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Our ref: 12602792-LTR-05

September 12, 2023

Ashley Lesser
Michigan Department of Environmental Great Lakes & Energy
Remediation and Redevelopment Division – Jackson District Office
301 E. Louis Glick Hwy.
Jackson, Michigan 49201

Groundwater Level Monitoring Update – 2023
Former Willow Run Powertrain
Ypsilanti, Michigan

Dear Ms. Lesser:

1. Introduction

GHD, on behalf of Revitalizing Automotive Communities Environmental Response (RACER) Trust, has prepared this letter as part of the on-going Resource and Recovery Act (RCRA) Corrective Action (CA) at the former Willow Run Powertrain facility (Site) in Ypsilanti, Michigan, to summarize the annual groundwater elevations and flow monitoring completed in 2023. Figure 1 provides the location of the Site.

1.1 Purpose

This document reports the observations and interpretations of the May 2023 groundwater levels event by describing current Site conditions and documenting groundwater gradients and flow at the Site.

1.2 Background

In 2010, RACER assumed responsibility for the RCRA CA at the Site. Groundwater has been monitored on a routine basis including:

– Annual monitoring: Fall 2011, Fall 2012, April 2013, and April 2014
– Quarterly monitoring: from April 2015 to October 2018
– Semi-annual monitoring: April 2019, December 2019, May 2020, and October 2020
– Annual monitoring: May 2021, May 2022, and May 2023

The May 2023 groundwater monitoring was performed with the reduced monitoring network as described in *2021 Hydraulic Monitoring Update and Monitoring Network Optimization Report* (GHD, May 2022). The Michigan Department of the Environment, Great Lakes and Energy (EGLE) provided email approval of the reduced monitoring network for this event (June 13, 2022), while reviewing the full optimization plan.

2. Site Conditions

Site conditions have remained stable since the previous hydraulic monitoring event in May 2022.

2.1 Site Redevelopment

There were no Site redevelopment activities completed by the Site owners (Willow Run Arsenal of Democracy /American Center for Mobility; Yankee Air Museum) that would be expected to impact groundwater contours between May 2022 and May 2023.

2.2 Monitoring Network Changes

As stated in Section 1.2, the monitoring well network used for this event has been reduced from 342 monitoring wells to 128 monitoring wells. The reduction reduced the number of wells in the shallow and intermediate groundwater zones while eliminating all deep zone monitoring. Details and rationales for network reduction can be found in *2021 Hydraulic Monitoring Update and Monitoring Network Optimization Report* (GHD, May 2022).

Ten new shallow monitoring wells were installed in December 2022 along the west side of the Wayne County Airport Authority (WCAA) property, increasing the monitoring well network to 138 monitoring wells.

The shallow groundwater monitoring network is depicted on Figure 2. The intermediate groundwater monitoring network is depicted on Figure 3.

2.3 French Drain Operation

The French drain pumps were not in operation during the May 2023 event. The system was turned off in October 2021 to allow the Site owner to complete repairs and inspections to Site infrastructure under higher groundwater conditions and have remained off since. Since then the decision to keep the system off for the foreseeable future was made in September 2022, and the discharge permit was cancelled and the discharge line was capped. Therefore, this event represents equilibrium conditions, as the pumps have not been in operation since October 2021.

2.4 Groundwater Flow

2.4.1 Shallow Zone Groundwater Flow

Groundwater contours and flow direction in the shallow zone are presented on Figure 4. During the May 2023 event, groundwater from the central and eastern area of the Site flowed primarily toward the east and southeast toward the Willow Run Airport property. Although the groundwater collection system (French drain) has been off for over a year, contours still show a relatively steep slope toward the downgradient property boundary, which is consistent with pre-French drain installation.

Groundwater underlying the western area of the Site appears to flow from the north toward the area of CRA-623M and disperse to the west, east and south. Higher relative groundwater elevations have been observed in CRA-623M, historically, and this groundwater pattern is generally consistent with past observations for this portion of the Site.

Groundwater underlying the southern area of the Site appears to have remained generally consistent with past observations for this portion of the Site. Groundwater elevations were similar in all three years where measurements were taken. Several wells that could not be located in 2022 due to redevelopment or operations at the Site, were measured in 2023 which led to slightly different localized groundwater contours.

2.4.1.1 Shallow Zone Groundwater Stability

Groundwater flow patterns, when compared to May 2021 and May 2022 data, appear relatively similar in flow direction across the majority of the Site. Year-to-year comparisons reveal limited changes in groundwater elevations across the Site. Accounting for seasonal fluctuations, groundwater elevations are relatively similar, indicating stable conditions in the shallow groundwater zone.

2.4.2 Intermediate Zone Groundwater Flow

Groundwater elevations and flow in the intermediate zone are presented in Figure 5. During the May 2023 event, groundwater in the intermediate groundwater zone flowed from the central area of the Site to the east toward the Willow Run Airport property. Groundwater in the north, west, and southwest areas of the Site flowed toward the Tyler Dam Drain. This occurs via venting to the Perimeter Storm Sewer in the west and via groundwater flow toward Airport Road to the southwest.

2.4.2.1 Intermediate Zone Stability

Groundwater direction and flow patterns in May 2023 are nearly identical to the flow patterns of May 2021 and 2022. Historical comparisons also reveal similar groundwater elevation and flow patterns. Year-to-year comparisons reveal limited changes in groundwater elevations across the Site. Accounting for seasonal fluctuations, groundwater elevations are relatively similar, indicating stable conditions in the intermediate groundwater zone.

2.4.3 Deep Intermediate Groundwater Zone

No wells were monitored from the deep groundwater zone as per the monitoring plan laid out in *2021 Hydraulic Monitoring Update and Monitoring Network Optimization Report* (GHD, May 2022). Groundwater flow patterns and historical data indicate the deep zone to be independent and does not communicate with the upper groundwater zones.

2.5 Groundwater Stability

As Site redevelopment activities have largely ceased (demolition, dewatering, utility capping, etc.), groundwater stability is no longer determined by area comparison, rather determined across the Site, as a whole. Groundwater elevations at the Site during the May 2023 event are within the normal expected ranges compared to past groundwater levels monitoring events.

3. Summary

The 2023 groundwater levels monitoring event has provided updated groundwater elevation data utilizing a reduced number of monitoring wells at the Site. Based on review of the 2023 groundwater elevations and contours, Site groundwater elevations and flow directions are relatively similar to previous years, indicating stable conditions in the shallow and intermediate groundwater zones. Due to the consistency of groundwater flow direction and the completion of the majority of redevelopment activities potentially having an influence on

groundwater conditions, additional groundwater level monitoring is not planned. As investigations continue at the Site, localized levels events may be completed to coincide with those investigations.

Regards,

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Graduate Environmental Engineer

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LK/mg/LTR-05

Encl.

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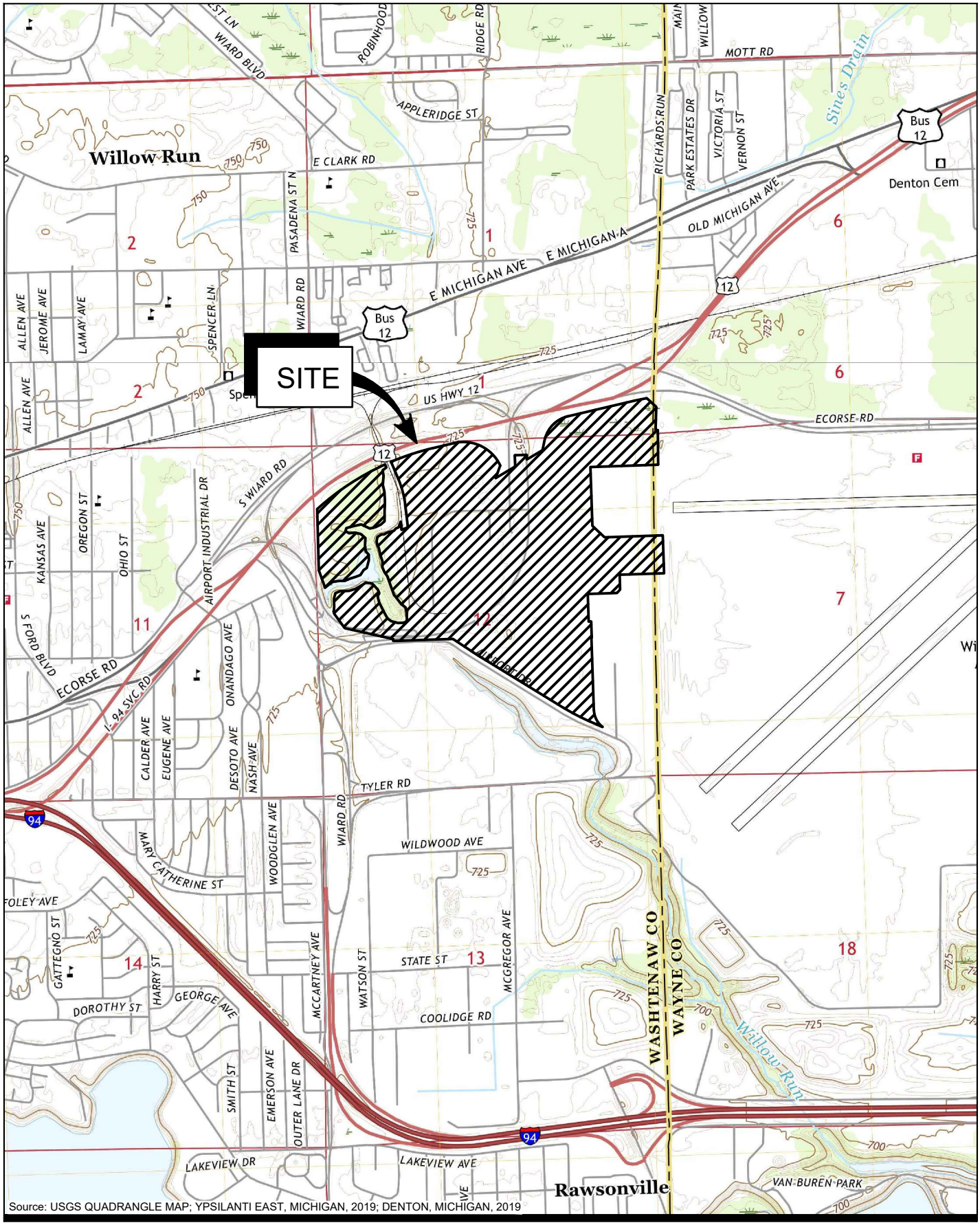
Figures



Source: USGS QUADRANGLE MAP; YPSILANTI EAST, MICHIGAN, 2019; DENTON, MICHIGAN, 2019

0 1000 2000 ft

1" = 2000 ft

N

GHD

RACER TRUST
FORMER WILLOW RUN POWERTRAIN SITE
YPSILANTI, MICHIGAN

Project No. **12602792**
Date **June 2023**

SITE LOCATION

FIGURE 1

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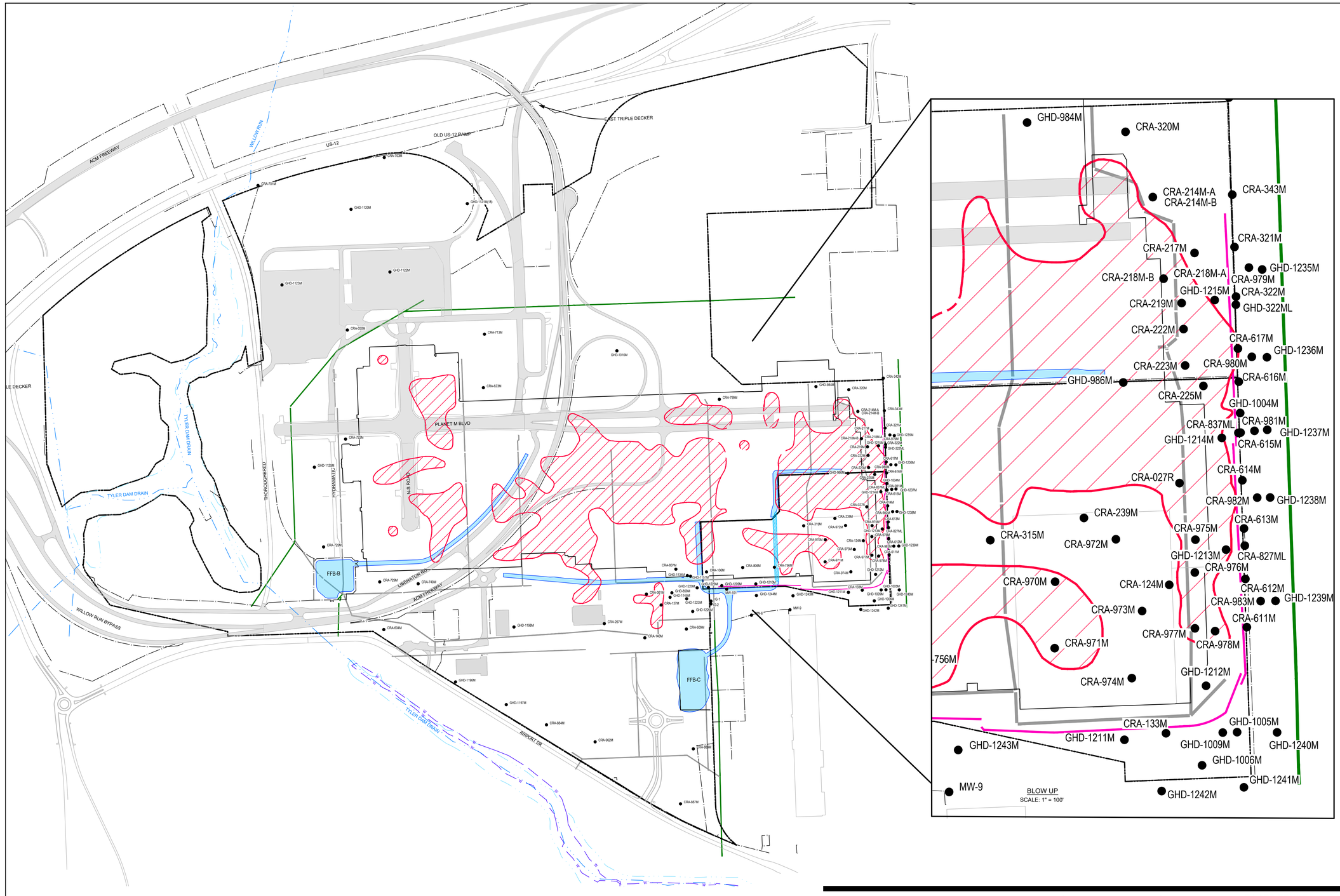

NOTES:

1. ALL COORDINATES ARE IN INTERNATIONAL FEET

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SHALLOW GROUNDWATER ZONE MONITORING NETWORK - 2023

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Date **August 2023**

FIGURE 2

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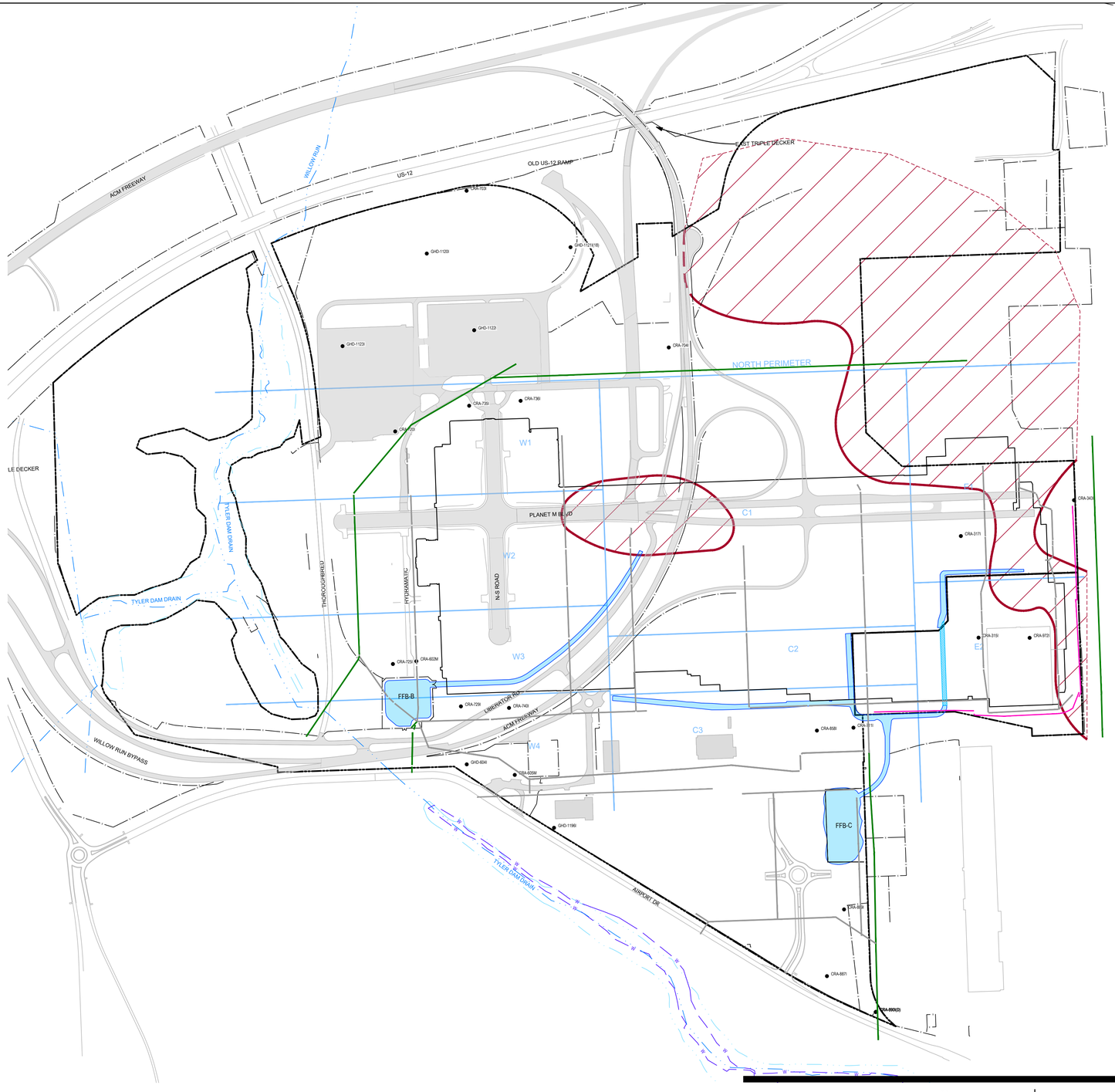

LEGEND

- PROPERTY BOUNDARY
- SURFACE WATER
- FRENCH DRAIN
- FENCE (UPDATED 2-21-19)
- TYLER POND AFTER LOWERED (OCT 2017 SURVEY)
- CRA-343I EXISTING WELLS
- STORMWATER MAIN LINES - ACTIVE 2021
- STORMWATER MAIN LINES - INACTIVE 2021
- INTERMEDIATE ZONE MAY NOT EXIST
- SURFACE STORMWATER FEATURE

NOTES:

1. ALL COORDINATES ARE IN INTERNATIONAL FEET

0 150 300 600 Feet

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INTERMEDIATE GROUNDWATER ZONE MONITORING NETWORK - 2023

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FIGURE 3

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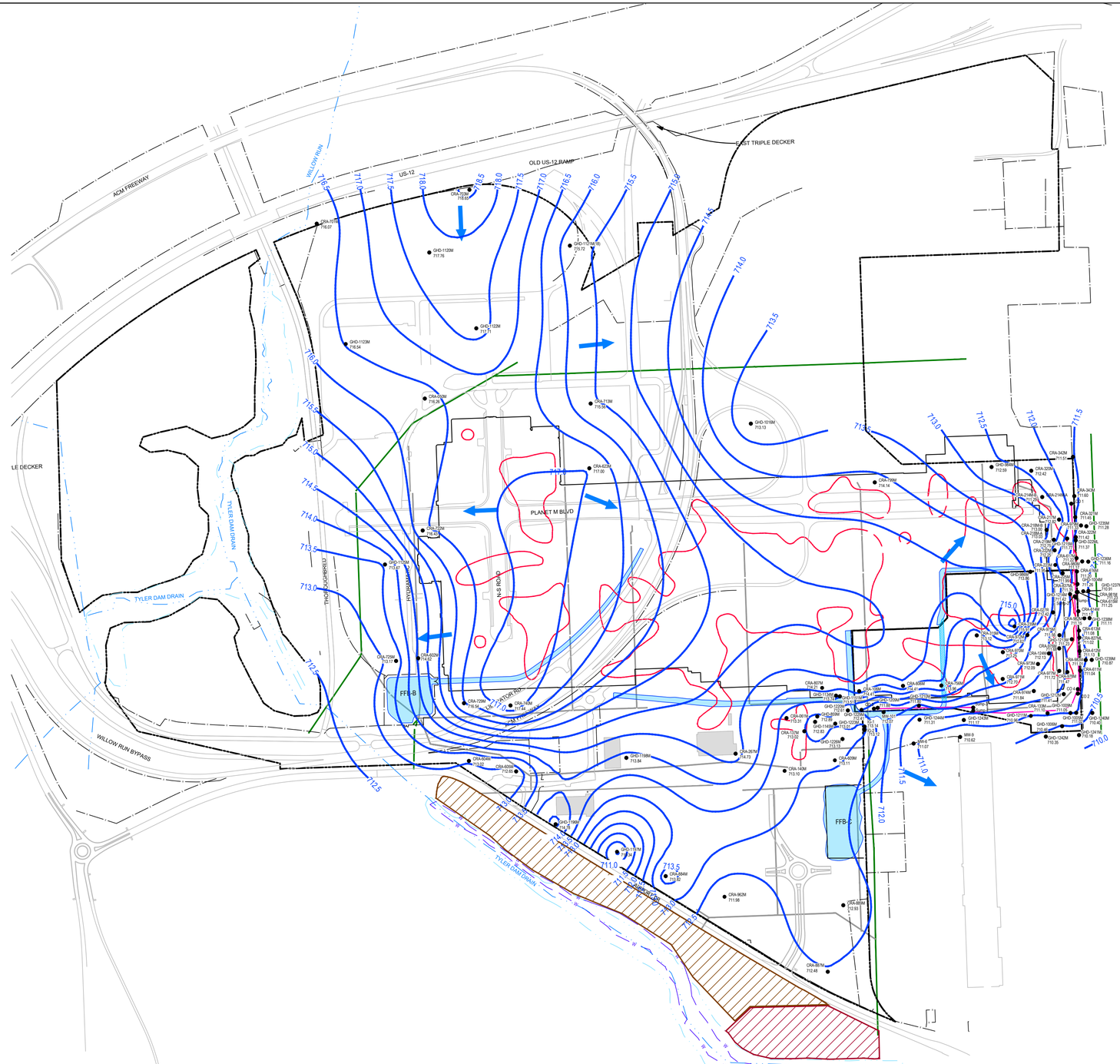

LEGEND

- PROPERTY BOUNDARY
- SURFACE WATER
- FRENCH DRAIN
- TYLER POND AFTER LOWERED (OCT 2017 SURVEY)
- STORM SEWER (MAIN LINES - ACTIVE)
- STORM SEWER (MAIN LINES - INACTIVE)
- 715.0 GROUNDWATER CONTOURS
- CRA-343M EXISTING MONITORING WELL
- 711.60 GROUNDWATER ELEVATION
- SURFACE STORM WATER FEATURES (02-21-2019)
- LNAPL (OCTOBER 2018)
- NO SHALLOW ZONE (CLAY AT SURFACE)
- SHALLOW ZONE DRY
- INTERPRETED GROUNDWATER FLOW DIRECTION
- ★ NOT USED FOR CONTOURING

NOTES:

1. ALL COORDINATES ARE IN INTERNATIONAL FEET

0 150 300 600 ft

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SHALLOW GROUNDWATER ZONE CONTOURS - MAY 2023

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FIGURE 4

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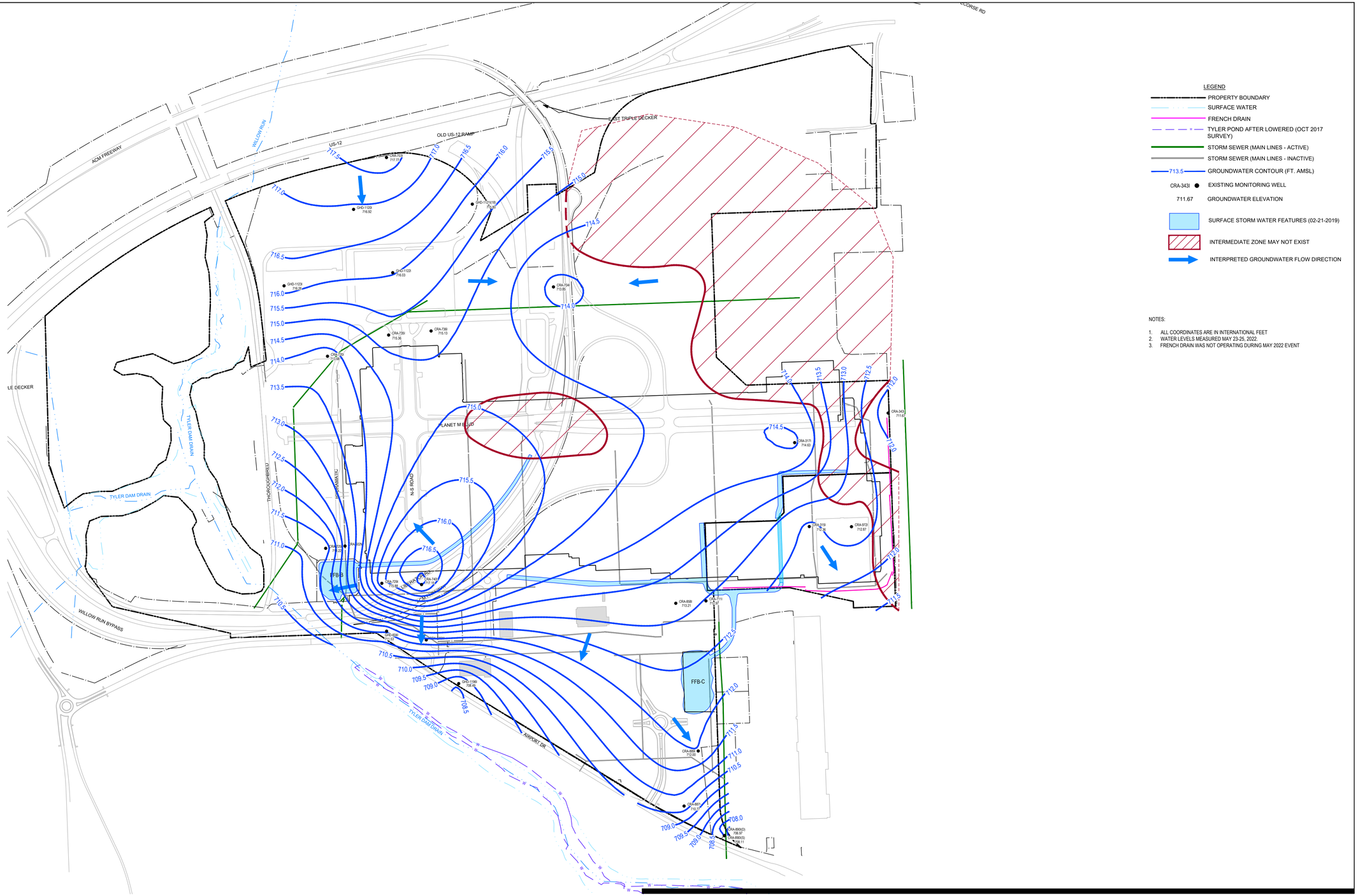

LEGEND

- PROPERTY BOUNDARY
- SURFACE WATER
- FRENCH DRAIN
- TYLER POND AFTER LOWERED (OCT 2017 SURVEY)
- STORM SEWER (MAIN LINES - ACTIVE)
- STORM SEWER (MAIN LINES - INACTIVE)
- 713.5 GROUNDWATER CONTOUR (FT. AMSL)
- CRA-343I EXISTING MONITORING WELL
- 711.67 GROUNDWATER ELEVATION
- SURFACE STORM WATER FEATURES (02-21-2019)
- INTERMEDIATE ZONE MAY NOT EXIST
- INTERPRETED GROUNDWATER FLOW DIRECTION

NOTES:

1. ALL COORDINATES ARE IN INTERNATIONAL FEET
2. WATER LEVELS MEASURED MAY 23-25, 2022.
3. FRENCH DRAIN WAS NOT OPERATING DURING MAY 2022 EVENT

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INTERMEDIATE GROUNDWATER ZONE
CONTOURS - MAY 2023

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FIGURE 5

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