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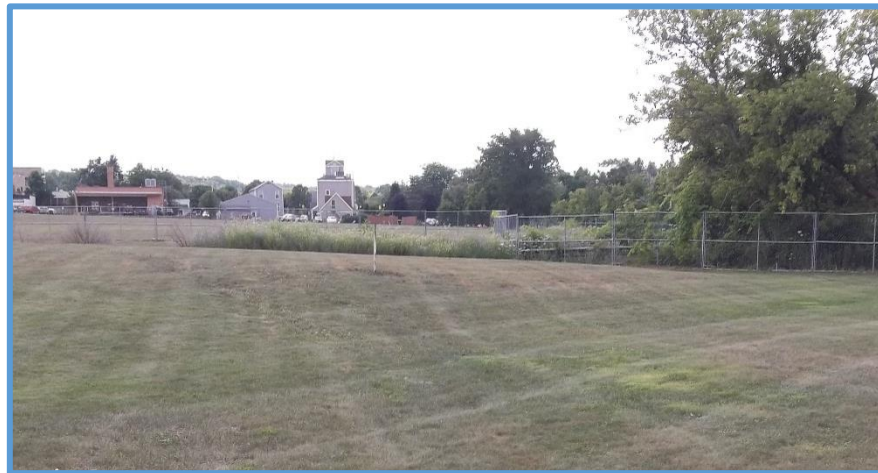
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WORK PLAN

Former Wolverine Tannery Rockford, Michigan

July 12, 2019

File No. 16.0062335.02 Task 3



PREPARED FOR:
Wolverine World Wide, Inc.
Rockford, Michigan

Rose & Westra, A Division of GZA

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Submitted Via Email Only

July 12, 2019

File No. 16.0062335.02 Task 3

Mr. Jeffrey Kimble, On-Scene Coordinator (OSC)
United States Environmental Protection Agency - Region 5
9311 Groh Road
Grosse Ile, MI 48135

Re: Work Plan
Former Wolverine Tannery, Rockford, Michigan

Dear Mr. Kimble:

On behalf of Wolverine World Wide, Inc. (Wolverine), Rose & Westra, a Division of GZA GeoEnvironmental, Inc. (R&W/GZA), has prepared this revised Work Plan (WP) for the former Wolverine Tannery in Rockford, Michigan. This WP was prepared in response your letter dated April 29, 2019, which references the EPA Region 5 Unilateral Administrative Order for Removal Actions¹ (UAO) effective February 1, 2018, associated with the Former Wolverine Tannery and House Street Disposal Area and incorporates your comments from your June 27, 2019 letter. This work plan is subject to the same letter referenced in our earlier transmittal.

Very truly yours,

Rose & Westra, a Division of GZA GeoEnvironmental, Inc.


Leslie M. Nelson, P.E.
Senior Project Manager


Margaret Panatera, P.E.
Associate Principal/Reviewer


Mark A. Westra
Principal

Attachment

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¹ Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Docket No. V-W-18-C-004.



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Acronym	Definition
AOC	Area of Concern
bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Constituent of Concern
DHHS	Department of Health and Human Services
EGLE	Department of Environment, Great Lakes, and Energy
EPA	United States Environmental Protection Agency
FSP	Field Sampling Plan
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
GRDCC	Generic Residential Direct Contact Criteria
KCHD	Kent County Health Department
MDNR	Michigan Department of Natural Resources
NREPA	Michigan Natural Resources and Environmental Protection Act
MIOSHA	Michigan Occupational Safety and Health Administration
mil	Millimeter
OSHA	Occupational Safety and Health Administration
PFAS	Perfluoroalkyl Substances
PID	Photoionization Detector
PNAs	Polynuclear Aromatic Hydrocarbons
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RML	Regional Removal Management Level (EPA)
R&W/GZA	Rose & Westra, a Division of GZA GeoEnvironmental, Inc.
RWP	Removal Work Plan
Site	Former Wolverine Tannery, Rockford, Michigan
SOP	Standard Operating Procedure
SVOC	Semi-Volatile Organic Compound
SESC	Soil Erosion and Sedimentation Control
SWPPP	Storm Water Pollution Prevention Plan
TCLP	Toxicity Characteristic Leaching Procedure
TSCA	Toxic Substances Control Act
2D	Two-Dimensional
UAO	Unilateral Administrative Order
µg/l	Micrograms Per Liter
µg/kg	Micrograms Per Kilogram
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Service
USACE	US Army Corps of Engineers
VOC	Volatile Organic Compound
Wolverine	Wolverine World Wide, Inc.
WP	Work Plan
XRF	X-ray fluorescence



1.0 INTRODUCTION

On behalf of Wolverine, R&W/GZA prepared this WP in response to EPA's letter dated April 29, 2019 and the UAO² effective February 1, 2018, associated with the Former Wolverine Tannery and House Street Disposal Site. This WP responds to the requested actions in the letter related to the Former Wolverine Tannery in Rockford, Michigan ("Site")³ and the letter approving the WP with comments dated June 27, 2019.

This WP contains references to ongoing per- and PFAS investigation activities concurrently being performed in cooperation with EGLE pursuant to Part 201 of the NREPA. These references are included for factual background and context.

2.0 BACKGROUND

R&W/GZA conducted an investigation in 2018, the results of which are summarized in the report titled "Final Tannery Implementation of 2018 Work Plan Summary Report" dated January 11, 2019 (2018 Report).

This Site historically had a street address of 123 North Main Street, Rockford, Michigan. The location of the Site is depicted on **Figure 1**. The Site was developed in the 1800s, with an ice house, lumber yard and associated coal storage located north of Courtland Street and west of Main Street in the late 1800s. A shoe factory was constructed north of Rum Creek circa 1903, and the tannery was constructed south of Rum Creek circa 1908. The tannery eventually extended to the south and west onto formerly residential land and a lumber/coal yard, respectively. The tannery operated until 2009 and was demolished by 2011. The foundations of the demolished tannery buildings were left in-place (i.e., after demolition), covered with fill and topsoil, and seeded. In certain locations, up to 8 feet of fill material was placed over the remnants of the foundations. A retail outlet store and certain paved parking areas remain on the Site. **Figure 2** presents a detailed Site layout.

During the 2018 investigation, VOCs, PNAs, metals, general chemistry analytes, and certain PFAS compounds were identified on a portion of the Site. Hides and leather scraps have been encountered in soil borings drilled north of Rum Creek, between the retail outlet store and the White Pine Trail. Leather scraps have also been encountered within soil samples collected between the White Pine Trail and the Rogue River north of Rum Creek. The approximate lateral extents of hides and leather scrap based on borings performed by R&W/GZA from 2013 through 2018 are depicted on **Figure 3**.

3.0 CERCLA ACTION ITEMS

This section of the WP summarizes the planned responses to the action items listed in EPA's April 29, 2019 letter that will be undertaken unless alternative approaches are deemed adequate after evaluation and discussion with the EPA. Each subsection references the numbered action item(s) in the April 29, 2019 letter.

3.1 TANNERY WORK PLAN

This WP is submitted to fulfill the April 29, 2019 letter Item 1 as it pertains to the former tannery.

² CERCLA Docket No. V-W-18-C-004

³ The UAO and certain other documentation refer to the Tannery's historical street address of 123 Main Street in Rockford. This street address was changed many years ago. The former Tannery site addressed by this RWP is comprised of eight (8) parcels of property having the street addresses and legal descriptions set forth in Wolverine's revised draft Notice to Successors in Title, submitted to OSC Mr. Kimble on March 7, 2018. The Tannery site is also illustrated in **Figure 1** attached.



3.2 HEALTH AND SAFETY PLAN

A HASP for the Site as well as a QAPP (August 29, 2018 with revisions) and FSP (May 30, 2018) prepared by R&W/GZA, have already been submitted to EPA. A revised HASP incorporating excavation activities as well as an Air Monitoring Plan will be submitted to the EPA prior to commencement of any on-Site tasks not included in the previously submitted HASP. The revised HASP and Air Monitoring Plans will fulfill the April 29, 2019 letter Items 2 and 3 as they pertain to the former tannery.

3.3 SOIL DELINEATION

The following section discusses the delineation of several areas in preparation for potential excavation of the areas to address the characterization portion of Item 4 in the April 29, 2019 letter.

During the 2018 investigation, chromium and lead were detected at concentrations exceeding the TCLP screening value in one soil sample location each. In addition, shallow soil samples on the Tannery property and along the White Pine Trail had concentrations of certain metals and/or PNAs greater than the EPA RML and/or GRDCC established under Part 201 of NREPA.

In each of the areas to be delineated, R&W/GZA field personnel will field screen soil samples collected for the presence of metals, including visual and XRF methods. Field screening will be performed in minimum 1-foot intervals in accordance with the methods described in the QAPP and FSP.

Based on the XRF data and visual observation, select samples will be collected and submitted for laboratory analysis of TCLP chromium, TCLP lead, or for select metals and select PNAs depending on the location. Samples will be collected and analyzed for the referenced analytes in accordance with the methods described in the QAPP and FSP.

Soil cuttings will be containerized, and soil borings will be backfilled using bentonite chips. Detailed delineation plans for each area are included in the subsections below.

3.3.1 TCLP Soil Delineation

There are two areas at the Site that had TCLP detections greater than the respective criteria, as discussed below and depicted on **Figures 3 and 4**. These are the same two areas that Wolverine previously proposed for removal.

- Area 1: Blue sand was observed in soil samples collected from borings TA-SB-23 and TA-SB-27 drilled within the footprint of the former Tannery building. TCLP chromium concentrations in one blue sand sample was greater than the RCRA threshold⁴ of 5,000 µg/l (maximum detected concentration of chromium of 18,000 µg/l). The extent of the blue sand will be further delineated vertically and laterally utilizing direct-push soil sampling, XRF screening, visual observation, and laboratory analysis. This delineation will include at least nine soil borings. Two samples will be collected from each boring with sample intervals selected based on XRF data and visual observation. Borings will be extended to at least 10 feet bgs. **Figure 4** shows the planned delineation boring locations for this area. Samples collected in this area for laboratory analysis will be analyzed for chromium and will also be tested for TCLP chromium.

⁴ EPA Maximum Concentration of Contaminants for the Toxicity Characteristic.



- Area 2: The TCLP lead concentration in one soil sample collected from boring TA-SB-AOC-H-03 was greater than the RCRA threshold of 5,000 µg/l (maximum detected concentration of lead of 14,000 µg/l). The lead-containing soil was only encountered from 2 to 2.5 feet bgs in this location. Analysis of the sample from 5 to 6 feet did not detect elevated lead concentrations relative to EGLE Part 201 criteria (10,000 µg/kg detected from 5 to 6 feet bgs compared to the State-wide background concentration of 21,000 µg/kg and the GRDCC of 400,000 µg/kg). The extent of lead-containing soil will be delineated using direct-push soil sampling methods, field XRF screening of soil samples and laboratory analysis. This delineation will include four soil borings. One sample will be collected from each boring location based on XRF data. Borings will be extended to 5 feet bgs. Delineation sample locations for this area are shown on **Figure 3**. Samples collected for laboratory analysis in this area will be analyzed for lead and TCLP lead.

The TCLP chromium and lead data will be used to estimate the extent of soil or waste with TCLP concentrations exceeding the RCRA maximum concentration level of contaminants for the TCLP (5 mg/L for both chromium and lead), which will then be excavated for off-Site disposal as discussed later in this document. Verification sampling (as described in **Section 3.2.3.**) will be used to confirm removal of the chromium and lead TCLP exceedance areas.

3.3.2 Shallow Soil Delineation - Tannery

As part of the work to address Item 6 in the April 29, 2019 letter, additional shallow soil characterization will be conducted as described in this subsection unless alternative approaches are deemed adequate after evaluation and discussion with the EPA.

During the 2018 RWP implementation, one proposed sample location, TA-SB-MA-05, could not be sampled during the RWP implementation. R&W/GZA will evaluate the potential presence of lead in this area by sampling near TA-SB-MA-05 to assess the soil conditions in that area. This will include four soil borings. Two samples will be collected from each boring location with intervals selected based on visual observations and XRF data. Borings will be extended to 15 feet bgs. **Figure 4** shows the planned delineation boring locations. Samples collected in this area will be analyzed for lead. The lead data will be used to estimate the extent of soil concentrations exceeding the GRDCC for lead, if present.

In addition, one shallow soil boring (TA-SB-52) located on the Tannery property in an area that Wolverine hopes to have open to the public in the future had detections of arsenic greater than the GRDCC. R&W/GZA will delineate this area as show on **Figure 4**. This will include four to eight soil borings to a depth of 5 feet bgs. Four borings will be completed. Step-out borings may be added if XRF data indicates that arsenic at a boring is higher than the original XRF data from TA-SB-52. One sample will be collected from each boring location at a depth determined based on XRF data. Samples collected for laboratory analysis will be analyzed for arsenic. The arsenic data will be used to estimate the extent of soil arsenic concentrations exceeding the GRDCC, which will then be excavated for off-Site disposal as discussed later in this document. Verification sampling (as described in **Section 3.4.3.**) will be used to confirm removal of the arsenic exceedance area.

If approved by EPA after evaluation and discussion with EPA, there are several areas on the Tannery property where we may propose not to delineate or excavate but instead propose alternative approaches to limit direct contact exposure.

- Several borings (TA-SB-AOC-G-01, TA-SB-AOC-G-02, TA-SB-74, and TA-SB-71) had GRDCC exceedances in the area north of where hides and leather scraps have been documented on the Tannery property and south of the area where leather scraps have been documented on Tannery property and along the White Pine Trail.



This area is primarily a gravel parking lot adjacent to an asphalt parking lot and is proposed for capping using asphalt to mitigate the exposure to shallow soil.

- Three other boring locations (TA-SB-11, TA-SB-54, and TA-SB-56) had soils that exceed the GRDCC but are currently located under asphalt in parking lots. We propose that the asphalt acts as a barrier to direct contact with soil and these soils remain in place.
- Two soil borings (TA-SB-GW-04 and TA-SB-38) within the fenced portion of the Tannery property that have exceedances of the GRDCC in the shallow soil. We propose to maintain these areas within the fence to restrict access to the soil.

The proposed alternatives, if executed, would be formalized in a Restrictive Covenant on the property to ensure they would be maintained.

3.3.3 Shallow Soil Delineation – White Pine Trail

As part of the work to address Item 5 in the April 29, 2019 letter, additional shallow soil characterization will be conducted as described in this subsection unless alternative approaches are deemed adequate after evaluation and discussion with the EPA.

Sampling conducted along the White Pine Trail identified leather scrap and concentrations of certain SVOCs and metals in the shallow soil near the White Pine Trail north of Rum Creek at concentrations greater than the GRDCC and/or RMLs as depicted on **Figure 3**. R&W/GZA does not intend to conduct further delineation in this area as the leather scrap areas are well defined based on investigation completed since 2012.

R&W/GZA will conduct additional delineation to further evaluate the extent of GRDCC/RML exceedances. Delineation will include 12 borings down to a depth of 3 feet bgs (**Figure 4**). The delineation will be completed in accordance with sampling and analytical methods described in the project QAPP. R&W/GZA field personnel will screen soil samples in the field for the presence of COCs including visual, olfactory, XRF, and PID methods. Field screening will be performed in minimum 1-foot intervals. One sample will be collected from each location. Sample depths will be based on XRF and PID screening data. If screening does not indicate impact, a sample will be collected from the 0 to 1-foot interval.

If leather scrap and/or hide is observed, the presence of these materials will be documented and addressed per **Section 3.5**.

Soil samples collected along the White Pine Trail will be analyzed for arsenic, lead, chromium, benzo (a) pyrene, benzo (a) anthracene, and benzo (b) fluoranthene. The laboratory data will be used to estimate the extent of soil concentrations exceeding the RMLs or GRDCC, which will then be excavated for off-Site disposal as discussed later in this document. Verification sampling (as described in **Section 3.4.3**) will be used to confirm removal of the GRDCC and RML exceedance areas. Once verification sample results are received, R&W/GZA will provide EPA with figures detailing the extent of excavation for each area being delineated.

3.4 SOIL REMOVAL – TANNERY

To address Item 6 in the April 29, 2019 letter, shallow excavation will be conducted as described in this subsection unless alternative approaches are deemed adequate after evaluation and discussion with the EPA.



Once each on-Site area is delineated, soil above the respective applicable screening levels or criteria (**Section 3.1**) will be removed using mechanical excavation to fulfill the removal obligations directed in Items 4, 5, and 6 in the April 29, 2019 letter. In addition to the areas discussed above, this task will include removal of hides and leather scraps on the Tannery property north of Rum Creek (**Figure 3**). This area has been delineated previously. The depth and areal extent of the soil to be removed from the other areas will be designated following the delineation sampling and receipt of results. Figures showing the excavation areas will be provided to EPA in an addendum to this WP.

3.4.1 Site Preparation Activities

The Site preparation tasks will include:

- Placement of signs on Main Street to indicate truck traffic entering the road.
- Coordination of approval for soil and waste material disposal.
- Installation of silt fence, straw bales, and other best management practices appropriate to address storm water during the excavation activities and prevent soil erosion and surficial migration of excavated materials. This will include City of Rockford and Kent County SESC requirements along with construction storm water NPDES requirements, including a SWPPP.
- Create a soil loading area within close proximity to the excavation exclusion zone. Protect ground surface using two layers of minimum 6-mil polyethylene sheeting.
- Create a gravel and crushed stone construction entrance and on-Site vehicle wash station sufficient to minimize tracking of Site soils offsite. The tire wash station will only be used when mud is visually present on the vehicle tire treads prior to leaving the Site.

3.4.2 Excavation and Off-Site Transportation of Impacted Soil, Hides and Leather Scrap

In order to minimize the on-Site traffic, a truck staging area will be located on the east side of Main Street in the parking lot. R&W/GZA will have staff stationed at the staging area and will be in radio contact with personnel at the Site gate. They will work together to control the flow of trucks in and out of the Site. In addition, the R&W/GZA representative stationed at the gate will be responsible for tracking vehicles and personnel who enter and leave the Site for the project. R&W/GZA will have a log documenting each person's/vehicle's entrance and exit time, along with the volume of material (if appropriate).

R&W/GZA will commence excavation and removal of the aforementioned soils, hides, and leather scraps for off-Site transport and disposal. Excavation will be conducted using mechanical means. Excavated soil/waste material will be transported to an approved disposal facility. R&W/GZA will record the total volume of all soil and waste material transported off-Site (i.e., the estimated volume for each truck that leaves the Site) and will assure that each shipment is being transported under properly documented uniform waste manifest documentation.

In accordance with the HASP, there will be three work zones on Site, the exclusion zone, the contamination reduction zone, and the support zone. Only personnel with 40-hour HAZWOPER training may be in the exclusion zone or the contaminant reduction zone. Truck drivers must remain in their vehicles while being loaded in the exclusion zone. Once they have left the exclusion zone, they can exit their trucks to cover the load prior to leaving the Site. Zones will be designated with orange snow fence and/or caution tape.



During the excavation activities a designated “Competent Person” (OSHA) and “Qualified Person” (MIOSHA) from the subcontracted remediation contractor will be on-Site. The Competent Person/Qualified Person will ensure all provisions from CFR 1926 Subpart P (OSHA)/Construction Safety and Health Standard Part 9 (MIOSHA) are enacted and is responsible for determining the on-going safety of the excavation activities through monitoring, evaluation, and correcting hazards to workers. R&W/GZA, as the owner representative, will be responsible for periodic observation and monitoring of the activities, but not responsible for contractor’s compliance with OSHA, MIOSHA, and other regulations. Refer to R&W/GZA’s Site Specific HASP for further detail.

At a minimum, as part of the observation, R&W/GZA will collect daily documented excavation inspection checklists completed by the Competent/Qualified Person. R&W/GZA may also require the subcontracted excavation firm to complete periodic, documented safety inspections of any open excavations, and to correct any safety hazards noted during the inspections.

At the end of each shift, stock-piled material (if applicable) will be covered with polyethylene sheeting within the limits of the regulated work area.

Equipment will be cleaned of gross material between excavation areas to prevent tracking of possibly contaminated soil/waste material onto potentially lesser contaminated areas of the Tannery. Once all equipment is decontaminated at the end of the project, the decontamination pad and 3 inches of soil below the footprint of the pad will be removed for proper off-site disposal as well.

In addition, as previously indicated, R&W/GZA will monitor the ambient atmosphere within, and adjacent to, the excavation in accordance with the HASP.

3.4.3 Collection of Verification Samples

Once the excavation or a portion of the excavation is believed to be “complete”, R&W/GZA will collect verification samples from the sidewalls and the base of the excavations in accordance with R&W/GZA’s SOPs and EGLE’s 2002 “Sampling Strategies and Statistics Training Manual”. The samples will be submitted for laboratory analysis of TCLP chromium or TCLP lead in the two TCLP areas. In the area where the hides and leather scraps are removed, the verification samples will be analyzed for lead, arsenic, chromium, benzo (a) pyrene, and benzo (b) fluoranthene as those constituents were detected above GRDCC and/or RMLs in that area. Samples from the area near TA-SB-52 will be analyzed for arsenic.

The overall excavation dimensions, sample number and locations, and collection details will be provided as a supplement to this WP after delineation of each excavation is completed. Upon EPA’s concurrence, R&W/GZA will implement the verification sampling.

3.4.4 Site Restoration Activities

Following confirmation (via laboratory results) of the completion of excavation activities, R&W/GZA will notify the subcontractor that Site restoration activities can commence. Site restoration will include the following:

- **Backfilling:**
The excavation will be backfilled using clean-imported sand backfill to 6 inches below the existing grade. Fill material will be analyzed for metals, VOCs, SVOCs, and PFAS to confirm that the material is “clean” prior to being accepted for placement on-Site. Prior to placing backfill, a layer of geotextile fabric will be placed in the excavation to demarcate the clean fill from underlying material. Backfill materials will be placed in continuous



horizontal layers not exceeding 12-inch loose lifts. The top 5 feet will be compacted with a heavy vibratory roller or equivalent alternative approved by R&W/GZA and suitable for the Site conditions.

R&W/GZA will be responsible for recording the total volume of all imported materials (i.e., sand backfill and crushed limestone) and document the specifics of each bill of lading for each delivery/shipment of material.

- *Site Restoration Activities*

Following the backfilling activities, the subcontractor will place top soil in the areas to be seeded. Once the top soil is placed, the area will be seeded. In areas that were previously gravel, gravel will be added to grade. The upland portion of the Site will be hydroseeded to stabilize the newly placed topsoil. Silt fence and staked hay bales will remain until growth has been established.

3.5 SHALLOW SOIL REMOVAL – WHITE PINE TRAIL

To address Item 5 in the April 29, 2019 letter, shallow excavation will be conducted along the White Pine Trail as described in this subsection unless alternative approaches are deemed adequate after evaluation and discussion with the EPA.

Once the area of shallow soil impacts south of Rum Creek and along the White Pine Trail has been further delineated, soil above the GRDCC and areas with leather scraps, and/or other tannery-related waste will be removed using mechanical excavation down to 3 feet. If leather scraps or related waste are present deeper than 3 feet, excavation may be extended. The areal extent of the soil to be removed will be designated following the delineation sampling and receipt of results.

3.5.1 Site Preparation Activities

The Site preparation tasks will include:

- Closure of the White Pine Trail using 6-foot-tall fencing with a locking gate and signage and post a designated detour per MDNR requirements.
- Placement of signs on Main Street to indicate truck traffic entering the road.
- Coordination of approval for soil and waste disposal.
- Placement of sheet piling in the Rogue River to allow dry access to the riverbank for excavation where necessary.
- Installation of silt fence, straw bales, and other best management practices appropriate to address storm water during the excavation activities and prevent soil erosion and surficial migration of excavated materials
- Create a soil loading area within close proximity to the excavation exclusion zone. Protect ground surface using two layers of minimum 6-mil polyethylene sheeting.

3.5.2 Excavation and Off-Site Transportation of Impacted Soil

R&W/GZA will commence excavation and removal of the impacted soils and leather scraps for off-Site transport and disposal. Excavation will be conducted using mechanical means. Excavated soil/waste material will be transported to an approved disposal facility. R&W/GZA will record the total volume of all soil and waste material transported off-Site (i.e., the estimated volume for each truck that leaves the Site) and will ensure that each shipment is being transported under properly documented uniform waste manifest documentation.



In order to minimize the on-Site traffic, a truck staging area will be located on the east side of Main Street, in the parking lot. R&W/GZA will have staff stationed at the staging area and will be in radio contact with personnel at the Site gate. They will work together to control the flow of trucks in and out of the Site. In addition, the R&W/GZA representative stationed at the gate will be responsible for tracking all vehicles and personnel who enter and leave the Site for the project. R&W/GZA will have a log documenting each person/vehicle's entrance and exit time, along with the volume of soil (if appropriate).

In accordance with the HASP, there will be three work zones on Site, the exclusion zone, the contamination reduction zone, and the support zone. Only personnel with 40-hour HAZWOPER training may be in the exclusion zone or the contaminant reduction zone. Truck drivers must remain in their vehicles while being loaded in the exclusion zone. Once they have left the exclusion zone, they can exit their trucks to cover the load prior to leaving the Site. Zones will be designated with orange snow fence and/or caution tape.

During the excavation activities a designated "Competent Person" (OSHA) and "Qualified Person" (MIOSHA) from the subcontracted remediation contractor will be on-Site. The Competent Person/Qualified Person will ensure all provisions from CFR 1926 Subpart P (OSHA)/Construction Safety and Health Standard Part 9 (MIOSHA) are enacted and is responsible for determining the on-going safety of the excavation activities through monitoring, evaluation, and correcting hazards to workers. R&W/GZA, as the owner representative, will be responsible for periodic observation and monitoring of the activities, but not responsible for contractor's compliance with OSHA, MIOSHA, and other regulations. Refer to R&W/GZA's Site Specific HASP for further detail.

At a minimum, as part of the observation, R&W/GZA will collect daily documented excavation inspection checklists completed by the Competent/Qualified Person. R&W/GZA may also require the subcontracted excavation firm to complete periodic, documented safety inspections of any open excavations, and to correct any safety hazards noted during the inspections.

Equipment will be cleaned of gross material between excavation areas to prevent tracking of possibly contaminated soil/waste material onto potentially lesser contaminated areas of the Tannery. Once all equipment is decontaminated at the end of the project, the decontamination pad and 3 inches of soil below the footprint of the pad will be removed for proper off-site disposal as well.

In addition, as previously indicated, R&W/GZA will monitor the ambient atmosphere within and adjacent to the excavation in accordance with the HASP.

3.5.3 Collection of Verification Samples

Once the excavation or a portion of the excavation is believed to be "complete", R&W/GZA will collect verification samples from the sidewalls and the base of the excavations in accordance with R&W/GZA's SOPs and EGLE's 2002 *"Sampling Strategies and Statistics Training Manual"*. The samples from excavations south of Rum Creek will be submitted for laboratory analysis of arsenic, benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene. Samples from excavations north of Rum Creek will be analyzed for lead, arsenic, chromium, benzo (a) pyrene, and benzo (b) fluoranthene.

The overall excavation dimensions, sample number and locations, and collection details will be provided as a supplement to this WP after delineation of each excavation is completed. Upon EPA's concurrence, R&W/GZA will implement the verification sampling.



3.5.4 Site Restoration Activities

The goal of Site restoration along the White Pine Trail will be to maintain and enhance, where appropriate, the highly utilized bike path. Following confirmation (via laboratory results) of the completion of excavation activities, R&W/GZA will notify the subcontractor that Site restoration activities can commence. Site restoration will be coordinated with MDNR.

3.5.5 Backfilling – White Pine Trail to the Wolverine Property Boundary

For areas within the footprint of the existing White Pine Trail and eastward toward the Wolverine property boundary, the excavation will be backfilled using clean imported sand backfill to 6 inches below the existing grade. Fill material will be analyzed for metals, VOCs, SVOCs, and PFAS to confirm that the material is “clean” prior to being accepted for placement on-Site. Prior to placing backfill, a layer of geotextile fabric will be placed in the excavation to demarcate the clean fill from underlying material. Backfill materials will be placed in continuous horizontal layers not exceeding 12-inch loose lifts. The top 5 feet will be compacted with a heavy vibratory roller or equivalent alternative approved by R&W/GZA and suitable for the Site conditions.

R&W/GZA will be responsible for recording the total volume of all imported materials (i.e., sand backfill) and document the specifics of each bill of lading for each delivery/shipment of material. Backfilling in the streambanks will depend on the depth to backfill. In some areas, sand will be sufficient, but in other cases, we may need to use structured fill.

Paving

Following backfill activities, portions of the White Pine Trail that are damaged or removed will be replaced with new asphalt. The trail will be reconstructed using the specifications included in **Appendix A**.

3.5.6 Streambank Restoration between White Pine Trail and the Rogue River

For areas between the existing White Pine Trail and the Rogue River, restoration will be completed using a combination of backfilling as described in Section 3.3.4 above and streambank restoration as described in this section unless alternative approaches are deemed adequate after evaluation and discussion with the EPA. The streambank restoration area will also include areas between Rum Creek and south of the kayak launch, where streambank sloughing occurs as a result of the proposed streambed sediment removal discussed later in this WP. The goal of the streambank restoration will be to stabilize and restore areas where soil and anthropogenic materials were removed and enhance the riparian buffer to reduce erosion into the Rogue River. The following sections describe the streambank restoration assessment and implementation process.

Natural Resource Review and Site Reconnaissance

R&W/GZA will perform an ecological assessment to establish baselines for restoration work. Design for the restoration and stabilization of the streambanks shall result in restored conditions that meet or exceed the existing function and quality of the Site.

Pre-design natural resource reviews of the entire shoreline area to establish the baseline will include: a wetland delineation; a floristic quality assessment and tree survey; state and federal threatened and endangered species resource assessments and reviews; habitat surveys for identified potential rare, threatened, and endangered species, including bats and vegetation; and cultural and historic preservation assessments and reviews.

R&W/GZA will perform a Site reconnaissance north of Rum Creek where removal activities are proposed, to document the existing streambank conditions and assist the engineers with developing a removal plan that



considers streambank reconstruction/stabilization. Two R&W/GZA staff (an engineer and an ecologist) will perform the Site reconnaissance on land, and if appropriate, by water with a locally rented boat or with the bathymetric surveyors.

Post-Removal Streambank Restoration Design

R&W/GZA will use the results of previous tasks, in combination with bathymetric information (see Section 3.4.1), to develop alternatives for replacing disturbed streambank materials. The specific limits of the shoreline restoration will be coordinated with the EPA following the soil delineation described in Section 3.1.

R&W/GZA's streambank restoration design will be founded upon stream morphology assessment techniques (e.g., USDA Stream Restoration Design, National Engineering Handbook 654, etc.) to develop constructible alternatives for restoration. R&W/GZA generally intends to use a threshold channel design approach, relying on materials that can withstand the stresses created by a range of design events. The design event (i.e., return period) will be selected in coordination with the EPA.

The river and White Pine Trail are widely used and are important community resources. The existing riverbanks are largely vegetated; therefore, nature-based or "soft" engineered design features will be used, as practicable. Shorelines closer to the channel with higher velocities will be designed with a combination of engineered riprap and naturalized mechanisms, such as bank regrading, stone structures, log structures, and vegetation. Shorelines in backwater locations and areas away from the channel with lower velocities will be designed using bioengineering features such as bank regrading, wattling, brush layering, branch packing, brush mattresses, etc. In-stream structures, as needed, to direct flow away from public access areas will include a combination of j-hooks, log vanes, and root wads. R&W/GZA will also review/incorporate applicable requirements from regulatory agencies (e.g., USACE Detroit District; EGLE). The design will support supplemental hydraulic modeling as needed and as conducted in **Section 3.4.1**.

The deliverable plan and specifications schedule will be developed in cooperation with Wolverine and EPA following delineation of soils to be removed and the initial Site reconnaissance as described above.

3.6 NEAR SHORE SEDIMENT

To address Item 7 in the April 29, 2019 letter, near-shore sediment removal will be conducted as described in this subsection.

Near-shore sediment will be removed in the area near the boat launch (TA-SED-BOAT RAMP), located on Wolverine's property but operated by the City of Rockford. **Figure 5** shows the approximate area to be excavated. This process is discussed in the subsections below.

Additional near-shore sediment will be removed in an area where metals were detected in sediment (TA-SED-RCACCESS) at the river access point located just south of the confluence of Rum Creek and the Rogue River. This area is shown on **Figure 5**.

3.6.1 Site Reconnaissance and Design

Natural Resource Review and Site Reconnaissance

R&W/GZA will perform ecological assessments prior to removal work to establish baselines for restoration. Pre-design natural resource reviews to establish the baseline will include state and federal threatened and endangered species resource assessments and reviews; habitat surveys for identified potential rare, threatened, and endangered species, including mussels and fish; and cultural and historic preservation assessments. R&W/GZA



will prepare a MDNR Review and Site Reconnaissance document presenting the findings from these work items for use in restoration and enhancement design.

Hydrologic and Hydraulic Model

The purpose of this task is to develop water surface elevations and profiles, design flow velocities, flow rates, and scour potential for use in water control, streambank stabilization design, and streambed restoration design.

Hydrology

R&W/GZA will use existing information to develop estimates of steady-state, peak-flow rates for a range of return period flood and seasonal flows. R&W/GZA will request a Flood and Low Flow Discharge as authorized by PA 451 of 1994 from EGLE. We will compare these flow estimates to flow estimates developed using data from USGS Gage 04118500 Rogue River near Rockford, Michigan, located downstream of the Site. R&W/GZA will use the USACE HEC-SSP statistical software package, or a similar statistical approach, to perform peak flow statistics and also estimate a flow duration curve for the Site using the USGS streamflow data. These hydrologic estimates will be compiled and used as input to the hydraulic model, as described below. R&W/GZA proposes to evaluate the following events:

- 1-year, 2-year, 10-year, 25-year, 50-year, and 100-year return period peak flood discharges;
- Monthly 95% and monthly mean flows provided by EGLE; and
- Other seasonal or mean flows as judged necessary by R&W/GZA.

Hydraulics

R&W/GZA will combine publicly available floodplain LiDAR topographic data and bathymetric survey (by R&W/GZA subconsultant) as input to create a new 2D model using a constant hydrograph, developed using the USACE HEC-RAS v5.0 hydraulic routing software. The 2D HEC-RAS model of the Rogue River study reach will extend from the Rockford Dam at the downstream limit to the upstream limits of the Site. R&W/GZA may adjust the boundary conditions for the model to make them suitable for the study as modeling is completed. The HEC-RAS model will be used to estimate both water surface profiles and depth-averaged velocity at locations along the Rogue River throughout the Site. The HEC-RAS model will be used to evaluate both existing and proposed conditions to support stream bank restoration/stabilization design, including scenarios where cofferdams may be in place to support the water control design.

Develop Water Control Concepts

The goal of this task is to develop conceptual alternatives for water control features that will be included in the construction plans and specifications. R&W/GZA will use the findings from previous tasks, in combination with bathymetric information and sediment thickness/characterization, to recommend one or more alternatives for water control. To assist in the development of water control concepts, R&W/GZA will modify, as needed, the HEC-RAS model to simulate the effects of cofferdam(s). The current proposed alternative to be evaluated is sheet-pile cofferdams. If necessary, based on the assessment work, R&W/GZA may elect to evaluate other options. The concepts advanced will be based on the ability of river sediment to support cofferdams, the hydraulics of the reach, anticipated impacts to the surroundings, and constructability.

3.6.2 Sediment Removal and Stream Restoration

The goal of the sediment removal and subsequent restoration will be to remove contaminated sediment and restore and stabilize the streambed as appropriate. Following the removal process, the removal area will be restored to conditions that meet or exceed the existing function and quality of the Site identified in the streambed natural resource review and Site reconnaissance as described in this section. The design will include the following



elements: streambed functional replacement and enhancement where appropriate; restore and enhance, where appropriate, the highly utilized public access points to the Rogue River, including the kayak launch; redirect potential sediment transport and deposition away from the kayak launch; and through coordination with Rockford, restore public access points to Rogue River in the reconstruction design process.

The following sections describe the sediment removal and restoration design process.

Rogue River Sediment Removal Approach and In-Stream Work Guidelines

This sediment removal approach includes identification of the limits of removal; the timing and scheduling for removal; the contractor coordination for cofferdam(s) installation, maintenance, and removal; and the dewatering and stabilization practices. R&W/GZA will utilize cofferdams to dewater all portions of streambed and streambank removal areas for construction in dry conditions. Water will be isolated from the in-stream work area using cofferdam(s) constructed of nonerodable materials (steel sheets).

Work in the waterway will be timed to take place during low-flow conditions if possible. The plan will allow for the conveyance of the 10-year peak flow, at a minimum, past the work area without overtopping the cofferdam(s). The cofferdam will be constructed from the upland area, and no equipment will enter flowing water. If the installation of the cofferdam cannot be completed from designated shore areas and access is needed to reach the area to be coffered, other measures will be implemented to ensure that equipment does not enter the water. Once the cofferdam is in place and the isolated area is dewatered, equipment will enter the coffered area to perform the required work.

If bypass or dewatering pumping is necessary, the intake hose will be placed on a stable surface or floated to prevent sediment from entering the hose. The bypass discharge will be placed on a nonerodable, energy dissipating surface prior to rejoining the stream flow and shall not cause erosion. During dewatering of the coffered work area, all sediment-laden water will be filtered to remove sediment. Water will have sediment removed prior to being re-introduced to the downstream waterway.

Post-Removal Streambank Stabilization

R&W/GZA will use the results of previous tasks, in combination with bathymetric information, to develop alternatives for replacing disturbed stream bottom and streambank materials. For this task, we have assumed local restoration at locations where undercut banks are to be restored.

R&W/GZA's streambank stabilization plan will be founded upon stream morphology assessment techniques (e.g., USDA Stream Restoration Design, National Engineering Handbook 654, etc.) to develop constructible alternatives for restoration. R&W/GZA generally intends to use a threshold channel design approach, relying on materials that can withstand the stresses created by a range of design events. The design event (i.e., return period) will be selected in coordination with EPA.

The river and White Pine Trail are widely used and are important community resources. The existing riverbanks are largely vegetated; therefore, nature-based or "soft" engineered design features will be used, as practicable. Shorelines closer to the channel with higher velocities will be designed with a combination of engineered riprap and naturalized mechanisms, such as bank regrading, stone structures, log structures, and vegetation. Shorelines in backwater locations and areas away from the channel with lower velocities will be designed using bioengineering features such as bank regrading, wattling, brush layering, branch packing, brush mattresses, etc. In-stream structures, as needed, to direct flow away from public access areas will include a combination of j-hooks, log vanes, and root wads. R&W/GZA will also review/incorporate applicable requirements from regulatory agencies (e.g., USACE Detroit District; EGLE). The design will support supplemental hydraulic modeling as needed and as conducted in **Section 3.4.1**.



3.7 SIGNAGE AND INFORMATION KIOSKS

During activities described in this WP, warning signs - “Warning: Investigation Ongoing at this Site, No Trespassing” will be posted on the Site fence. This will include the temporary fence used to restrict access to the White Pine Trail during that portion of the work. Active work areas outside of fenced areas will be posted with warning signs and cordoned off using traffic cones and caution tape during the times when work is taking place.

Permanent signs and information kiosks will be installed at locations agreed upon by Wolverine and EPA. The permanent signs will read:

Contamination identified in sediments. PFAS identified in foam.

After river use, or contact with sediments or foam, please wash hands and other items.

For more information contact Wolverine World Wide at 616-866-5627

or Kent County Health Department at 616-632-6900”

The kiosks will display information from Wolverine, EPA, EGLE, DHHS, and KCHD and will reference the Rockford welcome center for further information. Pamphlets will be stored at the welcome center for interested people.

3.8 DATA EVALUATION AND REPORTING

The information and data collected during completion of the WP tasks will be evaluated by R&W/GZA relative to the previously presented objectives. The work performed will be summarized, data will be compiled, and conclusions and recommendations presented in a report. The report will include figures and tables summarizing the information collected during the WP.

4.0 **OFF-SITE MIGRATION CONTROL**

Based on the existing data, the likelihood of off-Site COC migration via air deposition is low during the investigation tasks in this WP. During excavation tasks as described in Section 3.4, air monitoring will be conducted as indicated in the revised HASP. If the data from the air monitoring indicates additional measures should be taken to mitigate air deposition, excavation activities will cease until a mitigation plan can be developed in consultation with the EPA.

The contaminants present below ground surface are unlikely to migrate via surface run-off during investigation activities. During the 2018 investigation at the Tannery, no surface run-off concerns were identified. As such, they are not expected during the investigation phases of this WP. During excavation tasks, the subcontractor will be required to implement SESC in accordance with applicable laws and industry standards. In addition, during the excavation of the riverbank, the cofferdam height and other design elements will be designed and installed using the 10-year rain event.

5.0 **INVESTIGATION-DERIVED WASTE DISPOSAL**

Investigation-derived soil or waste materials from the proposed investigation work will be containerized in either 55-gallon drums or roll-off boxes and staged at the Site before being disposed off-Site. The soil or waste material will be sampled and analyzed for TCLP metals, PNAs, PFAS, and waste characteristics including ignitability,



reactivity, and corrosivity. According to the EPA Off-Site Rule (40 CFR 300.440), the waste will be disposed of in a facility operating in compliance with RCRA, TSCA, or other applicable Federal or State requirements.

6.0 ANTICIPATED SCHEDULE

Following EPA's acceptance of the final WP, R&W/GZA anticipates the following schedule:

- 1- The signs required in Item 8 of the EPA letter and subsequent instructions have already been installed. Two of the kiosks have been installed and the third kiosk will be installed once it arrives on-Site (anticipated installation the week of July 22, 2019). **Figure 6** shows the sign and kiosk locations.
- 2- Approximately two to three weeks from on-Site mobilization will be required to complete the proposed delineation field work.
- 3- Once delineation is complete, excavation of the TCLP areas, the shallow on-Site soils, the shallow soil and leather scraps along White Pine Trail (including the river bank) and the excavation of the hides and leather scraps on-Site is expected to take two to four months, depending on the extent.
- 4- Sediment excavation will be conducted concurrent with the excavation along White Pine Trail, as both activities require cofferdams in the Rogue River.
- 5- A draft report summarizing the data and activities described in this WP will be submitted two calendar months from receipt of the last electronic data deliverable from the lab. This report will include a maintenance and monitoring plan for the riverbank and riverbed reconstruction.

Once areas are delineated, an amendment to this WP detailing the excavation areas, process, and anticipated schedule will be submitted within two weeks for EPA's review. An estimated project schedule is included in **Appendix B**. This schedule is tentative as until the extent of removal activities are delineated; the estimated time for excavation cannot be estimated.

7.0 REFERENCES

- R&W/GZA. 2018. *Extent of Contamination Study Removal Work Plan, Former Wolverine Tannery, Rockford, Michigan*. Submitted to USEPA June 18, 2018.
- R&W/GZA. 2018. *Field Sampling Plan, Former Wolverine Tannery*. Submitted to USEPA August 27, 2018.
- R&W/GZA. 2018. *Health and Safety Plan, Former Wolverine Tannery and House Street Disposal Area*. Submitted to USEPA May 29, 2018.
- R&W/GZA. 2018. *Quality Assurance Project Plan, Former Wolverine Tannery and House Street Disposal Area, Revision 2*. Submitted to USEPA August 29, 2018 with errata pages submitted October 31, 2018 and April 15, 2019.
- R&W/GZA. 2019. *Final Tannery Implementation of 2018 Work Plan Summary Report*. Submitted to USEPA January 11, 2019.



July 12, 2019
Work Plan
Former Wolverine Tannery, Rockford, Michigan
File No. 16.0062335.02
Page 15

USEPA. 2019. *RE: Wolverine Tannery and House Street Disposal State: Required CERCLA Actions*. Letter dated April 29, 2019.



FIGURES




LEGEND

 = APPROX. LOCATION OF SITE BOUNDARY

NOTE:

- 1) DIGITAL AERIAL ORTHOPHOTOGRAPHY WAS COLLECTED BY GOOGLE EARTH IN APRIL 2016

SCALE: 1" = 300'




ROSE & WESTRA
A DIVISION OF GZA
Grand Rapids, Michigan
GEOTECHNICAL-ENVIRONMENTAL-ECOLOGICAL
WATER-CONSTRUCTION MANAGEMENT

CREATED BY: KJB

APPROVED BY: LMN

DATE: 6/1/19

FILE NAME: 62335_02_2019_WP1

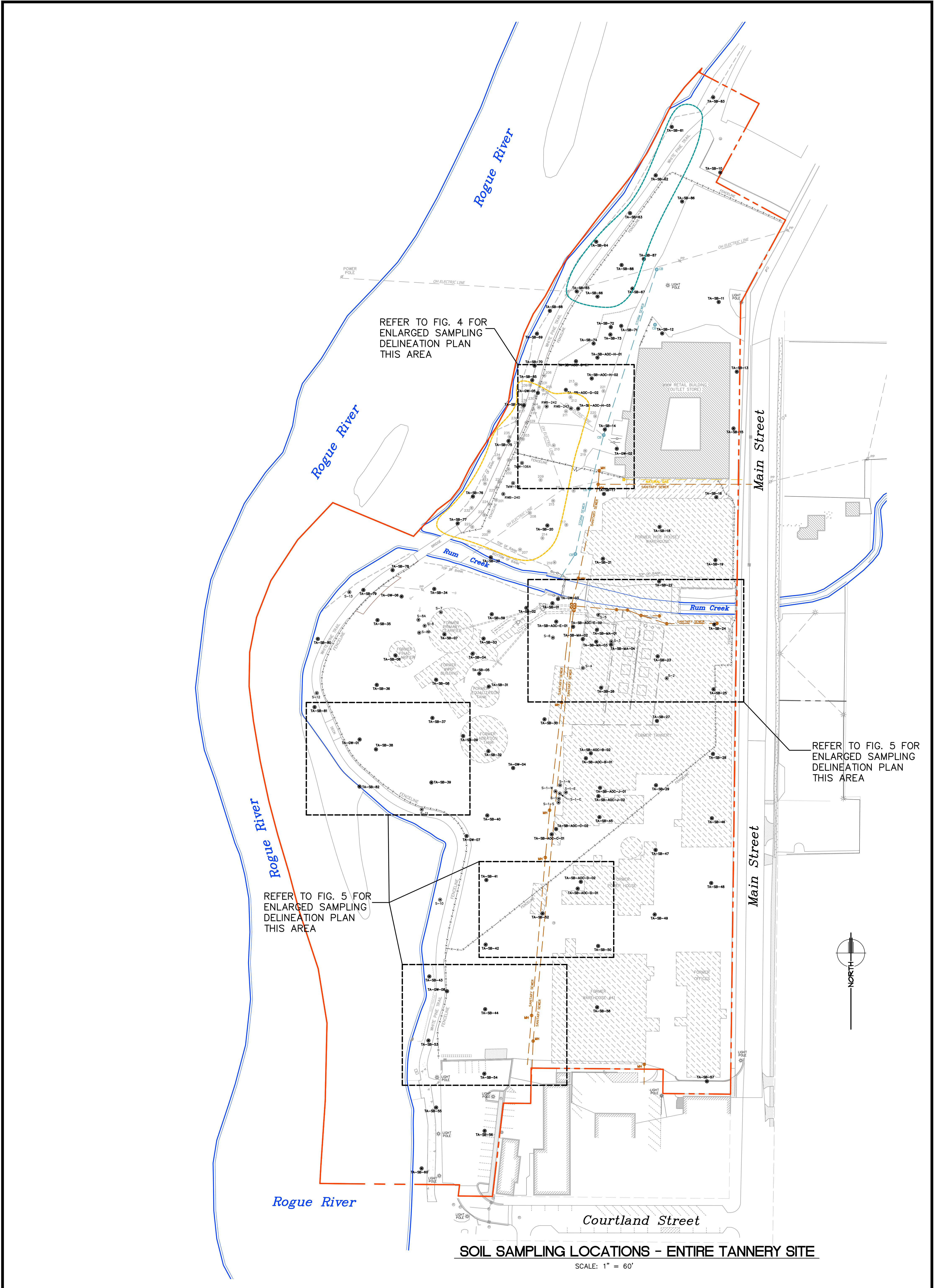
LOCATION PLAN

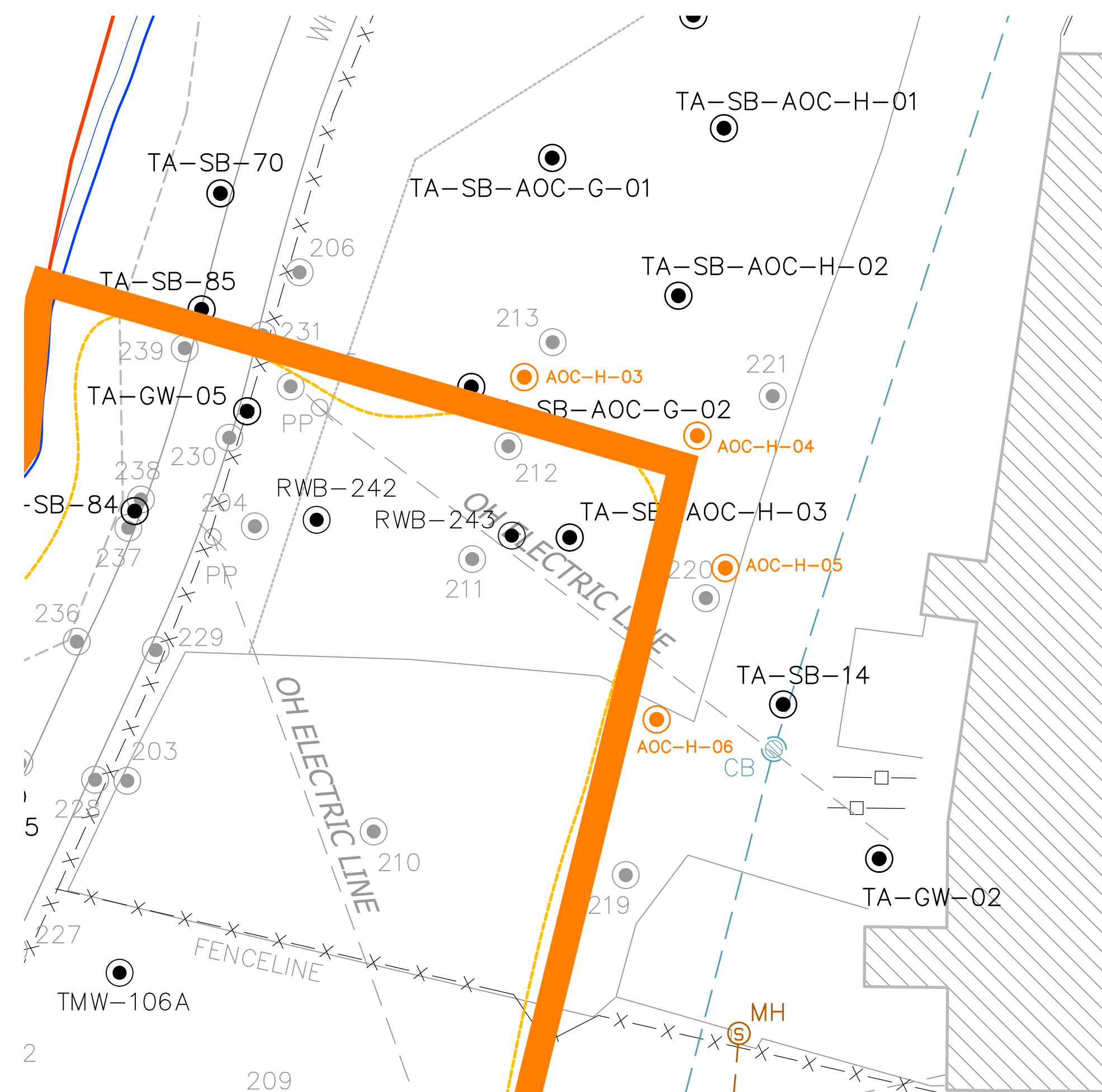
WWW
FORMER TANNERY SITE, ROCKFORD, KENT COUNTY, MICHIGAN
2019 WORK PLAN

PROJECT NO.
16.0062335.02

1

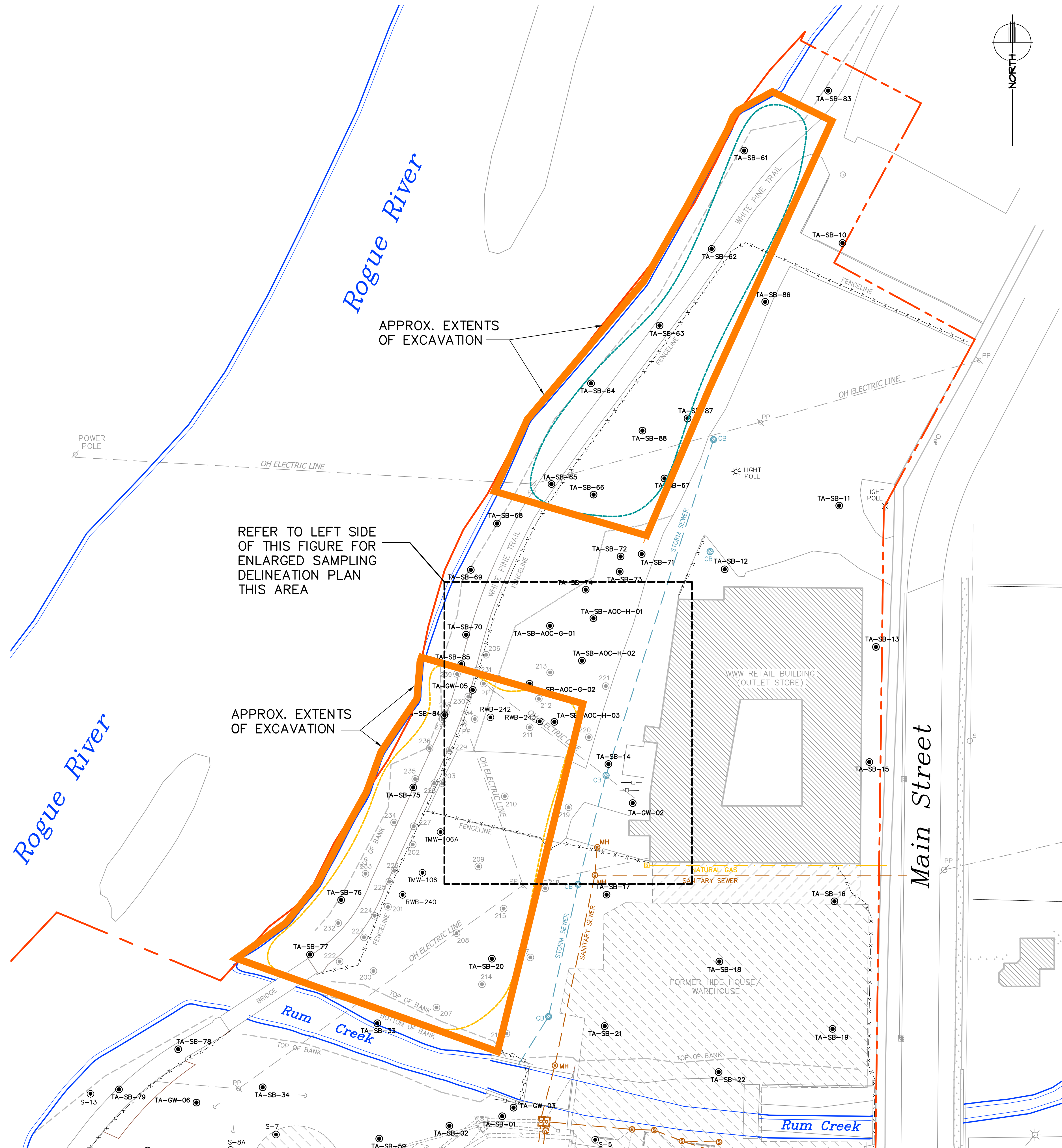
FIGURE NO.





**PROPOSED SAMPLING LOCATIONS
DELINEATION OF TCLP LEAD**
SCALE: 1" = 20'

- LEGEND**
- = EXISTING SOIL BORING/SAMPLE LOCATION
 - = PROPOSED SOIL BORING/SAMPLE LOCATION (TCLP LEAD AREA DELINEATION)



**SOIL SAMPLING LOCATIONS - TANNERY SITE ENLARGED
(NORTH OF RUM CREEK)**
SCALE: 1" = 40'

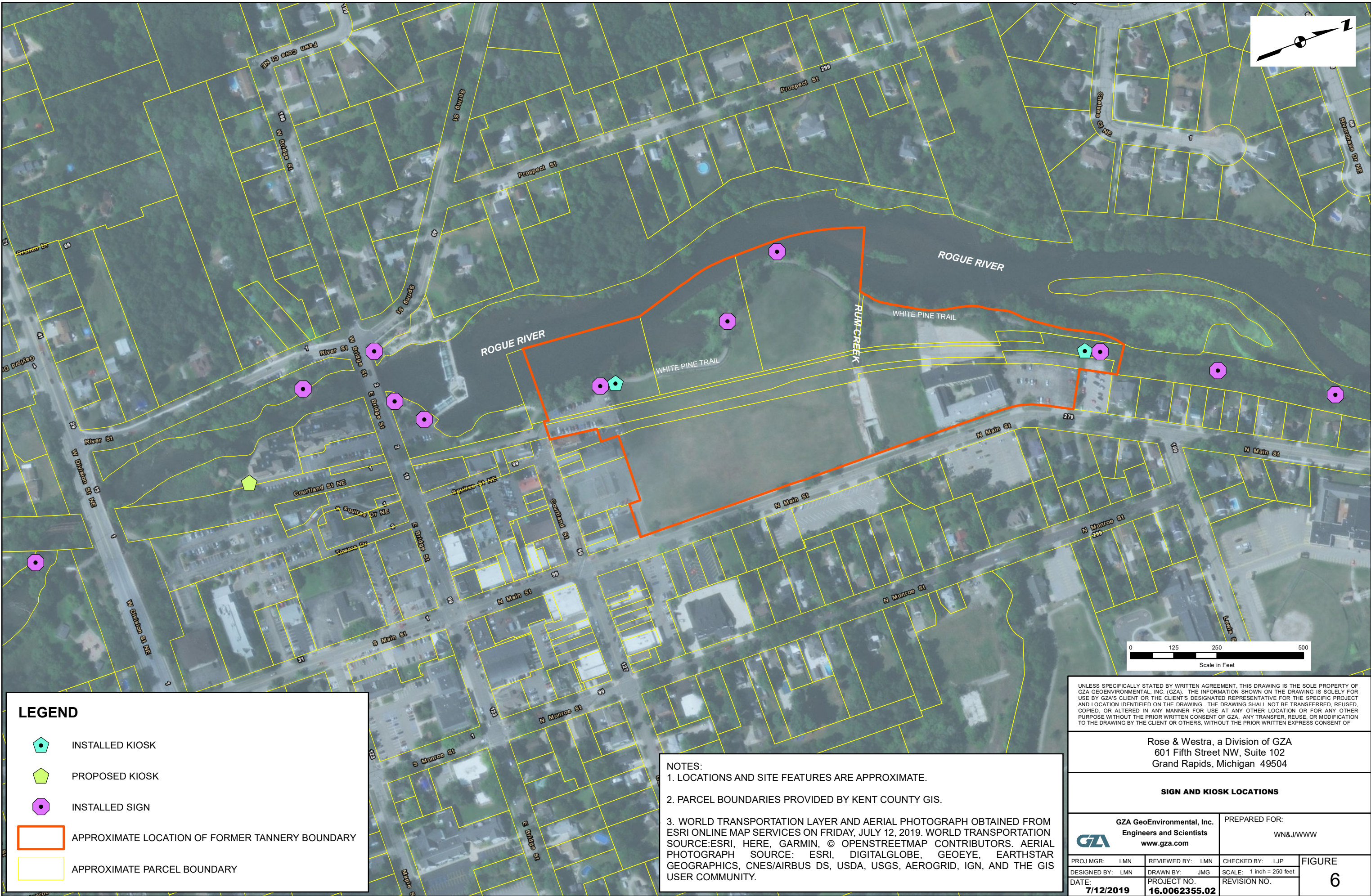
NO.	REVISIONS	BY	DATE	DRAWN BY	DESIGN BY	DATE
				KJB	LMN	6/1/14

WNUJ/WWW
TANNERY SITE, ROCKFORD, KENT COUNTY, MICHIGAN
2019 WORK PLAN

ROSE & WESTRA
A DIVISION OF GZA
Grand Rapids, Michigan
GEOTECHNICAL-ENVIRONMENTAL-ECOLOGICAL-WATER-CONSTRUCTION MANAGEMENT

PROJECT NO.
16.0062335.02
SHEET NO.

© 2019 - GZA GeoEnvironmental, Inc. J:\16.xx Grand Rapids\16.0062355\16.0062355 52 Data_GIS\GIS_CAD\Tannery_Kiosk_Signs.mxd, 7/12/2019, 2:28:19 PM, Julia Greenlee



LEGEND

- INSTALLED KIOSK
- PROPOSED KIOSK
- INSTALLED SIGN
- APPROXIMATE LOCATION OF FORMER TANNERY BOUNDARY
- APPROXIMATE PARCEL BOUNDARY

NOTES:

1. LOCATIONS AND SITE FEATURES ARE APPROXIMATE.

2. PARCEL BOUNDARIES PROVIDED BY KENT COUNTY GIS.

3. WORLD TRANSPORTATION LAYER AND AERIAL PHOTOGRAPH OBTAINED FROM ESRI ONLINE MAP SERVICES ON FRIDAY, JULY 12, 2019. WORLD TRANSPORTATION SOURCE:ESRI, HERE, GARMIN, © OPENSTREETMAP CONTRIBUTORS. AERIAL PHOTOGRAPH SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRIID, IGN, AND THE GIS USER COMMUNITY.

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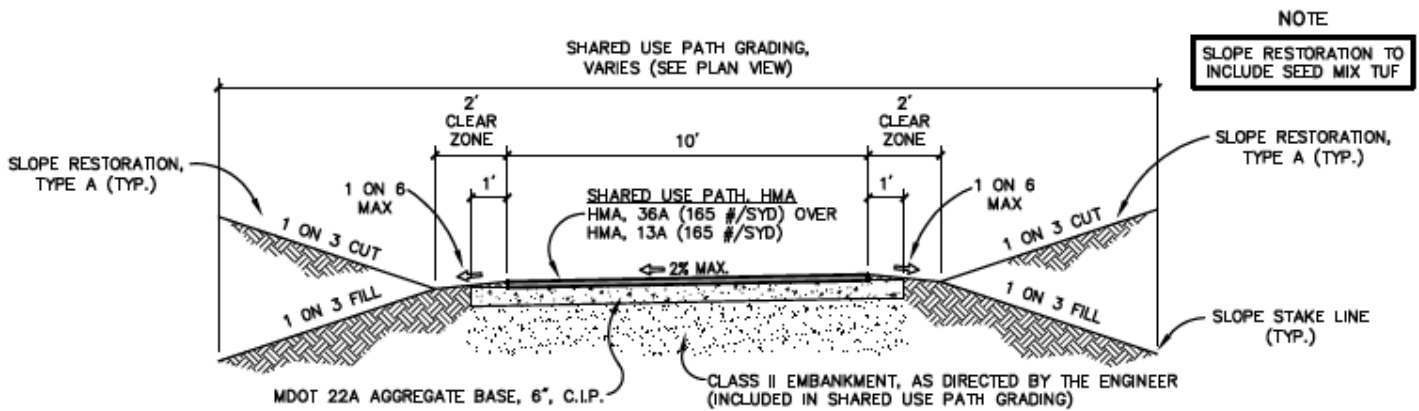
Rose & Westra, a Division of GZA
601 Fifth Street NW, Suite 102
Grand Rapids, Michigan 49504

SIGN AND KIOSK LOCATIONS

GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: WN&J/WWW	
PROJ MGR: LMN	REVIEWED BY: LMN	CHECKED BY: LJP	FIGURE 6
DESIGNED BY: LMN	DRAWN BY: JMG	SCALE: 1 inch = 250 feet	
DATE: 7/12/2019	PROJECT NO. 16.0062355.02	REVISION NO.	

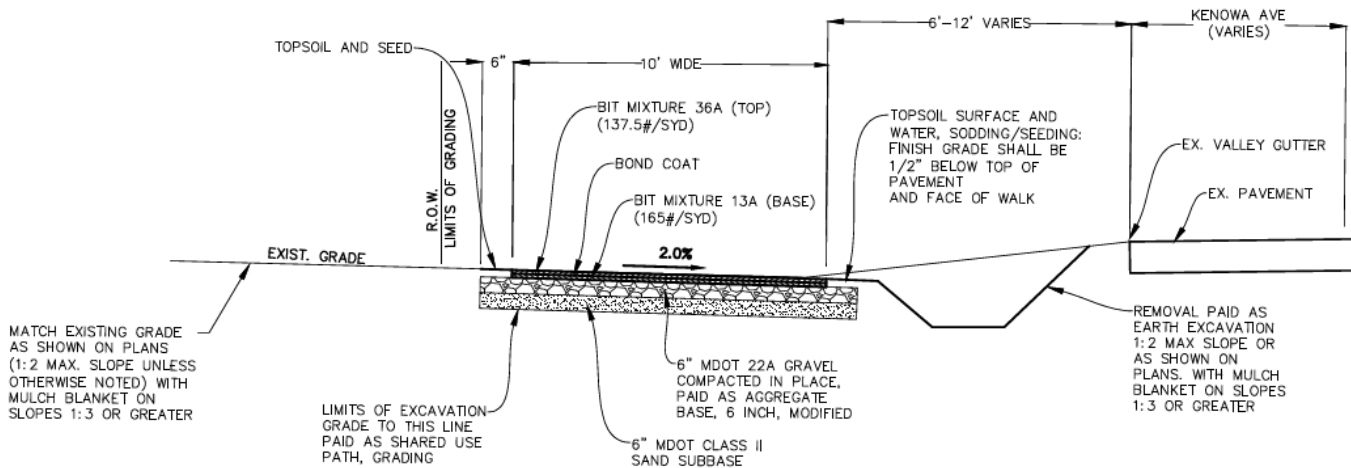


APPENDIX A – ASPHALT SPECIFICATIONS FOR WHITE PINE TRAIL



TYPICAL PATH CROSS SECTION

(STA. 10+00 TO STA. 38+49)
(STA. 40+02 TO STA. 43+27)
(STA. 45+16 TO STA. 111+24)
SCALE : 1" = 5'



TYPICAL 10' WIDE HMA TRAIL CROSS SECTION TO APPLY AT SECTIONS:

STA. 41+00 TO 44+00
STA. 46+50 TO 56+10
STA. 56+75 TO 60+10

SCALE: 1" = 5'

CONSTRUCTION / GRADING LIMITS

GRADE PATH TO FOLLOW PROFILE, BALANCING CUTS AND FILLS. SPOIL TOPSOIL FROM PATH AREA IN LANDSCAPE AREAS ADJOINING PATH. MAINTAIN EXIST. SURFACE DRAINAGE. CROSS PITCH PATH AT 1.5% MIN./2% MAX. (TO BE PAID FOR AS STATION GRADING)

GRADED SHOULDER
4% MAX.

HMA 13A

PLAN GRADE

EXISTING GRADE (VARIES)
1:4 TYP

1.5% MIN
2% MAX

RESTORE SLOPES
WITH 1' FLAT WITH
SEED MIX AS
INDICATED ON THE
PLANS AND IN THE
SPECIAL PROVISIONS

STRIP AND SALVAGE EXISTING
TOPSOIL. PLACE CLASS II FILL TO
BOTTOM OF AGG BASE GRADE. (TO
BE PAID FOR AS STATION GRADING)

2' MIN.

10'

2' MIN.

EXISTING GRADE

EXISTING GRADE
(VARIES)
1:4 TYP

6" AGG BASE, MIN

TYPICAL PATH SECTION

NOT TO SCALE

APPLY TO STATION:

STA. 13+40 TO STA. 44+50

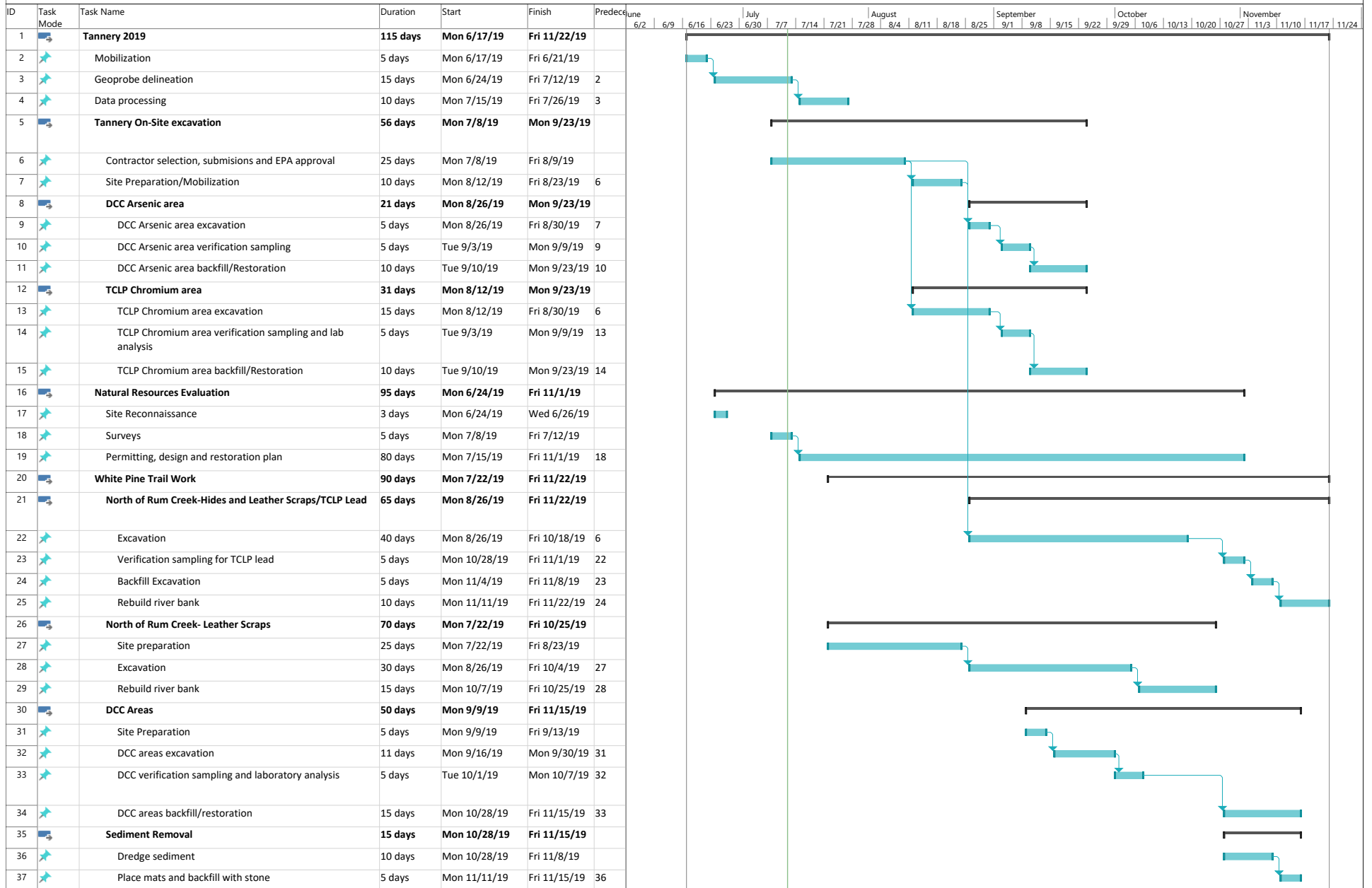
STA. 46+00 TO STA. 52+65

* MINUS BOARDWALK SECTIONS



APPENDIX B – ESTIMATED PROJECT SCHEDULE

FORMER TANNERY SITE
2019 ESTIMATED PROJECT SCHEDULE





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