

**Work Plan for Further Site Investigation #4  
Hurricane Road Industrial Development / Former Houghland Tomato Cannery  
1130 East Eastview Drive  
Franklin, Indiana  
IDEM Site Identification Number 2013-34567  
Patriot Project No.: 20-0963-01E**

**Prepared For:**

Indiana Department of Environmental Management  
Office of Land Quality - State Cleanup Section  
100 North Senate Avenue  
ICGN, Room 1101  
Indianapolis, Indiana 46204-2251  
Attention: Tim Johnson

**Prepared By:**

Patriot Engineering and Environmental, Inc.  
6150 East 75th Street,  
Indianapolis, Indiana 46250

August 7, 2020



**PATRIOT ENGINEERING  
and ENVIRONMENTAL, Inc.**

*Engineering Value for Project Success*

August 7, 2020

Indiana Department of Environmental Management  
Office of Land Quality - State Cleanup Section  
100 North Senate Avenue  
ICGN, Room 1101  
Indianapolis, Indiana 46204-2251  
Attention: Tim Johnson

**RE: Work Plan for Further Site Investigation #4  
Hurricane Road Industrial Development /  
Former Houghland Tomato Cannery  
1130 East Eastview Drive  
Franklin, Indiana  
IDEM Site Identification Number 2013-34567  
Patriot Project No.: 20-0963-01E**

Dear Mr. Johnson,

On behalf of Robert Clawson d.b.a. Hurricane Road Industrial Development (HRID), Patriot Engineering and Environmental, Inc. is pleased to submit this Work Plan for the Further Site Investigation #4 (FSI #4) to be performed formed at the HRID / Former Houghland Tomato Cannery property located at 1130 Eastview Drive in Franklin, Indiana (the Site). This FSI #4 Work Plan is being submitted at the request of the Indiana Department of Environmental Management (IDEM) and presents the proposed scope of work for further investigation to characterize the environmental conditions at the Site.

If you have any questions or comments regarding this report, please do not hesitate to contact Mike Casper at (317) 576-8058 or [mcasper@patrioteng.com](mailto:mcasper@patrioteng.com).

Respectfully submitted,

**Patriot Engineering and Environmental, Inc.**

James J. Cody  
Staff Engineer  
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**WORK PLAN FOR FURTHER SITE INVESTIGATION #4  
HURRICANE ROAD INDUSTRIAL DEVELOPMENT /  
FORMER HOUGHLAND TOMATO CANNERY  
1130 E. EASTVIEW DRIVE  
FRANKLIN, INDIANA  
IDEM SITE IDENTIFICATION NUMBER 2013-34567  
PATRIOT PROJECT NUMBER 20-0963-01E**

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**WORK PLAN FOR FURTHER SITE INVESTIGATION #4  
HURRICANE ROAD INDUSTRIAL DEVELOPMENT /  
FORMER HOUGHLAND TOMATO CANNERY  
1130 E. EASTVIEW DRIVE  
FRANKLIN, INDIANA  
IDEM SITE IDENTIFICATION NUMBER 2013-34567  
PATRIOR PROJECT NUMBER 20-0963-01E**

## **1.0 INTRODUCTION**

On behalf of Robert Clawson d.b.a Hurricane Road Industrial Development (HRID), Patriot Engineering and Environmental, Inc. (Patriot) is pleased to provide the Indiana Department of Environmental Management (IDEM) this Work Plan for Further Site Investigation #4 (FSI #4) to be performed at the HRID property located at 1130 Eastview Drive in Franklin, Indiana (the Site). The FSI #4 Work Plan has been prepared in response to correspondence from the IDEM dated February 6, 2020 and subsequent conversations and emails with IDEM concerning the need for additional investigation of existing Site conditions.

The purpose of FSI #4 is to fully delineate the extent of chemicals of concern (COCs) in shallow and deep groundwater at the Site and off-site on the agricultural property to the east and southeast, to determine if an additional soil and/or groundwater COC source area exists under the Crossroads Recycling building located on the northwest corner of the Site, and to prepare a comprehensive Conceptual Site Model (CSM) for use in developing remediation and/or closure options for the Site. FSI #4 is intended to be a comprehensive investigation with the goal of limiting or eliminating the need for further rounds of investigation at the Site. This Work Plan describes the proposed work activities that will be conducted by Patriot at the Site during FSI #4 and presents the anticipated timeframe for completion.

## **2.0 SITE BACKGROUND**

### **2.1 Site Description**

The Site is a portion of the former Houghland Tomato Cannery (Houghland) property, a former tomato canning operation that was subsequently divided into two properties. Mr. Robert Clawson, doing business as HRID, owns the eastern portion of the former Houghland property at 1130 Eastview Drive (IDEM Site Identification Number 2013-34567). Mr. Clawson leases the buildings on the property to various commercial tenants. The location of the Site is depicted on the Site Location Map included as Figure 1 in

Appendix A, while the layout of the Site is depicted on the Site Layout Map included as Figure 2 in Appendix A.

## **2.2 Chemicals of Concern**

Previous investigations performed at the Site have revealed the presence of volatile organic compounds (VOCs) in both soil and groundwater. The chemicals of concern (COCs) present at the Site are the VOCs tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), and vinyl chloride.

## **2.3 Further Site Investigation Background**

Patriot has conducted several investigations at the Site, including a Further Site Investigation (Patriot Project Number 16-1158-01E), an Additional Site Investigation (Patriot Project Number 17-0995-01E), a Further Site Investigation (Patriot Project Number 18-0449-01E), and a Further Site Investigation #3 (Patriot Project Number 19-0096-01E). The final report for Further Site Investigation #3 was submitted to IDEM on December 23, 2019. Copies of figures from the Further Site Investigation #3 report showing the laboratory analytical results and limits of COC impacts based on the March 4-12, 2019 sampling event are provided for reference in Appendix B. The IDEM reviewed the Further Site Investigation #3 report and the Vapor Intrusion Investigation Report (Patriot Project Number 19-0344-01E, October 25, 2019) for the HRID property and issued a report review and comment letter dated February 6, 2020 that included specific comments regarding the property and requests for additional investigation. Many of IDEM's comments have already been addressed by Patriot with additional vapor intrusion investigation and mitigation projects, and there have been numerous conversations and Site visits between IDEM and Patriot personnel to develop a scope of work for further investigation of the remaining IDEM comments and concerns. The IDEM comments on the Further Site Investigation #3 report from its February 6, 2020 letter and Patriot's responses to address IDEM's comments and concerns, including the tentatively agreed-upon scope of work between the IDEM and Patriot, are provided below. A copy of IDEM's February 6, 2020 comment letter is provided in Appendix C.

***IDEM Comment #1: IDEM agrees with Patriot's conclusion that the clay at the base of the upper water bearing unit is not a source of ongoing groundwater impacts***

Unless Site conditions dictate otherwise, Patriot will no longer analyze samples from the clay at the base of the upper water bearing unit during future investigations.

*IDEM Comment #2:* Patriot provided figures for the shallow and deep trichloroethene (TCE) plumes for early March 2019 but not late March 2019. Using the data and the figures Patriot concludes that the shallow portion of the TCE plume is delineated but not the deeper portion. IDEM does not agree that the shallow portion is delineated. Based on the groundwater flow (Figures 8B and 8C) to the south-southeast and the concentrations present in monitoring wells MW-14 and MW-14D in the April 1, 2019 sampling event, additional delineation is needed southeast of monitoring wells MW-14 and MW-14D. To better evaluate groundwater flow and seasonal variation, the new monitoring wells must be permanent wells.

The April 1, 2019 sampling data that IDEM references reports a TCE concentration of 495 micrograms per liter (ug/L) in the shallow groundwater sample collected on April 1, 2019. However, analysis of the previous five groundwater samples collected between September 2013 and March 2019 revealed no detectable concentrations of TCE at a laboratory reporting limit of 5 ug/L. Patriot believes that the TCE concentration reported for the April 2019 MW-14 sample is erroneous and that additional sampling of this well would likely show that TCE in the shallow groundwater is delineated. However, since a deeper monitoring well is required to the south/southeast of MW-14D to delineate TCE in the deeper groundwater, Patriot will install a paired shallow monitoring well and deep monitoring well to the south of MW-14/MW-14D.

*IDEM Comment #3:* In addition to TCE, tetrachloroethene (PCE), cis-1,2-dichloroethene, (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), and vinyl chloride (VC) remain undefined to the east. Additional permanent wells must be installed to delineate contamination in that direction.

Based on conversations between Tim Johnson of the IDEM and Mike Casper of Patriot, it was mutually agreed that delineation to the east of the Site can best be accomplished by installing paired shallow and deep groundwater monitoring wells on the east side of the adjacent agricultural field, west of Hurricane Creek. As described in this Work Plan, Patriot proposes that one well pair be installed to the east/northeast of the Site in the vicinity of the former Webb Wellfield production wells and the former water main, with three additional well pairs installed to the south between the former wellfield and Eastview Drive.

*IDEM Comment #4:* Figure 12 and Table 5 indicate the presence of TCE at the surface of the shallow aquifer at concentrations exceeding commercial vapor intrusion groundwater screening levels (VIGWSL) within the footprint of the gymnastics building

*on-Site. The gymnastics building has been evaluated for VI and TCE was not detected. Further evaluation of the VI pathway in the gymnastics building is warranted and has already begun.*

Patriot has conducted the additional VI evaluation of the former gymnastics building. In addition, the gymnastics center vacated the property in early 2020 and the building is currently vacant. Depending on the planned future use of the building, additional VI evaluation may be necessary in the future but is not part of this Work Plan

As previously mentioned, there have been numerous conversations and Site visits between IDEM and Patriot personnel to develop a scope of work for further investigation of the Site. In addition to responding to IDEM's comments as discussed above, this Work Plan also includes the following tasks:

- performing an additional soil and groundwater investigation to determine whether a COC source area is present beneath or around the building currently occupied by Crossroads Recycling (previously referred to as Building #2),
- installing and sampling additional paired shallow and deep wells on the Site to better define the lateral and vertical extent of groundwater impacts at the Site, and
- preparing a comprehensive CSM to develop remedial options for the Site, if needed.

### **3.0 FURTHER SITE INVESTIGATION SCOPE OF WORK**

#### **3.1 Access Agreements**

After IDEM approves the FSI Workplan, Patriot will obtain access agreements for off-Site wells and coordinate the field work with IDEM. It is anticipated that separate access agreements will be needed to install the monitoring wells along Hurricane Creek and to install the wells south/southeast of monitoring wells MW-14/MW-14D and MW-12/MW-12D.

#### **3.2 Health and Safety Plan Preparation**

Patriot will update the existing Site-specific HASP prior to implementation of the project. The HASP will be used by members of the project team to maintain a safe project Site. All on-site personnel will be required to read and sign the HASP prior to beginning work to acknowledge that they understand the contents of the plan and will abide by it. All

Patriot and drilling subcontractor personnel assigned to this project will have participated in mandatory hazard communication (HAZCOM) training. Additionally, personnel who may be potentially exposed to hazardous chemicals while conducting field activities will have received OSHA 40-hour HAZWOPER instruction and annual 8-hour refresher training.

### **3.3 Underground Utility Location**

As required by law, prior to any subsurface drilling or probing Patriot will contact the Indiana Underground Plant Protection Service (IUPPS) to request that public underground utilities and/or structures in the work area be located and marked. Patriot will also contract with a private utility locator to mark private utilities and underground structures at the Site in the areas to be investigated.

### **3.4 Potential Source Area Investigation**

Patriot proposes to install up to 18 borings inside of or immediately adjacent to the Crossroads Recycling building to collect soil samples for field screening and laboratory analysis to determine if an additional source area for soil and groundwater impacts is present. The proposed boring locations are shown on Figure 3 in Appendix A. The actual boring locations will be selected in the field based on accessibility and the presence of building foundations or other underground obstructions.

A Geoprobe® direct push technology rig will be used to advance the borings to the desired depths to determine whether VOC impacted soil resulting from unknown historic activities at the Site is present that may be acting as a source of groundwater impacts. It is anticipated that a VOC source area in the soil beneath or around the building would be the result of surficial releases associated with historic activities and since the COCs at the Site are light non-aqueous phase liquids (LNAPL) there would not be a significant increase in contaminants in a “smear zone” created by fluctuating groundwater tables. Therefore, sixteen borings will be advanced to a depth of 10 feet bgs. One exterior boring and one interior boring will be advanced to a depth of approximately 15 feet bgs or the first occurrence of groundwater, whichever is deeper, to document soil lithology for installation of groundwater monitoring wells.

At each boring location, the Geoprobe® will be used to collect continuous soil samples in 5-foot increments from the ground surface to the base of the boring using a 2-inch diameter, stainless steel, dual core barrel sampler equipped with a polyvinyl chloride (PVC) liner. A new PVC liner will be used for each sample collection. The lithology of each soil sample will be visually classified according to the Unified Soil Classification



System and field screened for odor, staining and the presence of VOCs by headspace analysis using a photoionization detector (PID). The field screening procedure is typically used to qualitatively determine if petroleum products or VOCs are present in the soil samples. Headspace analysis will be conducted by placing a portion of the sample in a sealed zip-lock plastic bag and allowing the sample to equilibrate for approximately 5 minutes. The PID will be used to measure the concentration of total photoionizable vapors (TPVs) emitted from the sample. The soil lithology and field screening results will be recorded on soil boring logs in the field. One soil sample from each boring that exhibits the greatest potential for contamination based on PID screening, staining, odors, or other field evidence will be collected for laboratory analysis. The sampling will be performed in accordance with standard IDEM protocols for environmental investigations. All reusable equipment coming into contact with the samples designated for analysis will be decontaminated before and during use by cleaning with non-phosphate detergent wash and distilled water rinses.

Soil cuttings generated during the sampling activities will be containerized in sealed 55-gallon drums and stored on-Site pending waste characterization and disposal. Upon completion, the borings will be backfilled with bentonite chips and the borings inside the building will be finished with a concrete plug flush with the existing floor.

The soil samples designated for laboratory analysis will be collected using the methanol preservation method in accordance with United States Environmental Protection Agency (U.S. EPA) SW-846 Method 5035 (i.e., Terra Core samplers). The sample containers will be labeled and placed on ice in a cooler for delivery to Pace Analytical Services, Inc (Pace) in Indianapolis, Indiana for VOC analysis using U.S. EPA SW-846 Method 8260. Quality assurance / quality control (QA/QC) procedures will include submitting one blind duplicate sample and one trip blank sample in accordance with IDEM requirements. The samples will be analyzed on a standard two-week turnaround time and will be reported with Level 2 laboratory data quality objectives (DQO) documentation. The analytical results will be used to determine whether a COC source area is present and to determine the optimal locations for installation of groundwater monitoring wells inside the building and on the north, west, and southeast sides of the building to assist in determining whether an additional groundwater COC source is present. Installation of the monitoring wells is discussed below.

### **3.5 Groundwater Monitoring Well Installation**

Patriot proposes that 16 paired well sets (32 wells total) be installed at the Site to address IDEM's comments and concerns as described above. Each paired well set will consist of

a shallow well installed at the groundwater interface and a deeper well installed at the top of a clay confining layer that is laterally continuous across the Site and extends off-site. Previous investigations have shown that the top of the clay layer deepens in an easterly direction across the Site. The proposed on-Site monitoring well locations are shown on Figure 4 and the proposed off-Site monitoring well locations are shown on Figure 5, both of which are provided in Appendix A. Figure 4 also shows the approximate limit of COCs exceeding the Remediation Closure Guide (RCG) Tap Water Screening Levels in either the shallow or deeper groundwater. The rationale and anticipated approximate depth for each of the 16 paired well sets is provided in Table 1 in Appendix D.

A hollow stem auger rig equipped with dual core samplers will be used to advance each of the deeper borings to a depth where the clay unit underlying the surficial sand and gravel aquifer is encountered. The sampling will be performed in accordance with standard IDEM protocols for environmental investigations. All reusable equipment coming into contact with the samples designated for analysis will be decontaminated before and during use by cleaning with non-phosphate detergent wash and distilled water rinses. Soil samples will be obtained using a 2-inch diameter, stainless steel, dual core barrel sampler equipped with a PVC liner that will be hydraulically pushed to the desired depth. The inner barrel will be recovered with a continuous soil sample within the PVC liner inside the barrel. A new PVC liner will be used for each sample collection. Subsequent samples will be collected by advancing the sampler to the deeper target zone.

Following collection, the lithology of each soil sample will be visually classified in accordance with the Unified Soil Classification System and the sample will field screened for odor, staining, and the presence of volatile organic vapors by headspace analysis using a PID as previously described. The soil lithology and field screening results will be recorded on soil boring logs in the field. One soil sample will be collected for laboratory analysis from each boring at the depth interval determined to have the greatest potential for COC impacts. The analytical results will be used for characterization of the investigation-derived waste (soil). The soil samples will be collected using the methanol preservation method in accordance with SW-846 Method 5035. The sample containers will be labeled, placed on ice in a cooler, and delivered to Pace using chain-of-custody controls. The soil samples will be analyzed for VOCs using U.S. EPA SW-846 Method 8260. Since the samples will be used for waste characterization purposes, no duplicate or matrix spike/matrix spike duplicate (MS/MSD) samples will be collected.

After the clay unit is encountered, the dual tube sampling equipment will be removed, and a deep monitoring well will be installed through the hollow-stem augers in each of the 16

boring locations. Each deep monitoring well will be constructed using a 5-foot length of 2-inch inside diameter (ID), 0.010-inch slotted PVC screen that will be set at the top of the clay unit. A sufficient length of 2-inch ID PVC riser to reach the ground surface will be attached to the well screen. A sand pack will be placed around the well screen to a height of approximately 1 foot above the well screen. A minimum 1-foot thick hydrated bentonite seal will be placed above the sand pack and the remaining annular space will be filled with bentonite chips to just below the ground surface.

After completion of each deep well, a paired shallow monitoring well will be installed adjacent to the deep well. The borings for the shallow wells will be blank drilled to a depth of approximately 5 feet below the groundwater table using hollow stem augers based on the stratigraphy obtained from the deep borings. Each shallow well will be constructed using a 10-foot long section of 2-inch ID, 0.010-inch slotted PVC screen that will be positioned so that it intersects the water table and sufficient lengths of 2-inch ID PVC riser to reach the ground surface. A sand pack will be installed to a height of at least 1 foot above the top of the well screen. A minimum 1-foot thick hydrated bentonite seal will be placed above the sand pack and the remaining annular space will be sealed with hydrated bentonite chips to just below the ground surface.

The wells will be completed with either flush-mounted, steel protective covers set in concrete pads or above grade, steel protective covers set in a concrete collar. The top-of-casing elevations for the new wells will be surveyed to the same datum as the existing monitoring well network by an Indiana-licensed surveyor, and used in determining groundwater flow characteristics.

To ensure good hydraulic connectivity between the well bore and the surrounding soil, the wells will be developed by pumping until clear formation water is obtained. The development water and any decontamination water will be placed in 55-gallon drums and stored on Site pending characterization and disposal.

Soil cuttings generated during the drilling activities will be placed in lined and covered roll-off containers pending waste characterization and disposal.

### **3.6 Monitoring Well Sampling**

Following completion of the soil sampling and well installation, Patriot will gauge water levels and collect groundwater samples from the entire monitoring well network at the Site. The monitoring well network includes the 32 new wells and 28 existing wells (MW-10, MW-11, MW-11D, MW-12, MW-12D, MW-13, MW-14, MW-14D, MW-15, MW-15D, MW-16, MW-20, MW-21, MW-22, MW-22D, MW-23, MW-24, MW-25, MW-26, MW-27,

MW-28, MW-29, MW-29D, MW-30, MW-31, MW-32, MW-33 and MW-33D). Existing monitoring wells MW-17, MW-18 and MW-19 will be gauged but not sampled. MW-17 is located near the northeast corner of the Site and has two wells with no historic COC impacts (MW-16 and MW-28) between it and the area of groundwater impacts. MW-18 and MW-19 are located on properties west of the Reed property and are upgradient of the groundwater impacts present at the Site. *Patriot* will also contact the environmental consultant for the adjacent Reed property and request that they perform concurrent sampling of the Reed wells.

Prior to sampling, each monitoring well will be gauged using an electronic water level meter. The depth to groundwater and total well depth from the surveyed top-of-casing will be measured to the nearest 0.01 foot at each well. The water level probe and tape will be decontaminated with a non-phosphate detergent wash and distilled water rinses after use at each well to prevent cross contamination. The depth to groundwater measurements will be recorded in field log and used to calculate groundwater elevations to evaluate groundwater flow conditions at the Site.

Groundwater sampling will be conducted using low flow procedures in accordance with the low-flow sampling method outlined in the IDEM Micro-Purge Sampling Option Technical Guidance Document (June 3, 1998, revised November 3, 2009). Low flow sampling will cause minimal drawdown of the water level within the well thus limiting the volatilization of VOCs or the introduction of sediment into the sample. To conduct the low flow sampling, *Patriot* will place a small diameter, submersible pump into the well fitted with dedicated tubing that reaches above the ground surface. The well will be pumped at a rate ranging between 50 to 200 milliliters per minute (ml/min), and the static water level within the well will be monitored to ensure that drawdown is limited to 0.1 meter or less. The groundwater removed from the well will be pumped through a flow-through cell equipped with a water quality meter that measures water temperature, pH, specific conductivity, oxidation-reduction potential (ORP), turbidity and dissolved oxygen (DO). Stabilization of these water quality parameters (e.g., consecutive readings within 10 percent of the previous reading) will indicate that the water being withdrawn from the well is representative of the actual groundwater conditions and the groundwater sample can be collected. The groundwater samples will be collected by disconnecting the discharge tubing from the flow-through cell and filling 40 milliliter (ml) glass vials with Teflon-lined septa directly from the discharge tubing. The groundwater sampling activities including the field measurements specified above will be recorded and documented on field sampling forms. The sample containers will be labeled, placed on ice in a cooler, and delivered to Pace under chain-of-custody controls. The sampling purge water will be

placed in sealed 55-gallon drums and stored on-site pending characterization and disposal.

QA/QC procedures will include the collection and analysis of one duplicate sample and one MS/MSD sample per every 20 samples and one trip blank per cooler of samples delivered to the laboratory. For this proposal, *Patriot* has assumed that 60 groundwater samples, three duplicate samples, three MS/MSD samples, and five trip blanks will be collected and submitted for VOC analysis by U.S. EPA SW-846 Method 8260. The samples will be analyzed on a standard two-week turnaround time and will be reported with Level 2 laboratory DQO documentation.

### **3.7 Investigation-Derived Waste Handling**

The soil cuttings generated during the soil investigation at the Crossroads Recycling building, monitoring well development water, and monitoring well purge water will be placed into U.S. Department of Transportation-approved 55-gallon drums. The soil cuttings generated during the monitoring well installation will be placed into two lined and covered roll-off containers. The drums and roll-off containers will be left at an on-Site location until the laboratory analytical results are received. At that time, the investigation-derived waste will be picked up and transported to an approved facility for disposal. It is anticipated that approximately two drums of soil, 26 drums of monitoring well development and decontamination water, four drums of purge water, and two 20-cubic yard roll-off containers of soil will be generated during this project. The process(es) that generated the COCs at the Site is not known and the COC-impacted waste soil and groundwater that will be generated during the FSI #4 are not considered to be listed hazardous wastes. It is anticipated that the investigation-derived waste can be disposed of as non-hazardous waste, but the disposal method and facility will be selected based on the waste characterization analysis.

### **3.8 FSI Report Preparation**

*Patriot* will prepare an FSI report upon completion of fieldwork and receipt of laboratory analytical results. The report will include a narrative of the investigation activities, a discussion of the analytical results from both the Site and the Reed property, and an interpretation of the results. The laboratory data will be summarized in tabular form and depicted on figures. Boring logs, monitoring well construction diagrams, field sampling logs, a scaled site plan showing the locations of soil borings and monitoring wells figures, and analytical reports for the work conducted at the Site will be included as attachments to the report.

### 3.9 Comprehensive Conceptual Site Model (CSM) Preparation

Patriot will also develop a comprehensive CSM for the Site based on the data collected from current and historic environmental investigations. The CSM will document the types, concentrations and extent of COCs present in soil, shallow groundwater, and deep groundwater at the Site; evaluate contaminant trends over time, if applicable; identify potential sensitive environmental receptors at and near the Site; identify potential human exposure pathways for the COCs at the Site; evaluate groundwater flow directions and characteristics; and identify any data gaps that would need to be resolved prior to preparing a remedial options plan for the Site. The CSM will include figures and tables showing the comprehensive physical and analytical data, and geologic cross sections of the Site and impacted off-Site areas showing the stratigraphy, lithology, groundwater levels, and contaminant concentrations in order to provide a complete representation of lateral and vertical contaminant plume extents.

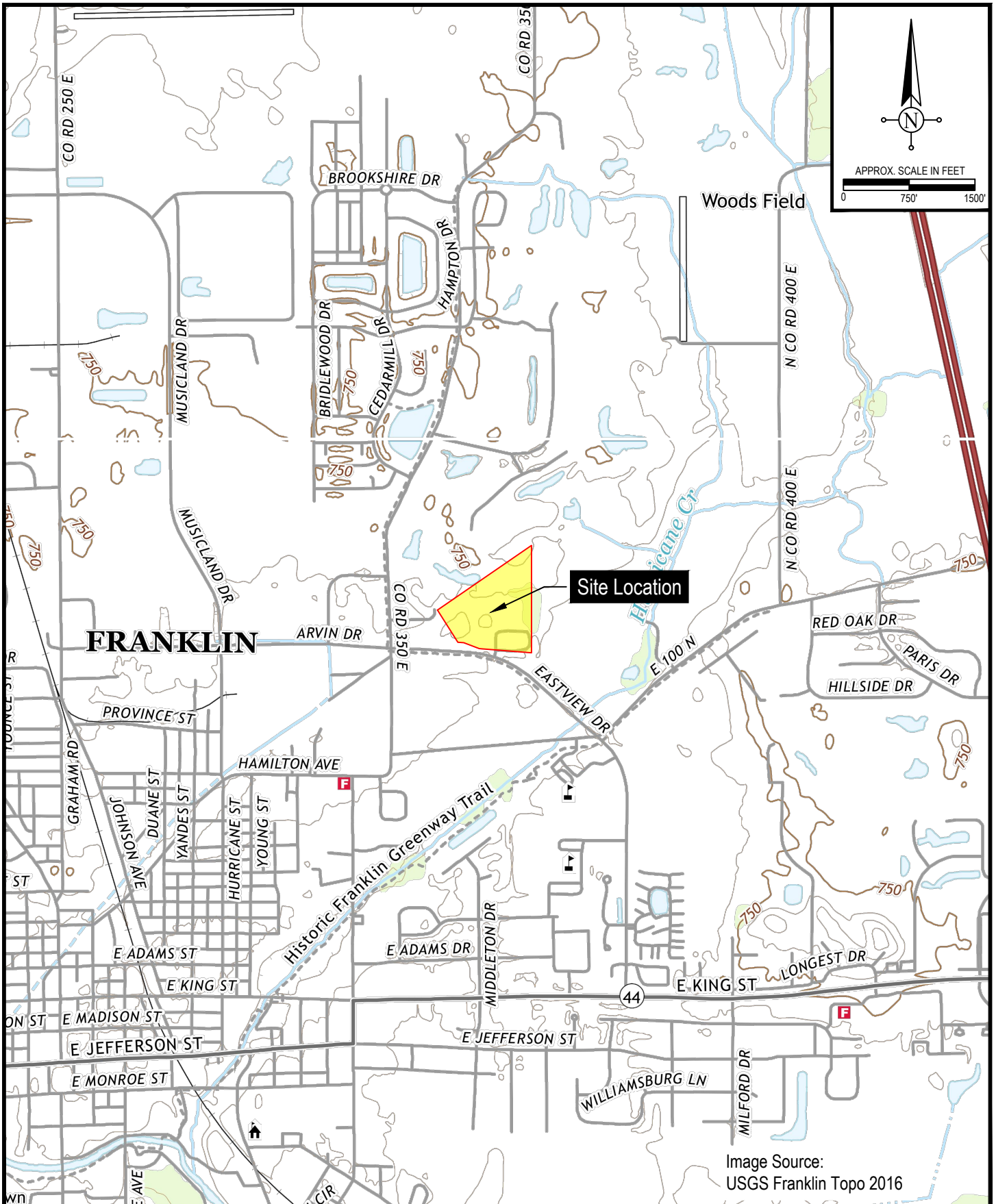
### 4.0 ESTIMATED PROJECT TIMELINE

The estimated Project Timeline is provided below with dates based on IDEM approval of the Work Plan on September 7, 2020. The actual timeline will depend on the date that final approval of the Work Plan is received from IDEM.

| <u>Task</u>                                   | Days from<br><u>Start</u> | <u>Dates(s)</u>    |
|---|---------------------------|--------------------|
| IDEM Approval of Work Plan                    | 1                         | September 7, 2020  |
| Obtain Access Agreements and Locate Utilities | 14                        | September 21, 2020 |
| Commence Source Area Soil Investigation       | 21                        | September 28, 2020 |
| Complete Source Area Soil Investigation       | 23                        | September 30, 2020 |
| Receive and Evaluate Soil Analytical Results  | 35                        | October 16, 2020   |
| Commence Monitoring Well Installation         | 28                        | October 5, 2020    |
| Complete Monitoring Well Installation         | 46                        | October 23, 2020   |
| Receive Groundwater Analytical Results        | 63                        | November 9, 2020   |
| Issue FSI # 4 Report and CSM                  | 91                        | December 7, 2020   |

## **APPENDIX A**

### **FIGURES**



**Patriot Engineering &  
Environmental, Inc.**

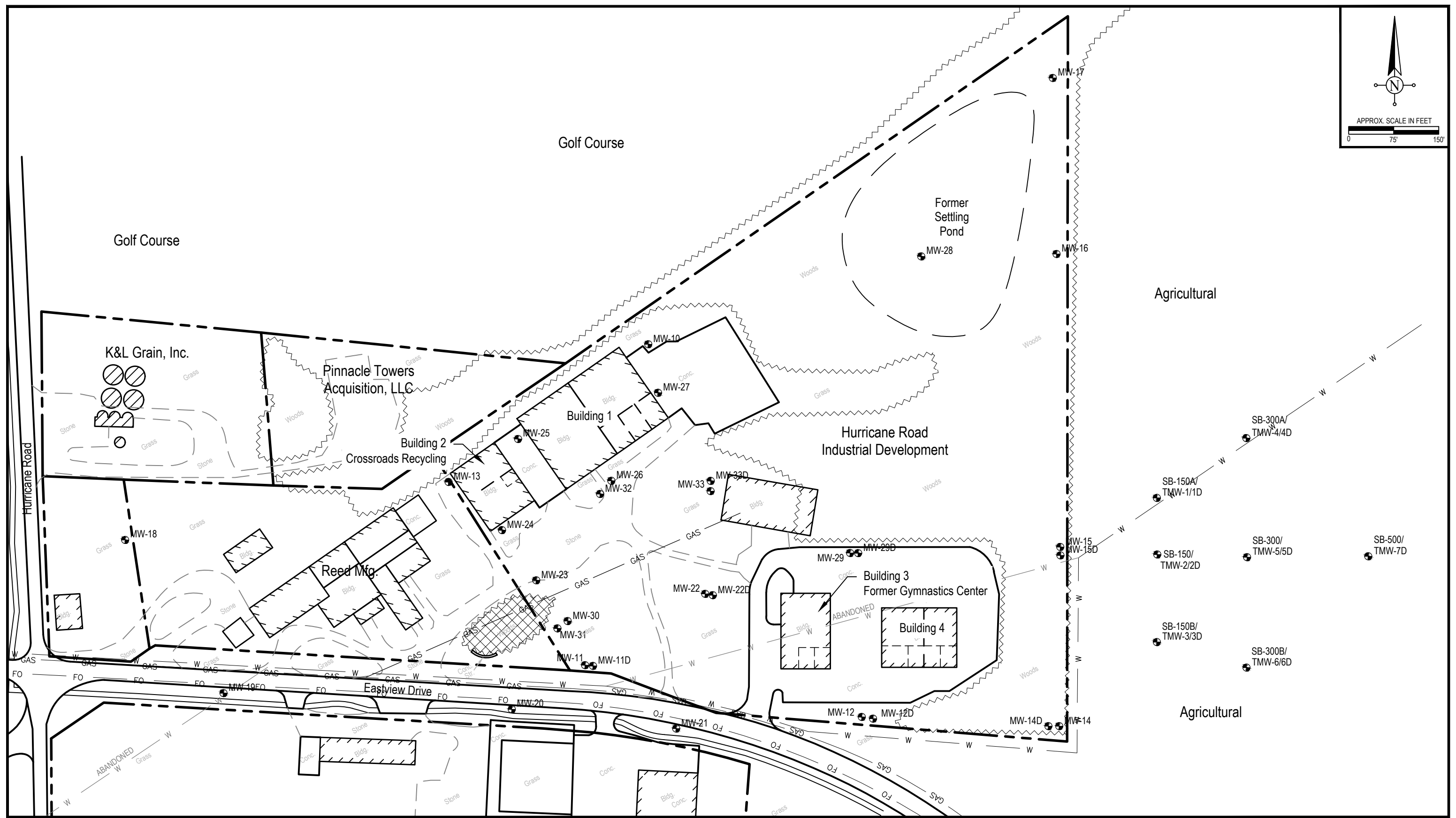
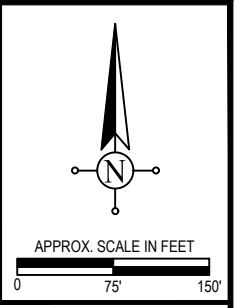
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|                            |                     |
|----------------------------|---------------------|
| Project Number 20-0963-01E | Drawn By: J. DuMond |
| Date: August 7, 2020       | Approved: M. Casper |
|                            | DWG: 20-0963-01_Ph2 |

Figure 1

Site Location Map

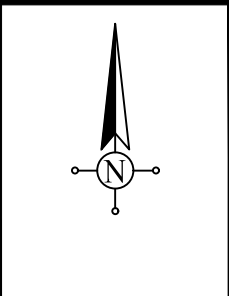
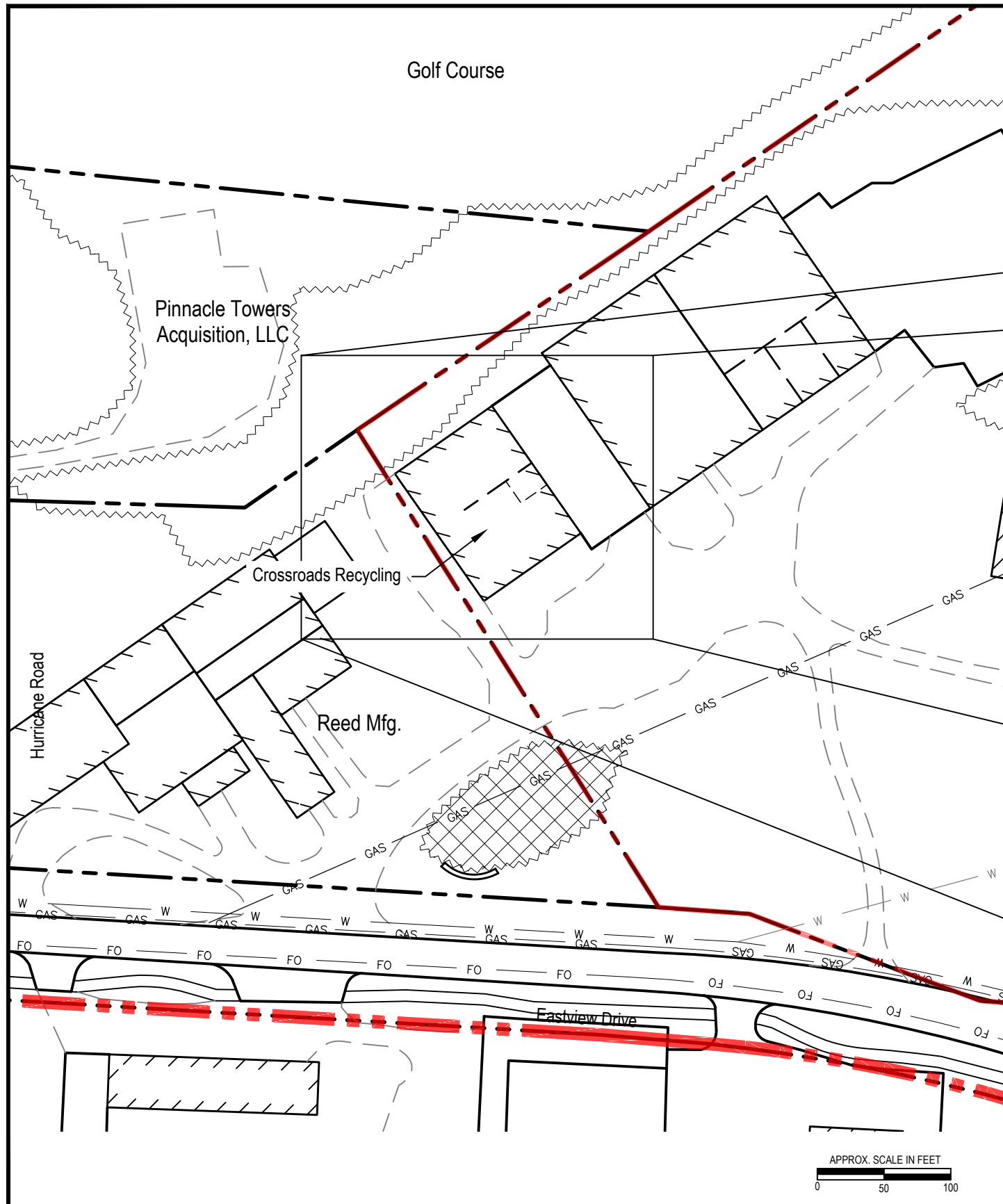




| LEGEND |                           |                                  |
|--------|---------------------------|----------------------------------|
|        | Parcel Line               | Patriot Monitoring Well Location |
|        | Clawson Property Boundary | Wooded area with fill and debris |
|        | Water Line                |                                  |
|        | Gas Line                  |                                  |
|        | Fiber Optic Line          |                                  |

|  |                     |
|--|---------------------|
| Project: Former Houghland Tomato Cannery FSI #4<br>1130 E. Eastview Drive<br>Franklin, Indiana<br>IDEM Identification No. 2013-34567 |                     |
| Project Number: 20-0963-01E  | Drawn By: J. DuMond |
| Date: August 7, 2020   | Approved: M. Casper |
|  | DWG: 20-0963-01_Ph2 |

Figure 2  
Site Layout Map

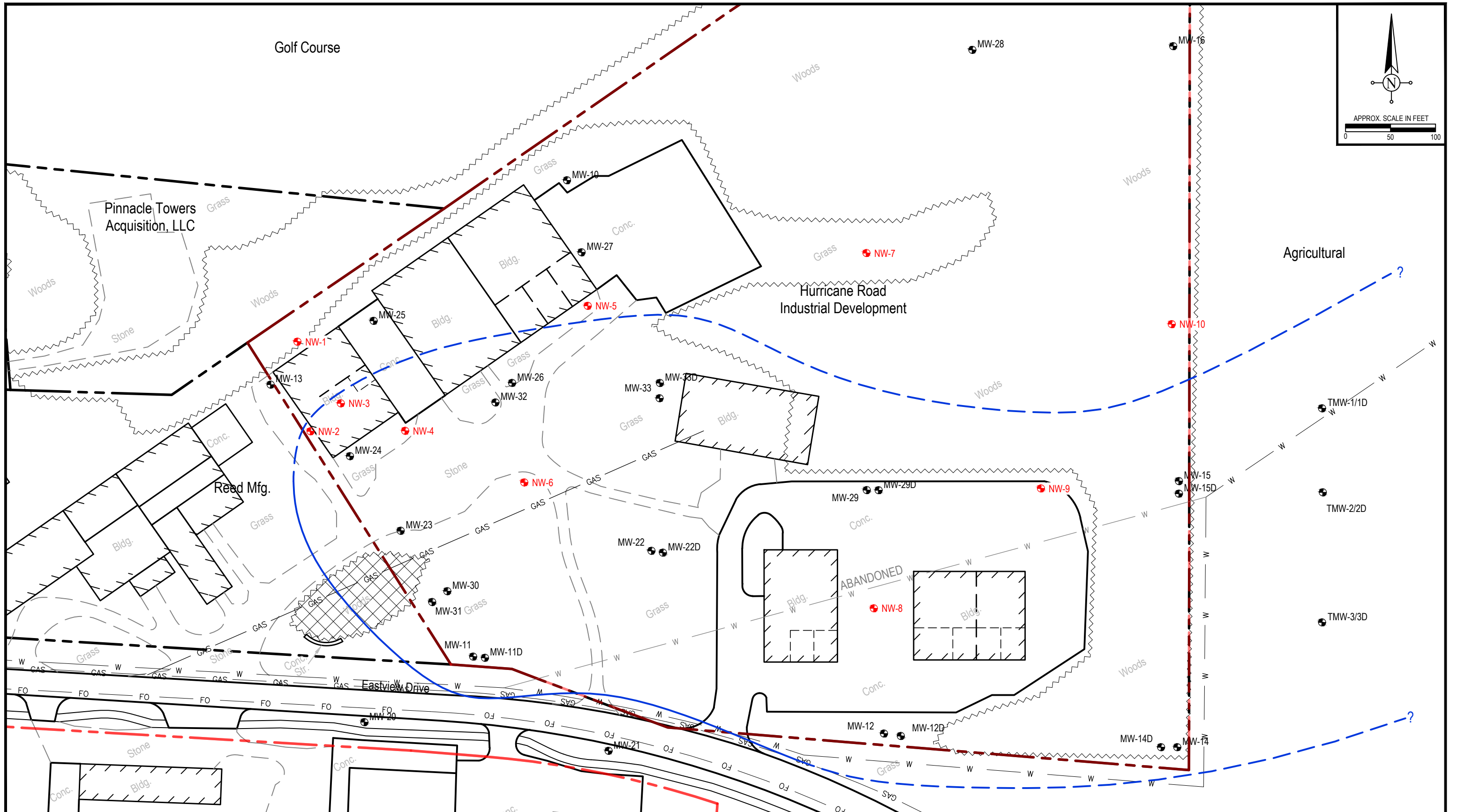


| LEGEND |                                  |
|--------|----------------------------------|
|        | Parcel Line                      |
|        | Clawson Property Boundary        |
|        | Water Line                       |
|        | Gas Line                         |
|        | Fiber Optic Line                 |
|        | Proposed Soil Boring Location    |
|        | Wooded area with fill and debris |

Project: Former Houghland Tomato Cannery FSI #4  
 1130 E. Eastview Drive  
 Franklin, Indiana  
 IDEM Identification No. 2013-34567

|                            |                      |
|----------------------------|----------------------|
| Project Number 20-0963-01E | Drawn By: J. DuMond  |
| Date: August 7, 2020       | Approved: M. Casper  |
|                            | DWG: 20-0963-01_prop |

Figure 3  
 Proposed Soil Boring  
 Location Map



| LEGEND |  |
|--------|--|
|        | Parcel Line  |
|        | Clawson Property Boundary  |
|        | Water Line   |
|        | Gas Line   |
|        | Fiber Optic Line   |
|        | Patriot Monitoring Well Location   |
|        | Proposed Paired (Shallow & Deep) Monitoring Well Location                            |
|        | Wooded area with fill and debris   |
|        | Approximate limit of COCs exceeding RCG Tap Water Screening Levels.                  |
|        | Inferred limit of COCs exceeding RCG Tap Water Screening Levels due to lack of data. |

|  |                      |
|--|----------------------|
| Project: Former Houghland Tomato Cannery FSI #4<br>1130 E. Eastview Drive<br>Franklin, Indiana<br>IDEM Identification No. 2013-34567 |                      |
| Project Number: 20-0963-01E  | Drawn By: J. DuMond  |
| Date: August 7, 2020   | Approved: M. Casper  |
|  | DWG: 20-0963-01_prop |

Figure 4  
On-Site  
Proposed Monitoring Well  
Location Map



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**LEGEND**  
 - - - - - Clawson Property Boundary  
 NW-X + Proposed Paired (Shallow & Deep) Monitoring Well Location

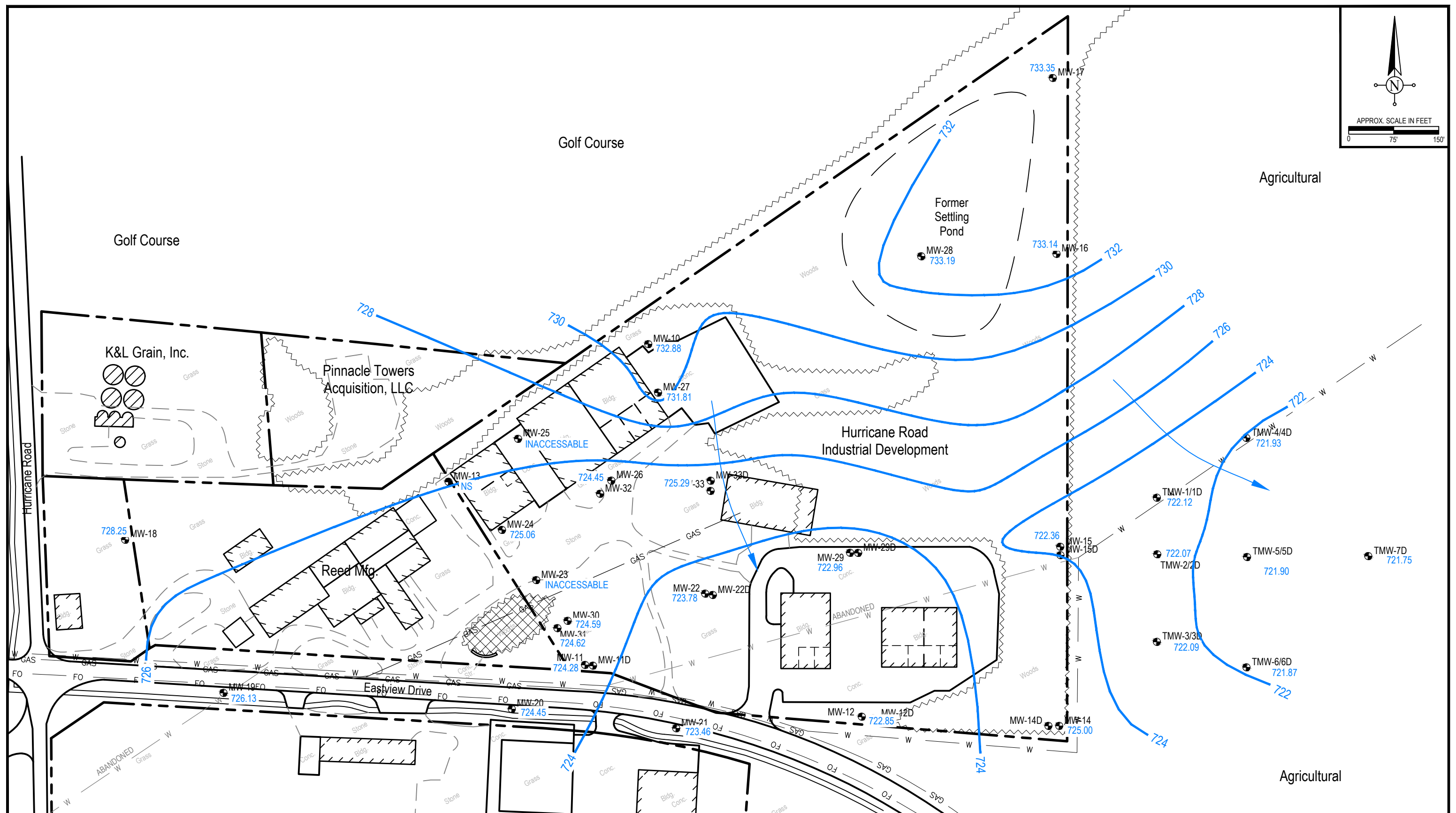
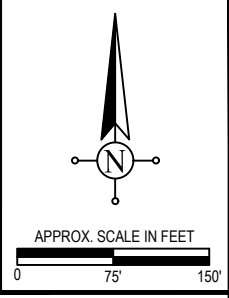
Project: Former Houghland Tomato Cannery FSI #4  
 1130 E. Eastview Drive  
 Franklin, Indiana  
 IDEM Identification No. 2013-34567

|                            |                      |
|----------------------------|----------------------|
| Project Number 20-0963-01E | Drawn By: J. DuMond  |
| Date: August 7, 2020       | Approved: M. Casper  |
|                            | DWG: 20-0963-01_prop |

**Figure 5**  
 Proposed Offsite  
 Monitoring Well Location Map

**APPENDIX B**

**FURTHER SITE INVESTIGATION #3 FIGURES**



**LEGEND**

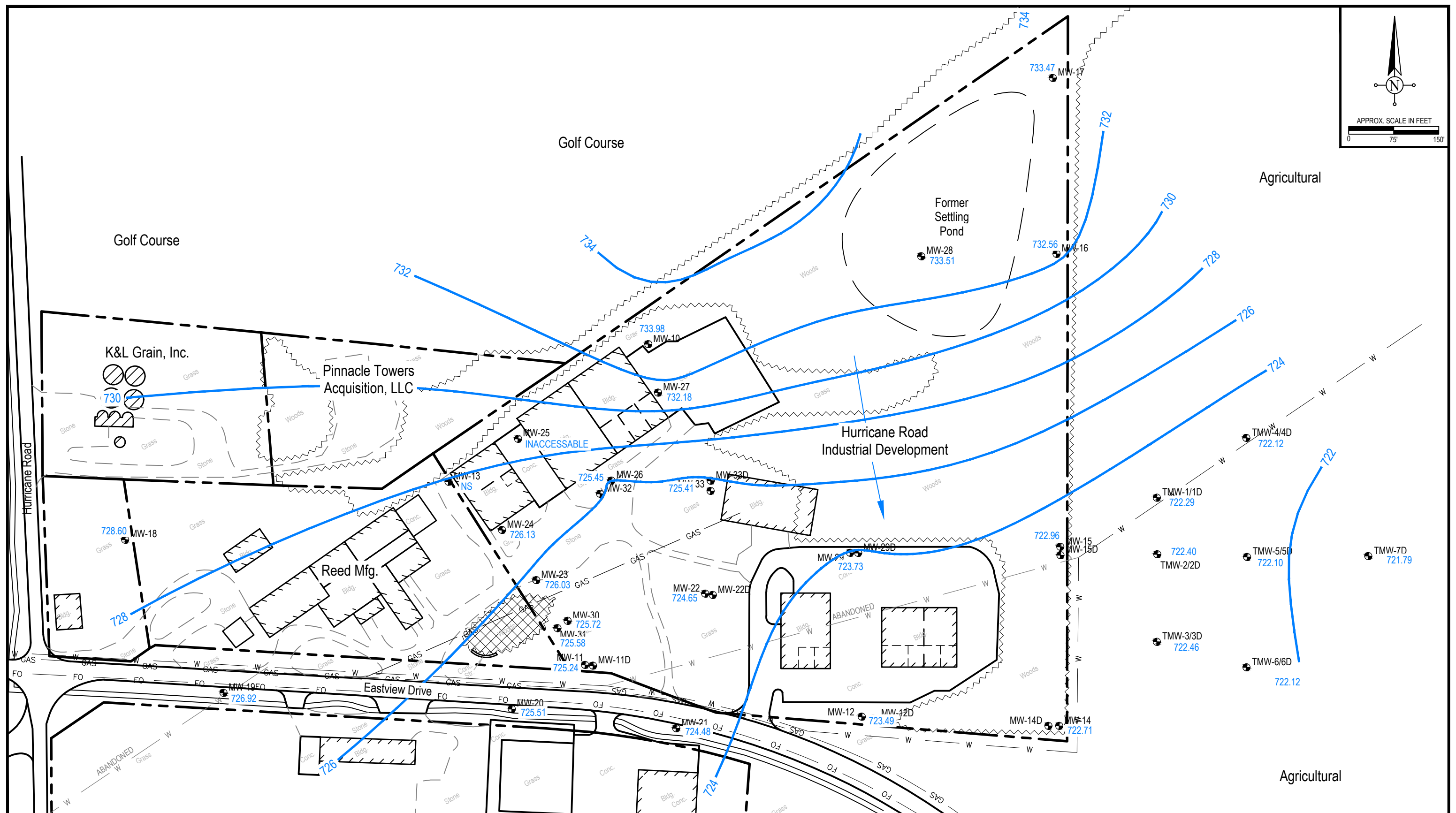
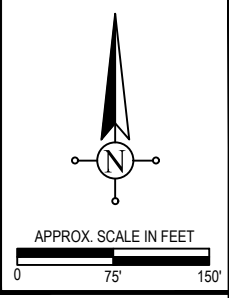
|  |                           |
|--|---------------------------|
|  | Parcel Line               |
|  | Clawson Property Boundary |
|  | Water Line                |
|  | Gas Line                  |
|  | Fiber Optic Line          |

- Patriot Monitoring Well Location
- Wooded area with fill and debris

- 723.48 Groundwater Elevation
- 724 Potentiometric Surface Contour w/Elevation
- Groundwater Flow Direction

|  |                     |
|--|---------------------|
| Project: Former Houghland Tomato Cannery FSI #3<br>1130 E. Eastview Drive<br>Franklin, Indiana<br>IDEM Identification No. 2013-42015 |                     |
| Project Number: 19-0096-01E  | Drawn By: J. DuMond |
| Date: July 11, 2019  | Approved: J. Cody   |
|  | DWG: 19-0096-01_Ph2 |

**Figure 8A**  
Groundwater Contour Map  
February 4, 2019  
Sampling Event #1



**LEGEND**

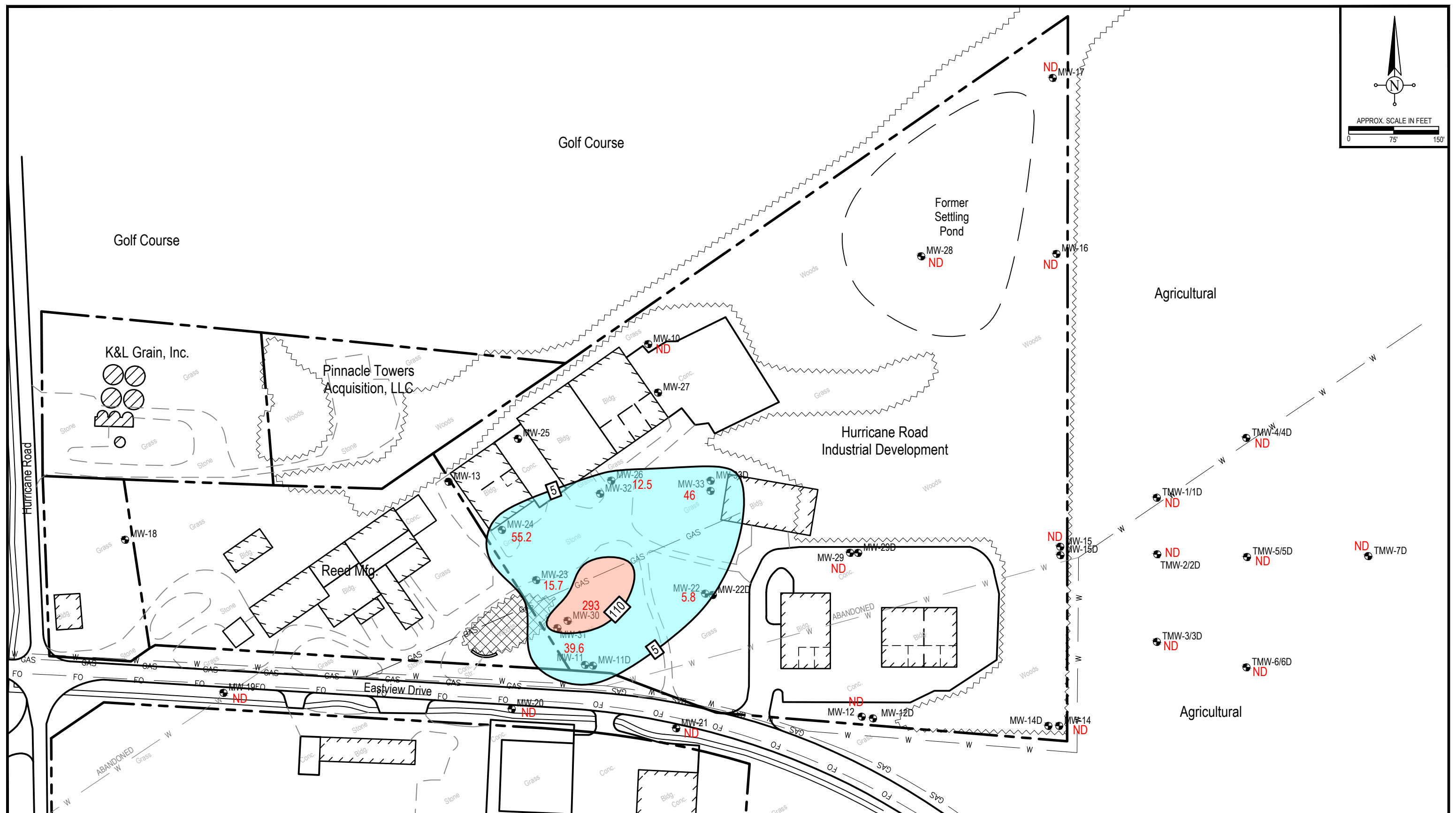
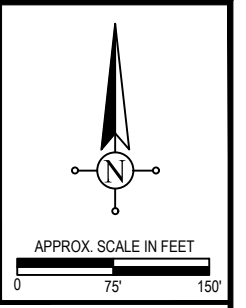
|  |                           |
|--|---------------------------|
|  | Parcel Line               |
|  | Clawson Property Boundary |
|  | Water Line                |
|  | Gas Line                  |
|  | Fiber Optic Line          |

- Patriot Monitoring Well Location
- Wooded area with fill and debris

- 723.48 Groundwater Elevation
- 724 Potentiometric Surface Contour w/Elevation
- Groundwater Flow Direction

|  |                     |
|--|---------------------|
| Project: Former Houghland Tomato Cannery FSI #3<br>1130 E. Eastview Drive<br>Franklin, Indiana<br>IDEM Identification No. 2013-42015 |                     |
| Project Number: 19-0096-01E  | Drawn By: J. DuMond |
| Date: July 11, 2019  | Approved: J. Cody   |
|  | DWG: 19-0096-01_Ph2 |

**Figure 8C**  
Groundwater Contour Map  
March 25, 2019  
Sampling Event #3

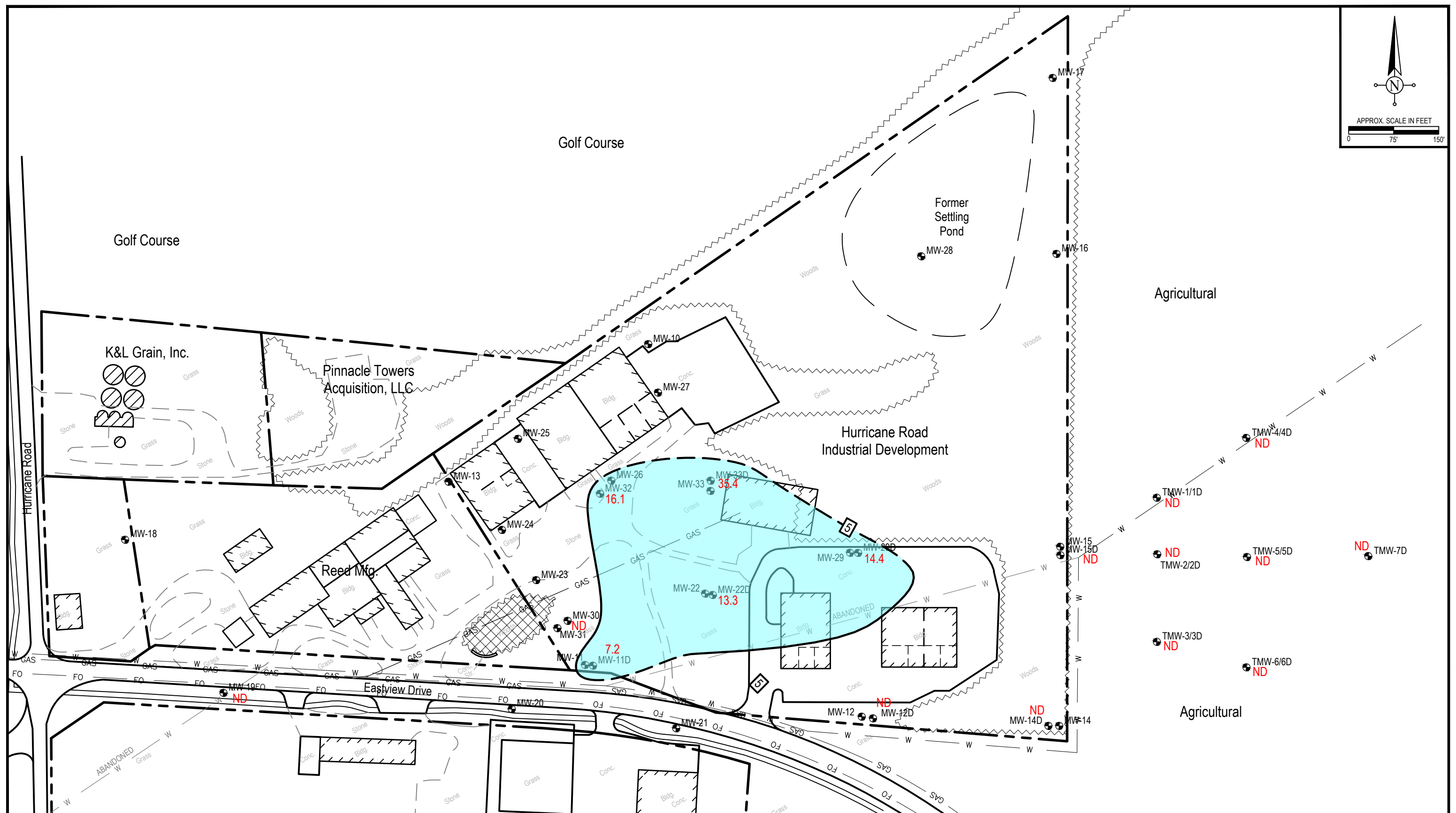
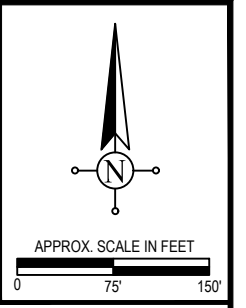


| LEGEND |                                | PCE Concentration (µg/L) |   |
|--------|--------------------------------|--------------------------|---|
|        | Parcel Line                    |                          | Area where contaminant exceeds IDEM RCG Residential TWSL for PCE (5 µg/L)   |
|        | Clawson Property Boundary      |                          | Area where contaminant exceeds IDEM RCG Residential VESL for PCE (110 µg/L) |
|        | Water Line                     |                          | Area where contaminant exceeds IDEM RCG Industrial VESL for PCE (470 µg/L)  |
|        | Gas Line                       |                          | Patriot Monitoring Well Location  |
|        | Fiber Optic Line               |                          | Wooded area with fill and debris  |
|        | Inferred Isoconcentration Line |                          |   |

|  |                     |
|--|---------------------|
| Project: Former Houghland Tomato Cannery FSI #3<br>1130 E. Eastview Drive<br>Franklin, Indiana<br>IDEM Identification No. 2013-42015 |                     |
| Project Number: 19-0096-01E  | Drawn By: J. DuMond |
| Date: May 8, 2019  | Approved: J. Cody   |
|  | DWG: 19-0096-01_Ph2 |

Figure 10  
PCE Plume Map  
Shallow  
March 4-12, 2019



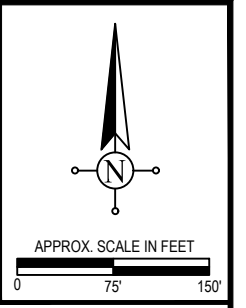


| LEGEND |                                  |
|--------|----------------------------------|
|        | Parcel Line                      |
|        | Clawson Property Boundary        |
|        | Water Line                       |
|        | Gas Line                         |
|        | Fiber Optic Line                 |
|        | Patriot Monitoring Well Location |
|        | Wooded area with fill and debris |
|        | Inferred Isoconcentration Line   |

|  |   |
|--|---|
|  | 423 PCE Concentration (µg/L)<br>Area where contaminant exceeds IDEM RCG Residential TWSL for PCE (5 µg/L) |
|  | Area where contaminant exceeds IDEM RCG Residential VESL for PCE (110 µg/L)                               |
|  | Area where contaminant exceeds IDEM RCG Industrial VESL for PCE (470 µg/L)                                |

|  |                     |
|--|---------------------|
| Project: Former Houghland Tomato Cannery FSI #3<br>1130 E. Eastview Drive<br>Franklin, Indiana<br>IDEM Identification No. 2013-42015 |                     |
| Project Number: 19-0096-01E  | Drawn By: J. DuMond |
| Date: September 17, 2019   | Approved: J. Cody   |
|  | DWG: 19-0096-01_Ph2 |

Figure 11  
PCE Plume Map  
Deep  
March 4-12, 2019



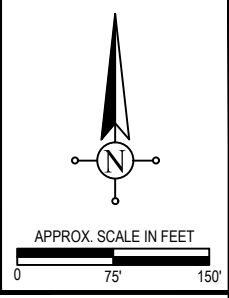
**LEGEND**

|  |                           |  |  |
|--|---------------------------|--|--|
|  | Parcel Line               |  | Patriot Monitoring Well Location                       |
|  | Clawson Property Boundary |  | Wooded area with fill and debris                       |
|  | Water Line                |  | Inferred Isoconcentration Line Data from February 2019 |
|  | Gas Line                  |  |  |
|  | Fiber Optic Line          |  |  |

|  |   |
|--|---|
|  | 423 PCE Concentration (µg/L)  |
|  | Area where contaminant exceeds IDEM RCG Residential TWSL for TCE (5 µg/L)   |
|  | Area where contaminant exceeds IDEM RCG Residential VESL for TCE (9.1 µg/L) |
|  | Area where contaminant exceeds IDEM RCG Industrial VESL for TCE (38 µg/L)   |

|  |                     |
|--|---------------------|
| Project: Former Houghland Tomato Cannery FSI #3<br>1130 E. Eastview Drive<br>Franklin, Indiana<br>IDEM Identification No. 2013-42015 |                     |
| Project Number: 19-0096-01E  | Drawn By: J. DuMond |
| Date: May 8, 2019  | Approved: J. Cody   |
|  | DWG: 19-0096-01_Ph2 |

**Figure 12**  
TCE Plume Map  
Shallow  
March 4-12, 2019



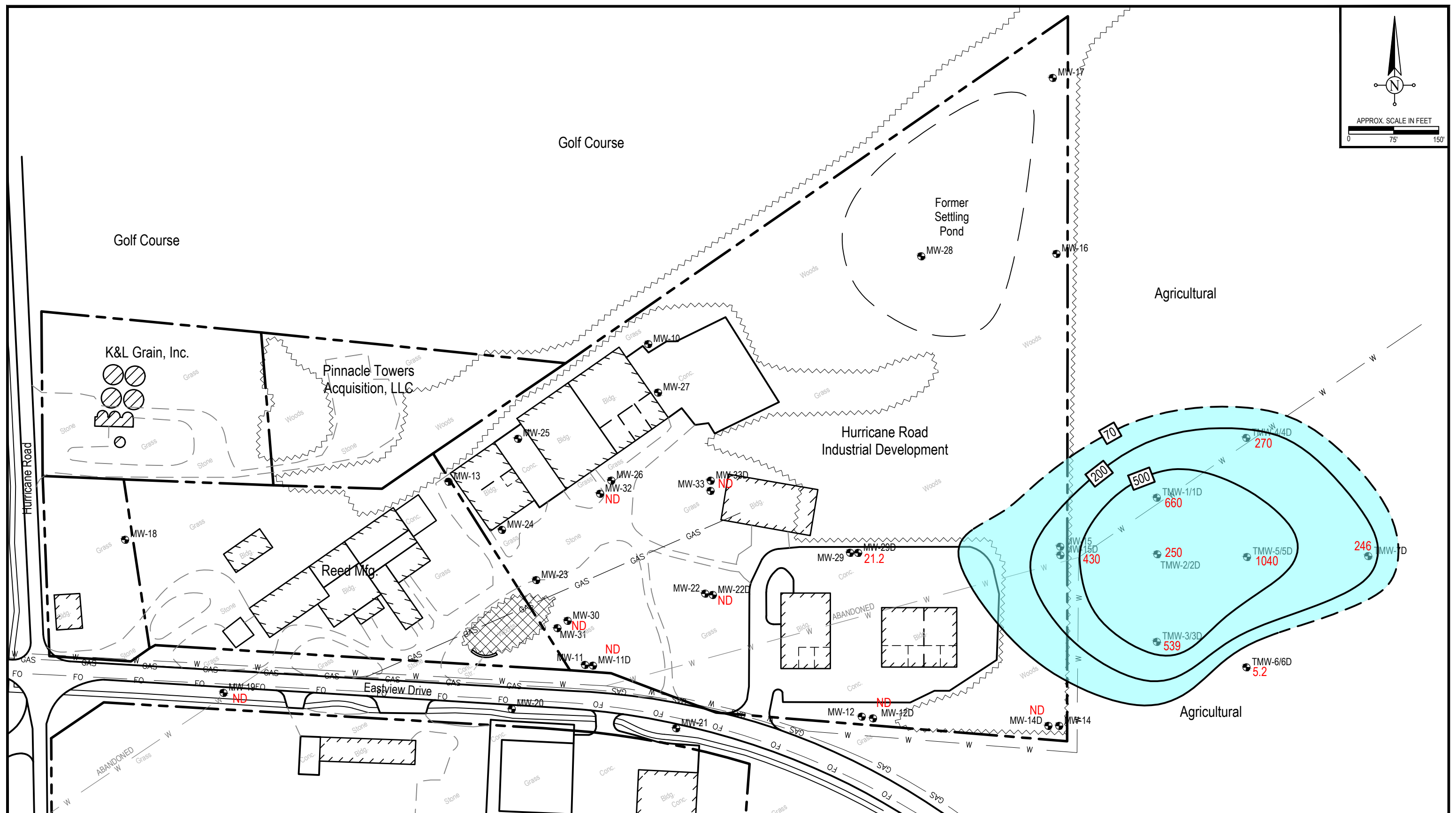
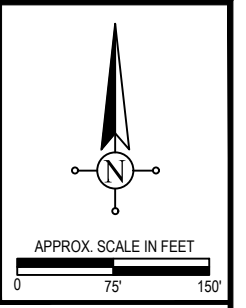
**LEGEND**

|  |                  |  |                                  |  |                                  |
|--|------------------|--|----------------------------------|--|----------------------------------|
|  | Parcel Line      |  | Clawson Property Boundary        |  | Patriot Monitoring Well Location |
|  | Water Line       |  | Wooded area with fill and debris |  | Non-Detect                       |
|  | Gas Line         |  | Inferred Isoconcentration Line   |  | Data from April 2019             |
|  | Fiber Optic Line |  |                                  |  |                                  |

|  |     |   |
|--|-----|---|
|  | 423 | PCE Concentration (µg/L)  |
|  |     | Area where contaminant exceeds IDEM RCG Residential TWSL for TCE (5 µg/L)   |
|  |     | Area where contaminant exceeds IDEM RCG Residential VESL for TCE (9.1 µg/L) |
|  |     | Area where contaminant exceeds IDEM RCG Industrial VESL for TCE (38 µg/L)   |

|  |                     |
|--|---------------------|
| Project: Former Houghland Tomato Cannery FSI #3<br>1130 E. Eastview Drive<br>Franklin, Indiana<br>IDEM Identification No. 2013-42015 |                     |
| Project Number: 19-0096-01E  | Drawn By: J. DuMond |
| Date: September 17, 2019   | Approved: J. Cody   |
|  | DWG: 19-0096-01_Ph2 |

**Figure 13**  
TCE Plume Map  
Deep  
March 4-12, 2019



**LEGEND**

|  |                           |  |                                  |
|--|---------------------------|--|----------------------------------|
|  | Parcel Line               |  | Patriot Monitoring Well Location |
|  | Clawson Property Boundary |  | Wooded area with fill and debris |
|  | Water Line                |  | Inferred Isoconcentration Line   |
|  | Gas Line                  |  |                                  |
|  | Fiber Optic Line          |  |                                  |

|  |     |  |
|--|-----|--|
|  | 423 | PCE Concentration (µg/L)   |
|  |     | Area where contaminant exceeds IDEM RCG Residential TWSL for cis-1,2 DCE (70 µg/L) |
|  |     | Area where contaminant exceeds IDEM RCG Residential VESL for cis-1,2 DCE (NE µg/L) |
|  |     | Area where contaminant exceeds IDEM RCG Industrial VESL for cis-1,2 DCE (NE µg/L)  |

|  |                     |
|--|---------------------|
| Project: Former Houghland Tomato Cannery FSI #3<br>1130 E. Eastview Drive<br>Franklin, Indiana<br>IDEM Identification No. 2013-42015 |                     |
| Project Number: 19-0096-01E  | Drawn By: J. DuMond |
| Date: May 8, 2019  | Approved: J. Cody   |
|  | DWG: 19-0096-01_Ph2 |

Figure 14  
cis-1,2 DCE Plume Map  
Deep  
March 4-12, 2019

**APPENDIX C**

**FEBRUARY 6, 2020 IDEM COMMENT LETTER**



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We Protect Hoosiers and Our Environment.*

100 N. Senate Avenue • Indianapolis, IN 46204  
(800) 451-6027 • (317) 232-8603 • [www.idem.IN.gov](http://www.idem.IN.gov)

Eric J. Holcomb  
*Governor*

Bruno L. Pigott  
*Commissioner*

February 6, 2020

Mr. Robert L. Clawson  
d/b/a Hurricane Road Industrial Development  
c/o Greg Cafouros  
Kroger, Gardis, and Regas  
111 Monument Circle, Suite 900  
Indianapolis, IN 46204-5125

Dear Mr. Clawson:

Re: **Vapor Intrusion Investigation Report and  
Further Site Investigation 3 Review**  
Former Houglan Tomato Cannery  
1130 East Eastview Drive  
Franklin, Johnson County  
State Cleanup Site #201334567

The Indiana Department of Environmental Management (IDEM) has reviewed the file pertaining to a release of hazardous substances at the Former Houglan Tomato Cannery located at 1130 East Eastview Drive, Franklin, Johnson County, Indiana (Site). Specifically, the following documents, prepared and submitted by Patriot Engineering and Environmental Inc. (Patriot) were reviewed:

- *Vapor Intrusion Investigation Report, Hurricane Industrial Development LLC Property (VI Report)*, IDEM's Virtual File Cabinet (VFC) (available at <https://vfc.idem.in.gov>) document #82857105;  
and,
- *Final Report, Further Site Investigation #3, Hurricane Road Industrial Development/Former Houglan Tomato Cannery (FSI 3)*, IDEM's VFC document #82872596;

The VI report and FSI3 were evaluated based on IDEM's *Remediation Closure Guide (RCG)* and *Remediation Program Guide (RPG)* guidance manuals and *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW846)* Third Edition, Update III. Based on the data submitted, additional investigation, including VI is required. The following IDEM comments must be addressed in the reports:

## Comments

### FSI 3

1. IDEM agrees with Patriot's conclusion that the clay at the base of the upper water bearing unit is not a source of ongoing groundwater impacts.
2. Patriot provided figures for the shallow and deep trichloroethene (TCE) plumes for early March 2019 but not late March 2019. Using the data and the figures Patriot concludes that the shallow portion of the TCE plume is delineated but not the deeper portion. IDEM does not agree that the shallow portion is delineated. Based on the groundwater flow (Figures 8B and 8C) to the south-southeast and the concentrations present in monitoring wells MW-14 and MW-14D in the April 1, 2019 sampling event, additional delineation is needed southeast of monitoring wells MW-14 and MW-14D. To better evaluate groundwater flow and seasonal variation, the new monitoring wells must be permanent wells.
3. In addition to TCE, tetrachloroethene (PCE), cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE) and vinyl chloride (VC) remain undefined to the east. Additional permanent wells must be installed to delineate contamination in that direction.
4. Figure 12 and Table 5 indicate the presence of TCE at the surface of the shallow aquifer at concentrations exceeding commercial vapor intrusion groundwater screening levels (VIGWSL) within the footprint of the gymnastics building on-Site. The gymnastics building has been evaluated for VI and TCE was not detected. Further evaluation of the VI pathway in the gymnastics building is warranted and has already begun.

### VI REPORT

1. In August 2019, paired indoor air/sub-slab soil gas (IA/SGss) samples were collected at the occupied buildings on-Site (Buildings 1-4). TCE in indoor air (IA) results at location IA-2 in Building 2 exceeded the RCG Commercial Indoor Air Screening Level (CIASL) (38.7 micrograms per cubic meter ( $\mu/m^3$ )). TCE in soil gas sub-slab (SGss) results at location SS-2 and duplicate SS-2 varied widely (76.6 and 1450  $\mu/m^3$  respectively), but sample duplicate SS-2 exceeded the commercial sub-slab soil gas screening level (CSSSL), indicating VI may be present at Building 2. Additional VI investigation in Building 2 must be conducted to determine chlorinated organic levels in indoor air throughout the building, and how they may relate to sub-slab chlorinated organic levels. This investigation is currently taking place.
2. Naphthalene IA results in building 1, 3, and 4 exceeded the RCG CIASL. Benzene IA results at building 1 exceeded the RCG IASL. All of the SGss and exterior soil gas (SGe) results were less than the RCG CSSSLs or commercial soil gas screening levels (CSGSL). Petroleum equipment is stored and operated in Buildings 1 and 3 and vehicles

are routinely stored or used in Building 4. Patriot concludes that naphthalene in these cases is from another indoor air source. In the case of Building 3 (gymnastics building), in absence of sub-slab data and with only one sample for a 10,000 square foot building, IDEM requires additional indoor air investigation to assure that indoor air levels in the gymnastics building remain safe. That indoor air investigation is also already underway.

3. Building survey checklists were not provided with the report. Identification of potential external sources of contamination is not possible without them. Future indoor air investigations must include accurate building survey checklists and eliminate potential outside sources of indoor air contamination two days prior to sampling.
4. Minimum Data Documentation Requirements were met for this sampling event. When analytical results will be used to demonstrate VI exposure is not an issue at the Site full Quality Assurance/Quality Control (QA/QC) per the RCG Section 3 must be provided.

## **Conclusions**

Additional characterization of the chlorinated organic plume of contamination must be conducted to the east and southeast of the established perimeter of the identified contamination per comments above. Additional VI investigation must take place in and below buildings 2 and 3 to characterize indoor air contamination On-Site.

IDEM must be provided a minimum of two weeks advance notice for field activities. Please submit the FSI 4 within 90 days and the additional VI investigation reports to IDEM within 60 days of the date of this letter in accordance with IDEM Office of Land Quality document submittal guidelines, which are available online at [www.in.gov/idem/landquality/2368.htm](http://www.in.gov/idem/landquality/2368.htm), to the following address:

Indiana Department of Environmental Management  
Office of Land Quality  
State Cleanup Section, Attn: Tim Johnson  
100 N. Senate Ave., IGCN, Room 1101  
Indianapolis, IN 46204-2251

See Attachment A for procedures to resolve technical disagreements utilizing IDEM's Technical Review Panel.



Former Houglan Tomato Cannery  
February 6, 2020  
Page 4 of 4

If you have any questions or comments concerning this matter, please contact me at (317) 234-3931, or you may call IDEM's toll free number at (800) 451-6027 and ask for Tim Johnson.

Sincerely,

A handwritten signature in black ink that reads "Timothy R. Johnson". The signature is written in a cursive style with a large, prominent initial "T".

Tim Johnson  
State Cleanup Section  
Office of Land Quality

TRJ:sb

cc: IDEM Site #201334567

Mr. Mike Casper, Patriot Engineering and Environmental, Inc.  
Johnson County Health Department

Attachment A: Technical Review Panel Announcement

## **APPENDIX D**

### **TABLES**

**Table 1**  
**FSI #4 Proposed Monitoring Well Depths and Purposes**  
**Hurricane Road Industrial Development**  
**Franklin, Indiana**

| <b>Paired Well<br/>Number</b> | <b>Estimated Depth</b> |               | <b>Purpose</b>   |
|-------------------------------|------------------------|---------------|--|
|                               | <b>Shallow*</b>        | <b>Deep**</b> |  |
| NW-1                          | 20                     | 35            | Determine existence of potential COC source area north of the Crossroads Recycling building  |
| NW-2                          | 22                     | 35            | Delineate shallow PCE and TCE plume west of the Crossroads Recycling building between MW-13 and MW-24; delineate potential COC source area beneath Crossroads Recycling Building   |
| NW-3                          | 22                     | 35            | Determine existence of potential COC source area and/or delineate the extent of COC impacts beneath the Crossroads Recycling building  |
| NW-4                          | 22                     | 35            | Determine existence of potential COC source area and/or delineate the extent of COC impacts southeast of the Crossroads Recycling building   |
| NW-5                          | 20                     | 35            | Better define the northern extent of the shallow and deep PCE and TCE plume between monitoring wells MW-26/MW-33 and MW-27 for remediation options evaluation  |
| NW-6                          | 20                     | 35            | Better define the area of maximum shallow PCE and TCE concentrations on the western portion of the property for remediation options evaluation; better define the western extent of the deep PCE and TCE plume   |
| NW-7                          | 20                     | 35            | Better define the northern extent of the shallow and deep PCE and TCE COC plume between monitoring wells MW-33/MW-29 and MW-28 for remediation options evaluation  |
| NW-8                          | 20                     | 40            | Better define the area of maximum shallow and deep TCE concentrations near the southeast corner of the property for remediation options evaluation; better define the eastern and southern extent of the deep PCE plume  |
| NW-9                          | 20                     | 45            | Better define the eastern boundary of the deep PCE plume, the western boundary of the deep cis-1,2-DCE plume and the area of maximum shallow and deep TCE concentrations on the southeastern portion of the property between monitoring wells MW-29 and MW-15 for remediation options evaluation |
| NW-10                         | 22                     | 45            | Better define the northern extent of the shallow and deep TCE plume and the deep cis-1,2-DCE plume on the eastern property boundary between monitoring wells MW-15 and MW-16 for remediation options evaluation  |
| NW-11                         | 20                     | 35            | Delineate the southern off-site extent of the shallow TCE plume south of monitoring wells MW-12/MW-12D   |
| NW-12                         | 20                     | 35            | Delineate the southern off-site extent of the shallow and deep TCE plumes south of monitoring wells MW-14/MW-14D   |
| NW-13                         | 20                     | 90            | Define the downgradient extent of COC impacts east/northeast of the property near the former Webb Wellfield  |
| NW-14                         | 20                     | 90            | Define the downgradient extent of COC impacts east of the property south of the former Webb Wellfield  |
| NW-15                         | 20                     | 90            | Define the downgradient extent of COC impacts east of the property   |
| NW-16                         | 20                     | 90            | Define the downgradient extent of COC impacts southeast of the property  |

\*Shallow wells set at groundwater table

\*\*Deep wells set at top of clay confining layer