

**North 34th Street
Investigation Summary**

Investigation Summary (near and within Ross Township)

As part of an effort to protect human health and efforts to extend municipal water, the Ross Township Supervisor that the State of Michigan Department of Environment, Great Lakes, and Energy (EGLE) provide a brief summary of the North 34th Street (Former Production Plated Plastics) PFAS investigation in and near Ross Township as well as information related to any additional investigation planned in the area.

Area Background Information:

The area planned for municipal water extension is located within the current expanded study area and historic buffer zone which are related to the Part 201 Facility: Production Plated Plastics (PPP)/N. 34th Street. The current study area incorporates the entire area with known groundwater contamination. The following is a discussion of the data available as a result of ongoing groundwater monitoring using properly installed groundwater monitoring wells, using low-flow sampling methods, within the study area and in close proximity to the Property. The data provided was collected beginning in 2018 through August 2022. Please note that the most recent sampling event occurred in February and March 2023, however that data is not yet compiled and thus not incorporated into the area background information provided.

PPP was a plastics plating company that operated from approximately 1966 until they went bankrupt in 1991. In 1977 heavy metals were discovered in nearby residential wells and PPP paid for those residential drinking water wells to be replaced. In 1985 chlorinated volatile organic compounds (VOCs) were found in groundwater on the site. Shortly after that discovery, PPP began an environmental investigation to characterize and attempt to clean up groundwater. Heavy metals and VOCs were the primary contaminants of concern, specifically chromium-6 (Cr+6) and nickel (Ni). In 1988, it was found that Cr+6 and Ni contamination was offsite and a risk to those using the groundwater for drinking water, thus municipal water was extended to the area of impact at the time. As mentioning above, PPP went bankrupt in 1991 and the State of Michigan took over the response activities and remedial actions at the Facility. There is and has been a groundwater extraction system in operation at the Facility for many years as an attempt to mitigate the offsite migration of the heavy metals to an area where there were residential drinking water wells. The system has not been effective in eliminating that offsite migration of contaminated groundwater. Metals are still migrating offsite at concentrations exceeding one or more Part 201 Generic Cleanup Criteria, concentrations discussed below. In 2018, Per- and polyfluoroalkyl substances (PFAS) was identified in the groundwater extraction system effluent that was being discharged to the Gull Lake Sewer and Water Authority. EGLE added PFAS treatment to the groundwater extraction system and simultaneously began an extensive PFAS investigation, results discussed below.

According to and based on the current and historical groundwater monitoring, the general direction of groundwater flow in the area and south of the PPP Facility is to the south, southeast towards Ross Township.

The groundwater monitoring wells in close proximity to or within Ross Township that are included in the discussion below are MW-18-12, MW-18-13, MW-18-15, MW-18-16, MW-20-12, MW-20-17, MW-21-01, and MW-22-01. Figures with locations and color-coded detection summaries for PFAS as well as tables summarizing analytical results are attached to this Investigation Summary.

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Metals and VOCs:

The investigation results indicate that metals, specifically chromium and nickel, have been defined west of the Ross Township border. A figure has been provided for reference.

The primary VOCs related to Facility are 1,1-dichloroethane, 1,1-dichloroethylene, tetrachloroethylene, and trichloroethylene. Upon reviewing the analytical results from the most recent four quarters of sampling none of the eight groundwater monitoring wells identified above were sampled. The VOCs compounds are found in near proximity to the North 34th Street property relative to the investigation study area.

PFAS:

EGLE has Part 201 Generic Drinking Water Cleanup Criteria for:

PFAS	CAS Registry Number	State Drinking Water Standard and Part 201 Criteria	
		ng/L or ppt	ug/L
Perfluorooctanoic acid (PFOA)	335-67-1	8	0.008
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	16	0.016
Perfluorononanoic acid (PFNA)	375-95-1	6	0.006
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	51	0.051
Perfluorohexanoic acid (PFHxA)	307-24-4	400,000	400
Perfluorobutane sulfonic acid (PFBS)	375-73-5	420	0.420
Hexafluoropropylene oxide dimer acid (HFPO-DA)	13252-13-6	370	0.370

Upon reviewing the analytical data from three quarters of groundwater monitoring at the wells identified above, PFOS and PFOA exceed the Part 201 Generic Drinking Water Cleanup Criteria. Of the eight wells identified above, three have exceedances of the current criteria in the shallow, intermediate, and/or deep screened intervals.

MW-18-12A (shallow – screened 20-25 feet below ground surface (bgs)) has PFOS between 118 ppt and 179 ppt and PFOA between 2.27 ppt and 4 ppt; MW-18-12B (intermediate – screened 64-69 feet bgs) has PFOS 78 ppt and 97 ppt and PFOA between non-detect and 1.12 ppt; and MW-18-12C (deep – screened 102-107 feet bgs) has PFOS between non-detect and 72 ppt and PFOA between 4 and 4.6 ppt.

MW-18-16A (shallow – screened 30-35 feet bgs) has PFOS between 27 ppt and 58 ppt and PFOA between 1.6 ppt and 9.1 ppt; MW-18-16B (intermediate – screened 50-55 feet bgs) has PFOA between 2.6 ppt and 13.1 ppt.

MW-22-01A (shallow – screened 38-43 feet bgs) has PFOA between 4.69 ppt and 8.68 ppt.

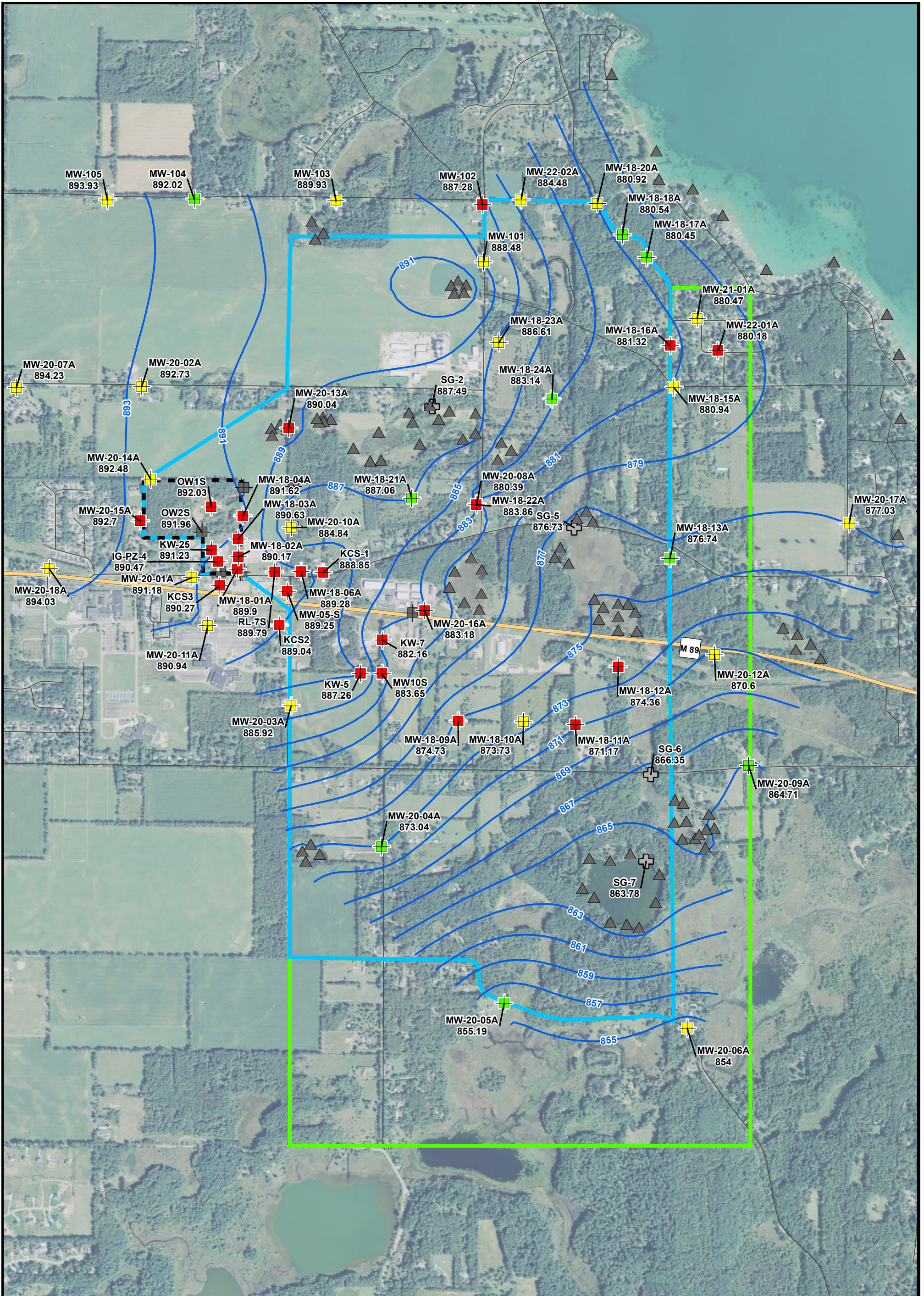
Also, while not included in this dataset, the former drinking water well at Kooper’s Marine across the street from the property had concentrations of PFAS (total 178 ppt) exceeding the drinking water criteria PFOA at 13 ppt and PFOS at 130 ppt. According to the well log, the total depth of the well is 105 feet below ground surface. As a result, the property was connected to municipal water.

North 34th Street Investigation Summary

EGLE anticipates that sometime within the next 2 to 3 years the Part 201 Generic Drinking Water Cleanup Criteria will change as a result of a change in the Maximum Contaminant Level (MCL) as EPA currently in the process of establishing a national standard for PFAS in drinking water. While the final criteria/standard is not currently known, based on what is know it is likely that the criteria may be between 2 ppt and 4 ppt. Working under that assumption, in addition to the well results discussed above, the following groundwater monitoring wells may exceed the criteria: MW-18-13C, MW-18-15A, MW-20-12B, MW-20-17A, MW-12-01A and C, and MW-22-01B.

The investigation in the area is nearing completion and the offsite work is moving into long-term groundwater monitoring on a semi-annual and then annual schedule to track plume stability over time. There are no current plans to install additional groundwater monitoring wells, conduct additional investigation, nor remediate PFAS in the area.

Based on the investigation results discussed above, the currently known human health risks, the anticipated change in criteria, and the amount of time it will take to extend municipal water to this area EGLE recommends Ross Township begin taking steps to eliminate potential exposure to PFAS as soon as possible. EGLE has also indicated that point of use filters and home filters are not a long-term solution and connection to a municipal water source is recommended.



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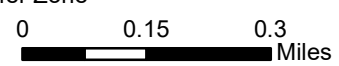


Legend

Monitoring Well

- Non-Detect for Part 201 PFAS Compounds
- Detection below Part 201 PFAS Criteria, but no Exceedance
- One or more Part 201 PFAS Criteria Exceeded
- Monitoring Well Not Included in Contour

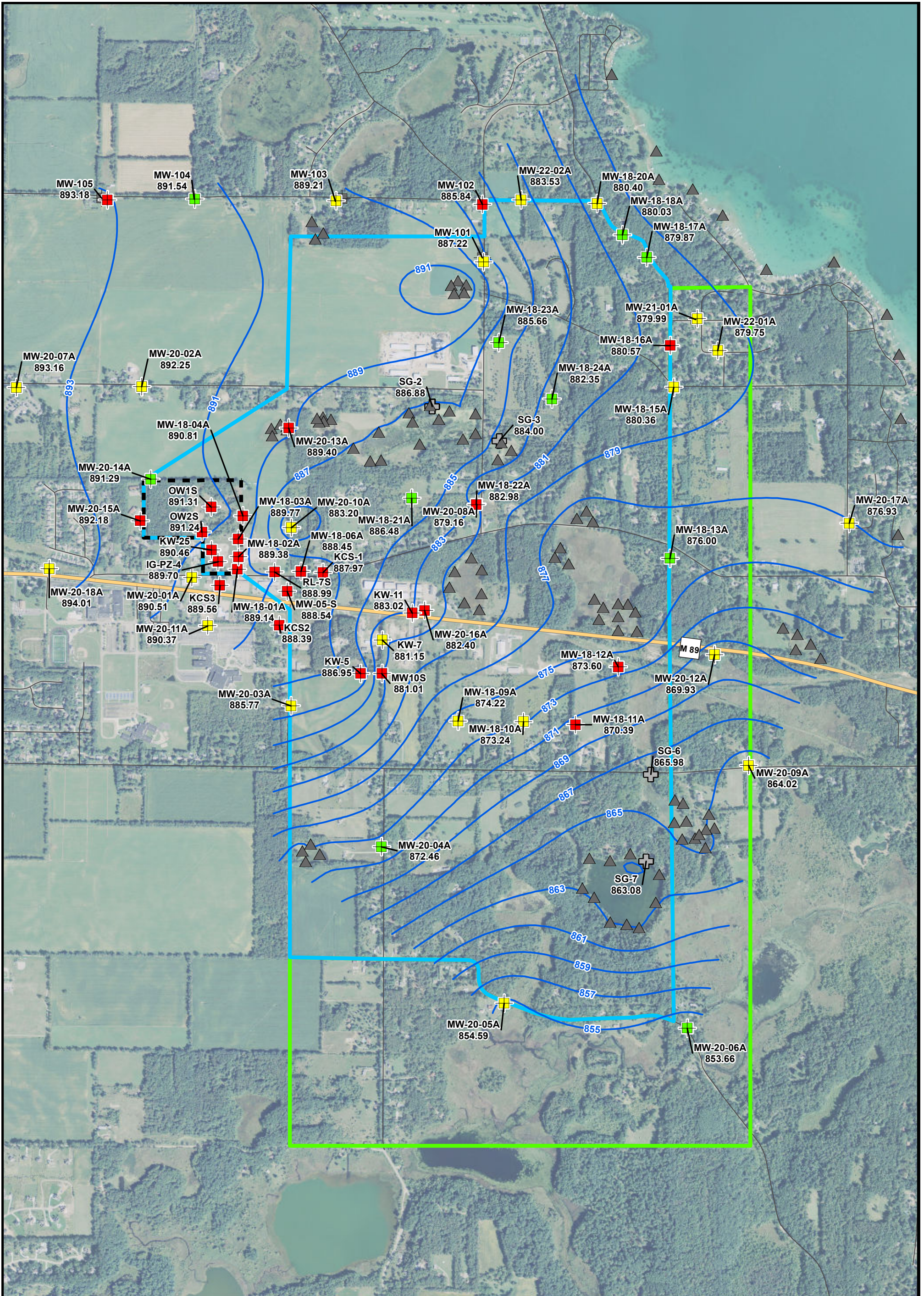
- + Staff Gauge
- ▲ Lake (Elevation Estimated)
- May 2022 Groundwater Contour (2' interval)
- Production Plated Plastics
- Study Area
- Buffer Zone



**SHALLOW GROUNDWATER
CONTOURS
MAY 2022 ELEVATIONS
USING ESTIMATED
LAKE ELEVATIONS**

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Approved: MW Date: 10/14/2022

Project #: 60582450



Legend

Monitoring Well

- Non-Detect for Part 201 PFAS Compounds
- Detection below Part 201 PFAS Criteria, but no Exceedance
- One or more Part 201 PFAS Criteria Exceeded
- Monitoring Well Not Included in Contour

+ Staff Gauge

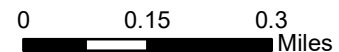
▲ Lake (Elevation Estimated)

— August 2022 Groundwater Contour (2' interval)

 Production Plated Plastics

 Study Area

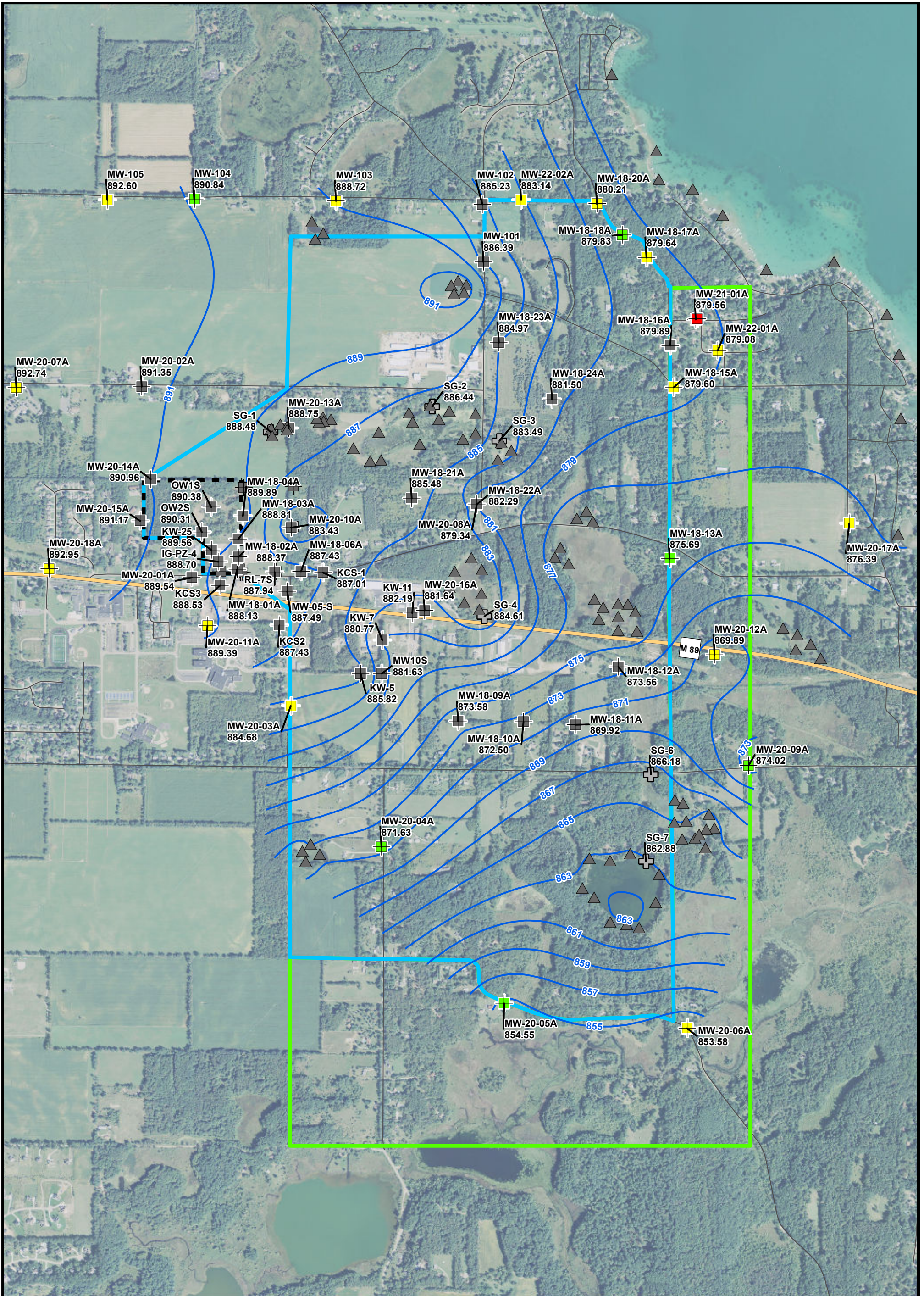
 Buffer Zone



**SHALLOW GROUNDWATER CONTOURS
AUGUST 2022 ELEVATIONS
USING ESTIMATED LAKE ELEVATIONS**

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Approved: MW Date: 1/31/2023

Project #: 60582450



Legend

Monitoring Well

- Non-Detect for Part 201 PFAS Compounds
- Detection below Part 201 PFAS Criteria, but no Exceedance
- One or more Part 201 PFAS Criteria Exceeded
- Not Sampled for PFAS

- + Staff Gauge
- ▲ Lake (Elevation Estimated)
- November 2022 Groundwater Contour (2' interval)
- Production Plated Plastics
- Study Area
- Buffer Zone

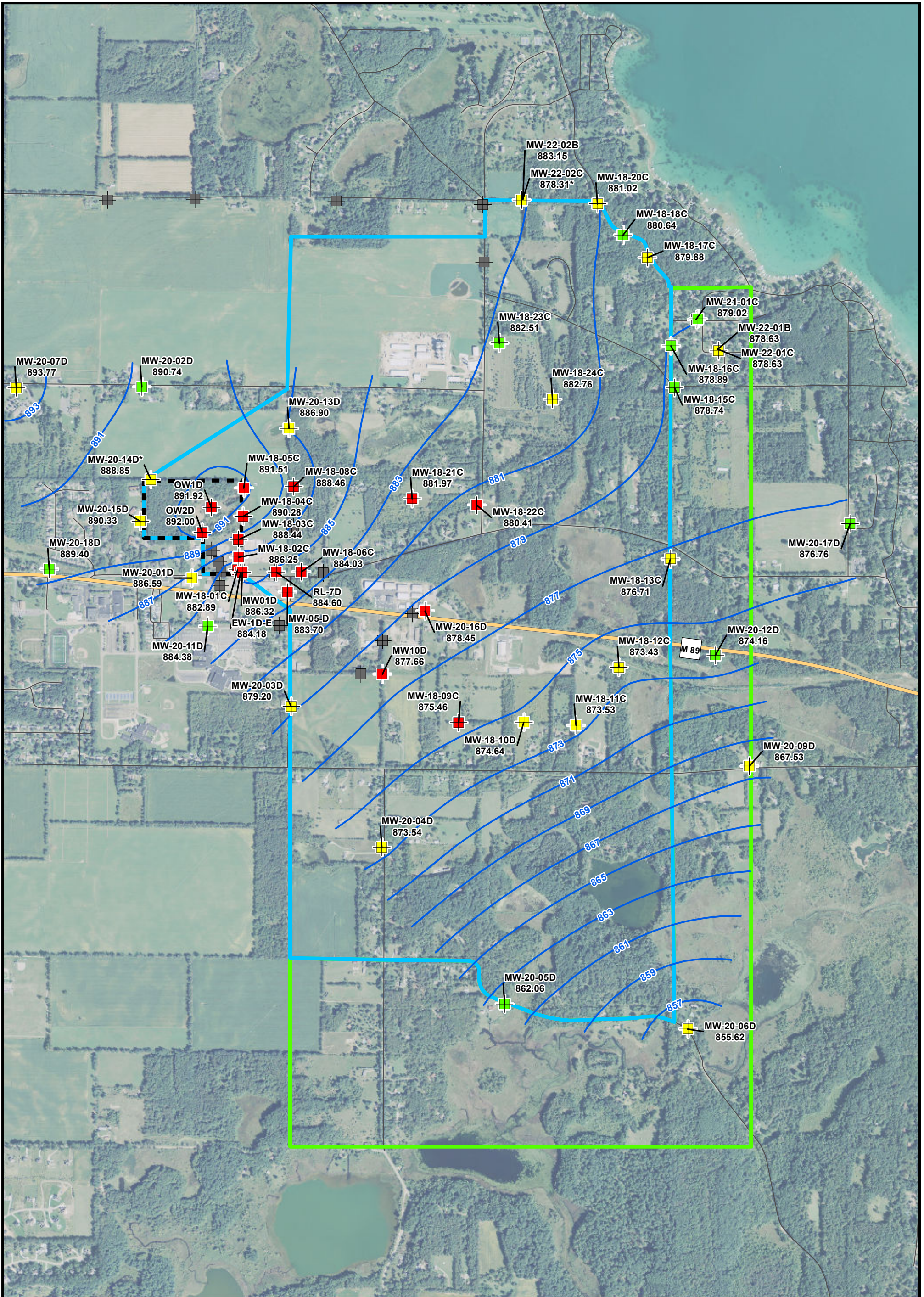


0 0.15 0.3 Miles

**SHALLOW GROUNDWATER
CONTOURS
NOVEMBER 2022
ELEVATIONS
USING ESTIMATED
LAKE ELEVATIONS**

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Legend

Monitoring Well

- Non-Detect for Part 201 PFAS Compounds
- Detection below Part 201 PFAS Criteria, but no Exceedance
- One or more Part 201 PFAS Criteria Exceeded
- Monitoring Well Not Included in Contour

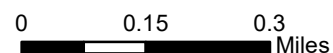
— May 2022 Groundwater Contour (2' interval)

▭ Production Plated Plastics

▭ Study

▭ Buffer Zone

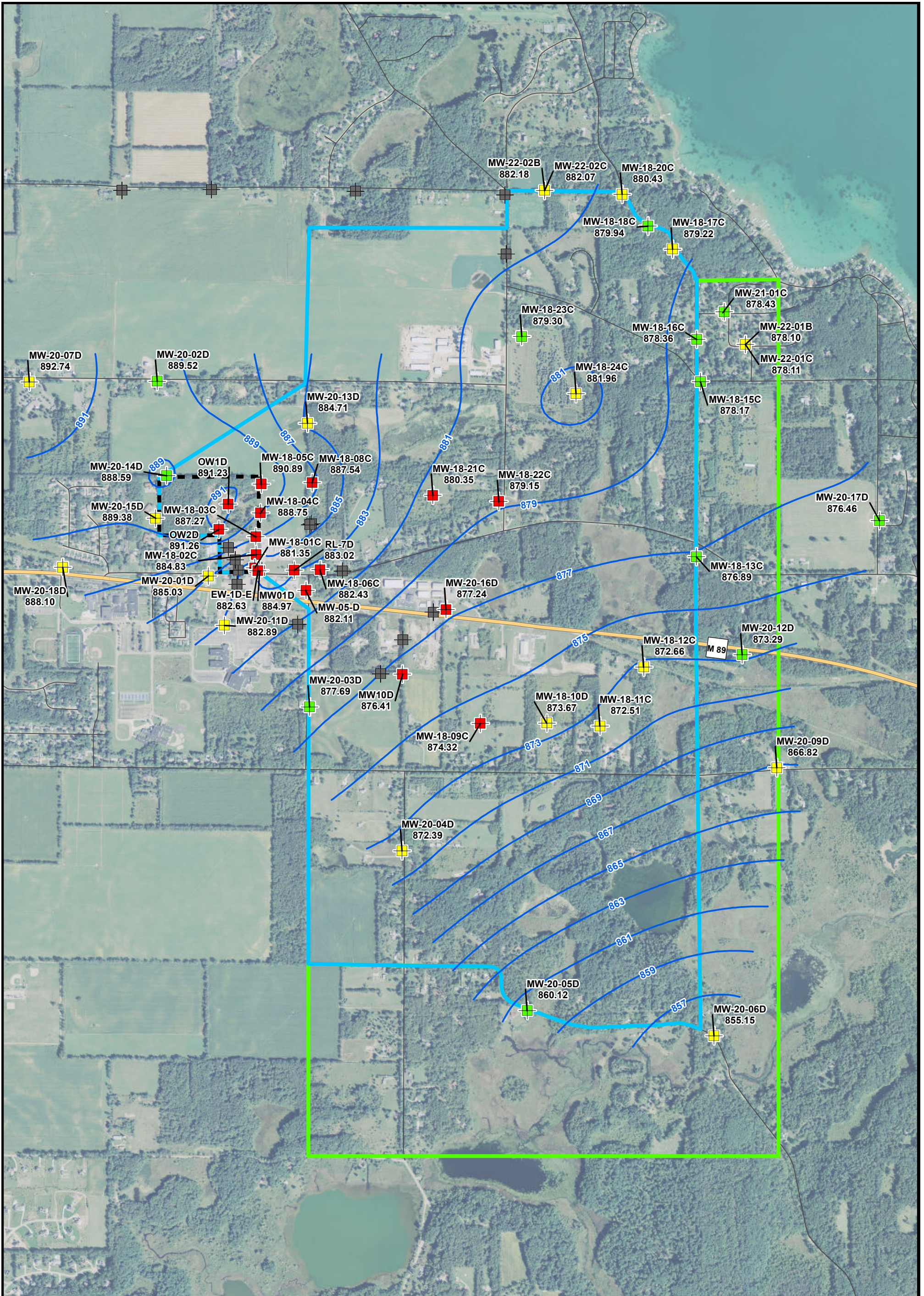
* Well not included in contour



**DEEP GROUNDWATER CONTOURS
MAY 2022 ELEVATIONS**

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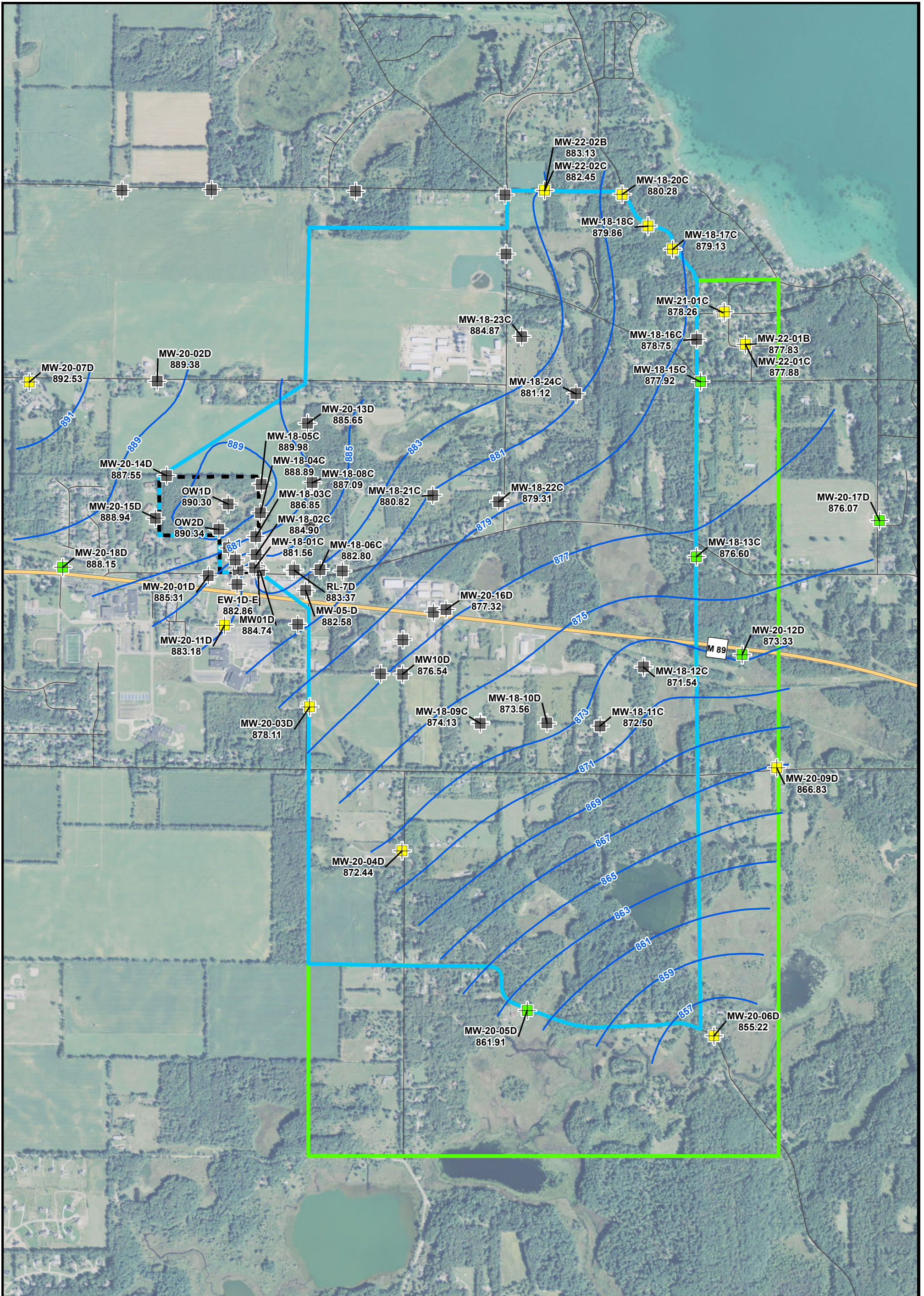
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Drawn: DP Date: 10/14/2022

Approved: MW Date: 10/14/2022

Project #: 60582450





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Drawn: DP Date: 1/31/2023

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Project #: 60582450

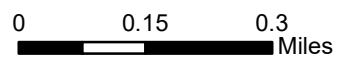


Legend

Monitoring Well

- Non-Detect for Part 201 PFAS Compounds
- Detection below Part 201 PFAS Criteria, but no Exceedance
- One or more Part 201 PFAS Criteria Exceeded
- Not Sampled for PFAS

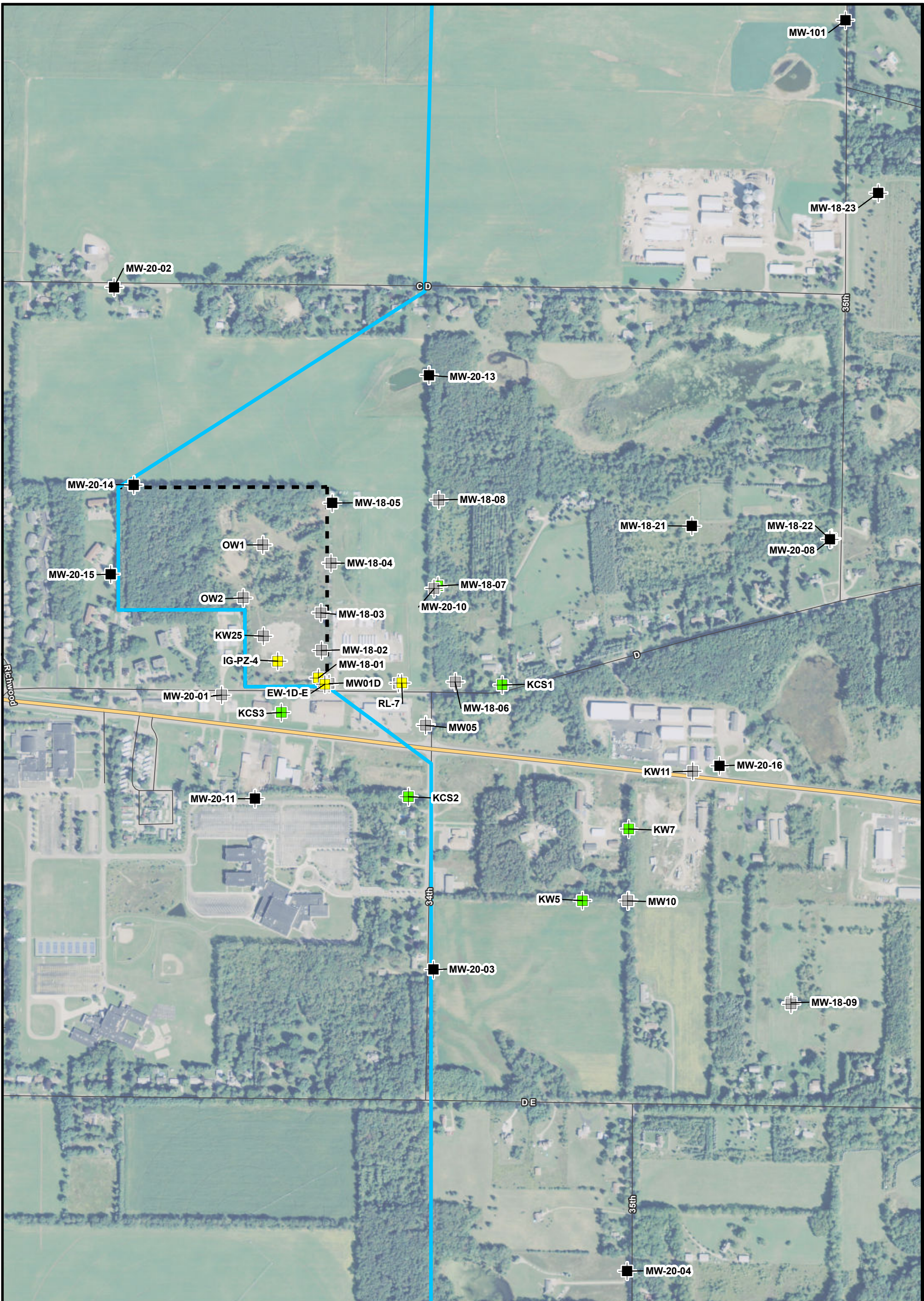
- November 2022 Groundwater Contour (2' interval)
- Production Plated Plastics
- Study Area
- Buffer Zone



**DEEP GROUNDWATER CONTOURS
NOVEMBER 2022
ELEVATIONS**

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Drawn: DP Date: 8/30/2022

Approved: JB Date: 8/30/2022

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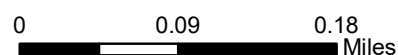


Legend

Monitoring Wells

- Non-Detect for Nickel
- Detection of Nickel, but no Exceedance
- Nickel Exceeds DWC
- Not Sampled

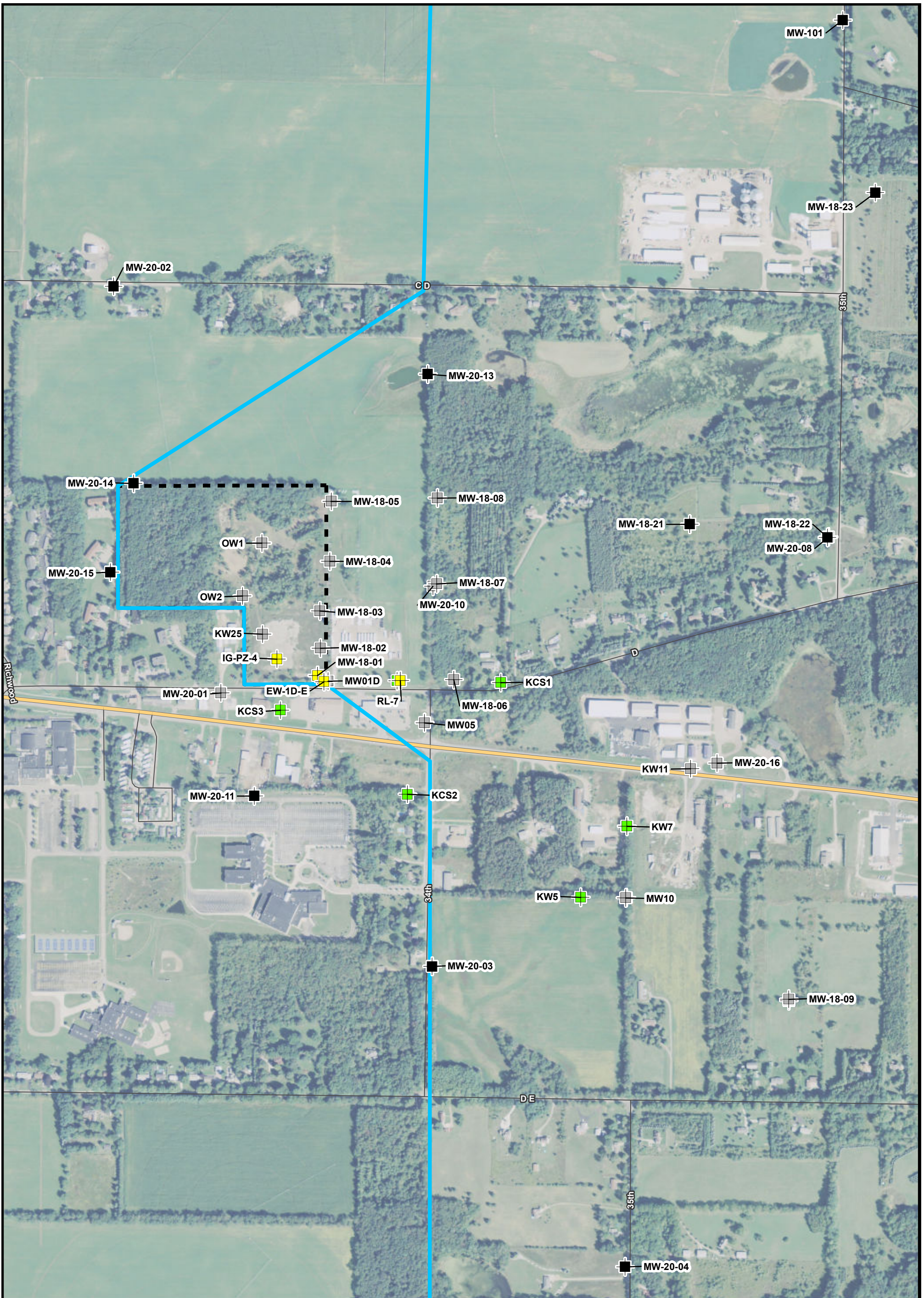
- Study Area
- Production Plated Plastics



**QUARTER 1 SAMPLING
NICKEL HEAT MAP**

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Drawn: DP Date: 10/21/2022

Approved: JB Date: 10/21/2022

Project #: 60582450

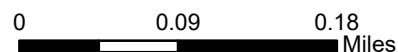


Legend

Monitoring Wells

- Non-Detect for Nickel
- Detection of Nickel, but no Exceedance
- Nickel Exceeds DWC
- Not Sampled

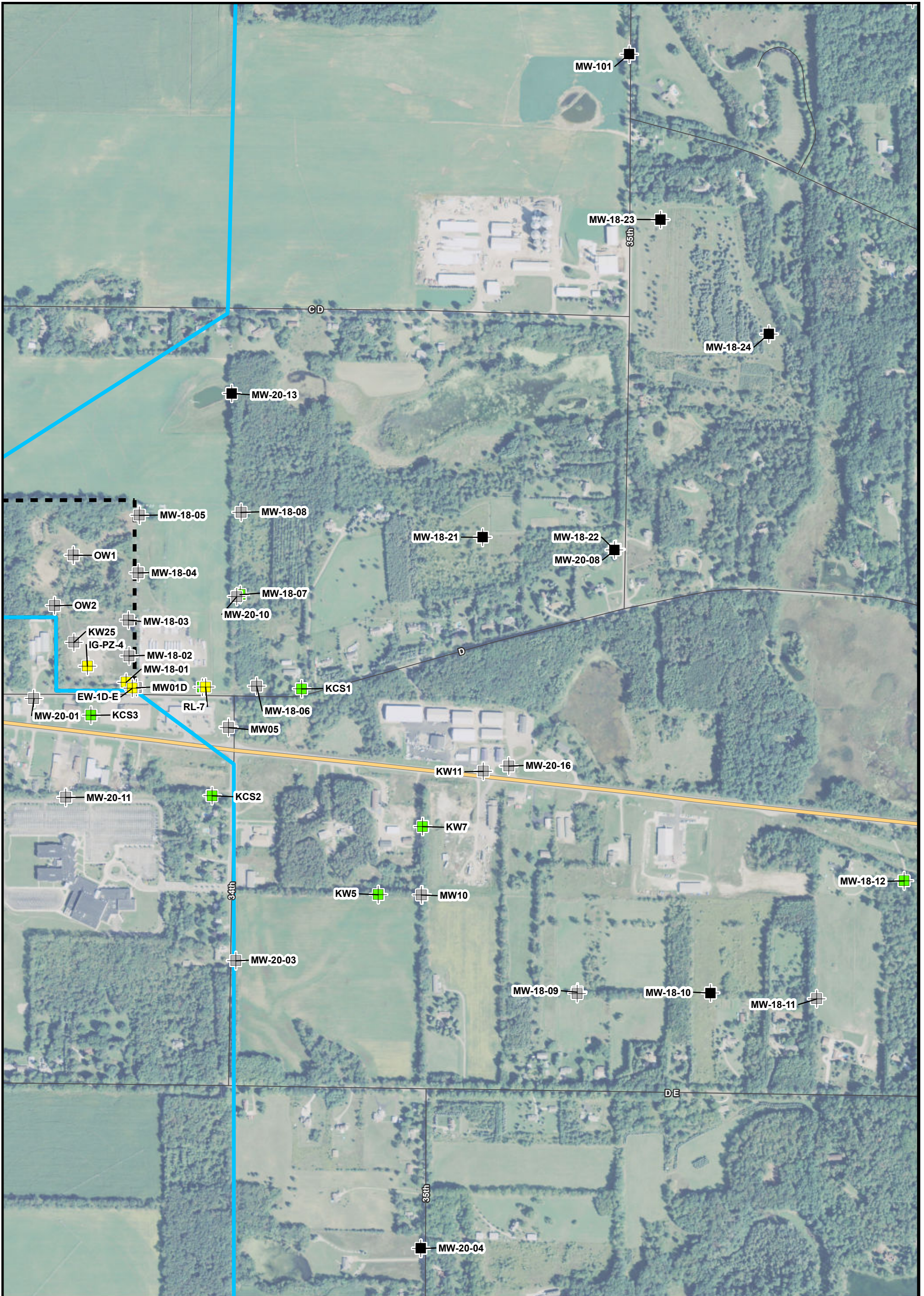
- Study Area
- Production Plated Plastics



**QUARTER 2 SAMPLING
NICKEL HEAT MAP**

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Drawn: DP Date: 1/23/2023

Approved: JB Date: 1/23/2023

Project #: 60582450

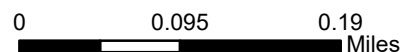


Legend

Monitoring Wells

- Non-Detect for Nickel
- Detection of Nickel, but no Exceedance
- Nickel Exceeds DWC
- Not Sampled

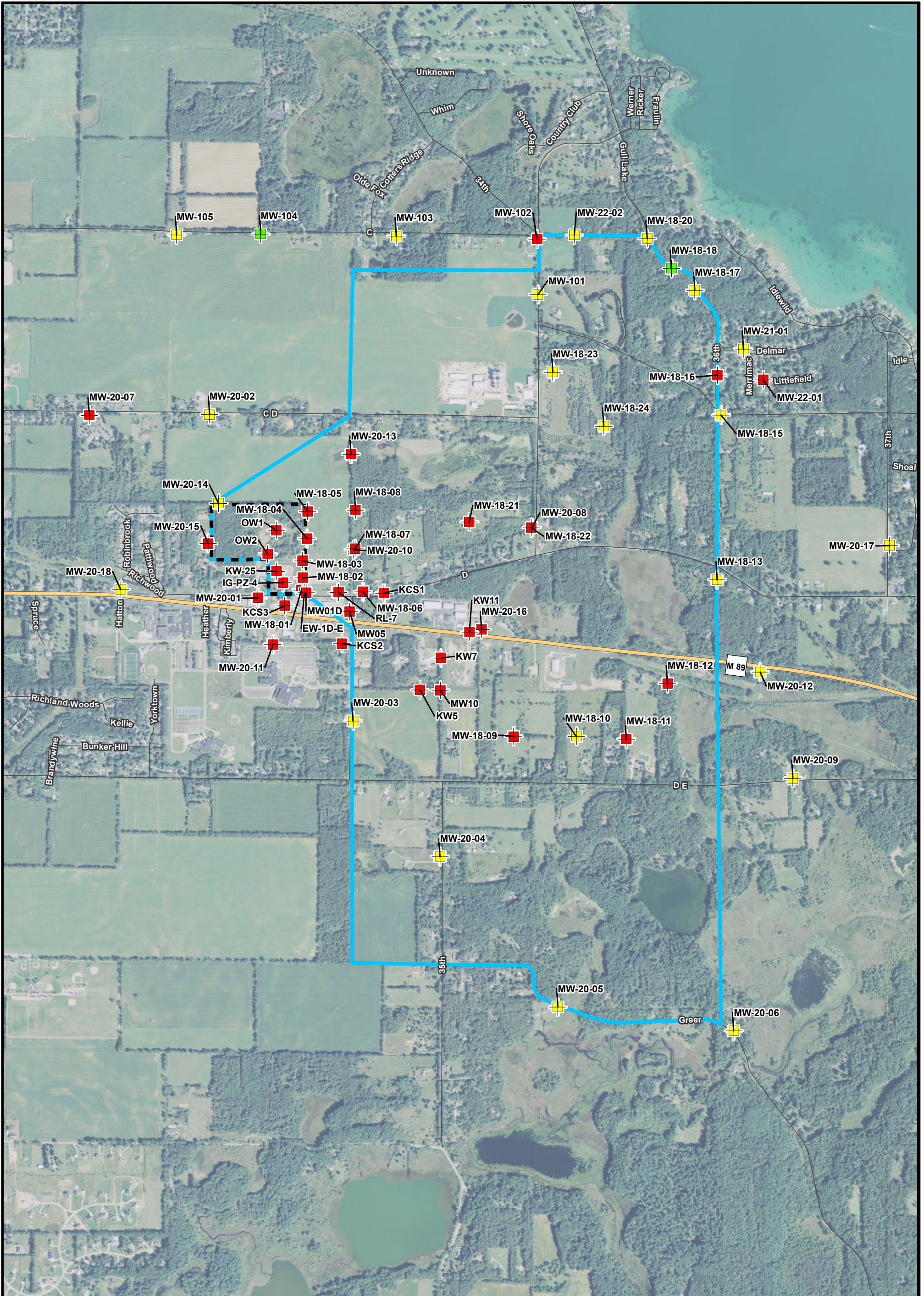
- Study Area
- Production Plated Plastics



**QUARTER 3 SAMPLING
NICKEL HEAT MAP**

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Drawn: DP Date: 8/30/2022

Approved: JB Date: 8/30/2022

Project #: 60582450



Legend

Monitoring Well

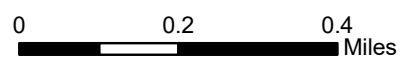
- Non-Detect for Part 201 PFAS Compounds
- Detection below Part 201 PFAS Criteria, but no Exceedance
- One or more Part 201 PFAS Criteria Exceeded
- Production Plated Plastics
- Study Area

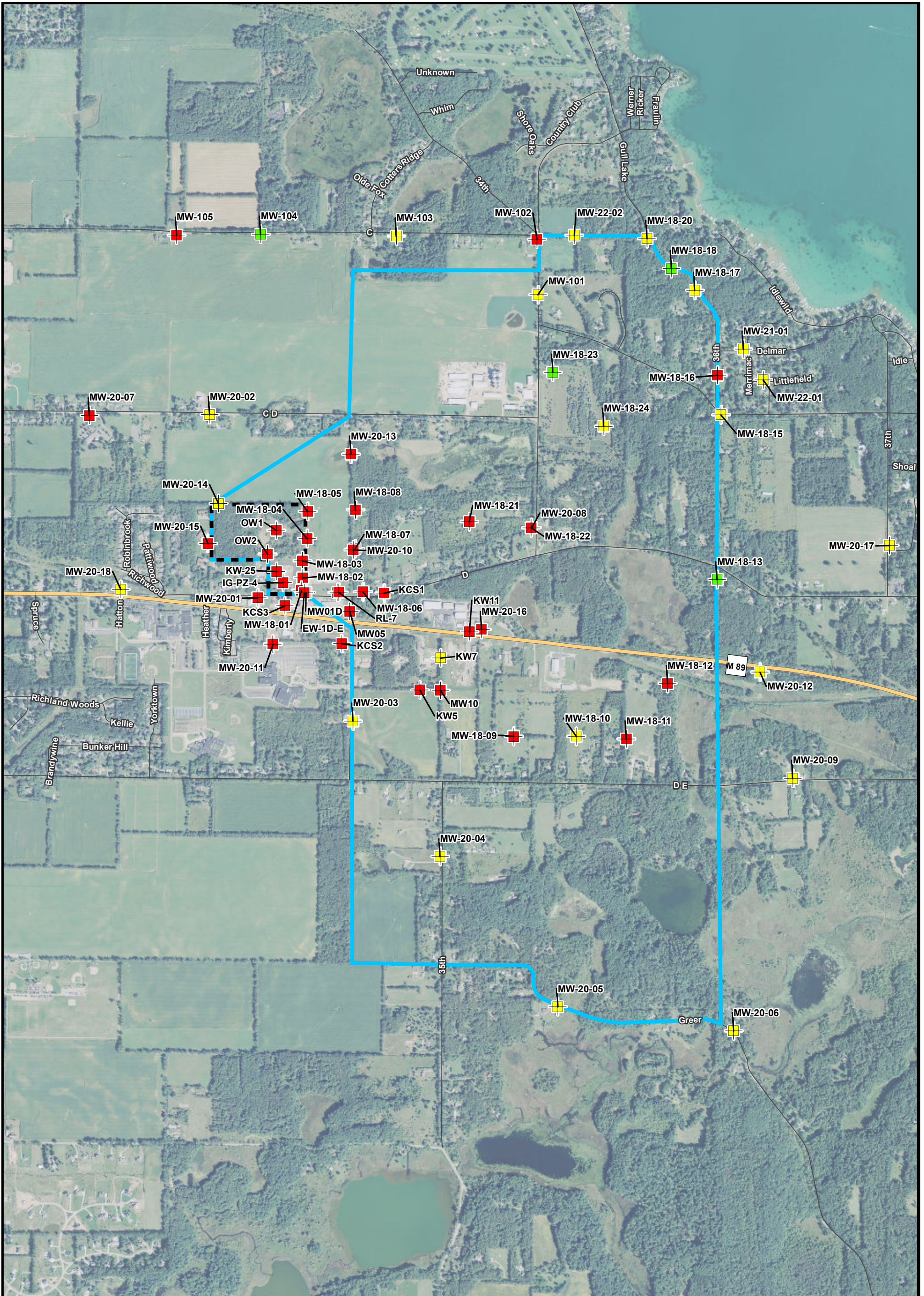


**QUARTER 1 SAMPLING
PFAS HEAT MAP**

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Drawn: DP Date: 10/21/2022

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Project #: 60582450



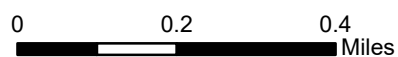
- Legend**
- Monitoring Well
 - Non-Detect for Part 201 PFAS Compounds
 - Detection below Part 201 PFAS Criteria, but no Exceedance
 - One or more Part 201 PFAS Criteria Exceeded
 - Production Plated Plastics
 - Study Area

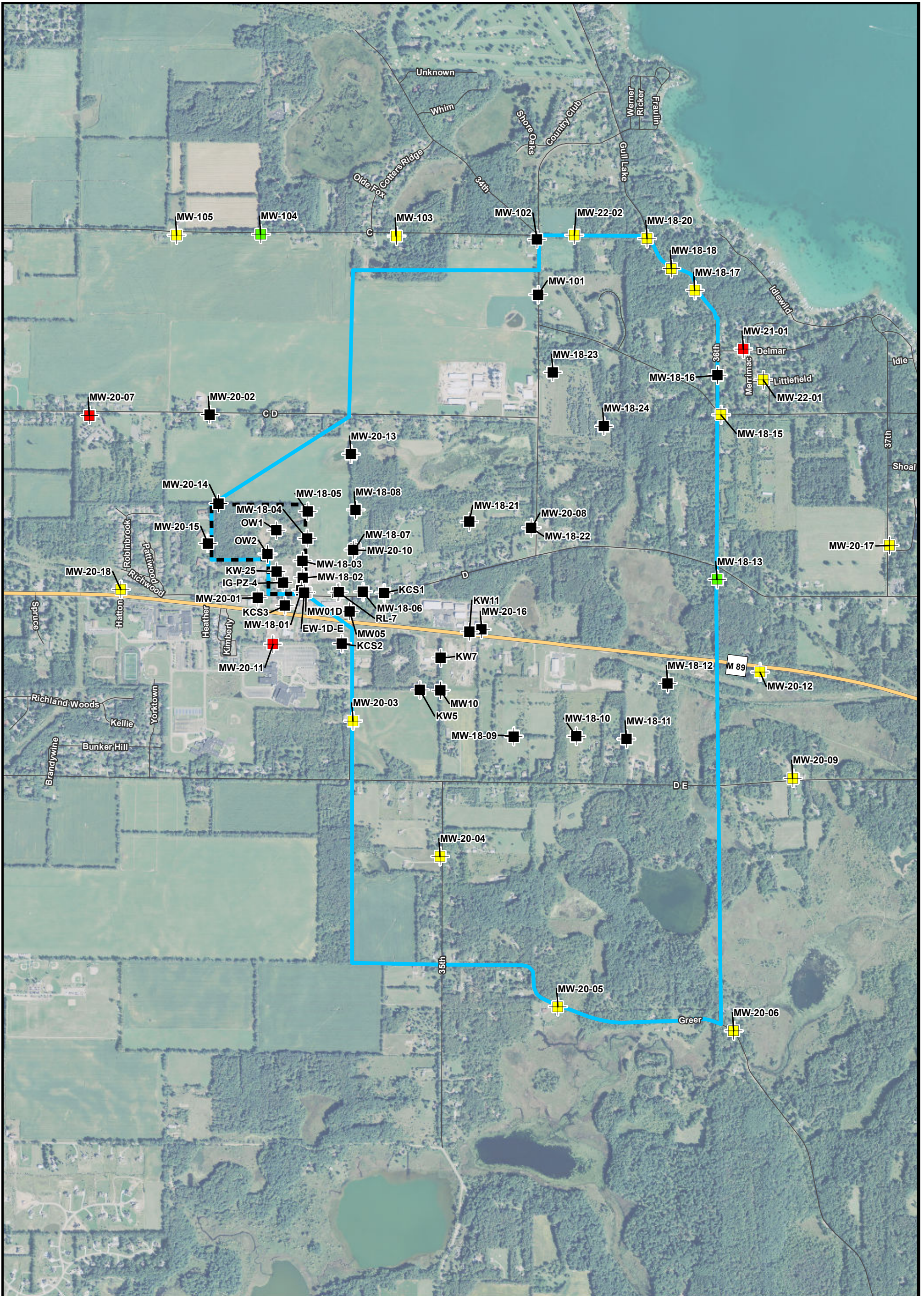


**QUARTER 2 SAMPLING
PFAS HEAT MAP**

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Drawn: DP Date: 1/31/2023

Approved: JB Date: 1/31/2023

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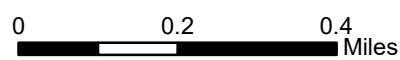


Legend

Monitoring Well

- Non-Detect for Part 201 PFAS Compounds
- Detection below Part 201 PFAS Criteria, but no Exceedance
- One or more Part 201 PFAS Criteria Exceeded
- Not Sampled

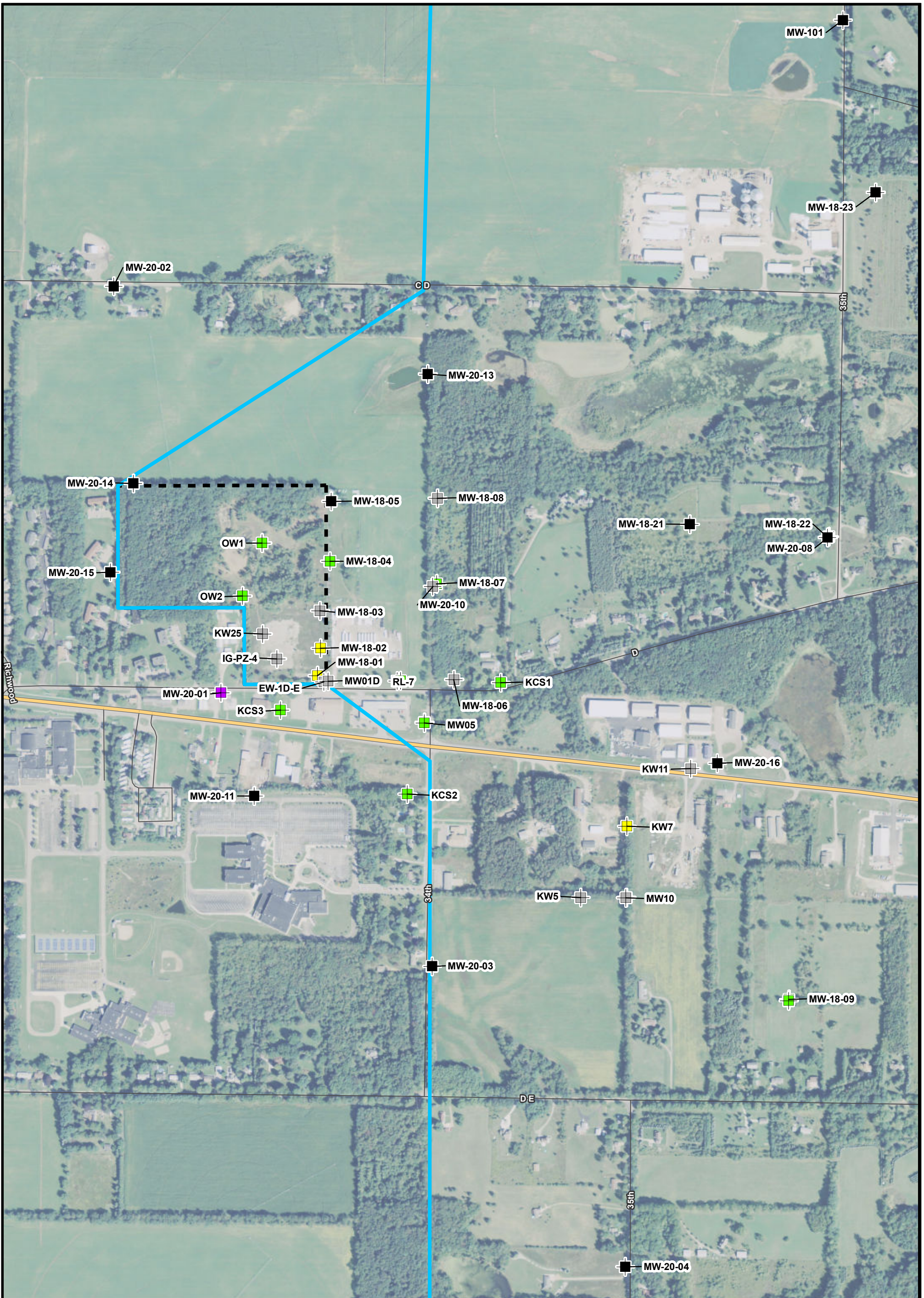
- Production Plated Plastics Study Area



**QUARTER 3 SAMPLING
PFAS HEAT MAP**

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Drawn: DP Date: 8/29/2022

Approved: JB Date: 8/29/2022

Project #: 60582450



Legend

Monitoring Wells

- All analyzed VOC contaminants are Non-Detect
- One or more VOC contaminants Detected
- One or more VOC contaminants exceed DWC
- One or more VOC contaminants exceed VIAP screening levels
- Not Sampled

- Study Area
- Production Plated Plastics

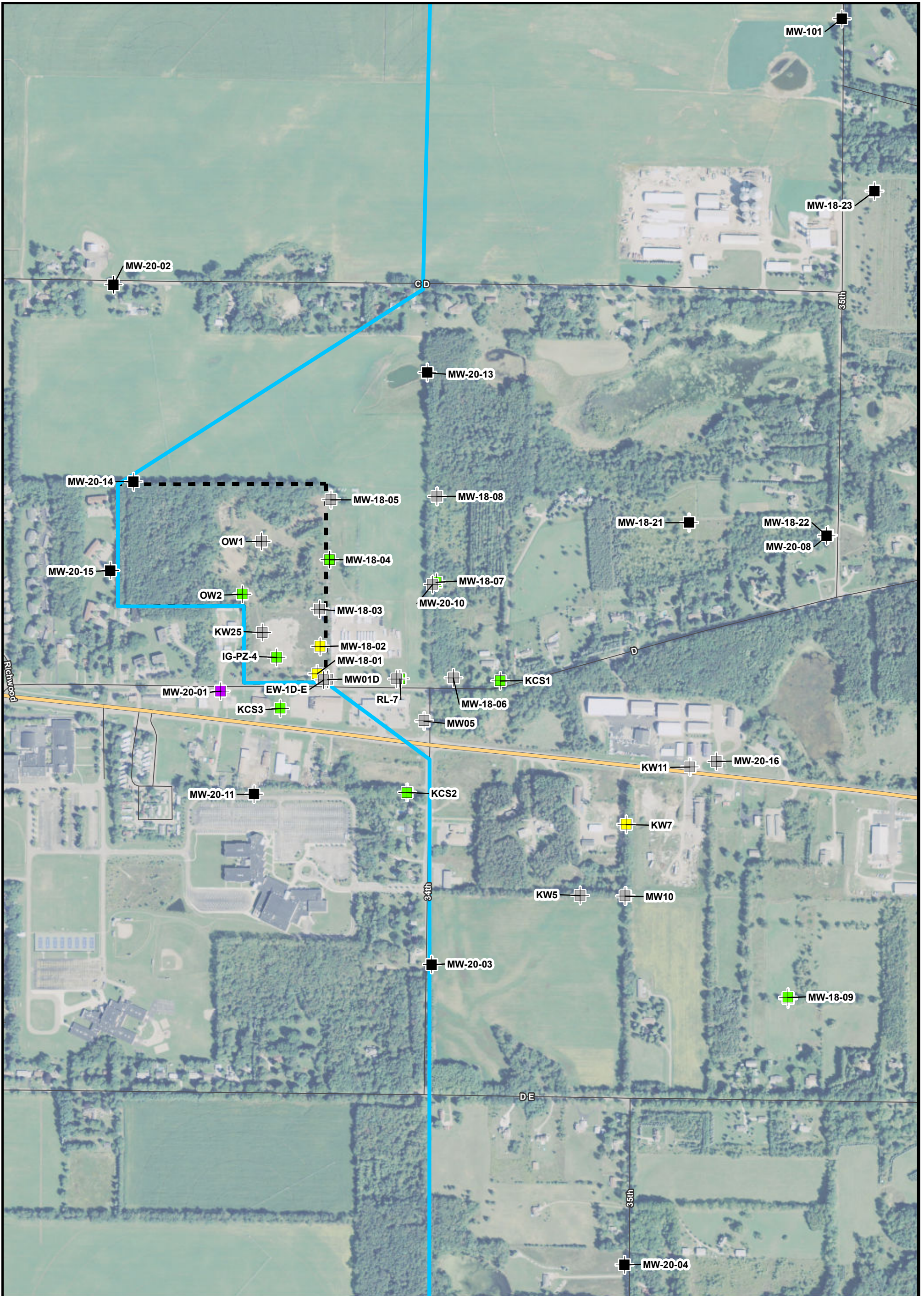
0 0.09 0.18 Miles

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**QUARTER 1 SAMPLING
VOC HEAT MAP**

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Drawn: DP Date: 10/18/2022

Approved: JB Date: 10/18/2022

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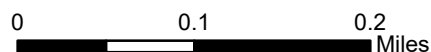


Legend

Monitoring Wells

- All analyzed VOC contaminants are Non-Detect
- One or more VOC contaminants Detected
- One or more VOC contaminants exceed DWC
- One or more VOC contaminants exceed VIAP screening levels
- Not Sampled

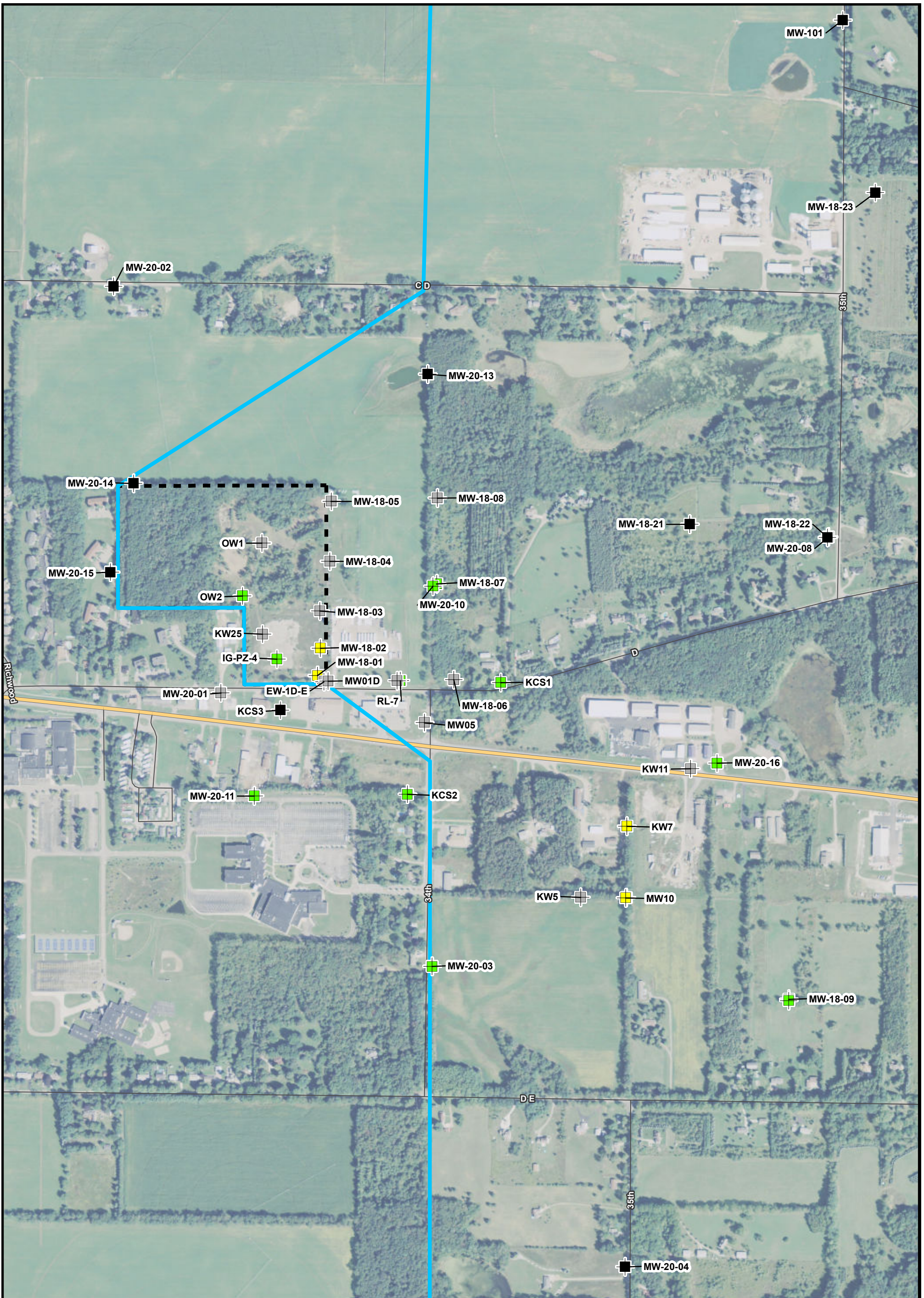
- Study Area
- Production Plated Plastics



**QUARTER 2 SAMPLING
VOC HEAT MAP**

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Drawn: DP Date: 2/2/2023

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Project #: 60582450

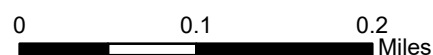


Legend

Monitoring Wells

- All analyzed VOC contaminants are Non-Detect
- One or more VOC contaminants Detected
- One or more VOC contaminants exceed DWC
- Not Sampled

- Study Area
- Production Plated Plastics



**QUARTER 3 SAMPLING
VOC HEAT MAP**

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Drawn: DP Date: 8/30/2022

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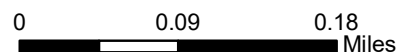


Legend

Monitoring Wells

- Non-Detect for Chromium
- Detection of Chromium, but no Exceedance
- Chromium exceeds GSIC
- Chromium exceeds multiple criteria- DWC, GSIC, GVIIC, and/or FAV
- Not Sampled

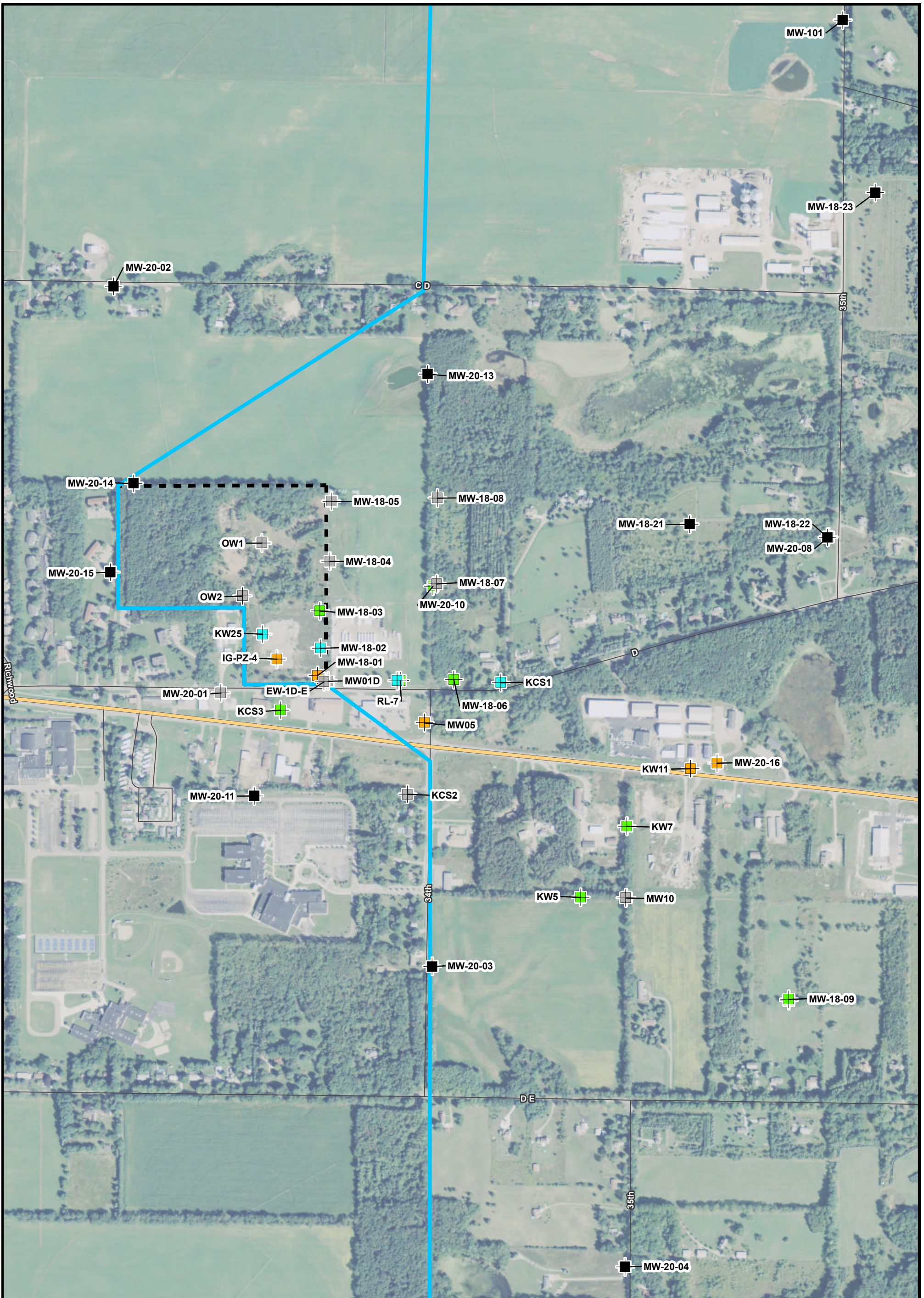
- Study
- Production Plated Plastics



QUARTER 1 SAMPLING CHROMIUM HEAT MAP

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Drawn: DP Date: 10/21/2022

Approved: JB Date: 10/21/2022

Project #: 60582450

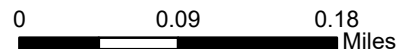


Legend

Monitoring Wells

- Non-Detect for Chromium
- Detection of Chromium, but no Exceedance
- Chromium exceeds GSIC
- Chromium exceeds multiple criteria- DWC, GSIC, GVIIC, and/or FAV
- Not Sampled

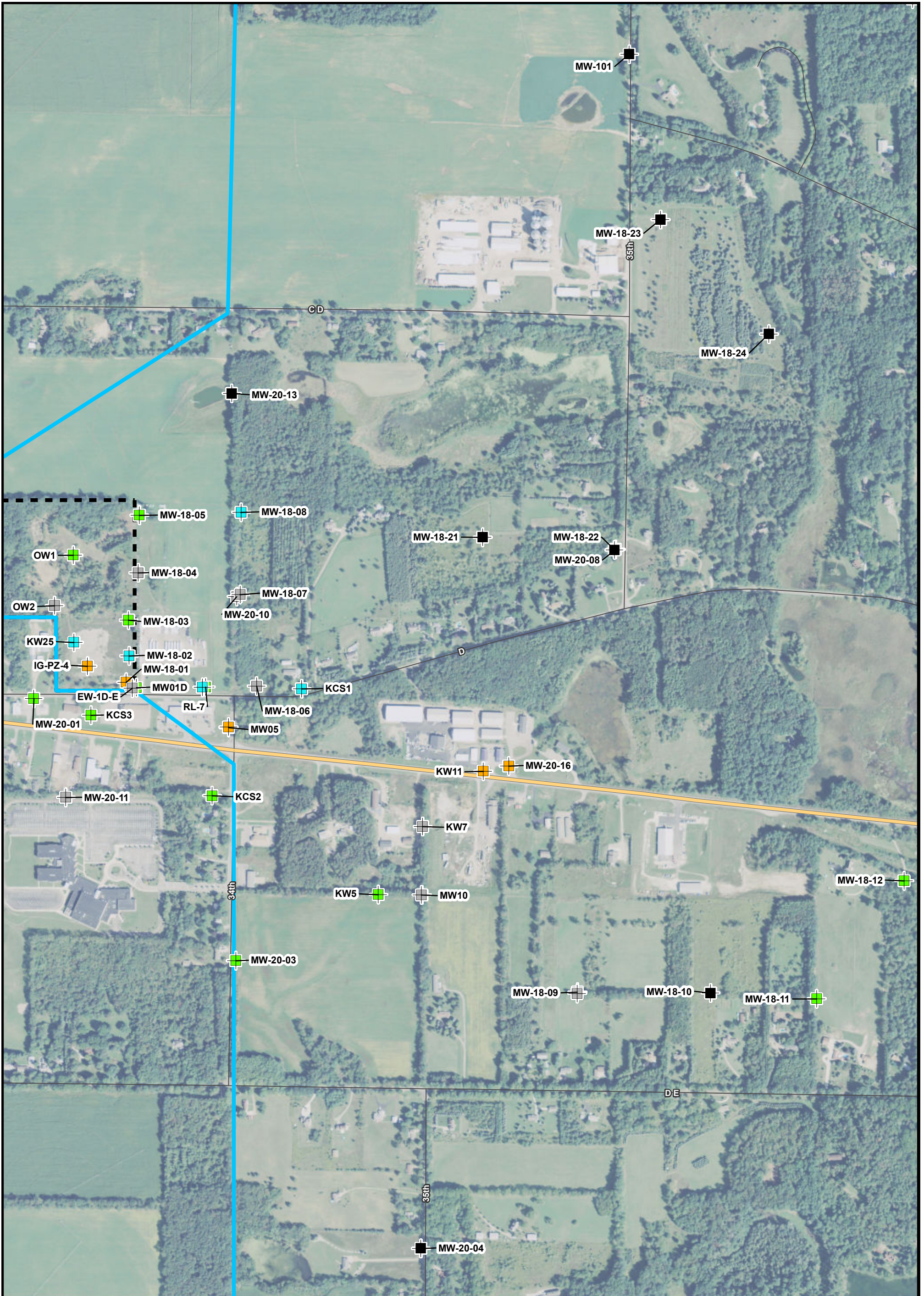
- Study
- Production Plated Plastics



QUARTER 2 SAMPLING CHROMIUM HEAT MAP

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RICHLAND, MI



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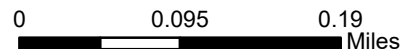


Legend

Monitoring Wells

- Non-Detect for Chromium
- Detection of Chromium, but no Exceedance
- Chromium exceeds GSIC
- Chromium exceeds multiple criteria- DWC, GSIC, GVIIC, and/or FAV
- Not Sampled

- Study Area
- Production Plated Plastics



QUARTER 3 SAMPLING CHROMIUM HEAT MAP

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