

AGENDA
Cascade Charter Township
Thornapple River SAD Ad-Hoc Committee
Monday, December 4, 2023
5:30 pm
5920 Tahoe Dr. SE

- ARTICLE 1. Call the meeting to order**
- ARTICLE 2. Approval of the Agenda**
- ARTICLE 3. Acknowledge Visitors & Public Comment**
(Limited to five minutes per speaker.)
- ARTICLE 4. Approval of the Minutes of the September 18, 2023 Meeting**
- ARTICLE 5. Finances – *Jade***
a. YTD
b. 2024
- ARTICLE 6. Debris relocation by Larry’s Tree Service – *Scott***
a. Progress Report
b. 2024 Plans
- ARTICLE 7. Safety/Navigational Marking Project by Viking Marine Construction - *Jeff***
a. Progress Report
i. Updated Water Depth Survey Data
ii. State of Michigan Permitting
b. 2024 Plans
- ARTICLE 8. Aquatic Vegetation Control and Harvesting by PLM - *Melanie***
a. Recap of 2023 work
b. Annual PLM Reports (water quality, other?)
- ARTICLE 9. Contractor Access - *Scott***
a. Challenges and Options
- ARTICLE 10. Communications – *Jade and Jeff***
a. Township Website
i. TRSAD Section
ii. Agendas and Minutes
b. Listserv Use
c. Paper Mailings
d. Other Options?
- ARTICLE 11. 3-5 Year TRSAD Strategic Plan Introduction - *Jeff***
a. Introduce concept of more comprehensive long-term planning

- ARTICLE 12. February 2024 Board of Trustees Deliverable - *Jade***
a. Progress Report
- ARTICLE 13. Any Other Business**
- ARTICLE 14. Roundtable/Q&A**
- ARTICLE 15. Public Comment**
(Limited to five minutes per speaker.)
- ARTICLE 16. Adjournment**

MINUTES

Cascade Charter Township
THORNAPPLE RIVER SAD AD-HOC COMMITTEE MEETING
September 18, 2023 at 5:30pm
Cascade Charter Township Hall
5920 Tahoe Dr. SE
Grand Rapids, MI 49546

ARTICLE 1. The meeting was called to order at 5:30pm.

Members Present: Members Scott Rissi, Chuck Whitley, Jeff Carpenter, Michael Wiegand, and Trustee Shipley

Absent: Thomas Keith, Leann Rowland

Others Present: Parks & Recreation Director Melanie Manion, Township Manager Jade Smith, Township Treasurer Windy Korstange, Management Office Administrative Assistant Jessica Stine

ARTICLE 2. Approve the current Agenda

Motion was made by Member Rissi to approve the agenda as written. Supported by Trustee Shipley. Motion carried.

ARTICLE 3. Approve the Minutes of the August 7, 2023 Meeting

The committee requested the minutes be brought to the next meeting after the correct names were added to the motions.

ARTICLE 4. Acknowledge Visitors & Public Comment

New Township Manager Jade Smith was introduced to the board.

ARTICLE 5. Budget Discussion-*Windy Korstange, Township Board Treasurer*

Treasurer Korstange explained to the committee that, upon becoming the Township Treasurer, she noticed some inconsistencies in the budget and that the accounting leaves much to be desired. There wasn't anything fishy about the numbers, just numbers that weren't listed or accounted for in the proper places. Manager Smith began working with an outside accounting firm to clean up the bookkeeping.

Treasurer Korstange went through the special assessments from each year and explained that, if a residence receives an exemption from the taxes that would fund the special assessment, the county makes up the difference. The special assessment was first collected in February of 2022 and then in February of 2023. It was originally supposed to be collected in 2021 but the cutoff date was missed.

She sorted through invoices and found the one from PLM in 2022. There was also \$1,600 for a license from PLM that wasn't included in the 2022 budget. It was difficult to track the payments because cost varies year to year based on the needs of the weeds. She also found where Viking had been paid and completed depth surveys of the

river. They are currently in the permitting process. A PO has been submitted for Larry's Tree Service but it has not yet been approved and the work hasn't been done.

Prior to Treasurer Korstange's research, there was not a report explaining the budget and expenditures; she created the one included in the packet. Township Manager Smith said that, in future years, he will provide quarterly updates on the committee's finances. The special assessment funds are now in their own fund and will be accounted for and distributed properly going forward. Township staff will be looking at the special assessment contract regulations soon to make sure there isn't a rule about the maximum amount of money that can be held over from year to year.

ARTICLE 6. Aquatic Nuisance Weed Management Update

The harvester traversed the river in August and was successful. PLM is working on their final report for the committee.

ARTICLE 7. Large Debris Removal Project Update

Parks and Recreation Director Melanie Manion is currently working through the PO process and has submitted it for approval. The Maricibo ramp has been agreed to be used for official township business. The Fire Department uses the ramp currently and, though the residents of Maricibo don't pay into the special assessment, they have river access and benefit from the cleanup. The township is still looking into access on the other side of the bridge. They will have Larry's Tree Service complete work on the side with access and look more into the other section if this section goes well.

ARTICLE 8. Safety & Navigational Markers Project Update

Director Manion reached out to Viking for a report on the safety and navigational markings and they have not provided one yet. Member Carpenter reached out, asking for usable maps. The data they provided was not a set of clear and readable maps; after looking into the contract, this isn't something they were explicitly required to provide.

ARTICLE 9. Other Business

Supervisor Lesperance reached out to Eagle Creek about a potential hole in the dam, noticed by Member Rissi, and the representative from Eagle Creek said that the danger with the dam was water going over the wall, not of a washout or hole in the dam as there would be washout on both sides of the bridge if that was the case. Member Rissi said he would share a picture where there appears to be a hole in the dam.

ARTICLE 10. Roundtable Q & A

Members discussed meeting with Communications Specialist Rich Lakeburg and Management Office Admin Assistant Jessica Stine about the state of the Thornapple River SAD page on the township website. Lakeburg is new to Cascade and has many other projects going on. Updating this page of the website is on his to-do list.

ARTICLE 11. Adjournment

Member Rissi left the meeting at 6:49pm.

**Motion was made by Member Wiegand to adjourn. Supported by Member Carpenter.
Motion carried. The meeting was adjourned at 6:51 p.m.**

Approved by the Thornapple River SAD Ad-Hoc Committee - TBD

DRAFT

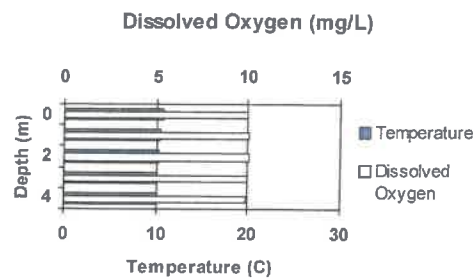
LAKE CHECK Water Quality Monitoring Report

2023093

Customer	Waterbody	Sample Information
Thornapple River Cascade	Thornapple River Cascade	Date: 4/20/2023
		Site: #1

On-Site Results

Depth (m)	Temperature (degrees C)	Dissolved Oxygen	
		mg/L	%
0	10.7	10.0	90
1	10.4	10.0	90
2	10.2	10.0	89
3	10.1	10.0	89
4	10.0	9.9	88



Secchi Disk Depth	0.8 meters
Thermocline Depth	meters

Analytical Results

Parameter	Result	Units	Interpretation
Fecal Bacteria (E. coli)		CFU/100 mL	N/A
Conductivity	331	uS/cm	
Total Dissolved Solids	297	mg/L	Moderate concentration of dissolved salts
pH	8.3	S.U.	Water is slightly alkaline
Alkalinity	234	mg CaCO3/L	Water is very hard
Total Phosphorus	7	ug/L	Slightly phosphorus enriched
Nitrates	1490	ug/L	Nitrogen enriched
Chlorophyll	N/A		

Trophic State Evaluation

	TSI	Trophic Status
Based on Secchi Disk Depth	64	hypereutrophic
Based on Total Phosphorus	28	oligotrophic
Based on Chlorophyll	N/A	

Conclusions

- Conditions are good for fish growth.
- Minimum dissolved oxygen is adequate for good fish production.
- pH is within acceptable limits.
- Sample is nitrogen enriched. Consider nutrient abatement measures.
- Repeat LakeCheck in Fall.

-
- WARNING. condition requires immediate attention.
 - CAUTION. condition requires further evaluation.
 - OK. condition within acceptable limits.
 - NEUTRAL. condition neither good nor bad.

Notes

Report describes conditions at the time the sample was collected.

Approved by

Jaimee Desjardins

Date 10/19/2023

Mrs. Jaimee Desjardins, Technical Services Manager

FROM YOUR



DEALER



PLM Lake & Land Management Corp

P.O. Box 132

Caledonia MI 49316-

Phone: (616) 891-1294

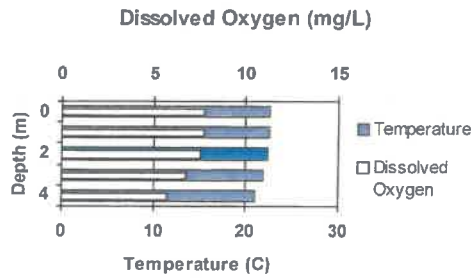
LAKE CHECK Water Quality Monitoring Report

2023094

Customer	Waterbody	Sample Information
Thornapple River Cascade	Thornapple River Cascade	Date: 9/5/2023
		Site: #1

On-Site Results

Depth (m)	Temperature (degrees C)	Dissolved Oxygen	
		mg/L	%
0	22.6	7.7	90
1	22.6	7.7	90
2	22.4	7.5	87
3	21.9	6.8	77
4	21.0	5.7	64



Secchi Disk Depth	1.0 meters
Thermocline Depth	meters

Analytical Results

Parameter	Result	Units	Interpretation
Fecal Bacteria (E. coli)		CFU/100 mL	N/A
Conductivity	528	uS/cm	
Total Dissolved Solids	344	mg/L	Moderate concentration of dissolved salts
pH	8.6	S.U.	Water is slightly alkaline
Alkalinity	251	mg CaCO3/L	Water is extremely hard
Total Phosphorus	9	ug/L	Slightly phosphorus enriched
Nitrates	1520	ug/L	Nitrogen enriched
Chlorophyll	N/A		

Trophic State Evaluation

	TSI	Trophic Status
Based on Secchi Disk Depth	60	eutrophic
Based on Total Phosphorus	31	meso-oligotrophic
Based on Chlorophyll	N/A	

Conclusions

- Conditions are good for fish growth.
- Minimum dissolved oxygen is adequate for good fish production.
- pH is within acceptable limits.
- Sample is nitrogen enriched. Consider nutrient abatement measures.
- REPEAT LakeCheck NEXT YEAR!

-
- WARNING. condition requires immediate attention.
 - CAUTION. condition requires further evaluation.
 - OK. condition within acceptable limits.
 - NEUTRAL. condition neither good nor bad.

Notes

Report describes conditions at the time the sample was collected.

Approved by

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Date 10/19/2023

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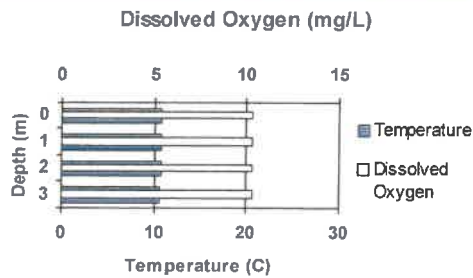


Water Quality Monitoring Report

Customer	Waterbody	Sample Information
Thornapple River Cascade	Thornapple River Cascade	Date: 4/20/2023
		Site: #2

On-Site Results

Depth (m)	Temperature (degrees C)	Dissolved Oxygen	
		mg/L	%
0	10.7	10.3	93
1	10.7	10.3	93
2	10.7	10.3	93
3	10.5	10.3	93



Secchi Disk Depth	0.8 meters
Thermocline Depth	meters

Analytical Results

Parameter	Result	Units	Interpretation
Fecal Bacteria (E. coli)		CFU/100 mL	N/A
Conductivity	535	uS/cm	
Total Dissolved Solids	300	mg/L	Moderate concentration of dissolved salts
pH	8.4	S.U.	Water is slightly alkaline
Alkalinity	241	mg CaCO3/L	Water is very hard
Total Phosphorus	7	ug/L	Slightly phosphorus enriched
Nitrates	1500	ug/L	Nitrogen enriched
Chlorophyll		N/A	

Trophic State Evaluation

	TSI	Trophic Status
Based on Secchi Disk Depth	64	hypereutrophic
Based on Total Phosphorus	28	oligotrophic
Based on Chlorophyll	N/A	

Conclusions

- Conditions are good for fish growth.
- Minimum dissolved oxygen is adequate for good fish production.
- pH is within acceptable limits.
- Sample is nitrogen enriched. Consider nutrient abatement measures.
- Repeat LakeCheck in Fall.

-
- WARNING. condition requires immediate attention.
 - CAUTION. condition requires further evaluation.
 - OK. condition within acceptable limits.
 - NEUTRAL. condition neither good nor bad.

Notes

Report describes conditions at the time the sample was collected.

Approved by

Jaimee Desjardins

Date 10/19/2023

Mrs. Jaimee Desjardins, Technical Services Manager

FROM YOUR



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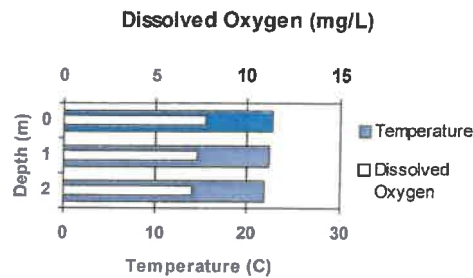


Water Quality Monitoring Report

Customer	Waterbody	Sample Information
Thornapple River Cascade	Thornapple River Cascade	Date: 9/5/2023
		Site: #2

On-Site Results

Depth (m)	Temperature (degrees C)	Dissolved Oxygen	
		mg/L	%
0	22.7	7.8	90
1	22.4	7.3	84
2	21.9	7.0	80



Secchi Disk Depth	1.0 meters
Thermocline Depth	meters

Analytical Results

Parameter	Result	Units	Interpretation
Fecal Bacteria (E. coli)		CFU/100 mL	N/A
Conductivity	535	uS/cm	
Total Dissolved Solids	344	mg/L	Moderate concentration of dissolved salts
pH	8.5	S.U.	Water is slightly alkaline
Alkalinity	257	mg CaCO3/L	Water is extremely hard
Total Phosphorus	13	ug/L	Moderately phosphorus enriched
Nitrates	1540	ug/L	Nitrogen enriched
Chlorophyll	N/A		

Trophic State Evaluation

	TSI	Trophic Status
Based on Secchi Disk Depth	60	eutrophic
Based on Total Phosphorus	37	meso-oligotrophic
Based on Chlorophyll	N/A	

Conclusions

- Conditions are good for fish growth.
- Minimum dissolved oxygen is adequate for good fish production.
- pH is within acceptable limits.
- Sample is somewhat nutrient (N and P) enriched. Adopt appropriate lakeshore landscaping and lawn care practices.
- REPEAT LakeCheck NEXT YEAR!

-
- WARNING. condition requires immediate attention.
 - CAUTION. condition requires further evaluation.
 - OK. condition within acceptable limits.
 - NEUTRAL. condition neither good nor bad.

Notes

Report describes conditions at the time the sample was collected.

Approved by

Jaimee Desjardins

Date 10/19/2023

Mrs. Jaimee Desjardins, Technical Services Manager

FROM YOUR



DEALER



PLM Lake & Land Management Corp
P.O. Box 132
Caledonia MI 49316-
Phone: (616) 891-1294



Bacteria Sampling Report

Waterbody: Thornapple River Cascade
Thornapple River Cascade

Date Sampled:
7/19/2023

Location	E. coli	Total Coliforms	Interpretation
1	28		● Water meets bacteriological standards for safe swimming.
2	88		● Water meets bacteriological standards for safe swimming.
3	56		● Water meets bacteriological standards for safe swimming.

Bacterial counts are expressed as the number of Colony Forming Units per 100 milliliters (CFU/100mL).

For full body contact recreation (including swimming) counts of E. coli should not exceed 130 (CFU/100mL) as a monthly geometric mean of at least five samples per the State of Michigan standard, or single samples should not exceed 298 (CFU/100mL) [235 CFU/100mL in a designated bathing beach area] per Federal (EPA) guidelines.

Current recreational water quality standards do not rely on Total Coliform counts.

Approved by


Mrs. Jaimee Desjardins, Technical Services Manager

Date 10-Aug-23



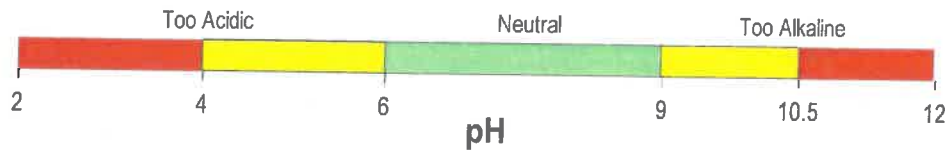
PLM Lake & Land Management Corp
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LAKE CHECK WATER QUALITY MEASUREMENTS

Conductivity and Total Dissolved Solids (TDS) measure the total amount of material dissolved in the water. Higher values indicate potentially richer, more productive water, whereas lower values indicate potentially cleaner, less productive water. Localized increases in conductivity and TDS may indicate inputs of groundwater or other nutrient-enriched water. [Note: Human activities that result in nutrient pollution (e.g., fertilizer runoff) can increase the productivity of algae and other organisms without raising conductivity/total dissolved solids very much. If nutrient pollution is occurring, the total phosphorus concentration is a much better indicator of potential productivity.]



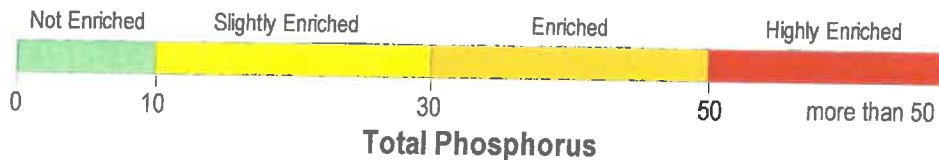
pH describes the balance between acids and bases in the water. Neutral values of pH (between 6 and 9) are desirable. Low pH values typically result either from the growth of bog vegetation (such as peat moss), acid precipitation ("acid rain"), or acid runoff (as in acid mine drainage). Excessive growth of certain plants and algae can raise pH values above 9.0 or 10.0.



Alkalinity measures the concentration of carbonates and bicarbonates in the water. These compounds and other ions associated with them make water "hard". High alkalinity lakes are hardwater lakes, while low alkalinity lakes are softwater lakes. Different kinds of plants, algae, and other aquatic organisms live in hardwater than in softwater. Alkalinity also influences the effectiveness of some herbicides and algicides. Alkalinity is a basic characteristic of water, but is neither inherently good nor bad.



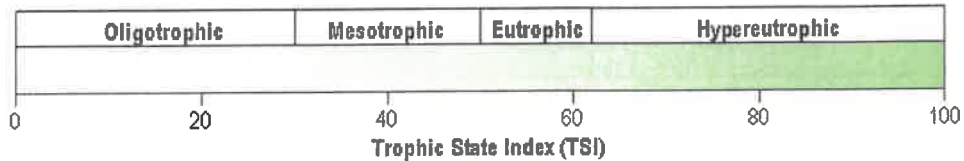
Total Phosphorus measures the total (organic and inorganic, dissolved and particulate) amount of phosphorus in the water. Phosphorus is usually the plant nutrient (i.e., fertilizer) that controls the amount of algal growth in lakes and ponds. Most Midwestern lakes have more phosphorus and more algae than is desirable, so lower values are generally better, though very unproductive water bodies typically support little fish production.



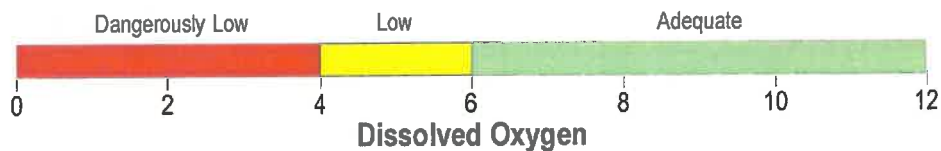
Nitrate measures the total inorganic amount of nitrogen in the water. Nitrogen is the plant nutrient (i.e., fertilizer) most likely to control the amount of rooted plant growth in lakes and ponds. Most Midwestern lakes have more nitrogen and more rooted plant growth than is desirable, so lower values are generally considered better.



Trophic State Indices calculate the trophic status of the waterbody. Waterbodies are classified as oligotrophic, mesotrophic, eutrophic or hypereutrophic depending on the overall amount of plants, algae and other organisms the waterbody supports. Lakes of different trophic states vary in a number of chemical characteristics and support different types of organisms (see the enclosure “Lake Trophic States and Eutrophication”). Thus the trophic state of a waterbody provides a wealth of information concerning the types of organisms living in the waterbody, the processes likely to occur there and the kinds of problems to be expected. Trophic State Index values can be calculated from a number of variables. LakeScan calculates Carlson’s Trophic State Index (TSI) from total phosphorus, Secchi disk depth and chlorophyll (separate TSI values are calculated for each of the variables that was measured as part of your LakeCheck package).

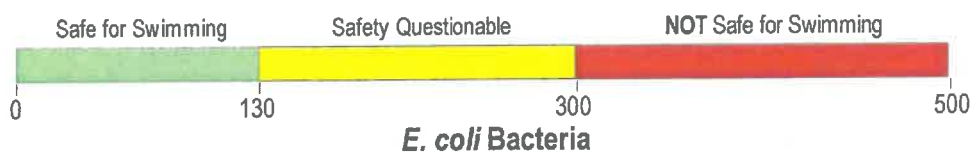


Dissolved Oxygen is a measure of the amount of oxygen dissolved in the water. Oxygen is needed by fish and other aquatic organisms to allow them to “breathe” underwater. Plants and algae produce oxygen by photosynthesizing during the day and use oxygen for respiration at night.



Temperature provides information about the kinds of fish that can grow in a lake, information necessary for interpretation of other parameters, and information about the extent to which a lake is stratified into layers having water of different temperatures. If the lake is stratified, the **thermocline depth** tells how deep the surface layer of warm water is.

Fecal Indicator Bacteria (*E. coli*) measurements count the number of live fecal indicator bacteria in the sample. These bacteria are considered reliable indicators of fecal contamination—when they are found in a pond or lake, it is very likely that the water is being contaminated by animal feces. Contamination can potentially be derived from a number of sources, including failed septic systems, agricultural runoff, or waterfowl or wildlife droppings.



- *E. coli* counts of 300 (CFU/100 mL) and above in a single sample are considered to represent conditions that are UNSAFE for swimming and other body contact recreation.
- *E. coli* counts of 130 (CFU/100 mL) and above averaged (using a geometric mean) over measurements made during a 30-day period are considered to represent conditions that are UNSAFE for swimming and other body contact recreation. When values of 130 (CFU/100 mL) or higher but less than 300 are encountered, LakeCheck rates the safety of the water for swimming as questionable.
- *E. coli* counts below 130 are considered safe for swimming and other body-contact recreation

We recommend prompt retesting whenever Fecal Indicator Bacteria counts exceed 100 (CFU/100 mL) to determine whether contamination is an ongoing problem. If frequent contamination is detected, steps to identify and eliminate the source of contamination are highly recommended.

Calculations as of 12/31/2023

GL NUMBER	DESCRIPTION	2023 ACTIVITY THRU 12/31/23	2023 AMENDED BUDGET
Dept 000			
230-000-452-014	S/A REVENUE- TRD - RIVER	86,406	90,900
230-000-665-000	INTEREST ON INVESTMENTS	6,126	6,700
NET OF REVENUES/APPROPRIATIONS - 000 -		92,532	97,600
Dept 444 - S/A IMPROVEMENT FUNDS			
230-444-802-000	CONTRACTUAL SERVICES	17,131	30,000
230-444-816-000	INSECT&WEED CONTROL/DRAIN MAINT	19,216	63,900
NET OF REVENUES/APPROPRIATIONS - 444 - S/A IMPROVEMEN		(36,347)	(93,900)
ESTIMATED REVENUES - FUND 230		92,532	97,600
APPROPRIATIONS - FUND 230		36,347	93,900
NET OF REVENUES/APPROPRIATIONS - FUND 230		56,185	3,700
BEGINNING FUND BALANCE		120,542	120,542
ENDING FUND BALANCE		176,727	124,242

Date	JNL	Type	Description	Reference #	Debits	Credits	Balance
Fund 230 THORNAPPLE RIVER IMPROVEMENT FUND							
10/01/2023			230-444-802-000 CONTRACTUAL SERVICES		BEG. BALANCE		17,131.18
12/31/2023			230-444-802-000	END BALANCE	0.00	0.00	17,131.18
10/01/2023			230-444-816-000 INSECT&WEED CONTROL/DRAIN MAIN:		BEG. BALANCE		15,016.48
11/02/2023	AP	INV	LARRY'S TREE SERVICE, LLC. ORNAPPLE RIVER IMP		4,200.00		19,216.48
12/31/2023			BARGE WORK TO MOVE LARGE WOOD DEBRIS	END BALANCE	4,200.00	0.00	19,216.48