BergerABAM

210 East 13th Street, Suite 300, Vancouver, Washington 98660-3231
360/823-6100 • 360/823-6101 Fax • www.abam.com

Memorandum

40600-HS-MEM-55039
Revision 0
Permit Addendum: Maintenance Dredging Technical Memorandum

Date: 20 September 2018

Subject: NWS-2017-715 (HPA App. #12746) Permit Application Addendum: Maintenance Dredging
BHP Proposed Grays Harbor Potash Export Facility (A17.0202.00)

From: Victoria England, LG

To: Evan Carnes (USACE), Penny Kelley and Rick Mraz (Ecology), Marcus Reaves (WDFW), Brian Shay (City of Hoquiam)

INTRODUCTION

BHP Billiton Canada, Inc. (BHP) proposes to construct a potash export facility at the Port of Grays Harbor (Port) Terminal 3 facility and surrounding parcels (Sheet 1). The proposed project includes constructing a shiploader and a new berth for export vessels. The new shiploader will require dredging for a ship berth to accommodate bulk material shipping vessels. Approximately 110,000 cubic yards of material will be dredged to construct the berth as described in the project description updates provided in the State Environmental Policy Act (SEPA) Addendum submittal and associated addenda submitted 17 August 2018 (BergerABAM) and summarized below.

Permit applications were submitted in September 2017 (addenda provided September 2018) and coordination with the regulatory agencies is in progress. The applications address permitting the initial dredging of the new berth but not future maintenance dredging.

The purpose of this memorandum is to request the permits include a 10-year permit for maintenance dredging. The anticipated maintenance dredging needs are discussed below.

BERTH DREDGING

The dredge prism design was revised after current bathymetric data was obtained (Berglund, Schmidt and Associates, December 2017) and previously obtained geotechnical information and Terminal 3 berth design details were evaluated. The revised dredge prism (Sheet 2) is smaller in volume and area than the dredge prism design that was included with the original permit application submittal for this project. The dredging volume changed from 184,000 cubic yards to 110,000 cubic yards after the dredge prism redesign was completed. The design depth for the berth remains the same at -43 feet mean lower low water (MLLW) plus 2 feet of allowable

overdredge. The updated design minimizes dredging of the intertidal zone; almost all dredging is located below 0 feet MLLW.

The project will result in impacts to benthic habitat as a result of initial dredging of the expanded berth. Approximately 110,000 cubic yards of material will be dredged from an area approximately 7.49 acres in size to provide sufficient draft for vessels calling on the new berth. The proposed berth will be approximately 4.72 acres in size. The dredge prism would be located almost entirely outside of intertidal areas, and the majority of the dredge prism would be located in areas already deeper than -30 feet MLLW, minimizing impact to higher quality habitat present in shallow waters. Existing bathymetry in the proposed dredge area ranges from -1 to -41 feet MLLW. The dredge prism cut will range in thickness from approximately 3 to 15 feet below mudline. Dredging would convert approximately 9,295 square feet (0.2 acre) of intertidal habitat to shallow subtidal habitat.

The proposed 110,000-cubic-yard dredge prism material was characterized during February and July 2018 sampling events. The material characterized should be suitable for open-water disposal based on a comparison of the analytical results with Dredged Material Management Office (DMMO) and Washington State Sediment Management Standards (SMS) criteria. The revised Sediment Characterization Report summarizing the results from the February and July 2018 sampling will be submitted to the City and non-Dredge Material Management Program (DMMP) agencies after it is approved by the DMMP, anticipated October 2018.

The geotechnical investigation of the material in the berth and shiploader area has not been completed and is planned for fall 2018. The dredge prism was designed with the potential to place slope protection (if needed) on a portion of the post-dredge slope located below the shiploader to prevent slope erosion into the ship berth pending the results of that study (see SEPA Addendum drawings provided September 2018). The slope protection would consist of gabion mats covering an area approximately 50,500 square feet (1.2 acres). Gabion mats consist of wire mesh boxes that will be filled with rock. The 8- by 10-centimeter hexagonal mesh consists of zinc-treated steel wire coated with at least 0.5 mm of PVC. The gabion mats will be approximately 1.6 feet tall and will be filled with rock ranging in size from approximately 3 inches to 8 inches in diameter with approximately 30 percent voids. The gabions, if used, would be placed on the post-dredge slope from approximately 0 feet MLLW to -32 feet MLLW and would not impact intertidal habitat.

MAINTENANCE DREDGING

The location of the in-water structures, including the berth (and associated dredging) were chosen, in part, due to their proximity to the existing Terminal 3 pier and berth and the existing navigation channel. The dredging will extend the Terminal 3 berth westward approximately 1,100 feet. Overlapping with the Terminal 3 dredge prism will minimize the volume of dredging required to accommodate the proposed berth.

The existing Terminal 3 berth is permitted for annual maintenance dredging of up to 60,000 cubic yards. Past maintenance dredging required for the Terminal 3 berth ranged from 22,000 to 66,000 cubic yards and was completed every three to four years between 2001 and 2012. Terminal 3 is maintained at -41 feet MLLW (plus 2 feet of overdredge). The past dredging frequency and volume were based on reduced use of the terminal by ship traffic.

The volumes and frequency of maintenance dredging events for the proposed new potash export facility berth will vary. Maintenance dredging at the new berth, to -43 feet MLLW (plus 2 feet of overdredge), will likely be required annually based on the requirements at Terminal 3 and the Port's other terminals. The maintenance dredging will consist of dredging up to 70,000 cubic yards per event based on the permitted maintenance dredge volume at the Terminal 3 berth and the fact that the new berth will be maintained 2 feet deeper (-43 feet MLLW plus 2 feet of allowable overdredge) than the existing Terminal 3 berth.

The maintenance dredging will be completed in the same manner as that used for construction of the berth. Dredging is expected to be conducted using mechanical (clamshell bucket) dredging equipment and disposed at the Point Chehalis or South Jetty disposal sites if judged suitable for open water placement by the DMMP as anticipated based on the 2018 characterization results.

MINIMIZATION MEASURES AND BEST MANAGEMENT PRACTICES

Dredging activities may result in short-term effects, including temporary water quality impacts, temporarily elevated turbidity levels, and direct habitat impacts.

The proposed project has adopted a list of impact minimization measures and best management practices (BMPs) to reduce, eliminate, or minimize the effects of dredging to listed species or habitat. The following is a summarized list of BMPs associated with dredging activities. A complete list of BMPs for all project activities is included in the project JARPA permit application package that was submitted September 2017.

Minimization Measures

The proposed action includes the following impact avoidance and minimization measures to avoid and minimize the potential for adverse environmental effects during dredging.

- In-water work will be conducted only during the approved in-water work window for marine waters of Grays Harbor - Tidal Reference Area 16 and in coordination with the Quinault Indian Tribe as follows.
  - 16 July to 14 February (midnight)
  - No nighttime dredging will occur between 1 October and 30 November

- Project construction will be completed in compliance with Washington State Water Quality Standards (WAC 173-201A), including
  - Petroleum products, fresh cement, lime, concrete, chemicals, or other toxic or deleterious materials will not be allowed to enter surface waters or onto land where there is a potential for reentry into surface waters.
  - Fuel hoses, oil drums, oil or fuel transfer valves, fittings, etc., will be checked regularly for leaks, and materials will be maintained and stored properly to prevent spills.
- A spill prevention, control, and countermeasures (SPCC) plan will be prepared by the contractor and used during all in-water demolition and construction operations. A copy of the plan will be maintained at the work site.
  - The SPCC plan will outline BMPs, responsive actions in the event of a spill or release, and notification and reporting procedures. The plan will also outline management elements, such as personnel responsibilities, project site security, site inspections, and training.
  - The SPCC plan will outline the measures to prevent the release or spread of hazardous materials found on site and encountered during construction but not identified in contract documents, including any hazardous materials that are stored, used, or generated on the construction site during construction activities. These items include, but are not limited to, gasoline, diesel fuel, oils, and chemicals.
  - Applicable spill response equipment and material designated in the SPCC plan will be maintained at the job site.

General Best Management Practices

In, Over, and Near Water BMPs

Typical construction BMPs for working in, over, and near water will be applied, including activities, such as the following.

- Checking equipment for leaks and other problems that could result in the discharge of petroleum-based products or other material into waters of Grays Harbor.
- Corrective actions will be taken in the event of any discharge of oil, fuel, or chemicals into the water, including
  - Containment and cleanup efforts will begin immediately upon discovery of the spill and will be completed in an expeditious manner, in accordance with all local, state, and federal regulations. Cleanup will include proper disposal of any spilled material and used cleanup material.
  - The cause of the spill will be ascertained and appropriate actions taken to prevent further incidents or environmental damage.

  - Spills will be reported to the Washington State Department Ecology's Northwest Regional Spill Response Office at 425/649-7000.
- Work barges will not be allowed to ground out.
- Oil-absorbent materials will be present on site for use in the event of a spill or if any oil product is observed in the water.

Dredging Best Management Practices

- Construction activities will be conducted in compliance with Surface Water Quality Standards for Washington (WAC 173-201A), or other conditions as specified in the Water Quality Certificate (WQC).
- Enhanced BMPs may also be implemented during mechanical dredging and may include, but are not limited to, the following.
  - Smooth closure of the bucket when at the bottom
  - Slowing the velocity (i.e., cycle time) of the ascending loaded clamshell bucket through the water column
  - Pausing the dredge bucket near the bottom while descending and near the waterline while ascending
  - Placing filter material over the barge scuppers to clear return water
- If sediment is placed on a barge for delivery to the placement area, no spill of sediment from the barge will be allowed. The barge will be managed such that the dredged sediment load does not exceed the capacity of the barge. The load will be placed in the barge to maintain an even keel and avoid listing.

Dredge Material Placement Best Management Practices

- Dredging is expected to be conducted using mechanical (clamshell bucket) dredging equipment and disposed at the Point Chehalis or South Jetty disposal sites if found suitable for in-water placement by the DMMO as anticipated.
- Visual water quality monitoring and, if necessary, follow-up measurements will be conducted during dredging in accordance with a project-specific water quality monitoring plan and associated permit conditions.
- Sediment placement will occur using methods that minimize sediment loss and turbidity to the maximum extent possible.
- The placement activities will be visually monitored to ensure placed sediment is contained inside of the specified boundaries.

VRE:dls
Attachments

Document Path: Q:\Vancouver\2017\A17.0202\00\GIS\02_MXD\Investigation Permit Figures\SAP\Sheet1_Vicinity_9.6.18.mxd

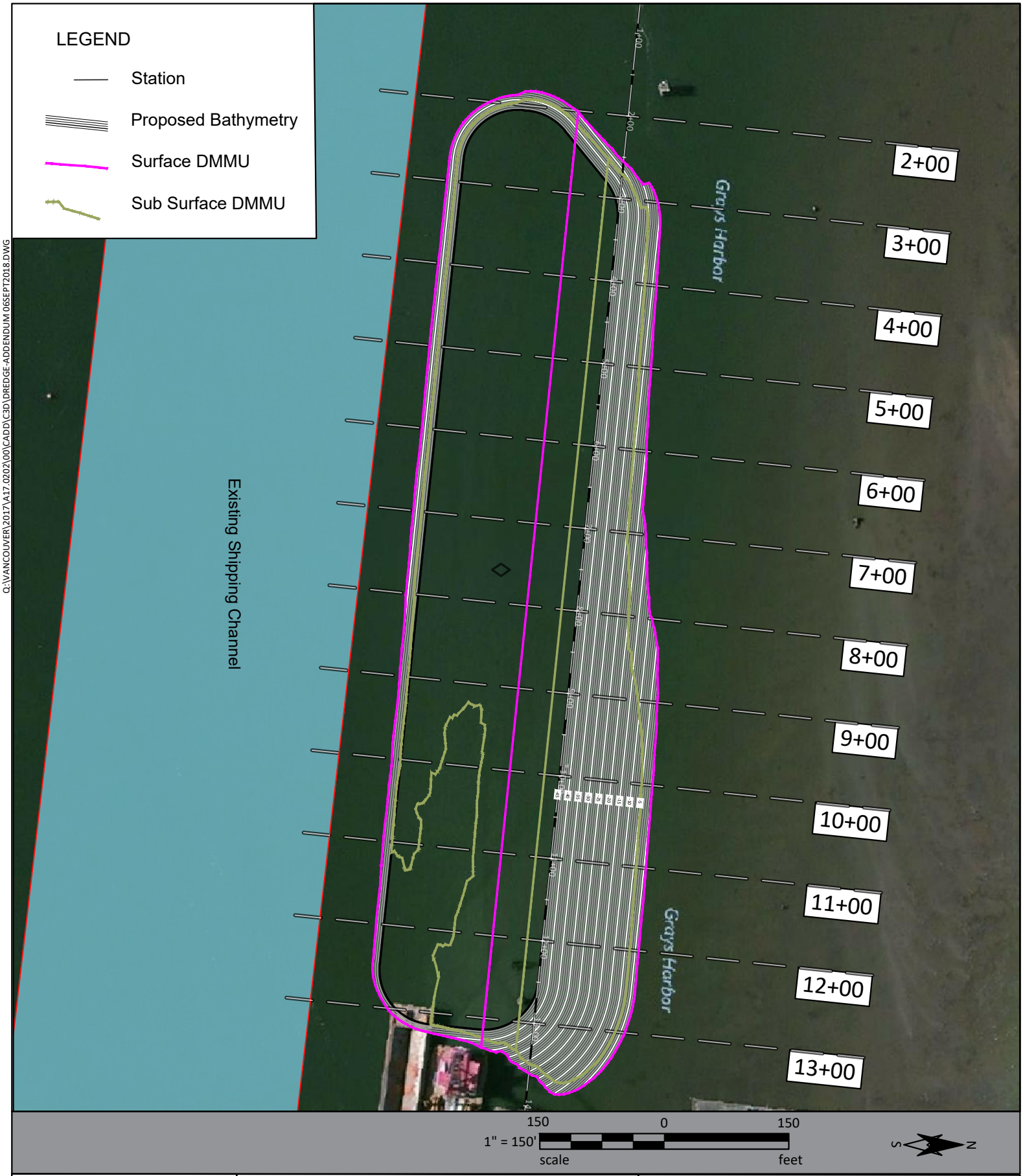
BHP

BergerABAM

Proposed Grays Harbor Potash Export Facility-
Permit Addendum Maintenance Dredging

Sheet 1- Vicinity Map and Project Site Location

September 2018



Q:\VANCOUVER\2017\A17.0202\00\CADD\C3D\DREDGE-ADDENDUM 06SEPT2018.DWG

BHP

BergerABAM

Proposed Grays Harbor Potash Export Facility-
Permit Addendum Maintenance Dredging

Sheet 2 - Dredge Area and Bathymetry

September 2018

GENERAL NOTES:

1. DREDGING UP TO 110,000 CY WILL BE REQUIRED TO ACCOMMODATE THE NEW FACILITY AND BERTH
2. HYDROGRAPHIC SURVEY DATA COLLECTED BY BERGLUND, SCHMIDT & ASSOCIATES DECEMBER 2017.
3. HORIZONTAL DATUM: WASHINGTON STATE PLANE SOUTH (WSPS), NAD83, US FEET.
4. VERTICAL DATUM: MEAN LOWER LOW WATER
5. BASE MAP WAS DEVELOPED BY AUSENCO ENGINEERING, 2017