



Memorandum

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May 6, 2020

TO: Mr. Dave Neste, Wisconsin Department of Natural Resources

CC: Ms. Jean Rombeck Bartells, Wisconsin Department of Natural Resources
Mr. Ed Swanson, Fincantieri Marinette Marine
Mr. Christian DeRocco, Fincantieri Marinette Marine
Mr. Denis Roznowski, Foth Infrastructure & Environment, LLC
Mr. Mike Stirk, Foth Infrastructure & Environment, LLC

FR: Bob Meller, Foth Infrastructure & Environment, LLC

RE: Chemical Characterization of Upland Soils to be Excavated During Construction of Proposed Fincantieri Marinette Marine Ship Lift

On behalf of Fincantieri Marinette Marine (FMM), Foth Infrastructure & Environment, LLC (Foth) completed two direct push borings on March 9-10, 2020, in the proposed construction area for a new ship lift structure on FMM upland property. The purpose of the borings was to collect samples needed to analytically characterize the fill and soils of the area for management upon excavation. (If no unacceptable environmental contamination present, the material can be used as general fill; or if evidence of contamination is present, special handling and disposal requirements may be needed.) In this area of the site, it is expected that upland soils and fill material will be excavated for the construction of the ship lift support structure, the relocation of private underground utilities, and during general construction related tasks.

The two direct push boring locations (L1-1A and L1-3A) are shown on the enclosed figure along with several previous geotechnical investigation boring locations. The soil chemistry results are summarized in the enclosed table. Two composite samples were prepared for each boring, one from the upper fill/alluvium zone and one from the underlying glacial till layer. Due to the water table being at a depth of approximately one foot below the surface, the samples were all collected from intervals below the historically high water table. The field staff did not observe field indications of environmental impacts such as odor, staining, free product, or sheen in any of the chemical characterization or geotechnical borings. The samples from the two borings were tested for petroleum volatile organic compounds (PVOC), Resource Conservation and Recovery Act (RCRA) metals, polychlorinated biphenyls (PCB) and polynuclear

and Recovery Act (RCRA) metals, polychlorinated biphenyls (PCB) and polynuclear aromatic hydrocarbons (PAH). These analytic methods are commonly requested by Subtitle D landfills for waste profiling prior to acceptance of non-hazardous waste materials at their facilities.

PVOCs and PCBs were not detected in any of the samples. A low level detection of what is likely naturally occurring - selenium was reported for one composite sample at a concentration slightly exceeding the Wisconsin Administrative Code Chapter NR 720 groundwater pathway residual contaminant level (RCL). However, as reported in Foth's January 3, 2019 "Sediment Characterization Results" letter to the WDNR, low concentrations of selenium in sediment samples from the adjacent river bed tested as non-leachable. Foth believes that the same would apply for the selenium in this sample. In other words, the reported selenium concentration, which is slightly above the groundwater pathway RCL, should not be a groundwater impact concern. No other reported metals were observed at concentrations exceeding their respective NR 720 residential direct contact RCL or groundwater pathway RCL. With the exception of the "fill" sample at L1-3A, no PAH compounds were detected in any other samples from the two borings. Within the L1-3A "fill" sample, three PAH parameters were reported at concentrations slightly exceeding either a parameter specific residential direct contact RCL, a groundwater pathway RCL or both. We do not believe that these low PAH concentrations represent an environmental risk given the lack of detectable PAHs for the other three samples collected from the construction area.

Based on the results discussed above, Foth does not believe that the material to be excavated from the construction area will pose a threat to the public or environment, and that it can be removed from the property and used for general fill provided it is not placed in environmentally sensitive areas such as wetlands.

As is standard practice during construction, if physical indicators of possible contamination are observed during excavation, the material in question will be segregated and characterized for proper handling/disposal prior to removal from the site.

Foth is seeking the Wisconsin Department of Natural Resources' concurrence on our interpretation of the field and analytic data as it pertains to the use of this upland soil as general purpose fill.

enclosures

Tables

Table 1
Soil Analytical Results
FMM Bulkhead Wall Final Design
Marinette, Wisconsin

Sample Location

L1-1A

Sample Date

3/9/2020

Ground Surface Elevation (ft IGLD 1985)

582.3

| Analysis | NR 720 DC RCLs ¹ | NR 720 GW Pathway RCLs ¹ | Units | Depth Below Ground Surface (ft) | | |
|---------------|--------------------------------|--|-------------------|---------------------------------|-----------|--------|
| | | | | 0.4-16.5 | 16.5-24.9 | |
| ASTM D2974-87 | Moisture | N/A | N/A | % | 18.2 | 6.1 |
| EPA 8260 | Benzene | 1,600 | 5.1 | ug/kg | <25.0 | <25.0 |
| | Ethylbenzene | 8,020 | 1,570 | ug/kg | <25.0 | <25.0 |
| | Methyl-tert-butyl ether | 63,800 | 27 | ug/kg | <25.0 | <25.0 |
| | Toluene | 818,000 | 1,107 | ug/kg | <25.0 | <25.0 |
| | 1,2,4-Trimethylbenzene | 219,000 | 1,379 | ug/kg | <25.0 | <25.0 |
| | 1,3,5-Trimethylbenzene | 182,000 | | ug/kg | <25.0 | <25.0 |
| | Xylene (Total) | 260,000 | 3,960 | ug/kg | <75.0 | <75.0 |
| EPA 6020 | Arsenic | 8.3 ² | 8.3 ² | mg/kg | 1.2 | 2.1 |
| | Barium | 15,300 | 164.8 | mg/kg | 8.3 | 46.6 |
| | Cadmium | 71.1 | 0.752 | mg/kg | 0.26J | <0.10 |
| | Chromium | 43.5 ² | 43.5 ² | mg/kg | 4.7 | 12.5 |
| | Lead | 400 | 27 | mg/kg | 1.3 | 2.8 |
| | Selenium | 391 | 0.52 | mg/kg | 0.42J | 1.0 |
| | Silver | 391 | 0.85 | mg/kg | <0.12 | <0.10 |
| EPA 7471 | Mercury | 3.13 | 0.208 | mg/kg | <0.012 | <0.011 |
| EPA 8082A | PCBs - Total | N/A | 9.4 | ug/kg | <30.5 | <26.7 |
| | PCBs - Aroclor 1016 | 4,110 | N/A | ug/kg | <30.5 | <26.7 |
| | PCBs - Aroclor 1221 | 213 | N/A | ug/kg | <30.5 | <26.7 |
| | PCBs - Aroclor 1232 | 190 | N/A | ug/kg | <30.5 | <26.7 |
| | PCBs - Aroclor 1242 | 235 | N/A | ug/kg | <30.5 | <26.7 |
| | PCBs - Aroclor 1248 | 236 | N/A | ug/kg | <30.5 | <26.7 |
| | PCBs - Aroclor 1254 | 239 | N/A | ug/kg | <30.5 | <26.7 |
| | PCBs - Aroclor 1260 | 243 | N/A | ug/kg | <30.5 | <26.7 |
| EPA 8270 SIM | 1-Methylnaphthalene | 17,600 | N/A | ug/kg | <3.0 | <2.6 |
| | 2-Methylnaphthalene | 239,000 | N/A | ug/kg | <3.0 | <2.6 |
| | Acenaphthene | 3,590,000 | N/A | ug/kg | <2.6 | <2.3 |
| | Acenaphthylene | N/A | N/A | ug/kg | <2.6 | <2.2 |
| | Anthracene | 17,900,000 | 196,949 | ug/kg | <2.5 | <2.2 |
| | Benzo(a)anthracene | 1,140 | N/A | ug/kg | <2.6 | <2.3 |
| | Benzo(a)pyrene | 115 | 470 | ug/kg | <2.3 | <2.0 |
| | Benzo(b)fluoranthene | 1,150 | 478.1 | ug/kg | <2.8 | <2.5 |
| | Benzo(ghi)perylene | N/A | N/A | ug/kg | <3.6 | <3.1 |
| | Benzo(k)fluoranthene | 11,500 | N/A | ug/kg | <2.6 | <2.3 |
| | Chrysene | 115,000 | 144.2 | ug/kg | <3.8 | <3.4 |
| | Dibenzo(a,h)anthracene | 115 | N/A | ug/kg | <2.8 | <2.5 |
| | Fluoranthene | 2,390,000 | 88,878 | ug/kg | <2.4 | <2.1 |
| | Fluorene | 2,390,000 | 14,830 | ug/kg | <2.4 | <2.1 |
| | Indeno(1,2,3-cd)pyrene | 1,150 | N/A | ug/kg | <4.3 | <3.7 |
| | Naphthalene | 5,520 | 658.2 | ug/kg | <2.0 | <1.7 |
| Phenanthrene | N/A | N/A | ug/kg | <2.3 | <2.0 | |
| | Pyrene | 1,790,000 | 54,546 | ug/kg | <3.0 | <2.6 |

Notes:

< = Parameter not detected at or above the laboratory detection limit shown.

IGLD = International Great Lakes Datum

J = Estimated concentration at or above the Limit of Detection (LOD) and below the Limit of Quantitation (LOQ).

N/A = Not available

492 = Concentration above WDNR Residential Direct Contact Residual Contaminant Level (RCL).

1.0 = Concentration above WDNR Groundwater Pathway RCL.

1= WDNR Residential Direct Contact and Groundwater Pathway RCLs from WDNR online RCL Excel Spreadsheet, updated Dec 2018.

2= Statewide background threshold values used in the WDNR online RCL Excel spreadsheet are referenced as non-outlier trace element maximum levels in

Wisconsin surface soils from the USGS Report at: <http://pubs.usgs.gov/sir/2011/5202> . See also WDNR Publication RR-940.

Prepared by: RLP1

Checked by: RJM7

Table 2
Soil Analytical Results
FMM Bulkhead Wall Final Design
Marinette, Wisconsin

Sample Location

L1-3A

Sample Date

3/9-10/2020

Ground Surface Elevation (ft IGLD 1985)

582.1

| Analysis | NR 720 DC RCLs ¹ | NR 720 GW Pathway RCLs ¹ | Units | Depth Below Ground Surface (ft) | | |
|----------------------|--------------------------------|--|-------------------|---------------------------------|---------|--------|
| | | | | 0.4-14.9 | 15-23.6 | |
| ASTM D2974-87 | Moisture | N/A | N/A | % | 14.1 | 11.7 |
| EPA 8260 | Benzene | 1,600 | 5.1 | ug/kg | <25.0 | <25.0 |
| | Ethylbenzene | 8,020 | 1,570 | ug/kg | <25.0 | <25.0 |
| | Methyl-tert-butyl ether | 63,800 | 27 | ug/kg | <25.0 | <25.0 |
| | Toluene | 818,000 | 1,107 | ug/kg | <25.0 | <25.0 |
| | 1,2,4-Trimethylbenzene | 219,000 | 1,379 | ug/kg | <25.0 | <25.0 |
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| | Xylene (Total) | 260,000 | 3,960 | ug/kg | <75.0 | <75.0 |
| EPA 6020 | Arsenic | 8.3 ² | 8.3 ² | mg/kg | 2.0 | 1.7 |
| | Barium | 15,300 | 164.8 | mg/kg | 7.2 | 16.4 |
| | Cadmium | 71.1 | 0.752 | mg/kg | 0.24J | <0.11 |
| | Chromium | 43.5 ² | 43.5 ² | mg/kg | 6.6 | 7.0 |
| | Lead | 400 | 27 | mg/kg | 4.2 | 2.0 |
| | Selenium | 391 | 0.52 | mg/kg | 0.27J | 0.39J |
| | Silver | 391 | 0.85 | mg/kg | <0.10 | <0.10 |
| EPA 7471 | Mercury | 3.13 | 0.208 | mg/kg | <0.011 | <0.012 |
| EPA 8082A | PCBs - Total | N/A | 9.4 | ug/kg | <29.0 | <28.3 |
| | PCBs - Aroclor 1016 | 4,110 | N/A | ug/kg | <29.0 | <28.3 |
| | PCBs - Aroclor 1221 | 213 | N/A | ug/kg | <29.0 | <28.3 |
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| EPA 8270 SIM | 1-Methylnaphthalene | 17,600 | N/A | ug/kg | 25.5J | <2.8 |
| | 2-Methylnaphthalene | 239,000 | N/A | ug/kg | 32.0J | <2.8 |
| | Acenaphthene | 3,590,000 | N/A | ug/kg | 120 | <2.5 |
| | Acenaphthylene | N/A | N/A | ug/kg | 65.7J | <2.4 |
| | Anthracene | 17,900,000 | 196,949 | ug/kg | 339 | <2.3 |
| | Benzo(a)anthracene | 1,140 | N/A | ug/kg | 437 | <2.4 |
| | Benzo(a)pyrene | 115 | 470 | ug/kg | 492 | <2.1 |
| | Benzo(b)fluoranthene | 1,150 | 478.1 | ug/kg | 496 | <2.6 |
| | Benzo(ghi)perylene | N/A | N/A | ug/kg | 270 | <3.3 |
| | Benzo(k)fluoranthene | 11,500 | N/A | ug/kg | 267 | <2.4 |
| | Chrysene | 115,000 | 144.2 | ug/kg | 566 | <3.6 |
| | Dibenzo(a,h)anthracene | 115 | N/A | ug/kg | 55.4J | <2.6 |
| | Fluoranthene | 2,390,000 | 88,878 | ug/kg | 1,250 | <2.2 |
| | Fluorene | 2,390,000 | 14,830 | ug/kg | 113 | <2.3 |
| | Indeno(1,2,3-cd)pyrene | 1,150 | N/A | ug/kg | 225 | <3.9 |
| | Naphthalene | 5,520 | 658.2 | ug/kg | 51.4J | <1.8 |
| Phenanthrene | N/A | N/A | ug/kg | 840 | <2.2 | |
| Pyrene | 1,790,000 | 54,546 | ug/kg | 806 | <2.8 | |

Notes:

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IGLD = International Great Lakes Datum

J = Estimated concentration at or above the Limit of Detection (LOD) and below the Limit of Quantitation (LOQ).

N/A = Not available

492 = Concentration above WDNR Residential Direct Contact Residual Contaminant Level (RCL).

496 = Concentration above WDNR Groundwater Pathway RCL.

1= WDNR Residential Direct Contact and Groundwater Pathway RCLs from WDNR online RCL Excel Spreadsheet, updated Dec 2018.

2= Statewide background threshold values used in the WDNR online RCL Excel spreadsheet are referenced as non-outlier trace element maximum levels in

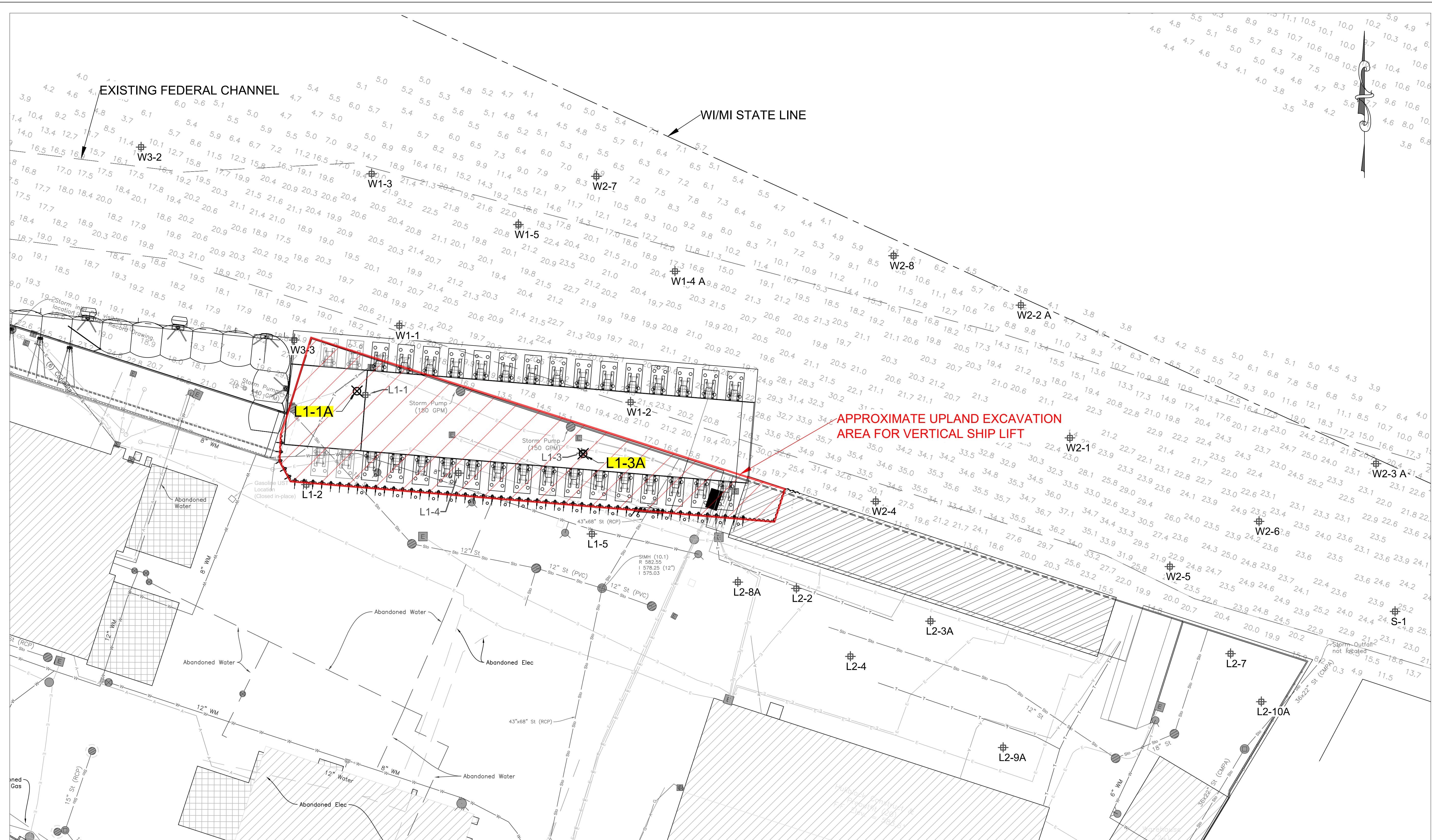
Wisconsin surface soils from the USGS Report at: <http://pubs.usgs.gov/sir/2011/5202> . See also WDNR Publication RR-940.

Prepared by: RLP1

Checked by: RJM7

Figures

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- LEGEND**
- ☒ 2020 SOIL CHEMISTRY BORINGS
 - ☐ L1-3A
 - ⊕ OTHER GEOTECHNICAL BORINGS
 - ⊕ W1-2

NOTE: COORDINATE SYSTEM USED:
 WISCONSIN STATE PLANE CENTRAL, US
 FOOT NAD83

HORIZONTAL SCALE (FEET)
 0 50 100

USC&GS -0.01 NAVD88 0.0
 IGLD85 -0.41
 IGLD55 -1.31

PROJECT DATUM
 CONVERSIONS

**VERTICAL SHIP LIFT
 CONCEPTUAL LAYOUT**

**FINCANTIERI MARINETTE MARINE
 MARINETTE, WI**

| REVISIONS | | DESCRIPTION | |
|-----------|----|-------------|--|
| NO | BY | DATE | |
| | | | |
| | | | |
| | | | |
| | | | |

RECORD DRAWINGS OF COMPLETED CONSTRUCTION BY:
 RECORD DRAWINGS OF COMPLETED CONSTRUCTION
 CONFORMING TO CONTRACT FOR AND/OR OWNERS RECORDS.

| NO | BY | DATE |
|----|----|------|
| | | |
| | | |
| | | |
| | | |

DATE OF PREPARATION

| BY | DATE |
|----|------|
| | |
| | |
| | |
| | |

DRAWN: JRS6 05/04/2020
 DESIGNED: RJM
 CHECKED: RJM 05/04/2020

**SHIP LIFT AREA
 2020 SOIL
 CHEMISTRY
 BORINGS**

FIGURE 1

PROJECT ID: 0018M106

DRAWING MAY BE REDUCED
 FOR FULL SIZE PLAN LINE ABOVE = 2"