



**U S Army Corps
of Engineers**
Huntington District

Public Notice

Date: December 8, 2016

Closing Date: January 7, 2016

Please address all comments and inquiries to:

U.S. Army Corps of Engineers, Huntington District

ATTN: Rebecca Rutherford, Chief Environmental Analysis Section

502 Eighth Street

Huntington, West Virginia 25701-2070

Phone: (304) 399-5924

Maintenance Dredging for Navigation on the Ohio River & Tributaries Ohio Environmental Protection Agency 401 Application for Water Quality Certification

WHO - Agencies and individuals who have an interest and/or concerns about the U.S. Army Corps of Engineers (USACE) Huntington District application for a Water Quality Certification through the Ohio Environmental Protection Agency (OEPA), in order to conduct maintenance dredging along the Ohio River and its tributaries.

WHY - Pursuant to Section 401 of the Clean Water Act (CWA), the USACE Huntington District is seeking Water Quality Certification (WQC) for the dredging and discharge of dredged sediment in jurisdictional waters of the United States. The purpose of this Public Notice is to acknowledge WQC application to the OEPA, to specify what dredged/fill materials would be discharged into waters of the United States by implementation of the proposed action, and to advise all interested parties of the proposed project and provide opportunity to submit comments.

Two of the USACE's primary missions are to maintain navigation channels and reduce flood impacts along the Inland Marine Transportation System. The River and Harbor Act of 1910 mandates the USACE to maintain navigable channel depths on the Ohio River and its tributaries to accommodate transportation demands. Maintenance dredging is required at various locations within the Huntington District's boundaries. The need for dredging typically arises in the approach areas to the lock and dam projects, as well as several naturally occurring sediment bars, tributary confluences, harbors, and boat ramps. Occasionally, emergency dredging is required to maintain the navigation channel. Excessive shoaling can occur at many different locations in the river and is generally associated with high water conditions (flows, sediment load, etc.). The USACE works closely with the U.S. Coast Guard and the navigation towing industry to maintain a safe, navigable waterway that serves both commercial and recreational needs.

The USACE anticipates the need to dispose dredge material above R.C. Byrd Locks and Dam and Racine Locks and Dam on the Ohio River. In efforts to maintain a safe, reliable, efficient, and environmentally sound waterborne transportation system for the movement of commerce, National Security, and recreation, USACE must perform channel maintenance dredging in order to sustain sufficient channel width and depth. Absence of a navigable channel would immobilize the towing industry, resulting in devastating regional economic impacts and increased

environmental impacts.

BACKGROUND ENVIRONMENTAL INFORMATION - The environmental effects of the dredging operation are documented in the Final Environmental Impact Statement Ohio River Navigation Project, USACE 1980.

There are no listed historic properties or properties determined as being eligible for listing in the National Register of Historic Places that will be affected by this project. By this notice, the State Historic Preservation Office is advised that currently unknown archaeological, scientific, prehistorical or historical data may be lost or destroyed by the work to be accomplished.

To avoid significantly impacting freshwater mussel resources, mussel surveys are conducted at dredge and disposal areas prior to project activities. Semi-qualitative mussel surveys are performed at each selected disposal area to determine the presence or absence of freshwater mussels. These surveys are in accordance with the Ohio Mussel Survey Protocol (April 2016). If mussels are observed, the extent of the resource within the dredge material placement area is ascertained, as well as species composition and distribution along survey transects. These surveys are used to adjust dredging and disposal locations in order to prevent significant impacts to mussel beds.

This activity is being coordinated with the following agencies, as well as other appropriate Federal, State, and local agencies and organizations:

Ohio Department of Natural Resources
Ohio Environmental Protection Agency
Ohio Historic Preservation Office
U.S. Coast Guard
U.S. Fish and Wildlife Service

WHEN - The USACE Huntington District is seeking WQC from OEPA for dredging and disposal operations to be performed during the period of 1 April 2017 to 1 April 2022.

PUBLIC REVIEW - The USACE Huntington District Maintenance Dredging for Navigation on the Ohio River & Tributaries 401 WQC application is complete and available for public review for thirty (30) days. The application can be viewed at the web address:

<http://www.lrh.usace.army.mil/Missions/PublicReview.aspx>

Copies of the application may be obtained by contacting the USACE Huntington District Office at (304) 399-5924. Comments pertaining to the documents may be submitted by letter to:

Ms. Rebecca Rutherford
Chief, Environmental Analysis Section, Planning Branch
U.S. Army Corps of Engineers, Huntington District
502 Eighth Street, Huntington, WV 25701-2070

Application for Ohio EPA
Section 401 Water Quality Certificate
2017 - 2022

Attachment 1 – Additional Information

Maintenance Dredging for Navigation on the Ohio River & Tributaries

US Army Corps of Engineers – Huntington District

Overview

Two of the U.S. Army Corps of Engineers (USACE) primary missions are to maintain navigation channels and reduce flood impacts along the Inland Marine Transportation System. The River and Harbor Act of 1910 mandates the USACE to maintain a nine-foot channel on the Ohio River and its tributaries to accommodate transportation demands.

The Huntington District is responsible for 412 navigable miles on the Ohio, Kanawha, and Big Sandy Rivers, which include the Nation's largest Inland Waterway port, the Port of Huntington. The Huntington District operates and maintains six locks and dams on the Ohio River. These locks and dams include: Willow Island, Belleville, Racine, R.C. Byrd, Greenup, and Captain Anthony Meldahl.

Willow Island is located 3.4 miles upstream from Waverly, WV. Belleville is located 0.5 miles below Belleville, WV. Racine is 1.5 miles downstream from Letart Falls, OH. R.C. Byrd is located 9.0 miles below Gallipolis, OH. Greenup is located 5.0 miles downstream of Greenup, KY. Meldahl is located 1.7 miles downstream of Chilo, OH.

To maintain a safe, reliable, efficient, and environmentally sound waterborne transportation system for the movement of commerce, National Security, and recreation, USACE must perform channel maintenance dredging in order to sustain sufficient channel width and depth. Absence of a nine-foot channel would immobilize the towing industry, resulting in devastating regional economic impacts and increased environmental impacts.

Maintenance dredging is required at various locations within the Huntington District's boundaries. The need for dredging typically arises in the approach areas to the lock and dam projects, as well as several naturally occurring sediment bars, tributary confluences, harbors, and boat ramps.

Occasionally, emergency dredging is required to maintain the navigation channel. Excessive shoaling can occur at many different locations in the river and is generally associated with high water conditions (flows, sediment load, etc.). The USACE works closely with the U.S. Coast Guard and the navigation towing industry to maintain a safe, navigable waterway that serves both commercial and recreational needs.

Prior to conducting any dredging operation, hydrographic surveys are conducted at sites to accurately determine channel depths and estimate the amount of material to be removed at each site.

8a. Describe the Overall Activity

Activity Proposed in Wetland or Waterway:

Channel maintenance of commercially navigable waterways and public access sites on the Ohio River and its tributaries is completed with the use of clamshell and hydraulic dredging equipment. Total navigable area within the Huntington District is approximately 412 miles, of which less than 1% is dredged and approximately 0.3% may be discharged in the waters of the State of Ohio.

There are four sites of concern for this water quality certification and each site is described in detail in this application. Site information included consists of dredging history, such as frequency of dredging, amount of material in cubic yards (CY), historic dredge and disposal site locations, material characteristics and the equipment type generally used. Site maps depict the dredge and disposal sites, as well as areas that meet criteria for classification as mussel beds.

Maintenance dredging is generally conducted between May and September. There are two sizes of hydraulic dredges that could be utilized; these include a 24-inch hydraulic dredge and an 8- to 12-inch hydraulic dredge. In addition, there are two types of mechanical equipment that can be utilized; these include a clamshell dredge and a tracked excavator.

Funding for the maintenance dredging program is limited, therefore sites are reviewed annually and dredging requirements are based on need and available funding.

8b. A brief explanation of why you are proposing to do the project. (Purpose, need and intended use of the activity)

The purpose of channel maintenance dredging is to maintain a nine-foot (minimum) channel depth for navigation. The USACE is authorized by the River and Harbor Act of 1910, to maintain this depth in order to accommodate transportation demands from the towing industry in the Ohio River. Absence of a nine-foot channel would immobilize the towing industry resulting in severe adverse regional economic impacts.

8c. Discharge of dredged or fill material: Describe type, quantity of dredged material (in CY), and quantity of fill material (in CY).

Dredge and fill material characteristics and quantities are included in Table 1. River miles refer to the Ohio River, unless noted otherwise.

9. Surface water name & location.

Detailed site information is included in Table 1.

TABLE 1 - Detailed Site Information

Dredge Site	Water Body	Ohio County	Dredge Site River Mile	Dredge Site Coordinate	Disposal Location	Disposal Site River Mile	Disposal Site Coordinate	Average Volume to be Dredged (CY)	Dredge Area Linear Feet	Disposal Area Linear Feet	Average Frequency of Dredging (Years)	Last Year Dredged	Equipment Type Utilized (Normal)	Dredge Material Characteristics	Mussel Bed Location	Mussel Survey Dates	Nearest Downstream Municipal Water Intake	Water Intake River Mile
Racine Upper Approach	Ohio River	Meigs	237.4	N 38° 54' 57.1" W 81° 54' 51.7"	Ohio / West Virginia	237.0	N 38° 54' 44.8" W 81° 54 ' 48.8"	20,000	1,000 (in WV boundary)	1,800	4	2016	Mechanical & Hydraulic	Sand 30% Silt 70%	N/A	2005 2010	Huntington Water Corp.	306.7
R.C. Byrd	Ohio River	Gallia	279.0	N 38° 36' 58.6" W 82° 51' 7.0"	Ohio / West Virginia	279.0	N 38° 37' 7.2" W 82° 51' 18.2"	30,000	2,000 in WV boundary)	2,500	5	2013	Mechanical & Hydraulic	Sand 15% Silt 60% Clay 25%	Right Descending Bank, River Mile 279.8-281.0	2005 2007 2010 2012 2014	Huntington Water Corp.	306.7

RACINE L&D UPPER APPROACH – OHIO RIVER

10a. Alternatives Analysis

1. Brief Description of Preferred Design Alternative:

The Preferred Alternative consists of using a hydraulic suction dredge or mechanical clamshell dredge to remove approximately 20,000 CY of accumulated sediment from the government harbor, lock filling intakes, and the navigation channel upstream of the lock structure on the left descending bank at RM 237 of the Ohio River (see figure below depicting dredged areas). The dredging operation will provide a water depth of about 15 ft. (design depth) within the lock walls. The disposal area will be located mid-channel adjacent to the downstream dredging area, beginning at approximately RM 237. The proposed disposal area may exceed what is required for material placement. However, this is necessary to allow the actual disposal to be relocated within approved limits and avoid any high quality environmental sites that maybe identified during surveys. The dredged material characteristics are 30% sand, and 70% silt. While this alternative requires more material to be dredged, it reduces the frequency of dredging, therefore reducing aquatic and economic impacts.

2. Brief Description of Minimal Design Alternative:

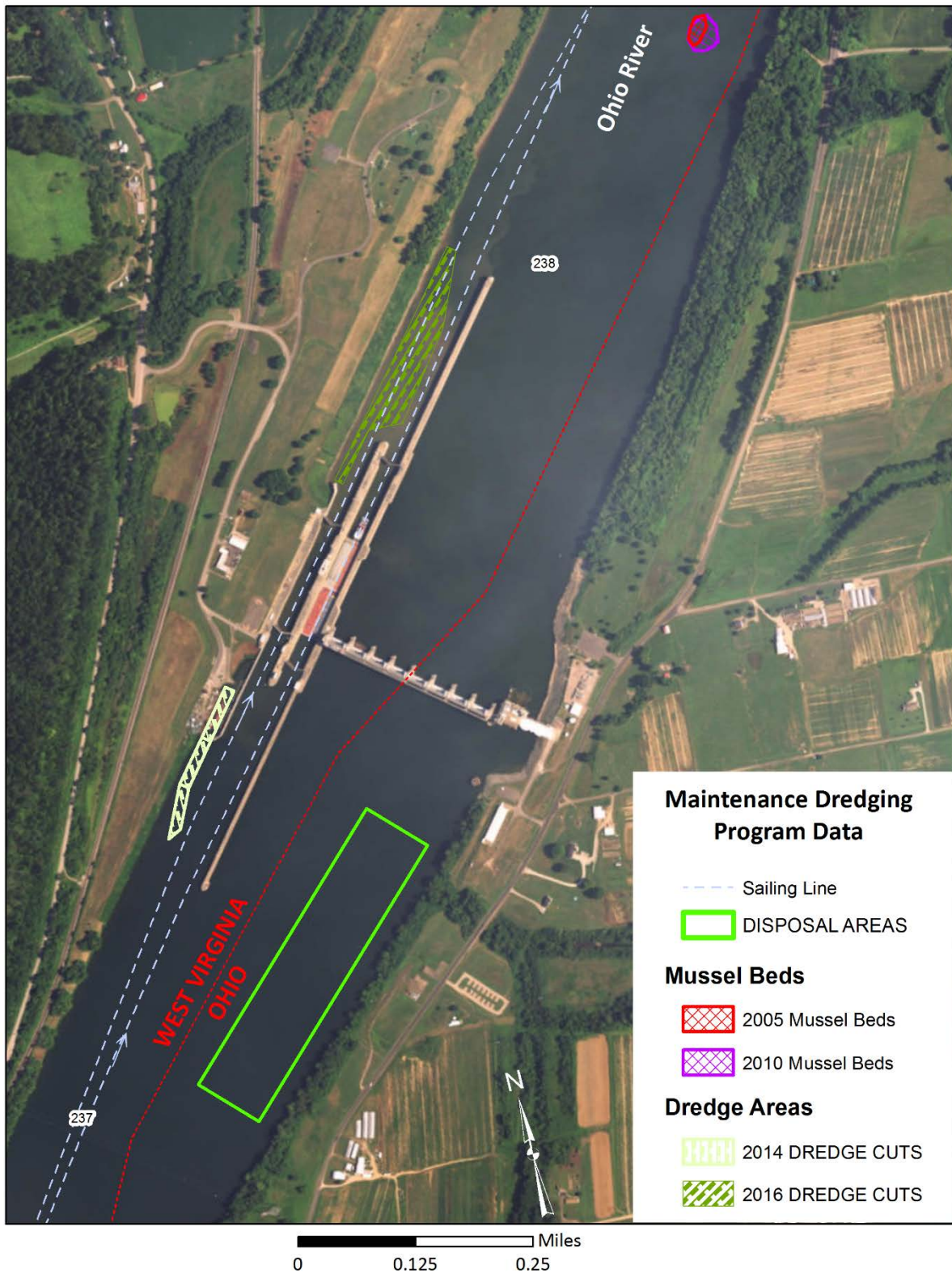
The Minimal Design Alternatives consists of using a hydraulic suction or mechanical clamshell dredge to remove approximately 12,000 CY of accumulated sediment from the government harbor, lock filling intakes, and the navigation channel upstream of the lock structure on the left descending bank at RM 237 of the Ohio River to the downstream disposal site. The Minimal Design Alternative will result in a shallower channel depth than the Preferred Alternative causing increased probability for emergency dredging operations to maintain a minimum 9 ft. navigation channel or forcing the towing industry to reduce draft resulting in economic impacts throughout the region. Although the amount of dredge material may be reduced by this alternative, it presents no reduction in impacts. The duration of work and disposal operation is identical to the Preferred Design Alternative due to the methods and techniques required to remove the accumulated sediment.

3. Brief Description of Non-Degradation Alternative:

The Non-Degradation Alternative is a no action alternative resulting in elimination of navigation along the waterway.

***** USACE is requesting certification of the **Preferred Design Alternative** *****

Racine L&D – Ohio River



Racine Dredge and Placement Areas



Racine L&D Upper Approach – Ohio River

	TOPIC	PREFERRED (PA)	MINIMAL (MA)	NON-DEGRADATION (NDA)
10 b.	Water Quality	Temporary lowering of water quality due to re-suspension of sediment particles during the dredging operation. The magnitude of this operation is considered to be similar to that of an ordinary high water event.	Similar comments as the PA, however the temporary impacts would be more frequent than those of the PA due to more frequent emergency dredging.	There would be no impacts to this resource.
	Biological	Impacts to the aquatic community are expected to minimal and temporary. Mussel surveys will be conducted to avoid impact in areas where requested by Federal and State agencies. There are no wetlands or other special aquatic sites impacted during the operation.	Same as PA.	There would be no impacts to this resource.
10 c.	Technical Feasibility	The PA is technically sound, reliable and cost effective.	This alternative is technically sound, but is less cost effective due to the increased cost of remobilization of the equipment to dredge at unscheduled dates.	N/A
10 f.	Pollution Control	Analysis of dredge material will be conducted according to the Inland Testing Manual to insure that all disposal meets with Clean Water Act standards.	Same as PA.	There would be no impacts.
10 g.	Human Health	There are no anticipated negative impacts to human health. Swimming will be prohibited in the vicinity of the dredging operation. Water treatment intakes for the production of potable drinking water will not be affected.	Same as PA.	There would be no impacts.
10h./10i.	Social/Economic	Commercial navigation on the Ohio River and its tributaries provide substantial economic benefits. The economic value of commercial navigation on the Ohio River navigation system (ORS) is tens of billions of dollars of goods and services produced and tens of thousands of jobs. In 2014, commercial traffic on the Huntington District Locks estimated a \$1.26 billion transportation savings versus least cost overland routes.	Same as PA. However, if the depth of the dredging was reduced this would result in lighter barge loads which in turn would cause the cost effectiveness of this mode of transportation to be drastically reduced therefore reducing jobs and national income.	Loss of navigation on the ORS would mean an average increase of approximately \$13 to \$14 per ton for all commodities that would be transported overland, a total of \$3 billion in additional transportation costs and an erosion of the economic value of the ORS.
10 j.	Environmental Benefits or Losses	The project has the potential to cause short term impacts to the aquatic environment that are being minimized by deep-water/mid-channel disposal were possible or creation of near shore islands or micro-topographic areas to enhance fish and wildlife habitat. Impacts to the general environment are anticipated to be minimal.	Same as PA.	Barge transportation is energy efficient for transporting large volumes of bulk commodities. One barge carrying 1,750 tons of cargo is the equivalent of 16 rail cars and 70 trucks. To transport the 76.7 million tons of cargo through Huntington District locks on the Ohio River in 2014 would require over 700 thousand rail cars and more than 3 million trucks.
10 k.	Mitigation Techniques	Impacts resulting from the project are minor and temporary in nature, therefore there are no significant impacts resulting from the project. For measures taken to minimize and avoid impacts, see attached mitigation plan.	Same as PA.	N/A

ROBERT C. BYRD L&D UPPER – OHIO RIVER

10a. Alternatives Analysis

1. Brief Description of Preferred Design Alternative:

The Preferred Alternative consists of using a hydraulic suction dredge or mechanical clamshell dredge to remove approximately 30,000 CY of accumulated sediment from the government harbor, lock filling intakes and the navigation channel upstream of the lock structure on the left descending bank between RM 279.3 and 280.1 of the Ohio River (see figure below depicting dredged areas). The dredging operation will provide a depth of about 15 ft. (design depth) within the lock walls. The disposal area will be located mid-channel adjacent to the dredging area. The proposed disposal area may exceed what is required for material placement. However, this is necessary to allow the actual disposal to be relocated within approved limits and avoid any high quality environmental sites that may be identified during surveys. The dredged material characteristics are 30% sand, and 70% silt. While this alternative requires more material to be dredged, it reduces the frequency of dredging, therefore reducing aquatic and economic impacts.

2. Brief Description of Minimal Design Alternative:

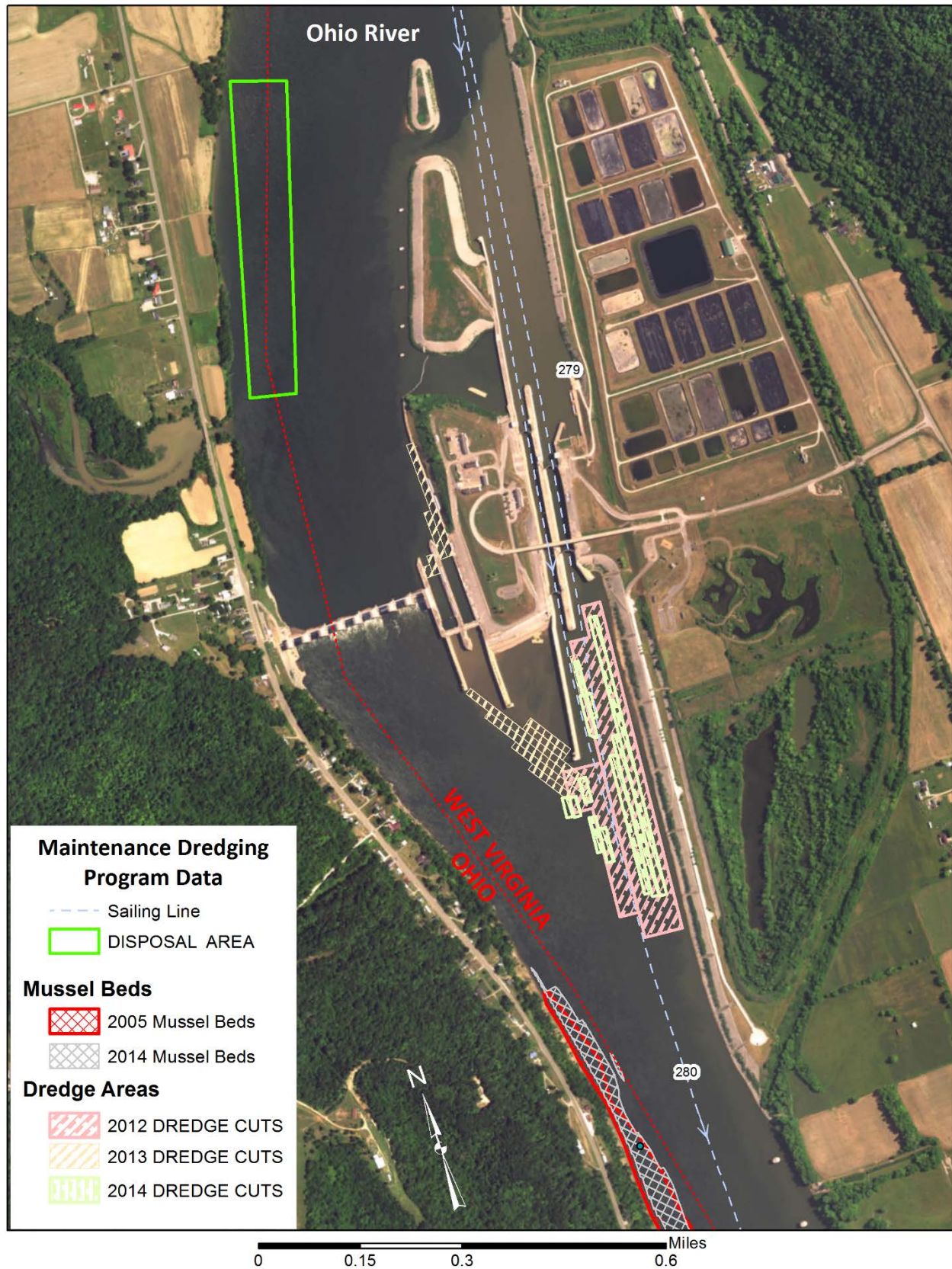
The Minimal Design Alternatives consists of using a hydraulic suction or mechanical clamshell dredge to remove a reduced amount of accumulated sediment from the government harbor, lock filling intakes and the navigation channel upstream of the lock structure on the left descending bank between RM 279.3 and 280.1 of the Ohio River. The Minimal Design Alternative will result in a shallower channel depth than the Preferred Alternative causing increased probability for emergency dredging operations to maintain a minimal navigable depth of 9 ft. This could force the towing industry to reduce draft resulting in economic impacts throughout the region. Although the amount of dredged material may be reduced by this alternative, it presents no reduction in impacts. The duration of work and disposal operation is identical to the Preferred Design Alternative due to the methods and techniques required to remove the accumulated sediment.

3. Brief Description of Non-Degradation Alternative:

The Non-Degradation Alternative is a no action alternative resulting in elimination of navigation along the waterway.

***** USACE is requesting certification of the **Preferred Design Alternative** *****

Robert C. Byrd L&D – Ohio River





RCB Upper Placement Area (Approx.)

Robert C. Byrd L&D – Ohio River

	TOPIC	PREFERRED (PA)	MINIMAL (MA)	NON-DEGRADATION (NDA)
10 b.	Water Quality	Temporary lowering of water quality due to re-suspension of sediment particles during the dredging operation. The magnitude of this operation is considered to be similar to that of an ordinary high water event.	Similar comments as the PA, however the temporary impacts would be more frequent than those of the PA due to more frequent emergency dredging.	There would be no impacts to this resource.
	Biological	Impacts to the aquatic community are expected to be minimal and temporary. Mussel surveys will be conducted to avoid impact in areas where requested by Federal and State agencies. There are no wetlands or other special aquatic sites impacted during the operation.	Same as PA.	There would be no impacts to this resource.
10 c.	Technical Feasibility	The PA is technically sound, reliable and cost effective. The dredging is expected to provide approximately 4 years of sufficient water depth for commercial and recreational navigation.	This alternative is technically sound, but is less cost effective due to the increased cost of remobilization of the equipment to dredge at unscheduled dates.	N/A
10 f.	Pollution Control	Analysis of dredge material will be conducted according to the Inland Testing Manual to insure that all disposal meets with Clean Water Act standards.	Same as PA.	There would be no impacts.
10 g.	Human Health	There are no anticipated negative impacts to human health. Swimming will be prohibited in the vicinity of the dredging operation. Water treatment intakes for the production of potable drinking water will not be affected.	Same as PA.	There would be no impacts.
10h./10i.	Social/Economic	Commercial navigation on the Ohio River and its tributaries provide substantial economic benefits. The economic value of commercial navigation on the Ohio River navigation system (ORS) is tens of billions of dollars of goods and services produced and tens of thousands of jobs. In 2014, commercial traffic on the Huntington District Locks estimated a \$1.26 billion transportation savings versus least cost overland routes.	Same as PA, however if the depth of the dredging was reduced this would result in lighter barge loads which in turn would cause the cost effectiveness of this mode of transportation to be drastically reduced therefore reducing jobs and national income.	Loss of navigation on the ORS would mean an average increase of approximately \$13 to \$14 per ton for all commodities that would be transported overland, a total of \$3 billion in additional transportation costs and an erosion of the economic value of the ORS.
10 j.	Environmental Benefits or Losses	The project has the potential to cause short term impacts to the aquatic environment that are being minimized by deep-water/mid-channel disposal were possible or creation of near shore islands or micro-topographic areas to enhance fish and wildlife habitat. Impacts to the general environment are anticipated to be minimal.	Same as PA.	Barge transportation is energy efficient for transporting large volumes of bulk commodities. One barge carrying 1,750 tons of cargo is the equivalent of 16 rail cars and 70 trucks. To transport the 76.7 million tons of cargo through Huntington District locks on the Ohio River in 2014 would require over 700 thousand rail cars and more than 3 million trucks.
10 k.	Mitigation Techniques	Impacts resulting from the project are minor and temporary in nature, therefore there are no significant impacts resulting from the project. For measures taken to minimize and avoid impacts, see attached mitigation plan.	Same as PA.	N/A

10c. Applicant's Project Cost

The Huntington District maintains over 311 miles of the Ohio River and dredges an average of approximately 250,000 CY of material from the river annually necessary to maintain the navigable waters. Both hydraulic and mechanical dredges are used to complete the maintenance dredging operations. Typically, six to ten locations in the Ohio River are dredged annually by the Huntington District. The annual cost of dredging the Ohio River is calculated based on the quantity of material dredged and is approximately \$1.9 million dollars per year.

Alternative Disposal Methods

One site within the District that has a decant structure and could be utilized as a dredge disposal site is Robert C. Byrd Locks and Dam (RCB), located at river mile 280. Additional costs for upland disposal can be determined based on two factors that would be needed beyond current in-water placement practices. The first is the additional equipment needed to get the material into the disposal area, and the second is maintenance costs associated with the upland disposal area. Based on current Huntington District contract pricing for increased equipment needs, such as shore pipe and a booster pump, we estimate an increase of approximately \$4.19 per cubic yard. In addition, one of the major costs associated with the maintenance of an upland disposal area would include the removal of the dredged material from the disposal area, which is estimated to cost around \$16 per cubic yard (M. Goddard, personal communication, 2011, Mobile District, USACE). Therefore, the projected cost for utilizing the RCB site would increase from approximately \$482,000 per year, to over \$2,000,000 per year. For sites that do not currently have an upland disposal area, there would be additional costs to include real estate acquisition, environmental considerations, as well as design and construction of decant structures.

10d. For sewage collection and treatment facilities

N/A for all sites.

10e. Government and private sponsored conservation projects that target improvement of water quality (for all sites).

Ohio River Valley Water Sanitation Commission - ORSANCO
5735 Kellogg Avenue
Cincinnati, Ohio 45228

Ohio Department of Natural Resources Division of Soil and Water Conservation
2045 Morse Road
Building B-3
Columbus, Ohio 43229

The Nature Conservancy Ohio Field Office
6375 Riverside Drive, Suite 50
Dublin, OH 43017

10h. Jobs created and revenues gained (for all sites).

- *Include the number of jobs to be created (directly and indirectly) by the project.*
The Ohio River navigation system produces tens of thousands of jobs.

- *Include state and local tax revenues to be generated.*
The economic value of commercial navigation on the Ohio River navigation system is tens of billions of dollars of goods and services produced.
- *Give a brief description of the local economy (i.e. median household income, poverty rates, population growth, unemployment, etc.)*
The latest information provided from the U.S. Census Bureau for the states of WV, KY and OH are as follows:

	Ohio	West Virginia	Kentucky
Population Estimate, 2015	11,613,423	1,844,128	4,425,092
Population, Percent Change, 2010-2015	0.7%	-0.5%	2.0%
Median Household Income, 2008	\$48,849	\$41,576	\$43,342
Percentage of Persons Below Poverty Line, 2015	15.8%	18.3%	19.1%

- *Discuss the potential direct and indirect increases in property values due to the proposed project.*
Potential direct and indirect effects on property values due to the proposed project are minimal. This is due to the very stable history of channel maintenance dredging on the Ohio River System.
- *Discuss the positive impacts on the recreational and commercial opportunities of the water resource, including tourism.*
Dredging of the recreational launch ramps and approach channels allows watercraft recreation to continue on the rivers. The commercial activity along the Ohio River is a vital vein of industrial jobs and opportunities. Maintaining navigation on the Ohio River ensures that these businesses and occupations continue to thrive.
- *Discuss businesses that will be positively impacted by the proposed project.*
Businesses to be positively impacted by the proposed project would be those directly dependent on commercial barge traffic utilizing the waterways. For example, the towing industry, who employs river boat pilots, deckhands, laborers, etc. Also, businesses dealing with commodities such as coal and products created from coal, petroleum and petroleum products, chemicals and related products, crude materials, aggregate material, as well as food and farm products.
- *Give a brief discussion regarding the positive aesthetics of the proposed project.*
The project may cause short-term impacts by the increase in turbidity during the dredging operation. This impact only affects the immediate dredging area for a short distance downstream. This impact is not noticeable if the river conditions are already turbid from natural storm events.

Application for Ohio EPA
Section 401 Water Quality Certificate
2017 - 2022

Attachment 2 – Mitigation Plan

Maintenance Dredging for Navigation on the Ohio River & Tributaries

US Army Corps of Engineers – Huntington District

Introduction

The following plan discusses potential impacts to water quality resulting from dredging activities, and mitigative measures taken by the Huntington District of the U.S. Army Corps of Engineers (USACE) to minimize or avoid these impacts. This plan serves as documentation of future plans to minimize and avoid effects from maintenance dredging.

Impacts to Water Quality

Impacts to water quality that result from maintenance dredging of the Ohio River and tributaries to maintain navigation are documented in the *Final Environmental Impact Statement for the Ohio River Navigation Project Operation and Maintenance* (USACE 1980). These impacts include:

- (1) Habitat loss and alteration at both dredging and disposal sites
- (2) Increased turbidity and suspended solids

These impacts are not considered significant. Because dredging activities typically last only a few days, and are localized to a specific area, any resulting impacts are minor and temporary.

Loss of habitat from dredging occurs when bottom substrates and benthic macroinvertebrates are displaced or disrupted. Complete recolonization of the dredged area can take up to a year to establish the level of community diversity that was present before the dredging activity. At the disposal site, bottom habitat is covered by large quantities of discharged dredged material resulting in the smothering of sessile invertebrate communities, as well as eggs and juveniles of certain fish species. However, it should be noted that the river-bottom habitat is a dynamic system that experiences numerous disruptive forces. Sediment scour, which causes similar disruptions in the river-bottom habitat to that of dredging, often occurs in main channel and channel border areas that experience high levels of boat and barge traffic.

Increases in turbidity from dredging and disposal operations can result in changes in water chemistry and impacts to aquatic organisms. Increased turbidity will reduce light penetration, oxygen content, and water temperature, as well as the physical disturbance or displacement of aquatic organisms. Although adult fish will move out of the immediate dredging area, they can be affected physiologically (gill clogging) and behaviorally (interruption of foraging and predation) due to the increased turbidity.

If contaminants are present in sediment, maintenance dredging may cause them to again become suspended within the river waters. When suspended, these contaminants may be ingested or absorbed and enter into any biological food webs that may be present. Although this dispersal is temporary and localized to a small area, concentrations may be high enough to affect the fish and invertebrate populations.

Measures to Minimize and Avoid Impacts

The Huntington District takes measures to avoid or minimize the impacts from maintenance dredging. The District holds annual partnering meetings with state and federal agencies in order to discuss the previous year's activities, as well as discuss plans for the upcoming season. Attendees generally include the U.S. Fish and Wildlife Service, Ohio Environmental Protection Agency, Ohio Department of Natural Resources, Kentucky Division of Water, West Virginia Division of Natural Resources, and West Virginia Department of Environmental Protection. These meetings are used as a forum to present and summarize data collected from the previous year's dredge season, discuss plans for the coming year, receive feedback and suggestions from the agencies regarding monitoring efforts, review findings of mussel surveys, and coordinate site-specific dredge and disposal activities.

Studies and surveys are continually conducted to obtain data on the impacts resulting from dredging operations. Information from these studies is used to adjust dredging operations in order to minimize impacts to water quality and other environmental resources. Advances in technology are also used to reduce the impacts that dredging has on the affected resources. The following discussion details what measures the Huntington District takes in order to minimize or avoid impacts to water quality, displacement and loss of habitat, and increases in turbidity resulting from maintenance dredging.

Bathymetric surveys are conducted annually at each dredge site to determine if dredging is required. These surveys provide an estimate of the amount of material to be removed at each site. When dredging operations begin, GPS systems are used to insure that discharge pipes are properly located in disposal areas for the most accurate placement of material. Also, monitoring of the sediment plume is conducted during dredging operations at the sites where there is concern that the river current could push suspended sediment over existing mussel beds. The methods utilized for monitoring continue to evolve. Currently the methods utilized include acoustic Doppler and sediment deposition monitoring.

In order to monitor the sediment deposition occurring downstream of the dredging operation, USACE has developed real-time monitoring devices to monitor temperature, oxygen, deposition, and turbidity. For example, a sampler was constructed to measure ambient water conditions, sediment deposition, and interstitial flow below R.C Byrd Locks and Dam. A SeaTek multiple transducer array mounts to the platform to measure sediment deposition and scour over an artificial substrate. A multi-parameter datasonde mounts to the top of the array to measure ambient water quality conditions. All sensors are controlled by a NexSens Data Buoy that can be called hourly to monitor river conditions and determine if equipment has malfunctioned or been disturbed. This monitoring effort allows for adjustments to be made that minimize or avoid impacting high quality habitats.

A Doppler profile can also be used to map current velocity vectors. If the dredging activity occurs below a dam, this information can be used to modify gate operations on the dam to create a steering current. Steering currents are utilized where practicable to

help deflect the turbidity plumes away from mussel beds located downstream of the disposal site.

In order to avoid impacting freshwater mussel resources, mussel surveys are conducted at dredge and disposal areas prior to project activities. Semi-qualitative mussel surveys are performed at each selected disposal area to determine the presence or absence of freshwater mussels. These surveys are in accordance with the Ohio Mussel Survey Protocol (April 2016). If mussels are observed, the extent of the resource within the dredge material placement area is ascertained, as well as species composition and distribution along survey transects. These surveys are used to adjust dredging and disposal locations in order to prevent significant impacts to mussel beds.

Evaluation of Dredged Material for Contamination

To ensure that dredge material disposal does not decrease water quality by resuspension or release of contaminants in sediment, the Huntington District follows the *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual* from the Inland Testing Manual (1998) and a dredging sediment analysis based on the Tier I Evaluation of the Inland Testing Manual per the request of the Ohio Environmental Protection Agency (see attached correspondence). This framework is a joint effort by USACE and the U.S. Environmental Protection Agency, designed to ensure that dredge disposal meets state and federal water quality standards. The Inland Testing Manual is a tiered system of analysis that uses a screening system of tests at increasing intensity levels (four ascending tiers, labeled 1 through 4) to efficiently provide data to make fact-based decisions about impacts to water quality. The dredging sediment analysis includes collecting and analyzing sediment samples from maintenance dredging locations that have disposal sites in Ohio waters.

The District will continue to follow the methods outlined in the Inland Testing Manual and the agreed upon dredging sediment analysis, with alterations as agreed upon in annual coordination meetings. This method will include an initial evaluation with a review of existing data, including both historical sampling data and all available information about current conditions of the sediment. Under Tier I, additional sampling at projects in Ohio Waters will occur on a three year schedule.

Information resulting from the first tier of analysis will be used to screen out material that can be generally excluded from consideration, identify contaminants of concern, and create a “Sampling and Analysis Plan” for sites where there is potential to impact water quality through contamination. If subsequent levels of sampling are required, the level of intensity in the analysis will increase until a determination can be made regarding impacts to water quality. Documentation of the progress and results of the sampling, along with any changes to the “Sampling and Analysis Plan,” will be provided to resource agencies on an annual basis.

Other Mitigation Efforts Located on the Ohio River

Dredging activities on the Ohio River and its tributaries fall under the jurisdiction of multiple states. While some of the following measures used to minimize or avoid impacts do not occur in waters under the jurisdiction of the state of Ohio, they do occur within the Ohio River system. The Huntington District will continue to look for alternative sites which may provide beneficial use opportunities for dredge material.

Discussion

The USACE Huntington District will continue to avoid or minimize the impacts to water quality resulting from navigational dredging operations. Activities for the current certification period will include continuing to conduct annual meetings with state and federal resource agencies, conduct mussel surveys prior to dredging and disposal, and utilizing technology—such as sedimentation monitoring—to adjust disposal practices. Analysis of sediment contamination will be conducted according to the Inland Testing Manual and dredging sediment analysis plan to insure that water quality is not impacted from disposal of contaminated sediment. Lastly, the District will continue to evaluate new technology and practices which could minimize impacts to water quality resources, and coordinate efforts with state and federal resource agencies.

Enclosure to Attachment 2 for
reference



DEPARTMENT OF THE ARMY
HUNTINGTON DISTRICT, CORPS OF ENGINEERS
502 EIGHTH STREET
HUNTINGTON, WEST VIRGINIA 25701-2070

REPLY TO
ATTENTION OF

Planning, Programs and Project Management Division
Planning Branch, Environmental Analysis Section

May 3, 2011

Rose McLean
Ohio Environmental Protection Agency
Division of Surface Water
50 West Town Street, Suite 700
P.O. Box 1049
Columbus, Ohio 43216-1049

via e-mail

Ms. McLean:

The Huntington District of the US Army Corps of Engineers has developed a dredging sediment analysis plan based on the Tier I Evaluation of the Inland Testing Manual (EPA, USACE 1998) for our 2011 dredge sites within Ohio waters. The plan also includes proposed reformatations (for 2012 and thereafter) to the lower disposal areas at R.C. Byrd Locks and Dam and Racine Locks and Dam due to updated mussel data. Enclosed is the plan for your review. Any questions or comments related to the plan can be returned to Andrew Johnson in the Huntington District's Environmental Analysis Section:

Andrew Johnson
(304) 399-5189
Andrew.n.johnson@usace.army.mil
Huntington District, Corps of Engineers
502 Eighth Street
Huntington, WV 25701

Sincerely,

A handwritten signature of Andrew Johnson, written in black ink, is located below the "Sincerely," text. The signature is stylized and cursive.

Andrew Johnson
Wildlife Biologist

Enclosure

Cc: Mylynda Shaskus

Tier I evaluations for 2011 Maintenance Dredge sites within Ohio Waters – 401 certification number 062690, October 11, 2006:

The US Army Corps of Engineers (USACE) will collect and analyze sediment samples from 2011 maintenance dredging locations that have disposal sites in Ohio Waters.

Sediment samples will be collected below R.C. Byrd Locks and Dam at the dredge site located in the lower approach of the locks. Historically, dredge material at R.C. Byrd shifts in composition from sand in the lower section to fines in the upper section of the dredge site. As such, one sediment sample will be collected using a Ponar Dredge from the upper section of the dredge site where sediment with greater than 20% fines can be collected. The Corps will also collect a similar sediment sample from above the next lock and dam (Greenup L&D) to serve as a reference sample. The composition of material at the receiving/disposal area is not similar in grain size to the dredged material and cannot serve as a reference site. In general, the top third of an Ohio River Pool is considered the most riverine habitat as it consists of more sands, gravels, cobbles, and boulders. Due to decreased velocities in the lower portion of Ohio River pools, there is more consistent deposition of fine materials. Therefore, our reference site for sediment contamination analysis will be taken just upstream Greenup Lock and Dam. The goal of this comparison is to show that the concentrations of contaminants at the two sites are not substantially different within the same geochemical environment of the Greenup Pool.

In anticipation that the government harbor at the Muskingum River may be dredged in 2011, sediment samples will also be collected from the dredge site and the disposal site. Since the dredge site and the receiving site are made up of a similar sediment composition, the receiving site can serve as a reference site for sediment contamination analysis.

No additional sites with disposal in Ohio waters are planned for 2011 maintenance dredging.

Sediment samples will be analyzed for the following:

VOCs (method 8260)

SVOCs: Base-Neutral and Acid Extractable (method 8270)

PCBs, arachlor-specific (method 8082)

Pesticides (method 8081)

Priority Pollutant Lists. Herbicides - compounds in current EPA 8151 list (method 8151)

ICP Metals: Fe, Mn, Al, Cd, Cr, Cu, Ni, Pb, As, Zn, Ag, Ba, Be, Co, Sb, Ti, Tl, V, Ca, K, Mg, Na, Si (method 200.7)

Mercury (method 245.1)

Selenium (by GFAA or ICP-MS)

PAH, Polynuclear Aromatic Hydrocarbons, (method 8270)

Analytes will be reported to lowest practical detection levels obtainable by our contract laboratory, BioChem Testing Inc.

This sediment sampling along with the elutriate analyses should allow USACE to make a factual determination at the Tier I level, as the sites and sediment should meet the exclusion criteria set forth in Section 4.0 (paragraph 5) of the Inland Testing Manual. Under Tier I, additional sampling at these projects will continue on a three year schedule.

For future Ohio 401 Water Quality Certifications for Maintenance Dredging:

The area utilized for disposal at the Lower Approach of R.C. Byrd Lock and Dam has been decreased since issuance of the current 401 permit. Since the 2006 401 Water Quality Certification (WQC), the Corps has ceased disposing of dredge material along the right descending bank (Ohio shoreline) to avoid impacts to mussel beds near that shore. As shown in the attached aerial map, the last disposal operation that occurred on the right descending bank was in 2003. Subsequent disposal operations have been confined to an area located mid-channel. Steering currents have also been generated at the disposal site by manipulation of the roller gates on the dam during dredging. This allows the dredge disposal plume to be pushed away from known mussel beds on the right descending bank and into the main current. These changes will be reflected in the 2012 permit application. Elutriate samples will continue to be collected on a three year rotating schedule for the Lower Approach and as needed for the Upper Approach.

In 2010, the District's mussel survey found a mussel bed just downstream of our disposal area at Racine Lock and Dam. The District does not anticipate a need for maintenance dredging at Racine in 2011. Future disposal operations will be moved to mid-channel for the protection of that downstream mussel bed. As shown in the attached aerial map, the new disposal area will be solely in West Virginia waters. However, Racine Upper Approach disposal operations will continue to use the disposal site within Ohio waters and will be included in the 2011 Ohio Water Quality Certification application. Elutriate samples will continue to be collected on a three year rotating schedule for the Lower Approach and as needed for the Upper Approach.

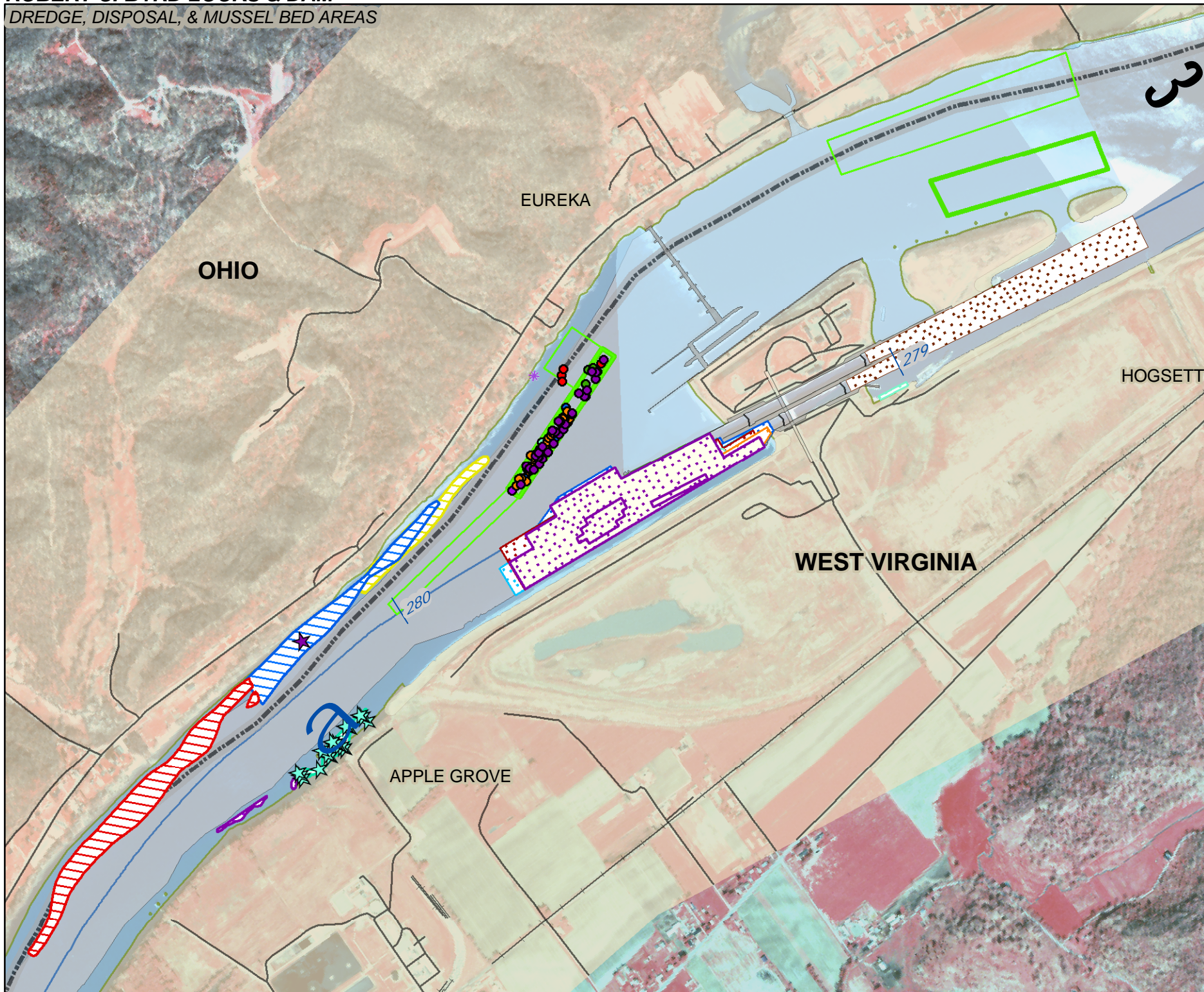
Public access sites, including Ginat Run, Eagle Creek, and White Oak Creek will no longer be sampled on a three year schedule. These sites will be sampled on an as needed basis based on dredging requirements.

The following projects will be included in the Ohio 2011 Water Quality Certification:

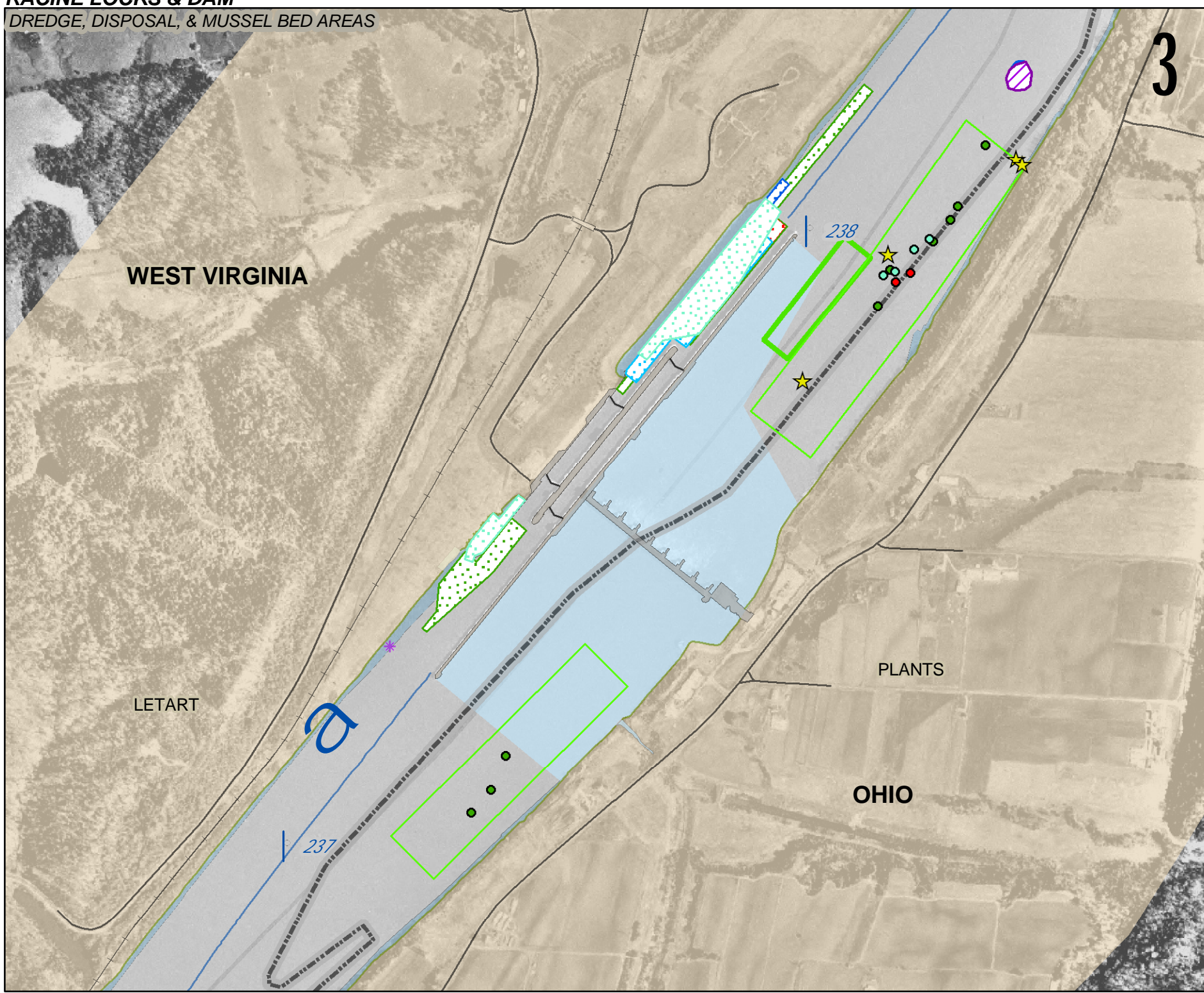
Racine Upper approach – Ohio River
Government Harbor (Muskingum River)
Ginat Run Public Access Site
Eagle Creek Public Access Site
White Oak Creek Public Access Site

ROBERT C. BYRD LOCKS & DAM

DREDGE, DISPOSAL, & MUSSEL BED AREAS



RACINE LOCKS & DAM
DREDGE, DISPOSAL, & MUSSEL BED AREAS



- Live Mussels**
 - 2010
 - 2009
 - 2008
 - 2007
 - 2002
 - 2001
- Mussel Beds**
 - 2010
 - 2009
 - 2008
 - 2007
 - 2006
 - 2005
 - 2003
 - 2002
 - 2001
- Dredge Areas**
 - 2010
 - 2009
 - 2008
 - 2007
 - 2006
 - 2005
 - 2004
 - 2003
 - 2002
 - 2001
 - BEFORE 2001
 - CONSTRUCTION
 - YEAR UNKNOWN
- Discharge Pipe**
 - 2010
 - 2009
 - 2008
 - 2007
 - 2006
 - 2005
 - 2004
 - 2003
 - 2002
 - 2001
- Disposals Areas**
 - MOST RECENT
 - PREVIOUS YEARS
- STATE LINE**