Jacobs

Draft Final Focused Feasibility Study Report

Milwaukee River Floodplains Reach, Milwaukee Estuary AOC
Milwaukee, Wisconsin

EPA GLAES II Contract
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Executive Summary

This Focused Feasibility Study (FFS) report develops and presents a recommended remedial alternative for the Floodplains Reach of the Milwaukee River within the Milwaukee Estuary Area of Concern (AOC) in Milwaukee, Wisconsin. The U.S. Environmental Protection Agency (EPA) Great Lakes National Program Office (GLNPO) and project partners (Wisconsin Department of Natural Resources [WDNR], Milwaukee County Parks, City of Milwaukee, Milwaukee Metropolitan Sewerage District, and We Energies) have selected a combination of Alternative 2 (full excavation) and Alternative 3a (precision excavation or preservation of existing soil and vegetative cover in selected seed tree areas [STAs]) as the recommended alternative to address contaminated soils in the Floodplains Reach. Excavated soils will be transported to and placed in a dredged material management facility to be constructed in Milwaukee Bay adjacent to the existing confined disposal facility. The recommended alternative will reduce the mass, volume, and concentrations of contaminants of concern (COCs) in floodplain soils; preserve existing sensitive habitat where possible; and reduce the potential for recontamination of the Milwaukee River by remediating floodplain soils and stabilizing river banks. Floodplain areas that are disturbed by the remedial action will be backfilled and restored after remediation.

The purpose of the FFS process is to develop and evaluate remedial alternatives and support selection of a remedy that is protective of human health and the environment. The remedy will contribute to the eventual removal of beneficial use impairment (BUIs) and delisting of the Milwaukee Estuary AOC.

The FFS includes the following:

- A conceptual site model summarizing physical site characteristics, nature and extent of contamination, historical and ongoing sources of contamination, recontamination potential, and exposure pathways and receptors.
- Site-specific remedial action objectives (RAOs) and development of remediation target areas (RTAs).
- Identification and screening of remedial technologies.
- Description of remedial alternatives.
- Description of conceptual habitat restoration alternatives.
- Comparative analysis of the alternatives against seven evaluation criteria.
- Identification and rationale for a recommended remedial alternative and restoration approach.

The following site-specific RAOs for the Floodplains Reach include remedial goals to improve the portion of the AOC where the project is located, and support removing BUIs and delisting the AOC:

- Reduce potential human health risk by reducing contaminant concentrations in the Milwaukee River Floodplains Reach soils.
- Support removal of BUIs within the Milwaukee Estuary AOC by reducing the mass, volumes, and COCs.
- Preserve existing sensitive habitat where possible and, upon completion of remedial activities, restore/improve habitat of the site.
- Reduce potential for recontamination to the Milwaukee River from floodplain soils.

Site-specific residual contaminant levels (SS-RCLs) were developed by WDNR for total polychlorinated biphenyls (PCBs) and seven polycyclic aromatic hydrocarbons, and other WDNR criteria were recommended as screening levels for lead and arsenic. The RTAs were established using data for total PCBs, benzo(a)pyrene, lead, and arsenic.

Representative remedial technologies were identified and screened. Remedial technologies that remained following screening were assembled into four remedial alternatives:

- Alternative 1: No Action
- Alternative 2: Full excavation. Floodplain soil with COC concentrations exceeding SS-RCLs would be excavated to depths of up to 4 feet.
- Alternative 3: Full excavation everywhere except in selected STAs. The remedial technology for STAs with SS-RCL exceedances in the top 0.5 foot of soil is either precision excavation and backfill (Alternative 3a) or activated carbon treatment (Alternative 3b). The existing surface soil and vegetative cover would remain in place in STAs where COC concentrations are below SS-RCLs in the top 0.5 foot but exceed SS-RCLs at depths greater than 0.5 foot.
- Alternative 4: Same as Alternative 3a except that a soil cover would be used to contain and isolate contaminated soils in nonforested disturbed areas.

Two conceptual restoration alternatives were developed for each of the remedial alternatives. The first proposes to restore remediated areas at the grades resulting from excavation, and the second proposes to restore selected remediated areas to the bankfull elevation of the Milwaukee River. Restoration will be accomplished consistent with existing restoration plans for the Milwaukee River corridor and greenway, including the *Milwaukee River Greenway Ecological Restoration and Management Plan* and restoration work specifically targeting AOC BUIs.

Each remedial alternative, except for Alternative 1 (No Action), which is not applicable, meets the threshold criterion (compliance with environmental laws and standards). Alternative 2 has the greatest long-term effectiveness because the greatest volume of soil with COC concentrations exceeding SS-RCLs would be removed. Alternatives 3a, 3b, and 4 have progressively lower reductions in COC mass and volume compared to Alternative 2.

Alternatives 3a, 3b, and 4 rely on long-term controls to ensure that the remedy remains effective but preserves high-quality habitat where possible. The long-term effectiveness of in situ treatment with activated carbon (Alternative 3b) is uncertain because no long-term monitoring data for floodplain applications are available. Alternative 4 is the most implementable from a technical standpoint because it requires the least disposal capacity. Alternative 2 is the most implementable from an administrative standpoint because it does not require institutional controls and continuing obligations (ICs/COs). Alternative 4 is the most difficult to implement from an administrative standpoint because it requires ICs/COs over the largest area.

Alternative 3b would result in the temporary destruction of the smallest area of existing floodplain vegetation, followed by Alternatives 3a and 4, which would affect the same area. Alternative 2 would result in removing existing vegetation within the RTAs, including high-quality habitat. The restoration timeframe is the greatest for Alternative 2 because vegetation within RTAs would need to be re-established. The restoration times are shortest for Alternative 3b.

Alternative 4 has the lowest estimated cost ($28.1 million). Alternatives 3b, 3a, and 2 are progressively more costly ($35.8 million, $38.3 million, and $44.9 million, respectively). Additional costs associated with restoring selected remediated areas to the bankfull elevation of the Milwaukee River are $6 million, $1.5 million, $3.5 million, and $1.3 million for Alternatives 2, 3a, 3b, and 4, respectively.

GLNPO and project partners have selected a combination of Remedial Alternatives 2 and 3a as the recommended alternative. Alternative 2 requires full excavation of soils within RTAs to depths ranging from 0.5 feet to no more than 4 feet and will be applied over most of the RTAs. Alternative 3a may be applied in STAs to be identified using criteria developed by Milwaukee County Parks and delineated onsite.

Delineated STAs will be subject to review and approval by property owners, EPA and DNR. Following approval, STA boundaries will be surveyed for incorporation into the remedial design. The recommended alternative is estimated to include 26.3 acres of full excavation, 4.9 acres of precision excavation, and 2.5 acres of existing soil and vegetative cover and has an estimated cost is $48.9 million. The recommended alternative will achieve the site-specific RAOs by reducing the mass, volume, and concentrations of COCs in floodplain soils; preserving existing sensitive habitat where possible; and reducing the potential for recontamination of the Milwaukee River by remediating floodplain soils and stabilizing river banks. Additionally, the recommended remedial alternative will maximize the opportunity for safe, unrestricted use of the floodplains after the remedial action is complete by minimizing the amount of residual contamination that would require ICs/COs under Wisconsin Chapter NR 700 to be protective.

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Acronyms and Abbreviations

3D	three-dimensional
95% UCL	95% upper confidence limit
ACM	articulated concrete mat
AOC	area of concern
bgs	below ground surface
BRRTS	Bureau for Remediation and Redevelopment Tracking System
BTV	background threshold value
BUI	beneficial use impairment
cfs	cubic feet per second
COC	contaminant of concern
CSM	conceptual site model
CSO	combined sewer overflow
DMMF	dredged materials management facility
EPA	U.S. Environmental Protection Agency
ERP	environmental remediation project
EVS	Earth Visualization System
FIS	Flood Insurance Study
FFS	focused feasibility study
FP	floodplain
GLLA	Great Lakes Legacy Act
GLNPO	Great Lakes National Program Office
GLWQA	Great Lakes Water Quality Agreement
GPS	Global Positioning System
Greenway Plan	*Milwaukee River Greenway Ecological Restoration and Management Plan* (MCP 2021)
HRUA	high recreational use area
IC/CO	institutional control and continuing obligation
lbs	pounds
LUST	leaking underground storage tank
MCP	Milwaukee County Parks
mg/kg	milligram(s) per kilogram
MMSD	Milwaukee Metropolitan Sewerage District
NAPL	nonaqueous phase liquid
NAVD88	North American Vertical Datum 1988

NGVD29	National Geodetic Vertical Datum of 1929
OHWM	ordinary high water mark
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
RAETM	Remedial Alternatives Evaluation Technical Memorandum
RAO	remedial action objective
RAP	remedial action plan
RCL	residual contaminant level
RTA	remediation target area
SS-RCL	site-specific residual contaminant level
STA	seed tree area
TSCA	Toxic Substances Control Act
USGS	U.S. Geological Survey
WDNR	Wisconsin Department of Natural Resources
WPDES	Wisconsin Pollutant Discharge Elimination System
WWTP	wastewater treatment plant
yd^3	cubic yards

1. Introduction

This Focused Feasibility Study (FFS) report summarizes site conditions, remedial action objectives (RAOs), remedial technology screening, and remedial alternative development and evaluation, and presents a recommended remedial alternative for the Floodplains Reach of the Milwaukee River within the Milwaukee Estuary Area of Concern (AOC) in Milwaukee, Wisconsin. The work was conducted in accordance with Task Order No. 68HE0520F0069 under Contract No. 68HE0519D00007 with the Great Lakes National Program Office (GLNPO) as part of the Great Lakes Legacy Act (GLLA) work. This evaluation also aligns with the process outlined in Wisconsin Administrative Code NR 722.07 for the selection of remedial alternatives. The Milwaukee Estuary AOC includes portions of three watersheds along the Milwaukee River, Menomonee River, and Kinnickinnic River, as well as the inner and outer Milwaukee Harbor ("Milwaukee Bay"), two former industrial canals, and the nearshore areas of Lake Michigan (Figure 1-1).

This document consists of the following sections:

- Section 1 provides an introduction and summarizes the site description, regional setting within the Milwaukee Estuary AOC, project background and beneficial use impairments (BUIs), the general site and background information for the Floodplains Reach, and the most recent site investigations and their associated reports.
- Section 2 presents the conceptual site model (CSM) for the Floodplains Reach including descriptions of physical site conditions and the nature and extent of contamination, historical and ongoing sources of contamination, recontamination potential, and exposure pathways and receptors.
- Section 3 provides an overview of how RAOs are developed for remedial actions conducted in the Milwaukee Estuary AOC for GLNPO in partnership with nonfederal sponsors as part of the GLLA work. Site-specific RAOs, screening levels, and development of remediation target areas (RTAs) for the Floodplains Reach are also presented.
- Section 4 summarizes the results of the remedial technology screening for the Floodplains Reach to focus remedial alternatives development on only those technologies most applicable to the site.
- Section 5 describes four remedial alternatives (including the No Action alternative) for the Floodplains Reach.
- Section 6 describes two conceptual habitat restoration alternatives for each remedial alternative.
- Section 7 presents the detailed analysis of remedial alternatives. The evaluation criteria are described first, followed by an analysis of each remedial alternative relative to the evaluation criteria and to each other. Restoration alternatives are also evaluated.
- Section 8 presents the recommended remedial alternative and restoration approach for the Floodplains Reach.
- Section 9 presents the reference documents cited in this technical memorandum.

Supporting information is provided in the appendices.

1.1 Purpose

The purpose of the FFS process is to develop and evaluate remedial alternatives and support selection of a remedy that is protective of human health and the environment. The remedy will contribute to the eventual removal of BUIs and delisting of the Milwaukee Estuary AOC.

The FFS task (Task 6.3) constitutes the third of three tasks (Tasks 6.1, 6.2, and 6.3) to be completed as part of the FFS for the Floodplains Reach. Task 6.1 established RAOs and general response actions, identified and screened remedial technologies, and provided conceptual remedial alternatives. Task 6.2 was the Remedial Alternatives Evaluation, in which the remedial alternatives were further developed to support cost estimates and were analyzed individually and against each other. Results were documented in the Remedial Alternatives Evaluation Technical Memorandum (RAETM). Task 6.3 is this FFS Report, which includes the recommended remedial alternative.

The FFS for the Floodplains Reach is being developed in the same timeframe as FFSs for other project areas within the Milwaukee Estuary AOC including the Milwaukee River Downtown Reach, the South Menomonee Canal, the Kinnickinnic River, and Milwaukee Bay. The remediation strategies and approaches for each project area are being coordinated to the degree possible to achieve overall program objectives.

1.2 Milwaukee Estuary Area of Concern Background

The Milwaukee Estuary was identified as an AOC in 1987 by the International Joint Commission constituted to manage lakes and river systems along the border between Canada and the United States under the Great Lakes Water Quality Agreement (GLWQA) signed by both countries in 1972. The Milwaukee Estuary AOC has a long history of ecological degradation and pollution. Under the GLWQA, the *Milwaukee Estuary Stage 1 Remedial Action Plan* (RAP) was completed in 1991 (WDNR 1991). Historical discharges from point and non-point sources near to or upstream of the AOC resulted in sediment in the various AOC waterways being contaminated with various pollutants, including metals, polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs). The RAP is updated periodically, most recently in June 2022 (WDNR 2022b). The RAP identified the Floodplains Reach as undergoing additional sediment characterization, to be followed by further evaluation for potential remedial action.

The following 11 BUIs are assigned for the Milwaukee Estuary AOC with 7 (indicated by ***bold italics***) of the BUIs specific to contaminated sediment:

- ***Restrictions on fish and wildlife consumption***
- Eutrophication or undesirable algae
- ***Degradation of fish and wildlife populations***
- Beach closings (recreational restrictions)
- ***Fish tumors or other deformities***
- ***Bird or animal deformities or reproduction problems***
- ***Degradation of benthos***
- Degradation of phytoplankton and zooplankton populations
- ***Restriction on dredging activities***
- ***Loss of fish and wildlife habitat***
- Degradation of Aesthetics (U.S. Environmental Protection Agency [EPA] approved removal as of September 8, 2021 [1])

Impacted sediments can be toxic to bottom-dwelling benthic organisms as they feed. Fish, piscivorous birds and mammals, and humans may be exposed to bioaccumulative chemicals, such as mercury and PCBs, via diet. Impacted sediments also have the potential to be resuspended and transported downstream by storms and floods.

[1] A letter addressed to WDNR from GLNPO dated September 8, 2021, approved WDNR's request to remove the *Degradation of Aesthetics* BUI for the Milwaukee Estuary AOC (EPA 2021). Although various factors historically combined to limit recreational use and diminish the scenic value of the waters within the AOC boundaries (visible debris, trash, floating oil and grease, concrete-lined reaches, and overdevelopment on shorelines), many federal and state water quality regulations, local initiatives, and volunteer programs were implemented to reduce pollution and improve water quality throughout the AOC.

1.3 Floodplains Reach Project Area Features and Background

The Floodplains Reach Project Area is approximately 3.5 miles in length with an area of about 47 acres. It is located between the former Estabrook Dam and the former North Avenue Dam and consists of 11 floodplains (FPs) located on either side of the river bank (Figure 1-2). The Milwaukee River in the Floodplains Reach is relatively shallow and swift-moving within the broader river valley and includes a naturally vegetated shoreline dominated by a deciduous forest corridor with some forested wetland. Land use adjacent to the Floodplains Reach has historically included a mixture of recreational, residential, commercial, and industrial. The shoreline is primarily natural and is predominately a recreational "greenway" (Jacobs 2021b).

Boundaries for 16 wetlands were delineated from the location of the former Estabrook Dam to the former North Avenue Dam by TRC Environmental Corporation in 2020 (TRC 2021). The wetlands have an estimated total area of 34.1 acres as indicated in Table 1-1. Features meeting the regulatory definition of jurisdictional waters or wetlands were photographed and mapped. The wetlands delineation boundaries are based on subtle to distinct topographic breaks and the boundaries between hydrophytic and nonhydrophytic vegetation, the presence or absence of wetland hydrology indicators, and hydric and nonhydric soil types. Wetlands comprise most of the FP areas with the exception of FP-11 (Table 1-1). The FPs are dominated by prairie and shrub species (Jacobs 2021a). The vegetated FPs comprise a greenway along the Floodplains Reach, which includes various Milwaukee County parks that promote multiple recreational activities, including hiking, biking, and fishing (MRWG 2010). Parks that are located within or adjacent to specific floodplains are noted in Table 1-1.

The main river channel within the Floodplains Reach has a thin veneer of alluvial sediment (sand, gravel, and cobbles) with some areas of shallow exposed bedrock. The floodplains contain sediments deposited during floods, including contaminated material from historical upstream sources. Some of the floodplain deposits are also associated with the former North Avenue Dam. Before its removal, sediments deposited and accumulated upriver of the dam in the main channel and on eight of floodplains. The extent of the former impoundment is shown on Figure 1-2. The North Avenue Dam was originally constructed in 1843 and operated until December 1990, when the impoundment was last drawn down. The dam's spillway was constructed at an elevation of 594.3 feet (CDM 1997) North American Vertical Datum 1988 (NAVD88), and the impoundment behind the dam had a surface area of 81 acres with a pool length of approximately 2.3 miles, extending north to Capitol Drive (Figure 1-2).

The North Avenue Dam was partially removed in 1997, to restore the river to its approximate pre-dam elevation. The dam-removal work included removing sediment from an approximate 0.2-mile reach of the main Milwaukee River channel between the former dam and just upstream of the North Avenue bridge to prevent downstream transport of contaminated sediment. The excavated sediment was placed into two stockpiles (now naturally vegetated) constructed on mudflats north and south of North Avenue (Figure 1-2). Shoreline erosion protection and articulated concrete mats (ACM) were installed along sections of FP-6 and FP-7, in the northern portion of FP-8/9, and along the banks between North Avenue and the spillway to prevent erosion and scouring of river channel. The resultant drawdown of the river exposed contaminated sediment on floodplain features that were previously submerged. The floodplain features are now elevated above the typical river elevation (except during river flood events), and the former impoundment sediment has been modified through time (from reworking, vegetation, and freeze-thaw processes), is typically vegetated, and is referred to herein as "floodplain soil".

1.4 Recent Site Investigations and Documents

Recent investigations within the Floodplains Reach of the Milwaukee River that are relevant to the FFS include 2016, 2020, and 2021 site characterization efforts performed by GLNPO under the GLLA as summarized in the *Site Characterization Report, Milwaukee River Downstream Sediments Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin* (CH2M 2019a), the *Floodplain Reach Site Sampling Technical Memorandum* (Jacobs 2021a), and the *2021 Floodplain Reach Soil Sampling Technical Memorandum* (Jacobs 2022). The 2016 and 2020 samples were analyzed for PCB Aroclors and select metals; the 2016 samples were also analyzed for PAHs. The 2021 samples were analyzed for PCB Aroclors, PAHs, and metals (arsenic and lead). Sampling results for channel sediments within the Floodplains Reach indicated that they are not highly impacted primarily due to the shallow sediment thickness and flow characteristics that prevent significant sediment deposition (CH2M 2019a); thus, the channel sediments are not included in this FFS.

A Draft *Floodplain and Downtown Reach Conceptual Site Model Memorandum* (Jacobs 2021b) was compiled in April 2021 to summarize the physical and chemical site characteristics for the Floodplains Reach. Comments received from project partners on August 25, 2021, are incorporated herein.

The Milwaukee County Parks Department (MCP) has management oversight of most of the public lands in the floodplains, which are located within the Milwaukee River greenway. Figure 1-3 shows the floodplain areas owned by MCP and other entities. A report entitled *Milwaukee River Greenway Ecological Restoration and Management Plan* (Greenway Plan) that builds on pre-existing ecological plans was issued by the MCP in December 2021 (MCP 2021). One objective of the Greenway Plan is to attain a more stable ecological state for the greenway's natural areas. Some of the information in the Greenway Plan is summarized in Table 1-1 and used to characterize habitat in Section 2.3.

2. Conceptual Site Model

The CSM summarizes floodplain characteristics and the nature and extent of contamination, and identifies potential sources of contamination, migration pathways, and potential receptors. The CSM is depicted on Figure 2-1, which shows spatial relationships between potential sources, contaminant transport pathways, receiving water, and potential receptors.

2.1 Milwaukee River Hydrology and Bankfull Floodplain

2.1.1 Milwaukee River Hydrology

The Milwaukee River[2] drains an area of 168 square miles with land use composed of 33 percent urban, 25 percent agricultural, 21 percent grasslands, 12 percent forests, and 6 percent wetlands (WDNR 2001). Within the project area, the Milwaukee River flows southeast from the former Estabrook Dam to Capitol Drive, then south from Capitol Drive to the former North Avenue Dam.

The Milwaukee River discharge changes seasonally. Exhibit 2-1 summarizes monthly discharge from January 2010 through December 2020, at the U.S. Geological Survey (USGS) stream gauging station (USGS 04087000) located immediately downstream of the former Estabrook Dam (between FP-1 and FP-2). Stream gauge data downloaded from the USGS database for the period from January 2010 (following the Estabrook Dam drawdown) to December 2020 show that the highest monthly average flow typically occurs in April and the lowest occurs in August (Exhibit 2-1).

Exhibit 2-1. Average Monthly Discharge Rates for USGS 04087000 from January 2010 through December 2020

Discharge Rate (ft^3/s)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Overall Monthly Average (2010-2020)	529	561	1201	1460	1035	694	522	394	512	653	557	557
Monthly Average Maximum	1021	997	1778	2979	1746	1596	1254	1062	1627	2411	1256	1126
Monthly Average Minimum	213	231	470	801	441	144	106	135	75	186	166	257

Source: https://waterdata.usgs.gov/nwis/uv?site_no=04087000

Note:

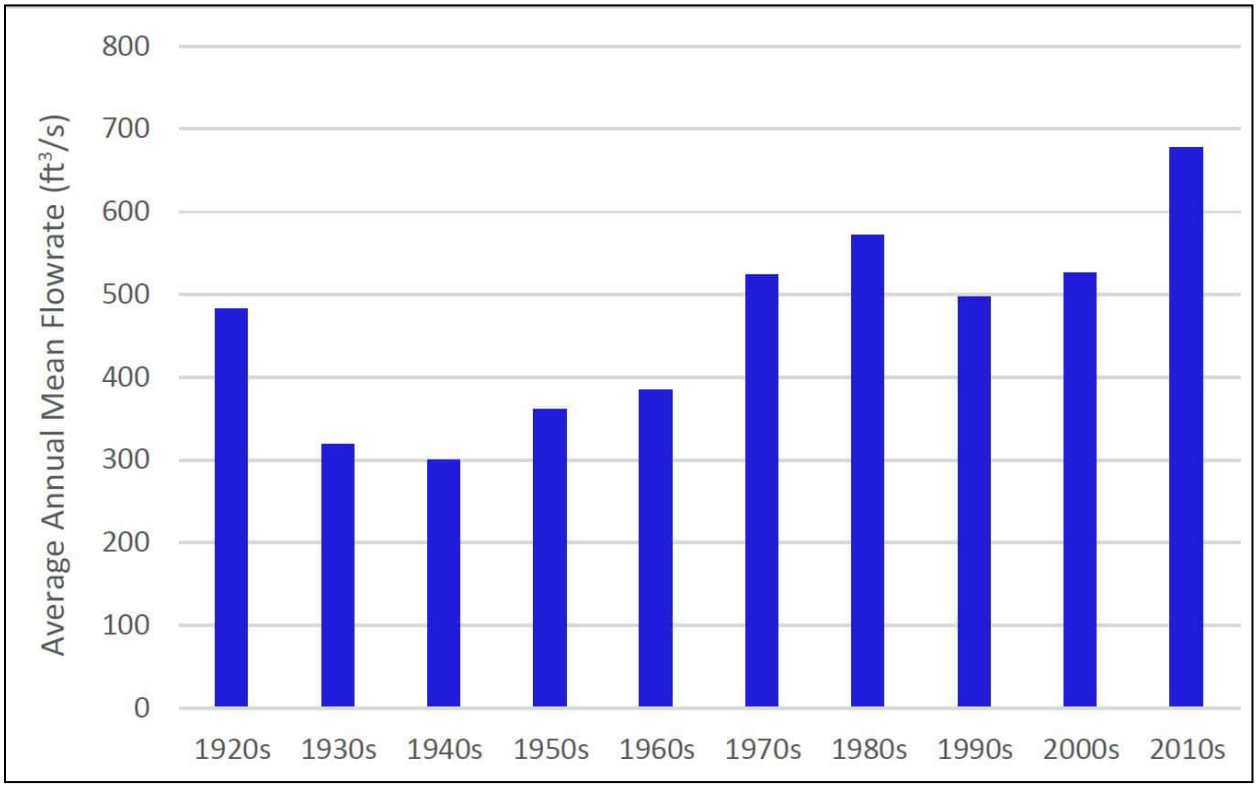
Data available (USGS 2022) through October 2021; period from January 2010 to December 2020 selected to represent a full 10 years of data.

ft^3/s = cubic feet per second

[2] The Milwaukee River Basin is divided into six watersheds; three of the watersheds (Milwaukee River North, Milwaukee River East-West, and Milwaukee River South) contain the Milwaukee River from start to finish and collectively occupy two-thirds of the basin area (584 square miles). The Milwaukee River South drainage basin is discussed in this section.

River flow has been recorded at USGS 04087000 since 1914. The annual mean flowrate averaged by decade increased approximately 4 percent per decade from the 1920s to the 2010s, as shown in Exhibit 2-2 (WDNR 2021b). Further, the data suggest that the rate of increase is accelerating, with the 2010s having the largest increase (29 percent) in the average annual mean flowrate compared to the prior decade.

Exhibit 2-2. Annual Mean Flow Rates Averaged by Decade for USGS 04087000 from the 1920s through the 2010s



Source: WDNR 2021b

As described in Section 1.3, flow in the Milwaukee River was historically impeded by the North Avenue Dam (formerly located just downstream of North Avenue) until December 1990, when the impoundment upstream of the dam was last drawn down to pre-dam elevations. In 2019, an ordinary high water mark (OHWM) survey was performed within each of the 11 FPs to determine the likely extent of potentially contaminated floodplain material and the upstream extent of the former impoundment. OHWM elevations were higher within upstream FPs versus downstream FPs and ranged from 611.4 feet NAVD88 to 583.3 feet NAVD88, respectively, over 3.54 miles, resulting in an average OHWM gradient of approximately 7.9 feet per mile (CH2M 2019b).

2.1.2 Bankfull Floodplain

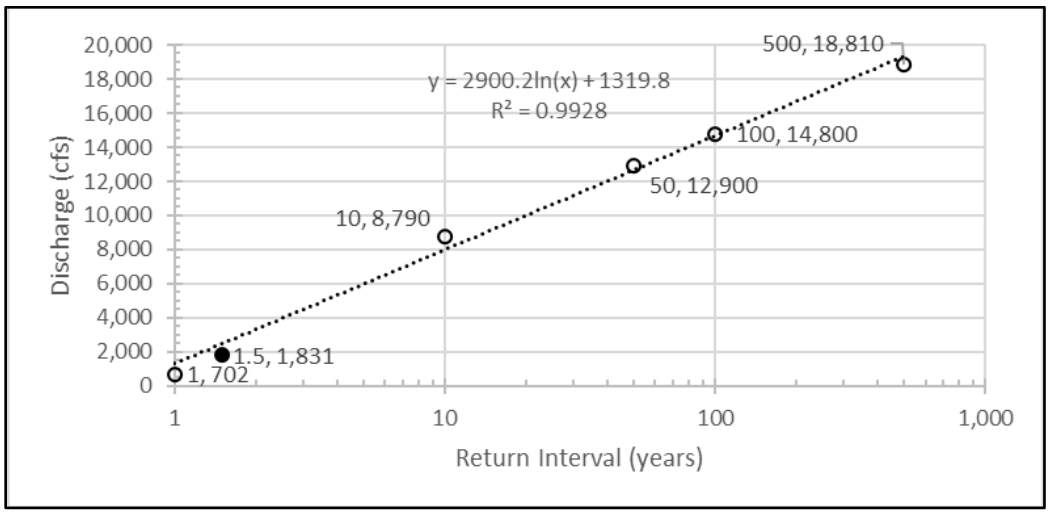
When the Milwaukee River was impounded by the North Avenue Dam, sediments transported by the river from upstream were stored in the bottom of the impoundment. Following removal of the dam in 1997, the Milwaukee River eroded a new channel through those stored sediments, resulting in the adjacent floodplain surfaces present today. As the channel eroded down through the sediments, the elevation of those adjacent floodplain surfaces relative to the water surface of the Milwaukee River increased to the point that they are higher than normal for natural rivers.

Rivers create their adjacent floodplains by depositing sediments during flood events when the flow is outside of the active channel. This results in a dynamically stable channel referred to as the bankfull channel. The bankfull channels of rivers typically convey a discharge equivalent to the 1.5-year return interval discharge, on average. During a 1.5-year return interval discharge, the channel is flowing full, but flow has not entered the floodplain. During discharges greater than the 1.5-year return interval discharge, flow is present on the adjacent floodplain. This is the natural floodplain connectivity of stable rivers. The existing floodplain surfaces in the former impoundment are likely not inundated except in higher flood discharges ranging from the 2- to 5-year return interval discharge, although a current hydraulic model is not available to confirm this estimate.

2.1.2.1 Estimation of Bankfull Discharge

Bankfull discharge was estimated for the Milwaukee River at the head of the Floodplains Reach using the Federal Emergency Management Agency Flood Insurance Study[3] (FIS). The FIS flood discharges for the 1-, 10-, 50-, 100-, and 200-year flood frequencies were interpolated using a log-linear function to estimate the 1.5-year return interval discharge (Exhibit 2-3). The estimated 1.5-year flood discharge is 1,800 cubic feet per second (cfs). Review of available regional hydraulic geometry studies suggest the bankfull discharge of the Milwaukee River based on drainage area is approximately 1,800 cfs, which agrees closely with the estimated 1.5-year flood discharge. Therefore, 1,800 cfs was used as an estimated bankfull discharge for estimating bankfull water surface elevations along the Floodplains Reach.

Exhibit 2-3. Interpolation of the Flood Insurance Study Flood Discharges and Estimation of the 1.5-Year Flood Discharge



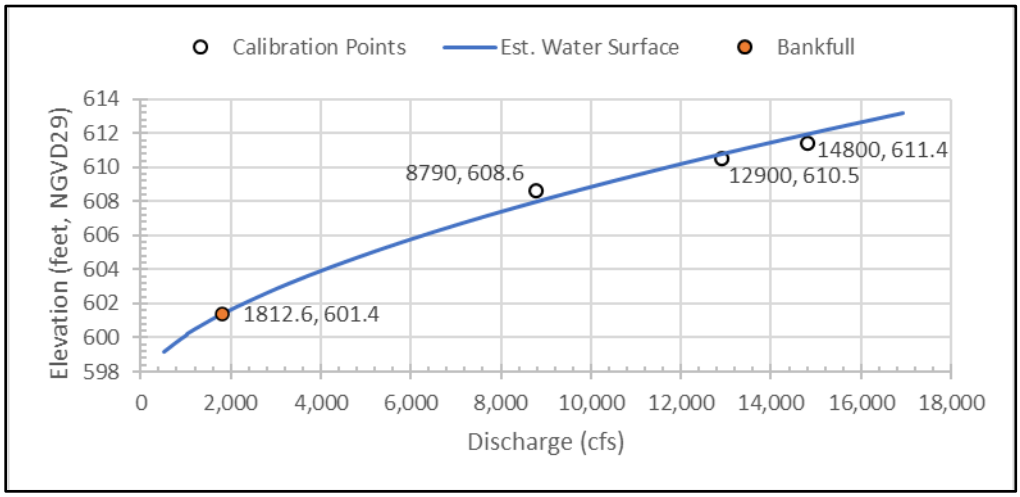
2.1.2.2 Estimation of Bankfull Elevations

The FIS flood profiles were used to estimate bankfull water surface elevations at the 2019 OHWM survey stations. North Avenue was used as a reference point for determining the stationing of OHWM survey points (CH2M 2019b). The bed elevation and 10-, 50-, and 100-year flood water surface elevations were graphically interpreted from the FIS flood profiles. The bed elevation at each OHWM station was used to mathematically estimate discharge based on water depth. The estimated discharge was plotted against the 10-, 50-, and 100-year flood water surface elevations as calibration points. The mathematical parameters were adjusted to best fit the calibration points, and the water depth that generated approximately 1,800 cfs of flow was identified. The water depth was then added to the bed elevation to derive an estimated bankfull water surface elevation for the 1.5-year flood discharge. In essence, a

[3] Flood Insurance Study Number 55079CV002A.

mathematical flow rating curve was created for each OHWM station to estimate water surface elevation at approximately 1,800 cfs (Exhibit 2-4). These estimates of bankfull water surface elevation may be refined during detailed design based on potential future monitoring and detailed hydraulic modeling of this reach.

Exhibit 2-4. Mathematical Flow Rating Curve for OHWM Survey Point OH2-1 and Estimated Bankfull Water Surface Elevation



Because the FIS profile elevations were reported in the National Geodetic Vertical Datum of 1929 (NGVD29), the resulting bankfull water surface elevations were converted to NAVD88. A vertical adjustment was estimated for the floodplain reach using NCAT 2.0 and VERTCON on the National Oceanic and Atmospheric Administration website[4]. The online tool was applied for OHWM stations at FP-10 and FP-2 (downstream and upstream ends of the Floodplains Reach). The transformed values were adjusted -0.348 foot (FP-10) and -0.302 foot (FP-2). Therefore, an adjustment of -0.3 foot was used for the adjustment.

2.2 Floodplains Reach Sediment and Soil Characteristics

The shorelines along the Milwaukee River Floodplains Reach generally slope toward the river. The shoreline is primarily natural and predominantly a recreational greenway. FP-1, FP-2, FP-3, FP-4, and FP-5 do not have stabilized shorelines, but there are some areas downstream of FP-5, where the shoreline is stabilized using ACM or gabions. On the western side of the Floodplains Reach, there is a total of approximately 1,760 feet of ACM (FP-11 = 540 feet, FP-6 = 500 feet, and FP-8/9 = 720 feet) and 440 feet of gabion (FP-8/9). On the eastern side of the Floodplains Reach there is a total of approximately 970 feet of ACM (FP-7 = 100 feet, FP-10 = 870 feet) and 350 feet of gabion (FP-10).[5] In the downstream floodplains without the ACM or gabions, where vegetation dominates the shoreline, banks are often somewhat undercut (for example the non-stabilized regions of FP-7, FP-8/9, and FP-10).

Channel sediment deposits, where present, are mainly limited to the nearshore areas along inside bends of the river where river currents are slower and allow for sediment deposition. The native material (generally defined as the relatively firm, compacted material in place before deposition of soft sediment) was identified in downstream areas of the Floodplains Reach as dense sand and gravel with clay (CH2M 2019a).

[4] https://www.ngs.noaa.gov/NCAT/

[5] Locations of ACM and gabions are shown on Figures 5-2A through 5-2I.

Floodplains Reach soil, including surface (0 to 0.5 foot below ground surface [bgs]) and subsurface soil (depths greater than 0.5 foot bgs) is predominantly composed of dry to moist, fine sand and silt to clay with organic material (such as roots, vegetation, shells and shell fragments, and wood). Jacobs occasionally observed gravel and fill material (such as fragments of glass, brick, or other anthropogenic material) in core samples (Jacobs 2021b).

In the upstream areas of the Floodplains Reach (FP-1 through FP-6 and FP-11), floodplain soil types are predominantly silty sand with gravel. Samples from FP-7 through FP-8/9 and FP-10, immediately upstream of the former North Avenue Dam, are generally sandy silt and clay with some gravel (that is, containing more fine material than soil upstream of FP-7). Organic-rich silt was also observed in a few locations.

There was no visible evidence of nonaqueous phase liquid (NAPL) or oily sheen or other staining, photoionization detector readings above background were not observed, and notable odors were not observed during soil logging and processing of floodplain soil during 2016, 2020, or 2021 sampling events.

2.3 Habitat

The Floodplains Reach includes riparian habitats lying along the east and west sides of the Milwaukee River. Those habitats provide a home for a diversity of wildlife in an intensely urbanized watershed. The floodplain areas are immediately adjacent to and hydrologically connected to the river and are part of the Milwaukee River corridor ecosystem. Wetland and upland habitats are present on the floodplains and adjacent valley hillslopes are primarily terrestrial and are important to wildlife including small and large mammals, birds, waterfowl, and amphibians and reptiles. The wetland and upland habitats located on the floodplains generally offer low to moderate quality habitat because of the presence of invasive species including reed canary grass, *Phragmites*, buckthorn, and honeysuckle. In addition, some of the forested areas are dominated by low quality tree species such as box elder with abundant invasive understory shrubs. Some of the floodplain areas have higher quality habitat than others.

Habitats present within the floodplain areas are primarily composed of the following major types:

- Wetland terrestrial habitats located on the floodplains adjacent to the Milwaukee River
- Upland terrestrial habitat located on the floodplains adjacent to the Milwaukee River
- Upland terrestrial habitat located on river valley hill slopes adjacent to the floodplains
- Small tributary streams.

2.3.1 Wetland Floodplain

Sixteen wetlands were delineated for the Floodplains Reach, compromising 34 acres within the 11 FPs as indicated in Table 1-1 and shown on Figures 2-2A through 2-2J. Wetlands were characterized according to the dominant plant forms present: floodplain forest, shrub carr, and wet meadow or combinations thereof. The wetlands typically do not contain surface water but may be periodically or seasonally inundated. Wetlands containing standing water long enough during the spring can provide amphibian breeding habitat. Otherwise, the wetlands provide habitat similar to adjacent upland areas and are primarily important for wildlife species. However, the plant composition of wetlands is different than adjacent uplands and they may provide habitat for different types of wildlife than the uplands. Wetlands located on the floodplain are subject to periodic flooding when the Milwaukee River is at the flood stage. This hydrological connection is important because the floodwaters provide nutrients to wetlands and the wetlands store floodwaters and sediment. However, the wetlands are not expected to provide habitat to aquatic organisms, particularly fishes, of the Milwaukee River because the flooded condition is short-term and infrequent to provide fish spawning or nursery habitat for fishes.

2.3.2 Upland Floodplain

Upland floodplain areas consist primarily of forested and herbaceous plant communities. Many of the forested areas contain a shrub component and a few of the forested areas are dominated by invasive understory shrubs including honeysuckle and buckthorn. The upland floodplain habitats are primarily important for wildlife species. Upland floodplain habitats are hydrologically connected to the river because they can be inundated when the Milwaukee River is at its flood stage. Wildlife species that use the upland floodplain areas for foraging may find food resources more abundant after being deposited by the river following recession of floods.

2.3.3 Upland River Valley Hillslope

The upland river valley hillslopes located east and west of the river and at increasing elevations above the floodplains typically contain more mature upland forests than found on the floodplains. The hillslope forests are a continuation of habitat located on the floodplains, providing larger habitat areas, travel corridors, and habitat diversity that are also important for the wildlife that use the floodplain habitats. Wildlife will likely move back and forth between floodplain and adjacent valley hillslopes daily or seasonally based on habitat requirements and the availability of food resources.

2.3.4 Tributary Streams

Four small ephemeral or intermittent tributary streams identified during the wetland delineation are located upstream of Capitol Drive along the east bank (Figures 2-2A and 2-2B; one tributary between FP-1 and FP-2 is not shown) and likely contain limited habitat and biological productivity.

2.3.5 Milwaukee County Parks' Greenway Ecological Restoration and Management Plan

Flora and fauna surveys conducted between 2019 and 2021 and documented in MCP's Greenway Plan (MCP 2021) indicate that both natural and seminatural vegetative cover types persist in the greenway corridor. Survey results are summarized in Table 1-1. MCP's "Degraded Habitats" category was assigned for vegetative cover types that are composed of at least 75 percent non-native herbaceous and woody invasive species that have little to no resemblance to pre-European plant communities.

2.3.6 Wildlife

The upland and wetland habitats located on the floodplain and river valley hill slopes are dominated by forested and shrub habitat, although some primarily herbaceous habitats are present. Mammals likely to use the habitats present include whitetail deer, coyote, red fox, skunk, racoon, opossum, beaver, bats, and other small rodents (Casper and Robson 2018). Small mammals can use the upland areas for rearing young, foraging, cover, and digging burrows. A variety of migratory songbirds, raptors, wild turkey, and other avian species will use the habitats for nesting and foraging. More than 180 different avian species may use the corridor with as many as 50 listed as endangered, threatened, or special concern (MRWG 2010). Aquatic turtles of the Milwaukee River will use the adjacent upland habitats for nesting. A variety of snake species, including the threatened Butler's gartersnake, will use the habitats for foraging, hibernation, and cover. Amphibians including frogs, toads, and salamanders can use the habitats for foraging and cover. However, amphibian breeding habitats are not abundant.

For many of the wildlife species using the habitats present in the floodplain areas, the adjacency of the Milwaukee River is important because it provides access to water and food resources. This is particularly important for breeding birds and bats.

The MCP Greenway Plan reported that 5 species of amphibians, 196 species of birds, 9 species of bumble bees (including the federally endangered Rusty Patched Bumble Bee), 26 species of butterflies, 1 species of crayfish, 17 species of mammals, 32 species of odonates (dragonflies and damselflies), 3 species of snakes, and 4 species of turtles were documented within the greenway during inventories conducted by MCP staff and contractors, as well as during long-term monitoring by the Urban Ecology Center staff and Community Science volunteers (MCP 2021).

2.4 Nature and Extent of Contamination

The chemistry and grain size data collected in the investigations performed from 2016 to 2021 are presented in Appendix A. Figures 2-2A through 2-2J present the results on maps (these maps also show the RTAs, which are discussed further in Section 3.3). Analytical results for Floodplains Reach soils are compared to site-specific residual contaminant levels (SS-RCLs) developed by the Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021b). The contaminants of concern (COCs) and associated SS-RCLs are presented in Table 2-1. SS-RCLs were developed for total PCBs and seven PAHs. WDNR's nonindustrial direct contact residual contaminant level (RCL) for lead and the statewide background threshold value (BTV) for arsenic are used for comparison to floodplain soil data.[6] The Tier 1 SS-RCLs are based on typical recreational use of floodplain areas and the Tier 2 SS-RCLs apply to specific high recreational use areas (HRUAs). WDNR identified several HRUAs where application of the more protective Tier 2 SS-RCLs is warranted to address more frequent use of FP-7 and FP-11 by summer campers, preschoolers, and other users. These HRUAs include the following:

- FP-11: Areas used for children's outdoor programs designated as HRUAs 1, 2, and 3 (Figure 2-2E)
- FP-7: Canoe Launch, Muskrat Flats, and the Ravine Area (Figure 2-2H)

Table 2-2 summarizes the data for the focused COCs (total PCBs, arsenic, lead, and benzo(a)pyrene). Benzo(a)pyrene is the most prevalent PAH in floodplain soil. The results are screened against the Tier 1 and Tier 2 SS-RCLs or other WDNR criteria, as well as against the applicable Toxic Substances Control Act (TSCA) thresholds for PCBs. The core profiles shown on Figures 2-2A though 2-2J indicate that most of the contamination above screening levels is found in the top 2.5 feet of soil, and the highest concentrations tend to be found at lower elevations closer to the river.

PCBs are the mostly broadly distributed COC on the floodplains; therefore, the following summary focuses on the general distribution of PCBs. Table 1-1 includes a summary of the 95% upper confidence limit (95% UCL) of the mean PCB concentration for four different depth intervals in each floodplain (0 to 0.5 foot, 0 to 2.5 feet, 0 to 4 feet, and 0.5 to 4 feet). General observations include the following:

- PCB concentrations are generally lower in the upstream floodplains (FP-1, FP-2, FP-3, FP-4, FP-5, and FP-11) and higher in the downstream floodplains (FP-6, FP-7, FP8/9, and FP-10). This distribution is likely because of the influence of the former North Avenue Dam impoundment.
- The 95% UCL PCB concentration in surface soil (0 to 0.5 foot) is below the Tier 1 SS-RCL on FP-1 through FP-4. The 95% UCL PCB concentration in the 0 to 2.5 foot interval is below the Tier 1 SS-RCL on FP-3 only.
- PCB concentrations exceeding the TSCA low-occupancy threshold of 25 milligrams per kilogram (mg/kg) were observed in FP-7 (three samples), FP 8/9 (three samples) and FP-11 (one sample). The maximum concentration of 41.5 mg/kg total PCBs was observed at a depth of 0.5 to 1.5 feet bgs on FP 8/9.

[6] For convenience, screening levels for all COCs are collectively referred to as SS-RCLs herein.

PCBs and other focused COCs generally co-occur; however, some of the screening level exceedances for other COCs are at higher floodplain elevations and may originate from local upland sources rather than from deposition of suspended soil in floodwater. Samples where benzo(a)pyrene, arsenic, or lead concentrations exceed a screening value that are not co-located with a PCB exceedance are summarized in Table 2-3 and shown in Figures 2-2A through 2-2J.

2.5 Historical and Potential Ongoing Sources

The CSM in Figure 2-1 shows a general depiction of potential sources of contamination to the Milwaukee River Floodplains Reach. Review of data in the WDNR Bureau for Remediation and Redevelopment Tracking System (BRRTS) revealed more specific potential sources on sites adjacent to the river and floodplain as shown on Figure 2-3. In addition, Jacobs reviewed current industrial, stormwater, and construction discharge permits in the public record. The following subsections note potential sources of contaminants to the Floodplains Reach using the following categories: (1) point sources (permitted discharges), (2) non-point sources, (3) WDNR's BRRTS sites (potentially point or non-point sources), and (4) upstream sources (potentially point or non-point sources).

2.5.1 Potential Point Sources

Point sources of pollution have discrete discharges, usually from a pipe or outfall. Major reductions in point-source activity were accomplished with the advent of the Clean Water Act and the subsequent regulation and permitting of all outfalls. Further source-control actions are continuing under the Wisconsin Pollutant Discharge Elimination System (WPDES) permitting program.

Both shorelines of the Milwaukee River historically supported industrial, commercial, and municipal uses. Many of the facilities that once operated with discharges to the river have either ceased operations or have been demolished. Few of the facilities remain, and much of the land has been redeveloped for commercial, residential, or recreational use (public walkways, piers, and parks). However, the historical point-source discharges (mostly via permitted or nonpermitted industrial sewers) resulted in the release of various pollutants, including metals, PCBs, PAHs, and petroleum-related compounds (for example, gasoline, diesel, or fuel oil). Storm sewers associated with the former Milwaukee Die Cast facility located on Holton Street were investigated in 2017 and the results were presented in the *Site Characterization Report - Milwaukee River Downstream Sediments* (CH2M 2019a); the report concluded that this site was no longer a source to the project area.

Potential industrial or municipal direct discharges to surface waters are regulated through WDNR's WPDES permits. As of spring 2021, two WPDES permits, one industrial and one municipal, were active within the Floodplains Reach (Table 2-4). At currently operational industrial and municipal outfalls, modernized operations, monitoring, and control of discharged water quality mitigates the potential contaminant load.

The Milwaukee Metropolitan Sewerage District (MMSD) holds the municipal WPDES permit for combined sewer discharge to the Milwaukee River. In the Floodplains Reach, the storm sewer and sanitary sewer systems are commonly combined, with the resultant flow being conveyed in a set of combined sewers to an MMSD wastewater treatment plant (WWTP). However, during periods of heavy rain, the capacity of the WWTP is sometimes exceeded and the combined sewer overflows (CSOs) may enter the river, but usually in only very limited locations. CSOs contain common urban pollutants from stormwater runoff as well as from residential, commercial, and industrial users of the WWTP. Figure 2-3 indicates the locations of storm sewers and CSOs along the Floodplains Reach.

The number and volume of CSOs that negatively impact the water quality in the estuary has decreased significantly with the completion of the "deep tunnel" project in 1994 (MMSD 2022a). Between 1994 and

2021, MMSD has captured and treated more than 98.5 percent of the stormwater and wastewater that has entered the regional sewer system totaling over two trillion gallons (MMSD 2022a). Over that same period, the annual overflow of untreated stormwater and wastewater released through the CSOs to area waterways during periods of heavy precipitation ranged between 1,500 gallons and 4.4 billion gallons (MMSD 2022a). Furthermore, CSO discharges are 90 to 95 percent stormwater and groundwater (MMSD 2022a).

2.5.2 Potential Non-point Sources

Some of the land adjacent to and/or upslope from the Floodplains Reach is currently occupied by buildings, parking lots or structures, and other paved areas typical of an urban environment. During precipitation events, the majority of stormwater from these areas is conveyed into the combined sewer system with a limited amount flowing over land and entering surface water as a non-point source.

Areas with surface or subsurface soil contamination, or contaminated buildings or infrastructure, are potential non-point sources of contaminant loads during and after precipitation events until such time that those sites are remediated. Sources of potential contamination include runoff from:

- Construction or environmentally contaminated sites
- Paved or other impermeable surfaces
- Bulk soil or materials storage piles
- Bank soil erosion
- Surface spills
- Atmospheric deposition of airborne contaminants

A previous study conducted in the Milwaukee area concluded that the primary source of PAHs to sediment in urban area waterways are worn particles of coal-tar-based pavement sealants that are transported by stormwater runoff from parking lots (Baldwin et al. 2016). A recent research study to determine "the distribution and potential health effects of aerially deposited PAHs in soil within the urban core of metropolitan Milwaukee" suggests that aerial deposition is another source of PAHs to urban waterway sediment. The research was conducted at 27 areas in Milwaukee parks that were evaluated as being undisturbed for at least 80 years. The study concluded that "diffuse multiple point source [air] emissions contribute equally to PAH deposition throughout the area" (Siemering and Thiboldeaux 2020). Surface soil (0 to 7 centimeters) sampling locations were chosen specifically to only represent aerial deposition; concentrations of several individual PAHs in the sampled areas exceed their respective WDNR residual contaminant limits per Wisconsin Administrative Code NR 720 for soil cleanup standards.

The potential for unpermitted discharges or spills exists in urban waterways, especially those that are also transportation hubs like the Milwaukee River and those that are receiving waters where significant waste hauling and management activities occur. In addition, remediation and/or redevelopment near the Floodplains Reach is addressed under applicable stormwater and erosion control requirements.

2.5.3 Wisconsin Department of Natural Resources Remediation and Redevelopment Sites

Jacobs used publicly available data from WDNR to identify several types of potential historical and current point-source industrial facilities. A review of remediation sites on the WDNR BRRTS sites map (WDNR 2021a) and associated data files for the region adjacent to the Floodplains Reach identified the presence of multiple historical and current potential contaminant sources of PAHs, PCBs, metals, and petroleum constituents (Figure 2-3).

Table 2-5 lists WDNR BRRTS sites near the Floodplains Reach. The BRRTS sites are classified as either open or closed environmental remediation project (ERP) or closed leaking underground storage tank

(LUST) sites adjacent to the Milwaukee River. The potential discharge of contaminated groundwater from nearby sites or from hazardous material spills can represent an additional potential source mechanism to the surface water. Impacted material at each of these sites may include soil, groundwater, and/or vapor. Existing WDNR programs administer the requirements for remedial actions and monitoring to address the ERP and LUST sites. Because of the proximity of the sites to the floodplains and river, each could have contributed historically to the contamination of the floodplain soil or river sediment.

2.5.4 Milwaukee Metropolitan Sewerage District Remediation Site: Basin H

MMSD is partnering with EPA to complete a sewer restoration project for a system located west of the Floodplains Reach; the project has historically been referred to as "Basin H." The approximate location is shown on Figure 2-3. A 2008 investigation determined that PCBs primarily released from the former Milwaukee Die Cast site (located at 4132 N. Holton Street) had coated sewers in the area (MMSD 2023). The PCBs were removed from the former industrial property, and the MMSD is currently implementing a remedial action to remove and safely dispose of the PCB-contaminated residuals and sediment that remain in the sewers. The inside of the sewer system will be inspected after remediation using cameras and recording equipment, and post-cleaning PCB sampling and analysis will be completed (MMSD 2023). Sediment removal is scheduled to be completed by September 2023 with restoration and demobilization scheduled for late 2024 (Kalinger, pers. comm. 2023).

2.5.5 Upstream Sites

Pollutants from historical or current agricultural or industrial areas upstream of the Floodplains Reach may contribute to contaminated sediments in those regions, with the potential for contaminated sediment to then be washed downstream into the Milwaukee River Floodplains Reach or beyond. Agricultural pollutants from rural areas, contaminated sediments being washed downstream, and point and non-point pollution from upstream regions have historically contributed to the pollution found in upstream areas of the Milwaukee River. The *Remedial Action Plan Progress Summary for the Milwaukee Estuary AOC* (WDNR 2022b) summarizes the status of various upstream remediation projects.

The Lincoln Creek Site and the Lincoln Park/Milwaukee River Sediment Site (Figure 2-3) are two of the main remediation projects completed at locations upstream of the Floodplains Reach. Contaminated materials at this site contributed significantly to the pollutant load of the Milwaukee River. The site is located upstream of Estabrook Dam and was identified as a source of PCB-contaminated sediments to the Milwaukee River. The site included the downstream portion and confluence of Lincoln Creek which is a tributary to the Milwaukee River entering at the western oxbow.

Lincoln Creek drains about 19 square miles of the communities of Milwaukee, Glendale, and Brown Deer and was a significant source of sediment, heavy metal, and PCB contamination to the AOC. In the 1994 RAP, the Lincoln Creek subwatershed was estimated to contribute 40 percent of urban pollutants and 56 percent (6,500 tons) of sediment entering the Milwaukee River South watershed (WDNR 1994). A mass balance study conducted in 1997 (Baird & Associates 1997) identified the site as the biggest contributor of PCB loading to the Milwaukee River and Harbor, accounting for up to 70 percent of the total mass loading.

Initial remediation efforts for the Lincoln Creek and Lincoln Park site included removal of approximately 4,700 cubic yards (yd^3) of PCB-impacted sediment and soil from the Blatz Pavilion Lagoon immediately adjacent to the Blatz Pavilion and backfilled from March 2008 through August 2008 with funding from WDNR. The 2013 Lincoln Park remediation ("Phase 1") involved dredging 120,000 yd^3 of contaminated sediment containing approximately 5,000 pounds (lbs) of PCBs and 4,000 lbs of PAHs from sections of Lincoln Creek and the west oxbow of the Milwaukee River (CH2M 2013). A remedial action level of

1 mg/kg of total PCBs in sediment was the target for remediation. A significant volume of NAPL-impacted sediment was discovered within the western oxbow during the Phase 1 excavation activities. As a result, EPA and WDNR established a remedial action level of 20 mg/kg total PAH surface-weighted average concentration or 40 mg/kg total PAH maximum concentration. Phase 2 of the remediation was completed in 2015 and removed over 52,000 yd^3 of contaminated sediment containing approximately 2,330 lbs of PCBs and 12,680 lbs of PAHs from the east oxbow and main channel of the Milwaukee River up to Estabrook Dam and spillway (Environmental Quality Management Inc. 2016). Samples were collected from the Floodplains Reach in 2016, 2020, and 2021. This data set is considered representative of current conditions because they were collected after all sediment remediation activities upstream of the Floodplains Reach were completed.

The bottom draw design of the Estabrook Dam, along with the historical operation pattern of the dam, which was typically kept open in the winter and during anticipated flood events, allowed for the periodic release of contaminated sediments to downstream river reaches. Following the 2015 remediation, ownership of the dam was transferred in 2017 from Milwaukee County to MMSD to facilitate dam-removal activities. The dam structures and spillway were removed in 2018 by MMSD.

2.6 Recontamination Potential

The predominant source of PCB contamination in the floodplains is deposition of suspended sediments from upstream areas (for example, the Lincoln Creek and Lincoln Park site immediately upstream). This primary source has been remediated and potential ongoing sources are limited to the urban point and non-point sources previously summarized herein and in *Evaluation of Potential for Recontamination of Sediment Report* (WDNR 2022a). These assessments conclude that the primary sources are largely controlled and the potential for recontamination of the Floodplains Reach is low. However, contaminated floodplain soil is a possible source of ongoing contamination to the Milwaukee River within and downstream of the Floodplains Reach primarily because of bank erosion.

2.7 Contaminant Migration Pathways

The CSM depicted on Figure 2-1 identifies the general contaminant sources, transport mechanisms, and potential receptors. The COCs in the floodplain soil have generally low solubilities and typically adsorb to organic matter and fine-grained particles; therefore, particulate resuspension, transport, and deposition will determine the fate and transport of the COCs. The contaminated solid particles within the surface water or those resuspended from the stream bed or eroded from the floodplain during flood conditions can be transported downstream and redeposited on the downstream streambed or floodplains, where flow velocities are lower. Bioturbation also occurs both within the streambed (caused by fish and invertebrates) and on floodplains (caused by burrowing animals and invertebrates) where organisms dig and rework the soil or sediment, allowing potentially contaminated soils or sediments to be exposed and/or resuspended, transported, and redeposited further downstream.

2.8 Potential Receptors

As previously stated, 7 of the 11 BUIs in the Milwaukee Estuary AOC are related to contaminated sediment; therefore, the main receptors of concern include benthic invertebrates and higher trophic-level organisms including fish, piscivorous birds and mammals, and humans (Figure 2-1). However, terrestrial organisms that live and feed on the floodplain are also potential receptors in the Floodplains Reach.

Benthic invertebrates live and feed in direct contact with sediment, pore water, and surface water and the contaminants present in these environmental media. Impacted sediments are ingested and in direct contact with the bottom-dwelling organisms that form the base of the aquatic food web.

Fish serve as prey to piscivorous birds and mammals. Fish are exposed to contaminants in surface water via gill exchange and diets that include benthic or water column organisms and smaller fish that feed on benthic organisms. This results in bioaccumulation in fish, increasing COC concentrations as smaller species are consumed by larger predatory species.

Piscivorous birds and mammals are also exposed to bioaccumulative chemicals, such as mercury and PCBs in surface water and sediment via diet, in that they consume contaminated prey (for example, invertebrates and fish). Burrowing wildlife are also at risk for exposure to impacted floodplain soil through direct contact with and ingestion of soil, and higher trophic-level receptors on the floodplain could be exposed to bioaccumulative COCs through consumption of contaminated prey.

Humans are also potential receptors of the contaminants through direct contact with contaminated floodplain soil during recreational activities or consumption of contaminated fish. WDNR assessed floodplain use when developing SS-RCLs for the Floodplains Reach (WDNR 2021b). People use the floodplains for hiking, dog walking, canoeing and kayaking, summer camp and pre-school activities, and habitat restoration activities such as planting. People can be exposed to COCs through accidental ingestion of soil or through dermal contact with soil. Typical park users traveling through on gravel or paved trails are probably not likely to have higher exposures, but people who explore off-trail or on unimproved trails may be at higher risk from exposure to contaminated floodplain soil.

3. Remedial Action Objectives

RAOs are statements that describe the overall goals that remedial action should achieve to provide adequate protection of human health and the environment while meeting regulatory requirements. GLNPO applies the following general RAOs to the remedial actions conducted as part of the GLLA:

- Reduction of exposure to COCs in sediment and pore water
- Reduction of COCs in biota
- Reduction of sediment-related toxicity
- Improvement of biota and biological communities
- Improvement in habitat quality
- Remediation of sediment contamination based on volume, area, and/or mass basis

In addition to general RAOs for the program, site-specific RAOs have been developed for the Floodplains Reach as described herein.

3.1 Site-specific Remedial Action Objectives

The site-specific RAOs for the Floodplains Reach include remedial goals to improve the portion of the AOC where the project is located, and support removing BUIs and delisting the AOC:

- **Reduce potential human health risk by reducing contaminant concentrations in the Milwaukee River Floodplains Reach soils.** This will be achieved by remediating floodplain soils in the Floodplains Reach. Reducing contaminant concentrations in soils will also reduce risk to ecological receptors on the floodplains.
- **Support removal of BUIs within the Milwaukee Estuary AOC by reducing the mass, volumes, and concentrations of COCs.** This will be achieved by remediating contaminated floodplain soils that could act as an ongoing source of contamination to the Milwaukee River, thereby making progress towards eliminating the following BUIs:
  - Restrictions on fish and wildlife consumption
  - Degradation of fish and wildlife populations
  - Fish tumors or other deformities
  - Bird or animal deformities or reproduction problems
  - Degradation of benthos
  - Restrictions on dredging activities
  - Loss of fish and wildlife habitat
- **Preserve existing sensitive habitat where possible and upon completion of remedial activities, restore/improve habitat of the site.** This will be achieved through habitat restoration efforts in the floodplain areas immediately following remedial action.
- **Reduce potential for recontamination to the Milwaukee River from floodplain soils.** This will be achieved through remediating contaminated soils, habitat restoration, and bank stabilization.

3.2 Site-specific Screening Levels for Floodplain Soils

Screening levels are threshold COC concentrations that are calculated to protect a specific receptor or receptors. Screening levels are used to develop RTAs, which include areas and volumes of media (soil) targeted for active remediation. For the Floodplains Reach, site-specific screening levels were established by WDNR in a memo dated August 5, 2021 (WDNR 2021b). Once a preferred alternative is selected,

quantitative cleanup goals will be established for the project using site-specific screening levels as a starting point.

The purpose of the WDNR memo was to provide information to support remedial decision-making for the Floodplains Reach. As described in Section 2.4, WDNR derived SS-RCLs for the protection of human health based on recreational use of the floodplains. SS-RCLs were developed for total PCBs and seven PAHs, and other WDNR criteria were recommended as screening levels for lead and arsenic (Table 2-1). Although ecological screening levels were not developed for floodplain soil, application of human-health-based criteria will also reduce risk to ecological receptors.

3.3 Remediation Target Areas

An RTA for each floodplain (FP-1 through FP-11) was developed by comparing COC concentrations in samples from the 0 to 4 foot depth interval to the SS-RCLs because direct contact RCLs are intended to be applied to the top 4 feet of soil (WDNR 2021b). A site-specific BTV of 10 mg/kg for arsenic was used for RTA development because concentrations between the statewide BTV of 8 mg/kg and approximately 10.4 mg/kg appear to be attributable to anthropogenic ambient diffuse sources of arsenic rather than to localized (point source) releases. Appendix B provides the data analyses performed by WDNR supporting the use of the site-specific BTV for arsenic.

An RTA was not developed for FP-3 because COC concentrations overall are low as indicated by the following:

- The 95% UCL PCB concentrations for the 0 to 4 foot and 0 to 0.5 foot (surface) depth intervals are below the Tier 1 SS-RCL (Table 1-1).
- The maximum PCB concentration is 1.3 mg/kg at location FP-39 in the 0 to 0.5 foot depth interval, which only slightly exceeds the Tier 1 SS-RCL of 1.1 mg/kg; this is the only sample with a PCB concentration exceeding the SS-RCL (Table 2-2).
- None of the other COC concentrations exceed SS-RCLs except for arsenic in one sample from location FP-40C in the 0.5 to 1.5 foot depth interval with a concentration of 10.2 mg/kg (Table 2-2). This location falls outside the floodplain boundary (Figure 2-2C).

The RTAs for the HRUAs were developed using the data for each of the focused COCs (total PCBs, benzo(a)pyrene, lead, and arsenic). Tier 2 SS-RCLs were used for PCBs and benzo(a)pyrene. The limits of the RTAs within the HRUAs were established using Thiessen polygons built around any sample location with a screening-level exceedance in the 0 to 4 foot depth interval.

Outside of the HRUAs, PCBs were used to develop the initial RTAs for each of the floodplain areas because they are more widespread than the other COCs. The RTAs were developed using the computer application Earth Visualization System (EVS) v2021.12.2 by CTech. Each floodplain area was modeled separately. Physical data including floodplain boundaries and surface elevations derived from the 2020 LiDAR survey were used to define the lateral and vertical extents of the model domain. The horizontal and vertical distribution of PCB concentrations was evaluated by interpolating the analytical data using geostatistical three-dimensional (3D) kriging in EVS. The model analyzes the spatial distribution and number of field data points, constructs a multidimensional variogram that is a best fit to the dataset being analyzed, and then performs kriging in the model domain. Model calibration was performed using comparison between the modeled results and the measured distributions. The interpolated model data was analyzed in EVS to produce a 3D shapefile representing floodplain soil with PCB concentrations exceeding the Tier 1 SS-RCL (1.1 mg/kg).

The initial RTA for each floodplain area was then refined to account for locations and depth intervals where benzo(a)pyrene or lead concentrations exceeded SS-RCLs or arsenic exceeded 10 mg/kg, but PCBs did not exceed the SS-RCL. Results of the RTA refinements are summarized in Table 3-1. In some cases, exceedances of other COCs were not included in an RTA because they were isolated or outside of the floodplain boundary.

Additional refinement was required to estimate the extent of floodplain soil with PCB concentrations exceeding 25 mg/kg. These areas are specifically targeted for excavation as part of Alternatives 3 and 4 (see Sections 5.3 and 5.4, respectively). Locations with PCB concentrations greater than 25 mg/kg occur in FP-11, FP-7, and FP-8/9 (Figures 3-1A through 3-1H). The EVS model used to develop the initial RTAs produced isolated circular shaped polygons around each of the locations with PCB concentrations greater than 25 mg/kg. Therefore, Thiessen polygons were developed around any sample location with a PCB concentration greater than 25 mg/kg.

The RTAs for each floodplain (except FP-03) are shown on Figures 3-1A through 3-1H. These figures show the surface (0 to 0.5 foot interval) and maximum subsurface sample results for PCBs at each location. RTA boundaries are also shown on Figures 2-2A through 2-2J, which show all analytical results for each sample location. Thiessen polygons were used to estimate the vertical extent of contamination around each sampling location within an RTA for the purposes of estimating floodplain soil volumes. The areas and volumes of floodplain soil within the RTAs on each floodplain are summarized in Table 3-2.

4. Identification and Screening of Technologies

This section describes the identification and screening of potentially applicable remedial technologies and process options based on the RAOs and RTAs for the Floodplains Reach project area. The technologies and process options identified for screening are presented in Table 4-1. The objective of technology screening is to retain the best technology types and process options and streamline the development and evaluation of remedial alternatives. Some of the technologies have multiple process options. The remedial technologies were evaluated using the qualitative screening criteria of effectiveness, implementability, and relative cost.[7] The last column in Table 4-1 provides a summary screening comment for each remedial technology and process option.

Each technology screening criterion considered the following:

- **Effectiveness:** Key considerations include: (1) the extent the technology and/or process option would be protective of human health and the environment and meet the RAOs, (2) level of treatment and removal that could be achieved, and (3) the extent to which the technology and process option has been demonstrated at similar sites. Protection of human health and the environment refers to the effectiveness of the technology in reducing the toxicity and mobility of contaminants in the soil or meeting RAOs. Level of treatment and removal refers to the degree to which the technology reduces contaminant mass.
- **Implementability:** Refers to the feasibility and/or availability of a given process option for this project area. Feasibility is further assessed based on technical and/or administrative considerations. Technical feasibility refers to the ability to adequately treat and remove the COCs given site-specific conditions. Certain options may be able to address the COCs but cannot be implemented because of factors like space limitations or unacceptable subsurface conditions. Administrative feasibility refers to the ability to meet factors such as local and state permitting requirements or regulatory reviews for approval. Availability refers to factors such as the geographic location of the site and the extent to which the remedial option is commercially available.
- **Relative Costs:** Table 4-1 presents relative differences in cost magnitude (low, moderate, or high) taking into consideration anticipated capital and operations and maintenance costs. As such, cost considerations are provided for general assessment and were not used singly for screening decisions unless substantial cost differences are identified that would immediately preclude further consideration.

WDNR's cost analysis of dredging and disposal of dredged material in the planned dredged materials management facility (DMMF) (WDNR 2020) was considered in the identification of remedial technologies for floodplain soil. WDNR performed an alternatives analysis to evaluate costs associated with the disposal of impacted sediment from the Milwaukee Estuary AOC at an existing landfill versus disposal at the DMMF. The analysis showed that construction and operation of a DMMF is the most cost-effective disposal alternative compared to landfill disposal. The planned DMMF is located in the Milwaukee Bay Project Area, approximately 1 mile south of the confluence of the Milwaukee River and Lake Michigan (Figure 1-1). Design, permitting, and construction of the DMMF is ongoing by project partners including the MMSD, City of Milwaukee, Port of Milwaukee, WDNR, and We Energies with anticipated construction starting in late 2023 or early 2024 (MMSD 2022b). The DMMF is anticipated to be owned and operated by the Port of Milwaukee (Foth 2018). Potential disposal of excavated floodplain soil in the DMMF was included in the technology screen.

[7] These evaluation criteria are used for the technology screen only; additional evaluation criteria are used in Section 7.1 to evaluate the remedial alternatives.

Results of the remedial technology screening are presented in Table 4-1. Based on the evaluations performed for the Floodplains Reach, the following technologies were retained for further evaluation as components of remedial alternatives:

- Floodplain soil removal (excavation)
- Floodplain soil disposal (offsite disposal in the DMMF)
- Floodplain soil transport (truck, pipeline)
- Floodplain soil dewatering (passive dewatering at the staging area or DMMF)
- Floodplain soil containment (isolation cap or soil cover)
- In situ soil treatment (activated carbon)

Other technologies also may be considered for the Floodplains Reach if new information becomes available during the FFS or remedial design.

5. Remedial Alternative Descriptions

The remedial technologies and process options retained from the initial screening process were used to develop remedial alternatives for the Floodplains Reach. This section describes the overall approach and assumptions used to develop the alternatives and provides a description of each alternative. Restoration alternatives are described in Section 6.

Several key factors guided the development of remedial alternatives. Most notably, the SS-RCLs for the Floodplains Reach are based on recreational land use. No land use limitations would be imposed as long as all floodplain soil with COC concentrations exceeding SS-RCLs is excavated, and the land use remains recreational. If any floodplain soil with COC concentrations exceeding SS-RCLs is managed in place, then institutional controls and continuing obligations (ICs/COs) would be required to ensure that the remedy remains protective. There is interest in preserving high-quality habitat within the Floodplains Reach wherever possible, and DMMF capacity may not be sufficient to accommodate all floodplain soils with COC concentrations above SS-RCLs. Therefore, the remedial alternatives were designed to provide a range of excavation volumes and several options for preserving seed tree areas (STAs) and managing some floodplains soils in place. STAs are individual trees or clusters of mature trees of select species that will aid in the re-establishment of the floodplain community after remediation.

The RTAs within each floodplain were divided into the following subareas for the purposes of assigning remedial technologies:

- Portions of HRUAs identified in FP-7 and FP-11 that fall within RTAs as delineated in Section 3.3.
- Areas with PCB concentrations exceeding the TSCA low-occupancy threshold of 25 mg/kg.
- Nonforested, disturbed areas (for example, areas with early successional species dominated by reed canary grass within the former impoundment), which were delineated based on 2020 aerial photography.
- Forested areas, also delineated from 2020 aerial photography. For the purposes of the FFS, forested areas are used as a proxy for STAs because their specific locations have not yet been delineated.

Remedial technologies were then assigned to these subareas for each remedial alternative. Note that the boundaries between the subareas are approximate and are subject to field verification and refinement during remedial design.

Alternative 1 is No Action. Figure 5-1 summarizes the remedial technology assignments for each subarea for Alternatives 2, 3, and 4. All of the alternatives specify full excavation in the portions of HRUAs that fall within RTAs and in areas where PCB concentrations exceed 25 mg/kg. The differences between Alternatives 2 through 4 are as follows:

- Alternative 2 is the full excavation alternative. All floodplain soil with COC concentrations exceeding SS-RCLs would be excavated. Excavation depth would not exceed 4 feet.
- Alternative 3 specifies full excavation everywhere except in selected forested areas, with the goal of preserving STAs. Forested areas are subdivided into areas with and without SS-RCL exceedances in top 0.5 foot using Thiessen polygons. The remedial technology for forested areas with SS-RCL exceedances in top 0.5 foot is either precision excavation and backfill (Alternative 3a) or activated carbon treatment (Alternative 3b). The remedy for forested areas with subsurface SS-RCL exceedances only would rely on the existing soil and vegetative cover to prevent exposure to the subsurface contamination. Alternative 3 would require ICs/COs to ensure that subsurface soils with COC concentrations exceeding SS-RCLs remain contained and inaccessible.

- Alternative 4 is the same as Alternative 3a except that a soil cover would be used to contain and isolate contaminated soils in nonforested disturbed areas. Alternative 4 has a larger area that would require ICs/COs to ensure that subsurface soils with COC concentrations exceeding SS-RCLs remain contained and inaccessible.

Note that these technology assignments have been applied consistently in all floodplains; however, different alternatives could be selected for different floodplains or parts of floodplains based on project partner comments on the remedial alternatives.

For FFS costing purposes, all alternatives assume that excavated soils from FP-5 through FP-11 would be transported by pipeline to the DMMF (none of the floodplain soils have PCB concentrations exceeding the TSCA threshold of 50 mg/kg). Pipeline transport is not a cost-effective option upstream of FP-5 so it is assumed that excavated material from FP-1, FP-2, and FP-4 would be transported by truck to the DMMF.

This FFS includes conceptual restoration plans for each alternative as described in Section 6. Restoration details will be developed during remedial design in collaboration with project partners and in alignment with the MCP's Greenway Plan (MCP 2021).

Substantial portions of FP-6 through FP-10 have been identified as habitat for the Butler's gartersnake, which is a state-listed species of special concern. Specific measures would be developed in remedial design to protect this habitat. These measures could include installation of exclusionary fencing to prevent entry into the work areas, performing work in sensitive areas during the inactive season (if possible), incorporating elements to enhance or improve habitat into the site restoration plan, and a WDNR-granted incidental take authorization.

The alternatives are described in Sections 5.1 through 5.4 and are shown for each floodplain on Figures 5-2A through 5-2I. Estimated quantities for soil removal and other remediation elements for each alternative are summarized in Table 5-1. The details and assumptions shown in Table 5-1 are the basis for the cost estimates. The remedial design would provide additional specificity for each element (for example, means and methods, equipment sizes and numbers, production rates, shoreline stabilization approaches, etc.) as well as consider alternative process options, if applicable.

5.1 Alternative 1: No Action

The No Action alternative is included as a baseline for comparison to other alternatives. Under Alternative 1, no remedial actions are conducted to control exposure to contaminated floodplain soils. RAOs and progress towards removing BUIs would not be achieved through floodplain soil remediation. Natural degradation of PAHs and PCBs is not likely to occur at a measurable rate or within a reasonable time period, and inorganic COCs (lead and arsenic) would not degrade. Contaminated floodplain soils may be gradually buried over time by deposition of sediment as floodwaters recede.

5.2 Alternative 2: Full Excavation

Alternative 2 consists of mechanically excavating all soil with COC concentrations exceeding SS-RCLs within the RTAs in the Floodplains Reach. Figures 5-2A through 5-2I show the assumed excavation depths in each RTA based on the vertical extent of contamination at each sampling location. The estimated removal volume is approximately 96,100 yd^3 with an overall excavation area of 33.7 acres. Approximately 10,200 linear feet of shoreline will be stabilized. Excavation of soils will be no deeper than 4 feet below existing grade because direct contact RCLs are intended to be applied to the top 4 feet of soil (Section 3.3).

5.2.1 Floodplain Access

Figures 5-3A though 5-3I show the assumed access routes and staging areas for each floodplain. All alternatives would use the existing trail network, to the extent practicable, for floodplain access. Existing trails used for access would be widened to a minimum width of 6 feet and are assumed to implement interlocking poly mats to facilitate access, support equipment traffic, limit disturbance of the underlying soils and minimize tracking of soil outside the limits of excavation. Upon completion of the remediation, access routes would be restored to gravel finished trails as described in Section 6 or revegetated to pre-existing conditions. Portions of existing trails with an asphalt surface would be restored with an asphalt surface. Impacted trails located on property managed by MCP would be restored in accordance with MCP trail design specifications. Staging areas would be restored to pre-existing conditions.

5.2.2 Excavation

Floodplain soil within the RTAs would be permanently removed through excavation. The work areas would be cleared of vegetation before excavation; it is assumed that large trees would be logged out while smaller and less valuable trees would be chipped and hauled offsite to a mulching facility. Areas containing tall grass and shrubs would be removed with the top 6 inches of soil and hauled to the staging area for subsequent loadout, transport and disposal at the DMMF. Stumps would be removed and hauled to the staging area for subsequent loadout, transport, and disposal at the DMMF.

Excavators would be equipped with Global Positioning System (GPS)-integrated software to control the bucket location and elevation. The excavated soil in FP-1, FP-2, and FP-4 would be stockpiled, stabilized as needed, and transported by truck to the DMMF for disposal. Excavated soils from FP-5 through FP-11 would be screened, slurried, and pumped through a pipeline to the DMMF. Screenings not pumped through the pipeline would be hauled to the staging area for subsequent loadout, transport, and disposal at the DMMF. The specific types, sizes, and quantity of excavation and support equipment would be determined during the remedial design. Low ground pressure earthwork equipment may be specified if soft, wet, or water-logged soils are encountered.

Post-excavation soil confirmation sampling would be performed to verify that contaminated soil has been removed in accordance with the excavation plan developed during design. If confirmation sampling results indicate that soil with COC concentrations exceeding the SS-RCLs will remain in place below a depth of 4 feet, then ICs/COs will be required to manage the residual contamination. ICs/COs are described further in Section 5.3.4.

5.2.3 Backfill and Topsoil Placement

Backfill and topsoil would be placed as described in Section 6.3. Backfill and topsoil would be placed using traditional earth work equipment. Selection of the specific delivery and placement methods would consider the location relative to the access and staging areas and properties of the excavated work area. The remedial design would specify the type and size of equipment needed for the backfill and topsoil placement and grading. The final thicknesses of material placed would be verified using direct measurements of fill thickness and topographic surveys to confirm final post-remediation elevations.

5.2.4 Restoration

Once the post-excavation sampling and surveys have been performed and all excavation, soil processing, and loadout is complete, the processing and excavation equipment and temporary infrastructure would be removed. All impacted areas of the site, including remediated areas, trails, access points, and staging areas would be restored. Section 6.3 provides two conceptual restoration alternatives and identifies the assumptions used for the cost estimate.

5.2.5 Shoreline Stabilization

The streambanks in some floodplain areas would require stabilization and restoration. Section 6.6 provides three streambank restoration alternatives and identifies the assumptions used for the cost estimate. The restoration alternatives will be refined and applied to different areas in consultation with the project partners during remedial design. Existing gabions or ACM would be removed from streambanks targeted for excavation. Outside of excavation areas, existing gabions or ACM would be left in place and tied into restored streambank if necessary. The streambank restoration work would be performed using mechanical earthmoving or landscaping equipment.

5.2.6 Soil Transport, Dewatering, and Disposal

Excavated floodplain soils would be transported by truck, pipeline, or a combination of the two methods, from the upland staging areas to the DMMF for disposal. The RAETM assumes that soils would be transported by pipeline from FP-5 through FP-11. Excavated soils from FP-1, FP-2, and FP-4 would be transported by truck to the DMMF. The upland staging areas in the Floodplains Reach would be established during remedial design.

At the upland staging area(s) mechanically excavated soil would be mixed with water to form a slurry consisting of approximately 10 percent solids. The slurry would be pumped downstream in a pipeline for management and disposal at the DMMF. The pipeline would be submerged in some areas in the Downtown Reach to minimize navigational disruption and would be monitored during pumping to assure rapid and appropriate repairs of leaks or other malfunctions. The pipeline would surface at booster pumps located on barges and at the DMMF.

It is assumed that the DMMF will be designed to provide sufficient settling time for passive dewatering and evaporation of hydraulically-pumped soil slurry from the Floodplains Reach. The minimum residence time required will be finalized based on the results of the treatability study during remedial design. The slurry may be treated with an appropriate dose of coagulant and flocculant to facilitate settling. Chemical dosing would be determined based on the results of a treatability study initiated in the fall of 2022.

A temporary water treatment system would be constructed near the DMMF for the treatment of supernatant water from the DMMF before discharge to Lake Michigan under a WPDES permit. The treatment process required to meet the WPDES permit requirements would be developed during the treatability study and remedial design but are expected to consist of an ultra-high-capacity clarifier, metals precipitation, sand filters, bag filters, and granular activated carbon treatment system.

Excess free water generated from excavated soils, if any, would drain to a collection sump and then be pumped to temporary storage tanks. Free water from gravity drainage, decontamination activities, and storm events at the upland staging areas also would be collected and pumped to the temporary storage tanks. A temporary water treatment system would be located at one or more of the Floodplains Reach staging areas to chemically and physically treat collected water to remove COCs and turbidity before discharging it back into the river under a WPDES permit or discharging to a publicly owned treatment works.

5.3 Alternative 3: Excavation, Precision Excavation or Activated Carbon Treatment, and Existing Soil and Vegetative Cover

Alternative 3 includes mechanical excavation in the portions of HRUAs that fall within RTAs and areas with PCB concentrations exceeding 25 mg/kg, and in nonforested, disturbed areas. Excavation areas for this alternative are shown on Figures 5-2A through 5-2I; the assumed excavation depths are shown on the

panels for Alternative 2. These areas would be backfilled and restored. In STAs where COCs in the top 0.5 foot of soil exceed the SS-RCLs, either precision excavation and backfill (Alternative 3a) or in situ treatment with activated carbon (Alternative 3b) would be implemented (Alternative 3b). In STAs where COC concentrations in the top 0.5 foot of soil do not exceed the SS-RCLs, no active remediation would be performed because the existing soil and vegetative cover prevents exposure to subsurface soils with COC concentrations exceeding SS-RCLs. ICs/COs would be required to ensure that the remedy remains protective in areas where soil with COC concentrations exceeding SS-RCLs remains in place.

The estimated removal volume is approximately 68,000 yd^3 for Alternative 3a and 58,800 yd^3 for Alternative 3b. The excavation area is approximately 28.7 acres for Alternative 3a and 18.9 acres for Alternative 3b. Under Alternative 3b, approximately 9.8 acres would be treated with activated carbon. Existing soil and vegetative cover would remain in place over 5.0 acres. ICs/COs would be applied approximately 14.8 acres of forested floodplain. Approximately 5,900 linear feet of shoreline would be stabilized.

The following components of Alternative 3 are the same as for Alternative 2: floodplain access, excavation, backfill, shoreline stabilization, and soil transport, dewatering and disposal. The components of Alternative 3 that are different than Alternative 2 are described herein. Restoration alternatives for Alternative 3 are described in Section 6.4.

5.3.1 Precision Excavation (Alternative 3a)

Precision excavation would be performed in STAs with SS-RCL exceedances in the top 0.5 foot. Excavation would be performed using small, tracked all-terrain vehicles with low ground pressure. Soils would be excavated to a depth of approximately 6 to 8 inches. An air or water lance would be used first to loosen soils and protect tree roots before removal; soils would then be removed using either mechanical means or an industrial vacuum. The cost estimate assumes removal of 6 inches of soil. Invasive shrub understory and lower-value trees would be removed. Young tree samplings could be harvested and stored for replanting as part of the restoration. The excavations would be backfilled with topsoil and restored as described in Section 5.2.4. Excavated soils would be processed as described in Section 5.2.6. The specific excavation equipment and methods will be defined during the remedial design. The design will also specify which types of vegetation will be cleared and the size and types of trees to be left in place.

5.3.2 In Situ Treatment (Alternative 3b)

In situ treatment with activated carbon would be performed in STAs with PCB or PAH SS-RCL exceedances in the top 0.5 foot. Granular activated carbon or a commercially prepared amendment (for example, SediMite) would be applied to the floodplain surface using a hand spreader or conventional spreading equipment (hydroseeder). The amendment would be applied in the fall after seasonal vegetation has died back and the amendment would be mixed into the surface soil through natural biological activity (that is, bioturbation). The amendment is intended to adsorb hydrophobic organic contaminants such as PCBs and PAHs, thereby reducing contaminant bioavailability and risk to human and ecological receptors. The amount of amendment required (that is, the carbon dosage) would be determined during remedial design. For cost estimating purposes it has been assumed that the carbon dose would be 2 percent by weight relative to the top 1 inch of soil and that granular activated carbon will be used.

5.3.3 Existing Soil and Vegetative Cover

The existing surface soil and vegetative cover would remain in place in STAs where COC concentrations are below the SS-RCLs in the top 0.5 foot but exceed SS-RCLs at depths greater than 0.5 foot. The existing soil and vegetative cover will prevent exposure to the subsurface contaminants. No active remediation will be performed.

5.3.4 Institutional Controls and Continuing Obligations

ICs/COs would be required for areas where residual soil contamination (COC concentrations above SS-RCLs) remains in place. For Alternative 3, this would include areas where subsurface contamination remains below the precision excavation depth (Alternative 3a), areas that are treated with activated carbon (Alternative 3b), and areas where the existing soil and vegetative cover prevents exposure to subsurface contamination. These requirements could include monitoring and maintenance of soil and vegetative covers, guidelines for conducting trail repairs or other construction activities, and updated signage notifying users of the presence of contaminated soil (WDNR 2021b). The specific types of ICs/COs required for the Floodplains Reach will be determined in consultation with WDNR and the property owner. The state will provide public notice by adding the property and related continuing obligation information to the WDNR's Wisconsin Remediation and Redevelopment Database.

5.4 Alternative 4: Excavation, Soil Cover, Precision Excavation, and Existing Soil and Vegetative Cover

Alternative 4 includes mechanical excavation in the portions of HRUAs that fall within RTAs and areas with PCB concentrations exceeding 25 mg/kg. Soil cover would be placed in nonforested, disturbed areas to contain and prevent exposure to contaminated soils. In STAs where COCs in the top 0.5 foot of soil exceed the SS-RCLs, precision excavation and backfill would be implemented. In STAs where COC concentrations in the top 0.5 foot of soil do not exceed the SS-RCLs, no active remediation would be performed because the existing soil and vegetative cover prevents exposure to subsurface soils with COC concentrations exceeding SS-RCLs. ICs/COs would be required to ensure that the remedy remains protective in areas where soil with COC concentrations exceeding SS-RCLs remains in place.

The estimated removal volume is approximately 20,900 yd^3 for this alternative and the excavation area is approximately 14.1 acres. Soil cover would be applied to approximately 14.7 acres. Existing soil and vegetative cover would remain in place over 4.9 acres. ICs/COs would be applied approximately 30 acres of nonforested disturbed areas and STAs. Approximately 1,900 linear feet of shoreline will be stabilized.

The following components of Alternative 4 are the same as for Alternative 2: floodplain access, excavation, backfill, shoreline stabilization, and soil transport, dewatering and disposal. Precision excavation, existing soil and vegetative cover, and ICs/COs are the same for Alternative 4 as they are for Alternative 3. Restoration alternatives for Alternative 4 are described in Section 6.5.

Areas remediated using soil cover would be cleared, grubbed and graded. A geotextile grid would be placed on the graded surface to service as demarcation layer between the soil cover and the underlying contaminated soils. The demarcation layer would consist of a nondegrading, grid-based material that allows for root penetration. Approximately 6 to 8 inches of topsoil would be placed over the demarcation layer and planted in accordance with the restoration plan developed during remedial design (see Section 6.5); for cost estimating, an 8-inch layer is assumed. The soil cover would be placed using traditional earthwork equipment; selection of the specific delivery and placement methods will consider location relative to the access and staging areas, and properties of the excavated work area. The remedial design will specify the type and size of equipment needed for the backfill placement and grading.

6. Conceptual Restoration Alternatives

Conceptual restoration alternatives were developed based on the remedial alternatives described in Section 5. Restoration alternatives are based on the various remedial technologies applied, excavation requirements, streambank impacts, and recreational impacts associated with the remedial alternatives. Remedial alternatives that require disturbance of soils, natural plant communities, and recreational areas and trails require restoration. If not restored, the disturbed floodplain areas would cause erosion, subsequent degradation of water quality, and loss of wildlife habitat. Remedial technologies described in Section 5 that do not result in the removal of vegetation or disturbance of the existing soil profile do not require restoration.

Restoration will be accomplished consistent with existing restoration plans for the Milwaukee River corridor and greenway, including the Greenway Plan and restoration work specifically targeting AOC BUIs. Furthermore, the restoration design process will include landowner and stakeholder engagement, consistent with this FFS. In particular, restoration design for land owned or managed by MCP will be coordinated with MCP. In cases where a floodplain has multiple property owners, the selected restoration components will need to function holistically over the entire floodplain.

Restoration will be accomplished using native herbaceous, shrub, and tree species endemic to the Milwaukee River corridor. Multiple plant stock types can be used to cost-effectively establish vegetation. Community types and species selection will be consistent with the Greenway Plan where applicable and consultations with landowners and stakeholders during design. However, plant species should also be selected based on site conditions following remediation, including topography and hydrology, to achieve the best possible survival and restoration outcomes.

Some of the restoration alternatives are based on the opportunity to establish floodplain terraces adjacent to the Milwaukee River that are at its estimated bankfull elevation. Multiple project partners consulted throughout the FFS commented on the existing incised nature of the Milwaukee River in the lower part of the Floodplains Reach and recommended restoration of a more connected floodplain that is inundated during smaller, lower-frequency flood events, if possible. During development of the restoration alternatives, the resulting elevation of the floodplain areas that would be excavated was compared to estimated bankfull elevations to determine where certain restoration alternatives would apply. As described in Section 2.1.2, bankfull elevations along the Floodplains Reach were estimated using a mathematical flow rating curve because an existing hydraulic model is not currently available.

The conceptual restoration alternatives are summarized in Figures 6-1A through 6-1H for FP-8/9, FP-10, and FP-11 and further described herein relative to each remedial alternative described in Section 5. The restoration alternatives for these three floodplains are representative of the other floodplains. In addition, restoration alternatives for disturbed streambanks have been developed. Restoration alternative figures for floodplains FP-8/9 through FP-11 depict the restoration concepts in relation to the remedial alternatives.

6.1 Revegetation Approaches

Native seed mixes are a cost-effective means of establishing native herbaceous vegetation over large areas. However, native seed mixes take time to establish, typically 2 to 3 years. Temporary annual grasses such as annual rye or seed oats should be used to establish a quick temporary cover, control soil erosion, retain moisture, moderate soil temperature, and stimulate soil microbial communities. Temporary covers help increase the success of native seed mixes.

Shrubs can be established with live stakes, wattles, brush mattresses, bare-root stock, and containerized shrubs. Live stakes are cost effective but result in lower survival (typically 20 to 50 percent). They are best used in concentrated areas at high densities and in wet soil areas. Brush wattles and brush mattresses help control erosion on streambanks and slopes but also contain living plant tissues that result in the establishment of live shrubs. They are commonly used in bioengineering practices. Bare-root stock is a cost-effective way to plant shrubs and trees over large areas. However, survival is lower than containerized stock and the plants are typically of a young age and small. Therefore, they take longer to reach maturity and produce cover. Some suppliers are now growing shrubs as plugs. Survival may be higher than bare-root stock, but the plants are still young and small.

Containerized shrubs and trees come in a variety of container sizes and plant ages and sizes. They help diversify plant age when mixed with other stock types and create a mixed-age plant community. Survival is higher, but so is cost.

Balled and burlapped trees with a trunk diameter of 1.5 to 2.5 inches have the highest survival and cost. The trees are larger and older. Therefore, they produce higher coverage rates more quickly.

6.2 Cost Estimate Assumptions

Cost estimates were developed based on the assumption that existing forested areas, regardless of quality, would be revegetated as a forested community type. Soil cover areas (Remedial Alternative 4, Restoration Alternatives 4-1 and 4-2) would be restored to an herbaceous cover type given that those areas are currently dominated by herbaceous cover types. During design, some existing forested areas could be restored as herbaceous cover types based on coordination with existing restoration plans and consultations with agencies, landowners, and stakeholders. Nonetheless, the restoration alternatives presented in this FFS assume restoration of existing community types to solicit stakeholder feedback and develop restoration cost estimates.

For cost estimating, unit costs are based on use of a range of different stock types and plant sizes required for revegetation of remediated floodplain areas. The number of shrubs was estimated at 100 per acre. The number of trees was estimated at 400 per acre for soil excavation areas and 100 per acre for precision excavation areas within STAs. Fewer trees are needed in precision excavation areas because most of the desirable trees will be protected. Lower or higher densities may be applied during design. As noted previously, the area restored as a forested community type may decrease based on existing restoration plans and/or landowner consultations. Nonetheless, estimating costs based on forested community type restoration for all existing forested areas provides a maximum cost because it is the most expensive option. Decreasing the area of forested community types during design would decrease costs.

The construction cost estimates presented in Appendix D and summarized in Section 7 are based on Restoration Alternatives 2-1, 3a-1, 3b-1, and 4-1. Streambank restoration costs are included in the restoration costs and a mix of Streambank Restoration Alternatives SB-1, SB-2, and SB-3 were assigned based on the post-remediation shoreline elevation relative to the bankfull elevation and professional judgement. The additional costs required to implement Restoration Alternatives 2-2, 3a-2, 3b-2, and 4-2 are provided as optional restoration costs that would be in addition to the costs of Restoration Alternatives 2-1, 3a-1, 3b-1, and 4-1.

6.3 Restoration Alternative 2

Under Remedial Alternative 2, all RTAs will be excavated to remove contaminated soil. Therefore, the natural communities and recreational areas will be disturbed, and restoration will be required. Two

restoration alternatives have been developed: 2-1 and 2-2. Profiles for Restoration Alternatives 2-1 and 2-2 are shown on Figures 6-2A and 6-3A for FP-8/9 and FP-11, respectively.

6.3.1 Restoration Alternative 2-1

Restoration Alternative 2-1 proposes to restore disturbed areas at the grades resulting from excavation. Backfill would not be used to restore the existing grades, including the HRUAs. Portions of the excavated floodplain would remain below the bankfull elevation of the Milwaukee River. However, backfill would be used to create sloped transitions between the excavated areas and existing grade at the RTA boundaries. The transition slopes would vary slightly between 1:3 and 1:6 (vertical:horizontal) to create a natural grade transition. The resulting grade would be final graded, with 4 to 6 inches of topsoil applied, and native vegetation planted. The cost estimate assumes placement of 6 inches of topsoil. For calculating backfill volumes, the cost estimate assumes that 50% of the excavation area will be selectively backfilled to the bankfull elevation.

The recreational trails would be restored at the new resulting grades. For purposes of the FFS, it is assumed that trail reconstruction would entail undercutting 4 inches of soil, installing 4 to 6 inches of compacted 21AA crushed aggregate, and topping with 2 inches of compacted limestone fines. The assumed restored trail width is 6 feet. Portions of existing trails that have an asphalt surface would be restored with an asphalt surface. Asphalt path construction is similar but the aggregate base is topped with a 2-inch asphalt top layer rather than compacted limestone fines. Trails located on land managed by MCP will be restored in accordance with MCP trail design specifications.

A native seed mix would be applied following topsoil placement. Native shrubs and trees would be planted using various stock types to create a mixed-age planting, control cost, and increase the number of plantings to ensure survival and vegetation establishment.

6.3.2 Restoration Alternative 2-2

Restoration Alternative 2-2 proposes to restore disturbed areas using selective backfill. Selective backfill would be used to restore the HRUAs, trail corridors, and portions of the floodplain RTAs to the bankfull elevation of the Milwaukee River. First, backfill would be used to create sloped transitions between the excavated areas to remain at the resulting grade and higher existing grades. Second, the trail corridor would be raised to the original grade. The transition slopes would vary slightly between 1:3 and 1:6 (vertical:horizontal) to create a more natural grade transition. The resulting grade would be final graded; 4 to 6 inches of topsoil applied; and native vegetation planted. The average excavation depth for each floodplain area was used to estimate backfill volumes.

The recreational trails would be restored to their original grade using backfill. Portions of the floodplain on either side of the restored trail could be lower than the trail, resulting in storage of floodwater landward of the trail. Cross-culverts can be installed under the trail backfill to allow flood expansion and back-drainage. Alternatively, the trail corridor could be relocated along the landward side of the excavated floodplain areas to reduce backfill quantity and prevent flood expansion landward of the restored trail – all floodwater would be stored and conveyed riverward of the restored trail. Assumptions for trail restoration are the same as for Restoration Alternative 2-1.

Selective backfill would also be installed to raise the excavated floodplain up to bankfull elevation. Any portion of a floodplain that is lower in elevation than the bankfull elevation after remediation would be restored at the bankfull elevation using selective backfill over all or portions of a remediated area. If portions of a floodplain are at or below the existing bankfull elevation (for example, FP-1 and FP-2), they would be restored using selective backfill to approximate existing grades.

A native seed mix would be applied following topsoil placement. Native shrubs and trees would be planted using various stock types to create a mixed-age planting, control cost, and increase the number of plantings to ensure survival and vegetation establishment.

6.4 Restoration Alternative 3

Remedial Alternative 3 involves the use of excavation and backfill combined with precision excavation (Alternative 3a) or in situ treatment with activated carbon (Alternative 3b). Like Alternative 2, floodplain excavation creates disturbance and requires restoration. Precision excavation involves precise removal of surface soil in STAs to reduce and minimize vegetation disturbance, particularly the removal of desirable tree species. Although excavation is limited to the surface, it also requires restoration because the herbaceous and shrub layers would be removed in the process. Desirable trees would be protected. Four restoration alternatives have been developed for Remedial Alternative 3: 3a-1, 3a-2, 3b-1, and 3b-2. Profiles for Restoration Alternatives 3-1 (a and b) and 3-2 (a and b) are shown on Figures 6-2B and 6-3B for FP-8/9 and FP-11, respectively.

6.4.1 Restoration Alternatives 3a-1 and 3a-2

Restoration of the excavated floodplain areas for Alternatives 3a-1 and 3a-2 would be the same as Restoration Alternatives 2-1 and 2-2, respectively, including transitions and the trails. For both restoration alternatives (3a-1 and 3-a2), precision excavation areas would be restored by applying 6 to 8 inches of topsoil over the resulting grade and revegetation. The cost estimate assumes 6 inches of topsoil would be applied.

6.4.2 Restoration Alternatives 3b-1 and 3b-2

Restoration of the excavated floodplain areas for Restoration Alternatives 3b-1 and 3b-2 would be the same as Restoration Alternatives 2-1 and 2-2, respectively, including transitions and the trails. Application of activated carbon would not disturb the existing ground surface or vegetation. Therefore, no restoration would be required.

6.5 Restoration Alternative 4

Remedial Alternative 4 is similar to Remedial Alternative 3a. In addition to excavation and precision excavation, Remedial Alternative 4 would use a 6- to 8-inch soil cover in nonforested disturbed areas to reduce the amount of soil excavation. The cost estimate assumes 8 inches of soil cover. Two restoration alternatives have been developed: 4-1 and 4-2. Profiles for Restoration Alternatives 4-1 and 4-2 are shown on Figures 6-2C and 6-3C for FP-8/9 and FP-11, respectively.

Restoration of the excavated floodplain areas for Restoration Alternatives 4-1 and 4-2 would be the same as Restoration Alternatives 2-1 and 2-2, respectively, including transitions and the trails. For both restoration alternatives (4-1 and 4-2), precision excavation areas would be restored by applying 6 to 8 inches of topsoil or blended soil over the resulting grade and revegetation as described for Restoration Alternatives 3a-1 and 3a-2.

Application of the 6- to 8-inch soil cover layer in nonforested disturbed areas would disturb the herbaceous and shrub layers. Native seed mix would be applied to the cover. Supplemental native shrub and tree plantings would be used to offset impacts and create a more diverse forested plant community.

6.6 Streambank Restoration

Streambanks in some of the floodplain areas contain contaminated soil that would be excavated and disturbed and therefore would require revegetation and stabilization. Three alternatives have been developed to restore and stabilize streambanks disturbed by remediation.

Streambank restoration alternatives are specific to remedial alternatives and restoration alternatives. Restoration Alternatives 2-1, 3a-1, 3b-1, and 4-1 are based on excavating contaminated soils; maintaining the resulting grades; and revegetating the excavated floodplain areas. Streambank Restoration Alternative SB-1 would be applied under those conditions. Restoration Alternatives 2-2, 3a-2, 3b-2, and 4-2 are based on excavating contaminated soils; selectively backfilling to raise portions of the floodplain up to the bankfull elevation of the Milwaukee River (which would require reconstruction of streambanks using fill); and revegetating the floodplains. Therefore, Streambank Restoration Alternative SB-2 would apply. Streambank Restoration Alternative SB-3 would be applied where streambanks have been disturbed and require stabilization at outfalls, utilities, road embankments, and bridge abutments.

Streambank Restoration Alternatives SB-1 and SB-2 are similar in that they use bioengineering practices, use biodegradable erosion control products, and rely on vegetation planting. Alternative SB-2 uses similar materials but is a 3D application that requires fill to reconstruct the bank face in layers ranging from 6 to 12 inches thick up to the bankfull elevation. Alternative SB-3 uses riprap with discretion to protect infrastructure and could be used alone or in conjunction with SB-1 or SB-2. Conceptual profiles of the Streambank Restoration Alternatives SB-1, SB-1 (wetland area), and SB-2 are shown in Figures 6-4A, 6-4B, and 6-4C, respectively.

Riprap was estimated at 1 cubic yard per foot of bank treatment converted to tons using a factor of 1.3 tons per cubic yard. Streambank Restoration Alternative SB-3 costs are based on the area of the face because higher bank heights have higher costs per foot. A cost estimate per lineal foot was developed based on an average bank reconstruction height of 3 feet (estimated from excavation depths). Bioengineering practices with toe treatment are normally cost per lineal foot of bank. The per lineal foot cost was developed to account for potential development of margin wetland at the toe of some banks.

Floodplains FP-6, FP-7, FP-8/9, FP-10, and FP-11 have ACMs along their banks, and FP-8/9 and FP-10 also have gabion baskets (see Section 2.2). Streambank excavation as part of the remedial action in those floodplain areas may result in complete or partial removal of some of the ACMs or gabions. Some may be left in place and undisturbed. During remedial design, the condition and stability of any ACMs or gabions that will remain in place will be evaluated. Ideally, disturbance of banks and the bed of the river would be limited to just the RTA. However, it may be necessary to remove all ACMs or gabions if their stability is compromised by partial removal or disturbance of adjacent floodplain. Treatment of existing ACMs and gabions will be further considered during remedial design.

6.6.1 Streambank Restoration Alternative SB-1

Excavation of the floodplain along the water's edge of the Milwaukee River will disturb streambanks. Streambank Restoration Alternative SB-1 can be used to revegetate and stabilize disturbed streambanks at the resulting grade following soil excavation. SB-1 involves the use of bioengineering products, biodegradable erosion control products, and various types of plant propagules to revegetate the streambanks (Figure 6-4A). Given that the existing channel in FP-4 through FP-11 formed via erosion of the former impoundment sediments following removal of the North Avenue Dam, the existing channel is narrower and more incised than desired. A wider channel with lower bank heights may be desirable to decrease channel flow velocity (especially along the margins of the channel) and to create more diverse

habitat along the channel margins. SB-1 could be used in conjunction with Streambank Restoration Alternative SB-3 to stabilize streambanks at outfalls, utilities, road embankments, and bridge abutments.

Common bioengineering practices include live-brush wattles and bundles, live-brush mattresses, pole plantings, live stakes, and whole-tree revetments. Woody material from the floodplain that is cleared before soil excavation can be used for such bioengineering practices to help stabilize and protect the toe while increasing shoreline habitat diversity, but may require anchoring. Native vegetation will be chosen during design to be successful under the expected hydrology and river energy following remediation.

In addition to revegetation and stabilization of the streambanks, wetlands can be created along the toe of the banks where the river is wide enough and river energy allows. Shallow terraces along the toe could allow for wetland establishment, help stabilize the disturbed streambanks, and increase habitat diversity (Figure 6-4B). River bulrush, buttonbush, Salix shrub species, rice cutgrass, and arrow arum are examples of wetland plants that can be used to create stream-margin wetlands on low bank terraces created by bank excavation. Live stakes, potted shrubs, and plugs can be used to establish vegetation. Wood removed from the floodplain prior to remediation can also be incorporated.

6.6.2 Streambank Restoration Alternative SB-2

Following remediation, resulting grades may be lower than the bankfull elevation of the Milwaukee River. Rather than revegetating and stabilizing at the resulting grade, the streambank could be reconstructed and stabilized at the bankfull elevation, which would require using fill. This approach corresponds to Restoration Alternatives 2-2, 3a-2, 3b-2, and 4-2, where selective backfill would be used to adjust the excavated floodplain elevation to bankfull elevation.

SB-2 involves the use of biodegradable erosion control products used to wrap soil in successive layers until the desired bank elevation is reached (Figure 6-4C). The face of each layer receives topsoil and seeding. Plant propagules such as live stakes and whips are incorporated into the construction. The top layer is vegetated the same as the rest of the floodplain. SB-2 could be used in conjunction with Streambank Restoration Alternative SB-3 to stabilize streambanks at outfalls, utilities, road embankments, and bridge abutments.

In addition to revegetation and stabilization of the streambanks, wetlands can be created along the toe of the banks where the river is wide enough and river energy allows. Shallow terraces along the toe could allow for wetland establishment, help stabilize the disturbed streambanks, and increase habitat diversity. River bulrush, buttonbush, Salix shrub species, rice cutgrass, and arrow arum are examples of wetland plants that can be used to create stream-margin wetlands on low bank terraces created by bank excavation. Live stakes, potted shrubs, and plugs can be used to establish vegetation. Wood removed from the floodplain prior to remediation can also be incorporated.

6.6.3 Streambank Restoration Alternative SB-3

In some cases, floodplain excavation to remove contaminated soil will occur near infrastructure. Examples include sanitary sewers and manholes close to the river, storm sewer outfalls, road crossing embankments, and bridge abutments. Riprap would be used to help stabilize disturbed streambanks and protect such infrastructure. Riprap can be combined with Alternatives SB-1 and SB-2 to protect infrastructure while accomplishing revegetation and stabilization.

Bank reconstruction can be accomplished using bioengineering practices to transition from the excavated lower bank heights up to the existing bank heights at utilities and road embankments. A common approach is soil encapsulation in erosion control blankets, to build up the bank height in reinforced soil

layers. Vegetation is incorporated into the soil lifts in the form of live stakes, brush layers, native seed mixes, bare-root shrub and tree seedlings, and potted shrubs and trees.

This alternative can also be applied under Restoration Alternative 2, where it is desirable to raise the resulting grades following restoration up to the bankfull elevation of the Milwaukee River using selective backfill following excavation.

7. Remediation and Restoration Alternatives Evaluation

Remedial alternatives for the Floodplains Reach are evaluated in Section 7.1 using criteria established by EPA and WDNR for remediation projects. Restoration alternatives are evaluated in Section 7.2 based primarily on technical feasibility and cost.

7.1 Remedial Alternatives Evaluation

7.1.1 Remedial Alternatives Evaluation Criteria

The remedial alternatives developed in Section 5 were evaluated using the criteria described below to support selection of a recommended remedy. The criteria provide the basis for comparing expected alternative performance and are used to identify the advantages and disadvantages of each alternative and trade-offs between alternatives. The evaluation criteria consider both EPA's nine criteria for evaluating remedial alternatives in feasibility studies[8] and WDNR's evaluation criteria for selecting remedial actions.[9] The criteria are divided into three groups: threshold, balancing, and modifying criteria, summarized as follows:

- **Threshold Criteria**
  - Compliance with environmental laws and standards
- **Balancing Criteria**
  - Long-term effectiveness
  - Short-term effectiveness
  - Implementability
  - Restoration timeframe
  - Cost
- **Modifying Criteria**
  - Project partner acceptance

7.1.1.1 Threshold Criteria

Threshold criteria must be met by an alternative for it to be eligible for selection as a remedial action. The single threshold criterion is compliance with environmental laws and standards. To be eligible for selection, an alternative must meet applicable federal, state, and local regulations, or justification must be provided that a waiver is appropriate.

Compliance with applicable federal, state, and local regulations is one of the statutory requirements of remedy selection. Applicable regulations are cleanup standards, standards of control, and other substantive environmental statutes or regulations. Applicable requirements address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances at a site.
The assessment of this criterion describes how the alternative complies with applicable federal, state, and local regulations or presents the rationale for waiving an applicable requirement. The identification of potentially applicable regulations and associated permits relative to the remedial alternatives is summarized in Appendix C.

[8] 40 CFR § 300.430 (e)(9)(iii)

[9] Wisconsin Chapter NR 722.07(4) and NR 722.09 (2)

7.1.1.2 Balancing Criteria

Unlike the threshold criteria, the balancing criteria weigh the trade-offs between alternatives. A low rating for one balancing criterion can be compensated for by a high rating for another criterion. The five balancing criteria described in the following subsections are used to identify the advantages and disadvantages of each alternative and weigh the trade-offs between alternatives.

7.1.1.3 Long-Term Effectiveness

This criterion considers the degree to which an alternative will protect human health and the environment over time. Long-term effectiveness considers the ability of the alternative to achieve RAOs and contribute to BUI removal. It includes evaluation of the amount of residual contamination anticipated to be left in place, the adequacy and reliability of long-term controls in preventing exposure to any residual contamination that is left in place, and the potential for recontamination following the remedial action. Long-term effectiveness also evaluates the expected performance of the alternative in response to extreme storm events and climate change.

7.1.1.4 Short-Term Effectiveness

The short-term effectiveness criterion assesses potential adverse impacts on public health, safety, welfare and the environment during the construction and implementation of the alternative. It considers protection of workers and the community during the remedial action, and environmental impacts of the remedial action. It also considers the time until the RAOs are achieved.

7.1.1.5 Implementability

This criterion considers both technical and administrative feasibility of the alternative. The technical feasibility evaluation considers the ease of implementation, reliability, constructability, availability of goods and services needed for its implementation materials, and identifies potential difficulties and constraints associated with onsite construction or offsite disposal and treatment. The administrative feasibility evaluation considers the activities and time needed to obtain any necessary licenses, permits or approvals and degree of coordination with other agencies.

7.1.1.6 Restoration Timeframe

The restoration timeframe criterion considers the time required to restore trees, vegetation and habitat that was cleared to access work areas and conduct the remedial action.

7.1.1.7 Cost

Cost encompasses the design, engineering, construction, and operations and maintenance costs incurred over the life of the project. The assessment of this criterion is based on the estimated capital costs, annual operations and maintenance costs, and total present worth of the costs for each alternative. Present worth is a method of evaluating expenditures that occur over different lengths of time. This allows costs for remedial alternatives to be compared by discounting all costs to the year in which the alternative is implemented. The present worth of a project represents the amount of money, which if invested in the initial year of the remedy and disbursed as needed, would be sufficient to cover all costs associated with the remedial action. These estimated costs are expected to provide an accuracy of plus 50 percent to minus 30 percent. Appendix D provides a breakdown of the cost estimate for each alternative.

The cost range applies only to the alternatives as they are described and does not account for changes in the scope of the alternatives. Selection of specific technologies or processes to configure remedial

alternatives is intended not to limit flexibility during remedial design but to provide a basis for preparing cost estimates. The specific details of remedial actions and cost estimates are refined during the design.

7.1.1.8 Modifying Criteria

The modifying criterion is project partner acceptance. This criterion will be evaluated after the project partners have reviewed and provided comments on the remedial alternatives and associated individual and comparative alternative analyses. Project partner acceptance will be considered when selecting the recommended alternative, which will be presented in the FFS Report.

7.1.2 Remedial Alternatives Analysis

Alternatives 1 through 4 were evaluated using the threshold and balancing evaluation criteria. Evaluation results are summarized in Table 7-1. The differences in alternatives arise primarily from differences in the degree of excavation versus in place management. Key findings of the alternatives analysis are as follows:

- Alternatives 2 through 4 can be designed to comply with applicable federal, state and local regulations and therefore meet the threshold criterion.
- Alternative 2 has the greatest long-term effectiveness because the greatest volume of soil with COC concentrations exceeding SS-RCLs would be removed from the Floodplains Reach. It results in the greatest reduction of COC mass, volume and concentration in soil. Alternatives 3a, 3b, and 4 have progressively lower reductions in COC mass and volume compared to Alternative 2. Alternatives 3a, 3b, and 4 rely on long-term controls to ensure that the remedy remains effective but preserve high-quality habitat where possible. The long-term effectiveness of in situ treatment with activated carbon is uncertain because no long-term monitoring data for floodplain applications are available. Alternative 1 is not effective.
- Alternative 4 rates the highest for short-term effectiveness because the remedy would be completed in the shortest timeframe. Alternative 3b would result in the temporary destruction of the least amount of floodplain habitat, followed by Alternatives 3a and 4, which would affect the same area. Alternative 2 would result in removing all existing vegetation within the RTAs, including high-quality habitat. Short-term effectiveness does not apply to Alternative 1.
- Alternative 4 is the most implementable from a technical standpoint because it requires the least amount of DMMF capacity. Procuring sufficient activated carbon amendment for Alternative 3b may require substantial lead time. Alternative 2 is the most implementable from an administrative standpoint because it does not require ICs/COs. Alternative 4 is the most difficult to implement from an administrative standpoint because it requires ICs/COs over the largest area.
- The restoration timeframe is the greatest for Alternative 2 because all vegetation within RTAs would need to be re-established. The restoration times are shortest for Alternative 3b.
- Alternative 4 has the lowest estimated cost ($28.1 million). Alternatives 3b, 3a, and 2 are progressively more costly ($35.8 million, $ 38.3 million and $44.9 million, respectively). Additional costs associated with implementation of Restoration Alternatives 2-2, 3a-2, 3b-2, and 4-2 are $6 million, $1.5 million, $3.5 million, and $1.3 million, respectively.

7.2 Restoration Alternatives Evaluation

Restoration alternatives are not subject to the same evaluation criteria as the remedial alternatives. There are no applicable regulatory thresholds and restoration would be permitted under the umbrella of remediation including wetland, floodplain, and river impacts. Therefore, there are no regulatory constraints with respect to restoration alternatives.

Restoration costs are driven by the remedial alternatives. That is, remedial alternatives that cause more disturbance result in higher restoration costs. Therefore, Remedial Alternative 2 has the highest restoration cost and Remedial Alternative 4 has the lowest restoration cost. The use of selective backfill to reconstruct the excavation areas to bankfull elevation is a higher cost option for restoration (Table 7-1). It will create more diverse floodplain habitat but at a significant cost increase, especially for the larger floodplain areas like FP-10 and FP-8/9.

While the selective use of backfill to reconstruct a bankfull floodplain does increase cost, it also addresses a technical feasibility issue. Leaving the floodplains at the resulting grade will put large portions of some of the floodplain areas below the bankfull elevation of the Milwaukee River. This may subject portions of the floodplains that are lower than bankfull elevation to excessive sedimentation during floods. Sediment deposition on the floodplain, if excessive, can impact the establishment of planted vegetation and may create more opportunity for invasive plants to become established. Reconstructing portions of the floodplains at the bankfull elevation, including the streambanks, while more costly, will address this potential feasibility issue. Additionally, for floodplain areas owned or managed by MCP, not restoring the portion of floodplain to at least a bankfull elevation may result in an administrative feasibility issue of incompatibility with the restoration plans provided in the Greenway Plan.

Restoration has two primary purposes: 1) stabilize disturbed soils and 2) replace disturbed habitat. The first purpose is a short-term goal, while the second is a long-term goal. The alternatives considered means and methods that are commonly used to accomplish restoration and are effective. Biodegradable soil erosion control products, bioengineering materials, and temporary cover crop seeding are effective at stabilizing soils. When combined with native vegetation plantings, they are also effective at creating diverse terrestrial and aquatic habitats. However, establishing native vegetation takes time. Native seed mixes typically take 3 to 4 years to develop into mature herbaceous communities. It will take decades for forested plant communities to mature. Best results are achieved with maintenance for 2 to 3 years following construction to control invasive species, ensure seed germination, and maximize plant survival. However, conducting maintenance over large areas is difficult and costly. For the purposes of the FFS, the unit prices used in the restoration cost estimates assume 1 year of active maintenance by the construction contractor after the baseline establishment period; however, a longer maintenance period will be discussed further with project partners during remedial design.

With respect to the precision excavation and soil cover areas, there are few alternatives that apply. In the case of precision excavation areas, topsoil will be required to promote plant growth. The soil cover will have agronomic properties to allow plant growth. Otherwise, the areas must be revegetated; there are no other alternatives. During remedial design, the plant species, stock types, and planting locations can be selected and alternatives may apply. However, overall restoration alternatives are limited to revegetation in those areas.

8. Recommended Alternative

The project partners have identified a combination of Remedial Alternatives 2 and 3a as the recommended alternative to address the impacted soils in the Floodplains Reach. Alternative 2 requires full excavation of soils within RTAs to depths ranging from 0.5 feet to no more than 4 feet. This alternative will be applied over most of the RTAs. Alternative 3a may be applied in areas identified as STAs. Alternative 3a specifies precision excavation and backfill at locations with impacted surface soils (top 0.5 foot) and preservation of existing soil and vegetative cover at locations with no surface soil impacts. The recommended alternative will achieve the site-specific RAOs by reducing the mass, volume, and concentrations of COCs in floodplain soils, preserving existing sensitive habitat where possible, and reducing the potential for recontamination of the Milwaukee River by remediating floodplain soils and stabilizing river banks. Additionally, the recommended remedial alternative will maximize the opportunity for safe unrestricted use of the floodplains after the remediation is complete by minimizing the amount of residual contamination that would require ICs/COs under Wisconsin Chapter NR 700 to be protective.

Potential STAs will be identified using criteria developed by MCP and delineated onsite. Delineated STAs will be subject to review and approval by property owners, EPA, and WDNR. Following approval, STA boundaries will be surveyed for incorporation into remedial design. EPA will coordinate with WDNR to develop and apply decision criteria that will determine whether residual contamination can remain in place within STAs, with WDNR approval. The decision criteria may consider surface and subsurface soil contamination levels, erosion potential, and other factors. ICs/COs will likely be required for any areas where Alternative 3a is implemented. For FFS purposes, it is assumed that half of the acreage assigned as Alternative 3a will be delineated as STAs, while the remainder of the RTA area will be addressed as Alternative 2. The recommended alternative assumes 26.3 acres of full excavation, 4.9 acres of precision excavation, and 2.5 acres of existing soil and vegetative cover[10]. The estimated cost of the Recommended Alternative is $48.9 million.

The Restoration Alternatives corresponding to the recommended remedial alternative are 2-1, 2-2, 3a-1 and 3a-2. Landowners and stakeholders may specify the degree to which excavated areas will be selectively backfilled after remediation. Selective backfill may occur up to the bankfull elevation (Restoration Alternative 2-2 and 3a-2). If entire floodplain areas are at or below the bankfull elevation (for example, FP-1 and FP-2), then selective backfill may be used to restore them at their approximate existing elevation. Revegetation will be designed to stabilize soils and restore habitats. If an area is currently dominated by wetland (for example, FP-1 and FP-2), it is expected that it will be restored as wetland.

Streambank Restoration Alternative SB-1 would be used to restore streambanks where streambanks are left at elevations below the bankfull elevation. Streambank Restoration Alternative SB-2 would be used to restore streambanks where they will be backfilled to the bankfull elevation. Streambank Restoration Alternative SB-3 would be used solely or in conjunction with SB-2 at infrastructure. Existing ACMs and gabions within RTAs would be partially or completely removed based on evaluation of stability during remedial design. Portions or whole sections of ACMs and gabions will be left in place only if remediation activities do not destabilize or otherwise compromise them.

Areas of the floodplain that are disturbed to remediate the contaminated soils are expected to be revegetated after remediation based on the current plant community types, species and stock, the MCP's

[10] As shown in Table 5-1, Alternative 3a assumes 9.8 acres of precision excavation and 5.0 acres of existing soil and vegetative cover; the assumed quantities for the recommended alternative are half of these amounts. Alternative 2 has a total excavation area of 33.7 acres. For the recommended alternative, the assumed 26.3 acres of excavation is based on the total excavation area (33.7 acres) minus the assumed areas for implementation of Alternative 3a (4.9 acres of precision excavation and 2.5 acres of existing soil and vegetative cover).

Greenway Plan (MCP 2021), and consultation with landowners and stakeholders. STAs that will be remediated using precision excavation (Remedial Alternative 3a) will be restored by applying 6 inches of topsoil and revegetating with the same community type. Precision excavation will not disturb streambanks; therefore, none of the streambank restoration alternatives would be used.

This recommended alternative will be the subject of upcoming public outreach efforts. A Final FFS will be prepared after public comments have been considered.

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Tables

Table 1-1. Floodplains Reach Conditions Summary

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Floodplain Area ID		FP-1[g]	FP-2[g]	FP-3[g]	FP-4	FP-5	FP-6	FP-7	FPs-8 and -9	FP-10[g]	FP-11	Totals
Floodplain Features	Floodplain Area[a]	1.9	1.4	2.3	2.5	3.1	6.0	8.2	10.1	5.4	6.0	46.9
	Former Impoundment Extent Area[a,b]	NA	NA	NA	0.6	2.0	4.9	7.0	9.1	5.4	3.1	32.1
	Associated or Nearby Park	Estabrook	Estabrook	Estabrook	Kern	Cambridge Woods	Gordon	UEC Restoration Zones	RRF Restoration Zones	Caesar's	Pleasant Valley	N/A
	Contains HRUAs	No	No	No	No	No	No	Yes	No	No	Yes	N/A
Wetland Information	Wetland Area[a, c]	1.5	1.2	1.9	2.1	2.7	4.8	6.5	7.8	3.5	2.1	34.1
	Percent Wetland	82	91	81	82	86	80	79	77	66	36	N/A
	Community Type from Wetland Delineation	Floodplain Forest	Floodplain Forest Wet Meadow	Floodplain Forest	Floodplain Forest	Floodplain Forest Wet Meadow	Floodplain Forest Wet Meadow	Floodplain Forest Wet Meadow Shrub Carr	Floodplain Forest Wet Meadow Shrub Carr	Floodplain Forest	Floodplain Forest	N/A
	Delineation Wetland Number	W-6	W-9	W-12	W-2	W-14	W-4	W-15	W-4 , W-5	W-16	W-2	N/A
Canopy Tree Data[f]	Canopy Trees (#)	ND	ND	ND	58	91	29	60	44	ND	130	412
	Canopy Tree Density (#/acre)	ND	ND	ND	23	29	5	7	4	ND	23	N/A
Plant Community Type Information[f]	Plant Community Data Available	No	No	No	Yes	Yes	Yes	Yes	Yes	No	Yes	N/A
	Area Forested[a]	1.7	1.1	2.1	2.5	2.6	1.7	2.4	2.8	3.2	4.6	24.6
	Area Floodplain Forest [a]	*1.5*	*1.0*	*1.9*	*1.7*	*1.3*	*1.6*	*1.7*	*0.4*	*1.6*	*2.2*	*14.9*
	Area Southern Mesic Forest [a]	*0.2*	*0.1*	*0.2*	*0.8*	*1.3*	*0.03*	*0.7*	*2.4*	*1.6*	*2.4*	*9.7*
	Area Disturbed/ Degraded[a]	ND	ND	ND	0.0	0.4	2.6	0.7	4.9	ND	0.6	9.2
	Area Surrogate Grassland[a]	ND	ND	ND	0.0	0.0	0.0	0.2	0.0	ND	0.0	0.2
	Percent Forested	90	80	90	100	86	39	73	37	60	88	N/A
	Percent Floodplain Forest	*80*	*70*	*80*	*68*	*43*	*39*	*53*	*6*	*30*	*42*	N/A
	Percent Southern Mesic Forest	*10*	*10*	*10*	*32*	*43*	*1*	*20*	*31*	*30*	*46*	N/A
	Percent Disturbed/Degraded	ND	ND	ND	0	14	61	21	63	ND	12	N/A
	Plant Community Quality[d]	ND	ND	ND	Low	Low	Medium	Low	Medium	ND	Low	N/A
Butler's Gartersnake[e, f]	Area Butler's Gartersnake Habitat[a]	0	0	0	0	0	2.9	5.8	6.5	3.7	0.0	18.9
	Percent Butler's Gartersnake Habitat	0	0	0	0	0	48	71	65	69	0	N/A
PCB Distribution	**95UCL Total PCB (mg/kg) (2016-2021)[h]**											N/A
	0-0.5 ft	0.87	0.94	0.77	0.71	7.7	6.3	10.7	5.9	4.2	1.6	N/A
	Number of results in UCL dataset	5	5	8	8	8	15	28	25	17	23	N/A
	0-2.5 ft	6.0	8.2	0.33	1.3	2.5	7.6	5.8	6.4	2.7	3.8	N/A
	Number of results in UCL dataset	14	13	26	24	21	45	83	75	52	68	N/A
	0-4 ft	3.6	4.5	0.27	1.0	2.2	4.7	4.6	5.3	2.2	2.6	N/A
	Number of results in UCL dataset	18	17	32	31	24	57	106	100	66	83	N/A
	0.5-4 ft	5.5	3.7	0.13	1.0	1.4	6.5	5.6	23.4	1.9	2.7	N/A
	Number of results in UCL dataset	13	12	24	23	16	42	78	75	49	60	N/A
	# locations w/ >25	0	0	0	0	0	0	3	3	0	1	N/A
	Highest PCB concentration	10.7	11.4	1.3	4.1	7.1	24.4	34.0	41.5	11.0	34.0	N/A

[a] All areas reported in acres.

[b] Impoundment area was calculated using North Avenue Dam spillway elevation of 595 feet NAVD88.

[c] Based on a 2020 wetland delineation by TRC Environmental Corporation (2021). *Wetland and Waterway Delineation Report, Milwaukee Estuary AOC, Milwaukee River Floodplains Project Area, Village of Shorewood and City of Milwaukee, Milwaukee County, Wisconsin* . February 24.

[d] Based on attributes for the Plant Community Type data.

[e] The absence of Butler's Gartersnake (BGS) habitat may not mean habitat is absent. BGS habitat may not be mapped in a floodplain area.

[f] Source: Milwaukee County Parks Department (MCP). 2021. *Milwaukee River Greenway Ecological Restoration and Management Plan.* Draft. September 27.

[g] Community type, forest area, and forest percent cover estimated using the TRC 2021 wetland delineation report and aerial photographs.

[h] Source: Determined using ProUCL using 2016 through 2021 data.

95UCL = 95-percent upper confidence limit

FP = Floodplain

ft = foot or feet

HRUA = "High Recreational Use Area" as defined in WDNR's *Milwaukee Estuary AOC Preliminary SS-RCL Memorandum* , Attachment 4 (WDNR, 2021)

mg/kg = milligram(s) per kilogram

N/A = Not Applicable

NAVD88 = North American Vertical Datum 1988

ND = No Data

PCB = polychlorinated biphenyl

RRF = River Revitalization Foundation

UEC = Urban Ecology Center

Table 2-1. Floodplains Reach Screening Levels

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Site-Specific Residual Contaminant Levels[a]		
Contaminant	**Tier 1**	**Tier 2**
Total PCBs	1.1	0.7
Benzo(a)anthracene	84.6	50.8
Benzo(a)pyrene	8.48	5.09
Benzo(b)fluoranthene	84.8	50.9
Benzo(k)fluoranthene	848	501
Chrysene	8480	5090
Dibenz(a,h)anthracene	8.48	5.09
Indeno(1,2,3-cd)pyrene	84.8	50.9
Screening Levels for Arsenic and Lead		
Arsenic[b]	8	
Lead[c]	400	

Source: Wisconsin Department of Natural Resources (WDNR). 2021. *Milwaukee Estuary Area of Concern Preliminary Site-Specific Residual Contaminant Levels for Milwaukee River Floodplain Soils.* Correspondence/Memorandum to Milwaukee Estuary Area of Concern Project Team and Stakeholders. August 5.

[a] SS-RCL Tier 1 and Tier 2 concentrations (mg/kg) established by WDNR in conjunction with the Wisconsin Department of Health (WDNR 2021).

[b] A WDNR-assigned screening value applicable to this project based on Wisconsin's statewide background threshold value (BTV) of 8 mg/kg was used to screen arsenic concentrations (WDNR 2021).

[c] WDNR's Wisconsin Administrative Code NR 720 nonindustrial direct contact residual contaminant level (RCL) for lead of 400 mg/kg was used to screen lead concentrations (WDNR 2021).

mg/kg = milligram(s) per kilogram

PCB = polychlorinated biphenyl

SS-RCL = Site-specific Residual Contaminant Level per WDNR 2021.

Table 2-2. Floodplains Reach Focused Contaminants of Concern Results Summary

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH[b]	Metals		Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[d]	Arsenic[e]	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[c, d,e]	1.1	8.48	400	8				
					Tier 2 SS-RCL[c]	0.7	5.09						
					TSCA LO	25							
FP01	FP-01	MK-FP-01-0.0/0.5	0	0.5	11/9/2016	0.23	0.593	24.5	2.4 J	7.3	92.7	0	15400
FP01	FP-01	MK-FP-01-0.5/1.5	0.5	1.5	11/9/2016	2.2	1.48	219	6.8 J	15	77	8	35700
FP01	FP-01	MK-FP-01-1.5/2.0	1.5	2	11/9/2016	4	0.956	118	4.4 J	15	84	1	28100
FP01	FP-01X	MK-FP-01X-2.5/4.0	2.5	4	11/3/2020	1.9	1.8	162	5.6	49	51	0	19200
FP01	FP-02	MK-FP-02-0.0/0.5	0	0.5	11/9/2016	0.89	1.14	40.3	3.2 J				40300
FP01	FP-02	MK-FP-02-0.5/1.5	0.5	1.5	11/9/2016	0.6	1.62	121	4.1 J				43200
FP01	FP-02	MK-FP-02-1.5/2.8	1.5	2.8	11/9/2016	10.7	1.28	174 J	5.9 J				32200
FP01	FP-02X	MK-FP-02X-3.0/4.0	3	4	11/3/2020	1.8	0.11	51.1	4.5				14800
FP01	FP-35	MK-FP-35-0.0/0.5	0	0.5	11/3/2020	0.69	1.8	73.6	3 J				53700
FP01	FP-35	MK-FP-35-0.5/1.5	0.5	1.5	11/3/2020	1.8	5.7	194	4.8				41300
FP01	FP-35	MK-FP-35-1.5/2.5	1.5	2.5	11/3/2020	0.051	0.85	54.3	4.4				43600
FP01	FP-35	MK-FP-35-2.5/4.0	2.5	4	11/3/2020	0.12	0.53	72.6 J	5.4				21200
FP01	FP-36	MK-FP-36-0.0/0.5	0	0.5	11/3/2020	0.79		76.4	3.5				48500
FP01	FP-36	MK-FP-36-0.5/1.5	0.5	1.5	11/3/2020	0.71		47.7	4.4				9050
FP01	FP-36	MK-FP-36-1.5/1.9	1.5	1.9	11/3/2020	0.029 U		7.4	2.8 J				23900
FP01	FP-36	MK-FP-36-2.5/4.0	2.5	4	11/3/2020	0.11		35.7	4.5				12900
FP01	FP-86	MK-FP-86-0.0/0.5	0	0.5	10/16/2021	0.52	1.6	56 J	4				
FP01	FP-86	MK-FP-86-0.5/1.0	0.5	1	10/16/2021	0.04 J	0.089	17 J	2 J				
FP02	FP-03	MK-FP-03-0.0/0.5	0	0.5	11/9/2016	1.2	0.998	85.3	6 J	16	72	12	63400
FP02	FP-03	MK-FP-03-0.5/1.3	0.5	1.3	11/9/2016	0.32	2.77	192	16.8	21	74	5	37700
FP02	FP-03X	MK-FP-03X-2.5/4.0	2.5	4	11/4/2020	0.26	0.45	37.3	5.2	15	80	5	4880
FP02	FP-04	MK-FP-04-0.0./0.5	0	0.5	11/9/2016	0.15	0.454	87	5.1 J				38500
FP02	FP-04	MK-FP-04-0.5/1.5	0.5	1.5	11/9/2016	3	0.583	200	7.9				32100
FP02	FP-04	MK-FP-04-1.5/2.5	1.5	2.5	11/9/2016	0.1	0.706	98.5	8.3				17200
FP02	FP-04	MK-FP-04-2.5/3.5	2.5	3.5	11/9/2016	0.04	0.487	27.6	4 J				13800
FP02	FP-37	MK-FP-37-0.0/0.5	0	0.5	11/4/2020	0.27		54.1	7.4				29400
FP02	FP-37	MK-FP-37-0.5/1.5	0.5	1.5	11/4/2020	0.028 U		8.1	4.4				14700
FP02	FP-37	MK-FP-37-1.5/2.4	1.5	2.4	11/4/2020	0.028 U		7.9	3.9				7190
FP02	FP-37	MK-FP-37-2.5/4.0	2.5	4	11/4/2020	0.028 U		7.1	4				4430
FP02	FP-38	MK-FP-38-0.0/0.5	0	0.5	11/4/2020	0.67	1.4	49.2	2.9 J				41700
FP02	FP-38	MK-FP-38-0.5/1.5	0.5	1.5	11/4/2020	1.7	1.5	128	5.2				21100
FP02	FP-38	MK-FP-38-1.5/2.2	1.5	2.2	11/4/2020	11.4	2.4	200	5.2				22100
FP02	FP-38	MK-FP-38-2.5/4.0	2.5	4	11/4/2020	5.5	0.77	130	5.9				23000
FP02	FP-87	MK-FP-87-0.0/0.5	0	0.5	10/16/2021	0.35	20	231 J	10				
FP02	FP-87	MK-FP-87-0.5/1.4	0.5	1.4	10/16/2021	0.03 U	0.65	122 J	46				
FP03	FP-05	MK-FP-05-0.0./0.5	0	0.5	11/11/2016	0.66	1.44	77.6 J	4.4 J				41600
FP03	FP-05	MK-FP-05-0.5/1.5	0.5	1.5	11/11/2016	0.33	0.763	42.3 J	4.5 J				14500
FP03	FP-05	MK-FP-05-1.5/2.0	1.5	2	11/11/2016	0.02 U	0.198	17 J	4.7 J				7360
FP03	FP-05X	MK-FP-05X-2.0/2.5	2	2.5	11/6/2020	0.032 U	0.013 J	12.8	2.7 J				16200
FP03	FP-05X	MK-FP-05X-2.5/4.0	2.5	4	11/6/2020	0.03 U	0.02 U	3.1	2.8 J				4800 J-
FP03	FP-06	MK-FP-06-0.0/0.5	0	0.5	11/11/2016	0.87	3.62	68.3 J	3.3 J	11	87	2	44300
FP03	FP-06	MK-FP-06-0.5/1.0	0.5	1	11/11/2016	0.45	6.28	166 J	7.3 J	11	61	28	27600
FP03	FP-06	MK-FP-06-1.0/2.0	1	2	11/11/2016	0.16	1.53	50 J	5.4 J	19	72		20100
FP03	FP-06	MK-FP-06-2.0/2.5	2	2.5	11/11/2016	0.02 U	0.164	15.3 J	2.3 J	15	83	2	23300

Table 2-2. Floodplains Reach Focused Contaminants of Concern Results Summary

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH[b]	Metals		Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[d]	Arsenic[e]	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[c, d,e]	1.1	8.48	400	8				
					Tier 2 SS-RCL[c]	0.7	5.09						
					TSCA LO	25							
FP03	FP-39	MK-FP-39-0.0/0.5	0	0.5	11/6/2020	1.3	1.4	89.8	5.8				42300
FP03	FP-39	MK-FP-39-0.5/1.5	0.5	1.5	11/6/2020	0.28	1.4	37.2	6.6				16100
FP03	FP-39	MK-FP-39-1.5/2.5	1.5	2.5	11/6/2020	0.03 U	0.081	19.2	4				10100
FP03	FP-39	MK-FP-39-2.5/3.6	2.5	3.6	11/6/2020	0.031 U	0.004 J	8.9	3.2				12200
FP03	FP-40A	MK-FP-40A-0.0/0.5	0	0.5	11/6/2020	0.15		69.8	5.9				72800
FP03	FP-40A	MK-FP-40A-0.5/1.5	0.5	1.5	11/6/2020	0.027		47.8	5.5				15600
FP03	FP-40A	MK-FP-40A-1.5/2.5	1.5	2.5	11/6/2020	0.029 U		12.2	5.8				12300
FP03	FP-40A	MK-FP-40A-2.5/3.6	2.5	3.6	11/6/2020	0.029 U		8.5	5.2				4280
FP03	FP-40B	MK-FP-40B-0.0/0.5	0	0.5	11/6/2020	0.15		67.2	6				31500
FP03	FP-40B	MK-FP-40B-0.5/1.5	0.5	1.5	11/6/2020	0.057		24	7.1				16900
FP03	FP-40B	MK-FP-40B-1.5/2.5	1.5	2.5	11/6/2020	0.027 U		11.3	6.4				5770
FP03	FP-40B	MK-FP-40B-2.5/3.6	2.5	3.6	11/6/2020	0.03 U		6.5	5				5940
FP03	FP-40C	MK-FP-40C-0.0/0.5	0	0.5	11/6/2020	0.029 U		49.9	5.9				15800
FP03	FP-40C	MK-FP-40C-0.5/1.5	0.5	1.5	11/6/2020	0.028 U		18.3	10.2				12800
FP03	FP-40C	MK-FP-40C-1.5/2.5	1.5	2.5	11/6/2020	0.027 U		7.7	5.6				7340
FP03	FP-40C	MK-FP-40C-2.5/4.0	2.5	4	11/6/2020	0.028 U		8.9	6.7				5400
FP03	FP-41	MK-FP-41-0.0/0.5	0	0.5	11/6/2020	0.064	0.26	54.8	6.9				34200
FP03	FP-41	MK-FP-41-0.5/1.5	0.5	1.5	11/6/2020	0.051	0.15	19.1	5.3				35300
FP03	FP-41	MK-FP-41-1.5/2.5	1.5	2.5	11/6/2020	0.028 U	0.002 J	9	5.6				11700
FP03	FP-41	MK-FP-41-2.5/4.0	2.5	4	11/6/2020	0.028 U	0.004 J	8.7	3.5				6430
FP03	FP-88	MK-FP-88-0.0/0.5	0	0.5	10/13/2021	0.55	1	96	5				
FP03	FP-88	MK-FP-88-0.5/1.5	0.5	1.5	10/13/2021	0.35	0.6	60	8				
FP03	FP-88	MK-FP-88-1.5/2.5	1.5	2.5	10/13/2021	0.04 J	0.12	28	6				
FP04	FP-07	MK-FP-07-0.0/0.5	0	0.5	11/11/2016	1.1	3.04	77.1 J	3.6 J				33600
FP04	FP-07	MK-FP-07-0.5/1.5	0.5	1.5	11/11/2016	2.2	9.29	174 J	5.2 J				29800
FP04	FP-07	MK-FP-07-1.5/2.5	1.5	2.5	11/11/2016	1.1	10.5	193 J	8 J				38000
FP04	FP-07	MK-FP-07-2.5/3.0	2.5	3	11/11/2016	0.76	5.47	80.9 J	4.3 J				69800
FP04	FP-08	MK-FP-08-0.0/0.5	0	0.5	11/11/2016	0.88	1.91	88.5 J	4.6 J	9.2	83.8	7	41800
FP04	FP-08	MK-FP-08-0.5/1.5	0.5	1.5	11/11/2016	4.1	6.84	245 J	6.2 J	7.7	83.3	9	26700
FP04	FP-08	MK-FP-08-1.5/2.5	1.5	2.5	11/11/2016	0.87	3.35	258 J	8.5 J	11	71	18	28900
FP04	FP-08	MK-FP-08-2.5/3.2	2.5	3.2	11/11/2016	0.28	1.04	66.6 J	3.1 J	2.6	97.4	0	7310
FP04	FP-09	MK-FP-09-0.0./0.5	0	0.5	11/11/2016	0.82	1.87	109 J	5.7 J				43700
FP04	FP-09	MK-FP-09-0.5/1.5	0.5	1.5	11/11/2016	2.9	4.1	184 J	5.3 J				28500
FP04	FP-09X	MK-FP-09X-2.0/3.0	2	3	11/5/2020	0.027 U	0.003 J	6.2	4.9				7230
FP04	FP-42	MK-FP-42-0.0/0.5	0	0.5	11/5/2020	0.022	0.22	85.3	8.4				38600
FP04	FP-42	MK-FP-42-0.5/1.5	0.5	1.5	11/5/2020	0.028 U	0.025	21.5	5.5				16700
FP04	FP-42	MK-FP-42-1.5/2.5	1.5	2.5	11/5/2020	0.029 U	0.019 U	8.2	10				2860
FP04	FP-42	MK-FP-42-2.5/3.4	2.5	3.4	11/5/2020	0.028 U	0.018 U	6.1	4.7				2970
FP04	FP-43	MK-FP-43-0.0/0.5	0	0.5	11/5/2020	0.033 U		29.1	9.7				12400
FP04	FP-43	MK-FP-43-0.5/1.5	0.5	1.5	11/5/2020	0.033 U		52.7	6.2				24900
FP04	FP-43	MK-FP-43-1.5/2.5	1.5	2.5	11/5/2020	0.031 U		13.9	6.3				16000
FP04	FP-43	MK-FP-43-2.5/4.0	2.5	4	11/5/2020	0.029 U		11.7	8.6				4990
FP04	FP-44	MK-FP-44-0.0/0.5	0	0.5	11/5/2020	0.085		85.5	6.5				50400
FP04	FP-44	MK-FP-44-0.5/1.5	0.5	1.5	11/5/2020	0.033 U		14.1	3.5				36900

Table 2-2. Floodplains Reach Focused Contaminants of Concern Results Summary

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH[b]	Metals		Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[d]	Arsenic[e]	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[c, d,e]	1.1	8.48	400	8				
					Tier 2 SS-RCL[c]	0.7	5.09						
					TSCA LO	25							
FP04	FP-44	MK-FP-44-1.5/2.5	1.5	2.5	11/5/2020	0.031 U		8	3.3				6320
FP04	FP-44	MK-FP-44-2.5/4.0	2.5	4	11/5/2020	0.030 U		6.4	7.1				7410 J-
FP04	FP-45	MK-FP-45-0.0/0.5	0	0.5	11/5/2020	0.025		117	7.5				52100
FP04	FP-45	MK-FP-45-0.5/1.5	0.5	1.5	11/5/2020	0.033 U		25.1	5				36200
FP04	FP-45	MK-FP-45-1.5/2.5	1.5	2.5	11/5/2020	0.03 U		7.5	4.4				8850
FP04	FP-45	MK-FP-45-2.5/4.0	2.5	4	11/5/2020	0.029 U		5	2.6 J				2120
FP04	FP-46	MK-FP-46-0.0/0.5	0	0.5	11/5/2020	0.30	1.9	180	6.6				47400
FP04	FP-46	MK-FP-46-0.5/1.5	0.5	1.5	11/5/2020	0.028 U	20	28.9	5				31700
FP04	FP-46	MK-FP-46-1.5/2.5	1.5	2.5	11/5/2020	0.029 U	0.35	14.4	5.7				21800
FP04	FP-46	MK-FP-46-2.5/4.0	2.5	4	11/5/2020	0.032 U	0.011 J	15.7	3.6				23300
FP05	FP-10	MK-FP-10-0.0./0.5	0	0.5	11/11/2016	1.20	2.15	125 J	5.8 J				41800
FP05	FP-10	MK-FP-10-0.5/1.2	0.5	1.2	11/11/2016	1.90	3.16	339 J	11.1				32900
FP05	FP-10	MK-FP-10-1.2/2.3	1.2	2.3	11/11/2016	0.32	1.75	99.3 J	5.6				19600
FP05	FP-101	MK-FP-101-0.0/0.5	0	0.5	10/16/2021	0.07	0.3	675 J	5				
FP05	FP-101	MK-FP-101-1.5/2.5	1.5	2.5	10/16/2021	0.02 J	0.15	191 J	4				
FP05	FP-102	MK-FP-102-0.0/1.0	0	1	10/16/2021	0.85	2.8	127	4				
FP05	FP-102	MK-FP-102-1.0/2.0	1	2	10/16/2021	0.46	1.6	169 J	7				
FP05	FP-102	MK-FP-102-2.0/3.0	2	3	10/16/2021	0.16	1.6	247 J	9				
FP05	FP-11	MK-FP-11-0.0/0.5	0	0.5	11/11/2016	0.61	1.97	101 J	3.7 J	35	61	4	23400
FP05	FP-11	MK-FP-11-0.5/1.5	0.5	1.5	11/11/2016	1.5	6.06	251 J	6.8	26	63	11	35300
FP05	FP-11	MK-FP-11-1.5/2.5	1.5	2.5	11/11/2016	0.65	2.3	246 J	9.2	33	44	23	27000
FP05	FP-11	MK-FP-11-2.2/3.6	2.2	3.6	11/11/2016	0.05	0.654 J	153 J	6.4 J	35	54	11	19500
FP05	FP-53	MK-FP-53-0.0/0.5	0	0.5	11/5/2020	0.66	1.3	106	3.4				19700
FP05	FP-53	MK-FP-53-0.5/1.5	0.5	1.5	11/5/2020	2.5	9.8	226	6.1				21700
FP05	FP-53	MK-FP-53-1.5/2.0	1.5	2	11/5/2020	2.5	2.4	380	8.4				29600
FP05	FP-53	MK-FP-53-2.5/4.0	2.5	4	11/5/2020	0.27	0.83	93.6	2.7 J				18400
FP05	FP-54	MK-FP-54-0.0/0.5	0	0.5	11/5/2020	0.17		183	7.1				69900
FP05	FP-54	MK-FP-54-0.5/1.6	0.5	1.6	11/5/2020	0.03 U		13	3.1				10000
FP05	FP-55	MK-FP-55-0.0/0.5	0	0.5	11/5/2020	7.1		277	6				56100
FP05	FP-55	MK-FP-55-0.5/1.5	0.5	1.5	11/5/2020	0.56		62.9	4.4				25700
FP05	FP-55	MK-FP-55-1.5/2.5	1.5	2.5	11/5/2020	0.13		1470	5.7				10700
FP05	FP-55	MK-FP-55-2.5/4.0	2.5	4	11/5/2020	0.22		71	6.1				26500
FP05	FP-56	MK-FP-56-0.0/0.5	0	0.5	11/5/2020	5.1	3.1	172	4.3				29800
FP05	FP-56	MK-FP-56-0.5/1.7	0.5	1.7	11/5/2020	1	0.11	125	6.2				26900
FP06	FP-106	MK-FP-106-0.0/0.5	0	0.5	10/16/2021	7.60	2.6	318 P6	7				
FP06	FP-106	MK-FP-106-0.5/1.5	0.5	1.5	10/16/2021	1.90	3	139	6				
FP06	FP-106	MK-FP-106-1.5/2.4	1.5	2.4	10/16/2021	0.03 U	0.17	26	3 J				
FP06	FP-107	MK-FP-107-0.0/0.5	0	0.5	10/16/2021	9.40	5.4	357	6				
FP06	FP-107	MK-FP-107-0.5/1.5	0.5	1.5	10/16/2021	0.22	4.3	229	9				
FP06	FP-107	MK-FP-107-1.5/2.5	1.5	2.5	10/16/2021	0.03 U	0.68	49	2 J				
FP06	FP-12	MK-FP-12-0.0./0.5	0	0.5	11/11/2016	0.91	1.6	170 J	4.1 J				42100
FP06	FP-12	MK-FP-12-0.5/1.5	0.5	1.5	11/11/2016	1.2	4.01	215 J	6.7				25400
FP06	FP-12	MK-FP-12-1.5/2.5	1.5	2.5	11/11/2016	0.02 U	0.592 J	82.3 J	3.8 J				19300
FP06	FP-12	MK-FP-12-2.5/3.2	2.5	3.2	11/11/2016	0.02 U	0.0342	10 J	1.4 J				12700

Table 2-2. Floodplains Reach Focused Contaminants of Concern Results Summary

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH[b]	Metals		Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[d]	Arsenic[e]	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[c, d,e]	1.1	8.48	400	8				
					Tier 2 SS-RCL[c]	0.7	5.09						
					TSCA LO	25							
FP06	FP-12	MK-FP-12-5.0/7.0	5	7	11/11/2016	0.02 U	0.0032 U	9.7 J	2.1 J				8240
FP06	FP-12	MK-FP-12-7.0/9.0	7	9	11/11/2016	0.02 U	0.0032 U	4.7 J	3 J				7570
FP06	FP-12	MK-FP-12-9.0/9.5	9	9.5	11/11/2016	0.02 U	0.0031 U	4.3 J	2.9 J				3030
FP06	FP-12	MK-FP-12-10.0/11.4	10	11.4	11/11/2016	0.02 U	0.0035 U	3.8 J	1.4 J				6420
FP06	FP-13	MK-FP-13-0.0/0.5	0	0.5	11/11/2016	12.4	3.5	430 J	6.7	29	52	19	41200
FP06	FP-13	MK-FP-13-0.5/1.5	0.5	1.5	11/11/2016	9.9	4.59	287	10.4	29	56	15	33400
FP06	FP-13	MK-FP-13-1.5/2.5	1.5	2.5	11/11/2016	1.1	3.32	224	8.2	42	45	13	29100
FP06	FP-13	MK-FP-13-2.5/4.0	2.5	4	11/11/2016	0.02 U	1.04	105	6.2 J	33	13	54	22900
FP06	FP-13	MK-FP-13-4.0/5.0	4	5	11/11/2016	0.02 U	0.773	47	5 J	21	78	1	11900
FP06	FP-13	MK-FP-13-5.0/5.5	5	5.5	11/11/2016	0.02 U	0.0416	7.7	4 J				16100
FP06	FP-13	MK-FP-13-9.0/11.0	9	11	11/11/2016	0.02 U	0.0598	18.8	4.7 J	55	38	7	24400
FP06	FP-13	MK-FP-13-11.0/12.2	11	12.2	11/11/2016	0.02 U	0.0115	10.9	4.4 J	37	60	3	34800
FP06	FP-14	MK-FP-14-0.0/0.5	0	0.5	11/11/2016	5.3	0.448	171	6 J				46800
FP06	FP-14	MK-FP-14-0.5/1.5	0.5	1.5	11/11/2016	24.4	1.06	385	8.6				45700
FP06	FP-14	MK-FP-14-1.5/2.4	1.5	2.4	11/11/2016	0.19	0.992	82.6	4.7 J				14600
FP06	FP-14	MK-FP-14-5.0/7.0	5	7	11/11/2016	0.21	0.534 J	54.1	4.4 J				25700
FP06	FP-14	MK-FP-14-10.0/11.8	10	11.8	11/11/2016	0.02 U	0.23	18.7	3.4 J				22900
FP06	FP-57	MK-FP-57-0.0/0.5	0	0.5	11/4/2020	0.83	1.5	177	5.1				53700
FP06	FP-57	MK-FP-57-0.5.1.5	0.5	1.5	11/4/2020	0.15	1	116	4.6				19600
FP06	FP-57	MK-FP-57-1.5/2.5	1.5	2.5	11/4/2020	0.033 U	0.24	25.9	3.2				22400
FP06	FP-57	MK-FP-57-2.5/4.0	2.5	4	11/4/2020	0.031 U	0.021 U	3.1	2.2 J				8930
FP06	FP-58	MK-FP-58-0.0/0.5	0	0.5	11/4/2020	3.1		491	5.5				30300
FP06	FP-58	MK-FP-58-0.5/1.5	0.5	1.5	11/4/2020	0.66		274	5.1				25800
FP06	FP-58	MK-FP-58-1.5/2.5	1.5	2.5	11/4/2020	0.031 U		94.1	3				17400
FP06	FP-58	MK-FP-58-2.5/4.0	2.5	4	11/4/2020	0.034 U		10	3.3 U				16200
FP06	FP-59	MK-FP-59-0.0/0.5	0	0.5	11/4/2020	0.9		216	3.4				42000
FP06	FP-59	MK-FP-59-0.5/1.5	0.5	1.5	11/4/2020	0.55		307	4.9				20000
FP06	FP-59	MK-FP-59-1.5/2.5	1.5	2.5	11/4/2020	0.39		285	5.5				14600
FP06	FP-59	MK-FP-59-2.5/3.8	2.5	3.8	11/4/2020	2.3		258	5.4				26900
FP06	FP-60	MK-FP-60-0.0/0.5	0	0.5	11/4/2020	4.7		350	4.6				45600
FP06	FP-60	MK-FP-60-0.5/1.5	0.5	1.5	11/4/2020	1.6		227	8.8				33400
FP06	FP-60	MK-FP-60-1.5/2.5	1.5	2.5	11/4/2020	0.12		177	7.1				50000
FP06	FP-60	MK-FP-60-2.5/4.0	2.5	4	11/4/2020	0.038 U		132	3.6 J				28200
FP06	FP-61	MK-FP-61-0.0/0.5	0	0.5	11/4/2020	5.9	1.8	163	6.2				39500
FP06	FP-61	MK-FP-61-0.5/1.5	0.5	1.5	11/4/2020	20.2	3.5	428	13.2				34000
FP06	FP-61	MK-FP-61-1.5/2.5	1.5	2.5	11/4/2020	0.25	1.7	210	9.8				31500
FP06	FP-61	MK-FP-61-2.5/3.9	2.5	3.9	11/4/2020	0.033 U	0.19	81.2	5				16900
FP06	FP-76	MK-FP-76-0.0/0.5	0	0.5	11/4/2020	1.2		174	4.9				37900
FP06	FP-76	MK-FP-76-0.5/1.5	0.5	1.5	11/4/2020	0.19		159	5.7				14100
FP06	FP-76	MK-FP-76-1.5/2.5	1.5	2.5	11/4/2020	0.033 U		117	5.5				14400
FP06	FP-76	MK-FP-76-2.5/4.0	2.5	4	11/4/2020	0.033 U		11	3.3				10700
FP06	FP-77	MK-FP-77-0.0/0.5	0	0.5	11/4/2020	1.6		155	4.5				26900
FP06	FP-77	MK-FP-77-0.5/1.5	0.5	1.5	11/4/2020	7		242	5.4				24600
FP06	FP-77	MK-FP-77-1.5/2.5	1.5	2.5	11/4/2020	0.31		165	6.4				23600

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Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH[b]	Metals		Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[d]	Arsenic[e]	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[c, d,e]	1.1	8.48	400	8				
					Tier 2 SS-RCL[c]	0.7	5.09						
					TSCA LO	25							
FP06	FP-77	MK-FP-77-2.5/3.9	2.5	3.9	11/4/2020	0.041 U		91.3	6.9				44900
FP06	FP-78	MK-FP-78-0.0/0.5	0	0.5	11/4/2020	1	1.8	213	5.8				44700
FP06	FP-78	MK-FP-78-0.5/1.5	0.5	1.5	11/4/2020	0.15	0.96	134	5.4				20300
FP06	FP-78	MK-FP-78-1.5/2.5	1.5	2.5	11/4/2020	0.03 U	0.32 J	152	8.4				38200
FP06	FP-78	MK-FP-78-2.5/3.5	2.5	3.5	11/4/2020	0.031 U	0.052	18.4	4.3 J				9110
FP06	FP-79	MK-FP-79-0.0/0.5	0	0.5	11/4/2020	9.7		211	4.7				29500
FP06	FP-79	MK-FP-79-0.5/1.5	0.5	1.5	11/4/2020	12.1		352	8.3				32200
FP06	FP-79	MK-FP-79-1.5/2.5	1.5	2.5	11/4/2020	0.22		218	6.3				26600
FP06	FP-79	MK-FP-79-2.5/3.3	2.5	3.3	11/4/2020	0.037 U		71.8	4.5				18600
FP06	FP-80	MK-FP-80-0.0/0.5	0	0.5	11/5/2020	3.6		489	7.4				50000
FP06	FP-80	MK-FP-80-0.5/1.5	0.5	1.5	11/5/2020	18.8		257	9.7				33100
FP06	FP-80	MK-FP-80-1.5/2.5	1.5	2.5	11/5/2020	0.036 U		106	5.4				23100
FP06	FP-80	MK-FP-80-2.5/3.7	2.5	3.7	11/5/2020	0.083		156	6.2				36700
FP07	FP-113	MK-FP-113-0.0/0.5	0	0.5	10/16/2021	0.53	1	90	4				
FP07	FP-113	MK-FP-113-0.5/1.5	0.5	1.5	10/16/2021	0.08	0.11	18	2 J				
FP07	FP-113	MK-FP-113-1.5/2.0	1.5	2	10/16/2021	0.03 U	0.019 U	9	2 J				
FP07	FP-114	MK-FP-114-0.0/0.5	0	0.5	10/13/2021	0.89	1.3	90	5				
FP07	FP-114	MK-FP-114-0.5/1.5	0.5	1.5	10/13/2021	0.23	0.81	122	6				
FP07	FP-114	MK-FP-114-1.5/2.5	1.5	2.5	10/13/2021	0.03 U	0.02 J	13	2 J				
FP07	FP-114	MK-FP-114-2.5/4.0	2.5	4	10/13/2021	0.03 U	0.003 J	8	2 J				
FP07	FP-115	MK-FP-115-0.0/0.5	0	0.5	10/13/2021	2.20	1.5	122	4				
FP07	FP-115	MK-FP-115-0.5/1.5	0.5	1.5	10/13/2021	27.0	4.5	392	10				
FP07	FP-115	MK-FP-115-1.5/2.5	1.5	2.5	10/13/2021	0.15	0.58	93	6				
FP07	FP-115	MK-FP-115-2.5/3.5	2.5	3.5	10/13/2021	0.03 U	0.24	24	3				
FP07	FP-122	MK-FP-122-0.0/0.5	0	0.5	10/13/2021	6.20	3.3	239	5				
FP07	FP-122	MK-FP-122-0.5/1.5	0.5	1.5	10/13/2021	3.10	3.8	193	6				
FP07	FP-122	MK-FP-122-1.5/2.5	1.5	2.5	10/13/2021	0.05 J	2.4	54	4				
FP07	FP-122	MK-FP-122-2.5/3.9	2.5	3.9	10/13/2021	0.04 U	0.081	24	4				
FP07	FP-123	MK-FP-123-0.0/0.5	0	0.5	10/13/2021	2.50	1.6	183 J	5				
FP07	FP-123	MK-FP-123-0.5/1.5	0.5	1.5	10/13/2021	14.0	4.2	298 J	8				
FP07	FP-123	MK-FP-123-1.5/2.5	1.5	2.5	10/13/2021	0.05 J	1.4	88 J	5				
FP07	FP-123	MK-FP-123-2.5/3.2	2.5	3.2	10/13/2021	0.03 U	0.39	88 J	6				
FP07	FP-125	MK-FP-125-0.0/0.5	0	0.5	10/13/2021	1.20	1.8	335 J	6				
FP07	FP-125	MK-FP-125-0.5/1.5	0.5	1.5	10/13/2021	3.60	2.4	297 J	6				
FP07	FP-125	MK-FP-125-1.5/2.5	1.5	2.5	10/13/2021	6.60	4.9	428 J	12				
FP07	FP-125	MK-FP-125-2.5/3.3	2.5	3.3	10/13/2021	0.46	2.5	320 J	10				
FP07	FP-15	MK-FP-15-0.0./0.5	0	0.5	11/11/2016	7.9	2.34	133 J	5.1 J				36500
FP07	FP-15	MK-FP-15-0.5/1.5	0.5	1.5	11/11/2016	4.6	2.53	221 J	6.9 J				29800
FP07	FP-15	MK-FP-15-1.5/2.3	1.5	2.3	11/11/2016	0.02 U	0.564	29.7 J	3.3 J				18000
FP07	FP-15	MK-FP-15-5.0/7.2	5	7.2	11/11/2016	0.67	0.0215 J	82.1 J	5 J				20800
FP07	FP-15	MK-FP-15-10/10.3	10	10.3	11/11/2016	1	0.226	17.6	4 J				2930
FP07	FP-16	MK-FP-16-0.0/0.5	0	0.5	11/11/2016	0.39	1.19	96.5	4.5 J	8.2	63.8	28	34400
FP07	FP-16	MK-FP-16-0.5/1.5	0.5	1.5	11/11/2016	11.7	2.13	98.5	4 J	13	76	11	32900
FP07	FP-16	MK-FP-16-1.5/2.6	1.5	2.6	11/11/2016	0.02 U	1.19	136	5.9 J	7.7	40.3	52	25700 J+

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						PCB[a]	PAH[b]	Metals		Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[d]	Arsenic[e]	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[c, d,e]	1.1	8.48	400	8				
					Tier 2 SS-RCL[c]	0.7	5.09						
					TSCA LO	25							
FP07	FP-16	MK-FP-16-5.0/7.0	5	7	11/11/2016	0.02 U	0.0695	40.6	3.6 J	17	65	18	18800 J+
FP07	FP-16	MK-FP-16-7.0/8.6	7	8.6	11/11/2016	0.02 U	0.006 J-	18.7	3.8 J	12	68	20	24800 J+
FP07	FP-16	MK-FP-16-10.0/10.2	10	10.2	11/11/2016	0.1	0.111	8.4	2.3 J				4170 J+
FP07	FP-16X	MK-FP-16X-3.0/4.0	3	4	11/6/2020	0.04 U	0.44	176 J	9.6				26500
FP07	FP-17	MK-FP-17-0.0./0.5	0	0.5	11/11/2016	6.7	1.16	169	5.7 J				39200 J+
FP07	FP-17	MK-FP-17-0.5/1.8	0.5	1.8	11/11/2016	4.3	2.09	11.4	2.8 J				11100 J+
FP07	FP-17	MK-FP-17-5.0/7.0	5	7	11/11/2016	0.14	0.0083 J	29.4	4 J				20100 J+
FP07	FP-17	MK-FP-17-7.0/8.2	7	8.2	11/11/2016	0.02 U	0.0041 U	21.1	5.8 J				26000 J+
FP07	FP-17	MK-FP-17-10.0/12.5	10	12.5	11/11/2016	0.02 U	0.0093 J	134	4.8 J				32100 J+
FP07	FP-17X	MK-FP-17X-2.5/4.0	2.5	4	11/6/2020	0.22	0.59	107	6.3				26600
FP07	FP-18	MK-FP-18-0.0/0.5	0	0.5	11/11/2016	7.4	1.04	244	7.8	69	31	0	39800
FP07	FP-18	MK-FP-18-0.5/1.5	0.5	1.5	11/11/2016	0.48	0.983	106	5.4 J	68	32	0	30700
FP07	FP-18	MK-FP-18-1.5/2.7	1.5	2.7	11/11/2016	0.38	0.349	85.9	6 J	63	37	0	23900
FP07	FP-18	MK-FP-18-5.0/7.0	5	7	11/11/2016	0.02 U	0.011 J	17.2	2.6 J	71	29	0	14900
FP07	FP-18	MK-FP-18-7.0/8.3	7	8.3	11/11/2016	0.02 U	0.0037 U	15.3	4.5 J	52	48	0	21600
FP07	FP-18	MK-FP-18-10.0/12.3	10	12.3	11/11/2016	0.02 U	0.0051 J	20.6	5 J	85	15	0	31300
FP07	FP-18	MK-FP-18-12.3/12.9	12.3	12.9	11/11/2016	0.02 U	0.0031 U	5.3	3.3 J				3740
FP07	FP-19	MK-FP-19-0.0/0.5	0	0.5	11/11/2016	5.5	2.11	255	6.7 J				58100
FP07	FP-19	MK-FP-19-0.5/1.5	0.5	1.5	11/11/2016	0.02 U	0.165	129	7.8				40500
FP07	FP-19	MK-FP-19-1.5/2.2	1.5	2.2	11/11/2016	0.02 U	0.1	73.4	6.8				28900
FP07	FP-19	MK-FP-19-5.0/7.0	5	7	11/11/2016	0.02 U	0.0055 J	38.5	5.4 J				28600
FP07	FP-19	MK-FP-19-7.0/8.3	7	8.3	11/11/2016	0.02 U	0.0169	28.3	4.9 J				27400
FP07	FP-19	MK-FP-19-10.0/12.0	10	12	11/11/2016	0.05	0.0098 J	16.5	4.1 J				22600
FP07	FP-19	MK-FP-19-12.0/12.5	12	12.5	11/11/2016	1	0.0749	46.6	4.2 J				13900
FP07	FP-62	MK-FP-62-0.0/0.5	0	0.5	11/5/2020	1.2	1.5	152 J	2.7 J				34700
FP07	FP-62	MK-FP-62-0.5/1.5	0.5	1.5	11/5/2020	20.1	3.2	439	8				34200
FP07	FP-62	MK-FP-62-1.5/2.5	1.5	2.5	11/5/2020	0.51	1.3	183	5.9				17400
FP07	FP-62	MK-FP-62-2.5/4.0	2.5	4	11/5/2020	0.036 U	0.11	51.6	5.2				22700
FP07 - HRUA Ravine	FP-63	MK-FP-63-0.0/0.5	0	0.5	11/5/2020	10.3	1.9	371	8.5				64400
FP07 - HRUA Ravine	FP-63	MK-FP-63-0.5/1.5	0.5	1.5	11/5/2020	2.8	1.7	198	8.4				30600
FP07 - HRUA Ravine	FP-63	MK-FP-63-1.5/2.5	1.5	2.5	11/5/2020	0.027 U	0.78	96.4	4.7				26400
FP07 - HRUA Ravine	FP-63	MK-FP-63-2.5/4.0	2.5	4	11/5/2020	0.036 U	0.39	63.9	5.5				22800
FP07	FP-64	MK-FP-64-0.0/0.5	0	0.5	11/5/2020	5.6		266	8.5				33500
FP07	FP-64	MK-FP-64-0.5/1.5	0.5	1.5	11/5/2020	0.1		219	7.8				26500
FP07	FP-64	MK-FP-64-1.5/2.5	1.5	2.5	11/5/2020	0.035 U		42.1	3.5				23300
FP07	FP-64	MK-FP-64-2.5/3.8	2.5	3.8	11/5/2020	0.038 U		20.7	2.5 J				24800
FP07	FP-65	MK-FP-65-0.0/0.5	0	0.5	11/6/2020	8.5	4.1	244	4.3				50000
FP07	FP-65	MK-FP-65-0.5/1.5	0.5	1.5	11/6/2020	3.1	3.9	197	6.8				31600
FP07	FP-65	MK-FP-65-1.5/2.5	1.5	2.5	11/6/2020	0.034 U	0.86	50.1	3.2 J				31000
FP07	FP-65	MK-FP-65-2.5/3.7	2.5	3.7	11/6/2020	0.036 U	0.061	24.8	4.3				18500
FP07	FP-66	MK-FP-66-0.0/0.5	0	0.5	11/6/2020	18.4		281	5.6				34900
FP07	FP-66	MK-FP-66-0.5/1.5	0.5	1.5	11/6/2020	0.68		268	10.1				33400
FP07	FP-66	MK-FP-66-1.5/2.5	1.5	2.5	11/6/2020	0.14		127	7				48200
FP07	FP-66	MK-FP-66-2.5/4.0	2.5	4	11/6/2020	0.035 U		82	6				22200

Table 2-2. Floodplains Reach Focused Contaminants of Concern Results Summary

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH[b]	Metals		Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[d]	Arsenic[e]	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[c, d,e]	1.1	8.48	400	8				
					Tier 2 SS-RCL[c]	0.7	5.09						
					TSCA LO	25							
FP07	FP-67	MK-FP-67-0.0/0.5	0	0.5	11/6/2020	5.4	3.9	523	8.2				42200
FP07	FP-67	MK-FP-67-0.5/1.5	0.5	1.5	11/6/2020	24	7.9	441	9.5				41800
FP07	FP-67	MK-FP-67-1.5/2.5	1.5	2.5	11/6/2020	0.6	8	284	9.7				25900
FP07	FP-67	MK-FP-67-2.5/4.0	2.5	4	11/6/2020	0.057	4.3	318 J	11				95300 J
FP07 - HRUA Canoe	FP-116	MK-FP-116-0.0/0.5	0	0.5	10/13/2021	2.30	5.4	123	7				
FP07 - HRUA Canoe	FP-116	MK-FP-116-0.5/1.5	0.5	1.5	10/13/2021	5.60	5.5	168	7				
FP07 - HRUA Canoe	FP-116	MK-FP-116-1.5/2.5	1.5	2.5	10/13/2021	0.62	2	137	6				
FP07 - HRUA Canoe	FP-116	MK-FP-116-2.5/4.0	2.5	4	10/13/2021	0.03 U	0.33	53	5				
FP07 - HRUA Canoe	FP-117	MK-FP-117-0.0/0.5	0	0.5	10/13/2021	1.40	17	273	5				
FP07 - HRUA Canoe	FP-117	MK-FP-117-0.5/1.5	0.5	1.5	10/13/2021	1.50	27	166 J	7				
FP07 - HRUA Canoe	FP-117	MK-FP-117-1.5/2.5	1.5	2.5	10/13/2021	0.03 U	0.57	38 J	15				
FP07 - HRUA Canoe	FP-117	MK-FP-117-2.5/3.0	2.5	3	10/13/2021	0.03 U	0.037	14 J	2 J				
FP07 - HRUA M. Flats	FP-118	MK-FP-118-0.0/0.5	0	0.5	10/13/2021	34.0	4.2	356	10				
FP07 - HRUA M. Flats	FP-118	MK-FP-118-0.5/1.5	0.5	1.5	10/13/2021	4.30	5.2	306	11				
FP07 - HRUA M. Flats	FP-118	MK-FP-118-1.5/2.5	1.5	2.5	10/13/2021	0.15	2	90	7				
FP07 - HRUA M. Flats	FP-118	MK-FP-118-2.5/3.8	2.5	3.8	10/13/2021	0.03 U	0.17	30	5				
FP07 - HRUA M. Flats	FP-119	MK-FP-119-0.0/0.5	0	0.5	10/13/2021	31.0	3.2	394 J	9				
FP07 - HRUA M. Flats	FP-119	MK-FP-119-0.5/1.5	0.5	1.5	10/13/2021	6.20	6.3	324 J	9				
FP07 - HRUA M. Flats	FP-119	MK-FP-119-1.5/2.5	1.5	2.5	10/13/2021	0.03 U	1.2 J	132 J	6				
FP07 - HRUA M. Flats	FP-119	MK-FP-119-2.5/3.1	2.5	3.1	10/13/2021	0.03 U	0.51	50 J	3 J				
FP07 - HRUA M. Flats	FP-120	MK-FP-120-0.0/0.5	0	0.5	10/13/2021	15.0	4.8	313	8				
FP07 - HRUA M. Flats	FP-120	MK-FP-120-0.5/1.5	0.5	1.5	10/13/2021	7.80	4.2	310	10				
FP07 - HRUA M. Flats	FP-120	MK-FP-120-1.5/2.5	1.5	2.5	10/13/2021	0.11 J	1.2 J	108	7				
FP07 - HRUA M. Flats	FP-120	MK-FP-120-2.5/3.8	2.5	3.8	10/13/2021	0.04 U	0.085	23	4				
FP07 - HRUA M. Flats	FP-121	MK-FP-121-0.0/0.5	0	0.5	10/13/2021	7.90	3.8	345 J	9				
FP07 - HRUA M. Flats	FP-121	MK-FP-121-0.5/1.5	0.5	1.5	10/13/2021	1.10	4.5	273 J	8				
FP07 - HRUA M. Flats	FP-121	MK-FP-121-1.5/2.5	1.5	2.5	10/13/2021	0.03 U	0.85	89 J	6				
FP07 - HRUA M. Flats	FP-121	MK-FP-121-2.5/2.9	2.5	2.9	10/13/2021	0.03 U	0.25	59 J	4				
FP07 - HRUA Ravine	FP-108	MK-FP-108-0.0/0.5	0	0.5	10/16/2021	0.51	1.5	83	4				
FP07 - HRUA Ravine	FP-108	MK-FP-108-0.5/1.5	0.5	1.5	10/16/2021	0.26	0.33	46	3 J				
FP07 - HRUA Ravine	FP-108	MK-FP-108-1.5/2.5	1.5	2.5	10/16/2021	0.04 U	0.017 J	12	3 U				
FP07 - HRUA Ravine	FP-108	MK-FP-108-2.5/3.0	2.5	3	10/16/2021	0.04 U	0.024 U	7	3 J				
FP07 - HRUA Ravine	FP-109	MK-FP-109-0.0/0.5	0	0.5	10/16/2021	0.61	1.3	115	5				
FP07 - HRUA Ravine	FP-109	MK-FP-109-0.5/1.5	0.5	1.5	10/16/2021	0.05 J	3.3	49	4				
FP07 - HRUA Ravine	FP-109	MK-FP-109-1.5/2.2	1.5	2.2	10/16/2021	0.03 U	0.046	6	3 U				
FP07 - HRUA Ravine	FP-110	MK-FP-110-0.0/0.5	0	0.5	10/16/2021	2.80	2.6	243	6				
FP07 - HRUA Ravine	FP-110	MK-FP-110-0.5/1.5	0.5	1.5	10/16/2021	0.23	1.8	157	7				
FP07 - HRUA Ravine	FP-110	MK-FP-110-1.5/2.5	1.5	2.5	10/16/2021	0.04 U	2.7	70	4				
FP07 - HRUA Ravine	FP-110	MK-FP-110-2.5/3.1	2.5	3.1	10/16/2021	0.04 U	0.049	29	5				
FP07 - HRUA Ravine	FP-111	MK-FP-111-0.0/0.5	0	0.5	10/16/2021	0.18	2.6	63	6				
FP07 - HRUA Ravine	FP-111	MK-FP-111-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.11	18	9				
FP07 - HRUA Ravine	FP-111	MK-FP-111-1.5/2.5	1.5	2.5	10/16/2021	0.03 U	3	63 J	5				
FP07 - HRUA Ravine	FP-111	MK-FP-111-2.5/3.0	2.5	3	10/16/2021	0.03 U	1.9	11 J	3 J				
FP07 - HRUA Ravine	FP-112	MK-FP-112-0.0/0.5	0	0.5	10/16/2021	0.02 J	9.7	92 J	5				

Table 2-2. Floodplains Reach Focused Contaminants of Concern Results Summary

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH[b]	Metals		Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[d]	Arsenic[e]	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[c, d,e]	1.1	8.48	400	8				
					Tier 2 SS-RCL[c]	0.7	5.09						
					TSCA LO	25							
FP07 - HRUA Ravine	FP-112	MK-FP-112-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	1.6	77 J	7				
FP07 - HRUA Ravine	FP-112	MK-FP-112-1.5/2.5	1.5	2.5	10/16/2021	0.03 U	0.5	69 J	5				
FP07 - HRUA Ravine	FP-112	MK-FP-112-2.5/3.7	2.5	3.7	10/16/2021	0.03 U	0.041 J	7 J	3 U				
FP08/09	FP-124	MK-FP-124-0.0/0.5	0	0.5	10/12/2021	2.10	4.6	230	6				
FP08/09	FP-124	MK-FP-124-0.5/1.5	0.5	1.5	10/12/2021	0.40	1.4	102	7				
FP08/09	FP-124	MK-FP-124-1.5/2.5	1.5	2.5	10/12/2021	0.03 U	0.091	23	4				
FP08/09	FP-124	MK-FP-124-2.5/3.8	2.5	3.8	10/12/2021	0.02 J	0.091	10	2 J				
FP08/09	FP-127	MK-FP-127-0.0/0.5	0	0.5	10/12/2021	2.30	2	122	4				
FP08/09	FP-127	MK-FP-127-0.5/1.5	0.5	1.5	10/12/2021	1.20	1.1	63	3 J				
FP08/09	FP-127	MK-FP-127-1.5/2.5	1.5	2.5	10/12/2021	2.20	0.97	119	6				
FP08/09	FP-127	MK-FP-127-2.5/3.3	2.5	3.3	10/12/2021	6.20	1.9	268	9				
FP08/09	FP-128	MK-FP-128-0.0/0.5	0	0.5	10/12/2021	1.00	0.75	82	9				
FP08/09	FP-128	MK-FP-128-0.5/1.5	0.5	1.5	10/12/2021	0.85	0.79	94	4				
FP08/09	FP-128	MK-FP-128-1.5/2.5	1.5	2.5	10/12/2021	2.10	1.2	89	4				
FP08/09	FP-128	MK-FP-128-2.5/3.6	2.5	3.6	10/12/2021	5.90	1.2	162	5				
FP08/09	FP-131	MK-FP-131-0.0/0.5	0	0.5	10/12/2021	0.43	0.58	99	5				
FP08/09	FP-131	MK-FP-131-0.5/1.5	0.5	1.5	10/12/2021	3.00	1.1	112	6				
FP08/09	FP-131	MK-FP-131-1.5/2.5	1.5	2.5	10/12/2021	2.70	1	106	5				
FP08/09	FP-131	MK-FP-131-2.5/3.8	2.5	3.8	10/12/2021	2.10	1.5	184	9				
FP08/09	FP-20	MK-FP-20-0.0./0.5	0	0.5	11/10/2016	24.6	3.09	264	7.1				48900
FP08/09	FP-20	MK-FP-20-0.5/1.5	0.5	1.5	11/10/2016	11.6	5.34	415	12				44700
FP08/09	FP-20	MK-FP-20-1.5/2.3	1.5	2.3	11/10/2016	0.11	1.29	75.2	4.5				33300
FP08/09	FP-20	MK-FP-20-5.0/7.0	5	7	11/10/2016	0.02 U	0.0227	4.7	1.9 J				7010
FP08/09	FP-20	MK-FP-20-7.0/7.9	7	7.9	11/10/2016	0.03	0.0704	13.8	2.3				3830
FP08/09	FP-20	MK-FP-20-10.0/10.6	10	10.6	11/10/2016	0.01 U	0.003	10.9	2.4				1660
FP08/09	FP-21	MK-FP-21-0.0/0.5	0	0.5	11/10/2016	3.5	3.31 J-	228	6.6	63	26	11	60400
FP08/09	FP-21	MK-FP-21-0.5/1.5	0.5	1.5	11/10/2016	3.2	1.99	248	6.7	72	23	5	31900
FP08/09	FP-21	MK-FP-21-1.5/2.5	1.5	2.5	11/10/2016	8.8	1.81	242	10	97	3	0	34200
FP08/09	FP-21	MK-FP-21-5.0/7.0	5	7	11/10/2016	0.02 U	0.239	81.2	6.2	88	12	0	27800
FP08/09	FP-21	MK-FP-21-7.0/8.3	7	8.3	11/10/2016	0.02 U	0.215	32.6	4.3	91	9	0	22600
FP08/09	FP-21	MK-FP-21-10.0/12.0	10	12	11/10/2016	0.02 U	0.0139 J-	16.4	3	88	12	0	29200
FP08/09	FP-21	MK-FP-21-12.0/13.3	12	13.3	11/10/2016	0.02 U	0.00051 U	8.9	2.2	80	20	0	40800
FP08/09	FP-21	MK-FP-21-13.3/14.0	13.3	14	11/10/2016	0.01 U	0.00055 U	5.2	1.2	58	35	7	2850
FP08/09	FP-21X	MK-FP-21X-3.0/4.0	3	4	11/4/2020	0.24	0.73	124	6.3	95	5	0	26100
FP08/09	FP-22	MK-FP-22-0.0./0.5	0	0.5	11/10/2016	4.1	2.67	234	7.7				45300
FP08/09	FP-22	MK-FP-22-0.5/1.5	0.5	1.5	11/10/2016	11	3.21	340	8				32000
FP08/09	FP-22	MK-FP-22-1.5/2.5	1.5	2.5	11/10/2016	1.1	1.64	393	12.6				35700
FP08/09	FP-22	MK-FP-22-2.5/3.4	2.5	3.4	11/10/2016	0.05	0.591	173	7.9				37000
FP08/09	FP-22	MK-FP-22-5.0/6.0	5	6	11/10/2016	0.05	0.0658	168	11.8				34300
FP08/09	FP-22	MK-FP-22-6.0/7.2	6	7.2	11/10/2016	0.02 U	0.275	35	3.4 J				31300
FP08/09	FP-22	MK-FP-22-10.0/12.2	10	12.2	11/10/2016	0.02 U	0.004 U	37.6	7.5				26400
FP08/09	FP-22	MK-FP-22-12.2/12.6	12.2	12.6	11/10/2016	0.01 U	0.0027 U	3	2.1 J				2530
FP08/09	FP-23	MK-FP-23-0.0/0.5	0	0.5	11/10/2016	2.8	2.19	210	7.8	76	15	9	30500
FP08/09	FP-23	MK-FP-23-0.5/1.5	0.5	1.5	11/10/2016	0.2	0.547	17	5.6	73	20	7	12600

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						PCB[a]	PAH[b]	Metals		Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[d]	Arsenic[e]	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[c, d,e]	1.1	8.48	400	8				
					Tier 2 SS-RCL[c]	0.7	5.09						
					TSCA LO	25							
FP08/09	FP-23	MK-FP-23-1.5/2.5	1.5	2.5	11/10/2016	0.18	0.688	96.8	6.3	83	17	0	8910
FP08/09	FP-23	MK-FP-23-2.5/3.5	2.5	3.5	11/10/2016	0.79	0.447	96.1	7.1	76	24	0	22800
FP08/09	FP-23	MK-FP-23-3.5/4.2	3.5	4.2	11/10/2016	0.48	0.604	118	8.4	82	17	1	29100
FP08/09	FP-23	MK-FP-23-5.0/6.0	5	6	11/10/2016	0.48	0.258	206	6.5 J	96	4	0	52900
FP08/09	FP-23	MK-FP-23-6.0/7.0	6	7	11/10/2016	0.02 U	0.664	112	7.8	88	12	0	37400
FP08/09	FP-23	MK-FP-23-7.0/8.0	7	8	11/10/2016	0.02 U	0.358	77.7	7.9	80	20	0	102000
FP08/09	FP-23	MK-FP-23-10.0/12.0	10	12	11/10/2016	0.02 U	0.0466	26.3	5.7 J	95	5	0	41500
FP08/09	FP-23	MK-FP-23-12.0/13.9	12	13.9	11/10/2016	0.02 U	0.0039 U	10.7	4.1 J	79	18	3	27200
FP08/09	FP-23	MK-FP-23-15.0/16.0	15	16	11/10/2016	0.02 U	0.0046 U	11.7	4.1 J	96	4	0	53300
FP08/09	FP-23	MK-FP-23-16.0/16.2	16	16.2	11/10/2016	0.01 U	0.0026 U	2.8	2.4 J	12	17	71	6970
FP08/09	FP-24	MK-FP-24-0.0./0.5	0	0.5	11/10/2016	4.8	0.984	85.7	6.3				37700
FP08/09	FP-24	MK-FP-24-0.5/1.5	0.5	1.5	11/10/2016	0.12	0.157	65.7	8.4				11100
FP08/09	FP-24	MK-FP-24-1.5/2.1	1.5	2.1	11/10/2016	0.17	0.073	17.5	5.4				13500
FP08/09	FP-24	MK-FP-24-5.0/6.0	5	6	11/10/2016	0.56	0.464	56.2	5.6 J				34400
FP08/09	FP-24	MK-FP-24-6.0/6.6	6	6.6	11/10/2016	0.07	0.23	61	5 J				24200
FP08/09	FP-24	MK-FP-24-10.0/12.0	10	12	11/10/2016	0.02 U	0.004 U	29.3	4 J				25700
FP08/09	FP-24	MK-FP-24-12.0/14.0	12	14	11/10/2016	0.02 U	0.0039 U	14	2.9 J				30900
FP08/09	FP-24	MK-FP-24-15.0/16.4	15	16.4	11/10/2016	0.02 U	0.0042 J	7.6	1.9 J				22900
FP08/09	FP-25	MK-FP-25-0.0/0.5	0	0.5	11/10/2016	3.3	2.01	149	5.1	69	19	12	38200
FP08/09	FP-25	MK-FP-25-0.5/1.5	0.5	1.5	11/10/2016	5.4	1.98	167	6.8	84	16	0	5920
FP08/09	FP-25	MK-FP-25-1.5/2.5	1.5	2.5	11/10/2016	0.13	0.16	11.9	5.7	76	18	6	12400
FP08/09	FP-25	MK-FP-25-2.5/3.5	2.5	3.5	11/10/2016	0.9	2.01	206 J	8.6	91	9	0	34400
FP08/09	FP-25	MK-FP-25-3.5/4.0	3.5	4	11/10/2016	0.23	0.474	150 J	6.5	96	4	0	36800
FP08/09	FP-25	MK-FP-25-5.0/6.0	5	6	11/10/2016	0.02 U	0.73 J-	115 J	6.5	92	8	0	34700
FP08/09	FP-25	MK-FP-25-6.0/7.0	6	7	11/10/2016	0.02 U	0.741 J-	78.2 J	6.2	95	5	0	31200
FP08/09	FP-25	MK-FP-25-7.0/8.0	7	8	11/10/2016	0.02 U	0.28 J-	106 J	7.5	88	12	0	31600
FP08/09	FP-25	MK-FP-25-8.0/9.1	8	9.1	11/10/2016	0.02 U	0.0556 J-	29.4 J	4.7	90	10	0	33200
FP08/09	FP-25	MK-FP-25-10.0/12.0	10	12	11/10/2016	0.12	0.0322 J	33.5	4.8	36	64	0	29400
FP08/09	FP-25	MK-FP-25-12.0/13.6	12	13.6	11/10/2016	0.02 U	0.00041 U	9	2.7	86	14	0	23400
FP08/09	FP-25	MK-FP-25-15.0/16.8	15	16.8	11/10/2016	0.04	0.0554	10.9 J	2.5	81	19	0	48300
FP08/09	FP-26	MK-FP-26-0.0./0.5	0	0.5	11/11/2016	2.1	0.855	135	5.2 J				46200 J+
FP08/09	FP-26	MK-FP-26-0.5/1.5	0.5	1.5	11/11/2016	1.5	0.449	35.8	4.5 J				9210 J+
FP08/09	FP-26	MK-FP-26-1.5/2.5	1.5	2.5	11/11/2016	10.4	3.24	374	5.8 J				30900 J+
FP08/09	FP-26	MK-FP-26-2.5/3.1	2.5	3.1	11/11/2016	2.5	1	290	10.3				32800 J+
FP08/09	FP-26	MK-FP-26-5.0/7.0	5	7	11/11/2016	0.33	0.858	199	8.1				58200 J+
FP08/09	FP-26	MK-FP-26-7.0/8.1	7	8.1	11/11/2016	0.02 U	0.0633	104	6.2 J				30400 J+
FP08/09	FP-26	MK-FP-26-10.0/12.0	10	12	11/11/2016	0.02 U	0.0048 J	19.3	4.3 J				24000 J+
FP08/09	FP-26	MK-FP-26-12.0/13.0	12	13	11/11/2016	0.02 U	0.007 J	7.7	2.8 J				29500 J+
FP08/09	FP-26	MK-FP-26-15.0/15.6	15	15.6	11/11/2016	0.38	0.0253	12.7	2.6 J				7270 J+
FP08/09	FP-28	MK-FP-28-0.0./0.5	0	0.5	11/11/2016	1.5	1.15	107	4.5 J				32500 J+
FP08/09	FP-28	MK-FP-28-0.5/1.5	0.5	1.5	11/11/2016	2.1	1.55	171	7.1				22700
FP08/09	FP-28	MK-FP-28-1.5/2.5	1.5	2.5	11/11/2016	2.4	0.628	88.7	6.7 J				29200
FP08/09	FP-28	MK-FP-28-2.5/3.2	2.5	3.2	11/11/2016	17.6	1.62	425	13.2				42900
FP08/09	FP-28	MK-FP-28-5.0/7.0	5	7	11/11/2016	0.73	0.205	189	8.4				35800

Table 2-2. Floodplains Reach Focused Contaminants of Concern Results Summary

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH[b]	Metals		Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[d]	Arsenic[e]	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[c, d,e]	1.1	8.48	400	8				
					Tier 2 SS-RCL[c]	0.7	5.09						
					TSCA LO	25							
FP08/09	FP-28	MK-FP-28-7.0/8.5	7	8.5	11/11/2016	0.02 U	0.128	43.6	5.3 J				26600
FP08/09	FP-28	MK-FP-28-10.0/11.2	10	11.2	11/11/2016	0.02 U	0.0066 J	11.6	3.1 J				10600
FP08/09	FP-28	MK-FP-28-15.0/15.5	15	15.5	11/11/2016	0.21	0.0575	6.2	2.9 J				2190
FP08/09	FP-31	MK-FP-31-0.0/0.5	0	0.5	11/11/2016	0.73	0.342	57.4	5.7	54	43	3	15100
FP08/09	FP-31	MK-FP-31-0.5/1.5	0.5	1.5	11/11/2016	0.11	0.284	58.8	7.2	36	53	11	106000
FP08/09	FP-31	MK-FP-31-1.5/2.5	1.5	2.5	11/11/2016	1.1	0.631	108	6.9	58	30	12	30500
FP08/09	FP-31	MK-FP-31-2.5/3.2	2.5	3.2	11/11/2016	0.1	0.258	82.7	7.4	97	3	0	28600
FP08/09	FP-31	MK-FP-31-5.0/7.0	5	7	11/11/2016	0.02 U	0.15	91.8	6.7 J	97	3	0	30200
FP08/09	FP-31	MK-FP-31-7.0/8.4	7	8.4	11/11/2016	0.02 U	0.0094 J	39.2	3.2 J	98	2	0	28700
FP08/09	FP-31	MK-FP-31-10.0/10.5	10	10.5	11/11/2016	0.02 U	0.0044 J	17.4	3.7 J				25600
FP08/09	FP-31	MK-FP-31-10.5/10.8	10.5	10.8	11/11/2016	0.02 U	0.0044 J	4.9	3.3 J				1960
FP08/09	FP-33	MK-FP-33-0.0/1.0	0	1	11/11/2016	0.31	0.259	78.7	5.8	22	45	33	43700
FP08/09	FP-33	MK-FP-33-1.0/1.2	1	1.2	11/11/2016	0.01 U	0.0348	9.9	2.7 J				3260
FP08/09	FP-33X	MK-FP-33X-1.5/2.5	1.5	2.5	11/3/2020	3.1	0.72	97.8	6.1	21	24	55	20800
FP08/09	FP-33X	MK-FP-33X-2.5/3.8	2.5	3.8	11/3/2020	0.047	0.033	4.4	12.7 U	10	24	66	63200
FP08/09	FP-68	MK-FP-68-0.0/0.5	0	0.5	11/4/2020	1.7	1.3	98.3	3.1 J				37900
FP08/09	FP-68	MK-FP-68-0.5/1.5	0.5	1.5	11/4/2020	0.029 U	0.025	6.2	2.6 U				3790
FP08/09	FP-68	MK-FP-68-1.5/2.5	1.5	2.5	11/4/2020	0.031 U	0.02 U	11.3	3 U				5310
FP08/09	FP-68	MK-FP-68-2.5/3.7	2.5	3.7	11/4/2020	0.028 U	0.019 U	3.9	2.3 J				9870
FP08/09	FP-69A	MK-FP-69A-0.0/0.5	0	0.5	11/4/2020	3.8		241	7.7				42700
FP08/09	FP-69A	MK-FP-69A-0.5/1.5	0.5	1.5	11/4/2020	0.22		246	4.3				20900
FP08/09	FP-69A	MK-FP-69A-1.5/2.5	1.5	2.5	11/4/2020	0.031 U		45	6.4				15900
FP08/09	FP-69A	MK-FP-69A-2.5/3.7	2.5	3.7	11/4/2020	0.03 U		9.3	2.9 U				4610
FP08/09	FP-69B	MK-FP-69B-0.0/0.5	0	0.5	11/4/2020	0.082		166	3.4 J				166000
FP08/09	FP-69B	MK-FP-69B-0.5/1.5	0.5	1.5	11/4/2020	0.032 U		159	10.8				47500
FP08/09	FP-69B	MK-FP-69B-1.5/2.5	1.5	2.5	11/4/2020	0.03 U		44.3	4				15400
FP08/09	FP-69B	MK-FP-69B-2.5/4.0	2.5	4	11/4/2020	0.029 U		33.6	2.2 J				20000
FP08/09	FP-69C	MK-FP-69C-0.0/0.5	0	0.5	11/5/2020	0.031		213	3.1 J				55400
FP08/09	FP-69C	MK-FP-69C-0.5/1.5	0.5	1.5	11/5/2020	0.03 U		456	4.3				30700
FP08/09	FP-69C	MK-FP-69C-1.5/2.3	1.5	2.3	11/5/2020	0.032 U		266	4.3				24400
FP08/09	FP-69C	MK-FP-69C-2.5/4.0	2.5	4	11/5/2020	0.032 U		69.1	2.5 J				8370
FP08/09	FP-70	MK-FP-70-0.0/0.5	0	0.5	11/4/2020	6.2	2.5	360	9				38300
FP08/09	FP-70	MK-FP-70-0.5/1.5	0.5	1.5	11/4/2020	6	2.1	517	11.4				33900
FP08/09	FP-70	MK-FP-70-1.5/2.5	1.5	2.5	11/4/2020	0.2	0.98	149	9.3				28900
FP08/09	FP-70	MK-FP-70-2.5/4.0	2.5	4	11/4/2020	0.036 U	0.89	91.6	8.4				31300
FP08/09	FP-71	MK-FP-71-0.0/0.5	0	0.5	11/3/2020	2.5		253	5.5				37000
FP08/09	FP-71	MK-FP-71-0.5/1.5	0.5	1.5	11/3/2020	6.5		312	10				34200
FP08/09	FP-71	MK-FP-71-1.5/2.5	1.5	2.5	11/3/2020	0.29		163	10.3				29800
FP08/09	FP-71	MK-FP-71-2.5/4.0	2.5	4	11/3/2020	0.038 U		113	6.7				27800
FP08/09	FP-81	MK-FP-81-0.0/0.5	0	0.5	11/4/2020	1.8		83.1	5.9 J				24100 J+
FP08/09	FP-81	MK-FP-81-0.5/1.5	0.5	1.5	11/4/2020	2.1		187	5				23100
FP08/09	FP-81	MK-FP-81-1.5/2.5	1.5	2.5	11/4/2020	41.5		555	11.5				41600
FP08/09	FP-81	MK-FP-81-2.5/3.7	2.5	3.7	11/4/2020	1.2		219	7.9				20000
FP08/09	FP-82	MK-FP-82-0.0/0.5	0	0.5	11/4/2020	4.6		293	8.6				46300

Table 2-2. Floodplains Reach Focused Contaminants of Concern Results Summary

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH[b]	Metals		Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[d]	Arsenic[e]	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[c, d,e]	1.1	8.48	400	8				
					Tier 2 SS-RCL[c]	0.7	5.09						
					TSCA LO	25							
FP08/09	FP-82	MK-FP-82-0.5/1.5	0.5	1.5	11/4/2020	4.7		206	6.8				22700
FP08/09	FP-82	MK-FP-82-1.5/2.5	1.5	2.5	11/4/2020	0.42		57.1	5				12800
FP08/09	FP-82	MK-FP-82-2.5/4.0	2.5	4	11/4/2020	1.3		236	6.9				26600
FP08/09	FP-83	MK-FP-83-0.0/0.5	0	0.5	11/3/2020	6.7		214	4.7				37300
FP08/09	FP-83	MK-FP-83-0.5/1.5	0.5	1.5	11/3/2020	41.2		512	8.6				33200
FP08/09	FP-83	MK-FP-83-1.5/2.5	1.5	2.5	11/3/2020	7.2		415	12.3				34100
FP08/09	FP-83	MK-FP-83-2.5/4.0	2.5	4	11/3/2020	0.5		206	7.3				22400 J+
FP08/09	FP-84	MK-FP-84-0.0/0.5	0	0.5	11/3/2020	4.8		191	6.4				35300
FP08/09	FP-84	MK-FP-84-0.5/1.5	0.5	1.5	11/3/2020	0.47		29.5	5.2				7620
FP08/09	FP-84	MK-FP-84-1.5/2.5	1.5	2.5	11/3/2020	0.17		61.4	3.5				21300
FP08/09	FP-84	MK-FP-84-2.5/4.0	2.5	4	11/3/2020	0.28		35.4	4.5				10300
FP08/09	FP-85	MK-FP-85-0.0/0.5	0	0.5	11/4/2020	8.7		254	6.6				29000
FP08/09	FP-85	MK-FP-85-0.5/1.5	0.5	1.5	11/4/2020	29.1		427	5.5				25100
FP08/09	FP-85	MK-FP-85-1.5/2.5	1.5	2.5	11/4/2020	17.3		186	5.9				35100
FP08/09	FP-85	MK-FP-85-2.5/3.9	2.5	3.9	11/4/2020	0.33		233	9.5				38000
FP10	FP-126	MK-FP-126-0.0/0.5	0	0.5	10/12/2021	0.73	1.1	150	4				
FP10	FP-126	MK-FP-126-0.5/1.5	0.5	1.5	10/12/2021	2.10	1.3	79	4				
FP10	FP-126	MK-FP-126-1.5/2.3	1.5	2.3	10/12/2021	0.11	0.023	4	2 J				
FP10	FP-129	MK-FP-129-0.0/0.5	0	0.5	10/12/2021	1.30	1.4	77	4				
FP10	FP-129	MK-FP-129-0.5/1.5	0.5	1.5	10/12/2021	1.80	1.5	155	6				
FP10	FP-129	MK-FP-129-1.5/2.5	1.5	2.5	10/12/2021	0.41	0.84	124	6				
FP10	FP-129	MK-FP-129-2.5/3.4	2.5	3.4	10/12/2021	0.04 U	0.23	42	4				
FP10	FP-130	MK-FP-130-0.0/0.5	0	0.5	10/12/2021	5.50	2	329	7				
FP10	FP-130	MK-FP-130-0.5/1.5	0.5	1.5	10/12/2021	0.85	1.8	170	7				
FP10	FP-130	MK-FP-130-1.5/2.5	1.5	2.5	10/12/2021	0.04 U	0.83	330	7				
FP10	FP-130	MK-FP-130-2.5/3.5	2.5	3.5	10/12/2021	0.04 U	0.53	111	6				
FP10	FP-132	MK-FP-132-0.0/0.5	0	0.5	10/13/2021	2.30	1.1	95	5				
FP10	FP-132	MK-FP-132-0.5/1.5	0.5	1.5	10/13/2021	2.70	1.1	131	7				
FP10	FP-132	MK-FP-132-1.5/2.5	1.5	2.5	10/13/2021	0.03 U	0.57	88	8				
FP10	FP-132	MK-FP-132-2.5/4.2	2.5	4.2	10/13/2021	0.04 U	0.13	59	7				
FP10	FP-133	MK-FP-133-0.0/0.5	0	0.5	10/13/2021	4.40	1.9	274	6				
FP10	FP-133	MK-FP-133-0.5/1.5	0.5	1.5	10/13/2021	11.0	2.8	378	8				
FP10	FP-133	MK-FP-133-1.5/2.5	1.5	2.5	10/13/2021	0.84	2.5	267	8				
FP10	FP-133	MK-FP-133-2.5/4.0	2.5	4	10/13/2021	0.10	0.72	166	13				
FP10	FP-27	MK-FP-27-0.0/0.5	0	0.5	11/9/2016	0.32	1.01	64.9	4.4 J	9.3	68.7	22	32200
FP10	FP-27	MK-FP-27-0.5/1.5	0.5	1.5	11/9/2016	0.76	0.779	85.4	5.2 J	4.9	41.1	54	19900
FP10	FP-27	MK-FP-27-1.5/2.5	1.5	2.5	11/9/2016	0.18	0.263	81.5	4.2 J	4.7	35.3	60	10900
FP10	FP-27	MK-FP-27-2.5/3.5	2.5	3.5	11/9/2016	0.36	0.439	99.8	4.1 J	5.3	28.7	66	12100
FP10	FP-27	MK-FP-27-3.5/4.3	3.5	4.3	11/9/2016	0.11	0.201	231	5.3 J	6.6	36.4	57	16300
FP10	FP-27	MK-FP-27-5.0/7.0	5	7	11/9/2016	0.53	0.0226	65.6	7.1 J	62	15	23	26300
FP10	FP-27	MK-FP-27-7.0/8.2	7	8.2	11/9/2016	0.02 U	0.0122	6.4	3.1 J	11	73	16	19900
FP10	FP-27	MK-FP-27-10.0/11.2	10	11.2	11/9/2016	0.01 U	0.0027 U	3.2	2.2 J	7.3	39.7	53	4940
FP10	FP-27	MK-FP-27-15.0/16.0	15	16	11/9/2016	0.01 U	0.0026 U	9.6	4.1 J	11	45	44	14800
FP10	FP-29	MK-FP-29-0.0/0.5	0	0.5	11/9/2016	3.3	0.834	246 J	8.1 J	7.1	66.9	26	37500 J+

Table 2-2. Floodplains Reach Focused Contaminants of Concern Results Summary

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH[b]	Metals		Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[d]	Arsenic[e]	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[c, d,e]	1.1	8.48	400	8				
					Tier 2 SS-RCL[c]	0.7	5.09						
					TSCA LO	25							
FP10	FP-29	MK-FP-29-0.5/1.5	0.5	1.5	11/9/2016	0.95	0.107	68.3 J	4.5 J	1.1	68.9	30	9710 J+
FP10	FP-29	MK-FP-29-1.5/2.7	1.5	2.7	11/9/2016	3.1	0.652	57.9 J	4.5 J	24	43	33	22300 J+
FP10	FP-29	MK-FP-29-5.0/6.0	5	6	11/9/2016	3.2	1.49	157 J	7.3 J	19	23	58	31000 J+
FP10	FP-29	MK-FP-29-6.0/7.0	6	7	11/9/2016	0.02 U	1.07	129 J	6.6 J	48	45	7	35600 J+
FP10	FP-29	MK-FP-29-7.0/7.8	7	7.8	11/9/2016	0.02 U	0.419	50.3 J	4.3 J	39	42	19	28900 J+
FP10	FP-29	MK-FP-29-7.8/8.7	7.8	8.7	11/9/2016	0.04	0.281	69.5 J	5.5 J	49	45	6	30900 J+
FP10	FP-29	MK-FP-29-10.0/11.0	10	11	11/9/2016	0.36	0.21	13.4 J	3.4 J	30	45	25	17800 J+
FP10	FP-29	MK-FP-29-11.0/12.0	11	12	11/9/2016	0.02 U	0.0555	36.7 J	4.3 J	19	52	29	30600 J+
FP10	FP-29	MK-FP-29-12.0/13.0	12	13	11/9/2016	0.02 U	0.0449	32.1 J	2.8 J	50	19	31	21200 J+
FP10	FP-29	MK-FP-29-15.0/17.0	15	17	11/9/2016	0.02 U	0.0031	10.3 J	3.1 J	19	14	67	28300 J+
FP10	FP-29	MK-FP-29-17.0/18.6	17	18.6	11/9/2016	0.02 U	0.00051 U	8.6 J	2.4 J	42	49	9	24600 J+
FP10	FP-30	MK-FP-30-0.0./0.5	0	0.5	11/9/2016	5.2	1.82	179 J	7 J				35200 J+
FP10	FP-30	MK-FP-30-0.5/1.2	0.5	1.2	11/9/2016	5.3	2.4	166 J	6.8 J				33600 J+
FP10	FP-30	MK-FP-30-1.2/2.0	1.2	2	11/9/2016	0.5	2.57	146 J	8.5 J				30700
FP10	FP-30	MK-FP-30-5.0/6.0	5	6	11/9/2016	0.02 U	0.16	45.9 J	4.7 J				20900
FP10	FP-30	MK-FP-30-6.0/7.0	6	7	11/9/2016	0.02 U	0.335	46.4 J	3.7 J				24900
FP10	FP-30	MK-FP-30-7.0/7.6	7	7.6	11/9/2016	0.02 U	0.193	78.8 J	4.3 J				24200
FP10	FP-30	MK-FP-30-10.0/11.4	10	11.4	11/9/2016	0.02 U	0.0073	5.8 J	1.9 J				30000
FP10	FP-30	MK-FP-30-11.4/12.1	11.4	12.1	11/9/2016	0.01 U	0.00039 U	1.5 J	1.3 J				3810
FP10	FP-30A	MK-FP-30A-0.0./0.5	0	0.5	11/9/2016	7.2	1.57	34.1 J	5.7 J				29800
FP10	FP-30A	MK-FP-30A-0.5/1.5	0.5	1.5	11/9/2016	5.9	1.34	47.5 J	5.5 J				22400
FP10	FP-30A	MK-FP-30A-1.5/2.2	1.5	2.2	11/9/2016	2.9	1.48	133 J	6 J				31700
FP10	FP-30X	MK-FP-30X-2.0/2.5	2	2.5	11/3/2020	0.067	1.4	200	9.2				39300
FP10	FP-30X	MK-FP-30X-2.5/4.0	2.5	4	11/3/2020	0.035 U	0.67	110	6.4				30700
FP10	FP-32	MK-FP-32-0.0./0.5	0	0.5	11/9/2016	2.1	1.17	135	6.9				60800
FP10	FP-32	MK-FP-32-0.5/1.5	0.5	1.5	11/9/2016	1.7	1.37	166	7.9				28500
FP10	FP-32	MK-FP-32-1.5/2.5	1.5	2.5	11/9/2016	0.09	0.879	77.7	6.7				41900
FP10	FP-32	MK-FP-32-2.5/3.3	2.5	3.3	11/9/2016	0.02 U	0.138	161	12.1				30300
FP10	FP-32	MK-FP-32-5.0/7.0	5	7	11/9/2016	0.02 U	0.0713	22.9	4.2 J				30200
FP10	FP-32	MK-FP-32-7.0/8.4	7	8.4	11/9/2016	0.02 U	0.0037 U	21.6	2.9 J				25500
FP10	FP-32	MK-FP-32-10.0/11.2	10	11.2	11/9/2016	0.31	0.0037 U	4.3	3.1 J				37100
FP10	FP-32	MK-FP-32-15.0/15.4	15	15.4	11/9/2016	0.01 U	0.0028 U	3.2	3.2 J				2580
FP10	FP-34	MK-FP-34-0.0./0.5	0	0.5	11/9/2016	6.9	1.37	198 J	6.9 J				33600
FP10	FP-34	MK-FP-34-0.5/1.5	0.5	1.5	11/9/2016	1.6	0.769	113 J	5.7 J				26400
FP10	FP-34	MK-FP-34-1.5/2.6	1.5	2.6	11/9/2016	3.8	0.671	153 J	6.7 J				29500 J-
FP10	FP-34	MK-FP-34-5.0/7.0	5	7	11/9/2016	0.02 U	0.0823 J	57.1 J	5 J				24600 J-
FP10	FP-34	MK-FP-34-7.0/7.7	7	7.7	11/9/2016	0.02 U	0.0012 J	9.3 J	2.8 J				31700 J-
FP10	FP-34	MK-FP-34-10.0/10.7	10	10.7	11/9/2016	0.08	0.017	7.7 J	2.4				16000 J-
FP10	FP-72	MK-FP-72-0.0/0.5	0	0.5	11/3/2020	0.9		105	3.5				34200
FP10	FP-72	MK-FP-72-0.5/1.5	0.5	1.5	11/3/2020	0.032 U		78.7	4.2				20700
FP10	FP-72	MK-FP-72-1.5/2.5	1.5	2.5	11/3/2020	0.028 U		8.1	2.7 U				8880
FP10	FP-72	MK-FP-72-2.5/3.6	2.5	3.6	11/3/2020	0.029 U		4.8	2.7 U				3630
FP10	FP-73	MK-FP-73-0.0/0.5	0	0.5	11/3/2020	0.5	2	173	4.4				47600
FP10	FP-73	MK-FP-73-0.5/1.5	0.5	1.5	11/3/2020	0.028 U	0.42	29.1	3.3				17000

Table 2-2. Floodplains Reach Focused Contaminants of Concern Results Summary

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH[b]	Metals		Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[d]	Arsenic[e]	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[c, d,e]	1.1	8.48	400	8				
					Tier 2 SS-RCL[c]	0.7	5.09						
					TSCA LO	25							
FP10	FP-73	MK-FP-73-1.5/2.5	1.5	2.5	11/3/2020	0.028 U	0.066	6.8	4 J				15500
FP10	FP-73	MK-FP-73-2.5/4.0	2.5	4	11/3/2020	0.033 U	0.079	21.3 J	3.6				16100
FP10	FP-74	MK-FP-74-0.0/0.5	0	0.5	11/5/2020	1.6		257	7.7				41200
FP10	FP-74	MK-FP-74-0.5/1.5	0.5	1.5	11/5/2020	0.03 U		65.8	5.2 J				10800
FP10	FP-74	MK-FP-74-1.5/2.3	1.5	2.3	11/5/2020	0.031 U		6.8	3.1 U				6560
FP10	FP-74	MK-FP-74-2.5/3.8	2.5	3.8	11/5/2020	0.29		85.4 J	3.3				12100
FP10	FP-75A	MK-FP-75A-0.0/0.5	0	0.5	11/3/2020	1.5		81.6	4				20600
FP10	FP-75A	MK-FP-75A-0.5/1.5	0.5	1.5	11/3/2020	3.6		191	7.3				27600
FP10	FP-75A	MK-FP-75A-1.5/2.5	1.5	2.5	11/3/2020	0.94		101	6 J				26300
FP10	FP-75A	MK-FP-75A-2.5/3.6	2.5	3.6	11/3/2020	1.7		122	6.1				24000
FP10	FP-75B	MK-FP-75B-0.0/0.5	0	0.5	11/3/2020	1.8		126	3.2				22000
FP10	FP-75B	MK-FP-75B-0.5/1.5	0.5	1.5	11/3/2020	2.8		86.5	7.4				16000
FP10	FP-75B	MK-FP-75B-1.5/2.5	1.5	2.5	11/3/2020	1.9		423	12.7				28200
FP10	FP-75B	MK-FP-75B-2.5/4.0	2.5	4	11/3/2020	0.034		132	4.9				27500
FP10	FP-75C	MK-FP-75C-0.0/0.5	0	0.5	11/3/2020	1.6		208	7.1				83100
FP10	FP-75C	MK-FP-75C-0.5/1.5	0.5	1.5	11/3/2020	1.3		123	5.7				35200
FP10	FP-75C	MK-FP-75C-1.5/2.5	1.5	2.5	11/3/2020	0.029 U		10.2	2.7 U				23000
FP10	FP-75C	MK-FP-75C-2.5/3.4	2.5	3.4	11/3/2020	0.027 U		6.7	2.8				9870
FP11	FP-47	MK-FP-47-0.0/0.5	0	0.5	11/6/2020	1.2		641	2.1 J				31300
FP11	FP-47	MK-FP-47-0.5/1.5	0.5	1.5	11/6/2020	1.5		463	2.1 J				17400
FP11	FP-47	MK-FP-47-1.5/2.0	1.5	2	11/6/2020	12.4		630	6.6				30300
FP11	FP-47	MK-FP-47-2.5/4.0	2.5	4	11/6/2020	0.16		40.7	2.7 J				15700
FP11	FP-48	MK-FP-48-0.0/0.5	0	0.5	11/6/2020	1	2.7	109	4.5	36	64	0	28400
FP11	FP-48	MK-FP-48-0.5/1.5	0.5	1.5	11/6/2020	1.2	4.4	137	3.9	30	69	1	8720
FP11	FP-48	MK-FP-48-1.5/2.0	1.5	2	11/6/2020	1.2	11	222	2.8	26	74	0	13500
FP11	FP-48	MK-FP-48-2.5/4.0	2.5	4	11/6/2020	0.4	1.5	125	3.7	26	72	2	15600
FP11	FP-49	MK-FP-49-0.0/0.5	0	0.5	11/6/2020	0.21		70.5	3.6 J				73400
FP11	FP-49	MK-FP-49-0.5/1.0	0.5	1	11/6/2020	0.025		16.3	3.3				26700
FP11	FP-49	MK-FP-49-2.5/3.6	2.5	3.6	11/6/2020	0.27		138	5.7				32100
FP11	FP-50	MK-FP-50-0.0/0.5	0	0.5	11/6/2020	1.4	2.5	262	6				57700
FP11	FP-50	MK-FP-50-0.5/1.5	0.5	1.5	11/6/2020	0.62	1.9	272	6.9				25600
FP11	FP-50	MK-FP-50-1.5/2.3	1.5	2.3	11/6/2020	0.038 U	0.38	86.5	6.5				29200
FP11	FP-50	MK-FP-50-2.5/4.0	2.5	4	11/6/2020	0.14	0.23	30.1	3.4				12200
FP11	FP-51A	MK-FP-51A-0.0/0.5	0	0.5	11/6/2020	0.42		126	7.8				27800
FP11	FP-51A	MK-FP-51A-0.5/1.5	0.5	1.5	11/6/2020	0.028 U		36.3	5.2				74400
FP11	FP-51A	MK-FP-51A-1.5/2.5	1.5	2.5	11/6/2020	0.028 U		10.3	8.6				1730
FP11	FP-51A	MK-FP-51A-2.5/4.0	2.5	4	11/6/2020	0.029 U		27.8	6.8				11900
FP11	FP-51B	MK-FP-51B-0.0/0.5	0	0.5	11/6/2020	0.034		424	6.1				67900
FP11	FP-51B	MK-FP-51B-0.5/1.5	0.5	1.5	11/6/2020	0.029 U		30.9	5.2				20500 J-
FP11	FP-51B	MK-FP-51B-1.5/2.5	1.5	2.5	11/6/2020	0.029 U		6	5.6				18800
FP11	FP-51B	MK-FP-51B-2.5/3.3	2.5	3.3	11/6/2020	0.029 U		4	5.6 U				16900
FP11	FP-51C	MK-FP-51C-0.0/0.5	0	0.5	11/6/2020	0.031 U		27.9	3.9				45300
FP11	FP-51C	MK-FP-51C-0.5/1.5	0.5	1.5	11/6/2020	0.022		392	6.2				13000
FP11	FP-51C	MK-FP-51C-1.5/2.5	1.5	2.5	11/6/2020	0.03 U		258	5.4				17100

Table 2-2. Floodplains Reach Focused Contaminants of Concern Results Summary

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH[b]	Metals		Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[d]	Arsenic[e]	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[c, d,e]	1.1	8.48	400	8				
					Tier 2 SS-RCL[c]	0.7	5.09						
					TSCA LO	25							
FP11	FP-51C	MK-FP-51C-2.5/3.3	2.5	3.3	11/6/2020	0.03 U		104	6.1				6400
FP11	FP-52	MK-FP-52-0.0/0.5	0	0.5	11/6/2020	0.37		167	6.2				38200
FP11	FP-52	MK-FP-52-0.5/1.5	0.5	1.5	11/6/2020	0.034 U		12	4.3				31700
FP11	FP-52	MK-FP-52-1.5/2.1	1.5	2.1	11/6/2020	0.031 U		6.5	3.1				7700
FP11	FP-52	MK-FP-52-2.5/4.0	2.5	4	11/6/2020	0.06		32	4.2				5680
FP11	FP-89	MK-FP-89-0.0/0.5	0	0.5	10/18/2021	1.20	2.2	241 J	6				
FP11	FP-89	MK-FP-89-0.5/1.5	0.5	1.5	10/18/2021	0.06	0.25	29 J	5				
FP11	FP-89	MK-FP-89-1.5/2.5	1.5	2.5	10/18/2021	0.03 U	0.034	11	4				
FP11	FP-90	MK-FP-90-0.0/0.5	0	0.5	10/18/2021	0.24	1.7	195	6				
FP11	FP-90	MK-FP-90-0.5/1.5	0.5	1.5	10/18/2021	0.10	0.45	98	4				
FP11	FP-90	MK-FP-90-1.5/2.5	1.5	2.5	10/18/2021	0.03 U	0.022	31	4				
FP11	FP-91	MK-FP-91-0.0/0.5	0	0.5	10/16/2021	0.68	1.4	172	3				
FP11	FP-91	MK-FP-91-0.5/1.5	0.5	1.5	10/16/2021	34.0	5.8	544	9				
FP11	FP-91	MK-FP-91-1.5/2.5	1.5	2.5	10/16/2021	0.58	1.8	172	4				
FP11	FP-92	MK-FP-92-0.0/0.5	0	0.5	10/16/2021	0.56	1.1	155	4				
FP11	FP-92	MK-FP-92-0.5/1.5	0.5	1.5	10/16/2021	2.40	3.9	435	6				
FP11	FP-92	MK-FP-92-1.5/2.5	1.5	2.5	10/16/2021	0.25	1.4	103	4				
FP11	FP-93	MK-FP-93-0.0/0.5	0	0.5	10/16/2021	0.23	0.65	177	6				
FP11	FP-93	MK-FP-93-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.25	641	7				
FP11	FP-93	MK-FP-93-1.5/2.5	1.5	2.5	10/16/2021	0.03 U	0.011 J	38	4				
FP11	FP-97	MK-FP-97-0.0/0.5	0	0.5	10/16/2021	0.58	0.71	74	5				
FP11	FP-97	MK-FP-97-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.011 J	9	2 J				
FP11	FP-97	MK-FP-97-1.5/2.6	1	2.6	10/16/2021	0.03 U	0.019 U	9	3 J				
FP11 - HRUA 1	FP-94	MK-FP-94-0.0/0.5	0	0.5	10/18/2021	2.1	6	211	6				
FP11 - HRUA 1	FP-94	MK-FP-94-0.5/1.5	0.5	1.5	10/18/2021	6.7	3.9	336	6				
FP11 - HRUA 1	FP-94	MK-FP-94-1.5/2.5	1.5	2.5	10/18/2021	11.0	3	460	7				
FP11 - HRUA 1	FP-95	MK-FP-95-0.0/0.5	0	0.5	10/18/2021	1.10	2.2	175	6				
FP11 - HRUA 1	FP-95	MK-FP-95-0.5/1.5	0.5	1.5	10/18/2021	0.20	0.26	38	5				
FP11 - HRUA 1	FP-95	MK-FP-95-1.5/2.0	1.5	2	10/18/2021	0.07	0.56	62	5				
FP11 - HRUA 1	FP-95	MK-FP-95-2.5/3.3	2.5	3.3	10/18/2021	0.04 J	0.65	120	8				
FP11 - HRUA 1	FP-96	MK-FP-96-0.0/0.5	0	0.5	10/16/2021	0.45	2.1	147	9				
FP11 - HRUA 1	FP-96	MK-FP-96-0.5/1.5	0.5	1.5	10/16/2021	0.02 J	0.28	51	8				
FP11 - HRUA 1	FP-96	MK-FP-96-1.5/2.5	1.5	2.5	10/16/2021	0.03 U	0.026	20	5				
FP11 - HRUA 1	FP-96	MK-FP-96-2.5/3.9	2.5	3.9	10/16/2021	0.03 U	0.002 J	8	2 J				
FP11 - HRUA 2	FP-98	MK-FP-98-0.0/0.5	0	0.5	10/16/2021	3.10	3.3	288	6				
FP11 - HRUA 2	FP-98	MK-FP-98-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.22	24	4				
FP11 - HRUA 2	FP-98	MK-FP-98-1.5/2.5	1.5	2.5	10/16/2021	0.03 U	0.002 J	8	3 J				
FP11 - HRUA 2	FP-98	MK-FP-98-2.5/3.8	2.5	3.8	10/16/2021	0.03 U	0.019 U	8	2 J				
FP11 - HRUA 2	FP-99	MK-FP-99-0.0/0.5	0	0.5	10/16/2021	0.27	0.37	66	6				
FP11 - HRUA 2	FP-99	MK-FP-99-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.009 J	17	4				
FP11 - HRUA 2	FP-99	MK-FP-99-1.5/2.9	1.5	2.9	10/16/2021	0.03 U	0.019 U	9	3 J				
FP11 - HRUA 2	FP-100	MK-FP-100-0.0/0.5	0	0.5	10/18/2021	4.50	3.9	475	8				

Table 2-2. Floodplains Reach Focused Contaminants of Concern Results Summary

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH[b]	Metals		Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[d]	Arsenic[e]	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[c, d,e]	1.1	8.48	400	8				
					Tier 2 SS-RCL[c]	0.7	5.09						
					TSCA LO	25							
FP11 - HRUA 2	FP-100	MK-FP-100-0.5/1.5	0.5	1.5	10/18/2021	0.56	0.65	63	4				
FP11 - HRUA 2	FP-100	MK-FP-100-1.5/2.5	1.5	2.5	10/18/2021	0.08	0.05	21	4				
FP11 - HRUA 2	FP-100	MK-FP-100-2.5/4.0	2.5	4	10/18/2021	0.03 U	0.013 J	12	5				
FP11 - HRUA 3	FP-103	MK-FP-103-0.0/0.5	0	0.5	10/18/2021	0.48	2.6	267	3				
FP11 - HRUA 3	FP-103	MK-FP-103-0.5/1.5	0.5	1.5	10/18/2021	0.54	4.8	642	4				
FP11 - HRUA 3	FP-103	MK-FP-103-1.5/2.5	1.5	2.5	10/18/2021	0.59	5.7	622	4				
FP11 - HRUA 3	FP-103	MK-FP-103-2.5/4.0	2.5	4	10/18/2021	0.40	3.4	354	9				
FP11 - HRUA 3	FP-104	MK-FP-104-0.0/0.5	0	0.5	10/18/2021	0.40	1.3	63	4				
FP11 - HRUA 3	FP-104	MK-FP-104-0.5/1.5	0.5	1.5	10/18/2021	1.40	1.6	86	4				
FP11 - HRUA 3	FP-104	MK-FP-104-1.5/2.5	1.5	2.5	10/18/2021	0.70	2 J	193	4				
FP11 - HRUA 3	FP-104	MK-FP-104-2.5/4.0	2.5	4	10/18/2021	0.04 U	0.36	193 J	14				
FP11 - HRUA 3	FP-105	MK-FP-105-0.0/0.5	0	0.5	10/18/2021	2.3	1.5	173	5				
FP11 - HRUA 3	FP-105	MK-FP-105-0.5/1.5	0.5	1.5	10/18/2021	1.6	2.9	99	6				
FP11 - HRUA 3	FP-105	MK-FP-105-1.5/2.5	1.5	2.5	10/18/2021	7.4	3	221	5				
FP11 - HRUA 3	FP-105	MK-FP-105-2.5/3.2	2.5	3.2	10/18/2021	0.33	0.89	45	4				

Source: Wisconsin Department of Natural Resources (WDNR). 2021. *Milwaukee Estuary Area of Concern Preliminary Site-Specific Residual Contaminant Levels for Milwaukee River Floodplain Soils* . Correspondence/Memorandum to Milwaukee Estuary Area of Concern Project Team and Stakeholders. August 5.

[a]Total PCB result calculated by summing the detected results for PCB Aroclors and excluding nondetect values. For results with no detectable concentrations, the total result is reported as one-half of the highest reporting limit value and qualified "U" for nondetect. Total values are not TOC-normalized.

[b] Total PAH-18 results calculated by summing the detected results and using one-half of the reporting limit for nondetect values. For results with no detectable concentrations, the total result is reported as one-half of the highest RL value and qualified "U" for nondetect. Total values are not TOC-normalized.

[c] SS-RCL Tier 1 and Tier 2 concentrations for PCBs and PAHs established by WDNR in conjunction with the Wisconsin Department of Health (WDNR 2021).

[d] WDNR's Wisconsin Administrative Code NR 720 nonindustrial direct contact residual contaminant level (RCL) for lead of 400 mg/kg was used to screen lead concentrations (WDNR 2021).

[e] A WDNR-assigned screening value applicable to this project based on Wisconsin's statewide background threshold value (BTV) of 8 mg/kg was used to screen arsenic concentrations (WDNR 2021).

Notes:

Units are mg/kg unless otherwise noted.

Blank cells indicate parameter not analyzed.

Yellow shading represents concentrations greater than the respective Tier 1 SS-RCL.

Blue shading represents concentrations greater than Tier 2 SS-RCL.

Red shading represents PCB concentrations greater than the TSCA LO value of 25 mg/kg.

ft bgs = feet below ground surface

HRUA = High Recreational Use Area

J = Estimated; J- = Estimated, low bias; J+ = Estimated, high bias;

mg/kg = milligrams per kilogram

PAH = polycyclic aromatic hydrocarbon

PCB = polychlorinated biphenyl

SS-RCL = Site-Specific Residual Contaminant Level

TOC = total organic carbon

TSCA LO = Toxic Substances Control Act (TSCA) low occupancy (LO) cleanup level

U = Nondetect; UJ = Estimated nondetect

Table 2-3. Summary of Floodplain Soil Samples with Benzo(a)Pyrene, Lead, or Arsenic Screening Level Exceedance not Co-located with a PCB Exceedance

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH	Metals	
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[c]	Arsenic[d]
					Tier 1 SS-RCL[b, c, d]	1.1	8.48	400	8
					Tier 2 SS-RCL[b]	0.7	5.09		
					TSCA LO	25			
FP02	FP-03	MK-FP-03-0.5/1.3	0.5	1.3	11/9/2016	0.32	2.77	192	16.8
FP02	FP-04	MK-FP-04-1.5/2.5	1.5	2.5	11/9/2016	0.1	0.706	98.5	8.3
FP02	FP-87	MK-FP-87-0.0/0.5	0	0.5	10/16/2021	0.35	20	231 J	10
FP02	FP-87	MK-FP-87-0.5/1.4	0.5	1.4	10/16/2021	0.03 U	0.65	122 J	46
FP03	FP-06	MK-FP-06-0.5/1.0	0.5	1	11/11/2016	0.45	6.28	166 J	7.3 J
FP03	FP-40C	MK-FP-40C-0.5/1.5	0.5	1.5	11/6/2020	0.028 U		18.3	10.2
FP04	FP-42	MK-FP-42-0.0/0.5	0	0.5	11/5/2020	0.022	0.22	85.3	8.4
FP04	FP-42	MK-FP-42-1.5/2.5	1.5	2.5	11/5/2020	0.029 U	0.019 U	8.2	10
FP04	FP-43	MK-FP-43-0.0/0.5	0	0.5	11/5/2020	0.033 U		29.1	9.7
FP04	FP-43	MK-FP-43-2.5/4.0	2.5	4	11/5/2020	0.029 U		11.7	8.6
FP04	FP-46	MK-FP-46-0.5/1.5	0.5	1.5	11/5/2020	0.028 U	20	28.9	5
FP05	FP-101	MK-FP-101-0.0/0.5	0	0.5	10/16/2021	0.07	0.3	675 J	5
FP05	FP-102	MK-FP-102-2.0/3.0	2	3	10/16/2021	0.16	1.6	247 J	9
FP05	FP-11	MK-FP-11-1.5/2.5	1.5	2.5	11/11/2016	0.65	2.3	246 J	9.2
FP05	FP-55	MK-FP-55-1.5/2.5	1.5	2.5	11/5/2020	0.13		1470	5.7
FP06	FP-107	MK-FP-107-0.5/1.5	0.5	1.5	10/16/2021	0.22	4.3	229	9
FP06	FP-61	MK-FP-61-1.5/2.5	1.5	2.5	11/4/2020	0.25	1.7	210	9.8
FP06	FP-78	MK-FP-78-1.5/2.5	1.5	2.5	11/4/2020	0.03 U	0.32 J	152	8.4
FP07	FP-125	MK-FP-125-2.5/3.3	2.5	3.3	10/13/2021	0.46	2.5	320 J	10
FP07	FP-16X	MK-FP-16X-3.0/4.0	3	4	11/6/2020	0.04 U	0.44	176 J	9.6
FP07	FP-66	MK-FP-66-0.5/1.5	0.5	1.5	11/6/2020	0.68		268	10.1
FP07	FP-67	MK-FP-67-1.5/2.5	1.5	2.5	11/6/2020	0.6	8	284	9.7
FP07	FP-67	MK-FP-67-2.5/4.0	2.5	4	11/6/2020	0.057	4.3	318 J	11

Table 2-3. Summary of Floodplain Soil Samples with Benzo(a)Pyrene, Lead, or Arsenic Screening Level Exceedance not Co-located with a PCB Exceedance

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH	Metals	
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[c]	Arsenic[d]
					Tier 1 SS-RCL[b, c, d]	1.1	8.48	400	8
					Tier 2 SS-RCL[b]	0.7	5.09		
					TSCA LO	25			
FP07 - HRUA Canoe	FP-117	MK-FP-117-1.5/2.5	1.5	2.5	10/13/2021	0.03 U	0.57	38 J	15
FP07 - HRUA Ravine	FP-111	MK-FP-111-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.11	18	9
FP07 - HRUA Ravine	FP-112	MK-FP-112-0.0/0.5	0	0.5	10/16/2021	0.02 J	9.7	92 J	5
FP08/09	FP-22	MK-FP-22-5.0/6.0	5	6	11/10/2016	0.05	0.0658	168	11.8
FP08/09	FP-23	MK-FP-23-3.5/4.2	3.5	4.2	11/10/2016	0.48	0.604	118	8.4
FP08/09	FP-24	MK-FP-24-0.5/1.5	0.5	1.5	11/10/2016	0.12	0.157	65.7	8.4
FP08/09	FP-26	MK-FP-26-5.0/7.0	5	7	11/11/2016	0.33	0.858	199	8.1
FP08/09	FP-33X	MK-FP-33X-2.5/3.8	2.5	3.8	11/3/2020	0.047	0.033	4.4	12.7 U
FP08/09	FP-69B	MK-FP-69B-0.5/1.5	0.5	1.5	11/4/2020	0.032 U		159	10.8
FP08/09	FP-69C	MK-FP-69C-0.5/1.5	0.5	1.5	11/5/2020	0.03 U		456	4.3
FP08/09	FP-70	MK-FP-70-1.5/2.5	1.5	2.5	11/4/2020	0.2	0.98	149	9.3
FP08/09	FP-70	MK-FP-70-2.5/4.0	2.5	4	11/4/2020	0.036 U	0.89	91.6	8.4
FP08/09	FP-85	MK-FP-85-2.5/3.9	2.5	3.9	11/4/2020	0.33		233	9.5
FP10	FP-133	MK-FP-133-2.5/4.0	2.5	4	10/13/2021	0.10	0.72	166	13
FP10	FP-30	MK-FP-30-1.2/2.0	1.2	2	11/9/2016	0.5	2.57	146 J	8.5 J
FP10	FP-30X	MK-FP-30X-2.0/2.5	2	2.5	11/3/2020	0.067	1.4	200	9.2
FP10	FP-32	MK-FP-32-2.5/3.3	2.5	3.3	11/9/2016	0.02 U	0.138	161	12.1
FP11	FP-51A	MK-FP-51A-1.5/2.5	1.5	2.5	11/6/2020	0.028 U		10.3	8.6
FP11	FP-51B	MK-FP-51B-0.0/0.5	0	0.5	11/6/2020	0.034		424	6.1
FP11	FP-93	MK-FP-93-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.25	641	7
FP11 - HRUA 1	FP-96	MK-FP-96-0.0/0.5	0	0.5	10/16/2021	0.45	2.1	147	9
FP11 - HRUA 3	FP-103	MK-FP-103-0.5/1.5	0.5	1.5	10/18/2021	0.54	4.8	642	4
FP11 - HRUA 3	FP-103	MK-FP-103-1.5/2.5	1.5	2.5	10/18/2021	0.59	5.7	622	4

Table 2-3. Summary of Floodplain Soil Samples with Benzo(a)Pyrene, Lead, or Arsenic Screening Level Exceedance not Co-located with a PCB Exceedance
Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH	Metals	
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[c]	Arsenic[d]
					Tier 1 SS-RCL[b, c, d]	1.1	8.48	400	8
					Tier 2 SS-RCL[b]	0.7	5.09		
					TSCA LO	25			
FP11 - HRUA 3	FP-103	MK-FP-103-2.5/4.0	2.5	4	10/18/2021	0.40	3.4	354	9
FP11 - HRUA 3	FP-104	MK-FP-104-2.5/4.0	2.5	4	10/18/2021	0.04 U	0.36	193 J	14

Source: Wisconsin Department of Natural Resources (WDNR). 2021. *Milwaukee Estuary Area of Concern Preliminary Site-Specific Residual Contaminant Levels for Milwaukee River Floodplain Soils* . Correspondence/Memorandum to Milwaukee Estuary Area of Concern Project Team and Stakeholders. August 5.

[a] Total PCB result calculated by summing the detected results for PCB Aroclors and excluding non-detect values. For results with no detectable concentrations, the total result is reported as one-half of the highest reporting limit value and qualified "U" for nondetect. Total values are not TOC-normalized.

[b] SS-RCL Tier 1 and Tier 2 concentrations for PCBs and PAHs established by WDNR in conjunction with the Wisconsin Department of Health (WDNR 2021).

[c] WDNR's Wisconsin Administrative Code NR 720 nonindustrial direct contact residual contaminant level (RCL) for lead of 400 mg/kg was used to screen lead concentrations (WDNR 2021).

[d] A WDNR-assigned screening value applicable to this project based on Wisconsin's statewide background threshold value (BTV) of 8 mg/kg was used to screen arsenic concentrations (WDNR 2021).

Notes:
Units are mg/kg unless otherwise noted.
Blank cells indicate parameter not analyzed.
Yellow shading represents concentrations greater than the respective Tier 1 SS-RCL.
Blue shading represents concentrations greater than Tier 2 SS-RCL.
Red shading represents PCB concentrations greater than the TSCA LO value of 25 mg/kg.

ft bgs = feet below ground surface
HRUA = High Recreational Use Area
J = Estimated; J- = Estimated, low bias; J+ = Estimated, high bias;
mg/kg = milligrams per kilogram
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
SS-RCL = Site-Specific Residual Contaminant Level
TSCA LO = Toxic Substances Control Act (TSCA) low occupancy (LO) cleanup level
U = Nondetect; UJ = Estimated nondetect

Table 2-4. Summary of Permitted Discharges - Floodplains Reach

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Site Name	Site Address	Permit Type	Permit ID	Permittee	Permit Status
Floodplain Reach					
C & D TECHNOLOGIES	900 E Keefe Ave	MS4 Industrial	0063258	C & D TECHNOLOGIES	6 - PERMIT COVERAGE GRANTED
MILWAUKEE METRO SEW DIST COMBINED	Multiple discharge points	MS4 Municipal	0036820	MILWAUKEE METRO SEW DIST COMBINED	6 - PERMIT COVERAGE GRANTED

MS4 = Municipal Separate Storm Sewer System

Information Sources:

WPDES main page: https://dnr.wisconsin.gov/topic/Wastewater/Permits.html - download Municpal and Industrial Permittees (accessed Aprl 2021)

Search Construction sites: https://dnr.wi.gov/topic/stormwater/data/construction/index.asp

Search Industrial: https://dnr.wi.gov/topic/stormwater/data/industrial/index.asp

Search municipal: https://dnr.wi.gov/topic/stormwater/data/municipal/index.asp

Table 2-5. Summary of Bureau of Remediation and Redevelopment Tracking System Sites - Floodplains Reach

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Figure ID	DNR BRRTS #	Site Location	Site Address	BRRTS Site Status and Type	Impacted Material	Substance Type	Contamination Type
01	241545124	LINCOLN PARK - ESTABROOK IMPOUNDMENT	1301 W HAMPTON AVE	Closed ERP	Sediment	PCBs located in sediments at Blatz Pavillion	PCB
02	241209470	DELUXE PKWY PROPERTY	100 W RIVER WOODS PKWY	Closed ERP	Soil	VOCs, PAHs, Chromium, Arsenic	VOC, Petroleum, Metals
03	241560548	MILWAUKEE RIVER PCB OUTFALL 2265	E CAPITOL DR & N HUMBOLDT BLVD	Open ERP	Sediment, surface water	PAH, PCB	Petroleum, PCB
04	241000023	MILWAUKEE DIE CASTING CO INC	4132 N HOLTON ST	Open ERP	Groundwater, soils, vapor (potential)	PCB, Petroleum, VOCs, Chlorinated VOCs, TCE	PCB, Petroleum, VOC
05	341563281	PIG AND WHISTLE FORMER	1111 E CAPITOL DR	Closed LUST	Soil	Fuel Oil	Petroleum
06	241577613	THE OAKS OF SHOREWOOD	3900 N SHERBURN PL	Closed ERP	Soil	PAH	Petroleum
07	341001238	SHOREWOOD VIL MUNICIPAL YARD	3801 N MORRIS BLVD	Closed LUST	Soil, GW	Gasoline, Engine Waste Oil, Free Product	Petroleum
08	341004388	MILWAUKEE CTY LOCUST CRT HOUSING DEV	1350 E LOCUST ST	Closed LUST	Soil	Fuel Oil	Petroleum
09	241561483	URBAN ECOLOGY CENTER LAND CORP	1400 E PARK PL	Closed ERP	Soil	VOCs, PAHs, Selenium, Lead	VOC, Petroleum, Metals
10	241558923	PARK/BELLEVIEW RIVERFRONT PARCELS	1417 E PARK PLACE/1400 E BELLE	Closed ERP	Soil	VOC, PAH, Arsenic, Lead	VOC, Petroleum, Metals
11	241552725	HOMETOWN INC - UW-MILW HOUSING DORMS	1436 E NORTH AVE	Closed ERP	Soil	PAH, Metals	Petroleum, Metals
12	341004571	HOMETOWN GAS STATION	1436 E NORTH AVE	Closed LUST	Soil, GW	Gasoline	Petroleum
13	341544964	MILWAUKEE COUNTY STORAGE YARD	1194 E NORTH AVE	Closed LUST	Soil	Diesel Fuel, Arsenic, PAH, Lead	Petroleum, Metals

Source: Wisconsin Department of Natural Resources (WDNR). 2021. Brownfields: Redevelopment Opportunities. RR Site Maps. Accessed April 2021. https://dnr.wi.gov/topic/Brownfields/rrsm.html

BRRTS = Bureau for Remediation and Redevelopment Tracking System
ERP = environmental remediation project
GW = groundwater
LUST = leaking underground storage tank
PAH = polycyclic aromatic hydrocarbon
PCB = polychlorinated biphenyl
PMO = project management office
TCE = trichloroethylene
VOC = volatile organic compound

Table 3-1. Summary of Floodplain Remedial Target Area Refinements to Address Benzo(a)pyrene, Lead and Arsenic

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB	Benzo(a) pyrene	Lead	Arsenic	RTA Refinement
					Tier 1 SS-RCL	1.1	8.48	400	8	
					Tier 2 SS-RCL[a]	0.7	5.09			
					Site-specific BTV[b]				10	
FP01	FP-35	MK-FP-35-0.5/1.5	0.5	1.5	11/3/2020	1.8	5.7	194	4.8	Excluded from RTA because exceedances are isolated and of low magnitude
FP02	FP-03	MK-FP-03-0.5/1.3	0.5	1.3	11/9/2016	0.32	2.77	192	16.8	Extended RTA depth to 1.3 feet
FP02	FP-87	MK-FP-87-0.0/0.5	0	0.5	10/16/2021	0.35	20	231 J	10	Extended RTA laterally to include FP-87
FP02	FP-87	MK-FP-87-0.5/1.4	0.5	1.4	10/16/2021	0.03 U	0.65	122 J	46	Extended RTA depth to 1.4 feet
FP04	FP-07	MK-FP-07-1.5/2.5	1.5	2.5	11/11/2016	1.1	10.5	193 J	8 J	Extended RTA depth to 2.5 feet
FP04	FP-46	MK-FP-46-0.5/1.5	0.5	1.5	11/5/2020	0.028 U	20	28.9	5	Isolated subsurface exceedance; excluded from RTA
FP05	FP-101	MK-FP-101-0.0/0.5	0	0.5	10/16/2021	0.07	0.3	675 J	5	Added RTA to a depth of 0.5 feet
FP05	FP-55	MK-FP-55-1.5/2.5	1.5	2.5	11/5/2020	0.13		1470	5.7	Extended RTA depth to 2.5 feet
FP07	FP-66	MK-FP-66-0.5/1.5	0.5	1.5	11/6/2020	0.68		268	10.1	Extended RTA depth to 1.5 feet
FP07	FP-67	MK-FP-67-2.5/4.0	2.5	4	11/6/2020	0.057	4.3	318 J	11	RTA depth not extended to 4 feet because 1 foot of clean soil overlies this exceedance
FP07 - HRUA Canoe	FP-117	MK-FP-117-1.5/2.5	1.5	2.5	10/13/2021	0.03 U	0.57	38 J	15	Extended RTA depth to 2.5 feet
FP07 - HRUA Ravine	FP-112	MK-FP-112-0.0/0.5	0	0.5	10/16/2021	0.02 J	9.7	92 J	5	Not included in RTA; isolated exceedance
FP08/09	FP-22	MK-FP-22-1.5/2.5	1.5	2.5	11/10/2016	1.1	1.64	393	12.6	Extended RTA depth to 2.5 feet
FP08/09	FP-33X	MK-FP-33X-2.5/3.8	2.5	3.8	11/3/2020	0.047	0.033	4.4	12.7 U	RTA depth not extended because arsenic was not detected
FP08/09	FP-69B	MK-FP-69B-0.5/1.5	0.5	1.5	11/4/2020	0.032 U		159	10.8	No change - included in modeled boundary of initial RTA
FP08/09	FP-69C	MK-FP-69C-0.5/1.5	0.5	1.5	11/5/2020	0.03 U		456	4.3	Outside of floodplain boundary; not included in RTA
FP08/09	FP-71	MK-FP-71-1.5/2.5	1.5	2.5	11/3/2020	0.29		163	10.3	Extended RTA depth to 2.5 feet
FP10	FP-133	MK-FP-133-2.5/4.0	2.5	4	10/13/2021	0.10	0.72	166	13	RTA depth not extended to 4 feet because 1 foot of clean soil overlies this exceedance
FP10	FP-32	MK-FP-32-2.5/3.3	2.5	3.3	11/9/2016	0.02 U	0.138	161	12.1	RTA depth not extended to 3.3 feet because 1 foot of clean soil overlies this exceedance
FP11	FP-51B	MK-FP-51B-0.0/0.5	0	0.5	11/6/2020	0.034		424	6.1	Isolated occurrence outside of the floodplain boundary; not included in RTA
FP11	FP-93	MK-FP-93-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.25	641	7	No change - included in modeled boundary of initial RTA
FP11 - HRUA 3	FP-103	MK-FP-103-0.5/1.5	0.5	1.5	10/18/2021	0.54	4.8	642	4	Extended RTA depth to 2.5 feet
FP11 - HRUA 3	FP-103	MK-FP-103-1.5/2.5	1.5	2.5	10/18/2021	0.59	5.7	622	4	Extended RTA depth to 2.5 feet
FP11 - HRUA 3	FP-104	MK-FP-104-2.5/4.0	2.5	4	10/18/2021	0.04 U	0.36	193 J	14	RTA depth not extended to 4 feet because 1 foot of clean soil overlies this exceedance

[a] Tier 2 SS-RCLs apply to HRUAs only.

[b] Site-specific BTV for arsenic is used to refine RTAs

Notes:

Units are mg/kg unless otherwise noted.

Blank cells indicate parameter not analyzed.

Yellow shading represents concentrations greater than the Tier 1 SS-RCL.

Blue shading represents concentrations greater than the Tier 2 SS-RCL.

BTV = background threshold value

FP = Floodplains

ft bgs = feet below ground surface

HRUA = High Recreational Use Area

J = Estimated; J- = Estimated, low bias; J+ = Estimated, high bias;

mg/kg = milligrams per kilogram

PAH = polycyclic aromatic hydrocarbon

PCB = polychlorinated biphenyl

RTA = remediation target area

SS-RCL = Site-Specific Residual Contaminant Level

U = Nondetect; UJ = Estimated nondetect

Table 3-2. Remediation Target Area Volume and Acreage Summary - Floodplains Reach[a]

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Floodplain Area ID	FP-1	FP-2	FP-3	FP-4	FP-5	FP-6	FP-7	FPs-8 and -9	FP-10	FP-11	Totals
Estimated Total RTA Volume (yd^3)[b]	4,300	4,300	--	1,300	3,700	13,200	16,500	33,600	12,000	7,200	96,100
Estimated Removal Volume Required for HRUAs[b]	--	--	--	--	--	--	2,300	--	--	2,050	4,350
Total Floodplain Area (Acres)[c]	1.9	1.4	2.3	2.5	3.1	6.0	8.2	10.1	5.4	6.0	47.0
Estimated Total RTA Area (Acres)[d]	0.7	1.0	--	0.4	1.6	5.7	7.0	9.8	3.9	3.6	33.7
Total HRUA Area (Acres) If Present[e]	--	--	--	--	--	--	1.5	--	--	1.3	2.8
Estimated HRUA RTA Area (Acres) If Present[e]	--	--	--	--	--	--	0.9	--	--	0.8	1.7

Source: Wisconsin Department of Natural Resources (WDNR). 2021. *Milwaukee Estuary Area of Concern Preliminary Site-Specific Residual Contaminant Levels for Milwaukee River Floodplain Soils.* Correspondence/Memorandum to Milwaukee Estuary Area of Concern Project Team and Stakeholders. August 5.

[a] Estimates produced using EVS computer modeling, sample locations to a maximum depth of 4 feet with total PCB concentrations exceeding the Tier 1 SS-RCL (1.1 mg/kg) per WDNR (2021).

[b] Estimated total RTA volume includes volumes reported for HRUAs, TSCA LO and overburden .

[c] Total floodplain area includes HRUAs if present.

[d] Total RTA area includes removal volumes from HRUAs and TSCA LO.

[e] The additional HRUA volume was generated only for HRUA-designated areas using EVS modeling, data points/concentrations that exceed the Tier 2 SS-RCL (0.7 mg/kg) per WDNR (2021), to a maximum depth of 4 feet.

yd^3= cubic yards

EVS = Environmental Visualization System

FP = Floodplain

HRUA = "High Recreational Use Area" as defined in WDNR (2021)

mg/kg = miligram(s) per kilogram

PCB = polychlorinated biphenyl

RTA = remediation target area

SS-RCL = Site-specific Residual Contaminant Level

TSCA LO = Toxic Substances Control Act (TSCA) low occupancy (LO) cleanup level = 25 mg/kg

Table 4-1. Remedial Technologies Screening Summary – Floodplains Reach

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Remedial Technologies	Process Options	Description	Screening Criteria			Screening Comment
			Effectiveness	Implementability	Relative Cost	
No Action						
	None	No further actions to address contaminated floodplain soil.	Some natural recovery may occur as COCs slowly biodegrade over time and/or are covered by relatively cleaner sediment deposited during periodic flooding events, but these changes would not be monitored. Does not meet the Remedial Action Objectives.	Not applicable.	None	Required for comparison.
Monitoring						
	Monitoring	Rely on existing vegetative cover to minimize human contact with floodplain soil COCs.	Effectiveness depends on level of site use and monitoring/maintenance of the vegetative cover.	Implementable in areas with PCB concentrations below the TSCA low occupancy thresholds. May be appropriate in areas where extensive habitat restoration has occurred, and vegetation is well established and actively managed and maintained.	Low	Not retained for further evaluation because vegetation would require ongoing active maintenance.
Natural Recovery						
	Monitored Natural Recovery	Allow naturally occurring physical, chemical, and biological processes to reduce the bioavailability and/or toxicity of COCs to acceptable levels. Burial of contaminated floodplain soils by relatively cleaner sediment deposited during periodic flood events could lead to lower surface and near surface COC concentrations compared to subsurface COC concentrations, depending on the net sedimentation rate.	Some natural recovery may occur as COCs slowly biodegrade or are buried over time. The soil COC data for the Floodplains Reach show evidence of natural recovery in some areas; however, the rates of recovery are not known.	Implementable but would require periodic long-term monitoring to confirm recovery. May require institutional controls/continuing obligations, to ensure that the remedy remains protective over the long term.	Low	Not retained for further evaluation as a supporting technology.
	Enhanced Natural Recovery	Also referred to as thin-layer capping. Place a thin layer of clean cover material over contaminated floodplain soils to accelerate natural recovery and reduce contaminant concentrations in surface soil.	Cover would not eliminate direct contact human health or ecological receptor exposure pathways. Cover material could be washed away by floodwaters before it is mixed into the surficial soil layer. May be suitable in areas with contaminant concentrations that are marginally above cleanup goals.	Easily implementable in the Floodplains Reach. Clean cover material could be broadcast when vegetation is dormant. May require institutional controls/continuing obligations, to ensure that the remedy remains protective over the long term.	Low	Not retained for further evaluation as a supporting technology.
Floodplain Soil Removal						
	Excavation	Remove floodplain soil using mechanical methods. The excavator bucket location and elevation are controlled by Global Positioning System-integrated software for real-time positioning. Excavated soil is stockpiled, stabilized as needed, and transported offsite for disposal. Full or partial excavation of contaminated soils can be performed.	Effective. Contaminated floodplain soil is removed, eliminating direct contact human and ecological receptor exposure pathways. Excavated floodplain areas would be restored to address impacts from removal activities.	Implementable. Requires permits. Temporary access roads may be needed to access roadless floodplain areas. Staging area(s) would be required to process excavated soil prior to disposal.	Moderate to High	Excavation is retained for further evaluation in conjunction with soil disposal technologies.

Table 4-1. Remedial Technologies Screening Summary – Floodplains Reach

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Remedial Technologies	Process Options	Description	Screening Criteria			Screening Comment
			Effectiveness	Implementability	Relative Cost	
Floodplain Soil Transport						
	Truck Transport	Excavated floodplain soil is stabilized as needed at the staging areas adjacent to the work sites, loaded into trucks, and transported to an offsite location for disposal.	Effective. Well-established technology for transporting excavated soils to a disposal site.	Implementable. Temporary roads may be needed to gain access to staging areas	Moderate to high depending on the volume of soil requiring truck transport.	Retained for further evaluation in conjunction with excavation and disposal technologies.
	Pipeline Transport	Excavated soil is screened to remove vegetation and debris. Water is added to excavated floodplain soil in a slurry tank at the staging areas and transported as a slurry in the pipeline to the DMMF.	Effective depending on the physical properties of excavated soils.	Implementable. Temporary roads may be needed to gain access to staging areas. Debris and vegetation that is screened out of the soil may need to be removed from the site.	Low to Moderate. Expected to be less expensive than truck transport due to savings on stabilization and transportation cost.	Retained for further evaluation in conjunction with excavation and disposal technologies.
Floodplain Soil Disposal						
	Offsite Disposal - Subtitle C or D Landfill	Disposal of excavated floodplain soil at an offsite facility. Characterization data collected to date indicate that none of the floodplain soils within the Floodplains Reach have PCB concentrations greater than the 50 mg/kg TSCA threshold, which require disposal in a Subtitle C landfill. Soils with PCB concentrations less than 50 mg/kg and other COCs with concentrations below the RCRA hazardous waste levels are permanently disposed in a non-TSCA and non-Subtitle D landfill.	Effective. Permitted landfills include engineering controls to prevent future release of COCs to the environment.	Local landfills within the region are approved for special waste disposal of soils with less than 50 mg/kg PCBs and nonhazardous waste levels of other COCs. The acceptability of the excavated floodplain soil by the offsite disposal facility would need to be evaluated in greater detail during remedial design; disposal requirements for emerging contaminants are uncertain.	Moderate to High	Not retained for further evaluation. The floodplain soil transportation and disposal costs are higher for offsite disposal compared to disposal in the DMMF. This option may be reconsidered if DMMF capacity becomes an AOC-wide issue for the MKE Estuary.
	Offsite Disposal - DMMF	A DMMF is an extension of land or an island area designed for containment of contaminated dredged sediments and excavated floodplain soils that provides control of potential releases of COCs to the environment. Excavated floodplain soils are transported by truck or pipeline to the DMMF planned for the MKE Estuary AOC.	Effective. The engineering controls implemented in the DMMF provide control of potential releases of COCs to the environment. Verification of engineering controls may be required to confirm containment of COCs.	Implementable, but requires negotiation and approvals from the Port of Milwaukee and USACE. DMMF constraints on chemical composition of acceptable soils and any associated free water may need to be considered. Available capacity in the proposed DMMF and removal volumes from multiple project areas within the MKE Estuary AOC need further evaluation.	Low to Moderate. Expected to be less expensive than offsite disposal, due to savings on stabilization, transportation, and disposal fees.	Currently retained for further evaluation. The proposed DMMF is currently in its design phase. Requires close coordination with the EPA, WDNR, USACE, and Port of Milwaukee and requires federal and non-federal sponsors. Volume of sediments to be removed from the MKE Estuary AOC is currently being evaluated for multiple project areas.

Table 4-1. Remedial Technologies Screening Summary – Floodplains Reach

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Remedial Technologies	Process Options	Description	Screening Criteria			Screening Comment
			Effectiveness	Implementability	Relative Cost	
Floodplain Soil Dewatering						
	Passive Dewatering at Staging Area	After mechanical removal of floodplain soils, any excess free water drains to a collection sump and is physically and chemically treated to remove COCs and turbidity before discharging it back into the river or publicly owned treatment works.	Effectiveness depends on the discharge criteria and the efficiency of the water treatment processes.	Depends on availability of areas for staging and construction of dewatering pad and water treatment system. Water treatment system design may require testing.	Low to Moderate	Retained for further evaluation in conjunction with excavation, transport, and disposal technologies.
	Passive Dewatering at DMMF	Pumping of floodplain soil slurry containing up to 90-percent water directly to the DMMF. The soils are passively dewatered by evaporation and settling of solids. Free water on top is treated and discharged to Lake Michigan under a Wisconsin Pollutant Discharge Elimination System permit. Requires an onsite wastewater plant of sufficient capacity to prevent accumulation of large quantities of water in the DMMF.	Depends on the discharge criteria and the efficiency of the treatment processes. Removes COCs and turbidity before discharging into the lake. An effluent monitoring system is required to monitor the discharge concentrations.	Implementable and cost effective if DMMF disposal option is available. Extended dewatering duration and effective water treatment system are essential for uninterrupted remediation operations. Typically requires pilot testing to select reagent and mix to improve dewatering and for design of water treatment system.	Moderate to High	Retained for further evaluation in conjunction with excavation, transport, and disposal technologies.
Floodplain Soil Containment						
	Cap/Cover	Place one or more layers of clean material over the surface of contaminated floodplain soils to isolate the COCs left in place. Provides long-term risk reduction to human and ecological receptors as long as cap/cover integrity is maintained.	Effective if cap/cover remains in place. Isolates the COCs from human and ecological receptors and prevents erosion of contaminated floodplain soils. Regular cap/cover inspection and maintenance are required to address eroded or disturbed areas. The cap/cover design needs to consider potential scour by river currents and ice. Cap/cover surface should be designed to provide habitat for floodplain flora and fauna.	Implementable in areas with PCB concentrations below the TSCA low occupancy thresholds. Likely less implementable in wetlands or habitat restoration areas. Requires permits. May require institutional controls/continuing obligations, to ensure that the remedy remains protective over the long term. Potential loss of flood storage capacity must be considered. Requires staging areas for cap material close to the remediation location. Temporary access roads may be needed.	Low to Moderate. Long-term costs include periodic monitoring and cap/cover maintenance as required.	Retained for further evaluation.
In Situ Treatment						
	Activated Carbon	This technology involves applying or mixing activated carbon (e.g., granular activated carbon or SediMite) into surficial floodplain soil to adsorb hydrophobic organic contaminants and reduce contaminant bioavailability and risk to human and ecological receptors. Amendments can be placed using a hand spreader or conventional spreading equipment. Carbon amendments can be mixed into the soil using a mechanical method such as tilling or by relying on natural biological activity (bioturbation).	Effective for immediately reducing bioavailability of hydrophobic organic contaminants but may not be effective for metals. Effective unless the amendment is washed away by floodwaters before it is mixed into the surficial soil layer. Long-term effectiveness and permanence are uncertain.	Implementable in areas with PCB concentrations below the TSCA low occupancy threshold. May require pilot testing to support design. Could be used in environmentally sensitive floodplain areas where excavation or capping would damage or destroy high value habitat. Does not require removal of understory vegetation. Would require staging areas for stockpiling materials. Would likely require long-term monitoring. May require institutional controls/continuing obligations, to ensure that the remedy remains protective over the long term. Because in situ treatment reduces COC bioavailability but does not reduce bulk COC concentrations in soil, an alternative approach would be needed to assess remedy success.	Moderate; costs may be lower than excavation or capping but would require monitoring.	Retained for further evaluation. Long-term effectiveness and permanence are uncertain and long-term monitoring would be needed but may be appropriate for environmentally sensitive floodplain areas.

Table 4-1. Remedial Technologies Screening Summary – Floodplains Reach

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Remedial Technologies	Process Options	Description	Screening Criteria			Screening Comment
			Effectiveness	Implementability	Relative Cost	
Ex Situ Treatment						
	Stabilization/ Solidification	Dewatered floodplain soil is mixed with an additive (fly ash, Portland cement) to decrease the leachability of COCs and meet transportation and disposal requirements.	Effective as a secondary dewatering technology for soils following passive dewatering. Can improve the chemical and physical properties of the soil for disposal.	Requires mixing amendments into the soil following excavation and passive dewatering prior to disposal. Typically requires pilot testing for selecting the suitable stabilization/solidification amendment. After stabilization/solidification, soil is loaded into trucks for offsite disposal.	Moderate	Retained for further evaluation in conjunction with excavation, transport, and disposal technologies.
	Particle Size Segregation	Vibrating or fixed screens, hydrocyclones, or gravity separation used to segregate particle sizes in soil allowing separate disposal of fine-grained material with higher COC concentrations.	Effective. Can be a good source of fill materials for beneficial reuse if sufficient quantity of sand/gravel exists within soils to be removed.	Implementable; requires staging area for implementation. The quantity of sand/gravel within the soils to be evaluated for cost effectiveness. Pilot/bench-scale testing is required.	Moderate	Not retained for further evaluation because most of the floodplain soil in the remediation target areas is fine-grained.
Bank Stabilization						
	Hard Armoring	Placement of rip rap, articulated concrete blocks or other hard material to prevent erosion.	Effective. Results in poor habitat but naturalizes with time.	Implementable	High	Retained for further evaluation
	Grading and Bioengineering	Grading banks to a 1:3 slope; seeding, tree and shrub planning, and installation of erosion control blankets to protect soils during vegetation establishment.	Moderately effective; will reduce but not prevent erosion; banks may not support dense vegetation due to flow regime.	Implementable	Low	Retained for further evaluation
	Whole Tree Revetment	Anchoring whole trees (minus the root wad) along the riverbank to reduce the current along the bank, decrease erosion, and enhance sediment deposition.	Moderately effective; temporary (10 to 20 years); trees capture sediment and enhance conditions for colonization of vegetation.	Implementable; can use material cut from floodplain areas; requires artificial anchoring materials.	Moderate	Retained for further evaluation
	Excavation and reconstruction	Remove contaminated bank soils and reconstruct with clean fill using soil encapsulation and bioengineering.	Effective; various materials can be chosen for reconstruction to strengthen soil; allows native vegetation establishment; banks may still be erodible.	Implementable; excavation may be required for remediation.	Moderate to high	Retained for further evaluation

AOC = area of concern

COC = contaminant of concern

DMMF = dredged materials management facility

EPA = U.S. Environmental Protection Agency

MKE = Milwaukee

mg/kg = milligram(s) per kilogram

PCB = polychlorinated biphenyl

RCRA = Resource Conservation and Recovery Act

TSCA = Toxic Substance Control Act

USACE = U.S. Army Corps of Engineers

WDNR = Wisconsin Department of Natural Resources

Table 5-1. Remedial Alternatives Summary - Floodplains Reach

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Element No.	Remedial Alternative Element	Alternative 1 No Action	Alternative 2	Alternative 3a	Alternative 3b	Alternative 4
1	**Excavation Volume (yd^3)[a]**	0	96,100	68,000	58,800	20,900
2	**Remediation Areas (Acres)**					
	Excavation and Backfill/Restore	0	33.7	18.9	18.9	3.7
	Precision Excavation and Backfill/Restore	0	0	9.8	0	10.4
	In-situ Treatment with Activated Carbon	0	0	0	9.8	0
	Soil Cover	0	0	0	0	14.7
	Existing Soil and Vegetative Cover	0	0.0	5.0	5.0	4.9
3	**Estimated Area requiring ICs/COs**	0	0.0	14.8	14.8	30.0
4	**Estimated shoreline restoration (linear feet)**	0	10,200	5,900	5,900	1,900
5	**Estimated amount of clean fill and/or soil requiring transport from offsite sources (yd^3)**	0	27,200	22,700	15,000	26,300

[a] Volume estimates include overburden/overexcavation.

IC = institutional control

CO = continuing obligation

yd^3 = cubic yard

Table 7-1. Remedial Alternatives Evaluation – Floodplains Reach

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Criterion	Alternative 1 No Action	Alternative 2 Full Excavation	Alternative 3a Excavation, Precision Excavation, and Existing Soil and Vegetative Cover	Alternative 3b Excavation, Activated Carbon Treatment, and Existing Soil and Vegetative Cover	Alternative 4 Excavation, Soil Cover, Precision Excavation, and Existing Soil and Vegetative Cover
1. Threshold Criterion					
Compliance with applicable federal, state, and local regulations	No remedial action; therefore, not applicable.	Multiple permits would be required (see Appendix C). Alternative can be designed to comply with applicable regulations.	Same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2.
2. Balancing Criteria					
(a) Long-term Effectiveness: Ability to achieve RAOs and contribute to BUI removal, amount of residual contamination[a] anticipated to be left in place, adequacy and reliability of long-term controls, potential for recontamination, and expected performance in response to extreme storm events and climate change.	RAOs would not be met within a reasonable timeframe. Would not contribute to removal of BUIs.	Full soil excavation will reliably and permanently reduce the mass, volume, and concentrations of COCs in the soil, thereby reducing exposure and risk to ecological and human receptors and contributing to the removal of BUIs. Disposal of contaminated soil in the DMMF eliminates all exposure pathways. STAs will not be preserved under Alternative 2. Minimal residual contamination will remain in place under Alternative 2; therefore, no long-term controls are needed and floodplain soils are not a potential source of recontamination. As discussed in Section 2.6, recontamination potential from upstream sources is low. Alternative 2 can be designed to withstand extreme storm events and be resilient in response to climate change.	Less soil will be excavated compared to Alternative 2, resulting in comparatively lower reductions in COC mass, volume, and concentration. In areas where contamination is not fully excavated, COC concentrations in surface soil (0 to 0.5 foot interval) will be reduced below SS-RCLs through precision excavation of surface soils, reducing exposure and risk to ecological and human receptors and contributing to removal of BUIs. Leaving subsurface soil (below 0.5 feet) in place will reduce the disturbance and overall ecological impact of remediation activities, although potential risks may remain for burrowing animals (e.g., earthworms) that come into contact with residual contamination in subsurface soils, and for predators that consume the burrowing organisms. STAs will be preserved where possible under Alternative 3a. Alternative 3a leaves more residual contamination in place than Alternative 2 and less residual contamination in place compared to Alternatives 3b and 4. Long-term controls (backfill and restoration in precision excavation areas and existing soil and vegetative cover in STAs with subsurface contamination only) are expected to be adequate and reliable if monitored and maintained. The potential for recontamination from subsurface contaminated soils remaining in place is low if the long-term controls are monitored and maintained. Precision excavation areas may be at risk from extreme storm events until restored vegetation is well established.	Same as Alternative 3a, except that less soil will be removed. A greater area of existing high-quality habitat will be preserved because in situ treatment with activated carbon will be used in STAs rather than precision excavation. Alternative 3b leaves more residual contamination in place than Alternatives 2 and 3a and less residual contamination in place compared to Alternative 4. The adequacy and reliability of in situ treatment with activated carbon over the long term is uncertain. Bench and pilot scale field testing suggests that activated carbon is effective for reducing the bioavailability of organic compounds such as PCBs but no long-term effectiveness data are available for floodplain settings. The effectiveness for treating metals is uncertain.	Less soil will be removed compared to Alternatives 2, 3a, and 3b, resulting in lower reductions in COC mass, volume, and concentration. Long-term controls include soil cover in non-forested disturbed areas in addition to backfill and restoration in precision excavation areas and existing soil and vegetative cover in STAs with subsurface contamination only. Therefore, monitoring and maintenance would be required over a larger area compared to Alternatives 2, 3a, and 3b to ensure that the remedy is protective over the long term. Soil cover and precision excavation areas may be at risk from extreme storm events until restored vegetation is well established.

Table 7-1. Remedial Alternatives Evaluation – Floodplains Reach

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Criterion	Alternative 1 No Action	Alternative 2 Full Excavation	Alternative 3a Excavation, Precision Excavation, and Existing Soil and Vegetative Cover	Alternative 3b Excavation, Activated Carbon Treatment, and Existing Soil and Vegetative Cover	Alternative 4 Excavation, Soil Cover, Precision Excavation, and Existing Soil and Vegetative Cover
(b) Short-term Effectiveness: Potential adverse impacts on public health, safety, welfare, and the environment during construction and implementation; protection of the community during remedial action, environmental impacts of the remedial action, and time until RAOs are achieved.	No remedial action; therefore, not applicable.	Potential adverse impacts on public health, safety, welfare and the environment during construction and implementation include the following: ▪ Reduced public access to the floodplains for recreation. ▪ Increased traffic. ▪ Increased emissions from vehicles and other construction equipment. ▪ Increased noise. ▪ Odors and dust from the upland staging area where excavated soils from FP-1 through FP-4 are stockpiled and processed for transport to the DMMF. ▪ Potential risk to workers from accidents. ▪ Temporary destruction of the floodplain habitat and disruption to the fauna within the remediation target areas, in and along access trails, and in staging areas. Trees within the forested areas may take decades to regrow. ▪ Potential environmental impacts from leaks in the pipeline hydraulically transporting excavated soils to the DMMF. Engineering and operational controls will be used to reduce and manage impacts during remedy construction and implementation. Plans will be developed during remedial design to establish requirements for air quality monitoring, noise monitoring, health and safety, waste management, traffic safety, and other activities. The magnitude of the impacts is related to the extent and duration of the remedial action. Alternative 2 will take longer to implement and affect a larger area than Alternatives 3a, 3b, and 4. RAOs will be achieved when remedy construction is complete.	Potential adverse impacts are the same as those for Alternative 2; however, the duration of the remedial action will be shorter because less soil will be removed. A smaller area of floodplain habitat would be temporarily destroyed compared to Alternative 2 and STAs would be preserved. RAOs will be achieved when remedy construction is complete. Alternative 3a will take less time to implement compared to Alternative 2 and will take longer to implement than Alternative 3b and Alternative 4.	Same as Alternative 3a except fewer short-term impacts to STAs with surface sediment contamination because these areas will be treated in situ with activated carbon rather than undergoing precision excavation. Alternative 3b will take less time to implement compared to Alternatives 2 and 3a and will take longer to implement than Alternative 4.	Potential adverse impacts are the same as those for Alternative 3a; however, the duration of the remedial action will be shorter than for Alternatives 2, 3a, and 3b because less soil will be removed.

Table 7-1. Remedial Alternatives Evaluation – Floodplains Reach

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Criterion	Alternative 1 No Action	Alternative 2 Full Excavation	Alternative 3a Excavation, Precision Excavation, and Existing Soil and Vegetative Cover	Alternative 3b Excavation, Activated Carbon Treatment, and Existing Soil and Vegetative Cover	Alternative 4 Excavation, Soil Cover, Precision Excavation, and Existing Soil and Vegetative Cover
(c) Implementability: Technical feasibility, including ease of implementation, reliability, constructability, availability of goods and services, and potential difficulties or constraint associated with construction or disposal; and administrative feasibility, including activities and time needed to obtain permits and approvals and degree of coordination with other agencies.	Easily implementable because no remedial action would be taken.	The remediation methods associated with this alternative have been implemented at numerous other sites and have been proven to be constructible and reliable. All goods and services are expected to be readily available. Potential difficulties and constraints associated with this alternative include: ▪ Limitations on DMMF capacity for soil disposal ▪ Limited access for construction equipment in some floodplain areas A range of permits and approvals are required for implementing this alternative as detailed in Appendix C. This alternative requires extensive coordination with other agencies and parties including affected property owners and businesses.	Same as Alternative 2 except that: (1) the volume of excavated soil is lower and therefore disposal requires less DMMF capacity, and (2) Alternative 3a requires institutional controls/continuing obligations to ensure that the remedy remains protective over the long term, and therefore is more challenging to administer.	Same as Alternative 3a except that: (1) the volume of excavated soil is lower and therefore disposal requires less DMMF capacity, and (2) availability of a sufficient quantity of activated carbon is uncertain and procurement may require significant lead time.	Same as Alternative 3a except that the volume of excavated soil is lower than for Alternatives 2, 3a, and 3b, and therefore disposal requires less DMMF capacity.
(d) Restoration Time Frame	No remedial action; therefore, not applicable.	This alternative would result in the most widespread temporary destruction of floodplain habitat. The site would be replanted in accordance with the restoration plan developed during design. Herbaceous plants and shrubs are expected to become re-established in a relatively short time frame (on the order of months to a few years); however, trees may take decades to re-establish depending on the species. Staging and laydown areas will be restored to the pre-remedy condition during demobilization.	The restoration time for this alternative is shorter than for Alternative 2 because less area would require restoration and STAs would be preserved where possible.	The restoration time frame is shorter than for Alternative 3a because STAs with surface sediment contamination would be treated with activated carbon rather than undergoing precision excavation followed by restoration.	Same as Alternative 3a.
(e) Total Cost (Remediation and Restoration Alternative -1)	$0	$44,900,000	$38,300,000	$35,800,000	$28,100,000
Additional Costs for Restoration Alternative -2	$0	$6,000,000	$1,500,000	$3,500,000	$1,300,000
3. Modifying Criterion					
Project Partner Acceptance	Evaluated after the project partners reviewed and provided comments on the remedial alternatives and associated analyses. Project partner acceptance was considered when selecting the recommended alternative.				

[a] "Residual contamination" is defined as sediment with COC concentrations above the site-specific residual contaminant levels.

BUI = beneficial use impairment

COC = contaminant of concern

DMMF = dredged material management facility

PCB = polychlorinated biphenyl

RAO = remedial action objective

SS-RCL = site-specific residual contaminant level

STA = seed tree area

Figures

Milwaukee River Floodplains Reach
Milwaukee River Downtown Reach
Former North Avenue Dam
Menomonee River
Burnham Canal Superfund Alternative Site
Milwaukee River - Third Ward
Milwaukee Bay
Kinnickinnic River
Grand Trunk Wetlands
Proposed DMMF Area
Jones Island CDF
Lake Michigan
W HAMPTON AVE
E HAMPTON AVE
ESTABROOK PKWY
N GREEN BAY AVE
N PORT WASHINGTON RD
W CAPITOL DR
N SHERMAN BLVD
N TEUTONIA AVE
N OAKLAND AVE
N LAKE DR
E BURLEIGH ST
N 40TH ST
W LOCUST ST
I-43 FWY
N MARTIN L KING JR DR
E LOCUST ST
145
W CENTER ST
N 27TH ST
N 20TH ST
E CENTER ST
N HUMBOLDT BLVD
N 35TH ST
W FOND DU LAC AVE
N HOLTON ST
W NORTH AVE
E NORTH AVE
W LISBON AVE
E BRADY ST
N VAN BUREN ST
N LINCOLN MEMORIAL DR
43
W JUNEAU AVE
N WATER ST
W STATE ST
E WELLS ST
18
E WISCONSIN AVE
W WISCONSIN AVE
94
W CANAL ST
S 2ND ST
E ERIE ST
I-794 FWY
S 6TH ST
W NATIONAL AVE
S 1ST ST
S 35TH ST
W GREENFIELD AVE
S 27TH ST
W BURNHAM ST
W BECHER ST
W LINCOLN AVE
S KINNICKINNIC AVE
W CLEVELAND AVE
S 6TH ST
Milwaukee River
Menomonee River
Kinnickinnic River

N
0 1500 3000
Feet

LEGEND

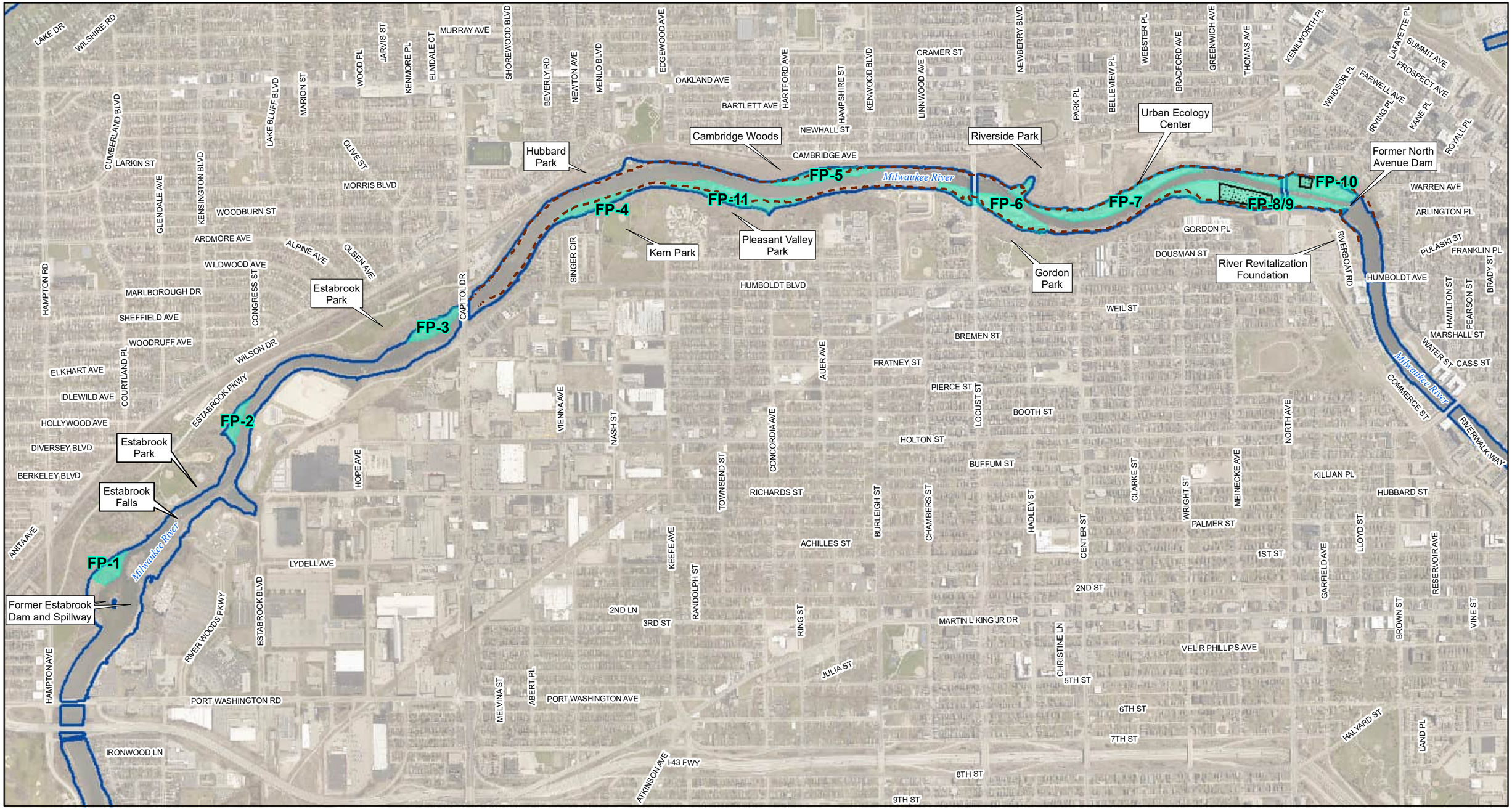
- Floodplain Area Boundary
- Milwaukee Bay
- Menomonee River
- Kinnickinnic River
- Milwaukee River Downtown
- Milwaukee River Floodplain
- Milwaukee River - Third Ward
- South Menomonee Canal
- Greater Milwaukee GLLA Project Agreement boundary

Notes:
1. CDF = confined disposal facility; DMMF = dredged materials management facility; GLLA = Great Lakes Legacy Act
2. 2020 Aerial Photography provided by Esri ArcGIS Online World Imagery.

Figure 1-1
Regional Features
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

\\dc1vs01\gisproj\E\EPA\681867_MKERiverDownstream\MapFiles\2022\Floodplain\Figure1-1_Milwaukee_Estuary_AOC_Regional_Features.mxd jhansen1 (1/27/2023)

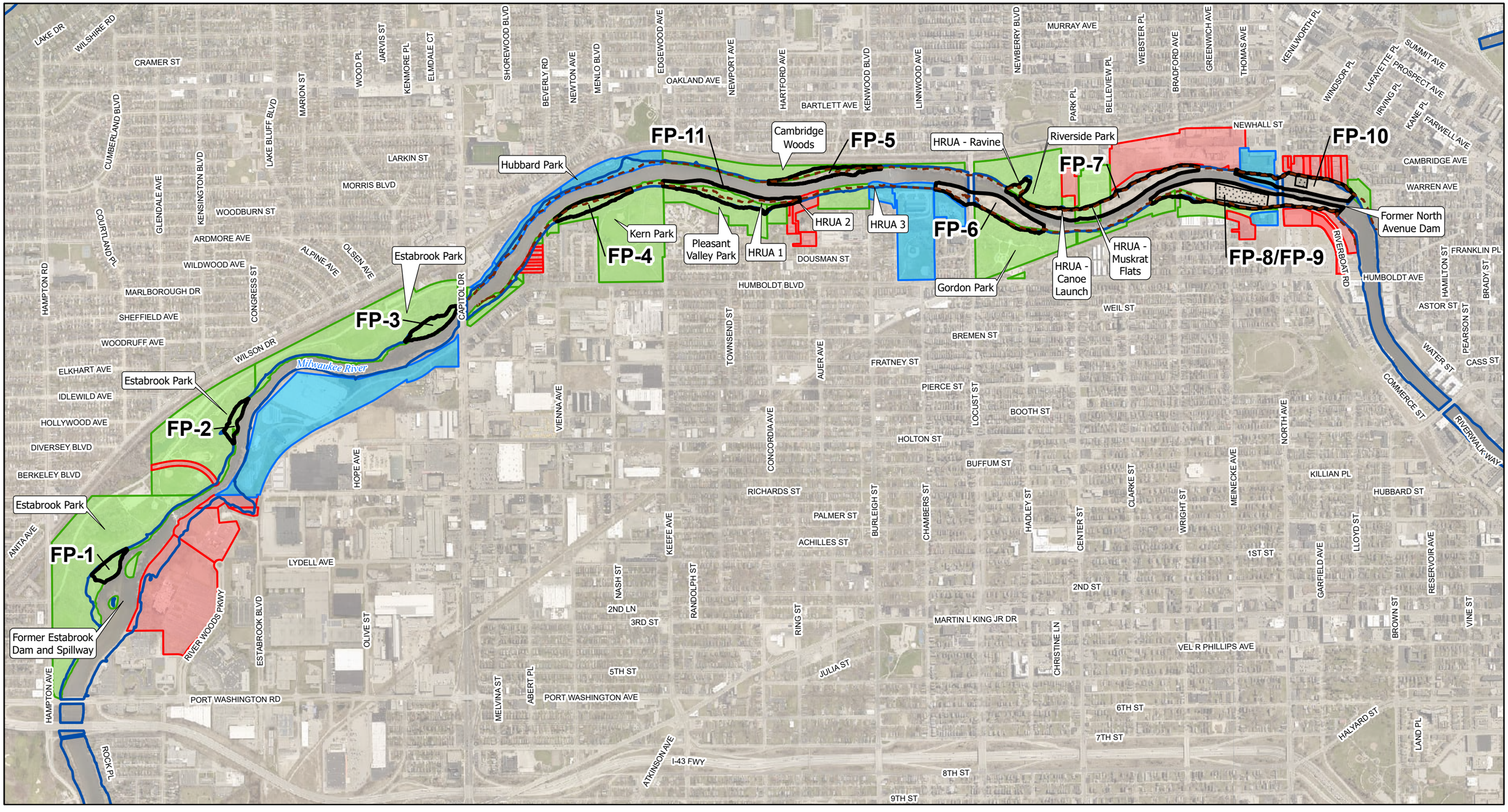
Jacobs



Notes:
1. FEMA = Federal Emergency Management Agency; NAVD88 = North American Vertical Datum of 1988
2. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).

Figure 1-2
Floodplains Reach Location Map
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



LEGEND

Map Features

- Approximate Former Impoundment Extent (Elevation 595 feet NAVD88)
- Floodplain Area Boundary
- North Ave Dam Removal Sediment Stockpile
- FEMA 100-Year Floodplain

Property Ownership

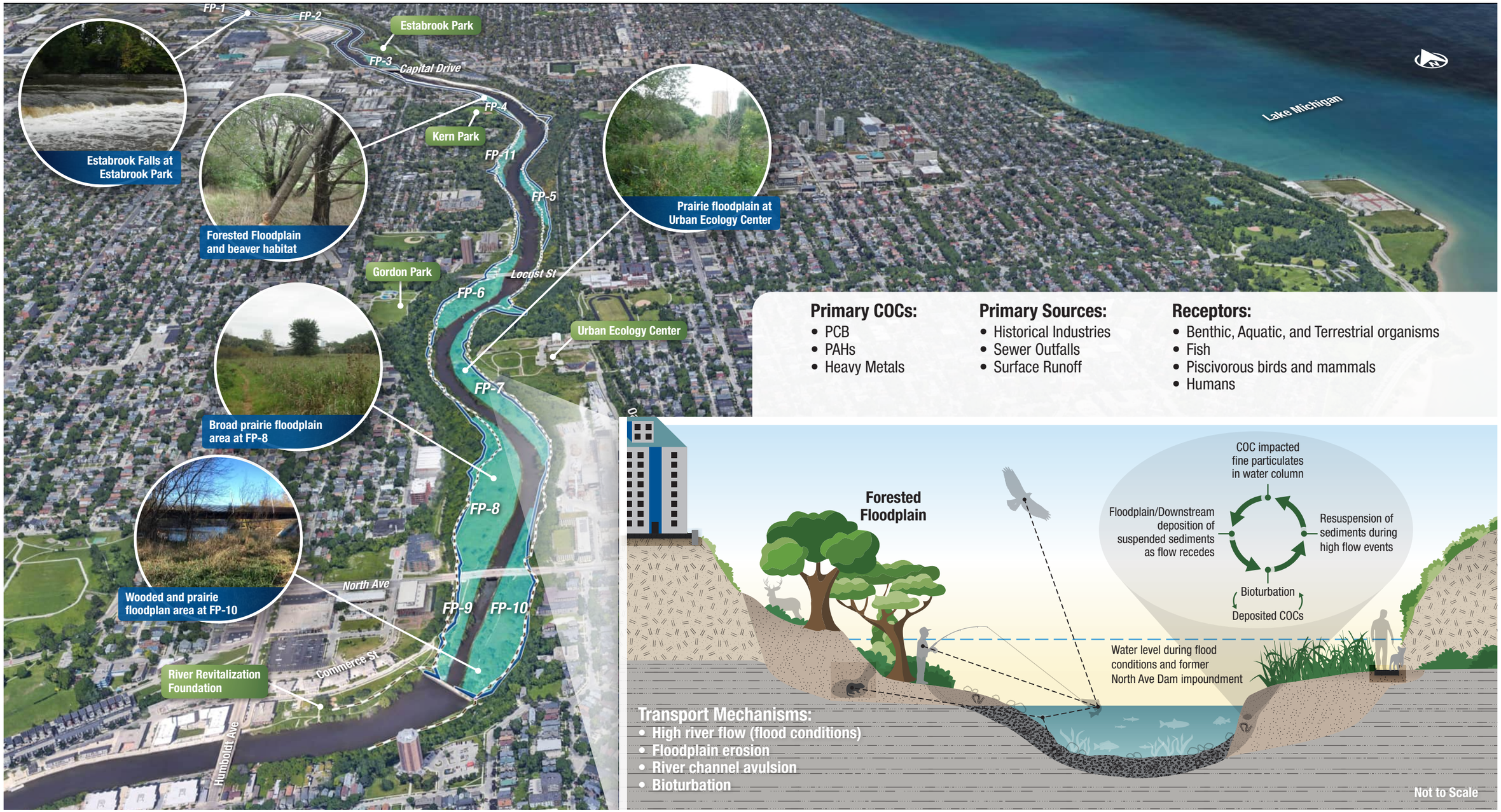
- Milwaukee County
- Other Public
- Private

N

0 600 1,200
Feet

Notes:
1. FEMA = Federal Emergency Management Agency; NAVD88 = North American Vertical Datum of 1988
2. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).

Figure 1-3
Property Ownership
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin



Map Legend

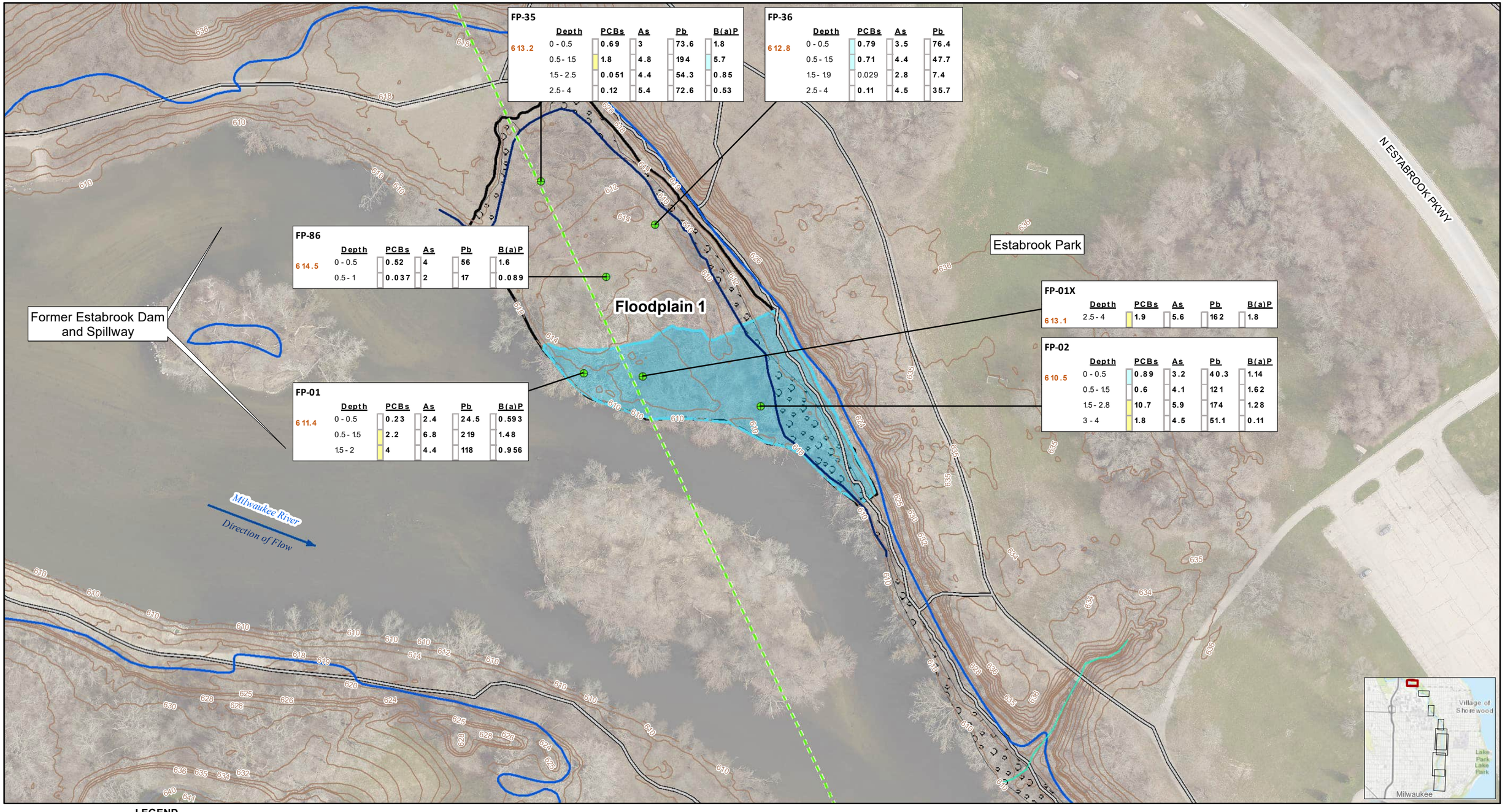
- Floodplain Area
- FEMA 100-Year Floodplain
- Approximate Historical Impoundment Extent = 595 Feet NAVD88

Inset Legend

- Floodplain Soil
- Fill and Soil
- Compacted Native Material (Low Permeability, Dense Clays and Silts)
- Alluvial Gravel/Cobble
- River Sediment (Clay and Silt Rich in Organics)

Figure 2-1
Conceptual Site Model
Milwaukee River Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



LEGEND

- Floodplain Soil Sampling Location
- Delineated Wetland

Map Features

- 2-foot Topographic Contour
- Delineated Stream
- OHWM Boundary
- Trails
- Remediation Target Area
- Floodplain Area Boundary
- FEMA 100-Year Floodplain

Utilities

- Sanitary Sewer

N

0 50 100
Feet

Analytical Results Table Format

Location ID			PCBs	As	Pb	B(a)P
Ground Elevation			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Boring Depth	Depth					
	Sample interval (ft bss)	Tier 2	>0.7			>5.09
		Tier 1	>1.1	>8	>400	> 8.48
		TSCA low occupancy	>25			

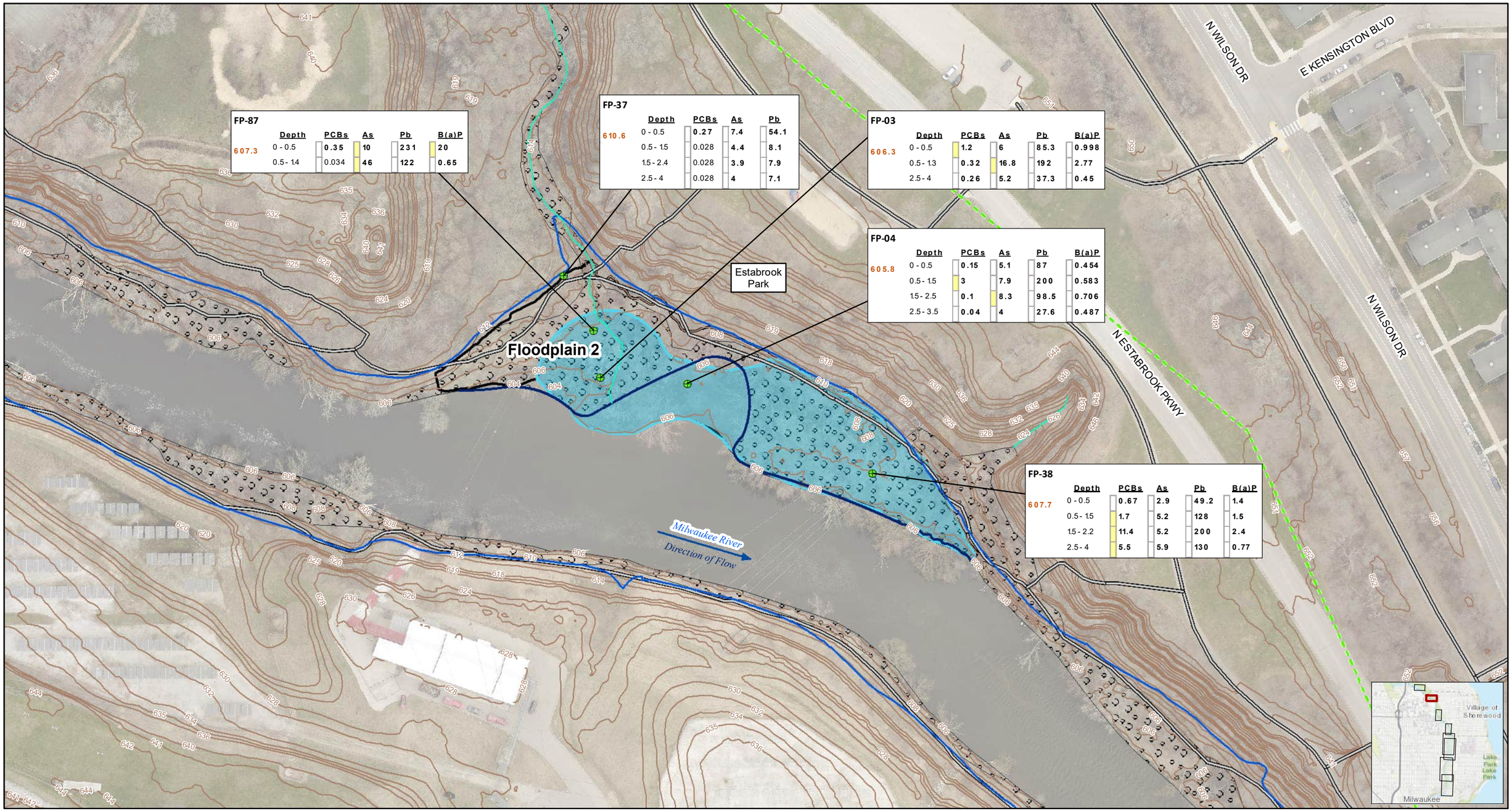
Bold values represent results above the detection limit

Abbreviations:
As = arsenic; B(a)P = benzo(a)pyrene; bgs = below ground surface; BTV = background threshold values; FEMA = Federal Emergency Management Agency; mg/kg = milligrams per kilogram; OHWM = ordinary high water mark; Pb = lead; PCBs = polychlorinated biphenyls; SS-RCL = site-specific residual contaminant levels developed by Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021); TSCA = Toxic Substances Control Act

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988 (NAVD88)
3. Samples screened using SS-RCLs as follows:
   Tier 1 SS-RCLs were used for Typical Recreational Use Areas
   Tier 2 SS-RCLs were used for High Recreational Use Areas
4. A site-specific BTV of 10 mg/kg for arsenic was used to delineate Remediation Target Areas

Figure 2-2A
Floodplain 1 Analytical Results Summary
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



LEGEND

- Floodplain Soil Sampling Location
- Delineated Wetland

Map Features

- 2-foot Topographic Contour
- Delineated Stream
- OHWM Boundary
- Trails
- Remediation Target Area
- Floodplain Area Boundary
- FEMA 100-Year Floodplain

Utilities

- Sanitary Sewer

N

0 50 100

Feet

Analytical Results Table Format

Location ID			PCBs	As	Pb	B(a)P
Ground Elevation			(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
	Depth					
Boring Depth		Tier 2	>0.7			>5.09
	Sample	Tier 1	>1.1	>8	>400	> 8.48
	interval	TSCA low	>25			
	(ft bss)	occupancy				

Bold values represent results above the detection limit

Abbreviations:
As = arsenic; B(a)P = benzo(a)pyrene; bgs = below ground surface; BTV = background threshold values, FEMA = Federal Emergency Management Agency; mg/kg = milligrams per kilogram; OHWM = ordinary high water mark; Pb = lead; PCBs = polychlorinated biphenyls; SS-RCL = site-specific residual contaminant levels developed by Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021); TSCA = Toxic Substances Control Act

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988 (NAVD88)
3. Samples screened using SS-RCLs as follows:
   Tier 1 SS-RCLs were used for Typical Recreational Use Areas
   Tier 2 SS-RCLs were used for High Recreational Use Areas
4. A site-specific BTV of 10 mg/kg for arsenic was used to delineate Remediation Target Areas

Figure 2-2B
Floodplain 2 Analytical Results Summary
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

FP-40C

	Depth	PCBs	As	Pb
607.4	0 - 0.5	0.029	5.9	49.9
	0.5 - 1.5	0.028	10.2	18.3
	1.5 - 2.5	0.027	5.6	7.7
	2.5 - 4	0.028	6.7	8.9

FP-40B

	Depth	PCBs	As	Pb
605.7	0 - 0.5	0.15	6	67.2
	0.5 - 1.5	0.057	7.1	24
	1.5 - 2.5	0.027	6.4	11.3
	2.5 - 3.6	0.03	5	6.5

FP-40A

	Depth	PCBs	As	Pb
603.3	0 - 0.5	0.15	5.9	69.8
	0.5 - 1.5	0.027	5.5	47.8
	1.5 - 2.5	0.029	5.8	12.2
	2.5 - 3.6	0.029	5.2	8.5

FP-41

	Depth	PCBs	As	Pb	B(a)P
602.5	0 - 0.5	0.064	6.9	54.8	0.26
	0.5 - 1.5	0.051	5.3	19.1	0.15
	1.5 - 2.5	0.028	5.6	9	0.002
	2.5 - 4	0.028	3.5	8.7	0.004

FP-06

	Depth	PCBs	As	Pb	B(a)P
597.9	0 - 0.5	0.87	3.3	68.3	3.62
	0.5 - 1	0.45	7.3	166	6.28
	1 - 2	0.16	5.4	50	1.53
	2 - 2.5	0.02	2.3	15.3	0.164

FP-05

	Depth	PCBs	As	Pb	B(a)P
601.7	0 - 0.5	0.66	4.4	77.6	1.44
	0.5 - 1.5	0.33	4.5	42.3	0.763
	1.5 - 2	0.02	4.7	17	0.198
	2 - 2.5	0.032	2.7	12.8	0.013
	2.5 - 4	0.03	2.8	3.1	0.02

FP-88

	Depth	PCBs	As	Pb	B(a)P
602.1	0 - 0.5	0.55	5	96	1
	0.5 - 1.5	0.35	8	60	0.6
	1.5 - 2.5	0.042	6	28	0.12

FP-39

	Depth	PCBs	As	Pb	B(a)P
601.2	0 - 0.5	1.3	5.8	89.8	1.4
	0.5 - 1.5	0.28	6.6	37.2	1.4
	1.5 - 2.5	0.03	4	19.2	0.081
	2.5 - 3.6	0.031	3.2	8.9	0.004

LEGEND

- Floodplain Soil Sampling Location
- **Map Features**
  - 2-foot Topographic Contour
  - Delineated Stream
  - Approximate Former Impoundment Extent (Elevation 595 feet NAVD88)
  - OHWM Boundary
  - Trails
  - Floodplain Area Boundary
- FEMA 100-Year Floodplain
- Delineated Wetland
- **Utilities**
  - Electric
  - Fiber Optic
  - Gas
  - Sanitary Sewer

0 50 100 Feet

Analytical Results Table Format

Location ID						
Ground Elevation			PCBs (mg/kg)	As (mg/kg)	Pb (mg/kg)	B(a)P (mg/kg)
Boring Depth	Depth					
	Sample interval (ft bss)	Tier 2	>0.7			>5.09
		Tier 1	>1.1	>8	>400	> 8.48
		TSCA low occupancy	>25			

Bold values represent results above the detection limit

Abbreviations:
As = arsenic; B(a)P = benzo(a)pyrene; bgs = below ground surface; BTV = background threshold values; FEMA = Federal Emergency Management Agency; mg/kg = milligrams per kilogram; OHWM = ordinary high water mark; Pb = lead; PCBs = polychlorinated biphenyls; SS-RCL = site-specific residual contaminant levels developed by Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021); TSCA = Toxic Substances Control Act

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988 (NAVD88)
3. Samples screened using SS-RCLs as follows:
   Tier 1 SS-RCLs were used for Typical Recreational Use Areas
   Tier 2 SS-RCLs were used for High Recreational Use Areas
4. A site-specific BTV of 10 mg/kg for arsenic was used to delineate Remediation Target Areas
5. Remediation Target Areas were not identified on Floodplain 3.

Figure 2-2C
Floodplain 3 Analytical Results Summary
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

Hubbard Park

Kern Park

E SINGER CIR

Milwaukee River

Direction of Flow

Floodplain 4

FP-08

	Depth	PCBs	As	Pb	B(a)P
593.7	0 - 0.5	0.88	4.6	88.5	1.91
	0.5 - 1.5	4.1	6.2	245	6.84
	1.5 - 2.5	0.87	8.5	258	3.35
	2.5 - 3.2	0.28	3.1	66.6	1.04

FP-07

	Depth	PCBs	As	Pb	B(a)P
592.9	0 - 0.5	1.1	3.6	77.1	3.04
	0.5 - 1.5	2.2	5.2	174	9.29
	1.5 - 2.5	1.1	8	193	10.5
	2.5 - 3	0.76	4.3	80.9	5.47

FP-09

	Depth	PCBs	As	Pb	B(a)P
592.2	0 - 0.5	0.82	5.7	109	1.87
	0.5 - 1.5	2.9	5.3	184	4.1
	2 - 3	0.027	4.9	6.2	0.003

FP-45

	Depth	PCBs	As	Pb
598.4	0 - 0.5	0.025	7.5	117
	0.5 - 1.5	0.033	5	25.1
	1.5 - 2.5	0.03	4.4	7.5
	2.5 - 4	0.029	2.6	5

FP-46

	Depth	PCBs	As	Pb	B(a)P
597.2	0 - 0.5	0.3	6.6	180	1.9
	0.5 - 1.5	0.028	5	28.9	20
	1.5 - 2.5	0.029	5.7	14.4	0.35
	2.5 - 4	0.032	3.6	15.7	0.011

FP-42

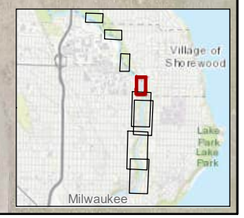
	Depth	PCBs	As	Pb	B(a)P
600.6	0 - 0.5	0.022	8.4	85.3	0.22
	0.5 - 1.5	0.028	5.5	21.5	0.025
	1.5 - 2.5	0.029	10	8.2	0.019
	2.5 - 3.4	0.028	4.7	6.1	0.018

FP-43

	Depth	PCBs	As	Pb
604.5	0 - 0.5	0.033	9.7	29.1
	0.5 - 1.5	0.033	6.2	52.7
	1.5 - 2.5	0.031	6.3	13.9
	2.5 - 4	0.029	8.6	11.7

FP-44

	Depth	PCBs	As	Pb
598.4	0 - 0.5	0.085	6.5	85.5
	0.5 - 1.5	0.033	3.5	14.1
	1.5 - 2.5	0.031	3.3	8
	2.5 - 4	0.03	7.1	6.4



LEGEND

- Floodplain Soil Sampling Location
- **Map Features**
  - 2-foot Topographic Contour
  - Approximate Former Impoundment Extent (Elevation 595 feet NAVD88)
  - OHWM Boundary
  - Trails
  - Floodplain Area Boundary
  - Remediation Target Area
- FEMA 100-Year Floodplain
- Delineated Wetland
- **Utilities**
  - Sanitary Sewer

0 50 100 Feet

Analytical Results Table Format

Location ID

Ground Elevation

	Depth		PCBs (mg/kg)	As (mg/kg)	Pb (mg/kg)	B(a)P (mg/kg)
Boring Depth		Tier 2	>0.7			>5.09
	Sample interval (ft bss)	Tier 1	>1.1	>8	>400	> 8.48
		TSCA low occupancy	>25			

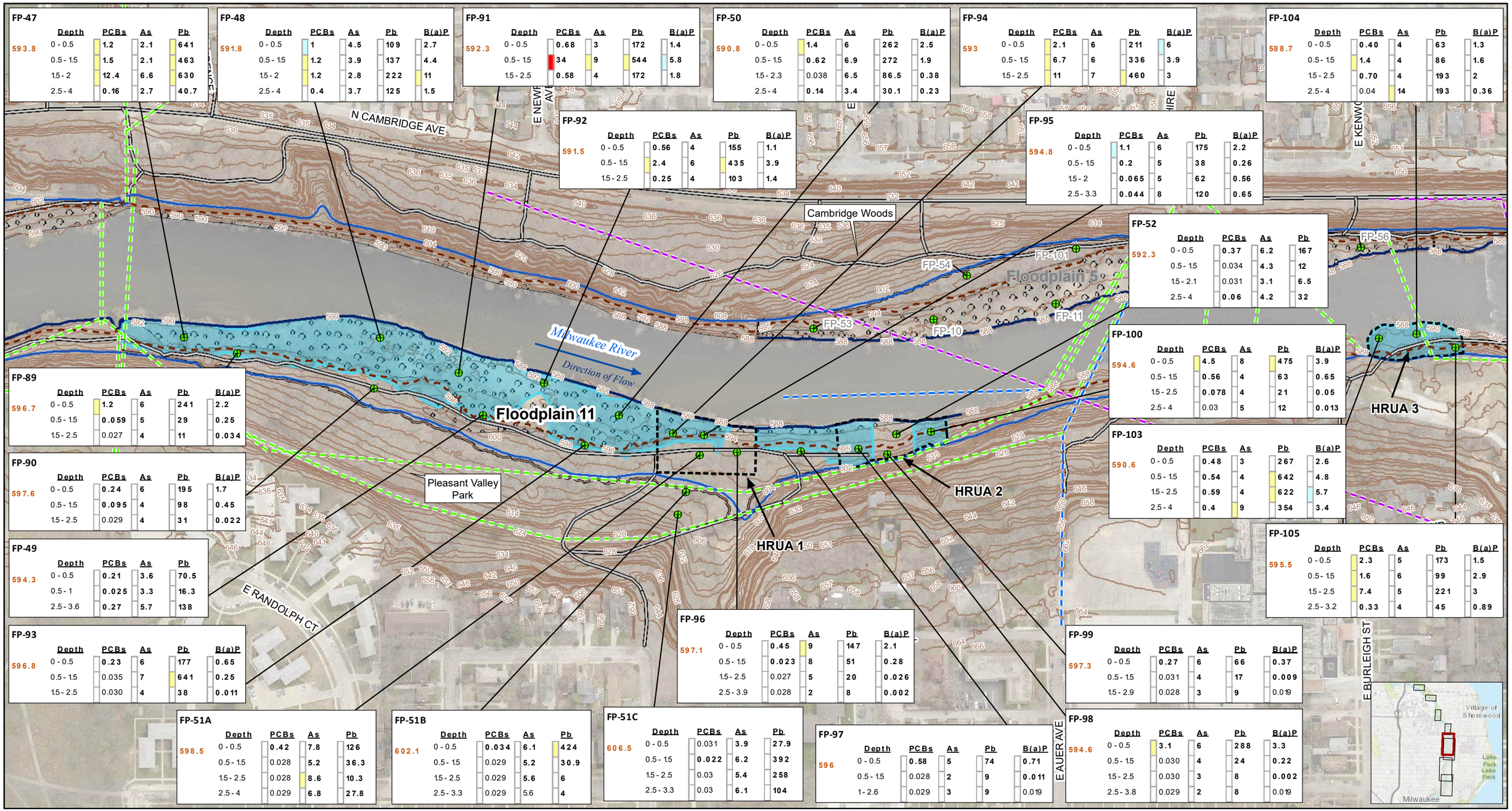
Bold values represent results above the detection limit

Abbreviations:
As = arsenic; B(a)P = benzo(a)pyrene; bgs = below ground surface; BTV = background threshold values; FEMA = Federal Emergency Management Agency; mg/kg = milligrams per kilogram; OHWM = ordinary high water mark; Pb = lead; PCBs = polychlorinated biphenyls; SS-RCL = site-specific residual contaminant levels developed by Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021); TSCA = Toxic Substances Control Act

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988 (NAVD88)
3. Samples screened using SS-RCLs as follows:
   Tier 1 SS-RCLs were used for Typical Recreational Use Areas
   Tier 2 SS-RCLs were used for High Recreational Use Areas
4. A site-specific BTV of 10 mg/kg for arsenic was used to delineate Remediation Target Areas

Figure 2-2D
Floodplain 4 Analytical Results Summary
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



LEGEND

- Floodplain Soil Sampling Location
- Remediation Target Area
- Delineated Wetland

Map Features

- 2-foot Topographic Contour
- Approximate Former Impoundment Extent (Elevation 595 feet NAVD88)
- OHWM Boundary
- Trails
- Floodplain Area Boundary
- FEMA 100-Year Floodplain

Utilities

- Fiber Optic
- Sanitary Sewer
- Water Line

0 100 200 Feet

Analytical Results Table Format

Location ID						
Ground Elevation			PCBs (mg/kg)	As (mg/kg)	Pb (mg/kg)	B(a)P (mg/kg)
Boring Depth	Depth					
	Sample interval (ft bss)	Tier 2	>0.7			>5.09
		Tier 1	>1.1	>8	>400	> 8.48
		TSCA low occupancy	>25			

Bold values represent results above the detection limit

Abbreviations:
As = arsenic; B(a)P = benzo(a)pyrene; bgs = below ground surface; BTV = background threshold values; FEMA = Federal Emergency Management Agency; HRUA = High Recreational Use Area per WDNR 2021; mg/kg = milligrams per kilogram; OHWM = ordinary high water mark; Pb = lead; PCBs = polychlorinated biphenyls; SS-RCL = site-specific residual contaminant levels developed by Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021); TSCA = Toxic Substances Control Act

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988 (NAVD88)
3. Samples screened using SS-RCLs as follows:
   Tier 1 SS-RCLs were used for Typical Recreational Use Areas
   Tier 2 SS-RCLs were used for High Recreational Use Areas
4. A site-specific BTV of 10 mg/kg for arsenic was used to delineate Remediation Target Areas

Figure 2-2E
Floodplain 11 Analytical Results Summary
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

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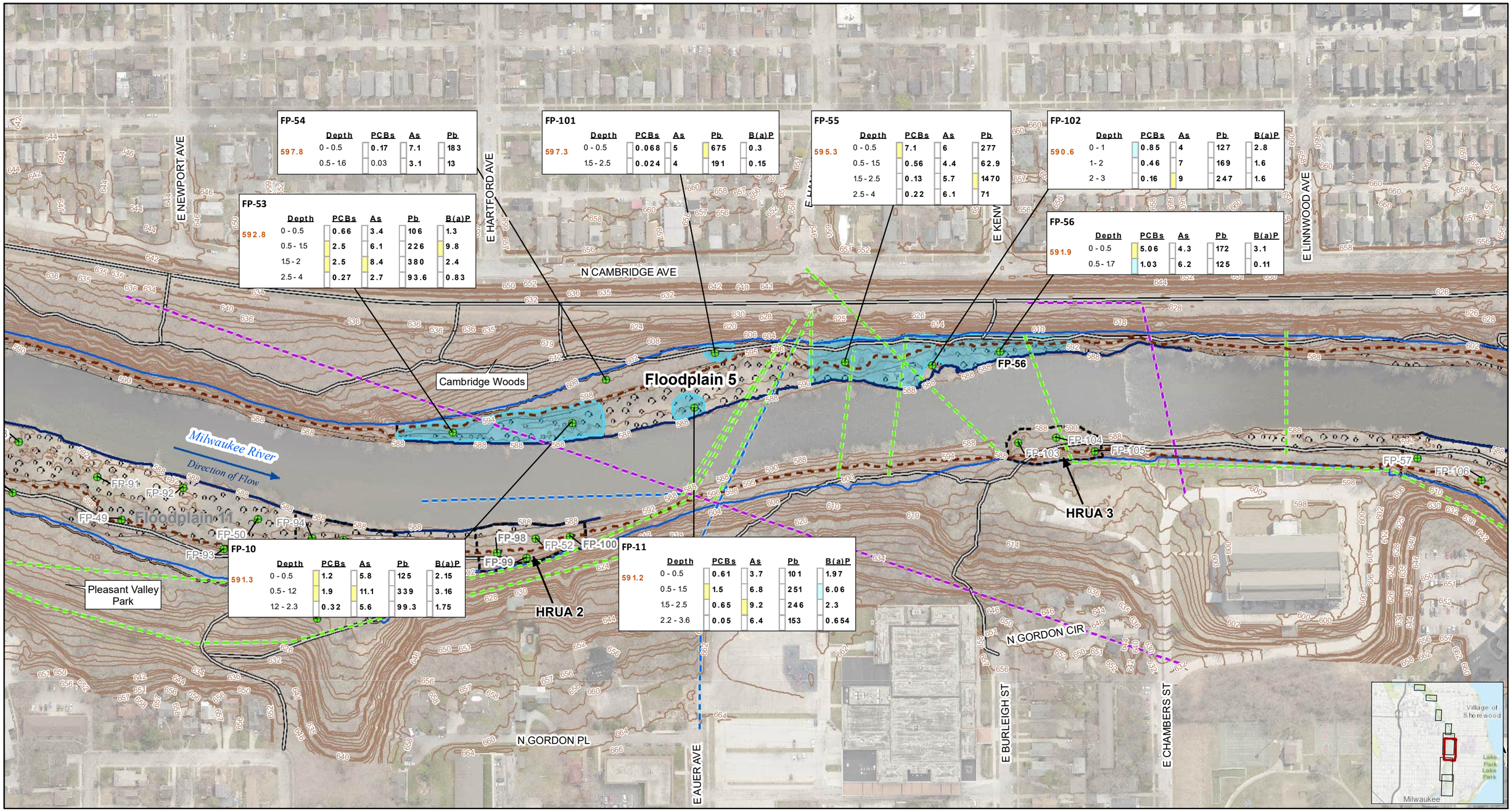
Jacobs



LEGEND

- Floodplain Soil Sampling Location
- **Map Features**
  - 2-foot Topographic Contour
  - Approximate Former Impoundment Extent (Elevation 595 feet NAVD88)
  - OHWM Boundary
  - Trails
  - Floodplain Area Boundary
  - FEMA 100-Year Floodplain
- Remediation Target Area
- Delineated Wetland
- **Utilities**
  - Fiber Optic
  - Sanitary Sewer
  - Water Line

0 100 200 Feet

Analytical Results Table Format

Location ID						
Ground Elevation			PCBs (mg/kg)	As (mg/kg)	Pb (mg/kg)	B(a)P (mg/kg)
Boring Depth		Tier 2	>0.7			>5.09
	Sample interval (ft bss)	Tier 1	>1.1	>8	>400	> 8.48
		TSCA low occupancy	>25			

Bold values represent results above the detection limit

Abbreviations:
As = arsenic; B(a)P = benzo(a)pyrene; bgs = below ground surface; BTV = background threshold values; FEMA = Federal Emergency Management Agency; HRUA = High Recreational Use Area per WDNR 2021; mg/kg = milligrams per kilogram; OHWM = ordinary high water mark; Pb = lead; PCBs = polychlorinated biphenyls; SS-RCL = site-specific residual contaminant levels developed by Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021); TSCA = Toxic Substances Control Act

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988 (NAVD88)
3. Samples screened using SS-RCLs as follows:
   Tier 1 SS-RCLs were used for Typical Recreational Use Areas
   Tier 2 SS-RCLs were used for High Recreational Use Areas
4. A site-specific BTV of 10 mg/kg for arsenic was used to delineate Remediation Target Areas

Figure 2-2F
Floodplain 5 Analytical Results Summary
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

FP-106

	Depth	PCBs	As	Pb	B(a)P
593.6	0 - 0.5	7.6	7	318	2.6
	0.5 - 1.5	1.9	6	139	3
	1.5 - 2.4	0.03	3	26	0.17

FP-12

	Depth	PCBs	As	Pb	B(a)P
592.2	0 - 0.5	0.91	4.1	170	1.6
	0.5 - 1.5	1.2	6.7	215	4.01
	1.5 - 2.5	0.02	3.8	82.3	0.592
	2.5 - 3.2	0.02	1.4	10	0.0342

FP-13

	Depth	PCBs	As	Pb	B(a)P
591.2	0 - 0.5	12.4	6.7	430	3.5
	0.5 - 1.5	9.9	10.4	287	4.59
	1.5 - 2.5	1.1	8.2	224	3.32
	2.5 - 4	0.02	6.2	105	1.04

FP-79

	Depth	PCBs	As	Pb
591.2	0 - 0.5	9.7	4.7	211
	0.5 - 1.5	12.1	8.3	352
	1.5 - 2.5	0.22	6.3	218
	2.5 - 3.3	0.037	4.5	71.8

FP-76

	Depth	PCBs	As	Pb
589.6	0 - 0.5	1.2	4.9	174
	0.5 - 1.5	0.19	5.7	159
	1.5 - 2.5	0.033	5.5	117
	2.5 - 4	0.033	3.3	11

FP-77

	Depth	PCBs	As	Pb
590.3	0 - 0.5	1.6	4.5	155
	0.5 - 1.5	7	5.4	242
	1.5 - 2.5	0.31	6.4	165
	2.5 - 3.9	0.041	6.9	91.3

FP-14

	Depth	PCBs	As	Pb	B(a)P
590.6	0 - 0.5	5.3	6	171	0.448
	0.5 - 1.5	24.4	8.6	385	1.06
	1.5 - 2.4	0.19	4.7	82.6	0.992

FP-58

	Depth	PCBs	As	Pb
593.3	0 - 0.5	3.1	5.5	491
	0.5 - 1.5	0.66	5.1	274
	1.5 - 2.5	0.031	3	94.1
	2.5 - 4	0.034	3.3	10

FP-107

	Depth	PCBs	As	Pb	B(a)P
592.5	0 - 0.5	9.4	6	357	5.4
	0.5 - 1.5	0.22	9	229	4.3
	1.5 - 2.5	0.03	2	49	0.68

FP-78

	Depth	PCBs	As	Pb	B(a)P
594.5	0 - 0.5	1	5.8	213	1.8
	0.5 - 1.5	0.15	5.4	134	0.96
	1.5 - 2.5	0.03	8.4	152	0.32
	2.5 - 3.5	0.031	4.3	18.4	0.052

FP-60

	Depth	PCBs	As	Pb
591	0 - 0.5	4.7	4.6	350
	0.5 - 1.5	1.6	8.8	227
	1.5 - 2.5	0.12	7.1	177
	2.5 - 4	0.038	3.6	132

FP-61

	Depth	PCBs	As	Pb	B(a)P
589.8	0 - 0.5	5.9	6.2	163	1.8
	0.5 - 1.5	20.2	13.2	428	3.5
	1.5 - 2.5	0.25	9.8	210	1.7
	2.5 - 3.9	0.033	5	81.2	0.19

FP-80

	Depth	PCBs	As	Pb
590.1	0 - 0.5	3.6	7.4	489
	0.5 - 1.5	18.8	9.7	257
	1.5 - 2.5	0.036	5.4	106
	2.5 - 3.7	0.083	6.2	156

FP-57

	Depth	PCBs	As	Pb	B(a)P
590.6	0 - 0.5	0.83	5.1	177	1.5
	0.5 - 1.5	0.15	4.6	116	1
	1.5 - 2.5	0.033	3.2	25.9	0.24
	2.5 - 4	0.031	2.2	3.1	0.021

FP-59

	Depth	PCBs	As	Pb
596.2	0 - 0.5	0.9	3.4	216
	0.5 - 1.5	0.55	4.9	307
	1.5 - 2.5	0.39	5.5	285
	2.5 - 3.8	2.3	5.4	258

LEGEND

- Floodplain Soil Sampling Location

Map Features

- 2-foot Topographic Contour
- Approximate Former Impoundment Extent (Elevation 595 feet NAVD88)
- OHWM Boundary
- Trails
- Floodplain Area Boundary
- Remediation Target Area
- FEMA 100-Year Floodplain
- Delineated Wetland
- Approximate Extent of Sediments from North Ave Dam Removal

Utilities

- Sanitary Sewer
- Water Line

0 125 250 Feet

Analytical Results Table Format

Location ID			PCBs	As	Pb	B(a)P
Ground Elevation						
	Depth		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Boring Depth		Tier 2	>0.7			>5.09
	Sample	Tier 1	>1.1	>8	>400	> 8.48
	interval	TSCA low	>25			
	(ft bss)	occupancy				

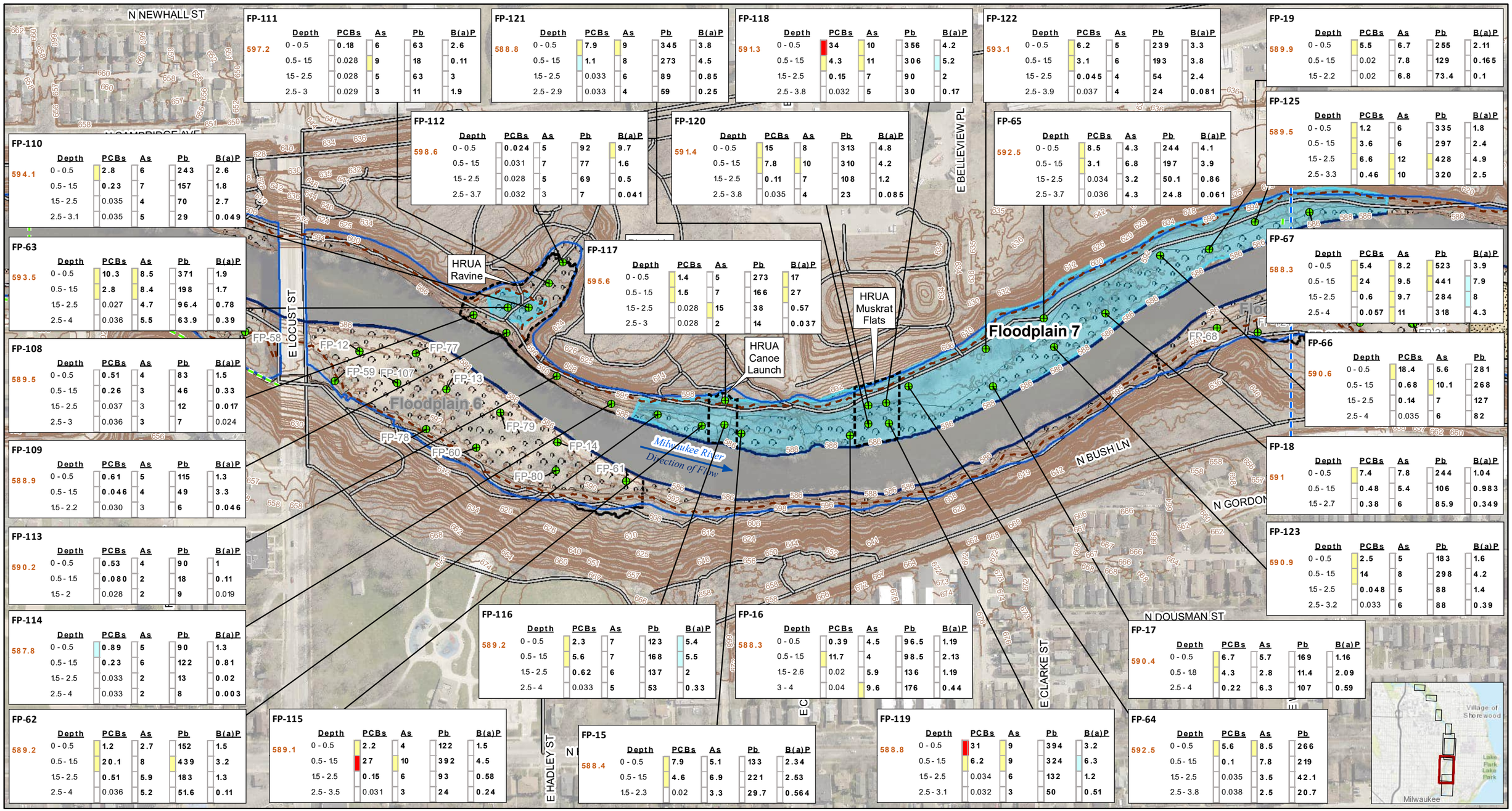
Bold values represent results above the detection limit

Abbreviations:
As = arsenic; B(a)P = benzo(a)pyrene; bgs = below ground surface; BTV = background threshold values; FEMA = Federal Emergency Management Agency; HRUA = High Recreational Use Area per WDNR 2021; mg/kg = milligrams per kilogram; OHWM = ordinary high water mark; Pb = lead; PCBs = polychlorinated biphenyls; SS-RCL = site-specific residual contaminant levels developed by Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021); TSCA = Toxic Substances Control Act

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988 (NAVD88)
3. Samples screened using SS-RCLs as follows:
   Tier 1 SS-RCLs were used for Typical Recreational Use Areas
   Tier 2 SS-RCLs were used for High Recreational Use Areas
4. A site-specific BTV of 10 mg/kg for arsenic was used to delineate Remediation Target Areas

Figure 2-2G
Floodplain 6 Analytical Results Summary
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



FP-111

	Depth	PCBs	As	Pb	B(a)P
597.2	0 - 0.5	0.18	6	63	2.6
	0.5 - 1.5	0.028	9	18	0.11
	1.5 - 2.5	0.028	5	63	3
	2.5 - 3	0.029	3	11	1.9

FP-121

	Depth	PCBs	As	Pb	B(a)P
588.8	0 - 0.5	7.9	9	345	3.8
	0.5 - 1.5	1.1	8	273	4.5
	1.5 - 2.5	0.033	6	89	0.85
	2.5 - 2.9	0.033	4	59	0.25

FP-118

	Depth	PCBs	As	Pb	B(a)P
591.3	0 - 0.5	34	10	356	4.2
	0.5 - 1.5	4.3	11	306	5.2
	1.5 - 2.5	0.15	7	90	2
	2.5 - 3.8	0.032	5	30	0.17

FP-122

	Depth	PCBs	As	Pb	B(a)P
593.1	0 - 0.5	6.2	5	239	3.3
	0.5 - 1.5	3.1	6	193	3.8
	1.5 - 2.5	0.045	4	54	2.4
	2.5 - 3.9	0.037	4	24	0.081

FP-19

	Depth	PCBs	As	Pb	B(a)P
589.9	0 - 0.5	5.5	6.7	255	2.11
	0.5 - 1.5	0.02	7.8	129	0.165
	1.5 - 2.2	0.02	6.8	73.4	0.1

FP-125

	Depth	PCBs	As	Pb	B(a)P
589.5	0 - 0.5	1.2	6	335	1.8
	0.5 - 1.5	3.6	6	297	2.4
	1.5 - 2.5	6.6	12	428	4.9
	2.5 - 3.3	0.46	10	320	2.5

FP-112

	Depth	PCBs	As	Pb	B(a)P
598.6	0 - 0.5	0.024	5	92	9.7
	0.5 - 1.5	0.031	7	77	1.6
	1.5 - 2.5	0.028	5	69	0.5
	2.5 - 3.7	0.032	3	7	0.041

FP-120

	Depth	PCBs	As	Pb	B(a)P
591.4	0 - 0.5	15	8	313	4.8
	0.5 - 1.5	7.8	10	310	4.2
	1.5 - 2.5	0.11	7	108	1.2
	2.5 - 3.8	0.035	4	23	0.085

FP-65

	Depth	PCBs	As	Pb	B(a)P
592.5	0 - 0.5	8.5	4.3	244	4.1
	0.5 - 1.5	3.1	6.8	197	3.9
	1.5 - 2.5	0.034	3.2	50.1	0.86
	2.5 - 3.7	0.036	4.3	24.8	0.061

FP-67

	Depth	PCBs	As	Pb	B(a)P
588.3	0 - 0.5	5.4	8.2	523	3.9
	0.5 - 1.5	24	9.5	441	7.9
	1.5 - 2.5	0.6	9.7	284	8
	2.5 - 4	0.057	11	318	4.3

FP-110

	Depth	PCBs	As	Pb	B(a)P
594.1	0 - 0.5	2.8	6	243	2.6
	0.5 - 1.5	0.23	7	157	1.8
	1.5 - 2.5	0.035	4	70	2.7
	2.5 - 3.1	0.035	5	29	0.049

FP-117

	Depth	PCBs	As	Pb	B(a)P
595.6	0 - 0.5	1.4	5	273	17
	0.5 - 1.5	1.5	7	166	27
	1.5 - 2.5	0.028	15	38	0.57
	2.5 - 3	0.028	2	14	0.037

FP-66

	Depth	PCBs	As	Pb
590.6	0 - 0.5	18.4	5.6	281
	0.5 - 1.5	0.68	10.1	268
	1.5 - 2.5	0.14	7	127
	2.5 - 4	0.035	6	82

FP-63

	Depth	PCBs	As	Pb	B(a)P
593.5	0 - 0.5	10.3	8.5	371	1.9
	0.5 - 1.5	2.8	8.4	198	1.7
	1.5 - 2.5	0.027	4.7	96.4	0.78
	2.5 - 4	0.036	5.5	63.9	0.39

FP-108

	Depth	PCBs	As	Pb	B(a)P
589.5	0 - 0.5	0.51	4	83	1.5
	0.5 - 1.5	0.26	3	46	0.33
	1.5 - 2.5	0.037	3	12	0.017
	2.5 - 3	0.036	3	7	0.024

FP-18

	Depth	PCBs	As	Pb	B(a)P
591	0 - 0.5	7.4	7.8	244	1.04
	0.5 - 1.5	0.48	5.4	106	0.983
	1.5 - 2.7	0.38	6	85.9	0.349

FP-109

	Depth	PCBs	As	Pb	B(a)P
588.9	0 - 0.5	0.61	5	115	1.3
	0.5 - 1.5	0.046	4	49	3.3
	1.5 - 2.2	0.030	3	6	0.046

FP-123

	Depth	PCBs	As	Pb	B(a)P
590.9	0 - 0.5	2.5	5	183	1.6
	0.5 - 1.5	14	8	298	4.2
	1.5 - 2.5	0.048	5	88	1.4
	2.5 - 3.2	0.033	6	88	0.39

FP-113

	Depth	PCBs	As	Pb	B(a)P
590.2	0 - 0.5	0.53	4	90	1
	0.5 - 1.5	0.080	2	18	0.11
	1.5 - 2	0.028	2	9	0.019

FP-116

	Depth	PCBs	As	Pb	B(a)P
589.2	0 - 0.5	2.3	7	123	5.4
	0.5 - 1.5	5.6	7	168	5.5
	1.5 - 2.5	0.62	6	137	2
	2.5 - 4	0.033	5	53	0.33

FP-16

	Depth	PCBs	As	Pb	B(a)P
588.3	0 - 0.5	0.39	4.5	96.5	1.19
	0.5 - 1.5	11.7	4	98.5	2.13
	1.5 - 2.6	0.02	5.9	136	1.19
	3 - 4	0.04	9.6	176	0.44

FP-17

	Depth	PCBs	As	Pb	B(a)P
590.4	0 - 0.5	6.7	5.7	169	1.16
	0.5 - 1.8	4.3	2.8	11.4	2.09
	2.5 - 4	0.22	6.3	107	0.59

FP-114

	Depth	PCBs	As	Pb	B(a)P
587.8	0 - 0.5	0.89	5	90	1.3
	0.5 - 1.5	0.23	6	122	0.81
	1.5 - 2.5	0.033	2	13	0.02
	2.5 - 4	0.033	2	8	0.003

FP-115

	Depth	PCBs	As	Pb	B(a)P
589.1	0 - 0.5	2.2	4	122	1.5
	0.5 - 1.5	27	10	392	4.5
	1.5 - 2.5	0.15	6	93	0.58
	2.5 - 3.5	0.031	3	24	0.24

FP-15

	Depth	PCBs	As	Pb	B(a)P
588.4	0 - 0.5	7.9	5.1	133	2.34
	0.5 - 1.5	4.6	6.9	221	2.53
	1.5 - 2.3	0.02	3.3	29.7	0.564

FP-119

	Depth	PCBs	As	Pb	B(a)P
588.8	0 - 0.5	31	9	394	3.2
	0.5 - 1.5	6.2	9	324	6.3
	1.5 - 2.5	0.034	6	132	1.2
	2.5 - 3.1	0.032	3	50	0.51

FP-62

	Depth	PCBs	As	Pb	B(a)P
589.2	0 - 0.5	1.2	2.7	152	1.5
	0.5 - 1.5	20.1	8	439	3.2
	1.5 - 2.5	0.51	5.9	183	1.3
	2.5 - 4	0.036	5.2	51.6	0.11

FP-64

	Depth	PCBs	As	Pb
592.5	0 - 0.5	5.6	8.5	266
	0.5 - 1.5	0.1	7.8	219
	1.5 - 2.5	0.035	3.5	42.1
	2.5 - 3.8	0.038	2.5	20.7

LEGEND

- Floodplain Soil Sampling Location
- **Map Features**
  - 2-foot Topographic Contour
  - Approximate Former Impoundment Extent (Elevation 595 feet NAVD88)
  - OHWM Boundary
  - Trails
  - Floodplain Area Boundary
  - Remediation Target Area
- FEMA 100-Year Floodplain
- Delineated Wetland
- **Utilities**
  - Sanitary Sewer
  - Water Line

N

0 125 250 Feet

Analytical Results Table Format

Location ID

Ground Elevation

	Depth		PCBs (mg/kg)	As (mg/kg)	Pb (mg/kg)	B(a)P (mg/kg)
Boring Depth		Tier 2	>0.7			>5.09
	Sample interval (ft bss)	Tier 1	>1.1	>8	>400	>8.48
		TSCA low occupancy	>25			

Bold values represent results above the detection limit

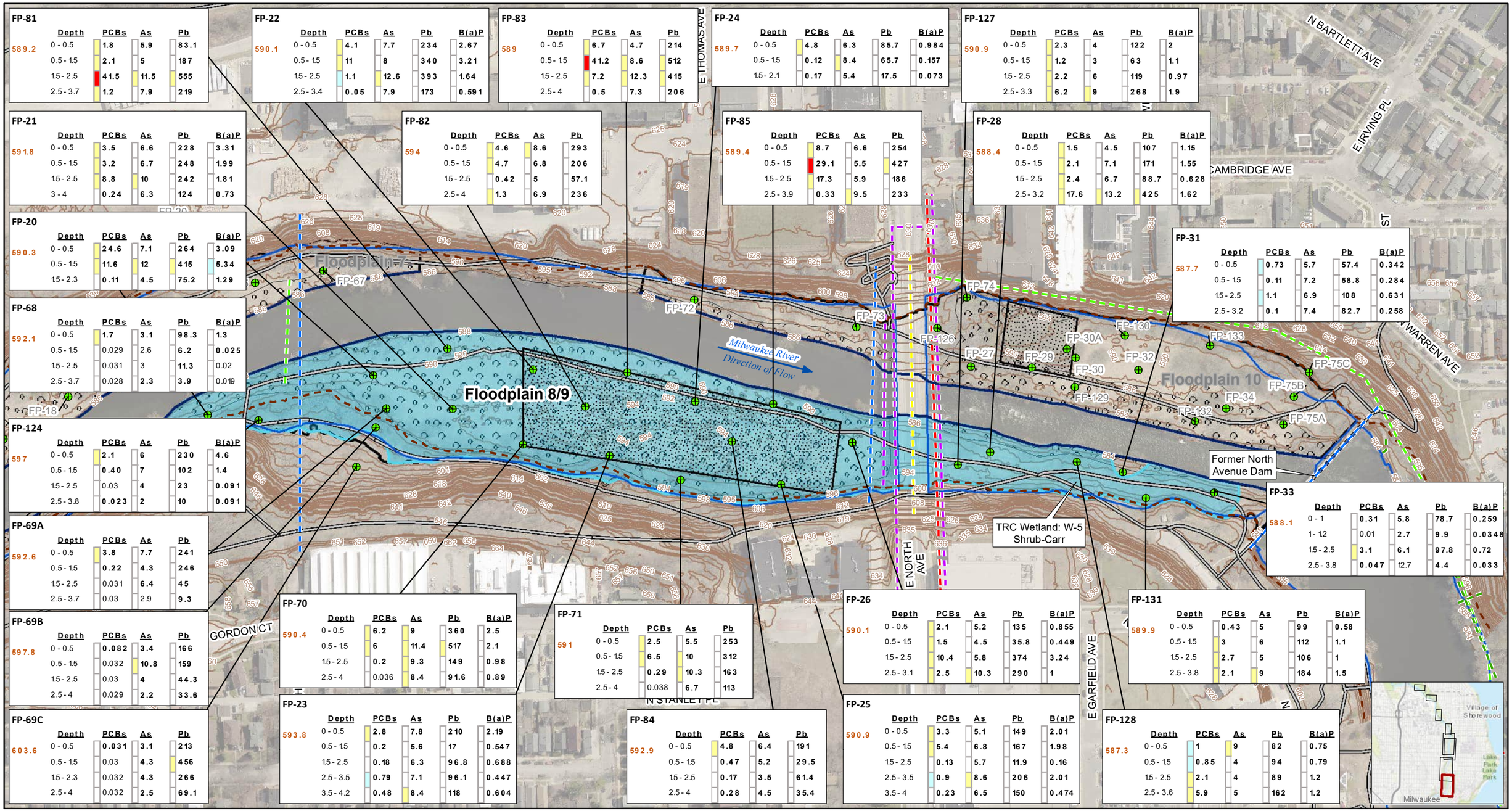
Abbreviations:
As = arsenic; B(a)P = benzo(a)pyrene; bgs = below ground surface; BTV = background threshold values; FEMA = Federal Emergency Management Agency; HRUA = High Recreational Use Area per WDNR 2021; mg/kg = milligrams per kilogram; OHWM = ordinary high water mark; Pb = lead; PCBs = polychlorinated biphenyls; SS-RCL = site-specific residual contaminant levels developed by Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021); TSCA = Toxic Substances Control Act

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988 (NAVD88)
3. Samples screened using SS-RCLs as follows:
   Tier 1 SS-RCLs were used for Typical Recreational Use Areas
   Tier 2 SS-RCLs were used for High Recreational Use Areas
4. A site-specific BTV of 10 mg/kg for arsenic was used to delineate Remediation Target Areas

Figure 2-2H
Floodplain 7 Analytical Results Summary
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

\\dc1vs01\GISProj\E\EPA\681867_MKERiverDownstream\MapFiles\2023\FP_Thiessen_ExcDepths\Figure2-2H_FP7_Analytical_Results_with_ExcDepths.mxd jhansen1 (6/7/2023)



FP-81

	Depth	PCBs	As	Pb
589.2	0 - 0.5	1.8	5.9	83.1
	0.5 - 1.5	2.1	5	187
	1.5 - 2.5	41.5	11.5	555
	2.5 - 3.7	1.2	7.9	219

FP-22

	Depth	PCBs	As	Pb	B(a)P
590.1	0 - 0.5	4.1	7.7	234	2.67
	0.5 - 1.5	11	8	340	3.21
	1.5 - 2.5	1.1	12.6	393	1.64
	2.5 - 3.4	0.05	7.9	173	0.591

FP-83

	Depth	PCBs	As	Pb
589	0 - 0.5	6.7	4.7	214
	0.5 - 1.5	41.2	8.6	512
	1.5 - 2.5	7.2	12.3	415
	2.5 - 4	0.5	7.3	206

FP-24

	Depth	PCBs	As	Pb	B(a)P
589.7	0 - 0.5	4.8	6.3	85.7	0.984
	0.5 - 1.5	0.12	8.4	65.7	0.157
	1.5 - 2.1	0.17	5.4	17.5	0.073

FP-127

	Depth	PCBs	As	Pb	B(a)P
590.9	0 - 0.5	2.3	4	122	2
	0.5 - 1.5	1.2	3	63	1.1
	1.5 - 2.5	2.2	6	119	0.97
	2.5 - 3.3	6.2	9	268	1.9

FP-21

	Depth	PCBs	As	Pb	B(a)P
591.8	0 - 0.5	3.5	6.6	228	3.31
	0.5 - 1.5	3.2	6.7	248	1.99
	1.5 - 2.5	8.8	10	242	1.81
	3 - 4	0.24	6.3	124	0.73

FP-82

	Depth	PCBs	As	Pb
594	0 - 0.5	4.6	8.6	293
	0.5 - 1.5	4.7	6.8	206
	1.5 - 2.5	0.42	5	57.1
	2.5 - 4	1.3	6.9	236

FP-85

	Depth	PCBs	As	Pb
589.4	0 - 0.5	8.7	6.6	254
	0.5 - 1.5	29.1	5.5	427
	1.5 - 2.5	17.3	5.9	186
	2.5 - 3.9	0.33	9.5	233

FP-28

	Depth	PCBs	As	Pb	B(a)P
588.4	0 - 0.5	1.5	4.5	107	1.15
	0.5 - 1.5	2.1	7.1	171	1.55
	1.5 - 2.5	2.4	6.7	88.7	0.628
	2.5 - 3.2	17.6	13.2	425	1.62

FP-31

	Depth	PCBs	As	Pb	B(a)P
587.7	0 - 0.5	0.73	5.7	57.4	0.342
	0.5 - 1.5	0.11	7.2	58.8	0.284
	1.5 - 2.5	1.1	6.9	108	0.631
	2.5 - 3.2	0.1	7.4	82.7	0.258

FP-20

	Depth	PCBs	As	Pb	B(a)P
590.3	0 - 0.5	24.6	7.1	264	3.09
	0.5 - 1.5	11.6	12	415	5.34
	1.5 - 2.3	0.11	4.5	75.2	1.29

FP-68

	Depth	PCBs	As	Pb	B(a)P
592.1	0 - 0.5	1.7	3.1	98.3	1.3
	0.5 - 1.5	0.029	2.6	6.2	0.025
	1.5 - 2.5	0.031	3	11.3	0.02
	2.5 - 3.7	0.028	2.3	3.9	0.019

FP-124

	Depth	PCBs	As	Pb	B(a)P
597	0 - 0.5	2.1	6	230	4.6
	0.5 - 1.5	0.40	7	102	1.4
	1.5 - 2.5	0.03	4	23	0.091
	2.5 - 3.8	0.023	2	10	0.091

FP-69A

	Depth	PCBs	As	Pb
592.6	0 - 0.5	3.8	7.7	241
	0.5 - 1.5	0.22	4.3	246
	1.5 - 2.5	0.031	6.4	45
	2.5 - 3.7	0.03	2.9	9.3

FP-69B

	Depth	PCBs	As	Pb
597.8	0 - 0.5	0.082	3.4	166
	0.5 - 1.5	0.032	10.8	159
	1.5 - 2.5	0.03	4	44.3
	2.5 - 4	0.029	2.2	33.6

FP-69C

	Depth	PCBs	As	Pb
603.6	0 - 0.5	0.031	3.1	213
	0.5 - 1.5	0.03	4.3	456
	1.5 - 2.3	0.032	4.3	266
	2.5 - 4	0.032	2.5	69.1

FP-70

	Depth	PCBs	As	Pb	B(a)P
590.4	0 - 0.5	6.2	9	360	2.5
	0.5 - 1.5	6	11.4	517	2.1
	1.5 - 2.5	0.2	9.3	149	0.98
	2.5 - 4	0.036	8.4	91.6	0.89

FP-71

	Depth	PCBs	As	Pb
591	0 - 0.5	2.5	5.5	253
	0.5 - 1.5	6.5	10	312
	1.5 - 2.5	0.29	10.3	163
	2.5 - 4	0.038	6.7	113

FP-23

	Depth	PCBs	As	Pb	B(a)P
593.8	0 - 0.5	2.8	7.8	210	2.19
	0.5 - 1.5	0.2	5.6	17	0.547
	1.5 - 2.5	0.18	6.3	96.8	0.688
	2.5 - 3.5	0.79	7.1	96.1	0.447
	3.5 - 4.2	0.48	8.4	118	0.604

FP-84

	Depth	PCBs	As	Pb
592.9	0 - 0.5	4.8	6.4	191
	0.5 - 1.5	0.47	5.2	29.5
	1.5 - 2.5	0.17	3.5	61.4
	2.5 - 4	0.28	4.5	35.4

FP-26

	Depth	PCBs	As	Pb	B(a)P
590.1	0 - 0.5	2.1	5.2	135	0.855
	0.5 - 1.5	1.5	4.5	35.8	0.449
	1.5 - 2.5	10.4	5.8	374	3.24
	2.5 - 3.1	2.5	10.3	290	1

FP-25

	Depth	PCBs	As	Pb	B(a)P
590.9	0 - 0.5	3.3	5.1	149	2.01
	0.5 - 1.5	5.4	6.8	167	1.98
	1.5 - 2.5	0.13	5.7	11.9	0.16
	2.5 - 3.5	0.9	8.6	206	2.01
	3.5 - 4	0.23	6.5	150	0.474

FP-33

	Depth	PCBs	As	Pb	B(a)P
588.1	0 - 1	0.31	5.8	78.7	0.259
	1 - 1.2	0.01	2.7	9.9	0.0348
	1.5 - 2.5	3.1	6.1	97.8	0.72
	2.5 - 3.8	0.047	12.7	4.4	0.033

FP-131

	Depth	PCBs	As	Pb	B(a)P
589.9	0 - 0.5	0.43	5	99	0.58
	0.5 - 1.5	3	6	112	1.1
	1.5 - 2.5	2.7	5	106	1
	2.5 - 3.8	2.1	9	184	1.5

FP-128

	Depth	PCBs	As	Pb	B(a)P
587.3	0 - 0.5	1	9	82	0.75
	0.5 - 1.5	0.85	4	94	0.79
	1.5 - 2.5	2.1	4	89	1.2
	2.5 - 3.6	5.9	5	162	1.2

LEGEND

- Floodplain Soil Sampling Location
- Remediation Target Area
- FEMA 100-Year Floodplain
- Delineated Wetland
- Approximate Extent of Sediments from North Ave Dam Removal

Map Features

- 2-foot Topographic Contour
- Approximate Former Impoundment Extent (Elevation 595 feet NAVD88)
- Trails
- OHWM Boundary
- Floodplain Area Boundary

Utilities

- Electric
- Fiber Optic
- Gas
- Sanitary Sewer
- Storm Sewer
- Water Line

N

0 100 200

Feet

Analytical Results Table Format

Location ID

Ground Elevation

Boring Depth

Depth		PCBs (mg/kg)	As (mg/kg)	Pb (mg/kg)	B(a)P (mg/kg)
Sample interval (ftbss)	Tier 2	>0.7			>5.09
	Tier 1	>1.1	>8	>400	>8.48
	TSCA low occupancy	>25			

Bold values represent results above the detection limit

Abbreviations:
As = arsenic; B(a)P = benzo(a)pyrene; bgs = below ground surface; BTV = background threshold values; FEMA = Federal Emergency Management Agency; mg/kg = milligrams per kilogram; OHWM = ordinary high water mark; Pb = lead; PCBs = polychlorinated biphenyls; SS-RCL = site-specific residual contaminant levels developed by Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021); TSCA = Toxic Substances Control Act

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988 (NAVD88)
3. Samples screened using SS-RCLs as follows:
   Tier 1 SS-RCLs were used for Typical Recreational Use Areas
   Tier 2 SS-RCLs were used for High Recreational Use Areas
4. A site-specific BTV of 10 mg/kg for arsenic was used to delineate Remediation Target Areas

Figure 2-2I
Floodplain 8/9 Analytical Results Summary
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

\\dc1vs01\GISProj\E\EPA\681867_MKERiverDownstream\MapFiles\2023\FP_Thiessen_ExcDepths\Figure2-2I_FP8_9_Analytical_Results_with_ExcDepths.mxd jhansen1 (6/7/2023)

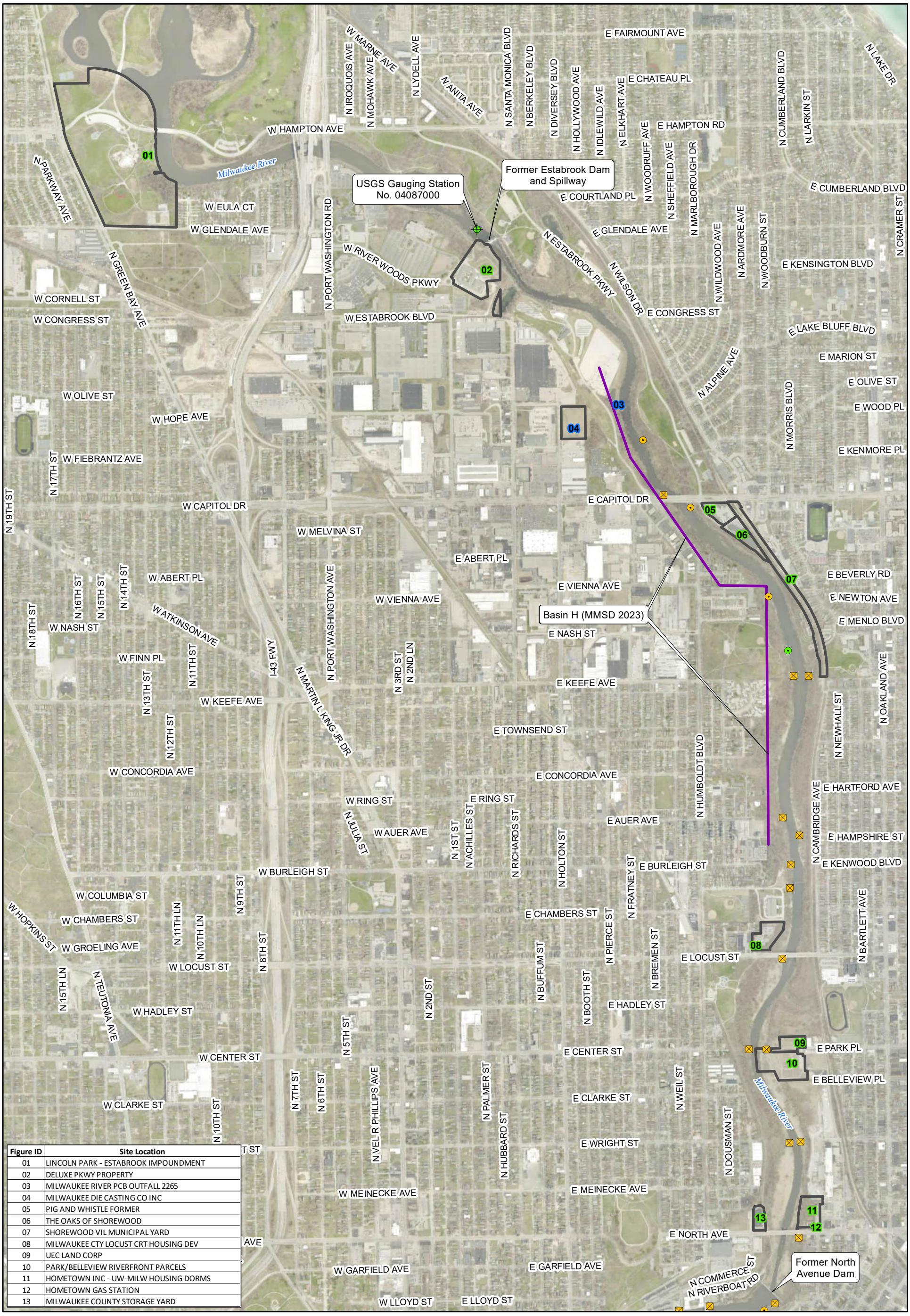


Figure ID	Site Location
01	LINCOLN PARK - ESTABROOK IMPOUNDMENT
02	DELUXE PKWY PROPERTY
03	MILWAUKEE RIVER PCB OUTFALL 2265
04	MILWAUKEE DIE CASTING CO INC
05	PIG AND WHISTLE FORMER
06	THE OAKS OF SHOREWOOD
07	SHOREWOOD VIL MUNICIPAL YARD
08	MILWAUKEE CTY LOCUST CRT HOUSING DEV
09	UEC LAND CORP
10	PARK/BELLEVIEW RIVERFRONT PARCELS
11	HOMETOWN INC - UW-MILW HOUSING DORMS
12	HOMETOWN GAS STATION
13	MILWAUKEE COUNTY STORAGE YARD

LEGEND

- MS4 Industrial Outfall
- Storm Sewer Outfall
- Combined Sewer Outfall - MS4 Municipal
- USGS Gauging Station No. 04087000 Milwaukee River at Milwaukee, WI
- BRRTS Site Boundary
- 01 Closed BRRTS Site Identification Number
- 03 Open BRRTS Site Identification Number

N

0 650 1300

Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Parcel data provided by the MCLIO dated December 21, 2020.
3. BRRTS = WDNR Bureau for Remediation and Redevelopment Tracking System; MS4 = Municipal Separate Storm Sewer System; WDNR = Wisconsin Department of Natural Resources
4. Milwaukee Metropolitan Sewerage District (MMSD). 2023. Basin H Sewers PCB Cleanup. Accessed April 2023. https://www.mmsd.com/what-we-do/milwaukee-estuary-aoc/basin-h

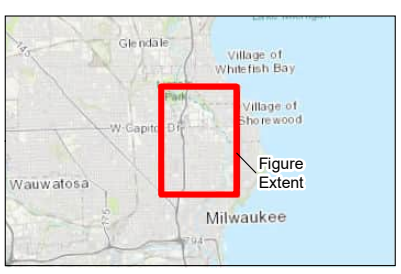
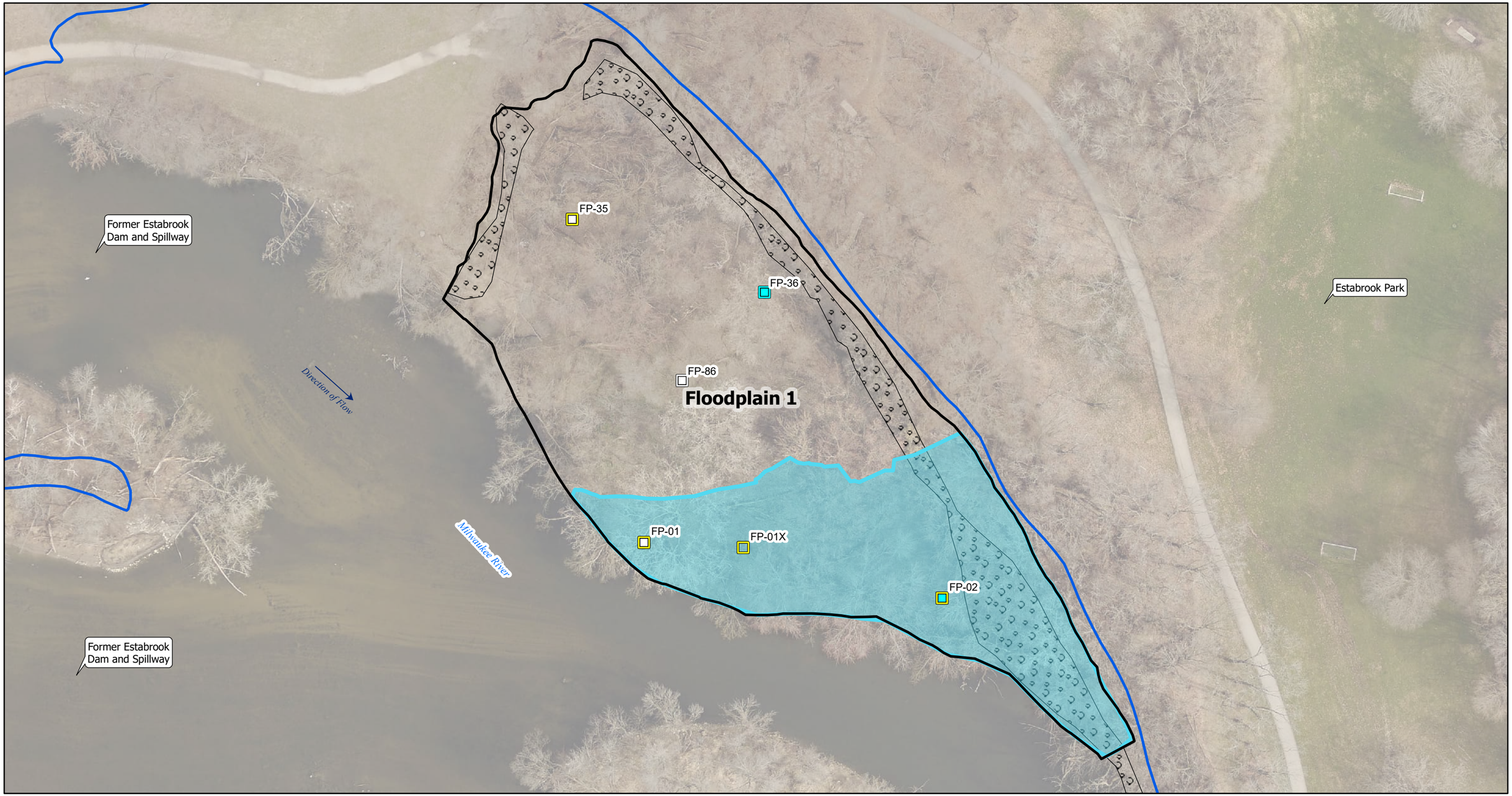


Figure 2-3
Potential Sources -
Milwaukee River Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

\\dc1vs01\GISProj\E\EPA\681867_MKERiverDownstream\MapFiles\2022\Floodplain\Figure2-3_Potential_Sources_Floodplains.mxd jhansen1 (6/5/2023)



LEGEND

Surface Soil
- PCB TSCA Low Occupancy Exceedance (25 mg/kg)
- PCB Tier 1 SS-RCL Exceedance
- PCB Tier 2 SS-RCL Exceedance
- PCB Less than Tier 2 SS-RCL

Subsurface Soil
- PCB TSCA Low Occupancy Exceedance (25 mg/kg)
- PCB Tier 1 SS-RCL Exceedance
- PCB Tier 2 SS-RCL Exceedance
- PCB Less than Tier 2 SS-RCL

Map Features
- Floodplain Area Boundary
- Remediation Target Area
- Delineated Wetlands
- FEMA 100-Year Floodplain

N

0 30 60

Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Tier 2 SS-RCLs apply to HRUAs only
3. ft = feet; FEMA = Federal Emergency Management Agency; HRUA = high recreational use area; mg/kg = milligrams per kilogram; PCB = polychlorinated biphenyl; SS-RCL = site-specific residual contaminant levels developed by Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021).
4. No marker is shown for locations without surface sample intervals and the underlying map color is shown.

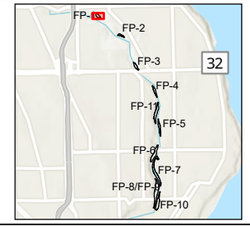
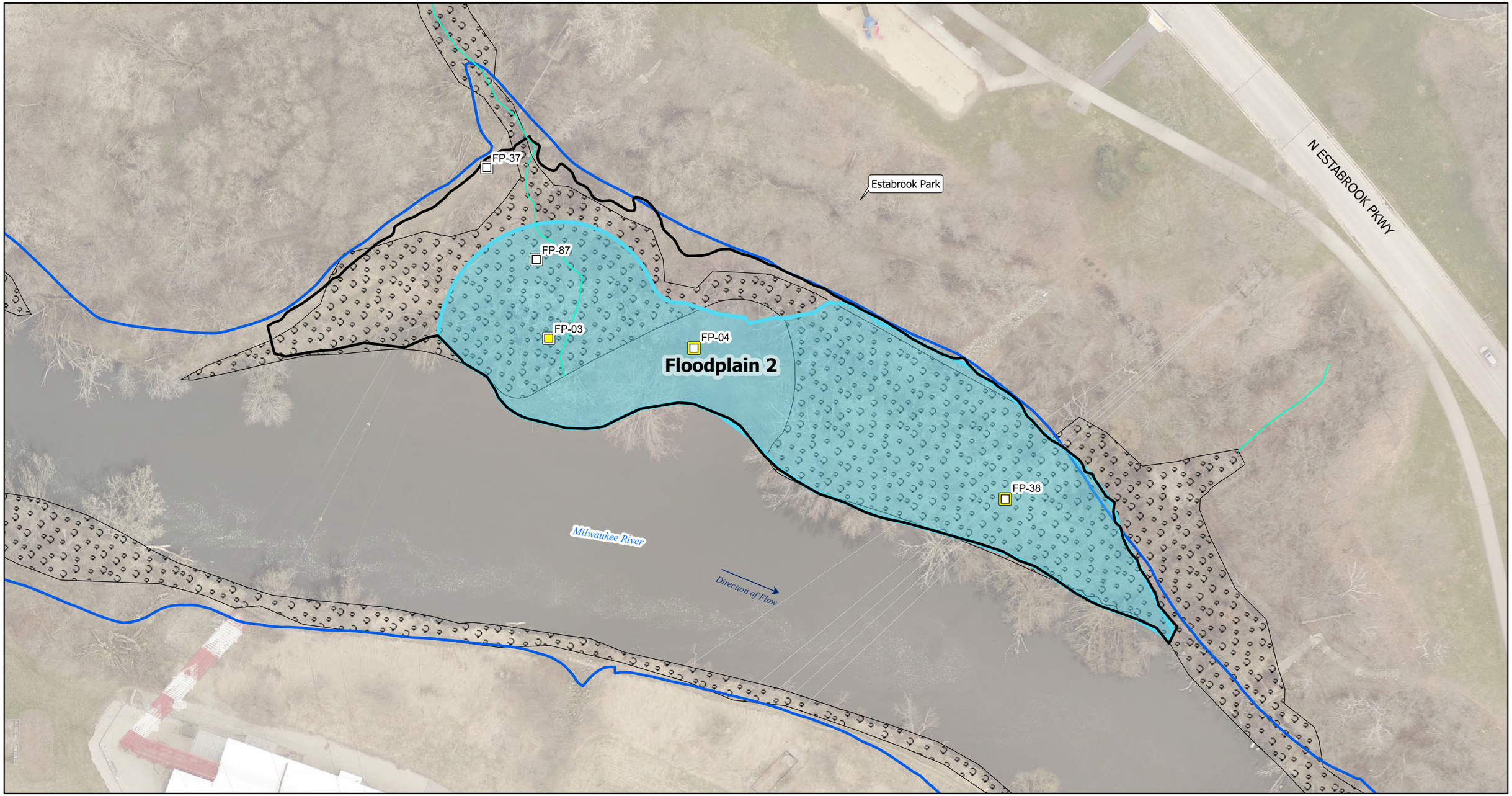


Figure 3-1A
Floodplain 1 Remediation Target Areas
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

\\dc1vs01\GISProj\E\EPA\681867_MKERiverDownstream\ProDocs\2023\Figure3-1X_Series_FP_Remedial_TA.aprx-Figure3-1A_FP1_RTA_Extents_RAETM jhansen1 (6/6/2023)



LEGEND

Surface Soil
- PCB TSCA Low Occupancy Exceedance (25 mg/kg)
- PCB Tier 1 SS-RCL Exceedance
- PCB Tier 2 SS-RCL Exceedance
- PCB Less than Tier 2 SS-RCL

Subsurface Soil
- PCB TSCA Low Occupancy Exceedance (25 mg/kg)
- PCB Tier 1 SS-RCL Exceedance
- PCB Tier 2 SS-RCL Exceedance
- PCB Less than Tier 2 SS-RCL

Map Features
- Delineated Stream
- Floodplain Area Boundary
- Remediation Target Area
- FEMA 100-Year Floodplain
- Delineated Wetlands

N

0 30 60

Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Tier 2 SS-RCLs apply to HRUAs only
3. ft = feet; FEMA = Federal Emergency Management Agency; HRUA = high recreational use area; mg/kg = milligrams per kilogram; PCB = polychlorinated biphenyl; SS-RCL = site-specific residual contaminant levels developed by Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021).
4. No marker is shown for locations without surface sample intervals and the underlying map color is shown.

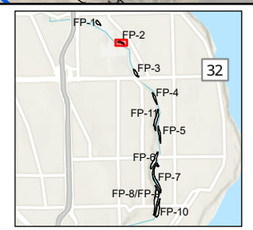
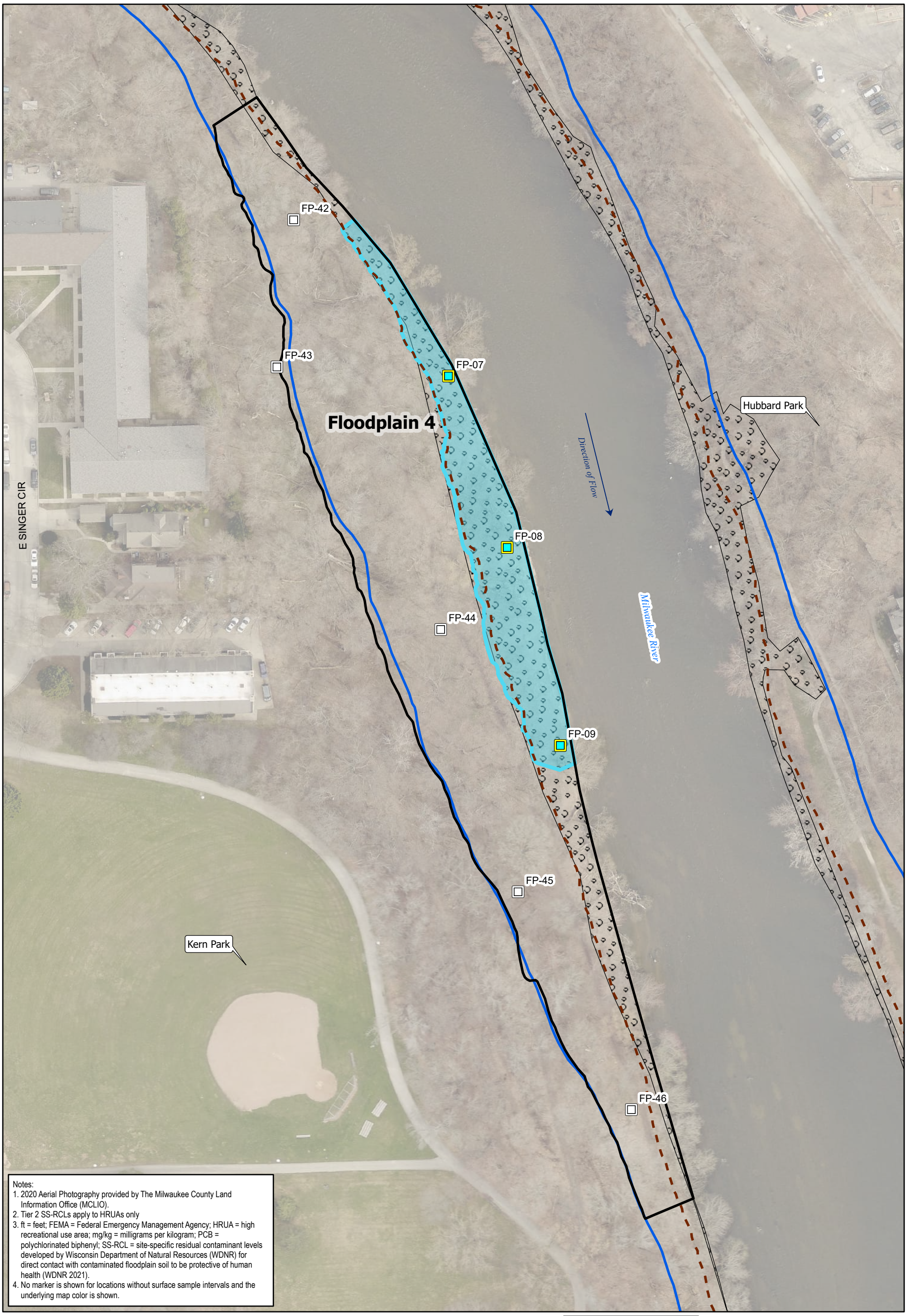


Figure 3-1B
Floodplain 2 Remediation Target Areas
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Tier 2 SS-RCLs apply to HRUAs only
3. ft = feet; FEMA = Federal Emergency Management Agency; HRUA = high recreational use area; mg/kg = milligrams per kilogram; PCB = polychlorinated biphenyl; SS-RCL = site-specific residual contaminant levels developed by Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021).
4. No marker is shown for locations without surface sample intervals and the underlying map color is shown.

N

0 40 80

Approximate scale in feet

LEGEND

Surface Soil
- PCB TSCA Low Occupancy Exceedance (25 mg/kg)
- PCB Tier 1 SS-RCL Exceedance
- PCB Tier 2 SS-RCL Exceedance
- PCB Less than Tier 2 SS-RCL

Subsurface Soil
- PCB TSCA Low Occupancy Exceedance (25 mg/kg)
- PCB Tier 1 SS-RCL Exceedance
- PCB Tier 2 SS-RCL Exceedance
- PCB Less than Tier 2 SS-RCL

Map Features
- Approximate Former Impoundment Extent
- Floodplain Area Boundary
- Remediation Target Area
- FEMA 100-Year Floodplain
- Delineated Wetlands

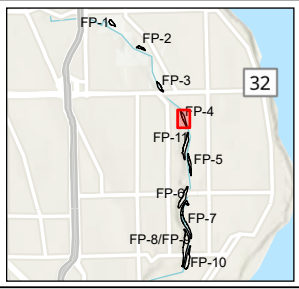


Figure 3-1C
Floodplain 4 Remediation Target Areas
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

\\dc1vs01\GISProj\E\EPA\681867_MKERiverDownstream\ProDocs\2023\Figure3-1X_Series_FP_Remedial_TA.aprx-Figure3-1C_FP4_RTA_Extents_RAETM jhansen1 (6/6/2023)

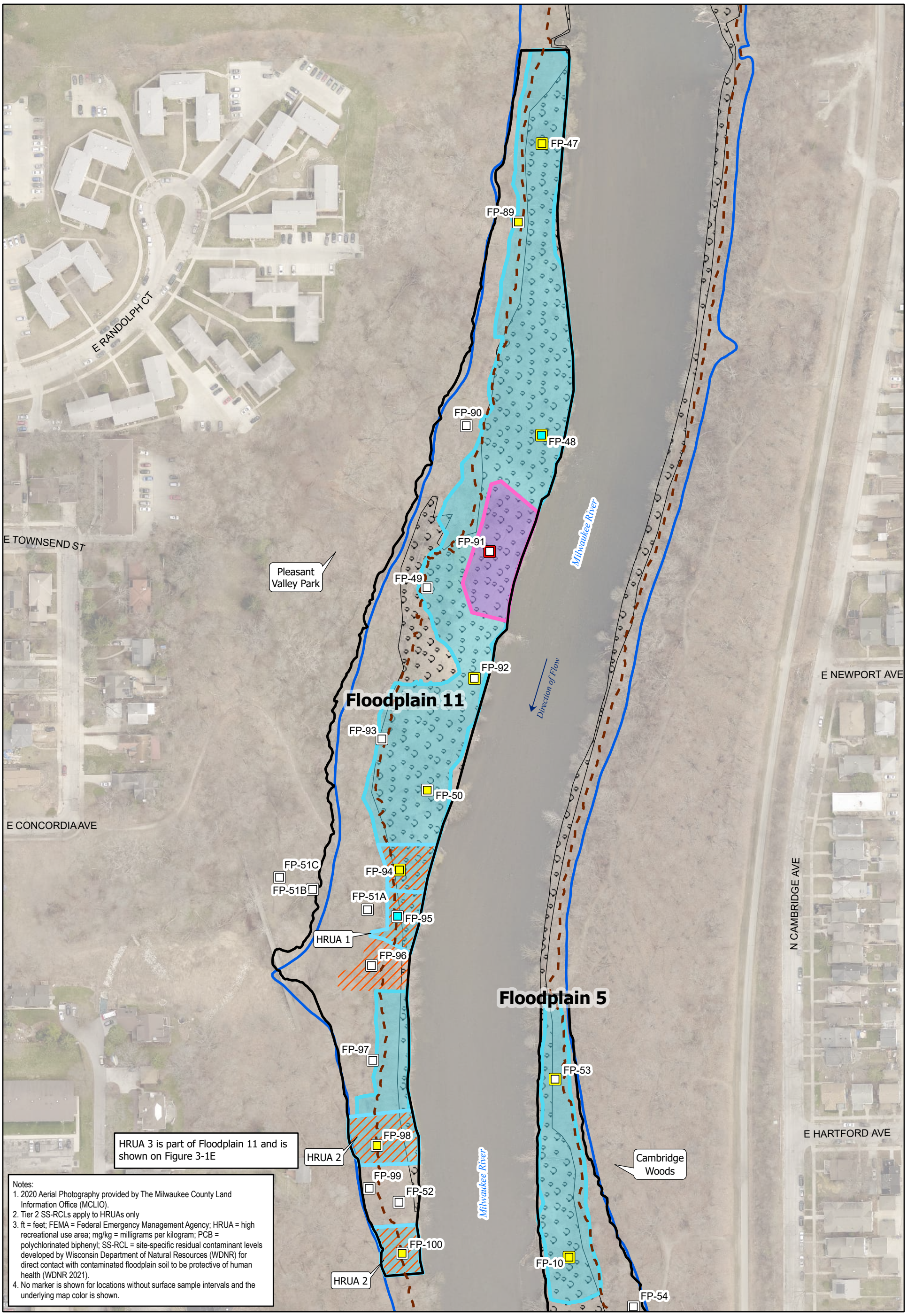


Figure 3-1D
Floodplain 11 Remediation Target Areas
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

\\dc1vs01\GISProj\E\EPA\681867_MKERiverDownstream\ProDocs\2023\Figure3-1X_Series_FP_Remedial_TA.aprx-Figure3-1D_FP11_RTA_Extents_RAETM jhansen1 (6/6/2023)

Floodplain 11
Milwaukee River
FP-97
FP-53
HRUA 2
FP-98
Cambridge Woods
E HARTFORD AVE
FP-99
FP-52
HRUA 2
FP-100
FP-10
FP-54
N CAMBRIDGE AVE
Floodplain 5
FP-11
Direction of Flow
FP-101
Milwaukee River
E HAMPSHIRE ST
FP-55
FP-102
FP-56
E KENWOOD BLVD
FP-103
HRUA 3
FP-104
HRUA 3 is part of Floodplain 11
N GORDON CIR
FP-105

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Tier 2 SS-RCLs apply to HRUAs only
3. ft = feet; FEMA = Federal Emergency Management Agency; HRUA = high recreational use area; mg/kg = milligrams per kilogram; PCB = polychlorinated biphenyl; SS-RCL = site-specific residual contaminant levels developed by Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021).
4. No marker is shown for locations without surface sample intervals and the underlying map color is shown.

LEGEND

Surface Soil
- PCB TSCA Low Occupancy Exceedance (25 mg/kg)
- PCB Tier 1 SS-RCL Exceedance
- PCB Tier 2 SS-RCL Exceedance
- PCB Less than Tier 2 SS-RCL

Subsurface Soil
- PCB TSCA Low Occupancy Exceedance (25 mg/kg)
- PCB Tier 1 SS-RCL Exceedance
- PCB Tier 2 SS-RCL Exceedance
- PCB Less than Tier 2 SS-RCL

Map Features
- Approximate Former Impoundment Extent
- Floodplain Area Boundary
- Remediation Target Area
- FEMA 100-Year Floodplain
- Delineated Wetlands
- HRUA

N

0 55 110
Approximate scale in feet

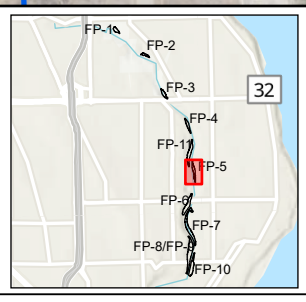


Figure 3-1E
Floodplain 5 Remediation Target Areas
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

\\dc1vs01\GISProj\E\EPA\681867_MKERiverDownstream\ProDocs\2023\Figure3-1X_Series_FP_Remedial_TA.aprx-Figure3-1E_FP5_RTA_Extents_RAETM jhansen1 (6/6/2023)

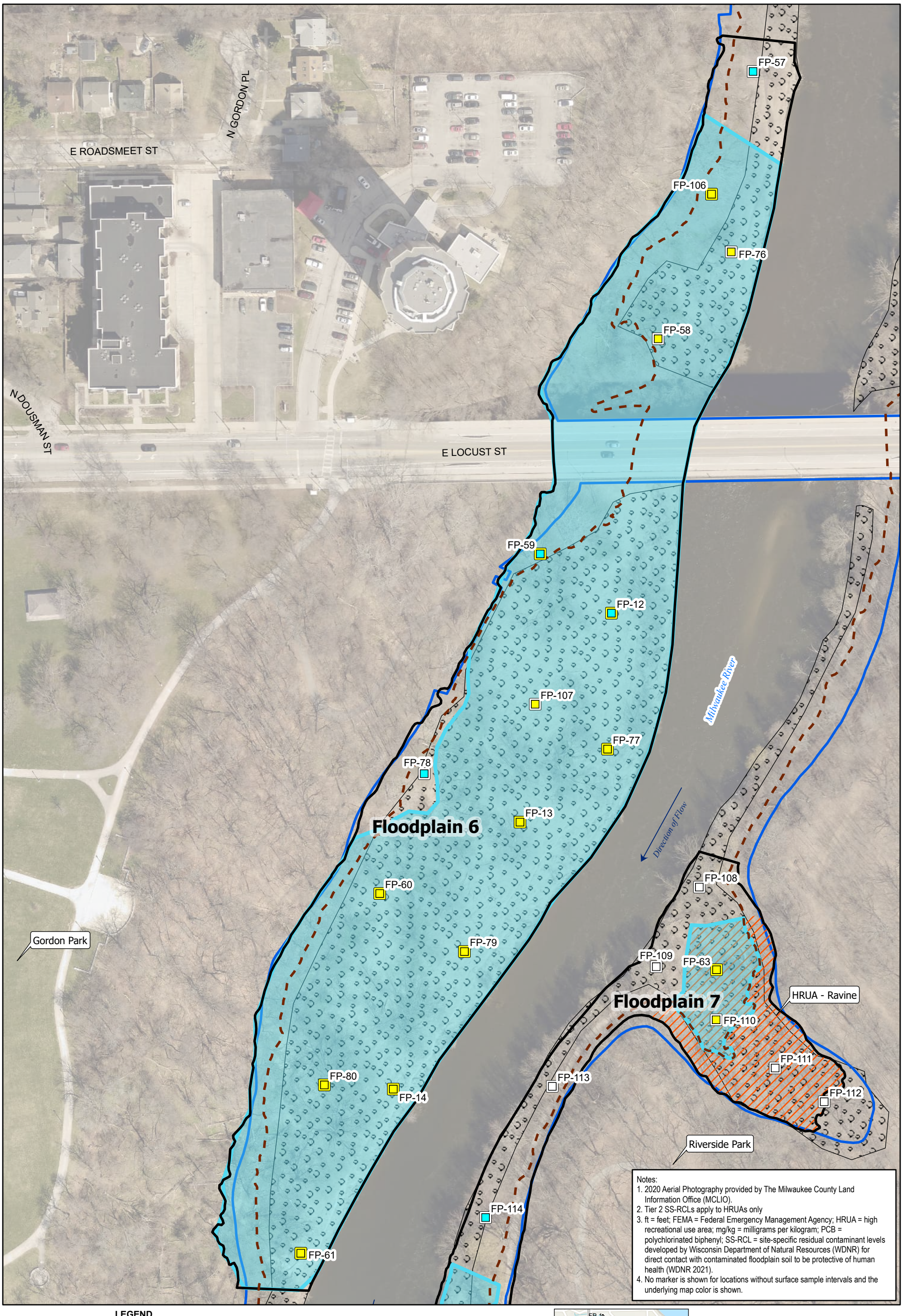
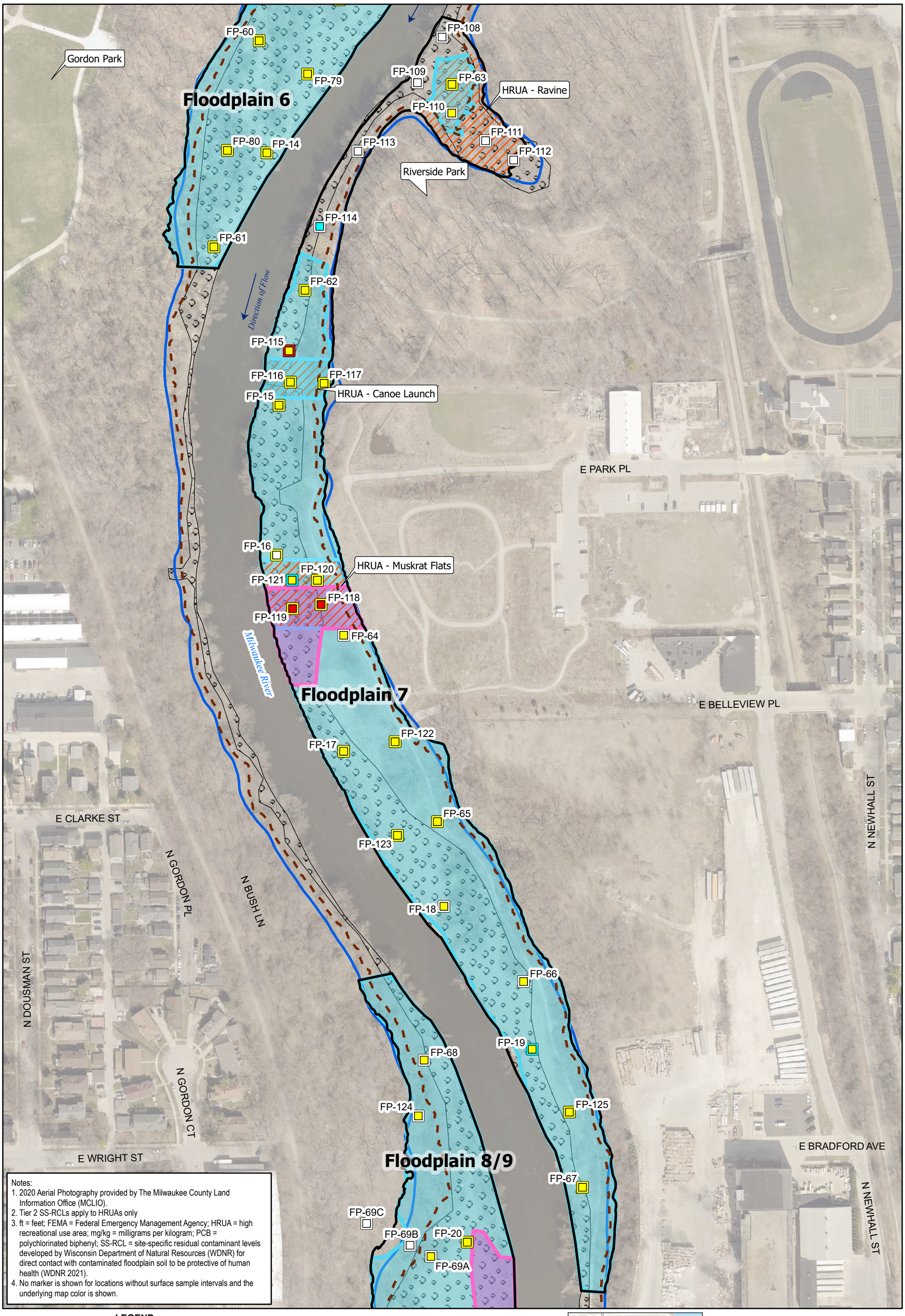


Figure 3-1F
Floodplain 6 Remediation Target Areas
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Tier 2 SS-RCLs apply to HRUAs only
3. ft = feet; FEMA = Federal Emergency Management Agency; HRUA = high recreational use area; mg/kg = milligrams per kilogram; PCB = polychlorinated biphenyl; SS-RCL = site-specific residual contaminant levels developed by Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021).
4. No marker is shown for locations without surface sample intervals and the underlying map color is shown.

N

0 90 180

Approximate scale in feet

LEGEND

Surface Soil
- PCB TSCA Low Occupancy Exceedance (25 mg/kg)
- PCB Tier 1 SS-RCL Exceedance
- PCB Tier 2 SS-RCL Exceedance
- PCB Less than Tier 2 SS-RCL

Subsurface Soil
- PCB TSCA Low Occupancy Exceedance (25 mg/kg)
- PCB Tier 1 SS-RCL Exceedance
- PCB Tier 2 SS-RCL Exceedance
- PCB Less than Tier 2 SS-RCL

Map Features
- Approximate Former Impoundment Extent
- Floodplain Area Boundary
- Remediation Target Area
- TSCA Low Occupancy Exceedance (25 mg/kg)
- FEMA 100-Year Floodplain
- Delineated Wetlands
- HRUA

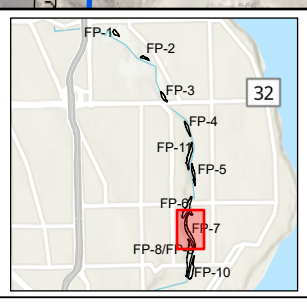
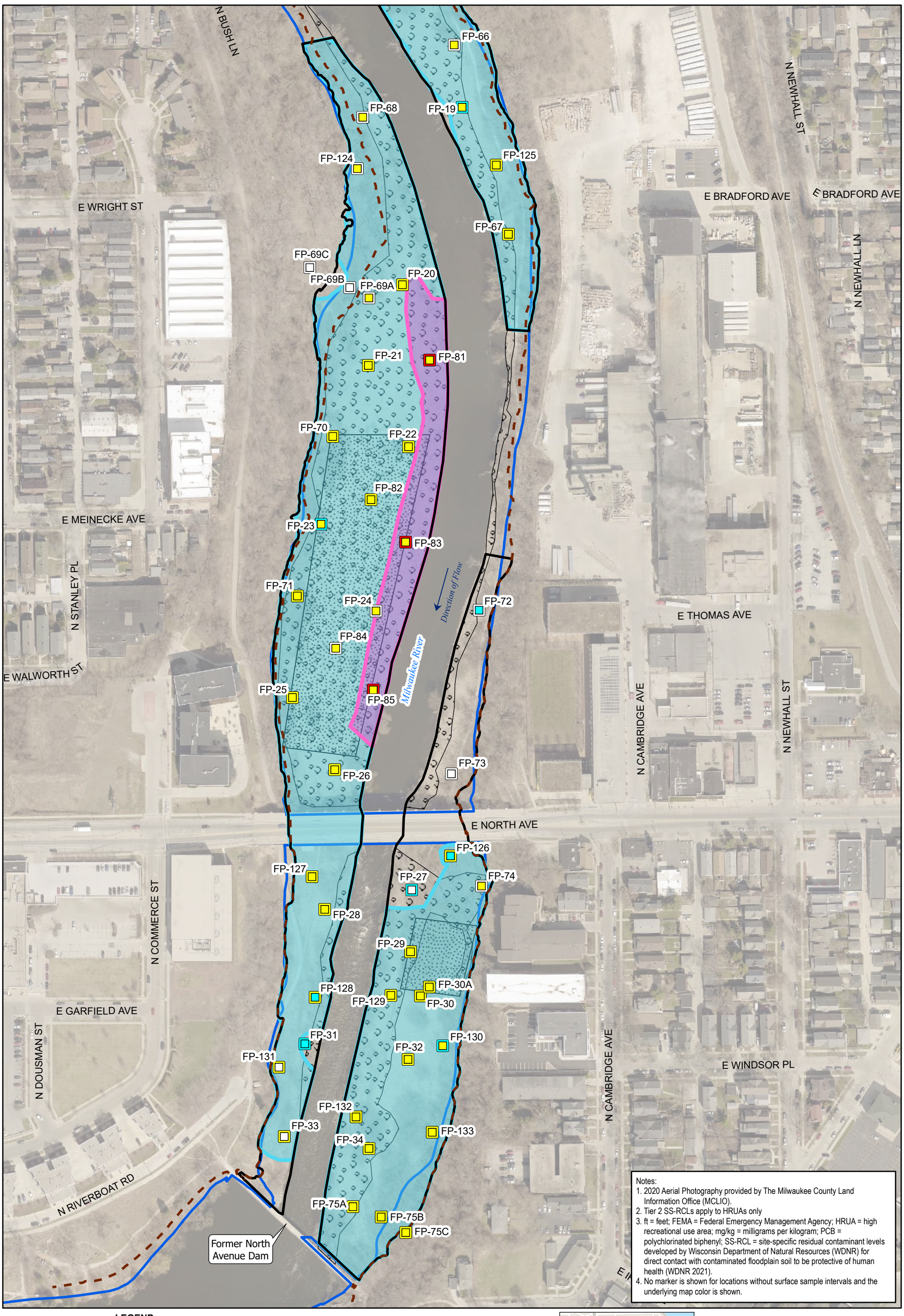


Figure 3-1G
Floodplain 7 Remediation Target Areas
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Tier 2 SS-RCLs apply to HRUAs only
3. ft = feet; FEMA = Federal Emergency Management Agency; HRUA = high recreational use area; mg/kg = milligrams per kilogram; PCB = polychlorinated biphenyl; SS-RCL = site-specific residual contaminant levels developed by Wisconsin Department of Natural Resources (WDNR) for direct contact with contaminated floodplain soil to be protective of human health (WDNR 2021).
4. No marker is shown for locations without surface sample intervals and the underlying map color is shown.

LEGEND

Surface Soil
- PCB TSCA Low Occupancy Exceedance (25 mg/kg)
- PCB Tier 1 SS-RCL Exceedance
- PCB Tier 2 SS-RCL Exceedance
- PCB Less than Tier 2 SS-RCL

Subsurface Soil
- PCB TSCA Low Occupancy Exceedance (25 mg/kg)
- PCB Tier 1 SS-RCL Exceedance
- PCB Tier 2 SS-RCL Exceedance
- PCB Less than Tier 2 SS-RCL

Map Features
- Approximate Former Impoundment Extent
- Floodplain Area Boundary
- Remediation Target Area
- TSCA Low Occupancy Exceedance (25 mg/kg)
- FEMA 100-Year Floodplain
- Delineated Wetlands
- Approximate Extent of Sediments from North Ave Dam Removal

N

0 95 190

Approximate scale in feet

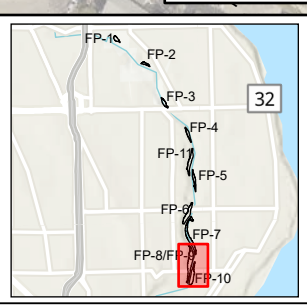
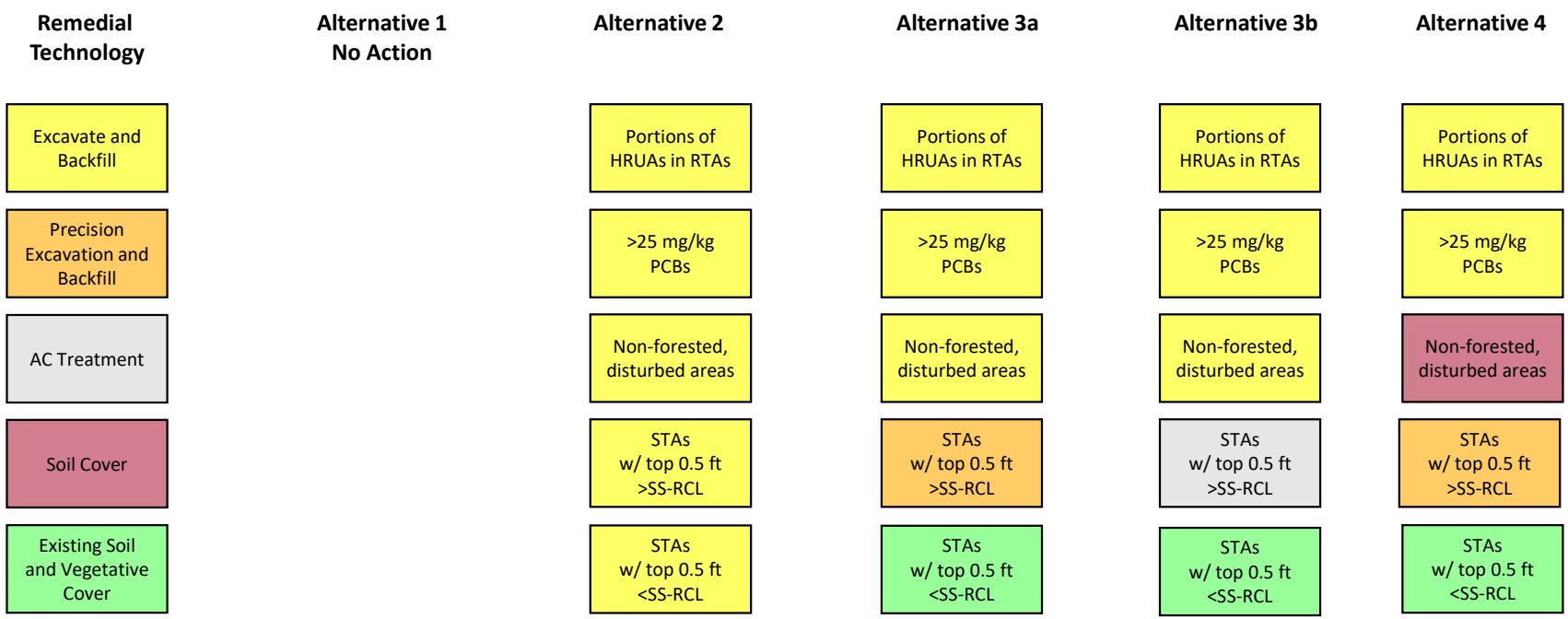


Figure 3-1H
Floodplain 8/9 & 10 Remediation Target Areas
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

\\dc1vs01\GISProj\E\EPA\681867_MKERiverDownstream\ProDocs\2023\Figure3-1X_Series_FP_Remedial_TA.aprx-Figure3-1H_FP8-9-10_RTA_Extents_RAETM jhansen1 (6/6/2023)



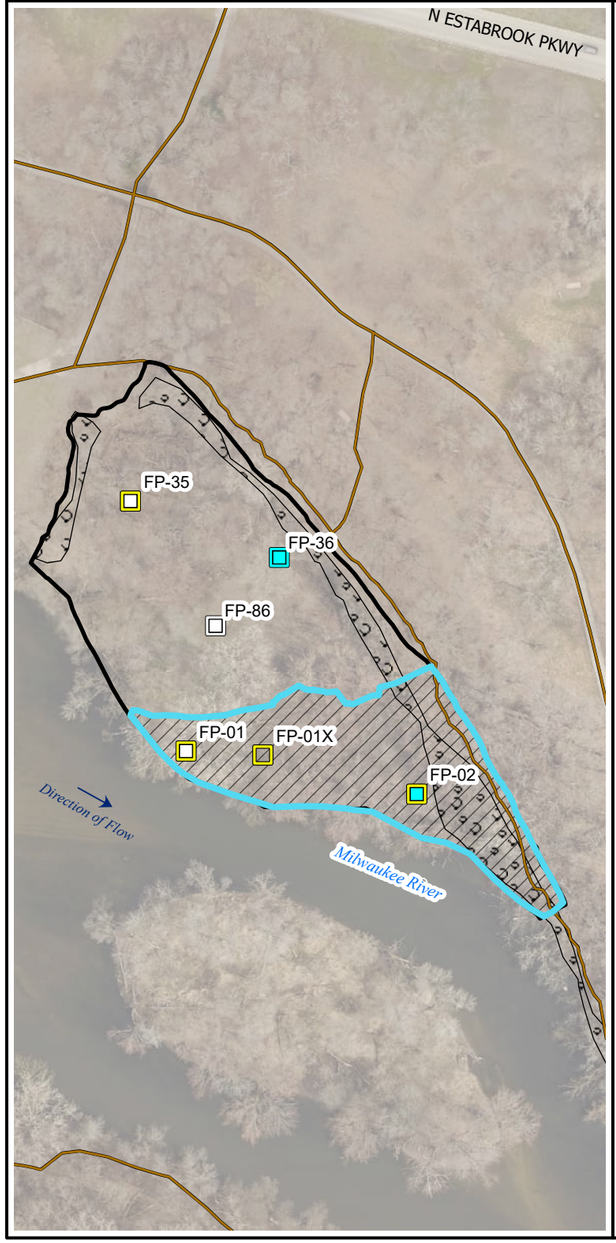
Notes

- Forested areas are used as a proxy for STAs to be identified during remedial design.
- Institutional controls/continuing obligations will be required for any floodplain soil with COC concentrations >SS-RCLs that remains in place.
- Different alternatives can be assigned to different floodplains or parts of floodplains based on project partner input.
- Restoration alternatives are not shown.
- SS-RCL = site-specific residual contaminant level
- STA = seed tree area

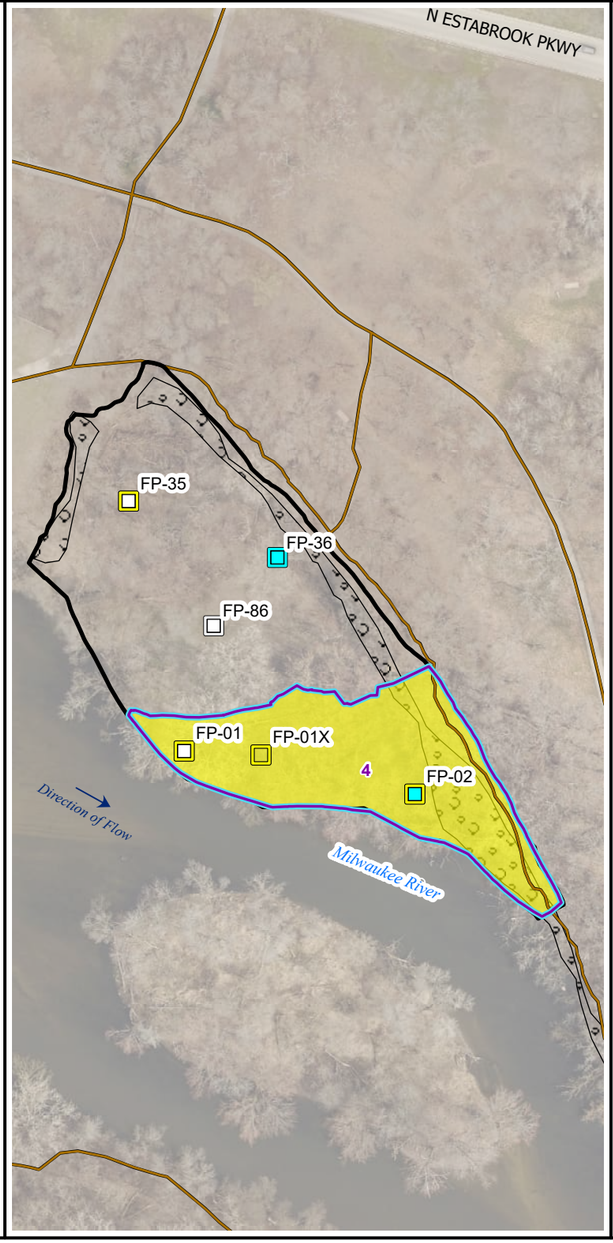
Figure 5-1
Floodplains Reach Remedial Alternative Overview
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

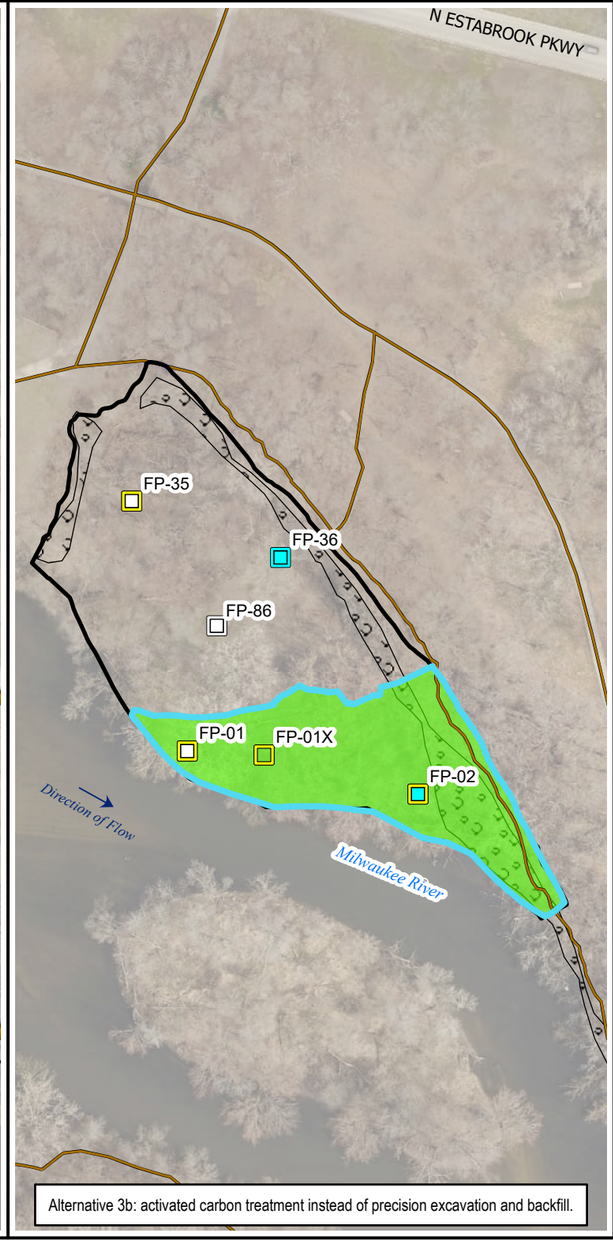
Alternative 1



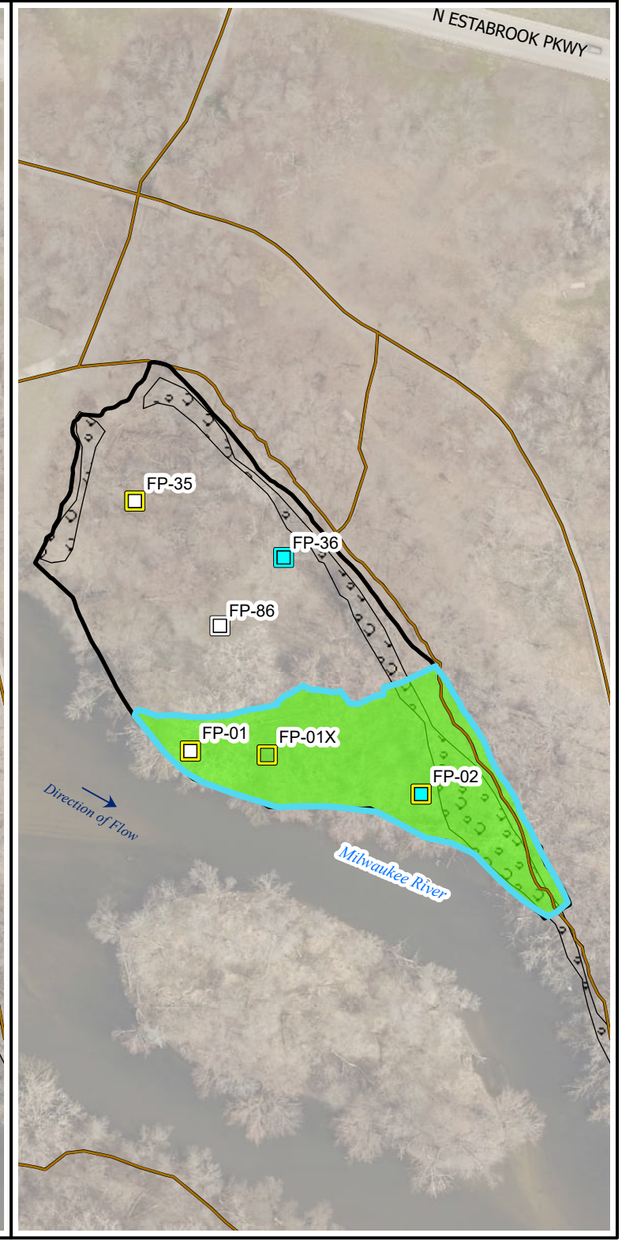
Alternative 2



Alternative 3a



Alternative 4



LEGEND

Surface Soil
- PCB > 25 mg/kg
- PCB >1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Subsurface Soil
- PCB > 25 mg/kg
- PCB >1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Map Features
- Trail
- Floodplain Area Boundary
- Remediation Target Area
- Delineated Wetlands
- 4 Excavation Depth (feet)
- Excavation Depth Boundary

Remedial Alternative Technologies
- Excavate and Backfill
- Existing Soil and Vegetative Cover
- Precision Excavation and Backfill
- Soil Cover
- No Action

N

0 125

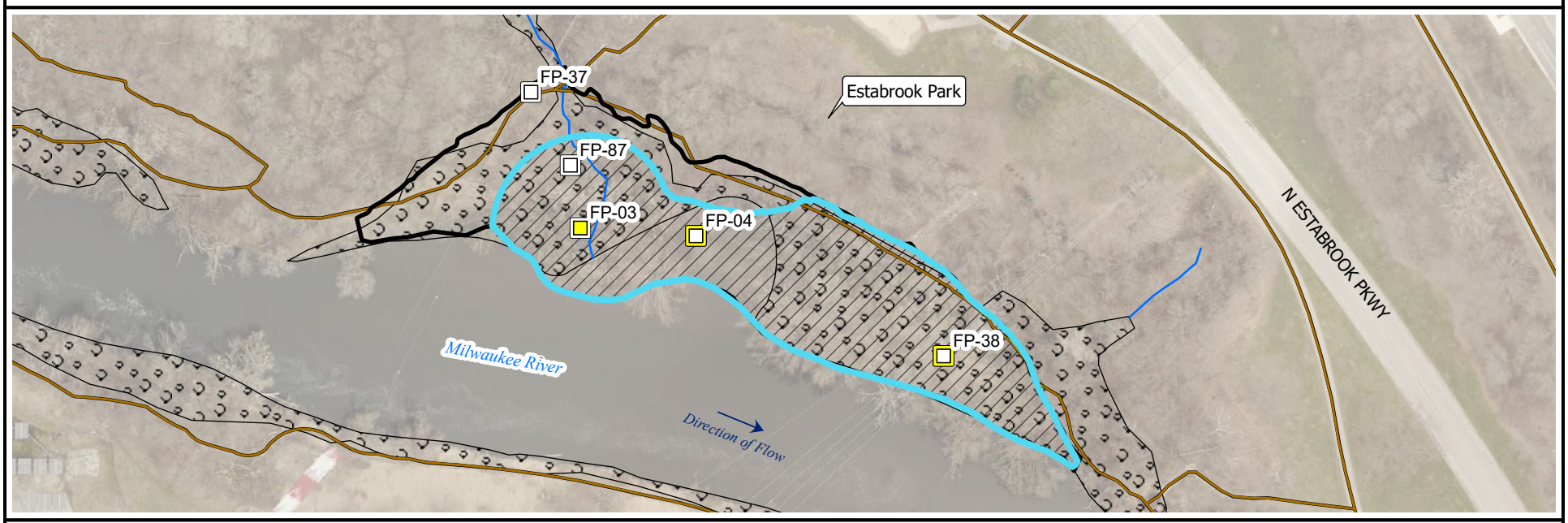
Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. HRUA = high recreational use area; ft = feet; PCB = polychlorinated biphenyl; mg/kg = milligrams per kilogram; RTA = Remediation Target Area; SS-RCL = site-specific residual contaminant level
3. Tier 1 PCB SS-RCL = 1.1 mg/kg
   Tier 2 PCB SS-RCL = 0.7 mg/kg (HRUAs only)
   PCB TSCA Low Occupancy threshold = 25 mg/kg
4. No marker is shown for locations without surface sample intervals and the underlying map color is shown.

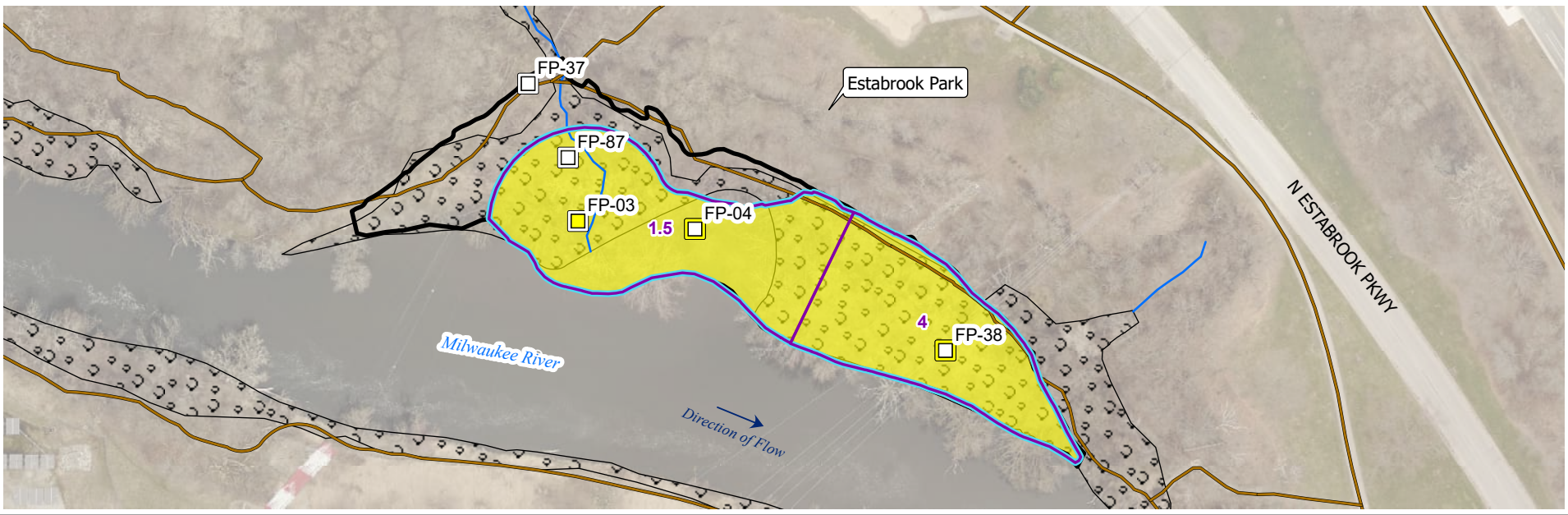
Figure 5-2A
Floodplain 1 Remedial Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

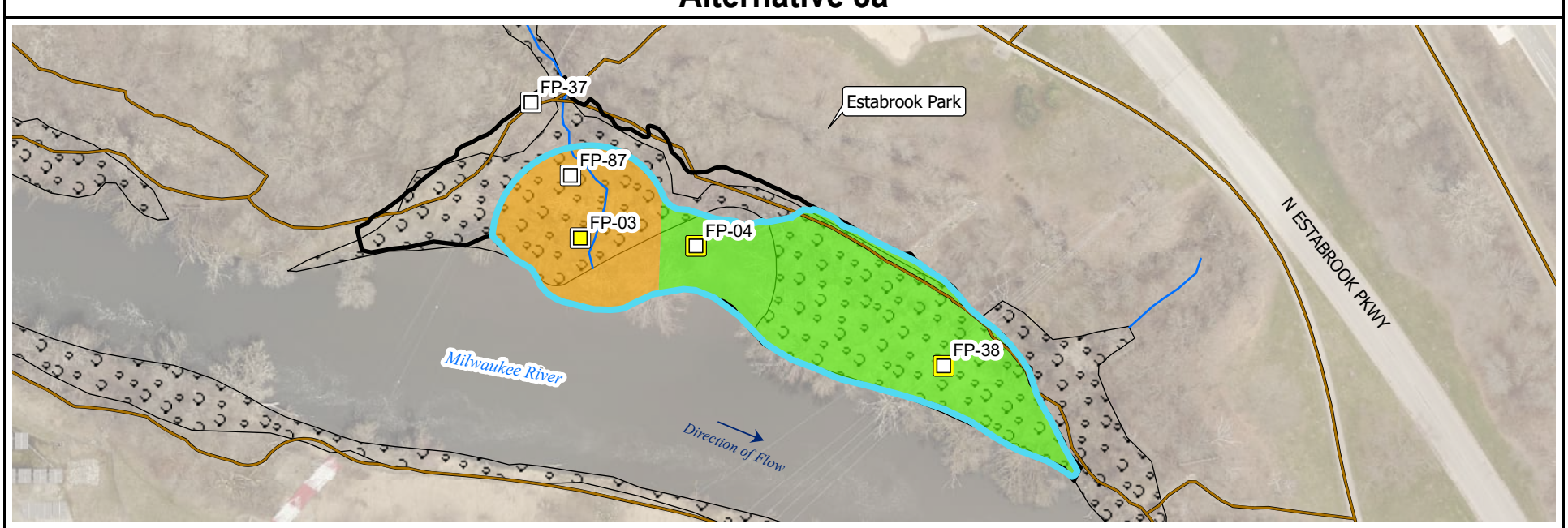
Alternative 1



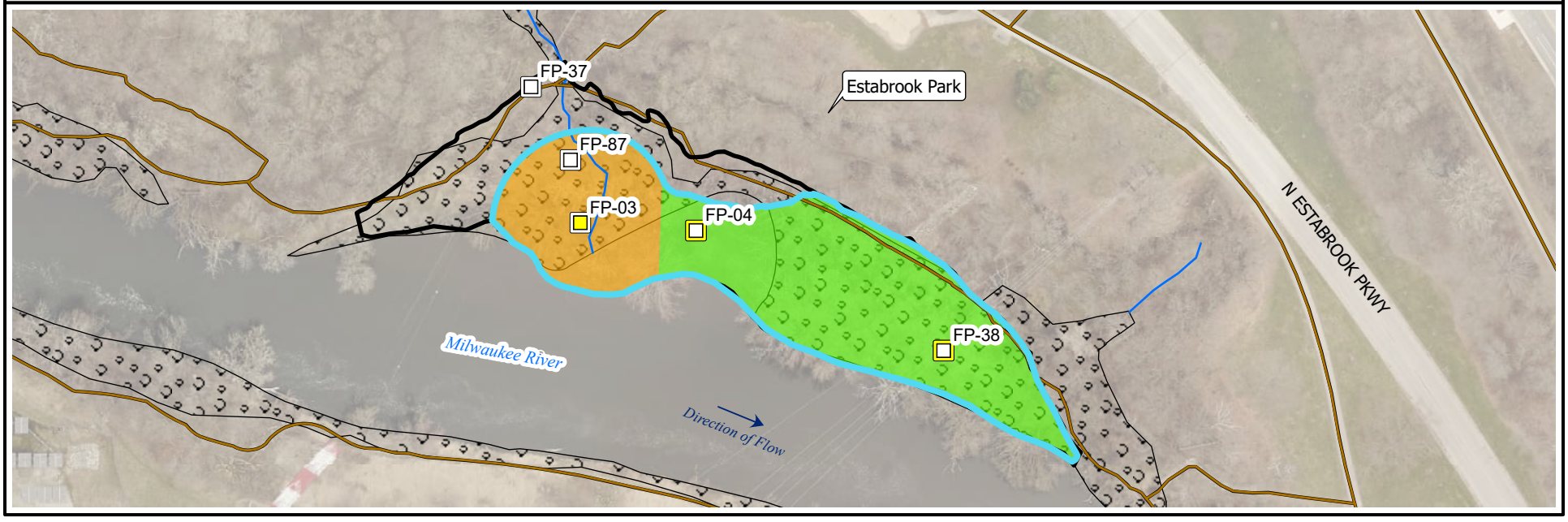
Alternative 2



Alternative 3a



Alternative 4



LEGEND

Surface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Subsurface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Map Features
- Trail
- Delineated Stream
- Floodplain Area Boundary
- Remediation Target Area
- Delineated Wetlands
- 4 Excavation Depth (feet)
- Excavation Depth Boundary

Remedial Alternative Technologies
- Excavate and Backfill
- Existing Soil and Vegetative Cover
- Precision Excavation and Backfill
- Soil Cover
- No Action

N

0 125

Approximate scale in feet

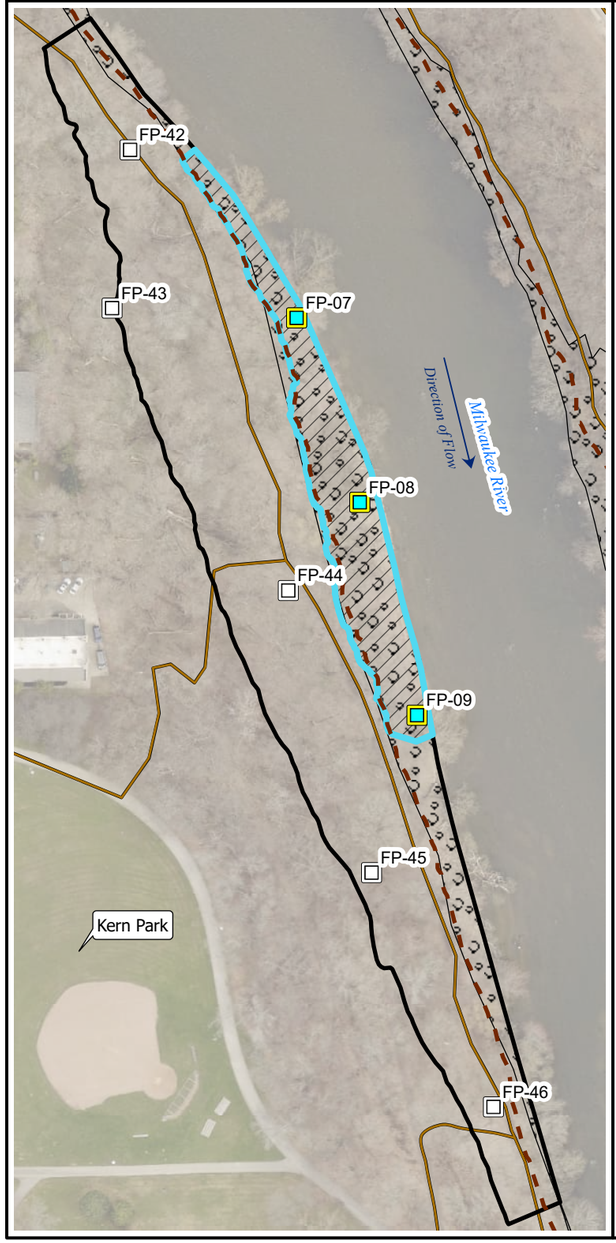
Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. HRUA = high recreational use area; ft = feet; PCB = polychlorinated biphenyl; mg/kg = milligrams per kilogram; RTA = Remediation Target Area; SS-RCL = site-specific residual contaminant level
3. Tier 1 PCB SS-RCL = 1.1 mg/kg
   Tier 2 PCB SS-RCL = 0.7 mg/kg (HRUAs only)
   PCB TSCA Low Occupancy threshold = 25 mg/kg
4. No marker is shown for locations without surface sample intervals and the underlying map color is shown.

Figure 5-2B
Floodplain 2 Remedial Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

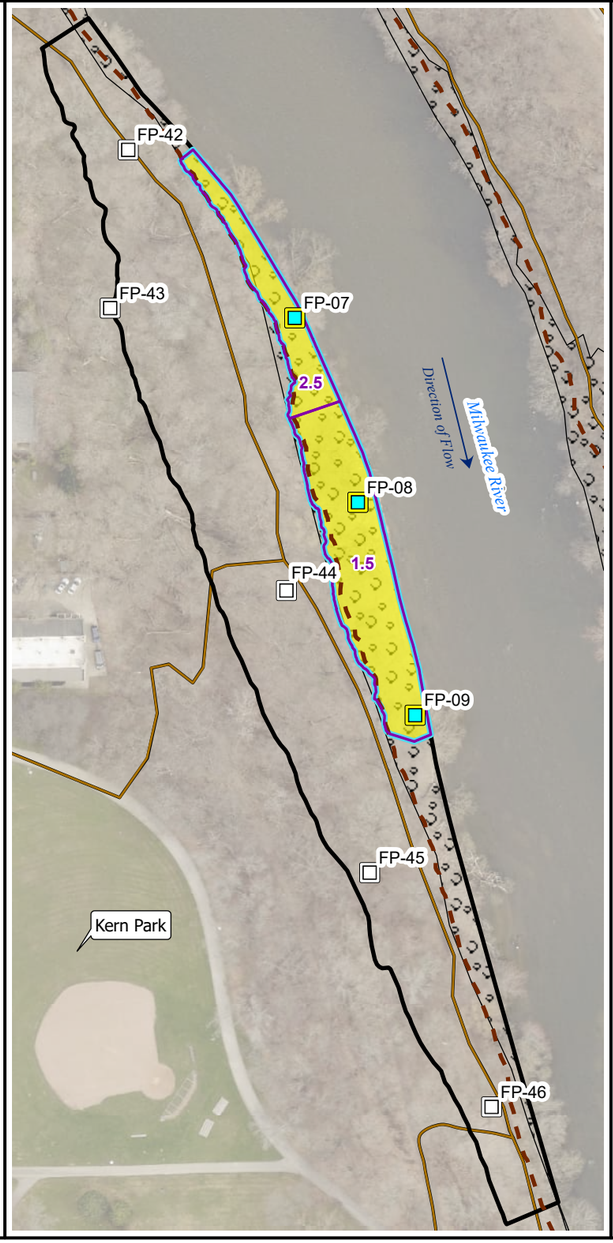
Jacobs

\\dc1vs01\GISProj\E\EPA\681867_MKERiverDownstream\ProDocs\2022\Floodplains_RTA\Figure5-2X_Series_Floodplains_RTA_Details.aprx-Figure05-02B_MKE_FP2_RTA_Details jhansen1 (8/29/2023)

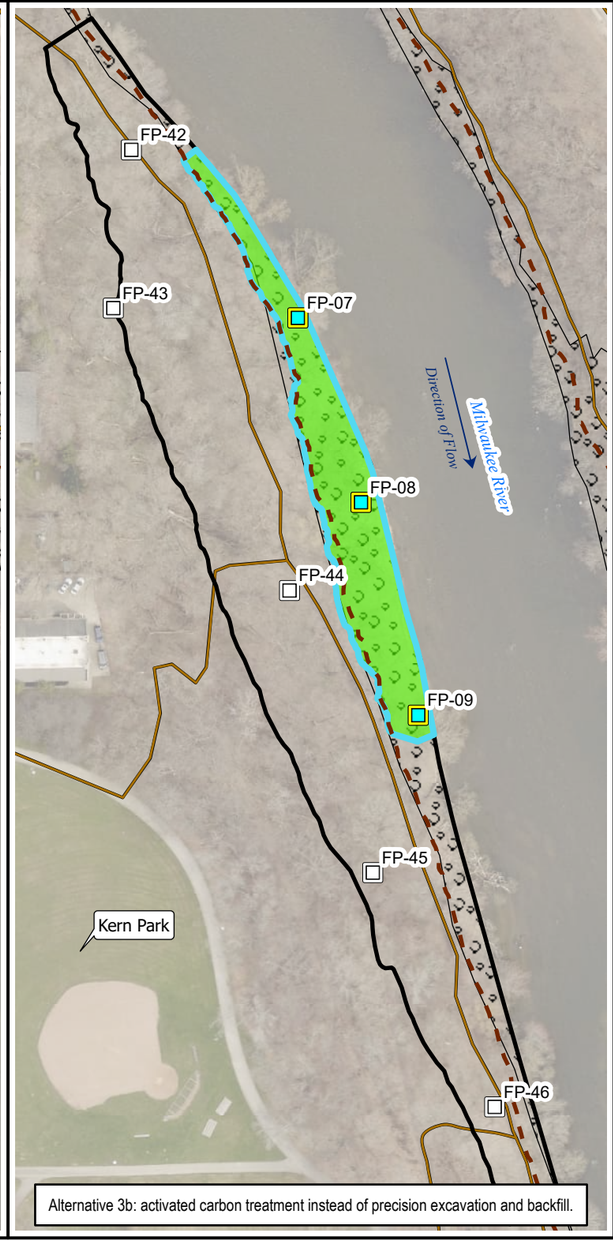
Alternative 1



Alternative 2



Alternative 3a



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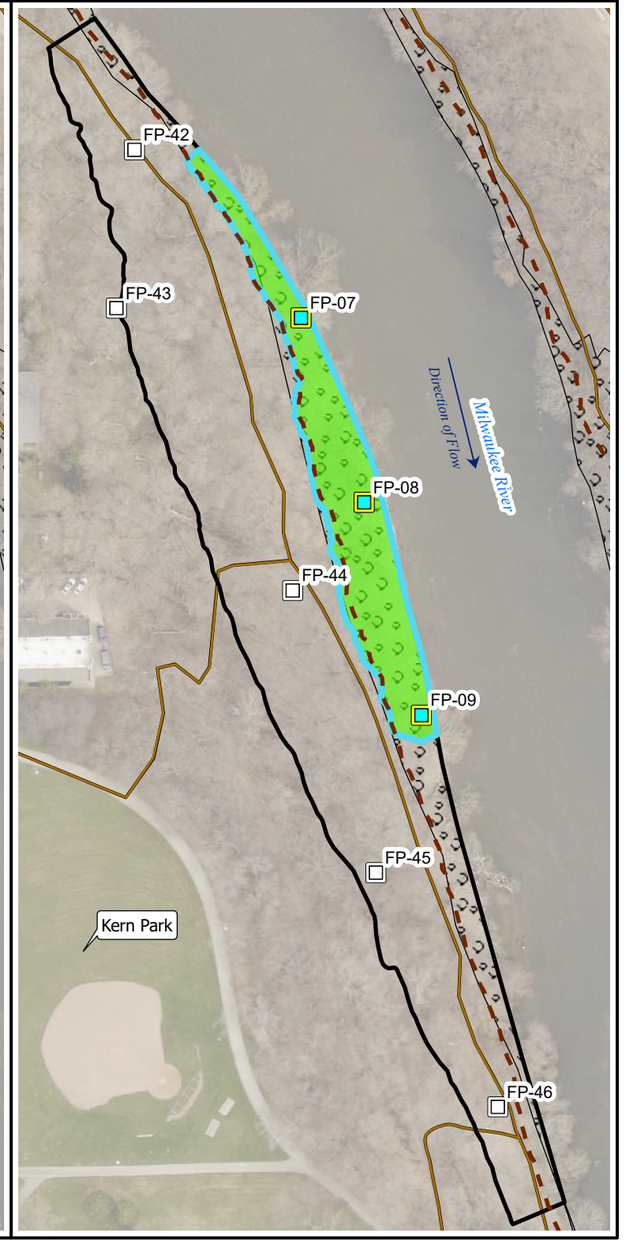


LEGEND

Surface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Subsurface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Map Features
- Trail
- Approximate Former Impoundment Extent
- Remediation Target Area
- Floodplain Area Boundary
- Delineated Wetlands
- 4 Excavation Depth (feet)
- Excavation Depth Boundary

Remedial Alternative Technologies
- Excavate and Backfill
- Existing Soil and Vegetative Cover
- Precision Excavation and Backfill
- Soil Cover
- No Action

N

0 125

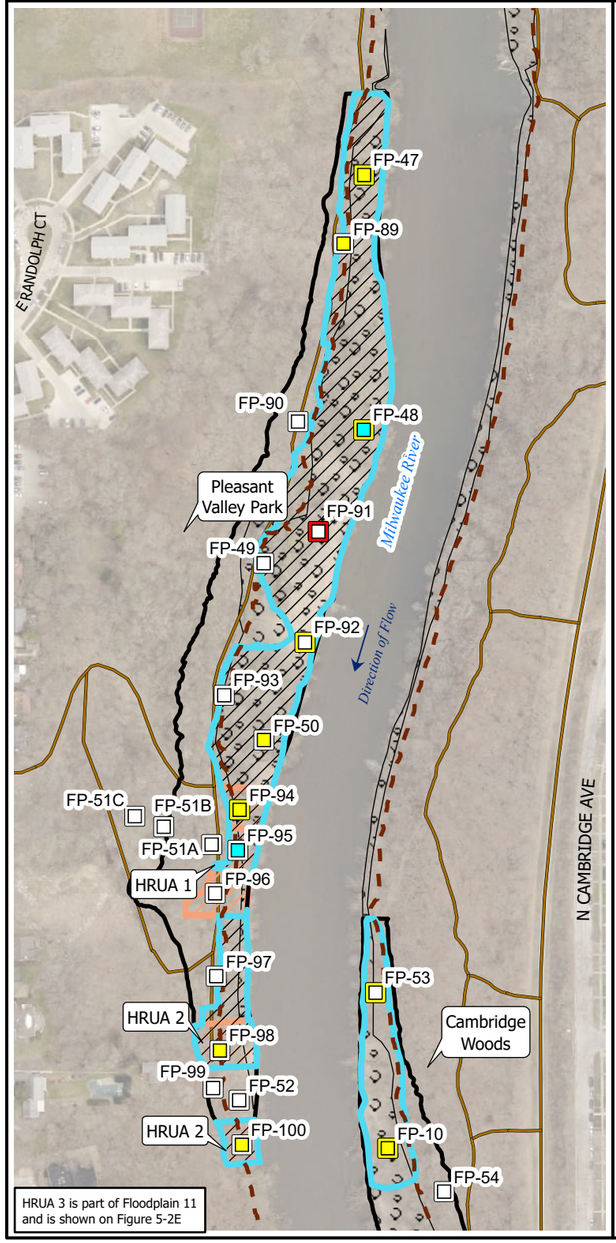
Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. HRUA = high recreational use area; ft = feet; PCB = polychlorinated biphenyl; mg/kg = milligrams per kilogram; RTA = Remediation Target Area; SS-RCL = site-specific residual contaminant level
3. Tier 1 PCB SS-RCL = 1.1 mg/kg
   Tier 2 PCB SS-RCL = 0.7 mg/kg (HRUAs only)
   PCB TSCA Low Occupancy threshold = 25 mg/kg
4. No marker is shown for locations without surface sample intervals and the underlying map color is shown.

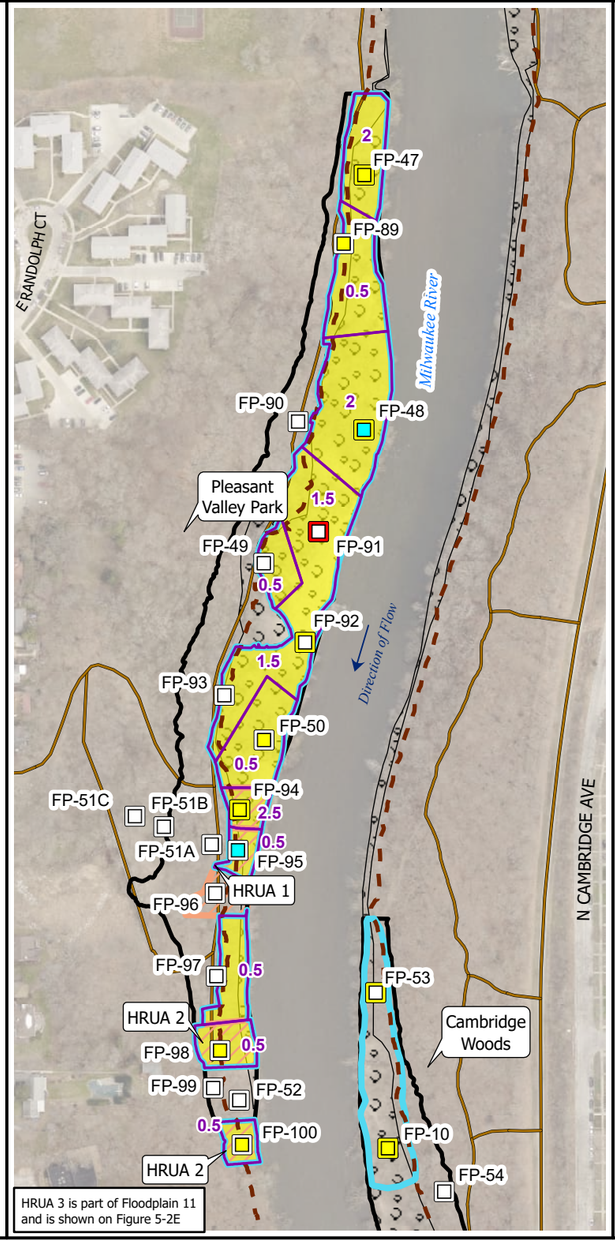
Figure 5-2C
Floodplain 4 Remedial Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

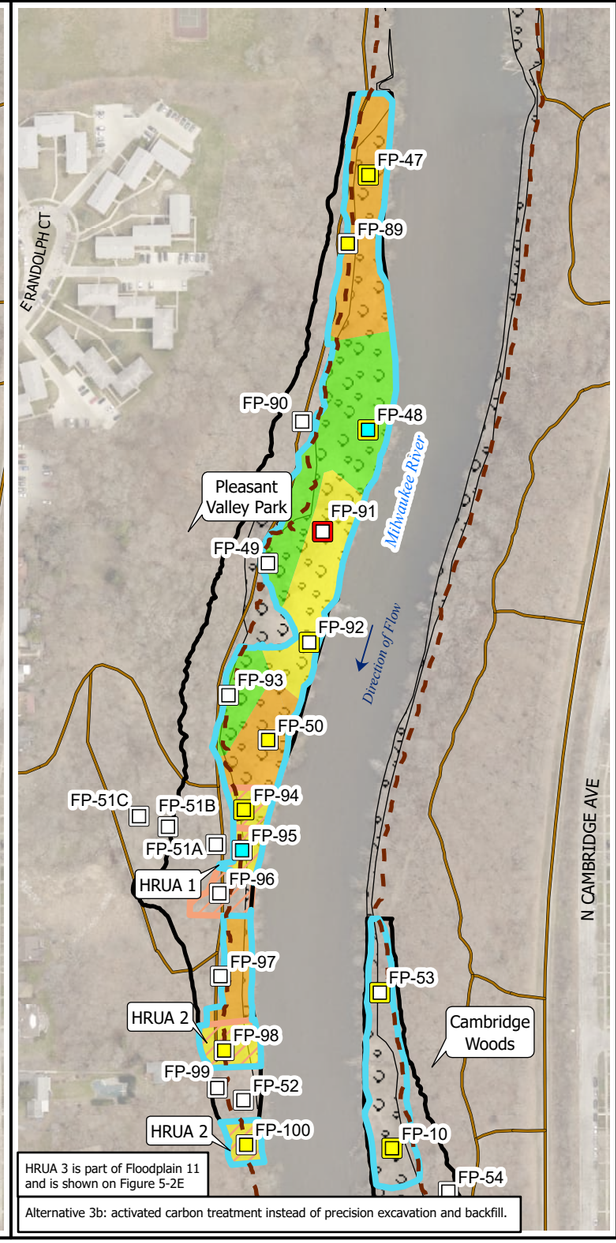
Alternative 1



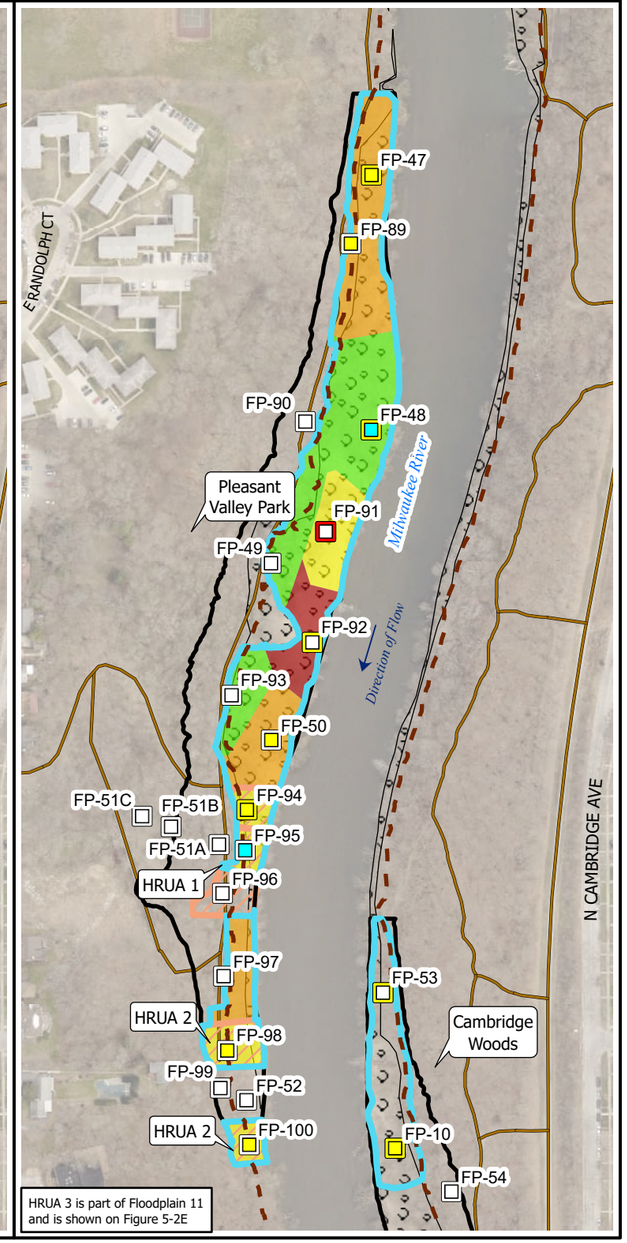
Alternative 2



Alternative 3a



Alternative 4



LEGEND

Surface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Subsurface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Map Features
- Trail
- Approximate Former Impoundment Extent
- Remediation Target Area
- Floodplain Area Boundary
- Delineated Wetlands
- HRUA
- 4 Excavation Depth (feet)
- Excavation Depth Boundary

Remedial Alternative Technologies
- Excavate and Backfill
- Existing Soil and Vegetative Cover
- Precision Excavation and Backfill
- Soil Cover
- No Action

N

0 250

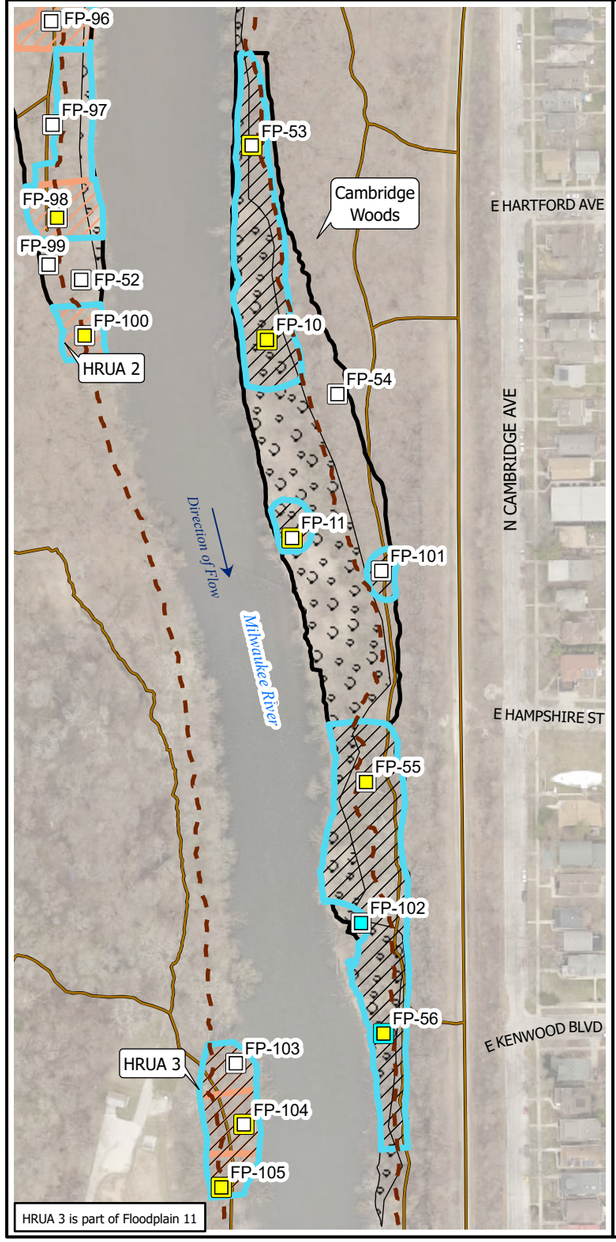
Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. HRUA = high recreational use area; ft = feet; PCB = polychlorinated biphenyl; mg/kg = milligrams per kilogram; RTA = Remediation Target Area; SS-RCL = site-specific residual contaminant level
3. Tier 1 PCB SS-RCL = 1.1 mg/kg
   Tier 2 PCB SS-RCL = 0.7 mg/kg (HRUAs only)
   PCB TSCA Low Occupancy threshold = 25 mg/kg
4. No marker is shown for locations without surface sample intervals and the underlying map color is shown.

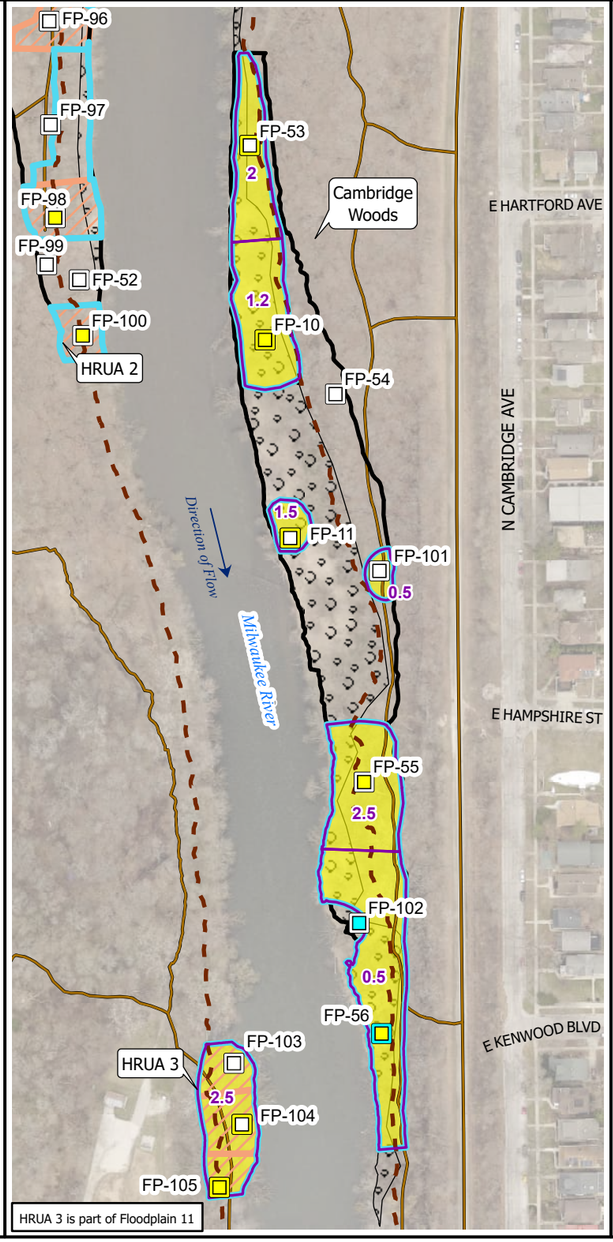
Figure 5-2D
Floodplain 11 Remedial Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

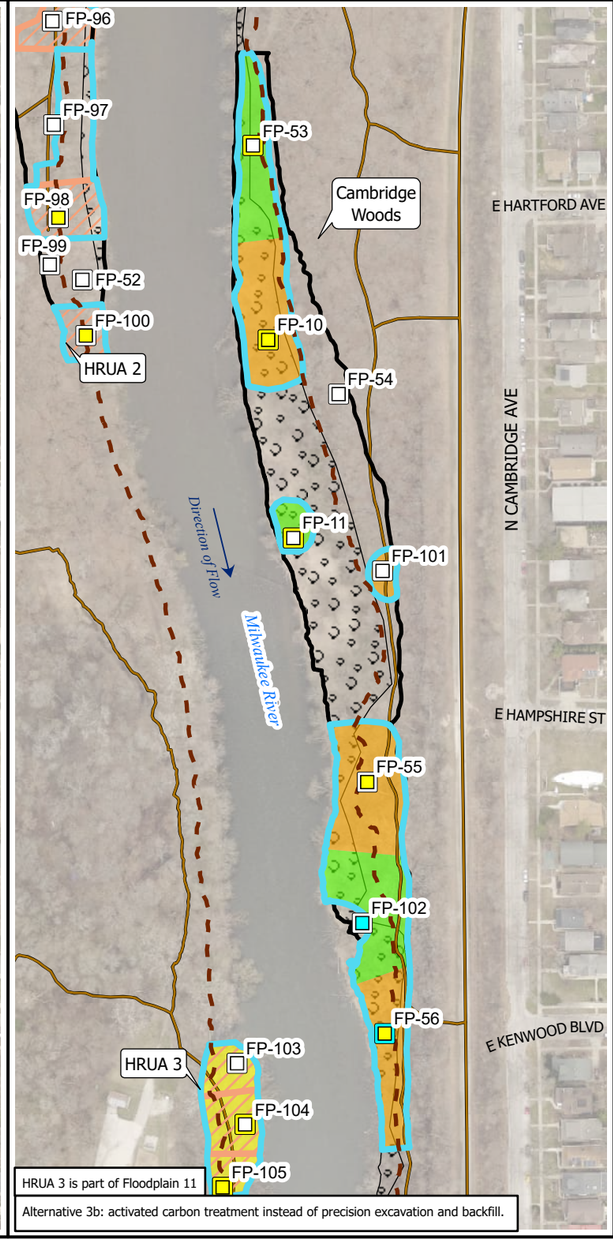
Alternative 1



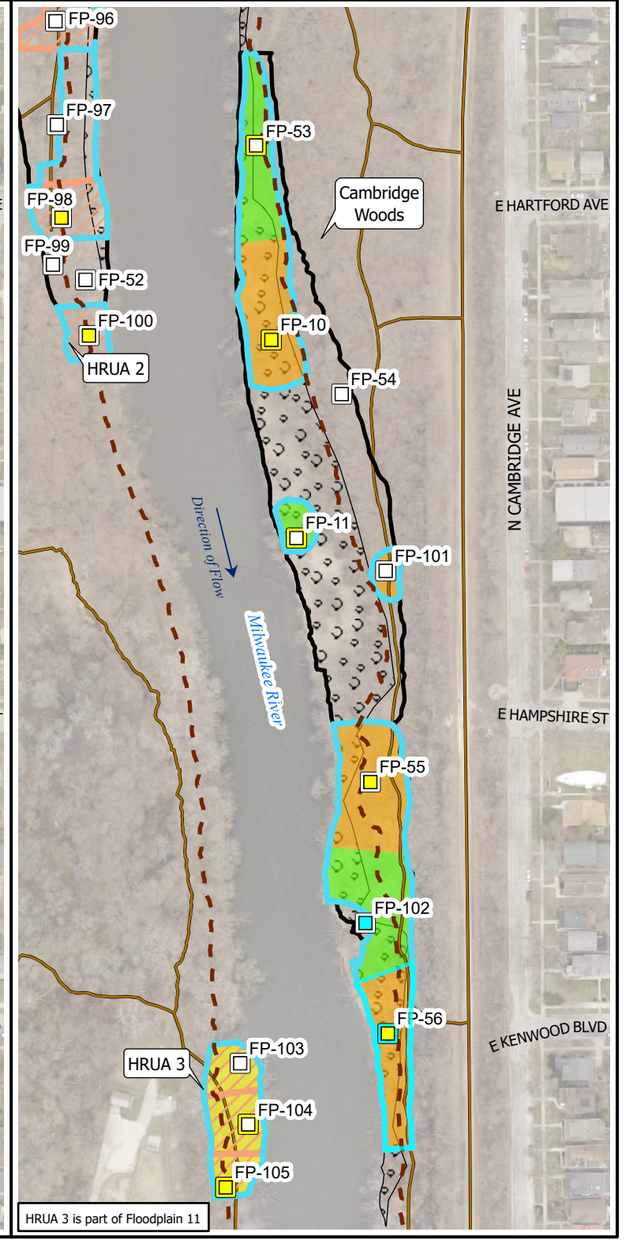
Alternative 2



Alternative 3a



Alternative 4



LEGEND

Surface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Subsurface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Map Features
- Trail
- Approximate Former Impoundment Extent
- Remediation Target Area
- Floodplain Area Boundary
- Delineated Wetlands
- HRUA
- 4 Excavation Depth (feet)
- Excavation Depth Boundary

Remedial Alternative Technologies
- Excavate and Backfill
- Existing Soil and Vegetative Cover
- Precision Excavation and Backfill
- Soil Cover
- No Action

N

0 200

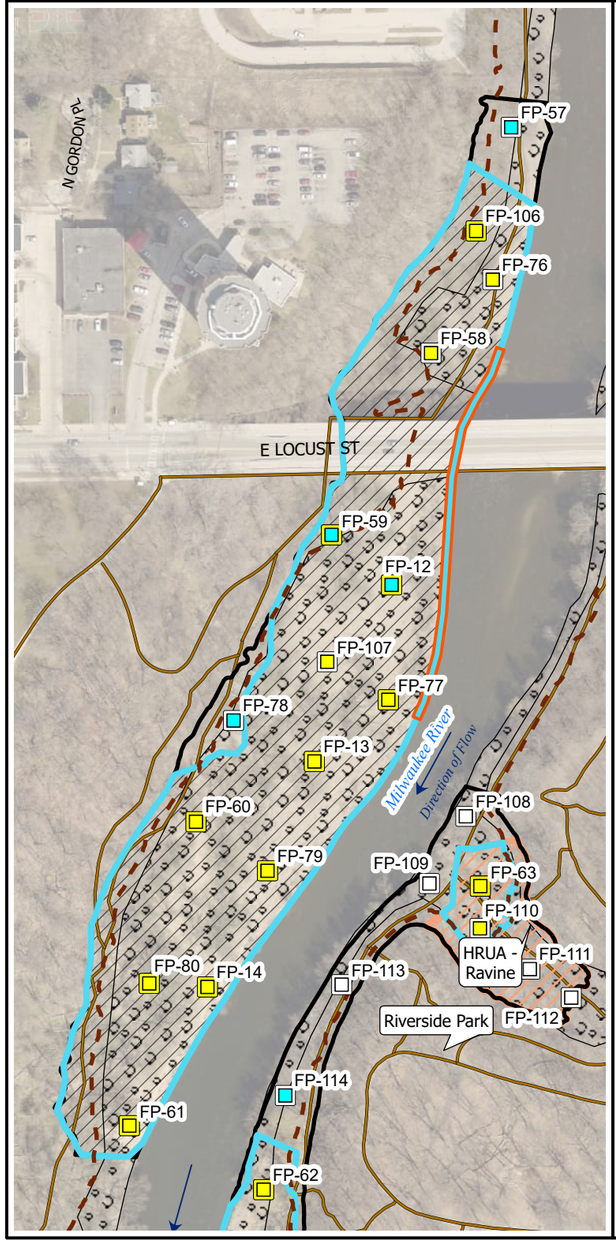
Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. HRUA = high recreational use area; ft = feet; PCB = polychlorinated biphenyl; mg/kg = milligrams per kilogram; RTA = Remediation Target Area; SS-RCL = site-specific residual contaminant level
3. Tier 1 PCB SS-RCL = 1.1 mg/kg
   Tier 2 PCB SS-RCL = 0.7 mg/kg (HRUAs only)
   PCB TSCA Low Occupancy threshold = 25 mg/kg
4. No marker is shown for locations without surface sample intervals and the underlying map color is shown.

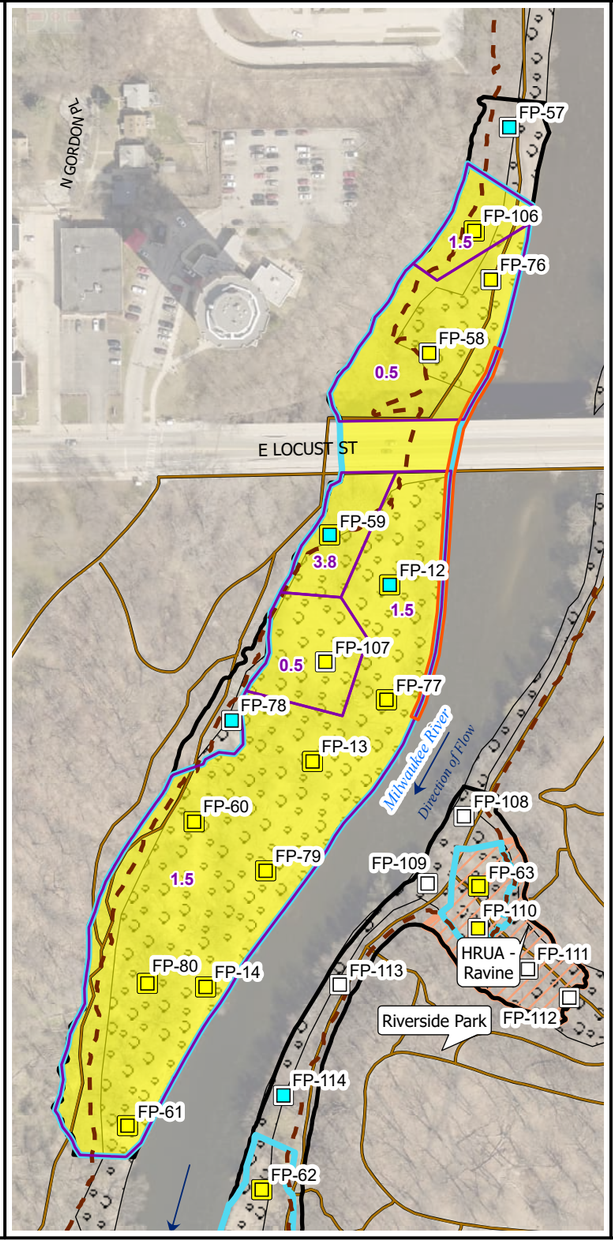
Figure 5-2E
Floodplain 5 Remedial Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

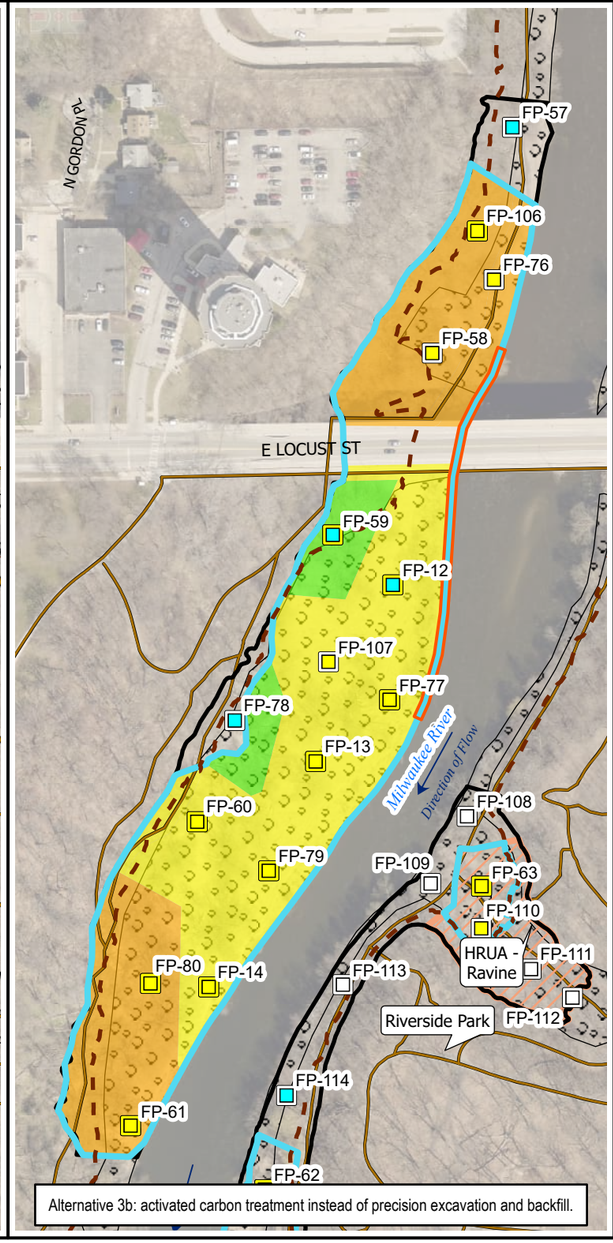
Alternative 1



Alternative 2

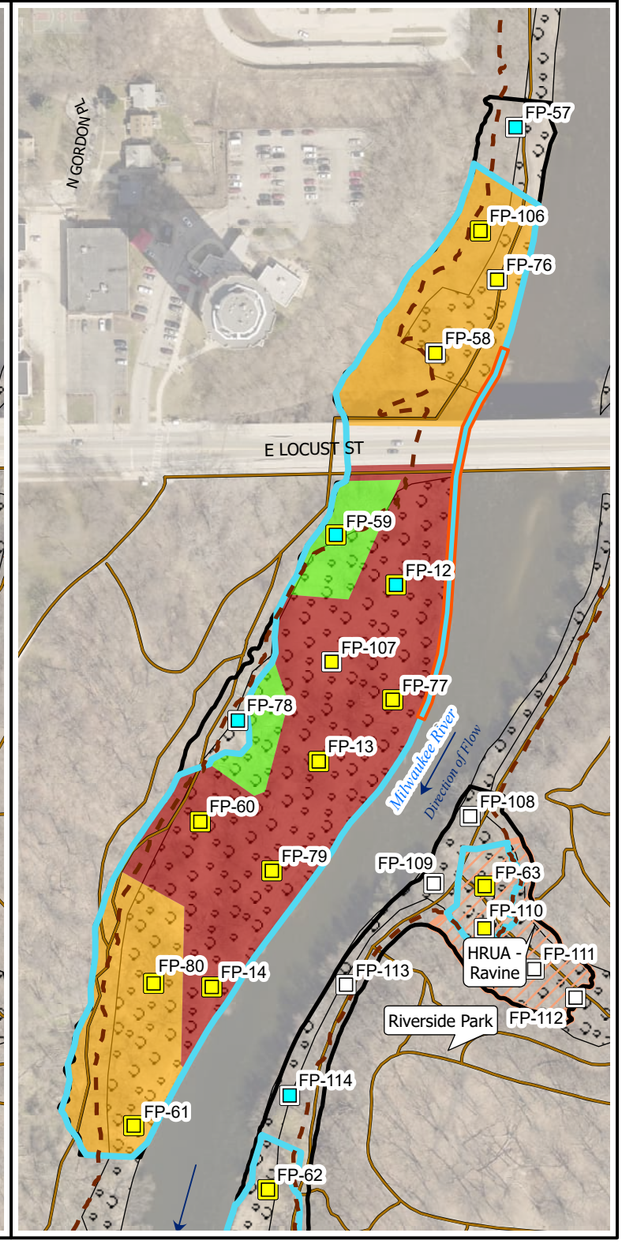


Alternative 3a



Alternative 3b: activated carbon treatment instead of precision excavation and backfill.

Alternative 4



LEGEND

Surface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Subsurface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Map Features
- Trail
- Approximate Former Impoundment Extent
- Remediation Target Area
- Floodplain Area Boundary
- Delineated Wetlands
- HRUA
- Articulated Concrete Mat
- 4 Excavation Depth (feet)
- Excavation Depth Boundary

Remedial Alternative Technologies
- Excavate and Backfill
- Existing Soil and Vegetative Cover
- Precision Excavation and Backfill
- Soil Cover
- No Action

N

0 200

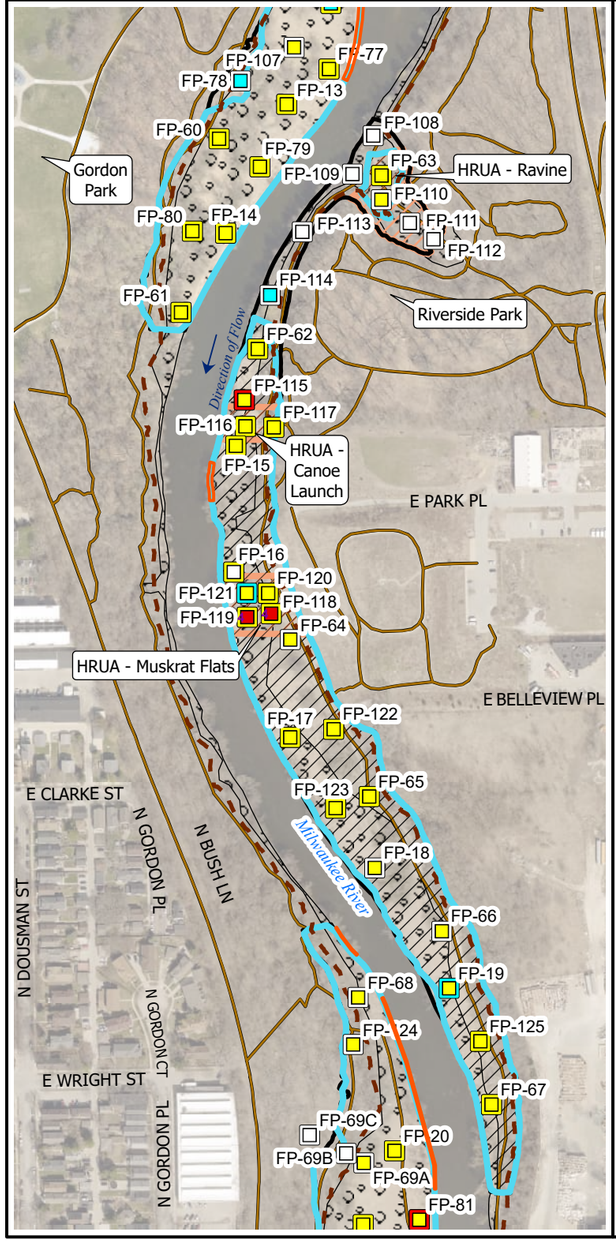
Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. HRUA = high recreational use area; ft = feet; PCB = polychlorinated biphenyl; mg/kg = milligrams per kilogram; RTA = Remediation Target Area; SS-RCL = site-specific residual contaminant level
3. Tier 1 PCB SS-RCL = 1.1 mg/kg
   Tier 2 PCB SS-RCL = 0.7 mg/kg (HRUAs only)
   PCB TSCA Low Occupancy threshold = 25 mg/kg
4. No marker is shown for locations without surface sample intervals and the underlying map color is shown.

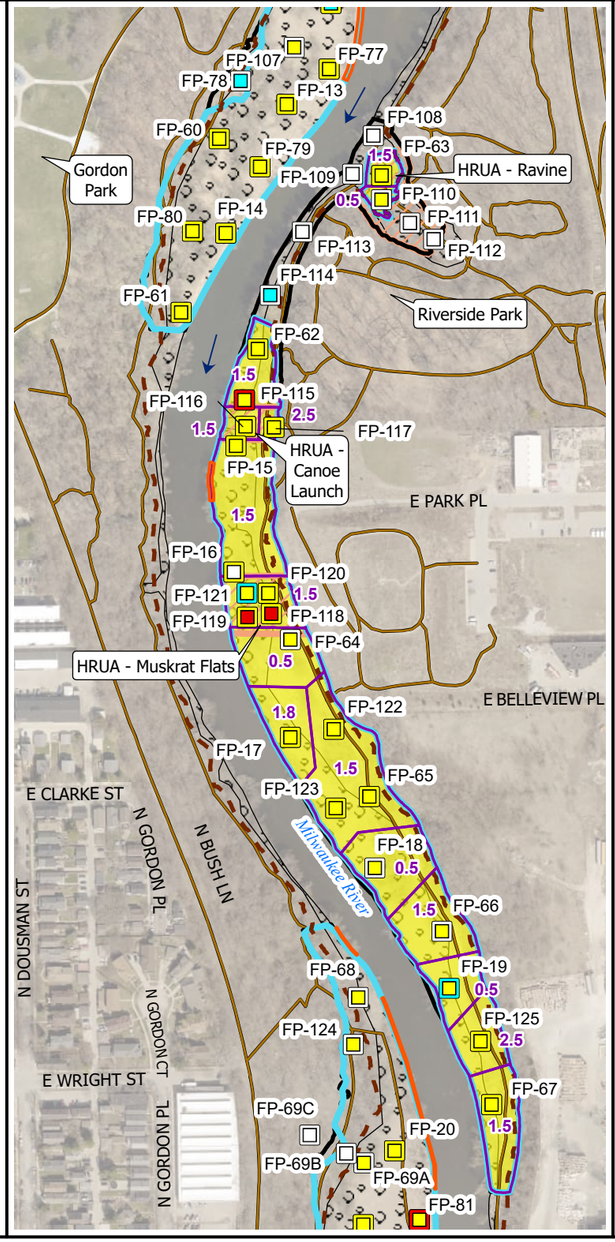
Figure 5-2F
Floodplain 6 Remedial Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

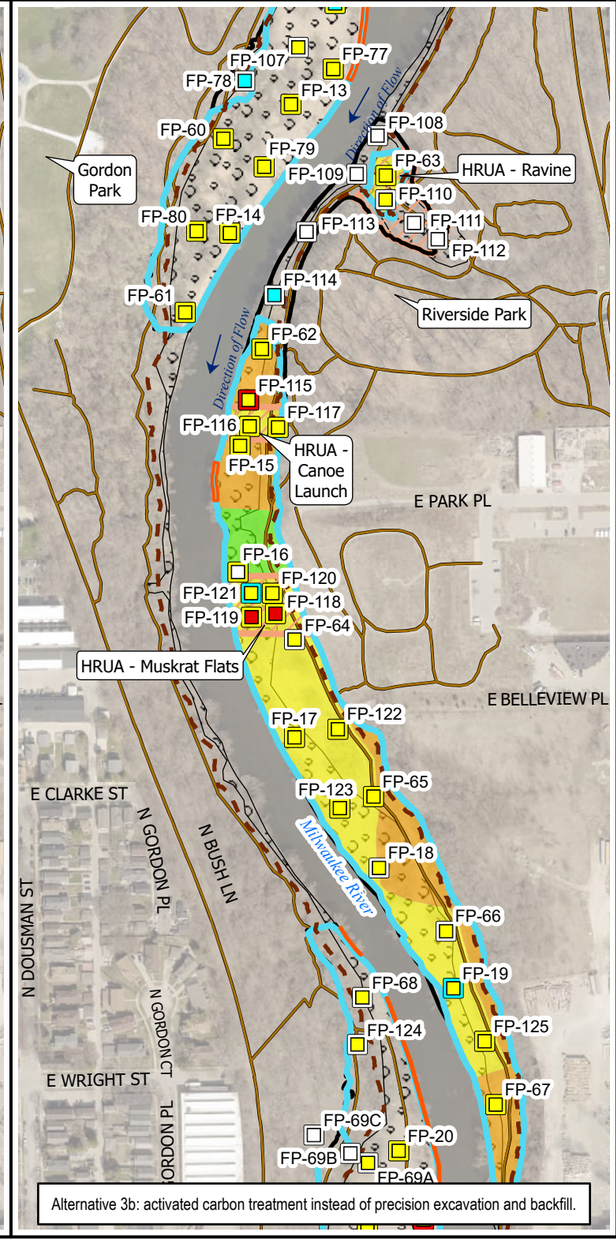
Alternative 1



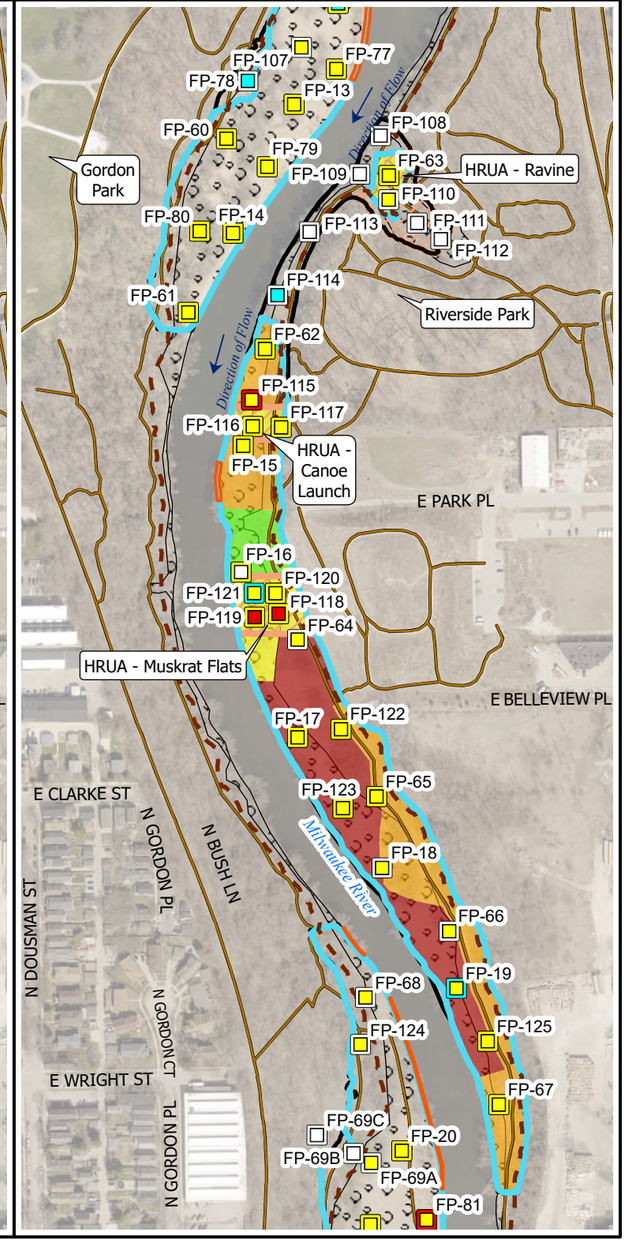
Alternative 2



Alternative 3a



Alternative 4



LEGEND

Surface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Subsurface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Map Features
- Trail
- Approximate Former Impoundment Extent
- Remediation Target Area
- Floodplain Area Boundary
- Delineated Wetlands
- HRUA
- Articulated Concrete Mat
- 4 Excavation Depth (feet)
- Excavation Depth Boundary

Remedial Alternative Technologies
- Excavate and Backfill
- Existing Soil and Vegetative Cover
- Precision Excavation and Backfill
- Soil Cover
- No Action

N

0 350

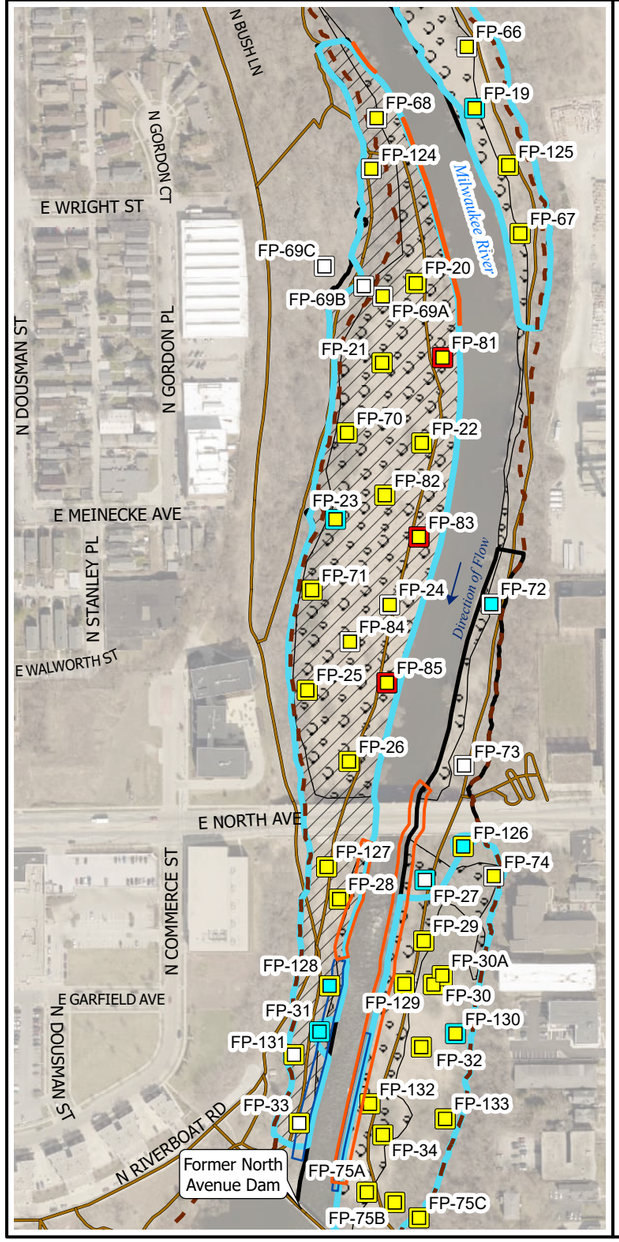
Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. HRUA = high recreational use area; ft = feet; PCB = polychlorinated biphenyl; mg/kg = milligrams per kilogram; RTA = Remediation Target Area; SS-RCL = site-specific residual contaminant level
3. Tier 1 PCB SS-RCL = 1.1 mg/kg
   Tier 2 PCB SS-RCL = 0.7 mg/kg (HRUAs only)
   PCB TSCA Low Occupancy threshold = 25 mg/kg
4. No marker is shown for locations without surface sample intervals and the underlying map color is shown.

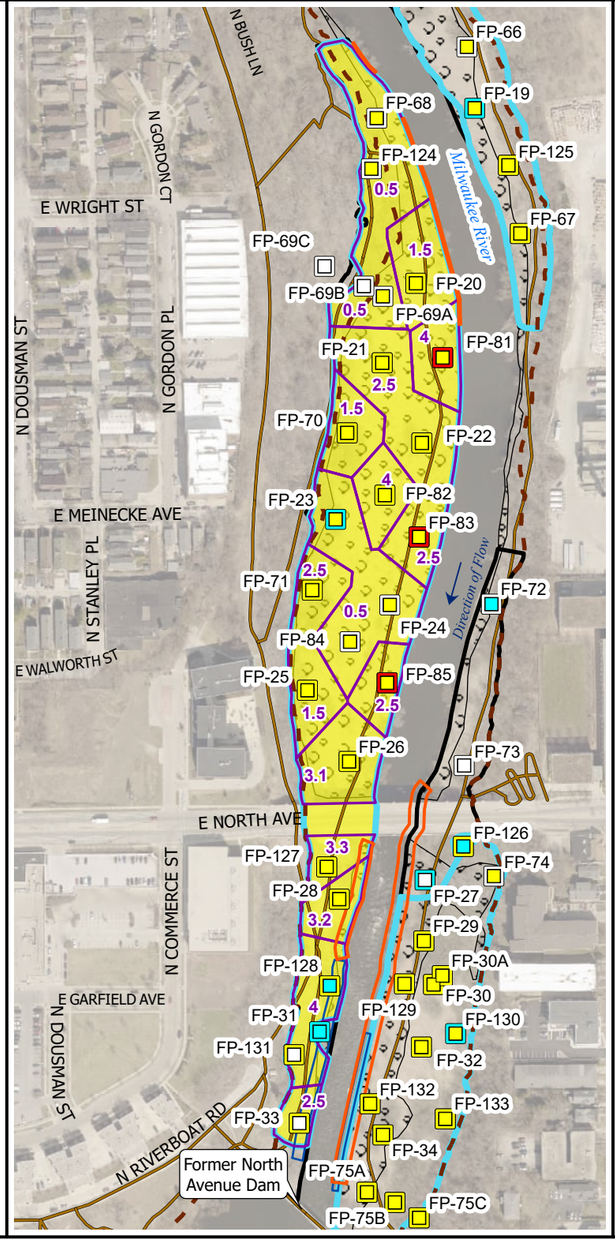
Figure 5-2G
Floodplain 7 Remedial Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

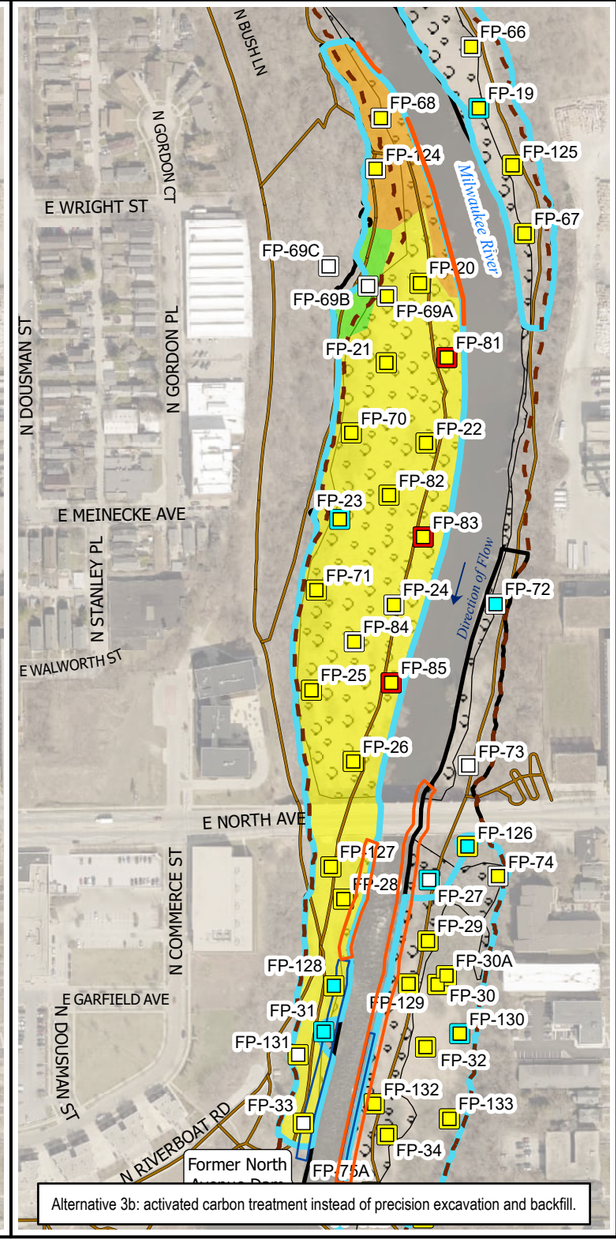
Alternative 1



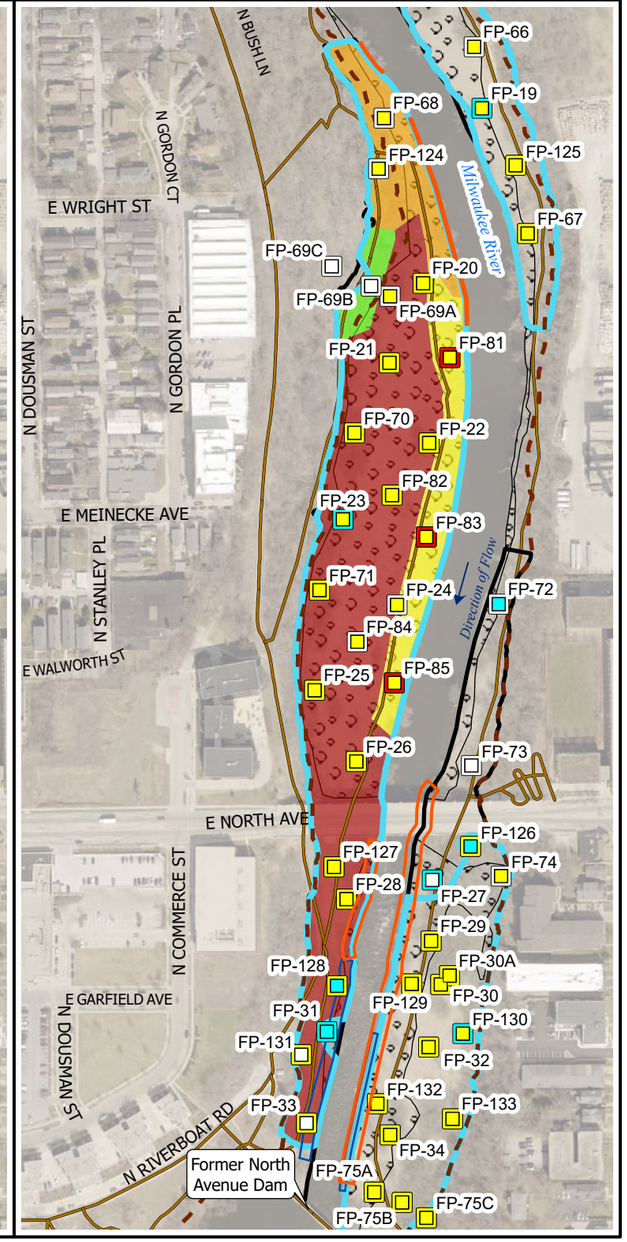
Alternative 2



Alternative 3a



Alternative 4



LEGEND

Surface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Subsurface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Map Features
- Trail
- Approximate Former Impoundment Extent
- Remediation Target Area
- Floodplain Area Boundary
- Delineated Wetlands
- Articulated Concrete Mat
- Gabion
- 4 Excavation Depth (feet)
- Excavation Depth Boundary

Remedial Alternative Technologies
- Excavate and Backfill
- Existing Soil and Vegetative Cover
- Precision Excavation and Backfill
- Soil Cover
- No Action

N

0 325

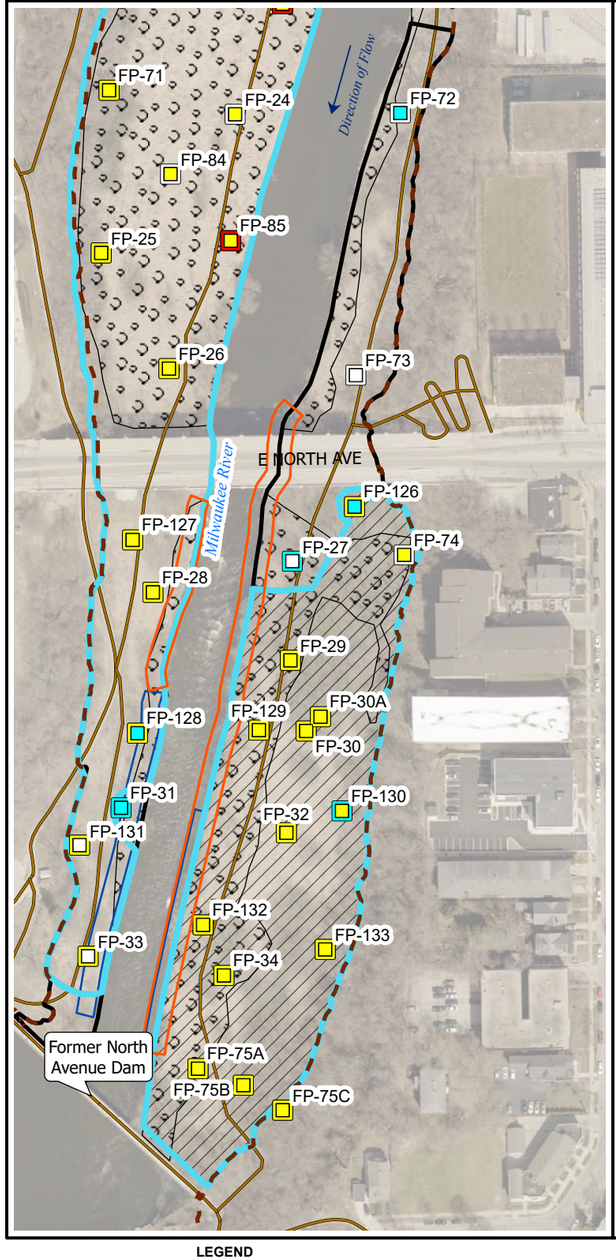
Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. HRUA = high recreational use area; ft = feet; PCB = polychlorinated biphenyl; mg/kg = milligrams per kilogram; RTA = Remediation Target Area; SS-RCL = site-specific residual contaminant level
3. Tier 1 PCB SS-RCL = 1.1 mg/kg
   Tier 2 PCB SS-RCL = 0.7 mg/kg (HRUAs only)
   PCB TSCA Low Occupancy threshold = 25 mg/kg
4. No marker is shown for locations without surface sample intervals and the underlying map color is shown.

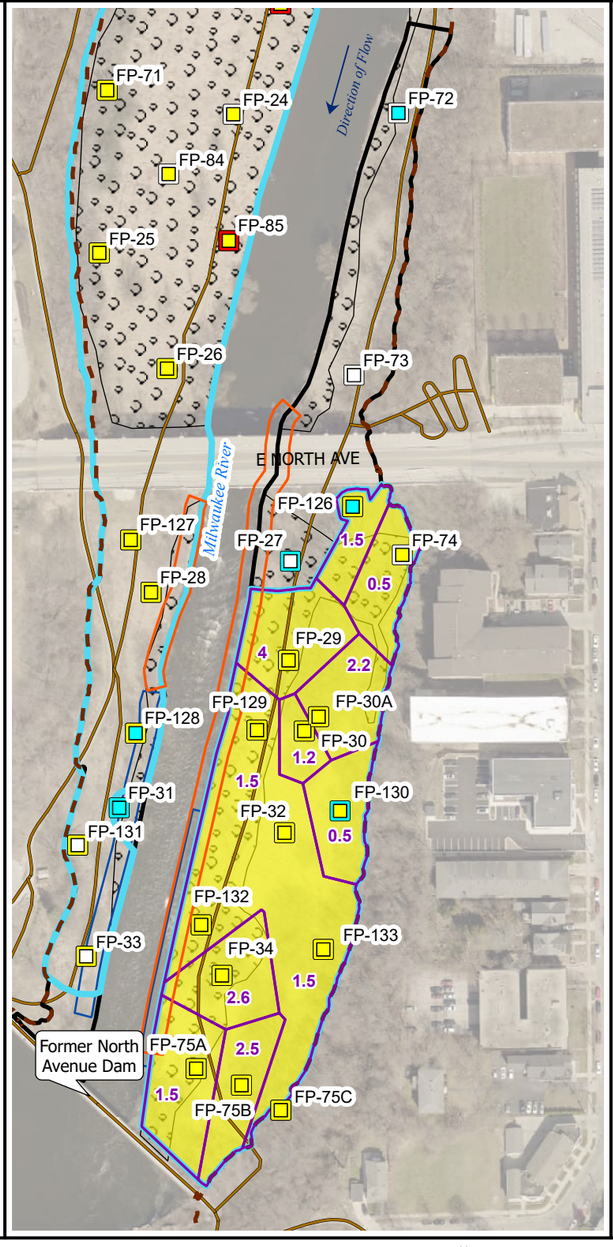
Figure 5-2H
Floodplain 8/9 Remedial Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

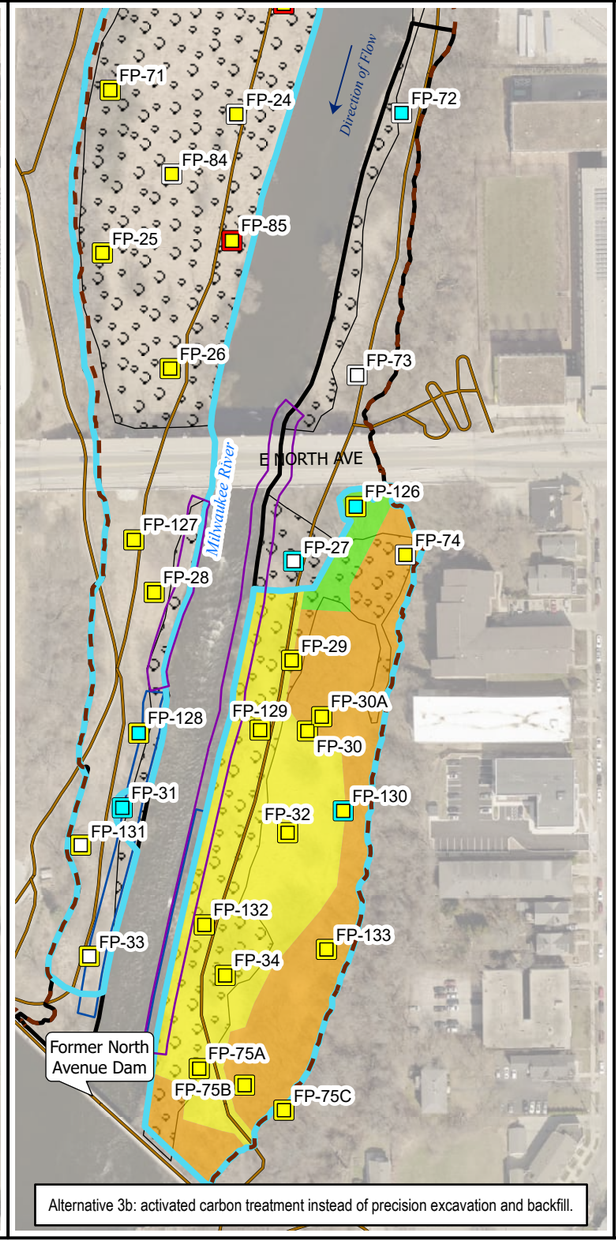
Alternative 1



Alternative 2

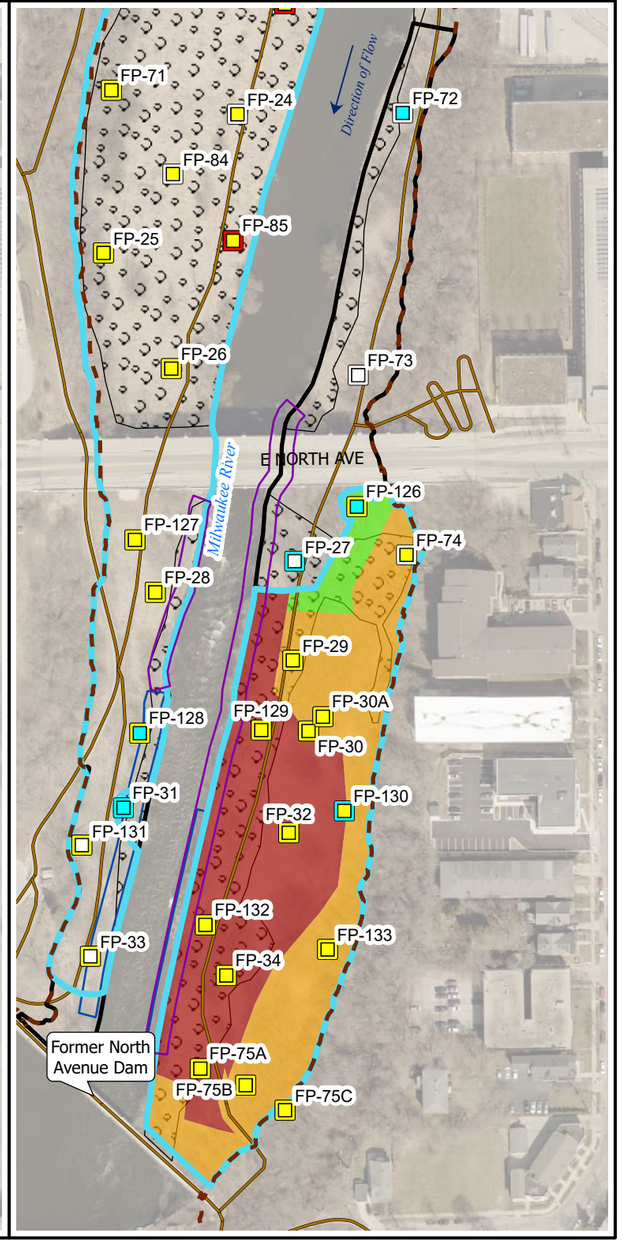


Alternative 3a



Alternative 3b: activated carbon treatment instead of precision excavation and backfill.

Alternative 4



LEGEND

Surface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Subsurface Soil
- PCB > 25 mg/kg
- PCB > 1.1 mg/kg
- PCB > 0.7 mg/kg
- PCB < 0.7 mg/kg

Map Features
- Trail
- Approximate Former Impoundment Extent
- Remediation Target Area
- Floodplain Area Boundary
- Delineated Wetlands
- Articulated Concrete Mat
- Gabion
- 4 Excavation Depth (feet)
- Excavation Depth Boundary

Remedial Alternative Technologies
- Excavate and Backfill
- Existing Soil and Vegetative Cover
- Precision Excavation and Backfill
- Soil Cover
- No Action

N

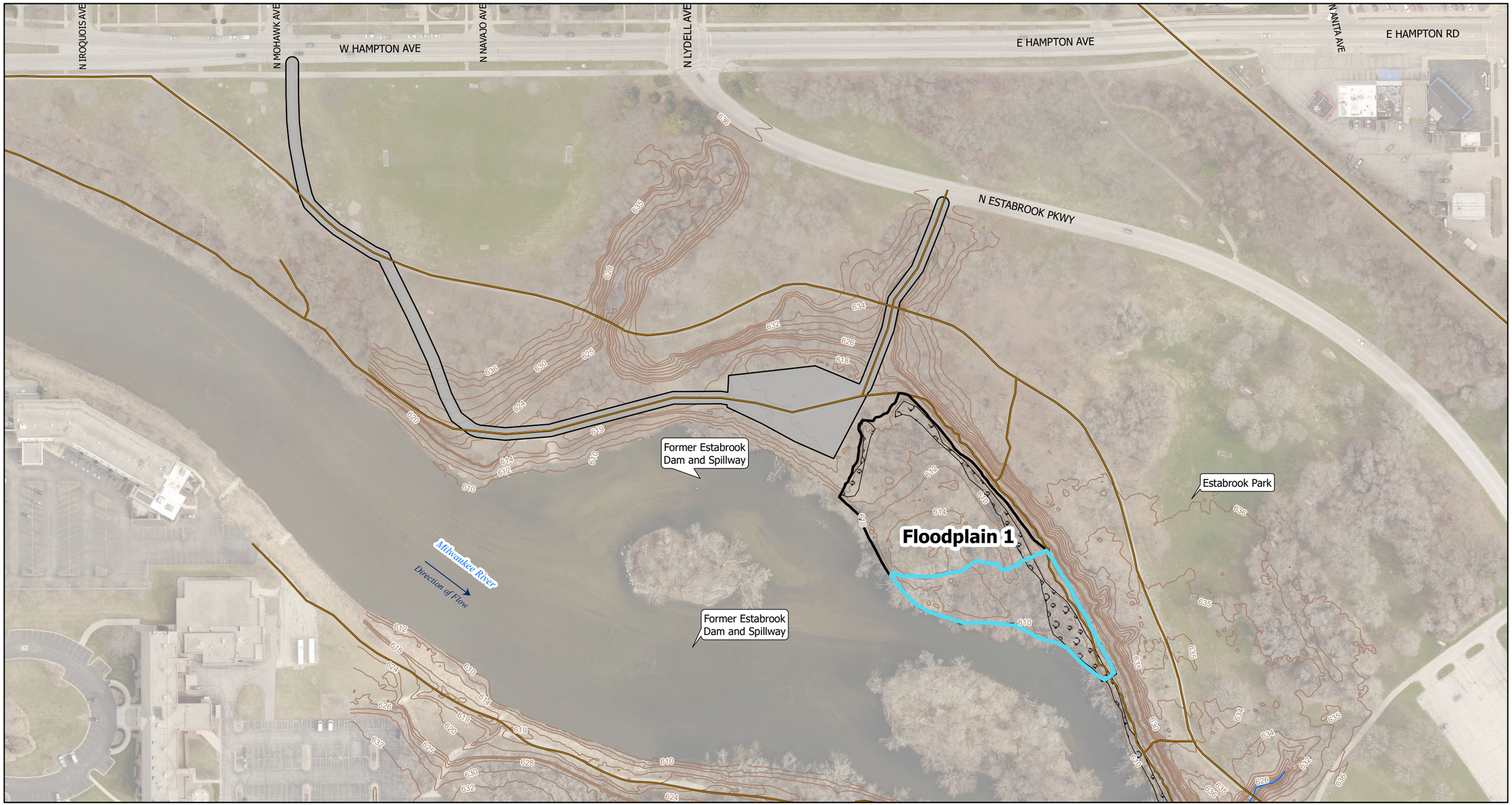
0 200

Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. HRUA = high recreational use area; ft = feet; PCB = polychlorinated biphenyl; mg/kg = milligrams per kilogram; RTA = Remediation Target Area; SS-RCL = site-specific residual contaminant level
3. Tier 1 PCB SS-RCL = 1.1 mg/kg
   Tier 2 PCB SS-RCL = 0.7 mg/kg (HRUAs only)
   PCB TSCA Low Occupancy threshold = 25 mg/kg
4. No marker is shown for locations without surface sample intervals and the underlying map color is shown.

Figure 5-2l
Floodplain 10 Remedial Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



LEGEND

- 2-foot Topographic Contour
- Existing Trail
- Delineated Stream
- Proposed Staging Area and Access Roads
- Delineated Wetlands
- Remediation Target Area
- Floodplain Area Boundary

N

0 75 150

Approximate scale in feet

Notes:
1. Proposed access roads and staging areas for floodplain areas 1 and 4 are only required for remedial alternative 2.
2. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
3. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988
4. ft = feet

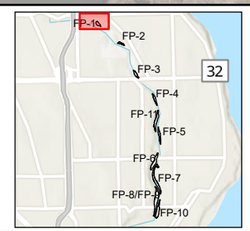
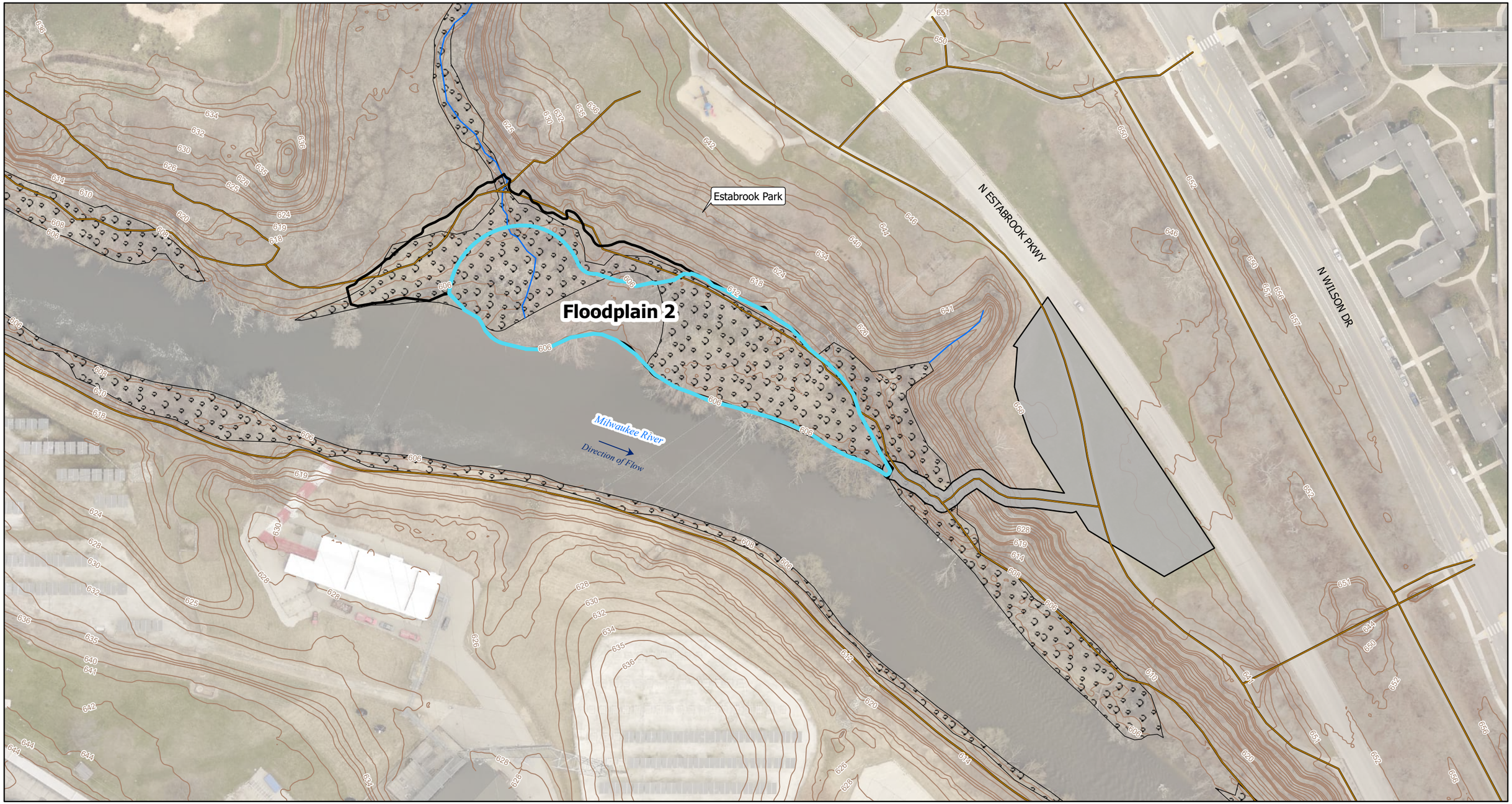


Figure 5-3A
Conceptual Staging Areas and Access Roads
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



LEGEND

- 2-foot Topographic Contour
- Existing Trail
- Delineated Stream
- Proposed Staging Area and Access Roads
- Delineated Wetlands
- Remediation Target Area
- Floodplain Area Boundary

N

0 50 100

Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988
3. ft = feet

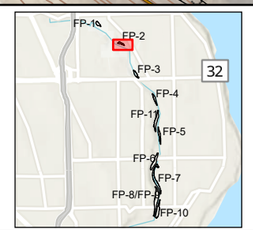
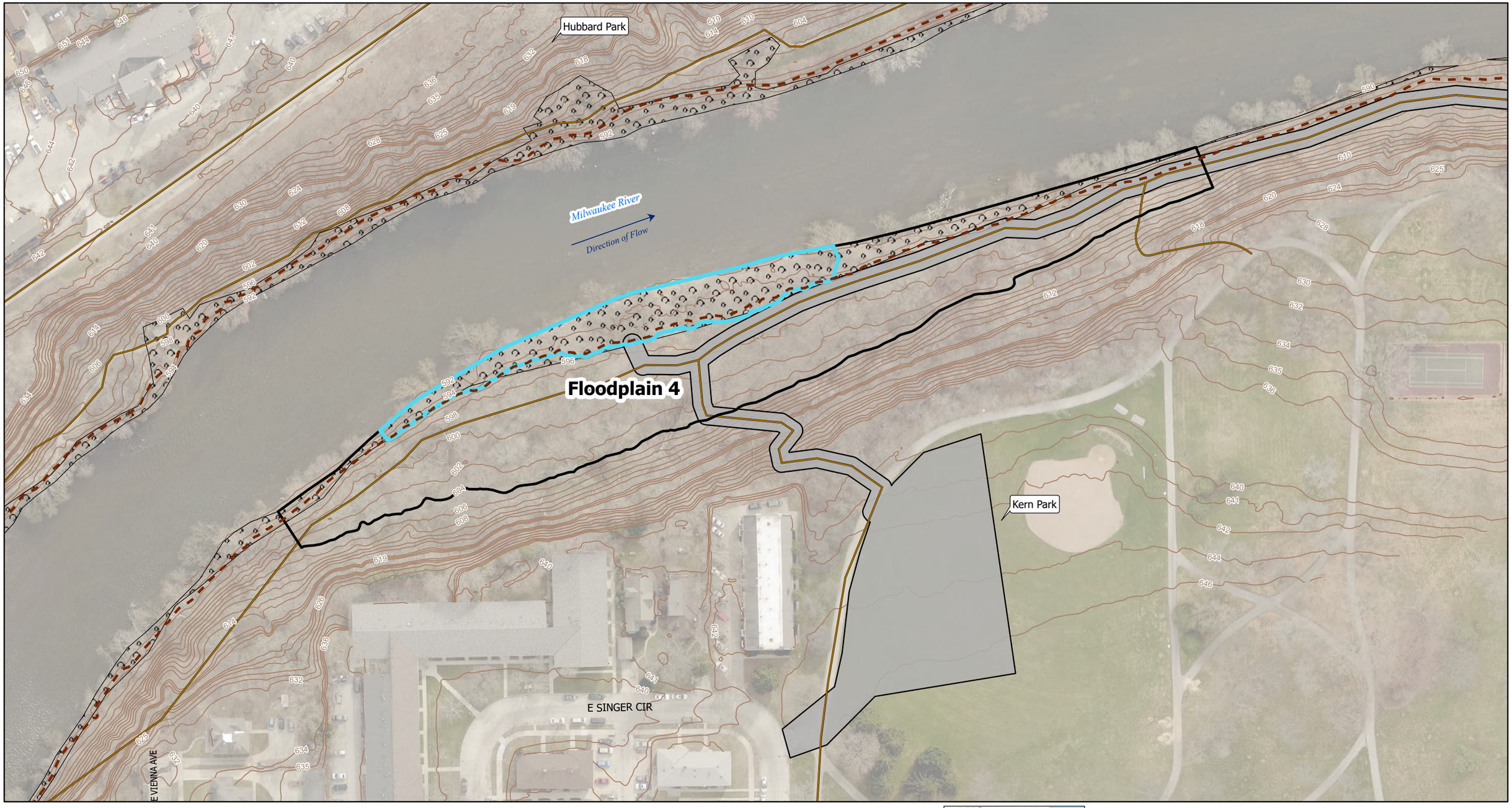


Figure 5-3B
Conceptual Staging Areas and Access Roads
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



LEGEND

- 2-foot Topographic Contour
- Existing Trail
- Approximate Former Impoundment Extent
- Proposed Staging Area and Access Roads
- Delineated Wetlands
- Remediation Target Area
- Floodplain Area Boundary

N

0 50 100

Approximate scale in feet

Notes:
1. Proposed access roads and staging areas for floodplain areas 1 and 4 are only required for remedial alternative 2.
2. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
3. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988
4. ft = feet

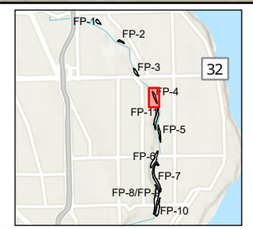
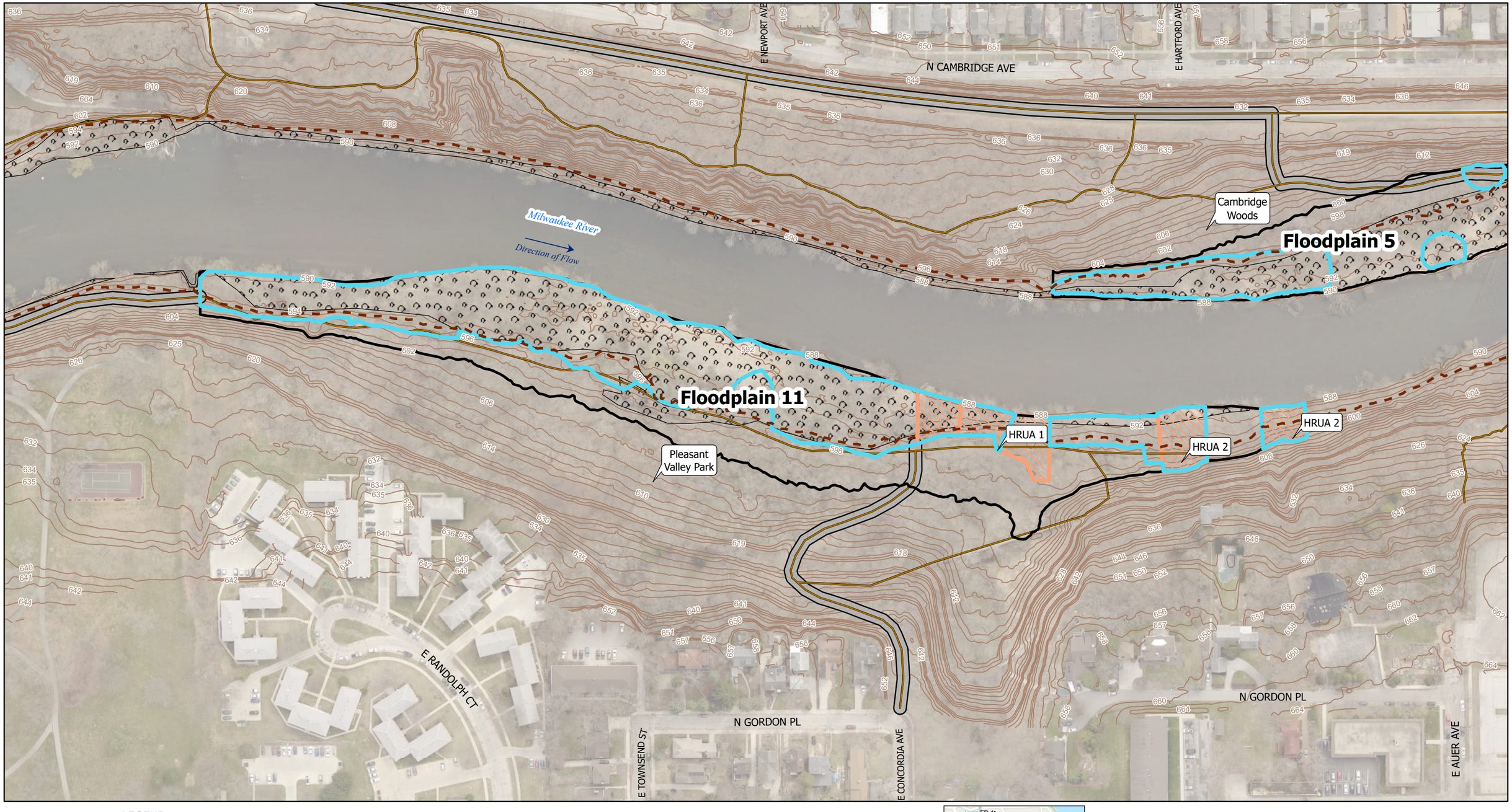


Figure 5-3C
Conceptual Staging Areas and Access Roads
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



LEGEND

- 2-foot Topographic Contour
- Existing Trail
- Approximate Former Impoundment Extent
- Proposed Staging Area and Access Roads
- HRUA
- Delineated Wetlands
- Remediation Target Area
- Floodplain Area Boundary

N

0 75 150

Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988
3. ft = feet; HRUA = high recreational use area

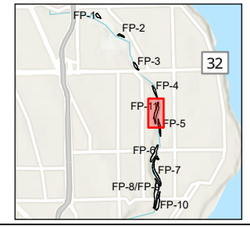
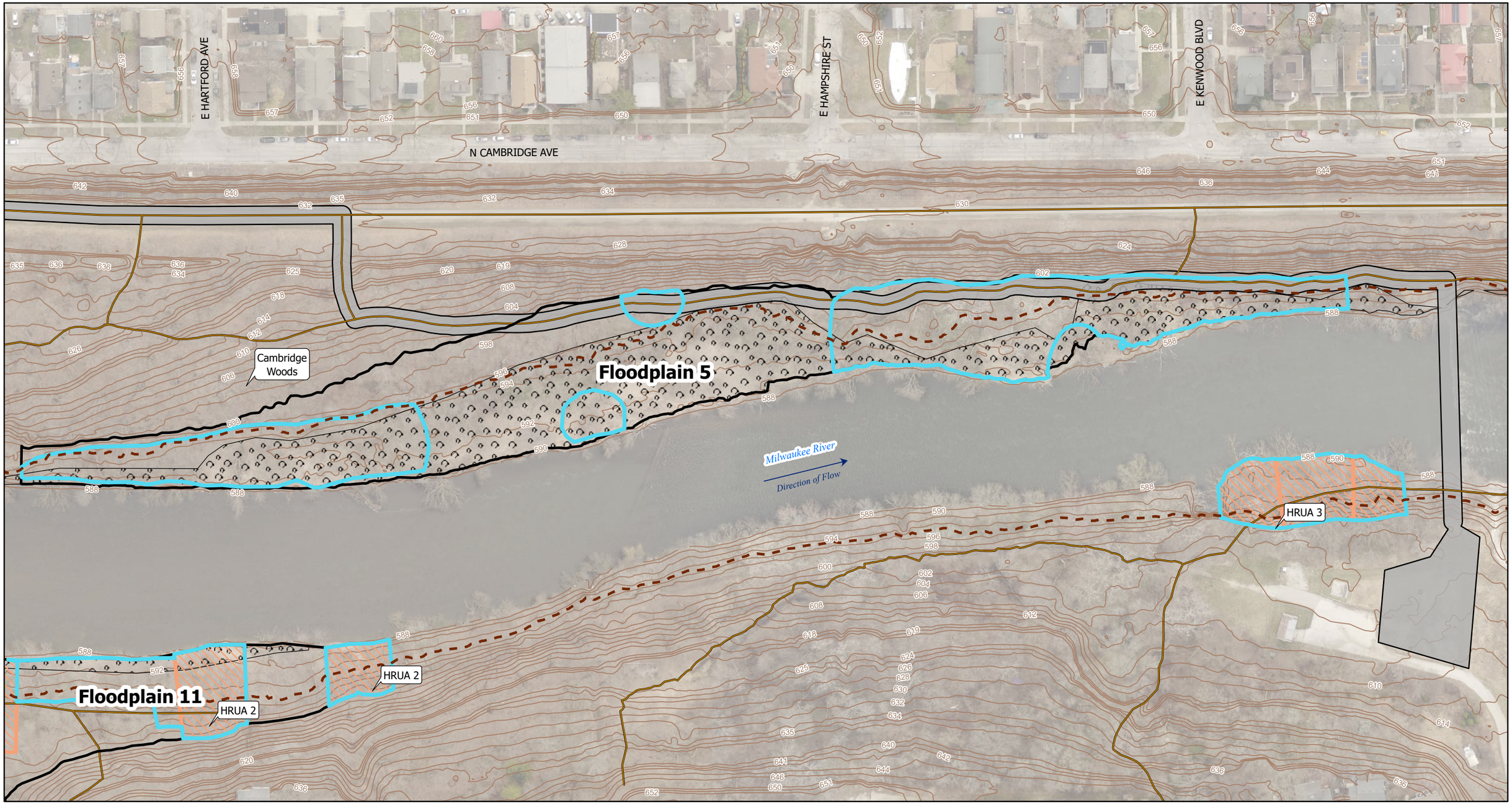


Figure 5-3D
Conceptual Staging Areas and Access Roads
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



LEGEND

- 2-foot Topographic Contour
- Existing Trail
- Approximate Former Impoundment Extent
- Proposed Staging Area and Access Roads
- HRUA
- Delineated Wetlands
- Remediation Target Area
- Floodplain Area Boundary

N

0 50 100

Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988
3. ft = feet; HRUA = high recreational use area

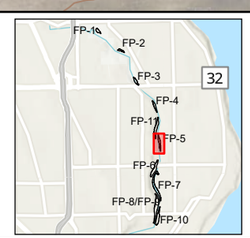
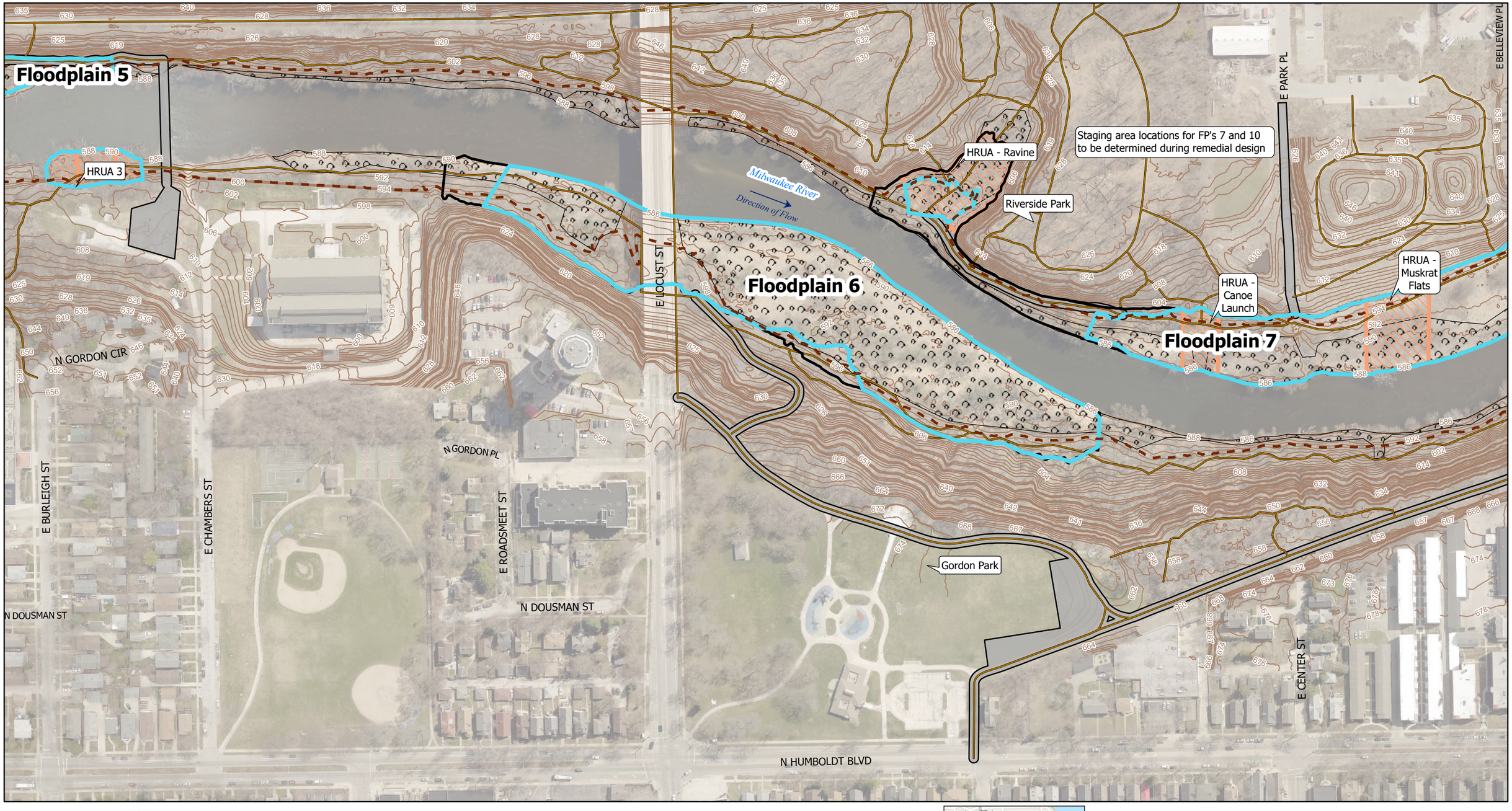


Figure 5-3E
Conceptual Staging Areas and Access Roads
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



LEGEND

- 2-foot Topographic Contour
- Existing Trail
- Approximate Former Impoundment Extent
- Proposed Staging Area and Access Roads
- HRUA
- Delineated Wetlands
- Remediation Target Area
- Floodplain Area Boundary

0 100 200
Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988
3. ft = feet; HRUA = high recreational use area

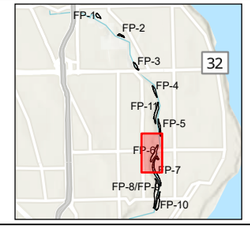
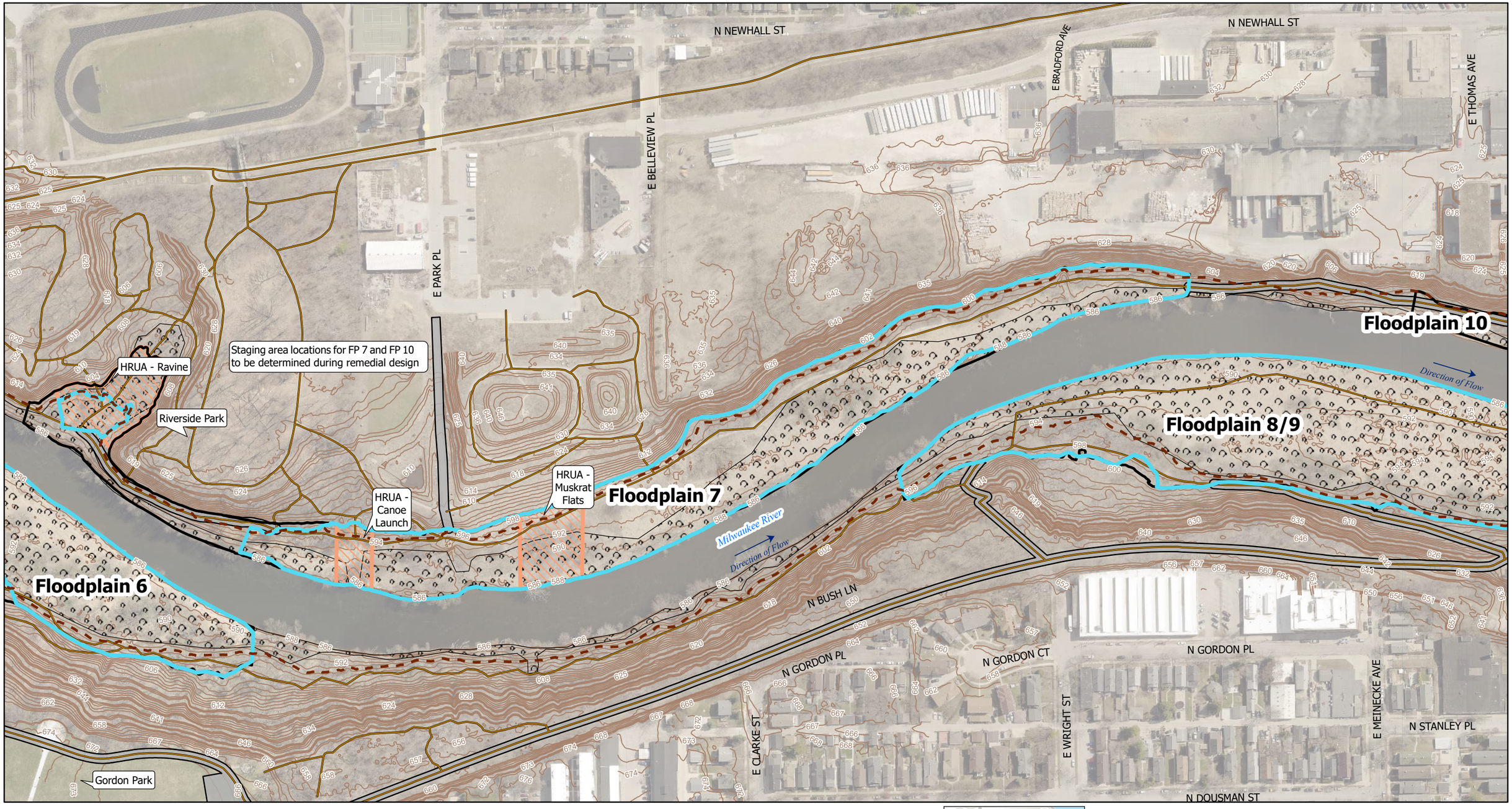


Figure 5-3F
Conceptual Staging Areas and Access Roads
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



LEGEND

- 2-foot Topographic Contour
- Existing Trail
- Approximate Former Impoundment Extent
- Proposed Staging Area and Access Roads
- HRUA
- Delineated Wetlands
- Remediation Target Area
- Floodplain Area Boundary

N

0 100 200

Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988
3. ft = feet; HRUA = high recreational use area
4. Staging area locations for FP's 7 and 10 to be determined during remedial design.

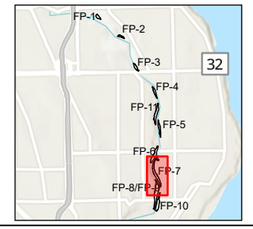
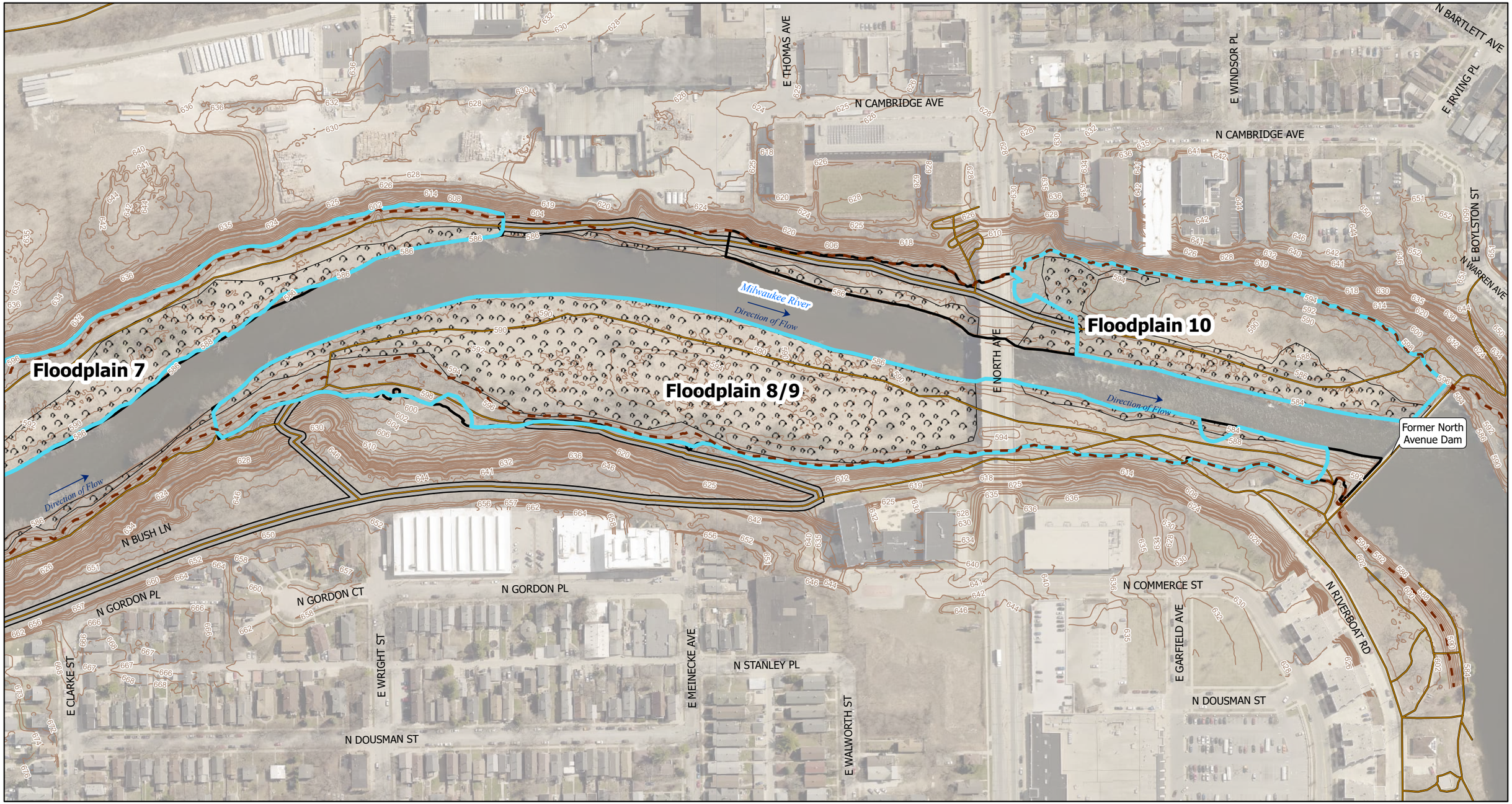


Figure 5-3G
Conceptual Staging Areas and Access Roads
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



LEGEND

- 2-foot Topographic Contour
- Existing Trail
- Approximate Former Impoundment Extent
- Proposed Staging Area and Access Roads
- Delineated Wetlands
- Remediation Target Area
- Floodplain Area Boundary

0 100 200
Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988
3. ft = feet

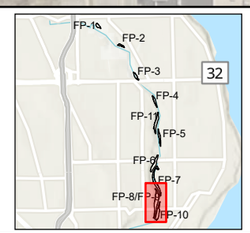
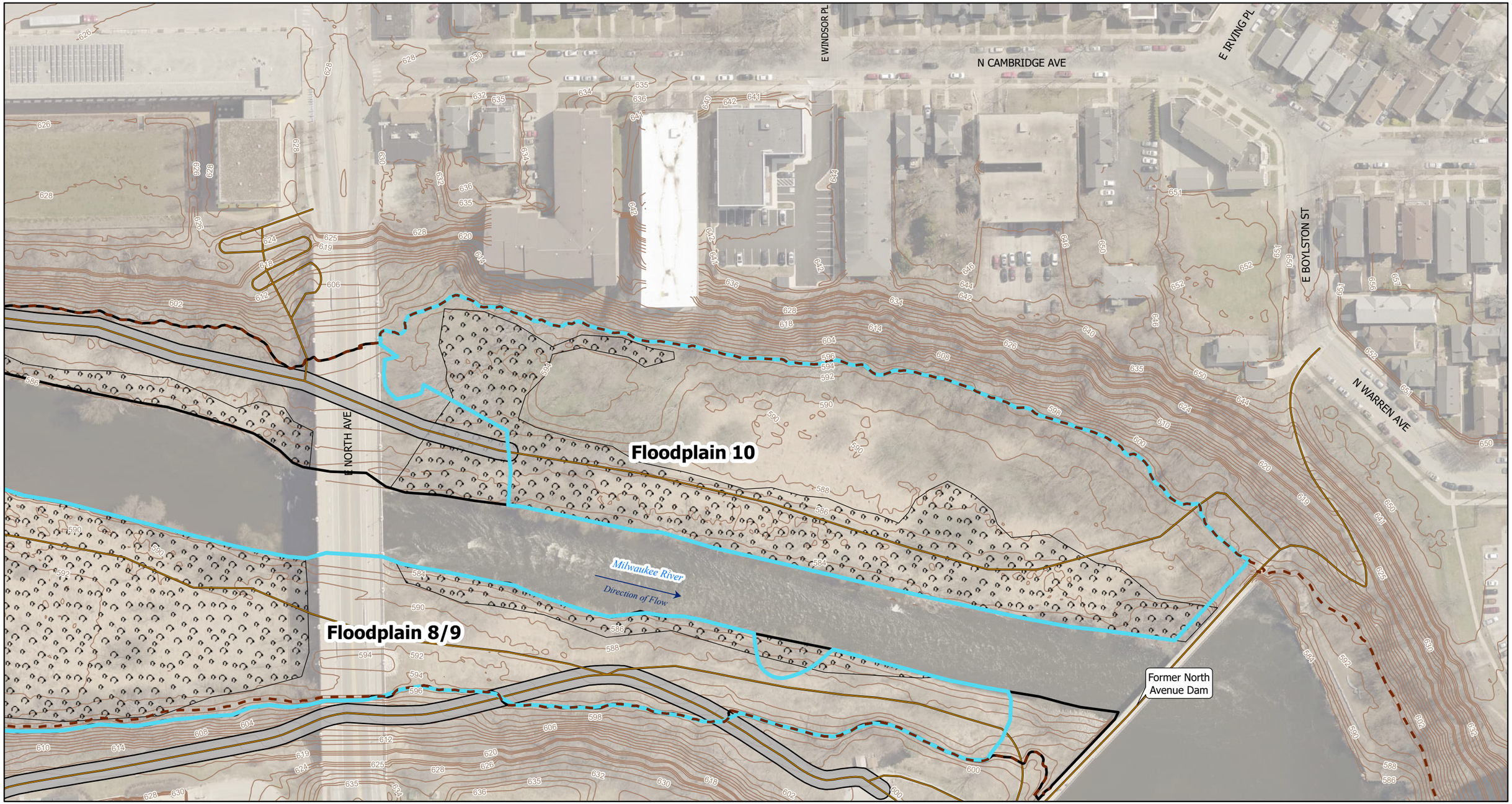


Figure 5-3H
Conceptual Staging Areas and Access Roads
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



LEGEND

- 2-foot Topographic Contour
- Existing Trail
- Approximate Former Impoundment Extent
- Proposed Staging Area and Access Roads
- Delineated Wetlands
- Remediation Target Area
- Floodplain Area Boundary

N

0 50 100

Approximate scale in feet

Notes:
1. 2020 Aerial Photography provided by The Milwaukee County Land Information Office (MCLIO).
2. Horizontal Datum: North American Datum 1983 (NAD83); Vertical Datum: North American Vertical Datum of 1988
3. ft = feet

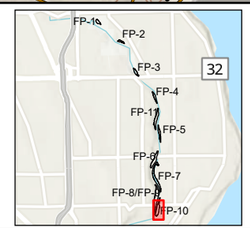
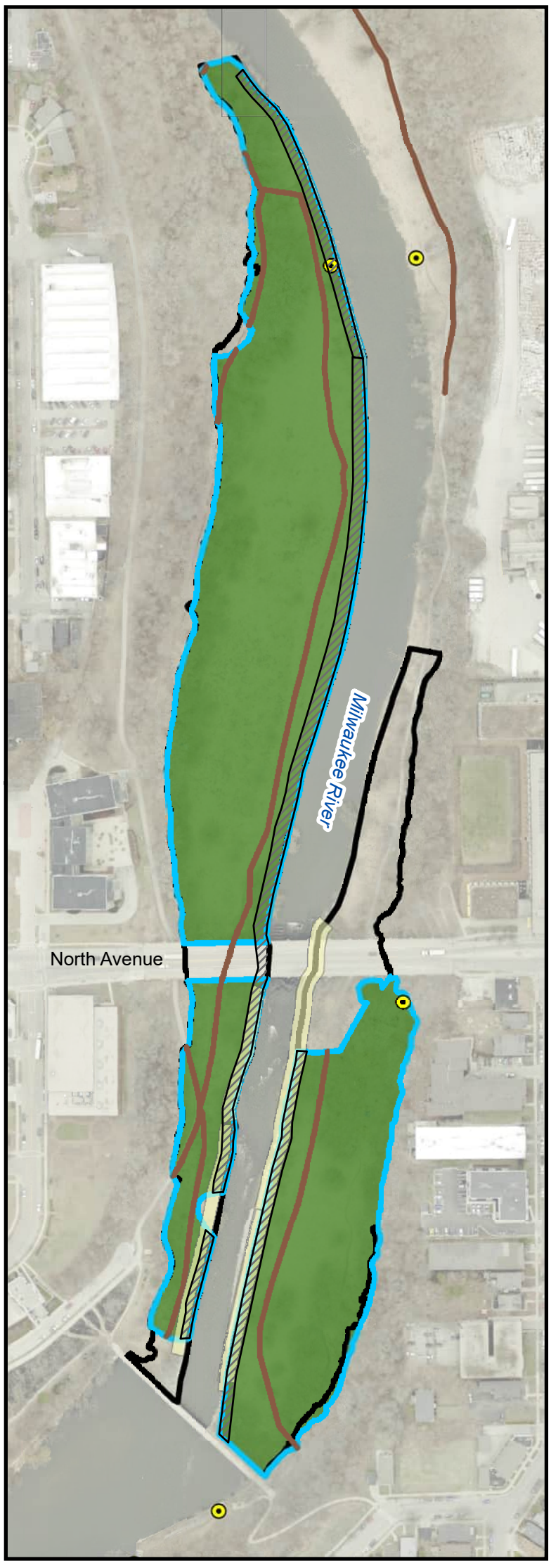


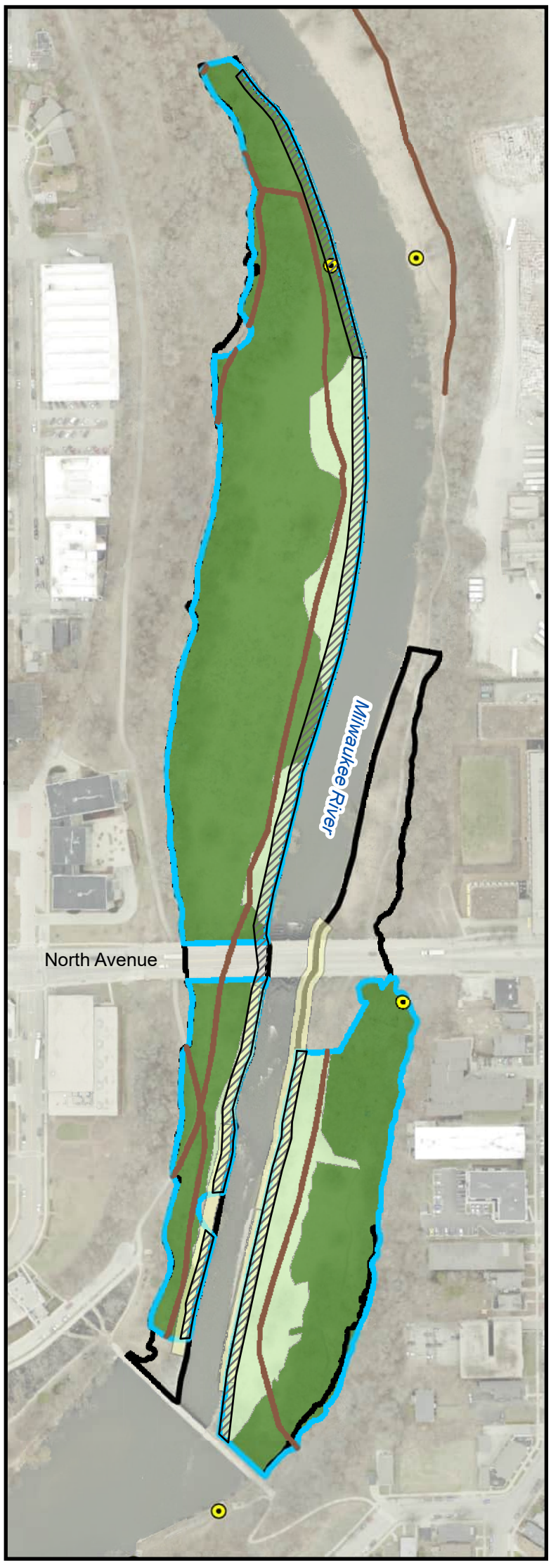
Figure 5-3I
Conceptual Staging Areas and Access Roads
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

Restoration Alternative 2-1



Restoration Alternative 2-2



Trail
Outfalls
ACM & Gabions
Floodplain Area Boundary
Remediation Target Area

Restoration

No restoration
Selective backfill and vegetate
Maintain resulting grade and vegetate
Seeding
Topsoil and vegetate
Streambank Restoration

Floodplains 8/9 and 10 Restoration Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

N

0 100 200
Feet

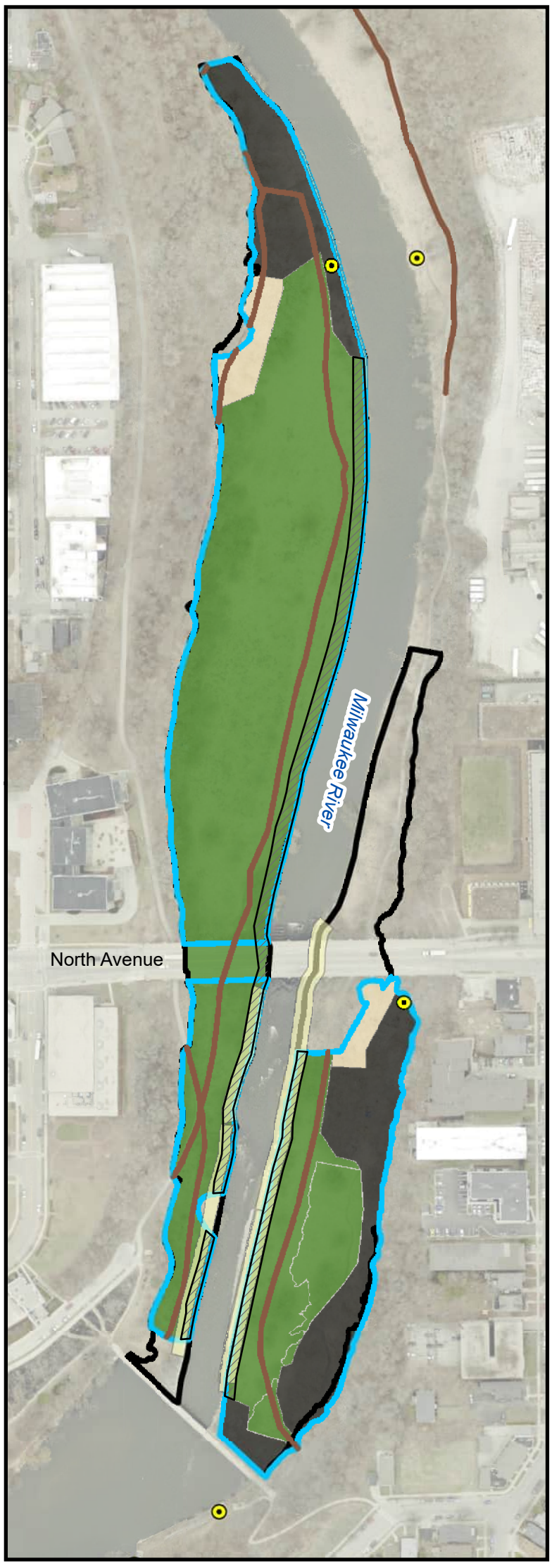
Base Layer:

Figure 6-1A
Floodplains 8/9 & 10
Restoration Alternatives

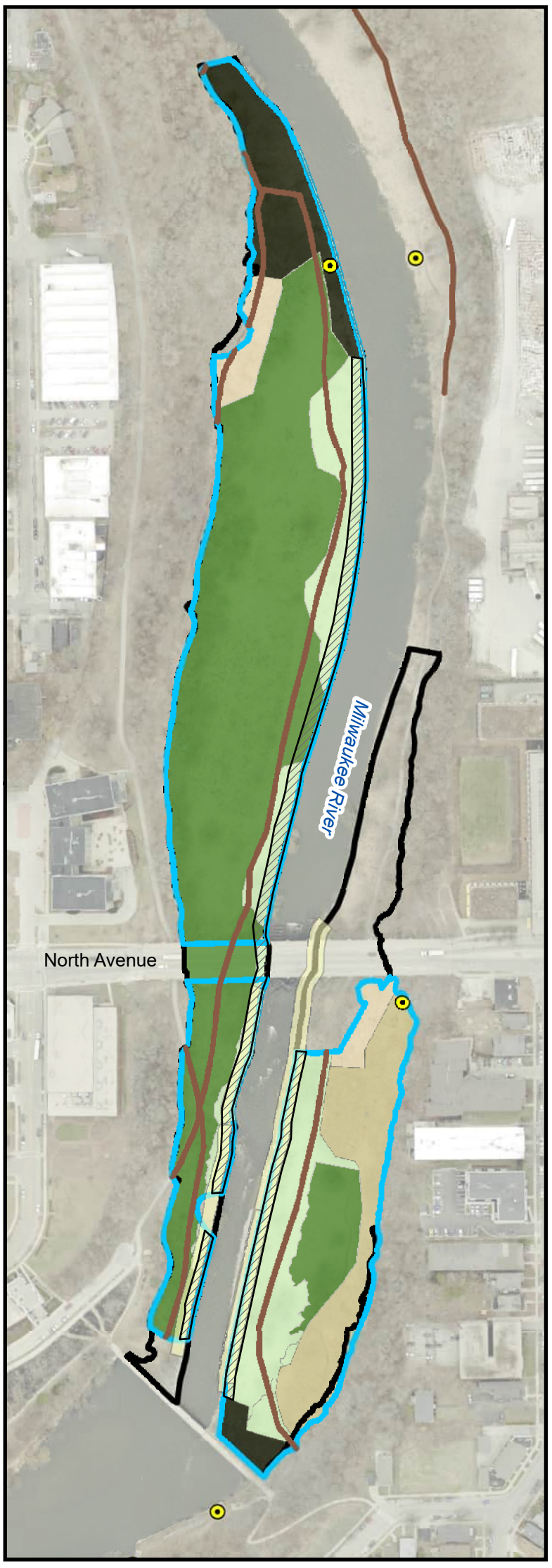
Date: 6/2/2023

ECT

Restoration Alternative 3a-1



Restoration Alternative 3a-2



- Trail
- ACM & Gabions
- Outfalls
- Floodplain Area Boundary
- Remediation Target Area

Restoration

- No restoration
- Selective backfill and vegetate
- Maintain resulting grade and vegetate
- Seeding
- Topsoil and vegetate
- Topsoil and vegetate
- Streambank Restoration

Floodplains 8/9 and 10 Restoration Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

N

0 100 200

Feet

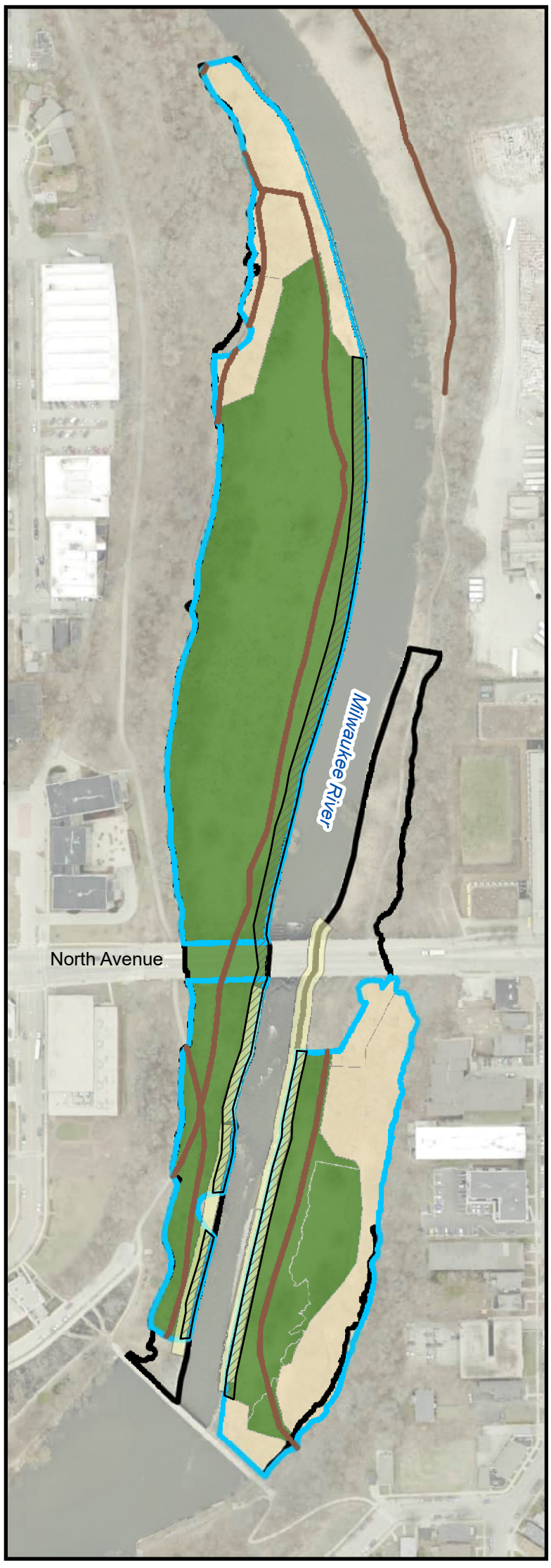
Base Layer:

Figure 6-1B
Floodplains 8/9 & 10
Restoration Alternatives

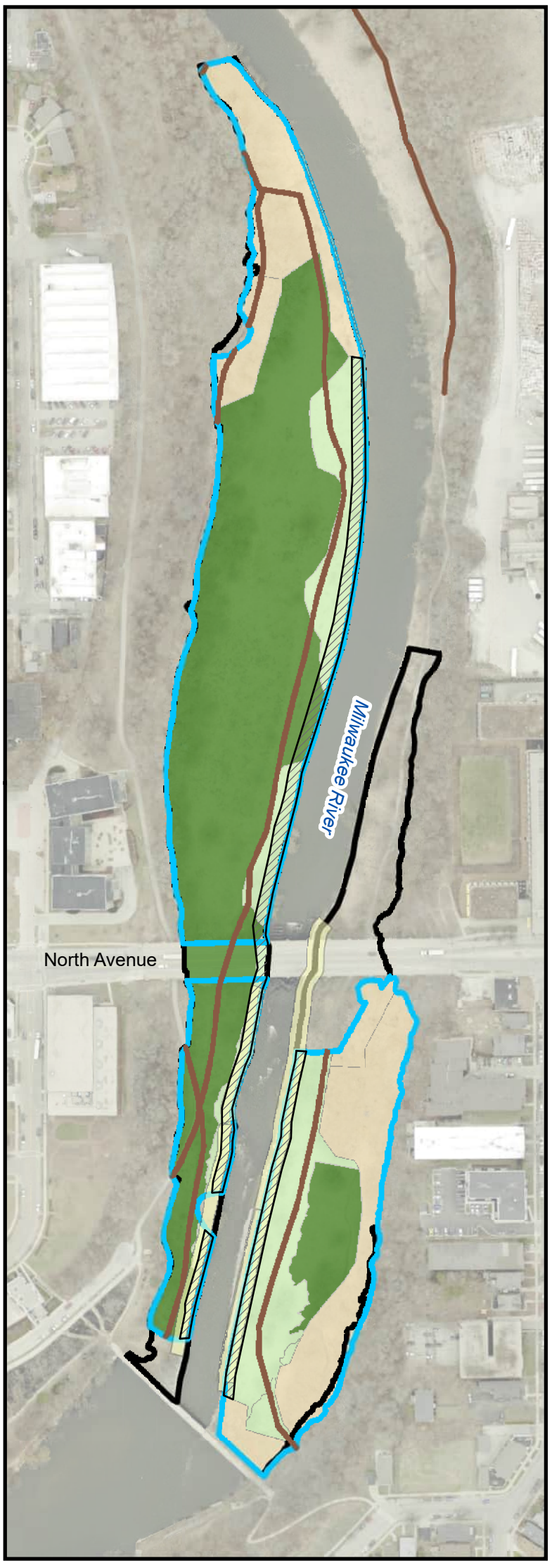
Date: 5/10/2023

ECT

Restoration Alternative 3b-1



Restoration Alternative 3b-2



Trail
ACM & Gabions
Outfalls
Floodplain Area Boundary
Remediation Target Area

Restoration

No restoration
Selective backfill and vegetate
Maintain resulting grade and vegetate
Seeding
Topsoil and vegetate
Streambank Restoration

Floodplains 8/9 and 10 Restoration Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

N

0 100 200
Feet

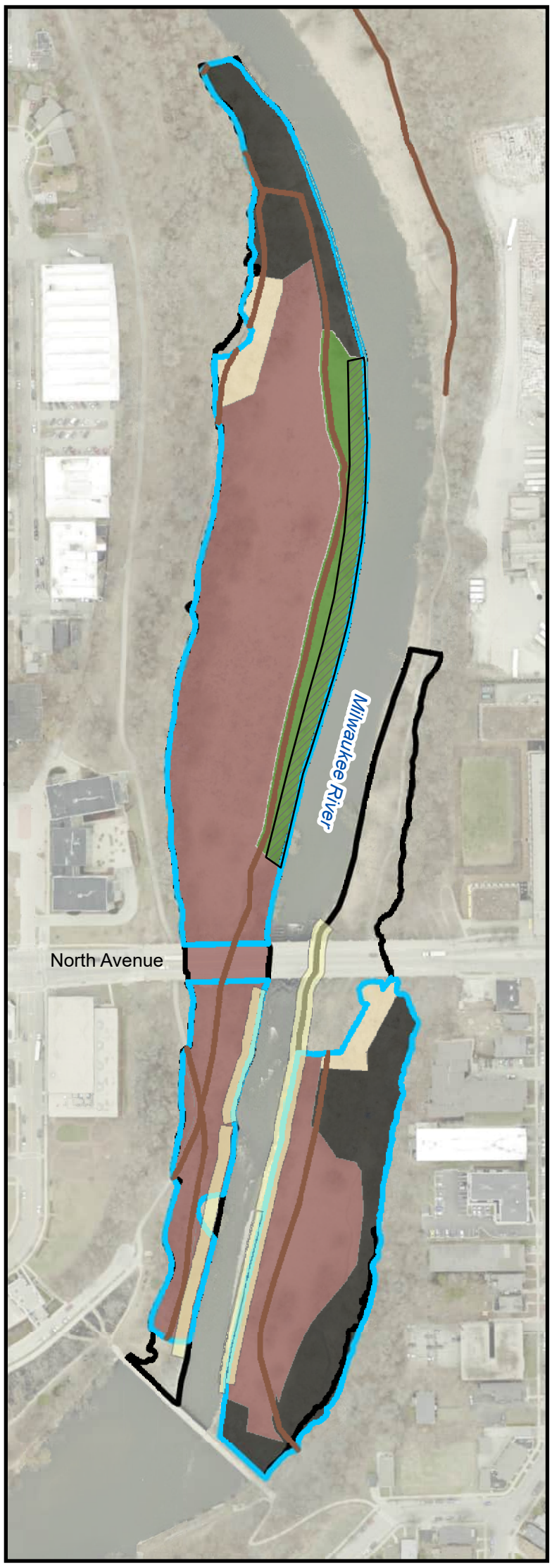
Base Layer:

Figure 6-1C
Floodplains 8/9 & 10
Restoration Alternatives

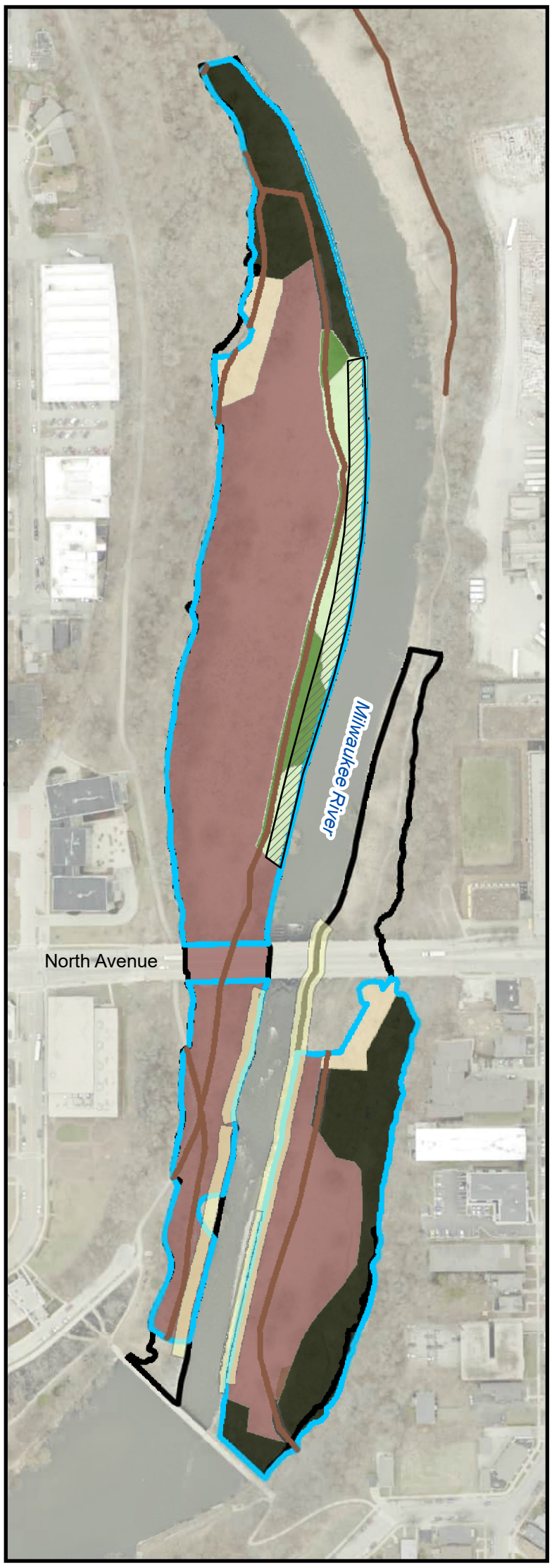
Date: 5/10/2023

ECT

Restoration Alternative 4-1



Restoration Alternative 4-2



Trail
ACM & Gabions
Outfalls
Floodplain Area Boundary
Remediation Target Area

Restoration

No restoration
Selective backfill and vegetate
Maintain resulting grade and vegetate
Seeding
Topsoil and vegetate
Streambank Restoration

Floodplains 8/9 and 10 Restoration Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

N

0 100 200
Feet

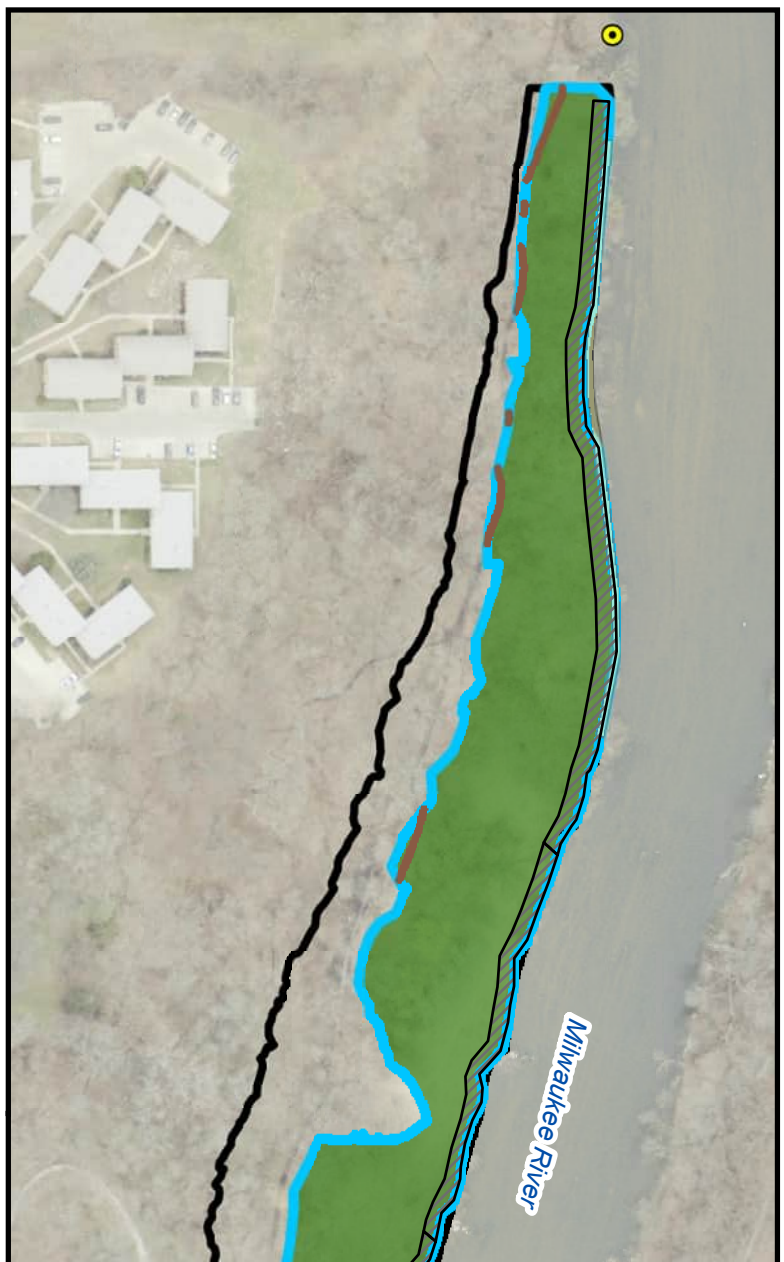
Base Layer:

Figure 6-1D
Floodplains 8/9 & 10
Restoration Alternatives

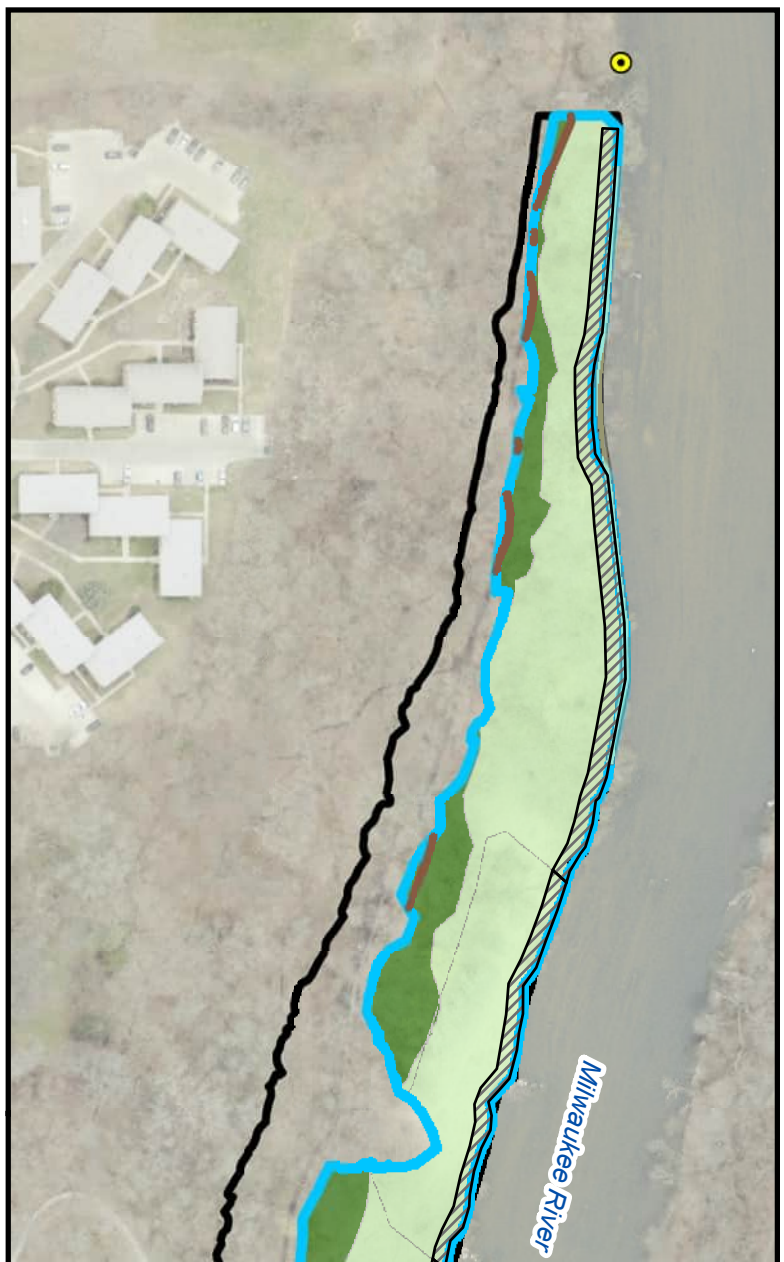
Date: 5/10/2023

ECT

Restoration Alternative 2-1



Restoration Alternative 2-2



Trail
Outfalls
ACM & Gabions
Remediation Target Area
Floodplain Area Boundary

Restoration

No restoration
Selective backfill and vegetate
Maintain resulting grade and vegetate
Seeding
Topsoil and vegetate
Streambank Restoration

Floodplains 11 Restoration Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

N

0 100 200

Feet

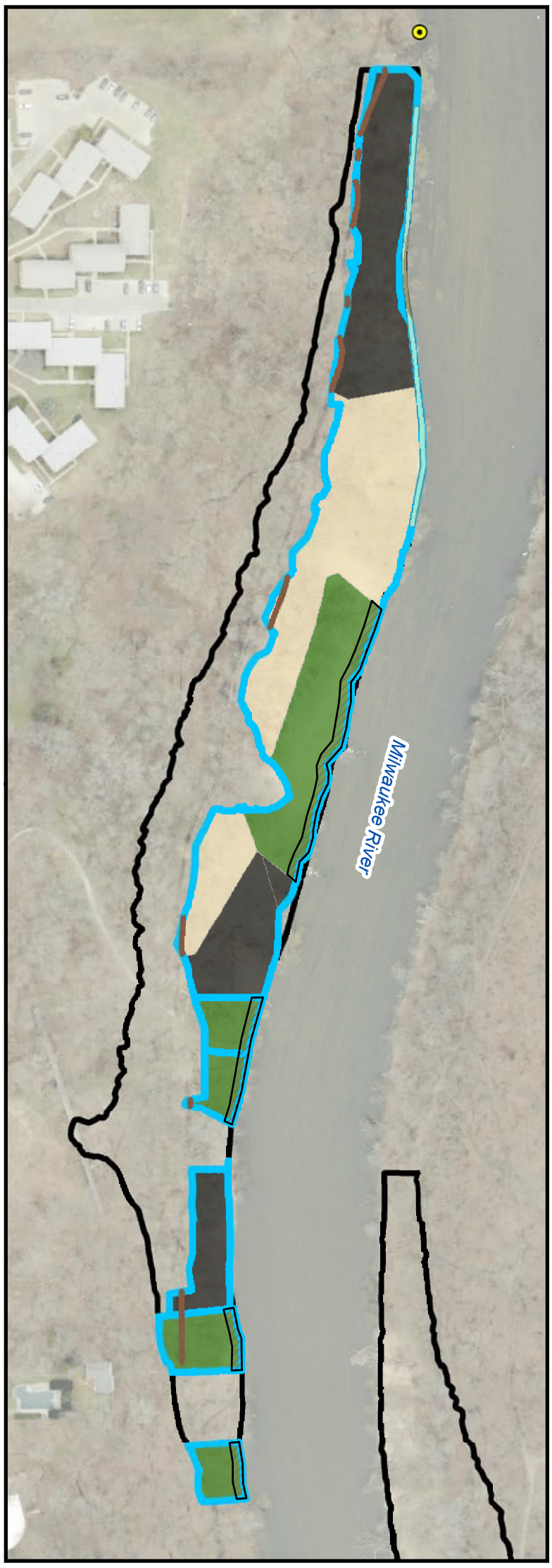
Base Layer:

Figure 6-1E
Floodplains 11
Restoration Alternatives

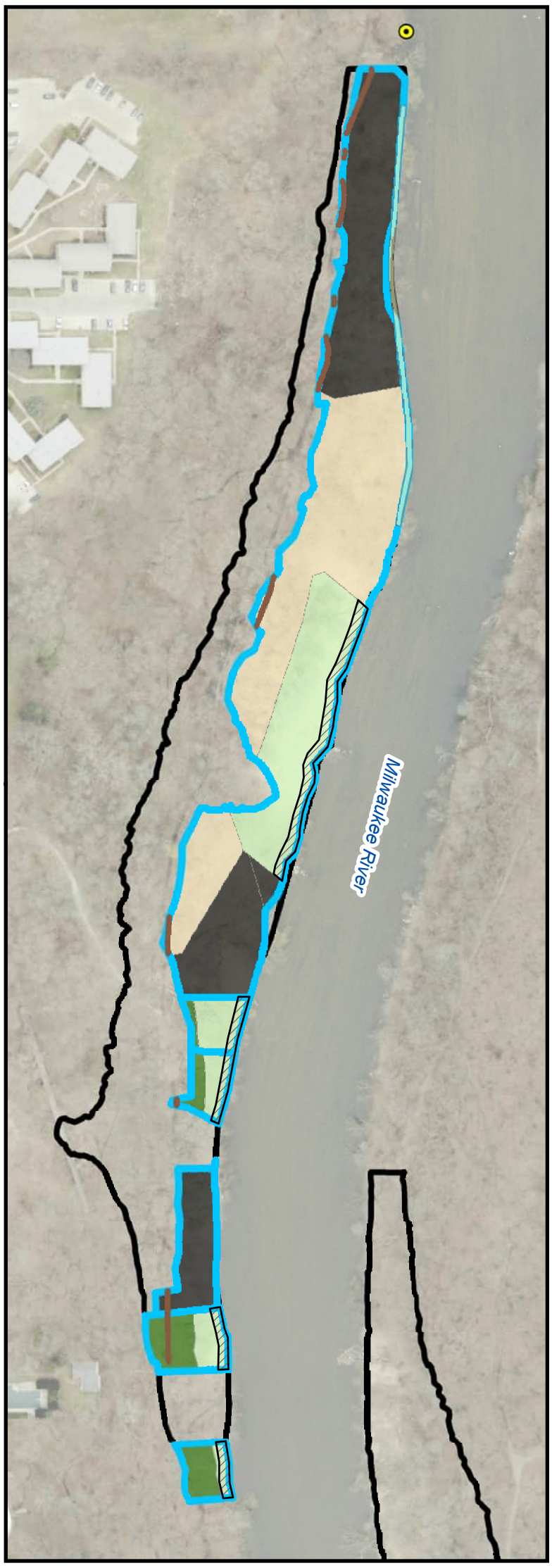
Date: 5/10/2023

ECT

Restoration Alternative 3a-1



Restoration Alternative 3a-2



Remediation Target Area
FloodplainBoundaries
Trail
ACM & Gabions
Outfalls

Restoration

No restoration
Selective backfill and vegetate
Maintain resulting grade and vegetate
Seeding
Topsoil and vegetate
Streambank Restoration

Floodplain 11 Restoration Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

N

0 100 200

Feet

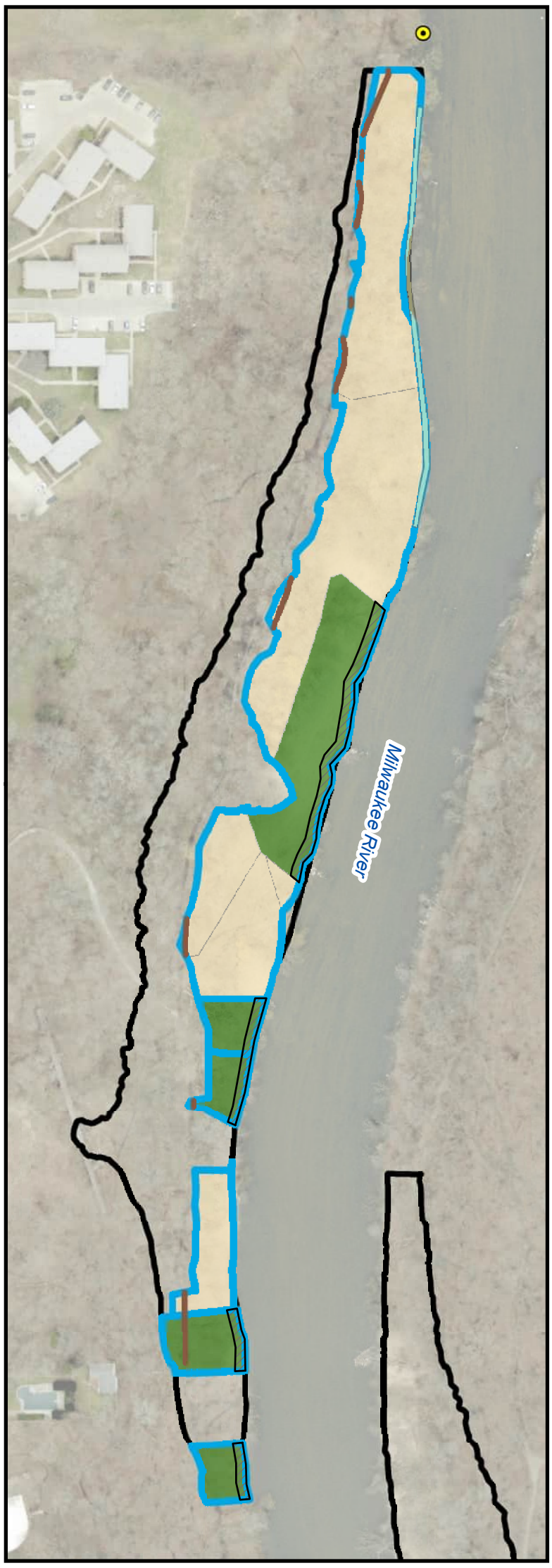
Base Layer:

Figure 6-1F
Floodplains 11
Restoration Alternatives

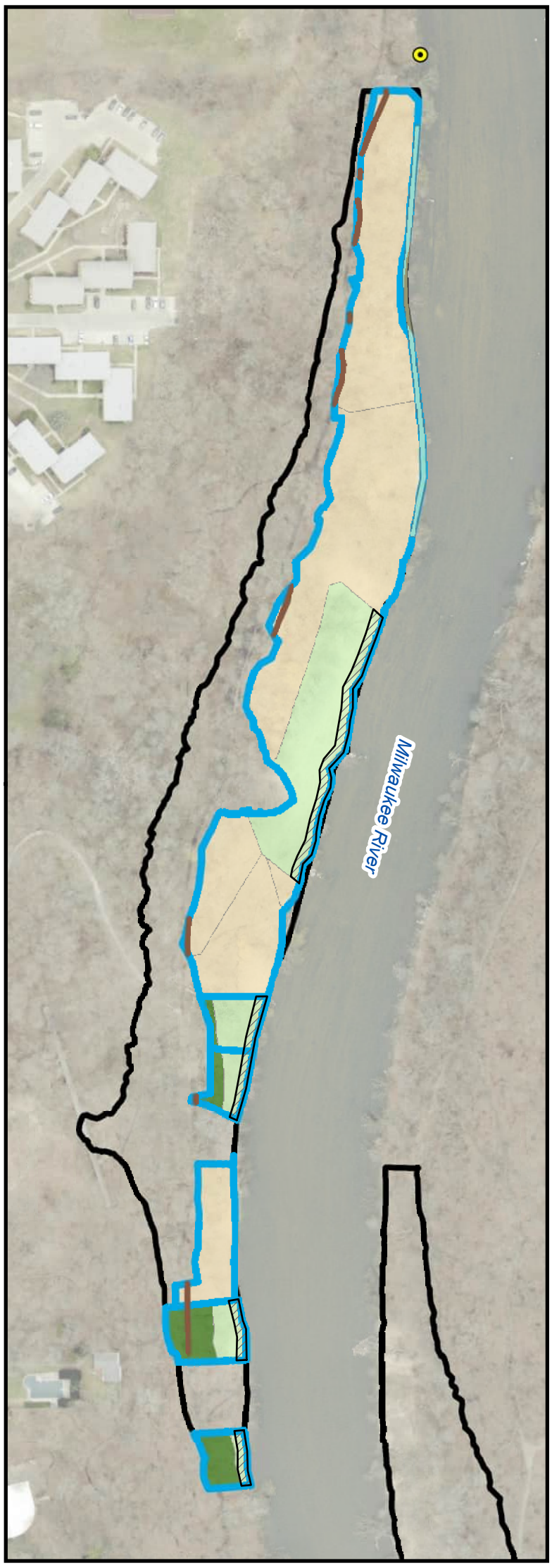
Date: 5/10/2023

ECT

Restoration Alternative 3b-1



Restoration Alternative 3b-2



Trail
ACM & Gabions
Outfalls
Remediation Target Area
Floodplain Area Boundary

Restoration

No restoration
Selective backfill and vegetate
Maintain resulting grade and vegetate
Seeding
Topsoil and vegetate
Streambank Restoration

Floodplain 11 Restoration Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

N

0 100 200

Feet

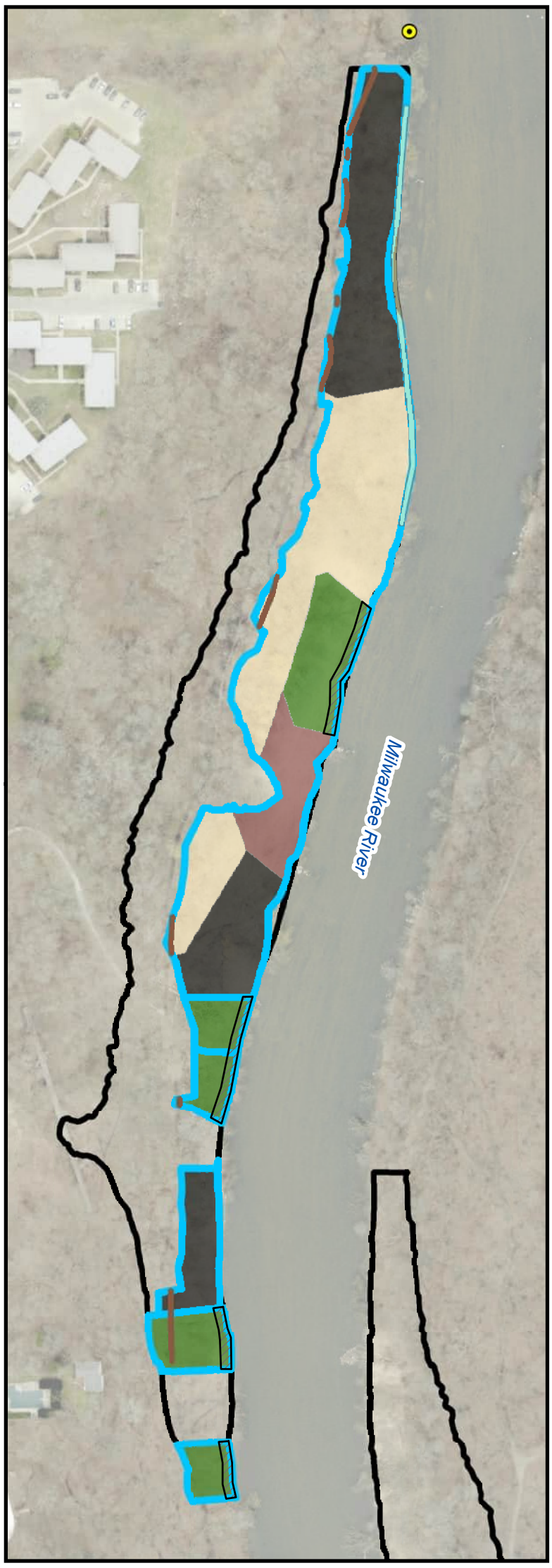
Base Layer:

Figure 6-1G
Floodplain 11
Restoration Alternatives

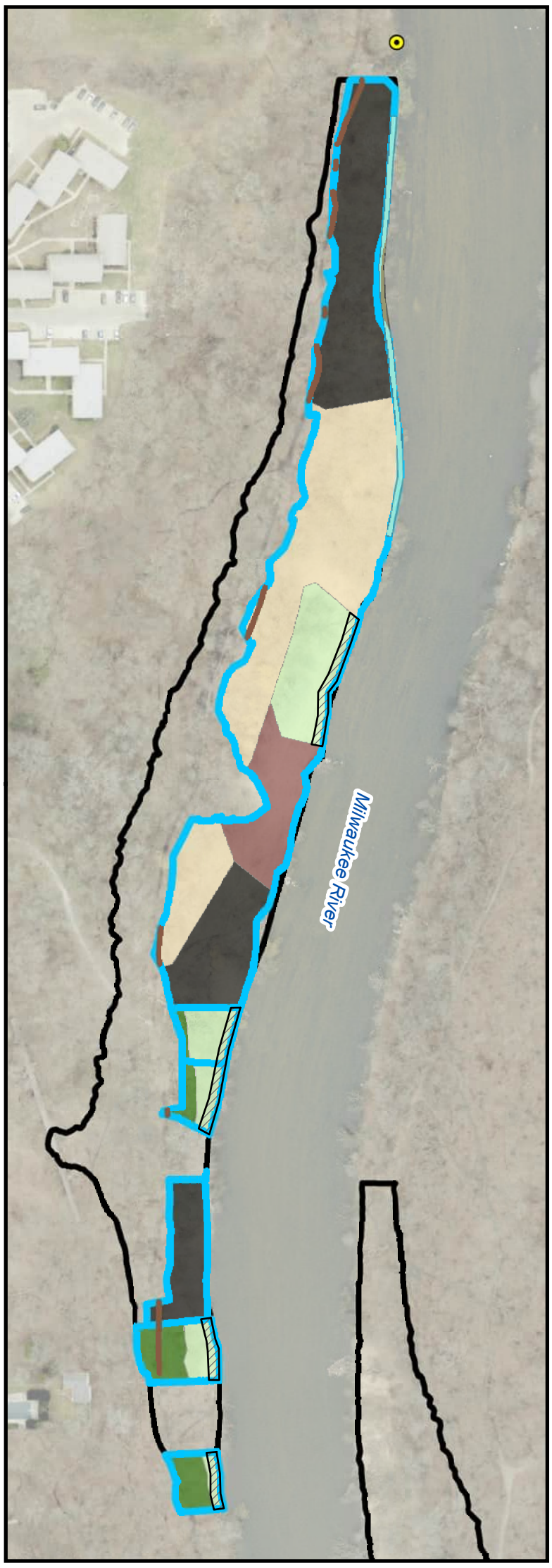
Date: 5/10/2023

ECT

Restoration Alternative 4-1



Restoration Alternative 4-2



Trail
ACM & Gabions
Outfalls
Remediation Target Area
Floodplain Area Boundary

Restoration

No restoration
Selective backfill and vegetate
Maintain resulting grade and vegetate
Seeding
Topsoil and vegetate
Streambank Restoration

Floodplains 11 Restoration Alternatives
Floodplains Reach
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

N

0 100 200

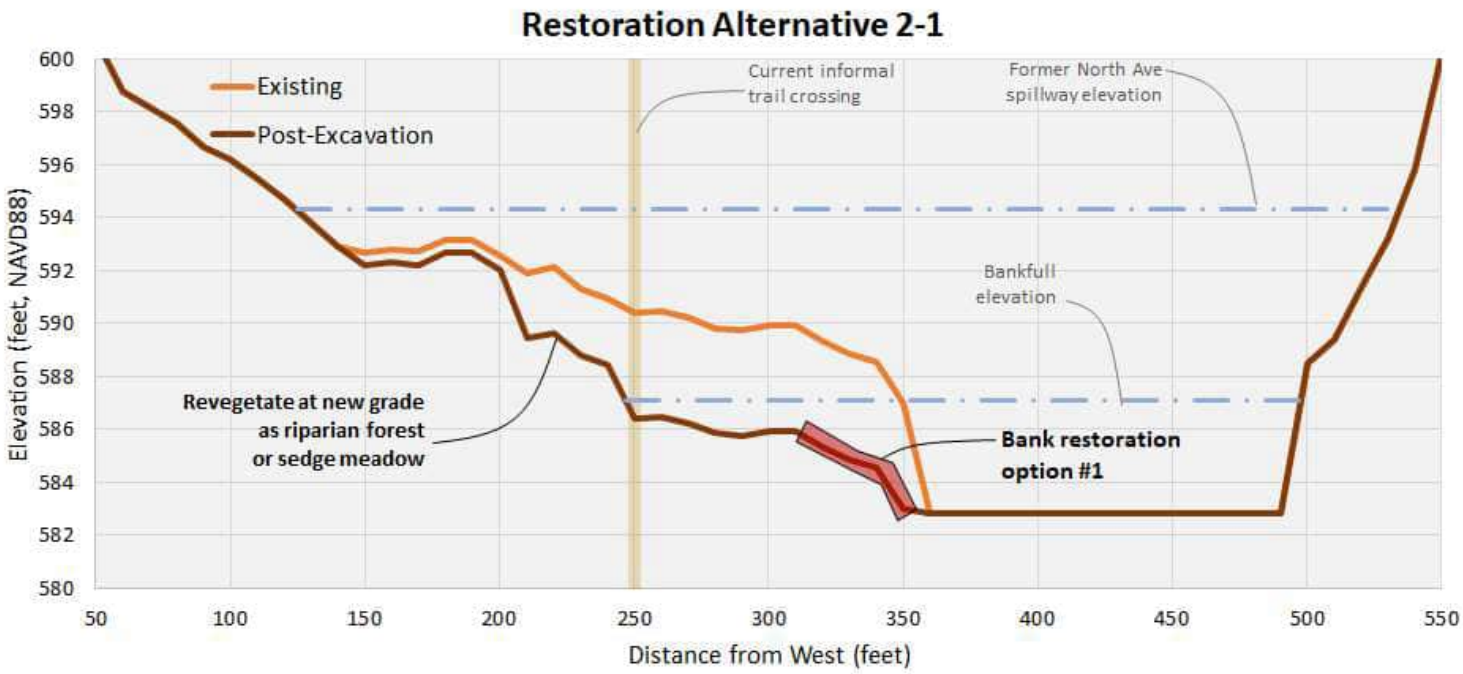
Feet

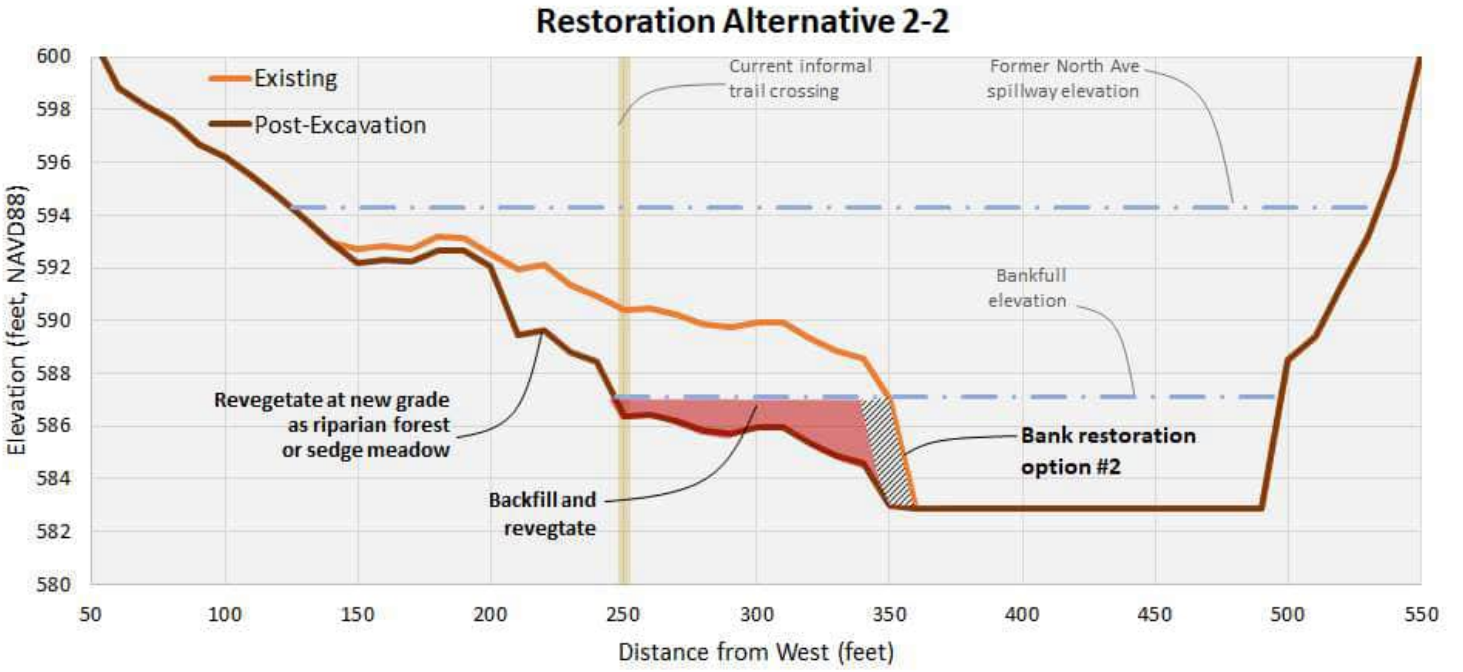
Base Layer:

Figure 6-1H
Floodplain 11
Restoration Alternatives

Date: 5/10/2023

ECT



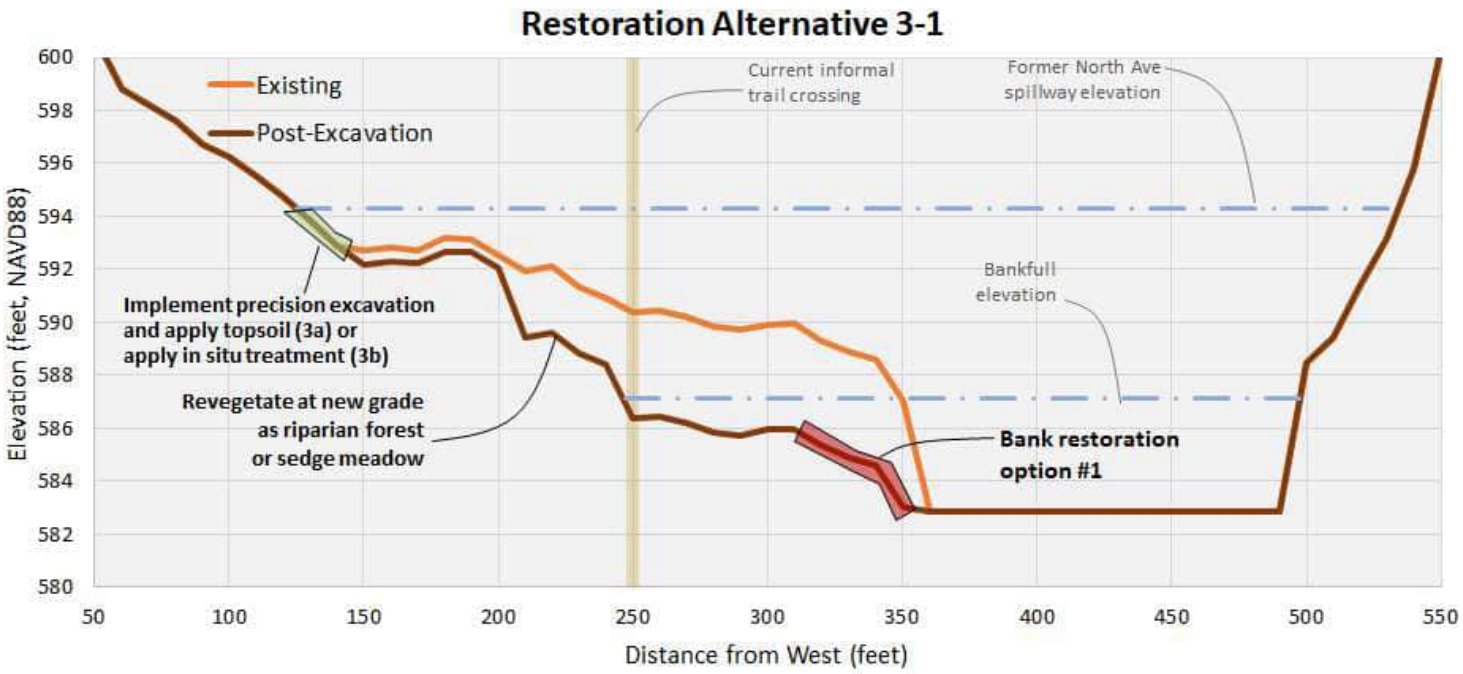


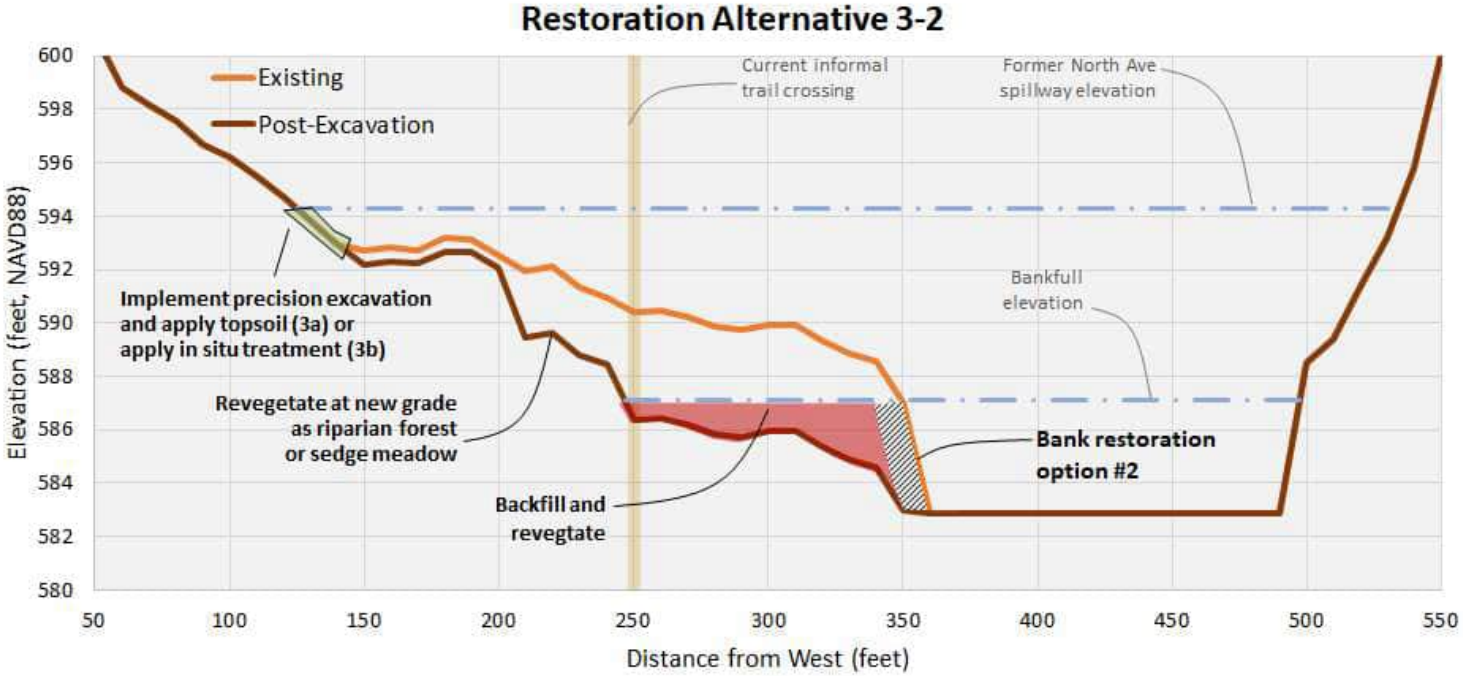
Notes:
NAVD88 = North American Vertical Datum 1988

Figures prepared by ECT

Figure 6-2A
Floodplain 8/9 Conceptual Cross-section View of Restoration Alternatives 2-1 and 2-2
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



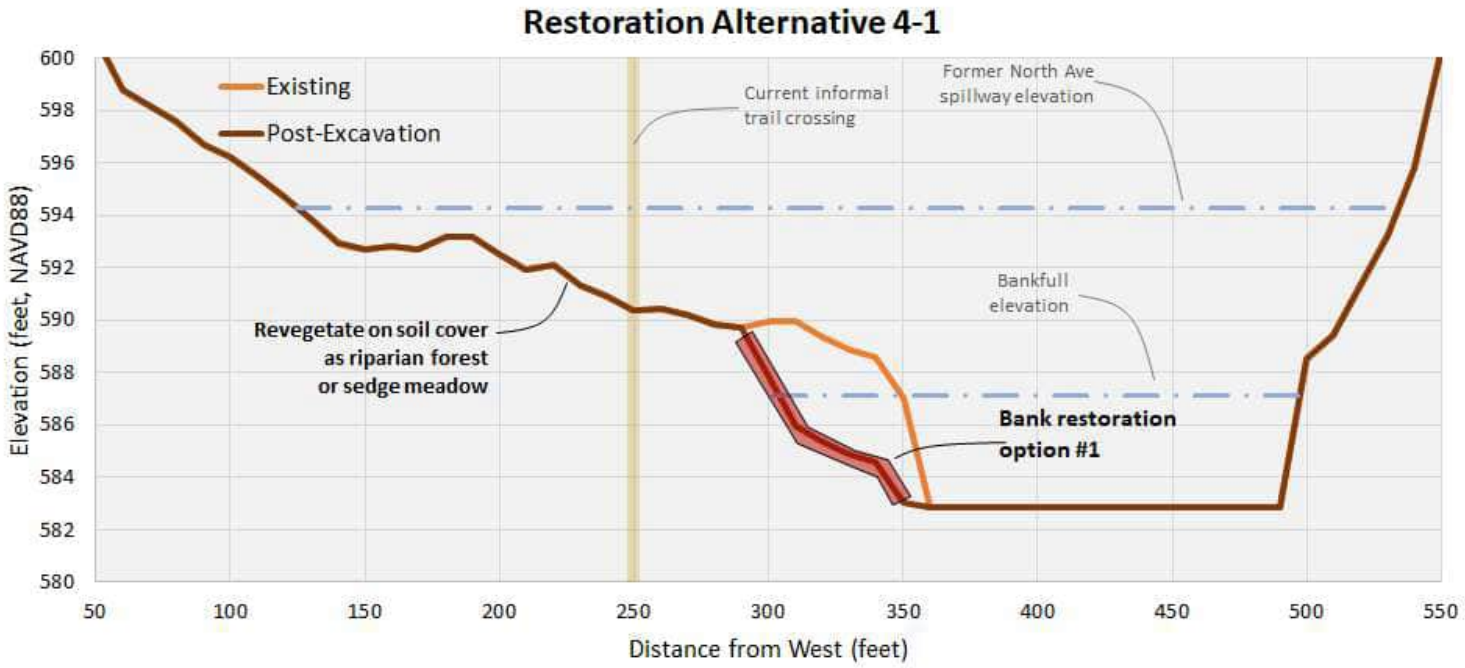


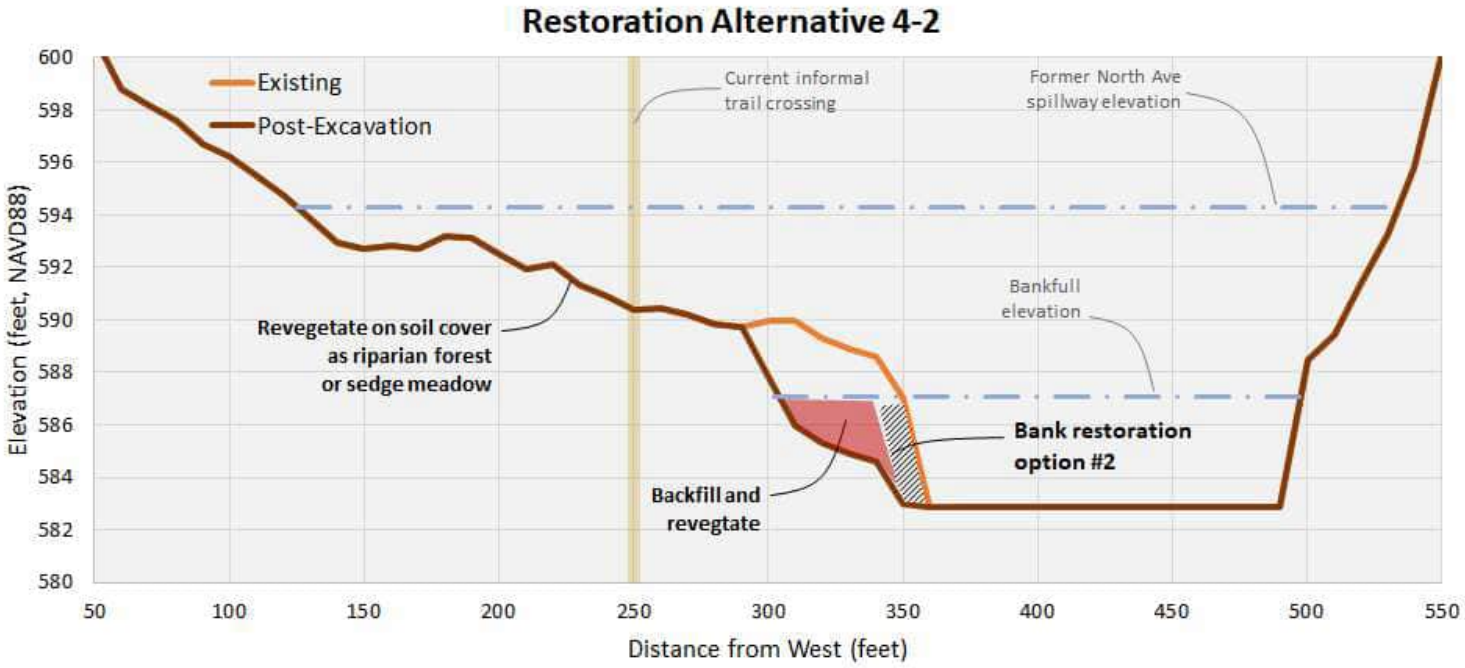
Notes:
NAVD88 = North American Vertical Datum 1988

Figures prepared by ECT

Figure 6-2B
Floodplain 8/9 Conceptual Cross-section View of Restoration Alternatives 3-1 and 3-2
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

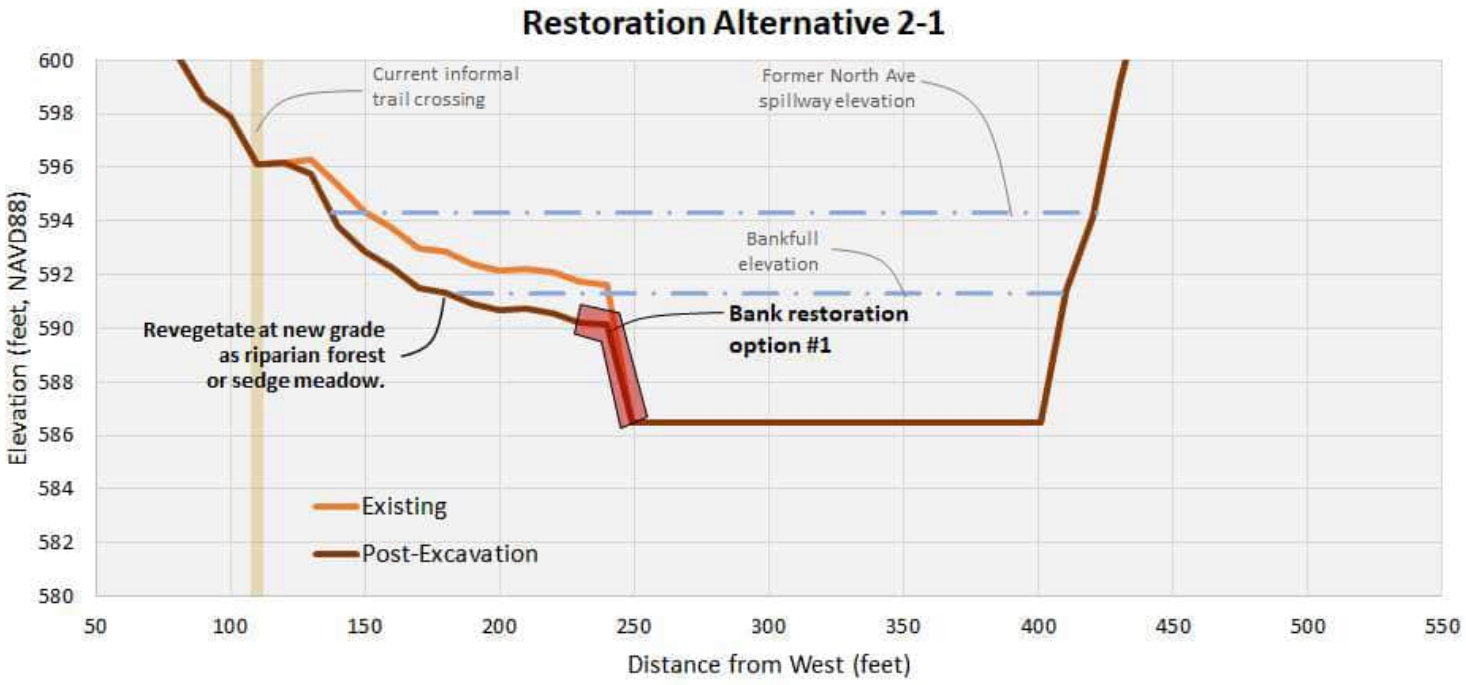


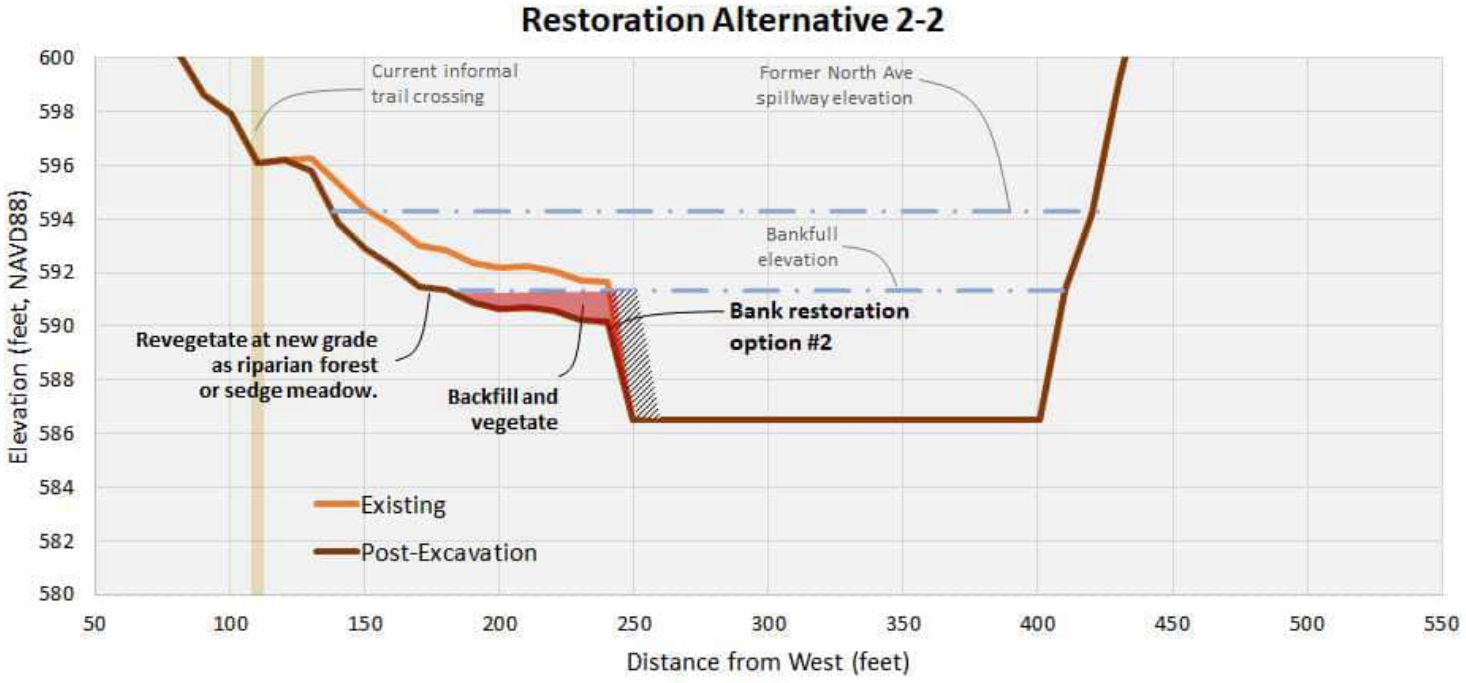


Notes:
NAVD88 = North American Vertical Datum 1988

Figures prepared by ECT

Figure 6-2C
Floodplain 8/9 Conceptual Cross-section View of Restoration Alternatives 4-1 and 4-2
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin



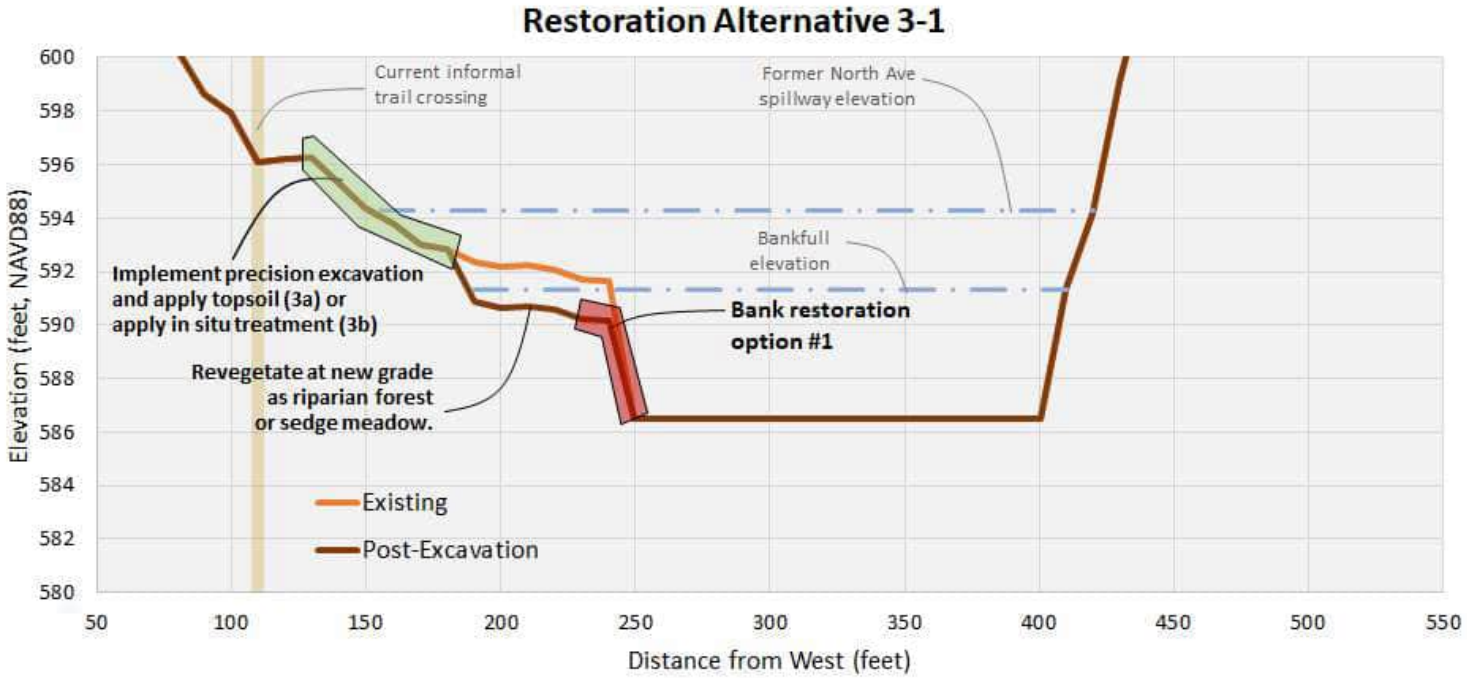


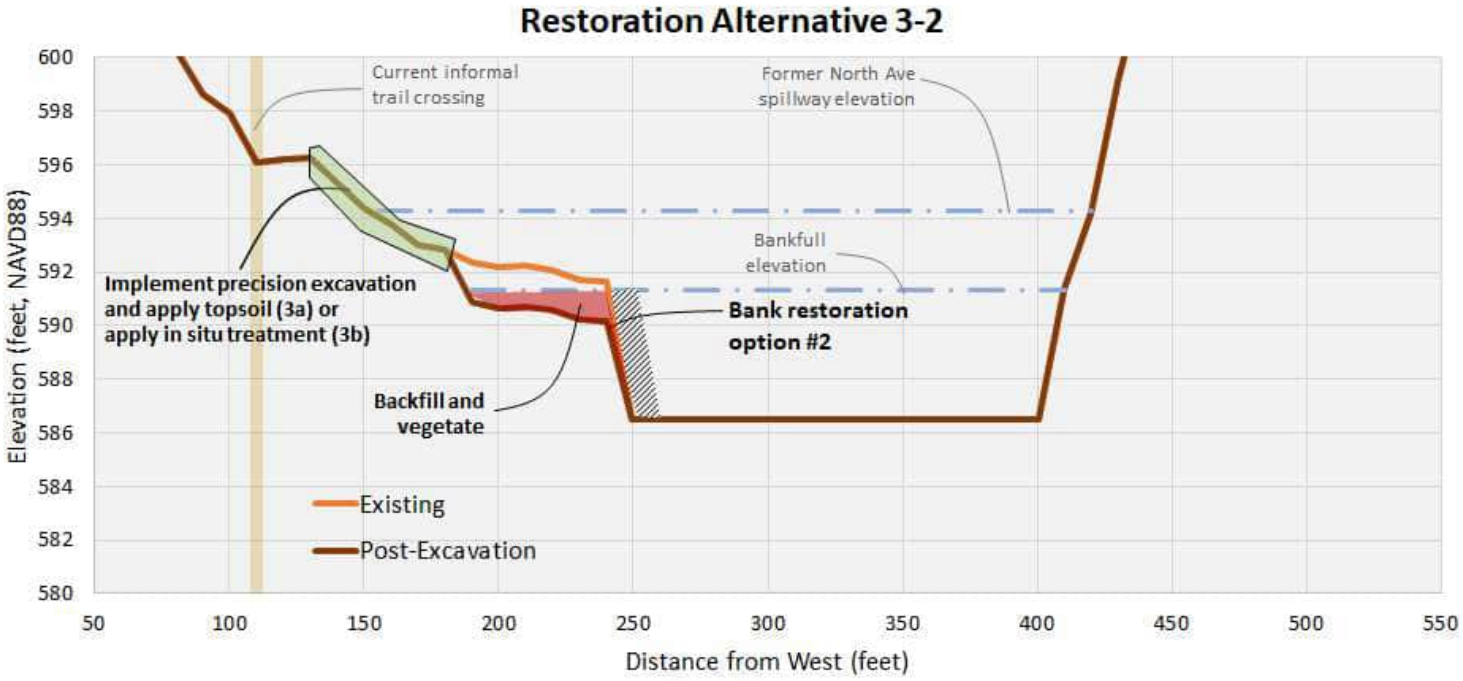
Notes:
NAVD88 = North American Vertical Datum 1988

Figures prepared by ECT

Figure 6-3A
Floodplain 11 Conceptual Cross-section View of Restoration Alternatives 2-1 and 2-2
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

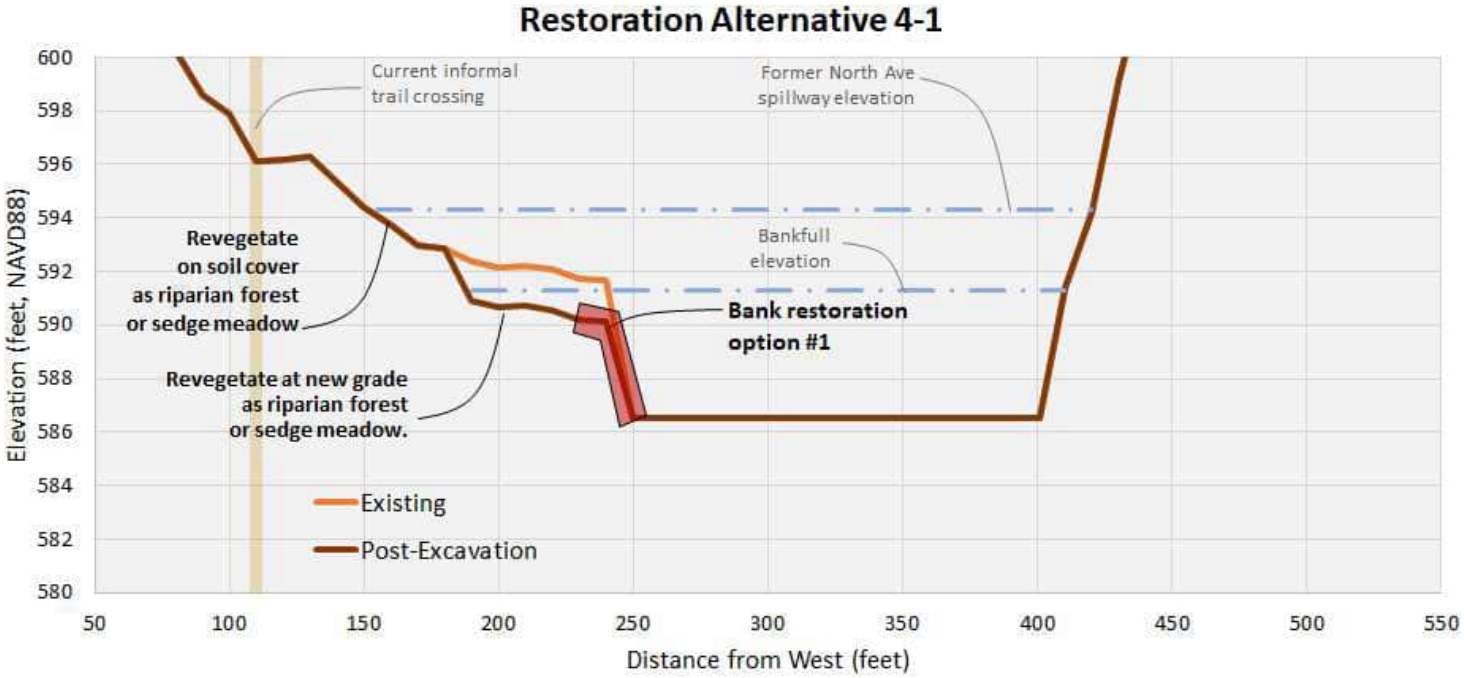


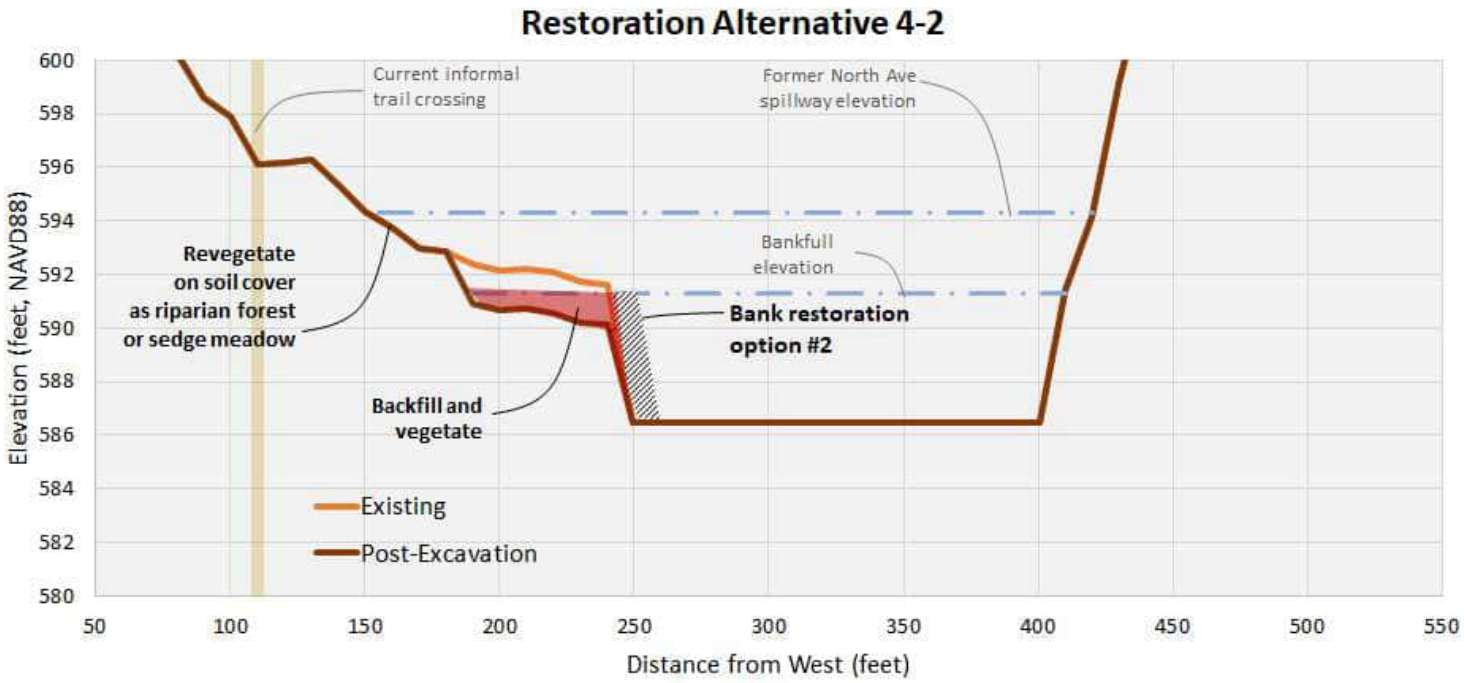


Notes:
NAVD88 = North American Vertical Datum 1988

Figures prepared by ECT

Figure 6-3B
Floodplain 11 Conceptual Cross-section View of Restoration Alternatives 3-1 and 3-2
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin



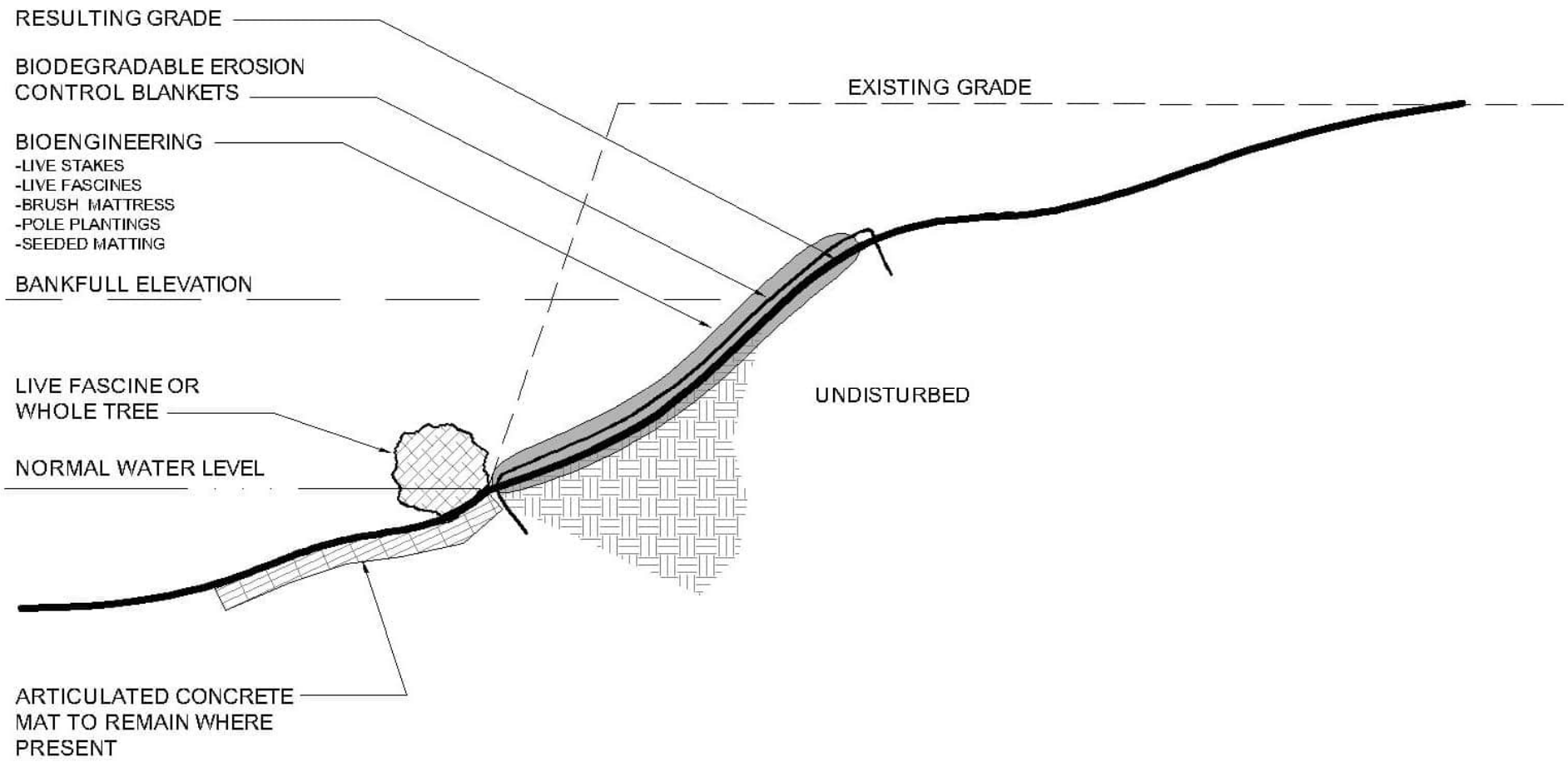


Notes:
NAVD88 = North American Vertical Datum 1988

Figures prepared by ECT

Figure 6-3C
Floodplain 11 Conceptual Cross-section View of Restoration Alternatives 4-1 and 4-2
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

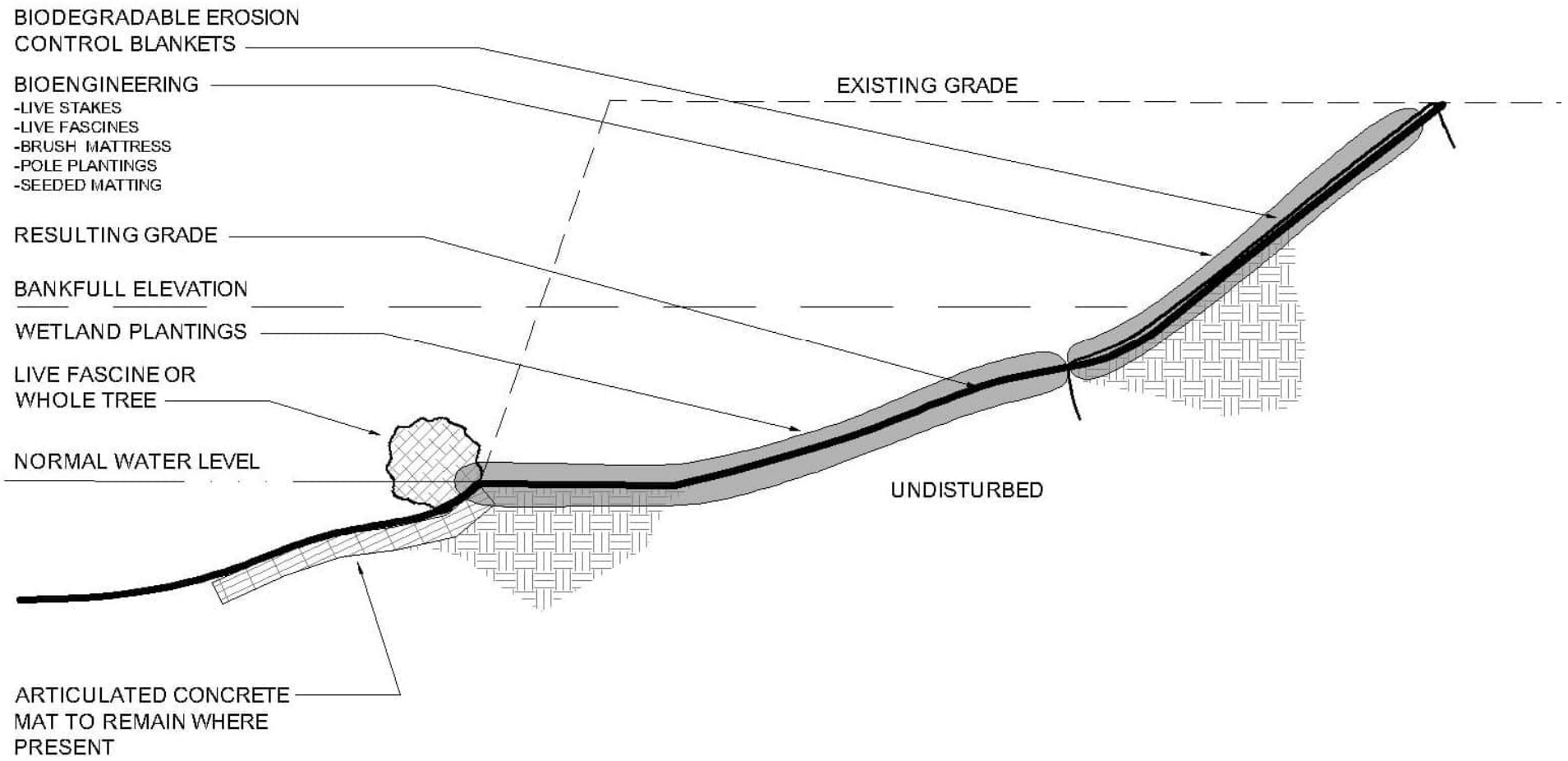
Jacobs



Notes:
Figures prepared by ECT

Figure 6-4A
Conceptual Cross Section for Streambank Restoration Alternative SB-1
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

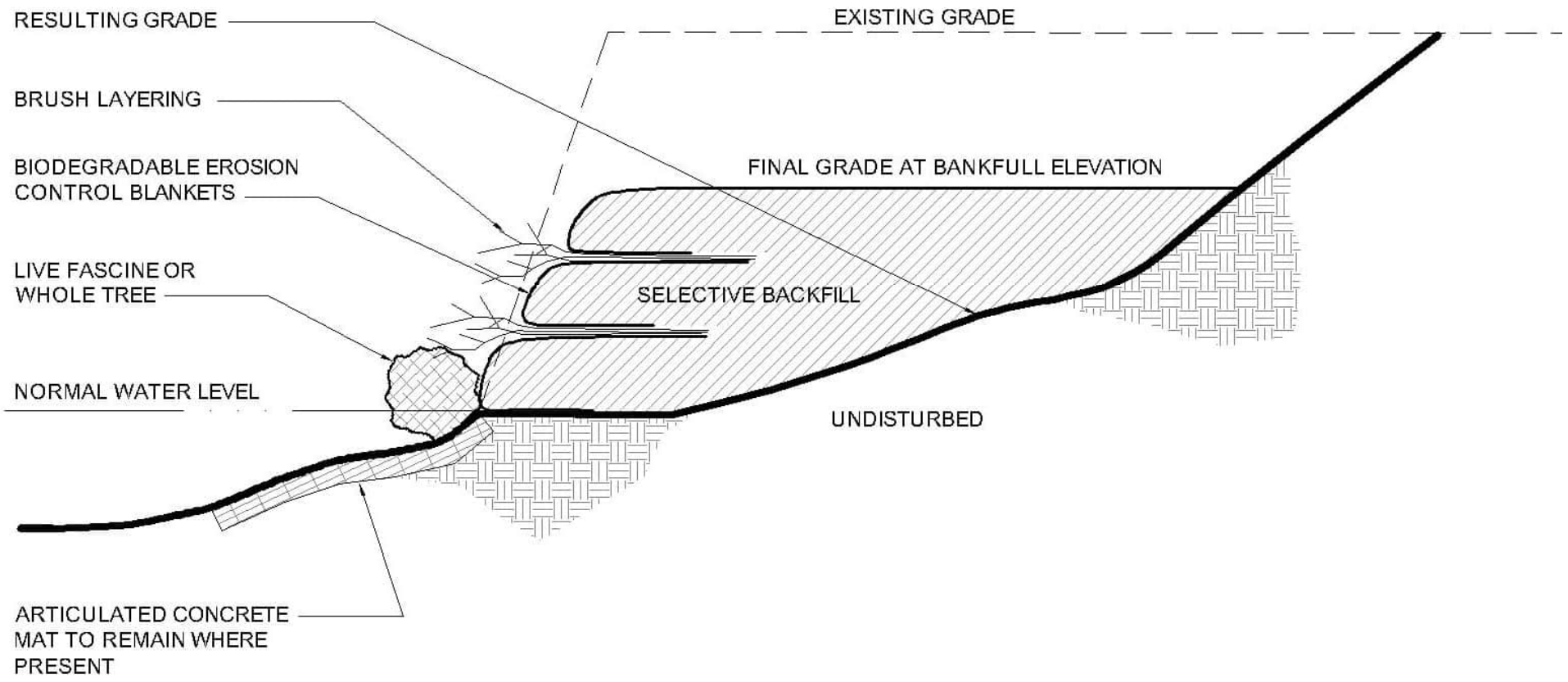
Jacobs



Notes:
Figures prepared by ECT

Figure 6-4B
Conceptual Cross Section for Streambank Restoration Alternative SB-1 (Wetland)
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs



Notes:
Figures prepared by ECT

Figure 6-4C
Conceptual Cross Section for Streambank Restoration Alternative SB-2
Milwaukee Estuary Area of Concern
Milwaukee, Wisconsin

Jacobs

Appendix A
Floodplains Reach – Analytical Results Summary

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PCB									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242
					Tier 1 SS-RCL[1,4,5]	1.1									
					Tier 2 SS-RCL[1]	0.7									
					TSCA LO	25									
FP01	FP-01	MK-FP-01-0.0/0.5	0	0.5	11/9/2016	0.23	0.032 U	0.085	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.142 J
FP01	FP-01	MK-FP-01-0.5/1.5	0.5	1.5	11/9/2016	2.2	0.12 U	0.595 J	0.118 U	0.118 U	0.12 U	1.62	0.118 U	0.118 U	0.118 U
FP01	FP-01	MK-FP-01-1.5/2.0	1.5	2	11/9/2016	4	0.16 U	1.17	0.161 U	0.161 U	0.16 U	2.83 J	0.161 U	0.161 U	0.161 U
FP01	FP-01X	MK-FP-01X-2.5/4.0	2.5	4	11/3/2020	1.9	0.13 J	0.85	0.13 U	0.13 U	0.13 U	0.87	0.13 U	0.13 U	0.13 U
FP01	FP-02	MK-FP-02-0.0/0.5	0	0.5	11/9/2016	0.89	0.049 J	0.264	0.035 U	0.035 U	0.035 U	0.574	0.035 U	0.035 U	0.035 U
FP01	FP-02	MK-FP-02-0.5/1.5	0.5	1.5	11/9/2016	0.6	0.202	0.176 J	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.043 U	0.217 J
FP01	FP-02	MK-FP-02-1.5/2.8	1.5	2.8	11/9/2016	10.7	0.75 U	0.987 J	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	9.68
FP01	FP-02X	MK-FP-02X-3.0/4.0	3	4	11/3/2020	1.8	0.22 U	0.4	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	1.4
FP01	FP-35	MK-FP-35-0.0/0.5	0	0.5	11/3/2020	0.69	0.074 J	0.33 J	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.29 J
FP01	FP-35	MK-FP-35-0.5/1.5	0.5	1.5	11/3/2020	1.8	0.15 J	0.69 J	0.14 U	0.14 U	0.14 U	0.92	0.14 U	0.14 U	0.14 U
FP01	FP-35	MK-FP-35-1.5/2.5	1.5	2.5	11/3/2020	0.051	0.066 U	0.03 J	0.066 U	0.066 U	0.066 U	0.021 J	0.066 U	0.066 U	0.066 U
FP01	FP-35	MK-FP-35-2.5/4.0	2.5	4	11/3/2020	0.12	0.068 U	0.055 J	0.068 U	0.068 U	0.068 U	0.066 J	0.068 U	0.068 U	0.068 U
FP01	FP-36	MK-FP-36-0.0/0.5	0	0.5	11/3/2020	0.79	0.097 J	0.37 J	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.32 J
FP01	FP-36	MK-FP-36-0.5/1.5	0.5	1.5	11/3/2020	0.71	0.075 J	0.3 J	0.057 U	0.057 U	0.057 U	0.33	0.057 U	0.057 U	0.057 U
FP01	FP-36	MK-FP-36-1.5/1.9	1.5	1.9	11/3/2020	0.029 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U
FP01	FP-36	MK-FP-36-2.5/4.0	2.5	4	11/3/2020	0.11	0.071 U	0.048 J	0.071 U	0.071 U	0.071 U	0.06 J	0.071 U	0.071 U	0.071 U
FP01	FP-86	MK-FP-86-0.0/0.5	0	0.5	10/16/2021	0.52	0.054 J	0.27 J	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.2 J
FP01	FP-86	MK-FP-86-0.5/1.0	0.5	1	10/16/2021	0.04 J	0.059 U	0.037 J	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U
FP02	FP-03	MK-FP-03-0.0/0.5	0	0.5	11/9/2016	1.2	0.113 J	0.5	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.6 J
FP02	FP-03	MK-FP-03-0.5/1.3	0.5	1.3	11/9/2016	0.32	0.109	0.132 J	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.079 J
FP02	FP-03X	MK-FP-03X-2.5/4.0	2.5	4	11/4/2020	0.26	0.057 J	0.14	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.066
FP02	FP-04	MK-FP-04-0.0./0.5	0	0.5	11/9/2016	0.15	0.042 U	0.08 J	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.075 J
FP02	FP-04	MK-FP-04-0.5/1.5	0.5	1.5	11/9/2016	3	0.342	1.05	0.083 U	0.083 U	0.083 U	1.63	0.083 U	0.083 U	0.083 U
FP02	FP-04	MK-FP-04-1.5/2.5	1.5	2.5	11/9/2016	0.1	0.037 U	0.047 J	0.037 U	0.037 U	0.037 U	0.055 J	0.037 U	0.037 U	0.037 U
FP02	FP-04	MK-FP-04-2.5/3.5	2.5	3.5	11/9/2016	0.04	0.035 U	0.039 J	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U
FP02	FP-37	MK-FP-37-0.0/0.5	0	0.5	11/4/2020	0.27	0.048 J	0.12 J	0.067 U	0.067 U	0.067 U	0.099	0.067 U	0.067 U	0.067 U
FP02	FP-37	MK-FP-37-0.5/1.5	0.5	1.5	11/4/2020	0.028 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
FP02	FP-37	MK-FP-37-1.5/2.4	1.5	2.4	11/4/2020	0.028 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
FP02	FP-37	MK-FP-37-2.5/4.0	2.5	4	11/4/2020	0.028 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
FP02	FP-38	MK-FP-38-0.0/0.5	0	0.5	11/4/2020	0.67	0.064 J	0.3	0.079 U	0.079 U	0.079 U	0.079 U	0.079 U	0.079 U	0.31
FP02	FP-38	MK-FP-38-0.5/1.5	0.5	1.5	11/4/2020	1.7	0.13 J	0.61	0.15 U	0.15 U	0.15 U	0.93	0.15 U	0.15 U	0.15 U
FP02	FP-38	MK-FP-38-1.5/2.2	1.5	2.2	11/4/2020	11.4	0.42 J	3.4	0.74 U	0.74 U	0.74 U	7.6	0.74 U	0.74 U	0.74 U
FP02	FP-38	MK-FP-38-2.5/4.0	2.5	4	11/4/2020	5.5	0.25 J	1.9	0.32 U	0.32 U	0.32 U	3.3	0.32 U	0.32 U	0.32 U
FP02	FP-87	MK-FP-87-0.0/0.5	0	0.5	10/16/2021	0.35	0.12	0.16 J	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 J
FP02	FP-87	MK-FP-87-0.5/1.4	0.5	1.4	10/16/2021	0.03 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
FP03	FP-05	MK-FP-05-0.0./0.5	0	0.5	11/11/2016	0.66	0.073 J	0.295 J	0.034 U	0.034 U	0.034 U	0.034 U	0.034 U	0.034 U	0.29 J
FP03	FP-05	MK-FP-05-0.5/1.5	0.5	1.5	11/11/2016	0.33	0.042 J	0.134 J	0.03 U	0.03 U	0.03 U	0.152	0.03 U	0.03 U	0.03 U
FP03	FP-05	MK-FP-05-1.5/2.0	1.5	2	11/11/2016	0.02 U	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U
FP03	FP-05X	MK-FP-05X-2.0/2.5	2	2.5	11/6/2020	0.032 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U
FP03	FP-05X	MK-FP-05X-2.5/4.0	2.5	4	11/6/2020	0.03 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U
FP03	FP-06	MK-FP-06-0.0/0.5	0	0.5	11/11/2016	0.87	0.102 J	0.366 J	0.04 U	0.04 U	0.04 U	0.403	0.04 U	0.04 U	0.04 U
FP03	FP-06	MK-FP-06-0.5/1.0	0.5	1	11/11/2016	0.45	0.069 J	0.231 J	0.035 U	0.035 U	0.035 U	0.149	0.035 U	0.035 U	0.035 U

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH								
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PAH-18[3]	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3-Cd) Pyrene	2-Methyl-naphthalene
					Tier 1 SS-RCL[1,4,5]	--	84.6	8.48	84.8	848	8480	8.48	84.8	
					Tier 2 SS-RCL[1]	--	50.8	5.09	50.9	501	5090	5.09	50.9	
					TSCA LO									
FP01	FP-01	MK-FP-01-0.0/0.5	0	0.5	11/9/2016	6.2	0.477	0.593	0.916	0.271	0.547	0.0698	0.245	0.0128 U
FP01	FP-01	MK-FP-01-0.5/1.5	0.5	1.5	11/9/2016	19.4	1.52	1.48	2.01	0.836	2.1	0.266	0.816	0.0785 U
FP01	FP-01	MK-FP-01-1.5/2.0	1.5	2	11/9/2016	12.1	0.923	0.956	1.42	0.51	1.29	0.177	0.531	0.0403 U
FP01	FP-01X	MK-FP-01X-2.5/4.0	2.5	4	11/3/2020	24.6	1.8	1.8	2.3	1	2.2	0.34 J	1.1	0.45 U
FP01	FP-02	MK-FP-02-0.0/0.5	0	0.5	11/9/2016	19	1.38	1.14	2.04	0.954	1.91	0.252	0.853	0.141 U
FP01	FP-02	MK-FP-02-0.5/1.5	0.5	1.5	11/9/2016	24.7	1.68	1.62	2.61	1.19	2.63	0.352	1.14	0.171 U
FP01	FP-02	MK-FP-02-1.5/2.8	1.5	2.8	11/9/2016	23.6	1.71	1.28	1.81	0.793	2.29 J	0.256	0.72	0.15 U
FP01	FP-02X	MK-FP-02X-3.0/4.0	3	4	11/3/2020	1.5	0.11	0.11	0.15	0.055	0.13	0.02 J	0.065	0.025 U
FP01	FP-35	MK-FP-35-0.0/0.5	0	0.5	11/3/2020	23.1	1.7	1.8	2.6	0.95	2	0.37 J	1.2	0.49 U
FP01	FP-35	MK-FP-35-0.5/1.5	0.5	1.5	11/3/2020	81.6	5.9	5.7	7.3	3.2	7.1	1.1	3.3	0.93 U
FP01	FP-35	MK-FP-35-1.5/2.5	1.5	2.5	11/3/2020	12.1	0.79	0.85	1.2	0.48	1.1	0.17 J	0.52	0.22 U
FP01	FP-35	MK-FP-35-2.5/4.0	2.5	4	11/3/2020	8.1	0.57	0.53	0.68	0.32	0.68	0.099 J	0.3	0.11 U
FP01	FP-36	MK-FP-36-0.0/0.5	0	0.5	11/3/2020									
FP01	FP-36	MK-FP-36-0.5/1.5	0.5	1.5	11/3/2020									
FP01	FP-36	MK-FP-36-1.5/1.9	1.5	1.9	11/3/2020									
FP01	FP-36	MK-FP-36-2.5/4.0	2.5	4	11/3/2020									
FP01	FP-86	MK-FP-86-0.0/0.5	0	0.5	10/16/2021	23.3	1.4	1.6	2.1	0.93	1.9	0.26 J	0.85	0.44 U
FP01	FP-86	MK-FP-86-0.5/1.0	0.5	1	10/16/2021	1.1	0.072	0.089	0.14	0.056	0.1	0.015 J	0.058	0.004 J
FP02	FP-03	MK-FP-03-0.0/0.5	0	0.5	11/9/2016	11.8	0.933	0.998	1.71	0.733	1.01	0.111	0.327	0.0501 U
FP02	FP-03	MK-FP-03-0.5/1.3	0.5	1.3	11/9/2016	38.5	2.71	2.77	4.36	1.7	3.73	0.562	1.78	0.16 U
FP02	FP-03X	MK-FP-03X-2.5/4.0	2.5	4	11/4/2020	5.7	0.42	0.45	0.51	0.26	0.52	0.072 J	0.23	0.11 U
FP02	FP-04	MK-FP-04-0.0./0.5	0	0.5	11/9/2016	4.8	0.356	0.454	0.821	0.275	0.42	0.0554	0.183	0.0169 U
FP02	FP-04	MK-FP-04-0.5/1.5	0.5	1.5	11/9/2016	6.6	0.509	0.583	0.89	0.336	0.544	0.0645	0.211	0.0166 U
FP02	FP-04	MK-FP-04-1.5/2.5	1.5	2.5	11/9/2016	9	0.665	0.706	1.17	0.42	0.821	0.092	0.289	0.0371 U
FP02	FP-04	MK-FP-04-2.5/3.5	2.5	3.5	11/9/2016	5.7	0.414	0.487	0.781	0.29	0.482	0.0527	0.17	0.0141 U
FP02	FP-37	MK-FP-37-0.0/0.5	0	0.5	11/4/2020									
FP02	FP-37	MK-FP-37-0.5/1.5	0.5	1.5	11/4/2020									
FP02	FP-37	MK-FP-37-1.5/2.4	1.5	2.4	11/4/2020									
FP02	FP-37	MK-FP-37-2.5/4.0	2.5	4	11/4/2020									
FP02	FP-38	MK-FP-38-0.0/0.5	0	0.5	11/4/2020	20	1.4	1.4	1.9	0.91	1.8	0.25 J	0.87	0.53 U
FP02	FP-38	MK-FP-38-0.5/1.5	0.5	1.5	11/4/2020	19.9	1.5	1.5	1.9	0.75	1.8	0.25 J	0.79	0.49 U
FP02	FP-38	MK-FP-38-1.5/2.2	1.5	2.2	11/4/2020	37.3	2.6	2.4	3.2	1.2	3	0.42 J	1.3	0.49 U
FP02	FP-38	MK-FP-38-2.5/4.0	2.5	4	11/4/2020	10.9	0.8	0.77	0.98	0.42	0.98	0.14	0.42	0.13 U
FP02	FP-87	MK-FP-87-0.0/0.5	0	0.5	10/16/2021	247	16	20	27	9.7	22	3.2 J	12	4.6 U
FP02	FP-87	MK-FP-87-0.5/1.4	0.5	1.4	10/16/2021	11.9	0.65	0.65	1.1	0.5	1	0.11 J	0.48	0.46 U
FP03	FP-05	MK-FP-05-0.0./0.5	0	0.5	11/11/2016	15.9	1.29	1.44	1.91	0.768	1.45	0.00045 U	0.806	0.0095 J
FP03	FP-05	MK-FP-05-0.5/1.5	0.5	1.5	11/11/2016	8.5	0.661	0.763	1.02	0.323	0.778	0.151 J	0.478	0.0053 J
FP03	FP-05	MK-FP-05-1.5/2.0	1.5	2	11/11/2016	2	0.18	0.198	0.279	0.109	0.212	0.0454	0.128	0.0039 J
FP03	FP-05X	MK-FP-05X-2.0/2.5	2	2.5	11/6/2020	0.22	0.014 J	0.013 J	0.02 J	0.008 J	0.016 J	0.021 U	0.008 J	0.021 U
FP03	FP-05X	MK-FP-05X-2.5/4.0	2.5	4	11/6/2020	0.17	0.003 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
FP03	FP-06	MK-FP-06-0.0/0.5	0	0.5	11/11/2016	40.6	3.12	3.62	6.02	1.8	3.62	0.749	2.1	0.0132 J
FP03	FP-06	MK-FP-06-0.5/1.0	0.5	1	11/11/2016	69.5	5.64	6.28	9.13	3.27	6.58	1.11	3.2	0.0341 J

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Fluoran-thene	Fluorene	Naphtha-lene	Phenan-threne	Pyrene
					Tier 1 SS-RCL[1,4,5]										
					Tier 2 SS-RCL[1]										
					TSCA LO										
FP01	FP-01	MK-FP-01-0.0/0.5	0	0.5	11/9/2016	0.0222 J	0.0255 J	0.123		0.298	1.18	0.0308 J	0.0215 U	0.501	0.842
FP01	FP-01	MK-FP-01-0.5/1.5	0.5	1.5	11/9/2016	0.126 J	0.0517 U	0.47		1.03	3.51	0.166 J	0.132 U	2.03	2.95
FP01	FP-01	MK-FP-01-1.5/2.0	1.5	2	11/9/2016	0.0707 J	0.0266 U	0.277		0.661	2.2	0.0849 J	0.0679 U	1.14	1.74
FP01	FP-01X	MK-FP-01X-2.5/4.0	2.5	4	11/3/2020	0.17 J	0.14 J	0.57	1.2	1.2	4.6	0.21 J	0.085 J	2.4	3.3
FP01	FP-02	MK-FP-02-0.0/0.5	0	0.5	11/9/2016	0.126 J	0.0932 U	0.24 J		0.995	3.83	0.175 J	0.238 U	2.17	2.69
FP01	FP-02	MK-FP-02-0.5/1.5	0.5	1.5	11/9/2016	0.176 J	0.113 U	0.718		1.35	4.76	0.208 J	0.288 U	2.52	3.43
FP01	FP-02	MK-FP-02-1.5/2.8	1.5	2.8	11/9/2016	0.41	0.0989 U	1.25		0.916	4.24 J	0.48	0.253 U	3.51	3.66 J
FP01	FP-02X	MK-FP-02X-3.0/4.0	3	4	11/3/2020	0.014 J	0.006 J	0.037	0.076	0.074	0.28	0.013 J	0.003 J	0.16	0.22
FP01	FP-35	MK-FP-35-0.0/0.5	0	0.5	11/3/2020	0.13 J	0.073 J	0.42 J	1.4	1.5	3.9	0.13 J	0.079 J	1.7	2.9
FP01	FP-35	MK-FP-35-0.5/1.5	0.5	1.5	11/3/2020	0.78 J	0.16 J	2.4	4	3.7	15	0.9 J	0.93 U	9.1	11
FP01	FP-35	MK-FP-35-1.5/2.5	1.5	2.5	11/3/2020	0.073 J	0.029 J	0.25	0.63	0.58	2.3	0.097 J	0.047 J	1.3	1.6
FP01	FP-35	MK-FP-35-2.5/4.0	2.5	4	11/3/2020	0.075 J	0.11 U	0.24	0.36	0.33	1.6 J	0.091 J	0.025 J	0.98 J	1.1 J
FP01	FP-36	MK-FP-36-0.0/0.5	0	0.5	11/3/2020										
FP01	FP-36	MK-FP-36-0.5/1.5	0.5	1.5	11/3/2020										
FP01	FP-36	MK-FP-36-1.5/1.9	1.5	1.9	11/3/2020										
FP01	FP-36	MK-FP-36-2.5/4.0	2.5	4	11/3/2020										
FP01	FP-86	MK-FP-86-0.0/0.5	0	0.5	10/16/2021	0.27 J	0.44 U	0.49	1.1	1	4.8	0.23 J	0.21 J	2.5	3.2
FP01	FP-86	MK-FP-86-0.5/1.0	0.5	1	10/16/2021	0.004 J	0.003 J	0.014 J	0.072	0.066	0.18	0.005 J	0.004 J	0.068	0.14
FP02	FP-03	MK-FP-03-0.0/0.5	0	0.5	11/9/2016	0.0639 J	0.033 U	0.28		0.324	2.22	0.0769 J	0.0844 U	0.977	1.92
FP02	FP-03	MK-FP-03-0.5/1.3	0.5	1.3	11/9/2016	0.267 J	0.105 U	1.08		2.19	7.44	0.339 J	0.269 U	4.02	5.23
FP02	FP-03X	MK-FP-03X-2.5/4.0	2.5	4	11/4/2020	0.023 J	0.039 J	0.13	0.29	0.28	1.1	0.028 J	0.021 J	0.43	0.82
FP02	FP-04	MK-FP-04-0.0./0.5	0	0.5	11/9/2016	0.0202 J	0.0115 J	0.0867		0.2	0.811	0.024 J	0.0284 U	0.345	0.698
FP02	FP-04	MK-FP-04-0.5/1.5	0.5	1.5	11/9/2016	0.0485	0.0219 J	0.16		0.216	1.24	0.0501	0.0922 J	0.669	1
FP02	FP-04	MK-FP-04-1.5/2.5	1.5	2.5	11/9/2016	0.0685 J	0.0278 J	0.261		0.314	1.63	0.0883 J	0.0625 U	0.991	1.39
FP02	FP-04	MK-FP-04-2.5/3.5	2.5	3.5	11/9/2016	0.0259 J	0.0175 J	0.124		0.185	1.12	0.0398	0.0238 U	0.597	0.925
FP02	FP-37	MK-FP-37-0.0/0.5	0	0.5	11/4/2020										
FP02	FP-37	MK-FP-37-0.5/1.5	0.5	1.5	11/4/2020										
FP02	FP-37	MK-FP-37-1.5/2.4	1.5	2.4	11/4/2020										
FP02	FP-37	MK-FP-37-2.5/4.0	2.5	4	11/4/2020										
FP02	FP-38	MK-FP-38-0.0/0.5	0	0.5	11/4/2020	0.13 J	0.53 U	0.39 J	1	1.1	3.6	0.13 J	0.53 U	1.8	2.5
FP02	FP-38	MK-FP-38-0.5/1.5	0.5	1.5	11/4/2020	0.13 J	0.073 J	0.4 J	1	1	3.6	0.16 J	0.49 U	1.7	2.9
FP02	FP-38	MK-FP-38-1.5/2.2	1.5	2.2	11/4/2020	0.4 J	0.077 J	1.4	1.6	1.5	7.5	0.4 J	0.082 J	4.5	5.5
FP02	FP-38	MK-FP-38-2.5/4.0	2.5	4	11/4/2020	0.085 J	0.038 J	0.3	0.52	0.51	2.1	0.096 J	0.018 J	1.1	1.6
FP02	FP-87	MK-FP-87-0.0/0.5	0	0.5	10/16/2021	1.2 J	4.6 U	5.5	13	14	46	1.2 J	4.6 U	16	33
FP02	FP-87	MK-FP-87-0.5/1.4	0.5	1.4	10/16/2021	0.46 U	0.46 U	0.34 J	0.58	0.56	2.5	0.46 U	0.46 U	0.86	1.4
FP03	FP-05	MK-FP-05-0.0./0.5	0	0.5	11/11/2016	0.103	0.0512	0.29		0.955	2.87	0.13	0.0118	1.46	2.36
FP03	FP-05	MK-FP-05-0.5/1.5	0.5	1.5	11/11/2016	0.049 J	0.0446 J	0.14 J		0.534	1.5	0.0597 J	0.0048	0.698	1.24
FP03	FP-05	MK-FP-05-1.5/2.0	1.5	2	11/11/2016	0.0055	0.0088	0.033		0.138	0.309	0.0081	0.0031	0.106	0.259
FP03	FP-05X	MK-FP-05X-2.0/2.5	2	2.5	11/6/2020	0.021 U	0.021 U	0.003 J	0.01 J	0.01 J	0.029	0.021 U	0.003 J	0.013 J	0.022
FP03	FP-05X	MK-FP-05X-2.5/4.0	2.5	4	11/6/2020	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
FP03	FP-06	MK-FP-06-0.0/0.5	0	0.5	11/11/2016	0.227	0.177	0.691		2.17	8.06	0.294	0.0114 J	2.83	5.11
FP03	FP-06	MK-FP-06-0.5/1.0	0.5	1	11/11/2016	0.424	0.248	1.11		3.25	12.8	0.505	0.0708	5.61	10.2

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						Metals										Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Lead[4]	Arsenic[5]	Nickel	Cadmium	Chromium	Copper	Zinc	Mercury	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[1,4,5]	400	8												
					Tier 2 SS-RCL[1]														
					TSCA LO														
FP01	FP-01	MK-FP-01-0.0/0.5	0	0.5	11/9/2016	24.5	2.4 J	5.8	0.22 J	13.9	12.9	59.7	0.046 U	7.3	92.7	0	15400
FP01	FP-01	MK-FP-01-0.5/1.5	0.5	1.5	11/9/2016	219	6.8 J	27.2	1.3	135	68	203	0.34	15	77	8	35700
FP01	FP-01	MK-FP-01-1.5/2.0	1.5	2	11/9/2016	118	4.4 J	14.1	0.76 J	54	41.4	61.4	0.35	15	84	1	28100
FP01	FP-01X	MK-FP-01X-2.5/4.0	2.5	4	11/3/2020	162	5.6	19.3	2.7	67	59.3	221	0.22	49	51	0	19200
FP01	FP-02	MK-FP-02-0.0/0.5	0	0.5	11/9/2016	40.3	3.2 J	8.8	0.5 J	19.9	19.8	88.7	0.096 J				40300
FP01	FP-02	MK-FP-02-0.5/1.5	0.5	1.5	11/9/2016	121	4.1 J	13.7	1.4	34.4	41.9	170	0.17 J				43200
FP01	FP-02	MK-FP-02-1.5/2.8	1.5	2.8	11/9/2016	174 J	5.9 J	27.4 J	2.4	127 J	97.5 J	250 J	0.35				32200
FP01	FP-02X	MK-FP-02X-3.0/4.0	3	4	11/3/2020	51.1	4.5	11.3	1.3	28.6	19.6	90.1	0.074				14800
FP01	FP-35	MK-FP-35-0.0/0.5	0	0.5	11/3/2020	73.6	3 J	15	1.3	39.9	40.7	179	0.13				53700
FP01	FP-35	MK-FP-35-0.5/1.5	0.5	1.5	11/3/2020	194	4.8	19.6	3.9	68.8	54.5	215	0.34				41300
FP01	FP-35	MK-FP-35-1.5/2.5	1.5	2.5	11/3/2020	54.3	4.4	14	3.7	39.7	27.3	95.4	0.19				43600
FP01	FP-35	MK-FP-35-2.5/4.0	2.5	4	11/3/2020	72.6 J	5.4	14.7	1.8	38.6	28.9	187	0.11				21200
FP01	FP-36	MK-FP-36-0.0/0.5	0	0.5	11/3/2020	76.4	3.5	14.9	1.5	37.9	40.7	164 J	1.2				48500
FP01	FP-36	MK-FP-36-0.5/1.5	0.5	1.5	11/3/2020	47.7	4.4	10.2	1.2	24.7	19.3	77.2	0.097				9050
FP01	FP-36	MK-FP-36-1.5/1.9	1.5	1.9	11/3/2020	7.4	2.8 J	5.6	0.21 J	8.8	5	26.5	0.018 J				23900
FP01	FP-36	MK-FP-36-2.5/4.0	2.5	4	11/3/2020	35.7	4.5	10.6	0.71	27.6	17.7	75.6	0.077				12900
FP01	FP-86	MK-FP-86-0.0/0.5	0	0.5	10/16/2021	56 J	4										
FP01	FP-86	MK-FP-86-0.5/1.0	0.5	1	10/16/2021	17 J	2 J										
FP02	FP-03	MK-FP-03-0.0/0.5	0	0.5	11/9/2016	85.3	6 J	19.9	1.3	44.3	58	233	0.21 J	16	72	12	63400
FP02	FP-03	MK-FP-03-0.5/1.3	0.5	1.3	11/9/2016	192	16.8	18.6	1.6	57.6	80.6	197	0.32	21	74	5	37700
FP02	FP-03X	MK-FP-03X-2.5/4.0	2.5	4	11/4/2020	37.3	5.2	6.6	0.29 J	13	12.7	108	0.031 J	15	80	5	4880
FP02	FP-04	MK-FP-04-0.0./0.5	0	0.5	11/9/2016	87	5.1 J	20	1.7	43.5	48.3	222	0.2 J				38500
FP02	FP-04	MK-FP-04-0.5/1.5	0.5	1.5	11/9/2016	200	7.9	27.2	3.1	83.8	62.8	277	0.44				32100
FP02	FP-04	MK-FP-04-1.5/2.5	1.5	2.5	11/9/2016	98.5	8.3	16.3	2.5	45.3	34.1	175	0.19				17200
FP02	FP-04	MK-FP-04-2.5/3.5	2.5	3.5	11/9/2016	27.6	4 J	10.2	0.34 J	20.8	13.5	65.4	0.085 J				13800
FP02	FP-37	MK-FP-37-0.0/0.5	0	0.5	11/4/2020	54.1	7.4	15.8	0.81	74.3	23.8	142	0.098				29400
FP02	FP-37	MK-FP-37-0.5/1.5	0.5	1.5	11/4/2020	8.1	4.4	17.5	0.23 J	14.5	15.4	42.4	0.037 U				14700
FP02	FP-37	MK-FP-37-1.5/2.4	1.5	2.4	11/4/2020	7.9	3.9	20.5	0.2 J	13.1	15.8	35.7	0.037 U				7190
FP02	FP-37	MK-FP-37-2.5/4.0	2.5	4	11/4/2020	7.1	4	21.8	0.16 J	14.1	15.4	34.3	0.037 U				4430
FP02	FP-38	MK-FP-38-0.0/0.5	0	0.5	11/4/2020	49.2	2.9 J	13.5	0.97	28	28.9	135	0.091				41700
FP02	FP-38	MK-FP-38-0.5/1.5	0.5	1.5	11/4/2020	128	5.2	18.3	1.8	49.2	46.4	198	0.18				21100
FP02	FP-38	MK-FP-38-1.5/2.2	1.5	2.2	11/4/2020	200	5.2	23	2.3	102	59.5	238	0.39				22100
FP02	FP-38	MK-FP-38-2.5/4.0	2.5	4	11/4/2020	130	5.9	20.2	2	54.9	51.4	219	0.39				23000
FP02	FP-87	MK-FP-87-0.0/0.5	0	0.5	10/16/2021	231 J	10										
FP02	FP-87	MK-FP-87-0.5/1.4	0.5	1.4	10/16/2021	122 J	46										
FP03	FP-05	MK-FP-05-0.0./0.5	0	0.5	11/11/2016	77.6 J	4.4 J	14.5 J	1.8	66.6 J	37.8	144 J	0.14				41600
FP03	FP-05	MK-FP-05-0.5/1.5	0.5	1.5	11/11/2016	42.3 J	4.5 J	12.4 J	1.1	40.5 J	22.6	86.3 J	0.097				14500
FP03	FP-05	MK-FP-05-1.5/2.0	1.5	2	11/11/2016	17 J	4.7 J	13.6 J	0.31	12.8 J	19.4	78.4 J	0.019 J				7360
FP03	FP-05X	MK-FP-05X-2.0/2.5	2	2.5	11/6/2020	12.8	2.7 J	12.4	0.58 J	25.8	10.9	46.5	0.014 J				16200
FP03	FP-05X	MK-FP-05X-2.5/4.0	2.5	4	11/6/2020	3.1	2.8 J	6.9	0.17 J	8	5.1	20.6	0.041 U				4800 J-
FP03	FP-06	MK-FP-06-0.0/0.5	0	0.5	11/11/2016	68.3 J	3.3 J	10.8 J	0.74	29.3 J	26.7	131 J	0.079	11	87	2	44300
FP03	FP-06	MK-FP-06-0.5/1.0	0.5	1	11/11/2016	166 J	7.3 J	15.9 J	1.4	45.2 J	36.9	188 J	0.15	11	61	28	27600

Appendix A
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						PCB									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242
					Tier 1 SS-RCL[1,4,5]	1.1									
					Tier 2 SS-RCL[1]	0.7									
					TSCA LO	25									
FP03	FP-06	MK-FP-06-1.0/2.0	1	2	11/11/2016	0.16	0.037 U	0.066 J	0.037 U	0.037 U	0.037 U	0.09	0.037 U	0.037 U	0.037 U
FP03	FP-06	MK-FP-06-2.0/2.5	2	2.5	11/11/2016	0.02 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U
FP03	FP-39	MK-FP-39-0.0/0.5	0	0.5	11/6/2020	1.3	0.13 J	0.47	0.064 U	0.064 U	0.064 U	0.67	0.064 U	0.064 U	0.064 U
FP03	FP-39	MK-FP-39-0.5/1.5	0.5	1.5	11/6/2020	0.28	0.031 J	0.12 J	0.059 U	0.059 U	0.059 U	0.13	0.059 U	0.059 U	0.059 U
FP03	FP-39	MK-FP-39-1.5/2.5	1.5	2.5	11/6/2020	0.03 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U
FP03	FP-39	MK-FP-39-2.5/3.6	2.5	3.6	11/6/2020	0.031 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U
FP03	FP-40A	MK-FP-40A-0.0/0.5	0	0.5	11/6/2020	0.15	0.025 J	0.068 J	0.074 U	0.074 U	0.074 U	0.053 J	0.074 U	0.074 U	0.074 U
FP03	FP-40A	MK-FP-40A-0.5/1.5	0.5	1.5	11/6/2020	0.027	0.057 U	0.027 J	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U
FP03	FP-40A	MK-FP-40A-1.5/2.5	1.5	2.5	11/6/2020	0.029 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U
FP03	FP-40A	MK-FP-40A-2.5/3.6	2.5	3.6	11/6/2020	0.029 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U
FP03	FP-40B	MK-FP-40B-0.0/0.5	0	0.5	11/6/2020	0.15	0.03 J	0.078 J	0.064 U	0.064 U	0.064 U	0.043 J	0.064 U	0.064 U	0.064 U
FP03	FP-40B	MK-FP-40B-0.5/1.5	0.5	1.5	11/6/2020	0.057	0.056 U	0.036 J	0.056 U	0.056 U	0.056 U	0.021 J	0.056 U	0.056 U	0.056 U
FP03	FP-40B	MK-FP-40B-1.5/2.5	1.5	2.5	11/6/2020	0.027 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
FP03	FP-40B	MK-FP-40B-2.5/3.6	2.5	3.6	11/6/2020	0.03 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U
FP03	FP-40C	MK-FP-40C-0.0/0.5	0	0.5	11/6/2020	0.029 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U
FP03	FP-40C	MK-FP-40C-0.5/1.5	0.5	1.5	11/6/2020	0.028 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
FP03	FP-40C	MK-FP-40C-1.5/2.5	1.5	2.5	11/6/2020	0.027 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
FP03	FP-40C	MK-FP-40C-2.5/4.0	2.5	4	11/6/2020	0.028 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
FP03	FP-41	MK-FP-41-0.0/0.5	0	0.5	11/6/2020	0.064	0.066 U	0.064 J	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U
FP03	FP-41	MK-FP-41-0.5/1.5	0.5	1.5	11/6/2020	0.051	0.054 U	0.051 J	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
FP03	FP-41	MK-FP-41-1.5/2.5	1.5	2.5	11/6/2020	0.028 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
FP03	FP-41	MK-FP-41-2.5/4.0	2.5	4	11/6/2020	0.028 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
FP03	FP-88	MK-FP-88-0.0/0.5	0	0.5	10/13/2021	0.55	0.067 J	0.24 J	0.069 U	0.069 U	0.069 U	0.25	0.069 U	0.069 U	0.069 U
FP03	FP-88	MK-FP-88-0.5/1.5	0.5	1.5	10/13/2021	0.35	0.05 J	0.15 J	0.06 U	0.06 U	0.06 U	0.15	0.06 U	0.06 U	0.06 U
FP03	FP-88	MK-FP-88-1.5/2.5	1.5	2.5	10/13/2021	0.04 J	0.057 U	0.019 J	0.057 U	0.057 U	0.057 U	0.023 J	0.057 U	0.057 U	0.057 U
FP04	FP-07	MK-FP-07-0.0/0.5	0	0.5	11/11/2016	1.1	0.126	0.404	0.035 U	0.035 U	0.035 U	0.549 J	0.035 U	0.035 U	0.035 U
FP04	FP-07	MK-FP-07-0.5/1.5	0.5	1.5	11/11/2016	2.2	0.219 J	0.785 J	0.109 U	0.109 U	0.109 U	0.109 U	0.109 U	0.109 U	1.2
FP04	FP-07	MK-FP-07-1.5/2.5	1.5	2.5	11/11/2016	1.1	0.308	0.474 J	0.041 U	0.041 U	0.041 U	0.307	0.041 U	0.041 U	0.041 U
FP04	FP-07	MK-FP-07-2.5/3.0	2.5	3	11/11/2016	0.76	0.13	0.305 J	0.032 U	0.032 U	0.032 U	0.321	0.032 U	0.032 U	0.032 U
FP04	FP-08	MK-FP-08-0.0/0.5	0	0.5	11/11/2016	0.88	0.112 J	0.362	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.409 J
FP04	FP-08	MK-FP-08-0.5/1.5	0.5	1.5	11/11/2016	4.1	0.328 U	1.76	0.328 U	0.328 U	0.328 U	0.328 U	0.328 U	0.328 U	2.3 J
FP04	FP-08	MK-FP-08-1.5/2.5	1.5	2.5	11/11/2016	0.87	0.271	0.435	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.16 J
FP04	FP-08	MK-FP-08-2.5/3.2	2.5	3.2	11/11/2016	0.28	0.043 J	0.138	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.1 J
FP04	FP-09	MK-FP-09-0.0./0.5	0	0.5	11/11/2016	0.82	0.15 J	0.336	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.333 J
FP04	FP-09	MK-FP-09-0.5/1.5	0.5	1.5	11/11/2016	2.9	0.339 J	1.31	0.108 U	0.108 U	0.108 U	0.108 U	0.108 U	0.108 U	1.22 J
FP04	FP-09X	MK-FP-09X-2.0/3.0	2	3	11/5/2020	0.027 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
FP04	FP-42	MK-FP-42-0.0/0.5	0	0.5	11/5/2020	0.022	0.065 U	0.022 J	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
FP04	FP-42	MK-FP-42-0.5/1.5	0.5	1.5	11/5/2020	0.028 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
FP04	FP-42	MK-FP-42-1.5/2.5	1.5	2.5	11/5/2020	0.029 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U
FP04	FP-42	MK-FP-42-2.5/3.4	2.5	3.4	11/5/2020	0.028 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
FP04	FP-43	MK-FP-43-0.0/0.5	0	0.5	11/5/2020	0.033 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
FP04	FP-43	MK-FP-43-0.5/1.5	0.5	1.5	11/5/2020	0.033 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U

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						PAH								
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PAH-18[3]	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3-Cd) Pyrene	2-Methyl-naphthalene
					Tier 1 SS-RCL[1,4,5]	--	84.6	8.48	84.8	848	8480	8.48	84.8	
					Tier 2 SS-RCL[1]	--	50.8	5.09	50.9	501	5090	5.09	50.9	
					TSCA LO									
FP03	FP-06	MK-FP-06-1.0/2.0	1	2	11/11/2016	17	1.32	1.53	2.19	0.905	1.59	0.00048 U	0.967	0.0104 J
FP03	FP-06	MK-FP-06-2.0/2.5	2	2.5	11/11/2016	1.8	0.121	0.164	0.258	0.0936	0.164	0.0415	0.131	0.002 J
FP03	FP-39	MK-FP-39-0.0/0.5	0	0.5	11/6/2020	19.8	1.4	1.4	1.9	0.82	1.7	0.24 J	0.84	0.43 U
FP03	FP-39	MK-FP-39-0.5/1.5	0.5	1.5	11/6/2020	24	1.5	1.4	2	0.86	1.8	0.24 J	0.8	0.082 J
FP03	FP-39	MK-FP-39-1.5/2.5	1.5	2.5	11/6/2020	1.1	0.082	0.081	0.11	0.041	0.098	0.016 J	0.052	0.011 J
FP03	FP-39	MK-FP-39-2.5/3.6	2.5	3.6	11/6/2020	0.13	0.006 J	0.004 J	0.006 J	0.021 U	0.005 J	0.021 U	0.021 U	0.004 J
FP03	FP-40A	MK-FP-40A-0.0/0.5	0	0.5	11/6/2020									
FP03	FP-40A	MK-FP-40A-0.5/1.5	0.5	1.5	11/6/2020									
FP03	FP-40A	MK-FP-40A-1.5/2.5	1.5	2.5	11/6/2020									
FP03	FP-40A	MK-FP-40A-2.5/3.6	2.5	3.6	11/6/2020									
FP03	FP-40B	MK-FP-40B-0.0/0.5	0	0.5	11/6/2020									
FP03	FP-40B	MK-FP-40B-0.5/1.5	0.5	1.5	11/6/2020									
FP03	FP-40B	MK-FP-40B-1.5/2.5	1.5	2.5	11/6/2020									
FP03	FP-40B	MK-FP-40B-2.5/3.6	2.5	3.6	11/6/2020									
FP03	FP-40C	MK-FP-40C-0.0/0.5	0	0.5	11/6/2020									
FP03	FP-40C	MK-FP-40C-0.5/1.5	0.5	1.5	11/6/2020									
FP03	FP-40C	MK-FP-40C-1.5/2.5	1.5	2.5	11/6/2020									
FP03	FP-40C	MK-FP-40C-2.5/4.0	2.5	4	11/6/2020									
FP03	FP-41	MK-FP-41-0.0/0.5	0	0.5	11/6/2020	3.3	0.24	0.26	0.35	0.14	0.29	0.048	0.16	0.044 U
FP03	FP-41	MK-FP-41-0.5/1.5	0.5	1.5	11/6/2020	1.9	0.15	0.15	0.19	0.091	0.16	0.027 J	0.085	0.036 U
FP03	FP-41	MK-FP-41-1.5/2.5	1.5	2.5	11/6/2020	0.12	0.003 J	0.002 J	0.004 J	0.019 U	0.007 J	0.019 U	0.019 U	0.005 J
FP03	FP-41	MK-FP-41-2.5/4.0	2.5	4	11/6/2020	0.13	0.006 J	0.004 J	0.006 J	0.002 J	0.006 J	0.019 U	0.019 U	0.019 U
FP03	FP-88	MK-FP-88-0.0/0.5	0	0.5	10/13/2021	13.3	0.91	1	1.5	0.52	1.1	0.17 J	0.6	0.46 U
FP03	FP-88	MK-FP-88-0.5/1.5	0.5	1.5	10/13/2021	7.4	0.53	0.6	0.86	0.31	0.65	0.12	0.38	0.029 J
FP03	FP-88	MK-FP-88-1.5/2.5	1.5	2.5	10/13/2021	1.4	0.11	0.12	0.17	0.058	0.12	0.022	0.075	0.012 J
FP04	FP-07	MK-FP-07-0.0/0.5	0	0.5	11/11/2016	33.9	2.76	3.04	4.06	1.89	3.1	0.59	1.67	0.0232 J
FP04	FP-07	MK-FP-07-0.5/1.5	0.5	1.5	11/11/2016	107	8.68	9.29	13	4.16	10.6	0.0047 U	4.38	0.0819 J
FP04	FP-07	MK-FP-07-1.5/2.5	1.5	2.5	11/11/2016	125	9.91	10.5	14	6.04	11.4	0.0027 U	6.53	0.164 J
FP04	FP-07	MK-FP-07-2.5/3.0	2.5	3	11/11/2016	74	5.89	5.47	7.81	3.05	7.01	0.88	2.24	0.114 J
FP04	FP-08	MK-FP-08-0.0/0.5	0	0.5	11/11/2016	29.7	2.83	1.91	3.92	1.02	2.22	0.601	1.56	0.0334
FP04	FP-08	MK-FP-08-0.5/1.5	0.5	1.5	11/11/2016	89.6	6.38	6.84	70.6 J	3.76	7.37	1.43	3.52	0.166
FP04	FP-08	MK-FP-08-1.5/2.5	1.5	2.5	11/11/2016	38.1	3.01	3.35	4.29	1.33	4.2	0.929	2.18	0.0613
FP04	FP-08	MK-FP-08-2.5/3.2	2.5	3.2	11/11/2016	14.7	0.902	1.04	1.42	1.81	1.24	0.269	0.727	0.0136
FP04	FP-09	MK-FP-09-0.0./0.5	0	0.5	11/11/2016	20.5	1.59	1.87	2.65	1.1	1.93	0.322	1.27	0.0131 J
FP04	FP-09	MK-FP-09-0.5/1.5	0.5	1.5	11/11/2016	48.7	3.79	4.1	6.34	1.96	4.34	0.0047 U	2.14	0.0433 J
FP04	FP-09X	MK-FP-09X-2.0/3.0	2	3	11/5/2020	0.13	0.004 J	0.003 J	0.005 J	0.018 U	0.007 J	0.018 U	0.018 U	0.018 U
FP04	FP-42	MK-FP-42-0.0/0.5	0	0.5	11/5/2020	2.9	0.21	0.22	0.32	0.12	0.25	0.039 J	0.14	0.057
FP04	FP-42	MK-FP-42-0.5/1.5	0.5	1.5	11/5/2020	0.35	0.023	0.025	0.036	0.013 J	0.03	0.005 J	0.015 J	0.006 J
FP04	FP-42	MK-FP-42-1.5/2.5	1.5	2.5	11/5/2020	0.0095 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
FP04	FP-42	MK-FP-42-2.5/3.4	2.5	3.4	11/5/2020	0.009 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
FP04	FP-43	MK-FP-43-0.0/0.5	0	0.5	11/5/2020									
FP04	FP-43	MK-FP-43-0.5/1.5	0.5	1.5	11/5/2020									

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Fluoran-thene	Fluorene	Naphtha-lene	Phenan-threne	Pyrene
					Tier 1 SS-RCL[1,4,5]										
					Tier 2 SS-RCL[1]										
					TSCA LO										
FP03	FP-06	MK-FP-06-1.0/2.0	1	2	11/11/2016	0.0808	0.0722	0.324		1.13	3.07	0.111	0.01	1.29	2.43
FP03	FP-06	MK-FP-06-2.0/2.5	2	2.5	11/11/2016	0.0094	0.0105	0.0318		0.145	0.298	0.0123	0.002	0.112	0.237
FP03	FP-39	MK-FP-39-0.0/0.5	0	0.5	11/6/2020	0.14 J	0.43 U	0.6	1	0.99	3.6	0.15 J	0.066 J	1.9	2.6
FP03	FP-39	MK-FP-39-0.5/1.5	0.5	1.5	11/6/2020	0.42	0.4 U	0.73	1	0.96	4.5	0.3 J	0.33 J	3.6	3.3
FP03	FP-39	MK-FP-39-1.5/2.5	1.5	2.5	11/6/2020	0.006 J	0.006 J	0.026	0.059	0.058	0.19	0.007 J	0.013 J	0.1	0.15
FP03	FP-39	MK-FP-39-2.5/3.6	2.5	3.6	11/6/2020	0.021 U	0.021 U	0.021 U	0.003 J	0.006 J	0.009 J	0.021 U	0.004 J	0.006 J	0.007 J
FP03	FP-40A	MK-FP-40A-0.0/0.5	0	0.5	11/6/2020										
FP03	FP-40A	MK-FP-40A-0.5/1.5	0.5	1.5	11/6/2020										
FP03	FP-40A	MK-FP-40A-1.5/2.5	1.5	2.5	11/6/2020										
FP03	FP-40A	MK-FP-40A-2.5/3.6	2.5	3.6	11/6/2020										
FP03	FP-40B	MK-FP-40B-0.0/0.5	0	0.5	11/6/2020										
FP03	FP-40B	MK-FP-40B-0.5/1.5	0.5	1.5	11/6/2020										
FP03	FP-40B	MK-FP-40B-1.5/2.5	1.5	2.5	11/6/2020										
FP03	FP-40B	MK-FP-40B-2.5/3.6	2.5	3.6	11/6/2020										
FP03	FP-40C	MK-FP-40C-0.0/0.5	0	0.5	11/6/2020										
FP03	FP-40C	MK-FP-40C-0.5/1.5	0.5	1.5	11/6/2020										
FP03	FP-40C	MK-FP-40C-1.5/2.5	1.5	2.5	11/6/2020										
FP03	FP-40C	MK-FP-40C-2.5/4.0	2.5	4	11/6/2020										
FP03	FP-41	MK-FP-41-0.0/0.5	0	0.5	11/6/2020	0.018 J	0.008 J	0.061	0.19	0.18	0.58	0.016 J	0.01 J	0.25	0.46
FP03	FP-41	MK-FP-41-0.5/1.5	0.5	1.5	11/6/2020	0.008 J	0.005 J	0.049	0.11	0.1	0.36	0.009 J	0.004 J	0.14	0.25
FP03	FP-41	MK-FP-41-1.5/2.5	1.5	2.5	11/6/2020	0.019 U	0.019 U	0.019 U	0.003 J	0.006 J	0.004 J	0.019 U	0.019 U	0.01 J	0.004 J
FP03	FP-41	MK-FP-41-2.5/4.0	2.5	4	11/6/2020	0.019 U	0.019 U	0.019 U	0.004 J	0.004 J	0.01 J	0.019 U	0.019 U	0.006 J	0.008 J
FP03	FP-88	MK-FP-88-0.0/0.5	0	0.5	10/13/2021	0.46 U	0.46 U	0.23 J	0.79	0.76	2.3	0.066 J	0.46 U	0.88	1.6
FP03	FP-88	MK-FP-88-0.5/1.5	0.5	1.5	10/13/2021	0.03 J	0.022 J	0.13	0.45	0.47	1.3	0.033 J	0.029 J	0.52	0.97
FP03	FP-88	MK-FP-88-1.5/2.5	1.5	2.5	10/13/2021	0.006 J	0.003 J	0.023	0.085	0.089	0.23	0.005 J	0.011 J	0.094	0.18
FP04	FP-07	MK-FP-07-0.0/0.5	0	0.5	11/11/2016	0.212	0.108	0.721		1.73	6.66	0.28	0.0295	2.54	4.46
FP04	FP-07	MK-FP-07-0.5/1.5	0.5	1.5	11/11/2016	0.838	0.298	2.54		4.47	20.8	1.07	0.0626	10.2	16.2
FP04	FP-07	MK-FP-07-1.5/2.5	1.5	2.5	11/11/2016	1.02	0.44	3.65		7.06	22.6	1.57	0.143	12.5	17.1
FP04	FP-07	MK-FP-07-2.5/3.0	2.5	3	11/11/2016	0.856	0.229	2.25		2.3	15.1	1.29	0.101	7.96	11.4
FP04	FP-08	MK-FP-08-0.0/0.5	0	0.5	11/11/2016	0.186	0.251	0.827	1.52	1.76	4.95	0.208	0.0492	1.93	3.95
FP04	FP-08	MK-FP-08-0.5/1.5	0.5	1.5	11/11/2016	0.62	0.751	1.89	3.47	4.05	17.9	0.761	0.18	10.1	9.25
FP04	FP-08	MK-FP-08-1.5/2.5	1.5	2.5	11/11/2016	0.241	0.535	1.19	2.04	2.5	5.2	0.312	0.0582	2.29	4.35
FP04	FP-08	MK-FP-08-2.5/3.2	2.5	3.2	11/11/2016	0.0929	0.156	0.404	0.748	0.798	2.14	0.121	0.0169	1.13	1.67
FP04	FP-09	MK-FP-09-0.0./0.5	0	0.5	11/11/2016	0.0959	0.0703	0.295		1.4	3.51	0.119	0.0216	1.44	2.81
FP04	FP-09	MK-FP-09-0.5/1.5	0.5	1.5	11/11/2016	0.372	0.205	1.08		2.15	9.5	0.449	0.0557	4.1	8.1
FP04	FP-09X	MK-FP-09X-2.0/3.0	2	3	11/5/2020	0.018 U	0.018 U	0.018 U	0.003 J	0.004 J	0.008 J	0.018 UJ	0.018 U	0.006 J	0.007 J
FP04	FP-42	MK-FP-42-0.0/0.5	0	0.5	11/5/2020	0.011 J	0.012 J	0.038 J	0.18	0.16	0.47	0.011 J-	0.047	0.21	0.36
FP04	FP-42	MK-FP-42-0.5/1.5	0.5	1.5	11/5/2020	0.019 U	0.019 U	0.004 J	0.02	0.019	0.052	0.019 UJ	0.005 J	0.025	0.041
FP04	FP-42	MK-FP-42-1.5/2.5	1.5	2.5	11/5/2020	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
FP04	FP-42	MK-FP-42-2.5/3.4	2.5	3.4	11/5/2020	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 UJ	0.018 U	0.018 U	0.018 U
FP04	FP-43	MK-FP-43-0.0/0.5	0	0.5	11/5/2020										
FP04	FP-43	MK-FP-43-0.5/1.5	0.5	1.5	11/5/2020										

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						Metals								Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Lead[4]	Arsenic[5]	Nickel	Cadmium	Chromium	Copper	Zinc	Mercury	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[1,4,5]	400	8										
					Tier 2 SS-RCL[1]												
					TSCA LO												
FP03	FP-06	MK-FP-06-1.0/2.0	1	2	11/11/2016	50 J	5.4 J	12.2 J	0.52	41.5 J	20	89.4 J	0.094	19	72		20100
FP03	FP-06	MK-FP-06-2.0/2.5	2	2.5	11/11/2016	15.3 J	2.3 J	9.6 J	0.21	20.6 J	12.3	43.2 J	0.021 J	15	83	2	23300
FP03	FP-39	MK-FP-39-0.0/0.5	0	0.5	11/6/2020	89.8	5.8	19.6	1.2	39.4	37.3	151	0.1				42300
FP03	FP-39	MK-FP-39-0.5/1.5	0.5	1.5	11/6/2020	37.2	6.6	20	0.52 J	24.6	28.1	82.4	0.061				16100
FP03	FP-39	MK-FP-39-1.5/2.5	1.5	2.5	11/6/2020	19.2	4	11.1	0.33 J	23.1	15.4	48.6	0.04 J				10100
FP03	FP-39	MK-FP-39-2.5/3.6	2.5	3.6	11/6/2020	8.9	3.2	12.6	0.26 J	16	14.8	50.2	0.026 J				12200
FP03	FP-40A	MK-FP-40A-0.0/0.5	0	0.5	11/6/2020	69.8	5.9	22.2	0.99	36.4	54.9	339	0.055				72800
FP03	FP-40A	MK-FP-40A-0.5/1.5	0.5	1.5	11/6/2020	47.8	5.5	19.8	0.55 J	18.1	28.3	102	0.034 J				15600
FP03	FP-40A	MK-FP-40A-1.5/2.5	1.5	2.5	11/6/2020	12.2	5.8	19.8	0.41 J	15.3	22.2	69.7	0.04 U				12300
FP03	FP-40A	MK-FP-40A-2.5/3.6	2.5	3.6	11/6/2020	8.5	5.2	12.8	0.31 J	11.4	16.3	62.6	0.039 U				4280
FP03	FP-40B	MK-FP-40B-0.0/0.5	0	0.5	11/6/2020	67.2	6	17.9	1	34.3	37.7	340	0.054				31500
FP03	FP-40B	MK-FP-40B-0.5/1.5	0.5	1.5	11/6/2020	24	7.1	16.1	0.73	16.4	20.4	335	0.019 J				16900
FP03	FP-40B	MK-FP-40B-1.5/2.5	1.5	2.5	11/6/2020	11.3	6.4	15.3	0.6	12.1	17.1	315	0.011 J				5770
FP03	FP-40B	MK-FP-40B-2.5/3.6	2.5	3.6	11/6/2020	6.5	5	14.3	0.29 J	9.8	14.7	58.1	0.04 U				5940
FP03	FP-40C	MK-FP-40C-0.0/0.5	0	0.5	11/6/2020	49.9	5.9	19.1	0.45 J	20.1	23.9	103	0.018 J				15800
FP03	FP-40C	MK-FP-40C-0.5/1.5	0.5	1.5	11/6/2020	18.3	10.2	17.5	0.57	9.9	23.6	94.6	0.038 U				12800
FP03	FP-40C	MK-FP-40C-1.5/2.5	1.5	2.5	11/6/2020	7.7	5.6	12.6	0.38 J	8.4	15.1	65.8	0.037 U				7340
FP03	FP-40C	MK-FP-40C-2.5/4.0	2.5	4	11/6/2020	8.9	6.7	15.9	0.33 J	11.5	16.3	59.4	0.037 U				5400
FP03	FP-41	MK-FP-41-0.0/0.5	0	0.5	11/6/2020	54.8	6.9	18.6	0.59 J	26.7	32.7	111	0.042 J				34200
FP03	FP-41	MK-FP-41-0.5/1.5	0.5	1.5	11/6/2020	19.1	5.3	10.8	0.29 J	11.5	11.6	39.1	0.024 J				35300
FP03	FP-41	MK-FP-41-1.5/2.5	1.5	2.5	11/6/2020	9	5.6	15.3	0.31 J	10.8	19	57.7	0.014 J				11700
FP03	FP-41	MK-FP-41-2.5/4.0	2.5	4	11/6/2020	8.7	3.5	14.9	0.27 J	12.7	17.1	55.6	0.039				6430
FP03	FP-88	MK-FP-88-0.0/0.5	0	0.5	10/13/2021	96	5										
FP03	FP-88	MK-FP-88-0.5/1.5	0.5	1.5	10/13/2021	60	8										
FP03	FP-88	MK-FP-88-1.5/2.5	1.5	2.5	10/13/2021	28	6										
FP04	FP-07	MK-FP-07-0.0/0.5	0	0.5	11/11/2016	77.1 J	3.6 J	14.4 J	1.4	36.7 J	63.7	190 J	0.15				33600
FP04	FP-07	MK-FP-07-0.5/1.5	0.5	1.5	11/11/2016	174 J	5.2 J	18.6 J	2.7	52.5 J	121	298 J	0.19				29800
FP04	FP-07	MK-FP-07-1.5/2.5	1.5	2.5	11/11/2016	193 J	8 J	21.4 J	4.2	80.1 J	1480	786 J	0.19				38000
FP04	FP-07	MK-FP-07-2.5/3.0	2.5	3	11/11/2016	80.9 J	4.3 J	22.2 J	3.7	45.7 J	64.6	203 J	0.11				69800
FP04	FP-08	MK-FP-08-0.0/0.5	0	0.5	11/11/2016	88.5 J	4.6 J	17.4 J	1.9	39.8 J	64.7	223 J	0.17	9.2	83.8	7	41800
FP04	FP-08	MK-FP-08-0.5/1.5	0.5	1.5	11/11/2016	245 J	6.2 J	18.9 J	3.5	74 J	98.6	251 J	0.27	7.7	83.3	9	26700
FP04	FP-08	MK-FP-08-1.5/2.5	1.5	2.5	11/11/2016	258 J	8.5 J	25.7 J	5.3	117 J	114	371 J	0.35	11	71	18	28900
FP04	FP-08	MK-FP-08-2.5/3.2	2.5	3.2	11/11/2016	66.6 J	3.1 J	12.2 J	1.6	33.6 J	39.2	125 J	0.058	2.6	97.4	0	7310
FP04	FP-09	MK-FP-09-0.0./0.5	0	0.5	11/11/2016	109 J	5.7 J	20.4 J	2.7	45 J	82.1	273 J	0.17				43700
FP04	FP-09	MK-FP-09-0.5/1.5	0.5	1.5	11/11/2016	184 J	5.3 J	19.4 J	3.4	86.3 J	94.1	268 J	0.25				28500
FP04	FP-09X	MK-FP-09X-2.0/3.0	2	3	11/5/2020	6.2	4.9	12.4	0.18 J	9.9	17.3	26.4	0.037 U				7230
FP04	FP-42	MK-FP-42-0.0/0.5	0	0.5	11/5/2020	85.3	8.4	20.1	0.68	19.2	37.6	133	0.097				38600
FP04	FP-42	MK-FP-42-0.5/1.5	0.5	1.5	11/5/2020	21.5	5.5	19.3	0.4 J	13	21.1	71.1	0.038 J				16700
FP04	FP-42	MK-FP-42-1.5/2.5	1.5	2.5	11/5/2020	8.2	10	14.3	0.25 J	10.4	12.7	49.2	0.012 J				2860
FP04	FP-42	MK-FP-42-2.5/3.4	2.5	3.4	11/5/2020	6.1	4.7	13.5	0.23 J	9.1	21.3	51.2	0.038 U				2970
FP04	FP-43	MK-FP-43-0.0/0.5	0	0.5	11/5/2020	29.1	9.7	43.8	0.44 J	39.7	38	146	0.054				12400
FP04	FP-43	MK-FP-43-0.5/1.5	0.5	1.5	11/5/2020	52.7	6.2	21.7	0.45 J	18.5	28.9	100	0.037 J				24900

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PCB									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242
					Tier 1 SS-RCL[1,4,5]	1.1									
					Tier 2 SS-RCL[1]	0.7									
					TSCA LO	25									
FP04	FP-43	MK-FP-43-1.5/2.5	1.5	2.5	11/5/2020	0.031 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U
FP04	FP-43	MK-FP-43-2.5/4.0	2.5	4	11/5/2020	0.029 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U
FP04	FP-44	MK-FP-44-0.0/0.5	0	0.5	11/5/2020	0.085	0.067 U	0.047 J	0.067 U	0.067 U	0.067 U	0.038 J	0.067 U	0.067 U	0.067 U
FP04	FP-44	MK-FP-44-0.5/1.5	0.5	1.5	11/5/2020	0.033 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
FP04	FP-44	MK-FP-44-1.5/2.5	1.5	2.5	11/5/2020	0.031 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U
FP04	FP-44	MK-FP-44-2.5/4.0	2.5	4	11/5/2020	0.030 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U
FP04	FP-45	MK-FP-45-0.0/0.5	0	0.5	11/5/2020	0.025	0.068 U	0.025 J	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
FP04	FP-45	MK-FP-45-0.5/1.5	0.5	1.5	11/5/2020	0.033 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
FP04	FP-45	MK-FP-45-1.5/2.5	1.5	2.5	11/5/2020	0.03 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U
FP04	FP-45	MK-FP-45-2.5/4.0	2.5	4	11/5/2020	0.029 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U
FP04	FP-46	MK-FP-46-0.0/0.5	0	0.5	11/5/2020	0.30	0.057 J	0.13 J	0.061 U	0.061 U	0.061 U	0.11	0.061 U	0.061 U	0.061 U
FP04	FP-46	MK-FP-46-0.5/1.5	0.5	1.5	11/5/2020	0.028 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
FP04	FP-46	MK-FP-46-1.5/2.5	1.5	2.5	11/5/2020	0.029 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U
FP04	FP-46	MK-FP-46-2.5/4.0	2.5	4	11/5/2020	0.032 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U
FP05	FP-10	MK-FP-10-0.0./0.5	0	0.5	11/11/2016	1.20	0.176 J	0.506	0.035 U	0.035 U	0.035 U	0.506	0.035 U	0.035 U	0.035 U
FP05	FP-10	MK-FP-10-0.5/1.2	0.5	1.2	11/11/2016	1.90	0.321 J	1.04 J	0.037 U	0.037 U	0.037 U	0.524 J	0.037 U	0.037 U	0.037 U
FP05	FP-10	MK-FP-10-1.2/2.3	1.2	2.3	11/11/2016	0.32	0.085	0.142 J	0.033 U	0.033 U	0.033 U	0.088	0.033 U	0.033 U	0.033 U
FP05	FP-101	MK-FP-101-0.0/0.5	0	0.5	10/16/2021	0.07	0.059 U	0.047 J	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.021 J
FP05	FP-101	MK-FP-101-1.5/2.5	1.5	2.5	10/16/2021	0.02 J	0.056 U	0.024 J	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
FP05	FP-102	MK-FP-102-0.0/1.0	0	1	10/16/2021	0.85	0.12	0.31	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.42
FP05	FP-102	MK-FP-102-1.0/2.0	1	2	10/16/2021	0.46	0.074	0.17	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.22
FP05	FP-102	MK-FP-102-2.0/3.0	2	3	10/16/2021	0.16	0.03 J	0.07 J	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.056 J
FP05	FP-11	MK-FP-11-0.0/0.5	0	0.5	11/11/2016	0.61	0.12 J	0.302 J	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.188 J
FP05	FP-11	MK-FP-11-0.5/1.5	0.5	1.5	11/11/2016	1.5	0.178 J	0.602 J	0.065 UJ	0.065 UJ	0.065 UJ	0.065 UJ	0.065 UJ	0.065 UJ	0.675 J
FP05	FP-11	MK-FP-11-1.5/2.5	1.5	2.5	11/11/2016	0.65	0.184 J	0.394 J	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ	0.067 J
FP05	FP-11	MK-FP-11-2.2/3.6	2.2	3.6	11/11/2016	0.05	0.034 UJ	0.051 J	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ
FP05	FP-53	MK-FP-53-0.0/0.5	0	0.5	11/5/2020	0.66	0.11 J	0.36	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.19
FP05	FP-53	MK-FP-53-0.5/1.5	0.5	1.5	11/5/2020	2.5	0.31	1.5	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.69 J
FP05	FP-53	MK-FP-53-1.5/2.0	1.5	2	11/5/2020	2.5	0.36	1.4	0.21 U	0.21 U	0.21 U	0.73	0.21 U	0.21 U	0.21 U
FP05	FP-53	MK-FP-53-2.5/4.0	2.5	4	11/5/2020	0.27	0.046 J	0.15	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.076
FP05	FP-54	MK-FP-54-0.0/0.5	0	0.5	11/5/2020	0.17	0.035 J	0.078 J	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.055 J
FP05	FP-54	MK-FP-54-0.5/1.6	0.5	1.6	11/5/2020	0.03 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U
FP05	FP-55	MK-FP-55-0.0/0.5	0	0.5	11/5/2020	7.1	0.59 J	2.7	0.41 U	0.41 U	0.41 U	3.8	0.41 U	0.41 U	0.41 U
FP05	FP-55	MK-FP-55-0.5/1.5	0.5	1.5	11/5/2020	0.56	0.057 J	0.27 J	0.054 UJ	0.054 UJ	0.054 UJ	0.23 J	0.054 UJ	0.054 UJ	0.054 UJ
FP05	FP-55	MK-FP-55-1.5/2.5	1.5	2.5	11/5/2020	0.13	0.022 J	0.052 J	0.054 U	0.054 U	0.054 U	0.053 J	0.054 U	0.054 U	0.054 U
FP05	FP-55	MK-FP-55-2.5/4.0	2.5	4	11/5/2020	0.22	0.05 J	0.11	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.063 J
FP05	FP-56	MK-FP-56-0.0/0.5	0	0.5	11/5/2020	5.1	0.26 J	2.1	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	2.7 J
FP05	FP-56	MK-FP-56-0.5/1.7	0.5	1.7	11/5/2020	1	0.13	0.62 J	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.28
FP06	FP-106	MK-FP-106-0.0/0.5	0	0.5	10/16/2021	7.60	0.71 J	3.8	1 U	1 U	1 U	1 U	1 U	1 U	3.1
FP06	FP-106	MK-FP-106-0.5/1.5	0.5	1.5	10/16/2021	1.90	0.18 J	1 J	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.67
FP06	FP-106	MK-FP-106-1.5/2.4	1.5	2.4	10/16/2021	0.03 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
FP06	FP-107	MK-FP-107-0.0/0.5	0	0.5	10/16/2021	9.40	0.42 J	3	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	5.9 J

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH								
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PAH-18[3]	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3-Cd) Pyrene	2-Methyl-naphthalene
					Tier 1 SS-RCL[1,4,5]	--	84.6	8.48	84.8	848	8480	8.48	84.8	
					Tier 2 SS-RCL[1]	--	50.8	5.09	50.9	501	5090	5.09	50.9	
					TSCA LO									
FP04	FP-43	MK-FP-43-1.5/2.5	1.5	2.5	11/5/2020									
FP04	FP-43	MK-FP-43-2.5/4.0	2.5	4	11/5/2020									
FP04	FP-44	MK-FP-44-0.0/0.5	0	0.5	11/5/2020									
FP04	FP-44	MK-FP-44-0.5/1.5	0.5	1.5	11/5/2020									
FP04	FP-44	MK-FP-44-1.5/2.5	1.5	2.5	11/5/2020									
FP04	FP-44	MK-FP-44-2.5/4.0	2.5	4	11/5/2020									
FP04	FP-45	MK-FP-45-0.0/0.5	0	0.5	11/5/2020									
FP04	FP-45	MK-FP-45-0.5/1.5	0.5	1.5	11/5/2020									
FP04	FP-45	MK-FP-45-1.5/2.5	1.5	2.5	11/5/2020									
FP04	FP-45	MK-FP-45-2.5/4.0	2.5	4	11/5/2020									
FP04	FP-46	MK-FP-46-0.0/0.5	0	0.5	11/5/2020	25.1	1.8	1.9	2.7	1.1	2.2	0.34 J	1.4	0.41 U
FP04	FP-46	MK-FP-46-0.5/1.5	0.5	1.5	11/5/2020	385	29	20	27	11	30	3.4 J	10	7.3 U
FP04	FP-46	MK-FP-46-1.5/2.5	1.5	2.5	11/5/2020	4.5	0.3	0.35	0.48	0.21	0.4	0.081 J	0.26	0.019 J
FP04	FP-46	MK-FP-46-2.5/4.0	2.5	4	11/5/2020	0.19	0.011 J	0.011 J	0.015 J	0.006 J	0.012 J	0.021 UJ	0.006 J	0.021 U
FP05	FP-10	MK-FP-10-0.0./0.5	0	0.5	11/11/2016	24.2	1.88	2.15	3.12	1.53	2.4	0.518	1.44	0.0183 J
FP05	FP-10	MK-FP-10-0.5/1.2	0.5	1.2	11/11/2016	34.5	2.57	3.16	4.79	1.65	3.42	0.795	2.25	0.0353 J
FP05	FP-10	MK-FP-10-1.2/2.3	1.2	2.3	11/11/2016	18.4	1.37	1.75	2.56	1.03	1.92	0.373	1.06	0.0195 J
FP05	FP-101	MK-FP-101-0.0/0.5	0	0.5	10/16/2021	3.9	0.25	0.3	0.52	0.18	0.36	0.065	0.2	0.031 J
FP05	FP-101	MK-FP-101-1.5/2.5	1.5	2.5	10/16/2021	2	0.14	0.15	0.23	0.11	0.19	0.024	0.084	0.009 J
FP05	FP-102	MK-FP-102-0.0/1.0	0	1	10/16/2021	32.9	2.2	2.8	3.6	1.6 J	3	0.53 J	1.9	0.069 J
FP05	FP-102	MK-FP-102-1.0/2.0	1	2	10/16/2021	19.3	1.1	1.6	2.3	0.9	1.8	0.32 J	1.1	0.46 U
FP05	FP-102	MK-FP-102-2.0/3.0	2	3	10/16/2021	19.3	1	1.6	2.3	0.77	1.8	0.31 J	1.1	0.49 U
FP05	FP-11	MK-FP-11-0.0/0.5	0	0.5	11/11/2016	29.9	1.99	1.97	3.76	1.44	3.37	0.424	1.33	0.129 U
FP05	FP-11	MK-FP-11-0.5/1.5	0.5	1.5	11/11/2016	110	7.12	6.06	9.97	4.06	10.5	1.18	3.7	0.259 U
FP05	FP-11	MK-FP-11-1.5/2.5	1.5	2.5	11/11/2016	33.2	2.1	2.3	4.29	1.64	3.72	0.571	1.83	0.136 U
FP05	FP-11	MK-FP-11-2.2/3.6	2.2	3.6	11/11/2016	17.2	1.04 J	0.654 J	1.89	0.856	1.95	0.218	0.626	0.136 UJ
FP05	FP-53	MK-FP-53-0.0/0.5	0	0.5	11/5/2020	16.4	1.2	1.3	1.8	0.76	1.5	0.23 J	0.93	0.42 U
FP05	FP-53	MK-FP-53-0.5/1.5	0.5	1.5	11/5/2020	157	13	9.8	12	5.5	13	1.6 J	5	4.4 U
FP05	FP-53	MK-FP-53-1.5/2.0	1.5	2	11/5/2020	31	1.8	2.4	4	1.6	2.9	0.62	2.2	0.093 J
FP05	FP-53	MK-FP-53-2.5/4.0	2.5	4	11/5/2020	11.1	0.74	0.83	1.2	0.51	0.98	0.19 J	0.67	0.035 J
FP05	FP-54	MK-FP-54-0.0/0.5	0	0.5	11/5/2020									
FP05	FP-54	MK-FP-54-0.5/1.6	0.5	1.6	11/5/2020									
FP05	FP-55	MK-FP-55-0.0/0.5	0	0.5	11/5/2020									
FP05	FP-55	MK-FP-55-0.5/1.5	0.5	1.5	11/5/2020									
FP05	FP-55	MK-FP-55-1.5/2.5	1.5	2.5	11/5/2020									
FP05	FP-55	MK-FP-55-2.5/4.0	2.5	4	11/5/2020									
FP05	FP-56	MK-FP-56-0.0/0.5	0	0.5	11/5/2020	42.8	3.5	3.1	4.1	1.6	3.5	0.51	1.8	0.47 U
FP05	FP-56	MK-FP-56-0.5/1.7	0.5	1.7	11/5/2020	1.4	0.099	0.11	0.15	0.068	0.13	0.019 J	0.068	0.004 J
FP06	FP-106	MK-FP-106-0.0/0.5	0	0.5	10/16/2021	32	2	2.6	4.1	1.5	2.8	0.72	2.1	0.083 J
FP06	FP-106	MK-FP-106-0.5/1.5	0.5	1.5	10/16/2021	39.5	2.8	3	4.6	1.5	3.3	0.63	2.1	0.21 J
FP06	FP-106	MK-FP-106-1.5/2.4	1.5	2.4	10/16/2021	2.6	0.18	0.17	0.25	0.079	0.2	0.035	0.1	0.058
FP06	FP-107	MK-FP-107-0.0/0.5	0	0.5	10/16/2021	66.1	4.4	5.4	7.9	2.9	6.1	0.98	3.5	0.49 U

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Fluoran-thene	Fluorene	Naphtha-lene	Phenan-threne	Pyrene
					Tier 1 SS-RCL[1,4,5]										
					Tier 2 SS-RCL[1]										
					TSCA LO										
FP04	FP-43	MK-FP-43-1.5/2.5	1.5	2.5	11/5/2020										
FP04	FP-43	MK-FP-43-2.5/4.0	2.5	4	11/5/2020										
FP04	FP-44	MK-FP-44-0.0/0.5	0	0.5	11/5/2020										
FP04	FP-44	MK-FP-44-0.5/1.5	0.5	1.5	11/5/2020										
FP04	FP-44	MK-FP-44-1.5/2.5	1.5	2.5	11/5/2020										
FP04	FP-44	MK-FP-44-2.5/4.0	2.5	4	11/5/2020										
FP04	FP-45	MK-FP-45-0.0/0.5	0	0.5	11/5/2020										
FP04	FP-45	MK-FP-45-0.5/1.5	0.5	1.5	11/5/2020										
FP04	FP-45	MK-FP-45-1.5/2.5	1.5	2.5	11/5/2020										
FP04	FP-45	MK-FP-45-2.5/4.0	2.5	4	11/5/2020										
FP04	FP-46	MK-FP-46-0.0/0.5	0	0.5	11/5/2020	0.13 J	0.1 J	0.55	1.4	1.5	4.2	0.15 J-	0.076 J	2	3.3
FP04	FP-46	MK-FP-46-0.5/1.5	0.5	1.5	11/5/2020	6.4 J	7.3 U	23	13	11	66	9.1 J-	7.3 U	63	52
FP04	FP-46	MK-FP-46-1.5/2.5	1.5	2.5	11/5/2020	0.016 J	0.028 J	0.068 J	0.28	0.3	0.74	0.017 J-	0.029 J	0.31	0.57
FP04	FP-46	MK-FP-46-2.5/4.0	2.5	4	11/5/2020	0.021 UJ	0.021 UJ	0.003 J	0.008 J	0.008 J	0.022 J	0.021 UJ	0.021 UJ	0.01 J	0.018 J
FP05	FP-10	MK-FP-10-0.0./0.5	0	0.5	11/11/2016	0.0947	0.108	0.4		1.72	4.02	0.121	0.0196	1.52	3.13
FP05	FP-10	MK-FP-10-0.5/1.2	0.5	1.2	11/11/2016	0.148	0.223	0.642		2.53	5.55	0.21	0.0263	2.24	4.21
FP05	FP-10	MK-FP-10-1.2/2.3	1.2	2.3	11/11/2016	0.0667	0.15	0.337		1.17	2.96	0.105	0.0198	1.15	2.33
FP05	FP-101	MK-FP-101-0.0/0.5	0	0.5	10/16/2021	0.014 J	0.02 J	0.05	0.27	0.22	0.64	0.014 J	0.028 J	0.28	0.49
FP05	FP-101	MK-FP-101-1.5/2.5	1.5	2.5	10/16/2021	0.007 J	0.007 J	0.026	0.12	0.096	0.37	0.007 J	0.012 J	0.15	0.25
FP05	FP-102	MK-FP-102-0.0/1.0	0	1	10/16/2021	0.12 J	0.096 J	0.65 J	2	2.2	5.7	0.14 J	0.12 J	2	4.2
FP05	FP-102	MK-FP-102-1.0/2.0	1	2	10/16/2021	0.46 U	0.46 U	0.31 J	1.3	1.3	3.2	0.066 J	0.061 J	1.1	2.2
FP05	FP-102	MK-FP-102-2.0/3.0	2	3	10/16/2021	0.49 U	0.49 U	0.33 J	1.3	1.3	3.1	0.49 U	0.078 J	1.1	2.2
FP05	FP-11	MK-FP-11-0.0/0.5	0	0.5	11/11/2016	0.137 J	0.0853 U	0.739		1.55	5.87	0.154 J	0.218 U	2.62	4.31
FP05	FP-11	MK-FP-11-0.5/1.5	0.5	1.5	11/11/2016	1.39	0.171 U	4.5		4.05	20.8	1.92	1.73	17.4	15.2
FP05	FP-11	MK-FP-11-1.5/2.5	1.5	2.5	11/11/2016	0.132 J	0.123 J	0.849		1.99	5.72	0.196 J	0.23 U	2.87	4.71
FP05	FP-11	MK-FP-11-2.2/3.6	2.2	3.6	11/11/2016	0.106 U	0.0899 U	0.221 J		0.755	3.65	0.177 J	0.23 U	2.29	2.57
FP05	FP-53	MK-FP-53-0.0/0.5	0	0.5	11/5/2020	0.086 J	0.081 J	0.27 J	0.99	1.1	2.6	0.093 J-	0.045 J	1.2	2
FP05	FP-53	MK-FP-53-0.5/1.5	0.5	1.5	11/5/2020	1.7 J	4.4 U	6.6	6.6	5.5	27	2.4 J-	4.4 U	21	20
FP05	FP-53	MK-FP-53-1.5/2.0	1.5	2	11/5/2020	0.079 J	0.26 J	0.46 J	2.5	2.5	4.2	0.12 J-	0.14 J	1.8	3.3
FP05	FP-53	MK-FP-53-2.5/4.0	2.5	4	11/5/2020	0.036 J	0.053 J	0.19 J	0.68	0.79	1.8	0.053 J-	0.07 J	0.84	1.4
FP05	FP-54	MK-FP-54-0.0/0.5	0	0.5	11/5/2020										
FP05	FP-54	MK-FP-54-0.5/1.6	0.5	1.6	11/5/2020										
FP05	FP-55	MK-FP-55-0.0/0.5	0	0.5	11/5/2020										
FP05	FP-55	MK-FP-55-0.5/1.5	0.5	1.5	11/5/2020										
FP05	FP-55	MK-FP-55-1.5/2.5	1.5	2.5	11/5/2020										
FP05	FP-55	MK-FP-55-2.5/4.0	2.5	4	11/5/2020										
FP05	FP-56	MK-FP-56-0.0/0.5	0	0.5	11/5/2020	0.2 J	0.32 J	1.5	2.1	2	7.7	0.33 J-	0.053 J	4.2	6.1
FP05	FP-56	MK-FP-56-0.5/1.7	0.5	1.7	11/5/2020	0.006 J	0.005 J	0.02 J	0.086	0.081	0.24	0.007 J	0.005 J	0.084	0.19
FP06	FP-106	MK-FP-106-0.0/0.5	0	0.5	10/16/2021	0.085 J	0.16 J	0.56	2.3	2.4	5.1	0.11 J	0.11 J	1.7	3.6
FP06	FP-106	MK-FP-106-0.5/1.5	0.5	1.5	10/16/2021	0.15 J	0.11 J	0.99	2.4	2.4	6.9	0.2 J	0.24 J	3.2	4.8
FP06	FP-106	MK-FP-106-1.5/2.4	1.5	2.4	10/16/2021	0.024	0.006 J	0.085	0.13	0.13	0.45	0.027	0.05	0.32	0.33
FP06	FP-107	MK-FP-107-0.0/0.5	0	0.5	10/16/2021	0.26 J	0.13 J	1.2	3.9	4.1	12	0.29 J	0.11 J	4.2	8.5

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						Metals								Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Lead[4]	Arsenic[5]	Nickel	Cadmium	Chromium	Copper	Zinc	Mercury	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[1,4,5]	400	8										
					Tier 2 SS-RCL[1]												
					TSCA LO												
FP04	FP-43	MK-FP-43-1.5/2.5	1.5	2.5	11/5/2020	13.9	6.3	25.5	0.38 J	22.4	27.2	89.6	0.038 J				16000
FP04	FP-43	MK-FP-43-2.5/4.0	2.5	4	11/5/2020	11.7	8.6	18	0.35 J	13.6	20.1	55.9	0.014 J				4990
FP04	FP-44	MK-FP-44-0.0/0.5	0	0.5	11/5/2020	85.5	6.5	19.5	1.3	44.3	43.5	147	0.12				50400
FP04	FP-44	MK-FP-44-0.5/1.5	0.5	1.5	11/5/2020	14.1	3.5	17.8	0.51 J	15.4	22.3	75.6	0.068				36900
FP04	FP-44	MK-FP-44-1.5/2.5	1.5	2.5	11/5/2020	8	3.3	11.8	0.17 J	15.1	6.4	58.9	0.028 J				6320
FP04	FP-44	MK-FP-44-2.5/4.0	2.5	4	11/5/2020	6.4	7.1	10.5	0.23 J	9.8	14.3	41.9	0.018 J				7410 J-
FP04	FP-45	MK-FP-45-0.0/0.5	0	0.5	11/5/2020	117	7.5	21.4	0.9	23.7	50.6	130	0.097				52100
FP04	FP-45	MK-FP-45-0.5/1.5	0.5	1.5	11/5/2020	25.1	5	21.2	0.51 J	22	32	99.7	0.057				36200
FP04	FP-45	MK-FP-45-1.5/2.5	1.5	2.5	11/5/2020	7.5	4.4	21.3	0.34 J	13.5	29.6	55.9	0.026 J				8850
FP04	FP-45	MK-FP-45-2.5/4.0	2.5	4	11/5/2020	5	2.6 J	12.5	0.54 U	8.3	23	36	0.016 J				2120
FP04	FP-46	MK-FP-46-0.0/0.5	0	0.5	11/5/2020	180	6.6	18.3	1.1	27.2	54.3	138	0.11				47400
FP04	FP-46	MK-FP-46-0.5/1.5	0.5	1.5	11/5/2020	28.9	5	14.9	0.4 J	14.5	23.4	92.5	0.057				31700
FP04	FP-46	MK-FP-46-1.5/2.5	1.5	2.5	11/5/2020	14.4	5.7	18.8	0.33 J	16	26.8	77.5	0.048				21800
FP04	FP-46	MK-FP-46-2.5/4.0	2.5	4	11/5/2020	15.7	3.6	29	0.33 J	28.3	31	80.5	0.052				23300
FP05	FP-10	MK-FP-10-0.0./0.5	0	0.5	11/11/2016	125 J	5.8 J	17.8 J	2.9	49 J	243	663 J	0.33				41800
FP05	FP-10	MK-FP-10-0.5/1.2	0.5	1.2	11/11/2016	339 J	11.1	25.9 J	7.1	111	101 J	620 J	0.54				32900
FP05	FP-10	MK-FP-10-1.2/2.3	1.2	2.3	11/11/2016	99.3 J	5.6	14.6 J	3.2	40.1	35.1 J	171 J	0.23				19600
FP05	FP-101	MK-FP-101-0.0/0.5	0	0.5	10/16/2021	675 J	5										
FP05	FP-101	MK-FP-101-1.5/2.5	1.5	2.5	10/16/2021	191 J	4										
FP05	FP-102	MK-FP-102-0.0/1.0	0	1	10/16/2021	127	4										
FP05	FP-102	MK-FP-102-1.0/2.0	1	2	10/16/2021	169 J	7										
FP05	FP-102	MK-FP-102-2.0/3.0	2	3	10/16/2021	247 J	9										
FP05	FP-11	MK-FP-11-0.0/0.5	0	0.5	11/11/2016	101 J	3.7 J	14.5	1.7	38.1	38.5	192 J	0.18 J+	35	61	4	23400
FP05	FP-11	MK-FP-11-0.5/1.5	0.5	1.5	11/11/2016	251 J	6.8	21.1	2.8	55.5	64.4	266 J	0.35 J+	26	63	11	35300
FP05	FP-11	MK-FP-11-1.5/2.5	1.5	2.5	11/11/2016	246 J	9.2	24.7	5.3	103	73.2	363 J	0.47 J+	33	44	23	27000
FP05	FP-11	MK-FP-11-2.2/3.6	2.2	3.6	11/11/2016	153 J	6.4 J	18.2	2.9	47	38.3	205 J	0.42 J+	35	54	11	19500
FP05	FP-53	MK-FP-53-0.0/0.5	0	0.5	11/5/2020	106	3.4	17.8	2.1	41.8	41.2	205	0.16				19700
FP05	FP-53	MK-FP-53-0.5/1.5	0.5	1.5	11/5/2020	226	6.1	22.3	3.3	90.6	72.1	323	0.27				21700
FP05	FP-53	MK-FP-53-1.5/2.0	1.5	2	11/5/2020	380	8.4	30.9	6.6	121	93.1	576	0.4				29600
FP05	FP-53	MK-FP-53-2.5/4.0	2.5	4	11/5/2020	93.6	2.7 J	16.1	1.9	48.4	34	155	0.19				18400
FP05	FP-54	MK-FP-54-0.0/0.5	0	0.5	11/5/2020	183	7.1	19.7	1.1	28.2	39.5	155	0.21				69900
FP05	FP-54	MK-FP-54-0.5/1.6	0.5	1.6	11/5/2020	13	3.1	13.9	0.37 J	17.8	15.6	42.9	0.03 J				10000
FP05	FP-55	MK-FP-55-0.0/0.5	0	0.5	11/5/2020	277	6	24.6	2.9	73.3	70.2	272	0.28				56100
FP05	FP-55	MK-FP-55-0.5/1.5	0.5	1.5	11/5/2020	62.9	4.4	8.4	0.33 J	10.7	30.7	80.6	0.032 J				25700
FP05	FP-55	MK-FP-55-1.5/2.5	1.5	2.5	11/5/2020	1470	5.7	7.9	0.71	10	19.2	66.1	0.012 J				10700
FP05	FP-55	MK-FP-55-2.5/4.0	2.5	4	11/5/2020	71	6.1	12.6	0.73	19.1	27.3	96.8	0.08				26500
FP05	FP-56	MK-FP-56-0.0/0.5	0	0.5	11/5/2020	172	4.3	25	3.4	97.2	64.2	251	0.28				29800
FP05	FP-56	MK-FP-56-0.5/1.7	0.5	1.7	11/5/2020	125	6.2	19.3	2.3	79.7	36.6	199 J	0.27				26900
FP06	FP-106	MK-FP-106-0.0/0.5	0	0.5	10/16/2021	318 P6	7										
FP06	FP-106	MK-FP-106-0.5/1.5	0.5	1.5	10/16/2021	139	6										
FP06	FP-106	MK-FP-106-1.5/2.4	1.5	2.4	10/16/2021	26	3 J										
FP06	FP-107	MK-FP-107-0.0/0.5	0	0.5	10/16/2021	357	6										

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PCB									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242
					Tier 1 SS-RCL[1,4,5]	1.1									
					Tier 2 SS-RCL[1]	0.7									
					TSCA LO	25									
FP06	FP-107	MK-FP-107-0.5/1.5	0.5	1.5	10/16/2021	0.22	0.032 J	0.11 J	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.075
FP06	FP-107	MK-FP-107-1.5/2.5	1.5	2.5	10/16/2021	0.03 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
FP06	FP-12	MK-FP-12-0.0./0.5	0	0.5	11/11/2016	0.91	0.087 J	0.421 J	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ	0.399 J
FP06	FP-12	MK-FP-12-0.5/1.5	0.5	1.5	11/11/2016	1.2	0.139 J	0.613 J	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.449 J
FP06	FP-12	MK-FP-12-1.5/2.5	1.5	2.5	11/11/2016	0.02 U	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ	0.034 UJ
FP06	FP-12	MK-FP-12-2.5/3.2	2.5	3.2	11/11/2016	0.02 U	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ
FP06	FP-12	MK-FP-12-5.0/7.0	5	7	11/11/2016	0.02 U	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ
FP06	FP-12	MK-FP-12-7.0/9.0	7	9	11/11/2016	0.02 U	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ
FP06	FP-12	MK-FP-12-9.0/9.5	9	9.5	11/11/2016	0.02 U	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ
FP06	FP-12	MK-FP-12-10.0/11.4	10	11.4	11/11/2016	0.02 U	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ
FP06	FP-13	MK-FP-13-0.0/0.5	0	0.5	11/11/2016	12.4	0.685 UJ	3.05 J	0.685 UJ	0.685 UJ	0.685 UJ	0.685 UJ	0.685 UJ	0.685 UJ	9.31 J
FP06	FP-13	MK-FP-13-0.5/1.5	0.5	1.5	11/11/2016	9.9	0.697 UJ	3.27 J	0.697 UJ	0.697 UJ	0.697 UJ	0.697 UJ	0.697 UJ	0.697 UJ	6.66 J
FP06	FP-13	MK-FP-13-1.5/2.5	1.5	2.5	11/11/2016	1.1	0.151 J	0.431 J	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.555 J
FP06	FP-13	MK-FP-13-2.5/4.0	2.5	4	11/11/2016	0.02 U	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ
FP06	FP-13	MK-FP-13-4.0/5.0	4	5	11/11/2016	0.02 U	0.036 UJ	0.036 UJ	0.036 UJ	0.036 UJ	0.036 UJ	0.036 UJ	0.036 UJ	0.036 UJ	0.036 UJ
FP06	FP-13	MK-FP-13-5.0/5.5	5	5.5	11/11/2016	0.02 U	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ
FP06	FP-13	MK-FP-13-9.0/11.0	9	11	11/11/2016	0.02 U	0.040 UJ	0.040 UJ	0.040 UJ	0.040 UJ	0.040 UJ	0.040 UJ	0.040 UJ	0.040 UJ	0.040 UJ
FP06	FP-13	MK-FP-13-11.0/12.2	11	12.2	11/11/2016	0.02 U	0.043 UJ	0.043 UJ	0.043 UJ	0.043 UJ	0.043 UJ	0.043 UJ	0.043 UJ	0.043 UJ	0.043 UJ
FP06	FP-14	MK-FP-14-0.0/0.5	0	0.5	11/11/2016	5.3	0.35 J	1.81 J	0.35 UJ	0.35 UJ	0.35 UJ	0.35 UJ	0.35 UJ	0.35 UJ	3.09 J
FP06	FP-14	MK-FP-14-0.5/1.5	0.5	1.5	11/11/2016	24.4	3.3 UJ	4.4 J	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	3.3 UJ	20.0 J
FP06	FP-14	MK-FP-14-1.5/2.4	1.5	2.4	11/11/2016	0.19	0.045 J	0.072 J	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.069 J
FP06	FP-14	MK-FP-14-5.0/7.0	5	7	11/11/2016	0.21	0.034 U	0.072	0.034 U	0.034 U	0.034 U	0.034 U	0.034 U	0.034 U	0.141 J
FP06	FP-14	MK-FP-14-10.0/11.8	10	11.8	11/11/2016	0.02 U	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ
FP06	FP-57	MK-FP-57-0.0/0.5	0	0.5	11/4/2020	0.83	0.12 J	0.45	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.26 J
FP06	FP-57	MK-FP-57-0.5.1.5	0.5	1.5	11/4/2020	0.15	0.033 J	0.079	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.037 J
FP06	FP-57	MK-FP-57-1.5/2.5	1.5	2.5	11/4/2020	0.033 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U
FP06	FP-57	MK-FP-57-2.5/4.0	2.5	4	11/4/2020	0.031 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U
FP06	FP-58	MK-FP-58-0.0/0.5	0	0.5	11/4/2020	3.1	0.34	1.4	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	1.4
FP06	FP-58	MK-FP-58-0.5/1.5	0.5	1.5	11/4/2020	0.66	0.091	0.31 J	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.26
FP06	FP-58	MK-FP-58-1.5/2.5	1.5	2.5	11/4/2020	0.031 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U
FP06	FP-58	MK-FP-58-2.5/4.0	2.5	4	11/4/2020	0.034 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
FP06	FP-59	MK-FP-59-0.0/0.5	0	0.5	11/4/2020	0.9	0.12	0.41 J	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.37
FP06	FP-59	MK-FP-59-0.5/1.5	0.5	1.5	11/4/2020	0.55	0.054 J	0.26 J	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.24
FP06	FP-59	MK-FP-59-1.5/2.5	1.5	2.5	11/4/2020	0.39	0.033 J	0.15 J	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.21
FP06	FP-59	MK-FP-59-2.5/3.8	2.5	3.8	11/4/2020	2.3	0.41	1.3 J	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.54 J
FP06	FP-60	MK-FP-60-0.0/0.5	0	0.5	11/4/2020	4.7	0.4	1.8	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	2.5
FP06	FP-60	MK-FP-60-0.5/1.5	0.5	1.5	11/4/2020	1.6	0.18	0.76 J	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.66
FP06	FP-60	MK-FP-60-1.5/2.5	1.5	2.5	11/4/2020	0.12	0.077 U	0.08 J	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.037 J
FP06	FP-60	MK-FP-60-2.5/4.0	2.5	4	11/4/2020	0.038 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U
FP06	FP-61	MK-FP-61-0.0/0.5	0	0.5	11/4/2020	5.9	1 U	2	1 U	1 U	1 U	1 U	1 U	1 U	3.9
FP06	FP-61	MK-FP-61-0.5/1.5	0.5	1.5	11/4/2020	20.2	2.3 U	4.2	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	16
FP06	FP-61	MK-FP-61-1.5/2.5	1.5	2.5	11/4/2020	0.25	0.043 J	0.14	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.062 J

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH								
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PAH-18[3]	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3-Cd) Pyrene	2-Methyl-naphthalene
					Tier 1 SS-RCL[1,4,5]	--	84.6	8.48	84.8	848	8480	8.48	84.8	
					Tier 2 SS-RCL[1]	--	50.8	5.09	50.9	501	5090	5.09	50.9	
					TSCA LO									
FP06	FP-107	MK-FP-107-0.5/1.5	0.5	1.5	10/16/2021	51.3	3.6	4.3	6.2	2.3	4.8	0.73	2.4	0.097 J
FP06	FP-107	MK-FP-107-1.5/2.5	1.5	2.5	10/16/2021	9.3	0.61	0.68	0.92	0.34	0.83	0.12 J	0.39	0.2 U
FP06	FP-12	MK-FP-12-0.0./0.5	0	0.5	11/11/2016	24.4	1.57	1.6	2.82	1.21	2.67	0.338	1.11	0.134 U
FP06	FP-12	MK-FP-12-0.5/1.5	0.5	1.5	11/11/2016	52.6	3.59	4.01	6.78	2.46	5.22	0.813	2.61	0.116 U
FP06	FP-12	MK-FP-12-1.5/2.5	1.5	2.5	11/11/2016	10.8	0.764 J	0.592 J	1.04 J	0.462 J	1.05 J	0.121	0.391 J	0.0538 U
FP06	FP-12	MK-FP-12-2.5/3.2	2.5	3.2	11/11/2016	0.58	0.0409	0.0342	0.0609	0.0254	0.0582	0.0075 J	0.0239	0.0064 U
FP06	FP-12	MK-FP-12-5.0/7.0	5	7	11/11/2016	0.0074 U	0.004 U	0.0032 U	0.0119 U	0.0032 U	0.0043 U	0.0028 U	0.0028 U	0.0063 U
FP06	FP-12	MK-FP-12-7.0/9.0	7	9	11/11/2016	0.0074 U	0.004 U	0.0032 U	0.0119 U	0.0032 U	0.0043 U	0.0028 U	0.0028 U	0.0063 U
FP06	FP-12	MK-FP-12-9.0/9.5	9	9.5	11/11/2016	0.0073 U	0.0039 U	0.0031 U	0.0117 U	0.0031 U	0.0042 U	0.0028 U	0.0027 U	0.0062 U
FP06	FP-12	MK-FP-12-10.0/11.4	10	11.4	11/11/2016	0.0081 U	0.0044 U	0.0035 U	0.013 U	0.0035 U	0.0047 U	0.0031 U	0.003 U	0.0069 U
FP06	FP-13	MK-FP-13-0.0/0.5	0	0.5	11/11/2016	50	4.18	3.5	6.57	2.12	3.75	1.05	2.91	0.0475
FP06	FP-13	MK-FP-13-0.5/1.5	0.5	1.5	11/11/2016	54.4	3.97	4.59	6.16	1.6	5.71	1.22	3.73	0.0739
FP06	FP-13	MK-FP-13-1.5/2.5	1.5	2.5	11/11/2016	40.7	3.23	3.32	4.74	1.36	4.3	0.82	2.02	0.069
FP06	FP-13	MK-FP-13-2.5/4.0	2.5	4	11/11/2016	12.7	0.903	1.04	1.41	0.584	1.28	0.255	0.688	0.0227
FP06	FP-13	MK-FP-13-4.0/5.0	4	5	11/11/2016	9.9	0.748	0.773	1.02	0.348	0.923	0.161	0.458	0.0166
FP06	FP-13	MK-FP-13-5.0/5.5	5	5.5	11/11/2016	0.58	0.0419	0.0416	0.053	0.0227	0.0461	0.0077	0.0246	0.0038
FP06	FP-13	MK-FP-13-9.0/11.0	9	11	11/11/2016	0.78	0.0558	0.0598	0.0813	0.0313	0.0703	0.0119	0.0379	0.0038
FP06	FP-13	MK-FP-13-11.0/12.2	11	12.2	11/11/2016	0.2	0.0114	0.0115	0.0173	0.0072	0.0138	0.0024	0.0072	0.0014 J
FP06	FP-14	MK-FP-14-0.0/0.5	0	0.5	11/11/2016	6.8	0.422 J+	0.448	0.896	0.361	0.821 J+	0.105	0.335	0.0277 U
FP06	FP-14	MK-FP-14-0.5/1.5	0.5	1.5	11/11/2016	17.4	0.953	1.06	2.27	1.02	2.03	0.311	1.09	0.133 U
FP06	FP-14	MK-FP-14-1.5/2.4	1.5	2.4	11/11/2016	17.7	1.07	0.992	1.75	0.804	1.63	0.209	0.731	0.127 U
FP06	FP-14	MK-FP-14-5.0/7.0	5	7	11/11/2016	10.5	0.687 J	0.534 J	0.999 J	0.441 J	1.13 J	0.13	0.407 J	0.0537 UJ
FP06	FP-14	MK-FP-14-10.0/11.8	10	11.8	11/11/2016	2.4	0.202	0.23	0.293	0.126	0.223	0.0375	0.106	0.0092 J
FP06	FP-57	MK-FP-57-0.0/0.5	0	0.5	11/4/2020	19.3	1.4	1.5	2.1	0.99	1.8	0.25 J	0.96	0.5 U
FP06	FP-57	MK-FP-57-0.5.1.5	0.5	1.5	11/4/2020	13.5	0.87	1	1.6	0.61	1.3	0.23	0.75	0.038 J
FP06	FP-57	MK-FP-57-1.5/2.5	1.5	2.5	11/4/2020	3.1	0.23	0.24	0.32	0.13	0.29	0.046	0.14	0.021 J
FP06	FP-57	MK-FP-57-2.5/4.0	2.5	4	11/4/2020	0.011 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U
FP06	FP-58	MK-FP-58-0.0/0.5	0	0.5	11/4/2020									
FP06	FP-58	MK-FP-58-0.5/1.5	0.5	1.5	11/4/2020									
FP06	FP-58	MK-FP-58-1.5/2.5	1.5	2.5	11/4/2020									
FP06	FP-58	MK-FP-58-2.5/4.0	2.5	4	11/4/2020									
FP06	FP-59	MK-FP-59-0.0/0.5	0	0.5	11/4/2020									
FP06	FP-59	MK-FP-59-0.5/1.5	0.5	1.5	11/4/2020									
FP06	FP-59	MK-FP-59-1.5/2.5	1.5	2.5	11/4/2020									
FP06	FP-59	MK-FP-59-2.5/3.8	2.5	3.8	11/4/2020									
FP06	FP-60	MK-FP-60-0.0/0.5	0	0.5	11/4/2020									
FP06	FP-60	MK-FP-60-0.5/1.5	0.5	1.5	11/4/2020									
FP06	FP-60	MK-FP-60-1.5/2.5	1.5	2.5	11/4/2020									
FP06	FP-60	MK-FP-60-2.5/4.0	2.5	4	11/4/2020									
FP06	FP-61	MK-FP-61-0.0/0.5	0	0.5	11/4/2020	22.4	1.5	1.8	2.6	1.1	2	0.41 J	1.4	0.45 U
FP06	FP-61	MK-FP-61-0.5/1.5	0.5	1.5	11/4/2020	42.3	2.8	3.5	5.2	2	4	0.82	2.8	0.5 U
FP06	FP-61	MK-FP-61-1.5/2.5	1.5	2.5	11/4/2020	23.6	1.5	1.7	2.6	1.1	2.2	0.34 J	1.4	0.5 U

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Fluoran-thene	Fluorene	Naphtha-lene	Phenan-threne	Pyrene
					Tier 1 SS-RCL[1,4,5]										
					Tier 2 SS-RCL[1]										
					TSCA LO										
FP06	FP-107	MK-FP-107-0.5/1.5	0.5	1.5	10/16/2021	0.18 J	0.11 J	0.96	3.3	2.9	9.2	0.23 J	0.19 J	3.5	6.3
FP06	FP-107	MK-FP-107-1.5/2.5	1.5	2.5	10/16/2021	0.062 J	0.2 U	0.27	0.45	0.46	1.7	0.079 J	0.032 J	0.83	1.3
FP06	FP-12	MK-FP-12-0.0./0.5	0	0.5	11/11/2016	0.138 J	0.0883 U	0.685		1.27	4.86	0.166 J	0.226 U	2.34	3.38
FP06	FP-12	MK-FP-12-0.5/1.5	0.5	1.5	11/11/2016	0.202 J	0.0937 J	1.51		2.97	10	0.349	0.196 U	4.94	6.89
FP06	FP-12	MK-FP-12-1.5/2.5	1.5	2.5	11/11/2016	0.0679 J	0.0355 U	0.411		0.432 J	2.04 J	0.149	0.293 J	1.38	1.52 J
FP06	FP-12	MK-FP-12-2.5/3.2	2.5	3.2	11/11/2016	0.0053 J	0.0042 U	0.0109 J		0.0301	0.114	0.0053 U	0.0108 U	0.072	0.08
FP06	FP-12	MK-FP-12-5.0/7.0	5	7	11/11/2016	0.0049 U	0.0042 U	0.0072 U		0.0026 U	0.007 U	0.0052 U	0.0106 U	0.015 U	0.006 U
FP06	FP-12	MK-FP-12-7.0/9.0	7	9	11/11/2016	0.0049 U	0.0042 U	0.0072 U		0.0026 U	0.007 U	0.0052 U	0.0107 U	0.015 U	0.006 U
FP06	FP-12	MK-FP-12-9.0/9.5	9	9.5	11/11/2016	0.0048 U	0.0041 U	0.0071 U		0.0025 U	0.007 U	0.0051 U	0.0105 U	0.015 U	0.006 U
FP06	FP-12	MK-FP-12-10.0/11.4	10	11.4	11/11/2016	0.0054 U	0.0046 U	0.0079 U		0.0028 U	0.007 U	0.0057 U	0.0117 U	0.016 U	0.006 U
FP06	FP-13	MK-FP-13-0.0/0.5	0	0.5	11/11/2016	0.292	0.542	1.51	2.71	3.3	7.61	0.347	0.0588	3.1	6.38
FP06	FP-13	MK-FP-13-0.5/1.5	0.5	1.5	11/11/2016	0.283	0.583	1.36	3.54	4.11	7	0.34	0.0679	3.94	6.09
FP06	FP-13	MK-FP-13-1.5/2.5	1.5	2.5	11/11/2016	0.229	0.44	0.95	1.99	2.26	6.03	0.28	0.0971	3.43	5.09
FP06	FP-13	MK-FP-13-2.5/4.0	2.5	4	11/11/2016	0.0596	0.158	0.275	0.771	0.73	1.98	0.082	0.0406	0.929	1.51
FP06	FP-13	MK-FP-13-4.0/5.0	4	5	11/11/2016	0.0735	0.135	0.39	0.519	0.493	1.6	0.118	0.0281	1.04	1.1
FP06	FP-13	MK-FP-13-5.0/5.5	5	5.5	11/11/2016	0.0083	0.0055	0.0236	0.0254	0.0265	0.085	0.0102	0.0066	0.077	0.071
FP06	FP-13	MK-FP-13-9.0/11.0	9	11	11/11/2016	0.0068	0.0077	0.0215	0.0394	0.0402	0.118	0.0088	0.0058	0.084	0.097
FP06	FP-13	MK-FP-13-11.0/12.2	11	12.2	11/11/2016	0.0023	0.0225	0.009	0.0073	0.0078	0.028	0.0039	0.0049	0.018	0.022
FP06	FP-14	MK-FP-14-0.0/0.5	0	0.5	11/11/2016	0.0304 J	0.0183 U	0.16		0.377	1.23	0.0423 J	0.0467 U	0.532	0.967 J+
FP06	FP-14	MK-FP-14-0.5/1.5	0.5	1.5	11/11/2016	0.103 U	0.0876 U	0.344 J		1.34	2.97	0.11 U	0.224 U	1.28	2.38
FP06	FP-14	MK-FP-14-1.5/2.4	1.5	2.4	11/11/2016	0.0988 U	0.0839 U	0.292 J		0.88	3.4	0.152 J	0.214 U	2.71	2.85
FP06	FP-14	MK-FP-14-5.0/7.0	5	7	11/11/2016	0.0914 J	0.0354 U	0.479 J		0.471 J	1.96	0.152 J	0.0904 U	1.32 J	1.64 J
FP06	FP-14	MK-FP-14-10.0/11.8	10	11.8	11/11/2016	0.0297	0.0049 U	0.102		0.111	0.312	0.0358	0.019 J	0.277	0.256
FP06	FP-57	MK-FP-57-0.0/0.5	0	0.5	11/4/2020	0.069 J	0.073 J	0.31 J	1.2	1.2	3.5	0.081 J	0.05 J	1.2	2.4
FP06	FP-57	MK-FP-57-0.5.1.5	0.5	1.5	11/4/2020	0.04 J	0.067 J	0.19 J	0.89	0.92	2.3	0.053 J	0.073 J	0.88	1.7
FP06	FP-57	MK-FP-57-1.5/2.5	1.5	2.5	11/4/2020	0.014 J	0.013 J	0.069	0.17	0.16	0.53	0.018 J	0.036 J	0.25	0.4
FP06	FP-57	MK-FP-57-2.5/4.0	2.5	4	11/4/2020	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 UJ	0.021 U	0.021 U	0.021 U
FP06	FP-58	MK-FP-58-0.0/0.5	0	0.5	11/4/2020										
FP06	FP-58	MK-FP-58-0.5/1.5	0.5	1.5	11/4/2020										
FP06	FP-58	MK-FP-58-1.5/2.5	1.5	2.5	11/4/2020										
FP06	FP-58	MK-FP-58-2.5/4.0	2.5	4	11/4/2020										
FP06	FP-59	MK-FP-59-0.0/0.5	0	0.5	11/4/2020										
FP06	FP-59	MK-FP-59-0.5/1.5	0.5	1.5	11/4/2020										
FP06	FP-59	MK-FP-59-1.5/2.5	1.5	2.5	11/4/2020										
FP06	FP-59	MK-FP-59-2.5/3.8	2.5	3.8	11/4/2020										
FP06	FP-60	MK-FP-60-0.0/0.5	0	0.5	11/4/2020										
FP06	FP-60	MK-FP-60-0.5/1.5	0.5	1.5	11/4/2020										
FP06	FP-60	MK-FP-60-1.5/2.5	1.5	2.5	11/4/2020										
FP06	FP-60	MK-FP-60-2.5/4.0	2.5	4	11/4/2020										
FP06	FP-61	MK-FP-61-0.0/0.5	0	0.5	11/4/2020	0.074 J	0.086 J	0.35 J	1.5	1.6	3.5	0.093 J-	0.066 J	1.4	2.7
FP06	FP-61	MK-FP-61-0.5/1.5	0.5	1.5	11/4/2020	0.14 J	0.14 J	0.62	2.8	3.1	6.4	0.16 J-	0.078 J	2.4	5.1
FP06	FP-61	MK-FP-61-1.5/2.5	1.5	2.5	11/4/2020	0.068 J	0.093 J	0.35 J	1.6	1.5	3.9	0.094 J-	0.17 J	1.7	3

Appendix A
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						Metals										Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Lead[4]	Arsenic[5]	Nickel	Cadmium	Chromium	Copper	Zinc	Mercury	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[1,4,5]	400	8												
					Tier 2 SS-RCL[1]														
					TSCA LO														
FP06	FP-107	MK-FP-107-0.5/1.5	0.5	1.5	10/16/2021	229	9												
FP06	FP-107	MK-FP-107-1.5/2.5	1.5	2.5	10/16/2021	49	2 J												
FP06	FP-12	MK-FP-12-0.0./0.5	0	0.5	11/11/2016	170 J	4.1 J	18.2	1.4	51.2	53.9	206 J	0.24 J+				42100
FP06	FP-12	MK-FP-12-0.5/1.5	0.5	1.5	11/11/2016	215 J	6.7	20.3	3	59.2	53	255 J	0.25 J+				25400
FP06	FP-12	MK-FP-12-1.5/2.5	1.5	2.5	11/11/2016	82.3 J	3.8 J	10.1	0.33 J	23.1	46.7 J	98.8 J	0.41 J+				19300
FP06	FP-12	MK-FP-12-2.5/3.2	2.5	3.2	11/11/2016	10 J	1.4 J	7.1	0.17 U	10.7	7.8	32.2 J	0.036 J+				12700
FP06	FP-12	MK-FP-12-5.0/7.0	5	7	11/11/2016	9.7 J	2.1 J	8.5	0.15 U	12.7	9.1	35.8 J	0.021 J+				8240
FP06	FP-12	MK-FP-12-7.0/9.0	7	9	11/11/2016	4.7 J	3 J	8.7	0.14 U	11.6	7.6	29.6 J	0.021 J+				7570
FP06	FP-12	MK-FP-12-9.0/9.5	9	9.5	11/11/2016	4.3 J	2.9 J	7.7	0.16 U	11.2	5.4	25.4 J	0.018 J+				3030
FP06	FP-12	MK-FP-12-10.0/11.4	10	11.4	11/11/2016	3.8 J	1.4 J	5.1	0.16 U	9.1	4.9	24.4 J	0.016 J+				6420
FP06	FP-13	MK-FP-13-0.0/0.5	0	0.5	11/11/2016	430 J	6.7	40.5	5	186	118	471 J	0.58 J+	29	52	19	41200
FP06	FP-13	MK-FP-13-0.5/1.5	0.5	1.5	11/11/2016	287	10.4	30.5	6.1	131	94.1	471	0.61 J+	29	56	15	33400
FP06	FP-13	MK-FP-13-1.5/2.5	1.5	2.5	11/11/2016	224	8.2	23.5	5.4	77.4	58.1	296	0.49	42	45	13	29100
FP06	FP-13	MK-FP-13-2.5/4.0	2.5	4	11/11/2016	105	6.2 J	16	1.4	44.6	40.7	173	0.24	33	13	54	22900
FP06	FP-13	MK-FP-13-4.0/5.0	4	5	11/11/2016	47	5 J	7.8	0.2 J	14.7	14.8	62.4	0.22	21	78	1	11900
FP06	FP-13	MK-FP-13-5.0/5.5	5	5.5	11/11/2016	7.7	4 J	6.5	0.22 J	9.1	5.6	55.4	0.038 J				16100
FP06	FP-13	MK-FP-13-9.0/11.0	9	11	11/11/2016	18.8	4.7 J	12.5	0.24 J	21.2	14.3	58.2	0.089	55	38	7	24400
FP06	FP-13	MK-FP-13-11.0/12.2	11	12.2	11/11/2016	10.9	4.4 J	13	0.22 U	23	14.6	56.2	0.11	37	60	3	34800
FP06	FP-14	MK-FP-14-0.0/0.5	0	0.5	11/11/2016	171	6 J	23	3.4	86.1	66	272	0.36				46800
FP06	FP-14	MK-FP-14-0.5/1.5	0.5	1.5	11/11/2016	385	8.6	47	6.1	228	140	547	1.1				45700
FP06	FP-14	MK-FP-14-1.5/2.4	1.5	2.4	11/11/2016	82.6	4.7 J	10.8	1.2	30.3	27.8	117	0.22				14600
FP06	FP-14	MK-FP-14-5.0/7.0	5	7	11/11/2016	54.1	4.4 J	11.2	0.68	30.1	23.3	163	0.26				25700
FP06	FP-14	MK-FP-14-10.0/11.8	10	11.8	11/11/2016	18.7	3.4 J	11.7	0.34 J	23.9	14.6	59.4	0.093				22900
FP06	FP-57	MK-FP-57-0.0/0.5	0	0.5	11/4/2020	177	5.1	22.4	2.9	64.5	70.7	322	0.33				53700
FP06	FP-57	MK-FP-57-0.5.1.5	0.5	1.5	11/4/2020	116	4.6	21.1	2.4	51.5	41.7	186	0.31				19600
FP06	FP-57	MK-FP-57-1.5/2.5	1.5	2.5	11/4/2020	25.9	3.2	11.6	0.4 J	25.9	16.7	59.2	0.12				22400
FP06	FP-57	MK-FP-57-2.5/4.0	2.5	4	11/4/2020	3.1	2.2 J	7.5	0.17 J	10.8	5.8	24.2	0.044 U				8930
FP06	FP-58	MK-FP-58-0.0/0.5	0	0.5	11/4/2020	491	5.5	26.6	4.4	85.6	89.9	359	0.35				30300
FP06	FP-58	MK-FP-58-0.5/1.5	0.5	1.5	11/4/2020	274	5.1	17.3	2.8	50.7	60.9	235	0.24				25800
FP06	FP-58	MK-FP-58-1.5/2.5	1.5	2.5	11/4/2020	94.1	3	12.6	0.47 J	41.5	37.4	126	0.27				17400
FP06	FP-58	MK-FP-58-2.5/4.0	2.5	4	11/4/2020	10	3.3 U	10.3	0.67 U	14.6	13.4	44.9	0.056				16200
FP06	FP-59	MK-FP-59-0.0/0.5	0	0.5	11/4/2020	216	3.4	18.1	1.6	42.5	44.1	186	0.27				42000
FP06	FP-59	MK-FP-59-0.5/1.5	0.5	1.5	11/4/2020	307	4.9	12.7	0.87	32.4	969	142	0.29				20000
FP06	FP-59	MK-FP-59-1.5/2.5	1.5	2.5	11/4/2020	285	5.5	10.4	0.89	27.3	212	124	0.1				14600
FP06	FP-59	MK-FP-59-2.5/3.8	2.5	3.8	11/4/2020	258	5.4	18.5	2.4	51.8	46.3	200	0.24				26900
FP06	FP-60	MK-FP-60-0.0/0.5	0	0.5	11/4/2020	350	4.6	27.2	4.4	90.1	87.7	359	0.42				45600
FP06	FP-60	MK-FP-60-0.5/1.5	0.5	1.5	11/4/2020	227	8.8	30.4	6.6	87.7	68.6	342	0.37				33400
FP06	FP-60	MK-FP-60-1.5/2.5	1.5	2.5	11/4/2020	177	7.1	17.4	2.7	75.8	70.1	247	0.45				50000
FP06	FP-60	MK-FP-60-2.5/4.0	2.5	4	11/4/2020	132	3.6 J	18.2	1.2	86.5	50.9	208	0.3				28200
FP06	FP-61	MK-FP-61-0.0/0.5	0	0.5	11/4/2020	163	6.2	22.7	3	72.1	71.7	286	0.26				39500
FP06	FP-61	MK-FP-61-0.5/1.5	0.5	1.5	11/4/2020	428	13.2	46.8	7	230	145	630	0.45				34000
FP06	FP-61	MK-FP-61-1.5/2.5	1.5	2.5	11/4/2020	210	9.8	27.5	4.5	108	63.6	335	0.35				31500

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PCB									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242
					Tier 1 SS-RCL[1,4,5]	1.1									
					Tier 2 SS-RCL[1]	0.7									
					TSCA LO	25									
FP06	FP-61	MK-FP-61-2.5/3.9	2.5	3.9	11/4/2020	0.033 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
FP06	FP-76	MK-FP-76-0.0/0.5	0	0.5	11/4/2020	1.2	0.2	0.81 J	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.22 J
FP06	FP-76	MK-FP-76-0.5/1.5	0.5	1.5	11/4/2020	0.19	0.053 J	0.1	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.032 J
FP06	FP-76	MK-FP-76-1.5/2.5	1.5	2.5	11/4/2020	0.033 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U
FP06	FP-76	MK-FP-76-2.5/4.0	2.5	4	11/4/2020	0.033 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U
FP06	FP-77	MK-FP-77-0.0/0.5	0	0.5	11/4/2020	1.6	0.15	0.83	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.66
FP06	FP-77	MK-FP-77-0.5/1.5	0.5	1.5	11/4/2020	7	0.45 J	3	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	3.5
FP06	FP-77	MK-FP-77-1.5/2.5	1.5	2.5	11/4/2020	0.31	0.074	0.19	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.049 J
FP06	FP-77	MK-FP-77-2.5/3.9	2.5	3.9	11/4/2020	0.041 U	0.082 U	0.082 U	0.082 U	0.082 U	0.082 U	0.082 U	0.082 U	0.082 U	0.082 U
FP06	FP-78	MK-FP-78-0.0/0.5	0	0.5	11/4/2020	1	0.14	0.46 J	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.4
FP06	FP-78	MK-FP-78-0.5/1.5	0.5	1.5	11/4/2020	0.15	0.045 J	0.079	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.024 J
FP06	FP-78	MK-FP-78-1.5/2.5	1.5	2.5	11/4/2020	0.03 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U
FP06	FP-78	MK-FP-78-2.5/3.5	2.5	3.5	11/4/2020	0.031 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U
FP06	FP-79	MK-FP-79-0.0/0.5	0	0.5	11/4/2020	9.7	0.48 J	3.8	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	5.4
FP06	FP-79	MK-FP-79-0.5/1.5	0.5	1.5	11/4/2020	12.1	0.66 J	4.5	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	6.9 J
FP06	FP-79	MK-FP-79-1.5/2.5	1.5	2.5	11/4/2020	0.22	0.048 J	0.12	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.051 J
FP06	FP-79	MK-FP-79-2.5/3.3	2.5	3.3	11/4/2020	0.037 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U
FP06	FP-80	MK-FP-80-0.0/0.5	0	0.5	11/5/2020	3.6	0.41 J-	1.5 J-	0.31 UJ	0.31 UJ	0.31 UJ	0.31 UJ	0.31 UJ	0.31 UJ	1.7 J-
FP06	FP-80	MK-FP-80-0.5/1.5	0.5	1.5	11/5/2020	18.8	0.77 J	6	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	12
FP06	FP-80	MK-FP-80-1.5/2.5	1.5	2.5	11/5/2020	0.036 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
FP06	FP-80	MK-FP-80-2.5/3.7	2.5	3.7	11/5/2020	0.083	0.069 U	0.05 J	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.033 J
FP07	FP-113	MK-FP-113-0.0/0.5	0	0.5	10/16/2021	0.53	0.094	0.21 J	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.23
FP07	FP-113	MK-FP-113-0.5/1.5	0.5	1.5	10/16/2021	0.08	0.054 U	0.031 J	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.049 J
FP07	FP-113	MK-FP-113-1.5/2.0	1.5	2	10/16/2021	0.03 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
FP07	FP-114	MK-FP-114-0.0/0.5	0	0.5	10/13/2021	0.89	0.19	0.51	0.065 U	0.065 U	0.065 U	0.19	0.065 U	0.065 U	0.065 U
FP07	FP-114	MK-FP-114-0.5/1.5	0.5	1.5	10/13/2021	0.23	0.044 J	0.12	0.066 U	0.066 U	0.066 U	0.067	0.066 U	0.066 U	0.066 U
FP07	FP-114	MK-FP-114-1.5/2.5	1.5	2.5	10/13/2021	0.03 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
FP07	FP-114	MK-FP-114-2.5/4.0	2.5	4	10/13/2021	0.03 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
FP07	FP-115	MK-FP-115-0.0/0.5	0	0.5	10/13/2021	2.20	0.23	1 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.91
FP07	FP-115	MK-FP-115-0.5/1.5	0.5	1.5	10/13/2021	27.0	1.6 J	12	2 U	2 U	2 U	2 U	2 U	2 U	13 J
FP07	FP-115	MK-FP-115-1.5/2.5	1.5	2.5	10/13/2021	0.15	0.024 J	0.091 J	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.031 J
FP07	FP-115	MK-FP-115-2.5/3.5	2.5	3.5	10/13/2021	0.03 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U
FP07	FP-122	MK-FP-122-0.0/0.5	0	0.5	10/13/2021	6.20	0.55	2.1	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	3.6
FP07	FP-122	MK-FP-122-0.5/1.5	0.5	1.5	10/13/2021	3.10	0.72	0.98	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	1.4
FP07	FP-122	MK-FP-122-1.5/2.5	1.5	2.5	10/13/2021	0.05 J	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.045 J
FP07	FP-122	MK-FP-122-2.5/3.9	2.5	3.9	10/13/2021	0.04 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U
FP07	FP-123	MK-FP-123-0.0/0.5	0	0.5	10/13/2021	2.50	0.18 J	1.1	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	1.3
FP07	FP-123	MK-FP-123-0.5/1.5	0.5	1.5	10/13/2021	14.0	0.66 J	4.7	2 U	2 U	2 U	2 U	2 U	2 U	8.4 J
FP07	FP-123	MK-FP-123-1.5/2.5	1.5	2.5	10/13/2021	0.05 J	0.065 U	0.026 J	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.022 J
FP07	FP-123	MK-FP-123-2.5/3.2	2.5	3.2	10/13/2021	0.03 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U
FP07	FP-125	MK-FP-125-0.0/0.5	0	0.5	10/13/2021	1.20	0.096 J	0.5	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.61
FP07	FP-125	MK-FP-125-0.5/1.5	0.5	1.5	10/13/2021	3.60	0.25 J	1.3	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	2.1

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH								
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PAH-18[3]	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3-Cd) Pyrene	2-Methyl-naphthalene
					Tier 1 SS-RCL[1,4,5]	--	84.6	8.48	84.8	848	8480	8.48	84.8	
					Tier 2 SS-RCL[1]	--	50.8	5.09	50.9	501	5090	5.09	50.9	
					TSCA LO									
FP06	FP-61	MK-FP-61-2.5/3.9	2.5	3.9	11/4/2020	2.5	0.19	0.19	0.26	0.097	0.23	0.032 J	0.12	0.011 J
FP06	FP-76	MK-FP-76-0.0/0.5	0	0.5	11/4/2020									
FP06	FP-76	MK-FP-76-0.5/1.5	0.5	1.5	11/4/2020									
FP06	FP-76	MK-FP-76-1.5/2.5	1.5	2.5	11/4/2020									
FP06	FP-76	MK-FP-76-2.5/4.0	2.5	4	11/4/2020									
FP06	FP-77	MK-FP-77-0.0/0.5	0	0.5	11/4/2020									
FP06	FP-77	MK-FP-77-0.5/1.5	0.5	1.5	11/4/2020									
FP06	FP-77	MK-FP-77-1.5/2.5	1.5	2.5	11/4/2020									
FP06	FP-77	MK-FP-77-2.5/3.9	2.5	3.9	11/4/2020									
FP06	FP-78	MK-FP-78-0.0/0.5	0	0.5	11/4/2020	22.1	1.7	1.8	2.4	1.1	2.1	0.39 J	1.2	0.43 U
FP06	FP-78	MK-FP-78-0.5/1.5	0.5	1.5	11/4/2020	11.7	0.82	0.96	1.4	0.5	1.1	0.2 J	0.67	0.047 J
FP06	FP-78	MK-FP-78-1.5/2.5	1.5	2.5	11/4/2020	4.3	0.32	0.32 J	0.41 J	0.16	0.36	0.055 J	0.19	0.14 J
FP06	FP-78	MK-FP-78-2.5/3.5	2.5	3.5	11/4/2020	0.69	0.057	0.052	0.091	0.031	0.068	0.009 J	0.035	0.005 J
FP06	FP-79	MK-FP-79-0.0/0.5	0	0.5	11/4/2020									
FP06	FP-79	MK-FP-79-0.5/1.5	0.5	1.5	11/4/2020									
FP06	FP-79	MK-FP-79-1.5/2.5	1.5	2.5	11/4/2020									
FP06	FP-79	MK-FP-79-2.5/3.3	2.5	3.3	11/4/2020									
FP06	FP-80	MK-FP-80-0.0/0.5	0	0.5	11/5/2020									
FP06	FP-80	MK-FP-80-0.5/1.5	0.5	1.5	11/5/2020									
FP06	FP-80	MK-FP-80-1.5/2.5	1.5	2.5	11/5/2020									
FP06	FP-80	MK-FP-80-2.5/3.7	2.5	3.7	11/5/2020									
FP07	FP-113	MK-FP-113-0.0/0.5	0	0.5	10/16/2021	13.4	0.74	1	1.5	0.56 J-	1.2	0.21 J	0.76	0.41 U
FP07	FP-113	MK-FP-113-0.5/1.5	0.5	1.5	10/16/2021	1.8	0.098	0.11	0.18	0.053 J-	0.12	0.026	0.076	0.24
FP07	FP-113	MK-FP-113-1.5/2.0	1.5	2	10/16/2021	0.15	0.019 U	0.019 U	0.003 J	0.019 UJ	0.019 U	0.019 U	0.019 U	0.019 U
FP07	FP-114	MK-FP-114-0.0/0.5	0	0.5	10/13/2021	15.3	1	1.3	1.7	0.72	1.5	0.23 J	0.87	0.44 U
FP07	FP-114	MK-FP-114-0.5/1.5	0.5	1.5	10/13/2021	10.4	0.63	0.81	1.4	0.57	0.95	0.17	0.61	0.046 J
FP07	FP-114	MK-FP-114-1.5/2.5	1.5	2.5	10/13/2021	0.31	0.021 J	0.02 J	0.027	0.013 J	0.027	0.004 J	0.012 J	0.022 U
FP07	FP-114	MK-FP-114-2.5/4.0	2.5	4	10/13/2021	0.15	0.005 J	0.003 J	0.005 J	0.023 U	0.004 J	0.023 U	0.023 U	0.023 U
FP07	FP-115	MK-FP-115-0.0/0.5	0	0.5	10/13/2021	17.6	1	1.5	2.2	0.86	1.6	0.27 J	0.98	0.44 U
FP07	FP-115	MK-FP-115-0.5/1.5	0.5	1.5	10/13/2021	57.3	3.9	4.5	6.9	2.6	5	0.9	3.3	0.084 J
FP07	FP-115	MK-FP-115-1.5/2.5	1.5	2.5	10/13/2021	7.8	0.56	0.58	0.96	0.28	0.69	0.13	0.39	0.056 J
FP07	FP-115	MK-FP-115-2.5/3.5	2.5	3.5	10/13/2021	3.7	0.26	0.24	0.32	0.16	0.3	0.048 J	0.17	0.025 J
FP07	FP-122	MK-FP-122-0.0/0.5	0	0.5	10/13/2021	41.1	3.2	3.3	4.9	1.7	3.9	0.5 J	1.6	0.52 U
FP07	FP-122	MK-FP-122-0.5/1.5	0.5	1.5	10/13/2021	49.8	3.3	3.8	5.9	2.1	4.4	0.6	2	0.18 J
FP07	FP-122	MK-FP-122-1.5/2.5	1.5	2.5	10/13/2021	34.5	2.4	2.4	3.8	1.3	2.8	0.35 J	1.2	0.071 J
FP07	FP-122	MK-FP-122-2.5/3.9	2.5	3.9	10/13/2021	1.2	0.083	0.081	0.12	0.042	0.096	0.017 J	0.049	0.028
FP07	FP-123	MK-FP-123-0.0/0.5	0	0.5	10/13/2021	20	1.4	1.6	2.4	0.79	1.8	0.31 J	1.1	0.48 U
FP07	FP-123	MK-FP-123-0.5/1.5	0.5	1.5	10/13/2021	53.5	3.4	4.2	6.9	2.1	4.6	1.1	3.3	0.12 J
FP07	FP-123	MK-FP-123-1.5/2.5	1.5	2.5	10/13/2021	18.9	1.4	1.4	2.1	0.82	1.7	0.28 J	0.88	0.43 U
FP07	FP-123	MK-FP-123-2.5/3.2	2.5	3.2	10/13/2021	4.8	0.37	0.39	0.53	0.19	0.38	0.06	0.19	0.024
FP07	FP-125	MK-FP-125-0.0/0.5	0	0.5	10/13/2021	23	1.6	1.8	2.6	0.88	1.8	0.38 J	1.3	0.41 U
FP07	FP-125	MK-FP-125-0.5/1.5	0.5	1.5	10/13/2021	28.7	1.9	2.4	3.5	1.3	2.5	0.47	1.7	0.42 U

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Fluoran-thene	Fluorene	Naphtha-lene	Phenan-threne	Pyrene
					Tier 1 SS-RCL[1,4,5]										
					Tier 2 SS-RCL[1]										
					TSCA LO										
FP06	FP-61	MK-FP-61-2.5/3.9	2.5	3.9	11/4/2020	0.011 J	0.01 J	0.052	0.14	0.13	0.41	0.015 J-	0.023 J	0.2	0.33
FP06	FP-76	MK-FP-76-0.0/0.5	0	0.5	11/4/2020										
FP06	FP-76	MK-FP-76-0.5/1.5	0.5	1.5	11/4/2020										
FP06	FP-76	MK-FP-76-1.5/2.5	1.5	2.5	11/4/2020										
FP06	FP-76	MK-FP-76-2.5/4.0	2.5	4	11/4/2020										
FP06	FP-77	MK-FP-77-0.0/0.5	0	0.5	11/4/2020										
FP06	FP-77	MK-FP-77-0.5/1.5	0.5	1.5	11/4/2020										
FP06	FP-77	MK-FP-77-1.5/2.5	1.5	2.5	11/4/2020										
FP06	FP-77	MK-FP-77-2.5/3.9	2.5	3.9	11/4/2020										
FP06	FP-78	MK-FP-78-0.0/0.5	0	0.5	11/4/2020	0.058 J	0.11 J	0.39 J	1.4	1.5	3.5	0.091 J-	0.058 J	1.4	2.7
FP06	FP-78	MK-FP-78-0.5/1.5	0.5	1.5	11/4/2020	0.039 J	0.05 J	0.19 J	0.77	0.79	1.8	0.051 J-	0.082 J	0.78	1.5
FP06	FP-78	MK-FP-78-1.5/2.5	1.5	2.5	11/4/2020	0.023 J	0.032 J	0.085 J	0.23	0.24	0.64 J	0.026 J-	0.14 J	0.38 J	0.54 J
FP06	FP-78	MK-FP-78-2.5/3.5	2.5	3.5	11/4/2020	0.021 U	0.004 J	0.01 J	0.043	0.04	0.09	0.003 J-	0.008 J	0.041	0.095
FP06	FP-79	MK-FP-79-0.0/0.5	0	0.5	11/4/2020										
FP06	FP-79	MK-FP-79-0.5/1.5	0.5	1.5	11/4/2020										
FP06	FP-79	MK-FP-79-1.5/2.5	1.5	2.5	11/4/2020										
FP06	FP-79	MK-FP-79-2.5/3.3	2.5	3.3	11/4/2020										
FP06	FP-80	MK-FP-80-0.0/0.5	0	0.5	11/5/2020										
FP06	FP-80	MK-FP-80-0.5/1.5	0.5	1.5	11/5/2020										
FP06	FP-80	MK-FP-80-1.5/2.5	1.5	2.5	11/5/2020										
FP06	FP-80	MK-FP-80-2.5/3.7	2.5	3.7	11/5/2020										
FP07	FP-113	MK-FP-113-0.0/0.5	0	0.5	10/16/2021	0.41 U	0.41 U	0.22 J	0.82	0.95	2.3	0.056 J	0.057 J	0.8	1.6
FP07	FP-113	MK-FP-113-0.5/1.5	0.5	1.5	10/16/2021	0.008 J	0.008 J	0.024	0.088	0.092	0.22	0.009 J	0.15	0.15	0.17
FP07	FP-113	MK-FP-113-1.5/2.0	1.5	2	10/16/2021	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.004 J	0.019 U	0.019 U	0.002 J	0.003 J
FP07	FP-114	MK-FP-114-0.0/0.5	0	0.5	10/13/2021	0.44 U	0.069 J	0.21 J	1.1	1.2	2.5	0.053 J	0.05 J	0.89	1.5
FP07	FP-114	MK-FP-114-0.5/1.5	0.5	1.5	10/13/2021	0.026 J	0.056 J	0.14	0.73	0.73	1.6	0.046 J	0.079 J	0.61	1.2
FP07	FP-114	MK-FP-114-1.5/2.5	1.5	2.5	10/13/2021	0.022 U	0.022 U	0.004 J	0.015 J	0.014 J	0.046	0.022 U	0.003 J	0.018 J	0.04
FP07	FP-114	MK-FP-114-2.5/4.0	2.5	4	10/13/2021	0.023 U	0.023 U	0.023 U	0.003 J	0.023 U	0.006 J	0.023 U	0.023 U	0.004 J	0.005 J
FP07	FP-115	MK-FP-115-0.0/0.5	0	0.5	10/13/2021	0.44 U	0.44 U	0.28 J	1.2	1.2	2.8	0.057 J	0.05 J	0.94	2
FP07	FP-115	MK-FP-115-0.5/1.5	0.5	1.5	10/13/2021	0.22 J	0.17 J	0.9	3.7	3.7	10	0.28 J	0.11 J	3.8	7.2
FP07	FP-115	MK-FP-115-1.5/2.5	1.5	2.5	10/13/2021	0.032 J	0.038 J	0.14	0.49	0.44	1.3	0.049 J	0.073 J	0.6 J	0.99
FP07	FP-115	MK-FP-115-2.5/3.5	2.5	3.5	10/13/2021	0.021 J	0.014 J	0.087	0.17	0.19	0.72	0.023 J	0.048 J	0.36	0.58
FP07	FP-122	MK-FP-122-0.0/0.5	0	0.5	10/13/2021	0.23 J	0.11 J	0.73	2.3	1.6	7	0.27 J	0.11 J	3.5	5.9
FP07	FP-122	MK-FP-122-0.5/1.5	0.5	1.5	10/13/2021	0.35 J	0.12 J	0.75	3	2.1	8.4	0.39 J	0.33 J	4.3	7.8
FP07	FP-122	MK-FP-122-1.5/2.5	1.5	2.5	10/13/2021	0.23 J	0.065 J	1	1.9	1.3	6.4	0.37 J	0.096 J	3.9	4.9
FP07	FP-122	MK-FP-122-2.5/3.9	2.5	3.9	10/13/2021	0.006 J	0.007 J	0.024 J	0.065	0.057	0.2	0.009 J	0.034	0.11	0.15
FP07	FP-123	MK-FP-123-0.0/0.5	0	0.5	10/13/2021	0.1 J	0.48 U	0.34 J	1.2	1.3	3.3	0.095 J	0.081 J	1.3	2.4
FP07	FP-123	MK-FP-123-0.5/1.5	0.5	1.5	10/13/2021	0.27 J	0.22 J	0.99	3.6	4	8.3	0.3 J	0.19 J	3.9	6
FP07	FP-123	MK-FP-123-1.5/2.5	1.5	2.5	10/13/2021	0.082 J	0.43 U	0.38 J	1.1	1	3.4	0.1 J	0.085 J	1.4	2.3
FP07	FP-123	MK-FP-123-2.5/3.2	2.5	3.2	10/13/2021	0.034	0.021 J	0.11	0.26	0.22	0.86	0.036	0.036	0.43	0.64
FP07	FP-125	MK-FP-125-0.0/0.5	0	0.5	10/13/2021	0.092 J	0.071 J	0.49	1.4	1.7	3.7	0.1 J	0.095 J	1.6	3.2
FP07	FP-125	MK-FP-125-0.5/1.5	0.5	1.5	10/13/2021	0.1 J	0.086 J	0.52	1.9	2	4.6	0.12 J	0.083 J	1.8	3.5

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						Metals										Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Lead[4]	Arsenic[5]	Nickel	Cadmium	Chromium	Copper	Zinc	Mercury	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[1,4,5]	400	8												
					Tier 2 SS-RCL[1]														
					TSCA LO														
FP06	FP-61	MK-FP-61-2.5/3.9	2.5	3.9	11/4/2020	81.2	5	15.8	1.3	37.1	36.3	145	0.12						16900
FP06	FP-76	MK-FP-76-0.0/0.5	0	0.5	11/4/2020	174	4.9	21.7	3.3	62.7	57.7	286	0.26						37900
FP06	FP-76	MK-FP-76-0.5/1.5	0.5	1.5	11/4/2020	159	5.7	17.6	1.3	41.8	50	208	0.17						14100
FP06	FP-76	MK-FP-76-1.5/2.5	1.5	2.5	11/4/2020	117	5.5	15.1	0.84	31.9	36	154	0.14						14400
FP06	FP-76	MK-FP-76-2.5/4.0	2.5	4	11/4/2020	11	3.3	9	0.2 J	11.5	7.8	31.5	0.014 J						10700
FP06	FP-77	MK-FP-77-0.0/0.5	0	0.5	11/4/2020	155	4.5	14.8	1.6	39.8	42.8	172	0.2						26900
FP06	FP-77	MK-FP-77-0.5/1.5	0.5	1.5	11/4/2020	242	5.4	20.6	3.4	95.3	70.3	296	0.35						24600
FP06	FP-77	MK-FP-77-1.5/2.5	1.5	2.5	11/4/2020	165	6.4	20.3	4.3	62.3	52.2	309	0.32						23600
FP06	FP-77	MK-FP-77-2.5/3.9	2.5	3.9	11/4/2020	91.3	6.9	15.7	0.99	30.6	28.9	152	0.17						44900
FP06	FP-78	MK-FP-78-0.0/0.5	0	0.5	11/4/2020	213	5.8	19	2.6	48.7	45.2	226	0.21						44700
FP06	FP-78	MK-FP-78-0.5/1.5	0.5	1.5	11/4/2020	134	5.4	18.4	1.3	25.2	30.2	159	0.069						20300
FP06	FP-78	MK-FP-78-1.5/2.5	1.5	2.5	11/4/2020	152	8.4	15.3	0.32 J	31.1 J	121 J	123	0.056						38200
FP06	FP-78	MK-FP-78-2.5/3.5	2.5	3.5	11/4/2020	18.4	4.3 J	11.9	0.22 J	15.1	13	38.3	0.041 J						9110
FP06	FP-79	MK-FP-79-0.0/0.5	0	0.5	11/4/2020	211	4.7	30.9	3.4	93.8	68.1	301	0.3						29500
FP06	FP-79	MK-FP-79-0.5/1.5	0.5	1.5	11/4/2020	352	8.3	36.4	5.4	171	126	468	0.47						32200
FP06	FP-79	MK-FP-79-1.5/2.5	1.5	2.5	11/4/2020	218	6.3	29.1	5.1	102	63.9	343	0.16						26600
FP06	FP-79	MK-FP-79-2.5/3.3	2.5	3.3	11/4/2020	71.8	4.5	16.9	1	36.8	29.3	153	0.18						18600
FP06	FP-80	MK-FP-80-0.0/0.5	0	0.5	11/5/2020	489	7.4	41.3	9.3	175	124	473	0.35						50000
FP06	FP-80	MK-FP-80-0.5/1.5	0.5	1.5	11/5/2020	257	9.7	37.6	7.9	99.7	75.9	386	0.51						33100
FP06	FP-80	MK-FP-80-1.5/2.5	1.5	2.5	11/5/2020	106	5.4	19.5	1	89.3	36.5	175	0.29						23100
FP06	FP-80	MK-FP-80-2.5/3.7	2.5	3.7	11/5/2020	156	6.2	22.2	3.5	55.9	50.1	224	0.22						36700
FP07	FP-113	MK-FP-113-0.0/0.5	0	0.5	10/16/2021	90	4												
FP07	FP-113	MK-FP-113-0.5/1.5	0.5	1.5	10/16/2021	18	2 J												
FP07	FP-113	MK-FP-113-1.5/2.0	1.5	2	10/16/2021	9	2 J												
FP07	FP-114	MK-FP-114-0.0/0.5	0	0.5	10/13/2021	90	5												
FP07	FP-114	MK-FP-114-0.5/1.5	0.5	1.5	10/13/2021	122	6												
FP07	FP-114	MK-FP-114-1.5/2.5	1.5	2.5	10/13/2021	13	2 J												
FP07	FP-114	MK-FP-114-2.5/4.0	2.5	4	10/13/2021	8	2 J												
FP07	FP-115	MK-FP-115-0.0/0.5	0	0.5	10/13/2021	122	4												
FP07	FP-115	MK-FP-115-0.5/1.5	0.5	1.5	10/13/2021	392	10												
FP07	FP-115	MK-FP-115-1.5/2.5	1.5	2.5	10/13/2021	93	6												
FP07	FP-115	MK-FP-115-2.5/3.5	2.5	3.5	10/13/2021	24	3												
FP07	FP-122	MK-FP-122-0.0/0.5	0	0.5	10/13/2021	239	5												
FP07	FP-122	MK-FP-122-0.5/1.5	0.5	1.5	10/13/2021	193	6												
FP07	FP-122	MK-FP-122-1.5/2.5	1.5	2.5	10/13/2021	54	4												
FP07	FP-122	MK-FP-122-2.5/3.9	2.5	3.9	10/13/2021	24	4												
FP07	FP-123	MK-FP-123-0.0/0.5	0	0.5	10/13/2021	183 J	5												
FP07	FP-123	MK-FP-123-0.5/1.5	0.5	1.5	10/13/2021	298 J	8												
FP07	FP-123	MK-FP-123-1.5/2.5	1.5	2.5	10/13/2021	88 J	5												
FP07	FP-123	MK-FP-123-2.5/3.2	2.5	3.2	10/13/2021	88 J	6												
FP07	FP-125	MK-FP-125-0.0/0.5	0	0.5	10/13/2021	335 J	6												
FP07	FP-125	MK-FP-125-0.5/1.5	0.5	1.5	10/13/2021	297 J	6												

Appendix A
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						PCB									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242
					Tier 1 SS-RCL[1,4,5]	1.1									
					Tier 2 SS-RCL[1]	0.7									
					TSCA LO	25									
FP07	FP-125	MK-FP-125-1.5/2.5	1.5	2.5	10/13/2021	6.60	0.37 J	1.7	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	4.6
FP07	FP-125	MK-FP-125-2.5/3.3	2.5	3.3	10/13/2021	0.46	0.11	0.29 J	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.062 J
FP07	FP-15	MK-FP-15-0.0./0.5	0	0.5	11/11/2016	7.9	1.02 U	1.59 J	1.02 U	1.02 U	1.02 U	1.02 U	1.02 U	1.02 U	6.29 J
FP07	FP-15	MK-FP-15-0.5/1.5	0.5	1.5	11/11/2016	4.6	0.339 U	1.89	0.339 U	0.339 U	0.339 U	0.339 U	0.339 U	0.339 U	2.71 J
FP07	FP-15	MK-FP-15-1.5/2.3	1.5	2.3	11/11/2016	0.02 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U
FP07	FP-15	MK-FP-15-5.0/7.2	5	7.2	11/11/2016	0.67	0.074 U	0.143 J	0.074 U	0.074 U	0.074 U	0.074 U	0.074 U	0.074 U	0.523 J
FP07	FP-15	MK-FP-15-10/10.3	10	10.3	11/11/2016	1	0.06 J	0.365	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.586 J
FP07	FP-16	MK-FP-16-0.0/0.5	0	0.5	11/11/2016	0.39	0.046 J	0.168	0.034 U	0.034 U	0.034 U	0.034 U	0.034 U	0.034 U	0.18 J
FP07	FP-16	MK-FP-16-0.5/1.5	0.5	1.5	11/11/2016	11.7	1.63 U	2.75 J	1.63 U	1.63 U	1.63 U	1.63 U	1.63 U	1.63 U	8.98 J
FP07	FP-16	MK-FP-16-1.5/2.6	1.5	2.6	11/11/2016	0.02 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U
FP07	FP-16	MK-FP-16-5.0/7.0	5	7	11/11/2016	0.02 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U
FP07	FP-16	MK-FP-16-7.0/8.6	7	8.6	11/11/2016	0.02 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
FP07	FP-16	MK-FP-16-10.0/10.2	10	10.2	11/11/2016	0.1	0.027 U	0.031 J	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.072 J
FP07	FP-16X	MK-FP-16X-3.0/4.0	3	4	11/6/2020	0.04 U	0.079 U	0.079 U	0.079 U	0.079 U	0.079 U	0.079 U	0.079 U	0.079 U	0.079 U
FP07	FP-17	MK-FP-17-0.0./0.5	0	0.5	11/11/2016	6.7	0.486 U	2.36	0.486 U	0.486 U	0.486 U	0.486 U	0.486 U	0.486 U	4.32 J
FP07	FP-17	MK-FP-17-0.5/1.8	0.5	1.8	11/11/2016	4.3	0.335 U	1.49	0.335 U	0.335 U	0.335 U	0.335 U	0.335 U	0.335 U	2.78 J
FP07	FP-17	MK-FP-17-5.0/7.0	5	7	11/11/2016	0.14	0.037 U	0.054 J	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.084 J
FP07	FP-17	MK-FP-17-7.0/8.2	7	8.2	11/11/2016	0.02 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U
FP07	FP-17	MK-FP-17-10.0/12.5	10	12.5	11/11/2016	0.02 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U
FP07	FP-17X	MK-FP-17X-2.5/4.0	2.5	4	11/6/2020	0.22	0.074 U	0.096 J	0.074 U	0.074 U	0.074 U	0.074 U	0.074 U	0.074 U	0.12
FP07	FP-18	MK-FP-18-0.0/0.5	0	0.5	11/11/2016	7.4	0.505 UJ	2.41 J	0.505 UJ	0.505 UJ	0.505 UJ	0.505 UJ	0.505 UJ	0.505 UJ	4.96 J
FP07	FP-18	MK-FP-18-0.5/1.5	0.5	1.5	11/11/2016	0.48	0.049 J	0.177 J	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.252 J
FP07	FP-18	MK-FP-18-1.5/2.7	1.5	2.7	11/11/2016	0.38	0.036 UJ	0.216 J	0.036 UJ	0.036 UJ	0.036 UJ	0.036 UJ	0.036 UJ	0.036 UJ	0.166 J
FP07	FP-18	MK-FP-18-5.0/7.0	5	7	11/11/2016	0.02 U	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ
FP07	FP-18	MK-FP-18-7.0/8.3	7	8.3	11/11/2016	0.02 U	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ
FP07	FP-18	MK-FP-18-10.0/12.3	10	12.3	11/11/2016	0.02 U	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ
FP07	FP-18	MK-FP-18-12.3/12.9	12.3	12.9	11/11/2016	0.02 U	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ
FP07	FP-19	MK-FP-19-0.0/0.5	0	0.5	11/11/2016	5.5	0.41 J	1.99 J	0.188 UJ	0.188 UJ	0.188 UJ	0.188 UJ	0.188 UJ	0.188 UJ	3.13 J
FP07	FP-19	MK-FP-19-0.5/1.5	0.5	1.5	11/11/2016	0.02 U	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ
FP07	FP-19	MK-FP-19-1.5/2.2	1.5	2.2	11/11/2016	0.02 U	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ
FP07	FP-19	MK-FP-19-5.0/7.0	5	7	11/11/2016	0.02 U	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ
FP07	FP-19	MK-FP-19-7.0/8.3	7	8.3	11/11/2016	0.02 U	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ
FP07	FP-19	MK-FP-19-10.0/12.0	10	12	11/11/2016	0.05	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.053 J
FP07	FP-19	MK-FP-19-12.0/12.5	12	12.5	11/11/2016	1	0.057 J	0.332 J	0.055 UJ	0.055 UJ	0.055 UJ	0.055 UJ	0.055 UJ	0.055 UJ	0.64 J
FP07	FP-62	MK-FP-62-0.0/0.5	0	0.5	11/5/2020	1.2	0.15	0.55	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.5
FP07	FP-62	MK-FP-62-0.5/1.5	0.5	1.5	11/5/2020	20.1	0.73 J	4.4	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	15
FP07	FP-62	MK-FP-62-1.5/2.5	1.5	2.5	11/5/2020	0.51	0.062 J	0.34 J	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.11
FP07	FP-62	MK-FP-62-2.5/4.0	2.5	4	11/5/2020	0.036 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
FP07 - HRUA Ravine	FP-63	MK-FP-63-0.0/0.5	0	0.5	11/5/2020	10.3	0.97	4.1 J	0.76 U	0.76 U	0.76 U	5.2	0.76 U	0.76 U	0.76 U
FP07 - HRUA Ravine	FP-63	MK-FP-63-0.5/1.5	0.5	1.5	11/5/2020	2.8	0.28	1.33 J	0.14 U	0.14 U	0.14 U	1.2	0.14 U	0.14 U	0.14 U
FP07 - HRUA Ravine	FP-63	MK-FP-63-1.5/2.5	1.5	2.5	11/5/2020	0.027 U	0.07 U	0.027 J	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
FP07 - HRUA Ravine	FP-63	MK-FP-63-2.5/4.0	2.5	4	11/5/2020	0.036 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH								
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PAH-18[3]	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3-Cd) Pyrene	2-Methyl-naphthalene
					Tier 1 SS-RCL[1,4,5]	--	84.6	8.48	84.8	848	8480	8.48	84.8	
					Tier 2 SS-RCL[1]	--	50.8	5.09	50.9	501	5090	5.09	50.9	
					TSCA LO									
FP07	FP-125	MK-FP-125-1.5/2.5	1.5	2.5	10/13/2021	57.2	3.5	4.9	8	2.6	4.8	0.97	3.5	0.51 U
FP07	FP-125	MK-FP-125-2.5/3.3	2.5	3.3	10/13/2021	29.5	2	2.5	3.9	1.4	2.7	0.48 J	1.7	0.51 U
FP07	FP-15	MK-FP-15-0.0./0.5	0	0.5	11/11/2016	23.9	1.87	2.34	3.23	1.51	2.36	0.5	1.39	0.0156 J
FP07	FP-15	MK-FP-15-0.5/1.5	0.5	1.5	11/11/2016	27.8	2.25	2.53	3.68	1.35	2.65	0.52	1.57	0.0273
FP07	FP-15	MK-FP-15-1.5/2.3	1.5	2.3	11/11/2016	8.4	0.585	0.564	0.666	0.279	0.632	0.0907	0.253	0.0641
FP07	FP-15	MK-FP-15-5.0/7.2	5	7.2	11/11/2016	0.26	0.019 J	0.0215 J	0.0257 J	0.011 J	0.0208 J	0.0034	0.0121 J	0.00064 U
FP07	FP-15	MK-FP-15-10/10.3	10	10.3	11/11/2016	2.4	0.171	0.226	0.331	0.146	0.226	0.00035 U	0.172	0.0033
FP07	FP-16	MK-FP-16-0.0/0.5	0	0.5	11/11/2016	18.8	1.05	1.19	1.5	0.572	1.44	0.319	0.88	0.0448
FP07	FP-16	MK-FP-16-0.5/1.5	0.5	1.5	11/11/2016	44.7	4.17	2.13	5.3	1.05	5.59	0.759	1.77	0.047
FP07	FP-16	MK-FP-16-1.5/2.6	1.5	2.6	11/11/2016	19.4	1.16	1.19	1.5	0.677	1.53	0.294	0.787	0.0613
FP07	FP-16	MK-FP-16-5.0/7.0	5	7	11/11/2016	0.97	0.0712	0.0695	0.085	0.0338	0.083	0.0134	0.0443	0.005
FP07	FP-16	MK-FP-16-7.0/8.6	7	8.6	11/11/2016	0.11	0.0073 J-	0.006 J-	0.0094 J-	0.0035 J-	0.009 J-	0.0006 UJ	0.0043 J-	0.0016 J
FP07	FP-16	MK-FP-16-10.0/10.2	10	10.2	11/11/2016	1.5	0.107	0.111	0.154	0.075	0.145	0.0299	0.082	0.0029
FP07	FP-16X	MK-FP-16X-3.0/4.0	3	4	11/6/2020	5.6	0.4	0.44	0.54	0.24	0.52	0.084 J	0.26	0.037 J
FP07	FP-17	MK-FP-17-0.0./0.5	0	0.5	11/11/2016	17.9	1	1.16	2.61	0.971	2.23	0.291	0.884	0.13 U
FP07	FP-17	MK-FP-17-0.5/1.8	0.5	1.8	11/11/2016	33.2	2.18	2.09	3.85	1.75	3.53	0.515	1.6	0.134 U
FP07	FP-17	MK-FP-17-5.0/7.0	5	7	11/11/2016	0.24	0.0166	0.0083 J	0.0262	0.0112 J	0.0255	0.0033 U	0.0105 J	0.0074 U
FP07	FP-17	MK-FP-17-7.0/8.2	7	8.2	11/11/2016	0.07	0.0051 U	0.0041 U	0.0053 J	0.0041 U	0.0065 J	0.0036 U	0.0036 U	0.0081 U
FP07	FP-17	MK-FP-17-10.0/12.5	10	12.5	11/11/2016	0.31	0.0147 J	0.0093 J	0.0405	0.0167	0.0389	0.0052 J	0.0151	0.0082 U
FP07	FP-17X	MK-FP-17X-2.5/4.0	2.5	4	11/6/2020	7.9	0.66	0.59	0.78	0.3	0.72	0.1 J	0.34	0.019 J
FP07	FP-18	MK-FP-18-0.0/0.5	0	0.5	11/11/2016	18	1.22	1.04	2.1	0.881	1.99	0.283	0.97	0.135 U
FP07	FP-18	MK-FP-18-0.5/1.5	0.5	1.5	11/11/2016	19.3	1.24	0.983	2.44	1.03	2.1	0.313	1.04	0.14 U
FP07	FP-18	MK-FP-18-1.5/2.7	1.5	2.7	11/11/2016	6	0.404	0.349	0.631	0.264	0.688	0.0828	0.248	0.0284 U
FP07	FP-18	MK-FP-18-5.0/7.0	5	7	11/11/2016	0.34	0.0158	0.011 J	0.0365	0.0178	0.0409	0.0034 J	0.0114	0.0074 U
FP07	FP-18	MK-FP-18-7.0/8.3	7	8.3	11/11/2016	0.1	0.0066 J	0.0037 U	0.0078 J	0.0045 J	0.0088 J	0.0033 U	0.0033 U	0.0074 U
FP07	FP-18	MK-FP-18-10.0/12.3	10	12.3	11/11/2016	0.12	0.0059 J	0.0051 J	0.014 J	0.0057 J	0.016 J	0.0037 U	0.0036 U	0.0083 U
FP07	FP-18	MK-FP-18-12.3/12.9	12.3	12.9	11/11/2016	0.011 U	0.0039 U	0.0031 U	0.0035 U	0.0031 U	0.0041 U	0.0027 U	0.0027 U	0.0061 U
FP07	FP-19	MK-FP-19-0.0/0.5	0	0.5	11/11/2016	31	1.84	2.11	3.77	1.63	3.36	0.48	1.7	0.151 U
FP07	FP-19	MK-FP-19-0.5/1.5	0.5	1.5	11/11/2016	2.3	0.153	0.165	0.28	0.106	0.243	0.0309	0.1	0.008 U
FP07	FP-19	MK-FP-19-1.5/2.2	1.5	2.2	11/11/2016	1.6	0.121	0.1	0.204	0.0754	0.191	0.0206	0.0616	0.0077 U
FP07	FP-19	MK-FP-19-5.0/7.0	5	7	11/11/2016	0.13	0.0074 J	0.0055 J	0.0132 J	0.0065 J	0.015 J	0.0035 U	0.0057 J	0.0078 U
FP07	FP-19	MK-FP-19-7.0/8.3	7	8.3	11/11/2016	0.25	0.0142 J	0.0169	0.0251	0.0115 J	0.0238	0.0037 U	0.0109 J	0.0082 U
FP07	FP-19	MK-FP-19-10.0/12.0	10	12	11/11/2016	0.22	0.0135 J	0.0098 J	0.0268	0.0128 J	0.0265	0.0035 U	0.011 J	0.0079 U
FP07	FP-19	MK-FP-19-12.0/12.5	12	12.5	11/11/2016	1.2	0.083	0.0749	0.141	0.0648	0.141	0.0168	0.0508	0.0072 J
FP07	FP-62	MK-FP-62-0.0/0.5	0	0.5	11/5/2020	18.1	1.3	1.5	2.1	0.88	1.6	0.25 J	1	0.46 U
FP07	FP-62	MK-FP-62-0.5/1.5	0.5	1.5	11/5/2020	40.4	2.7	3.2	4.6	1.9	3.7	0.67	2.4	0.51 U
FP07	FP-62	MK-FP-62-1.5/2.5	1.5	2.5	11/5/2020	16.1	1.2	1.3	1.7	0.8	1.5	0.23	0.84	0.036 J
FP07	FP-62	MK-FP-62-2.5/4.0	2.5	4	11/5/2020	1.3	0.096	0.11	0.14	0.06	0.12	0.022 J	0.068	0.009 J
FP07 - HRUA Ravine	FP-63	MK-FP-63-0.0/0.5	0	0.5	11/5/2020	23.7	1.6	1.9	2.8	1.1	2.1	0.42 J	1.5	0.51 U
FP07 - HRUA Ravine	FP-63	MK-FP-63-0.5/1.5	0.5	1.5	11/5/2020	20.5	1.5	1.7	2.3	1	1.9	0.32 J	1.2	0.48 U
FP07 - HRUA Ravine	FP-63	MK-FP-63-1.5/2.5	1.5	2.5	11/5/2020	9.8	0.71	0.78	1.1	0.41	0.89	0.13 J	0.49	0.041 J
FP07 - HRUA Ravine	FP-63	MK-FP-63-2.5/4.0	2.5	4	11/5/2020	5.3	0.41	0.39	0.5	0.23	0.45	0.072 J	0.23	0.029 J

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Fluoran-thene	Fluorene	Naphtha-lene	Phenan-threne	Pyrene
					Tier 1 SS-RCL[1,4,5]										
					Tier 2 SS-RCL[1]										
					TSCA LO										
FP07	FP-125	MK-FP-125-1.5/2.5	1.5	2.5	10/13/2021	0.22 J	0.15 J	0.82	4	4.1	9.3	0.22 J	0.085 J	3.3	6.5
FP07	FP-125	MK-FP-125-2.5/3.3	2.5	3.3	10/13/2021	0.095 J	0.11 J	0.53	2.2	2	4.5	0.16 J	0.08 J	1.7	3.2
FP07	FP-15	MK-FP-15-0.0./0.5	0	0.5	11/11/2016	0.116	0.108	0.425		1.47	3.77	0.152	0.0156 J	1.53	3.05
FP07	FP-15	MK-FP-15-0.5/1.5	0.5	1.5	11/11/2016	0.144	0.101	0.44		1.85	4.6	0.195	0.0428	2.19	3.65
FP07	FP-15	MK-FP-15-1.5/2.3	1.5	2.3	11/11/2016	0.2	0.0172	0.322		0.276	1.47	0.221	0.0983	1.45	1.25
FP07	FP-15	MK-FP-15-5.0/7.2	5	7.2	11/11/2016	0.0023	0.0008 J	0.006 J		0.0132 J	0.052 J	0.0024	0.0008 J	0.031 J	0.04 J
FP07	FP-15	MK-FP-15-10/10.3	10	10.3	11/11/2016	0.0122	0.0134	0.0437		0.193	0.402	0.0171	0.003	0.161	0.286
FP07	FP-16	MK-FP-16-0.0/0.5	0	0.5	11/11/2016	0.177	0.216	0.564	0.88	1	4	0.215	0.0562	1.6	3.08
FP07	FP-16	MK-FP-16-0.5/1.5	0.5	1.5	11/11/2016	0.237	0.331	1.17	1.64	1.94	7.16	0.305	0.0442	5.43	5.58
FP07	FP-16	MK-FP-16-1.5/2.6	1.5	2.6	11/11/2016	0.176	0.203	0.623	0.846	0.839	4.28	0.232	0.0739	1.74	3.21
FP07	FP-16	MK-FP-16-5.0/7.0	5	7	11/11/2016	0.0132	0.0107	0.0351	0.0444	0.0478	0.145	0.0129	0.0053	0.128	0.124
FP07	FP-16	MK-FP-16-7.0/8.6	7	8.6	11/11/2016	0.0013 J	0.002	0.0027	0.0046 J-	0.00052 UJ	0.02	0.0022	0.002 J	0.016	0.015
FP07	FP-16	MK-FP-16-10.0/10.2	10	10.2	11/11/2016	0.0094	0.0117	0.0428	0.0826	0.0913	0.253	0.0116	0.0021 J	0.127	0.152
FP07	FP-16X	MK-FP-16X-3.0/4.0	3	4	11/6/2020	0.035 J	0.025 J	0.12	0.31	0.29	0.97	0.056 J	0.049 J	0.46	0.78
FP07	FP-17	MK-FP-17-0.0./0.5	0	0.5	11/11/2016	0.101 U	0.0855 U	0.377 J		1.01	3.23	0.107 U	0.218 U	1.39	2.46
FP07	FP-17	MK-FP-17-0.5/1.8	0.5	1.8	11/11/2016	0.186 J	0.0883 U	0.944		1.79	6.31	0.254 J	0.226 U	3.2	4.76
FP07	FP-17	MK-FP-17-5.0/7.0	5	7	11/11/2016	0.0058 U	0.0049 U	0.0085 U		0.0125	0.044	0.0062 U	0.0125 U	0.028 J	0.034
FP07	FP-17	MK-FP-17-7.0/8.2	7	8.2	11/11/2016	0.0063 U	0.0053 U	0.0092 U		0.0033 U	0.009 J	0.0067 U	0.0136 U	0.019 U	0.007 U
FP07	FP-17	MK-FP-17-10.0/12.5	10	12.5	11/11/2016	0.0064 U	0.0054 U	0.0094 U		0.0163	0.056	0.0068 U	0.0138 U	0.036 J	0.04
FP07	FP-17X	MK-FP-17X-2.5/4.0	2.5	4	11/6/2020	0.038 J	0.038 J	0.2	0.4	0.4	1.4	0.053 J	0.047 J	0.7	1.1
FP07	FP-18	MK-FP-18-0.0/0.5	0	0.5	11/11/2016	0.107 J	0.0887 U	0.397 J		1.15	3.11	0.138 J	0.227 U	1.57	2.78
FP07	FP-18	MK-FP-18-0.5/1.5	0.5	1.5	11/11/2016	0.11 J	0.0925 U	0.357 J		1.23	3.59	0.137 J	0.236 U	1.73	2.72
FP07	FP-18	MK-FP-18-1.5/2.7	1.5	2.7	11/11/2016	0.0454 J	0.0187 U	0.141		0.29	1.12	0.062 J	0.0478 U	0.69	0.936
FP07	FP-18	MK-FP-18-5.0/7.0	5	7	11/11/2016	0.0057 U	0.0049 U	0.0134 J		0.0136	0.065	0.0061 U	0.0124 U	0.044 J	0.051
FP07	FP-18	MK-FP-18-7.0/8.3	7	8.3	11/11/2016	0.0058 U	0.0049 U	0.0085 U		0.0033 J	0.016 J	0.0061 U	0.0125 U	0.017 U	0.011 J
FP07	FP-18	MK-FP-18-10.0/12.3	10	12.3	11/11/2016	0.0064 U	0.0055 U	0.0095 U		0.0034 U	0.021 J	0.0069 U	0.0139 U	0.019 U	0.016 J
FP07	FP-18	MK-FP-18-12.3/12.9	12.3	12.9	11/11/2016	0.0048 U	0.004 U	0.007 U		0.0025 U	0.006 U	0.0051 U	0.0103 U	0.014 U	0.006 U
FP07	FP-19	MK-FP-19-0.0/0.5	0	0.5	11/11/2016	0.154 J	0.0993 U	0.613		2.06	5.71	0.176 J	0.254 U	2.66	4.5
FP07	FP-19	MK-FP-19-0.5/1.5	0.5	1.5	11/11/2016	0.0115 J	0.0052 U	0.0495		0.115	0.444	0.0177 J	0.0134 U	0.228	0.326
FP07	FP-19	MK-FP-19-1.5/2.2	1.5	2.2	11/11/2016	0.0091 J	0.0051 U	0.0429		0.0683	0.328	0.0128 J	0.013 U	0.146	0.244
FP07	FP-19	MK-FP-19-5.0/7.0	5	7	11/11/2016	0.0061 U	0.0051 U	0.0089 U		0.0072 J	0.023 J	0.0065 U	0.0131 U	0.018 U	0.015 J
FP07	FP-19	MK-FP-19-7.0/8.3	7	8.3	11/11/2016	0.0063 U	0.0054 U	0.0093 U		0.0134	0.042	0.0068 U	0.0138 U	0.033 J	0.034
FP07	FP-19	MK-FP-19-10.0/12.0	10	12	11/11/2016	0.0061 U	0.0052 U	0.009 U		0.013	0.039	0.0065 U	0.0132 U	0.021 J	0.025
FP07	FP-19	MK-FP-19-12.0/12.5	12	12.5	11/11/2016	0.0088 J	0.0036 U	0.0282		0.0567	0.231	0.0108 J	0.0092 U	0.12	0.181
FP07	FP-62	MK-FP-62-0.0/0.5	0	0.5	11/5/2020	0.068 J	0.067 J	0.3 J	1.1	1.2	3	0.077 J-	0.06 J	1.2	2.2
FP07	FP-62	MK-FP-62-0.5/1.5	0.5	1.5	11/5/2020	0.17 J	0.16 J	0.65	2.5	2.7	6.7	0.17 J-	0.1 J	2.7	5.1
FP07	FP-62	MK-FP-62-1.5/2.5	1.5	2.5	11/5/2020	0.056 J	0.086 J	0.28	1	1	2.7	0.077 J-	0.065 J	1.1	2.1
FP07	FP-62	MK-FP-62-2.5/4.0	2.5	4	11/5/2020	0.005 J	0.008 J	0.024	0.078	0.076	0.22	0.008 J-	0.018 J	0.1	0.18
FP07 - HRUA Ravine	FP-63	MK-FP-63-0.0/0.5	0	0.5	11/5/2020	0.08 J	0.095 J	0.33 J	1.5	1.7	3.7	0.09 J-	0.062 J	1.4	3.1
FP07 - HRUA Ravine	FP-63	MK-FP-63-0.5/1.5	0.5	1.5	11/5/2020	0.48 U	0.11 J	0.31 J	1.3	1.4	3.2	0.074 J-	0.074 J	1.2	2.4
FP07 - HRUA Ravine	FP-63	MK-FP-63-1.5/2.5	1.5	2.5	11/5/2020	0.034 J	0.059 J	0.18 J	0.59	0.56	1.6	0.048 J-	0.082 J	0.75	1.3
FP07 - HRUA Ravine	FP-63	MK-FP-63-2.5/4.0	2.5	4	11/5/2020	0.028 J	0.12 U	0.099 J	0.27	0.26	0.97 J	0.031 J	0.052 J	0.46	0.73

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						Metals										Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Lead[4]	Arsenic[5]	Nickel	Cadmium	Chromium	Copper	Zinc	Mercury	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[1,4,5]	400	8												
					Tier 2 SS-RCL[1]														
					TSCA LO														
FP07	FP-125	MK-FP-125-1.5/2.5	1.5	2.5	10/13/2021	428 J	12												
FP07	FP-125	MK-FP-125-2.5/3.3	2.5	3.3	10/13/2021	320 J	10												
FP07	FP-15	MK-FP-15-0.0./0.5	0	0.5	11/11/2016	133 J	5.1 J	18.5 J	2.3	72.5	65.3	212 J	0.25					36500	
FP07	FP-15	MK-FP-15-0.5/1.5	0.5	1.5	11/11/2016	221 J	6.9 J	24.7 J	4.1	126	85.5	295 J	0.37					29800	
FP07	FP-15	MK-FP-15-1.5/2.3	1.5	2.3	11/11/2016	29.7 J	3.3 J	7.4 J	0.2	24.1	13.7	55.1 J	0.045					18000	
FP07	FP-15	MK-FP-15-5.0/7.2	5	7.2	11/11/2016	82.1 J	5 J	15.2 J	1.2	50.7	34.5	119 J	0.068					20800	
FP07	FP-15	MK-FP-15-10/10.3	10	10.3	11/11/2016	17.6	4 J	6.6	0.38	17.1	10.5	32.7 J	0.009 J					2930	
FP07	FP-16	MK-FP-16-0.0/0.5	0	0.5	11/11/2016	96.5	4.5 J	17.3	0.96	35.6	43.6	177	0.18	8.2	63.8	28	34400		
FP07	FP-16	MK-FP-16-0.5/1.5	0.5	1.5	11/11/2016	98.5	4 J	14.5	1.2	36.8	40.8	166	0.48	13	76	11	32900		
FP07	FP-16	MK-FP-16-1.5/2.6	1.5	2.6	11/11/2016	136	5.9 J	20.9	0.88	59	76.9	231	0.55	7.7	40.3	52	25700 J+		
FP07	FP-16	MK-FP-16-5.0/7.0	5	7	11/11/2016	40.6	3.6 J	13.1	0.19 U	20.6	21.1	66.2	0.19	17	65	18	18800 J+		
FP07	FP-16	MK-FP-16-7.0/8.6	7	8.6	11/11/2016	18.7	3.8 J	18.3	0.2 U	29.9	18.9	75	0.14	12	68	20	24800 J+		
FP07	FP-16	MK-FP-16-10.0/10.2	10	10.2	11/11/2016	8.4	2.3 J	10.8	0.13 U	12.6	13.1	31.4	0.039 U					4170 J+	
FP07	FP-16X	MK-FP-16X-3.0/4.0	3	4	11/6/2020	176 J	9.6	22.6	1.5	47.2	65.7	305 J	0.51					26500	
FP07	FP-17	MK-FP-17-0.0./0.5	0	0.5	11/11/2016	169	5.7 J	22.9	2.2	74.4	60.1	261	0.54					39200 J+	
FP07	FP-17	MK-FP-17-0.5/1.8	0.5	1.8	11/11/2016	11.4	2.8 J	13	0.16 U	17.9	14.8	53.2	0.25					11100 J+	
FP07	FP-17	MK-FP-17-5.0/7.0	5	7	11/11/2016	29.4	4 J	10.6	0.39 J	23.1	17.3	70.2	0.17					20100 J+	
FP07	FP-17	MK-FP-17-7.0/8.2	7	8.2	11/11/2016	21.1	5.8 J	16.8	0.32 J	29.9	19.3	73.9	0.1					26000 J+	
FP07	FP-17	MK-FP-17-10.0/12.5	10	12.5	11/11/2016	134	4.8 J	24.1	1.5	93	45.1	244	0.095					32100 J+	
FP07	FP-17X	MK-FP-17X-2.5/4.0	2.5	4	11/6/2020	107	6.3	18.2	1.6	44	41	177	0.18					26600	
FP07	FP-18	MK-FP-18-0.0/0.5	0	0.5	11/11/2016	244	7.8	29.8	4.4	134	90.1	360	0.47	69	31	0	39800		
FP07	FP-18	MK-FP-18-0.5/1.5	0.5	1.5	11/11/2016	106	5.4 J	15	1.2	37.5	38.2	146	0.2	68	32	0	30700		
FP07	FP-18	MK-FP-18-1.5/2.7	1.5	2.7	11/11/2016	85.9	6 J	14.1	0.83	40.8	38.5	148	0.18	63	37	0	23900		
FP07	FP-18	MK-FP-18-5.0/7.0	5	7	11/11/2016	17.2	2.6 J	6.6	0.2 J	12.1 J	9.2	43.9	0.12	71	29	0	14900		
FP07	FP-18	MK-FP-18-7.0/8.3	7	8.3	11/11/2016	15.3	4.5 J	12.7	0.22 J	20.1 J	13.8	59.2	0.12	52	48	0	21600		
FP07	FP-18	MK-FP-18-10.0/12.3	10	12.3	11/11/2016	20.6	5 J	18.4	0.39 J	40.8 J	22.1	82.6	0.14	85	15	0	31300		
FP07	FP-18	MK-FP-18-12.3/12.9	12.3	12.9	11/11/2016	5.3	3.3 J	5.6	0.15 U	9.3 J	5.3	22	0.013 U					3740	
FP07	FP-19	MK-FP-19-0.0/0.5	0	0.5	11/11/2016	255	6.7 J	27.7	3.8	98.1 J	90.8	351	1					58100	
FP07	FP-19	MK-FP-19-0.5/1.5	0.5	1.5	11/11/2016	129	7.8	20	2.7	77.4 J	57.8	229	0.62					40500	
FP07	FP-19	MK-FP-19-1.5/2.2	1.5	2.2	11/11/2016	73.4	6.8	18.7	0.86	45.7 J	33.7	135	0.26					28900	
FP07	FP-19	MK-FP-19-5.0/7.0	5	7	11/11/2016	38.5	5.4 J	15.9	0.41 J	33.8 J	22.9	87.4	0.17					28600	
FP07	FP-19	MK-FP-19-7.0/8.3	7	8.3	11/11/2016	28.3	4.9 J	17.4	0.41 J	29.6 J	22.8	87.4	0.22					27400	
FP07	FP-19	MK-FP-19-10.0/12.0	10	12	11/11/2016	16.5	4.1 J	15.3	0.32 J	28.4 J	17.8	66.3	0.095					22600	
FP07	FP-19	MK-FP-19-12.0/12.5	12	12.5	11/11/2016	46.6	4.2 J	12.1	0.73	50.2 J	25	89.5	0.042					13900	
FP07	FP-62	MK-FP-62-0.0/0.5	0	0.5	11/5/2020	152 J	2.7 J	18.3	2.2	47.5	56.3	271	0.25					34700	
FP07	FP-62	MK-FP-62-0.5/1.5	0.5	1.5	11/5/2020	439	8	34.2	5.9	147	110	469	0.62					34200	
FP07	FP-62	MK-FP-62-1.5/2.5	1.5	2.5	11/5/2020	183	5.9	18.7	2.9	65.7	51.2	234	0.29					17400	
FP07	FP-62	MK-FP-62-2.5/4.0	2.5	4	11/5/2020	51.6	5.2	17.4	0.76	46.7	25.8	120	0.23					22700	
FP07 - HRUA Ravine	FP-63	MK-FP-63-0.0/0.5	0	0.5	11/5/2020	371	8.5	38.4	6.5	145	98.9	422	0.34					64400	
FP07 - HRUA Ravine	FP-63	MK-FP-63-0.5/1.5	0.5	1.5	11/5/2020	198	8.4	29.5	6.5	87.5	59.9	313	0.28					30600	
FP07 - HRUA Ravine	FP-63	MK-FP-63-1.5/2.5	1.5	2.5	11/5/2020	96.4	4.7	17.8	1.6	54.9	41.3	167	0.22					26400	
FP07 - HRUA Ravine	FP-63	MK-FP-63-2.5/4.0	2.5	4	11/5/2020	63.9	5.5	16.3	0.58 J	93.7 J	32.7	128 J	0.1					22800	

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PCB									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242
					Tier 1 SS-RCL[1,4,5]	1.1									
					Tier 2 SS-RCL[1]	0.7									
					TSCA LO	25									
FP07	FP-64	MK-FP-64-0.0/0.5	0	0.5	11/5/2020	5.6	0.39 J	2.5 J	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	2.7 J
FP07	FP-64	MK-FP-64-0.5/1.5	0.5	1.5	11/5/2020	0.1	0.073 U	0.068 J	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.032 J
FP07	FP-64	MK-FP-64-1.5/2.5	1.5	2.5	11/5/2020	0.035 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
FP07	FP-64	MK-FP-64-2.5/3.8	2.5	3.8	11/5/2020	0.038 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U
FP07	FP-65	MK-FP-65-0.0/0.5	0	0.5	11/6/2020	8.5	0.57	3.1 J	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	4.8
FP07	FP-65	MK-FP-65-0.5/1.5	0.5	1.5	11/6/2020	3.1	0.26 J	1.4 J	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	1.4
FP07	FP-65	MK-FP-65-1.5/2.5	1.5	2.5	11/6/2020	0.034 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U
FP07	FP-65	MK-FP-65-2.5/3.7	2.5	3.7	11/6/2020	0.036 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
FP07	FP-66	MK-FP-66-0.0/0.5	0	0.5	11/6/2020	18.4	1.2 J	6.2	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	11 J
FP07	FP-66	MK-FP-66-0.5/1.5	0.5	1.5	11/6/2020	0.68	0.11	0.35	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.22
FP07	FP-66	MK-FP-66-1.5/2.5	1.5	2.5	11/6/2020	0.14	0.028 J	0.061 J	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.052 J
FP07	FP-66	MK-FP-66-2.5/4.0	2.5	4	11/6/2020	0.035 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
FP07	FP-67	MK-FP-67-0.0/0.5	0	0.5	11/6/2020	5.4	0.3 J	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	3.1
FP07	FP-67	MK-FP-67-0.5/1.5	0.5	1.5	11/6/2020	24	3.8 U	7	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	17
FP07	FP-67	MK-FP-67-1.5/2.5	1.5	2.5	11/6/2020	0.6	0.093	0.36 J	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.15 J
FP07	FP-67	MK-FP-67-2.5/4.0	2.5	4	11/6/2020	0.057	0.076 U	0.057 J	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U
FP07 - HRUA Canoe	FP-116	MK-FP-116-0.0/0.5	0	0.5	10/13/2021	2.30	0.19	1.3 J	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.85 J
FP07 - HRUA Canoe	FP-116	MK-FP-116-0.5/1.5	0.5	1.5	10/13/2021	5.60	0.32 J	2.4	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	2.9 J
FP07 - HRUA Canoe	FP-116	MK-FP-116-1.5/2.5	1.5	2.5	10/13/2021	0.62	0.076	0.35 J	0.064 U	0.064 U	0.064 U	0.19	0.064 U	0.064 U	0.064 U
FP07 - HRUA Canoe	FP-116	MK-FP-116-2.5/4.0	2.5	4	10/13/2021	0.03 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U
FP07 - HRUA Canoe	FP-117	MK-FP-117-0.0/0.5	0	0.5	10/13/2021	1.40	0.14	0.59 J	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.63
FP07 - HRUA Canoe	FP-117	MK-FP-117-0.5/1.5	0.5	1.5	10/13/2021	1.50	0.46	0.93	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 J
FP07 - HRUA Canoe	FP-117	MK-FP-117-1.5/2.5	1.5	2.5	10/13/2021	0.03 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
FP07 - HRUA Canoe	FP-117	MK-FP-117-2.5/3.0	2.5	3	10/13/2021	0.03 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
FP07 - HRUA M. Flats	FP-118	MK-FP-118-0.0/0.5	0	0.5	10/13/2021	34.0	2 J	14	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	18 J
FP07 - HRUA M. Flats	FP-118	MK-FP-118-0.5/1.5	0.5	1.5	10/13/2021	4.30	0.51 J	2.3	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	1.4 J
FP07 - HRUA M. Flats	FP-118	MK-FP-118-1.5/2.5	1.5	2.5	10/13/2021	0.15	0.064 U	0.074	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.075 J
FP07 - HRUA M. Flats	FP-118	MK-FP-118-2.5/3.8	2.5	3.8	10/13/2021	0.03 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U
FP07 - HRUA M. Flats	FP-119	MK-FP-119-0.0/0.5	0	0.5	10/13/2021	31.0	1.5 J	12	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	18 J
FP07 - HRUA M. Flats	FP-119	MK-FP-119-0.5/1.5	0.5	1.5	10/13/2021	6.20	0.65	3.4	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	2.1 J
FP07 - HRUA M. Flats	FP-119	MK-FP-119-1.5/2.5	1.5	2.5	10/13/2021	0.03 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
FP07 - HRUA M. Flats	FP-119	MK-FP-119-2.5/3.1	2.5	3.1	10/13/2021	0.03 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U
FP07 - HRUA M. Flats	FP-120	MK-FP-120-0.0/0.5	0	0.5	10/13/2021	15.0	0.82 J	5.2 J	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	8.7 J
FP07 - HRUA M. Flats	FP-120	MK-FP-120-0.5/1.5	0.5	1.5	10/13/2021	7.80	0.52 J	3.1	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	4.2 J
FP07 - HRUA M. Flats	FP-120	MK-FP-120-1.5/2.5	1.5	2.5	10/13/2021	0.11 J	0.063 U	0.054 J	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.055 J
FP07 - HRUA M. Flats	FP-120	MK-FP-120-2.5/3.8	2.5	3.8	10/13/2021	0.04 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U
FP07 - HRUA M. Flats	FP-121	MK-FP-121-0.0/0.5	0	0.5	10/13/2021	7.90	0.66	4.2	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	3.1 J
FP07 - HRUA M. Flats	FP-121	MK-FP-121-0.5/1.5	0.5	1.5	10/13/2021	1.10	0.19	0.73 J	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.18 J
FP07 - HRUA M. Flats	FP-121	MK-FP-121-1.5/2.5	1.5	2.5	10/13/2021	0.03 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U
FP07 - HRUA M. Flats	FP-121	MK-FP-121-2.5/2.9	2.5	2.9	10/13/2021	0.03 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U
FP07 - HRUA Ravine	FP-108	MK-FP-108-0.0/0.5	0	0.5	10/16/2021	0.51	0.081	0.23 J	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.2
FP07 - HRUA Ravine	FP-108	MK-FP-108-0.5/1.5	0.5	1.5	10/16/2021	0.26	0.027 J	0.077 J	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.15

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH								
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PAH-18[3]	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3-Cd) Pyrene	2-Methyl-naphthalene
					Tier 1 SS-RCL[1,4,5]	--	84.6	8.48	84.8	848	8480	8.48	84.8	
					Tier 2 SS-RCL[1]	--	50.8	5.09	50.9	501	5090	5.09	50.9	
					TSCA LO									
FP07	FP-64	MK-FP-64-0.0/0.5	0	0.5	11/5/2020									
FP07	FP-64	MK-FP-64-0.5/1.5	0.5	1.5	11/5/2020									
FP07	FP-64	MK-FP-64-1.5/2.5	1.5	2.5	11/5/2020									
FP07	FP-64	MK-FP-64-2.5/3.8	2.5	3.8	11/5/2020									
FP07	FP-65	MK-FP-65-0.0/0.5	0	0.5	11/6/2020	48.1	3.5	4.1	5.3	2.2	4.5	0.76	2.7	0.47 U
FP07	FP-65	MK-FP-65-0.5/1.5	0.5	1.5	11/6/2020	43.1	3	3.9	5.5	1.9	4	0.87	3	0.078 J
FP07	FP-65	MK-FP-65-1.5/2.5	1.5	2.5	11/6/2020	12.9	1.3	0.86	1.2	0.54	1.4	0.14 J	0.45	0.22 U
FP07	FP-65	MK-FP-65-2.5/3.7	2.5	3.7	11/6/2020	0.96	0.069	0.061	0.083	0.033	0.083	0.01 J	0.037	0.013 J
FP07	FP-66	MK-FP-66-0.0/0.5	0	0.5	11/6/2020									
FP07	FP-66	MK-FP-66-0.5/1.5	0.5	1.5	11/6/2020									
FP07	FP-66	MK-FP-66-1.5/2.5	1.5	2.5	11/6/2020									
FP07	FP-66	MK-FP-66-2.5/4.0	2.5	4	11/6/2020									
FP07	FP-67	MK-FP-67-0.0/0.5	0	0.5	11/6/2020	52.1	3.5	3.9	5.4	2.1	4.5	0.79	2.6	0.076 J
FP07	FP-67	MK-FP-67-0.5/1.5	0.5	1.5	11/6/2020	104	7.2	7.9	12	4.5	9.2	1.7 J	5.6	2.1 U
FP07	FP-67	MK-FP-67-1.5/2.5	1.5	2.5	11/6/2020	102	7.6	8	11	4.6	9	1.4	5	1 U
FP07	FP-67	MK-FP-67-2.5/4.0	2.5	4	11/6/2020	57.5	4.1	4.3	5.6	2.5	4.9	0.69	2.6	0.16 J
FP07 - HRUA Canoe	FP-116	MK-FP-116-0.0/0.5	0	0.5	10/13/2021	49.7	4.7	5.4	5.4	1.7	8.6	1.1	2.2	0.33 J
FP07 - HRUA Canoe	FP-116	MK-FP-116-0.5/1.5	0.5	1.5	10/13/2021	56.1	4.1	5.5	7.6	2.4	5.1	1.1	3.7	0.061 J
FP07 - HRUA Canoe	FP-116	MK-FP-116-1.5/2.5	1.5	2.5	10/13/2021	24.9	1.8	2	3.2	1.1	2.2	0.42 J	1.4	0.078 J
FP07 - HRUA Canoe	FP-116	MK-FP-116-2.5/4.0	2.5	4	10/13/2021	4.5	0.31	0.33	0.48	0.19	0.37	0.07 J	0.2	0.036 J
FP07 - HRUA Canoe	FP-117	MK-FP-117-0.0/0.5	0	0.5	10/13/2021	133	11	17	19	6	16	3.6	8.5	0.26 J
FP07 - HRUA Canoe	FP-117	MK-FP-117-0.5/1.5	0.5	1.5	10/13/2021	224	18	27	32	11	22	5.1	15	0.42 J
FP07 - HRUA Canoe	FP-117	MK-FP-117-1.5/2.5	1.5	2.5	10/13/2021	8.7	0.61	0.57	0.76	0.29	0.61	0.11	0.33	0.079 J
FP07 - HRUA Canoe	FP-117	MK-FP-117-2.5/3.0	2.5	3	10/13/2021	0.52	0.041	0.037	0.049	0.017 J	0.041	0.006 J	0.02	0.018 U
FP07 - HRUA M. Flats	FP-118	MK-FP-118-0.0/0.5	0	0.5	10/13/2021	48.3	3.5	4.2	6	2.7	4.3	0.83	3.1	0.076 J
FP07 - HRUA M. Flats	FP-118	MK-FP-118-0.5/1.5	0.5	1.5	10/13/2021	61.5	3.9	5.2	8.4	2.9	5.5	1.3	4	0.14 J
FP07 - HRUA M. Flats	FP-118	MK-FP-118-1.5/2.5	1.5	2.5	10/13/2021	24.9	1.9	2	2.9	1.1	2.3	0.36 J	1.2	0.083 J
FP07 - HRUA M. Flats	FP-118	MK-FP-118-2.5/3.8	2.5	3.8	10/13/2021	2.3	0.17	0.17	0.26	0.067	0.18 J	0.038	0.11	0.058
FP07 - HRUA M. Flats	FP-119	MK-FP-119-0.0/0.5	0	0.5	10/13/2021	39.6	2.7	3.2	4.9	1.9	3.5	0.8	2.5	0.088 J
FP07 - HRUA M. Flats	FP-119	MK-FP-119-0.5/1.5	0.5	1.5	10/13/2021	79.6	5.6	6.3	9.9	3.3	7	1.4	4.6	0.14 J
FP07 - HRUA M. Flats	FP-119	MK-FP-119-1.5/2.5	1.5	2.5	10/13/2021	18.7	1.6 J	1.2 J	1.9	0.73 J	1.9	0.22 J	0.7	0.07 J
FP07 - HRUA M. Flats	FP-119	MK-FP-119-2.5/3.1	2.5	3.1	10/13/2021	7.4	0.52	0.51	0.67	0.26	0.59	0.091 J	0.28	0.026 J
FP07 - HRUA M. Flats	FP-120	MK-FP-120-0.0/0.5	0	0.5	10/13/2021	57.2	3.9	4.8	7.5	3.4	4.9	0.95	3.5	0.09 J
FP07 - HRUA M. Flats	FP-120	MK-FP-120-0.5/1.5	0.5	1.5	10/13/2021	55.9	3.5	4.2	7.5	2.3	4.8	1.1	3.7	0.11 J
FP07 - HRUA M. Flats	FP-120	MK-FP-120-1.5/2.5	1.5	2.5	10/13/2021	16.4	1.4	1.2 J	1.7 J	0.83 J	1.7 J	0.21 J	0.73 J	0.077 J
FP07 - HRUA M. Flats	FP-120	MK-FP-120-2.5/3.8	2.5	3.8	10/13/2021	1.1	0.082	0.085	0.11	0.036	0.087	0.013 J	0.047	0.02 J
FP07 - HRUA M. Flats	FP-121	MK-FP-121-0.0/0.5	0	0.5	10/13/2021	46.5	3.4	3.8	5.6	2.1	4.1	0.81	2.6	0.5 U
FP07 - HRUA M. Flats	FP-121	MK-FP-121-0.5/1.5	0.5	1.5	10/13/2021	58.4	4.4	4.5	6.8	2.5	5.2	0.97	3	0.088 J
FP07 - HRUA M. Flats	FP-121	MK-FP-121-1.5/2.5	1.5	2.5	10/13/2021	12	0.85	0.85	1.2	0.46	1	0.17 J	0.52	0.097 J
FP07 - HRUA M. Flats	FP-121	MK-FP-121-2.5/2.9	2.5	2.9	10/13/2021	3.6	0.26	0.25	0.36	0.13	0.28	0.038 J	0.14	0.023 J
FP07 - HRUA Ravine	FP-108	MK-FP-108-0.0/0.5	0	0.5	10/16/2021	17.1	1	1.5	2.1	0.76	1.6	0.24 J	0.89	0.43 U
FP07 - HRUA Ravine	FP-108	MK-FP-108-0.5/1.5	0.5	1.5	10/16/2021	4.4	0.31	0.33	0.44	0.21	0.38	0.045 J	0.18 J	0.21 U

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Fluoran-thene	Fluorene	Naphtha-lene	Phenan-threne	Pyrene
					Tier 1 SS-RCL[1,4,5]										
					Tier 2 SS-RCL[1]										
					TSCA LO										
FP07	FP-64	MK-FP-64-0.0/0.5	0	0.5	11/5/2020										
FP07	FP-64	MK-FP-64-0.5/1.5	0.5	1.5	11/5/2020										
FP07	FP-64	MK-FP-64-1.5/2.5	1.5	2.5	11/5/2020										
FP07	FP-64	MK-FP-64-2.5/3.8	2.5	3.8	11/5/2020										
FP07	FP-65	MK-FP-65-0.0/0.5	0	0.5	11/6/2020	0.22 J	0.17 J	0.93	3	3.1	7.5	0.25 J-	0.093 J	3.3	6.2
FP07	FP-65	MK-FP-65-0.5/1.5	0.5	1.5	11/6/2020	0.14 J	0.14 J	0.61	3	3.5	5.9	0.16 J-	0.14 J	2.3	5
FP07	FP-65	MK-FP-65-1.5/2.5	1.5	2.5	11/6/2020	0.044 J	0.036 J	0.33	0.62	0.5	2.5	0.055 J-	0.065 J	0.95	1.8
FP07	FP-65	MK-FP-65-2.5/3.7	2.5	3.7	11/6/2020	0.009 J	0.009 J	0.029	0.045	0.042	0.15	0.014 J-	0.02 J	0.12	0.13
FP07	FP-66	MK-FP-66-0.0/0.5	0	0.5	11/6/2020										
FP07	FP-66	MK-FP-66-0.5/1.5	0.5	1.5	11/6/2020										
FP07	FP-66	MK-FP-66-1.5/2.5	1.5	2.5	11/6/2020										
FP07	FP-66	MK-FP-66-2.5/4.0	2.5	4	11/6/2020										
FP07	FP-67	MK-FP-67-0.0/0.5	0	0.5	11/6/2020	0.42 J	0.13 J	1.2	2.9	3.1	8.7	0.41 J-	0.24 J	5.1	7
FP07	FP-67	MK-FP-67-0.5/1.5	0.5	1.5	11/6/2020	0.65 J	0.26 J	2.1	6.1	6.2	17	0.77 J-	0.23 J	9.1	12
FP07	FP-67	MK-FP-67-1.5/2.5	1.5	2.5	11/6/2020	0.59 J	0.27 J	2.2	5.8	5.6	18	0.76 J	0.14 J	9	13
FP07	FP-67	MK-FP-67-2.5/4.0	2.5	4	11/6/2020	0.34 J	0.11 J	1.2	3.1	2.8	11	0.48 J	0.35 J	5.1	8.2
FP07 - HRUA Canoe	FP-116	MK-FP-116-0.0/0.5	0	0.5	10/13/2021	0.14 J	0.46 U	0.46 J	5.3	3.3	4.1	0.12 J	0.11 J	2.2	4.3
FP07 - HRUA Canoe	FP-116	MK-FP-116-0.5/1.5	0.5	1.5	10/13/2021	0.25 J	0.072 J	0.92	3.9	4.1	7.9	0.24 J	0.066 J	3.2	5.9
FP07 - HRUA Canoe	FP-116	MK-FP-116-1.5/2.5	1.5	2.5	10/13/2021	0.079 J	0.086 J	0.42 J	1.7	1.6	4.1	0.095 J	0.093 J	1.6	2.9
FP07 - HRUA Canoe	FP-116	MK-FP-116-2.5/4.0	2.5	4	10/13/2021	0.021 J	0.02 J	0.11	0.26	0.23	0.83	0.037 J	0.052 J	0.39	0.55
FP07 - HRUA Canoe	FP-117	MK-FP-117-0.0/0.5	0	0.5	10/13/2021	0.34 J	1.6 U	1.1 J	13	12	9.9	0.29 J	1.6 U	3.6	9.6
FP07 - HRUA Canoe	FP-117	MK-FP-117-0.5/1.5	0.5	1.5	10/13/2021	1.4 J	1.9 U	3.6	18	18	20	1.4 J	0.55 J	11	19
FP07 - HRUA Canoe	FP-117	MK-FP-117-1.5/2.5	1.5	2.5	10/13/2021	0.1	0.028 J	0.31	0.37	0.42	1.5	0.099	0.089 J	1.2	1.2
FP07 - HRUA Canoe	FP-117	MK-FP-117-2.5/3.0	2.5	3	10/13/2021	0.007 J	0.018 U	0.02	0.024	0.022	0.071	0.009 J	0.018 U	0.067	0.06
FP07 - HRUA M. Flats	FP-118	MK-FP-118-0.0/0.5	0	0.5	10/13/2021	0.15 J	0.12 J	0.58	3.5	3.6	6.7	0.18 J	0.097 J	2.7	6
FP07 - HRUA M. Flats	FP-118	MK-FP-118-0.5/1.5	0.5	1.5	10/13/2021	0.15 J	0.29 J	0.94	4.6	4.7	9.2	0.21 J	0.19 J	3.4	6.5
FP07 - HRUA M. Flats	FP-118	MK-FP-118-1.5/2.5	1.5	2.5	10/13/2021	0.085 J	0.076 J	0.54	1.5	1.4	4.3	0.1 J	0.13 J	1.8	3.1
FP07 - HRUA M. Flats	FP-118	MK-FP-118-2.5/3.8	2.5	3.8	10/13/2021	0.015 J	0.013 J	0.048	0.13	0.13	0.35 J	0.015 J	0.054	0.2 J	0.29 J
FP07 - HRUA M. Flats	FP-119	MK-FP-119-0.0/0.5	0	0.5	10/13/2021	0.16 J	0.1 J	0.51	2.6	3	6.3	0.16 J	0.11 J	2.5	4.6
FP07 - HRUA M. Flats	FP-119	MK-FP-119-0.5/1.5	0.5	1.5	10/13/2021	0.31 J	0.21 J	1.4	4.8	5.3	14	0.37 J	0.18 J	5.5	9.3
FP07 - HRUA M. Flats	FP-119	MK-FP-119-1.5/2.5	1.5	2.5	10/13/2021	0.065 J	0.46 U	0.47	0.94	0.82	3.7	0.093 J	0.14 J	1.4 J	2.5
FP07 - HRUA M. Flats	FP-119	MK-FP-119-2.5/3.1	2.5	3.1	10/13/2021	0.044 J	0.04 J	0.22	0.33	0.33	1.4	0.1 J	0.052 J	0.91	0.99
FP07 - HRUA M. Flats	FP-120	MK-FP-120-0.0/0.5	0	0.5	10/13/2021	0.18 J	0.17 J	0.76	3.8	4	8.6	0.2 J	0.13 J	3.4	6.9
FP07 - HRUA M. Flats	FP-120	MK-FP-120-0.5/1.5	0.5	1.5	10/13/2021	0.14 J	0.23 J	0.77	3.7	4	9.3	0.2 J	0.2 J	3.5	6.6
FP07 - HRUA M. Flats	FP-120	MK-FP-120-1.5/2.5	1.5	2.5	10/13/2021	0.058 J	0.42 U	0.32 J	0.96 J	0.78 J	2.6 J	0.074 J	0.11 J	1.3	2.1
FP07 - HRUA M. Flats	FP-120	MK-FP-120-2.5/3.8	2.5	3.8	10/13/2021	0.008 J	0.005 J	0.029	0.057	0.058	0.18	0.008 J	0.021 J	0.11	0.15
FP07 - HRUA M. Flats	FP-121	MK-FP-121-0.0/0.5	0	0.5	10/13/2021	0.22 J	0.079 J	0.75	2.8	2.9	8	0.22 J	0.073 J	3.2	5.6
FP07 - HRUA M. Flats	FP-121	MK-FP-121-0.5/1.5	0.5	1.5	10/13/2021	0.21 J	0.17 J	1.1	3.4	3.5	11	0.29 J	0.13 J	4.1	7
FP07 - HRUA M. Flats	FP-121	MK-FP-121-1.5/2.5	1.5	2.5	10/13/2021	0.11 J	0.43 U	0.35 J	0.64	0.62	2	0.11 J	0.15 J	1.2	1.5
FP07 - HRUA M. Flats	FP-121	MK-FP-121-2.5/2.9	2.5	2.9	10/13/2021	0.018 J	0.087 U	0.098	0.17	0.18	0.65	0.026 J	0.034 J	0.33	0.52
FP07 - HRUA Ravine	FP-108	MK-FP-108-0.0/0.5	0	0.5	10/16/2021	0.056 J	0.43 U	0.36 J	1.1	1.2	2.7	0.072 J	0.049 J	0.97	2.1
FP07 - HRUA Ravine	FP-108	MK-FP-108-0.5/1.5	0.5	1.5	10/16/2021	0.21 U	0.21 U	0.052 J	0.24	0.22	0.7	0.21 U	0.025 J	0.28	0.54

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						Metals								Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Lead[4]	Arsenic[5]	Nickel	Cadmium	Chromium	Copper	Zinc	Mercury	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[1,4,5]	400	8										
					Tier 2 SS-RCL[1]												
					TSCA LO												
FP07	FP-64	MK-FP-64-0.0/0.5	0	0.5	11/5/2020	266	8.5	29.7	6.9	103	81.3	467	0.079				33500
FP07	FP-64	MK-FP-64-0.5/1.5	0.5	1.5	11/5/2020	219	7.8	25.6	5.4	72.4	64.1	276	0.29				26500
FP07	FP-64	MK-FP-64-1.5/2.5	1.5	2.5	11/5/2020	42.1	3.5	13.9	0.57 J	34	27	86.1	0.17				23300
FP07	FP-64	MK-FP-64-2.5/3.8	2.5	3.8	11/5/2020	20.7	2.5 J	17	0.38 J	26.5	21.1	75.3	0.086				24800
FP07	FP-65	MK-FP-65-0.0/0.5	0	0.5	11/6/2020	244	4.3	26.7	4.4	96.8	79.7	325	0.3				50000
FP07	FP-65	MK-FP-65-0.5/1.5	0.5	1.5	11/6/2020	197	6.8	25.9	5.6	108	72.7	261	0.29				31600
FP07	FP-65	MK-FP-65-1.5/2.5	1.5	2.5	11/6/2020	50.1	3.2 J	12.8	0.81	48.9	24.9	99.3	0.14				31000
FP07	FP-65	MK-FP-65-2.5/3.7	2.5	3.7	11/6/2020	24.8	4.3	15	0.53 J	33.1	20.5	74.2	0.078				18500
FP07	FP-66	MK-FP-66-0.0/0.5	0	0.5	11/6/2020	281	5.6	28.1	4.7	109	91.1	351	0.48				34900
FP07	FP-66	MK-FP-66-0.5/1.5	0.5	1.5	11/6/2020	268	10.1	41.4	6.6	143	106	424	0.31				33400
FP07	FP-66	MK-FP-66-1.5/2.5	1.5	2.5	11/6/2020	127	7	19.9	2.1	68.7	55.7	187	0.3				48200
FP07	FP-66	MK-FP-66-2.5/4.0	2.5	4	11/6/2020	82	6	12.2	0.66 J	37.6	30.7	112	0.12				22200
FP07	FP-67	MK-FP-67-0.0/0.5	0	0.5	11/6/2020	523	8.2	24.6	3.2	79.3	117	328	0.52				42200
FP07	FP-67	MK-FP-67-0.5/1.5	0.5	1.5	11/6/2020	441	9.5	45.2	6.7	166	166	572	1.2				41800
FP07	FP-67	MK-FP-67-1.5/2.5	1.5	2.5	11/6/2020	284	9.7	27.7	5.3	93.1	81	365	0.67				25900
FP07	FP-67	MK-FP-67-2.5/4.0	2.5	4	11/6/2020	318 J	11	42.8	4.6 J	98.3	102	545 J	0.51				95300 J
FP07 - HRUA Canoe	FP-116	MK-FP-116-0.0/0.5	0	0.5	10/13/2021	123	7										
FP07 - HRUA Canoe	FP-116	MK-FP-116-0.5/1.5	0.5	1.5	10/13/2021	168	7										
FP07 - HRUA Canoe	FP-116	MK-FP-116-1.5/2.5	1.5	2.5	10/13/2021	137	6										
FP07 - HRUA Canoe	FP-116	MK-FP-116-2.5/4.0	2.5	4	10/13/2021	53	5										
FP07 - HRUA Canoe	FP-117	MK-FP-117-0.0/0.5	0	0.5	10/13/2021	273	5										
FP07 - HRUA Canoe	FP-117	MK-FP-117-0.5/1.5	0.5	1.5	10/13/2021	166 J	7										
FP07 - HRUA Canoe	FP-117	MK-FP-117-1.5/2.5	1.5	2.5	10/13/2021	38 J	15										
FP07 - HRUA Canoe	FP-117	MK-FP-117-2.5/3.0	2.5	3	10/13/2021	14 J	2 J										
FP07 - HRUA M. Flats	FP-118	MK-FP-118-0.0/0.5	0	0.5	10/13/2021	356	10										
FP07 - HRUA M. Flats	FP-118	MK-FP-118-0.5/1.5	0.5	1.5	10/13/2021	306	11										
FP07 - HRUA M. Flats	FP-118	MK-FP-118-1.5/2.5	1.5	2.5	10/13/2021	90	7										
FP07 - HRUA M. Flats	FP-118	MK-FP-118-2.5/3.8	2.5	3.8	10/13/2021	30	5										
FP07 - HRUA M. Flats	FP-119	MK-FP-119-0.0/0.5	0	0.5	10/13/2021	394 J	9										
FP07 - HRUA M. Flats	FP-119	MK-FP-119-0.5/1.5	0.5	1.5	10/13/2021	324 J	9										
FP07 - HRUA M. Flats	FP-119	MK-FP-119-1.5/2.5	1.5	2.5	10/13/2021	132 J	6										
FP07 - HRUA M. Flats	FP-119	MK-FP-119-2.5/3.1	2.5	3.1	10/13/2021	50 J	3 J										
FP07 - HRUA M. Flats	FP-120	MK-FP-120-0.0/0.5	0	0.5	10/13/2021	313	8										
FP07 - HRUA M. Flats	FP-120	MK-FP-120-0.5/1.5	0.5	1.5	10/13/2021	310	10										
FP07 - HRUA M. Flats	FP-120	MK-FP-120-1.5/2.5	1.5	2.5	10/13/2021	108	7										
FP07 - HRUA M. Flats	FP-120	MK-FP-120-2.5/3.8	2.5	3.8	10/13/2021	23	4										
FP07 - HRUA M. Flats	FP-121	MK-FP-121-0.0/0.5	0	0.5	10/13/2021	345 J	9										
FP07 - HRUA M. Flats	FP-121	MK-FP-121-0.5/1.5	0.5	1.5	10/13/2021	273 J	8										
FP07 - HRUA M. Flats	FP-121	MK-FP-121-1.5/2.5	1.5	2.5	10/13/2021	89 J	6										
FP07 - HRUA M. Flats	FP-121	MK-FP-121-2.5/2.9	2.5	2.9	10/13/2021	59 J	4										
FP07 - HRUA Ravine	FP-108	MK-FP-108-0.0/0.5	0	0.5	10/16/2021	83	4										
FP07 - HRUA Ravine	FP-108	MK-FP-108-0.5/1.5	0.5	1.5	10/16/2021	46	3 J										

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PCB									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242
					Tier 1 SS-RCL[1,4,5]	1.1									
					Tier 2 SS-RCL[1]	0.7									
					TSCA LO	25									
FP07 - HRUA Ravine	FP-108	MK-FP-108-1.5/2.5	1.5	2.5	10/16/2021	0.04 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U
FP07 - HRUA Ravine	FP-108	MK-FP-108-2.5/3.0	2.5	3	10/16/2021	0.04 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U
FP07 - HRUA Ravine	FP-109	MK-FP-109-0.0/0.5	0	0.5	10/16/2021	0.61	0.12	0.26	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.23
FP07 - HRUA Ravine	FP-109	MK-FP-109-0.5/1.5	0.5	1.5	10/16/2021	0.05 J	0.063 U	0.025 J	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.021 J
FP07 - HRUA Ravine	FP-109	MK-FP-109-1.5/2.2	1.5	2.2	10/16/2021	0.03 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U
FP07 - HRUA Ravine	FP-110	MK-FP-110-0.0/0.5	0	0.5	10/16/2021	2.80	0.3	1.6 J	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.96 J
FP07 - HRUA Ravine	FP-110	MK-FP-110-0.5/1.5	0.5	1.5	10/16/2021	0.23	0.058 J	0.13	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.039 J
FP07 - HRUA Ravine	FP-110	MK-FP-110-1.5/2.5	1.5	2.5	10/16/2021	0.04 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U
FP07 - HRUA Ravine	FP-110	MK-FP-110-2.5/3.1	2.5	3.1	10/16/2021	0.04 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U
FP07 - HRUA Ravine	FP-111	MK-FP-111-0.0/0.5	0	0.5	10/16/2021	0.18	0.042 J	0.11 J	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.028 J
FP07 - HRUA Ravine	FP-111	MK-FP-111-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
FP07 - HRUA Ravine	FP-111	MK-FP-111-1.5/2.5	1.5	2.5	10/16/2021	0.03 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
FP07 - HRUA Ravine	FP-111	MK-FP-111-2.5/3.0	2.5	3	10/16/2021	0.03 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U
FP07 - HRUA Ravine	FP-112	MK-FP-112-0.0/0.5	0	0.5	10/16/2021	0.02 J	0.077 U	0.024 J	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U
FP07 - HRUA Ravine	FP-112	MK-FP-112-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U
FP07 - HRUA Ravine	FP-112	MK-FP-112-1.5/2.5	1.5	2.5	10/16/2021	0.03 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
FP07 - HRUA Ravine	FP-112	MK-FP-112-2.5/3.7	2.5	3.7	10/16/2021	0.03 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U
FP08/09	FP-124	MK-FP-124-0.0/0.5	0	0.5	10/12/2021	2.10	0.27	0.9	0.14 U	0.14 U	0.14 U	0.94	0.14 U	0.14 U	0.14 U
FP08/09	FP-124	MK-FP-124-0.5/1.5	0.5	1.5	10/12/2021	0.40	0.055 J	0.15	0.06 U	0.06 U	0.06 U	0.19	0.06 U	0.06 U	0.06 U
FP08/09	FP-124	MK-FP-124-1.5/2.5	1.5	2.5	10/12/2021	0.03 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U
FP08/09	FP-124	MK-FP-124-2.5/3.8	2.5	3.8	10/12/2021	0.02 J	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.023 J
FP08/09	FP-127	MK-FP-127-0.0/0.5	0	0.5	10/12/2021	2.30	0.25	1.1	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.91
FP08/09	FP-127	MK-FP-127-0.5/1.5	0.5	1.5	10/12/2021	1.20	0.1 J	0.56	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.54
FP08/09	FP-127	MK-FP-127-1.5/2.5	1.5	2.5	10/12/2021	2.20	0.094 J	0.59	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	1.5
FP08/09	FP-127	MK-FP-127-2.5/3.3	2.5	3.3	10/12/2021	6.20	0.21 J	0.99	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	5
FP08/09	FP-128	MK-FP-128-0.0/0.5	0	0.5	10/12/2021	1.00	0.095 J	0.48	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.45
FP08/09	FP-128	MK-FP-128-0.5/1.5	0.5	1.5	10/12/2021	0.85	0.078 J	0.39	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.38
FP08/09	FP-128	MK-FP-128-1.5/2.5	1.5	2.5	10/12/2021	2.10	0.17 J	0.93	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	1 J
FP08/09	FP-128	MK-FP-128-2.5/3.6	2.5	3.6	10/12/2021	5.90	0.41 J	2.2	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	3.2 J
FP08/09	FP-131	MK-FP-131-0.0/0.5	0	0.5	10/12/2021	0.43	0.047 J	0.22	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.17 J
FP08/09	FP-131	MK-FP-131-0.5/1.5	0.5	1.5	10/12/2021	3.00	0.21 J	1.2	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	1.6 J
FP08/09	FP-131	MK-FP-131-1.5/2.5	1.5	2.5	10/12/2021	2.70	0.21 J	1.1 J	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	1.3 J
FP08/09	FP-131	MK-FP-131-2.5/3.8	2.5	3.8	10/12/2021	2.10	0.18 J	0.82 J	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	1.1 J
FP08/09	FP-20	MK-FP-20-0.0./0.5	0	0.5	11/10/2016	24.6	3.34 UJ	6.49 J	3.34 UJ	3.34 UJ	3.34 UJ	3.34 UJ	3.34 UJ	3.34 UJ	18.1 J
FP08/09	FP-20	MK-FP-20-0.5/1.5	0.5	1.5	11/10/2016	11.6	1.76 UJ	4.8 J	1.76 UJ	1.76 UJ	1.76 UJ	1.76 UJ	1.76 UJ	1.76 UJ	6.78 J
FP08/09	FP-20	MK-FP-20-1.5/2.3	1.5	2.3	11/10/2016	0.11	0.035 UJ	0.07 J	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.042 J
FP08/09	FP-20	MK-FP-20-5.0/7.0	5	7	11/10/2016	0.02 U	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ
FP08/09	FP-20	MK-FP-20-7.0/7.9	7	7.9	11/10/2016	0.03	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 UJ	0.031 J
FP08/09	FP-20	MK-FP-20-10.0/10.6	10	10.6	11/10/2016	0.01 U	0.027 UJ	0.027 UJ	0.027 UJ	0.027 UJ	0.027 UJ	0.027 UJ	0.027 UJ	0.027 UJ	0.027 UJ
FP08/09	FP-21	MK-FP-21-0.0/0.5	0	0.5	11/10/2016	3.5	0.324 J	1.48 J	0.113 UJ	0.113 UJ	0.113 UJ	0.113 UJ	0.113 UJ	0.113 UJ	1.7 J
FP08/09	FP-21	MK-FP-21-0.5/1.5	0.5	1.5	11/10/2016	3.2	0.681 J	1.37 J	0.105 UJ	0.105 UJ	0.105 UJ	0.105 UJ	0.105 UJ	0.105 UJ	1.19 J
FP08/09	FP-21	MK-FP-21-1.5/2.5	1.5	2.5	11/10/2016	8.8	0.57 UJ	2.1 J	0.57 UJ	0.57 UJ	0.57 UJ	0.57 UJ	0.57 UJ	0.57 UJ	6.73 J

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH								
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PAH-18[3]	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3-Cd) Pyrene	2-Methyl-naphthalene
					Tier 1 SS-RCL[1,4,5]	--	84.6	8.48	84.8	848	8480	8.48	84.8	
					Tier 2 SS-RCL[1]	--	50.8	5.09	50.9	501	5090	5.09	50.9	
					TSCA LO									
FP07 - HRUA Ravine	FP-108	MK-FP-108-1.5/2.5	1.5	2.5	10/16/2021	0.29	0.02 J	0.017 J	0.023 J	0.008 J	0.023 J	0.024 U	0.009 J	0.024 U
FP07 - HRUA Ravine	FP-108	MK-FP-108-2.5/3.0	2.5	3	10/16/2021	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U
FP07 - HRUA Ravine	FP-109	MK-FP-109-0.0/0.5	0	0.5	10/16/2021	15.7	1	1.3	1.9	0.65	1.5	0.24	0.8	0.057 J
FP07 - HRUA Ravine	FP-109	MK-FP-109-0.5/1.5	0.5	1.5	10/16/2021	47.9	3.7	3.3	4.3	1.7	3.6	0.53	1.8	0.13 J
FP07 - HRUA Ravine	FP-109	MK-FP-109-1.5/2.2	1.5	2.2	10/16/2021	0.73	0.048 J	0.046	0.059	0.029	0.056 J	0.008 J	0.028	0.004 J
FP07 - HRUA Ravine	FP-110	MK-FP-110-0.0/0.5	0	0.5	10/16/2021	31	2.4	2.6	3.7	1.3	2.8	0.43	1.5	0.06 J
FP07 - HRUA Ravine	FP-110	MK-FP-110-0.5/1.5	0.5	1.5	10/16/2021	22.8	1.6	1.8	2.8	0.92	2.1	0.33	1.2	0.21 J
FP07 - HRUA Ravine	FP-110	MK-FP-110-1.5/2.5	1.5	2.5	10/16/2021	38.4	2.9	2.7	3.1	1.3	3	0.53	1.7	0.25
FP07 - HRUA Ravine	FP-110	MK-FP-110-2.5/3.1	2.5	3.1	10/16/2021	0.93	0.048	0.049	0.066	0.024	0.064	0.009 J	0.028	0.12
FP07 - HRUA Ravine	FP-111	MK-FP-111-0.0/0.5	0	0.5	10/16/2021	31.7	2.6	2.6	3.8	1.2	2.8	0.53	1.5	0.13 J
FP07 - HRUA Ravine	FP-111	MK-FP-111-0.5/1.5	0.5	1.5	10/16/2021	1.5	0.11	0.11	0.15	0.062	0.13	0.021	0.063	0.028
FP07 - HRUA Ravine	FP-111	MK-FP-111-1.5/2.5	1.5	2.5	10/16/2021	41.7	3.3	3	3.7	1.9	3.4	0.54	1.6	0.12 J
FP07 - HRUA Ravine	FP-111	MK-FP-111-2.5/3.0	2.5	3	10/16/2021	32.9	2.3	1.9	2.4	0.99	2.5	0.28 J	0.89	0.17 J
FP07 - HRUA Ravine	FP-112	MK-FP-112-0.0/0.5	0	0.5	10/16/2021	128	9.3	9.7	13	5.3	11	1.6 J	5.3	2.1 U
FP07 - HRUA Ravine	FP-112	MK-FP-112-0.5/1.5	0.5	1.5	10/16/2021	17.1	1.3	1.6	2	0.78	1.6	0.3 J	0.86	0.13 J
FP07 - HRUA Ravine	FP-112	MK-FP-112-1.5/2.5	1.5	2.5	10/16/2021	6.6	0.43	0.5	0.62	0.27	0.61	0.062 J	0.23	0.038 J
FP07 - HRUA Ravine	FP-112	MK-FP-112-2.5/3.7	2.5	3.7	10/16/2021	0.62	0.045 J	0.041 J	0.052 J	0.019 J	0.051 J	0.006 J	0.022	0.01 J
FP08/09	FP-124	MK-FP-124-0.0/0.5	0	0.5	10/12/2021	72.5	5.4	4.6	7.5	2.5	5.4	0.74 J	2.6	0.91 U
FP08/09	FP-124	MK-FP-124-0.5/1.5	0.5	1.5	10/12/2021	21.7	1.5	1.4	2.3	0.97	1.6	0.26 J	0.92	0.11 J
FP08/09	FP-124	MK-FP-124-1.5/2.5	1.5	2.5	10/12/2021	1.5	0.099	0.091	0.14	0.058	0.12	0.014 J	0.052	0.008 J
FP08/09	FP-124	MK-FP-124-2.5/3.8	2.5	3.8	10/12/2021	1.5	0.11	0.091	0.12	0.063	0.11 J	0.016 J	0.056	0.019 U
FP08/09	FP-127	MK-FP-127-0.0/0.5	0	0.5	10/12/2021	24.1	1.9	2	2.5	1.1	2.1	0.35 J	1.2	0.41 U
FP08/09	FP-127	MK-FP-127-0.5/1.5	0.5	1.5	10/12/2021	13.7	1.1	1.1	1.5	0.64	1.1	0.16 J	0.58	0.38 U
FP08/09	FP-127	MK-FP-127-1.5/2.5	1.5	2.5	10/12/2021	12.2	0.83	0.97	1.4	0.68	1.1	0.2 J	0.71	0.056 J
FP08/09	FP-127	MK-FP-127-2.5/3.3	2.5	3.3	10/12/2021	25.2	1.9	1.9	2.8	0.96	2.6	0.3 J	1	0.53 U
FP08/09	FP-128	MK-FP-128-0.0/0.5	0	0.5	10/12/2021	10	0.67	0.75	1.1	0.51	0.89	0.14 J	0.51	0.26
FP08/09	FP-128	MK-FP-128-0.5/1.5	0.5	1.5	10/12/2021	12.7	0.92	0.79	1.2	0.42	0.93	0.14 J	0.47	0.18 U
FP08/09	FP-128	MK-FP-128-1.5/2.5	1.5	2.5	10/12/2021	15.8	1	1.2	1.6	0.79	1.3	0.21 J	0.81	0.37 U
FP08/09	FP-128	MK-FP-128-2.5/3.6	2.5	3.6	10/12/2021	15	0.96	1.2	1.7	0.8	1.3	0.25 J	0.94	0.38 U
FP08/09	FP-131	MK-FP-131-0.0/0.5	0	0.5	10/12/2021	7.5	0.55	0.58	0.79	0.35	0.62	0.12	0.39	0.1 J
FP08/09	FP-131	MK-FP-131-0.5/1.5	0.5	1.5	10/12/2021	14.1	0.95	1.1	1.6	0.53	1.3	0.22 J	0.85	0.082 J
FP08/09	FP-131	MK-FP-131-1.5/2.5	1.5	2.5	10/12/2021	13.4	0.89	1	1.6	0.73	1.2	0.22 J	0.8	0.39 U
FP08/09	FP-131	MK-FP-131-2.5/3.8	2.5	3.8	10/12/2021	21	1.3	1.5	3	0.92	1.9	0.3 J	1.1	0.09 J
FP08/09	FP-20	MK-FP-20-0.0./0.5	0	0.5	11/10/2016	32.2	2.48	3.09	4.43	1.78	2.96	0.00087 U	2.2	0.0227
FP08/09	FP-20	MK-FP-20-0.5/1.5	0.5	1.5	11/10/2016	57.4	4.16	5.34	7.84	3.29	5.66	1.07	3.2	0.0825
FP08/09	FP-20	MK-FP-20-1.5/2.3	1.5	2.3	11/10/2016	13.8	1.08	1.29	1.87	0.672	1.45	0.241	0.771	0.018
FP08/09	FP-20	MK-FP-20-5.0/7.0	5	7	11/10/2016	0.25	0.0182	0.0227	0.0354	0.0124	0.0236	0.0048	0.0148	0.00054 U
FP08/09	FP-20	MK-FP-20-7.0/7.9	7	7.9	11/10/2016	0.79	0.0563	0.0704	0.111	0.0448	0.0777	0.0171	0.0491	0.00071 J
FP08/09	FP-20	MK-FP-20-10.0/10.6	10	10.6	11/10/2016	0.04	0.0028	0.003	0.0048	0.0017 J	0.0064	0.00075 J	0.0019 J	0.00048 U
FP08/09	FP-21	MK-FP-21-0.0/0.5	0	0.5	11/10/2016	42.1	2.84 J-	3.31 J-	4.34 J-	1.79 J-	3.83 J-	0.885 J-	2.49 J-	0.174
FP08/09	FP-21	MK-FP-21-0.5/1.5	0.5	1.5	11/10/2016	31.8	2.62	1.99	4.22	1.22	3.71	0.664	1.71	0.0282
FP08/09	FP-21	MK-FP-21-1.5/2.5	1.5	2.5	11/10/2016	26.2	1.87	1.81	3.49	0.964	2.17	0.68	1.75	0.0481

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Fluoran-thene	Fluorene	Naphtha-lene	Phenan-threne	Pyrene
					Tier 1 SS-RCL[1,4,5]										
					Tier 2 SS-RCL[1]										
					TSCA LO										
FP07 - HRUA Ravine	FP-108	MK-FP-108-1.5/2.5	1.5	2.5	10/16/2021	0.024 U	0.024 U	0.004 J	0.012 J	0.012 J	0.046	0.024 U	0.002 J	0.018 J	0.032
FP07 - HRUA Ravine	FP-108	MK-FP-108-2.5/3.0	2.5	3	10/16/2021	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U
FP07 - HRUA Ravine	FP-109	MK-FP-109-0.0/0.5	0	0.5	10/16/2021	0.063 J	0.044 J	0.25	1	0.98	2.5	0.09 J	0.082 J	1.1	2.1
FP07 - HRUA Ravine	FP-109	MK-FP-109-0.5/1.5	0.5	1.5	10/16/2021	0.51	0.07 J	1.7	2.2	2	8.3	0.56	0.18 J	6.3	7
FP07 - HRUA Ravine	FP-109	MK-FP-109-1.5/2.2	1.5	2.2	10/16/2021	0.008 J	0.02 U	0.021	0.031	0.034	0.13 J	0.009 J	0.005 J	0.095 J	0.11 J
FP07 - HRUA Ravine	FP-110	MK-FP-110-0.0/0.5	0	0.5	10/16/2021	0.13 J	0.081 J	0.45	1.9	1.8	5.4	0.12 J	0.083 J	2	4.2
FP07 - HRUA Ravine	FP-110	MK-FP-110-0.5/1.5	0.5	1.5	10/16/2021	0.098 J	0.1 J	0.38	1.4	1.4	3.6	0.13 J	0.21 J	1.6	2.9
FP07 - HRUA Ravine	FP-110	MK-FP-110-1.5/2.5	1.5	2.5	10/16/2021	0.36	0.033 J	1.1	1.8	1.9	7.1	0.36	0.31	4.7	5.3
FP07 - HRUA Ravine	FP-110	MK-FP-110-2.5/3.1	2.5	3.1	10/16/2021	0.005 J	0.007 J	0.018 J	0.038	0.037	0.1	0.01 J	0.093	0.11	0.1
FP07 - HRUA Ravine	FP-111	MK-FP-111-0.0/0.5	0	0.5	10/16/2021	0.11 J	0.12 J	0.58	1.9	1.7	5.7	0.15 J	0.14 J	2	4.1
FP07 - HRUA Ravine	FP-111	MK-FP-111-0.5/1.5	0.5	1.5	10/16/2021	0.005 J	0.004 J	0.029	0.08	0.077	0.27	0.006 J	0.012 J	0.12	0.2
FP07 - HRUA Ravine	FP-111	MK-FP-111-1.5/2.5	1.5	2.5	10/16/2021	0.37 J	0.065 J	1.2	2	1.8	7.1	0.5	0.21 J	4.9	6
FP07 - HRUA Ravine	FP-111	MK-FP-111-2.5/3.0	2.5	3	10/16/2021	0.38 J	0.39 U	2	1.2	1	6.3	0.64	0.13 J	5.3	4.3
FP07 - HRUA Ravine	FP-112	MK-FP-112-0.0/0.5	0	0.5	10/16/2021	0.58 J	0.38 J	4.1	6.6	5.9	25	0.59 J	0.4 J	9	19
FP07 - HRUA Ravine	FP-112	MK-FP-112-0.5/1.5	0.5	1.5	10/16/2021	0.41 U	0.45	0.53	1.2	1	2.3	0.1 J	0.26 J	0.83	1.7
FP07 - HRUA Ravine	FP-112	MK-FP-112-1.5/2.5	1.5	2.5	10/16/2021	0.047 J	0.19 U	0.22	0.32	0.28	1.3	0.051 J	0.039 J	0.6	0.86
FP07 - HRUA Ravine	FP-112	MK-FP-112-2.5/3.7	2.5	3.7	10/16/2021	0.005 J	0.021 U	0.015 J	0.029 J	0.027	0.12 J	0.006 J	0.018 J	0.069 J	0.076 J
FP08/09	FP-124	MK-FP-124-0.0/0.5	0	0.5	10/12/2021	0.64 J	0.91 U	2	3.3	2.8	15	0.71 J	0.17 J	8.8	9.4
FP08/09	FP-124	MK-FP-124-0.5/1.5	0.5	1.5	10/12/2021	0.21 J	0.4 U	0.56	1	1.1	4	0.23 J	0.091 J	2.5	2.7
FP08/09	FP-124	MK-FP-124-1.5/2.5	1.5	2.5	10/12/2021	0.014 J	0.003 J	0.042	0.075	0.061	0.31	0.015 J	0.01 J	0.17	0.18
FP08/09	FP-124	MK-FP-124-2.5/3.8	2.5	3.8	10/12/2021	0.009 J	0.019 U	0.054	0.063	0.062	0.3 J	0.014 J	0.004 J	0.21 J	0.2 J
FP08/09	FP-127	MK-FP-127-0.0/0.5	0	0.5	10/12/2021	0.15 J	0.41 U	0.68	1.4	1.3	3.7	0.22 J	0.052 J	2.3	2.7
FP08/09	FP-127	MK-FP-127-0.5/1.5	0.5	1.5	10/12/2021	0.079 J	0.38 U	0.34 J	0.83	0.67	2.2	0.13 J	0.054 J	1.3	1.5
FP08/09	FP-127	MK-FP-127-1.5/2.5	1.5	2.5	10/12/2021	0.05 J	0.035 J	0.2 J	0.79	0.84	1.9	0.074 J	0.09 J	0.84	1.4
FP08/09	FP-127	MK-FP-127-2.5/3.3	2.5	3.3	10/12/2021	0.2 J	0.53 U	0.41 J	1.4	1.2	4.2	0.2 J	0.53 U	1.5	3.8
FP08/09	FP-128	MK-FP-128-0.0/0.5	0	0.5	10/12/2021	0.036 J	0.035 J	0.16 J	0.62	0.62	1.6	0.037 J	0.21	0.69	1.2
FP08/09	FP-128	MK-FP-128-0.5/1.5	0.5	1.5	10/12/2021	0.13 J	0.026 J	0.44	0.64	0.53	2.1	0.18 J	0.029 J	1.8	1.9
FP08/09	FP-128	MK-FP-128-1.5/2.5	1.5	2.5	10/12/2021	0.055 J	0.05 J	0.26 J	0.98	0.97	2.9	0.065 J	0.37 U	1	2.2
FP08/09	FP-128	MK-FP-128-2.5/3.6	2.5	3.6	10/12/2021	0.38 U	0.053 J	0.2 J	1	1.1	2.3	0.055 J	0.38 U	0.87	1.7
FP08/09	FP-131	MK-FP-131-0.0/0.5	0	0.5	10/12/2021	0.041 J	0.021 J	0.12	0.44	0.45	1.3	0.037 J	0.11	0.54	0.95
FP08/09	FP-131	MK-FP-131-0.5/1.5	0.5	1.5	10/12/2021	0.4 U	0.071 J	0.19 J	1.1	0.95	2.2	0.055 J	0.1 J	0.9	1.7
FP08/09	FP-131	MK-FP-131-1.5/2.5	1.5	2.5	10/12/2021	0.39 U	0.39 U	0.18 J	0.94	0.93	1.8	0.051 J	0.068 J	0.85	1.6
FP08/09	FP-131	MK-FP-131-2.5/3.8	2.5	3.8	10/12/2021	0.47 U	0.076 J	0.28 J	1.6	1.2	3.2	0.084 J	0.17 J	1.5	2.5
FP08/09	FP-20	MK-FP-20-0.0./0.5	0	0.5	11/10/2016	0.136	0.126	0.428		2.55	5.29	0.166	0.0205	2.2	4.29
FP08/09	FP-20	MK-FP-20-0.5/1.5	0.5	1.5	11/10/2016	0.328	0.275	1.13		3.29	9.68	0.453	0.0932	3.79	7.69
FP08/09	FP-20	MK-FP-20-1.5/2.3	1.5	2.3	11/10/2016	0.0524	0.0505	0.177		0.919	2.29	0.0733	0.0274	0.946	1.87
FP08/09	FP-20	MK-FP-20-5.0/7.0	5	7	11/10/2016	0.001 J	0.0009 J	0.0034		0.0182	0.042	0.0012 J	0.0004 U	0.016	0.035
FP08/09	FP-20	MK-FP-20-7.0/7.9	7	7.9	11/10/2016	0.0032	0.0033	0.0118		0.0597	0.127	0.0041	0.0009 J	0.052	0.102
FP08/09	FP-20	MK-FP-20-10.0/10.6	10	10.6	11/10/2016	0.0005 J	0.0003 U	0.0006 J		0.005	0.005	0.0005 J	0.0004 J	0.004	0.005
FP08/09	FP-21	MK-FP-21-0.0/0.5	0	0.5	11/10/2016	0.318	0.402	1.26	2.4 J-	2.8 J-	7.12	0.366	0.127	3.45	4.2
FP08/09	FP-21	MK-FP-21-0.5/1.5	0.5	1.5	11/10/2016	0.192	0.331	0.819	1.56	1.87	4.71	0.212	0.0356	1.74	4.13
FP08/09	FP-21	MK-FP-21-1.5/2.5	1.5	2.5	11/10/2016	0.153	0.319	0.907	1.55	1.99	3.43	0.184	0.0517	1.88	2.92

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						Metals									Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Lead[4]	Arsenic[5]	Nickel	Cadmium	Chromium	Copper	Zinc	Mercury		Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[1,4,5]	400	8											
					Tier 2 SS-RCL[1]													
					TSCA LO													
FP07 - HRUA Ravine	FP-108	MK-FP-108-1.5/2.5	1.5	2.5	10/16/2021	12	3 U											
FP07 - HRUA Ravine	FP-108	MK-FP-108-2.5/3.0	2.5	3	10/16/2021	7	3 J											
FP07 - HRUA Ravine	FP-109	MK-FP-109-0.0/0.5	0	0.5	10/16/2021	115	5											
FP07 - HRUA Ravine	FP-109	MK-FP-109-0.5/1.5	0.5	1.5	10/16/2021	49	4											
FP07 - HRUA Ravine	FP-109	MK-FP-109-1.5/2.2	1.5	2.2	10/16/2021	6	3 U											
FP07 - HRUA Ravine	FP-110	MK-FP-110-0.0/0.5	0	0.5	10/16/2021	243	6											
FP07 - HRUA Ravine	FP-110	MK-FP-110-0.5/1.5	0.5	1.5	10/16/2021	157	7											
FP07 - HRUA Ravine	FP-110	MK-FP-110-1.5/2.5	1.5	2.5	10/16/2021	70	4											
FP07 - HRUA Ravine	FP-110	MK-FP-110-2.5/3.1	2.5	3.1	10/16/2021	29	5											
FP07 - HRUA Ravine	FP-111	MK-FP-111-0.0/0.5	0	0.5	10/16/2021	63	6											
FP07 - HRUA Ravine	FP-111	MK-FP-111-0.5/1.5	0.5	1.5	10/16/2021	18	9											
FP07 - HRUA Ravine	FP-111	MK-FP-111-1.5/2.5	1.5	2.5	10/16/2021	63 J	5											
FP07 - HRUA Ravine	FP-111	MK-FP-111-2.5/3.0	2.5	3	10/16/2021	11 J	3 J											
FP07 - HRUA Ravine	FP-112	MK-FP-112-0.0/0.5	0	0.5	10/16/2021	92 J	5											
FP07 - HRUA Ravine	FP-112	MK-FP-112-0.5/1.5	0.5	1.5	10/16/2021	77 J	7											
FP07 - HRUA Ravine	FP-112	MK-FP-112-1.5/2.5	1.5	2.5	10/16/2021	69 J	5											
FP07 - HRUA Ravine	FP-112	MK-FP-112-2.5/3.7	2.5	3.7	10/16/2021	7 J	3 U											
FP08/09	FP-124	MK-FP-124-0.0/0.5	0	0.5	10/12/2021	230	6											
FP08/09	FP-124	MK-FP-124-0.5/1.5	0.5	1.5	10/12/2021	102	7											
FP08/09	FP-124	MK-FP-124-1.5/2.5	1.5	2.5	10/12/2021	23	4											
FP08/09	FP-124	MK-FP-124-2.5/3.8	2.5	3.8	10/12/2021	10	2 J											
FP08/09	FP-127	MK-FP-127-0.0/0.5	0	0.5	10/12/2021	122	4											
FP08/09	FP-127	MK-FP-127-0.5/1.5	0.5	1.5	10/12/2021	63	3 J											
FP08/09	FP-127	MK-FP-127-1.5/2.5	1.5	2.5	10/12/2021	119	6											
FP08/09	FP-127	MK-FP-127-2.5/3.3	2.5	3.3	10/12/2021	268	9											
FP08/09	FP-128	MK-FP-128-0.0/0.5	0	0.5	10/12/2021	82	9											
FP08/09	FP-128	MK-FP-128-0.5/1.5	0.5	1.5	10/12/2021	94	4											
FP08/09	FP-128	MK-FP-128-1.5/2.5	1.5	2.5	10/12/2021	89	4											
FP08/09	FP-128	MK-FP-128-2.5/3.6	2.5	3.6	10/12/2021	162	5											
FP08/09	FP-131	MK-FP-131-0.0/0.5	0	0.5	10/12/2021	99	5											
FP08/09	FP-131	MK-FP-131-0.5/1.5	0.5	1.5	10/12/2021	112	6											
FP08/09	FP-131	MK-FP-131-1.5/2.5	1.5	2.5	10/12/2021	106	5											
FP08/09	FP-131	MK-FP-131-2.5/3.8	2.5	3.8	10/12/2021	184	9											
FP08/09	FP-20	MK-FP-20-0.0./0.5	0	0.5	11/10/2016	264	7.1	29.2	4.4	129 J	92.4	357	0.48					48900
FP08/09	FP-20	MK-FP-20-0.5/1.5	0.5	1.5	11/10/2016	415	12	44.9	7.4	237 J	140	517	0.54					44700
FP08/09	FP-20	MK-FP-20-1.5/2.3	1.5	2.3	11/10/2016	75.2	4.5	13.1	0.63	80.9 J	30	114	0.26					33300
FP08/09	FP-20	MK-FP-20-5.0/7.0	5	7	11/10/2016	4.7	1.9 J	7.5	0.19	10.1	8.3	25.7 J	0.017 J					7010
FP08/09	FP-20	MK-FP-20-7.0/7.9	7	7.9	11/10/2016	13.8	2.3	8.1	0.35	12.4 J	10	37.1	0.04					3830
FP08/09	FP-20	MK-FP-20-10.0/10.6	10	10.6	11/10/2016	10.9	2.4	7.4	0.23	14.6 J	10.2	31.1	0.005 U					1660
FP08/09	FP-21	MK-FP-21-0.0/0.5	0	0.5	11/10/2016	228	6.6	22.3	3.2	78.7 J	80.5	287	0.34		63	26	11	60400
FP08/09	FP-21	MK-FP-21-0.5/1.5	0.5	1.5	11/10/2016	248	6.7	21.2	3.6	73.3 J	82.3	291	0.31		72	23	5	31900
FP08/09	FP-21	MK-FP-21-1.5/2.5	1.5	2.5	11/10/2016	242	10	26.8	4.7	112 J	85.6	347	0.41		97	3	0	34200

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PCB									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242
					Tier 1 SS-RCL[1,4,5]	1.1									
					Tier 2 SS-RCL[1]	0.7									
					TSCA LO	25									
FP08/09	FP-21	MK-FP-21-5.0/7.0	5	7	11/10/2016	0.02 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U
FP08/09	FP-21	MK-FP-21-7.0/8.3	7	8.3	11/10/2016	0.02 U	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ
FP08/09	FP-21	MK-FP-21-10.0/12.0	10	12	11/10/2016	0.02 U	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ
FP08/09	FP-21	MK-FP-21-12.0/13.3	12	13.3	11/10/2016	0.02 U	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ
FP08/09	FP-21	MK-FP-21-13.3/14.0	13.3	14	11/10/2016	0.01 U	0.028 UJ	0.028 UJ	0.028 UJ	0.028 UJ	0.028 UJ	0.028 UJ	0.028 UJ	0.028 UJ	0.028 UJ
FP08/09	FP-21X	MK-FP-21X-3.0/4.0	3	4	11/4/2020	0.24	0.043 J	0.12	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.073 J
FP08/09	FP-22	MK-FP-22-0.0./0.5	0	0.5	11/10/2016	4.1	0.43	1.79 J	0.178 U	0.178 U	0.178 U	0.178 U	0.178 U	0.178 U	1.89 J
FP08/09	FP-22	MK-FP-22-0.5/1.5	0.5	1.5	11/10/2016	11	0.639 J	4.32	0.486 U	0.486 U	0.486 U	0.486 U	0.486 U	0.486 U	5.99 J
FP08/09	FP-22	MK-FP-22-1.5/2.5	1.5	2.5	11/10/2016	1.1	0.169 J	0.561	0.111 U	0.111 U	0.111 U	0.387	0.111 U	0.111 U	0.111 U
FP08/09	FP-22	MK-FP-22-2.5/3.4	2.5	3.4	11/10/2016	0.05	0.041 U	0.052 J	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U
FP08/09	FP-22	MK-FP-22-5.0/6.0	5	6	11/10/2016	0.05	0.044 U	0.044 U	0.044 U	0.044 U	0.044 U	0.044 U	0.044 U	0.044 U	0.051 J
FP08/09	FP-22	MK-FP-22-6.0/7.2	6	7.2	11/10/2016	0.02 U	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ	0.032 UJ
FP08/09	FP-22	MK-FP-22-10.0/12.2	10	12.2	11/10/2016	0.02 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
FP08/09	FP-22	MK-FP-22-12.2/12.6	12.2	12.6	11/10/2016	0.01 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
FP08/09	FP-23	MK-FP-23-0.0/0.5	0	0.5	11/10/2016	2.8	0.353 J	1.12	0.127 U	0.127 U	0.127 U	0.127 U	0.127 U	0.127 U	1.36 J
FP08/09	FP-23	MK-FP-23-0.5/1.5	0.5	1.5	11/10/2016	0.2	0.029 U	0.078 J	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.12 J
FP08/09	FP-23	MK-FP-23-1.5/2.5	1.5	2.5	11/10/2016	0.18	0.031 U	0.072	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.105 J
FP08/09	FP-23	MK-FP-23-2.5/3.5	2.5	3.5	11/10/2016	0.79	0.085 J	0.312	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.396 J
FP08/09	FP-23	MK-FP-23-3.5/4.2	3.5	4.2	11/10/2016	0.48	0.072 U	0.205	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.272 J
FP08/09	FP-23	MK-FP-23-5.0/6.0	5	6	11/10/2016	0.48	0.043 U	0.22	0.043 U	0.043 U	0.043 U	0.26	0.043 U	0.043 U	0.043 U
FP08/09	FP-23	MK-FP-23-6.0/7.0	6	7	11/10/2016	0.02 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U
FP08/09	FP-23	MK-FP-23-7.0/8.0	7	8	11/10/2016	0.02 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U
FP08/09	FP-23	MK-FP-23-10.0/12.0	10	12	11/10/2016	0.02 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U
FP08/09	FP-23	MK-FP-23-12.0/13.9	12	13.9	11/10/2016	0.02 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U
FP08/09	FP-23	MK-FP-23-15.0/16.0	15	16	11/10/2016	0.02 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U	0.045 U
FP08/09	FP-23	MK-FP-23-16.0/16.2	16	16.2	11/10/2016	0.01 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U
FP08/09	FP-24	MK-FP-24-0.0./0.5	0	0.5	11/10/2016	4.8	0.539 J	1.92	0.307 U	0.307 U	0.307 U	0.307 U	0.307 U	0.307 U	2.33 J
FP08/09	FP-24	MK-FP-24-0.5/1.5	0.5	1.5	11/10/2016	0.12	0.03 U	0.051 J	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.072 J
FP08/09	FP-24	MK-FP-24-1.5/2.1	1.5	2.1	11/10/2016	0.17	0.029 U	0.052 J	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.119 J
FP08/09	FP-24	MK-FP-24-5.0/6.0	5	6	11/10/2016	0.56	0.072 J	0.254	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.234 J
FP08/09	FP-24	MK-FP-24-6.0/6.6	6	6.6	11/10/2016	0.07	0.034 U	0.065 J	0.034 U	0.034 U	0.034 U	0.034 U	0.034 U	0.034 U	0.034 U
FP08/09	FP-24	MK-FP-24-10.0/12.0	10	12	11/10/2016	0.02 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
FP08/09	FP-24	MK-FP-24-12.0/14.0	12	14	11/10/2016	0.02 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U
FP08/09	FP-24	MK-FP-24-15.0/16.4	15	16.4	11/10/2016	0.02 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U
FP08/09	FP-25	MK-FP-25-0.0/0.5	0	0.5	11/10/2016	3.3	0.306 J	1.23 J	0.123 UJ	0.123 UJ	0.123 UJ	0.123 UJ	0.123 UJ	0.123 UJ	1.73 J
FP08/09	FP-25	MK-FP-25-0.5/1.5	0.5	1.5	11/10/2016	5.4	0.519 J	1.95 J	0.296 UJ	0.296 UJ	0.296 UJ	0.296 UJ	0.296 UJ	0.296 UJ	2.97 J
FP08/09	FP-25	MK-FP-25-1.5/2.5	1.5	2.5	11/10/2016	0.13	0.03 UJ	0.062 J	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.063 J
FP08/09	FP-25	MK-FP-25-2.5/3.5	2.5	3.5	11/10/2016	0.9	0.097 J	0.343 J	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.464 J
FP08/09	FP-25	MK-FP-25-3.5/4.0	3.5	4	11/10/2016	0.23	0.041 UJ	0.081 J	0.041 UJ	0.041 UJ	0.041 UJ	0.151 J	0.041 UJ	0.041 UJ	0.041 UJ
FP08/09	FP-25	MK-FP-25-5.0/6.0	5	6	11/10/2016	0.02 U	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ
FP08/09	FP-25	MK-FP-25-6.0/7.0	6	7	11/10/2016	0.02 U	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ	0.039 UJ
FP08/09	FP-25	MK-FP-25-7.0/8.0	7	8	11/10/2016	0.02 U	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH								
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PAH-18[3]	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3-Cd) Pyrene	2-Methyl-naphthalene
					Tier 1 SS-RCL[1,4,5]	--	84.6	8.48	84.8	848	8480	8.48	84.8	
					Tier 2 SS-RCL[1]	--	50.8	5.09	50.9	501	5090	5.09	50.9	
					TSCA LO									
FP08/09	FP-21	MK-FP-21-5.0/7.0	5	7	11/10/2016	3.2	0.213	0.239	0.302	0.135	0.272	0.0611	0.164 J	0.014
FP08/09	FP-21	MK-FP-21-7.0/8.3	7	8.3	11/10/2016	3.8	0.268	0.215	0.236	0.0914	0.254	0.0485	0.122	0.032
FP08/09	FP-21	MK-FP-21-10.0/12.0	10	12	11/10/2016	0.18	0.0134 J-	0.0139 J-	0.019 J-	0.0086 J-	0.0164 J-	0.0028 J-	0.0089 J-	0.00056 U
FP08/09	FP-21	MK-FP-21-12.0/13.3	12	13.3	11/10/2016	0.014	0.00051 U	0.00051 U	0.0024	0.0008 U	0.00051 U	0.00057 U	0.0004 U	0.00061 U
FP08/09	FP-21	MK-FP-21-13.3/14.0	13.3	14	11/10/2016	0.018	0.00055 U	0.00055 U	0.0022 U	0.00087 U	0.00055 U	0.00062 U	0.00044 U	0.00066 U
FP08/09	FP-21X	MK-FP-21X-3.0/4.0	3	4	11/4/2020	2.6	0.62	0.73	1.1	0.41	0.91	0.16	0.5	0.024 J
FP08/09	FP-22	MK-FP-22-0.0./0.5	0	0.5	11/10/2016	37.5	2.4	2.67	4.82	1.77	3.8	0.61	2.15	0.142 U
FP08/09	FP-22	MK-FP-22-0.5/1.5	0.5	1.5	11/10/2016	41.5	2.56	3.21	5.3	2.08	4.28	0.674	2.45	0.13 U
FP08/09	FP-22	MK-FP-22-1.5/2.5	1.5	2.5	11/10/2016	20.5	1.29	1.64	2.91	1.09	2.25	0.376	1.23	0.0592 U
FP08/09	FP-22	MK-FP-22-2.5/3.4	2.5	3.4	11/10/2016	11.9	0.716	0.591	1.39	0.626	1.33	0.173	0.574	0.0651 U
FP08/09	FP-22	MK-FP-22-5.0/6.0	5	6	11/10/2016	1.2	0.0707	0.0658	0.142	0.0578	0.139	0.0178	0.0578	0.0088 U
FP08/09	FP-22	MK-FP-22-6.0/7.2	6	7.2	11/10/2016	3.3	0.216	0.275	0.321	0.125	0.306	0.0365	0.122	0.008 J
FP08/09	FP-22	MK-FP-22-10.0/12.2	10	12.2	11/10/2016	0.11	0.0068 J	0.004 U	0.01 J	0.0047 J	0.0098 J	0.0035 U	0.0049 J	0.0079 U
FP08/09	FP-22	MK-FP-22-12.2/12.6	12.2	12.6	11/10/2016	0.05	0.0037 J	0.0027 U	0.0041 J	0.0027 U	0.0046 J	0.0024 U	0.0024 U	0.0055 U
FP08/09	FP-23	MK-FP-23-0.0/0.5	0	0.5	11/10/2016	29.2	1.74	2.19	3.99	1.49	3.22	0.479	1.53	0.127 U
FP08/09	FP-23	MK-FP-23-0.5/1.5	0.5	1.5	11/10/2016	7.6	0.45	0.547	0.987	0.354	0.83	0.113	0.379	0.0287 UJ
FP08/09	FP-23	MK-FP-23-1.5/2.5	1.5	2.5	11/10/2016	9.7	0.609	0.688	1.13	0.45	1.02	0.143	0.494	0.0314 U
FP08/09	FP-23	MK-FP-23-2.5/3.5	2.5	3.5	11/10/2016	9.9	0.553	0.447	1.26	0.516	1.15	0.166	0.556	0.0551 U
FP08/09	FP-23	MK-FP-23-3.5/4.2	3.5	4.2	11/10/2016	10.2	0.533	0.604	1.47	0.614	1.29	0.156	0.519	0.0573 U
FP08/09	FP-23	MK-FP-23-5.0/6.0	5	6	11/10/2016	5.8	0.267	0.258	0.686	0.285	0.668	0.0785	0.268	0.0342 U
FP08/09	FP-23	MK-FP-23-6.0/7.0	6	7	11/10/2016	11.6	0.707	0.664	1.3	0.542	1.31	0.168	0.519	0.0577 U
FP08/09	FP-23	MK-FP-23-7.0/8.0	7	8	11/10/2016	5.3	0.358	0.358	0.455	0.196	0.388	0.0485	0.158	0.0932
FP08/09	FP-23	MK-FP-23-10.0/12.0	10	12	11/10/2016	0.79	0.0599	0.0466	0.0748	0.0559	0.0835	0.0107 J	0.0294	0.0076 U
FP08/09	FP-23	MK-FP-23-12.0/13.9	12	13.9	11/10/2016	0.09	0.0064 J	0.0039 U	0.0078 J	0.0039 U	0.0088 J	0.0034 U	0.0034 U	0.0077 U
FP08/09	FP-23	MK-FP-23-15.0/16.0	15	16	11/10/2016	0.021 U	0.0058 U	0.0046 U	0.0051 U	0.0046 U	0.0061 U	0.0041 U	0.004 U	0.0091 U
FP08/09	FP-23	MK-FP-23-16.0/16.2	16	16.2	11/10/2016	0.0061 U	0.0033 U	0.0026 U	0.003 U	0.0026 U	0.0035 U	0.0023 U	0.0023 U	0.0053 U
FP08/09	FP-24	MK-FP-24-0.0./0.5	0	0.5	11/10/2016	16.5	0.982	0.984	2.18	0.942	1.94	0.224	0.782	0.123 U
FP08/09	FP-24	MK-FP-24-0.5/1.5	0.5	1.5	11/10/2016	2	0.139	0.157	0.27	0.112	0.218	0.0296	0.0858	0.006 U
FP08/09	FP-24	MK-FP-24-1.5/2.1	1.5	2.1	11/10/2016	1.2	0.0711	0.073	0.121	0.0562	0.113	0.0138	0.0424	0.0061 J
FP08/09	FP-24	MK-FP-24-5.0/6.0	5	6	11/10/2016	8.5	0.482	0.464	1.01	0.434	0.965	0.102	0.325	0.051 U
FP08/09	FP-24	MK-FP-24-6.0/6.6	6	6.6	11/10/2016	4.6	0.252	0.23	0.476	0.202	0.493	0.0458	0.138	0.0275 U
FP08/09	FP-24	MK-FP-24-10.0/12.0	10	12	11/10/2016	0.12	0.008 J	0.004 U	0.0115 J	0.0063 J	0.0117 J	0.0036 U	0.0056 J	0.008 U
FP08/09	FP-24	MK-FP-24-12.0/14.0	12	14	11/10/2016	0.12	0.0087 J	0.0039 U	0.0121 J	0.0053 J	0.0123 J	0.0035 U	0.0043 J	0.0078 U
FP08/09	FP-24	MK-FP-24-15.0/16.4	15	16.4	11/10/2016	0.14	0.0073 J	0.0042 J	0.0148	0.0066 J	0.0192	0.0034 U	0.0054 J	0.0075 U
FP08/09	FP-25	MK-FP-25-0.0/0.5	0	0.5	11/10/2016	28.2	2.28	2.01	3.81	1.19	2.07	0.65	1.68	0.0299
FP08/09	FP-25	MK-FP-25-0.5/1.5	0.5	1.5	11/10/2016	29.4	2.39	1.98	4.05	1.2	2.14	0.67	1.78	0.0324
FP08/09	FP-25	MK-FP-25-1.5/2.5	1.5	2.5	11/10/2016	2	0.136	0.16	0.226	0.0878	0.187	0.0471	0.134	0.0032
FP08/09	FP-25	MK-FP-25-2.5/3.5	2.5	3.5	11/10/2016	33.7	3.13	2.01	4.72	1.18	2.43	0.716	1.74	0.0412
FP08/09	FP-25	MK-FP-25-3.5/4.0	3.5	4	11/10/2016	7.9	0.662	0.474	1.16	0.255	0.565	0.182	0.442	0.0214
FP08/09	FP-25	MK-FP-25-5.0/6.0	5	6	11/10/2016	10.4	0.717 J-	0.73 J-	1.02 J-	0.413 J-	1.01 J-	0.178 J-	0.492 J-	0.0236
FP08/09	FP-25	MK-FP-25-6.0/7.0	6	7	11/10/2016	10.8	0.784 J-	0.741 J-	1.01 J-	0.395 J-	1.05 J-	0.166 J-	0.46 J-	0.0246
FP08/09	FP-25	MK-FP-25-7.0/8.0	7	8	11/10/2016	4.3	0.382	0.28 J-	0.355 J-	0.141 J-	0.349 J-	0.0719 J-	0.193 J-	0.0145

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Fluoran-thene	Fluorene	Naphtha-lene	Phenan-threne	Pyrene
					Tier 1 SS-RCL[1,4,5]										
					Tier 2 SS-RCL[1]										
					TSCA LO										
FP08/09	FP-21	MK-FP-21-5.0/7.0	5	7	11/10/2016	0.0206	0.0378	0.0863	0.174 J	0.185	0.521	0.028	0.0232	0.246	0.437
FP08/09	FP-21	MK-FP-21-7.0/8.3	7	8.3	11/10/2016	0.0885	0.0213	0.112	0.142	0.145	0.527	0.0963	0.039	0.782	0.568
FP08/09	FP-21	MK-FP-21-10.0/12.0	10	12	11/10/2016	0.0012 J	0.0025	0.0059	0.0092 J-	0.0094 J-	0.028	0.0027	0.0009 U	0.017	0.022
FP08/09	FP-21	MK-FP-21-12.0/13.3	12	13.3	11/10/2016	0.0005 U	0.0006 U	0.0007 U	0.0007 U	0.00086 J	0.002 J	0.0017 J	0.001 U	0.002 J	0.001 J
FP08/09	FP-21	MK-FP-21-13.3/14.0	13.3	14	11/10/2016	0.0005 U	0.0006 U	0.0007 U	0.0007 U	0.0034	0.002 J	0.0006 U	0.0011 U	0.003 J	0.004
FP08/09	FP-21X	MK-FP-21X-3.0/4.0	3	4	11/4/2020	0.033 J	0.034 J	0.2	0.61	0.6	1.7	0.046 J	0.052 J	0.7	1.2
FP08/09	FP-22	MK-FP-22-0.0./0.5	0	0.5	11/10/2016	0.198 J	0.0937 U	0.924		2.75	6.77	0.23 J	0.239 U	3.41	4.8
FP08/09	FP-22	MK-FP-22-0.5/1.5	0.5	1.5	11/10/2016	0.15 J	0.0855 U	0.851		2.89	7.99	0.217 J	0.218 U	3.44	5.22
FP08/09	FP-22	MK-FP-22-1.5/2.5	1.5	2.5	11/10/2016	0.0884 J	0.0723 J	0.407		1.48	3.37	0.13 J	0.0997 U	1.62	2.45
FP08/09	FP-22	MK-FP-22-2.5/3.4	2.5	3.4	11/10/2016	0.0644 J	0.0429 U	0.272		0.666	2.37	0.0933 J	0.11 U	1.24	1.66
FP08/09	FP-22	MK-FP-22-5.0/6.0	5	6	11/10/2016	0.0082 J	0.0058 U	0.024 J		0.0642	0.233	0.0112 J	0.0148 U	0.12	0.17
FP08/09	FP-22	MK-FP-22-6.0/7.2	6	7.2	11/10/2016	0.0342	0.0065 J	0.116		0.148	0.592	0.0396	0.0197 J	0.455	0.458
FP08/09	FP-22	MK-FP-22-10.0/12.2	10	12.2	11/10/2016	0.0062 U	0.0052 U	0.0091 U		0.0055 J	0.017 J	0.0066 U	0.0134 U	0.019 U	0.011 J
FP08/09	FP-22	MK-FP-22-12.2/12.6	12.2	12.6	11/10/2016	0.0042 U	0.0036 U	0.0062 U		0.0023 J	0.007 J	0.0045 U	0.0092 U	0.013 U	0.005 U
FP08/09	FP-23	MK-FP-23-0.0/0.5	0	0.5	11/10/2016	0.101 J	0.0835 U	0.544		1.98	5.29	0.122 J	0.213 U	2.2	4.14
FP08/09	FP-23	MK-FP-23-0.5/1.5	0.5	1.5	11/10/2016	0.0351 J	0.0189 U	0.161		0.452	1.42	0.0417 J	0.0483 UJ	0.649	1.17
FP08/09	FP-23	MK-FP-23-1.5/2.5	1.5	2.5	11/10/2016	0.0448 J	0.0222 J	0.244		0.579	1.73	0.0673 J	0.0528 U	0.955	1.46
FP08/09	FP-23	MK-FP-23-2.5/3.5	2.5	3.5	11/10/2016	0.044 J	0.0363 U	0.243		0.639	1.88	0.0586 J	0.0928 U	0.932	1.37
FP08/09	FP-23	MK-FP-23-3.5/4.2	3.5	4.2	11/10/2016	0.0445 U	0.0378 U	0.174 J		0.593	1.86	0.0527 J	0.0965 U	0.791	1.4
FP08/09	FP-23	MK-FP-23-5.0/6.0	5	6	11/10/2016	0.0347 J	0.0225 U	0.156		0.317	1.17	0.0678 J	0.0575 U	0.614	0.888
FP08/09	FP-23	MK-FP-23-6.0/7.0	6	7	11/10/2016	0.0805 J	0.038 U	0.339		0.61	2.28	0.126 J	0.0972 U	1.24	1.66
FP08/09	FP-23	MK-FP-23-7.0/8.0	7	8	11/10/2016	0.0787	0.0182	0.226		0.174	0.944	0.0851	0.0693	0.865	0.827
FP08/09	FP-23	MK-FP-23-10.0/12.0	10	12	11/10/2016	0.0059 U	0.0078 J	0.0254 J		0.0347	0.142	0.0074 J	0.0134 J	0.084	0.108
FP08/09	FP-23	MK-FP-23-12.0/13.9	12	13.9	11/10/2016	0.006 U	0.0051 U	0.0088 U		0.0038 J	0.016 J	0.0064 U	0.0129 U	0.018 U	0.011 J
FP08/09	FP-23	MK-FP-23-15.0/16.0	15	16	11/10/2016	0.007 U	0.006 U	0.0104 U		0.0037 U	0.01 U	0.0075 U	0.0153 U	0.021 U	0.008 U
FP08/09	FP-23	MK-FP-23-16.0/16.2	16	16.2	11/10/2016	0.0041 U	0.0035 U	0.006 U		0.0021 U	0.006 U	0.0043 U	0.0088 U	0.012 U	0.005 U
FP08/09	FP-24	MK-FP-24-0.0./0.5	0	0.5	11/10/2016	0.0953 U	0.0809 U	0.339 J		0.822	3.06	0.102 U	0.207 U	1.32	2.59
FP08/09	FP-24	MK-FP-24-0.5/1.5	0.5	1.5	11/10/2016	0.009 J	0.0048 J	0.053		0.0024 U	0.397	0.0121 J	0.01 U	0.183	0.322
FP08/09	FP-24	MK-FP-24-1.5/2.1	1.5	2.1	11/10/2016	0.012 J	0.0039 U	0.0438		0.0497	0.212	0.0189	0.0099 U	0.166	0.178
FP08/09	FP-24	MK-FP-24-5.0/6.0	5	6	11/10/2016	0.07 J	0.0336 U	0.304		0.352	1.6	0.0834 J	0.0858 U	0.91	1.31
FP08/09	FP-24	MK-FP-24-6.0/6.6	6	6.6	11/10/2016	0.0379 J	0.0181 U	0.181		0.141	0.902	0.0556 J	0.0463 U	0.614	0.757
FP08/09	FP-24	MK-FP-24-10.0/12.0	10	12	11/10/2016	0.0062 U	0.0053 U	0.0091 U		0.0072 J	0.021 J	0.0066 U	0.0134 U	0.019 U	0.014 J
FP08/09	FP-24	MK-FP-24-12.0/14.0	12	14	11/10/2016	0.006 U	0.0051 U	0.0089 U		0.005 J	0.021 J	0.0065 U	0.0131 U	0.018 U	0.015 J
FP08/09	FP-24	MK-FP-24-15.0/16.4	15	16.4	11/10/2016	0.0058 U	0.005 U	0.0086 U		0.0073 J	0.026	0.0062 U	0.0126 U	0.018 U	0.017 J
FP08/09	FP-25	MK-FP-25-0.0/0.5	0	0.5	11/10/2016	0.163	0.327	0.822	1.56	1.86	4.25	0.189	0.0324	1.69	3.61
FP08/09	FP-25	MK-FP-25-0.5/1.5	0.5	1.5	11/10/2016	0.195	0.327	0.852	1.62	1.92	4.48	0.208	0.0346	1.77	3.79
FP08/09	FP-25	MK-FP-25-1.5/2.5	1.5	2.5	11/10/2016	0.0099	0.0238	0.0551	0.133	0.147	0.32	0.0121	0.0033	0.132	0.186
FP08/09	FP-25	MK-FP-25-2.5/3.5	2.5	3.5	11/10/2016	0.149	0.381	0.921	1.69	1.98	6.04	0.2	0.038	1.92	4.43
FP08/09	FP-25	MK-FP-25-3.5/4.0	3.5	4	11/10/2016	0.0364	0.0803	0.18	0.399	0.504	1.29	0.0635	0.0284	0.471	1.04
FP08/09	FP-25	MK-FP-25-5.0/6.0	5	6	11/10/2016	0.0792	0.0876	0.235	0.551 J-	0.551 J-	2.19	0.105	0.0333	0.825	1.15
FP08/09	FP-25	MK-FP-25-6.0/7.0	6	7	11/10/2016	0.0942	0.105	0.333	0.525 J-	0.492 J-	2.34	0.11	0.045	0.947	1.19
FP08/09	FP-25	MK-FP-25-7.0/8.0	7	8	11/10/2016	0.0412	0.0522	0.135	0.194 J-	0.22 J-	0.809	0.0506	0.0196	0.386	0.623

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						Metals										Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Lead[4]	Arsenic[5]	Nickel	Cadmium	Chromium	Copper	Zinc	Mercury	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[1,4,5]	400	8												
					Tier 2 SS-RCL[1]														
					TSCA LO														
FP08/09	FP-21	MK-FP-21-5.0/7.0	5	7	11/10/2016	81.2	6.2	17.6	0.63	135 J	37.5	145	0.32	88	12	0	27800
FP08/09	FP-21	MK-FP-21-7.0/8.3	7	8.3	11/10/2016	32.6	4.3	15.8	0.43	24.5 J	22.6	79.9	0.13	91	9	0	22600
FP08/09	FP-21	MK-FP-21-10.0/12.0	10	12	11/10/2016	16.4	3	14.9	0.27	21.4 J	20.4	65.7	0.095	88	12	0	29200
FP08/09	FP-21	MK-FP-21-12.0/13.3	12	13.3	11/10/2016	8.9	2.2	10.5	0.29	13.8 J	14.8	52.4	0.052	80	20	0	40800
FP08/09	FP-21	MK-FP-21-13.3/14.0	13.3	14	11/10/2016	5.2	1.2	10.4	0.088	9.5 J	11	25.5	0.006 U	58	35	7	2850
FP08/09	FP-21X	MK-FP-21X-3.0/4.0	3	4	11/4/2020	124	6.3	27.7	2.7	58.8	43	212	0.24	95	5	0	26100
FP08/09	FP-22	MK-FP-22-0.0./0.5	0	0.5	11/10/2016	234	7.7	28.6	4.4	106	76.3	360	0.39				45300
FP08/09	FP-22	MK-FP-22-0.5/1.5	0.5	1.5	11/10/2016	340	8	26.9	3.8	102	90.5	347	0.43				32000
FP08/09	FP-22	MK-FP-22-1.5/2.5	1.5	2.5	11/10/2016	393	12.6	31.6	7.9	120	98.4	529	0.64				35700
FP08/09	FP-22	MK-FP-22-2.5/3.4	2.5	3.4	11/10/2016	173	7.9	21.1	2.5	71.2	67	209	0.33				37000
FP08/09	FP-22	MK-FP-22-5.0/6.0	5	6	11/10/2016	168	11.8	23	1.3	93	62.1	303	0.33				34300
FP08/09	FP-22	MK-FP-22-6.0/7.2	6	7.2	11/10/2016	35	3.4 J	8.4	0.21 J	15.4	12	47.4	0.096 J				31300
FP08/09	FP-22	MK-FP-22-10.0/12.2	10	12.2	11/10/2016	37.6	7.5	21.5	0.34 J	39.1	24.8	95.3	0.13 J				26400
FP08/09	FP-22	MK-FP-22-12.2/12.6	12.2	12.6	11/10/2016	3	2.1 J	6	0.12 U	7.1	4.6	17.3	0.036 U				2530
FP08/09	FP-23	MK-FP-23-0.0/0.5	0	0.5	11/10/2016	210	7.8	27.6	3.5	87	65.1	276	0.32	76	15	9	30500
FP08/09	FP-23	MK-FP-23-0.5/1.5	0.5	1.5	11/10/2016	17	5.6	22.3	0.3 J	28.2	22	73.3	0.04 U	73	20	7	12600
FP08/09	FP-23	MK-FP-23-1.5/2.5	1.5	2.5	11/10/2016	96.8	6.3	21.3	1.5	71.3	64.6	143	0.041 U	83	17	0	8910
FP08/09	FP-23	MK-FP-23-2.5/3.5	2.5	3.5	11/10/2016	96.1	7.1	23.4	1	48.1	39.2	153	0.42	76	24	0	22800
FP08/09	FP-23	MK-FP-23-3.5/4.2	3.5	4.2	11/10/2016	118	8.4	28.8	2.9	59.8	47.4	209	0.23	82	17	1	29100
FP08/09	FP-23	MK-FP-23-5.0/6.0	5	6	11/10/2016	206	6.5 J	26.7	3.4	105	67	268	0.5	96	4	0	52900
FP08/09	FP-23	MK-FP-23-6.0/7.0	6	7	11/10/2016	112	7.8	20.1	1.8	61.1	48.4	203	0.29	88	12	0	37400
FP08/09	FP-23	MK-FP-23-7.0/8.0	7	8	11/10/2016	77.7	7.9	18.4	0.48 J	62.4	35.1	135	0.18 J	80	20	0	102000
FP08/09	FP-23	MK-FP-23-10.0/12.0	10	12	11/10/2016	26.3	5.7 J	16.2	0.35 J	23	20.5	70.5	0.16 J	95	5	0	41500
FP08/09	FP-23	MK-FP-23-12.0/13.9	12	13.9	11/10/2016	10.7	4.1 J	17.6	0.29 J	24.8	19.4	74.4	0.056 U	79	18	3	27200
FP08/09	FP-23	MK-FP-23-15.0/16.0	15	16	11/10/2016	11.7	4.1 J	14	0.35 J	19.1	16.8	71.8	0.06 U	96	4	0	53300
FP08/09	FP-23	MK-FP-23-16.0/16.2	16	16.2	11/10/2016	2.8	2.4 J	5	0.13 U	7.4	4.5	15.4	0.034 U	12	17	71	6970
FP08/09	FP-24	MK-FP-24-0.0./0.5	0	0.5	11/10/2016	85.7	6.3	23.5	1.1	44.6	38.8	137	0.2				37700
FP08/09	FP-24	MK-FP-24-0.5/1.5	0.5	1.5	11/10/2016	65.7	8.4	23.1	0.23 J	28.8	30	113	0.04 U				11100
FP08/09	FP-24	MK-FP-24-1.5/2.1	1.5	2.1	11/10/2016	17.5	5.4	21.9	0.14 U	25.3	19.6	63.8	0.071 J				13500
FP08/09	FP-24	MK-FP-24-5.0/6.0	5	6	11/10/2016	56.2	5.6 J	23.1	0.68	43.8	31.8	118	0.074 J				34400
FP08/09	FP-24	MK-FP-24-6.0/6.6	6	6.6	11/10/2016	61	5 J	14.6	0.72	55.4	23.1	127	0.2				24200
FP08/09	FP-24	MK-FP-24-10.0/12.0	10	12	11/10/2016	29.3	4 J	18.9	0.19 U	27.1	20.9	87.6	0.08 J				25700
FP08/09	FP-24	MK-FP-24-12.0/14.0	12	14	11/10/2016	14	2.9 J	18.1	0.21 U	24.1	18.6	69.1	0.13 J				30900
FP08/09	FP-24	MK-FP-24-15.0/16.4	15	16.4	11/10/2016	7.6	1.9 J	8.7	0.2 U	10.5	7.8	45.7	0.052 U				22900
FP08/09	FP-25	MK-FP-25-0.0/0.5	0	0.5	11/10/2016	149	5.1	21.5	2.7	75.7 J	53.5	199	0.26	69	19	12	38200
FP08/09	FP-25	MK-FP-25-0.5/1.5	0.5	1.5	11/10/2016	167	6.8	24.6	3.2	81.5 J	60.7	211	0.4	84	16	0	5920
FP08/09	FP-25	MK-FP-25-1.5/2.5	1.5	2.5	11/10/2016	11.9	5.7	18.8	0.3	18.9 J	18.7	56.2	0.02 J	76	18	6	12400
FP08/09	FP-25	MK-FP-25-2.5/3.5	2.5	3.5	11/10/2016	206 J	8.6	24.5 J	5.9	91.6	71.9	319 J	0.44	91	9	0	34400
FP08/09	FP-25	MK-FP-25-3.5/4.0	3.5	4	11/10/2016	150 J	6.5	26 J	5.3	74.5	55.4	253 J	0.29	96	4	0	36800
FP08/09	FP-25	MK-FP-25-5.0/6.0	5	6	11/10/2016	115 J	6.5	17 J	2.2	52.9	55.2	196 J	0.29	92	8	0	34700
FP08/09	FP-25	MK-FP-25-6.0/7.0	6	7	11/10/2016	78.2 J	6.2	17.4 J	1.3	42.6	36.7	155 J	0.21	95	5	0	31200
FP08/09	FP-25	MK-FP-25-7.0/8.0	7	8	11/10/2016	106 J	7.5	17.3 J	0.89	76.3	42.3	201 J	0.28	88	12	0	31600

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PCB									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242
					Tier 1 SS-RCL[1,4,5]	1.1									
					Tier 2 SS-RCL[1]	0.7									
					TSCA LO	25									
FP08/09	FP-25	MK-FP-25-8.0/9.1	8	9.1	11/10/2016	0.02 U	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ	0.041 UJ
FP08/09	FP-25	MK-FP-25-10.0/12.0	10	12	11/10/2016	0.12	0.037 UJ	0.051 J	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.071 J
FP08/09	FP-25	MK-FP-25-12.0/13.6	12	13.6	11/10/2016	0.02 U	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ	0.037 UJ
FP08/09	FP-25	MK-FP-25-15.0/16.8	15	16.8	11/10/2016	0.04	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 UJ	0.044 J
FP08/09	FP-26	MK-FP-26-0.0./0.5	0	0.5	11/11/2016	2.1	0.199 J	0.969 J	0.127 U	0.127 U	0.127 U	0.127 U	0.127 U	0.127 U	0.931 J
FP08/09	FP-26	MK-FP-26-0.5/1.5	0.5	1.5	11/11/2016	1.5	0.115 U	0.534	0.115 U	0.115 U	0.115 U	0.115 U	0.115 U	0.115 U	0.994
FP08/09	FP-26	MK-FP-26-1.5/2.5	1.5	2.5	11/11/2016	10.4	0.712 U	2.33	0.712 U	0.712 U	0.712 U	0.712 U	0.712 U	0.712 U	8.06
FP08/09	FP-26	MK-FP-26-2.5/3.1	2.5	3.1	11/11/2016	2.5	0.171 J	0.942	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	1.42 J
FP08/09	FP-26	MK-FP-26-5.0/7.0	5	7	11/11/2016	0.33	0.043 J	0.149	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.139 J
FP08/09	FP-26	MK-FP-26-7.0/8.1	7	8.1	11/11/2016	0.02 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
FP08/09	FP-26	MK-FP-26-10.0/12.0	10	12	11/11/2016	0.02 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U
FP08/09	FP-26	MK-FP-26-12.0/13.0	12	13	11/11/2016	0.02 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U
FP08/09	FP-26	MK-FP-26-15.0/15.6	15	15.6	11/11/2016	0.38	0.037 J	0.131	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.212
FP08/09	FP-28	MK-FP-28-0.0./0.5	0	0.5	11/11/2016	1.5	0.143 J	0.688	0.084 U	0.084 U	0.084 U	0.084 U	0.084 U	0.084 U	0.629 J
FP08/09	FP-28	MK-FP-28-0.5/1.5	0.5	1.5	11/11/2016	2.1	0.215 J	0.909	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.125 U	0.939 J
FP08/09	FP-28	MK-FP-28-1.5/2.5	1.5	2.5	11/11/2016	2.4	0.144 U	0.569	0.144 U	0.144 U	0.144 U	0.144 U	0.144 U	0.144 U	1.84 J
FP08/09	FP-28	MK-FP-28-2.5/3.2	2.5	3.2	11/11/2016	17.6	4.1 U	4.48 J	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	4.1 U	13.1 J
FP08/09	FP-28	MK-FP-28-5.0/7.0	5	7	11/11/2016	0.73	0.077 J	0.207	0.044 U	0.044 U	0.044 U	0.45	0.044 U	0.044 U	0.044 U
FP08/09	FP-28	MK-FP-28-7.0/8.5	7	8.5	11/11/2016	0.02 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U	0.039 U
FP08/09	FP-28	MK-FP-28-10.0/11.2	10	11.2	11/11/2016	0.02 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U
FP08/09	FP-28	MK-FP-28-15.0/15.5	15	15.5	11/11/2016	0.21	0.032 U	0.081	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.129 J
FP08/09	FP-31	MK-FP-31-0.0/0.5	0	0.5	11/11/2016	0.73	0.06 J	0.246 J	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.42 J
FP08/09	FP-31	MK-FP-31-0.5/1.5	0.5	1.5	11/11/2016	0.11	0.029 UJ	0.045 J	0.029 UJ	0.029 UJ	0.029 UJ	0.029 UJ	0.029 UJ	0.029 UJ	0.06 J
FP08/09	FP-31	MK-FP-31-1.5/2.5	1.5	2.5	11/11/2016	1.1	0.09 J	0.403 J	0.066 UJ	0.066 UJ	0.066 UJ	0.066 UJ	0.066 UJ	0.066 UJ	0.568 J
FP08/09	FP-31	MK-FP-31-2.5/3.2	2.5	3.2	11/11/2016	0.1	0.036 UJ	0.05 J	0.036 UJ	0.036 UJ	0.036 UJ	0.036 UJ	0.036 UJ	0.036 UJ	0.051 J
FP08/09	FP-31	MK-FP-31-5.0/7.0	5	7	11/11/2016	0.02 U	0.038 UJ	0.038 UJ	0.038 UJ	0.038 UJ	0.038 UJ	0.038 UJ	0.038 UJ	0.038 UJ	0.038 UJ
FP08/09	FP-31	MK-FP-31-7.0/8.4	7	8.4	11/11/2016	0.02 U	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ
FP08/09	FP-31	MK-FP-31-10.0/10.5	10	10.5	11/11/2016	0.02 U	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ	0.035 UJ
FP08/09	FP-31	MK-FP-31-10.5/10.8	10.5	10.8	11/11/2016	0.02 U	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ
FP08/09	FP-33	MK-FP-33-0.0/1.0	0	1	11/11/2016	0.31	0.039 J	0.144 J	0.028 UJ	0.028 UJ	0.028 UJ	0.028 UJ	0.028 UJ	0.028 UJ	0.127 J
FP08/09	FP-33	MK-FP-33-1.0/1.2	1	1.2	11/11/2016	0.01 U	0.027 UJ	0.027 UJ	0.027 UJ	0.027 UJ	0.027 UJ	0.027 UJ	0.027 UJ	0.027 UJ	0.027 UJ
FP08/09	FP-33X	MK-FP-33X-1.5/2.5	1.5	2.5	11/3/2020	3.1	0.2 J	1.2	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	1.7
FP08/09	FP-33X	MK-FP-33X-2.5/3.8	2.5	3.8	11/3/2020	0.047	0.052 U	0.025 J	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.052 U	0.022 J
FP08/09	FP-68	MK-FP-68-0.0/0.5	0	0.5	11/4/2020	1.7	0.21	0.73	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.78
FP08/09	FP-68	MK-FP-68-0.5/1.5	0.5	1.5	11/4/2020	0.029 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U
FP08/09	FP-68	MK-FP-68-1.5/2.5	1.5	2.5	11/4/2020	0.031 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U
FP08/09	FP-68	MK-FP-68-2.5/3.7	2.5	3.7	11/4/2020	0.028 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
FP08/09	FP-69A	MK-FP-69A-0.0/0.5	0	0.5	11/4/2020	3.8	0.52	1.7	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	1.6
FP08/09	FP-69A	MK-FP-69A-0.5/1.5	0.5	1.5	11/4/2020	0.22	0.033 J	0.12	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.065
FP08/09	FP-69A	MK-FP-69A-1.5/2.5	1.5	2.5	11/4/2020	0.031 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U
FP08/09	FP-69A	MK-FP-69A-2.5/3.7	2.5	3.7	11/4/2020	0.03 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U
FP08/09	FP-69B	MK-FP-69B-0.0/0.5	0	0.5	11/4/2020	0.082	0.034 J	0.048 J	0.089 U	0.089 U	0.089 U	0.089 U	0.089 U	0.089 U	0.089 U

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH								
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PAH-18[3]	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3-Cd) Pyrene	2-Methyl-naphthalene
					Tier 1 SS-RCL[1,4,5]	--	84.6	8.48	84.8	848	8480	8.48	84.8	
					Tier 2 SS-RCL[1]	--	50.8	5.09	50.9	501	5090	5.09	50.9	
					TSCA LO									
FP08/09	FP-25	MK-FP-25-8.0/9.1	8	9.1	11/10/2016	0.74	0.056 J-	0.0556 J-	0.0735 J-	0.0267 J-	0.0645 J-	0.0107 J-	0.0353 J-	0.0037
FP08/09	FP-25	MK-FP-25-10.0/12.0	10	12	11/10/2016	0.44	0.0312 J	0.0322 J	0.043 J	0.0153 J	0.0384 J	0.0061 J	0.0215 J	0.0029
FP08/09	FP-25	MK-FP-25-12.0/13.6	12	13.6	11/10/2016	0.032	0.0024	0.00041 U	0.0032	0.0013 J	0.0029	0.00045 U	0.0012	0.00049 U
FP08/09	FP-25	MK-FP-25-15.0/16.8	15	16.8	11/10/2016	0.78	0.0557	0.0554	0.0761	0.0308	0.0697	0.0115	0.038	0.0014 J
FP08/09	FP-26	MK-FP-26-0.0./0.5	0	0.5	11/11/2016	14.8	0.858	0.855	1.91	0.788	1.74	0.25	0.815	0.127 U
FP08/09	FP-26	MK-FP-26-0.5/1.5	0.5	1.5	11/11/2016	6.8	0.413	0.449	0.914	0.359	0.729	0.126	0.422	0.0288 UJ
FP08/09	FP-26	MK-FP-26-1.5/2.5	1.5	2.5	11/11/2016	43.3	2.69	3.24	5.61	2.23	4.68	0.622	2.09	0.142 U
FP08/09	FP-26	MK-FP-26-2.5/3.1	2.5	3.1	11/11/2016	13.5	0.74	1	1.84	0.738	1.53	0.251	0.769	0.0599 U
FP08/09	FP-26	MK-FP-26-5.0/7.0	5	7	11/11/2016	12.8	0.914	0.858	1.41	0.499	1.26	0.154	0.51	0.0394 J
FP08/09	FP-26	MK-FP-26-7.0/8.1	7	8.1	11/11/2016	1.3	0.0752	0.0633	0.124	0.0534	0.126	0.0154	0.0522	0.008 U
FP08/09	FP-26	MK-FP-26-10.0/12.0	10	12	11/11/2016	0.11	0.0073 J	0.0048 J	0.0104 J	0.0044 J	0.0101 J	0.0034 U	0.0041 J	0.0076 U
FP08/09	FP-26	MK-FP-26-12.0/13.0	12	13	11/11/2016	0.18	0.0107 J	0.007 J	0.0193	0.0083 J	0.0177	0.0034 U	0.0071 J	0.0076 U
FP08/09	FP-26	MK-FP-26-15.0/15.6	15	15.6	11/11/2016	0.4	0.0256	0.0253	0.0493	0.0253	0.0406	0.0073 J	0.0237	0.0059 U
FP08/09	FP-28	MK-FP-28-0.0./0.5	0	0.5	11/11/2016	13.1	0.952	1.15	1.75	0.62	1.24	0.236	0.862	0.0397 J
FP08/09	FP-28	MK-FP-28-0.5/1.5	0.5	1.5	11/11/2016	18.7	1.22	1.55	2.41	0.911	1.87	0.327	1.21	0.0499 U
FP08/09	FP-28	MK-FP-28-1.5/2.5	1.5	2.5	11/11/2016	7.2	0.464	0.628	0.985	0.372	0.715	0.132	0.476	0.0169 J
FP08/09	FP-28	MK-FP-28-2.5/3.2	2.5	3.2	11/11/2016	24.8	1.45	1.62	3.3	1.34	2.86	0.392	1.28	0.164 U
FP08/09	FP-28	MK-FP-28-5.0/7.0	5	7	11/11/2016	3.2	0.193	0.205	0.4	0.147	0.351	0.0437	0.143	0.0087 U
FP08/09	FP-28	MK-FP-28-7.0/8.5	7	8.5	11/11/2016	1.5	0.103	0.128	0.165	0.0734	0.135	0.0238	0.0911	0.0078 U
FP08/09	FP-28	MK-FP-28-10.0/11.2	10	11.2	11/11/2016	0.16	0.0106 J	0.0066 J	0.0179	0.0081 J	0.0174	0.0029 U	0.0067 J	0.0066 U
FP08/09	FP-28	MK-FP-28-15.0/15.5	15	15.5	11/11/2016	1.1	0.0632	0.0575	0.133	0.0515	0.129	0.0176	0.0565	0.0063 U
FP08/09	FP-31	MK-FP-31-0.0/0.5	0	0.5	11/11/2016	5.4	0.327	0.342	0.638	0.241	0.586	0.0726	0.232	0.0848
FP08/09	FP-31	MK-FP-31-0.5/1.5	0.5	1.5	11/11/2016	4.8	0.285	0.284	0.499	0.197	0.514	0.0601	0.196	0.276
FP08/09	FP-31	MK-FP-31-1.5/2.5	1.5	2.5	11/11/2016	8.2	0.497	0.631	1.09	0.428	0.911	0.121	0.417	0.0263 U
FP08/09	FP-31	MK-FP-31-2.5/3.2	2.5	3.2	11/11/2016	4.8	0.286	0.258	0.553	0.23	0.549	0.059	0.178	0.029 UJ
FP08/09	FP-31	MK-FP-31-5.0/7.0	5	7	11/11/2016	2.3	0.152	0.15	0.232	0.102	0.238	0.0295	0.0932	0.0208 J
FP08/09	FP-31	MK-FP-31-7.0/8.4	7	8.4	11/11/2016	0.2	0.0107 J	0.0094 J	0.0213	0.0096 J	0.0219	0.0036 U	0.0092 J	0.0079 U
FP08/09	FP-31	MK-FP-31-10.0/10.5	10	10.5	11/11/2016	0.1	0.0053 J	0.0044 J	0.0099 J	0.0054 J	0.0098 J	0.0031 U	0.0045 J	0.0069 U
FP08/09	FP-31	MK-FP-31-10.5/10.8	10.5	10.8	11/11/2016	0.11	0.0066 J	0.0044 J	0.0124	0.006 J	0.0121 J	0.0027 U	0.0053 J	0.006 U
FP08/09	FP-33	MK-FP-33-0.0/1.0	0	1	11/11/2016	3.2	0.216	0.259	0.434	0.168	0.332	0.0552	0.179	0.0328 J
FP08/09	FP-33	MK-FP-33-1.0/1.2	1	1.2	11/11/2016	0.62	0.0369	0.0348	0.0767	0.0323	0.0737	0.0085	0.0277	0.0054 U
FP08/09	FP-33X	MK-FP-33X-1.5/2.5	1.5	2.5	11/3/2020	9.3	0.64	0.72	1.1	0.4	0.81	0.17 J	0.59	0.19 U
FP08/09	FP-33X	MK-FP-33X-2.5/3.8	2.5	3.8	11/3/2020	0.41	0.028	0.033	0.045	0.018	0.034	0.007 J	0.023	0.017 U
FP08/09	FP-68	MK-FP-68-0.0/0.5	0	0.5	11/4/2020	16.1	1.1	1.3	1.8	0.7	1.4	0.24 J	0.82	0.44 U
FP08/09	FP-68	MK-FP-68-0.5/1.5	0.5	1.5	11/4/2020	0.36	0.022	0.025	0.035	0.014 J	0.029	0.004 J	0.016 J	0.019 U
FP08/09	FP-68	MK-FP-68-1.5/2.5	1.5	2.5	11/4/2020	0.17	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
FP08/09	FP-68	MK-FP-68-2.5/3.7	2.5	3.7	11/4/2020	0.0095 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
FP08/09	FP-69A	MK-FP-69A-0.0/0.5	0	0.5	11/4/2020									
FP08/09	FP-69A	MK-FP-69A-0.5/1.5	0.5	1.5	11/4/2020									
FP08/09	FP-69A	MK-FP-69A-1.5/2.5	1.5	2.5	11/4/2020									
FP08/09	FP-69A	MK-FP-69A-2.5/3.7	2.5	3.7	11/4/2020									
FP08/09	FP-69B	MK-FP-69B-0.0/0.5	0	0.5	11/4/2020									

Appendix A
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						PAH									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Fluoran-thene	Fluorene	Naphtha-lene	Phenan-threne	Pyrene
					Tier 1 SS-RCL[1,4,5]										
					Tier 2 SS-RCL[1]										
					TSCA LO										
FP08/09	FP-25	MK-FP-25-8.0/9.1	8	9.1	11/10/2016	0.0074	0.0106	0.024	0.0356 J-	0.038 J-	0.109	0.0092	0.0059	0.081	0.093
FP08/09	FP-25	MK-FP-25-10.0/12.0	10	12	11/10/2016	0.0029	0.0046	0.0104	0.0213 J	0.0229 J	0.068 J	0.0045	0.0046	0.048 J	0.058 J
FP08/09	FP-25	MK-FP-25-12.0/13.6	12	13.6	11/10/2016	0.0004 U	0.0019	0.0015 J	0.0005 U	0.0014	0.005	0.0012 J	0.001 J	0.004	0.004
FP08/09	FP-25	MK-FP-25-15.0/16.8	15	16.8	11/10/2016	0.0061	0.0054	0.026	0.0379	0.0438	0.127	0.0092	0.0025 J	0.086	0.094
FP08/09	FP-26	MK-FP-26-0.0./0.5	0	0.5	11/11/2016	0.0983 U	0.0835 U	0.383 J		0.938	2.67	0.105 U	0.213 U	1.21	2.08
FP08/09	FP-26	MK-FP-26-0.5/1.5	0.5	1.5	11/11/2016	0.029 J	0.019 U	0.161		0.492	1.21	0.0356 J	0.0485 UJ	0.522	0.895
FP08/09	FP-26	MK-FP-26-1.5/2.5	1.5	2.5	11/11/2016	0.219 J	0.0939 U	0.904		2.26	8.09	0.256 J	0.24 U	3.61	6.56
FP08/09	FP-26	MK-FP-26-2.5/3.1	2.5	3.1	11/11/2016	0.0646 J	0.0395 U	0.292		0.933	2.34	0.104 J	0.101 U	1.18	1.66
FP08/09	FP-26	MK-FP-26-5.0/7.0	5	7	11/11/2016	0.0838	0.0266 J	0.285		0.622	2.68	0.135	0.0582 J	1.43	1.81
FP08/09	FP-26	MK-FP-26-7.0/8.1	7	8.1	11/11/2016	0.0108 J	0.0053 U	0.0529		0.064	0.239	0.0175 J	0.0135 U	0.166	0.181
FP08/09	FP-26	MK-FP-26-10.0/12.0	10	12	11/11/2016	0.0059 U	0.005 U	0.0087 U		0.0045 J	0.016 J	0.0063 U	0.0128 U	0.018 U	0.012 J
FP08/09	FP-26	MK-FP-26-12.0/13.0	12	13	11/11/2016	0.0059 U	0.005 U	0.0087 U		0.0087 J	0.03	0.0063 U	0.0128 U	0.019 J	0.021 J
FP08/09	FP-26	MK-FP-26-15.0/15.6	15	15.6	11/11/2016	0.0046 U	0.0039 U	0.0067 U		0.0267	0.071	0.0049 U	0.0099 U	0.036 J	0.05
FP08/09	FP-28	MK-FP-28-0.0./0.5	0	0.5	11/11/2016	0.0597 J	0.0514 J	0.294		1.07	2.1	0.0668 J	0.0538 J	0.976	1.6
FP08/09	FP-28	MK-FP-28-0.5/1.5	0.5	1.5	11/11/2016	0.102 J	0.0614 J	0.457		1.43	3.03	0.131 J	0.0846 J	1.62	2.29
FP08/09	FP-28	MK-FP-28-1.5/2.5	1.5	2.5	11/11/2016	0.0251 J	0.0184 J	0.14		0.575	1.21	0.0373 J	0.0304 J	0.535	0.864
FP08/09	FP-28	MK-FP-28-2.5/3.2	2.5	3.2	11/11/2016	0.127 U	0.108 U	0.555 J		1.54	4.39	0.165 J	0.276 U	1.88	3.71
FP08/09	FP-28	MK-FP-28-5.0/7.0	5	7	11/11/2016	0.0183 J	0.0063 J	0.0641		0.167	0.648	0.0305	0.0147 U	0.32	0.472
FP08/09	FP-28	MK-FP-28-7.0/8.5	7	8.5	11/11/2016	0.0091 J	0.0052 U	0.0501		0.118	0.238	0.0133 J	0.0216 J	0.145	0.205
FP08/09	FP-28	MK-FP-28-10.0/11.2	10	11.2	11/11/2016	0.0051 U	0.0043 U	0.0075 U		0.0084 J	0.029	0.0055 U	0.0111 U	0.016 J	0.02 J
FP08/09	FP-28	MK-FP-28-15.0/15.5	15	15.5	11/11/2016	0.0072 J	0.0042 U	0.0211 J		0.0673	0.216	0.0078 J	0.0106 U	0.117	0.171
FP08/09	FP-31	MK-FP-31-0.0/0.5	0	0.5	11/11/2016	0.0438 J	0.0159 U	0.153		0.273	0.893	0.042 J	0.112 J	0.552	0.75
FP08/09	FP-31	MK-FP-31-0.5/1.5	0.5	1.5	11/11/2016	0.0506 J	0.0214 J	0.154		0.221	0.651	0.0424 J	0.251	0.56	0.567
FP08/09	FP-31	MK-FP-31-1.5/2.5	1.5	2.5	11/11/2016	0.0347 J	0.0226 J	0.159		0.482	1.49	0.0695 J	0.0447 J	0.643	1.18
FP08/09	FP-31	MK-FP-31-2.5/3.2	2.5	3.2	11/11/2016	0.0266 J	0.0191 U	0.11 J		0.204	0.945	0.0559 J	0.0489 UJ	0.484	0.823
FP08/09	FP-31	MK-FP-31-5.0/7.0	5	7	11/11/2016	0.0185 J	0.01 J	0.0599		0.115	0.428	0.0308	0.037 J	0.258	0.336
FP08/09	FP-31	MK-FP-31-7.0/8.4	7	8.4	11/11/2016	0.0062 U	0.0052 U	0.0091 U		0.0113	0.037	0.0066 U	0.0134 U	0.021 J	0.024 J
FP08/09	FP-31	MK-FP-31-10.0/10.5	10	10.5	11/11/2016	0.0054 U	0.0046 U	0.0079 U		0.0052 J	0.014 J	0.0057 U	0.0116 U	0.016 U	0.007 J
FP08/09	FP-31	MK-FP-31-10.5/10.8	10.5	10.8	11/11/2016	0.0047 U	0.0039 U	0.0068 U		0.0065 J	0.019 J	0.005 U	0.0101 U	0.014 U	0.013 J
FP08/09	FP-33	MK-FP-33-0.0/1.0	0	1	11/11/2016	0.0143 J	0.0107 J	0.0636		0.214	0.528	0.0167 J	0.047 J	0.251	0.411
FP08/09	FP-33	MK-FP-33-1.0/1.2	1	1.2	11/11/2016	0.0042 U	0.0036 U	0.0194 J		0.0322	0.113	0.0045 U	0.0091 U	0.062	0.087
FP08/09	FP-33X	MK-FP-33X-1.5/2.5	1.5	2.5	11/3/2020	0.032 J	0.045 J	0.13 J	0.62	0.65	1.5	0.038 J	0.033 J	0.59	1.1
FP08/09	FP-33X	MK-FP-33X-2.5/3.8	2.5	3.8	11/3/2020	0.017 U	0.017 U	0.006 J	0.027	0.028	0.058	0.017 U	0.017 U	0.019	0.045
FP08/09	FP-68	MK-FP-68-0.0/0.5	0	0.5	11/4/2020	0.059 J	0.44 U	0.23 J	0.96	1.1	2.7	0.062 J	0.44 U	0.98	2
FP08/09	FP-68	MK-FP-68-0.5/1.5	0.5	1.5	11/4/2020	0.019 U	0.019 U	0.005 J	0.021	0.022	0.058	0.019 U	0.019 U	0.019 J	0.039
FP08/09	FP-68	MK-FP-68-1.5/2.5	1.5	2.5	11/4/2020	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.003 J	0.02 U	0.02 U
FP08/09	FP-68	MK-FP-68-2.5/3.7	2.5	3.7	11/4/2020	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
FP08/09	FP-69A	MK-FP-69A-0.0/0.5	0	0.5	11/4/2020										
FP08/09	FP-69A	MK-FP-69A-0.5/1.5	0.5	1.5	11/4/2020										
FP08/09	FP-69A	MK-FP-69A-1.5/2.5	1.5	2.5	11/4/2020										
FP08/09	FP-69A	MK-FP-69A-2.5/3.7	2.5	3.7	11/4/2020										
FP08/09	FP-69B	MK-FP-69B-0.0/0.5	0	0.5	11/4/2020										

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						Metals								Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Lead[4]	Arsenic[5]	Nickel	Cadmium	Chromium	Copper	Zinc	Mercury	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[1,4,5]	400	8										
					Tier 2 SS-RCL[1]												
					TSCA LO												
FP08/09	FP-25	MK-FP-25-8.0/9.1	8	9.1	11/10/2016	29.4 J	4.7	14.1 J	0.43	24.1	21.7	73.2 J	0.18	90	10	0	33200
FP08/09	FP-25	MK-FP-25-10.0/12.0	10	12	11/10/2016	33.5	4.8	15.1	0.33	24 J	22.1	71.2	0.13	36	64	0	29400
FP08/09	FP-25	MK-FP-25-12.0/13.6	12	13.6	11/10/2016	9	2.7	12.8	0.24	17.1 J	16.2	53.1	0.058	86	14	0	23400
FP08/09	FP-25	MK-FP-25-15.0/16.8	15	16.8	11/10/2016	10.9 J	2.5	11.6 J	0.38	16.2	15.7	61.9 J	0.048	81	19	0	48300
FP08/09	FP-26	MK-FP-26-0.0./0.5	0	0.5	11/11/2016	135	5.2 J	22.5	2.2	69.1	51.3	209	0.25				46200 J+
FP08/09	FP-26	MK-FP-26-0.5/1.5	0.5	1.5	11/11/2016	35.8	4.5 J	10.3	0.68	24.2	18.7	83.9	0.11				9210 J+
FP08/09	FP-26	MK-FP-26-1.5/2.5	1.5	2.5	11/11/2016	374	5.8 J	25.2	4.2	101	93.3	336	0.41				30900 J+
FP08/09	FP-26	MK-FP-26-2.5/3.1	2.5	3.1	11/11/2016	290	10.3	26.1	5.6	114	84.7	442	0.37				32800 J+
FP08/09	FP-26	MK-FP-26-5.0/7.0	5	7	11/11/2016	199	8.1	27	5.3	182	63.2	332	0.2				58200 J+
FP08/09	FP-26	MK-FP-26-7.0/8.1	7	8.1	11/11/2016	104	6.2 J	22.5	0.57 J	262	37.8	168	0.3				30400 J+
FP08/09	FP-26	MK-FP-26-10.0/12.0	10	12	11/11/2016	19.3	4.3 J	17.9	0.25 J	34.3	20.9	74.7	0.13				24000 J+
FP08/09	FP-26	MK-FP-26-12.0/13.0	12	13	11/11/2016	7.7	2.8 J	11.7	0.27 J	17.5	13.8	60.3	0.067				29500 J+
FP08/09	FP-26	MK-FP-26-15.0/15.6	15	15.6	11/11/2016	12.7	2.6 J	6.1	0.26 J	16.7	7.7	35.4	0.051				7270 J+
FP08/09	FP-28	MK-FP-28-0.0./0.5	0	0.5	11/11/2016	107	4.5 J	14.6	1.5	46.8	37.4	145	0.19				32500 J+
FP08/09	FP-28	MK-FP-28-0.5/1.5	0.5	1.5	11/11/2016	171	7.1	19.7	2.4	64.3	55.4	218	0.36				22700
FP08/09	FP-28	MK-FP-28-1.5/2.5	1.5	2.5	11/11/2016	88.7	6.7 J	27.7	1.5	59.3	41.9	212	0.32				29200
FP08/09	FP-28	MK-FP-28-2.5/3.2	2.5	3.2	11/11/2016	425	13.2	41.9	7.4	236	145	595	0.82				42900
FP08/09	FP-28	MK-FP-28-5.0/7.0	5	7	11/11/2016	189	8.4	31.1	5	134	64.5	369	0.34				35800
FP08/09	FP-28	MK-FP-28-7.0/8.5	7	8.5	11/11/2016	43.6	5.3 J	21.3	0.19 U	34.2	26.8	94	0.41				26600
FP08/09	FP-28	MK-FP-28-10.0/11.2	10	11.2	11/11/2016	11.6	3.1 J	9.9	0.17 U	13.9	11.1	40.5	0.045				10600
FP08/09	FP-28	MK-FP-28-15.0/15.5	15	15.5	11/11/2016	6.2	2.9 J	5.4	0.21 J	10.6	16.1	115	0.023 J				2190
FP08/09	FP-31	MK-FP-31-0.0/0.5	0	0.5	11/11/2016	57.4	5.7	16.4	0.64	24 J	38.1	124	0.19	54	43	3	15100
FP08/09	FP-31	MK-FP-31-0.5/1.5	0.5	1.5	11/11/2016	58.8	7.2	16.1	0.72	25.8 J	34.1	110	0.11	36	53	11	106000
FP08/09	FP-31	MK-FP-31-1.5/2.5	1.5	2.5	11/11/2016	108	6.9	20.2	2.1	64.7 J	42.6	177	0.83	58	30	12	30500
FP08/09	FP-31	MK-FP-31-2.5/3.2	2.5	3.2	11/11/2016	82.7	7.4	20.3	1.1	49.8 J	39.3	175	0.21	97	3	0	28600
FP08/09	FP-31	MK-FP-31-5.0/7.0	5	7	11/11/2016	91.8	6.7 J	21.3	0.67 J	150 J	38.3	176	0.38	97	3	0	30200
FP08/09	FP-31	MK-FP-31-7.0/8.4	7	8.4	11/11/2016	39.2	3.2 J	19.6	0.2 U	30.6	24.4	101	0.2	98	2	0	28700
FP08/09	FP-31	MK-FP-31-10.0/10.5	10	10.5	11/11/2016	17.4	3.7 J	14.3	0.27 J	24.5 J	17.3	62.1	0.099				25600
FP08/09	FP-31	MK-FP-31-10.5/10.8	10.5	10.8	11/11/2016	4.9	3.3 J	14.3	0.14 U	13.8 J	13.1	35.2	0.012 U				1960
FP08/09	FP-33	MK-FP-33-0.0/1.0	0	1	11/11/2016	78.7	5.8	16.7	0.88	33.5	64.9	158	0.16	22	45	33	43700
FP08/09	FP-33	MK-FP-33-1.0/1.2	1	1.2	11/11/2016	9.9	2.7 J	5.7	0.26 J	10.6	8.5	24.1	0.016 J				3260
FP08/09	FP-33X	MK-FP-33X-1.5/2.5	1.5	2.5	11/3/2020	97.8	6.1	15.8	2	39.6	33.8	157	0.15	21	24	55	20800
FP08/09	FP-33X	MK-FP-33X-2.5/3.8	2.5	3.8	11/3/2020	4.4	12.7 U	2.4	0.21 J	5.1	2.6	7.9	0.014 J	10	24	66	63200
FP08/09	FP-68	MK-FP-68-0.0/0.5	0	0.5	11/4/2020	98.3	3.1 J	16.4	1.5	36.6	40.7	166	0.16				37900
FP08/09	FP-68	MK-FP-68-0.5/1.5	0.5	1.5	11/4/2020	6.2	2.6 U	9.4	0.53 U	11	7.5	31.1	0.039 U				3790
FP08/09	FP-68	MK-FP-68-1.5/2.5	1.5	2.5	11/4/2020	11.3	3 U	20.2	0.23 J	21.5	19.2	60.6	0.028 J				5310
FP08/09	FP-68	MK-FP-68-2.5/3.7	2.5	3.7	11/4/2020	3.9	2.3 J	8.7	0.56 U	9.6	6.5	28.1	0.038 U				9870
FP08/09	FP-69A	MK-FP-69A-0.0/0.5	0	0.5	11/4/2020	241	7.7	29	4.4	78.8	81	394	0.32				42700
FP08/09	FP-69A	MK-FP-69A-0.5/1.5	0.5	1.5	11/4/2020	246	4.3	12.1	1	21.2	21.6	102	0.66				20900
FP08/09	FP-69A	MK-FP-69A-1.5/2.5	1.5	2.5	11/4/2020	45	6.4	10.7	0.25 J	16.7	8	77.7	0.29				15900
FP08/09	FP-69A	MK-FP-69A-2.5/3.7	2.5	3.7	11/4/2020	9.3	2.9 U	11.8	0.17 J	17	9.5	45.3	0.011 J				4610
FP08/09	FP-69B	MK-FP-69B-0.0/0.5	0	0.5	11/4/2020	166	3.4 J	10.9	3.1	17.4	110	2030	0.2				166000

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PCB									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242
					Tier 1 SS-RCL[1,4,5]	1.1									
					Tier 2 SS-RCL[1]	0.7									
					TSCA LO	25									
FP08/09	FP-69B	MK-FP-69B-0.5/1.5	0.5	1.5	11/4/2020	0.032 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U
FP08/09	FP-69B	MK-FP-69B-1.5/2.5	1.5	2.5	11/4/2020	0.03 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U
FP08/09	FP-69B	MK-FP-69B-2.5/4.0	2.5	4	11/4/2020	0.029 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U
FP08/09	FP-69C	MK-FP-69C-0.0/0.5	0	0.5	11/5/2020	0.031	0.075 U	0.031 J	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U
FP08/09	FP-69C	MK-FP-69C-0.5/1.5	0.5	1.5	11/5/2020	0.03 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
FP08/09	FP-69C	MK-FP-69C-1.5/2.3	1.5	2.3	11/5/2020	0.032 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U
FP08/09	FP-69C	MK-FP-69C-2.5/4.0	2.5	4	11/5/2020	0.032 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U
FP08/09	FP-70	MK-FP-70-0.0/0.5	0	0.5	11/4/2020	6.2	1	2.5	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	2.7
FP08/09	FP-70	MK-FP-70-0.5/1.5	0.5	1.5	11/4/2020	6	0.36 J	1.9	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	3.7
FP08/09	FP-70	MK-FP-70-1.5/2.5	1.5	2.5	11/4/2020	0.2	0.051 J	0.099	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.075 U	0.054 J
FP08/09	FP-70	MK-FP-70-2.5/4.0	2.5	4	11/4/2020	0.036 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U
FP08/09	FP-71	MK-FP-71-0.0/0.5	0	0.5	11/3/2020	2.5	0.49	0.86	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	1.1
FP08/09	FP-71	MK-FP-71-0.5/1.5	0.5	1.5	11/3/2020	6.5	2	1.9	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	0.54 U	2.6
FP08/09	FP-71	MK-FP-71-1.5/2.5	1.5	2.5	11/3/2020	0.29	0.067 J	0.13	0.078 U	0.078 U	0.078 U	0.078 U	0.078 U	0.078 U	0.09
FP08/09	FP-71	MK-FP-71-2.5/4.0	2.5	4	11/3/2020	0.038 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U
FP08/09	FP-81	MK-FP-81-0.0/0.5	0	0.5	11/4/2020	1.8	0.15 J	0.87	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.77
FP08/09	FP-81	MK-FP-81-0.5/1.5	0.5	1.5	11/4/2020	2.1	0.16 J	0.75	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.2
FP08/09	FP-81	MK-FP-81-1.5/2.5	1.5	2.5	11/4/2020	41.5	1.4 J	9.1	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U	31
FP08/09	FP-81	MK-FP-81-2.5/3.7	2.5	3.7	11/4/2020	1.2	0.12	0.56	0.078 U	0.078 U	0.078 U	0.48	0.078 U	0.078 U	0.078 U
FP08/09	FP-82	MK-FP-82-0.0/0.5	0	0.5	11/4/2020	4.6	0.36	1.9	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	0.34 U	2.3
FP08/09	FP-82	MK-FP-82-0.5/1.5	0.5	1.5	11/4/2020	4.7	0.37 J	2	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	2.3
FP08/09	FP-82	MK-FP-82-1.5/2.5	1.5	2.5	11/4/2020	0.42	0.035 J	0.19 J	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.19
FP08/09	FP-82	MK-FP-82-2.5/4.0	2.5	4	11/4/2020	1.3	0.13 J	0.52	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.68
FP08/09	FP-83	MK-FP-83-0.0/0.5	0	0.5	11/3/2020	6.7	0.4 J	2.5	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	3.8
FP08/09	FP-83	MK-FP-83-0.5/1.5	0.5	1.5	11/3/2020	41.2	1.2 J	11	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	29 J
FP08/09	FP-83	MK-FP-83-1.5/2.5	1.5	2.5	11/3/2020	7.2	0.54 J	3.4	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	3.3
FP08/09	FP-83	MK-FP-83-2.5/4.0	2.5	4	11/3/2020	0.5	0.054 J	0.32 J	0.079 U	0.079 U	0.079 U	0.079 U	0.079 U	0.079 U	0.13 J
FP08/09	FP-84	MK-FP-84-0.0/0.5	0	0.5	11/3/2020	4.8	0.42 J	2	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	2.4
FP08/09	FP-84	MK-FP-84-0.5/1.5	0.5	1.5	11/3/2020	0.47	0.039 J	0.21 J	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.22
FP08/09	FP-84	MK-FP-84-1.5/2.5	1.5	2.5	11/3/2020	0.17	0.02 J	0.094 J	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.057 J
FP08/09	FP-84	MK-FP-84-2.5/4.0	2.5	4	11/3/2020	0.28	0.019 J	0.09	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.17
FP08/09	FP-85	MK-FP-85-0.0/0.5	0	0.5	11/4/2020	8.7	0.72 J	3.3	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	4.7
FP08/09	FP-85	MK-FP-85-0.5/1.5	0.5	1.5	11/4/2020	29.1	1.4 J	8.7	2 U	2 U	2 U	2 U	2 U	2 U	19
FP08/09	FP-85	MK-FP-85-1.5/2.5	1.5	2.5	11/4/2020	17.3	1.1 J	7.1 J	2 U	2 U	2 U	9.1	2 U	2 U	2 U
FP08/09	FP-85	MK-FP-85-2.5/3.9	2.5	3.9	11/4/2020	0.33	0.066 J	0.13 J	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U	0.13
FP10	FP-126	MK-FP-126-0.0/0.5	0	0.5	10/12/2021	0.73	0.093	0.4	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.23
FP10	FP-126	MK-FP-126-0.5/1.5	0.5	1.5	10/12/2021	2.10	0.21	0.95	0.12 U	0.12 U	0.12 U	0.91	0.12 U	0.12 U	0.12 U
FP10	FP-126	MK-FP-126-1.5/2.3	1.5	2.3	10/12/2021	0.11	0.053 U	0.057	0.053 U	0.053 U	0.053 U	0.051 J	0.053 U	0.053 U	0.053 U
FP10	FP-129	MK-FP-129-0.0/0.5	0	0.5	10/12/2021	1.30	0.12 J	0.59 J	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.54
FP10	FP-129	MK-FP-129-0.5/1.5	0.5	1.5	10/12/2021	1.80	0.13 J	0.71	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.93 J
FP10	FP-129	MK-FP-129-1.5/2.5	1.5	2.5	10/12/2021	0.41	0.039 J	0.17	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.2
FP10	FP-129	MK-FP-129-2.5/3.4	2.5	3.4	10/12/2021	0.04 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH								
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PAH-18[3]	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3-Cd) Pyrene	2-Methyl-naphthalene
					Tier 1 SS-RCL[1,4,5]	--	84.6	8.48	84.8	848	8480	8.48	84.8	
					Tier 2 SS-RCL[1]	--	50.8	5.09	50.9	501	5090	5.09	50.9	
					TSCA LO									
FP08/09	FP-69B	MK-FP-69B-0.5/1.5	0.5	1.5	11/4/2020									
FP08/09	FP-69B	MK-FP-69B-1.5/2.5	1.5	2.5	11/4/2020									
FP08/09	FP-69B	MK-FP-69B-2.5/4.0	2.5	4	11/4/2020									
FP08/09	FP-69C	MK-FP-69C-0.0/0.5	0	0.5	11/5/2020									
FP08/09	FP-69C	MK-FP-69C-0.5/1.5	0.5	1.5	11/5/2020									
FP08/09	FP-69C	MK-FP-69C-1.5/2.3	1.5	2.3	11/5/2020									
FP08/09	FP-69C	MK-FP-69C-2.5/4.0	2.5	4	11/5/2020									
FP08/09	FP-70	MK-FP-70-0.0/0.5	0	0.5	11/4/2020	30.5	2.1	2.5	3.5	1.5	2.7	0.5	1.8	0.49 U
FP08/09	FP-70	MK-FP-70-0.5/1.5	0.5	1.5	11/4/2020	26.9	1.7	2.1	3.1	1.4	2.5	0.42 J	1.6	0.51 U
FP08/09	FP-70	MK-FP-70-1.5/2.5	1.5	2.5	11/4/2020	13.5	0.77	0.98	1.7	0.66	1.3	0.22 J	0.83	0.054 J
FP08/09	FP-70	MK-FP-70-2.5/4.0	2.5	4	11/4/2020	15.6	1	0.89	1.3	0.51	1.2	0.16 J	0.51	0.2 J
FP08/09	FP-71	MK-FP-71-0.0/0.5	0	0.5	11/3/2020									
FP08/09	FP-71	MK-FP-71-0.5/1.5	0.5	1.5	11/3/2020									
FP08/09	FP-71	MK-FP-71-1.5/2.5	1.5	2.5	11/3/2020									
FP08/09	FP-71	MK-FP-71-2.5/4.0	2.5	4	11/3/2020									
FP08/09	FP-81	MK-FP-81-0.0/0.5	0	0.5	11/4/2020									
FP08/09	FP-81	MK-FP-81-0.5/1.5	0.5	1.5	11/4/2020									
FP08/09	FP-81	MK-FP-81-1.5/2.5	1.5	2.5	11/4/2020									
FP08/09	FP-81	MK-FP-81-2.5/3.7	2.5	3.7	11/4/2020									
FP08/09	FP-82	MK-FP-82-0.0/0.5	0	0.5	11/4/2020									
FP08/09	FP-82	MK-FP-82-0.5/1.5	0.5	1.5	11/4/2020									
FP08/09	FP-82	MK-FP-82-1.5/2.5	1.5	2.5	11/4/2020									
FP08/09	FP-82	MK-FP-82-2.5/4.0	2.5	4	11/4/2020									
FP08/09	FP-83	MK-FP-83-0.0/0.5	0	0.5	11/3/2020									
FP08/09	FP-83	MK-FP-83-0.5/1.5	0.5	1.5	11/3/2020									
FP08/09	FP-83	MK-FP-83-1.5/2.5	1.5	2.5	11/3/2020									
FP08/09	FP-83	MK-FP-83-2.5/4.0	2.5	4	11/3/2020									
FP08/09	FP-84	MK-FP-84-0.0/0.5	0	0.5	11/3/2020									
FP08/09	FP-84	MK-FP-84-0.5/1.5	0.5	1.5	11/3/2020									
FP08/09	FP-84	MK-FP-84-1.5/2.5	1.5	2.5	11/3/2020									
FP08/09	FP-84	MK-FP-84-2.5/4.0	2.5	4	11/3/2020									
FP08/09	FP-85	MK-FP-85-0.0/0.5	0	0.5	11/4/2020									
FP08/09	FP-85	MK-FP-85-0.5/1.5	0.5	1.5	11/4/2020									
FP08/09	FP-85	MK-FP-85-1.5/2.5	1.5	2.5	11/4/2020									
FP08/09	FP-85	MK-FP-85-2.5/3.9	2.5	3.9	11/4/2020									
FP10	FP-126	MK-FP-126-0.0/0.5	0	0.5	10/12/2021	14.3	1	1.1	1.6	0.65	1.2	0.23 J	0.68	0.44 U
FP10	FP-126	MK-FP-126-0.5/1.5	0.5	1.5	10/12/2021	16.3	1.1	1.3	1.7	0.74	1.5	0.27 J	0.85	0.094 J
FP10	FP-126	MK-FP-126-1.5/2.3	1.5	2.3	10/12/2021	0.31	0.022	0.023	0.031	0.014 J	0.027	0.004 J	0.015 J	0.006 J
FP10	FP-129	MK-FP-129-0.0/0.5	0	0.5	10/12/2021	17.5	1.1	1.4	2.3	0.74	1.5	0.23 J	0.89	0.45 U
FP10	FP-129	MK-FP-129-0.5/1.5	0.5	1.5	10/12/2021	19.7	1.3	1.5	2.2	1	1.7	0.33 J	1.1	0.42 U
FP10	FP-129	MK-FP-129-1.5/2.5	1.5	2.5	10/12/2021	11.2	0.73	0.84	1.5	0.48	1	0.18 J	0.69	0.048 J
FP10	FP-129	MK-FP-129-2.5/3.4	2.5	3.4	10/12/2021	3.3	0.23	0.23	0.34	0.11	0.26	0.038	0.14	0.017 J

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Fluoran-thene	Fluorene	Naphtha-lene	Phenan-threne	Pyrene
					Tier 1 SS-RCL[1,4,5]										
					Tier 2 SS-RCL[1]										
					TSCA LO										
FP08/09	FP-69B	MK-FP-69B-0.5/1.5	0.5	1.5	11/4/2020										
FP08/09	FP-69B	MK-FP-69B-1.5/2.5	1.5	2.5	11/4/2020										
FP08/09	FP-69B	MK-FP-69B-2.5/4.0	2.5	4	11/4/2020										
FP08/09	FP-69C	MK-FP-69C-0.0/0.5	0	0.5	11/5/2020										
FP08/09	FP-69C	MK-FP-69C-0.5/1.5	0.5	1.5	11/5/2020										
FP08/09	FP-69C	MK-FP-69C-1.5/2.3	1.5	2.3	11/5/2020										
FP08/09	FP-69C	MK-FP-69C-2.5/4.0	2.5	4	11/5/2020										
FP08/09	FP-70	MK-FP-70-0.0/0.5	0	0.5	11/4/2020	0.11 J	0.1 J	0.42 J	1.9	2	5.2	0.12 J	0.079 J	1.9	3.8
FP08/09	FP-70	MK-FP-70-0.5/1.5	0.5	1.5	11/4/2020	0.09 J	0.12 J	0.41 J	1.9	1.9	4.4	0.11 J	0.073 J	1.7	3.1
FP08/09	FP-70	MK-FP-70-1.5/2.5	1.5	2.5	11/4/2020	0.041 J	0.057 J	0.19 J	0.98	0.95	2.2	0.06 J	0.099 J	0.87	1.5
FP08/09	FP-70	MK-FP-70-2.5/4.0	2.5	4	11/4/2020	0.26	0.049 J	0.66	0.67	0.6	2.7	0.39	0.26	2.3	1.9
FP08/09	FP-71	MK-FP-71-0.0/0.5	0	0.5	11/3/2020										
FP08/09	FP-71	MK-FP-71-0.5/1.5	0.5	1.5	11/3/2020										
FP08/09	FP-71	MK-FP-71-1.5/2.5	1.5	2.5	11/3/2020										
FP08/09	FP-71	MK-FP-71-2.5/4.0	2.5	4	11/3/2020										
FP08/09	FP-81	MK-FP-81-0.0/0.5	0	0.5	11/4/2020										
FP08/09	FP-81	MK-FP-81-0.5/1.5	0.5	1.5	11/4/2020										
FP08/09	FP-81	MK-FP-81-1.5/2.5	1.5	2.5	11/4/2020										
FP08/09	FP-81	MK-FP-81-2.5/3.7	2.5	3.7	11/4/2020										
FP08/09	FP-82	MK-FP-82-0.0/0.5	0	0.5	11/4/2020										
FP08/09	FP-82	MK-FP-82-0.5/1.5	0.5	1.5	11/4/2020										
FP08/09	FP-82	MK-FP-82-1.5/2.5	1.5	2.5	11/4/2020										
FP08/09	FP-82	MK-FP-82-2.5/4.0	2.5	4	11/4/2020										
FP08/09	FP-83	MK-FP-83-0.0/0.5	0	0.5	11/3/2020										
FP08/09	FP-83	MK-FP-83-0.5/1.5	0.5	1.5	11/3/2020										
FP08/09	FP-83	MK-FP-83-1.5/2.5	1.5	2.5	11/3/2020										
FP08/09	FP-83	MK-FP-83-2.5/4.0	2.5	4	11/3/2020										
FP08/09	FP-84	MK-FP-84-0.0/0.5	0	0.5	11/3/2020										
FP08/09	FP-84	MK-FP-84-0.5/1.5	0.5	1.5	11/3/2020										
FP08/09	FP-84	MK-FP-84-1.5/2.5	1.5	2.5	11/3/2020										
FP08/09	FP-84	MK-FP-84-2.5/4.0	2.5	4	11/3/2020										
FP08/09	FP-85	MK-FP-85-0.0/0.5	0	0.5	11/4/2020										
FP08/09	FP-85	MK-FP-85-0.5/1.5	0.5	1.5	11/4/2020										
FP08/09	FP-85	MK-FP-85-1.5/2.5	1.5	2.5	11/4/2020										
FP08/09	FP-85	MK-FP-85-2.5/3.9	2.5	3.9	11/4/2020										
FP10	FP-126	MK-FP-126-0.0/0.5	0	0.5	10/12/2021	0.08 J	0.44 U	0.19 J	0.79	0.8	2.1	0.079 J	0.44 U	1.2	1.9
FP10	FP-126	MK-FP-126-0.5/1.5	0.5	1.5	10/12/2021	0.096 J	0.39 U	0.23 J	0.99	0.99	2.6	0.079 J	0.15 J	1.4	2
FP10	FP-126	MK-FP-126-1.5/2.3	1.5	2.3	10/12/2021	0.018 U	0.018 U	0.003 J	0.018	0.019	0.041	0.018 U	0.004 J	0.021	0.035
FP10	FP-129	MK-FP-129-0.0/0.5	0	0.5	10/12/2021	0.074 J	0.45 U	0.24 J	1.2	1.2	2.7	0.086 J	0.073 J	1.2	2.1
FP10	FP-129	MK-FP-129-0.5/1.5	0.5	1.5	10/12/2021	0.42 U	0.057 J	0.26 J	1.3	1.3	3.7	0.062 J	0.074 J	1.2	2.2
FP10	FP-129	MK-FP-129-1.5/2.5	1.5	2.5	10/12/2021	0.029 J	0.045 J	0.16 J	0.75	0.74	1.7	0.05 J	0.078 J	0.77	1.4
FP10	FP-129	MK-FP-129-2.5/3.4	2.5	3.4	10/12/2021	0.024 J	0.01 J	0.086	0.17	0.16	0.6	0.031	0.03	0.34	0.44

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						Metals								Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Lead[4]	Arsenic[5]	Nickel	Cadmium	Chromium	Copper	Zinc	Mercury	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[1,4,5]	400	8										
					Tier 2 SS-RCL[1]												
					TSCA LO												
FP08/09	FP-69B	MK-FP-69B-0.5/1.5	0.5	1.5	11/4/2020	159	10.8	19.3	0.51 J	23	38.3	115	0.32				47500
FP08/09	FP-69B	MK-FP-69B-1.5/2.5	1.5	2.5	11/4/2020	44.3	4	14.5	0.16 J	15	17.7	53.7	1.4				15400
FP08/09	FP-69B	MK-FP-69B-2.5/4.0	2.5	4	11/4/2020	33.6	2.2 J	9.6	0.25 J	11.8	12.8	41.9	0.12				20000
FP08/09	FP-69C	MK-FP-69C-0.0/0.5	0	0.5	11/5/2020	213	3.1 J	17.1	0.94	22.5	131	420	0.45				55400
FP08/09	FP-69C	MK-FP-69C-0.5/1.5	0.5	1.5	11/5/2020	456	4.3	13.2	0.44 J	17	27.4	159	0.38				30700
FP08/09	FP-69C	MK-FP-69C-1.5/2.3	1.5	2.3	11/5/2020	266	4.3	15.9	0.38 J	25.3	29.3	182	3.5				24400
FP08/09	FP-69C	MK-FP-69C-2.5/4.0	2.5	4	11/5/2020	69.1	2.5 J	18.7	0.38 J	19.1	40.9	146	0.11				8370
FP08/09	FP-70	MK-FP-70-0.0/0.5	0	0.5	11/4/2020	360	9	32.1	6.2	119	94.2	393	0.35				38300
FP08/09	FP-70	MK-FP-70-0.5/1.5	0.5	1.5	11/4/2020	517	11.4	57.4	10.1	223	149	589	0.42				33900
FP08/09	FP-70	MK-FP-70-1.5/2.5	1.5	2.5	11/4/2020	149	9.3	40.5	5.7	59.6	52.5	280	0.27				28900
FP08/09	FP-70	MK-FP-70-2.5/4.0	2.5	4	11/4/2020	91.6	8.4	24.7	1.2	50.6	39.2	189	0.23				31300
FP08/09	FP-71	MK-FP-71-0.0/0.5	0	0.5	11/3/2020	253	5.5	23.2	3.5	81.8	82.5	337	0.34				37000
FP08/09	FP-71	MK-FP-71-0.5/1.5	0.5	1.5	11/3/2020	312	10	33	6.6	129	88.3	400	0.47				34200
FP08/09	FP-71	MK-FP-71-1.5/2.5	1.5	2.5	11/3/2020	163	10.3	30.4	5.6	78.7	56.8	272	0.35				29800
FP08/09	FP-71	MK-FP-71-2.5/4.0	2.5	4	11/3/2020	113	6.7	20.3	1.4	51.9	57	210	0.22				27800
FP08/09	FP-81	MK-FP-81-0.0/0.5	0	0.5	11/4/2020	83.1	5.9 J	15.6	1.5	39.2	32	168	0.24				24100 J+
FP08/09	FP-81	MK-FP-81-0.5/1.5	0.5	1.5	11/4/2020	187	5	19	2.5	57.4	66.9	269	0.23				23100
FP08/09	FP-81	MK-FP-81-1.5/2.5	1.5	2.5	11/4/2020	555	11.5	51.8	8.6	302	197	695	0.79				41600
FP08/09	FP-81	MK-FP-81-2.5/3.7	2.5	3.7	11/4/2020	219	7.9	21	3.5	81.3	64	291	0.17				20000
FP08/09	FP-82	MK-FP-82-0.0/0.5	0	0.5	11/4/2020	293	8.6	32.6	5.6	127	90.3	387	0.36				46300
FP08/09	FP-82	MK-FP-82-0.5/1.5	0.5	1.5	11/4/2020	206	6.8	24.8	3.8	90.8	66.5	287	0.32				22700
FP08/09	FP-82	MK-FP-82-1.5/2.5	1.5	2.5	11/4/2020	57.1	5	35.2	0.8	31.5	31	109	0.079				12800
FP08/09	FP-82	MK-FP-82-2.5/4.0	2.5	4	11/4/2020	236	6.9	28.1	6.2	102	75.4	355	0.2				26600
FP08/09	FP-83	MK-FP-83-0.0/0.5	0	0.5	11/3/2020	214	4.7	23.1	3	88	70.8	293	0.35				37300
FP08/09	FP-83	MK-FP-83-0.5/1.5	0.5	1.5	11/3/2020	512	8.6	58.5	8.5	303	184	758	0.5				33200
FP08/09	FP-83	MK-FP-83-1.5/2.5	1.5	2.5	11/3/2020	415	12.3	36.7	7.6	181	136	578	0.54				34100
FP08/09	FP-83	MK-FP-83-2.5/4.0	2.5	4	11/3/2020	206	7.3	29.2	5.4	95.5	62.9	364	0.48				22400 J+
FP08/09	FP-84	MK-FP-84-0.0/0.5	0	0.5	11/3/2020	191	6.4	28.4	3.2	91.8	64.3	254	0.33				35300
FP08/09	FP-84	MK-FP-84-0.5/1.5	0.5	1.5	11/3/2020	29.5	5.2	21.1	0.34 J	25.1	24.5	67.2	0.043				7620
FP08/09	FP-84	MK-FP-84-1.5/2.5	1.5	2.5	11/3/2020	61.4	3.5	17.4	1.4	36	28.3	115	0.25				21300
FP08/09	FP-84	MK-FP-84-2.5/4.0	2.5	4	11/3/2020	35.4	4.5	19.3	0.75	29.8	27.1	90.6	0.07				10300
FP08/09	FP-85	MK-FP-85-0.0/0.5	0	0.5	11/4/2020	254	6.6	27.9	4.1	100	83.5	318	0.32				29000
FP08/09	FP-85	MK-FP-85-0.5/1.5	0.5	1.5	11/4/2020	427	5.5	38.9	6.1	201	138	456	0.55				25100
FP08/09	FP-85	MK-FP-85-1.5/2.5	1.5	2.5	11/4/2020	186	5.9	30.1	3.4	110	58.2	291	0.28				35100
FP08/09	FP-85	MK-FP-85-2.5/3.9	2.5	3.9	11/4/2020	233	9.5	32.4	4.9	177	70.8	347	0.29				38000
FP10	FP-126	MK-FP-126-0.0/0.5	0	0.5	10/12/2021	150	4										
FP10	FP-126	MK-FP-126-0.5/1.5	0.5	1.5	10/12/2021	79	4										
FP10	FP-126	MK-FP-126-1.5/2.3	1.5	2.3	10/12/2021	4	2 J										
FP10	FP-129	MK-FP-129-0.0/0.5	0	0.5	10/12/2021	77	4										
FP10	FP-129	MK-FP-129-0.5/1.5	0.5	1.5	10/12/2021	155	6										
FP10	FP-129	MK-FP-129-1.5/2.5	1.5	2.5	10/12/2021	124	6										
FP10	FP-129	MK-FP-129-2.5/3.4	2.5	3.4	10/12/2021	42	4										

Appendix A
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						PCB									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242
					Tier 1 SS-RCL[1,4,5]	1.1									
					Tier 2 SS-RCL[1]	0.7									
					TSCA LO	25									
FP10	FP-130	MK-FP-130-0.0/0.5	0	0.5	10/12/2021	5.50	0.61	2.4	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	2.5
FP10	FP-130	MK-FP-130-0.5/1.5	0.5	1.5	10/12/2021	0.85	0.14	0.43 J	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.28
FP10	FP-130	MK-FP-130-1.5/2.5	1.5	2.5	10/12/2021	0.04 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
FP10	FP-130	MK-FP-130-2.5/3.5	2.5	3.5	10/12/2021	0.04 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U
FP10	FP-132	MK-FP-132-0.0/0.5	0	0.5	10/13/2021	2.30	0.19 J	1	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.1
FP10	FP-132	MK-FP-132-0.5/1.5	0.5	1.5	10/13/2021	2.70	0.2 J	1.1	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.4
FP10	FP-132	MK-FP-132-1.5/2.5	1.5	2.5	10/13/2021	0.03 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
FP10	FP-132	MK-FP-132-2.5/4.2	2.5	4.2	10/13/2021	0.04 U	0.074 U	0.074 U	0.074 U	0.074 U	0.074 U	0.074 U	0.074 U	0.074 U	0.074 U
FP10	FP-133	MK-FP-133-0.0/0.5	0	0.5	10/13/2021	4.40	0.35 J	1.7	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	2.4
FP10	FP-133	MK-FP-133-0.5/1.5	0.5	1.5	10/13/2021	11.0	0.68 J	3.5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	6.8 J
FP10	FP-133	MK-FP-133-1.5/2.5	1.5	2.5	10/13/2021	0.84	0.12	0.36 J	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.35
FP10	FP-133	MK-FP-133-2.5/4.0	2.5	4	10/13/2021	0.10	0.077 U	0.064 J	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.032 J
FP10	FP-27	MK-FP-27-0.0/0.5	0	0.5	11/9/2016	0.32	0.032 U	0.155	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.032 U	0.162 J
FP10	FP-27	MK-FP-27-0.5/1.5	0.5	1.5	11/9/2016	0.76	0.066 J	0.325	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.372 J
FP10	FP-27	MK-FP-27-1.5/2.5	1.5	2.5	11/9/2016	0.18	0.028 U	0.074	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.105
FP10	FP-27	MK-FP-27-2.5/3.5	2.5	3.5	11/9/2016	0.36	0.03 U	0.119	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.237
FP10	FP-27	MK-FP-27-3.5/4.3	3.5	4.3	11/9/2016	0.11	0.031 U	0.056 J	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.056 J
FP10	FP-27	MK-FP-27-5.0/7.0	5	7	11/9/2016	0.53	0.04 U	0.387	0.04 U	0.04 U	0.04 U	0.139	0.04 U	0.04 U	0.04 U
FP10	FP-27	MK-FP-27-7.0/8.2	7	8.2	11/9/2016	0.02 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U
FP10	FP-27	MK-FP-27-10.0/11.2	10	11.2	11/9/2016	0.01 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
FP10	FP-27	MK-FP-27-15.0/16.0	15	16	11/9/2016	0.01 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U
FP10	FP-29	MK-FP-29-0.0/0.5	0	0.5	11/9/2016	3.3	0.329 U	1.22	0.329 U	0.329 U	0.329 U	0.329 U	0.329 U	0.329 U	2.07 J
FP10	FP-29	MK-FP-29-0.5/1.5	0.5	1.5	11/9/2016	0.95	0.088 U	0.295	0.088 U	0.088 U	0.088 U	0.088 U	0.088 U	0.088 U	0.654 J
FP10	FP-29	MK-FP-29-1.5/2.7	1.5	2.7	11/9/2016	3.1	0.245 J+	1.11 J+	0.123 U	0.123 U	0.123 U	0.123 U	0.123 U	0.123 U	1.69 J
FP10	FP-29	MK-FP-29-5.0/6.0	5	6	11/9/2016	3.2	0.266 J	1.21	0.167 U	0.167 U	0.167 U	0.167 U	0.167 U	0.167 U	1.72 J
FP10	FP-29	MK-FP-29-6.0/7.0	6	7	11/9/2016	0.02 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U
FP10	FP-29	MK-FP-29-7.0/7.8	7	7.8	11/9/2016	0.02 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U
FP10	FP-29	MK-FP-29-7.8/8.7	7.8	8.7	11/9/2016	0.04	0.035 U	0.037 J	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U
FP10	FP-29	MK-FP-29-10.0/11.0	10	11	11/9/2016	0.36	0.029 U	0.128	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.029 U	0.231 J
FP10	FP-29	MK-FP-29-11.0/12.0	11	12	11/9/2016	0.02 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
FP10	FP-29	MK-FP-29-12.0/13.0	12	13	11/9/2016	0.02 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
FP10	FP-29	MK-FP-29-15.0/17.0	15	17	11/9/2016	0.02 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U
FP10	FP-29	MK-FP-29-17.0/18.6	17	18.6	11/9/2016	0.02 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U
FP10	FP-30	MK-FP-30-0.0./0.5	0	0.5	11/9/2016	5.2	0.36 J	1.73	0.335 U	0.335 U	0.335 U	0.335 U	0.335 U	0.335 U	3.13 J
FP10	FP-30	MK-FP-30-0.5/1.2	0.5	1.2	11/9/2016	5.3	0.504 U	1.66	0.504 U	0.504 U	0.504 U	0.504 U	0.504 U	0.504 U	3.62 J
FP10	FP-30	MK-FP-30-1.2/2.0	1.2	2	11/9/2016	0.5	0.093	0.315 J	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.089 J
FP10	FP-30	MK-FP-30-5.0/6.0	5	6	11/9/2016	0.02 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U	0.036 U
FP10	FP-30	MK-FP-30-6.0/7.0	6	7	11/9/2016	0.02 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U	0.035 U
FP10	FP-30	MK-FP-30-7.0/7.6	7	7.6	11/9/2016	0.02 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U
FP10	FP-30	MK-FP-30-10.0/11.4	10	11.4	11/9/2016	0.02 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U
FP10	FP-30	MK-FP-30-11.4/12.1	11.4	12.1	11/9/2016	0.01 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U
FP10	FP-30A	MK-FP-30A-0.0./0.5	0	0.5	11/9/2016	7.2	0.465 J	2.61	0.461 U	0.461 U	0.461 U	0.461 U	0.461 U	0.461 U	4.08 J

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH								
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PAH-18[3]	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3-Cd) Pyrene	2-Methyl-naphthalene
					Tier 1 SS-RCL[1,4,5]	--	84.6	8.48	84.8	848	8480	8.48	84.8	
					Tier 2 SS-RCL[1]	--	50.8	5.09	50.9	501	5090	5.09	50.9	
					TSCA LO									
FP10	FP-130	MK-FP-130-0.0/0.5	0	0.5	10/12/2021	25.6	1.7	2	3.1	1.3	2.2	0.41 J	1.5	0.43 U
FP10	FP-130	MK-FP-130-0.5/1.5	0.5	1.5	10/12/2021	23.3	1.5	1.8	2.7	1.2	2.1	0.42 J	1.5	0.085 J
FP10	FP-130	MK-FP-130-1.5/2.5	1.5	2.5	10/12/2021	11.7	0.85	0.83	1.4	0.5	1.1	0.16	0.52	0.078 J
FP10	FP-130	MK-FP-130-2.5/3.5	2.5	3.5	10/12/2021	7.6	0.52	0.53	0.79	0.36	0.66	0.096 J	0.31	0.11 J
FP10	FP-132	MK-FP-132-0.0/0.5	0	0.5	10/13/2021	15.4	1.3	1.1	1.5	0.72	1.5	0.15 J	0.42	0.072 J
FP10	FP-132	MK-FP-132-0.5/1.5	0.5	1.5	10/13/2021	14	0.92	1.1	1.9	0.66	1.3	0.19 J	0.62	0.41 U
FP10	FP-132	MK-FP-132-1.5/2.5	1.5	2.5	10/13/2021	8.2	0.62	0.57	0.91	0.41	0.77	0.089 J	0.3	0.07 J
FP10	FP-132	MK-FP-132-2.5/4.2	2.5	4.2	10/13/2021	2	0.12	0.13	0.19	0.081	0.15	0.022 J	0.088	0.04
FP10	FP-133	MK-FP-133-0.0/0.5	0	0.5	10/13/2021	23.7	1.7	1.9	2.8	1.1	2	0.35 J	1.3	0.4 U
FP10	FP-133	MK-FP-133-0.5/1.5	0.5	1.5	10/13/2021	34.3	2.3	2.8	3.9	1.8	2.8	0.52	1.9	0.48 U
FP10	FP-133	MK-FP-133-1.5/2.5	1.5	2.5	10/13/2021	31	2.1	2.5	3.6	1.6	2.7	0.5	1.8	0.46 U
FP10	FP-133	MK-FP-133-2.5/4.0	2.5	4	10/13/2021	9.7	0.59	0.72	1.2	0.42	0.87	0.18	0.53	0.064 J
FP10	FP-27	MK-FP-27-0.0/0.5	0	0.5	11/9/2016	11.6	0.921	1.01	1.77	0.658	1.02	0.131	0.421	0.0317 U
FP10	FP-27	MK-FP-27-0.5/1.5	0.5	1.5	11/9/2016	8.6	0.65	0.779	1.49	0.503	0.766	0.117	0.374	0.0293 U
FP10	FP-27	MK-FP-27-1.5/2.5	1.5	2.5	11/9/2016	2.8	0.223	0.263	0.455	0.165	0.274	0.0358	0.113	0.0112 U
FP10	FP-27	MK-FP-27-2.5/3.5	2.5	3.5	11/9/2016	6.4	0.414	0.439	0.722	0.321	0.633	0.096	0.337 J	0.03 U
FP10	FP-27	MK-FP-27-3.5/4.3	3.5	4.3	11/9/2016	2.7	0.192	0.201	0.276	0.123	0.251	0.034	0.107	0.0109 J
FP10	FP-27	MK-FP-27-5.0/7.0	5	7	11/9/2016	0.39	0.0301	0.0226	0.0405	0.016	0.0399	0.0038 J	0.0155	0.0079 U
FP10	FP-27	MK-FP-27-7.0/8.2	7	8.2	11/9/2016	0.24	0.0141 J	0.0122	0.023	0.0112 J	0.0231	0.0032 U	0.0103 J	0.0072 U
FP10	FP-27	MK-FP-27-10.0/11.2	10	11.2	11/9/2016	0.0063 U	0.0034 U	0.0027 U	0.0031 U	0.0027 U	0.0036 U	0.0024 U	0.0024 U	0.0054 U
FP10	FP-27	MK-FP-27-15.0/16.0	15	16	11/9/2016	0.06	0.0035 J	0.0026 U	0.004 J	0.0026 U	0.0046 J	0.0024 U	0.0023 U	0.0053 U
FP10	FP-29	MK-FP-29-0.0/0.5	0	0.5	11/9/2016	10.9	0.729	0.834	1.14	0.484	1.03	0.242	0.701	0.014
FP10	FP-29	MK-FP-29-0.5/1.5	0.5	1.5	11/9/2016	1.3	0.0892	0.107	0.155	0.0585	0.125	0.0286	0.0911	0.0026
FP10	FP-29	MK-FP-29-1.5/2.7	1.5	2.7	11/9/2016	9.4	0.62	0.652	0.904	0.37	0.854	0.169	0.497	0.0291
FP10	FP-29	MK-FP-29-5.0/6.0	5	6	11/9/2016	22.8	1.08	1.49	3.73	0.86	1.74	0.59	1.44	0.0486
FP10	FP-29	MK-FP-29-6.0/7.0	6	7	11/9/2016	15.1	0.836	1.07	1.5	0.626	1.31	0.322	0.922	0.0459
FP10	FP-29	MK-FP-29-7.0/7.8	7	7.8	11/9/2016	6.1	0.549	0.419	0.605	0.254	0.708	0.0916	0.254	0.0158
FP10	FP-29	MK-FP-29-7.8/8.7	7.8	8.7	11/9/2016	3.9	0.286	0.281	0.396	0.164	0.389	0.0617	0.194	0.0199
FP10	FP-29	MK-FP-29-10.0/11.0	10	11	11/9/2016	3.1	0.188	0.21	0.265	0.12	0.253	0.0646	0.164	0.01
FP10	FP-29	MK-FP-29-11.0/12.0	11	12	11/9/2016	0.74	0.0537	0.0555	0.0716	0.0277	0.0699	0.0113	0.0349	0.0037
FP10	FP-29	MK-FP-29-12.0/13.0	12	13	11/9/2016	0.56	0.0421	0.0449	0.0538	0.0202	0.0476	0.0078	0.0278	0.0023
FP10	FP-29	MK-FP-29-15.0/17.0	15	17	11/9/2016	0.044	0.003	0.0031	0.0042	0.0014 J	0.0033	0.00056 U	0.0018	0.00061 U
FP10	FP-29	MK-FP-29-17.0/18.6	17	18.6	11/9/2016	0.017	0.00051 U	0.00051 U	0.0021 U	0.00081 U	0.00051 U	0.00057 U	0.00041 U	0.00064 J
FP10	FP-30	MK-FP-30-0.0./0.5	0	0.5	11/9/2016	19.7	1.6	1.82	2.48	1.16	1.83	0.328	1.15	0.0135
FP10	FP-30	MK-FP-30-0.5/1.2	0.5	1.2	11/9/2016	25.8	2.19	2.4	3.13	1.42	2.42	0.41	1.67	0.0181
FP10	FP-30	MK-FP-30-1.2/2.0	1.2	2	11/9/2016	28.1	2.61	2.57	3.23	1.43	2.46	0.516	1.48	0.0245
FP10	FP-30	MK-FP-30-5.0/6.0	5	6	11/9/2016	1.9	0.159	0.16	0.204	0.0888	0.161	0.0277	0.0909	0.0036
FP10	FP-30	MK-FP-30-6.0/7.0	6	7	11/9/2016	4	0.326	0.335	0.377	0.187	0.298	0.00046 U	0.196	0.0383 J
FP10	FP-30	MK-FP-30-7.0/7.6	7	7.6	11/9/2016	2.3	0.184	0.193	0.224	0.0878	0.159	0.0278	0.101	0.0036
FP10	FP-30	MK-FP-30-10.0/11.4	10	11.4	11/9/2016	0.11	0.0113	0.0073	0.0101	0.0057	0.0127	0.0005 U	0.0031	0.00066 U
FP10	FP-30	MK-FP-30-11.4/12.1	11.4	12.1	11/9/2016	0.02	0.00097 J	0.00039 U	0.0013 J	0.00086 J	0.0016 J	0.00037 U	0.00084 U	0.00049 U
FP10	FP-30A	MK-FP-30A-0.0./0.5	0	0.5	11/9/2016	16.2	1.39	1.57	2.06	0.918	1.51	0.002 U	1.04	0.0101

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Fluoran-thene	Fluorene	Naphtha-lene	Phenan-threne	Pyrene
					Tier 1 SS-RCL[1,4,5]										
					Tier 2 SS-RCL[1]										
					TSCA LO										
FP10	FP-130	MK-FP-130-0.0/0.5	0	0.5	10/12/2021	0.081 J	0.083 J	0.32 J	1.7	1.6	4.2	0.096 J	0.098 J	1.7	3.3
FP10	FP-130	MK-FP-130-0.5/1.5	0.5	1.5	10/12/2021	0.059 J	0.12 J	0.35 J	1.8	1.6	3.6	0.093 J	0.13 J	1.6	2.6
FP10	FP-130	MK-FP-130-1.5/2.5	1.5	2.5	10/12/2021	0.043 J	0.035 J	0.19	0.74	0.56	2.1	0.064 J	0.12	0.99	1.4
FP10	FP-130	MK-FP-130-2.5/3.5	2.5	3.5	10/12/2021	0.038 J	0.033 J	0.15	0.44	0.35	1.2	0.069 J	0.14	0.77	1
FP10	FP-132	MK-FP-132-0.0/0.5	0	0.5	10/13/2021	0.074 J	0.41 U	0.34 J	0.77	0.44	2.7	0.093 J	0.12 J	1.3	2.6
FP10	FP-132	MK-FP-132-0.5/1.5	0.5	1.5	10/13/2021	0.41 U	0.41 U	0.2 J	1	0.64	2	0.056 J	0.076 J	0.97	1.8
FP10	FP-132	MK-FP-132-1.5/2.5	1.5	2.5	10/13/2021	0.031 J	0.041 J	0.16 J	0.5	0.3	1.6	0.055 J	0.11 J	0.8	0.9
FP10	FP-132	MK-FP-132-2.5/4.2	2.5	4.2	10/13/2021	0.01 J	0.007 J	0.045	0.099	0.1	0.36	0.016 J	0.079	0.18	0.25
FP10	FP-133	MK-FP-133-0.0/0.5	0	0.5	10/13/2021	0.091 J	0.058 J	0.31 J	1.4	1.5	4.3	0.082 J	0.039 J	1.5	3.1
FP10	FP-133	MK-FP-133-0.5/1.5	0.5	1.5	10/13/2021	0.13 J	0.091 J	0.43 J	2.1	2.3	6.1	0.12 J	0.065 J	2.2	4.5
FP10	FP-133	MK-FP-133-1.5/2.5	1.5	2.5	10/13/2021	0.096 J	0.15 J	0.46 J	2.3	2.1	5.1	0.13 J	0.11 J	2.2	3.3
FP10	FP-133	MK-FP-133-2.5/4.0	2.5	4	10/13/2021	0.034 J	0.027 J	0.15	0.68	0.64	1.6	0.049 J	0.1 J	0.74	1.1
FP10	FP-27	MK-FP-27-0.0/0.5	0	0.5	11/9/2016	0.0603 J	0.0325 J	0.277		0.455	2.02	0.07 J	0.0534 U	1.02	1.68
FP10	FP-27	MK-FP-27-0.5/1.5	0.5	1.5	11/9/2016	0.0327 J	0.0313 J	0.2		0.361	1.42	0.0364 J	0.0494 U	0.62	1.14
FP10	FP-27	MK-FP-27-1.5/2.5	1.5	2.5	11/9/2016	0.0117 J	0.0116 J	0.0633		0.119	0.47	0.0152 J	0.0189 U	0.209	0.385
FP10	FP-27	MK-FP-27-2.5/3.5	2.5	3.5	11/9/2016	0.0415 J	0.0198 U	0.176		0.4 J	1.18	0.0405 J	0.0505 U	0.633	0.884
FP10	FP-27	MK-FP-27-3.5/4.3	3.5	4.3	11/9/2016	0.0285	0.0069 J	0.0844		0.117	0.496	0.0296	0.0161 J	0.349	0.371
FP10	FP-27	MK-FP-27-5.0/7.0	5	7	11/9/2016	0.0061 U	0.0052 U	0.009 U		0.0206	0.073	0.0066 U	0.0133 U	0.042 J	0.064
FP10	FP-27	MK-FP-27-7.0/8.2	7	8.2	11/9/2016	0.0056 U	0.0048 U	0.0083 U		0.0133	0.042	0.006 U	0.0122 U	0.033 J	0.032
FP10	FP-27	MK-FP-27-10.0/11.2	10	11.2	11/9/2016	0.0042 U	0.0036 U	0.0062 U		0.0022 U	0.006 U	0.0045 U	0.0091 U	0.013 U	0.005 U
FP10	FP-27	MK-FP-27-15.0/16.0	15	16	11/9/2016	0.0041 U	0.0035 U	0.006 U		0.0028 J	0.008 J	0.0044 U	0.0089 U	0.012 U	0.005 J
FP10	FP-29	MK-FP-29-0.0/0.5	0	0.5	11/9/2016	0.054	0.12	0.301	0.655	0.769	1.99	0.0599	0.0147	0.765	1
FP10	FP-29	MK-FP-29-0.5/1.5	0.5	1.5	11/9/2016	0.0057	0.0156	0.0371	0.0851	0.101	0.158	0.0071	0.0025 J	0.092	0.131
FP10	FP-29	MK-FP-29-1.5/2.7	1.5	2.7	11/9/2016	0.0949	0.0914	0.368	0.511	0.531	1.73	0.129	0.0226	0.95	0.898
FP10	FP-29	MK-FP-29-5.0/6.0	5	6	11/9/2016	0.0955	0.396	0.674	1.41	1.62	3.45	0.132	0.0567	1.27	2.73
FP10	FP-29	MK-FP-29-6.0/7.0	6	7	11/9/2016	0.0743	0.171	0.336	0.965	1.04	2.61	0.103	0.0645	1.05	2.02
FP10	FP-29	MK-FP-29-7.0/7.8	7	7.8	11/9/2016	0.0344	0.0555	0.192	0.313	0.276	0.945	0.0623	0.0256	0.542	0.756
FP10	FP-29	MK-FP-29-7.8/8.7	7.8	8.7	11/9/2016	0.0287	0.0535	0.121	0.211	0.215	0.581	0.0442	0.0263	0.354	0.467
FP10	FP-29	MK-FP-29-10.0/11.0	10	11	11/9/2016	0.03	0.0327	0.108	0.163	0.185	0.533	0.0472	0.0105	0.267	0.408
FP10	FP-29	MK-FP-29-11.0/12.0	11	12	11/9/2016	0.0065	0.0113	0.0244	0.0389	0.0407	0.108	0.008	0.0066	0.076	0.095
FP10	FP-29	MK-FP-29-12.0/13.0	12	13	11/9/2016	0.0048	0.0168	0.0189	0.0281	0.0312	0.079	0.0062	0.0061	0.049	0.072
FP10	FP-29	MK-FP-29-15.0/17.0	15	17	11/9/2016	0.0006 J	0.0012 J	0.0011 J	0.0019 J	0.002	0.007	0.001 J	0.0011 J	0.005	0.006
FP10	FP-29	MK-FP-29-17.0/18.6	17	18.6	11/9/2016	0.0005 U	0.0006 U	0.0007 U	0.0007 U	0.0005 U	0.003	0.0017 J	0.0013 J	0.004 J	0.003
FP10	FP-30	MK-FP-30-0.0./0.5	0	0.5	11/9/2016	0.0882	0.0787	0.327		1.33	3.4	0.104	0.013	1.31	2.66
FP10	FP-30	MK-FP-30-0.5/1.2	0.5	1.2	11/9/2016	0.123	0.0865	0.494		1.88	4.37	0.147	0.0175	1.73	3.31
FP10	FP-30	MK-FP-30-1.2/2.0	1.2	2	11/9/2016	0.165	0.0928	0.637		1.66	4.88	0.211	0.0291	2.21	3.91
FP10	FP-30	MK-FP-30-5.0/6.0	5	6	11/9/2016	0.0136	0.0082	0.0545		0.1	0.317	0.0154	0.0054	0.166	0.279
FP10	FP-30	MK-FP-30-6.0/7.0	6	7	11/9/2016	0.0678 J	0.0419 J	0.148 J		0.214	0.63	0.0725 J	0.0572 J	0.371	0.614
FP10	FP-30	MK-FP-30-7.0/7.6	7	7.6	11/9/2016	0.0164	0.0041	0.0685		0.117	0.443	0.0182	0.0292	0.2	0.374
FP10	FP-30	MK-FP-30-10.0/11.4	10	11.4	11/9/2016	0.0006 J	0.0015	0.0036		0.004	0.021	0.0016 J	0.0006 J	0.007	0.017
FP10	FP-30	MK-FP-30-11.4/12.1	11.4	12.1	11/9/2016	0.0004 U	0.0008 J	0.0007 J		0.0012 J	0.002 J	0.0008 J	0.0004 J	0.002	0.002 J
FP10	FP-30A	MK-FP-30A-0.0./0.5	0	0.5	11/9/2016	0.0706	0.0608	0.31		1.17	2.71	0.0719	0.0108	1.05	2.24

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						Metals														Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Lead[4]	Arsenic[5]	Nickel		Cadmium		Chromium		Copper		Zinc		Mercury		Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[1,4,5]	400	8																
					Tier 2 SS-RCL[1]																		
					TSCA LO																		
FP10	FP-130	MK-FP-130-0.0/0.5	0	0.5	10/12/2021	329	7																
FP10	FP-130	MK-FP-130-0.5/1.5	0.5	1.5	10/12/2021	170	7																
FP10	FP-130	MK-FP-130-1.5/2.5	1.5	2.5	10/12/2021	330	7																
FP10	FP-130	MK-FP-130-2.5/3.5	2.5	3.5	10/12/2021	111	6																
FP10	FP-132	MK-FP-132-0.0/0.5	0	0.5	10/13/2021	95	5																
FP10	FP-132	MK-FP-132-0.5/1.5	0.5	1.5	10/13/2021	131	7																
FP10	FP-132	MK-FP-132-1.5/2.5	1.5	2.5	10/13/2021	88	8																
FP10	FP-132	MK-FP-132-2.5/4.2	2.5	4.2	10/13/2021	59	7																
FP10	FP-133	MK-FP-133-0.0/0.5	0	0.5	10/13/2021	274	6																
FP10	FP-133	MK-FP-133-0.5/1.5	0.5	1.5	10/13/2021	378	8																
FP10	FP-133	MK-FP-133-1.5/2.5	1.5	2.5	10/13/2021	267	8																
FP10	FP-133	MK-FP-133-2.5/4.0	2.5	4	10/13/2021	166	13																
FP10	FP-27	MK-FP-27-0.0/0.5	0	0.5	11/9/2016	64.9	4.4 J	15.1		0.77		34.3		33.3		188		0.17		9.3	68.7	22	32200
FP10	FP-27	MK-FP-27-0.5/1.5	0.5	1.5	11/9/2016	85.4	5.2 J	16.4		1.1		42.4		35.7		137		0.2		4.9	41.1	54	19900
FP10	FP-27	MK-FP-27-1.5/2.5	1.5	2.5	11/9/2016	81.5	4.2 J	15.3		0.71		40.1		31.8		125		1		4.7	35.3	60	10900
FP10	FP-27	MK-FP-27-2.5/3.5	2.5	3.5	11/9/2016	99.8	4.1 J	19.3		0.13	U	28.6		28.8		96.2		0.32		5.3	28.7	66	12100
FP10	FP-27	MK-FP-27-3.5/4.3	3.5	4.3	11/9/2016	231	5.3 J	19.5		0.15	U	30.9		27.9		131		0.4		6.6	36.4	57	16300
FP10	FP-27	MK-FP-27-5.0/7.0	5	7	11/9/2016	65.6	7.1 J	19.9		0.21	U	35.2		27.3		97.9		0.19		62	15	23	26300
FP10	FP-27	MK-FP-27-7.0/8.2	7	8.2	11/9/2016	6.4	3.1 J	9.8		0.18	U	12.5		11.3		54.4		0.095	J	11	73	16	19900
FP10	FP-27	MK-FP-27-10.0/11.2	10	11.2	11/9/2016	3.2	2.2 J	3.3		0.13	U	5		3		17.4		0.036	U	7.3	39.7	53	4940
FP10	FP-27	MK-FP-27-15.0/16.0	15	16	11/9/2016	9.6	4.1 J	6		0.14	U	8.5		8.4		24.2		0.036	U	11	45	44	14800
FP10	FP-29	MK-FP-29-0.0/0.5	0	0.5	11/9/2016	246 J	8.1 J	26.1	J	4.5		99.4	J	74.5		329	J	0.5		7.1	66.9	26	37500 J+
FP10	FP-29	MK-FP-29-0.5/1.5	0.5	1.5	11/9/2016	68.3 J	4.5 J	14.2	J	1		33.8	J	31		120	J	0.21		1.1	68.9	30	9710 J+
FP10	FP-29	MK-FP-29-1.5/2.7	1.5	2.7	11/9/2016	57.9 J	4.5 J	15.4	J	1.1		30.5	J	28		119	J	0.24		24	43	33	22300 J+
FP10	FP-29	MK-FP-29-5.0/6.0	5	6	11/9/2016	157 J	7.3 J	19.8	J	4.1		60.7	J	49.4		247	J	0.41		19	23	58	31000 J+
FP10	FP-29	MK-FP-29-6.0/7.0	6	7	11/9/2016	129 J	6.6 J	17.5	J	2.4		78.3	J	45.1		206	J	0.44		48	45	7	35600 J+
FP10	FP-29	MK-FP-29-7.0/7.8	7	7.8	11/9/2016	50.3 J	4.3 J	16.3	J	0.76		32	J	26.3		130	J	0.22		39	42	19	28900 J+
FP10	FP-29	MK-FP-29-7.8/8.7	7.8	8.7	11/9/2016	69.5 J	5.5 J	15	J	0.7		42	J	28.6		145	J	0.32		49	45	6	30900 J+
FP10	FP-29	MK-FP-29-10.0/11.0	10	11	11/9/2016	13.4 J	3.4 J	15.3	J	0.16		19.9	J	16.3		39.1	J	0.047		30	45	25	17800 J+
FP10	FP-29	MK-FP-29-11.0/12.0	11	12	11/9/2016	36.7 J	4.3 J	15.8	J	0.42		24.2	J	21.6		92.8	J	0.2		19	52	29	30600 J+
FP10	FP-29	MK-FP-29-12.0/13.0	12	13	11/9/2016	32.1 J	2.8 J	11.7	J	0.3		15.7	J	16.3		62	J	0.18		50	19	31	21200 J+
FP10	FP-29	MK-FP-29-15.0/17.0	15	17	11/9/2016	10.3 J	3.1 J	14.1	J	0.24		17.7	J	16.5		61.9	J	0.079		19	14	67	28300 J+
FP10	FP-29	MK-FP-29-17.0/18.6	17	18.6	11/9/2016	8.6 J	2.4 J	14.7	J	0.25		18.3	J	15.6		67.1	J	0.048		42	49	9	24600 J+
FP10	FP-30	MK-FP-30-0.0./0.5	0	0.5	11/9/2016	179 J	7 J	21.2	J	3.2		77.3	J	60.9		289	J	0.39					35200 J+
FP10	FP-30	MK-FP-30-0.5/1.2	0.5	1.2	11/9/2016	166 J	6.8 J	20.9	J	2.9		81.5	J	52.8		250	J	0.45					33600 J+
FP10	FP-30	MK-FP-30-1.2/2.0	1.2	2	11/9/2016	146 J	8.5 J	22.6	J	4.2		81.5	J	48.1		257	J	0.4					30700
FP10	FP-30	MK-FP-30-5.0/6.0	5	6	11/9/2016	45.9 J	4.7 J	15.1	J	0.55		107	J	25.2		118	J	0.27					20900
FP10	FP-30	MK-FP-30-6.0/7.0	6	7	11/9/2016	46.4 J	3.7 J	11.8	J	0.3		17.2	J	43.2	J	71.1	J	0.31	J+				24900
FP10	FP-30	MK-FP-30-7.0/7.6	7	7.6	11/9/2016	78.8 J	4.3 J	14.7	J	0.27		26.4	J	22.1	J	76.8	J	0.63	J+				24200
FP10	FP-30	MK-FP-30-10.0/11.4	10	11.4	11/9/2016	5.8 J	1.9 J	9.6	J	0.29		12.1	J	11.5		54.6	J	0.037					30000
FP10	FP-30	MK-FP-30-11.4/12.1	11.4	12.1	11/9/2016	1.5 J	1.3 J	4.4	J	0.067		5.6	J	2.8		14	J	0.006	U				3810
FP10	FP-30A	MK-FP-30A-0.0./0.5	0	0.5	11/9/2016	34.1 J	5.7 J	19.6	J	0.66		27.8	J	25.5	J	86.5	J	0.28	J+				29800

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
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						PCB									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242
					Tier 1 SS-RCL[1,4,5]	1.1									
					Tier 2 SS-RCL[1]	0.7									
					TSCA LO	25									
FP10	FP-30A	MK-FP-30A-0.5/1.5	0.5	1.5	11/9/2016	5.9	0.615 U	1.97	0.615 U	0.615 U	0.615 U	0.615 U	0.615 U	0.615 U	3.94 J
FP10	FP-30A	MK-FP-30A-1.5/2.2	1.5	2.2	11/9/2016	2.9	0.222 J	1.05	0.164 U	0.164 U	0.164 U	0.164 U	0.164 U	0.164 U	1.61 J
FP10	FP-30X	MK-FP-30X-2.0/2.5	2	2.5	11/3/2020	0.067	0.071 U	0.067 J	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U
FP10	FP-30X	MK-FP-30X-2.5/4.0	2.5	4	11/3/2020	0.035 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
FP10	FP-32	MK-FP-32-0.0./0.5	0	0.5	11/9/2016	2.1	0.216	0.859	0.106 U	0.106 U	0.106 U	0.106 U	0.106 U	0.106 U	0.982 J
FP10	FP-32	MK-FP-32-0.5/1.5	0.5	1.5	11/9/2016	1.7	0.187 J	0.772	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.703 J
FP10	FP-32	MK-FP-32-1.5/2.5	1.5	2.5	11/9/2016	0.09	0.038 U	0.085	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U	0.038 U
FP10	FP-32	MK-FP-32-2.5/3.3	2.5	3.3	11/9/2016	0.02 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U	0.042 U
FP10	FP-32	MK-FP-32-5.0/7.0	5	7	11/9/2016	0.02 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
FP10	FP-32	MK-FP-32-7.0/8.4	7	8.4	11/9/2016	0.02 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U
FP10	FP-32	MK-FP-32-10.0/11.2	10	11.2	11/9/2016	0.31	0.037 U	0.211	0.037 U	0.037 U	0.037 U	0.103 J	0.037 U	0.037 U	0.037 U
FP10	FP-32	MK-FP-32-15.0/15.4	15	15.4	11/9/2016	0.01 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U
FP10	FP-34	MK-FP-34-0.0./0.5	0	0.5	11/9/2016	6.9	0.658 U	2.29	0.658 U	0.658 U	0.658 U	0.658 U	0.658 U	0.658 U	4.6 J
FP10	FP-34	MK-FP-34-0.5/1.5	0.5	1.5	11/9/2016	1.6	0.132 J	0.597	0.126 U	0.126 U	0.126 U	0.126 U	0.126 U	0.126 U	0.89 J
FP10	FP-34	MK-FP-34-1.5/2.6	1.5	2.6	11/9/2016	3.8	0.371 U	0.841	0.371 U	0.371 U	0.371 U	0.371 U	0.371 U	0.371 U	2.96 J
FP10	FP-34	MK-FP-34-5.0/7.0	5	7	11/9/2016	0.02 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U	0.037 U
FP10	FP-34	MK-FP-34-7.0/7.7	7	7.7	11/9/2016	0.02 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U	0.041 U
FP10	FP-34	MK-FP-34-10.0/10.7	10	10.7	11/9/2016	0.08	0.03 U	0.03 J	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.051 J
FP10	FP-72	MK-FP-72-0.0/0.5	0	0.5	11/3/2020	0.9	0.45	0.25	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.2
FP10	FP-72	MK-FP-72-0.5/1.5	0.5	1.5	11/3/2020	0.032 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U
FP10	FP-72	MK-FP-72-1.5/2.5	1.5	2.5	11/3/2020	0.028 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
FP10	FP-72	MK-FP-72-2.5/3.6	2.5	3.6	11/3/2020	0.029 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U
FP10	FP-73	MK-FP-73-0.0/0.5	0	0.5	11/3/2020	0.5	0.075	0.22	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.2
FP10	FP-73	MK-FP-73-0.5/1.5	0.5	1.5	11/3/2020	0.028 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
FP10	FP-73	MK-FP-73-1.5/2.5	1.5	2.5	11/3/2020	0.028 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
FP10	FP-73	MK-FP-73-2.5/4.0	2.5	4	11/3/2020	0.033 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U
FP10	FP-74	MK-FP-74-0.0/0.5	0	0.5	11/5/2020	1.6	0.17	0.86 J	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.6
FP10	FP-74	MK-FP-74-0.5/1.5	0.5	1.5	11/5/2020	0.03 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
FP10	FP-74	MK-FP-74-1.5/2.3	1.5	2.3	11/5/2020	0.031 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U
FP10	FP-74	MK-FP-74-2.5/3.8	2.5	3.8	11/5/2020	0.29	0.032 J	0.14	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.12
FP10	FP-75A	MK-FP-75A-0.0/0.5	0	0.5	11/3/2020	1.5	0.12 J	0.61	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	0.72
FP10	FP-75A	MK-FP-75A-0.5/1.5	0.5	1.5	11/3/2020	3.6	0.2 J	1.2	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	2.2
FP10	FP-75A	MK-FP-75A-1.5/2.5	1.5	2.5	11/3/2020	0.94	0.079 J	0.37	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.49
FP10	FP-75A	MK-FP-75A-2.5/3.6	2.5	3.6	11/3/2020	1.7	0.099 J	0.55	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	1.1
FP10	FP-75B	MK-FP-75B-0.0/0.5	0	0.5	11/3/2020	1.8	0.14 J	0.75	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.92
FP10	FP-75B	MK-FP-75B-0.5/1.5	0.5	1.5	11/3/2020	2.8	0.18 J	1	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	1.6
FP10	FP-75B	MK-FP-75B-1.5/2.5	1.5	2.5	11/3/2020	1.9	0.16 J	0.86	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.89
FP10	FP-75B	MK-FP-75B-2.5/4.0	2.5	4	11/3/2020	0.034	0.07 U	0.034 J	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
FP10	FP-75C	MK-FP-75C-0.0/0.5	0	0.5	11/3/2020	1.6	0.19	0.79	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.61
FP10	FP-75C	MK-FP-75C-0.5/1.5	0.5	1.5	11/3/2020	1.3	0.18	0.75	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.34
FP10	FP-75C	MK-FP-75C-1.5/2.5	1.5	2.5	11/3/2020	0.029 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U
FP10	FP-75C	MK-FP-75C-2.5/3.4	2.5	3.4	11/3/2020	0.027 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U

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						PAH								
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PAH-18[3]	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3-Cd) Pyrene	2-Methyl-naphthalene
					Tier 1 SS-RCL[1,4,5]	--	84.6	8.48	84.8	848	8480	8.48	84.8	
					Tier 2 SS-RCL[1]	--	50.8	5.09	50.9	501	5090	5.09	50.9	
					TSCA LO									
FP10	FP-30A	MK-FP-30A-0.5/1.5	0.5	1.5	11/9/2016	14.4	1.17	1.34	1.94	0.835	1.3	0.002 U	0.937	0.0102
FP10	FP-30A	MK-FP-30A-1.5/2.2	1.5	2.2	11/9/2016	16.1	1.26	1.48	2.12	0.894	1.4	0.315	1.05	0.0194
FP10	FP-30X	MK-FP-30X-2.0/2.5	2	2.5	11/3/2020	17.2	1.1	1.4	2	0.82	1.6	0.28	1	0.062 J
FP10	FP-30X	MK-FP-30X-2.5/4.0	2.5	4	11/3/2020	9.7	0.74	0.67	1	0.42	0.92	0.15 J	0.47	0.043 J
FP10	FP-32	MK-FP-32-0.0./0.5	0	0.5	11/9/2016	14.9	0.987	1.17	2.02	0.72	1.57	0.257	0.906	0.0564 U
FP10	FP-32	MK-FP-32-0.5/1.5	0.5	1.5	11/9/2016	16.9	0.971	1.37	2.43	1.08	1.72	0.329	1.18	0.0535 U
FP10	FP-32	MK-FP-32-1.5/2.5	1.5	2.5	11/9/2016	11.3	0.863	0.879	1.38	0.524	1.31	0.185	0.614	0.0382 U
FP10	FP-32	MK-FP-32-2.5/3.3	2.5	3.3	11/9/2016	1.5	0.126	0.138	0.23	0.0849	0.153	0.0173	0.0491	0.0084 U
FP10	FP-32	MK-FP-32-5.0/7.0	5	7	11/9/2016	1.1	0.0754	0.0713	0.1	0.0413	0.0934	0.0138	0.0489	0.0081 U
FP10	FP-32	MK-FP-32-7.0/8.4	7	8.4	11/9/2016	0.08	0.0055 J	0.0037 U	0.0063 J	0.0037 U	0.0059 J	0.0033 U	0.0032 U	0.0073 U
FP10	FP-32	MK-FP-32-10.0/11.2	10	11.2	11/9/2016	0.0086 U	0.0047 U	0.0037 U	0.0041 U	0.0037 U	0.0049 U	0.0033 U	0.0032 U	0.0073 U
FP10	FP-32	MK-FP-32-15.0/15.4	15	15.4	11/9/2016	0.05	0.0035 U	0.0028 U	0.0035 J	0.0028 U	0.0039 J	0.0025 U	0.0025 U	0.0056 U
FP10	FP-34	MK-FP-34-0.0./0.5	0	0.5	11/9/2016	20.3	1.6	1.37	1.83	0.875	1.62	0.536	1.36	0.0326
FP10	FP-34	MK-FP-34-0.5/1.5	0.5	1.5	11/9/2016	10	0.657	0.769	1.1	0.429	0.952	0.222	0.654	0.0159
FP10	FP-34	MK-FP-34-1.5/2.6	1.5	2.6	11/9/2016	8.3	0.591	0.671	0.975	0.383	0.809	0.184	0.546	0.0133
FP10	FP-34	MK-FP-34-5.0/7.0	5	7	11/9/2016	1	0.0774 J	0.0823 J	0.0998 J	0.0379	0.088 J	0.0149	0.0523 J	0.0068
FP10	FP-34	MK-FP-34-7.0/7.7	7	7.7	11/9/2016	0.023	0.0019	0.0012 J	0.0018 J	0.001 J	0.0014 J	0.00061 U	0.00075 J	0.00066 U
FP10	FP-34	MK-FP-34-10.0/10.7	10	10.7	11/9/2016	0.25	0.0155	0.017	0.0252	0.0095	0.0222	0.0037	0.0121	0.002
FP10	FP-72	MK-FP-72-0.0/0.5	0	0.5	11/3/2020									
FP10	FP-72	MK-FP-72-0.5/1.5	0.5	1.5	11/3/2020									
FP10	FP-72	MK-FP-72-1.5/2.5	1.5	2.5	11/3/2020									
FP10	FP-72	MK-FP-72-2.5/3.6	2.5	3.6	11/3/2020									
FP10	FP-73	MK-FP-73-0.0/0.5	0	0.5	11/3/2020	23.7	1.5	2	3.1	0.96	2.2	0.39	1.5	0.062 J
FP10	FP-73	MK-FP-73-0.5/1.5	0.5	1.5	11/3/2020	5.5	0.42	0.42	0.58	0.26	0.53	0.086 J	0.28	0.031 J
FP10	FP-73	MK-FP-73-1.5/2.5	1.5	2.5	11/3/2020	0.86	0.062	0.066	0.09	0.033	0.074	0.013 J	0.042	0.007 J
FP10	FP-73	MK-FP-73-2.5/4.0	2.5	4	11/3/2020	1	0.071	0.079	0.1	0.038	0.088	0.015 J	0.049	0.006 J
FP10	FP-74	MK-FP-74-0.0/0.5	0	0.5	11/5/2020									
FP10	FP-74	MK-FP-74-0.5/1.5	0.5	1.5	11/5/2020									
FP10	FP-74	MK-FP-74-1.5/2.3	1.5	2.3	11/5/2020									
FP10	FP-74	MK-FP-74-2.5/3.8	2.5	3.8	11/5/2020									
FP10	FP-75A	MK-FP-75A-0.0/0.5	0	0.5	11/3/2020									
FP10	FP-75A	MK-FP-75A-0.5/1.5	0.5	1.5	11/3/2020									
FP10	FP-75A	MK-FP-75A-1.5/2.5	1.5	2.5	11/3/2020									
FP10	FP-75A	MK-FP-75A-2.5/3.6	2.5	3.6	11/3/2020									
FP10	FP-75B	MK-FP-75B-0.0/0.5	0	0.5	11/3/2020									
FP10	FP-75B	MK-FP-75B-0.5/1.5	0.5	1.5	11/3/2020									
FP10	FP-75B	MK-FP-75B-1.5/2.5	1.5	2.5	11/3/2020									
FP10	FP-75B	MK-FP-75B-2.5/4.0	2.5	4	11/3/2020									
FP10	FP-75C	MK-FP-75C-0.0/0.5	0	0.5	11/3/2020									
FP10	FP-75C	MK-FP-75C-0.5/1.5	0.5	1.5	11/3/2020									
FP10	FP-75C	MK-FP-75C-1.5/2.5	1.5	2.5	11/3/2020									
FP10	FP-75C	MK-FP-75C-2.5/3.4	2.5	3.4	11/3/2020									

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Fluoran-thene	Fluorene	Naphtha-lene	Phenan-threne	Pyrene
					Tier 1 SS-RCL[1,4,5]										
					Tier 2 SS-RCL[1]										
					TSCA LO										
FP10	FP-30A	MK-FP-30A-0.5/1.5	0.5	1.5	11/9/2016	0.0626	0.049	0.287		1.05	2.46	0.0744	0.0085	0.916	1.97
FP10	FP-30A	MK-FP-30A-1.5/2.2	1.5	2.2	11/9/2016	0.0703	0.0703	0.312		1.15	2.59	0.0901	0.0187	1.08	2.17
FP10	FP-30X	MK-FP-30X-2.0/2.5	2	2.5	11/3/2020	0.054 J	0.065 J	0.25	1.2	1.2	2.7	0.073 J	0.11 J	1.2	2.1
FP10	FP-30X	MK-FP-30X-2.5/4.0	2.5	4	11/3/2020	0.035 J	0.038 J	0.21 J	0.58	0.51	1.7	0.059 J	0.094 J	0.89	1.2
FP10	FP-32	MK-FP-32-0.0./0.5	0	0.5	11/9/2016	0.0515 J	0.0371 U	0.279		1.12	2.62	0.067 J	0.0949 U	1.11	1.88
FP10	FP-32	MK-FP-32-0.5/1.5	0.5	1.5	11/9/2016	0.053 J	0.0769 J	0.319		1.41	2.65	0.078 J	0.09 U	1.15	1.96
FP10	FP-32	MK-FP-32-1.5/2.5	1.5	2.5	11/9/2016	0.0397 J	0.026 J	0.233		0.736	2.01	0.057 J	0.0643 U	0.881	1.55
FP10	FP-32	MK-FP-32-2.5/3.3	2.5	3.3	11/9/2016	0.0067 J	0.008 J	0.0369		0.0519	0.264	0.010 J	0.0146 J	0.126	0.213
FP10	FP-32	MK-FP-32-5.0/7.0	5	7	11/9/2016	0.0098 J	0.0053 U	0.0354		0.0583	0.19	0.010 J	0.0199 J	0.11	0.163
FP10	FP-32	MK-FP-32-7.0/8.4	7	8.4	11/9/2016	0.0057 U	0.0048 U	0.0084 U		0.0032 J	0.011 J	0.0061 U	0.0123 U	0.017 U	0.008 J
FP10	FP-32	MK-FP-32-10.0/11.2	10	11.2	11/9/2016	0.0057 U	0.0048 U	0.0084 U		0.003 U	0.008 U	0.0061 U	0.0124 U	0.017 U	0.007 U
FP10	FP-32	MK-FP-32-15.0/15.4	15	15.4	11/9/2016	0.0043 U	0.0037 U	0.0064 U		0.0023 U	0.006 J	0.0046 U	0.0094 U	0.013 U	0.005 U
FP10	FP-34	MK-FP-34-0.0./0.5	0	0.5	11/9/2016	0.103	0.24	0.589	1.19	1.52	3.23	0.116	0.0325	1.25	2.77
FP10	FP-34	MK-FP-34-0.5/1.5	0.5	1.5	11/9/2016	0.0414	0.114	0.258	0.64	0.726	1.78	0.0497	0.0173	0.68	0.898
FP10	FP-34	MK-FP-34-1.5/2.6	1.5	2.6	11/9/2016	0.0423	0.0891	0.23	0.554	0.618	1.02	0.0508	0.0162	0.637	0.83
FP10	FP-34	MK-FP-34-5.0/7.0	5	7	11/9/2016	0.0105	0.0079	0.0285	0.0527 J	0.0611 J	0.142 J	0.0117	0.0189	0.106 J	0.126 J
FP10	FP-34	MK-FP-34-7.0/7.7	7	7.7	11/9/2016	0.0005 U	0.0007 J	0.0007 J	0.0007 U	0.00086 J	0.003	0.001 J	0.0018 J	0.003 J	0.002 J
FP10	FP-34	MK-FP-34-10.0/10.7	10	10.7	11/9/2016	0.0021	0.0036	0.0071	0.0135	0.0141	0.037	0.0033	0.0132	0.026	0.027
FP10	FP-72	MK-FP-72-0.0/0.5	0	0.5	11/3/2020										
FP10	FP-72	MK-FP-72-0.5/1.5	0.5	1.5	11/3/2020										
FP10	FP-72	MK-FP-72-1.5/2.5	1.5	2.5	11/3/2020										
FP10	FP-72	MK-FP-72-2.5/3.6	2.5	3.6	11/3/2020										
FP10	FP-73	MK-FP-73-0.0/0.5	0	0.5	11/3/2020	0.059 J	0.097 J	0.3	1.8	1.9	3.6	0.075 J	0.12 J	1.2	2.8
FP10	FP-73	MK-FP-73-0.5/1.5	0.5	1.5	11/3/2020	0.019 J	0.027 J	0.098	0.32	0.31	0.93	0.026 J	0.047 J	0.37	0.72
FP10	FP-73	MK-FP-73-1.5/2.5	1.5	2.5	11/3/2020	0.006 J	0.005 J	0.019	0.048	0.051	0.14	0.006 J	0.009 J	0.071	0.12
FP10	FP-73	MK-FP-73-2.5/4.0	2.5	4	11/3/2020	0.006 J	0.006 J	0.023	0.057	0.057	0.17	0.008 J	0.012 J	0.096	0.14
FP10	FP-74	MK-FP-74-0.0/0.5	0	0.5	11/5/2020										
FP10	FP-74	MK-FP-74-0.5/1.5	0.5	1.5	11/5/2020										
FP10	FP-74	MK-FP-74-1.5/2.3	1.5	2.3	11/5/2020										
FP10	FP-74	MK-FP-74-2.5/3.8	2.5	3.8	11/5/2020										
FP10	FP-75A	MK-FP-75A-0.0/0.5	0	0.5	11/3/2020										
FP10	FP-75A	MK-FP-75A-0.5/1.5	0.5	1.5	11/3/2020										
FP10	FP-75A	MK-FP-75A-1.5/2.5	1.5	2.5	11/3/2020										
FP10	FP-75A	MK-FP-75A-2.5/3.6	2.5	3.6	11/3/2020										
FP10	FP-75B	MK-FP-75B-0.0/0.5	0	0.5	11/3/2020										
FP10	FP-75B	MK-FP-75B-0.5/1.5	0.5	1.5	11/3/2020										
FP10	FP-75B	MK-FP-75B-1.5/2.5	1.5	2.5	11/3/2020										
FP10	FP-75B	MK-FP-75B-2.5/4.0	2.5	4	11/3/2020										
FP10	FP-75C	MK-FP-75C-0.0/0.5	0	0.5	11/3/2020										
FP10	FP-75C	MK-FP-75C-0.5/1.5	0.5	1.5	11/3/2020										
FP10	FP-75C	MK-FP-75C-1.5/2.5	1.5	2.5	11/3/2020										
FP10	FP-75C	MK-FP-75C-2.5/3.4	2.5	3.4	11/3/2020										

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						Metals								Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Lead[4]	Arsenic[5]	Nickel	Cadmium	Chromium	Copper	Zinc	Mercury	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[1,4,5]	400	8										
					Tier 2 SS-RCL[1]												
					TSCA LO												
FP10	FP-30A	MK-FP-30A-0.5/1.5	0.5	1.5	11/9/2016	47.5 J	5.5 J	19.7 J	0.77	33.4 J	28.3 J	99.6 J	0.36 J+				22400
FP10	FP-30A	MK-FP-30A-1.5/2.2	1.5	2.2	11/9/2016	133 J	6 J	20.6 J	2.7	63.8 J	52.5 J	220 J	0.4 J+				31700
FP10	FP-30X	MK-FP-30X-2.0/2.5	2	2.5	11/3/2020	200	9.2	27.5	4.9	86.5	64	313	0.42				39300
FP10	FP-30X	MK-FP-30X-2.5/4.0	2.5	4	11/3/2020	110	6.4	20.5	1.6	60	48	201	0.4				30700
FP10	FP-32	MK-FP-32-0.0./0.5	0	0.5	11/9/2016	135	6.9	23	1.9	77.9	55.2	254	0.32				60800
FP10	FP-32	MK-FP-32-0.5/1.5	0.5	1.5	11/9/2016	166	7.9	27.7	4.8	63.2	56.2	286	1.2				28500
FP10	FP-32	MK-FP-32-1.5/2.5	1.5	2.5	11/9/2016	77.7	6.7	21.5	0.77	55.1	38.9	173	0.24				41900
FP10	FP-32	MK-FP-32-2.5/3.3	2.5	3.3	11/9/2016	161	12.1	23.6	0.47 J	85.8	60	273	0.31				30300
FP10	FP-32	MK-FP-32-5.0/7.0	5	7	11/9/2016	22.9	4.2 J	14.4	0.21 U	21.4	20	73.9	0.49				30200
FP10	FP-32	MK-FP-32-7.0/8.4	7	8.4	11/9/2016	21.6	2.9 J	14.4	0.18 U	23.3	16.7	61.8	0.066 J				25500
FP10	FP-32	MK-FP-32-10.0/11.2	10	11.2	11/9/2016	4.3	3.1 J	9.4	0.18 U	13.6	10.9	46	0.051 U				37100
FP10	FP-32	MK-FP-32-15.0/15.4	15	15.4	11/9/2016	3.2	3.2 J	4.5	0.13 U	7	4.4	13.9	0.039 U				2580
FP10	FP-34	MK-FP-34-0.0./0.5	0	0.5	11/9/2016	198 J	6.9 J	22.3 J	3.2	88.8 J	66.2 J	253 J	0.45 J+				33600
FP10	FP-34	MK-FP-34-0.5/1.5	0.5	1.5	11/9/2016	113 J	5.7 J	17.6 J	2.2	57.1 J	44.4 J	185 J	0.31 J+				26400
FP10	FP-34	MK-FP-34-1.5/2.6	1.5	2.6	11/9/2016	153 J	6.7 J	21.5 J	2.7	79.9 J	58.9 J	237 J	0.5 J+				29500 J-
FP10	FP-34	MK-FP-34-5.0/7.0	5	7	11/9/2016	57.1 J	5 J	16.4 J	0.31	24.7 J	25.1 J	81.3 J	0.4 J+				24600 J-
FP10	FP-34	MK-FP-34-7.0/7.7	7	7.7	11/9/2016	9.3 J	2.8 J	15.8 J	0.2	20.1 J	17.4 J	61.8 J	0.078 J+				31700 J-
FP10	FP-34	MK-FP-34-10.0/10.7	10	10.7	11/9/2016	7.7 J	2.4	5.1 J	0.22	8.2	5.6 J	29.1 J	0.017 J+				16000 J-
FP10	FP-72	MK-FP-72-0.0/0.5	0	0.5	11/3/2020	105	3.5	16.8	1.6	50.2	45.7	197	0.19				34200
FP10	FP-72	MK-FP-72-0.5/1.5	0.5	1.5	11/3/2020	78.7	4.2	16.4	0.75	61.7	34.8	156	0.28				20700
FP10	FP-72	MK-FP-72-1.5/2.5	1.5	2.5	11/3/2020	8.1	2.7 U	11.7	0.19 J	16.7	16.3	46.2	0.041				8880
FP10	FP-72	MK-FP-72-2.5/3.6	2.5	3.6	11/3/2020	4.8	2.7 U	13.9	0.16 J	13.6	14.5	34	0.04				3630
FP10	FP-73	MK-FP-73-0.0/0.5	0	0.5	11/3/2020	173	4.4	25.3	3.4	92.8	69	289	0.31				47600
FP10	FP-73	MK-FP-73-0.5/1.5	0.5	1.5	11/3/2020	29.1	3.3	10.4	0.27 J	19.7	16.4	47.2	0.39				17000
FP10	FP-73	MK-FP-73-1.5/2.5	1.5	2.5	11/3/2020	6.8	4 J	8.1	0.5 U	9.8	10.1	14.8	0.059				15500
FP10	FP-73	MK-FP-73-2.5/4.0	2.5	4	11/3/2020	21.3 J	3.6	13.5	0.22 J	26	19.2	48.3	0.077				16100
FP10	FP-74	MK-FP-74-0.0/0.5	0	0.5	11/5/2020	257	7.7	30.6	5.9	99.4	73	369	0.27				41200
FP10	FP-74	MK-FP-74-0.5/1.5	0.5	1.5	11/5/2020	65.8	5.2 J	9.2	0.53 J	16.1	16.6	59.1	0.063				10800
FP10	FP-74	MK-FP-74-1.5/2.3	1.5	2.3	11/5/2020	6.8	3.1 U	14.4	0.31 J	19.1	15.6	44	0.051				6560
FP10	FP-74	MK-FP-74-2.5/3.8	2.5	3.8	11/5/2020	85.4 J	3.3	14	1.3	30.3	28.6	125	0.021 J				12100
FP10	FP-75A	MK-FP-75A-0.0/0.5	0	0.5	11/3/2020	81.6	4	18	1.3	46.5	37.8	147	0.18				20600
FP10	FP-75A	MK-FP-75A-0.5/1.5	0.5	1.5	11/3/2020	191	7.3	27.5	3.5	94.7	64.6	300	0.28				27600
FP10	FP-75A	MK-FP-75A-1.5/2.5	1.5	2.5	11/3/2020	101	6 J	16.8	2.3	47.2	37.5	162	0.27				26300
FP10	FP-75A	MK-FP-75A-2.5/3.6	2.5	3.6	11/3/2020	122	6.1	21.3	2.4	65.3	55.1	191	0.32				24000
FP10	FP-75B	MK-FP-75B-0.0/0.5	0	0.5	11/3/2020	126	3.2	20.7	2	63.6	45.8	197	0.17				22000
FP10	FP-75B	MK-FP-75B-0.5/1.5	0.5	1.5	11/3/2020	86.5	7.4	24.6	1.6	48.5	38.1	143	0.21				16000
FP10	FP-75B	MK-FP-75B-1.5/2.5	1.5	2.5	11/3/2020	423	12.7	28.7	5.6	110	88.2	473	0.22				28200
FP10	FP-75B	MK-FP-75B-2.5/4.0	2.5	4	11/3/2020	132	4.9	25.3	3.8	63.1	45.9	224	0.2				27500
FP10	FP-75C	MK-FP-75C-0.0/0.5	0	0.5	11/3/2020	208	7.1	25.2	4.3	81.5	56.8	290	0.2				83100
FP10	FP-75C	MK-FP-75C-0.5/1.5	0.5	1.5	11/3/2020	123	5.7	11.6	1.3	29.8	32.1	106	0.094				35200
FP10	FP-75C	MK-FP-75C-1.5/2.5	1.5	2.5	11/3/2020	10.2	2.7 U	14.6	0.15 J	16.6	19.2	43.7	0.037 U				23000
FP10	FP-75C	MK-FP-75C-2.5/3.4	2.5	3.4	11/3/2020	6.7	2.8	14.5	0.16 J	15.8	17.4	46.3	0.037 U				9870

Appendix A
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Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PCB									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242
					Tier 1 SS-RCL[1,4,5]	1.1									
					Tier 2 SS-RCL[1]	0.7									
					TSCA LO	25									
FP11	FP-47	MK-FP-47-0.0/0.5	0	0.5	11/6/2020	1.2	0.086	0.46 J	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.64
FP11	FP-47	MK-FP-47-0.5/1.5	0.5	1.5	11/6/2020	1.5	0.15	0.7 J	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.61
FP11	FP-47	MK-FP-47-1.5/2.0	1.5	2	11/6/2020	12.4	0.7	5 J	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	0.61 U	6.7
FP11	FP-47	MK-FP-47-2.5/4.0	2.5	4	11/6/2020	0.16	0.063 U	0.067	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.092
FP11	FP-48	MK-FP-48-0.0/0.5	0	0.5	11/6/2020	1	0.094	0.43	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.49
FP11	FP-48	MK-FP-48-0.5/1.5	0.5	1.5	11/6/2020	1.2	0.099	0.45 J	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.69
FP11	FP-48	MK-FP-48-1.5/2.0	1.5	2	11/6/2020	1.2	0.072 J	0.38 J	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.72
FP11	FP-48	MK-FP-48-2.5/4.0	2.5	4	11/6/2020	0.4	0.022 J	0.1 J	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.28
FP11	FP-49	MK-FP-49-0.0/0.5	0	0.5	11/6/2020	0.21	0.027 J	0.092	0.078 U	0.078 U	0.078 U	0.078 U	0.078 U	0.078 U	0.094
FP11	FP-49	MK-FP-49-0.5/1.0	0.5	1	11/6/2020	0.025	0.068 U	0.025 J	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
FP11	FP-49	MK-FP-49-2.5/3.6	2.5	3.6	11/6/2020	0.27	0.043 J	0.13	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.092
FP11	FP-50	MK-FP-50-0.0/0.5	0	0.5	11/6/2020	1.4	0.18	0.77 J	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.073 U	0.45
FP11	FP-50	MK-FP-50-0.5/1.5	0.5	1.5	11/6/2020	0.62	0.12	0.38 J	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.071 U	0.12
FP11	FP-50	MK-FP-50-1.5/2.3	1.5	2.3	11/6/2020	0.038 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U	0.076 U
FP11	FP-50	MK-FP-50-2.5/4.0	2.5	4	11/6/2020	0.14	0.063 U	0.075	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.064
FP11	FP-51A	MK-FP-51A-0.0/0.5	0	0.5	11/6/2020	0.42	0.04 J	0.18 J	0.061 U	0.061 U	0.061 U	0.2	0.061 U	0.061 U	0.061 U
FP11	FP-51A	MK-FP-51A-0.5/1.5	0.5	1.5	11/6/2020	0.028 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
FP11	FP-51A	MK-FP-51A-1.5/2.5	1.5	2.5	11/6/2020	0.028 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
FP11	FP-51A	MK-FP-51A-2.5/4.0	2.5	4	11/6/2020	0.029 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U
FP11	FP-51B	MK-FP-51B-0.0/0.5	0	0.5	11/6/2020	0.034	0.064 U	0.034 J	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U
FP11	FP-51B	MK-FP-51B-0.5/1.5	0.5	1.5	11/6/2020	0.029 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U
FP11	FP-51B	MK-FP-51B-1.5/2.5	1.5	2.5	11/6/2020	0.029 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U
FP11	FP-51B	MK-FP-51B-2.5/3.3	2.5	3.3	11/6/2020	0.029 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U
FP11	FP-51C	MK-FP-51C-0.0/0.5	0	0.5	11/6/2020	0.031 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U
FP11	FP-51C	MK-FP-51C-0.5/1.5	0.5	1.5	11/6/2020	0.022	0.06 U	0.022 J	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
FP11	FP-51C	MK-FP-51C-1.5/2.5	1.5	2.5	11/6/2020	0.03 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U
FP11	FP-51C	MK-FP-51C-2.5/3.3	2.5	3.3	11/6/2020	0.03 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U
FP11	FP-52	MK-FP-52-0.0/0.5	0	0.5	11/6/2020	0.37	0.068 J	0.15	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.15
FP11	FP-52	MK-FP-52-0.5/1.5	0.5	1.5	11/6/2020	0.034 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
FP11	FP-52	MK-FP-52-1.5/2.1	1.5	2.1	11/6/2020	0.031 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U
FP11	FP-52	MK-FP-52-2.5/4.0	2.5	4	11/6/2020	0.06	0.058 U	0.032 J	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.028 J
FP11	FP-89	MK-FP-89-0.0/0.5	0	0.5	10/18/2021	1.20	0.2	0.68	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.37 J
FP11	FP-89	MK-FP-89-0.5/1.5	0.5	1.5	10/18/2021	0.06	0.055 U	0.037 J	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.022 J
FP11	FP-89	MK-FP-89-1.5/2.5	1.5	2.5	10/18/2021	0.03 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
FP11	FP-90	MK-FP-90-0.0/0.5	0	0.5	10/18/2021	0.24	0.038 J	0.11 J	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.094
FP11	FP-90	MK-FP-90-0.5/1.5	0.5	1.5	10/18/2021	0.10	0.058 U	0.046 J	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.049 J
FP11	FP-90	MK-FP-90-1.5/2.5	1.5	2.5	10/18/2021	0.03 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U
FP11	FP-91	MK-FP-91-0.0/0.5	0	0.5	10/16/2021	0.68	0.076 J	0.3	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.3
FP11	FP-91	MK-FP-91-0.5/1.5	0.5	1.5	10/16/2021	34.0	1.1 J	8	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	24
FP11	FP-91	MK-FP-91-1.5/2.5	1.5	2.5	10/16/2021	0.58	0.17	0.33	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.08 J
FP11	FP-92	MK-FP-92-0.0/0.5	0	0.5	10/16/2021	0.56	0.084	0.24	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.24
FP11	FP-92	MK-FP-92-0.5/1.5	0.5	1.5	10/16/2021	2.40	0.35	1.4	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.13 U	0.64 J

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH								
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PAH-18[3]	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3-Cd) Pyrene	2-Methyl-naphthalene
					Tier 1 SS-RCL[1,4,5]	--	84.6	8.48	84.8	848	8480	8.48	84.8	
					Tier 2 SS-RCL[1]	--	50.8	5.09	50.9	501	5090	5.09	50.9	
					TSCA LO									
FP11	FP-47	MK-FP-47-0.0/0.5	0	0.5	11/6/2020									
FP11	FP-47	MK-FP-47-0.5/1.5	0.5	1.5	11/6/2020									
FP11	FP-47	MK-FP-47-1.5/2.0	1.5	2	11/6/2020									
FP11	FP-47	MK-FP-47-2.5/4.0	2.5	4	11/6/2020									
FP11	FP-48	MK-FP-48-0.0/0.5	0	0.5	11/6/2020	37.9	2.7	2.7	3.8	1.5	3.1	0.47	1.8	0.41 U
FP11	FP-48	MK-FP-48-0.5/1.5	0.5	1.5	11/6/2020	67.4	4.4	4.4	5.6	2.5	5.3	0.75 J	2.8	0.21 J
FP11	FP-48	MK-FP-48-1.5/2.0	1.5	2	11/6/2020	203	12	11	15	5.7	13	1.5 J	6.4	1.3 J
FP11	FP-48	MK-FP-48-2.5/4.0	2.5	4	11/6/2020	25	1.6	1.5	1.9	0.83	1.8	0.26 J	0.89	0.43 U
FP11	FP-49	MK-FP-49-0.0/0.5	0	0.5	11/6/2020									
FP11	FP-49	MK-FP-49-0.5/1.0	0.5	1	11/6/2020									
FP11	FP-49	MK-FP-49-2.5/3.6	2.5	3.6	11/6/2020									
FP11	FP-50	MK-FP-50-0.0/0.5	0	0.5	11/6/2020	33.6	2.6	2.5	3.3	1.5	3	0.5	1.5	0.49 U
FP11	FP-50	MK-FP-50-0.5/1.5	0.5	1.5	11/6/2020	24.3	1.7	1.9	2.6	1.1	2.2	0.36 J	1.3	0.48 U
FP11	FP-50	MK-FP-50-1.5/2.3	1.5	2.3	11/6/2020	5.1	0.37	0.38	0.51	0.25	0.49	0.069 J	0.21	0.032 J
FP11	FP-50	MK-FP-50-2.5/4.0	2.5	4	11/6/2020	2.8	0.22	0.23	0.3	0.11	0.25	0.039 J	0.12	0.007 J
FP11	FP-51A	MK-FP-51A-0.0/0.5	0	0.5	11/6/2020									
FP11	FP-51A	MK-FP-51A-0.5/1.5	0.5	1.5	11/6/2020									
FP11	FP-51A	MK-FP-51A-1.5/2.5	1.5	2.5	11/6/2020									
FP11	FP-51A	MK-FP-51A-2.5/4.0	2.5	4	11/6/2020									
FP11	FP-51B	MK-FP-51B-0.0/0.5	0	0.5	11/6/2020									
FP11	FP-51B	MK-FP-51B-0.5/1.5	0.5	1.5	11/6/2020									
FP11	FP-51B	MK-FP-51B-1.5/2.5	1.5	2.5	11/6/2020									
FP11	FP-51B	MK-FP-51B-2.5/3.3	2.5	3.3	11/6/2020									
FP11	FP-51C	MK-FP-51C-0.0/0.5	0	0.5	11/6/2020									
FP11	FP-51C	MK-FP-51C-0.5/1.5	0.5	1.5	11/6/2020									
FP11	FP-51C	MK-FP-51C-1.5/2.5	1.5	2.5	11/6/2020									
FP11	FP-51C	MK-FP-51C-2.5/3.3	2.5	3.3	11/6/2020									
FP11	FP-52	MK-FP-52-0.0/0.5	0	0.5	11/6/2020									
FP11	FP-52	MK-FP-52-0.5/1.5	0.5	1.5	11/6/2020									
FP11	FP-52	MK-FP-52-1.5/2.1	1.5	2.1	11/6/2020									
FP11	FP-52	MK-FP-52-2.5/4.0	2.5	4	11/6/2020									
FP11	FP-89	MK-FP-89-0.0/0.5	0	0.5	10/18/2021	28.3	1.9	2.2	2.8	1.4	2.6	0.37 J	1.4	0.43 U
FP11	FP-89	MK-FP-89-0.5/1.5	0.5	1.5	10/18/2021	3.1	0.22	0.25	0.35	0.14	0.27	0.044	0.15	0.004 J
FP11	FP-89	MK-FP-89-1.5/2.5	1.5	2.5	10/18/2021	0.47	0.028	0.034	0.05	0.022	0.048	0.006 J	0.022	0.018 U
FP11	FP-90	MK-FP-90-0.0/0.5	0	0.5	10/18/2021	21.6	1.7	1.7	2.2	0.95	1.8	0.29 J	0.92	0.43 U
FP11	FP-90	MK-FP-90-0.5/1.5	0.5	1.5	10/18/2021	5.7	0.44	0.45	0.63	0.21	0.48	0.083 J	0.26	0.097 U
FP11	FP-90	MK-FP-90-1.5/2.5	1.5	2.5	10/18/2021	0.32	0.02	0.022	0.033	0.012 J	0.027	0.004 J	0.014 J	0.019 U
FP11	FP-91	MK-FP-91-0.0/0.5	0	0.5	10/16/2021	17.3	1.1	1.4	2.2	0.78 J-	1.5	0.32 J	1	0.4 U
FP11	FP-91	MK-FP-91-0.5/1.5	0.5	1.5	10/16/2021	72.3	4.9	5.8	9.1	3.3 J-	6.3	1.5	4.5	0.15 J
FP11	FP-91	MK-FP-91-1.5/2.5	1.5	2.5	10/16/2021	23.8	1.3	1.8	3.1	1 J-	2.3	0.52	1.6	0.092 J
FP11	FP-92	MK-FP-92-0.0/0.5	0	0.5	10/16/2021	14.9	0.88	1.1	1.9	0.61 J-	1.3	0.25 J	0.87	0.45 U
FP11	FP-92	MK-FP-92-0.5/1.5	0.5	1.5	10/16/2021	46.4	3.6	3.9	5.5	2.2 J-	4	0.82	2.7	0.078 J

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Fluoran-thene	Fluorene	Naphtha-lene	Phenan-threne	Pyrene
					Tier 1 SS-RCL[1,4,5]										
					Tier 2 SS-RCL[1]										
					TSCA LO										
FP11	FP-47	MK-FP-47-0.0/0.5	0	0.5	11/6/2020										
FP11	FP-47	MK-FP-47-0.5/1.5	0.5	1.5	11/6/2020										
FP11	FP-47	MK-FP-47-1.5/2.0	1.5	2	11/6/2020										
FP11	FP-47	MK-FP-47-2.5/4.0	2.5	4	11/6/2020										
FP11	FP-48	MK-FP-48-0.0/0.5	0	0.5	11/6/2020	0.3 J	0.14 J	0.71	2.1	2	6.7	0.31 J	0.14 J	4	5.2
FP11	FP-48	MK-FP-48-0.5/1.5	0.5	1.5	11/6/2020	0.79 J	0.1 J	2.2	3	3.3	13	0.74 J	0.51 J	8.5	9.3
FP11	FP-48	MK-FP-48-1.5/2.0	1.5	2	11/6/2020	5.7	3.8 U	11	7.5	8.2	34	4.7	7.3	32	25
FP11	FP-48	MK-FP-48-2.5/4.0	2.5	4	11/6/2020	0.33 J	0.43 U	1	1	1	4.9	0.34 J	0.14 J	3.6	3.5
FP11	FP-49	MK-FP-49-0.0/0.5	0	0.5	11/6/2020										
FP11	FP-49	MK-FP-49-0.5/1.0	0.5	1	11/6/2020										
FP11	FP-49	MK-FP-49-2.5/3.6	2.5	3.6	11/6/2020										
FP11	FP-50	MK-FP-50-0.0/0.5	0	0.5	11/6/2020	0.23 J	0.087 J	0.82	1.8	1.8	6.2	0.27 J	0.088 J	2.8	4.4
FP11	FP-50	MK-FP-50-0.5/1.5	0.5	1.5	11/6/2020	0.094 J	0.095 J	0.6	1.5	1.5	4.3	0.095 J	0.087 J	1.6	3
FP11	FP-50	MK-FP-50-1.5/2.3	1.5	2.3	11/6/2020	0.022 J	0.027 J	0.13 J	0.28	0.26	0.9	0.039 J	0.062 J	0.41	0.66
FP11	FP-50	MK-FP-50-2.5/4.0	2.5	4	11/6/2020	0.017 J	0.007 J	0.075	0.16	0.15	0.49	0.021 J	0.014 J	0.23	0.38
FP11	FP-51A	MK-FP-51A-0.0/0.5	0	0.5	11/6/2020										
FP11	FP-51A	MK-FP-51A-0.5/1.5	0.5	1.5	11/6/2020										
FP11	FP-51A	MK-FP-51A-1.5/2.5	1.5	2.5	11/6/2020										
FP11	FP-51A	MK-FP-51A-2.5/4.0	2.5	4	11/6/2020										
FP11	FP-51B	MK-FP-51B-0.0/0.5	0	0.5	11/6/2020										
FP11	FP-51B	MK-FP-51B-0.5/1.5	0.5	1.5	11/6/2020										
FP11	FP-51B	MK-FP-51B-1.5/2.5	1.5	2.5	11/6/2020										
FP11	FP-51B	MK-FP-51B-2.5/3.3	2.5	3.3	11/6/2020										
FP11	FP-51C	MK-FP-51C-0.0/0.5	0	0.5	11/6/2020										
FP11	FP-51C	MK-FP-51C-0.5/1.5	0.5	1.5	11/6/2020										
FP11	FP-51C	MK-FP-51C-1.5/2.5	1.5	2.5	11/6/2020										
FP11	FP-51C	MK-FP-51C-2.5/3.3	2.5	3.3	11/6/2020										
FP11	FP-52	MK-FP-52-0.0/0.5	0	0.5	11/6/2020										
FP11	FP-52	MK-FP-52-0.5/1.5	0.5	1.5	11/6/2020										
FP11	FP-52	MK-FP-52-1.5/2.1	1.5	2.1	11/6/2020										
FP11	FP-52	MK-FP-52-2.5/4.0	2.5	4	11/6/2020										
FP11	FP-89	MK-FP-89-0.0/0.5	0	0.5	10/18/2021	0.11 J	0.086 J	0.55	1.6	1.7	5.5	0.12 J	0.066 J	2	3.7
FP11	FP-89	MK-FP-89-0.5/1.5	0.5	1.5	10/18/2021	0.013 J	0.01 J	0.043	0.19	0.19	0.55	0.013 J	0.006 J	0.22	0.41
FP11	FP-89	MK-FP-89-1.5/2.5	1.5	2.5	10/18/2021	0.002 J	0.018 U	0.004 J	0.03	0.033	0.069	0.018 U	0.018 U	0.032	0.058
FP11	FP-90	MK-FP-90-0.0/0.5	0	0.5	10/18/2021	0.1 J	0.43 U	0.52 J	1.2	1.1	3.8	0.14 J	0.042 J	1.9	2.8
FP11	FP-90	MK-FP-90-0.5/1.5	0.5	1.5	10/18/2021	0.03 J	0.097 U	0.12	0.32	0.31	0.98	0.035 J	0.012 J	0.45	0.77
FP11	FP-90	MK-FP-90-1.5/2.5	1.5	2.5	10/18/2021	0.019 U	0.019 U	0.002 J	0.018 J	0.018 J	0.045	0.019 U	0.019 U	0.017 J	0.038
FP11	FP-91	MK-FP-91-0.0/0.5	0	0.5	10/16/2021	0.056 J	0.062 J	0.31 J	1.1	1.2	2.8	0.079 J	0.051 J	1.1	2
FP11	FP-91	MK-FP-91-0.5/1.5	0.5	1.5	10/16/2021	0.27 J	0.17 J	1.2	4.7	5.3	12	0.31 J	0.18 J	4.5	8.1
FP11	FP-91	MK-FP-91-1.5/2.5	1.5	2.5	10/16/2021	0.43 U	0.15 J	0.44	1.8	1.9	3.6	0.082 J	0.13 J	1.3	2.5
FP11	FP-92	MK-FP-92-0.0/0.5	0	0.5	10/16/2021	0.45 U	0.058 J	0.25 J	0.92	1.1	2.3	0.45 U	0.047 J	0.85	1.8
FP11	FP-92	MK-FP-92-0.5/1.5	0.5	1.5	10/16/2021	0.2 J	0.15 J	1	2.9	3.2	7.8	0.22 J	0.1 J	3.2	4.8

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						Metals								Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Lead[4]	Arsenic[5]	Nickel	Cadmium	Chromium	Copper	Zinc	Mercury	Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[1,4,5]	400	8										
					Tier 2 SS-RCL[1]												
					TSCA LO												
FP11	FP-47	MK-FP-47-0.0/0.5	0	0.5	11/6/2020	641	2.1 J	11.4	2	36.9	54.5	184	0.19				31300
FP11	FP-47	MK-FP-47-0.5/1.5	0.5	1.5	11/6/2020	463	2.1 J	12.9	2.2	32.4	93.1	146	0.42				17400
FP11	FP-47	MK-FP-47-1.5/2.0	1.5	2	11/6/2020	630	6.6	28.7	4.6	92.7	126	348	0.33				30300
FP11	FP-47	MK-FP-47-2.5/4.0	2.5	4	11/6/2020	40.7	2.7 J	11.3	0.45 J	14.7	16.4	47.9	0.05				15700
FP11	FP-48	MK-FP-48-0.0/0.5	0	0.5	11/6/2020	109	4.5	14.2	1.7	30.4	49.4	168	0.11	36	64	0	28400
FP11	FP-48	MK-FP-48-0.5/1.5	0.5	1.5	11/6/2020	137	3.9	12.6	1.7	35.3	69.2	184	2.8	30	69	1	8720
FP11	FP-48	MK-FP-48-1.5/2.0	1.5	2	11/6/2020	222	2.8	8.8	1.3	24.6	35.8	114	0.12	26	74	0	13500
FP11	FP-48	MK-FP-48-2.5/4.0	2.5	4	11/6/2020	125	3.7	17	1.5	31.7	35.9	174 J	0.16	26	72	2	15600
FP11	FP-49	MK-FP-49-0.0/0.5	0	0.5	11/6/2020	70.5	3.6 J	11.2	0.78	20	26.4	101	0.072				73400
FP11	FP-49	MK-FP-49-0.5/1.0	0.5	1	11/6/2020	16.3	3.3	15.1	0.46 J	15.9	21.4	58.3	0.03 J				26700
FP11	FP-49	MK-FP-49-2.5/3.6	2.5	3.6	11/6/2020	138	5.7	15.7	1.8	36.9	40	147	0.1				32100
FP11	FP-50	MK-FP-50-0.0/0.5	0	0.5	11/6/2020	262	6	21.5	4.1	62.9	80.4	329	0.39				57700
FP11	FP-50	MK-FP-50-0.5/1.5	0.5	1.5	11/6/2020	272	6.9	27.2	5.9	81.7	64.6	333	0.77				25600
FP11	FP-50	MK-FP-50-1.5/2.3	1.5	2.3	11/6/2020	86.5	6.5	16.9	1.1	43.3	36.9	173	0.27				29200
FP11	FP-50	MK-FP-50-2.5/4.0	2.5	4	11/6/2020	30.1	3.4	7.8	0.59 J	12.2	13.6	63.7	0.073				12200
FP11	FP-51A	MK-FP-51A-0.0/0.5	0	0.5	11/6/2020	126	7.8	18	0.94	47.4	34	115	0.11				27800
FP11	FP-51A	MK-FP-51A-0.5/1.5	0.5	1.5	11/6/2020	36.3	5.2	16.5	0.26 J	15.3	17.7	45.8	0.035 U				74400
FP11	FP-51A	MK-FP-51A-1.5/2.5	1.5	2.5	11/6/2020	10.3	8.6	19.3	0.15 J	13.1	24.7	55.2	0.034 U				1730
FP11	FP-51A	MK-FP-51A-2.5/4.0	2.5	4	11/6/2020	27.8	6.8	18.7	0.33 J	13	23.9	64.6	0.38				11900
FP11	FP-51B	MK-FP-51B-0.0/0.5	0	0.5	11/6/2020	424	6.1	15.7	0.7	15.6	37.6	175	0.3				67900
FP11	FP-51B	MK-FP-51B-0.5/1.5	0.5	1.5	11/6/2020	30.9	5.2	23.1	0.32 J	12.5	41.2	110	0.18				20500 J-
FP11	FP-51B	MK-FP-51B-1.5/2.5	1.5	2.5	11/6/2020	6	5.6	11.3	0.19 J	9	19	31.4	0.038 U				18800
FP11	FP-51B	MK-FP-51B-2.5/3.3	2.5	3.3	11/6/2020	4	5.6 U	10.8	0.19 J	9.7	12.1	23.8	0.041 U				16900
FP11	FP-51C	MK-FP-51C-0.0/0.5	0	0.5	11/6/2020	27.9	3.9	22.5	0.27 J	25.9	24	74.9	0.044				45300
FP11	FP-51C	MK-FP-51C-0.5/1.5	0.5	1.5	11/6/2020	392	6.2	16.1	0.66	15.2	29.7	182	0.085				13000
FP11	FP-51C	MK-FP-51C-1.5/2.5	1.5	2.5	11/6/2020	258	5.4	15.5	0.39 J	16.9	19.1	114	0.036 J				17100
FP11	FP-51C	MK-FP-51C-2.5/3.3	2.5	3.3	11/6/2020	104	6.1	40.1	0.46 J	14.8	48.5	98.4	0.1				6400
FP11	FP-52	MK-FP-52-0.0/0.5	0	0.5	11/6/2020	167	6.2	22.8	3.8	59.7	54.5	261	0.27				38200
FP11	FP-52	MK-FP-52-0.5/1.5	0.5	1.5	11/6/2020	12	4.3	21.1	0.51 J	18.8	23.9	75.9	0.057				31700
FP11	FP-52	MK-FP-52-1.5/2.1	1.5	2.1	11/6/2020	6.5	3.1	12.1	0.24 J	13.1	12.6	38	0.024 J				7700
FP11	FP-52	MK-FP-52-2.5/4.0	2.5	4	11/6/2020	32	4.2	10.7	0.74	14.6	22	79.8	0.033 J				5680
FP11	FP-89	MK-FP-89-0.0/0.5	0	0.5	10/18/2021	241 J	6										
FP11	FP-89	MK-FP-89-0.5/1.5	0.5	1.5	10/18/2021	29 J	5										
FP11	FP-89	MK-FP-89-1.5/2.5	1.5	2.5	10/18/2021	11	4										
FP11	FP-90	MK-FP-90-0.0/0.5	0	0.5	10/18/2021	195	6										
FP11	FP-90	MK-FP-90-0.5/1.5	0.5	1.5	10/18/2021	98	4										
FP11	FP-90	MK-FP-90-1.5/2.5	1.5	2.5	10/18/2021	31	4										
FP11	FP-91	MK-FP-91-0.0/0.5	0	0.5	10/16/2021	172	3										
FP11	FP-91	MK-FP-91-0.5/1.5	0.5	1.5	10/16/2021	544	9										
FP11	FP-91	MK-FP-91-1.5/2.5	1.5	2.5	10/16/2021	172	4										
FP11	FP-92	MK-FP-92-0.0/0.5	0	0.5	10/16/2021	155	4										
FP11	FP-92	MK-FP-92-0.5/1.5	0.5	1.5	10/16/2021	435	6										

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PCB									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242
					Tier 1 SS-RCL[1,4,5]	1.1									
					Tier 2 SS-RCL[1]	0.7									
					TSCA LO	25									
FP11	FP-92	MK-FP-92-1.5/2.5	1.5	2.5	10/16/2021	0.25	0.06 J	0.13	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.059 J
FP11	FP-93	MK-FP-93-0.0/0.5	0	0.5	10/16/2021	0.23	0.033 J	0.12 J	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 U	0.077 J
FP11	FP-93	MK-FP-93-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U
FP11	FP-93	MK-FP-93-1.5/2.5	1.5	2.5	10/16/2021	0.03 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
FP11	FP-97	MK-FP-97-0.0/0.5	0	0.5	10/16/2021	0.58	0.099	0.29	0.071 U	0.071 U	0.071 U	0.19	0.071 U	0.071 U	0.071 U
FP11	FP-97	MK-FP-97-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
FP11	FP-97	MK-FP-97-1.5/2.6	1	2.6	10/16/2021	0.03 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U
FP11 - HRUA 1	FP-94	MK-FP-94-0.0/0.5	0	0.5	10/18/2021	2.1	0.22	1.1 J	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.82
FP11 - HRUA 1	FP-94	MK-FP-94-0.5/1.5	0.5	1.5	10/18/2021	6.7	0.6 J	3	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	3.1
FP11 - HRUA 1	FP-94	MK-FP-94-1.5/2.5	1.5	2.5	10/18/2021	11.0	0.88 J	4.8	1 U	1 U	1 U	1 U	1 U	1 U	5.7
FP11 - HRUA 1	FP-95	MK-FP-95-0.0/0.5	0	0.5	10/18/2021	1.10	0.15	0.68 J	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.27 J
FP11 - HRUA 1	FP-95	MK-FP-95-0.5/1.5	0.5	1.5	10/18/2021	0.20	0.029 J	0.12 J	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.051 J
FP11 - HRUA 1	FP-95	MK-FP-95-1.5/2.0	1.5	2	10/18/2021	0.07	0.056 U	0.043 J	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.022 J
FP11 - HRUA 1	FP-95	MK-FP-95-2.5/3.3	2.5	3.3	10/18/2021	0.04 J	0.058 U	0.018 J	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.026 J
FP11 - HRUA 1	FP-96	MK-FP-96-0.0/0.5	0	0.5	10/16/2021	0.45	0.053 J	0.21 J	0.067 U	0.067 U	0.067 U	0.19	0.067 U	0.067 U	0.067 U
FP11 - HRUA 1	FP-96	MK-FP-96-0.5/1.5	0.5	1.5	10/16/2021	0.02 J	0.055 U	0.023 J	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U
FP11 - HRUA 1	FP-96	MK-FP-96-1.5/2.5	1.5	2.5	10/16/2021	0.03 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U
FP11 - HRUA 1	FP-96	MK-FP-96-2.5/3.9	2.5	3.9	10/16/2021	0.03 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
FP11 - HRUA 2	FP-98	MK-FP-98-0.0/0.5	0	0.5	10/16/2021	3.10	0.49	1.9 J	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.7 J
FP11 - HRUA 2	FP-98	MK-FP-98-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
FP11 - HRUA 2	FP-98	MK-FP-98-1.5/2.5	1.5	2.5	10/16/2021	0.03 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
FP11 - HRUA 2	FP-98	MK-FP-98-2.5/3.8	2.5	3.8	10/16/2021	0.03 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U
FP11 - HRUA 2	FP-99	MK-FP-99-0.0/0.5	0	0.5	10/16/2021	0.27	0.053 J	0.12 J	0.059 U	0.059 U	0.059 U	0.096	0.059 U	0.059 U	0.059 U
FP11 - HRUA 2	FP-99	MK-FP-99-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U
FP11 - HRUA 2	FP-99	MK-FP-99-1.5/2.9	1.5	2.9	10/16/2021	0.03 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U
FP11 - HRUA 2	FP-100	MK-FP-100-0.0/0.5	0	0.5	10/18/2021	4.50	0.5	2.4	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	1.6
FP11 - HRUA 2	FP-100	MK-FP-100-0.5/1.5	0.5	1.5	10/18/2021	0.56	0.07	0.28 J	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.063 U	0.21
FP11 - HRUA 2	FP-100	MK-FP-100-1.5/2.5	1.5	2.5	10/18/2021	0.08	0.062 U	0.042 J	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.036 J
FP11 - HRUA 2	FP-100	MK-FP-100-2.5/4.0	2.5	4	10/18/2021	0.03 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
FP11 - HRUA 3	FP-103	MK-FP-103-0.0/0.5	0	0.5	10/18/2021	0.48	0.077	0.22 J	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.19
FP11 - HRUA 3	FP-103	MK-FP-103-0.5/1.5	0.5	1.5	10/18/2021	0.54	0.087	0.28 J	0.053 U	0.053 U	0.053 U	0.053 U	0.053 U	0.053 U	0.17
FP11 - HRUA 3	FP-103	MK-FP-103-1.5/2.5	1.5	2.5	10/18/2021	0.59	0.11	0.22 J	0.11	0.053 U	0.053 U	0.053 U	0.053 U	0.053 U	0.15
FP11 - HRUA 3	FP-103	MK-FP-103-2.5/4.0	2.5	4	10/18/2021	0.40	0.1	0.21 J	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.081 J
FP11 - HRUA 3	FP-104	MK-FP-104-0.0/0.5	0	0.5	10/18/2021	0.40	0.064 J	0.17 J	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.17
FP11 - HRUA 3	FP-104	MK-FP-104-0.5/1.5	0.5	1.5	10/18/2021	1.40	0.064 U	1.2 J	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.19 J
FP11 - HRUA 3	FP-104	MK-FP-104-1.5/2.5	1.5	2.5	10/18/2021	0.70	0.11	0.32	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.28
FP11 - HRUA 3	FP-104	MK-FP-104-2.5/4.0	2.5	4	10/18/2021	0.04 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
FP11 - HRUA 3	FP-105	MK-FP-105-0.0/0.5	0	0.5	10/18/2021	2.3	0.32	1.2	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	0.81 J
FP11 - HRUA 3	FP-105	MK-FP-105-0.5/1.5	0.5	1.5	10/18/2021	1.6	0.16 J	0.81	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	0.65 J
FP11 - HRUA 3	FP-105	MK-FP-105-1.5/2.5	1.5	2.5	10/18/2021	7.4	0.72	3.8	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	0.58 U	2.9 J
FP11 - HRUA 3	FP-105	MK-FP-105-2.5/3.2	2.5	3.2	10/18/2021	0.33	0.036 J	0.16 J	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.13

Appendix A
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						PAH								
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PAH-18[3]	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(k) fluoranthene	Chrysene	Dibenzo(a,h) anthracene	Indeno (1,2,3-Cd) Pyrene	2-Methyl-naphthalene
					Tier 1 SS-RCL[1,4,5]	--	84.6	8.48	84.8	848	8480	8.48	84.8	
					Tier 2 SS-RCL[1]	--	50.8	5.09	50.9	501	5090	5.09	50.9	
					TSCA LO									
FP11	FP-92	MK-FP-92-1.5/2.5	1.5	2.5	10/16/2021	17.7	1.1	1.4	2	0.72 J-	1.6	0.29 J	1.1	0.44 U
FP11	FP-93	MK-FP-93-0.0/0.5	0	0.5	10/16/2021	10.6	0.65	0.65	1.1	0.43 J-	0.95	0.15 J	0.5 J	0.51 U
FP11	FP-93	MK-FP-93-0.5/1.5	0.5	1.5	10/16/2021	3.1	0.21	0.25	0.37	0.11	0.26	0.051	0.16	0.057
FP11	FP-93	MK-FP-93-1.5/2.5	1.5	2.5	10/16/2021	0.18	0.009 J	0.011 J	0.012 J	0.006 J	0.011 J	0.003 J	0.009 J	0.02 U
FP11	FP-97	MK-FP-97-0.0/0.5	0	0.5	10/16/2021	9.5	0.64	0.71	0.94	0.44	0.82	0.11 J	0.42	0.24 U
FP11	FP-97	MK-FP-97-0.5/1.5	0.5	1.5	10/16/2021	0.21	0.011 J	0.011 J	0.019 J	0.007 J	0.016 J	0.003 J	0.008 J	0.019 U
FP11	FP-97	MK-FP-97-1.5/2.6	1	2.6	10/16/2021	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
FP11 - HRUA 1	FP-94	MK-FP-94-0.0/0.5	0	0.5	10/18/2021	74.8	6.2	6	8.4	3.1	6.3	1.1	3.4	0.11 J+
FP11 - HRUA 1	FP-94	MK-FP-94-0.5/1.5	0.5	1.5	10/18/2021	48.2	3.3	3.9	5.3	2.2	4.1	0.65	2.5	0.078 J
FP11 - HRUA 1	FP-94	MK-FP-94-1.5/2.5	1.5	2.5	10/18/2021	37.4	2.6	3	4.4	1.6	3.2	0.59	2.1	0.46 U
FP11 - HRUA 1	FP-95	MK-FP-95-0.0/0.5	0	0.5	10/18/2021	26.4	1.8	2.2	3.2	1.2	2.5	0.41 J	1.5	0.45 U
FP11 - HRUA 1	FP-95	MK-FP-95-0.5/1.5	0.5	1.5	10/18/2021	3.2	0.23	0.26	0.37	0.15	0.29	0.051 J	0.17	0.075 U
FP11 - HRUA 1	FP-95	MK-FP-95-1.5/2.0	1.5	2	10/18/2021	8.5	0.6	0.56	0.75	0.26	0.67	0.086 J	0.31	0.19 U
FP11 - HRUA 1	FP-95	MK-FP-95-2.5/3.3	2.5	3.3	10/18/2021	8.3	0.57	0.65	0.88	0.36	0.69	0.13 J	0.44	0.03 J+
FP11 - HRUA 1	FP-96	MK-FP-96-0.0/0.5	0	0.5	10/16/2021	27.6	1.9	2.1	2.9	1.1	2.3	0.39 J	1.3	0.45 U
FP11 - HRUA 1	FP-96	MK-FP-96-0.5/1.5	0.5	1.5	10/16/2021	3.8	0.3	0.28	0.41	0.14	0.33	0.052	0.17	0.009 J
FP11 - HRUA 1	FP-96	MK-FP-96-1.5/2.5	1.5	2.5	10/16/2021	0.42	0.03	0.026	0.035	0.015 J	0.034	0.005 J	0.016 J	0.018 U
FP11 - HRUA 1	FP-96	MK-FP-96-2.5/3.9	2.5	3.9	10/16/2021	0.13	0.019 U	0.002 J	0.004 J	0.019 U	0.005 J	0.019 U	0.019 U	0.019 U
FP11 - HRUA 2	FP-98	MK-FP-98-0.0/0.5	0	0.5	10/16/2021	40.4	2.9	3.3	4.7	1.7	3.5	0.88	2.6	0.1 J
FP11 - HRUA 2	FP-98	MK-FP-98-0.5/1.5	0.5	1.5	10/16/2021	2.8	0.22	0.22	0.31	0.11	0.25	0.047	0.13	0.004 J
FP11 - HRUA 2	FP-98	MK-FP-98-1.5/2.5	1.5	2.5	10/16/2021	0.14	0.02 U	0.002 J	0.004 J	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
FP11 - HRUA 2	FP-98	MK-FP-98-2.5/3.8	2.5	3.8	10/16/2021	0.16	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
FP11 - HRUA 2	FP-99	MK-FP-99-0.0/0.5	0	0.5	10/16/2021	4.6	0.3	0.37	0.58	0.19	0.4	0.071 J	0.25	0.012 J
FP11 - HRUA 2	FP-99	MK-FP-99-0.5/1.5	0.5	1.5	10/16/2021	0.18	0.009 J	0.009 J	0.012 J	0.006 J	0.011 J	0.02 U	0.005 J	0.02 U
FP11 - HRUA 2	FP-99	MK-FP-99-1.5/2.9	1.5	2.9	10/16/2021	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
FP11 - HRUA 2	FP-100	MK-FP-100-0.0/0.5	0	0.5	10/18/2021	46.8	3.2	3.9	5.2	2.3	4.1	0.64	2.5	0.52 U
FP11 - HRUA 2	FP-100	MK-FP-100-0.5/1.5	0.5	1.5	10/18/2021	7.8	0.54	0.65	0.93	0.34	0.73	0.11	0.46	0.11 U
FP11 - HRUA 2	FP-100	MK-FP-100-1.5/2.5	1.5	2.5	10/18/2021	0.63	0.042	0.05	0.067	0.03	0.058	0.009 J	0.034	0.021 U
FP11 - HRUA 2	FP-100	MK-FP-100-2.5/4.0	2.5	4	10/18/2021	0.22	0.013 J	0.013 J	0.02	0.007 J	0.016 J	0.02 U	0.009 J	0.02 U
FP11 - HRUA 3	FP-103	MK-FP-103-0.0/0.5	0	0.5	10/18/2021	32.7	2.3	2.6	3.7	1.4	2.8	0.43	1.6	0.38 U
FP11 - HRUA 3	FP-103	MK-FP-103-0.5/1.5	0.5	1.5	10/18/2021	66.1	5	4.8	6.3	2.7	5.9	0.86 J	3	0.13 J
FP11 - HRUA 3	FP-103	MK-FP-103-1.5/2.5	1.5	2.5	10/18/2021	80.9	5.7	5.7	7.7	3.1	6.6	0.95	3.5	0.17 J
FP11 - HRUA 3	FP-103	MK-FP-103-2.5/4.0	2.5	4	10/18/2021	43.1	2.9	3.4	4.9	2.1	3.8	0.67	2.3	0.1 J
FP11 - HRUA 3	FP-104	MK-FP-104-0.0/0.5	0	0.5	10/18/2021	16	1.1	1.3	1.9	0.62	1.3	0.22 J	0.87	0.44 U
FP11 - HRUA 3	FP-104	MK-FP-104-0.5/1.5	0.5	1.5	10/18/2021	20.7	1.4	1.6	2.4	1	1.8	0.31 J	1.1	0.43 U
FP11 - HRUA 3	FP-104	MK-FP-104-1.5/2.5	1.5	2.5	10/18/2021	26	1.6 J	2 J	3	1.5 J	2.4	0.44 J	1.5 J	0.073 J
FP11 - HRUA 3	FP-104	MK-FP-104-2.5/4.0	2.5	4	10/18/2021	4.4	0.32	0.36	0.5	0.17	0.38	0.054	0.2	0.014 J+
FP11 - HRUA 3	FP-105	MK-FP-105-0.0/0.5	0	0.5	10/18/2021	21.2	1.5	1.5	1.9	1	1.9	0.32 J	1.1	0.4 U
FP11 - HRUA 3	FP-105	MK-FP-105-0.5/1.5	0.5	1.5	10/18/2021	39	3	2.9	3.3	1.6	3.1	0.45	1.5	0.16 J+
FP11 - HRUA 3	FP-105	MK-FP-105-1.5/2.5	1.5	2.5	10/18/2021	39.4	3	3	4.6	1.6	3.3	0.51	1.9	0.39 U
FP11 - HRUA 3	FP-105	MK-FP-105-2.5/3.2	2.5	3.2	10/18/2021	12.3	0.92	0.89	1	0.62	1.1	0.14 J	0.46	0.13 J+

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PAH									
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Acenaph-thene	Acenaph-thylene	Anthra-cene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Fluoran-thene	Fluorene	Naphtha-lene	Phenan-threne	Pyrene
					Tier 1 SS-RCL[1,4,5]										
					Tier 2 SS-RCL[1]										
					TSCA LO										
FP11	FP-92	MK-FP-92-1.5/2.5	1.5	2.5	10/16/2021	0.077 J	0.057 J	0.37 J	1.1	1.3	2.9	0.077 J	0.1 J	1.2	2.1
FP11	FP-93	MK-FP-93-0.0/0.5	0	0.5	10/16/2021	0.51 U	0.51 U	0.19 J	0.6	0.63	1.7	0.51 U	0.076 J	0.67	1.3
FP11	FP-93	MK-FP-93-0.5/1.5	0.5	1.5	10/16/2021	0.012 J	0.012 J	0.047	0.19	0.19	0.47	0.013 J	0.052	0.23	0.37
FP11	FP-93	MK-FP-93-1.5/2.5	1.5	2.5	10/16/2021	0.02 U	0.02 U	0.02 U	0.008 J	0.01 J	0.017 J	0.02 U	0.004 J	0.014 J	0.015 J
FP11	FP-97	MK-FP-97-0.0/0.5	0	0.5	10/16/2021	0.04 J	0.24 U	0.13 J	0.53	0.52	1.7	0.043 J	0.035 J	0.68	1.5
FP11	FP-97	MK-FP-97-0.5/1.5	0.5	1.5	10/16/2021	0.019 U	0.019 U	0.019 U	0.011 J	0.013 J	0.025	0.019 U	0.019 U	0.012 J	0.018 J
FP11	FP-97	MK-FP-97-1.5/2.6	1	2.6	10/16/2021	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
FP11 - HRUA 1	FP-94	MK-FP-94-0.0/0.5	0	0.5	10/18/2021	0.42 J	0.12 J	1.8	4.1	3.8	13	0.6	0.18 J	6.2	10
FP11 - HRUA 1	FP-94	MK-FP-94-0.5/1.5	0.5	1.5	10/18/2021	0.29 J	0.12 J	0.94	2.8	2.8	8.3	0.4 J	0.095 J	4.2	6.2
FP11 - HRUA 1	FP-94	MK-FP-94-1.5/2.5	1.5	2.5	10/18/2021	0.18 J	0.1 J	0.61	2.3	2.4	6.2	0.21 J	0.063 J	2.8	4.8
FP11 - HRUA 1	FP-95	MK-FP-95-0.0/0.5	0	0.5	10/18/2021	0.068 J	0.14 J	0.37 J	1.8	1.9	4.1	0.096 J	0.073 J	1.6	3.2
FP11 - HRUA 1	FP-95	MK-FP-95-0.5/1.5	0.5	1.5	10/18/2021	0.011 J	0.013 J	0.046 J	0.21	0.21	0.52	0.014 J	0.011 J	0.24	0.4
FP11 - HRUA 1	FP-95	MK-FP-95-1.5/2.0	1.5	2	10/18/2021	0.098 J	0.19 U	0.23	0.39	0.37	1.4	0.11 J	0.048 J	1.2	1.2
FP11 - HRUA 1	FP-95	MK-FP-95-2.5/3.3	2.5	3.3	10/18/2021	0.041 J	0.03 J	0.14 J	0.51	0.53	1.3	0.048 J	0.06 J	0.75	1.1
FP11 - HRUA 1	FP-96	MK-FP-96-0.0/0.5	0	0.5	10/16/2021	0.14 J	0.45 U	0.66	1.6	1.7	5.3	0.15 J	0.068 J	2	3.5
FP11 - HRUA 1	FP-96	MK-FP-96-0.5/1.5	0.5	1.5	10/16/2021	0.019 J	0.005 J	0.097	0.21	0.21	0.68	0.027 J	0.011 J	0.34	0.54
FP11 - HRUA 1	FP-96	MK-FP-96-1.5/2.5	1.5	2.5	10/16/2021	0.004 J	0.018 U	0.016 J	0.02	0.021	0.071	0.004 J	0.002 J	0.05	0.053
FP11 - HRUA 1	FP-96	MK-FP-96-2.5/3.9	2.5	3.9	10/16/2021	0.019 U	0.019 U	0.019 U	0.002 J	0.005 J	0.002 J	0.019 U	0.019 U	0.003 J	0.019 U
FP11 - HRUA 2	FP-98	MK-FP-98-0.0/0.5	0	0.5	10/16/2021	0.18 J	0.19 J	0.87	2.6	3	6.4	0.2 J	0.16 J	2.8	4.3
FP11 - HRUA 2	FP-98	MK-FP-98-0.5/1.5	0.5	1.5	10/16/2021	0.008 J	0.006 J	0.098	0.16	0.15	0.49	0.013 J	0.006 J	0.21	0.35
FP11 - HRUA 2	FP-98	MK-FP-98-1.5/2.5	1.5	2.5	10/16/2021	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.006 J	0.02 U	0.003 J	0.003 J	0.004 J
FP11 - HRUA 2	FP-98	MK-FP-98-2.5/3.8	2.5	3.8	10/16/2021	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.004 J	0.019 U	0.019 U	0.019 U	0.003 J
FP11 - HRUA 2	FP-99	MK-FP-99-0.0/0.5	0	0.5	10/16/2021	0.014 J	0.015 J	0.068 J	0.29	0.3	0.83	0.014 J	0.016 J	0.28	0.57
FP11 - HRUA 2	FP-99	MK-FP-99-0.5/1.5	0.5	1.5	10/16/2021	0.02 U	0.02 U	0.02 U	0.007 J	0.007 J	0.02 J	0.02 U	0.02 U	0.009 J	0.015 J
FP11 - HRUA 2	FP-99	MK-FP-99-1.5/2.9	1.5	2.9	10/16/2021	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
FP11 - HRUA 2	FP-100	MK-FP-100-0.0/0.5	0	0.5	10/18/2021	0.18 J	0.17 J	0.69	2.9	3	8	0.21 J	0.1 J	3.3	6.1
FP11 - HRUA 2	FP-100	MK-FP-100-0.5/1.5	0.5	1.5	10/18/2021	0.022 J	0.033 J	0.11	0.51	0.56	1.3	0.03 J	0.022 J	0.49	0.95
FP11 - HRUA 2	FP-100	MK-FP-100-1.5/2.5	1.5	2.5	10/18/2021	0.021 U	0.021 U	0.01 J	0.039	0.043	0.092	0.021 U	0.021 U	0.033	0.074
FP11 - HRUA 2	FP-100	MK-FP-100-2.5/4.0	2.5	4	10/18/2021	0.02 U	0.02 U	0.02 U	0.011 J	0.011 J	0.02	0.02 U	0.02 U	0.008 J	0.019 J
FP11 - HRUA 3	FP-103	MK-FP-103-0.0/0.5	0	0.5	10/18/2021	0.16 J	0.058 J	0.65	1.9	1.9	5.7	0.22 J	0.079 J	2.9	4.1
FP11 - HRUA 3	FP-103	MK-FP-103-0.5/1.5	0.5	1.5	10/18/2021	0.46 J	0.11 J	1.9	3.2	3.3	12	0.59 J	0.13 J	6.9	8.8
FP11 - HRUA 3	FP-103	MK-FP-103-1.5/2.5	1.5	2.5	10/18/2021	0.75	0.11 J	2.4	4	4	15	1.1	0.24 J	9.9	10
FP11 - HRUA 3	FP-103	MK-FP-103-2.5/4.0	2.5	4	10/18/2021	0.14 J	0.13 J	0.75	2.9	2.7	7.1	0.22 J	0.19 J	3.3	5.5
FP11 - HRUA 3	FP-104	MK-FP-104-0.0/0.5	0	0.5	10/18/2021	0.079 J	0.44 U	0.24 J	1	1.1	2.6	0.091 J	0.05 J	1.2	1.9
FP11 - HRUA 3	FP-104	MK-FP-104-0.5/1.5	0.5	1.5	10/18/2021	0.086 J	0.43 U	0.28 J	1.3	1.3	3.5	0.093 J	0.051 J	1.4	2.6
FP11 - HRUA 3	FP-104	MK-FP-104-1.5/2.5	1.5	2.5	10/18/2021	0.083 J	0.47 U	0.29 J	1.7 J	1.8 J	4	0.084 J	0.1 J	1.6 J	3.6
FP11 - HRUA 3	FP-104	MK-FP-104-2.5/4.0	2.5	4	10/18/2021	0.023 J	0.011 J	0.079	0.25	0.22	0.76	0.031	0.03	0.37	0.59
FP11 - HRUA 3	FP-105	MK-FP-105-0.0/0.5	0	0.5	10/18/2021	0.14 J	0.4 U	0.43	1.1	1.3	3.7	0.11 J	0.046 J	1.8	3
FP11 - HRUA 3	FP-105	MK-FP-105-0.5/1.5	0.5	1.5	10/18/2021	0.31 J	0.087 J	1.1	2	1.9	7.2	0.31 J	0.19 J	3.7	6.2
FP11 - HRUA 3	FP-105	MK-FP-105-1.5/2.5	1.5	2.5	10/18/2021	0.22 J	0.1 J	0.54	2.1	2.2	7.6	0.18 J	0.065 J	2.8	5.5
FP11 - HRUA 3	FP-105	MK-FP-105-2.5/3.2	2.5	3.2	10/18/2021	0.13 J	0.39 U	0.42	0.61	0.56	2.2	0.12 J	0.13 J	1.3	1.4

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						Metals									Physical Parameters			
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Lead[4]	Arsenic[5]	Nickel	Cadmium	Chromium	Copper	Zinc	Mercury		Fines (percent)	Sand (percent)	Gravel (percent)	Total Organic Carbon
					Tier 1 SS-RCL[1,4,5]	400	8											
					Tier 2 SS-RCL[1]													
					TSCA LO													
FP11	FP-92	MK-FP-92-1.5/2.5	1.5	2.5	10/16/2021	103	4											
FP11	FP-93	MK-FP-93-0.0/0.5	0	0.5	10/16/2021	177	6											
FP11	FP-93	MK-FP-93-0.5/1.5	0.5	1.5	10/16/2021	641	7											
FP11	FP-93	MK-FP-93-1.5/2.5	1.5	2.5	10/16/2021	38	4											
FP11	FP-97	MK-FP-97-0.0/0.5	0	0.5	10/16/2021	74	5											
FP11	FP-97	MK-FP-97-0.5/1.5	0.5	1.5	10/16/2021	9	2 J											
FP11	FP-97	MK-FP-97-1.5/2.6	1	2.6	10/16/2021	9	3 J											
FP11 - HRUA 1	FP-94	MK-FP-94-0.0/0.5	0	0.5	10/18/2021	211	6											
FP11 - HRUA 1	FP-94	MK-FP-94-0.5/1.5	0.5	1.5	10/18/2021	336	6											
FP11 - HRUA 1	FP-94	MK-FP-94-1.5/2.5	1.5	2.5	10/18/2021	460	7											
FP11 - HRUA 1	FP-95	MK-FP-95-0.0/0.5	0	0.5	10/18/2021	175	6											
FP11 - HRUA 1	FP-95	MK-FP-95-0.5/1.5	0.5	1.5	10/18/2021	38	5											
FP11 - HRUA 1	FP-95	MK-FP-95-1.5/2.0	1.5	2	10/18/2021	62	5											
FP11 - HRUA 1	FP-95	MK-FP-95-2.5/3.3	2.5	3.3	10/18/2021	120	8											
FP11 - HRUA 1	FP-96	MK-FP-96-0.0/0.5	0	0.5	10/16/2021	147	9											
FP11 - HRUA 1	FP-96	MK-FP-96-0.5/1.5	0.5	1.5	10/16/2021	51	8											
FP11 - HRUA 1	FP-96	MK-FP-96-1.5/2.5	1.5	2.5	10/16/2021	20	5											
FP11 - HRUA 1	FP-96	MK-FP-96-2.5/3.9	2.5	3.9	10/16/2021	8	2 J											
FP11 - HRUA 2	FP-98	MK-FP-98-0.0/0.5	0	0.5	10/16/2021	288	6											
FP11 - HRUA 2	FP-98	MK-FP-98-0.5/1.5	0.5	1.5	10/16/2021	24	4											
FP11 - HRUA 2	FP-98	MK-FP-98-1.5/2.5	1.5	2.5	10/16/2021	8	3 J											
FP11 - HRUA 2	FP-98	MK-FP-98-2.5/3.8	2.5	3.8	10/16/2021	8	2 J											
FP11 - HRUA 2	FP-99	MK-FP-99-0.0/0.5	0	0.5	10/16/2021	66	6											
FP11 - HRUA 2	FP-99	MK-FP-99-0.5/1.5	0.5	1.5	10/16/2021	17	4											
FP11 - HRUA 2	FP-99	MK-FP-99-1.5/2.9	1.5	2.9	10/16/2021	9	3 J											
FP11 - HRUA 2	FP-100	MK-FP-100-0.0/0.5	0	0.5	10/18/2021	475	8											
FP11 - HRUA 2	FP-100	MK-FP-100-0.5/1.5	0.5	1.5	10/18/2021	63	4											
FP11 - HRUA 2	FP-100	MK-FP-100-1.5/2.5	1.5	2.5	10/18/2021	21	4											
FP11 - HRUA 2	FP-100	MK-FP-100-2.5/4.0	2.5	4	10/18/2021	12	5											
FP11 - HRUA 3	FP-103	MK-FP-103-0.0/0.5	0	0.5	10/18/2021	267	3											
FP11 - HRUA 3	FP-103	MK-FP-103-0.5/1.5	0.5	1.5	10/18/2021	642	4											
FP11 - HRUA 3	FP-103	MK-FP-103-1.5/2.5	1.5	2.5	10/18/2021	622	4											
FP11 - HRUA 3	FP-103	MK-FP-103-2.5/4.0	2.5	4	10/18/2021	354	9											
FP11 - HRUA 3	FP-104	MK-FP-104-0.0/0.5	0	0.5	10/18/2021	63	4											
FP11 - HRUA 3	FP-104	MK-FP-104-0.5/1.5	0.5	1.5	10/18/2021	86	4											
FP11 - HRUA 3	FP-104	MK-FP-104-1.5/2.5	1.5	2.5	10/18/2021	193	4											
FP11 - HRUA 3	FP-104	MK-FP-104-2.5/4.0	2.5	4	10/18/2021	193 J	14											
FP11 - HRUA 3	FP-105	MK-FP-105-0.0/0.5	0	0.5	10/18/2021	173	5											
FP11 - HRUA 3	FP-105	MK-FP-105-0.5/1.5	0.5	1.5	10/18/2021	99	6											
FP11 - HRUA 3	FP-105	MK-FP-105-1.5/2.5	1.5	2.5	10/18/2021	221	5											
FP11 - HRUA 3	FP-105	MK-FP-105-2.5/3.2	2.5	3.2	10/18/2021	45	4											

Appendix A
Milwaukee River Floodplains Reach - Floodplain Soil Analytical Results Summary
Focused Feasibility Study, Milwaukee Estuary AOC, Milwaukee, Wisconsin

						PCB											
Floodplain ID	Location ID	Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Date	Total PCB[2]	Aroclor 1260	Aroclor 1254	Aroclor 1268	Aroclor 1221	Aroclor 1232	Aroclor 1248	Aroclor 1016	Aroclor 1262	Aroclor 1242	Total PAH-18[3]	Benzo(a) anthracene
					Tier 1 SS-RCL[1,4,5]	1.1										--	84.6
					Tier 2 SS-RCL[1]	0.7										--	50.8
					TSCA LO	25											

Notes:
Units are mg/kg unless otherwise noted.
Blank cells indicate parameter not analyzed.
Yellow shading represents concentrations greater than the respective Tier 1 SS-RCLs for PCBs and PAHs, nonindustrial direct contact RCL for lead, or background threshold value for arsenic.
Blue shading represents concentrations greater than Tier 2 SS-RCLs for PCBs and PAHs.
Red shading represents PCB concentrations greater than the TSCA LO value of 25 mg/kg.

[1] SS-RCL Tier 1 and Tier 2 concentrations established by WDNR in conjunction with the Wisconsin Department of Health (WDNR 2021).

[2] Total PCB result calculated by summing the detected results for PCB Aroclors and excluding non-detect values. For results with no detectable concentrations, the total result is reported as one-half of the highest RL value and qualified "U" for nondetect. Total values are not TOC-normalized.

[3] Total PAH-18 results calculated by summing the detected results and using one-half of the reporting limit for nondetect values. For results with no detectable concentrations, the total result is reported as one-half of the highest RL value and qualified "U" for nondetect. Total values are not TOC-normalized.

[4] WDNR's Wisconsin Administrative Code NR 720 nonindustrial direct contact residual contaminant level (RCL) for lead of 400 mg/kg was used to screen lead concentrations (WDNR 2021).

[5] A WDNR-assigned screening value applicable to this project based on Wisconsin's statewide background threshold value (BTV) of 8 mg/kg was used to screen arsenic concentrations (WDNR 2021).

Abbreviations:
ft bgs = feet below ground surface
HRUA = High Recreational Use Area
J = Estimated; J- = Estimated, low bias; J+ = Estimated, high bias;
mg/kg = milligrams per kilogram
SS-RCL = Site-Specific Residual Contaminant Level as identified in WDNR 2021.
TSCA LO = Toxic Substances Control Act (TSCA) low occupancy (LO) cleanup level
U = Nondetect; UJ = Estimated nondetect
µg/kg = micrograms per kilogram
WDNR 2021 = Wisconsin Department of Natural Resources Correspondence/Memorandum to Milwaukee Estuary Area of Concern Project Team and Stakeholders: *Preliminary Site-Specific Residual Contaminant Levels for Milwaukee River Floodplain Soils* . August 5.

Appendix B
Rationale for Using a Site-Specific Arsenic Background Threshold Value to Delineate Remediation Target Areas in the Floodplains Reach

Jacobs

Appendix B
Technical Memorandum

Subject	**Rationale for Using a Site-specific Arsenic Background Threshold Value to Delineate Remediation Target Areas in the Floodplains Reach**
Project Name	Milwaukee Estuary Area of Concern, City of Milwaukee, Milwaukee County, Wisconsin Task Order 68HE0520F0069, Contract No. 68HE0519D00007
From	Jacobs
Date	July 24, 2023

1. Introduction

As discussed in the Focused Feasibility Study (FFS) for the Floodplains Reach of the Milwaukee River (Jacobs 2023), the focused contaminants of concern (COCs) in floodplain soil are total polychlorinated biphenyls (PCBs), benzo(a)pyrene, lead, and arsenic. The Wisconsin Department of Natural Resources (WDNR) developed site-specific residual contaminant levels (SS-RCLs) for PCBs and seven polycyclic aromatic hydrocarbons based on typical recreational use of floodplain areas (Tier 1) as well as for specific high recreational use areas (HRUAs) (Tier 2) (WDNR 2021). SS-RCLs were not developed for lead and arsenic; instead, the nonindustrial direct contact residual contaminant levels for lead and the statewide background threshold value (BTV) for arsenic were identified as the screening levels for those COCs.

PCBs are the most widespread COC in the Floodplains Reach Project Area and the other focused COCs generally co-occur with PCBs. Remediation target areas (RTAs) for floodplain soils in HRUAs were initially delineated by developing Thiessen polygons around any sample location with a Tier 2 SS-RCL screening level exceedance for any focused COC. RTAs outside of HRUAs initially were developed by modeling and mapping the extent of PCBs above the Tier 1 SS-RCL. As described in Section 3.3 of the FFS, the boundaries of the RTAs outside the HRUAs were then refined to include, as appropriate, locations where concentrations of other focused COCs exceed screening levels but PCBs do not. The purpose of this technical memorandum (TM) is to present the rationale for using a site-specific BTV of 10 milligrams per kilogram (mg/kg) for arsenic to refine the RTAs rather than the 8 mg/kg statewide BTV.

Table 1 summarizes the 55 samples where benzo(a)pyrene, lead or arsenic do not co-occur with total PCB concentrations greater than the applicable SS-RCL (0.7 mg/kg for HRUAs and 1.1 mg/kg for areas outside HRUAs). In 44 of the 55 samples, only arsenic exceeds 8 mg/kg, with concentrations ranging from 8.1 mg/kg to 46 mg/kg. Thirty-one (31) of the 44 samples with only arsenic exceedances have arsenic concentrations between 8.1 and 10 mg/kg, and the associated sample locations are scattered throughout most of the floodplain areas. As discussed in this TM, arsenic concentrations between 8 and 10 mg/kg are likely to be attributable to anthropogenic ambient diffuse sources of arsenic, and RTAs were not expanded based solely on arsenic exceedances in this concentration range.

2. Derivation of the Site-specific Arsenic Background Threshold Value

WDNR (2023) evaluated arsenic concentrations in Floodplains Reach soil samples using a range of statistical and graphical display methods. The WDNR analysis is provided as Attachment 1 to this TM.

Variations in arsenic concentrations were evaluated by depth interval and by floodplain to assess whether arsenic concentrations fell within the range of background concentrations (either naturally occurring and/or anthropogenic background) or if they represented a localized (point) release to the environment. WDNR concluded that anthropogenic diffuse ambient sources contribute to arsenic concentrations above the statewide default BTV and selected a site-specific BTV of 10.4 mg/kg.

3. Floodplains Reach Data Evaluation

For the purposes of refining the RTA boundaries in the Floodplains Reach, a value of 10 mg/kg arsenic was used as a conservative estimate of the site-specific BTV.

Table 2 summarizes the 14 floodplain soil samples with arsenic concentrations exceeding 10 mg/kg and no other screening level exceedances. All of the samples are from depth intervals below 0.5 feet bgs. Eight of these samples are included in the refined RTAs presented in Section 3.3 of the FFS (Jacobs 2023). The RTAs were not adjusted to include six of these samples for the following reasons:

- The sample was outside the boundary of the floodplain boundary (one sample).
- The sample was beneath 1 foot of soil with no screening level exceedances (three samples).
- The sample was deeper than 4 feet bgs (one sample).
- Arsenic was not detected but the detection limit was above 10 mg/kg (one sample).

4. Conclusion

The evaluation presented in this TM supports the use of 10 mg/kg arsenic as a site-specific BTV for refining RTA boundaries in the Floodplains Reach Project Area rather than the statewide BTV of 8 mg/kg. Most of the focused COC screening level exceedances that do not co-occur with PCBs are for arsenic only (80 percent), and most of those exceedances are between 8 and 10 mg/kg (70 percent). WDNR (2023) evaluated arsenic concentrations in Floodplains Reach soils and concluded that anthropogenic diffuse ambient sources contribute to arsenic concentrations above the statewide default BTV of 8 mg/kg.

5. References

Jacobs. 2023. *Focused Feasibility Study Report, Milwaukee River Floodplains Reach, Milwaukee Estuary AOC, Milwaukee, Wisconsin*. Prepared for U.S. Environmental Protection Agency Great Lakes National Program Office. Task Order No. 68HE0520F0069/Contract No. 68HE0519D00007. August.

Wisconsin Department of Natural Resources (WDNR). 2021. Milwaukee Estuary Area of Concern Preliminary Site-Specific Residual Contaminant Levels for Milwaukee River Floodplain Soils. Correspondence/Memorandum to Milwaukee Estuary Area of Concern Project Team and Stakeholders. August 5.

Wisconsin Department of Natural Resources (WDNR). 2023. Milwaukee Estuary Area of Concern – Evaluation of Arsenic Concentrations in Milwaukee River Floodplain Soils. Correspondence/Memorandum to Heather Williams, Great Lakes National Program Office, U.S. Environmental Protection Agency. July 18.

Tables

Table 1. Summary of Floodplain Soil Samples with Benzo(a)pyrene, Lead, or Arsenic Screening Level Exceedance not Co-located with a PCB Screening Level Exceedance

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH	Metals	
Floodplain ID	Location ID	Sample ID	Start Depth (feet bgs)	End Depth (feet bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[c]	Arsenic[d]
					Tier 1 SS-RCL[b, c, d]	1.1	8.48	400	8
					Tier 2 SS-RCL[b]	0.7	5.09		
FP02	FP-03	MK-FP-03-0.5/1.3	0.5	1.3	11/9/2016	0.32	2.77	192	16.8
FP02	FP-04	MK-FP-04-1.5/2.5	1.5	2.5	11/9/2016	0.1	0.706	98.5	***8.3***
FP02	FP-87	MK-FP-87-0.0/0.5	0	0.5	10/16/2021	0.35	20	231 J	***10***
FP02	FP-87	MK-FP-87-0.5/1.4	0.5	1.4	10/16/2021	0.03 U	0.65	122 J	46
FP03	FP-40C	MK-FP-40C-0.5/1.5	0.5	1.5	11/6/2020	0.028 U		18.3	10.2
FP04	FP-07	MK-FP-07-1.5/2.5	1.5	2.5	11/11/2016	1.1	10.5	193 J	8 J
FP04	FP-08	MK-FP-08-1.5/2.5	1.5	2.5	11/11/2016	0.87	3.35	258 J	***8.5*** J
FP04	FP-42	MK-FP-42-0.0/0.5	0	0.5	11/5/2020	0.022	0.22	85.3	***8.4***
FP04	FP-42	MK-FP-42-1.5/2.5	1.5	2.5	11/5/2020	0.029 U	0.019 U	8.2	***10***
FP04	FP-43	MK-FP-43-0.0/0.5	0	0.5	11/5/2020	0.033 U		29.1	***9.7***
FP04	FP-43	MK-FP-43-2.5/4.0	2.5	4	11/5/2020	0.029 U		11.7	***8.6***
FP04	FP-46	MK-FP-46-0.5/1.5	0.5	1.5	11/5/2020	0.028 U	20	28.9	5
FP05	FP-101	MK-FP-101-0.0/0.5	0	0.5	10/16/2021	0.07	0.3	675 J	5
FP05	FP-102	MK-FP-102-2.0/3.0	2	3	10/16/2021	0.16	1.6	247 J	***9***
FP05	FP-11	MK-FP-11-1.5/2.5	1.5	2.5	11/11/2016	0.65	2.3	246 J	***9.2***
FP05	FP-55	MK-FP-55-1.5/2.5	1.5	2.5	11/5/2020	0.13		1470	5.7
FP06	FP-107	MK-FP-107-0.5/1.5	0.5	1.5	10/16/2021	0.22	4.3	229	***9***
FP06	FP-13	MK-FP-13-1.5/2.5	1.5	2.5	11/11/2016	1.1	3.32	224	***8.2***
FP06	FP-61	MK-FP-61-1.5/2.5	1.5	2.5	11/4/2020	0.25	1.7	210	***9.8***
FP06	FP-78	MK-FP-78-1.5/2.5	1.5	2.5	11/4/2020	0.03 U	0.32 J	152	***8.4***
FP07	FP-125	MK-FP-125-2.5/3.3	2.5	3.3	10/13/2021	0.46	2.5	320 J	***10***
FP07	FP-16X	MK-FP-16X-3.0/4.0	3	4	11/6/2020	0.04 U	0.44	176 J	***9.6***
FP07	FP-66	MK-FP-66-0.5/1.5	0.5	1.5	11/6/2020	0.68		268	10.1
FP07	FP-67	MK-FP-67-1.5/2.5	1.5	2.5	11/6/2020	0.6	8	284	***9.7***
FP07	FP-67	MK-FP-67-2.5/4.0	2.5	4	11/6/2020	0.057	4.3	318 J	11
FP07 - HRUA Canoe	FP-117	MK-FP-117-1.5/2.5	1.5	2.5	10/13/2021	0.03 U	0.57	38 J	15
FP07 - HRUA Ravine	FP-111	MK-FP-111-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.11	18	***9***
FP07 - HRUA Ravine	FP-112	MK-FP-112-0.0/0.5	0	0.5	10/16/2021	0.02 J	9.7	92 J	5
FP08/09	FP-128	MK-FP-128-0.0/0.5	0	0.5	10/12/2021	1.00	0.75	82	***9***

Table 1. Summary of Floodplain Soil Samples with Benzo(a)pyrene, Lead, or Arsenic Screening Level Exceedance not Co-located with a PCB Screening Level Exceedance

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH	Metals	
Floodplain ID	Location ID	Sample ID	Start Depth (feet bgs)	End Depth (feet bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[c]	Arsenic[d]
					Tier 1 SS-RCL[b, c, d]	1.1	8.48	400	8
					Tier 2 SS-RCL[b]	0.7	5.09		
FP08/09	FP-22	MK-FP-22-1.5/2.5	1.5	2.5	11/10/2016	1.1	1.64	393	12.6
FP08/09	FP-22	MK-FP-22-5.0/6.0	5	6	11/10/2016	0.05	0.0658	168	11.8
FP08/09	FP-23	MK-FP-23-3.5/4.2	3.5	4.2	11/10/2016	0.48	0.604	118	***8.4***
FP08/09	FP-24	MK-FP-24-0.5/1.5	0.5	1.5	11/10/2016	0.12	0.157	65.7	***8.4***
FP08/09	FP-25	MK-FP-25-2.5/3.5	2.5	3.5	11/10/2016	0.9	2.01	206 J	***8.6***
FP08/09	FP-26	MK-FP-26-5.0/7.0	5	7	11/11/2016	0.33	0.858	199	***8.1***
FP08/09	FP-28	MK-FP-28-5.0/7.0	5	7	11/11/2016	0.73	0.205	189	***8.4***
FP08/09	FP-33X	MK-FP-33X-2.5/3.8	2.5	3.8	11/3/2020	0.047	0.033	4.4	12.7 U
FP08/09	FP-69B	MK-FP-69B-0.5/1.5	0.5	1.5	11/4/2020	0.032 U		159	10.8
FP08/09	FP-69C	MK-FP-69C-0.5/1.5	0.5	1.5	11/5/2020	0.03 U		456	4.3
FP08/09	FP-70	MK-FP-70-1.5/2.5	1.5	2.5	11/4/2020	0.2	0.98	149	***9.3***
FP08/09	FP-70	MK-FP-70-2.5/4.0	2.5	4	11/4/2020	0.036 U	0.89	91.6	***8.4***
FP08/09	FP-71	MK-FP-71-1.5/2.5	1.5	2.5	11/3/2020	0.29		163	10.3
FP08/09	FP-85	MK-FP-85-2.5/3.9	2.5	3.9	11/4/2020	0.33		233	***9.5***
FP10	FP-133	MK-FP-133-2.5/4.0	2.5	4	10/13/2021	0.10	0.72	166	13
FP10	FP-30	MK-FP-30-1.2/2.0	1.2	2	11/9/2016	0.5	2.57	146 J	***8.5*** J
FP10	FP-30X	MK-FP-30X-2.0/2.5	2	2.5	11/3/2020	0.067	1.4	200	***9.2***
FP10	FP-32	MK-FP-32-2.5/3.3	2.5	3.3	11/9/2016	0.02 U	0.138	161	12.1
FP11	FP-51A	MK-FP-51A-1.5/2.5	1.5	2.5	11/6/2020	0.028 U		10.3	***8.6***
FP11	FP-51B	MK-FP-51B-0.0/0.5	0	0.5	11/6/2020	0.034		424	6.1
FP11	FP-93	MK-FP-93-0.5/1.5	0.5	1.5	10/16/2021	0.03 U	0.25	641	7
FP11 - HRUA 1	FP-96	MK-FP-96-0.0/0.5	0	0.5	10/16/2021	0.45	2.1	147	***9***
FP11 - HRUA 3	FP-103	MK-FP-103-0.5/1.5	0.5	1.5	10/18/2021	0.54	4.8	642	4
FP11 - HRUA 3	FP-103	MK-FP-103-1.5/2.5	1.5	2.5	10/18/2021	0.59	5.7	622	4

Table 1. Summary of Floodplain Soil Samples with Benzo(a)pyrene, Lead, or Arsenic Screening Level Exceedance not Co-located with a PCB Screening Level Exceedance

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

						PCB[a]	PAH	Metals	
Floodplain ID	Location ID	Sample ID	Start Depth (feet bgs)	End Depth (feet bgs)	Date	Total PCB	Benzo(a) pyrene	Lead[c]	Arsenic[d]
					Tier 1 SS-RCL[b, c, d]	1.1	8.48	400	8
					Tier 2 SS-RCL[b]	0.7	5.09		
FP11 - HRUA 3	FP-103	MK-FP-103-2.5/4.0	2.5	4	10/18/2021	0.40	3.4	354	***9***
FP11 - HRUA 3	FP-104	MK-FP-104-2.5/4.0	2.5	4	10/18/2021	0.04 U	0.36	193 J	14

[a] Total PCB result calculated by summing the detected results for PCB Aroclors and excluding nondetect values. For results with no detectable concentrations, the total result is reported as one-half of the highest reporting limit value and qualified "U" for nondetect. Total values are not TOC-normalized.

[b] SS-RCL Tier 1 and Tier 2 concentrations for PCBs and PAHs established by WDNR in conjunction with the Wisconsin Department of Health (WDNR 2021).

[c] WDNR's Wisconsin Administrative Code NR 720 nonindustrial direct contact residual contaminant level (RCL) for lead of 400 mg/kg was used to screen lead concentrations (WDNR 2021).

[d] A WDNR-assigned screening value applicable to this project based on Wisconsin's statewide background threshold value (BTV) of 8 mg/kg was used to screen arsenic concentrations (WDNR 2021).

Notes:

Units are mg/kg unless otherwise noted.

Blank cells indicate parameter not analyzed.

Yellow shading represents concentrations greater than the Tier 1 SS-RCL.

Blue shading represents concentrations greater than the Tier 2 SS-RCL.

Bold/italic arsenic results indicate sample where arsenic results are between 8.1 and 10

bgs = below ground surface

HRUA = High Recreational Use Area

J = Estimated; J- = Estimated, low bias; J+ = Estimated, high bias

mg/kg = milligram(s) per kilogram

PAH = polycyclic aromatic hydrocarbon

PCB = polychlorinated biphenyl

SS-RCL = Site-Specific Residual Contaminant Level

TOC = total organic compound

U = Nondetect; UJ = Estimated nondetect

WDNR = Wisconsin Department of Natural Resources

Table 2. Summary of Floodplain Soil Samples with Arsenic Concentrations Greater than 10 mg/kg and No Other Screening Level Exceedances

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Floodplain ID	Location ID	Sample ID	Start Depth (feet bgs)	End Depth (feet bgs)	Aresenic (mg/kg)	In RTA?	RTA Refinement
FP02	FP-03	MK-FP-03-0.5/1.3	0.5	1.3	16.8	Yes	Extended RTA depth to 1.3 feet
FP02	FP-87	MK-FP-87-0.5/1.4	0.5	1.4	46	Yes	Extended RTA depth to 1.4 feet
FP03	FP-40C	MK-FP-40C-0.5/1.5	0.5	1.5	10.2	No	Outside of Floodplains Reach Project Area boundary
FP07	FP-66	MK-FP-66-0.5/1.5	0.5	1.5	10.1	Yes	Extended RTA depth to 1.5 feet
FP07	FP-67	MK-FP-67-2.5/4.0	2.5	4	11	No	RTA depth not extended to 4 feet because 1 foot of clean soil overlies this exceedance
FP07 - HRUA Canoe	FP-117	MK-FP-117-1.5/2.5	1.5	2.5	15	Yes	Extended RTA depth to 2.5 feet
FP08/09	FP-22	MK-FP-22-1.5/2.5	1.5	2.5	12.6	Yes	Extended RTA depth to 2.5 feet
FP08/09	FP-22	MK-FP-22-5.0/6.0	5	6	11.8	No	Deeper than 4 feet bgs
FP08/09	FP-33X	MK-FP-33X-2.5/3.8	2.5	3.8	12.7 U	No	RTA depth not extended because arsenic was not detected
FP08/09	FP-69B	MK-FP-69B-0.5/1.5	0.5	1.5	10.8	Yes	No change - included in modeled boundary of initial RTA
FP08/09	FP-71	MK-FP-71-1.5/2.5	1.5	2.5	10.3	Yes	Extended RTA depth to 2.5 feet
FP10	FP-133	MK-FP-133-2.5/4.0	2.5	4	13	No	RTA depth not extended to 4 feet because 1 foot of clean soil overlies this exceedance
FP10	FP-32	MK-FP-32-2.5/3.3	2.5	3.3	12.1	No	RTA depth not extended to 3.3 feet because 1 foot of clean soil overlies this exceedance
FP11 - HRUA 3	FP-104	MK-FP-104-2.5/4.0	2.5	4	14	Yes	RTA depth not extended to 4 feet because 1 foot of clean soil overlies this exceedance

bgs = below ground surface

HRUA = High Recreational Use Area

mg/kg = milligram(s) per kilogram

RTA = remediation target area

U = not detected

Attachment 1

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: July 18, 2023

TO: Heather Williams, Great Lakes National Program Office, U.S. EPA

FROM: Erin Endsley, Remediation and Redevelopment Program, WDNR
Alyssa Sellwood, Remediation and Redevelopment Program, WDNR

SUBJECT: Milwaukee Estuary Area of Concern – Evaluation of Arsenic Concentrations in Milwaukee River Floodplain Soils

Purpose

This memo presents an evaluation of the arsenic concentrations in soil in the floodplain reach of the Milwaukee River of the Milwaukee Estuary Area of Concern (MKE AOC). This includes:

- A summary of data and visual presentation of the range of arsenic concentrations detected in floodplain soils.
- Analysis of how concentrations vary by depth and by floodplain.
- Evaluation of whether the arsenic present in floodplain soils falls within the range of background concentrations (either naturally occurring and/or anthropogenic ambient background) or if the arsenic concentrations indicate a release to the environment.
- Selection of a site-specific arsenic background threshold value (BTV) of 10.4 milligrams per kilogram (mg/kg).

Background Threshold Value for Arsenic

Wisconsin has developed statewide default BTVs for certain naturally occurring metals. The BTV is intended to represent the maximum concentration that could be attributable to naturally occurring background throughout the state. Wisconsin will typically not require cleanup if concentrations of a contaminant fall below the BTV.

Wisconsin utilizes a statewide default BTV for arsenic of 8.3 mg/kg. This value was derived from a statewide dataset presented in *Distribution and Variation of Arsenic in Wisconsin Surface Soils, with Data on Other Trace Elements* (Stensvold 2012). Wisconsin will also accept site-specific BTVs if developed with written approval from the Department. Consideration of both naturally occurring background and ambient-diffuse anthropogenic sources is allowed in site-specific BTV evaluations.

Data Summary and Presentation

Arsenic concentrations range from non-detect to 46.5 mg/kg throughout the Milwaukee Floodplain reach. The summary statistics are presented below, including distribution of arsenic concentrations by depth interval and by floodplain. Statistical calculations were done using the U.S. Environmental Protection Agency's (EPA's) ProUCL Version 5.1 (EPA 2016).

Table 1. Arsenic Summary Statistics by Depth (mg/kg)

Depth	n	# NDs	Minimum	Maximum	Mean	95%ile	95% UCL[1]	95/95 UTL[2]	Distribution
0-0.5'	143	0	2.1	10.5	5.72	8.98	5.96	9.53	Gamma
0.5-1.5'	143	1	2.1	46.5	6.62	10.8	6.52	11.4	Nonparametric
1.5-2.5'	139	6	1.7	14.6	5.79	10.0	5.99	11.0	Gamma
2.5-4'	132	8	1.4	13.5	5.54	10.7	5.77	11.0	Gamma
> 4'	95	0	1.2	11.8	4.21	6.66	4.54	8.31	Gamma
All	652	15	1.2	46.5	5.63	10.0	5.81	10.4	Nonparametric

Notes:
1. 95% UCL = 95 percent (%) upper confidence limit of the population mean
2. 95/95 UTL = 95% upper tolerance limit with 95% coverage (95% UCL for the 95th percentile)

Table 2. Arsenic Summary Statistics by Floodplain (mg/kg)

Floodplain	n	# NDs	Minimum	Maximum	Mean	95%ile	95% UCL[1]	95/95 UTL[2]	Distribution
1	19	0	2.2	6.8	4.19	5.99	4.68	7.15	Normal
2	18	0	2.9	46.5	8.67	21.3	11.3	46.5	Nonparametric
3	34	0	2.3	10.2	5.46	8.19	5.96	9.17	Normal
4	35	0	2.3	10	5.66	8.93	6.21	9.83	Normal
5	25	0	2.7	11.1	5.86	9.08	6.56	10.5	Normal
6	68	1	1.4	13.2	5.45	9.46	5.86	9.87	Normal
7	128	3	2.3	14.6	5.91	10.4	6.19	11.3	Gamma
8/9	146	5	1.2	13.2	5.94	11.3	6.20	10.7	Normal
10	94	4	1.3	13	5.41	8.5	5.69	10.6	Gamma
11	85	2	2.1	13.5	5.07	8.52	5.41	9.28	Gamma
All	652	15	1.2	46.5	5.63	10.0	5.81	10.4	Nonparametric

Notes:
1. 95% UCL = 95 percent (%) upper confidence limit of the population mean
2. 95/95 UTL = 95% upper tolerance limit with 95% coverage (95% UCL for the 95th percentile)

Box plots and or Q-Q plots that illustrate how arsenic concentrations vary by floodplain and by depth are useful in identifying any potential correlation between arsenic concentration and depth interval or floodplain. If certain floodplains or depth intervals are elevated in arsenic they could represent a potential source of arsenic contamination or could indicate potential anthropogenic ambient input from diffuse sources. Plots depicted below do not include the highest concentration of 46.5 mg/kg from Floodplain 2 (FP2) to better display the remaining data, which ranges up to 16.8 mg/kg in concentration once the sample with 46.5 mg/kg arsenic is removed.

Figure 1. Box plots of arsenic concentrations by depth intervals.

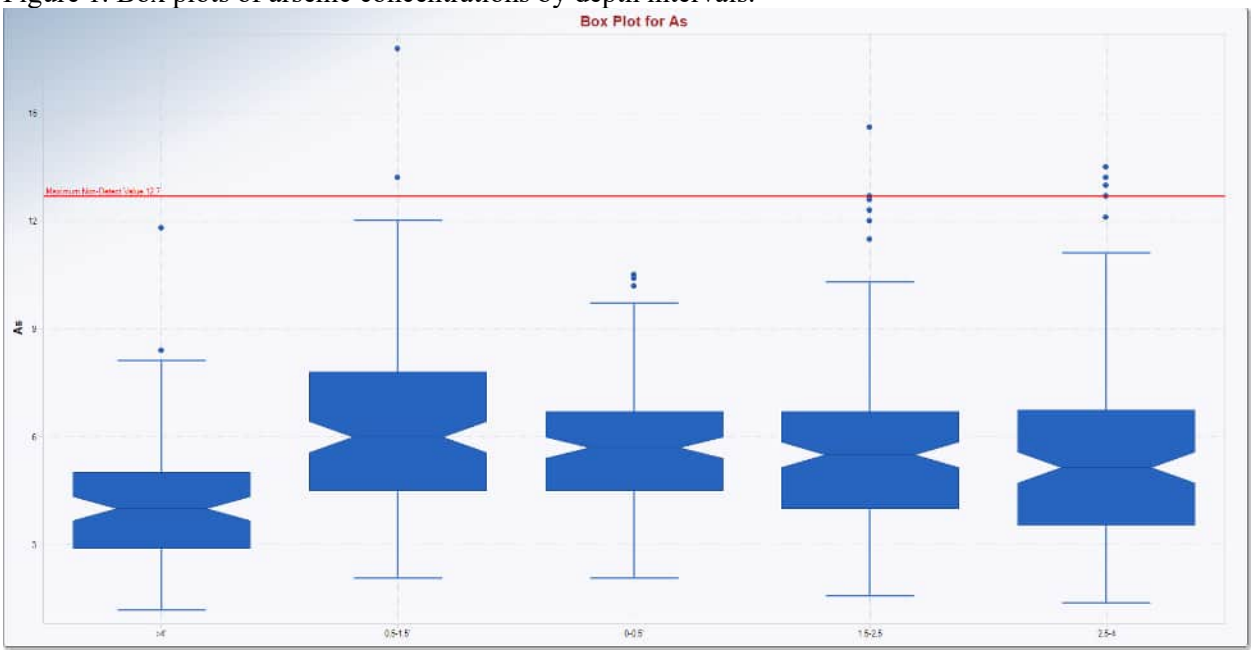


Figure 2. Q-Q plots of arsenic concentrations by depth intervals.

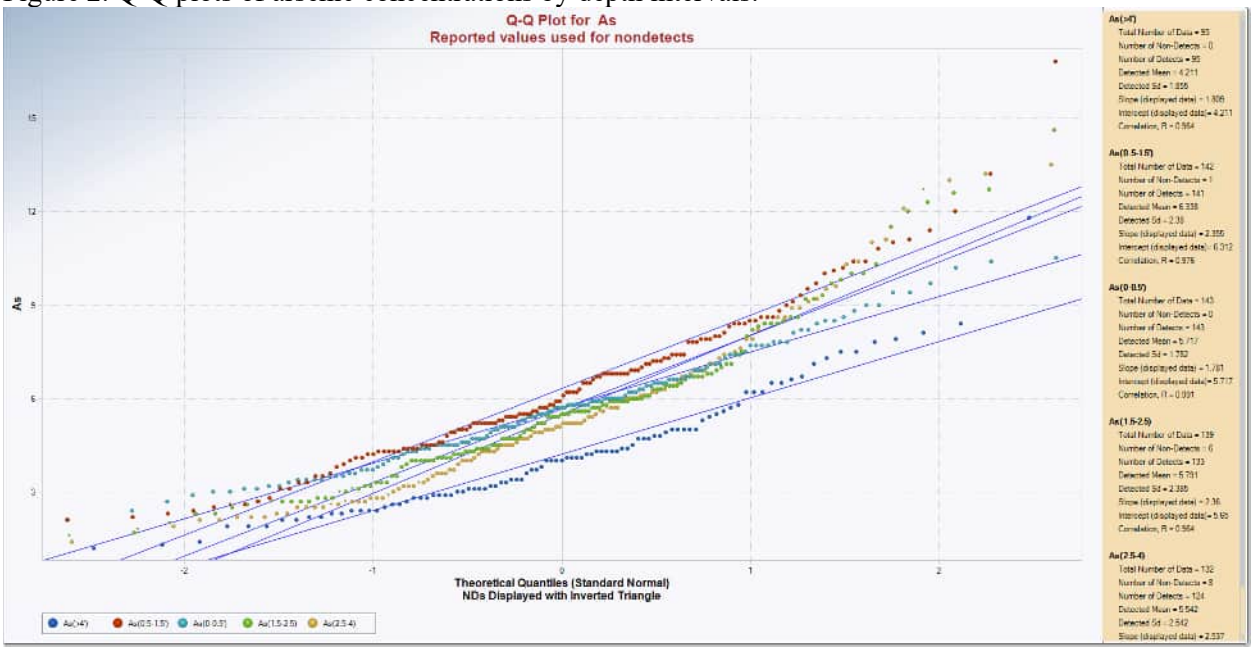


Figure 3. Box plots of arsenic concentrations by floodplain.

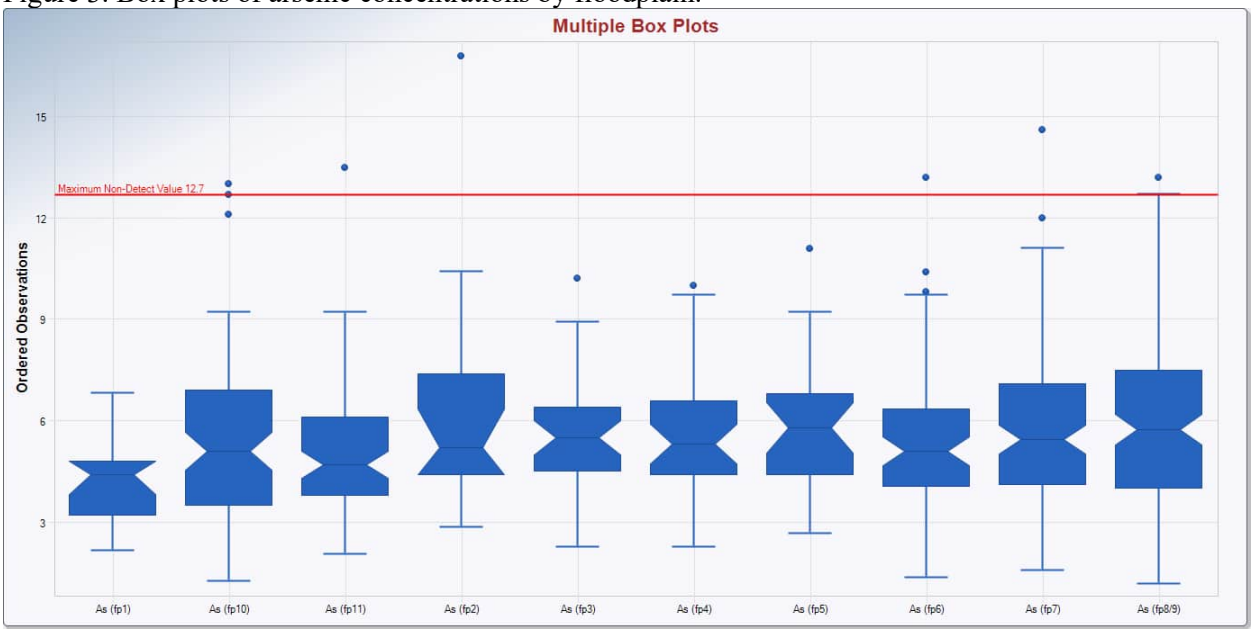
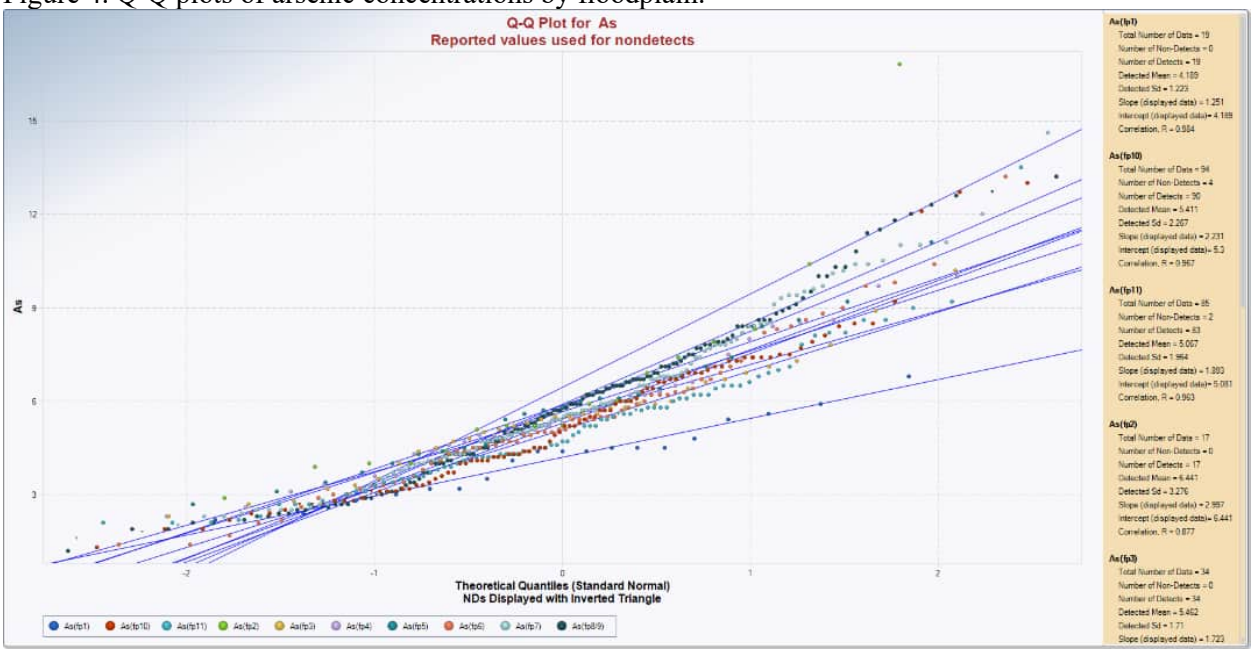


Figure 4. Q-Q plots of arsenic concentrations by floodplain.



Data Evaluation

Within the floodplain reach, concentrations of arsenic range from non-detect to 46.5 mg/kg. Eighty-one (12.4%) of the 652 samples exceed the statewide default BTV value of 8.3 mg/kg, with the remainder falling within the range of background concentrations. The presence of the samples that exceed the statewide default BTV in the floodplain reach soils may indicate a discharge of arsenic to the environment from point source(s) but may also indicate higher concentrations of naturally occurring arsenic or anthropogenic ambient diffuse sources of arsenic in the area. The evaluation below suggests anthropogenic ambient diffuse sources contribute to the arsenic concentrations in this area and support use of a higher site-specific BTV for the floodplain soils.

Arsenic concentrations appear to vary by depth (Table 1, Figures 1 and 2), with concentrations in the >4' depth interval having the lowest concentrations and the 0.5-1.5' depth interval having the highest concentrations. One possible interpretation is that the arsenic concentrations in the soil at greater depth are indicative of naturally occurring background and input from anthropogenic ambient diffuse sources contributes to the higher concentrations in the shallower soils. The 95/95 Upper Tolerance Limit (UTL) for arsenic in the >4' interval is 8.31 mg/kg. The 95/95 UTL is a statistical value commonly used for BTVs, and the 95/95 UTL from the >4' depth interval is very similar to the Wisconsin default statewide BTV for arsenic of 8.3 mg/kg. The three depth intervals between 0.5-4' are all elevated above the >4' level, with 95/95 UTL values ranging from 11-11.4 mg/kg, which supports additional input of arsenic to the soils from anthropogenic diffuse sources. Although the 0-0.5' depth interval is less elevated with a 95/95 UTL of 9.5 mg/kg, it is still elevated above the statewide default BTV for arsenic and the 95/95 UTL for the >4' interval (Table 1).

Other than Floodplains 1 and 2, there is no discernible pattern in the distribution of arsenic that correlates with the floodplain locations. (Table 2, Figures 3 and 4). Floodplain 1 does appear to have overall lower arsenic concentrations than the other floodplains, which could be due to its more upstream location. Floodplain 2 appears to have an arsenic signature, as the two highest arsenic concentrations in the entire site dataset (46.5 mg/kg and 16.8 mg/kg) both occur in Floodplain 2. The sample locations (FP-03 and FP-87) with the elevated arsenic are both located adjacent to an unnamed smaller tributary or stream that enters Floodplain 2. These two elevated samples are not co-located with elevated PCBs, and thus the stream could represent a potential former migration pathway of arsenic contamination into this floodplain area. Based on the broad distribution of arsenic concentrations, and the relatively low range of concentrations (non-detect to 14.6 mg/kg) once the higher concentrations from Floodplain 2 are removed, it is conceivable that the arsenic detected in the floodplain soils represent anthropogenic input from various diffuse sources.

Conclusions

Based on the review of the arsenic dataset and the distribution and degree and extent of arsenic throughout the floodplain reach, it is reasonable to allow the derivation and use of a site-specific BTV for arsenic that represents both naturally occurring arsenic and anthropogenic ambient diffuse inputs. The following lines of evidence support use of a site-specific BTV for arsenic at the site:

- The floodplain reach area is well-characterized, with sufficient data to perform an analysis as to the degree and extent of arsenic contamination.
- The large dataset is adequate to draw conclusions as to whether the arsenic concentrations are the result of naturally occurring arsenic or anthropogenic ambient diffuse inputs, or both.
- Patterns observed in the 95/95 UTL for arsenic in the depth profile and lack of pattern observed between floodplains suggest anthropogenic diffuse ambient sources contribute to arsenic concentrations above the statewide default BTV in the floodplains.

Based on the summary statistics calculated for the arsenic concentrations present in the floodplain reach soil samples, the 95/95 UTL value for all samples (Table 1) of 10.4 mg/kg is an appropriate site-specific BTV for arsenic. This site-specific BTV can be used (instead of the statewide BTV) for the purpose of delineating remediation target areas. Although the 95/95 UTL calculation included all samples with arsenic data, including the elevated concentrations in Floodplain 2, the 95/95 UTL result is the same when the elevated sample concentrations from Floodplain 2 are removed.

References

Stensvold, Krista A. 2012. Distribution and Variation of Arsenic in Wisconsin Surface Soils, with Data on Other Trace Elements. U.S. Geological Survey Scientific Investigations Report 2011–5202. Prepared in cooperation with the U.S. Department of Agriculture, Natural Resources Conservation Service, Wisconsin Department of Natural Resources, and Wisconsin Department of Health Services.

U.S. Environmental Protection Agency (EPA). 2016. ProUCL: Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations. Version 5.1. https://www.epa.gov/land-research/proucl-software.

Appendix C
Overview of Applicable Federal, State, and Local Permitting Requirements – Milwaukee River Floodplains Reach

Appendix C. Overview of Applicable Federal, State, and Local Permitting Requirements – Milwaukee River Floodplains Reach

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Permit/Approval	Requirement/Purpose	Applicability to Project
Clean Water Act Section (CWA) 404 33 U.S. Code (USC) 1344 33 Code of Federal Regulations (CFR) 320 Rivers and Harbors Act of 1899 Section 10	Requires a permit from U.S. Army Corps of Engineers (USACE) for discharge of dredged or fill material into waters of the United States.	A CWA permit is anticipated to be required. Nationwide Permit (NWP) 38 – Cleanup of Hazardous and Toxic Waste - covers specific activities required to affect the containment, stabilization, or removal of hazardous or toxic waste materials that are performed, ordered or sponsored by a government agency with established legal or regulatory authority (USACE 2021). It is anticipated that project activities will be covered under NWP 38, as they are intended to contain or remove hazardous materials and the activities are sponsored by the U.S. Environmental Protection Agency (EPA). A pre-construction notification (PCN) will be required to gain coverage under NWP 38. If USACE determines that project activities are not able to be covered under NWP 38, an individual permit would be required.
CWA Section 401 Wisconsin Department of Natural Resources (WDNR) NR 299 – Water Quality Certification (WQC)	Provides states with the authority to issue water quality certifications to ensure that federal agencies will not issue permits or licenses that violate the water quality standards of the state.	WQC is anticipated to be required. It is anticipated that the project will be covered under NWP 38. WDNR has conditionally issued WQC for projects authorized by NWP 38. It is anticipated that the project will meet the applicable state CWA 401 WQC conditions.
Endangered Species Act of 1973, Section 7 Consultation 16 USC 1531 50 CFR 200	Requires that federal agencies ensure that any action authorized, funded, or carried out by the agency is not likely to jeopardize the continued existence of any threatened or endangered species or destroy or adversely modify critical habitat.	Consultation with U.S. Fish and Wildlife Service is anticipated to be required as part of the CWA 404 permit authorization.
Fish and Wildlife Coordination Act 16 USC 661 et seq. Wisconsin Endangered Resources Review NR 27 – Endangered and Threatened Species	Requires consultation when a modification of a stream or other water body is proposed or authorized and requires protection of fish and wildlife from adverse effects of site action.	Consultation with the WDNR is anticipated to be required as part of the CWA 404 permit authorization.
Section 106 Concurrence National Historical Preservation Act of 1966 (NHPA) 36 CFR Part 65 36 CFR 800	No activity is authorized under any NWP, which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the NHPA have been satisfied.	Consultation with the Wisconsin State Historic Preservation Office is anticipated be required as part of the CWA 404 permit authorization.

Appendix C. Overview of Applicable Federal, State, and Local Permitting Requirements – Milwaukee River Floodplains Reach

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Permit/Approval	Requirement/Purpose	Applicability to Project
Section 408 Authorization to Alter USACE Civil Works Projects 33 USC 408	Requires that alterations to any USACE federally authorized Civil Works project be reviewed and approved before being undertaken.	A Section 408 permit is anticipated to be required. Construction and operation of a temporary water treatment plant for the Great Lakes Legacy Act sediment remediation project is anticipated to occur within a portion of the existing USACE Dredged Material Disposal Facility because of the proximity to the Dredge Material Management Facility, where dredged sediment will be disposed.
Wisconsin Statutes Chapter 30 - Navigable Waters, Harbors, and Navigation NR 345 – Dredging in Navigable Waterways NR 341 – Grading on the Bank of Navigable Waterways NR 328 – Shore Erosion Control Structures in Navigable Waterways	Permit for removal of material from the beds of navigable waterways within Wisconsin, as well as the placement of structures (such as fill material, sheet pilings, coffer dams) on the bed of a river. Standards address procedures and limitation for dredging within navigable waterways and address erosion control protection, grading, and dredging along and within a navigable waterway.	A Lake or Stream Dredging Individual Permit is anticipated to be required. Applicable for activities including dredging and placement of structures (such as fill material, sheet pilings, and coffer dams) on the bed of a river. Also applicable for modifying the riverbank or performing excavation.
NR 216 – Storm Water Discharge Permit Construction Site Storm Water Runoff General Permit (Permit Number [No.] WI-S067831-6)	Wisconsin Pollutant Discharge Elimination System (WPDES) stormwater general permit authorizing stormwater discharge(s) from construction sites of 1 acre or more of land disturbance.	Coverage under the Wisconsin Construction Site Storm Water Runoff General Permit (WPDES Permit No. WI-S067831-6) is anticipated to be required. Applicable to stormwater runoff or other discharged water during construction activities that will disturb ≥1 acre.
40 CFR 761.77 NR 700 – Investigation and Remediation of Environmental Contamination	TSCA sediment removal and disposal would be implemented under the WDNR One Cleanup Program Memorandum of Agreement (RR-786) dated November 2014.	The process allows for the approval of the remediation under WDNR lead and oversight, in coordination with the EPA, under state authority for the pathways addressed under the NR 700 rules series. Remediation performed under the requirements of NR 700 would be seen as equivalent to a TSCA cleanup for the environmental pathways addressed under the NR 700 rules series.

Appendix C. Overview of Applicable Federal, State, and Local Permitting Requirements – Milwaukee River Floodplains Reach

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Permit/Approval	Requirement/Purpose	Applicability to Project
WPDES Individual Discharge Permit	Individual (i.e., site-specific) permit authorizing discharge from dredging operations where carriage water or interstitial water from sediment dredging projects will be discharged to surface water.	An individual WPDES discharge permit is anticipated to be required. This permit applies for point source discharge of carriage and/or interstitial water to waters of the state from mechanical or hydraulic dredging operations that target sediment contaminants greater than the probable effect concentration (PEC) for sediment toxicity listed in the Consensus Based Sediment Quality Guidelines (WDNR 2003).
Federal Coastal Zone Management Act of 1972 16 USC 1451 et seq. Wisconsin Coastal Management Program (WCMP)	An applicant for a federal permit affecting any land, water use, or natural resource in the coastal zone must provide a consistency certification. The project proponent must certify that activities will comply with the approved policies of the WCMP and be conducted in a manner consistent with the policies.	A federal consistency determination is anticipated to be required. The Milwaukee Bay Project Area boundaries are within the Wisconsin coastal zone (WCMP 2022).
National Flood Insurance Program 44 CFR 59 NR 116 – Wisconsin's Floodplain Management Program	Activities must comply with applicable state or local floodplain management requirements.	A floodplain development permit is anticipated to be required. Construction activities are anticipated to occur within the mapped floodway.
Local Notice to Mariners 33 CFR 165 - Notification	Establishes procedures for controlled access areas and regulated navigation areas.	The Notification is anticipated to be required. Applicable due to in-water work being performed in waterways with commercial and/or recreational usage while project activities occur. Project is within the jurisdiction of U.S. Coast Guard District 9.
Milwaukee River Greenway Overlay Zone – Storm Water Discharges, and Tree Protection Ordinance	Creates stormwater management and tree protection regulations that apply only to properties within the Milwaukee River Greenway Overlay Zone. This ordinance also establishes various requirements that apply to all tree maintenance and conservation permits issued by the commissioner, including a requirement for the replacement of removed trees, with a preference for native species, and the prohibition of any tree removal or disturbance that would result in soil erosion or slope destabilization.	A tree maintenance and conservation permit from the commissioner of public works is anticipated. Applicable due to the floodplain remedial target area occurring within the Milwaukee River Greenway Overlay Zone.

Appendix C. Overview of Applicable Federal, State, and Local Permitting Requirements – Milwaukee River Floodplains Reach

Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Permit/Approval	Requirement/Purpose	Applicability to Project
Village of Shorewood Village Code, Chapter 250 Construction Site Erosion Control and Stormwater Management	Sets forth regulations to minimize the amount of sediment and other pollutants carried by runoff or discharged from land-disturbing construction activity to waters of the state.	Compliance with Village of Shorewood erosion control and stormwater management requirements is anticipated to be required. Construction activities are anticipated to take place within the upstream floodplain areas which are located within the Village of Shorewood.

Sources:

U.S. Army Corps of Engineers (USACE). 2021. Nationwide Permits. 38 – Cleanup of Hazardous and Toxic Waste.

Wisconsin Coastal Management Program (WCMP). 2022. About Us. Accessed October 18, 2022. https://doa.wi.gov/Pages/LocalGovtsGrants/CoastalManagement.aspx

Wisconsin Department of Natural Resources (WDNR). 2003. Wisconsin Consensus-based Sediment Quality Guidelines. Recommendations for Use and Application, Interim Guidance RR-088. December.

Note:

Overview of permitting requirements is preliminary and may change during detailed design. Additional permits that are not listed here may be identified during detailed design.

≥ = greater or equal to

CFR = Code of Federal Regulations

CWA = Clean Water Act

EPA = U.S. Environmental Protection Agency

NHPA = National Historic Preservation Act of 1966

No. = Number

NR = Natural Resources

NWP = Nationwide Permit

PCN = pre-construction notification

PEC = Probable Effects Concentration per WDNR 2003

TSCA = Toxic Substances Control Act

USC = U.S. Code

USACE = U.S. Army Corps of Engineers

WCMP = Wisconsin Coastal Management Program

WDNR = Wisconsin Department of Natural Resources

WPDES = Wisconsin Pollutant Discharge Elimination System

WQC = Water Quality Certification

Appendix D
Cost Estimate

Table D-1. Remedial Alternative Cost[a] Comparison Summary - Milwaukee River Floodplains Reach

Focused Feasibility Study Report

Milwaukee Estuary Area of Concern

Base Year: 2022 **Date: 12/30/2022** **AACE Class 4**	**ALTERNATIVE 1** NO ACTION	**ALTERNATIVE 2**	**ALTERNATIVE 3a**	**ALTERNATIVE 3b**	**ALTERNATIVE 4**	**RECOMMENDED ALTERNATIVE**
CONSTRUCTION COSTS	**$0**	**$36,010,000**	**$30,710,000**	**$28,712,000**	**$22,553,000**	**$39,199,800**
Construction Implementation Services	$0	$2,893,000	$2,466,000	$2,306,000	$1,811,000	$3,148,600
Remedial Design and Project Management	$0	$2,095,000	$1,786,000	$1,671,000	$1,312,200	$2,280,400
Escalation (January 2023 to January 2025)	$0	$3,894,000	$3,320,000	$3,105,000	$2,439,000	$4,238,800
Total Capital Costs	**$0**	**$44,892,000**	**$38,282,000**	**$35,794,000**	**$28,116,000**	**$48,869,000**
Upper ROM Range (+50%)	$0	$67,338,000	$57,423,000	$53,691,000	$42,174,000	$73,304,000
Lower ROM Range (-30%)	$0	$31,425,000	$26,797,000	$25,056,000	$19,682,000	$34,209,000
Optional Restoration Items[b]	**$0**	**$5,951,000**	**$1,531,000**	**$3,481,000**	**$1,335,700**	**NA**
Total Capital Costs with Optional Restoration Items	**$0**	**$50,843,000**	**$39,813,000**	**$39,275,000**	**$29,451,700**	**$48,869,000**
Upper ROM Range (+50%)	$0	$76,264,500	$59,719,500	$58,912,500	$44,177,550	$73,303,500
Lower ROM Range (-30%)	$0	$35,590,100	$27,869,100	$27,492,500	$20,616,190	$34,208,300

[a]This is not an offer for construction and/or project execution. Please note, these cost estimates are assumed to represent the actual installed cost within the range of - 30 percent to + 50 percent of the costs indicated. The cost estimate has been prepared for guidance in project evaluation and implementation from the information available at the time of the estimate. The final costs of the project will depend on actual labor and material costs, competitive variable factors. Because of this, project feasibility and funding needs must be carefully reviewed prior to making specific decisions to help ensure proper project evaluation and adequate funding.

[b]Additional restoration costs are cost plus and would be in addition to the baseline habitat restoration costs included within the construction costs for each alternative. Recommended alternative includes the additional restoration items in the construction costs. Additional restoration items include all fees, performance and payment bonds, project managment, oversight, design, escalation and contingency costs.