



ENVIRONMENTAL TROUBLESHOOTERS, INC.

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DULUTH, MN 55807
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March 1, 2019

John T. Hunt P.G.
Hydrogeologist – Remediation and Redevelopment
Wisconsin Department of Natural Resources
223 East Steinfest Road
Antigo, Wisconsin 54409

**RE: Supplemental Site Investigation Work Plan
Fraser Shipyards Inc.
1 Clough Ave, Superior, WI 54880
Punch Shed Building Addition Spill
BRRTs 02-16-562899
ET Project No. 14-1004**

Dear Mr. Hunt,

Environmental Troubleshooters (ET) has prepared the enclosed site investigation work plan (SIWP) for review by the WDNR. The SIWP has been prepared in response to your letter dated January 30, 2019 to address requested site work. Please review and provide guidance as to the appropriateness of the planned work.

A Technical Assistance Request and check for \$700 are enclosed for processing. If you have any questions, please contact me at (218) 722-6013 or by email at jmccarthy@etsmn.com.

Sincerely,

Environmental Troubleshooters, Inc.



John McCarthy, CHMM
Project Manager

Cc: Sean Smith – Fraser
Enclosures: SIWP, TA Request & check.



ENVIRONMENTAL TROUBLESHOOTERS, INC.

March 1, 2019

Mr. John Hunt
Hydrogeologist
Wisconsin Department of Natural Resources
223 East Steinfest Road
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**RE: Supplemental Site Investigation Work Plan
Fraser Shipyards Inc.
1 Clough Ave, Superior, WI 54880
Punch Shed Building Addition Spill
BRRTs 02-16-562899
ET Project No. 14-1004**

Dear Mr. Hunt,

Environmental Troubleshooters (ET) has prepared this supplemental site investigation work plan (SIWP) for the above-referenced site on behalf of Fraser Shipyard Inc. (FSI) pursuant to the letter from your office dated January 30, 2019. The contact information for FSI is:

Fraser Shipyards Inc.
1 Clough Ave.
Superior, WI 54880
Attn: Mr. Jim Farkas
Phone:(715) 394-7787

The site address is 1 Clough Ave, Superior, Wisconsin. FSI is a large facility that includes portions of the south half of Section 11 and north half of Section 14, T49N, R14W, in Douglas County, Wisconsin. The specific spill area (Punch Shed Building Addition) is located in the SE ¼ of the SW ¼ of Section 11, T49N, R14W. Figure 1 depicts the site location on a topographic map. Figure 2 depicts the entire shipyard on an aerial photograph, including the the Punch Shed Building Addition area of concern (AOC). Figure 3 is a site plan of the Punch Shed AOC.

The purpose of the SIWP is to address specific elements requested in your January 30, 2019 letter. Specifically, on page 3 of 5 of your letter you note that:

1. The WDNR concurs that polycyclic aromatic hydrocarbons (PAHs) are the chemical of concern at the site.
2. The WDNR concurs that NR 720 industrial direct contact (IDC) and groundwater (GW) residual contaminant levels (RCLs) are appropriate for site soils.

3. The WDNR concurs that soil delineation is complete (Figure 4).
4. The WDNR does not concur that groundwater PAH delineation is complete sidegradient of well MW-3 and upgradient of well MW-4. Additional monitoring wells are recommended to complete the delineation. This item is addressed in this work plan.

In addition, on page 4 of 5 of the letter, the WDNR makes the following additional requests:

- Conduct a vapor intrusion (VI) assessment per NR 716.11(5)(a). This item is addressed in this work plan.
- Submit a remedial action options report (RAOR) prior to requesting closure. This is not included in the work plan, but will be prepared upon completion of the groundwater PAH delineation and vapor intrusion assessment.
- Continuing obligations may be required as part of site closure. This is not included in the work plan, but will be prepared upon completion of the RAOR.
- Submittals should include the proper certifications under NR 712. This request will be met with all submittals.
- Submittals should follow the procedures in Guidance Document RR690. This request will be met with all submittals.

The Punch Shed Building Addition spill is being addressed as a legacy release as there are no known active releases or sources of potential releases to the area. As discussed in prior submittals, contaminants were encountered during building addition footing test pits and geotechnical borings conducted during the design phase of the Punch Shed Addition.

WORK PLAN

Background and Receptor Analysis

The site history, prior investigation work, test pit sampling results and receptor analysis were presented in the February 5, 2015 SIWP.

Soil Contaminant Investigation

As noted above, the WDNR concurs that soil contaminant delineation has been completed and no additional soil sampling is proposed.

Groundwater Contaminant Investigation

The WDNR has requested groundwater PAH delineation sidegradient of well MW-3 and upgradient of well MW-4. ET proposes to complete the delineation in phases. Specifically, ET will conduct five push-probe borings and install one-inch diameter, schedule 40 PVC temporary wells at the locations depicted on Figure 5. The temporary wells will be installed in each boring with the screen transecting the vadose, capillary and saturated zones. If sufficient water accumulates within the temporary wells, groundwater samples will be collected from each location and preserved for analysis by a state certified laboratory. Samples will be analyzed for PAHs using EPA Method 8270. All proper quality assurance/quality control (QA/QC) procedures will be followed as per NR 716.13, including collection of trip blanks and duplicate samples, as appropriate.

If sampling results suggest that delineation has not been successful with the five temporary wells, an additional set of temporary wells will be installed further from the source to delineate the extents. Once temporary well sampling results suggest that delineation has been successful, the data will be used to strategically locate three to four permanent groundwater monitoring wells. The permanent wells will be sampled quarterly with other site wells until it can be demonstrated that groundwater contaminant concentrations are stable or decreasing under NR 726.05(6). It is planned to thin-spread drilling cuttings and waste development / purge water adjacent to each sample location. Groundwater samples will be collected from each well using dedicated disposable bailers or a peristaltic pump with dedicated disposal inert tubing.

VI Assessment

A VI assessment will be conducted in a phased manner to comply with NR 716.11(5)(a), including “potential pathways for migration of the contamination, including drainage improvements, utility corridors, bedrock and permeable material or soil along which vapors, free product or contaminated water may flow.”

The Punch Shed is an active industrial building at a shipyard with regular indoor vehicle and fork lift activity, as well as painting and other indoor volatile organic compound (VOC) generating operations. The apparent release area in the east/northeast corner of the building is the location of the former boiler room which operated on fuel oil. Accessible contaminated soil (i.e. soils not under the building) were excavated concurrently with building addition construction in 2014 and disposed off-site in November 2014.

During site investigation drilling in March and June of 2015, PID readings recorded in borings drilled within the building footprint (refer to Figure 3) included maximum values of:

- GP-5 = 556 parts per million (ppm) at 2 feet below grade surface (bgs);
- GP-6 = 395 ppm at 4 feet bgs;
- GP-10 = 3.5 ppm at 8 bgs; and
- GP-11 = 7.0 ppm at 2 feet bgs.

If no apparent direct pathways (e.g. dry floor drain traps or cracked concrete) are observed, WDNR Guidance RR-800 Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin provides screening criteria on Figure 3b PVOC Vapor Intrusion Screening Guidelines to assess whether sub-slab sampling is warranted. Based on site data collected to date:

- The subject site has only petroleum contamination present (i.e. no chlorinated VOCs).
- Benzene has not been detected in soil or groundwater samples.
- Groundwater was not observed in soil borings completed within the Punch Shed building footprint in 2015, except in boring GP-6. There is approximately 5 feet of vertical separation between the building slab and the water table at GP-6. Groundwater was also observed at similar depth during test pit excavation in the Punch Shed Building Addition location during construction in 2014 and proximal monitoring wells.
- Although the building is adjacent to the source (former boiler room), no petroleum odors have been reported in the building.

- According to Figure 3b Guidelines in RR-800, the site does not fall under situations where a vapor investigation is recommended. However, if requested by the WDNR, ET will conduct an aerated soil assessment for the presence of oxygen ($\geq 5\%$), methane ($< 1\%$) and lower explosive limit ($< 10\%$) below the building.
- If the pathway assessment locates a direct route that cannot be blocked or if the aerated soil assessment is requested by the WDNR and fails, then sub-slab soil vapor sampling will be conducted.


It is proposed to submit the pathway analysis findings to the WDNR to obtain further guidance on this matter before conducting sub-slab or indoor air quality sampling.

Schedule

The VI assessment and temporary well installation and sampling will be completed in April 2019 after receipt of WDNR comments on this work plan. As noted above, the results from the temporary well sampling will dictate whether more temporary wells are needed or if we can proceed to install permanent monitoring wells. It is anticipated that the permanent wells will be sampled quarterly with existing site monitoring wells until stable or decreasing contaminant concentration trends are documented. Based on the results of the activities noted above, an RAOR will be prepared documenting the findings and providing recommended continuing obligations. Following the RAOR, if conditions warrant, a closure request will be prepared for WDNR submittal.

Certifications

“I, Tom Muhich, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 2, Wis. Adm. Code, or licensed in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.”



Tom Muhich, PG, CHMM (Reviewer)
tmuhich@etsmn.com

March 1, 2019
Date

“I, John McCarthy, hereby certify that I am a scientist as that term is defined in s. NR 712.03 (3), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.”



John McCarthy, CHMM (Author)
Project Manager
jmccarthy@etsmn.com


March 1, 2019

Date

If you have any questions in the interim, please contact me at (218) 722-6013 or by email at jmccarthy@etsmn.com.

Sincerely,

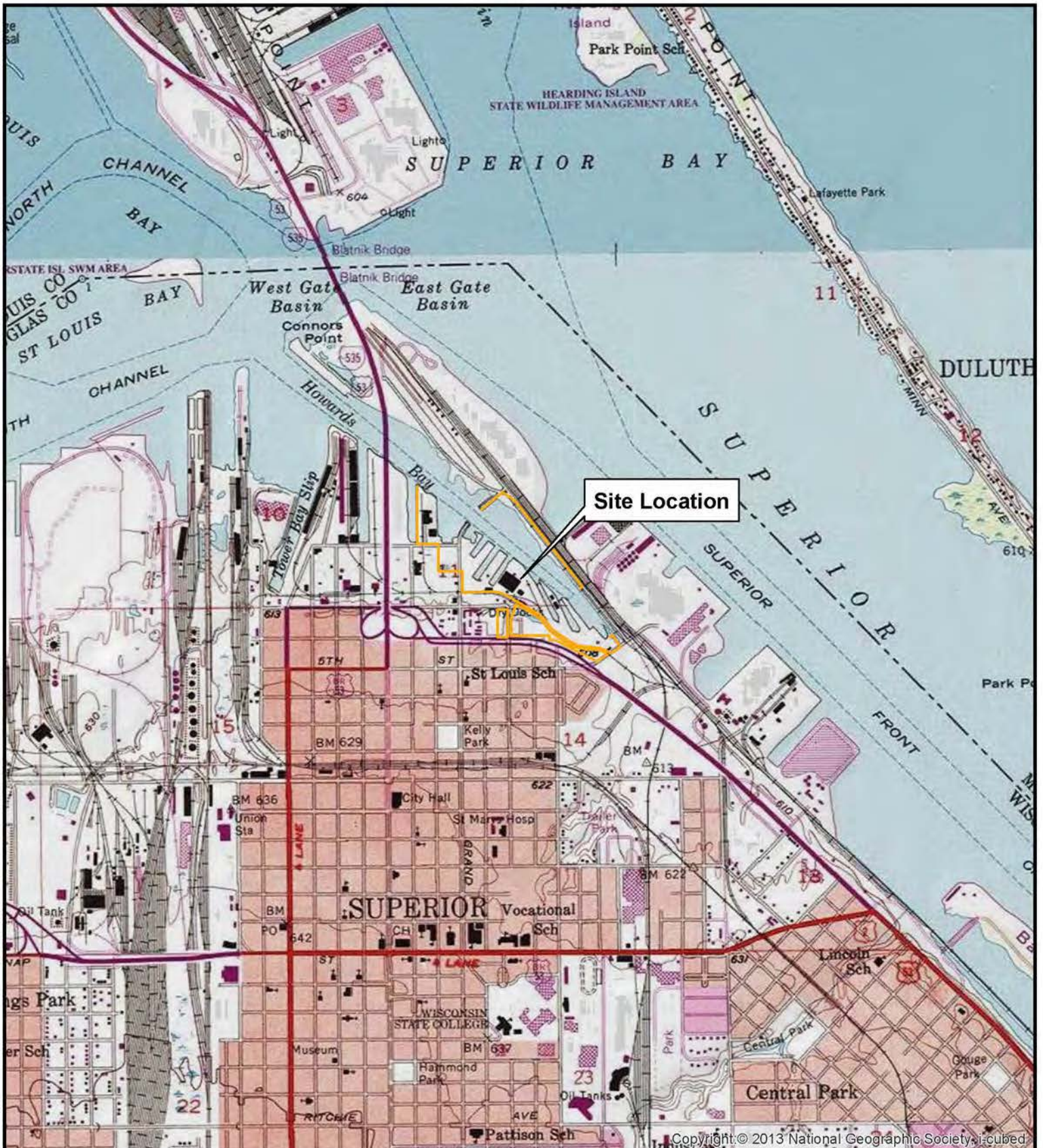
Environmental Troubleshooters, Inc.



John McCarthy, CHMM
Project Manager

Cc: Fraser Shipyards, 1 Clough Ave., Superior, WI 54880, Attn: Mr. Sean Smith

Attachments: Figures 1 - 5



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Legend

— Approximate Property Line



SCALE: 1/24000

1 inch = 2,000 feet

Source: USGS Duluth & Superior 7 1/2" Quadrangle Map



FIGURE 1
Site Location

Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004

DATE: 02/28/2019 | **CREATED BY: CGIS**

FILE NAME: //GIS/2014 Projects/14-1004
/Projects/Figure1





Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend




-  Approximate Property Line
-  AOC
-  Railroads



FIGURE 2
Vicinity Map

**Fraser Shipyard
Superior, Wisconsin**

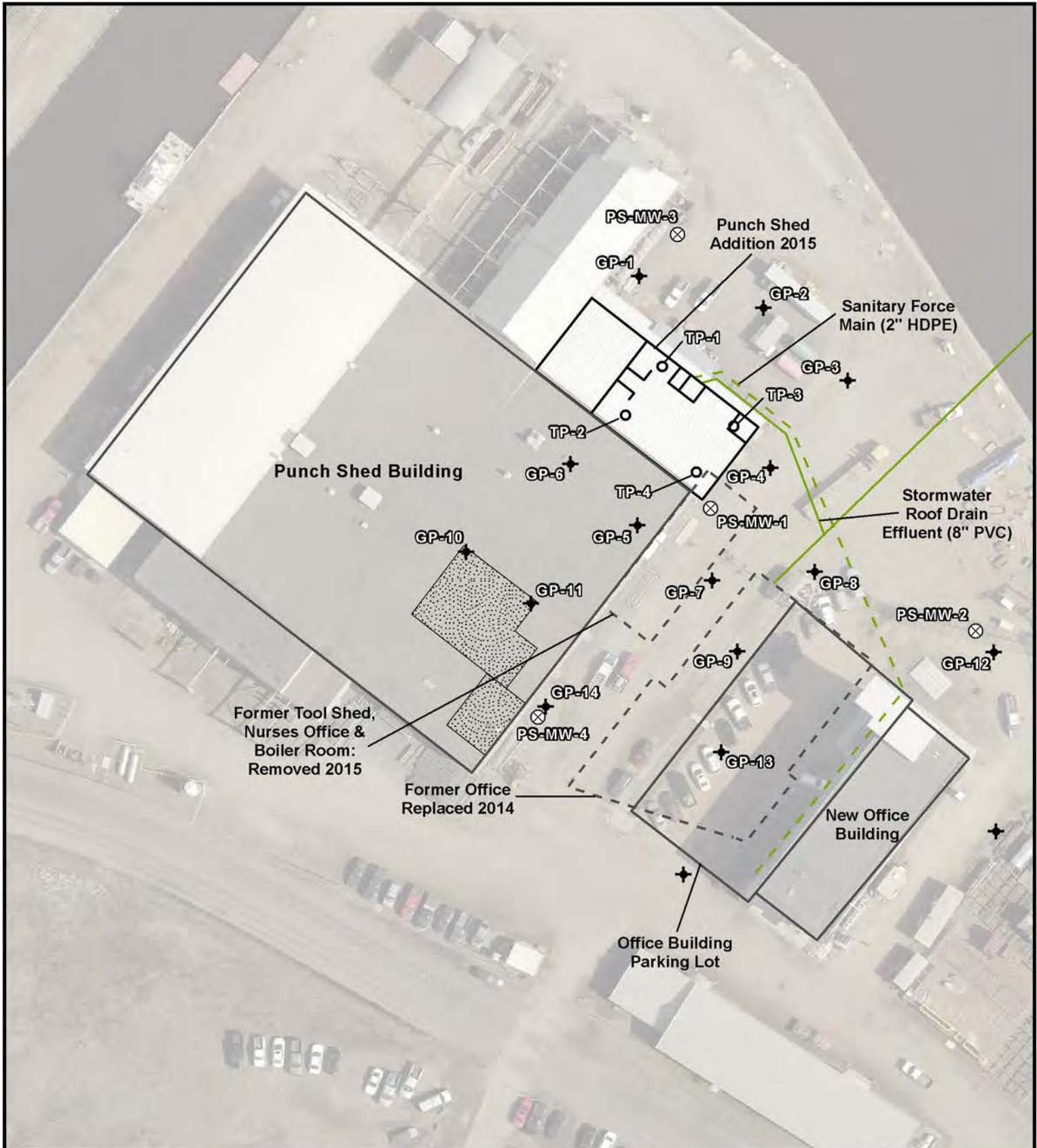
PROJECT #: 14-1004

DATE: 02/28/2019

CGIS

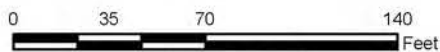
FILE NAME: //GIS/2014 Projects/14-1004
/Projects/Figure2_r1





Legend

- ✦ Geoprobe Borings
- Excavation Test Pits
- ⊗ Groundwater Monitoring Wells
- - Former Building Footprint
- Building Footprint
- ▨ Gravel



SCALE: 1:840
1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016



FIGURE 3
Site Plan

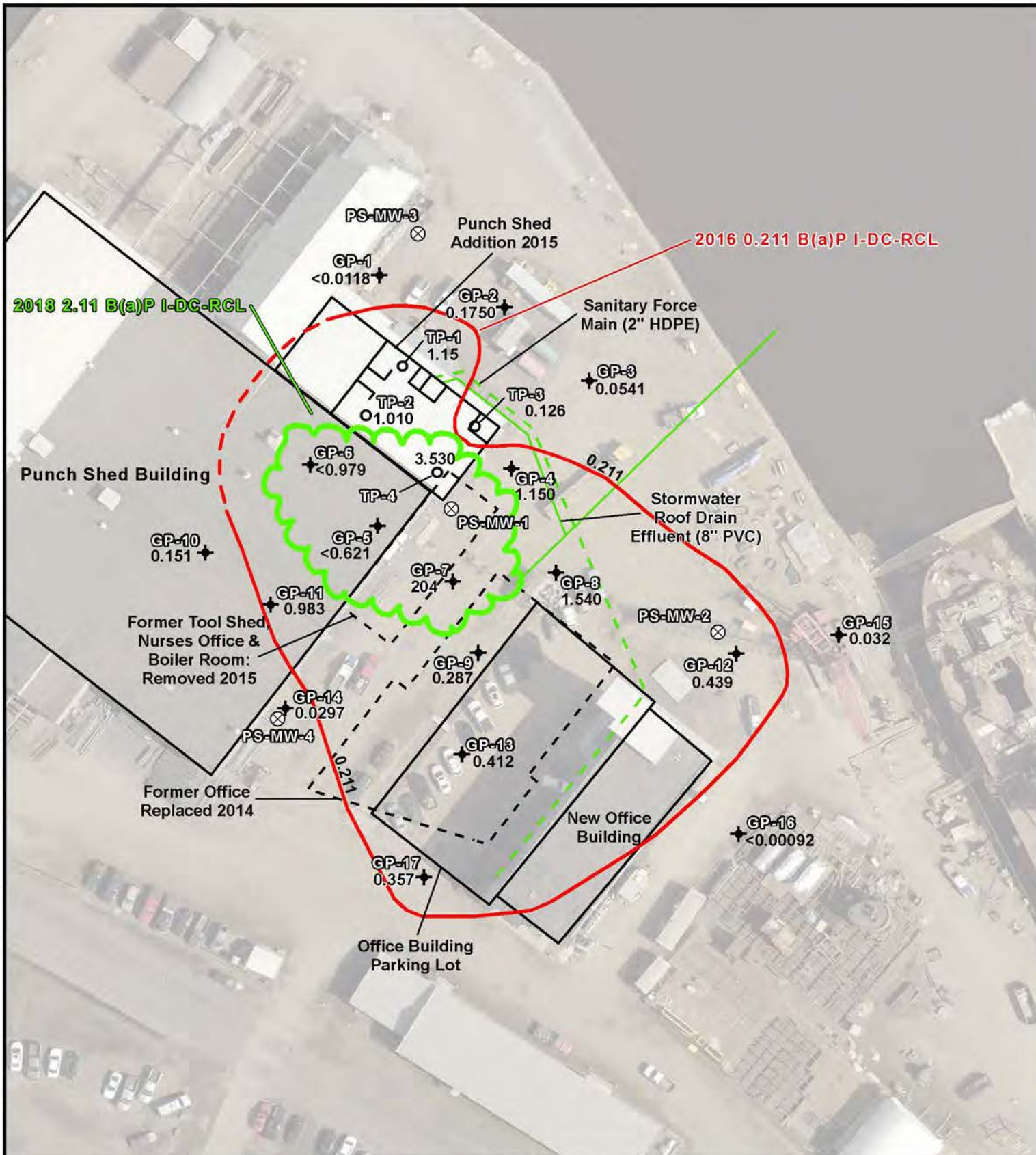
Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004

DATE: 02/28/2019 | CREATED BY: CGIS

FILE NAME: //GIS/2014 Projects/14-1004
/Projects/Figure3





Legend

- ✦ Geoprobe Borings
- Excavation Test Pits
- ⊗ Groundwater Monitoring Wells
- - Former Building Footprint
- Building Footprint
- 0.211 I-RCL
- 2.11 2018 I-RCL

Exceedances all within B(a)P extents

- Benzo(a)anthracene
- Benzo(b)Flouranthene
- Benzo(k)flouranthene
- Dibenzo(a,h)anthracene
- Flourene
- Naphthalene

0 35 70 140 Feet

SCALE: 1:840
1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016


FIGURE 4
Soil Benzo(a)Pyrene

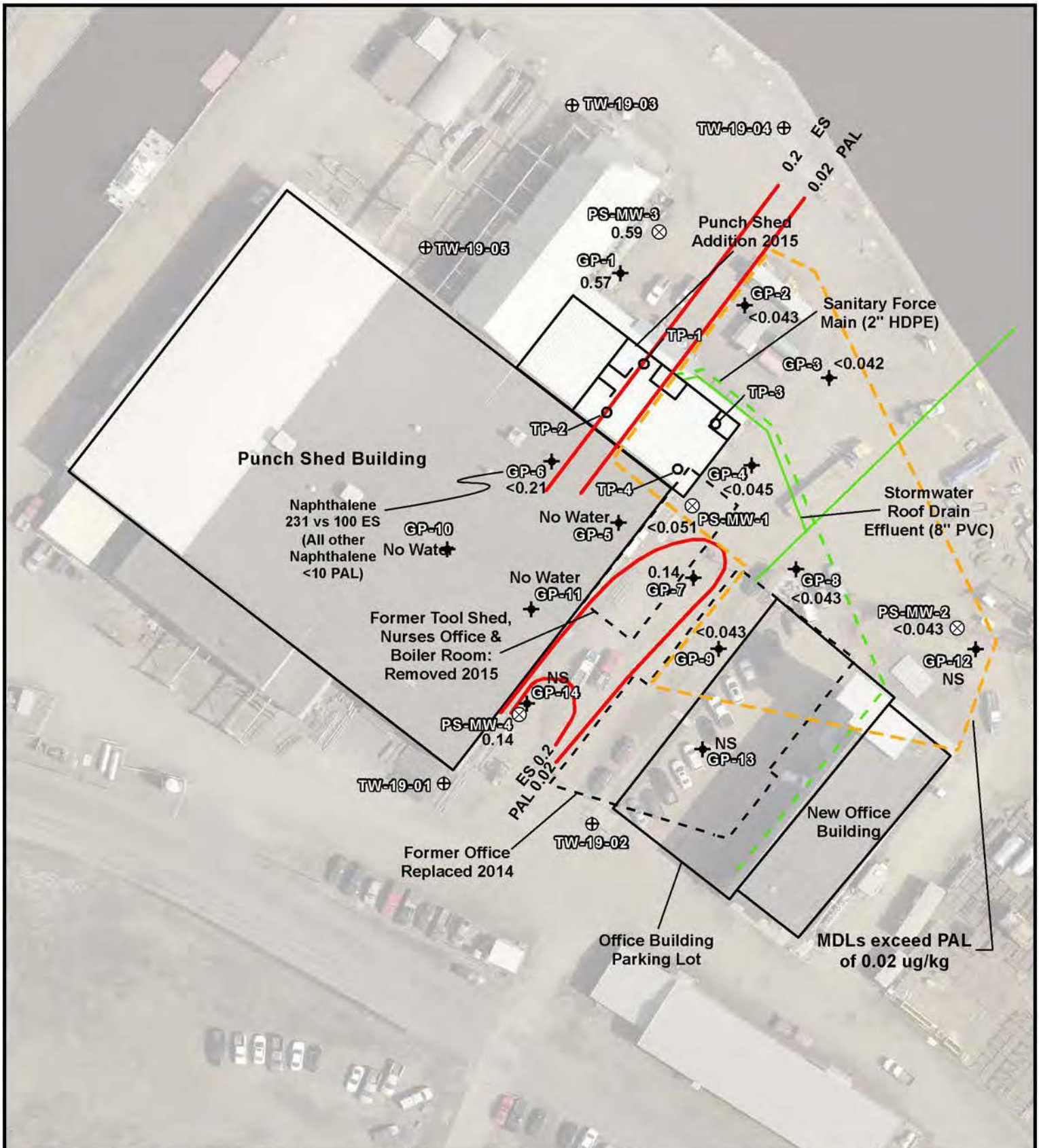
Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004

DATE: 02/28/2019 | CREATED BY: CGIS

FILE NAME: //GIS/2014 Projects/14-1004 /Projects/Figure4





⊕	Proposed Push-probe Groundwater Sample Locations
⊗	Groundwater Monitoring Wells
+	Geoprobe Borings
○	Excavation Test Pits
- -	Former Building Footprint
—	Building Footprint
- - -	MDLs Exceed PAL of 0.02 ug/kg
— (Red)	ES 0.2
— (Yellow)	PAL 0.02


Borings GP-5, GP-10 & GP-11; no water encountered.
 Borings GP-12, GP-13 & GP-14; soil delineation borings. No water sampled.
 Exceedances of other PAHs within B(a)P extents include Benzo(b)flouranthene, Chrysene & naphthalene.

0 35 70 140 Feet
 SCALE: 1:840 1 inch = 70 feet
 Source: Douglas County Aerial Imagery, circa Spring 2016

FIGURE 5
Groundwater Benzo(a)pyrene
Sample Date: 4/27/16

Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004
DATE: 02/28/2019 CREATED BY: CGIS
FILE NAME: //GIS/2014 Projects/14-1004 /Projects/Figure5_022819



Notice: Use this form to request a **written response (on agency letterhead)** from the Department of Natural Resources (DNR) regarding technical assistance, a post-closure change to a site, a specialized agreement or liability clarification for Property with known or suspected environmental contamination. A fee will be required as is authorized by s. 292.55, Wis. Stats., and NR 749, Wis. Adm. Code., unless noted in the instructions below. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records law [ss. 19.31 - 19.39, Wis. Stats.].

Definitions

"Property" refers to the subject Property that is perceived to have been or has been impacted by the discharge of hazardous substances.

"Liability Clarification" refers to a written determination by the Department provided in response to a request made on this form. The response clarifies whether a person is or may become liable for the environmental contamination of a Property, as provided in s. 292.55, Wis. Stats.

"Technical Assistance" refers to the Department's assistance or comments on the planning and implementation of an environmental investigation or environmental cleanup on a Property in response to a request made on this form as provided in s. 292.55, Wis. Stats.

"Post-closure modification" refers to changes to Property boundaries and/or continuing obligations for Properties or sites that received closure letters for which continuing obligations have been applied or where contamination remains. Many, but not all, of these sites are included on the GIS Registry layer of RR Sites Map to provide public notice of residual contamination and continuing obligations.

Select the Correct Form

This form should be used to request the following from the DNR:

- Technical Assistance
- Liability Clarification
- Post-Closure Modifications
- Specialized Agreements (tax cancellation, negotiated agreements, etc.)

Do **not** use this form if one of the following applies:

- Request for an **off-site liability exemption or clarification** for Property that has been or is perceived to be contaminated by one or more hazardous substances that originated on another Property containing the source of the contamination. Use DNR's Off-Site Liability Exemption and Liability Clarification Application Form 4400-201.
- Submittal of an Environmental Assessment for the **Lender Liability Exemption**, s 292.21, Wis. Stats., **if no response or review by DNR is requested**. Use the Lender Liability Exemption Environmental Assessment Tracking Form 4400-196.
- Request for an **exemption to develop on a historic fill site** or licensed landfill. Use DNR's Form 4400-226 or 4400-226A.
- **Request for closure** for Property where the investigation and cleanup actions are completed. Use DNR's Case Closure - GIS Registry Form 4400-202.

All forms, publications and additional information are available on the internet at: dnr.wi.gov/topic/Brownfields/Pubs.html.

Instructions

1. Complete sections 1, 2, 6 and 7 for all requests. Be sure to provide adequate and complete information.
2. Select the type of assistance requested: Section 3 for technical assistance or post-closure modifications, Section 4 for a written determination or clarification of environmental liabilities; or Section 5 for a specialized agreement.
3. Include the fee payment that is listed in Section 3, 4, or 5, unless you are a "Voluntary Party" enrolled in the Voluntary Party Liability Exemption Program **and** the questions in Section 2 direct otherwise. Information on to whom and where to send the fee is found in Section 8 of this form.
4. Send the completed request, supporting materials and the fee to the appropriate DNR regional office where the Property is located. See the map on the last page of this form. A paper copy of the signed form and all reports and supporting materials shall be sent with an electronic copy of the form and supporting materials on a compact disk. For electronic document submittal requirements see: <http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf>

The time required for DNR's determination varies depending on the complexity of the site, and the clarity and completeness of the request and supporting documentation.

**Technical Assistance, Environmental Liability
Clarification or Post-Closure Modification Request**

Form 4400-237 (R 9/15)

Page 3 of 8

1. Is a response needed by a specific date? (e.g., Property closing date) Note: Most requests are completed within 60 days. Please plan accordingly.

No Yes

Date requested by: _____

Reason: _____

2. Is the "Requester" enrolled as a Voluntary Party in the Voluntary Party Liability Exemption (VPLE) program?

No. **Include the fee that is required for your request in Section 3, 4 or 5.**

Yes. **Do not include a separate fee.** This request will be billed separately through the VPLE Program.

Fill out the information in Section 3, 4 or 5 which corresponds with the type of request:

Section 3. Technical Assistance or Post-Closure Modifications;

Section 4. Liability Clarification; or Section 5. Specialized Agreement.

Section 3. Request for Technical Assistance or Post-Closure Modification

Select the type of technical assistance requested: [Numbers in brackets are for WI DNR Use]

- No Further Action Letter (NFA) (Immediate Actions) - NR 708.09, [183] - **Include a fee of \$350.** Use for a written response to an immediate action after a discharge of a hazardous substance occurs. Generally, these are for a one-time spill event.
- Review of Site Investigation Work Plan - NR 716.09, [135] - **Include a fee of \$700.**
- Review of Site Investigation Report - NR 716.15, [137] - **Include a fee of \$1050.**
- Approval of a Site-Specific Soil Cleanup Standard - NR 720.10 or 12, [67] - **Include a fee of \$1050.**
- Review of a Remedial Action Options Report - NR 722.13, [143] - **Include a fee of \$1050.**
- Review of a Remedial Action Design Report - NR 724.09, [148] - **Include a fee of \$1050.**
- Review of a Remedial Action Documentation Report - NR 724.15, [152] - **Include a fee of \$350**
- Review of a Long-term Monitoring Plan - NR 724.17, [25] - **Include a fee of \$425.**
- Review of an Operation and Maintenance Plan - NR 724.13, [192] - **Include a fee of \$425.**

Other Technical Assistance - s. 292.55, Wis. Stats. [97] (For request to build on an abandoned landfill use Form 4400-226)

- Schedule a Technical Assistance Meeting - **Include a fee of \$700.**
- Hazardous Waste Determination - **Include a fee of \$700.**
- Other Technical Assistance - **Include a fee of \$700.** Explain your request in an attachment.

Post-Closure Modifications - NR 727, [181]

- Post-Closure Modifications: Modification to Property boundaries and/or continuing obligations of a closed site or Property; sites may be on the GIS Registry. This also includes removal of a site or Property from the GIS Registry. **Include a fee of \$1050, and:**
 - Include a fee of \$300 for sites with residual soil contamination; and
 - Include a fee of \$350 for sites with residual groundwater contamination, monitoring wells or for vapor intrusion continuing obligations.

Attach a description of the changes you are proposing, and documentation as to why the changes are needed (if the change to a Property, site or continuing obligation will result in revised maps, maintenance plans or photographs, those documents may be submitted later in the approval process, on a case-by-case basis).

Skip Sections 4 and 5 if the technical assistance you are requesting is listed above and complete Sections 6 and 7 of this form.

**Technical Assistance, Environmental Liability
Clarification or Post-Closure Modification Request**

Form 4400-237 (R 9/15)

Page 5 of 8

Section 4. Request for Liability Clarification (cont.)

Lease liability clarification - s. 292.55, Wis. Stats. [646]

❖ **Include a fee of \$700 for a single Property, or \$1400 for multiple Properties and the information listed below:**

- (1) a copy of the proposed lease;
- (2) the name of the current owner of the Property and the person who will lease the Property;
- (3) a description of the lease holder's association with any persons who have possession, control, or caused a discharge of a hazardous substance on the Property;
- (4) map(s) showing the Property location and any suspected or known sources of contamination detected on the Property;
- (5) a description of the intended use of the Property by the lease holder, with reference to the maps to indicate which areas will be used. Explain how the use will not interfere with any future investigation or cleanup at the Property; and
- (6) all reports or investigations (e.g. Phase I and Phase II Environmental Assessments and/or Site Investigation Reports conducted under s. NR 716, Wis. Adm. Code) that identify areas of the Property where a discharge has occurred.

General or other environmental liability clarification - s. 292.55, Wis. Stats. [682] - Explain your request below.

❖ **Include a fee of \$700 and an adequate summary of relevant environmental work to date.**

No Action Required (NAR) - NR 716.05, [682]

❖ **Include a fee of \$700.**

Use where an environmental discharge has or has not occurred, and applicant wants a DNR determination that no further assessment or clean-up work is required. Usually this is requested after a Phase I and Phase II environmental assessment has been conducted; the assessment reports should be submitted with this form. This is not a closure letter.

Clarify the liability associated with a "closed" Property - s. 292.55, Wis. Stats. [682]

❖ **Include a fee of \$700.**

- Include a copy of any closure documents if a state agency other than DNR approved the closure.

Use this space or attach additional sheets to provide necessary information, explanations or specific questions to be answered by the DNR.

Technical Assistance, Environmental Liability
Clarification or Post-Closure Modification Request

Form 4400-237 (R 9/15)

Page 7 of 8

Section 7. Certification by the Person who completed this form

I am the person submitting this request (requester)

I prepared this request for: Jim Farkas

Requester Name

I certify that I am familiar with the information submitted on this request, and that the information on and included with this request is true, accurate and complete to the best of my knowledge. I also certify I have the legal authority and the applicant's permission to make this request.

Jim Farkas
Signature

3-7-19
Date Signed

PRESIDENT & COO
Title

715-394-4211
Telephone Number (include area code)