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# **Project Plan**

# Clean Water State Revolving Fund (CWSRF)

Ontonagon, Michigan

#### Prepared for:

Village of Ontonagon 315 Quartz Street Ontonagon, MI 49953

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# **Executive Summary**

The Village of Ontonagon (Village) submits this Project Plan to the Water Infrastructure Financing Section, Finance Division, Michigan Department of Environment, Great Lakes, and Energy (EGLE) to be reviewed and considered for the Project Priority List for obtaining low-interest loans from the State Revolving Fund. Specifically, the Village would like to request a Clean Water State Revolving Fund (CWSRF) loan to help finance improvements to the Sanitary Sewer System within their Village.

GEI Consultants of Michigan, P.C. (GEI) has prepared this document following the EGLE Project Plan guidance. The scope of this project includes the following elements:

- Lift Station Improvements
- Manhole Repair and Replacement
- Sanitary Sewer Main Rehabilitation
- Removing Combined Sewer Overflow (CSO) locations
- Extending Sanitary Sewer Main onto Rose Island

In 2018, the Village received a SAW (Stormwater, Asset Management, and Wastewater) grant to develop an Asset Management Plan (AMP) for their Sanitary Sewer system. A goal of this project is to repair and replace critical items listed in the AMP. Another goal of this project is to extend the sanitary sewer main to Rose Island, which is located within the Village limits.

# 1. Project Background

The Village is applying for a CWSRF loan through EGLE in order to make improvements to their sanitary sewer system. This Project Plan will outline the project need, evaluate alternative solutions, define the selected alternative, review impacts and mitigations, and reach out to the public for input.

# 1.1 Study and Service Areas

The Ontonagon Wastewater System Improvements Project encompasses the entire sanitary sewer system. All of the sanitary sewer system is within the Village limits. The Village is the sole contributor/user of the sanitary system.

## 1.2 Population

Data for Table 1.2.1 was pulled from the US Census Bureau website. The are no population projections provided by the US Census Bureau for the Village; however, there are no major changes expected to occur over the next 20 years.

Table 1.2.1: Historical Population					
Date Population					
2020	1,269				
2010	1,481				
2000	1,769				
1990	2,052				

# 1.3 Existing Environmental Evaluation

#### 1.3.1 Cultural and Historic Resources

Historical sites that are within the Village limits are the Ontonagon Lighthouse, Ontonagon Harbor Pier, Old Ontonagon County Courthouse, and the Greenland Road School. The lighthouse is located on the west side of the Ontonagon River, northwest of the bridge that crosses the river. It was in operation from 1867 to 1964. The Ontonagon Harbor Pier is located northwest of the lighthouse and extends into Lake Superior. The Old Ontonagon County Courthouse is centrally located within the village, on corner of Houghton and Trap Street. It was the courthouse from 1884 to 1980. The Greenland Road School is located in the southeast portion of town, off of Greenland Road. It was in continuous use from 1912 to 2010. There are no known archeological sites in the area. The Greenland Road School and Old Ontonagon County Courthouse are located within the project area. However, they will not be disturbed during this project. Historical Site locations are shown on Figure 1 in Appendix A.

### 1.3.2 Air Quality

Ambient air quality in the project area is good owing to the area's rural location and isolation from major industry. The project area is not designated as a "non-attainment" area in accordance with the Clean Air Act. No adverse air quality effects are anticipated with this project.

#### 1.3.3 Wetlands

Wetlands are identified within the project area, the majority of which are on the Rose Island portion of the project. Soils with wetland characteristics are also identified within the study area. A wetlands map is included in Figure 5 of Appendix A.

# 1.3.4 Great Lakes Shorelands, Coastal Zones, and Coastal Management Areas

The study area is within the Coastal Zone of Lake Superior. Please see coastal zone map in Figure 6 of Appendix A for more details.

#### 1.3.5 Floodplains

Portions of the project area are in a floodplain. The Rose Island portion of the project area as well as other downtown locations are in a Zone A5 flood plain. The other adjoining portions are in a Zone B floodplain. A floodplain map is included in Figure 7 of Appendix A.

#### 1.3.6 Natural or Wild and Scenic Rivers

No designated natural or wild and scenic rivers exist within the project area.

# 1.3.7 Major Surface Waters

Lake Superior and the mouth of the Ontonagon River exist within the study area. Public water supply is generated from drawing water from Lake Superior 13 miles to the east of Ontonagon, pumping it to a treatment facility in White Pine, and then pumping it back to Ontonagon. A major surface water map is provided in Figure 8 of Appendix A.

# 1.3.8 Topography

Relief in the project area is relatively flat. Elevations in the project area range from 200 m/660 ft. to 183 m/600 ft., sloping towards Lake Superior. A Topographic Map is included in Figure 9 of Appendix A.

### 1.3.9 Geology

The major bedrock types in the project area are Middle Proterozoic and predominantly Freda Sandstone. Freda Sandstone is sandstone with minor shale and conglomerate beds, red, brown, and tan. Mostly fine to medium grained feldspathic and lithic arenite, commonly micaceous. It is well-bedded and commonly cross bedded. Local geological formations will not affect the choice of alternatives.

### 1.3.10 Soil Types

Adverse soil types are expected to be encountered in the Rose Island portion of the project area. This is expected to occur because the Island is located on soils with wetland characteristics, i.e. not stable. A Soil Survey Report is provided in Appendix B.

## 1.3.11 Agricultural Resources

Agriculture is a very small part of the local economy. Several factors that contribute to this is the short growing season and the limited local market. Flintsteel loam, a prime farmland soil type is located on the far east end of the project area. A Soil Survey Map of the project area is provided in Appendix B. It is expected that no prime farmlands will be affected by the proposed project.

#### 1.3.12 Fauna and Flora

The Gray Wolf (Canis Lupus) and Northern Long-eared Bat (Myotis Septentrionalis) are currently the only endangered species in the study area. The Canada Lynx (Lynx Canadensis) and the Red Knot (Calidris Canutus Rufa) are the only threatened species in the study area. None of the endangered or threatened species are expected to be affected by the proposed project.

# 1.4 Existing System

#### 1.4.1 General

The original sanitary sewer system for the Village was a combined storm and sanitary system that discharged into the Ontonagon River. It is estimated that it was built around the turn of the 20<sup>th</sup> Century. In the 1950's, the Village separated the sanitary and storm system and constructed a treatment plant on the west side of the Ontonagon River. The lift stations were all replaced or updated during the 1960's. In 1976, a second treatment facility was constructed adjoining the adjacent papermill. This was constructed in order to properly handle heavy metals. The main treatment plant was abandoned in 1998 when a new lagoon system was constructed off of Giesau Road in the southeast portion of the Village limits. The sanitary force main was extended and a lift station was built in 2006 to service the

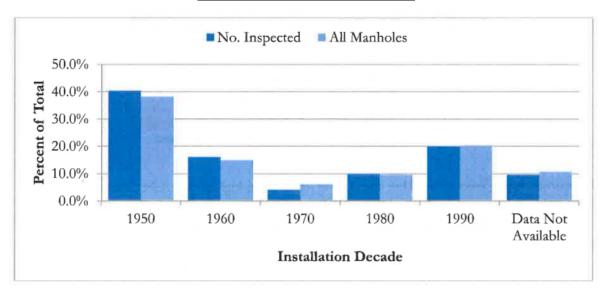
Ontonagon Township Park. Since 2006, no other improvements have occurred. The papermill closed in 2010 and the small, adjoining treatment plant was demolished. In 2018, the village received funding through the SAW program to develop an AMP. Sanitary Sewer Televising of their existing system was included in the AMP. Currently the Village's sanitary system is made up of 23 miles of gravity main, 2.5 miles of force main, 476 gravity main manholes, 3 force main manholes, 4 lift stations, and a lagoon system comprised of 4 cells. Per the AMP, in 2018 the Village had 841 system users and 1,017 REU's.

## 1.4.2 Collection System

#### 1.4.2.1 Manholes

Majority of manholes (>50%) were installed in the 1950's and 1960's (see graph below). During the assessment, 416 out of the total 476 manholes were inspected. Of the 416 manholes, approximately 90% are in good to moderate condition. The remaining 10% have major structural or O&M issues with them. Out of the 416 manholes inspected, 193 have active inflow and infiltration. A Manhole Assessment is available in Table A-1 in Appendix G.

#### **Manhole Installation by Decade**

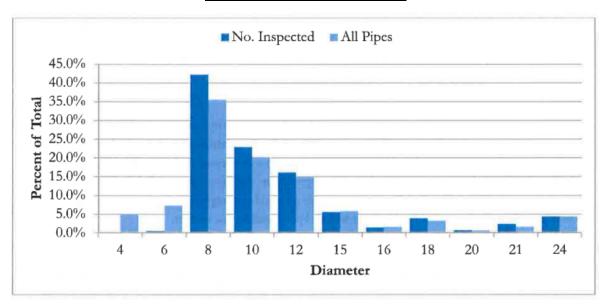


#### 1.4.2.2 Gravity Main

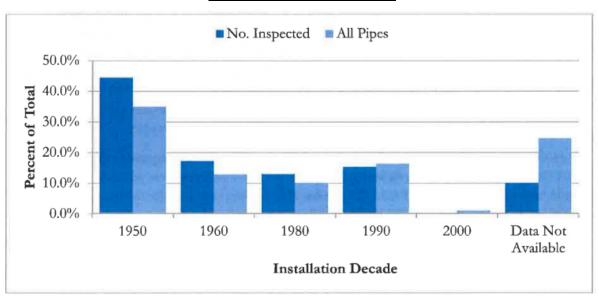
The sanitary sewer gravity main is comprised of vitrified clay pipe (VCP), asbestos cement pipe, reinforced plastic (truss) pipe, and polyvinyl chloride (PVC) pipe. Diameters of gravity main vary between 4" and 24", the most of which being 8" and 10". The majority (>60%) of the gravity main was installed in the 1950's and 1960's. The graphs below breakdown the percentage of pipe by diameter, age, and material. Inflow and infiltration, pipe damage, and

other defects were present in 11% of the gravity main televised. A Gravity Main Assessment is available in Table A-2 in Appendix G.

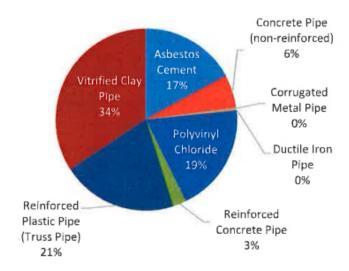
#### **Pipe Installation by Diameter**



## **Pipe Installation by Decade**



#### Pipe Material Breakdown



#### 1.4.2.3 Force Main

Force main is located on the westside of the Ontonagon River, it runs under the river and ties into the main lift station at Tin Street. A section force main was installed in 1968 on Zinc Street. A section force main was installed in 1987 at the corner of River Street and Lake Street. A 14" force main takes the sewage from the main lift station to the lagoons. No inspections or assessments have taken place on the force main.

#### 1.4.3 Lift Stations

The village currently operates four lift stations. See Figures 1 and 2 in Appendix A for locations of the lift stations. A Lift Station Assessment is available in Table A-3 in Appendix G.

#### 1.4.3.1 #1 – Old WWTP Lift Station

The Old WWTP Lift Station is a submersible lift station that was constructed in 1957. It is located on the westside of the Ontonagon River. It currently pumps the sewage under the Ontonagon River to the Main Lift Station at Tin Street. All of the components in the lift station are original. Pump #1 is non-operational, and Pump #2 is operational but is obviously beyond its service life. All other components of the lift station are operational but again beyond their service life.

#### 1.4.3.2 #2 - Main Lift Station

The Main Lift Station is a dry-pit submersible lift station that was constructed in 1997. It is centrally located on the corner of Tin Street and Iron Street. This lift station pumps all of the

sewage to the wastewater lagoons on the south eastside of the Village. The lift station has two 700 GPM pumps and two 2,200 GPM pumps. The 700 GPM pumps are intended to handle normal dry weather flows and the larger 2,200 GPM pumps take over during periods of heavy flow. Both of the 700 GPM pumps were replaced in 2018 and are currently operational but coming towards the end of their historical useful life. The Village has stated that these pumps useful life is approximately 5 years because they operate the majority of the time. One of the 2,200 GPM pumps is non-operational and in need of replacement and other 2,200 GPM pump was replaced in 2021. The Main Lift Station is equipped with a wet well transfer pump and sump pump. Both of these pumps are beyond their useful service life. Lastly, the dry well of the lift station is equipped with a dehumidifier. This dehumidifier is inoperable and in need of replacement.

#### 1.4.3.3 #3 – River and Lake Lift Station

The River and Lake Lift Station is a submersible lift station that was constructed in 1970. It is located on Trident Maritime Systems property, on the northwest side of the Village. It is currently equipped with two pumps, one of the pumps is operational but beyond its useful life, and the other pump is inoperable. The check valves, shutoff valves, floats, and control panel are beyond their useful life.

#### 1.4.3.4 #5 – Zinc Street Lift Station

The Zinc Street Lift Station is a submersible lift station that was constructed in 1997. This lift station is located on Zinc Street just south of Granite Street. It is equipped with two pumps that are both operational and in good condition. The only component that is beyond its useful life is the control panel.

### 1.4.4 Sewage Treatment

Wastewater lagoons are the method of treatment by the Village. They were constructed in 1998 when the treatment plant was abandoned. There are four cells at the lagoons. Sludge removal has not occurred since the lagoons were constructed. Between 2001-2017, average annual treatment flow was approximately 114 MGY (Million Gallons per Year). The Village is currently permitted to discharge 137 MGY. No improvements have occurred since it was built in 1998. The Village does experience spring discharges. These discharges have been occurring in March or April, which is within their discharge period. However, because the lagoons are normally frozen over, the fecal content is high and the discharges are only partially treated. A copy of the most recent "Report of Discharge" is included in Appendix C.

# 1.4.5 Combined Sewer Overflows (CSOs)

The Village has separate storm and sanitary systems. However, the AMP identified three CSO locations and a location of direct discharge into the sanitary system. The direct

discharge is located on North Steel Street between Pennsylvania Avenue and Trap Street, where a catch basin is tied into the sanitary sewer. Two of the CSO's are located south of River Street near Island Road in the north bank of the slough. The third CSO is located at the intersection of Zinc Street and Mercury Street. These locations are shown in Figures 1 and 2 in Appendix A.

## 1.5 Need for the Project

Multiple elements of the Village's sanitary sewer system are aged and in need of replacement or upgrading. Portions of the sanitary sewer main are collapsed, allowing for inflow and infiltration. Manholes are deteriorated and in need of replacement and repair. Components of the four lift stations are beyond their useful life or non-operational, which contributes to an inefficient system through more energy being used to operate them. Additionally, three out of the four lift stations do not have operable backup motors or pumps. This is a large reliability issue that needs to be corrected. Currently, the system has four CSO locations. This contributes to unnecessary clear water discharge into the wastewater lagoons. Lastly, there are six residents using septic systems on Rose Island, creating the potential for untreated sewage leaking into the Ontonagon River and into Lake Superior. A discharge pipe does exist that empties into the Rose Island channel. Location of the discharge pipe is available on Figure 10 in Appendix A.

If these items are not addressed quickly, the system will continue to age and deteriorate. The chances of a system failure will increase, and the results of a system failure will become greater. The negative impacts to public health would also become greater as time passes.

The Township currently does not have any court orders, federal or state enforcement orders, administrative consent orders, or violation notices. A copy of the National Pollutant Discharge Elimination System (NPDES) Permit is provided in Appendix C.

# 1.5.1 Water Quality Problems

Rose Island is an island located near the mouth of the Ontonagon River, on the southwest side of the Village. The island currently has 6 (six) year-round residents on it. Village watermain exists on the island; however, sanitary sewer main does not exist on the island. It is anticipated that all 6 (six) residences are connected to septic systems. A FOIA (Freedom of Information Act) request was submitted to the Western Upper Peninsula Health Department, asking for copies of the construction permits for the septic systems on Rose Island. The request found that permits or other documents concerning the septic systems did not exist. Additionally, water samples were taken in the Rose Island channel, and the samples tested positive for fecal content, creating a surface water quality issue. A copy of the FOIA request and water sample results are provided in Appendix I. Sampling locations are shown on

Figure 10 in Appendix A. Presently, the users on Rose Island are connected to Village water. No drinking water quality issues have been documented.

#### 1.5.2 Projected Future Needs

Population data as shown in Section 1.2 shows that population in the Village has declined and is expected to continue to decline. It is expected that residential flows seen at the lagoons will not change significantly over the next 20 years. Additionally, there are no major industrial, commercial, or institutional developments that are planned in the service area. Flows from these facilities are also expected to remain similar to current flows.

The AMP has identified several projects that would need to be completed within the next twenty years. These projects focus on replacement and rehabilitation of existing systems, not expanding. A copy of the AMP is available upon request.

# 2. Analysis of Alternatives

#### 2.1 No-Action

If no-action is taken, the sanitary sewer system will continue to age and deteriorate. Inflow and infiltration will increase and the potential for off-season discharges will rise. The sanitary system will become more inefficient, and the Village will not improve.

## 2.2 Optimum Performance of Existing Facilities

The sanitary system is running at an optimum level considering the age and condition that the system is in. Lift stations are beyond their useful service life and are still operating. Nothing can be performed in the existing facilities to optimize the performance of the current system. It is currently performing as optimal as possible.

## 2.3 Regionalization

The Village's Sanitary System does not have regional alternatives available due to the geographic location of the system.

# 2.4 Principal Alternatives

#### 2.4.1 Alternative A

The proposed alternative consists of completely removing, reconstructing, and replacing Lift Station #1 – Old WWTP; replacing three (3) pumps, installing two (2) variable frequency drives (VFD), a wet well transfer pump, a sump pump, and a dehumidifier in Lift Station #2 – Main Station; completely removing, reconstructing, and replacing Lift Station #3 – River and Lake Street, and upgrading the control panel at Lift Station #5 – Zinc Street. Alternative A also includes replacing five (5) manholes, replacing 2,780 linear feet of sanitary sewer main, lining and repair of select manholes, and lining of sanitary sewer main. Additionally included in the alternative is removing the CSO locations and the expansion of the sanitary sewer system on to Rose Island. The methods of rehabilitation for the sanitary sewer system are based off of the AMP.

#### 2.4.2 Alternative B

The proposed alternative consists of the same components as Alternative A. However, the work will take place over a longer period of time and in smaller stages, as opposed to all at the same time or in large stages. Each of the lift station improvements would occur independently. Manhole replacement would be one project. Manhole repair would be another

project. Sanitary sewer would be split into two separate projects, one for replacement and one for lining. Removing the CSO locations and the Rose Island expansion would be individual projects as well.

### 2.5 Monetary Evaluation

Monetary Evaluation was not calculated for the No-Action, Optimum Performance of Existing Facilities, or Regionalization alternatives because implementing these alternatives does not require the Village to increase rates or purchase new materials and equipment. A monetary evaluation was conducted on Alternatives A and B.

#### 2.5.1 Sunk Costs

Investments have been made to develop this project prior to or during the project planning process. Development of an Intent to Apply (ITA) occurred during the Fall of 2022. Drafting of a Project Plan occurred during the Spring of 2023. The total cost incurred by the Village was \$22,500. This is the only sunk cost associated with the proposed projects.

#### 2.5.2 Present Worth/Salvage Value

A present worth analysis was performed for Alternatives A and B using existing given real discount rate provided by the US Office of Management and Budget of 0.4%. This is the initial capital cost, added to value of the Operation, Maintenance, and Replacement costs, then subtracted by the salvage value. For the purpose of comparing the present worth analysis, the OM&R values will be considered zero for simplification since the result will be equivalent. The No-Action alternative is not included because if the No-Action alternative is selected, the Village will not incur any additional cost. The sanitary system is currently operating at an optimum level, therefore the Village is not acquiring additional cost. Regionalization of the system is not possible and is not incorporated in this evaluation.

The cost analysis is summarized in the tables on the following pages. This analysis was done in March 2023 using estimated construction costs for lift station rehabilitation, replacement of sanitary sewer main and manholes, lining of sanitary sewer and manholes, manhole repair, and expanding the sanitary sewer system to Rose Island, and restoration of pavement and site.

Table 2.5.2.1 Clean Water - Monetary Evaluation						
		EPA Discount Rate		0.40%		
Planning Period (yrs)						
Lift Stations		Alternative A		Alternative B		
Total Project Cost (Capital Cost) ==>	\$	1,414,873	\$	1,554,365		
Subtotal Present Worth:	\$	1,414,873	\$	1,554,365		
Salvage Value at End of Planning Period:	\$	-	\$	-		
Present Worth of Salvage Value:	\$	-	\$	-		
TOTAL PRESENT WORTH OF ALTERNATIVE ==>	\$	1,414,873	\$	1,554,365		

Table 2.5.2.2							
Clean Water - Monetary Evaluation							
	EPA Discount Rate 0.40%						
Planning Period (yrs)							
Manhole Replacement		Alternative A		Alternative B			
Total Project Cost (Capital Cost) ==>	\$	66,985	\$	73,243			
Subtotal Present Worth:	\$	66,985	\$	73,243			
Salvage Value at End of Planning Period:	\$	18,684	\$	20,552			
Present Worth of Salvage Value:	\$	17,250	\$	18,975			
TOTAL PRESENT WORTH OF ALTERNATIVE ==>	\$	49,735	\$	54,268			

Table 2.5.2.3						
Clean Water - Monetary Evaluation						
	EPA Discount Rate 0.40%					
		Planning Period (yrs)		20		
Manhole Repair/Lining		Alternative A		Alternative B		
Total Project Cost (Capital Cost) ==>	\$	142,800	\$	157,080		
Subtotal Present Worth:	\$	142,800	\$	157,080		
Salvage Value at End of Planning Period:	\$	-	\$	-		
Present Worth of Salvage Value:	\$	-	\$	-		
TOTAL PRESENT WORTH OF ALTERNATIVE ==>	\$	142,800	\$	157,080		

Table 2.5.2.4 Clean Water - Monetary Evaluation						
		EPA Discount Rate		0.40%		
Planning Period (yrs)						
Sanitary Sewer Main Replacement		Alternative A		Alternative B		
Total Project Cost (Capital Cost) ==>	\$	1,122,769	\$	1,233,277		
Subtotal Present Worth:	\$	1,122,769	\$	1,233,277		
Salvage Value at End of Planning Period:	\$	311,926	\$	343,119		
Present Worth of Salvage Value:	\$	287,990	\$	316,789		
TOTAL PRESENT WORTH OF ALTERNATIVE ==>	\$	834,779	\$	916,488		

Table 2.5.2.5 Clean Water - Monetary Evaluation						
EPA Discount Rate 0.40%						
Planning Period (yrs)						
Sanitary Sewer Lining		Alternative A		Alternative B		
Total Project Cost (Capital Cost) ==>	\$	1,264,000	\$	1,459,920		
Subtotal Present Worth:	\$	1,264,000	\$	1,459,920		
Salvage Value at End of Planning Period:	\$	-	\$	-		
Present Worth of Salvage Value:	\$	•	\$	-		
TOTAL PRESENT WORTH OF ALTERNATIVE ==>	\$	1,264,000	\$	1,459,920		

Table 2.5.2.6							
Clean Water - Monetary Evaluation							
EPA Discount Rate 0.40%							
		Planning Period (yrs)		20			
Remove CSO Locations		Alternative A		Alternative B			
Total Project Cost (Capital Cost) ==>	\$	67,253	\$	73,868			
Subtotal Present Worth:	\$	67,253	\$	73,868			
Salvage Value at End of Planning Period:	\$	1	\$	-			
Present Worth of Salvage Value:	\$	•	\$	-			
TOTAL PRESENT WORTH OF ALTERNATIVE ==>	\$	67,253	\$	73,868			

Table 2.5.2.7							
Clean Water - Monetary Evaluation							
EPA Discount Rate 0.40%							
	Planning Period (yrs)						
Rose Island Expansion		Alternative A		Alternative B			
Total Project Cost (Capital Cost) ==>	\$	997,975	\$	1,098,049			
Subtotal Present Worth:	\$	997,975	\$	1,098,049			
Salvage Value at End of Planning Period:	\$	240,314	\$	262,795			
Present Worth of Salvage Value:	\$	221,874	\$	242,629			
TOTAL PRESENT WORTH OF ALTERNATIVE ==>	\$	776,102	\$	855,420			

A comparison of the overall project cost for Alternative A and B is provided in the table below. A detailed estimate of Alternatives A and B is located in Appendix D.

Table 2.5.2.8 - Overall Alternative Cost Comparison								
Item Description		ernative A: Sanitary wer Improvements (Integrated)	Alternative B: Sanitary Sewer Improvements (Segregated)					
Total Estimated Cost	\$	5,093,561	\$	5,666,707				
Construction Contingency	\$	764,034	\$	1,133,341				
Total Construction Cost	\$	5,857,595	\$	6,800,048				
Engineering, Construction, Admin	\$	585,760	\$	1,360,010				
Total Estimated Project Cost	\$	6,443,335	\$	8,160,058				
Present Worth of Salvage Value	\$	(527,114)	\$	(578,393)				
Total Present Worth	\$	5,916,221	\$	7,581,665				

Based on the evaluation, it is recommended to pursue Alternative A, which is to perform all the improvements at the same time or in large stages. This alternative has the lower Total Present Worth and would allow the Village to perform the entire scope of work in a shorter timeframe.

#### 2.5.3 Escalation

Escalation is not anticipated during this project.

#### 2.5.4 Interest During Construction

Interest during construction is not significant enough to be included in the Monetary Evaluation.

#### 2.5.5 User Costs

The tables below show the different loan options available to the Village and what the impacts on the residents would be based on calculating the residential equivalent user (REU) and a loan amount of \$6.5 million. There are currently 1,017 REU's within the Village. The rates used for these tables were carried over from last year and are subject to change based on this year's adjustments. The Village meets the requirements for overburdened status, see Appendix J. The information below is based on a project estimated cost of \$6,443,335 seen in Appendix D. Final grant percentage will be determined by EGLE.

Table 2.5.5.1: User Cost Increase - 100% Loan

Loan Term	Expected Interest Rate	Monthly Payment	Monthly Cost per REU
20 year	1.875	\$32,442.99	\$31.90
30 year	2.125	\$24,388.56	\$23.98
30 year*	1.875	\$23,564.44	\$23.17

\*Overburdened Status required for this loan

Table 2.5.5.2: User Cost Increase - 50% Loan/50% Grant

Loan Term	Expected Interest Rate	Monthly Payment	Monthly Cost per REU
20 year	1.875	\$16,221.49	\$15.95
30 year	2.125	\$12,194.28	\$11.99
30 year*	1.875	\$11,782.22	\$11.59

\*Overburdened Status required for this loan

Table 2.5.5.3: User Cost Increase - 30% Loan/70% Grant

Loan Term	Expected Interest Rate	Monthly Payment	Monthly Cost per REU
20 year	1.875	\$9,732.90	\$9.57
30 year	2.125	\$7,316.57	\$7.19
30 year*	1.875	\$7,069.33	\$6.95

\*Overburdened Status required for this loan

The current user cost for sanitary sewer includes a \$21.00 long-term debt fee plus \$6.00 per 1,000 gallons of sewage disposed.

### 2.5.6 Project Delivery Method

This project will be using the traditional Design-Bid-Build delivery method.

#### 2.6 Environmental Evaluation

Environmental effects concerning the lift station improvement portion of the selected alternative are lift stations being offline while work is being performed. This creates the potential for a sewage backup if work takes longer than expected. Construction environmental impacts (i.e. excessive noise and increased traffic) will be localized to the immediate lift station area.

The environmental impacts as a result of the sanitary sewer replacement and repair portion of the selected alternative are that the project area will involve the use of construction equipment/labor. These impacts include increased noise doing working hours, removal and replacement of existing road, and dust from truck traffic in the area.

Expanding the sanitary sewer to Rose Island creates several new environmental impacts that were not covered previously. First, is the clearing and grubbing of the area in which the new sanitary main will be laid. Second, is soil displacement where the force main will be directionally bored under the channel between Rose Island and the mainland. Third, a portion of Island Road would need to be removed and replaced as part of the expansion. Lastly, excavation will need to be performed on private property in order to connect the residents to the new sanitary system. No environmental impacts would take place if the other alternatives were selected.

# 3. Technical Considerations

#### 3.1 Infiltration and Inflow Removal

Infiltration and Inflow (I&I) is an issue within the Village's sanitary sewer system. This past winter, the wastewater lagoons received approximately 250,000 gallons per day (GPD) of grey water. During same time period, the Village received approximately 100,000 GPD of potable water. In late March/early April this year, the lagoons were receiving roughly 1.3 million GPD. The amount of potable water entering the Village and the amount of grey water leaving the Village system should be relatively close and they are not.

A complete I&I analysis was not completed for this Project Plan because the detailed data supporting the amount of clear water entering the system is not available at this time. The Village conducts a spring discharge between March and April roughly every year. The discharges occur within their discharge period. But because the lagoons are frozen over, the fecal content is high, and the discharge is partially treated.

## 3.2 Sewer System Evaluation Survey

A Sewer System Evaluation Survey was not completed.

# 3.3 Structural Integrity

The Village's sanitary sewer system was evaluated as part of their SAW Grant AMP. The National Association of Sewer Service Companies (NASSCO) rating system was used to evaluate the system. Both the Manhole Assessment Certification Program (MACP) and the Pipeline Assessment Certification Program (PACP) were implemented during the evaluation. A Level 1.5 manhole inspection was conducted by a MACP certified individual. This hybrid inspection provides a large amount of Level 2 data (defect documentation, condition of the asset, corrective action) and includes a full top-down video of the manhole interior. The PACP inspection method for televising pipes was used in evaluating the sanitary sewer main. Tables, maps, and inspection reports of the Grade 4 and 5 manhole structural defects is included in Appendix E. The Grade 4 and 5 sanitary sewer structural defect tables, maps, and televising reports are included in Appendix F.

# 3.4 Fiscal Sustainability Plan

As per CWSRF requirements, a Fiscal Sustainability Plan must include an inventory of all critical assets including an evaluation of the assets condition and performance, certification of water and energy conservation efforts, and a plan for operation and maintenance (O&M) and funding. In 2018, the Village was awarded a SAW Grant to fund the development of an

AMP. This AMP meets the requirements for a Fiscal Sustainability Plan. A copy of the AMP report is available upon request.

### 3.4.1 Inventory of Critical Assets

A complete inventory and condition assessment of all components of the Village's Sanitary System was conducted as part of the SAW AMP to gather information on the assets. These assets are broken down into five categories: manholes, gravity main, force main, lift stations, and lagoons. The inventory and condition assessments were performed through multiple methods. Records research was performed on existing drawings to get a general idea of system layout and asset locations, and where feasible, manual surveys were performed.

Sanitary manholes and gravity main were assessed using the NASSCO condition grading system, which uses a scale of zero to five. Zero indicates the infrastructure is in very good condition, while five indicates the infrastructure is in very poor condition or has already failed. The two primary scoring metrics commonly used to describe the asset conditions are the Structure Rating Index and the Quick Rating. The Structure Rating Index is an average of defect grades within an asset, and the Quick Rating describes the asset's highest defect grades.

Experienced facility design engineers inspected and documented the condition of the Village's lift stations as well as treatment facilities. Force mains were not physically inspected, and their remaining useful life was estimated by age of system.

A summary of the sanitary sewer system assets is listed in Table 3.4.1 below.

Table 3.4.1: System Asset Summary			
Gravity Sewer Main	121,440	LFT	
Sanitary Force-Main	13,200	LFT	
Manholes	476	EACH	
Lift Stations	4	EACH	
Treatment Lagoons	4	EACH	

#### 3.4.2 Condition and Performance of Assets

Table 3.4.2 provides a summary of the condition ratings that were used for sanitary manholes and gravity main. After the asset was evaluated, a condition rating was assigned to each asset. Asset Inventory tables for Sanitary Sewer Manholes, Sanitary Sewer Gravity, and Lift Stations are enclosed with this Project Plan. Tables A-1, A-2, and A-3 located in Appendix G show the condition ratings that were assigned to each asset.

Table 3.4.2: Condition Assessment Ratings		
Condition Rating	Description	
5	Marginal functionality with failure imminent	
4	Failure likely in the foreseeable future	
3	Failure unlikely in the near future	
2	Moderate wear but still functional	
1	Minimal wear and good working condition	
0	New or like new	

# 3.4.3 Water and Energy Conservation

Water and energy conservation efforts will be implemented whenever possible throughout the proposed project. A fiscal sustainability plan form will be submitted with the CWSRF Part III Application.

## 3.4.4 Plan for Maintaining, Repairing, and Funding

Village rates are separated into a Long-Term Debt Fee and Sewer Disposal Rate. The Long-Term Debt Fee income is generally used to cover operation, maintenance, and repair (OM&R), bonding, and any long-term debt costs.

# 3.5 Special Assessment District Projects

The proposed project does not create a Special Assessment District (SAD) within the Village.

# 4. Selected Alternatives

Alternative A, performing system improvements identified in the AMP is the most feasible alternative. Since the No-Action option does not solve the issues that exist in the project scope area, that alternative was not selected. Optimization of current infrastructure also was not selected since it does not resolve the issues and contributes to the continuing deterioration of the system. Regionalization was not selected because there is not another system to combine with due to the geographic location of the Village's system. Lastly, Alternative B was not selected because when compared monetarily with Alternative A, it was more expensive. The selected alternative would include the following major elements:

- Lift Station Improvements
- Manhole Replacement
- Manhole Repair/Lining
- Sanitary Sewer Main Replacement
- Sanitary Sewer Lining
- Removing CSO Locations
- Rose Island Sanitary Sewer Expansion

The expected cost of this selected alternative is \$6.5 million with contingencies. Figures 1 and 2 in Appendix A show the layout of the proposed project. The major elements are discussed in further detail within the Design Parameters section.

# 4.1 Design Parameters

# 4.1.1 Lift Station Improvements:

#### 4.1.1.1 Lift Station #1 – Old WWTP Station

Completely remove and reconstruct lift station. Replace and upgrade all components of lift station to Ten States Standards. Components will be replaced in kind.

#### 4.1.1.2 Lift Station #2 – Main Station

Replace two (2) 700 GPM pumps, one (1) 2,200 GPM pump, wet well transfer pump, and sump pump with operable, more efficient pumps of the same size. VFD's will be installed on the 2,200 GPM pumps. A dehumidifier system will be installed in kind with the existing system.

#### 4.1.1.3 Lift Station #3 – River and Lake Street Station

Completely remove and reconstruct lift station. Replace and upgrade all components of lift station to Ten States Standards. Components will be replaced in kind.

#### 4.1.1.4 Lift Station #5 – Zinc Street Station

Upgrade control panel to current standards.

#### 4.1.2 Manhole Replacement

Manholes replaced will be precast concrete and replace in kind.

#### 4.1.3 Manhole Repair/Lining

Manhole repair design will be on a per case basis, using the recommendations of the AMP as a guideline. Manhole lining design will be based upon the recommendations of the AMP.

#### 4.1.4 Sanitary Sewer Main Replacement

The sanitary sewer main that will be replaced consists of 12 segments; four segments that are 8" vitrified clay pipe (VCP), two segments that are 8" Asbestos Cement pipe, one segment that is 8" concrete pipe (non-reinforced), one segment that is 10" Asbestos Cement pipe, two segments that are 12" VCP, and two segments that are 12" PVC. All sanitary sewer main will be replaced with SDR-26 PVC pipe of the same diameter as the existing sewer main. Replacement location and length are below:

- Between River Street and Pennsylvania Avenue 510 LFT
- Copper Street 141 LFT
- Brass Street 140 LFT
- Parker Avenue 120 LFT
- Michigan Avenue 297 LFT
- Between Lake Street and Ontonagon Street 155 LFT
- Amygdaloid Street 280 LFT
- Quartz Street 137 LFT
- Michigan Street 170 LFT
- Zinc Street 350 LFT
- Payne Street 280 LFT

• S. 4<sup>th</sup> Street – 200 LFT

### 4.1.5 Sanitary Sewer Lining:

Design and implementation of sanitary sewer lining will be based upon recommendations from the AMP.

#### 4.1.6 Removing CSO Locations:

CSO removal will be designed on a per case basis.

## 4.1.7 Rose Island Sanitary Sewer Expansion:

Expansion will be 8" SDR-26 gravity main to a small grinder pump station located on Village property in the middle of the Island. A 4" force main will transport the sewage under the channel and onto the mainland. Once on the mainland, the sanitary sewer will go back to 8" gravity main and will tie into an existing sanitary manhole. A preliminary map is provided on Figure 10 in Appendix A.

#### 4.2 Useful Life

Due to the fact that this project contains multiple components with different useful lives, a weighted useful life calculation was developed to determine the overall useful life of the project. A summary of the useful life calculation is shown below. References to useful life estimates can be provided upon request.

Table 4.2.1: Summary of Useful Life				
Item		timated Cost	Useful Life	Weighted Useful Life
Lift Station #1 – Improvements	\$	525,000	20 Years	2.22 Years
Lift Station #2 – Improvements	\$	496,123	20 Years	2.10 Years
Lift Station #3 – Improvements	\$	315,000	20 Years	1.33 Years
Lift Station#5 – Improvements	\$	78,750	20 Years	0.33 Years
Manhole Replacement	\$	83,891	50 Years	0.89 Years
Manhole Repair/Lining	\$	142,800	20 Years	0.60 Years
Sewer Main Replacement	\$	1,122,769	100 Years	23.78 Years
Sewer Main Lining	\$	1,264,000	50 Years	5.35 Years
Rose Island – Lift Station	\$	150,000	30 Years	0.95 Years
Rose Island – Backup Generator	\$	70,000	30 Years	0.44 Years
Rose Island - Manholes	\$	25,000	50 Years	0.26 Years
Rose Island – Sanitary Sewer	\$	381,524	100 Years	8.08 Years
Remove CSO Locations	\$	67,253	20 Years	0.28 Years
Weighted Useful Life				47 Years

# 4.3 Project Maps

The Project area is located within the Village limits. The majority of which is located east of the Ontonagon River and north of M-64. A map indicating the locations of work for the selected alternative is included on Figures 1 and 2 located in Appendix A.

# 4.4 Water and Energy Efficiency

Removing and replacing the old, outdated lift station pumps with new energy efficient pumps would improve the reliability of the sanitary system and reduce energy consumption and operating cost for the Village.

Reducing infiltration and inflow through sanitary sewer replacement and lining would increase the efficiency of the system because the amount of clear water entering the lagoons would be decreased. Therefore, creating more lagoon capacity and promoting a better treatment process.

## 4.5 Schedule for Design and Construction

Based on the timeline for the EGLE SRF application process, it is anticipated that the design for the proposed selected alternatives will begin in the fall of 2023. It is expected that the project will occur during Quarter 4 of EGLE's Fiscal Year 2024 Financing Schedule. Construction will begin in September of 2024. A detailed project timeline is provided below:

Table 4.5.1: Schedule for Design and Construction		
Activity	Completion Date	
Approval of Project Plan	April 24, 2023	
Final Project Plan Submittal	May 1, 2023	
Begin Design of Project	October 2023	
Complete Design of Project	May, 2024	
Begin Construction	September 2024	

# 4.6 Cost Summary

The estimated total project cost is approximately \$6.5 million. An engineering cost estimate is provided in Appendix D.

# 4.7 Implementability

The Principal Alternative was selected for implementation. A resolution was passed on April 24, 2023 at the Village Council meeting, implementing the Principal Alternative and adopting the Project Plan. A copy of the resolution is provided in Appendix L.

# 5. Environmental and Public Health Impacts

# 5.1 Direct Impacts

### 5.1.1 Construction Impacts

The proposed project is not anticipated to impact any cultural or historical sites. This project will have no adverse impacts on surface water or groundwater quality or quantity. There are wetlands within the project area, in particular at the Rose Island expansion location. The project area is within the coastal zone of Lake Superior. A floodplain exists over portions of the project. Lake Superior and the Ontonagon River are considered "major surface waters." See wetland, coastal zone, floodplain, and major surface water maps in Appendix A. The project area was reviewed by the United States Fish and Wildlife Service through their IPaC (Information for Planning and Consultation) system which confirmed that this project is "not likely to adversely affect" local threatened species. A copy of this document is in Appendix H. Due to these findings, we believe the need for further review through the Michigan Natural Features Inventory (MNFI) can be waived. There will be no impact on agricultural land.

The first portion of the project consist of lift station improvements. Work surrounding these improvements will be taking place in the immediate vicinity of the lift station. Increased noise and equipment in the area of the lift station is expected.

The second portion of the project consists of replacing, repairing, and relining portions of the existing sanitary system. Construction activities related to sanitary sewer upgrades will occur within road right-of-way. Typical construction related impacts will occur during the proposed project which include excessive noise, dust, traffic detours, etc.

The third portion of the project is an expansion of the sanitary sewer system to Rose Island. Construction impacts to the island that have not been mentioned previously include clearing and grubbing the area where sanitary sewer will be laid, directional boring of a new force main under the channel between Rose Island and the Village mainland, and construction activities occurring on private property in order to connect the residents to the new sanitary sewer main. Dewatering is also expected during construction within the limits of project area.

# 5.1.2 Operational Impacts

The proposed project will improve multiple facets of the wastewater system. First, is improving the efficiency of four (4) lift stations. This would be achieved by upgrading the pumps, piping, valves, electrical and control systems in the lift stations. Second, overall reliability of the collection system would be increased by repairing and replacing damaged portions of sanitary sewer main. Therefore, reducing the probability of a system failure.

### 5.1.3 Social Impacts

This project will enhance the Village's existing infrastructure, making it more reliable and safer. Therefore, improving the community's outlook on their utilities. No negative impacts are anticipated for community businesses. Rate increases are anticipated, which may result in a temporary negative social impact.

Construction activities on Rose Island and the fact new users on Rose Island will begin to receive a sanitary sewer bill from the Village, will result in a temporary negative social impact. Though, this potential negative impact may be mitigated because of the reduced maintenance involved with a user's sanitary system when it is part of the Village's sanitary sewer and not a stand-alone septic system.

Due to the construction efforts required to implement the selected alternative, there is potential for a short-term beneficial impact in the employment market since the Contractor may hire local equipment operators, laborers, etc. to complete the system improvements. In addition, the selected alternative will provide short-term beneficial impacts to local suppliers of goods and services related to the construction project.

## 5.2 Indirect Impacts

The proposed improvements are not intended to promote additional growth within the Village. Therefore, no indirect impacts are anticipated with completion of this project.

- Changes in rate, density, or type of development are expected to occur. The selected alternatives will provide sanitary sewer to six new users. User's impact to the system will be minimal.
- Changes in land use are not planned to occur in the project plan area.
- Changes in air or water quality stemming from development including impacts from increased traffic are not expected to occur because of the selected alternatives.
- Changes to the natural areas and sensitive species or ecosystems due to secondary growth are not expected to occur with the selected alternatives.
- No impacts are anticipated on cultural, human, social, and economic resources.
- Changes to aesthetics aspects of the community will be minimal. These changes will be the result of road removal/reconstruction as a result of sanitary sewer replacement/repair and manhole installation. Clearing and grubbing will be an aesthetic aspect that will be a result of the Rose Island sanitary expansion. But this aspect will be resolved by turf and site restoration that will bring the disturbed area back to its original state.
- Resource consumption over the useful life of the projects is not expected to change.

# 5.3 Cumulative Impacts

Environmental impacts will not increase in magnitude over time as a result of the proposed project. However, if no action is taken, the environmental impacts will increase over time because of the condition that the sanitary system is in. A system failure will be worse to the community and environment as time goes on.

# 6. Mitigation

## 6.1 Short-Term Construction-Related Mitigation

#### 6.1.1 General Construction

Construction mitigation measures for the Clean Water project include employing a water truck to spray periodically throughout the day. Hence, helping to minimize the amount of dust generated from construction activities. A second mitigation measure for general construction is working only select hours during the day to minimize noise in the community. Lastly, establishing traffic detours to mitigate pedestrian/construction interface.

Silt fence and straw bales would be installed around the project area on Rose Island to help mitigate soil erosion. Traffic control would also be implemented to allow residents to access their businesses and homes. Construction mats potentially will be used to prevent construction equipment from sinking into the soil and becoming stuck. This obviously depends on the condition of the soil on the Island. Turf and site restoration will take place where clearing and grubbing have occurred. Hence, bringing the disturbed area back to its original state.

# 6.2 Mitigation of Long-Term Impacts

# 6.2.1 Siting Decisions

Existing facilities will remain at current locations. Long-term project impacts are not expected with respect to siting.

# 6.2.2 Operational Impacts

Long-term operational impacts are not expected.

# 6.3 Mitigation of Indirect Impacts

# 6.3.1 Master Plan and Zoning

There are no significant changes in land use associated with the proposed project that will affect master planning or zoning in the Village.

#### 6.3.2 Ordinances

There will be no changes in ordinances as a result of the proposed project.

# 6.3.3 Staging of Construction

The construction contract documents will provide direction to the proposed contractor on requirements for staging or phasing of construction. Construction staging will occur to ensure that when critical equipment is taken offline there are measures taken to reduce or prevent disruptions to the systems.

# 7. Public Participation

On August 26, 2022, GEI conducted an onsite meeting with the Village Manager and Director of Public Works to discuss the status of their infrastructure and a possible Intent to Apply (ITA) for the State Revolving Fund.

On August 29, 2022, the Village's ITA was submitted to EGLE.

On December 6, 2022, a revision to the Intent to Apply (ITA) was presented to the Village Manager by GEI for approval.

On December 21, 2022, the revised ITA was submitted to EGLE.

On January 9, 2023, the required Project Plan proposal and description were presented to the Village Council by GEI for approval during a public Council Meeting.

The following sections describe how the public was kept informed on the project and how their input was used to select the proposed alternative.

### 7.1 Public Meeting

A formal public hearing was held on April 24, 2023, at 5:00 pm Eastern Time at the Ontonagon Village Hall. Attendees from the public will be documented and included in Appendix K. This meeting is open to the public.

# 7.2 Public Meeting Advertisement

The public was notified about the hearing over fifteen (15) days in advance on April 5, 2023, through the local newspaper (Appendix K).

## 7.3 Public Meeting Summary

A presentation was given at the public hearing on April 24, 2023. A copy of the presentation as well as a list of the attendees are provided in Appendix K.

#### 7.3.1 Comments Received and Answered

The draft Project Plan was made available for review and comment from April 5, 2023 to April 24, 2023. There were no written or verbal public comments received prior to the public hearing. The following is a list of the questions received and a summary of the response from the Public Hearing.

Project Plan Clean Water State Revolving Fund (CWSRF) Ontonagon, Michigan May 2023

Question: If the resolution is approved, does it mean that Ontonagon is committing to a \$6.5 million project?

Response: No, if the resolution is approved, it gives GEI permission to submit the grant application for the project and that is it.

Question: Are the rates listed in the presentation per user per month?

Response: Yes, that is correct.

Comment: People in the community are older and have a hard time as it is paying their sanitary sewer bill.

Response: If something is not done soon, the cost of correcting the issues will continue to rise, along with your sewer rates.

Question: What happens if the costs for the project are over the \$6.5 million requested?

Response: Either the Village will have to come up with additional funding or we will have to reduce the scope of the project.

Question: Storm water entering the sanitary system, how big of an issue is it? What additional cost are we occurring?

Response: This is occurring at 4 locations within the Village. At this time all we know is that it is contributing your capacity issues. We do not know how much is entering your system as a result of this or how much this is costing the Village. All we know is that you are treating storm water.

Question: What is the lifetime (useful life) of this revamped system with all of the updates?

Response: Depends on the component. We estimate that the pumps will last roughly 20 to 30 years. Other portions of the project, like manholes and sewer main we expect to last 80 years.

Question: Will this slide show be available on the website?

Response: Yes, it will.

Question: What are the chances of getting 100% grant?

Response: Not very good. But there is a chance.

No changes were made to the project or project plan as a result of the public comment.

Project Plan Clean Water State Revolving Fund (CWSRF) Ontonagon, Michigan May 2023

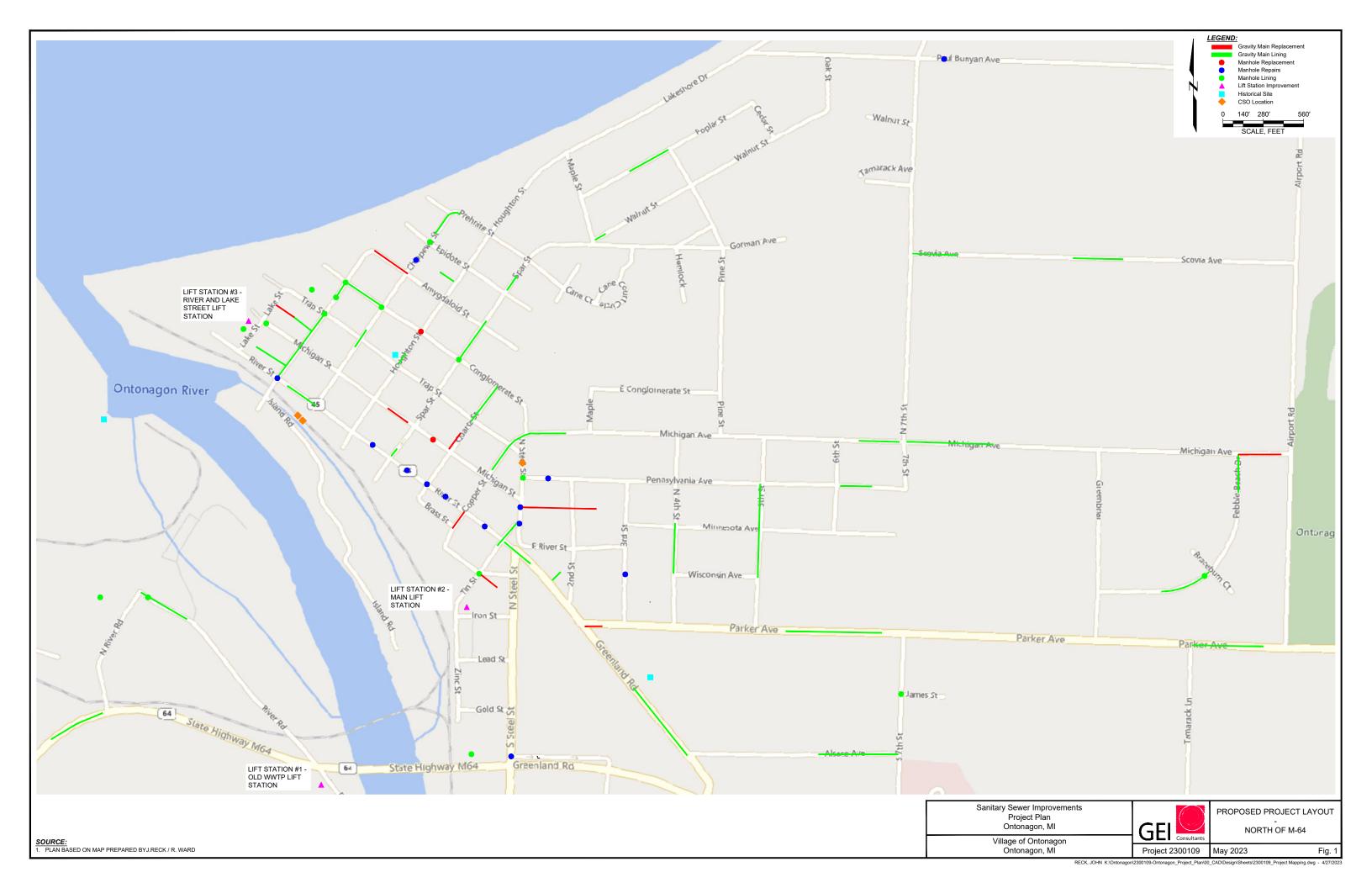
## 7.4 Adoption of the Project Plan Document

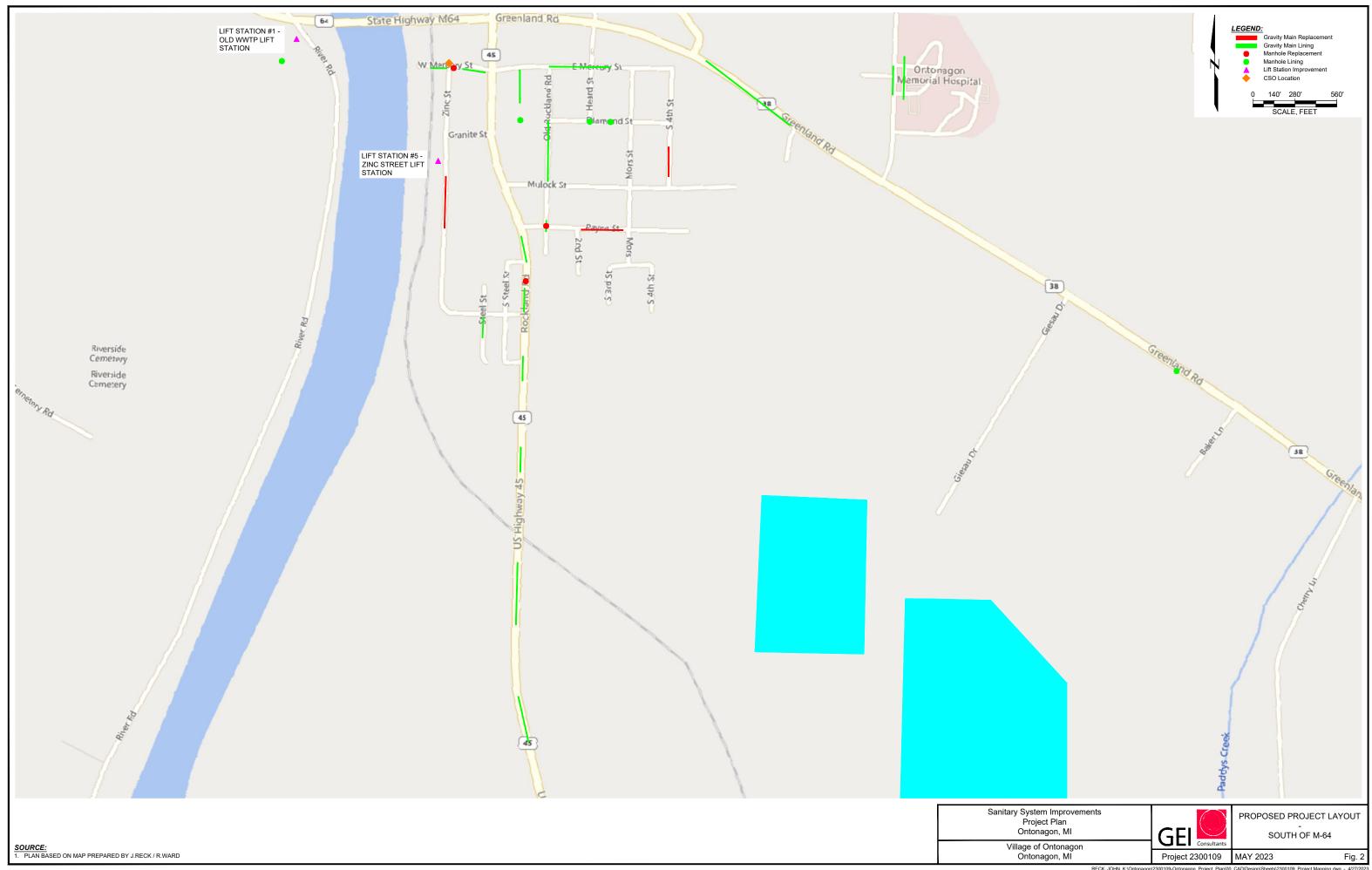
The Village has elected to pursue the selected alternative as described above which includes lift station improvements, manhole replacement and repair, sanitary sewer replacement and lining, removing CSO locations, and extending the sanitary sewer onto Rose Island. Included in Appendix L is the resolution to formally adopt this Project Plan and implement the selected alternative.

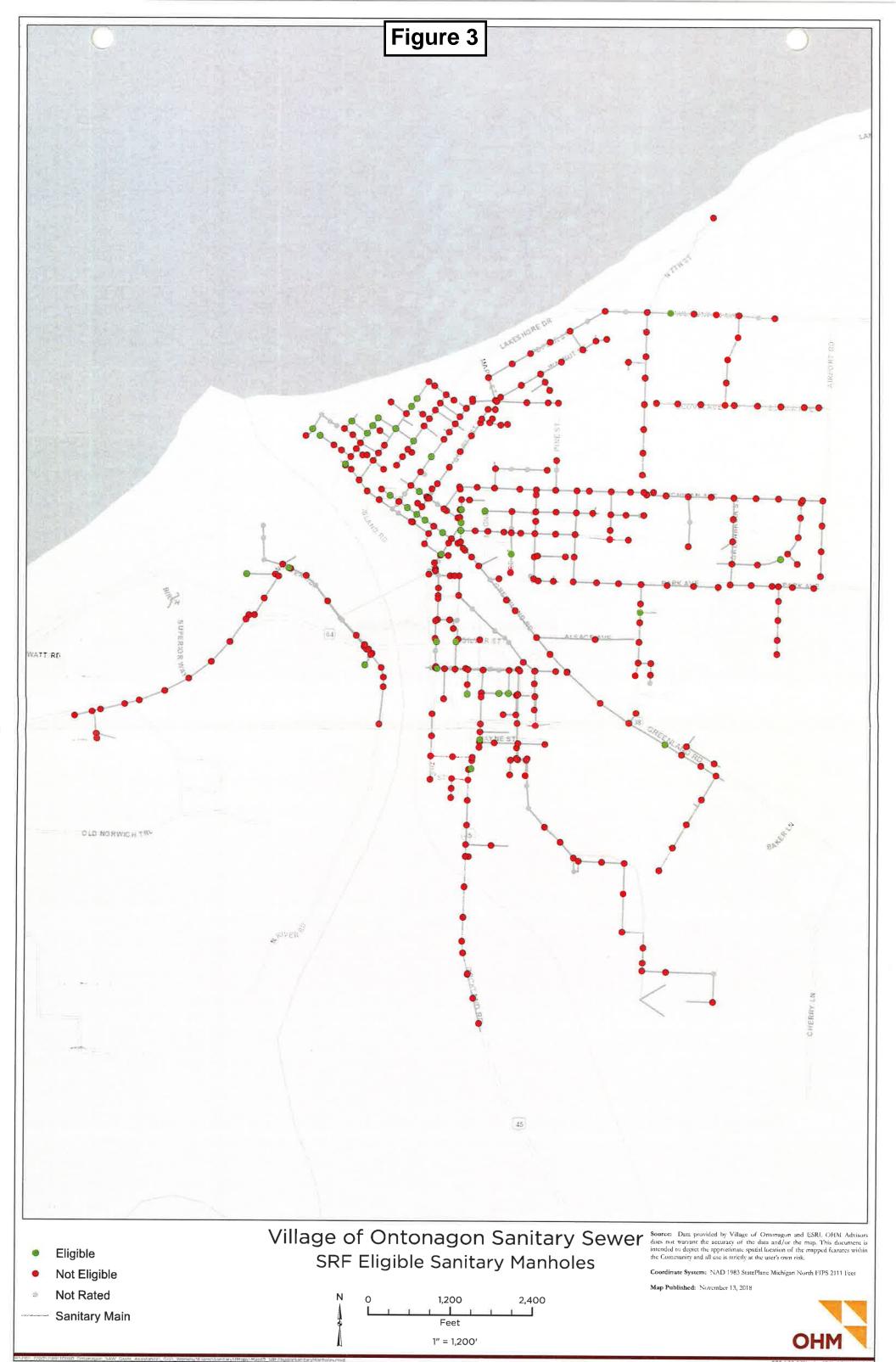
# Appendix A

## **Maps and Figures**

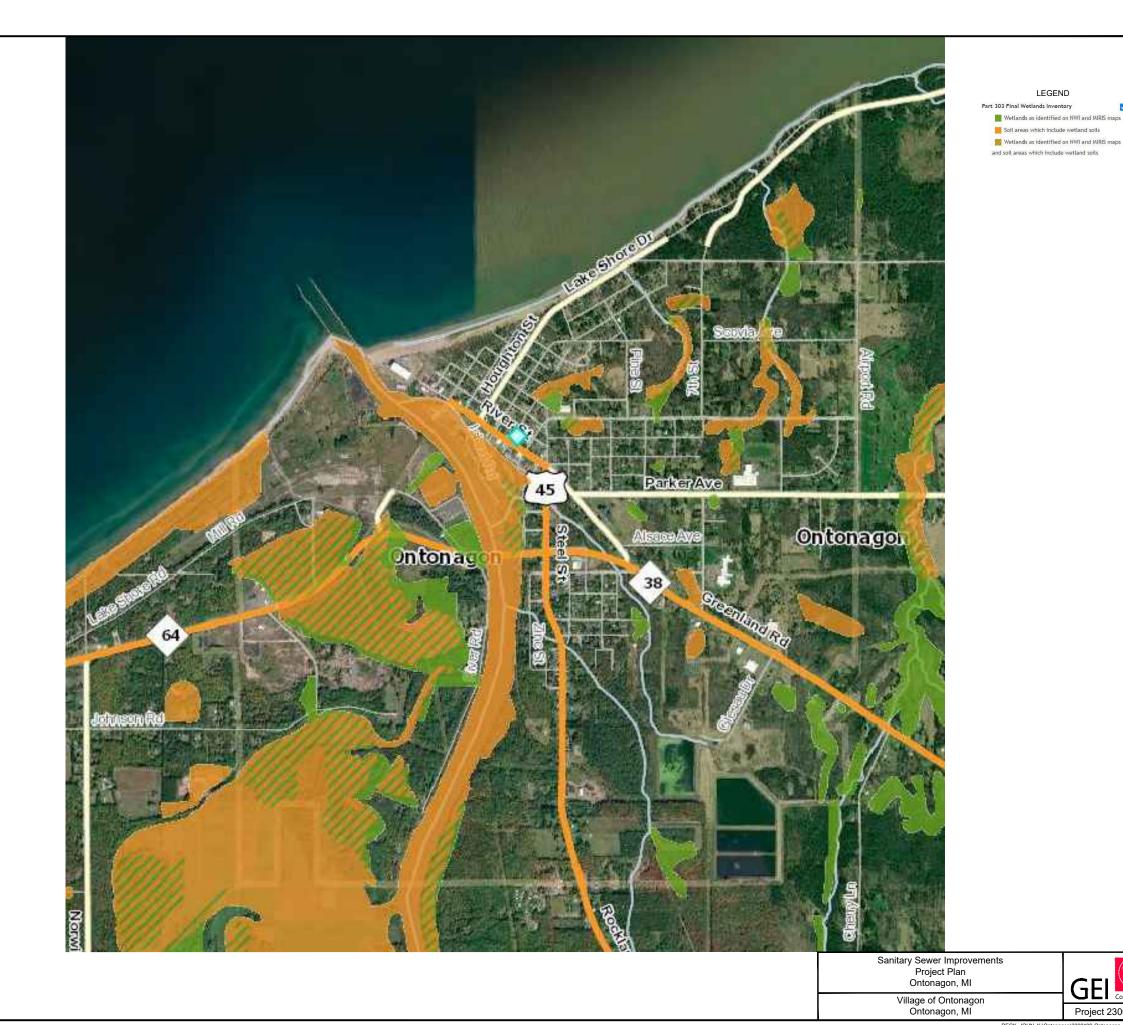
- Figure 1 Proposed Project Layout North of M-64
- Figure 2 Proposed Project Layout South of M-64
- Figure 3 SRF Eligible Sanitary Manholes
- Figure 4 SRF Eligible Sanitary Gravity Main
- Figure 5 Wetlands Map
- Figure 6 Coastal Zone Map
- Figure 7 Floodplain Map
- Figure 8 Major Surface Water Map
- Figure 9 Topography Map
- Figure 10 Rose Island Sanitary Sewer Expansion







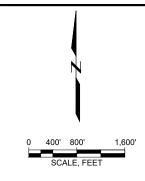


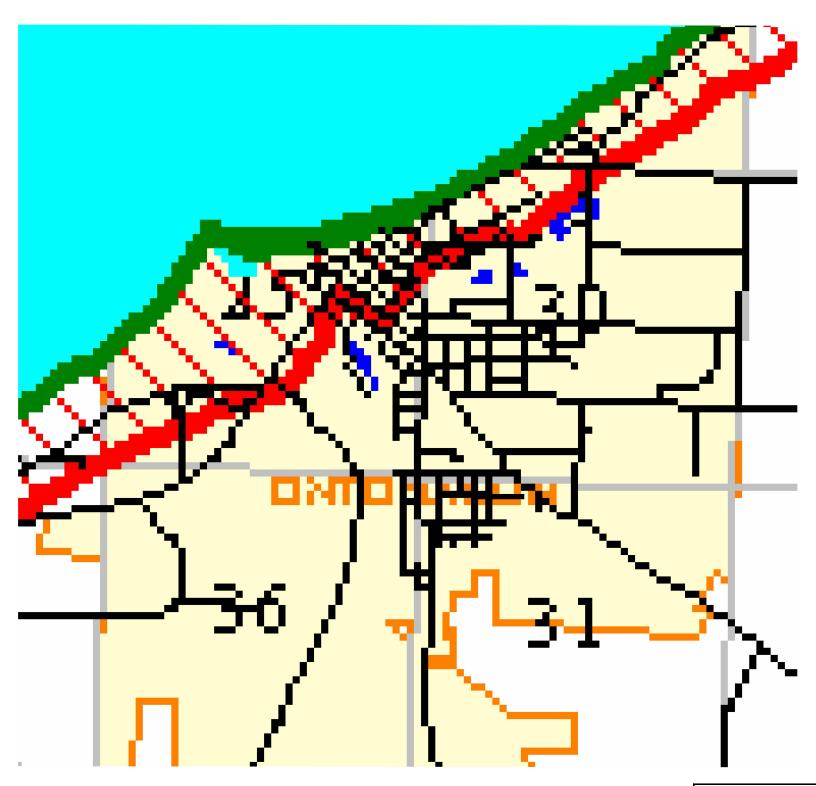


WETLANDS MAP

Project 2300109 May 2023

The heavy red line is the *Coastal Zone Management Boundary*The red hatched area is the *Coastal Zone Management Area* 



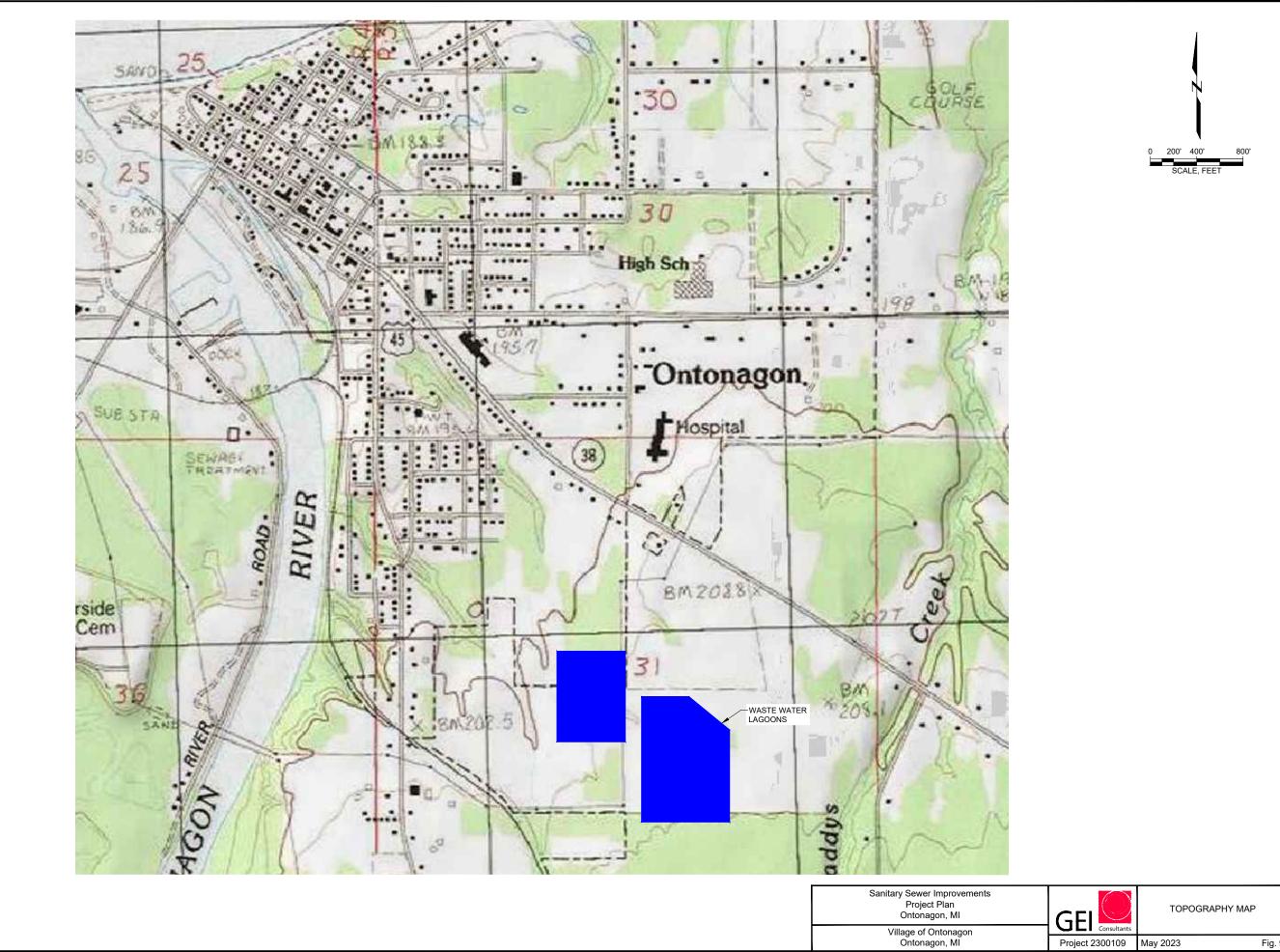


Sanitary Sewer Improvements Project Plan Ontonagon, MI Village of Ontonagon Ontonagon, MI

COASTAL ZONE MAP









Project Plan Clean Water State Revolving Fund (CWSRF) Ontonagon, Michigan May 2023

# Appendix B

**Soil Survey Report** 

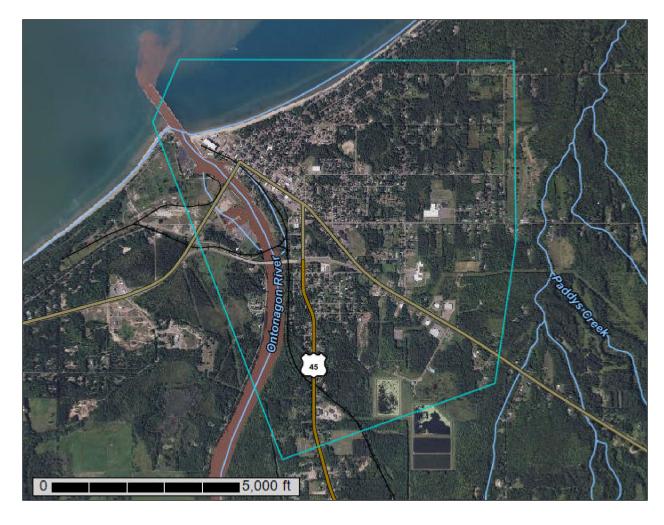


Natural Resources Conservation

Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for Ontonagon County, Michigan



# **Preface**

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2 053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# **How Soil Surveys Are Made**

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



#### MAP LEGEND

#### Area of Interest (AOI)

Area of Interest (AOI)

#### Soils

Soil Map Unit Polygons

-

Soil Map Unit Lines

Soil Map Unit Points

#### **Special Point Features**

(2)

Blowout

 $\boxtimes$ 

Borrow Pit

**Ж** 

Clay Spot

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Closed Depression

 $\Diamond$ 

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4.0

Gravelly Spot

-

Landfill

٨.

Lava Flow Marsh or swamp

@

Mine or Quarry

X.

Miscellaneous Water
Perennial Water

0

Rock Outcrop

+

Saline Spot

. .

Sandy Spot

Slide or Slip

0

Severely Eroded Spot

٥

Sinkhole

ES.

Sodic Spot

#### -

Spoil Area



Stony Spot

Ø

Very Stony Spot

Ŷ

Wet Spot Other

Δ

Special Line Features

#### Water Features

\_

Streams and Canals

#### Transportation

11a115µ

Rails

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Interstate Highways

 $\sim$ 

US Routes

 $\sim$ 

Major Roads

~

Local Roads

#### Background

Marie Control

Aerial Photography

#### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Ontonagon County, Michigan Survey Area Data: Version 13, Aug 29, 2022

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

Date(s) aerial images were photographed: Aug 11, 2020—Sep 18, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# **Map Unit Legend**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
14B	Annalake loam, 0 to 4 percent slopes	452.5	24.9%
14D	Annalake loam, 4 to 18 percent slopes	9.6	0.5%
16A	Arnheim mucky silt loam, 0 to 1 percent slopes, frequently flooded	35.0	1.9%
20B	Belding fine sandy loam, 0 to 4 percent slopes	8.2	0.5%
29A	Croswell sand, 0 to 3 percent slopes	44.4	2.4%
36A	Ingalls loamy fine sand, 0 to 3 percent slopes	127.5	7.0%
48A	Histosols and Aquents, 0 to 1 percent slopes, ponded	23.6	1.3%
50D	Kalkaska sand, 6 to 15 percent slopes	6.2	0.3%
57B	Liminga fine sand, 1 to 8 percent slopes	3.2	0.2%
57D	Liminga fine sand, 8 to 15 percent slopes	13.1	0.7%
59A	Lupton and Tawas mucks, 0 to 1 percent slopes	3.2	0.2%
63B	Moquah-Arnheim complex, 0 to 3 percent slopes, frequently flooded	4.9	0.3%
67B	Nonesuch loam, 1 to 6 percent slopes, very stony	131.5	7.2%
90A	Deford-Tawas complex, 0 to 1 percent slopes	18.3	1.0%
93B	Loggerhead loam, 1 to 8 percent slopes	25.1	1.4%
94A	Udorthents, loamy, nearly level	205.6	11.3%
100B	Flintsteel loam, 1 to 8 percent slopes	33.3	1.8%
101B	Big Iron silt loam, 0 to 4 percent slopes	127.4	7.0%
102A	Trap Falls clay loam, 0 to 1 percent slopes	8.5	0.5%
108A	Greenstone silt loam, 0 to 3 percent slopes	8.2	0.5%
109	Dumps, sanitary landfill	4.4	0.2%
119A	Moquah loam, 0 to 3 percent slopes, occasionally flooded	45.1	2.5%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI	
121B	Deer Park sand, 0 to 6 percent slopes	145.7	8.0%	
123A	Mishwabic silt loam, 0 to 2 percent slopes	3.6	0.2%	
124F	Zandi loamy very fine sand, 35 to 70 percent slopes	21.5	1.2%	
129F	Karlin-Sporley complex, 1 to 70 percent slopes	37.5	2.1%	
8307	Lupton and Cathro soils, 0 to 1 percent slopes	1.0	0.1%	
8309	Cathro muck, drainageway, 0 to 1 percent slopes	5.9	0.3%	
MW	Miscellaneous water	26.8	1.5%	
W	Water	84.6	4.7%	
Totals for Area of Interest		1,817.4	100.0%	

# **Map Unit Descriptions**

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An association is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## **Ontonagon County, Michigan**

#### 14B—Annalake loam, 0 to 4 percent slopes

#### **Map Unit Setting**

National map unit symbol: 1kwhf Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Annalake and similar soils: 85 percent *Minor components:* 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Annalake**

#### Setting

Landform: Outwash terraces, outwash plains Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Stratified loamy glaciofluvial deposits

#### **Typical profile**

Ap - 0 to 9 inches: loam

Bs - 9 to 16 inches: fine sandy loam

E and Bt1 - 16 to 31 inches: stratified loamy very fine sand to silt loam to loamy fine sand

E and Bt2 - 31 to 48 inches: stratified sand to fine sand to loamy fine sand to silt loam

B and Et - 48 to 61 inches: stratified sand to fine sand to loamy fine sand to silt loam

C - 61 to 80 inches: stratified fine sand to loamy fine sand to silt loam to silt

#### **Properties and qualities**

Slope: 0 to 4 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.60 to 2.00 in/hr)

Depth to water table: About 30 inches

Frequency of flooding: None Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Ecological site: R092XY014WI - Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO\_1), Acer Tsuga

Dryopteris (ATD\_1)

Hydric soil rating: No

#### **Minor Components**

#### Manido

Percent of map unit: 5 percent Landform: Till-floored lake plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY013WI - Sandy Uplands

Other vegetative classification: Tsuga Maianthemum Coptis (TMC 1)

Hydric soil rating: No

#### Loggerhead

Percent of map unit: 5 percent

Landform: Till plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, base slope, crest Down-slope shape: Linear

Across-slope shape: Convex, linear

Ecological site: R092XY014WI - Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO 1), Acer Tsuga

Dryopteris (ATD\_1)

Hydric soil rating: No

#### Wainola

Percent of map unit: 5 percent Landform: Outwash plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY010WI - Moist Sandy Lowlands

Other vegetative classification: Tsuga Maianthemum Coptis - Vaccinium (TMC-

Vac\_1)

Hydric soil rating: No

#### 14D—Annalake loam, 4 to 18 percent slopes

#### **Map Unit Setting**

National map unit symbol: 1kwhg Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Annalake and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Annalake**

#### Setting

Landform: Outwash terraces, outwash plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, crest, base slope Down-slope shape: Convex, linear

Across-slope shape: Concave, linear Across-slope shape: Concave, convex

Parent material: Stratified loamy glaciofluvial deposits

#### **Typical profile**

Ap - 0 to 9 inches: loam

Bs - 9 to 16 inches: fine sandy loam

E and Bt1 - 16 to 31 inches: stratified loamy very fine sand to silt loam to loamy fine sand

E and Bt2 - 31 to 48 inches: stratified sand to fine sand to loamy fine sand to silt loam

B and Et - 48 to 61 inches: stratified sand to fine sand to loamy fine sand to silt

C - 61 to 80 inches: stratified fine sand to loamy fine sand to silt loam to silt

#### **Properties and qualities**

Slope: 4 to 18 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.60 to 2.00 in/hr)

Depth to water table: About 30 inches

Frequency of flooding: None Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Ecological site: R092XY014WI - Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO\_1), Acer Tsuga

Dryopteris (ATD\_1)

Hydric soil rating: No

#### **Minor Components**

#### Loggerhead

Percent of map unit: 5 percent

Landform: Till plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, crest, base slope Down-slope shape: Linear

Across-slope shape: Convex, linear

Ecological site: R092XY014WI - Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO 1), Acer Tsuga

Dryopteris (ATD\_1)

Hydric soil rating: No

#### Manido

Percent of map unit: 5 percent Landform: Till-floored lake plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY013WI - Sandy Uplands

Other vegetative classification: Tsuga Maianthemum Coptis (TMC 1)

Hydric soil rating: No

#### Ingalls

Percent of map unit: 5 percent

Landform: Lake plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY011WI - Moist Loamy Lowlands

Other vegetative classification: Tsuga Maianthemum Coptis - Dryopteris (TMC-

D\_1)

Hydric soil rating: No

#### 16A—Arnheim mucky silt loam, 0 to 1 percent slopes, frequently flooded

#### **Map Unit Setting**

National map unit symbol: 1kwhl Elevation: 590 to 1.800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Arnheim and similar soils: 85 percent Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Arnheim**

#### Setting

Landform: Flood plains

Parent material: Loamy alluvium

#### Typical profile

A - 0 to 5 inches: mucky silt loam Cg - 5 to 10 inches: silt loam

C - 10 to 80 inches: stratified very fine sandy loam to silt loam to loamy fine sand to fine sandy loam

#### **Properties and qualities**

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.60 to 2.00 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: FrequentNoneOccasional

Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: High (about 11.3 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: B/D

Ecological site: R092XY005WI - Wet Floodplains

Other vegetative classification: Fraxinus Impatiens (FI\_1), Fraxinus Mentha Carex

(FMC\_1)

Hydric soil rating: Yes

#### **Minor Components**

#### Moquah

Percent of map unit: 8 percent

Landform: Flood plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY004WI - Seasonally Dry Floodplains

Other vegetative classification: Acer Osmorhiza Caulophyllum (AOC), Acer-Viola-

Osmorhiza (AVO\_2) Hydric soil rating: No

#### Cathro

Percent of map unit: 5 percent

Landform: Drainageways, depressions, swamps Ecological site: F090AY002WI - Mucky Swamp

Other vegetative classification: Fraxinus Impatiens (FI\_1), Tsuga-Thuja-Mitella

(TTM 2)

Hydric soil rating: Yes

#### Schaat creek

Percent of map unit: 2 percent

Landform: Flood plains

Landform position (three-dimensional): Talf

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY005WI - Wet Floodplains

Other vegetative classification: Fraxinus Mentha Carex - Caltha (FMC-C)

Hydric soil rating: Yes

#### 20B—Belding fine sandy loam, 0 to 4 percent slopes

#### **Map Unit Setting**

National map unit symbol: 1kwhp Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Belding and similar soils: 85 percent *Minor components*: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Belding**

#### **Setting**

Landform: Ground moraines

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Coarse-loamy till over fine-loamy till

#### Typical profile

Oa - 0 to 1 inches: highly decomposed plant material

A1 - 1 to 4 inches: fine sandy loam
A2 - 4 to 9 inches: fine sandy loam
E - 9 to 14 inches: fine sandy loam
Bs1 - 14 to 19 inches: fine sandy loam
Bs2 - 19 to 22 inches: fine sand
2Bt - 22 to 34 inches: silty clay loam
2BCd - 34 to 36 inches: silty clay loam
2Cd - 36 to 80 inches: silty clay loam

#### **Properties and qualities**

Slope: 0 to 4 percent

Depth to restrictive feature: 30 to 60 inches to densic material

Drainage class: Somewhat poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately

low (0.00 to 0.06 in/hr)

Depth to water table: About 6 inches

Frequency of flooding: None Frequency of ponding: None

Calcium carbonate, maximum content: 20 percent

Available water supply, 0 to 60 inches: Low (about 5.8 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C/D

Ecological site: R092XY011WI - Moist Loamy Lowlands

Other vegetative classification: Tsuga Maianthemum Coptis - Dryopteris (TMC-

D\_1), Acer Viola Osmorhiza - Circaea Impatiens (AVO-CI\_3)

Hydric soil rating: No

#### **Minor Components**

#### Loggerhead

Percent of map unit: 5 percent

Landform: Till plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, base slope, crest Down-slope shape: Linear

Across-slope shape: Convex, linear

Ecological site: R092XY014WI - Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO 1), Acer Tsuga

Dryopteris (ATD\_1)

Hydric soil rating: No

#### Trap falls

Percent of map unit: 5 percent

Landform: Depressions on till plains

Landform position (three-dimensional): Talf

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY007WI - Wet Loamy or Clayey Lowlands

Other vegetative classification: Fraxinus Impatiens (FI\_1), Fraxinus Mentha Carex

(FMC 1)

Hydric soil rating: Yes

#### **Ubly**

Percent of map unit: 5 percent

Landform: Till plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, base slope, crest Down-slope shape: Convex, linear

Across-slope shape: Concave, convex

Ecological site: R092XY014WI - Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO 1), Acer Tsuga

Dryopteris (ATD\_1)

Hydric soil rating: No

#### 29A—Croswell sand, 0 to 3 percent slopes

#### **Map Unit Setting**

National map unit symbol: 2xtn4 Elevation: 570 to 1,800 feet

Mean annual precipitation: 28 to 37 inches Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 80 to 160 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Croswell and similar soils: 85 percent *Minor components*: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Croswell**

#### Setting

Landform: Flats, terraces, flats

Landform position (three-dimensional): Tread, rise

Down-slope shape: Linear

Across-slope shape: Convex, linear

Parent material: Sandy glaciofluvial deposits

#### **Typical profile**

Oe - 0 to 2 inches: moderately decomposed plant material

E - 2 to 4 inches: sand Bs1 - 4 to 8 inches: sand Bs2 - 8 to 18 inches: sand BC - 18 to 31 inches: sand C - 31 to 79 inches: sand

#### **Properties and qualities**

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00

to 20.00 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 4.2 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: A

Ecological site: F093BY007MI - Sandy Uplands

Forage suitability group: Low AWC, adequately drained (G090AY002WI)

Other vegetative classification: Low AWC, adequately drained (G090AY002WI), Acer rubrum-Quercus/Vaccinium (ArQV), Pinus/Maianthemum-Vaccinium (PMV)

Hydric soil rating: No

# **Minor Components**

### Au gres

Percent of map unit: 8 percent

Landform: Flats, terraces, drainageways, flats Landform position (three-dimensional): Tread, talf

Down-slope shape: Linear

Across-slope shape: Linear, concave

Ecological site: F093BY005MI - Moist Lowlands

Other vegetative classification: Low AWC, high water table (G090AY001WI), Tsuga-Maianthemum-Coptis/Tsuga-Maianthemum-Coptis, Vaccinium phase

(TMC/TMC-V)

Hydric soil rating: No

#### Rubicon

Percent of map unit: 5 percent

Landform: Beach ridges, hillslopes, flats

Landform position (two-dimensional): Backslope Landform position (three-dimensional): Side slope, rise

Down-slope shape: Convex Across-slope shape: Convex

Ecological site: F093BY011MI - Dry Uplands

Other vegetative classification: Low AWC, adequately drained (G090AY002WI),

Acer-Quercus-Vaccinium/Quercus-Acer-Epigea (AQV/QAE)

Hydric soil rating: No

#### **Kinross**

Percent of map unit: 2 percent

Landform: Drainageways, depressions, drainageways, depressions

Down-slope shape: Linear, concave Across-slope shape: Concave

Ecological site: F093BY004MI - Wet Lowlands

Other vegetative classification: Mod AWC, high water table (G090AY004WI), Not

Assigned (wet mineral soils) (Nmin)

Hydric soil rating: Yes

# 36A—Ingalls loamy fine sand, 0 to 3 percent slopes

# **Map Unit Setting**

National map unit symbol: 1kwj5 Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

### **Map Unit Composition**

*Ingalls and similar soils:* 85 percent *Minor components:* 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

## **Description of Ingalls**

### Setting

Landform: Lake plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Sandy outwash over stratified lacustrine deposits

## Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Oe - 1 to 3 inches: moderately decomposed plant material
Oa - 3 to 5 inches: highly decomposed plant material

E - 5 to 13 inches: loamy fine sand Bs1 - 13 to 17 inches: loamy fine sand Bs2 - 17 to 26 inches: fine sand BC - 26 to 43 inches: fine sand

2C - 43 to 80 inches: stratified very fine sand to loamy very fine sand to silt loam

### **Properties and qualities**

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat poorly drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20

to 0.60 in/hr)

Depth to water table: About 12 inches

Frequency of flooding: None Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 9.6 inches)

## Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: A/D

Ecological site: R092XY011WI - Moist Loamy Lowlands

Other vegetative classification: Tsuga Maianthemum Coptis - Dryopteris (TMC-

D 1)

Hydric soil rating: No

# **Minor Components**

#### Wainola

Percent of map unit: 10 percent Landform: Outwash plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY010WI - Moist Sandy Lowlands

Other vegetative classification: Tsuga Maianthemum Coptis - Vaccinium (TMC-

Vac\_1)

Hydric soil rating: No

#### **Annalake**

Percent of map unit: 3 percent

Landform: Outwash terraces, outwash plains Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY014WI - Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO 1), Acer Tsuga

Dryopteris (ATD\_1)

Hydric soil rating: No

### **Tonkey**

Percent of map unit: 1 percent Landform: Depressions on till plains Landform position (three-dimensional): Talf

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY007WI - Wet Loamy or Clayey Lowlands

Other vegetative classification: Fraxinus Impatiens (FI 1)

Hydric soil rating: Yes

#### Cathro

Percent of map unit: 1 percent

Landform: Drainageways, depressions, swamps Ecological site: F090AY002WI - Mucky Swamp

Other vegetative classification: Fraxinus Impatiens (FI\_1), Tsuga-Thuja-Mitella

(TTM\_2)

Hydric soil rating: Yes

# 48A—Histosols and Aguents, 0 to 1 percent slopes, ponded

#### Map Unit Setting

National map unit symbol: 1kwjs Elevation: 600 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

# **Map Unit Composition**

Histosols, ponded, and similar soils: 60 percent Aquents, ponded, and similar soils: 40 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

## **Description of Histosols, Ponded**

# **Setting**

Landform: Marshes

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Dip

Down-slope shape: Linear Across-slope shape: Linear

# **Typical profile**

Oa - 0 to 51 inches: muck C - 51 to 80 inches: variable

### **Properties and qualities**

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00

to 6.00 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: None Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: Very high (about 20.5 inches)

# Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8w

Hydrologic Soil Group: A/D

Ecological site: R092XY002WI - Mucky Swamps

Hydric soil rating: Yes

# **Description of Aquents, Ponded**

## Setting

Landform: Marshes

Landform position (two-dimensional): Toeslope Landform position (three-dimensional): Dip

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Sandy or loamy alluvium

## **Typical profile**

C - 0 to 80 inches: variable

# **Properties and qualities**

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: Negligible

Depth to water table: About 0 inches

Frequency of flooding: None Frequency of ponding: Frequent

## Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8w

Ecological site: R092XY007WI - Wet Loamy or Clayey Lowlands

Hydric soil rating: Yes

# 50D—Kalkaska sand, 6 to 15 percent slopes

# **Map Unit Setting**

National map unit symbol: 2v8dr Elevation: 570 to 1,970 feet

Mean annual precipitation: 28 to 37 inches Mean annual air temperature: 39 to 45 degrees F

Frost-free period: 80 to 160 days

Farmland classification: Not prime farmland

## **Map Unit Composition**

Kalkaska and similar soils: 90 percent Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

# **Description of Kalkaska**

### Setting

Landform: Beach ridges, hillslopes, hillslopes

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex Across-slope shape: Convex Parent material: Outwash

#### Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

E - 1 to 5 inches: sand Bhs - 5 to 9 inches: sand Bs - 9 to 16 inches: sand BC - 16 to 33 inches: sand C - 33 to 79 inches: sand

#### **Properties and qualities**

Slope: 6 to 15 percent

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.60 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 4.1 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: A

Ecological site: F093BY007MI - Sandy Uplands

Other vegetative classification: Acer-Tsuga-Dryopteris, Dryopteris phase (ATD-D)

Hydric soil rating: No

# **Minor Components**

#### Keweenaw

Percent of map unit: 4 percent

Landform: Till plains

Landform position (two-dimensional): Shoulder Landform position (three-dimensional): Side slope

Down-slope shape: Convex Across-slope shape: Convex

Ecological site: F094DY012WI - Steep Loamy-Mantled Ridges

Other vegetative classification: Acer-Tsuga-Dryopteris, Dryopteris phase/Tsuga-

Maianthemum (ATD-D/TM)

Hydric soil rating: No

#### **Pence**

Percent of map unit: 2 percent

Landform: Hillslopes

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex Across-slope shape: Convex

Ecological site: F094DY011WI - Loamy-Mantled Uplands

Other vegetative classification: Acer-Quercus-Vaccinium/Tsuga-Maianthemum-

Vaccinium (AQV/TMV)

Hydric soil rating: No

#### Wallace

Percent of map unit: 2 percent

Landform: Hillslopes

Landform position (two-dimensional): Shoulder, backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex Across-slope shape: Convex

Ecological site: F093BY007MI - Sandy Uplands

Other vegetative classification: Tsuga-Maianthemum (TM)

Hydric soil rating: No

#### **Kinross**

Percent of map unit: 2 percent

Landform: Depressions on lake plains, depressions

Landform position (three-dimensional): Talf

Down-slope shape: Concave, linear

Across-slope shape: Linear

Ecological site: F094DY012WI - Steep Loamy-Mantled Ridges Other vegetative classification: Tsuga-Thuja-Sphagnum (TTS)

Hydric soil rating: Yes

# 57B—Liminga fine sand, 1 to 8 percent slopes

# **Map Unit Setting**

National map unit symbol: 1kwkf Elevation: 600 to 1,800 feet

Mean annual precipitation: 27 to 38 inches Mean annual air temperature: 36 to 45 degrees F

Frost-free period: 70 to 170 days

Farmland classification: Not prime farmland

### **Map Unit Composition**

Liminga and similar soils: 80 percent Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

### **Description of Liminga**

### Setting

Landform: Outwash plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, base slope, crest Down-slope shape: Linear

Across-slope shape: Convex, linear

Parent material: Sandy glaciofluvial deposits

#### Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

E - 1 to 8 inches: fine sand Bhs - 8 to 10 inches: fine sand Bs - 10 to 18 inches: fine sand BC - 18 to 26 inches: fine sand C - 26 to 80 inches: fine sand

#### **Properties and qualities**

Slope: 1 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.60 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.4 inches)

# Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: A

Ecological site: R092XY013WI - Sandy Uplands

Other vegetative classification: Tsuga/Maianthemum (TM), Tsuga Maianthemum

Vaccinium (TMV\_1)

Hydric soil rating: No

# **Minor Components**

#### Manido

Percent of map unit: 10 percent Landform: Till-floored lake plains

Landform position (two-dimensional): Footslope Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: F093BY006MI - Alfic Sandy Uplands

Other vegetative classification: Tsuga Maianthemum Coptis (TMC\_1)

Hydric soil rating: No

#### Toivola

Percent of map unit: 10 percent Landform: Outwash plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, base slope, crest

Down-slope shape: Convex, linear

Across-slope shape: Concave, convex

Ecological site: F093BY006MI - Alfic Sandy Uplands

Other vegetative classification: Acer Tsuga Dryopteris - Dryopteris (ATD-D\_1),

Tsuga Maianthemum (TM\_1)

Hydric soil rating: No

# 57D—Liminga fine sand, 8 to 15 percent slopes

#### Map Unit Setting

National map unit symbol: 1kwkg Elevation: 600 to 1,800 feet

Mean annual precipitation: 27 to 38 inches Mean annual air temperature: 36 to 45 degrees F

Frost-free period: 70 to 170 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Liminga and similar soils: 80 percent Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Liminga**

#### Setting

Landform: Outwash plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, base slope, crest

Down-slope shape: Convex, linear

Across-slope shape: Concave, convex

Parent material: Sandy glaciofluvial deposits

## **Typical profile**

Oe - 0 to 1 inches: moderately decomposed plant material

E - 1 to 8 inches: fine sand Bhs - 8 to 10 inches: fine sand Bs - 10 to 18 inches: fine sand BC - 18 to 26 inches: fine sand C - 26 to 80 inches: fine sand

### Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.60 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.4 inches)

# Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: A

Ecological site: R092XY013WI - Sandy Uplands

Other vegetative classification: Tsuga/Maianthemum (TM), Tsuga Maianthemum

Vaccinium (TMV\_1)

Hydric soil rating: No

#### **Minor Components**

#### Toivola

Percent of map unit: 10 percent Landform: Outwash plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, base slope, crest

Down-slope shape: Convex, linear

Across-slope shape: Concave, convex

Ecological site: F093BY006MI - Alfic Sandy Uplands

Other vegetative classification: Acer Tsuga Dryopteris - Dryopteris (ATD-D 1),

Tsuga Maianthemum (TM\_1)

Hydric soil rating: No

#### Manido

Percent of map unit: 10 percent Landform: Till-floored lake plains

Landform position (two-dimensional): Footslope Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: F093BY006MI - Alfic Sandy Uplands

Other vegetative classification: Tsuga Maianthemum Coptis (TMC 1)

Hydric soil rating: No

# 59A—Lupton and Tawas mucks, 0 to 1 percent slopes

# **Map Unit Setting**

National map unit symbol: 1kwkl Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

# **Map Unit Composition**

Lupton and similar soils: 51 percent Tawas and similar soils: 49 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Lupton**

#### Setting

Landform: Swamps on till plains

Landform position (three-dimensional): Dip

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Highly decomposed organic material

#### Typical profile

Oa1 - 0 to 20 inches: muck Oa2 - 20 to 80 inches: muck

# **Properties and qualities**

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.20 to 6.00 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: None Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: Very high (about 23.9 inches)

### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: A/D

Ecological site: F093BY002MI - Mucky Swamps

Other vegetative classification: Tsuga Thuja Mitchella (TTM\_1), Tsuga Thuja

Sphagnum (TTS\_1)

Hydric soil rating: Yes

# **Description of Tawas**

### Setting

Landform: Swamps on till plains

Landform position (three-dimensional): Dip

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Highly decomposed organic material over sandy drift

# **Typical profile**

Oa - 0 to 22 inches: muck C1 - 22 to 42 inches: sand

C2 - 42 to 80 inches: gravelly sand

# **Properties and qualities**

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00

in/hr)

Depth to water table: About 0 inches

Frequency of flooding: None Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: High (about 11.1 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: A/D

Ecological site: F093BY002MI - Mucky Swamps

Other vegetative classification: Tsuga Thuja Mitchella (TTM\_1), Tsuga Thuja

Sphagnum (TTS\_1)

Hydric soil rating: Yes

# 63B—Moquah-Arnheim complex, 0 to 3 percent slopes, frequently flooded

# **Map Unit Setting**

National map unit symbol: 1kwkr Elevation: 600 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

# **Map Unit Composition**

Moquah, frequently flooded, and similar soils: 55 percent Arnheim, frequently flooded, and similar soils: 30 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

### **Description of Moquah, Frequently Flooded**

### Setting

Landform: Flood plains

Landform position (two-dimensional): Footslope, toeslope Landform position (three-dimensional): Base slope, rise, talf

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Coarse-loamy alluvium

# **Typical profile**

A - 0 to 5 inches: loam

C1 - 5 to 19 inches: stratified loamy fine sand to loamy very fine sand to silt loam C2 - 19 to 48 inches: stratified fine sand to very fine sandy loam to silt loam

C3 - 48 to 55 inches: stratified silt loam

C4 - 55 to 80 inches: stratified sand to fine sand to loamy fine sand to silt loam

#### **Properties and qualities**

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.60 to 2.00 in/hr)

Depth to water table: About 42 inches Frequency of flooding: FrequentRareNone

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 10.3 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: A

Ecological site: R092XY004WI - Seasonally Dry Floodplains

Forage suitability group: High AWC, adequately drained (G090AY008WI)

Other vegetative classification: Acer Osmorhiza Caulophyllum (AOC), Acer Viola

Osmorhiza (AVO\_1), High AWC, adequately drained (G090AY008WI)

Hydric soil rating: No

# **Description of Arnheim, Frequently Flooded**

#### Setting

Landform: Flood plains

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear Parent material: Loamy alluvium

### **Typical profile**

A - 0 to 5 inches: mucky silt loam Cg - 5 to 10 inches: silt loam

C1 - 10 to 15 inches: very fine sandy loam

C2 - 15 to 24 inches: silt loam

C3 - 24 to 80 inches: stratified very fine sandy loam to silt loam to loamy fine sand to fine sandy loam

## **Properties and qualities**

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.60 to 2.00 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: FrequentNoneOccasional

Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: High (about 10.5 inches)

# Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7w

Hydrologic Soil Group: B/D

Ecological site: R092XY005WI - Wet Floodplains

Forage suitability group: Frequently flooded, organics (G090AY010WI)

Other vegetative classification: Frequently flooded, organics (G090AY010WI),

Fraxinus Impatiens (FI\_1), Fraxinus Mentha Carex (FMC\_1)

Hydric soil rating: Yes

#### **Minor Components**

#### Schaat creek, frequently flooded

Percent of map unit: 5 percent

Landform: Flood plains on flood plains

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Talf, dip

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY005WI - Wet Floodplains

Other vegetative classification: Fraxinus Mentha Carex - Caltha (FMC-C)

Hydric soil rating: Yes

## Gull point, frequently flooded

Percent of map unit: 5 percent Landform: Flood plains on till plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope, dip, talf

Down-slope shape: Linear

Across-slope shape: Concave, linear

Ecological site: R092XY005WI - Wet Floodplains

Other vegetative classification: Fraxinus Impatiens (FI 1), Fraxinus Mentha Carex

(FMC\_1)

Hydric soil rating: Yes

### Cathro, frequently flooded

Percent of map unit: 5 percent

Landform: Drainageways, depressions, swamps Landform position (two-dimensional): Toeslope Landform position (three-dimensional): Dip, talf

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: F093BY002MI - Mucky Swamps

Other vegetative classification: Fraxinus Impatiens (FI 1), Tsuga-Thuja-Mitella

(TTM\_2)

Hydric soil rating: Yes

# 67B—Nonesuch loam, 1 to 6 percent slopes, very stony

## **Map Unit Setting**

National map unit symbol: 1kwkt Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

# **Map Unit Composition**

Nonesuch and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

# **Description of Nonesuch**

# **Setting**

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear Parent material: Coarse-loamy till

## **Typical profile**

Oi - 0 to 1 inches: slightly decomposed plant material

A - 1 to 4 inches: loam

Bs - 4 to 11 inches: channery loam

Bt1 - 11 to 16 inches: very gravelly fine sandy loam

Bt2 - 16 to 23 inches: gravelly sandy loam

B/Ex - 23 to 34 inches: silt loam Crt - 34 to 50 inches: silt loam 2R - 50 to 80 inches: bedrock

# **Properties and qualities**

Slope: 1 to 6 percent

Surface area covered with cobbles, stones or boulders: 0.0 percent

Depth to restrictive feature: 16 to 30 inches to fragipan; 20 to 40 inches to

paralithic bedrock; 20 to 60 inches to lithic bedrock

Drainage class: Moderately well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately

low (0.00 to 0.06 in/hr)

Depth to water table: About 12 inches

Frequency of flooding: None Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.6 inches)

## Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: D

Ecological site: R092XY009WI - Loamy Sandstone Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO 1), Acer Tsuga

Dryopteris (ATD\_1)

Hydric soil rating: No

### **Minor Components**

#### Greenstone

Percent of map unit: 10 percent

Landform: Till plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY009WI - Loamy Sandstone Uplands

Other vegetative classification: Tsuga Maianthemum Coptis - Dryopteris (TMC-

D 1), Acer Viola Osmorhiza - Circaea Impatiens (AVO-CI 3)

Hydric soil rating: No

#### **Flintsteel**

Percent of map unit: 5 percent

Landform: Till plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, crest, base slope Down-slope shape: Linear

Across-slope shape: Convex, linear

Ecological site: R092XY014WI - Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO 1), Tsuga Acer

Mitchella (TAM\_1)

Hydric soil rating: No

# 90A—Deford-Tawas complex, 0 to 1 percent slopes

# **Map Unit Setting**

National map unit symbol: 1kwlx Elevation: 600 to 1,800 feet

Mean annual precipitation: 27 to 38 inches Mean annual air temperature: 36 to 45 degrees F

Frost-free period: 70 to 170 days

Farmland classification: Not prime farmland

## **Map Unit Composition**

Deford and similar soils: 50 percent Tawas and similar soils: 35 percent Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

## **Description of Deford**

# **Setting**

Landform: Outwash plains on till plains

Landform position (two-dimensional): Footslope Landform position (three-dimensional): Dip

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Sandy glaciofluvial deposits

# Typical profile

Oa - 0 to 4 inches: muck
E - 4 to 10 inches: sand
Bw - 10 to 36 inches: sand
C1 - 36 to 55 inches: fine sand

2C2 - 55 to 80 inches: gravelly coarse sand

#### Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.20 to 6.00 in/hr)

Depth to water table: About 0 inches Frequency of flooding: None Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: High (about 10.9 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: A/D

Ecological site: R092XY006WI - Wet Sandy Lowlands

Other vegetative classification: Tsuga Thuja Sphagnum (TTS\_1), Tsuga-Thuja-

Mitella (TTM\_2)

Hydric soil rating: Yes

## **Description of Tawas**

## Setting

Landform: Swamps on till plains

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Dip

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Highly decomposed organic material over sandy drift

# **Typical profile**

Oa - 0 to 22 inches: muck C1 - 22 to 42 inches: sand

C2 - 42 to 80 inches: gravelly sand

# **Properties and qualities**

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.20 to 6.00 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: None Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: High (about 11.1 inches)

## Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: A/D

Ecological site: R092XY002WI - Mucky Swamps

Other vegetative classification: Tsuga Thuja Mitchella (TTM 1), Tsuga Thuja

Sphagnum (TTS\_1)

Hydric soil rating: Yes

# **Minor Components**

#### **Kinross**

Percent of map unit: 10 percent

Landform: Depressions

Landform position (two-dimensional): Toeslope Landform position (three-dimensional): Dip, talf

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: F093BY004MI - Wet Lowlands

Other vegetative classification: Tsuga Thuja Sphagnum (TTS\_1), Tsuga

Maianthemum Coptis - Sphagnum (TMC-Sphag)

Hydric soil rating: Yes

#### Au gres

Percent of map unit: 5 percent Landform: Depressions on till plains

Landform position (two-dimensional): Footslope Landform position (three-dimensional): Rise, talf

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: F093BY005MI - Moist Lowlands

Other vegetative classification: Tsuga Maianthemum Coptis - Vaccinium (TMC-

Vac\_1), Tsuga Maianthemum Coptis (TMC\_1)

Hydric soil rating: No

# 93B—Loggerhead loam, 1 to 8 percent slopes

# **Map Unit Setting**

National map unit symbol: 1kwm0 Elevation: 600 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Farmland of local importance

# **Map Unit Composition**

Loggerhead and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Loggerhead**

#### Setting

Landform: Till plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, crest, base slope Down-slope shape: Linear

Across-slope shape: Convex, linear

Parent material: Coarse-loamy till over loamy till

# **Typical profile**

A - 0 to 4 inches: loam

E - 4 to 5 inches: gravelly fine sandy loam

Bs - 5 to 15 inches: gravelly loam

E/B - 15 to 36 inches: gravelly fine sandy loam 2B/E - 36 to 56 inches: gravelly fine sandy loam

2Bt - 56 to 80 inches: loam

## **Properties and qualities**

Slope: 1 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20

to 0.60 in/hr)

Depth to water table: About 12 inches

Frequency of flooding: None Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 9.1 inches)

### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C/D

Ecological site: F093BY009MI - Alfic Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO 1), Acer Tsuga

Dryopteris (ATD\_1)

Hydric soil rating: No

### **Minor Components**

#### **Annalake**

Percent of map unit: 5 percent

Landform: Till plains, outwash plains, outwash terraces

Landform position (two-dimensional): Summit, backslope, footslope Landform position (three-dimensional): Base slope, riser, tread, rise

Down-slope shape: Convex, linear

Across-slope shape: Linear

Ecological site: F093BY009MI - Alfic Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO\_1), Acer Tsuga

Dryopteris (ATD\_1)

Hydric soil rating: No

#### **Flintsteel**

Percent of map unit: 5 percent

Landform: Till plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, crest, base slope Down-slope shape: Linear

Across-slope shape: Convex, linear

Ecological site: F093BY009MI - Alfic Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO\_1), Tsuga Acer

Mitchella (TAM\_1)

Hydric soil rating: No

#### **Belding**

Percent of map unit: 5 percent

Landform: Till plains

Landform position (two-dimensional): Footslope Landform position (three-dimensional): Rise, talf

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: F093BY005MI - Moist Lowlands

Other vegetative classification: Tsuga Maianthemum Coptis - Dryopteris (TMC-

D 1), Acer Viola Osmorhiza - Circaea Impatiens (AVO-CI 3)

Hydric soil rating: No

# 94A—Udorthents, loamy, nearly level

# **Map Unit Setting**

National map unit symbol: 1kwm2 Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

### **Map Unit Composition**

Udorthents and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

### **Description of Udorthents**

### Setting

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Loamy mine spoil or earthy fill

#### Typical profile

C - 0 to 80 inches: silt loam

#### **Properties and qualities**

Slope: 0 to 2 percent

Depth to restrictive feature: 0 to 10 inches to densic material

Drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20

to 0.60 in/hr)

Depth to water table: About 18 inches

Frequency of flooding: None Frequency of ponding: None

Calcium carbonate, maximum content: 15 percent

Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

# Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydrologic Soil Group: C/D

Other vegetative classification: Acer Viola Osmorhiza (AVO\_1)

Hydric soil rating: No

# **Minor Components**

#### Flintsteel

Percent of map unit: 5 percent

Landform: Till plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, base slope, crest Down-slope shape: Linear

Across-slope shape: Convex, linear

Ecological site: R092XY014WI - Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO 1), Tsuga Acer

Mitchella (TAM\_1)

Hydric soil rating: No

#### **Annalake**

Percent of map unit: 3 percent

Landform: Outwash terraces, outwash plains Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY014WI - Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO 1), Acer Tsuga

Dryopteris (ATD\_1)

Hydric soil rating: No

# Loggerhead

Percent of map unit: 2 percent

Landform: Till plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, base slope, crest Down-slope shape: Linear

Across-slope shape: Convex, linear

Ecological site: R092XY014WI - Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO 1), Acer Tsuga

Dryopteris (ATD\_1)

Hydric soil rating: No

# 100B—Flintsteel loam, 1 to 8 percent slopes

# **Map Unit Setting**

National map unit symbol: 1kwmd Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: All areas are prime farmland

# **Map Unit Composition**

Flintsteel and similar soils: 85 percent Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

## **Description of Flintsteel**

# **Setting**

Landform: Till plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, base slope, crest Down-slope shape: Linear

Across-slope shape: Convex, linear Parent material: Fine-loamy till

# **Typical profile**

Oi - 0 to 1 inches: slightly decomposed plant material

A - 1 to 5 inches: loam E - 5 to 9 inches: loam

Bw - 9 to 12 inches: fine sandy loam

E/B - 12 to 16 inches: loam B/E - 16 to 22 inches: loam Bt - 22 to 36 inches: silt loam BCd - 36 to 48 inches: silt loam Cd - 48 to 80 inches: silt loam

### **Properties and qualities**

Slope: 1 to 8 percent

Depth to restrictive feature: 25 to 40 inches to densic material

Drainage class: Moderately well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately

low (0.00 to 0.06 in/hr)

Depth to water table: About 12 inches

Frequency of flooding: None Frequency of ponding: None

Calcium carbonate, maximum content: 20 percent

Available water supply, 0 to 60 inches: Moderate (about 7.1 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C/D

Ecological site: R092XY014WI - Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO 1), Tsuga Acer

Mitchella (TAM\_1)

Hydric soil rating: No

# **Minor Components**

#### Big iron

Percent of map unit: 10 percent

Landform: Till plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY011WI - Moist Loamy Lowlands

Other vegetative classification: Tsuga Thuja Petasites (TTP\_1), Tsuga Acer

Mitchella - Equisetum (TAM-Eq)

Hydric soil rating: No

# Loggerhead

Percent of map unit: 3 percent

Landform: Till plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, base slope, crest Down-slope shape: Linear

Across-slope shape: Convex, linear

Ecological site: R092XY014WI - Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO 1), Acer Tsuga

Dryopteris (ATD\_1)

Hydric soil rating: No

#### Manido

Percent of map unit: 2 percent Landform: Till-floored lake plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY013WI - Sandy Uplands

Other vegetative classification: Tsuga Maianthemum Coptis (TMC 1)

Hydric soil rating: No

# 101B—Big Iron silt loam, 0 to 4 percent slopes

## **Map Unit Setting**

National map unit symbol: 1kwmg Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Farmland of local importance

# **Map Unit Composition**

Big iron and similar soils: 80 percent Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Big Iron**

#### Setting

Landform: Till plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Fine-loamy till

# **Typical profile**

Oi - 0 to 1 inches: slightly decomposed plant material

A - 1 to 3 inches: silt loam
E - 3 to 4 inches: silt loam
Bw - 4 to 11 inches: loam
E/B - 11 to 17 inches: loam
Bt - 17 to 47 inches: silt loam
BCd1 - 47 to 66 inches: loam

BCd2 - 66 to 80 inches: gravelly silt loam

### **Properties and qualities**

Slope: 0 to 4 percent

Depth to restrictive feature: 40 to 60 inches to densic material

Drainage class: Somewhat poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately

low (0.00 to 0.06 in/hr)

Depth to water table: About 6 inches

Frequency of flooding: None Frequency of ponding: None

Calcium carbonate, maximum content: 20 percent

Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C/D

Ecological site: R092XY011WI - Moist Loamy Lowlands

Other vegetative classification: Tsuga Thuja Petasites (TTP\_1), Tsuga Acer

Mitchella - Equisetum (TAM-Eq)

Hydric soil rating: No

# **Minor Components**

#### Trap falls

Percent of map unit: 10 percent Landform: Depressions on till plains

Landform position (three-dimensional): Talf

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY007WI - Wet Loamy or Clavey Lowlands

Other vegetative classification: Fraxinus Impatiens (FI 1), Fraxinus Mentha Carex

(FMC\_1)

Hydric soil rating: Yes

## **Belding**

Percent of map unit: 10 percent Landform: Ground moraines

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY011WI - Moist Loamy Lowlands

Other vegetative classification: Tsuga Maianthemum Coptis - Dryopteris (TMC-

D\_1), Acer Viola Osmorhiza - Circaea Impatiens (AVO-CI\_3)

Hydric soil rating: No

# 102A—Trap Falls clay loam, 0 to 1 percent slopes

# **Map Unit Setting**

National map unit symbol: 1kwmh Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

## **Map Unit Composition**

Trap falls and similar soils: 85 percent *Minor components:* 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

### **Description of Trap Falls**

### Setting

Landform: Depressions on till plains Landform position (three-dimensional): Talf

Down-slope shape: Linear Across-slope shape: Linear Parent material: Fine-loamy till

# **Typical profile**

Oi - 0 to 1 inches: peat A - 1 to 10 inches: clay loam Bt1 - 10 to 18 inches: clay loam Bt2 - 18 to 31 inches: clay loam 2C - 31 to 55 inches: loam

2Cd - 55 to 80 inches: gravelly fine sandy loam

#### **Properties and qualities**

Slope: 0 to 1 percent

Depth to restrictive feature: 40 to 60 inches to densic material

Drainage class: Poorly drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately

high (0.00 to 0.20 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: None Frequency of ponding: Frequent

Calcium carbonate, maximum content: 10 percent

Available water supply, 0 to 60 inches: High (about 9.7 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C/D

Ecological site: R092XY007WI - Wet Loamy or Clayey Lowlands

Other vegetative classification: Fraxinus Impatiens (FI\_1), Fraxinus Mentha Carex (FMC\_1)

Hydric soil rating: Yes

## **Minor Components**

#### Cathro

Percent of map unit: 10 percent

Landform: Drainageways, depressions, swamps Ecological site: F090AY002WI - Mucky Swamp

Other vegetative classification: Fraxinus Impatiens (FI\_1), Tsuga-Thuja-Mitella

(TTM 2)

Hydric soil rating: Yes

# Big iron

Percent of map unit: 3 percent

Landform: Till plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY011WI - Moist Loamy Lowlands

Other vegetative classification: Tsuga Thuja Petasites (TTP\_1), Tsuga Acer

Mitchella - Equisetum (TAM-Eq)

Hydric soil rating: No

### **Gull point**

Percent of map unit: 2 percent Landform: Flood plains on till plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope, talf

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY005WI - Wet Floodplains

Other vegetative classification: Fraxinus Impatiens (FI\_1), Fraxinus Mentha Carex

(FMC\_1)

Hydric soil rating: Yes

# 108A—Greenstone silt loam, 0 to 3 percent slopes

# **Map Unit Setting**

National map unit symbol: 1kwmp Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches

Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

## **Map Unit Composition**

Greenstone and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

## **Description of Greenstone**

#### Setting

Landform: Till plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear Parent material: Loamy till

## **Typical profile**

Oa - 0 to 2 inches: highly decomposed plant material

Bw - 2 to 6 inches: silt loam Bt - 6 to 12 inches: silt loam

Btx - 12 to 18 inches: cobbly silt loam

2Crt - 18 to 21 inches: extremely channery silt loam

2R - 21 to 80 inches: bedrock

# **Properties and qualities**

Slope: 0 to 3 percent

Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 20 to 60 inches

to lithic bedrock

Drainage class: Somewhat poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20

to 0.60 in/hr)

Depth to water table: About 6 inches

Frequency of flooding: None Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.8 inches)

# Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C/D

Ecological site: R092XY009WI - Loamy Sandstone Uplands

Other vegetative classification: Tsuga Maianthemum Coptis - Dryopteris (TMC-

D\_1), Acer Viola Osmorhiza - Circaea Impatiens (AVO-CI\_3)

Hydric soil rating: No

# **Minor Components**

#### Nonesuch

Percent of map unit: 6 percent

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY009WI - Loamy Sandstone Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO\_1), Acer Tsuga

Dryopteris (ATD\_1)

Hydric soil rating: No

#### Trap falls

Percent of map unit: 6 percent Landform: Depressions on till plains Landform position (three-dimensional): Talf

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY007WI - Wet Loamy or Clayey Lowlands

Other vegetative classification: Fraxinus Impatiens (FI\_1), Fraxinus Mentha Carex

(FMC\_1)

Hydric soil rating: Yes

### Big iron

Percent of map unit: 3 percent

Landform: Till plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY011WI - Moist Loamy Lowlands

Other vegetative classification: Tsuga Thuja Petasites (TTP\_1), Tsuga Acer

Mitchella - Equisetum (TAM-Eq)

Hydric soil rating: No

# 109—Dumps, sanitary landfill

# **Map Unit Setting**

National map unit symbol: 1kwmq Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches
Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Dumps, sanitary landfill: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

# 119A—Moquah loam, 0 to 3 percent slopes, occasionally flooded

#### Map Unit Setting

National map unit symbol: 1kwn7 Elevation: 600 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Prime farmland if protected from flooding or not frequently

flooded during the growing season

#### **Map Unit Composition**

Moquah, occasionally flooded, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

### **Description of Moquah, Occasionally Flooded**

## Setting

Landform: Flood plains

Landform position (two-dimensional): Footslope, toeslope Landform position (three-dimensional): Base slope, rise, talf

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Coarse-loamy alluvium

## **Typical profile**

A - 0 to 5 inches: loam

C1 - 5 to 19 inches: stratified loamy fine sand to loamy very fine sand to silt loam C2 - 19 to 48 inches: stratified fine sand to very fine sandy loam to silt loam

C3 - 48 to 55 inches: stratified silt loam

C4 - 55 to 80 inches: stratified sand to fine sand to loamy fine sand to silt loam

# **Properties and qualities**

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.60 to 2.00 in/hr)

Depth to water table: About 42 inches Frequency of flooding: OccasionalRareNone

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 10.3 inches)

# Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: A

Ecological site: R092XY004WI - Seasonally Dry Floodplains

Other vegetative classification: Acer Osmorhiza Caulophyllum (AOC), Acer-Viola-

Osmorhiza (AVO\_2) Hydric soil rating: No

# **Minor Components**

# Arnheim

Percent of map unit: 10 percent

Landform: Flood plains

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Talf

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY005WI - Wet Floodplains

Other vegetative classification: Frequently flooded, organics (G090AY010WI), Fraxinus Mentha Carex - Caltha (FMC-C), Fraxinus Mentha Carex (FMC\_1)

Hydric soil rating: Yes

# Gull point, occasionally flooded

Percent of map unit: 3 percent Landform: Flood plains on till plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope, dip, talf

Down-slope shape: Linear

Across-slope shape: Concave, linear

Ecological site: R092XY005WI - Wet Floodplains

Other vegetative classification: Fraxinus Impatiens (FI\_1), Fraxinus Mentha Carex

(FMC 1)

Hydric soil rating: Yes

# Schaat creek, occasionally flooded

Percent of map unit: 2 percent

Landform: Flood plains on flood plains

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Talf, dip

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY005WI - Wet Floodplains

Other vegetative classification: Fraxinus Mentha Carex - Caltha (FMC-C)

Hydric soil rating: Yes

# 121B—Deer Park sand, 0 to 6 percent slopes

### Map Unit Setting

National map unit symbol: 1kwn9 Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

# **Map Unit Composition**

Deer park and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Deer Park**

#### Setting

Landform: Dunes, beach ridges

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Parent material: Beach sand and/or eolian sands

#### Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

E - 1 to 11 inches: sand
Bs - 11 to 33 inches: fine sand
BC - 33 to 38 inches: sand

C - 38 to 80 inches: sand

# **Properties and qualities**

Slope: 0 to 6 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.60 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.8 inches)

## Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: A

Ecological site: R092XY001WI - Sandy Shore Complex

Other vegetative classification: Quercus-Acer-Epigaea (QAE\_2), Acer-Quercus-

Vaccinium (AQV\_2)

Hydric soil rating: No

# **Minor Components**

#### Croswell

Percent of map unit: 5 percent

Landform: Beach ridges

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, base slope, crest

Down-slope shape: Convex, linear

Across-slope shape: Concave, convex

Ecological site: R092XY013WI - Sandy Uplands

Other vegetative classification: Tsuga Maianthemum Vaccinium (TMV 1)

Hydric soil rating: No

#### Rubicon

Percent of map unit: 5 percent

Landform: Beach ridges

Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, base slope, crest Down-slope shape: Convex, linear

Across-slope shape: Concave, convex

Ecological site: R092XY013WI - Sandy Uplands

Other vegetative classification: Tsuga Maianthemum Vaccinium (TMV 1), Acer

Quercus Vaccinium (AQV 1)

Hydric soil rating: No

# 123A—Mishwabic silt loam, 0 to 2 percent slopes

# **Map Unit Setting**

National map unit symbol: 1kwnd Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

### **Map Unit Composition**

Mishwabic and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

### **Description of Mishwabic**

### Setting

Landform: Depressions on till plains Landform position (three-dimensional): Talf

Down-slope shape: Linear Across-slope shape: Linear Parent material: Coarse-loamy till

# Typical profile

Oa - 0 to 3 inches: highly decomposed plant material

Bg - 3 to 6 inches: silt loam C1 - 6 to 13 inches: silt loam

C2 - 13 to 22 inches: paragravelly silt loam

Cr - 22 to 25 inches: weathered bedrock, loam, silt loam

2R - 25 to 80 inches: bedrock

# Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: 20 to 50 inches to lithic bedrock; 20 to 30 inches to

paralithic bedrock

Drainage class: Poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20

to 0.60 in/hr)

Depth to water table: About 0 inches Frequency of flooding: None Frequency of ponding: Frequent

Available water supply, 0 to 60 inches: Low (about 5.0 inches)

#### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C/D

Ecological site: R092XY009WI - Loamy Sandstone Uplands

Other vegetative classification: Fraxinus Impatiens (FI\_1), Fraxinus Mentha Carex (FMC\_1)

Hydric soil rating: Yes

## **Minor Components**

# Trap falls

Percent of map unit: 10 percent Landform: Depressions on till plains

Landform position (three-dimensional): Talf

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY007WI - Wet Loamy or Clayey Lowlands

Other vegetative classification: Fraxinus Impatiens (FI 1), Fraxinus Mentha Carex

(FMC\_1)

Hydric soil rating: Yes

#### Greenstone

Percent of map unit: 5 percent

Landform: Till plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY009WI - Loamy Sandstone Uplands

Other vegetative classification: Tsuga Maianthemum Coptis - Dryopteris (TMC-

D 1), Acer Viola Osmorhiza - Circaea Impatiens (AVO-CI 3)

Hydric soil rating: No

# 124F—Zandi loamy very fine sand, 35 to 70 percent slopes

## Map Unit Setting

National map unit symbol: 1kwnj Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

# **Map Unit Composition**

Zandi and similar soils: 85 percent Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Zandi**

#### Setting

Landform: Till-floored lake plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope, toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, base slope, crest *Down-slope shape:* Convex, linear *Across-slope shape:* Concave, convex

Parent material: Coarse-loamy glaciolacustrine deposits

# **Typical profile**

Oe - 0 to 0 inches: moderately decomposed plant material

E - 0 to 4 inches: loamy very fine sand

Bhs - 4 to 6 inches: sandy loam Bs - 6 to 34 inches: silt loam

E/B - 34 to 42 inches: stratified very fine sand to loamy very fine sand to very fine

sandy loam to silt loam

B/E - 42 to 57 inches: stratified loamy very fine sand to very fine sandy loam to silt

loam to silt

*E and Bt - 57 to 80 inches:* stratified very fine sand to loamy very fine sand to very fine sandy loam to silt loam

# **Properties and qualities**

Slope: 35 to 70 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

## Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: B

Ecological site: R092XY014WI - Loamy Uplands

Other vegetative classification: Acer Tsuga Dryopteris (ATD 1), Tsuga

Maianthemum (TM\_1)

Hydric soil rating: No

# **Minor Components**

#### Toivola

Percent of map unit: 5 percent

Landform: Outwash plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, base slope, crest Down-slope shape: Convex, linear

Across-slope shape: Concave, convex

Ecological site: R092XY013WI - Sandy Uplands

Other vegetative classification: Acer Tsuga Dryopteris - Dryopteris (ATD-D 1),

Tsuga Maianthemum (TM 1)

Hydric soil rating: No

#### Keweenaw

Percent of map unit: 5 percent

Landform: Moraines

Landform position (three-dimensional): Rise

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: R092XY013WI - Sandy Uplands

Other vegetative classification: Acer Tsuga Dryopteris - Dryopteris (ATD-D 1),

Tsuga Maianthemum (TM 1)

Hydric soil rating: No

#### Karlin

Percent of map unit: 5 percent

Landform: Moraines, stream terraces, outwash plains Landform position (two-dimensional): Shoulder, backslope

Ecological site: R092XY013WI - Sandy Uplands

Hydric soil rating: No

# 129F—Karlin-Sporley complex, 1 to 70 percent slopes

## **Map Unit Setting**

National map unit symbol: 1kwnq Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

#### **Map Unit Composition**

Karlin and similar soils: 60 percent Sporley and similar soils: 30 percent Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

#### **Description of Karlin**

#### Settina

Landform: Outwash plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, crest, base slope

Down-slope shape: Convex, linear

Across-slope shape: Concave, convex

Parent material: Sandy glaciofluvial deposits

#### Typical profile

Oa - 0 to 1 inches: highly decomposed plant material

E - 1 to 4 inches: sandy loam
Bs - 4 to 15 inches: sandy loam
2BC - 15 to 29 inches: sand
2C - 29 to 80 inches: sand

### **Properties and qualities**

Slope: 1 to 70 percent

Depth to restrictive feature: More than 80 inches Drainage class: Somewhat excessively drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00

in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 5.9 inches)

## Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A

Ecological site: F093BY007MI - Sandy Uplands

Other vegetative classification: Acer Tsuga Dryopteris (ATD\_1), Tsuga

Maianthemum (TM\_1) *Hydric soil rating:* No

# **Description of Sporley**

## Setting

Landform: Escarpments

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, crest, base slope *Down-slope shape:* Convex, linear *Across-slope shape:* Concave, convex

Parent material: Stratified loamy and silty glaciolacustrine deposits

#### Typical profile

Ap - 0 to 6 inches: silt loam
E - 6 to 7 inches: silt loam
Bs - 7 to 12 inches: silt loam
E' - 12 to 15 inches: silt loam
E/B - 15 to 24 inches: silt loam

B/E - 24 to 30 inches: silt loam, silty clay loam

BC - 30 to 80 inches: stratified very fine sandy loam to silt loam to silt

#### **Properties and qualities**

Slope: 6 to 70 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20

to 0.60 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None Frequency of ponding: None

Available water supply, 0 to 60 inches: Very high (about 12.4 inches)

# Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: C

Ecological site: F093BY009MI - Alfic Loamy Uplands

Other vegetative classification: Acer Viola Osmorhiza (AVO 1), Acer Tsuga

Dryopteris (ATD\_1)

Hydric soil rating: No

### **Minor Components**

### Zandi

Percent of map unit: 5 percent Landform: Till-floored lake plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, crest, base slope Down-slope shape: Convex, linear Across-slope shape: Concave, convex

Ecological site: F093BY010MI - Loamy Uplands

Other vegetative classification: Acer Tsuga Dryopteris (ATD\_1), Tsuga

Maianthemum (TM\_1)

Hydric soil rating: No

### Liminga

Percent of map unit: 5 percent Landform: Outwash plains

Landform position (two-dimensional): Summit, shoulder, backslope, footslope,

toeslope

Landform position (three-dimensional): Interfluve, head slope, nose slope, side

slope, crest, base slope Down-slope shape: Linear

Across-slope shape: Convex, linear

Ecological site: F093BY007MI - Sandy Uplands

Other vegetative classification: Tsuga/Maianthemum (TM), Tsuga Maianthemum

Vaccinium (TMV\_1)

Hydric soil rating: No

### 8307—Lupton and Cathro soils, 0 to 1 percent slopes

### **Map Unit Setting**

National map unit symbol: 2tnxw Elevation: 1,100 to 1,900 feet

Mean annual precipitation: 27 to 36 inches Mean annual air temperature: 37 to 46 degrees F

Frost-free period: 80 to 150 days

Farmland classification: Not prime farmland

### **Map Unit Composition**

Lupton and similar soils: 45 percent

Cathro and similar soils: 35 percent *Minor components:* 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

### **Description of Lupton**

### Setting

Landform: Depressions on lake plains, depressions on outwash plains,

depressions on moraines

Landform position (two-dimensional): Toeslope Landform position (three-dimensional): Dip

Down-slope shape: Concave Across-slope shape: Concave

Parent material: Woody organic material and/or herbaceous organic material

### Typical profile

Oa1 - 0 to 10 inches: muck Oa2 - 10 to 25 inches: muck Oa3 - 25 to 46 inches: muck Oa4 - 46 to 79 inches: muck

### **Properties and qualities**

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high

(0.14 to 5.95 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: None Frequency of ponding: Frequent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm) Available water supply, 0 to 60 inches: Very high (about 23.9 inches)

### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: A/D

Ecological site: F090AY002WI - Mucky Swamp

Forage suitability group: Frequently flooded, organics (G090AY010WI) Other vegetative classification: Frequently flooded, organics (G090AY010WI),

Tsuga-Thuja-Mitella/Tsuga-Thuja-Sphagnum (TTM/TTS)

Hydric soil rating: Yes

### **Description of Cathro**

### Setting

Landform: Depressions on lake plains, depressions on outwash plains,

depressions on moraines

Landform position (two-dimensional): Toeslope Landform position (three-dimensional): Dip

Down-slope shape: Concave Across-slope shape: Concave

Parent material: Herbaceous organic material over deposits loamy drift

### **Typical profile**

Oa1 - 0 to 15 inches: muck

Oa2 - 15 to 28 inches: muck Cg1 - 28 to 49 inches: loam Cg2 - 49 to 79 inches: sandy loam

### Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high

(0.14 to 1.98 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: None Frequency of ponding: Frequent

Calcium carbonate, maximum content: 25 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm) Available water supply, 0 to 60 inches: Very high (about 16.6 inches)

### Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: B/D

Ecological site: F090AY002WI - Mucky Swamp

Forage suitability group: Frequently flooded, organics (G090AY010WI) Other vegetative classification: Frequently flooded, organics (G090AY010WI).

Tsuga-Thuja-Mitella/Fraxinus-Impatiens (TTM/FI)

Hydric soil rating: Yes

### **Minor Components**

### Markey

Percent of map unit: 5 percent

Landform: Depressions on lake plains, depressions on outwash plains,

depressions on moraines

Landform position (two-dimensional): Toeslope Landform position (three-dimensional): Dip

Down-slope shape: Concave Across-slope shape: Concave

Ecological site: F090AY002WI - Mucky Swamp

Other vegetative classification: Frequently flooded, organics (G090AY010WI), Not

Assigned (non-acid organic soils) (Nnor)

Hydric soil rating: Yes

### Capitola

Percent of map unit: 5 percent

Landform: Drainageways on moraines, depressions on moraines

Landform position (two-dimensional): Toeslope Landform position (three-dimensional): Dip

Down-slope shape: Linear, concave

Across-slope shape: Concave

Ecological site: F090AY006WI - Wet Loamy Lowland

Other vegetative classification: Mod AWC, high water table (G090AY004WI), Not

Assigned (wet mineral soils) (Nmin)

Hydric soil rating: Yes

### Beseman

Percent of map unit: 5 percent

Landform: Depressions on outwash plains, depressions on moraines, depressions

on lake plains

Landform position (two-dimensional): Toeslope Landform position (three-dimensional): Dip

Down-slope shape: Concave Across-slope shape: Concave

Ecological site: F090AY001WI - Poor Fen

Other vegetative classification: Frequently flooded, organics (G090AY010WI), Not

Assigned (acid organic soils) (Naor)

Hydric soil rating: Yes

### Loxley

Percent of map unit: 5 percent

Landform: Depressions on outwash plains, depressions on moraines, depressions

on lake plains

Landform position (two-dimensional): Toeslope Landform position (three-dimensional): Dip

Down-slope shape: Concave Across-slope shape: Concave

Ecological site: F090AY001WI - Poor Fen

Other vegetative classification: Frequently flooded, organics (G090AY010WI), Not

Assigned (acid organic soils) (Naor)

Hydric soil rating: Yes

### 8309—Cathro muck, drainageway, 0 to 1 percent slopes

### **Map Unit Setting**

National map unit symbol: 1t6w6 Elevation: 590 to 1,970 feet

Mean annual precipitation: 27 to 38 inches
Mean annual air temperature: 36 to 45 degrees F

Frost-free period: 70 to 170 days

Farmland classification: Not prime farmland

### **Map Unit Composition**

Cathro and similar soils: 85 percent *Minor components:* 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

### **Description of Cathro**

### Setting

Landform: Drainageways
Down-slope shape: Linear
Across-slope shape: Concave

Parent material: Herbaceous organic material over loamy drift

### Typical profile

Oa1 - 0 to 6 inches: muck

Oa2 - 6 to 31 inches: muck

Cg - 31 to 80 inches: fine sandy loam

### **Properties and qualities**

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.20 to 2.00 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: None Frequency of ponding: Frequent

Calcium carbonate, maximum content: 30 percent

Available water supply, 0 to 60 inches: Very high (about 16.5 inches)

### Interpretive groups

Land capability classification (irrigated): 6w Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: B/D

Ecological site: F093BY002MI - Mucky Swamps

Forage suitability group: Frequently flooded, organics (G090AY010WI) Other vegetative classification: Frequently flooded, organics (G090AY010WI),

Fraxinus Impatiens (FI\_1), Tsuga Thuja Sphagnum (TTS\_1)

Hydric soil rating: Yes

### **Minor Components**

### **Foxpaw**

Percent of map unit: 10 percent

Landform: Depressions on till plains, drainageways on till plains

Landform position (three-dimensional): Talf

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: F093BY004MI - Wet Lowlands

Other vegetative classification: Fraxinus Impatiens (FI 1), Tsuga Maianthemum

Coptis (TMC\_1)

Hydric soil rating: Yes

### Lupton

Percent of map unit: 5 percent Landform: Swamps on till plains

Landform position (three-dimensional): Dip

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: F093BY002MI - Mucky Swamps

Other vegetative classification: Tsuga Thuja Mitchella (TTM\_1), Tsuga Thuja

Sphagnum (TTS\_1)

Hydric soil rating: Yes

### **MW**—Miscellaneous water

### **Map Unit Composition**

Miscellaneous water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

### W-Water

### **Map Unit Setting**

National map unit symbol: 1t1r9 Elevation: 590 to 1,800 feet

Mean annual precipitation: 25 to 34 inches Mean annual air temperature: 37 to 43 degrees F

Frost-free period: 100 to 140 days

Farmland classification: Not prime farmland

### **Map Unit Composition**

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

# References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2 054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2 053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2 053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2 053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE\_DOCUMENTS/nrcs142p2\_052290.pdf

Project Plan Clean Water State Revolving Fund (CWSRF) Ontonagon, Michigan May 2023

# **Appendix C**

**Lagoon Discharge Documentation** 

# Report of Discharge (CSO\SSO\RTB)

version 1.14

(Submission #: HPS-FJ4J-1R64C, version 1)

# **Details**

Submission ID HPS-FJ4J-1R64C

Status In Process

# **Form Input**

### **Report Details**

Is this the inital or final discharge report?

Initial

Site/Facility Name:

Ontonagon WWSL

Permit Number (if applicable):

MIG580277

**Sewer System or Treatment Facility Owner** 

**Organization Name** 

Village of Ontonagon

Phone Type Number Extension

Business 9068855631

**Email** 

NONE PROVIDED

Fax

NONE PROVIDED

**Address** 

315 Quartz Street

Ontonagon, MI 49953

**United States** 

### **Facility Address**

Rockland Road

Section 31, Ontonagon Township

Ontonagon, MI 49953

**Sewer System or Treatment Facility Owner Location** 

46.8655,-89.3135

Rockland Road, Ontonagon, MI

### Discharge Details (1 of 1)

Other Discharge from 001`OUTFL\_ID\_TXT`

4/5/2023 12:25:52 PM Page 2 of 4

### **Discharge Type:**

Other Discharge

### What type of discharge?

lagoon overflow

### **Other Discharge**

The reported discharge was of untreated or partially treated sewage (definition in Section 3112a) which is not characterized by RTB, CSO, or SSO Discharges.

### Is the outfall or discharge area located at a private residential address?

NO

### **Outfall or Discharge Area Name**

001

### **Outfall or Discharge Area Description**

ontonagon lagoon outfall

### **Outfall or Discharge Area Location**

46.865495547586896,-89.31581133564518

### Has the discharge ended?

NO

### **Quality of Discharge**

Partially Treated

### Please describe the discharge, including the reason for Discharge

lagoons are full due to wet fall and winter. discharge is from final lagoon #4

### Was the land or surface water impacted by the discharge?

Surface water impacted only

	Name of Surface Water(s) Impacted:
Ontonagon River	

### **Discharge Event Start**

Date	Time
03/27/2023	01:00 pm

### **Initial Notification**

Organization	Date	Time	
Local Health Department	03/28/2023	09:15 am	
Daily Local Newspaper	03/28/2023	11:00 am	

### Was EGLE notified prior to this report being received?

EGLE was notified prior to this report being submitted

### Prior EGLE notification that discharge has started

EGLE Notification Method	Person(s) notified	EGLE Notification Date	EGLE Notification Time	Comments
Phone	Randy Conroy	03/28/2023	09:05 am	NONE PROVIDED

### Precipitation Type(s) (Select none if there was no precipitation)

None

### Was this discharge disinfected to meet fecal coliform limitations?

NO

4/5/2023 12:25:52 PM Page 3 of 4

### **Additional Details**

### **Report Submitter**

**Prefix** 

NONE PROVIDED

First Name
Jeremy

Last Name

Graff

Title

NONE PROVIDED

Organization Name
village of ontonagon

Phone Type Number Extension

Business 9068855631

**Email** 

ontowater@jamadots.com

Fax

NONE PROVIDED

**Address** 

[NO STREET ADDRESS SPECIFIED]

[NO CITY SPECIFIED], [NO STATE SPECIFIED] [NO ZIP CODE SPECIFIED]

[NO COUNTRY SPECIFIED]

Do you have any additional comments or uploads you would like to provide?

NO

# **Status History**

	User	Processing Status
3/28/2023 9:34:23 AM	Jeremy Graff	Draft
3/28/2023 9:40:47 AM	Jeremy Graff	Submitting
3/28/2023 9:41:00 AM	Jeremy Graff	Submitted
3/28/2023 9:41:02 AM	Jeremy Graff	In Process

4/5/2023 12:25:52 PM Page 4 of 4

### EGLE

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY WATER RESOURCES DIVISION NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) Authorized by Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as Amended

### **CERTIFICATE OF COVERAGE (COC)**

Under General Permit No. MIG580000 **Wastewater Stabilization Lagoon General Permit** 

COC NO .: MIG580277

**DESIGNATED NAME:** Ontonagon WWSL

PERMITTEE: Village of Ontonagon MAILING ADDRESS: 315 Quartz Street Ontonagon, MI 49953

This COC authorizes the permittee to discharge treated municipal wastewater from the Ontonagon Wastewater Stabilization Lagoon located at Rockland Road, Section 31, Ontonagon Township, Ontonagon, Michigan 49953, in Ontonagon County. Consistent with the criteria and requirements established in General Permit No. MIG580000, the permittee is authorized to discharge the following: 137 MGY of treated municipal wastewater from Monitoring Point 001A through and Outfall 001. Outfall 001 discharges to the Ontonagon River at Latitude 46.86546, Longitude -89.31545.

All sections of the General Permit are applicable to this facility **EXCEPT** the following:

Part I.A.2. – Additional Final Effluent Limitation for Total Phosphorus

Part I.A.4. – Groundwater Monitoring for Lagoon Exfiltration/Leakage

Part I.A.11. - Residuals Management Program for Land Application of Biosolids: APPROVED RMPs

Part I.A.15. – Industrial Waste (for non-POTWs such as mobile home parks, campgrounds, nursing homes, and marinas)

Prior to any land application of bulk biosolids, the permittee shall have a Residuals Management Program (RMP) approved by the Department of Environment, Great Lakes, and Energy (Department) in accordance with Part I.A.10. of the General Permit.

References in the General Permit to the Department shall be defined as the Marquette District Supervisor of the Water Resources Division. The Marquette District Office is located at 1504 West Washington Street. Marquette, MI, 49855; Telephone: 906-228-4853; Fax: 906-228-4940.

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

The issuance of this COC does not 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 Environment, Great Lakes, and Energy permits, or approvals from other units of government as may be required by law.

This COC is based on a complete application submitted on October 12, 2018. The permittee is subject to the conditions specified in General Permit No. MIG580000, issued January 29, 2019, expiring April 1, 2024. This COC may be modified, terminated, reissued, or revoked as allowed for in General Permit No. MIG580000. On its effective date, this COC shall supersede COC No. MIG580277 (expiring April 1, 2019).

This COC takes effect on October 1, 2020

Issued August 20, 2020.

Original certificate signed by Byron Lane, Supervisor Municipal Permits Unit Permits Section Water Resources Division

## PERMIT NO. MIG580000

# STATE OF MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

# NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM WASTEWATER DISCHARGE GENERAL PERMIT

### WASTEWATER STABILIZATION LAGOON EFFLUENT

In compliance with the provisions of the Federal Clean Water Act, 33 U.S.C., Section 1251 *et seq.*, as amended (CWA); 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, wastewater that is associated with stabilization lagoon effluent that is authorized to be discharged from facilities specified in individual "Certificates of Coverage" (COC) in accordance with effluent limitations, monitoring requirements and other conditions set forth in this general National Pollutant Discharge Elimination System (NPDES) permit (the "permit").

The applicability of this permit shall be limited to seasonal (spring/fall) discharges of sanitary or municipal wastewater that: (1) have been adequately treated by a wastewater stabilization lagoon; (2) are not subject to the industrial pretreatment program requirements under the NREPA and R 323.2301 through R 323.2317 of the Michigan Administrative Code (Part 23 Rules); and (3) have been determined by the Michigan Department of Environmental Quality (Department) not to need an individual permit. Aerobic lagoons, both mechanically aerated and non-mechanically aerated, which discharge treated sanitary wastewater, are included. The lagoon system shall: (1) meet accepted design criteria as determined by the Department; and (2) comply with secondary treatment standards for lagoon systems in Part I.A.1. of this permit and other requirements and limitations stated herein as specified in the COC. Discharges that may cause or contribute to a violation of a water quality standard (WQS) are not authorized by this permit.

In order to constitute a valid authorization to discharge, this permit must be accompanied by a COC issued by the Department. The COC will specify which sections of the General Permit apply at the individual facility, including if the Groundwater Monitoring for Lagoon Exfiltration/Leakage, Additional Final Effluent Limitation for Total Phosphorus, and/or Residuals Management Program for Land Application of Biosolids for New or Approved Programs.

Unless specified otherwise, all contact with the Department required by this permit shall be to the position(s) indicated in the COC.

This permit takes effect on April 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.

This permit shall expire at midnight on April 1, 2024.

Issued: January 29, 2019

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 the 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.

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.

### **CONTESTED CASE INFORMATION**

The terms and conditions of this permit shall apply to an individual facility on the effective date of a COC for the facility. 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.

# Section A. Final Effluent Limitations and Monitoring Requirements

### 1. Final Effluent Limitations

During the period beginning on the effective date of an individual COC under this permit, and lasting until the expiration of this permit or termination of the individual COC, the permittee is authorized to discharge treated sanitary wastewater to the surface waters of the state of Michigan. Effluent shall be discharged during high-flow conditions in the spring and/or fall of each year. There shall be no discharge from June 1 to September 30 and from January 1 to February 28/29 (see b. below). In addition, there shall be no discharge during periods of significant ice cover on the receiving stream unless authorized by the Department. Such discharge shall be limited and monitored by the permittee as specified below.

	Maximum Limits for			Maximum Limits for						
	Qua	<u>intity or</u>	Loadin	g	Quali	ty or Co	ncentrati	<u>ion</u>	Monitoring	Sample
<u>Parameter</u>	<b>Monthly</b>	<u>7-Day</u>	<u>Daily</u>	<u>Units</u>	<b>Monthly</b>	<u>7-Day</u>	<b>Daily</b>	<u>Units</u>	Frequency	<u>Type</u>
Flow	(report)		(report)	MGD					Daily	Report Total Daily Flow
Biochemical Oxygen Demand	$(BOD_5)$									
					30	45	(report)	mg/l	see d. below	Composite
Total Suspended Solids (TSS)					70	100	(roport)	ma/l	and holow	Composito
March – May							(report)	mg/l	see d. below	Composite
October – December					40	45	(report)	mg/l	see d. below	Composite
Ammonia Nitrogen (as N)					(report)		(report)	mg/l	see d. below	Composite
Total Phosphorus (as P)					(report)		(report)	mg/l	see d. below	Composite
Fecal Coliform Bacteria					200	400	(report)	cts/ 100 ml	see d. below	Grab
					Minimum <u>Daily</u>					
рН					6.5		10	S.U.	see d. below	Grab
Dissolved Oxygen					5.0			mg/l	Daily	Grab

### 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. Acceptable Discharge Periods

If the Department determines that discharge periods of shorter duration than March 1 through May 31 and/or October 1 through December 31 are necessary to protect water quality, the reduced discharge periods will be stated in the COC. Upon approval by the Upper Peninsula District Supervisor, the spring discharge period may be extended to April 1 through June 21 for facilities located in the Upper Peninsula.

 Discharges Outside of Acceptable Discharge Periods
 For discharges outside the acceptable discharge periods, the permittee shall notify the Department of the potential noncompliance prior to discharge, as required by Part I.A.7. of this permit.

# Section A. Final Effluent Limitations and Monitoring Requirements

d. Discharge Management

The discharge is to be managed consistent with all of the following requirements:

- 1) Cell Isolation The permittee shall isolate a cell from cells receiving untreated sanitary wastewater at least two weeks in advance of a proposed discharge. There shall be no discharge to the surface waters from unisolated cells.
- 2) Pre-Discharge Sampling The permittee shall sample the isolated cell for BOD<sub>5</sub>, Total Suspended Solids, Ammonia Nitrogen, Total Phosphorus, Fecal Coliform Bacteria, and pH no more than two weeks in advance of a proposed discharge. Samples shall be drawn from a point approximately five feet from the edge of the cell and one (1) foot beneath the water surface. All samples shall be grab samples. If more than two weeks will pass prior to the beginning of an actual discharge, additional pre-discharge samples shall be obtained, analyzed, and reported to the Department prior to discharge.
- 3) Discharge Approval Required The permittee shall notify and receive approval from the appropriate District Supervisor or staff authorized to act on his/her behalf prior to discharge of any effluent for each discharge event. The permittee shall supply the results of all pre-discharge effluent samples and the results of a Dissolved Oxygen sample taken no more than 24 hours prior to notification.
- 4) Discharge Duration Multiple discharge events are authorized in the spring and/or fall of each year in accordance with Part I.A.1.b. of this permit and the following provision. Discharge event duration shall not exceed 10 days within a 14-day period. The discharge may be continuous or intermittent during the event. After the discharge event is ended, the permittee shall wait a minimum of seven calendar days prior to initiating a new discharge event.
- 5) Discharge Sampling Frequency Flow and Dissolved Oxygen shall be measured <u>daily during discharge</u>. All other parameters shall be measured <u>the first day and every other day during discharge, including the last day of discharge</u>. The Department may approve alternate sampling frequencies that are demonstrated to be representative of the discharge.
- 6) Discharge Sample Type and Location The sampling for BOD<sub>5</sub>, Total Suspended Solids, Total Phosphorus, and Ammonia Nitrogen shall be 3-portion composite samples or 24-hour composite samples of the effluent. The sampling for Dissolved Oxygen, Fecal Coliform Bacteria, and pH shall be grab samples of the effluent.
- e. Discharge Monitoring Reports

Monthly Discharge Monitoring Reports (DMRs) shall be submitted for the months of October, November, December, March, April, May, and June whether or not there has been a discharge. Upper Peninsula facilities authorized under Part I.A.1.b. of this permit shall also submit a monthly DMR for any approved discharge event. Daily DMRs shall be submitted only during months a discharge occurred.

f. Security Fencing

The lagoon shall be enclosed by security fencing. The fencing shall include gates wide enough to accommodate mowing machinery. All gates shall be locked to prevent unauthorized access. Metal warning signs shall be posted on the fencing. Lagoon systems that utilize sophisticated mechanical equipment should consider more secure fencing and access control.

g. Water Treatment Additives

This permit does not authorize the discharge of water treatment additives without approval. Approval of water treatment additives is authorized under separate correspondence. Water treatment additives include any material that is added to water used at the facility or to a wastewater generated by the facility to condition or treat the water. In the event a permittee proposes to discharge water treatment additives, including an increased discharge concentration of a previously approved water treatment additive, the permittee shall submit a request for approval in accordance with Part I.A.6. of this permit.

h. Construction Approval

This permit does not authorize the construction or modification of any physical structures of the wastewater treatment facility. The permittee shall receive any required approval of plans and specifications from the appropriate Department before commencing construction of the wastewater treatment facility necessary for compliance with this permit.

# Section A. Final Effluent Limitations and Monitoring Requirements

# 2. Additional Final Effluent Limitation for Total Phosphorus

If the Department determines it is necessary to control total phosphorus discharges to protect downstream water quality, the discharge shall be limited and monitored by the permittee as specified below. Such determination will be indicated in the COC.

	Maximum Limits for			Maximum Limits for						
	Quantity or Loading			Quality or Concentration				Monitoring	Sample	
<u>Parameter</u>	<b>Monthly</b>	<u>7-Day</u>	<u>Daily</u>	<u>Units</u>	<b>Monthly</b>	<u>7-Day</u>	<u>Daily</u>	<u>Units</u>	Frequency	Type
Total Phosphorus (as P)					1.0		(report)	mg/l	see Part I.A.d.5	Composite
									above	

# 3. Facility Operation and Maintenance

The permittee shall comply with the inspection, operation, and maintenance program requirements specified below. An alternate facility operations program may be approved by the Department.

### a. Lagoon Inspection

The permittee shall inspect the lagoon facilities three times weekly year-round unless otherwise authorized by the Department. These inspections shall include all of the following:

- 1) The lagoon dikes for vegetative growth, erosion, slumping, animal burrowing or breakthrough, and condition of the lagoon liner.
- The lagoon for growth of aquatic plants, offensive odors, insect infestations, scum, floating sludge, and septic conditions.
- 3) The depth of the water in each cell and the freeboard.
- 4) The drain pipe to ensure there is no discharge.
- 5) The control structures and pump stations to assure that valves, gates, and alarms are set correctly and properly functioning.
- 6) The lagoon security fence and warning signs.
- 7) Analysis for Dissolved Oxygen in each lagoon cell at least once weekly, except when the lagoons are ice covered. The data shall be kept as retained self-monitoring. See Part II.C.3. of this permit.

The permittee shall initiate steps to correct any condition that is not in accordance with the facility maintenance program outlined in Part I.A.3.b. of this permit. A record of the inspections shall be maintained by the permittee for a period of three (3) years.

# Section A. Final Effluent Limitations and Monitoring Requirements

### b. Facility Maintenance

The permittee shall implement a Facility Maintenance Program that incorporates all of the following management practices unless otherwise authorized by the Department:

- 1) Vegetation shall be maintained at a height not more than six (6) inches above the ground on lagoon dikes and around the fencing.
- At all times, the facility shall be maintained to prevent the negative effects of floating material and/or water perimeter emergent rooted aquatic plants on Dissolved Oxygen concentrations, treatment efficiency, nuisance organisms, offensive odors, or other measurable impacts. However, in no case, even without demonstrated impact, shall the floating material and/or water perimeter emergent rooted aquatic plants exceed forty (40) percent cover.
- 3) Dike damage due to erosion or animal burrowing shall be corrected immediately and steps taken to prevent occurrences in the future.
- 4) The integrity of the lagoon liner shall be protected. Liner damages shall be corrected immediately and steps taken to prevent future occurrences.
- 5) The occurrence of scum, floating sludge, offensive odors, insect infestations, and septic conditions shall be minimized.
- A schedule for the inspection and maintenance of the collection system, lift stations, mechanical and electrical systems, transfer stations, and control structures shall be developed and implemented.

### c. Lagoon Drawdown Conditions

The permittee shall observe all of the following conditions when drawing down a cell for transfer or discharge, unless otherwise authorized by the Department:

- 1) Water discharged shall be removed from the surface two feet of the cell at a rate of less than one (1) foot per day.
- 2) The permittee shall maintain a minimum of two (2) feet of freeboard in all cells at all times.
- 3) The permittee shall maintain a minimum of two (2) feet of water in all cells at all times.

# 4. Groundwater Monitoring for Lagoon Exfiltration/Leakage

This condition is required if specified in the COC. The intent of this requirement is to demonstrate that lagoons have not impacted, and are not likely to impact, surface waters and/or groundwaters of the state in accordance with Part 31 of the NREPA; specifically, Part 4, Water Quality Standards (Part 4 Rules), and R 323.2222 of Part 22, Groundwater Quality Administrative Rules (Part 22 Rules). Information that may be/has been considered by the Department in making this determination includes but is not limited to: the date of lagoon construction; construction design methods and materials including whether liner specifications meet R 323.2237 of the Part 22 Rules or provide equivalency as allowed in R 323.2237; and indications of the presence of a direct vent to surface waters and whether such vent complies with surface water quality standards.

To ensure that leakage from lagoons to surface waters and/or groundwaters of the state is not causing unacceptable impacts, all of the following conditions shall apply unless previously satisfied:

a. The permittee shall install groundwater monitoring wells around the perimeter of the lagoons to document both groundwater water quality impacts and groundwater flow. A plan for the monitoring wells shall be submitted to the Department for approval within 90 days of notification by the Department. Within 90 days of approval of the plan, unless the Department approves an extended period (not to exceed 180 days), the groundwater monitoring wells shall be installed.

- b. The permittee shall submit a groundwater monitoring plan to the Department for approval <u>within 90 days</u> of the effective date of this permit. This groundwater monitoring plan may be submitted as part of the monitoring well work plan. The monitoring plan shall include monitoring of the groundwater elevation and the following parameters: total phosphorus, dissolved phosphorus, total inorganic nitrogen, sodium, chloride, pH, and specific conductance. Monitoring shall be conducted quarterly until the permittee is notified by the Department that the monitoring can end or be reduced.
- c. The permittee shall begin implementation of the monitoring plan <u>within 90 days of approval of the monitoring plan, or upon installation of the monitoring well, whichever occurs last.</u> The result of the monitoring shall be submitted to the Department quarterly.
- d. Upon written notification by the Department that unacceptable leakage is impacting surface waters and/or groundwater, the permittee shall develop a work plan to address the leakage. Within 6 months of such notification, the permittee shall submit an approvable lagoon leakage remediation work plan to the Department. The purpose of the work plan is to control exfiltration from the lagoon treatment system. The study shall include remediation methods, procedures, time schedules, and staff, as appropriate.
- e. The permittee shall begin implementation of the lagoon leakage remediation work plan <u>within 30 days of approval</u> of the work plan.
- f. The permittee shall complete implementation of the lagoon leakage remediation work plan and submit an approvable final report with supporting data to the Department on or before <u>within one year of approval</u> of the work plan. The final report shall include a plan and schedule for continued maintenance and monitoring of the lagoon treatment system.

Based on the results of groundwater monitoring, the Department may require the permittee to obtain an individual permit, as described under Part I.A.13. of this permit, to address compliance with R.323.2222 or surface water quality standards.

# 5. 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-Chloro-3-Methylphenol	7.0	ug/l	
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	
Aldrin	0.01	ug/l	EPA Method 608
Alpha-Hexachlorocyclohexane	0.01	ug/l	EPA Method 608
Antimony, Total	1	ug/l	

# Section A. Final Effluent Limitations and Monitoring Requirements

Parameter	QL	Units	Analytical Method
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	
Bis (2-Ethylhexyl) Phthalate	5.0	ug/l	
Boron, Total	20	ug/l	
Cadmium, Total	0.2	ug/l	
Chlordane	0.01	ug/l	EPA Method 608
Chloride	1.0	mg/l	
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	El / (Modiod Ci/ 10//
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	El 7 Metrod 000
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	Li A Metriod 606
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	EFA Method 612
Lead, Total	1		
		ug/l	EDA Mothod 609
Lindane Lithium, Total	0.01	ug/l	EPA Method 608
Mercury, Total	0.5	ug/l	EPA Method 1631E
Nickel, Total	5	ng/l	EPA Method 1031E
PCB-1016	0.1	ug/l	EPA Method 608
PCB-1010		ug/l	EPA Method 608
PCB-1221	0.1	ug/l	EPA Method 608
	0.1	ug/l	
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	ACTM D7070 as as is at a set of the first
Perfluorooctane sulfonate (PFOS)	2.0	ng/l	ASTM D7979 or an isotope dilution
			method (sometimes referred to as Method 537 modified)
Perfluorooctanoic acid (PFOA)	2.0	ng/l	ASTM D7979 or an isotope dilution
	2.0		method (sometimes referred to as Method
			537 modified)

# Section A. Final Effluent Limitations and Monitoring Requirements

Parameter	QL	Units	Analytical Method
Phenanthrene	1.0	ug/l	
Phosphorus (as P), Total	10	ug/l	
Selenium, Total	1.0	ug/l	
Silver, Total	0.5	ug/l	
Strontium, Total	1000	ug/l	
Sulfate	2.0	mg/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	

## 6. Request for Approval to Use Water Treatment Additives

Prior to use of any water treatment additive, the permittee shall obtain written approval from the Department. Requests for such approval shall be submitted via the Department's MiWaters system. The MiWaters website is located at https://miwaters.deq.state.mi.us. Instructions for submitting such a request may be obtained at http://www.michigan.gov/deqnpdes (near the bottom of the page, click on one or both of the links located under the Water Treatment Additives banner). Additional monitoring and reporting may be required as a condition for the approval to use the water treatment additive.

A request for approval to use water treatment additives shall include all of the following usage and discharge information for each water treatment additive proposed to be used:

- a. The Safety Data Sheet (SDS).
- b. Ingredient information, including the name of each ingredient, Chemical Abstracts Service (CAS) number for each ingredient, and fractional content by weight for each ingredient.
- c. The proposed water treatment additive discharge concentration with supporting calculations.
- d. The discharge frequency (i.e., number of hours per day and number of days per year).
- e. The outfall(s) and monitoring point(s) from which the water treatment additive is to be discharged.
- f. The type of removal treatment, if any, that the water treatment additive receives prior to discharge.
- g. The water treatment additive's function (i.e., microbiocide, flocculant, etc.).
- h. The SDS shall include a 48-hour LC50 or EC50 for a North American freshwater planktonic crustacean (either *Ceriodaphnia sp.*, *Daphnia sp.*, or *Simocephalus sp.*). The results shall be based on the whole water treatment additive, shall not be results based on a similar product, and shall not be estimated.
- i. The SDS shall include the results of a toxicity test for one (1) other North American freshwater aquatic species (other than a planktonic crustacean) that meets a minimum requirement of R 323.1057(2) of the Water Quality Standards. The results shall be based on the whole water treatment additive, shall not be results based on a similar product, and shall not be estimated. Examples of tests that would meet this requirement include a 96-hour LC50 for rainbow trout, bluegill, or fathead minnow.

# 7. 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:https://miwaters.deq.state.mi.us/miwaters/external/home 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.

# 8. 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 ten (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.
  - 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 both of the following apply:
  - The authorization is made in writing to the Department by a person described in paragraph a. of this section.
  - 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 releases the permittee from properly submitting reports and forms as required by law.

# 9. Monthly Operating Reports

For wastewater treatment facilities that serve the public, Part 41, Sewerage Systems, of the NREPA, specifically Section 324.4106 and associated R 299.2953, requires that the permittee file with the Department, on forms prescribed by the Department, operating reports showing the effectiveness of the treatment facility operation and the quantity and quality of liquid wastes discharged into waters of the state.

### FOR ALL **NEW** DISCHARGERS:

Within 60 days prior to start-up of the treatment facility, the permittee shall submit to the Department a treatment facility monitoring program to meet this requirement. Upon approval by the Department the permittee shall implement the treatment facility monitoring program. Applicable forms and guidance are available on the Department's web site at http://www.michigan.gov/deq/0,1607,7-135-3313\_44117---,00.html. The permittee may use alternate forms if they are consistent with the approved treatment facility monitoring program. Unless the Department provides written notification to the permittee that monthly submittal of operating reports is required, operating reports that result from implementation of the approved treatment facility monitoring program shall be maintained on site for a minimum of three (3) years and shall be made available to the Department for review upon request.

### FOR ALL **EXISTING** DISCHARGERS:

<u>Within 30 days</u> of the effective date of the COC, the permittee shall submit to the Department a treatment facility monitoring program to meet this requirement. Upon approval by the Department the permittee shall implement the treatment facility monitoring program. Applicable forms and guidance are available on the Department's web site at http://www.michigan.gov/deq/0,1607,7-135-3313\_44117---,00.html. The permittee may use alternate forms if they are consistent with the approved treatment facility monitoring program. Unless the Department provides written notification to the permittee that monthly submittal of operating reports is required, operating reports that result from implementation of the approved treatment facility monitoring program shall be maintained on site for a minimum of three (3) years and shall be made available to the Department for review upon request.

# 10. Residuals Management Program (RMP) for Land Application of Biosolids: First RMP, including new uses (The individual COC indicates if applicable.)

A permittee seeking authorization to land-apply bulk biosolids or prepare bulk biosolids for land application shall develop and submit an RMP to the Department (see Part I.A.10.e. of this permit) 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 near the top of the screen click on Water, Wastewater, Surface Water, then click on 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.A.10.e. of this permit) 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.
- 2) A completed Biosolids Annual Report Form, available at https://miwaters.deq.state.mi.us. Modifications to the Approved RMP
- 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.A.10.e. of this permit) 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.
- Recordkeeping

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.

# Section A. Final Effluent Limitations and Monitoring Requirements

# 11. Residuals Management Program for Land Application of Biosolids: APPROVED RMPs (The individual COC indicates if applicable.)

The permittee is authorized to land-apply bulk biosolids or prepare bulk biosolids for land application in accordance with the permittee's approved RMP approved on the date specified in the COC and approved modifications thereto, in accordance with the requirements established in R 323.2401 through R 323.2418 of the Michigan Administrative Code (Part 24 Rules). The 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. The Part 24 Rules can be obtained via the internet (<a href="http://www.michigan.gov/deq/">http://www.michigan.gov/deq/</a> and near the top of the screen click on Water, Wastewater, Surface Water, then click on 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)

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

### b. 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.A.11.d. for this permit) 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.

### c. Record Retention

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.

### d. Contact Information

RMP-related submittals shall be made to the Department.

# 12. Expiration and Reissuance

On or before October 1, 2023, a permittee seeking continued authorization to discharge under this permit beyond the permit's expiration date shall submit to the Department a written request containing such information, forms, and fees as required by the Department. Without an adequate request, a permittee's authorization to discharge will expire on **April 1, 2024**. With an adequate request, a permittee shall continue to be subject to the terms and conditions of the expired permit until the Department takes action on the request, unless this permit is terminated or revoked.

If this permit is terminated or revoked, all authorizations to discharge under the permit shall expire on the date of termination or revocation.

If this permit is modified, the Department will notify the permittee of any required action. Without an adequate response, a permittee's authorization to discharge will terminate on the effective date of the modified permit. With an adequate response, a permittee shall be subject to the terms and conditions of the modified permit on the effective date of the modified permit unless the Department notifies the permittee otherwise.

If a discharge is terminated, the permittee shall request termination of discharge authorization.

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Section A. Final Effluent Limitations and Monitoring Requirements

## 13. Requirement to Obtain Individual Permit

The Department may require any person who is authorized to discharge, by a COC and this permit, to apply for and obtain an individual NPDES permit if any of the following circumstances apply:

- The discharger is a significant contributor to pollution as determined by the Department on a case-bycase basis.
- b. The discharger is not complying or has not complied with the conditions of this permit.
- c. A change has occurred in the availability of demonstrated technology or practices for the control or abatement of waste applicable to the point source discharge.
- d. Effluent standards and limitations are promulgated for point source discharges subject to this permit.
- e. The Department determines that the criteria under which the permit was issued no longer apply.

Any person may request the Department to take action pursuant to the provisions of Rule 2191 (R 323.2191 of the Michigan Administrative Code).

## 14. Industrial Waste Pretreatment Program

It is understood that the permittee does not receive the discharge of any type or quantity of substance which may cause interference with the operation of the treatment works; and, therefore, the permittee is not required to immediately develop an industrial pretreatment program in accordance with Section 307 of the CWA. The permittee is required to comply with Section 307 of the CWA upon accepting any such discharge for treatment. The permittee is required to notify the Department within thirty (30) days if any user discharges or proposes to discharge such wastes to the permittee for treatment.

Under no circumstances shall the permittee allow introduction of the following wastes into the waste treatment system:

- a. Pollutants which cause pass-through or interference.
- b. Pollutants which create a fire hazard or explosion hazard in the sewerage system, including, but not limited to waste streams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in Title 40 of the Code of Federal Regulations (CFR), Section 261.21.
- Pollutants which will cause corrosive structural damage to the sewerage system; but in no case, discharges with pH less than 5.0, unless the works is specifically designed to accommodate such discharges.
- d. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the sewerage system resulting in interference.
- e. Any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the treatment plant.
- f. Heat in amounts which will inhibit biological activity in the treatment plant resulting in interference; but in no case, heat in such quantities that the temperature at the treatment plant exceeds 40 degrees Centigrade (104 degrees Fahrenheit) unless the Department, upon request of the permittee, approves alternate temperature limits.
- g. Pollutants which result in the presence of toxic gases, vapors or fumes within the sewerage system in a quantity that may cause acute worker health and safety problems.

h. Any trucked or hauled pollutants, except at discharge points designated by the permittee. If information is gained by the Department that the permittee receives or is about to receive industrial wastes, then the permittee may be required to obtain an individual permit (see Part I.A.13. of this permit).

# 15. Industrial Waste (for non-POTWs such as mobile home parks, campgrounds, nursing homes and marinas)

Under no circumstances shall the permittee allow introduction of waste into the sewerage system other than domestic sewage generated by the facility named on the COC.

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

### Section A. Definitions

**Acute toxic unit (TU<sub>A</sub>)** 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 eight (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<sub>c</sub>)** 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.

**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. 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<sub>50</sub> means a statistically or graphically estimated concentration that is expected to cause one (1) or more specified effects in 50% of a group of organisms under specified conditions.

### Fecal coliform bacteria monthly

FOR WASTEWATER STABILIZATION LAGOONS (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.

### 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<sub>25</sub> 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.

Interference is a discharge which, alone or in conjunction with a discharge or discharges from other sources, both: (1) inhibits or disrupts the publicly owned treatment works (POTW), its treatment processes or operations, or its sludge processes, use, or disposal; and (2) is 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 CWA, 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**<sub>50</sub> 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.

MGD means million gallons per day.

**Monthly concentration** is the sum of the daily concentrations determined during a reporting period event 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 40 CFR, Section 122.2.

**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 CWA 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 CWA. 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, Supervisor of Wells; Part 631, Reclamation of Mining Lands; or Part 632, Nonferrous Metallic Mineral Mining, of the NREPA 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 works.

**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 (3)-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)).

**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 CWA 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.

**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.

## **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 CWA (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 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.

## 1. Start-Up Notification for New or Upgraded Facilities

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.

## 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 <u>January 10th (April 1st for animal feeding operation facilities) of each year</u>, 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

## 5. Compliance Dates Notification

Section C. Reporting Requirements

<u>Within 14 days</u> 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 CWA, 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, <u>within 24 hours</u> 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 <u>at the time monitoring reports are submitted</u>; or, in the case of retained self-monitoring, <u>within five (5) days</u> 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).

<u>Within ten (10) days</u> 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 preventative measures taken or a schedule for completion of measures to be taken to prevent reoccurrence of similar releases.

## 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, all of 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).
- 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 all of the following apply:
  - 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.
  - 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.

### 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.

## 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; recordkeeping 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 <u>sixty days prior to start-up</u> 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 CWA and the NREPA.

The CWA 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.

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.

## 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 CWA 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.
- 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.

## 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.
- 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 CWA 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 CWA, 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 CWA and Sections 3112, 3115, 4106 and 4110 of the NREPA.

## 10. Duty to Provide Information

The permittee shall furnish to the Department, <u>within a reasonable time</u>, 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 CWA 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 CWA.

## 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 permits, or approvals from other units of government as may be required by law.

Project Plan Clean Water State Revolving Fund (CWSRF) Ontonagon, Michigan May 2023

## **Appendix D**

**Detailed Estimates** 

#### **Lift Stations**

#### Lift Station #1 - Old WWTP Lift Station

	Estimated			Estimated		Estimated
Item Description	Quantity	Unit		Unit Price		Extension
Mobilization	1	LSUM	\$	25,000	\$	25,000
Completely Replace and Reconstruct Lift Station	1	LSUM	\$	500,000	\$	500,000
				_		
Tard Fathers and Grant Land					F3F 000	

Total Estimated Cost ==> \$ 525,000

Construction Contingency ==> \$ 78,750

Total Construction Cost ==> \$ 603,750
Engineering, Construction, and Admin ==> \$ 60,375

Total Estimated Project Cost ==> \$ 664,125

#### Lift Station #2 - Main Lift Station

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 23,625	\$ 23,625
700 GPM Pump	2	EACH	\$ 83,310	\$ 166,620
2,200 GPM Pump	1	EACH	\$ 266,878	\$ 266,878
700 GPM Check Valves	2	EACH	\$ 7,000	\$ 14,000
Dehumidifier System	1	EACH	\$ 3,000	\$ 3,000
Sump Pump	1	EACH	\$ 2,000	\$ 2,000
Wet Well Transfer Pump	1	EACH	\$ 20,000	\$ 20,000

Total Estimated Cost ==> \$ 496,123
Construction Contingency ==> \$ 74,418

Total Construction Cost ==> \$ 570,542
Engineering, Construction, and Admin ==> \$ 57,054

Total Estimated Project Cost ==> \$ 627,596

#### Lift Station #3 - River and Lake Street Lift Station

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 15,000	\$ 15,000
Completely Replace and Reconstruct Lift Station	1	LSUM	\$ 300,000	\$ 300,000

Total Estimated Cost ==> \$ 315,000

Construction Contingency ==> \$ 47,250

Total Construction Cost ==> \$ 362,250
Engineering, Construction, and Admin ==> \$ 36,225

Total Estimated Project Cost ==> \$ 398,475

#### Lift Station #5 - Zinc Street Lift Station

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 3,750	\$ 3,750
Upgrade Control Panel	1	LSUM	\$ 75,000	\$ 75,000

Total Estimated Cost ==> \$ 78,750

Construction Contingency ==> \$ 11,813

Total Construction Cost ==> \$ 90,563
Engineering, Construction, and Admin ==> \$ 9,056

Total Estimated Project Cost ==> \$ 99,619

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	- \$		
20	- \$		

Subtotals==> \$

Service Life	Salvage Value at 2043	OM&R	Description
20			·
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		

Subtotals==> \$

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		

Subtotals==> \$

#### Sanitary Sewer Main Replacement

Between River Street and Pennsylvania Avenue

	Estimated			Estimated		Estimated	
Item Description	Quantity	Quantity Unit		Unit Price		Extension	
Mobilization	1	LSUM	\$	10,028	\$	10,028	
Maintaining Traffic	1	LSUM	\$	9,551	\$	9,551	
Soil Erosion and Sedimentation Control	1	LSUM	\$	1,000	\$	1,000	
12" SDR-26 PVC Sanitary Sewer Main	510	LFT	\$	210	\$	107,100	
6" SDR-26 PVC Sanitary Sewer Lateral	20	LFT	\$	140	\$	2,800	
12"x6" Wye	2	EACH	\$	304	\$	608	
Subbase, MDOT Class II, 12" (CIP)	1200	SYD	\$	11	\$	13,200	
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	1200	SYD	\$	18	\$	21,600	
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	99	TON	\$	207	\$	20,493	
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	99	TON	\$	194	\$	19,206	
Connect to Existing Sanitary Sewer Lateral	2	EACH	\$	184	\$	368	
Connect to Existing Sanitary Sewer Manhole	4	EACH	\$	844	\$	3,376	
Post-Construction Sanitary Sewer Televising	420	LFT	\$	3	\$	1,260	
_							

Total Estimated Cost ==> \$ 210,590

Construction Contingency ==> \$ 31,588

Total Construction Cost ==> \$ 242,178
Engineering, Construction, and Admin ==> \$ 24,218

Total Estimated Project Cost ==> \$ 266,396

#### Copper Street

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 3,353	\$ 3,353
Maintaining Traffic	1	LSUM	\$ 3,194	\$ 3,194
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
8" SDR-26 PVC Sanitary Sewer Main	141	LFT	\$ 140	\$ 19,740
6" SDR-26 PVC Sanitary Sewer Lateral	20	LFT	\$ 140	\$ 2,800
8"x6" Wye	2	EACH	\$ 304	\$ 608
Subbase, MDOT Class II, 12" (CIP)	600	SYD	\$ 11	\$ 6,600
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	600	SYD	\$ 18	\$ 10,800
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	50	TON	\$ 207	\$ 10,247
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	50	TON	\$ 194	\$ 9,603
Connect to Existing Sanitary Sewer Lateral	2	EACH	\$ 184	\$ 368
Connect to Existing Sanitary Sewer Manhole	1	EACH	\$ 844	\$ 844
Connect to Existing Sanitary Sewer Main	1	EACH	\$ 844	\$ 844
Post-Construction Sanitary Sewer Televising	140	LFT	\$ 3	\$ 420
·				

Total Estimated Cost ==> \$ 70,421
Construction Contingency ==> \$ 10,563

Total Construction Cost ==> \$ 80,984
Engineering, Construction, and Admin ==> \$ 8,098

Total Estimated Project Cost ==> \$ 89,082

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 64,260.00		
50	\$ 1,680.00		
50	\$ 364.80		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 66,304.80

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 11,844.00		
50	\$ 1,680.00		
50	\$ 364.80		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 13,888.80

#### Sanitary Sewer Main Replacement Continued

#### **Brass Street**

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 2,782	\$ 2,782
Maintaining Traffic	1	LSUM	\$ 2,650	\$ 2,650
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
8" SDR-26 PVC Sanitary Sewer Main	140	LFT	\$ 140	\$ 19,600
6" SDR-26 PVC Sanitary Sewer Lateral	30	LFT	\$ 140	\$ 4,200
8"x6" Wye	3	EACH	\$ 304	\$ 912
Subbase, MDOT Class II, 12" (CIP)	400	SYD	\$ 11	\$ 4,400
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	400	SYD	\$ 18	\$ 7,200
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	33	TON	\$ 207	\$ 6,831
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	33	TON	\$ 194	\$ 6,402
Connect to Existing Sanitary Sewer Lateral	3	EACH	\$ 184	\$ 552
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$ 844	\$ 1,688
Post-Construction Sanitary Sewer Televising	70	LFT	\$ 3	\$ 210

Total Estimated Cost ==> \$ 58,427

Construction Contingency ==> \$ 8,764

Total Construction Cost ==> \$ 67,191
Engineering, Construction, and Admin ==> \$ 6,719

Total Estimated Project Cost ==> \$ 73,910

#### Parker Avenue

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 2,368	\$ 2,368
Maintaining Traffic	1	LSUM	\$ 2,255	\$ 2,255
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
8" SDR-26 PVC Sanitary Sewer Main	120	LFT	\$ 140	\$ 16,800
Subbase, MDOT Class II, 12" (CIP)	400	SYD	\$ 11	\$ 4,400
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	400	SYD	\$ 18	\$ 7,200
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	33	TON	\$ 207	\$ 6,831
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	33	TON	\$ 194	\$ 6,402
Connect to Existing Sanitary Sewer Lateral	2	EACH	\$ 184	\$ 368
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$ 844	\$ 1,688
Post-Construction Sanitary Sewer Televising	140	LFT	\$ 3	\$ 420

Engineering, Construction, and Admin ==> \$ 5,719

Total Estimated Project Cost ==> \$ 62,912

Service Life	Salvage Value at 2043	OM&R	Description
20		- Jinan	2 company
20			
20	\$ -		
50	\$ 11,760.00		
50	\$ 2,520.00		
50	\$ 547.20		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 14,827.20

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 10,080.00		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 10,080.00

#### Sanitary Sewer Main Replacement Continued

#### Michigan Avenue

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 5,152	\$ 5,152
Maintaining Traffic	1	LSUM	\$ 4,907	\$ 4,907
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
8" SDR-26 PVC Sanitary Sewer Main	297	LFT	\$ 140	\$ 41,580
6" SDR-26 PVC Sanitary Sewer Lateral	20	LFT	\$ 140	\$ 2,800
8"x6" Wye	2	EACH	\$ 304	\$ 608
Subbase, MDOT Class II, 12" (CIP)	800	SYD	\$ 11	\$ 8,800
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	800	SYD	\$ 18	\$ 14,400
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	66	TON	\$ 207	\$ 13,662
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	66	TON	\$ 194	\$ 12,804
Connect to Existing Sanitary Sewer Lateral	2	EACH	\$ 184	\$ 368
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$ 844	\$ 1,688
Post-Construction Sanitary Sewer Televising	140	LFT	\$ 3	\$ 420

Total Estimated Cost ==> \$ 108,188

Construction Contingency ==> \$ 16,228

Total Construction Cost ==> \$ 124,417
Engineering, Construction, and Admin ==> \$ 12,442

Total Estimated Project Cost ==> \$ 136,858

#### Between Lake Street and Ontonagon Street

	Estimated		1	Estimated	Estimated
Item Description	Quantity	Unit	1	Unit Price	Extension
Mobilization	1	LSUM	\$	1,754	\$ 1,754
Maintaining Traffic	1	LSUM	\$	1,671	\$ 1,671
Soil Erosion and Sedimentation Control	1	LSUM	\$	1,000	\$ 1,000
8" SDR-26 PVC Sanitary Sewer Main	155	LFT	\$	140	\$ 21,700
6" SDR-26 PVC Sanitary Sewer Lateral	30	LFT	\$	140	\$ 4,200
8"x6" Wye	3	EACH	\$	304	\$ 912
3" Topsoil, Seed, Fertilizer, and Mulch	420	SYD	\$	8	\$ 3,150
Connect to Existing Sanitary Sewer Lateral	3	EACH	\$	184	\$ 552
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$	844	\$ 1,688
Post-Construction Sanitary Sewer Televising	70	LFT	\$	3	\$ 210

Total Estimated Cost ==> \$ 36,837

Construction Contingency ==> \$ 5,526

Total Construction Cost ==> \$ 42,362
Engineering, Construction, and Admin ==> \$ 4,236

Total Estimated Project Cost ==> \$ 46,598

Service Life	Salvage Value at 2043	OM&R	Description
20		Owar	Description
20			
20			
50			
50			
50	\$ 364.80		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 26,992.80

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 13,020.00		
50	\$ 2,520.00		
50	\$ 547.20		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 16,087.20

#### Sanitary Sewer Main Replacement Continued

#### Amygdaloid Street

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 5,119	\$ 5,119
Maintaining Traffic	1	LSUM	\$ 4,876	\$ 4,876
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
8" SDR-26 PVC Sanitary Sewer Main	280	LFT	\$ 140	\$ 39,200
6" SDR-26 PVC Sanitary Sewer Lateral	60	LFT	\$ 140	\$ 8,400
8"x6" Wye	6	EACH	\$ 304	\$ 1,824
Subbase, MDOT Class II, 12" (CIP)	700	SYD	\$ 11	\$ 7,700
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	700	SYD	\$ 18	\$ 12,600
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	58	TON	\$ 207	\$ 11,954
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	58	TON	\$ 194	\$ 11,204
Connect to Existing Sanitary Sewer Lateral	6	EACH	\$ 184	\$ 1,104
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$ 844	\$ 1,688
Post-Construction Sanitary Sewer Televising	280	LFT	\$ 3	\$ 840

Total Estimated Cost ==> \$ 107,509

Construction Contingency ==> \$ 16,126

Total Construction Cost ==> \$ 123,635
Engineering, Construction, and Admin ==> \$ 12,364

Total Estimated Project Cost ==> \$ 135,999

#### Quartz Street

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 3,133	\$ 3,133
Maintaining Traffic	1	LSUM	\$ 2,984	\$ 2,984
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
10" SDR-26 PVC Sanitary Sewer Main	137	LFT	\$ 175	\$ 23,975
6" SDR-26 PVC Sanitary Sewer Lateral	40	LFT	\$ 140	\$ 5,600
10"x6" Wye	4	EACH	\$ 304	\$ 1,216
Subbase, MDOT Class II, 12" (CIP)	400	SYD	\$ 11	\$ 4,400
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	400	SYD	\$ 18	\$ 7,200
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	33	TON	\$ 207	\$ 6,831
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	33	TON	\$ 194	\$ 6,402
Connect to Existing Sanitary Sewer Lateral	4	EACH	\$ 184	\$ 736
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$ 844	\$ 1,688
Post-Construction Sanitary Sewer Televising	210	LFT	\$ 3	\$ 630
				•

Total Estimated Cost ==> \$ 65,795

Construction Contingency ==> \$ 9,869

Total Construction Cost ==> \$ 75,664
Engineering, Construction, and Admin ==> \$ 7,566

Total Estimated Project Cost ==> \$ 83,231

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 23,520.00		
50	\$ 5,040.00		
50	\$ 1,094.40		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 29,654.40

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 14,385.00		
50	\$ 3,360.00		
50	\$ 729.60		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 18,474.60

#### Sanitary Sewer Main Replacement Continued

#### Michigan Street

_	Estimated		Estimated		Estimated	
Item Description	Quantity	Unit	Unit Price		Extension	
Mobilization	1	LSUM	\$ 4,064	\$	4,064	
Maintaining Traffic	1	LSUM	\$ 3,870	\$	3,870	
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$	1,000	
12" SDR-26 PVC Sanitary Sewer Main	170	LFT	\$ 210	\$	35,700	
6" SDR-26 PVC Sanitary Sewer Lateral	40	LFT	\$ 140	\$	5,600	
12"x6" Wye	4	EACH	\$ 304	\$	1,216	
Subbase, MDOT Class II, 12" (CIP)	500	SYD	\$ 11	\$	5,500	
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	500	SYD	\$ 18	\$	9,000	
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	41	TON	\$ 207	\$	8,539	
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	41	TON	\$ 194	\$	8,003	
Connect to Existing Sanitary Sewer Lateral	4	EACH	\$ 184	\$	736	
Connect to Existing Sanitary Sewer Manhole	1	EACH	\$ 844	\$	844	
Connect to Existing Sanitary Sewer Main	1	EACH	\$ 844	\$	844	
Post-Construction Sanitary Sewer Televising	140	LFT	\$ 3	\$	420	

Total Estimated Cost ==> \$ 85,335

Construction Contingency ==> \$ 12,800

Total Construction Cost ==> \$ 98,135
Engineering, Construction, and Admin ==> \$ 9,814

Total Estimated Project Cost ==> \$ 107,949

#### Zinc Street

	Estimated		Estimated			Estimated
Item Description	Quantity	Unit		Unit Price	Unit Price Extension	
Mobilization	1	LSUM	\$	6,444	\$	6,444
Maintaining Traffic	1	LSUM	\$	6,138	\$	6,138
Soil Erosion and Sedimentation Control	1	LSUM	\$	1,000	\$	1,000
10" SDR-26 PVC Sanitary Sewer Main	350	LFT	\$	175	\$	61,250
6" SDR-26 PVC Sanitary Sewer Lateral	10	LFT	\$	140	\$	1,400
10"x6" Wye	1	EACH	\$	304	\$	304
Subbase, MDOT Class II, 12" (CIP)	900	SYD	\$	11	\$	9,900
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	900	SYD	\$	18	\$	16,200
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	74	TON	\$	207	\$	15,370
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	74	TON	\$	194	\$	14,405
Connect to Existing Sanitary Sewer Lateral	1	EACH	\$	184	\$	184
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$	844	\$	1,688
Post-Construction Sanitary Sewer Televising	350	LFT	\$	3	\$	1,050

Engineering, Construction, and Admin ==> \$

Total Estimated Project Cost ==> \$ 171,195

15,563

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 21,420.00		
50	\$ 3,360.00		
50	\$ 729.60		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 25,509.60

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 36,750.00		
50	\$ 840.00		
50	\$ 182.40		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 37,772.40

#### Sanitary Sewer Main Replacement Continued

#### Payne Street

	Estimated		Estimated			Estimated	
Item Description	Quantity	Unit		Unit Price		Extension	
Mobilization	1	LSUM	\$	5,337	\$	5,337	
Maintaining Traffic	1	LSUM	\$	5,082	\$	5,082	
Soil Erosion and Sedimentation Control	1	LSUM	\$	1,000	\$	1,000	
10" SDR-26 PVC Sanitary Sewer Main	280	LFT	\$	175	\$	49,000	
6" SDR-26 PVC Sanitary Sewer Lateral	30	LFT	\$	140	\$	4,200	
10"x6" Wye	3	EACH	\$	304	\$	912	
Subbase, MDOT Class II, 12" (CIP)	700	SYD	\$	11	\$	7,700	
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	700	SYD	\$	18	\$	12,600	
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	58	TON	\$	207	\$	11,954	
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	58	TON	\$	194	\$	11,204	
Connect to Existing Sanitary Sewer Lateral	3	EACH	\$	184	\$	552	
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$	844	\$	1,688	
Post-Construction Sanitary Sewer Televising	280	LFT	\$	3	\$	840	

Total Estimated Cost ==> \$ 112,069

Construction Contingency ==> \$ 16,810

Total Construction Cost ==> \$ 128,879
Engineering, Construction, and Admin ==> \$ 12,888

Total Estimated Project Cost ==> \$ 141,767

#### S 4th Street

	Estimated			Estimated		Estimated
Item Description	Quantity Unit Unit		Unit Price		Extension	
Mobilization	1	LSUM	\$	3,930	\$	3,930
Maintaining Traffic	1	LSUM	\$	3,743	\$	3,743
Soil Erosion and Sedimentation Control	1	LSUM	\$	1,000	\$	1,000
8" SDR-26 PVC Sanitary Sewer Main	200	LFT	\$	140	\$	28,000
6" SDR-26 PVC Sanitary Sewer Lateral	30	LFT	\$	140	\$	4,200
8"x6" Wye	3	EACH	\$	304	\$	912
Subbase, MDOT Class II, 12" (CIP)	600	SYD	\$	11	\$	6,600
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	600	SYD	\$	18	\$	10,800
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	50	TON	\$	207	\$	10,247
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	50	TON	\$	194	\$	9,603
Connect to Existing Sanitary Sewer Lateral	3	EACH	\$	184	\$	552
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$	844	\$	1,688
Post-Construction Sanitary Sewer Televising	420	LFT	\$	3	\$	1,260

Total Estimated Cost ==> \$ 82,535

Construction Contingency ==> \$ 12,380

Total Construction Cost ==> \$ 94,915
Engineering, Construction, and Admin ==> \$ 9,492

Total Estimated Project Cost ==> \$ 104,407

Service Life	Salvage Value at 2043	OM&R	Description
20		OWAK	Description
20			
20			
50	\$ 29,400.00		
50	\$ 2,520.00		
50	\$ 547.20		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 32,467.20

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 16,800.00		
50	\$ 2,520.00		
50	\$ 547.20		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
	4 40 00 00		

Subtotals==> \$ 19,867.20

#### Manhole Replacement

#### **Houghton Street**

	Estimated		Estimated			Estimated	
Item Description	Quantity	Unit		Unit Price		Extension	
Mobilization	1	LSUM	\$	948	\$	948	
Maintaining Traffic	1	LSUM	\$	903	\$	903	
Soil Erosion and Sedimentation Control	1	LSUM	\$	1,000	\$	1,000	
10" SDR-26 PVC Sanitary Sewer Main	6	LFT	\$	175	\$	1,050	
12" SDR-26 PVC Sanitary Sewer Main	6	LFT	\$	210	\$	1,260	
15" SDR-26 PVC Sanitary Sewer Main	6	LFT	\$	245	\$	1,470	
4' Dia. Precast Concrete Sanitary Manhole	1	EACH	\$	3,450	\$	3,450	
Drainage Structure Cover	1	EACH	\$	1,080	\$	1,080	
Subbase, MDOT Class II, 12" (CIP)	100	SYD	\$	11	\$	1,100	
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	100	SYD	\$	18	\$	1,800	
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	8	TON	\$	207	\$	1,708	
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	8	TON	\$	194	\$	1,601	
Connect to Existing Sanitary Sewer Main	3	EACH	\$	844	\$	2,532	
						·	

Total Estimated Cost ==> \$ 17,368

Construction Contingency ==> \$ 2,605

Total Construction Cost ==> \$ 19,974
Engineering, Construction, and Admin ==> \$ 1,997

Total Estimated Project Cost ==> \$ 21,971

#### Michigan Street

	Estimated		Estimated		Estimated	
Item Description	Quantity	Unit		Unit Price	Extension	
Mobilization	1	LSUM	\$	881	\$	881
Maintaining Traffic	1	LSUM	\$	839	\$	839
Soil Erosion and Sedimentation Control	1	LSUM	\$	1,000	\$	1,000
18" SDR-26 PVC Sanitary Sewer Main	12	LFT	\$	280	\$	3,360
4' Dia. Precast Concrete Sanitary Manhole	1	EACH	\$	3,450	\$	3,450
Drainage Structure Cover	1	EACH	\$	1,080	\$	1,080
Subbase, MDOT Class II, 12" (CIP)	100	SYD	\$	11	\$	1,100
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	100	SYD	\$	18	\$	1,800
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	8	TON	\$	207	\$	1,708
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	8	TON	\$	194	\$	1,601
Connect to Existing Sanitary Sewer Main	2	EACH	\$	844	\$	1,688

Total Estimated Cost ==>	\$ 16,819
Construction Contingency ==>	\$ 2,523
Total Construction Cost ==>	\$ 19,342
Engineering, Construction, and Admin ==>	\$ 1,934
Total Estimated Project Cost ==>	\$ 21,276

Service Life	Salvage Value at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 630.00		
50	\$ 756.00		
50	\$ 882.00		
50	\$ 2,070.00		
50	\$ 648.00		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 4,986.00

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 2,016.00		
50	\$ 2,070.00		
50	\$ 648.00		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 4,734.00

#### **Manhole Replacement Continued**

#### W. Mercury Street

	Estimated		Estimated		Estimated	
Item Description	Quantity	Unit		Unit Price		Extension
Mobilization	1	LSUM	\$	948	\$	948
Maintaining Traffic	1	LSUM	\$	903	\$	903
Soil Erosion and Sedimentation Control	1	LSUM	\$	1,000	\$	1,000
10" SDR-26 PVC Sanitary Sewer Main	6	LFT	\$	175	\$	1,050
12" SDR-26 PVC Sanitary Sewer Main	6	LFT	\$	210	\$	1,260
15" SDR-26 PVC Sanitary Sewer Main	6	LFT	\$	245	\$	1,470
4' Dia. Precast Concrete Sanitary Manhole	1	EACH	\$	3,450	\$	3,450
Drainage Structure Cover	1	EACH	\$	1,080	\$	1,080
Subbase, MDOT Class II, 12" (CIP)	100	SYD	\$	11	\$	1,100
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	100	SYD	\$	18	\$	1,800
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	8	TON	\$	207	\$	1,708
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	8	TON	\$	194	\$	1,601
Connect to Existing Sanitary Sewer Main	3	EACH	\$	844	\$	2,532

Total Estimated Cost ==> \$ 17,368

Construction Contingency ==> \$ 2,605

Total Construction Cost ==> \$ 19,974
Engineering, Construction, and Admin ==> \$ 1,997

Total Estimated Project Cost ==> \$ 21,971

#### Payne Street

	Estimated		Estimated		Estimated
Item Description	Quantity	Unit	Unit Price		Extension
Mobilization	1	LSUM	\$ 926	\$	926
Maintaining Traffic	1	LSUM	\$ 882	\$	882
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$	1,000
12" SDR-26 PVC Sanitary Sewer Main	12	LFT	\$ 210	\$	2,520
6" SDR-26 PVC Sanitary Sewer Lateral	6	LFT	\$ 140	\$	840
4' Dia. Precast Concrete Sanitary Manhole	1	EACH	\$ 3,450	\$	3,450
Drainage Structure Cover	1	EACH	\$ 1,080	\$	1,080
Subbase, MDOT Class II, 12" (CIP)	100	SYD	\$ 11	\$	1,100
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	100	SYD	\$ 18	\$	1,800
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	8	TON	\$ 207	\$	1,708
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	8	TON	\$ 194	\$	1,601
Connect to Existing Sanitary Sewer Main	3	EACH	\$ 844	\$	2,532
·			 - 4 1 6 4	_	46.005

Total Estimated Cost ==> \$ 16,905

Construction Contingency ==> \$ 2,536

Total Construction Cost ==> \$ 19,441
Engineering, Construction, and Admin ==> \$ 1,944

Total Estimated Project Cost ==> \$ 21,385

Service Life	Salvage Value at 2043	OM&R	Description
20	\$ -		·
20	\$ -		
20	\$ -		
50	\$ 630.00		
50	\$ 756.00		
50	\$ 882.00		
50	\$ 2,070.00		
50	\$ 648.00		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 4,986.00

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 1,512.00		
50	\$ 504.00		
50	\$ 2,070.00		
50	\$ 648.00		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 4,734.00

### Manhole Replacement Continued

#### US-45

	Estimated			Estimated		Estimated
Item Description	Quantity	Unit		Unit Price		Extension
Mobilization	1	LSUM	\$	815	\$	815
Maintaining Traffic	1	LSUM	\$	776	\$	776
Soil Erosion and Sedimentation Control	1	LSUM	\$	1,000	\$	1,000
10" SDR-26 PVC Sanitary Sewer Main	12	LFT	\$	175	\$	2,100
4' Dia. Precast Concrete Sanitary Manhole	1	EACH	\$	3,450	\$	3,450
Drainage Structure Cover	1	EACH	\$	1,080	\$	1,080
Subbase, MDOT Class II, 12" (CIP)	100	SYD	\$	11	\$	1,100
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	100	SYD	\$	18	\$	1,800
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	8	TON	\$	207	\$	1,708
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	8	TON	\$	194	\$	1,601
Connect to Existing Sanitary Sewer Main	2	EACH	\$	844	\$	1,688
		T-1-1 F-	<u>.                                    </u>	-4-d C4>	Ļ	15 430

Total Estimated Cost ==> \$ 15,430

Construction Contingency ==> \$ 2,314

Total Construction Cost ==> \$ 17,744
Engineering, Construction, and Admin ==> \$ 1,774

Total Estimated Project Cost ==> \$ 19,519

#### Manhole Repair/Lining

	Estimated		Estimated		Estimated	
Item Description	Quantity	Unit		Unit Price		Extension
Mobilization	1	LSUM	\$	33,415	\$	33,415
Maintaining Traffic	1	LSUM	\$	6,800	\$	6,800
Manhole Major Repair/Lining	34	EACH	\$	4,000	\$	136,000

Total Estimated Cost ==> \$ 142,800

Construction Contingency ==> \$ 21,420

Total Construction Cost ==> \$ 164,220
Engineering, Construction, and Admin ==> \$ 16,422

Total Estimated Project Cost ==> \$ 180,642

#### Sanitary Sewer Lining

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Maintaining Traffic	1	LSUM		\$ -
Sewer Line Full Lining - 8"	4295	LFT	\$ 80	\$ 343,600
Sewer Line Full Lining - 10"	4152	LFT	\$ 80	\$ 332,160
Sewer Line Full Lining - 12"	2456	LFT	\$ 90	\$ 221,040
Sewer Line Full Lining - 15"	1317	LFT	\$ 125	\$ 164,625
Sewer Line Full Lining - 18"	315	LFT	\$ 125	\$ 39,375
Sewer Line Full Lining - 24"	408	LFT	\$ 400	\$ 163,200

Total Estimated Cost ==> \$ 1,264,000

Construction Contingency ==> \$ 189,600

Total Construction Cost ==> \$ 1,453,600
Engineering, Construction, and Admin ==> \$ 145,360

Total Estimated Project Cost ==> \$ 1,598,960

Service Life	Salvage Value at 2043	OM&R	Description
20		OWAK	Description
20			
20	\$ -		
50	\$ 1,260.00		
50	\$ 2,070.00		
50	\$ 648.00		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 3,978.00

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$

Service Life	Salvage Value at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$

#### Remove CSO Locations

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 3,203	\$ 3,203
Maintaining Traffic	1	LSUM	\$ 3,050	\$ 3,050
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
Cap CSO Locations	4	EACH	\$ 15,000	\$ 60,000

Total Estimated Cost ==> \$ 67,253

Construction Contingency ==> \$ 10,088

Total Construction Cost ==> \$ 77,340
Engineering, Construction, and Admin ==> \$ 7,734

Total Estimated Project Cost ==> \$ 85,074

#### **Rose Island Expansion**

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 47,523	\$ 47,523
Maintaining Traffic	1	LSUM	\$ 45,260	\$ 45,260
Soil Erosion and Sedimentation Control	1	LSUM	\$ 10,000	\$ 10,000
Dewatering	1	LSUM	\$ 20,000.00	\$ 20,000.00
Clearing and Grubbing	0.5	ACRE	\$ 7,000.00	\$ 3,500.00
Grinder Lift Station	1	LSUM	\$ 150,000.00	\$ 150,000.00
Backup Generator	1	EACH	\$ 70,000.00	\$ 70,000.00
Tie into SCADA System	1	LSUM	\$ 30,000.00	\$ 30,000.00
4' Dia. Precast Concrete Standard Sanitary Manhole (0'-8')	5	EA	\$ 4,000.00	\$ 20,000.00
Sanitary Structure Cover	5	EA	\$ 1,000.00	\$ 5,000.00
6" SDR-26 PVC Sanitary Sewer Lateral	620	LFT	\$ 140.00	\$ 86,800.00
8" SDR-26 PVC Sanitary Sewer Main	1085	LFT	\$ 140.00	\$ 151,900.00
8" x 6" Wye	6	EA	\$ 304.00	\$ 1,824.00
Directional Bore 4" SDR 17	300	LFT	\$ 450.00	\$ 135,000.00
Directional Bore Mobilization/Demobilization	1	LSUM	\$ 6,000.00	\$ 6,000.00
Imported Fill Material	2000	CYD	\$ 25.00	\$ 50,000.00
Pipe Bedding Material 6" MDOT Class IIIA	500	SYD	\$ 15.00	\$ 7,500.00
Subbase, MDOT Class II, 12" (CIP)	2540	SY	\$ 11.00	\$ 27,936.33
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	2540	SY	\$ 18.00	\$ 45,714.00
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	210	TON	\$ 207.00	\$ 43,371.16
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	210	TON	\$ 194.00	\$ 40,647.37
Connect to Existing Sewer Main	1	EA	\$ 1,000.00	\$ 1,000.00
Connect User to New System	6	EA	\$ 500.00	\$ 3,000.00
			•	

Total Estimated Cost ==> \$ 997,975
Construction Contingency ==> \$ 149,696

Total Construction Cost ==> \$ 1,147,671
Engineering, Construction, and Admin ==> \$ 114,767

Total Estimated Project Cost ==> \$ 1,262,439

Total Estimated Cost - All Projects ==> \$ 5,093,561
Construction Contingency ==> \$ 764,034

Total Construction Cost ==> \$ 5,857,595
Engineering, Construction, and Admin ==> \$ 585,760

Total CSWRF Project Cost ==> \$ 6,443,355

Service Life	Salvage Value at 2043	OM&R	Description
20			, , ,
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
20			
20			
30	\$ 50,000.00		
30	\$ 23,333.33		
20			
50	\$ 12,000.00		
50	\$ 3,000.00		
50			
50	\$ 91,140.00		
50	\$ 1,094.40		
50	\$ 81,000.00		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20			
20			
20	\$ -		
20	\$ -		

Subtotals==> \$ 240,314.40

#### **Lift Stations**

#### Lift Station #1 - Old WWTP Lift Station

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 27,500	\$ 27,500
Completely Replace and Reconstruct Lift Station	1	LSUM	\$ 550,000	\$ 550,000
	\$ 577,500			

Construction Contingency ==> \$ 115,500

Total Construction Cost ==> \$ 693,000 Engineering, Construction, and Admin ==> \$ 138,600

> Total Estimated Project Cost ==> \$ 831,600

#### Lift Station #2 - Main Lift Station

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 25,892	\$ 25,892
700 GPM Pump	2	EACH	\$ 91,641	\$ 183,282
2,200 GPM Pump	1	EACH	\$ 293,566	\$ 293,566
700 GPM Check Valves	2	EACH	\$ 7,000	\$ 14,000
Dehumidifier System	1	EACH	\$ 3,000	\$ 3,000
Sump Pump	1	EACH	\$ 2,000	\$ 2,000
Wet Well Transfer Pump	1	EACH	\$ 22,000	\$ 22,000

543,740 Total Estimated Cost ==> \$ Construction Contingency ==> \$ 108,748

652,488 Total Construction Cost ==> \$ Engineering, Construction, and Admin ==> \$ 130,498

> Total Estimated Project Cost ==> \$ 782,986

#### Lift Station #3 - River and Lake Street Lift Station

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 16,500	\$ 16,500
Completely Replace and Reconstruct Lift Station	1	LSUM	\$ 330,000	\$ 330,000

Total Estimated Cost ==> \$ 346,500 Construction Contingency ==> \$ 69,300

Total Construction Cost ==> \$ 415,800 Engineering, Construction, and Admin ==> \$ 83,160

> Total Estimated Project Cost ==> \$ 498,960

#### Lift Station #5 - Zinc Street Lift Station

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 4,125	\$ 4,125
Upgrade Control Panel	1	LSUM	\$ 82,500	\$ 82,500

Total Estimated Cost ==> \$ 86,625 Construction Contingency ==> \$ 17,325

Total Construction Cost ==> \$ 103,950 Engineering, Construction, and Admin ==> \$ 20,790

> Total Estimated Project Cost ==> \$ 124,740

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$		

Subtotals==> \$

	Salvage Value at 2043		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
		_	

Subtotals==> \$

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		

Subtotals==> \$

Service Life	Salvage Value at 2043	OM&R	Description
20	\$		
20	\$		

Subtotals==> \$

#### Sanitary Sewer Main Replacement

Between River Street and Pennsylvania Avenue

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 11,026	\$ 11,026
Maintaining Traffic	1	LSUM	\$ 10,501	\$ 10,501
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
12" SDR-26 PVC Sanitary Sewer Main	510	LFT	\$ 231	\$ 117,810
6" SDR-26 PVC Sanitary Sewer Lateral	20	LFT	\$ 154	\$ 3,080
12"x6" Wye	2	EACH	\$ 334	\$ 669
Subbase, MDOT Class II, 12" (CIP)	1200	SYD	\$ 12	\$ 14,520
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	1200	SYD	\$ 20	\$ 23,760
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	99	TON	\$ 228	\$ 22,542
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	99	TON	\$ 213	\$ 21,127
Connect to Existing Sanitary Sewer Lateral	2	EACH	\$ 202	\$ 405
Connect to Existing Sanitary Sewer Manhole	4	EACH	\$ 928	\$ 3,714
Post-Construction Sanitary Sewer Televising	420	LFT	\$ 3	\$ 1,386

Total Estimated Cost ==> \$ 231,538

Construction Contingency ==> \$ 46,308

Total Construction Cost ==> \$ 277,846
Engineering, Construction, and Admin ==> \$ 55,569

Total Estimated Project Cost ==> \$ 333,415

#### Copper Street

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 3,683	\$ 3,683
Maintaining Traffic	1	LSUM	\$ 3,508	\$ 3,508
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
8" SDR-26 PVC Sanitary Sewer Main	141	LFT	\$ 154	\$ 21,714
6" SDR-26 PVC Sanitary Sewer Lateral	20	LFT	\$ 154	\$ 3,080
8"x6" Wye	2	EACH	\$ 334	\$ 669
Subbase, MDOT Class II, 12" (CIP)	600	SYD	\$ 12	\$ 7,260
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	600	SYD	\$ 20	\$ 11,880
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	50	TON	\$ 228	\$ 11,271
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	50	TON	\$ 213	\$ 10,563
Connect to Existing Sanitary Sewer Lateral	2	EACH	\$ 202	\$ 405
Connect to Existing Sanitary Sewer Manhole	1	EACH	\$ 928	\$ 928
Connect to Existing Sanitary Sewer Main	1	EACH	\$ 928	\$ 928
Post-Construction Sanitary Sewer Televising	140	LFT	\$ 3	\$ 462

Total Construction Cost ==> \$ 92,823
Engineering, Construction, and Admin ==> \$ 18,565

Total Estimated Project Cost ==> \$ 111,387

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 70,686.00		
50	\$ 1,848.00		
50	\$ 401.28		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 72,935.28

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 13,028.40		
50	\$ 1,848.00		
50	\$ 401.28		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 15,277.68

#### Sanitary Sewer Main Replacement Continued

#### **Brass Street**

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 3,055	\$ 3,055
Maintaining Traffic	1	LSUM	\$ 2,910	\$ 2,910
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
8" SDR-26 PVC Sanitary Sewer Main	140	LFT	\$ 154	\$ 21,560
6" SDR-26 PVC Sanitary Sewer Lateral	30	LFT	\$ 154	\$ 4,620
8"x6" Wye	3	EACH	\$ 334	\$ 1,003
Subbase, MDOT Class II, 12" (CIP)	400	SYD	\$ 12	\$ 4,840
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	400	SYD	\$ 20	\$ 7,920
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	33	TON	\$ 228	\$ 7,514
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	33	TON	\$ 213	\$ 7,042
Connect to Existing Sanitary Sewer Lateral	3	EACH	\$ 202	\$ 607
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$ 928	\$ 1,857
Post-Construction Sanitary Sewer Televising	70	LFT	\$ 3	\$ 231
_				

Total Estimated Cost ==> \$ 64,159

Construction Contingency ==> \$ 12,832

Total Construction Cost ==> \$ 76,991
Engineering, Construction, and Admin ==> \$ 15,398

Total Estimated Project Cost ==> \$ 92,390

#### Parker Avenue

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 2,579	\$ 2,579
Maintaining Traffic	1	LSUM	\$ 2,456	\$ 2,456
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
8" SDR-26 PVC Sanitary Sewer Main	120	LFT	\$ 154	\$ 18,480
Subbase, MDOT Class II, 12" (CIP)	400	SYD	\$ 12	\$ 4,840
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	400	SYD	\$ 20	\$ 7,920
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	33	TON	\$ 228	\$ 7,514
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	33	TON	\$ 213	\$ 7,042
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$ 928	\$ 1,857
Post-Construction Sanitary Sewer Televising	140	LFT	\$ 3	\$ 462

Total Estimated Cost ==> \$ 54,149

Construction Contingency ==> \$ 10,830

Total Construction Cost ==> \$ 64,979
Engineering, Construction, and Admin ==> \$ 12,996

Total Estimated Project Cost ==> \$ 77,975

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 12,936.00		
50	\$ 2,772.00		
50	\$ 601.92		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 16,309.92

Salvage Value		
at 2043	OM&R	Description
\$ -		
\$ -		
\$ -		
\$ 11,088.00		
\$ -		
\$ -		
\$ -		
\$ -		
\$ -		
\$ -		
	at 2043	at 2043 OM&R  \$ -

Subtotals==> \$ 11,088.00

#### Sanitary Sewer Main Replacement Continued

#### Michigan Avenue

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 5,662	\$ 5,662
Maintaining Traffic	1	LSUM	\$ 5,392	\$ 5,392
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
8" SDR-26 PVC Sanitary Sewer Main	297	LFT	\$ 154	\$ 45,738
6" SDR-26 PVC Sanitary Sewer Lateral	20	LFT	\$ 154	\$ 3,080
8"x6" Wye	2	EACH	\$ 334	\$ 669
Subbase, MDOT Class II, 12" (CIP)	800	SYD	\$ 12	\$ 9,680
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	800	SYD	\$ 20	\$ 15,840
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	66	TON	\$ 228	\$ 15,028
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	66	TON	\$ 213	\$ 14,084
Connect to Existing Sanitary Sewer Lateral	2	EACH	\$ 202	\$ 405
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$ 928	\$ 1,857
Post-Construction Sanitary Sewer Televising	140	LFT	\$ 3	\$ 462

Total Estimated Cost ==> \$ 118,897

Construction Contingency ==> \$ 23,779

Total Construction Cost ==> \$ 142,676
Engineering, Construction, and Admin ==> \$ 28,535

Total Estimated Project Cost ==> \$ 171,212

#### Between Lake Street and Ontonagon Street

	Estimated		Es	timated	Estimated
Item Description	Quantity	Unit	Uı	nit Price	Extension
Mobilization	1	LSUM	\$	1,924	\$ 1,924
Maintaining Traffic	1	LSUM	\$	1,833	\$ 1,833
Soil Erosion and Sedimentation Control	1	LSUM	\$	1,000	\$ 1,000
8" SDR-26 PVC Sanitary Sewer Main	155	LFT	\$	154	\$ 23,870
6" SDR-26 PVC Sanitary Sewer Lateral	30	LFT	\$	154	\$ 4,620
8"x6" Wye	3	EACH	\$	334	\$ 1,003
3" Topsoil, Seed, Fertilizer, and Mulch	420	SYD	\$	8	\$ 3,465
Connect to Existing Sanitary Sewer Lateral	3	EACH	\$	202	\$ 607
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$	928	\$ 1,857
Post-Construction Sanitary Sewer Televising	70	LFT	\$	3	\$ 231

Total Estimated Cost ==> \$ 40,410

Construction Contingency ==> \$ 8,082

Total Construction Cost ==> \$ 48,492
Engineering, Construction, and Admin ==> \$ 9,698

Total Estimated Project Cost ==> \$ 58,191

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 27,442.80		
50	\$ 1,848.00		
50	\$ 401.28		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 29,692.08

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 14,322.00		
50	\$ 2,772.00		
50	\$ 601.92		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 17,695.92

#### Sanitary Sewer Main Replacement Continued

#### Amygdaloid Street

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 5,626	\$ 5,626
Maintaining Traffic	1	LSUM	\$ 5,358	\$ 5,358
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
8" SDR-26 PVC Sanitary Sewer Main	280	LFT	\$ 154	\$ 43,120
6" SDR-26 PVC Sanitary Sewer Lateral	60	LFT	\$ 154	\$ 9,240
8"x6" Wye	6	EACH	\$ 334	\$ 2,006
Subbase, MDOT Class II, 12" (CIP)	700	SYD	\$ 12	\$ 8,470
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	700	SYD	\$ 20	\$ 13,860
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	58	TON	\$ 228	\$ 13,150
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	58	TON	\$ 213	\$ 12,324
Connect to Existing Sanitary Sewer Lateral	6	EACH	\$ 202	\$ 1,214
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$ 928	\$ 1,857
Post-Construction Sanitary Sewer Televising	280	LFT	\$ 3	\$ 924

Total Estimated Cost ==> \$ 118,150

Construction Contingency ==> \$ 23,630

Total Construction Cost ==> \$ 141,779
Engineering, Construction, and Admin ==> \$ 28,356

Total Estimated Project Cost ==> \$ 170,135

#### Quartz Street

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 3,441	\$ 3,441
Maintaining Traffic	1	LSUM	\$ 3,277	\$ 3,277
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
10" SDR-26 PVC Sanitary Sewer Main	137	LFT	\$ 193	\$ 26,373
6" SDR-26 PVC Sanitary Sewer Lateral	40	LFT	\$ 154	\$ 6,160
10"x6" Wye	4	EACH	\$ 334	\$ 1,338
Subbase, MDOT Class II, 12" (CIP)	400	SYD	\$ 12	\$ 4,840
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	400	SYD	\$ 20	\$ 7,920
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	33	TON	\$ 228	\$ 7,514
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	33	TON	\$ 213	\$ 7,042
Connect to Existing Sanitary Sewer Lateral	4	EACH	\$ 202	\$ 810
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$ 928	\$ 1,857
Post-Construction Sanitary Sewer Televising	210	LFT	\$ 3	\$ 693

Total Estimated Project Cost ==> \$ 104,061

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 25,872.00		
50	\$ 5,544.00		
50	\$ 1,203.84		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 32,619.84

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 15,823.50		
50	\$ 3,696.00		
50	\$ 802.56		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 20,322.06

#### Sanitary Sewer Main Replacement Continued

#### Michigan Street

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 4,465	\$ 4,465
Maintaining Traffic	1	LSUM	\$ 4,252	\$ 4,252
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
12" SDR-26 PVC Sanitary Sewer Main	170	LFT	\$ 231	\$ 39,270
6" SDR-26 PVC Sanitary Sewer Lateral	40	LFT	\$ 154	\$ 6,160
12"x6" Wye	4	EACH	\$ 334	\$ 1,338
Subbase, MDOT Class II, 12" (CIP)	500	SYD	\$ 12	\$ 6,050
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	500	SYD	\$ 20	\$ 9,900
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	41	TON	\$ 228	\$ 9,393
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	41	TON	\$ 213	\$ 8,803
Connect to Existing Sanitary Sewer Lateral	4	EACH	\$ 202	\$ 810
Connect to Existing Sanitary Sewer Manhole	1	EACH	\$ 928	\$ 928
Connect to Existing Sanitary Sewer Main	1	EACH	\$ 928	\$ 928
Post-Construction Sanitary Sewer Televising	140	LFT	\$ 3	\$ 462

Total Estimated Cost ==> \$ 93,758

Construction Contingency ==> \$ 18,752

Total Construction Cost ==> \$ 112,510
Engineering, Construction, and Admin ==> \$ 22,502

Total Estimated Project Cost ==> \$ 135,012

#### Zinc Street

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 7,084	\$ 7,084
Maintaining Traffic	1	LSUM	\$ 6,746	\$ 6,746
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
10" SDR-26 PVC Sanitary Sewer Main	350	LFT	\$ 193	\$ 67,375
6" SDR-26 PVC Sanitary Sewer Lateral	10	LFT	\$ 154	\$ 1,540
10"x6" Wye	1	EACH	\$ 334	\$ 334
Subbase, MDOT Class II, 12" (CIP)	900	SYD	\$ 12	\$ 10,890
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	900	SYD	\$ 20	\$ 17,820
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	74	TON	\$ 228	\$ 16,907
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	74	TON	\$ 213	\$ 15,845
Connect to Existing Sanitary Sewer Lateral	1	EACH	\$ 202	\$ 202
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$ 928	\$ 1,857
Post-Construction Sanitary Sewer Televising	350	LFT	\$ 3	\$ 1,155

Total Estimated Project Cost ==> \$ 214,207

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 23,562.00		
50	\$ 3,696.00		
50	\$ 802.56		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 28,060.56

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	- \$		
20	- \$		
20	- \$		
50	\$ 40,425.00		
50	\$ 924.00		
50	\$ 200.64		
20	- \$		
20	- \$		
20	- \$		
20	- \$		
20	- \$		
20	- \$		
20	\$ -		

Subtotals==> \$ 41,549.64

#### Sanitary Sewer Main Replacement Continued

#### Payne Street

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 5,865	\$ 5,865
Maintaining Traffic	1	LSUM	\$ 5,586	\$ 5,586
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
10" SDR-26 PVC Sanitary Sewer Main	280	LFT	\$ 193	\$ 53,900
6" SDR-26 PVC Sanitary Sewer Lateral	30	LFT	\$ 154	\$ 4,620
10"x6" Wye	3	EACH	\$ 334	\$ 1,003
Subbase, MDOT Class II, 12" (CIP)	700	SYD	\$ 12	\$ 8,470
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	700	SYD	\$ 20	\$ 13,860
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	58	TON	\$ 228	\$ 13,150
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	58	TON	\$ 213	\$ 12,324
Connect to Existing Sanitary Sewer Lateral	3	EACH	\$ 202	\$ 607
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$ 928	\$ 1,857
Post-Construction Sanitary Sewer Televising	280	LFT	\$ 3	\$ 924
			•	•

Total Estimated Cost ==> \$ 123,165

Construction Contingency ==> \$ 24,633

Total Construction Cost ==> \$ 147,799
Engineering, Construction, and Admin ==> \$ 29,560

Total Estimated Project Cost ==> \$ 177,358

#### S 4th Street

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 4,318	\$ 4,318
Maintaining Traffic	1	LSUM	\$ 4,112	\$ 4,112
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
8" SDR-26 PVC Sanitary Sewer Main	200	LFT	\$ 154	\$ 30,800
6" SDR-26 PVC Sanitary Sewer Lateral	30	LFT	\$ 154	\$ 4,620
8"x6" Wye	3	EACH	\$ 334	\$ 1,003
Subbase, MDOT Class II, 12" (CIP)	600	SYD	\$ 12	\$ 7,260
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	600	SYD	\$ 20	\$ 11,880
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	50	TON	\$ 228	\$ 11,271
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	50	TON	\$ 213	\$ 10,563
Connect to Existing Sanitary Sewer Lateral	3	EACH	\$ 202	\$ 607
Connect to Existing Sanitary Sewer Manhole	2	EACH	\$ 928	\$ 1,857
Post-Construction Sanitary Sewer Televising	420	LFT	\$ 3	\$ 1,386
				•

Engineering, Construction, and Admin ==> \$ 21,763

Total Estimated Project Cost ==> \$ 130,576

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 32,340.00		
50	\$ 2,772.00		
50	\$ 601.92		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 35,713.92

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 18,480.00		
50	\$ 2,772.00		
50	\$ 601.92		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 21,853.92

#### Manhole Replacement

#### **Houghton Street**

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 1,037	\$ 1,037
Maintaining Traffic	1	LSUM	\$ 988	\$ 988
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
10" SDR-26 PVC Sanitary Sewer Main	6	LFT	\$ 193	\$ 1,155
12" SDR-26 PVC Sanitary Sewer Main	6	LFT	\$ 231	\$ 1,386
15" SDR-26 PVC Sanitary Sewer Main	6	LFT	\$ 270	\$ 1,617
4' Dia. Precast Concrete Sanitary Manhole	1	EACH	\$ 3,795	\$ 3,795
Drainage Structure Cover	1	EACH	\$ 1,188	\$ 1,188
Subbase, MDOT Class II, 12" (CIP)	100	SYD	\$ 12	\$ 1,210
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	100	SYD	\$ 20	\$ 1,980
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	8	TON	\$ 228	\$ 1,879
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	8	TON	\$ 213	\$ 1,761
Connect to Existing Sanitary Sewer Main	3	EACH	\$ 928	\$ 2,785

Total Estimated Cost ==> \$ 18,995
Construction Contingency ==> \$ 3,799

Total Construction Cost ==> \$ 22,794
Engineering, Construction, and Admin ==> \$ 4,559

Total Estimated Project Cost ==> \$ 27,353

#### Michigan Street

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 964	\$ 964
Maintaining Traffic	1	LSUM	\$ 918	\$ 918
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
18" SDR-26 PVC Sanitary Sewer Main	12	LFT	\$ 308	\$ 3,696
4' Dia. Precast Concrete Sanitary Manhole	1	EACH	\$ 3,795	\$ 3,795
Drainage Structure Cover	1	EACH	\$ 1,188	\$ 1,188
Subbase, MDOT Class II, 12" (CIP)	100	SYD	\$ 12	\$ 1,210
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	100	SYD	\$ 20	\$ 1,980
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	8	TON	\$ 228	\$ 1,879
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	8	TON	\$ 213	\$ 1,761
Connect to Existing Sanitary Sewer Main	2	EACH	\$ 928	\$ 1,857

Total Estimated Cost ==>	Ş	18,390
Construction Contingency ==>	\$	3,678
Total Construction Cost ==>	\$	22,069
Engineering, Construction, and Admin ==>	\$	4,414
Total Estimated Project Cost ==>	\$	26,482

Service Life	Salvage Value at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 693.00		
50	\$ 831.60		
50	\$ 970.20		
50	\$ 2,277.00		
50	\$ 712.80		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 5,484.60

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 2,217.60		
50	\$ 2,277.00		
50	\$ 712.80		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 5,207.40

### Manhole Replacement Continued

#### W. Mercury Street

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 1,037	\$ 1,037
Maintaining Traffic	1	LSUM	\$ 988	\$ 988
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
10" SDR-26 PVC Sanitary Sewer Main	6	LFT	\$ 193	\$ 1,155
12" SDR-26 PVC Sanitary Sewer Main	6	LFT	\$ 231	\$ 1,386
15" SDR-26 PVC Sanitary Sewer Main	6	LFT	\$ 270	\$ 1,617
4' Dia. Precast Concrete Sanitary Manhole	1	EACH	\$ 3,795	\$ 3,795
Drainage Structure Cover	1	EACH	\$ 1,188	\$ 1,188
Subbase, MDOT Class II, 12" (CIP)	100	SYD	\$ 12	\$ 1,210
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	100	SYD	\$ 20	\$ 1,980
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	8	TON	\$ 228	\$ 1,879
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	8	TON	\$ 213	\$ 1,761
Connect to Existing Sanitary Sewer Main	3	EACH	\$ 928	\$ 2,785

Total Estimated Cost ==> \$ 18,995
Construction Contingency ==> \$ 3,799

Total Construction Cost ==> \$ 22,794
Engineering, Construction, and Admin ==> \$ 4,559

Total Estimated Project Cost ==> \$ 27,353

#### Payne Street

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 926	\$ 926
Maintaining Traffic	1	LSUM	\$ 882	\$ 882
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
12" SDR-26 PVC Sanitary Sewer Main	12	LFT	\$ 210	\$ 2,520
6" SDR-26 PVC Sanitary Sewer Lateral	6	LFT	\$ 140	\$ 840
4' Dia. Precast Concrete Sanitary Manhole	1	EACH	\$ 3,450	\$ 3,450
Drainage Structure Cover	1	EACH	\$ 1,080	\$ 1,080
Subbase, MDOT Class II, 12" (CIP)	100	SYD	\$ 11	\$ 1,100
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	100	SYD	\$ 18	\$ 1,800
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	8	TON	\$ 207	\$ 1,708
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	8	TON	\$ 194	\$ 1,601
Connect to Existing Sanitary Sewer Main	3	EACH	\$ 844	\$ 2,532

Total Estimated Cost ==> \$ 16,905
Construction Contingency ==> \$ 3,381

Total Construction Cost ==> \$ 20,286
Engineering, Construction, and Admin ==> \$ 4,057

Total Estimated Project Cost ==> \$ 24,344

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 693.00		
50	\$ 831.60		
50	\$ 970.20		
50	\$ 2,277.00		
50	\$ 712.80		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

**Subtotals==>** \$ 5,484.60

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 1,512.00		
50	\$ 504.00		
50	\$ 2,070.00		
50	\$ 648.00		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 4,734.00

#### **Manhole Replacement Continued**

#### US-45

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 891	\$ 891
Maintaining Traffic	1	LSUM	\$ 849	\$ 849
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
10" SDR-26 PVC Sanitary Sewer Main	12	LFT	\$ 193	\$ 2,310
4' Dia. Precast Concrete Sanitary Manhole	1	EACH	\$ 3,795	\$ 3,795
Drainage Structure Cover	1	EACH	\$ 1,188	\$ 1,188
Subbase, MDOT Class II, 12" (CIP)	100	SYD	\$ 12	\$ 1,210
Aggregate Base Under Bit., MDOT 22A, 6" (CIP)	100	SYD	\$ 20	\$ 1,980
1-1/2" Bituminous Mixture, MDOT 4EL - Leveling Course	8	TON	\$ 228	\$ 1,879
1-1/2" Bituminous Mixture, MDOT 5EL - Top Course	8	TON	\$ 213	\$ 1,761
Connect to Existing Sanitary Sewer Main	2	EACH	\$ 928	\$ 1,857
			-1-16-1	45.052

Total Estimated Cost ==> \$ 16,862
Construction Contingency ==> \$ 3,372

Total Construction Cost ==> \$ 20,235 Engineering, Construction, and Admin ==> \$ 4,047

Total Estimated Project Cost ==> \$ 24,282

#### Manhole Repair/Lining

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 39,898	\$ 39,898
Maintaining Traffic	1	LSUM	\$ 7,480	\$ 7,480
Manhole Major Repair/Lining	34	EACH	\$ 4,400	\$ 149,600

Total Estimated Cost ==> \$ 157,080

Construction Contingency ==> \$ 31,416

Total Construction Cost ==> \$ 188,496
Engineering, Construction, and Admin ==> \$ 37,699

Total Estimated Project Cost ==> \$ 226,195

#### Sanitary Sewer Lining

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Maintaining Traffic	1	LSUM	\$ 69,520	\$ 69,520
Sewer Line Full Lining - 8"	4295	LFT	\$ 88	\$ 377,960
Sewer Line Full Lining - 10"	4152	LFT	\$ 88	\$ 365,376
Sewer Line Full Lining - 12"	2456	LFT	\$ 99	\$ 243,144
Sewer Line Full Lining - 15"	1317	LFT	\$ 138	\$ 181,088
Sewer Line Full Lining - 18"	315	LFT	\$ 138	\$ 43,313
Sewer Line Full Lining - 24"	408	LFT	\$ 440	\$ 179,520

Total Estimated Cost ==> \$ 1,459,920
Construction Contingency ==> \$ 291,984

Total Construction Cost ==> \$ 1,751,904
Engineering, Construction, and Admin ==> \$ 350,381

Total Estimated Project Cost ==> \$ 2,102,285

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
50	\$ 1,386.00		
50	\$ 2,277.00		
50	\$ 712.80		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$ 4,375.80

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$

Complex Life	Salvage Value	0140.0	Description
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$

#### Remove CSO Locations

	Estimated		Estimated	Estimated
Item Description	Quantity	Unit	Unit Price	Extension
Mobilization	1	LSUM	\$ 3,518	\$ 3,518
Maintaining Traffic	1	LSUM	\$ 3,350	\$ 3,350
Soil Erosion and Sedimentation Control	1	LSUM	\$ 1,000	\$ 1,000
Cap CSO Locations	4	EACH	\$ 16,500	\$ 66,000

Total Estimated Cost ==> \$ 73,868

Construction Contingency ==> \$ 14,774

Total Construction Cost ==> \$ 88,641
Engineering, Construction, and Admin ==> \$ 17,728

Total Estimated Project Cost ==> \$ 106,369

#### Rose Island Expansion

Estimated			Estimated		Estimated
Quantity	Unit		Unit Price		Extension
1	LSUM	\$	52,087	\$	52,087
1	LSUM	\$	49,606	\$	49,606
1	LSUM	\$	10,000	\$	10,000
1	LSUM	\$	22,000.00	\$	22,000.00
0.5	ACRE	\$	7,700.00	\$	3,850.00
1	LSUM	\$	165,000.00	\$	165,000.00
1	EACH	\$	77,000.00	\$	77,000.00
1	LSUM	\$	33,000.00	\$	33,000.00
5	EA	\$	3,795.00	\$	18,975.00
5	EA	\$	1,188.00	\$	5,940.00
620	LFT	\$	154.00	\$	95,480.00
1085	LFT	\$	154.00	\$	167,090.00
6	EA	\$	334.40	\$	2,006.40
300	LFT	\$	495.00	\$	148,500.00
1	LSUM	\$	6,600.00	\$	6,600.00
2000	CYD	\$	27.50	\$	55,000.00
500	SYD	\$	16.50	\$	8,250.00
2540	SY	\$	12	\$	30,729.97
2540	SY	\$	20	\$	50,285.40
210	TON	\$	228	\$	47,708.27
210	TON	\$	213	\$	44,712.10
1	EA	\$	928	\$	928.40
6	EA	\$	550.00	\$	3,300.00
	Quantity  1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Quantity	Quantity         Unit           1         LSUM           1         LSUM           1         LSUM           1         LSUM           0.5         ACRE           1         LSUM           1         EACH           1         LSUM           5         EA           5         EA           5         EA           620         LFT           5         EA           6         EA           300         LFT           1         LSUM           2000         CVD           5         500           2540         SY           2540         SY           210         TON           210         TON           1         EA	Quantity         Unit         Unit Price           1         LSUM         \$ 52,087           1         LSUM         \$ 49,606           1         LSUM         \$ 10,000           0.5         ACRE         \$ 7,700.00           1         LSUM         \$ 165,000.00           1         EACH         \$ 77,000.00           1         EACH         \$ 77,000.00           5         EA         \$ 3,795.00           5         EA         \$ 1,188.00           602         LFT         \$ 154.00           1085         LFT         \$ 154.00           6         EA         \$ 334.40           300         LFT         \$ 495.00           1         LSUM         \$ 6,600.00           2000         CYD         \$ 27.50           500         SYD         \$ 16.50           2540         SY         \$ 20           210         TON         \$ 228           210         TON         \$ 213           1         EA         \$ 928	Quantity         Unit         Unit Price           1         LSUM         \$ 52,087         \$           1         LSUM         \$ 49,606         \$           1         LSUM         \$ 10,000         \$           1         LSUM         \$ 22,000.00         \$           0.5         ACRE         \$ 7,700.00         \$           1         LSUM         \$ 165,000.00         \$           1         EACH         \$ 77,000.00         \$           5         EA         \$ 33,000.00         \$           5         EA         \$ 3,795.00         \$           5         EA         \$ 1,188.00         \$           6         EA         \$ 1,188.00         \$           6         EA         \$ 334.40         \$           1085         LFT         \$ 154.00         \$           6         EA         \$ 334.40         \$           300         LFT         \$ 495.00         \$           1         LSUM         \$ 6,600.00         \$           2000         CYD         \$ 27.50         \$           500         SYD         \$ 16.50         \$           2540 <td< td=""></td<>

Total Estimated Cost ==> \$ 1,098,049

Construction Contingency ==> \$ 219,610

Total Construction Cost ==> \$ 1,317,658
Engineering, Construction, and Admin ==> \$ 263,532

Total Estimated Project Cost ==> \$ 1,581,190

Total Construction Cost ==> \$ 6,800,048
Engineering, Construction, and Admin ==> \$ 1,360,010

Total CSWRF Project Cost ==> \$ 8,160,058

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20	\$ -		
20	\$ -		

Subtotals==> \$

	Salvage Value		
Service Life	at 2043	OM&R	Description
20	\$ -		
20	\$ -		
20			
20			
20			
30	\$ 55,000.00		
30	\$ 25,666.67		
20	\$ -		
50	\$ 11,385.00		
50			
50			
50	\$ 100,254.00		
50			
50			
20			
20			
20			
20			
20			
20			
20			
20			
20	\$ -		
	·	_	

Subtotals==> \$ 262,794.84

## Appendix E

## **Manhole Structural Integrity Documentation**

Manhole Structural Integrity Form

Manhole Structural Integrity Map – North of M-64

Manhole Structural Integrity Map – South of M-64

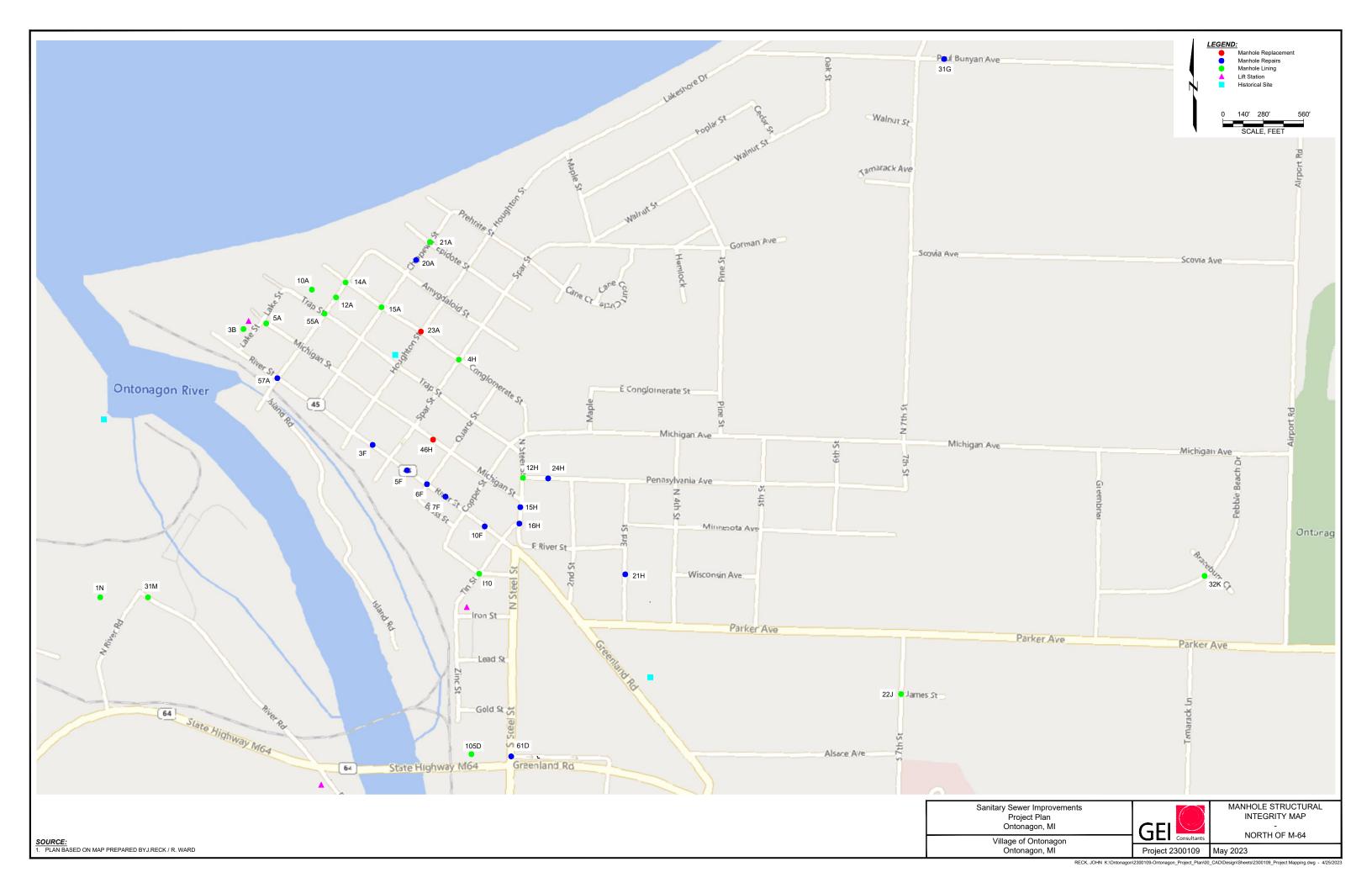
Manhole Structural Inspection Reports

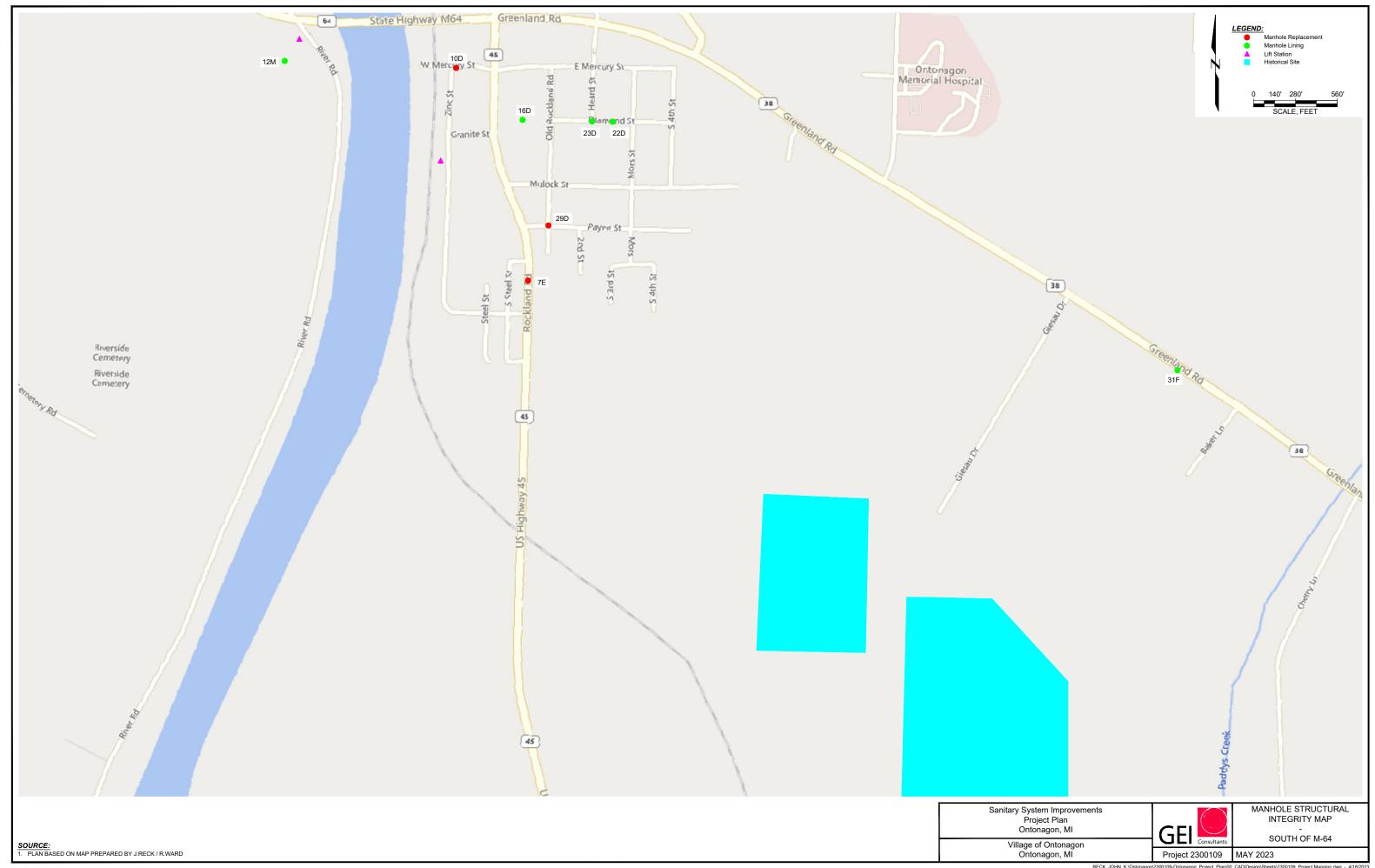
### EGLE - Manhole Structural Integrity Form

		NASSCO MACP	Year	Consequence of Failure, per Asset	Probability of Failure, per Asset		Justification of need (required for non-NASSCO
Manhole		Structural	Constructed,	-	•	Types of Structural Defects Found	structural 4 or 5 rated
reference/ID*	Street Location*	Rating*	if Known	if applicable	applicable	(O&M defects are not eligible)	manholes)*
10F	River St.	5231	1952	• •			
105D	North of M-64	5141					
3F	River St.	5141	1952				
7E	US-45	5141	1952				
110	Tin St.	5131	1952				
31G	Paul Bunyan Ave.	5123	1968				
31M	River Rd.	5121					
61D	Steel St.	5100	1952				
46H	Michigan St.	4233	1952				
5A	Lakefront St.	4231	1952				
16H	N Steel St.	4231	1952				
1N	N River Rd.	4200	1975				
14A	Ontonagon St.	4139	1952				
24H	Pennsylvania Ave.	4133	1952				
12A	Ontonagon St.	4133	1952				
15A	Chippewa St.	4133	1952				
22D	Diamond St.	4132	1997				
6F	River St.	4132	1956				
15H	N Steel St.	4132	1997				
10D	Mercury St.	4132	1957				
55A	Trap St.	4132	1952				
4H	Spar St.	4132	1952				
32K	Pebble Beach Dr.	4131	1970				
29D	Payne St.	4131	1952				
22J	S 7th St.	4131	1997				
21A	Epidote St.	4131	1952				
5F	River St.	4131	1952				
7F	River St.	4131	1952				
20A	Chippewa St.	4131	1952				
16D	Alley off of Mercury St.	4131	1952				
12H	Pennsylvania Ave.	4128	1952				
57A	Ontonagon St.	4128	1952				
23A	Houghton St.	4125	1952				
12M	Old WWTP Lift Station	4124	1992				
31F	Greenland Rd.	4121	1997				
23D	Diamond St.	4100	1997				
21H	3rd St.	4100	1952				

### EGLE - Manhole Structural Integrity Form

		NASSCO MACP	Year	Consequence of Failure, per Asset	Probability of Failure, per Asset		Justification of need (required for non-NASSCO
Manhole		Structural	Constructed,	Management Plan,	Management Plan, if	<b>Types of Structural Defects Found</b>	structural 4 or 5 rated
reference/ID*	Street Location*	Rating*	if Known	if applicable	applicable	(O&M defects are not eligible)	manholes)*
3B	Lakefront St.	4100	1992				
10A	Trap St.	4100	1952				





# **MACP Survey Report** 10F

Sheet No 361	Surveyor's n	ame LJF	Certificate Number	U-0417-0700754	<b>Date</b> 2017/08/03			
System Owner			Survey Customer		<b>Time</b> 09:57			
Drainage Area			Locality/City Name	ONTONAGON				
P.O. No		L	ocation (No. & Name)	RIVER ST WEST OF	TIN ST			
Further Location D	<b>Details</b> M	IDDLE OF ROAD		Insp	pection Level Level 1			
Outgoing Rim to In	nvert	Ou	tgoing Grade to Invert	F	Rim to Grade			
Use of Sewer	Sanitary	Year Laid	Year Rehabilitated	Tape/M	edia Number			
Purpose Capital	mprovement Program	Assessment		Sev	ver Category			
Pre-Cleaning			Date Cleaned		Weather			
<b>Location Code</b>	Light Highway	/	Potential for Runoff	Evidence of	of Surcharge No			
Access Point Type	e Manhole		Coordinat	e System				
Northing		Easting	Elevation	Accı	uracy of GPS			
Inspection Status	Remote Inspe	ection						
Additional Informa	tion CMU CONE AN	D WALL, WALL IS	CONICAL					
Manhole Surface 1	ypes							
Concrete Pav	ement Cor	crete Collar	Asphalt 🗸	Grass/Dirt	Gravel Other			
Cover	Cover Shape (	Circular		# of	Vent Holes 0			
	Cover Size	26.0		Vent Ho	le Diameter			
	Cover Size Width		Cover	Bearing Surface Diar	neter Width			
	Cover Material	Cast Iron	Cover Bearing Surface Diameter					
	Cover Frame Fit	Good						
	Cover Type		Co	ver Condition				
	✓ Solid	Bolted		Sound Mis	sing			
	☐ Vented/Slots	Locking		=	roded/Pitted			
	Gasketed	Lamphole		=	ts Missing			
	Hatch Single	☐ Inner Cove	r     <u> </u>	Restraint Missing				
	Hatch Double			Restraint Defective				
				•				
Cover Insert			Co	ver Insert Condition				
			│	ound	Leaking			
	Cover Inse	ert Type None	Po	oorly Fitting	Corroded			
				acked/Torn/Holes	☐ Insert Fell			



Sheet No 361	Survey Date 2017/08/03	08/03 <b>P.O. No</b>						
Location (No. & Na	ame) RIVER ST WEST OF TIN ST	Inspection Level 1						
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection						
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring						
	MILA divetorant Diver Metaviel	Sound Corroded/Pitted/Worn						
	MH Adjustment Ring Material	☐ Cracked ☐ Leaking						
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation						
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.						
	Frame Bearing Surface Width	Frame Depth 6.0 in.						
	Frame Bearing Surface Depth	Frame Seal Inflow None						
	Frame Clear Opening Diameter							
	Frame Condition	Frame Seal Condition						
	Sound Missing	✓ Sound						
	Cracked Corroded/Pitted/Worn	☐ Cracked						
	☐ Broken ☐ Coated	Missing Offset						
Chimney	Chimney Material 1 Concrete (reinforced)	Interior Chimney Coating/Liner						
	Chimney Material 2 Brick	Exterior Chimney Coating/Liner						
	Chimney Clear Opening	Chimney I/I None						
	Chimney Depth 1.8 ft.							
Cone	Cone Type Conical centered	Cone Depth 4.3 ft.						
	Exterior Cone Coating/Liner	Cone Material Other						
	Interior Cone Coating/Liner							
	interior cone coating times							
Wall	Wall Diameter 1 45 in.	Wall Depth 4.3 ft.						
	Wall Diameter 2	Interior Wall Coating/Liner						
	Wall Material Other	Exterior Wall Coating/Liner						
Bench	Bench Present Partial							
	Bench Material Not Known							
	Bench Coating/Liner							
Channel/Step	Channel	Step						
	Channel Material Not Known	# Steps 1						
	Channel Type Formed	'						
	Channel Exposure Fully Opened	Cton Motorial Motol						
	Channel Installed Not Known	Step Material Metal						



Sheet No 361 **Survey Date** 2017/08/03

P.O. No RIVER ST WEST OF TIN ST Location (No. & Name) Inspection Level Level 1 Locality/City Name ONTONAGON Inspection Status Remote Inspection

Pipe	Connections

Num	-	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR		
_	6	4.9 ft.	Out	AC	С	12 in.		s	S	GR			
1		Comme	nts										
2	11	4.7 ft.	In	СР	С	6 in.		s	s	LB			
2		Comments											
3	12	4.9 ft.	In	AC	С	12 in.		s	s	GR			
3		Comme	nts										
4	4	4.7 ft.	In	VCP	С	6 in.		s	s	LB			
4		Comme	nts										

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.6.4		CMI	SAP							10	7	
0.6 ft.	R	emarks							•	•		
0.9 ft.		СМІ	SRV							10	12	
0.911.	R	emarks										
0.9 ft.		CMI	SRV							6		
0.911.	R	emarks										
1.0 ft.		CMI	ММС									
1.0 11.	R	emarks	CR TC	BR								
1.0 ft.		СМІ	MMS	S01						12	12	
1.0 11.	R	emarks										
3.0 ft.		COI	IW							12	12	
3.0 11.	R	emarks										
4.2 ft.		В	OBB				5			1	3	
Remarks												
4.3 ft.		В	OBB				5			7	10	
4.5 II.	R	emarks										



# MACP Survey Report 105D

Sheet No 399	Surveyor's name LJF	Certificate Number U-0417-0	7700754: <b>Date</b> 2017/08/04
System Owner		Survey Customer	<b>Time</b> 15:38
Drainage Area		Locality/City Name ONTONA	AGON
P.O. No		Location (No. & Name) ZINC ST	AT BRIDGE
Further Location D	etails EAST OF ZINC ST II	N GRASS NORTH OF BRIDGE	Inspection Level 1
Outgoing Rim to In	overt Ou	tgoing Grade to Invert	Rim to Grade
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Number
Purpose Capital I	mprovement Program Assessment		Sewer Category
Pre-Cleaning		Date Cleaned	Weather
Location Code	Other	Potential for Runoff	Evidence of Surcharge No
Access Point Type	Manhole	Coordinate System	
Northing	Easting	Elevation	Accuracy of GPS
Inspection Status	Remote Inspection		
Additional Informa	tion NO CHIMNEY, CMU CONE AND N	VALL	
Manhole Surface T	ypes		
Concrete Pave	ement Concrete Collar	Asphalt Grass	/Dirt ☑ Gravel ☐ Other ☐
Cover	Cover Shape Circular		# of Vent Holes 0
	Cover Size 23.0		Vent Hole Diameter
	Cover Size Width	Cover Bearing	Surface Diameter Width
	Cover Material Cast Iron	_	earing Surface Diameter
	Cover Frame Fit Good		•
	Cover Type	Cover Cond	ition
	✓ Solid Bolted	✓ Sound	Missing
	☐ Vented/Slots ☐ Locking	Cracked	
	Gasketed Lamphole	Broken	Bolts Missing
	Hatch Single Inner Cove		nt Missing
	Hatch Double		nt Defective
	- Tracer Bouble		R Defective
Cover Insert		Cover Insert	Condition
		☐ Sound	☐ Leaking
	Cover Insert Type None	Poorly Fitti	
		Cracked/To	· =



Sheet No 399	Survey Date 2017/08/04	P.O. No					
Location (No. & Na	ame) ZINC ST AT BRIDGE	Inspection Level 1					
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection					
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring					
	Mil Adjustment King Type None	Sound Corroded/Pitted/Worn					
	MH Adjustment Ring Material	☐ Cracked ☐ Leaking					
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation					
	l						
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.					
	Frame Bearing Surface Width	Frame Depth 9.0 in.					
	Frame Bearing Surface Depth	Frame Seal Inflow None					
	Frame Clear Opening Diameter						
	Frame Condition	Frame Seal Condition					
	Sound Missing	Sound Loose/Not Attached					
	Cracked Corroded/Pitted/Worn	Cracked					
	☐ Broken ☐ Coated	☐ Missing ☐ Offset					
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner					
	Chimney Material 2	Exterior Chimney Coating/Liner					
	Chimney Clear Opening	Chimney I/I None					
	Chimney Depth						
Cone	Cone Type Conical centered	Cone Depth 2.8 ft.					
	Exterior Cone Coating/Liner	Cone Material Other					
	Interior Cone Coating/Liner						
	micro Jone Joanny Line						
Wall	Wall Diameter 1 48 in.	Wall Depth 10.6 ft.					
	Wall Diameter 2	Interior Wall Coating/Liner					
	Wall Material Other	Exterior Wall Coating/Liner					
	Wall Material Other	Exterior wan Coating/Liner					
Bench	Bench Present Yes						
	Bench Material Concrete (non-reinforced)						
	,						
	Bench Coating/Liner						
Channel/Step	Channel	Step					
•	Channel Material Concrete (non-reinforced)	# Steps 6					
	Channel Type Formed						
	Channel Exposure Fully Opened	Other Maderial Madel					
	Channel Installed Yes	Step Material Metal					



# MACP Survey Report 105D

**Report Date** 2018/11/07

P.O. No

**Sheet No** 399 **Survey Date** 2017/08/04

Location (No. & Name)ZINC ST AT BRIDGEInspection Level Level 1Locality/City NameONTONAGONInspection Status Remote Inspection

#### **Pipe Connections**

Num	-	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	11.4 ft.	Out	XXX	С	10 in.		s	S	GR	
'	Comments										
2	1	11.4 ft.	In	XXX	С	10 in.		s	s	GR	
2		Comme	nts		•	•	•	•			

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
1.0 ft.		COI	MMM							3	4	
1.0 11.	Re	emarks										
1.4 ft.		COI	DB							6		
1.4 11.	Re	emarks										
1.8 ft.		COI	HSV							4		
1.0 11.	Re	emarks										
1.8 ft.		COI	МВ							4	5	
1.0 11.	Remarks											
10.6 ft.		В	ОВВ				5			12	12	
10.6 11.	Re	emarks										



# **MACP Survey Report** 3F

Sheet No 352	Surveyor's name LJF	Certificate Number	U-0417-0700754	Date 2017/08/02
System Owner		Survey Customer		<b>Time</b> 16:07
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name)	RIVER ST EAST OF HO	DUGHTON ST
Further Location De	etails MIDDLE OF ROAD		Inspe	ction Level Level 1
Outgoing Rim to Inv	vert O	utgoing Grade to Invert	Ri	m to Grade
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Med	dia Number
Purpose Capital In	nprovement Program Assessment		Sewe	er Category
Pre-Cleaning		Date Cleaned		Weather
Location Code	Light Highway	Potential for Runoff	Evidence of	Surcharge No
Access Point Type	Manhole	Coordinat	e System	
Northing	Easting	Elevation	Accur	acy of GPS
Inspection Status	Remote Inspection			
Additional Informat	ion STORM COVER, NO CONE			
Manhole Surface Ty	/pes			
Concrete Pave		Asphalt 🗸	Grass/Dirt	Gravel Other
		/tophalt w	0.000,2	
Cover	•		<i>"</i>	
	Cover Shape Circular			ent Holes 24
	Cover Size 22.0			Diameter
	Cover Size Width	Cover	Bearing Surface Diame	
	Cover Material Cast Iron		Cover Bearing Surface	Diameter
	Cover Frame Fit Good			
( [	Cover Type	Co	ver Condition	
	Solid Bolted		Sound Missi	ng
	✓ Vented/Slots		Cracked Corro	oded/Pitted
	Gasketed Lamphole	·     _	Broken Bolts	Missing
	☐ Hatch Single ☐ Inner Cov	er 🗆	Restraint Missing	
	Hatch Double		Restraint Defective	
L				
<b>Cover Insert</b>		Co	ver Insert Condition	
	Cover Incert Tune Name	<u>□</u> so	ound	Leaking
	Cover Insert Type None	Po	oorly Fitting	Corroded
		☐ Cr	acked/Torn/Holes	☐ Insert Fell
		· · · · · · · · · · · · · · · · · · ·		



Sheet No 352	Survey Date 2017/08/02	P.O. No						
Location (No. & Nam	ne) RIVER ST EAST OF HOUGHTON ST	Inspection Level 1						
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection						
Adj. Ring	IH Adjustment Ring Type None	MH Adjustment Ring						
		Sound Corroded/Pitted/Worn						
IVI	IH Adjustment Ring Material	☐ Cracked ☐ Leaking						
М	IH Adjustment Ring Height	☐ Broken ☐ Poor Installation						
Frame F	rame Material Cast Iron	Frame Offset Distance 0 in.						
Fi	rame Bearing Surface Width	Frame Depth 8.5 in.						
Fi	rame Bearing Surface Depth	Frame Seal Inflow None						
Fi	rame Clear Opening Diameter							
Fi	rame Condition	Frame Seal Condition						
[	✓ Sound	✓ Sound						
	Cracked Corroded/Pitted/Worn	☐ Cracked						
[	☐ Broken ☐ Coated	☐ Missing ☐ Offset						
Chimney C	Chimney Material 1 Brick	Interior Chimney Coating/Liner						
С	Chimney Material 2	Exterior Chimney Coating/Liner						
	chimney Clear Opening	Chimney I/I None						
С	Chimney Depth 2.0 ft.							
Cone C	cone Type Conical centered	Cone Depth						
E	xterior Cone Coating/Liner	Cone Material Other						
In	nterior Cone Coating/Liner							
•••								
Wall <sub>W</sub>	Vall Diameter 1 35 in.	Wall Depth 7.7 ft.						
w	Vall Diameter 2	Interior Wall Coating/Liner						
w	Vall Material Brick	Exterior Wall Coating/Liner						
Bench B	ench Present Yes							
В	ench Material Brick							
В	ench Coating/Liner							
Channel/Step c	Channel	Step						
	Channel Material Brick	# Steps 0						
	Channel Type Formed							
	Channel Exposure Fully Opened	Ston Material						
	Channel Installed Yes	Step Material						



P.O. No

**Sheet No** 352 **Survey Date** 2017/08/02

 Location (No. & Name)
 RIVER ST EAST OF HOUGHTON ST
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

#### **Pipe Connections**

Num	_	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR		
1	6	8.5 ft.	Out	VCP	С	12 in.		S	S	GR			
		Comme	nts										
2	9	8.0 ft.	In	VCP	С	8 in.		s	s	GR			
		Comments POSSIBLE LATERAL OR ABANDONED, NOT SHOWN IN GIS											
2	12	8.4 ft.	In	VCP	С	12 in.		s	s	GR			
3	3 Comments												
4	3	7.9 ft.	In	VCP	С	6 in.		S	s	LB			
4		Comme	nts										

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
1.0 ft.		СМІ	МВ							5	7	
1.0 11.	Re	emarks										
1.1 ft.		СМІ	MMS							7	5	
1.111.	Re	emarks						•	•			
1.2 ft.		СМІ	Н							5	7	
1.2 11.	Re	emarks										
2.0 ft.		WI	MMS							4	7	
2.0 II.	Re	emarks						•	•			
8.5 ft.		С	DSGV				10			12	12	
0.0 II.	Re	emarks										
9.1 ft.		С	ОВВ				5			6		
9.1 II.	Re	emarks										



# MACP Survey Report 7E

Sheet No 75	Surveyor's name LJF	Certificate Number U-0417	7-0700754! <b>Date</b> 2017/05/12
System Owner		Survey Customer	<b>Time</b> 10:31
Drainage Area		Locality/City Name ONTO	NAGON
P.O. No	ı	Location (No. & Name) 45 NO	RTH OF SLATE ST
Further Location D	<b>Details</b> EAST SHOULDER S	OUTH OF SANDSTONE ST	Inspection Level 1
Outgoing Rim to In	nvert Ou	tgoing Grade to Invert	Rim to Grade
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Number
Purpose Capital	mprovement Program Assessment		Sewer Category
Pre-Cleaning		Date Cleaned	Weather
<b>Location Code</b>	Easement/Right of Way	Potential for Runoff	Evidence of Surcharge No
Access Point Type	e Manhole	Coordinate Syste	em
Northing	Easting	Elevation	Accuracy of GPS
Inspection Status	Remote Inspection		
Additional Informa	tion PARTIAL BLOCK CHIMNEY		
Manhole Surface 1	vpes		
Concrete Pav		Asphalt Gra	ss/Dirt 🗸 Gravel 🗌 Other 🗍
Concrete i av	ement concrete conai	Aspirati 🔲 Gra	SIDIIL GIAVEI UIII
Cover			
30731	Cover Shape Circular		# of Vent Holes 0
	Cover Size 24.0		Vent Hole Diameter
	Cover Size Width		g Surface Diameter Width
	Cover Material Cast Iron	Cover	Bearing Surface Diameter
	Cover Frame Fit Good		
	Cover Type	Cover Cor	ndition
	✓ Solid ☐ Bolted	<b>✓</b> Sound	d Missing
	☐ Vented/Slots ☐ Locking	☐ Crack	ed Corroded/Pitted
	Gasketed Lamphole	☐ Broke	n Bolts Missing
	☐ Hatch Single ☐ Inner Cove	r Restr	aint Missing
	Hatch Double	Restr	aint Defective
<b>Cover Insert</b>		Cover Ins	ert Condition
	Course Income Towns No.	☐ Sound	Leaking
	Cover Insert Type None	Poorly Fi	tting Corroded
		Cracked/	Torn/Holes Insert Fell
			_



Sheet No 75	Survey Date 2017/05/12	P.O. No
Location (No. & Na	ame) 45 NORTH OF SLATE ST	Inspection Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
	Min Adjustment King Type None	Sound Corroded/Pitted/Worn
	MH Adjustment Ring Material	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 6.1 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	✓ Sound
	Cracked Corroded/Pitted/Worn	☐ Cracked
	☐ Broken ☐ Coated	Missing Offset
Chimney	Chimney Material 1 Concrete (reinforced)	Interior Chimney Coating/Liner
	Chimney Material 2 Other	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
		· · · · · · · · · · · · · · · · · · ·
	Chimney Depth 1.3 ft.	
Cone	Cone Type Conical centered	Cone Depth 4.0 ft.
	Exterior Cone Coating/Liner	Cone Material Brick
	Interior Cone Coating/Liner	
	•	
Wall	Wall Diameter 1 38 in.	Wall Depth 5.5 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Brick	Exterior Wall Coating/Liner
		· ·
Bench	Bench Present Yes	
	Bench Material Concrete (non-reinforced)	
	Bench Coating/Liner	
	<u>-</u>	
Channel/Step	Channel	Step
	Channel Material Concrete (non-reinforced)	#Steps 0
	Channel Type Formed	
	Channel Exposure Fully Opened	Step Material
	Channel Installed Yes	Stop material



P.O. No

**Sheet No** 75 **Survey Date** 2017/05/12

 Location (No. & Name)
 45 NORTH OF SLATE ST
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

#### **Pipe Connections**

	_	Rim to									
Num	Pos	invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	5.9 ft.	Out	XXX	С	10 in.		S	D	GR	
'		Comme	nts T	AP ROOTS	3						
0	10	5.8 ft.	In	VCP	С	8 in.		S	D	GR	
2		Comme	nts T	AP ROOTS	3	•					
0	3	2.9 ft.	In	PE	С	4 in.		s	s	LB	
3		Comme	nts	<u>'</u>	•		•				

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.04		СМІ	SAM							8	5	
0.6 ft.	F	Remarks			•			•		•		
0.7.0		СМІ	MML							12	12	
0.7 ft.	F	Remarks										
4.4.0		СМІ	SRC							12	2	
1.1 ft.	F	Remarks			•			•		•		
4.0.4		COI	MMS							12	12	
1.9 ft.	F	Remarks						•		•		
10#		COI	SSS							12	12	
1.9 ft.	F	Remarks		•	•			•	•	•		
2.4.#		COI	RTB				10			9	10	
3.1 ft.	F	Remarks										
4.3 ft.		WI	RTB				5			6	7	
4.3 II.	F	Remarks		•	•			•	•	•		
5.4 ft.		В	RTJ		J		5			2	9	
3.4 II.	F	Remarks										
5.5 ft.		С	RTC				10			6		
J.J II.	F	Remarks										
5.7 ft.		С	DSF				20			6		
J. I II.	F	Remarks	ACCU	MULA	TING	BEH	IND	TAPF	ROOTS			



# MACP Survey Report 110

Sheet No 345	Surveyor's name LJF	Certificate Number	U-0417-0700754	Date 2017/08/02
System Owner		Survey Customer		<b>Time</b> 13:54
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name)	BRASS ST AT TIN ST	
Further Location [	Details EAST SIDE OF	ROAD	Inspection Le	evel Level 1
Outgoing Rim to I	nvert	Outgoing Grade to Invert	Rim to Gra	ade
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Num	ber
Purpose Capital	Improvement Program Assessment		Sewer Categ	jory
Pre-Cleaning		Date Cleaned	Weat	ther
<b>Location Code</b>	Light Highway	Potential for Runoff	Evidence of Surcha	rge No
Access Point Type	• Manhole	Coordinate	e System	
Northing	Easting	Elevation	Accuracy of C	GPS .
Inspection Status	Remote Inspection			
Additional Informa	ation NO CHIMNEY			
Manhole Surface	Types			
Concrete Pay	_	☐ Asphalt ✓	Grass/Dirt Gravel	Other
Concrete i av	ement concrete contai	Aspirant 🛂	Glass/blit Glavel	Other [
Cover		Good Coo	# of Vent Hol  Vent Hole Diamet Bearing Surface Diameter Wid Cover Bearing Surface Diamet  ver Condition  Sound Missing Cracked Corroded/Pit Broken Bolts Missing Restraint Missing Restraint Defective	ter Ith ter
Cover Insert	Cover Insert Type Nor	ne So	oorly Fitting Co	aking rroded ert Fell



Sheet No 345	Survey Date 2017/08/02	P.O. No
Location (No. & Na	ame) BRASS ST AT TIN ST	Inspection Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
		Sound Corroded/Pitted/Worn
	MH Adjustment Ring Material	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 4.0 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	✓ Sound
	☐ Cracked ☐ Corroded/Pitted/Worn	Cracked
	☐ Broken ☐ Coated	☐ Missing ☐ Offset
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner
,		
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth	
Cone	Cone Type Conical centered	Cone Depth 3.7 ft.
	Exterior Cone Coating/Liner	Cone Material Concrete (reinforced)
	Interior Cone Coating/Liner	
	<b>3</b>	
Wall	Wall Diameter 1 47 in.	Wall Depth 4.1 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Concrete (reinforced)	Exterior Wall Coating/Liner
	Consists (terms recay)	Zatorior Wall Godding, Zino.
Bench	Bench Present Yes	
	Bench Material Concrete (non-reinforced)	
	Bench Coating/Liner	
Channel/Step	Channel	Step
-	Channel Material Concrete (non-reinforced)	# Steps 3
	Channel Type Formed	
	Channel Exposure Fully Opened	Chan Material Disetie
	Channel Installed Yes	Step Material Plastic



# **MACP Survey Report** 110

# **Report Date** 2018/11/07

P.O. No

**Sheet No** 345 **Survey Date** 2017/08/02

 Location (No. & Name)
 BRASS ST AT TIN ST
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

#### Pipe Connections

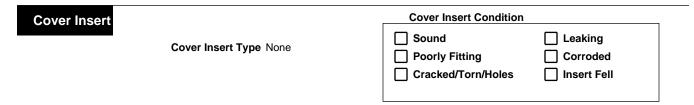
Num		Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	4.9 ft.	Out	RPM	С	8 in.		s	s	GR	
		Comme	nts								
2	12	4.8 ft.	In	VCP	С	8 in.		s	s	GR	
2		Comme	nts								
2	3	4.8 ft.	In	PVC	С	8 in.		s	s	GR	
3		Comme	nts					•	•		

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.4 ft.		COI	cs							1	3	
0.4 11.	Re	marks	THROI	JGH L	IFT H	OLE	ΑN	D TAP I	PATCH			
2.4 ft.		COI	СМ							7	8	
2.4 11.	Re	marks	AT TA	PAT	СН							
2.5 ft.		COI	SRVM							4		
2.5 11.	Re	marks										
4.3 ft.		В	OBZ				5			8		
4.3 11.	Re	marks	CLOTH	IING								
5.6 ft.		С	OBZ				20			1		
5.0 it.	Re	marks	PIECE	OF W	OOD							



**MACP Survey Report 31G** Report Date 2018/11/07 Sheet No 238 Surveyor's name LMF Certificate Number U-416-07003735 Date 2017/06/14 **System Owner Survey Customer** Time 11:33 **Drainage Area** Locality/City Name ONTONAGON P.O. No Location (No. & Name) PAUL BUNYAN AVE EAST OF 7TH STREET INTERSECTION **Further Location Details** Inspection Level Level 1 **Outgoing Rim to Invert Outgoing Grade to Invert** Rim to Grade Year Rehabilitated Use of Sewer Year Laid Tape/Media Number Sanitary Purpose Capital Improvement Program Assessment **Sewer Category Date Cleaned Pre-Cleaning** Weather **Location Code Potential for Runoff** Light Highway Evidence of Surcharge No **Access Point Type** Manhole **Coordinate System Northing Easting** Elevation **Accuracy of GPS** 

Inspection Status	Remote	Inspection				
Additional Informa	ation BLOCK CH	HIMNEY				
Manhole Surface	Types					
Concrete Pav	/ement	Concrete Collar	Asphalt 🗸	Grass/Dirt	Gravel 🗌	Other (
Cover	Cover Shape	Circular		#	of Vent Holes 1	
	Cover Size	23.0		Vent I	Hole Diameter	
	Cover Size Wid	th	Co	ver Bearing Surface Di	ameter Width	
	Cover Material	Cast Iron		Cover Bearing Sur	face Diameter	
	Cover Frame Fi	it Good				
	Cover Type			Cover Condition		
	☐ Solid	☐ Bolted		✓ Sound	lissing	
	✓ Vented/Slo	ts Locking		Cracked C	orroded/Pitted	
	☐ Gasketed	Lamphole		☐ Broken ☐ B	olts Missing	
	☐ Hatch Sing	le Inner Cover		Restraint Missing		
	Hatch Dou	ble		Restraint Defective	e	





PipeLogix Inc. Phone:866-299-3150 Fax:760-406-6023

**Sheet No** P.O. No 238 Survey Date 2017/06/14 Location (No. & Name) PAUL BUNYAN AVE EAST OF 7TH STREET Inspection Level Level 1 INTERSECTION Locality/City Name **ONTONAGON** Inspection Status Remote Inspection Adj. Ring MH Adjustment Ring Type None MH Adjustment Ring Corroded/Pitted/Worn Sound MH Adjustment Ring Material Cracked Leaking MH Adjustment Ring Height Broken **Poor Installation Frame Frame Material** Cast Iron Frame Offset Distance 0 in. Frame Bearing Surface Width Frame Depth 9.0 in. Frame Bearing Surface Depth Frame Seal Inflow None Frame Clear Opening Diameter Frame Condition Frame Seal Condition ✓ Sound Missing **✓** Sound Loose/Not Attached Cracked Corroded/Pitted/Worn ☐ Cracked ☐ Broken ☐ Coated Missing Offset Chimney **Chimney Material 1** Concrete (reinforced) Interior Chimney Coating/Liner **Chimney Material 2** Other **Exterior Chimney Coating/Liner Chimney Clear Opening** Chimney I/I None **Chimney Depth** 4.2 ft. Cone **Cone Type** Conical centered Cone Depth 6.7 ft. **Exterior Cone Coating/Liner** Cone Material Concrete (reinforced) Interior Cone Coating/Liner Wall Wall Diameter 1 47 in. **Wall Depth** 14.3 ft. **Wall Diameter 2** Interior Wall Coating/Liner **Wall Material** Concrete (reinforced) **Exterior Wall Coating/Liner Bench Bench Present** Yes **Bench Material** Concrete (non-reinforced) **Bench Coating/Liner** Channel/Step Channel Step # Steps 7 Channel Material Concrete (non-reinforced) Channel Type Formed **Channel Exposure** Fully Opened Step Material Metal Channel Installed Yes



# **MACP Survey Report** 31G

**Report Date** 2018/11/07

P.O. No

**Sheet No** 238 **Survey Date** 2017/06/14

Location (No. & Name) PAUL BUNYAN AVE EAST OF 7TH STREET Inspection Level Level 1

INTERSECTION

Locality/City Name ONTONAGON Inspection Status Remote Inspection

# **Pipe Connections**

Num	_	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	14.3 ft.	Out	RPM	С	12 in.		s	S	GR	
'		Comme	nts								
2	12	14.3 ft.	In	RPM	С	12 in.		s	s	GR	
2		Comme	nts								

Distance \	/id Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
1.6 ft.		СМІ	MMS							12	12	
1.6 π.	R	emarks						•				
3.5 ft.		СМІ	MMS							12	12	
3.5 11.	R	emarks							•			•
4.2 ft.		COI	СС							7	8	
4.2 11.	R	emarks										
6.7 ft.		COI	SRV							6		
0.7 11.	R	emarks										
6.7 ft.		COI	ID							6		
0.7 11.	R	emarks										
8.3 ft.		WI	CL							1		
0.3 11.	R	emarks										



# **MACP Survey Report** 31M

Sheet No 50	Surveyor's name LMF	Certificate Number	U-416-07003735 <b>Da</b>	ate 2017/05/10
System Owner		Survey Customer	Tir	<b>ne</b> 13:09
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name)	N RIVER ROAD	
Further Location D	etails		Inspection Level	Level 1
Outgoing Rim to In	vert	Outgoing Grade to Invert	Rim to Grade	
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Number	
Purpose Capital I	mprovement Program Assessment		Sewer Category	
Pre-Cleaning		Date Cleaned	Weather	
Location Code	Easement/Right of Way	Potential for Runoff	Evidence of Surcharge	No
Access Point Type	Manhole	Coordinate	e System	
Northing	Easting	Elevation	Accuracy of GPS	
Inspection Status	Surcharged/Debris			
Additional Informa	tion NO CHIMNEY, SURCHARGE	:D		
Manhole Surface T	vpes			
Concrete Pave		Asphalt	Grass/Dirt ✓ Gravel	Other 🗍
00110101011				, •
Cover	Cover Type   ✓ Solid	Good Cor	# of Vent Holes Vent Hole Diameter Bearing Surface Diameter Width Cover Bearing Surface Diameter  ver Condition    Sound	
Cover Insert	Cover Insert Type Non	e So	ver Insert Condition  Dund Leakin  Dorly Fitting Corrod  Cacked/Torn/Holes Insert	led



# **MACP Survey Report** 31M

Sheet No 50		Survey Date 2017/05/1	P.O. No					
Location (No. & Na	ame) N F	RIVER ROAD	Inspection Level Level 1					
Locality/City Name		ITONAGON	Inspection Status Surcharged/Debris					
200amy/Only Hami			moposion status caronargear sessio					
Adj. Ring	MH Adjustment MH Adjustment MH Adjustment	_	MH Adjustment Ring Sound Corroded/Pitted/Worn Cracked Leaking Broken Poor Installation					
Frame	Frame Material	Cast Iron	Frame Offset Distance 5 in.					
	Frame Bearing S	Surface Width	Frame Depth 7.0 in.					
	Frame Bearing S		Frame Seal Inflow None					
	Frame Clear Ope	ening Diameter						
	Frame Condition	n	Frame Seal Condition					
	Sound	Missing	Sound Loose/Not Attached					
	Cracked	Corroded/Pitted/Worn	Cracked					
	Broken	☐ Coated	☐ Missing ☐ Offset					
			missing onset					
Chimney	Chimney Materia	al 1 Other	Interior Chimney Coating/Liner					
	Chimney Materia	al 2	Exterior Chimney Coating/Liner					
	Chimney Clear (	Opening	Chimney I/I None					
	Chimney Depth	0.0 ft.						
Cone	Cone Type	Conical off centered	Cone Depth 3.0 ft.					
	<b>Exterior Cone C</b>	oating/Liner	Cone Material Concrete (reinforced)					
	Interior Cone Co	oating/Liner						
Wall	Wall Diameter 1	46 in.	Wall Depth 4.4 ft.					
	Wall Diameter 2		Interior Wall Coating/Liner					
	Wall Material	Concrete (reinforced)	Exterior Wall Coating/Liner					
Bench	Bench Present	Yes						
	Bench Material	Not Known						
	Bench Coating/I							
Channel/Step	Channel		Step					
	Channel Mater	ial	#Steps 3					
	Channel Type	<del></del>	"   "   "   "   "   "   "   "   "					
	Channel Expos	cura						
	Channel Install		Step Material Metal					
	Gilainiei ilistali	INOUTHIOWIT						



# **MACP Survey Report** 31M

**Report Date** 2018/11/07

**Sheet No** 50 **Survey Date** 2017/05/10 **P.O. No** 

Location (No. & Name)N RIVER ROADInspection Level Level 1Locality/City NameONTONAGONInspection Status Surcharged/Debris

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
1.0 ft.		COI	CL							11		
1.0 11.	R	Remarks										
1.3 ft.		COI	SRV							1		
1.311.	R	Remarks										
2.6 ft.		COI	IS							5		
2.0 Il.	R	Remarks										



# MACP Survey Report 61D

Sheet No 378	Surveyor's name LJF	Certificate Number U-041	7-0700754: <b>Date</b> 2017	/08/03
System Owner		Survey Customer	Time 14:01	Ì
Drainage Area		Locality/City Name ONTO	NAGON	
P.O. No		Location (No. & Name) S STE	EL ST AT 38	
Further Location D	etails CROSSWALK NOR	TH SIDE OF INTERSECTION	Inspection Level Level 1	
Outgoing Rim to In	vert O	utgoing Grade to Invert	Rim to Grade	
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Number	
Purpose Capital In	mprovement Program Assessment		Sewer Category	
Pre-Cleaning		Date Cleaned	Weather	
<b>Location Code</b>	Light Highway	Potential for Runoff	Evidence of Surcharge No	
Access Point Type	Manhole	Coordinate Syst	em	
Northing	Easting	Elevation	Accuracy of GPS	
Inspection Status	Remote Inspection			
Additional Information	tion			
Manhole Surface T	vpes			
Concrete Pave		Asphalt 🗸 Gra	ss/Dirt Gravel	Other
Control of a ve		Aspirate #1	33/2/II	
Cover	Occupan Observation		# of Mond Holos O	
	Cover Shape Circular		# of Vent Holes 0	
	Cover Size 26.0	Oarran Baarl	Vent Hole Diameter	
	Cover Size Width		ng Surface Diameter Width	
	Cover Material Cast Iron		Bearing Surface Diameter	
	Cover Frame Fit Good			
1	Cover Type	Cover Co	ndition	
	✓ Solid	<b>✓</b> Soun	d Missing	
	☐ Vented/Slots ☐ Locking	☐ Crac	ked Corroded/Pitted	
	Gasketed Lamphole	☐ Brok	en Bolts Missing	
	☐ Hatch Single ☐ Inner Cove	er 🔲 Resti	aint Missing	
	☐ Hatch Double	Rest	raint Defective	
l				
<b>Cover Insert</b>		Cover Ins	ert Condition	
	Cover Insert Type None	☐ Sound	Leaking	
	Cover misert Type None	Poorly F	itting Corroded	
		☐ Cracked	Torn/Holes Insert Fell	



Sheet No 378	<b>Survey Date</b> 2017/08/03	P.O. No					
Location (No. & Na	ame) S STEEL ST AT 38	Inspection Level Level 1					
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection					
Adj. Ring	MH Adjustment Ring Type None MH Adjustment Ring Material	MH Adjustment Ring  Sound Corroded/Pitted/Worn					
		Cracked Leaking					
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation					
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.					
	Frame Bearing Surface Width	Frame Depth 6.0 in.					
	Frame Bearing Surface Depth	Frame Seal Inflow None					
	Frame Clear Opening Diameter						
	Frame Condition	Frame Seal Condition					
	Sound Missing	Sound Loose/Not Attached					
	Cracked Corroded/Pitted/Worn	☐ Cracked					
	☐ Broken ☐ Coated	☐ Missing ☐ Offset					
Chimney	Chimney Material 1 Concrete (reinforced)	Interior Chimney Coating/Liner					
	Chimney Material 2	Exterior Chimney Coating/Liner					
	Chimney Clear Opening	Chimney I/I None					
	Chimney Depth 1.2 ft.						
Cone	Cone Type Conical off centered	Cone Depth 3.6 ft.					
	Exterior Cone Coating/Liner	Cone Material Concrete (reinforced)					
	Interior Cone Coating/Liner						
Wall	Wall Diameter 1 48 in.	Wall Depth 6.0 ft.					
	Wall Diameter 2	Interior Wall Coating/Liner					
	Wall Material Concrete (reinforced)	Exterior Wall Coating/Liner					
Bench	Bench Present Yes						
	Bench Material Concrete (non-reinforced)						
	Bench Coating/Liner						
Channel/Step	Channel	Step					
	Channel Material Concrete (non-reinforced)	# Steps 4					
	Channel Type Formed						
	Channel Exposure Fully Opened	Step Material Plastic					
	Channel Installed Yes	- Committee   Comm					



# MACP Survey Report 61D

**Report Date** 2018/11/07

**Sheet No** 378 **Survey Date** 2017/08/03 **P.O. No** 

Location (No. & Name)S STEEL ST AT 38Inspection Level Level 1Locality/City NameONTONAGONInspection Status Remote Inspection

Ρī	pe	Cor	ne	ctic	ns

Num	_	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR	
1	6	6.8 ft.	Out	XXX	С	10 in.		s	S	GR		
'		Comments										
2	11	6.8 ft.	In	XXX	С	10 in.		s	s	GR		
2		Comme	ents			•						

# **Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.7 ft.		СМІ	SRV							12	12	
0.7 11.	R	emarks										
7.2 ft.		С	DAR				5			6	11	
7.2 II.	R	emarks										



PipeLogix Inc. Phone:866-299-3150 Fax:760-406-6023

# **MACP Survey Report** 46H

Sheet No 324	Surveyo	or's name LJF	Certificate Number	U-0417-0700754	<b>Date</b> 2017/08/01
System Owner			Survey Customer		Time 13:57
Drainage Area			Locality/City Name	ONTONAGON	
P.O. No			Location (No. & Name)	MICHIGAN ST WEST ST	OF QUARTZ
Further Location D	)etails	NORTH SHOULD	DER	Ins	pection Level Level 1
Outgoing Rim to Ir	nvert		<b>Outgoing Grade to Invert</b>	1	Rim to Grade
Use of Sewer	Sanitary	Year Laid	Year Rehabilitated	Tape/M	ledia Number
Purpose Capital I	mprovement Pro	gram Assessment		Se	wer Category
Pre-Cleaning			Date Cleaned		Weather
<b>Location Code</b>	Light Hiç	ghway	Potential for Runoff	Evidence	of Surcharge No
Access Point Type	e Ma	nhole	Coordinat	e System	
Northing		Easting	Elevation	Acc	uracy of GPS
Inspection Status	Remote	Inspection			
Additional Informa	tion NO CHIMN	NEY, WALL IS CONI	CAL		
Manhole Surface T	vnes				
Concrete Pav		Concrete Coller [	Asphalt 🗸	Grass/Dirt	Gravel ✓ Other □
Concrete Fav		Concrete Collar L	Aspirait 🛂	Grass/Dirt	Graver 🛂 Other 🗌
Cover					
Oover	Cover Shape	Circular			f Vent Holes 0
	Cover Size	23.0			ole Diameter
	Cover Size Wid		Cover	Bearing Surface Dia	
	Cover Material	Cast Iron		Cover Bearing Surfa	ce Diameter
	Cover Frame F	<b>it</b> G	ood		
	Cover Type		Co	ver Condition	
	✓ Solid	☐ Bolted		Sound Mis	ssing
	☐ Vented/Slo	ots Lockin	g	Cracked Co	rroded/Pitted
	Gasketed	Lamph	ole 🗀	Broken Bo	ts Missing
	Hatch Sing	jle 🔲 Inner C	over	Restraint Missing	
	Hatch Dou	ble		Restraint Defective	
<b>Cover Insert</b>			Co	ver Insert Condition	
_			□ Sc	ound	Leaking
	Cove	r Insert Type None	Pc	oorly Fitting	Corroded
				acked/Torn/Holes	Insert Fell



Sheet No 324	<b>Survey Date</b> 2017/08/01	P.O. No
Location (No. & Na	ame) MICHIGAN ST WEST OF QUARTZ ST	Inspection Level 1
Locality/City Name	e ONTONAGON	Inspection Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
		Sound Corroded/Pitted/Worn
	MH Adjustment Ring Material	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 8.0 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	✓ Sound	✓ Sound
	☐ Cracked ☐ Corroded/Pitted/Worn	☐ Cracked
	☐ Broken ☐ Coated	☐ Missing ☐ Offset
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth	
Cone	Cone Type Conical centered	Cone Depth 3.3 ft.
	Exterior Cone Coating/Liner	Cone Material Brick
	Interior Cone Coating/Liner	
Wall	Wall Diameter 1 43 in.	Wall Depth 3.3 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Brick	Exterior Wall Coating/Liner
Bench	Bench Present Yes	
	Bench Material Concrete (non-reinforced)	
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material Concrete (non-reinforced)	# Steps 0
	Chambel material Control (11011-16111101060)	" otopa U
	Channel Type Formed	
	Channel Type Formed Channel Exposure Fully Opened	Step Material



P.O. No

Sheet No 324 Location (No. & Name) **Survey Date** 2017/08/01

Inspection Level 1

Locality/City Name

MICHIGAN ST WEST OF QUARTZ ST ONTONAGON

Inspection Status Remote Inspection

#### **Pipe Connections**

Num	_	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR	
1	6	4.3 ft.	Out	RCP	С	18 in.		S	s	GR		
1		Comme	nts			•						
2	9	3.5 ft.	In	VCP	С	8 in.		s	s	LB		
2		Comments										
3	12	4.3 ft.	In	RCP	С	18 in.		s	s	GR		
3		Comments										
4	3	3.6 ft.	In	VCP	С	8 in.		s	s	LB		
4		Comme	nts									

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.9 ft.		WI	DB							7	12	
0.911.	R	emarks										
0.9 ft.		WI	MML							12	12	
0.911.	R	emarks						•	•			
1.1 ft.		WI	МВ							12	12	
1.116.	R	emarks						•	•			
1.7 ft.		WI	МВ							8	9	
1.7 11.	R	emarks						•	•			
1.7 ft.		WI	MML							8	9	
1.7 11.	R	emarks										



MACP Survey Report 5A Report Date 2018/11/07 Sheet No 268 Surveyor's name LJF Certificate Number U-0417-0700754! Date 2017/07/05 **System Owner Survey Customer** Time 12:01 **Drainage Area** Locality/City Name ONTONAGON P.O. No Location (No. & Name) ALLEY NORTH OF RIVER ST AT NW END OF RIVER ST BEHIND BUILDING **Further Location Details** Inspection Level Level 1 **Outgoing Rim to Invert Outgoing Grade to Invert** Rim to Grade Use of Sewer Sanitary Year Laid Year Rehabilitated Tape/Media Number Purpose Capital Improvement Program Assessment **Sewer Category Pre-Cleaning Date Cleaned** Weather **Location Code** Potential for Runoff Evidence of Surcharge No Light Highway **Access Point Type** Manhole **Coordinate System** Elevation **Accuracy of GPS Northing Easting** Inspection Status Remote Inspection Additional Information NO CHIMNEY **Manhole Surface Types** Concrete Pavement Concrete Collar Asphalt Grass/Dirt 🗸 Gravel Other Cover **Cover Shape** Circular # of Vent Holes 0 **Cover Size** 22.0 **Vent Hole Diameter Cover Size Width Cover Bearing Surface Diameter Width Cover Material** Cast Iron **Cover Bearing Surface Diameter Cover Frame Fit** Good

**Cover Condition** 

Corroded/Pitted

■ Bolts Missing

**✓** Sound

☐ Cracked

Broken

**Restraint Missing** 

**Restraint Defective** 

Cover Insert		Cover Insert Condition	
	Cover Insert Type None	Sound Poorly Fitting Cracked/Torn/Holes	Leaking Corroded Insert Fell
		Cracked/Torn/Holes	☐ IIISert Feli

☐ Bolted

Locking

☐ Inner Cover

Lamphole



**Cover Type** 

✓ Solid

□ Vented/Slots

☐ Hatch Single

☐ Hatch Double

Gasketed

Sheet No 268	<b>Survey Date</b> 2017/07/05	P.O. No
Location (No. & Na	ame) ALLEY NORTH OF RIVER ST	Inspection Level Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
		Sound Corroded/Pitted/Worn
	MH Adjustment Ring Material	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
Frame	Frame Material Cast Iron	Frame Offset Distance 3 in.
. Tame		
	Frame Bearing Surface Width	Frame Depth 8.5 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	☐ Sound ✓ Loose/Not Attached
	Cracked Corroded/Pitted/Worn	☐ Cracked
	☐ Broken ☐ Coated	Missing Offset
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth	
Cone	Cone Type Conical centered	Cone Depth 2.3 ft.
	Exterior Cone Coating/Liner	Cone Material Brick
	Interior Cone Coating/Liner	
	· ·	
Wall	Wall Diameter 1 33 in.	Wall Depth 3.3 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Brick	Exterior Wall Coating/Liner
.B		
Bench	Bench Present Yes	
	Bench Material Not Known	
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material Vitrified Clay	# Steps 0
	Channel Type Pipe	# Oteps     
	Channel Exposure Fully Opened Channel Installed Yes	Step Material
	Channel Installed Yes	



P.O. No

Sheet No 268 Survey Date 2017/07/05

 Location (No. & Name)
 ALLEY NORTH OF RIVER ST
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

#### Pipe Connections

Num	-	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	3.8 ft.	Out	VCP	С	8 in.		S	s	GR	
'		Comme	nts								
_	12	3.6 ft.	In	VCP	С	4 in.		s	s	LB	
2		Comme	nts								

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.7 ft.		COI	DNF				5			4		
0.7 11.	R	emarks	UNDE	R FRA	ME							
0.9 ft.		COI	MB							6		
0.9 11.	R	emarks										
1.0 ft.		COI	MMM							1	3	
1.0 11.	R	emarks										
1.3 ft.		COI	MMS							12	12	
1.5 11.	R	emarks										
1.4 ft.		COI	MB							1		
1.4 II.		emarks										
2.4 ft.		WI	MMS							12	12	
∠. <del>4</del> Il.	R	emarks										



# **MACP Survey Report** 16H

Sheet No 201	Surveyo	or's name LJF	Certificate Number	U-0417-0700754	<b>Date</b> 2017/06/02
System Owner			Survey Customer		Time 11:20
Drainage Area			Locality/City Name	ONTONAGON	
P.O. No			Location (No. & Name)	N STEEL ST AT ALLE	EY SOUTH OF
Further Location D	)etails	EAST SHOULDER	₹	Ins	pection Level Level 1
Outgoing Rim to Ir	nvert		Outgoing Grade to Invert		Rim to Grade
Use of Sewer	Sanitary	Year Laid	Year Rehabilitated	Tape/N	ledia Number
Purpose Capital I	mprovement Pro	gram Assessment		Se	wer Category
Pre-Cleaning			Date Cleaned		Weather
<b>Location Code</b>	Light Hig	ghway	Potential for Runoff	Evidence	of Surcharge No
Access Point Type	e Ma	nhole	Coordinat	e System	
Northing		Easting	Elevation	Acc	uracy of GPS
Inspection Status	Remote	Inspection			
Additional Informa	tion STORM Co	OVER, NO CHIMNEY	,		
Manhole Surface T	vnes				
		Company Colley	) Assisted	Output [	Oracus C
Concrete Pav	ement	Concrete Collar _	Asphalt 🗸	Grass/Dirt	Gravel Other
Cover					
COVE	Cover Shape	Circular		# o	f Vent Holes 29
	Cover Size	22.0		Vent Ho	ole Diameter
	Cover Size Wid	lth	Cover	Bearing Surface Dia	meter Width
	Cover Material	Cast Iron		Cover Bearing Surfa	ce Diameter
	Cover Frame F	<b>it</b> Go	od		
	Cover Type		Co	ver Condition	
	☐ Solid	☐ Bolted		Sound Mis	ssing
	✓ Vented/Slo	ots		=	rroded/Pitted
	Gasketed	Lampho		=	Its Missing
	Hatch Sing	= :		Restraint Missing	3
	Hatch Dou	_		Restraint Defective	
_					
Cover Insert			Co	ver Insert Condition	
			□ So	ound	Leaking
	Cove	r Insert Type None		orly Fitting	☐ Corroded
				acked/Torn/Holes	☐ Insert Fell



Sheet No 201	Survey Date 2017/06/02	P.O. No					
Location (No. & Na	ame) N STEEL ST AT ALLEY SOUTH OF MICHIG	AN ST Inspection Level Level 1					
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection					
		<u></u>					
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring					
	MH Adjustment Ring Material	Sound Corroded/Pitted/Worn					
		☐ Cracked ☐ Leaking					
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation					
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.					
	Frame Bearing Surface Width	Frame Depth 6.0 in.					
	Frame Bearing Surface Depth	Frame Seal Inflow None					
	Frame Clear Opening Diameter						
	Frame Condition	Frame Seal Condition					
	Sound Missing	Sound Loose/Not Attached					
	✓ Cracked	☐ Cracked					
	☐ Broken ☐ Coated	☐ Missing ☐ Offset					
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner					
	Chimney Material 2	Exterior Chimney Coating/Liner					
	Chimney Clear Opening	Chimney I/I None					
	Chimney Depth						
Cone	Cone Type Conical centered	Cone Depth 5.0 ft.					
	Exterior Cone Coating/Liner	Cone Material Brick					
	Interior Cone Coating/Liner						
Wall	Wall Diameter 1 50 in.	Wall Depth 9.4 ft.					
	Wall Diameter 2	Interior Wall Coating/Liner					
	Wall Material Brick	Exterior Wall Coating/Liner					
Bench	Bench Present Partial						
	Bench Material Concrete (non-reinforced)						
	Bench Coating/Liner						
Channel/Step	Channel	Step					
, , , , , , , , , , , , , , , , , , ,	Channel Material Vitrified Clay	# Steps 0					
		# 3teμs ∪ 					
	Channel Type Pipe						
	Channel Exposure Fully Opened	Step Material					
	Channel Installed Yes						



Sheet No 201 Survey Date 2017/06/02

N STEEL ST AT ALLEY SOUTH OF MICHIGAN ST

P.O. No
Inspection Level Level 1

Locality/City Name ONTONAGON

Inspection Status Remote Inspection

DIDO	r on	nectio	$\mathbf{n} \mathbf{c}$

Location (No. & Name)

Num	-	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR	
ı	6	10.5 ft.	Out	RCP	С	20 in.		S	S	GR		
ı		Comments										
2	9	9.8 ft.	In	VCP	С	12 in.		S	S	GR		
2		Comme	nts	•	•	•	•				·	
3	12	4.7 ft.	In	VCP	С	8 in.		S	S	GR		
•		Comme	nts C/	APPED W	ITH CON	CRETE	, ABANE	OONED			·	
	12	7.3 ft.	In	VCP	С	20 in.		S	S	GR		
4		Comme	nts									
	3	9.5 ft.	In	VCP	С	10 in.		S	s	GR		
5		Comme	nts	•	•	•	•	•	•		•	

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.7 ft.		COI	SSS							12	12	
0.7 11.	Re	emarks	BRICK	SURF	ACE	DET	ERI	ORATI	ON			
0.7 ft.		COI	MMM							12	12	
0.7 11.	Re	emarks										
0.9 ft.		COI	MB							11		
0.9 11.	Re	emarks										
1.1 ft.		COI	MB							8		
1.111.	Re	emarks										
1.7 ft.		COI	MGO									
1.7 IL.	Re	emarks	METAL	_ PIPE	INTE	RUDII	١G	THRO	JGH W	ALL		
2.4 ft.		COI	MMS	S01						12	12	
2.4 11.	Re	emarks										
5.0 ft.		COI	MMS	F01						12	12	
5.0 it.	Re	emarks										
8.6 ft.		WI	IW							10		
0.0 11.	Re	emarks										



# MACP Survey Report 1N

Sheet No 1	Surveyor's r	name LJF	Certificate Number	U-0417-0700754	<b>Date</b> 2017/05/02
System Owner			Survey Customer		<b>Time</b> 15:40
Drainage Area			Locality/City Name	ONTONAGON	
P.O. No			Location (No. & Name)	N RIVER RD	
Further Location D	<b>etails</b> A	T CORNER BY MA	ARINA	Ins	spection Level Level 1
Outgoing Rim to In	vert	O	utgoing Grade to Invert		Rim to Grade
Use of Sewer	Sanitary	Year Laid	Year Rehabilitated	Tape/I	Media Number
Purpose Capital Ir	mprovement Program	n Assessment		Se	ewer Category
Pre-Cleaning			Date Cleaned		Weather
<b>Location Code</b>	Easement/Ri	ght of Way	Potential for Runoff	Evidence	of Surcharge No
Access Point Type	Manhole	e	Coordinat	e System	
Northing		Easting	Elevation	Acc	curacy of GPS
Inspection Status	Remote Insp	ection			
Additional Informat	ion NO CHIMMEY				
Manhole Surface Ty	vpes				
Concrete Pave	<u> </u>	ncrete Collar	Asphalt	Grass/Dirt 🗸	Gravel Other
Concrete i ave		icrete dollar	Aspiran	Olass/Dirt 🐙	Olavei
Cover		•			
		Circular			of Vent Holes 0
	Cover Size	23.0			ole Diameter
	Cover Size Width		Cover	Bearing Surface Dia	
	Cover Material	Cast Iron		Cover Bearing Surfa	ace Diameter
	Cover Frame Fit	Good	d		
Г	Cover Type		Co	ver Condition	
	✓ Solid	■ Bolted		Sound Mi	ssing
	☐ Vented/Slots	Locking		Cracked Co	orroded/Pitted
	Gasketed	Lamphole	.    _	Broken Bo	olts Missing
	Hatch Single	☐ Inner Cov	er 📗	Restraint Missing	
	Hatch Double	<del>_</del>		Restraint Defective	
L					
<b>Cover Insert</b>			Co	ver Insert Condition	
				ound	☐ Leaking
	Cover Ins	ert Type None	<u> </u>	oorly Fitting	Corroded
			=	acked/Torn/Holes	☐ Insert Fell
					_



Sheet No 1	Survey Date 2017/05/02	P.O. No
Location (No. & Na	ame) N RIVER RD	Inspection Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
		Sound Corroded/Pitted/Worn
	MH Adjustment Ring Material	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
	l	
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 7.2 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	Sound Loose/Not Attached
	☐ Cracked ☐ Corroded/Pitted/Worn	Cracked
	☐ Broken ☐ Coated	Missing Offset
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth	
Cone	Cone Type Conical off centered	Cone Depth 3.2 ft.
	Exterior Cone Coating/Liner	Cone Material Concrete (reinforced)
	Interior Cone Coating/Liner	
Wall	Wall Diameter 1 47 in.	Wall Depth 9.2 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Concrete (reinforced)	Exterior Wall Coating/Liner
Bench	Bench Present Yes	
Bellell		
	Bench Material Concrete (non-reinforced)	
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material Concrete (non-reinforced)	# Steps 6
	Channel Type Formed	, stops 0
	Channel Exposure Fully Opened	
	Channel Installed Yes	Step Material Plastic



# MACP Survey Report 1N

**Report Date** 2018/11/07

**Sheet No** 1 **Survey Date** 2017/05/02 **P.O. No** 

Location (No. & Name)N RIVER RDInspection Level Level 1Locality/City NameONTONAGONInspection Status Remote Inspection

Pipe	Conn	ectior	าร
------	------	--------	----

Num	-	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
4	6	9.6 ft.	Out	PVC	С	8 in.		s	S	GR	
'		Comme	nts								
2	3	9.4 ft.	In	PVC	С	8 in.		s	s	GR	
2		Comme	nts								

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
3.1 ft.		WI	RFJ		J					11		
J. 1 II.	R	Remarks										
5.7 ft.		WI	RFJ		J					10		
5.7 II.	R	Remarks										



**MACP Survey Report 14A** Report Date 2018/11/07 Sheet No 290 Surveyor's name LJF Certificate Number U-0417-0700754! Date 2017/07/27 **System Owner Survey Customer** Time 08:36 **Drainage Area** Locality/City Name ONTONAGON P.O. No Location (No. & Name) CONGLOMERATE ST AT ONTONAGON ST **Further Location Details** MIDDLE OF INTERSECTION Inspection Level Level 1 **Outgoing Rim to Invert Outgoing Grade to Invert** Rim to Grade Use of Sewer Year Rehabilitated Tape/Media Number Sanitary Year Laid Purpose Capital Improvement Program Assessment **Sewer Category Date Cleaned Pre-Cleaning** Weather **Potential for Runoff Location Code** Light Highway Evidence of Surcharge No **Access Point Type** Manhole **Coordinate System Easting** Elevation **Accuracy of GPS** Northing **Inspection Status** Remote Inspection **Additional Information Manhole Surface Types** Concrete Pavement Concrete Collar Asphalt 🗸 Grass/Dirt Gravel Other

Cover	Cover Shape	Circular	# of Vent Holes 0
	Cover Size	24.0	Vent Hole Diameter
	Cover Size Width		<b>Cover Bearing Surface Diameter Width</b>
	Cover Material	Cast Iron	Cover Bearing Surface Diameter
	Cover Frame Fit	Good	
	Cover Type		Cover Condition
	Solid Vented/Slots Gasketed Hatch Single Hatch Double	☐ Bolted ☐ Locking ☐ Lamphole ☐ Inner Cover	Sound Missing Cracked Corroded/Pitted Broken Bolts Missing Restraint Missing Restraint Defective

Cover Insert

Cover Insert Type None

Cover Insert Condition

Sound

Poorly Fitting

Corroded

Insert Fell



PipeLogix Inc. Phone:866-299-3150 Fax:760-406-6023

Sheet No 290	<b>Survey Date</b> 2017/07/27	P.O. No
Location (No. & Na	ame) CONGLOMERATE ST AT ONTONAGON ST	Inspection Level Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
		<u> </u>
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
		Sound Corroded/Pitted/Worn
	MH Adjustment Ring Material	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 7.0 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	✓ Sound
	☐ Cracked ☐ Corroded/Pitted/Worn	☐ Cracked
	☐ Broken ☐ Coated	☐ Missing ☐ Offset
Chimney	Chimney Material 1 Brick	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth 1.9 ft.	
Cone	Cone Type Conical centered	Cone Depth 3.8 ft.
	Exterior Cone Coating/Liner	Cone Material Brick
	Interior Cone Coating/Liner	
	micro Jone Journay Line.	
Wall	Wall Diameter 1 56 in.	Wall Depth 9.9 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Brick	Exterior Wall Coating/Liner
		· ·
Bench	Bench Present Yes	
	Bench Material Concrete (non-reinforced)	
	Bench Coating/Liner	
	· · · · · · · · · · · · · · · · · · ·	
Channel/Step	Channel	Step
	Channel Material Vitrified Clay	# Steps 2
	Channel Type Pipe	"
	Channel Exposure Fully Opened	Step Material Metal
	Channel Installed Yes	



P.O. No

Sheet No 290 Survey Date 2017/07/27

 Location (No. & Name)
 CONGLOMERATE ST AT ONTONAGON ST
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

**Pipe Connections** 

Num	_	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
4	6	10.7 ft.	Out	VCP	С	15 in.		S	s	GR	
1		Comme	nts	•					•		
2	9	7.8 ft.	In	PVC	С	8 in.		S	s	GR	
2		Comme	ents L/	TERAL T	O DEAD	END ST	REET				
3	10	6.3 ft.	In	VCP	С	6 in.		S	s	LB	
3		Comme	ents				•				
4	11	5.8 ft.	In	PE	С	4 in.		S	s	LB	
4		Comme	ents				•				
5	1	4.8 ft.	In	VCP	С	12 in.		S	s	GR	
5		Comme	nts C	EMENT C	APPED,	ABANDO	ONED				
6	5	4.5 ft.	In	VCP	С	10 in.		S	s	GR	
O		Comme	nts C	EMENT C	APPED,	ABANDO	ONED				

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.8 ft.		СМІ	МВ							8		
0.6 11.	R	emarks										
0.8 ft.		СМІ	MMM							12	12	
0.6 11.	R	emarks										
0.8 ft.		СМІ	SSSZ							12	12	
0.6 11.	R	emarks	DETER	RIORA	TED	BRIC	K S	URFA	CE			
1.9 ft.		COI	MMM	S01						12	12	
1.911.	R	emarks										
3.8 ft.		WI	MMM	S02						12	12	
3.0 II.	R	emarks										
3.8 ft.		COI	MMM	F01						12	12	
3.0 II.	R	emarks										
9.7 ft.		В	RFJ		J					2	4	
3.1 Il.	R	emarks										
9.7 ft.		WI	MMM	F02						12	12	
3.1 IL.	R	emarks										



# **MACP Survey Report** 24H

Sheet No 210	Surveyor's name LMF	Certificate Number	U-416-07003735	<b>Date</b> 2017/06/08
System Owner		Survey Customer		Time 16:22
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name)	PENNSYLVANIA AVE AND 2NI STREET INTERSECTION	D
<b>Further Location D</b>	etails NORTH OF INTE	RSECTION	Inspection L	evel Level 1
Outgoing Rim to In	vert	Outgoing Grade to Invert	Rim to Gr	ade
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Num	nber
Purpose Capital In	mprovement Program Assessment		Sewer Cateo	gory
Pre-Cleaning		Date Cleaned	Wea	ther
<b>Location Code</b>	Light Highway	Potential for Runoff	Evidence of Surcha	arge No
Access Point Type	Manhole	Coordinate	e System	
Northing	Easting	Elevation	Accuracy of (	GPS
Inspection Status	Remote Inspection			
Additional Information	tion			
Manhole Surface T	ypes			
Concrete Pave	ement Concrete Collar	Asphalt 🗸	Grass/Dirt Grave	I Other
Cover				
Cover	Cover Shape Circular		# of Vent Ho	les 24
	Cover Size 20.0		Vent Hole Diame	ter
	Cover Size Width	Cover	Bearing Surface Diameter Wid	dth
	Cover Material Cast Iron		<b>Cover Bearing Surface Diame</b>	ter
	Cover Frame Fit G	bod		
1	Cover Type	Cov	ver Condition	
	☐ Solid ☐ Bolted		Sound Missing	
	✓ Vented/Slots	g	Cracked Corroded/Pi	tted
	☐ Gasketed ☐ Lampho	ole 🔲	Broken Bolts Missin	g
	☐ Hatch Single ☐ Inner C	over $\square$	Restraint Missing	
	☐ Hatch Double		Restraint Defective	
l				
Cover Insert		Cov	ver Insert Condition	
	Cover Insert Type None		ound Lea	aking
	Coto: insert Type None	Po	oorly Fitting	rroded
			acked/Torn/Holes	ert Fell



Sheet No 210	Surv	ey Date 2017/06/08		P.O. No
Location (No. & Na	me) PENNSYLVANIA INTERSECTION	AVE AND 2ND STREET		Inspection Level 1
Locality/City Name			Inspecti	on Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type N MH Adjustment Ring Material MH Adjustment Ring Height		MH Adjustme Sound Cracked Broken	nt Ring Corroded/Pitted/Worn Leaking Poor Installation
Frame	Frame Material Cast Iron Frame Bearing Surface Width Frame Bearing Surface Depth Frame Clear Opening Diamete Frame Condition  Sound Missing	er	Frame Seal Co	Frame Offset Distance 0 in.  Frame Depth 9.0 in.  Frame Seal Inflow None  Indition  Loose/Not Attached
Chimney	Broken Coated	d/Pitted/Worn	☐ Cracked ☐ Missing  Interior Chimne	Offset  ey Coating/Liner
	Chimney Material 2 Chimney Clear Opening Chimney Depth 1.1	l ft.	Exterior Chimr Chimney I/I	ney Coating/Liner None
Cone	Cone Type Conical ce  Exterior Cone Coating/Liner  Interior Cone Coating/Liner	entered		epth 1.9 ft. terial Brick
Wall	Wall Diameter 1 30 in.  Wall Diameter 2  Wall Material Brick		Wall Depth Interior Wall Co	-
Bench		Yes Concrete (non-reinforced)		
Channel/Step	Channel Channel Material Channel Type Channel Exposure Channel Installed No		Step # Steps 0 Step Material	



# MACP Survey Report 24H

#### **Report Date** 2018/11/07

P.O. No

**Sheet No** 210 **Survey Date** 2017/06/08

Location (No. & Name) PENNSYLVANIA AVE AND 2ND STREET Inspection Level Level 1

INTERSECTION

Locality/City Name ONTONAGON Inspection Status Remote Inspection

#### **Pipe Connections**

		Rim to									
Num	Pos	Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
4	6	4.2 ft.	Out	VCP	С	10 in.		S	S	GR	
'		Comme	nts	•							
,	8	3.2 ft.	In	XXX	С	10 in.		s	s	GR	
_		Comme	nts AE	BANDONE	ED AND	SEALE	D				
_	10	3.8 ft.	In	PVC	С	6 in.		s	s	LB	
3		Comme	nts	•			•				

#### **Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.6.4		СМІ	CL							8		
0.6 ft.	R	Remarks		•				•	•			
0.7.4		СМІ	FL							12		
0.7 ft.	R	Remarks		•				•	•			
0.7.4		СМІ	CL							5		
0.7 ft.	F	Remarks					•	•	•	•		
0.0.4		СМІ	CL							6		
0.9 ft.	R	Remarks						•				
1.2 ft.		СМІ	DB							8		
1.2 11.	R	Remarks										
1.4 ft.		COI	MB							5		
1.411.	R	Remarks										
1.9 ft.		COI	MMS							12	12	
1.911.	R	Remarks										
2.2 ft.		COI	DB							10		
۷.۷ ۱۱.	R	Remarks										



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# **MACP Survey Report** 12A

Sheet No 286	Surveyor's	s name LJF	Certificate Number	U-0417-0700754	<b>Date</b> 2017/07/26
System Owner			Survey Customer		<b>Time</b> 15:42
Drainage Area			Locality/City Name	ONTONAGON	
P.O. No			Location (No. & Name)	ONTONAGON ST AT OF CONGLOMERATI	
Further Location De	etails	MIDDLE OF ROAL	D	Insı	pection Level Level 1
Outgoing Rim to Inv	/ert	1	Outgoing Grade to Invert	ļ	Rim to Grade
Use of Sewer	Sanitary	Year Laid	Year Rehabilitated	Tape/M	ledia Number
Purpose Capital In	nprovement Progra	am Assessment		Se	wer Category
Pre-Cleaning			Date Cleaned		Weather
<b>Location Code</b>	Light Highv	vay	Potential for Runoff	Evidence	of Surcharge No
Access Point Type	Manh	ole	Coordinate	e System	
Northing		Easting	Elevation	Acc	uracy of GPS
Inspection Status	Remote Ins	spection			
Additional Informati	ion				
Manhole Surface Ty	nes				
Concrete Pave		oncrete Collar	Asphalt 🗸	Grass/Dirt	Gravel Other
Concrete 1 ave				Olass/blit	Olavei Other
Cover					
'	Cover Shape	Circular			Vent Holes 0
	Cover Size	22.0			ole Diameter
	Cover Size Width		Cover	Bearing Surface Dia	
	Cover Material	Cast Iron		Cover Bearing Surfa	ce Diameter
(	Cover Frame Fit	Go	od		
(	Cover Type		Cov	ver Condition	
	✓ Solid	■ Bolted		Sound Mis	sing
	☐ Vented/Slots	Locking		Cracked Co	rroded/Pitted
	 ☐ Gasketed	Lampho	le 🔲	Broken Bol	ts Missing
	Hatch Single	Inner Co	over	Restraint Missing	
	Hatch Double	 e		Restraint Defective	
L				•	
<b>Cover Insert</b>			Cov	ver Insert Condition	
	0	T N.	☐ So	ound	Leaking
	Cover II	nsert Type None	Po	orly Fitting	Corroded
			Cr	acked/Torn/Holes	Insert Fell



Sheet No 286	Survey Date 2017/07/26	P.O. No				
Location (No. & Na	mme) ONTONAGON ST AT ALLEY SOUTH OF CONGLOMERATE	Inspection Level Level 1				
Locality/City Name		Inspection Status Remote Inspection				
Adj. Ring	MH Adjustment Ring Type None  MH Adjustment Ring Material  MH Adjustment Ring Height	MH Adjustment Ring Sound Corroded/Pitted/Worn Cracked Leaking Broken Poor Installation				
Frame	Frame Material Cast Iron  Frame Bearing Surface Width  Frame Bearing Surface Depth  Frame Clear Opening Diameter	Frame Offset Distance 0 in.  Frame Depth 8.0 in.  Frame Seal Inflow None				
	Frame Condition  Sound Missing Cracked Corroded/Pitted/Worn Broken Coated	Frame Seal Condition  Sound Loose/Not Attached Cracked Missing Offset				
Chimney	Chimney Material 1 Brick	Interior Chimney Coating/Liner				
	Chimney Material 2	Exterior Chimney Coating/Liner				
	Chimney Clear Opening	Chimney I/I None				
	Chimney Depth 1.5 ft.					
Cone	Cone Type Conical off centered	Cone Depth 8.2 ft.				
	Exterior Cone Coating/Liner	Cone Material Brick				
	Interior Cone Coating/Liner					
Wall	Wall Diameter 1 48 in.	Wall Depth 9.5 ft.				
	Wall Diameter 2	Interior Wall Coating/Liner				
	Wall Material Brick	Exterior Wall Coating/Liner				
Bench	Bench Present Partial  Bench Material Brick					
	Bench Coating/Liner					
Channel/Step	Channel	Step				
	Channel Material Vitrified Clay	#Steps 0				
	Channel Type Pipe Channel Exposure Fully Opened Channel Installed Yes	Step Material				



# **MACP Survey Report** 12A

#### **Report Date** 2018/11/07

**Sheet No** 286 **Survey Date** 2017/07/26

Location (No. & Name) ONTONAGON ST AT ALLEY SOUTH OF

CONGLOMERATE

Inspection Level Level 1

P.O. No

ONTONAGON Inspection Status Remote Inspection

Pipe	Connec	ctions

Locality/City Name

		Rim to									
Num	Pos	Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
4	6	10.7 ft.	Out	VCP	С	15 in.		S	S	GR	
'		Comme	ents		•						
2	9	9.7 ft.	In	VCP	С	8 in.		s	s	GR	
2		Comme	ents		•						
2	12	10.6 ft.	In	VCP	С	15 in.		s	s	GR	
3		Comme	ents		•						
4	3	9.3 ft.	In	VCP	С	8 in.		s	s	GR	
4		Comme	ents							•	

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
4.0.4		CMI	MMM							12	12	
1.0 ft.	R	emarks		•					•			
124		CMI	DB							2		
1.3 ft.	R	emarks		•					•			
1.3 ft.		COI	МВ							12	12	
1.3 11.	R	emarks										
1.5 ft.		COI	MMM							6		
1.5 11.	Remarks											
2.1 ft.		COI	MMS	S01						12	12	
2.1 II.	R	emarks										
8.0 ft.		WI	RFB							3		
0.0 II.	R	emarks										
8.2 ft.		COI	MMS	F01						12	12	
0.2 11.	R	emarks										
8.4 ft.		WI	RFB							8		
O.7 II.	R	emarks										
10.1 ft.		С	ОВВ				5			1	5	
10.11.	R	emarks										



**MACP Survey Report 15A** Report Date 2018/11/07 Sheet No 291 Surveyor's name LJF Certificate Number U-0417-0700754! Date 2017/07/27 **System Owner Survey Customer** Time 09:05 **Drainage Area** Locality/City Name ONTONAGON P.O. No Location (No. & Name) CONGLOMERATE ST AT CHIPPEWA ST **Further Location Details** NORTH CORNER OF INTERSECTION Inspection Level Level 1 **Outgoing Grade to Invert Outgoing Rim to Invert** Rim to Grade Use of Sewer Year Rehabilitated Tape/Media Number Sanitary Year Laid Purpose Capital Improvement Program Assessment **Sewer Category Date Cleaned Pre-Cleaning** Weather **Potential for Runoff Location Code** Light Highway Evidence of Surcharge No **Access Point Type** Manhole **Coordinate System Northing Easting** Elevation **Accuracy of GPS Inspection Status** Remote Inspection **Additional Information Manhole Surface Types** Concrete Pavement Concrete Collar Asphalt 🗸 Grass/Dirt Gravel Other Cover

Cover Snape	Circular	# of Vent Holes 0
Cover Size	24.0	Vent Hole Diameter
Cover Size Width		Cover Bearing Surface Diameter Width
Cover Material	Cast Iron	Cover Bearing Surface Diameter
Cover Frame Fit	Good	
Cover Type		Cover Condition
✓ Solid	■ Bolted	✓ Sound  Missing
☐ Vented/Slots	Locking	☐ Cracked ☐ Corroded/Pitted
☐ Gasketed	Lamphole	☐ Broken ☐ Bolts Missing
☐ Hatch Single	☐ Inner Cover	Restraint Missing
☐ Hatch Double		Restraint Defective

Cover Insert

Cover Insert Type None

Cover Insert Condition

Sound

Poorly Fitting

Corroded

Insert Fell



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Sheet No 291	<b>Survey Date</b> 2017/07/27	P.O. No
Location (No. & Na	me) CONGLOMERATE ST AT CHIPPEWA ST	Inspection Level Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
		.,
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
	MH Adjustment Ring Material	Sound Corroded/Pitted/Worn
	•	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	Broken Poor Installation
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 8.5 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	✓ Sound Missing	Sound Loose/Not Attached
	☐ Cracked ☐ Corroded/Pitted/Worn	Cracked
	☐ Broken ☐ Coated	Missing Offset
		Missing Offset
Chimney	Chimney Material 1 Brick	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth 2.1 ft.	
Cone	Cone Type Conical centered	Cone Depth 4.3 ft.
	Exterior Cone Coating/Liner	Cone Material Brick
	Interior Cone Coating/Liner	
	interior cone coating/Lines	
Wall	Wall Diameter 1 48 in.	Wall Depth 8.3 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Brick	Exterior Wall Coating/Liner
Bench	Bench Present Yes	
	Bench Material Not Known	
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material Not Known	#Steps 0
	Channel Type Formed	
	Channel Exposure Fully Opened	
		Step Material
	Channel Installed Yes	



P.O. No

Sheet No 291 Location (No. & Name) **Survey Date** 2017/07/27

Inspection Level Level 1

Locality/City Name

CONGLOMERATE ST AT CHIPPEWA ST ONTONAGON

Inspection Status Remote Inspection

#### Pipe Connections

Num	_	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR			
1	6	9.4 ft.	Out	VCP	С	15 in.		S	S	GR				
		Comments												
2	7	2.7 ft.	In	CAS	С	6 in.		S	s	LB				
2		Comme	nents CEMENT CAPPED, ABANDONED											
3	9	9.1 ft.	In	VCP	С	10 in.		S	s	GR				
3		Comme	nts											
4	11	5.2 ft.	In	VCP	С	10 in.		S	s	GR				
4		Comme	nts Cl	EMENT C	APPED,	ABAND	ONED			•				
5	12	8.8 ft.	In	XXX	С	8 in.		S	D	GR				
5		Comme	nts RI	-C		•	•			•				
6	1	5.3 ft.	In	VCP	С	10 in.		S	s	GR				
О		Comme	nts CI	EMENT C	APPED,	ABANDO	ONED	•			·			
7	4	5.3 ft.	In	VCP	С	10 in.		S	s	GR				
<b>'</b>	Comments CEMENT CAPPED, ABANDONED													

	alions											
Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
1.1 ft.		СМІ	МВ							9	8	
1.111.	Re	emarks		•					•			
4.4.0		СМІ	MMM							12	12	
1.1 ft.	Re	emarks										
0.04		COI	DB							9		
2.2 ft.	Re	emarks										
0.04		COI	MMS	S01						12	12	
2.2 π.	2.2 ft. Remarks											
404		WI	MMS	S02						12	12	
4.3 ft.	Re	emarks		•					•			
404		COI	MMS	F01						12	12	
4.3 ft.	Re	emarks		•					•			
7 5 4		WI	DB							10		
7.5 ft.	Re	emarks		•					•			
7.7 ft.		WI	RFB							8		
7.7 11.	Re	emarks		•					•			
0.04		WI	MMS	F02						12	12	
8.2 ft.	8.2 ft. Remarks			•		•		•	•	•		
0.4.4		В	RFJ		J					12	12	
8.4 ft.	Re	emarks		•		•		•	•	•		



# MACP Survey Report 22D

Sheet No 36	Surveyor's name LJF	Certificate Number	U-0417-0700754	Date 2017/05/08
System Owner		Survey Customer	Т	ime 10:02
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name)	DIAMOND ST WEST OF MORS S	ST
Further Location D	<b>Petails</b> MIDDLE OF ROA	D	Inspection Leve	el Level 1
Outgoing Rim to Ir	vert	Outgoing Grade to Invert	Rim to Grad	le
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Numbe	er
Purpose Capital I	mprovement Program Assessment		Sewer Categor	у
Pre-Cleaning		Date Cleaned	Weathe	er
Location Code	Light Highway	<b>Potential for Runoff</b>	Evidence of Surcharg	e No
Access Point Type	Manhole	Coordinate	e System	
Northing	Easting	Elevation	Accuracy of GP	S
Inspection Status	Remote Inspection			
Additional Informa	tion			
Manhole Surface T	vpes			
Concrete Pave		Asphalt 🗹	Grass/Dirt Gravel	Other
00110101011				
Cover	Once a Observation		# - ( ) / ( )   -   -	
	Cover Shape Circular		# of Vent Holes	_
	Cover Size 22.0	Carran	Vent Hole Diameter	
	Cover Size Width	Cover	Bearing Surface Diameter Width	
	Cover Material Cast Iron	- d	Cover Bearing Surface Diameter	
		ood		
	Cover Type	Co	ver Condition	
	✓ Solid ☐ Bolted		Sound Missing	
	☐ Vented/Slots ☐ Locking	·	Cracked Corroded/Pitte	d
	Gasketed Lampho	ole 🔲	Broken Bolts Missing	
	☐ Hatch Single ☐ Inner Co	over	Restraint Missing	
	Hatch Double		Restraint Defective	
Cover Insert		Cov	ver Insert Condition	
	Cover Insert Type None		ound Leaki	ing
	Cover macre rype None	Po	oorly Fitting Corro	oded
			acked/Torn/Holes	t Fell



Sheet No 36	Survey Date 2017/05/08	08 <b>P.O. No</b>						
Location (No. & Na	ame) DIAMOND ST WEST OF MORS ST	Inspection Level Level 1						
Locality/City Name	e ONTONAGON	Inspection Status Remote Inspection						
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring						
		Sound Corroded/Pitted/Worn						
	MH Adjustment Ring Material	☐ Cracked ☐ Leaking						
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation						
_								
Frame	Frame Material Cast Iron	Frame Offset Distance 2 in.						
	Frame Bearing Surface Width	Frame Depth 8.7 in.						
	Frame Bearing Surface Depth	Frame Seal Inflow None						
	Frame Clear Opening Diameter							
	Frame Condition	Frame Seal Condition						
	Sound Missing	✓ Sound						
	Cracked Corroded/Pitted/Worn	☐ Cracked						
	☐ Broken ☐ Coated	☐ Missing ☐ Offset						
Chimney	Chimney Material 1 Concrete (reinforced)	Interior Chimney Coating/Liner						
	Chimney Material 2	Exterior Chimney Coating/Liner						
	Chimney Clear Opening	Chimney I/I None						
	Chimney Depth 1.1 ft.							
Cone	Cone Type Conical off centered	Cone Depth 6.5 ft.						
	Exterior Cone Coating/Liner	Cone Material Concrete (reinforced)						
	Interior Cone Coating/Liner							
Wall	Wall Diameter 1 48 in.	Wall Depth 6.5 ft.						
	Wall Diameter 2	Interior Wall Coating/Liner						
	Wall Material Concrete (reinforced)	Exterior Wall Coating/Liner						
	Consists (terms reed)	_xtono. van county_inc.						
Bench	Bench Present Yes							
	Bench Material Concrete (non-reinforced)							
	Bench Coating/Liner							
Channel/Step	Channel	Step						
	Channel Material Concrete (non-reinforced)	#Steps 4						
	Channel Type Formed							
	Channel Exposure Fully Opened	Step Material Metal						
	Channel Installed Yes							



# MACP Survey Report 22D

#### **Report Date** 2018/11/07

P.O. No

Inspection Level Level 1

Sheet No 36 Location (No. & Name) DIAMO **Survey Date** 2017/05/08

DIAMOND ST WEST OF MORS ST

ONTONAGON

Inspection Status Remote Inspection

Locality/City Name
Pipe Connections

Num	-	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	7.2 ft.	Out	PVC	С	10 in.		S	s	GR	
1		Comments									
2	9	7.1 ft.	In	PVC	С	10 in.		S	s	GR	
2		Comme	ents	•							
3	12	6.6 ft.	In	PVC	С	4 in.		s	s	LB	
3		Comme	ents	•							
4	3	7.1 ft.	In	PVC	С	10 in.		s	s	GR	
4		Comme	ents								

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
3.4 ft.		WI	IS							2	6	
3.4 11.	Re	marks										
6.4 ft.		В	DAR				5			12		
0.4 11.	Re	marks	AT LA	AT LATERAL								
6.6 ft.		В	SAP							10	3	
0.011.	Re											
6.6 ft.		В	SAP							4	5	
0.6 11.	Re	marks										
7.2 ft.		С	SAM							12	12	
<i>1</i> .∠ 11.	Re	marks										



# **MACP Survey Report** 6F

Sheet No 357	Surveyor's	name LJF	Certificate Number	U-0417-0700754	<b>Date</b> 2017/08/03
System Owner			Survey Customer		<b>Time</b> 09:00
Drainage Area			Locality/City Name	ONTONAGON	
P.O. No		L	ocation (No. & Name)	RIVER ST AT BRASS	ST
Further Location D	Oetails N	MIDDLE OF INTERS	ECTION	Ins	pection Level Level 1
Outgoing Rim to Ir	nvert	Ou	tgoing Grade to Invert	1	Rim to Grade
Use of Sewer	Sanitary	Year Laid	Year Rehabilitated	Tape/M	edia Number
Purpose Capital I	mprovement Progran	n Assessment		Se	wer Category
Pre-Cleaning			Date Cleaned		Weather
Location Code	Light Highwa	ay	Potential for Runoff	Evidence	of Surcharge No
Access Point Type	• Manhol	е	Coordinate	e System	
Northing		Easting	Elevation	Acc	uracy of GPS
Inspection Status	Remote Insp	ection			
Additional Informa	tion CMU CONE				
Manhole Surface T	ypes				
Concrete Pav	ement ☐ Co	ncrete Collar	Asphalt 🗸	Grass/Dirt	Gravel Other
Cover	Cover Shape Cover Size Cover Size Width Cover Material Cover Frame Fit Cover Type  Solid Vented/Slots Gasketed Hatch Single Hatch Double	Circular 22.0  Cast Iron  Good  Bolted Locking Lamphole Inner Cove	Co·	Vent Ho Bearing Surface Dial Cover Bearing Surfa  ver Condition  Sound Mis Cracked Con	
Cover Insert	Cover Ins	sert Type None	So Po	ver Insert Condition ound oorly Fitting acked/Torn/Holes	Leaking Corroded Insert Fell



Sheet No 357	<b>Survey Date</b> 2017/08/03	P.O. No				
Location (No. & Na	ame) RIVER ST AT BRASS ST	Inspection Level 1				
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection				
Adj. Ring	MH Adjustment Ring Type None  MH Adjustment Ring Material  MH Adjustment Ring Height	MH Adjustment Ring Sound Corroded/Pitted/Worn Cracked Leaking Broken Poor Installation				
Frame	Frame Material Cast Iron Frame Bearing Surface Width	Frame Offset Distance 0 in.  Frame Depth 9.0 in.				
	Frame Bearing Surface Depth	Frame Seal Inflow None				
	Frame Clear Opening Diameter					
	Frame Condition  Sound Missing Cracked Corroded/Pitted/Worn Broken Coated	Frame Seal Condition  Sound Loose/Not Attached Cracked Missing Offset				
Chimney	Chimney Material 1 Brick	Interior Chimney Coating/Liner				
	Chimney Material 2	Exterior Chimney Coating/Liner				
	Chimney Clear Opening	Chimney I/I None				
	Chimney Depth 1.5 ft.					
Cone	Cone Type Conical centered	Cone Depth 4.1 ft.				
	Exterior Cone Coating/Liner	Cone Material Other				
	Interior Cone Coating/Liner					
Wall	Wall Diameter 1 46 in.	Wall Depth 5.6 ft.				
	Wall Diameter 2	Interior Wall Coating/Liner				
		-				
	Wall Material Not Known	Exterior Wall Coating/Liner				
Bench	Bench Present Yes					
	Bench Material Concrete (non-reinforced)					
	Bench Coating/Liner					
Channel/Step	Channel	Step				
	Channel Material Concrete (non-reinforced)	# Steps 1				
	Channel Type Formed					
	Channel Exposure Fully Opened Channel Installed Yes	Step Material Metal				



P.O. No

**Sheet No** 357 **Survey Date** 2017/08/03

 Location (No. & Name)
 RIVER ST AT BRASS ST
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

Pipe	Connections

Num	_	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR		
1	6	6.1 ft.	Out	AC	С	16 in.		S	s	GR			
l		Comme	ents										
2	9	5.9 ft.	In	RCP	С	12 in.		S	s	GR			
-		Comments											
3	12	6.0 ft.	In	VCP	С	16 in.		S	s	GR			
)	Comments MATERIAL ASSUMED CORRECT FROM GIS												
4	3	5.9 ft.	In	RCP	С	18 in.		S	s	GR			
4		Comme	ents										

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.0.#		СМІ	MML							9	2	
0.9 ft.	Re	marks		•				•	•			
0.0.#		СМІ	MMM							2	9	
0.9 ft.	Re	marks		•				•	•			
1.0 ft.		СМІ	МВ							9	2	
1.011.	Re	marks		•				•	•			
0.4.6		COI	IW							6		
3.4 ft.	Re	marks		•				•	•			
40#		WI	IW		J					12	12	
4.0 ft.	Re	marks										
4.0 ft.		WI	DNF		J		5			2		
4.0 11.	Re											
4.0.ft		WI	DNF		J		5			4		
4.0 ft. Remarks												
6.7 ft.		С	ОВВ				5			12		
O. I II.	Re	marks										



# **MACP Survey Report** 15H

Sheet No 200	Surveyor's name LJF	Certificate Number	U-0417-0700754	Date 2017/06/02	
System Owner		Survey Customer		<b>Time</b> 11:06	
Drainage Area		Locality/City Name	ONTONAGON		
P.O. No		Location (No. & Name)	N STEEL ST AT MICHIGAN ST	-	
Further Location D	etails EAST SHOULD	ER	Inspection L	evel Level 1	
Outgoing Rim to In	vert	Outgoing Grade to Invert	Rim to G	rade	
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Nun	nber	
Purpose Capital I	mprovement Program Assessment		Sewer Cate	gory	
Pre-Cleaning		Date Cleaned	Wea	ther	
<b>Location Code</b>	Light Highway	Potential for Runoff	Evidence of Surcha	arge No	
Access Point Type	Manhole	Coordinate	e System		
Northing	Easting	Elevation	Accuracy of GPS		
Inspection Status	Remote Inspection				
Additional Informa	tion				
Manhole Surface T	ypes				
Concrete Pave	_	Asphalt 🗸	Grass/Dirt Grave	ol Other	
Control of a viv			01403/Dilt 01440		
Cover	Cover Type   ✓ Solid	Good Cov	# of Vent Ho Vent Hole Diame Bearing Surface Diameter Wie Cover Bearing Surface Diame  ver Condition    Sound	eter dth eter	
Cover Insert	Cover Insert Type None	So Po	oorly Fitting Co	aking erroded sert Fell	



Sheet No 200	Survey Date 2017/06/02							
Location (No. & Na	ame) N STEEL ST AT MICHIGAN ST	Inspection Level Level 1						
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection						
		<u> </u>						
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring						
	MH Adjustment Ring Material	Sound Corroded/Pitted/Worn						
		Cracked Leaking						
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation						
	·							
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.						
	Frame Bearing Surface Width	Frame Depth 8.0 in.						
	Frame Bearing Surface Depth	Frame Seal Inflow None						
	Frame Clear Opening Diameter							
	Frame Condition	Frame Seal Condition						
	Sound Missing	Sound Loose/Not Attached						
	Cracked Corroded/Pitted/Worn	☐ Cracked						
	☐ Broken ☐ Coated	☐ Missing ☐ Offset						
Chimney	Chimney Material 1 Concrete (reinforced)	Interior Chimney Coating/Liner						
	Chimney Material 2	Exterior Chimney Coating/Liner						
	Chimney Clear Opening	Chimney I/I None						
	Chimney Depth 1.0 ft.							
Cone	Cone Type Conical off centered	Cone Depth 3.4 ft.						
	Exterior Cone Coating/Liner	Cone Material Concrete (reinforced)						
	Interior Cone Coating/Liner							
	miterior cone coating/Liner							
Wall	Wall Diameter 1 47 in.	Wall Depth 10.5 ft.						
	Wall Diameter 2	Interior Wall Coating/Liner						
	Mall Material							
	Wall Material Concrete (reinforced)	Exterior Wall Coating/Liner						
Bench	Bench Present None							
	Bench Material							
	Bench Coating/Liner							
Channel/Step	Channel	Step						
	Channel Material Polyvinyl Chloride	# Steps 7						
	Channel Type Pipe							
	Channel Exposure Fully Opened							
	Channel Installed Yes	Step Material Plastic						
	Onamici matanca 165							



Sheet No 200

**Survey Date** 2017/06/02

P.O. No
Inspection Level Level 1

Location (No. & Name)
Locality/City Name

N STEEL ST AT MICHIGAN ST

ONTONAGON

Inspection Status Remote Inspection

	Ρ	ipe	Con	nect	ions
--	---	-----	-----	------	------

	CIL	Rim to										
Num	_		Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR	
4	6	11.3 ft.	Out	RCP	С	20 in.		S	S	GR		
1		Comments										
^	11	6.3 ft.	In	PVC	С	6 in.		S	s	LB		
2	Comments											
	1	11.2 ft.	In	RCP	С	20 in.		S	s	GR		
3		Comme	nts	•	•	•	•	•	•			

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
2.4.4		COI	IS							9		
2.1 ft.	R	emarks	LIFT H	OLE				•				
4.2 ft.		WI	CL							12		
4.2 II.	R	emarks	LIFT H	OLE								
4.8 ft.		WI	CL		J					3		
4.0 11.	R	emarks										
8.2 ft.		WI	CL			S				5		
0.2 11.	R	emarks										
8.2 ft.		WI	СМ							6	8	
0.2 11.	R	emarks										
8.5 ft.		WI	FL							10		
0.5 11.	R	emarks										
8.6 ft.		WI	FM							12	4	
0.0 11.	R	emarks										
8.6 ft.		WI	IW							10		
0.0 11.	R	emarks										
8.6 ft.		WI	IW							12		
0.0 11.	R	emarks										
8.6 ft.		WI	IW							6	7	
0.0 11.	R	emarks										
8.8 ft.		WI	IW							5		
0.0 1	R	emarks										
9.4 ft.		WI	IW							3		
0.110	R	emarks										



# MACP Survey Report 10D

Sheet No 80 Surveyor's name LJF	<b>Certificate Number</b> U-0417-0700754: <b>Date</b> 2017/05/12
System Owner	Survey Customer Time 11:56
Drainage Area	Locality/City Name ONTONAGON
P.O. No	ocation (No. & Name) MERCURY AT ZINC ST
Further Location Details MIDDLE OF INTERS	CTION Inspection Level 1
Outgoing Rim to Invert Ou	joing Grade to Invert Rim to Grade
Use of Sewer Sanitary Year Laid	Year Rehabilitated Tape/Media Number
Purpose Capital Improvement Program Assessment	Sewer Category
Pre-Cleaning	Date Cleaned Weather
Location Code Light Highway	Potential for Runoff Evidence of Surcharge No
Access Point Type Manhole	Coordinate System
Northing Easting	Elevation Accuracy of GPS
Inspection Status Remote Inspection	
Additional Information NO CHIMNEY, NO CONE	
Manhole Surface Types	
Concrete Pavement Concrete Collar	Asphalt 🗸 Grass/Dirt 🗌 Gravel 📗 Other 📗
Cover Shape Circular	# of Vent Holes 0
Cover Size 23.0	Vent Hole Diameter
Cover Size Width	
Cover Material Cast Iron	Cover Bearing Surface Diameter Width
Cover Frame Fit Good	Cover Bearing Surface Diameter
Cover Type	Cover Condition
Solid Bolted	Sound Missing
☐ Vented/Slots ☐ Locking	Cracked Corroded/Pitted
Gasketed Lamphole	Broken Bolts Missing
Hatch Single Inner Cove	Restraint Missing
Hatch Double	Restraint Defective
Cover Insert	Cover Insert Condition
Cover Insert Type None	Sound Leaking
22.22.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.	Poorly Fitting Corroded
	☐ Cracked/Torn/Holes ☐ Insert Fell



# MACP Survey Report 10D

Sheet No 80	<b>Survey Date</b> 2017/05/12	P.O. No
Location (No. & Na	me) MERCURY AT ZINC ST	Inspection Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type None  MH Adjustment Ring Material  MH Adjustment Ring Height	MH Adjustment Ring Sound Corroded/Pitted/Worn Cracked Leaking Broken Poor Installation
Frame	Frame Material Cast Iron  Frame Bearing Surface Width  Frame Bearing Surface Depth  Frame Clear Opening Diameter	Frame Offset Distance 2 in.  Frame Depth 7.3 in.  Frame Seal Inflow None
	Frame Condition  Sound Missing Cracked Corroded/Pitted/Worn Broken Coated	Frame Seal Condition  Sound Loose/Not Attached Cracked Missing Offset
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth	
Cone	Cone Type Conical centered	Cone Depth
	Exterior Cone Coating/Liner	Cone Material Other
	Interior Cone Coating/Liner	
Wall	Wall Diameter 1 29 in.	Wall Depth 8.9 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Brick	Exterior Wall Coating/Liner
Bench	Bench Present None	
	Bench Material	
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material	#Steps 0
	Channel Type	
	Channel Exposure	Step Material
	Channel Installed No	•



Sheet No 80 **Survey Date** 2017/05/12

P.O. No Location (No. & Name) MERCURY AT ZINC ST Inspection Level Level 1 Locality/City Name ONTONAGON Inspection Status Remote Inspection

Num	-	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1		9.3 ft.	Out	XXX	С	10 in.		S	D	GR	
1		Comme	nts RF	C		•					
2	11	9.5 ft.	In	XXX	С	12 in.		s	D	GR	
2		Comme	nts RF	С		•	•				
3	2	6.9 ft.	In	PVC	С	4 in.		s	D	LB	
3		Comme	nts RF	C							
4	5	8.0 ft.	In	DIP	С	15 in.		s	s	GR	
4		Comme	nts								

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.7.4		WI	DB							1	8	
0.7 ft.	R	emarks										
0.8 ft.		WI	MML							12	12	
0.6 11.	R	emarks										
0.9 ft.		WI	МВ							8	1	
0.911.	R	emarks										
1.7 ft.		WI	MMS	S01						12	12	
1.7 11.	R	emarks										
6.7 ft.		WI	RFC							1		
0.7 11.	R	emarks	PIPE 3	3								
7.1 ft.		WI	DAE				5			1		
7.111.	R	emarks										
8.3 ft.		WI	RFC							6		
0.5 11.	R	emarks	PIPE 1									
8.4 ft.		WI	RFC							10		
0.4 11.	R	emarks	PIPE 2	2								
8.7 ft.		WI	MMS	F01						12	12	
0.7 11.	R	emarks										



# **MACP Survey Report** 55A

Sheet No 332	Surveyor's name LJF	Certificate Number	U-0417-0700754! <b>D</b> a	ite 2017/08/01
System Owner		Survey Customer	Tin	ne 16:16
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No	J	Location (No. & Name)	ONTONAGON ST AT TRAP ST	
Further Location D	Petails MIDDLE OF INTERS	ECTION	Inspection Level	Level 1
Outgoing Rim to Ir	overt Ou	tgoing Grade to Invert	Rim to Grade	
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Number	
Purpose Capital I	mprovement Program Assessment		Sewer Category	
Pre-Cleaning		Date Cleaned	Weather	
<b>Location Code</b>	Light Highway	Potential for Runoff	Evidence of Surcharge	No
Access Point Type	Manhole	Coordinat	e System	
Northing	Easting	Elevation	Accuracy of GPS	
Inspection Status	Remote Inspection			
Additional Informa	tion NO CHIMNEY			
Manhole Surface T	vnes			
		Asphalt 🗸	Grass/Dirt Gravel	Other 🗆
Concrete Pave	ement Concrete Conar	Aspilait 🛂	Grass/Dift Graver	Other
Cover				
00701	Cover Shape Circular		# of Vent Holes	)
	Cover Size 23.0		Vent Hole Diameter	
	Cover Size Width	Cover	Bearing Surface Diameter Width	
	Cover Material Cast Iron		Cover Bearing Surface Diameter	
	Cover Frame Fit Good			
	Cover Type	Co	ver Condition	
	✓ Solid ☐ Bolted		Sound Missing	
	☐ Vented/Slots ☐ Locking		Cracked Corroded/Pitted	
	☐ Gasketed ☐ Lamphole		Broken Bolts Missing	
	☐ Hatch Single ☐ Inner Cove	er 📗 🗀	Restraint Missing	
	☐ Hatch Double		Restraint Defective	
Cover Insert		Co	ver Insert Condition	
	Cover Insert Type None		ound Leaking	g
	Cover misert Type Mone		oorly Fitting Corrod	ed
		☐ Cr	racked/Torn/Holes	Fell
			<u> </u>	



Sheet No 332	Survey Date 2017/08/01	P.O. No
Location (No. & Na	ame) ONTONAGON ST AT TRAP ST	Inspection Level Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
Adj. Ring		
Auj. Kilig	MH Adjustment Ring Type Solid	MH Adjustment Ring
	MH Adjustment Ring Material Cast Iron	Sound Corroded/Pitted/Worn
	•	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height 3.0 in.	☐ Broken ☐ Poor Installation
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 8.5 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	✓ Sound
	Cracked Corroded/Pitted/Worn	☐ Cracked
	☐ Broken ☐ Coated	Missing Offset
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
		Timiney #1 Profile
	Chimney Depth	
Cone	Cone Type Conical centered	Cone Depth 3.2 ft.
	Exterior Cone Coating/Liner	Cone Material Brick
	Interior Cone Coating/Liner	
	<u> </u>	
Wall	Wall Diameter 1 45 in.	Wall Depth 9.7 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Brick	Exterior Wall Coating/Liner
Bench	Bench Present Partial	
	Bench Material Not Known	
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material Vitrified Clay	# Steps 6
	Channel Type Pipe	'
	Channel Exposure Fully Opened	Cton Metarial Metal
	Channel Installed Yes	Step Material Metal



P.O. No

Sheet No 332 Survey Date 2017/08/01

 Location (No. & Name)
 ONTONAGON ST AT TRAP ST
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

#### **Pipe Connections**

Num		Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	10.6 ft.	Out	VCP	С	15 in.		S	S	GR	
ı		Comme	nts								
2	7	4.8 ft.	In	VCP	С	10 in.		S	S	GR	
		Comme	nts CE	MENT C	APPED,	ABAND	ONED				
3	9	10.5 ft.	In	VCP	С	15 in.		s	S	GR	
<b>ა</b>		Comme	nts								
4	11	4.8 ft.	In	VCP	С	10 in.		s	S	GR	
4		Comme	nts CE	MENT C	APPED,	ABAND	ONED				
5	12	10.5 ft.	In	VCP	С	15 in.		s	S	GR	
<b>5</b>		Comme	nts								
6	1	4.8 ft.	In	VCP	С	10 in.		s	S	GR	
5		Comme	nts CE	MENT C	APPED,	ABAND	ONED				
7	3	9.2 ft.	In	VCP	С	10 in.		S	S	GR	
,		Comme	nts CE	MENT C	APPED,	ABAND	ONED				
8	4	4.9 ft.	In	VCP	С	8 in.		S	S	GR	
·		Comme	nts CE	MENT C	APPED,	ABAND	ONED				
9	5	4.4 ft.	In	PE	С	4 in.		S	S	LB	
9		Comme	nts								

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
1.1 ft.		COI	МВ							12	12	
1.1 11.	R	emarks										
1.1 ft.		COI	MMM							12	12	
1.1 11.	R	emarks										
1.4 ft.		COI	DB							2		
1.4 II.	R	emarks		•				•	•	•		
1.4 ft.		COI	MMS	S01						12	12	
1.4 II.	R	emarks		•				•	•	•		
3.2 ft.		WI	MMS	S02						12	12	
3.2 II.	R	emarks		•				•	•	•		
3.2 ft.		COI	MMS	F01						12	12	
3.2 II.	R	emarks										
9.2 ft.		WI	MMS	F02						12	12	
y.∠ II.	R	emarks							•			



# MACP Survey Report 4H

	Surveyor's na	me LJF	Certificate Number	U-0417-0700754	Date 2017/07/05
System Owner			Survey Customer		Time 11:47
Drainage Area			Locality/City Name	ONTONAGON	
P.O. No		L	ocation (No. & Name)	SPAR ST AT CONGLOM	IERATE ST
Further Location De	etails SE	CORNER OF INT	ERSECTION	Inspec	tion Level Level 1
Outgoing Rim to Inv	/ert	Out	going Grade to Invert	Rin	n to Grade
Use of Sewer	Sanitary	Year Laid	Year Rehabilitated	Tape/Med	ia Number
Purpose Capital Im	nprovement Program A	Assessment		Sewer	· Category
Pre-Cleaning			Date Cleaned		Weather
Location Code	Easement/Righ	nt of Way	Potential for Runoff	Evidence of S	Surcharge No
Access Point Type	Manhole		Coordinate	e System	
Northing		Easting	Elevation	Accura	cy of GPS
Inspection Status	Remote Inspec	ction			
Additional Informati	ion NO CHIMNEY,				
Manhole Surface Ty	pes				
Concrete Pave	_	rete Collar	Asphalt	Grass/Dirt ✓	Gravel Other
Cover	Cover Shape Ci	rcular		# a\$ Va	ent Holes 1
	Cover Size	22.0		Vent Hole	
	Cover Size Width	22.0	•		
,					
•		Coot Iron	Cover	Bearing Surface Diame	
	Cover Material	Cast Iron	Cover	Cover Bearing Surface	
(	Cover Material Cover Frame Fit	Cast Iron Good		Cover Bearing Surface	
(	Cover Material			_	
(	Cover Material Cover Frame Fit			Cover Bearing Surface	Diameter
(	Cover Material Cover Frame Fit Cover Type	Good	Cov	Cover Bearing Surface  ver Condition  Sound Missin	Diameter
(	Cover Material Cover Frame Fit Cover Type Solid	Good	Cov	ver Condition  Sound Missin  Cracked Corro	Diameter
(	Cover Material Cover Frame Fit Cover Type  Solid Vented/Slots	Good  Bolted Locking	Co.	ver Condition  Sound Missin  Cracked Corro	Diameter ng ded/Pitted
(	Cover Material Cover Frame Fit Cover Type Solid Vented/Slots Gasketed	Good  Bolted Locking Lamphole	Co.	ver Condition  Sound Missin  Cracked Corroc  Broken Bolts	Diameter ng ded/Pitted
(	Cover Material Cover Frame Fit Cover Type Solid Vented/Slots Gasketed Hatch Single	Good  Bolted Locking Lamphole	Co.	ver Condition  Sound Missin Cracked Corroc Broken Bolts Restraint Missing	Diameter ng ded/Pitted
(	Cover Material Cover Frame Fit Cover Type Solid Vented/Slots Gasketed Hatch Single	Good  Bolted Locking Lamphole	Co.	ver Condition  Sound Missin Cracked Corroc Broken Bolts Restraint Missing	Diameter ng ded/Pitted
	Cover Material Cover Frame Fit Cover Type Solid Vented/Slots Gasketed Hatch Single	Good  Bolted Locking Lamphole	, Co	ver Condition    Sound	Diameter ng ded/Pitted
(	Cover Material Cover Frame Fit Cover Type Solid Vented/Slots Gasketed Hatch Single	Good  Bolted Locking Lamphole	Cov	ver Condition    Sound	Diameter ng ded/Pitted
	Cover Material Cover Frame Fit Cover Type Solid Vented/Slots Gasketed Hatch Single Hatch Double	Good  Bolted Locking Lamphole Inner Cover	Cov	ver Condition    Sound	Diameter ng ded/Pitted
	Cover Material Cover Frame Fit Cover Type Solid Vented/Slots Gasketed Hatch Single Hatch Double	Good  Bolted Locking Lamphole	Coo	ver Condition    Sound	Diameter  Ig ded/Pitted Missing
	Cover Material Cover Frame Fit Cover Type Solid Vented/Slots Gasketed Hatch Single Hatch Double	Good  Bolted Locking Lamphole Inner Cover	Coo	ver Condition    Sound	Diameter  Ig ded/Pitted Missing  Leaking



Sheet No 267	<b>Survey Date</b> 2017/07/05	P.O. No
Location (No. & Na	ame) SPAR ST AT CONGLOMERATE ST	Inspection Level Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
	MH Adjustment Ring Material	Sound Corroded/Pitted/Worn
	Min Adjustinent King Material	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
Frame	Frame Material Cast Iron	Frame Offset Distance 5 in.
	Frame Bearing Surface Width	Frame Depth 8.5 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	✓ Sound
	☐ Cracked ☐ Corroded/Pitted/Worn	☐ Cracked
	☐ Broken ☐ Coated	☐ Missing ☐ Offset
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner
Gillinoy	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth	
Cone	Cone Type Conical off centered	Cone Depth 6.6 ft.
	Exterior Cone Coating/Liner	Cone Material Brick
	Interior Cone Coating/Liner	
	micro Conc County Line.	
Wall	Wall Diameter 1 38 in.	Wall Depth 9.8 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Brick	Exterior Wall Coating/Liner
Bench	Bench Present Yes	
	Bench Material Not Known	
	Bench Coating/Liner	
Channel/Step	Channel	Step
-	Channel Material Concrete (non-reinforced)	# Steps 0
	Channel Type Pipe	
	Channel Exposure Fully Opened	
	Channel Installed Yes	Step Material



Sheet No 267 Location (No. & Name) **Survey Date** 2017/07/05

P.O. No Inspection Level Level 1

Locality/City Name

SPAR ST AT CONGLOMERATE ST

ONTONAGON

Inspection Status Remote Inspection

Ρi	pe I	Cor	nne	ctic	ons
-		y	_	9	

Num	_	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	10.5 ft.	Out	СР	С	10 in.		S	S	GR	
		Comme	nts								
2	12	10.4 ft.	In	СР	С	10 in.		s	s	GR	
۷		Comme	nts	•				•	•		•

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
4.0.4		COI	DNF				5			12	12	
1.0 ft.	F	Remarks		•				•				
10#		COI	MB							12	12	
1.0 ft.	F	Remarks		•				•				
10#		COI	MMS	S01						12	12	
1.3 ft.	F	Remarks							•			
4.3 ft.		COI	DB							12		
4.3 11.	F	Remarks										
6.5 ft.		COI	MMS	F01						12	12	
0.5 II.	F	Remarks										
6.5 ft.		WI	MMS	S02						12	12	
0.5 II.	F	Remarks										
7.2 ft.		WI	DB							6		
1 .Z II.	F	Remarks							12   12			
9.8 ft.		WI	MMS	F02						12	12	
3.0 II.	F	Remarks										·



# MACP Survey Report 32K

Sheet No 163	Surveyor's name LJF	Certificate Number	U-0417-0700754	Date 2017/05/31
System Owner		Survey Customer		<b>Time</b> 10:49
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name)	PEBBLE BEACH DR WEST BRACEBURN CT	OF
Further Location D	etails MIDDLE OF RO	DAD	Inspection	<b>Level</b> Level 1
Outgoing Rim to In	vert	Outgoing Grade to Invert	Rim to	Grade
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media N	lumber
Purpose Capital I	mprovement Program Assessment		Sewer Ca	tegory
Pre-Cleaning		Date Cleaned	W	eather eather
<b>Location Code</b>	Light Highway	Potential for Runoff	Evidence of Sur	charge No
Access Point Type	Manhole	Coordinate	e System	
Northing	Easting	Elevation	Accuracy (	of GPS
Inspection Status	Remote Inspection			
Additional Informa	tion			
Manhole Surface T	ypes			
Concrete Pave	ement Concrete Collar	☐ Asphalt ✓	Grass/Dirt Gra	vel 🗌 Other 🔲
			<del></del>	
Cover	Cover Shape Circular		# of Vent	Holes 24
	Cover Size 22.0		Vent Hole Dia	meter
	Cover Size Width	Cover	Bearing Surface Diameter	Width
	Cover Material Cast Iron		<b>Cover Bearing Surface Dia</b>	meter
	Cover Frame Fit	Good		
	Cover Type	Cov	ver Condition	
	☐ Solid ☐ Bolte	d	Sound Missing	
	✓ Vented/Slots	ng   🗔	Cracked Corroded	/Pitted
	☐ Gasketed ☐ Lamp		Broken Bolts Mis	sing
	= = :	Cover	Restraint Missing	
	☐ Hatch Double		Restraint Defective	
			•	
Cover Insert		Cov	ver Insert Condition	
		│ □ So	ound $\square$	Leaking
	Cover Insert Type Non	e   💳	=	Corroded
			· · =	Insert Fell



Sheet No 163	Survey Date 2017/05/31	P.O. No					
Location (No. & Na	me) PEBBLE BEACH DR WEST OF BRACEBUR	RN CT Inspection Level Level 1					
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection					
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring					
	MH Adjustment Ring Material	Sound Corroded/Pitted/Worn					
	,	Cracked Leaking					
	MH Adjustment Ring Height	Broken Poor Installation					
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.					
	Frame Bearing Surface Width	Frame Depth 6.5 in.					
	Frame Bearing Surface Depth	Frame Seal Inflow None					
	Frame Clear Opening Diameter						
	Frame Condition	Frame Seal Condition					
	Sound Missing	Sound Loose/Not Attached					
	☐ Cracked ☐ Corroded/Pitted/Worn	☐ Cracked					
	☐ Broken ☐ Coated	☐ Missing ☐ Offset					
Chimney	Chimney Material 1 Brick	Interior Chimney Coating/Liner					
	Chimney Material 2	Exterior Chimney Coating/Liner					
	Chimney Clear Opening	Chimney I/I None					
	Chimney Depth 1.6 ft.						
Cone	Cone Type Conical off centered	Cone Depth 3.7 ft.					
	Exterior Cone Coating/Liner	Cone Material Concrete (reinforced)					
	Interior Cone Coating/Liner						
Wall	Wall Diameter 1 48 in.	Wall Depth 6.1 ft.					
	Wall Diameter 2	Interior Wall Coating/Liner					
	Wall Material Concrete (reinforced)	Exterior Wall Coating/Liner					
	·						
Bench	Bench Present None						
	Bench Material						
	Bench Coating/Liner						
	Denon Coating/Line						
Channel/Step	Channel	Step					
	Channel Material	# Steps 3					
	Channel Type						
	Channel Exposure	Chan Matarial Matal					
	Channel Installed No	Step Material Metal					



# MACP Survey Report 32K

**Report Date** 2018/11/07

P.O. No

**Sheet No** 163 **Survey Date** 2017/05/31

 Location (No. & Name)
 PEBBLE BEACH DR WEST OF BRACEBURN CT
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

#### Pipe Connections

Num	_	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
4	6	6.8 ft.	Out	RPM	С	8 in.		S	s	GR	
'		Comme	nts								

O	ne	$\Delta r$	vei	ПО	ne
v		er	vai	по	ns

Distance	Vid Ref (	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.8 ft.	(	СМІ	MB							3		
0.6 11.	Rei	marks		•					•			
0.8 ft.	(	СМІ	MMM							12	2	
0.6 11.	Rei	marks		•					•			
3.8 ft.	\	WI	IW		J					1	6	
3.0 11.	Rei	marks										
4.5 ft.	\	WI	IW							8		
4.5 11.	Rei	marks										
6.8 ft.	I	В	OBB				5			6		
0.0 11.	Rei	marks										
6.9 ft.	ı	В	DSF				5			12	12	
0.5 11.	Rei	marks										



**MACP Survey Report 29D** Report Date 2018/11/07 Sheet No 46 Surveyor's name LMF Certificate Number U-416-07003735 Date 2017/05/10 **System Owner Survey Customer** Time 08:30 **Drainage Area** Locality/City Name ONTONAGON P.O. No Location (No. & Name) OLD ROCKLAND ROAD **Further Location Details** NE CORNER OF PAYNE ST INTERSECTION Inspection Level Level 1 **Outgoing Rim to Invert Outgoing Grade to Invert** Rim to Grade **Use of Sewer** Sanitary Year Laid Year Rehabilitated Tape/Media Number Purpose Capital Improvement Program Assessment **Sewer Category Pre-Cleaning Date Cleaned** Weather **Location Code** Easement/Right of Way **Potential for Runoff** Evidence of Surcharge No **Access Point Type** Manhole **Coordinate System** Elevation **Accuracy of GPS Northing Easting Inspection Status** Remote Inspection Additional Information BLOCK CHIMNEY, NO CONE **Manhole Surface Types** Concrete Pavement Concrete Collar Asphalt Grass/Dirt 🗸 Gravel Other Cover **Cover Shape** Circular # of Vent Holes 0 **Cover Size** 22.0 **Vent Hole Diameter Cover Size Width Cover Bearing Surface Diameter Width Cover Material** Cast Iron **Cover Bearing Surface Diameter Cover Frame Fit** Good **Cover Type Cover Condition** ✓ Solid ☐ Bolted **✓** Sound ☐ Cracked Corroded/Pitted □ Vented/Slots Locking Gasketed Lamphole Broken ■ Bolts Missing ☐ Hatch Single ☐ Inner Cover **Restraint Missing**  ☐ Hatch Double **Restraint Defective** 

Cover Insert	Cover Insert Condition						
Cover Insert Type None	Sound Poorly Fitting Cracked/Torn/Holes	Leaking Corroded Insert Fell					



Sheet No 46	<b>Survey Date</b> 2017/05/10	P.O. No
Location (No. & Na	ame) OLD ROCKLAND ROAD	Inspection Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
		<u> </u>
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
	MH Adjustment Ring Material	Sound Corroded/Pitted/Worn
		☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 9.0 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	Sound Loose/Not Attached
	☐ Cracked ☐ Corroded/Pitted/Worn	Cracked
	☐ Broken ☐ Coated	☐ Missing ☐ Offset
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner
· · · · · · · · · · · · · · · · · · ·	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth 1.1 ft.	
Cone	Cone Type Flattop	Cone Depth 0.0 ft.
	Exterior Cone Coating/Liner	Cone Material Other
	Interior Cone Coating/Liner	
	menor come coaming/Emer	
Wall	Wall Diameter 1 30 in.	Wall Depth 3.8 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Brick	Exterior Wall Coating/Liner
Bench	Parat Parant	
<u> </u>	Bench Present Yes	
	Bench Material	
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material Vitrified Clay	#Steps 0
	-	# Steps ∪
	Channel Type Pipe	
	Channel Exposure Fully Opened	Step Material
	Channel Installed Yes	



### MACP Survey Report 29D

### **Report Date** 2018/11/07

P.O. No

**Sheet No** 46 **Survey Date** 2017/05/10

 Location (No. & Name)
 OLD ROCKLAND ROAD
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

#### **Pipe Connections**

		Rim to									
Num	Pos	Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
4	6	3.8 ft.	Out	VCP	С	12 in.		S	S	GR	
1		Comme	nts	•							•
0	12	3.8 ft.	In	VCP	С	10 in.		S	s	GR	
2		Comme	ents	•		•					•
2	11	2.5 ft.	In	СМР	С	6 in.		s	s	LB	
3		Comme	nts	•	•	•	•	•	•		•

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.5 ft.		WI	DB							11		
0.5 11.	Re	marks										
1.4 ft.		WI	MMS							12	12	
1.4 11.	Re	marks										
1.5 ft.		WI	МВ							11		
1.5 11.	Re	marks										
1.8 ft.		WI	RFB							7	9	
1.0 11.	Re	marks										
2.1 ft.		В	DSF				10			12	12	
Z.1 II.	Re	marks										
2.4 ft.		WI	RFB							3	4	
∠.4 II.	Re	marks										



### **MACP Survey Report** 22J

Sheet No 95	Surveyor's name LJF	Certificate Number	U-0417-0700754	Date 2017/05/12
System Owner		Survey Customer		Time 16:31
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name)	S 7TH ST AT JAMES ST	
Further Location [	Details MIDDLE OF RO	DAD	Inspection	Level Level 1
Outgoing Rim to I	nvert	Outgoing Grade to Invert	Rim to 0	Grade
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Nu	mber
Purpose Capital	Improvement Program Assessment		Sewer Cate	egory
Pre-Cleaning		Date Cleaned	We	ather
<b>Location Code</b>	Light Highway	Potential for Runoff	Evidence of Surch	narge No
Access Point Type	e Manhole	Coordinate	e System	
Northing	Easting	Elevation	Accuracy of	F GPS
Inspection Status	Remote Inspection			
Additional Informa	ation			
Manhole Surface	Types			
Concrete Pay	_	☐ Asphalt ✓	Grass/Dirt Grav	rel Other
Concrete i av	ement concrete conar	Aspirant &	Glass/blit Glav	
Cover	Cover Type  Solid Bolte Vented/Slots Locki Gasketed Lamp	Good Cov	# of Vent H Vent Hole Diam Bearing Surface Diameter W Cover Bearing Surface Diam  ver Condition Sound Missing Cracked Corroded/F Broken Bolts Miss Restraint Missing Restraint Defective	eter fidth eter
Cover Insert	Cover Insert Type Nor	e So	oorly Fitting	eaking corroded nsert Fell



Sheet No 95	Survey Date 2017/05/12	P.O. No
Location (No. & Na	ame) S 7TH ST AT JAMES ST	Inspection Level Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
	MH Adjustment Ring Material	Sound Corroded/Pitted/Worn
	,	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
	'	
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 8.9 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	Sound Loose/Not Attached
	Cracked Corroded/Pitted/Worn	☐ Cracked
	☐ Broken ☐ Coated	☐ Missing ☐ Offset
Chimney	Chimney Material 1 Concrete (reinforced)	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth 1.5 ft.	
Cone	Cone Type Conical off centered	Cone Depth 4.0 ft.
	Exterior Cone Coating/Liner	Cone Material Concrete (reinforced)
	Interior Cone Coating/Liner	
	•	
Wall	Wall Diameter 1 48 in.	Wall Depth 7.9 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Concrete (reinforced)	Exterior Wall Coating/Liner
		<b>3</b>
Bench	Bench Present Yes	
	Bench Material Concrete (non-reinforced)	
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material Polyvinyl Chloride	# <b>Steps</b> 5
	Channel Type Pipe	
	Channel Exposure Fully Opened	Step Material Plastic
	Channel Installed Yes	
	1	



**Sheet No** 95 **Survey Date** 2017/05/12

 Location (No. & Name)
 S 7TH ST AT JAMES ST
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

#### **Pipe Connections**

	Clk	Rim to										
Num	Pos	Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR	
4	6	8.7 ft.	Out	PVC	С	8 in.		S	S	GR		
'		Comme	nts			•						
2	9	8.3 ft.	In	PVC	С	8 in.		s	s	GR		
2	Comments											
2	12	8.6 ft.	In	PVC	С	8 in.		s	D	GR		
3		Comme	nts IW		•		•	•	•		•	

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
40#		WI	IS		J					8	4	
4.9 ft.	R	emarks		•					•			
6.1 ft.		WI	IW							9		
0.11.	R	emarks	LIFT H	OLE					•			
6.1 ft.		WI	DAE				5			9		
O. I II.	R	emarks	LIFT H	OLE								
6.7 ft.		WI	СМ							5	6	
0.7 11.	R	emarks										
7.0 ft.		WI	FM							11	12	
7.0 11.	R	emarks										
7.1 ft.		WI	IW							6	7	
7.1 11.	R	emarks	AT FR	ACTUI	RE							
7.5 ft.		WI	FC							6	7	
7.5 il.	R	emarks										
7.8 ft.		WI	IW							11	12	
7.0 it.	R	emarks	AT FR	ACTUI	RE							



# **MACP Survey Report** 21A

Sheet No 301	Surveyor's name LJF	Certificate Number	U-0417-0700754: Date 2017/07/27
System Owner		Survey Customer	<b>Time</b> 15:06
Drainage Area		Locality/City Name	ONTONAGON
P.O. No		Location (No. & Name)	CHIPPEWA ST AT EPIDOTE ST
Further Location D	etails MIDDLE O	F INTERSECTION	Inspection Level Level 1
Outgoing Rim to In	vert	Outgoing Grade to Invert	Rim to Grade
Use of Sewer	Sanitary Year L	aid Year Rehabilitated	Tape/Media Number
Purpose Capital II	mprovement Program Assessr	ment	Sewer Category
Pre-Cleaning		Date Cleaned	Weather
Location Code	Light Highway	Potential for Runoff	Evidence of Surcharge No
Access Point Type	Manhole	Coordinat	e System
Northing	East	ing Elevation	Accuracy of GPS
Inspection Status	Remote Inspection		
Additional Information	tion NO CHIMNEY, NO CON	E, WALL IS SLIGHTLY CONICAL	
Manhole Surface T	vpes		
Concrete Pave		ollar Asphalt 🗸	Grass/Dirt Gravel Other
Controle i uvi		Aophan (*)	Grass/Birt   Graver   Graver
	□ Vented/Slots     □ L       □ Gasketed     □ L	on Good <b>Co</b> o	# of Vent Holes 0 Vent Hole Diameter Bearing Surface Diameter Width Cover Bearing Surface Diameter  ver Condition  Sound Missing Cracked Corroded/Pitted Broken Bolts Missing Restraint Missing Restraint Defective
Cover Insert	Cover Insert Type	None So	ver Insert Condition  Dund Leaking  Dorly Fitting Corroded  Dacked/Torn/Holes Insert Fell



Sheet No 301	<b>Survey Date</b> 2017/07/27	P.O. No
Location (No. & Na	ame) CHIPPEWA ST AT EPIDOTE ST	Inspection Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type None MH Adjustment Ring Material MH Adjustment Ring Height	MH Adjustment Ring Sound Corroded/Pitted/Worn Cracked Leaking Broken Poor Installation
Frame	Frame Material Cast Iron Frame Bearing Surface Width	Frame Offset Distance 0 in.  Frame Depth 9.0 in.
	Frame Bearing Surface Depth Frame Clear Opening Diameter	Frame Seal Inflow None
	Frame Condition  Frame Condition  Sound Missing Cracked Corroded/Pitted/Worn Broken Coated	Frame Seal Condition  Sound Loose/Not Attached Cracked Missing Offset
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth	
Cone	Cone Type Conical centered	Cone Depth
	Exterior Cone Coating/Liner	Cone Material Other
	Interior Cone Coating/Liner	
Wall	Wall Diameter 1 32 in.	Wall Depth 4.5 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Brick	Exterior Wall Coating/Liner
Bench	Bench Present Yes  Bench Material Not Known  Bench Coating/Liner	
Channel/Step	Channel	Step
_	Channel Material Vitrified Clay Channel Type Pipe	# Steps 0
	Channel Exposure Fully Opened Channel Installed Yes	Step Material



Sheet No 301 Location (No. & Name) Survey Date 2017/07/27

P.O. No

Inspection Level Level 1

Locality/City Name

CHIPPEWA ST AT EPIDOTE ST

ONTONAGON

Inspection Status Remote Inspection

#### Pipe Connections

Num	-	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR				
_	6	5.3 ft.	Out	VCP	С	10 in.		S	S	GR					
		Comments													
2	9	5.0 ft.	In	VCP	С	8 in.		S	D	GR					
2		Comme	nts LA	TERAL T	O DEAD	END ST	ΓREET, Ι	RFC			•				
2	12	5.3 ft.	In	VCP	С	8 in.		S	D	GR					
3	Comments RMC														
4	1	4.8 ft.	In	PVC	С	4 in.		S	D	LB					
4	Comments RMC														
_	3	4.9 ft.	In	VCP	С	8 in.		S	D	GR					
5		Comme	nts RN	ИC	•	•	•	•			·				
_	5	3.4 ft.	In	VCP	С	8 in.		S	S	GR					
6		Comme	nts CE	MENT C	APPED,	ABAND	ONED	•	•						

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.0.4		СМІ	МВ							6	8	
0.9 ft.	F	Remarks		•					•			
1.0 ft.		СМІ	MMM							6	8	
1.0 11.	F	Remarks										
1.9 ft.		COI	MMS							11		
1.911.	F	Remarks										
2.3 ft.		COI	MMS							1		
2.3 11.	F	Remarks										
2.7 ft.		WI	DNF				5			4		
2.7 11.	F	Remarks	PIPE 6	SEAL	-							
2.7 ft.		WI	RFC							4		
2.7 11.	F	Remarks	PIPE 6	SEAL	-							
3.7 ft.		WI	RFB							12	12	
5.7 It.	F	Remarks										
4.1 ft.		WI	RMC				10			3		
7.116.	F	Remarks										
4.4 ft.		WI	RMC				10			2		
7.7 10.	F	Remarks										
4.4 ft.		WI	RMC				10			10		
	F	Remarks										
4.5 ft.		WI	RMC				10			12		
	F	Remarks										



### **MACP Survey Report** 5F

Sheet No 355	Surveyor's name LJF	Certificate Number	U-0417-0700754:	Date 2017/08/02
System Owner		Survey Customer		Time 16:51
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name)	RIVER ST EAST OF SPAR ST $$	
Further Location D	<b>Details</b> MIDDLE OF RO	AD	Inspection L	evel Level 1
Outgoing Rim to In	nvert	Outgoing Grade to Invert	Rim to Gr	ade
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Nun	nber
Purpose Capital	Improvement Program Assessment		Sewer Categ	gory
Pre-Cleaning		Date Cleaned	Wea	ther
<b>Location Code</b>	Light Highway	Potential for Runoff	Evidence of Surcha	arge No
Access Point Type	Manhole Manhole	Coordinate	e System	
Northing	Easting	Elevation	Accuracy of	GPS
Inspection Status	Remote Inspection			
Additional Informa	ntion CMU WALL-CONE, WALL IS	CONICAL		
Manhole Surface 1	Types			
Concrete Pav	_	Asphalt 🗸	Grass/Dirt Grave	I Other
Concrete 1 av	cinent 🗀 Gonerete Gonar	Aspirant 🛂	Olassibilit 🔝 Olave	
Cover	Cover Shape Circular Cover Size 22.0  Cover Size Width Cover Material Cast Iron Cover Frame Fit Cover Type  Solid Bolted Vented/Slots Lockir Gasketed Lampl Hatch Single Inner G	Con I ng	# of Vent Ho Vent Hole Diame Bearing Surface Diameter Wid Cover Bearing Surface Diame  ver Condition    Sound	tter dth tter
Cover Insert	Cover Insert Type None	So	oorly Fitting Co	aking rroded sert Fell



### **MACP Survey Report** 5F

Sheet No 355	<b>Survey Date</b> 2017/08/02	P.O. No
Location (No. & Na	ame) RIVER ST EAST OF SPAR ST	Inspection Level Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type None MH Adjustment Ring Material	MH Adjustment Ring Sound Corroded/Pitted/Worn Cracked Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 8.5 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	Sound Loose/Not Attached
	☐ Cracked ☑ Corroded/Pitted/Worn	Cracked
	☐ Broken ☐ Coated	Missing Offset
Chimney	Chimney Material 1 Brick	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth 1.3 ft.	
Cone	Cone Type Conical centered	Cone Depth 3.3 ft.
	Exterior Cone Coating/Liner	Cone Material Other
	Interior Cone Coating/Liner	
Wall	Wall Diameter 1 40 in.	Wall Depth 3.3 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Other	Exterior Wall Coating/Liner
Bench	Bench Present Yes	
	Bench Material Concrete (non-reinforced)	
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material Concrete (non-reinforced)	# Steps 0
	Channel Type Formed	
	Channel Exposure Fully Opened	Step Material
	Channel Installed Yes	



### **MACP Survey Report** 5F

### **Report Date** 2018/11/07

P.O. No

Sheet No 355 **Survey Date** 2017/08/02

Location (No. & Name) RIVER ST EAST OF SPAR ST Inspection Level Level 1 Locality/City Name ONTONAGON

Inspection Status Remote Inspection

#### Pipe Connections

		Rim to									
Num	Pos	Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	3.8 ft.	Out	VCP	С	12 in.		S	s	GR	
'		Comme	ents								
2	8	3.3 ft.	In	СР	С	8 in.		S	s	LB	
2		Comme	ents AS	SUMED	LATERA	L TO BU	JILDING,	NOT SHOW	VN IN GIS		
3	12	3.8 ft.	In	VCP	С	12 in.		S	s	GR	
3		Comme	ents								
1	3	3.3 ft.	In	СР	С	6 in.		S	s	LB	
4		Comme	ents	•	•		•				

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.8 ft.		CMI	MB							2	12	
0.6 11.	Re	marks										
1.1 ft.		CMI	MMM							2	12	
1.116.	Re	marks										
1.4 ft.		COI	MMS							11		
1.4 11.	Re	marks										
2.6 ft.		COI	MMS							12	12	
2.0 II.	Re	marks										



### **MACP Survey Report** 7F

Sheet No 359	Surveyor's name LJ	F Certificate Number	r U-0417-0700754! <b>D</b>	Pate 2017/08/03
System Owner		Survey Custome	r Ti	ime 09:24
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name	) RIVER ST EAST OF QUARTZ	
Further Location D	Details MIDDLE C	OF ROAD	Inspection Leve	Level 1
Outgoing Rim to In	nvert	Outgoing Grade to Inver	t Rim to Grade	е
Use of Sewer	Sanitary Year I	_aid Year Rehabilitated	Tape/Media Numbe	r
Purpose Capital	Improvement Program Assess	ment	Sewer Category	y
Pre-Cleaning		Date Cleaned	Weathe	r
<b>Location Code</b>	Light Highway	Potential for Runoff	Evidence of Surcharge	e No
Access Point Type	e Manhole	Coordina	te System	
Northing	Eas	ting Elevation	Accuracy of GPS	S
Inspection Status	Remote Inspection			
Additional Informa	ntion CMU CONE AND WALL	-		
Manhole Surface 1	Гуреѕ			
Concrete Pav	ement Concrete C	ollar ☐ Asphalt ✓	Grass/Dirt Gravel	Other
Cover	☐ Vented/Slots ☐ I	Good Co	# of Vent Holes  Vent Hole Diameter or Bearing Surface Diameter Width Cover Bearing Surface Diameter  Over Condition  Sound Missing Cracked Corroded/Pitted Broken Bolts Missing Restraint Missing Restraint Defective	
Cover Insert	Cover Insert Type	None S	over Insert Condition  ound	ded



Sheet No 359	Survey Date 2017/08/03	P.O. No
Location (No. & Na	ame) RIVER ST EAST OF QUARTZ	Inspection Level Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
		<u> </u>
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
	MH Adjustment Ring Material	Sound Corroded/Pitted/Worn
	,	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
	,	
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 8.0 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	✓ Sound
	☐ Cracked ☐ Corroded/Pitted/Worn	Cracked
	Broken Coated	Missing Offset
Chimney	Chimney Material 1 Brick	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth 1.1 ft.	
Cone	Cone Type Conical centered	Cone Depth 3.7 ft.
	Exterior Cone Coating/Liner	Cone Material Other
	Interior Cone Coating/Liner	
Wall	Wall Diameter 1 47 in.	Wall Depth 5.6 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Other	Exterior Wall Coating/Liner
	Wali Material Other	Exterior wan coating/Lines
Bench	Bench Present Yes	
	Bench Material Concrete (non-reinforced)	
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material Concrete (non-reinforced)	# Steps 2
	Channel Type Formed	
	Channel Exposure Fully Opened	Our Material Material
	Channel Installed Yes	Step Material Metal



**Sheet No** 359 **Survey Date** 2017/08/03

 Location (No. & Name)
 RIVER ST EAST OF QUARTZ
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

#### **Pipe Connections**

Num	_	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	6.3 ft.	Out	RCP	С	18 in.		S	S	GR	
1		Comme	nts			•					
2	9	4.5 ft.	In	VCP	С	6 in.		s	D	LB	
		Comme	nts IW								
3	11	5.0 ft.	In	СР	С	6 in.		s	s	LB	
3		Comme	nts								
4	12	6.8 ft.	In	AC	С	15 in.		S	S	GR	
4		Comme	nts								

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.0.4		CMI	МВ							6	5	
0.9 ft.	F	Remarks		•								
1.2 ft.		COI	MMS	S01						12	12	
1. <b>∠</b> Il.	F	Remarks		•					•	·		
174		COI	FS							4	5	
1.7 ft.	F	Remarks								•		
3.6 ft.		COI	MMS	F01						12	12	
3.0 II.	F	Remarks		•					•	·		
3.7 ft.		WI	IW		J					12	12	
3. <i>1</i> II.	F	Remarks										
4.1 ft.		WI	IW							9		
4.111.	F	Remarks										
6.5 ft.		С	OBB				5			9		
0.5 11.	F	Remarks										
6.6 ft.		С	OBB				5			2		
υ.υ π.	F	Remarks										



### **MACP Survey Report** 20A

Sheet No 300	Surveyor's name LJF	Certificate Number	U-0417-0700754	Pate 2017/07/27
System Owner		Survey Customer	Ti	i <b>me</b> 14:49
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name)	CHIPPEWA ST NE OF AMYGDAL	OID
Further Location D	etails NORTH SHOULDE	ER .	Inspection Leve	Level 1
Outgoing Rim to Ir	vert C	Outgoing Grade to Invert	Rim to Grade	е
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Numbe	r
Purpose Capital I	mprovement Program Assessment		Sewer Categor	y
Pre-Cleaning		Date Cleaned	Weathe	r
Location Code	Light Highway	Potential for Runoff	Evidence of Surcharge	e No
Access Point Type	Manhole	Coordinate	e System	
Northing	Easting	Elevation	Accuracy of GPS	S
Inspection Status	Remote Inspection			
Additional Informa	tion			
Manhole Surface T	ypes			
Concrete Pave		Asphalt 🗸	Grass/Dirt Gravel	Other
00110101011		, topilali 🐷		J 6e.
Cover	Cover Change Circular		# of Vout Holoo	^
	Cover Shape Circular Cover Size 23.0		# of Vent Holes	U
		Cover	Vent Hole Diameter	
	Cover Natarial Coat Iron	Cover	Bearing Surface Diameter Width	
	Cover Material Cast Iron		Cover Bearing Surface Diameter	
	Cover Frame Fit Goo			
	Cover Type	Co	ver Condition	
	✓ Solid		Sound Missing	
	☐ Vented/Slots ☐ Locking		Cracked Corroded/Pitted	t l
	Gasketed Lamphol	e   🗆	Broken Bolts Missing	
	Hatch Single Inner Co	ver 📗	Restraint Missing	
	Hatch Double		Restraint Defective	
Cover Insert		Cov	ver Insert Condition	
	Cover Insert Type None	So	ound Leakii	ng
	Gover macri Type None	Po	oorly Fitting	ded
			acked/Torn/Holes	Fell



Sheet No 300	Survey Date 2017/07/27	P.O. No
Location (No. & Na	ame) CHIPPEWA ST NE OF AMYGDALOID	Inspection Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
		<u> </u>
Adj. Ring	MH Adjustment Ring Type Solid	MH Adjustment Ring
	MH Adjustment Ring Material Cast Iron	Sound Corroded/Pitted/Worn
	MILA disease and Birm Heinha CO.	Cracked Leaking
	MH Adjustment Ring Height 3.0 in.	Broken Poor Installation
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 10.0 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	Sound Loose/Not Attached
	☐ Cracked ☐ Corroded/Pitted/Worn	Cracked
	☐ Broken ☐ Coated	
	coulcu	Missing Offset
Chimney	Chimney Material 1 Brick	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth 1.9 ft.	
Cone	Cone Type Conical centered	Cone Depth 3.7 ft.
	Exterior Cone Coating/Liner	Cone Material Brick
	Interior Cone Coating/Liner	
Wall	Wall Diameter 1 49 in.	Wall Depth 5.8 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Brick	Exterior Wall Coating/Liner
		-
Bench	Bench Present None	
	Bench Material	
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material	# Steps 2
	Channel Type	
	Channel Exposure	
	Channel Installed No	Step Material Metal
	Channel Installed NO	



Sheet No 300 Location (No. & Name) **Survey Date** 2017/07/27

CHIPPEWA ST NE OF AMYGDALOID ONTONAGON

P.O. No

Inspection Level Level 1
Inspection Status Remote Inspection

#### Pipe Connections

Locality/City Name

Num	_	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
	6	6.3 ft.	Out	VCP	С	10 in.		s	s	GR	
l		Comme	ents	•				•			
,	9	5.9 ft.	In	VCP	С	8 in.		S	s	GR	
2		Comme	nts LA	TERAL T	O ALLE	Y					
2	10	5.8 ft.	In	VCP	С	5 in.		S	s	LB	
3		Comme	ents		•						•
4	11	6.3 ft.	In	VCP	С	8 in.		S	s	LB	
4		Comme	ents								
5	12	6.3 ft.	In	VCP	С	10 in.		S	s	GR	
ວ		Comme	ents								
6	1	5.9 ft.	In	VCP	С	5 in.		S	s	LB	
O		Comme	ents								

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
404		СМІ	MB							1	10	
1.0 ft.	Re	emarks						•				
1.0 ft.		СМІ	MMM							12	12	
1.0 11.	Re	marks						•	•			
2.0 ft.		COI	MMS	S01						12	12	
2.0 11.	Re	marks						•	•			
2.1 ft.		COI	DNF				5			11	12	
2.1 11.	Re	emarks										
4.0 ft.		COI	MMS	F01						12	12	
4.0 11.	Re	emarks										
4.0 ft.		WI	MMS	S02						12	12	
4.0 11.	Re	emarks										
5.7 ft.		WI	MWL				50					
J.7 II.	Re	emarks	WATE	R IS S	TATI	C AT	509	% OF N	/AIN PI	IPE C	APA	CITY
5.7 ft.		WI	MMS	F02						12	12	
J.7 II.	Re	emarks										



### **MACP Survey Report** 16D

Sheet No 23	Surveyor's name LJF	Certificate Number	U-0417-0700754	<b>Date</b> 2017/05/05
System Owner		Survey Customer		Time 09:51
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name)	ALLEY EAST OF S STEEL S	Т
Further Location Detail	ls SOUTH OF MERCU	RY	Inspection	Level Level 1
Outgoing Rim to Invert	Ου	tgoing Grade to Invert	Rim to	Grade
Use of Sewer S	anitary Year Laid	Year Rehabilitated	Tape/Media N	umber
Purpose Capital Impro	ovement Program Assessment		Sewer Car	tegory
Pre-Cleaning		Date Cleaned	W	eather
Location Code	Alley	Potential for Runoff	Evidence of Surc	harge No
Access Point Type	Manhole	Coordinat	e System	
Northing	Easting	Elevation	Accuracy of	of GPS
Inspection Status	Remote Inspection			
Additional Information	NO CHIMNEY			
Manhole Surface Types	S			
Concrete Paveme		Asphalt 🗸	Grass/Dirt ✓ Gra	vel  Other
Cover Cov	ver Shape Circular		# of Vent I	inles 1
	ver Size 23.0		Vent Hole Diar	
	er Size Width	Cover	Bearing Surface Diameter V	
	rer Material Cast Iron	5515.	Cover Bearing Surface Diar	
	ver Frame Fit Good		Cotor Douring Carrage Plan	
	ver Type		ver Condition	
550				
님	Solid Bolted			Diversi
	Vented/Slots		Cracked Corroded/	
님	Gasketed Lamphole		Broken Bolts Miss	sing
님	Hatch Single Inner Cove	er   L	Restraint Missing	
	Hatch Double		Restraint Defective	
Cover Insert		Co	ver Insert Condition	
		□ so	ound 🔲 I	_eaking
	Cover Insert Type None	, <del>-</del>	=	Corroded
		=	<u> </u>	nsert Fell
		_ ~ ~	aoou   101111110100	



Sheet No 23	<b>Survey Date</b> 2017/05/05	P.O. No
Location (No. & Na	ame) ALLEY EAST OF S STEEL ST	Inspection Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
		<u> </u>
Adj. Ring	MH Adjustment Ring Type Solid	MH Adjustment Ring
	MH Adjustment Ring Material Cast Iron	Sound Corroded/Pitted/Worn
		✓ Cracked
	MH Adjustment Ring Height 2.5 in.	☐ Broken ☐ Poor Installation
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 7.2 in.
	Frame Bearing Surface Depth	Frame Seal Inflow Infil Weeper
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	<b>⊘</b> Sound	Sound Loose/Not Attached
	☐ Cracked ☐ Corroded/Pitted/Worn	Cracked
	Broken Coated	☐ Missing ☐ Offset
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth	
Cone	Cone Type Conical centered	Cone Depth 2.5 ft.
	Exterior Cone Coating/Liner	Cone Material Brick
	Interior Cone Coating/Liner	
	interior cone coating/Liner	
Wall	Wall Diameter 1 36 in.	Wall Depth 6.3 ft.
	Wall Diameter 2 42 in.	Interior Wall Coating/Liner
	Wall Material Brick	Exterior Wall Coating/Liner
	2.14	
Bench	Bench Present Yes	
	Bench Material Brick	
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material Vitrified Clay	# Steps 0
	Channel Type Pipe	
	Channel Exposure Fully Opened	Stop Material
	Channel Installed Yes	Step Material



**Sheet No** 23 **Survey Date** 2017/05/05

 Location (No. & Name)
 ALLEY EAST OF S STEEL ST
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

Pipe	Connections

Num		Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	7.1 ft.	Out	VCP	С	8 in.		S	s	GR	
'		Comme	nts								
2	7	3.2 ft.	In	PE	С	4 in.		s	s	LB	
2		Comme	nts			•					
2	12	7.0 ft.	In	VCP	С	8 in.		s	s	GR	
3		Comme	nts	•		•					

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.0.4		COI	DB							1		
0.8 ft.	R	emarks		•					•			
0.0.4		COI	МВ							6		
0.8 ft.	Remark			•					•			
0.8 ft.		COI	MMS							12	12	
0.6 11.	R	emarks										
2.5 ft.		WI	MMS	S01						12	12	
2.5 11.	R	emarks										
4.8 ft.		WI	IW							10		
4.0 11.	R	emarks										
5.2 ft.		WI	IW							1		
5.2 II.	R	emarks										
6 1 ft		WI	MMS	F01						12	12	
6.1 ft.	R	emarks										
6.6 ft.		В	OBB				5			4		
0.0 11.	R	emarks										



# MACP Survey Report 12H

Sheet No 194	Surveyor's name LJF	Certificate Number	U-0417-0700754	<b>Date</b> 2017/06/02
System Owner		Survey Customer		Time 09:35
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name)	N STEEL ST AT PENNSYLVANI AVE	A
Further Location D	<b>Details</b> EAST SHOULDER		Inspection Le	vel Level 1
Outgoing Rim to Ir	nvert C	Outgoing Grade to Invert	Rim to Gra	de
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Numl	per
Purpose Capital I	mprovement Program Assessment		Sewer Catego	ory
Pre-Cleaning		Date Cleaned	Weat	ner
Location Code	Light Highway	Potential for Runoff	Evidence of Surchar	ge No
Access Point Type	Manhole Manhole	Coordinate	e System	
Northing	Easting	Elevation	Accuracy of G	PS
Inspection Status	Remote Inspection			
Additional Informa	tion TWO ADJ RINGS, NO CHIMNEY	<b>,</b>		
Manhole Surface T	ypes			
Concrete Pav	ement Concrete Collar C	Asphalt 🗹	Grass/Dirt Gravel	Other
Cover	Cover Shape Circular		# of Vent Hole	es 2
	Cover Size 22.0		Vent Hole Diamete	er
	Cover Size Width	Cover	Bearing Surface Diameter Wid	th
	Cover Material Cast Iron		Cover Bearing Surface Diameter	er
	Cover Frame Fit Goo	od	•	
	Cover Type	Cov	ver Condition	
	✓ Solid ☐ Bolted		Sound Missing	
	✓ Vented/Slots ☐ Locking		Cracked Corroded/Pitt	ed
	Gasketed Lamphol	.   <u> </u>	Broken Bolts Missing	
	Hatch Single Inner Co		Restraint Missing	
	☐ Hatch Double		Restraint Defective	
			•	
<b>Cover Insert</b>		Co	ver Insert Condition	
		│ □ So	ound Lea	king
	Cover Insert Type None	Po	oorly Fitting Cor	roded
		ı —		ert Fell



Sheet No 194	<b>Survey Date</b> 2017/06/02	P.O. No
Location (No. & Na	ame) N STEEL ST AT PENNSYLVANIA AVE	Inspection Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type Solid	MH Adjustment Ring  ✓ Sound Corroded/Pitted/Worn
	MH Adjustment Ring Material Cast Iron	Cracked Leaking
	MH Adjustment Ring Height 6.0 in.	Broken Poor Installation
	<b>5</b> • <b>5</b> • • • • • • • • • • • • • • • • • • •	
Frame	Frame Material Cast Iron	Frame Offset Distance 2 in.
	Frame Bearing Surface Width	Frame Depth 12.0 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	Sound Loose/Not Attached
	☐ Cracked ☐ Corroded/Pitted/Worn	Cracked
	☐ Broken ☐ Coated	☐ Missing ☐ Offset
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth	
Cone	Cone Type Conical centered	Cone Depth 5.0 ft.
	Exterior Cone Coating/Liner	Cone Material Brick
	Interior Cone Coating/Liner	
	•	
Wall	Wall Diameter 1 42 in.	Wall Depth 7.6 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Brick	Exterior Wall Coating/Liner
	Trail Material Briok	Exterior wan obtaing/Emor
Bench	Bench Present None	
	Bench Material	
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material	#Steps 0
	Channel Type	
	Channel Exposure	
	Channel Installed No	Step Material
	Guarmer motaneu IVO	



Sheet No 194 Location (No. & Name) **Survey Date** 2017/06/02 N STEEL ST AT PENNSYLVANIA AVE

Inspection Level Level 1
Inspection Status Remote Inspection

Locality/City Name

ONTONAGON

#### Pipe Connections

Num	_	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
4	6	8.4 ft.	Out	VCP	С	10 in.		s	s	GR	
<u>'</u>	Comments DIAMTER ASSUMED FROM EXISTING GIS DATA										
2	9	8.3 ft.	In	VCP	С	8 in.		s	s	GR	
2		Comme	nts DI/	AMTER A	SSUME	FROM	EXISTI	NG GIS DAT	ГА		
3	10	4.7 ft.	In	VCP	С	8 in.		s	s	GR	
3		Comme	nts								
4	12	4.6 ft.	In	VCP	С	8 in.		s	s	GR	
4	Comments										
5	3	4.5 ft.	In	VCP	С	8 in.		s	s	GR	
5		Comme	nts CA	PPED WI	TH CON	ICRETE,	ABAND	ONED			

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
		COI	МВ							5	11	
1.4 ft.	R	emarks								-		
4.0.0		COI	MMS	S01						12	12	
1.6 ft.	R	emarks										
2.4.4		COI	SSS							12	12	
2.4 ft.	R	emarks	BRICK	SURF	ACE	BRE	AKI	NG OF	F			
5.0 ft.		COI	MMS	F01						12	12	
5.0 II.	R	emarks										
5.0 ft.		WI	MMS	S02						12	12	
3.0 II.	R	emarks										
5.5 ft.		WI	IW	S03						12	12	
J.J II.	R	emarks										
7.0 ft.		WI	IW	F03						12	12	
7.0 10.	R	emarks										
7.3 ft.		WI	MMS	F02						12	12	
7.010.	R	emarks										
8.5 ft.		С	ОВВ				80			12	6	
0.0 11.	R	emarks										



### **MACP Survey Report** 57A

Sheet No 334	Surveyor's name LJF	Certificate Number	U-0417-0700754	ate 2017/08/01
System Owner		Survey Customer	Ti	<b>me</b> 16:45
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name)	RIVER ST AT ONTONAGON ST	
Further Location D	etails MIDDLE OF INTERS	SECTION	Inspection Leve	l Level 1
Outgoing Rim to In	vert O	utgoing Grade to Invert	Rim to Grade	•
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Numbe	r
Purpose Capital I	mprovement Program Assessment		Sewer Category	y
Pre-Cleaning		Date Cleaned	Weathe	r
Location Code	Light Highway	Potential for Runoff	Evidence of Surcharge	Yes
Access Point Type	Manhole	Coordinate	e System	
Northing	Easting	Elevation	Accuracy of GPS	3
Inspection Status	Remote Inspection			
Additional Informa	tion STORM COVER			
Manhole Surface T	ypes			
Concrete Pave	ement Concrete Collar	Asphalt 🗸	Grass/Dirt Gravel	Other
Cover	Cover Shape Circular		# of Vent Holes	24
	Cover Size 22.0		Vent Hole Diameter	
	Cover Size Width	Cover	Bearing Surface Diameter Width	<= 1/2
	Cover Material Cast Iron	Cover	Cover Bearing Surface Diameter	
	Cover Frame Fit Good	1	Cover Bearing Surface Diameter	
			One ditter	
	Cover Type		ver Condition	
	Solid Bolted			
	✓ Vented/Slots		Cracked Corroded/Pitted	1
	☐ Gasketed ☐ Lamphole		Broken Bolts Missing	
	Hatch Single Inner Cov	er	Restraint Missing	
	Hatch Double		Restraint Defective	
		Cox	ver Insert Condition	
Cover Insert				
_	Cover Insert Type None		ound Leakii	
		=	oorly Fitting	
			acked/Torn/Holes	Fell



Sheet No 334	Survey Date 2017/08/01	P.O. No
Location (No. & Na	ame) RIVER ST AT ONTONAGON ST	Inspection Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
		Sound Corroded/Pitted/Worn
	MH Adjustment Ring Material	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
	l	
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 8.0 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	Sound Loose/Not Attached
	☐ Cracked ☐ Corroded/Pitted/Worn	Cracked
	☐ Broken ☐ Coated	☐ Missing ☐ Offset
Chimney	Chimney Material 1 Brick	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth 1.8 ft.	
Cone	Cone Type Conical centered	Cone Depth 5.8 ft.
	Exterior Cone Coating/Liner	Cone Material Brick
	Interior Cone Coating/Liner	
	micro Jone Journay Lines	
Wall	Wall Diameter 1 50 in.	Wall Depth 8.6 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Brick	Exterior Wall Coating/Liner
Bench	Bench Present None	
	Bench Material	
	Bench Coating/Liner	
	20.0 Godding Enfor	
Channel/Step	Channel	Step
	Channel Material	# Steps 3
	Channel Type	
	Channel Exposure	Stan Matarial Matal
	Channel Installed No	Step Material Metal



Sheet No 334 Survey Date 2017/08/01

 Location (No. & Name)
 RIVER ST AT ONTONAGON ST
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

#### Pipe Connections

Num		Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	9.3 ft.	Out	VCP	С	15 in.		s	s	GR	
'		Comme	nts								
2	10	9.1 ft.	In	VCP	С	12 in.		s	s	GR	
2		Comme	nts C/	PPED, A	BANDO	NED					
2	1	9.3 ft.	In	VCP	С	15 in.		s	s	GR	
3		Comme	nts	•		•					

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
10#		CMI	МВ							2		
1.0 ft.	R	emarks		•					•	•		
1.3 ft.		CMI	MMS							12	12	
1.3 11.	R	emarks										
2.0 ft.		COI	MMS	S01						12	12	
2.0 11.	R	emarks										
5.8 ft.		COI	MMS	F01						12	12	
J.0 II.	R	emarks										
5.8 ft.		WI	MMS	S02						12	12	
J.0 II.	R	emarks										
6.4 ft.		WI	DAGS				5			4	2	
0.4 11.	R	emarks										
8.0 ft.		WI	MMS	F02						12	12	
0.0 11.	R	emarks										
9.9 ft.		С	OBB				20			3	9	
J.J 11.	R	emarks										
10.0 ft.		С	DAR				10			3		
10.0 11.	R	emarks										



# MACP Survey Report 23A

Sheet No 303	Surveyo	or's name LJF	Certificate Number	U-0417-0700754	<b>Date</b> 2017/07/27
System Owner			Survey Customer		Time 15:33
Drainage Area			Locality/City Name	ONTONAGON	
P.O. No			Location (No. & Name)	HOUGHTON ST AT CONGLOMERATE ST	-
Further Location D	etails	NORTH QUADE	RANT OF INTERSECTION	Insp	pection Level Level 1
Outgoing Rim to In	vert		Outgoing Grade to Invert	F	Rim to Grade
Use of Sewer	Sanitary	Year Laid	Year Rehabilitated	Tape/M	edia Number
Purpose Capital In	mprovement Pro	gram Assessment		Sev	wer Category
Pre-Cleaning			Date Cleaned		Weather
<b>Location Code</b>	Light Hig	jhway	Potential for Runoff	Evidence of	of Surcharge No
Access Point Type	Mai	nhole	Coordinat	e System	
Northing		Easting	Elevation	Acci	uracy of GPS
Inspection Status	Remote	Inspection			
Additional Informat	tion				
Manhole Surface T	vnes				
		0		0	0
Concrete Pave	ement [	Concrete Collar	Asphalt 🗸	Grass/Dirt 🗌	Gravel Other
Cover					
Cover	Cover Shape	Circular		# of	Vent Holes 0
	Cover Size	24.0		Vent Ho	le Diameter
	Cover Size Wid	th	Cover	Bearing Surface Diar	neter Width
	Cover Material	Cast Iron		Cover Bearing Surface	ce Diameter
	Cover Frame Fi	t (	Good		
_	Cover Type		Co	ver Condition	
	✓ Solid	☐ Bolted	ı   [7	Sound Mis	sing
	☐ Vented/Slo	=		: =	roded/Pitted
	Gasketed	☐ Lampi	·	: =	ts Missing
	Hatch Sing	=	Cover	Restraint Missing	<b>g</b>
	Hatch Doul	_		Restraint Defective	
Į					
<b>Cover Insert</b>			Co	ver Insert Condition	
			□sc	ound	Leaking
	Cove	r Insert Type None	e   <u> </u>	oorly Fitting	Corroded
				acked/Torn/Holes	☐ Insert Fell



Sheet No 303	Survey Date 2017/07/27	P.O. No
Location (No. & Na	ame) HOUGHTON ST AT CONGLOMERATE ST	Inspection Level Level 1
Locality/City Name		Inspection Status Remote Inspection
200amy/only Hami	on on one	moposition status resincte inoposition
Adj. Ring		
Auj. Kilig	MH Adjustment Ring Type None	MH Adjustment Ring
	MILA disease and Disease Mederaled	Sound Corroded/Pitted/Worn
	MH Adjustment Ring Material	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	Broken Poor Installation
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 8.0 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	✓ Sound
	☐ Cracked ☐ Corroded/Pitted/Worn	Cracked
	☐ Broken ☐ Coated	☐ Missing ☐ Offset
Chimney	Chimney Material 1 Concrete (reinforced)	Interior Chimney Coating/Liner
	Chimney Material 2 Brick	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth 3.1 ft.	
Cone	Cone Type Conical centered	Cone Depth 5.1 ft.
	Exterior Cone Coating/Liner	Cone Material Brick
	Interior Cone Coating/Lines	
	Interior Cone Coating/Liner	
Wall	Wall Diameter 1 47 in.	Wall Depth 10.9 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Mall Material Driel	-
	Wall Material Brick	Exterior Wall Coating/Liner
Bench	Bench Present None	
	Panah Matarial	
	Bench Material	
	Bench Coating/Liner	
Channel/Step	Channel	Step
Chamilio//Otop		
	Channel Material	# Steps 0
	Channel Type	
	Channel Exposure	Step Material
	Channel Installed Not Known	'
	I .	1.1



Sheet No 303 Survey Date 2017/07/27

 Location (No. & Name)
 HOUGHTON ST AT CONGLOMERATE ST
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

#### Pipe Connections

Num	_	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR	
1	6	11.9 ft.	Out	VCP	С	15 in.		S	D	GR		
'		Comments RFC										
2	9	11.3 ft.	In	VCP	С	12 in.		S	s	GR		
2		Comme	nts DI	AMETER	ASSUM	ED FRO	M EXIST	TING GIS				
3	10	5.7 ft.	In	VCP	С	10 in.		S	s	GR		
3		Comments CEMENT CAPPED, ABANDONED										
4	12	9.8 ft.	In	VCP	С	10 in.		S	s	GR		
4		Comme	nts A	PPEARS C	APPED	AND AE	BANDON	IED				
5	2	5.7 ft.	In	VCP	С	10 in.		S	s	GR		
5		Comme	nts Cl	EMENT C	APPED,	ABANDO	ONED					
6	3	8.9 ft.	In	VCP	С	10 in.		S	s	GR		
O		Comme	nts									
7	4	5.7 ft.	In	VCP	С	10 in.		S	s	GR		
′	Comments CEMENT CAPPED, ABANDONED											

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
		COI	CL							4		
1.1 ft.	Remai											
4.5.4		СМІ	ММС									
1.5 ft.	R	emarks	CR TC	BR				•	•	•		
1.5 ft.		СМІ	MMS							12	12	
Remarks												
1.7 ft.		COI	МВ							9		
1.7 11.	R	emarks										
3.1 ft.		COI	MMS	S01						12	12	
J. 1 It.	R	emarks										
5.1 ft.		COI	MMS	F01						12	12	
0.11.	R	emarks										
8.7 ft.		WI	RMB	S02			10			12	6	
	R	emarks										
10.5 ft.		WI	RFB							7	9	
	R	emarks										
10.8 ft.		WI	RMB	F02			10			12	6	
	Remar											
10.9 ft.		WI	MWL				50					
	R	emarks										



### MACP Survey Report 12M

Sheet No 18	Surveyor's name LJF	Certificate Number	U-0417-0700754	Date 2017/05/04
System Owner		Survey Customer		Time 16:37
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name)	N RIVER RD SOUTH OF BRID	GE
Further Location D	Petails IN YARD WEST OF	ROAD	Inspection L	evel Level 1
Outgoing Rim to Ir	overt O	utgoing Grade to Invert	Rim to G	rade
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Nur	mber
Purpose Capital I	mprovement Program Assessment		Sewer Cate	gory
Pre-Cleaning		Date Cleaned	Wea	ather
<b>Location Code</b>	Yard	Potential for Runoff	Evidence of Surch	arge No
Access Point Type	Manhole	Coordinate	e System	
Northing	Easting	Elevation	Accuracy of	GPS
Inspection Status	Remote Inspection			
Additional Informa	tion NO CHIMNEY, BLOCK CONE, B	LOCK WALL		
Manhole Surface T	vpes			
Concrete Pav		Asphalt	Grass/Dirt 🗸 Grave	el 🗍 Other 🗍
Concrete i av	ement concrete conar	Aspilali 🗌	Grass/Dirt [#] Grave	Julie D
Cover				
30701	Cover Shape Circular		# of Vent Ho	
	Cover Size 22.0		Vent Hole Diame	
	Cover Size Width	Cover	Bearing Surface Diameter Wi	
	Cover Material Cast Iron		Cover Bearing Surface Diame	eter
	Cover Frame Fit Goo	d		
	Cover Type	Cov	ver Condition	
	Solid Bolted		Sound Missing	
	✓ Vented/Slots		Cracked Corroded/P	itted
	☐ Gasketed ☐ Lamphole	•	Broken Bolts Missir	ng
	Hatch Single Inner Cov	rer 🔲	Restraint Missing	
	Hatch Double		Restraint Defective	
<b>Cover Insert</b>		Co	ver Insert Condition	
	Cover by a set Trees N		ound Le	aking
	Cover Insert Type None		oorly Fitting Co	orroded
			acked/Torn/Holes	sert Fell
			_	
		L		



Sheet No 18	Survey Date 2017/05/04	4 P.O. No
Location (No. & Na	me) N RIVER RD SOUTH OF BRIDGE	Inspection Level Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
	Min Adjustment King Type None	Sound Corroded/Pitted/Worn
	MH Adjustment Ring Material	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 8.0 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	✓ Sound
	☐ Cracked ☑ Corroded/Pitted/Worn	☐ Cracked
	☐ Broken ☐ Coated	☐ Missing ☐ Offset
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth	
0		
Cone	Cone Type Conical centered	Cone Depth 2.7 ft.
	Exterior Cone Coating/Liner	Cone Material Other
	Interior Cone Coating/Liner	
Wall	Wall Diameter 1 48 in.	Wall Depth 7.3 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Other	Exterior Wall Coating/Liner
		<u> </u>
Bench	Bench Present Yes	
	Bench Material Concrete (non-reinf	forced)
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material	#Steps 5
	Channel Type	
	Channel Exposure	Ocean Maderical Model
	Channel Installed No	Step Material Metal



Sheet No 18 Survey Date 2017/05/04

Location (No. & Name) NRIVER RD SOUTH OF BRIDGE

Location (No. & Name)N RIVER RD SOUTH OF BRIDGEInspection Level Level 1Locality/City NameONTONAGONInspection Status Remote Inspection

#### **Pipe Connections**

	_	Rim to									
Num	Pos	Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
4	6	8.1 ft.	Out	XXX	С	15 in.		S	S	GR	
'		Comme	nts DI	AMETER	IS ESTIN	MATED,	WEIR IN	STALLED			
2	12	8.1 ft.	In	XXX	С	12 in.		s	D	GR	
2		Comme	nts IW	i							
2	1	8.1 ft.	In	XXX	С	12 in.		s	s	GR	
3		Comme	nts	•	•		•				

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.9 ft.		COI	DAE				5			6		
0.9 11.	Re	emarks		•					•			
1.6 ft.		COI	МВ							2	3	
1.6 11.	Re	emarks										
4.2 ft.		WI	MMS	S01						12	12	
4.2 11.	Re	emarks										
5.7 ft.		WI	DAE				5			8	11	
Remarks		emarks										
6.8 ft.		WI	IW							12		
0.6 11.	Re	emarks	PIPE 2	2								
7.3 ft.		WI	MMS	F01						12	12	
7.5 IL.	Re	emarks										
7.4 ft.		В	OBN				50			10		
7.4 IL.	7.4 π. Remarks			DS AN	D PV	C PII	PE					
8.2 ft.		В	MGO									
0.Z II.	Re	emarks	WEIR	INSTA	LLEC	)						



### **MACP Survey Report** 31F

Sheet No 109	Surveyor's name LJF	Certificate Number	U-0417-0700754: <b>D</b>	ate 2017/05/15
System Owner		Survey Customer	Ti	<b>me</b> 14:55
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No	J	Location (No. & Name)	GREENLAND RD EAST OF S 7TH	ST
Further Location D	etails IN DRIVEWAY SOUT	TH SIDE OF ROAD	Inspection Leve	Level 1
Outgoing Rim to In	overt Ou	tgoing Grade to Invert	Rim to Grade	•
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Numbe	r
Purpose Capital I	mprovement Program Assessment		Sewer Category	/
Pre-Cleaning		Date Cleaned	Weathe	r
<b>Location Code</b>	Other	Potential for Runoff	Evidence of Surcharge	• No
Access Point Type	Manhole	Coordinat	e System	
Northing	Easting	Elevation	Accuracy of GPS	3
Inspection Status	Remote Inspection			
Additional Informa	tion			
Manhole Surface T	ypes			
Concrete Pave		Asphalt 🗸	Grass/Dirt Gravel	Other 🗍
001101010101		, topilali [#]		J 6e.
Cover	Occupant Observation		# - (March Halan	
	Cover Shape Circular		# of Vent Holes	U
	Cover Size 23.0	0	Vent Hole Diameter	
	Cover Size Width	Cover	Bearing Surface Diameter Width	
	Cover Material Cast Iron		Cover Bearing Surface Diameter	
	Cover Frame Fit Good			
ı	Cover Type	Co	ver Condition	
	✓ Solid ☐ Bolted		Sound Missing	
	☐ Vented/Slots ☐ Locking		Cracked Corroded/Pitted	I
	☐ Gasketed ☐ Lamphole		Broken Bolts Missing	
	☐ Hatch Single ☐ Inner Cove	er   🗆	Restraint Missing	
	Hatch Double		Restraint Defective	
I				
Cover Insert		Co	ver Insert Condition	
	Cover Insert Type None	So	ound Leakir	ng
	Gover macri Type None	Po	oorly Fitting Corro	ded
			acked/Torn/Holes	Fell
				<del></del>



### **MACP Survey Report** 31F

Sheet No 109	Survey Date 2017/05/15	P.O. No
Location (No. & Na	ame) GREENLAND RD EAST OF S 7TH ST	Inspection Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
_		
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
	Min Adjustment King Type None	Sound Corroded/Pitted/Worn
	MH Adjustment Ring Material	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
		G
Frame	Frame Material Cast Iron	Frame Offset Distance 5 in.
	Frame Bearing Surface Width	Frame Depth 8.6 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	✓ Sound ☐ Loose/Not Attached
	Cracked Corroded/Pitted/Worn	☐ Cracked
	☐ Broken ☐ Coated	☐ Missing ☐ Offset
Chimney	Chimney Material 1 Concrete (reinforced)	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
		Chilling III None
	Chimney Depth 1.2 ft.	
Cone	Cone Type Conical off centered	Cone Depth 3.4 ft.
	Exterior Cone Coating/Liner	Cone Material Concrete (reinforced)
	Interior Cone Coating/Liner	
	· ·	
Wall	Wall Diameter 1 47 in.	Wall Depth 9.9 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Concrete (reinforced)	Exterior Wall Coating/Liner
Bench	Bench Present Yes	
	Bench Material Concrete (non-reinforced)	
	Bench Coating/Liner	
Channel/Step	Channel	Chan
onanne/otep	Channel Metarial Consents (non pointered)	Step 7
	Channel Material Concrete (non-reinforced)	# Steps 7
	Channel Type Formed	
	Channel Exposure Fully Opened	Step Material Plastic
	Channel Installed Yes	



### **MACP Survey Report** 31F

### **Report Date** 2018/11/07

Sheet No109Survey Date 2017/05/15P.O. NoLocation (No. & Name)GREENLAND RD EAST OF S 7TH STInspection Level Level 1Locality/City NameONTONAGONInspection Status Remote Inspection

#### **Pipe Connections**

Num	-	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	10.8 ft.	Out	PVC	С	10 in.		S	S	GR	
'		Comme	nts								
2	12	10.5 ft.	In	PVC	С	10 in.		s	s	GR	
		Comme	nts								

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
1.0 ft.		СМІ	CL							10		
1.0 11.	R	emarks										
10.6 ft.		С	SAM							12	12	
10.6 11.	R	emarks	CHAN	NEL IS	ERC	DED						



## MACP Survey Report 23D

Sheet No 37	Surveyor's name LJF	Certificate Number	U-0417-0700754	Date 2017/05/08
System Owner		Survey Customer		Time 11:04
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name)	DIAMOND ST AT HEARD ST	
Further Location [	Details MIDDLE O	FINTERSECTION	Inspection Le	vel Level 1
Outgoing Rim to Invert Out		Outgoing Grade to Invert	Rim to Grade	
Use of Sewer	Sanitary Year L	aid Year Rehabilitated	Tape/Media Numb	oer
Purpose Capital	Improvement Program Assessn	nent	Sewer Catego	ory
Pre-Cleaning		Date Cleaned	Weath	ner
Location Code	Light Highway	Potential for Runoff	Evidence of Surchar	ge No
Access Point Type	e Manhole	Coordinate	e System	
Northing	East	ng Elevation	Accuracy of G	PS
Inspection Status	Remote Inspection			
Additional Information NO CHIMNEY				
Manhole Surface Types				
Concrete Pay	_	ıllar Asphalt 🗸	Grass/Dirt Gravel	Other
00110101011		nai		
Cover	□ Vented/Slots     □ L       □ Gasketed     □ L	on Good <b>Co</b> o	# of Vent Hole  Vent Hole Diameter Bearing Surface Diameter Widt Cover Bearing Surface Diameter  ver Condition  Sound Missing Cracked Corroded/Pitt Broken Bolts Missing Restraint Missing Restraint Defective	er ch er
Cover Insert	Cover Insert Type	None So	, , , <u> </u>	king roded ert Fell



Sheet No 37	<b>Survey Date</b> 2017/05/08	P.O. No
Location (No. & Na	ame) DIAMOND ST AT HEARD ST	Inspection Level Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
Adj. Ring		· · · · · · · · · · · · · · · · · · ·
Auj. Kilig	MH Adjustment Ring Type None	MH Adjustment Ring
	MH Adjustment Ring Material	Sound Corroded/Pitted/Worn
	mir Adjustinent King material	Cracked Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
	'	
Frame	Frame Material Cast Iron	Frame Offset Distance 2 in.
	Frame Bearing Surface Width	Frame Depth 7.8 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	✓ Sound Loose/Not Attached
	☐ Cracked ☐ Corroded/Pitted/Worn	☐ Cracked
	☐ Broken ☐ Coated	☐ Missing ☐ Offset
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner
,	•	
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth	
Cone	Cone Type Flattop	Cone Depth 1.5 ft.
	Exterior Cone Coating/Liner	Cone Material Concrete (reinforced)
	Interior Cone Coating/Liner	
Wall	Wall Diameter 1 48 in.	Wall Depth 5.3 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Concrete (reinforced)	Exterior Wall Coating/Liner
Bench	Bench Present Yes	
	Bench Material Concrete (non-reinforced)	
	Bench Coating/Liner	
	20.0 30dding.Ellio.	
Channel/Step	Channel	Step
	Channel Material Concrete (non-reinforced)	# Steps 3
	Channel Type Formed	
	Channel Exposure Fully Opened	Step Material Plastic
	Channel Installed Yes	Stop material 1 lables



## MACP Survey Report 23D

**Report Date** 2018/11/07

P.O. No

Sheet No 37 Survey Date 2017/05/08

Location (No. & Name)DIAMOND ST AT HEARD STInspection Level Level 1Locality/City NameONTONAGONInspection Status Remote Inspection

Pipe Connections

Num	_	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	6.1 ft.	Out	PVC	С	10 in.		s	s	GR	
'		Comme	nts								
	12	6.1 ft.	In	PVC	С	10 in.		s	s	GR	
2		Comme	ents	•	•	•	•	•	•	•	

## **Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
6.1 ft.		С	SAM							12	12	
0.111.	R	emarks										



## **MACP Survey Report** 21H

**Report Date** 2018/11/07

Sheet No 206	Surveyo	or's name LMF	Certificate Number	U-416-07003735	<b>Date</b> 2017/06/08
System Owner			Survey Customer		<b>Time</b> 14:59
Drainage Area			Locality/City Name	ONTONAGON	
P.O. No			Location (No. & Name)	3RD STREET SOUTI	H OF RIVER ST
Further Location D	Details	EAST SIDE OF	ROAD	Ins	pection Level Level 1
Outgoing Rim to Ir	nvert		Outgoing Grade to Invert		Rim to Grade
Use of Sewer	Sanitary	Year Laid	Year Rehabilitated	Tape/N	fledia Number
Purpose Capital I	Improvement Pro	gram Assessment		Se	wer Category
Pre-Cleaning			Date Cleaned		Weather
<b>Location Code</b>	Easeme	nt/Right of Way	Potential for Runoff	Evidence	of Surcharge No
Access Point Type	e Mai	nhole	Coordinat	e System	
Northing		Easting	Elevation	Acc	curacy of GPS
Inspection Status	Remote	Inspection			
Additional Informa	ntion NO CHIMN	IEY			
Manhole Surface T	vpes				
Concrete Pav		Concrete Collar	Asphalt	Grass/Dirt 🗸	Gravel Other
Controle 1 av		- Control Control		014337Diit 🖳	Graver
Cover					
	Cover Shape	Circular			f Vent Holes 0
	Cover Size	20.0	_		ole Diameter
	Cover Size Wid		Cover	Bearing Surface Dia	
	Cover Material	Cast Iron		Cover Bearing Surfa	ice Diameter
	Cover Frame Fi	t (	Good		
	Cover Type		Co	ver Condition	
	✓ Solid	☐ Bolted	ı   🗹	Sound Mis	ssing
	☐ Vented/Slo	ts 🗌 Lockir	ng 📗	Cracked Co	rroded/Pitted
	☐ Gasketed	Lampl	nole	Broken 🔲 Bo	lts Missing
	☐ Hatch Sing	le 🔲 Inner	Cover	Restraint Missing	
	Hatch Doul	ble		Restraint Defective	
Cover Insert			Co	ver Insert Condition	
	Cove	r Insert Type None	_	ound	☐ Leaking
	COVE	i ilisert Type None	´   Po	orly Fitting	☐ Corroded
			Cr	acked/Torn/Holes	☐ Insert Fell



Sheet No 206	Survey Date 2017/06/08	P.O. No
Location (No. & Na	ame) 3RD STREET SOUTH OF RIVER ST INTER:	SECTION Inspection Level 1
Locality/City Name	ONTONAGON	Inspection Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
	Min Adjustment King Type None	Sound Corroded/Pitted/Worn
	MH Adjustment Ring Material	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 11.0 in.
	Frame Bearing Surface Depth	Frame Seal Inflow Infil Weeper
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	Sound  ✓ Loose/Not Attached
	Cracked Corroded/Pitted/Worn	☐ Cracked
	☐ Broken ☐ Coated	☐ Missing ☐ Offset
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	<b>Chimney Depth</b> 0.0 ft.	
Cone	Cone Type Conical centered	Cone Depth 2.5 ft.
	Exterior Cone Coating/Liner	Cone Material Brick
	Interior Cone Coating/Liner	
	menor done doaling/Emer	
Wall	Wall Diameter 1 48 in.	Wall Depth 5.8 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Brick	Exterior Wall Coating/Liner
Bench	Bench Present Yes	
	Bench Material Concrete (non-reinforced)	
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material Vitrified Clay	# Steps 0
	Channel Type Pipe	
	Channel Exposure Fully Opened	Step Material
	Channel Installed Yes	



**Sheet No** 206 **Survey Date** 2017/06/08 **P.O. No** 

Location (No. & Name)3RD STREET SOUTH OF RIVER ST INTERSECTIONInspection Level Level 1Locality/City NameONTONAGONInspection Status Remote Inspection

Ρī	ne	Co	nne	ectio	ons
_		)			

Num	-	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
	6	5.8 ft.	Out	VCP	С	8 in.		S	s	GR	
		Comme	nts	•				•	•		•
2	5	5.0 ft.	In	PVC	С	4 in.		S	s	LB	
		Comme	nts	•				•	•		•
3	4	4.2 ft.	In	CAS	С	4 in.		S	s	LB	
,		Comme	nts	•				•	•		•
	12	5.8 ft.	In	VCP	С	8 in.		S	s	IL	
4		Comme	nts	•	•	•		•			•
	12	3.4 ft.	In	PVC	С	8 in.		S	s	IU	
5		Comme	nts	•			•	•	•		

## **Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.9 ft.		COI	IW		J					11		
Remarks												
0.9 ft.		COI	MB							9		
0.9 11.	Re	emarks							•			
1.7 ft.		COI	RFB							7	2	
1.7 11.	Re	emarks							•			
3.2 ft.		WI	RFB							7	3	
3.2 II.	Re	emarks							•			
3.2 ft.		WI	DNF				5			12	12	
J.Z II.	Re	emarks										



## MACP Survey Report 3B

**Report Date** 2018/11/07

Sheet No 260	Surveyor's name LJF	Certificate Number	U-0417-0700754! <b>Da</b>	te 2017/07/05
System Owner		Survey Customer	Tin	ne 09:58
Drainage Area		Locality/City Name	ONTONAGON	
P.O. No		Location (No. & Name)	YARD NE OF END OF RIVER ST	
Further Location D	Details NEAR TREELIN	E	Inspection Level	Level 1
Outgoing Rim to In	nvert	Outgoing Grade to Invert	Rim to Grade	
Use of Sewer	Sanitary Year Laid	Year Rehabilitated	Tape/Media Number	
Purpose Capital	Improvement Program Assessment		Sewer Category	
Pre-Cleaning		Date Cleaned	Weather	
Location Code	Yard	Potential for Runoff	Evidence of Surcharge	No
Access Point Type	e Manhole	Coordinat	e System	
Northing	Easting	Elevation	Accuracy of GPS	
Inspection Status	Remote Inspection			
Additional Informa	ntion NO CHIMNEY			
Manhole Surface 1	Types			
Concrete Pav		Asphalt	Grass/Dirt ✓ Gravel	Other
Cover	Cover Shape Circular		# of Vent Holes (	<u> </u>
	Cover Size 23.0		Vent Hole Diameter	,
	Cover Size Width	Cover	Bearing Surface Diameter Width	
	Cover Material Cast Iron	<b>301</b> 01	Cover Bearing Surface Diameter	
		Good	Cover Zearing Carrage Diameter	
			ver Condition	
	Cover Type			
	Solid Bolted		= -	
	☐ Vented/Slots ☐ Lockir	·	Cracked Corroded/Pitted	
	Gasketed Lamph		Broken Bolts Missing	
	Hatch Single Inner (	Cover	Restraint Missing	
	Hatch Double		Restraint Defective	
Cover Insert		Co	ver Insert Condition	
Cover msert			ound Leaking	_
	Cover Insert Type None	,   • • • • • • • • • • • • • • • • • •	oorly Fitting Corrod	-
			acked/Torn/Holes	
		🗆 🗗	acked/1011/fibles Insert i	EII



Sheet No 260	Survey Date 2017/07/05	P.O. No
Location (No. & Na	ame) YARD NE OF END OF RIVER ST	Inspection Level 1
Locality/City Name	e ONTONAGON	Inspection Status Remote Inspection
Adj. Ring	MH Adjustment Ring Type None	MH Adjustment Ring
		Sound Corroded/Pitted/Worn
	MH Adjustment Ring Material	☐ Cracked ☐ Leaking
	MH Adjustment Ring Height	☐ Broken ☐ Poor Installation
	l	
Frame	Frame Material Cast Iron	Frame Offset Distance 0 in.
	Frame Bearing Surface Width	Frame Depth 8.5 in.
	Frame Bearing Surface Depth	Frame Seal Inflow None
	Frame Clear Opening Diameter	
	Frame Condition	Frame Seal Condition
	Sound Missing	Sound  Loose/Not Attached
	Cracked Corroded/Pitted/Worn	☐ Cracked
	☐ Broken ☐ Coated	☐ Missing ☐ Offset
Chimney	Chimney Material 1 Other	Interior Chimney Coating/Liner
	Chimney Material 2	Exterior Chimney Coating/Liner
	Chimney Clear Opening	Chimney I/I None
	Chimney Depth	
Cone	Cone Type Conical off centered	Cone Depth 3.8 ft.
	Exterior Cone Coating/Liner	Cone Material Concrete (reinforced)
	Interior Cone Coating/Liner	
	•	
Wall	Wall Diameter 1 47 in.	Wall Depth 8.3 ft.
	Wall Diameter 2	Interior Wall Coating/Liner
	Wall Material Concrete (reinforced)	Exterior Wall Coating/Liner
Bench	Bench Present Yes	
	Bench Material Concrete (non-reinforced)	
	Bench Coating/Liner	
Channel/Step	Channel	Step
	Channel Material Concrete (non-reinforced)	# Steps 5
	Channel Type Formed	
	Channel Exposure Fully Opened	Oten Material - Plantin
	Channel Installed Yes	Step Material Plastic



P.O. No

Sheet No 260 Survey Date 2017/07/05

 Location (No. & Name)
 YARD NE OF END OF RIVER ST
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

Pipe Connections

Num	-	Rim to Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	8.5 ft.	Out	RPM	С	8 in.		s	s	GR	
'		Comme	nts								
0	1	8.4 ft.	In	RPM	С	8 in.		s	s	GR	
2		Comme	nts	•			•	•	•		

**Observations** 

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
0.8 ft.		COI	RFJ		J					12	12	
0.6 11.	Re	emarks										
1.3 ft.		COI	FM							9	10	
1.5 11.	Re	emarks										
3.7 ft.		WI	IW		J					12		
3. <i>1</i> II.	Re	emarks										
4.1 ft.		WI	DAE		J		5			6		
4.111.	Re	emarks										
9.2 ft.		С	DSGV				10			12	12	
9.∠ II.	R	emarks										



## **MACP Survey Report** 10A

**Report Date** 2018/11/07

Sheet No 283 Surveyor's name LJF	Certificate Number U-0417-0700754! Date 2017	7/07/26
System Owner	Survey Customer Time 15:0	0
Drainage Area	Locality/City Name ONTONAGON	
P.O. No	Location (No. & Name) TRAP ST AT LAKE ST	
Further Location Details NE OF INTERSECT	TION Inspection Level Level 1	
Outgoing Rim to Invert	Outgoing Grade to Invert Rim to Grade	
Use of Sewer Sanitary Year Laid	Year Rehabilitated Tape/Media Number	
Purpose Capital Improvement Program Assessment	Sewer Category	
Pre-Cleaning	Date Cleaned Weather	
Location Code Easement/Right of Way	Potential for Runoff Evidence of Surcharge No	
Access Point Type Manhole	Coordinate System	
Northing Easting	Elevation Accuracy of GPS	
Inspection Status Remote Inspection		
Additional Information NO CHIMNEY		
Manhole Surface Types		
Concrete Pavement Concrete Collar	Asphalt ☐ Grass/Dirt ✓ Gravel ☐	Other
Cover Shape Circular	# of Vent Holes 0	
Cover Size 22.0	Vent Hole Diameter	
Cover Size Width	Cover Bearing Surface Diameter Width	
Cover Material Cast Iron	Cover Bearing Surface Diameter	
Cover Frame Fit Goo		
Cover Type	Cover Condition	
✓ Solid Bolted	✓ Sound Missing	
Vented/Slots Locking	Cracked Corroded/Pitted	
Gasketed Lamphole		
Hatch Single Inner Cov		
Hatch Double	Restraint Defective	
riaten bouble	Restraint Defective	
Cover Insert	Cover Insert Condition	
SOVOI MOCITO	Sound Leaking	
Cover Insert Type None	Poorly Fitting Corroded	
	Cracked/Torn/Holes Insert Fell	



Sheet No 283	<b>Survey Date</b> 2017/07/26		P.O. No
Location (No. & Name) TRAP	ST AT LAKE ST		Inspection Level Level 1
Locality/City Name ONTO	NAGON	Inspect	ion Status Remote Inspection
			<u>-</u>
Adj. Ring			. 5.
MH Adjustment Rin	ng Type None	MH Adjustme	
MH Adjustment Rir	ng Material		☐ Corroded/Pitted/Worn
MH Adjustment Rir	na Hoiaht	Cracked	Leaking
Min Aujustinent Kii	ig neight	∐ Broken	Poor Installation
Frame Frame Material	Cast Iron		Frame Offset Distance 0 in.
Frame Bearing Sur	face Width		Frame Depth 9.0 in.
Frame Bearing Sur	face Depth		Frame Seal Inflow None
Frame Clear Openi	·		
-	ng Diameter		
Frame Condition	T agreetes to	Frame Seal Co	_
Sound [	」 Missing	Sound	Loose/Not Attached
Cracked L	Corroded/Pitted/Worn	Cracked	
☐ Broken	Coated	Missing	☐ Offset
Chimney Material 1	Other	Interior Chimn	ey Coating/Liner
Chimney Material 2	2	Exterior Chimi	ney Coating/Liner
Chimney Clear Ope	ening	Chimney I/I	None
Chimney Depth			
Cone Cone Type	Conical centered	Cone I	
Exterior Cone Coat	ina/Liner		terial Brick
	_	Oone ma	terial blick
Interior Cone Coati	ng/Liner		
Wall Diameter 1	43 in.	Wall Depth	4.3 ft.
Wall Diameter 2		Interior Wall C	oating/Liner
Wall Material	Brick	Exterior Wall (	Coating/Liner
Bench Present	Yes		
Bench Material	Not Known		
Bench Coating/Line	er		
Channel/Step Channel		Step	
Channel Material	Vitrified Clav	# Steps 0	
Channel Type Pi	•	" 5.565 5	
Channel Exposure			
		Step Material	
Channel Installed	Yes		



P.O. No

**Sheet No** 283 **Survey Date** 2017/07/26

 Location (No. & Name)
 TRAP ST AT LAKE ST
 Inspection Level Level 1

 Locality/City Name
 ONTONAGON
 Inspection Status Remote Inspection

Pipe	Connections

		Rim to									
Num	Pos	Invert	Direc	Material	Shape	Diam	Width	Pipe Cond	Seal Cond	Special Cond	PSR
1	6	4.8 ft.	Out	VCP	С	8 in.		S	s	GR	
1		Comme	nts PC	SSIBLE /	ABANDO	NED, N	OT VISI	BLE AT DO	VNSTREAM	MANHOLE	
	9	4.7 ft.	In	VCP	С	8 in.		s	s	GR	
2		Comme	nts PC	SSIBLY A	ABANDO	NED					
2	11	4.7 ft.	In	VCP	С	8 in.		s	s	GR	
3		Comme	nts FU	ILL OF DI	RT, POS	SIBLY A	BANDO	NED			
4	3	3.5 ft.	In	PE	С	4 in.		s	s	LB	
4		Comme	nts	•	•				•		•

### **Observations**

Distance	Vid Ref	Comp	Code	CD	Jnt	Stp	%	ln1	ln2	Fr	То	ImRef
2.9 ft.		WI	MB							2		
2.9 11.	Re	emarks	DEFE	CTIVE	BRE	AK IN	ĺ		•			
4.5 ft.		В	OBB				5			2		
4.5 II.	Re	emarks										
5.5 ft.		С	DSF				10			6	12	
อ.อ ก.	Re	emarks										



# Appendix F

# **Sanitary Sewer Structural Integrity Documentation**

Sanitary Sewer Structural Integrity Form

Sanitary Sewer Structural Integrity Map – North of M-64

Sanitary Sewer Structural Integrity Map – South of M-64

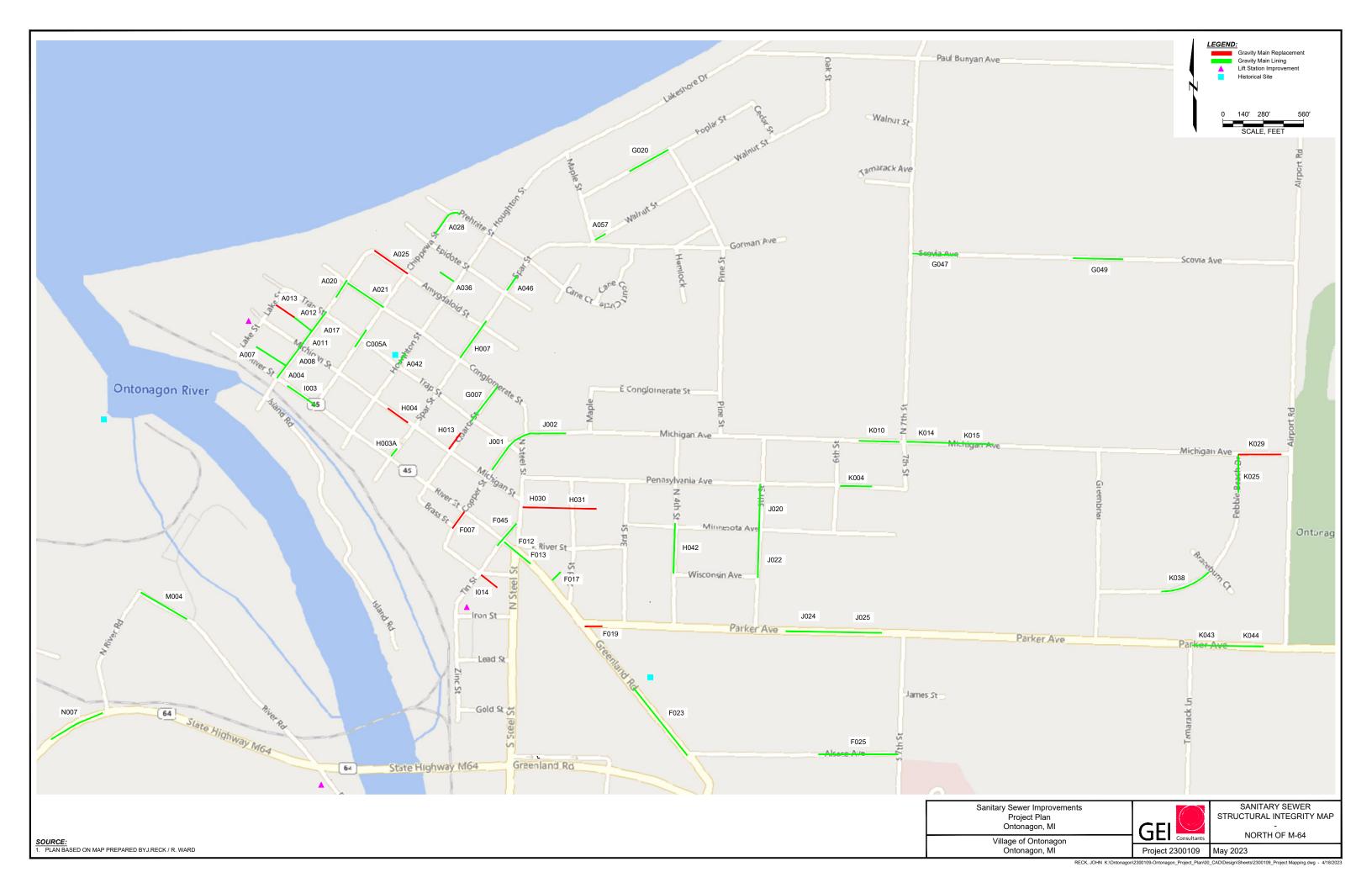
Sanitary Sewer Televising Reports

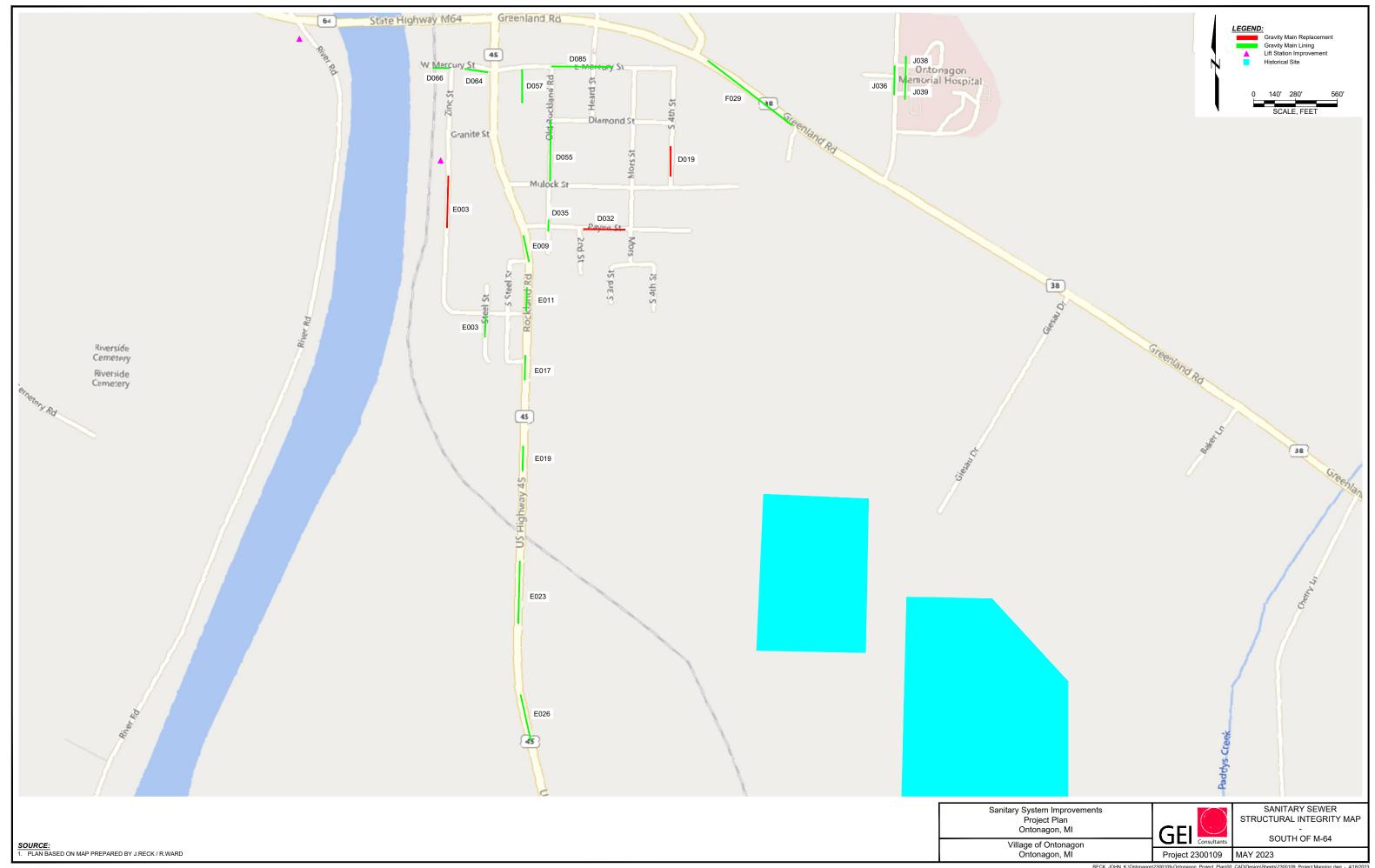
#### EGLE - Sanitary Sewer Structural Integrity Form

Pipe Segment Reference*	Street*	Pipe Length (feet)*	NASSCO PACP Structural Quick Rating Score*	Pipe Material, if Known	Year Constructed, if Known	Diameter	Consequence of Failure, per Asset Management Plan, if applicable	Probability of Failure, per Asset Management Plan, if applicable	Types of Structural Defects Found (O&M defects are not CWSRF-eligible)	Justification of Need (required for non-NASSCO structural 4 or 5 rated segments)*
SNG-F012	River St.	126	5A32	Concrete Pipe (non reinforced)	1952	12				
SNG-A013	Alley off of Lake St.	155	5543	Vitrified Clay Pipe	1952	8				
SNG-D019	S 4th St.	200	5341	Asbestos -Cement	1956	8				
SNG-D064	Mercury St.	155	5321	Vitrified Clay Pipe	1952	12				
SNG-A011	Ontonagon St.	101	5242	Vitrified Clay Pipe	1952	15				
SNG-E023	US-45	420	5241	Vitrified Clay Pipe	1952	8				
SNG-J038	Hospital	168	5231	Vitrified Clay Pipe		8				
SNG-F019	Parker Ave.	120	5231	Vitrified Clay Pipe	1952	8				
SNG-E014	S Steel St.	139	5231	Vitrified Clay Pipe	1952	10				
SNG-A012	Alley off of Ontonagon St.	169	5200	Polyvinyl Chloride	1993	8				
SNG-E019	US-45	176	5200	Vitrified Clay Pipe	1952	8				
SNG-F013	Greenland Rd.	106	5148	Vitrified Clay Pipe	1952	12				
SNG-E009	US-45	180	5143	Vitrified Clay Pipe	1952	10				
SNG-J025	Park Ave.	326	5142	Truss Pipe	1968	8				
SNG-I014	Brass St.	140	5141	Vitrified Clay Pipe	1952	8				
SNG-E011	US-45	157	5141	Vitrified Clay Pipe	1952	10				
SNG-H007	Spar St.	311	5141	Concrete Pipe (non reinforced)	1952	10				
SNG-H042	N 4th St.	346		Vitrified Clay Pipe	1952	10				
SNG-D055	Old Rockland Rd.	404	5141	Vitrified Clay Pipe	1952	12				
SNG-A025	Amygdaloid St.	280		Vitrified Clay Pipe	1952	8				
SNG-D066	Mercury St.	109		Vitrified Clay Pipe	1952	12				
SNG-F029	Greenland Rd.	661		Truss Pipe	1992	10				
SNG-J039	Hospital	118	5134	Vitrified Clay Pipe		8				
SNG-A046	Spar St.	121		Vitrified Clay Pipe	1992	8				
SNG-D035	Payne St.	36		Vitrified Clay Pipe	1952	12				
SNG-G007	Quartz St.	301		Truss Pipe	1968	15				
SNG-K038	Pebble Beach Dr.	357		Asbestos -Cement	1970	8				
SNG-F045	Tin St.	203		Vitrified Clay Pipe		10				
SNG-A017	Ontonagon St.	174		Vitrified Clay Pipe	1952	15				
SNG-F025	Alsace Ave.	552		Concrete Pipe (non reinforced)	1987	10				
SNG-H031	Alley off of N Steel St.	162		Polyvinyl Chloride	1992	12				
SNG-M004	River Rd.	370		Truss Pipe	1957	12				
SNG-F007	Copper St.	141		Vitrified Clay Pipe	1952	8				
SNG-D085	Mercury St.	408		Polyvinyl Chloride	1996	24				
SNG-H013	Quartz St.	137		Concrete Pipe (non reinforced)	1550					
SNG-J001	Copper St.	400		Asbestos -Cement	1957	12				
SNG-A057	Walnut St.	78		Vitrified Clay Pipe	1987	10				
SNG-A036	Alley off of Houghton St.	115		Vitrified Clay Pipe	1992					
SNG-F023	Greenland Rd.	598		Truss Pipe	1952	12				
SNG-F017	Off of Greenland Rd.	79		Vitrified Clay Pipe	1987	10				
SNG-G020	Poplar St.	307		Truss Pipe	1968	12				
SNG-D057	Alley off of Mercury	225		Vitrified Clay Pipe	1952	8				
SNG-K004	Pennsylvania Ave	218		Truss Pipe	1987	8				
SNG-K014	Michigan Ave.	278		Asbestos -Cement	1992	10				
SNG-A008	Ontonagon St.	143		Vitrified Clay Pipe	1952	15				1
SNG-E003	Zinc St.	331		Truss Pipe	1968	10				<del> </del>
SNG-E003 SNG-A004	Ontonagon St.	156		Vitrified Clay Pipe	1968	15				1
SNG-A004 SNG-E017	US-45	465		Vitrified Clay Pipe	1952	8				+
SNG-E017 SNG-J022	5th St.	325		Asbestos -Cement	1952	10				+
						10				
SNG-N007	M-64	400		Polyvinyl Chloride	1988	U				<u> </u>
SNG-J024	Parker Ave.	340		Truss Pipe	1968	8				<u> </u>
SNG-J020	5th St.	325		Asbestos -Cement	1958	10				1
SNG-D032	Payne St.	280		Asbestos -Cement	1956	10				1
SNG-H003A	Spar St.	315		Reinforced Concrete Pipe	1952	18				
SNG-K010	Michigan Ave.	280	4200	Asbestos -Cement	1957	10				

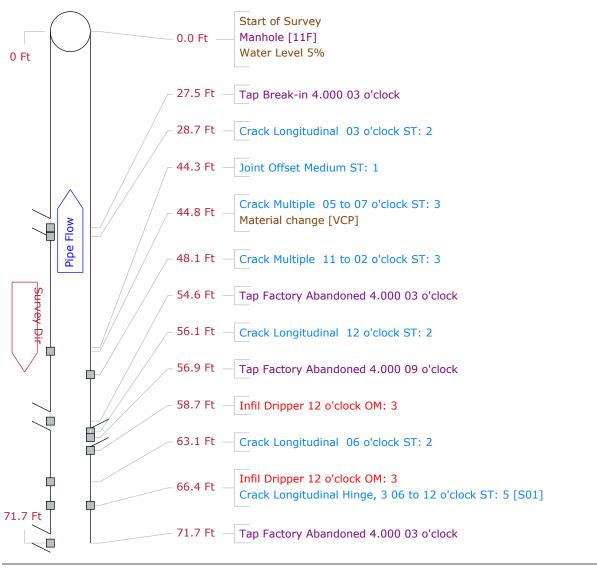
#### EGLE - Sanitary Sewer Structural Integrity Form

Pipe Segment Reference*	Street*	Pipe Length (feet)*	NASSCO PACP Structural Quick Rating Score*	Pipe Material, if Known	Year Constructed, if Known	Diameter	Consequence of Failure, per Asset Management Plan, if applicable	Probability of Failure, per Asset Management Plan, if applicable	Types of Structural Defects Found (O&M defects are not CWSRF-eligible)	Justification of Need (required for non-NASSCO structural 4 or 5 rated segments)*
SNG-H004	Michigan St.	170	4200	Vitrified Clay Pipe		12				
SNG-K044	Parker Ave.	314	4200	Asbestos -Cement	1987	8				
SNG-J036	S 7th St.	195	4200	Polyvinyl Chloride		8				
SNG-E026	US-45	315	4133	Vitrified Clay Pipe	1952	8				
SNG-K029	Michigan Ave.	297	4131	Asbestos -Cement	1987	8				
SNG-A042	Houghton St.	185	4131	Vitrified Clay Pipe	1952	10				
SNG-1003	River St.	218	412A	Asbestos -Cement	1957	12				
SNG-H030	Alley off of Steel St.	348	4125	Polyvinyl Chloride	1997	12				
SNG-A028	Chippewa St.	300	4124	Vitrified Clay Pipe	1952	8				
SNG-K025	Pebble Beach Dr.	266	4123	Asbestos -Cement	1970	8				
SNG-A020	Ontonagon St.	140	4123	Vitrified Clay Pipe	1952	15				
SNG-A007	Alley off of Lake St.	246	4121	Vitrified Clay Pipe	1952	8				
SNG-A021	Conglomerate St.	302	4121	Vitrified Clay Pipe	1952	15				
SNG-K043	Parker Ave.	177	4111	Asbestos -Cement	1987	8				
SNG-C005A	Chippewa St.	140	4100	Vitrified Clay Pipe	1952	8				
SNG-G049	Scovia Ave.	342	4100	Truss Pipe	1968	8				
SNG-G047	Scovia Ave.	313	4100	Truss Pipe	1968	8			_	
SNG-J002	Michigan Ave.	225	4100	Asbestos -Cement	1957	10				
SNG-K015	Michigan Ave.	324	4100	Asbestos -Cement	1987	10			_	



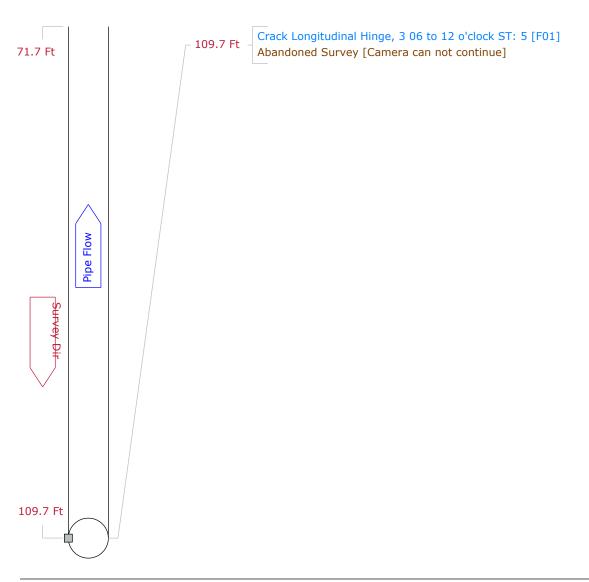


Setup	183 <b>Sur</b>	veyor	LDJ	Ce	rtificate #	U-514	-06023286	Syster	n Owner	Village o	of Ontonagor	1
Drainage			Su	rvey Customer	Village of 0	Ontonag	on					
P/O #			<b>Date</b> 201	7/10/13	<b>Γime</b> 8:38	5	Street River					
City	Ontonago	n		Further loca	tion detail	s						
<b>Up</b> 3	5F			Rim to	invert		Grade to i	nvert		Rim to g	grade	Ft
Down 1	1F			Rim to	invert		Grade to i	nvert		Rim to g	grade	Ft
<b>Use</b> San	itary			<b>Direction</b> Up	stream	Flo	w control			Media	a No	
Shape C	ircular			Height 12	Width	ins	Prec	lean H		Date Clea	ned 2017/1	0/13
Material	Concrete I	Pipe (no	on-reinforced	) Join	t length	Ft	Total leng	th F	₹t	Length S	Surveyed 1	09.70 <b>Ft</b>
Lining				Υe	ar laid	Ye	ar rehabilit	ated	١	Neather [	Ory	
Purpose	Capital	Improve	ement Progra	am Assessment	(	Cat						
Additiona	l info						5	Structural	0.8	& М	Construc	tional
Location	Light H	lighway	1				N	Miscellane	ous Hy	draulic		
Project	Ontonag	on Sani	tary Sewer					V	Vork Ord	er		
Northing					Easting	g			Elevatio	n		
Coordina	te System							GPS Acc	curacy			



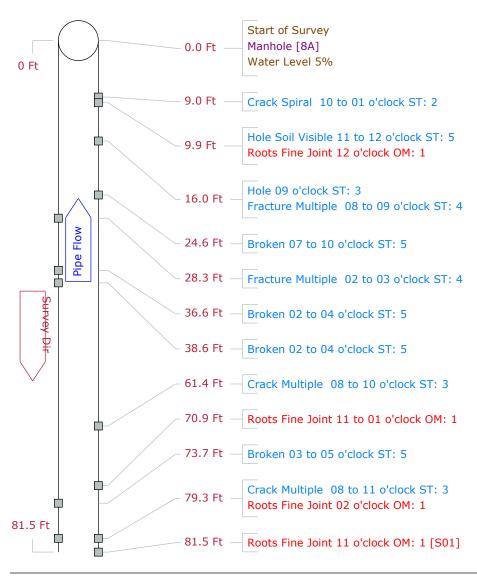


Setup '	183 <b>Surveyor</b>	LDJ	Cei	rtificate #	U-514	-06023286	System C	Owner Villa	age of Ontonage	on
Drainage		Sur	vey Customer	Village of C	Ontonag	on				
P/O #		<b>Date</b> 2017	/10/13 <b>T</b>	ime 8:38	S	Street River				
City	Ontonagon		Further locat	ion details	s					
<b>Up</b> 35F	=		Rim to i	nvert		Grade to i	nvert	Rin	n to grade	Ft
Down 11	=		Rim to i	nvert		Grade to i	nvert	Rin	n to grade	Ft
Use Sanita	ary		Direction Ups	stream	Flo	w control		N	/ledia No	
Shape Cir	cular		Height 12	Width	ins	Prec	lean H	Date	Cleaned 2017	/10/13
Material (	Concrete Pipe (no	on-reinforced)	Join	t length	Ft	Total lenge	th Ft	Leng	gth Surveyed	109.70 <b>Ft</b>
Lining			Ye	ar laid	Ye	ar rehabilita	ated	Weatl	<b>her</b> Dry	
Purpose	Capital Improve	ement Progran	n Assessment	(	Cat					
Additional	info					5	Structural	O & M	Constru	ctional
Location	Light Highway	1				N	/liscellaneous	Hydrauli	С	
Project	Ontonagon Sani	tary Sewer					Wo	rk Order		
Northing				Easting	g		Ele	evation		
Coordinate	System						<b>GPS Accur</b>	асу		



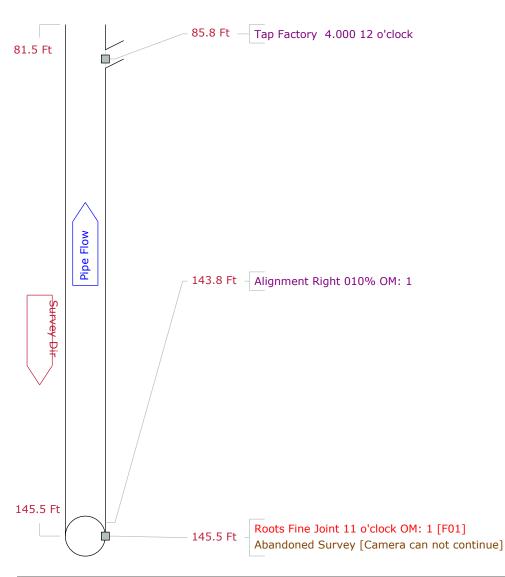


Setup 176 Surveyor LDJ	Certificate #	U-514-06023286 <b>Syste</b>	em Owner Village of	Ontonagon
Drainage Survey	Customer Village of O	ntonagon		
P/O # Date 2017/10	/12 <b>Time</b> 14:51	Street Lake		
City Ontonagon F	urther location details	i		
Up 9A	Rim to invert	Grade to invert	Rim to gr	ade Ft
Down 8A	Rim to invert	Grade to invert	Rim to gr	ade Ft
Use Sanitary D	irection Upstream	Flow control	Media	No
Shape Circular	Height 8 Width	ins Preclean H	Date Clean	ed 2017/10/12
Material Vitrified Clay Pipe	Joint length	Ft Total length	Ft Length Su	irveyed 145.50 Ft
Lining	Year laid	Year rehabilitated	Weather Dr	у
Purpose Capital Improvement Program A	ssessment C	at		
Additional info Line right, MH 4 feet	ahead	Structural	O & M	Constructional
Location Light Highway		Miscellan	eous Hydraulic	
Project Ontonagon Sanitary Sewer			Work Order	
Northing	Easting		Elevation	
Coordinate System		GPS A	ccuracy	



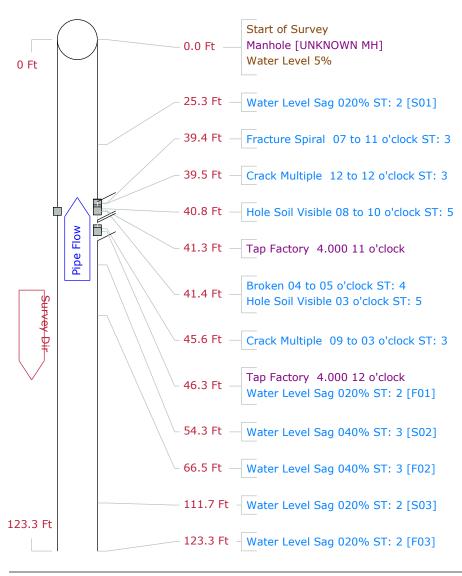


· · ·				
<b>Setup</b> 176 <b>Surveyor</b> LDJ	Certificate #	U-514-06023286 <b>System O</b> v	wner Village of Ontonago	on
Drainage	Survey Customer Village of C	ontonagon		
P/O # Date 2	2017/10/12 <b>Time</b> 14:51	Street Lake		
City Ontonagon	Further location details	<b>S</b>		
Up 9A	Rim to invert	Grade to invert	Rim to grade	Ft
Down 8A	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary	Direction Upstream	Flow control	Media No	
Shape Circular	Height 8 Width	ins Preclean H	Date Cleaned 2017	/10/12
Material Vitrified Clay Pipe	Joint length	Ft Total length Ft	Length Surveyed	145.50 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather Dry	
Purpose Capital Improvement Pro	gram Assessment C	at		
Additional info Line right, MH	I 4 feet ahead	Structural	O & M Constru	ctional
Location Light Highway		Miscellaneous	Hydraulic	
Project Ontonagon Sanitary Sewe	r	Worl	k Order	
Northing	Easting	j Ele	vation	
Coordinate System		GPS Accura	су	



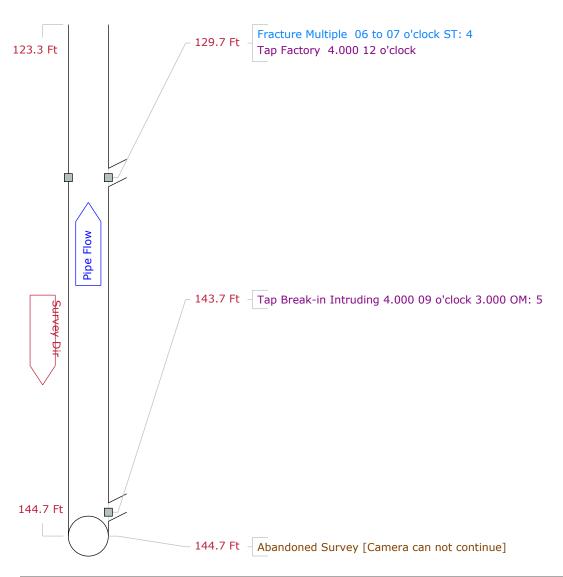


Setup 236 Surveyor LDJ	Certificate #	U-514-06023286	System Owr	ner Village of C	)ntonagon
Drainage Survey C	Sustomer Village of Or	ntonagon	•		-
P/O # Date 2017/10/23	Time 11:24	Street 4th			
City Ontonagon Fur	ther location details				
<b>Up</b> 54D	Rim to invert	Grade to	invert	Rim to gra	ide Ft
Down UKNOWN MH	Rim to invert	Grade to	invert	Rim to gra	ide Ft
Use Sanitary Dire	ction Upstream	Flow control	Not Controlled	Media N	lo
Shape Circular He	eight 8 Width	ins Pred	clean J	Date Cleane	ed 2017/10/23
Material Vitrified Clay Pipe	Joint length	Ft Total leng	gth Ft	Length Sur	veyed 144.70 Ft
Lining	Year laid	Year rehabili	tated	Weather Dry	
Purpose Capital Improvement Program Asse	essment Ca	at			
Additional info Intruding tap (Downstre	am MH Not clear on ma	ap)	Structural	O & M	Constructional
Location Light Highway			Miscellaneous	Hydraulic	
Project Ontonagon Sanitary Sewer			Work (	Order	
Northing	Easting		Eleva	tion	
Coordinate System			GPS Accuracy	/	



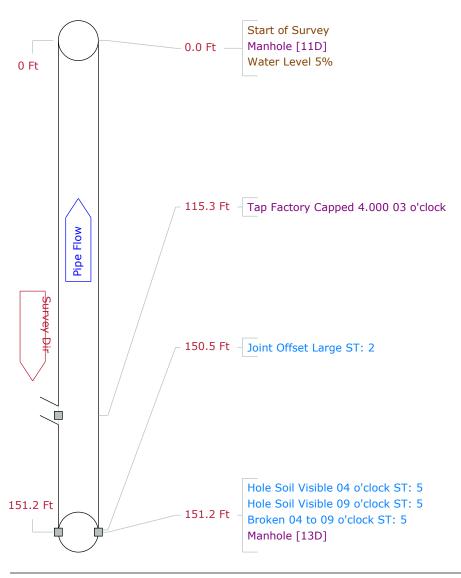


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Setup	236 <b>S</b> t	ırveyor	LDJ		Ce	rtificate #	U-514	1-06023286	Syst	em Owne	er Village	of Ontonago	n
Drainage				Survey Co	ustomer	Village of	Ontonag	jon					
P/O #			Date	2017/10/23		Time 11:24		Street 4th					
City	Ontonag	on		Furt	her loca	tion detail	s						
<b>Up</b> 54	4D				Rim to	invert		Grade to	invert		Rim to	grade	Ft
<b>Down</b> U	KNOWN	МН			Rim to	invert		Grade to	invert		Rim to	grade	Ft
<b>Use</b> San	itary			Direc	ction Up	stream	Flo	w control	Not Con	trolled	Med	lia No	
Shape C	ircular			Hei	ght 8	Width	ins	Pre	clean J		Date Cle	eaned 2017	10/23
Material	Vitrified (	Clay Pipe	;		Joir	t length	Ft	Total len	gth	Ft	Length	Surveyed	144.70 <b>Ft</b>
Lining					Ye	ear laid	Ye	ar rehabili	itated		Weather	Dry	
Purpose	Capita	l Improve	ement Pi	rogram Asse	ssment		Cat						
Additiona	al info	Intro	uding tap	(Downstrea	ım MH N	ot clear on i	nap)		Structura	al C	) & M	Constru	ctional
Location	Light	Highway	1						Miscella	neous H	lydraulic		
Project	Ontona	gon Sani	tary Sew	/er				_		Work O	rder		
Northing						Eastin	g			Elevati	on		
Coordina	te Syste	n							GPS A	ccuracy			





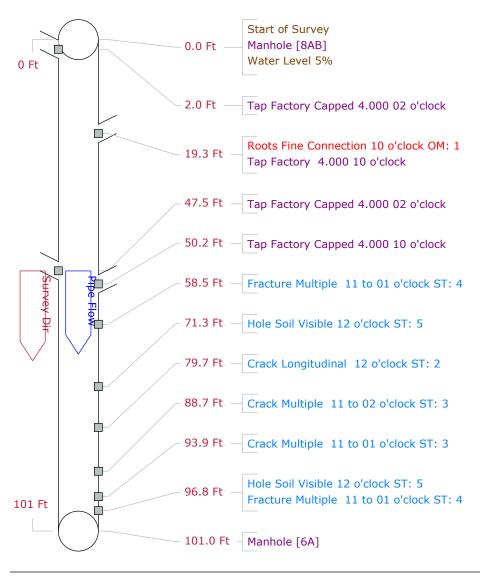
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Setup	141	Surveyor	LDJ	Ce	rtificate #	U-514	-06023286	System Ov	wner village	of Ontonago	n
Drainag	ge		Sur	vey Customer	Village of C	Ontonag	on				
P/O #			<b>Date</b> 2017	7/10/09	Time 12:58	5	Street Mercu	ry			
City	Ont	onagon		Further loca	tion details	s					
Up	13D			Rim to	nvert		Grade to i	nvert	Rim to	grade	Ft
Down	11D			Rim to i	nvert		Grade to i	nvert	Rim to	grade	Ft
Use S	anitary			<b>Direction</b> Up	stream	Flo	w control		Med	ia No	
Shape	Circula	ar		Height 12	Width	ins	Preci	ean J	Date Cle	aned 2017/	10/06
Materia	<b>I</b> Vitri	fied Clay Pipe	е	Join	t length	Ft	Total lengt	h Ft	Length	Surveyed 1	51.20 <b>Ft</b>
Lining				Υe	ar laid	Ye	ar rehabilita	ated	Weather	Dry	
Purpos	e C	apital Improv	ement Prograr	m Assessment	(	Cat					
Additio	nal inf	o MH	1 1 foot ahead				S	structural	O & M	Construc	ctional
Locatio	n	Light Highwa	у				N	liscellaneous	Hydraulic		
Project	Or	ntonagon San	itary Sewer					Work	Order		
Northin	ıg				Easting	g		Elev	vation .		
Coordii	nate S	ystem						<b>GPS Accura</b>	су		





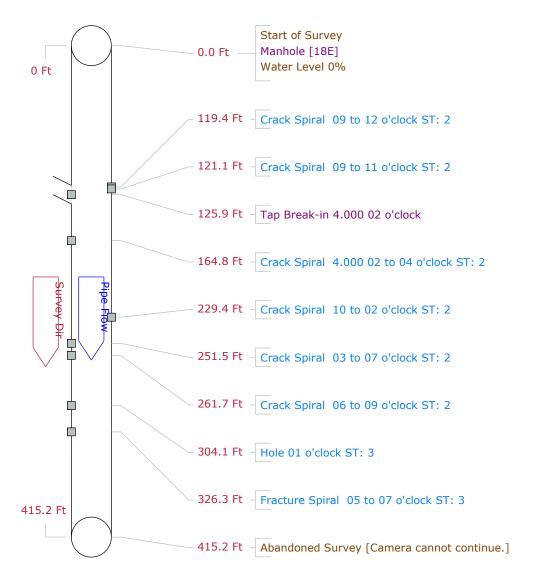
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	9	9	
Certificate #	U-514-06023286	ner Village of Ontonag	on
vey Customer Village of O	ntonagon		
/10/16 <b>Time</b> 13:55	Street Ontonagon		
Further location details	•		
Rim to invert	Grade to invert	Rim to grade	Ft
Rim to invert	Grade to invert	Rim to grade	Ft
Direction Downstream	Flow control Not Controlled	Media No	
Height 15 Width	ins Preclean H	Date Cleaned 2017	/10/13
Joint length	Ft Total length Ft	Length Surveyed	101.00 <b>F</b>
Year laid	Year rehabilitated	Weather Dry	
n Assessment C	at		
	Structural	O & M Constru	ıctional
	Miscellaneous	Hydraulic	
	Work	Order	
Easting	Elev	ation	
	GPS Accurac	су	
	vey Customer Village of O /10/16 Time 13:55  Further location details  Rim to invert  Rim to invert  Direction Downstream  Height 15 Width  Joint length  Year laid	vey Customer Village of Ontonagon  /10/16	vey Customer Village of Ontonagon /10/16

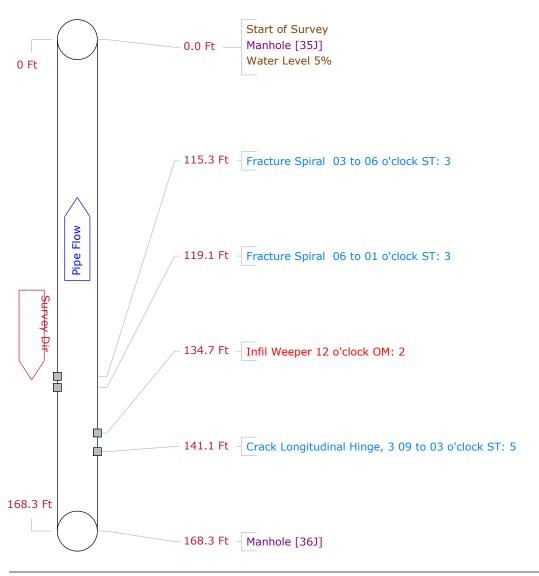




	<u> </u>										
Setup	120	Surveyor	GJK		Certificate #	<b>#</b> U-114	1-6019861	System Ov	vner Village	of Ontonag	on
Drainage	•			Survey Cust	omer Village of	Ontonag	jon				
P/O #			Date	2017/10/03	<b>Time</b> 15:5	66	Street Rock	land Road			
City	Onton	agon		Further	location deta	ils					
Up ´	18E			Ri	m to invert		Grade to	invert	Rim to	grade	Ft
Down	17E			Ri	m to invert		Grade to	invert	Rim to	grade	Ft
Use Sa	nitary			Directio	n Downstream	Flo	w control		Med	ia No	
Shape (	Circular			Heigh	t 8 Width	ins	Pred	clean J	Date Cle	<b>aned</b> 2017	//09/28
Material	Vitrifie	d Clay Pipe	:		Joint length	Ft	Total leng	jth Ft	Length	Surveyed	415.20 <b>Ft</b>
Lining					Year laid	Υe	ar rehabilit	tated	Weather	Dry	
Purpose	Сар	ital Improve	ement Pr	ogram Assessn	nent	Cat					
Addition	al info	Cle	an					Structural	O & M	Constru	ıctional
Location	Ea	sement/Rig	ht of Wa	у				Miscellaneous	Hydraulic		
Project	Onto	nagon Sani	tary Sew	er System				Work	Order		
Northing	l				Easti	ng		Elev	ation /		
Coordina	ate Syst	em						GPS Accura	су		

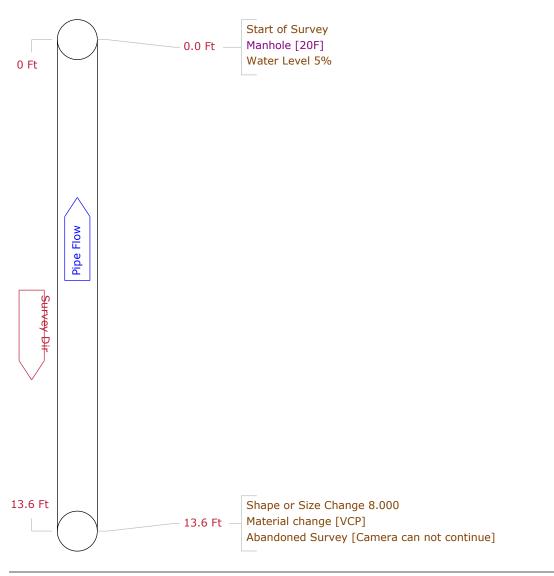


Setup 44 Surveyor LDJ	Certificate #	U-514-06023286 <b>System</b>	Owner Ontonagon	
•			Ontonagon	
Drainage Sur	vey Customer Village of C	ontonagon		
P/O # Date 2017	7/09/21 <b>Time</b> 9:54	Street 7th St.		
City Village of Ontonagon	Further location details	<b>3</b>		
<b>Up</b> 36J	Rim to invert	Grade to invert	Rim to grade	Ft
Down 35J	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary	Direction Upstream	Flow control Not Controll	ed <b>Media No</b>	
Shape Circular	Height 8 Width	ins Preclean J	Date Cleaned 201	17/09/21
Material Vitrified Clay Pipe	Joint length	Ft Total length F	t Length Surveyed	d 168.30 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather Dry	
Purpose Capital Improvement Program	m Assessment C	Cat		
Additional info		Structural	O & M Const	ructional
<b>Location</b> Light Highway		Miscellaneo	<mark>us</mark> Hydraulic	
Project Ontonagon Sanitary Sewer		W	ork Order	
Northing	Easting	j l	Elevation	
Coordinate System		GPS Acc	uracy	





	<del>-</del>						
Setup	254 <b>Surveyor</b>	LDJ	Certificate #	U-514-06023286	System Ow	<b>ner</b> Village o	of Ontonagon
Drainage		Survey C	<b>Sustomer</b> Village of C	Ontonagon			
P/O #		Date 2017/10/24	Time 15:16	Street Parke	r		
City	Ontonagon	Fur	ther location details	<b>S</b>			
<b>Up</b> 20	)F		Rim to invert	Grade to i	nvert	Rim to	grade Ft
Down 21	F		Rim to invert	Grade to i	nvert	Rim to	grade Ft
Use Sani	tary	Dire	ection Upstream	Flow control		Medi	a No
<b>Shape</b> Ci	rcular	He	eight 8 Width	ins Prec	<b>lean</b> J	Date Clea	ned 2017/10/17
Material	Vitrified Clay Pipe	е	Joint length	Ft Total leng	th Ft	Length S	Surveyed 13.60 Ft
Lining			Year laid	Year rehabilita	ated	Weather	₋ight Rain
Purpose	Capital Improv	ement Program Asse	essment (	Cat			
Additiona	l info			5	Structural	O & M	Constructional
Location	Light Highwa	у		N	Miscellaneous	Hydraulic	
Project	Ontonagon San	itary Sewer			Work	Order	
Northing			Easting	3	Elev	ation	
Coordinat	e System				GPS Accurac	у	





## Tabular Report of PSR 12E X for OHM

Setup 27 Surveyor LDJ	Certificate #	U-514-06023286 System C	Owner Village of Ontonago	n
Drainage	Survey Customer OHM			
P/O # Date	2018/05/10 <b>Time</b> 10:25	Street S Steel St		
City Ontonagon	Further location details			
<b>Up</b> 12E	Rim to invert	Grade to invert	Rim to grade	Ft
Down 11E	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary	Direction Down	Flow control Not Controlled	Media No	
Shape Circular	Height 10 Width	ins Preclean H	Date Cleaned 2018/0	05/10
Material Vitrified Clay Pipe	Joint length	Ft Total length Ft	Length Surveyed 1	35.6 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather Dry	
Purpose Routine Assessment	Cat		Pressure	
Additional info		Structural	O & M Construc	tional
Location Light Highway		Miscellaneous		
Project Project Title -5/8/2018		Work	( Order	
Northing	Easting	Elev	vation	
Coordinate System		GPS Accura	су	

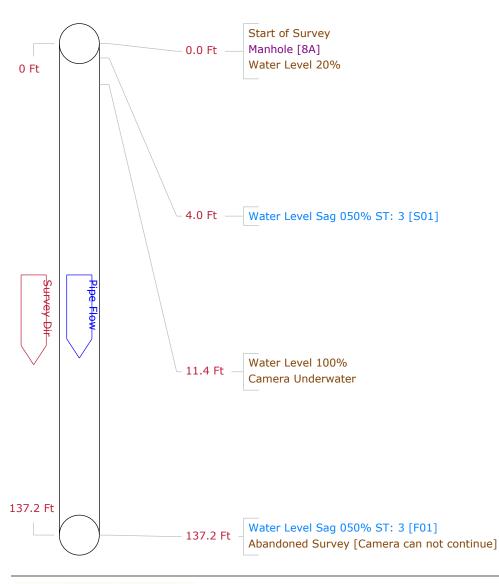
Count Video	CD	Code		ln1	ln2	%	Jn	t Fr	То	ImRef	Remarks
0.0		ST	Start of Survey								
0.0		AMH	Manhole								12E
0.0		MWL	Water Level			5					
3.1	S01	RMJ	Roots Medium Joint			15	J	10	02		
12.9		TF	Tap Factory	4.000				09			
44.0		В	Broken					11	01		
45.3		CM	Crack Multiple					12	02		
75.0		TF	Tap Factory	4.000				10			
83.1		TF	Tap Factory	4.000				03			
111.5		CM	Crack Multiple					05	07		
121.0		TFC	Tap Factory Capped	4.000				09			
123.3		TFC	Tap Factory Capped	4.000				03			
135.6	F01	RMJ	Roots Medium Joint			15	J	10	02		
135.6		AMH	Manhole								11E

135.6 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating	Pipe Ratings Index	Quick Rating
	O&M:	Pipe Rating	Pipe Ratings Index	Quick Rating
	Overall	Pipe Rating	Pipe Ratings Index	Quick Rating

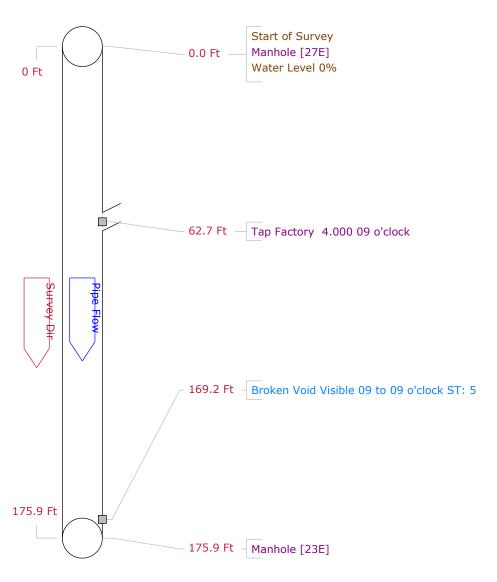


Certificate # U-5	514-06023286 System Ow	ner Village of Ontonagor	า
tomer Village of Onton	nagon		
<b>Time</b> 15:17	Street Ontonagon		
er location details			
Rim to invert	Grade to invert	Rim to grade	Ft
Rim to invert	Grade to invert	Rim to grade	Ft
ion Downstream	Flow control Not Controlled	Media No	
ht 8 Width i	ins Preclean J	Date Cleaned 2017/1	10/12
Joint length Ft	Total length Ft	Length Surveyed 1	37.20 <b>Ft</b>
Year laid	Year rehabilitated	Weather Dry	
sment Cat			
	Structural	O & M Construc	tional
	Miscellaneous	Hydraulic	
	Work	Order	
Easting	Elev	ation	
	GPS Accurac	cv	
	Time 15:17 er location details er location details etim to invert etim to invert ion Downstream th 8 Width Joint length Year laid ement Cat	Time 15:17 Street Ontonagon  Time 15:17 Street Ontonagon  Per location details  Rim to invert  Grade to invert  Grade to invert  Flow control Not Controlled  ins Preclean J  Joint length  Ft Total length  Year laid  Year rehabilitated  Structural  Miscellaneous  Work  Easting  Elev	Time 15:17 Street Ontonagon  Per location details  Rim to invert Grade to invert Rim to grade  Rim to invert Grade to invert Rim to grade  Rim to invert Grade to invert Rim to grade  Media No  Media No  Metia No  Date Cleaned 2017/1  Joint length F1 Total length Ft Length Surveyed 1  Year laid Year rehabilitated Weather Dry  Rim to grade  Media No  Media No  Date Cleaned 2017/1  Vear laid Year rehabilitated Weather Dry  Riment Cat  Structural O & M Construct  Miscellaneous Hydraulic  Work Order





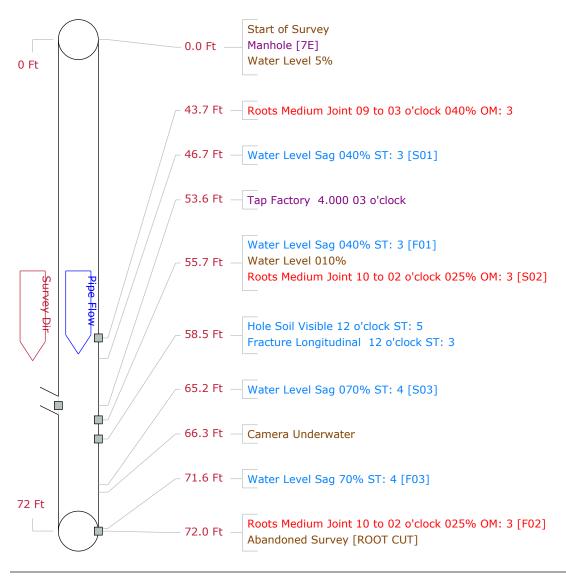
Setup 124 Surveyor GJK	Certificate #	U-815-07000963 <b>System Ov</b>	vner Village of Ontonagor	1
Drainage	Survey Customer Village of C	Ontonagon		
P/O # Date	2017/10/03 <b>Time</b> 17:37	Street Rockland Road		
City Ontonagon	Further location details	<b>S</b>		
<b>Up</b> 27E	Rim to invert	Grade to invert	Rim to grade	Ft
Down 23E	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary	Direction Downstream	Flow control Not Controlled	Media No	
Shape Circular	Height 8 Width	ins Preclean J	Date Cleaned 2017/1	0/02
Material Vitrified Clay Pipe	Joint length	Ft Total length Ft	Length Surveyed 1	75.90 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather Light Rain	
Purpose Capital Improvement P	rogram Assessment C	at		
Additional info A		Structural	O & M Construct	tional
Location		Miscellaneous	Hydraulic	
Project Ontonagon Sanitary Sev	ver System	Work	Order	
Northing	Easting	j Elev	ration	
Coordinate System		GPS Accura	су	



for

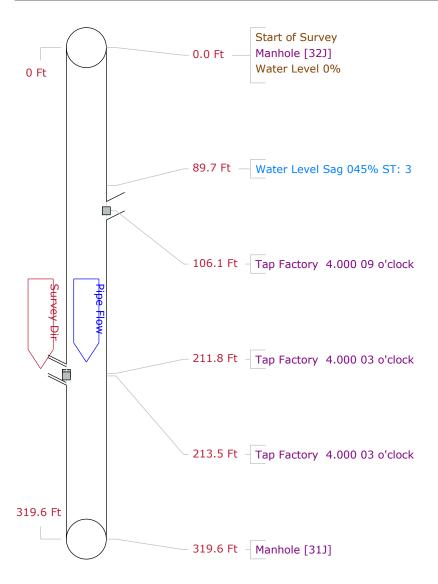
Village of Ontonagon

**GPS Accuracy** 

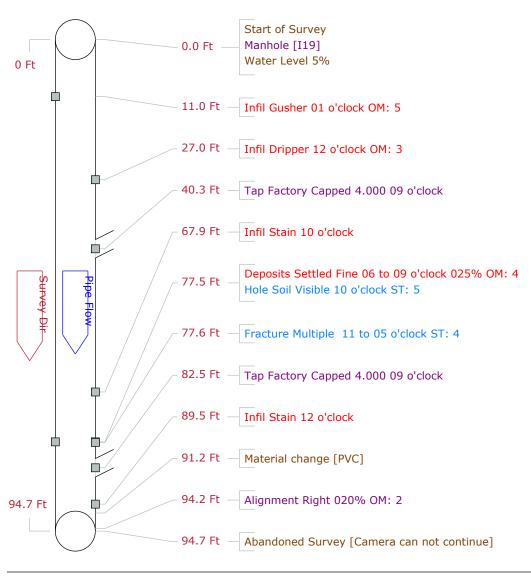




Setup 72 Surveyor GJK	Certificate #	U-815-07000963	System Owi	ner Village of	Ontonagon
Drainage Survey Cust	tomer Village of O	ntonagon	-		
P/O # Date 2017/09/21	<b>Time</b> 15:12	Street Parke	er Ave.		
City Ontonagon Furthe	r location details	i			
Up 32J Ri	im to invert	Grade to	nvert	Rim to g	rade Ft
Down 31J Ri	im to invert	Grade to	nvert	Rim to g	rade Ft
Use Sanitary Direction	on Downstream	Flow control		Media	No
Shape Circular Heigh	nt 8 Width	ins Prec	lean J	Date Clear	ned 2017/09/18
Material Reinforced Plastic Pipe (Truss	Joint length	Ft Total leng	th Ft	Length S	urveyed 319.60 Ft
Lining	Year laid	Year rehabilit	ated	Weather D	ry
Purpose Capital Improvement Program Assessr	ment C	at			
Additional info A		:	Structural	O & M	Constructional
Location Easement/Right of Way		1	Miscellaneous	Hydraulic	
Project Ontonagon Sanitary Sewer System			Work (	Order	
Northing	Easting	l	Eleva	ition	
Coordinate System			GPS Accuracy	y	



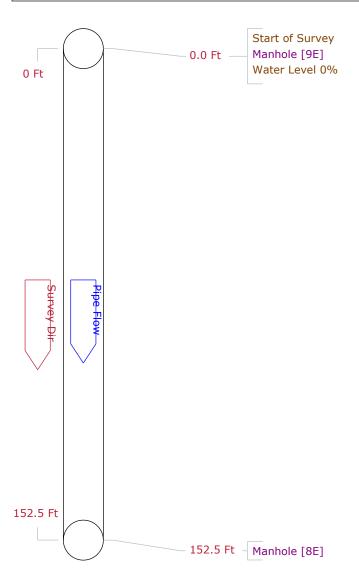
		-									
Setup	255	Surveyor	LDJ	Cer	tificate #	U-514-	-06023286	System Ov	<b>vner</b> Village	of Ontonagor	1
Drainage	)		Sur	vey Customer	Village of C	Ontonago	on				
P/O #			<b>Date</b> 2017	/10/24 <b>T</b>	ime 16:17	S	treet Brass				
City	Ontor	nagon		Further locat	ion details	3					
Up I	19			Rim to i	nvert		Grade to in	nvert	Rim to	grade	Ft
Down	10			Rim to i	nvert		Grade to in	nvert	Rim to	grade	Ft
Use Sar	nitary			Direction Dov	vnstream	Flo	w control		Med	ia No	
Shape (	Circular			Height 8	Width	ins	Precle	ean J	Date Cle	aned 2017/1	0/17
Material	Vitrifie	ed Clay Pipe	)	Joint	length	Ft	Total lengt	h Ft	Length	Surveyed 9	4.70 <b>Ft</b>
Lining				Ye	ar laid	Yea	ar rehabilita	ted	Weather	Light Rain	
Purpose	Ca	pital Improve	ement Prograr	n Assessment	C	Cat					
Addition	al info	Line	e right (No dov	vnstream access	i)		S	tructural	O & M	Construct	ional
Location	Li	ght Highway	/				M	liscellaneous	Hydraulic		
Project Ontonagon Sanitary Sewer						Work Order					
Northing					Easting	)		Elev	ation/		
Coordina	Coordinate System							GPS Accura	су		



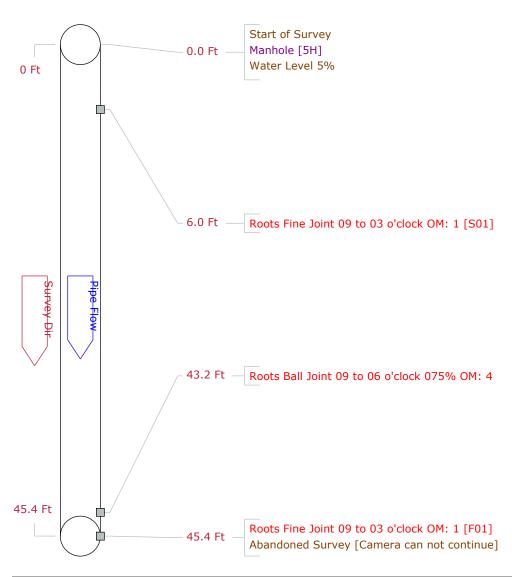


Pipe Graphic Report of PSR	9E	E	for	Village of Ontonagon

· · · · · · · · · · · · · · · · · · ·				
Setup 131 Surveyor LS	D Certificate #	U-114-6019861 System Ov	vner Village of Ontonago	n
Drainage	Survey Customer Village of 0	Ontonagon		
P/O #	<b>Date</b> 2017/10/04 <b>Time</b> 10:59	Street Rockland Road		
City Ontonagon	Further location detail	s		
Up 9E	Rim to invert	Grade to invert	Rim to grade	Ft
Down 8E	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary	<b>Direction</b> Downstream	Flow control	Media No	
Shape Circular	Height 10 Width	ins Preclean J	Date Cleaned 2017/	10/02
Material Vitrified Clay Pipe	Joint length	Ft Total length Ft	Length Surveyed	152.50 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather Dry	
Purpose Capital Improvemen	nt Program Assessment	Cat		
Additional info Root Cu	ıt	Structural	O & M Constru	ctional
Location		Miscellaneous	Hydraulic	
Project Ontonagon Sanitary	Sewer System	Work	Order	
Northing	Eastin	g Elev	ration	
Coordinate System		GPS Accura	су	



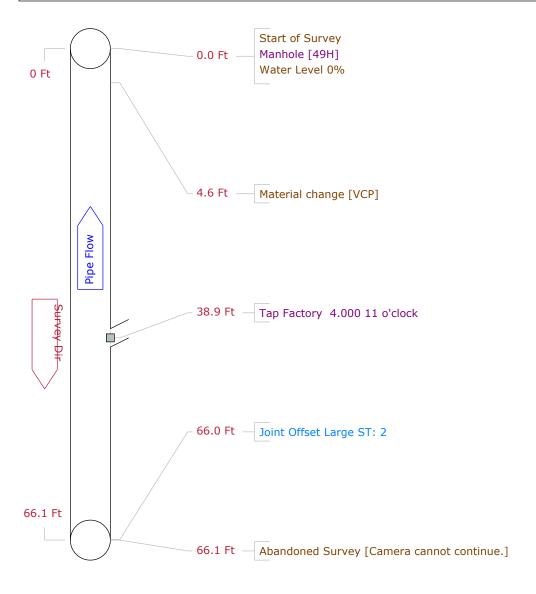
			•						
153 <b>Surveyor</b>	LDJ	Ce	rtificate #	U-514-	06023286	System Ov	wner Village	of Ontonagor	1
	Surv	vey Customer	Village of C	ntonago	n				
	<b>Date</b> 2017/	/10/10 <b>1</b>	ime 16:08	S	treet Spar				
Ontonagon		Further locat	tion details	3					
		Rim to i	nvert		Grade to i	nvert	Rim to	grade	Ft
		Rim to i	nvert		Grade to i	nvert	Rim to	grade	Ft
ary		Direction Do	wnstream	Flov	w control		Med	ia No	
cular		Height 10	Width	ins	Prec	lean J	Date Cle	aned 2017/1	0/10
Vitrified Clay Pipe	!	Join	t length	Ft	Total leng	th Ft	Length	Surveyed 4	5.40 <b>Ft</b>
		Ye	ar laid	Yea	ar rehabilit	ated	Weather	Dry	
Capital Improve	ement Program	n Assessment	C	Cat					
info					5	Structural	O & M	Construc	tional
Light Highway	,				ľ	/liscellaneous	Hydraulic		
Ontonagon Sani	tary Sewer					Work	Order		
			Easting	)		Elev	vation .		
e Svstem						GPS Accura	cv		
	Ontonagon  Ontonagon  ary cular Vitrified Clay Pipe  Capital Improve info Light Highway Ontonagon Sani	Surv Date 2017 Ontonagon  ary cular Vitrified Clay Pipe  Capital Improvement Program	Surveyor LDJ Cel Survey Customer Date 2017/10/10 T Ontonagon Further locate Rim to i Rim to i Rim to i Arry Direction Down Cular Height 10 Vitrified Clay Pipe Joint Ye Capital Improvement Program Assessment Info Light Highway Ontonagon Sanitary Sewer	Survey Customer Village of Contonagon  Date 2017/10/10  Time 16:08  Ontonagon  Further location details  Rim to invert  Rim to invert  Rim to invert  Direction Downstream  Roular  Height 10 Width  Vitrified Clay Pipe  Joint length  Year laid  Capital Improvement Program Assessment  info  Light Highway  Ontonagon Sanitary Sewer  Easting	Survey Customer Village of Ontonago  Date 2017/10/10 Time 16:08 S  Ontonagon Further location details  Rim to invert Rim to invert Rim to invert Program Assessment Cat  Info Light Highway Ontonagon Sanitary Sewer  Easting	Survey Customer Village of Ontonagon  Date 2017/10/10 Time 16:08 Street Spar  Ontonagon Further location details  Rim to invert Grade to i Rim to	Certificate # U-514-06023286 System On Survey Customer Village of Ontonagon  Date 2017/10/10 Time 16:08 Street Spar  Ontonagon Further location details  Rim to invert Grade to invert Rim to invert Grade to invert  ary Direction Downstream Flow control cular Height 10 Width ins Preclean J  Vitrified Clay Pipe Joint length Ft Total length Ft  Year laid Year rehabilitated  Capital Improvement Program Assessment Cat  info Light Highway  Ontonagon Sanitary Sewer  Easting Structural Miscellaneous  Work	Surveyor LDJ Certificate # U-514-06023286 System Owner Village Survey Customer Village of Ontonagon  Date 2017/10/10 Time 16:08 Street Spar  Ontonagon Further location details  Rim to invert Grade to invert Rim to Rim to invert Grade to invert Rim to ary Direction Downstream Flow control Med Cular Height 10 Width ins Preclean J Date Clevitrified Clay Pipe Joint length Ft Total length Ft Length Year laid Year rehabilitated Weather  Capital Improvement Program Assessment Cat  Info  Light Highway  Ontonagon Sanitary Sewer  Easting Work Order  Easting Elevation	Surveyor LDJ Certificate # U-514-06023286 System Owner Village of Ontonagor Survey Customer Village of Ontonagon  Date 2017/10/10 Time 16:08 Street Spar  Ontonagon Further location details  Rim to invert Grade to invert Rim to grade Rim to invert Grade to invert Rim to grade Rim to invert Grade to invert Rim to grade Rim to invert Grade to invert Rim to grade Rim to grade Rim to invert Grade to invert Rim to grade Rim to grade Rim to invert Grade to invert Rim to grade Rim to grade Rim to invert Grade to invert Rim to grade Rim to g





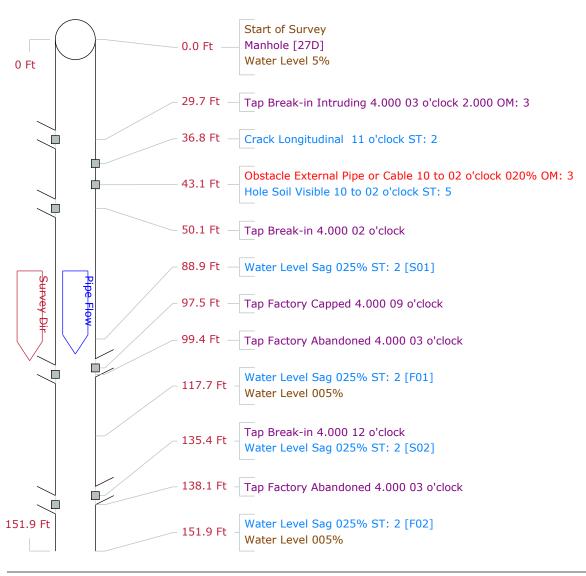
Pipe Graphic Report of PSR	27H	Χ	for	Village of Ontonagon

<u> </u>						
Setup 90 Surveyo	r GJK	Certificate #	U-114-6019861	System Ow	ner Village	of Ontonagon
Drainage	Survey Custom	er Village of C	Ontonagon			
P/O #	Date 2017/09/26	Time 17:44	Street N. 4th	า		
City Ontonagon	Further lo	cation details	offset joint			
<b>Up</b> 27H	Rim	to invert	Grade to	invert	Rim to	grade Ft
Down 49H	Rim	to invert	Grade to	invert	Rim to	grade Ft
Use Sanitary	Direction	Upstream	Flow control	Not Controlled	Medi	a No
Shape Circular	Height 1	0 Width	ins Pred	lean J	Date Clea	aned 2017/09/26
Material Vitrified Clay Pi	pe <b>J</b> o	oint length	Ft Total leng	jth Ft	Length S	Surveyed 66.10 Ft
Lining		Year laid	Year rehabilit	ated	Weather	Dry
Purpose Capital Impro	ovement Program Assessmer	nt C	Cat			
Additional info A			,	Structural	O & M	Constructional
Location Easement/R	Right of Way			Miscellaneous	Hydraulic	
Project Ontonagon Sa	initary Sewer System		_	Work	Order	
Northing		Easting	J	Elev	ation	
Coordinate System				GPS Accurac	су	



Ft
Ft
Ft
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Ft
Ft
)/05
2.30 <b>F</b>
onal
);

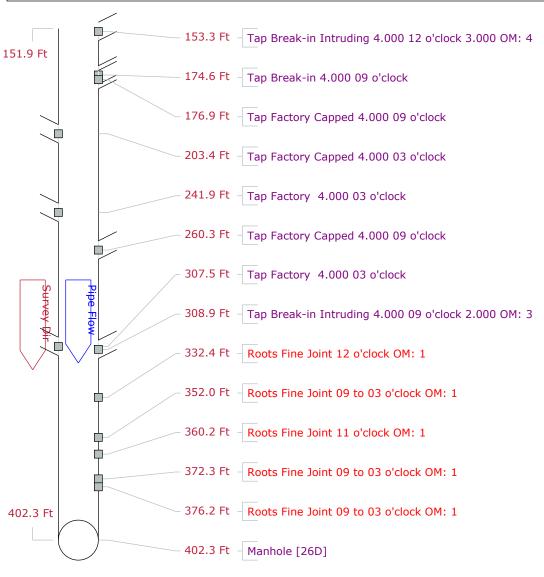
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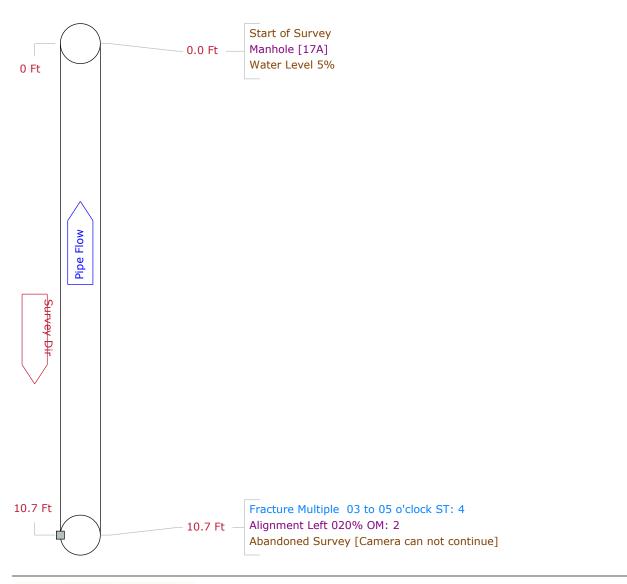
Setup 124 Surveyor LDJ	Certificate #	U-514-06023286 <b>System</b>	Owner Village of Ontonag	gon
Drainage Surv	rey Customer Village of O	ntonagon		
<b>P/O #</b> Date 2017/	10/05 <b>Time</b> 15:05	Street Rockland Rd.		
City Ontonagon	Further location details			
Up 27D	Rim to invert	Grade to invert	Rim to grade	Ft
Down 26D	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary	<b>Direction</b> Downstream	Flow control Not Controll	ed <b>Media No</b>	
Shape Circular	Height 12 Width	ins Preclean J	Date Cleaned 201	7/10/05
Material Vitrified Clay Pipe	Joint length	Ft Total length Ft	Length Surveyed	402.30 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather Dry	
Purpose Capital Improvement Program	Assessment C	at		
Additional info		Structural	O & M Constr	uctional
Location Light Highway		Miscellaneo	us Hydraulic	
Project Ontonagon Sanitary Sewer		W	ork Order	
Northing	Easting	E	Elevation	
Coordinate System		GPS Acc	uracy	

Χ



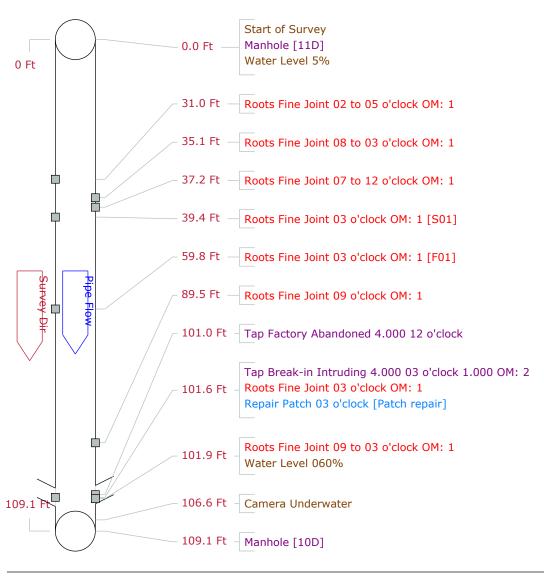


	-	-										
Setup	226	Surveyor	LDJ	Ce	rtificate #	U-514	-06023286	Syste	m Owner	Village o	of Ontonagon	
Drainage	е		Sur	vey Customer	Village of 0	Ontonag	on					
P/O #			<b>Date</b> 2017	7/10/19	Time 9:41	S	street Amyg	daloid				
City	Onto	nagon		Further loca	tion detail	s						
Up 1	19A			Rim to	nvert		Grade to i	nvert		Rim to	grade	Ft
Down 1	17A			Rim to	nvert		Grade to i	nvert		Rim to	grade	Ft
Use Sai	nitary			<b>Direction</b> Up	stream	Flo	w control			Media	a No	
Shape (	Circular			Height 8	Width	ins	Prec	lean J		Date Clea	ned 2017/1	0/19
Material	Vitrifi	ed Clay Pipe	)	Join	t length	Ft	Total leng	th	Ft	Length S	Surveyed 10	0.70 <b>Ft</b>
Lining				Υe	ar laid	Ye	ar rehabilit	ated	1	Weather [	Ory	
Purpose	e Ca	pital Improve	ement Progran	m Assessment	(	Cat						
Addition	al info	Line	e left				5	Structural	0.8	& М	Construct	ional
Location	n Li	ght Highway	/				N	/liscellane	eous Hy	draulic		
Project	Onto	onagon Sani	tary Sewer						Work Ord	ler		
Northing	3				Easting	g			Elevatio	n		
Coordina	ate Sys	stem						GPS Ac	curacy			



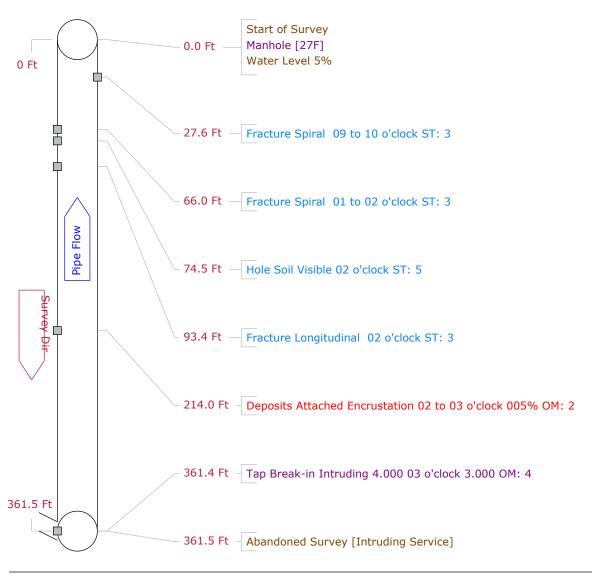


	•									
Setup	142 Surveyor	LDJ	Cer	tificate #	U-514	-06023286	System Ov	wner Village	of Ontonage	on
Drainage		Surve	ey Customer	Village of C	ntonag	on				
P/O #		<b>Date</b> 2017/1	10/09 <b>T</b>	<b>ime</b> 13:20	S	street Mercu	iry			
City	Ontonagon		Further locat	ion details	5					
<b>Up</b> 1′	ID		Rim to i	nvert		Grade to i	nvert	Rim to	grade	Ft
Down 10	)D		Rim to i	nvert		Grade to i	nvert	Rim to	grade	Ft
<b>Use</b> Sani	tary		<b>Direction</b> Dov	vnstream	Flo	w control N	Not Controlled	Med	ia No	
Shape C	ircular		Height 12	Width	ins	Prec	lean J	<b>Date Cleaned</b> 2017/10/06		
Material	Vitrified Clay Pipe	е	Joint	length	Ft	Total lengt	th Ft	Length	Surveyed	109.10 <b>Ft</b>
Lining			Yea	ar laid	Ye	ar rehabilita	ated	Weather	Dry	
Purpose	Capital Improv	rement Program	Assessment	C	at					
Additiona	l info					S	Structural	O & M	Constru	ıctional
Location	Light Highwa	у				N	/liscellaneous	Hydraulic		
Project	Ontonagon San	itary Sewer					Work	Order		
Northing				Easting	I		Elev	vation .		
Coordina	te System						<b>GPS Accura</b>	су		



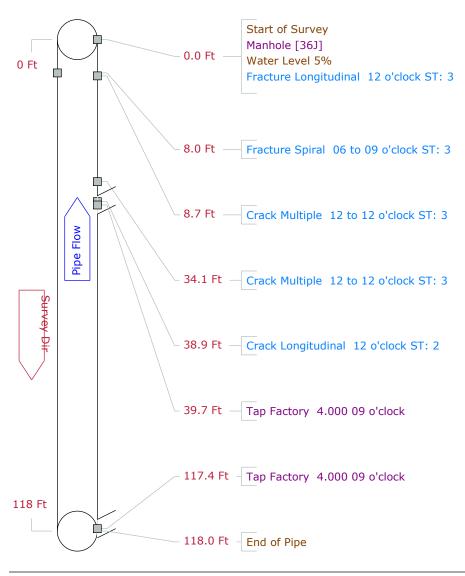


Setup 82 Surveyor LDJ	Certificate #	U-514-06023286 <b>System</b> (	Owner Village of Ontonag	gon
Drainage Surv	vey Customer Village of O	ntonagon		
P/O # Date 2017	/09/28 <b>Time</b> 12:03	Street M 38		
City Ontonagon	Further location details			
<b>Up</b> 40F	Rim to invert	Grade to invert	Rim to grade	Ft
Down 27F	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary	Direction Upstream	Flow control Not Controlle	d Media No	
Shape Circular	Height 10 Width	ins Preclean J	Date Cleaned 201	7/09/28
Material Asbestos Cement	Joint length	Ft Total length Ft	Length Surveyed	361.50 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather Dry	
Purpose Capital Improvement Program	n Assessment C	at		
Additional info		Structural	O & M Constr	uctional
Location Light Highway		Miscellaneous	s Hydraulic	
Project Ontonagon Sanitary Sewer		Wo	rk Order	
Northing	Easting	El	evation	
Coordinate System		GPS Accu	racy	





		<u>-</u> -		<del></del>		
Setup 45 Surveyor LDJ	Certificate #	U-514-06023286 <b>Sy</b>	stem Owner	village of Ontonagon		
Drainage Surv	vey Customer Village of O	ntonagon				
<b>P/O # Date</b> 2017/	709/21 <b>Time</b> 10:18	Street 7th St.				
City Ontonagon	Further location details	<b>;</b>				
<b>Up</b> 37J	Rim to invert	Grade to invert	:	Rim to grade	Ft	
Down 36J	Rim to invert	Grade to invert		Rim to grade	Ft	
Use Sanitary	Direction Upstream	Flow control Not Co	ontrolled	Media No		
Shape Circular	Height 8 Width	ins Preclean	J	<b>Date Cleaned</b> 2017/09/21		
Material Vitrified Clay Pipe	Joint length	Ft Total length	Ft	Length Surveyed 11	18.00 <b>Ft</b>	
Lining	Year laid	Year rehabilitated	1	Weather Dry		
Purpose Capital Improvement Program	n Assessment C	at				
Additional info		Structu	ıral 0 8	& M Construct	ional	
Location Light Highway		Miscel	laneous Hyd	draulic		
Project Ontonagon Sanitary Sewer			Work Ord	ler		
Northing	Easting	I	Elevation	n		
Coordinate System		GPS	Accuracy			





## **Tabular Report of PSR** 37A

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for OHM

Setup 15 Surveyor LDJ	Certificate #	U-514-06023286 <b>System</b> (	Owner Village of Ontonagon	
Drainage Sur	vey Customer			
<b>P/O # Date</b> 2018.	/05/09 <b>Time</b> 10:17	Street Spar St.		
City Ontonagon	Further location details			
<b>Up</b> 37A	Rim to invert	Grade to invert	Rim to grade	Ft
Down 36A	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary	Direction Down	Flow control Not Controlled	Media No	
Shape Circular	Height 8 Width	ins Preclean H	Date Cleaned 2018/05	5/09
Material Vitrified Clay Pipe	Joint length	Ft Total length Ft	Length Surveyed 12	1.1 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather Light Rain	
Purpose Routine Assessment	Cat		Pressure	
Additional info Line was root cut		Structural	O & M Constructi	onal
Location Light Highway		Miscellaneous		
Project Project Title -5/8/2018		Wor	k Order	
Northing	Easting	Ele	vation	
Coordinate System		GPS Accura	асу	

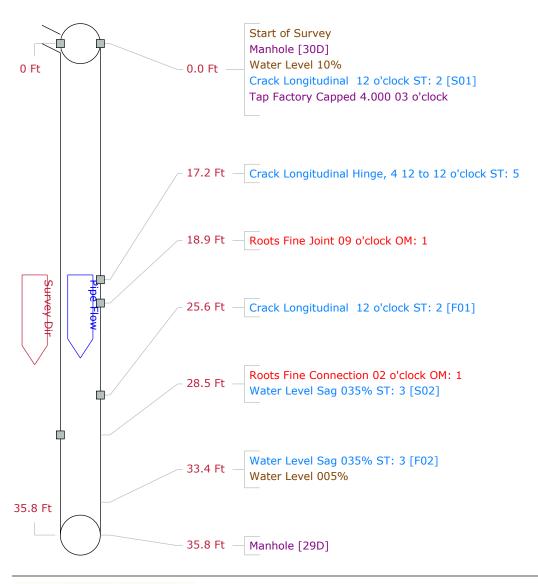
Count Video	CD	Code		ln1	ln2	%	Jnt	Fr	То	ImRe	f Remarks
0.0		ST	Start of Survey								
0.0		AMH	Manhole								37A
0.0		MWL	Water Level			5					
16.1		TFC	Tap Factory Capped	4.000				12			
18.0		TF	Tap Factory	4.000				12			
42.9	S01	RFJ	Roots Fine Joint				J	09	03		
55.5		CS	Crack Spiral					03	06		
59.1		CL	Crack Longitudinal					06			
99.5		TFC	Tap Factory Capped	4.000				02			
118.5		FM	Fracture Multiple					04	80		
121.1	F01	RFJ	Roots Fine Joint				J	09	03		
121.1		AMH	Manhole								36A

121.1 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating	Pipe Ratings Index	Quick Rating
	O&M:	Pipe Rating	Pipe Ratings Index	Quick Rating
	Overall	Pipe Rating	Pipe Ratings Index	Quick Rating



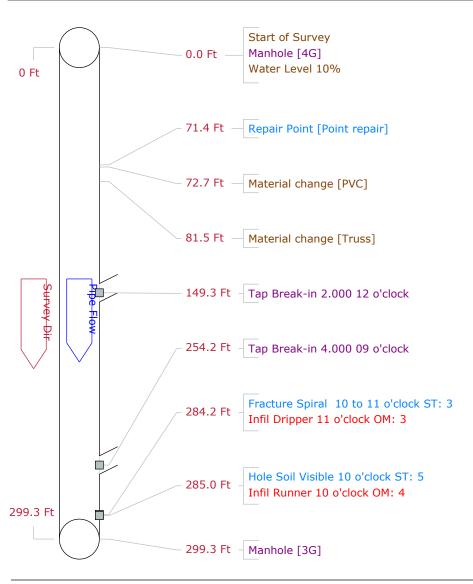
Certificate # U-51	4-06023286 System Ow	ner Village of Ontonagon		
tomer Village of Ontonag	gon			
Time 14:13	Street Rockland Rd.			
r location details				
im to invert	Grade to invert	Rim to grade Ft		
im to invert	Grade to invert	Rim to grade Ft		
on Downstream Flo	ow control	Media No		
nt 12 Width ins	s Preclean J	<b>Date Cleaned</b> 2017/10/05		
Joint length Ft	Total length Ft	Length Surveyed 35.80		
Year laid Ye	ear rehabilitated	Weather Dry		
ment Cat				
	Structural	O & M Constructional		
	Miscellaneous	Hydraulic		
	Work	Order		
Easting	Eleva	ation		
	GPS Accurac			
i	Time 14:13 r location details im to invert im to invert on Downstream Float 12 Width ins Joint length Ft Year laid Yoment Cat	tomer Village of Ontonagon Time 14:13 Street Rockland Rd.  r location details im to invert Grade to invert im to invert Grade to invert on Downstream Flow control int 12 Width ins Preclean J Joint length Ft Total length Ft Year laid Year rehabilitated ment Cat  Structural Miscellaneous  Work Easting Elev.		





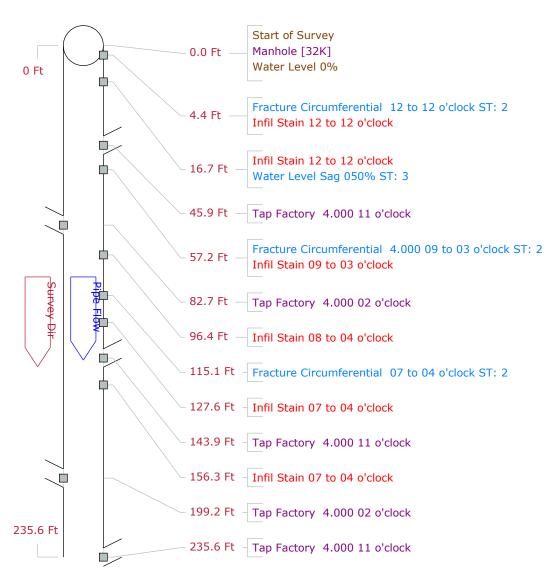
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	•	<b>.</b>									
Setup	167	' Surveyor	LDJ	Ce	rtificate #	U-514	1-06023286	System Ov	<b>vner</b> Village	of Ontonago	on
Drainag	ge		Su	ırvey Customer	Village of C	Ontonag	jon				
P/O #			Date 201	17/10/12 <b>1</b>	ime 9:18	;	Street Quart	Z			
City	On	tonagon		Further locate	ion details	S					
Up	4G			Rim to i	nvert		Grade to i	nvert	Rim to	grade	Ft
Down	3G			Rim to i	nvert		Grade to i	nvert	Rim to	grade	Ft
Use Sa	anitary			Direction Do	wnstream	Flo	w control N	Not Controlled	Med	ia No	
Shape	Circul	ar		Height 15	Width	ins	Prec	lean H	Date Cle	eaned 2017	/10/12
Materia	l Re	nforced Plasti	c Pipe (Truss	Join	t length	Ft	Total lenge	th Ft	Length	Surveyed	299.30 <b>Ft</b>
Lining				Ye	ar laid	Υe	ar rehabilita	ated	Weather	Dry	
Purpos	е (	Capital Improv	ement Progra	am Assessment	(	Cat					
Additio	nal in	fo					5	Structural	O & M	Constru	ctional
Locatio	n	Light Highway	y				N	/liscellaneous	Hydraulic		
Project	0	ntonagon San	itary Sewer					Work	Order		
Northin	g				Easting	9		Elev	/ation		
Coordin	nate S	ystem						GPS Accura	су		



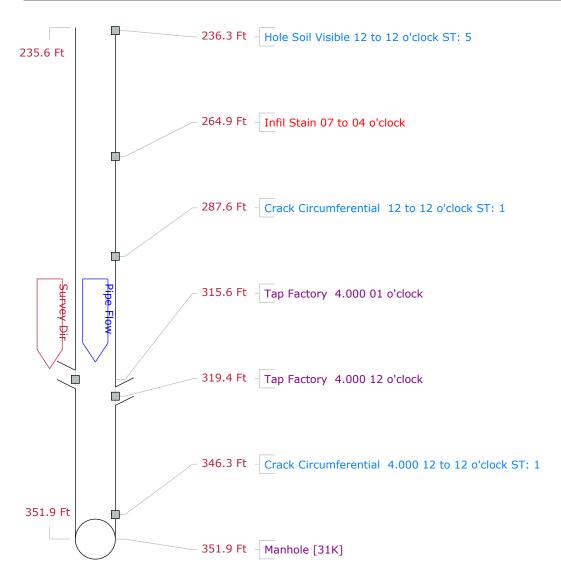


Setup 49 Surveyor GJK	Certificate #	U-815-07000963 <b>System (</b>	Owner Village of Ontonag	on			
Drainage Survey	Customer Village of O	ntonagon					
P/O # Date 2017/09/	20 <b>Time</b> 11:00	Street Peeble Beach					
City Ontonagon Fu	urther location details						
<b>Up</b> 32K	Rim to invert	Grade to invert	Rim to grade	Ft			
Down 31K	Rim to invert	Grade to invert	Rim to grade	Ft			
Use Sanitary Di	rection Downstream	Flow control	Media No				
Shape Circular H	leight 8 Width	ins Preclean J	Date Cleaned 2017	7/09/18			
Material Asbestos Cement	Joint length	Ft Total length Ft	Length Surveyed	351.90 <b>Ft</b>			
Lining	Year laid	Year rehabilitated	Weather Dry				
Purpose Capital Improvement Program As	sessment C	at					
Additional info A		Structural	O & M Constru	uctional			
Location Easement/Right of Way		Miscellaneous	s Hydraulic				
Project Ontonagon Sanitary Sewer System Work Order							
Northing	Easting	EI	evation				
Coordinate System		GPS Accur	racy				

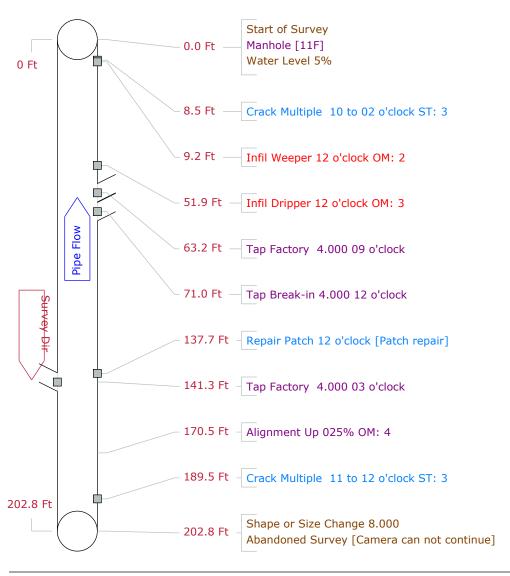


Pipe Graphic Report of PSR	32K	Χ	for	Village of Ontonagon

Setup 49 Surveyor GJK	Certificate #	U-815-07000963 <b>System O</b>	wner Village of Ontonago	on
Drainage Surve	ey Customer Village of O	ntonagon		
P/O # Date 2017/0	09/20 <b>Time</b> 11:00	Street Peeble Beach		
City Ontonagon	Further location details			
<b>Up</b> 32K	Rim to invert	Grade to invert	Rim to grade	Ft
Down 31K	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary	Direction Downstream	Flow control	Media No	
Shape Circular	Height 8 Width	ins Preclean J	Date Cleaned 2017	/09/18
Material Asbestos Cement	Joint length	Ft Total length Ft	Length Surveyed	351.90 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather Dry	
Purpose Capital Improvement Program	Assessment C	at		
Additional info A		Structural	O & M Constru	ctional
Location Easement/Right of Way		Miscellaneous	Hydraulic	
Project Ontonagon Sanitary Sewer Syst	tem	Worl	k Order	
Northing	Easting	Ele	vation	
Coordinate System		GPS Accura	су	



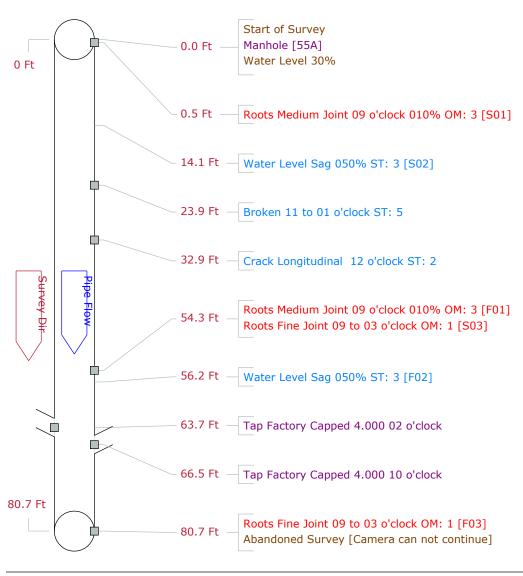
Setup		264	Surveyo	r LDJ		Се	rtificate #	U-51	4-06023286	Syst	em Owne	r Village	of Ontonag	on
Draina	age				Survey Cu	stomer	Village of	Ontonag	gon					
P/O #				Dat	<b>e</b> 2017/10/25		Time 17:5	7	Street Tin					
City		Onton	agon		Furth	er loca	tion detai	Is						
Up	U١	IKNO\	VN_4			Rim to	invert		Grade to	invert		Rim to	grade	Ft
Down	11	F				Rim to	invert		Grade to	invert		Rim to	grade	Ft
Use	Sanit	ary			Direc	tion Up	stream	Flo	ow control	Not Cont	rolled	Med	ia No	
Shape	<b>C</b> ii	cular			Heig	<b>ght</b> 10	Width	ins	s Pre	clean H		Date Cle	aned 2017	7/10/25
Materi	ial	Vitrifie	d Clay Pi	ре		Join	t length	Ft	Total len	gth	Ft	Length	Surveyed	202.80 <b>Ft</b>
Lining	J					Ye	ear laid	Ye	ear rehabili	itated		Weather	Dry	
Purpo	se	Cap	ital Impro	vement	Program Asses	sment		Cat						
Additi	onal	info	Р	ipe chan	ges to 8 inch					Structura	ıl C	) & M	Constru	uctional
Locati	ion	Lig	ght Highw	ay						Miscellar	neous H	lydraulic		
Projec	t	Onto	nagon Sa	ınitary Se	ewer						Work O	rder		
Northi	ing						Eastir	ng			Elevati	on		
Coord	linat	Sys	tem							GPS A	ccuracy			





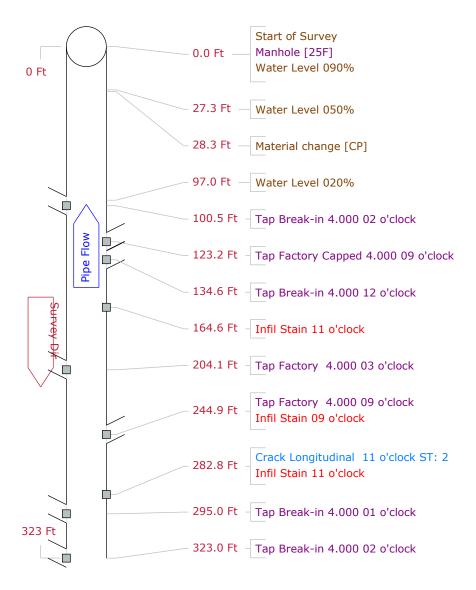
Setup 174 Surv	vevor LDJ	Certificate #	U-514-06023286	System Owi	ner Village of	Ontonagon
	•			Cyclem Cwi	ilei viilago oi	Ontonagon
Drainage	Survey Cusio	omer Village of C	nitoriagon			
P/O #	<b>Date</b> 2017/10/12	<b>Time</b> 11:58	Street Onto	onagon		
City Ontonagon	Further	location details	5			
<b>Up</b> 55A	Rin	n to invert	Grade to	invert	Rim to gr	ade Ft
Down 8AB	Rin	n to invert	Grade to	invert	Rim to gr	ade Ft
Use Sanitary	Direction	n Downstream	Flow control		Media	No
Shape Circular	Height	15 Width	ins Pre	clean J	Date Clean	ed 2017/10/12
Material Vitrified Cla	ay Pipe	Joint length	Ft Total len	gth Ft	Length Sւ	irveyed 80.70 Ft
Lining		Year laid	Year rehabil	itated	Weather Dr	у
Purpose Capital II	mprovement Program Assessm	ent C	Cat			
Additional info	DEWATER			Structural	O & M	Constructional
Location Light H	ighway			Miscellaneous	Hydraulic	
<b>Project</b> Ontonago	n Sanitary Sewer		_	Work (	Order	
Northing		Easting	3	Eleva	ation	
Coordinate System				GPS Accuracy	y	

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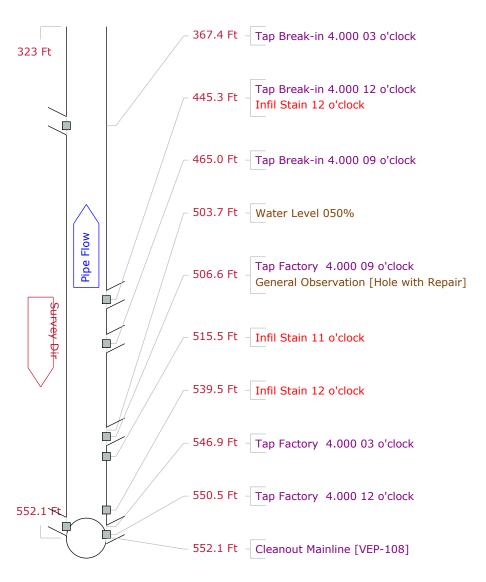




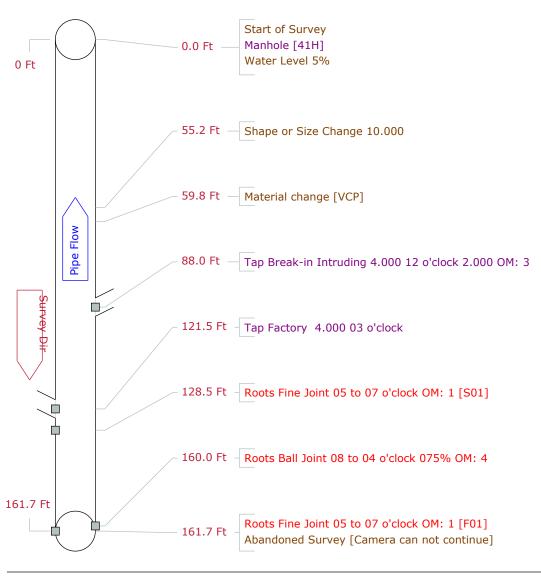
Setup	97	Surveyor	GJK		Certificate #	I I_Ω15	5-07000963	System Ov	vnor Village	of Ontonago	nn
•		Surveyor						System Ov	vilei village	or Ontonago	JII
Drainag	ge		Sur	rvey Custom	er Village of	Ontonag	jon				
P/O #			<b>Date</b> 2017	7/09/28	<b>Time</b> 8:09	5	Street Alsac	e Ave.			
City	On	tonagon		Further lo	cation detail	ls					
Up	VEP-	108		Rim t	o invert		Grade to i	nvert	Rim to	grade	Ft
Down	25F			Rim t	o invert		Grade to i	nvert	Rim to	grade	Ft
Use Sa	anitary			Direction	Upstream	Flo	w control	Not Controlled	Med	ia No	
Shape	Circul	ar		Height 1	O Width	ins	Prec	lean J	Date Cle	aned 2017	/09/25
Materia	l Vitr	ified Clay Pipe	Э	Jo	int length	Ft	Total leng	th Ft	Length	Surveyed	552.10 <b>Ft</b>
Lining					Year laid	Ye	ar rehabilit	ated	Weather	Dry	
Purpos	e (	Capital Improv	ement Progra	m Assessmen	t	Cat					
Additio	nal in	io A					5	Structural	O & M	Constru	ctional
Locatio	n	Easement/Rig	ght of Way				N	Miscellaneous	Hydraulic		
Project	O	ntonagon San	itary Sewer Sy	ystem				Work	Order		
Northin	g				Eastin	g		Elev	ation		
Coordin	nate S	ystem						GPS Accura	су		



Setup	97	Surveyor	GJK		Certificate #	I I_Ω15	5-07000963	System Ov	vnor Village	of Ontonago	nn
•		Surveyor						System Ov	vilei village	or Ontonago	JII
Drainag	ge		Sur	rvey Custom	er Village of	Ontonag	jon				
P/O #			<b>Date</b> 2017	7/09/28	<b>Time</b> 8:09	5	Street Alsac	e Ave.			
City	On	tonagon		Further lo	cation detail	ls					
Up	VEP-	108		Rim t	o invert		Grade to i	nvert	Rim to	grade	Ft
Down	25F			Rim t	o invert		Grade to i	nvert	Rim to	grade	Ft
Use Sa	anitary			Direction	Upstream	Flo	w control	Not Controlled	Med	ia No	
Shape	Circul	ar		Height 1	0 Width	ins	Prec	lean J	Date Cle	aned 2017	/09/25
Materia	l Vitr	ified Clay Pipe	Э	Jo	int length	Ft	Total leng	th Ft	Length	Surveyed	552.10 <b>Ft</b>
Lining					Year laid	Ye	ar rehabilit	ated	Weather	Dry	
Purpos	e (	Capital Improv	ement Progra	m Assessmen	t	Cat					
Additio	nal in	io A					5	Structural	O & M	Constru	ctional
Locatio	n	Easement/Rig	ght of Way				N	Miscellaneous	Hydraulic		
Project	O	ntonagon San	itary Sewer Sy	ystem				Work	Order		
Northin	g				Eastin	g		Elev	ation		
Coordin	nate S	ystem						GPS Accura	су		

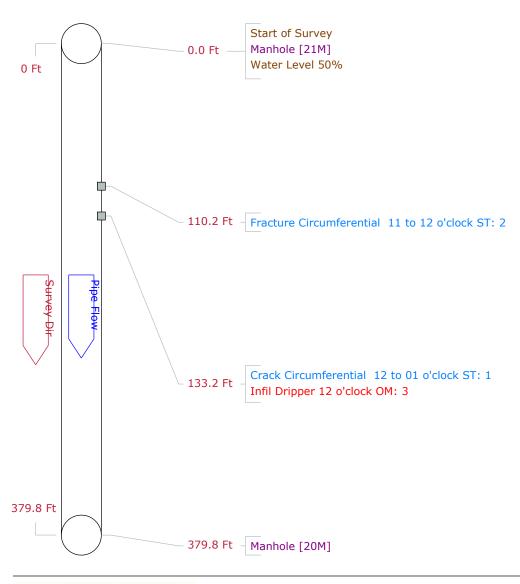


Tipe Orapino Report of Fore		101	village of Off		
Setup 91 Surveyor LDJ	Certificate #	U-514-06023286	System Ow	ner Village of	Ontonagon
Drainage Survey Custo	mer Village of C	Ontonagon			
<b>P/O # Date</b> 2017/09/28	Time 18:34	Street NA			
City Ontonagon Further	location details	3			
Up 18H Rin	n to invert	Grade to	invert	Rim to g	rade Ft
Down 41H Rin	n to invert	Grade to	invert	Rim to g	rade Ft
Use Sanitary Direction	<b>1</b> Upstream	Flow control		Media	No
Shape Circular Height	12 Width	ins Pre	clean J	Date Clea	ned 2017/09/28
Material Polyvinyl Chloride	Joint length	Ft Total len	gth Ft	Length S	urveyed 161.70 Ft
Lining	Year laid	Year rehabil	itated	Weather D	ry
Purpose Capital Improvement Program Assessment	ent C	Cat			
Additional info Roots (Can not be cut)			Structural	O & M	Constructional
<b>Location</b> Alley			Miscellaneous	Hydraulic	
Project Ontonagon Sanitary Sewer			Work	Order	
Northing	Easting	3	Elev	ation	
Coordinate System			GPS Accurac	<b>Э</b>	



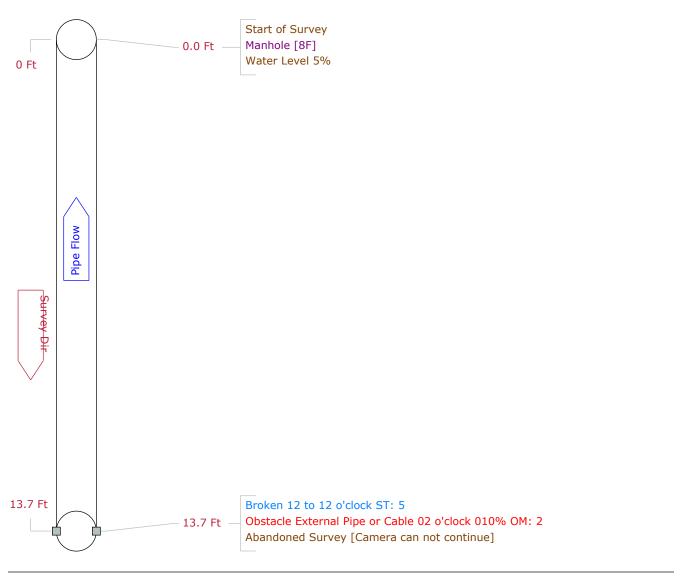


Certificate #	U-514-06023286 <b>System Ov</b>	vner Village of Ontonagon
vey Customer Village of O	ntonagon	
10/04 <b>Time</b> 9:18	Street N River Rd.	
Further location details	•	
Rim to invert	Grade to invert	Rim to grade Ft
Rim to invert	Grade to invert	Rim to grade Ft
<b>Direction</b> Downstream	Flow control	Media No
Height 12 Width	ins Preclean H	<b>Date Cleaned</b> 2017/10/04
Joint length	Ft Total length Ft	Length Surveyed 379.80 F
Year laid	Year rehabilitated	Weather Dry
Assessment C	at	
	Structural	O & M Constructional
	Miscellaneous	Hydraulic
	Work	Order
Easting	Elev	vation value
	GPS Accura	CV
	rey Customer Village of O 10/04 Time 9:18  Further location details  Rim to invert  Rim to invert  Direction Downstream  Height 12 Width  Joint length  Year laid	rey Customer Village of Ontonagon 10/04 Time 9:18 Street N River Rd.  Further location details  Rim to invert Grade to invert  Direction Downstream Flow control  Height 12 Width ins Preclean H  Joint length Ft Total length Ft  Year laid Year rehabilitated  Assessment Cat  Structural  Miscellaneous  Work  Easting Elev





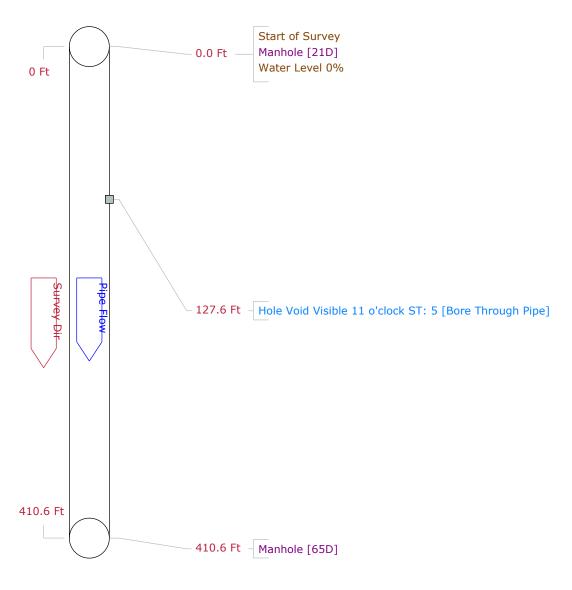
· · ·		<del>-</del>	
Setup 178 Surveyor LDJ	Certificate #	U-514-06023286 <b>System</b> (	Owner Village of Ontonagon
Drainage Surv	vey Customer Village of O	ntonagon	
P/O # Date 2017/	10/12 <b>Time</b> 16:41	Street Copper	
City Ontonagon	Further location details	<b>3</b>	
<b>Up</b> 17	Rim to invert	Grade to invert	Rim to grade Ft
Down 8F	Rim to invert	Grade to invert	Rim to grade Ft
Use Sanitary	Direction Upstream	Flow control	Media No
Shape Circular	Height 8 Width	ins Preclean J	<b>Date Cleaned</b> 2017/10/12
Material Asbestos Cement	Joint length	Ft Total length Ft	Length Surveyed 13.70 Ft
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Capital Improvement Program	Assessment C	at	
Additional info		Structural	O & M Constructional
Location Light Highway		Miscellaneou	s Hydraulic
Project Ontonagon Sanitary Sewer		Wo	ork Order
Northing	Easting	j El	evation
Coordinate System		GPS Accu	racy



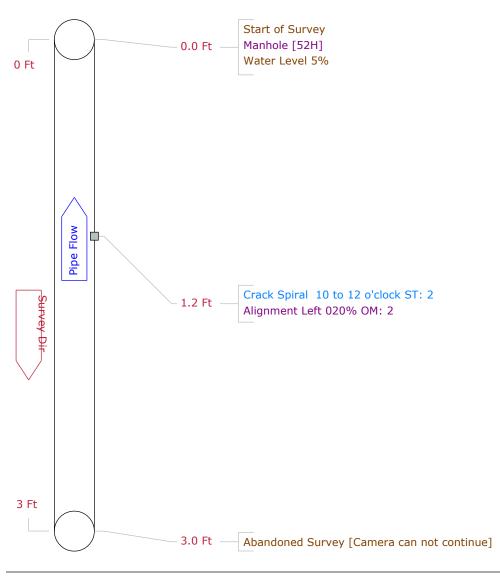


	Pipe Graphic Report of PSR 21D	Χ	for	Village of Ontonagon
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Setup 44 Surveyor GJK	Certificate #	U-815-07000963 <b>System Ov</b>	vner Village of Ontonago	n
Drainage	urvey Customer Village of C	Ontonagon		
P/O # Date 20	17/09/20 <b>Time</b> 8:15	Street Mercury		
City Ontonagon	Further location details	Lagoon outfall		
<b>Up</b> 21D	Rim to invert	Grade to invert	Rim to grade	Ft
Down 65D	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary	Direction Downstream	Flow control	Media No	
Shape Circular	Height 24 Width	ins Preclean N	<b>Date Cleaned</b>	
Material Polyvinyl Chloride	Joint length	Ft Total length Ft	Length Surveyed	410.60 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather Dry	
Purpose Capital Improvement Prog	ram Assessment C	Cat		
Additional info A		Structural	O & M Constru	ctional
Location Easement/Right of Way		Miscellaneous	Hydraulic	
Project Ontonagon Sanitary Sewer	System	Work	Order	
Northing	Easting	g Elev	/ation	
Coordinate System		GPS Accura	су	

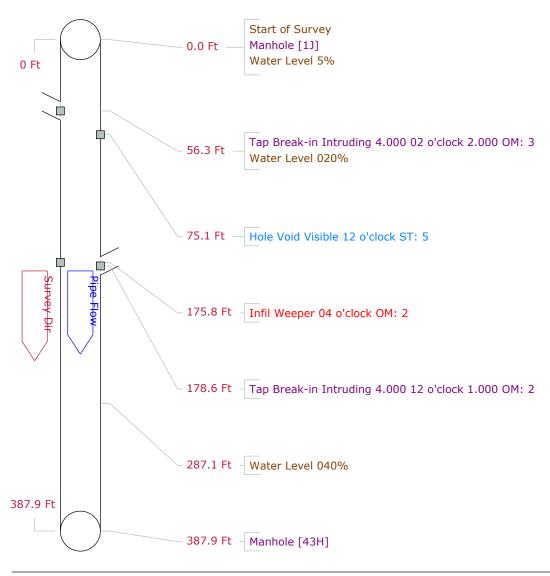


Setup 244 Surveyor LDJ	Certificate #	U-514-06023286 <b>System</b> (	Owner Village of Ontonage	on	
•	ey Customer Village of O	ntonagon	Ç Ç		
P/O # Date 2017/1	0/24 <b>Time</b> 9:39	Street Quartz			
City Ontonagon	Further location details	<b>i</b>			
<b>Up</b> 53H	Rim to invert	Grade to invert	Rim to grade	Ft	
Down 52H	Rim to invert	Grade to invert	Rim to grade	Ft	
Use Sanitary	Direction Upstream	Flow control Not Controlle	d Media No		
Shape Circular	Height 8 Width	ins Preclean J	Date Cleaned 2017	/10/17	
Material Concrete Pipe (non-reinforced)  Joint length  Ft Total length  Ft Length Surveyed 03.00 Ft					
Lining	Year laid	Year rehabilitated	Weather Light Rain		
Purpose Capital Improvement Program	Assessment C	at			
Additional info Line left		Structural	O & M Constru	ıctional	
Location Light Highway		Miscellaneou	s Hydraulic		
Project Ontonagon Sanitary Sewer		Wo	rk Order	·	
Northing	Easting	E	evation		
Coordinate System		GPS Accu	racy		





<u> </u>				
Setup 76 Surveyor LDJ	Certificate #	U-514-06023286 <b>System Ow</b>	ner Village of Ontonagon	
Drainage Su	rvey Customer Village of O	ntonagon		
<b>P/O # Date</b> 201	7/09/27 <b>Time</b> 10:09	Street Copper St.		
City Ontonagon	Further location details	•		
<b>Up</b> 1J	Rim to invert	Grade to invert	Rim to grade F	-t
Down 43H	Rim to invert	Grade to invert	Rim to grade F	ŧ
Use Sanitary	Direction Downstream	Flow control Not Controlled	Media No	
Shape Circular	Height 12 Width	ins Preclean J	Date Cleaned	
Material Asbestos Cement	Joint length	Ft Total length Ft	Length Surveyed 387.9	90 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather	
Purpose	C	at		
Additional info		Structural	O & M Construction	al
Location		Miscellaneous	Hydraulic	
Project Ontonagon Sanitary Sewer		Work	Order	
Northing	Easting	Elev	ation	
Coordinate System		GPS Accurac	у	





Setup 5 Surveyor LDJ	Certificate #	U-514-06023286 <b>Syste</b>	em Owner Village of Ontonag	on
Drainage Surv	ey Customer			
P/O # Date 2018/0	05/08 <b>Time</b> 10:02	Street Walnut St.		
City Ontonagon	Further location details			
<b>Up</b> 43A	Rim to invert	Grade to invert	Rim to grade	Ft
Down 40A	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary	Direction Down	Flow control De-Watere	d using J Media No	
Shape Circular	Height 10 Width	ins Preclean H	Date Cleaned 2018	8/05/08
Material Concrete Pipe (non-reinforced)	Joint length	Ft Total length F	t Length Surveyed	77.3 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather Dry	
Purpose Capital Improvement Program	Assessment Cat		Pressure	
Additional info		Structural	O & M Constru	uctional
Location Light Highway		Miscellaneo	ous	
Project Project Title -5/8/2018		V	Vork Order	
Northing	Easting		Elevation	
Coordinate System		GPS Acc	curacy	

Count Video	CD Code	ln1	ln2	%	Jnt	Fr	То	ImRe	f Remarks
0.0	ST Start of Survey								
0.0	AMH Manhole								43A
0.0	MWL Water Level			5					
22.7	RFJ Roots Fine Joint				J	12			
74.4	MMC Material change								VCP
74.6	FS Fracture Spiral					04	80		
77.3	AMH Manhole								40A

77.3 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating	Pipe Ratings Index	Quick Rating
	O&M:	Pipe Rating	Pipe Ratings Index	Quick Rating
	Overall	Pipe Rating	Pipe Ratings Index	Quick Rating



Setup 12 Surveyor LDJ	Certificate #	U-514-06023286 System O	wner Village of Ontonagon
Drainage Surv	ey Customer OHM		
<b>P/O # Date</b> 2018/0	05/09 <b>Time</b> 3:57	Street Houghton St.	
City Ontonagon	Further location details		
<b>Up</b> 31A	Rim to invert	Grade to invert	Rim to grade Ft
Down 30A	Rim to invert	Grade to invert	Rim to grade Ft
Use Sanitary	Direction Down	Flow control Not Controlled	Media No
Shape Circular	Height 8 Width	ins Preclean H	<b>Date Cleaned</b> 2018/05/09
Material Vitrified Clay Pipe	Joint length	Ft Total length Ft	Length Surveyed 115.2 Ft
Lining	Year laid	Year rehabilitated	Weather Light Rain
Purpose Capital Improvement Program	Assessment Cat		Pressure
Additional info Line was root cut		Structural	O & M Constructional
Location Light Highway		Miscellaneous	
Project Project Title -5/8/2018		Work	Order
Northing	Easting	Elev	ation
Coordinate System		GPS Accurac	су

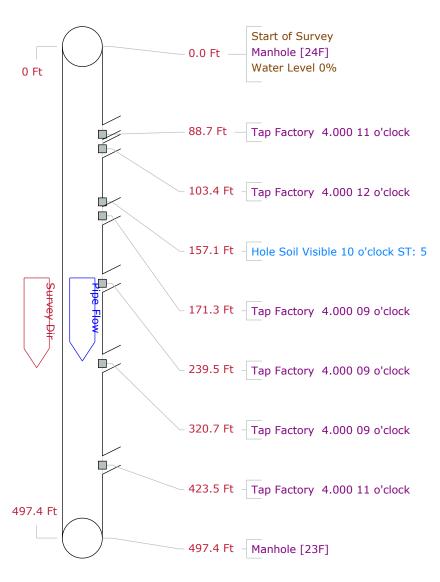
Count Video	CD	Code		ln1	ln2	%	Jni	tFr	То	ImRe	f Remarks
0.0		ST	Start of Survey								
0.0		AMH	Manhole								31A
0.0		MWL	Water Level			5					
16.7	S01	RFJ	Roots Fine Joint				J	09	03		
17.2		CS	Crack Spiral					06	09		
25.9		TF	Tap Factory	4.000				12			
115.2	F01	RFJ	Roots Fine Joint				J	09	03		
115.2		AMH	Manhole								30A

115.2 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating	Pipe Ratings Index	Quick Rating
	O&M:	Pipe Rating	Pipe Ratings Index	Quick Rating
	Overall	Pipe Rating	Pipe Ratings Index	Quick Rating

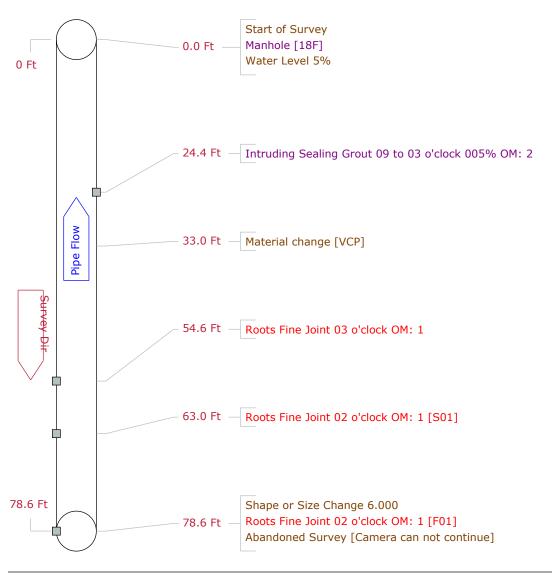


Setup 113 Surveyor GJK	Certificate #	U-815-07000963 <b>System Ov</b>	vner Village of Ontonagon
Drainage Sur	vey Customer Village of O	ntonagon	
<b>P/O #</b> Date 2017	7/09/29 <b>Time</b> 11:25	Street Greenland Road	
City Ontonagon	Further location details	•	
Up 24F	Rim to invert	Grade to invert	Rim to grade Ft
Down 23F	Rim to invert	Grade to invert	Rim to grade Ft
Use Sanitary	Direction Downstream	Flow control	Media No
Shape Circular	Height 12 Width	ins Preclean J	<b>Date Cleaned</b> 2017/09/28
Material Reinforced Plastic Pipe (Truss	Joint length	Ft Total length Ft	Length Surveyed 497.40 I
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Capital Improvement Program	m Assessment C	at	
Additional info A		Structural	O & M Constructional
<b>Location</b> Light Highway		Miscellaneous	Hydraulic
Project Ontonagon Sanitary Sewer Sy	/stem	Work	Order
Northing	Easting	Elev	ation
Coordinate System		GPS Accura	су



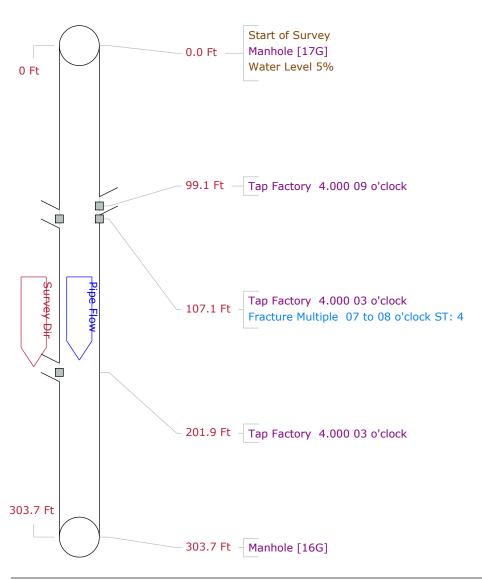
<u> </u>		<u> </u>	<u> </u>
Setup 257 Surveyor LDJ	Certificate #	U-514-06023286 <b>System</b> 6	Owner Village of Ontonagon
Drainage Survey	Customer Village of C	Ontonagon	
P/O # Date 2017/10/2	25 <b>Time</b> 9:04	Street River	
City Ontonagon Fu	rther location details	3	
Up SNC-008	Rim to invert	Grade to invert	Rim to grade Ft
Down 18F	Rim to invert	Grade to invert	Rim to grade Ft
Use Sanitary Dir	rection Upstream	Flow control Not Controlle	d Media No
Shape Circular H	leight 10 Width	ins Preclean J	<b>Date Cleaned</b> 2017/10/18
Material Vitrified Clay Pipe	Joint length	Ft Total length Ft	Length Surveyed 78.60 Ft
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Capital Improvement Program Ass	sessment C	Cat	
Additional info Pipe changes to 6 inch	า	Structural	O & M Constructional
Location Light Highway		Miscellaneou	s Hydraulic
Project Ontonagon Sanitary Sewer		Wo	ork Order
Northing	Easting	j El	evation
Coordinate System		GPS Accu	racy

Village of Ontonagon



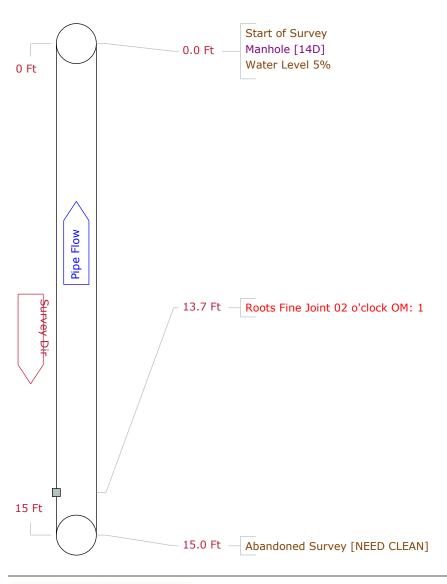


Cotun		34	Curvovor	LDJ			rtificate #	11.51	4-06023286	Systa	m Oumar	Villago	of Ontonago	
Setup		34	Surveyor	LDJ						Syste	iii Owner	village	or Ontonago	)
Draina	age				Survey Cus	tomer	Village of (	Ontona	gon					
P/O #				Date	2017/09/20	•	<b>Time</b> 13:42	! ;	Street Popla	ır				
City		Onto	nagon		Furthe	r loca	tion detail	s						
Up	17	G			R	im to	invert		Grade to	invert		Rim to	grade	Ft
Down	16	G			R	im to	invert		Grade to	invert		Rim to	grade	Ft
Use	Sanit	ary			Directi	on Do	wnstream	Flo	ow control	Not Contro	olled	Medi	a No	
Shape	e Ci	rculai	r		Heigl	nt 12	Width	ins	s Prec	lean J		Date Clea	aned 2017/	09/20
Mater	ial	Rein	forced Plasti	c Pipe (T	russ	Joir	t length	Ft	Total leng	th	Ft	Length S	Surveyed :	303.70 <b>Ft</b>
Lining	9					Ye	ear laid	Ye	ear rehabilit	ated	1	Weather	Dry	
Purpo	se	Ca	apital Improv	ement Pi	rogram Assess	ment		Cat						
Additi	ional	info	)							Structural	0.8	& M	Constru	ctional
Locat	ion	L	ight Highwa	y					ı	Miscellane	ous Hy	draulic		
Projec	ct	Ont	onagon San	itary Sew	/er					,	Work Ord	ler		
North	ing						Eastin	g			Elevatio	n		
Coord	dinat	e Sy	stem							GPS Ac	curacy			





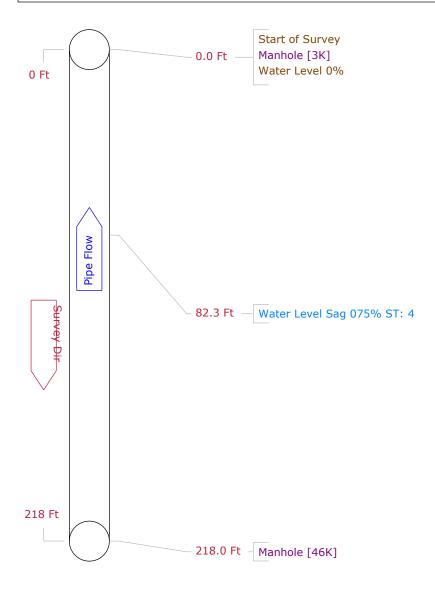
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Setup 138 Surveyor LDJ	Certificate #	U-514-06023286 <b>System Ov</b>	vner Village of Ontonagon
Drainage Sur	vey Customer Village of O	ntonagon	
<b>P/O # Date</b> 2017	/10/09 <b>Time</b> 11:33	Street Mercury	
City Ontonagon	Further location details	•	
<b>Up</b> 15D	Rim to invert	Grade to invert	Rim to grade Ft
Down 14D	Rim to invert	Grade to invert	Rim to grade Ft
Use Sanitary	Direction Upstream	Flow control	Media No
Shape Circular	Height 8 Width	ins Preclean J	<b>Date Cleaned</b> 2017/10/09
Material Vitrified Clay Pipe	Joint length	Ft Total length Ft	Length Surveyed 15.00 Ft
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Capital Improvement Program	n Assessment C	at	
Additional info NEED CLEAN		Structural	O & M Constructional
Location Light Highway		Miscellaneous	Hydraulic
Project Ontonagon Sanitary Sewer		Work	Order
Northing	Easting	Elev	vation value
Coordinate System	_	GPS Accura	су





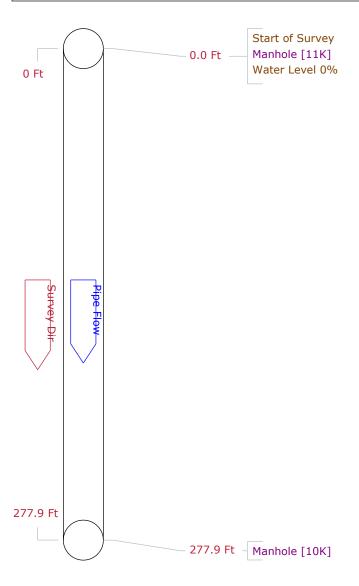
Tipe Graping Report of Fore Total Amage of Ontologe	Pipe Graphic Report of PSR	46K	Χ	for	Village of Ontonagon
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Setup	77 Surveyor	GJK	Cei	rtificate #	U-815	-07000963	System C	Owner Villa	ge of Ontona	gon
Drainage		Surve	ey Customer	Village of C	Ontonag	on				
P/O #		<b>Date</b> 2017/0	-	ime 18:45		treet Penns	sylvania Ave			
City	Ontonagon		Further locat	ion details	S					
<b>Up</b> 46	<		Rim to i	nvert		Grade to i	nvert	Rim	to grade	Ft
Down 3K			Rim to i	nvert		Grade to i	nvert	Rim	to grade	Ft
Use Sanit	ary	1	Direction Ups	stream	Flo	w control N	Not Controlled	M M	edia No	
Shape Cir	cular		Height 8	Width	ins	Preci	lean J	Date (	Cleaned 201	7/09/18
Material	Reinforced Plastic	c Pipe (Truss	Join	t length	Ft	Total lengt	th Ft	Leng	th Surveyed	218.00 <b>Ft</b>
Lining			Ye	ar laid	Ye	ar rehabilita	ated	Weath	<b>er</b> Dry	
Purpose	Capital Improve	ement Program	Assessment	(	Cat					
Additional	info A					S	Structural	O & M	Constr	uctional
Location	Easement/Rig	ht of Way				N	/liscellaneous	Hydraulic		
Project	Ontonagon Sani	tary Sewer Syst	em				Wo	rk Order		
Northing				Easting	9		Ele	evation		
Coordinate	System						<b>GPS Accur</b>	асу		

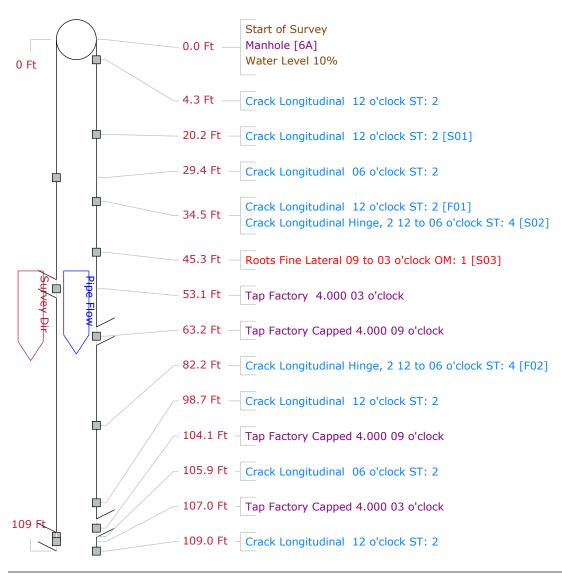


Pipe Graphic Report of PSR	11K	X	for	Village of Ontonagon

Setup 67 Surv	eyor GJK	Certificate #	U-114-6019861	System Ow	<b>ner</b> Village o	f Ontonagon
Drainage	Survey Cu	stomer Village of O	ntonagon			
P/O #	Date 2017/09/21	Time 10:38	Street Mich	nigan Ave		
City Ontonagon	Furth	ner location details	<b>3</b>			
<b>Up</b> 11K		Rim to invert	Grade to	invert	Rim to g	jrade Ft
Down 10K		Rim to invert	Grade to	invert	Rim to g	jrade Ft
<b>Use</b> Sanitary	Direc	tion Downstream	Flow control		Media	No
Shape Circular	Hei	ght 10 Width	ins Pre	clean J	Date Clea	ned 2017/09/18
Material Vitrified Cla	y Pipe	Joint length	Ft Total len	gth Ft	Length S	Surveyed 277.90 Ft
Lining		Year laid	Year rehabil	itated	Weather D	Dry
Purpose Capital II	nprovement Program Asses	ssment C	at			
Additional info	Under water			Structural	O & M	Constructional
Location Easeme	ent/Right of Way			Miscellaneous	Hydraulic	
Project Ontonago	n Sanitary Sewer System			Work	Order	
Northing		Easting	I	Eleva	ation	
Coordinate System				GPS Accurac	;y	

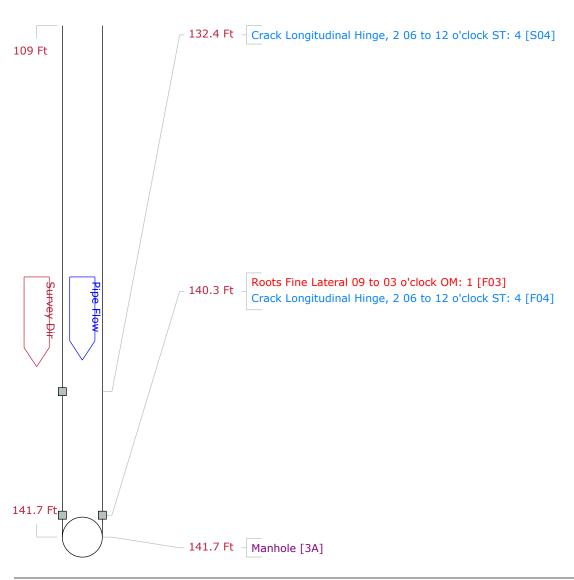


Setup 192 Surveyor L	_DJ Certificate	# U-514-06023286 <b>System O</b>	wner Village of Ontonagon
Drainage	Survey Customer Village of	of Ontonagon	
P/O #	<b>Date</b> 2017/10/16 <b>Time</b> 14:	08 Street Ontonagon	
City Ontonagon	Further location deta	ails	
Up 6A	Rim to invert	Grade to invert	Rim to grade Ft
Down 3A	Rim to invert	Grade to invert	Rim to grade Ft
Use Sanitary	Direction Downstrean	Flow control Not Controlled	Media No
Shape Circular	Height 15 Width	ins Preclean H	<b>Date Cleaned</b> 2017/10/13
Material Vitrified Clay Pipe	Joint length	Ft Total length Ft	Length Surveyed 141.70 F
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Capital Improvem	nent Program Assessment	Cat	
Additional info Video	says 57A is finish, 3A is actual	Structural	O & M Constructional
<b>Location</b> Light Highway		Miscellaneous	Hydraulic
Project Ontonagon Sanitar	ry Sewer	Worl	k Order
Northing	East	ing Ele	vation
Coordinate System		GPS Accura	ісу



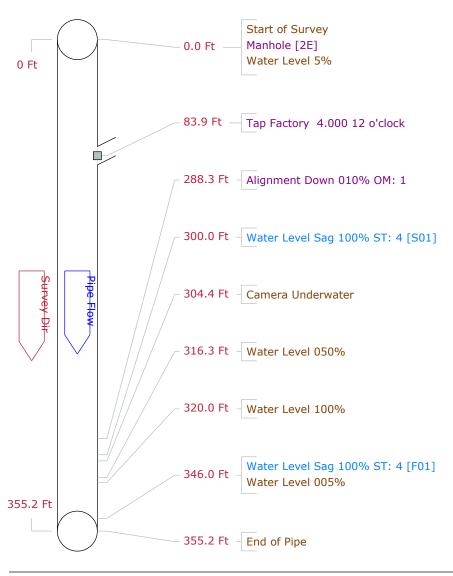


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Setup 192 Surveyor LDJ	Certificate #	U-514-06023286	System Ow	ner Village of	Ontonagon
Drainage Sur	vey Customer Village of O	ntonagon			
<b>P/O # Date</b> 2017	/10/16 <b>Time</b> 14:08	Street Ontona	agon		
City Ontonagon	Further location details	<b>;</b>			
Up 6A	Rim to invert	Grade to in	nvert	Rim to g	rade Ft
Down 3A	Rim to invert	Grade to in	nvert	Rim to g	rade Ft
Use Sanitary	Direction Downstream	Flow control N	ot Controlled	Media	No
Shape Circular	Height 15 Width	ins Precl	ean H	Date Clea	ned 2017/10/13
Material Vitrified Clay Pipe	Joint length	Ft Total lengt	h Ft	Length S	urveyed 141.70 Ft
Lining	Year laid	Year rehabilita	ted	Weather D	ry
Purpose Capital Improvement Program	n Assessment C	at			
Additional info Video says 57A is	finish, 3A is actual	S	tructural	O & M	Constructional
<b>Location</b> Light Highway		N	liscellaneous	Hydraulic	
Project Ontonagon Sanitary Sewer			Work	Order	
Northing	Easting		Eleva	ation	
Coordinate System			GPS Accurac	у	



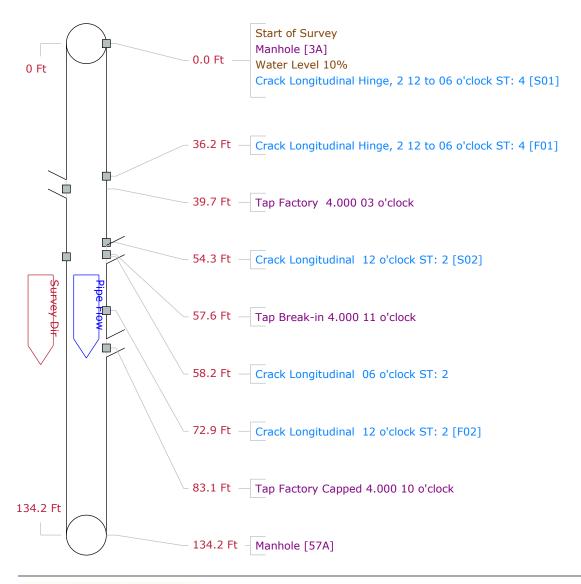


Setup		112	Surveyor	LDJ	C	ertificate #	U-514	1-06023286	Syst	em Owne	<b>r</b> Village	of Ontonago	n
Draina	age			S	urvey Custome	r Village of C	Ontonaç	jon					
P/O #				Date 20	17/10/04	Time 17:32	;	Street Zinc					
City	(	Onton	agon		Further loca	ation details	s						
Up	2E				Rim to	invert		Grade to	invert		Rim to	grade	Ft
Down	1E				Rim to	invert		Grade to	invert		Rim to	grade	Ft
Use	Sanita	ary			Direction Do	ownstream	Flo	w control			Med	ia No	
Shape	e Cir	cular			Height 8	Width	ins	s Pred	clean J		Date Cle	eaned 2017	10/04
Mater	ial I	Reinfo	orced Plasti	c Pipe (Trus	s Joi	nt length	Ft	Total leng	gth	Ft	Length	Surveyed	355.20 <b>Ft</b>
Lining	j				Υ	ear laid	Υe	ar rehabili	tated		Weather	Dry	
Purpo	se	Cap	oital Improv	ement Progi	am Assessment	(	Cat						
Additi	onal	info							Structura	al O	& M	Constru	ctional
Locati	ion	Lig	ght Highwa	y					Miscellar	neous H	ydraulic		
Projec	ct	Onto	nagon San	itary Sewer						Work Or	der		
North	ing					Easting	g			Elevati	on		
Coord	linate	Sys	tem						GPS A	ccuracy			



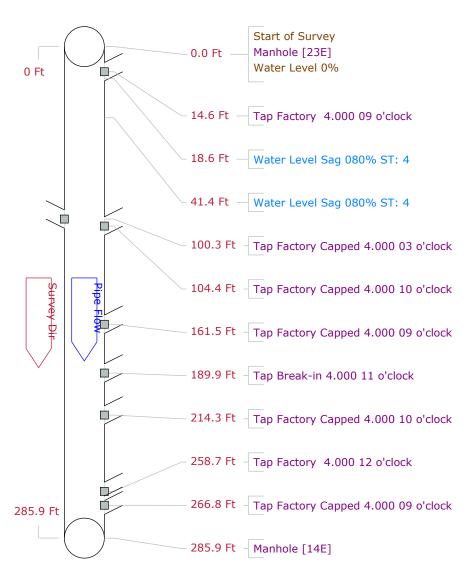


Setup 193 Surveyor LDJ	Certificate #	U-514-06023286 <b>System Ow</b>	vner Village of Ontonago	n
Drainage Surv	rey Customer Village of O	ntonagon		
<b>P/O #</b> Date 2017/	10/16 <b>Time</b> 14:24	Street Ontonagon		
City Ontonagon	Further location details	•		
Up 3A	Rim to invert	Grade to invert	Rim to grade	Ft
Down 57A	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary	<b>Direction</b> Downstream	Flow control Not Controlled	Media No	
Shape Circular	Height 15 Width	ins Preclean H	Date Cleaned 2017/	10/16
Material Vitrified Clay Pipe	Joint length	Ft Total length Ft	Length Surveyed	134.20 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather Dry	
Purpose Capital Improvement Program	Assessment C	at		
Additional info		Structural	O & M Construc	ctional
Location Light Highway		Miscellaneous	Hydraulic	
Project Ontonagon Sanitary Sewer		Work	Order	
Northing	Easting	Elev	ation	
Coordinate System		GPS Accurac	су	



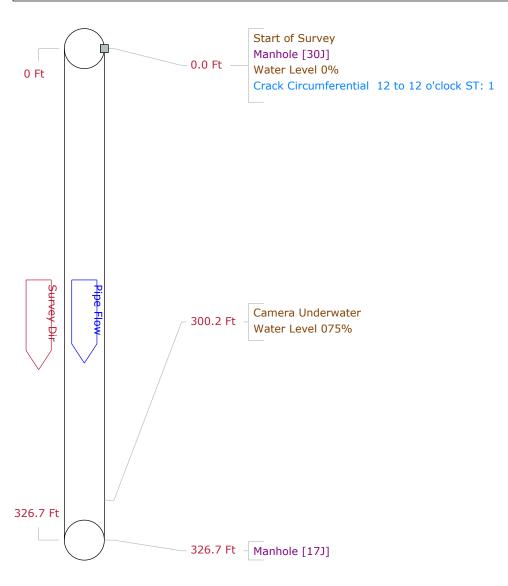


0.1 105 0 0 0		11.045.0700000	\"" (O)
Setup 125 Surveyor GJR	Certificate #	U-815-07000963 <b>System Ow</b>	ner Village of Ontonagon
Drainage	Survey Customer Village of O	ntonagon	
P/O # Da	<b>ate</b> 2017/10/03 <b>Time</b> 17:49	Street Rockland Road	
City Ontonagon	Further location details	1	
<b>Up</b> 23E	Rim to invert	Grade to invert	Rim to grade Ft
Down 14E	Rim to invert	Grade to invert	Rim to grade Ft
Use Sanitary	Direction Downstream	Flow control Not Controlled	Media No
Shape Circular	Height 8 Width	ins Preclean J	<b>Date Cleaned</b> 2017/10/02
Material Vitrified Clay Pipe	Joint length	Ft Total length Ft	Length Surveyed 285.90 Ft
Lining	Year laid	Year rehabilitated	Weather Light Rain
Purpose Capital Improvemen	nt Program Assessment C	at	
Additional info A		Structural	O & M Constructional
Location		Miscellaneous	Hydraulic
Project Ontonagon Sanitary S	Sewer System	Work	Order
Northing	Easting	Elev	ation
Coordinate System	_	GPS Accurac	ey .



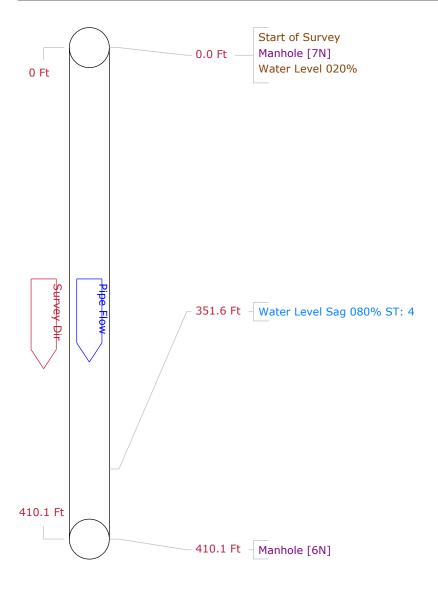
	Pipe Graphic Report of PSR	30J	X	for	Village of Ontonagon
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· · · · · · · · · · · · · · · · · · ·				
Setup 80 Surveyor GJH	Certificate #	U-815-07000963 System Ow	vner Village of Ontonago	n
Drainage	Survey Customer Village of C	Ontonagon		
P/O # Da	<b>ate</b> 2017/09/25 <b>Time</b> 15:37	Street Fifth		
City Ontonagon	Further location details	5		
<b>Up</b> 30J	Rim to invert	Grade to invert	Rim to grade	Ft
Down 17J	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary	<b>Direction</b> Downstream	Flow control Not Controlled	Media No	
Shape Circular	Height 10 Width	ins Preclean J	Date Cleaned 2017	09/25
Material Asbestos Cement	Joint length	Ft Total length Ft	Length Surveyed	326.70 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather Dry	
Purpose Capital Improvemen	nt Program Assessment C	Cat		
Additional info A		Structural	O & M Constru	ctional
Location Easement/Right of	Way	Miscellaneous	Hydraulic	
Project Ontonagon Sanitary S	Sewer System	Work	Order	
Northing	Easting	g Elev	ation	
Coordinate System		GPS Accurac	су	

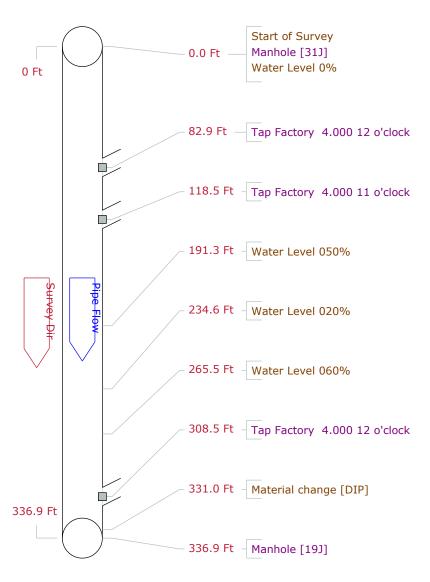


Pipe Graphic Report of PSR 7N	С	for	Village of Ontonagon
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• •		,	,	0	
Setup 103 Surveyor GJK	Certificate #	U-815-07000963 <b>Sy</b>	stem Owner	Village of Ontonagon	
Drainage	Survey Customer Village of	Ontonagon			
P/O # Date :	2017/09/28 <b>Time</b> 13:3	9 Street M64			
<b>City</b> Ontonagon	Further location detai	ls			
Up 7N	Rim to invert	Grade to inver	t	Rim to grade	Ft
Down 6N	Rim to invert	Grade to inver	t	Rim to grade	Ft
Use Sanitary	<b>Direction</b> Downstream	Flow control		Media No	
Shape Circular	Height 8 Width	ins Preclean	J [	Date Cleaned 2017/0	9/28
Material Polyvinyl Chloride	Joint length	Ft Total length	Ft	Length Surveyed 4	10.10 <b>Ft</b>
Lining	Year laid	Year rehabilitated	V	<b>Veather</b> Dry	
Purpose Capital Improvement Pro	ogram Assessment	Cat			
Additional info A		Structi	ıral O &	M Construct	ional
<b>Location</b> Easement/Right of Way	1	Miscel	laneous Hyd	draulic	
Project Ontonagon Sanitary Sewe	er System		Work Orde	er	
Northing	Eastir	ng	Elevation	า	
Coordinate System		GPS	Accuracy		

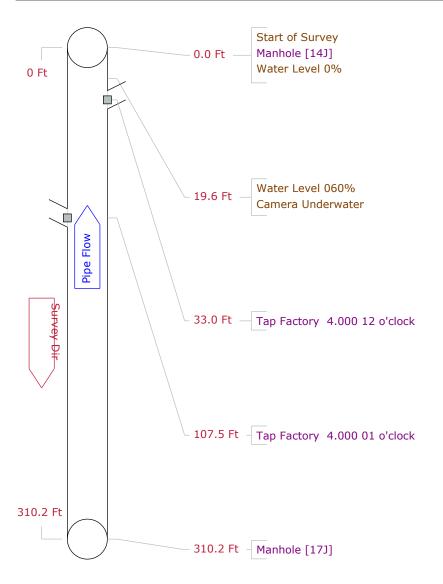


Cat 72 C	O	11.045.07000000 <b>C</b> reaters	Owner Village of Ontonesses	
Setup 73 Surveyor GJK	Certificate #	U-815-07000963 <b>System</b>	Owner Village of Ontonagon	
Drainage Survey Cus	stomer Village of Or	ntonagon		
<b>P/O # Date</b> 2017/09/21	<b>Time</b> 16:48	Street Parker Ave.		
City Ontonagon Further	er location details			
Up 31J F	Rim to invert	Grade to invert	Rim to grade	Ft
Down 19J	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary Direct	ion Downstream	Flow control	Media No	
Shape Circular Heig	ht 8 Width	ins Preclean J	Date Cleaned 2017/09/	/18
Material Reinforced Plastic Pipe (Truss	Joint length	Ft Total length Ft	Length Surveyed 336	6.90 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather Dry	
Purpose Capital Improvement Program Assess	sment Ca	at		
Additional info A		Structural	O & M Constructio	nal
Location Easement/Right of Way		Miscellaneo	<mark>us</mark> Hydraulic	
Project Ontonagon Sanitary Sewer System		W	ork Order	
Northing	Easting	E	Elevation	
Coordinate System		GPS Acc	uracy	



Pipe Graphic Report of PSR 17J	Χ	for	Village of Ontonagon
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Setup	- 8	3 Surveyo	· GJK		Certificate #	U-114-6	:019861	System Ov	vner Village	of Ontonag	on
•		o ourveyor		0				System Sv	viiei viilage	or Ornoriag	OII
Draina	ge			Survey Custo	mer Village of	Ontonagor	1				
P/O #			Date 2	2017/09/26	<b>Time</b> 13:45	5 <b>St</b> ı	reet Fifth				
City	C	ntonagon		Further	location detai	ls					
Up	17J			Rim	n to invert	(	Grade to i	nvert	Rim to	grade	Ft
Down	14J			Rim	n to invert	(	Grade to i	nvert	Rim to	grade	Ft
Use S	Sanita	ry		Direction	<b>u</b> Upstream	Flow	control N	lot Controlled	Med	ia No	
Shape	Circ	ular		Height	10 Width	ins	Preci	ean J	Date Cle	aned 2017	//09/25
Materia	al A	sbestos Ceme	nt	,	Joint length	Ft 7	Γotal lengt	h Ft	Length	Surveyed	310.20 <b>Ft</b>
Lining					Year laid	Year	rehabilita	ated	Weather	Dry	
Purpos	se	Capital Impro	vement Pro	gram Assessm	ent	Cat					
Additio	onal	<b>nfo</b> Cl	EAN				S	tructural	O & M	Constru	uctional
Location	on	Easement/R	ight of Way				N	liscellaneous	Hydraulic		
Projec	t	Ontonagon Sa	nitary Sewe	er System				Work	Order		
Northi	ng				Eastin	ıg		Elev	ation		
Coordi	inate	System						GPS Accura	су		



**GPS Accuracy** 

System Owner Village of Ontonagon

City	Onto	nagon	Fur	ther location details	3
P/O #			Date 2017/10/05	Time 10:34	Street Payne
Drainage	:		Survey C	<b>Sustomer</b> Village of C	Ontonagon
Setup	118	Surveyor	LDJ	Certificate #	U-514-06023286

Up 33D Rim to invert Grade to invert Rim to grade Ft Down 32D Rim to invert **Grade to invert** Rim to grade Ft

**Use** Sanitary **Direction** Upstream Flow control Media No

Shape Circular Height 8 Width ins Preclean J **Date Cleaned** 2017/10/11 Material Asbestos Cement **Total length** Length Surveyed 338.20 Ft Joint length Ft Ft

Lining Year laid Year rehabilitated Weather Dry

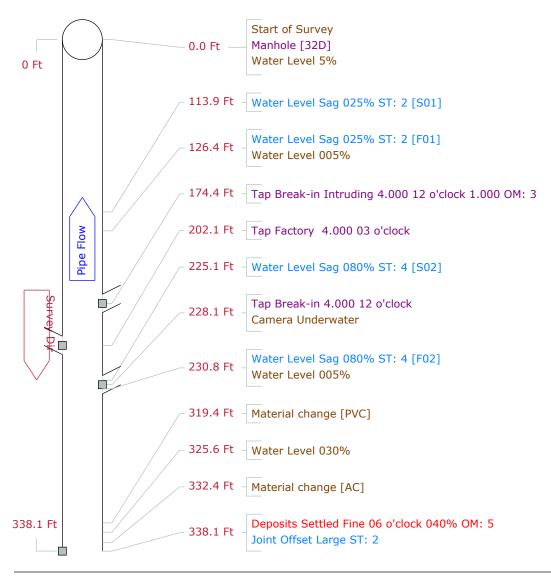
**Purpose** Capital Improvement Program Assessment Cat

Additional info Offset joint Structural O & M Constructional Miscellaneous Hydraulic

Location Light Highway

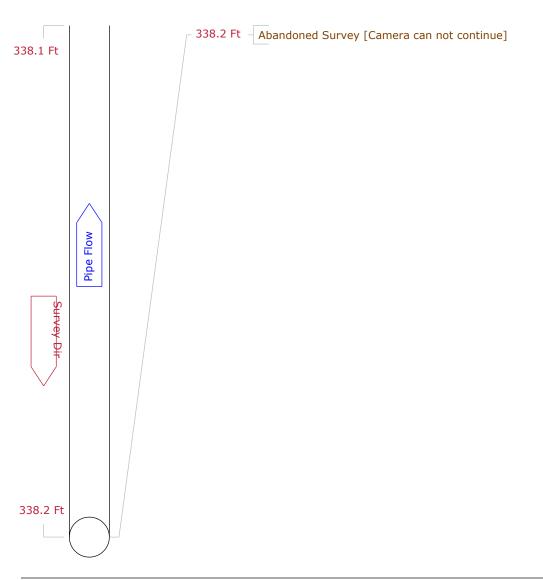
**Coordinate System** 

**Project** Ontonagon Sanitary Sewer **Work Order Northing Easting** Elevation



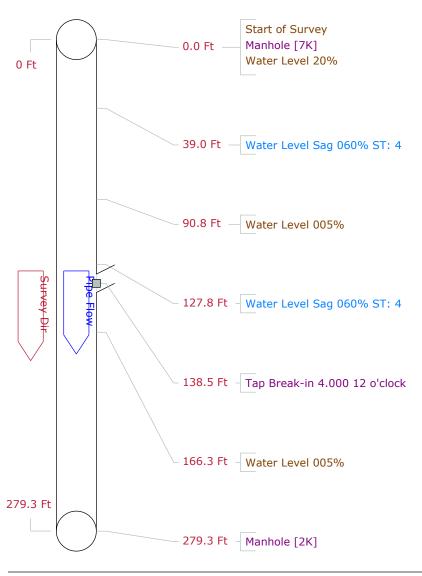


<u> </u>			
Setup 118 Surveyor LDJ	Certificate #	U-514-06023286 <b>System O</b>	wner Village of Ontonagon
Drainage Surv	rey Customer Village of O	ntonagon	
<b>P/O #</b> Date 2017/	10/05 <b>Time</b> 10:34	Street Payne	
City Ontonagon	Further location details	•	
Up 33D	Rim to invert	Grade to invert	Rim to grade Ft
Down 32D	Rim to invert	Grade to invert	Rim to grade Ft
Use Sanitary	Direction Upstream	Flow control	Media No
Shape Circular	Height 8 Width	ins Preclean J	<b>Date Cleaned</b> 2017/10/11
Material Asbestos Cement	Joint length	Ft Total length Ft	Length Surveyed 338.20 F
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Capital Improvement Program	Assessment C	at	
Additional info Offset joint		Structural	O & M Constructional
<b>Location</b> Light Highway		Miscellaneous	Hydraulic
Project Ontonagon Sanitary Sewer		Wor	k Order
Northing	Easting	Ele	evation
Coordinate System		GPS Accura	асу





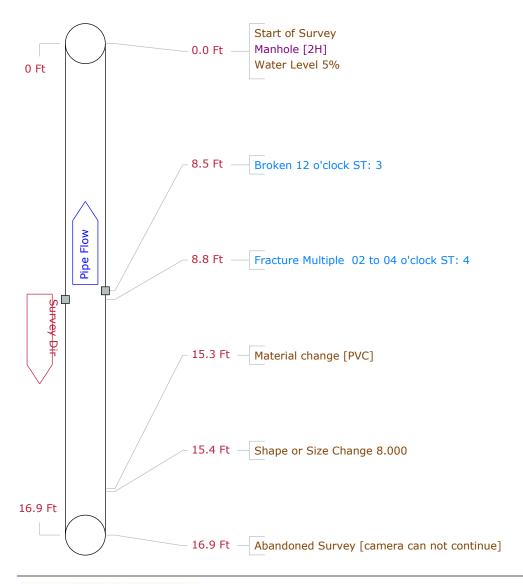
Setup 55 Surveyor LDJ	Certificate #	U-514-06023286 <b>System Ow</b>	vner Village of Onotonagon
Drainage Sur	vey Customer Village of O	Ontonagon	
<b>P/O #</b> Date 2017	7/09/21 <b>Time</b> 18:37	Street Michigan Ave.	
City Ontonagon	Further location details	<b>S</b>	
Up 7K	Rim to invert	Grade to invert	Rim to grade Ft
Down 2K	Rim to invert	Grade to invert	Rim to grade Ft
Use Sanitary	Direction Downstream	Flow control Not Controlled	Media No
Shape Circular	Height 12 Width	ins Preclean J	<b>Date Cleaned</b> 2017/09/21
Material Asbestos Cement	Joint length	Ft Total length Ft	Length Surveyed 279.30 F
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose	C	at	
Additional info		Structural	O & M Constructional
Location Light Highway		Miscellaneous	Hydraulic
Project Ontonagon Sanitary Sewer		Work	Order
Northing	Easting	Elev	ration
Coordinate System		GPS Accurac	су





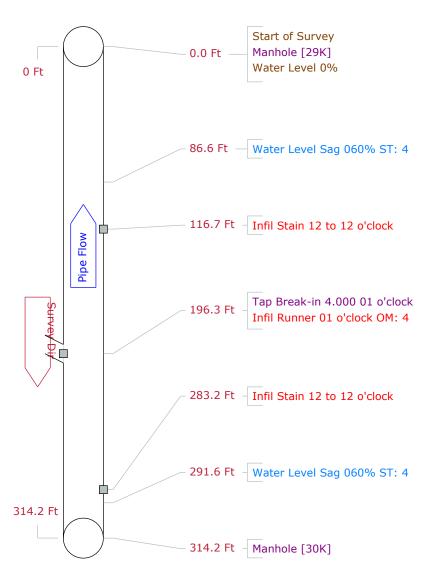
Setup 2	13 Surveyor	LDJ	Certificate #	U-514-06023286	System Ov	vner Village o	of Ontonagon
Drainage		Survey Custo	mer Village of 0	Ontonagon			
P/O #		Date 2017/10/18	Time 8:44	Street Mic	higan		
City	Ontonagon	Further	location detail	s			
Up VE	P-123	Rin	n to invert	Grade to	invert	Rim to	grade Ft
Down 2H		Rin	n to invert	Grade to	invert	Rim to	grade Ft
Use Sanita	ry	Direction	<b>1</b> Upstream	Flow contro	1	Media	a No
Shape Circ	ular	Height	12 Width	ins Pre	eclean J	Date Clea	ned 2017/10/18
Material \	itrified Clay Pipe		Joint length	Ft Total ler	igth Ft	Length S	Surveyed 16.90 Ft
Lining			Year laid	Year rehabi	litated	Weather [	Ory
Purpose	Capital Improve	ement Program Assessm	ent (	Cat			
Additional	nfo				Structural	O & M	Constructional
Location	Light Highway	,			Miscellaneous	Hydraulic	
Project	Ontonagon Sanit	tary Sewer		·	Work	Order	
Northing			Easting	g	Elev	ation	
Coordinate	System				GPS Accura	су	

Village of Ontonagon

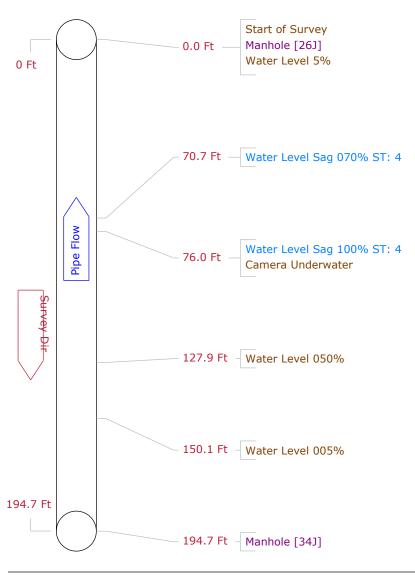




Setup 51 Surveyor GJK	Certificate #	U-815-07000963 <b>System C</b>	Jumes Village of Ontonogen
Setup 51 Surveyor GJK	Certificate #	U-815-07000963 <b>System C</b>	Owner Village of Ontonagon
Drainage Surv	rey Customer Village of C	ontonagon	
P/O # Date 2017/	09/20 <b>Time</b> 12:48	Street Park Ave.	
City Ontonagon	Further location details	<b>3</b>	
<b>Up</b> 30K	Rim to invert	Grade to invert	Rim to grade Ft
Down 29K	Rim to invert	Grade to invert	Rim to grade Ft
Use Sanitary	Direction Upstream	Flow control	Media No
Shape Circular	Height 8 Width	ins Preclean J	<b>Date Cleaned</b> 2017/09/18
Material Asbestos Cement	Joint length	Ft Total length Ft	Length Surveyed 314.20 Ft
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Capital Improvement Program	Assessment C	at	
Additional info A		Structural	O & M Constructional
Location Easement/Right of Way		Miscellaneous	Hydraulic
Project Ontonagon Sanitary Sewer Sys	tem	Wo	rk Order
Northing	Easting	j Ele	evation
Coordinate System		GPS Accur	acy



Setup 48 Surveyor LDJ	Certificate #	U-514-06023286	System Ow	ner Village of	Onotonagon
•	rev Customer Village of O		Cystem Own	ilei village of	Onotonagon
· ·	,	· ·			
P/O # Date 2017/	09/21 <b>Time</b> 13:14	Street 7th St.			
<b>City</b> Onotonagon	Further location details	i			
Up 34J	Rim to invert	Grade to in	vert	Rim to g	rade Ft
Down 26J	Rim to invert	Grade to in	vert	Rim to g	rade Ft
Use Sanitary	Direction Upstream	Flow control N	ot Controlled	Media	No
Shape Circular	Height 8 Width	ins Precle	an J	Date Clear	ned 2017/09/21
Material Polyvinyl Chloride	Joint length	Ft Total lengtl	n Ft	Length St	urveyed 194.70 Ft
Lining	Year laid	Year rehabilita	ted	Weather D	ry
Purpose Capital Improvement Program	Assessment C	at			
Additional info		St	ructural	O & M	Constructional
<b>Location</b> Light Highway		M	scellaneous	Hydraulic	
Project Ontonagon Sanitary Sewer			Work	Order	
Northing	Easting		Eleva	ntion	
Coordinate System			GPS Accurac	y	





## Tabular Report of PSR 21E X for OHM

Setup 30 Surveyor LDJ	Certificate #	U-514-06023286 System C	Owner Village of Ontonagon	
Drainage Sur	rvey Customer OHM			
<b>P/O # Date</b> 2018	3/05/10 <b>Time</b> 13:02	Street M-45		
City Ontonagon	Further location details			
<b>Up</b> 21E	Rim to invert	Grade to invert	Rim to grade	Ft
Down 20E	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary	Direction Down	Flow control Not Controlled	Media No	
Shape Circular	Height 8 Width	ins Preclean J	Date Cleaned 2018/05/	10
Material Vitrified Clay Pipe	Joint length	Ft Total length Ft	Length Surveyed 315	.4 Ft
Lining	Year laid	Year rehabilitated	Weather Dry	
Purpose Routine Assessment	Cat		Pressure	
Additional info		Structural	O & M Constructio	nal
<b>Location</b> Light Highway		Miscellaneous		
Project Title -5/8/2018		Work	Order	
Northing	Easting	Elev	ation	
Coordinate System		GPS Accura	су	

Count Video	CD	Code		ln1	ln2	%	Jn	t Fr	То	ImRef	Remarks
0.0		ST	Start of Survey								
0.0		AMH	Manhole								21E
0.0		MWL	Water Level			5					
21.5	S01	RFJ	Roots Fine Joint				J	12	03		
25.3		CS	Crack Spiral					10	12		
43.0		CM	Crack Multiple				J	03	06		
70.4		CM	Crack Multiple					12	07		
120.2		TFC	Tap Factory Capped	4.000				03			
220.1		TFC	Tap Factory Capped	4.000				09			
292.7		CM	Crack Multiple					01	02		
302.4		TF	Tap Factory	4.000				12			
313.3		FM	Fracture Multiple					04	80		
315.4	F01	RFJ	Roots Fine Joint				J	12	03		
315.4		AMH	Manhole								20E

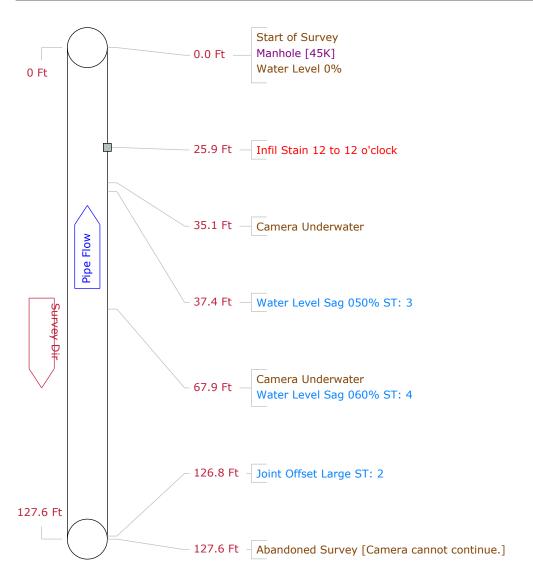
315.4 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating	Pipe Ratings Index	Quick Rating
	O&M:	Pipe Rating	Pipe Ratings Index	Quick Rating
	Overall	Pipe Rating	Pipe Ratings Index	Quick Rating

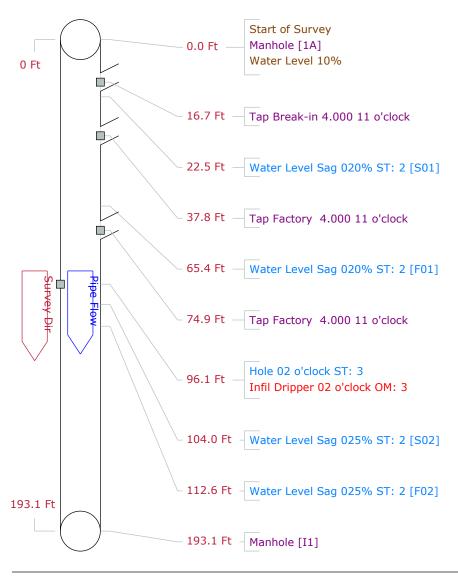


Pipe Graphic Report of PSR 19K X for Village of	of Ontonagon
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	<u> </u>									
Setup	12 <b>Surveyor</b>	GJK	Ce	rtificate #	U-114-6	019861	System	Owner V	/illage of Ontona	gon
Drainage		Surv	ey Customer	Village of C	Ontonagon	1				
P/O #		Date 2017/	09/14	Time 18:12	Str	eet Michi	gan Ave			
City	Ontonagon		Further loca	tion details	s Offset J	oint				
<b>Up</b> 45K				nvert	(	Grade to	invert	R	im to grade	Ft
Down 19	K	Rim to i	nvert	(	Grade to	invert	R	Rim to grade		
Use Sanit	ary	Direction Up	stream	Flow	control	Not Controlle	d	Media No		
Shape Circular			Height 8	Width	ins Preclean J			Dat	<b>Date Cleaned</b> 2017/09/12	
Material	Vitrified Clay Pipe	e	Join	t length	Ft T	Total leng	jth Ft	Le	ength Surveyed	1 127.60 <b>F</b> t
Lining			Ye	Year laid Year rehabilitated			Wea	Weather Dry		
Purpose	Capital Improve	ement Program	Assessment	(	Cat					
Additional	info A					:	Structural	O & M	Constr	uctional
Location	Easement/Rig	ght of Way					Miscellaneou	s Hydrai	ulic	
Project	Ontonagon Sani	itary Sewer Sys			_	Wo	rk Order			
Northing	Northing Eastin				eting Elevation					
Coordinate	System					GPS Accu	racy			

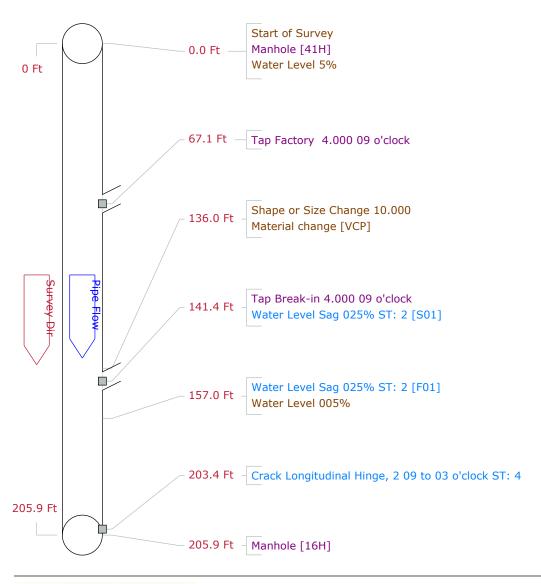


Setup 263 Surveyor LDJ	Certificate #	U-514-06023286	System Ow	ner Village	of Ontonagon	
Drainage Survey C	Sustomer Village of O	ntonagon				
P/O # Date 2017/10/25	Time 16:28	Street River				
City Ontonagon Fur	ther location details					
Up 1A	Rim to invert	Grade to ir	vert	Rim to	grade Ft	
Down 11	Rim to invert	Grade to ir	vert	Rim to	grade Ft	
Use Sanitary Dire	ection Downstream	Flow control N	ot Controlled	Medi	a No	
Shape Circular He	eight 15 Width	ins Precle	ean H	<b>Date Cleaned</b> 2017/10/18		
Material Concrete Pipe (non-reinforced)	Joint length	Ft Total lengt	h Ft	Length S	Surveyed 193.10 Ft	
Lining	Year laid Year rehabilitated			Weather Dry		
Purpose Capital Improvement Program Ass	essment C	at				
Additional info		Si	tructural	O & M	Constructional	
Location Light Highway		M	iscellaneous	Hydraulic		
Project Ontonagon Sanitary Sewer			Work	Order		
Northing	Easting		Elevation			
Coordinate System			GPS Accurac	:y		



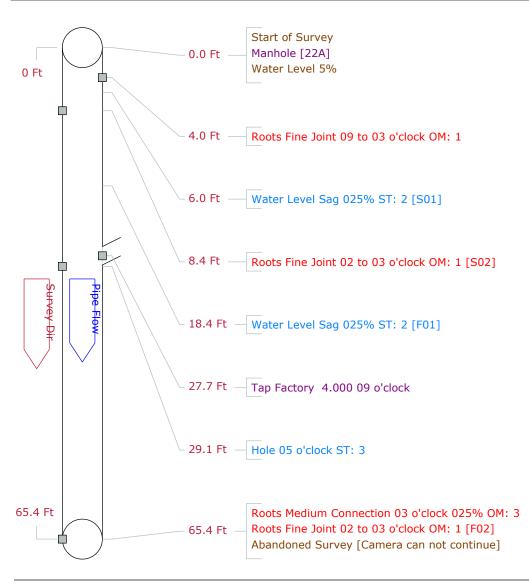


		<del>_</del>				
Setup 92 Surveyor LDJ	Certificate #	U-514-06023286 <b>System</b>	Owner Village of Ontonagon			
Drainage Surv	rey Customer Village of O	ntonagon				
<b>P/O #</b> Date 2017/	09/28 <b>Time</b> 18:49	Street NA				
City Village of Ontonagon	Further location details	•				
<b>Up</b> 41H	Rim to invert	Grade to invert	Rim to grade Ft			
Down 16H	Rim to invert	Grade to invert	Rim to grade Ft			
Use Sanitary	<b>Direction</b> Downstream	Flow control	Media No			
Shape Circular	Height 12 Width	ins Preclean J	<b>Date Cleaned</b> 2017/09/28			
Material Polyvinyl Chloride	Joint length	Ft Total length Ft	Length Surveyed 205.90 Ft			
Lining	Year laid	Year rehabilitated	Weather Dry			
Purpose Capital Improvement Program	Assessment C	at				
Additional info		Structural	O & M Constructional			
Location Light Highway		Miscellaneou	s Hydraulic			
Project Ontonagon Sanitary Sewer		Wo	ork Order			
Northing	Easting	ng Elevation				
Coordinate System		GPS Accu	racy			



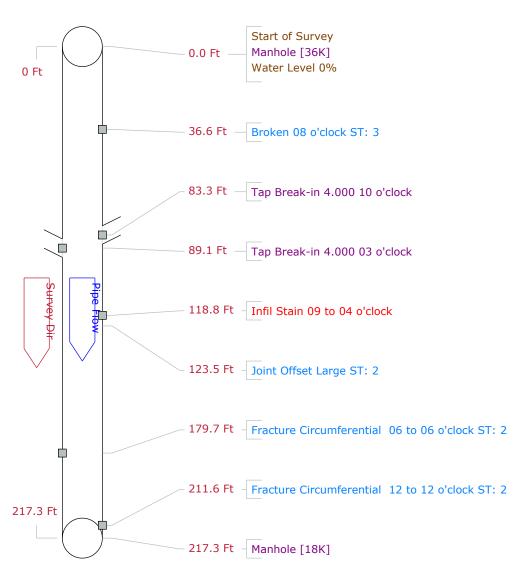


Pipe Gra	phic Report of	PSR 2	22A	Χ	1	or	Village of Ont	onagon		
Setup	160 Surveyor	LDJ	(	Certificate #	U-514-06	023286	System Ow	ner Village	of Ontonagor	1
Drainage		;	Survey Custom	er Village of C	Ontonagon					
P/O #		Date 2	2017/10/11	Time 14:24	Stre	et Chip	oewa			
City	Ontonagon		Further loc	cation details	3					
Up 2	2A		Rim t	o invert	G	rade to	invert	Rim to	grade	Ft
Down 2	1A		Rim to	o invert	G	rade to	invert	Rim to grade		Ft
Use Sanitary			Direction [	Downstream	Flow control Not Controlled			Media No		
Shape C	Circular		Height 8	Width	'idth ins Preclean J			<b>Date Cleaned</b> 2017/10/11		
Material	Vitrified Clay Pipe		Jo	Joint length Ft Total length F			jth Ft	Length Surveyed 65.40 Ft		
Lining			•	Year laid Year rehabi			tated	Weather	Dry	
Purpose	Capital Improve	ment Pro	gram Assessmen		Cat					
Additiona	al info						Structural	O & M	Construc	tional
Location	Light Highway						Miscellaneous	Hydraulic		
Project	Ontonagon Sanit	ary Sewe	r			_	Work	Order		
Northing				Easting	Easting Elevation					
Coordina	te System						GPS Accurac	у		

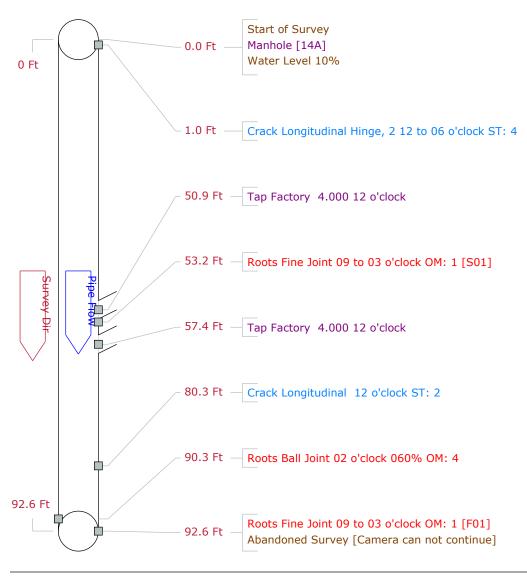




0.4		11.444.004.0004	\frac{1}{2}				
Setup 6 Surveyor GJK	Certificate #	U-114-6019861 <b>System Ow</b>	ner Village of Ontonago	n			
Drainage Survey	Customer Village of Or	ntonagon					
<b>P/O #</b> Date 2017/09/	14 <b>Time</b> 13:26	Street Peeble Beach Road					
City Ontonagon Fu	urther location details						
<b>Up</b> 36K	Rim to invert	Grade to invert	Rim to grade	Ft			
Down 18K	Rim to invert	Grade to invert	Rim to grade	Ft			
Use Sanitary Di	rection Downstream	Flow control Not Controlled	Media No				
Shape Circular	leight 8 Width	ins Preclean J	<b>Date Cleaned</b> 2017/09/12				
Material Vitrified Clay Pipe	Joint length 5.5	Ft Total length Ft	Length Surveyed 2	217.30 <b>Ft</b>			
Lining	Year laid	Year rehabilitated	Weather Dry				
Purpose Capital Improvement Program As	sessment Ca	at					
Additional info A		Structural	O & M Construc	ctional			
<b>Location</b> Easement/Right of Way		Miscellaneous	Hydraulic				
Project Ontonagon Sanitary Sewer System	n	Work Order					
Northing	Easting	Elev	ation				
Coordinate System		GPS Accurac	су				

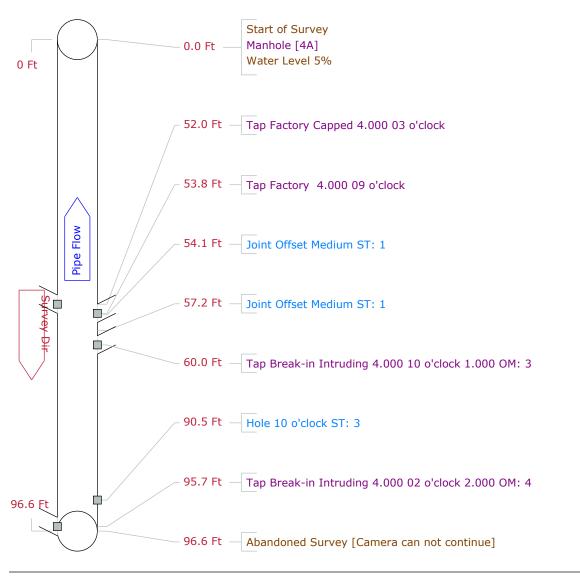


Setup 172 Surveyor LDJ	Certificate #	U-514-06023286	ner Village of Ontonagon			
Drainage Su	rvey Customer Village of O	ntonagon				
<b>P/O # Date</b> 201	7/10/12 <b>Time</b> 11:21	Street Ontonagon				
City Ontonagon	Further location details	•				
<b>Up</b> 14A	Rim to invert	Grade to invert	Rim to grade Ft			
Down 12A	Rim to invert	Grade to invert	Rim to grade Ft			
Use Sanitary	Direction Downstream	Flow control	Media No			
Shape Circular	Height 15 Width	ins Preclean J	<b>Date Cleaned</b> 2017/10/12			
Material Vitrified Clay Pipe	Joint length	Ft Total length Ft	Length Surveyed 92.60 Ft			
Lining	Year laid	Year rehabilitated	Weather Dry			
Purpose Capital Improvement Progra	m Assessment C	at				
Additional info		Structural	O & M Constructional			
Location Light Highway		Miscellaneous	Hydraulic			
Project Ontonagon Sanitary Sewer	Project Ontonagon Sanitary Sewer					
Northing	Easting	ng Elevation				
Coordinate System		GPS Accurac	су			





po orapino respontor i ora ora	• • • • • • • • • • • • • • • • • • • •		village of on			
Setup 187 Surveyor LDJ	Certificate #	U-514-06023286	System Ow	ner Village of	Ontonagon	
Drainage Surv	vey Customer Village of O	ntonagon				
<b>P/O # Date</b> 2017.	/10/16 <b>Time</b> 10:14	Street Lake				
City Ontonagon	Further location details	i				
Up 5A	Rim to invert	Grade to	invert	Rim to gr	ade Ft	
Down 4A	Rim to invert	Grade to	invert	Rim to gr	ade Ft	
Use Sanitary	Direction Upstream	Flow control	Not Controlled	Media I	No	
Shape Circular	Height 8 Width	ins Pre	clean J	<b>Date Cleaned</b> 2017/10/16		
Material Vitrified Clay Pipe	Joint length	Ft Total leng	gth Ft	Length Su	rveyed 96.60 Ft	
Lining	Year laid	Year rehabili	tated	Weather Dr	y	
Purpose Capital Improvement Program	n Assessment C	at				
Additional info			Structural	O & M	Constructional	
<b>Location</b> Alley			Miscellaneous	Hydraulic		
Project Ontonagon Sanitary Sewer		_	Work Order			
Northing	Easting		Elevation			
Coordinate System			GPS Accurac	v		





Setup 33 Surveyor LDJ	Certificate #	U-514-06023286 System C	Owner Village of Ontonagon
Drainage	Survey Customer OHM		
P/O # Date :	2018/05/10 <b>Time</b> 17:34	Street Ontonagon St.	
City Ontonagon	Further location details		
<b>Up</b> 14A	Rim to invert	Grade to invert	Rim to grade Ft
Down 15A	Rim to invert	Grade to invert	Rim to grade Ft
Use Processes	Direction Up	Flow control Not Controlled	Media No
Shape Circular	Height 15 Width	ins Preclean J	Date Cleaned 2018/05/08
Material Vitrified Clay Pipe	Joint length	Ft Total length Ft	Length Surveyed 16.4 Ft
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Routine Assessment	Cat		Pressure
Additional info		Structural	O & M Constructional
Location Light Highway		Miscellaneous	
Project Title -5/8/2018		Work	Order
Northing	Easting	Elev	ration
Coordinate System		GPS Accura	су

Count Video	CD Code		ln1	ln2	%	Jn	t Fr	То	ImRe	f Remarks
0.0	ST	Start of Survey								
0.0	AMH	Manhole								5C
0.0	MWL	Water Level			5					
8.0	CM	Crack Multiple					80	02		
8.0	RFJ	Roots Fine Joint				J	01			
14.8	CL	Crack Longitudinal					07			
14.8	TF	Tap Factory	4.000				10			
16.4	MSA	Abandoned Survey								Could not get passed tap

16.4 Ft Total Length Surveyed

Scores	Structural:	Pipe Rating 5	Pipe Ratings Index 2.5	Quick Rating 3121
	O&M:	Pipe Rating 1	Pipe Ratings Index 1	Quick Rating 1100
	Overall	Pipe Rating 6	Pipe Ratings Index 3.5	Quick Rating 3121



#### Χ **Tabular Report of PSR** 15A

Tabula	r Repor	t of PSR	15A	X		for	ОНМ				
Setup	6	Surveyor	LDJ		Certificate #	U-514	1-06023286	System C	wner Villag	e of Ontonagon	
Drainaç	ge			Survey Custome	r						
P/O #			Date	2018/05/08	Time 11:22	5	Street Ontona	agon St.			
City	Onton	agon		Further loca	tion details						
Up	14A			Rim to	invert		Grade to in	nvert	Rim t	o grade	Ft
Down	15A			Rim to	invert		Grade to in	nvert	Rim t	o grade	Ft
Use P	rocesses			Direction Up	)	Flo	w control N	ot Controlled	Ме	dia No	
Shape	Circular			Height 15	Width	ins	Precl	ean H	Date C	leaned 2018/05/0	8
Materia	I Vitrifie	d Clay Pipe		Joir	nt length	Ft	Total lengt	h Ft	Lengt	h Surveyed 23.4	Ft
Lining				Y	ear laid	Ye	ar rehabilita	ted	Weathe	r Light Rain	
Purpos	e				Cat					Pressure	
Additio	nal info	Line	right		<u> </u>		S	tructural	O & M	Construction	ıal
Location	n Lig	ıht Highway					M	iscellaneous			
Project	Proje	ct Title -5/8/	2018					Work	Order		

Count Video	CD Code		ln1	ln2	%	Jnt	Fr '	То	ImRe	f Remarks
0.0	ST	Start of Survey								
0.0	AMH	Manhole								14A
0.0	MWL	Water Level			15					
22.2	LR	Alignment Right			25					
23.4	MSA	Abandoned Survey								Camera can not continue

**Easting** 

Elevation

**GPS Accuracy** 

23.4 Ft Total Length Surveyed

Northing

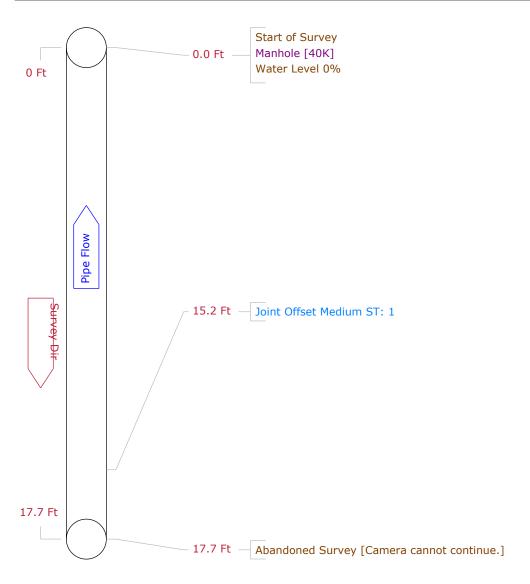
**Coordinate System** 

Scores	Structural:	Pipe Rating 0	Pipe Ratings Index 0	Quick Rating 0000
	O&M:	Pipe Rating 4	Pipe Ratings Index 4	Quick Rating 4100
	Overall	Pipe Rating 4	Pipe Ratings Index 4	Quick Rating 4100

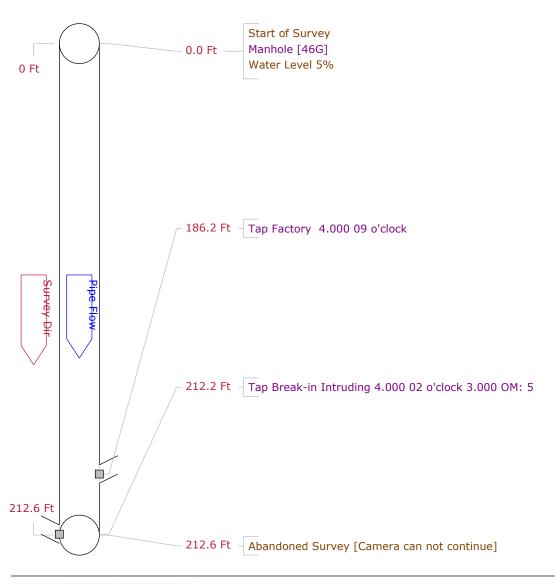


Pipe Graphic Report of PSR	29K	Χ	for	Village of Ontonagon

• •	•										
Setup 54	Surveyor	GJK	Ce	rtificate #	U-815	-07000963	System	Owner	Village o	of Ontonagon	
Drainage		Surve	ey Customer	Village of 0	Ontonago	on					
P/O #		<b>Date</b> 2017/0	09/20	<b>Γime</b> 15:05	5 S	treet Park	Ave.				
<b>City</b> Or	ntonagon		Further loca	tion detail	s Offset	Joint					
<b>Up</b> 29K			Rim to	invert		Grade to i	nvert		Rim to g	grade	Ft
Down 40K			Rim to	invert		Grade to i	nvert		Rim to g	grade	Ft
Use Sanitary	/		Direction Up	stream	Flo	w control			Media	a No	
Shape Circu	lar		Height 8	Width	ins	Prec	lean J	ı	Date Clea	ned 2017/0	9/18
Material As	bestos Cemen	t	Join	t length	Ft	Total leng	th Ft		Length S	Surveyed 17	7.70 <b>F</b>
Lining			Υe	ar laid	Ye	ar rehabilit	ated	٧	Weather [	Ory	
Purpose	Capital Improv	ement Program	Assessment	(	Cat						
Additional in	ifo A					5	Structural	0 8	k M	Construct	onal
Location	Easement/Rig	ght of Way				N	/liscellaneou	s Hyd	draulic		
Project C	ontonagon San	itary Sewer Syst	tem				Wo	rk Ord	er		
Northing				Eastin	g		Е	levation	n		
Coordinate S	System						GPS Accu	racy			



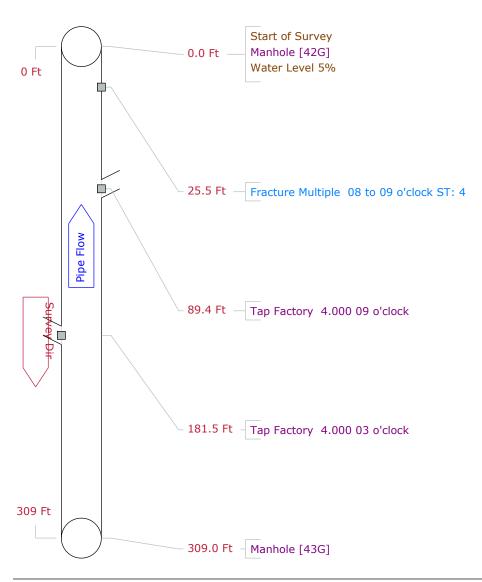
Setup 6 Surveyor LDJ	Certificate #	U-514-06023286 <b>System C</b>	Owner Village of Ontonagon
Drainage Surve	ey Customer Village of O	ntonagon	
<b>P/O #</b> Date 2017/0	9/18 <b>Time</b> 17:53	Street Scovia	
City Ontonagon	Further location details		
Up 45G	Rim to invert	Grade to invert	Rim to grade Ft
Down 44G	Rim to invert	Grade to invert	Rim to grade Ft
Use Sanitary	Direction Downstream	Flow control Not Controlled	Media No
Shape Circular	Height 8 Width	ins Preclean J	<b>Date Cleaned</b> 2017/09/18
Material Reinforced Plastic Pipe (Truss	Joint length	Ft Total length Ft	Length Surveyed 212.60 F
Lining	Year laid	Year rehabilitated	Weather Light Rain
Purpose Capital Improvement Program	Assessment C	at	
Additional info Intruding tap		Structural	O & M Constructional
<b>Location</b> Light Highway		Miscellaneous	Hydraulic
Project Ontonagon Sanitary Sewer		Woi	rk Order
Northing	Easting	Ele	evation
Coordinate System		GPS Accur	асу





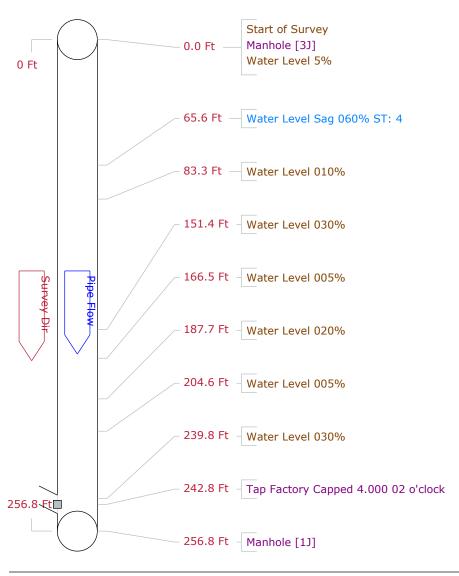
Tipo Grapino Roport Gri Gri			- nonagon
Setup 11 Surveyor LDJ	Certificate #	U-514-06023286 <b>System</b>	Owner Village of Ontonagon
Drainage Surve	ey Customer Village of C	Ontonagon	
<b>P/O # Date</b> 2017/0	9/19 <b>Time</b> 8:33	Street Scovia	
City Ontonagon	Further location details	3	
<b>Up</b> 43G	Rim to invert	Grade to invert	Rim to grade Ft
Down 42G	Rim to invert	Grade to invert	Rim to grade Ft
Use Sanitary	Direction Upstream	Flow control	Media No
Shape Circular	Height 8 Width	ins Preclean J	<b>Date Cleaned</b> 2017/09/19
Material Reinforced Plastic Pipe (Truss	Joint length	Ft Total length Ft	Length Surveyed 309.00 Ft
Lining	Year laid	Year rehabilitated	Weather Dry
Purpose Capital Improvement Program	Assessment C	Cat	
Additional info		Structural	O & M Constructional
Location Light Highway		Miscellaneou	us Hydraulic
Project Ontonagon Sanitary Sewer		W	ork Order
Northing	Easting	j E	Elevation
Coordinate System		GPS Accu	ıracy

Village of Ontonagon





6-t CC 6	0	II 544 00000000	Nillana of Ontana	
Setup 66 Surveyor LDJ	Certificate #	U-514-06023286 <b>System C</b>	Owner Village of Ontonagor	1
Drainage Surv	ey Customer Village of O	Intonagon		
<b>P/O #</b> Date 2017/0	09/26 <b>Time</b> 13:17	Street Michigan Ave.		
City Ontonagon	Further location details	<b>;</b>		
Up 3J	Rim to invert	Grade to invert	Rim to grade	Ft
<b>Down</b> 1J	Rim to invert	Grade to invert	Rim to grade	Ft
Use Sanitary	Direction Downstream	Flow control Not Controlled	Media No	
Shape Circular	Height 10 Width	ins Preclean J	Date Cleaned 2017/0	9/26
Material Asbestos Cement	Joint length	Ft Total length Ft	Length Surveyed 2	56.80 <b>Ft</b>
Lining	Year laid	Year rehabilitated	Weather Light Rain	
Purpose Capital Improvement Program	Assessment C	at		
Additional info		Structural	O & M Construc	tional
<b>Location</b> Light Highway		Miscellaneous	Hydraulic	
Project Ontonagon Sanitary Sewer		Wo	rk Order	
Northing	Easting	Ele	evation	
Coordinate System		GPS Accur	acy	





# **Appendix G**

## **Sanitary Asset Assessments**

Table A-1 – Manhole Assessment

Table A-2 – Gravity Main Assessment

Table A-3 – Lift Station Assessment

Table A-1: MACP Ratings Summary

Grade 5 defect; Structure needs immediate attention Grade 4 defect

Structure is SRF eligible (based on Structural Quick Rating)

Į į	Circulation of Circulation	ic (bas	ca on s	Structural Quick Rating)  O & M										10					01/5	DALL		1									
	9	-	Dime	Grade S		Struc			r				/ D'	C 1			911		γ —							OVE	RALL				
	ű.		Pipe	Grade 3	cores	Г	Grade		ed	w	*		Pipe	Grade :	Scores		rade		- g	b0	ı X		Pipe	Grade :	Scores	_	Grade		9		×
	Structure ID	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Structure G Score	Structure Rating	Highest Rated Defect	Quick Rating	Structure Ratings Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Structure Gi Score	Structure Rating	Highest Rated Defect	Quick Rating	Structure Ratings Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Structure Gr Score	Structure Rating	Highest Rated Defect	Quick Rating	Structure Ratings Index
	10F	0	1	1	0	2	4	15	5	5231	3.750	0	2	1	0	0	3	7	3	3122	2.333	0	3	2	0	2	7	22	5	5232	3.143
	105D	0	0	2	1	1	4	15	5	5141	3.750	0	1	0	0	0	1	2	2	2100	2.000	0	1	2	1	1	5	17	5		3.400
L	3F	0	2	0	1	1	4	13	5	5141	3.250	0	2	0	0	0	2	4	2	2200	2.000	0	4	0	1	1	6	17	5		2.833
L	7E	0	2	1	1	1	5	16	5	5141	3.200	0	2	3	0	0	_ 5	13	3	3322	2.600	0	4	4	1	1	10	29	5		2.900
L	l10	0	1	1	0	1	3	10	5	5131	3.333	0	1	1	0	0	2	5	3	3121	2.500	0	2	2	0	1	5	15	5		3.000
ŀ	31G	1	3	0	0	1	5	12	5	5123	2.400	0	0	1	0	0	1	3	3	3100	3.000	1	3	1	0	1	6	15	5	5131	2.500
ŀ	31M	0	1	0	0	1	2	7	5	5121	3.500	0	0	0	0	0	0	0	0	0000	0.000	0	1	0	0	1	2	7	5	5121	3.500
ŀ	61D	0	0	0	0	1	1	5	5	5100	5.000	0	1	0	0	0	1	2	2	2100	2.000	0	1	0	0	1	2	7	5		3.500
ŀ	46H	0	0	3	2	0	5	17	4	4233	3.400	0	0	0	0	0	0	0	0	0000	0.000	0	0	3	2	0	5	17	4		3.400
ŀ	5A 16H	0	2	1	2	0	5	15	4	4231	3.000	0	1	0	0	0	1	2	2	2100	2.000	0	3	1	2	0	6	17	4		2.833
ŀ	1M	0	0	0	2	0	7	19 8	4	4231	2.714 4.000	0	4	0	0	0	1	2	2	2100	2.000	0	5	1	2	0	8	21	4		2.625
ŀ	14A	0	1	9	1	0	2 11	33	4	4139	3.000	1	0	0	0	0	4	8	2	2400	2.000	0	4	0	2	0	6	16	4		2.667
ŀ	24H	0	1	3	1	0	8	21	4	4133	2.625	0	0	0	0	0	1	1	1	1100	1.000	1	1	9	1	0	12	34	4		2.833
ŀ	12A	0	7	3	1	0	11	27	4	/1133	2.455	0	3	0	0	0	3	6	2	2300	0.000	0	4	3	1	0	8	21	4		2.625
ŀ	15A	0	7	3	1	0	11	27	4	4133	2.455	1	1	0	0	0	2	3	2		2.000 1.500	0	10	3	1	0	14	33	4		2.357
ŀ	22D	0	0	2	1	0	3	10	4	4132	3.333	0	1	0	0	0	1	2	2	2100	2.000	0	8	3	1	0	13	30	4		2.308
ŀ	6F	0	0	2	1	0	3	10	4	4132	3.333	0	4	1	0	0	5	11	3	3124	2.200	0	4	3	1	0	4	12	4		3.000
ı	15H	0	3	2	1	0	6	16	4	4132	2.667	0	5	0	0	0	5	10	2	2500	2.000	0	8	2	1	0	8	21	4		2.625
ı	10D	0	7	2	1	0	10	24	4	4132	2.400	3	1	0	0	0	4	5	2	2113	1.250	3	8	2	1	0	11 14	26 29	4		2.364
ı	55A	0	8	2	1	0	11	26	4	4132	2.364	0	0	0	0	0	0	0	0	0000	0.000	0	8	2	1	0	11	26	4	_	2.071 2.364
ı	4H	0	10	2	1	0	13	30	4	4132	2.308	0	1	0	0	0	1	2	2	2100	2.000	0	11	2	1	0	14	32	4		2.286
I	32K	0	0	1	1	0	2	7	4	4131	3.500	0	3	1	0	0	4	9	3		2.250	0	3	2	1	0	6	16	4		2.667
ı	29D	0	1	1	1	0	3	9	4	4131	3.000	0	3	0	0	0	3	6	2		2.000		4	1	1	0	6	15	4		2.500
	22J	0	1	1	1	0	3	9	4	4131	3.000	0	4	0	0	0	4	8	2		2.000	0	5	1	1	0	7	17	4		2.429
	21A	0	2	1	1	0	4	11	4	4131	2.750	1	2	4	0	0	7	17	3		2.429	1	4	5	1	0	11	28	4		2.545
	5F	0	2	1	1	0	4	11	4	4131	2.750	0	0	0	0	0	0	0	0		0.000	0	2	1	1	0	4	11	4		2.750
	7F	0	3	1	1	0	5	13	4	4131	2.600	0	4	0	0	0	4	8	2		2.000	0	7	1	1	0	9	21	_		2.333
	20A	0	4	1	1	0	6	15	4	4131	2.500	0	1	0	0	0	1	2	2	2100	2.000	0	5	1	1	0	7	17			2.429
	16D	0	5	1	1	0	7	17	4	4131	2.429	0	3	0	0	0	3	6	2	2300	2.000	0	8	1	1	0	10	23		THE RESERVE OF THE PERSON NAMED IN	2.300
	12H	0	8	0	1	0	9	20	4	4128	2.222	0	2	0	0	1	3	9	5		3.000	0	10	0	1	1	12	29	5		2.417
L	57A	0	8	0	1	0	9	20	4	4128	2.222	0	2	1	0	0	3	7	3	3122	2.333	0	10	1	1	0	12	27	4		2.250
	23A	0	5	0	1	0	6	14	4	4125	2.333	0	1	0	3	0	4	14	4	4321	3.500	0	6	0	4	0	10	28	4		2.800
	12M	0	4	0	1	0	5	12	4	4124	2.400	0	3	0	0	1	4	11	5	5123	2.750	0	7	0	1	1	9	23	5	_	2.556
L	31F	0	1	0	1	0	2	6	4	4121	3.000	0	0	0	0	0	0	0	0	0000	0.000	0	1	0	1	0	2	6	4		3.000
L	23D	0	0	0	1	0	1	4	4		4.000	0	0	0	0	0	0	0	0	THE RESERVE AND ADDRESS OF THE PERSON NAMED IN COLUMN TWO	0.000	0	0	0	1	0	1	4	4	4100	4.000
L	21H	0	0	0	1	0	1	4	4	4100	4.000	0	4	0	1	0	5	12	4	4124	2.400	0	4	0	2	0	6	16	4	4224	2.667

Grade 5 defect; Structure needs immediate attention

Structure is SRE eligible (based on Structural Quick Rating)

Structure is SRF eligib	le (base	ed on St	tructura	I Quick	Rating	)	i	74																						
					Struc	tural								1	0 8	k M						W		7.	OVE	RALL	•			
		Pipe (	Grade S	cores		de						·Pipe	Grade S	cores		de		_				Pipe (	Grade S	cores		ade		ъ		
Structure ID	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Structure Grade Score	Structure Rating	Highest Rated Defect	Quick Rating	Structure Ratings Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Structure Grade Score	Structure Rating	Highest Rated Defect		Structure Ratings Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Structure Gr Score	_	_	Quick Rating	Structure Ratings Index
3B	0	0	0	1	0	1	4	4	4100	4.000	1	3	0	0	0	4	7	2	2311	1.750	1	3	0	1	0	5	11	4	4123	2.200
10A	0	0	0	1	0	1	4	4	4100	4.000	0	2	0	0	0	2	4	2	2200	2.000	0	2	0	1	0	3	8	4	4122	2.667
9E	0	2	8	0	0	10	28	3	3822	2.800	0	6	0	0	0	6	12	2	2600	2.000	0	8	8	0	0	16	40	3	3828	2.500
11D	0	0	7	0	0	7	21	3	3700	3.000	0	0	0	0	0	0	0	0	0000	0.000	0	0	7	0	0	7	21	3	3700 3700	3.000
52H	0	0	7	0	0	7	21	3	3700	3.000	0	0	0	0	0	0	0	0	0000	0.000	0	0	5	0	0	17	38	1	4135	3.000 2.235
32A	0	6	5	0	0	11	27	3	3526	2.455	3	2	0	1	0	6	11	4	4122 0000	1.833 0.000	3	0	5	0	0	5	15	3	All control of	3.000
3A	0	0	5	0	0	5	15	3	3500	3.000	0	0	0	0	0	0	6	4	4121	3.000	0	7	4	1	0	12	30	4	4134	2.500
14E	0	6	4	0	0	10	24	3	3426	2.400	0	1	0	1	0	2 0	0	0	0000	0.000	1	1	4	0	0	6	15	3	3421	
17E	1	_1_	4	0	0	6	15	3	3421	2.500	0	0	0	0	0	8	21	5	5133	2.625	0	5	6	0	1	12	33	5	5136	2.750
12E	0	0	4	0	0	4	12	3	3400	3.000	0	5	0	0	1	1	5	5	5100	5.000	0	0	4	0	1	5	17	5	5134	3.400
13H	0	0	4	0	0	4	12	3	3400 3325	2.375	0	0	0	0	0	0	0	0	0000	0.000	0	5	3	0	0	8	19	3	3325	2.375
27A	0	5	3	0	0	8 6	19 15	3	3323	2.500	0	1	1	0	0	2	5	3	3121	2.500	0	4	4	0	0	8	20	3		_
27D	0	3	3	0	0	0	11	3	3323	2.750	0	2	1	0	0	3	7	3	3122	2.333	0	3	4	0	0	7	18	3		
50D	0	1	3	0	0	3	9	3	3300	3.000	1	3	0	0	0	4	7	2	2311	1.750	1	3	3	0	0	7	16	3	3323	2.286
15D 2G	0	0	3	0	0	3	9	3	3300	3.000	1	0	0	0	0	1	1	1	1100	1.000	1	0	3	0	0	4	10	3	3311	2.500
17A	0	6	2	0	0	8	18	3	3226	2.250	0	2	0	0	0	2	4	2	2200	2.000	0	8	2	0	0	10	22	3	3228	2.200
51D	0	5	2	0	0	7	16	3	3225	2.286	0	3	0	0	0	3	6	2	2300	2.000	0	8	2	0	0	10	22	3	3228	2.200
26J	0	5	2	0	0	7	16	3	3225	2.286	0	2	3	0	0	5	13	3	3322	2.600	0	7	5	0	0	12	29	3	3527	2.417
34A	0	5	2	0	0	7	16	3	3225	2.286	1	1	0	0	0	2	3	2	2111	1.500	1	6	2	0	0	9	19	3	3226	2.111
49G	0	5	2	0	0	7	16	3	3225	2.286	0	3	0	0	0	3	6	2	2300	2.000	0	8	2	0	0	10	22	3	3228	
56A	0	4	2	0	0	6	14	3	3224	2.333	0	1	0	1	0	2	6	4	4121	3.000	0	5	2	1	0	8	20	4	4132	2.500
2H	0	3	2	0	0	5	12	3	3223	2.400	0	0	0	0	0	0	0	0	0000		0	3	2	0	0	5	12	3	3223	-
13M	0	2	2	0	0	4	10	3	3222	2.500	0	2	0	0	0	2	4	2	2200	2.000	0	4	2	0	0	6	14	3	3224	2.333
52D	0	2	2	0	0	4	10	3	3222	2.500	0	0	0	0	1	1	5	5	5100	5.000	0	2	2	0	1	5	15	5	5132	3.000
3C	0	2	2	0	0	4	10	3	3222	2.500	0	2	1	0	0	3	7	3		2.333		4	3	0	0	7	17	3		2.429
17G	0	1	2	0	0	3	8	3		2.667	0	1	0	0	0	1	2	2		2.000	0	2	2	0	0	4	10	3		2.500
33A	0	1	2	0	0	3	8	3		2.667	0	4	1	0	0	5	11	3		2.200		5	3	0	0	8	19	3		2.375
53H	0	1	2	0	0	3	8	3		2.667	0	1	0	0	0	1	2	2		2.000		2	2	0	0	4	10	3		2.500
18	0	1	2	0	0	3	8	3		2.667	0	1	0	0	0	1	2	2		2.000		2	2	0	0	4	10	3		2.500
2F	0	1	2	0	0	3	8	3		2.667	0	0	0	0	0	0	0	0	0000	_		1	2	0	0	3	8	3		2.667
8E	1	0	2	0	0	3	7	3		2.333		2	1	0	0	3	7	3		2.333		2	3	0	0	6	14	3		2.333
24F	1	0	2	0	0	3	7	3	_	2.333		0	0	0	0	0	0	0	0000			0	2	0	0	3	8	3		2.333
13D	0	0	2	0	0	2	6	3		3.000		1	0	0	0	1	2	2		2.000		0	2	0	0	2	6	2		3.000
18E	0	0	2	0	0	2	6	3		3.000		0	0	0	0	0	0	0		0.000		0	2	0	0	2	6	3		3.000
2D	0	0	2	0	0	2	6	3		3.000		0	0	0	0	0	0 4	0		2.000		2	2	0	0	4	10	3		2.500
4G	0	0	2	0	0	2	6	3	3200	3.000	0	2	0	0	0	2	1 4	2	1 2200	2.000	U						10		3222	1 2.300

# Table A-2: Gravity Main Assessment

Grade S Defect; immediate Atte	ntion Needed														Sti	ructur	al		O & M Pipe Grade Scores						Т	1		OVER	ALL				
Grade 4 Defect		Y PLOS											Pipe (	Grade Sco	ores		T To			Pipe Gr	ade Scor	es	T	Π.	B			Pipe Grad				T	$\neg \neg$
	Latest	9		T												8	ing	ıting				+A	l e	₩	ate	ting rgs	П				y   20	ated	ing sgr
3	Inspection		0		1			Upstream	Downstream	Multiple	Segment	g	de 2	e	de 4	Gra	Rat	Katika,	Be 1	de 2	de 3	de 5	gra	, i	וט פֿצֿ	Ratio	le 1	6 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 e   1	e 5	g	£ +	Ratir
Pipe ID	Date	Surveyed By	Inspector	Pipe Diameter	Pipe Width	Pipe Shape	Pipe Material .	Manhole	Manhole	Inspections?	Complete?	Gra	Gra	Ga	E 8	Pipe 3	Pip Pip	Duic Sipe	Ga	Grad	Grad	Grace	e je	ig :	efe a	g jë gë	Srad	ber S	a la	Srad	ğ.   Ş.	ighe efe	uick ipe i
SNG-F012	10/13/2017		U-514-0602328		12	Circular	Concrete Pipe (non-reinforced)	35F	11F	NO	YES	1	3	2	0 1	0 16	63 5	5A32 3.93	0	0	2 (	0 0	2	6	3 3	200 3.000	1	3 /	1 0	10	18 69	5	3 833
SNG-A013 SNG-D019	10/12/2017	Tunnel Vision	U-514-0602328 U-514-0602328		8 8	Circular	Vitrified Clay Pipe Vitrified Clay Pipe	9A 54D	: 8A	NO	YES	0	1	-	3 5					0	0 (	0	18			B00 1.000	_				29 63		5A14 3.833 5543 2.172 5347 2.909
SNG-D064			U-514-0602328		12	Circular	Vitrified Clay Pipe	130	109D 11D	YES NO	YES	0	10	7	1 3	3 21	60 5			_	0 1	_	_		4 4	100 4.000					22 64		2.909
SNG-A011	10/16/2017	<b>Tunnel Vision</b>		6 15	15	Circular	Vitrified Clay Pipe	8AB	6A	NO	YES	0	_		2 2	_	17 5 26 5	The same of the sa	0		0 0		_			000 0.000					4 17		5321 4.250
SNG-E023	10/3/2017	Tunnel Vision			8	Circular	Vitrified Clay Pipe	18E	17E	NO	YES	_	_	2		7.50	28 5				0 0	_	0		0 0		-	1 2	2 2	_	8 27 9 28	-	5242 3.375 5241 3.111
SNG-J038 SNG-F019	9/21/2017		U-514-0602328		8	Circular	Vitrified Clay Pipe	36J	35)	NO	YES		0			3	13 5	5281 4.83	0	0	1 (	0	_		_	100 3.000		0 2	0		4 16	_	5232 4.000
SNG-F019			U-514-0602328		10	Circular	Vitrified Clay Pipe Vitrified Clay Pipe	21F 12E	20F 11E	YES	NO			1		_		The real Property lies	0	0	0 0	1	1		5	100 5.600		0 1	0	3	4 18		5331 4 500
SNG-A012			U-514-0602328		8	Circular	Polyvinyl Chloride	8A	8AB	NO NO	YES	0		1	0 2	_	13 5		22	0	28 0	_	28			3.000		0 29	9 0	2			5230 3.129
SNG-E019			U-815-0700096		8	Circular	Vitrified Clay Pipe	27E	23E	NO	YES			0			10 5			0	0 0	0	23			11C 1.087		0 0	0 0		25 35		5231 1.400
SNG-F013 SNG-E009			U-514-0602328		12	Circular	Vitrified Clay Pipe	15F	35F	NO	YES			1			62 5	The second second			0 0	0	0			000.000	_	11 1	8	1			5148 2.952
SNG-1025	-		U-514-06023286 U-815-0700096		10	Circular	Vitrified Clay Pipe Reinforced Plastic Pipe (Truss Pipe)	7E 32J	22E 31J	NO NO	NO	0		-	3 1		29 5		0	0	6 1	_	7		4 4	3.143		0 10	0 4	1			3.400
SNG-1014	-		U-514-0602328		8	Circular	Vitrified Clay Pipe	119	110	NO	YES	_	$\overline{}$	-	2 1		16 5 9 5	The second secon	0	2	1 0		3			122 2.333		2 2			7 23		5144 3.400 5142 3.286 5242 3.833
SNG-E011		THE RESERVE AND ADDRESS OF THE PERSON NAMED IN	U-114-6019861	10	10	Circular	Vitrified Clay Pipe	9E	8E	NO	YES	_	$\overline{}$		1 1		45 5	The Real Property lies and the least lies and the lies and the lies and the least lies and the least lies and the lies and t	_	_	0 0		0		0 00	3.500		0 12	2 1		6 23		242 3.833
SNG-H007			U-514-06023286		10	Circular	Concrete Pipe (non-reinforced)	5H	4H	NO	YES	0	0		1 1		195 5	_				0	56			411 1.071		4 62			14 45		3.214 5141 2.125
SNG-H042 SNG-D055	_	Tunnel Vision	U-114-6019861 U-514-06023286	10	10 12	Circular Circular	Vitrified Clay Pipe Vitrified Clay Pipe	27H 27D	49H 26D	YES	NO		0	0	1 1		9 5			1	0 2	0	7	14	4 42	2.000		1 0			9 23		2.556
SNG-A025	10/19/2017		U-514-06023286		8	Circular	Vitrified Clay Pipe	19A	17A	YES	YES		1 1	0	_	_	33 5 11 5	The second second			3 0				3 33						24 51		5143 2.556 5141 2.125
SNG-D066			U-514-06023286		12	Circular	Vitrified Clay Pipe	11D	10D	NO	YES	0	_	0						_	0 1	0			4 43	21 1.444 21 1.286	_	1 0	2		12 24		142 2.000
SNG-F029			U-514-06023286		10	Circular	Asbestos Cement	40F	27F	YES	NO	0		12			41 5	11100000		2		0	_		3 33		_		5 0		16 27 18 54		1.688
SNG-J039 SNG-A046		Tunnel Vision Tunnel Vision	U-514-06023286 U-514-06023286	6 8 6 8	8	Circular	Vitrified Clay Pipe Vitrified Clay Pipe	37J 36A	36J	NO	YES	0	_	4		_		THE RESERVE OF THE PERSON NAMED IN		0	0 0	0			_	000.000	-	1 4	0	1	6 19		5142 2.000 5142 1.688 5138 3.000 5134 3.167
SNG-D035		Tunnel Vision	U-514-06023286		12	Circular	Vitrified Clay Pipe	30D	37A 29D	NO NO	YES YES	0		2			13 5 25 5			0		0	17			300 1.000		1 2		1 :	_	5	1.429 182 2.250 141 3.750
SNG-G007	10/12/2017	Tunnel Vision	U-514-06023286	15	15	Circular	Reinforced Plastic Pipe (Truss Pipe)	4G	3G	NO	YES	0	_	1		_	8 5			0	0 0	_	2		4 41	00 1.000	-	7 2			12 27		2.250
SNG-K038		Tunnel Vision		8	8	Circular	Asbestos Cement	32K	31K	NO	YES	2	_	1		_	16 5	The state of the s		0	0 0		0	-		31 3.500		0 2	0		4 15 7 16		3.750
SNG-F045 SNG-A017	10/25/2017 5/9/2018	Tunnel Vision Tunnel Vision	U-514-06023286 U-514-06023286	5 10	10 15	Circular	Vitrified Clay Pipe	VEP-148	11F	NO	YES	0	_		0 1		8 5	-	0	32					4 42	31 2.143		32 2			37 83		0131 2.286 0182 2.243 0128 1.212
SNG-F025		Tunnel Vision	U-815-07000963	3 10	10	Circular	Vitrified Clay Pipe Concrete Pipe (non-reinforced)	S5A VEP-10B	8AB 25F	NO NO	YES YES	0		0			11 5		_	0	0 0					000 1.000		3 0	0	1 3	33 40	5	123 1.212
SNG-H031		Tunnel Vision	U-514-06023286	5 12	12	Circular	Polyvinyl Chloride	18H	41H	NO	NO	16	_	0		17	7 5			4	0 1			14	4 47	34 3.200	0	5 4	7		17 55		3,235
SNG-M004		Tunnel Vision	U-514-06023286	12	12	Circular	Asbestos Cement	21M	20M	NO	YES	1		0	-		6 5			-	2 0		2			21 1.400 00 3.000		0 2			27 35 4 12		1,296
SNG-F007 SNG-D085		Tunnel Vision Tunnel Vision	U-S14-06023286 U-815-07000963	8	8 24	Circular	Asbestos Cement	VEP-102	8F	NO	NO	0	_		0 1	1	5 5	5100 5 000	0		0 0		_		5 51	00 5.000		0 0	_	2	2 10		200 5 000
SNG-8083	-	Tunnel Vision	U-514-06023286	8 24	8	Circular Circular	Polyvinyl Chloride Concrete Pipe (non-reinforced)	21D 53H	65D 52H	NO NO	YES	0	-	0				The second second second	0	0	0 0	_				0.000	0	0 0	0	1	1 5		300 5.000
SNG-J001	-	Tunnel Vision	U-514-06023286	12	12	Circular	Asbestos Cement	1)	43H	NO	YES	0	$\overline{}$	0 0	_	_	5 5		0	3	0 0	_	1			00 2.000	_	1 0		_	2 7		3.500 3.23 2.750 3.11 3.000
SNG-A057		Tunnel Vision		10	10	Circular	Concrete Pipe (non-reinforced)	43A	40A	NO	YES	0	_	0		_			1	0	0 0	_	1	6		00 2.000		0 0	0		4 11 2 6		2.750
SNG-A036 SNG-F023		Tunnel Vision Tunnel Vision	U-514-06023286		8	Circular	Vitrified Clay Pipe	31A	30A	NO	YES	0		0			5 5	5100 5 000	_	0	0 0		21		-	00 1.000		0 0		-	22 26		11C 1.182
SNG-F023			U-815-07000963 U-514-06023286	12	12	Circular Circular	Reinforced Plastic Pipe (Truss Pipe)  Vitrified Clay Pipe	24F SNC-008	23F 18F	NO NO	YES			0 (			5 5	THE RESIDENCE OF THE PARTY OF		0	0 0	0	0			00 0.000	0	0 0		1		5	100 5.000
SNG-G020		Tunnel Vision	U-514-06023286		12	Circular	Reinforced Plastic Pipe (Truss Pipe)	17G	16G	NO	NO YES	0		0 (			5 5	THE RESERVE OF THE PERSON NAMED IN	6	0	0 0	0	7	8	_	16 1.143		1 0		1	8 13		1.625
SNG-D057			U-514-06023286		8	Circular	Vitrified Clay Pipe	15D	14D	NO	NO	_		0 (				The Real Property lies and the last of the	1	_	0 1	0	0		0 00	00 0.000	-	0 0		1	1 5		100 5.000
SNG-K004 SNG-K014	_		U-815-07000963		8	Circular	Reinforced Plastic Pipe (Truss Pipe)	46K	3K	NO		0		0 2				The second secon			0 21		21		4 40	00 4.000		0 0			4 12 13 172		3.000 (G00 4.000
SNG-A008		Tunnel Vision Tunnel Vision	U-114-6019861 U-514-06023286	10	10	Circular	Asbestos Cernent Vitrified Clay Pipe	11K 6A	10K 3A	NO		-	_		9 0	_		The second second		0	0 12	0	_		4 4A	00 4.000		0 6		_	7 142		E36 3.838
SNG-E003		Tunnel Vision	U-514-06023286		10	Circular	Reinforced Plastic Pipe (Truss Pipe)	28	1E	NO NO				0 1			74 4	The second second	20		0 0		_		_	_					3 94		A29 2.186
SNG-A004		Tunnel Vision	U-514-06023286	15	15	Circular	Vitrified Clay Pipe	3A	57A	NO			-		9 0	_		The second second second	0		0 1	_	_		0 00	2.500 00 0.000		0 0			3 49		A11 3.769
SNG-E017		Tunnel Vision	U-815-07000963	8	8	Circular	Vitrified Clay Pipe	23E	14E	NO					9 0		36 4			_	0 7	_	_		4 47	00 4.000	0		16		6 64		926 3.200 800 4.000
SNG-J022 SNG-N007		Tunnel Vision Tunnel Vision	U-815-07000963 U-815-07000963	10	10	Circular	Asbestos Cement Palyvinyl Chloride	30J 7N	17J 6N	NO NO							30 4	Indiana Carrier	0			0			4 47	21 3.750			14		6 60		A22 3.750
SNG-J024			U-815-07000963		8	Circular	Reinforced Plastic Pipe (Truss Pipe)	31)	19J	NO				0 5			20 4		0	0 (	0 4	0	4	16	4 44	00 4.000	0	0 0	9	0 9			900 4 000
SNG-J020			U-114-6019861		10	Circular	Asbestos Cement	17J	14J	NO							16 4		0	0 (	0 3	0	3	12	4 49				7		6 21		431 3.500
SNG-D032			U-514-06023286		10	Circular	Asbestos Cement	33D	32D	NO	YES	0	5	0 3	3 0	8	22 4	4325 2.750	0	1 (	0 1	1	3	11	5 51	3.667	0	6 0	4	1 1	1 33	5 5	144 3.000
SNG-H003A SNG-K010		Tunnel Vision	U-514-06023286 U-514-06023286		18	Circular	Reinforced Concrete Pipe Asbestos Cement	45HA 7K	45H 2K	NO NO							8 4	4200 4:000	0	0 (	0 0	0	0	0	0 000	000.0	0	0 0	2	0	2 8	4	200 4.000
5NG-H004			U-514-06023286		12	Circular	Vitrified Clay Pipe	VEP-123	2H	NO NO	YES NO	0	0	0 2	2 0	2	8 4	4200 4:000	0	0 2	2 0	0	2	6	3 320	00 3.000	0	0 2	2	0 4	4 14	4 4	232 3.500
SNG-K044	9/20/2017	Tunnel Vision	U-815-07000963	8	8	Circular	Asbestos Cement	30K	29K	NO							8 4		0	2 1	1 1	0	4	11 .	4 000	0.000	0	0 0	2	0 2	8	4 4	700 4:000
SNG-J036 SNG-E026			U-514-06023286 U-514-06023286		8	Circular	Polyvinyl Chloride	34)	26J	NO	YES	0	0	0 2	0	2	8 4	4200 4.000	0	0 0	1	0	1	4	4 410	00 4.000	0	0 0	3	0	1 12	4 4	331 3.167
SNG-K029			U-114-6019861	8 8	8 8	Circular Circular	Vitrified Clay Pipe Vitrified Clay Pipe	21E 19K	20E 45K	NO							15 4	4133 3.000	60	0 0	0 0	0	60	60	1 1K0	00 1.000	60	1 3	1	0 6	5 75	4 4	133 1.154
SNG-A042			U-514-06023286		10	Circular	Vitrified Clay Pipe	26A	24A	YES NO	NO YES	1 1	0	1 1	0	4	11 4 8 4	4131 2.750	3	0 0	2	0	2	8 4	4 420	00 4,000	0	2 1	3	0 6	5 19	4 4	331 3.167
SNG-1003			U-514-06023286	12	12	Circular	Asbestos Cement	1A	11	NO							30 4	412A 2 143		0 1	0	0	4	5 2	2 211	13 1.250	4	1 1	1 1	0 7	7 13	4 4	131 1.857
SNG-H030			U-514-06023286		12	Circular	Polyvinyl Chloride	41H	16H	NO	YES	0 .	5	0 1	0	6	14 4	4125 2.333	0	15 0	0	0	15	30	2 280	00 2.000	0	20 0	1	0 1	1 44	4 4	131 2.200 12C 2.095
5NG-A028 SNG-K025			U-514-06023286 U-114-6019861	8	8	Circular	Vitrified Clay Pipe	22A	21A	NO	NO	0 4	4	0 1	. 0	5	12 4	4124 2.400	14	0 1	0	0	15	17	3 311	A 1.133	14	4 1	1	0 2	0 29	4	131 1.450
SNG-A020			U-514-06023286		15	Circular	Vitrified Clay Pipe Vitrified Clay Pipe	36K	18K 12A	NO YES							10 4	4123 2.500	0	0 0	0	0	0	0 (	000	000.0	0	3 0	1	0 /	1 10	4 10	123 2.500
SNG-A007	10/16/2017		U-514-06023286		8	Circular	Vitrified Clay Pipe	5A	4A	YES							10 4 8 4		0	1 2	0	0	18	34 3	3 381	A 1.889	10	3 8	1	0 2	2 44	4 4	138 2.000
SNG-A021			U-514-06023286		15	Circular	Vitrified Clay Pipe	15A	14A	NO	NO	3 :	1	0 1	0	5	9 4	4121 1.800	3	1 0	0	0	4	5	2 211	3 1 250	6	2 3	1 1	0 8	19	4 4	133 2.375
5NG-K043			U-815-07000963		8	Circular	Asbestos Cement	29K	40K	YES	YES	1 (	0	0 1	0	2	5 4	4111 2.500	0	3   1	. 0	1	5	14	5 500	2.800	1	3 1	1	1 7	19	5	122 1.556 141 2.714
SNG-C005A SNG-G049			U-514-06023286 U-514-06023286	8	8	Circular	Vitrified Clay Pipe Reinforced Plastic Pipe (Truss Pipe)	5C 45G	5CA 44G	NO YES							4 4	4100 4.000	0	0 0	0	0	0	0 (	000	0.000	0	0 0	1	0 1	4	4 4	00 4,000
SNG-G047			U-514-06023286		8	Circular	Reinforced Plastic Pipe (Truss Pipe)	43G	44G 42G	NO							4 4	4100 4.000	0	0 0	2	0	2	8 4	420	0 4.000	0	0 0	3	0 3	12	4 4	4.000
SNG-J002	9/26/2017	Tunnel Vision	U-514-06023286	10	10	Circular	Asbestos Cement	3)	1J	NO							4 4		0	0 0	0	0	0	0 0	000	0.000	0	0 0	1 1	0 1	4	4 4	00 4.000
SNG-K015			U-815-07000963	10	10	Circular	Asbestos Cement	13K	11K	NO	YES	0 0	0	0 1	0	1	4 4	4100 4.000	0	0 0	0	0	0	0 0	000	000 0 00	n	0 0	1	0 1	1	4	00 4 000
5NG-J010 5NG-706			U-514-06023286 U-815-07000963	10	10	Circular Circular	Polyvinyl Chloride	7J VED-107	6)	NO	YES	0 0	0	44 0	0	44	132 3	3G00 [3.000]	0	0 0	1 0	0	0	0 0	000	000 0 00	0	0 44	1 0	0 4	4 122	2 2/	3.000
SNG-G001			U-514-06023286	16	16	Circular	Vitrified Clay Pipe Asbestos Cement	VEP-197 6F	29H 121	NO NO	152	0 1	0	13 0	0	13	39 3	3A00   3.000	0 1 1	L3 I O	1 0	0	13	26 2	1240	0 2 000	0 1	12 12	0 1	Λ 20	C CE	3 34	13A 3 F00
SNG-G015	10/10/2017	Tunnel Vision	U-514-06023286	15	15	Circular	Reinforced Plastic Pipe (Truss Pipe)	12G	8G	NO	163	9 1 3	W .	/ 0	1 0	/ /	21   3	3700 3.000 3700 3.000	0 1	0 1 2	2 I D	1 0 1	2 1	6 1 3	1 220	non clo	0	0 0	0	A 0	27	2 20	200 2 200
SNG-H032			U-514-06023286	10	10	Circular	Polyvinyl Chloride	19H	18H	NO	ILS	v   ,	T	0 0	1 0		20 3	3621 12.8571	16	0 I 2	1 0	1 0 1	18 I	22   3	271	B 1 1 222	15	1 0	1 0 1	0 31	2.49	9: 100	224 1 500
SNG-1008	5/11/2018	unnel Vision	U-514-06023286	16	16	Circular	Asbestos Cement	15	121	NO	NO	0 0	0	6 0	0	6	18 3	3600 3.000	0	3 0	0	0	3	6 2	230	0 2.000	0	3 6	0	0 9	24	3 36	23 2.667
																													-	-	-		

# Table A-3: Lift Station Assessment

Asset Inventory

Table 1

Evaluation Year: 2018

Asset Inventory	Table 1	Evaluation Year	: 2018								4								
A	В	C	0	E															
Pump Station Assets	(A) (C) (A) (C)					G	н	J	K	L	M	N	0	P	1 Q	I R	S	· ·	
	Capacity	Material	Location	Latitude	Longitude	Manufacturer	Tag Number	Original Replacemen Cost Cost		Year Installed	Remaining Useful Life	Condition	Probability of	Criticality of	Business	Expected		Replacement	Annual OM&R Funding
Pump #1	20-30hp pump -250gpm	Pumping Equipment	Pump Station 1 - Old WWTP	46.8662113	-89.318897		105	\$15,00	Value 0 \$1,000	1957	In Years		Failure	Asset	Risk	Asset Life	Redundancy	Year	Cost Source
Pump #2	20-30hp pump -250gpm	Pumping Equipment	Pump Station 1 - Old WWTP	46.8662113	-89.318897		106	\$15,00		1957	2	4	5.0	4	20	30	0%	- 2019	\$0 CIP
Motor #1		Pumping Equipment	Pump Station 1 - Old WWTP	46.8662113	-89.318897		107	\$13.00		1957		4	5.0	4	20	30	0%	8019	\$0 CIP
Motor #2	24	Pumping Equipment	Pump Station 1 - Old WWTP	46.8662113	-89.318897		108	\$13,00		1957	2		5.0	4	20	30	0%	नाग (इ	\$0 CIP
Shutoff Valve #1	4"	Valves	Pump Station 1 - Old WWTP	46.8662113	-89.318897		109	\$1,90		1957	5	3	5.0	4	20	30	0%	2019	\$0 CIP
Shutoff Valve #2	4"	Valves	Pump Station 1 - Old WWTP	46.8662113	-89.318897		110	\$1,90	4000	1957	5		4.9	2	10	35	50%	12019	\$0 CIP
Shutoff Valve #3	4"	Valves	Pump Station 1 - Old WWTP	46.8662113	-89.318897		111	\$1,90		1957	5	3	4.9	2	10	35	50%	2019	\$0 CIP
Shutoff Valve #4	4"	Valves	Pump Station 1 - Old WWTP	46.8662113	-89.318897		112	\$1,90		1957	5	3	4.9	2	10	35	50%	2018	\$0 CIP
Check Valve #1 Check Valve #2		Valves	Pump Station 1 - Old WWTP	46.8662113	-89.318897		113	\$1,20	\$171	1957	5	3	4.9	2	10	35	50%	2019	\$0 CIP
Floats		Valves	Pump Station 1 - Old WWTP	46.8662113	-89.318897		114	\$1,20	\$171	1957	5	3	4.9	2	10	35	50%	2019	\$0 CIP
Control panels	100A	Pumping Equipment  Motor Controls / Drives	Pump Station 1 - Old WWTP	46,8662113	-89.318897		115	\$1,50	\$300	2006	2	3	4.1	4	10	35	50%	2019	\$0 CIP
Electrical Switchgear	100A	Transformers/Switchgear	Pump Station 1 - Old WWTP	46.8661611		quare D, Cutler Hammer	100	\$10,00	\$1,000	2000	2	3	4.6	3	14	10	0%	2019	\$150 OM&R
Pump station building		Pumping Equipment	Pump Station 1 - Old WWTP	46.8662113	-89.318897		101	\$5,00	\$2,125	1996	17	3	1.9	3	6	20 40	0%	2019	\$500 OM&R
Wet well	6' diameter	Concrete & Metal Storage Tanks	Pump Station 1 - Old WWTP Pump Station 1 - Old WWTP	46.8662113	-89.318897		102	\$70,00	\$10,267	1957	11	4	4.0	4	16	75	0%	2019	\$0 CIP
Pump #1	700 gpm	Description of the second second second	The same of the sa	46.8662113	-89.318897		103	\$20,00	\$3,467	1957	13	3	3.5	4	14	75	0% - 0%	2019	\$0 CIP
Pump #2	700 gpm; 135' head	Pumping Equipment Pumping Equipment	Pump Station 2 - Main pump Station		-89.3150219		237	\$25,00	\$0	1997	0	187	5.0	3	15	30		30/16	\$0 CIP
Pump #3	2200 gpm	Pumping Equipment	Pump Station 2 - Main pump Station		-89.3150219 A		238	\$25,00	\$22,500	2015	27	2	1.0	4	4	30	100%	2019	\$0 CIP
Pump #4	2200 gpm	Pumping Equipment	Pump Station 2 - Main pump Station		-89.3150219 A	urora	239	\$40,00	\$0	1997	0	- 5	5.0	3	15	30	100%	2019	\$0 CIP
Motor #1	50 HP	Pumping Equipment	Pump Station 2 - Main pump Station Pump Station 2 - Main pump Station	46.8697261	-89.3150219 -89.3150219		240	\$40,000	\$12,000	1997	9	2	2.7	2	5	30	100%	2019	\$0 CIP
Motor #2	50 HP	Pumping Equipment	Pump Station 2 - Main pump Station		-89.3150219 -89.3150219		204	\$15,000	\$0	1997	0	6	5.0	4	20	30	100%	2019	\$0 CIP
Motor #3	150 HP	Pumping Equipment	Pump Station 2 - Main pump Station		-89.3150219		207	\$15,000	\$4,500	1997	9	2	2.7	4	11	30	100%	20039	\$0 CIP
Motor #4	150 HP	Pumping Equipment	Pump Station 2 - Main pump Station		-89.3150219		210	\$20,000	\$0	1997	0	- 1	5.0	3	15	30	100%	2019	\$0 CIP
Shutoff Valve #1	6"	Valves	Pump Station 2 - Main pump Station		-89.3150219		214	\$20,000	\$6,000	1997	9	2	2.7	2	5	30	100%	2018	\$0 CIP \$0 CIP
Shutoff Valve #2	6*	Valves	Pump Station 2 - Main pump Station		-89.3150219		205	\$3,000	\$1,114	1997	13	3	2,2	3	7	35	50%	2010	\$0 CIP
Shutoff Valve #3	6*	Valves	Pump Station 2 - Main pump Station		-	670-1773	206	\$3,000	\$1,114	1997	13	3	2,2	2	4	35	50%	7039	\$0 CIP
Shutoff Valve #4	6"	Valves	Pump Station 2 - Main pump Station			5K-E	209	\$3,000	\$1,114	1997	13	3	2.2	2	4	35	50%	2016	\$0 CIP
Shutoff Valve #5	8"	Valves			-89.3150219		219	\$3,000	\$1,114	1997	13	3	2.2	2	4	35	50%	2019	\$0 CIP
Shutoff Valve #6	8"	Valves			-89.3150219		213	\$4,400 \$4,400	\$1,634	1997	13	3	2.2	2	4	35	50%	2019	\$0 CIP
Shutoff valve #7	8"	Valves	Pump Station 2 - Main pump Station	46.8697261	-89.3150219		215	\$4,400	\$1,634	1997	13	3	2.2	2	4	35	50%	2019	\$0 CIP
Shutoff valve #8	8"	Valves	Pump Station 2 - Main pump Station	46.8697261	-89.3150219		217	\$4,400	\$1,634	1997	13	3	2.2	2	4	35	50%	2019	\$0 CIP
Shutoff valve #9	8"	Valves	Pump Station 2 - Main pump Station	46.8697261	-89.3150219		234	\$4,400	\$1,634 \$1,760	1997	13	3	2.2	2	4	35	50%	2019	\$0 CIP
Shutoff valve #10	8"	Valves	Pump Station 2 - Main pump Station	46.8697261	-89.3150219		235	\$4,400	\$1,760	1997	14	2	2,1	2	4	35	50%	2019	\$0 CIP
Check Valve #1	6*	Valves	Pump Station 2 - Main pump Station	46.8697261	-89.3150219		203	\$2,000	\$7,634	1997	13	3	2.2	2	4	35	50%	2019	\$0 CIP
Check Valve #2	6*	Valves	Pump Station 2 - Main pump Station	46.8697261	-89.3150219 25	0AP00	208	\$2,000	\$743	1997	13	3	2,2	2	4	35	0%	2019	\$0 CIP
Check Valve #3	8*	Valves	Pump Station 2 - Main pump Station		-89.3150219		212	\$3,500	\$0	1997	0	3	2,2	2	4	35	0%	2019	\$0 CIP
Check Valve #4	8"	Valves	Pump Station 2 - Main pump Station	46,8697261	-89.3150219 Ap	oco	216	\$3,500	\$3,000	2013	30	2	5.0	2	10	35	0%	3018	\$0 CIP
Check Valve #5	8"	Valves		46.8697261	-89.3150219		227	\$3,500	\$1,300	1997	13	3	1.0	2	2	35	0%	2019	\$0 CIP
Dry Well Dehumidifier Electrical Switchgear		HVAC		46.8697261	-89.3150219 De	esert Aire	200	\$1,000	\$233	1997	7	4	3.1	3	9	35	0%	2019	\$0 CIP
Motor Starters	150 hp	Transfromers / Switchgears / Wiring Motor Controls / Drives	Pump Station 2 - Main pump Station		-89.31504		223	\$8,000	\$4,400	2000	22	2	1.4	3	4	30 40	0%	2023	\$0 CIP
VFD'S	50 hp	Motor Controls / Drives	Pump Station 2 - Main pump Station Pump Station 2 - Main pump Station		-89.3150219		231	\$32,000	\$3,200	2000	2	2	4.6	4	19	20	0%	2019	\$0 CIP
Control Panels		Motor Controls / Drives	Pump Station 2 - Main pump Station		-89.3150219 -89.3150219		233	\$16,000	\$1,600	2000	2	2	4.6	4	-10	20	0%	2019	\$1,600 OM&R
Generator	200KW	Generators	Pump Station 2 - Main pump Station			hler-200R0ZD71	236	\$10,000	\$1,000	2000	2	2	4.6	4	19	20	0%	2010	\$800 OM&R
Hoist	2 ton	Tools & Shop Equipment	Pump Station 2 - Main pump Station			ester-AM h2359	202	\$80,000	\$32,000	2000	12	2	2.1	4	8	30	0%	2028	\$500 OM&R \$0 CIP
Building		Buildings	Pump Station 2 - Main pump Station		89.3150219	idstel-MW II2339	218	\$4,000	\$1,200	1997	9	2	2.7	11	3	30	0%	2025	\$0 CIP
Drywell vent		Buildings			89.3152323		220	\$100,000	\$58,000	1997	29	2	1,3	2	3	50	0%	2045	\$0 CIP
Meter		Meters			89.3151089		222	\$1,500 \$10,000	\$0	1997	0	6	5.0	2	10	50	0%	2019	\$0 CIP
Generator Room Heater		HVAC	Pump Station 2 - Main pump Station		89.3151919		224	\$2,000	\$2,500 \$600	1997	5	3	3.6	2	7	20	0%	2019	\$500 OM&R
Generator Room Dampener		Generators	Pump Station 2 - Main pump Station	46.8697997 -	89.3150868		225	\$1,000		1997	9	2	2.7	3	8	30	0%	2025	\$0 CIP
Control Room Heater			Pump Station 2 - Main pump Station	46.8699785 -	89.3151627 Rea	znor	226	\$2,000	\$300 \$600	1997	9	2	2.7	4	11	30	0%	2025	\$0 CIP
Wet well		Buildings	Pump Station 2 - Main pump Station 4				228	\$25,000	\$13,667	1997	9	2	2.7	2	5	30	0%	2025	\$0 CIP
Sump Pump	201 1 2 10	Bldg Plumbing	Pump Station 2 - Main pump Station				229	\$1,500	\$500	1997	41	4	1,2	2	2	75	0%	2057	\$0 CIP
Wet well transfer nump	~30 feet, 6-10*	Transmission Mains	Pump Station 2 - Main pump Station 4				230	\$9,450	\$6,615	1997	49	3 2	3.6	2	7	15	0%	2021	\$100 OM&R
Wet well transfer pump		Bldg Plumbing	THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED IN COLUMN 2 I	THE RESERVED FOR	89.3150219		232	\$5,000	\$0	1997	0	-	5.0	4	4	70	0%	2019	\$0 CIP
Pump #1		Pumping Equipment			89,3224131		304	\$15,000	\$3,750	1970	5	3		2	10	20	0%	(0)5	\$250 OM&R
Check Valve #1 Check Valve #2		Control of the Contro			89.3224147		305	\$1,200	\$69	1970	2	4	5.0	4	19	20	0%	2021	\$750 OM&R
Shutoff Valve #1		0.000			89.3224147		306	\$1,200	\$69	1970	2	4	5.0	2	10	35	50%	2639	\$0 CIP
Shutoff Valve #2				6.8752519 -			307	\$1,900	\$109	1970	2	4	5.0	2	10	35	50%	2019	\$0 CIP
Floats				6.8752519 -			308	\$1,900	\$109	1970	2	4	5.0	2	10	35	50%	8018	\$0 CIP
Wetwell		The state of the s		6.8752024			302	\$1,500	\$300	1970	2	4	5.0	2	10	35 10	50%	2013	\$0 CIP
Valve Vault				6.8752024 -			303	\$25,000	\$6,667	1970	20	4	2.8	3	8	75	0%	2019	\$150 OM&R
Control panel				6.8752519 -I			309	\$35,000	\$9,333	1970	20	4	2.7	2	5	75	0%	2036	\$0 CIP
Disconnect				6.8752797 -			300	\$10,000	\$1,000	1970	2	4	5.0	3	15	20	0%	2036	\$0 CIP
Pump #1		Contract of the Contract of th	The same of the sa	6.8640587 -8			301	\$5,000	\$625	1970	5	3	4.7	4	19	40	0%	2021	\$500 OM&R \$0 CIP
Carried Control Annual Control				6.8640587 -8			506	\$15,000	\$10,500	2012	14	2	0.9	3	3	20	0%	2030	
Check Valve #1		the state of the s		6.8640855 -8			507	\$15,000	\$10,500	2012	14	2	0.9	3	3	20	0%	2030	\$750 OM&R
Check Valve #2				6.8640855 -8			509	\$1,200	\$480	1997	14	2	2.1	2	4	35	50%	2030	\$750 OM&R
Shutoff Valve #1				6.8640855 -8			510	\$1,200	\$480	1997	14	2	2.1	2	4	35	50%	2030	\$0 CIP
Shutoff Valve #2				6.8640855 -8			511	\$1,900	\$760	1997	14	2	2.1	2	4	35	50%	2030	\$0 CIP \$0 CIP
Valve Vault		Marie Paris Commission			39.3150775		512	\$1,900	\$760	1997	14	2	2.1	2	4	35	50%	2030	\$0 CIP
Floats					39.3150552		505	\$25,000	\$18,000	1997	54	2	1,0	3	3	75	0%	2070	\$0 CIP
Wetwell					9.3150552		508	\$1,500 \$20,000	\$1,650	E102	11	-44-1	1.0	4	4	10	0%	2027	\$150 OM&R
Control Panels				6.8640641 -8		6	500	\$20,000	\$13,600	1997	51	3	1,0	3	3	75	100%	2067	\$150 OMAR \$0 CIP
Power panel		Power Supply		6.8640641 -8			501	\$10,000	\$5,250	2018	21		1.0	4	4	20	0%	2037	\$250 OM&R
New control panel		Motor Controls / Drives		6.8640671 -8			502	\$10,000	\$7,000	1997	2	4	4.8	1	5	20	0%	2019	\$500 OM&R
								V.0,000	41,000	2012	14	2	0.9	4	4	20	0%	2030	\$500 OM&R
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Project Plan Clean Water State Revolving Fund (CWSRF) Ontonagon, Michigan May 2023

# Appendix H

**IPaC Documentation** 



## United States Department of the Interior



#### FISH AND WILDLIFE SERVICE

Michigan Ecological Services Field Office 2651 Coolidge Road Suite 101 East Lansing, MI 48823-6360

Phone: (517) 351-2555 Fax: (517) 351-1443

In Reply Refer To: March 08, 2023

Project code: 2023-0053255

Project Name: Ontonagon SRF Application IPaC Record Locator: 212-123341490

Subject: Consistency letter for 'Ontonagon SRF Application' for specified threatened and

endangered species that may occur in your proposed project location consistent with

the Michigan Endangered Species Determination Key (Michigan DKey)

#### Dear John Reck:

The U.S. Fish and Wildlife Service (Service) received on March 08, 2023 your effect determination(s) for the 'Ontonagon SRF Application' (the Action) using the Michigan DKey within the Information for Planning and Consultation (IPaC) system. The Service developed this system in accordance with the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seg.).

Based on your answers and the assistance of the Service's Michigan DKey, you made the following effect determination(s) for the proposed Action:

Species	Listing Status	Determination
Canada Lynx (Lynx canadensis)	Threatened	NLAA
Gray Wolf (Canis lupus)	Endangered	NLAA
Monarch Butterfly (Danaus plexippus)	Candidate	No effect
Northern Long-eared Bat (Myotis septentrionalis)	Threatened	NLAA
Red Knot (Calidris canutus rufa)	Threatened	NLAA
Tricolored Bat (Perimyotis subflavus)	Proposed	No effect
	Endangered	

Coordination with the Michigan Ecological Services Office is complete. Thank you for considering federally listed species during your project planning.

Please provide sufficient project details on your project homepage in IPaC (Define Project, Project Description) to support your conclusions. Failure to disclose important aspects of your project that would influence the outcome of your effects determinations may negate your determinations and invalidate this letter. If you have site-specific information that leads you to believe a different determination is more appropriate for your project than what the Dkey concludes, you can and should proceed based on the best available information.

The Service recommends that you contact the Service or re-evaluate the project in IPaC if: 1) the scope or location of the proposed Action is changed; 2) new information reveals that the action may affect listed species or designated critical habitat in a manner or to an extent not previously considered; 3) the Action is modified in a manner that causes effects to listed species or designated critical habitat; or 4) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Service should take place before project changes are final or resources committedThe

IPaC Record Locator: 212-123341490

#### **Gray Wolf:**

Gray wolf may be present in the Action area. However, given the large amount of suitable wolf habitat available throughout the Upper Peninsula of Michigan, any wolves active on the landscape would be able to avoid project activities without incurring adverse impacts. Since you determined that the Action will not harm wolves directly (e.g., mammal trapping, poison bait) or indirectly ((e.g., increasing vehicle use that may result in vehicle strikes, exposure to potential human persecution), any potential effects would be insignificant.

#### **Bats of Conservation Concern:**

Implementing protective measures for bats, including both federally listed and non-listed species, indirectly helps to protect Michigan's agriculture and forests. Bats are significant predators of nocturnal insects, including many crop and forest pests. For example, Whitaker (1995) estimated that a single colony of 150 big brown bats (Eptesicus fuscus) would eat nearly 1.3 million pest insects each year. Boyles et al. (2011) noted the "loss of bats in North America could lead to agricultural losses estimated at more than \$3.7 billion/year, and Maine and Boyles (2015) estimated that the suppression of herbivory by insectivorous bats is worth >1 billion USD globally on corn alone. In captive trials, northern long-eared bats were found to significantly reduce the egg-laying activity of mosquitoes, suggesting bats may also play an important role in controlling insect-borne disease (Reiskind and Wund 2009). Mosquitoes have also been found to be a consistent component of the diet of Indiana bats and are eaten most heavily during pregnancy (6.6%; Kurta and Whitaker 1998). Taking proactive steps to help protect bats may be very valuable to agricultural and forest product yields and pest management costs in and around a project area. Such conservation measures include limiting tree clearing during the bat active season (April through Octobervaries by location) and/or the non-volant period (June through July), when young bats are unable to fly, and minimizing the extent of impacts to forests, wetlands, and riparian habitats.

#### **Bald and Golden Eagles:**

Bald eagles, golden eagles, and their nests are protected under the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended, 16 U.S.C. 668a-d) (Eagle Act). The Eagle Act prohibits, except when authorized by an Eagle Act permit, the "taking" of bald and golden eagles and defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." The Eagle Act's implementing regulations define disturb as "…to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially

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interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

If the Action may impact bald or golden eagles, additional coordination with the Service under the Eagle Act may be required. For more information on eagles and conducting activities in the vicinity of an eagle nest, please visit https://www.fws.gov/library/collections/all-about-eagles. In addition, the Service developed the National Bald Eagle Management Guidelines (May 2007) in order to assist landowners in avoiding the disturbance of bald eagles. The full Guidelines are available at https://www.fws.gov/media/national-bald-eagle-management-guidelines-0.

If you have further questions regarding potential impacts to eagles, please contact Chris Mensing, Chris\_Mensing@fws.gov or 517-351-2555.

#### Monarch butterfly and other pollinators

In December 2020, after an extensive status assessment of the monarch butterfly, we determined that listing the monarch under the Endangered Species Act is warranted but precluded by higher priority actions to amend the Lists of Endangered and Threatened Wildlife and Plants. Therefore, the Service added the monarch butterfly to the candidate list. The Service will review its status each year until we are able to begin developing a proposal to list the monarch.

The Endangered Species Act does not establish protections or consultation requirements for candidate species. Some Federal and State agencies may have policy requirements to consider candidate species in planning. We encourage implementing measures that will remove or reduce threats to these species and possibly make listing unnecessary.

For all projects, we recommend the following best management practices (BMPs) to benefit monarch and other pollinators.

#### Monarch and Pollinator BMP Recommendations

Consider monarch and other pollinators in your project planning when possible. Many pollinators are declining, including species that pollinate key agricultural crops and help maintain natural plant communities. Planting a diverse group of native plant species will help support the nutritional needs of Michigan's pollinators. We recommend a mix of flowering trees, shrubs, and herbaceous plants so that something is always blooming and pollen is available during the active periods of the pollinators, roughly early spring through fall (mid-March to mid-October). To benefit a wide variety of pollinators, choose a wide range of flowers with diverse colors, heights, structure, and flower shape. It is important to provide host plants for any known butterfly species at your site, including native milkweed for Monarch butterfly. Incorporating a water source (e.g., ephemeral pool or low area) and basking areas (rocks or bare ground) will provide additional resources for pollinators.

Many pollinators need a safe place to build their nests and overwinter. During spring and summer, leave some areas unmowed or minimize the impacts from mowing (e.g., decrease frequency, increase vegetation height). In fall, leave areas unraked and leave plant stems standing. Leave patches of bare soil for ground nesting pollinators.

Avoid or limit pesticide use. Pesticides can kill more than the target pest. Some pesticide residues can kill pollinators for several days after the pesticide is applied. Pesticides can also kill natural predators, which can lead to even worse pest problems.

Planting native wildflowers can also reduce the need to mow and water, improve bank stabilization by reducing erosion, and improve groundwater recharge and water quality.

#### **Resources:**

https://www.fws.gov/initiative/monarchs

https://www.fws.gov/library/collections/pollinators

#### **Wetland impacts:**

Section 404 of the Clean Water Act of 1977 (CWA) regulates the discharge of dredged or fill material into waters (including wetlands) of the United States. Regulations require that activities permitted under the CWA (including wetland permits issued by the Michigan Department of Environment, Great Lakes, and Energy (EGLE)) not jeopardize the continued existence of species listed as endangered or threatened. Permits issued by the U.S. Army Corps of Engineers must also consider effects to listed species pursuant to section 7 of the Endangered Species Act. The Service provides comments to the agencies that may include permit conditions to help avoid or minimize impacts to wildlife resources including listed species. For this project, we consider the conservation measures you agreed to in the determination key and/or as part of your proposed action to be non-discretionary. If you apply for a wetland permit, these conservation measures should be explicitly incorporated as permit conditions. Include a copy of this letter in your wetland permit application to streamline the threatened and endangered species review process.

#### **Bat References**

Boyles, J.G., P.M. Cryan, G.F. McCracken, T.H. Kunz. 2011. Economic Importance of Bats in Agriculture. Science 332(1):41-42.

Kurta, A. and J.O. Whitaker. 1998. Diet of the Endangered Indiana Bat (Myotis sodalis) on the Northern Edge of Its Range. The American Midland Naturalist 140(2):280-286.

Reiskind, M.H. and M.A. Wund. 2009. Experimental assessment of the impacts of northern long-eared bats on ovipositing Culex (Diptera: Culicidae) mosquitoes. Journal of Medical Entomology 46(5):1037-1044.

Whitaker, Jr., J.O. 1995. Food of the big brown bat Eptesicus fuscus from maternity colonies in Indiana and Illinois. American Midland Naturalist 134(2):346-360.

<u>Summary of conservation measures for your project</u> You agreed to the following conservation measures to avoid adverse effects to listed species and our concurrence is only valid if the measures are fully implemented. These must be included as permit conditions if a permit is required and/or included in any contract language.

#### Rufa red knot

Avoid permanent modification of beaches, dunes, mudflats, peat banks, sandbars, shoals, or other red knot habitats during the red knot migration windows (May 15 through June 15 in the spring OR July 1 through September 30 in the fall). In addition, the project will not result in an increase in human disturbance or predation during the red knot migration windows within suitable habitat during the migration window.

#### Northern long-eared bat

Based on the project area you entered into IPaC, the project does not occur within 0.25 miles of a known northern long-eared bat hibernaculum. Tree removal, as defined in the 4(d) rule, will not occur within 150 feet of a known occupied northern long-eared bat maternity roost tree.

Any cutting/trimming of potential roost trees for northern long-eared bat (trees ≥3 inches in diameter [at breast height] with cracks, crevices, cavities, and/or exfoliating bark) will occur outside the summer roosting period for northern long-eared bat (that is, limited to September 1 through May 14). Prescribed fire and/or pesticide/herbicide application will also occur during September 1 through May 14 where potential roost trees are present.

Tree cutting/trimming and/or prescribed burning will not clear ≥20 contiguous acres of forest or fragment a connective corridor between 2 or more forest patches of at least 5 acres.

#### **Action Description**

You provided to IPaC the following name and description for the subject Action.

#### 1. Name

Ontonagon SRF Application

### 2. Description

The following description was provided for the project 'Ontonagon SRF Application':

Sanitary Sewer Repair and Expansion. Lift Station Upgrades. Wastewater Lagoon Improvements

The approximate location of the project can be viewed in Google Maps: <a href="https://www.google.com/maps/@46.86503155">https://www.google.com/maps/@46.86503155</a>,-89.31332928498821,14z



03/08/2023

### **QUALIFICATION INTERVIEW**

1. Are there any possible effects to any listed species or to designated critical habitat from your project or effects from any other actions or projects subsequently made possible by your project?

Select "Yes" even if the expected effects to the species or critical habitat are expected to be 1) extremely unlikely (discountable), 2) can't meaningfully be measured, detected, or evaluated (insignificant), or 3) wholly beneficial.

Select "No" to confirm that the project details and supporting information allow you to conclude that listed species and their habitats will not be exposed to any effects (including discountable, insignificant, or beneficial effects) and therefore, you have made a "no effect" determination for all species. If you are unsure, select YES to answer additional questions about your project.

Yes

2. This determination key is intended to assist the user in the evaluating the effects of their actions on Federally listed species in Michigan. It does not cover other prohibited activities under the Endangered Species Act (e.g., for wildlife: import/export, Interstate or foreign commerce, possession of illegally taken wildlife, purposeful take for scientific purposes or to enhance the survival of a species, etc.; for plants: import/export, reduce to possession, malicious destruction on Federal lands, commercial sale, etc.) or other statutes. Click yes to acknowledge that you must consider other prohibitions of the ESA or other statutes outside of this determination key.

Yes

3. Is the action the approval of a long-term (i.e., in effect greater than 10 years) permit, plan, or other action? (e.g., a new or re-issued hydropower license, a land management plan, or other kinds of documents that provide direction for projects or actions that may be conducted over a long term (>10 years) without the need for additional section 7 consultation).

No

- 4. Is the action being funded, authorized, or carried out by a Federal agency? *No*
- 5. Does the action involve the installation or operation of wind turbines? *No*

6. Are there at least 30 days prior to your action occurring? Endangered species consultation must be completed before taking any action that may have effects to listed species. The Service also needs 30 days to review projects before we can verify conclusions in some dkey output letters. For example, if you have already started some components of the project on the ground (e.g., removed vegetation) before completing this key, answer "no" to this question. The only exception is if you have a Michigan Field Office pre-approved emergence survey (i.e., if you have conducted pre-approved emergence surveys for listed bats before tree removal, you can still answer yes to this question).

Yes

7. Does the action involve constructing a new communication tower or modifying an existing communications tower?

No

8. Does the activity involve aerial or other large-scale application of any chemical (including insecticide, herbicide, etc.)?

No

9. Does your project include water withdrawal (ground or surface water) greater than 10,000 gallons/day?

No

10. Will your action permanently affect hydrology?

No

11. Will your action temporarily affect hydrology?

No

12. Will your project have any direct impacts to a stream or river (e.g., Horizontal Directional Drilling (HDD), hydrostatic testing, stream/road crossings, new storm-water outfall discharge, dams, other in-stream work, etc.)?

No

13. Does your project have the potential to indirectly impact the stream/river or the riparian zone (e.g., cut and fill, horizontal directional drilling, hydrostatic testing, construction, vegetation removal, discharge, etc.)?

Yes

- 14. Are you applying for one of the following Michigan EGLE/Army Corps of Engineers joint permit application Minor Permit (MP) Categories:
  - MP 3 Boat Hoist; MP 5 Boal Wells; MP 7 Completed Enforcement Actions; MP 12 Dock;
  - MP 21 Fish and Wildlife Habitat Structures;
  - MP 22 Ford Stream Crossings for Commercial Forestry Operations;
  - MP 28 Maintenance and Repair of Serviceable Structures;
  - MP 45 Temporary Recreational Structures;
  - MP 48 Wetland Habitat Restoration and Enhancement?

Verify the MP category number and associated description matches your project/application (https://www.michigan.gov/documents/egle/WRD-Minor-Project-Categories\_733320\_7.pdf). If you don't know what category applies for your project, answer no to this question.

No

- 15. Are you applying for one of the following Michigan EGLE/Army Corps of Engineers joint permit application General Permit (GP) Categories:
  - GPA Aids to Navigation;
  - GP C Clear Span Bridge;
  - GP E Culverts Small;
  - GP J Dry Fire Hydrant;
  - GP O Minor Permit Revisions and Transfers;
  - GP Q Mooring Buov;
  - GPW Scientific Measuring Devices;
  - GP X Snow Road Stream Crossings for Forestry Operations;
  - GP Z Spring Piles and Piling Clusters;
  - GP DD Wetland Habitat Restoration and Enhancement?

Verify the GP category number and associated description matches your project/application (https://www.michigan.gov/documents/deq/wrd-general-permit-categories\_555828\_7.pdf). If you don't know what category applies for your project, answer no to this question.

No

16. Will your action disturb the ground or existing vegetation? This includes any off road vehicle access, soil compaction, digging, seismic survey, directional drilling, heavy equipment, grading, trenching, placement of fill, pesticide application, vegetation management (including removal or maintenance using equipment or chemicals), cultivation, development, etc.

Yes

17. Is the action a utility-scale solar development project?

No

18. [Hidden semantic] Does the action intersect the MOBU AOI?

### Automatically answered

Yes

19. Under the ESA, monarchs remain warranted but precluded by listing actions of higher priority. The monarch is a candidate for listing at this time. The Endangered Species Act does not establish protections or consultation requirements for candidate species. Some Federal and State agencies may have policy requirements to consider candidate species in planning. We encourage implementing measures that will remove or reduce threats to these species and possibly make listing unnecessary. If your project will have no effect on monarch butterflies (for example, if your project won't affect their habitat or individuals), then you can make a "no effect" determination for this project. Are you making a "no effect" determination for monarch?

Yes

20. [Hidden Semantic] Does the action area intersect the rufa red knot area of influence?

### Automatically answered

Yes

21. Will the action occur during the red knot migration windows (May 15-June 15 or July 1-September 30?)

Yes

22. Will the action modify beaches, dunes, mudflats, peat banks, sandbars, shoals, or other red knot habitats? For example, the following actions may modify red kot habitat: groins, jetties, sea walls, revetments, bulkheads, rip-rap, beach nourishment, nearshore dredging, dredge spoil disposal, sand mining/borrowing, beach bulldozing, sandbagging, sand fencing, vegetation planting/alteration/removal, deliberate or possible introduction of nonnative vegetation, beach raking/mechanized grooming, boardwalks, aquaculture development.

No

23. Will the action result in increased human disturbance or predation? For example, is the action likely to indirectly increase access or use of red knot habitats by humans and/or predators at times of year that the birds are typically present (e.g., commercial/residential development, beach access structures, boardwalks, pavilions, bridges/roads/ferries/trails, marinas, posts or other avian predator perches, structures or habitat features likely to encourage predator nesting/denning, trash cans or other predator attractants, feral cat colonies, policy changes likely to increase human use).

No

24. [Hidden Semantic] Does the action area intersect the gray wolf area of influence?

#### Automatically answered

Yes

25. Does the action area intersect with a known gray wolf denning or rendezvous area? *No* 

26. Is there any potential for the action to harm wolves directly (e.g., mammal trapping, poison bait), or indirectly (e.g., increasing vehicle use that may result in vehicle strikes, exposure to potential human persecution)?

No

27. [Hidden Semantic] Does the action area intersect the lynx area of influence?

#### Automatically answered

Yes

28. Is there any potential for this action to harm Canada lynx directly (e.g., mammal trapping, poison bait)?

No

29. [Hidden Semantic] Does this project intersect the NLEB AOI?

#### Automatically answered

Yes

30. The project has the potential to affect federally listed bats. Does the action area contain any known or potential bat hibernacula (natural caves, abandoned mines, or underground quarries)?

No

31. Has a presence/absence bat survey or field-based habitat assessment following the Service's Range-wide <u>Indiana Bat and Northern Long-eared Bat Summer Survey Guidelines</u> been conducted within the action area?

No

32. Does the action involve removal/modification of a human structure (barn, house or other building) known to contain roosting bats?

No

33. Does the action include removal/modification of an existing bridge or culvert? *No* 

34. Does the action include herbicide application?

No

35. Does the action include tree cutting/trimming, prescribed fire, and/or pesticide (e.g., insecticide, rodenticide) application?

Yes

36. Will the action clear >10 acres of contiguous forest (i.e., connected by 1,000 feet or less) or fragment a riparian or other connective forested corridor (e.g., tree line) between 2 or more forest patches of at least 5 acres? For more information, see <a href="#">Appendix II</a>.

No

37. Does the action area contain potential NLEB bat roost trees (trees ≥3 inches in diameter [at breast height] with cracks, crevices, cavities and/or exfoliating bark)? For more information, see <u>Appendix IV</u>.

Yes

38. Does the action include emergency cutting/trimming of hazard trees in order to prevent imminent loss of human life and/or property?

No

39. [Semantic] Is any portion of the action area within 5 miles of a known Indiana or northern long-eared bat hibernaculum?

#### Automatically answered

No

40. [Hidden Semantic] Does this project intersect the northern long-eared bat area of influence?

### Automatically answered

Yes

41. Is the project action area located within 0.25 miles of a known northern long-eared bat hibernaculum?

#### Automatically answered

No

42. Will the action involve Tree Removal as defined in the 4(d) rule for northern long-eared bat?

Yes

43. Is the project action area located within 150 feet of a known occupied northern long-eared bat maternity roost tree?

### Automatically answered

No

44. Will all tree cutting/trimming, prescribed fire, and/or pesticide/herbicide application be conducted outside the northern long-eared bat summer roosting period of May 15 through August 31 (that is, limited to September 1 through May 14)?

Yes

45. [Hidden semantic] Does the action intersect the Tricolored bat AOI/SLA/range?

### Automatically answered

Yes

46. The tricolored bat was proposed for listing as endangered on September 13, 2022. In Michigan, the tricolored bat was rare pre-white nose syndrome (WNS) and is exceedingly rare post-WNS. The species has been observed in 12 Michigan counties to date, largely during the fall or winter. With very few exceptions, the species has not been observed in Michigan in the summer months, and no maternity colonies have been found. During winter, tricolored bats hibernate in caves, abandoned mines, and abandoned tunnels ranging from small to large in size. During spring, summer and fall months, they roost primarily among leaf clusters of live or recently dead deciduous/hardwood trees.

Are you making a no effect determination on this project for the tricolored bat? *Yes* 

### **IPAC USER CONTACT INFORMATION**

Agency: GEI Consultants

Name: John Reck Address: 990 Lalley Rd. City: Iron River

State: MI Zip: 49935

Email jreck@geiconsultants.com

Phone: 9062144156

Project Plan Clean Water State Revolving Fund (CWSRF) Ontonagon, Michigan May 2023

## **Appendix I**

**Rose Island Documentation** 



Main Office | 540 Depot Street | Hancock, MI 49930 | 906.482.7382

303 Baraga Avenue L'Anse, MI 49946 210 N. Moore Street Bessemer, MI 49911 408 Copper Street Ontonagon, MI 49953

Date: 03/31/2023

Name: John Reck

Address: 990 Lalley Road City, State, Zip: Iron River, MI 49935

RE: Your FOIA Request(s) Received by This Public Body on the 21 day of March, 2023

Dear John:

I as FOIA coordinator for Western Upper Peninsula Health Department, Environmental Health Division, hereby certify that your request for the following public record:

Parcel # 41-502-001-00, 41-504-001-00, 41-504-002-00, 41-504-004-00 & 202 Ontonagon St Property

Does not exist.

In the event that you are not satisfied with this response, we want to advise you of your rights.

You have the right to submit to the head of this public body who is Cathryn Beer, MPA, CFPH, CPA, CGMA a written appeal that specifically states the word "appeal" and identifies the reasons for reversal of this disclosure denial by the undersigned FOIA coordinator.

In addition, you may seek judicial review of this denial.

If after judicial rule a circuit court determines that the public body has not complied with the Act and orders disclosure of all or a portion of the record, you have the right to receive attorney fees and damages in an amount not to exceed \$500.

Sincerely,

Julie Heikkinen

### Reck, John

From: Reck, John

**Sent:** Tuesday, March 21, 2023 1:40 PM

**To:** requests@wuphd.org

**Subject:** Ontonagon FOIA Request - Supplemental Information

**Attachments:** Fig.12\_SAD Project Map.pdf

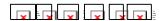
Hello,

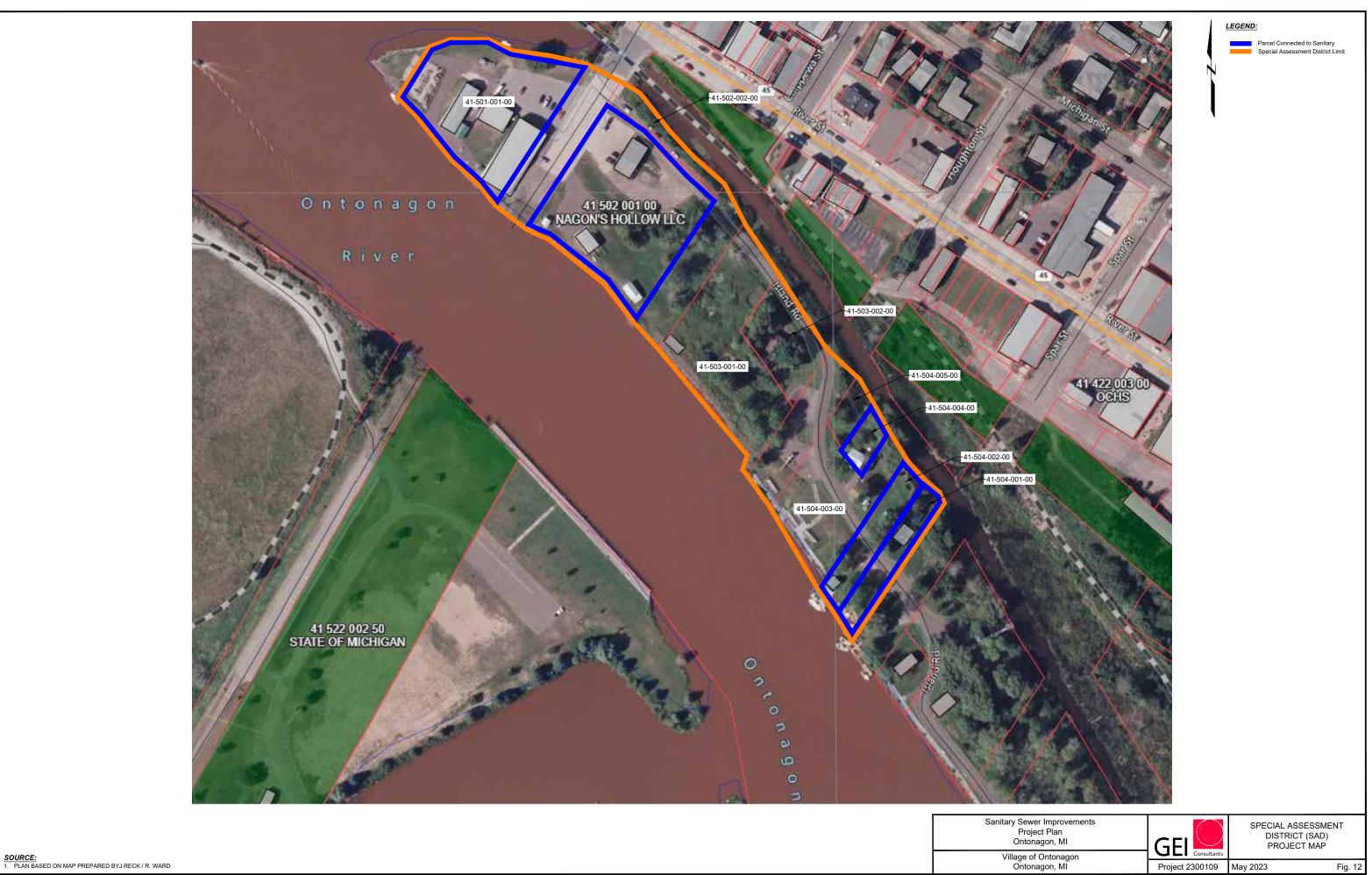
I just submitted five FOIA requests for properties on Rose Island in Ontonagon. Attached is a map with the requested parcels highlighted in blue. Let me know if you have any questions or concerns. Appreciate the help!

Thank you,



JOHN RECK Project Engineer 906.214.4156 cell: 269.568.1688 990 Lalley Road, Iron River, MI 49935





### BACTERIOLOGICAL ANALYSIS OF WATER VILLAGE OF ONTONAGON ONTONAGON WATER FILTRATION PLANT LABORATORY 5030

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### BACTERIOLOGICAL ANALYSIS OF WATER VILLAGE OF ONTONAGON ONTONAGON WATER FILTRATION PLANT LABORATORY 5030

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E-Coli pre	esent.	☐ Yes ☐	J No o	× •	

Project Plan Clean Water State Revolving Fund (CWSRF) Ontonagon, Michigan May 2023

# **Appendix J**

**Overburdened Community Status** 



### MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

# OVERBURDENED AND SIGNIFICANTLY OVERBURDENED COMMUNITY STATUS DETERMINATION WORKSHEET

The following data is required from each State Revolving Fund (SRF) applicant requesting a determination for overburdened and significantly overburdened community status.

The most recent census and tax data are available in a searchable table on EGLE's <u>State Revolving Fund – Overburdened Community Definition and Scoring Criteria Development</u> webpage along with an excel worksheet to help determine blended Median Annual Household Income (MAHI) and blended taxable value per capita for regional systems. The MAHI and taxable value per capita table will be used to make all FY24 determinations. Applicants are encouraged to visit this page prior to completing this form to see if they qualify based on MAHI (blended MAHI if applicable) or taxable value per capita (blended taxable value per capita if applicable) alone. If so, they only need to fill out lines 1 and 2 of this form, electronically sign it on page 2, and submit.

Alternately, if the applicant's MAHI or blended MAHI is above the state average - \$63,498 for FY24 – they cannot be determined as being overburdened or significantly overburdened for FY24 funding and should not complete or turn in this form.

For applicants whose MAHI or blended MAHI is below \$63,498 but do not automatically qualify based on MAHI or taxable value per capita alone, please complete the entire form and return to:

Mark Conradi
conradim@michigan.gov

Name of Applicant

Please check the box indicating which funding source this determination is for:

DWSRF 

CWSRF 

1. Is this a regional system? A regional system refers to any system that serves more than one municipality (cities, townships, and/or villages)

Yes 
No 
If yes, refer to the instructions at the end of this form to complete calculations for a blended MAHI

completed.

and blended taxable value per capita. Additionally, page 3 of this form will also need to be

2.	Median Annual Household Income from table on the overburdened webpage (blended if applicable)
3.	Taxable Value Per Capita from table on the overburdened webpage (blended if applicable)
4.	Total amount of anticipated debt for the proposed project (amount of loan requested for FY24 loan)
5.	Annual payments on the existing debt for the system
6.	Total operation, maintenance, and replacement expenses (OM&R) for the system on an annual basis
7.	Number of residential equivalent users (REUs) in the system
*I ( for	) hereby certify that the information in this m is complete, true, and correct to the best of my knowledge.  Signature  Date
	Signature Date
	r determinations made using anticipated debt, a final determination will be made based on the awarded loan amount and not the anticipated amount provided on this form.

Page 2 of 8

EQP3530 (Rev. 2/2023)

Michigan.gov/EGLE

Regional System Breakdown (If applicable)

Name of municipality Percentage of flow

If more spaces are needed, please include them in the email along with this submission. Percentages of flow must add up to 100%.

# OVERBURDENED AND SIGNIFICANTLY OVERBURDENED COMMUNITY STATUS INSTRUCTIONS AND GUIDANCE

The following instructions provide guidance to fill out the overburdened and significantly overburdened determination community status worksheet. Systems across the state use many types of methods for billing and some include items that others do not. The purpose of the determination is to put all systems on a level playing field by breaking down system debt, expenses, and number of customers in the same manner. The instructions address each question in the order they are presented on the worksheet.

### 1. Regional systems (if applicable) – Blended MAHI and taxable value per capita calculations

The definition of overburdened and significantly overburdened communities first requires "(a) Users within the area served by a proposed drinking water project, sewage treatment works project, or stormwater treatment project are directly assessed for the costs of construction." That means that the calculations need to be based on who is paying for the proposed SRF loan.

For systems that serve more than one municipal entity a blended MAHI and taxable value per capita calculation must be completed. Page 3 of the worksheet includes spaces for a system to list all the municipalities (cities, townships, and/or villages) and the percentage of flow they provide to the system. The flow percentages should be based on the most recent data available.

The reason flow is used is because most systems add debt costs to customers' bills and those are determined by flow. In rare cases there might be municipal agreements that vary slightly from this method and those will require the applicant to contact EGLE and provide the data separate from this worksheet. EGLE will take each municipality's MAHI and taxable value per capita and multiply it by the percentage of flow and then add them all together to come up with the blended number to be used in the determination (e.g., (municipality A MAHI \* flow) + (municipality B MAHI \* flow) + (municipality C MAHI \* flow = Blended MAHI for the system)). The same formula will be repeated swapping out taxable value per capita for MAHI to determine a blended taxable value per capita.

The most recent census and tax data are available in a searchable table on EGLE's <u>State Revolving Fund – Overburdened Community Definition and Scoring Criteria Development</u> webpage. This table will be used to make all FY24 determinations. Use the excel FY24 Overburdened Calculation Template also located on the <u>State Revolving Fund – Overburdened Community Definition and Scoring Criteria Development</u> webpage. Tab 1 titled, "Blended MAHI and TVPC calcs" will allow the applicant to input the names of the municipalities, their percentage of flow, the MAHI for each found in the table listed above, and the taxable value per capita for each in the table listed above, to calculate a blended MAHI and blended taxable value per capita of the regional system. If the blended MAHI is above \$63,498 the project cannot qualify for overburdened or significantly overburdened status and the rest of the form should not be filled out or turned in.

#### 2. Median Annual Household Income

Use the "Fiscal Year 2024 Overburdened Median Annual Household Income (MAHI) and Taxable Values List for SRF Projects; the State of Michigan MAHI is \$63,498 for FY24 Projects" searchable table located on the <u>State Revolving Fund – Overburdened Community Definition and Scoring Criteria Development</u> webpage. Search for the system's MAHI and enter it. **If the** 

Michigan.gov/EGLE Page 4 of 8 EQP3530 (Rev. 2/2023)

MAHI is above \$63,498 the project cannot qualify for overburdened or significantly overburdened status and the rest of the form should not be filled out or turned in.

For regional systems that serve more than on municipality (cities, townships, and/or villages), refer to the instructions for regional systems in step 1 if you have not already completed calculating a blended MAHI for the system. Once the blended MAHI is determined, enter it on line 2 of the worksheet.

### 3. Taxable Value Per Capita

This data is found in the same location as the MAHI data and was likely already entered by the applicant while completing line 2. If not, repeat the directions for step 2 and enter the taxable value per capita from the table.

For regional systems that serve more than on municipality (cities, townships, and/or villages), refer to the instructions for regional systems in step 1 if you have not already completed calculating a blended taxable value per capita for the system. Once the blended taxable value per capita is determined, enter it on line 3 of the worksheet.

### 4. Total amount of anticipated debt for the proposed project

Fill in the total amount of the proposed loan for the project requesting State Revolving Loan financing in FY24.

EGLE will amortize this amount to determine a yearly cost to the applicant. The excel FY24 Overburdened Calculation Template, also located on the <a href="State Revolving Fund - Overburdened Community Definition and Scoring Criteria Development">State Revolving Fund - Overburdened Community Definition and Scoring Criteria Development</a> webpage, has this calculation built in so the applicant only needs to enter full FY24 the loan amount when completing that as well.

Note that this loan amount is an estimate and often changes after project plans are submitted and bids come in. EGLE will run this determination again prior to finalizing the Project Priority List (PPL). Changes in the loan amount can sometimes change an applicant's status from overburdened to not or vice versa if the initial calculation is close to the 1% MAHI threshold.

Thus, if a system is determined to be overburdened or not based on annual user costs being greater than 1% of system's MAHI vs being determined overburdened by MAHI or state taxable value per capita alone, a loan amount will be provided to the applicant that provides the cutoff loan value to either gain or lose overburdened status.

### 5. Annual Payments on the existing debt of the system

Fill in the yearly total of any current debt payments for the system. If coming in for a CWSRF project only include debt payments for the wastewater system and if coming in for a DWSRF project only include debt payments for the drinking water system.

In a regional system the additional debt payments of connected systems may be added if the connected systems are included in the blended MAHI and taxable value per capita calculations and there is no double-counting. For example, if a regional treatment system is coming in for the loan, a connected collection system could add any additional annual debt costs that the

collection system passes onto its customers after paying all debt and expenses to the regional treatment system. This is to account for the fact that the MAHI and state taxable values are being blended so the annual debt payments of the regional system can be blended as well to determine the average user cost of the regional system.

# 6. Total operation, maintenance, and replacement (OM&R) expenses for the system on an annual basis

As with the annul debt payments, the amount listed here should include only wastewater OM&R for CWSRF loans and only drinking water OM&R for DWSRF loans. If the accounting is combined split the costs as accurately as possible.

The OM&R costs should reflect all annual expenses for the system that are recovered annually through rates. This means that if a community makes an annual contribution of \$50,000 a year to a capital improvement fund, they could add that number to the yearly OM&R costs. If they have accumulated \$250,000 in that account and plan on using all in the calendar year they are applying for the loan, they cannot claim that amount as it is not a yearly expense; only the \$50,000 is. This is also true for depreciation expenses with no cash value or yearly contribution. They cannot be included.

In a regional system the additional OM&R expenses of connected systems may be added if the connected systems are included in the blended MAHI and taxable value per capita calculations, there is no double-counting, and the expenses follow the same OM&R rules listed above. For example, if a regional treatment system is coming in for the loan, a connected collection system could add any additional annual OM&R costs that the collection system passes onto its customers after paying all debt and expenses to the regional treatment system. This is to account for the fact that the MAHI and state taxable values are being blended so the annual OM&R expenses of the regional system can be blended as well to determine the average user cost of the regional system.

### 7. Number of residential equivalent users (REUs) in the system

REUs refer to number of standard household hookups in a system. In a bedroom community, with little to no commercial or industrial customers, this number clear. However, most systems have a combination of customer types. The purpose of this form is to determine the average bill for a typical residential customer to determine if it is high enough to pose a burden on the ratepayer.

There are two standard ways of determining REUs: meter size and average flow.

### Meter size

This is the preferred method as it eliminates most variables that using flow may have. To determine the number of REUs in a system take all the systems' meters and convert them down to 5/8<sup>ths</sup>-inch or ¾-inch (whichever is the system's standard residential size). Use the capacity of the pipe to convert down (e.g., a 2-inch meter would be equivalent to about 8, 5/8<sup>ths</sup>-inch meters, a 4-inch meter would be equivalent to about 25, 5/8<sup>ths</sup>-inch meters, etc.). The resulting number of equivalent 5/8<sup>ths</sup>-inch or ¾-inch meters would be the number of REUs in the system.

### Average flow

The average flow method requires the system to determine the average yearly flow for a typical residential household (i.e., a 5/8<sup>ths</sup>-inch or ¾-inch connection). The system takes the most recent yearly flow data of the entire system and divides by the average household usage number to come up with the number of REUs.

EGLE will look at the numbers provided and may have questions based on the population size vs number of REUs. EGLE will reach out and ask to see the calculations in some instances. Applicants are encouraged to include an excel sheet with these calculations along with the submittal of this form to reduce any back-and-forth communications.

### Signature

A typed name and accompanying electronic signature are required for the form to be accepted. If this section is left blank the form will be returned to the sender and not reviewed until it has been signed and sent back.

### **Final Determination**

If the system's MAHI or blended MAHI (if applicable) is over the state average - \$63,498 for FY24 – it cannot be determined as being overburdened or significantly overburdened for FY24 funding.

EGLE will take the information provided on this form and enter it into the FY24 Overburdened Calculation Template spreadsheet to calculate the average yearly cost per REU. If a community or system is not determined to be overburdened or significantly overburdened based on MAHI or taxable value per capita alone, this calculation will determine if the costs are greater than 1% of the system's MAHI.

The FY24 Overburdened Calculation Template spreadsheet with the calculations and final determination will be sent to the applicant after the review has been completed by EGLE. A blank version is available on the <a href="State Revolving Fund">State Revolving Fund — Overburdened Community Definition and Scoring Criteria Development</a> webpage. Ideally the applicant has already completed the calculations using the instructions above prior to submitting. If the applicant completes the worksheet and determines they do not qualify for overburdened status it is requested that they do not submit the completed worksheet unless they have questions. The applicant's preliminary findings using the FY24 Overburdened Calculation Template are not official until they have been reviewed by EGLE as discrepancies and/or questions about some of the numbers may arise. However, EGLE is providing the template to allow applicants to have a good idea of how the determination will result prior to hearing back officially from EGLE.

Please contact Mark Conradi (<a href="mailto:conradim@michigan.gov">conradim@michigan.gov</a>) with any questions on the completion of the form.

If you need this information in an alternate format, contact <a href="mailto:EGLE-Accessibility@Michigan.gov">EGLE-Accessibility@Michigan.gov</a> or call 800-662-9278.

EGLE does not discriminate on the basis of race, sex, religion, age, national origin, color, marital status, disability, political beliefs, height, weight, genetic information, or sexual orientation in the administration of any of its programs or activities, and prohibits intimidation and retaliation, as required by applicable laws and regulations. Questions or concerns should be directed to the Nondiscrimination Compliance Coordinator at <a href="EGLE-NondiscriminationCC@Michigan.gov">EGLE-NondiscriminationCC@Michigan.gov</a> or 517-249-0906.

This form and its contents are subject to the Freedom of Information Act and may be released to the public.

Overburdened	and Significantly (	Overburdened Calculation Worksheet	
2. Median Annual Household Income (blended if necessary)	\$42,500		
3. Taxable Value Per Capita (blended if necessary)	\$21,207		
4. Amount of anicipated debt - FY24 SRF loan only Terms Rate New Annual debt from SRF loan	\$6,500,000 20 2.75% \$426,866		
5. Annual Payments on existing debt	\$407,948		
6. Total OM&R	\$160,235		
7. Number of REUs	1017		
Total Annual Cost	\$995,049		
Annual User Cost MAHI Threshold \$ amount	\$978 <b>\$425</b>		Resu
125% of Federal Poverty MAHI	\$37,500	Significantly Overburdened	NO
Lowest 10% TVPC	\$15,170	Significantly Overburdened	NO
Lowest 20% TVPC	\$22,920	Overburdened without calculation needed	YES
Michigan MAHI	\$63,498	Overburdened with calculation	YES

#### Instructions

This calculation template is designed to be used in conjunction with the "Overburdened and Significantly Overburdened Community Status Determination Worksheet" which must be completed and submitted to conradim@michigan.gov for any FY24 SRF project wanting an overburdened determination. Once that form has been completed this calculation template will allow the applicant to get a preliminary idea of whether they qualify for overburdened or significantly overburdened status. Unlike the status determination worksheet, this calculation template is not required to be completed but is recommended. The results of this preliminary calculation do not quarantee any final determinations. Final determinations will be made by EGLE.

Only fill in the cells that are highlighted in grey: cells B2, B4, B6, B11, B13, and B15. These cells are titled and numbered to directly correlate to the questions and numbers in the completed Overburdened and Significantly Overburdened Community Status Determination worksheet.

There are three ways an applicant can automatically qualify as overburdened or significantly overburdened:

-If they have a MAHI or blended MAHI below 125% of the federal poverty MAHI (Row 23)

-If they have a TVPC in the lowest 10% of the state (Row 25)

-If they have a TVPC in the lowest 20% of the state (Row 27)

These calculations are completed once cells B2 and B4 are entered, and the results are shown as a red "no" or a green "yes" in cells E23, E25, and E27. If any of these results in a green "YES" the applicant is automatically qualified' as overburdened or significantly overburdened and does not need to enter any cost data (\*provided the numbers entered into B2 and B4 are accurate and followed the rules outlined in the Status Determination Worksheet).

The final way an applicant can be determined overburdened is if their MAHI falls below the state average of \$63,498 AND their annual user costs are greater than 1% of their MAHI or blended MAHI. If the MAHI or blended MAHI is greater than \$63,498, an applicant cannot be eligible for overburdened status, should not complete or send in an application, and a red "Do Not Qualify" will show up in cell B20. For applicants under \$63,498 fill in cells B6, B11, B13, and B15 using the corresponding data from the completed Status Determination Worksheet. If the calculations turn out to be greater than 1% cell E29 will turn green and read "YES." If any of the results in E23, E25, E27, or E29 result in a "YES", the applicant preliminarily qualifies as overburdened or significantly overburdened.

#### \*Regional Systems

First complete the tab on the bottom left of this sheet titled, "Blended MAHI and TVPC calcs". Once completed, cells B2 and B4 will automatically populate with the completed calculations. If they do not, enter the blended MAHI in cell B2 and the blended TVPC in cell B4.

### Reck, John

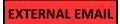
From: Conradi, Mark (EGLE) < CONRADIM@michigan.gov>

**Sent:** Monday, February 27, 2023 10:13 AM

To: Reck, John

Cc: Yu, Angela (EGLE); Fabbri, Brian; ontclerk@jamadots.com

**Subject:** [EXT] RE: Village of Ontonagon - Overburdened Determination Worksheet



Thanks, John. We have received the worksheet.

Mark Conradi (he/him/his) Affordability and Rate Analyst Michigan Department of Environment, Great Lakes, and Energy Water Infrastructure Funding & Financing Section

### Follow Us | Michigan.gov/EGLE

From: Reck, John < jreck@geiconsultants.com> Sent: Friday, February 24, 2023 9:58 AM

To: Conradi, Mark (EGLE) < CONRADIM@michigan.gov>

Cc: Yu, Angela (EGLE) <YuA@michigan.gov>; Fabbri, Brian <bfabbri@geiconsultants.com>; ontclerk@jamadots.com

Subject: Village of Ontonagon - Overburdened Determination Worksheet

CAUTION: This is an External email. Please send suspicious emails to abuse@michigan.gov

Good Morning Mark,

Attached is the Village of Ontonagon's Overburdened Determination Worksheet as well as the calculation spreadsheet. Let me know if you need anything else.

Thank you,



JOHN RECK Project Engineer 906.214.4156 cell: 269.568.1688 990 Lalley Road, Iron River, MI 49935



Project Plan Clean Water State Revolving Fund (CWSRF) Ontonagon, Michigan May 2023

# Appendix K

**Public Participation** 

# NOTICE OF PROJECT PLAN PUBLIC HEARING Village of Ontonagon

Village of Ontonagon will hold a public hearing on the proposed CWSRF Sanitary System Improvements project for the purpose of receiving comments from interested persons. The hearing will be held at 5:00 p.m. on Monday, April 24, 2023, at the Ontonagon Village Hall, 315 Quartz Street, Ontonagon, MI 49953. The purpose of the proposed project is to improve the condition and reliability of the sanitary sewer system as well as expand the sanitary sewer system on to Rose Island. Currently, two lift stations have pumps that are nonoperational, and all of the lift stations have numerous components that are beyond their useful life; select manholes are in need of replacement and several others are in need of repair or lining; portions of the sanitary sewer main are in need of replacement or lining; and storm water is entering the sanitary system at several locations. On Rose Island, there is the potential of sewer leaking into the Ontonagon River with the current septic systems in place. The project will involve lift station replacement and improvement; manhole replacement, repair, and lining; sanitary sewer main replacement and lining; removal of storm water entrance locations; and expansion of sanitary sewer on to Rose Island. The negative impacts expected with the proposed project is the potential for rate increases. Positive impacts include a more efficient and reliable sanitary sewer system, removal of the potential for sewer leaking into the Ontonagon River, and the mitigation of storm water entering the sanitary sewer system. The estimated cost to users for the proposed project will be \$5,800,000.

Copies of the plan detailing the proposed project are available for inspection at the Ontonagon Village Hall. Written comments received before the hearing record is closed on April 24, 2023, will receive responses in the final project plan. Written comments should be sent to the Ontonagon Village Hall, Attn: William DuPont, 315 Quartz Street, Ontonagon, MI 49953 or by email ontclerk@jamadots.com

### AFFIDAVIT OF PUBLICATION

STATE OF MICHIGAN	)
COUNTY OF ONTONAGON	) SS. )

Barbara Kilmer being duly sworn, deposes and says that she is the Editor of THE ONTONAGON HERALD and in charge thereof, a public newspaper printed, published and circulating in the County of Ontonagon, and that she and her assistant, Susan Basile, know well of thier own knowledge the facts herein stated; that the notice, of which the annexed is a true copy, was published in the said newspaper, once in each week for \_\_\_\_\_\_\_ successive week(s), and that the date(s) of the publication were as follows:

April 05, 2023

Susan Basile, Assistant
Barbara Kilmer, Editor
The Ontonagon Herald

Subscribed and sworn to before me this 66th day of

Barbara Kilmer, Notary Public Ontonagon County, Michigan Acting in Ontonagon County, MI My Commission Expires: 09-21-2026



Village of Ontonagon
Wastewater System Improvements Project
Clean Water State Revolving Fund
(CWSRF)
Public Hearing
By
John Reck, GEI Consultants
Brian Fabbri, GEI Consultants

# AGENDA – CWSRF Public Hearing for Project Plan **Existing Sanitary Sewer Issues** General Alternatives Selected Alternative **Proposed Project Layouts** Selected Alternative – Capital Costs Project Financing – User Costs **Project Timeline** Negative Impacts Impact Mitigation Positive Impacts 10. Questions



### **Existing Sanitary Sewer Issues**

- Village lift stations have major components that are not operable or beyond their useful life.
  - Old WWTP Lift Station Built 1957 Majority of components are beyond their useful service life
  - Main Lift Station Built 1997 One pump is not operable. Two are approaching the end of their historical useful life.
  - River and Lake Street Lift Station Built 1970 All components original
  - Zinc Street Lift Station Built 1997 Control panel beyond its useful life
- Manholes are aged and in need of repair or replacement.
  - Location of repair or replacement is identified in the Asset Management Plan (AMP)
- Sanitary sewer main is aged and in need of lining or replacement.
  - · Location of lining or replacement is identified in the AMP
- Several locations exist where storm water is tied into the sanitary system.
- Currently no sanitary sewer on Rose Island.



### **General Alternatives**

### No Action

• The sanitary system will continue to age and deteriorate. Magnitude of problems increasing with time. Cost of projects will increase.

### Optimization of Existing Facilities

• The sanitary system is operating at an optimal level considering the age and condition of the system.

### Regionalization

• Combining the sanitary system with another municipality's sanitary system to optimize the performance is not an option.

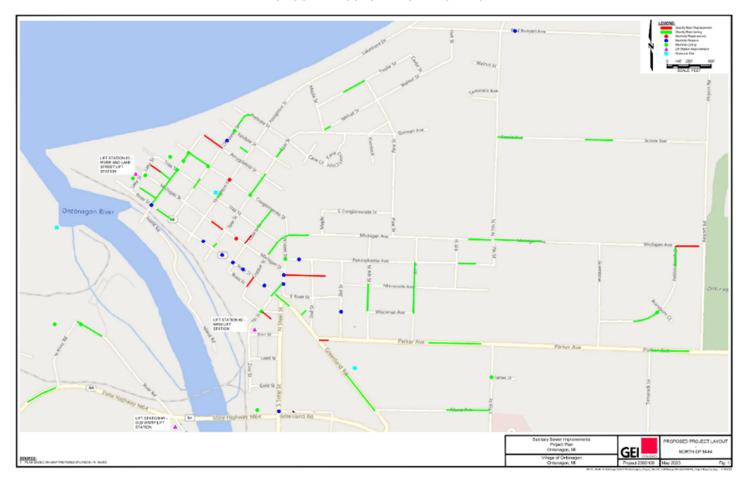


### Selected Alternative

- Lift Stations
  - Old WWTP Lift Station Remove existing lift station and install completely new lift station.
  - Main Lift Station Replace three dry pit submersible pumps, wet well transfer pump, sump pump, install two Variable Frequency Drives (VFD) on two of the dry pit submersible pumps, and replace current dehumidifier.
  - River and Lake Street Lift Station Remove existing lift station and install completely new lift station.
  - Zinc Street Lift Station Upgrade control panel to current standards.
- Manholes
  - Replace or repair manholes identified in AMP
- Sanitary Sewer Main
  - Replace or line portions of sanitary sewer identified in AMP.
- Stormwater
  - Remove locations where stormwater is tied directly into sanitary system.
- Rose Island
  - Extend sanitary sewer onto Rose Island.

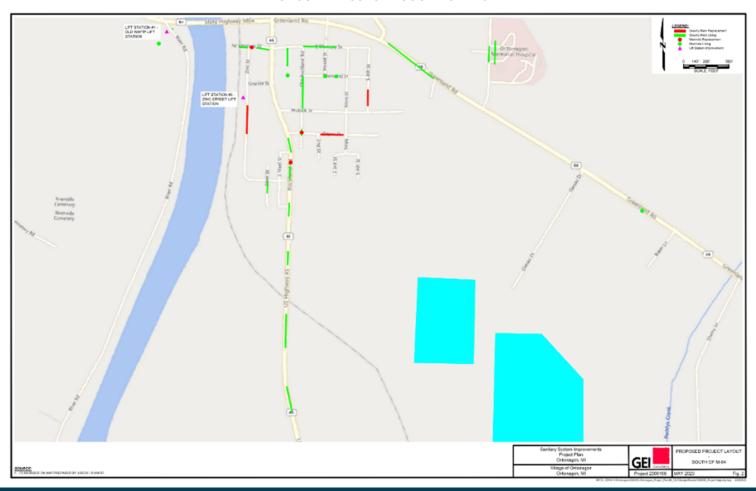


### PROPOSED PROJECT – NORTH OF M-64



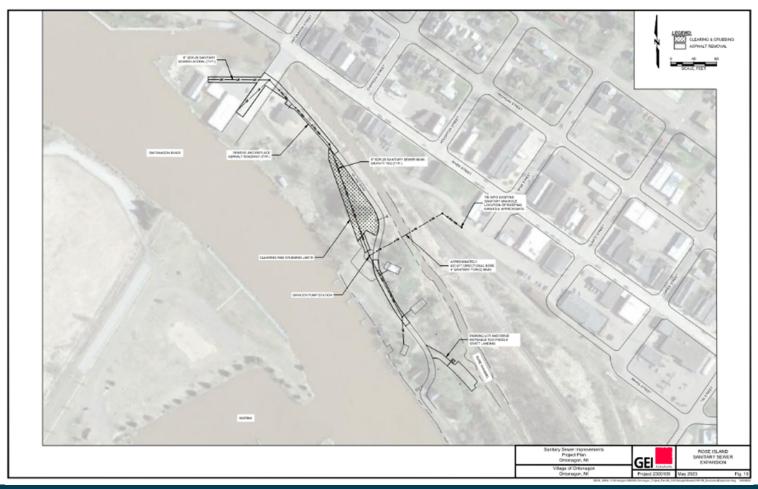


### PROPOSED PROJECT – SOUTH OF M-64





### PROPOSED PROJECT – ROSE ISLAND





# Selected Alternative – Capital Costs

- Lift Station Improvements
  - Improvements described in principle alternative
- Manhole Repair/Replacement
  - Repair either by lining or grout
- Sanitary Sewer Lining/Replacement
  - Lining will cover entire interior of pipe
- Stormwater
  - Removal of locations where stormwater is tied into sanitary system
- Rose Island Expansion
  - Installing sanitary sewer main, lift station, and tying into existing sanitary system.

Project Cost Estimate Summary				
Item Description	Cost			
Lift Station Improvements	\$ 1,414,873			
Manhole Repair/Replacement	\$ 226,691			
Sanitary Sewer Lining/Replacement	\$ 2,386,769			
Stormwater	\$ 67,253			
Rose Island Expansion	\$ 997,975			
Total Estimated Cost	\$ 5,093,561			
Construction Contingency	\$ 764,034			
Total Construction Cost	\$ 5,857,595			
Engineering, Admin, Legal	\$ 585,760			
Total Estimated Project Cost	\$ 6,443,355			



## **Project Financing - User Costs**

#### 100% Loan

Term	Rate	Yearly Payment	Monthly Payment	Monthly Cost per REU
20 year	1.875	\$389,315.88	\$32,442.99	\$31.90
30 year	2.125	\$292,662.72	\$24,388.56	\$23.98
30 year*	1.875	\$282,773.28	\$23,564.44	\$23.17

<sup>\*</sup>Overburdened Status Required

- Total Project Cost Estimate Amount: \$6.5 Million
- Number of REUs (Residential Equivalent User): 1,017
- Ontonagon currently considered to be Overburdened



# Project Financing - User Costs Continued

### 50% Loan / 50% Grant

Term	Rate	Yearly Payment	Monthly Payment	Monthly Cost per REU
20 year	1.875	\$194,657.88	\$16,221.49	\$15.95
30 year	2.125	\$146,331.36	\$12,194.28	\$11.99
30 year*	1.875	\$141,386.64	\$11,782.22	\$11.59

<sup>\*</sup>Overburdened Status Required

### 30% Loan / 70% Grant

Term	Rate	Yearly Payment	Monthly Payment	Monthly Cost per REU
20 year	1.875	\$116,794.80	\$9,732.90	\$9.57
30 year	2.125	\$87,798.84	\$7,316.57	\$7.19
30 year*	1.875	\$84,831.96	\$7,069.33	\$6.95

<sup>\*</sup>Overburdened Status Required



# Project Timeline

- Project Funding
  - List of funded projects will be released by EGLE in September or October 2023.

Schedule for Design and Construction			
Activity	Completion Date		
Approval of Project Plan	April 24, 2023		
Final Project Plan Submittal	May 1, 2023		
Begin Design of Project	October 2023		
Complete Design of Project	May 2024		
Begin Construction	September 2024		
Complete Construction	November 2025		



# Negative Impacts From Project

- Long Term Negative Impacts
  - Potential raise in sewer rate
- Short Term Negative Impacts
  - Traffic will have issues navigating the area due to road construction
  - Noise, emissions, and dust from construction
  - Soil will be disturbed as a result of construction activities



### Mitigation Measures

### Construction Activities

- Water truck will be implemented for dust control
- Work will take place during select hours to minimize noise
- Turf and site restoration where area has been disturbed
- Traffic detours will take place to reduce the amount of pedestrian/construction interface
- Silt fence and straw bales will be installed to reduce soil erosion

### Design

Construction sequencing/staging to maintain access



### Positive Impacts From Project

- Long Term Positive Impacts
  - New infrastructure will reduce maintenance and repair costs
  - Removal of inflow and infiltration in system
  - Removal of stormwater entering the system
  - More capacity at lagoons
  - Updated system will be more reliable
- Short Term Positive Impacts
  - Economic boost due to construction



# Questions?





Pam Coev

Sarah Hopper

President Pro-Tem

William DuPont

Village Manager

Kori Weisinger

Clerk/Treasurer

Elmer Marks, Jr. Mike Rebholz

TRUSTEES

Don Chastan

Debra Seid Girard Waldrop

President

### VILLAGE OF ONTONAGON

315 Quartz Street Ontonagon, Michigan 49953

Phone: 906-884-2305 Fax: 906-884-4369

TDD: 1-800-649-3777 Website: www.villageofontonagon.org

### **AGENDA**

Founded in 1843

VILLAGE COUNCIL MEETING MONDAY, APRIL 24, 2023 5:00 P. M. 315 QUARTZ ST.

- 1. PLEDGE OF ALLEGIANCE
- 2. CALL TO ORDER ROLL CALL
- 3. PUBLIC COMMENT (Five Minute Limit Per Individual on Agenda and Non-Agenda Items)
- APPROVAL OF CONSENT AGENDA: Recreation Commission February 22, 2023; Marina Commission February 14, 2023 & March 7, 2023; and Ontonagon Village Housing Commission February 21, 2023 & March 21, 2023; and Village Planning Commission February 1, 2023 & March 8, 2023
- 5. APPROVAL OF AGENDA
- 6. APPROVAL OF BILLS
- 7. APPROVAL OF COUNCIL MINUTES: March 27, 2023 & April 10, 2023
- 8. REPORTS:
  - a. Financial Reports
- 9. UNFINISHED BUSINESS a. MERS Updates
- **10. NEW BUSINESS**

a. John Reck - GEI

### **PUBLIC HEARING ATTENDENCE:**

Jeff Lemke Sue Lockart Lyle Perry Norman Pestka

Tyler Rantala Steve Store – Ont. Township Supervisor

James Sharkey Carl Panveno Kate Globensky Gladdie Funke

Cecelia Warren Chuck Maki - Ont. Township Trustee

Matt Weisen Candace Weisen

Mrs. Don Chasten Victoria James – Ontonagon Herald Reporter

Debra Seid – Village Trustee Michael Rebholz – Village Trustee Don Chasten – Village Trustee Sarah Hopper – Village Trustee Elmer Marks Jr. – Village Trustee Pamela Coey – Village President Kori Weisinger – Village Clerk Willie DuPont – Village Manager

Tanya Weisinger - Village Office Manager

Attendance recorded Village O.M. T. Weisinger



### VILLAGE OF ONTONAGON

315 Quartz Street Ontonagon, Michigan 49953 Phone: 906-884-2305 Fax: 906-884-4369 TDD: 1-800-649-3777

Website: www.villageofontonagon.org

Founded in 1843

### **AGENDA**

VILLAGE COUNCIL MEETING MONDAY, APRIL 24, 2023 5:00 P. M. 315 QUARTZ ST.

Pam Coey President

Sarah Hopper President Pro-Tem

William DuPont Village Manager

Kori Weisinger Clerk/Treasurer

TRUSTEES
Don Chastan
Elmer Marks, Jr.
Mike Rebholz
Debra Seid
Girard Waldrop

a. Project Plan Resolution

b. Protecting MI Pension Grant Resolution

c. HRA Account Authorization

d. Ontonagon Artist Collective Request

e. Township Request - Paul Bunyan Ave. & Lakeshore Dr.

f. Porcupine Mountain State Park Water Rates

g. Culvert Replacement

11. ANNOUNCEMENTS - OTHER COUNCIL BUSINESS

12. ADJOURNMENT

Village of Ontonagon Council Meeting - April 24, 2023  CWSRF Project Plan Presentation				
Name	Email Address			
KATEGISBENSKY	KAGLO 8213 10 VALOO. COM			
Gladdie Funte	funky vailchicke dehoo.			
Lyle Perry	ly leperry 310@ gmail.com.			
Ceceliawagren	Oston agon, MI49953			
Chuck Maki	Ontonegon, M.S.			
CARL PANUENO	ONTONATON MIT 49953			
Tyler Parityla	Toples W Rantgle & Hotmail.com			
NORM PESTINA	NORMEP @ SMALICOM			
Steve store	scs Tore 82@ Gmail, Com			
Ausan Chastan	susan, chastan@ yahoo, com			
James Shautrey	doddy shartes plive, com			
Matt Wiesen				
Kandice Wiesen	·			
Victoria James	yames (Csharter, net			
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# Appendix L

**Project Plan Resolution** 

#### **RESOLUTION No. 2023-06**

# A RESOLUTION ADOPTING A FINAL PROJECT PLANNING DOCUMENT FOR WASTEWATER SYSTEM IMPROVEMENTS OR NPS POLLUTION CONTROL/STORMWATER IMPROVEMENTS AND DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

- **WHEREAS,** the Village of Ontonagon recognizes the need to make improvements to its existing wastewater treatment and collection system or its existing NPS pollution control/stormwater treatment system; and
- **WHEREAS,** the Village of Ontonagon authorized GEI Consultants of Michigan, P.C. to prepare a Project Planning Document, which recommends the construction of sanitary sewer improvements; and
- **WHEREAS,** said Project Planning Document was presented at a Public Hearing held on April 24, 2023 at 5pm and all public comments have been considered and addressed.
- **NOW THEREFORE BE IT RESOLVED,** that the Ontonagon Village Council formally adopts said Project Planning Document and agrees to implement the selected alternative as presented.
- **BE IT FURTHER RESOLVED,** that the Village Manager, a position currently held by William DuPont, is designated as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Planning Document as the first step in applying to the State of Michigan for a Clean Water State Revolving Fund Loan to assist in the implementation of the selected alternative.

Motion by: Rebholz

YEAS: Chastan, Marks, Rebholz, Seid & Coey

NAYS: None ABSTAIN: None ABSENT: Waldrop

RESOLUTION DECLARED ADOPTED -

I, Kori Weisinger, Village Clerk of the Village of Ontonagon, do hereby certify that the foregoing is a true and complete copy of a Resolution adopted by the Village Council of the Village of Ontonagon at a regular meeting held on April 24, 2023, and that this meeting was conducted and public notice of this meeting was given pursuant to and in full compliance with the Open Meetings Act, being Act 267 of the Public Acts of Michigan of 1976, and that the minutes of this meeting were kept and will be or have been made available as required by this act.

Kori Weisinger, Village Clerk