ENVIRONMENTAL ANALYSIS AND DECISION ON THE NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT (EIS)

Form 1600-1 Rev. 6-2001

Department of Natural Resources(DNR)

Region or Bureau SER/Watershed Management
Type List Designation II

II

NOTE TO REVIEWERS: This document is a DNR environmental analysis that evaluates probable environmental effects and decides on the need for an EIS. The attached analysis includes a description of the proposal and the affected environment. The DNR has reviewed the attachments and, upon certification, accepts responsibility for their scope and content to fulfill requirements in s. NR 150.22, Wis. Adm. Code. Your comments should address completeness, accuracy for the EIS decision. For your comments to be considered, they must be received by the contact person before 4:30 p.m., March 30, 2008.

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Address: 2300 N. Dr. Martin Luther King Jr. Drive, Milwaukee, WI 53212

Title of Proposal: Kinnickinnic River Contaminated Sediment Remediation (Dredging/Restoration)

Location: County: Milwaukee City/Town/Village: City of Milwaukee

Township 6 Range 22 East Section 5

PROJECT SUMMARY

1. Brief overview of the proposal including the DNR action (include cost and funding source if public funds involved)

The Wisconsin Department of Natural Resources (WDNR) and US EPA Great Lakes National Program Office (GLNPO) propose to improve environmental quality of the Kinnickinnic River by removing contaminated sediment from a portion of the river between Becher Street and Kinnickinnic Avenue, Milwaukee, Wisconsin (Figure 1). Significant amount of sediment has been accumulating in the project area as shown in Figure 2 since early 1940s when routine dredging was ceased. Unfortunately the sediment deposited in the area is contaminated with persistent organic and inorganic contaminants, such as PCBs, PAHs, and heavy metals. The extent of contamination in sediment was assessed in 2002 followed by a conceptual design for sediment remediation in 2004. As a result, eleven project options (alternatives) were evaluated (Appendix A). The preferred option calls for dredging an 80-foot wide navigation channel to historical depth, approximately 20 ft, and sloping to the riverbanks to a depth of approximately 11ft below lower Lake Michigan Chart Datum at the level of 577.5 feet (IGLD85). This alternative calls for mechanically dredging up to 170,000 cubic yards of contaminated sediments or approximately 1200 pounds (545 kg) of polychlorinated biphenyls (PCBs) and 13,000 pounds (~6,000 kg) of polycyclic aromatic hydrocarbons from the 2,000-foot long (0.6-km) stretch of river. Figure 3 is a base map showing the project area and the boundary of the 80-foot channel. Figure 4 shows the cross sections that will be used as dredging configuration. The cross section locations are noted in Figure 3. These cross sections were selected partially due to different shoreline features in the

area. Maps in large paper are available upon request.

The sediment proposed for removal is the most contaminated and the upstream most significant source of contamination within the Kinnickinnic River. The WDNR proposes to dispose of the dredged sediment in the existing U.S. Army Corps of Engineers (USACE) administered Jones Island confined disposal facility (CDF) located downstream from the project area in the Milwaukee Harbor. In addition to the dredging, streambank stabilization measures will be constructed as necessary throughout the project area to minimize risk of seawall, streambank failure or slumping from dredging and related activities.

This project will provide short- and long-term environmental and economic benefits including reduction in sediment resuspension and transport to Lake Michigan, reduction of toxicity and risk of contaminated sediment exposure to aquatic life and humans, improvement of habitat for aquatic species, improved water depths for recreational and commercial boating, and improved redevelopment potential in the area. Here, resuspension means that when bottom sediment in an aquatic system is disturbed either by human activities or by natural flows and waves, they will detach from the river bed and resuspend in the water column and then be carried by the water to downstream or upstream depending on the aquatic system. As a result, the bottom sediment will be moved from its original location to other places when it eventually settles again or up taken by biota.

The estimated total project cost is $12 million for capital, engineering and administrative costs for dredging activities. Additional cost may will for shoreline protection and other activities. Funding has been applied for through the U.S. EPA Great Lakes Legacy Act. The WDNR, the KK River Business Improvement District, the Milwaukee Metropolitan Sewerage District, the U.S. ACE, and the City of Milwaukee will provide additional funding and in-kind contributions.

2. Purpose and Need (include history and background as appropriate)

The Kinnickinnic River discharges into Lake Michigan via the Federal navigation harbor at Milwaukee, Wisconsin. The project area is an approximately 2,000 feet long and 200 feet wide section of the Kinnickinnic River from Becher Street downstream to Kinnickinnic Avenue (Figure 1). The Kinnickinnic River between Lincoln Avenue and Kinnickinnic Avenue was historically designed to accommodate deep draft navigation. Nautical charts show that the project area was dredged as deep as 21 feet between 1915 and 1936 (Figure 5). Detailed sounding data recorded in 1940 (Figure 5) did not show significant changes of channel morphology compared to 1936 nautical chart. Routine dredging was stopped in the 1940s because of a decline in deep draft commercial traffic upstream from Kinnickinnic Avenue, while the US Army Corps of Engineers still maintains the navigation channel downstream from Kinnickinnic Avenue. The project area is included within the Milwaukee Estuary Area of Concern, one of 43 Great Lakes areas identified in the United States and Canada as requiring clean-up of toxic pollution for improving water quality in the Great Lakes. A remedial action plan was developed for the Milwaukee Estuary in 1994 that identifies contaminated sediment clean-up as the highest priority.

Since dredging in the project area stopped in the 1940s, sediment has accumulated resulting in the current shallow conditions of 0 to 10 feet below the lower Lake Michigan Chart Datum water level of 577.5 feet as referenced to the International Great Lakes Datum 1985 (IGLD85). In addition, the Kinnickinnic River, as a result of evolving urban growth and development between the 1900s and 1970s, has been a receiver of various point sources, run-off and spills. Such historical practices and lack of regulation resulted in contamination of the sediments, with polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs) as the primary concern of contamination.

Many regulatory and non-regulatory programs including point source controls, spill reporting and response, hazardous site cleanups and Brownfield redevelopment programs, as well as the decline in industry, have significantly reduced the input of contaminants into the Kinnickinnic River. More recently, stormwater control requirements are addressing nonpoint sources to the river. In addition, the growth of new and existing recreational and commercial-based enterprises has required new navigation depths for the project area. The increased boat traffic can cause increase of resupension of the contaminated sediment.

Multiple studies have been conducted between 1980 and 1995 by different investigators to define the extent of

contamination in the Kinnickinnic River. In 1994, maximum concentrations of 45 mg/kg (ppm) PCBs, and 1,022 ppm PAHs were detected. A 2002 effort, funded by a USEPA-GLNPO grant, assessed and defined the extent of sediment contamination in the study area. The maximum PCB concentration reported was 36 ppm, while samples showed maximum PAH concentrations of 244 ppm. Chemicals like PCBs and PAHs attach to particles and settle to the river bottom. Over time, these sediments accumulate and serve as a sink for contaminants, allowing them to collect at elevated levels. When the sediment is disturbed, these toxic contaminants return to the waterways. The high levels of PCBs and PAHs in this portion of the KK River are of concerns to environment and human health. The level of PCB and PAH concentrations are among the severely contaminated sediment sites in the state of Wisconsin [WDNR, 1995]. It is most likely one of the contributors to the fish consumption advisories in the Milwaukee due to PCBs. In addition, the fish community is limited by poor and lack of habitat. If this sediment source of toxic substances is not removed or isolated, the adverse effect on the biological community and risks to human health will remain. Also many landowners in the project area have expressed concern about the shallow navigation depths and sediment contamination within the Kinnickinnic River.

The *Milwaukee Estuary Remedial Action Plan* (WDNR, 1994), identifies contaminated sediment is a major contributing source of contaminants to Lake Michigan. As part of the contaminated sediment management strategy, the RAP document recommended conducting sediment clean ups in the upstream most portions of each watershed. The KK River project area is the significant source of contaminated sediments to the Milwaukee Estuary Area of Concern and to Lake Michigan.

The high levels of PCBs and PAHs in the sediment were directly related to multiple historical sources over the decades of urbanization in the KK River watershed and the project area. WDNR conducted a source identification study to investigate the potential contamination sources. Through review of historical documents and sediment analyses, the WDNR concluded that there are no significant ongoing continuous point sources of PCBs or PAHs loading into the river in the project area (US ACE and WDNR, 2004).

As a typical industrialized urban stream, the Kinnickinnic River is also subject to the impacts from combined sewer overflows, accidental spills and storm water runoff. State and local governments and private groups continue their efforts to control and prevent nonpoint source loads to the Kinnickinnic River. The Milwaukee Metropolitan Sewerage District (MMSD) has completed a major construction project (First Street Siphon Project) that will reduce the volume of combined sewer overflows to the Kinnickinnic River. The Southeastern Wisconsin Regional Planning Commission and MMSD have undertaken the 2020 facility planning and the Regional Water Quality Management Plan Update to further identify measures to implement to control water quality in the region, including the KK River watershed.

3. Authorities and Approvals (list local, state and federal permits or approvals required)

Federal Section 401 Clean Water Act
USACE Section 10 of River and Harbor Act Dredging Permit and Shoreline Protection Permit
Chapter 30.20, Wisconsin Statutes (dredging) and 30.12 (shore protection)
City of Milwaukee Ordinance Chapter 118 Section 118-7 (shore protection)
City of Milwaukee Ordinance Chapter 80, Subchapter 2 (noise control –night shift)
City of Milwaukee Ordinance Chapter 295-1011 (Floodplain)
City of Milwaukee Ordinance Chapter 290 (erosion control-for shoreline protection work or on land operation)
USACE authorization to dispose of material in Jones Island CDF

PROPOSED PHYSICAL CHANGES (more fully describe the proposal)

4. Manipulation of Terrestrial Resources (include relevant quantities - sq. ft., cu. yard, etc.)

Most of the impacts to terrestrial resources will be related to seawall repair and construction within the project area. Since the dredging will be conducted from dredge/barge operations on the KK River, disturbance to terrestrial

resources will be minimal. There is a slight possibility that small amount of sediment might be trucked away from the dredging area to the disposal site when the whether condition prohibit using barge for transportation.

5. Manipulation of Aquatic Resources (include relevant quantities - cfs, acre feet, MGD, etc.)

Through the authority of the Great Lakes Legacy Act funding, WDNR or USEPA will hire a contractor to mechanically remove up to 170,000 cubic yards of sediment from the project area. The preferred option for the project will create an 80-foot wide navigation channel dredged to historical depth (~20ft) and sloping to the streambanks to a depth of about ~11 feet. As a result of this project, about 1200 lbs (90% of the PCBs) and 13,000 lb of PAHs in the study area will be removed. Mechanical dredging is the method chosen for this project after evaluation of different types of dredging methods relative to the site characteristics. The advantage to using mechanical dredging for this project is that sediments are removed at nearly the same solids content as the in-place sediment so the volume of contaminated material and process water from the dredged sediments that requires disposal, management and/or treatment is minimized. In addition, mechanical dredging is the method used by the USACE to maintain the federal channel downstream from the project area, and the equipment and expertise for this method are readily available. Other dredging mechanisms were ruled out due to the land use types, channel morphology such as narrow channels with vertical walls, and direct connection with the federal navigation channel downstream from Kinnickinnic Ave.

Sediments will be resuspended as a result of mechanical dredging; therefore in-water control measures will be implemented to minimize migration of excessive resuspended solids. Silt curtains or other best management practices to contain the suspended sediments will be deployed until suspended solids concentrations return to an acceptable performance criterion documented in the final design report.

In addition to the dredging activities, proposed seawall construction (or reconstruction) will have an effect on the aquatic resources. Where possible and feasible, fish habitat structures will be considered in the future after contaminated sediment is removed.

6. Buildings, Treatment Units, Roads and Other Structures (include size of facilities, road miles, etc.)

No buildings, treatment units or other structures will be constructed as part of this project. Shoreline protection work will be accomplished through accessing individual properties with permission from each landowner. No new access roads, abutments or structures are anticipated.

7. Emissions and Discharges (include relevant characteristics and quantities)

Some exhaust emissions will be expected as a result of the use of equipment used for dredging and transporting materials to the CDF via barge and tug. There may be concern related to emission from PAH contaminated sediments to the air during dredging, especially naphthalene. This will not be a concern at this site. First, the lower molecular weight PAH compounds, such as naphthalene, at the KK River site are either at or below the reporting limits (USACE and WDNR, 2004). In addition, air monitoring studies conducted at other PAH contaminated sediment remediation sites showed no detection of naphthalene (http://www.slridt.com/html/monitor.php). With regarding to PCBs, studies have shown that emission of PCBs during dredging under open air condition is not of concern. Often no PCBs could be detected in excessive amount in the air during dredging operation.

Because mechanical dredging will be the method chosen, no significant discharges of decant water from the dredge bucket are anticipated; however, resuspension of sediment may occur. Silt curtains or other best management practices to contain the suspended sediments will be deployed until suspended solids concentrations return to an acceptable level as discussed in the draft-final engineering design report (Barr Engineering, 2007). This report will be finalized and available in February 2008.

8. Other Changes

Upon completion of this project, aesthetic appearance of the river and the general biological habitat will be greatly improved by removing debris such as tires, shopping carts and sunken boats from the area. This project will improve

the recreational and potential commercial navigation in the project area. In addition, shoreline protection will be greatly improved through the addition or repair of shoreline stabilization structures such as seawalls.

9. Identify the maps, plans and other descriptive material attached

Maps, plans and other descriptive materials are included in CDDR [Barr Engineering, 2004], Data Summary Report [WDNR, 2007], and Draft-Final Engineering Design Report [Barr Engineering, 2007. Note, the report will be finalized and available by the end of February 2008] as described in Section 10.

List of Figures that are included in this EA:

- Figure 1. Map of Project Area
- Figure 2. General Conditions in the Project Area – Selected Photographs
- Figure 3. Project map and 80 Foot Channel Configuration.
- Figure 4. Cross Section Drawings.
- Figure 5. Nautical Chart-project area in 1915 and 1936 and sounding data –project area in 1940 and 2000
- Figure 6. Model Prediction of PCB Concentrations in Water Column
- Figure 7. City of Milwaukee Zoning Map for Project Area
- Figure 8. Prediction of PCB concentrations in water column (based on 1995 model)

List of Tables:

- Table 1. 1997 Fishery Survey Results
- Table 2. PCB Concentrations in Fish Tissues in the Milwaukee Estuary AOC
- Table 3. List of Top Twenty Statewide PCB and PAH Contaminated Sediment Sites

List of Appendices:

- Appendix A: Remedy Selection Process
- Appendix B: List of Public Meetings and Example Minutes

AFFECTED ENVIRONMENT (describe existing features that may be affected by proposal)

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10. Information Based On (check all that apply):

☒ Literature/correspondence (specify major sources)

- USACE, 2003. *Sediment Sampling from the Kinnickinnic River, Milwaukee, Wisconsin. Final Report*, March 2003. Prepared by Altech for: US Army Corps of Engineers, Detroit District. DACW35-01-D-006. Delivery Order Number: 0016.
- USACE, 2002. *Subsurface Investigation for Kinnickinnic River, Milwaukee, Wisconsin. Report*, October 2002. Prepared by Coleman Engineering for: U.S. Army Corps of Engineers, Detroit District. CEC Project # GD-02356.
- USACE and WDNR, April 2004. *Kinnickinnic River, Wisconsin, Milwaukee Estuary Area of Concern Deepening/Remediation Concept Design Documentation Report (CDDR)*. Prepared by Barr Engineering Company for USACE and WDNR.
- WDNR, 2007. *Summary of Data Sets and Data Quality Evaluation*
- WDNR, 1994. Milwaukee Estuary Remedial Action Plan
- WDNR, 2004. *Polychlorinated Biphenyls (PCBs) and Polycyclic Aromatic Hydrocarbons (PAH) Source Identification Report.* (Appendix C of U.S. ACE CDDR, April 2004)

- WDNR, 2000. Prediction of PCB Transport from the Milwaukee Harbor Estuary to Lake Michigan: 1990 – 1995.
- WDNR, 1995. Inventory of Statewide Contaminated Sediment Sites and Development of a Prioritization System
- MMSD 2000. *Preliminary Engineering Report, First Street Siphon Project,*
- USEPA, Superfund, 1995.*Remedial Design/Remedial Action Handbook. 9355.0-04B, PB95-963307.EPA EPA 540/R95/059. Jun 1995*
- USEPA, Office of Water, 1998. *EPA's Contaminated Sediment Management Strategy*. EPA-823-R-98-001, April 1998.
- Southeastern Wisconsin Regional Planning Commission (SEWPC), 1986. A Water Resources Management Plan for the Milwaukee Harbor Estuary.
- USEPA, 2002. Site Assessment Report, Milwaukee Solvay Coke and Gas Site, Milwaukee, Milwaukee County, Wisconsin. Version. 1. Prepared by Tetra Tech EM Inc. for US EPA, Region 5 Emergency Response Branch.
- US ACE, 1997.Phase I Scoping Document – Summary Report, Dredged Material Management Plan Study.
- USEPA, 2005.Contaminated Sediment Remediation Guidance for Hazardous Waste Sites. EPA-540-R-05-012, OSWER 9355.0-85, December 2005.
- The National Academies, 2007. Sediment Dredging at Superfund Megasites: Assessing the Effectiveness Published by. the National Academies Press, Washington, D.C. www.nap.edu:
- USEPA. 1996. Clean Up the Nation's Waste Sites: Markets and Technology Trends. EPA 542-R-96-005, PB 96-178041, April 1996.
- USACE, 2000. Innovations in Dredging Technology: Equipment, Operations, and Management. ERDC TR-DOER-5, April 2000.
- USEPA, GLNPO, 2000. An Updated Summary of Contaminated Sediment Remediation Activities at Great Lakes Areas of Concern.
- US DOE, 1996. Risk Characterization for Ecological Risk Assessment of Contaminated Sites. ES/ER/TM-200
- USEPA, GLNPO, 2002. A Guidance Manual to Support the Assessment of Contaminated Sediments in Freshwater Ecosystems. Volume I, II, and III. EPA-905-B02-001-A, December 2002
- USEPA, GLNPO, 2001.Methods for Collection, Storage and Manipulation of Sediments for Chemical and Toxicological Analyses: Technical Manual EPA-823-B-01-002 October 2001
- XIK Corp., Honeywell International, Inc. and Domtar. Inc., 2005. Final Remedial Design/Response Action Plan. St. Louis River/Interlake/Duluth Tar Site, Sediment Operable Unit. Prepared by Service Engineering. Group.
- US. ACE, 1983. Dredging And Dredged Material Disposal EM 1110-2-5025, 25 March 1983
- USACE, 2005.Silt Curtains as a Dredging Project Management Practice. ERDC TN-DOER-E21 September 2005
- USACE, 2005. Rates and Effects of Sedimentation in the Context of Dredging and Dredged Material Placement. ERDC TN-DOER-E19, March 2005.

☒ Personal Contacts (list in item 26)

Field Analysis By: ☐ Author ☒ Other (list in item 26)

Past Experience with Site By: ☒ Other (list in item 26)

11. Physical Environment (topography, soils, water, air)

The Kinnickinnic River watershed drains about 33 square miles in a predominantly urban setting. The project area is

within a completely developed, mixed to heavy industrial and commercial district. Historical nautical charts for the Milwaukee Estuary show that the Kinnickinnic River project area was designed to accommodate commercial navigation. Water depth in the river channel has undergone substantial changes over the years. The stretch of the river between Lincoln Avenue (upstream from the project area) and Kinnickinnic Avenue was dredged down to as deep as 21 feet (Fig .5). Three drawbridges were constructed to accommodate large boats. The Becher Street drawbridge (upstream extent of project area) was replaced as a fixed bridge before 1944. By the mid 1940s, routine dredging stopped and accumulation of sediment resulted in a shallow condition in the stretch of the river. By 1978, water depth decreased to a maximum of about 8 feet between Becher Street and First Street and 12 feet between First Street and KK Avenue because of sediment accumulation and lack of dredging. The sediments observed in the study area consist of silts and fine sands. Sediment deposition occurs within the study area as the width and depth of the river increases downstream from Becher Street (stream velocity decreases). There is a 90 degree bend in the river downstream from Becher Street that changes the flow direction from south-north bound to west-east bound that causes a low energy depositional zone. Radionuclide dating of sediment cores (University of Wisconsin-Milwaukee, 1995) and review of the records of the nautical charts (USACE and WDNR, 2004) indicate that sediment deposited within the study area at an average rate of 2 to 20 cm/year. Due to hydraulic conditions, characteristics of the river morphology, and human activities, upstream of the project has less fine grained sediment. Gravels and stones were present in the areas between the two bridges at Lincoln Avenue and First Street. Sand, up to 98%, was the predominant component of sediment in the upstream sediment (WDNR, 2004; USACE and WDNR, 2004). In contrast, soft sediment thickness in the study area was approximately 10 to 24 feet thick in 2002 based on sediment core logs (Coleman Engineering, 2002). Assuming that dredging stopped sometime between 1936 and 1944 and that all soft sediment observed in 2002 had been deposited since 1944, the deposition rate would be approximately 5-13 cm/year, which is similar to the average deposition rate determined by radionuclide dating. This suggests that the majority of the soft sediments observed in 2002 were deposited since the last dredging of the channel in the 1940s. This assumption can also been supported by the development in the KK River watershed as shown in Figure 5. The land use was developed as urban usage increased from approximately 30% in 1940 to 90% in 1970 (SEWRPC, 2007). That also verify that majority of soft sediment deposited within this time period.

Measured stream velocity data does not exist for this portion of the River. Based on general observations, the average base flow for this stretch of the river is relatively low. However, because the KK River watershed is now almost all developed and also majority of the river channel has been concrete lined, it is a flashy river. Stream velocities could dramatically increase during storm events. At USGS gaging station 4087159 which is located upstream from the project area, recorded daily flow rates of 1,630 cfs as maximum and 2.3 as minimum with an average at 25 cfs for the time frame between 1982 and 2006. The flow rate will further increase at the project area by the additional discharge from combined sewer overflow and storm sewer outlet during storm events and lake water pumped from Lake Michigan at the MMSD flushing tunnel when dissolved oxygen is detected less than 3 mg/l. Sudden changes of river velocity as well as increase of boating traffic can cause resuspension of contaminated sediments.

Data from 2002 sediment investigation of the project area are summarized in the data summary report (WDNR, 2007) and sediment sampling report (USACE, 2003). Sediment cores were collected over elevations that ranged from a maximum top of sediment elevation of 575 feet msl (2.5 feet below the Lake Michigan Chart Datum IGLD85) down to a minimum bottom of sampling elevation of 550 feet msl (27.5 ft below the Lake Michigan Chart Datum IGLD85). The total organic carbon (TOC) content in selected sediment samples ranged from 0.2% to 6.8% with an average of 3.7%. The concentrations of PCBs and PAHs varied in space. PCB concentrations ranged from non-detect to about 36 ppm and PAH concentrations ranged from non-detect to 244 ppm. Toxicity characteristic leachate procedure (TCLP) results for metals, semivolatile and volatile organics, pesticides, and herbicides indicate that dredged material from the study area is not considered a hazardous waste according to the Federal Rules for Protection of the Environment (40 Code of Federal Regulations 261.24). In addition, the PCB levels in the collected sediment samples did not exceed the PCB waste characterization criteria (50 ppm) under the Toxic Substance Control Act (TSCA). Other waste characteristics, such as flashpoint, reactive cyanide, reactive sulfide, and PH were all within the normal range.

An analysis of upland soil data collected for previous utility and transportation projects within the project area (MMSD, 2000) indicates that the top 10-15 feet of soil consists of fill material. The next zone of soil to about 50 feet

deep is characterized as estuarine deposits (soft organic silts and clays). The predominant soil types disclosed throughout the area of investigation are cohesive soils including silt (ML), organic silt (OL), and clay (CL and CH). Some peat (Pt) was observed in the upper areas, and throughout the site are scattered thin seams of sand (SP-SM) and silty sand (SM). Probable bedrock was encountered between 42.2 and 46.5 feet deep as reported (Coleman Engineering Company, 2006). Groundwater was found between 4.2 feet and 10.1 feet deep.

There are multiple authorized crossings (utilities, pipelines, sewers, bridges) within the project area.

12. Biological Environment (dominant aquatic and terrestrial plant and animal species and habitats including threatened/endangered resources; wetland amounts, types and hydraulic value)

The project area has a long history of industrial use and physical manipulation of the water resources that have had a large impact on the current biological environment. The project area either currently contains or historically contained vertical seawalls, which provide no feasible habitat to support a resident fishery. The WDNR Southern Lake Michigan Fisheries Work Unit completed the most recent fish surveys for the Kinnickinnic River in 1997. Both survey sites were conducted upstream from the project area and show a fishery containing few, but tolerant species. The results of this survey are summarized in Table 1.

A fish consumption advisory for PCBs is in effect for several resident and migratory species found within the Milwaukee Estuary Area of Concern (AOC), which includes the project area. Common carp (*Cyprinus carpio)* are the only fish species with "Do Not Eat" advice within the AOC. Most of the resident fish species within the AOC fall under the 6 meals/year category. Since there are no barriers to migration between the inner and outer Milwaukee Harbor, and the Kinnickinnic, Menomonee and Milwaukee Rivers within the AOC, fish contaminant information presented in Table 2 assumes free movement of fish within the estuary.

PCB contaminated sediments are found throughout the Milwaukee Estuary AOC, and serve as a source of PCB contamination to fish tissue. The highest concentrations of PCB contaminated sediment are found within the project area. While direct exposure to PCBs by fish contact with sediment and water column occurs, we presume that PCB bioaccumulation through the food chain accounts for the elevated PCB tissue concentrations in whole fish and skin on fillets. The food chain and sediment contaminant assessment conducted by WDNR for the Sheboygan River [WDNR, 2000] showed that PCBs bioaccumulate significantly through the food chain with increasing concentrations from sediment to macroinvertebrates to fish.

Recreational boating traffic has increased with increased marina operations in the project area. This increase combined with low Lake Michigan water levels and excessive sedimentation has lead to sediment disturbance, potentially bringing more contaminants to the surface in the area. In addition, historical accumulation of sediment has created "mud flats" of sediment allowing for increased access to contaminated sediments by birds and other wildlife.

This project will significantly decrease the mass and concentrations of PCBs as well as other contaminants associated with sediment available to organisms within the Milwaukee Estuary food chain. This project will remove about 1,200 lb of PCBs and 13,000 lb of PAHs, respectively, and decrease the bioavailability of these persistent organic contaminates Although metals were not analyzed in 2002 sediment assessment, they coexist in sediment as detected in the past (SEWRPC, 2000) and will be removed as well.

PCB is used as surrogate or driving parameter for development of sediment clean up criteria. Information used for criteria development is documented in the data summary report (WDNR, 2007). If the post-remediation confirmation samples return with PCB concentration measured greater than the maximum background PCB concentration either further dredging will be conducted or a cover will be placed on the river bed. The dredging elevation at this point will be evaluated with 1940 sounding as well as the native clay layer. If post remediation surficial sediment concentrations exceed target level, but the dredging elevation has already reached either 1940 sounding data and/or possible native clay layer, no additional clean up will be required. A layer of sand up to 6 inches thick or thicker will be placed on top of the sediment to reduce bioavailability of PCBs to the food chain. Further evaluation for the cover will be conducted. We can presume that fish tissue concentrations will decrease over the long-term.

13. Cultural Environment

a. Land use (dominant features and uses including zoning if applicable)

Dominant land uses within the project area include commercial, manufacturing, and transportation. The area is zoned mixed to heavy industrial (Figure 7). Landowners in the project area recently formed a business improvement district (KK River BID #35).

b. Social/Economic (including ethnic and cultural groups)

The project area includes current or planned small marinas, commercial fishing as well as commercial and manufacturing facilities. The landowners in the project area are greatly concerned about the loss of use of the water for transportation due to the combination of low Lake Michigan water levels and accumulation of sediment. The extent of contamination in the sediments also concerns the landowners and other users of the water resources (boaters, anglers, canoeists, kayakers) who wish to recreate safely on the river.

c. Archaeological/Historical

An archaeological and historical review of the site was conducted. The WDNR Archaeologist is requesting a review of the potential historical significance of a sunken boat found within the project area. The review is in progress.

14. Other Special Resources (e.g., State Natural Areas, prime agricultural lands)

A Natural Heritage Inventory Review of the project site was conducted. There are no current records of state or federally threatened, endangered or special concern species resident in, or adjacent to the project area.

ENVIRONMENTAL CONSEQUENCES (probable adverse and beneficial impacts including indirect and secondary impacts)

15. Physical (include visual if applicable)

The removal of sediments from the project area will provide short and long-term effects. Short term positive effects include removal of PCBs, PAHs, metals and other conventional contaminants from the project area, reduce potential PCB transport from project area to Lake Michigan, reduce potential human health concerns for boater, and the increased opportunity for recreation in the area due to increasing water depth from sediment removal. Based on the PCB transport model framework prepared for Lake Michigan Mass Balance Study, the cumulative mass transport from the project area will be reduced by half in a time frame of six years if the sediment is remediated to a residual of 1-3ppm. Figure 8 shows the comparison of PCB concentrations in the project area before remediation and after remediation. PCB concentrations in water column will be reduced over the six year time period.

The project will also improve the aesthetics of the area, oxygen level, and general biological habit by removing unsightly debris accumulated in sediment deposits. Negative short term effects include sediment resuspension and increase in noise levels through the project implementation phase.

16. Biological (including impacts to threatened/endangered resources)

The contaminant removal will provide significant long term environmental effects because the contaminants will no longer be accessible to the aquatic community or have the ability to be transported to Lake Michigan, thereby leading to a decrease in fish tissue contamination.

17. Cultural

a. Land Use (including indirect and secondary impacts)

This area is entirely developed. Land uses will not change significantly as a result of this project, but landowners will have the opportunity to improve the shoreline stability, reduce potential shoreline erosion concerns, and maximize the use of their properties for transportation and boat mooring as a result of this project.

b. Social/Economic (including ethnic and cultural groups, and zoning if applicable)

This project is anticipated to have long-term beneficial economic impact to the area. The businesses in the project area have not been able to realize full economic potential because of limits on dredging. Also, studies have been done in other areas measuring the positive economic impacts of removing contaminated sediments.

c. Archaeological/Historical

The WDNR Archaeologist has completed a review to determine the significance of a sunken boat within the project area. A recommendation was made that the project can proceed without further efforts to preserve or document the vessel. Further review of this recommendation by the Wisconsin Historical Society soon is ongoing.

18. Other Special Resources (e.g., State Natural Areas, prime agricultural lands)

A Natural Heritage Inventory Review of the project site was conducted. There are no current records of state or federally threatened, endangered or special concern species resident in, or adjacent to the project area.

19. Summary of Adverse Impacts That Cannot Be Avoided (more fully discussed in 15 through 18)

There will be a short-term increase in noise and vehicle emissions as a result of the barge/dredge operation and seawall protection work.

DNR EVALUATION OF PROJECT SIGNIFICANCE (complete each item)

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20. Environmental Effects and Their Significance

a. Discuss which of the primary and secondary environmental effects listed in the environmental consequences section are long-term or short-term.

Sediment removal provides both long-term and short term effects as described in section 15. The biological effects noted will be long-term because any measurable significant improvement on biological process takes relatively longer time. The recreational and economical effects are both short and long term.

b. Discuss which of the primary and secondary environmental effects listed in the environmental consequences section are effects on geographically scarce resources (e.g. historic or cultural resources, scenic and recreational resources, prime agricultural lands, threatened or endangered resources or ecologically sensitive areas).

NA

c. Discuss the extent to which the primary and secondary environmental effects listed in the environmental consequences section are reversible.

21. Significance of Cumulative Effects

Discuss the significance of reasonably anticipated cumulative effects on the environment (and energy usage, if applicable). Consider cumulative effects from repeated projects of the same type. Would the cumulative effects be more severe or substantially change the quality of the environment? Include other activities planned or proposed in the area that would compound effects on the environment.

The major significance of this project is to provide for long-term contaminant removal from sediments that have contributed to contamination in the Milwaukee Estuary and Lake Michigan. This effort, combined with ongoing Corps of Engineers navigational dredging downstream will provide significant positive change to the environment. Other projects upstream from the estuary currently underway on the Milwaukee River will also provide for long-term benefits to the estuary and Lake Michigan.

22. Significance of Risk

a. Explain the significance of any unknowns that create substantial uncertainty in predicting effects on the quality of the environment. What additional studies or analysis would eliminate or reduce these unknowns?

NA

b. Explain the environmental significance of reasonably anticipated operating problems such as malfunctions, spills, fires or other hazards (particularly those relating to health or safety). Consider reasonable detection and emergency response, and discuss the potential for these hazards.

The barge/dredge operation and the contractors for the shoreline repair work will be required to follow accepted procedures to minimize risks to the environment, human health and safety. Each contractor will be required to have and to follow an emergency action plan.

23. Significance of Precedent

Would a decision on this proposal influence future decisions or foreclose options that may additionally affect the quality of the environment? Describe any conflicts the proposal has with plans or policy of local, state or federal agencies. Explain the significance of each.

If this project is not able to be implemented, the contaminants attached to the sediments will remain a source of toxicity to the aquatic environment, which will have a significant detrimental effect on the quality of the environment of the Kinnickinnic River and ultimately Lake Michigan.

24. Significance of Controversy Over Environmental Effects

Discuss the effects on the quality of the environment, including socio-economic effects, that are (or are likely to be) highly controversial, and summarize the controversy.

The sediment disposal option is contingent on receiving US Army Corps of Engineers (USACE) approval for use of the Jones Island CDF. In addition, some birding enthusiasts and possibly nearby landowners may be concerned that sediment disposal from the KK River project will have an adverse effect on their recreational pursuits or aesthetics. However, the materials that have already be placed in the CDF are not that greatly different from the project area after a review conducted by the US ACE. In addition, the dredged sediment from the project area will be placed in a special cell in the CDF.

ALTERNATIVES

25. Briefly describe the impacts of no action and of alternatives that would decrease or eliminate adverse environmental effects. (Refer to any appropriate alternatives from the applicant or anyone else.)

No action on this project will mean that the PCB contamination in the Kinnickinnic River will continue to be a source of toxics to the river and Lake Michigan. This will lead to continued movement of PCBs through the food chain.

SUMMARY OF ISSUE IDENTIFICATION ACTIVITIES

26. List agencies, citizen groups and individuals contacted regarding the project (include DNR personnel and title) and summarize public contacts, completed or proposed).

This project has been ongoing since 2002. Agency participation includes US EPA GLNPO, WDNR, City of Milwaukee, and U.S. Army Corps of Engineers. A number of public meetings have also been held throughout the course of the project. The table in Appendix B-1lists public meeting dates, meeting attendees and meeting summaries.

DECISION (This decision is not final until certified by the appropriate authority)

In accordance with s. 1.11, Stats., and Ch. NR 150, Adm. Code, the Department is authorized and required to determine whether it has complied with s.1.11, Stats., and Ch. NR 150, Wis. Adm. Code.

Complete either A or B below:

A. EIS Process Not Required ☒

The attached analysis of the expected impacts of this proposal is of sufficient scope and detail to conclude that this is not a major action which would significantly affect the quality of the human environment. In my opinion, therefore, an environmental impact statement is not required prior to final action by the Department.

B. Major Action Requiring the Full EIS Process ☐

The proposal is of such magnitude and complexity with such considerable and important impacts on the quality of the human environment that it constitutes a major action significantly affecting the quality of the human environment.

Signature of Evaluator	Date Signed
Marsha B. Burzynski	Apr 16 2008

Number of responses to news release or other notice: 0

Certified to be in compliance with WEPA	
Environmental Analysis and Liaison Program Staff	Date Signed
Michael C. [illegible]	16APR08

NOTICE OF APPEAL RIGHTS

If you believe that you have a right to challenge this decision, you should know that Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed.

For judicial review of a decision pursuant to sections 227.52 and 227.53, Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review shall name the Department of Natural Resources as the respondent.

To request a contested case hearing pursuant to section 227.42, Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. The filing of a request for a contested case hearing is not a prerequisite for judicial review and does not extend the 30-day period for filing a petition for judicial review.

Note: Not all Department decisions respecting environmental impact, such as those involving solid waste or hazardous waste facilities under sections 144.43 to 144.47 and 144.60 to 144.74, Stats., are subject to the contested case hearing provisions of section 227.42, Stats.

This notice is provided pursuant to section 227.48(2), Stats.

News Release

Wisconsin Department of Natural Resources
Southeast Region
2300 N Dr Martin Luther King Jr Dr, P.O. Box 12346, Milwaukee, WI 53212
Phone: (414) 263-8500 TDD: 711

For Release: February 29, 2008

Contact(s): Marsha Burzynski, Regional Water Resources Planner (414) 263-8708

DNR and EPA announce clean up plans for Kinnickinnic River

MILWAUKEE - The Department of Natural Resources and U.S. Environmental Protection Agency Great Lakes National Program Office are seeking public comments on plans to improve the environmental quality of the Kinnickinnic River by removing contaminated sediment from a section of the river between Becher Street and Kinnickinnic Avenue. This location is identified as a significant source of contamination.

After reviewing a range of dredging and disposal options to clean up the area, the preferred method is to remove nearly 170,000 cubic yards of contamined sediments containing approximately1200 pounds of polychlorinated biphenyls (PCBs) and 13,000 pounds of polycyclic aromatic hydrocarbons (PAHs) from a 2000-foot long stretch of the river.

Some of the benefits of the project include reduction of toxicity and risk of contaminated sediment exposure to aquatic life and humans, an improved habitat for aquatic species, and enhanced boating and redevelopment potential in the area.

The proposed action should not result in significant adverse environmental effects. The DNR has made a preliminary determination that an environmental impact statement will not be required for this action.

Copies of the environmental assessment that influenced DNR's preliminary determination are available from Marsha Burzynski, Regional Water Resources Planner by phone: (414) 263-8708 or e-mail: marsha.burzynski@wisconsin.gov. To download the environmental assessment go to: Kinnickinnic River Environmental Restoration Project

Public comments, either written or oral, on the environmental assessment are welcome and must be submitted to Marsha Burzynski no later than March 30, 2008.

The following counties are in the Southeast Region: Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Walworth, Washington, Waukesha.

The Public Affairs Manager for DNR Southeast Region is Marcus Smith, (414) 263-8516.

Figures

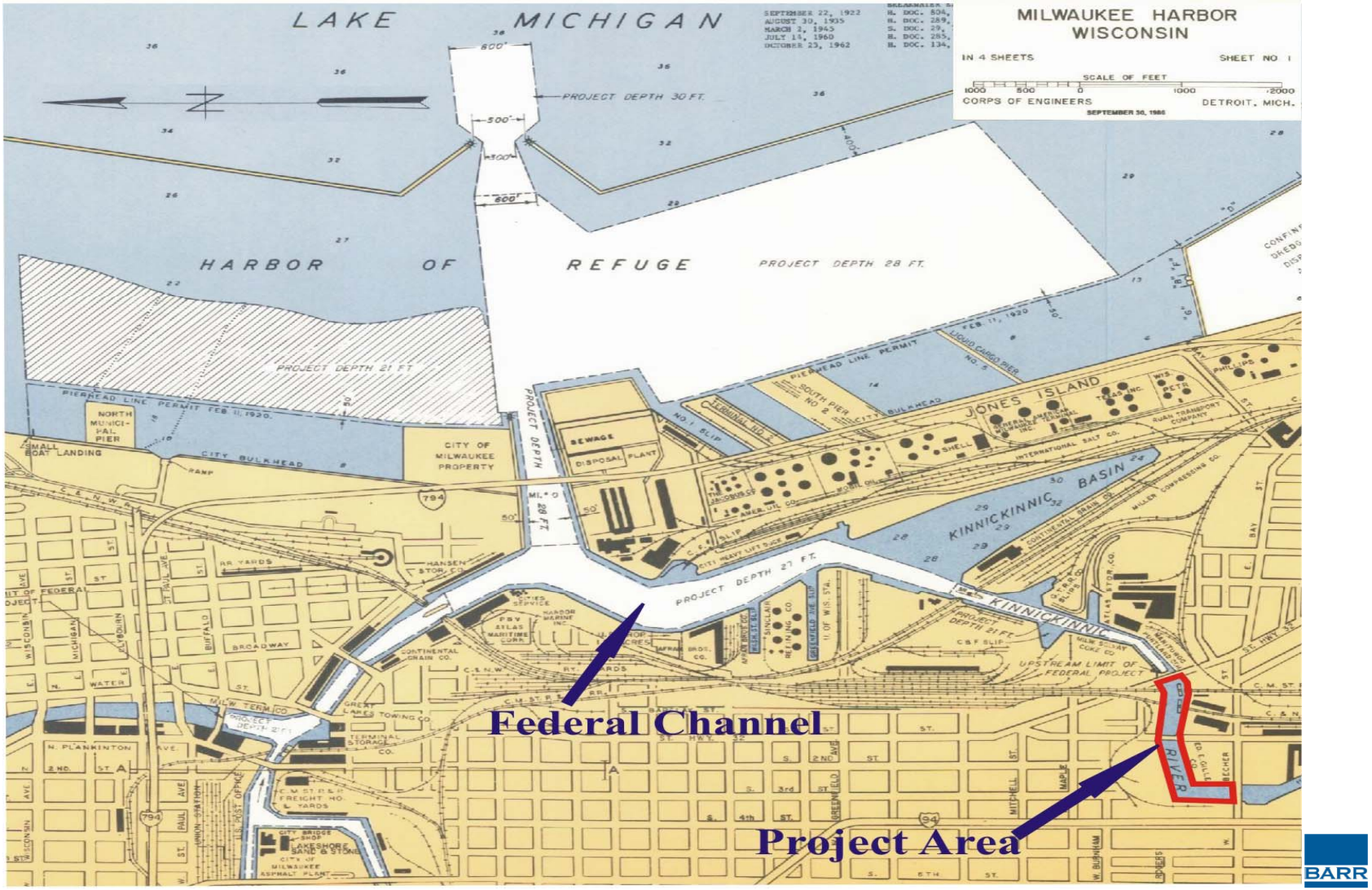


Figure 1. Project area relative to the Federal Channel and Milwaukee Outer Harbor.

Figure 2. General condition of the project area

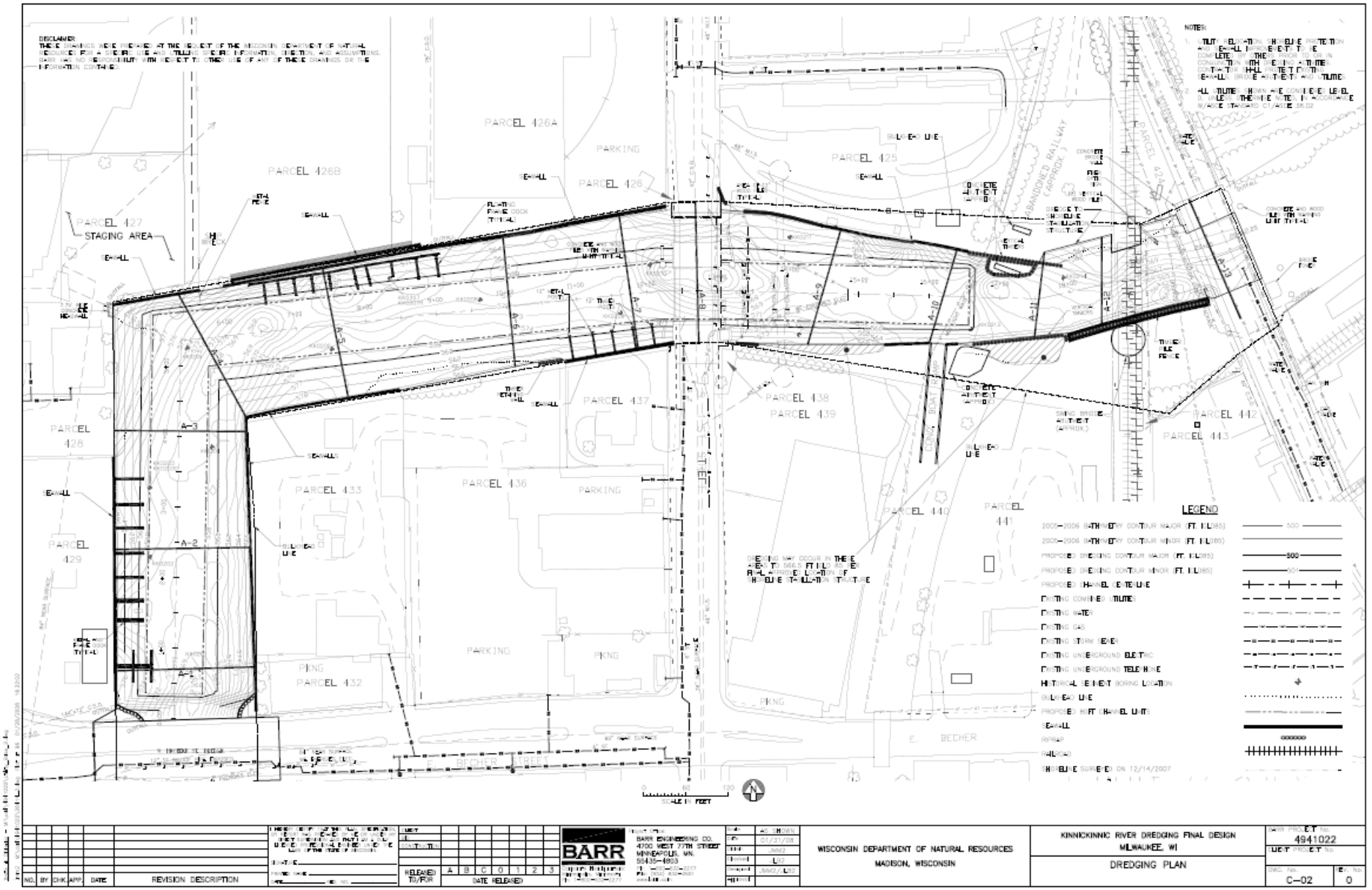


Figure 3. Plan view of the dredging configuration (note: plots with better view are available upon request)

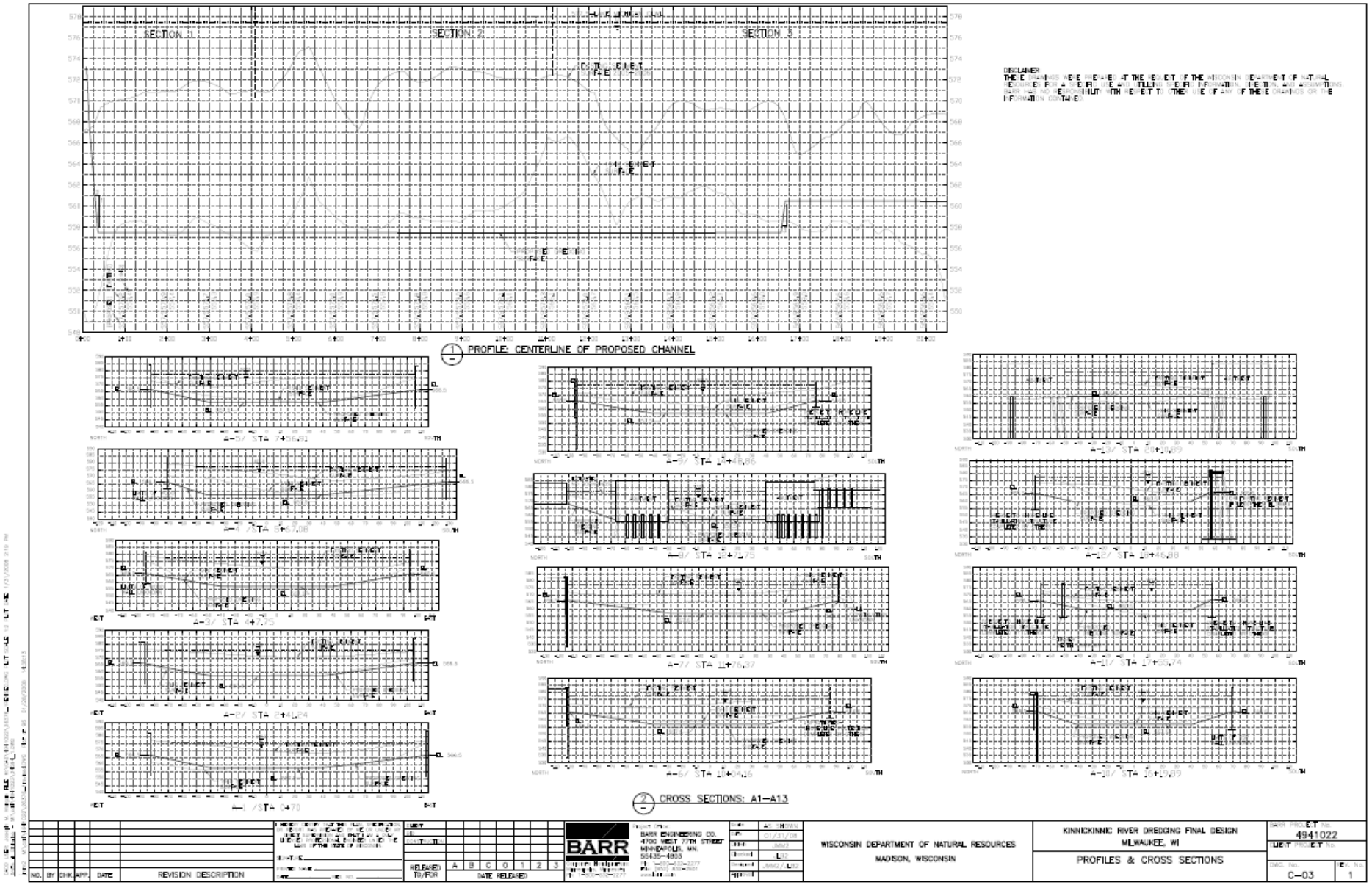
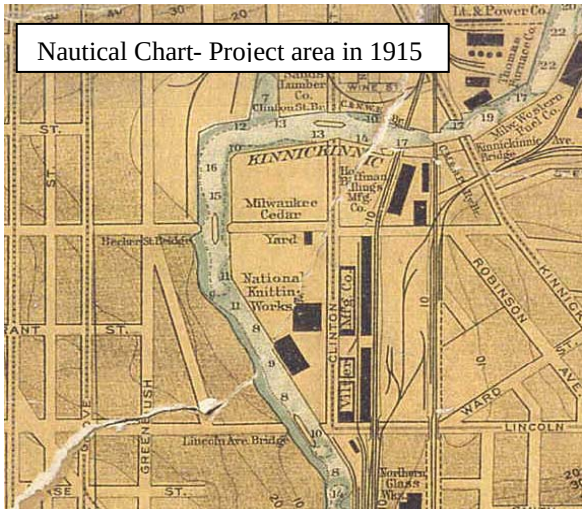
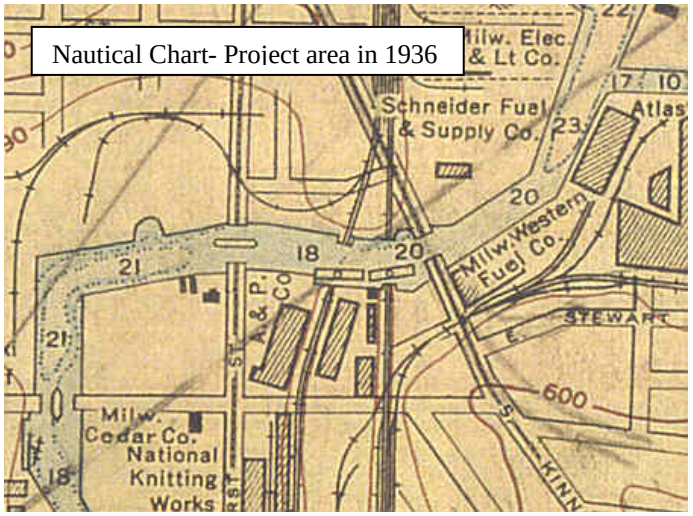


Figure 4. Dredging cross sections (note: plots with better view are available upon request)





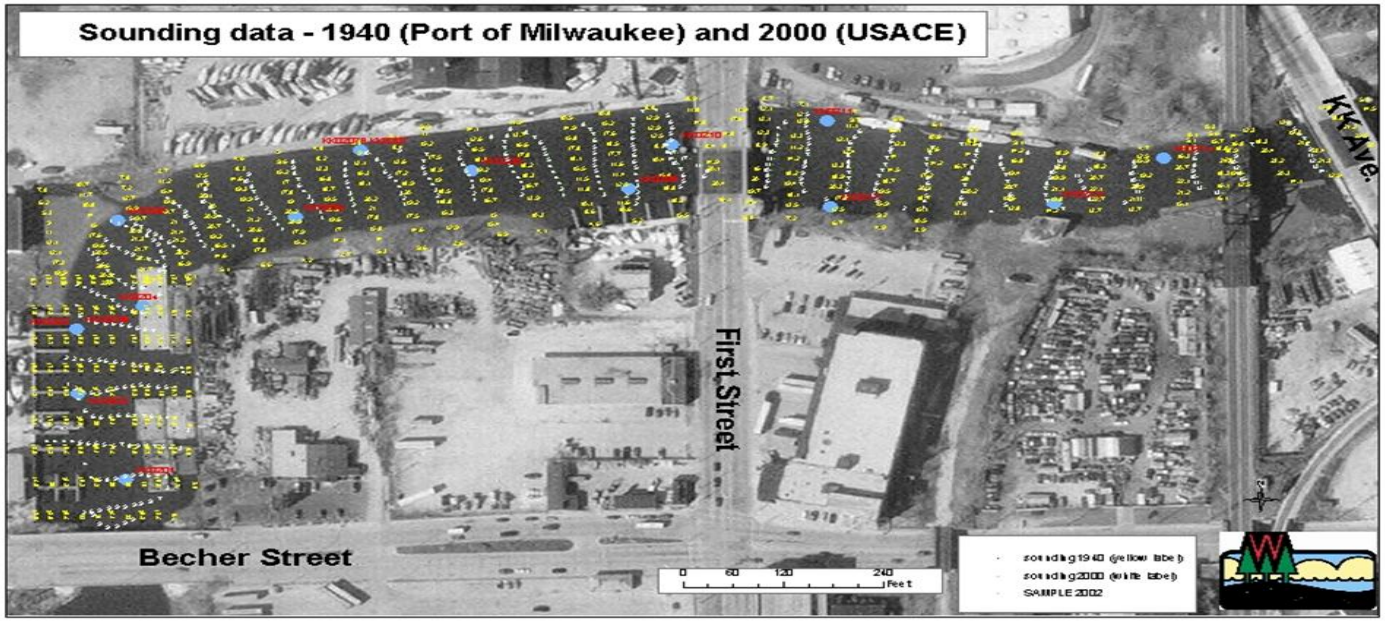


Fig. 5 Nautical Chart-project area in 1915 and 1936 and sounding data –project area in 1940 and 2000 (Source: Port of Milwaukee and USACE)

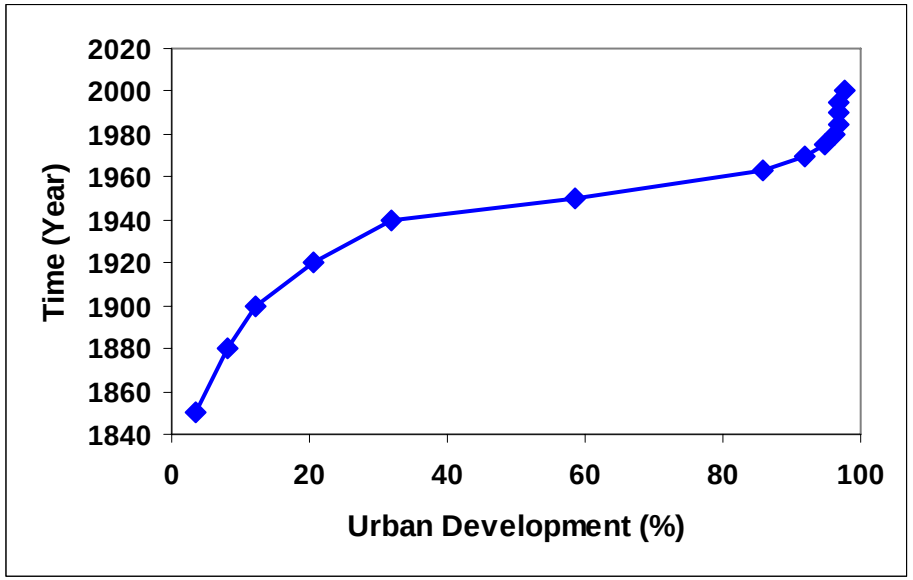


Fig. 6 History of urbanization in the KK River watershed (adopted from WERPC, 2007)

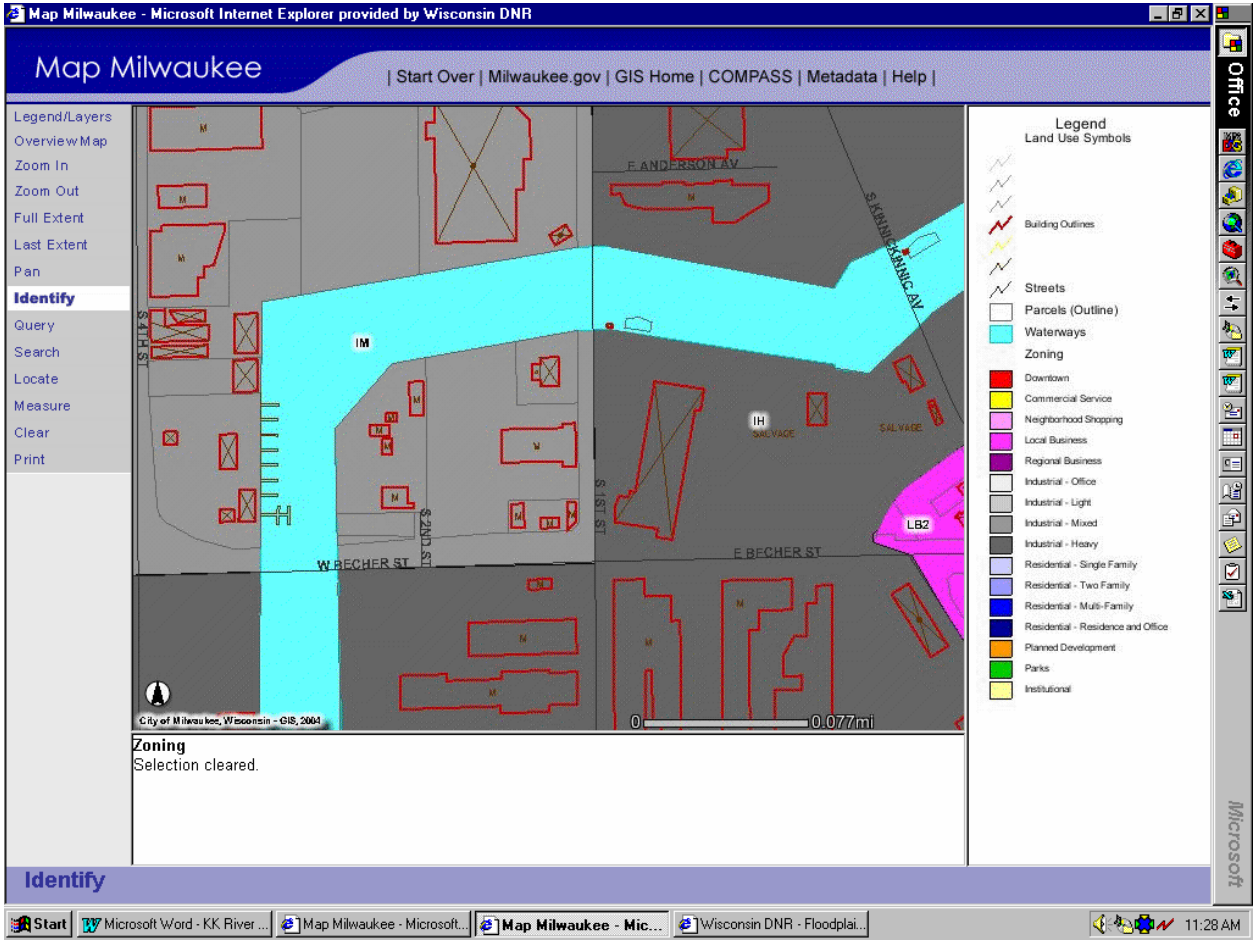


Figure 7. Zoning map

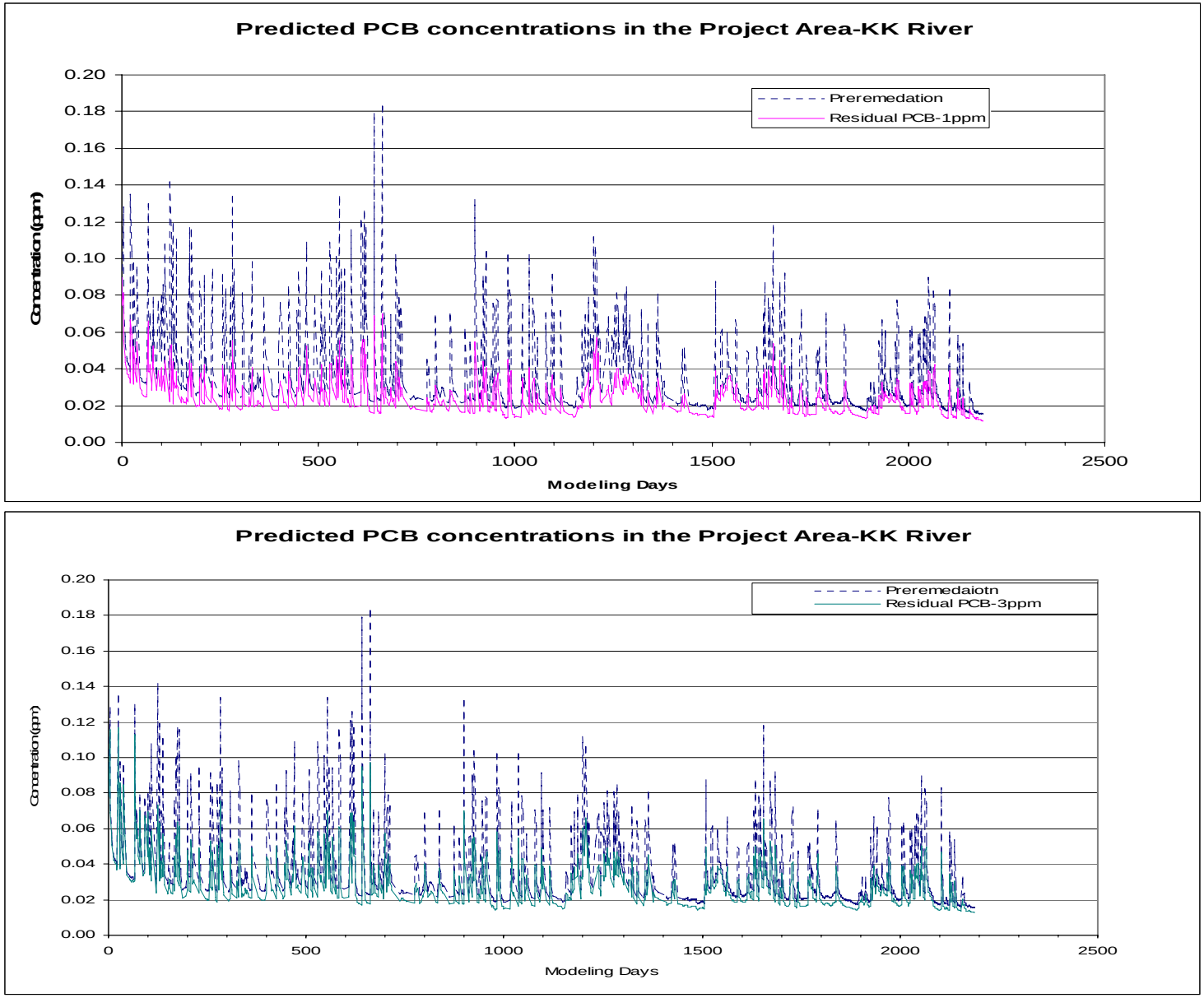


Figure 8. Prediction of PCB concentrations in water column (based on 1995 model)

Tables

Table 1. 1997 Kinnickinnic River Fish Collection

LOCATION*	COMMON NAME	SCIENTIFIC NAME	Number Captured
KKR1	ALEWIFE	ALOSA PSEUDOHARENGUS	7
KKR1	GIZZARD SHAD	DOROSOMA CEPEDIANUM	15
KKR1	GOLDFISH	CARASSIUS AURATUS	1
KKR1	COMMON CARP	CYPRINUS CARPIO	11
KKR1	FATHEAD MINNOW	PIMEPHALES PROMELAS	1
KKR1	COMMON CARP X GOLDFISH		8
KKR1	REDHORSES	MOXOSTOMA SPP.	1
KKR1	WHITE SUCKER	CATOSTOMUS COMMERSONI	16
KKR1	GREATER REDHORSE	MOXOSTOMA VALENCIENNESI	1
		TOTAL	**61**
KKR2	ALEWIFE	ALOSA PSEUDOHARENGUS	17
KKR2	GIZZARD SHAD	DOROSOMA CEPEDIANUM	71
KKR2	COMMON CARP	CYPRINUS CARPIO	8
KKR2	GOLDEN SHINER	NOTEMIGONUS CRYSOLEUCAS	2
KKR2	FATHEAD MINNOW	PIMEPHALES PROMELAS	2
KKR2	COMMON CARP X GOLDFISH		1
KKR2	WHITE SUCKER	CATOSTOMUS COMMERSONI	8
KKR2	BLACK BULLHEAD	AMEIURUS MELAS	1
KKR2	THREESPINE STICKLEBACK	GASTEROSTEUS ACULEATUS	2
KKR2	PUMPKINSEED	LEPOMIS GIBBOSUS	1

*KKR1 = Chase Avenue to Lincoln; KKR2 = Lincoln to Becher

Table 2. Fish Tissue PCB Concentrations for Milwaukee Estuary Sport Fish

	Whole fish samples					*Skin on fillets*			
Species	**Fish size Range (in)**	**PCB Range (ppm)**	**Average Length (N)**	**Ave. PCB Conc (N)**		**Fish size Range (in)**	**PCB Range (ppm)**	**Average Length (N)**	**Ave. PCB Conc (N)**
Carp	9.5-27.2	4.1-49.0	18.9 (14)	20.1 (14)		11.0-31.4	0.4-52.0	20.1 (21)	9.5 (21)
Northern pike	18.9-20.2	12.0-21.0	19.5 (3)	16.3 (3)		13.5-23.3	0.2-4.4	19.9 (14)	2.1 (14)
Redhorse	9.6-13.2	2.7-9.9	11.5 (4)	5.2 (4)		9.3-19.7	0.6-2.7	16.2 (11)	1.6 (11)
Walleye	15.4-17.8	4.2-2.1	16.5 (5)	8.2 (5)		7.3-21.5	0.1-3.5	16.7 (36)	0.7 (36)
White sucker	7.8-12.6	3.1-15.0	10.8 (5)	6.4 (5)		8.3-16.9	0.3-2.9	14.4 (18)	1.2 (18)

Table 3. Sediment Sites Severely Contaminated with PCBs and/or PAHs

(top 20 sites/areas in the state based on the data collected prior to 1995)

Sites contaminated with PCBs				Sites contaminated with PAHs			
Ranking	**SITE NAME**	**PCBs mg/kg (PPM)**	**Ratio* C/LEL-M**	**Ranking**	**SITE NAME**	**PAH mg/kg (PPM)**	**Ratio* C/LEL-M**
1	CEDAR CREEK, RUCK POND	155200	2217143	1	MANITOWOC HARBOR/RIVER-MGP SITE	13233	3308
2	SHEBOYGAN RIVER, FALLS TO WAELDERHAUS	4500	64286	2	CRAWFORD CREEK	12696	3174
3	PINE CREEK-HAYTON MILLPOND-MANITOWOC RIVER	1900	27143	3	LITTLE MENOMONEE RIVER	5184	1296
4	MILWAUKEE RIVER-ESTABROOK IMPOUNDMENT	380	5429	4	MENOMINEE R AT MARINETTE STP	3587	897
5	FOX RIVER ABOVE DE PERE-DEPOSIT A (LLBDM)	222	3171	5	KINNICKINNIC RIVER, 1ST STREET	1000	250
6	SHEBOYGAN HARBOR, INNER	220	3143	6	BURNHAM AND SOUTH MENOMONEE CANAL	162	41
7	FOX RIVER ABOVE DE PERE-DEPOSIT N	131	1871	7	OAK CREEK	116	29
8	FOX RIVER ABOVE DE PERE-DEPOSIT X	127	1814	8	ST. LOUIS RIVER-WEST DULUTH AT HALLETT	115	29
9	CEDAR CREEK, RUCK POND RACEWAY	126	1800	9	ASHLAND HARBOR	99	25
10	FOX RIVER BELOW DE PERE-OUTSIDE OLD CHAN ABV FT HWD	110	1571	10	SUPERIOR BAY @ HOG ISLAND INLET	85	21
11	FOX RIVER ABOVE DE PERE-DEPOSIT C (LLBDM)	100	1429	11	WILSON PARK CREEK	84	21
12	CEDAR CREEK, WIRE AND NAIL POND	86	1229	12	WISCONSIN RIVER, MERRIL	83	21
13	CEDAR CREEK, COLUMBIA POND	85	1214	13	BEAVER CREEK	80	20
14	FOX RIVER BELOW DE PERE-OLD SHIPPING CHAN ABV FT HWD	84	1200	14	MILWAUKEE RIVER-ESTABROOK IMPOUNDMENT	66	17
15	CEDAR CREEK, HAMILTON POND	82	1171	15	FOX RIVER ABOVE DE PERE-DEPOSIT POG (LLBDM)	48	12
16	FOX RIVER BELOW DE PERE-BELOW FT HWD	65	929	16	LINCOLN CREEK	44	11
17	FOX RIVER ABOVE DE PERE-DEPOSIT E/D (LLBDM)	57	814	17	MILWAUKEE RIVER, WALNUT TO C&NW	41	10
18	FOX RIVER ABOVE DE PERE-DEPOSIT POG (LLBDM)	51	729	18	KENOSHA HARBOR	32	8
19	KINNICKINNIC RIVER, DOWNSTREAM OF BECHER STREET	45	643	19	MILWAUKEE HARBOR, OUTER	26	7
20	FOX RIVER ABOVE DE PERE-DEPOSIT EE/GG/HH	41	586	20	FOX RIVER ABOVE DE PERE-DEPOSIT EE/GG/HH	16	4

* LEL-M: modified low-effect-level PCB_{total} = 0.07 ppm, PAH_{total} = 4 ppm

Appendix A

Remedy Selection for the Kinnickinnic River Sediment Remediation Project

I. Summary

This document summarizes the process of how the remedy is selected for the Kinnickinnic River sediment remediation project[a]. In general, WDNR selected the remedial option for the KK River project in accordance with ch. NR 722 for sites or facilities where a Department-funded remedial action is proposed pursuant to Section 292.31(3)(f) or 292.11, Stats. In addition, information as described in EPA's guidance document of "A Guide to Preparing Superfund Proposed Plans, Records Of Decision, and Other Remedy Selection Decision Documents, 1999" was also used. A final remedy was selected by undertaking the steps as follows:

1. Identification of remedial options
2. Evaluation of the proposed remedial options
3. Public notification

The remedy selected calls for mechanically dredging an 80-ft channel at a depth of 20 feet to 24 feet below lower Lake Michigan Datum (IGA85) with side sloped to 11 ft near the shoreline. Approximately 170,000 cubic yards (cy) of dredged sediment from the project area will be disposed of on the Milwaukee confined disposal facility (CDF) that is operated by the US Army Corps of Engineers. The following sections will further elaborate the remedy selection processes as listed above.

II. Identification of remedial options

Based on the historical records of contamination in sediment, land use types, development records, nautical charts, and morphology of the KK River AOC, the project area was defined with Becher Street as the upper limit and KK Avenue as the downstream limit. The project area is a narrow channel with an area of approximately 200 feet wide and 2,000 feet long (400,000 ft^2 or approximately 37,000 m^2). Sediment remedial options were identified following site assessment (Phase I) and pre-engineering design (Phase II). In September 2002, sediment cores with depth varying in a range of 8-foot to 24-foot were collected from fourteen locations in the project area. The purpose of the sampling was to determine the extent of PCB and PAH contamination in sediment. Results from the site assessment have been documented in several reports as listed in attachment A-A of this appendix.

Upon completion of the site assessment, a pre-engineering design or concept design (Phase II) was conducted. Various options and techniques were evaluated with respect to sediment removal, dredged sediment transportation, and disposal.

[a] Please be noted that when the project was presented in earlier stages it was named as "environmental restoration". In order to clarify the project from other on going KK River projects, it has been changed to KK River Sediment Remediation Project

Because the project area is narrow, the entire area is subject to remediation. Then the critical variable left in delineation of sediment removal configuration is the post remediation elevation. It essentially affects whether or not the project will meet the remedial objectives. More specifically it affects the volume of sediment being removed, project costs, and post remediation residuals.

The primary factor in determining the post remediation elevation for the KK River project was the vertical distribution of PCB and PAHs relative to achieving a clean up criteria of PCBs of an average concentration equal to or less than 1 mg/kg (ppm) that is the local background concentration. It is assumed that because PAHs coexist with PCBs in the area, if the PCB concentration objective is achieved the PAH concentrations will be at low level after remediation. Other information include navigation needs, historical sounding records, and river morphology also support the remedy selection. Historical nautical charts provided a record of how the river channel in the project area has changed over more than 100 years.

Based on these factors, a total of eleven project options were proposed with the following general scenarios:

- Bank to bank with various elevations
- An 80-foot channel with various elevations and sloping to side
- Disposal of dredged sediment to the CDF or to a landfill site

The eleven options including no action and four removal actions combined with two disposal options are described in Attachment –A-A and will be further discussed in next section. Attachment A-B is a memorandum that was distributed to the KK River Remedial Alternative selection team that included the US EPA GLNPO, USACE, Port of Milwaukee, WDNR staff, and riparian property owners.

III. Evaluation of the proposed remedial options

As described in Table A-1 there were various dredging configurations and disposal options.

The evaluation and selection of a remedy out of the eleven options were processed in accordance with ch. NR 722 for sites or facilities where a Department-funded remedial action is proposed pursuant to Section 292.31(3)(f) or 292.11, Stats. The alternative selected shall "constitutes the most appropriate technology or combination of technologies to restore the environment, to the extent practicable, within a reasonable period of time and to minimize the harmful effects of the contamination to the air, land or waters of the state." With this overall goal, WDNR developed a list of detailed evaluation criteria and associated scoring system. The evaluation criteria are summarized as follows:

Navigation condition: to evaluate whether or not the options will meet the recreational or potentially commercial navigation needs with respect to the water column depth and channel width.

Overall protection of human health and environment: to evaluate the reduction of the potential risks imposed by the contaminants in the sediment to human health and the environment.

Short-term effectiveness: to evaluate the reduction of toxicity and mobility of the contaminants in sediment immediately after the implementation of the alternative.

Long-term effectiveness: to evaluate the reduction of toxicity and mobility in a long term time period (possibly for 25 years).

Implementability: to evaluate the technical and administrative feasibility of a remedy, including the availability of materials and services to implement a particular option.

Cost-effectiveness: to evaluate the cost-effectiveness of a remedy with regard to the project objective that is to improve the navigational condition and to clean up the contaminated sediments. The costs include the estimated capital costs, annual operation and maintenance costs and net present value of capital and operation and maintenance costs.

Public acceptance: to evaluate whether the public will have the objection to a remedy

WDNR team members responded to each selection criteria with a score and other members provided recommendation for the remedial alternative. Table A-1 illustrates one of the scores assigned by a team member. As a result, Project Alternative 8 as defined in Table 1 of Attachment A-B was selected for further engineering design and implementation. This option calls for dredging an 80-ft channel with an elevation between 20feet and 24 feet below Lake Michigan low water datum then sloping to the shoreline at 11 feet. Dredging to this elevation will achieve average PCB concentration equal to or less than 1 ppm in the 80-foot channel with variations in sediment in sloping area. During remedy selection process, only the nautical charts on low resolution were available but it was believed that the post remediation concentrations of PCBs and PAHs on side will be restored to the time between 1936 and 1944. At a later time, detailed 1940 sounding data was made available and it was confirmed that by leaving the sediment on side with the slope from the 80-foot channel to the side in deed will restore to the 1940 condition when PCBs were not widely used nationally and PAHs deposition did not reach its peak either. As part of remedial design, further contingency plan, such as clean sand cover layer after remediation, will be placed to reach an average concentration of 1ppm. Furthermore, delineation of the channel for dredging will be further refined during the final design phase of the project.

IV. Public notification

After the remedial alternative was selected, WDNR prepared a Remedial Action Options Report and announced the decision by publishing a public notice in the local newspaper, the Milwaukee Journal Sentinel, on April 14, 2004 for 30-day public comments. No comments were received during the 30-day time period. The remedy selected was then finalized for the project.

Table A-1. Remedy Selection Evaluation Results (an example)

Alternatives (Alt No.)	Alternative Description[a]	Remedy Selection Criteria[b]							Sum	Rank (1= Preferred)
		Crt. 1	Crt. 2	Crt. 3	Crt. 4	Crt. 5	Crt. 6	Crt. 7		
1	No Action 1	0	0	0	0	0	10	0	10	11
2	Alternative 2A1: Bank to bank- ~24.5 ft deep-CDF	10	10	10	10	5	5	5	55	3
3	Alternative 2A2: Bank to bank-~ 24.5 ft deep-landfill	10	10	10	10	5	3	4	52	6
4	Alternative 2B1: Bank to bank -11ft deep-capping-CDF	5	5	7	6	7	6	6	42	8
5	Alternative 2B2: Bank to bank -11ft deep-capping-Landfill	5	5	7	6	7	4	5	39	10
6	Alternative 2C1: Bank to bank-12.5ft deep-CDF	6	6	7	6	7	7	6	45	7
7	Alternative 2C2: Bank to bank-12.5ft deep-landfill	6	6	7	6	7	4	5	41	9
8	Alternative 3A1: 80 ft wide-~24.5 ft (channel) and 11 ft (side) deep-CDF	10	9	9	9	10	9	7	63	1
9	Alternative 3A1: 80 ft wide-~24.5 ft (channel) and 11 ft (side) deep-landfill	10	9	9	9	10	3	5	55	4
10	Alternative 3B1: 80 ft wide- ~21 ft (channel) and 11 ft (side) deep-CDF	9	8	8	8	10	10	7	60	2
11	Alternative 3B1: 80 ft wide- ~21 ft (channel) and 11 ft (side) deep-landfill	9	8	8	8	10	4	6	53	5

[a] Details of the alternatives are described in the memo

[b] The evaluation criteria are as follows:

Crt. 1: navigation condition
Crt. 2: overall protection of human health and environment
Crt. 3: short-term effectiveness
Crt. 4: long-term effectiveness
Crt. 5: implementability
Crt. 6: cost-effectiveness
Crt. 7: community acceptance

Attachment A-A

List of documents from the KK River Sediment Remediation Project Supporting the Remediation Decision
(Documents are available on http://dnr.wi.gov/org/water/wm/sms/kkriver/reports.html)

1. **Sediment Sampling from the Kinnickinnic River, Milwaukee, Wisconsin. Final Report, March 2003. Prepared for: US Army Corps of Engineers, Detroit District. DACW35-01-D-006. Delivery Order Number: 0016. Prepared by Altech.**

   Summary of the document**:** this document provides information of sediment sampling and analytical results for the project. Core samples were collected from fourteen investigative locations and two grab samples from upstream background reference area. The document contains two appendices as follows:
   - Appendix A. Photographs of samples
   - Appendix B. Chemical Analytical and QA/QC Report

   Quality Control Plan was developed by the US Army Corps of Engineers for the sediment assessment and is attached in Appendix D-1 of this QAPP.

2. **Subsurface Investigation for Kinnickinnic River, Milwaukee, Wisconsin. Report, October 2002. Prepared for: U.S. Army Corps of Engineers, Detroit District. CEC Project # GD-02356. Prepared by Coleman Engineering**

   Summary of the document: this document contains three parts as follows:
   - Original field records of sediment coring logs
   - Typed field records of sediment coring logs
   - Laboratory test results for selected samples. The tests included mechanical grain size analysis, hydrometer grain size analysis, Atterberg Limits determination, moisture content and loss on ignition, and specific gravity.

3. **Kinnickinnic River, Wisconsin, Milwaukee Estuary Area of Concern Deepening/Remediation Concept Design Documentation Report (CDDR). April 2004. U.S. Army Corps of Engineers, Detroit District and Wisconsin Department of Natural Resources**

   This document provides a pre-engineering design for the project. It covers the evaluation of the following components:
   - Selection of dredging equipment
   - Evaluation of dredging operation options (or alternatives)
   - Evaluation of site controls and barriers
   - Evaluation of disposal options including disposal on landfill and CDF
   - Regulation and permit requirements
   - Seawall investigation and evaluation
   - Detailed analyses of removal and disposal options and costs associated with each alternative.
   - PCB and PAH source identification

   The document has seven appendices as follows:

   * Appendix A Resource Inventory (existing site background)
   * Appendix B Seawall Evaluation Report (Previously Submitted to USACE)

* Appendix C 2003 WDNR Report – Polychlorinated Biphenyls (PCBs) and Polycyclic Aromatic Hydrocarbons (PAHs) Source Identification (Kinnickinnic River Between Becher St. and Kinnickinnic Ave., Milwaukee, Wisconsin)

* Appendix D Average PCB Concentrations in Surficial Sediments

* Appendix E Volume Calculations

* Appendix F Estimated Mass of PCBs Removed for Dredging

* Appendix G Information Sheet for Public Meeting

4. Summary of Data Sets and Data Quality Evaluation (Wisconsin Department of Natural Resources, February 2007)

This document was finalized in 2007. The summary of the sediment samples and nautical charts were used in the remedy selection process.

Attachment A-B

DATE: Feb. 9, 2004

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

TO: The Kinnickinnic River remedy selection group

FROM: Xiaochun Zhang

SUBJECT: Selection of a remedial action for the Kinnickinnic River project

The Wisconsin Department of Natural Resources (WDNR) in partnership with the U.S. Army Corps of Engineers (USACE), U.S. Environmental Protection Agency - Great Lakes National Program Office (USEPA-GLNPO), and the Port of Milwaukee has completed the feasibility study to deepen and restore portion of the Kinnickinnic River, Milwaukee, Wisconsin. The general project objectives are to restore the study area to a depth suitable for recreational and potentially commercial navigation while removing contaminated sediments to improve water quality and to reduce the overall risks to the human health and environment. Currently the department is seeking your professional input in selecting one out of the eleven alternatives as proposed in the feasibility study.

Enclosed are the project background information, proposed alternatives, remedy selection evaluation criteria, and evaluation form (in both Word and Excel formats). Please use the evaluation form to rank each alternative under each criterion with a score from 1 to 10 while 10 means that the alternative meets the criteria completely. Please send your scores to me by Feb. 20, 2004 via e-mail (zhangx@dnr.state.wi.us).

If you have questions and comments regarding the evaluation criteria and scoring or need further information please feel free to contact me at 608-264-8888 or send me an e-mail message. Your input to the final remedy selection is greatly appreciated.

Project Background

The Kinnickinnic River discharges into Lake Michigan via the Federal navigation harbor at Milwaukee, Wisconsin. The project area, part of the Milwaukee Estuary Area of Concern (AOC), is an approximately 2000-foot long and 200-foot wide section located between Kinnickinnic Avenue, the downstream limit, and Becher Street, the upstream limit. Great Lakes AOCs are severely degraded geographic areas within the Great Lakes Basin. The U.S.-Canada Great Lakes Water Quality Agreement (Annex 2 of the 1987 Protocol) defines AOCs as "geographic areas that fail to meet the general or specific objectives of the agreement where such failure has caused or is likely to cause impairment of beneficial use of the area's ability to support aquatic life."

Historically, the Kinnickinnic River between Lincoln Avenue and Kinnickinnic Avenue, which includes the project area, was designed to accommodate deep draft navigation. Historic nautical charts indicate that the area was dredged as deep as 21 feet between 1915 and 1936. However, in the 1940s, routine dredging was stopped because of a decline in deep draft commercial traffic upstream of Kinnickinnic Avenue. Currently, deep draft navigation depths are maintained by the USACE in the Milwaukee Harbor Federal navigation channels located downstream of the project area.

Subsequently, water depths in the dredged channel and other portions of the study area gradually declined to the current shallow conditions-0 to 10 feet of water below the Lake Michigan chart datum water level (577.5 feet) as referenced to the International Great Lakes Datum 1985 (IGLD85)- due to the accumulation of sediment and lack of dredging. In addition, the Kinnickinnic River, as a result of evolving urban growth and development between the 1900s and 1970s, has been a receiver of various point discharges, run-off and spills. Such historical practices and lack of regulation resulted in contamination of the sediments, particularly within the study area, with polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs).

Efforts have been ongoing since the 1980s to address the residual contaminated sediment issue and more recently, new navigation needs, including:

Multiple studies conducted between 1980s and 1995 by different investigators to define the contamination. Maximum concentrations of 45 parts per million (ppm) and 1022 ppm were detected for PCBs and PAHs, respectively;

A 2002 effort, funded by a USEPA-GLNPO grant, assessed and defined the extent of sediment contamination in the study area; Maximum concentrations of 36 ppm and 244 ppm were detected for PCBs and PAHs, respectively;

Proposed Alternatives

As a result of the feasibility study, a total of ten project alternatives have been evaluated in addition to the “no action” which serves as a base line for comparison. The alternatives included five different sediment removal options as described briefly in the information sheet (Appendix I) and two different dredging material disposal methods. Whether the dredged materials will be disposed of in the confined disposal facility (CDF) nearby the project area or off site at an appropriate landfill, the level of effort and the overall project costs will vary. Table 1 summarizes the ten alternatives with respect to the removal action and disposal methods along with the no action alternative. Discussion of the five removal actions and the no action alternative has been documented in the draft feasibility study report *–Draft Concept Design Documentation Report* (CDDR) as well as in the Information Sheet **(**Appendix I). The final CDDR will be available by Feb. 25, 2004. For your convenience, some information that is critical to the remedy selection has been selected from the CDDR to be included as follows.

Sediment removal alternatives

Alternative 1 – No Action (Included to provide a baseline for comparison with other alternatives)
Sediment removed: None
Water depth: 0 to 10 feet below Lake Michigan Chart Datum IGLD85
Top of sediment elevation: 577.5 to 567.5 feet msl
Anticipated post-project surficial sediment PCB concentration: No change
(Range: 1.0 mg/kg to 6 mg/kg)
Estimated mass of PCBs removed: None
Project-related river bank work: None
Estimated Project Cost: $0
Comments: recreational and commercial navigation use of the area would continue to resuspend contaminated sediments. The transport of contaminated sediments in the water column would continue to impair beneficial uses in the areas, including the harbor

and Lake Michigan. The exposed sediment portions of the river do not have analytical samples associated with them and the concentrations of PCBs and PAHs are unknown. If no action were to occur, it is recommended that sediment samples be collected from the exposed sediment areas and analyzed for contaminants. If contaminant concentrations of the exposed sediments are considered harmful to human health it is recommended that immediate remedial action be taken to address the exposed sediment portions of the project area.

Alternative 2a – Deepen bank to bank-dredge to historic navigation depth

Sediment removed: approximately 192,000 cubic yards (CY
Post-project water depth: 20.5 to 24.5 feet below Lake Michigan Chart Datum IGLD85.
Dredging elevations: Section 1: 557 ft msl: Section 2: 557 to 553 ft msl; and Section 3: 553 ft msl.
Anticipated post-project surficial sediment PCB concentration: ≤ 1 mg/kg
Estimated mass of PCBs removed: 1,300 lbs.
Project-related river bank work: Install seawalls along entire project area river bank (3,983 ft)
Disposal: CDF or Landfill

Alternative 2b – Deepen bank to bank (dredge to minimum navigation depth)/isolate contaminated sediments

Sediment removed: Approximately 92,000 CY.
Post-project water depth: 11 feet below Lake Michigan Chart Datum IGLD85. Sediments would be dredged to 14 feet below the Lake Michigan Chart Datum IGLD85 and then a 3-foot cap would be installed to 11 feet below the Lake Michigan Chart Datum IGLD85 to isolate contaminants.
Dredging elevations: Section 1: 563.5 ft msl: Section 2: 563.5 ft msl; and Section 3: 563.5 ft msl.
Top of cap elevations: Section 1: 566.5 ft msl: Section 2: 566.5 ft msl; and Section 3: 566.5 ft msl.
Volume of material for cap: Assuming a 3 foot engineered cap is required, approximately 35,000 CY of material would be needed.
Contaminated sediment isolation: Install a 3-foot thick, engineered cap over the project area. Ultimately, the engineered cap will require annual maintenance to confirm the integrity of the cap and to patch areas that have scoured.
Anticipated post-capping surficial sediment PCB concentration: ≤1 mg/kg (Note: Post dredging PCB concentrations would range from <1 to 36 mg/kg prior to cap installation)
Estimated mass of PCBs removed: 600 lbs.
Project-related river bank work: Install seawalls along entire project area river bank (3,983 ft)
Disposal: CDF or Landfill

Alternative 2c – Deepen bank to bank-dredge to minimum navigation depth based on historic low water level/isolate contaminated sediments

Sediment removed: Approximately 110,000 CY.
Post-project water depth: 12.5 feet below the Lake Michigan Chart Datum IGLD85. Sediments would be dredged to 15.5 feet below the Lake Michigan Chart Datum IGLD85 and then a 3-foot cap would be installed to 12.5 feet below the Lake Michigan Chart Datum IGLD85 to isolate contaminants.
Dredging elevations: Section 1: 562 ft msl: Section 2: 562 ft msl; and Section 3: 562 ft msl.
Top of cap elevations: Section 1: 565 ft msl: Section 2: 565 ft msl; and Section 3: 565 ft msl.
Volume of material for cap: Assuming a 3 foot engineered cap is required, approximately 35,000 CY of material would be needed.
Contaminated sediment isolation: Install a 3-foot thick, engineered cap over the project area. Ultimately the engineered cap will require annual maintenance to confirm the integrity of the cap and to patch areas that have scoured.
Anticipated post-capping surficial sediment PCB concentration: ≤1 mg/kg
(Note: Post dredging PCB concentrations would range from <1 to 21 mg/kg prior to cap installation.)
Estimated mass of PCBs removed: 700 lbs, calculations are provided in Appendix G.
Project-related river bank work: Install seawalls along entire project area river bank (3,983 ft)
Disposal: CDF or Landfill

Alternative 3a – 80-foot wide navigation channel - dredge to historic navigation depth

Sediment removed: Approximately 170,000 CY.
Post-project water depth: 20.5 to 24.5 feet below Lake Michigan Chart Datum IGLD85 for 80-foot wide channel with side slope transitioning to 11 feet below the Lake Michigan Chart Datum IGLD85 near the river bank.
Dredging elevations: Section 1: 557 ft msl in 80-ft channel to 566.5 ft msl at river bank:
Section 2: 557 to 553 ft msl in 80-ft channel to 566.5 ft msl at river bank;
and Section 3; 553 ft msl in 80-ft channel to 566.5 ft msl at river bank.
Anticipated post-project surficial sediment PCB concentration:
Channel: ≤ 1 mg/kg
Side slope: Variable over a large range and could exceed 5 mg/kg at some locations
Estimated mass of PCBs removed: 1,200 lbs.
Project-related river bank work: No alteration of existing steel sheet piling of known depth; replace concrete and Wakefield timber seawalls; install seawall along unprotected south river bank of Section 3 and along the outside river bend in Section 2.
Disposal: CDF or Landfill

Alternative 3b – 80-foot wide navigation channel -dredge to a range between the historic navigation depth and the minimum navigation depth

Sediment removed: Approximately 134,000 CY.
Post-project water depth: 16.5 to 20.5 feet below Lake Michigan Chart Datum IGLD85 for 80-foot wide channel with side slope transitioning to 11 feet 5 feet below Lake Michigan Chart Datum IGLD85 near the river bank
Dredging elevations: Section 1: 561 ft msl in 80-ft channel to 566.5 ft msl at river bank: Section 2: 561 to 557 ft msl in 80-ft channel to 566.5 ft msl at river bank; and Section 3; 557 ft msl in 80-ft channel to 566.5 ft msl at river bank.
Anticipated post-project surficial sediment PCB concentration:
Channel: ≤1 to 3 mg/kg
Side slope: Variable over large range and could exceed 5 mg/kg at some locations
Estimated mass of PCBs removed: 1,000 lbs.
Project-related river bank work: No alteration of existing steel sheet piling of known depth; replace concrete and Wakefield timber seawalls; install seawall along unprotected south river bank of Section 3 and along the outside river bend in Section 2.
Disposal: CDF or Landfill

Project Alternatives

Depending upon the disposal methods for the dredged materials combined with the removal alternatives, eleven project alternatives (Alt. 1 to 11) have been developed as summarized in Table 1. Two disposal methods were taken into consideration: a) CDF and b) Landfill. Alternatives that involve disposal of dredged sediments at an off-site landfill will have additional logistics associated with them as compared to CDF disposal and include: additional permitting for porewater discharge; locating a site suitable for dewatering sediments; constructing a facility for dewatering/stabilizing sediments; testing and optimization of sediment dewatering/stabilization; odor and permit issues associated with dewatering/stabilizing sediments; and transport and disposal at an off-site landfill.

The costs associated with each project alternatives have been estimated through the pre-engineering design work and documented in the draft CDDR and attached here in Appendix II. Cost estimates are provided in Table 1 for project Alternative 2, Table 2 for project Alternative 3, Table 3 for Alternative 4, Table 4 for Alternative 5, Table 5 for Alternative 6, and so on so forth).

It should be noted here that project alternatives that involve an engineered cap would require additional design and testing to determine the appropriate installation of material in the study area; armoring and/or sufficiently sloping the cap to limit scouring; and an operation and maintenance plan would also be necessary to monitor and maintain cap integrity. The capping alternatives would also hinder and add to the cost of future remediation if needed, because the volume of sediments would include the three-foot cap material in addition to the contaminated sediments that are beneath the cap.

In addition, all alternatives will require additional seawall evaluation for the selected dredging scenario to better estimate seawalls that would require repair, replacement, or areas without seawalls that would require seawall installation. This will be a significant portion of the dredging efforts proposed in the study area.

Also it should be noted as described in the draft CDDR the costs were subdivided into capital costs, engineering and administration

costs, and operation and maintenance costs. To calculate operation and maintenance costs as present value costs an interest rate of 7% was applied over a period of 30 years. Estimated unit costs were based on information obtained by speaking with local dredging contractors, the Metro Landfill, reviewing cost estimates for dredging projects in Michigan and Wisconsin, and using good engineering judgment. To account for the uncertainty inherent with conceptual cost estimates a 25% contingency was added to the total cost. These costs are not to be construed as design and construction costs, but as conceptual design costs to be used for cost comparison. The costs and benefits of each alternative needs to be considered when selecting the remedy and should be weighted on recreational, commercial, and environmental restoration goals.

Project Alternative Evaluation Criteria

In general the evaluation criteria as outlined below are directly or indirectly related to the overall project objectives that are to improve the navigation condition, to improve the water quality, and to reduce the risks posed by the contaminated sediments to human health and environment. Specific benefits upon the completion of the project include, but not limited to, the economic benefits such as the recreational boating, commercial boating, marina improvement, property aesthetics, improved redevelopment potential, increased property values and environmental benefits such as removal of PCB and PAH mass out of the KK River and reduction of the toxicity and the risks of the contaminated sediments to aquatic life and human health. The following is the list of the evaluation criteria:

Navigation condition: to evaluate whether or not the alternatives will meet the recreational or potentially commercial navigation needs with respect to the water column depth and channel width.

Overall protection of human health and environment: to evaluate the reduction of the potential risks imposed by the contaminants in the sediment to human health and the environment.

Short-term effectiveness: to evaluate the reduction of toxicity and mobility of the contaminants in sediment immediately after the implementation of the alternative.

Long-term effectiveness: to evaluate the reduction of toxicity and mobility in a long term time period (possibly for 25 years).

Implementability: to evaluate the technical and administrative feasibility of a remedy, including the availability of materials and services to implement a particular option.

Cost-effectiveness: to evaluate the cost-effectiveness of a remedy with regard to the project objective that is to improve the navigational condition and to clean up the contaminated sediments. The costs include the estimated capital costs, annual operation and maintenance costs and net present value of capital and operation and maintenance costs.

Public acceptance: to evaluate whether the public will have the objection to a remedy

Table 1. Alternatives for the Kinnickinnic River

Deepening/Restoration Project

Alt. No.	Description	Width	Depth (in ft)	Capping	Post project Surficial Sediment PCB Concentration[2] (ppm)	Disposal methods	Cost (Million)
1	No action	No action	No action	No	≤1 to 6	No action	$0
2	Alternative 2A1: Bank to bank-up to 24.5 ft deep-CDF	Bank to bank	Up to 24.5	No	≤ 1	CDF	$15
3	Alternative 2A2: Bank to bank-up to 24.5 ft deep-landfill	Bank to bank	Up to 24.5	No	≤ 1	Landfill	$36
4	Alternative 2B1: Bank to bank -11ft deep-capping-CDF	Bank to bank	11	Yes	≤ 1 (Post capping) <1 to 36 (Post dredging)	CDF	$13
5	Alternative 2B2: Bank to bank -11ft deep-capping-Landfill	Bank to bank	11	Yes	≤ 1 (Post capping) <1 to 36 (Post dredging)	Landfill	$23
6	Alternative 2C1: Bank to bank-12.5ft deep-capping-CDF	Bank to bank	12.5	Yes	≤ 1 (Post capping) <1 to 21 (Post dredging)	CDF	$14
7	Alternative 2C2: Bank to bank-12.5ft deep-capping-landfill	Bank to bank	12.5	Yes	≤ 1 (Post capping) <1 to 21 (Post dredging)	Landfill	$26
8	Alternative 3A1: 80 ft wide-up to 24.5 ft (channel) and 11 ft (side) deep-CDF	80-foot channel with a side slope	Up to 24.5-(channel) 11 - (side)	No	≤ 1 (80-foot channel)	CDF	$12
9	Alternative 3A1: 80 ft wide-up to 24.5 ft (channel) and 11 ft (side) deep-landfill	80-foot channel with a side slope	Up to 24.5-(channel) 11 - (side)	No	≤ 1 (80-foot channel)	Landfill	$31
10	Alternative 3B1: 80 ft wide-up to 21 ft (channel) and 11 ft (side) deep-CDF	80-foot channel with a side slope	Up to 21 – (Channel) 11 – (side)	No	≤ 1 to 3 (80-foot channel)	CDF	$11
11	Alternative 3B1: 80 ft wide-up to 21 ft (channel) and 11 ft (side) deep-landfill	80-foot channel with a side slope	Up to 21 – (Channel) 11 – (side)	No	≤ 1 to 3 (80-foot channel)	Landfill	$25

Table 2. Alternative Evaluation Sheet

Alternatives (Alt No.)	Alternative Description[a]	Remedy Selection Criteria[b]							Comments
		Crt. 1	Crt. 2	Crt. 3	Crt. 4	Crt. 5	Crt. 6	Crt. 7	
1	No Action 1								
2	Alternative 2A1: Bank to bank- ~24.5 ft deep-CDF								
3	Alternative 2A2: Bank to bank-~ 24.5 ft deep-landfill								
4	Alternative 2B1: Bank to bank -11ft deep-capping-CDF								
5	Alternative 2B2: Bank to bank -11ft deep-capping-Landfill								
6	Alternative 2C1: Bank to bank-12.5ft deep-CDF								
7	Alternative 2C2: Bank to bank-12.5ft deep-landfill								
8	Alternative 3A1: 80 ft wide-~24.5 ft (channel) and 11 ft (side) deep-CDF								
9	Alternative 3A1: 80 ft wide-~24.5 ft (channel) and 11 ft (side) deep-landfill								
10	Alternative 3B1: 80 ft wide- ~21 ft (channel) and 11 ft (side) deep-CDF								
11	Alternative 3B1: 80 ft wide- ~21 ft (channel) and 11 ft (side) deep-landfill								

[a] Details of the alternatives are described in the memo

[b] The evaluation criteria are as follows:
Crt. 1: navigation condition
Crt. 2: overall protection of human health and environment
Crt. 3: short-term effectiveness
Crt. 4: long-term effectiveness
Crt. 5: Implementability
Crt. 6: Cost-effectiveness
Crt. 7: Community acceptance

Appendix B: Record of Meetings and Example Meeting Minutes

Table B-1 Meeting Dates and Attendees

Date	Attendees
11/13/2002	The Port of Milwaukee: Larry Sullivan Wisconsin DNR: Xiaochun Zhang; Steve Westenbroek; Marsha B. Burzynski USACE – Detroit District: Dick Smit; Colette Luff; Richard Bauer Howard Ecklund; Barr Engineering Company: Dan Umfleet USEPA-GLNPO: Bonnie Eleder (via telephone); Scott Cieniawski (via telephone); Demaree Collier (via telephone)
05/09/2003	The Port of Milwaukee: Larry Sullivan Wisconsin DNR: Xiaochun Zhang; Steve Westenbroek, P.E. Marsha B. Burzynski; Sharon L. Gayan; Margaret Brunette ; John Krahling USACE: Colette Luff; Richard Bauer; Howard Ecklund; USEPA-GLNPO: Scott Cieniawski; Demaree Collier Barr Engineering Company: Dan Umfleet; Jamie Bankston (via telephone)USACE: Dick Smit;Dave Bowman; Pam Horner; Al Mozol Gillen Co. –George Lubeley Commercial H. T. – Kevin Connell; Lloyd Stepien Pier Milwaukee – Chris Svoboda 2011 Corp -Pinterics, Michael W; Dan Skwarek Icon Development – John Klement Bay View Business Association – Michael Bersch Paragon Fish Corp – Daniel Anderson Milwaukee Metropolitan Sewerage District -- Chris Magruder US EPA Region V – Judy Beck; Laura Lodisio; Joseph Janczy; US EPA Region V (c/o) City of Milwaukee – Kyle Rogers Milwaukee Community Service Corps -- Christopher Litzau
12/09/2004	The Port of Milwaukee-Larry Sullivan;Yisheng Lan Wisconsin DNR - Mike Bruch; Marsha Burzynski; Xiaochun Zhang USEPA-GLNPO - Scott Cieniawski (via phone conference) USEPA Region V-Milwaukee AOC Liaison - Kyle Rogers (via phone conference) Gillean Co. – George Lubeley Commercial H. T. – Kevin Connell Commercial H. T. – Lloyd Stepien Pier Milwaukee – Chris Svoboda Paul Davis – David Ferron Paul Davis - Matt Pelkofer RADR Corp – Brian Read B & E 53207 Corp. – Gerald Starr Lincoln Warehouse – Kenneth Brown Bloom consultant – Jim Klima
02/16/2005	The Port of Milwaukee – Larry Sullivan; Yisheng Lan Icon Development – John Klement B & E 53207 – Gerome E. Vielehr Commercial H. T. – Kevin Connell; Lloyd Stepien Pier Milwaukee – Chris Svoboda Paul Davis – David Ferron 2011 S. 1st – Mike Pinterics

Date	Attendees
	Wisconsin DNR- Marsha B. Burzynski; Xiaochun Zhang
09/08/2005	The Port of Milwaukee: Larry Sullivan George Lubeley – Gillen Company Todd Brachman – Lincoln Warehouse Gorge Marek – Quarles and Brady for Raitt Corporation Lloyd Stephien – Commercial Heat Treating G. R. Starr – B&E 53207 Corp. Dave Ferron – Paul Davis Chris Svoboda - Pier Milwaukee Mike Pinterics - Pump House Marina Kevin Connell – Commercial Heat Treating US Army Corps of Engineers: Don Erwin; Mark Brewer Wisconsin DNR- Marsha B. Burzynski; Margaret Brunette; Xiaochun Zhang
10/19/2005	The Port of Milwaukee: Larry Sullivan; Yisheng Lan George Lubeley – Gillen Company Todd Brachman – Lincoln Warehouse Gorge Marek – Quarles and Brady for Raitt Corporation Lloyd Stephien – Commercial Heat Treating G. R. Starr – B&E 53207 Corp. Dave Ferron – Paul Davis Chris Svoboda - Pier Milwaukee Kevin Connell – Commercial Heat Treating US Army Corps of Engineers: Don Erwin; Dave Bowman Ajit Vaidya – USEPA-GLNPO Wisconsin DNR- Marsha B. Burzynski; Debra Johnson; Xiaochun Zhang
05/05/2006	The Port of Milwaukee: Larry Sullivan; Yisheng Lan George Lubeley – Gillen Company Todd Brachman – Lincoln Warehouse Gorge Marek – Quarles and Brady for Raitt Corporation Lloyd Stephien – Commercial Heat Treating Dave Ferron – Paul Davis Chris Svoboda - Pier Milwaukee Kevin Connell – Commercial Heat Treating John Klement – Icon Development Keith Olson – Southwind Marine Ajit Vaidya – USEPA-GLNPO David Bowman – US Army Corps of Engineers Wisconsin DNR- Marsha B. Burzynski; Sharon Gayan; Xiaochun Zhang
06/16/2006	Port of Milwaukee: Larry Sullivan; Yisheng Lan George Lubeley – Gillen Company Todd Brachman – Lincoln Warehouse Lloyd Stephien – Commercial Heat Treating Dave Ferron – Paul Davis Chris Svoboda - Pier Milwaukee Kevin Connell – Commercial Heat Treating John Klement – Icon Development Keith Olson – Southwind Marine USEPA: Kyle Rogers; Susan Boehme; Ajit Vaidya; US Army Corps of Engineers: Jim Bonetti; Bill Merte; David Bowman; SSCHC: Andrea Freuts; Laurie Novak Wisconsin DNR: Bizha Sheikholesami; Marsha Burzynski; Xiaochun Zhang

Date	Attendees
07/21/2006	Port of Milwaukee: Larry Sullivan; Yisheng Lan George Lubeley – Gillen Company Gorge Marek – Quarles and Brady for Raitt Corporation Todd Brachman – Lincoln Warehouse Lloyd Stephien – Commercial Heat Treating Chris Svoboda - Pier Milwaukee Keith Olson – Southwind Marine Brian Read – RDAR USEPA: Kyle Rogers; Ajit Vaidya Wisconsin DNR: Marsha Burzynski; Xiaochun Zhang
09/15/2006	Port of Milwaukee: Larry Sullivan; Yisheng Lan George Lubeley – Gillen Company Todd Brachman – Lincoln Warehouse Lloyd Stephien – Commercial Heat Treating Kevin Connell – Commercial Heat Treating Dave Ferron – Paul Davis Chris Svoboda - Pier Milwaukee Jerry Starr – B+E 53207 USEPA-GLNPO: Ajit Vaidya; Susan Boehme – IL/IN Sea Grant Wisconsin DNR: Sharon Gayan; Marsha Burzynski; Xiaochun Zhang
11/15/2006	The Port of Milwaukee – Larry Sullivan; Yisheng Lan George Lubeley – Gillen Company Todd Brachman – Lincoln Warehouse Gorge Marek – Quarles and Brady for Raitt Corporation Commercial Heat Treating: Lloyd Stephien; Kevin Connell Chris Svoboda – Pier Milwaukee Jerry Starr – B+E 53207 Brian Read – RDAR Corp Ben Gramling – Sixteenth Street Community Health Center G. F. Bird – Citizen Chris Magruder – Milwaukee Metropolitan Sewerage District Ajit Vaidya – USEPA-GLNPO Marc Tuchman – USEPA-GLNPO Susan Boehme – IL/IN Sea Grant, USEPA GLNPO US Army Corps of Engineers: Dave Bowman; Bill Merte; Jim Bonetti Wisconsin DNR: Greg Hill (via conference call);Marsha Burzynski; Xiaochun Zhang
03/23/2007	The Port of Milwaukee – Larry Sullivan; Yisheng Lan Eric Bahner – Gillen Company Todd Brachman – Lincoln Warehouse Gorge Marek – Quarles and Brady for Raitt Corporation Lloyd Stephien – Commercial Heat Treating Kevin Connell – Commercial Heat Treating Chris Svoboda – Pier Milwaukee Jerry Starr – B+E 53207 Brian Read – RDAR Corp John Klement – Icon Development Ajit Vaidya – USEPA-GLNPO Marc Tuchman – USEPA-GLNPO Susan Prout – USEPA-GLNPO Susan Boehme – IL/IN Sea Grant, USEPA GLNPO Dave Bowman – US Army Corps of Engineer (via conference call)

Date	Attendees
	Wisconsin DNR: Jennifer Jerich; Bizhan Sheikholesami; Sharon Gayan; Greg Hill; Marsha Burzynski; Xiaochun Zhang
05/16/2007	The Port of Milwaukee – Larry Sullivan; Yisheng Lan Lincoln Warehouse: Todd Brachman;Richard and Tom Gold Dave Ferron – Paul Davis Gorge Marek – Quarles and Brady for Raitt Corporation Lloyd Stephien – Commercial Heat Treating Kevin Connell – Commercial Heat Treating Chris Svoboda – Pier Milwaukee Jerry Starr – B+E 53207 John Klement – Icon Development Dan Druml – Paul Davis Gregory F. Bird – Citizen Wisconsin DNR: Sharon Gayan; Greg Hill(via teleconference); Marsha Burzynski; Xiaochun Zhang
06/22/2007	The Port of Milwaukee – Larry Sullivan; Yisheng Lan George Lubeley – Gillen Company Todd Brachman – Lincoln Warehouse Dave Ferron – Paul Davis John Klement – Icon Development Gorge Marek – Quarles and Brady for Raitt Corporation Jerry Starr – B+E 53207 Lloyd Stephien – Commercial Heat Treating Chris Svoboda – Pier Milwaukee Gregory F. Bird – Citizen Rosemary Wehnes – Sierra Club José G. Pérez – City of Milwaukee Ajit Vaidya – USEPA-GLNPO Dave Bowman – US Army Corps of Engineer Wisconsin DNR: Sharon Gayan; Xiaochun Zhang
09/24/07	The Port of Milwaukee: Larry Sullivan; Yisheng Lan Gillen Company: George Lubeley; Dick Zirbel Todd Brachman – Lincoln Warehouse; Dave Ferron – Paul Davis; John Klement – Icon Development; Gorge Marek – Quarles and Brady for Raitt Corporation; Lloyd Stephien – Commercial Heat Treating; Dottie Stephien – Commercial Heat Treating; Kevin Connell – Commercial Heat Treating; Chris Svoboda – Pier Milwaukee; Gina Bayer – CH2M Hill; Sherman LaViolette – CH2M Hill; Dan Skwarek – Pump House Marina; USEPA-GLNPO: Marc Tuchman; Ajit Vaidya; Susan Boehme WDNR: Rachel Sabre; Greg Hill (via phone); Marsha Burzynski; Xiaochun Zhang

KINNICKINNIC RIVER RESTORATION PROJECT
FINAL ENGINEERING DESIGN -SHORELINE STABILIZATION
MEETING, SEPTEMBER 24, 2007
MEMORANDUM OF MINUTES - draft

Logistics: The meeting began at 10:00 a.m. at the Bay View Library, 2566 S KK Ave., Milwaukee, WI

Attendees: Larry Sullivan – Port of Milwaukee
Yisheng Lan – Port of Milwaukee
George Lubeley – Gillen Company
Dick Zirbel – Gillen Company
Todd Brachman – Lincoln Warehouse
Dave Ferron – Paul Davis
John Klement – Icon Development
Gorge Marek – Quarles and Brady for Raitt Corporation
Lloyd Stephien – Commercial Heat Treating
Dottie Stephien – Commercial Heat Treating
Kevin Connell – Commercial Heat Treating
Chris Svoboda – Pier Milwaukee
Gina Bayer – CH2M Hill
Sherman LaViolette – CH2M Hill
Dan Skwarek – Pump House Marina
Marc Tuchman – USEPA-GLNPO
Ajit Vaidya – USEPA-GLNPO
Susan Boehme – USEPA-GLNPO
Rachel Sabre – Wisconsin DNR
Greg Hill – Wisconsin DNR (via phone)
Marsha Burzynski – Wisconsin DNR
Xiaochun Zhang – Wisconsin DNR

Key Issues discussed at the meeting:

❖ **Project Updates**

- **Final engineering design report:** Barr Engineering completed draft drawings of a base map and dredging cross sections for comments and review. These drawings will be finalized as part of the final design report for implementation of sediment removal. It is anticipated that a draft final report will be completed by Barr Engineering on Nov. 12, 2007.

- **Supplemental Design:** Project agreement between US EPA GLNPO and WDNR for supplemental design and remedial plan for the KK River project was entered on June 22, 2007. With this agreement in place, USEPA has obtained CH2M Hill as the consultant to conduct the supplementation design work under the Great Lakes Legacy Act. CH2M Hill will provide services to provide a final remedial specifications and plans.

❖ **Discussion on shoreline protection issues**

As of June 22, 2007, most of the property owners have made a decision on selection of a preferred shoreline protection alternative. Dick Zirbel of Gillen Company presented three design drawings. Tow of the drawings showed the steel sheet piling (SSP) alternative with different tieback options:
1) with Tie Rods to SSP Anchor Wall
2) with Tiebacks.

The third drawing showed the transition section if baseline protection alternative is applied.

George Marek on behalf of RDAR Company indicated that the company preferred to use baseline alternative for parcel number # 440 while steel sheet piling was selected through another communication route. Todd Brachman of Lincoln Warehouse represented the property owners and indicated that no final decision has yet been made by the property owners.

Mr. Zirbel had a few questions regarding the process of how baseline alternatives were evaluated and the associated costs were estimated. In order to clarify some of the confusion expressed in the meeting, three documents that were sent out on May 17, 2007 are attached to this meeting minutes. The document titled "KK River Project- Attachment B- cost estimates" describes the costs associated with the baseline alternative. Based on different types of existing shoreline features, the estimated cost for baseline option ranges $637 to $796 per linear foot for the "apparently unprotected" parcels and $1,104 to $1,380 per linear foot for "timber walls with or without concrete caps", respectively. The exact cost will not be known until the work is bid by construction companies. As part of Supplemental Design, CH2M Hill will provide a design and cost estimate for the parcel of 442, the north side of river between Railroad Bridge and Kinnickinnic Avenue.

Gillen Company will provide additional detailed design for riparian property owners who have already expressed their plan to install steel sheet piling and have already discussed with Gillen Company. For the benefit of the project, those riparian owners who have selected steel sheet piling or other means to protect shoreline but have not discussed with Gillen Company for further design work, please provide Xiaochun Zhang with the following information by the end of October, 2007:
1) selected alternative
2) firm who will provide the design
3) the design document for the shoreline work

To make the above listed information available is critical for the project with respect to the following purposes:
1) complete the final sediment remediation specifications and plans
2) apply for dredging permits
3) apply for shoreline work permits

According to the most recent evaluation, it will take approximately 90 days to approve the permit applications for dredging/shoreline work. Applications need be submitted to the WDNR, USACE, and City of Milwaukee promptly if implementation of the project will start in spring, 2008.

❖ **Other Items**

It was greatly appreciated that the KK River BID #35 proposed Streetscape Funding Request of $500,000 to the City of Milwaukee Community and Economic Development Committee. This amount of funding will be used as part of non-federal fund for the KK River sediment remediation work. (Update: the City has already approved the request.)

The USACE completed the final CDF cell design for the disposal need of dredged sediment from the KK River project area. The Port of Milwaukee will submit all the related information to WDNR for approval.

This meeting minutes is prepared by Xiaochun Zhang. If you have any questions and comments please let her know at 608-264-8888 (email: xiaochun.zhang@wisconsin.gov).

KINNICKINNIC RIVER RESTORATION PROJECT
FINAL ENGINEERING DESIGN -SHORELINE STABILIZATION
MEETING, June 22, 2007
MEMORANDUM OF MINUTES - draft

Logistics: The meeting began at 1:00 p.m. at the Port of Milwaukee office
Attendees: Larry Sullivan – Port of Milwaukee
Yisheng Lan – Port of Milwaukee
George Lubeley – Gillen Company
Todd Brachman – Lincoln Warehouse
Dave Ferron – Paul Davis
John Klement – Icon Development
Gorge Marek – Quarles and Brady for Raitt Corporation
Jerry Starr – B+E 53207
Lloyd Stephien – Commercial Heat Treating
Chris Svoboda – Pier Milwaukee
Gregory F. Bird – Citizen
Rosemary Wehnes – Sierra Club
José G. Pérez – City of Milwaukee
Ajit Vaidya – USEPA-GLNPO
Dave Bowman – US Army Corps of Engineer
Sharon Gayan – Wisconsin DNR
Xiaochun Zhang – Wisconsin DNR

Key Issues discussed at the meeting:

❖ **Project Updates**

- **Decision on shoreline protection:** As of June 22, 2007, most of the property owners have made a decision on selection of a preferred shoreline protection alternative. The attached table summarizes the type of existing shoreline features and selected protection alternative for each parcel. This table is an update to the table that was distributed at the meeting. If anyone of you finds the listed information inaccurate please provide your comments and corrections to Xiaochun Zhang.

- **Design for shoreline protection:**
  It is greatly appreciated that Gillen Company agrees to provide steel sheet piling design for Parcels 426A& 426B, 427, and 428. The design service donated by Gillen Company (free of charge to property owners) will be qualified as part of in-kind services to match the federal fund through Great Lakes Legacy Act.

  To those property owners who selected shoreline protection alternative other than the proposed baseline option but had not presented your decision on how to proceed with your design, please provide your preliminary plan by July 10, 2007. (Note: if a property owner hires his/her own consultant it is hoped that the cost for design is covered by the owner while the cost will be treated as in-kind service to match the federal funding_noted by Xiaochun Zhang).

- **Preliminary final engineering design report:** Barr Engineering completed a preliminary final engineering design report which was sent out to the BID on a CD and is also available online

(http://dnr.wi.gov/org/water/wm/sms/kkriver/Preliminary_Design_Report.pdf). Comments were received from some of the BID members and some of the comments were discussed at the meeting. Major comments received are summarized in the list as attached. If you still have comments and concerns please send to Xiaochun Zhang before Jul 20, 2007.

- **Disposal of dredged sediment:** The USACE will complete the cell design on the CDF for the disposal of dredged materials from the KK River in two weeks. In conjunction with the cell design, the USACE and Port of Milwaukee are preparing dredged material management plan for the Milwaukee CDF and will request an expansion of the CDF capacity for future navigation dredging need.

- **Project agreement between US EPA GLNPO and WDNR for supplemental design and remedial plan:** It was anticipated that the agreement would be signed soon by the US EAP. (**update: the agreement is officially signed on June 22, 2007**). Funding will be available from the Great Lakes Legacy Act for additional design and planning work before the project is implemented. In addition, the in-kind services provided by local sponsor(s) and other parties will be eligible to be considered as non-federal match fund for the project.

  - **Establishing accounting records to document in-kind services:** Accounting records must be supported by such source documentation as cancelled checks, paid bills, payrolls, time and attendance records, travel vouchers and receipts to support travel costs, invoices that support payment of contractors.

    As proposed at the meeting, the BID will set up a financial management system with a financial manager. The manager will be responsible to account for the in-kind services provided by BID members for the project in accordance with state and federal laws and procedures. Separate accounts may be needed for all funds, receipts, and payments. WDNR will work closely with the BID to establish the accounting system.

If anyone finds mistakes and/or missing main items in the above, please let Xiaochun Zhang know. Thank you for your participation in the meeting.

Shoreline Protection -KK River Sediment Remediation Project

-updated on June 28, 2007

Parcel Number	Existing shoreline features	Business Owners/ Operation	Preferred shoreline protection option	Design for the preferred option		Comments
				Cost/ firm	Timeline	
425	Timber wall/	Commercial Heat Treatment /Commercial Fishing	Steel Sheet Piles (SSP)			
426A & 426B	Timber wall w/ concrete cap	Icon Development/ Milwaukee Marine	SSP			Gillen Co. is preparing a preliminary design
427	Timber wall (analyzed as unprotected)	Paul Davis	SSP			Gillen Co. is preparing a preliminary design
428						
429	**Steel sheet piles (SSP)**	Pier Milwaukee	Baseline option			
432&433	**SSP**	Gillen Comp.	Baseline option?			
436	Apparently not protected	RAITT Company/ Gillen Co.	SSP			
437	Timber wall/concrete	Pump House Marina	SSP			
439	Apparently not protected	Lincoln Warehouse	Baseline option			will make a final decision by early July
440	**SSP**	RDAR Corp.	owner will assure the stability of the SSP			
441	Timber wall	B & E 53207 Corp, South Wind Marine	SSP			
442	Railroad crossing		Not applicable			
North side	Railroad - KK Ave.	City or the railroad?	Baseline option?			Further discussion
443	Not affected	Jon R Curro	Not applicable			

List of comments from property owners/managers/concerned citizens
-updated on June 28, 2007

1. It is recommended to use bigger buckets to increase the dredging efficiency and hence to reduce the potential of sediment resuspension.

2. Between 1940 and the present time, the project area has been dredged in limited areas. (According to the sounding records, in 1979, a channel of approximately 50-foot wide and 550-foot long was dredged as illustrated in Fig. 1. Another dredging activity was conducted in 1983(?) near the Pier Milwaukee as shown in Fig. 2. These figures were adopted from a series of sounding maps provided by the Port of Milwaukee_noted by Xiaochun Zhang)

3. For dredging operation, working 2 shifts per day would be feasible if a temporary permit for changing the city ordinance for noise hours is granted by the City of Milwaukee since the dredge area is located in industrial/commercial corridor.

4. To accommodate boat traffic during dredging, possibly having a week shutdown may be needed so the marinas could get the boats in and out of storage in the spring and fall. Or plan to have a routine schedule on a daily or weekly basis for boat traffic. It seems that as long as the schedule is optimized for dredging efficiency, operation days and hours are not a critical issue for most of the property owners.

5. If possible, during channel design or the shoreline protection design the parties should consider specifications for habitat improvement as well as preventing debris being collected at specific areas after the project is completed.
(note: when designing the shoreline protection alternatives, please contact the Milwaukee Metropolitan District (MMSD) regarding the outfall structures for combined sewer/storm sewer and 1st Street siphon located in the project area. The contact person is Debra Jensen of MMSD (414-225-2143; djensen@mmsd.com). In addition, as described in Barr's preliminary report, other organizations/companies should be contacted to accurately locate utilities in the project area so that the utilities will not be damaged).

6. Property owners will remove the piers but will leave the pier piles in place. It is assumed that the piles will be stable under the recent proposed dredging configurations. However, if the piles become instable during dredging, those piles will be removed (needs further discussion on mutual understanding that the project will not be responsible to replace the piles__ noted by Xiaochun Zhang).

7. Regarding dredging sequence and other operation logistics, most of the property owners have no specific concerns. One property owner recommended dredging from downstream. Others have no concerns as long as the project will be conducted in a most cost-effective way.

8. If there is a localized need to operate from land for either dredging or removing the sunken boat, the project could use the area close to Parcels 427 and 428; however, the project has to provide assurance that the contaminated materials will not pose a problem on shore and the upland structures, for instance, road and parking lots, will be stable, i.e. all fixtures upland are structurally stable.

9. Shoreline protection alternative will be installed prior to sediment removal starts. (note: if feasible, most likely the baseline protection alternative, the shoreline work may be conducted along with dredging_noted by Xiaochun Zhang)

10.

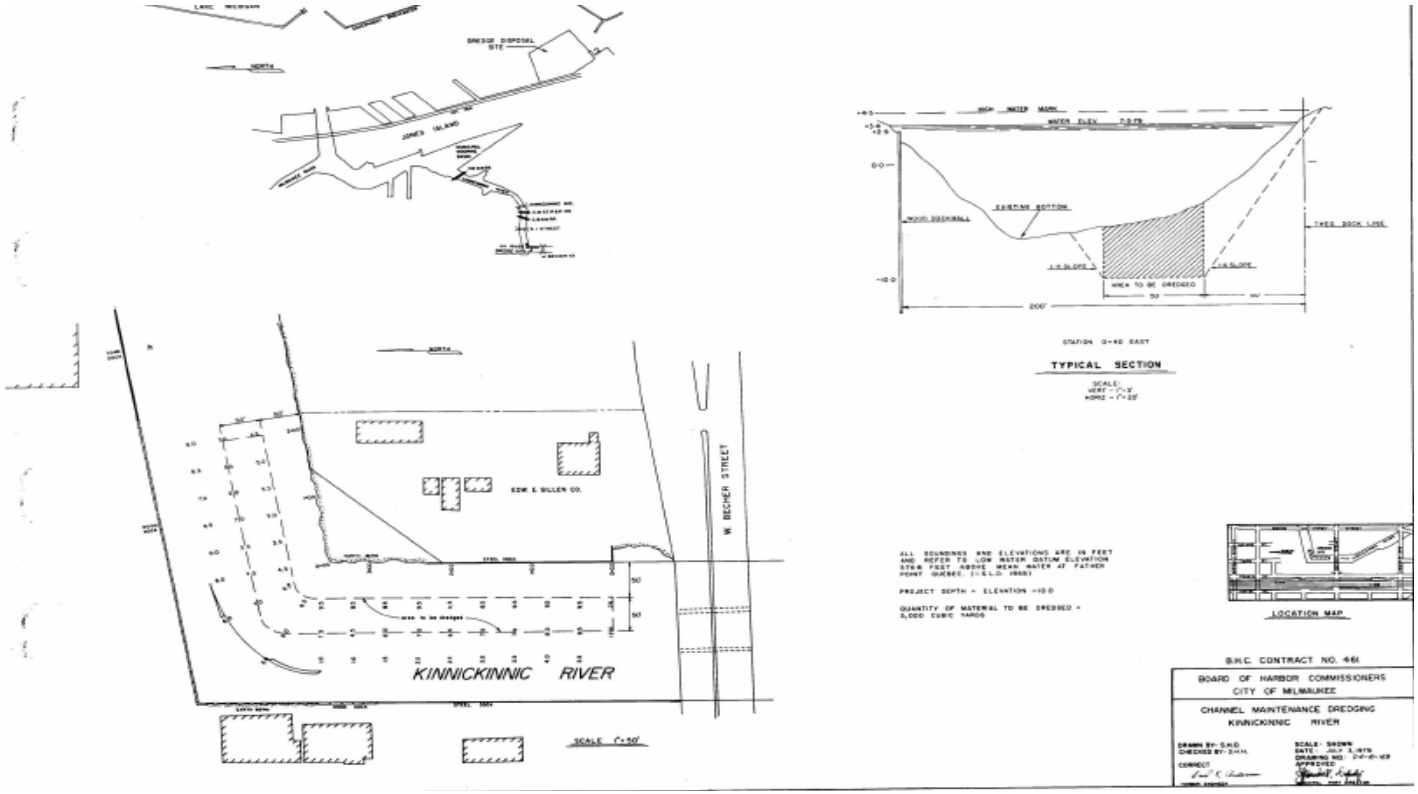


Fig. 1 Dredging possibly in 1979

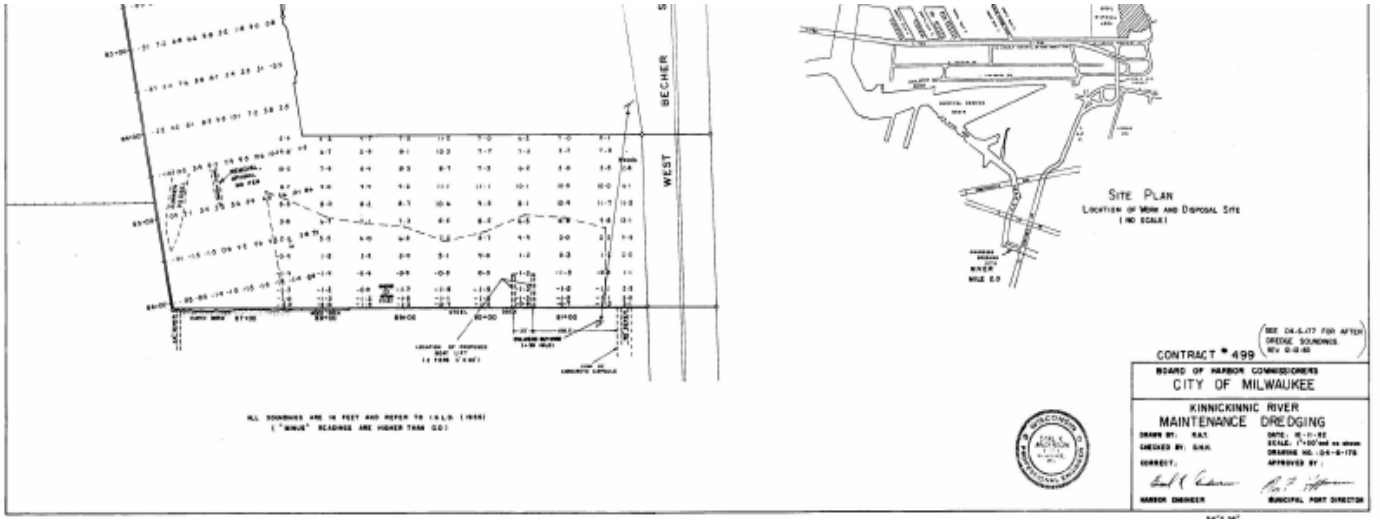


Fig. 2 Dredging possibly in 1983

INNICKINNIC RIVER RESTORATION PROJECT
FINAL ENGINEERING DESIGN
PUBLIC INFORMATIONAL MEETING, DEC. 9, 2004
MEMORANDUM OF MINUTES

(This meeting discussion summary is based on notes taken by WDNR. If any meeting attendees believe information is missing or not accurate, please provide comments to Xiaochun Zhang).

Purpose: The purpose of the meeting was to discuss the shoreline protection measures as part of the final engineering design for the Kinnickinnic River Restoration Project.

Logistics: The meeting began at 1:00 p.m. at The Port of Milwaukee office

To provide an overview of the project, the following section will briefly describe the background of the project that is related to the shoreline protection, provide updates on the project, and summarize what need to be accomplished before the project can be selected for implementation through the Great Lakes Legacy Act funding mechanism if sufficient funding is available. Please note that we included additional relevant information in this memorandum that was not discussed at the meeting.

Project Summary

Project Background with the focus on the shoreline protection issue:

The environmental restoration of the Kinnickinnic River will require the removal of sediments with elevated levels of contaminants such as PCBs, PAHs, and metals. Where possible, the project will remove sediments that have accumulated in the river down to the depth that has historically been dredged for navigational purposes. The specific dredging configuration of Alternative 3a as defined in the Information Sheet [Attachment I] was selected as the dredging option. Those alternatives described in the Information Sheet were evaluated in the pre-engineering design work that was completed in April 2004 by the Barr Engineering Company, a consultant for the US Army Corps of Engineers (USACE). Both USACE and Wisconsin DNR provided funds for the work.

The ongoing final engineering design will further evaluate the selected alternative with more detailed criteria in consideration of contamination profiles, disposal technology, navigation condition, and shoreline stability and protection. Subsequently the current dredging specification may be modified to meet the criteria. The WDNR has received funding from the US Environmental Protection Agency Great Lakes National Program Office (USEPA GLNPO) and has hired the Barr Engineering Company as a consultant for the final engineering work under the currently defined scope of work.

As part of the pre-engineering design work, preliminary investigation was conducted for the existing seawalls and riverbank conditions along the project area. Details of the investigation results are presented in the report entitled “Seawall Evaluation Report, Kinnickinnic River, Wisconsin, Milwaukee Estuary Area of Concern, Sediment Removal Concept Design, July 2003.” by the Barr Engineering Company for the USACE and WDNR.

Dredging of sediment near the existing riverbanks may or may not increase a risk of shoreline failure. Many factors will influence the degree of risk such as shoreline slope, geotechnical properties of the soils, condition of existing structures, and other factors. Current scope of work of the final engineering design will provide further analysis of the riverbank stability but the analysis is limited due to the funding availability. At the same time,

the critical decisions about what should be done in front of each property to prevent existing seawalls from failing and streambanks from eroding as a result of the dredging has not been well defined.

This meeting provided a forum to discuss what shoreline features currently exist in front of each property, the condition of the shoreline features, and if necessary how each property owner would like to improve the shoreline in relation to the environmental restoration project. It should be clarified that the discussion of the preferred option by each property owner for shoreline protection does not guarantee funding availability nor an approval by regulatory agencies. Any work done at the shoreline has to be in compliance with the state and federal regulations.

Project Updates:

- **Sediment assessment /Feasibility Investigation/Pre-engineering Design**
  The USACE, USEPA GLNPO, Port of Milwaukee, and WDNR provided funding and services for the following work:
  - **Bathymetric Survey /Sediment Poling** - Bathymetric survey and sediment poling were conducted at the site during the summer of 2002 by the USACE.
  - **Sediment Sample Collection and Analyses** – A total of 14 sediment cores were collected from the project area and two grab samples from the upstream of the project area in Sep. 2002 to define the extent of the sediment contamination. Collections were completed by Altech, a consultant for the USACE.
  - **Seawall Inspection** – A reconnaissance seawall inspection was completed in Fall 2002
  - **Additional Sampling and Analyses** - In Feb. 2003, WDNR collected additional nine sediment samples from the upstream of the project area for the purpose of better characterizing the background contamination level to assure that there are no significant existing PCB and PAH sources from upstream to recontaminate the sediment after remediation/dredging.
- **Submittal of the Application to the Great Lakes Legacy Act funding** – WDNR submitted an application to the USEPA GLNPO for the consideration of the project for the potential funding through the Great Lakes Legacy Act in March 2004.
- **Presentation of the Project to the Technical Review Committee (TRC) of the USEPA** – WDNR presented the project to the TRC in August 2004 and received comments in October 2004. Currently WDNR is in the process of responding to comments and questions posed by the TRC.
- **Final Engineering Design** – WDNR has hired the Barr Engineering Company by December 2004 through the funding provided by the USEPA. GLNPO. The scope of work is limited to the funding available.

Issues that need to be resolved before implementation of the project:

- **Disposal of dredged sediment –** The USACE operated confined disposal facility located on the Jones Island, Milwaukee has been selected as the disposal site according to the evaluation of alternatives during the pre-engineering design and remedy selection processes. The USACE, Port of Milwaukee, and WDNR are continuously working on the regulatory issues regarding the CDF usage for the project. Beneficial use of relatively clean sediment existing in the CDF is proposed in order to ease the concern of over capacity of the CDF in the near future.
- **Dredging permit –** The WDNR is working with USACE for the dredging permits. Before the project can be implemented appropriate permits from the WDNR and USACE need to be obtained after completing of the final engineering design.
- **Dredging specifications/shoreline protection –** The final engineering design will provide final dredging specifications, including the dredging width, depth, slope, and shoreline protection means. According to the project proposal, the design work will be completed in July 2005.

The following lists some of the components that will be conducted in the final engineering design:

- Quality Assurance/Quality Control Plans
- Land survey
- Information gathering regarding the shoreline stability and existing features, utility lines, on land soil conditions, and river hydraulic information,
- Geotechnical/structureal evaluation of the existing steel sheet pile (SSP) seawall and bridge abutment stability
- Dredging specifications - affected by various factors such as clean up criteria and the shoreline protection means.
- Short term performance monitoring and long-term monitoring plans

Design of new seawalls and/or other protection means is not included in the current scope of the engineering work due to limited funding available. Additional funding is needed to investigate on-land soil conditions if it is necessary after the existing data is reviewed, geophysical survey of bottom sediment and seawalls, and design for the selected shoreline protection means.

- **Funding –** Funding for the implementation of the project depending on various factors: engineering design, resolution of the pending issues, the cost of the project, and the availability of fund.

Discussion of Shoreline Protection Means:

Thanks to all property owners/representatives who were present at the meeting. We discussed the type of riverbank currently existing in the front of each land parcel, the conditions of the seawalls, and the preferred shoreline protection measures. A brief summary of the information gathered is listed below.

Parcel 443 (owner not represent)
Parcel 442 (railroad abutment area). No additional shoreline protection anticipated.
Parcel 441 (owner present): Has wood piling. Maybe structurally sound. Prefer a cap over the wood piling.
Parcel 440 (owner present): Newer sheet piling installed. Would sign liability waiver attesting to stability.
Parcel 439 (representative present): No immediate need for vertical face. May be open to rip rap etc.
Parcel 437 (owner not present)
Parcel 436 (representative present): No protection now, but would prefer vertical wall if landowner agrees.
Parcel 433 (representative present): Existing steel sheet piling. Will waive liability
Parcel 432 (representative present): Existing steel sheet piling. Excellent condition
Parcel 429 (owner present): Existing steel sheet piling. Needs to find out what "34 feet deep" means as cited in the seawall investigation report by the Barr Engineering Company.

Parcels 428 and 427 (representatives present): This is the area with exposed sediment surface and a visible sunken boat. There is a possibility that after dredging the area will be filled up with sediment soon due to the lower energy in the area because of the natural hydraulic course. Proposed installation of potential wall and fill behind to isolate the large depositional area. Would greatly reduce dredging volume. Would consider more natural approach on top of the fill.

It is a good alternative to be considered during design. But some processes, such as delineation of new bulkhead lines, need to be followed. Permits need to be obtained.

Parcel 426A and 426B (owner not present)
Parcel 426: 1st Street Bridge abutment. Consisting of a steel sheet piling wall and mass concrete section.
Parcel 425 (owner present): would like to have steel sheet piling installed.

Actions to follow:

- Owner of Parcels 427 and 428 will submit a proposal of the shoreline protection plan to the WDNR and the Port of Milwaukee for the consideration of the potential alternation of the river channel. This would isolate the sediment deposited in the area with a cap and vertical wall. Upon receiving the proposal, appropriate reviewing and approval processes will be followed by the City of Milwaukee, WDNR, and USACE. If the proposal is approved, the shoreline protection technique and the capping option will be incorporated into the final engineering design in terms of dredging specifications, sediment disposal volume, and the associated costs.

- It is possible that after meeting, more information may become available. In addition, a few of the property owners/managers were not able to attend the meeting. Given these conditions, the WDNR would like to request property owners complete the attached survey which discusses shoreline protection measures and funding.

Attendees:
The Port of Milwaukee-Larry Sullivan
The Port of Milwaukee – Yisheng Lan
Wisconsin DNR - Mike Bruch
Wisconsin DNR - Marsha B. Burzynski
USEPA-GLNPO - Scott Cieniawski (via phone conference)
USEPA Region V-Milwaukee AOC Liaison - Kyle Rogers (via phone conference)
Gillean Co. – George Lubeley
Commercial H. T. – Kevin Connell
Commercial H. T. – Lloyd Stepien
Pier Milwaukee – Chris Svoboda
Paul Davis – David Ferron
Paul Davis - Matt Pelkofer
Rdar Corp – Brian Read
B & E 53207 Corp. – Gerald Starr
Linclon Warehouse – Kenneth Brown
Bloomconsultant – Jim Klima
Wisconsin DNR - Xiaochun Zhang