MINNESOTA POLLUTION CONTROL AGENCY

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April 7, 2021

Charles Uhlarik
U.S. Army Corps of Engineers – Detroit District
Environmental Analysis Branch Chief
477 Michigan Avenue
Detroit, MI 48236-2550

RE: Approval of Best Management Practices for 2021 Beach Nourishment Dredged Materials Placement Activities along the Northern Portion of Lake Superior side of Minnesota Point in Duluth, Minnesota

Dear Charles Uhlarik:

This correspondence is submitted by the Minnesota Pollution Control Agency (MPCA) under authority of Section 401 of the Clean Water Act, Minn. Stat. chs. 115 and 116, and Minn. R. 7001.1400 – 7001.1470. The MPCA's Section 401 Water Quality Certification (401 Certification) for the Minnesota Point Beach Nourishment Project (Project), issued March 1, 2019, requires the United States Army Corps of Engineers (USACE) to propose Best Management Practices (BMPs) that prevent and/or limit the Project's dredge material placement activities from causing turbidity to the water column outside of the Project area. These BMPs are to be proposed annually by March 8th and must be approved by the MPCA in advance of each year's placement activities.

On March 5, 2021, the USACE submitted to the MPCA proposed BMPs for the 2021 dredged material placement season, as required, seeking approval to place dredged material along the northern part of Minnesota Point at the location described below. In addition, on April, 5, 2021, the USACE submitted an amended request to the MPCA, together with proposed BMPs, seeking approval to remove inadvertently placed debris, primarily aluminum cans and can fragments, from sediment beneath the water's surface in and near the 2020 Project site, if necessary. (The USACE plans to survey, delineate, and cleanup any remaining debris that was inadvertently placed with dredged sediment into the 2020 Project site, both above and below the water's surface, during spring and early summer 2021.)

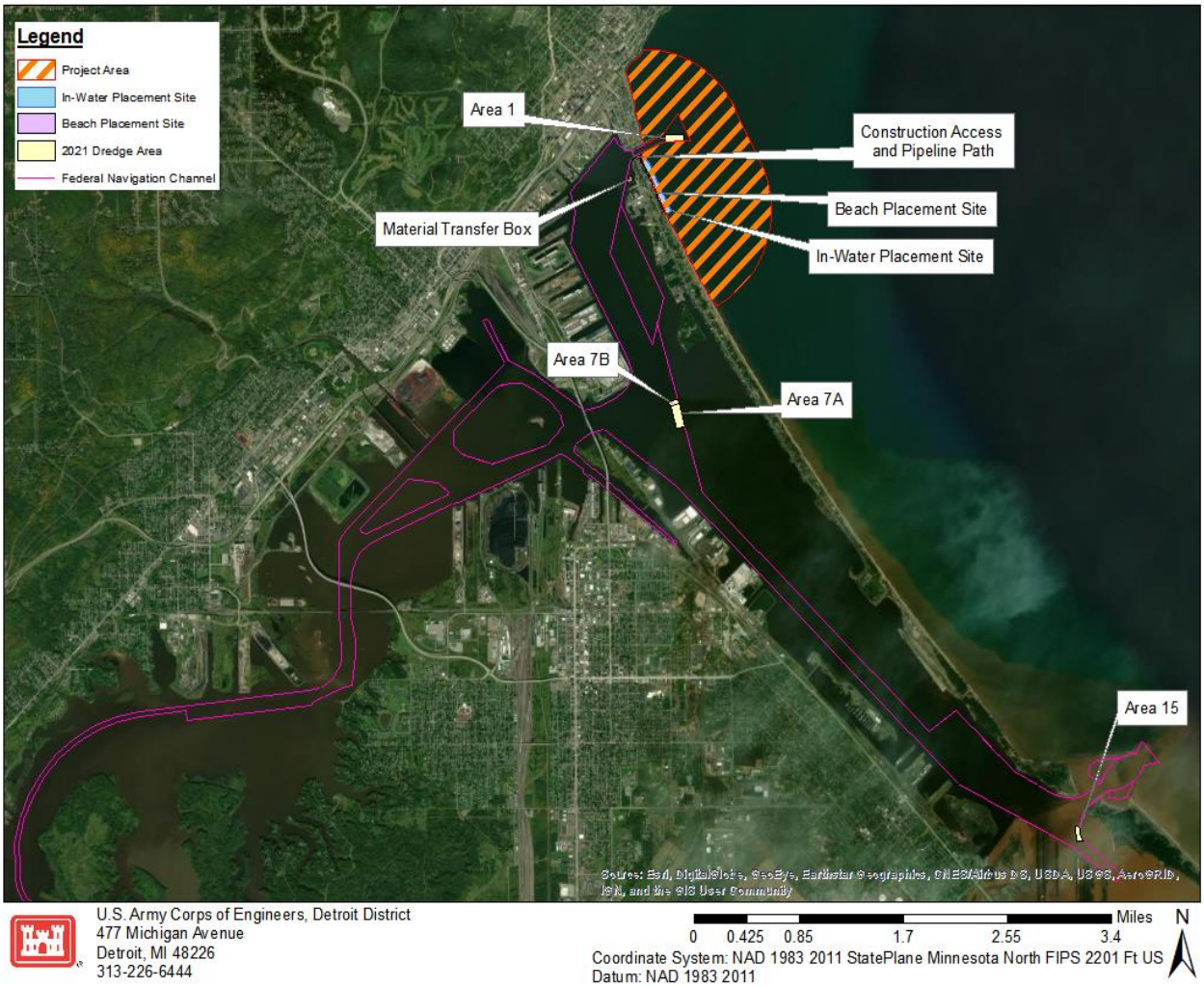
The remainder of this correspondence summarizes the USACE's planned dredging and dredged material placement activities, together with USACE's plan for determining if debris mitigation cleanup activities below the water's surface are necessary. It also provides approval of the proposed BMPs that must be implemented during the Project's 2021 dredged material placement activities and, if needed, during cleanup activities beneath the water's surface as conditioned below.

Summary of 2021 Proposed Dredging and Dredged Material Placement Activities

Schedule, dredging areas, and volume. The USACE plans to award a construction contract for this project in mid-June. The contractor will begin dredging and dredged materials placement activities no sooner than July 1, 2021, after the fish spawning window restriction ends. These activities will continue through July, August, and September, and will conclude no later than September 30, 2021. The contractor will dredge between 115,000 and 140,800 cubic yards (CY) of material from the federal

navigation channel in four areas of the Duluth-Superior Harbor, as shown in Figure 1 below. The majority of the material (>90%) will be dredged from Areas 7A and 7B of the East Gate Basin. The remainder will be dredged from smaller shoals in Area 1 within the Duluth Entrance and Area 15 within the Superior Harbor Basin (approximately 6% and <1% of dredging volume from each area, respectively)

Figure 1: 2021 Federal Navigational Channel areas from which sediment will be dredged, relative to placement site and Project area.



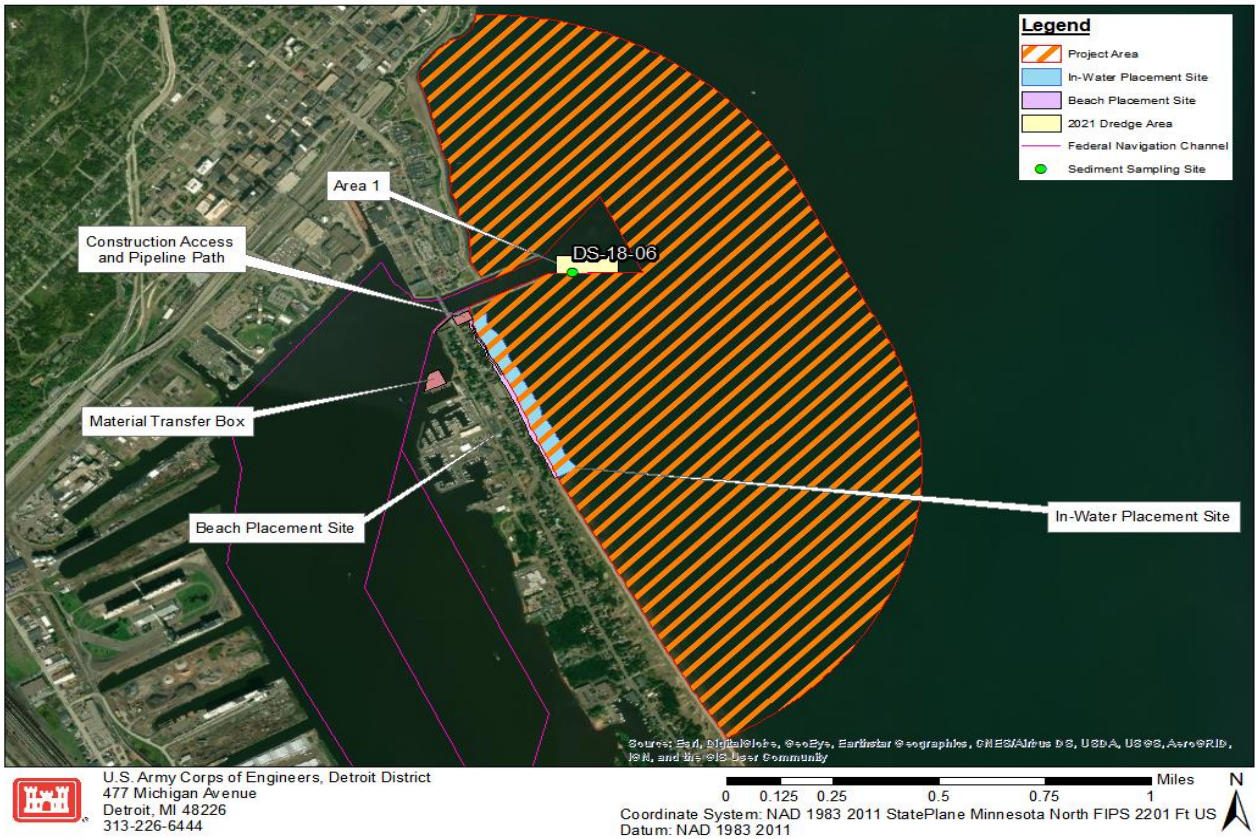
Sequence of dredging and placement: 2021 Dredging activities will begin in Area 1, followed by Area 15, then progress to Areas 7A and 7B. The contractor will be required to sequence the dredged material placement activity and employ BMPs to reduce turbidity in the water column as described below.

Dredged material grain size. As explained more comprehensively in the USACE's March 5, 2021, submittal, analysis of sediment samples taken in 2011, 2014, 2015, and 2018 in the areas that will be dredged in 2021 show a variety of grain size in the material as summarized in Table 1 below.

Table 1			
Dredge Area	**Percent Sand**	**Percent Fines**	**Dredge Volume (CY)**
Duluth Entrance – Area 1	97.7	2.2	10,000
East Gate Basin – Areas 7A and 7B	91.1	7.7	130,000
Superior Harbor Basin – Area 15	86.3	13.2	1,200
		Total	140,800

Minnesota Point beach nourishment site: As shown in Figure 2 below, the 2021 Project site is on the northern end of the Lake Superior side of Minnesota Point. It extends from near the Duluth Ship Canal Entrance, close to 10th Street South where placement ended in 2020, southward approximately 2,700 feet, and westward to approximately 13th Street South. Placement will occur primarily between the Ordinary High Water Mark (OHWM), which is 603.1 feet above sea level, and the most landward 4 foot depth contour. The USACE will require the contractor to maintain a continuous grade across the beach beginning at the base of the bank until the dredge material delta intersects the water. This will prevent the creation of artificial dunes on the beach, and pooling of water behind them, while maintaining lakeward drainage and recreational opportunities for beachgoers. Placed dredged material will have a maximum elevation on the most landward edge of the placement site that is no higher than the elevation of the adjacent bank.

Figure 2: 2021 Minnesota Point Beach Nourishment Placement Site and Project Area.



Dredged material placement process.
The USACE's contractor will either mechanically or hydraulically dredge the material from the designated areas in the federal navigational channel as shown in Figure 1. The contractor will place dredged materials into the Project site using hydraulic or mechanical placement methods, or both (but not simultaneously), as conditioned below.

Material that is mechanically dredged will be placed into a dredged material transfer structure, mixed with water to create a slurry, and hydraulically pumped to the placement location. The transfer structure will be located in the Duluth-Superior Harbor, near the USACE Vessel Yard, and a hydraulic pipeline will transfer dredged material from the transfer structure along the Duluth Ship Canal sidewalk, on USACE's property, under the aerial lift bridge and to the placement site on Minnesota Point. Depending on the characteristics of the dredged material and the pumping distance, the contractor may use a booster pump, to pump the material from the transfer structure to the placement site. Material will be placed between the OHWM and the most landward 4 foot depth contour. Heavy equipment, such as a bulldozer, will also likely be used to evenly distribute the dredged material in the placement site.

Human health risk assessment. Prior to authorizing placement of dredged material into the 2020 Project site, the MPCA required the USACE to prepare and submit a human health risk assessment to determine potential risks from dredged material placed on the beach. The MPCA was primarily concerned with ensuring concentrations of dibenzo-p-dioxins/dibenzofurans (dioxins) in the dredged material would not present any unacceptable risk to human health. A risk assessment is a process for determining whether concentrations of contaminants in sediment exceed thresholds for those contaminants established by regulatory agencies such as the U.S. Environmental Protection Agency and/or the MPCA. If contaminant concentration in sediment is at a level greater than the established thresholds, the human health exposure risk level is deemed an unacceptable risk. If contaminant concentration in sediment is less than the established threshold levels, the exposure risk level is expected to be protective of human health. The USACE submitted the required final human health risk assessment to the MPCA on June 24, 2020. The MPCA reviewed the USACE's risk assessment and associated data, the methodology for which scientists from both agencies collaborated on, and concluded the results demonstrate there are no unacceptable risks for human health associated with exposure to the dredge materials; therefore, material could be placed in the proposed locations.

Sediment monitoring plan: The aforementioned MPCA 401 Certification for this Project, issued March 1, 2019, included annual submittal requirements. Condition 7 required the submission of a Sediment Monitoring Plan (SMP), including the identification of a final report summarizing the results. Through subsequent coordination with the USACE, the MPCA determined that the SMP would be a single investigation of the 2019 dredging and placement activities at the Southern Minnesota Point placement area.

The USACE submitted a proposed SMP that the MPCA approved on April 30, 2019. Continued coordination between USACE and MPCA resulted in two amendments to the SMP, which the MPCA approved on November 21, 2019, and again on April 14, 2020. While the SMP and amendments did span multiple years, the MPCA did not intend to require an annual SMP for each of the 5 years the 401 Certification is valid. The originally approved SMP, Final Report (dated October 28, 2020), and all associated amendments and interim reports, met the intent and required deliverables of the condition. As such, condition 7 of the 401 Certification has been satisfied.

Turbidity reducing measures. To ensure the placement activities are conducted in a manner that reasonably assures compliance with the applicable MPCA water quality standards (e.g. total suspended solids, 10mg/L; total mercury, 1.3 ng/L) outside of the Project area, the USACE proposes to employ several BMPs based on hydrodynamic analysis of the nearshore of Lake Superior at Minnesota Point and an evaluation of the sediment characteristics of the dredged material by the U.S. Army Engineer Research and Development Center. In general, this evaluation determined that the most effective BMP for reducing turbidity while placing dredged material hydraulically in the Project's placement area is to reduce the rate at which the material is placed. A slower production rate will decrease the rate of re-suspended fines produced and released to the water column. Placing dredged material mechanically using a clamshell bucket also reduces the amount of turbidity, relative to placing the material hydraulically, however it is important to ensure the bucket is first lowered to the lakebed prior to releasing the dredged material.

Debris Removal from 2020 Project site. As described in Appendix E (USACE's Draft Minnesota Point Beach Nourishment Debris Mitigation and Cleanup Plan) of the USACE's March 5, 2021, submittal, the USACE intends to survey, delineate, and cleanup any remaining debris (e.g., can and can fragments) that was inadvertently placed with dredged sediment into the 2020 Project site, both above and below the water surface, during spring and early summer 2021. Whether any debris is in the sediment below the water's surface will not be known until after the survey and delineation are complete. If below surface water debris removal activities are necessary, the USACE intends to require its contractor to use the least degrading prudent and feasible method(s) available for doing so, to ensure short-term turbidity impacts to the water column from these activities are minimized to the greatest extent practicable. Also, the USACE plans to prohibit the contractor from stockpiling, processing, or transferring sediment in the water column to filter out or remove debris. All sediment below the water's surface that must be processed to remove debris from it will first be placed on upland shoreland areas (above the OHWM) for this purpose.

MPCA Determination

The MPCA approves the USACE's proposed 2021 BMPs and authorizes the USACE to place dredged material from the Federal Navigational Channel areas described above, into the Minnesota Point Beach Nourishment Project site, subject to the conditions below. As identified in the aforementioned 401 Certification for this Project, it is the responsibility of the USACE to inform the contractor who is awarded the dredging and dredged materials placement contract that these BMPs must be used and all conditions followed.

1. **Unless Authorized by the Minnesota Department of Natural Resources, Dredged Material Must Not be Placed into the Project's Placement Site Before July 1, 2021.**

2. **Removal of Debris Below Water Surface.** If the forthcoming 2021 survey and delineation of locations in and near the 2020 Project site determines debris was inadvertently placed in sediment below the water's surface, the USACE must remove it accordingly. In doing so, the following BMPs must be used:

    a. **Least degrading prudent and feasible debris removal method(s) available.** To ensure short-term turbidity impacts to the water column are minimized to the greatest extent practicable, the USACE must require its contractor to use the least degrading prudent and feasible method(s) available for below surface water debris removal activities.

b. **Daily Visual Inspection (Hydraulic and Mechanical Placement):** The Contractor and USACE (Area Office Staff) must perform daily visual monitoring to observe turbidity levels, weather, and wave conditions to ensure that required BMPs are correctly deployed and functioning as intended. On days when the Contractor is removing debris laden sediment from beneath the water, the USACE will follow the Turbidity Daily Inspection Procedures, referred to in Condition 11 below, to ensure turbidity from the activity is not exceeding anticipated levels (e.g., beyond the Project area)**. The results of all daily visual turbidity inspections must be documented and submitted to the MPCA in the monthly construction reports required by Condition 16 below.**

c. **Minimize In-water work (Hydraulic and Mechanical Placement):** When practicable, the Contractor must conduct work on the beach (above the OHWM, 603.1 International Great Lakes Datum 1985 [IGLD85]) to limit uncontrolled material spillage into the water. USACE's contractor must not stockpile, process or transfer sediment in the water column for the purpose of filtering out or remove debris. All sediment below the water's surface that must be processed to remove debris must first be placed on upland shoreland areas for this purpose.

d. **Onshore Placement BMP (Hydraulic Placement):** If hydraulic methods are employed, material must not be discharged directly into the water. Material must instead be placed on the beach above the OHWM, 603.1 IGLD85) at the time of debris removal and reconstruction of the site and then graded into the water.

e. **Bottom Placement BMP (Mechanical Placement):** When using mechanical equipment, such as a mini excavator, to release cleaned sand back into the lake, the Contractor must lower the bucket to the bottom of the lake bed prior to releasing cleaned material.

3. **Screening for Debris during Dredging and Placement Activities.** To reduce the possibility that debris (e.g., cans or can fragments) can inadvertently be mixed into the dredged material that will be placed into the 2021 Project site, the USACE or contractor acting on its behalf must continuously monitor and immediately remove any such debris during dredging and placement activities. Also, when placing material hydraulically, the contractor must use a screen with no larger than a 2-inch maximum grid opening, which, based on the typical smallest diameter of an aluminum beverage can (approximately 2¼"), should prevent cans from entering the hydraulic pump and pipeline. Further, the USACE or its contractor must physically walk and inspect the material placement site daily and remove any debris found during the inspections.

4. **Dredged Material Must Only be Placed Within the Project Site Placement Limits as Shown in Figure 2, Above, and as Further Described in the Final Plans and Specifications for the Project.** To ensure material placement occurs within specified limits, the USACE must verify placement locations during quality assurance inspections and use sounding baskets to check depths.

5. **Daily Production Rate for Placing Dredged Material (Hydraulic Placement):** When placing dredged materials hydraulically, the dredged material placement production rate must not exceed 2,500 cubic yards of material per day. Further, the minimum duration in which the material must be placed in a day is twelve hours, and the USACE must limit their contractor to using only a single discharge pipe with a maximum diameter of 16 inches (which typically produces no more than 400-500 CY of material placement per hour). In addition, the USACE must

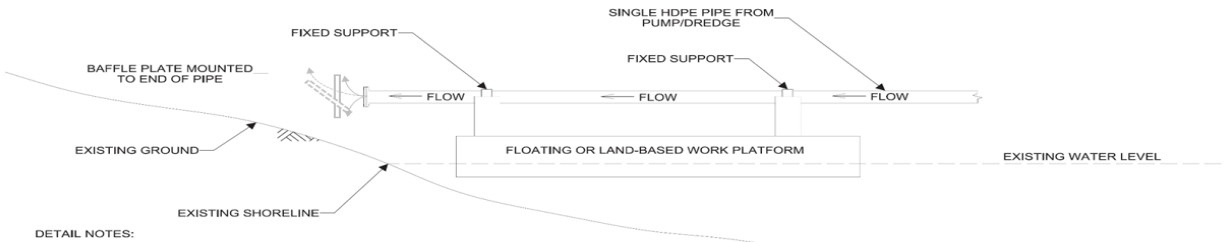
verify the dredged material placement rates by counting barges and/or monitoring the production rate of the Contractor's hydraulic equipment.

6. **Onshore Placement BMP Required for Hydraulic Placement:** To reduce the overall mass of fines from becoming re-suspended in the water column, all dredged material placed hydraulically must not be discharged directly into the water. The dredged material must instead be placed onshore or on newly constructed exposed fill. **Exception:** If water levels surpass the allowable placement site (i.e., in excess of the OHWM: 603.1 IGLD1985), the USACE may temporarily allow their contractor to hydraulically place dredged material into the water along the most landward limit of the placement site until such time that the material builds up above the existing water level. The remainder of the dredged material must then be placed on the newly-constructed exposed fill and in onshore locations of the site. Placing dredged material hydraulically into the water must only occur when the water level surpasses the allowable placement site.

7. **Construction Slope during Hydraulic Placement:** To reduce the likelihood of fines re-suspending in the water column when placing dredged material hydraulically, the slope of material extending below the existing water level must not be less than the natural angle of repose that is formed from material entering the water, either by equipment or overland discharge.

8. **Material Placement Configuration for Hydraulic Placement:** A single horizontal discharge pipe with baffle plate configuration must be employed during the 2021 hydraulic placement of material at the placement site. A maximum of a 16" hydraulic pump/dredge and 16" HDPE pipe must be used. The vertical baffle plate that must be mounted to the outlet of the pipe must be at least twice the diameter of the discharge pipe and must dissipate the energy of the effluent in such manner as to maximize sediment settling rates. The baffle plate may be attached perpendicular to the pipe flow, as illustrated below, or at no greater than a 45 degree angle to facilitate directing the placement of material upward and away from the water. The exact positioning of the baffle plate will be configured to maximize the sediment settling rates based on the flow and slurry characteristics. The contractor must use only one discharge pipe during placement activities. Splitting or otherwise separating the flow at any point along the length of the discharge pipe is strictly prohibited.

Horizontal Discharge Pipe with Baffle Plate



DETAIL NOTES:

1. BAFFLE PLATE SUPPORTS ARE NOT SHOWN FOR CLARITY.
2. THE DISTANCE BETWEEN THE END OF THE PIPE AND THE BAFFLE PLATE SHALL VARY BASED ON FLOW AND SLURRY CHARACTERISTICS.
3. DISCHARGE LINE SHALL BE 16" OR LESS IN DIAMETER. BAFFLE PLATE SHALL BE AT LEAST TWICE THE DIAMETER OF THE DISCHARGE LINE.
4. DETAIL IS FOR ILLUSTRATIVE PURPOSES.
5. DREDGED MATERIAL SHALL NOT BE DIRECTLY PLACED INTO THE WATER. FOR REQUIREMENTS REGARDING HYDRAULIC PLACEMENT, SEE SPECIFICATION 01 57 24 TITLED "TEMPORARY TURBIDITY CONTROLS," PARAGRAPH TITLED "BEST MANAGEMENT PRACTICES FOR HYDRAULIC PLACEMENT."
6. FOR PLACEMENT LIMITATIONS AND REQUIREMENTS, SEE SPECIFICATION SECTION 35 20 23 TITLED "DREDGING."

A6 PLACEMENT CONFIGURATION #2
SCALE: NTS

9. **Mechanical Placement of Dredged Materials.** Where there is sufficient depth for barge and scow access, the contractor may mechanically place dredged materials into the Project's placement site using a clamshell bucket. When using this placement method, the contractor must lower the clamshell bucket to the bottom of the lake bed prior to releasing the dredged material.

10. **No Simultaneous Hydraulic and Mechanical Placement.** The contractor is prohibited from placing dredged materials into the placement site using both mechanical and hydraulic placement methods simultaneously.

11. **Daily Visual Turbidity Inspection.** The contractor and USACE staff must visually monitor and observe turbidity levels, weather, and wave conditions to ensure that required BMPs are correctly deployed and functioning in a manner that minimizes turbidity during days. On days when the contractor is placing dredged material at the Project site, the USACE staff must follow the Turbidity Daily Inspection Procedures identified in Appendix D of the USACE's March 5, 2021, submittal (a copy of which is attached to this correspondence). This requires, in part, that if the Project's dredged material placement activities on any day appear to be causing increased turbidity levels in the water surface beyond the Project Area, where temporary, short-term turbidity increases are anticipated, then the USACE must conduct turbidity metering. The purpose of the metering, which must take place within and outside of the project area, is to eliminate the possibility that other sources, or recent storm events, may be causing the turbid water conditions outside the Project Area. If the metering demonstrates turbidity from the dredged materials placement activities is the source of increased turbidity levels outside of the Project area, the remedial steps identified in Appendix D must then be implemented. **The results of all daily visual turbidity inspections must be documented and submitted to the MPCA in the monthly construction reports required by condition 16 below.**

12. **Minimize Pump Operation.** The contractor must only operate the pump that transports dredged material from the offload area to the Project placement site at full capacity when placing dredged material. During idle times when the contractor is waiting for dredged materials to arrive at the offload area, the pump must not be left running at full capacity.

13. **Apron/Spill Controls.** The contractor must use and maintain an apron/guard to prevent dredged material from spilling into the water while it is being transferred from the scow to the pump.

14. **Public Safety during 2021 Dredged Material Placement Activities:** Prior to placing any dredged material in the Project placement site, the USACE or contractor on its behalf must submit to MPCA a Dredged Materials Placement Safety Plan, describing the means and methods that must be employed to prevent the public from accessing the Project's placement site throughout the duration of the 2021 dredged material placement activities.

15. **Compliance with BMPs**. The USACE field engineering staff from the Duluth Area Office must ensure that all BMPs identified above are employed during 2021 dredged material placement activities.

16. **Monthly Construction Reports.** The USACE must prepare and submit to the MPCA a monthly construction report by August 15, 2021, September 15, 2021, and October 15, 2021, which briefly summarizes and documents the progress of the 2021 beach nourishment construction activities, together with any unanticipated problems encountered. The report must also include a copy of the results of the required daily visual turbidity inspections.

In addition to the conditional approvals described in this correspondence above, all conditions of the aforementioned 401 Certification issued to USACE for the Project on March 1, 2019, must also be followed.

If you have any questions regarding this correspondence or require further information, please contact Kevin Molloy at 651-757-2577 or at kevin.molloy@state.mn.us .

Sincerely,

Anna Hotz
Supervisor
Agency Rules Unit
Resource Management and Assistance Division

Attachment: Daily Visual Turbidity Inspection Procedures

cc: Melissa Bosman, USACE – Detroit
Josh Hachey, UACE – Detroit
Kevin Meyer, USACE – Detroit
Dan Breneman, MPCA – Duluth
Kevin Molloy, MPCA – St. Paul
Phil Monson, MPCA – St. Paul
Cliff Bentley, MDNR – Two Harbors
Patty Fowler, MDNR – Duluth
Jim Filby Williams, City of Duluth
Diane Desotelle, City of Duluth
Jeff Stollenwerk, Duluth Seaway Port Authority