CITY OF OWOSSO
SPECIAL MEETING OF THE CITY COUNCIL
MONDAY, MAY 24, 2021
7:30 P.M.

Meeting to be held at City Hall
301 West Main Street

AGENDA

PLEDGE OF ALLEGIANCE:
ROLL CALL:

ADDRESSING THE CITY COUNCIL

1. Your comments shall be made during time set aside for that purpose.
2. Stand or raise a hand to indicate that you wish to speak.
3. When recognized, give your name and address and direct your comments and/or questions to any City official in attendance.
4. Each person wishing to address the City Council and/or attending officials shall be afforded one opportunity of up to five (5) minutes duration during citizen comments and questions.
5. In addition to the opportunity described above, a citizen may respond to questions posed to him or her by the Mayor or members of the Council, provided members have been granted the floor to pose such questions.

CITIZEN COMMENTS AND QUESTIONS

PUBLIC HEARING

1. SRF Project Plan – Wastewater Treatment Plant. Conduct a public hearing to receive citizen comment in a Public Hearing regarding the Michigan Department of Environmental Quality State Revolving Fund Project Plan for the Wastewater Treatment Plant.

NEXT MEETING

Monday, May 17, 2021

BOARDS AND COMMISSIONS OPENINGS

Brownfield Redevelopment Authority – term expires June 30, 2026
Building Board of Appeals – Alternate - term expires June 30, 2022
Building Board of Appeals – Alternate - term expires June 30, 2021
Downtown Development Authority – 2 terms expire June 30, 2021
Owosso Historical Commission – 2 terms expire December 31, 2021
Owosso Historical Commission – term expires December 31, 2022
Owosso Historical Commission – term expires December 31, 2023
Parks & Recreation Commission-term expires June 30, 2022
Zoning Board of Appeals – Alternate – term expires June 30, 2021
Zoning Board of Appeals – term expires June 30, 2023

ADJOURNMENT

The City of Owosso will provide necessary reasonable auxiliary aids and services, such as signers for the hearing impaired and audio recordings of printed materials being considered at the meeting, to individuals with disabilities at the meeting/hearing upon seventy-two (72) hours notice to the City of Owosso. Individuals with disabilities requiring auxiliary aids or services should contact the City of Owosso by writing, calling, or emailing the following: Owosso City Clerk's Office, 301 West Main Street, Owosso, MI 48867; Phone: (989) 725-0500; Email: city.clerk@ci.owosso.mi.us. The City of Owosso Website address is www.ci.owosso.mi.us.

2019 WWTP SRF REPORT

City of Owosso

April 2019

REVISIONS TO APPROVED REPORT
September 2019 Supplemental Info. Submitted to J. Berman

April 2021 Amendment No. 1

106 W. Allegan St. Suite 500
Lansing, MI 48933

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The purpose of this report is to present information regarding the need for equipment and structure replacements at the City of Owosso Wastewater Treatment Facility. These include headworks (screw pumps and grit removal), treatment processes (Nitrification/Roughing trickling filter towers) and solids handling process (Screw Press).

AMENDMENT NUMBER ONE

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AMENDMENT NUMBER ONE

2019 WWTP SRF REPORT

City of Owosso, Michigan

Dated: April 2021

Item #1: Add the Following Two Items to the list of Appendices on Page 2 of the Table of Contents:

G. Amendment Number One Public Hearing Notes

I. Amendment Number One Cost Opinion

Item #2: Replace the follow paragraph from Chapter 2 Section 2.1 Solids Handling Unit:

"The existing primary solids handing unit (SHU) is the solids centrifuge that was installed in 1999. This equipment was purchased as a used 1980-vintage machine and is nearing its operational lifecycle. Without any redundancy added to the system, the failure of the equipment will greatly impact the WWTP's operation. In order to improve the efficiency of the WWTP and mitigate solids handling issues, the existing centrifuge will be replaced with either a belt filter press or a screw compactor."

With the following:

> "The existing primary solids handing unit (SHU) is the solids centrifuge that was installed in 1999. This equipment was purchased as a used 1980-vintage machine and is nearing its operational lifecycle. Without any redundancy added to the system, the failure of the equipment will greatly impact the WWTP's operation. In order to improve the efficiency of the WWTP and mitigate solids handling issues, the existing centrifuge will be replaced with two screw presses and a screw conveyor. Addition of a belt filter press filter press as an alternative to eth screw presses was evaluated. This option was rejected during design when it was determined that the WWTP does not have adequate space for two belt filter presses without constructing an addition on the building, which is not feasible. The current usable space is left open for a future dryer per owner request. Other projects planned are general building, electrical and structural improvements throughout the plant."

Item #3: Replace Table 4 with the following:

Table 4 Summary of Present Worth Cost for					
	Screw Pumps	**Grit Chamber**	**Nitrification/Roughing Towers**	**Screw Compactor**	**Belt Filter Press**
Initial Construction Cost	$900,000	$850,000	$2,750,000	$3,056,400	$2,754,600
Operation and Maintenance	$180,000	$170,000	$550,000	$65,000	$100,000
Salvage Value	$21,000	$5,000	$5,000	$1,370,829	$1,086,477
Total Present Worth	$4,430,000	$4,180,000	$13,530,000	$5,632,723	$5,950,040

Table 1. Summary of Present Worth Cost for Owosso

Item #4: Replace the follow paragraph from Chapter 2 Section 2.2 Monetary Evaluation:

"There are no reasonable alternatives for the screw pumps, grit chamber and nitrification/roughing towers. With respect to the solids handling, the initial capital costs for the two alternatives is the same; however, the present worth calculation shows the screw compactor to be more cost effective. Therefore the screw compactor is the selected alternative."

With:

> "There are no reasonable alternatives for the screw pumps, grit chamber and nitrification/roughing towers. With respect to the solids handling, the initial capital costs for the two alternatives is similar without considering he required building addition. The present worth calculation shows the screw compactor to be more cost effective. During design, it was determined that the system required an additional sludge storage tank, an additional screw press for redundancy, an in-line sludge grinder, a polymer tank with a pump skid and mixing equipment, and a ferric tank and sump pumps for proper functionality."

Item #5: Replace the Paragraph headed "Schedule for Design and Construction" with the following:

> Design of the proposed solids handling improvements are complete. Bidding will be scheduled for February 2022, with construction between June 2022 and June 2023. Please note that the schedule for the roughing and nitrification tower improvements will be updated in a future amendment.

Item #6: Replace Table 6 with the following:

Table 6 WWTF Improvements Quarterly Cost Per REU								
Improvement	**Initial Construction Cost**	**Annual Debt Service**	**SRF Int. Rate**	**Loan Duration**	***City of Owosso Allocation**	**No. REU's**	**Annual Cost per REU**	**Monthly Cost per REU**
Headworks Improvements	$,2726,527	$107,000	2.00%	20	53%	7,964	$10.96	$0.91
Trickling Filter Replacement	$2,750,000	$168,000	1.875%	20	53%	7,964	$11.18	$2.80
Solids Handling Improvements	$3,056,400	$184,672	1.875%	20	53%	7,964	$12.28	$1.03
***These improvements' anticipated service life exceeds 20 years therefore considered a Contract Capacity expense allocation**								

Table 6. WWTF Improvements Quarterly Cost per REU

Item #7: Add the following at the end of Chapter 6:

6.4 Public hearing information is included in Appendix G

Item #8: Add the following new Appendix G:

G. Amendment Number One - Public Hearing Notes.

Item #9: Add the following new Appendix H:

H. Amendment Number One - Cost Opinion

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SUPPLEMENTAL INFORMATION

SEPTEMBER 2019

Submitted to J. Berman, PE

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106 W. Allegan St. Suite 500
Lansing, MI 48933
O: 517.371.1200
www.c2ae.com

September 6, 2019

Mr. Jonathan M. Berman, PE
Senior Project Manager
Michigan Dept. of Environment, Great Lakes and Energy
Drinking Water & Municipal Assistance Division
Constitution Hall, 4th Floor
525 West Allegan
PO Box 30817
Lansing, MI 48909-8311

Re: Supplemental Information – Project Plan Submittal
City of Owosso, Wastewater Treatment Facility

Dear Mr. Berman,

Enclosed please find C2AE's response to questions stated in your September 4, 2019 email. All requested items are updated and attached to this letter.

As always, if you have any questions or need any additional information please do not hesitate to contact us at (517) 371-1200 or email at brian.vanzee@c2ae.com.

Sincerely,
C2AE

Charles M. Anthony
Civil Engineer

Brian W. VanZee
Project Manager

BWV/bad/19-0008

cc: Glenn Chinavare, City of Owosso

Supplemental Information

1. The project still needs clearance from U.S. FWS. What is the current status? Did you have to contact U.S. FWS directly or were you able to resolve this crosscutter through the streamlined Section 7 Consultation Web site? I did not see anything in the final SRF project plan.

   See attached U.S. FWS documentation from the FWS iPaC website showing an endangered species impact determination of none.

2. The project still needs resolution from MSU-MNFI's 2/20/2019 rare species review which you included in Appendix D of the final SRF project plan. Has the additional/further investigation mentioned on Pages 7 & 26 of the final SRF project plan now been completed relevant to those six (6) flora and fauna other than the Indiana Bat of which I understand that tree removal will be performed between November and March to avoid impact?

   We note that the roughing and nitrification towers will be demolished and replaced as a result of the project. In turn, it would follow that the work is not all limited to existing structures. Are the towers considered a wildlife attractant?

   The only part of the project that would affect the flora and fauna on site is the relocation of the nitrification and roughing towers. These towers, however, will be located in the mowed and maintained section of the property (see below); therefore, these flora and fauna will not be affected.

3. The project still needs letters sent to all the applicable THPOs to provide them opportunity to comment. What is the current status on the letters to the THPOs? I did not see anything in the final SRF project plan.

   See attached THPO correspondence received September 5, 2019.

4. Confirm the final SRF project plan is meant to convey that the project will have no potential impact to floodplains, streams, or wetlands. Do you agree that the project has no need for a Joint Permit Application process?

   The only part of the project that could affect the floodplain on site is the relocation of the nitrification and roughing towers. These towers, however, will be located outside of the floodplain (see below) and above groundwater elevation. Therefore, the floodplain will not be affected.

5. Will the project require any groundwater dewatering? If so, will permitting potentially be necessary?

   If any dewatering is necessary, it will be localized dewatering potentially needed for the construction of the nitrification and roughing tower foundations. Otherwise, no dewatering is expected.

6. Will the project potentially involve any site contamination or cleanup issues relevant to either the removal/disposal of contaminated soils or the renovation/demolition of structures containing asbestos? If so, identify the work practices which would be followed.

   There is no site contamination on the property; therefore, the project will not involve any site contamination or cleanup issues.

7. Will the odors resulting from the project be any greater than that is currently the case pre-project? If so, since Page 26 of the final SRF project plan indicates that with respect to the 'Operational [Impact]' *"The odor during*

construction will remain unchanged…" what will be done for mitigation of the impact in order to address any concerns of nearby residents, businesses, etc.?

The plant already features odor control measures. There will be no change to treatment processes to cause any change to odor. Therefore, this project will not affect the odor or odor control measures in place after construction.

8. Confirm the 20 year projection for the WWTP service area population in Owosso, Corunna, and the townships. Table 2 on Page 8 of the Owosso SRF #5691-01 (WWTP) final SRF project plan is labeled to imply the WWTP service area population, but it appears to be limited to Owosso only without either Corunna or the townships since the PPL scoring data form identified 24,175 as the existing POTW service area. If you don't have an estimate of the 20 year population projection for the WWTP service area, was the regional planning agency (GCMPC) contacted?

   The corresponding section in the report has been updated with the following data:

Table 2
Owosso WWTP Study/Service Area Population/Projections

Year	City of Owosso	Owosso Charter Township	City of Corunna	Caledonia Township
2019	14,738	4,684	3,341	15,059
2024	14,443	4,640	3,290	16,781
2029	14,154	4,566	3,207	18,701
2039	13,588	4,422	3,047	23,225
Source	U.S. Census Bureau			

9. I understand per your 7/8/2019 response to my 5/1/2019 'quick pass' review the project (and subsequent future WWTP projects) is meant to "…return the plant to design capacity." What is the design capacity with which the project (and subsequent future WWTP projects) is meant to return the WWTP? What is the existing WWTP flow? The PPL scoring form identifies the average design flow as 4.0 MGD for the surface water discharge.

   The NPDES permit recognizes a plant capacity of 6.0 MGD in establishing the discharge limitations for the Owosso facility. The current average daily flow of the plant is approximately 4.0 MGD. The existing headworks screw pumps are significantly worn and are not capable of delivering 6.0 MGD to the facility. The initial phase of the SRF project will address the screw pump capacity returning the ability to pump 6.0 MGD in the plant.

10. We need a PDF version of a WWTP facilities site map referencing the FY2020 WWTP project to identify all the work. Could the WWTP Yard Piping Plan map could be modified accordingly? Also, can you send me a PDF version of the WWTP processes flow diagram which is legible?

    See attached "Supplemental Info Yard Piping Plan", "Supplemental Information PFD" for project map.

2019 SRF REPORT

CITY OF OWOSSO

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Chapter 1 - Project Plan Contents

A 2 MGD (million gallons per day) primary wastewater facility was constructed in the 1930s to serve the City of Owosso. Chlorination was added in the 1960s. A 6 MGD independent physical-chemical treatment facility was constructed in the early 1980s to serve the Mid-Shiawassee County area including the City of Owosso, City of Corunna and the sewered portions of Owosso Township and Caledonia Township. This process did not perform to the permit requirements and was costly and problematic to operate. A major process modification was constructed in 1986 to incorporate biological treatment with the properly functioning elements of the physical chemical treatment plant. In 1987, revisions were made to the filter backwash system. Year-round disinfection requirements went into effect in 1991. Sodium hypochlorite (chlorine source) storage and feed equipment was installed to replace gaseous chlorine for disinfection. Dechlorination was accomplished using the previous granular activated carbon with sodium bisulfite polishing.

In 1998, minor odor control measures were installed, including: forced draft ventilation on the first stage ("roughing") trickling filter. In 1998, the previous comminutors/bar screens were replaced with combination grinding/screening units ("Auger Monsters") to improve pretreatment. In 1999, a centrifuge system was installed to replace the previous plate and frame filter press for sludge dewatering. Polymer sludge conditioning replaced ferric chloride and lime. Variable frequency drives replaced across the line starters on two intermediate and three tertiary vertical turbine pumps with new motors improving energy efficiency and flow control. Underdrains, media and surface wash equipment were replaced in the three pressure filters between 2002 and 2004.
In 2012-14, a main electrical busway and main electrical breakers were replaced and the switchgear between the electrical feeds was upgraded. Use of granular activated carbon for dechlorination was eliminated and the sodium bisulfite system upgraded as the primary means for dechlorination. Since 2016, the plant has seen additional improvements including the additions of ¼" screens and compactors, replacement of primary clarifiers, and mechanical parts of the sludge thickener.

The raw sewage is first pumped to the aerated grit chamber by the screw pumps in the influent well. Then it passes through the primary clarifiers where the primary sludge goes to the sludge thickener and to the sludge-dewatering centrifuge before it is trucked to a landfill. The primary clarifier effluent goes to an intermediate pump well. Effluent from the intermediate well goes to the roughing tower or to a mono-media pressure filtration and disinfection via Sodium Hypochlorite prior to nitrification towers, depending on if it comes from its intermediate or tertiary pumps respectively. Water from the roughing tower goes to the intermediate clarifiers and is recycled back to the intermediate pump well. Water from the nitrification tower flows to a process water tank and is discharged to the Shiawassee River.

Over time, the proposed project will:

- Replace the grit chamber mechanical parts.
- Remove and replace the headworks screw pumps and motors.
- Remove, replace, and relocate the nitrification and roughing towers.
- Remove and replace existing solids centrifuge.

This plant serves four communities: Caledonia Township, Owosso Township, the City of Owosso, and the City of Corunna. The aging infrastructure must be replaced in order to ensure that the facility can remain operational.

Delineation of Study Area:

The study/service area includes the Owosso Waste Water Treatment Plant (WWTP) property and service area. The treatment plant is located in the Township of Owosso. As stated above, the plant serves Caledonia Township, Owosso Township, the City of Owosso, and the City of Corunna, and the service area is limited by the border of each municipality. The location of the WWTP relative to the City of Owosso can be seen below in Figure 1.

Figure 1. Location Map

1.1 Environmental Setting

Cultural Resources

A SHPO application was sent to the Michigan State Historic Preservation Office (SHPO). Based upon review by the SHPO, the proposed project will have no adverse impacts to scientific, pre-historical, historical, or archeological sites. This response can be found in Appendix E.

The Natural Environment:

- Air Quality:

  In 1998, minor odor control measures were installed, including: forced draft ventilation on the first stage ("roughing") trickling filter. Similar measures will be taken to mitigate any air quality issues. Currently, there are no air quality issues in the project area.

- Wetlands:

  City of Owosso Wetlands Map (Figure 2) illustrates the wetlands that are located within/adjacent to the study area. Based upon the National Wetlands Inventory Map, the proposed project will not adversely impact existing wetlands.

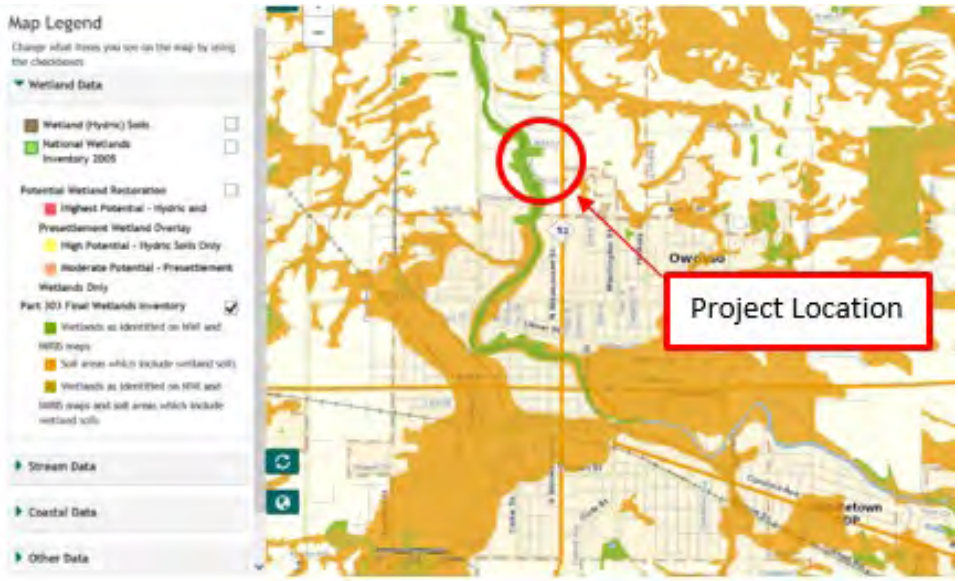


Figure 2. City of Owosso Wetlands Map (Source: MDEQ)

- Coastal Zones:

  There are no coastal zones in the City of Owosso.

- Floodplains:

  The floodplain area within the Owosso study/service area generally follows the Shiawassee River. As seen in Figure 3, the river passes through the City on its east side through the middle of the city and then flows north. The proposed improvements will be constructed within the existing building and just outside of the flood zone on the property.

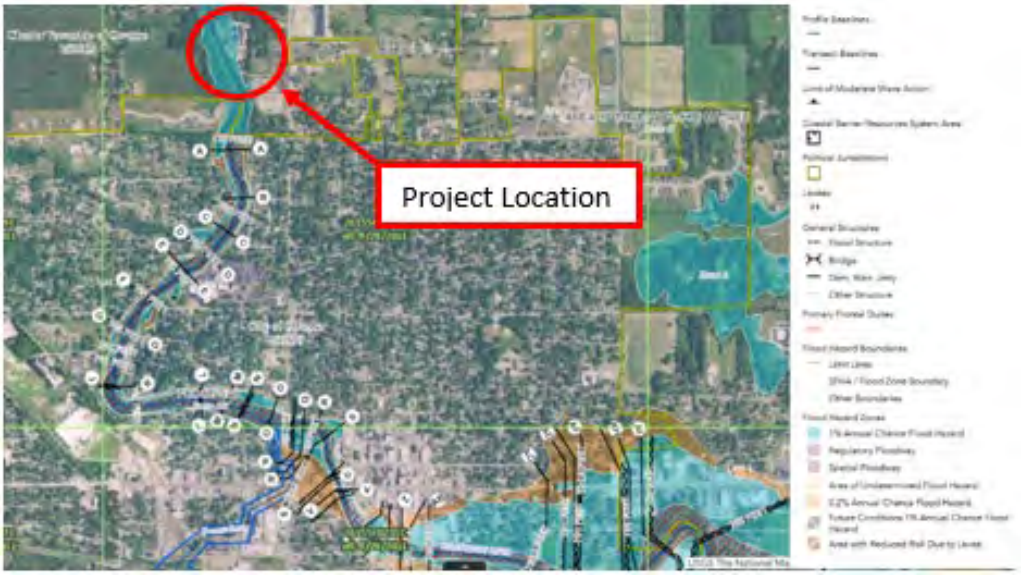


Figure 3. City of Owosso Floodplains (Source: FEMA)

- Natural or Wild and Scenic Rivers:

  There are no federally designated Wild and Scenic Rivers or state designated Natural Rivers in the City Owosso and in the study area.

- Major Surface Waters:

  Shiawassee River is the only major surface water in the study area.

- Recreational Facilities:

  The City of Owosso maintains thirteen park facilities. The closest park to the site is the Harmon Patridge Park, which is about 0.5 miles north of the plant. Figure 4 illustrates the City's parks and recreational facilities from their 2012 City of Owosso Master Plan.

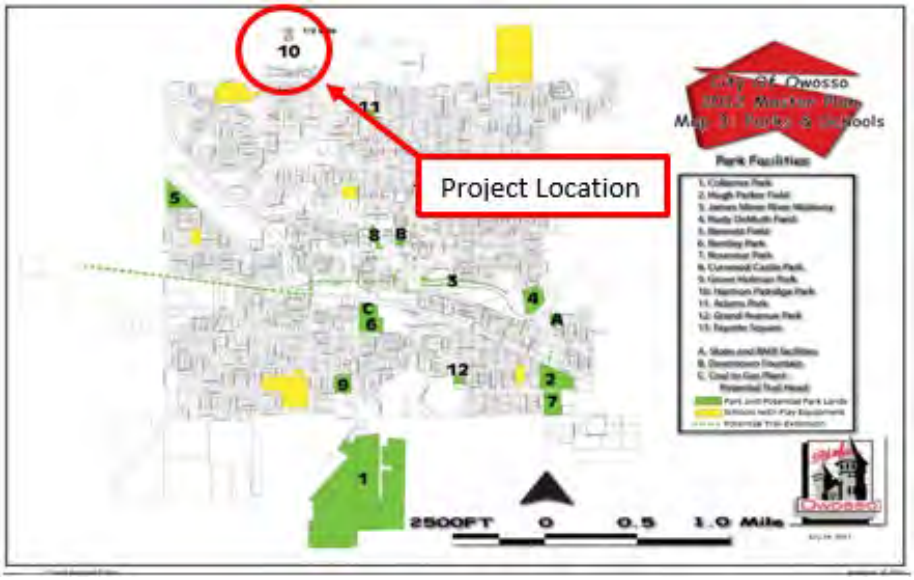


Figure 4. City of Owosso Park Facilities Map (Source: City of Owosso 2012 Master Plan)

- Topography:

  The project service area generally slopes from the southeast to the northwest with an elevation change (from northwest to southeast) of approximately 780 feet to 745 feet, respectively.

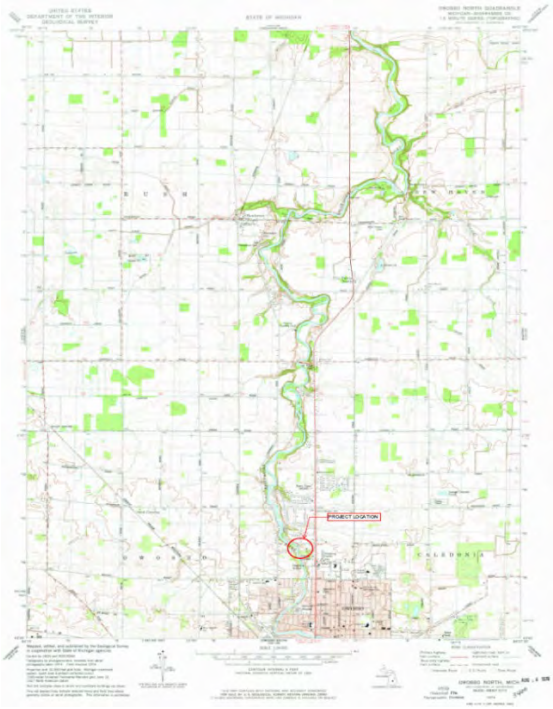


Figure 5. 7.5 Minute Topographic Map of North Owosso (Source: USGS)

- Geology:

  The proposed project will not be affected by the geological structures/formations in/around the City of Owosso. Outside of the Shiawassee River, which runs through the middle of the city, the City of Owosso is geologically homogeneous.

- Soils:

  No adverse soil condition exists that would impact the project and its construction. The soils with in the project area consist primarily of Ceresco Loam (Cm), Metamora Sandy Loam (MsA), and Miami Loam (MuE2); refer to Figure 6. Owosso WWTP Project Area Soils Map, which was excerpted from the USDA Natural Resources Conservation Service.

Figure 6. Owosso WWTP Project Area Soils Map

- Agricultural Resources:

  There are no prime or unique farmlands within the project area.

- Fauna and Flora:

  The proposed project was reviewed in accordance with the Endangered Species Act of 1973; it was concluded that it is possible negative impacts will occur. The occurrences of threatened and endangered species within 1.5 miles of project area are list in Table 1. To mitigate harm to the Indiana Bat, tree cutting will be performed between November and March. In order to protect the other flora and fauna, further investigation will take place on the project area to ensure that any listed species on the property will be properly protected.

Table 1
Rare Species Review

	Scientific Name	Common Name
Flora	Galearis spectabilis	Showy orchid
Flora	Plantago cordata	Heart-leaved plantain
Flora	Dennstaedtia punctilobula	Hay-scented fern
Fauna	Alasmidonta marginata	Elktoe
Fauna	Pleurobema sintoxia	Round pigtoe
Fauna	Bombus auricomus	Black and gold bumble bee
Fauna	Myotis sodalis	Indiana Bat

Table 2. Rare Species Review

- Land Use in Study Area:

  The predominant land uses within the City are residential, institutional and industrial as seen in Figure 7.

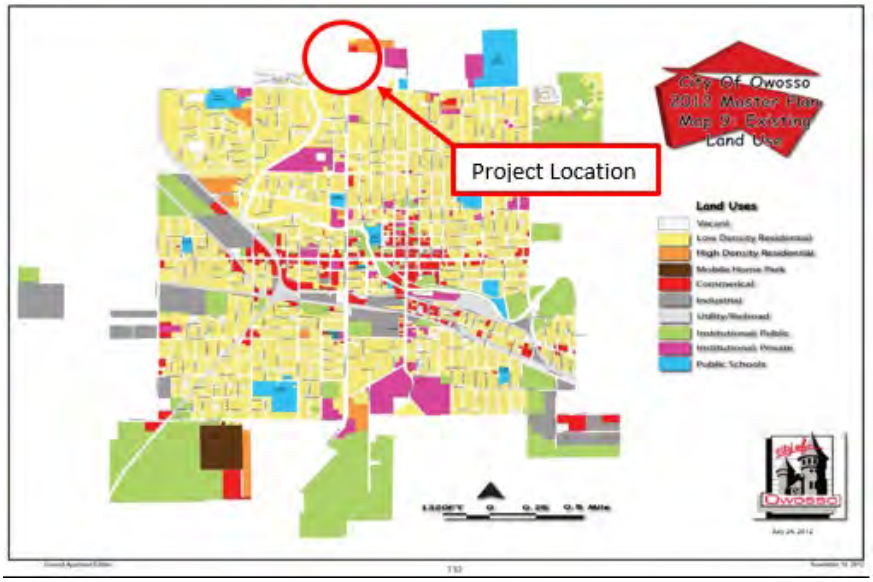


Figure 7. Existing Land Use

1.2 Population Data

Population/projections for the City of Owosso come from Data USA, U.S. Census Bureau, and 2012 City of Owosso Master Plan census and rate of decline. According to the Census Bureau, the city has seen a consistent decline in population at a rate of about 0.4% per year. This rate was used for the five-year, ten year and twenty year projections.

Table 2 Owosso WWTP Study/Service Area Population/Projections	
Year	**Population**
2019	14,738
2024	14,443
2029	14,154
2039	13,588
Source	U.S. Census Bureau

Table 3. Owosso WWTP Study/Service Area Population/Projections

1.3 Economic Characteristics

The three major industries in Owosso include Educational Services & Healthcare, Manufacturing, and Retail Trade. As seen in Table 3 and according to the US Census Bureau, these three industries account for over 50% of industry in the City.

Median Household Income:

The median household income for the City of Owosso is $36,725. According to the 2016 Census Bureau, the City has seen a 1.57% increase from the previous year; however, this is less than that of Shiawassee County and the state of Michigan.

Table 3 Employment Industry		
	City of Owosso	
	Number of Jobs	Percent of Jobs
Educational Services & Healthcare	1497	23.3
Manufacturing	1139	17.8
Retail Trade	1092	17.0
Arts, Entertainment, Recreation, Accommodation, Food Services	580	9.0
Construction	456	7.1
Other Services (non-public admin)	361	5.6
Professional, Scientific, Management, Admin., Waste Management	323	5.0
Transportation & Warehousing	257	4.0
Public Administrator	217	3.4
Finance, Insurance, Real Estate	202	3.2
Wholesale Trade	154	2.4
Information	81	1.3
Agriculture, Forestry, Fishing, Hunting, Mining	57	0.9
Total	6416	100
Source: 2016 US Census Bureau		

Table 4. Employment Industry

1.4 Existing Facilities

The WWTP is located in the Township of Owosso, next to the Shiawassee River, and was upgraded to a WWTP in the 1950's. The Owosso WWTP consists of two clarifiers, a roughing tower, two nitrifications towers, chlorine contact chamber, intermediate clarifier, sludge drying bed and a main building with a grit room, chemical feed room corresponding pump rooms. The raw sewage first is pumped to the aerated grit chamber by the screw pumps in the influent well. Then it passes through the primary clarifiers where the primary sludge goes to the sludge thickener and to the sludge dewatering centrifuge before it is trucked to a landfill. The primary clarifier effluent goes to an intermediate pump well. Effluent from the intermediate well goes to either the roughing tower or to a mono-media pressure filtration and disinfection via Sodium Hypochlorite prior to nitrification towers, depending on if it comes from its intermediate or tertiary pumps respectively. Water from the roughing tower goes to the intermediate clarifiers and is recycled back to the intermediate pump well. Water from the nitrification tower flows to a process water tank and is discharged to the

Shiawassee River. The orientation of the equipment and facilities can be seen in the WWTP Yard Piping Plan below in Figure 9.

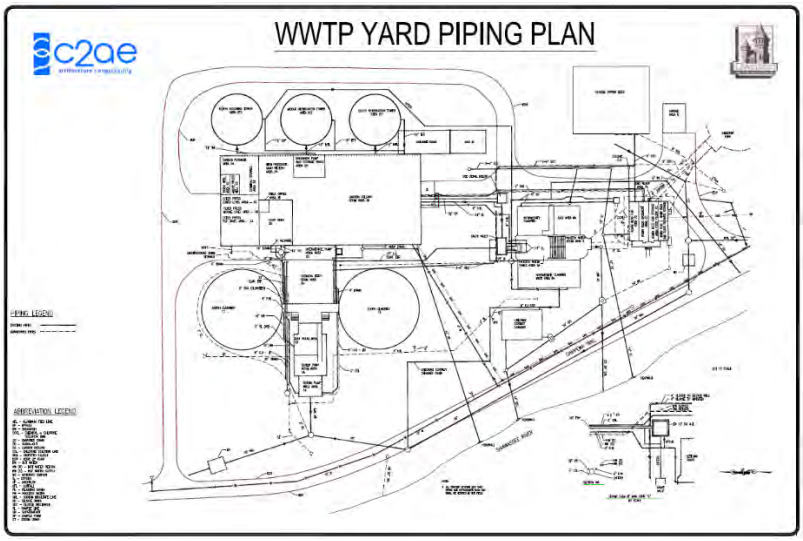


Figure 9. Owosso WWTP Yard Piping Plan

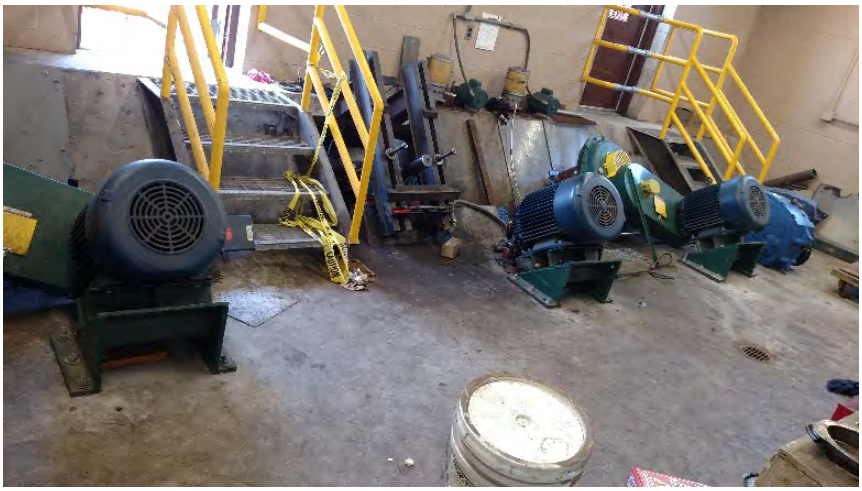
1.5 Fiscal Sustainability Plan

All capital projects have an established priority and include estimated project costs. Project costs include Engineering, Legal, and Contingency costs associated with each project. Possible funding sources have also been identified which include, sale of bonds (either at the local level or through the State), and Federal assistance programs such as the MEDC ICE Grant Program, and the Federal State Revolving Funding (SRF) Program. See each asset evaluation below:

- Screw pumps: Originally installed in 1980 designed to push 12MGD. Significant wear to the flights has caused reduction in the capacity. Deflection plates have holes rusted in them allowing water through. The existing screw pump motors are at the end of their life cycle and are not operating at their maximum energy efficiency. The plant's energy efficiency will benefit from the proposed variable frequency drives of the new pump motors.

Picture 1. Screw Pump

Picture 2. Screw Pump



Picture 3. Screw Pump Motors

- Grit Chamber: Installed in 1980 as a chain and bucket system. Problems with the sludge discharge and wear on the chains caused removal of the system around in 1991 and was fully removed from the tank by 2000, and it has not been replaced. Grit accumulation is significant and the replacement of the grit tank's aging mechanical parts will increase the energy efficiency as well as its grit removal efficiency.

- Nitrification/Roughing Towers: Installed in 1986, concrete around outside of tank is deteriorating from moisture. Some of the lintels above the openings have fallen out. As seen in Image 4, 5, and 6, towers have structural damage and mold issues. The stairs have begun to pull away from the towers. The media support has failed in a couple of the towers and the media is beginning to fall down. New motors on new distribution system used in each tower will conserve energy for the plant, as the existing motors reach the end of their operational life cycles.

Picture 4. Nitrification Tower Structural Damage

Picture 5. Nitrification Tower Structural Damage and Mold

Picture 6. Roughing Tower

- Solids Handling Unit: The existing primary solids handing unit (SHU) is the solids centrifuge that was installed in 1999, seen in Images 7 and 8 below. This equipment was purchased as a used 1980-vintage machine and has reached its operational lifecycle and without any redundancy added to the system, the failure of the equipment will greatly impact the WWTP's operation. In order to improve the operational and energy efficiency of the WWTP and mitigate solids handling issues, the existing centrifuge will be replaced with either a belt filter press or a screw compactor.

Picture 7. Solids Centrifuge (Front)

Picture 8. Solids Centrifuge (Back)

1.6 Need for the Project

The Owosso WWTP has been in operation since the 1950's and has seen many improvements throughout it's time. The project plan is to replace the screw pumps, demolish and replace the roughing and nitrification towers, replace the grit tank mechanical parts, and replace the solids dewatering centrifuge. These facilities have either seen the end of their useful life cycle or are currently in inoperable condition. Completion of this project will increase efficiency and longevity of the WWTP.

Compliance Status:

In general, the WWTP meets the National Pollutant Discharge Elimination System permit limitations for Ammonia-Nitrogen and CBOD5. However, per the City of Owosso, the WWTP exceeded its NPDES permit limitations for Ammonia-Nitrogen (9.95 mg/L exceeding maximum daily limit of 3.0 mg/L) and CBOD5 (>37 mg/L exceeding maximum daily limit of 15 mg/L) in September 2015. The City again exceeded its NPDES permit limitations for CBOD5 with a concentration of >37 mg/L in October 2015. The samples used in testing were obtained after the Roughing/Nitrification Towers were turned off for routine maintenance. This was cited as a potential reason for the exceedance; however, the reason for exceedance in October is unknown. Letters from the City to the Department of Environmental Quality (DEQ) can be read in Appendix C. More recently, the WWTP violated their NPDES Permit with its fecal coliform mean and CBOD5 mg/L daily max.

The NPDES permit exceedances were the result of unusual operational conditions. The proposed improvements will not directly impact those situations; however, future projects may be developed to assist in avoiding these unusual situations should existing changes to operational practices be unable to address the issues. Should future projects be contemplated an option could include the development of a new equalization basin at the facility. Continues evaluation of the effectiveness of the operational changes will determine this need.

Consent Orders:

There are no consent orders associated with this project.

Water Quality Problems:

There are no water quality problems associated with this project. The City of Owosso is serviced by a public sanitary sewer system. The proposed projects will serve as repairs. These projects will not necessarily impact water quality. If these projects are not undertaken, the plant functionality will be diminished resulting in detrimental impacts to water quality.

Project Need for the Next 20 Years:

The equipment that is proposed to be removed and replaced has reached the end their respective lifecycles. Over the next 20 years, the WWTP will be unable to operate at the designed efficiency. This will cause harm to the service area as poorly or untreated water would be discharged into the environment. Over the next 20 years, project costs could increase as more parts of the facility deteriorate and reach the end of their respective life cycles. Completion of the proposed project will mitigate these issues and increase the longevity of the WWTP. These improvements will restore the plant to its design capacity.

Future Environment without the Proposed Project:

The future environment without the proposed project will remain the same. However, the quality of the effluent water will decrease as the infrastructure ages. The WWTP is adjacent to the Shiawassee River which it discharges to. The improperly or partially treated wastewater discharged to the river will have a significantly negative impact to the river. The decline of the City's population is likely to decrease the amount of influent to the plant, which could be easier for the WWTP to manage and treat. However, since the infrastructure is already reaching its limit, this would still be an unsafe situation for the remaining residents. This project will increase the efficiency of WWTP and its ability to properly treat water to the service area.

Chapter 2 - Analysis of Alternatives

2.1 Identification of Potential Alternatives

Currently, the equipment that needs replacing is either inoperable or has reached the end of its lifespan. The alternates addressed in this report are: No Action, Mechanical Grit Tank improvements, Screw Pump Replacement, Roughing and Nitrification Tower demolition, relocation and reconstruction, and Solids Handling Unit replacement.

Solids Handling Unit

The existing primary solids handing unit (SHU) is the solids centrifuge that was installed in 1999. This equipment was purchased as a used 1980-vintage machine and is nearing its operational lifecycle. Without any redundancy added to the system, the failure of the equipment will greatly impact the WWTP's operation. In order to improve the efficiency of the WWTP and mitigate solids handling issues, the existing centrifuge will be replaced with either a belt filter press or a screw compactor.

In each alternative, the roof will be used as an access point for the proposed equipment; therefore, the main building roof replacement will be added to the alternative cost. One issue with the belt filter press is that it creates an odor issue at the plant and possibly for the community. Alternatively the screw compactor is a slightly less expensive option.

Grit Tank:

The plan for the grit tank is to the replace the previously removed mechanical parts in kind. Demolition outside of this is unnecessary because the grit tank is otherwise functional. One alternate considered would be to install vortex grit chamber. This, however, will increase project costs, require additional construction, earthwork and tree removal and limits the WWTP from additional changes to the facility in the future.

Screw Pumps:

The existing screw pumps are reaching the end of their lifecycle, so replacing them in kind simplifies construction and design of the plant. An alternative considered would be to switch to a submersible pump station. Instead of changing the operation of the WWTP and redesigning the grit removal system with a new type of pump, replacing the screw pumps in-kind is most efficient for this facility.

Roughing and Nitrification Towers:

Currently, the WWTP operates with limited use of the roughing tower. The towers themselves are becoming structurally unsound, media supports have deteriorated, and media is falling down. Outside of demolition and replacement, an alternate for this project is to build activated sludge or membrane bioreactors. Issues that arise with these alternatives are real estate and power demand for the WWTP. The land needed for bioreactors and activated sludge is large enough to warrant additional demolition and limit future on-site improvements. These facilities in combination will require a larger operation power demand source for the WWTP, making them unfeasible as an alternative.

No Action:

As mentioned above, the facilities and equipment are aging or of limited use to the WWTP. Without action, the city that relies on the plant for the treatment of sewage could experience a public health issue and/or hazardous pollution as the improperly or partially treated wastewater discharged to the river. Thus, the “no action” alternative is not a viable alternative.

Optimum Performance of Existing Facilities:

The alternatives detailed above function as upgrades to existing facilities. The existing facilities can sufficiently handle the wastewater input; however, the facilities are aged and need in-kind replacement. To keep the plant functionality simple and to improve efficiency, no new facilities will be necessary additions to the WWTP.

Regional Alternatives:

The WWTP serves as a regional treatment plant to three surrounding communities. There are no other regional alternatives available.

2.2 Analysis of Principal Alternatives

A principal alternative considered for the WWTP is the option to demolish and reconstruction the WWTP with a different treatment process. The proposed alternative maintains the existing facility reducing cost for the community.

The Monetary Evaluation:

Table 4 below details the cost of each part of the project for the WWTP and each present worth value. The screw pump cost is quoted from Huber Technology. The remaining costs were attained from the Capital Improvement Plan perform by C2AE in October 2017. The present worth values are based on a 20-year period with a 0.02% interest rate.

Table 4 Summary of Present Worth Cost for					
	Screw Pumps	**Grit Chamber**	**Nitrification/Roughing Towers**	**Screw Compactor**	**Belt Filter Press**
Initial Construction Cost	$900,000	$850,000	$2,750,000	$1,067,000	$1,067,000
Operation and Maintenance	$180,000	$170,000	$550,000	$65,000	$100,000
Salvage Value	$21,000	$5,000	$5,000	$9,000	$2,500
Total Present Worth	$4,430,000	$4,180,000	$13,530,000	$2,340,000	$3,030,000

Table 5. Summary of Present Worth Cost for

There are no reasonable alternatives for the screw pumps, grit chamber and nitrification/roughing towers. With respect to the solids handling, the initial capital costs for the two alternatives is the same; however, the present worth calculation shows the screw compactor to be more cost effective. Therefore the screw compactor is the selected alternative.

Based on the construction costs shown in Table 5 and the present worth analysis in Table 4 above, the selected alternative is Alternative 1 which consists of: screw pumps, grit chamber, nitrification/roughing towers, and screw compactors.

Partitioning the Project:

The project will be constructed in phases, but will not be partitioned. The city intends to initiate design for the headworks project (screw pumps and grit chamber) in Fall 2019, with construction to take place in 2020. The nitrification/roughing towers and solids handling design is planned for 2020 with construction in 2021.

The Environmental Evaluation:

Two of the alternatives, screw pump and grit tank, will be constructed in the same main building and will have similar environmental impacts. The improved screw pumps and grit tank will improve the operational efficiency of the WWTP, increase the quality of the effluent, and reduces grit wear throughout the plant. However, there may be additional impacts associated with the construction of the Alternative No. 3 Roughing and Nitrification Towers due to the necessary earthwork. The relevant direct and indirect impacts are discussed in the following paragraphs.

- Direct Impacts: All of the alternatives would address the WWTP grit removal and treatment issues. The specified improvements will directly improve the efficiency of the plant.

- Indirect and Cumulative Impacts: The indirect and cumulative impacts for the improvements at the WWTP would be the same for the screw pump and grit tank replacements; the proposed construction would occur at the WWTP site, so the impact will be minimal. Both will improve grit removal for the plant and construction will occur in the screw pump section of the main building. Minimal impact can be foreseen outside of the minimal earthwork required for the nitrification/roughing tower replacement and relocation.

Implement Ability and Public Participation:

The public was provided an opportunity to participate in a public hearing held on Mya 27, 2019 at the Owosso City Hall. A copy of the meeting transcription can be found in Appendix B. The following key comments were address:

- Text
- Text
- Text

Technical and Other Considerations:

There will be no inflow or infiltration removal issues resolved in this project. There will be no change in quality of sludge and solids. Handling of sludge and solids will change and improve with the replacement of the existing solids centrifuge.

Chapter 3 - Selected Alternatives

The WWTP will see three (3) major areas of improvement. Instead of adding facilities, the planned projects consist of renovating existing facilities in the WWTP such as the mechanical parts in the grit tank, screw pumps, and nitrification and roughing towers. Based in population projections, the influent flow to the plant over the next 20 years is not projected to increase, so in-kind replacement of the existing facilities is sufficient. The existing facilities at the WWTP are either aged or are not in operation. The proposed project will provide new equipment that the operators are familiar with and will increase efficiency and longevity for the WWTP.

Relevant Design Parameters:

The WWTP has various features used to treat the influent flow. This includes:

- ¼" self-cleaning screens and compactor
- Two 1HP motor primary clarifiers. Each scum pump is 1.5HP 60GPM submersible
- Sludge thickener with a 1HP motor
- Pump room with 48" influent 25'9" lift with three screw pumps, 4200gpm, 40hp, each screw pump has a 1/3hp grease pump.
- Oxidation towers
- Two intermediate clarifiers
- Chlorine contact chamber.
- Mono-media pressure filters (3), 2MGD each.

The configuration of each feature and flow direction can be seen in Figure 8. Process Flow Diagram below.

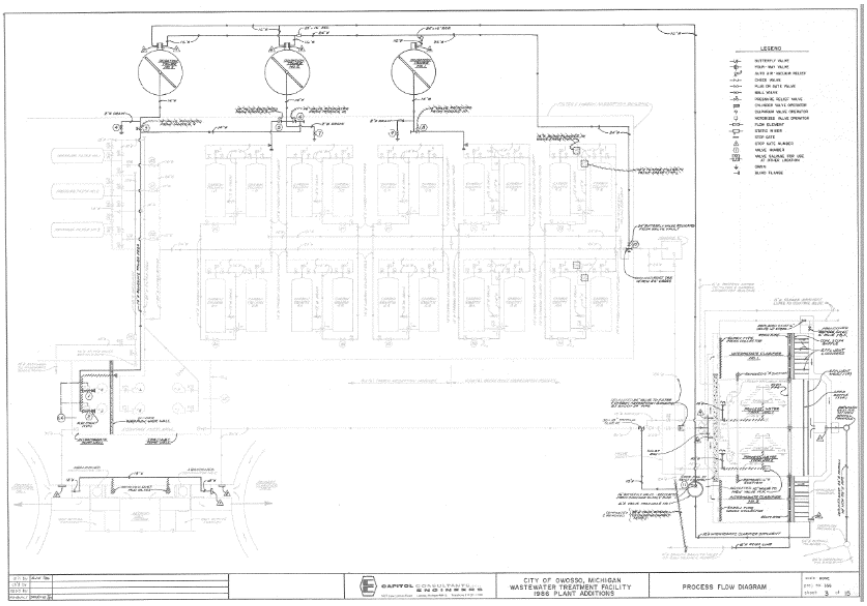


Figure 8. Process Flow Diagram

Project Maps:

Figure 9 shows how the features detailed in the previous section are laid out and connected at the WWTP.

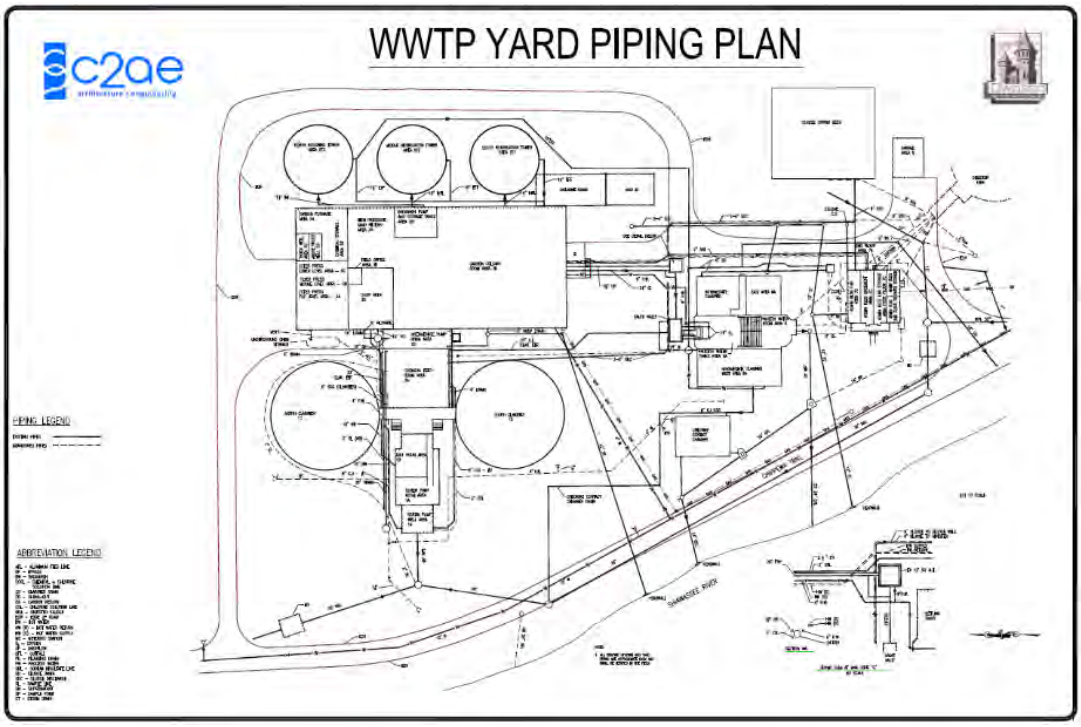


Figure 9. Owosso WWTP Yard Piping Plan

Controlling Factors:

The selected alternatives for this project consists of in-kind replacements of existing equipment at the WWTP and conversion of solids dewatering. The factors that controlled the selections are population, equipment familiarity, and budget restraints. The population of the City is on a current decline its influent to the plant will likely follow this trend. With a limited budget, the City will save money by performing renovations as opposed to a complete WWTP redesign. This not only keeps design simple, but also makes it easy for current plant operators to work with the new equipment.

Special Assessment District Projects:

There are no special assessment district projects in the service area.

Sensitive Features:

As shown in Figure 2, part of the project site will be in the 100-year floodplain. The proposed nitrification and roughing towers is the only part of the project that will require earthwork; however, this earthwork will likely be out of the floodplain and minimally effect it otherwise.

Schedule for Design and Construction:

Design for this project will start in October 2019, bidding will begin February 2020 and construction is planned to take place between June and October 2020. The city intends to initiate design for the headworks project (screw pumps and grit chamber) in Fall 2019, with construction to take place in 2020. The nitrification/roughing towers and solids handling design is planned for 2020 with construction in 2021.

Cost Summary:

In Table 5 below, the project costs are detailed. These estimates were attained from a Capital Improvement Plan from C2AE for the WWTP in 2017.

Table 5 Owosso WWTP CIP Cost Estimates			
Item	**Quantity**	**Cost Alternative 1**	**Cost Alternative 2**
Screw Pumps, Drive, Deflection plate	3	$900,000	$900,000
Screw Compactor	3	$1,067,000	
Belt Filter Press	1		$1,067,000
Nitrification/Roughing Towers	3	$2,750,000	$2,750,000
Grit Chamber	1	$850,000	$850,000
Total		**$5,567,000**	**$5,567,000**

Table 6. Owosso WWTP CIP Cost Estimates

The planned wastewater plant improvements have a service life in excess of 20 years. As such, according to the contractual language of the Mid-County Agreement between the City of Owosso, Owosso Charter Township, Caledonia Charter Township and the City of Corunna, the City of Owosso is responsible for 54% of the debt service for the improvements if using SRF funding. The City intends to pay for its share of the debt service through the user fees paid by its customers. The balance of the debt service will be paid by the remaining plant users noted above. Below is a table outlining the cost allocation to each Residential Equivalent User per quarter.

Table 6 WWTF Improvements Quarterly Cost Per REU								
Improvement	**Initial Construction Cost**	**Annual Debt Service**	**SRF Int. Rate**	**Loan Duration**	***City of Owosso Allocation**	**No. REU's**	**Annual Cost per REU**	**Qtly Cost per REU**
Headworks Improvements	$1,750,000	$107,000	2.00%	20	53%	7,964	$7.12	$1.78
Trickling Filter Replacement	$2,750,000	$168,000	2.00%	20	53%	7,964	$11.18	$2.80
Solids Handling Improvements	$1,100,000	$70,000	2.00%	20	53%	7,964	$4.66	$1.16
***These improvements' anticipated service life exceeds 20 years therefore considered a Contract Capacity expense allocation**								

Table 6. WWTF Improvements Quarterly Cost per REU

3.1 Authority to Implement the Selected Alternative

The City owns and operates the WWTP and has the authority to implement the selected alternative.

3.2 User Costs

Quarterly sewer charges consist of a demand charge based on the water meter size and a sewer usage charge based on metered water consumption. The City has no retail out-of-town sewer service. Bills are issued on a quarterly basis and, if not paid by the due date as shown on the billing, a late payment charge of ten percent (10%) of the current amount due may be added for failure to make prompt payment. According to the WWTP March 2019, the plant charged a total of $206,080.63 to its users across each municipality. In addition to the City of Owosso user charges, the WWTP revenue stream includes payments from the municipalities within its service district: Caledonia Township, Owosso Township, City of Corunna. Revenue from these participants is based on the following: 53% City of Owosso; 21.5% Owosso Charter Township; 16.3% Caledonia Charter Township; 9.2% City of Corunna.

3.3 Disadvantaged Community

The City of Owosso is a disadvantaged community; however, the WWTP may not fall into this classification due to its service area containing other municipalities who are not disadvantaged communities. The city intends to submit a Disadvantaged Community Status Determination Worksheet to establish the applicability of this status to the wastewater treatment facility.

3.4 Useful Life

The useful life for project is at least 30 years for the screw pumps and roughing and nitrification towers. The existing screw pumps and towers have been in operation in excess of 30 years. The grit system operates in an extremely harsh environment and requires implementation of stainless steel alloys for high strength and abrasion resistance. Manufacturers using these materials expect at least 20 years of 24/7/365 continuous duty service without repair or replacement. Likewise, screw press manufacturers anticipate a minimum 20 year service life. These useful life cycles were taken from the 2013 Michigan SAW Grant Application for the WWTP along with industry publications which can be found in Appendix G.

Chapter 4 - Evaluation of Environmental Impacts

The analysis of environmental impacts includes:

- Direct impacts, which are related to the construction and operation of the project.
- Indirect impacts, which are project induced and/or facilitated.
- Cumulative impacts, which increase in magnitude over time, or which result from individually minor but collectively significant actions occurring over time.

4.1 Analysis of the Impacts

Direct Impacts:

- Construction: The project will need limited tree removal to be performed between November and March to avoid impact to the Indiana Bat. The proposed nitrification and roughing towers will be placed on the southeast side of the property in an open area for ease of transition from existing towers and minimal tree removal. These proposed towers will be outside of the 100-year floodplain and will have a minimal, if any, effect on the floodplain. The endangered species in the area are listed in Table 1. According to the natural heritage database, these rare species have been documented within 1.5 miles of the project site, and it is possible negative impacts will occur. An additional investigation will be necessary prior to construction to verify if any rare flora or fauna are on the project site. Impacts on surface and groundwater will be kept to a minimum, as SESC measures will be taken.
- Operational: The WWTP will remain in operation during construction. The odor during construction will remain unchanged due to the nature of the projects taking place.
- Social: The project will likely have no social impacts to the community. The in-kind replacements will keep the price for managing the plant the same. While the construction is underway, the equipment will remain on site and cause little to no traffic issues.

Indirect Impacts:

Each project will see minimal direct impacts regarding land use, transportation changes, air quality, water quality, natural setting and social resources for the service area. The nitrification and roughing towers will impact the WWTP aesthetics with the eventual demolition of existing towers and minimal tree clearing for the proposed towers.

Cumulative Impacts:

There will be no adverse cumulative impacts. Each project is either an in-kind replacement or relocation, so the WWTP will remain in similar operation.

Chapter 5 - Mitigation

As described in Chapter 4, because minor tree removal is necessary for construction, this WWTP could cause adverse impacts to the environment if proper cautions are not taken regarding the rare species. The improperly or partially treated wastewater discharged to the river will have a significantly negative impact to the river. To mitigate this issue, the screw pumps, grit tank mechanical parts, and nitrification and roughing towers must be removed and replaced before they reach the end of their operational life cycle. In addition, since the WWTP is near the Shiawassee River, proper SESC measures will be carried out during construction.

5.1 Short-Term Construction Related Mitigation

The contract documents will outline requirements for traffic control, safety measures and techniques to accomplish effective dust and noise pollution control, as well as soil erosion and sedimentation control. The soil erosion and sedimentation control plan will include a project schedule, control details, location of surface waters, storm water structures, etc. Site restoration will be coordinated between the site plan and soil erosion control plan, including rebuilding and utilities and restoration.

General Construction:

The following measures will be employed during the implementation of each alternative:

- Soil erosion will be minimized through the enforcement of the Soil Erosion and Sedimentation Control Plan.
- Construction operations will be restricted to 7:00 a.m. to 6:00 p.m. to reduce impacts of noise on adjacent residential areas.
- Enforcement of current zoning plans and ordinances will preclude development of sensitive areas, including floodplains, wetlands, and prime/unique farmland.

5.2 Mitigation of Long-Term Impacts

Construction operations adjacent to the floodplain will be controlled by the contract documents to preclude any long term or irreversible impacts. The contract documents will prohibit spoils disposal in adjacent floodplains. Preliminary contacts have been made with authorities to determine the existence, extent, and value of the floodplains and no environmental impact is expected.

Siting Decisions:

Part of the WWTP is in the 100-year floodplain. Although the earthwork and tree removal required for the proposed roughing and nitrification towers are not in the floodplain, proper SESC measures will be performed to maintain floodplain features.

Operational Impacts:

The WWTP will remain in operation during construction. The odor during construction will remain unchanged due to the nature of the projects taking place.

5.3 Mitigation of Indirect Impacts

Each project will see minimal direct impacts regarding land use, transportation changes, air quality, water quality, natural setting and social resources for the service area. The nitrification and roughing towers will impact the WWTP aesthetics with the eventual demo of existing towers and minimal tree clearing for the proposed towers.

Master Plan and Zoning:

All work will be performed on and within the WWTP property lines. Historical features, neighborhoods, and prime or unique agricultural lands will not be effected.

Ordinances:

There are no ordinances developed for the project.

Staging of Construction:

All construction for the proposed project will be staged on site to mitigate traffic and social impacts.

Chapter 6 - Public Participation

Text.

6.1 Public Hearing on Project Alternatives

Text.

6.2 The Formal Public Hearing

Text.

Public Hearing Advertisement

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Public Hearing Transcript

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Public Hearing Contents

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Comments Received and Answered

Text.

6.3 Adoption of the Project Plan

Text.

APPENDIX A

FIGURES

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APPX. A

SHEET

DATE: APRIL 2019

PROJ. #: 19008

NO.	DESCRIPTION	DATE

REMARKS

OWOSSO WWTP LOCATION

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2019 OWOSSO WWTP SRF PROJECT PLAN
SHIAWASSEE COUNTY, MI

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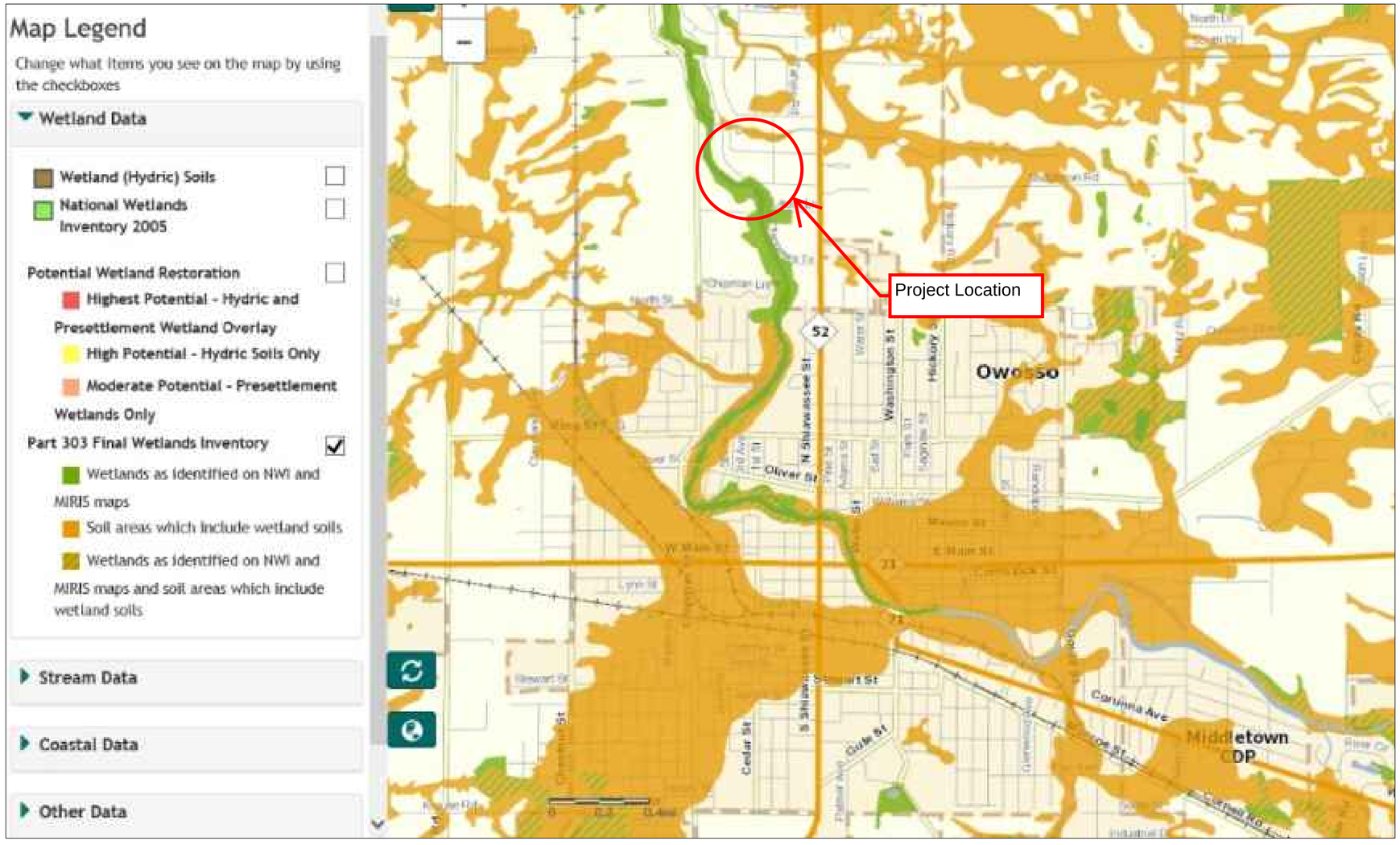

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OWOSSO WETLANDS

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OWOSSO FLOOD PLAINS MAP

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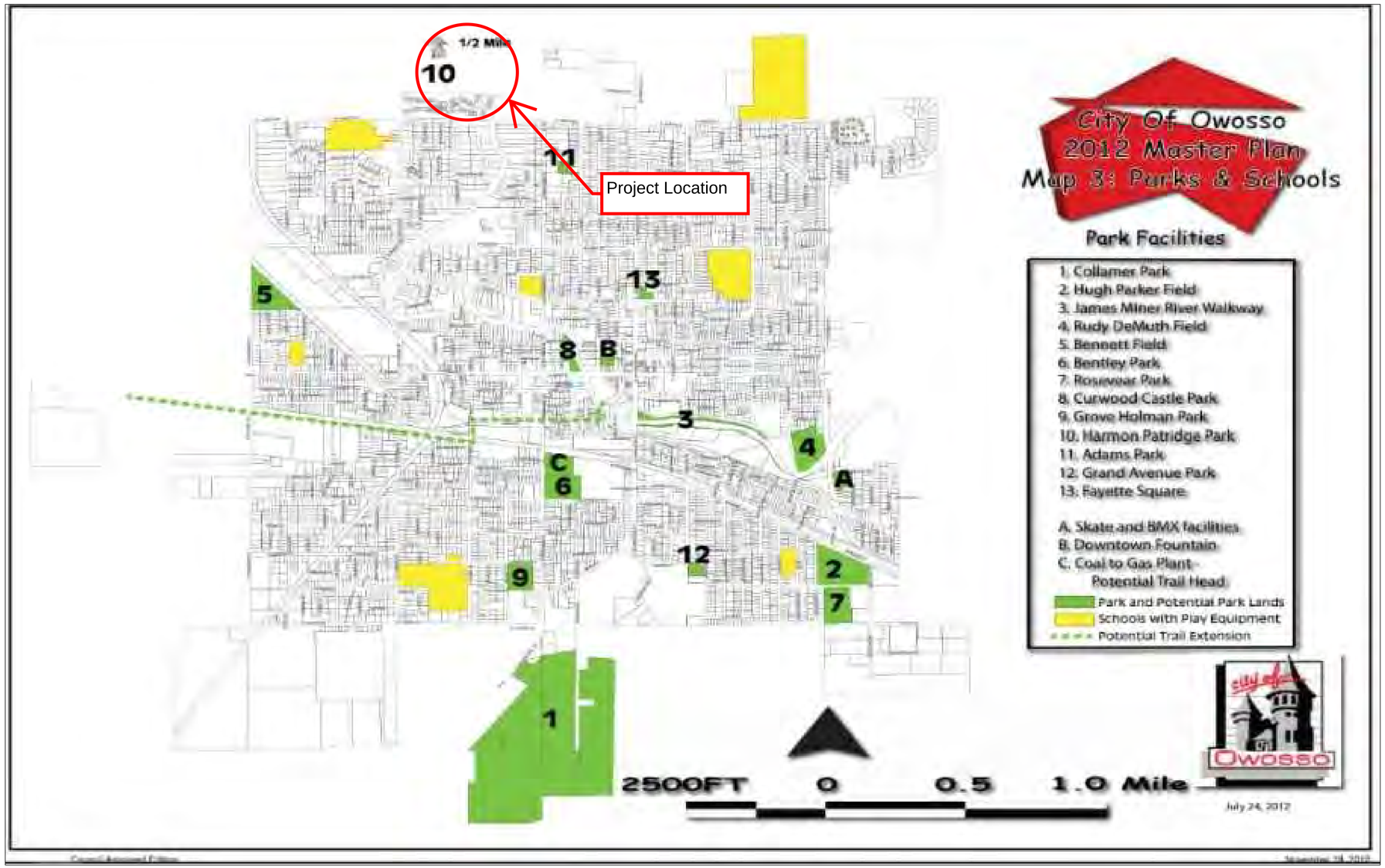

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OWOSSO PARKS

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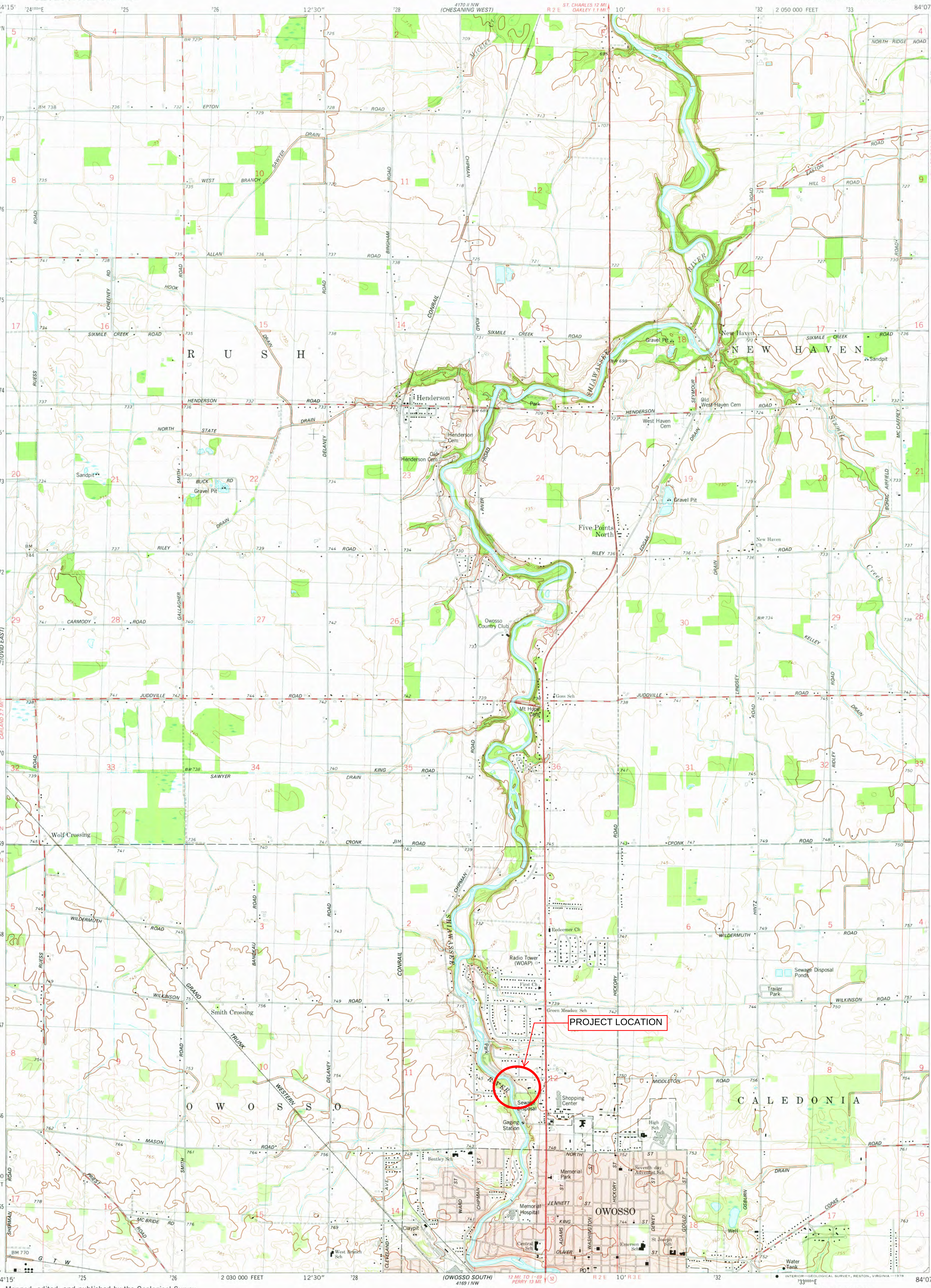
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF MICHIGAN

OWOSSO NORTH QUADRANGLE
MICHIGAN–SHIAWASSEE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 CHESANING 15' QUADRANGLE



Mapped, edited, and published by the Geological Survey in cooperation with State of Michigan agencies

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1974. Field checked 1974

Projection and 10,000-foot grid ticks: Michigan coordinate system, south zone (Lambert conformal conic)
1000-meter Universal Transverse Mercator grid, zone 16
1927 North American datum

Red tint indicates areas in which only landmark buildings are shown

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

UTM GRID AND 1974 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ROAD CLASSIFICATION

Primary highway, hard surface	Light-duty road, hard or improved surface
Secondary highway, hard surface	Unimproved road
Interstate Route	U. S. Route · State Route

OWOSSO NORTH, MICH.
SW/4 CHESANING 15' QUADRANGLE
N4300—W8407.5/7.5
1974

AMS 4170 II SW—SERIES V862

USGS
Historical File
Topographic Division

AUG 16 1978

3400

Custom Soil Resource Report
Soil Map

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OWOSSO SOIL DATA

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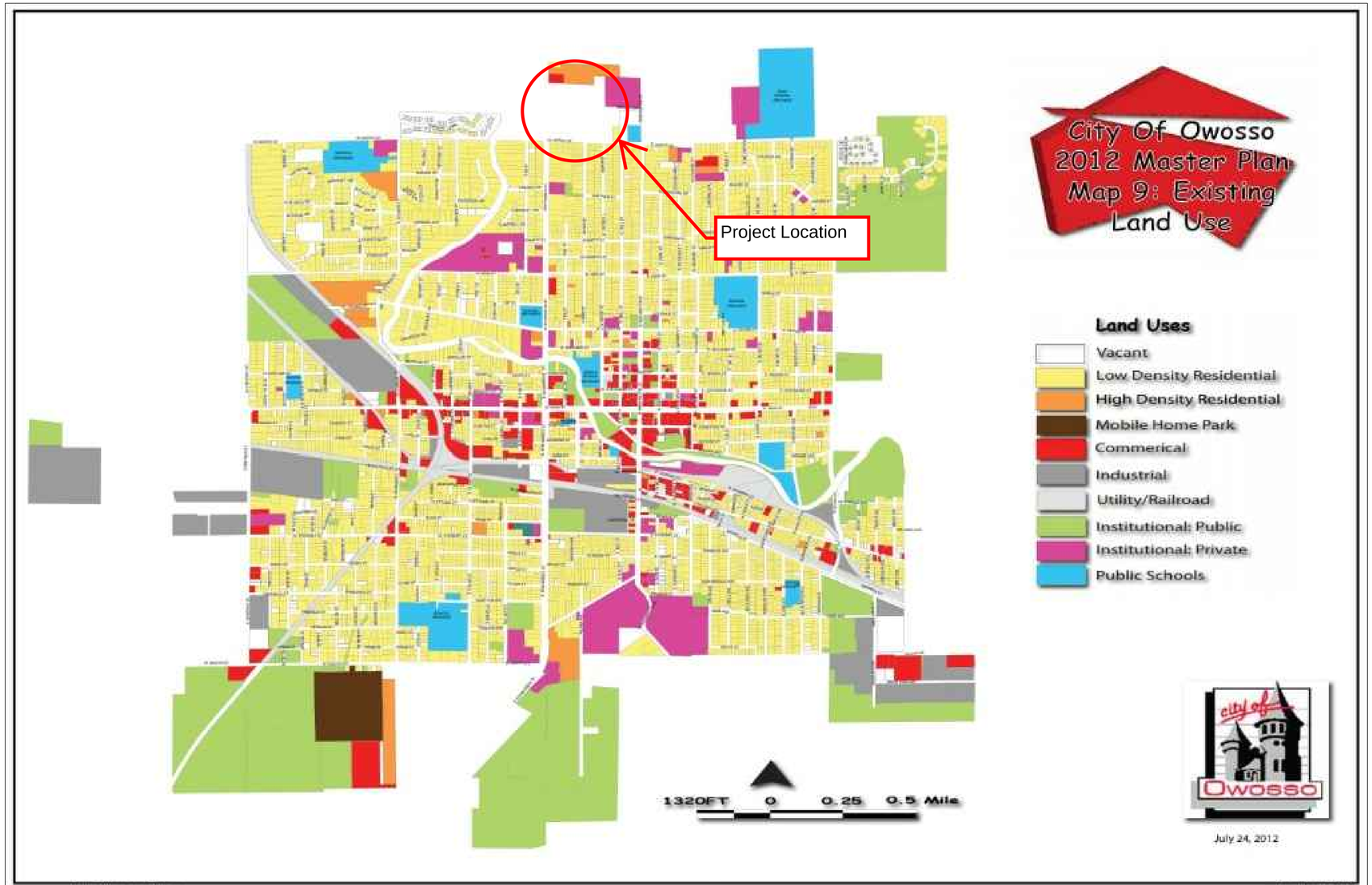

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November 19, 2012

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EXISTING LAND USE

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OWOSSO WWTP PROCESS DIAGRAM

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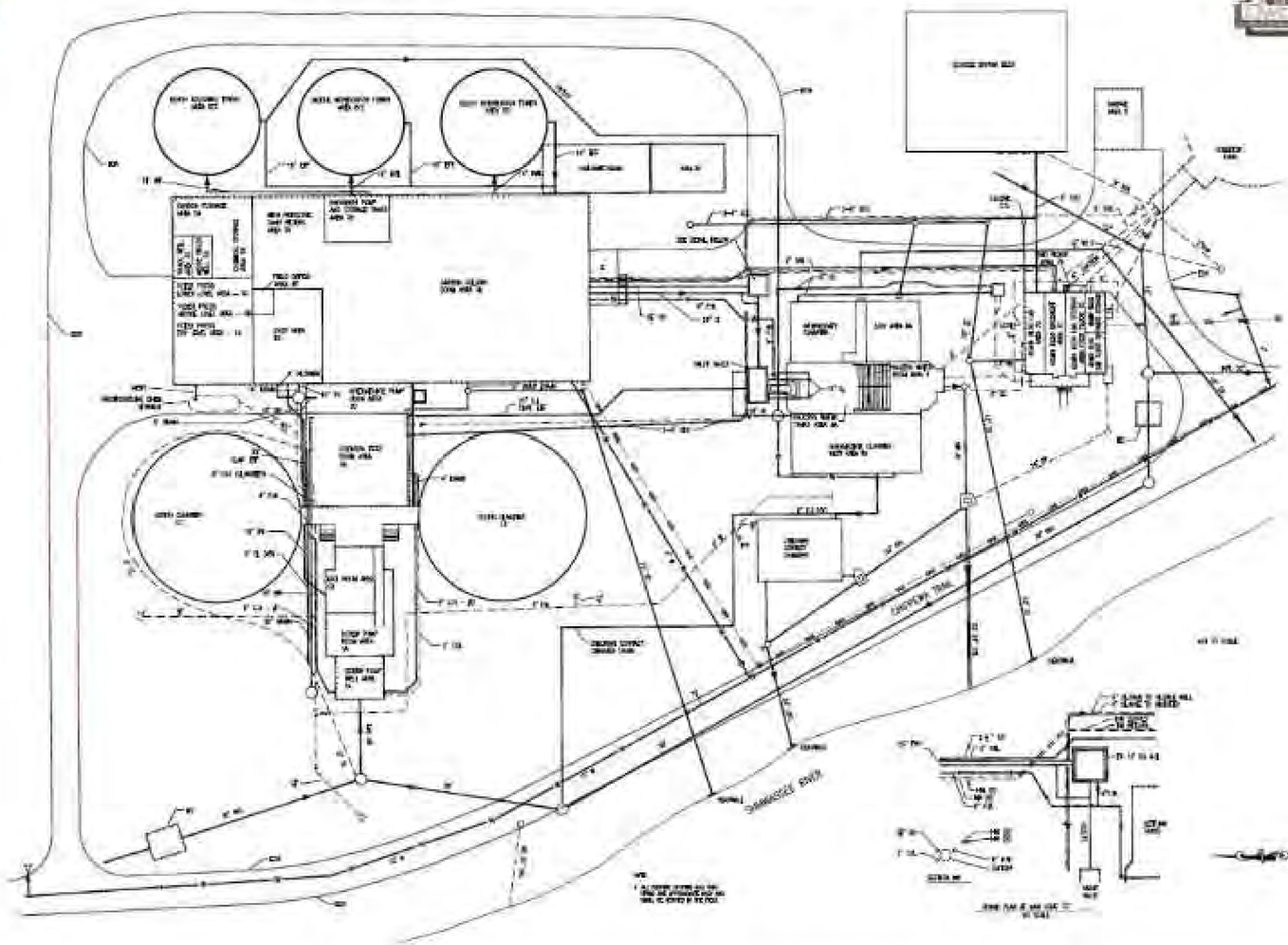
WWTP YARD PIPING PLAN



PIPING LEGEND

ABBREVIATION LEGEND

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CITY OF OWOSSO
2019 OWOSSO WWTP SRF PROJECT PLAN
SHIAWASSEE COUNTY, MI

YARD PIPING PLAN

REVISIONS

REV	DESCRIPTION	DATE

PROJ. #: 190008

DATE: APRIL 2019

SHEET

APPX. A

PRELIMINARY

PLOTTED BY: ANTHONY CHARLES 4/22/19 1:04 PM
C:\2019\190008_Owosso_WWTP\SRF\Reports\Owosso WWTP SRF\Figures\SRF Figures.dwg - YARD PIPING
DESIGNED BY: . APPROVED BY: .
DRAWN BY: . CHECKED BY: .

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APPENDIX B

PUBLIC HEARING INFORMATION

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Revolving Loan Fund Application – WWTP Improvements

City Manager Nathan R. Henne introduced the topic of the hearing noting that this is the third, and final, application to the EGLE State Revolving Fund for improvements to the City's utilities systems.

C2AE Engineer Brian Van Zee delivered a PowerPoint presentation describing the problems that will be addressed at the Waste Water Treatment Plant and the proposed plan of action for remediating those problems. His presentation highlighted the fact that much of the equipment at the WWTP is well past its prime, with some equipment being totally inoperable due to age and/or the cost for repair. Without improvements and upgrades, the plant will struggle to meet operations standards and could become an environmental hazard. Three projects are being proposed to address some of the most critical shortfalls: replacement of screw pumps and installation of new grit removal system; replacement of treatment towers; and the addition of a screw press compactor (with retention of the existing centrifuge as back-up). If all three projects move forward the City would be seeking funding from the State Revolving Loan fund in the amount of $5.6 million at an interest rate of 2.0% for a period of 20 years.

There were questions from Councilmembers regarding whether the replacement of existing equipment was the best idea or if the community would be better served by newer technology. Mr. Van Zee indicated that the technology of the existing equipment, while old, offered the best solution from a cost standpoint, saying that newer alternatives would cost about three times more than what is currently proposed and would also require significant revamping of other parts of the system. There were further questions regarding the life expectancy of the project and whether it would help eliminate sanitary sewer overflows. It was noted the life expectancy is about 20 years and the proposed projects would not help to eliminate sanitary sewer overflows. City Manager Henne noted that the current system is a good system for removal of biologic contaminants.

The public hearing was opened at 7:48 p.m. to receive citizen comment regarding the project plan proposed for submission to the EGLE State Revolving fund for improvements to the City's Waste Water Treatment Plant.

The following person commented in regard to the proposed project submittal:

Gary Burk, former Utilities Director, gave a brief history of the plant saying it was constructed in the 1930's and changed over to a biologic process in 1986. Improvements have been made at the plant over the years but many of those improvements are reaching the end of their useful lives. He went on to say that he would prefer an airlift with a grit washer as opposed to the replacement of the chain and bucket system, but he supports the overall project.

Seeing there were no other citizens wishing to comment, Mayor Eveleth closed the public hearing at 7:52 p.m.

City Manager Henne noted that while the projects mentioned are substantial they do not address all the problems at the plant and should only be considered as the first step.

Motion by Councilmember Bailey to approve the proposed project plan and designate an authorized signer as detailed below:

RESOLUTION NO. 91-2019

ADOPTING A FINAL PROJECT PLAN
FOR WASTEWATER TREATMENT PLANT IMPROVEMENTS AND
DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

WHEREAS, the City of Owosso recognizes the need to make improvements to its existing wastewater treatment plant and its existing NPDES pollution control system; and

WHEREAS, the City of Owosso authorized Capital Consultants, Inc. d.b.a. C2AE to prepare a Project Plan, which recommends the rehabilitation of structurally deficient wastewater treatment process equipment, including the headworks, trickling filters and solids handling equipment; and

WHEREAS, said Project Plan was presented at a Public Hearing held on June 17, 2019 and all public comments have been considered and addressed;

NOW THEREFORE BE IT RESOLVED, that the City of Owosso formally adopts said Project Plan and agrees to implement selected Alternative No. 1 ("Rehabilitation of physical plant process equipment & processes").

BE IT FURTHER RESOLVED, that the Director of Public Utilities, a position currently held by Glenn Chinavare, is designated as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Plan as the first step in applying to the State of Michigan for a Revolving Fund Loan to assist in the implementation of the selected alternative.

Motion supported by Mayor Pro-Tem Osika.

Roll Call Vote.

AYES: Councilmember Fear, Mayor Pro-Tem Osika, Councilmembers Law, Bailey, Haber, Pidek, and Mayor Eveleth.

NAYS: None.

I hereby certify that the foregoing document is a true and complete copy of action taken by the Owosso City Council at the regular meeting of June 17, 2019.

Amy K. Kirkland, City Clerk

Public hearing for the SRF Project Plan for Wastewater Treatment held during the regular city council meeting on June 17, 2019. Mayor Eveleth called the public hearing to order at 7:32 p.m.

Mayor Eveleth: I will open the public hearing citizens have a period of up to 3 minutes and we do ask you state your name and address at the podium. Do we have any citizens wishing to comment on this public hearing for this item?

Mayor Eveleth: Yes Gary.

Gary Burke: I'm Gary Burke I live in Rush Township but I'm formally from Owosso and former Owosso Utilities Director over [inaudible] treatment plant. I'd like to make a couple of corrections. One, the plant, the original plant, went in the 1930's as a primary or single stage treatment plant, just settling discharge. It was totally redone to serve the regional area in 1980 at a cost of about 15.7 million dollars that was an effiscal chemical treatment plant, had a lot of problems we solved those with going to the biological treatment, those towers and incorporating what worked in 1986 and 87 at another 2.75 million dollar total cost. Subsequent to that we had made significant improvements at the plant but the key thing is now that the overall facility is going on 40 years which is probably 10 years beyond what would have been a predicted service life. We do that with asset management where you are replacing parts and components that wear out quicker than the rest. The structures are still good and sound but we have probably spent over 4 million dollars over the years in terms of replacing pumps, recently, clarifiers, screening equipment a couple of times, the sledge dewatering equipment. The grit chamber, it's an aeriated grit chamber, the original chain and bucket was to go to an air ejector to transfer that grit through the building into a truck or into an incinerator that never really worked out well and that is why the chain and bucket system was eliminated. The problem now is we can't close off the grit chamber because of the problem with influent gate, so, we can't isolate. Pump it down and remove the grit with our Vactor doesn't have to go everyday it's something that can accumulate overtime we don't get that much grit. I personally favor an airlift with a grit washer I think we should have grit washing as we have screening washing; otherwise, part of the thing with grit when we transferred to the other part of the plant is it smelt to high heaven, it was not anything you would want to have leave the building or be exposed to. The other key thing in terms of cost is that this is about half of what's needed at the plant. So we are talking about going in phases. Get the most critical stuff done but there's more to come whether that's going to be 3 years, 5 years and some of that may have to go with what we are doing in terms of controlling overflows. We made need additional retention at the plant or wet weather capacity. The key thing is to get restored to our full pump capacity because we do surcharge at the plant now. It's not the interceptors coming in under those severe events it's when it starts backing up because we can't pump everything into the plant. We are getting more than 18 million gallons a day wet weather flows versus 3 million gallons per day dry weather flows and if it exceeds that, well now with a pump out of service we maybe handled 2/3 of that but we need to front up that capacity. Screw pumps are good they are expensive but they're reliable and they have given us good service. So support the project but there is more to come.

Mayor Eveleth: Thank you Gary. Do we have further citizen's comments on this public hearing? Seeing none I will close the public hearing and bring it back for any closing council comments or a motion.

Mayor closed the public hearing at 7:55 p.m.

This foregoing document is a verbatim transcript of Public Hearing for State Revolving Fund (SRF) Project Plan for Wastewater Treatment held on June 17, 2019.

Roxane K. Cramer

Roxane K. Cramer, Deputy City Clerk

For Record Purposes Only
This page not distributed to Council

The Argus-Press Company

201 E. Exchange Street
Owosso, Michigan 48867
Phone (989) 725-5136 • Fax (989) 725-6376

Richard E. Campbell, Chairman
Thomas E. Campbell, President & Publisher

AFFIDAVIT OF PUBLICATION

In the matter of **Notice of Public Hearing - City of Owosso**

STATE OF MICHIGAN)
) ss **Thomas E. Campbell**
County of Shiawassee)

Being first duly sworn, says that he is the Publisher of **THE ARGUS-PRESS**, a newspaper published in the English language for the dissemination of local or transmitted news and intelligence of a general character and legal news, which is a duly qualified newspaper and that annexed hereto is a copy of a certain order taken from said newspaper, in which the order was published on the 10th day of May, A.D., 2019.

CITY OF OWOSSO
NOTICE OF PUBLIC HEARING

The City of Owosso will hold a public hearing on proposed improvements to the City's wastewater treatment plant for the purpose of receiving input from the public.

The hearing will be held on Monday June 17th, 2019 at 7:30 P.M. in the City Hall Council Chambers, 301 West Main Street, Owosso, Michigan 48867.

The purpose of the proposed project is to present planned improvements to the City of Owosso Wastewater Treatment Facility to improve plant reliability and assure continued regulatory compliance.

Proposed project construction will involve rehabilitation of various treatment processes within the facility. The project will be phased over multiple years beginning in 2020 and include the following improvements:

- Pumping System Improvements
- Grit Removal Improvements
- Treatment Process Improvements

The City is proposing to fund the project through a low interest loan from the State Revolving Fund (SRF) program with debt service from money collected from users of the facility including sewer service districts in the City of Owosso, City of Corunna, Caladonia Township and Owosso Charter Township. The estimated cost for all improvements is $5,600,000.

Copies of the draft State Revolving Fund Project Plan is available for review at the City of Owosso Clerk's Office located at 301 West Main Street, Owosso, Michigan 48867.

Public comments received during or before the public hearing will be addressed in Final Project Plan. Comments submitted prior to the public hearing should be sent to the City Clerk's office at:

Amy K. Kirkland, City Clerk
301 West Main Street
Owosso, Michigan 48867

The City of Owosso will provide necessary reasonable auxiliary aids and services, such as signers for the hearing impaired and audio recordings of printed materials being considered at the meeting, to individuals with disabilities at the meeting/hearing upon seventy-two (72) hours notice to the City of Owosso. Individuals with disabilities requiring auxiliary aids or services should contact the City of Owosso by writing or calling the following: Amy K. Kirkland, City Clerk, 301 West Main Street, Owosso, MI 48867 or at (989) 725-0500. The City of Owosso Website address is www.ci.owosso.mi.us.

Publish: May 10, 2019

SIGNED:

Subscribed and sworn to before me
this 19th day of June, A.D., 2019

Anita M Pasik

Anita M. Pasik, Notary Public
Shiawassee County, Michigan
My commission expires: December 1, 2024

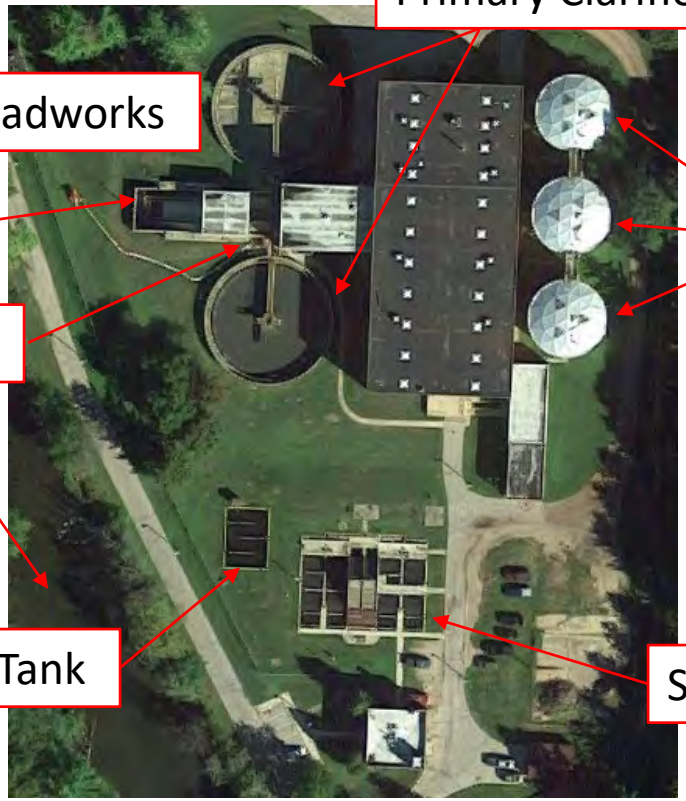
2019 Wastewater Treatment Plant
State Revolving Fund
City of Owosso

Public Hearing

June 17, 2019

7:30 PM

PROCESS FLOW



PROJECT CONSIDERATIONS

- The State Revolving Fund (SRF) program is a federal-state partnership that provides communities a permanent, independent source of low-cost financing for a wide range of water quality infrastructure projects.

PROJECT NEEDS: WASTEWATER TREATMENT PLANT

- The WWTP has been in operation since 1950s and as seen few improvements throughout its time.
- Some equipment is structurally and mechanically damaged or in poor condition.
- Much of the equipment has either seen the end of its useful life cycle or is currently in inoperable condition.

PROJECT CONSIDERATIONS: WASTEWATER TREATMENT PLANT

- Without upgrades, the plant will struggle or fail to meet operational standards and could become an environmental hazard.

SCREW PUMPS

- Significate wear to the flights has caused reduction in the capacity.
- After years of use, the bearings on each screw pump are loosened and damaged.
- The existing screw pump motors are at the end of their life cycle and are not operating at their maximum energy efficiency.
- The current condition of the screw pumps is poor with one pump completely out of commission due to bearing and shaft failure.

PROPOSED PROJECT: REPLACE SCREW PUMPS

Existing screw pump.

Worn channel and flights results in significant gaps between the flights and the channel

GRIT CHAMBER

- Installed in 1980 as a chain and bucket system.
- Wear on the chains was cause for complete removal in 2000 and it has yet to be replaced.
- Removal of grit early in the treatment process protects the downstream equipment from abrasion, damage, and wear.

PROPOSED PROJECT: INSTALL NEW CHAIN AND BUCKET GRIT REMOVAL SYSTEM IN EXISTING GRIT CHAMBER

Example of Grit Tank System

NITRIFICATION / ROUGHING TOWERS

- Installed in 1986, concrete around the outside of the towers is deteriorating.
- The media support has failed in a couple of the towers and the media is beginning to fall down.
- The towers need to be replaced before a structural failure occurs.

PROPOSED PROJECT: REPLACE TREATMENT TOWERS

Tower structural damage

Towers damage from age and environment

SOLIDS HANDLING UNIT

- Installed in 1999, this equipment was purchased as a used 1980-vintage machine and has reached its operational lifecycle.
- As the only solids handling unit in the plant, the failure of the equipment will greatly impact the WWTP's operation.
- Previous repair/overhaul process took 6 weeks and required the city to haul sludge resulting in a cost of $24,000 in addition to the repair costs.

PROPOSED PROJECT: ADD SCREW PRESS COMPACTOR AND RETAIN CENTRIFUGE AS BACKUP

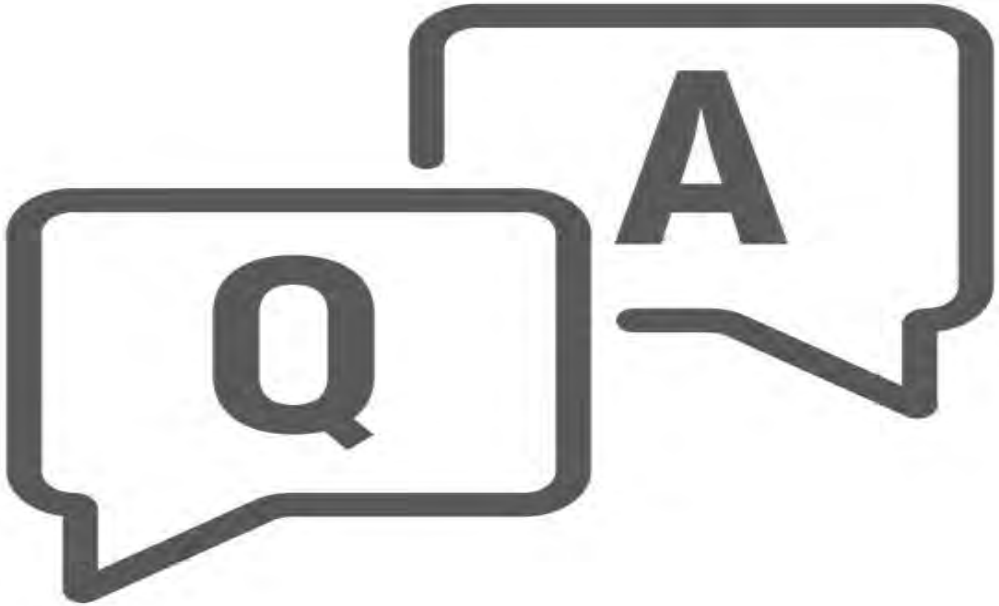
Existing solids centrifuge

PROJECT COSTS

Table 6 WWTF Improvements Estimated Quarterly Cost Per REU								
Improvement	**Initial Construction Cost**	**Annual Debt Service**	**SRF Int. Rate**	**Loan Duration**	***City of Owosso Allocation**	**No. REU's**	**Annual Cost per REU**	**Qtly Cost per REU**
Headworks Improvements	$1,750,000	$107,000	2.00%	20	53%	7,964	$7.12	$1.78
Trickling Filter Replacement	$2,750,000	$168,000	2.00%	20	53%	7,964	$11.18	$2.80
Solids Handling Improvements	$1,100,000	$70,000	2.00%	20	53%	7,964	$4.66	$1.16
***These improvements' anticipated service life exceeds 20 years therefore considered a Contract Capacity expense allocation**								

PROJECT SCHEDULE

- Design for this project is planned for Fall 2019.
- Bidding is planned for February 2020.
- Construction is planned to take place Summer 2020.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APPENDIX C

COMPLIANCE LETTERS

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Timothy J. Guysky

From: Timothy J. Guysky
Sent: Thursday, October 01, 2015 5:04 AM
To: 'Bodnar, Brent (DEQ)'
Cc: Gary M. Burk
Subject: Owosso WWTP September 24 Permit Exceedences

Brent,

Per our earlier conversation, on September 24, the Owosso Mid-Shiawassee County Wastewater Plant exceeded permit limitations (NPDES #MI0023752) for Ammonia-Nitrogen (6.95 mg/L exceeding maximum daily limit of 3.0 mg/L) and CBOD5 (>37 mg/L, exceeding maximum daily limit of 15 mg/L).

As we discussed, we remain puzzled as to the cause of the exceedances. The plant roughing tower was offline for 15 minutes that day for routine maintenance, and the (2) tertiary nitrification towers, to which flow is normally split evenly between, were later off for 15 minutes each, with all flow directed to the online tower during maintenance on the offline tower. This type of brief tower "off/on" is practiced regularly here for distributor arm lubrication, and we have never seen any change in plant effluent quality on such days. Total Suspended Solids results for the plant effluent that day were normal, and the plant influent composite showed nothing unusual in any sample characteristic, visually or analytically.

A grab sample was taken at 12:40 pm on September 25 of the combined nitrification tower effluent (the sample point just prior to final settling and the final effluent), and this showed an Ammonia-Nitrogen concentration of 0.02mg/L, indicating normal removal was again being achieved (CBOD5 was therefore assumed normal as well). As part of the 5x weekly sampling requirement in our permit, we would normally not have sampled on Friday September 25, but we did sample that day to determine that we were indeed back in compliance (Ammonia-Nitrogen at 0.027 mg/L, CBOD5 at 2.4 mg/L).

There have been 2 other similar occurrences within the past 11 months: November 10, 2014 and June 11, 2015. During the June 2015 sample day, maintenance on the towers also occurred (a different and more extensive project), but during the November 2014 sample day, there was no maintenance on the towers or shutdown of any kind. Again, we have not come to any conclusion on these instances at this time.

Going forward we will modify our composite sample collection procedures to collect our single composite in several bottles, so in the event that we have a similar occurrence, we can better define the time of the upset condition. We will also try to replicate the conditions with a planned tower shutdown sometime in November, with simultaneous sampling at critical sample points in an attempt to gather information. I will also contact, as we discussed, Earl Wuestnick, MDEQ, and Doug Hill to get their insights on this situation. I will inform you of any conclusions we may reach.

Sincerely,

Tim Guysky
City of Owosso WWTP
Superintendent
(989)725-0562

Timothy J. Guysky

From: Timothy J. Guysky
Sent: Friday, November 13, 2015 11:02 AM
To: 'Bodnar, Brent (DEQ)'
Cc: Gary M. Burk; Glenn M. Chinavare
Subject: Owosso WWTP (MI0023752) October Permit Exceedences

Brent,

Per my earlier phone message, on October 12, we exceeded our permit limitation for CBOD5 (mg/L) maximum day with a result of >39 mg/L. As a result of a high Total Phosphorus result (7.12 mg/L) also on October 12, we exceeded our Total Phosphorus monthly average limitation as well, with an average of 1.05 mg/L. Sample days immediately prior to and after the 12th saw normal, compliant results for all parameters, indicating a short-term event specifically on the 12th.

Investigation into the high results of the 12th indicate an incident similar to ones encountered on September 24, 2015, June 11, 2015, and November 10, 2014, where our discharge has been unusually high with no obvious cause, as you and I have previously discussed. The first three events (9-24-15, 6-11-15, and 11-10-14), were puzzling as we did not detect anything out of the ordinary with our plant influent composite sample, and we were more questioning our plant process activities on those days.
On October 12, however, we were able to detect unusually high results for CBOD5, Total Phosphorus, and Ammonia-Nitrogen on our plant influent sample. This would seem to indicate an unauthorized discharge of some sort of extremely high-strength wastewater to our collection system.

I discussed this issue at length with Doug Hill, retired from MDEQ and current owner of Doug Hill Environmental Services, and he agreed that an illicit discharge to the collection system almost certainly occurred. More uncertain would be why we didn't see any change in our plant influent composite during the first three incidents, though it does seem conceivable that the duration of the high strength wastewater entering the plant could be short enough to avoid being sampled by our composite sampler, which has been programmed to sample on a flow-proportioned basis and can go as long as 25 minutes without sampling during low flow conditions. Mr. Hill's inclination is that the unauthorized discharge is of an industrial nature, as there has been no corresponding increase in Total Suspended Solids results, either influent or effluent, on any of the days in question. Any of our own process control issues seem to be eliminated at this point. Our current composite sampling protocol has given us an idea of time of day the high strength wastewater entered and exited the plant, though that doesn't give us much of an indicator as to who could be responsible.

Going forward, we will attempt to determine local industrial sources that could potentially generate this type of waste in the estimated quantities. This most likely will prove difficult, but seems like a logical step. We will continue our current, more extensive influent and effluent sampling/analytical protocol, which will aid in narrowing down time frames should we see this occur again. Tracking this down appears to be a fairly daunting task, but we will make every effort toward resolving this.
As we had discussed, I will plan on contacting Earl Wuestnick to see if he has any further advice on dealing with this issue. We will also have more internal discussions, perhaps involving Owosso Township, Caledonia Township, and City of Corunna representatives as well, in an attempt to figure out where the discharges are coming from, whether it proves to be inadvertent or intentional.

If you have any questions, feel free to contact me.

Thank you,

Tim Guysky
City of Owosso WWTP
Superintendent

APPENDIX D

MSU RSR LETTERS

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MICHIGAN STATE UNIVERSITY | Extension

Mr. Charles Anthony II
C2AE
106 West Allegan Street, Suite 500
Lansing, MI 48933
(517) 371-9166

February 20, 2019

Re: Rare Species Review #2324 – Wastewater Treatment Plant Improvements, City of Owosso, Shiawassee County, MI (T7N, R2E Section 12).

Hello:

The location for the proposed project was checked against known localities for rare species and unique natural features, which are recorded in the Michigan Natural Features Inventory (MNFI) natural heritage database. This continuously updated database is a comprehensive source of existing data on Michigan's endangered, threatened, or otherwise significant plant and animal species, natural plant communities, and other natural features. Records in the database indicate that a qualified observer has documented the presence of special natural features. The absence of records in the database for a particular site may mean that the site has not been surveyed. The only way to obtain a definitive statement on the status of natural features is to have a competent biologist perform a complete field survey.

Under Act 451 of 1994, the Natural Resources and Environmental Protection Act, Part 365, Endangered Species Protection, "a person shall not take, possess, transport, …fish, plants, and wildlife indigenous to the state and determined to be endangered or threatened," unless first receiving an Endangered Species Permit from the Michigan Department of Natural Resources (MDNR), Wildlife Division. Responsibility to protect endangered and threatened species is not limited to the lists below. Other species may be present that have not been recorded in the database.

According to the natural heritage database several rare species and critical habitats have been documented within 1.5 miles of the project site, and **it is possible** negative impacts will occur. Keep in mind that MNFI cannot fully evaluate this project without visiting the project site. MNFI offers several levels of Rare Species Reviews, including field surveys which I would be happy to discuss with you.

Sincerely,

Michael A. Sanders

Michael A. Sanders
Rare Species Review Specialist
Michigan Natural Features Inventory

MSU EXTENSION

Michigan Natural Features Inventory

PO Box 13036
Lansing MI 48901

(517) 284-6200
Fax (517) 373-9566

mnfi.anr.msu.edu

Comments for Rare Species Review #2324: It is important to note that it is the applicant's responsibility to comply with both state and federal threatened and endangered species legislation. Therefore, if a state listed species occurs at a project site, and you think you need an endangered species permit please contact: Casey Reitz, Michigan DNR Wildlife Division, 517-284-6210, or ReitzC@michigan.gov. If a federally listed species is involved and, you think a permit is needed, please contact Carrie Tansy, Endangered Species Program, U.S. Fish and Wildlife Service, East Lansing office, 517-351-8375, or Carrie_Tansy@fws.gov.

NOTE: Michigan rivers and streams have been grouped according to existing information of mussel distribution and individual species conservation status. This section of the Shiawassee River through Owosso has been designated a Group 2 mussel stream which means that state threatened or endangered mussels are expected to occur here and that certain surveys and possibly relocation procedures apply. I encourage you to read the ***Michigan Freshwater Mussel Survey Protocols and Relocation Procedures*** publication if in-stream work and/or land clearing activities occur that result in streambed disturbance and erosion and sedimentation into the river.

Please consult MNFI's Rare Species Explorer for additional information regarding the table below.

Table 1: Occurrences of threatened & endangered species within 1.5 miles of RSR #2324

ELCAT	SNAME	SCOMNAME	USESA	SPROT	G_RANK	S_RANK	FIRSTOBS	LASTOBS
Plant	*Galearis spectabilis*	Showy orchis		T	G5	S2	1889	1890-05
Plant	*Plantago cordata*	Heart-leaved plantain		E	G4	S1	1885	1889-05-18
Plant	*Dennstaedtia punctilobula*	Hay-scented fern		T	G5	S1	1889-06-17	1889-06-17

Of concern: no concerns with these listed species.

Table 2: Occurrences of special concern species & other natural features within 1.5 miles of RSR #2324

ELCAT	SNAME	SCOMNAME	USESA	SPROT	G_RANK	S_RANK	FIRSTOBS	LASTOBS
Animal	*Alasmidonta marginata*	Elktoe		SC	G4	S3?	1926	1926
Animal	*Pleurobema sintoxia*	Round pigtoe		SC	G4G5	S3	1926	1934
Animal	*Bombus auricomus*	Black and gold bumble bee			G4G5	SNR	1948-07-01	1948-07-01

Of concern: no concerns with these listed species. Special concern species and natural communities are not protected under endangered species legislation, but efforts should be taken to minimize any or all impacts. Species classified as special concern are species whose numbers are getting smaller in the state. If these species continue to decline they would be recommended for reclassification to threatened or endangered status.

Codes to accompany Tables:

State Protection Status Code Definitions (SPROT)
E: Endangered
T: Threatened
SC: Special concern

Federal Protection Status Code Definitions (USESA)
LE = listed endangered
LT = listed threatened
LELT = partly listed endangered and partly listed threatened
PDL = proposed delist
E(S/A) = endangered based on similarities/appearance
PS = partial status (federally listed in only part of its range)
C = species being considered for federal status

Global Heritage Status Rank Definitions (GRANK)
The priority assigned by NatureServe's national office for data collection and protection based upon the element's status throughout its entire world-wide range. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.
G1 = critically imperiled globally because of extreme rarity (5 or fewer occurrences range-wide or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.
G2 = imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.
G3: Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g. a single western state, a physiographic region in the East) or because of other factor(s) making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.
G4: Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G5: Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
Q: Taxonomy uncertain

State Heritage Status Rank Definitions (SRANK)
The priority assigned by the Michigan Natural Features Inventory for data collection and protection based upon the element's status within the state. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.
S1: Critically imperiled in the state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation in the state.
S2: Imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.
S3: Rare or uncommon in state (on the order of 21 to 100 occurrences).
S4 = apparently secure in state, with many occurrences.
S5 = demonstrably secure in state and essentially ineradicable under present conditions.
SX = apparently extirpated from state.

Rare Species Review #2324
C2AE
Wastewater Treatment Plant Improvements
City of Owosso
Shiawassee County, MI
February 20, 2019

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 project falls within the range of four (4) federally listed/proposed species which have been identified by the U.S. Fish and Wildlife Service (USFWS) to occur in Shiawassee County, Michigan.

Federally Endangered

Indiana bat - there appears to be suitable habitat in our standard 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.

Management and Conservation: 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.

Federally Threatened

Northern long-eared bat - 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.

Although no known hibernacula or roost trees have been documented within 1.5 miles of the project area, this activity occurs within the designated WNS zone (i.e., within 150 miles of positive counties/districts impacted by WNS. In addition, there appears to be suitable habitat within the 1.5-mile 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. In addition, there appears to be suitable habitat within the 1.5-mile search buffer.

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. Roost trees are selected based on the suitability to retain bark or provide cavities or crevices. Common roost trees in southern Lower Michigan include 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.

Management and Conservation: 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.

Rufa red knot - there does not appear to be suitable habitat within our standard 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.

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

Eastern massasauga rattlesnake – the project occurs outside of Tier 1 (occupied/high potential habitat) and Tier 2 (potential habitat) eastern massasauga habitat as designated by the US Fish and Wildlife Service. The federal and state threatened eastern massasauga rattlesnake *(Sistrurus catenatus)* 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.

Management and Conservation: 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.

Mike Sanders
Environmental Review Specialist/Zoologist
Sander75@msu.edu
517-284-6215

APPENDIX E

SHPO RESPONSE AND APPLICATION

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STATE HISTORIC PRESERVATION OFFICE
Application for Section 106 Review

SHPO Use Only
☐ IN Received Date ____ / ____ / ____ Log In Date ____ / ____ / ____
☐ OUT Response Date ____ / ____ / ____ Log Out Date ____ / ____ / ____
Sent Date ____ / ____ / ____

Submit one copy for each project for which review is requested. This application is required. Please type. Applications must be complete for review to begin. Incomplete applications will be sent back to the applicant without comment. Send only the information and attachments requested on this application. Materials submitted for review cannot be returned. ***Due to limited resources we are unable to accept this application electronically.***

I. GENERAL INFORMATION

☒ THIS IS A NEW SUBMITTAL ☐ THIS IS MORE INFORMATION RELATING TO ER#

a. Project Name: Owosso WWTP
b. Project Address (if available): 1410 Chippewa Trail, Owosso, MI 48867
c. Municipal Unit: Owosso Charter Township County: Shiawassee
d. Federal Agency, Contact Name and Mailing Address (*If you do not know the federal agency involved in your project please contact the party requiring you to apply for Section 106 review, not the SHPO, for this information*.): EPA
e. State Agency (if applicable), Contact Name and Mailing Address:
f. Consultant or Applicant Contact Information (if applicable) *including mailing address*: Mr. Charles Anthony, C2AE 106 W. Allegan St., Lansing, Mi 48933, 517-371-1200, charles.anthony@c2ae.com

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II. GROUND DISTURBING ACTIVITY (INCLUDING EXCAVATION, GRADING, TREE REMOVALS, UTILITY INSTALLATION, ETC.)

DOES THIS PROJECT INVOLVE GROUND-DISTURBING ACTIVITY? ☒ YES ☐ NO (If no, proceed to section III.)

Exact project location must be submitted on a USGS Quad map (portions, photocopies of portions, and electronic USGS maps are acceptable as long as the location is clearly marked).

a. USGS Quad Map Name: Owosso North Quadrangle
b. Township: T7N Range: R2E Section: 12
c. Description of width, length and depth of proposed ground disturbing activity: Roughing tower replacement and relocation.
d. Previous land use and disturbances: Existing facilities are used as a wastewater treatment plant.
e. Current land use and conditions: Existing facilities are used as a wastewater treatment plant.
f. Does the landowner know of any archaeological resources found on the property? ☐ YES ☒ NO
Please describe:

III. PROJECT WORK DESCRIPTION AND AREA OF POTENTIAL EFFECTS (APE)
Note: Every project has an APE.

a. Provide a detailed written description of the project (plans, specifications, Environmental Impact Statements (EIS), Environmental Assessments (EA), etc. **cannot** be substituted for the written description): The project includes screw pump replacement, grit chamber equipment replacement, and roughing chamber replacement and relocation.
b. Provide a localized map indicating the location of the project; road names must be included and legible.
c. On the above-mentioned map, identify the APE.
d. Provide a written description of the APE (physical, visual, auditory, and sociocultural), the steps taken to identify the APE, and the justification for the boundaries chosen. The APE was defined based upon the limits of proposed work, including screw pump replacement, grit chamber replacement and roughing chamber replacement and relocation. The APE only includes the property of the WWTP. Upon completion of the

project, the relative character of the APE will remain in tact. Audible and sociocultural effects are expected to remain unchanged. The APE will be minorly affected with the relocation of the roughing towers.

IV. IDENTIFICATION OF HISTORIC PROPERTIES

a. List and date **all** properties 50 years of age or older located in the APE. If the property is located within a National Register eligible, listed or local district it is only necessary to identify the district: There are no properties 50 years of age old older in the APE.
b. Describe the steps taken to identify whether or not any **historic** properties exist in the APE and include the level of effort made to carry out such steps: A review of the available online National Register Places lightings in Shiawassee County was performed. Additionally, a list of historic sites was sent by email from a SHPO representative.
c. Based on the information contained in "b", please choose one:
   - ☐ Historic Properties Present in the APE
   - ☒ No Historic Properties Present in the APE
d. Describe the condition, previous disturbance to, and history of any historic properties located in the APE: There are no historic properties located in the APE.

V. PHOTOGRAPHS

Note: All photographs must be keyed to a localized map.

a. Provide photographs of the site itself.
b. Provide photographs of all properties 50 years of age or older located in the APE (faxed or photocopied photographs are not acceptable).

VI. DETERMINATION OF EFFECT

☒ No historic properties affected based on [36 CFR § 800.4(d)(1)], please provide the basis for this determination.

☐ No Adverse Effect [36 CFR § 800.5(b)] on historic properties, explain why the criteria of adverse effect, 36 CFR Part 800.5(a)(1), were found not applicable.

☐ Adverse Effect [36 CFR § 800.5(d)(2)] on historic properties, explain why the criteria of adverse effect, [36 CFR Part 800.5(a)(1)], were found applicable.

Please print and mail completed form and required information to:

State Historic Preservation Office, Cultural Resources Management and Planning Section, 735 East Michigan Avenue, P.O. Box 30044, Lansing, MI 48909

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APPENDIX F

NPDES PERMIT

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PERMIT NO. MI0023752

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act (33 U.S.C. 1251 *et seq*., as amended; the "Federal Act"); Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); Part 41, Sewerage Systems, of the NREPA; and Michigan Executive Order 2011-1,

City of Owosso
301 West Main Street
Owosso, MI 48867

is authorized to discharge from the Owosso Mid-Shiawassee County Wastewater Treatment Plant located at

1410 Chippewa Trail
Owosso, MI 48867

designated as **Owosso/Mid Shiawassee Co WWTP**

to the receiving water named the Shiawassee River in accordance with effluent limitations, monitoring requirements, and other conditions set forth in this permit.

This permit is based on a complete application submitted on April 15, 2016, and a Department action initiated on November 16, 2018.

This permit took effect on October 1, 2018; the modified permit takes effect on January 1, 2019. The provisions of this permit are severable. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked in whole or in part during its term in accordance with applicable laws and rules. On its original effective date, this permit superseded National Pollutant Discharge Elimination System (NPDES) Permit No. MI0023752 (expiring October 1, 2016).

This permit and the authorization to discharge shall expire at midnight, **October 1, 2021**. In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit an application which contains such information, forms, and fees as are required by the Department of Environmental Quality (Department) by **April 4, 2021**.

Issued: September 24, 2018. **Modified (minor):** December 17, 2018.

Original signed by Christine Alexander
Christine Alexander, Manager
Permits Section
Water Resources Division

PERMIT FEE REQUIREMENTS

In accordance with Section 324.3120 of the NREPA, the permittee shall make payment of an annual permit fee to the Department for each October 1 the permit is in effect regardless of occurrence of discharge. The permittee shall submit the fee in response to the Department's annual notice. The fee shall be postmarked by January 15 for notices mailed by December 1. The fee is due no later than 45 days after receiving the notice for notices mailed after December 1.

Annual Permit Fee Classification: Municipal Major, less than 10 MGD (Individual Permit)

In accordance with Section 324.3118 of the NREPA, the permittee shall make payment of an annual storm water fee to the Department for each January 1 the permit is in effect regardless of occurrence of discharge. The permittee shall submit the fee in response to the Department's annual notice. The fee shall be postmarked by March 15 for notices mailed by February 1. The fee is due no later than 45 days after receiving the notice for notices mailed after February 1.

In accordance with Section 324.3132 of the NREPA, the permittee shall make payment of an annual biosolids land application fee to the Department if the permittee land applies biosolids. In response to the Department's annual notice, the permittee shall submit the fee, which shall be postmarked no later than January 31 of each year.

CONTACT INFORMATION

Unless specified otherwise, all contact with the Department required by this permit shall be made to the Lansing District Office of the Water Resources Division. The Lansing District Office is located at 525 West Allegan Street, 1st Floor, South Tower, Lansing, MI 48933, Telephone: 517-284-6651, Fax: 517-241-3571.

CONTESTED CASE INFORMATION

Any person who is aggrieved by this permit may file a sworn petition with the Michigan Administrative Hearing System within the Michigan Department of Licensing and Regulatory Affairs, c/o the Michigan Department of Environmental Quality, setting forth the conditions of the permit which are being challenged and specifying the grounds for the challenge. The Department of Licensing and Regulatory Affairs may reject any petition filed more than 60 days after issuance as being untimely.

PART I

Section A. Limitations and Monitoring Requirements

1. Final Effluent Limitations, Monitoring Point 001A

During the period beginning on the effective date of this permit and lasting until the expiration date of this permit, the permittee is authorized to discharge treated municipal wastewater from Monitoring Point 001A through Outfall 001. Outfall 001 discharges to the Shiawassee River at Latitude 43.01667, Longitude -84.18055. Such discharge shall be limited and monitored by the permittee as specified below.

	Maximum Limits for Quantity or Loading				Maximum Limits for Quality or Concentration				Monitoring	Sample
Parameter	**Monthly**	**7-Day**	**Daily**	**Units**	**Monthly**	**7-Day**	**Daily**	**Units**	**Frequency**	**Type**
Flow	(report)	---	(report)	MGD	---	---	---	---	Daily	Report Total Daily Flow
Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)										
June	750	1100	(report)	lbs/day	15	---	23	mg/l	5×Weekly	24-Hr Composite
July – September	500	730	(report)	lbs/day	10	---	15	mg/l	5×Weekly	24-Hr Composite
October	900	1400	(report)	lbs/day	18	---	27	mg/l	5×Weekly	24-Hr Composite
November – May	1300	2000	(report)	lbs/day	25	---	40	mg/l	5×Weekly	24-Hr Composite
Total Suspended Solids	1500	2300	(report)	lbs/day	30	45	(report)	mg/l	5×Weekly	24-Hr Composite
Ammonia Nitrogen (as N)										
June	---	400	(report)	lbs/day	---	---	8.0	mg/l	5×Weekly	24-Hr Composite
July – September	---	150	(report)	lbs/day	---	---	3.0	mg/l	5×Weekly	24-Hr Composite
October	---	550	(report)	lbs/day	---	---	11	mg/l	5×Weekly	24-Hr Composite
November - May	530	750	(report)	lbs/day	11	---	15	mg/l	Weekly	24-Hr Composite
Total Phosphorus (as P)	50	---	(report)	lbs/day	1.0	---	(report)	mg/l	5×Weekly	24-Hr Composite
Fecal Coliform Bacteria	---	---	---	---	200	400	(report)	cts/100 ml	5×Weekly	Grab
Total Residual Chlorine	---	---	---	---	---	---	38	µg/l	5×Weekly	Grab
Total Mercury										
-- Corrected	(report)	---	(report)	lbs/day	(report)	---	(report)	ng/l	Monthly	Calculation
-- Uncorrected	---	---	---	---	---	---	(report)	ng/l	Monthly	Grab
-- Field Duplicate	---	---	---	---	---	---	(report)	ng/l	Monthly	Grab
-- Field Blank	---	---	---	---	---	---	(report)	ng/l	Monthly	Preparation
-- Laboratory Method Blank	---	---	---	---	---	---	(report)	ng/l	Monthly	Preparation
	12-Month Rolling Average				**12-Month Rolling Average**					
	0.00040	---	---	lbs/day	8.0	---	---	ng/l	Monthly	Calculation
					Minimum Monthly		**Minimum Daily**			
$CBOD_5$ Minimum % Removal										
November - May	---	---	---	---	85	---	(report)	%	Monthly	Calculation
Total Suspended Solids Minimum % Removal	---	---	---	---	85	---	(report)	%	Monthly	Calculation

PART I

Section A. Limitations and Monitoring Requirements

Parameter	Maximum Limits for Quantity or Loading: Monthly	7-Day	Daily	Units	Maximum Limits for Quality or Concentration: Monthly	7-Day	Daily	Units	Monitoring Frequency	Sample Type
					Minimum Daily		Maximum Daily			
pH	---	---	---	---	6.5	---	9.0	S.U.	5×Weekly	Grab
Dissolved Oxygen										
June	---	---	---	---	5.0	---	---	mg/l	5×Weekly	Grab
July – September	---	---	---	---	6.0	---	---	mg/l	5×Weekly	Grab
October	---	---	---	---	5.0	---	---	mg/l	5×Weekly	Grab
November – May	---	---	---	---	3.0	---	---	mg/l	5×Weekly	Grab

The following design flow was used in determining the above limitations, but is not to be considered a limitation or actual capacity: 6.0 MGD.

a. Narrative Standard

The receiving water shall contain no turbidity, color, oil films, floating solids, foams, settleable solids, or deposits, as a result of this discharge in unnatural quantities which are or may become injurious to any designated use.

b. Sampling Locations

Samples for $CBOD_5$, Total Suspended Solids, Ammonia Nitrogen, Total Phosphorus, Dissolved Oxygen, Fecal Coliform Bacteria, Total Residual Chlorine, Total Mercury, and pH shall be taken after disinfection. The Department may approve alternate sampling locations which are demonstrated by the permittee to be representative of the effluent.

c. Total Residual Chlorine

Compliance with the Total Residual Chlorine limit shall be determined on the basis of one or more grab samples. If more than one (1) sample per day is taken, the additional samples shall be collected in near equal intervals over at least eight (8) hours. The samples shall be analyzed immediately upon collection and the average reported as the daily concentration. Samples shall be analyzed in accordance with Part II.B.2. of this permit.

d. Percent Removal Requirements

These requirements shall be calculated based on the monthly (30-day) effluent $CBOD_5$ and Total Suspended Solids concentrations and the monthly influent concentrations for approximately the same period.

e. Final Effluent Limitation for Total Mercury

The final limit for total mercury is the Discharge Specific Level Currently Achievable (LCA) based on a multiple discharger variance from the water quality-based effluent limit of 1.3 ng/l, pursuant to R 323.1103(9) of the Water Quality Standards. Compliance with the LCA shall be determined as a 12-month rolling average, the calculation of which may be done using blank-corrected sample results. The 12-month rolling average shall be determined by adding the present monthly average result to the preceding 11 monthly average results then dividing the sum by 12. For facilities with quarterly monitoring requirements for total mercury, quarterly monitoring shall be equivalent to 3 months of monitoring in calculating the 12-month rolling average. Facilities that monitor more frequently than monthly for total mercury must determine the monthly average result, which is the sum of the results of all data obtained in a given month divided by the total number of samples taken, in order to calculate the 12-month rolling average. If the 12-month rolling average for any month is less than or equal to the LCA, the permittee will be considered to be in compliance for total mercury for that month, provided the permittee is also in full compliance with the Pollutant Minimization Program for Total Mercury, set forth in Part I.A.5.

PART I

Section A. Limitations and Monitoring Requirements

After a minimum of 24 monthly data points have been collected, the permittee may request a reduction in the monitoring frequency for total mercury. This request shall contain an explanation as to why the reduced monitoring is appropriate and shall be submitted to the Department. Upon receipt of written approval and consistent with such approval, the permittee may reduce the monitoring frequency for total mercury indicated in Part I.A.1. of this permit to no less than quarterly. The Department may revoke the approval for reduced monitoring at any time upon notification to the permittee.

f. Total Mercury Testing and Additional Reporting Requirements

The analytical protocol for total mercury shall be in accordance with EPA Method 1631, Revision E, "Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry," EPA-821-R-02-019, August 2002. The quantification level for total mercury shall be 0.5 ng/l, unless a higher level is appropriate because of sample matrix interference. Justification for higher quantification levels shall be submitted to the Department within 30 days of such determination.

The use of clean technique sampling procedures is required unless the permittee can demonstrate to the Department that an alternative sampling procedure is representative of the discharge. Guidance for clean technique sampling is contained in EPA Method 1669, "Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels," EPA-821-R96-001, July 1996. Information and data documenting the permittee's sampling and analytical protocols and data acceptability shall be submitted to the Department upon request.

In order to demonstrate compliance with EPA Method 1631E and EPA Method 1669, the permittee shall report, on the daily sheet, the analytical results of all field blanks and field duplicates collected in conjunction with each sampling event, as well as laboratory method blanks when used for blank correction. The permittee shall collect at least one (1) field blank and at least one (1) field duplicate per sampling event. If more than ten (10) samples are collected during a sampling event, the permittee shall collect at least one (1) additional field blank AND field duplicate for every ten (10) samples collected. Only field blanks or laboratory method blanks may be used to calculate a concentration lower than the actual sample analytical results (i.e., a blank correction). Only one (1) blank (field OR laboratory method) may be used for blank correction of a given sample result, and only if the blank meets the quality control acceptance criteria. If blank correction is not performed on a given sample analytical result, the permittee shall report under 'Total Mercury – Corrected' the same value reported under 'Total Mercury – Uncorrected.' The field duplicate is for quality control purposes only; its analytical result shall not be averaged with the sample result.

2. Quantification Levels and Analytical Methods for Selected Parameters

Quantification levels (QLs) are specified for selected parameters in the table below. These QLs shall be considered the maximum acceptable unless a higher QL is appropriate because of sample matrix interference. Justification for higher QLs shall be submitted to the Department within 30 days of such determination. Where necessary to help ensure that the QLs specified can be achieved, analytical methods may also be specified in the table below. The sampling procedures, preservation and handling, and analytical protocol for all monitoring conducted in compliance with this permit, including monitoring conducted to meet the requirements of the application for permit reissuance, shall be in accordance with the methods specified in the table below, or in accordance with Part II.B.2. of this permit if no method is specified in the table below, unless an alternate method is approved by the Department. With the exception of total mercury, all units are in ug/l. The table is continued on the following page:

Parameter	QL	Units	Analytical Method
1,2-Diphenylhydrazine (as Azobenzene)	3.0	ug/l	
2,4,6-Trichlorophenol	5.0	ug/l	
2,4-Dinitrophenol	19	ug/l	
3,3'-Dichlorobenzidine	1.5	ug/l	EPA Method 605
4,4'-DDD	0.05	ug/l	EPA Method 608
4,4'-DDE	0.01	ug/l	EPA Method 608
4,4'-DDT	0.01	ug/l	EPA Method 608
Acrylonitrile	1.0	ug/l	

PART I

Section A. Limitations and Monitoring Requirements

Parameter	QL	Units	Analytical Method
Aldrin	0.01	ug/l	EPA Method 608
Alpha-Hexachlorocyclohexane	0.01	ug/l	EPA Method 608
Antimony, Total	1	ug/l	
Arsenic, Total	1	ug/l	
Barium, Total	5	ug/l	
Benzidine	0.1	ug/l	EPA Method 605
Beryllium, Total	1	ug/l	
Beta-Hexachlorocyclohexane	0.01	ug/l	EPA Method 608
Bis (2-Chloroethyl) Ether	1.0	ug/l	
Boron, Total	20	ug/l	
Cadmium, Total	0.2	ug/l	
Chlordane	0.01	ug/l	EPA Method 608
Chromium, Hexavalent	5	ug/l	
Chromium, Total	10	ug/l	
Copper, Total	1	ug/l	
Cyanide, Available	2	ug/l	EPA Method OIA 1677
Cyanide, Total	5	ug/l	
Delta-Hexachlorocyclohexane	0.01	ug/l	EPA Method 608
Dieldrin	0.01	ug/l	EPA Method 608
Di-N-Butyl Phthalate	9.0	ug/l	
Endosulfan I	0.01	ug/l	EPA Method 608
Endosulfan II	0.01	ug/l	EPA Method 608
Endosulfan Sulfate	0.01	ug/l	EPA Method 608
Endrin	0.01	ug/l	EPA Method 608
Endrin Aldehyde	0.01	ug/l	EPA Method 608
Fluoranthene	1.0	ug/l	
Heptachlor	0.01	ug/l	EPA Method 608
Heptachlor Epoxide	0.01	ug/l	EPA Method 608
Hexachlorobenzene	0.01	ug/l	EPA Method 612
Hexachlorobutadiene	0.01	ug/l	EPA Method 612
Hexachlorocyclopentadiene	0.01	ug/l	EPA Method 612
Hexachloroethane	5.0	ug/l	
Lead, Total	1	ug/l	
Lindane	0.01	ug/l	EPA Method 608
Lithium, Total	10	ug/l	
Mercury, Total	0.5	**ng/l**	EPA Method 1631E
Nickel, Total	5	ug/l	
PCB-1016	0.1	ug/l	EPA Method 608
PCB-1221	0.1	ug/l	EPA Method 608
PCB-1232	0.1	ug/l	EPA Method 608
PCB-1242	0.1	ug/l	EPA Method 608
PCB-1248	0.1	ug/l	EPA Method 608
PCB-1254	0.1	ug/l	EPA Method 608
PCB-1260	0.1	ug/l	EPA Method 608
Pentachlorophenol	1.8	ug/l	
Phenanthrene	1.0	ug/l	
Selenium, Total	1.0	ug/l	
Silver, Total	0.5	ug/l	

PART I

Section A. Limitations and Monitoring Requirements

Parameter	QL	Units	Analytical Method
Strontium, Total	1000	ug/l	
Sulfides, Dissolved	20	ug/l	
Thallium, Total	1	ug/l	
Toxaphene	0.1	ug/l	EPA Method 608
Vinyl Chloride	0.25	ug/l	
Zinc, Total	10	ug/l	

4. Additional Monitoring Requirements

As a condition of this permit, the permittee shall monitor the discharge from Monitoring Point 001A for the constituents listed below. This monitoring is an application requirement of 40 CFR 122.21(j), effective December 2, 1999. Testing shall be conducted in May 2019, March 2020, and August 2020, October 2020. Grab samples shall be collected for available cyanide, total phenols, and the Volatile Organic Compounds identified below. For all other parameters, 24-hour composite samples shall be collected.

Test species for whole effluent toxicity monitoring shall include fathead minnow **and** *Ceriodaphnia dubia*. If the permittee has received Department approval to conduct chronic toxicity testing using the more sensitive species identified in the toxicity database, the first three (3) tests required above may be performed using the more sensitive species. The last (4^{th}) test shall be conducted using both species. Testing and reporting procedures shall follow procedures contained in EPA600/4-91/002, "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (Fourth Edition)." When the effluent ammonia nitrogen (as N) concentration is greater than 3 mg/l, the pH of the toxicity test shall be maintained at a pH of 8 Standard Units. Acute and chronic toxicity data shall be included in the reporting for the toxicity test results. Toxicity test data acceptability is contingent upon the validation of the test method by the testing laboratory. Such validation shall be submitted to the Department upon request.

For selected parameters required under this section, the quantification levels and analytical methods shall be as specified under Quantification Levels and Analytical Methods for Selected Parameters, below, unless a higher quantification level is appropriate because of sample matrix interference. Justification for higher quantification levels shall be submitted to the Department within 30 days of such determination.

The results of such additional monitoring shall be submitted with the application for reissuance (see the cover page of this permit for the application due date). The permittee shall notify the Department within 14 days of completing the monitoring for each month specified above in accordance with Part II.C.5. Additional reporting requirements are specified in Part II.C.11. The permittee shall report to the Department any whole effluent toxicity test results greater than 1.0 TU_A or 1.0 TU_C within five (5) days of becoming aware of the result. If, upon review of the analysis, it is determined that additional requirements are needed to protect the receiving waters in accordance with applicable water quality standards, the permit may then be modified by the Department in accordance with applicable laws and rules.

Whole Effluent Toxicity
acute toxicity chronic toxicity

Hardness
calcium carbonate

Metals (Total Recoverable), Cyanide and Total Phenols

antimony	arsenic	available cyanide	barium
beryllium	boron	cadmium	chromium
copper	lead		nickel
selenium	silver	thallium	zinc

total phenolic compounds

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Section A. Limitations and Monitoring Requirements

Volatile Organic Compounds

acrolein	acrylonitrile	benzene	bromoform
carbon tetrachloride	chlorobenzene	chlorodibromomethane	chloroethane
2-chloroethylvinyl ether	chloroform	dichlorobromomethane	1,1-dichloroethane
1,2-dichloroethane	trans-1,2-dichloroethylene	1,1-dichloroethylene	1,2-dichloropropane

Volatile Organic Compounds (continued)

1,3-dichloropropylene	ethylbenzene	methyl bromide	methyl chloride
methylene chloride	1,1,2,2,-tetrachloroethane	tetrachloroethylene	toluene
1,1,1-trichloroethane	1,1,2-trichloroethane	trichloroethylene	vinyl chloride

Acid-Extractable Compounds

p-chloro-m-cresol	2-chlorophenol	2,4-dichlorophenol	2,4-dimethylphenol
4,6-dinitro-o-cresol	2,4-dinitrophenol	2-nitrophenol	4-nitrophenol
Pentachlorophenol	phenol	2,4,6-trichlorophenol	

Base/Neutral Compounds

acenaphthene	acenaphthylene	anthracene	benzidine
benzo(a)anthracene	benzo(a)pyrene	3,4-benzofluoranthene	benzo(ghi)perylene
benzo(k)fluoranthene	bis(2-chloroethoxy)methane	bis(2-chloroethyl)ether	bis(2-chloroisopropyl)ether
bis(2-ethylhexyl)phthalate	4-bromophenyl phenyl ether	butyl benzyl phthalate	2-chloronaphthalene
4-chlorophenyl phenyl ether	chrysene	di-n-butyl phthalate	di-n-octyl phthalate
dibenzo(a,h)anthracene	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene
3,3'-dichlorobenzidine	diethyl phthalate	dimethyl phthalate	2,4-dinitrotoluene
2,6-dinitrotoluene	1,2-diphenylhydrazine	fluoranthene	fluorene
Hexachlorobenzene	hexachlorobutadiene	hexachlorocyclo-pentadiene	hexachloroethane
indeno(1,2,3-cd)pyrene	isophorone	naphthalene	nitrobenzene
n-nitrosodi-n-propylamine	n-nitrosodimethylamine	n-nitrosodiphenylamine	phenanthrene
pyrene	1,2,4-trichlorobenzene		

5. Pollutant Minimization Program for Total Mercury

The goal of the Pollutant Minimization Program is to maintain the effluent concentration of total mercury at or below 1.3 ng/l. The permittee shall continue to implement the Pollutant Minimization Program approved on July 7, 2011, and modifications thereto, to proceed toward the goal. The Pollutant Minimization Program includes the following:

a. an annual review and semi-annual monitoring of potential sources of mercury entering the wastewater collection system;

b. a program for quarterly monitoring of influent and periodic monitoring of sludge for mercury; and

c. implementation of reasonable cost-effective control measures when sources of mercury are discovered. Factors to be considered include significance of sources, economic considerations, and technical and treatability considerations.

On or before March 31 of each year, the permittee shall submit a status report for the previous calendar year to the Department that includes 1) the monitoring results for the previous year, 2) an updated list of potential mercury sources, and 3) a summary of all actions taken to reduce or eliminate identified sources of mercury.

Any information generated as a result of the Pollutant Minimization Program set forth in this permit may be used to support a request to modify the approved program or to demonstrate that the Pollutant Minimization Program requirement has been completed satisfactorily.

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Section A. Limitations and Monitoring Requirements

A request for modification of the approved program and supporting documentation shall be submitted in writing to the Department for review and approval. The Department may approve modifications to the approved program (approval of a program modification does not require a permit modification), including a reduction in the frequency of the requirements under items a. and b.

This permit may be modified in accordance with applicable laws and rules to include additional mercury conditions and/or limitations as necessary.

6. Untreated or Partially Treated Sewage Discharge Reporting and Testing Requirements

In accordance with Section 324.3112a of the NREPA, if untreated sewage, including sanitary sewer overflows (SSO) and combined sewer overflows (CSO), or partially treated sewage is directly or indirectly discharged from a sewer system onto land or into the waters of the state, the entity responsible for the sewer system shall immediately, but not more than 24 hours after the discharge begins, notify, by telephone, the Department, local health departments, a daily newspaper of general circulation in the county in which the permittee is located, and a daily newspaper of general circulation in the county or counties in which the municipalities whose waters may be affected by the discharge are located that the discharge is occurring.

The permittee shall also annually contact municipalities, including the superintendent of a public drinking water supply with potentially affected intakes, whose waters may be affected by the permittee's discharge of combined sewage, and if those municipalities wish to be notified in the same manner as specified above, the permittee shall provide such notification. Such notification shall also include a daily newspaper in the county of the affected municipality.

At the conclusion of the discharge, written notification shall be submitted in accordance with and on the “Report of Discharge Form” available via the internet at: http://www.deq.state.mi.us/csosso/ , or, alternatively for combined sewer overflow discharges, in accordance with notification procedures approved by the Department.

In addition, in accordance with Section 324.3112a of the NREPA, each time a discharge of untreated sewage or partially treated sewage occurs, the permittee shall test the affected waters for *Escherichia coli* to assess the risk to the public health as a result of the discharge and shall provide the test results to the affected local county health departments and to the Department. The testing shall be done at locations specified by each affected local county health department but shall not exceed 10 tests for each separate discharge event. The affected local county health department may waive this testing requirement, if it determines that such testing is not needed to assess the risk to the public health as a result of the discharge event. The results of this testing shall be submitted with the written notification required above, or, if the results are not yet available, submit them as soon as they become available. This testing is not required, if the testing has been waived by the local health department, or if the discharge(s) did not affect surface waters.

Permittees accepting sanitary or municipal sewage from other sewage collection systems are encouraged to notify the owners of those systems of the above reporting and testing requirements.

7. Facility Contact

The “Facility Contact” was specified in the application. The permittee may replace the facility contact at any time, and shall notify the Department in writing within 10 days after replacement (including the name, address and telephone number of the new facility contact).

a. The facility contact shall be (or a duly authorized representative of this person):
- for a corporation, a principal executive officer of at least the level of vice president; or a designated representative if the representative is responsible for the overall operation of the facility from which the discharge originates, as described in the permit application or other NPDES form,
- for a partnership, a general partner,
- for a sole proprietorship, the proprietor, or

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Section A. Limitations and Monitoring Requirements

- for a municipal, state, or other public facility, either a principal executive officer, the mayor, village president, city or village manager or other duly authorized employee.

b. A person is a duly authorized representative only if:

- the authorization is made in writing to the Department by a person described in paragraph a. of this section; and
- the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the facility (a duly authorized representative may thus be either a named individual or any individual occupying a named position).

Nothing in this section obviates the permittee from properly submitting reports and forms as required by law.

8. Monthly Operating Reports

Part 41 of Act 451 of 1994 as amended, specifically Section 324.4106 and associated R 299.2953, requires that the permittee file with the Department, on forms prescribed by the Department, reports showing the effectiveness of the treatment facility operation and the quantity and quality of liquid wastes discharged into waters of the state.

Since this permit includes modifications to the monitoring requirements in the previously-issued permit, the previously approved treatment facility monitoring program shall be revised. Within thirty (30) days of the effective date of this permit, the permittee shall submit to the Department a revised treatment facility monitoring program to meet this requirement. Upon approval by the Department the permittee shall implement the revised treatment facility monitoring program. The reporting forms and guidance are available on the DEQ web site at http://www.michigan.gov/deq/0,1607,7-135-3313_44117---,00.html. The permittee may use alternative operating forms if they are consistent with the approved monitoring program. These forms shall be maintained on site and shall be provided to the Department for review upon request. These treatment facility monitoring records shall be maintained for a minimum of three years.

9. Asset Management

The permittee shall at all times properly operate and maintain all facilities (i.e., the sewer system and treatment works as defined in Part 41 of the NREPA), and control systems installed or used by the permittee to operate the sewer system and treatment works and achieve and maintain compliance with the conditions of this permit (also see Part II.D.3 of this permit). The requirements of an Asset Management Program function to achieve the goals of effective performance, adequate funding, and adequate operator staffing and training. Asset management is a planning process for ensuring that optimum value is gained for each asset and that financial resources are available to rehabilitate and replace those assets when necessary. Asset management is centered on a framework of five (5) core elements: the current state of the assets; the required sustainable level of service; the assets critical to sustained performance; the minimum life-cycle costs; and the best long-term funding strategy.

a. Asset Management Program Requirements

On or before May 1, 2019, the permittee shall submit to the Department an Asset Management Plan for review and approval. An approvable Asset Management Plan shall contain a schedule for the development and implementation of an Asset Management Program that meets the requirements outlined below in 1) – 4). A copy of any Asset Management Program requirements already completed by the permittee should be submitted as part of the Asset Management Plan. Upon approval by the Department the permittee shall implement the Asset Management Plan. (The permittee may choose to include the Operation and Maintenance Manual required under Part II.C.14. of this permit as part of their Asset Management Program).

1) *Maintenance Staff.* The permittee shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit. The level of staffing needed shall be determined by taking into account the work involved in operating

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Section A. Limitations and Monitoring Requirements

the sewer system and treatment works, planning for and conducting maintenance, and complying with this permit.

2) *Collection System Map.* The permittee shall complete a map of the sewer collection system it owns and operates. The map shall be of sufficient detail and at a scale to allow easy interpretation. The collection system information shown on the map shall be based on current conditions and shall be kept up-to-date and available for review by the Department. **Note: Items below referencing combined sewer systems are not applicable to separate sewer systems.** Such map(s) shall include but not be limited to the following:

a) all sanitary sewer lines and related manholes;

b) all combined sewer lines, related manholes, catch basins and CSO regulators;

c) all known or suspected connections between the sanitary sewer or combined sewer and storm drain systems;

d) all outfalls, including the treatment plant outfall(s), combined sewer treatment facility outfalls, untreated CSOs, and any known SSOs;

e) all pump stations and force mains;

f) the wastewater treatment facility(ies), including all treatment processes;

g) all surface waters (labeled);

h) other major appurtenances such as inverted siphons and air release valves;

i) a numbering system which uniquely identifies manholes, catch basins, overflow points, regulators and outfalls;

j) the scale and a north arrow;

k) the pipe diameter, date of installation, type of material, distance between manholes, and the direction of flow; and

l) the manhole interior material, rim elevation (optional), and invert elevations.

3) *Inventory and assessment of fixed assets.* The permittee shall complete an inventory and assessment of operations-related fixed assets. Fixed assets are assets that are normally stationary (e.g., pumps, blowers, and buildings). The inventory and assessment shall be based on current conditions and shall be kept up-to-date and available for review by the Department.

a) The fixed asset inventory shall include the following:

(1) a brief description of the fixed asset, its design capacity (e.g., pump: 120 gallons per minute), its level of redundancy, and its tag number if applicable;

(2) the location of the fixed asset;

(3) the year the fixed asset was installed;

(4) the present condition of the fixed asset (e.g., excellent, good, fair, poor); and

(5) the current fixed asset (replacement) cost in dollars for year specified in accordance with approved schedules;

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b) The fixed asset assessment shall include a "Business Risk Evaluation" that combines the probability of failure of the fixed asset and the criticality of the fixed asset, as follows:

(1) Rate the probability of failure of the fixed asset on a scale of 1-5 (low to high) using criteria such as maintenance history, failure history, and remaining percentage of useful life (or years remaining);

(2) Rate the criticality of the fixed asset on a scale of 1-5 (low to high) based on the consequence of failure versus the desired level of service for the facility; and

(3) Compute the Business Risk Factor of the fixed asset by multiplying the failure rating from (1) by the criticality rating from (2).

4) *Operation, Maintenance & Replacement (OM&R) Budget and Rate Sufficiency for the Sewer System and Treatment Works.* The permittee shall complete an assessment of its user rates and replacement fund, including the following:

a) beginning and end dates of fiscal year;

b) name of the department, committee, board, or other organization that sets rates for the operation of the sewer system and treatment works;

c) amount in the permittee's replacement fund in dollars for year specified in accordance with approved schedules;

d) replacement fund strategy of all assets with a useful life of 20 years or less;

e) expenditures for maintenance, corrective action and capital improvement taken during the fiscal year;

f) OM&R budget for the fiscal year; and

g) rate calculation demonstrating sufficient revenues to cover OM&R expenses. If the rate calculation shows there are insufficient revenues to cover OM&R expenses, the permittee shall document, within three (3) fiscal years after submittal of the Asset Management Plan, that there is at least one rate adjustment that reduces the revenue gap by at least 10 percent. The permittee may prepare and submit an alternate plan, subject to Department approval, for addressing the revenue gap. The ultimate goal of the Asset Management Program is to ensure sufficient revenues to cover OM&R expenses.

b. Annual Reporting

Following Department approval of the permittee's Asset Management Plan, the permittee shall develop a written report that summarizes asset management activities completed during the previous year and planned for the upcoming year. The written report shall be submitted to the Department on or before August 1 of each year. The written report shall include:

1) a description of the staffing levels maintained during the year;

2) a description of inspections and maintenance activities conducted and corrective actions taken during the previous year;

3) expenditures for collection system maintenance activities, treatment works maintenance activities, corrective actions, and capital improvement during the previous year;

4) a summary of assets/areas identified for inspection/action (including capital improvement) in the upcoming year based on the five (5) core elements and the Business Risk Factors;

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5) a maintenance budget and capital improvement budget for the upcoming year that take into account implementation of an effective Asset Management Program that meets the five (5) core elements;

6) an updated asset inventory based on the original submission; and

7) an updated OM&R budget with an updated rate schedule that includes the amount of insufficient revenues, if any.

10. Discharge Monitoring Report – Quality Assurance Study Program

The permittee shall participate in the Discharge Monitoring Report – Quality Assurance (DMR-QA) Study Program. The purpose of the DMR-QA Study Program is to annually evaluate the proficiency of all in-house and/or contract laboratory(ies) that perform, on behalf of the facility authorized to discharge under this permit, the analytical testing required under this permit. In accordance with Section 308 of the Clean Water Act (33 U.S.C. § 1318); and R 323.2138 and R 323.2154 of Part 21, Wastewater Discharge Permits, promulgated under Part 31 of the NREPA, participation in the DMR-QA Study Program is required for all major facilities, and for minor facilities selected for participation by the Department.

Annually and in accordance with DMR-QA Study Program requirements and submittal due dates, the permittee shall submit to the Michigan DMR-QA Study Program state coordinator all documentation required by the DMR-QA Study. DMR-QA Study Program participation is required only for the analytes required under this permit and only when those analytes are also identified in the DMR-QA Study.

If the permitted facility's status as a major facility should change, participation in the DMR-QA Study Program may be reevaluated. Questions concerning participation in the DMR-QA Study Program should be directed to the Michigan DMR-QA Study Program state coordinator.

All forms and instructions required for participation in the DMR-QA Study Program, including submittal due dates and state coordinator contact information, can be found at http://www.epa.gov/compliance/discharge-monitoring-report-quality-assurance-study-program.

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Section B. Storm Water Pollution Prevention

1. Final Effluent Limitations and Monitoring Requirements

The permittee is authorized to discharge storm water associated with industrial activity, as defined under 40 CFR 122.26(b)(14)(i-ix), to the surface waters of the state. Such discharge shall be limited and monitored by the permittee as specified below.

a. Narrative Standard

The receiving water shall contain no turbidity, color, oil films, floating solids, foams, settleable solids, suspended solids, or deposits as a result of this discharge in unnatural quantities which are or may become injurious to any designated use.

b. Visual Assessment of Storm Water Discharges

To ensure that storm water discharges from the facility do not violate the narrative standard in the receiving waters, storm water discharges shall be visually assessed in accordance with this permit.

c. Implementation of Storm Water Pollution Prevention Plan

The permittee shall implement an acceptable Storm Water Pollution Prevention Plan (SWPPP) as required by this permit.

d. Certified Operator

The permittee shall have an Industrial Storm Water Certified Operator who has supervision over the facility's storm water treatment and control measures included in the SWPPP.

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The Storm Water Pollution Prevention Plan (SWPPP) is a written procedure to reduce the exposure of storm water to significant materials and to reduce the amount of significant materials in the storm water discharge. An acceptable SWPPP shall identify potential sources of contamination and describe the controls necessary to reduce their impacts in accordance with Part I.B.2. through Part I.B.8. of this permit.

2. Source Identification

To identify potential sources of significant materials that can pollute storm water and subsequently be discharged from the facility, the SWPPP shall, at a minimum, include the following:

a. A site map identifying:

1) buildings and other permanent structures;

2) storage or disposal areas for significant materials;

3) secondary containment structures and descriptions of the significant materials contained within the primary containment structures;

4) storm water discharge points (which include outfalls and points of discharge), numbered or otherwise labeled for reference;

5) location of storm water and non-storm water inlets (numbered or otherwise labeled for reference) contributing to each discharge point;

6) location of NPDES-permitted discharges other than storm water;

7) outlines of the drainage areas contributing to each discharge point;

8) structural controls or storm water treatment facilities;

9) areas of vegetation (with brief descriptions such as lawn, old field, marsh, wooded, etc.);

10) areas of exposed and/or erodible soils and gravel lots;

11) impervious surfaces (e.g., roofs, asphalt, concrete, etc.);

12) name and location of receiving water(s); and

13) areas of known or suspected impacts on surface waters as designated under Part 201 (Environmental Response) of the NREPA.

b. A list of all significant materials that could pollute storm water. For each material listed, the SWPPP shall include each of the following descriptions:

1) the ways in which each type of significant material has been, or has reasonable potential to become, exposed to storm water (e.g., spillage during handling; leaks from pipes, pumps, and vessels; contact with storage piles, contaminated materials, or soils; waste handling and disposal; deposits from dust or overspray; etc.);

2) identification of the discharge point(s) and the inlet(s) contributing the significant material to each discharge point through which the significant material may be discharged if released; and

3) an evaluation of the reasonable potential for contribution of significant materials to storm water from at least the following areas or activities:

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Section B. Storm Water Pollution Prevention

a) loading, unloading, and other significant material-handling operations;

b) outdoor storage, including secondary containment structures;

c) outdoor manufacturing or processing activities;

d) significant dust- or particulate-generating processes;

e) discharge from vents, stacks, and air emission controls;

f) on-site waste disposal practices;

g) maintenance and cleaning of vehicles, machines, and equipment;

h) areas of exposed and/or erodible soils;

i) Sites of Environmental Contamination listed under Part 201 (Environmental Response) of the NREPA;

j) areas of significant material residues;

k) areas where animals (wild or domestic) congregate and deposit wastes; and

l) other areas where storm water may come into contact with significant materials.

c. A listing of significant spills and significant leaks of polluting materials that occurred in areas that are exposed to precipitation or that discharge to a point source at the facility. The listing shall include spills that occurred over the three (3) years prior to the effective date of a permit authorizing discharge. The listing shall include the date, volume, and exact location of the release, and the action taken to clean up the material and/or prevent exposure to storm water or contamination of surface waters of the state. Any release that occurs after the SWPPP has been developed shall be controlled in accordance with the SWPPP and is cause for the SWPPP to be updated as appropriate within 14 calendar days of obtaining knowledge of the spill or loss.

d. A determination as to whether its facility discharges storm water to a water body for which an EPA-approved Total Maximum Daily Load (TMDL) has been established. If so, the permittee shall assess whether the TMDL requirements for the facility's discharge are being met through the existing SWPPP controls or whether additional control measures are necessary. The permitee's assessment of whether the TMDL requirements are being met shall focus on the effectiveness, adequacy, and implementation of the permitee's SWPPP controls.

e. A summary of existing storm water discharge sampling data (if available), describing pollutants in storm water discharges at the facility. This summary shall be accompanied by a description of the suspected source(s) of the pollutants detected.

3. Nonstructural Controls

To prevent significant materials from contacting storm water at the source, the SWPPP shall, at a minimum, include each of the following nonstructural controls:

a. Written procedures and a schedule for routine preventive maintenance. Preventive maintenance procedures shall describe routine inspections and maintenance of storm water management and control devices (e.g., cleaning of oil/water separators and catch basins, routine housekeeping activities, etc.), as well as inspecting and testing plant equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to the storm sewer system or the surface waters of the state. The routine inspection shall include areas of the facility in which significant materials

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have the reasonable potential to contaminate storm water. A written report of the inspection and corrective actions shall be retained in accordance with Record Keeping, below.

b. Written procedures and a schedule for good housekeeping to maintain a clean, orderly facility. Good housekeeping procedures shall include routine inspections that focus on the areas of the facility that have a reasonable potential to contaminate storm water entering the property. The routine housekeeping inspections may be combined with the routine inspections for the preventive maintenance program. A written report of the inspection and corrective actions shall be retained in accordance with Record Keeping, below.

c. Written procedures and a schedule for **quarterly** comprehensive site inspections, to be conducted by the Industrial Storm Water Certified Operator. At a minimum, one inspection shall be performed within each of the following quarters: January-March, April-June, July-September, and October-December. The comprehensive site inspections shall include, but not be limited to, inspection of structural controls in use at the facility, and the areas and equipment identified in the routine preventive maintenance and good housekeeping procedures. These inspections shall also include a review of the routine preventive maintenance reports, good housekeeping inspection reports, and any other paperwork associated with the SWPPP. The permittee may request Department approval of an alternate schedule for comprehensive site inspections. A written report of the inspection and corrective actions shall be retained in accordance with Record Keeping, below, and the following shall be included on the comprehensive inspection form/report:

1) Date of the inspection.

2) Name(s), title(s), and certification number(s) of the personnel conducting the inspection.

3) Precipitation information (i.e., a description of recent rainfall/snowmelt events).

4) All observations relating to the implementation of control measures. Items to include if applicable:

   a) updates on corrective actions implemented due to previously identified pollutant and/or discharge issues;

   b) any evidence of, or the potential for, pollutants to discharge to the drainage system or receiving waters and the condition of and around the discharge point including flow dissipation measures needing maintenance or repairs;

   c) any control measures needing maintenance or repairs; and

   d) any additional control measures needed to comply with permit requirements.

5) Any required revisions to the SWPPP resulting from the inspection.

6) A written certification stating the facility is in compliance with this permit and the SWPPP, or, if there are instances of noncompliance, they are identified.

7) Written procedures and a schedule for **quarterly** visual assessments of storm water discharges. At a minimum, one visual assessment shall be conducted within each of the following quarters: January-March, April-June, July-September, and October-December. These assessments shall be conducted as part of the comprehensive site inspection within one month of control measure observations made in accordance with 4), above. If the Department has approved an alternate schedule for the comprehensive site inspection, the visual assessment may likewise be conducted in accordance with the same approved alternate schedule.

The following are the requirements of the visual assessment. The permittee shall develop and clearly document, in writing, procedures for meeting these requirements:

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a) Within six (6) months of the effective date of this permit, the permittee shall develop written procedures for conducting the visual assessment and incorporate these procedures into the SWPPP. If Qualified Personnel rather than an Industrial Storm Water Certified Operator will collect storm water samples, these procedures shall include a written description of the training given to these personnel to qualify them to collect the samples, as well as documentation verifying that these personnel have received this training. The first visual assessment shall be conducted in conjunction with the next occurring comprehensive inspection. If changes resulting in altered drainage patterns occur at the facility, the permittee shall modify the procedures for conducting the visual assessment in accordance with the requirements of Keeping SWPPPs Current, below, and these modifications shall be incorporated into the SWPPP prior to conducting the next visual assessment.

b) A visual assessment shall be conducted of a representative storm water **sample** collected **from each storm water discharge point**. Storm water samples shall be visually assessed for conditions that could cause a violation of water quality standards as defined in Water Quality Standards, below. The visual assessment shall be made of the storm water sample in a clean, clear glass or plastic container. Only an Industrial Storm Water Certified Operator shall conduct this visual assessment. Visual assessment of the storm water sample shall be conducted within 48 hours of sample collection.

Representative storm water samples shall be collected:

(1) from each storm water discharge point identified as set forth under Source Identification, above. These samples may be collected by one or more of the following: an Industrial Storm Water Certified Operator; and/or an individual who meets qualifications acceptable to the Department and who is authorized by an Industrial Storm Water Certified Operator to collect the sample (“Qualified Personnel”); and/or an automated sampling device; and

(2) within the first 30 minutes of the start of a discharge from a storm event and on discharges that occur at least 72 hours (3 days) from the previous discharge. If it is not possible to collect the sample within the first 30 minutes of discharge, the sample shall be collected as soon thereafter as practicable, but not exceeding 60 minutes. In the case of snowmelt, samples shall be collected during a period with measurable discharge from the site.

c) A visual assessment shall be conducted of the storm water **discharge at each storm water discharge point**. (If an automated sampling device is used to collect the storm water sample, this requirement is waived). Either an Industrial Storm Water Certified Operator and/or Qualified Personnel may conduct this visual assessment. This visual assessment may be conducted directly – by someone physically present at the storm water discharge at each storm water discharge point; or it may be conducted indirectly – through the use of a visual recording taken of the storm water discharge at each storm water discharge point. Direct visual assessment shall be conducted at the same time that the storm water sample is collected. Indirect visual assessment shall be conducted using a visual recording taken of the storm water discharge at the same time that the storm water sample was collected.

d) Visual assessments shall be documented. This documentation shall be retained in accordance with Record Keeping, below, and shall include the following:

(1) sampling location(s) at the storm water discharge point(s) identified on the site map (see Source Identification, above);

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Section B. Storm Water Pollution Prevention

(2) storm event information (i.e., length of event expressed in hours, approximate size of event expressed in inches of precipitation, duration of time since previous event that caused a discharge, and date and time the discharge began);

(3) date and time of the visual assessment of each storm water **discharge** at each storm water discharge point;

(4) name(s) and title(s) of the Industrial Storm Water Certified Operator or Qualified Personnel who conducted the visual assessment of the storm water **discharge** at each storm water discharge point. If an automated sampling device was used to collect the storm water sample associated with this discharge point, this documentation requirement is waived;

(5) observations made during visual assessment of the storm water **discharge** at each storm water discharge point. If an automated sampling device was used to collect the storm water sample associated with this discharge point, this documentation requirement is waived;

(6) if applicable, any visual recordings used to conduct the visual assessment of the storm water **discharge** at each storm water discharge point;

(7) date and time of sample collection for each storm water **sample**;

(8) name(s) and title(s) of the Industrial Storm Water Certified Operator or Qualified Personnel who collected the storm water **sample**. If an automated sampling device was used to collect the storm water sample, the permittee shall document that, instead;

(9) date and time of the visual assessment of each storm water **sample**;

(10) name(s), title(s), and operator number(s) of the Industrial Storm Water Certified Operator(s) who conducted the visual assessment of each storm water **sample**;

(11) observations made during visual assessment of each storm water **sample**;

(12) full-color photographic evidence of the storm water **sample** against a white background;

(13) nature of the discharge (i.e., rainfall or snowmelt);

(14) probable sources of any observed storm water contamination; and

(15) if applicable, an explanation for why it was not possible to collect samples within the first 30 minutes of discharge .

e) When adverse weather conditions prevent a visual assessment during the quarter, a substitute visual assessment shall be conducted during the next qualifying storm event. Documentation of the rationale for no visual assessment during a quarter shall be included with the SWPPP records as described in Record Keeping, below. Adverse conditions are those that are dangerous or create inaccessibility for personnel, such as local flooding, high winds, electrical storms, or situations that otherwise make sampling impractical such as drought or extended frozen conditions.

f) If the facility has two (2) or more discharge points that are believed to discharge substantially identical storm water effluents, the facility may conduct visual assessments of the discharge at just one (1) of the discharge points and report that the results also apply to the other substantially identical discharge point(s). The determination of substantially identical discharge points is to be based on the significant material

PART I

Section B. Storm Water Pollution Prevention

evaluation conducted as set forth under Source Identification, above, and shall be clearly documented in the SWPPP. Visual assessments shall be conducted on a rotating basis of each substantially identical discharge point throughout the period of coverage under this permit.

d. A description of material handling procedures and storage requirements for significant materials. Equipment and procedures for cleaning up spills shall be identified in the SWPPP and made available to the appropriate personnel. The procedures shall identify measures to prevent spilled materials or material residues from contaminating storm water entering the property. The SWPPP shall include language describing what a reportable spill or release is and the appropriate reporting requirements in accordance with Part II.C.6. and Part II.C.7. The SWPPP may include, by reference, requirements of either a Pollution Incident Prevention Plan (PIPP) prepared in accordance with the Part 5 Rules (R 324.2001 through R 324.2009 of the Michigan Administrative Code); a Hazardous Waste Contingency Plan prepared in accordance with 40 CFR 264 and 265 Subpart D, as required by Part 111 of the NREPA; or a Spill Prevention Control and Countermeasure (SPCC) plan prepared in accordance with 40 CFR 112.

e. Identification of areas which, due to topography, activities, or other factors, have a high potential for significant soil erosion. Gravel lots shall be included. The SWPPP shall also identify measures used to control soil erosion and sedimentation.

f. A description of the employee training program that will be implemented on an annual basis to inform appropriate personnel at all levels of their responsibility as it relates to the components and goals of the SWPPP. The SWPPP shall identify periodic dates for the employee training program. Records of the employee training program shall be retained in accordance with Record Keeping, below.

g. Identification of actions to limit the discharge of significant materials in order to comply with TMDL requirements, if applicable.

h. Identification of significant materials expected to be present in storm water discharges following implementation of nonstructural preventive measures and source controls.

4. Structural Controls

Where implementation of the measures required by Nonstructural Controls, above, does not control storm water discharges in accordance with Water Quality Standards, below, the SWPPP shall provide a description of the location, function, design criteria, and installation/construction schedule of structural controls for prevention and treatment. Structural controls may be necessary:

a. to prevent uncontaminated storm water from contacting, or being contacted by, significant materials; or

b. if preventive measures are not feasible or are inadequate to keep significant materials at the site from contaminating storm water. Structural controls shall be used to treat, divert, isolate, recycle, reuse, or otherwise manage storm water in a manner that reduces the level of significant materials in the storm water and provides compliance with water quality standards as identified in Water Quality Standards, below.

5. Keeping SWPPPs Current

a. The permittee and/or the Industrial Storm Water Certified Operator shall review the SWPPP annually after it is developed and maintain a written report of the review in accordance with Record Keeping, below. Based on the review, the permittee or the Industrial Storm Water Certified Operator shall amend the SWPPP as needed to ensure continued compliance with the terms and conditions of this permit. The written report shall be submitted to the Department on or before January 10 of each year.

PART I

Section B. Storm Water Pollution Prevention

b. The SWPPP developed under the conditions of a previous permit shall be amended as necessary to ensure compliance with this permit.

c. The SWPPP shall be updated or amended whenever changes at the facility have the potential to increase the exposure of significant materials to storm water, significant spills occur at the facility, or when the SWPPP is determined by the permittee or the Department to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity. Updates based on increased activity or spills at the facility shall include a description of how the permittee intends to control any new sources of significant materials, or respond to and prevent spills in accordance with the requirements of this permit (see Source Identification; Nonstructural Controls; and Structural Controls, above).

d. The Department may notify the permittee at any time that the SWPPP does not meet minimum requirements of this permit. Such notification shall identify why the SWPPP does not meet minimum requirements of this permit. The permittee shall make the required changes to the SWPPP within 30 days after such notification from the Department or authorized representative and shall submit to the Department a written certification that the requested changes have been made.

e. Amendments to the SWPPP shall be signed and retained on-site with the SWPPP pursuant to Signature and SWPPP Review, below.

6. Industrial Storm Water Certified Operator Update

If the Industrial Storm Water Certified Operator is changed or an Industrial Storm Water Certified Operator is added, the permittee shall provide the name and certification number of the new Industrial Storm Water Certified Operator to the Department. If a facility has multiple Industrial Storm Water Certified Operators, the names and certification numbers of all shall be included in the SWPPP.

7. Signature and SWPPP Review

a. The SWPPP shall be reviewed and signed by the Industrial Storm Water Certified Operator(s) and by either the permittee or an authorized representative in accordance with 40 CFR 122.22. The SWPPP and associated records shall be retained on-site at the facility that generates the storm water discharge.

b. The permittee shall make the SWPPP, reports, log books, storm water discharge sampling data (if collected), and items required by Record Keeping, below, available upon request to the Department. The Department makes the non-confidential business portions of the SWPPP available to the public.

8. Record Keeping

The permittee shall maintain records of all SWPPP-related inspection and maintenance activities. Records shall also be kept describing incidents such as spills or other discharges that can affect the quality of storm water. All such records shall be retained for three (3) years. The following records are required by this permit (see Nonstructural Controls; and Keeping SWPPPs Current, above):

a. routine preventive maintenance inspection reports;

b. routine good housekeeping inspection reports;

c. comprehensive site inspection reports;

d. documentation of visual assessments;

e. employee training records; and

f. written summaries of the annual SWPPP review.

PART I

Section B. Storm Water Pollution Prevention

9. Water Quality Standards

At the time of discharge, there shall be no violation of water quality standards in the receiving waters as a result of the storm water discharge. This requirement includes, but is not limited to, the following conditions:

a. In accordance with R 323.1050 of the Part 4 Rules promulgated pursuant to Part 31 of the NREPA, the receiving waters shall not have any of the following unnatural physical properties as a result of this discharge in quantities which are, or may become, injurious to any designated use: turbidity, color, oil films, floating solids, foams, settleable solids, suspended solids, or deposits.

b. Any unusual characteristics of the discharge (i.e., unnatural turbidity, color, oil film, floating solids, foams, settleable solids, suspended solids, or deposits) shall be reported within 24 hours to the Department, followed by a written report within five (5) days detailing the findings of the investigation and the steps taken to correct the condition.

c. Any pollutant for which a level of control is specified to meet a TMDL established by the Department shall be controlled at the facility so that its discharge is reduced by/to the amount specified in the TMDL.

10. Prohibition of Non-Storm Water Discharges

Discharges of material other than storm water shall be in compliance with an NPDES permit issued for the discharge. Storm water shall be defined to include all of the following non-storm water discharges, provided pollution prevention controls for the non-storm water component are identified in the SWPPP:

a. discharges from fire hydrant flushing;

b. potable water sources, including water line flushing;

c. water from fire system testing and fire-fighting training without burned materials or chemical fire suppressants;

d. irrigation drainage;

e. lawn watering;

f. routine building wash-down that does not use detergents or other compounds;

g. pavement wash waters where contamination by toxic or hazardous materials has not occurred (unless all contamination by toxic or hazardous materials has been removed) and where detergents are not used;

h. uncontaminated condensate from air conditioners, coolers, and other compressors and from the outside storage of refrigerated gases or liquids;

i. springs;

j. uncontaminated groundwater;

k. foundation or footing drains where flows are not contaminated with process materials such as solvents; and

l. discharges from fire-fighting activities. Discharges from fire-fighting activities are exempted from the requirement to be identified in the SWPPP.

11. Tracer Dye Discharges

This permit does not authorize the discharge of tracer dyes without approval from the Department. Requests to discharge tracer dyes shall be submitted to the Department in accordance with Rule 1097 (R 323.1097 of the Michigan Administrative Code).

PART I

Section C. Industrial Pretreatment Program

1. Federal Industrial Pretreatment Program

a. The permittee shall implement the Federal Industrial Pretreatment Program approved on June 27, 1985, and any subsequent modifications approved up to the issuance of this permit. Approval of substantial program modifications after the issuance of this permit shall be incorporated into this permit by minor modification in accordance with 40 CFR 122.63.

b. The permittee shall comply with R 323.2301 through R 323.2317 of the Michigan Administrative Code (Part 23 Rules), the General Pretreatment Regulations for Existing and New Sources of Pollution (40 CFR Part 403), and the approved Federal Industrial Pretreatment Program.

c. The permittee shall have the legal authority and necessary interjurisdictional agreements that provide the basis for the implementation and enforcement of the approved Federal Industrial Pretreatment Program throughout the service area. The legal authority and necessary interjurisdictional agreements shall include, at a minimum, the authority to carry out the activities specified in R 323.2306(a).

d. The permittee shall develop procedures which describe, in sufficient detail, program commitments which enable implementation of the approved Federal Industrial Pretreatment Program, 40 CFR Part 403, and the Part 23 Rules in accordance with R 323.2306(c).

e. The permittee shall establish an interjurisdictional agreement (or comparable document) with all tributary governmental jurisdictions. Each interjurisdictional agreement shall contain, at a minimum, the following:

1) identification of the agency responsible for the implementation and enforcement of the approved Federal Industrial Pretreatment Program within the tributary governmental jurisdiction's boundaries; and

2) the provision of the legal authority which provides the basis for the implementation and enforcement of the approved Federal Industrial Pretreatment Program within the tributary governmental jurisdiction's boundaries.

f. The permittee shall prohibit discharges that:

1) cause, in whole or in part, the permittee's failure to comply with any condition of this permit or the NREPA;

2) restrict, in whole or in part, the permittee's management of biosolids;

3) cause, in whole or in part, operational problems at the treatment facility or in its collection system;

4) violate any of the general or specific prohibitions identified in R 323.2303(1) and (2);

5) violate categorical standards identified in R 323.2311; and

6) violate local limits established in accordance with R 323.2303(4).

g. The permittee shall maintain a list of its nondomestic users that meet the criteria of a significant industrial user as identified in R 323.2302(cc).

h. The permittee shall develop an enforcement response plan which describes, in sufficient detail, program commitments which will enable the enforcement of the approved Federal Industrial Pretreatment Program, 40 CFR Part 403, and the Part 23 Rules in accordance with R 323.2306(g).

PART I

Section C. Industrial Pretreatment Program

i. The Department may require modifications to the approved Federal Industrial Pretreatment Program which are necessary to ensure compliance with 40 CFR Part 403 and the Part 23 Rules in accordance with R 323.2309.

j. The permittee shall not implement changes or modifications to the approved Federal Industrial Pretreatment Program without notification to the Department. Any substantial modification shall be subject to Department public noticing and approval in accordance with R 323.2309.

k. The permittee shall maintain an adequate revenue structure and staffing level for effective implementation of the approved Federal Industrial Pretreatment Program.

l. The permittee shall develop and maintain, for a minimum of three (3) years, all records and information necessary to determine nondomestic user compliance with 40 CFR Part 403, Part 23 Rules and the approved Federal Industrial Pretreatment Program. This period of retention shall be extended during the course of any unresolved enforcement action or litigation regarding a nondomestic user or when requested by the Department or the United States Environmental Protection Agency. All of the aforementioned records and information shall be made available upon request for inspection and copying by the Department and the United States Environmental Protection Agency.

m. The permittee shall evaluate the approved Federal Industrial Pretreatment Program for compliance with the 40 CFR Part 403, Part 23 Rules and the prohibitions stated in item f. (above). Based upon this evaluation, the permittee shall propose to the Department all necessary changes or modifications to the approved Federal Industrial Pretreatment Program no later than the next Industrial Pretreatment Program Annual Report due date (see item o. below).

n. The permittee shall develop and enforce local limits to implement the prohibitions listed in item f above. Local limits shall be based upon data representative of actual conditions demonstrated in a maximum allowable headworks loading analysis. An evaluation of whether the existing local limits need to be revised shall be submitted to the Department by October 1, 2019. The submittal shall provide a technical evaluation of the basis upon which this determination was made which includes information regarding the maximum allowable headworks loading, collection system protection criteria, and worker health and safety, based upon data collected since the last local limits review.

The following pollutants shall be evaluated:

1) Arsenic, Cadmium, Chromium, Copper, Cyanide, Lead, Mercury, Nickel, Silver, and Zinc;

2) Pollutants that are subject to limits or monitoring in this permit;

3) Pollutants that have an existing local limit; and,

4) Other pollutants of concern which would reasonably be expected to be discharged or transported by truck or rail or otherwise introduced into the POTW.

o. o. On or before April 1 of each year, the permittee shall submit to the Department, as required by R 323.2310(8), an Industrial Pretreatment Program Annual Report on the status of program implementation and enforcement activities. The reporting period shall begin on January 1st and end on December 31st. At a minimum, the Industrial Pretreatment Program Annual Report shall contain the following items:

1) additions, deletions, and any other modifications to the permittee's previously submitted nondomestic user inventory (R 323.2306(c)(i));

2) additions, deletions, and any other modifications to the permittee's approved Significant Industrial User List (R 323.2306(h));

PART I

Section C. Industrial Pretreatment Program

3) a listing of the names of Significant Industrial Users not inspected by the permittee at least once during the reporting period or at the frequency committed to in the approved Federal Industrial Pretreatment Program;

4) a listing of the names of Significant Industrial Users not sampled for all required pollutants by the permittee at least once during the reporting period or at the frequency committed to in the approved Federal Industrial Pretreatment Program;

5) a listing of the names of Significant Industrial Users without a permit at any time during the reporting period;

6) a listing of the names of nondomestic industrial users in significant noncompliance for each of the criteria as defined in R 323.2302(dd)(i)-(viii);

7) proof of publication of all nondomestic users in significant noncompliance in the largest daily newspaper in the permittee's area;

8) a summary of the enforcement activities by the permittee during the report period. This Summary shall include:

a) a listing of the names of nondomestic users which were the subject of an enforcement action;

b) the enforcement action taken and the date the action was taken; and

c) whether the nondomestic user returned to compliance by the end of the reporting period (include date nondomestic user returned to compliance).

9) a listing of the names of Significant Industrial Users who did not submit pretreatment reports in accordance with requirements specified in their permit during the reporting period;

10) a listing of the names of Significant Industrial Users who did not self-monitor in accordance with requirements specified in their permit during the reporting period;

11) a summary of results of all the sampling and analyses performed of the wastewater treatment plant’s influent, effluent, and biosolids conducted in accordance with approved methods during the reporting period. The summary shall include the monthly average, daily maximum, quantification level, and number of samples analyzed for each pollutant. At a minimum, the results of analyses for all locally limited parameters for at least one monitoring event that tests influent, effluent and biosolids during the reporting period shall be submitted with each report, unless otherwise required by the Department. Sample collection shall be at intervals sufficient to provide pollutant removal rates, unless the pollutant is not measurable; and

12) any other relevant information as requested by the Department.

PART I

Section D. Residuals Management Program

1. Residuals Management Program for Land Application of Biosolids

A permittee seeking authorization to land-apply bulk biosolids or prepare bulk biosolids for land application shall develop and submit a Residuals Management Program (RMP) to the Department (see Part I.D.1.e) for approval. Effective upon Department approval of the permittee's RMP, the permittee is authorized to land-apply bulk biosolids or prepare bulk biosolids for land application in accordance with the requirements established in R 323.2401 through R 323.2418 of the Michigan Administrative Code (Part 24 Rules) which can be obtained via the internet (http://www.michigan.gov/deq/ and on the left side of the screen click on Water, Biosolids & Industrial Pretreatment, Biosolids, then click on Biosolids Laws and Rules Information which is under the Laws & Rules banner in the center of the screen). The permittee's approved RMP, and any approved modifications thereto, are enforceable requirements of this permit. Incineration, landfilling and other residual disposal activities shall be conducted in accordance with Part II.D.7. of this permit.

a. RMP Approval and Implementation
A permittee seeking approval of an RMP shall submit the RMP to the Department (see Part I.D.1.e) at least 180 days prior to the land application of biosolids. The permittee may utilize the RMP Electronic Form which can be obtained via the internet (http://www.michigan.gov/biosolids then click on RMP Electronic Form which is under the Downloads banner in the center of the screen) or obtain detailed requirements from the Department. The RMP shall become effective and shall be implemented by the permittee upon written approval by the Department.

b. Annual Report
On or before October 30 of each year, the permittee shall submit an annual report to the Department for the previous fiscal year of October 1 through September 30. The report shall be submitted electronically via the Department's MiWaters system at https://miwaters.deq.state.mi.us. At a minimum, the report shall contain:

1) a certification that current residuals management practices are in accordance with the approved RMP, or a proposal for modification to the approved RMP; and

2) a completed Biosolids Annual Report Form, available at https://miwaters.deq.state.mi.us.

c. Modifications to the Approved RMP
Prior to implementation of modifications to the RMP, the permittee shall submit proposed modifications to the Department (see Part I.D.1.e.) for approval. The approved modification shall become effective upon the date of approval. Upon written notification, the Department may impose additional requirements and/or limitations to the approved RMP as necessary to protect public health and the environment from any adverse effect of a pollutant in the biosolids.

d. Record Keeping
Records required by the Part 24 Rules shall be kept for a minimum of five years. However, the records documenting cumulative loading for sites subject to cumulative pollutant loading rates shall be kept as long as the site receives biosolids.

e. Contact Information
RMP-related submittals shall be made to the Department.

PART II

Section A. Definitions

Part II may include terms and /or conditions not applicable to discharges covered under this permit.

Section A. Definitions

Acute toxic unit (TU_A) means $100/LC_{50}$ where the LC_{50} is determined from a whole effluent toxicity (WET) test which produces a result that is statistically or graphically estimated to be lethal to 50% of the test organisms.

Annual monitoring frequency refers to a calendar year beginning on January 1 and ending on December 31. When required by this permit, an analytical result, reading, value or observation shall be reported for that period if a discharge occurs during that period.

Authorized public agency means a state, local, or county agency that is designated pursuant to the provisions of section 9110 of Part 91 of the NREPA to implement soil erosion and sedimentation control requirements with regard to construction activities undertaken by that agency.

Best management practices (BMPs) means structural devices or nonstructural practices that are designed to prevent pollutants from entering into storm water, to direct the flow of storm water, or to treat polluted storm water.

Bioaccumulative chemical of concern (BCC) means a chemical which, upon entering the surface waters, by itself or as its toxic transformation product, accumulates in aquatic organisms by a human health bioaccumulation factor of more than 1000 after considering metabolism and other physiochemical properties that might enhance or inhibit bioaccumulation. The human health bioaccumulation factor shall be derived according to R 323.1057(5). Chemicals with half-lives of less than 8 weeks in the water column, sediment, and biota are not BCCs. The minimum bioaccumulation concentration factor (BAF) information needed to define an organic chemical as a BCC is either a field-measured BAF or a BAF derived using the biota-sediment accumulation factor (BSAF) methodology. The minimum BAF information needed to define an inorganic chemical as a BCC, including an organometal, is either a field-measured BAF or a laboratory-measured bioconcentration factor (BCF). The BCCs to which these rules apply are identified in Table 5 of R 323.1057 of the Water Quality Standards.

Biosolids are the solid, semisolid, or liquid residues generated during the treatment of sanitary sewage or domestic sewage in a treatment works. This includes, but is not limited to, scum or solids removed in primary, secondary, or advanced wastewater treatment processes and a derivative of the removed scum or solids.

Bulk biosolids means biosolids that are not sold or given away in a bag or other container for application to a lawn or home garden.

Certificate of Coverage (COC) is a document, issued by the Department, which authorizes a discharge under a general permit.

Chronic toxic unit (TU_C) means $100/MATC$ or $100/IC_{25}$, where the maximum acceptable toxicant concentration (MATC) and IC_{25} are expressed as a percent effluent in the test medium.

Class B biosolids refers to material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PSRP) in accordance with the Part 24 Rules. Processes include aerobic digestion, composting, anaerobic digestion, lime stabilization and air drying.

Combined sewer system is a sewer system in which storm water runoff is combined with sanitary wastes.

PART II

Section A. Definitions

Daily concentration is the sum of the concentrations of the individual samples of a parameter divided by the number of samples taken during any calendar day. If the parameter concentration in any sample is less than the quantification limit, regard that value as zero when calculating the daily concentration. The daily concentration will be used to determine compliance with any maximum and minimum daily concentration limitations (except for pH and dissolved oxygen). When required by the permit, report the maximum calculated daily concentration for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the Discharge Monitoring Reports (DMRs).

For pH, report the maximum value of any *individual* sample taken during the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs and the minimum value of any *individual* sample taken during the month in the "MINIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs. For dissolved oxygen, report the minimum concentration of any *individual* sample in the "MINIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs.

Daily loading is the total discharge by weight of a parameter discharged during any calendar day. This value is calculated by multiplying the daily concentration by the total daily flow and by the appropriate conversion factor. The daily loading will be used to determine compliance with any maximum daily loading limitations. When required by the permit, report the maximum calculated daily loading for the month in the "MAXIMUM" column under "QUANTITY OR LOADING" on the DMRs.

Daily monitoring frequency refers to a 24-hour day. When required by this permit, an analytical result, reading, value or observation shall be reported for that period if a discharge occurs during that period.

Department means the Michigan Department of Environmental Quality.

Detection level means the lowest concentration or amount of the target analyte that can be determined to be different from zero by a single measurement at a stated level of probability.

Discharge means the addition of any waste, waste effluent, wastewater, pollutant, or any combination thereof to any surface water of the state.

EC_{50} means a statistically or graphically estimated concentration that is expected to cause 1 or more specified effects in 50% of a group of organisms under specified conditions.

Fecal coliform bacteria monthly
FOR WWSLs THAT COLLECT AND STORE WASTEWATER AND ARE AUTHORIZED TO DISCHARGE ONLY IN THE SPRING AND/OR FALL ON AN INTERMITTENT BASIS – Fecal coliform bacteria monthly is the geometric mean of all daily concentrations determined during a discharge event. Days on which no daily concentration is determined shall not be used to determine the calculated monthly value. The calculated monthly value will be used to determine compliance with the maximum monthly fecal coliform bacteria limitations. When required by the permit, report the calculated monthly value in the "AVERAGE" column under "QUALITY OR CONCENTRATION" on the DMR. If the period in which the discharge event occurred was partially in each of two months, the calculated monthly value shall be reported on the DMR of the month in which the last day of discharge occurred.

FOR ALL OTHER DISCHARGES – Fecal coliform bacteria monthly is the geometric mean of all daily concentrations determined during a reporting month. Days on which no daily concentration is determined shall not be used to determine the calculated monthly value. The calculated monthly value will be used to determine compliance with the maximum monthly fecal coliform bacteria limitations. When required by the permit, report the calculated monthly value in the "AVERAGE" column under "QUALITY OR CONCENTRATION" on the DMR.

PART II

Section A. Definitions

Fecal coliform bacteria 7-day
FOR WWSLs THAT COLLECT AND STORE WASTEWATER AND ARE AUTHORIZED TO DISCHARGE ONLY IN THE SPRING AND/OR FALL ON AN INTERMITTENT BASIS – Fecal coliform bacteria 7-day is the geometric mean of the daily concentrations determined during any 7 consecutive days of discharge during a discharge event. If the number of daily concentrations determined during the discharge event is less than 7 days, the number of actual daily concentrations determined shall be used for the calculation. Days on which no daily concentration is determined shall not be used to determine the value. The calculated 7-day value will be used to determine compliance with the maximum 7-day fecal coliform bacteria limitations. When required by the permit, report the maximum calculated 7-day geometric mean value for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs. If the 7-day period was partially in each of two months, the value shall be reported on the DMR of the month in which the last day of discharge occurred.

FOR ALL OTHER DISCHARGES – Fecal coliform bacteria 7-day is the geometric mean of the daily concentrations determined during any 7 consecutive days in a reporting month. If the number of daily concentrations determined is less than 7, the actual number of daily concentrations determined shall be used for the calculation. Days on which no daily concentration is determined shall not be used to determine the value. The calculated 7-day value will be used to determine compliance with the maximum 7-day fecal coliform bacteria limitations. When required by the permit, report the maximum calculated 7-day geometric mean for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs. The first calculation shall be made on day 7 of the reporting month, and the last calculation shall be made on the last day of the reporting month.

Flow-proportioned sample is a composite sample with the sample volume proportional to the effluent flow.

General permit means a National Pollutant Discharge Elimination System permit issued authorizing a category of similar discharges.

Geometric mean is the average of the logarithmic values of a base 10 data set, converted back to a base 10 number.

Grab sample is a single sample taken at neither a set time nor flow.

IC_{25} means the toxicant concentration that would cause a 25% reduction in a nonquantal biological measurement for the test population.

Illicit connection means a physical connection to a municipal separate storm sewer system that primarily conveys non-storm water discharges other than uncontaminated groundwater into the storm sewer; or a physical connection not authorized or permitted by the local authority, where a local authority requires authorization or a permit for physical connections.

Illicit discharge means any discharge to, or seepage into, a municipal separate storm sewer system that is not composed entirely of storm water or uncontaminated groundwater. Illicit discharges include non-storm water discharges through pipes or other physical connections; dumping of motor vehicle fluids, household hazardous wastes, domestic animal wastes, or litter; collection and intentional dumping of grass clippings or leaf litter; or unauthorized discharges of sewage, industrial waste, restaurant wastes, or any other non-storm water waste directly into a separate storm sewer.

Individual permit means a site-specific NPDES permit.

Inlet means a catch basin, roof drain, conduit, drain tile, retention pond riser pipe, sump pump, or other point where storm water or wastewater enters into a closed conveyance system prior to discharge off site or into waters of the state.

PART II

Section A. Definitions

Interference is a discharge which, alone or in conjunction with a discharge or discharges from other sources, both: 1) inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and 2) therefore, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or, of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including state regulations contained in any state sludge management plan prepared pursuant to Subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act. [This definition does not apply to sample matrix interference].

Land application means spraying or spreading biosolids or a biosolids derivative onto the land surface, injecting below the land surface, or incorporating into the soil so that the biosolids or biosolids derivative can either condition the soil or fertilize crops or vegetation grown in the soil.

LC_{50} means a statistically or graphically estimated concentration that is expected to be lethal to 50% of a group of organisms under specified conditions.

Maximum acceptable toxicant concentration (MATC) means the concentration obtained by calculating the geometric mean of the lower and upper chronic limits from a chronic test. A lower chronic limit is the highest tested concentration that did not cause the occurrence of a specific adverse effect. An upper chronic limit is the lowest tested concentration which did cause the occurrence of a specific adverse effect and above which all tested concentrations caused such an occurrence.

Maximum extent practicable means implementation of best management practices by a public body to comply with an approved storm water management program as required by a national permit for a municipal separate storm sewer system, in a manner that is environmentally beneficial, technically feasible, and within the public body's legal authority.

MGD means million gallons per day.

Monthly concentration is the sum of the daily concentrations determined during a reporting period divided by the number of daily concentrations determined. The calculated monthly concentration will be used to determine compliance with any maximum monthly concentration limitations. Days with no discharge shall not be used to determine the value. When required by the permit, report the calculated monthly concentration in the "AVERAGE" column under "QUALITY OR CONCENTRATION" on the DMR.

For minimum percent removal requirements, the monthly influent concentration and the monthly effluent concentration shall be determined. The calculated monthly percent removal, which is equal to 100 times the quantity [1 minus the quantity (monthly effluent concentration divided by the monthly influent concentration)], shall be reported in the "MINIMUM" column under "QUALITY OR CONCENTRATION" on the DMRs.

Monthly loading is the sum of the daily loadings of a parameter divided by the number of daily loadings determined during a reporting period. The calculated monthly loading will be used to determine compliance with any maximum monthly loading limitations. Days with no discharge shall not be used to determine the value. When required by the permit, report the calculated monthly loading in the "AVERAGE" column under "QUANTITY OR LOADING" on the DMR.

Monthly monitoring frequency refers to a calendar month. When required by this permit, an analytical result, reading, value or observation shall be reported for that period if a discharge occurs during that period.

Municipal separate storm sewer means a conveyance or system of conveyances designed or used for collecting or conveying storm water which is not a combined sewer and which is not part of a publicly-owned treatment works as defined in the Code of Federal Regulations at 40 CFR 122.2.

PART II

Section A. Definitions

Municipal separate storm sewer system (MS4) means all separate storm sewers that are owned or operated by the United States, a state, city, village, township, county, district, association, or other public body created by or pursuant to state law, having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under state law, such as a sewer district, flood control district, or drainage district, or similar entity, or a designated or approved management agency under Section 208 of the Federal Act that discharges to the waters of the state. This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

National Pretreatment Standards are the regulations promulgated by or to be promulgated by the Federal Environmental Protection Agency pursuant to Section 307(b) and (c) of the Federal Act. The standards establish nationwide limits for specific industrial categories for discharge to a POTW.

No observed adverse effect level (NOAEL) means the highest tested dose or concentration of a substance which results in no observed adverse effect in exposed test organisms where higher doses or concentrations result in an adverse effect.

Noncontact cooling water is water used for cooling which does not come into direct contact with any raw material, intermediate product, by-product, waste product or finished product.

Nondomestic user is any discharger to a POTW that discharges wastes other than or in addition to water-carried wastes from toilet, kitchen, laundry, bathing or other facilities used for household purposes.

Outfall is the location at which a point source discharge enters the surface waters of the state.

Part 91 agency means an agency that is designated by a county board of commissioners pursuant to the provisions of section 9105 of Part 91 of the NREPA; an agency that is designated by a city, village, or township in accordance with the provisions of section 9106 of Part 91 of the NREPA; or the Department for soil erosion and sedimentation activities under Part 615, Part 631, or Part 632 pursuant to the provisions of section 9115 of Part 91 of the NREPA.

Part 91 permit means a soil erosion and sedimentation control permit issued by a Part 91 agency pursuant to the provisions of Part 91 of the NREPA.

Partially treated sewage is any sewage, sewage and storm water, or sewage and wastewater, from domestic or industrial sources that is treated to a level less than that required by the permittee's National Pollutant Discharge Elimination System permit, or that is not treated to national secondary treatment standards for wastewater, including discharges to surface waters from retention treatment facilities.

Point of discharge is the location of a point source discharge where storm water is discharged directly into a separate storm sewer system.

Point source discharge means a discharge from any discernible, confined, discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, or rolling stock. Changing the surface of land or establishing grading patterns on land will result in a point source discharge where the runoff from the site is ultimately discharged to waters of the state.

Polluting material means any material, in solid or liquid form, identified as a polluting material under the Part 5 Rules (R 324.2001 through R 324.2009 of the Michigan Administrative Code).

POTW is a publicly owned treatment work.

PART II

Section A. Definitions

Pretreatment is reducing the amount of pollutants, eliminating pollutants, or altering the nature of pollutant properties to a less harmful state prior to discharge into a public sewer. The reduction or alteration can be by physical, chemical, or biological processes, process changes, or by other means. Dilution is not considered pretreatment unless expressly authorized by an applicable National Pretreatment Standard for a particular industrial category.
Public (as used in the MS4 individual permit) means all persons who potentially could affect the authorized storm water discharges, including, but not limited to, residents, visitors to the area, public employees, businesses, industries, and construction contractors and developers.

Public body means the United States; the state of Michigan; a city, village, township, county, school district, public college or university, or single-purpose governmental agency; or any other body which is created by federal or state statute or law.

Qualified Personnel means an individual who meets qualifications acceptable to the Department and who is authorized by an Industrial Storm Water Certified Operator to collect the storm water sample.

Qualifying storm event means a storm event causing greater than 0.1 inch of rainfall and occurring at least 72 hours after the previous measurable storm event that also caused greater than 0.1 inch of rainfall. Upon request, the Department may approve an alternate definition meeting the condition of a qualifying storm event.

Quantification level means the measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calculated at a specified concentration above the detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant.

Quarterly monitoring frequency refers to a three month period, defined as January through March, April through June, July through September, and October through December. When required by this permit, an analytical result, reading, value or observation shall be reported for that period if a discharge occurs during that period.

Regional Administrator is the Region 5 Administrator, U.S. EPA, located at R-19J, 77 W. Jackson Blvd., Chicago, Illinois 60604.

Regulated area means the permittee's urbanized area, where urbanized area is defined as a place and its adjacent densely-populated territory that together have a minimum population of 50,000 people as defined by the United States Bureau of the Census and as determined by the latest available decennial census.

Secondary containment structure means a unit, other than the primary container, in which significant materials are packaged or held, which is required by State or Federal law to prevent the escape of significant materials by gravity into sewers, drains, or otherwise directly or indirectly into any sewer system or to the surface or ground waters of this state.

Separate storm sewer system means a system of drainage, including, but not limited to, roads, catch basins, curbs, gutters, parking lots, ditches, conduits, pumping devices, or man-made channels, which is not a combined sewer where storm water mixes with sanitary wastes, and is not part of a POTW.

Significant industrial user is a nondomestic user that: 1) is subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; or 2) discharges an average of 25,000 gallons per day or more of process wastewater to a POTW (excluding sanitary, noncontact cooling and boiler blowdown wastewater); contributes a process waste stream which makes up five (5) percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the permittee as defined in 40 CFR 403.12(a) on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's treatment plant operation or violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

PART II

Section A. Definitions

Significant materials Significant Materials means any material which could degrade or impair water quality, including but not limited to: raw materials; fuels; solvents, detergents, and plastic pellets; finished materials such as metallic products; hazardous substances designated under Section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (see 40 CFR 372.65); any chemical the facility is required to report pursuant to Section 313 of Emergency Planning and Community Right-to-Know Act (EPCRA); polluting materials as identified under the Part 5 Rules (R 324.2001 through R 324.2009 of the Michigan Administrative Code); Hazardous Wastes as defined in Part 111 of the NREPA; fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges.

Significant spills and significant leaks means any release of a polluting material reportable under the Part 5 Rules (R 324.2001 through R 324.2009 of the Michigan Administrative Code).

Special-use area means secondary containment structures required by state or federal law; lands on Michigan's List of Sites of Environmental Contamination pursuant to Part 201, Environmental Remediation, of the NREPA; and/or areas with other activities that may contribute pollutants to the storm water for which the Department determines monitoring is needed.

Stoichiometric means the quantity of a reagent calculated to be necessary and sufficient for a given chemical reaction.

Storm water means storm water runoff, snow melt runoff, surface runoff and drainage, and non-storm water included under the conditions of this permit.

Storm water discharge point is the location where the point source discharge of storm water is directed to surface waters of the state or to a separate storm sewer. It includes the location of all point source discharges where storm water exits the facility, including *outfalls* which discharge directly to surface waters of the state, and *points of discharge* which discharge directly into separate storm sewer systems.

SWPPP means the Storm Water Pollution Prevention Plan prepared in accordance with this permit.

Tier I value means a value for aquatic life, human health or wildlife calculated under R 323.1057 of the Water Quality Standards using a tier I toxicity database.

Tier II value means a value for aquatic life, human health or wildlife calculated under R 323.1057 of the Water Quality Standards using a tier II toxicity database.

Total maximum daily loads (TMDLs) are required by the Federal Act for waterbodies that do not meet water quality standards. TMDLs represent the maximum daily load of a pollutant that a waterbody can assimilate and meet water quality standards, and an allocation of that load among point sources, nonpoint sources, and a margin of safety.

Toxicity reduction evaluation (TRE) means a site-specific study conducted in a stepwise process designed to identify the causative agents of effluent toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in effluent toxicity.

Water Quality Standards means the Part 4 Water Quality Standards promulgated pursuant to Part 31 of the NREPA, being R 323.1041 through R 323.1117 of the Michigan Administrative Code.

Weekly monitoring frequency refers to a calendar week which begins on Sunday and ends on Saturday. When required by this permit, an analytical result, reading, value or observation shall be reported for that period if a discharge occurs during that period.

WWSL is a wastewater stabilization lagoon.

WWSL discharge event is a discrete occurrence during which effluent is discharged to the surface water up to 10 days of a consecutive 14 day period.

PART II

Section A. Definitions

3-portion composite sample is a sample consisting of three equal-volume grab samples collected at equal intervals over an 8-hour period.

7-day concentration
FOR WWSLs THAT COLLECT AND STORE WASTEWATER AND ARE AUTHORIZED TO DISCHARGE ONLY IN THE SPRING AND/OR FALL ON AN INTERMITTENT BASIS – The 7-day concentration is the sum of the daily concentrations determined during any 7 consecutive days of discharge during a WWSL discharge event divided by the number of daily concentrations determined. If the number of daily concentrations determined during the WWSL discharge event is less than 7 days, the number of actual daily concentrations determined shall be used for the calculation. The calculated 7-day concentration will be used to determine compliance with any maximum 7-day concentration limitations. When required by the permit, report the maximum calculated 7-day concentration for the WWSL discharge event in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMR. If the WWSL discharge event was partially in each of two months, the value shall be reported on the DMR of the month in which the last day of discharge occurred.

FOR ALL OTHER DISCHARGES – The 7-day concentration is the sum of the daily concentrations determined during any 7 consecutive days in a reporting month divided by the number of daily concentrations determined. If the number of daily concentrations determined is less than 7, the actual number of daily concentrations determined shall be used for the calculation. The calculated 7-day concentration will be used to determine compliance with any maximum 7-day concentration limitations in the reporting month. When required by the permit, report the maximum calculated 7-day concentration for the month in the "MAXIMUM" column under "QUALITY OR CONCENTRATION" on the DMR. The first 7-day calculation shall be made on day 7 of the reporting month, and the last calculation shall be made on the last day of the reporting month.

7-day loading
FOR WWSLs THAT COLLECT AND STORE WASTEWATER AND ARE AUTHORIZED TO DISCHARGE ONLY IN THE SPRING AND/OR FALL ON AN INTERMITTENT BASIS – The 7-day loading is the sum of the daily loadings determined during any 7 consecutive days of discharge during a WWSL discharge event divided by the number of daily loadings determined. If the number of daily loadings determined during the WWSL discharge event is less than 7 days, the number of actual daily loadings determined shall be used for the calculation. The calculated 7-day loading will be used to determine compliance with any maximum 7-day loading limitations. When required by the permit, report the maximum calculated 7-day loading for the WWSL discharge event in the "MAXIMUM" column under "QUANTITY OR LOADING" on the DMR. If the WWSL discharge event was partially in each of two months, the value shall be reported on the DMR of the month in which the last day of discharge occurred

FOR ALL OTHER DISCHARGES – The 7-day loading is the sum of the daily loadings determined during any 7 consecutive days in a reporting month divided by the number of daily loadings determined. If the number of daily loadings determined is less than 7, the actual number of daily loadings determined shall be used for the calculation. The calculated 7-day loading will be used to determine compliance with any maximum 7-day loading limitations in the reporting month. When required by the permit, report the maximum calculated 7-day loading for the month in the "MAXIMUM" column under "QUANTITY OR LOADING" on the DMR. The first 7-day calculation shall be made on day 7 of the reporting month, and the last calculation shall be made on the last day of the reporting month.

24-hour composite sample is a flow-proportioned composite sample consisting of hourly or more frequent portions that are taken over a 24-hour period. A time-proportioned composite sample may be used upon approval of the Department if the permittee demonstrates it is representative of the discharge.

PART II

Section B. Monitoring Procedures

1. Representative Samples

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Test Procedures

Test procedures for the analysis of pollutants shall conform to regulations promulgated pursuant to Section 304(h) of the Federal Act (40 CFR Part 136 – Guidelines Establishing Test Procedures for the Analysis of Pollutants), unless specified otherwise in this permit. **Test procedures used shall be sufficiently sensitive to determine compliance with applicable effluent limitations**. Requests to use test procedures not promulgated under 40 CFR Part 136 for pollutant monitoring required by this permit shall be made in accordance with the Alternate Test Procedures regulations specified in 40 CFR 136.4. These requests shall be submitted to the Section Manager of the Permits Section, Water Resources Division, Michigan Department of Environmental Quality, P.O. Box 30458, Lansing, Michigan, 48909-7958. The permittee may use such procedures upon approval.

The permittee shall periodically calibrate and perform maintenance procedures on all analytical instrumentation at intervals to ensure accuracy of measurements. The calibration and maintenance shall be performed as part of the permittee's laboratory Quality Control/Quality Assurance program.

3. Instrumentation

The permittee shall periodically calibrate and perform maintenance procedures on all monitoring instrumentation at intervals to ensure accuracy of measurements.

4. Recording Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information: 1) the exact place, date, and time of measurement or sampling; 2) the person(s) who performed the measurement or sample collection; 3) the dates the analyses were performed; 4) the person(s) who performed the analyses; 5) the analytical techniques or methods used; 6) the date of and person responsible for equipment calibration; and 7) the results of all required analyses.

5. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer if requested by the Regional Administrator or the Department.

PART II

Section C. Reporting Requirements

1. Start-up Notification

If the permittee will not discharge during the first 60 days following the effective date of this permit, the permittee shall notify the Department within 14 days following the effective date of this permit, and then 60 days prior to the commencement of the discharge.

2. Submittal Requirements for Self-Monitoring Data

Part 31 of the NREPA (specifically Section 324.3110(7)); and R 323.2155(2) of Part 21, Wastewater Discharge Permits, promulgated under Part 31 of the NREPA, allow the Department to specify the forms to be utilized for reporting the required self-monitoring data. Unless instructed on the effluent limitations page to conduct "Retained Self-Monitoring," the permittee shall submit self-monitoring data via the Department's MiWaters system.

The permittee shall utilize the information provided on the MiWaters website, located at https://miwaters.deq.state.mi.us, to access and submit the electronic forms. Both monthly summary and daily data shall be submitted to the Department no later than the 20th day of the month following each month of the authorized discharge period(s). The permittee may be allowed to submit the electronic forms after this date if the Department has granted an extension to the submittal date.

3. Retained Self-Monitoring Requirements

If instructed on the effluent limits page (or otherwise authorized by the Department in accordance with the provisions of this permit) to conduct retained self-monitoring, the permittee shall maintain a year-to-date log of retained self-monitoring results and, upon request, provide such log for inspection to the staff of the Department. Retained self-monitoring results are public information and shall be promptly provided to the public upon request.

The permittee shall certify, in writing, to the Department, on or before January 10th (April 1st for animal feeding operation facilities) of each year, that: 1) all retained self-monitoring requirements have been complied with and a year-to-date log has been maintained; and 2) the application on which this permit is based still accurately describes the discharge. With this annual certification, the permittee shall submit a summary of the previous year's monitoring data. The summary shall include maximum values for samples to be reported as daily maximums and/or monthly maximums and minimum values for any daily minimum samples.

Retained self-monitoring may be denied to a permittee by notification in writing from the Department. In such cases, the permittee shall submit self-monitoring data in accordance with Part II.C.2., above. Such a denial may be rescinded by the Department upon written notification to the permittee. Reissuance or modification of this permit or reissuance or modification of an individual permittee's authorization to discharge shall not affect previous approval or denial for retained self-monitoring unless the Department provides notification in writing to the permittee.

4. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report. Such increased frequency shall also be indicated.

Monitoring required pursuant to Part 41 of the NREPA or Rule 35 of the Mobile Home Park Commission Act (Act 96 of the Public Acts of 1987) for assurance of proper facility operation shall be submitted as required by the Department.

PART II

Section C. Reporting Requirements

5. Compliance Dates Notification

Within 14 days of every compliance date specified in this permit, the permittee shall submit a *written* notification to the Department indicating whether or not the particular requirement was accomplished. If the requirement was not accomplished, the notification shall include an explanation of the failure to accomplish the requirement, actions taken or planned by the permittee to correct the situation, and an estimate of when the requirement will be accomplished. If a written report is required to be submitted by a specified date and the permittee accomplishes this, a separate written notification is not required.

6. Noncompliance Notification

Compliance with all applicable requirements set forth in the Federal Act, Parts 31 and 41 of the NREPA, and related regulations and rules is required. All instances of noncompliance shall be reported as follows:

a. 24-Hour Reporting
Any noncompliance which may endanger health or the environment (including maximum and/or minimum daily concentration discharge limitation exceedances) shall be reported, verbally, within 24 hours from the time the permittee becomes aware of the noncompliance. A written submission shall also be provided within five (5) days.

b. Other Reporting
The permittee shall report, in writing, all other instances of noncompliance not described in a. above at the time monitoring reports are submitted; or, in the case of retained self-monitoring, within five (5) days from the time the permittee becomes aware of the noncompliance.

Written reporting shall include: 1) a description of the discharge and cause of noncompliance; and 2) the period of noncompliance, including exact dates and times, or, if not yet corrected, the anticipated time the noncompliance is expected to continue, and the steps taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

7. Spill Notification

The permittee shall immediately report any release of any polluting material which occurs to the surface waters or groundwaters of the state, unless the permittee has determined that the release is not in excess of the threshold reporting quantities specified in the Part 5 Rules (R 324.2001 through R 324.2009 of the Michigan Administrative Code), by calling the Department at the number indicated on the second page of this permit (or, if this is a general permit, on the COC); or, if the notice is provided after regular working hours, call the Department's 24-hour Pollution Emergency Alerting System telephone number, 1-800-292-4706 (calls from **out-of-state** dial 1-517-373-7660).

Within ten (10) days of the release, the permittee shall submit to the Department a full written explanation as to the cause of the release, the discovery of the release, response (clean-up and/or recovery) measures taken, and preventive measures taken or a schedule for completion of measures to be taken to prevent reoccurrence of similar releases.

PART II

Section C. Reporting Requirements

8. Upset Noncompliance Notification

If a process "upset" (defined as an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee) has occurred, the permittee who wishes to establish the affirmative defense of upset, shall notify the Department by telephone within 24 hours of becoming aware of such conditions; and within five (5) days, provide in writing, the following information:

a. that an upset occurred and that the permittee can identify the specific cause(s) of the upset;

b. that the permitted wastewater treatment facility was, at the time, being properly operated and maintained (note that an upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation); and

c. that the permittee has specified and taken action on all responsible steps to minimize or correct any adverse impact in the environment resulting from noncompliance with this permit.

No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

In any enforcement proceedings, the permittee, seeking to establish the occurrence of an upset, has the burden of proof.

9. Bypass Prohibition and Notification

a. Bypass Prohibition
Bypass is prohibited, and the Department may take an enforcement action, unless:

1) bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

2) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass; and

3) the permittee submitted notices as required under 9.b. or 9.c. below.

b. Notice of Anticipated Bypass
If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Department, if possible at least ten (10) days before the date of the bypass, and provide information about the anticipated bypass as required by the Department. The Department may approve an anticipated bypass, after considering its adverse effects, if it will meet the three (3) conditions listed in 9.a. above.

c. Notice of Unanticipated Bypass
The permittee shall submit notice to the Department of an unanticipated bypass by calling the Department at the number indicated on the second page of this permit (if the notice is provided after regular working hours, use the following number: 1-800-292-4706) as soon as possible, but no later than 24 hours from the time the permittee becomes aware of the circumstances.

PART II

Section C. Reporting Requirements

d. Written Report of Bypass
A written submission shall be provided within five (5) working days of commencing any bypass to the Department, and at additional times as directed by the Department. The written submission shall contain a description of the bypass and its cause; the period of bypass, including exact dates and times, and if the bypass has not been corrected, the anticipated time it is expected to continue; steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass; and other information as required by the Department.

e. Bypass Not Exceeding Limitations
The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to ensure efficient operation. These bypasses are not subject to the provisions of 9.a., 9.b., 9.c., and 9.d., above. This provision does not relieve the permittee of any notification responsibilities under Part II.C.11. of this permit.

f. Definitions

1) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

2) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

10. Bioaccumulative Chemicals of Concern (BCC)

Consistent with the requirements of R 323.1098 and R 323.1215 of the Michigan Administrative Code, the permittee is prohibited from undertaking any action that would result in a lowering of water quality from an increased loading of a BCC unless an increased use request and antidegradation demonstration have been submitted and approved by the Department.

11. Notification of Changes in Discharge

The permittee shall notify the Department, in writing, as soon as possible but no later than 10 days of knowing, or having reason to believe, that any activity or change has occurred or will occur which would result in the discharge of: 1) detectable levels of chemicals on the current Michigan Critical Materials Register, priority pollutants or hazardous substances set forth in 40 CFR 122.21, Appendix D, or the Pollutants of Initial Focus in the Great Lakes Water Quality Initiative specified in 40 CFR 132.6, Table 6, which were not acknowledged in the application or listed in the application at less than detectable levels; 2) detectable levels of any other chemical not listed in the application or listed at less than detection, for which the application specifically requested information; or 3) any chemical at levels greater than five times the average level reported in the complete application (see the first page of this permit, for the date(s) the complete application was submitted). Any other monitoring results obtained as a requirement of this permit shall be reported in accordance with the compliance schedules.

PART II

Section C. Reporting Requirements

12. Changes in Facility Operations

Any anticipated action or activity, including but not limited to facility expansion, production increases, or process modification, which will result in new or increased loadings of pollutants to the receiving waters must be reported to the Department by a) submission of an increased use request (application) and all information required under R 323.1098 (Antidegradation) of the Water Quality Standards or b) by notice if the following conditions are met: 1) the action or activity will not result in a change in the types of wastewater discharged or result in a greater quantity of wastewater than currently authorized by this permit; 2) the action or activity will not result in violations of the effluent limitations specified in this permit; 3) the action or activity is not prohibited by the requirements of Part II.C.10.; and 4) the action or activity will not require notification pursuant to Part II.C.11. Following such notice, the permit or, if applicable, the facility's COC may be modified according to applicable laws and rules to specify and limit any pollutant not previously limited.

13. Transfer of Ownership or Control

In the event of any change in control or ownership of facilities from which the authorized discharge emanates, the permittee shall submit to the Department 30 days prior to the actual transfer of ownership or control a written agreement between the current permittee and the new permittee containing: 1) the legal name and address of the new owner; 2) a specific date for the effective transfer of permit responsibility, coverage and liability; and 3) a certification of the continuity of or any changes in operations, wastewater discharge, or wastewater treatment.

If the new permittee is proposing changes in operations, wastewater discharge, or wastewater treatment, the Department may propose modification of this permit in accordance with applicable laws and rules.

14. Operations and Maintenance Manual

For wastewater treatment facilities that serve the public (and are thus subject to Part 41 of the NREPA), Section 4104 of Part 41 and associated Rule 2957 of the Michigan Administrative Code allow the Department to require an Operations and Maintenance (O&M) Manual from the facility. An up-to-date copy of the O&M Manual shall be kept at the facility and shall be provided to the Department upon request. The Department may review the O&M Manual in whole or in part at its discretion and require modifications to it if portions are determined to be inadequate.

At a minimum, the O&M Manual shall include the following information: permit standards; descriptions and operation information for all equipment; staffing information; laboratory requirements; record keeping requirements; a maintenance plan for equipment; an emergency operating plan; safety program information; and copies of all pertinent forms, as-built plans, and manufacturer's manuals.

Certification of the existence and accuracy of the O&M Manual shall be submitted to the Department at least sixty days prior to start-up of a new wastewater treatment facility. Recertification shall be submitted sixty days prior to start-up of any substantial improvements or modifications made to an existing wastewater treatment facility.

15. Signatory Requirements

All applications, reports, or information submitted to the Department in accordance with the conditions of this permit and that require a signature shall be signed and certified as described in the Federal Act and the NREPA.

The Federal Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

PART II

Section C. Reporting Requirements

The NREPA (Section 3115(2)) provides that a person who at the time of the violation knew or should have known that he or she discharged a substance contrary to this part, or contrary to a permit, COC, or order issued or rule promulgated under this part, or who intentionally makes a false statement, representation, or certification in an application for or form pertaining to a permit or COC or in a notice or report required by the terms and conditions of an issued permit or COC, or who intentionally renders inaccurate a monitoring device or record required to be maintained by the Department, is guilty of a felony and shall be fined not less than $2,500.00 or more than $25,000.00 for each violation. The court may impose an additional fine of not more than $25,000.00 for each day during which the unlawful discharge occurred. If the conviction is for a violation committed after a first conviction of the person under this subsection, the court shall impose a fine of not less than $25,000.00 per day and not more than $50,000.00 per day of violation. Upon conviction, in addition to a fine, the court in its discretion may sentence the defendant to imprisonment for not more than 2 years or impose probation upon a person for a violation of this part. With the exception of the issuance of criminal complaints, issuance of warrants, and the holding of an arraignment, the circuit court for the county in which the violation occurred has exclusive jurisdiction. However, the person shall not be subject to the penalties of this subsection if the discharge of the effluent is in conformance with and obedient to a rule, order, permit, or COC of the Department. In addition to a fine, the attorney general may file a civil suit in a court of competent jurisdiction to recover the full value of the injuries done to the natural resources of the state and the costs of surveillance and enforcement by the state resulting from the violation.

16. Electronic Reporting

Upon notice by the Department that electronic reporting tools are available for specific reports or notifications, the permittee shall submit electronically all such reports or notifications as required by this permit.

PART II

Section D. Management Responsibilities

1. Duty to Comply

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit, more frequently than, or at a level in excess of, that authorized, shall constitute a violation of the permit.

It is the duty of the permittee to comply with all the terms and conditions of this permit. Any noncompliance with the Effluent Limitations, Special Conditions, or terms of this permit constitutes a violation of the NREPA and/or the Federal Act and constitutes grounds for enforcement action; for permit or Certificate of Coverage (COC) termination, revocation and reissuance, or modification; or denial of an application for permit or COC renewal.

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

2. Operator Certification

The permittee shall have the waste treatment facilities under direct supervision of an operator certified at the appropriate level for the facility certification by the Department, as required by Sections 3110 and 4104 of the NREPA. Permittees authorized to discharge storm water shall have the storm water treatment and/or control measures under direct supervision of a storm water operator certified by the Department, as required by Section 3110 of the NREPA.

3. Facilities Operation

The permittee shall, at all times, properly operate and maintain all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes adequate laboratory controls and appropriate quality assurance procedures.

4. Power Failures

In order to maintain compliance with the effluent limitations of this permit and prevent unauthorized discharges, the permittee shall either:

a. provide an alternative power source sufficient to operate facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit; or

b. upon the reduction, loss, or failure of one or more of the primary sources of power to facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit, the permittee shall halt, reduce or otherwise control production and/or all discharge in order to maintain compliance with the effluent limitations and conditions of this permit.

5. Adverse Impact

The permittee shall take all reasonable steps to minimize or prevent any adverse impact to the surface waters or groundwaters of the state resulting from noncompliance with any effluent limitation specified in this permit including, but not limited to, such accelerated or additional monitoring as necessary to determine the nature and impact of the discharge in noncompliance.

PART II

Section D. Management Responsibilities

6. Containment Facilities

The permittee shall provide facilities for containment of any accidental losses of polluting materials in accordance with the requirements of the Part 5 Rules (R 324.2001 through R 324.2009 of the Michigan Administrative Code). For a Publicly Owned Treatment Work (POTW), these facilities shall be approved under Part 41 of the NREPA.

7. Waste Treatment Residues

Residuals (i.e. solids, sludges, biosolids, filter backwash, scrubber water, ash, grit, or other pollutants or wastes) removed from or resulting from treatment or control of wastewaters, including those that are generated during treatment or left over after treatment or control has ceased, shall be disposed of in an environmentally compatible manner and according to applicable laws and rules. These laws may include, but are not limited to, the NREPA, Part 31 for protection of water resources, Part 55 for air pollution control, Part 111 for hazardous waste management, Part 115 for solid waste management, Part 121 for liquid industrial wastes, Part 301 for protection of inland lakes and streams, and Part 303 for wetlands protection. Such disposal shall not result in any unlawful pollution of the air, surface waters or groundwaters of the state.

8. Right of Entry

The permittee shall allow the Department, any agent appointed by the Department, or the Regional Administrator, upon the presentation of credentials and, for animal feeding operation facilities, following appropriate biosecurity protocols:

a. to enter upon the permittee's premises where an effluent source is located or any place in which records are required to be kept under the terms and conditions of this permit; and

b. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect process facilities, treatment works, monitoring methods and equipment regulated or required under this permit; and to sample any discharge of pollutants.

9. Availability of Reports

Except for data determined to be confidential under Section 308 of the Federal Act and Rule 2128 (R 323.2128 of the Michigan Administrative Code), all reports prepared in accordance with the terms of this permit, shall be available for public inspection at the offices of the Department and the Regional Administrator. As required by the Federal Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Federal Act and Sections 3112, 3115, 4106 and 4110 of the NREPA.

10. Duty to Provide Information

The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or the facility's COC, or to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

PART II

Section E. Activities Not Authorized by This Permit

1. Discharge to the Groundwaters

This permit does not authorize any discharge to the groundwaters. Such discharge may be authorized by a groundwater discharge permit issued pursuant to the NREPA.

2. POTW Construction

This permit does not authorize or approve the construction or modification of any physical structures or facilities at a POTW. Approval for the construction or modification of any physical structures or facilities at a POTW shall be by permit issued under Part 41 of the NREPA.

3. Civil and Criminal Liability

Except as provided in permit conditions on "Bypass" (Part II.C.9. pursuant to 40 CFR 122.41(m)), nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance, whether or not such noncompliance is due to factors beyond the permittee's control, such as accidents, equipment breakdowns, or labor disputes.

4. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee may be subject under Section 311 of the Federal Act except as are exempted by federal regulations.

5. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Federal Act.

6. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize violation of any federal, state or local laws or regulations, nor does it obviate the necessity of obtaining such permits, including any other Department of Environmental Quality permits, or approvals from other units of government as may be required by law.

APPENDIX G

EGLE REQUIRED FORMS

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Michigan Department of Environmental Quality
Rick Snyder, Governor
Dan Wyant, Director

http://www.michigan.gov/deq

Clean Water Revolving Funds
SRF/SWQIF Project Plan Submittal Form

Name of the Project 2019 WWTF Improvements	**Applicant's Federal Employer Identification Number (EIN)** 38-6004723
Legal Name of Applicant (The legal name of the applicant may be different than the name of the project. For example, a county may be the applicant for bonding purposes, while the project may be named for the particular village or township it serves.) City of Owosso	**Areas Served by this Project** Counties Shiawassee Congressional Districts 4
Address of Applicant (Street, PO Box, City, State & Zip) 301 W. Main Street Owosso, MI 48867	State Senate Districts 24 State House Districts 85
NPDES Permit Number (if permit holder) MI0023752	**Associated SAW Grant Number** (if applicable) 1515-01
Brief Description of the SRF/SWQIF Project Equipment replacement and improvements	
Disadvantaged Community Determination ☒ The applicant is requesting a disadvantaged community determination, and a completed *Disadvantaged Community Status Determination Worksheet* is attached.	
Estimated Total Cost of the SRF/SWQIF Project $ 5,600,000	**SRF/SWQIF Construction Start Target Date** April 2020
Name and Title of Applicant's Authorized Representative Glenn Chinavare, Director of Public Services	
Address of Authorized Representative (if different from above)	**Telephone** (989) 725-0599 **E-Mail Address** glenn.chinavare@owosso.mi.us
Signature of Authorized Representative Glenn M Chinavare	**Date** 6/17/19
Joint Resolution(s) of Project Plan Adoption/Authorized Representative Designation is attached. check here ☒	

A final project plan, prepared and adopted in accordance with the Department's *Clean Water Revolving Funds (SRF and SWQIF) Project Plan Preparation Guidance*, must be submitted by July 1st in order for a proposed project to be considered for placement on a Project Priority List for the next fiscal year. Please send your final project plan with this form to:

REVOLVING LOAN SECTION
OFFICE OF DRINKING WATER AND MUNICIPAL ASSISTANCE
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
PO BOX 30241
LANSING MI 48909-7741

Project Useful Life and Cost Analysis Certification Form

Project Information

Applicant Name:

City of Owosso

SRF Project to be Funded: Wastewater Treatment Facility Improvements: Headworks, Secondary Treatment and Solids Handling

Per Section 602(b)(13) of the Federal Water Pollution Control Act (FWPCA), all Clean Water State Revolving Fund (CWSRF) assistance recipients must certify that they have conducted the studies and evaluations described in 602(b)(13)(A) and (B), collectively known as a cost and effectiveness analysis.

☒ 1) The applicant has studied and evaluated the cost and effectiveness of the processes, materials, techniques, and technologies for carrying out the proposed project or activity for which assistance is sought under the CWSRF; and

☒ 2) The applicant has selected, to the maximum extent practicable, a project or activity that maximizes the potential for efficient water use, reuse, recapture, and conservation, and energy conservation, taking into account the cost of:
- constructing the project or activity;
- operating and maintaining the project or activity over the life of the project; and
- replacing the project or activity.

☒ 3) The applicant has completed a Project Useful Life analysis for the project or activity. **Attach appropriate documentation**

I certify that requirements (1), (2), and (3) as checked above have been met.

James J. Minster, PE
Name of Professional Engineer *(Please Print or Type)*

Signature of Professional Engineer Date

Glenn Chinavare, Director of Public Services
Name and Title of Authorized Representative *(Please Print or Type)*

Glenn M Chinavare 6/17/19
Signature of Authorized Representative Date

Revolving Loan Fund Application – WWTP Improvements

City Manager Nathan R. Henne introduced the topic of the hearing noting that this is the third, and final, application to the EGLE State Revolving Fund for improvements to the City's utilities systems.

C2AE Engineer Brian Van Zee delivered a PowerPoint presentation describing the problems that will be addressed at the Waste Water Treatment Plant and the proposed plan of action for remediating those problems. His presentation highlighted the fact that much of the equipment at the WWTP is well past its prime, with some equipment being totally inoperable due to age and/or the cost for repair. Without improvements and upgrades, the plant will struggle to meet operations standards and could become an environmental hazard. Three projects are being proposed to address some of the most critical shortfalls: replacement of screw pumps and installation of new grit removal system; replacement of treatment towers; and the addition of a screw press compactor (with retention of the existing centrifuge as back-up). If all three projects move forward the City would be seeking funding from the State Revolving Loan fund in the amount of $5.6 million at an interest rate of 2.0% for a period of 20 years.

There were questions from Councilmembers regarding whether the replacement of existing equipment was the best idea or if the community would be better served by newer technology. Mr. Van Zee indicated that the technology of the existing equipment, while old, offered the best solution from a cost standpoint, saying that newer alternatives would cost about three times more than what is currently proposed and would also require significant revamping of other parts of the system. There were further questions regarding the life expectancy of the project and whether it would help eliminate sanitary sewer overflows. It was noted the life expectancy is about 20 years and the proposed projects would not help to eliminate sanitary sewer overflows. City Manager Henne noted that the current system is a good system for removal of biologic contaminants.

The public hearing was opened at 7:48 p.m. to receive citizen comment regarding the project plan proposed for submission to the EGLE State Revolving fund for improvements to the City's Waste Water Treatment Plant.

The following person commented in regard to the proposed project submittal:

Gary Burk, former Utilities Director, gave a brief history of the plant saying it was constructed in the 1930's and changed over to a biologic process in 1986. Improvements have been made at the plant over the years but many of those improvements are reaching the end of their useful lives. He went on to say that he would prefer an airlift with a grit washer as opposed to the replacement of the chain and bucket system, but he supports the overall project.

Seeing there were no other citizens wishing to comment, Mayor Eveleth closed the public hearing at 7:52 p.m.

City Manager Henne noted that while the projects mentioned are substantial they do not address all the problems at the plant and should only be considered as the first step.

Motion by Councilmember Bailey to approve the proposed project plan and designate an authorized signer as detailed below:

RESOLUTION NO. 91-2019

ADOPTING A FINAL PROJECT PLAN
FOR WASTEWATER TREATMENT PLANT IMPROVEMENTS AND
DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

WHEREAS, the City of Owosso recognizes the need to make improvements to its existing wastewater treatment plant and its existing NPDES pollution control system; and

WHEREAS, the City of Owosso authorized Capital Consultants, Inc. d.b.a. C2AE to prepare a Project Plan, which recommends the rehabilitation of structurally deficient wastewater treatment process equipment, including the headworks, trickling filters and solids handling equipment; and

WHEREAS, said Project Plan was presented at a Public Hearing held on June 17, 2019 and all public comments have been considered and addressed;

NOW THEREFORE BE IT RESOLVED, that the City of Owosso formally adopts said Project Plan and agrees to implement selected Alternative No. 1 ("Rehabilitation of physical plant process equipment & processes").

BE IT FURTHER RESOLVED, that the Director of Public Utilities, a position currently held by Glenn Chinavare, is designated as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Plan as the first step in applying to the State of Michigan for a Revolving Fund Loan to assist in the implementation of the selected alternative.

Motion supported by Mayor Pro-Tem Osika.

Roll Call Vote.

AYES: Councilmember Fear, Mayor Pro-Tem Osika, Councilmembers Law, Bailey, Haber, Pidek, and Mayor Eveleth.

NAYS: None.

I hereby certify that the foregoing document is a true and complete copy of action taken by the Owosso City Council at the regular meeting of June 17, 2019.

Amy K. Kirkland, City Clerk

Disadvantaged Community Status Determination Worksheet

The following data is required from each municipality in order to assess the disadvantaged community status. Please provide the necessary information and return to:

Robert Schneider
Revolving Loan Section
Office of Drinking Water and Municipal Assistance
P.O. Box 30241
Lansing, MI 48909-7741
Schneiderr@michigan.gov

If you have any questions please contact Robert Schneider at 517-388-6466

Please check the box this determination is for:

☐ DWRF ☒ SRF

1. Total amount of anticipated debt for the proposed project, if applicable.

   $ 5,600,000

2. Annual payments on the existing debt for the system.

   0

3. Total operation, maintenance and replacement expenses for the system on an annual basis.

   $ 1,621,000

4. Number of "residential equivalent users" in the system.

   7,964

For determinations made using anticipated debt, a final determination will be made based upon the awarded loan amount.

SRF/SWQIF Project Nos. _____

Project Priority List (PPL) Scoring Data Form

Please complete the information requested below and indicate the page numbers or appendices in the project plan which verify the information provided. Enter "N/A" if information is not pertinent.

PROJECT APPLICANT: City of Owosso

PROJECT LOCATION: City of Owosso

1. Water Pollution Severity Data (0 to 500 points)

page 1 **1. Pre-project conditions, including wastewater collection/treatment deficiencies and water quality problems currently occurring.**

page _____ **2. Post-project conditions, including proposed facilities and water quality improvements.**

Does the existing facility (or facilities) being upgraded, expanded, or replaced by this project file either surface water or groundwater discharge monitoring reports?

☒ **YES, Proceed to Section C** **or** ☐ **NO, Proceed to Section A or B**

Note: If a project with either a surface water or groundwater discharge is also causing a nitrate problem in the groundwater (i.e., leaky lagoons), please be sure to complete Item B.5. Projects may receive points for both surface water and groundwater contamination.

A. Data on Existing Surface Water Discharge

page _____ **1. Discharge type:**

- ☐ Continuous
- ☐ Seasonal
- ☐ Intermittent (***if CSO, or SSO, please complete Sections E and F below***)

page _____ **2. Flow**. For facilities that discharge to regional treatment plants and do not file surface water discharge monitoring reports, provide the average daily metered flow *(identify whether units are MGD or MGY)* _____

page _____ **3. Identify Receiving Water and Type** _____

page _____ **4. Location** (*town, range, and section*) _____

page _____ **5. Existing Treatment**

- ☐ Untreated ☐ Secondary ☐ Combined Sewer Overflow ☐ Tertiary
- ☐ Primary (including septic systems with direct surface water discharge)

page _____ **6. Existing Disinfection Process:**

- ☐ None
- ☐ Chlorination
- ☐ Alternative Technology (*specify type*) _____

B. Data on Existing Groundwater Discharge

page _____ **1. Discharge Type:**

- ☐ Continuous
- ☐ Seasonal
- ☐ Intermittent

page _____ **2. Flow.** For unsewered areas, flow should be calculated using a figure of 70 gpcd. For facilities that do not file groundwater discharge monitoring reports, provide the existing metered flow figure *(identify whether units are MGD or MGY)* _____

page _____ **3. Location** (*provide town, range, and section*) _____

page _____ **4. Existing Treatment**

☐ Untreated ☐ Primary (including septic with tile field) ☐ Secondary

page _____ **5. Nitrate contamination of public or private wells caused by the discharge of effluent/waste from the treatment system or systems**

☐ Public well(s) in vicinity contains nitrates > 10 mg/L (100 points)

☐ Private well(s) in vicinity contains nitrates > 10 mg/L (75 points)

☐ Monitoring well(s) in vicinity contains nitrates > 10 mg/L (50 points)*

☐ No evidence of nitrate contamination in local wells

*Note: If only the total inorganic nitrogen ("TIN" ammonia + nitrite + nitrate) concentration is available, a separate sampling and nitrate analysis should be performed to document the nitrate concentration.

C. Information on Proposed Surface Water/Groundwater Discharge

(Attach additional pages if necessary; a copy of the effluent limits letter/permit table may suffice.)

page 1 **1. Discharge Type:**

☒ Continuous

☐ Seasonal Identify all discharge points and receiving waters.

☐ Intermittent

page 1 **2. Average Design Flow** *(identify units as MGD or MGY)* 4.0 MGD

page 1 **3. Identify receiving water for a surface water discharge** Shiawassee River

page 1 **4. Location** (*town, range, and section*) T7N R2E Section 12

5. List Effluent Limits:

Minimum Dissolved Oxygen	3.0 mg/l
$CBOD_5$	85 mg/l
Ammonia	530 mg/l
Phosphorus	50 mg/l
Total Inorganic Nitrogen (TIN) (from Groundwater Permit)	N/A

page _____ **6. Will the proposed facility address documented total residual chlorine (TRC) violations?**

☐ YES, proceed to 7 ☒ NO

7. Will the proposed disinfection improvements involve either dechlorination or an alternative disinfection technology (e.g. ultraviolet disinfection, ozonation) that eliminates the use of chlorine?

☐ YES ☒ NO

D. Data on Existing (Pre-Project) CSO and SSO Discharges

*Information must be provided **for each outfall** directly associated with the proposed correction project.*

Outfall #	Receiving Stream	Location* Town/Range/Section	Estimated Overflow Volume (MG) for 1-year, 1-hour storm event
001	Shiawassee R.	T7N R2E Section 12	87750

Outfall #	Estimated Overflow Duration (Hours)	Estimated Annual Overflow Volume (MG)	Tributary Residential Population
001			

* A map showing the discharge locations by number is highly preferable and can be attached to this sheet.

E. Data on Future (Post-Project) CSO and SSO Discharges

List each outfall from Section E. For outfalls which will cease to function as combined sewer outfalls upon the completion of this project, simply enter "Eliminated" under Receiving Stream*. List any new outfalls (e.g., for a retention/treatment basin) created by this project and include its associated discharge data.*

Outfall #	Receiving Stream	Location* Town/Range/Section	Estimated Overflow Volume (MG) for 1-year, 1-hour storm event
001			

Outfall #	Estimated Overflow Duration (Hours)	Estimated Annual Overflow Volume (MG)	Detention Time Prior to Discharge for 1-year, 1-hour storm event
001			

* A map showing the discharge locations by number is highly preferable and can be attached to this sheet.

Please attach additional pages if necessary.

2. Enforcement Actions (0 or 300 points)

Is the proposed project necessary for compliance with a fixed-date construction schedule established by an order, permit, or other document issued by the DEQ, or entered as part of an action brought by the state against a municipality?

☐ **YES, Proceed to Item A** **or** ☒ **NO, Proceed to Section 3**

page _____ **A. Copy of the enforcement action, order, permit or other DEQ document.**

3. Population Data (30 to 100 points)

page 8 **A. Existing residential population to be served by the proposed project:** 14,738

page 8 **B. Existing population of the POTW service area:** 24,175

4. Dilution Ratio (25 to 100 points)

The data for the dilution ratio scoring category is collected from several questions in the Water Quality Severity Data section of this document and information in DEQ files, therefore, ***no action is required from the applicant for the completion of this item of the PPL Scoring Data Form****. The primary purpose of this section is to clarify and document the figures utilized in the dilution ratio calculation. Please note that for new collection system projects, the existing discharge is calculated by multiplying the residential population to be served by the proposed project by 70 gallons per capita per day (gpcd). For projects with existing Groundwater and NPDES permits, the Discharge Monitoring Report (DMR) data will be obtained by the DEQ staff. For projects that discharge to regional facilities and do not have individual discharge permits, the existing discharge will be based on the average daily metered flow.*

The following information will be completed by DEQ staff:

The dilution ratio is _____ and was calculated from _____/_____.

(Specify the units for both the numerator and denominator).

5. Failing On-Site Septic Systems (0 or 100 points)

Does the project propose to correct failing on-site septic systems that have no suitable replacement?

☐ **YES, Proceed to Item A** **or** ☒ **NO, Proceed to Section 6**

page _____ **A. Documentation of site limitations that prevent septic system replacement.**

6. Septage Receiving/Treatment Facilities (0 or 100 points)

Does the project propose to construct, upgrade, or expand a septage receiving or treatment facility?

☐ **YES, Proceed to Item A** **or** ☒ **NO**

page _____ **A. Description of the proposed septage facility improvements.**

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APPENDIX H

SUPPLEMENTAL INFORMATION

SEPTEMBER 2019

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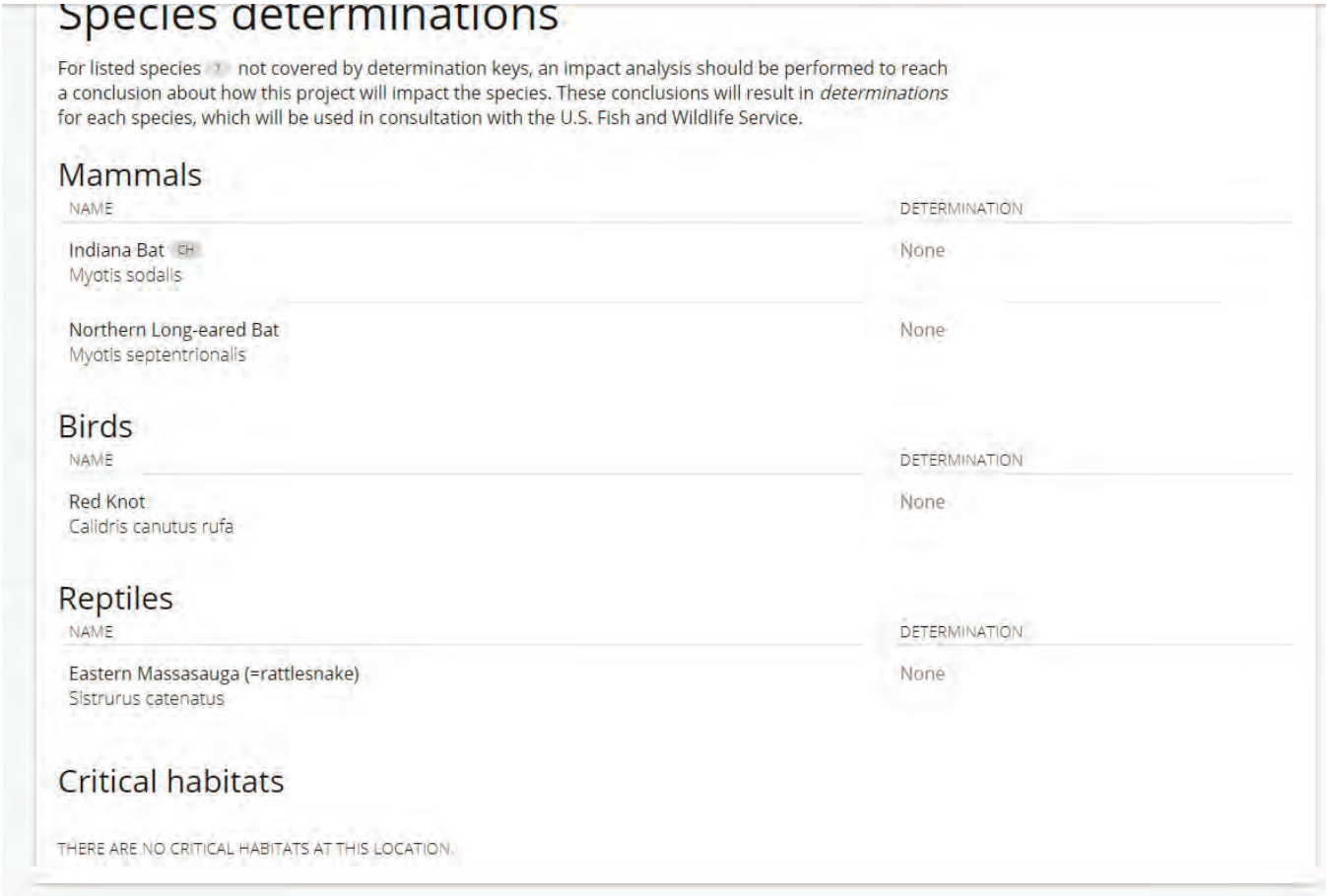
Determination of Impact from FWS iPAC website:



Species determinations

For listed species ? not covered by determination keys, an impact analysis should be performed to reach a conclusion about how this project will impact the species. These conclusions will result in *determinations* for each species, which will be used in consultation with the U.S. Fish and Wildlife Service.

Mammals

NAME	DETERMINATION
Indiana Bat CH Myotis sodalis	None
Northern Long-eared Bat Myotis septentrionalis	None

Birds

NAME	DETERMINATION
Red Knot Calidris canutus rufa	None

Reptiles

NAME	DETERMINATION
Eastern Massasauga (=rattlesnake) Sistrurus catenatus	None

Critical habitats

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

September 5, 2019

C2AE
charles.anthony@c2ae.com

RE: City of Owosso WWTP

Dear Sir/Madam,

This letter is in response to the above referenced project.

At this time we do not have any information concerning the presence of any Indian Traditional Cultural Properties, Sacred Sites or other Significant Properties to the projected project area(s). This is not to say that such a site may not exist, just that this office does not have any available information of the area(s) at this time.

This office would be willing to assist if in the future or during the construction there is an inadvertent discovery of Native American human remains or burial objects. Feel free to call my office if you have any questions or requests at 989-775-4751.

We thank you for including this Tribe in your plans.

Sincerely,

Sarah Jones

Tribal Historic Preservation Officer
Ziibiwing Center of Anishinabe Culture & Lifeways
Saginaw Chippewa Indian Tribe of Michigan

6650 E. Broadway ● Mt. Pleasant, MI 48858●Phone (989) 775-4751 or (800) 225-8172
Fax (989) 775-4770●www.sagchip.org/ziibiwing●www.nativedirect.com

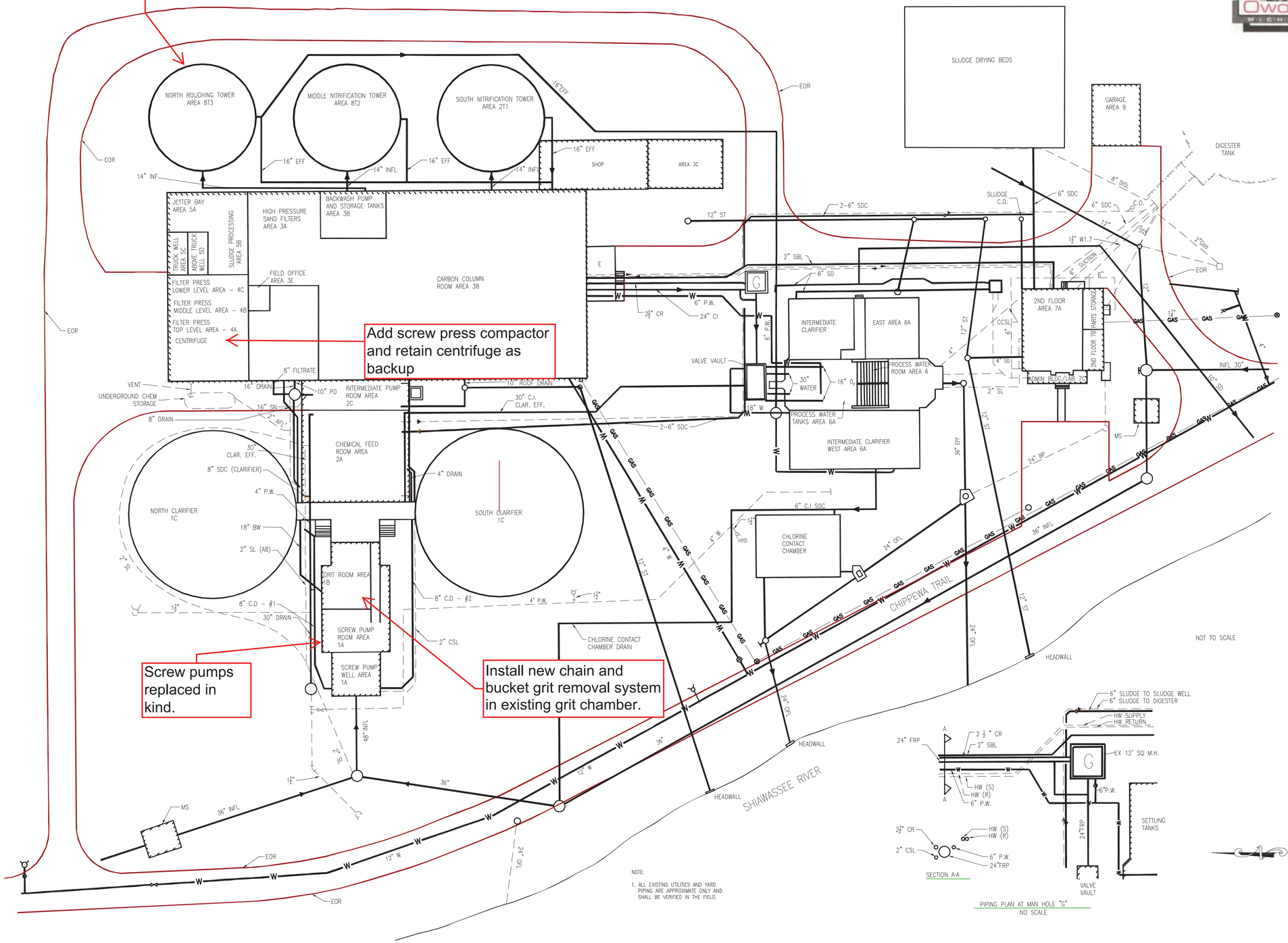
WWTP YARD PIPING PLAN

All nitrification and roughing towers removed, replaced and relocated.

Add screw press compactor and retain centrifuge as backup

Screw pumps replaced in kind.

Install new chain and bucket grit removal system in existing grit chamber.



PIPING LEGEND

EXISTING PIPES

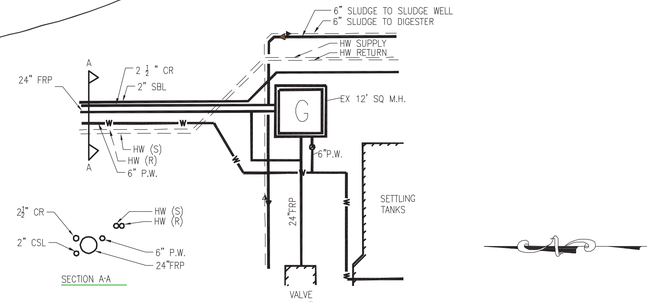
ABANDONED PIPES

ABBREVIATION LEGEND

AFL – ALUMINUM FEED LINE
BP – BYPASS
BW – BACKWASH
CCSL – CHEMICAL + CHLORINE SOLUTION LINE
CD – CLARIFIER DRAIN
CO – CLEAN-OUT
CR – CARBON RETURN
CSL – CHLORINE SOLUTION LINE
DISL – DIGESTED SLUDGE
EOR – EDGE OF ROAD
HW – HOT WATER
HW (R) – HOT WATER RETURN
HW (S) – HOT WATER SUPPLY
MS – METERING STATION
O_2 – OXYGEN
OF – OVERFLOW
OFL – OUTFALL
PD – PLUMBING DRAIN
PW – PROCESS WATER
SBL – SODIUM BISULFATE LINE
SD – SLUDGE DRAIN
SDC – SLUDGE DISCHARGE
SL – SAMPLE LINE
SN – SUPERNATANT
SP – SAMPLE POINT
ST – STORM DRAIN

NOTE:

1. ALL EXISTING UTILITIES AND YARD PIPING ARE APPROXIMATE ONLY AND SHALL BE VERIFIED IN THE FIELD.



PIPING PLAN AT MAN HOLE "G"
NO SCALE

c2ae architecture · engineering

www.c2ae.com

OWOSSO WWTP

SHIAWASSEE, MI

OWOSSO WWTP SRF PROJECT DETAILS

REVISIONS

REV	DESCRIPTION	DATE

PROJ. #: 190008

DATE: 9/5/2019

SHEET

PRELIMINARY

The equipment and processes associated with the carbon adsorption process are no longer part of the treatment process.

dr'n by	RJG 1/86
ck'd by	
app'd by	
AS-BUILT	SRO/GMB 7/87

CAPITOL CONSULTANTS, inc ENGINEERS
1627 Lake Lansing Road Lansing, Michigan 48912 Telephone 517-371-1200

CITY OF OWOSSO, MICHIGAN
WASTEWATER TREATMENT FACILITY
1986 PLANT ADDITIONS

PROCESS FLOW DIAGRAM

scale: NONE
proj. no: 356
sheet: 3 of 15

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APPENDIX I

AMENDMENT NO. 1 – COST OPINION

APRIL 2021

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106 W. Allegan, Suite 500
Lansing, MI 48933

City of Owosso WWTP - Solids Handling Improvements
OPINION OF COST FOR PROCESS CAPITAL IMPROVEMENTS

Capital Costs		Screw Press		Belt Filter Press
General Requirements	$	139,100	$	133,700
Temporary Sludge Centrifuge Setup & Removal	$	15,000	$	15,000
Architectural (including demolition)	$	82,100	$	82,100
Building Roof (including demolition)	$	268,888	$	268,888
Structural - Mid Level	$	18,230	$	18,230
Structural - Incinerator Level	$	4,424	$	4,424
Structural - Garage Mezzanine Level	$	10,432	$	10,432
Structural - Roof Level	$	36,945	$	36,945
Equipment - Sludge Press and Conveyor	$	595,000	$	490,000
Equipment - Sludge Pumping and Storage	$	368,830	$	368,830
Equipment - Polymer and Ferric Feed	$	133,280	$	133,280
Equipment - Piping and Valves	$	139,000	$	139,000
Mechanical Air Compressor and Misc	$	146,000	$	146,000
Mechanical - HVAC	$	73,500	$	73,500
Mechanical - Sump Pumps	$	25,500	$	25,500
Electrical	$	329,929	$	329,929
Instrumentation and Controls	$	86,600	$	86,600
Total Construction cost	**$**	**2,472,800**	**$**	**2,362,400**
Contingencies, Administration and Legal	$	494,560	$	472,480
Total Project Cost, Current Dollars	$	2,967,360	$	2,834,880
Escalation to 2022 Construction, 3% per Year	$	89,021	$	85,046
Opinion of Probable Project Cost, 2022 Construction	**$**	**3,056,400**	**$**	**2,919,900**

Cost Per REU with 20 Year Financing		
Annual Debt Service	$184,672	$176,425
Interest Rate, Per OMB guidance	1.875%	1.875%

	$	857,500

PRESENT WORTH VALUE CALCULATIONS 20 YEAR LIFE

	Alt. 1	Alt. 2
Capital Cost	$3,056,400	$2,919,900
O&M	$65,000	$100,000
Interest (i)	-0.50%	-0.50%
Years (N)	20	20
Salvage	$1,347,872	$1,287,676
$(1+i)^N$	0.9046	0.9046
PW of O&M	**1,370,826**	**2,108,963**
PW of Salvage	**1,490,003**	**1,423,459**
Present Worth	**5,917,229**	**6,452,322**

Formula:

$$PV = \text{Capital Cost} + \text{Annual O\&M}\left[\frac{(1+i)^N-1}{i(1+i)^N}\right] + \text{Salvage}\left[\frac{1}{(1+i)^N}\right]$$

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City of Owosso WWTP - Solids Handling Improvements

	Screw Press		Belt Filter Press	
	Original Cost	Salvage Value	Original Cost	Salvage Value
Project Construciton Cost	$3,056,400		$2,919,900	
Structures (40 Year Life)	$2,475,684	$1,237,842	$2,365,119	$1,182,560
Piping and Valves (50 Year Life)	$183,384	$110,030	$175,194	$105,116
Equipment (20 Year Life)	$397,332	$0	$379,587	$0
	$3,056,400	$1,347,872	$2,919,900	$1,287,676

City of Owosso WWTP - Solids Handling Improvements
OPINION OF COST FOR PROCESS CAPITAL IMPROVEMENTS

DIV	DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
Architectiral					
02	CURB DEMOLITION	1	ALLOW	$ 500.00	$ 500.00
02	WALL DEMOLITION	1	ALLOW	$ 1,000.00	$ 1,000.00
04	MASONRY INFILL	1	ALLOW	$ 1,000.00	$ 1,000.00
09	CONC SEALER	8,700	SF	$ 2.00	$ 17,400.00
09	HP COATINGS (PAINTING) - STAIRS	4	EA	$ 500.00	$ 2,000.00
09	HP COATINGS (PAINTING) - RAILINGS	160	LF	$ 15.00	$ 2,400.00
09	HP COATINGS (PAINTING) - WALLS	15,000	SF	$ 3.00	$ 45,000.00
09	HP COATINGS (PAINTING) - STRUCTURE	1	ALLOW	$ 5,000.00	$ 5,000.00
09	HP COATINGS (PAINTING) - CEILINGS	2,600	SF	$ 3.00	$ 7,800.00
Total Architectiral					**$ 82,100.00**
Roofing					
02	ROOF DEMOLITION	22,860	SF	$ 1.50	$ 34,290.00
07	SBS MOD BIT ROOF	22,860	SF	$ 5.50	$ 125,730.00
07	POLYISO ROOF INSULATION	22,860	SF	$ 4.00	$ 91,440.00
07	COPING	650	LF	$ 20.00	$ 13,000.00
07	ROOF EXPANSION JOINT	102	LF	$ 14.00	$ 1,428.00
07	ROOF HATCH, SAFETY RAILING & POST	1	EA	$ 3,000.00	$ 3,000.00
Total Roofing					**$ 268,888.00**

City of Owosso WWTP - Solids Handling Improvements
OPINION OF COST FOR PROCESS CAPITAL IMPROVEMENTS

DESCRIPTION	QTY	UNIT	UNIT COST	AMOUNT
Mid Level				
Beam Reinforcement/Repair Allowance	1	LSUM	$5,000	$5,000
Steel Beam (W12x26) - Painted	481	LB	$3	$1,443
Channels (C6x8.2) - Painted	246	LB	$3	$738
Galv. Steel Grating	100	SFT	$25	$2,500
Galv. Beam Seat	9.8	LB	$5	$49
Steel Guardrail - Painted	150	LF	$40	$6,000
Steel Ladder - Painted	1	LSUM	$2,500	$2,500
Mid Level Total				**$18,230**
Incinerator Level				
Galv. Steel Grating	119	SFT	$25	$2,975
Steel Channels (C8x11.5) - Painted	483	LB	$3	$1,449
Incinerator Level Total				**$4,424**
Garage Mezzanine Level				
Galv. Steel Grating	88	SFT	$25	$2,188
Steel Channels (C8x11.5) - Painted	1278	LB	$3	$3,834
Screw Press Support Beams (W8x21) - Painted	1470	LB	$3	$4,410
Garage Mezzanine Level Total				**$10,432**
Roof Level				
Roof Opening Infill - Galv. Roof Deck	1008	SFT	$15	$15,120
Reinstallation of Precast Roof Panels	735	SFT	$25	$18,375
Equipment Support Framing	1150	LB	$3	$3,450
Roof Level Total				**$36,945**

City of Owosso WWTP - Solids Handling Improvements
OPINION OF COST FOR PROCESS CAPITAL IMPROVEMENTS

Description	Qty	Unit	Unit Cost	Amount
Sludge Press and Conveyor				
Screw Press	2	Ea	$ 187,500	$ 375,000
Conveyor and Chute	1	Ea	$ 50,000	$ 50,000
Installation	1	LS	$ 170,000	$ 170,000
Sludge Press and Conveyor Total				**$ 595,000**
Sludge Pumping and Storage				
Sludge Pump	3	Ea	$ 25,000	$ 75,000
In-line Grinder	1	Ea	$ 16,250	$ 16,250
Sludge Tank	2	Ea	$ 86,100	$ 172,200
Installation	1	LS	$ 105,380	$ 105,380
Sludge Pumping and Storage Total				**$ 368,830**
Polymer and Ferric Feed				
Polymer Pump Skid & Mixer	2	Ea	$ 23,100	$ 46,200
Polymer Tank	1	LS	$ 3,000	$ 3,000
Ferric Pump Skid	1	Ea	$ 32,000	$ 32,000
Ferric Tank	1	Ea	$ 14,000	$ 14,000
Installation	1	LS	$ 38,080	$ 38,080
Polymer and Ferric Feed				**$ 133,280**
Piping and Valves				
Process Piping	1	LS	$ 50,000	$ 50,000
Plug Valves	20	Ea	$ 1,000	$ 20,000
Plug Valve Actuators	16	Ea	$ 3,500	$ 56,000
Installation	1	LS	$ 63,000	$ 63,000
Piping and Valves total				**$ 139,000**

City of Owosso WWTP - Solids Handling Improvements
OPINION OF COST FOR PROCESS CAPITAL IMPROVEMENTS

Description	Qty	Unit	Unit Cost	Amount
Sludge Press and Conveyor				
Belt Filter Press	1	Ea	$ 300,000	$ 300,000
Conveyor and Chute	1	Ea	$ 50,000	$ 50,000
Installation	1	LS	$ 140,000	$ 140,000
Sludge Press and Conveyor Total				**$ 490,000**
Sludge Pumping and Storage				
Sludge Pump	3	Ea	$ 25,000	$ 75,000
In-line Grinder	1	Ea	$ 16,250	$ 16,250
Sludge Tank	2	Ea	$ 86,100	$ 172,200
Installation	1	LS	$ 105,380	$ 105,380
Sludge Pumping and Storage Total				**$ 368,830**
Polymer and Ferric Feed				
Polymer Pump Skid & Mixer	2	Ea	$ 23,100	$ 46,200
Polymer Tank	1	LS	$ 3,000	$ 3,000
Ferric Pump Skid	1	Ea	$ 32,000	$ 32,000
Ferric Tank	1	Ea	$ 14,000	$ 14,000
Installation	1	LS	$ 38,080	$ 38,080
Polymer and Ferric Feed				**$ 133,280**
Piping and Valves				
Process Piping	1	LS	$ 50,000	$ 50,000
Plug Valves	20	Ea	$ 1,000	$ 20,000
Plug Valve Actuators	16	Ea	$ 3,500	$ 56,000
Installation	1	LS	$ 63,000	$ 63,000
Piping and Valves total				**$ 139,000**

City of Owosso WWTP - Solids Handling Improvements
OPINION OF COST FOR PROCESS CAPITAL IMPROVEMENTS

Description	Qty	Unit	Unit Cost	Amount
Mechanical				
Air Comp & Dryers	1	LS	$106,000	$106,000
Piping, NG & CA	200	LF	$20	$4,000
Water Heater	1	LS	$27,000	$27,000
Controls	1	LS	$5,000	$5,000
Installation	1	LS	$4,000	$4,000
Mechanical Total				**$146,000**
HVAC & Ventilation				
RTU	1	LS	$36,000	$36,000
EF	1	LS	$10,500	$10,500
Ductwork	100	LF	$40	$4,000
Controls	1	$4,000	$4,000	$4,000
Installation	1	LS	$19,000	$19,000
HVAC Total				**$73,500**
Sump Pumps				
Pumps	2	EA	$8,000	$16,000
Piping	1	LS	$1,500	$1,500
Controls	1	LS	$1,500	$1,500
Installation	1	LS	$6,500	$6,500
Total Sump Pump				**$25,500**

City of Owosso WWTP - Solids Handling Improvements
OPINION OF COST FOR PROCESS CAPITAL IMPROVEMENTS

DESCRIPTION		Installed Cost
ELECTRICAL		
SLUDGE AREA ELEC 1	$	25,869
SLUDGE AREA ELEC 2	$	18,089
SLUDGE AREA ELEC 3	$	35,937
SLUDGE AREA ELEC 4	$	38,723
SLUDGE AREA ELEC 5	$	95,256
SLUDGE AREA ELEC 6	$	12,872
SLUDGE AREA ELEC 7	$	31,867
THICKENER BLDG 1	$	60,242
THICKENER BLDG 2	$	11,075
SUBTOTAL	**$**	**329,929**
INSTRUMENTATION		
INSTRUMENTATION	**$**	**86,600**