

**Minutes of the Lake Oakland
Lake Improvement Board Meeting
August 29, 2022**

Mr. Sabina called the meeting to order at 3:03 p.m. at the Oakland County Water Resources Commissioner 1st Floor Meeting Room.

PRESENT: Rick Sabina, Citizen Member/Chairperson
George Nichols, Oakland County WRC, Secretary
Kimberly Markee, Waterford Township Clerk
Michael Perzyk, Resident
Paul Hausler, Progressive AE (virtual)
Terri Nallamothu, Independence Township Trustee (virtual)
Don Pawlik, Resident (virtual)

Open Meeting

All participants stated their name and affiliation for the record.

Mr. Sabina reminded everyone to sign the attendance sheet (see Attachment 'A').

Approval of the Meeting Agenda:

Terri Nallamothu, supported by George Nichols, moved to accept the meeting agenda as presented (see Attachment 'B').

Motion Carried Unanimously

Approval of Meeting Minutes:

Terri Nallamothu, supported by George Nichols, moved to accept the minutes as submitted for the meeting of June 30, 2022.

Motion Carried Unanimously

Paul Hausler will post the meeting minutes on the Lake Oakland website.

Old Business:

A. Project Work Journal

Paul Hausler provided a Project Work Journal (see Attachment 'C') dated August 26, 2022 that outlines the services regarding plant control and associated costs to date for the 2022 calendar year. Since the last meeting it is noted that a survey was done on June 30, 2022 and harvesting was performed on the lake from July 6th – July 14th. There

was a treatment on July 7th and July 11th. Additional surveys were performed on July 13th and August 9th. A treatment was performed on August 16th and additional harvesting is beginning today through September 2nd.

B. Herbicide Treatment Update

Paul Hausler stated that a herbicide treatment occurred on July 7, 2022 and July 11, 2022 (see Attachment 'D' – June 30, 2022 Treatment Map). The targeted species were celery, starry stonework and milfoil.

Another herbicide treatment occurred on August 16, 2022 (see Attachment 'E' – August 9, 2022 Treatment Map). The targeted species was starry stonework and milfoil.

C. Plant Harvesting Update

Paul Hausler stated that a harvesting treatment took place July 7th thru July 11th on Lake Oakland (see Attachment F' – July 13, 2022 Harvest Map). A second harvest is scheduled for August 29 thru September 2 (see Attachment 'G' – August 9, 2022 Harvest Map).

New Business

A. Nuisance Aquatic Plant Control Fund Ratification

Rick Sabina outlined ratification of re-allocation of \$3,000 from the administration and contingency fund to the Nuisance Aquatic Plant Control fund. This money will be used to conduct an additional harvest on the lake.

Kimberly Markee, supported by Terri Nallamotheu, to transfer \$3,000 from the administration and contingency fund to the Nuisance Aquatic Plant Control fund.

Motion Carried Unanimously

Public Comments:

Michael Perzyk commented on the need to testing the water in the cove areas. Paul Hausler stated that money could be added to the new assessment value that will be presented next summer to all the riparians.

Michael Perzyk handed out a newsletter from the Duck Lake Property Owner Association discussing the Laminar Flow Aeration (LFA) system that was installed on the lake (see Attachment 'H'). Rick Sabina will investigate and provide follow up information at our next meeting.

Michael Perzyk asked if the harvesting could be extended into the cove area toward areas 148 and 149. Paul Hausler will submit that request to Savin Lake Service.

Michael Perzyk expressed his appreciation for the special treatment that was performed along his property earlier this year.

Michael Perzyk asked if the area around the marsh (location 148, 149 & 150) could have additional cleaning due to the large value of lily pads. Paul Hausler will coordinate this with Savin Lake Service.

Lake Oakland Invoice Approval:

Rick Sabina outlined invoice #18060 from Aqua-Weed Control (dated July 29, 2022) in the amount of \$150.00 for the July 7th treatment of invasive weeds and algae, as noted in Item '7a'.

George Nichols, supported by Kimberly Markee, to pay invoice #18060 in the amount of \$150.00.

Motion Carried Unanimously

Rick Sabina outlined invoice #18061 from Aqua-Weed Control (dated July 29, 2022) in the amount of \$5,257.50 for the June 11th treatment of invasive weeds and algae, as noted in Item '7b'.

Kimberly Markee, supported by Terri Nallamotheu, to pay invoice #18061 in the amount of \$5,257.50.

Motion Carried Unanimously

Rick Sabina outlined invoice #8373 from Savin Lake Service (dated August 8, 2022) in the amount of \$27,525.00 for harvesting work performed from July 6th – July 14th, as noted in Item '7c'.

Kimberly Markee, supported by George Nichols, to pay invoice #8373 in the amount of \$27,525.00.

Motion Carried Unanimously

Lake Oakland Invoice Ratification:

Rick Sabina outlined invoice #188023 from Progressive AE (dated July 1, 2022) in the amount of \$5,000 for Lake Management Administration and Oversight Quarterly Services thru June 24, 2022, as noted in Item '8a'.

Kimberly Markee, supported by Terri Nallamotheu, acknowledged the correspondence and to ratify the approval and payment of the invoice.

Motion Carried Unanimously

Board Member Comments

No members brought anything forward for discussion.

Meeting Schedule:

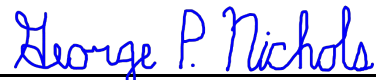
The next Lake Board meeting will be held on Monday October 17, 2022, at 3:00 p.m. The meeting will take place at Oakland County Water Resources Commissioner office 1st Floor Lunchroom. The address is One Public Works Drive, Building 95W, Waterford, Michigan. This will be posted on the website.

Upon conclusion of the meeting, the next meeting date was rescheduled for Monday, October 24, 2022 at 3:00 pm.

Adjournment:

Kimberly Markee, supported by Terri Nallamotheu, moved to adjourn the meeting at 3:48 p.m.

Motion Carried Unanimously




George P. Nichols
Lake Improvement Board Secretary
For Lake Oakland

STATE OF MICHIGAN)
) ss:
COUNTY OF OAKLAND)

I hereby certify that the foregoing is a true and complete copy of the minutes of the Lake Improvement Board for Lake Oakland, Oakland County, Michigan held on the 29th day of August 2022 and that the said minutes are on file in the Office of the Oakland County Water Resources Commissioner and are available to the public.

I further certify that notice of the meeting was posted at least 18 hours before the meeting at the Office of the Oakland County Water Resources Commissioner, which is the principal office of the Lake Improvement Board for Lake Oakland.



George P. Nichols
Lake Improvement Board Secretary
For Lake Oakland

Dated: October 10, 2022

Attachment 'A'

**OAKLAND COUNTY WATER RESOURCES COMMISSIONER
ATTENDANCE SHEET**

DATE: August 29, 2022 @ 3:00 p.m. **FACILITATOR:** _____

TYPE Lake Improvement Board Meeting (WRC 1st Floor Meeting Room)

TOPIC: Lake Oakland Lake Improvement Board Meeting

PRINTED NAME	E-MAIL	ADDRESS	CONTACT NUMBER
George Nichols	nicholsge@okgov.com	WRC	248-841-3006
Rick Sabina	sabina@oakland.edu	3112 Pine Tree Waterford	248-877-0150
Michael Perzyk	Baker785@hotmail.com	3790 Rutherford Ct Waterford	248-892-3518
Kim Markee	Kmarkee@waterfordmi.gov	5200 Civic Ctr. Waterford, 48329	248- 674-6211
Paul Hausler (virtual)	Progressive AE		
Terri Nallamothe (virtual)	Independence Twp		
Don Pawlik (virtual)	Resident		

Attachment 'B'

AGENDA

LAKE OAKLAND LAKE IMPROVEMENT BOARD

Monday, August 29, 2022 – 3:00 p.m.

Oakland County Water Resources Commissioner Building Lunch Room

1. Open Meeting
 - a. Introductions and Attendance

2. Approval of the Meeting Agenda for August 29, 2022

3. Approval of Meeting Minutes from June 30, 2022

4. Old Business
 - a. Project Work Journal
 - b. Herbicide Treatment Update
 - c. Plant Harvesting Update

5. New Business
 - a. Ratification of re-allocation of \$3,000 from the administration and contingency fund to the Nuisance Aquatic Plant Control fund.

6. Public Comments

7. Lake Oakland Invoice Approval
 - a. Approve payment of invoice #18060 (dated July 29, 2022) from Aqua Weed Control Inc. in the amount of \$150.00 for the July 7th nuisance aquatic plant control work treatment.
 - b. Approve payment of invoice #18061 (dated July 29, 2022) from Aqua Weed Control, Inc. in the amount of \$5,257.50 for the July 11th nuisance aquatic plant control work treatment.

- c. Approve payment of invoice #8373 (dated August 8, 2022) from Savin Lake Services in the amount of \$27,525.00 for harvesting work performed on Lake Oakland from July 6, 2022 to July 14, 2022.

- 8. Lake Oakland Invoice Ratification
 - a. Ratification of Progressive AE Invoice #188023 (dated 07/01/22) for Lake Management Administration and Oversight Quarterly Services thru June 24, 2022. Rick Sabina, supported by George Nichols, to pay invoice in the amount of \$5,000.

- 9. Board Member Comments

- 10. All Else
 - a. Schedule next meeting date

- 11. Adjournment

Attachment 'C'

2022

Beginning Balance: \$70,000.00

Date	Type	Results
1/3/2022	Permit	Reimbursement for 2022 EGLE permit fee

Application Date	Type	Target Species	Qty	Dose Rate	Cost	Remaining Balance
1/10/2022	Permit Fee		1.00 each		\$1,500.00	\$68,500.00
Invoice 17078 Total					\$1,500.00	\$68,500.00

5/4/2022	Survey	Found some milfoil. Very little curly-leaf pondweed. Water temp. = 55F.
----------	--------	---

Treatment Date	Type	Target Species	Qty	Dose Rate	Cost	Remaining Balance
5/12/2022	Algae control (filamentous and planktonic)	Filamentous or Planktonic Algae	4.00 acre(s)		\$160.00	\$68,340.00
5/12/2022	Triclopyr liquid	Eurasian Milfoil	7.50 acre(s)	4.00 gallons/acre	\$2,499.98	\$65,840.02
5/12/2022	ProcellaCOR	Eurasian Milfoil	11.75 PDU		\$1,351.25	\$64,488.77
5/12/2022	Diquat dibromide @ 1 gal/acre + 4 PDU ProcellaCOR	Eurasian Milfoil	11.75 acre(s)		\$6,110.00	\$58,378.77
Invoice 17702 Total					\$10,121.23	\$58,378.77

6/1/2022	Survey	JML, CMD - Some milfoil found along shore, water clarity was good. Pondweeds starting to come in.
----------	--------	---

2022

Beginning Balance: \$70,000.00

Treatment Date	Type	Target Species	Qty	Dose Rate	Cost	Remaining Balance	
6/8/2022	2,4-D ester	Eurasian Milfoil	1.25 acre(s)	150.00 lbs/acre	\$600.00	\$57,778.77	
6/8/2022	Algae control (filamentous and planktonic)	Filamentous or Planktonic Algae	12.00 acre(s)		\$480.00	\$57,298.77	
6/8/2022	Flumioxazin	Curly-leaf Pondweed Eurasian Milfoil	0.50 acre(s)	200.00 ppb	\$245.00	\$57,053.77	
6/8/2022	ProcellaCOR	Eurasian Milfoil	22.50 PDU		\$2,587.50	\$54,466.27	
6/8/2022	Diquat dibromide @ 2 gal/acre	Curly-leaf Pondweed Eurasian Milfoil	4.50 acre(s)		\$810.00	\$53,656.27	
6/8/2022	Diquat dibromide @ 1 gal/acre + 4 PDU ProcellaCOR	Curly-leaf Pondweed Eurasian Milfoil	1.50 acre(s)		\$780.00	\$52,876.27	
6/8/2022	Diquat dibromide @ 1 gal/acre + 4 PDU ProcellaCOR	Curly-leaf Pondweed Eurasian Milfoil	11.25 acre(s)		\$5,850.00	\$47,026.27	
					Invoice 17836 Total	\$11,352.50	\$47,026.27
6/13/2022	Other	Response to algae complaints.					
Treatment Date	Type	Target Species	Qty	Dose Rate	Cost	Remaining Balance	
6/16/2022	Algae control (filamentous and planktonic)	Filamentous or Planktonic Algae	16.00 acre(s)		\$640.00	\$46,386.27	
					Invoice 17837 Total	\$640.00	\$46,386.27
6/30/2022	Survey	JML, CMD, Rick S. - Lake clarity was good. Macro-algae and pondweeds ready for harvesting.					

2022

Beginning Balance: \$70,000.00

Treatment Date	Type	Target Species	Qty	Dose Rate	Cost	Remaining Balance	
7/6/2022 - 7/14/2022	Harvesting	Nuisance Native Plants	13.25 acre(s)		\$5,962.50	\$40,423.77	
7/6/2022 - 7/14/2022	Harvesting of starry stonewort	Chara Starry Stonewort	37.50 acre(s)		\$21,562.50	\$18,861.27	
					Invoice 8373 Total	\$27,525.00	\$18,861.27
7/7/2022	Algae control (filamentous and planktonic)	Filamentous or Planktonic Algae	3.75 acre(s)		\$150.00	\$18,711.27	
					Invoice 18060 Total	\$150.00	\$18,711.27
7/11/2022	2,4-D ester	Eurasian Milfoil	1.00 acre(s)	150.00 lbs/acre	\$480.00	\$18,231.27	
7/11/2022	Macro-algae control: copper and monoamine salt of endothall	Starry Stonewort	18.25 acre(s)		\$1,277.50	\$16,953.77	
7/11/2022	Macro-algae control: copper products only	Chara	1.50 acre(s)		\$67.50	\$16,886.27	
7/11/2022	ProcellaCOR	Eurasian Milfoil	27.50 PDU		\$3,162.50	\$13,723.77	
7/11/2022	Diquat dibromide @ 2 gal/acre	Eurasian Milfoil	1.50 acre(s)		\$270.00	\$13,453.77	
					Invoice 18061 Total	\$5,257.50	\$13,453.77
7/13/2022	Survey	JML, CMD - Harvest inspection, some areas still need to be harvested. Additional harvested areas added.					
8/9/2022	Survey	JML, CMD - AVAS survey. Some milfoil found. Celery and pondweed growth starting to take off.					

2022

Beginning Balance: \$70,000.00

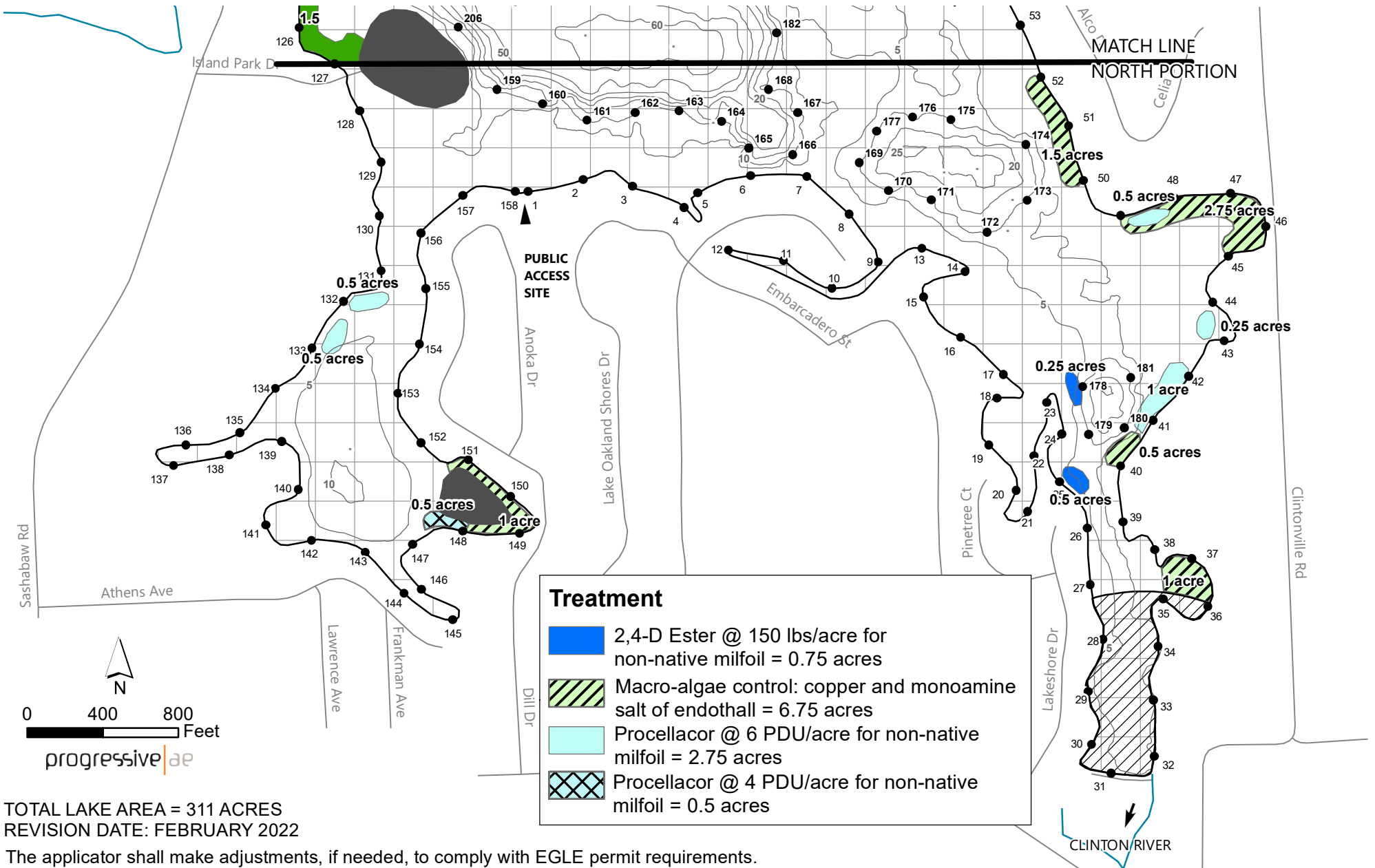
Treatment Date	Type	Target Species	Qty	Dose Rate	Cost	Remaining Balance
8/16/2022	Flumioxazin	Eurasian Milfoil	2.50 acre(s)	200.00 ppb	\$1,225.00	\$12,228.77
8/16/2022	Macro-algae control: copper and monoamine salt of endothall	Starry Stonewort	8.75 acre(s)		\$612.50	\$11,616.27
8/16/2022	Triclopyr liquid	Eurasian Milfoil	2.50 acre(s)	3.00 gallons/acre	\$625.00	\$10,991.27
8/16/2022	Diquat dibromide @ 2 gal/acre	Eurasian Milfoil	6.00 acre(s)		\$1,080.00	\$9,911.27
Work Order Total					\$3,542.50	\$9,911.27
8/29/2022 - 9/2/2022	Harvesting	Nuisance Native Plants	20.75 acre(s)		\$9,337.50	\$573.77
8/29/2022 - 9/2/2022	Harvesting of starry stonewort	Chara Starry Stonewort	5.00 acre(s)		\$2,875.00	(\$2,301.23)
Work Order Total					\$12,212.50	(\$2,301.23)

9/1/2022 Survey

Attachment 'D'

LAKE OAKLAND (SOUTH PORTION) OAKLAND COUNTY, MICHIGAN JUNE 30, 2022 TREATMENT MAP

□ = 1 ACRE



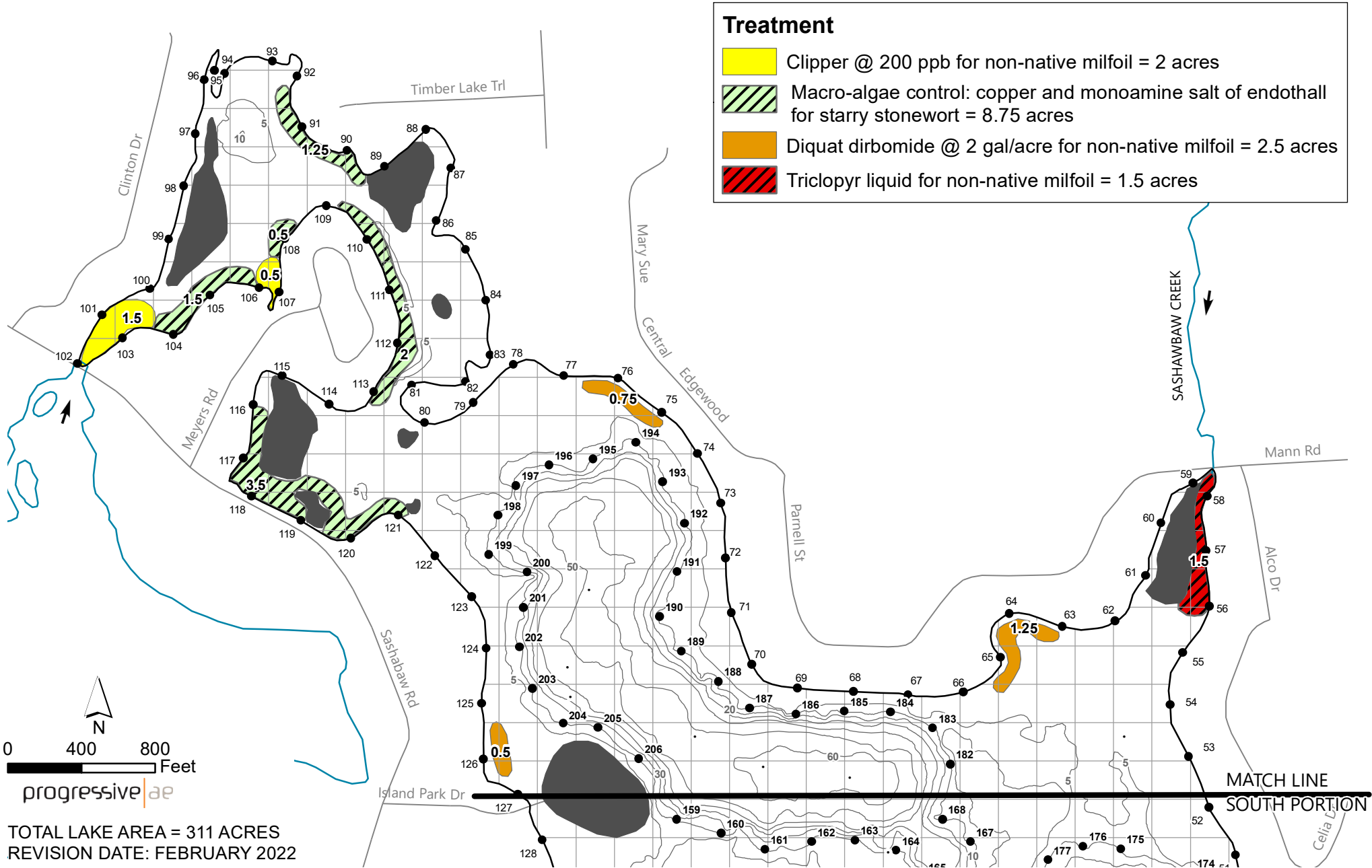
TOTAL LAKE AREA = 311 ACRES
REVISION DATE: FEBRUARY 2022

The applicator shall make adjustments, if needed, to comply with EGLE permit requirements.

Attachment 'E'

☐ = 1 ACRE

LAKE OAKLAND (NORTH PORTION) OAKLAND COUNTY, MICHIGAN AUGUST 9, 2022 TREATMENT MAP

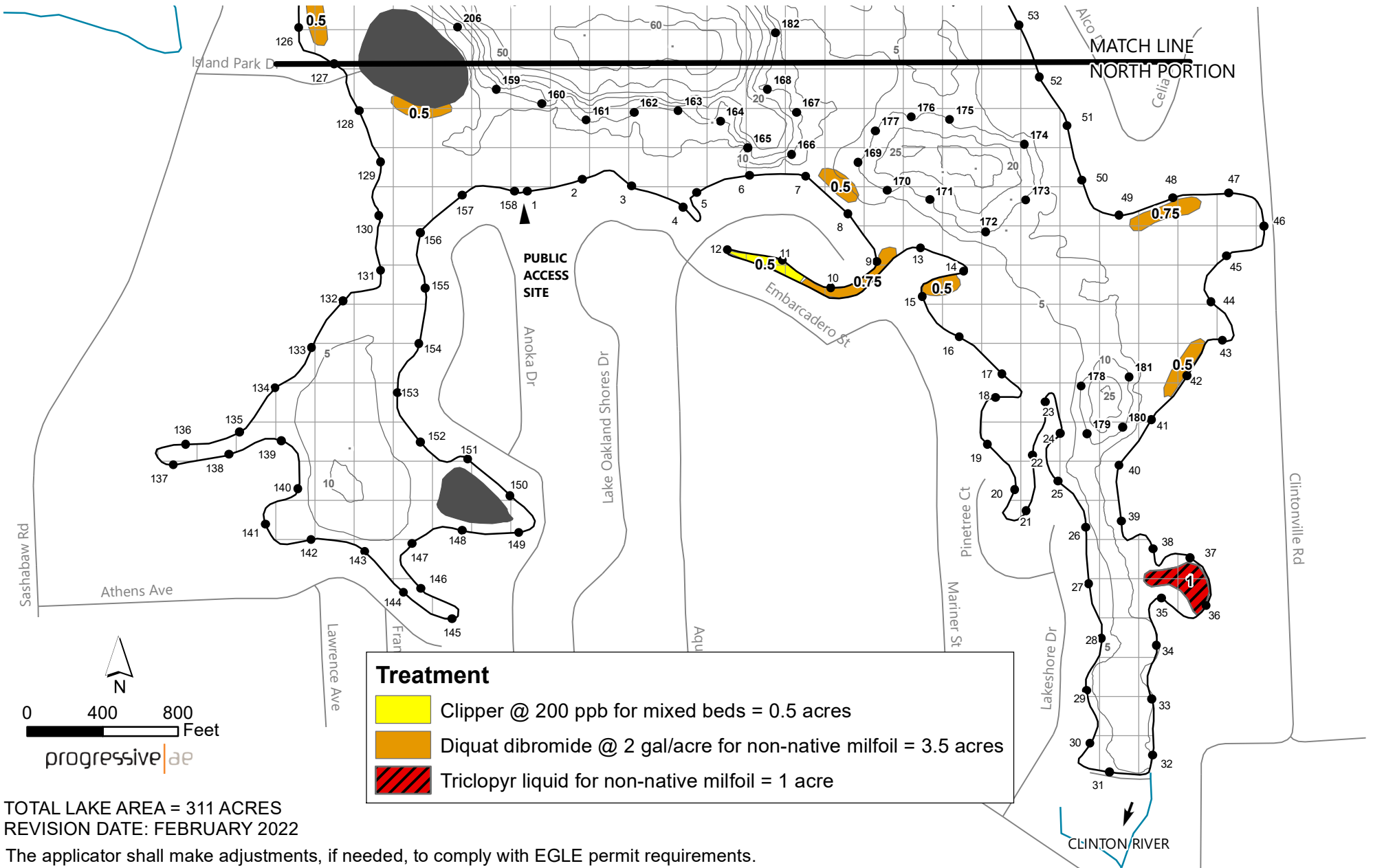


TOTAL LAKE AREA = 311 ACRES
REVISION DATE: FEBRUARY 2022

The applicator shall make adjustments, if needed, to comply with EGLE permit requirements.

LAKE OAKLAND (SOUTH PORTION) OAKLAND COUNTY, MICHIGAN AUGUST 9, 2022 TREATMENT MAP

□ = 1 ACRE



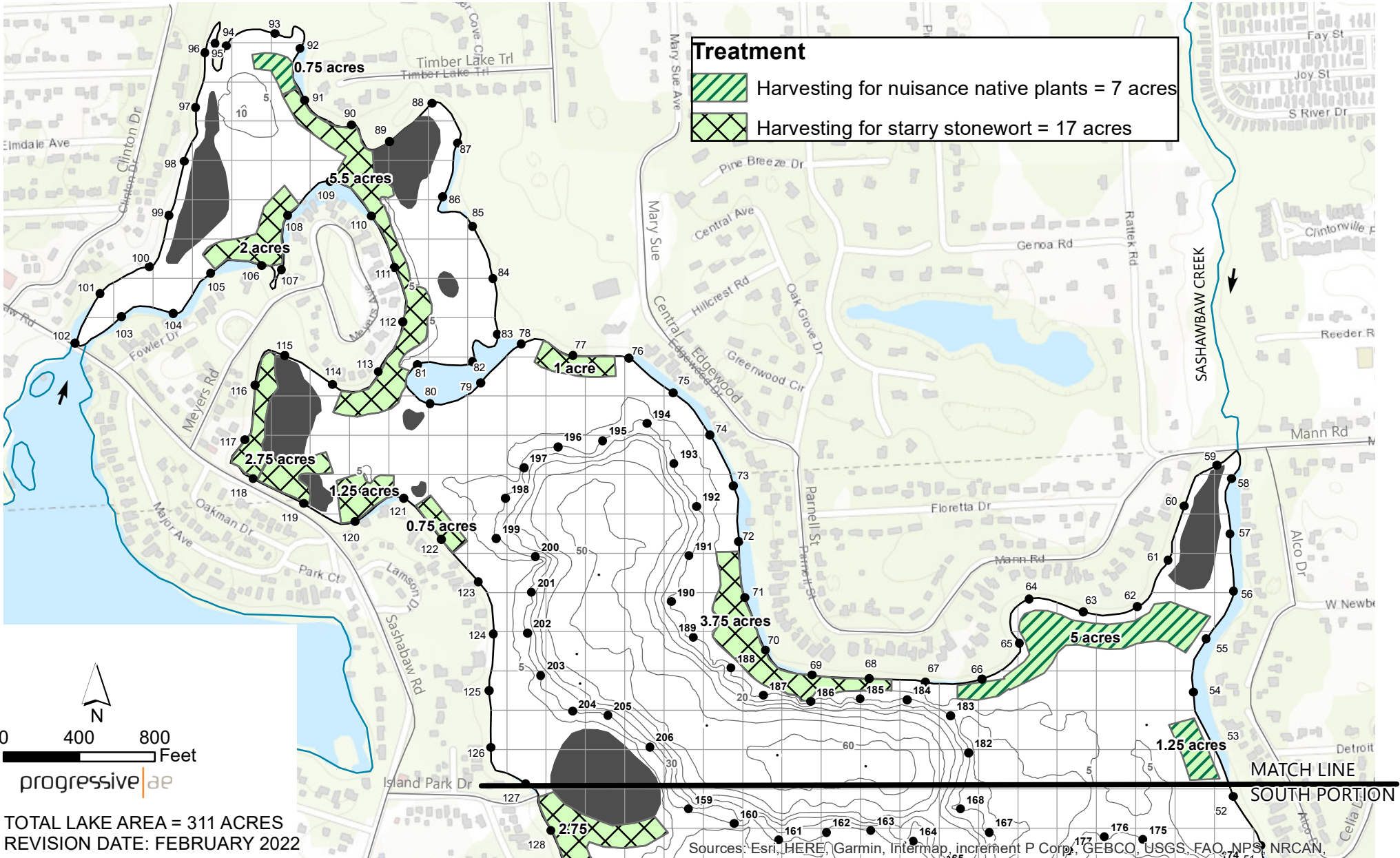
TOTAL LAKE AREA = 311 ACRES
REVISION DATE: FEBRUARY 2022

The applicator shall make adjustments, if needed, to comply with EGLE permit requirements.

Attachment 'F'

□ = 1 ACRE

LAKE OAKLAND (NORTH PORTION) OAKLAND COUNTY, MICHIGAN JULY 13, 2022 UPDATED HARVEST MAP

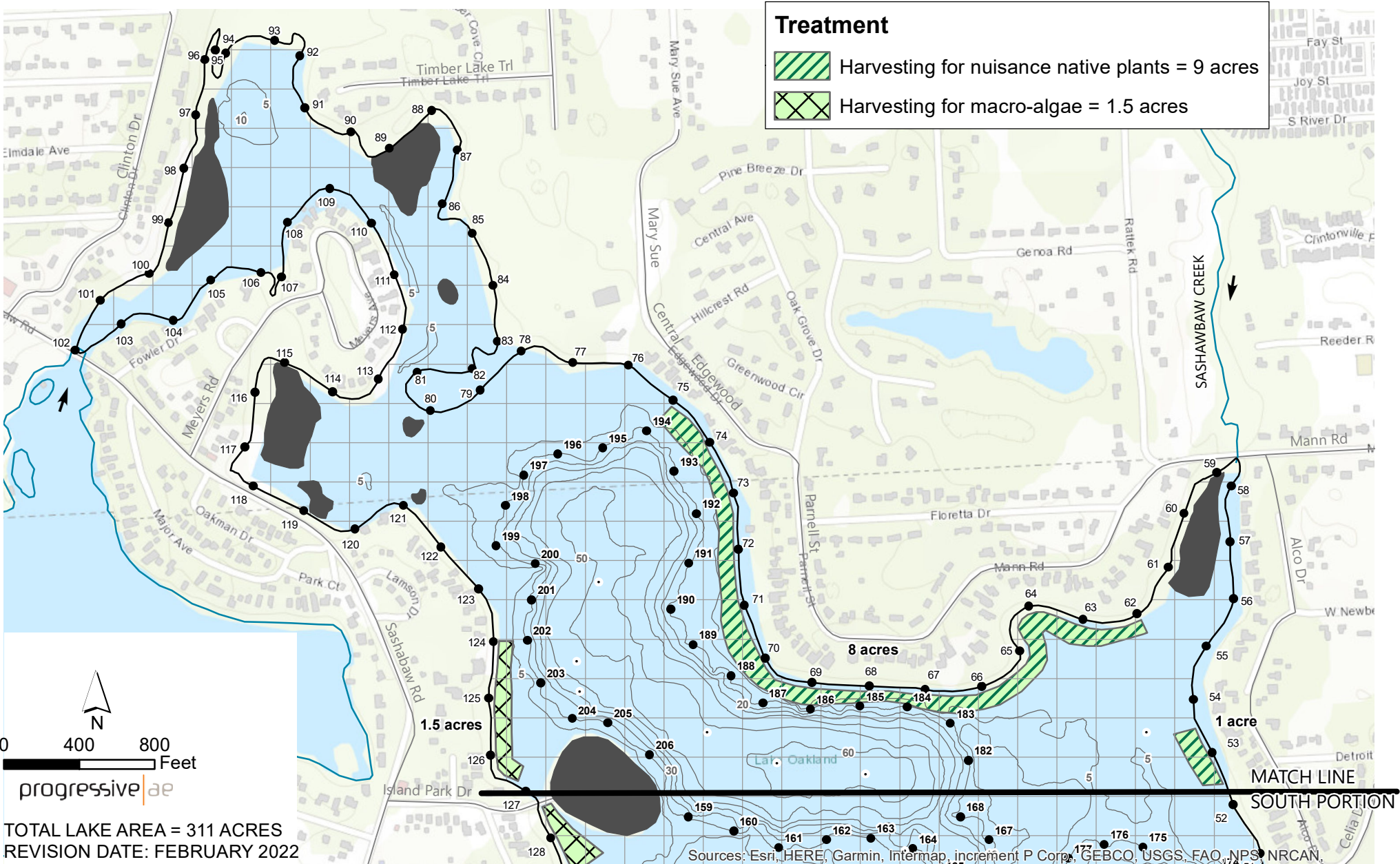


The applicator shall make adjustments, if needed, to comply with EGLE permit requirements.

Attachment 'G'

□ = 1 ACRE

LAKE OAKLAND (NORTH PORTION) OAKLAND COUNTY, MICHIGAN AUGUST 9, 2022 HARVEST MAP



The applicator shall make adjustments, if needed, to comply with EGLE permit requirements.

Attachment 'H'

Duck Lake

Property Owners Association

Newsletter
Spring 2021

Spring Meeting

June 16, 2021 | 7:30pm

Axford Acres Beach

Fall Meeting

Annual Trustee Elections

October 20, 2021 | 7:30 pm

Highland Senior Center

Contact Us

P.O. Box 368

Highland, MI 48357

248.382.8870

contact@ducklakepoa.org

DuckLakePOA.org

Duck Lake Improvement Summary

A lake-wide laminar flow aeration (LFA) system was installed throughout Duck Lake in 2019 and is annually evaluated for efficacy and impacts to the lake. The LFA system is under permit by the State of Michigan Department of Environment, Great Lakes, and Energy (EGLE). Each year, an annual report is prepared and presented to the Duck Lake Improvement Board and the Duck Lake Property Owners Association.

There have not been significant changes to most of the physical water quality parameters measured in Duck Lake. Such parameters consist of water temperature, dissolved oxygen, pH, conductivity, and Secchi transparency. The dissolved oxygen was higher in the first year of aeration and lower in the second but corresponds to water temperature. As the water temperature was warmer in 2020, the dissolved oxygen was slightly lower. This is a normal occurrence in inland lakes.

Variables such as conductivity will fluctuate greatly in and among years due to storm events.

There have been some measured fluxes in chemical water quality parameters such as phosphorus, nitrogen, and total suspended solids. Nutrient inputs are associated with stormwater inputs and runoff and thus were higher in 2020 than in 2019, due to more intense rainfall events, especially later in the season. The total suspended solids have declined with time, which is favorable and may be evidence that the LFA system is processing incoming solids.

Biological parameters such as chlorophyll-a zooplankton, aquatic vegetation biovolume, and sediment organic matter have exhibited changes with time. Blue-green algae have declined with LFA each year which is favorable. The zooplankton (fish food) have increased in abundance as well. Aquatic vegetation biovolume (which is a measure of plant height) has also decreased, which indicates that

Lower growing vegetation is becoming more abundant. Lastly, the sediment muck has declined with a 15% increase in firmer bottom in 2019 and a 6% increase in the second firmest category in 2020. The overall goal is to observe a reduced soft bottom cover and an increase in firmer bottom.

Duck Lake will be evaluated again in 2021 to determine continued efficacy of the LFA system and to work with the herbicide applicator on ecologically responsible management of the nuisance aquatic vegetation in the lake.

Dr. Jennifer L.
Jermalowicz-Jones

Restorative Lake Sciences