	15-Jan-20A	02-Apr-21
A1360	12 - Station Control Strategy	60	40	15-Jan-20A	02-Apr-21
A1370	Generic TMs Complete	0	0		02-Apr-21
Task 3: Preliminary Design for Selected Alt		408	130	23-Jul-20A	06-Aug-21
A1170	Preliminary Design Kickoff	0	0	23-Jul-20A	
A1180	Generic Pump Station Design	150	70	23-Jul-20A	14-May-21
A1190	Surveying and Geotechnical Investigation	20	20	08-Feb-21	05-Mar-21
A1200	14 Geotech Report	20	20	08-Mar-21	02-Apr-21
A1210	13 - Draft BODR	200	70	23-Jul-20A	14-May-21
A1220	Preliminary Design	70	70	01-Feb-21A	14-May-21
A1230	Preliminary Design Cost Estimate	10	10	17-May-21	28-May-21
A1240	Internal QA/QC	10	10	31-May-21	11-Jun-21
A1380	Revisions	10	10	14-Jun-21	25-Jun-21
A1390	Submit Preliminary Design GLWA	0	0		25-Jun-21
A1400	GLWA Review and Workshop	30	30	28-Jun-21	06-Aug-21
A1410	GLWA Review Complete and Receive Comments	0	0		06-Aug-21
Task 3: Site Alternative Analysis		0	0		
Task 9: DWRF Provisional Allowance		102	102	08-Feb-21	29-Jun-21
A1665	Draft Project Plan	50	50	08-Feb-21	16-Apr-21
A1670	Plan to GLWA PM for Review	0	0		16-Apr-21
A1680	GLWA PM Review	10	10	19-Apr-21	30-Apr-21
A1690	GLWA Comments to BC	0	0		30-Apr-21
A1700	BC Revisions	10	10	03-May-21	14-May-21
A1710	Draft Plan Emailed to GLWA Finance and EGLE	0	0		14-May-21
A1720	EGLE Review	20	20	17-May-21	11-Jun-21
A1730	EGLE Comments Received	0	0		11-Jun-21
A1740	Project Plan Summary	4	4	14-Jun-21	17-Jun-21
A1741	Project Plan Summary submitted	0	0		17-Jun-21
A1750	Finalize Project Plan	12	12	14-Jun-21	29-Jun-21
A1770	Public Hearing	0	0	23-Jun-21*	
A1780	Project Plan Submittal Form to Public Finance	0	0	23-Jun-21*	
A1790	GLWA Board Letter and Approval	0	0	25-Jun-21*	
A1800	Project Plan Submitted to EGLE	0	0		29-Jun-21
Task 4: Final Design		297	297	28-Jun-21	16-Aug-22
Task 4: 60% Design		120	120	28-Jun-21	10-Dec-21
A1430	60% Design	70	70	28-Jun-21	01-Oct-21
A1435	60% Design Cost Estimate and Constructibility Review	10	10	04-Oct-21	15-Oct-21
A1440	Internal QA/QC	10	10	04-Oct-21	15-Oct-21
A1460	Revisions	10	10	18-Oct-21	29-Oct-21
A1470	Submit 60% to GLWA	0	0		29-Oct-21
A1480	GLWA Review and Workshop	30	30	01-Nov-21	10-Dec-21
A1490	GLWA Review Complete	0	0		10-Dec-21
Task 4: 90% Design		150	150	01-Nov-21	27-May-22
A1500	90% Design	100	100	01-Nov-21	18-Mar-22
A1510	90% Design Cost Estimate and Contructibility Review	15	15	21-Mar-22	08-Apr-22
A1520	Internal QA/QC	10	10	21-Mar-22	01-Apr-22
A1530	Revisions	10	10	04-Apr-22	15-Apr-22
A1540	Submit 90% to GLWA	0	0		15-Apr-22
A1550	GLWA Review and Workshop	30	30	18-Apr-22	27-May-22
A1560	GLWA Review Complete	0	0		27-May-22
Task 4: 100% Design		87	87	18-Apr-22	16-Aug-22
A1570	Final Design and Revisions	45	45	18-Apr-22	17-Jun-22
A1580	Final Cost Estimate	10	10	06-Jun-22	17-Jun-22
A1590	Internal QA/QC	7	7	20-Jun-22	28-Jun-22
A1600	Revisions	5	5	29-Jun-22	05-Jul-22
A1610	Submit to GLWA	0	0		05-Jul-22
A1620	GLWA Review	20	20	06-Jul-22	02-Aug-22
A1630	Final GLWA Review Due	0	0		02-Aug-22
A1640	Final Revision	10	10	03-Aug-22	16-Aug-22
A1650	Ready For Bidding	0	0		16-Aug-22
Task 5: Bid and Negotiations		50	50	17-Aug-22	25-Oct-22
A1120	Bid and Negotiations	50	50	17-Aug-22	25-Oct-22
Task 6: Construction Administration		700	700	26-Oct-22	01-Jul-25
A1130	CA	700	700	26-Oct-22	01-Jul-25
Task 7: Resident Project Representation		700	700	26-Oct-22	01-Jul-25
A1140	RPR	700	700	26-Oct-22	01-Jul-25
Task 8: System O&M, SOPs, and Training		100	100	29-Apr-25	15-Sep-25
A1150	O&M Manuals, SOPs, and Training	100	100	29-Apr-25	15-Sep-25
A1160	Construction Complete	0	0		15-Sep-25



Actual Work | Critical Remaining Work | Summary
Remaining Work | Milestone

TASK filter: All Activities
GLWA CS-267 YPS



Actual Work | Critical Remaining Work | Summary
Remaining Work | Milestone

TASK filter: All Activities
GLWA CS-267 YPS

Appendix D: Tribal Historic Preservation Office Review Requests

100 W. Big Beaver Rd., Suite 540
Troy, MI 48084

T: 248.320.3418

April 28th, 2021

Paula Carrick, THPO
Bay Mills Indian Community
12140 W. Lakeshore Drive
Brimley, MI 49715

Subject: Opportunity To Comment On A Proposed GLWA Construction Project – Ypsilanti Pumping Station Improvements

Dear Paula Carrick,

My name is Alex Krivitsky, I am a project engineer for Brown and Caldwell LLC. My firm, working on behalf of The Great Lakes Water Authority (GLWA) is preparing an application to fund improvements to the existing Ypsilanti Pumping Station, a potable water booster facility that was built in the mid 1980's. This work is proposed for funding through the Michigan Department of the Environment, Great Lakes & Energy (MDEGLE), State Revolving Fund/Drinking Water Revolving Fund, starting in fiscal year 2022. The proposed work consists of demolishing and decommissioning the existing Ypsilanti Pump Station and building the replacement pump station on a different property. The new pump station will be located in Wayne County, Township T3S, Range R8E, Section S8. Please refer to actual work location as shown in the attached preliminary construction plan. This notice and opportunity to comment is being sent to you to fulfill Section 106 of the National Historic Preservation Act review process, which requires a federal agency or applicant to consult with THPOs and federally recognized Indian tribes. The purpose of this notice is to give you an opportunity to have your interests and concerns considered. Should you have any comments on potential impacts to known religious and/or culturally significant properties in the area of the proposed project, please provide them to us within 30 days of this notice.

Brown and Caldwell appreciates your time. Should you have any questions, please do not hesitate to call me at 248-320-3418.

Very truly yours,

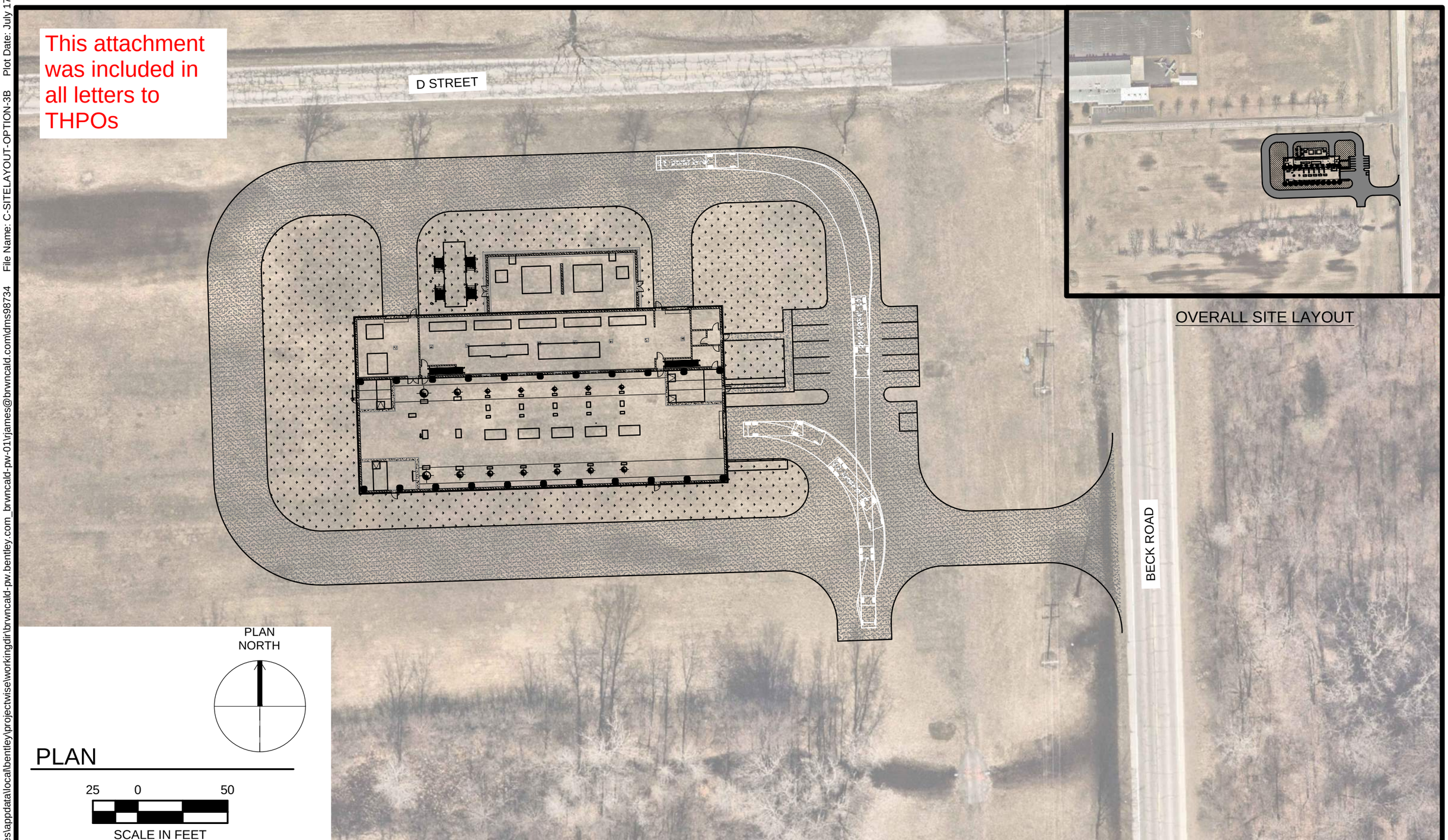
Brown and Caldwell

Alex Krivitsky, Project Engineer
Troy, MI

Attachments (1)

- Attachment A: Preliminary Site Layout and Location

This attachment was included in all letters to THPOs



Brown AND Caldwell

SCALE: 1" = 50'

DATE: July 17, 2020

GLWA
Great Lakes Water Authority

GLWA CONTRACT NO. CS-267
YPSILANTI PUMP STATION IMPROVEMENTS
CONCEPTUAL SITE LAYOUT OPTION 3B
9399 BECK RD, BELLEVILLE, MI 48111

FIGURE
5

100 W. Big Beaver Rd., Suite 540
Troy, MI 48084

T: 248.320.3418

April 28th, 2021

Cindy Winslow
Grand Traverse Band of Ottawa and Chippewa Indians
2605 NW Bayshore Drive
Peshawbetown, MI 49682

Subject: Opportunity To Comment On A Proposed GLWA Construction Project – Ypsilanti Pumping Station Improvements

Dear Cindy Winslow,

My name is Alex Krivitsky, I am a project engineer for Brown and Caldwell LLC. My firm, working on behalf of The Great Lakes Water Authority (GLWA) is preparing an application to fund improvements to the existing Ypsilanti Pumping Station, a potable water booster facility that was built in the mid 1980's. This work is proposed for funding through the Michigan Department of the Environment, Great Lakes & Energy (MDEGLE), State Revolving Fund/Drinking Water Revolving Fund, starting in fiscal year 2022. The proposed work consists of demolishing and decommissioning the existing Ypsilanti Pump Station and building the replacement pump station on a different property. The new pump station will be located in Wayne County, Township T3S, Range R8E, Section S8. Please refer to actual work location as shown in the attached preliminary construction plan. This notice and opportunity to comment is being sent to you to fulfill Section 106 of the National Historic Preservation Act review process, which requires a federal agency or applicant to consult with THPOs and federally recognized Indian tribes. The purpose of this notice is to give you an opportunity to have your interests and concerns considered. Should you have any comments on potential impacts to known religious and/or culturally significant properties in the area of the proposed project, please provide them to us within 30 days of this notice.

Brown and Caldwell appreciates your time. Should you have any questions, please do not hesitate to call me at 248-320-3418.

Very truly yours,

Brown and Caldwell

Alex Krivitsky, Project Engineer
Troy, MI

Attachments (1)

- Attachment A: Preliminary Site Layout and Location

100 W. Big Beaver Rd., Suite 540
Troy, MI 48084

T: 248.320.3418

April 28th, 2021

Earl Meshigaud
Hannahville Potawatomi Indian Community
N-14911 Hannahville B-1 Road
Wilson, MI 49896

Subject: Opportunity To Comment On A Proposed GLWA Construction Project – Ypsilanti Pumping Station Improvements

Dear Earl Meshigaud,

My name is Alex Krivitsky, I am a project engineer for Brown and Caldwell LLC. My firm, working on behalf of The Great Lakes Water Authority (GLWA) is preparing an application to fund improvements to the existing Ypsilanti Pumping Station, a potable water booster facility that was built in the mid 1980's. This work is proposed for funding through the Michigan Department of the Environment, Great Lakes & Energy (MDEGLE), State Revolving Fund/Drinking Water Revolving Fund, starting in fiscal year 2022. The proposed work consists of demolishing and decommissioning the existing Ypsilanti Pump Station and building the replacement pump station on a different property. The new pump station will be located in Wayne County, Township T3S, Range R8E, Section S8. Please refer to actual work location as shown in the attached preliminary construction plan. This notice and opportunity to comment is being sent to you to fulfill Section 106 of the National Historic Preservation Act review process, which requires a federal agency or applicant to consult with THPOs and federally recognized Indian tribes. The purpose of this notice is to give you an opportunity to have your interests and concerns considered. Should you have any comments on potential impacts to known religious and/or culturally significant properties in the area of the proposed project, please provide them to us within 30 days of this notice.

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Very truly yours,

Brown and Caldwell

Alex Krivitsky, Project Engineer
Troy, MI

Attachments (1)

- Attachment A: Preliminary Site Layout and Location

100 W. Big Beaver Rd., Suite 540
Troy, MI 48084

T: 248.320.3418

April 28th, 2021

Gary Loonsfoot, Jr., THPO
Keweenaw Bay Indian Community
16429 Bear Town Road
Baraga, MI 49908

Subject: Opportunity To Comment On A Proposed GLWA Construction Project – Ypsilanti Pumping Station Improvements

Dear Gary Loonsfoot Jr.,

My name is Alex Krivitsky, I am a project engineer for Brown and Caldwell LLC. My firm, working on behalf of The Great Lakes Water Authority (GLWA) is preparing an application to fund improvements to the existing Ypsilanti Pumping Station, a potable water booster facility that was built in the mid 1980's. This work is proposed for funding through the Michigan Department of the Environment, Great Lakes & Energy (MDEGLE), State Revolving Fund/Drinking Water Revolving Fund, starting in fiscal year 2022. The proposed work consists of demolishing and decommissioning the existing Ypsilanti Pump Station and building the replacement pump station on a different property. The new pump station will be located in Wayne County, Township T3S, Range R8E, Section S8. Please refer to actual work location as shown in the attached preliminary construction plan. This notice and opportunity to comment is being sent to you to fulfill Section 106 of the National Historic Preservation Act review process, which requires a federal agency or applicant to consult with THPOs and federally recognized Indian tribes. The purpose of this notice is to give you an opportunity to have your interests and concerns considered. Should you have any comments on potential impacts to known religious and/or culturally significant properties in the area of the proposed project, please provide them to us within 30 days of this notice.

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Very truly yours,

Brown and Caldwell

Alex Krivitsky, Project Engineer
Troy, MI

Attachments (1)

- Attachment A: Preliminary Site Layout and Location

100 W. Big Beaver Rd., Suite 540
Troy, MI 48084

T: 248.320.3418

April 28th, 2021

Giiwegiizhigookway Martin, THPO
Lac Vieux Desert Band of Lake Superior Chippewa Indians
P.O. Box 249
Watersmeet, MI 49969

Subject: Opportunity To Comment On A Proposed GLWA Construction Project – Ypsilanti Pumping Station Improvements

Dear Giiwegiizhigookway Martin,

My name is Alex Krivitsky, I am a project engineer for Brown and Caldwell LLC. My firm, working on behalf of The Great Lakes Water Authority (GLWA) is preparing an application to fund improvements to the existing Ypsilanti Pumping Station, a potable water booster facility that was built in the mid 1980's. This work is proposed for funding through the Michigan Department of the Environment, Great Lakes & Energy (MDEGLE), State Revolving Fund/Drinking Water Revolving Fund, starting in fiscal year 2022. The proposed work consists of demolishing and decommissioning the existing Ypsilanti Pump Station and building the replacement pump station on a different property. The new pump station will be located in Wayne County, Township T3S, Range R8E, Section S8. Please refer to actual work location as shown in the attached preliminary construction plan. This notice and opportunity to comment is being sent to you to fulfill Section 106 of the National Historic Preservation Act review process, which requires a federal agency or applicant to consult with THPOs and federally recognized Indian tribes. The purpose of this notice is to give you an opportunity to have your interests and concerns considered. Should you have any comments on potential impacts to known religious and/or culturally significant properties in the area of the proposed project, please provide them to us within 30 days of this notice.

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Very truly yours,

Brown and Caldwell

Alex Krivitsky, Project Engineer
Troy, MI

Attachments (1)

- Attachment A: Preliminary Site Layout and Location

100 W. Big Beaver Rd., Suite 540
Troy, MI 48084

T: 248.320.3418

April 28th, 2021

Jay Sam, Director
Little River Band of Ottawa Indians
2608 Government Center Drive
Manistee, MI 49660

Subject: Opportunity To Comment On A Proposed GLWA Construction Project – Ypsilanti Pumping Station Improvements

Dear Jay Sam,

My name is Alex Krivitsky, I am a project engineer for Brown and Caldwell LLC. My firm, working on behalf of The Great Lakes Water Authority (GLWA) is preparing an application to fund improvements to the existing Ypsilanti Pumping Station, a potable water booster facility that was built in the mid 1980's. This work is proposed for funding through the Michigan Department of the Environment, Great Lakes & Energy (MDEGLE), State Revolving Fund/Drinking Water Revolving Fund, starting in fiscal year 2022. The proposed work consists of demolishing and decommissioning the existing Ypsilanti Pump Station and building the replacement pump station on a different property. The new pump station will be located in Wayne County, Township T3S, Range R8E, Section S8. Please refer to actual work location as shown in the attached preliminary construction plan. This notice and opportunity to comment is being sent to you to fulfill Section 106 of the National Historic Preservation Act review process, which requires a federal agency or applicant to consult with THPOs and federally recognized Indian tribes. The purpose of this notice is to give you an opportunity to have your interests and concerns considered. Should you have any comments on potential impacts to known religious and/or culturally significant properties in the area of the proposed project, please provide them to us within 30 days of this notice.

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Very truly yours,

Brown and Caldwell

Alex Krivitsky, Project Engineer
Troy, MI

Attachments (1)

- Attachment A: Preliminary Site Layout and Location

100 W. Big Beaver Rd., Suite 540
Troy, MI 48084

T: 248.320.3418

April 28th, 2021

Wes Andrews
Little Traverse Bay Band of Odawa
7500 Odawa Circle
Harbor Springs, MI 49740

Subject: Opportunity To Comment On A Proposed GLWA Construction Project – Ypsilanti Pumping Station Improvements

Dear Wes Andrews,

My name is Alex Krivitsky, I am a project engineer for Brown and Caldwell LLC. My firm, working on behalf of The Great Lakes Water Authority (GLWA) is preparing an application to fund improvements to the existing Ypsilanti Pumping Station, a potable water booster facility that was built in the mid 1980's. This work is proposed for funding through the Michigan Department of the Environment, Great Lakes & Energy (MDEGLE), State Revolving Fund/Drinking Water Revolving Fund, starting in fiscal year 2022. The proposed work consists of demolishing and decommissioning the existing Ypsilanti Pump Station and building the replacement pump station on a different property. The new pump station will be located in Wayne County, Township T3S, Range R8E, Section S8. Please refer to actual work location as shown in the attached preliminary construction plan. This notice and opportunity to comment is being sent to you to fulfill Section 106 of the National Historic Preservation Act review process, which requires a federal agency or applicant to consult with THPOs and federally recognized Indian tribes. The purpose of this notice is to give you an opportunity to have your interests and concerns considered. Should you have any comments on potential impacts to known religious and/or culturally significant properties in the area of the proposed project, please provide them to us within 30 days of this notice.

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Very truly yours,

Brown and Caldwell

Alex Krivitsky, Project Engineer
Troy, MI

Attachments (1)

- Attachment A: Preliminary Site Layout and Location

100 W. Big Beaver Rd., Suite 540
Troy, MI 48084

T: 248.320.3418

April 28th, 2021

Heather Bush
Match-e-be-nash-shee-wish Gun Lake Band of Potawatomi Indians
2872 Mission Drive
Shelbyville, MI 49344

Subject: Opportunity To Comment On A Proposed GLWA Construction Project – Ypsilanti Pumping Station Improvements

Dear Heather Bush,

My name is Alex Krivitsky, I am a project engineer for Brown and Caldwell LLC. My firm, working on behalf of The Great Lakes Water Authority (GLWA) is preparing an application to fund improvements to the existing Ypsilanti Pumping Station, a potable water booster facility that was built in the mid 1980's. This work is proposed for funding through the Michigan Department of the Environment, Great Lakes & Energy (MDEGLE), State Revolving Fund/Drinking Water Revolving Fund, starting in fiscal year 2022. The proposed work consists of demolishing and decommissioning the existing Ypsilanti Pump Station and building the replacement pump station on a different property. The new pump station will be located in Wayne County, Township T3S, Range R8E, Section S8. Please refer to actual work location as shown in the attached preliminary construction plan. This notice and opportunity to comment is being sent to you to fulfill Section 106 of the National Historic Preservation Act review process, which requires a federal agency or applicant to consult with THPOs and federally recognized Indian tribes. The purpose of this notice is to give you an opportunity to have your interests and concerns considered. Should you have any comments on potential impacts to known religious and/or culturally significant properties in the area of the proposed project, please provide them to us within 30 days of this notice.

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Very truly yours,

Brown and Caldwell

Alex Krivitsky, Project Engineer
Troy, MI

Attachments (1)

- Attachment A: Preliminary Site Layout and Location

100 W. Big Beaver Rd., Suite 540
Troy, MI 48084

T: 248.320.3418

April 28th, 2021

Mon-ee Zapata, Cultural Specialist
Nottawaseppi Band of Huron Potawatomi
1485 Mno-Bmadzewen Way
Fulton, MI 49052

Subject: Opportunity To Comment On A Proposed GLWA Construction Project – Ypsilanti Pumping Station Improvements

Dear Mon-ee Zapata,

My name is Alex Krivitsky, I am a project engineer for Brown and Caldwell LLC. My firm, working on behalf of The Great Lakes Water Authority (GLWA) is preparing an application to fund improvements to the existing Ypsilanti Pumping Station, a potable water booster facility that was built in the mid 1980's. This work is proposed for funding through the Michigan Department of the Environment, Great Lakes & Energy (MDEGLE), State Revolving Fund/Drinking Water Revolving Fund, starting in fiscal year 2022. The proposed work consists of demolishing and decommissioning the existing Ypsilanti Pump Station and building the replacement pump station on a different property. The new pump station will be located in Wayne County, Township T3S, Range R8E, Section S8. Please refer to actual work location as shown in the attached preliminary construction plan. This notice and opportunity to comment is being sent to you to fulfill Section 106 of the National Historic Preservation Act review process, which requires a federal agency or applicant to consult with THPOs and federally recognized Indian tribes. The purpose of this notice is to give you an opportunity to have your interests and concerns considered. Should you have any comments on potential impacts to known religious and/or culturally significant properties in the area of the proposed project, please provide them to us within 30 days of this notice.

Brown and Caldwell appreciates your time. Should you have any questions, please do not hesitate to call me at 248-320-3418.

Very truly yours,

Brown and Caldwell

Alex Krivitsky, Project Engineer
Troy, MI

Attachments (1)

- Attachment A: Preliminary Site Layout and Location

100 W. Big Beaver Rd., Suite 540
Troy, MI 48084

T: 248.320.3418

April 28th, 2021

Marcus Winchester, THPO
Pokagon Band of Potawatomi
58620 Sink Road
Dowagiac, MI 49047

Subject: Opportunity To Comment On A Proposed GLWA Construction Project – Ypsilanti Pumping Station Improvements

Dear Marcus Winchester,

My name is Alex Krivitsky, I am a project engineer for Brown and Caldwell LLC. My firm, working on behalf of The Great Lakes Water Authority (GLWA) is preparing an application to fund improvements to the existing Ypsilanti Pumping Station, a potable water booster facility that was built in the mid 1980's. This work is proposed for funding through the Michigan Department of the Environment, Great Lakes & Energy (MDEGLE), State Revolving Fund/Drinking Water Revolving Fund, starting in fiscal year 2022. The proposed work consists of demolishing and decommissioning the existing Ypsilanti Pump Station and building the replacement pump station on a different property. The new pump station will be located in Wayne County, Township T3S, Range R8E, Section S8. Please refer to actual work location as shown in the attached preliminary construction plan. This notice and opportunity to comment is being sent to you to fulfill Section 106 of the National Historic Preservation Act review process, which requires a federal agency or applicant to consult with THPOs and federally recognized Indian tribes. The purpose of this notice is to give you an opportunity to have your interests and concerns considered. Should you have any comments on potential impacts to known religious and/or culturally significant properties in the area of the proposed project, please provide them to us within 30 days of this notice.

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Brown and Caldwell

Alex Krivitsky, Project Engineer
Troy, MI

Attachments (1)

- Attachment A: Preliminary Site Layout and Location

100 W. Big Beaver Rd., Suite 540
Troy, MI 48084

T: 248.320.3418

April 28th, 2021

William Johnson, Interim THPO
Saginaw Chippewa Indian Tribe of MI
6650 E. Broadway
Mt. Pleasant, MI 48858

Subject: Opportunity To Comment On A Proposed GLWA Construction Project – Ypsilanti Pumping Station Improvements

Dear William Johnson,

My name is Alex Krivitsky, I am a project engineer for Brown and Caldwell LLC. My firm, working on behalf of The Great Lakes Water Authority (GLWA) is preparing an application to fund improvements to the existing Ypsilanti Pumping Station, a potable water booster facility that was built in the mid 1980's. This work is proposed for funding through the Michigan Department of the Environment, Great Lakes & Energy (MDEGLE), State Revolving Fund/Drinking Water Revolving Fund, starting in fiscal year 2022. The proposed work consists of demolishing and decommissioning the existing Ypsilanti Pump Station and building the replacement pump station on a different property. The new pump station will be located in Wayne County, Township T3S, Range R8E, Section S8. Please refer to actual work location as shown in the attached preliminary construction plan. This notice and opportunity to comment is being sent to you to fulfill Section 106 of the National Historic Preservation Act review process, which requires a federal agency or applicant to consult with THPOs and federally recognized Indian tribes. The purpose of this notice is to give you an opportunity to have your interests and concerns considered. Should you have any comments on potential impacts to known religious and/or culturally significant properties in the area of the proposed project, please provide them to us within 30 days of this notice.

Brown and Caldwell appreciates your time. Should you have any questions, please do not hesitate to call me at 248-320-3418.

Very truly yours,

Brown and Caldwell

Alex Krivitsky, Project Engineer
Troy, MI

Attachments (1)

- Attachment A: Preliminary Site Layout and Location

100 W. Big Beaver Rd., Suite 540
Troy, MI 48084

T: 248.320.3418

April 28th, 2021

Colleen Medicine
Sault Ste. Marie Tribe of Chippewa
523 Ashmun
Sault Ste. Marie, MI 49783

Subject: Opportunity To Comment On A Proposed GLWA Construction Project – Ypsilanti Pumping Station Improvements

Dear Colleen Medicine,

My name is Alex Krivitsky, I am a project engineer for Brown and Caldwell LLC. My firm, working on behalf of The Great Lakes Water Authority (GLWA) is preparing an application to fund improvements to the existing Ypsilanti Pumping Station, a potable water booster facility that was built in the mid 1980's. This work is proposed for funding through the Michigan Department of the Environment, Great Lakes & Energy (MDEGLE), State Revolving Fund/Drinking Water Revolving Fund, starting in fiscal year 2022. The proposed work consists of demolishing and decommissioning the existing Ypsilanti Pump Station and building the replacement pump station on a different property. The new pump station will be located in Wayne County, Township T3S, Range R8E, Section S8. Please refer to actual work location as shown in the attached preliminary construction plan. This notice and opportunity to comment is being sent to you to fulfill Section 106 of the National Historic Preservation Act review process, which requires a federal agency or applicant to consult with THPOs and federally recognized Indian tribes. The purpose of this notice is to give you an opportunity to have your interests and concerns considered. Should you have any comments on potential impacts to known religious and/or culturally significant properties in the area of the proposed project, please provide them to us within 30 days of this notice.

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Very truly yours,

Brown and Caldwell

Alex Krivitsky, Project Engineer
Troy, MI

Attachments (1)

- Attachment A: Preliminary Site Layout and Location

Appendix E: Historical Climate Data

Appendix F: Public Hearing Notice

Appendix G: Public Hearing Sign-In-Sheet

To be updated after the Public Hearing on June 23, 2021.

Appendix H: Public Hearing Transcript

To be updated after the Public Hearing on June 23, 2021.

Appendix I: Public Hearing Visual Aids

To be updated after the Public Hearing on June 23, 2021.

Appendix J: Board of Water Commissioners' Resolution Approval

Appendix K: DWRF Project Plan Submittal Form