

From: Byers, Harris <Harris.Byers@stantec.com>
Sent: Tuesday, October 18, 2022 5:36 PM
To: Beggs, Tauren R - DNR
Cc: Adam Tegen; Paul Braun
Subject: Status Update on the Site Investigation at the Phase 2 Redevelopment Area of the River Point District
Attachments: Phase II Redevelopment Area - Status Update.pdf

Tauren:

On behalf of the City of Manitowoc, attached is a status update letter summarizing the results from sampling conducted through Summer 2022 and providing a schedule for future work at the Phase 2 Redevelopment Area of the River Point District in Manitowoc.

As we discussed last month, the purpose of this letter is to support the City's pending request to WDNR for an acknowledgement letter to support the CDA's grant application for a FY23 USEPA Brownfield Cleanup grant. As described herein, the Site Investigation is substantially complete and work has sufficiently characterized the Site to the point cleanup/reuse can begin in Summer 2023.

Sincerely,

Harris Byers, Ph.D.

Sr. Brownfields Project Manager
Contaminant Hydrogeologist / Urban Geochemist

Direct: 414 581-6476
Harris.Byers@stantec.com

Stantec
12080 Corporate Parkway Suite 200
Mequon WI 53092-2649



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Stantec Consulting Services Inc.
12080 Corporate Parkway, Suite 200
Mequon WI 53092-2661

October 18, 2022

Project/File: 193708490

Attention: Mr. Tauren Beggs

Hydrogeologist, Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
Northeast Region, Green Bay Service Center
2984 Shawano Ave
Green Bay, WI 54313-6727

Reference: Site Investigation Status Update

Phase 2 Redevelopment Area; River Point District; Manitowoc, Wisconsin
Closed BRRTS # 03-36-001962 Holmes Oil Corp
Open BRRTS # 02-36-585491 River Point District

Dear Mr. Beggs,

On behalf of the City of Manitowoc (City) and City of Manitowoc Community Development Authority (CDA), Stantec Consulting Services, Inc. (Stantec) prepared this status update to the ongoing Site Investigation in the Phase 2 Redevelopment Area at the River Point District in Manitowoc, Wisconsin (herein referred to as the "Property"). The purpose of this letter is to summarize the results from sampling conducted through Summer 2022 and provide the scope and schedule for future work. As described herein, a Site Investigation report and a combined Remedial Action Plan / Material Management Plan will be prepared in Winter 2022 and submitted to the Wisconsin Department of Natural Resources (WDNR) for review. Based on the results to date, the anticipated remedial approach will be similar to the approach implemented for the Phase I Redevelopment Area.

The location of the Property and the River Point District relative to regional topography is illustrated on Figure 1. The project background, summary of investigation sampling results to date, and scope and schedule for future work are detailed in the following sections.

PROJECT BACKGROUND

Defining the Phase 2 Redevelopment Area. The Phase 2 Redevelopment Area was initially delineated by Stantec in the (2022a) *Site Investigation Workplan* based on anticipated redevelopment activities targeted for 2022. However, anticipated 2022 infrastructure work was postponed until 2023 to coincide with pending multi-family town home redevelopment along the riverfront. The updated Phase 2 Redevelopment Area relative to historic property identification numbers is illustrated on Figure 2. The updated Phase 2 Redevelopment Area relative to additional phases of redevelopment at the River Point District is illustrated on Figure 3.

Proposed Redevelopment. The River Point District was rezoned from Industrial to Business B-4 to facilitate non-industrial redevelopment (Figure 4). As illustrated on Figure 5, updated redevelopment in the Phase 2 Redevelopment Area includes: multi-family townhomes (1.95 acres), a restaurant (5,000 square feet), newly

constructed roadway/rights of way (2.28 acres; 1,400 linear feet), and riverwalk/parkland (1.76 acres with 1,360 liner feet of multi-modal trail).

Objective of Site Investigation. Multiple phases of assessment work at the Property have identified a variety of subsurface impacts from petroleum and/or hazardous substances (AECOM, 2020 and Stantec, 2019-2022b). As such, a Site Investigation was warranted to define the nature, degree, extent, and source(s) of contamination on the Property and to determine the need for (and provide information to support) additional investigation or remedial action where warranted to facilitate non-industrial redevelopment (Stantec, 2022a).

INTERIM SITE INVESTIGATION SAMPLING RESULTS

Stantec began Site Investigation activities in the Phase 2 Redevelopment Area on May 27, 2022 with work continuing through Summer 2022 using methods described in the Stantec (2022a) Site Investigation Workplan. Soil quality data from the Summer 2022 sampling event is combined with prior Stantec work (2020a, 2020c, and 2021b) on Table 1, and groundwater quality data from the Summer 2022 sampling event is combined with prior Stantec work on Table 2. Sample locations are illustrated on Figure 6.

Soil. Similar to previous phases of work, soil sampling in Summer 2022 confirmed the presence of a contiguous sitewide surficial granular fill unit extending from the ground surface downward up to seven feet in depth. The vertical and horizontal extents of the fill unit area are illustrated on Figure 7. A spatial model of Figure 7 estimates there are 34,100 cubic yards of granular fill in the Phase 2 Redevelopment Area.

As illustrated on Figure 8 and summarized in Table 1, similar to previous phases of work, a variety of hazardous substances and petroleum were detected in soil/fill at concentrations greater than health-based ch. NR 720 Wisconsin Administrative Code (WAC) residual contaminant levels (RCLs). Similar other portions of the River Point District (Stantec, 2021b), impacts associated with the sitewide surficial granular fill unit in the Phase 2 Redevelopment Area have not migrated downward to underlying native soils. Petroleum volatile organic compound (VOC) impacts to surficial fill and underlying native soils, though delineated, are more widely identifiable in the Phase 2 Redevelopment Area (e.g., SB-157, SB-160) and are likely associated with previous bulk petroleum storage/handling at the Property. Chlorinated solvents were previously detected by Stantec (2020a) in soil; however, solvents were not confirmed in soil during subsequent sampling events.

Groundwater. Similar to previous phases of work, groundwater sampling in Summer 2022 confirmed the presence of arsenic in groundwater, which is considered representative of background concentrations and not indicative of a release to groundwater. The concentration of 1,1,2,2-Tetrachloroethane in groundwater at MW-157 was greater than the ch. NR 140 WAC Enforcement Standard and the concentration of benzene in groundwater at MW-157 was slightly greater than the ch. NR 140 WAC Preventive Action Limit (Table 2). As illustrated on Figure 6, MW-157 is located adjacent to a former oil house and bulk petroleum storage facility, and as described below, identified VOC impacts to groundwater will be further evaluated in Fall/Winter 2022.

SCOPE AND SCHEDULE FOR FUTURE WORK

Site Investigation scoping as required by Section NR 716.07 WAC was completed by Stantec (2022b) and onsite work began in May 2022. The vertical and horizontal extents of impacts to soil in the Phase 2 Redevelopment Area are delineated. However, continued evaluation of VOC impacts to groundwater in the vicinity of the former oil house is warranted to confirm the presence and delineate the extents of petroleum and/or solvent impacts.

Supplemental groundwater sampling is scheduled for the week of October 17, 2022. Laboratory results are expected within two weeks following the sampling event. Stantec will review the laboratory results upon receipt and, if necessary, evaluate the need for additional sampling. Supplemental groundwater sampling will

Reference: Site Investigation Status Update; Phase 2 Redevelopment Area; River Point District; Manitowoc, Wisconsin

be completed in November 2022, with the goal of submitting the Site Investigation Report to WDNR for review by the end of December 2022.

Final redevelopment plans are expected by January 1, 2023. A combined Remedial Action Plan / Material Management Plan (RAP/MMP) will be tailored to the proposed redevelopment and submitted to WDNR in February 2023 with the goal of having the Property ready to begin cleanup/redevelopment work by Spring 2023. The proposed redevelopment in the Phase 2 Redevelopment Area is conceptually similar to the Phase 1 Redevelopment Area. As such, the RAP/MMP for the Phase 2 Redevelopment Area is expected to be an extension of previous Stantec (2021c and 2022b) RAPs/MMPs.

We look forward to continuing to work with you and the City and CDA to facilitate non-industrial redevelopment of the River Point District.

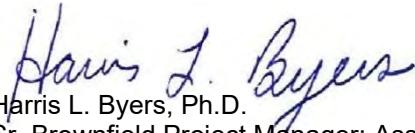
Regards,

STANTEC CONSULTING SERVICES INC.



Whitney M. Cull, EIT
Geologic Engineer in Training
Email: whitney.cull@stantec.com

STANTEC CONSULTING SERVICES INC.



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STANTEC CONSULTING SERVICES INC.



Richard J. Binder, PG, CPG
Principal
Email: rick.binder@stantec.com

Enclosures: Figures
Tables

References

- AECOM, 2020, Former CN Property Limited Site Investigation, 200 North 10th Street & 1110 Buffalo Street, Manitowoc, WI, May 8, 2020.
- Stantec, 2019, 10th Street Railroad Property, Manitowoc, Wisconsin, Phase I Environmental Site Assessment, March 21, 2019.
- Stantec, 2020a, Phase II Environmental Site Assessment, Riverpoint District; Manitowoc, Wisconsin, March 23, 2020.
- Stantec, 2020b, Construction Documentation Report for Demolition and Removal of Structural Impediments, River Point District – Site 3, December 11, 2020.
- Stantec, 2020c, Phase II Environmental Site Assessment, River Point District; Manitowoc, Wisconsin, Site 3, December 18, 2020.

Reference: Site Investigation Status Update; Phase 2 Redevelopment Area; River Point District; Manitowoc, Wisconsin

Stantec, 2021a, Fire Department Response During Explosive Demolition of a Former Grain Elevator, 1101 Buffalo Street, River Point District – Phase I Construction Area; Manitowoc, Wisconsin, September 7, 2021.

Stantec, 2021b, NR 716 Site Investigation Report, River Point District Phase 1 Construction Area; Manitowoc, Wisconsin, July 19, 2021.

Stantec, 2021c, Remedial Action Plan & Materials Management Plan, River Point District, Phase 1 Construction Area; Manitowoc, Wisconsin, July 19, 2021.

Stantec, 2022a, Site Investigation Workplan, River Point District Phase 2 Construction Area, Manitowoc, Wisconsin, February 17, 2022.

Stantec, 2022b, Addendum to the Stantec (2021) Remedial Action Plan & Materials Management Plan, River Point District, Phase 1 Construction Area; Manitowoc, Wisconsin, July 29, 2022.

Limitations

This work was completed in accordance with generally accepted practices for the environmental consulting profession, undertaking similar studies at the same time and in the same geographical area as the work conducted by Stantec. Stantec observed the degree of care and skill that are generally exercised by the profession under similar circumstances and conditions. No other warranty is expressed or implied.

Stantec's observations, findings, and opinions should not be considered as scientific certainties, but only as opinion based upon our professional judgment concerning the significance of the data gathered during this investigation. Specifically, Stantec cannot represent that the Property does not contain or potentially contain any hazardous or toxic materials or other latent conditions beyond that identified by Stantec during the work. Additionally, due to limitations of the environmental assessment process and the necessary use of data furnished by others, Stantec and its subcontractors cannot assume liability if actual conditions differ from the information presented in this letter. Stantec does not warrant that this submittal represents an exhaustive study of all possible environmental concerns at the project area.

This document was prepared by Stantec for the City/CDA of Manitowoc. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.



FIGURES

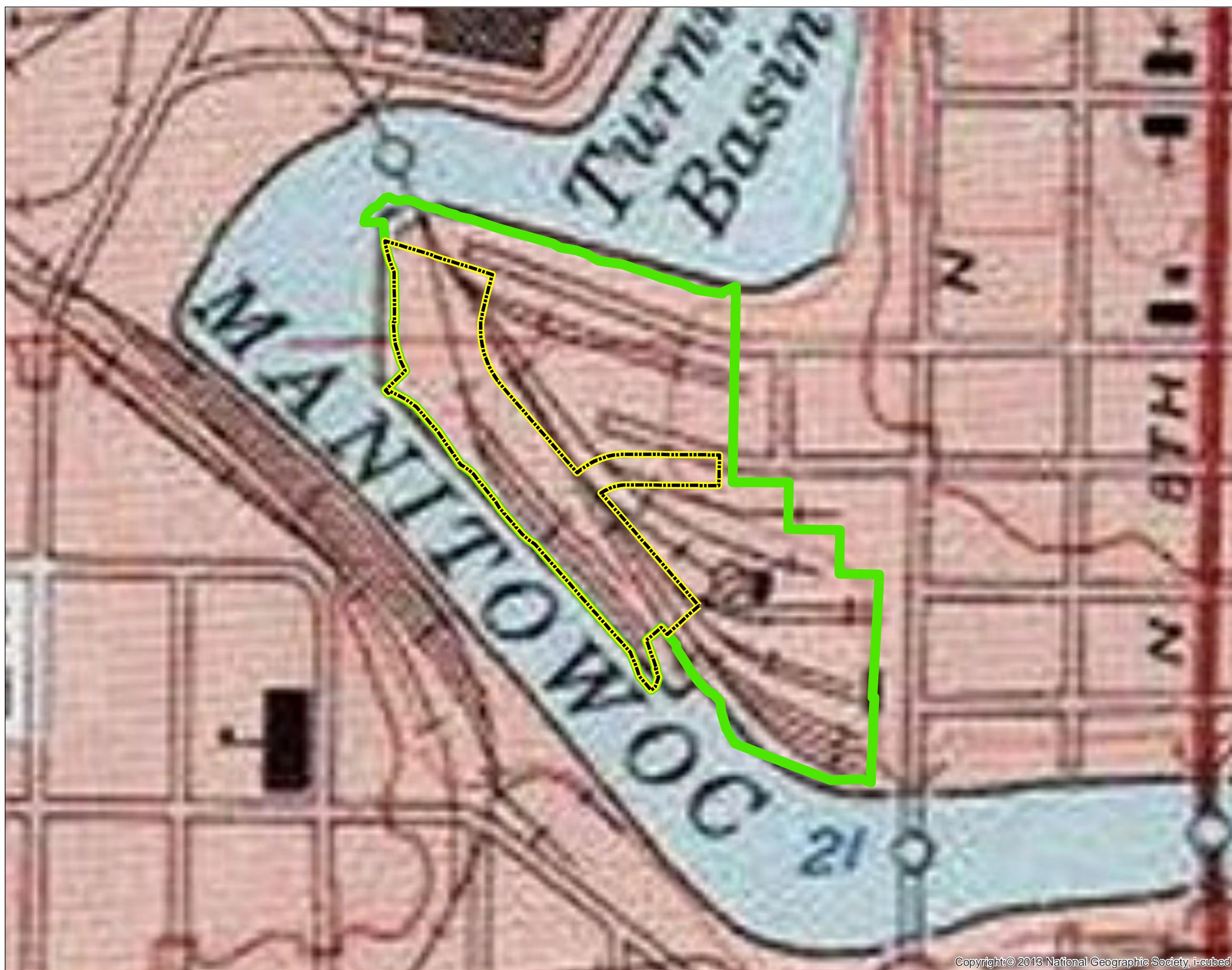


Figure No.
1

Title
Project Area and
Regional Topography

Client/Project
Phase II Redevelopment Area
River Point District
City of Manitowoc

Prepared by HLB on 10/15/2022

0 195 390
Feet



Legend

- Phase II Cleanup Area
- River Point District

Notes

1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020



Figure No.
2
Title
Project Area and
Parcel Identification Numbers

Client/Project
Phase II Redevelopment Area
River Point District
City of Manitowoc

Prepared by HLB on 10/15/2022

0 100 200 Feet

N

Legend

- Phase II Cleanup
- River Point District
- Parcel Identification Numbers

Notes
1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020

 Stantec

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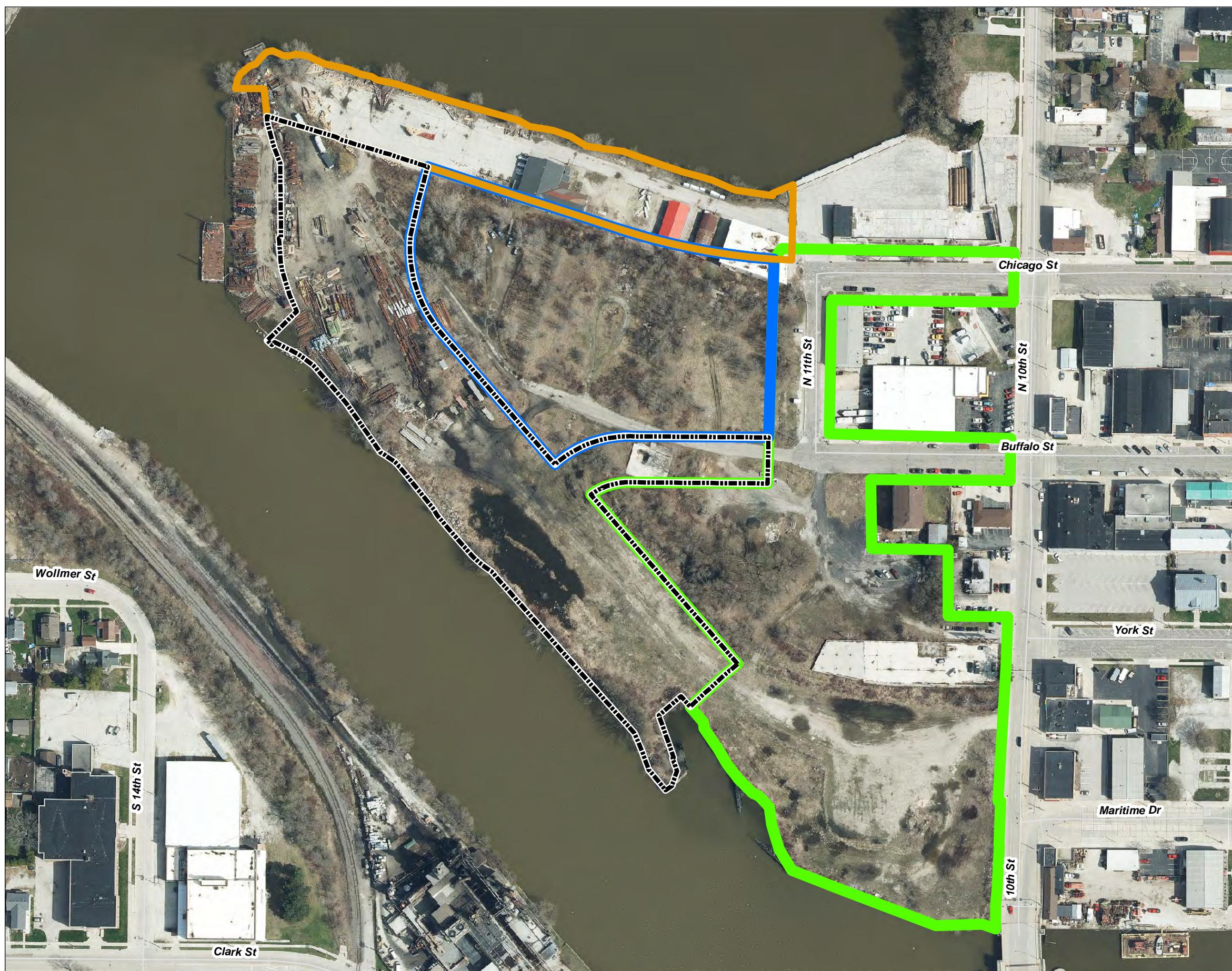


Figure No.

3

Title

Project Area and Additional Cleanup Areas

Client/Project
Phase II Redevelopment Area
River Point District
City of Manitowoc

Prepared by HLB on 10/15/2022

0 130 260 Feet



Legend

Phase II Cleanup Area (2023-2024)

Additional Redevelopment Areas

Phase I Redevelopment Area (2021-2023)

Phase III Redevelopment Area (2024-2025)

Phase IV Redevelopment Area (2025)

Notes

1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020

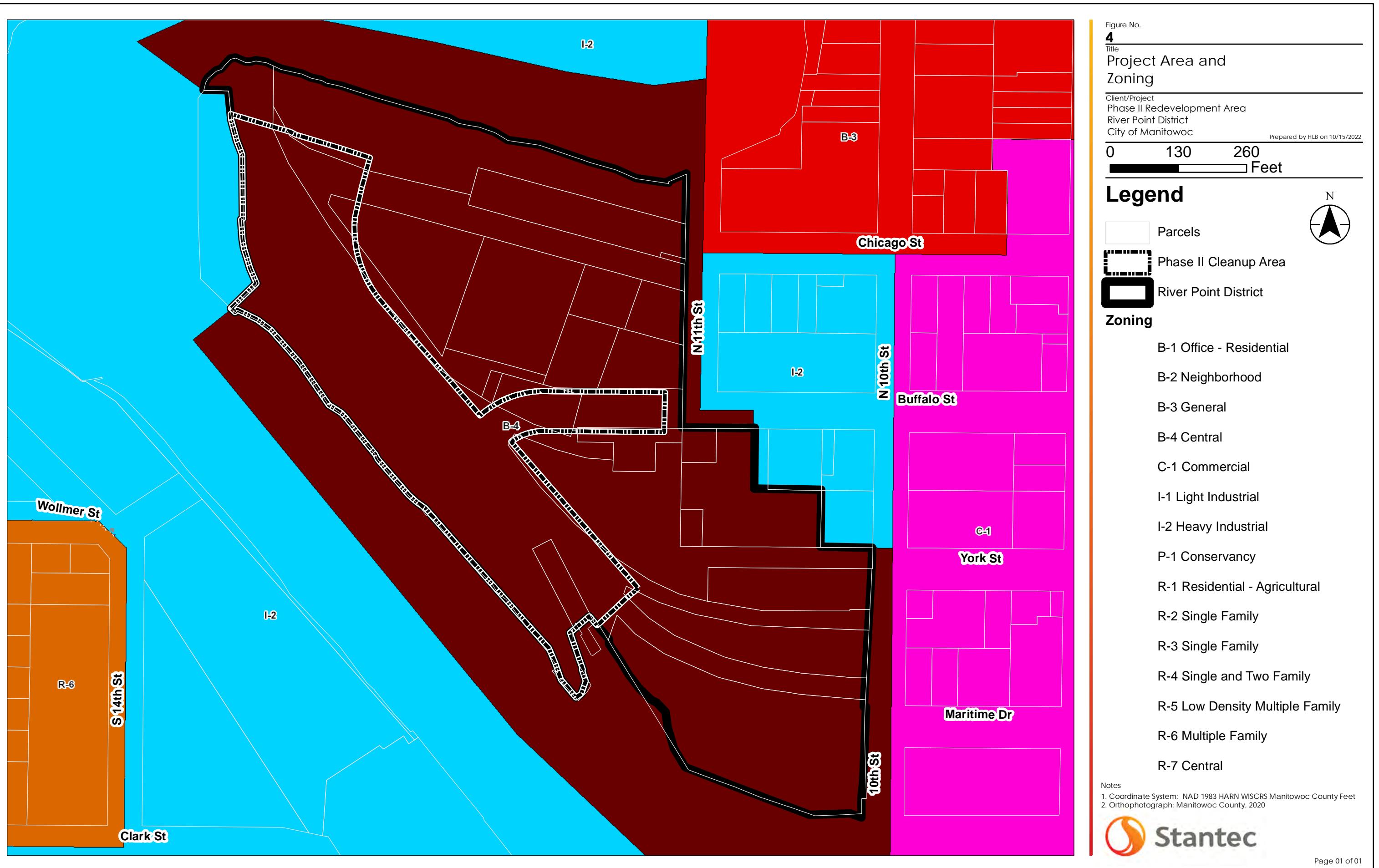




Figure No.

5

Title

Project Area and Proposed Redevelopment

Client/Project
Phase II Redevelopment Area
River Point District
City of Manitowoc

Prepared by HLB on 10/15/2022

0 130 260 Feet



Legend

	Phase II Cleanup
	River Point District

Proposed Redevelopment

	Restaurant (2023)
	Town Homes (2023-2025)
	Commercial (Finished)
	Multi-Family (Finishing 2022)
	Roadway (2021-2024)
	Landscaping (2023-2025)
	Floating Dock and Pier (2023)
	Multi-Family Residential (2023-2024)
	Sidewalk (2023-2024)
	River Walk / Park (2023-2024)
	Proposed Commercial (2024-2025)

Notes

- Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
- Orthophotograph: Manitowoc County, 2020



Figure No.

6

Title

Project Area and Sample Locations

Client/Project
Phase II Redevelopment Area
River Point District
City of Manitowoc

Prepared by HLB on 10/15/2022

0 100 200 Feet



Legend

- Phase II Cleanup Area
- River Point District

Sample Locations (2021-2022)

- Soil Boring/Monitoring Well
- Soil Boring

Sample Locations (2018-2021)

- Soil Boring
- Soil Boring/Temp Well

Notes

- Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
- Orthophotograph: Manitowoc County, 2020

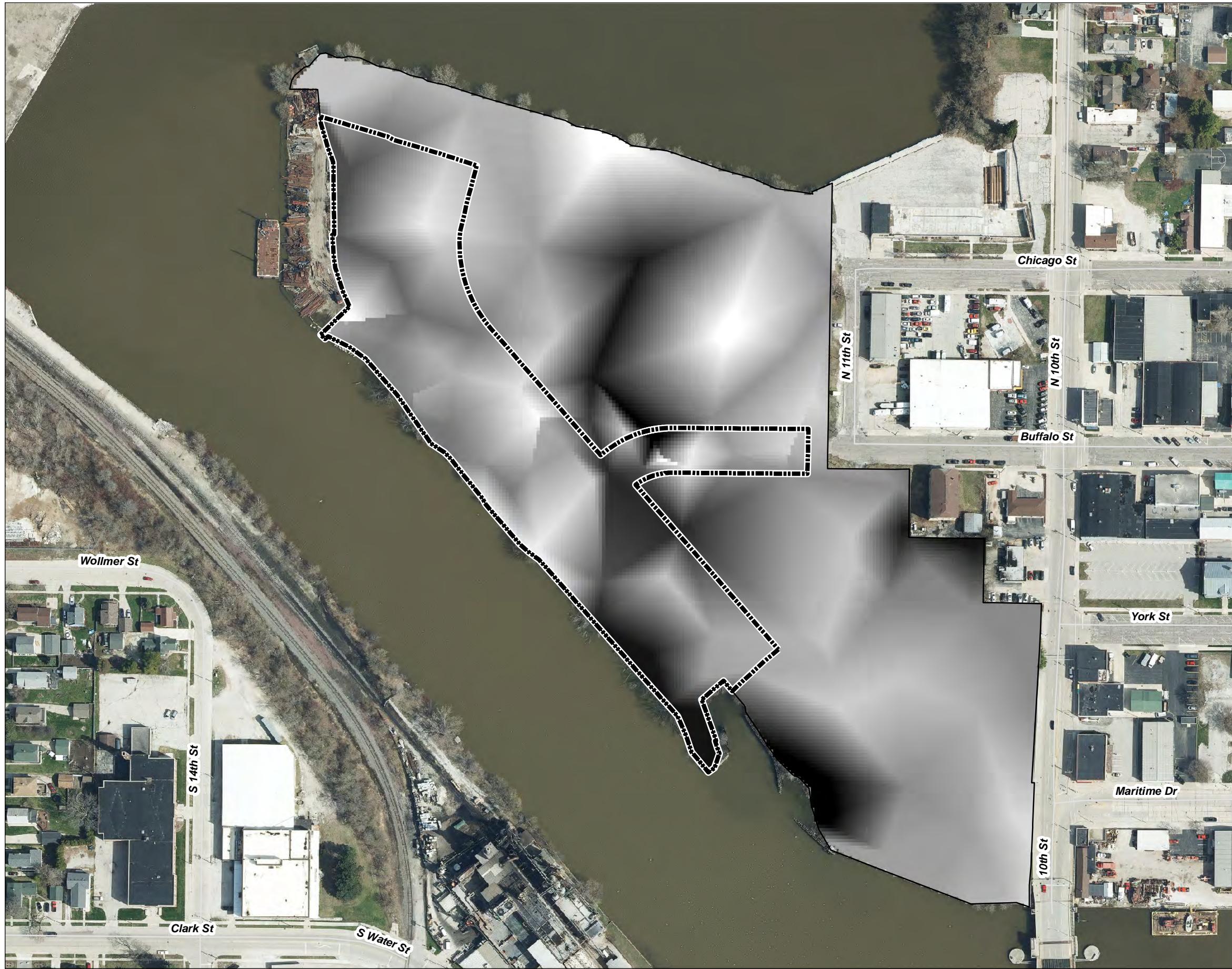


Figure No.
7

**Project Area and
Thickness of Fill**

Client/Project
Phase II Redevelopment Area
River Point District
City of Manitowoc

Prepared by HLB on 10/15/2022

0 135 270
Feet



Legend



River Point District



Phase II Cleanup Area (2023-
2024)

Fill Thickness (Feet)

Value



High : 8



Low : 0.25

Notes

- Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
- Orthophotograph: Manitowoc County, 2020



Figure No.

8

Title

Project Area and Subsurface Impacts

Client/Project
Phase II Redevelopment Area
River Point District
City of Manitowoc

Prepared by HLB on 10/15/2022

0 100 200 Feet



Legend

	Phase II Cleanup
	River Point District
	Petroleum Impacts to Soil

Identified Groundwater Impacts

	Polycyclic Aromatic Hydrocarbons
	Chlorinated VOCs
	Petroleum VOCs
	Arsenic > ES
	Benzo(b)fluoranthene and Chrysene > PAL (concentrations "J-Flagged")
	Benzene > ES
	Petroleum VOCs > PAL
	Benzo(a)pyrene > PAL (concentration "J-Flagged")

Notes

- Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
- Orthophotograph: Manitowoc County, 2020
- PAL = ch. NR 140 Wisconsin Administrative Code (WAC) Preventive Action Limit; ES = ch. NR 140 WAC Enforcement Standard; VOC = Volatile Organic Compound; SVOCS = Semi-Volatile Organic Compound; PAH = Polycyclic Aromatic Hydrocarbon



TABLES

Table 1
Soil Quality
Phase II Redevelopment Area
River Point District; Manitowoc, Wisconsin

Notes:

mg/kg	Milligram per Kilogram
µg/kg	Microgram per Kilogram
SBVT	Wisconsin Soil Background Threshold Value per WDNR, 2018, RCL spreadsheet for use with macro-enabled Excel program, December 2018 Update, available at https://dnr.wi.gov/topic/Brownfields/documents/tech/RCLs.xlsm .
RCL	Residual contaminant level for noted pathway per WDNR, 2018, RCL spreadsheet for use with macro-enabled Excel program, December 2018 Update, available at https://dnr.wi.gov/topic/Brownfields/documents/tech/RCLs.xlsm .
A	Concentration with a superscript A indicates concentration exceeds the soil background threshold value
B	Concentration with a superscript B indicates concentration exceeds the RCL for direct contact at non-industrial properties
C	Concentration with a superscript C indicates concentration exceeds the RCL for direct contact at industrial properties
D	Concentration with a superscript D indicates concentration exceeds the RCL for the soil to groundwater exposure pathway
1,500 ^{BCD}	Concentration with multiple superscript letters indicates concentration exceeds more than one RCL. In this example, the concentration exceeds the RCL for direct contact at non-industrial and industrial properties and the RCL for the soil to groundwater exposure route.
15.2	Measured concentration did not exceed the indicated standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed.
B	Indicates analyte was found in associated blank, as well as in the sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD relative percent difference exceeds control limits
J	The reported result is an estimated value.
ND	Not detected.
*	LCS or LCSD is outside the control limits
^	Laboratory instrument-related QC is outside acceptance limits.

Legacy sample IDs were used in Stantec reports prior to January 2021.

Table 1
Soil Quality
Phase II Redevelopment Area
River Point District; Manitowoc, Wisconsin

Detected Constituents in Soil	Units	Wisconsin SBTW (A)	Non-Industrial Direct Contact RCL (B)	Industrial Direct Contact RCL (C)	Soil to Groundwater RCL (D)	Sample ID, Legacy Sample ID (Prior to 2021), Sample Date, Sample Depth, Lithology Relative to Black Granular Fill Unit																					
						SB-34		SB-35		SB-36		SB-37		SB-38		SB-40		SB-42		SB-44		SB-45		SB-47		SB-49	
						S3 SB-92		S3 SB-27		S3 SB-93		S2 SB-8		S5 SB-8		S5 SB-11		S5 SB-15		S5 SB-18		S2 SB-15		S5 SB-16		S1 SB-19	
						9-Sep-20	9-Sep-20	19-Nov-18	19-Nov-18	9-Sep-20	16-Nov-18	19-Nov-18	19-Nov-18	19-Nov-18	19-Nov-18	19-Nov-18	19-Nov-18	19-Nov-18	15-Nov-18	15-Nov-18	15-Nov-18	15-Nov-18	15-Nov-18	15-Nov-18	15-Nov-18		
						3.5 - 4.5 ft	4.5 - 5 ft	3 - 3.75 ft	6 - 7 ft	1 - 2 ft	0 - 0.5 ft	0 - 1.5 ft	1.5 - 2.5 ft	0 - 1 ft	2 - 2.75 ft	2 - 3.5 ft	0 - 1 ft	1.5 - 3 ft	2.5 - 3 ft	3 - 4 ft	5 - 6 ft	3 - 4 ft	5 - 6 ft	FILL	FILL		
Heavy Metals						FILL	FILL	FILL	BELOW	NO FILL	ABOVE	ABOVE	FILL	ABOVE	FILL	ABOVE	FILL	ABOVE	FILL	ABOVE	FILL	BELOW	BELOW	FILL			
Arsenic	mg/kg	8.3	0.677	3	0.584	1.5 ^{BD}	-	9.2 ^{ABCD}	-	2.7 ^{BD}	-	-	20 ^{ABCD}	-	8.2 ^{BCD}	9.5 ^{ABCD}	-	-	10 ^{ABCD}	2.4 ^{BD}	-	-	-	-			
Barium	mg/kg	364	15,300	100,000	164.8	30	-	100	-	13	-	-	110	-	110	130	-	-	54	38	-	-	-	-			
Cadmium	mg/kg	1.07	71.1	985	0.752	0.18 J	-	1.3 ^{AD}	-	0.11 J	-	-	1.6 ^{AD}	-	0.55	0.77 J B ^D	-	-	22	13	-	-	-	-			
Chromium	mg/kg	43.5	n/v	n/v	360,000	6.8	-	16	-	5.4	-	-	51 ^A	-	30	15	-	-	-	-	-	-	-	-			
Lead	mg/kg	51.6	400	800	27	55 ^{AD}	-	120 ^{AD}	-	3.2	-	-	200 ^{AD}	-	110 ^{AD}	160 ^{AD}	-	-	140 ^{AD}	13	-	-	-	-			
Mercury	mg/kg	n/v	3.13	3.13	0.208	0.013 J	-	0.075	-	<0.0058	-	-	0.069	-	0.072	0.085	-	-	0.054	0.018	-	-	-	-			
Selenium	mg/kg	391	5,840	0.52	<0.60	-	<3.4	-	<0.59	-	-	<3.6	-	1.2 J ^D	<3.6	-	-	<3.3	0.79 J B ^D	-	-	-	-				
Silver	mg/kg	n/v	391	5,840	0.8491	<0.13	-	<0.75	-	<0.13	-	-	<0.78	-	0.20 J	<0.79	-	-	<0.73	<0.13	-	-	-	-			
Herbicides																											
Six (6) Compounds	µg/kg	n/v	Various	Various	Various	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Polychlorinated Biphenyls																											
Aroclor 1248	mg/kg	n/v	0.236	0.975	n/v	-	-	<0.080	-	-	-	-	-	<0.084	-	<0.088	-	-	-	-	<0.082	-	-	-	-	-	
Aroclor 1254	mg/kg	n/v	0.239	0.988	n/v	-	-	<0.044	-	-	-	-	-	<0.046	-	<0.048	-	-	-	<0.045	-	-	-	-	-		
Aroclor 1260	mg/kg	n/v	0.243	1	n/v	-	-	<0.10	-	-	-	-	-	<0.10	-	<0.11	-	-	-	<0.10	-	-	-	-	-		
Aroclor 1262	mg/kg	n/v	n/v	n/v	n/v	-	-	<0.042	-	-	-	-	-	<0.044	-	<0.046	-	-	-	<0.043	-	-	-	-	-		
Aroclor 1268	mg/kg	n/v	n/v	n/v	n/v	-	-	<0.039	-	-	-	-	-	<0.041	-	<0.043	-	-	-	-	-	-	-	-	-		
Polyyclic Aromatic Hydrocarbons																											
Acenaphthene	µg/kg	n/v	3,590,000	45,200,000	n/v	<6.5	-	<69	-	<6.7	-	-	21,000	-	6,100	110	-	-	48	-	-	-	-	-	-	-	
Acenaphthylene	µg/kg	n/v	n/v	n/v	n/v	<4.8	-	130 J	-	<4.9	-	-	9,800	-	15,000	53	-	-	99	-	-	-	-	-	-	-	
Anthracene	µg/kg	n/v	17,900,000	100,000,000	196,949	8.6 J	-	170 J	-	<6.2	-	-	72,000	-	22,000	280	-	-	160	-	-	-	-	-	-	-	
Benzo(a)anthracene	µg/kg	n/v	1,140	20,800	n/v	21 J	-	270 J	-	<5.0	-	-	200,000 ^{BC}	-	60,000 ^{BC}	750	-	-	280	-	-	-	-	-	-	-	
Benzo(a)pyrene	µg/kg	n/v	115	2,110	470	32 J	-	460 ^B	-	<7.2	-	-	210,000 ^{BCD}	-	67,000 ^{BCD}	780 ^{BD}	-	-	300 ^B	-	-	-	-	-	-	-	
Benzo(b)fluoranthene	µg/kg	n/v	1,150	21,100	478	47	-	620 ^D	-	<8.0	-	-	270,000 ^{BCD}	-	84,000 ^{BCD}	970 ^D	-	-	530 ^D	-	-	-	-	-	-	-	
Benzo(g,h,i)perylene	µg/kg	n/v	n/v	n/v	n/v	56	-	600	-	<12	-	-	80,000	-	30,000	440	-	-	150	-	-	-	-	-	-	-	
Benzo(k)fluoranthene	µg/kg	n/v	11,500	211,000	n/v	17 J	-	270 J	-	<11	-	-	77,000 ^B	-	34,000 ^B	460	-	-	210	-	-	-	-	-	-	-	
Chrysene	µg/kg	n/v	115,000	2,110,000	144	28 J *	-	350 J ^D	-	<10 * F1	-	-	190,000 ^{BD}	-	65,000 ^D	840 ^D	-	-	370 ^D	-	-	-	-	-	-	-	
Dibenzo(a,h)anthracene	µg/kg	n/v	115	2,110	n/v	12 J	-	210 J ^B	-	<7.2	-	-	24,000 ^{BC}	-	9,100 ^{BC}	110	-	-	<8.0	-	-	-	-	-	-	-	
Fluoranthene	µg/kg	n/v	2,390,000	30,100,000	88,878	31 J	-	460	-	<6.9	-	-	500,000 ^D	-	150,000 ^D	1,700	-	-	380	-	-	-	-	-	-	-	
Fluorene	µg/kg	n/v	2,390,000	30,100,000	14,830	<5.1	-	&																			

Table 1
Soil Quality
Phase II Redevelopment Area
River Point District; Manitowoc, Wisconsin

Detected Constituents in Soil	Units	Wisconsin SBTW (A)	Non-Industrial Direct Contact RCL (B)	Industrial Direct Contact RCL (C)	Soil to Groundwater RCL (D)	Sample ID, Legacy Sample ID (Prior to 2021), Sample Date, Sample Depth, Lithology Relative to Black Granular Fill Unit																		
						SB-50		SB-102		SB-103		SB-105		SB-106		SB-107		SB-108		SB-132		SB-135		
						S1_SB-24		-		-		-		-		-		-		-		-		
						15-Nov-18	15-Nov-18	2-Mar-21	2-Mar-21	2-Mar-21	2-Mar-21	25-Feb-21	25-Feb-21	25-Feb-21	25-Feb-21	25-Feb-21	25-Feb-21	25-Feb-21	25-Feb-21	25-Feb-21	25-Feb-21	27-May-22	27-May-22	
						1.5 - 2.25 ft	2.25 - 3 ft	2.5 - 3.5 ft	3.5 - 5 ft	2 - 3.5 ft	3.5 - 5 ft	3 - 5 ft	4 - 5 ft	6 - 7 ft	2 - 3 ft	0 - 1 ft	1 - 2.5 ft	3.5 - 5 ft	2 - 3 ft	4 - 5 ft	0 - 1 ft	2.5 - 5 ft		
						FILL	BELOW	BELOW	BELOW	FILL	BELOW	FILL	BELOW	FILL	BELOW	FILL	BELOW	FILL	BELOW	FILL	BELOW	FILL	BELOW	
Heavy Metals																								
Arsenic	mg/kg	8.3	0.677	3	0.584	-	-	-	-	0.86 J ^{BD}	0.49 J	-	5.3 ^{BCD}	1.2 ^{BD}	2.0 ^{BD}	-	1.8 ^{BD}	0.42 J	8.4 ^{ABCD}	0.57 J	8.6 ^{ABCD}	1.3 ^{BD}		
Barium	mg/kg	364	15,300	100,000	164.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51	15	
Cadmium	mg/kg	1.07	71.1	985	0.752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.54	<0.038	
Chromium	mg/kg	43.5	n/v	n/v	360,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	5.3	
Lead	mg/kg	51.6	400	800	27	-	-	-	-	10	5.0	-	72 ^{AD}	2.9	30 ^D	-	37 ^D	6.3	200 ^{AD}	17	120 ^{AD}	6.2		
Mercury	mg/kg	n/v	3.13	3.13	0.208	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.17	0.0083 J		
Selenium	mg/kg	n/v	391	5,840	0.52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.66 J ^D	<0.62		
Silver	mg/kg	n/v	391	5,840	0.8491	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22 J	<0.14	
Herbicides																								
Six (6) Compounds	µg/kg	n/v	Various	Various	Various	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls																								
Aroclor 1248	mg/kg	n/v	0.236	0.975	n/v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1254	mg/kg	n/v	0.239	0.988	n/v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1260	mg/kg	n/v	0.243	1	n/v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1262	mg/kg	n/v	n/v	n/v	n/v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1268	mg/kg	n/v	n/v	n/v	n/v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons																								
Acenaphthene	µg/kg	n/v	3,590,000	45,200,000	n/v	70 J	-	<35	-	<110	<39	-	12 J	<39	6.7 J	-	21 J	<38	<150	<36	75 J	<7.0		
Acenaphthylene	µg/kg	n/v	n/v	n/v	n/v	1,600	-	<35	-	<110	<39	-	44	<39	37	-	98	<38	85 J	<36	280	<5.2		
Anthracene	µg/kg	n/v	17,900,000	100,000,000	196,949	1,600	-	<35	-	<110	<39	-	65	<39	51	-	170	<38	97 J	<36	440	<6.5		
Benzo(a)anthracene	µg/kg	n/v	1,140	20,800	n/v	2,100 ^B	-	11 J	-	<110	<39	-	140	<39	120	-	940	<38	220	<36	1,100	<5.3		
Benzo(a)pyrene	µg/kg	n/v	115	2,110	470	5,100 ^{BCD}	-	11 J	-	<110	<39	-	180 ^B	<39	140 ^B	-	880 ^{BD}	<38	310 ^B	<36	1,300 ^{BD}	<7.6		
Benzo(b)fluoranthene	µg/kg	n/v	1,150	21,100	478	9,200 ^{BD}	-	11 J	-	<110	<39	-	280	<39	260	-	1,400 ^{BD}	<38	510 ^B	<36	2,400 ^{BD}	<8.4		
Benzo(g,h,i)perylene	µg/kg	n/v	n/v	n/v	n/v	3,200	-	<35	-	<110	<39	-	130	<39	97	-	340	<38 F1	210	<36	480	<13		
Benzo(k)fluoranthene	µg/kg	n/v	11,500	211,000	n/v	2,300	-	<35	-	<110	<39	-	130	<39	90	-	670	<38	230	<36	960	<12		
Chrysene	µg/kg	n/v	115,000	2,110,000	144	2,900 ^D	-	11 J	-	<110	<39	-	210 ^D	<39	160 ^D	-	960 ^D	<38	310 ^D	<36	1,300 ^D	<11		
Dibenz(a,h)anthracene	µg/kg	n/v	115	2,110	n/v	1,300 ^B	-	<35	-	<110	<39	-	37	<39	31 J	-	130 ^B	<38 F1	59 J	<36	210 ^B	<7.6		
Fluoranthene	µg/kg	n/v	2,390,000	30,100,000	88,878	1,800	-	20 J	-	<110	<39	-	260	<39	170	-	1,800	<38	320	<36	1,500	<7.3		
Fluorene	µg/kg	n/v	2,390,000	30,100,000	14,830	120 J *	-	<35	-	<110	<39	-	15 J	<39	7.7 J	-	28 J	<38	21 J	<36	66 J	<5.5		
Indeno(1,2,3-cd)pyrene	µg/kg	n/v	1,150	21,100	n/v	3,300 ^B	-	<35	-	<110	<39	-	120	<39	99	-	380	<38 F1	190	<36	600	<10		
Methylnaphthalene, 1-	µg/kg	n/v	17,600	72,700	n/v	1,500	-	<70	-	<230	<80	-	350	<79	140	-	290	<78	830	<74	1,500	<9.6		
Methylnaphthalene, 2-	µg/kg	n/v	239,000	3,010,000	n/v	1,700	-	<70	-	<230	<80	-	420	&										

Table 1
Soil Quality
Phase II Redevelopment Area
River Point District; Manitowoc, Wisconsin

Detected Constituents in Soil	Units	Wisconsin SBTVA (A)	Non-Industrial Direct Contact RCL (B)	Industrial Direct Contact RCL (C)	Soil to Groundwater RCL (D)	Sample ID, Legacy Sample ID (Prior to 2021), Sample Date, Sample Depth, Lithology Relative to Black Granular Fill Unit																		
						SB-136		SB-137		SB-138		SB-140		SB-141		SB-142		SB-144		SB-145		SB-146		
						27-May-22	27-May-22	27-May-22	27-May-22	27-May-22	27-May-22	27-May-22	27-May-22	27-May-22	27-May-22	27-May-22	27-May-22	27-May-22	27-May-22	27-May-22	27-May-22	27-May-22		
						0.75 - 2 ft	3.5 - 5 ft	0 - 2 ft	5 - 7.5 ft	0 - 2 ft	3 - 4 ft	0.5 - 3 ft	0 - 2 ft	1 - 2.5 ft	4 - 6 ft	4 - 6 ft (Dup)	0.5 - 2 ft	2 - 2.5 ft	4.5 - 5 ft	1.5 - 3 ft	Above			
FILL		BELOW		FILL		BELOW		FILL		BELOW		FILL		FILL		FILL		FILL		FILL				
Heavy Metals																								
Arsenic	mg/kg	8.3	0.677	3	0.584	16 F1 ^{ABCD}	3.7 ^{BCD}	6.7 ^{BCD}	1.4 ^{BD}	5.2 ^{BCD}	1.3 ^{BD}	8.4 ^{ABCD}	3.6 ^{BCD}	17 ^{ABCD}	1.6 ^{BD}	-	22 ^{ABCD}	39 ^{ABCD}	1.4 ^{BD}	2.0 ^{BD}				
Barium	mg/kg	364	15,300	100,000	164.8	99	48	53	38	48	17	90	46	51	21	-	60	69	36	15				
Cadmium	mg/kg	1.07	71.1	985	0.752	0.77 ^D	0.20 J	0.19 J	<0.045	0.073 J	<0.035	0.42 B	0.25 B	<0.045	<0.040	-	0.82 B ^D	1.1 B ^{AD}	0.050 J	<0.037				
Chromium	mg/kg	43.5	n/v	n/v	360,000	11	7.9	9.2	15	8.9	7.3	14	14	14	7.5	-	13	21	8.6	4.2				
Lead	mg/kg	51.6	400	800	27	180 F2 ^{AD}	300 ^{AD}	65 ^{AD}	4.7	50 ^D	6.3	120 ^{AD}	43 ^D	200 ^{AD}	3.1	-	68 ^{AD}	72 ^{AD}	66 ^{AD}	8.1				
Mercury	mg/kg	n/v	3.13	3.13	0.208	0.065	0.18	0.042	0.027	0.057	0.019	0.091	0.031	0.070	0.015 J	-	0.058	0.082	0.093	0.0079 J				
Selenium	mg/kg	n/v	391	5,840	0.52	<0.79	<1.2	<0.59	<0.74	<0.74	<0.58	1.3 ^D	<0.63	0.80 J ^D	<0.66	-	2.4 ^D	3.9 ^D	<0.62	<0.60				
Silver	mg/kg	n/v	391	5,840	0.8491	0.42 J	0.26 J	0.23 J	0.29 J	0.16 J	<0.13	0.38 J	0.14 J	0.23 J	<0.14	-	0.33 J	0.35 J	0.17 J	<0.13				
Herbicides																								
Six (6) Compounds	µg/kg	n/v	Various	Various	Various	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Polychlorinated Biphenyls																								
Aroclor 1248	mg/kg	n/v	0.236	0.975	n/v	-	-	-	-	<0.0099	-	-	-	-	<0.0089	-	-	-	-	-	-	-		
Aroclor 1254	mg/kg	n/v	0.239	0.988	n/v	-	-	-	-	<0.0071	-	-	-	-	<0.0063	-	-	-	-	-	-	-		
Aroclor 1260	mg/kg	n/v	0.243	1	n/v	-	-	-	-	<0.0079	-	-	-	-	<0.0070	-	-	-	-	-	-	-		
Aroclor 1262	mg/kg	n/v	n/v	n/v	n/v	-	-	-	-	<0.0069	-	-	-	-	<0.0061	-	-	-	-	-	-	-		
Aroclor 1268	mg/kg	n/v	n/v	n/v	n/v	-	-	-	-	<0.012	-	-	-	-	<0.011	-	-	-	-	-	-	-		
Polycyclic Aromatic Hydrocarbons																								
Acenaphthene	µg/kg	n/v	3,590,000	45,200,000	n/v	250	<61	<33	<8.2	<38	<6.5	48 J	37 J	87 J	<10	-	44 J	46 J	<6.3	<6.4				
Acenaphthylene	µg/kg	n/v	n/v	n/v	n/v	200 J	<45	110 J	<6.0	120 J	<4.8	150 J	160 J	<16	<7.4	-	110 J	70 J	<4.6	5.9 J				
Anthracene	µg/kg	n/v	17,900,000	100,000,000	196,949	1,300	<57	160 J	<7.6	120 J	<6.0	260	240	220	<9.3	-	190 J	130 J	<5.9	23 J				
Benz(a)anthracene	µg/kg	n/v	1,140	20,800	n/v	3,100 ^B	140 J	340	<6.1	260	<4.9	520	430	520	<7.5	-	280	250	8.6 J	63				
Benz(a)pyrene	µg/kg	n/v	115	2,110	470	3,000 ^{BCD}	200 J ^B	590 ^{BD}	<8.8 III	310 ^B	<7.0	710 ^{BD}	600 ^{BD}	680 *III ^{BD}	<11	-	470 ^{BD}	370 ^B	7.6 J	97				
Benz(b)fluoranthene	µg/kg	n/v	1,150	21,100	478	4,500 ^{BD}	190 J	920 ^D	<9.8 III	680 ^D	<7.8	1,200 ^{BD}	1,100 ^D	1,200 *III ^{BD}	<12	-	690 ^D	460	13 J	78				
Benz(g,h,i)perylene	µg/kg	n/v	n/v	n/v	n/v	960	<110	240	<15 III	150 J	<12	290	290	250 *III	<18	-	220	170 J	<11	59 F1				
Benz(k)fluoranthene	µg/kg	n/v	11,500	211,000	n/v	1,900	<100	370	<13 III	280	<11	440	480	290 *III	<16	-	290	190 J	<10	17 J				
Chrysene	µg/kg	n/v	115,000	2,110,000	144	3,500 ^D	120 J	620 ^D	<12	380 ^D	<9.8	760 ^D	640 ^D	760 ^D	<15	-	420 ^D	330 ^D	11 J	100				
Dibenzo(a,h)anthracene	µg/kg	n/v	115	2,110	n/v	380 ^B	<66	85 J	<8.8 III	45 J	<7.0	87 J	110 J	80 J	<11	-	73 J	48 J	<6.8	23 J				
Fluoranthene	µg/kg	n/v	2,390,000	30,100,000	88,878	5,400	190 J	720	<8.4	250	<6.7	840	630	1,100	<10	-	410	370	1					

Table 1
Soil Quality
Phase II Redevelopment Area
River Point District; Manitowoc, Wisconsin

Detected Constituents in Soil	Units	Wisconsin SBTW (A)	Non-Industrial Direct Contact RCL (B)	Industrial Direct Contact RCL (C)	Soil to Groundwater RCL (D)	Sample ID, Legacy Sample ID (Prior to 2021), Sample Date, Sample Depth, Lithology Relative to Black Granular Fill Unit																								
						SB-147		SB-148		SB-150		SB-151		SB-152		SB-153		SB-154												
						4-May-22	4-May-22	27-May-22	27-May-22	4-May-22	4-May-22	4-May-22	4-May-22	4-May-22	4-May-22	4-May-22	4-May-22	4-May-22	4-May-22	4-May-22	4-May-22	4-May-22	4-May-22	4-May-22						
						1.5 - 3 ft	3 - 3.75 ft	0 - 1.25 ft	1.25 - 2.5 ft	2.5 - 3.25 ft	3.25 - 4 ft	0 - 0.5 ft	0.5 - 1.5 ft	1.5 - 2.5 ft	4 - 5 ft	6 - 7 ft	2 - 3 ft	3 - 5 ft	2.25 - 3 ft	3 - 4 ft										
						FILL	BELOW	FILL	BELOW	FILL	BELOW	FILL	BELOW	FILL	BELOW	FILL	BELOW	FILL	BELOW	FILL	BELOW	FILL	BELOW	FILL	BELOW					
Heavy Metals																														
Arsenic	mg/kg	8.3	0.677	3	0.584	5.5 ^{BCD}	1.5 ^{BD}	11 ^{ABCD}	0.58 J	9.9 ^{ABCD}	0.76 J ^{BD}	13 ^{ABCD}	1.1 ^{BD}	7.6 ^{BCD}	<0.34	0.73 J ^{BD}	7.5 ^{BCD}	1.1 ^{BD}	8.8 ^{ABCD}	0.71 J ^{BD}										
Barium	mg/kg	364	15,300	100,000	164.8	110	43	66	6.5	76	9.7	66	7.4	89	1.9 J	7.5	81	24	44	9.2										
Cadmium	mg/kg	1.07	71.1	985	0.752	0.19 J	0.12 J	10 B ^{AD}	0.050 J	<0.042	0.10 J	0.52 B	0.11 J	0.63 B	0.088 J	0.087 J	0.69 B	0.093 J	0.47 B	0.12 J										
Chromium	mg/kg	43.5	n/v	n/v	360,000	8.5	10	22	2.8	19	11	19	5.1	16	3.1	6.6	16	10	15 F1	4.6										
Lead	mg/kg	51.6	400	800	27	40 ^D	140 ^{AD}	160 ^{AD}	1.7	100 ^{AD}	2.8	210 ^{AD}	7.8	82 ^{AD}	1.5	8.7	97 ^{AD}	33 ^D	130 ^{AD}	5.7										
Mercury	mg/kg	n/v	3.13	3.13	0.208	0.057	0.093	0.082	<0.0054	0.054	<0.0059	0.054	<0.0051	0.055	<0.0052	0.0060 J	0.13	0.021	0.0071 J	0.060										
Selenium	mg/kg	n/v	391	5,840	0.52	<0.74	<0.64	<0.76	<0.62	<0.56	1.2 ^D	<0.54	1.4 ^D	<0.58	1.6 ^D	<0.63	1.1 J ^D	<0.67	0.72 J ^D	<0.58										
Silver	mg/kg	n/v	391	5,840	0.8491	<0.16	0.16 J	0.31 J	<0.14	0.73	0.16 J	0.21 J	<0.12	0.27 J	<0.13	0.27 J	0.20 J	<0.14	0.22 J											
Herbicides																														
Six (6) Compounds	µg/kg	n/v	Various	Various	Various	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Polychlorinated Biphenyls																														
Aroclor 1248	mg/kg	n/v	0.236	0.975	n/v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Aroclor 1254	mg/kg	n/v	0.239	0.988	n/v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Aroclor 1260	mg/kg	n/v	0.243	1	n/v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Aroclor 1262	mg/kg	n/v	n/v	n/v	n/v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Aroclor 1268	mg/kg	n/v	n/v	n/v	n/v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Polycyclic Aromatic Hydrocarbons																														
Acenaphthene	µg/kg	n/v	3,590,000	45,200,000	n/v	<34	<30	40 J	<6.3	<31	<27	<29	<26	220 J	<26	<28	<32	<29	<31	<26										
Acenaphthylene	µg/kg	n/v	n/v	n/v	n/v	<30	<26	100 J	<4.7	<27	<24	<26	<23	190 J	<23	<25	28 J	<25	50 J	<23										
Anthracene	µg/kg	n/v	17,900,000	100,000,000	196,949	<57	<50	280	<5.9	<52	<46	<49	<43	1,000 J	<43	<47	110 J	<48	98 J	<44										
Benzo(a)anthracene	µg/kg	n/v	1,140	20,800	n/v	80 J	20	320	<4.8	70 J	<19	110 J	<17	3,200 ^B	<17	<19	350	<20	180 J	<18										
Benzo(a)pyrene	µg/kg	n/v	115	2,110	470	87 J	<30	350 ^B	<6.8	71 J	<27	110 J	<26	3,400 ^{BCD}	<26	<28	370 ^B	<29	150 J ^B	<26										
Benzo(b)fluoranthene	µg/kg	n/v	1,150	21,100	478	110 J	<32	570 ^D	<7.6	91 J	<30	150 J	<28	4,200 ^{BD}	<28	<30	470	<31	270	<28										
Benzo(g,h,i)perylene	µg/kg	n/v	n/v	n/v	n/v	94 J	<21	250	<11	71 J	<20	100 J	<18	2,800	<18	<20	370	<21	140 J	<19										
Benzo(k)fluoranthene	µg/kg	n/v	11,500	211,000	n/v	44 J	<26	230	<10	39 J	<24	66 J	<23	1,600	<23	<25	190 J	<25	96 J	<23										
Chrysene	µg/kg	n/v	115,000	2,110,000	144	<52	<45	540 ^D	<9.6	85 J	<42	140 J	<39	3,200 ^D	<39	<43	390 ^D	<44	230 ^D	<40										
Dibenzo(a,h)anthracene	µg/kg	n/v	115	2,110	n/v	<41	<36	68 J	<6.8	<37	<33	<35	<31	570 J ^B	<31	<34	86 J	<35	<37	<32										
Fluoranthene	µg/kg	n/v	2,390,000	30,100,000	88,878	160 J	<21	520	&																					

Table 1
Soil Quality
Phase II Redevelopment Area
River Point District; Manitowoc, Wisconsin

Detected Constituents in Soil	Units	Wisconsin SBTM (A)	Non-Industrial Direct Contact RCL (B)	Industrial Direct Contact RCL (C)	Soil to Groundwater RCL (D)	Sample ID, Legacy Sample ID (Prior to 2021), Sample Date, Sample Depth, Lithology Relative to Black Granular Fill Unit																							
						SB-157				SB-158				SB-159				SB-160											
						29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22						
						4 - 6 ft	8 - 10 ft	14 - 15 ft	5.5 - 6 ft	6 - 8 ft	12.5 - 15 ft	4 - 5 ft	5 - 7.5 ft	15 - 17 ft	6 - 7 ft	9 - 11 ft	11 - 11.5 ft	11.5 - 13 ft	11.5 - 13 ft (Dup)	19.5 - 20 ft									
						FILL	FILL	BELOW	FILL	BELOW	BELOW	FILL	BELOW	BELOW	FILL	BELOW	FILL	BELOW	BELOW	BELOW	BELOW	BELOW							
Heavy Metals																													
Arsenic	mg/kg	8.3	0.677	3	0.584	-	-	-	9.8 ^{ABCD}	1.6 ^{BD}	1.7 ^{BD}	7.6 ^{BCD}	2.2 ^{BD}	0.95 J ^{BD}	-	4.9 ^{BCD}	1.0 ^{BD}	1.5 ^{BD}	1.7 ^{BD}	1.5 J ^{BD}									
Barium	mg/kg	364	15,300	100,000	164.8	-	-	-	53	22	27	79	30	49	-	68	19	59	54	54	62								
Cadmium	mg/kg	1.07	71.1	985	0.752	-	-	-	0.54 B	0.12 J	0.12 J	0.60 B	0.12 J	0.21 J	-	0.55 B	0.16 J	0.24 B	0.19 J	0.23 J									
Chromium	mg/kg	43.5	n/v	n/v	360,000	-	-	-	11	6.0	7.6	13	11	13	-	16	7.3	18	18	13									
Lead	mg/kg	51.6	400	800	27	-	54 ^{AD}	4.5	140 ^{AD}	22	26	120 ^{AD}	4.4	4.0	-	79 ^{AD}	24	5.7	5.4	3.8									
Mercury	mg/kg	n/v	3.13	3.13	0.208	-	-	-	0.046	0.10	0.18	0.11	<0.0063	0.010 J	-	0.053	0.0083 J	0.033	0.024	<0.0087									
Selenium	mg/kg	n/v	391	5,840	0.52	-	-	-	<0.61	<0.58	<0.63	<0.70	<0.64	<0.69	-	<0.65	<0.61	<0.69	<0.74	<0.96									
Silver	mg/kg	n/v	391	5,840	0.8491	-	-	-	<0.13 *+	<0.13 *+	<0.14 *+	0.17 J	<0.14 *+	<0.15 *+	-	0.18 J	<0.13	<0.14	0.14 J	<0.18									
Herbicides																													
Six (6) Compounds	µg/kg	n/v	Various	Various	Various	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Polychlorinated Biphenyls																													
Aroclor 1248	mg/kg	n/v	0.236	0.975	n/v	<0.0096	-	-	-	-	-	<0.024	-	-	-	-	-	-	-	-	-	-	-	-					
Aroclor 1254	mg/kg	n/v	0.239	0.988	n/v	<0.0069	-	-	-	-	-	<0.017	-	-	-	-	-	-	-	-	-	-	-	-					
Aroclor 1260	mg/kg	n/v	0.243	1	n/v	0.041	-	-	-	-	-	<0.019	-	-	-	-	-	-	-	-	-	-	-	-					
Aroclor 1262	mg/kg	n/v	n/v	n/v	n/v	<0.0066	-	-	-	-	-	<0.017	-	-	-	-	-	-	-	-	-	-	-	-					
Aroclor 1268	mg/kg	n/v	n/v	n/v	n/v	<0.012	-	-	-	-	-	<0.029	-	-	-	-	-	-	-	-	-	-	-	-					
Polycyclic Aromatic Hydrocarbons																													
Acenaphthene	µg/kg	n/v	3,590,000	45,200,000	n/v	-	35 J	<17	<6.7	<6.2	<21	<370	<6.9	<39	-	<6.9	15 J	<7.5	<7.7	<20									
Acenaphthylene	µg/kg	n/v	n/v	n/v	n/v	-	14 J	<13	15 J	<4.5	<15	950 J	<5.0	<28	-	55	13 J	<5.5	<5.7	<14									
Anthracene	µg/kg	n/v	17,900,000	100,000,000	196,949	-	44 J	<16	64	<5.7	<19	1,200 J	<6.4	<36	-	65	37	15 J	70	<18									
Benzo(a)anthracene	µg/kg	n/v	1,140	20,800	n/v	-	50 J	<13	190 *III	7.0 J	19 J	2,100 ^B	<5.2	<29	-	150	63	<5.6	<5.8	<15									
Benzo(a)pyrene	µg/kg	n/v	115	2,110	470	-	57 J	<19	200 *III ^B	6.6 J	<22	3,200 ^{BCD}	<7.4	<42	-	220 *III ^B	67	<8.1 *III	<8.3	<21 *III									
Benzo(b)fluoranthene	µg/kg	n/v	1,150	21,100	478	-	79	<21	410 *III	<7.4	<25	5,700 ^{BD}	<8.3	<47	-	360 *III	110	<9.0 *III	<9.3	<24 *III									
Benzo(g,h,i)perylene	µg/kg	n/v	n/v	n/v	n/v	-	32 J	<31	96 *III	<11	<37	2,300	<12	<70	-	140 *III	43	<14 *III	<14	<35 *III									
Benzo(k)fluoranthene	µg/kg	n/v	11,500	211,000	n/v	-	<23	<29	88 *III	<10	<34	2,000 J	<11	<64	-	120 *III	36	<12 *III	<13	<32 *III									
Chrysene	µg/kg	n/v	115,000	2,110,000	144	-	53 J	<26	310 *III ^B	<9.4	<31	2,600 ^D	<10	<59	-	200 ^D	110	<11	<12	<30									
Dibenzo(a,h)anthracene	µg/kg	n/v	115	2,110	n/v	-	<15	<19	7.2 *III *B	<6.6	<22 *B	600 J ^B	<7.4	<42	-	37 J	14 J	<8.1 *III	<8.3	<21 *III									
Fluoranthene	µg/kg	n/v	2,390,000	30,100,000	88,878	-	110	<18	220	<6.4	<21	2,200	<7.1	<40	-	260	170	8.0 J	28 J	<20									
Fluorene	µg/kg	n/v	2,390,000	30,100,000	14,830	-	38 J	<14	8.3 J	<4.8	<16	<290	<5.4	<30	-	12 J	27 J	35 J	1										

Table 1
 Soil Quality
 Phase II Redevelopment Area
 River Point District; Manitowoc, Wisconsin

Detected Constituents in Soil	Units	Wisconsin SBTV (A)	Non-Industrial Direct Contact RCL (B)	Industrial Direct Contact RCL (C)	Soil to Groundwater RCL (D)	Sample ID, Legacy Sample ID (Prior to 2021), Sample Date, Sample Depth, Lithology Relative to Black Granular Fill Unit											
						SB-161		SB-162		SB-163			SB-164		SB-165		
						29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	
						8.5 - 9.75 ft	7 - 9 ft	4 - 5 ft	5 - 7 ft	7 - 8 ft	2.5 - 3 ft	4.25 - 5 ft	4 - 5 ft	7 - 7.5 ft	10 - 12.5 ft		
						BELOW	NO FILL	FILL	BELOW	BELOW	FILL	BELOW	FILL	BELOW	FILL	FILL	BELOW
Heavy Metals																	
Arsenic	mg/kg	8.3	0.677	3	0.584	-	1.2 ^{BD}	6.2 ^{BCD}	-	1.1 ^{BD}	13 ^{ABCD}	0.93 J ^{BD}	1.2 ^{BD}	-	1.2 ^{BD}		
Barium	mg/kg	364	15,300	100,000	164.8	-	20	59	-	21	72	17	7.5	-	15		
Cadmium	mg/kg	1.07	71.1	985	0.752	-	0.11 J	0.35 B	-	0.12 J	0.29 B	0.11 J	0.11 J	-	0.13 J		
Chromium	mg/kg	43.5	n/v	n/v	360,000	-	8.0	9.6	-	9.0	8.6	7.7	3.4	-	7.7		
Lead	mg/kg	51.6	400	800	27	-	3.1	93 ^{AD}	-	2.9	160 ^{AD}	2.3	7.9	-	4.0		
Mercury	mg/kg	n/v	3.13	3.13	0.208	-	0.012 J	0.093	-	<0.0066	0.084	<0.0060	<0.0055	-	0.014 J		
Selenium	mg/kg	391	5,840	0.52	-	<0.65	<0.62	-	<0.63	<0.62	0.80 J ^D	<0.54	-	<0.72			
Silver	mg/kg	n/v	391	5,840	0.8491	-	<0.13	<0.13	-	<0.15	0.23 J	<0.14	<0.13	-	<0.18		
Herbicides																	
Six (6) Compounds	µg/kg	n/v	Various	Various	Various	-	-	-	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls																	
Aroclor 1248	mg/kg	n/v	0.236	0.975	n/v	-	-	<0.0089	-	-	-	-	-	<0.015	-		
Aroclor 1254	mg/kg	n/v	0.239	0.988	n/v	-	-	<0.0063	-	-	-	-	-	<0.010	-		
Aroclor 1260	mg/kg	n/v	0.243	1	n/v	-	-	<0.0071	-	-	-	-	-	<0.012	-		
Aroclor 1262	mg/kg	n/v	n/v	n/v	n/v	-	-	<0.0061	-	-	-	-	-	<0.010	-		
Aroclor 1268	mg/kg	n/v	n/v	n/v	n/v	-	-	<0.011	-	-	-	-	-	<0.018	-		
Polycyclic Aromatic Hydrocarbons																	
Acenaphthene	µg/kg	n/v	3,590,000	45,200,000	n/v	-	<6.9	15 J	-	<7.2	64 J	11 J	<120	-	<8.2		
Acenaphthylene	µg/kg	n/v	n/v	n/v	n/v	-	<5.1	93	-	<5.2	110	<5.1	<90	-	<6.0		
Anthracene	µg/kg	n/v	17,900,000	100,000,000	196,949	-	<6.4	99	-	<6.6	270	42	<110	-	7.9 J		
Benz(a)anthracene	µg/kg	n/v	1,140	20,800	n/v	-	7.1 J	370	-	<5.4	520	46	140 J	-	12 J		
Benz(a)pyrene	µg/kg	n/v	115	2,110	470	-	<7.4	530 ^{BD}	-	<7.7	730 ^{BD}	42	520 J ^{BD}	-	11 J		
Benz(b)fluoranthene	µg/kg	n/v	1,150	21,100	478	-	<8.3	680 ^D	-	<8.6	970 ^D	50	630 J ^D	-	13 J		
Benz(g,h,i)perylene	µg/kg	n/v	n/v	n/v	n/v	-	<12	270	-	<13	420	12 J	430 J	-	<15		
Benz(k)fluoranthene	µg/kg	n/v	11,500	211,000	n/v	-	<11	320	-	<12	400	19 J	230 J	-	<13		
Chrysene	µg/kg	n/v	115,000	2,110,000	144	-	<10	420 ^D	-	<11	580 ^D	40	400 J ^D	-	<12		
Dibenzo(a,h)anthracene	µg/kg	n/v	115	2,110	n/v	-	<7.4	75	-	<7.7	94	<7.4	<130	-	<8.8		
Fluoranthene	µg/kg	n/v	2,390,000	30,100,000	88,878	-	7.7 J	690	-	<7.4	980	120	380 J	-	25 J		
Fluorene	µg/kg	n/v	2,390,000	30,100,000	14,830	-	<5.4	18 J	-	<5.6	130	24 J	<96	-	<6.4		
Indeno(1,2,3-cd)pyrene	µg/kg	n/v	1,150	21,100	n/v	-	<10	260	-	<10	320	16 J	310 J	-	<12		
Methylnaphthalene, 1-	µg/kg	n/v	17,600	72,700	n/v	-	20 J	220	-	<9.7	120 J	<9.4	<170	-	<11		
Methylnaphthalene, 2-	µg/kg	n/v	239,000	3,010,000	n/v	-	<7.1	250	-	<7.3	160	<7.1	<130	-	<8.4		
Naphthalene	µg/kg	n/v	5,520	24,100	658	-	<5.9	190	-	<6.1	370	7.6 J	<110	-	12 J		
Phenanthrene	µg/kg	n/v	n/v	n/v	n/v	-	9.2 J	420	-	<5.5	770	140	200 J	-	30 J		
Pyrene	µg/kg	n/v	1,790,000	22,600,000	54,546	-	<7.6	630	-	<7.9	900	92	370 J	-	21 J		
Semi-Volatile Organic Compounds																	
Benzoic acid	µg/kg	n/v	100,000,000	100,000,000	n/v	-	-	-	-	-	-	-	-	-	-	-	-
Bis(2-Chloroethyl)ether	µg/kg	286	1,290	n/v	n/v	-	-	-	-	-	-	-	-	-	-	-	-
Bis(2-Ethylhexyl)phthalate (DEHP)	µg/kg	38,800	164,000	2,880	n/v	-	-	-	-	-	-	-	-	-	-	-	-
Carbazole	µg/kg	n/v	n/v	n/v	n/v	-	-	-	-	-	-	-	-	-	-	-	-
Cresol, m & p- (Methylphenol, 3&4-)	µg/kg	n/v	n/v	n/v	n/v	-	-	-	-	-	-	-	-	-	-	-	-
Cresol, o- (Methylphenol, 2-)	µg/kg	n/v	3,160,000	41,000,000	n/v	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzofuran	µg/kg	n/v	73,000	1,040,000	n/v	-	-	-	-	-</td							

Table 2
Groundwater Quality Compared to NR 140 Standards
Phase II Redevelopment Area
River Point District
Manitowoc, Wisconsin

Notes:

ug/L microgram per liter

mg/L milligram per liter

A Constituent concentration with a subscript A is greater than the ch. NR 140 WAC Preventive Action Limit

AB Constituent concentration with a subscript AB is greater than the ch. NR 140 WAC Enforcement Standard

15.2 Measured concentration did not exceed the indicated standard.

<0.03 Analyte was not detected at a concentration greater than the laboratory reporting limit.

- Parameter not analyzed.

B Indicates analyte was found in associated blank, as well as in the sample.

H Sample was prepped or analyzed beyond the specified holding time.

I Recorded values are the estimated maximum possible concentration.

J The reported result is an estimated value between the laboratory limit of detection and the limit of quantitation.

ND Not detected.

n/v No standard/guideline value.

* The lab control sample (LCS) or lab control sample duplicate (LCSD) was outside of acceptable limits.

** Combined standard for (6) PFAS compounds proposed by the Wisconsin Department of Health Services on November

6, 2020 as part of the rulemaking process with updating ch. NR 140 WAC.

Legacy sample IDs were used in Stantec reports prior to January 2021.

Table 2
Groundwater Quality Compared to NR 140 Standards
Phase II Redevelopment Area
River Point District
Manitowoc, Wisconsin

Constituents	Units	Preventive Action Limit (A)	Enforcement Standard (B)	Sample ID, Legacy Sample ID (Prior to 2021), Sample Date																													
				TW-34		TW-35		MW-35				TW-36		TW-37		TW-38		TW-40		TW-42		TW-44		MW-44		TW-47		MW-47		TW-49		TW-50	
				S3_TW-92	S3_TW-27	S3_MW-27	AECOM 3_MW-27	AECOM 3_MW-27D	S3_TW-93	S2_TW-8	S5_TW-8	S5_TW-11	S5_TW-15	S5_TW-18	S5_TW-18	AECOM 1_MW-19	S1_TW-19	S1_TW-24															
Detected Metals																																	
Arsenic	mg/L	0.001	0.01	0.0046 ^A	0.008 ^A	-	-	< 0.00028	0.00099 J	0.0022 ^A	0.0010	-	0.0013 ^A	0.0012 ^A	0.0030 ^A	<0.0037	-	< 0.00056	-	0.0024 ^A	-												
Barium	mg/L	0.4	2	0.00011	0.120	-	-	-	0.091	0.23	0.13	-	0.16	0.15	0.34	-	-	-	-	0.16	-												
Chromium	mg/L	0.01	0.1	<0.0011	<0.0011	-	-	-	<0.0011	0.0011 J	<0.0011	-	0.0012 J	<0.0011	<0.0011	-	-	-	-	<0.0011	-												
Lead	mg/L	0.0015	0.015	<0.00019	0.00021 J	-	-	-	<0.00019	<0.00019	<0.00019	-	0.0040 ^A	0.0025 ^A	0.00083	-	-	-	<0.00050	<0.00019	-												
Detected Polychlorinated Biphenyls																																	
9 Aroclor Mixtures	µg/L	0.003	n/v	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Fluorinated Alkyl Substances																																	
Perfluorobutane Sulfonate (PFBS)	ng/L	90,000	450,000	-	-	-	-	-	-	-	-	0.87 J	-	-	-	-	-	-	-	3.3	3.5	-											
Perfluorobutanoic Acid (PFBA)	ng/L	2,000	10,000	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	9.5	14	-											
Perfluorodecane Sulfonate (8:2)	ng/L	n/v	n/v	-	-	-	-	-	-	-	<1.6	-	-	-	-	-	-	-	-	<1.8	<2	-											
Perfluorododecanoic Acid (PFDoA)	ng/L	100	500	-	-	-	-	-	-	-	1.0 J B	-	-	-	-	-	-	-	<1.8	<0.5	-												
Perfluorohethane Sulfonate (PFHsS)	ng/L	n/v	n/v	-	-	-	-	-	-	-	<0.15	-	-	-	-	-	-	-	<1.8	<0.4	-												
Perfluorohethanoic Acid (PFHxA)	ng/L	n/v	n/v	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	6.3	4	-												
Perfluorohexanesulfonic acid (PFHxS)	ng/L	4	40	-	-	-	-	-	-	-	0.74 J B	-	-	-	-	-	-	-	<1.8	0.79 J	-												
Perfluorohexanoic Acid (PFHxA)	ng/L	30,000	150,000	-	-	-	-	-	-	-	11	-	-	-	-	-	-	-	5.9	4.2	-												
Perfluoro-n-Octanoic Acid (PFOA)	ng/L	2	20	-	-	-	-	-	-	-	35 ^{AB}	-	-	-	-	-	-	-	71 ^{AB}	37 ^{AB}	-												
Perfluorononanoic Acid (PFNA)	ng/L	3	30	-	-	-	-	-	-	-	<0.21	-	-	-	-	-	-	-	<1.8	0.62 J	-												
Perfluoroctane Sulfonate (PFOS)	ng/L	n/v	n/v	-	-	-	-	-	-	-	<1.6	-	-	-	-	-	-	-	<4.5	<1	-												
Perfluorooctanesulfonamide (PFOSA)	ng/L	2	20	-	-	-	-	-	-	-	1.5 JM	-	-	-	-	-	-	-	1.1 J I	3.3 ^A	-												
Perfluoropentanesulfonic Acid (PFPeS)	ng/L	n/v	n/v	-	-	-	-	-	-	-	<0.27	-	-	-	-	-	-	-	<1.8	<0.5	-												
Perfluoropentanoic Acid (PFPeA)	ng/L	n/v	n/v	-	-	-	-	-	-	-	<0.24	-	-	-	-	-	-	-	<1.8	<0.4	-												
Perfluorotetradecanoic Acid (PFTeA)	ng/L	2,000	10,000	-	-	-	-	-	-	-	0.53 J B	-	-	-	-	-	-	-	3.3	3.7 J	-												
Perfluorotridecanoic Acid (PFTriA)	ng/L	n/v	n/v	-	-	-	-	-	-	-	1.0 J B	-	-	-	-	-	-	-	<1.8	<0.3	-												
NETFOSE+NETFOSA+NETFOSAA+PFOSA+PFOA+PFOS*	ng/L	2	20	-	-	-	-	-	-	-	36.5 ^{AB}	-	-	-	-	-	-	-	72.1 ^{AB}	40.3 ^{AB}	-												
Polycyclic Aromatic Hydrocarbons																																	
Acenaphthene	µg/L	n/v	n/v	<0.25	<0.27	-	<0.0056	<0.0056	<0.25	<0.25	<0.26 H	-	<0.25 H	<0.27 H	<0.27 H	<0.24 LQ	-	-	<0.78	<0.25	<0.26	-											
Acenaphthylene	µg/L	n/v	n/v	<0.21	<0.23	-	<0.0046	<0.0046	<0.21	<0.22	<0.23 H	-	<0.22 H	<0.24 H	0.45 J H	<0.21 LQ	-	-	<0.78	<0.22	<0.23	-											
Anthracene	µg/L	600	3,000	<0.27	<0.29	-	<0.0097	<0.0097	<0.27	<0.27	0.53 J H	-	<0.27 H	<0.29 H	1.4	<0.045	-	-	<0.78	<0.27	<0.28	-											
Benz(a)anthracene	µg/L	n/v	n/v	<0.045	<0.049	-	<0.0070	<0.0070	<0.045	<0.047	1.4	-	0.28	0.11 J H	3.7	<0.045	-	-	<0.16	0.095 J	0.11 J	-											
Benz(a)pyrene	µg/L	0.02	0.2	<0.079	<0.085	-	<0.0098	<0.0098	<0.079	<0.081	1.4 ^{AB}	-	0.30 ^{AB}	<0.087 H	3.9 ^{AB}	<0.078	-	-	<0.16	<0.081	0.11 J ^A	-											
Benz(b)																																	

Table 2
Groundwater Quality Compared to NR 140 Standards
Phase II Redevelopment Area
River Point District
Manitowoc, Wisconsin

Constituents	Units	Preventive Action Limit (A)	Enforcement Standard (B)	Sample ID, Legacy Sample ID (Prior to 2021), Sample Date									
				MW-147	MW-150	MW-153	MW-154	MW-157	MW-158	MW-159	MW-162	MW-163	MW-165
				-	-	-	-	-	-	-	-	-	-
				3-Jun-22	3-Jun-22	3-Jun-22	3-Jun-22	21-Jul-22	19-Jul-22	21-Jul-22	21-Jul-22	21-Jul-22	19-Jul-22
Detected Metals													
Arsenic	mg/L	0.001	0.01	0.00077 J	0.001	0.00088 J	-	0.0018 ^A	0.00070 J	0.00055 J	0.00058 J	0.00052 J	0.0059 ^A
Barium	mg/L	0.4	2	-	-	-	-	-	-	-	-	-	-
Chromium	mg/L	0.01	0.1	-	-	-	-	-	-	-	-	-	-
Lead	mg/L	0.0015	0.015	<0.00019	<0.00019	<0.00019	-	-	-	-	-	-	-
Detected Polychlorinated Biphenyls													
9 Aroclor Mixtures	µg/L	0.003	n/v	-	-	-	-	-	-	-	-	-	BDL
Fluorinated Alkyl Substances													
Perfluorobutane Sulfonate (PFBS)	ng/L	90,000	450,000	-	-	-	-	-	-	-	-	-	-
Perfluorobutanoic Acid (PFBA)	ng/L	2,000	10,000	-	-	-	-	-	-	-	-	-	-
Perfluorodecane Sulfonate (8:2)	ng/L	n/v	n/v	-	-	-	-	-	-	-	-	-	-
Perfluorododecanoic Acid (PFDoA)	ng/L	100	500	-	-	-	-	-	-	-	-	-	-
Perfluoroheptane Sulfonate (PFHpS)	ng/L	n/v	n/v	-	-	-	-	-	-	-	-	-	-
Perfluoroheptanoic Acid (PFHpA)	ng/L	n/v	n/v	-	-	-	-	-	-	-	-	-	-
Perfluorohexanesulfonic acid (PFHxS)	ng/L	4	40	-	-	-	-	-	-	-	-	-	-
Perfluorohexanoic Acid (PFHxA)	ng/L	30,000	150,000	-	-	-	-	-	-	-	-	-	-
Perfluoro-n-Octanoic Acid (PFOA)	ng/L	2	20	-	-	-	-	-	-	-	-	-	-
Perfluoronanoic Acid (PFNA)	ng/L	3	30	-	-	-	-	-	-	-	-	-	-
Perfluooctane Sulfonate (6:2)	ng/L	n/v	n/v	-	-	-	-	-	-	-	-	-	-
Perfluorooctane Sulfonate (PFOS)	ng/L	2	20	-	-	-	-	-	-	-	-	-	-
Perfluorooctanesulfonamide (PFOSA)	ng/L	2	20	-	-	-	-	-	-	-	-	-	-
Perfluoropentanesulfonic Acid (PFPeS)	ng/L	n/v	n/v	-	-	-	-	-	-	-	-	-	-
Perfluoropentanoic Acid (PFPeA)	ng/L	n/v	n/v	-	-	-	-	-	-	-	-	-	-
Perfluorotetradecanoic Acid (PFTeA)	ng/L	2,000	10,000	-	-	-	-	-	-	-	-	-	-
Perfluorotridecanoic Acid (PTriA)	ng/L	n/v	n/v	-	-	-	-	-	-	-	-	-	-
NEtFOSE+NEtFOSA+NEtFOSAA+PFOSA+PFOA+PFOS**	ng/L	2	20	-	-	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons													
Acenaphthene	µg/L	n/v	n/v	<0.25	<0.24	<0.25	<0.25	-	<0.24	-	-	<0.25	<0.25
Acenaphthylene	µg/L	n/v	n/v	<0.21	<0.21	<0.21	<0.21	-	<0.21	-	-	<0.21	<0.22
Anthracene	µg/L	600	3,000	<0.27	<0.26	<0.27	<0.27	-	<0.26 *+	-	-	<0.27 *+	<0.27 *+
Benzo(a)anthracene	µg/L	n/v	n/v	<0.045	<0.043	<0.045	<0.045	-	<0.044	-	-	<0.045	<0.046
Benzo(a)pyrene	µg/L	0.02	0.2	<0.079	<0.076	<0.079	<0.079	-	<0.077	-	-	<0.079	<0.080
Benzo(b)fluoranthene	µg/L	0.02	0.2	<0.065	<0.062	<0.065	<0.065	-	<0.062	-	-	<0.064	<0.065
Benzo(g,h,i)perylene	µg/L	n/v	n/v	<0.30	<0.29	<0.30	<0.30	-	<0.29	-	-	<0.30	<0.30
Benzo(k)fluoranthene	µg/L	n/v	n/v	<0.051	<0.049	<0.051	<0.051	-	<0.050	-	-	<0.051	<0.052
Chrysene	µg/L	0.02	0.2	<0.055	<0.052	<0.055	<0.055	-	<0.053	-	-	<0.054	<0.055
Dibenzo(a,h)anthracene	µg/L	n/v	n/v	<0.041	<0.039	<0.041	<0.041	-	<0.039	-	-	<0.040	<0.041
Fluoranthene	µg/L	80	400	<0.36	<0.35	<0.36	<0.36	-	<0.35	-	-	<0.36	<0.37
Fluorene	µg/L	80	400	<0.20	<0.19	<0.20	<0.20	-	<0.19	-	-	<0.19	<0.20
Indeno(1,2,3-cd)pyrene	µg/L	n/v	n/v	<0.060	<0.057	<0.060	<0.060	-	<0.058	-	-	<0.059	<0.060
Methylnaphthalene, 1-	µg/L	n/v	n/v	<0.24	<0.23	<0.24	<0.24	-	<0.23	-	-	<0.24	<0.24
Methylnaphthalene, 2-	µg/L	n/v	n/v	<0.052	<0.050	<0.052	<0.052	-	<0.050	-	-	0.071 J	<0.053
Naphthalene	µg/L	10	100	<0.25	<0.24	<0.25	<0.25	-	<0.24	-	-	<0.25	<0.25
Phenanthrene	µg/L	n/v	n/v	<0.24	<0.23	<0.24	<0.24	-	<0.23	-	-	<0.24	<0.24
Pyrene	µg/L	50	250	<0.34	<0.33	<0.34	<0.34	-	<0.33 *+	-	-	<0.34 *+	<0.34 *+
Volatile Organic Compounds													
Benzene	µg/L	0.5	5	<0.15	-	<0.15	<0.15	0.69 ^A	<0.15	<0.15	<0.15	<0.15	<0.15
Butylbenzene, sec- (2-Phenylbutane)	µg/L	n/v	n/v	<0.40	-	<0.40 *-	<0.40 *-	0.83 J	<0.40	<0.40	<0.40	<0.40	<0.40
Butylbenzene, tert-	µg/L	n/v	n/v	<0.40 F2	-	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Chloroform (Trichloromethane)	µg/L	0.6	6	<0.37	-	<0.37	<0.37	0.87 J ^A	<0.37	<0.37	<0.37	<0.37	<0.37
Ethylbenzene	µg/L	140	700	<0.18	-	<0.18	<0.18	1.4	<0.18	<0.18	<0.18	<0.18	<0.18
Isopropylbenzene	µg/L	n/v	n/v	<0.39	-	<0.39	<0.39	2.3	<0.39	<0.39	<0.39	<0.39	<0.39
Isopropyltoluene, p- (Cymene)	µg/L	n/v	n/v	<0.36 F2 FQ	-	<0.36	<0.36	1.3	<0.36	9.0	<0.36	<0.36	<0.36
Methylene Chloride (Dichloromethane)	µg/L	0.5	5	<1.6	-	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6
Naphthalene	µg/L	10	100	0.70 J	-	<0.34	0.67 J	0.51 J	<0.34	<0.34	<0.34	<0.34	0.43 J
Propylbenzene, n-	µg/L	n/v	n/v	<0.41	-	<0.41	<0.41	1.8	<0.41	<0			