

Appendix E:

Clean Water Act Section 404(b)(1) Analysis

I. Project Description

A. Background and General Description

The Section 404(b)(1) Evaluation for the 9-foot Navigation Channel Project, Channel Maintenance Management Plan (CMMP) addressed the impacts resulting from the placement of fill material in waters of the United States in compliance with Section 404 of the Clean Water Act. The specific fill activities addressed in that evaluation included the following:

1. Placement of dredged materials in selected wetland or aquatic sites associated with the implementation of the CMMP.
2. Placement site effluent discharged to waters of the United States resulting from hydraulic disposal of dredged materials at the CMMP selected sites.

This update to the CMMP Section 404(b)(1) Evaluation has been prepared because the Dredged Material Management Plan for Pool 6 (DMMP) reevaluated the continued use of the dredged material placement sites identified in the CMMP, as well as new potential alternative placement sites that were not available at the time of preparation of the CMMP.

One of the proposed dredged material placement sites identified in the DMMP's selected plan – the Homer site - would involve discharges of fill material into waters of the United States. Use of the Homer site, which includes the “Homer West” and “Homer East” portions as identified in the DMMP, was addressed in the CMMP 404(b)(1) analysis. Hence this update to the CMMP Section 404(b)(1) analysis will specifically address the continued use of the Homer site and any proposed modifications to the site, as described in Chapter 6 of the DMMP. This 404(b)(1) analysis will also address alternative placement sites not available at the time of the CMMP. The effluent discharge of carriage water resulting from hydraulic placement of dredged materials at the Homer site is addressed in Nationwide Permit 16, and therefore is not detailed in this 404(b)(1) analysis.

B. Authority and Purpose

1. Overall Project Purpose

The purpose of this project is to secure sufficient dredged material capacity in Pool 6 for 20 years of maintenance dredging (an estimated 1.5 million cubic yards).

2. Basic Project Purpose

The basic project purpose is facilitating the transfer and storage of dredged material.

3. Water Dependency

Dredging of the navigation channel occurs within the Mississippi River. Therefore, the movement and transfer of this material requires access and proximity to this body of water. Placement and storage of the material does not require proximity to or siting within a special aquatic site to fulfil its basic purpose.

4. Authority

The Corps of Engineers is responsible for maintaining a navigable channel on the Upper Mississippi River. Authority for continued operation and maintenance of the Upper Mississippi River 9-Foot Channel project is provided in the River and Harbor Act of 1930. Original authority for the Corps of Engineers to work on the Mississippi River was provided in the River and Harbor Act of 1880.

C. Project Alternatives

1. Full Range of Alternatives Considered

Thirty-three sites in total were identified and evaluated in the planning process. These sites are listed and described in Chapter 5 of the Dredged Material Management Plan and Environmental Assessment.

2. Alternatives Screened

Of the thirty-three sites identified, twenty-one were screened from the recommended plan. A full description of the dredged material site selection process can be found in Chapter 5 of the DMMP. The rationale for screening individual sites is explained in greater detail in Chapter 5, but the primary reasons for screening are described generally here. Nine alternative sites were screened from further consideration entirely. Five of these nine were screened because they would have greater environmental impacts compared to those carried forward. Four were screened because the sites became developed during the study period. An additional twelve alternative sites were screened from consideration within the context of the DMMP planning process but could be pursued in the future. These were primarily one-time placement opportunities that would require significant planning on the parts of the Corps and the site owners. These sites would not meet the long-term DMMP planning objectives but could be implemented if site owners have needs for fill in the future. Six of these are potential environmental restoration projects within the pool. Each of these alternatives would likely be developed under different Corps authorities.

3. Proposed Alternative

The Corps is proposing to use up to twelve placement sites (some of which are incremental portions of contiguous land) to manage dredged material placement needs in Pool 6 for the next 20 or more years. Table 1 lists the sites. The sites are organized into three tiers based on placement costs. The first-tier alternatives have river access for direct placement of dredged material and direct road access for beneficial use users to remove the material. The first-tier

alternatives include the two sites currently available – Homer West and Winona Harbor – as well as Homer East and the Winona Harbor Expansion sites. The second-tier alternatives would require material to be offloaded at a river access site and trucked to a nearby placement site. These sites include Fastenal-Evanson, Fastenal-Madison Silo, and Port Authority Business Park. Third tier sites are permanent placement sites that would require substantial trucking from one of the river access points, and would all be permanent placement sites. These sites include the Yeadke Pit, Highway 43 Pit, and Winona Sand & Gravel Airport Pit. In addition, two transfer sites were included in the plan that would be used to move material to the Tier 2 and Tier 3 sites. Under this plan, the Corps would attempt to manage as much material as possible through Tier 1 open beneficial use sites with direct river access. If dredging demands outpace the capacity provided by the Tier 1 sites, the Corps would pursue higher-cost alternatives.

Of the twelve sites, three are anticipated to have wetland impacts – Homer East, Fastenal-Madison Silo, and Fastenal-Evanson. Only the wetlands at the Homer East site are being evaluated as part of the Federal action in this analysis. This site is recommended among the first tier of sites to be implemented because it has direct river access, which is a critical factor for ensuring site access for mechanical dredging. The site would also substantially increase the operational flexibility of dredging operations in Pool 6 by providing a large enough area to allow hydraulic dredging. Further, the site is adjacent to an existing site with known and proven operational functionality.

The Fastenal-Evanson and Fastenal-Madison Silo sites are opportunities where landowner development needs could create opportunities for beneficial use of dredged material. There are wetlands present on these sites, but the Corps does not have enough information at this time to determine if the Corps' actions at these sites would include filling jurisdictional waters. The use of these sites would essentially involve the Corps placing material at an owner-designated location within the sites, and the landowner would manage the material within the site. The current owner has expressed an interest in receiving this material for their own site development. This material management and whatever site development ensues after placement would be the responsibility of the landowner. The Corps may need to prepare additional NEPA documentation and complete a Clean Water Act Section 404(b)(1) analysis to address additional details regarding the site use prior to use once additional information is known.

The placement of dredged material at the Winona Sand and Gravel Airport Pit would impact aquatic habitat and may impact wetlands. Because this is an active mining pit, the habitat could change substantially before use would occur. No on-site investigations of the aquatic areas at the site have been conducted to date but would be conducted prior to use of the site. The site would be evaluated for wetland impacts and a Clean Water Act Section 404(b)(1) analysis would be prepared prior to filling any jurisdictional wetlands at the site.

Compared to the Tier 2 sites carried forward, no trucking would be required to place material at the Tier 1 placement sites. Use of the Fastenal sites requires offloading material at the Port Authority Site and transfer to trucks. Use of the Port Authority Business Park site requires closing a public boat ramp to offload material onto trucks. The trucking transport to Tier 2 sites adds an estimated \$5 million to the overall project costs over 20 years compared to Tier 1 sites (a 26% increase). Trucking to the Tier 3 sites further increases costs by between \$14.7 and \$35.2 million (a 77% - 183% increase above Tier 1 sites). None of the Tier 2 or Tier 3 alternative sites would allow for hydraulic dredged material placement.

Table 1: Placement Sites Carried Forward as the Proposed Action

TIER	Site Name	Site Use	Wetland Impacts
Existing (No Action)	Homer West	Open Beneficial Use	
Existing (No Action)	Winona Harbor	Open Beneficial Use	
1	Homer East	Open Beneficial Use	1.55 Acres
1	Winona Harbor Expansion (Small)	Open Beneficial Use	
2	Port Authority Business Park	Open Beneficial Use	
2	Fastenal – Madison Silo	One-time Beneficial Use	0.6 Acres*
2	Fastenal – Evanson	One-time Beneficial Use	12.4 Acres*
3	Yaedke Pit	Permanent Placement	
3	Highway 43 Pit	Permanent Placement	
3	Winona Sand and Gravel Airport Pit	Permanent Placement	Unknown*
Transfer	Port Authority	Transfer	
Transfer	East End Boat Landing	Transfer	

* Any wetland fill at these sites would need to be approved for placement under the Clean Water Act prior to placement.

D. Mitigation

The proposed fill activity at the Homer site would occur in Homer, Minnesota, in Winona County (See Plates 6 and 9 in the Main Report). An estimated 1.55 acres of deep marsh wetland would be filled. Compensation would be provided by the purchase of wetland bank credits within the watershed. The number of credits would be determined after gaining access to the site and conducting an onsite delineation. The upland portion of the Homer site has been used previously by the Corps since 1986. A detailed description of the project features and the proposed use of the Homer site can be found in the DMMP and Environmental Assessment.

E. Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)

There are no operable features in this project, and the project would be designed to be stable with normal maintenance and repair. No OMRR&R is anticipated at the site.

F. General Description of Dredged or Fill Material

1. General Characteristics

Sands, silts, and occasionally gravel material would be dredged from active dredge cuts in Pool 6 of the UMR. The exact types and gradations would vary by dredge cut and possibly throughout time. Sediment samples have been periodically collected and tested from active dredge cuts since 1974.

Table 2: Pool 6 Dredge Cut Sediment Quantities and Physical Characteristics

Cut Name	Location (RM)	Annual Avg Qty (cubic yards): '85-'16	Year Last Tested	Avg. % Sand	Avg. % Silt	Avg. % Clay
Lower Appch. L/D 5A	728.5	0	1989	100.0	0.0	0.0
Winona Comm. Harbor	726.3	0	2008	90.0	8.0	2.0
Winona SBH	726.1	1,704	2016	60.2	10.5	29.3
Blw. Winona R.R. Br.	723.0-723.8	11,498	2016	96.0	0.5	0.1
Gravel Point	721.8-722.9	1,461	2016	96.0	0.5	0.0
Homer	719.7-721.1	8120	2014	94.7	0.5	0.1
Blacksmith Slough	718.5-719.3	4342	2016	96.1	0.5	0.0
LaMoille Light	716.9-717.2	322	2016	99.2	0.8	0.0
Upper Appch. L/D 6	714.5-714.6	47	2016	84.9	0.7	0.5

Table 2 shows the active dredge cuts in Pool 6 and their grain size composition based on the most recent testing. The sample results are taken from two random locations in each cut using a PONAR dredge sampler. The depth of each sample is around 10 cm. Overall, there was very little fine material seen in the navigation channel dredge cuts. Except for small amounts of gravel, virtually all of the material in the main channel cuts were sand. The composition of surficial sediment at Winona Small Boat Harbor (SBH), however, had more fine material with around 30 percent silts and clay. The sediment at the Winona Commercial Harbor had more silt and clay than the main channel cuts, but much less than the Winona Small Boat Harbor.

2. Quantity of Material

The average annual quantities for each of the dredge cuts are summarized in Table 2.

3. Source of Material

The source of the dredged material is summarized in Table 2.

G. Description of the Proposed Discharge Sites

The Homer (West and East) site in total is approximately 7.1 acres. The Homer East site contains approximately one acre of vegetated terrestrial habitat currently supporting roughly two-dozen

cottonwood trees around 16 inches in diameter and a number of smaller floodplain forest species with diameters of five-inches or less. The site also contains an estimated 1.55 acres of deep marsh wetland. The wetland is an artificially cut-off portion of the river. It appears that sometime in the early 1970s, the Corps placed dredged material in the area, creating the land that is now the Homer site. A portion of the area was not filled at that time and remains submerged to this day, although it is separated from the main channel by an artificial sand berm. The remainder of the site – the Homer West portion – has been used since 1986 for upland dredged material placement. No significant changes in environmental conditions at Homer have occurred since the 1997 CMMP EIS and Section 404(b)(1) Evaluation. Additional information on the Homer site may be found in Chapter 5 of the DMMP.

H. Description of Disposal Method

Material would be either dredged mechanically or hydraulically. Berms would be constructed around the placement site such that during hydraulic placement, the carriage water would pond and allow the majority of sediment to settle before discharging the carriage water back into the Mississippi River.

II. Factual Determinations

A. Physical Substrate Determinations

1. Substrate Elevation and Slope

The wetland fill at the Homer site would elevate the areas to an upland condition.

2. Sediment Type

Substrate within the ponded wetland area at the Homer placement site has not been sampled but is most likely predominantly sand based on the site's history and minimal aquatic vegetation.

3. Fill Material Movement

Minimal or no fill material movement would be expected.

4. Physical Effects on Benthos

Any benthic organisms within the wetlands at the Homer site would be destroyed during dredged material placement and the benthic productivity would be permanently lost. No noticeable impact on the benthos in the main channel border is expected from return water. For the Homer placement site, the scope and extent of effects have not significantly changed from the effects discussed in the CMMP 404(b)(1) Evaluation.

5. Actions Taken to Minimize Impacts

No actions to minimize impacts on physical substrate are proposed.

B. Water Circulation, Fluctuation, and Salinity Determination

1. Water

a. Salinity

The proposed fill activities would have no measurable effect on salinity.

b. Water Chemistry

During hydraulic material placement, the carriage return water would be taken from the Mississippi River to mix with the dredged material and allow hydraulic movement and returned to the river after settling. Returning this water without the suspended sediments should not have any measurable effect on water chemistry.

The proposed fill activities at both sites would have no measurable effect on water chemistry outside of the sites themselves.

c. Clarity

The proposed fill activities would have no measurable effect on clarity.

d. Color

The proposed fill activities should have no measurable effect on water color.

e. Odor

The proposed fill activities would have no measurable effect on water odor.

f. Taste

The proposed fill activities would have no measurable effect on water taste.

g. Dissolved Oxygen Levels

The proposed fill activities would have no measurable effect on dissolved oxygen levels.

h. Nutrients

The proposed fill activities would have no measurable effect on nutrient levels in the water.

i. Eutrophication

The proposed fill activities would have no measurable effect on eutrophication.

j. Temperature

The proposed fill activities would have no measurable effect on water temperature.

2. Current Patterns and Circulation

a. Current Velocity and Patterns

The proposed fill activities should have no effect on current velocity and patterns.

b. Stratification

The proposed fill activities should have no effect on stratification.

c. Hydrologic Regime

The proposed fill activities should not significantly alter the existing hydrologic regime within the project area.

3. Normal Water Level Fluctuations

No standing water would remain at the Homer site following the fill of the existing deep marsh wetland. The Homer site is outside of the mapped floodway and therefore placement of this fill would not have a measurable effect on normal water level fluctuations in the project area.

Return water from hydraulic dredging operations would not impact water levels adjacent to the site.

4. Salinity Gradient

The proposed project should have no measurable effect on the salinity gradient.

5. Actions Taken to Minimize Impacts

No special actions would be taken to minimize the effects of the proposed project on water circulation, fluctuation, or salinity.

C. Suspended Particulate/Turbidity Determination

1. Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site

No measurable effects on suspended particulates and turbidity levels are anticipated.

2. Effects on Chemical and Physical Properties of the Water Column

No measurable effects are expected on dissolved oxygen, toxic metals, organisms, pathogens, or the aesthetics of the water column.

3. Effects on Biota

No measurable toxic effects on biota are anticipated.

4. Actions Taken to Minimize Impacts

Best management practices would be used to reduce the turbidity caused by the return of carriage water to the Mississippi River. As described in Section I.H., carriage water would be held on-site, allowing suspended sediments to settle prior to discharging water back into the Mississippi River.

D. Contaminant Determinations

Individual dredge cuts are sampled on a rotating basis every 5-10 years. Sediment sampling and contaminant testing of dredge cuts in Pool 6 were last conducted most recently in 2014 and 2016, except for Lower Approach L/D 5A (last tested in 1989) and the Winona Commercial Harbor (last tested in 2008). Testing indicated that the main channel dredge cuts are primarily composed of sand and free of elevated concentrations of pollutants. Heavy metals, PAHs, PCBs and pesticides were all found at concentrations below MPCA guidelines for benthic invertebrate health (SQTs) and upland placement suitability (SRVs). Also shown to not exceed MPCA's SQTs or SRVs was the 2016 testing of the Winona SBH sediment, although both heavy metals and organics in the harbor were detected at slightly higher levels than seen in the main-channel. Testing within the Winona Commercial harbor had SQT Level 1 exceedances for PAHs acenaphthene and anthracene in one sample and acenaphthene in the other. Otherwise the material was clean.

E. Aquatic Ecosystem and Organism Determination

1. Effects on Plankton

Plankton within the wetland would be buried when the wetland is filled.

2. Effects on Benthos

As summarized in section II.A.4, any benthos within the wetlands would be buried.

3. Effects on Nekton

Nekton within the wetlands would either be buried or would escape to the main river channel when the wetland is filled.

4. Effects on Aquatic Food Web

The removal of the existing biota could cause a minor impact on the local food web due to the loss of approximately 1.5 acres of wetlands. This adverse effect will be mitigated through the purchase of wetland bank credits within the watershed.

5. Effects on Special Aquatic Sites

The proposed fill activities would permanently convert approximately 1.5 acres of wetlands to upland habitat. The impact upon the ecology of the Upper Mississippi River (UMR) watershed from the loss of the wetland would be negligible in light of the large amount of wetland and aquatic habitats present within the St. Paul District's portion of the UMR, which contains over 130,000 acres of open water aquatic and 118,000 acres of wetland habitats.

6. Threatened and Endangered Species

No known Federally listed threatened or endangered species is anticipated to be affected by the proposed fill activity. Refer to sections 2.2.5 and 7.2.4 of the main report for a full discussion of the proposed project effects on threatened and endangered species.

7. Other Wildlife

The proposed project would result in filling of approximately 1.5 acres of deep marsh. All of this area would be permanently converted to relatively barren upland sand habitat. Any existing use of these areas by aquatic organisms and wildlife would be eliminated. However, relative to Pool 6 or the UMR system as a whole, the loss would be a minor impact, and any mobile wildlife using these areas would instead use adjacent or nearby habitat.

8. Actions Taken to Minimize Impacts

The loss of wetlands would be offset with the purchase of wetland bank credits within the watershed following an on-site wetland delineation, and prior to fill of the wetlands.

F. Proposed Disposal Site Determinations

1. Mixing Zone Determination

The proposed fill activities would have no effect on the mixing zone.

2. Determination of Compliance with Applicable Water Quality Standards

The proposed fill activities would not violate any applicable State water quality standards. For the placement of fill in the wetlands, water quality certification will be obtained from the State of Minnesota prior to filling the wetlands. For effluent discharges from hydraulic dredging, water quality certification from the State of Minnesota is provided in accordance with Nationwide Permit 16, which authorizes return water from upland contained disposal areas, and the December 21, 2020 letter from the MPCA which states that 401 Certification has been issued for activities covered under the Nationwide Permits.

3. Potential Effects on Human Use Characteristics

a. Municipal and Private Water Supply

No municipal or private wells should be affected by the proposed project.

b. Recreational and Commercial Fisheries

Fish could be temporarily displaced from the area during placement events but these effects would be temporary and minor.

c. Water Related Recreation and Aesthetics

Half of the proposed Homer placement site has been used for dredged material placement since 1986. Full use of the site as proposed would result in a larger sand pile and would

have a minor adverse effect on aesthetics. Screening will be incorporated into the site to reduce these effects. The proposed fill would have no adverse effects on recreation.

d. Cultural Resources

The proposed fill activities would have no effects on cultural resources or historic properties.

e. Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves

The proposed fill activities would have no effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, or similar preserves.

G. Determination of Cumulative Effects on the Aquatic Ecosystem

The cumulative effects of the proposed project are addressed in Section 7.4 of the main report. For the purposes of the Clean Water Act 404(b)(1) evaluation, “cumulative impacts” are changes in the aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material. In summary, the identified past, present, and reasonably foreseeable future actions that have had impacts on the aquatic ecosystem in Pool 6 include construction of a railroad embankment along the Wisconsin side of the Mississippi River channel in Pool 6, flood risk reduction projects in Winona, Minnesota, and the past and ongoing operation, maintenance, and navigation use of the main channel of the UMR. The proposed project would impact an estimated 1.55 acres of previously-disturbed deep marsh wetland. The magnitude of the proposed effect is relatively minor within the watershed. Compensatory mitigation will help compensate for the loss of wetland function and values. No significant cumulative effects are expected. Refer to the main report for additional details and analysis.

H. Determination of Secondary Effects on the Aquatic Ecosystem

No significant secondary effects on the aquatic ecosystem would be expected from the proposed action.

III. Finding of Compliance With Restrictions on Discharge

- 1) No significant adaptations of the guidelines were made relative to this evaluation.
- 2) The proposed fill activity would comply with the Section 404(b)(1) guidelines of the Clean Water Act. The placement of fill is required to provide the desired benefits.
- 3) There are no practical and feasible alternatives to the placement of fill in the proposed sites that would meet the objectives and goals of this project. The proposed project is the least environmentally damaging practicable alternative.
- 4) The proposed fill activity would comply with State water quality standards. The disposal operation would not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.
- 5) The proposed project would not jeopardize the continued existence of species listed as endangered or threatened under the Endangered Species Act of 1973, as amended, or result in likelihood of the destruction or adverse modification of critical habitat.
- 6) The proposed fill activities would not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreation and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic life and other wildlife would not be adversely affected. Significant adverse effects on the aquatic ecosystem, and recreational, aesthetic and economic values would not occur.
- 7) On the basis of this evaluation, I conclude that the proposed discharge complies with the Section 404(b)(1) Guidelines for the discharge of dredged or fill material.

Date

Karl Jansen
Colonel, Corps of Engineers
District Commander