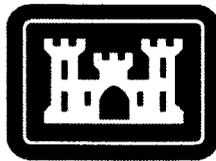


Final
ENVIRONMENTAL ASSESSMENT
for
PERMIT APPLICATION NUMBER:
200001094

APPLICANT:
NORTHWEST AGGREGATES

June 2008



US Army Corps
of Engineers ®
Seattle District

Table of Contents

1	INTRODUCTION	5
2	FEDERAL ACTION	5
3	AUTHORITY	5
4	PROJECT LOCATION	6
5	PROPOSED PROJECT	6
5.1	PROPOSED CONSTRUCTION METHODS	7
5.1.1	<i>On-shore work (Uplands)</i>	7
5.1.2	<i>Off-shore work</i>	8
6	PROPOSED MITIGATION MEASURES	9
7	BACKGROUND OF ACTION	11
7.1	KING COUNTY PERMIT PROCESS	11
7.2	CORPS' PUBLIC INVOLVEMENT PROCESS	12
7.3	IDENTIFICATION OF AREAS OF CONCERN	13
8	SCOPE OF ANALYSIS	13
9	PROJECT PURPOSE AND PROJECT NEED	16
9.1	PROJECT PURPOSE	16
9.2	PROJECT NEED	16
10	DISCUSSION OF ALTERNATIVES	17
10.1	NO FEDERAL ACTION	17
10.2	OFF-SITE ALTERNATIVES	18
10.3	ON-SITE ALTERNATIVES	19
10.3.1	<i>Original Proposal</i>	19
10.3.2	<i>Current Proposal</i>	20
10.3.3	<i>Permit Denial (No Action)</i>	20
11	404(B)(1) GUIDELINES	20
12	AFFECTED ENVIRONMENT (BASELINE CONDITIONS)	21
12.1	SITE CHARACTERISTICS	21
12.2	WATER RESOURCES	23
12.3	AIR QUALITY	24
12.4	FISH AND WILDLIFE	25
12.4.1	<i>Fish</i>	25
12.4.2	<i>Terrestrial and Aquatic Vegetation</i>	26
12.4.3	<i>Shellfish and Invertebrates</i>	26

12.4.4	<i>Marine Mammals</i>	27
12.4.5	<i>Terrestrial Wildlife</i>	27
12.4.6	<i>Birds</i>	27
12.4.7	<i>Threatened and Endangered Species</i>	28
12.5	HISTORIC PROPERTIES	30
12.6	LAND USE.....	31
12.7	NOISE.....	31
12.8	TRANSPORTATION.....	32
12.9	NAVIGATION.....	32
12.10	SUBSTRATE.....	32
12.11	SOILS	33
12.12	ENVIRONMENTAL HEALTH AND SAFETY.....	34
12.13	AESTHETICS	34
12.14	ECONOMICS	35
12.15	RECREATION.....	35
13	ENVIRONMENTAL IMPACT ANALYSIS	36
13.1	CONSERVATION	36
13.2	ECONOMICS	36
13.3	AESTHETICS	38
13.4	GENERAL ENVIRONMENTAL CONCERNS	39
13.4.1	<i>Substrate</i>	39
13.4.2	<i>Soils</i>	40
13.4.3	<i>Currents and Circulation</i>	41
13.4.4	<i>Noise</i>	41
13.4.5	<i>Air Quality</i>	42
13.4.6	<i>Special Aquatic Sites</i>	43
13.5	HISTORIC PROPERTIES	44
13.6	TERRESTRIAL HABITAT AND WILDLIFE	44
13.7	AQUATIC HABITAT AND MARINE ORGANISMS.....	45
13.8	THREATENED AND ENDANGERED SPECIES	47
13.9	LAND USE.....	50
13.10	NAVIGATION.....	50
13.11	SHORE EROSION AND ACCRETION	51
13.12	RECREATION.....	51
13.13	ENVIRONMENTAL HEALTH AND SAFETY.....	52
13.14	WATER SUPPLY AND CONSERVATION.....	52
13.15	WATER QUALITY	53
13.16	ENERGY NEEDS.....	54
13.17	MINERAL NEEDS.....	54
13.18	CONSIDERATION OF PROPERTY OWNERSHIP	54
13.19	OTHER CONSIDERATIONS	54
14	INDIRECT AND CUMULATIVE IMPACTS	54
14.1	INDIRECT IMPACTS.....	54
14.2	CUMULATIVE IMPACTS	55

14.2.1	<i>Past Impacts</i>	56
14.2.2	<i>Current Trends</i>	57
14.2.3	<i>Reasonably Foreseeable Future Actions</i>	58
14.2.4	<i>Environmental Consequence</i>	58
15	COMPLIANCE WITH FEDERAL LAWS	59
15.1	CLEAN AIR ACT.....	59
15.2	CLEAN WATER ACT COMPLIANCE.....	59
15.3	COASTAL ZONE MANAGEMENT ACT.....	59
15.4	ENDANGERED SPECIES ACT.....	59
15.5	ENVIRONMENTAL JUSTICE.....	59
15.6	ESSENTIAL FISH HABITAT.....	60
15.7	FISH AND WILDLIFE COORDINATION ACT.....	60
15.8	NATIONAL ENVIRONMENTAL POLICY ACT.....	60
15.9	NATIONAL HISTORIC PRESERVATION ACT.....	60
15.10	TREATY RIGHTS.....	60
16	SUMMARY	61
17	REFERENCES	64
18	ACRONYMS	70

List of Figures and Tables

Figure 1.	Project Location Map.....	6
Figure 2.	Shoreline Setbacks and Property Boundary Lines Map.....	11
Table I.	Permits and Authorizations Required for the Proposed Project.....	15
Table II.	Federally Listed Threatened and Endangered Species.....	29
Table III.	Selected Demographic and Socioeconomic Information for Vashon/Maury land.....	35

Appendices

- Appendix A. Section 404(b)(1) Evaluation
- Appendix B. Revised Project Drawings and Public Notices
- Appendix C. Mitigation Plans for the Proposed Action
- Appendix D. State and Local Permits for the Proposed Action
- Appendix E. Tacoma/ARSCO Smelter Plume Map, Upland Mine's contaminated Soil Maps, Upland mine grading plan, Reclamation Sequence Plan and Revegetation Map.

1 INTRODUCTION

This document constitutes the environmental assessment (EA) for the proposed replacement of a barge loading facility, at, Maury Island, King County, Washington, as described in Public Notice dated 13 December 2004 and Erratum dated 14 April 2005 (Appendix B).

2 FEDERAL ACTION

The Federal action covered under this Environmental Assessment (EA) would be the issuance of a Department of the Army (DA) permit. Pursuant to the Corps' NEPA implementation procedures for the Regulatory Program (33 CFR Part 325 Appendix B), the decision options available to the Corps are to issue the permit, issue the permit with modifications, or deny the permit.

Under the Corps' decision option to issue the permit, an applicant's proposal must be demonstrated to be in compliance with the Corps' implementing regulations at 33 CFR 320-332. Under the Corps' decision option to issue the permit with modifications, an applicant's proposal maybe modified during the permit review process to minimize and/or avoid adverse environmental impacts. These modifications can include changes to the design, changes to construction techniques and timing, and additional or alternative mitigation measures. Under the Corps' decision option to deny the permit, an applicant's proposal would be found contrary to the public interest after consideration of factors in 33 CFR 320.4 or would be denied without prejudice indicating that except for other Federal, state, or local denial, the DA permit could be issued.

Under Appendix B (33 CFR Part 325), the "no-action" alternative is defined as one which results in no construction requiring a Corps permit. It may be brought by (1) the applicant electing to modify the proposal to eliminate work under the jurisdiction of the Corps or (2) by the denial of the permit.

3 AUTHORITY

The Secretary of the Army, acting through the Chief of Engineers, is authorized to issue permits, after notice and opportunity for public hearings, for construction of any structure in or over any navigable water of the United States. Various sections establish permit requirements to prevent unauthorized obstruction or alteration of any navigable water of the United States. In this case, Puget Sound is a navigable water of the United States and the proposed barge loading facility is covered by Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). Section 10 prohibits construction, excavation, or deposition of materials in, over, or under navigable waters, for any work which would affect the course, location, condition, or capacity of those waters, unless such work has been authorized by the Corps.

Section 404 of the Clean Water Act authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits after notice and opportunity for public hearing for the discharge of dredged or fill material into the waters of the United States at specified disposal sites. The selection of a disposal or fill site would be in accordance with Guidelines promulgated by the Environmental Protection Agency (EPA) for evaluating discharges of dredged or fill materials into waters of the United States [40 CFR §230]. In this case, Puget Sound is a water of

the United States under Section 404. The proposed discharge would be the placement of clean pea gravel or sand in any depressions or holes that remain from the pile removal.

4 PROJECT LOCATION

The proposed dock would be located on the southeast shoreline of Maury Island (Figure 1). The upland mine area is approximately 235 acres. Mining activities would take place on 155 acres adjacent to the barge loading facility. The remaining 80 acres are in the protected buffer areas, beach and tidelands.

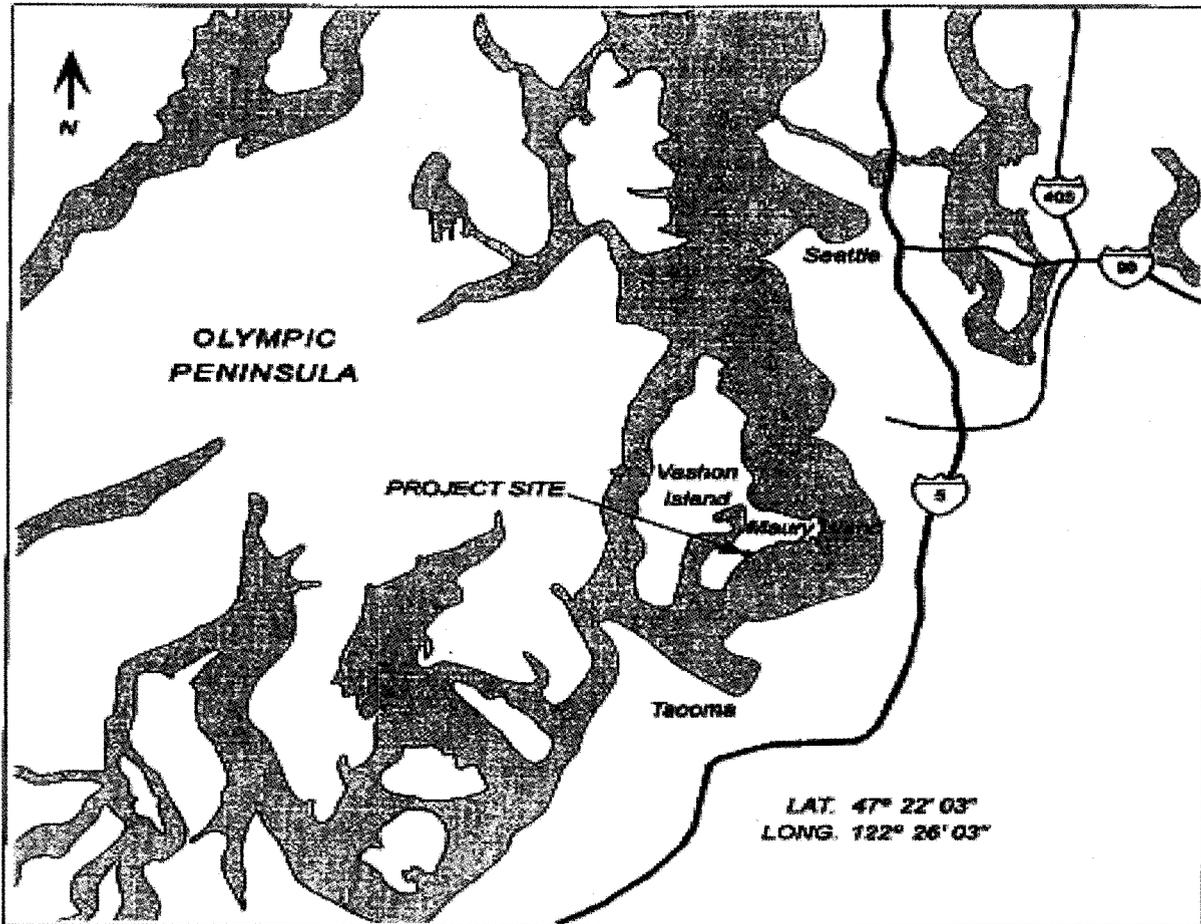


Figure 1. Project Location Map

5 PROPOSED PROJECT

Northwest Aggregates (hereafter "applicant") proposes to replace an existing barge loading facility (dock). The proposed work consists of the removal of the existing conveyor trestle, walkways, pier structures, eight dolphins, and four submerged piling. The demolition work includes removal of 228 timber piling and backfilling depressions left by their removal with up to 82 cubic yards of clean pea gravel or sand. The existing sunken barges located near the southwest end of the existing dolphin alignment would remain in place. The proposed work includes construction of a barge-loading conveyor tube with three 4- to 6-pile support bents and seven 6-pile berthing dolphins with fenders and aluminum catwalks. A maximum of 56 24-inch

steel piles will be installed to support the new trestle and seven berthing dolphins. The new dock would extend up to 305 feet waterward of the Mean High Water (MHW) line and the dock face would run 510 feet parallel to the shoreline. The new dock would cover about 7,555 square feet waterward of the MHW line. Steel grating with 75% open area would cover the dock. To prevent gravel spillage from the mine to the barge, the conveyor tube would be completely enclosed with a telescoping spout attached to the discharge end of the conveyor to lower the material into the barge. The spout would have a retractable chute and spoon to prevent dust and help distribute the material into the barge. A haul-back system (i.e., a system of winches, cables and pulley wheels used to position the barge during loading operations) would be attached to the top of the dolphin frames.

The barge loading facility would operate 5 days a week from 7 A.M. to 7 P.M. The mine would operate from 7 A.M. to 7 P.M. Monday – Friday and 9 A.M. to 6 P.M. on Saturday. Mining activities on adjacent uplands would expand to produce 1.5 to 2.0 million tons of sand and gravel per year. The actual future rate of extraction will depend on market conditions as limited by the hours and days of the dock's operation. Based on predictions of future demand and the quantity of available product at the site, the mine would be expected to operate over several decades producing up to 1.5 to 2.0 million tons per year. It is estimated that 4 to 5 years of mine operations may proceed without mining any portion of the site with contaminated surface soils.

One bin-walled barge ranging in size from 2,500 to 10,000-tons (deadweight) would be moored and loaded at a time. Tugboats would typically deliver up to four 6,000-ton barges per day for loading within the 12 hour workday (weekdays only). On rare occasion, 10,000-ton barges, 4,500-ton barges, and 2,500-ton barges may be delivered. When this change in barge sizes occurs, a maximum of two 10,000-ton barges, a maximum of four 4,500-ton barges, or a maximum of five 2,500-ton barges would be delivered and loaded within the 12 hour workday. The maximum number of trips for tugboat and barge (6,000-ton barge) would be 8 per day. Tugboat engines and propellers would operate only during the arrival and departure of the barges. During the loading process, a cable haulback system operated by an electric motor powered system of pulleys on the pier would shift the barges beneath the conveyor belt discharge to distribute gravel in the barge. At mean lower low water (MLLW), a minimum of 3 ft would be maintained between the bottom of the loaded barges and the seabed.

5.1 Proposed Construction Methods

The applicant proposes the following construction methods for on-shore and off-shore removal of the existing conveyor system and dock and the installation of the new conveyor system and dock.

5.1.1 On-shore work (Uplands)

The majority of the on-shore work to construct the barge-loading facility would be landward of the MHW line and landward of the 200 feet shoreline buffer and would occur within a 60 foot wide corridor (conveyor corridor). The on-shore work would require typical construction equipment including a small crane, backhoe, front-end loader, work truck and dump trucks. The on-shore work would also require cutting, drilling, welding, and touch-up painting of the conveyor system.

Vegetation within the conveyor corridor would be removed and the surrounding ground would be graded and surfaced with crushed rock to provide a safe and stable surface for access. The existing conveyor and transfer platform would be removed in sections by a small land based crane and transported from the site for disposal in trucks. This work would require some cutting of steel structures using oxyacetylene cutting torches. The existing conveyor and conveyor supports would be replaced with a similar system. As much of the new conveyor system would be preassembled off-site as possible. The new system would consist of steel channel conveyor frames and a steel framed platform at the conveyor transfer point. A steel framed take-up tower which keeps tension on the barge-loading conveyor belt and cast-in place concrete foundations would be installed. A minor amount of drilling, welding and painting may occur as part of new conveyor installation.

Additional work outside the 60 foot wide conveyor corridor but within the 200 foot shoreline buffer includes power lines and grading of existing access roads. About five power poles with power lines would be replaced (north of dock, parallel to the shoreline, and adjacent to the existing access roads). Some of the existing poles would be re-used. Road work would be confined within limits of the existing roadways and would be limited to smoothing ruts. Site fencing, straw bales and other sediment and erosion control measures would be used to prevent material from entering the water. Exposed soils would be re-vegetated with approved native plant species to prevent soil erosion (PIE et al 2002; Hall 2005).

The proposed upland mining operation would occur from 7am to 7pm Monday through Friday and 9am to 6pm on Saturdays. A total of 155 acres will be mined. The mining operation would start in the central and southern portions of the existing mine site. Mining would proceed with clearing in scheduled phases of about 32 acres each. No more than two phases, up to 64 acres of mining and reclamation activities, would be in process at any one time. Site reclamation would be accomplished in discrete segments as mined areas are depleted of sand and gravel. The mining grading plan, reclamation sequence plan, and revegetation map are presented in Appendix E of this document. Consistent with Washington Department Natural Resources (WDNR) requirements, the applicant proposes reclamation in four steps: 1) pre-mining site preparation; 2) slope stabilization and erosion control, including stormwater control and temporary erosion control measures; 3) final contouring and topsoil replacement; and 4) revegetation with grasses, shrubs and trees. A detailed reclamation plan would be developed in accordance with specifications stipulated by WDNR (King County DDES 2000).

5.1.2 Off-shore work

The off-shore work would occur waterward of the MHW line and require a barge mounted crane, several flat deck work barges, and pile driving equipment. Off-shore work would require cutting, drilling, welding, and touch-up painting. Tarps or other suitable materials would be hung below structures that require cutting, drilling, grinding, welding or touch up painting in order to catch any waste material. A containment boom would be placed around the perimeter of the work areas to capture wood debris and other material that enters the water. Any accumulated debris would be collected and disposed of at an approved upland disposal site. Eelgrass beds would be marked with buoys prior to the start of construction. Anchors or spuds used to secure the barges would not be placed in eelgrass beds. Barges would be secured to the structure when possible. The federal in-water work window to protect listed species under the Endangered

Species Act (ESA) would occur 16 July through 14 October of any year. If no surf smelt and/or no sand lance are spawning, the proposed work may occur from 15 October through 15 February of any year. The Washington Department of Fish and Wildlife (WDFW) Hydraulic Project Approval (HPA) includes an in-water work window of August 15 through January 4 any year the permit is valid. From October 15 through April 1, WDFW will require weekly surf smelt spawn survey (Appendix D).

The existing timber dock, trestle, conveyor and dolphins of the existing structure on-site would be removed using water borne equipment. The above-water portions of the existing structure would be disassembled and removed in sections using a barged mounted crane. This work would require cutting treated timber wood with mechanical saws and steel structures with oxyacetylene cutting torches. The removed structure would be placed on a barge for transport to an off-site upland work area where it would be unloaded, cut into smaller pieces, and either recycled or trucked to an approved disposal site. The in-water work would involve the removal of 228 creosote treated timber piles including 26 piles for the trestle, 71 piles for the dock, 105 piles for the dolphins and 26 piles for the submerged dolphins. The piles would be completely removed unless the pile breaks off at or below the mud-line. If the pile breaks off at the mud-line, an attempt would be made to remove the broken pile with a clamshell bucket. If the pile cannot be removed completely, it would be broken off or cut off a minimum of two feet below the mud-line using an underwater hydraulic or pneumatic cutoff saw. Depressions left in the bottom would be backfilled with clean pea gravel or sand.

The proposed new barge berthing area would be located 82 to 104 feet seaward of the existing structure, which would result in at least 3 feet of water depth at MLLW between the barge and the seabed when loading and a greater buffer distance (no closer than 104 feet) from the existing eelgrass beds. The new conveyor system would be completely enclosed to eliminate sand and gravel spillage between the shoreline and the dock. The 56 new steel piles (24-inch diameter) would be placed using a vibratory hammer. An impact hammer would be used to "proof" the final installation of the piles. If the geotechnical conditions at the site prevent the use of vibratory method then the piles would be driven using an impact hammer. When the impact hammer method is used, a bubble curtain would be placed around the work area to attenuate the noise. As much as practical, the new structures and components would be assembled and painted off-site and installed in sections. The sections would be transported to the site by barge and lifted into place by a barge-mounted crane. Some painting may occur on site after the sections are installed. A protective measure will be used if painting on site becomes necessary. (PIE et al 2002; Hall 2005).

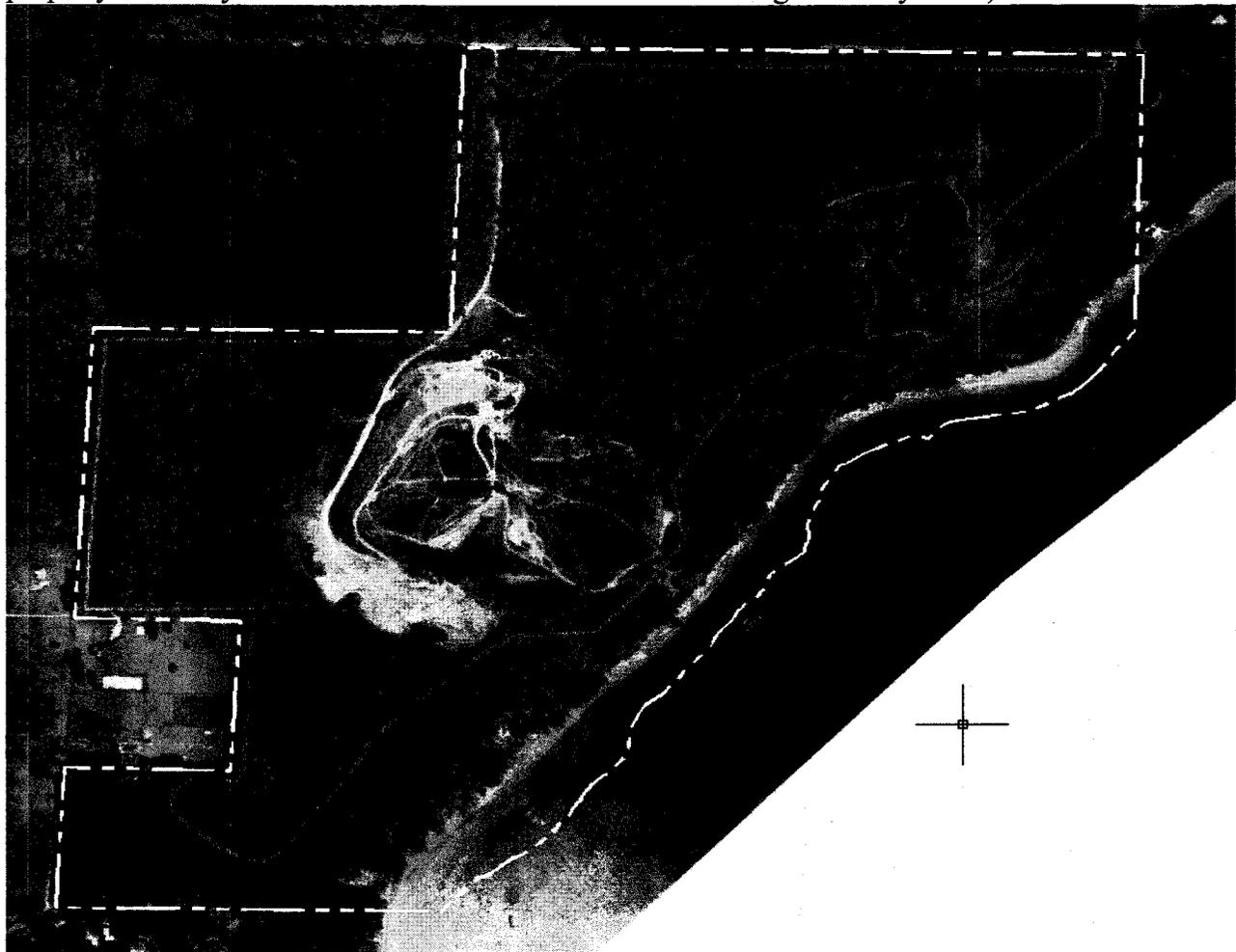
6 Proposed Mitigation Measures

The applicant submitted a mitigation plan entitled, "Mitigation Plan: Maury Island Barge-Loading Operations (Extended Dock), Northwest Aggregates", dated 2 June 2004 and revised 7 April 2008. The plan describes measures to mitigate for potential impacts from barge-loading operations. The mitigation plan addresses impacts from sand/gravel spillage, shading, prop wash, and noise associated with operation of the barge-loading dock. In addition to the avoidance and minimization measures discussed previously, the proposed mitigation measures include:

- Allowing only one barge at the dock at any one time;
- Requiring empty barges to remain 2,500 ft waterward of the dock while waiting to load;
- Restricting operation of gravel barges and tugboats to areas waterward of the line of the proposed dolphins and tugboats to the waterward side of barges at the dock;
- Requiring tugboat/barge configurations to approach and depart the dock at the slowest speed practical and as weather conditions allow;
- Using a haul-back system to move the barge during loading to minimized the need for tugboats to use their engines to maneuver the barge;
- Using tugboats to back the barge away from the dock as weather conditions allow;
- Restricting tugboats operations to no closer than 120 ft of the eelgrass beds;
- Requiring tugboat operators to avoid directing prop wash towards the shore or use of excessive thrust (not to exceed 75 cubic meters per second) ;
- Maintaining a minimum distance of 3 ft between the bottom of barges and the seabed;
- Completely enclosing the gravel conveyor with telescoping spout with retractable chute and spoon to reduce dust and place the gravel in the center of barge;
- Installing a manual limit switch on the conveyor to prevent the conveyor from operating when a barge is not in place to accept material;
- Loading only barges with bin walls with material at least 2 ft below the top of the bin walls;
- Requiring a trained dock worker to remain stationed on the dock to observe barge-loading operations;
- Training tugboat crews to watch for situations in which the barge and conveyor are misaligned;
- Monitoring barge-loading operations by video cameras;
- Requiring periodic monitoring and reporting to verify that barge-loading procedures are being followed and to confirm that the mitigation measures are successful;
- Limit hours of dock operation to 7:00 A.M. to 7:00 P.M. Monday through Friday;
- Conduct annual eelgrass monitoring and macroalgae surveys prior and after construction;
- Conduct annual bathymetry surveys prior to construction and at one year intervals for the first four years after project construction;
- Revegetate the shoreline once the new conveyor is installed; and
- Excluding mining from a 400 foot boundary along the shoreline buffs. Originally a 200 foot boundary from the shoreline had been proposed for the shoreline buffs. See Figure 2 for mining setbacks and property line boundaries.

Many of these and other mitigation measures, including hours of operation and other monitoring requirements have been included in the local and state permits issued for the proposed project. These include the King County Shorelines Substantial Development Permit and Shorelines Conditional Use Permit, dated 16 June 2005, and Grading Permit (renewed) dated 6 July 2007; Washington Department of Fish and Wildlife's Hydraulic Project Approval, dated 2 May 2007, and Washington Department of Ecology's Water Quality Certification, dated 14 March 2006. Copies of these permits are included in Appendix D.

Figure 2. Shoreline setbacks and property boundary lines map. (White dash line show the property boundary lines and Yellow solid line show the mining boundary lines.)



7 BACKGROUND OF ACTION

The Corps received an application for proposed repairs and upgrades to the existing dock on 14 August 2000. In September 2000, the Corps informed the applicant that the proposed work would require an individual Section 10 Department of the Army permit. The applicant began the King County permit process two years earlier with a request for a shoreline exemption for the proposed repairs. Details of the King County permit process is presented below.

7.1 King County Permit Process

The applicant applied for a revised grading permit and requested a shoreline exemption for repairs and upgrades to the existing dock in 1998. King County subsequently evaluated the application under the State Environmental Policy Act (SEPA) via an environmental impact statement (EIS) that was finalized in June 2000. For the applicant's proposed action, the SEPA Final EIS (FEIS) concluded that the project, as proposed, would probably result in significant adverse impacts. However, mitigation would reduce impacts to less than significant and comply with established plans, policies, and laws.

In August 2000, the applicant requested a shoreline exemption to repair the barge loading dock as presented in the SEPA FEIS as the proposed action with mitigation. On 31 May 2002 King County denied the applicant's request for the shoreline exemption. In September of 2002, the applicant submitted an application for a Shoreline Substantial Development (SDP) and Shoreline Conditional Use Permit (SCUP) for the replacement of the barge-loading facility, with open-grated steel decking and extending the dock farther into the water. The proposed also incorporated several mitigation measures suggested in the SEPA FEIS.

Through the King County's permit process, the proposed project was again modified to include a number of additional mitigation measures. On 16 March 2004, King County issued a SEPA EIS addendum, which concluded that there was no new information indicating that the applicant's proposal would have significant adverse impacts beyond those identified in the SEPA FEIS. Along with the EIS addendum, King County issued a denial of the shoreline permits (SDP and SCUP). King County indicated that the applicant's principal use was a gravel mine operation and this use was not reliant on a land-water location. King County determined that the proposed project was not water dependent based on this principal use. Therefore, the proposed project did not meet the county code and the county denied the shoreline permits. The applicant appealed the shoreline permit denials to the State Shorelines Hearings Board.

On 3 November 2004, the State Shorelines Hearings Board ordered King County to reverse the denials of the shoreline permits (Washington State Shorelines Hearing Board 2004). King County issued the shoreline permits with a number of conditions in June 2005 (Appendix D). The State Shorelines Hearings Board order was appealed by several environmental groups and King County to the Washington State Court of Appeals, Division I. The State Court denied review of the petition on 8 January 2008 (*Preserve Our Island v. Shorelines Hearings Bd.*, Wn.App.503, 511 n.3).

7.2 Corps' Public Involvement Process

The applicant revised the 2000 proposed project in November 2004 to include all the changes developed during the King County permit process from September 2002 through November 2004. The applicant essentially proposed removing the old dock and constructing of a new barge-loading facility. The applicant included all of the mitigation measures development during the King County SEPA and permitting process.

The Corps circulated a public notice for project proposal (described in Section 5) on 13 December 2004. The expiration date for public comments was 13 January 2005. During the public comment period, the Corps received numerous comments and requests for a public hearing. The Corps decided to hold a public hearing to allow the public to provide new or additional information on the proposed project. On 14 April 2005, the Corps issued a public notice for the public hearing and a public notice erratum which extended the Corps' evaluation to include a review under authority of Section 404 of the Clean Water Act of the proposed placement of clean pea gravel or sand in holes caused by the removal of timber piles. The expiration date for public comments on the erratum was 31 May 2005. The public hearing was held on 17 May 2005 on Vashon Island in King County. The purpose of the hearing was to obtain public views and opinions on the proposed project that were relevant for consideration in making the Corps' permit decision for the proposed project.

The Corps circulated a public notice for the draft EA on 8 February 2008. The expiration date for public comments on the draft EA was 10 March 2008. This expiration date was extended until 20 March 2008 after numerous requests for extension were received. To date, the Corps has received over 1,228 comments, including verbal and written comment letters, e-mails and cards during the public hearing, the public comment periods, and additional written comments received since the end of the public comment periods. While the expiration date for the public comments on the project has since passed, the Corps has and will continue to consider all comments received up to the date of the DA permit decision.

7.3 Identification of Areas of Concern

The major controversial issues identified during the public hearing and comment period included groundwater supplies, visual and noise disturbances, adverse effects of contaminated topsoils, removal of upland forest habitat, potential impacts on recreational use in the area, navigation impacts, and potential effects on nearshore habitat including eelgrass, forage fish, and endangered and threatened species. Comments received since the end of the public comment period have identified specific concerns about impacts to Southern resident killer whales, salmon, and forage fish.

Draft EA comments identified issues related to the Draft EA's limited scope of analysis and requested that the upland mine impacts be included in the EA as direct impacts. The majority of comments received concerning upland mining impacts included contaminated topsoils, groundwater, stormwater, and property values. As a result of the public comments, the Corps reevaluated the scope of analysis. The discussion is included in Section 8 below.

8 SCOPE OF ANALYSIS

In accordance with the Corps' NEPA implementing regulations¹ this environmental assessment (EA) examines the potential impacts of issuing a Department of the Army (DA) permit to remove the existing dock and construct a new dock associated with a proposed expansion of the existing upland gravel mine. The proposed dock's footprint would cover about 7,555 square feet or about 0.18 acres waterward of the MHW line. The upland mine consist of approximately 235 acres, approximately 155 acres would be mined and 80 acres of which are included in protected buffers.

The scope of analysis for this DA permit decision is, at a minimum, the 0.18 acres waterward of the MHW line. In addition, the scope of analyses for DA permits may extend beyond the specific activity requiring a DA permit if the Federal control and responsibility of portions of the entire, larger project outside the limits of Corps' jurisdiction are such that the Federal involvement is sufficient to turn an essentially private action into a Federal action. These are cases where the environmental consequences of the larger action are essentially products of the Corps' permit action. In such instances, Federal control and responsibility includes the portions of the project beyond the limits of Corps jurisdiction where the cumulative federal involvement of the Corps and other Federal agencies is sufficient to grant legal control over such additional portions of the project.

¹ 33 CFR Part 325 Appendix B, 7(b)

In this case, the proposed dock is intended to serve an existing upland gravel mine and will be constructed and operated in the marine waters of Puget Sound. Because of the very nature of the broad functional values associated with marine waters, the Corps typically has broad scopes of analysis for activities within these waters. This includes consideration of impacts to fish and wildlife species, water quality, recreation, and navigation, among others. All of these factors are specifically within the Federal interest due to our responsibilities under the Clean Water Act, the Rivers and Harbors Act, and the Endangered Species Act.

In an effort to consider all potential impacts that the proposed dock could have on marine waters, including impacts to threatened and endangered species, the Corps expanded the scope of analysis to encompass the action area as defined in the Biological Evaluations. The action area included the east shoreline of Maury Island from Piner Point to Point Robinson, extending three miles across the East Passage to the opposite shoreline. The Corps established this broad action area to evaluate effects of the project on all aspects of the aquatic resources from tug and barge traffic approaching and departing the dock as well as impacts from the construction of the dock.

The Corps also evaluated whether there were aspects of the upland gravel mine that would be within the Corps' Federal control and responsibility. The Corps originally (as reported in the Draft EA) concluded that we did not have sufficient rationale to expand the scope of analysis to include the upland gravel mining activities, except for the upland area under the elevated conveyor (60 feet wide and 1000 feet long, landward of the MHW line) after looking at the four factors listed in our Regulations found at 33 CFR 325, Appendix B.

The Corps received a substantial number of comments, mostly from local residents of Vashon/Maury Island as well as other parties interested in limiting environmental impacts at the site. The Corps also received comments from other state agencies. The comments were focused on both the potential impacts to the marine ecosystem, upland habitat and neighboring communities.

The original scope was based on our understanding of the continued use of the site as a gravel source regardless of the permit action. The Corps also evaluated other Federal interests such as the Endangered Species Act, The National Historic Preservation Act and their relationship to the upland action. Lastly, the Corps acknowledged that we have little to no authority over the upland activities, many of which are subject to significant regulation by other state and local agencies (see Table 1 at end of this section).

The Corps still maintains that we have limited authority over the upland activities. However, after receiving comments on the Draft EA, we sought clarification from the applicant on their intent to mine the site regardless of the construction of the dock. The applicant provided that they may continue mining without the new dock, but that the future use of the site was not clear. The applicant indicated that they maintained the right to use the site with the intent of expanding it for barge distribution. Without that ability (the dock), they could not predict its future use (as their companies' interest) in the site.

Based on the understanding by the Corps that the dock was directly related to future use of the site, the Corps has determined it was appropriate to include the upland site within its scope of analysis.

Therefore, in response to the intense public interest over the entire project and the potential effects of mining on the upland resources and the surrounding community the Corps has included the upland resources within our public interest review to assure that we have considered all factors adequately for our permit decision. This review will include an evaluation of the public interest, including, but not limited to, impacts to aquatic resources, threatened and endangered species, navigation, cultural resources, noise, aesthetics, recreation, land use, water resources, soils, and economics as related to both the dock and the upland mining.

The Corps acknowledges that the main source of information regarding the upland resources is the SEPA documentation developed by King County. It is our assessment that this very encompassing documentation is sufficient to meet our needs for our analysis of impacts for the upland areas. In a few instances, we have also requested clarifying information from the applicant. The Corps independently evaluated all information prior to its incorporation into this document. All references used in this document are listed in Section 17 "References". We have incorporated this information and our assessment of the impacts into the appropriate sections of this document.

Table I: Permits and Authorizations Required for the Proposed Project.

State Permits and Authorizations
Section 401 Water Quality Certification (Ecology)
Consistency with Coastal Zone Management (Ecology)
NPDES permit (Ecology)
State Process Water, Stormwater and Mine Dewatering Discharges permit (Ecology)
Mining Reclamation (WDNR)
Hydraulic Project Approval (WDFW)
Revised Aquatic Land Lease (WNDR)
King County Permits and Authorizations
Shoreline Conditional Use (King County)
Shoreline Substantial Development (King County)
Grading Permit (King County)
Building Permit (King County)
Federal Permits and Authorizations
Section 10 (Corps)
Section 404 (Corps)

9 PROJECT PURPOSE AND PROJECT NEED

9.1 Project Purpose

The applicant originally stated the purpose of the proposed work is *“to expand operations at the project site to serve markets outside of those able to be served efficiently using trucks to transport the mined sand and gravel”*. The applicant further clarified this purpose statement by adding *“The proposed work would allow loading of barges with sand and gravel from the existing mine, thereby allowing waterborne transport of mined material throughout the Central Puget Sound region.”*

The applicant desires to continue in the aggregate industry, to continue to supply their customers, their concrete plants, and to make a profit as they have done in the past. The applicant's DuPont facility no longer contains enough sand to meet their own needs or their customer's needs. The Maury Island mine contains large amounts of sand which can meet specifications for public projects which makes the mine a valuable resource in the Central Puget Sound region. The Maury Island mine was held in reserve for about 20 years until the applicant's Steilacoom mine was depleted. Reserve periods are common for sand and gravel mines. The applicant has further indicated that mine would not be commercially viable without the barge-loading facility.

To determine a project purpose, the Corps makes an independent determination of the applicant's project purpose. While the Corps believes it is very important to consider the applicant's views regarding the project's purpose and the existence of (or lack of) reasonable alternatives, the Corps must determine and evaluate these matters independently. The project purpose must not be so narrowly defined as to unduly restrict a reasonable search for potential alternatives. The applicant's purpose statement above limited the alternatives analysis to the proposed site. The Corps believed that off-site alternatives also needed to be explored to determine if there were less impacting alternatives available.

The Corps considers the applicant's desire to provide waterborne service as a reasonable restriction when considering alternative sites, especially because waterborne transportation would be required to move anything from Maury/Vashon Island to other areas of the Puget Sound. The Corps has determined that expanding the project purpose for Corps permit decision to include off-site alternatives can be done by removing the restriction of *“to expand operations at the project site”*. The Corps also included *“waterborne”* as opposed to *“efficiently using trucks”*. After careful review, the Corps determined that the project purpose for this permit action is *to provide sand and gravel by waterborne transport to meet the market demands of the Central Puget Sound region.*

9.2 Project Need

The underlying need for the proposed project is supported by regional need for sand, the limitations on opening up new mines in the Puget Sound region, and the location of existing aggregate and concrete industries that depend on the sand and gravel.

Washington State Department of Natural Resource (WDNR) has identified a regional need for high quality sand that meets specification for public projects. According to WDNR the consumption of sand, gravel and rock (aggregate) is tied directly to population. Washington

State's population has increased by more than two million people over the last 20 years (WDNR 1998). Continued population growth is rapidly depleting the mineral resources in the Central Puget Sound region (Pierce, King and Snohomish Counties) and suitable aggregate is important to economic development in the region. Most aggregate producers can only serve customers within close proximity to their mines or processing plant. This is a result of transportation costs and presence of infrastructure (WSDOT 2005 & 2006). Transportation costs for aggregate are a function of weight and travel time. A dump truck can haul 30 tons of material using a truck and trailer combination at a cost of \$125 per hour. The cost of transportation increases with travel time. Highway congestion added to travel time which increases the cost of transportation. The cost of delivering aggregate by barge is between \$1.50 and \$2.00 per ton based on transportation cost from DuPont site to Seattle.

The Washington Growth Management Act requires that each county government designate mineral resource areas within their boundaries. King County has designated less than six square miles of the county for mineral resources areas. King County is expected to need more than 20 million tons of aggregate in 2010 and demand will continue to increase over the next ten years to 22 million tons. The average mine produces approximately 110,000 tons per year (PLU 2003). In this case, there is an overwhelming amount of supporting information that the Central Puget Sound region has a growing need for sand and gravel near the major urban growth areas and that transportation costs is an important factor in meeting the market demands of this region.

The aggregate and concrete industries in the Seattle-Tacoma-Everett areas are located on local waterways including Duwamish River, Lake Washington, Snohomish River, Hylebos Waterway, and Puget Sound. This industry is depended on the delivery of sand and gravel by waterborne transportation. The applicant also owns and operates four concrete batch plants on these waterways in Seattle, Tacoma, and Everett. The applicant has built a large part of their business, about 80 percent, on providing sand and gravel by barge transport to their customers which are also located on these waterways in Seattle, Tacoma, and Everett. Hauling aggregate to the applicant's batch plants and their customers by truck would not only increase transportation costs but would have additional effects on the existing infrastructure in these locations, including congestion on existing highways, maintenance of road surfaces, safety concerns, noise, consumption of oil products and air pollution.

10 DISCUSSION OF ALTERNATIVES

Under all the decision options presented in Section 2, the Corps must analyze a reasonable range of project alternatives. Reasonable alternatives are those that are feasible and such feasibility must focus on the accomplishment of the project purpose that would be satisfied by the permit issuance. Provided below is an evaluation of alternatives to the proposed project:

10.1 No Federal action

In this document any action that results in no activity requiring a DA permit would be considered the No action alternative. Under the no action alternative the applicant would elect to modify the proposal to eliminate work under the Corps jurisdiction or withdraw the permit application. The applicant has requested that the Corps make a permit decision. Therefore, the Corps will not carry the no federal action forward through the environmental resource analysis. The Corps, however, will consider permit denial as a possible alternative resulting in no action. This would

have the same effect as the no federal action alternative. That is, the activities regulated under DA authority would not occur.

10.2 Off-Site Alternatives

According to Washington State Surface Mining Reclamation Sites directory, there are 111 permitted sand and gravel mines in Pierce, King and Snohomish Counties (WDNR 2006). Many of these mines are less than 100 acres some are depleted or nearing depletion and most are located in areas where the only means of aggregate transport is by truck. There are three permitted mine sites with water access in King and Pierce Counties, the applicant's DuPont and Maury Island sites and Manke Lumber's mine near the Hylebos Waterway. The applicant stated that their DuPont mine does not have the sand to meet their needs or that of their customers. The Manke mine site is about 10 acres and the Corps does not consider this a viable alternative due to its size based on discussions with a WDNR geologist (Personal Communication WDNR 2007). WDNR identified the Maury Island mine as the only existing sand and gravel resource with water access in King County (Teissere 2004). There are no existing permitted mines with water access in the Central Puget Sound region (WDNR 2007).

The applicant is currently purchasing and transporting sand by barge from Canada to meet their needs and those of their customers. The applicant stated that it is more cost effective to transport aggregate by barge because a large portion of the applicant's business and their customers are depended on delivery of aggregate by barge.

As presented in Section 9.1 Project Purpose, the hauling of aggregate by truck to the applicant's plants and their customers by truck would not only increase transportation cost but would have additional impacts on the existing infrastructure in these locations, including increased congestion on existing highways, increased maintenance of road surfaces, increased safety concerns, increased noise, increased consumption of oil products and increased air pollution.

The Corps identified an existing mine located in Jefferson County, near Hood Canal, as a source of aggregate that could have water access. The site is outside the Central Puget Sound Region as defined in Section 9.1. Jefferson County contacted the Corps concerning a proposed expansion of an existing mine within their jurisdiction. However, this potential project is still in the preliminary planning stage. Pursuant to communications with Jefferson County, we understand this proposal would include the construction of a new dock for the purpose of marine transport of aggregate material. There currently is no existing dock associated with the existing mine. The proposed dock would be located in Hood Canal, southwest of Hood Canal Bridge and about 55 nautical miles from Maury Island. Through discussions with Jefferson County, the Corps understands that the environmental review will take at a minimum a year to complete. Jefferson County provided the Corps with preliminary information on the proposed market area which was provided to them by the applicant. The preliminary market area is proposed as local (Port Angeles), regional (Puget Sound urban centers), intrastate (Vancouver, WA.) and interstate (Oregon, California and Hawaii). As such, the Corps has determined that this potential site is not suitable for including within this alternatives analysis since there is not sufficient information available to determine if this preliminary proposal is feasible at this phase of its planning. According to Jefferson County the proposed dock is not critical to the expansion of the mine and would progress regardless of dock construction.

The Corps identified another existing mine that currently has water access but is not located within the Central Puget Sound. Manke Lumber's operates an aggregate mine near Shelton, in Mason County, Washington that includes a barge loading facility on Oakland Bay. This facility is located in the upper end of Oakland Bay where the tidal range restricts barges movements to high tide periods only. This restriction limits the number and size of the barges that can be use the existing facility. This site is also outside the Central Puget Sound Region as defined in Section 9.1.

Given the above, there are no currently permitted mine sites in any of the counties with shorelines along Puget Sound that have or could have water access within the next decade or more (WDNR 2007). It is unlikely that any area with sand and gravel deposits sufficient to meet the market demand that could have water access and is currently in operation could obtain the local and state permits to build and operate a dock within the next decade. The development of a new mine within a designated mineral resource area and with an associated marine transport facility would likely take years to obtain the necessary local and state permits and to conclude an environmental review process. Therefore, the Corps believes that these alternatives would not meet the near future need and would potentially result in greater environmental impacts, particularly if the proposed dock was located in an area that does not currently include a dock structure.

It is the Corps assessment that offsite and new mine alternatives are either unavailable to the applicant, cost prohibitive to the applicant, not currently feasible, would result in greater environmental impacts, and/or would not accomplish the project purpose. The Corps worked closely with WDNR and reviewed other sources of information on the sand and gravel industry and information from the applicant in this assessment. Based on our findings, we have determined it is reasonable to limit further evaluation to on-site alternatives.

10.3 On-Site Alternatives

10.3.1 Original Proposal

The original proposal presented in the Corps permit application, dated August 2000, included the repair of the existing conveyor system and barge loading facility in its current location. The existing conveyor system repairs would have included the replacement of five power poles, re-installation of troughing idlers, return idlers, new motor drive, new rubber conveyor belts and addition of a spill or splash pan. Dock repairs would have included the replacement of about 45 timber pilings as part of the structure supports, fender, and dolphins and repairs to the dock's walkway, decking, and stringers. Timber piling would have been driven using an air hammer. The dock operation would have occurred 24 hours a day, 7 days per week. This proposal was identified in the King County's FEIS as the proposed action (King County DDES 2000).

The Corps reviewed the applicant's original proposal and informed the applicant that the existing dock was not serviceable and that repairing the existing structure would not address environmental impact of the existing structure. The Corps suggested during meetings and telephone conversations with the applicant that the existing dock be replaced with material more suitable to the marine environment and extended into deeper water to avoid the nearshore area.

These recommendations would reduce the environmental impacts that would occur with construction and operation of the proposed project.

Because the original repair proposal is no longer viable, the Corps will not carry this further in our evaluation of alternatives.

10.3.2 Current Proposal

The proposed project as described in Section 5 of this document was developed by the applicant during the King County shoreline permitting process and the Corps permit process (including ESA consultation). This alternative was presented and discussed in the King County's FEIS Addendum as the applicant's current proposal (King County DDES 2004).

The applicant proposed this alternative to the Corps in November 2004 as the proposed project. The proposed project avoids and minimizes a number of potential impacts to the marine environment that were identified by the Corps, King County, and by many commenters. The Corps has reviewed and completed an independent evaluation of the alternative information provided by the applicant, by commenters, and discussed in the King County SEPA documents (King County DDES, 2000 & 2004). The alternatives represent a reasonable range of alternative for consideration by the Corps.

Therefore, this proposal will be carried forward through the environmental impact analysis as the proposed project.

10.3.3 Permit Denial (No Action)

If the proposed project with mitigation is found to be inconsistent with Corps regulations pursuant to the public interest review, the permit application will be denied. The applicant would not have Department of the Army (DA) authorization to build the project as proposed. Therefore, no work would occur within the Corps jurisdiction and no impacts are expected to occur in or to the aquatic environment. The applicant has indicated that the mine would not be commercially viable without the barge-loading facility. The applicant would not categorically say that no mining would occur at the site without the barge-loading facility, as the applicant has not developed a plan for what it would do with the property if authorizations for the dock were denied. It is very likely that the applicant would not maintain the entire 235 acres as a mine site and that only a small portion of the property would continue to be operated as an aggregate source for the Island. The remaining acreage would be considered for conversion to a different, non-mining use. The Corps will consider this decision option but will not provide an in depth evaluation because issuance of a permit would not occur and therefore the expected impacts would not occur. The existing dock with creosote treated wood, shading, etc., would remain in place and is addressed below in current baseline conditions, Section 12.1 Site Characteristics.

11 404(b)(1) Guidelines

Section 404 of the Clean Water Act prohibits the discharge of dredged or fill material into waters of the United States unless the proposed discharge is the least environmentally damaging practicable alternative capable of achieving the proposal's purpose. The Guidelines prohibit a discharge when a practicable alternative exists which would have less adverse impact on the aquatic ecosystem.

In this case, the discharge being evaluated under the Section 404 is the discharge of clean pea gravel or sand in any depressions or holes caused by the removal of 228 timber piles below the mean higher high water (MHHW) line of Puget Sound related to the construction of the proposed dock. For the removal of 228 piles, up to 82 cubic yards of clean sand or gravel would be placed in an area about 0.1 acre within the footprint of the old dock and dolphins. This discharge is a conservation measure identified during the ESA consultation process to protect listed species as well as critical habitat and is a condition of the Washington Department of Fish and Wildlife Hydraulic Permit Approval (HPA) issued 2 May 2007 (Appendix D).

Appendix A contains the 404(b)(1) evaluation which includes an alternative analysis for this discharge. This analysis demonstrates that the discharge of the pea gravel or sand represents the least environmental damaging practicable alternative available to meet the conservation measure. The discharge will not result in the loss of aquatic resources. Therefore, the applicant's alternative, the discharge of clean pea gravel or sand into any depressions or holes caused by the removal of timber piles, satisfies the requirements of the Guidelines.

12 AFFECTED ENVIRONMENT (Baseline Conditions)

Existing conditions in the vicinity of the project site have been described by others in the following documents: State Environmental Policy Act (SEPA) Draft and Final Environmental Impact Statements for the proposed work (King County DDES 1999 & 2000), Addendum to the SEPA FEIS (King County DDES 2004, the SEPA supplemental EIS for the Maury Island Aquatic Reserve Management Plan (WDNR 2004a) and documents provided by the applicant including biological evaluations (PIE 2002; Hall 2005 & 2006, and Grette Associates LLC 2002, 2003, 2005, 2006, & 2006b), and Annual Eelgrass Survey Reports (PIE 2001 & 2002 and Grette Associates LLC 2003, 2004, 2005, & 2006c), the latest of which was prepared in 2007 (Grette Associates LLC 2007). Descriptions and information in two supporting documents to the King County's FEIS, Maury Island Gravel Mine Hydrogeologic Impact Assessment (Ecology 2000) and Nearshore Impact Assessment (EVS 2000), were also referenced. Physical and biological characteristics of the marine environment adjacent to the project site appear fairly typical of Puget Sound based on marine reconnaissance by King County between 1998 and 2000 as well as various surveys and unpublished information collected by the Washington Department of Fish and Wildlife (WDFW) and WDNR. Marine environment information sources are summarized in the King County's FEIS. The Corps has independently evaluated factual information contained in these documents, particularly as it relates to marine features of the proposed project, and are incorporating them by reference into this environmental assessment. The Corps has incorporated updated information in the following summary where noted.

12.1 Site Characteristics

The project site is located in southeastern Maury Island along East Passage in central Puget Sound. The City of Federal Way is located across from the project site on the opposite shore of East Passage. Maury Island is connected to Vashon Island by a road causeway at the north end of Quartermaster Harbor. Access to Vashon/Maury Island is provided via ferry or boat; there is no bridge connecting Vashon/Maury Island to the mainland.

Puget Sound has a glacial history that defines the primary geological characteristics of the project area. On Maury Island, the deepest and oldest subsurface layers are fine sands with some silt beds. Analysis indicates that these materials are older than 45,000 years and likely are interglacial deposits. These materials underlie the sands and gravels that would be mined. These interglacial deposits form a rolling surface under thick layers of sand and gravel that were deposited by meltwater streams and rivers that flowed from glacial ice as it advanced into Puget Sound from Canada about 16,000 years ago. Vashon Advance outwash deposits are materials graded from coarser sand and gravel near the top of the deposits to finer sands near the base. These are the materials that would be mined.

The shallowest subsurface layers, extending typically about 5 feet below grade in undisturbed areas, is classified as till deposited at the base of the Vashon age glacier that occupied the Puget Sound basin until about 13,000 years ago. This layer was deposited beneath moving ice. The till layer is relatively thin and discontinuous, particularly in the western and northern portions of the site, and do not appear to form a major barrier for subsurface water flow. Surface soils on the site are comprised of Everett and Alderwood soil series. Both of these soils series are well-drained, gravelly sandy loams over consolidated glacial till or gravelly sand that occur on relatively level terraces throughout King County.

As with adjacent portions of the shoreline, the site topography slopes gradually down toward the water from the crest of the island, with steep bluffs along the island shore. Along this section of Maury Island's shoreline, the sandy bluffs reach heights of 200 to 300 feet above the water's edge (King County DDES 2000). Most of the site is covered by vegetation.

Mining has occurred on the upland portion of the proposed project site since the 1940s. Prior to the 1980s, offsite barge deliveries to sites such as Indian Island and various piers within the Port of Seattle waterfront had resulted in annual mineral extraction levels as high as about 1.3 million cubic yards (cy). From the 1980 to 2006, mining activities continued on uplands at a lower rate (between 7,000 and 15,000 cy per year) to serve local markets on Vashon and Maury Islands. Mining at the upland site ended in 2006 when the local contractor's lease was not renewed.

Mining operation at the project site has reduced the heights of the on-site bluffs compared to adjacent shoreline. On the eastern portion of the site, past mining has removed up to 250 vertical feet of material, resulting in a horseshoe-shaped excavation covering about 40 acres. Two existing roads provide access to the site. There is no shoreline stabilization structure along the shoreline at the site. Shallow sloughing has and continues to occur along the site's shoreline bluffs. The toe of the bluffs is being eroded by wave action. No reclamation has occurred within the existing mined area under the applicant's existing WDNR Reclamation permit which was reapproved in 1991.

The existing dock was permitted in 1968. There are number of variances between the existing dock and the dock design represented in the permit drawing. These variances between the permit drawing and existing structure often occur as resulting of engineering design changes, cost, availability of materials, and/or construction time. Because as-built drawings were not provided to the Corps for the existing dock in the late 1960s, the Corps staff conducted site visits in the

2000s, took photographs and reviewed the on-site measurements of the structure provided by the applicant. The following information is a representation of the existing dock's structure and size.

The existing dock consists of creosote treated timber pile structure with a trestle extending about 238 feet from Mean High water line (MHW) to a dock's face which runs 180 feet parallel to the shoreline. The trestle consists of two levels. The upper level consists of the conveyor belt and adjacent walkway (about 2,818 square feet). The trestle's lower level walkway is about 2,464 square feet. Stairs and upper dock platforms connects the upper level trestle with the dock and support conveyor belt motor. These platforms, which form the upper pier, are about 380 square feet. The dock walkway is 14 feet wide and 180 long (about 2,520 square feet) and included the fender system. Total surface area² of the existing dock is approximately 8,182 square feet based on MHW line. A total of ten dolphins, five dolphins at each end of the existing dock, extended northward and southward along the same line as the dock. There are 4 submerged pilings located along the same line as the dolphins, two to the north and two to the south. There are a total of 228 piles in the structure and dolphins. Portions of the existing dock's walkways and decking are missing and large numbers of pilings are damaged or decaying. The barge loading facility has fallen into disrepair over the past several decades and is no longer serviceable.

The shore consists of cobbles, gravel and medium sand stratified along different tidal levels along the beach. The beach slope is generally less than 10 percent and is dominated by gravel and medium sand above the -3 feet MLLW. The slope below -3 feet MLLW varies from about 10 percent to about 70 percent. Fine sands and silt dominate the substrate waterward of -3 feet MLLW. Shell debris has accumulated around the dock piles and dolphins. The existing dock and conveyor extends to depth between -18 and -24 feet MLLW. There's no evidence of sediment contamination in the project area (EVS 2000).

Offshore from the project site, water depth increases rapidly across moderate to steep slopes to a depth of approximately 540 feet in the East Passage channel of southern central Puget Sound (Williams et al 2001). This reach of shoreline is somewhat protected, with lower wave energy than other locations in the Puget Sound region.

12.2 Water Resources

Marine waters in East Passage are considered to be of extraordinary quality for aquatic life uses and are therefore subject to the most stringent State standards (WAC 173-201A-210; WAC 173-201A-612).

No perennial or intermittent surface waterbodies occur in the project vicinity along the southeast part of Maury Island. Precipitation in this area is directly evaporated, transpired by vegetation, or rapidly infiltrated through the highly permeable soils. The groundwater aquifer located under the site supports springs that flow out from the lower portion of the shoreline bluff and into Puget Sound (King County DDES 2000).

Groundwater resources in the vicinity of the proposed project site include shallow groundwater that is not part of an aquifer; deeper isolated pockets of water in more densely packed sands and

² The Corps considers both the upper and lower levels of the structure in this surface area estimate. It is appropriate to consider both levels because each level creates a separate shadow when the sun is not directly over-head.

gravels; and aquifers comprised of relatively large and stable areas of water-saturated substrate below the ground surface (King County DDES 2000). On Vashon and Maury islands, the aquifer is divided into a principal aquifer which resides in sands and gravels of the Vashon advance outwash, and a deep aquifer, which resides in the much deeper, pre-Vashon sediments. Based on well monitoring (King County DDES 2000 & Ecology 2000), the static water levels in the aquifers below the site range from approximately 20 to 90 feet above mean sea level (compared to ground surface elevations as high as 325 feet above mean sea level).

The aquifer system under Vashon and Maury Island is designated as a sole source aquifer³ by the U.S. Environmental Protection Agency (EPA). The sole source aquifer boundary is coincident with the shoreline of the islands, and at depth includes all geologic units that can supply significant quantities of drinking water to wells. The Vashon-Maury Island Aquifer System supplies approximately 71 percent of the drinking water to persons living on the islands.

There is a continuous north-flowing drift cell along the eastern shore of Maury Island from Piner Point to Point Robinson, where it converges with the drift cell along the northern shoreline. The drift cell along the eastern shore is mostly uninterrupted. Sediment transportation is somewhat disturbed by existing bulkheads and fill associated with upland development (WDNR 2004a). Wake turbulence from commercial vessel traffic in East Passage resuspend sediments along the beach resulting in short-term periods of relatively high turbidity at the project site (Grette Associates, LLC 2006c).

Oil spills from commercial and recreational vessel traffic have occurred along the Vashon/Maury Island shoreline (Ecology 2007). Such spills are the result of number of factors including poor vessel maintenance, unintended release of oil due to equipment failure and/or operator error, and/or vessel collisions. Vessels operators are required to report any release of oils to state and federal response agencies at the time of occurrence. Failure to report oils spills and/or clean up the spill can result in civil penalties against vessel owners and operators.

12.3 Air Quality

There is no recent air quality monitoring data for the project site or Maury Island. Air quality at the closest monitoring stations in Tacoma and Kitsap County indicate that particulate and pollutant levels are typically low (Puget Sound Clean Air Agency 2006). Given the rural nature of the project site, particulate and pollutant inputs in the project vicinity are likely lower than those closer to monitoring locations; air quality on Maury Island would be expected to be as good as or better than at the monitoring locations.

³ The EPA defines a sole or principal source aquifer as one which supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. EPA guidelines also stipulate that these areas can have no alternative drinking water source(s) which could physically, legally, and economically supply all those who depend upon the aquifer for drinking water. For convenience, all designated sole or principal source aquifers are usually referred to simply as "sole source aquifers."

12.4 Fish and Wildlife

12.4.1 Fish

Cutthroat trout (*Oncorhynchus clarki clarki*) and chinook (*O. tshawytscha*), chum (*O. keta*), coho (*O. kisutch*), and pink salmon (*O. gorbuscha*) feed and rear in nearshore areas in the vicinity of the project area. Juvenile salmonids feed on epibenthic invertebrates in the intertidal zone. In addition to salmonids, marine fish such as a variety of surfperch (*Embiotocidae*), flatfish (*Pleuronectiformes*), gunnel (*Pholididae*), stickleback (*Stichaeidae*), and rockfish (*Sebastes spp.*) species likely occur along Puget Sound shorelines. Common species that likely utilize the nearshore habitat include striped perch (*Embiotoca lateralis*), surf smelt (*Hypomesus pretiosus*), staghorn sculpin (*Leptocottus armatus*), English sole (*Parophrys vetulus*), copper rockfish (*Sebastes caurinus*), and cabezon (*Scorpaenichthys marmoratus*). The intertidal and shallow subtidal zones provide feeding and rearing habitat for young marine fish and offer feeding and spawning habitat for mature adult fish. As with salmonids, the benthic invertebrate resources in nearshore areas provide abundant prey for marine fish.

Offshore areas along the Maury Island shoreline and in the project vicinity provide a mix of pelagic, benthic and reef habitat. Pelagic species such as adult salmonids, Pacific cod (*Gadus macrocephalus*), walleye pollock (*Theragra chalcogramma*), and Pacific hake (*Merluccius productus*) likely utilize the water column in offshore areas. Benthic areas provide habitat for flatfish, spiny dogfish (*Squalus acanthias*) and a variety of sculpin species (*Cottidae*) (Palsson and Tsou 2005). Reef habitats, provided by two sunken wooden barges, a sunken pleasure boat, and the existing piling at the site, provide habitat for lingcod (*Ophicon elongates*), greenling (*Hexagrammidae*), and several species of rockfish (King County DDES 2000).

WDFW has documented herring (*Clupea harengus pallasii*) spawning grounds along the shoreline of Quartermaster Harbor and southern Maury Island along East Passage (Bargman 1998). The Quartermaster Harbor herring stock spawns from late January through early April. These spawning grounds represent one of 18 distinct Pacific herring spawning areas in Puget Sound (WDNR 2004b). Herring deposit transparent, adhesive eggs on intertidal and shallow subtidal eelgrass and marine algae. Eggs may be deposited anywhere between the upper limits of high tide to a depth of minus 40 feet, but most spawning takes place between 0 and minus 10 feet in tidal elevation (Bargman 1998; WDFW 2006a). The documented herring spawning grounds extend from approximately the project site south to Piner Point and around the entire shoreline of Quartermaster Harbor (Washington DNR 2004b). Herring likely utilize eelgrass and macroalgae at the project site for spawning.

Documented spawning areas for surf smelt and sand lance occur south of the project area near Piner Point, the southern tip of Maury Island (Bargman 1998). A spawning survey was conducted in December 2005 by WDFW which documented a new spawning area for surf smelt and sand lance in the immediate area of the existing dock (WDFW 2005). Surf smelt and sand lance spawn in the high intertidal zone on mixed sand and gravel beaches. In southern Puget Sound, surf smelt tend to spawn from October through February; sand lance typically spawns from November through February (WDFW 2006a).

See Section 12.4.7 Threatened and Endangered Species for more detailed discussion on Chinook salmon, steelhead, and bull trout species listed or proposed for listing as threatened under the Endangered Species Act.

12.4.2 Terrestrial and Aquatic Vegetation

Upland vegetation on the mine site consists of Pacific madrone (*Arbutus menziesii*) and mixed madrone/Douglas fir forest. Douglas fir (*Pseudotsuga menziesii*) trees on the site range in size from 6 to 20 inches in diameter and average about 80 feet tall. The madrone trees range from 6 to 22 inches in diameter and average about 35 to 40 feet tall. About 69 percent or 161 acres of the mine site is forested. The remaining 31 percent or 74 acres of the mine site consists of open ground and previously cleared areas that are now covered with mixed grasses, invasive shrubs (Scot's broom and Himalayan blackberry), and thickets of Pacific madrone and red alder (*Alnus rubra*) saplings (King County DDES 2000). No wetlands or streams have been identified on the upland property.

The nearshore subtidal areas, between 0 feet mean lower low water elevation (MLLW) and about -22 feet MLLW, support eelgrass (*Zostera marina*) which occurs to the north and south of the existing trestle and between the existing dock face and shoreline. The eelgrass patches have been surveyed and monitored yearly since 2001. Results of these surveys show that eelgrass has been established in two main eelgrass patches located at either end of the site where the controlling factors appear to be suitable for eelgrass. Isolated eelgrass plants continue to be observed in other portions of the site, but no new eelgrass patches have been established during the six year monitoring period. These isolated plants do not appear to survive year to year. There are two main patches, one patch located 219 feet south of the trestle and the other patch located 286 feet north of the trestle vary in densities for year to year (Grette Associates LLC 2006c).

The nearshore subtidal area also supports macroalgae which occurs between -20 feet MLLW and 0 feet MLLW in the area extending shoreward from the northernmost to the southernmost dolphin. Macroalgae observed in this area include *Ulva spp.*, *Laminaria sp.* and *Costeria costata*. Species composition and distribution of macroalgae waterward of the trestle has been similar over the observations done from 2001 to 2006, although there has been some variability in location of the macroalgae within the observation area (Grette Associates LLC 2006c).

12.4.3 Shellfish and Invertebrates

Intertidal and shallow subtidal areas along the Maury Island shoreline provided habitat for a variety of shellfish including butter clams (*Saxidomus gigantea*), littleneck clams (*Protothaca staminea*), macoma clams (*Macoma spp.*), and common cockle (*Clinocardium nuttalli*); and crabs including Dungeness crabs (*Cancer magister*) and red rock crab (*Cancer productus*). Piddock clams (*Pholadidae*) occur under the pier and common mussels (*Mytilus edulis*) are attached to the existing piling (King County DDES 2000).

The piling communities at the project site, between 0 feet and -24 feet MLLW, consists of sea anemones, giant barnacles, green sea urchins, kelp crabs, decorator crabs, nudibrachs, limpets, chitons, mussels, jingle shells and various red and brown algae (King County DDES 2000).

Geoduck clam (*Panopea abrupta*) beds are found along the project site shoreline and extend all along the Maury Island shore along East Passage. Near the site, geoducks typically occur at elevations between mean lower low water (MLLW) to about 200 yards from shore (King County DDES 2000). Tribal and public harvest of geoducks periodically occurs at and near the project site. The southeastern shoreline of Maury Island is designated as geoduck tract 10150 in the 2004 Geoduck Atlas (WDFW 2004). This tract is about 149-acres. The estimated geoduck density in tract 10150 averages 0.24 clams per square foot. Tribes harvested about 71 tons of geoducks from tract 10150 in 2002 (WDFW 2006b). The Puyallup Tribe harvested this tract again in 2004 (WDNR 2004b).

12.4.4 Marine Mammals

Puget Sound provides habitat for California sea lions (*Zalophus californianus*), Stellar sea lions (*Eumetopias jubatus*), harbor seals (*Phoca vitulina richardsi*), Dall's and harbor porpoise (*Phocoenoides dalli* and *Phocoena phocoena*, respectively), killer whale (*Orcinus orca*), gray and minke whales (*Eschrichtius robustus* and *Balaenoptera acutorostrata*, respectively) (Osmek et al. 1998). Harbor seals and Dall's and harbor porpoises are the most commonly observed marine mammals in Puget Sound. See Section 12.4.7 for more detailed discussion of killer whales.

12.4.5 Terrestrial Wildlife

The project site is used by a variety of mammals, including black-tailed deer (*Odocoileus hemionus*), raccoon (*Procyon lotor*), bats (*Myotis* sp.), Douglas' squirrel (*Tamiascurus douglasii*), and possibly black bear (*Ursus americanus*). Mice, voles, moles and shrews are likely to be relatively abundant. Black-tailed deer are relatively common throughout Maury Island and the site provides habitat that is relatively isolated from human disturbance. Forested areas at the site provide hiding cover and cleared areas provide good feeding sites. The project site could support between 5 to 18 deer at any one time, based on historic studies of deer densities in western Washington.

The site supports at least three species of reptiles. The open, dry, and gravelly habitat interspersed with shrub and grass cover and dense leaf litter from madrone trees provides good habitat for reptiles, including western fence lizard (*Sceloporus occidentalis*), northern alligator lizard (*Gerrhonotus coeruleus*), and terrestrial garter snake (*Thamnophis sirtalis*). Because the site is quite dry, amphibian use is expected to be limited. However, the leaf litter provided by the madrone and the dense understory of salal present in madrone woodlands provide fairly good habitat for salamanders, such as the ensatina (*Ensatina eschscholtzii*) and Northwestern salamander (*Ambystoma gracile*). Pacific chorus frogs (*Hyla regilla*) are the only amphibians that have been documented on the site (King County DDES 2000).

12.4.6 Birds

Maury Island and the project site contain suitable habitat to support numerous species of birds. Twenty-one species of birds have been documented at the project site. Within open and disturbed habitats, white-crowned sparrow (*Zonotrichia leucophrys*), rufous-sided towhee (*Pipilo erythrophthalmus*), and American robin (*Turdus migratorius*) are fairly common. The madrone and mixed Douglas fir/madrone forests support a variety of birds, including orange-crowned warbler (*Vermivora celata*), Swainson's thrush (*Hylocichla ustulata*), and yellow-rumped warbler (*Dendroica* sp.). Pileated woodpeckers (*Dryocopus pileatus*) have been observed in the

mixed Douglas fir/madrone forest and other woodpeckers, such as sapsuckers (*Sphyrapicus sp.*) and hairy woodpecker (*Dendrocopos villosus*), are expected to be present in this habitat type as well.

Raptors, including bald eagles (*Haliaeetus leucocephalus*) and red-tailed hawks (*Buteo jamaicensis*), have been observed on the site and the open areas of the mine provide good hunting habitat. Bald eagles were delisted under the Endangered Species Act (ESA) on 8 August 2007. Bald eagles have been observed perching on the dock and on the hillside trees above the shoreline on and adjacent to the project site. There are no bald eagle nest sites in the immediate area. Four bald eagle nests are located between 3 and 6 miles from the project site. Great blue herons (*Ardea herodias*) forage along the shoreline, particularly during low tides. The shoreline within the project area is likely to be one of many heron foraging areas located along the Maury/Vashon Island shoreline since the nearest nesting colony is more than 2 miles away. Black-crowned night herons (*Nycticorax nycticorax*) and osprey (*Pandion haliaetus*) may occasionally forage or rest on the site, but the site does not contain habitat for these species (King County DDES 2000).

12.4.7 Threatened and Endangered Species

In accordance with Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended federally funded, constructed, permitted or licensed projects must take into consideration impacts to federally listed and proposed threatened or endangered species. Several species protected under the Act are potentially found in the project vicinity. These species are listed in Table II.

Marbled murrelet (*Brachyramphus marmoratus*) is a small coastal seabird found in Puget Sound. These birds feed on small fish and invertebrates in nearshore marine waters. According to the WDFW habitat database, marbled murrelet feed in Quartermaster Harbor on the opposite side of the island from the project site. Marbled murrelet may occasionally feed offshore of the project site. They nest in mature and old growth coastal forest. There is no suitable marbled murrelet nesting habitat present within the project vicinity and suitable habitat does not occur within several thousand feet of the project boundary.

Bull trout (*Salvelinus confluentus*) are native char to the Pacific Northwest and western Canada. Bull trout range includes Puget Sound and associated tributaries. Although bull trout are primarily found in colder streams, they are known to occur in large river systems and in Puget Sound. Anadromous bull trout move into salt or brackish water where they rear in the lower mainstem rivers and estuarine waters. There are no streams with suitable habitat for bull trout on Vashon or Maury Island. Bull trout could potentially occur in the project area.

Puget Sound is a migratory corridor for adult Chinook salmon (*Oncorhynchus tshawytscha*) and provides habitat for outmigrating juvenile chinook from rivers into the Sound before their eventual oceanic phase as adults. Juvenile Chinook salmon habitat includes nearshore areas and open water of Puget Sound. Juveniles could be present in marine water in the project vicinity from March through June, with smaller numbers occurring in July. Spring-run adult Chinook typically return to freshwater in April and May. Summer/fall-run adult Chinook begin freshwater migration in August. The greatest abundance of adults would occur between early

summer and early fall as they return from the ocean to natal streams and rivers. There are no natal streams located on Vashon or Maury Island. The nearest natal stream and estuary is about 6 miles south of the project site. The eelgrass beds and substrate in the project area provide refuge for juvenile Chinook. However, the nearshore area within the project vicinity is primarily used as a migratory corridor for both juveniles and adults Chinook salmon.

Table II. Federally listed threatened and endangered species that may potentially occur in the project vicinity.

Species	Listing Status	Critical Habitat
Marbled Murrelet <i>Brachyramphus marmoratus</i>	Threatened	Designated
Coastal/Puget Sound Bull Trout <i>Salvelinus confluentus</i>	Threatened	Designated
Puget Sound Chinook Salmon <i>Oncorhynchus tshawytscha</i>	Threatened	Designated
Southern Resident Killer Whale <i>Orcinus orca</i>	Endangered	Designated
Steller Sea Lion <i>Eumetopias jubatus</i>	Threatened	Designated (none in Washington state)
Humpback Whale <i>Megaptera novaeangliae</i>	Endangered	—
Leatherback Sea Turtle <i>Dermochelys coriacea</i>	Endangered	Designated (none in Washington State)
Puget Sound Steelhead <i>Oncorhynchus mykiss</i>	Threatened	—

Southern resident killer whales (*Orcinus orca*) are generally found in the water off the San Juan Islands during the spring, summer and early fall, where they are believed to feed almost exclusively on Chinook salmon returning to the area's rivers to spawn. This area is considered to be the core habitat of the southern resident pods. During late fall and winter, southern resident pods typically leave this core area. The K and L pods generally are thought to travel to outside waters, while the J pod is believed to move to the inland waters of British Columbia and Puget Sound in late fall and remain there throughout the winter. However, J pod use is unpredictable within this relatively large area. All pods have been reported off the mouth of the Columbia River during fall and spring Chinook runs. K and L pods use of Puget Sound, including the Vashon-Maury Island area has increased in recent years and may continue to increase. Southern resident pods appear to travel more widely and erratically during years when salmon numbers are relatively low. Peak use of Puget Sound by southern resident pods generally occurs in the months of November, December, and January. Transient killer whales also travel sporadically throughout the Puget Sound. Southern residents use the waters off Vashon-Maury Islands as part of the broader fall/winter area of Washington and British Columbia inland marine waters. Southern residents may occur within or near the project site at any time during the months of October through January; however, the frequency and duration of such occurrences are expected to be low. Critical habitat for the southern resident killer whale has been designated as the

southern residents' entire range in Washington's inland marine waters, including Haro Strait, the Strait of Juan de Fuca, and all of Puget Sound, a total of just over 2,500 square miles. Excluded from this critical habitat area designation are 18 military sites and areas with water depths less than 20 feet deep (based on extreme high water elevation).

Steller sea lions (*Eumetopias jubatus*) occur year-round in Washington waters, but do not breed here. There are no rookeries or large haulouts located in Puget Sound. Although haulouts occur in a variety of areas, individual locations used are specific and change little from year to year. No haulouts have been identified in or near the project area. Steller sea lions feed in open-water habitat from nearshore areas to the edge of the continental shelf. Steller sea lions are not expected to occur in the project vicinity.

Humpback whale (*Megaptera novaeangliae*) sightings are a common occurrence along the Washington coast, with less frequent sightings in the Strait of Juan de Fuca. Inside Puget Sound, sightings are less common, though they do occur. Two sightings (six individuals) were reported off the Seattle shoreline in the late 1970s with other sporadic sightings reported in 1980s. Because of its geographic isolation from migration routes and feeding areas, humpback whales are rare in the project vicinity.

Leatherback sea turtles (*Dermochelys coriacea*) have been reported off the Oregon and Washington coast. The majority of the sightings occurred off the Washington coast in a range of 4.5 to 80 nautical miles offshore. There are no documented sightings within Puget Sound. Critical habitat is associated with breeding areas and does not occur in Washington. It is unlikely that this species would be found in the project vicinity.

Puget Sound steelhead generally refers to the anadromous form of the trout species *Oncorhynchus mykiss*, which includes freshwater rainbow or redband trout. In Puget Sound, the listing applies only to native, naturally spawning anadromous runs with the exception of two hatchery stocks in the Green and Hamma Hamma Rivers. Steelhead, unlike Pacific salmon, may spawn in multiple years. Typically juvenile steelheads out-migrate to salt water from April to mid-May. Based on WDFW database there are two populations of steelhead trout in the central sound. The East Kitsap populations, which is composed of a number of small runs including streams on the west side of Vashon Island and in Quartermaster and Gig Harbors.

The Puyallup River population consists of three native steelhead runs. There are no steelhead bearing streams on the East Passage between the Puyallup and Duwamish Waterway. It is unlikely that juvenile rearing occurs in shallow waters of the project area. Sub-adult and adult steelhead may use the deeper, offshore waters of the project area for migration and foraging, but are not expected to be present in significant numbers at any time.

12.5 Historic Properties

There is no known listed or eligible for National Register of Historic Places, Native American cultural resources sites identified by Washington State, Office of Archeology and Historic Preservation on the project site. A Chinese fishing colony existed on the west side of Maury Island, near Manzanita, and this colony may have included a cemetery. However, information on this colony is limited. The location of any cemetery associated with this colony is unknown. Based on local information there is a potential that a cemetery connected with this colony may be

located near or on the applicant's property. However, no evidence of any cemetery has been found on the applicant's property. The only recorded cemetery on Maury Island is the Maury Island Cemetery was established in 1887, which is located at the corner of SW 256th Street and 75th Street, near the Gold Beach community. This cemetery was also known as the Old Vashon Cemetery and the Penbrock Cemetery. The Point Robinson Lighthouse is located about 3.5 miles north of the project site. The Point Robinson Lighthouse is on the National Register of Historic Places.

12.6 Land Use

At the project site, the uplands and shoreline (the area between the extreme low tide and 200 feet landward of the ordinary high water mark) are owned by the applicant. The shoreline is designated Conservancy under the King County Shoreline Master Program which recognizes resources uses, including mining as an appropriate use (WDNR 2004b). The applicant maintained the Aquatic Lands Lease from WDNR for the existing dock from 1968 through 1999. The applicant applied for lease renewal in 1999 and 2001. The lease application is currently pending. WDNR will not renew the lease until all other local, state and federal permits have been obtained.

The upland portion of the project is designated as a Mineral Resource Area on the Mineral Resources Map of the King County's Comprehensive Plan and is zoned for Mineral uses. Aggregate mining is considered an interim use of the land (Langer 1993). The WDNR regulates reclamation on mineral lands. The applicant is required to implement a reclamation plan for extraction areas and to post a bond to ensure reclamation requirements are met.

The surrounding parcels are zoned as a mix of rural designations with one dwelling unit every 5 to 10 acres. The community of Dockton is located along Quartermaster Harbor about ½-mile northwest of the project site. The Sandy Shores residential community is located along the shoreline adjacent to southern boundary of the applicant's site. Gold Beach, another residential community, is located adjacent to the northern boundary of the site. Current land use densities in Gold Beach and Sandy Shores are 4 to 5 dwelling units per acre and represent development that occurred prior to the current zoning classification (King County DDES 2000).

The Maury Island Aquatic Reserve was established in 2000 by WDNR. The Reserve includes about 5,530 acres of state owned aquatic bedlands and tidelands in Quartermaster Harbor and along the south and east shores of Maury Island from Neill Point to the shores between Point Robinson and Luana Beach. The reserve boundary extends waterward of the mean lower low water to a depth of 70 feet or one-half mile from the line of extreme low tide whichever is farther waterward (WDNR 2004b).

12.7 Noise

According to the King County Noise Code, the project site would be considered an industrial noise source. The project site is bordered by Puget Sound to the southeast, forest in the northwest corner, individual residences to the west and the communities of Gold Beach and Sandy Shores to the northeast and southwest, respectively. For these land uses, the applicable noise limits would be for an industrial source affecting rural residential receivers. The King County Noise Code allows sound level during day in range of 57 to 60 dBA and at night a range of 47 to 50

dBA for rural residential area in February 1998. Existing sound levels were measured at Sandy Shores and Gold Beach communities. Sound levels average 43 to 53 dBA during the day and 37 to 46 dBA during the evening at both locations (King County DDES 2000).

The marine traffic contributed to overall underwater background sound levels through the marine waters in the project vicinity.

12.8 Transportation

Until 2006, the mine operated at a maximum of about 20,000 tons per year for local markets (Vashon and Maury Islands). Truck trips from the mine to local sites on Maury/Vashon Island numbered approximately 500 to 1,000 per year (King County DDES 2000).

12.9 Navigation

The marine traffic in the vicinity of the project includes personal sail and power craft; petroleum, mineral, bulk cargo or container barges; ships carrying bulk cargo, lumber, or containers; log raft tows; passenger ferries; auto ferries; and occasionally petroleum or crude oil tanker or barge. The amount of Seattle/Tacoma commercial traffic that sails east of Maury Island past the site is less than the total traffic to Tacoma and points in south Puget Sound. King County's FEIS marine traffic assessment addressed the areas most likely to receive tug/barges from the mine. These areas included south Puget Sound area, the Tacoma area and the Seattle area. Key commercial shipping passages within the study areas included the Tacoma Narrows, Dalco Passage at the south end of Vashon Island and the East Passage to Elliott Bay. Although some of the tug/barge traffic would travel outside of this area, it was expected that most of the traffic would travel between the Seattle and Tacoma areas via the East Passage (King County DDES 2000).

The U.S. Coast Guard monitors the Vessel Traffic Service (VTS), a radar tracking system for all large vessels and tow vessels in the Puget Sound and the Strait of Juan de Fuca. The Coast Guard can visually observe active traffic on the VTS screen and relay this information to the skipper of marine traffic. The skipper uses this information to make navigation decisions. The Coast Guard does not direct the skipper, except under special or emergency conditions.

East Passage is generally used by larger ships and oil-carrying vessels, as these vessels take advantage of the safety coverage and reliability of the VTS to track their position and to inform them about other ships and potential hazards. Colvos Passage, on the west side of Vashon Island, is not covered by the VTS and is used by smaller ships and slow barge tows. About 13.4 deep draft and tow vessels traveled past the project site each day (King County DDES 2000). VTS Tracking data in 2001⁴ showed deep draft vessels traffic in East Passage to be about 19 vessels per day (Grette Associates, LLC 2006c). VTS Tracking data in 2007⁵ showed that deep draft vessels and tugs with tows average about 18 vessels per day (USCGS 2007).

12.10 Substrate

Bathymetric surveys and substrate sampling were conducted in 1998 and 1999. The bathymetric surveys showed the water depths along the face of the existing dock range from 18 feet at the

⁴ The 2001 vessels traffic information was based on five months of VTS data.

⁵ The 2007 vessels traffic information was based on one month of VTS data.

shallowest, along the trestle, to between 35 and 38 feet at the ends of the dock. There are a series of rhythmic shoreline features, or submerged beach cusps, that run perpendicular to the shoreline. The crests of these cusps are regularly spaced at approximately 300 foot intervals. The trestle of the existing dock is located on one of these crests. These shoreline cusped deposits occur on sand and gravel bottoms (EVA 2000).

The substrates offshore at the project site are primarily sands with some concentrated patches of coarser-grained sediments from gravel, cobble, or rocks on the bottom. A large debris pile, consisting of logs and rocks is located about 50 feet southeast of the dock and extends downslope about 150 feet. A few isolated logs or planks on the seabed to the northeast and southwest of the existing dock. Surface layers of gravel were found along a line extending from the trestle seaward. Along this line but near the dock face, an area of hard bottom with large rocks was found. Similar layers of gravel were found to the northeast and southwest of the dock. The presence of gravel provides a substratum for colonial epifauna, including barnacles, macrophytes and mussels. Many areas have layers of shell or gravel lag deposits typical of areas that experience strong bottom currents. Sediments samples were analyzed for contaminants, including pesticide, polychlorinated biphenyl (PCB), arsenic, cadmium, and lead. All pesticide and PCB concentrations were reported as not detected. There were no detected concentrations of arsenic or cadmium. Measured concentrations of lead and other trace elements were less than the corresponding marine sediment criteria (EVA 2000).

12.11 Soils

The mining at site has resulted in a large horseshoe-shaped excavation covering about 40 acres. The materials that make up the geology of the site include topsoils, underlain by glacial till, sand gravel and rocks. The shallowest materials are classified as Vashon lodgment till and occur in thin pocket near the surface throughout the site. Underneath these thin pockets of till is a deep layer of sand and gravel referred to as Vashon Advance outwash deposits. These are the materials that would be mined. These materials are graded from coarser sand and gravel near the top of the deposit to finer sands near the base. The sands and gravels at the site appear to have been deposited in a historic basin between hills. The mine is near the center of this basin, where a thick sequence of sand and gravel has accumulated. Most of the soils on the site are highly permeable especially near the surface (King County DDES 2000).

The project site is located about 5 air miles from the now-closed Tacoma/ASARCO smelter. During the operation of the smelter (1890 to 1985) fallout containing arsenic, cadmium, lead, and other contaminants were distributed to surrounding areas, including Maury Island and the project site. The smelter facility and the immediate vicinity have been designated an EPA Superfund site but this designation did not include the Vashon/Maury Island area. Direct testing of the project site and previous studies indicate that the top 18 inches of soil, in area of the site that has not been mined, contain arsenic, lead, or cadmium in concentrations above natural levels (see Appendix D for upland mine contaminated soils maps). These three metals are above Model Toxics Control Act (MTCA) residential cleanup values (Chapters 173-340 WAC). Residential cleanup values are 20 part per million (ppm).

Direct testing of soil on the mine site found surface levels of arsenic on the project site to ranged from 330 ppm to not detectable. Surface levels of cadmium ranged from 5.4 ppm to not

detectable. Surface levels of lead ranged from 830 ppm to not detectable. Under MTCA, the limit for arsenic is 200 ppm for industrial areas, the project site is zoned and managed as mine and it is classified by MTCA as industrial area. Of all the samples collected (at surface, 9-inch below and 18-inch below) only arsenic was found in six samples to exceed 200 ppm (these samples were taken at surface and 9-inch below). Maps in showing the levels of arsenic, cadmium, and lead in the soils of the mine are in Appendix E of this document. Direct testing was done on subsurface sand and gravel deposits on the mine site, because these materials will be removed from the mine site. The subsurface sand and gravel deposits on the site contain natural levels of arsenic, lead, and cadmium, based on direct testing of these materials. Natural levels are those that occur naturally throughout the Puget Sound region (King County DDES 2000).

12.12 Environmental Health and Safety

A number of studies have been performed to evaluate the distribution and exposure pathways for contamination left as a result of the smelter operations. These studies are listed in King County's FEIS. The primary risk to people would be direct contact with contaminated soils. The applicant proposed to segregate and isolate contaminated top soils as a cleanup action under MTCA. A cleanup action plan would be developed that would include a soil management plan. During this top soil containment process, dust would be generated. The applicant is required to prepare a dust control plan with additional measures to address the dust generated from contaminated soils. Levels of these contaminants in groundwater at the site and throughout Vashon/Maury Islands are also within natural levels. Surface water on the site is essentially absent. Rain tends to percolate rapidly into the porous sand and gravel deposits at the site. Runoff from the site during heavy rainfall events have been found to have arsenic at naturally occurring background levels (King County DDES 2000). There is no contamination associated with marine substrate at the existing dock location as presented in Section 12.10.

12.13 Aesthetics

The views from the project site for the last 20 years have consisted of primarily the existing gravel pit operation, containing sparse vegetation and open ground on 81 acres. The remainder of the site contains forest, exposed bluffs, and shoreline, including the existing barge loading dock. Visual components of the site vicinity include developed shoreline (Sandy Shores and Gold Beach communities), undeveloped beaches, forested bluffs, and the open water of Puget Sound. The dock has been an idle fixture on the landscape. The two adjacent communities impart black-gray, brown, and white tones amidst the darker tones of surrounding forest areas, the whitish-gray tones of the beach and the variable gray and blue tones of the open water. The existing cleared area of the mine is visible from several locations and can be seen from across Puget Sound on the mainland to the west. The shoreline curves slightly inward toward the site, so that half or more of the site is behind the bluffs and out of sight from many surrounding viewpoints, particularly views from Gold Beach community. Homes within both Gold Beach and Sandy Shores are oriented toward Puget Sound and do not directly face the existing mine and dock. Nevertheless, the mine and dock are major features on the landscape. The overall character of the Gold Beach and Sandy Shore communities is that of a quiet, shoreline community with typical features and activities of residential areas. Sail boats, pleasure craft, kayaks, and other recreational boating occur in the area and commercial ship traffic is visible in the shipping lanes located between the island and the mainland. At night, viewed from the east across East

Passage, the lights of Gold Beach and Sandy Shores communities can be seen. These lights are interspersed among unlit areas, including the existing dock and mining area, and surrounding forested bluffs (King County DDES 2000).

12.14 Economics

Table III presents the general socioeconomic and demographic information for Vashon/Maury Island. Employment statistics show that highest numbers of the Island’s population are professionals working in management, sales, education, health and social services. Many of these professionals commute to Seattle, Tacoma and other areas off the Island via the Washington State Ferry System. Home values on Vashon/Maury Island have gained an average of 20 % in 2005-2006. In 2006, 119 homes were sold at a cost of \$259 per square foot. The median price for a home in 2000 was \$263,400, that price in 2006 was \$435,000. This increase in median price places Vashon/Maury Island in the top 5 fastest appreciating neighborhoods in South Snohomish and King Counties (Rhodes et al 2007).

Population	Median Household Income	% below Poverty line	% Minority Population	Median Value of Housing ⁶	% Homeowners	% Unemployed
10,100	\$58,261	10.6%	8.1%	\$435,000	80%	1.4%

Table III. Selected demographic and socioeconomic information for Vashon/Maury Island.⁷

12.15 Recreation

Maury Island has a number of public recreation sites including Dockton Park, Maury Island Marine Park, Point Robinson Park and Lighthouse and Vashon Golf Course. Dockton Park is located on the north side of the island along Quartermaster Harbor. The park is about one-quarter of mile northwest of the mine site. The park provides picnic areas, hiking trails, swimming beach, a boat launch, and moorage. Maury Island Marine Park is located on the southeast side of Maury Island, along the shoreline northeast of Gold Beach. The park is accessed by walking downhill to the beach from the parking lot. The park is also accessed via the beach for some residents of Gold Beach and Sandy Shores. Point Robinson Park is located northeast of the project site and includes picnic tables, trails, and beach access.

The project site, while private property, has been and currently is used as an informal recreational site by local residents. Access to the site occurs from undeveloped lands through existing dirt roads and informal trails and from the adjacent beaches. The sunken barges, located to the south of the existing dock, are popular for recreational scuba diving. The existing dock has also been used for vessel mooring by recreational boaters. Public access to the site has occurred without the applicant’s permission and is discouraged by the applicant (King County DDES 2000). In recent years, the applicant has installed a perimeter fence to discouraged unauthorized use of the mine site.

⁶ Median Value of Housing is updated using information from Rhodes et al 2007.

⁷ Population and Poverty level estimates are from 2006 King County Annual Growth Report. Demographics on race, employment, income and housing are from 2000 US Census Bureau, Vashon CDP, Washington.

13 ENVIRONMENTAL IMPACT ANALYSIS

The following analysis contains the Corps evaluation of the proposed action. The focus of this analysis is on impacts associated with the marine dock and upland mine of the proposed action.

13.1 Conservation

The applicant has proposed measures to avoid, minimize, and mitigate for potential direct and indirect impacts that the proposed action would have on the shoreline, beach and aquatic resources in the project area. The applicant has extended mining setbacks to 400 feet to ensure that the vegetated shoreline bluffs will remain undisturbed by the mining operations for the life of the mine. The applicant has agreed to extend the proposed dock into deeper water to provide additional protection to the eelgrass beds and nearshore habitat from construction and operation of the new dock.

The removal of 228 creosote treated timber piles in the nearshore area will reduce exposure of fish, including juvenile and adult salmonids, to organic and trace metal constituents of treated wood. The conveyor will be completely enclosed to eliminate spillage in the nearshore area. The applicant will implement two mitigation plans, "Maury Island Barge-Loading Operations (Extended Dock) and "Barge Approach and Departure Protocol" (Appendix C) to reduce the potential for impacts to nearshore habitat and eelgrass beds. These mitigation plans contain both biological monitoring and operational measures to avoid, minimize, and monitor for impacts. Operational measures will be employed to reduce and/or eliminate spillage during loading of barges, including the use of a limit switch on the conveyor to prevent operation when a barge is not in place, only barges with bin walls will be used, only the barge being loaded would be at the dock, use of cable haul-back system to move barges, training of personnel, and video monitoring of loading operations.

13.2 Economics

Economic outputs of the proposed project are potentially linked to the economic health of the region through employee payrolls and its significance as an economical source of basic raw materials. The applicant estimates the mining, reclamation, and dock operations would employ up to about 20 workers at a time. A few more workers from other firms would be employed to operate and maintain the tugs and barges used to transport the aggregate. Prior to 2006 the mine employed about two workers. This increase in employment is inconsequential compared to the hundreds of persons currently employed on Vashon Island and the thousands employed in the Puget Sound region. The employment multiplier for the aggregates industry is approximately 1.8 total additional jobs in other job sectors per aggregate job (PLU 2003). Therefore, the proposed project is expected to minimally affect regional employment income, economic activity and demand for residential real estate.

Possible economic effects pertain to the value of adjoining or otherwise affected real estate. The nearest residences to the project site are along the shore to the southeast (Sandy Shores) about one-third mile (0.37 of a mile) from the dock, and the closest residences to the northwest (Gold Beach) is over half mile away (0.62 of a mile). Northeast of the Gold Beach development is another active gravel mine (Vashon Sand and Gravel) which is less than one-third mile (0.28 of a mile) from the development. Most of the homes in these communities are oriented toward the

waters of Puget Sound. Residential property with water views are particularly attractive in Puget Sound region and have significantly higher values than those without water view.

These residential communities were platted in the mid-1960s and subsequent development occurred during the late 1970s through 1990s. Gold Beach residential development was developed in an abandoned mine site to the northeast of the existing dock and mine site. A few homes were built in the 1970s when mining rates were high and the dock was heavily used. However, most of the homes were constructed from the late 1980s to present day as mining activities declined and the use of the dock had ceased. Some mining activity continued at the site until 2006 to supply aggregate material locally Vashon/Maury Island. The mine and dock has been held in reserve by the applicant until such time that the aggregate material was needed.

Residential property values are subject to multiple variables and isolating the effect of any one variable, such as the nearby presence of an active gravel mine and barge-loading facility, is difficult. A negative location factor could reduce the number of potential buyers and affect property values. The Corps identified and evaluated three factors that could potentially affect property values in the surrounding communities of Sandy Shores and Gold Beach. These factors are noise, dust and view or visual changes that would result from the proposed project.

Noise modeling was done as part of the King County FEIS and based on this modeling the FEIS determined that neighboring communities would likely hear the project but the noise levels would not affect the use, value, enjoyment of the property or the quality of the environment. The existing sound levels at Sandy Shores and Gold Beach communities were measured during the King County EIS process and report to average 43 to 53 dBA during the day and 37 to 46 dBA during the evening at both locations (King County DDES 2000). As comparison of sound level: an air conditioning unit at 20 feet has a sound level of 60 dBA and normal human speech at 15 feet also has a sound level of 60 dBA. The King County Noise Code for an industrial noise source allows sound level during the day to range between 57 to 60 dBA. Since the operation of the mine and dock will occur from 7 A.M. to 7 P.M., the applicant would have to meet King County's allowable daytime sound level of 57 dBA and evening/night time sound levels of 47 dBA for an industrial noise source affecting rural residential receivers. Since the FEIS noise modeling was done the applicant has added a number of mitigation measures that will further decrease sound levels from the dock and mine operations. These mitigation measures include enclosure of the conveyor system, the use of barges lined with wood or concrete, limiting hours of dock operation, increasing the vegetated buffers, construction of noise berm along the western perimeter and northeastern corner of the mine site and monitoring noise levels during operation. Noise from the construction of the dock including pile placement is discussed in Section 13.4.4. A vibratory hammer would be used to install the new piles for the dock eliminating most of the noise associated with construction of the dock. The neighboring communities will hear some noise from the dock and mining activities, but the mitigation measures would result in a reduction of noise levels at or near the existing background levels.

Existing views of the dock would change as the existing dock is removed and new dock is constructed. The proposed dock may appear larger due to the difference in design from the existing structure. The dock's lighting will be visible at night but will be shielded so the majority of the light will be directed onto the dock's surface (See Section 13.3 for more details)

on aesthetics). Most of the neighboring residences are oriented toward the waters of Puget Sound away from the dock and upland mine. The applicant has proposed mitigation measures to reduce the proposed dock's bulky appearance and reduce lighting impacts. These measures include painting the proposed dock a gray-green to help it blend into the background of vegetation and water and orientation of the dock's lights downward on dock's work areas. Marine traffic is a common part of the views of Puget Sound from these neighborhoods. Operation of the proposed project will bring tugs and barges closer to the shoreline and to these residential areas. However, the number of tugs and barges will be limited by the dock's operation to weekdays only, 7 A.M. to 7 P.M. each day. The Corps expects minimal changes in the overall views from the neighboring communities by the operation of the dock and mine.

Dust from the mining and dock operations were addressed in the King County FEIS. The applicant proposed a number of measures to reduce dust from the barge-loading and mining operations. Dust control measures within the mine are discussed in Section 13.4.5 and Section 13.13 of this document. Control measures include wet suppression techniques, curtailment of dust producing operations during periods of high wind, vegetative buffers around the mine site and revegetation of reclaimed areas within the mine will help to minimize fugitive dust. The applicant will also monitor the air quality including fugitive dust at the mine's property lines. Dust control measures for the barge loading facility include enclosure of the conveyor system and use of telescoping spout with retractable chute and spoon for the placement of the aggregate material into the barge. The Corps expects dust from these activities would be controlled so as not to increase fugitive dust levels beyond the perimeter of the site.

Minimal changes in noise and dust would occur with increase of operations at the project site. Minor visual changes would occur but the overall views from the existing homes will be similar. The Corp expects minimal, if any, impacts to property values and that water view homes in these communities would continue to be attractive to buyers.

The proposed project will help to meet the regional market demand for sand and gravel. These types of aggregates are critical to the overall economy of the region particularly in the industrial, housing, and transportation sectors. A review by the Corps shows that these resources are limited relative to potential future demand in the region, particularly from sources in close proximity (i.e. economical) to consumers.

13.3 Aesthetics

Photographs, models of future appearances and a detailed description of visual impacts relative to existing conditions are contained in Chapter 11 of the King County's FEIS (King County DDES 2000). Views of the mine and shoreline from the surrounding areas, including Gold Beach and Sandy Shores, would change in steps as the dock is replaced and mining proceeds. The changes can be classified as changes in topography, surface cover (vegetation, exposed materials), activity levels, and views from across Puget Sound.

While views of the sight would undoubtedly change, the overall impact is limited because views from a large number of residences in the area are oriented toward the water rather than the dock and mining area, retention of existing bluffs will tend to obscure views of the mine by shoreline residents, and vegetation will be re-established in disturbed/mined areas.

While the dock will extend between 82 feet to 104 feet further waterward than the originally permitted dock, the new dock will be painted a gray-green color which will reduce its bulky appearance and help it blend into background of vegetation, water, and shoreline communities. The new dock will appear larger than the existing dilapidated structure because the dock would sit high off the water surface than the existing dock, the new conveyor system would be totally enclosed instead of the existing open air structure that allows the observer to see existing landscape through the structure. The new dock extends further offshore bringing more of the new structure into view from beach north and south of the existing structure. The limited operating hours, 7:00 A.M. to 7:00 P.M., Monday through Friday, would also help minimize visual activity and light glare impacts. Lights would be visible to some residents in Sandy Shores and Gold Beach, but would not be considered bright or intrusive because most viewers' residences do not face the proposed dock, and would be about 2,000 feet away.

13.4 General Environmental Concerns

13.4.1 Substrate

Inter- and sub-tidal substrate in the project area surrounding the proposed dock would be disturbed by removal of the existing piling, placement of new piling, and tugboat operations. Pile removal and driving from a barge would disturb roughly 0.1 of an acre of primarily fine sand and silt substrate. This is the total area of two square-foot disturbance areas around each of 228 creosote-treated wood piles as they are removed and lifted out of the water onto a barge. Any depression left in the substrate would be backfilled with clean pea gravel or sand. Removal of the old piles would remove a source of potential creosote contamination of the substrate. A few square feet of additional predominately fine sand and silt substrate also would be disturbed around each of 56 new 24-inch diameter steel piles that would be installed. The anchors or spuds placed on the substrate to stabilize the barge during extraction and driving of piles would also disturb substrate in the immediate area of the spuds. Disturbances from these activities would be limited in extent and minor in nature.

Tugboats would operate in 40- to 80-foot deep (MLLW) water which would generate turbulence that would suspend finer sediments, should the tug propeller be directed toward the shoreline. Two studies of propeller wash effects were conducted for the proposed project (Jay, D.A 2002; PIE 2002b). These studies were independently reviewed through the King County's SEPA processes. The Corps reviewed King County's findings and agreed that the true near bottom velocity and its effect on bed scour and turbidity have not been conclusively determined (Jones & Stokes 2003; King County DDES 2004).

The current proposed location of the dock would avoid serious disturbance of the substrate across the site and particularly in the vicinity of the eelgrass. The applicant's use of a fully enclosed conveyor system including telescoping spout, manual limit switch and haul back system is expected to prevent most incidental and accidental discharges of aggregate that could affect the substrate.

To ensure that any impacts to substrate from project operation are identified, the applicant has proposed bathymetry surveys be conducted prior to construction and at one year intervals for the first four years after project construction. After the first four years the surveys would be done

every other year (Appendix C). The potential biological effects of increased turbidity and scour are discussed in other sections below.

13.4.2 Soils

The proposed upland mining operation would result in modification of topography of the project site. The operation would include the removal of upland vegetation, segregation of topsoil and extraction of the sand and gravel. Bulldozers would excavate sand and gravel by pushing the excavated material onto a collection feeder; the feeder would load a conveyor belt which would deliver these materials to the waiting barge at the end of the loading dock. The top soil would be stored in containment cells on the project property.

The applicant proposes to segregate and isolate the topsoils containing arsenic, lead and cadmium concentrations above industrial cleanup levels. The contaminated soils would be managed in a separate phase of the cell as a Cleanup Action under MTCA. A draft Cleanup Action Plan was developed that would include a soils management plan. A number of measures are presented in Chapter 3 and Chapter 10 of the King County's FEIS. The measures include a lined and covered containment cells and limiting soil clearing operations to 2-acre parcels at any one time. No topsoils would be removed from the site. The containment cell would be built in phases to match the mine operation. The Chapter 10 of King County's FEIS and Appendix C of the King County's DEIS contain a detailed discussion on contaminated soils on the site and the applicant's Cleanup Action plan. The Washington Department of Ecology and King County have jurisdictional authority and oversight of the applicant's Cleanup Action including location and construction of containment cell berm (King County DDES 2000).

The applicant estimates that the mine would operate for approximately 4 to 5 years before mining any portion of the site that contains contaminated surface soils.

Water that collects in the containment cell would be monitored for contamination, treated and infiltrated. Groundwater and stormwater are addressed in Section 14.11 Water Supply and Conservation and in Section 14.12 Water Quality of this document.

The proposed mining activities could result in local unstable slopes within the mine. These slopes would be part of the active mine face and would be trimmed to prevent failure and ensure worker safety within the active mining. As part of the reclamation, the slopes would be trimmed to a final slope incline of about 2:1 slope. Calculation of slope stability would account for the effects of the proposed contaminated soil containment cell that would be constructed along the top of the mine.

The shoreline bluffs on Maury Island are an important source of sediment for the long-shore drift cell. The original proposal, as discussed in the King County FEIS, would have removed most of the bluffs and would have had a negative effect on the long shore drift patterns. However, the applicant has increased the buffers from 50 feet to 400 feet along the shoreline thereby protecting the shoreline bluffs (see Figure 2). The 400 foot buffers will allow the bluffs to continue to provide material to the beach as part of the natural process and the seasonal seeps associated with these bluffs are not expected to be affected by the mining activities.

Measures proposed by the applicant such as large buffers, mining in phases, and long-term reclamation will mitigate for many of the topography modification within the mine site. Ecology's and King County's oversight of the contaminated soils and slope stability within the mine site would ensure the impacts from mining operations will be limited to 155 acres within the mine's boundaries. The Corps does not expect topography changes within the mine to threaten the stability of the surrounding land.

13.4.3 Currents and Circulation

The density of pilings, dolphins, berth-facing structures, and berthed barges is low and limited in extent that it would have a negligible effect on littoral currents, drift cell sediment flow patterns, and wave erosion/deposition patterns. The Corps expects minimal changes in current patterns or circulation as a result of the project.

13.4.4 Noise

The main sources of project-generated noise would be the operation of pile driver and other construction machinery during construction and tugboats and gravel loading/conveying equipment during project operations. Noise associated with construction and operations were analyzed in the King County FEIS (King County DDES 2000) and EIS addendum (King County DDES 2004). Noise impacts on ESA listed species and forage fish has been analyzed and documented in the biological evaluations and addenda and in USFWS and NMFS concurrence letters as part of the ESA Section 7 consultation (Section 13.8 Sensitive, Threatened and Endangered Species).

The applicant proposed a number of mitigation measures to avoid and/or minimize noise impacts during construction of the dock. A vibratory hammer would be used to install the new piles. Noise impacts on fish have not been observed in association with vibratory hammers. However, for piles to reach a load bearing depth pile proofing with impact hammer may be necessary. Because impact hammers are known to impact fish, the applicant has proposed the use of bubble curtain to attenuate underwater sound. The proposed bubble curtain has been designed to reduce the noise from the driving of the 24-inch steel piles. Other underwater noise from dock operation would include engine noise generated by tugboats and noise resulting from aggregate landing on barge deck. Barge loading noise would either dissipate into the air or be muffled as aggregate accumulates in the barge. The initial noise produced from aggregate landing in an empty barge would result in fish moving away from the source of the sound. This behavioral response would be short-term and temporary and would be reduced by the applicant's proposed mitigation of using barges lined with wood or concrete. The applicant proposed several measures to address underwater noise from dock operations which include extending the dock farther from shore this would allow for some noise attenuation in the nearshore areas, reducing engine noise generated by tugboats through use of barge haul-back system and restricting dock operations to 7 A.M. to 7 P.M., five days a week.

Construction and operations noise was evaluated for nearby locations, including the communities of Sandy Shores and Gold Beach in the King County's FEIS. The analysis took into account changing topography, topographic and berm barriers, noise attenuation over distance, effects of wind and other meteorological conditions on noise transmission. The noise analysis also included an evaluation of noise levels that would be produced by the proposed construction and

mining activities including noise from barge loading, tug engines, conveyor operation, front loader and bulldozer (King County DDES 2000). The applicant proposes the use of a fully enclosed conveyor system instead of the open-air conveyor system used in the noise analysis. This change would reduce noise impacts (especially squeaking sounds) from those indicated in the noise analysis. Even with sporadically higher noise levels from revved up engines straining under a load, outside air-borne noise levels would be only slightly above existing daytime noise levels and no more intrusive than noise from local traffic and neighborhood activities for the residents of Sandy Shores and Gold Beach. Pile proofing noise may be loud enough to be heard by neighboring communities along the shoreline to the south and north of the project site. However, this would occur sporadically during daylight hours for a few moments at a time only within an approximately 2-week construction period. Vibratory hammers generates much less intrusive noise levels than impact hammers and also would be used for only about a 2-week period. Nighttime noise levels are expected to be the same as the existing background conditions because the applicant would limit construction and operations activities to the hours of 7 A.M. to 7 P.M. Construction noise is exempt from King County noise standards during the daytime (King County DDES 2000). Operation noise is expected to be within applicable noise limits for an industrial source during the day (King County DDES 2000 & King County DDES 2004).

Sound sources associated the mining operation would include bulldozers and/or loaders used to mine materials, loaders to load material into a hopper feeding the conveyor system, and trucks delivering materials to and from the site. These activities would occur during daytime hours and would have to meet King County's allowable daytime sound level of 57 dBA for an industrial noise source affecting rural residential receivers. The mine would operate from 7 A.M. to 7 P.M. Monday – Friday and 9 A.M. to 6 P.M. on Saturdays. The applicant has expanded the site buffers along the northwest and southeast perimeter from 50 feet to 400 feet to reduce noise and increase screening provided by existing topography (see Figure 2). The applicant would construct a 12-foot berm or sound wall along the western perimeter and in the northeastern corner of the site to ensure that there would be a barrier between operating equipment and nearby residences. Strobe lights would be used instead of audible alarms for back-up warning devices during times of early morning or early evening darkness. (King County DDES 2000).

13.4.5 Air Quality

The proposed project would generate little direct impact on air quality as the only emissions source would be a tug boats and construction equipment including pile driving equipment. Indirect impacts would also be minimal as the principal potential emission would be fugitive dust from where the aggregate drops into the barge. These emissions would be minimal because the conveyor would be entirely enclosed and the telescoping spout would minimize exposure of sand (aggregate) to the wind as it drops into the barge. Tugboats would generate somewhat higher quantities of carbon and nitrous oxides, and particulate matter, but would not by themselves cause exceedances of ambient standards or given that the proposed project would indirectly generate up to 2,080 possibly new vessel movements compared to the more than 100,000 vessel movements that occur in the Seattle-Tacoma area annually⁸.

The current levels of particulates in the project area are considered be low due to the rural environment. The proposed mining operation would generate some particulates as emissions

⁸ New vessel movements are based on 8 tug/barge trips per day in a five-day work week for 52 weeks in one year.

from equipment and dust. Dust would be produced by extraction operations and cleanup activities. Dust from these activities would be controlled so as not to increase the existing levels of particulates at the perimeter of the site. The applicant would implement air emission control methods including wetting, material covering, and controlled excavation methods. The applicant would also take additional measures to address potential impacts from dust generated from disturbance of contaminated soils. A dust monitoring plan would be implemented and would include the monitoring of ambient air quality on the property perimeter during contaminated soil cleanup activities. These additional measures are presented in Chapter 10 of the King County's FEIS (King County DDES 2000). Air quality action levels would be used as an indicator of the effectiveness of onsite emission control methods used during excavation and cleanup activities. Action levels for the potential air pollutants monitored would be established in conjunction with the Puget Sound Clean Air Agency, King County Health Department, and Washington State Department of Ecology.

13.4.6 Special Aquatic Sites

Special aquatic sites are defined in 40 CFR 230.400-45 as wetlands, mudflat, coral reefs, pool and riffle area, vegetated shallows (eelgrass), sanctuaries and refuges. The upland mine does not contain wetlands or any other special aquatic sites. The proposed dock would not directly impact any special aquatic site, including eelgrass.

Construction impacts to eelgrass areas will be avoided by marking these areas with buoys and ensuring that construction barges will not anchor or spud in or near two eelgrass areas. Indirect impacts could result from the tugboat propeller wash scouring in two eelgrass areas that are located about 104 feet to 120 feet landward of the proposed berth face.

To reduce and avoid potential impacts from propeller wash and shading the applicant has moved the face of the proposed dock about 104 feet to 120 feet waterward of the eelgrass and nearshore habitat. Shading impacts would be further reduced by the use of 75% open steel grating on the dolphin's platforms and grated catwalk connecting the seven dolphins.

The applicant has proposed procedures and monitoring of tug and barge movements as detailed in the "Barge Approach and Departure Protocol" (Appendix C) to avoid and minimize the potential for adverse impacts to the eelgrass areas and nearshore habitat.

The applicant has also agreed to construct and use a cable haul-back system to move the barge during loading, thus further minimizing the need to operate tugs in the vicinity of the eelgrass. These proposed procedures would allow the water column to dissipate much of the prop wash energy, would help ensure the prop wash turbulence is directed toward deeper water parallel to the shore most of the time, and except under severe weather conditions, would maintain more than 100 feet between prop and eelgrass reducing the velocities around the eelgrass to below the damage threshold. The applicant would install current meters to monitor propeller wash velocities from tugboats operation at or near the dock for an initial period of six months or until 50 barges have been loaded at the site.

The applicant has proposed pre- and post-project annual eelgrass monitoring and macroalgae surveys of the project site (Appendix C). Pre-project annual eelgrass monitoring was

implemented by the applicant in 2001. Based on eelgrass monitoring from 2001 through 2007, eelgrass distribution in the project area is limited by physical conditions including 1) slope: colonization has not occurred in areas with a slope greater than 30%; 2) wave action: colonization has not occurred shoreward of -3 feet MLLW; and 3) light: colonization has not occurred between -12 feet and -16 feet MLLW (Grette Associates LLC 2006c and 2007).

Post-project annual eelgrass monitoring and macroalgae surveys and propeller wash monitoring are expected to identify any impacts from the operation of the project, including any propeller wash scouring. Changes to "Barge Approach and Departure Protocol" plan would happen based on information obtained from the propeller wash and eelgrass monitoring and additional mitigation for identified impacts would be required by local, state and federal agencies.

13.5 Historic Properties

No historic properties have been identified within the project area. The Corps has determined that no historic properties will be affected by the proposed project because the permit area has been extensively modified by modern development that little likelihood exist for the proposed project to impinge upon an undisturbed historic property.

13.6 Terrestrial Habitat and Wildlife

Chapter 5 "Terrestrial Plants and Animals" from the King County's FEIS (King County DDES, 2000) is incorporated by reference. The proposed dock would result in the acceleration of terrestrial mining impacts. The mining would proceed with the clearing of phase 1 and 2, up to 48.4 acres of forest at one time. Mining phase 3 consists of 30.6 acres, phase 4 and 5 consist of 40.3 acres and phase 6 consists of 21 acres. A total of 155 acres would be mined under the applicant's proposed grading plans and about 8.4 acres would continue to be used for topsoil containment (Appendix E). As these mining phases are completed, reclamation activities would occur. Reclamation would include final contouring and topsoil replacement then revegetation with native grasses, shrubs and tree species. The applicant's revegetation plan includes the re-establishment of 64.7 acres of slope madrone forest and 90.3 acres of Douglas-fir mixed forest in the mining phases. Grasses introduced at the completion of the mining activities would likely become re-established over larger parts of the mined area. Approximately 51 acres of madrone and madrone mixed forested habitat and 15.9 acres of shrubland would be preserved in the vegetated buffers surrounding the site. The shoreline bluffs are included in the vegetated buffers and these areas would continue to support some wildlife. Unmined phases would continue to provide habitat until such time as they are cleared for mining. Clearing of each mining phase would remove wildlife habitat and would reduce other forest benefits, including oxygen production.

Habitat would be gradually removed over the life of the mine followed by revegetation on reclaimed areas. Reclaimed areas would provide different habitat values, depending on a number of factors including slope, exposures, surrounding vegetation and reclamation treatments. Infiltration ponds would be reclaimed as moist-habitat communities that would support amphibian use. Reclaimed areas would be productive in terms of plant growth and diversity. The site after reclamation would provide wildlife habitat for a variety of species. The vegetated buffers and proposed slope madrone forest would continue to provide habitat similar to what exist today.

Noise from mining activities would cause some wildlife to leave or avoid adjacent habitats that would otherwise be suitable. Animals that occur in and around the existing developments on Maury Island would likely be the same species that would occur near the activities at the mine. The 400 foot forested buffers along the shoreline bluffs and the 200 foot buffers along the shoreline at the dock will provide both a visual and noise screen between the upland mining operation and the beach (Figure 2).

The loss of wildlife habitat would occur at a higher level but would be limited to a maximum of 64 acres at any one time. Wildlife would move away from the areas of active disturbance into the undisturbed areas of the applicant's property and adjacent property. These undisturbed areas would continue to provide cover and feeding for wildlife. Although the variety of mammals, birds, reptiles and amphibians that use the site would continue, populations of these animals may decline as other suitable habitat sites may be at or near carrying capacity and these animals would be required to compete for already limited resources. Less mobile animals such as small mammals, amphibians, reptiles, and young animals could perish during vegetation removal operations. As reclamation of mining phases is completed and vegetation regrowth occurs, wildlife would begin to repopulate these areas. There would be temporal loss of forest habitat between mining phases and reclamation. The mining operation has and would continue to have long-term, adverse impacts on wildlife habitat within the boundaries of the mine.

The project would result in direct adverse impacts to wildlife populations at the project site. Mitigation measures such as creation of buffers, mining in phases, and long-term reclamation will assist in minimizing impacts over the long-term. The types of habitat and wildlife found at the project site are beneficial but are not rare to Maury or Vashon Island or to the Puget Sound area. Corps expects impacts to localized populations of wildlife. However, the Corps does not expect these populations to be threatened and will likely recover over time. The mitigation efforts will assist in this recovery.

13.7 Aquatic Habitat and Marine Organisms

The biological effects of construction noise and impacts on substrate are discussed in Section 13.4.3 Noise and 13.4.1 Substrate. Biological effects of construction and operation activities on ESA listed species and forage fish have been analyzed and documented during ESA Section 7 consultation (Section 13.8). Permit conditions have been included in State and local permits, including Washington Department of Fish and Wildlife's Hydraulic Project Approval and King County shoreline permits, to protect juvenile salmon and forage fish spawning. Essential fish habitat impacts for groundfish, pacific salmon and pelagic fish were assessed and addressed through ESA Section 7 consultation.

Construction activities would kill or displace benthic and epibenthic organisms at all depths and locations where the pile removal and driving physically alter the substrate. Benthic and epibenthic organisms including macroalgae and any eggs that might be present from fish known to spawn in the general vicinity (such as lingcod and Pacific cod) could be smothered or otherwise affected by particulates and turbidity generated by the disturbance. Between 0.1 and 0.2 of acre of benthic/epibenthic could thus be adversely affected. These effects would be temporary as recovery of benthic/epibenthic populations would occur within a few years.

Macroalgae surveys would be conducted pre- and post- construction to monitor for potential unanticipated impacts. Removal of the existing pier and pilings would also result in a loss of habitat provided by 228 old pilings. Organisms described in the Section 12 that utilize this habitat would either die or be displaced. Some of the reef fish species are State-listed sensitive species and some of the reef fish species prey on salmonids listed under the ESA. Eventually, the habitat would redevelop around the new (but fewer) steel support piles. Placement of one set of piles (support bent) for the conveyor may require placement of anchor or spuds for the construction barge on the upper intertidal beach where sand lance and surf smelt eggs may be present. Impacts would be avoided by monitoring for the presence of eggs and temporarily halting of construction work on the beach when eggs are present.

The geoduck tract 10150 is located on the southeastern shoreline of Maury Island. The project site covers about 1 percent of the 149-acre track. Geoduck harvesting impacts are not expected during construction as this tract was harvested in 2002 and 2004. The largest impact of the commercial geoduck fishery is the removal of a large sessile biomass as natural recovery is believed to take an average of 40 years (WDNR 2004b.). The proposed work will not result in the removal of geoduck biomass.

Harbor seals and porpoises may temporarily avoid the project vicinity during in-water construction activities. Once in-water construction is completed these mammals would be expected to return to the project area.

Tugboat propeller wash can scour the substrate, generate bubbles that reduce light penetration, and generate turbidity that can (positively and negatively) affect feeding and other activities. The potential for scouring on eelgrass is discussed in the Section 13.4.5 entitled Special Aquatic Sites. Benthic and epibenthic organisms in the intertidal zone are not likely to be impacted by the tugboat operations due to the operational measures proposed by the applicant (Appendix C). The impact of prop wash on benthic organisms at or waterward of the dock face is unknown, but is likely to be minimal given the adaptability of most local bottom dwelling species to turbulence characteristic of intertidal zones. Silt, fine sand and organic materials would likely be suspended by the propeller turbulence during periods of tug and barge arrival and departure, but substrate elevations would not change appreciably. Much of the particulate matter and turbidity caused by tug and barge arrival and departure would settle out during intervening periods (King County DDES 2000). Juvenile salmon, and the eggs and larvae of herring and other forage species of fish are adapted to suspended sediment and turbidity exposure (King County DDES 2000). In 30 years of monitoring, the WDFW observed herring spawning in the site vicinity only once and within 1000 feet only twice. Surf smelt eggs from one fish were identified within 500 feet of the project area in 2005 (Grette Associates LLC 2006b). Therefore, any biological effects of tugboat operations are likely to be minimal.

Shading would have a minimal effect because shadow cast by the dock structures, barge and tugboat would be over 40- to 60-foot deep (MLLW) substrate where direct and diffuse light are too dim to support algae and eelgrass. Shading effects of the 12-foot diameter conveyor tube and support structures would be negligible because the structures would be elevated 25 feet above the MHW level and have a narrow light-blocking profile. The offshore portion of the dock structure

would include an area about 9-foot by 9-foot over each dolphin with decking of open-grated steel with 75% open area. An aluminum catwalk with grating will connect the seven berthing dolphins. The open-grating decking will reduce shading effects of dock structure. The extended dock will move the barges into deeper water and limiting of one barge at a time at the dock would substantially reduce the time a barge will cast a shadow.

The risk of aggregate spillage during barge loading as a result of operator error and/or equipment failure has been reduced by the applicant's proposed mitigation plan which includes an enclosed conveyor system, manual limit switch, barge haul-back system, telescoping spout, personnel training, and video monitoring. If a discharge were to occur, these control devices would help ensure that discharge would be small. The probability of a large dock-side spill due to a loaded barge overturning or sinking is low based on the applicant's long history of mining and barge handling operations in Puget Sound (Three barges have sunk in transit, one in Elliott Bay, one in Colvos passage and one in Lake Union. Another barge buckled during unloading at Harbor Island in Duwamish River). Noise impacts are discussed in Section 13.4.3. Tug and barge movements are not expected to adversely affect bottom and pelagic fish (including salmon, rockfish, walleye Pollock and forage fish) or marine mammals (such as harbor seals and porpoises) as these fish and marine mammals would move to avoid tugboats and barges. Project operations are not expected to impact or interfere with any future harvest of geoducks along the southeast shoreline. Artificial light impacts on marine organisms would be minimal due to limitation of operating hours of 7 am to 7 pm and light fixtures will be shielded to direct light at the loading area, reducing the amount of light that spills out over the water.

13.8 Threatened and Endangered Species

The ESA listed species that may potentially occur in the project vicinity are presented in Table II in Section 12.4.7 "Threatened and Endangered Species".

ESA consultation for the proposed project occurred over a period of six years from August 2000 through January 2007. The biological assessments and addenda and Corps' Memorandum for Service (MFS) provide supporting documentation to the Corps determinations, including description of potential impacts on these species from both construction and operation of the project, and agencies concurrence letters which are part of the permit file. In response to public comment during the King County permit process and as part of the Corps' consultation process with U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS), the applicant has incorporated numerous conservation and mitigation measures into the proposed project design and operation. The measures are detailed in documents submitted by Northwest Aggregates, reviewed and approved by the Corps, and reviewed by NMFS and USFWS during consultation (PIE 2002; Grette Associates LLC 2002, 2003, 2003b, 2005, 2006, & 2006bc; Hall 2005 & 2006). A detailed consultation history is presented below and includes the Corps' effects determinations.

The applicant submitted a Biological Evaluation (BE) for the dock repairs in August 2000. In response to the Corps comments on this BE and further modifications to the proposal, the applicant provided several revised BEs. By letter dated 12 September 2002, the Corps requested USFWS and NMFS initiate formal consultation on the project and provided the both agencies with Corps Memorandum for Services (MFS) and the revised BE entitled "*Draft Biological*

Evaluation for Maury Island Dock Repair” dated 2 June 2002 (PIE 2002). The Corps’ MFS (Corps 2002) included the following effects determinations:

- Puget Sound chinook: “likely to adversely affect”;
- Bull trout: “likely to adversely affect”;
- Bald eagle: “not likely to adversely affect”;
- Steller sea lion: “not likely to adversely affect”;
- Marbled murrelet: “not likely to adversely affect”;
- Humpback whale and Leatherback sea turtle: “no effect”.

On 26 October 2002, the proposed project was again modified by the applicant and the Corps requested that the Services (USFWS & NMFS) place the formal consultation process on hold until the BE addendum could be provided by the applicant. The applicant provided a BE addendum entitled “*Biological Evaluation & Essential Fish Habitat Assessment Addendum for Maury Island Dock Repair*” dated 17 December 2002 (Grette Associates LLC 2002). This addendum incorporated new conservation measures and a revised project description and drawings. The addendum was reviewed by the Corps and comments were provided to the applicant by letter, dated 19 March 2003. The applicant responded to the Corps comments by providing a second addendum to the BE & Essential Fish Habitat (EFH) assessment, dated 1 April 2003 (Grette Associates LLC 2003). The Corps prepared a MFS, dated 22 April 2003 (Corps 2003) and requested the Services re-initiate formal consultation by letter dated 9 May 2003 for the revised project. The Corps’ MFS included the following effects determinations:

- Puget Sound chinook: “likely to adversely affect”;
- Bull trout: “not likely to adversely affect”;
- Bald eagles: “not likely to adversely affect”;
- Steller sea lion, and Marbled murrelet: “not likely to adversely affect”;
- Humpback whale and Leatherback sea turtle: “no effect”.

During the consultation process the project was again modified and included additional SEPA review concerning potential prop wash affects. The applicant also provided additional conservation measures. Information on bubble curtain design (Grette Associates LLC 2003b & 2003c) was provided by the applicant directly to Services. NMFS provided a concurrence letter dated 10 February 2004. The NMFS’ letter stated that based on the modification to the proposed project since its original design, NMFS determined the project will not likely to adversely affect threatened Puget Sound chinook. A Memorandum from the Corps to USFWS dated 16 March 2004 (Corps 2004), changing the Corps determination of likely to adversely affect to not likely to adversely affect for bull trout was provided to USFWS per their request. Based on the MFS (Corps 2003) and Memorandum to USFWS (Corps 2004), USFWS concurred with the Corps’ determination of not likely to adversely affect for bull trout, bald eagle and marbled murrelet by letter dated 8 April 2004 (USFWS 2004).

In June and November of 2004, critical habitat was proposed for bull trout and chinook salmon by USFWS and NMFS, respectfully. In December 2004 NMFS proposed listing of the southern resident killer whale. As a result of these proposed listings, the applicant began working on BE addenda in February 2005. On 14 April 2005, the applicant provided two BE addenda entitled “*Biological Evaluation Addendum for Bull Trout and Chinook Salmon Critical Habitat*

Evaluation", dated March 2005 (Grette Associates LLC 2005) and "*Biological Evaluation Addendum for Southern Resident Killer Whales*" dated 11 April 2005 (Hall 2005).

The Corps reviewed these addenda and prepared individual letters to NMFS and USFWS, both dated 29 April 2005, requesting conference on proposed critical habitat for bull trout and chinook and proposed southern resident killer whales and requested consultation if the species is listed or critical habitat is designated during consultation. The Corps agreed with effects determinations in the addenda:

- Southern resident killer whale (proposed): "no jeopardy to the continued existence";
- Southern resident killer whale (if listed): "not likely to adversely affect";
- Puget Sound chinook critical habitat (proposed): "no destruction or adverse modification";
- Puget Sound chinook critical habitat (if designated): "not likely to adversely affect";
- Bull trout critical habitat (proposed): "no destruction or adverse modification";
- Bull trout critical habitat (if designated): "not likely to adversely affect".

NMFS, by letter dated 21 June 2005, concurred with our determinations on proposed critical habitat for chinook and proposed southern resident killer whale (NMFS 2005). Critical habitat for chinook was designated on 2 September 2005 and critical habitat for bull trout was designated on 26 September 2005. USFWS concurred with our determination on critical habitat for bull trout, by letter dated 19 December 2005 (USFWS 2005).

On 19 April 2006, the Corps received comments from the public concerning information presented in the applicant's BEs. In response to these comments, the Corps recommended in letter dated 9 May 2006 that the applicant address the public's comments on southern resident killer whale, updated forage fish information based on WDFW recent survey of the project area, evaluate impacts to the proposed listing of critical habitat for southern resident killer whale, and the proposed listing of Puget Sound steelhead. On 16 June 2006, NMFS proposed critical habitat for southern resident killer whale. The applicant provided an BE addenda for steelhead, dated 13 June 2006, and Southern resident killer whale, dated 15 June 2006, and Forge Fish information dated 14 June 2006 (Grette Associates LLC 2006). These addenda included the applicant response to public comments received in April 2007. The Corps reviewed and provided comments on these addenda to the applicant in July 2006. Revised addenda, entitled "*Biological Evaluation Addendum – Evaluation of Effects on Southern resident killer whales*", dated revised 17 July 2006 (Hall 2006), and "*Biological Evaluation Addendum: Steelhead*", dated 13 July 2006 (Grette Associates LLC 2006c), were provided by the applicant on 17 July 2006.

By letter, dated 18 August 2006, the Corps requested NMFS to complete an informal consultation on proposed listing of Puget Sound steelhead and re-initiate informal consultation on the killer whale and its proposed critical habitat. Included with this consultation request was the additional information on forage fish at the project site. The Corps' MFS, dated 17 August 2006, included the following effects determinations (Corps 2006):

- Puget Sound chinook: "not likely to adversely affect";
- Puget Sound steelhead (proposed): "not likely to jeopardized the continued existence of the species";
- Puget Sound steelhead (if listed): "not likely to adversely affect";

- Southern resident killer whale: “not likely to adversely affect”;
- Southern resident killer whale critical habitat (proposed): “not likely to destroy or adversely modify”;
- Southern resident killer whale critical habitat (if listed): “not likely to adversely affect”.

By letter, dated 6 November 2006, NMFS confirmed their concurrence with our determination on chinook after review of the additional forage fish information (NMFS 2006). NMFS also concurred with our determination of not likely to adversely affect for southern resident killer whales and not likely to adversely modify or destroy proposed southern resident killer whale critical habitat.

NMFS designated critical habitat for southern resident killer whale on 29 December 2006. In anticipation of this designation the Corps, by letter dated 21 December 2006, requested that the NMFS re-initiate consultation for critical habitat and concur with our determination of not likely to adversely affect designated critical habitat for southern resident killer whales. By letter dated 19 January 2007, NMFS concurred with our determination (NMFS 2007).

Puget Sound steelhead was listed as threatened species under ESA on 11 May 2007. In responses to this listing, the Corps requested that NMFS re-initiate consultation and concurrence with Corps determination of not likely to adversely affect for Puget Sound steelhead by letter dated 14 May 2007. By letter dated 6 June 2007 NMFS concurred with our determination (NMFS 2007b)

The six-year evaluation of ESA species covered listing of new species, many changes in the project, and incorporation of new information when available. The final results constitute a thorough and exhaustive consultation process. The Corps is satisfied that the ESA species issues and concerns have been addressed.

13.9 Land Use

Regulations at 33 CFR 320.4(j) indicate that primary responsibility for determining zoning and land use matters rests with state and local governments. The Corps is directed to accept decisions by such governments on land use matters unless there are significant issues of overriding national importance. The Corps has not identified any such issues that are in conflict with local land use decisions. The proposed project site is designated in the King County Comprehensive Plan as a mineral resource site. The site is also zoned as mineral under King County zoning code. The County has confirmed that the proposed project including the dock and associated mining would be consistent with County requirements for mineral resource sites by issuance of a King County Shoreline Substantial Development Permit and Shoreline Conditional Use Permit, dated 16 June 2005 and King County Grading Permit (renewed) dated 6 July 2007.

13.10 Navigation

The proposed project would result in a maximum of eight trips (6,000-ton barges) per weekday in the dock vicinity and East Passage with most departures destined for Seattle, Everett, and Tacoma. Very few, if any, trips would continue beyond central Puget Sound. The applicant has stated that the majority of barges would be 6,000-ton, with occasional use of 4,500 tons, 10,000-

ton and 2,500-ton barges. With the limited barge loading hours and days of operation, a maximum of two 10,000-ton barges, or four 4,500-ton barges or five 2,500 ton barges could be loaded per day. The size of barge used, limited hours of operation, and market demand will play a large part in the number of crossings that would actually occur each day. The dimensions of barges from the different size classes can vary from barge to barge. Typically, a 4,500-ton barge is about 200 to 260 feet long and about 54 to 60 feet wide. A 6,000-ton barge ranges from about 250 to 280 feet long and about 60 to 75 feet wide. A 10,000-ton barge is about 330 feet long and about 80 feet wide. Tugs average about 7 knots with an empty barge and about 5 knots with a loaded barge. The maximum speed of tug under either scenario is about 10 knots.

Preliminary existing marine traffic information for 2007 provided by the USCG shows an average of about 18 trips per day by deep-draft vessels and tugs with tows in East Passage (USCG 2007).⁹ The proposed increase of eight trips per day by tugs with tows would not be significant in terms of ship traffic congestion and safety for the following reasons:

- Existing low traffic density means there would be substantial intervals in terms of time and distance for vessels to merge into or cross over transit lanes without significant delays or safety hazards to other vessels;
- The USCG has indicated that the Vessel Traffic Service (VTS) (which is also used in much more congested Puget Sound areas) has the ability to safely handle the modest increase in barge traffic in the East Passage vicinity. All tugs used to haul sand from the applicant's dock would, by virtue of their size, be required to report their departures and use the Vessel Movement Reporting System (VMRS) which is part of the VTS (USCG 2007). This system will make it possible for tug/barge traffic to depart the dock knowing the approximate location of approaching southbound traffic obscured by Point Robinson before it enters the marine traffic lanes. The USCG also has authority to impose additional operating requirements during periods of poor weather or visibility.
- The risk of collisions with smaller vessels not participating in the VMRS would be low because smaller vessels are typically maneuverable over short distances and because the tug/barges are relatively slow moving.
- Representatives of the Washington State Ferry Systems have indicated that an increase of eight barge crossings on the Fauntleroy/Vashon run would not cause significant impacts to ferry operations (King County DDES. 2000).

13.11 Shore Erosion and Accretion

The proposed dock and mine would not affect currents and littoral sediment movement because existing sediment feeder bluffs would be left in place with their existing vegetation, and the small area of widely spaced piling and moored vessels would offer only nominal resistance to along-shore currents, wave action and associated littoral drift. Therefore, the proposed project should have little effect on shore erosion and accretion rates and patterns.

13.12 Recreation

Public access to the private beach and adjacent waters would be strictly limited during removal and construction of conveyor, trestle, dock and dolphins. Recreation use of the mine site and dock would be prohibited due to safety concerns and use of the beach by local residents will be

⁹ This represents an increase of about four trips per day in total marine traffic over the average of 13.4 trips per day in 2000 when King County prepared the SEPA FEIS.

affected by the operation of the mine and dock. Tug and barge movement at the dock would not substantially affect access to the sunken barges for recreational scuba diving or recreational boating in the dock area because these activities peak on weekends when the dock will not be in operation.

13.13 Environmental Health and Safety

There are no streams or other surface waters on the mine site that would move contaminants from the mine site as noted in Section 12.2. Contaminated soils above MTCA residential cleanup levels would be contained onsite in a lined and covered containment cell and a leachate control system would be designed and installed. Arsenic has not entered the groundwater or subsurface sand and gravel deposit since the arsenic drifted onto the mine site or the surrounding landscape from the Tacoma/ASARCO smelter from 1890 to 1995. Groundwater testing shows that levels of arsenic are within natural levels on Vashon/Maury Island. Dust from the mining operation will be controlled through the use of enclosures, wet suppression techniques and curtailment of dust producing operations during periods of high wind. The applicant would monitor ambient air quality on the property perimeter and would monitor for potential pollutants related to onsite activities. Workers on site would be trained and safety equipment would control their potential exposure to soil contaminants during site clearing and restoration (King County DDES 2000).

The Mine Safety and Health Administration (MSHA) operates under the authority of the Federal Mine Safety and Health Act of 1977. MSHA was created to help reduce fatalities, injuries and illnesses in the nation's mines through a variety of activities, including on-site mine safety and health inspections. MSHA inspectors are required by law to inspect every surface mine in the nation at least two times per year. The applicant is required to register the mine with MSHA prior to re-initiation of mining operations.

13.14 Water Supply and Conservation

The applicant would implement a number of measures to ensure that the sole source aquifer would be protected from any mining activities including groundwater monitoring wells and maintenance of a minimum 15-foot separation between the bottom of the mine pit and the groundwater. Groundwater levels would be monitored quarterly over a 5-year period (King County DDES 2000). Temporary retention/infiltration ponds would be constructed at different levels on the mine site slopes. The sand/soil in this 15-foot separation zone would also be more than sufficiently thick to filter out any contaminants that might be adsorbed on soil particulates. Infiltration of runoff, maintaining the minimum 15-foot separation between the mine and groundwater and monitoring of groundwater will prevent the intrusion of saltwater beneath the mine and continue to protect the aquifer under Maury Island. Potentially deleterious quantities of water-soluble contaminants originating from precipitation, mining, human activities, or the air are not expected to occur (King County DDES 2000). The walls of the mining pit would be sloped toward the mine floor and away from Puget Sound to reduce runoff and sedimentation into the Sound (King County DDES 2000).

Small impacts to the principal aquifer would occur due to the changes in the recharge dynamics in the mine site. Water-level declines would also occur within the mine area and immediately adjacent to the mine site. These impacts are small relative to the naturally occurring water level

fluctuations. Washington Department of Ecology (Ecology) concluded that these changes should not affect groundwater availability (Ecology 2000).

Groundwater elevation data show a consistent flow pattern across the mine site with groundwater discharging to Puget Sound along the eastern shoreline. The water table elevation ranges from about 85 feet in the northwest corner of the mine site to 20 feet near the site boundary with Puget Sound. The beach seeps are a direct expression of this groundwater discharge. The groundwater impact evaluation conducted for the King County's FEIS (King County DDES 1999 & 2000) and for Ecology (Ecology 2000) were based on groundwater modeling assuming natural recharge through the mine site soils and infiltration from only a single pond located in the southeast edge of the mine floor. As recommended in Chapter 4 of the King County FEIS, the applicant revised the mining plan to located ponds throughout the mining footprint. Locating ponds throughout the mining footprint would provide a better recharge distribution and result in less change that was predicted by groundwater modeling. The Corps expects groundwater level changes to be negligible and the groundwater discharge at the seeps are not expected to be impacted by the proposed mining operation.

13.15 Water Quality

As discussed in Section 13.4.1 and Section 13.7, the principal marine water quality effects would be limited to turbidity and particulates suspended by pile removal, driving, and tugboat operations. No other activities or discharges affecting water quality are anticipated. The tug operation plans would minimize accidental and routine lubricant and fuel discharges which would minimize risks from these kinds of contaminant sources to water quality during the construction and operation phases of the proposed project. Oil spill risk is considered low based on the reasons presented in Section 13.10. Removal of the old creosote treated timber piles would be a benefit to the marine environment because it is removing a source of potential contamination.

The mine has been issued a NPDES Sand and Gravel General Permit by Ecology. The NPDES permit required a Spill Prevention Plan and Stormwater Pollution Prevention Plan as source controls. The proposed stormwater infiltration of the all stormwater on the mine site would be distributed throughout the site. The infiltration system would be designed to achieve a dispersed stormwater infiltration system that preserves area-wide recharge and mimics current infiltration on the site. Treatment ponds (pre-settling) would be included at all infiltration pond locations. No pollution-generating pervious surfaces (vegetated areas subject to pesticide or fertilizer use) or impervious surfaces (paved roadways) are proposed in the mining area. No fuel storage or maintenance facilities would be located on the mine site, all vehicle fueling and maintenance would be done by a fuel truck or maintenance truck. With 15 feet of unsaturated sand between the mine floor and the water table, and over 800 feet between the nearest stormwater pond and the beach, the potential for a contaminant to reach the groundwater, the beach seeps or Puget Sound is unlikely. Groundwater monitoring on the mine site is on-going and is planned for some time into the mining operations. The monitoring data is intended to test the hydrogeologic predictions and the efficacy of the buffer zone. Two monitoring wells are located along the shoreline, which would be representative of the groundwater discharge at the beach seeps. Data collected from these wells would serve to monitor for any hydrologic changes on the mine site and on the nearshore marine environment.

The stormwater treatment, groundwater monitoring, and spill prevention and stormwater pollution prevention plans would prevent any unlikely impacts to water quality. The proposed project should not result in any significant reduction in overall water quality in the project area.

13.16 Energy Needs

Under the proposed project there would be an increase in energy use during construction and operation of the dock. The exact amount is not readily quantifiable.

13.17 Mineral Needs

The proposed project will help meet the regional demand for sand and gravel. Sand and gravel are essential resources for use in construction and therefore affect the regional economy. Population growth in central Puget Sound region has increased the demand for sand and gravel. This increase in demand has outpaced the local supplies in Snohomish, King and Pierce counties and existing permitted sand and gravel mines in these counties are near depletion or are now depleted (WDNR 1998). Because of its bulk and weight, transportation costs and proximity to consumers are major factors in the economic viability of sand/gravel sources. Over longer distances, waterborne transport is much cheaper than transport over land by truck. This particular source of sand is particularly valuable for concrete because of its uniform grain characteristics and hardness, and low silt content (cleanliness).

13.18 Consideration of Property Ownership

The property is privately held by the applicant. No relocation of businesses or residences would be required for the proposed activities. Minor adverse impacts from dust, noise and other vectors to adjacent property owners from the proposed project are anticipated. However, the applicant would implement a number of measures that would reduce these impacts in consideration of the adjacent property owners and the local community's quality of life. Although mineral extraction activities can affect adjoining property values, the potential for expansion and intensification of this activity has existed for over 40 years and has been well publicized through the media, Vashon/Maury Island community planning activities and plans, and recurring permitting processes at the local and state government levels.

13.19 Other considerations

No other changes are expected to the human use characteristics of the terrestrial or aquatic environment that would be affected by the project.

14 INDIRECT AND CUMULATIVE IMPACTS

The Corps conducted an independent analysis of potential indirect and cumulative impacts associated with the proposed project inclusive of past, present, and reasonably foreseeable future actions.

14.1 Indirect Impacts

Indirect impacts are those that are "...caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable" (40 CFR §1508.7). Generally, these impacts are induced by the proposed project. Indirect effects can occur within the full range of

impact types, such as changes in land use, economic vitality, shoreline and neighborhood character, and their associated effects on air quality, noise, water resources, and wildlife habitat.

Indirect impacts from the operation of the dock on the eelgrass beds are discussed in Section 13.4.6 Special Aquatic Sites.

Indirect impacts would occur from unforeseen grounding, sinkings or collisions/allisions involving tug and barge tows moving to and from the Maury Island barge-loading facility. These types of incidents are rare but could result in loss of aggregate into Puget Sound. Between January 2000 and May 2008 over 13,130 barges have been loaded at the applicant's DuPont facility and delivered to customs in Puget Sound area. Only four incidents have been reported involving barges loaded at DuPont facility. Considering that approximately 131 barges leave the DuPont facility each month there is a low incident risk for this occurring. A loss of aggregate into nearshore areas would adversely impact fish, shellfish and habitat components within the footprint of the spill. Sand and gravel mined from glacial deposits around Puget Sound are similar in nature to the glacial deposits found in Puget Sound bluffs that are the primary source of sediment for most of Puget Sound beaches. Over time the spilled aggregate material would be added to the natural coastal processes and be transported by local drift cell along the coast to be disturbed and re-deposited in other locations providing some additional beach nourishment. Overall risk to Puget Sound ecosystem from an occasional loss of sand and gravel due barge accident is minimal.

Collisions/allisions involving tugboats with or without barge tows moving to and from the dock could also result loss of fuel/oil into Puget Sound. Again, these types of incidents are rare but could occur. This type of incident would be reported to U.S. Coast Guard and Ecology immediately by the vessels involved or near by vessels. The spill size would depend on damage incurred, amount of fuel/oil on board the vessels involved, the location of the vessels, reporting time, and oil cleanup team's response time. If a collision/allision occurs near a sensitive resource, the potential for impacts to and/or intensity of the impact on the resource would increase with increase in reporting or response time.

14.2 Cumulative Impacts

Cumulative impacts result from the incremental consequences of an action (the project) when added to other past and reasonably foreseeable future actions (40 CFR 1508.7). The cumulative effects of an action may be undetectable when viewed in the individual context of direct and even secondary impacts, but when added to other actions can eventually lead to a measurable environmental change.

The geographic basis for this analysis is the Vashon/Maury Island and surrounding marine waters. Vashon/Maury Island lies in the Puget Lowlands within Puget Sound and within the boundaries of King County. Vashon/Maury Island encompasses about 37 square miles of which 29.7 square miles are on Vashon Island and 7.0 square miles on Maury Island. These two islands are linked by a narrow isthmus and are not truly independent islands. Vashon Island is about 13 miles long and 4 miles wide. Maury Island is about 5 miles long and about 1 mile across and is bordered on the west by Quartermaster Harbor and Vashon Island, on the south by Dalco Passage, on the east by East Passage and on north by Puget Sound.

Prior to European-American settlement (early 1800), Vashon/Maury Island consisted of a low-elevation forest, interspersed with wetlands, and small creeks. These characteristics are very similar to many of the islands in Puget Sound that formed on glacial till and outwash. The topography of Maury Island varies from sea level to elevation of just over 500 feet at Maury Island Marine Park. The shoreline consists mostly of steep, slide prone slopes with few freshwater seeps. Maury Island is not divisible into watersheds, the majority of freshwater flows from intermittent creeks and freshwater seeps into Quartermaster Harbor. The temperate climate of the islands consists of winter rain and very little, if any, snow accumulation. Quartermaster Harbor is a shallow embayment that lies between Vashon and Maury Island and is connected to Puget Sound. The rolling topography of Vashon/Maury Island, coupled with abundant moisture (winter rainfall) resulted in fairly complex habitat patterns with forests, wetlands, open meadows, streams, and marine shorelines in close proximity. The abundant edges between habitat types likely resulted in high habitat diversity and therefore high biodiversity.

These features supported several important ecological processes on Vashon/Maury Island and in the adjacent marine waters. The forests supported migratory and resident birds and wildlife, helped infiltrate rainfall to support groundwater flow to wetlands and streams, and provided organic input to streams for fishery support. The nearshore habitat supported forage fish species that in turn supported migratory salmonids. The interconnectivity of the variety of habitat types likely increased the habitat value of each due to the benefits of edge effects (more interplay and use of habitat types by a variety of wildlife) as well as relatively high species diversity in both plants and animals.

14.2.1 Past Impacts

The major activities that changed the landscape over time were logging, agriculture, mining, industrial development and residential development all of which included land clearing. Logging began on the islands in the early 1800s, when Seattle pioneers exported logs to San Francisco. Logging continued into the early 1900s. The settlement of Vashon/Maury Island started in 1864 when several families moved to islands to claim land under the Federal Homestead Act of 1862. The dry dock began operations in Quartermaster Harbor at Dockton in the 1890. In 1892 a large portion of Maury Island's forests were cleared for a dairy operation. Two roads were constructed, one in 1916 and other in 1925, which crossed the isthmus connecting Vashon Island to Maury Island. In 1929 the first sand and gravel mine was opened on Maury Island by Ideal Cement Company in Seattle. The second sand and gravel mine began operation in 1930s. By 1971, there were four sand and gravel mines in operation along the southeastern shoreline of Maury Island. Between the 1950s and late 1970s millions of yards of sand and gravel were mined and transported by barge and used in construction of the Naval Shipyard at Bremerton and Port of Seattle's Pier 46, Pier 86, Pier 25, Terminal 155, Terminal 102, and Terminal 18. At least three of these mines had marine docks for the loading of barges.

Regular ferry service came to the islands in 1951 when Washington State Ferries began operations between Vashon and mainland. Two large residential developments on Maury Island, Sandy Shores and Gold Beach, were platted in the mid-1960s and construction of homes began in the late 1970s and are still occurring today. Both of these developments are on the southeastern shoreline of Maury Island overlooking East Passage.

The impacts associated with the conversion of forest, wetlands, riparian and marine habitats from agriculture (crops and pasture land), roads, parks, residential, mining, commercial and industrial developments has resulted in loss and/or degradation of fish and wildlife support habitat, loss of biodiversity, degradation of water quality, and degradation of shorelines and nearshore marine habitat. These impacts are largely associated with deforestation, conversion and shoreline development. Most of the major impacts occurred between the time of European-American settlement and the 1980s, when land use concerns started to address the loss of habitat.

14.2.2 Current Trends

Today, Vashon/Maury Island is still considered a rural area with small farms and single family residences spread over the islands. The regular ferry service increased the development opportunities on Vashon/Maury Island and population increased from 4,320 in 1950 to over 10,000 in 2000. The majority of the islands' working population commutes to the mainland via the ferry. High density residential developments are concentrated in the Vashon Town Center, Vashon Heights, Burton, Dockton, and along parts of shoreline including Sandy Shores and Gold Beach on Maury Island. Commercial and industrial uses are found in areas where sewer and other urban services are available. There are several utility easements that provide electricity, natural gas and telecommunications to Maury Island. Recreational developments on Maury Island include a golf course and several public parks: Maury Island Marine Park, Dockton Park, and Point Robinson Park. Three marinas operate in Quartermaster Harbor, the Quartermaster Yacht Club, Quartermaster Harbor Marina and Dockton County Marina.

There are two active sand and gravel mines on Maury Island, Northwest Aggregate (the project site) and Vashon Sand and Gravel (located adjacent to Maury Island Marine Park). Abandoned mine sites have been developed and are now the Gold Beach residential development and Maury Island Marine Park. The Maury Island Aquatic Reserve was established in 2000 by WDNR. The Reserve includes about 5,530 acres of state owned aquatic bedlands and tidelands in Quartermaster Harbor and along the south and east shores of Maury Island from Neill Point to the shores between Point Robinson and Luana Beach. The reserve boundary extends waterward of the mean lower low water to a depth of 70 feet or one-half mile from the line of extreme low tide whichever is farther waterward (WDNR 2004b). There are numerous recreational docks, floats and mooring buoys along the shorelines of both islands. The southeastern shoreline of Maury Island has four docks, the old sand and gravel loading dock at the Maury Island Marina Park that is now used for recreational activities, the Gold Beach community dock, Sandy Shores' community dock and the applicant's existing dock. About 60 percent of Vashon/Maury Island's shoreline has been armored or modified in some manner (WDNR 2004b). Most of the surface soils on Vashon/Maury Island are contaminated with arsenic, lead and other metals from the now closed ASARCO smelter, located in Tacoma (Appendix E).

The commercial and residential development on Maury Island will likely continue and, therefore, the trend of deforestation and degradation of shorelines would also continue, but at a slower rate than the historic loss.

14.2.3 Reasonably Foreseeable Future Actions

Current projects in the area include shoreline protection projects that consist of repairs to existing bulkheads adjacent to existing residences along the shoreline. A number of bulkhead repair projects are in the King County permit process in the vicinity of the project site. These projects are not expected to result in additional impacts to shoreline or the nearshore marine habitats. Shoreline protection projects would require Department of the Army, Section 10/404 permits in addition to local permits. Residential and commercial development on Maury Island is expected to continue until such time that the County's Growth Management Act and/or the availability of drinking water limits such developments.

The trend of deforestation and degradation of shoreline will likely continue at a slower downward trend until a point where new development would no longer occur. As noted previously larger than 60 percent of the Maury/Vashon Island's shoreline has been altered.

14.2.4 Environmental Consequence

The upland portion of this project would occur within the existing mine boundaries and would impact existing forest stands on the site. The extent of future forest impacts from mining activities depends on the rate of extraction. As each phase or segment of mining is completed the reclamation process would begin. Prior to reclamation, the loss of forest would be the largest impact to animals that require space and protective cover, such as deer, coyotes, pileated woodpecker, and screech owl. The proposed project would continue the overall trend of deforestation on Maury Island. Reclamation would offset some of the trend of deforestation over the long-term. The required reclamation activities will offset some of the temporal loss in forested habitat (depending on the mining and reclamation rate up to 35 years) within the 155 acres of the proposed mine. The mine boundary has been moved back 400 feet from the existing shoreline bluffs thereby protecting the bluffs from disturbance. The mine boundary remains at 200 feet along the shoreline at the conveyor system and barge loading facility as show in Figure 2.

The marine portion of this project would occur on the existing shoreline and within the marine waters adjacent to the existing mine. This portion of the project includes the removal of the existing dock facility and construction of the new dock which would impact shoreline vegetation, upper beach habitat, nearshore habitat, and deep water habitat. The proposed work would occur within short time period. Removal of shoreline vegetation would be limited to the area necessary for access to the onshore portion of the conveyor system during construction. Shoreline vegetation will be replanted but a small area will under the conveyor system would be maintained for maintenance access.

While the proposed project and mitigation does not reverse past adverse impacts in the project area; does not further contribute to the already degraded shoreline. The proposed project will not significantly contribute to the areas' adverse cumulative impacts as the proposed work is within an already disturbed area although it is located next to a State aquatic reserve. Aquatic impacts will be reduce and/or avoided and the proposed construction methods and mitigation measures presented in Section 6 "Proposed Mitigation Measures", mitigation plans in Appendix C and conditions of state and local permits in Appendix D will offset the adverse impacts from the construction and operation of the dock.

15 COMPLIANCE WITH FEDERAL LAWS

15.1 Clean Air Act

The proposed project has been analyzed for conformity applicability pursuant to regulations implementing Section 176(c) of the Clean Air Act. The proposed activities would not exceed *de minimis* levels of direct emissions of a criteria pollutant or its precursors and are exempted by 40 CFR Part 93.153. Any later indirect emissions are generally not within the Corps continuing program responsibility and generally cannot be practicably controlled by the Corps. For these reasons, a conformity determination is not required for this project.

15.2 Clean Water Act Compliance

A DA permit pursuant to Section 404 of the CWA is required for the discharge of fill material into waters of the United States, including wetlands. The proposed project includes the discharge of clean pea gravel or sand into depression resulting from the removal of the timber piles. The Corps analysis concluded that the placement of fill material is consistent with the CWA. The Corps 404(b)(1) analysis is attached to this document. Washington State Department of Ecology issued Water Quality Certification for the proposed fill on 14 March 2006.

15.3 Coastal Zone Management Act.

Pursuant to the requirements of Section 307(c)(3) of the Coastal Zone Management Act of 1972 as amended, the project must comply with the approved Washington Coastal Zone Management (CZM) Program. This concurrence is based upon compliance with all applicable enforceable policies of the CZM Program, including Section 401 of the CWA. Washington State Department of Ecology issued the CZM Consistency Certification as part of the Water Quality Certification on 14 March 2006.

15.4 Endangered Species Act

The Corps was the lead federal agency for this coordination. Biological evaluations and addendums was prepared by the applicant's consultant, reviewed by Corps and sent to the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). USFWS concurred with Corps' determinations of effect as noted in Section 13.8, by letters dated 12 April 2004 and 19 December 2005. NMFS concurred with Corps' determination of effect as noted in Section 13.8, by letters dated 10 February 2004, 21 June 2005, 6 November 2006, 19 January 2007, and 16 June 2007. ESA Section 7 consultation is complete. ESA consultation would be re-initiated should any new species become listed as threatened or endangered prior to the permit issuance.

15.5 Environmental Justice

Executive Order 12898 directs federal agencies to identify and address disproportionately high and adverse human health or environmental effects of agency programs and activities on minority and low-income populations. The Corps' review indicates there are no minority or low income population near the project site that would be adversely impacted.

15.6 Essential Fish Habitat

In accordance with the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act, the Corps has determined that the proposed project would not adversely affect designated EFH for federally-managed fisheries in Washington waters. NMFS concurred with this determination on date 10 February 2004.

15.7 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 USC 470) requires that wildlife conservation receive equal consideration and be coordinated with other features of water resources development projects. This goal is accomplished through publication of Corps public notice which is provided to U.S. Fish and Wildlife Service for their review and recommendations for the avoiding or minimizing impacts to fish and wildlife. The Corps received no comments from USFWS beyond what was documented for ESA.

15.8 National Environmental Policy Act

Section 1500.1(c) and 1508.9(1) of the implementing regulations for the National Environmental Policy Act of 1969 (42 USC §§ 4321 through 4375, as amended) requires federal agencies to provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact on actions authorized, funded, or carried out by the federal government to insure such actions adequately address environmental consequences, and take actions that protect, restore, and enhance the environment. This assessment evaluates known environmental consequences from the proposed replacement of the existing dock and the increased extraction of sand and gravel from the upland mine at Maury Island, King County, Washington.

15.9 National Historic Preservation Act

The National Historic Preservation Act (NHPA) requires federal agencies to consider the effects of its actions on sites, buildings, structures, or objects included or eligible for the National Register of Historic Places must be identified and evaluated. Requirements under Section 106 of the Act apply to any federal undertaking, funding, licensing, or permitting. The project area does not include any sites listed or eligible for National Register of Historic Places. However, there is low potential for historic graves to occur on the applicant's property. The revised Code of Washington (RCW 68.60.050) addresses the inadvertence of discovery of historic graves through construction. If such a discovery would happen the applicant is required to report to the Washington State Office of Archaeology and Historic Preservation. The Corps has determined that the proposed project is in compliance with Section 106 of the National Historic Preservation Act.

15.10 Treaty Rights

In the mid-1850's, the United States entered into treaties with a number of Indian tribes in Washington. These treaties guaranteed the signatory tribes the right to "take fish at usual and accustomed grounds and stations . . . in common with all citizens of the territory" [*U.S. v. Washington*, 384 F.Supp. 312 at 332 (WDWA 1974)]. In *U.S. v. Washington*, 384 F.Supp. 312 at 343 - 344, the court also found that the Treaty Tribes had the right to take up to 50 percent of the harvestable anadromous fish runs passing through those grounds, as needed to provide them with a moderate standard of living (Fair Share). Over the years, the courts have held that this

right comprehends certain subsidiary rights, such as access to their "usual and accustomed" fishing grounds. More than *de minimis* impacts to access to usual and accustomed fishing area may violate this treaty right. *Northwest Sea Farms v. Wynn*, F.Supp. 931 F.Supp. 1515 at 1522 (WDWA 1996). In *U.S. v. Washington*, 759 F.2d 1353 (9th Cir 1985) the court indicated that the obligation to prevent degradation of the fish habitat would be determined on a case-by-case basis. The Ninth Circuit has held that this right also encompasses the right to take shellfish. *U.S. v. Washington*, 135 F.3d 618 (9th Cir 1998).

The public notices for this permit action was provided to Chinook, Duwamish, Jamestown S'Klallam, Kikiallus, Lummi, Muckleshoot, Nisqually, Port Gamble S'Klallan, Quinault, Shoalwater Bay, Skokomish, Snoqualmie, Squaxin, Steilacoom, Suquamish, Swinomish, Tulalip, and Umatilla Confederate Tribes. No tribes submitted comments to indicating that the proposed project would interfere with their treaty fishing rights.

Though the area in question is within the Usual and Accustomed area of several tribes, there is no information to indicate that the project will impact these Tribes Treaty rights. The proposed project has been analyzed with respect to its effects on the treaty rights described above. We anticipate that:

- (1) The work would not interfere with access to usual and accustomed fishing grounds or with fishing activities or shellfish harvesting;
- (2) The work would not cause the degradation of fish runs and habitat; and
- (3) The work would not impair the tribes' ability to meet moderate living need.

16 SUMMARY

The U.S. Army Corps of Engineers has prepared this EA in support of the Corps' permit decision for the proposed construction and operation of a barge loading facility (dock) located on the shoreline of Maury Island in King County, Washington. The purpose of this project is provide sand and gravel by waterborne transport to meet the market demands of the Central Puget Sound Region.

The applicant's proposal is to replace and extend the existing barge loading dock. This action would include removal of 228 timber piling and backfilling any depressions left by their removal with clean pea gravel or sand. The existing sunken barges located near the southwest end of the existing dolphin alignment would remain in place. The proposed work includes construction of a barge-loading conveyor tube with three 4- to 6-pile support bents; seven 6-pile berthing dolphins with fenders and aluminum catwalks. A maximum of 56 24-inch steel piles will be installed to support the new trestle and seven berthing dolphins. The replacement dock would extend up to 305 feet waterward of the Mean High Water (MHW) line and would run 510 feet parallel to the shoreline. The replacement dock would cover 7,555 square feet. Steel grating with 75% open area would cover the dock. To prevent gravel spillage from the mine to the barge, the conveyor tube would be completely enclosed with telescoping spout attached to the discharge end of the conveyor to lower the material into the barge. The spout would have a retractable chute and spoon to prevent dust and help distribute the material into the barge. A haul-back system (i.e., a system of winches, cables and pulley wheels used to position the barge during loading operations) would be attached to the top of the dolphin frames.

NO ACTION ALTERNATIVE: Under the no-action alternative, no permit would be issued for this activity either from permit denial or the applicant's withdrawal of their application. The no-action alternative would result in no change in the existing conditions.

OTHER ALTERNATIVES CONSIDERED: In addition to the applicant's proposal and the no-action alternative (no permit), both off-site and on-site alternative sources for sand and gravel were evaluated as part of this environmental analysis.

ENVIRONMENTAL CONSEQUENCES: This environmental assessment describes the environmental consequence of the proposed project. Construction will result in short-term impacts to aquatic environment, including impacts to substrate, water quality, fish and wildlife species, including threatened and endangered species, shellfish, and invertebrates. Noise may also cause some impact to the aquatic environment as well as recreational uses. Impacts to views from residences and beaches along the adjacent shorelines near the project site will occur with the initiation of construction activities at the dock site. The movement of barges to and from the area will increase during the construction period. Minor changes in shoreline vegetation will also occur in association with the dock's construction.

Operation of the proposed dock will result in minor long-term direct changes in baseline conditions for noise, aesthetics, and navigation. A minor increase in operational noise levels may occur from the current baseline levels. Noise levels are not expected to exceed the King County Noise Code for an industrial noise source due to the limited hours of dock operation (7 A.M. to 7 P.M. five days a week), enclosed conveyor system with telescoping spout and retractable chute/spoon, and Barge Approach and Departure Protocol.

Views from the nearby residences, including Gold Beach and Sandy Shores, and views from across Puget Sound will be minimal affected by the proposed dock. The proposed dock will extend further waterward but will be similar in scale and appearance to the existing dock. Visual activity (movement of barges to and from the dock) and the dock's lights will be visible at night. The limited hours of operations and shielding of work lights will reduce the overall visual impacts.

The dock's operation will increase the volume of marina traffic in the project area above the current baseline conditions by an average of eight tug/barges per weekday; see Section 13.10 "Navigation". The U.S. Coast Guard's Vessel Traffic System and Vessel Movement Reporting systems will compensate for the increase of tug/barge movements in East Passage.

Operation of the mine will result in long-term direct changes in baseline conditions for wildlife and wildlife habitat, noise, aesthetics, and recreation. A minor increase in operational noise levels may occur from the current baseline levels. Noise levels are not expected to exceed the King County Noise Code for an industrial noise source due to the limited hours of mine operation (7 A.M. to 7 P.M. five days a week and 9 A.M. to 6 P.M. on Saturday), vegetated buffers and implementation of other types noise barriers. Recreation use of the mine site would be prohibited and use of the beach by local residents will be affected by the operation of the mine and dock. Groundwater impacts are not expected to occur based on maintenance of 15 foot zone between the mine floor and groundwater, implementation of stormwater treatment and

infiltration system, collection of data from groundwater monitoring wells and implementation of Spill Prevention plan and Stormwater Pollution Prevention plan on the mine site.

MITIGATION MEASURES: The construction methods, ESA conservation measures, and mitigation implemented during construction will substantially reduce the short-term, direct increases in turbidity and sedimentation levels, general water quality, and the disturbance to fish and marine mammals including threatened and endangered species that may be present in the project area during construction.

Forage fish surveys will be done prior to construction. The in-water work will be done during set construction work windows. Visual monitoring for killer whales will take place during construction. These measures will reduce direct impacts to threatened and endangered species and their prey during construction.

Disturbance of the eelgrass beds (an element of the aquatic habitat) will be limited to wave action from movement of construction equipment in the project area. Wave action is not expected to exceed the existing baseline conditions during construction period.

Noise level during construction will increase from the movement of equipment at the project during construction activities (removal of existing structure and proofing of new piles). However, these levels are not expected to exceed the King County Noise Code for construction.

Recreational access to the beach at the project site will be prohibited during the project construction period. Dive access to sunken barges will not be impacted by the construction or operation of the proposed dock. Beach access at the dock site will be allowed by the applicant after construction. Overall changes in recreational access during construction will be short-term and temporary. However, the level of recreational use of the private beach may decrease temporarily as local community adjusts to changes at the project site. Recreation access to the mine site would be prohibited due to safety.

The proposed project may result in minimal, if any, impacts to property values for neighboring residences due to increase in noise and visual disturbance.

The proposed project would result in economic benefits to the applicant and region by meeting regional demand for products that are important in the construction of infrastructure, utilities, and commercial and residential developments.

CONCLUSIONS: The current proposed project is not a major Federal Action significantly affecting the quality of the human or natural environment, and therefore, does not require preparation of an environmental impact statement. This EA will be used in the Corps permit decision process and in determining compliance with the Corps' implementing regulations at 33 CFR 320-330 and 40 CFR 230.

17 REFERENCES

Bargman, G. 1998. Forage Fish Management Plan. Washington Department of Fish and Wildlife, Olympia, Washington.

Corps – See U.S. Army Corps of Engineers

Ecology – See Washington Department of Ecology.

EVS – See EVS Environmental Consultants, Inc.

EVS Environmental Consultants, Inc. 2000. Maury Island Gravel mine Impact Study Nearshore Impact Assessment. Prepared for Washington Department of Ecology, March 2000.

Grette Associates LLC. 2002. Biological Evaluation & Essential Fish Habitat Assessment Addendum for Maury Island Dock Repair. Prepared for Northwest Aggregates, December 17, 2002.

Grette Associates LLC. 2003. Maury Island Dock Repair Project, Biological Assessment & Essential Fish Habitat Assessment Addendum No.2. Prepared for Northwest Aggregates, April 1, 2003.

Grette Associated LLC. 2003b. Technical Memorandum Re: Bubble Curtain Design for Maury Island Dock Repair. Prepared for Northwest Aggregates, July 24, 2003.

Grette Associated LLC. 2003c. Technical Memorandum Re” Modified Bubble Curtain Design for Maury Island Dock Repair. Prepared for Northwest Aggregates, August 22, 2003.

Grette Associates LLC. 2005. Biological Evaluation Addendum for Bull Trout and Chinook Salmon Critical Habitat Evaluation. Prepared for Northwest Aggregates, March 2005.

Grette Associates LLC. 2003. Northwest Aggregates: Maury Island Gravel Dock 2003 Annual Eelgrass Survey Report. Prepared for Northwest Aggregates, September 25, 2003.

Grette Associates LLC. 2004. Northwest Aggregates: Maury Island Gravel Dock 2004 Annual Eelgrass Survey Report. Prepared for Northwest Aggregates, September 15, 2004.

Grette Associates LLC. 2005. Northwest Aggregates: Maury Island Gravel Dock 2005 Annual Eelgrass Survey Report. Prepared for Northwest Aggregates, December 19, 2005.

Grette Associates LLC. 2006. Maury Island Dock Repair Project Biological Evaluation Addendum: Steelhead. Prepared for Northwest Aggregates, June 13, 2006.

Grette Associates LLC. 2006b. Letter to Corps updating forage fish information from WDFW and other sources, dated June 14, 2006.

Grette Associates LLC. 2006c. Northwest Aggregates: Maury Island Gravel Dock 2006 Annual Eelgrass Survey Report. Prepared for Northwest Aggregates, October 4, 2006.

Grette Associates LLC. 2007. Northwest Aggregates: Maury Island Gravel Dock 2007 Annual Eelgrass Survey Report. Prepared for Northwest Aggregates, September 30, 2007.

Hall, S., Point Environmental Consulting. 2005. Biological Evaluation Addendum, Evaluation of Effects on Southern Resident Killer Whales. Northwest Aggregates' Maury Island Dock Replacement. Prepared for Northwest Aggregates, April 11, 2005.

Hall, S., Point Environmental Consulting. 2006. Biological Evaluation Addendum, Evaluation of Effects on Southern Resident Killer Whales. Northwest Aggregates' Maury Island Dock Replacement. U.S. Army Corps of Engineers. Federal Permit Reference 200001094. Revised to reflect species status change from proposed to endangered and in response to public comments to the April 2005 BE Addendum. Prepared for Northwest Aggregates, July 17, 2006

Jay, D.A 2002. An Analysis of Propwash, Spillage and Sediment Transport Impacts of the Maury Island Glacier Northwest Gravel Mine. Prepared for Preserve Our Islands, December 2, 2002.

Jones & Stokes 2003. Northwest Aggregates Maury Island Gravel Mine SEPA Review of Additional Information. Prepared for King County Department of Development and Environmental Services November 2003.

King County DDES – see King County Department of Development and Environmental Services.

King County Department of Development and Environmental Services. 1999. Draft Environmental Impact Statement, Maury Island Glacier Northwest Gravel Mine, Renton, Washington.

King County Department of Development and Environmental Services. 2000. Final Environmental Impact Statement, Maury Island Glacier Northwest Gravel Mine. Renton, Washington.

King County Department of Development and Environmental Services. 2004. Addendum to Final Environmental Impact Statement, Maury Island Glacier Northwest Gravel Mine. Renton, Washington.

Langer, William. Glanzman, V.M. 1993. "Natural Aggregate Building America's Future." U.S. Geological Survey Circular 1110.

NMFS (National Marine Fisheries Service). 2004. Letter of concurrence to Corps in response to Corps request on February 3, 2004. NMFS Tracking No. 2002/01121, dated February 10, 2004.

NMFS (National Marine Fisheries Service). 2005. Letter of concurrence to Corps in response to Corps request on April 29, 2005. NMFS Tracking No. 2005/02238, dated June 21, 2005.

NMFS (National Marine Fisheries Service). 2006. Letter of concurrence to Corps in response to Corps request on August 18, 2006. NMFS Tracking No. 2006/04085, dated November 6, 2006.

NMFS (National Marine Fisheries Service). 2007. Letter of concurrence to Corps in response to Corps request on December 21, 2006. NMFS Tracking No. 2006/04085, dated January 19, 2007.

NMFS (National Marine Fisheries Service). 2007b. Letter of concurrence to Corps in response to Corps request on May 14, 2007. NMFS Tracking No. 2007/03509, dated June 6, 2007.

Osmek, S., J. Calambokidis, J.L. Laake. 1998. Abundance and Distribution of Porpoise and Other Marine Mammals of the Inside Waters of Washington and British Columbia. Proceedings of the 1998 Puget Sound Research Conference, Puget Sound Action Team, Olympia, WA.

PIE (Pacific International Engineering) 2001. Northwest Aggregates: Maury Island Gravel Dock 2001 Annual Eelgrass Survey Report. Prepared for Northwest Aggregates, October 4, 2001.

PIE (Pacific International Engineering) 2002. Northwest Aggregates: Maury Island Gravel Dock 2002 Annual Eelgrass Survey Report. Prepared for Northwest Aggregates, August 29, 2002.

PIE (Pacific International Engineering), Battelle marine Sciences Laboratory, and Cedarock Consultants, Inc. 2002a. Draft Biological Evaluation, Maury Island Dock Repair, Northwest Aggregates. Prepared for Northwest Aggregates, June 2, 2002.

PIE (Pacific International Engineering). 2002b. Technical Memorandum describing the propeller wash modeling analysis used as the bases for the dock extension, Prepared for Northwest Aggregates. September 5, 2002.

PLU (Pacific Lutheran University), 2003. The Aggregates Industry in Washington: Economic Impact and Importance. Prepared for Washington Aggregates and Concrete Association, October 2003.

Palsson, W.A. and T. Tsou. 2005. Characterization of Benthic Marine Fish Communities in Puget Sound. Proceedings of the 2005 Puget Sound Georgia Basin Research Conference, Puget Sound Action Team, Olympia, WA.

Puget Sound Clean Air Agency. 2006. 2005 Air Quality Data Summary. Seattle, Washington.

Rhodes, E., Mayo, J. and Bisbee, B. 2007. "Home Values 2007." Seattle Times, 20 May 2007. Section E: Real Estate.

U.S. Army Corps of Engineers (Corps). 2002. Memorandum for the Service (MFS), Re: Endangered Species Biological Evaluation Review for Northwest Aggregates, 200001094. Prepared by Chris Cziesla, BE reviewer & Corps contractor, August 14, 2002.

U.S. Army Corps of Engineers (Corps). 2003. Memorandum for the Service (MFS), Re: Endangered Species Biological Evaluation Review for Northwest Aggregates, 200001094. Prepared by Maryann Baird, Regulatory ESA staff, April 22, 2003.

U.S. Army Corps of Engineers (Corps). 2004. Memorandum for U.S. Fish and Wildlife Service, Re: Endangered Species Biological Evaluation Review - Initiation of informal consultation for bull trout on modified proposed project. Prepared by Olivia Romano, Regulatory Project Manger, March 16, 2004.

U.S. Army Corps of Engineers (Corps). 2006. Memorandum for the Service (MFS), Re: Reinitiation of ESA Consultation with National Marine Fisheries Service (NMFS) for Northwest Aggregates, 200001094. Prepared by Maryann Baird, Regulatory ESA staff, August 17, 2006.

USCG – see U.S. Coast Guard, Seattle Sector.

U.S. Coast Guard (USCG), Seattle Sector. LCDR Jason Tama, Chief of Waterways Management, Personal communications, April 11, 2007.

USFWS (U.S. Fish and Wildlife Service). 2004. Letter of concurrence to Corps in response to Corps request on September 8, 2002. USFWS Reference No. 1-3-02-F-2061, dated April 12, 2004.

USFWS (U.S. Fish and Wildlife Service). 2005. Letter of concurrence to Corps in response to Corps request on April 29, 2005. USFWS Reference No. 1-3-05-IR-0400 Xref.: 1-3-02-I-0206, dated December 19, 2005.

Teissere, Ron. 2004. Washington State Shorelines Hearings Board. "Declaration of Ron Teissere, Geologist, Washington State Department of Natural Resources." Preserve Our Islands; People for Puget Sound; and Washington Environmental Council vs King County and Northwest Aggregates. (SHB 04-009 & 04-010). June 28, 2004.

WDFW – see Washington Department of Fish and Wildlife.

WDNR – see Washington Department of Natural Resources

WSDOT – see Washington Department of Transportation

Washington Department of Ecology: Spill Program On-line. 2007. 6 March 2007<
<http://www.ecy.wa.gov/programs/spills/spills.html>>.

Washington Department of Ecology. 2000. Maury Island Gravel Mine Hydrogeologic Impact Assessment. Prepared by Pacific Groundwater Group for Washington Department of Ecology, Northwest Regional Office. May 2000. Ecology Publication No. 00-10-026.

Washington Department of Fish and Wildlife. 2004. Geoduck Atlas. Washington Department of Fish and Wildlife. Olympia, Washington.

Washington Department of Fish and Wildlife. 2005. Forage Fish Spawning Habitat Survey Field Report, Maury Island. Olympia, Washington.

Washington Department of Fish and Wildlife. Forage Fish Website. 2006. 22 Nov. 2006 <<http://wdfw.wa.gov/fish/forage/forage.htm>>.

Washington Department of Fish and Wildlife. Maury Island, Tract 10150, South Sound Commercial Geoduck Tracts. 2006b. 22 November 2006 <<http://www.wdfw.wa.gov/fish/shelfish/geoduck/g10150.shtml>>.

Washington Department of Natural Resources. 1998. Our Changing Nature, Natural Resource Trends in Washington State, Olympia, Washington.

Washington Department of Natural Resources. 2004. Final Supplemental Environmental Impact Statement; Maury Island Aquatic Reserve. Olympia, Washington.

Washington Department of Natural Resources. 2004b. Maury Island Environmental Aquatic Reserve Final Management Plan. Olympia, Washington.

Washington Department of Natural Resource. 2006. Directory of Washington State Surface Mining Reclamation Sites – 2006. Washington Division of Geology and Earth Resources. Compiled by Tommy C. Duerr, Mary Ann Shawver, and Matthew L. Brookshier.

Washington Department of Natural Resources. 2007. Matt Brookshire, Geologist – Mine Inspector, Division of Geology & Earth Resources, Surface Mine Reclamation Program. Personal communication August 24, 2007.

Washington Department of Transportation (WSDOT). 2005. WSDOT Freight and Goods Transportation System (FGTS) 2005 Update, December 2005. Prepared by WSDOT Office of Freight Strategy and Policy.

Washington Department of Transportation. 2006. WSDOT Freight Efficiency and Competitiveness Phase I Final Report, June 2006. Prepared for WSDOT by Wilbur Smith Associates, Heffron Transportation, NohBell Group, and RNO Group.

Washington State Shorelines Hearing Board. 2004. Preserve Our Islands, Washington Environmental Council, and People For Puget Sound vs. King County and Northwest Aggregates. Findings of Fact, Conclusions of Law, and Order, (SHB 04-009 & 010). November 3, 2004.

Williams, G.D., R.M. Thom, J.E. Starkes, J.S. Brennan (Ed.), J. P. Houghton, D. Woodruff, P.L. Striplin, M. Miller, M. Pedersen, A. Skillman, R. Kropp, A. Borde, C. Freeland, K. McArthur, V. Fagerness, S. Blanton, and L. Blackmore. 2001. Reconnaissance Assessment of the State of the

18 ACRONYMS

BE: Biological Evaluation	MHHW: mean higher high water
CFR: Code of Federal Regulations	MLW: mean low water
CWA: Clean Water Act	MLLW: mean lower low water
Corps: U.S. Army Corps of Engineers	MTCA: Model Toxics Control Act
CZM: Coastal Zone Management	NEPA: National Environmental Policy Act
DA: Department of the Army	NHPA: National Historic Preservation Act
dBA: decibels (A-weighted)	NMFS: National Marine Fisheries Service
DDES: King County Department of Development and Environmental Services	ppm: parts per million
Ecology: Washington Department of Ecology	RCW: Revised Code of Washington
EFH: Essential Fish Habitat	SEPA: State Environmental Policy Act
EA: Environmental Assessment	SHPO: State Historic Preservation Office
EIS: Environmental Impact Statement	SMA: Shoreline Management Act
EPA: Environmental Protection Agency	SSDP: Shoreline Substantial Development Permit
ESA: Endangered Species Act	USC: United States Code
FEIS: Final environmental impact statement	USCG: United States Coast Guard
FWCA: Fish and Wildlife Coordination Act	USFWS: United States Fish and Wildlife Service
GMA: Growth Management Act	VTS: Vessel Traffic Service
Guidelines: Section 404 (b)(1) guidelines	WAC: Washington Administrative Code
HPA: Hydraulic Project Approval	WDFW: Washington Department of Fish and Wildlife
KCC: King County Code	WDNR: Washington Department of Natural Resources
MFS: Memorandum for the Services	WQC: Water Quality Certification
MHW: mean high water	

**APPENDIX A – SECTION 404(b)(1) EVALUATION
FOR
APPLICANT: NORTHWEST AGGREGATES
APPLICATION NUMBER: 200001094**

1. Introduction.

A. This document constitutes the determination of compliance with the Section 404(b)(1) Guidelines at 40 CFR 230 for the work described in the attached Public Notice Erratum, dated 14 April 2004. (See Appendix B of the Draft Environmental Assessment for Public Notices).

2. Project Information.

A. Location. The project site is located in Puget Sound on the southeast shoreline of Maury Island, King County, Washington.

B. Description of the Proposed Work. The proposed work consists of backfilling any depressions left by the removal of 228 timber piling with clean pea gravel or sand.

C. Jurisdiction. Puget Sound is a navigable water of the United States. The Corps has regulatory jurisdiction over the proposed work pursuant to Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (CWA).

E. Purpose. The purpose is to meet a conservation measure as part of Endangered Species Act (ESA) Section 7 consultation on proposed dock (Grette Associates LLC 2002).

F. Project Need. The purpose of the work is to meet an ESA conservation measure identified during the Section 7 consultation process for the construction of the proposed dock.

G. Water Dependency. This project is for intertidal and subtidal habitat enhancement and is water dependent.

3. Public Involvement. See Section 7 “Background of Action” in the Draft Environmental Assessment (Draft EA) for details on the public involvement process.

4. Alternatives.

CWA Section 404(b)(1) Guidelines call for analysis of alternatives to the proposed project to ensure that no discharge would be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences [40 C.F.R. § 230.10(a)]. An alternative is practicable if it is

available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purpose [40 CFR § 230.10(a)(2)].

In this case, the “discharge” being evaluated under the Section 404(b)(1) Guidelines is the discharge of clean pea gravel or sand in depressions or holes caused by the removal of 228 timber piles related to the construction of the proposed dock. This discharge is a conservation measure required as part of the ESA consultation and condition of the Washington Department of Fish and Wildlife’s Hydraulic Project Approval.

Alternatives to discharge of fill material into the aquatic environment are discussed below.

A. No Action. Under this alternative, there would be “no activity requiring a Department of the Army permit” and therefore no discharge of fill into waters of the United States.

B. Proposed Action. The discharge of clean pea gravel or sand would fulfill the project purpose or satisfy the intent of the ESA conservation measure and meet the Hydraulic Project Approval (HPA) condition.

C. Other alternatives. The pea gravel or sand best mimic the existing sediment characteristics and provide an effective means of limiting exposure. We considered other potential materials (rock, finer sediments, etc.) but determined the proposed material best meets the project purpose and provides the least impact to the existing environment.

Nothing in the public record suggests the existence of a less damaging practicable alternative than the applicant’s proposed discharge. Neither agencies, treaty Indian Tribes, nor the general public had any comments or suggestions about alternatives in relation to this discharge of pea gravel or sand into the depressions or holes caused by the removal of 228 timber pile.

The project represents the least environmentally damaging practicable alternative available to the applicant capable of achieving the proposal’s purpose and intent of the ESA conservation measure.

5. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C). The purpose of this section is to evaluate the various physical and chemical components, which characterize the non-living environment of the proposed site, the substrate, and the water, including its dynamic characteristics [40 CFR §230.5(e)]. Many of these impacts described in this section are also discussed in Section 13 “Environmental Impact Analysis” of the Draft EA.

(X) Substrate [40 CFR §230.20]. Filling activities can result in varying degrees of change in the complex physical, chemical, and biological characteristics of the substrate. The inter- and sub-tidal substrate within a few square-foot area around each of the 228 creosote-treated wood piles will be temporarily distributed as a result of

the removal of existing piles and the placement of pea gravel or sand in any depressions or holes created as result of the pile removal. Pea gravel or sand placed within each depression or hole would prevent any residual creosote contamination remaining in the substrate from coming in contact with the water column and/or the existing substrate surface. WDFW Hydraulic Project Approval (HPA) requires the placement of clean sand in the vacated footprint of each piling approximately 5 feet in diameter and 6-inches in depth to reduce leaching of residual creosote. Based on this HPA condition, approximately 0.36 cubic yards would be placed for each piling removed. For the removal of 228 piles, up to 82 cubic yards of clean sand would be placed an area about 0.1 acre within the footprint of the old dock and dolphins. The proposed fill is expected to be similar to the existing substrate and will not change the physical, chemical or biological characteristic of the substrate within the project area. The proposed fill will not change substrate functions associated with marine environment (i.e., nutrient cycling, carbon cycling, and invertebrate support).

(X) Suspended particulates, turbidity [40 CFR §230.21]. Suspended particulates/turbidity impacts that could occur from the placement of fill will be minimized by the type of fill material to be use, clean pea gravel or sand, the small amount of fill that will be placed in each depression and/or hole (few cubic yards) and the total number depressions or holes that are filled (maximum of 228). Any silt or other fine particles that would remain suspended within the water column are expected to be of short duration and would not change the level light penetration as the size of the fill area will be limited to a few square feet at a time. The gravel and sand used is expected to be clean and contain very little silt and/or other fine particles that could react with the dissolved oxygen in the water.

(X) Water [40 CFR §230.22 (a-b)]. The proposed fill (clean pea gravel or sand) is expected to be free of chemicals or other materials that would affect or change the surrounding waters chemistry or physical characteristics.

(X) Current Patterns and Water Circulation [40 CFR §230.23(a-b)]. The filling of depressions or holes left by the pile removal with pea gravel or sand will cause a temporary and minor increase the elevation above the surrounding substrate. There is no expected change or modification of the existing current and water circulation in the project area.

() Normal Water Fluctuations [40 CFR §230.24(a-b)]. Normal water fluctuations will not affected by the filling activities.

(X) Salinity Gradients (40 CFR §230.25). There are no expected changes in salinity associated with fill in the few square feet around each depressions or holes.

6. Potential Impacts on Biological Characteristics of the Aquatic Ecosystem (Subpart D). The purpose of this section is to identify and evaluate any special or critical characteristics of the project site, and surrounding areas which might be affected by use of the site, related to their living communities or human uses [40 CFR §230.5(f)].

(X) Threatened/Endangered Species or Their Habitat [40 CFR §230.30 (a-c)]. ESA Section 7 consultation is complete. The proposed discharge is a conservation measure that is part of this ESA consultation. Corps has determined that the proposed project is in compliance with Section 7 of the Endangered Species Act.

(X) Fish and other Aquatic Organisms in the Food Web [40 CFR §230.31(a-b)]. The discharge of fill material will be clear pea gravel or sand and is not expected to affect fish, crustaceans, mollusks and other food web organisms through the release of contaminants or suspended particulates.

() Wildlife [40 CFR §230.32(a-b)]. No wildlife will be affected by the filling activities.

7. Potential Impacts on Special Aquatic Sites (Subpart E).

(X) Sanctuaries and Refuges [40 CFR §230.40(a-b)]. The proposed filling activities will occur within the boundaries of the Maury Island Aquatic Reserve. The filling activities will not adversely impact the reserve but will be beneficial by preventing any residual creosote contamination remaining in the substrate from coming in contact with the water column and/or the existing substrate surface.

(X) Wetlands [40 CFR §230.41] including Mudflats [40 CFR §230.42], Vegetated Shallows [40 CFR §230.43], Coral Reefs [40 CFR §230.44], and Riffle and Pool Complexes [40 CFR §230.45]. The proposed filling activities will not directly impact any special aquatic sites.

8. Potential Effects on Human Use Characteristics (Subpart F). The purpose of this section is to identify and evaluate any special or critical characteristics of the project site, and surrounding areas which might be affected by use of the site, related to their living communities or human uses [40 CFR §230.5(f)].

() Municipal and Private Water Supplies [40 CFR §230.50]. No municipal or private water supplies will be affected by the filling activities.

(X) Recreational and Commercial Fisheries [40 CFR §230.51]. The proposed fill is limited to small areas within the footprint of the existing dock and will not change the recreational and commercial fishing grounds in or adjacent to the project sites.

(X) Water-Related Recreation [40 CFR §230.52]. The project site is has been used for recreational activities, however, the placement of fill within depression or holes resulting from pile removal will not affect local recreational activities at of near the project site.

(X) Aesthetics [40 CFR §230.53]. The proposed fill will not affect the aesthetic quality of the area. The overall character of the area will not be changed.

(X) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves [40 CFR §230.54]. The discharge of fill material within the Maury Island Aquatic Reserve will not modify the aesthetic, educational, historical, recreational and/or scientific qualities or eliminating the uses for which the aquatic reserve was aside and managed.

9. General Evaluation of Fill Materials [40 CFR 230.60]. All material proposed by applicant as fill material must comply with Washington State Water Quality Certification (WQC), issued 14 March 2006, and Endangered Species Act (ESA) conservation measure.

(X) Chemical, Biological, and Physical Evaluation and Testing [40 CFR §230.61]. Fill material may be excluded from the evaluation in 40 CFR §230.60 if the likelihood of contamination is acceptably low. The fill criteria provided as part of the ESA conservation measure, the HPA conditions, and WQC are protective of the aquatic environment and the Corps will require no further testing of the fill material.

10. Actions to Minimize Adverse Effects (Subpart H). In the Corps process to determine compliance with the Guidelines, the applicant must avoidance or minimize project impacts to the maximum extend possible. The applicant has avoided direct impact to special aquatic sites and minimizes potential impacts through extensive post-construction monitoring. The proposed fill is an ESA conservation measure and is considered a beneficial impact.

11. Actions to avoid or minimize impacts. The Corps has worked with applicant throughout the process to reduce impacts to the maximum extent practicable. The applicant has complied by minimizing the footprint of the proposed project including fill associated with pile removal to that necessary to construct the proposed dock. The fill activities will reduce long-term impacts to aquatic environment. Alternatives to the proposed fill were analyzed. The Corps determined that the applicant's proposal represents the least environmentally damaging, practicable alternative available to meet the project purpose.

12. Actions to compensate for unavoidable impacts to the aquatic resource. The Corps worked with the applicant to ensure the proposed fill would result in temporary, minor, short-term impacts within the few square feet of each pile removed and to ensure that changes in aquatic environment would not occur.

Determination of Adequacy of Compensatory Mitigation. The Corps finds the proposed fill activities as ESA conservation measure adequately offsets adverse impacts associated with this project.

13. Compliance with Restrictions on Discharge [40 CFR §230.10 Subpart B Continued].

A. Compliance with Pertinent Legislation [40 CFR §230.10(b)]. No discharge shall be permitted if any of the following are not in compliance.

Water quality standards. The Washington State Department of Ecology has issued a Water Quality Certification, dated 14 March 2006, which includes water quality conditions.

Toxic effluent standards. Potential discharges under Section 307 of the Clean Water Act are not expected.

Endangered Species Act. Both USFWS and NMFS issued concurrence letters agreeing with Corps determination of “not likely to adversely affect” ESA listed species and their designated critical habitat (discussed in Section 13.8 of the Final EA.)

Marine Protection, Research, and Sanctuaries Act. The discharge of fill material will occur in a state aquatic reserve but no potential effects of the discharge cause adverse impacts to the reserve.

B. Potential for Degradation of Waters of the United States [40 CFR §230.10(c)]. No discharge shall be permitted which will cause or contribute to significant degradation of waters of the United States. Under the Guidelines, effects contributing to significant degradation, considered individually or collectively, include those listed immediately below. The Guidelines define “significant” as being more than trivial [see Preamble 40 CFR §230].

Human Health Or Welfare. This includes, but is not limited to, effects on municipal water supplies, plankton, fish, shellfish, wildlife, and special aquatic sites. The discharge will not result in significant degradation of human health or welfare.

Life Stages In and Dependent On Aquatic Ecosystems. This includes the transfer, concentration, and spread of pollutants or their byproducts outside of the disposal site through biological, chemical, and physical processes. The discharge will not result in significant degradation to aquatic ecosystem life stages.

Aquatic Ecosystem Diversity. Such effects may include, but are not limited to, loss of fish and wildlife habitat or loss of the capacity of a wetland to assimilate nutrients, purify water, or reduce wave energy. The discharge will not result in significant degradation to aquatic ecosystem diversity.

Recreational, Aesthetic and Economic Values. This includes the effects of the discharge of pollutants on recreational, aesthetic and economic values. Section 8 in this document describes the impacts to recreational, aesthetic and economic resources from the project. The discharge will not result in significant degradation to recreational, aesthetic and economic values.

Further, collectively the discharge will not result in significant degradation of waters of the United States.

C. Measures to Minimize Potential Adverse Impacts on the Aquatic Ecosystems [40 CFR §230.10(d)]. The Guidelines provide that no discharge of dredged or fill

material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem. The proposed discharge for this project is an ESA conservation measure intended to minimize potential impacts to the aquatic ecosystem.

14. Factual Determinations (40 CFR §230.11). The following determinations are based on information contained in Section 5 through 13 of this document.

A. Physical Substrate Determinations [40 CFR §230.11(a)]. The placement of fill would not result in the loss of special aquatic sites. Compliance with the Site Certification will be a special condition of the permit. A special condition regarding implementation and monitoring of the eelgrass areas will be part of any permit issued by the Corps. The individual and cumulative impacts of the proposed fill will not result in significant impacts to the physical substrate.

B. Water Circulation, Fluctuation, and Salinity Determinations [40 CFR §230.11(b)]. The placement of fill would not result in changes to circulation, fluctuation or salinity. The individual and cumulative impacts of the proposed fill will not result in significant impacts wetland will not result in significant impacts to water circulation, fluctuation and salinity.

C. Suspended Particulates/Turbidity Determinations [40 CFR §230.11(d)]. The specific requirement for the use of clean pea gravel or sand as fill is a required by WQC and ESA and will be a special condition of any permit issued by the Corps for the proposed project.

D. Contaminant Determinations [40 CFR 230.11(d)]. General and specific requirements in WQC to determine suitability of fill materials used in conjunction with the project. The proposed fill will not result in contamination of the aquatic environment.

E. Aquatic Ecosystem and Organism Determinations [40 CFR 230.11(e)]. The proposed filling activities not result in the loss of functions valued by society. The proposed filling activities will offset adverse impacts associated with potential exposure of contaminated substrate to the aquatic environment. The individual and cumulative impacts of the proposed fill will not result in significant impacts to the aquatic ecosystem.

F. Proposed Disposal Site Mixing Zone Determinations [40 CFR §230.11(f)]. Not applicable.

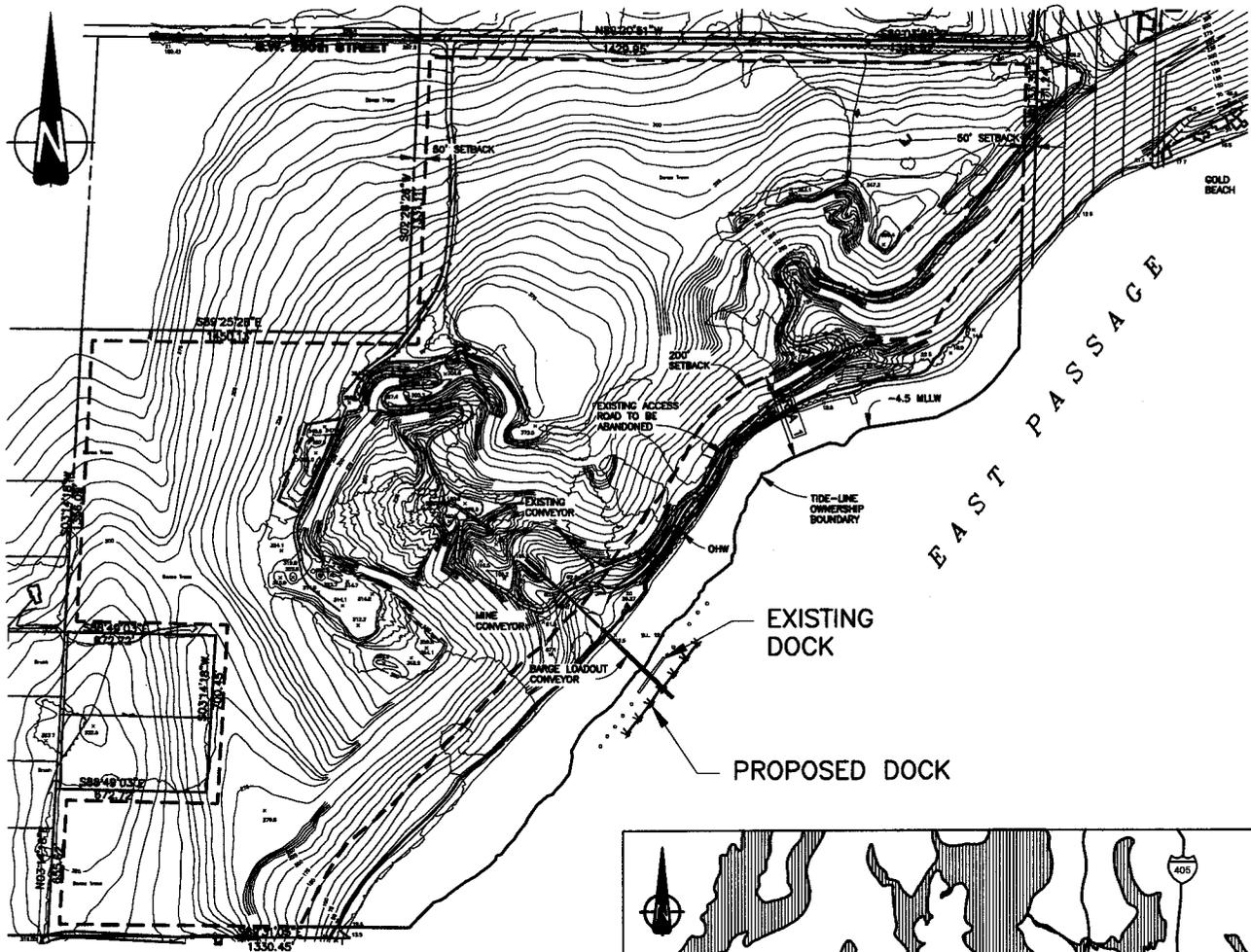
G. Determination of Cumulative Effects on the Aquatic Ecosystem [40 CFR §230.11(g)]. Cumulative impacts were discussed in Section 14.2 of the Final EA. The findings are summarized here. Maury Inland and surrounding marine waters been impacted by over time by logging, agricultural, mining, industrial development, and residential development. The project is located in within a designated mineral

resource site as defined by King County Comprehensive Plan. Impacts to the Maury Inland and the surrounding marine waters are fairly typical for an area used agricultural, mining, and residential use. Mitigation for the many of past impacts was not required at the time because of the lack of environmental and land use laws. The avoidance of the nearshore habitat, restoration of shoreline vegetation, removal of old timber piles and the associated fill activities, and other mitigation measures and monitoring plans offered by the applicant will offset the specific and cumulative impacts of the project. The proposed project does significant contribute to area's cumulative adverse degradation of the aquatic environment as the project is within a disturbed area and adjacent to an existing upland mine.

H. Determination of Secondary Effects on the Aquatic Ecosystem [40 CFR §230.11(h)]. Secondary and/or indirect impacts associated with this project are addressed in Section 14.1 of the Final EA. The proposed fill activities, monitoring plans, and mitigation measures will adequately offsets foreseeable secondary impacts (including water quality, and habitat quality). The project will not result in adverse degradation to aquatic resources through secondary effects.

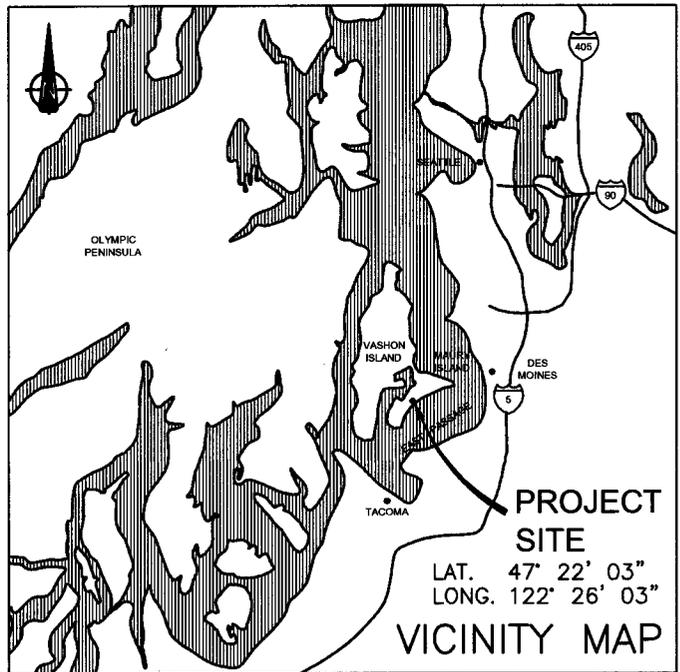
15. Findings of Compliance with the Restrictions on Discharge [40 CFR 230.12]. The work was evaluated pursuant to Section 404(b)(1) of the Clean Water Act in accordance with the guidelines promulgated by the Environmental Protection Agency (40 CFR 230.10) for evaluation of the discharge of fill material into waters of the United States. In addition, consideration has been given to the need for the work (ESA conservation measure) and to such water quality standards as are appropriate and applicable by law. The proposed discharge represents the least environmentally damaging practicable alternative and includes all appropriate and practicable measures to minimize adverse effects on the aquatic environment. The work will not result in the unacceptable degradation of the aquatic environment. The discharge and methods specified in the proposed work are in accordance with the Section 404(b)(1) Guidelines [40 CFR 230.12].

**REVISED PROJECT DRAWINGS
NORTHWEST AGGREGATES
MAY 2008**



SITE MAP

1"=800'



PROJECT SITE
 LAT. 47° 22' 03"
 LONG. 122° 26' 03"
VICINITY MAP

PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

DATUM: MLLW

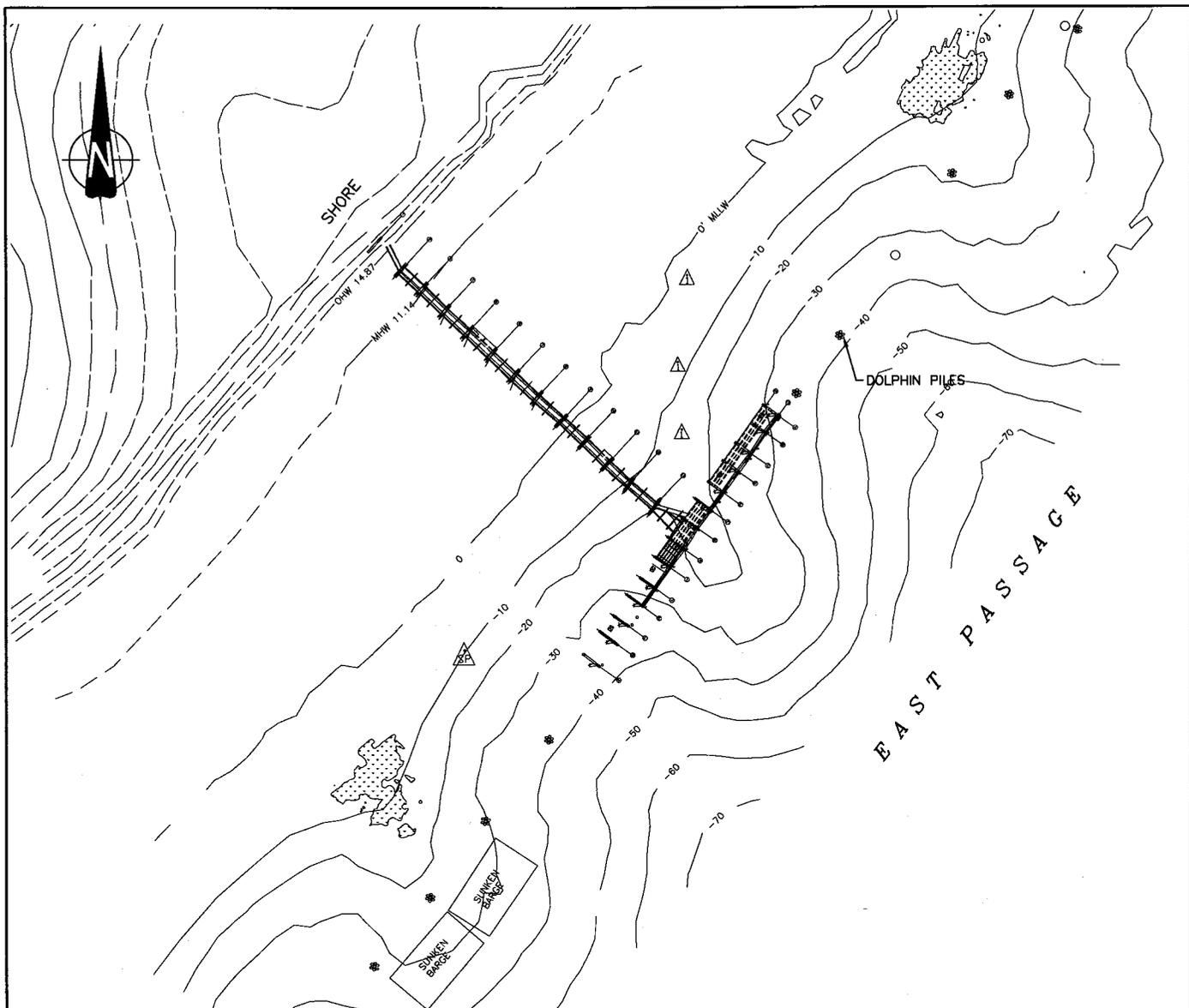
**MAURY ISLAND
 PIER MODIFICATIONS**

SCALE: As Noted Above
 NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 1 OF 19 DATE: MAY 2008



LEGEND:

- EELGRASS
- SMALL PATCH OF EELGRASS
- SINGLE SHOOT OF EELGRASS
- EXISTING ABOVE WATER TIMBER PILE DOLPHINS
- EXISTING SUBMERGED DOLPHINS

NOTE:

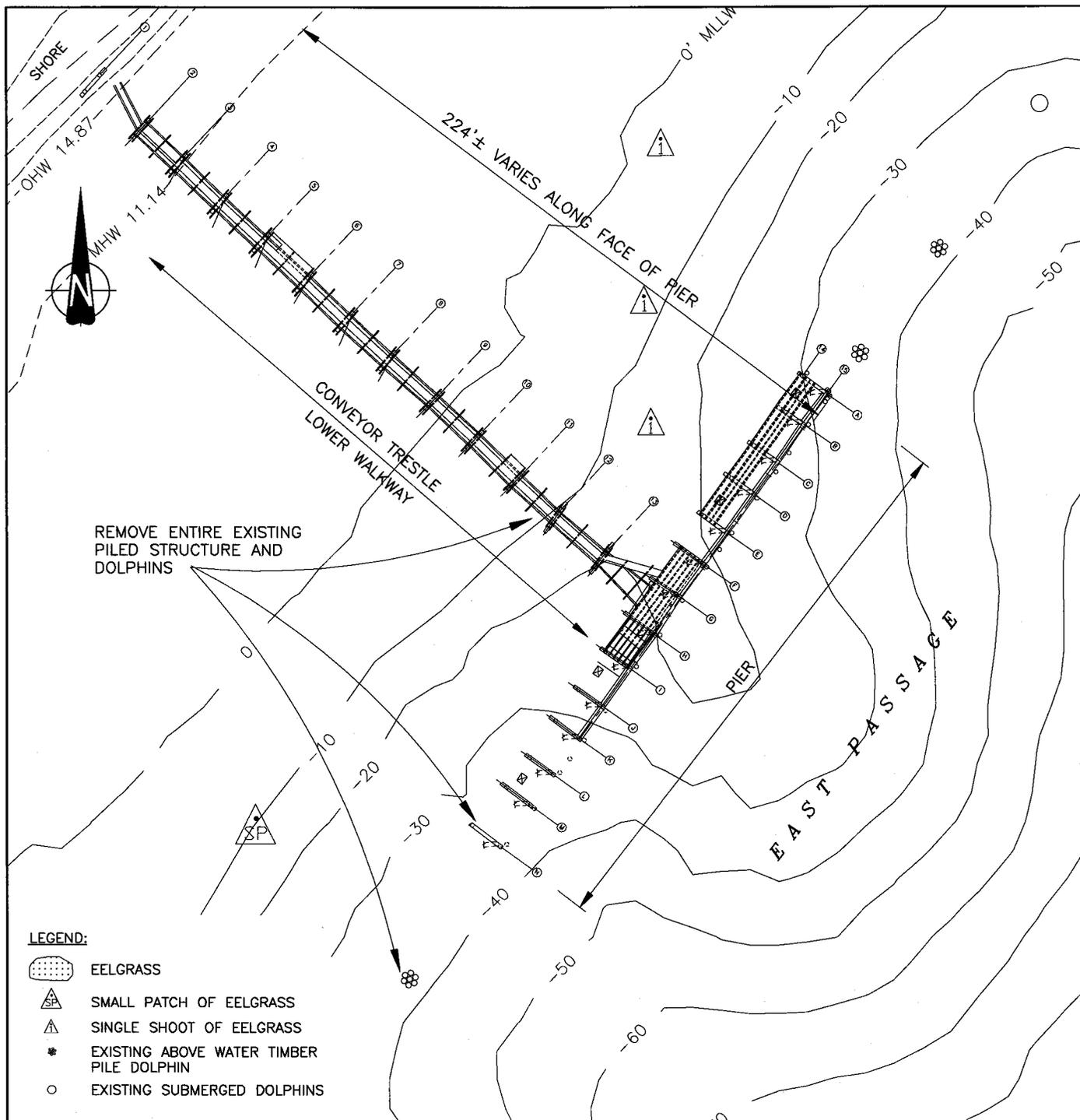
EELGRASS LOCATIONS TAKEN FROM PACIFIC INTERNATIONAL ENGINEERING SURVEY, JUL/AUG 2001.

BATHYMETRY (BLUE WATER ENGINEERING, 1999)

ACCORDING TO NOAA PUBLISHED INFORMATION N.G.V.D. 1929 IS 6.40 FEET HIGHER THAN MEAN LOWER LOW WATER (MLLW=0.0')
 ORDINARY HIGH WATER - LINE OF VEGETATION (OHV) = 14.87 FT
 HIGHEST OBSERVED WATER LEVEL (02/01/1975) = 13.97 FT
 MEAN HIGHER HIGH WATER (MHHW) = 12.05 FT
 MEAN HIGH WATER (MHW) = 11.14 FT
 MEAN TIDE LEVEL (MTL) = 7.01 FT
 *NATIONAL GEODETIC VERTICAL DATUM-1929 (NGVD) = 6.40 FT
 MEAN LOW WATER (MLW) = 2.88 FT
 MEAN LOWER LOW WATER (MLLW) = 0.00 FT
 LOWEST OBSERVED WATER LEVEL (12/24/1975) = -2.01 FT

EXISTING DOCK/DOLPHIN PLAN AND TOPOGRAPHY

<p>PURPOSE: PROVIDE MOORAGE FOR VESSELS TO RECEIVE SAND AND GRAVEL BEING TRANSFERRED OFF-SHORE</p> <p>DATUM: MLLW</p>	<p>MAURY ISLAND PIER MODIFICATIONS</p> <p>SCALE: 1"=100'</p> <p>NAME: NORTHWEST AGGREGATES ADDRESS: 5975 E. MARGINAL WAY S. P.O. BOX 1730 SEATTLE, WA 98111</p>	<p>PROPOSED: REPLACEMENT BARGE LOADING STRUCTURE</p> <p>IN: EAST PASSAGE AT: MAURY ISLAND COUNTY OF: KING APPLICATION BY: NORTHWEST AGGREGATES</p> <p>SHEET 2 OF 19 DATE: MAY 2008</p>
--	--	---



REMOVE ENTIRE EXISTING
PILED STRUCTURE AND
DOLPHINS

LEGEND:

-  EELGRASS
-  SMALL PATCH OF EELGRASS
-  SINGLE SHOOT OF EELGRASS
-  EXISTING ABOVE WATER TIMBER PILE DOLPHIN
-  EXISTING SUBMERGED DOLPHINS

NOTE:

EELGRASS LOCATIONS TAKEN
FROM PACIFIC INTERNATIONAL
ENGINEERING SURVEY,
JUL/AUG 2001.
BATHYMETRY (BLUE WATER ENGINEERING, 1999)

EXISTING LOWER LEVEL PLAN

PURPOSE:
PROVIDE MOORAGE FOR VESSELS TO
RECEIVE SAND AND GRAVEL BEING
TRANSFERRED OFF-SHORE

DATUM: MLLW

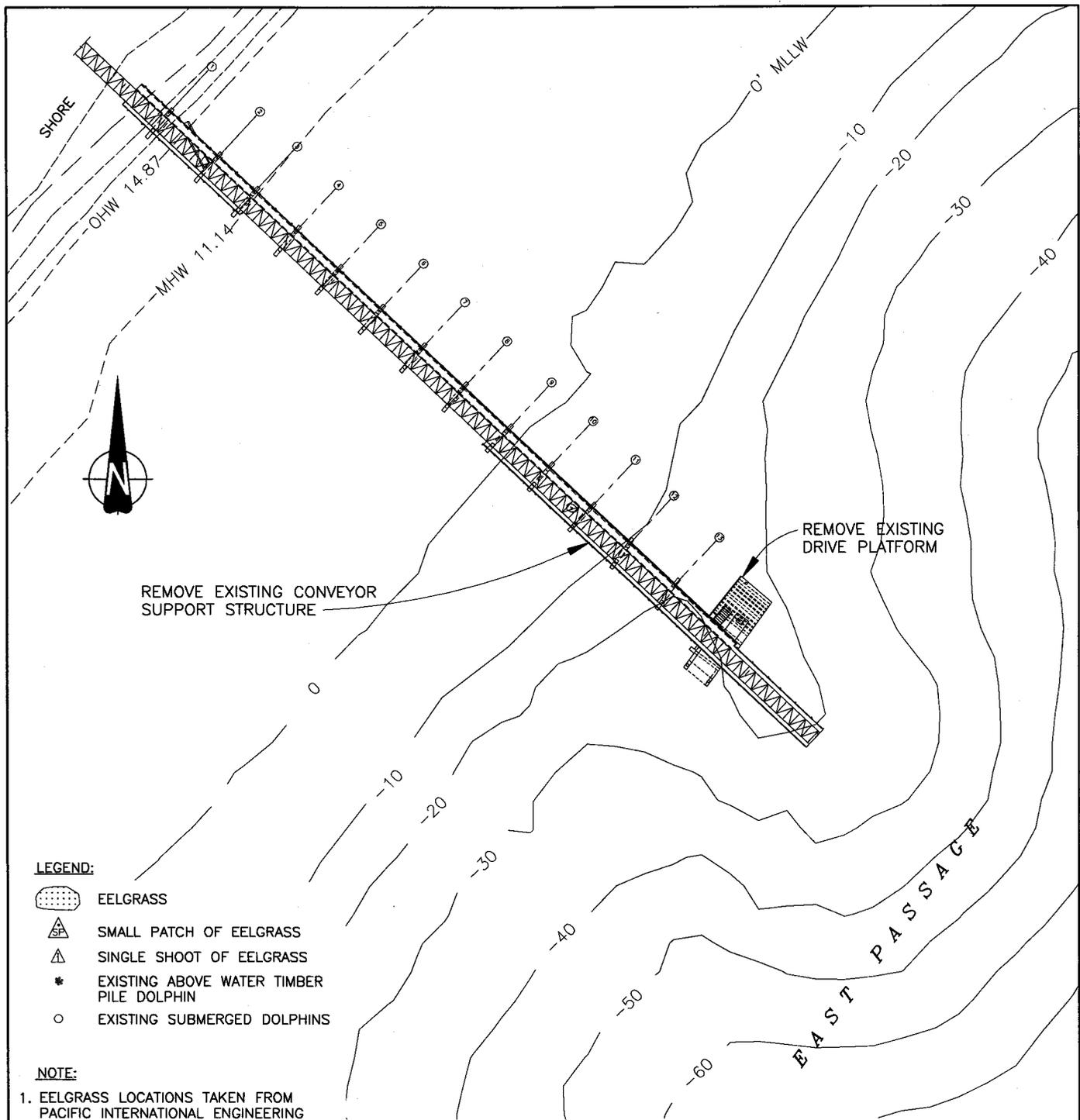
**MAURY ISLAND
PIER MODIFICATIONS**

SCALE: 1"=50'
NAME: NORTHWEST AGGREGATES
ADDRESS: 5975 E. MARGINAL WAY S.
P.O. BOX 1730
SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
LOADING STRUCTURE

IN: EAST PASSAGE
AT: MAURY ISLAND
COUNTY OF: KING
APPLICATION BY: NORTHWEST AGGREGATES

SHEET 3 OF 19 DATE: MAY 2008



REMOVE EXISTING CONVEYOR
SUPPORT STRUCTURE

REMOVE EXISTING
DRIVE PLATFORM

LEGEND:

-  EELGRASS
-  SMALL PATCH OF EELGRASS
-  SINGLE SHOOT OF EELGRASS
-  EXISTING ABOVE WATER
PILE DOLPHIN
-  EXISTING SUBMERGED DOLPHINS

NOTE:

1. EELGRASS LOCATIONS TAKEN FROM
PACIFIC INTERNATIONAL ENGINEERING
SURVEY, JUL/AUG 2001.
2. BATHYMETRY (BLUE WATER ENGINEERING,1999)
3. LOWER DOCK NOT SHOWN FOR CLARITY.

EXISTING UPPER LEVEL PLAN

PURPOSE:
PROVIDE MOORAGE FOR VESSELS TO
RECEIVE SAND AND GRAVEL BEING
TRANSFERRED OFF-SHORE

DATUM: MLLW

**MAURY ISLAND
PIER MODIFICATIONS**

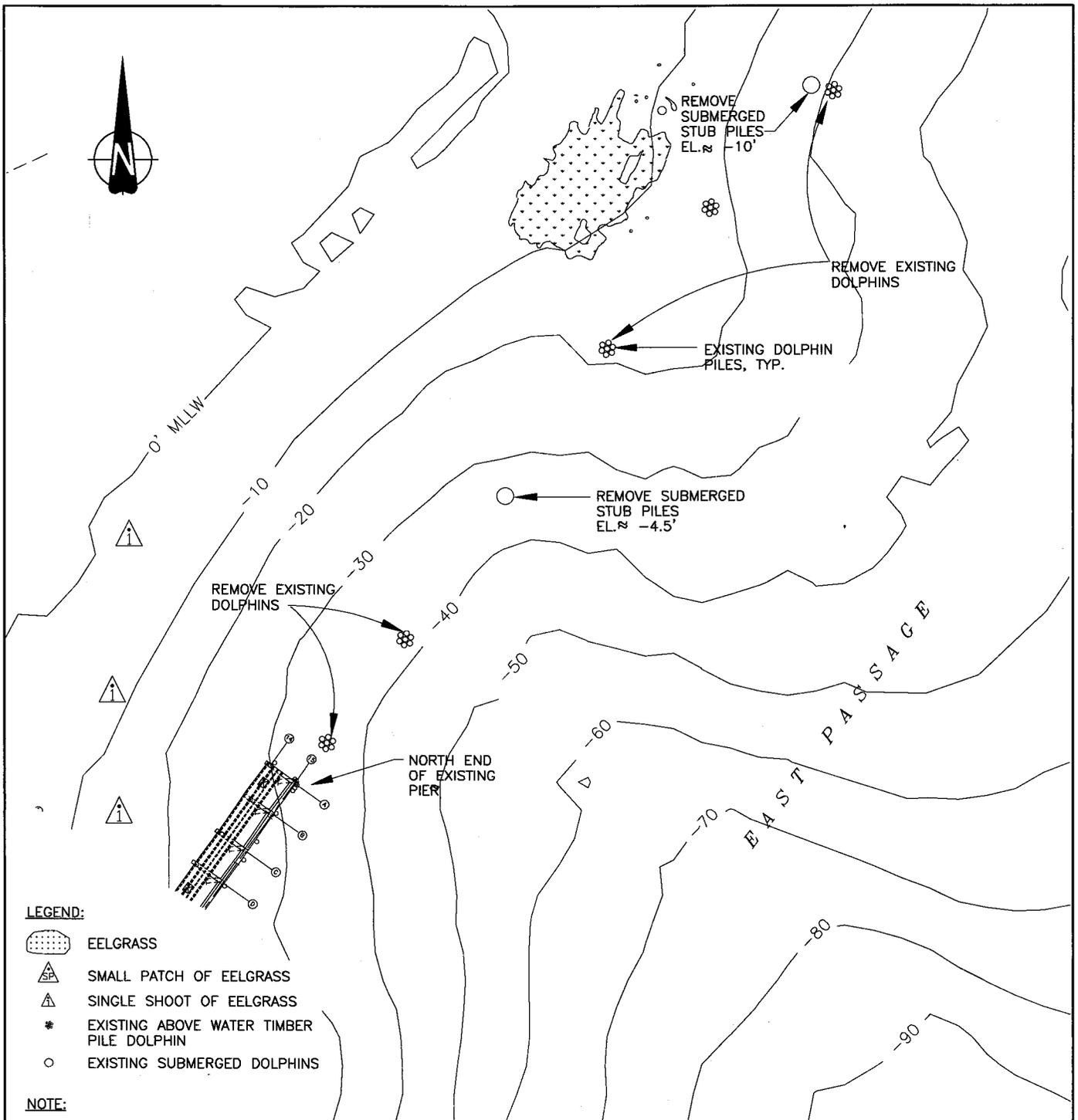
SCALE: 1"=50'

NAME: NORTHWEST AGGREGATES
ADDRESS: 5975 E. MARGINAL WAY S.
P.O. BOX 1730
SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
LOADING STRUCTURE

IN: EAST PASSAGE
AT: MAURY ISLAND
COUNTY OF: KING
APPLICATION BY: NORTHWEST AGGREGATES

SHEET 4 OF 19 DATE: MAY 2008



EXISTING PIER & DOLPHIN LAYOUT - NORTH

NOTE:

EELGRASS LOCATIONS TAKEN FROM PACIFIC INTERNATIONAL ENGINEERING SURVEY, JUL/AUG 2001.

BATHYMETRY (BLUE WATER ENGINEERING, 1999)

PURPOSE:
PROVIDE MOORAGE FOR VESSELS TO RECEIVE SAND AND GRAVEL BEING TRANSFERRED OFF-SHORE

DATUM: MLLW

MAURY ISLAND PIER MODIFICATIONS

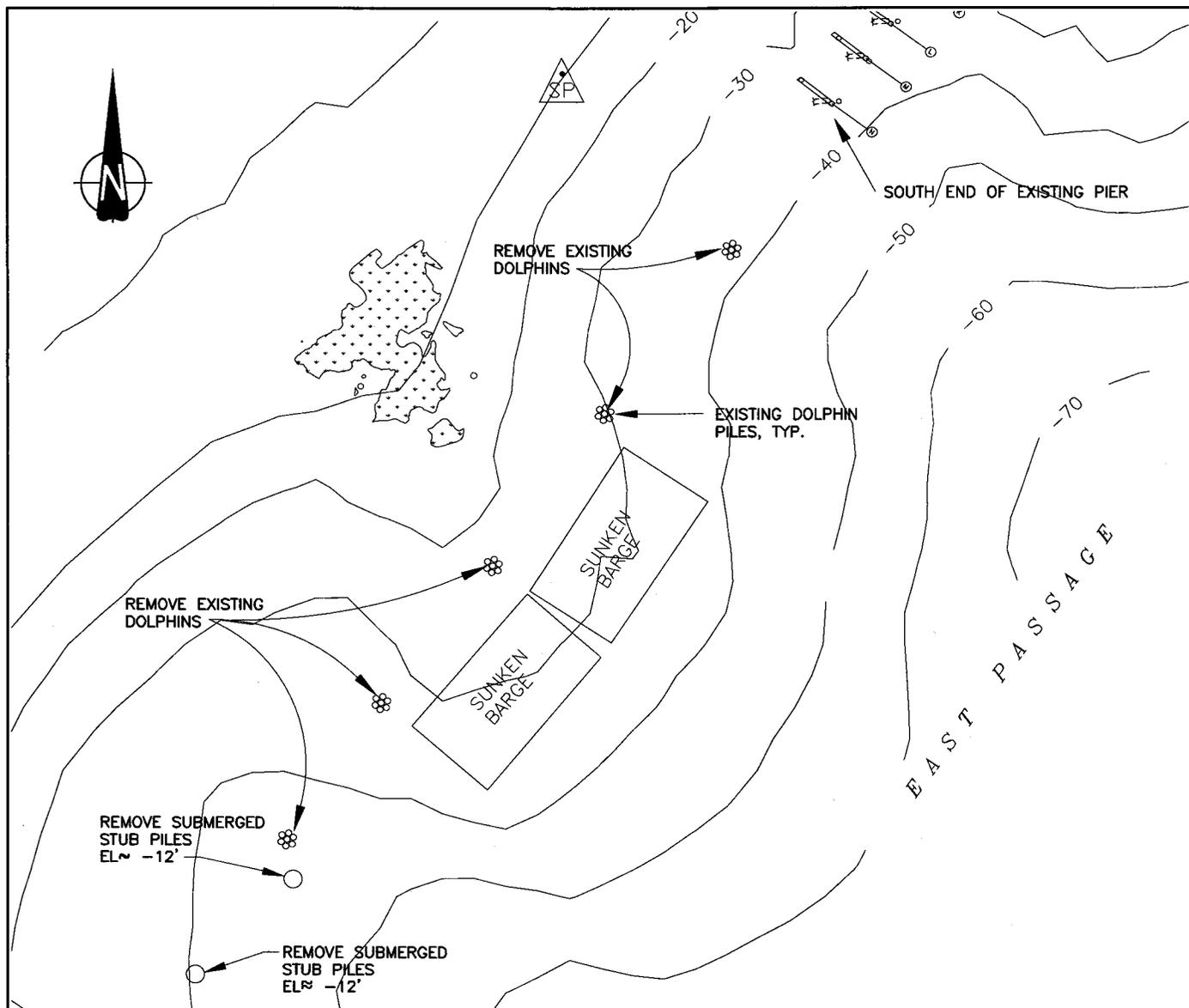
SCALE: 1"=50'

NAME: NORTHWEST AGGREGATES
ADDRESS: 5975 E. MARGINAL WAY S.
P.O. BOX 1730
SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE LOADING STRUCTURE

IN: EAST PASSAGE
AT: MAURY ISLAND
COUNTY OF: KING
APPLICATION BY: NORTHWEST AGGREGATES

SHEET 5 OF 19 DATE: MAY 2008



LEGEND:

-  EELGRASS
-  SMALL PATCH OF EELGRASS
-  SINGLE SHOOT OF EELGRASS
-  EXISTING ABOVE WATER TIMBER PILE DOLPHIN
-  EXISTING SUBMERGED DOLPHINS

NOTE:

EELGRASS LOCATIONS TAKEN FROM PACIFIC INTERNATIONAL ENGINEERING SURVEY, JUL/AUG 2001. BATHYMETRY (BLUE WATER ENGINEERING, 1999)

EXISTING PIER & DOLPHIN LAYOUT - SOUTH

PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO RECEIVE SAND AND GRAVEL BEING TRANSFERRED OFF-SHORE

DATUM: MLLW

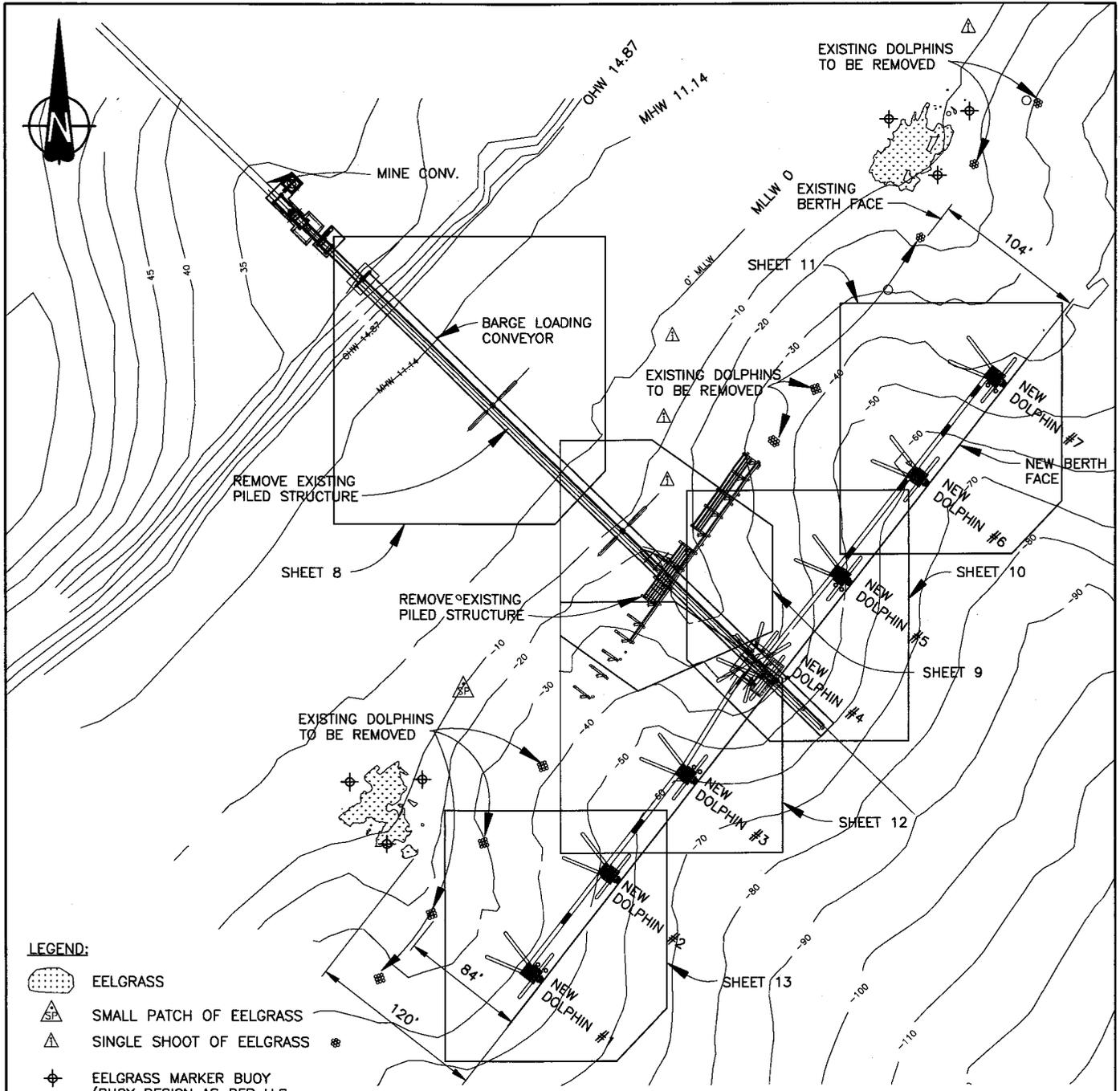
**MAURY ISLAND
 PIER MODIFICATIONS**

SCALE: 1"=50'
NAME: NORTHWEST AGGREGATES
ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE LOADING STRUCTURE

IN: EAST PASSAGE
AT: MAURY ISLAND
COUNTY OF: KING
APPLICATION BY: NORTHWEST AGGREGATES

SHEET 6 OF 19 DATE: MAY 2008



LEGEND:

- EELGRASS
- SMALL PATCH OF EELGRASS
- SINGLE SHOOT OF EELGRASS
- EELGRASS MARKER BUOY (BUOY DESIGN AS PER U.S. COASTGUARD REQUIREMENTS)

NOTE:

EELGRASS LOCATIONS TAKEN FROM PACIFIC INTERNATIONAL ENGINEERING SURVEY, JUL/AUG 2001.

NOTE:

FOR PILE SUMMARY TABLE & SURFACE AREA TABLE SEE SHEET 19

**PROPOSED NEW PIER AND
NEW ENCLOSED CONVEYOR
KEY PLAN**

PURPOSE:
PROVIDE MOORAGE FOR VESSELS TO RECEIVE SAND AND GRAVEL BEING TRANSFERRED OFF-SHORE.

DATUM: MLLW

**MAURY ISLAND
PIER MODIFICATIONS**

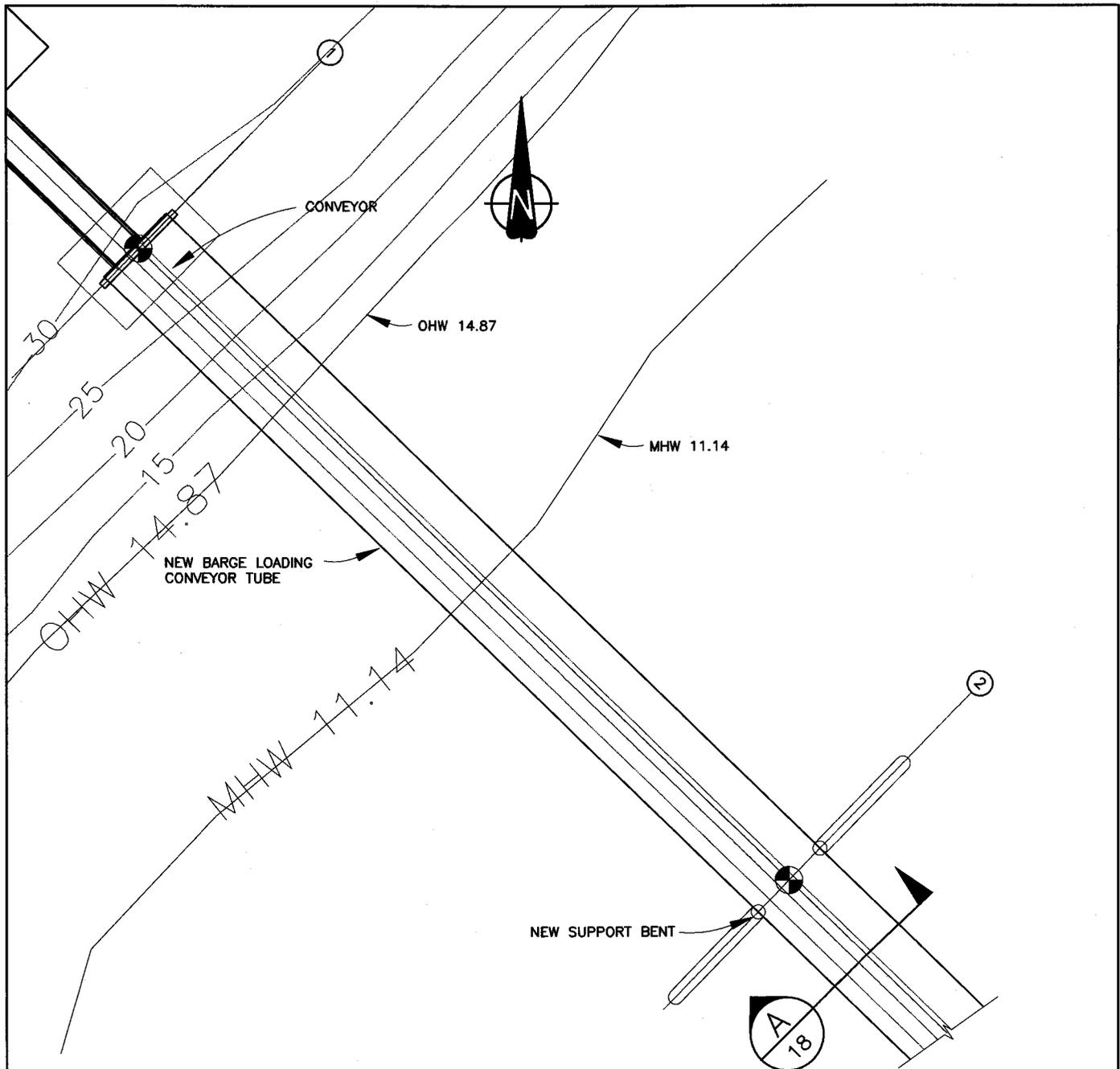
SCALE: 1"=100'

NAME: NORTHWEST AGGREGATES
ADDRESS: 5975 E. MARGINAL WAY S.
P.O. BOX 1730
SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE LOADING STRUCTURE

IN: EAST PASSAGE
AT: MAURY ISLAND
COUNTY OF: KING
APPLICATION BY: NORTHWEST AGGREGATES

SHEET 7 OF 19 DATE: MAY 2008



PROPOSED NEW CONVEYOR TUBE PLAN

PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

DATUM: MLLW

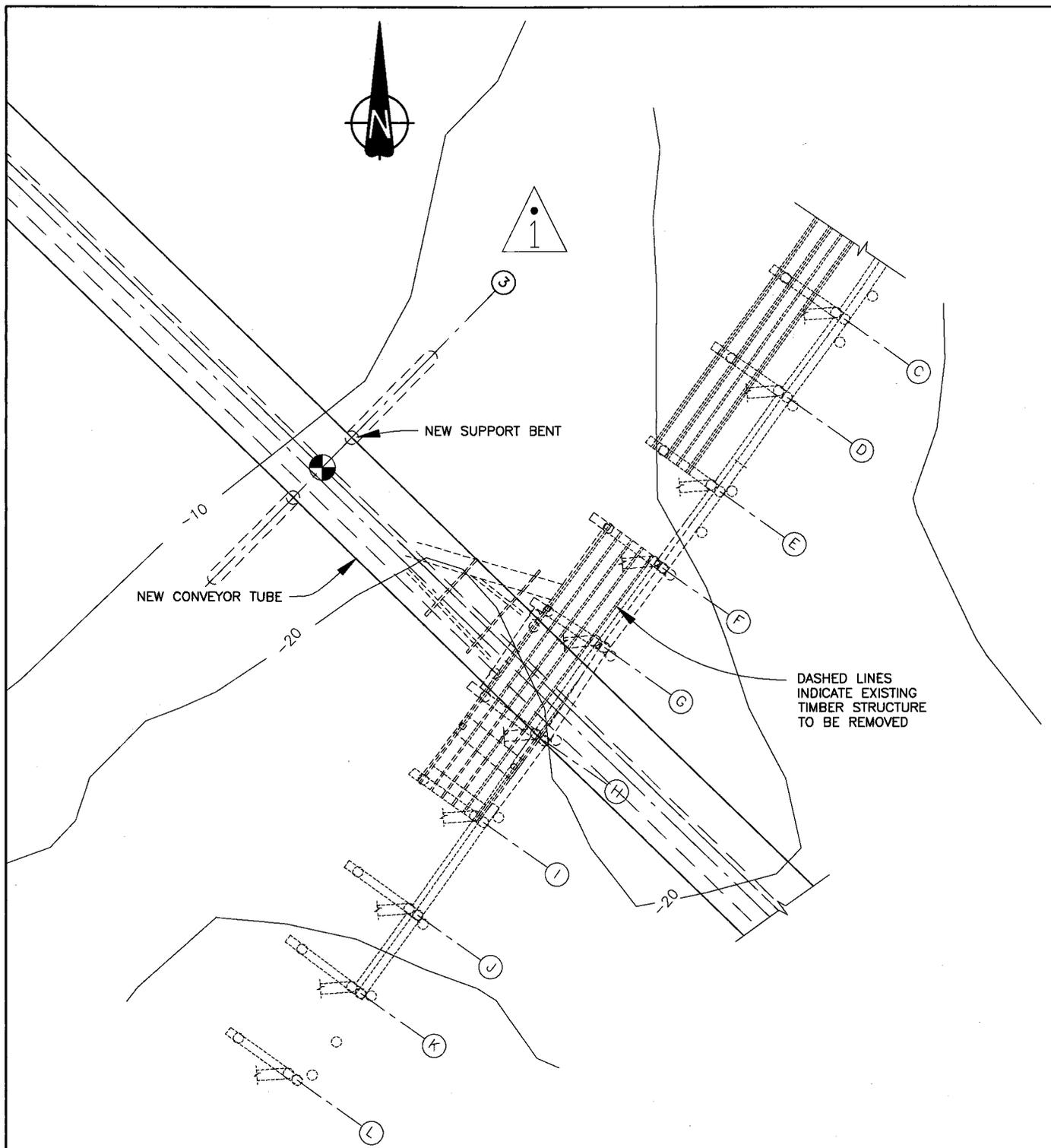
**MAURY ISLAND
 PIER MODIFICATIONS**

SCALE: 1"=20'
 NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

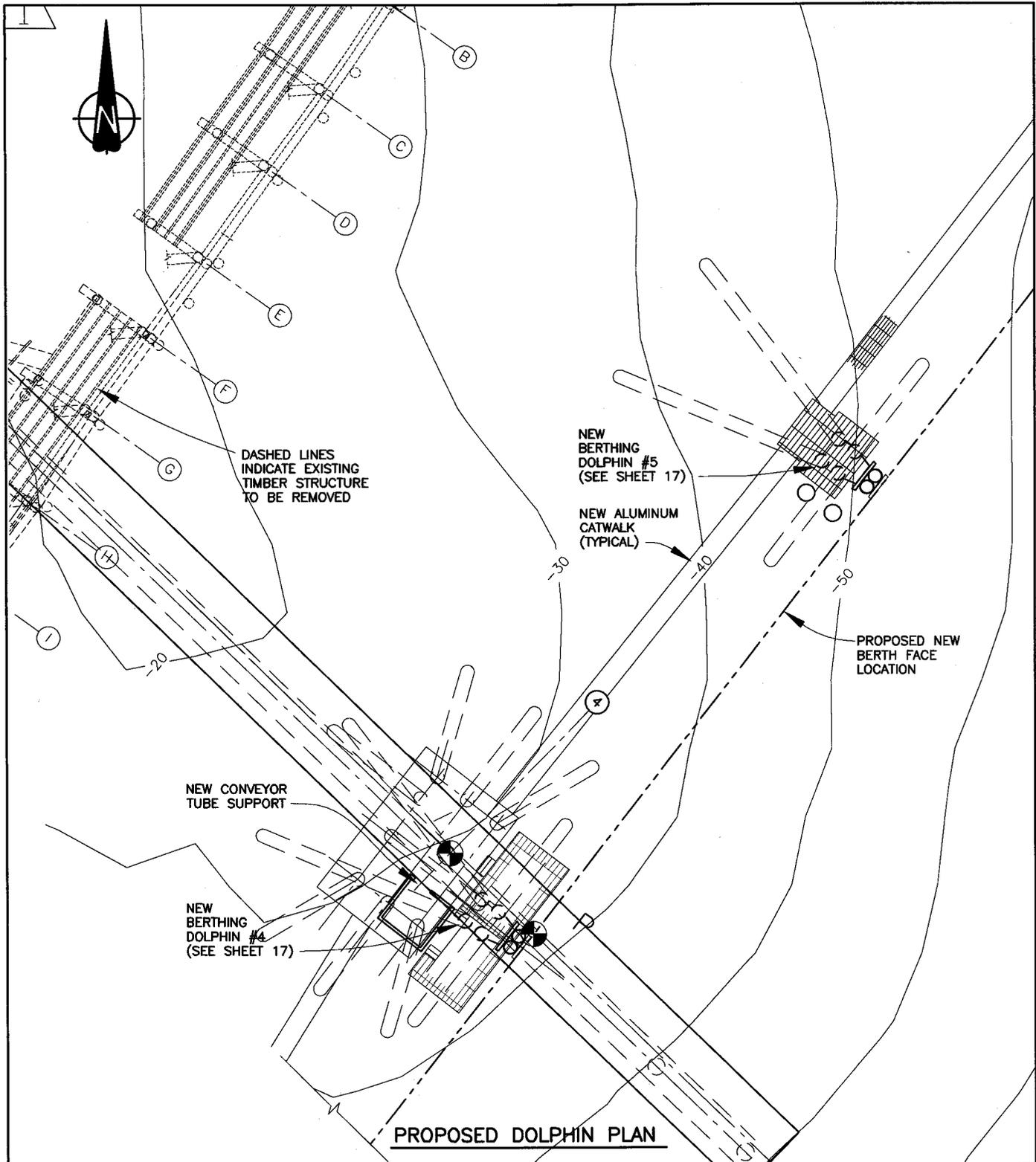
IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 8 OF 19 DATE: MAY 2008



PROPOSED NEW CONVEYOR TUBE PLAN

<p>PURPOSE: PROVIDE MOORAGE FOR VESSELS TO RECEIVE SAND AND GRAVEL BEING TRANSFERRED OFF-SHORE</p> <p>DATUM: MLLW</p>	<p>MAURY ISLAND PIER MODIFICATIONS</p> <p>SCALE: 1"=20'</p> <p>NAME: NORTHWEST AGGREGATES ADDRESS: 5975 E. MARGINAL WAY S. P.O. BOX 1730 SEATTLE, WA 98111</p>	<p>PROPOSED: REPLACEMENT BARGE LOADING STRUCTURE</p> <p>IN: EAST PASSAGE AT: MAURY ISLAND COUNTY OF: KING APPLICATION BY: NORTHWEST AGGREGATES</p> <p>SHEET 9 OF 19 DATE: MAY 2008</p>
---	---	--



PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

DATUM: MLLW

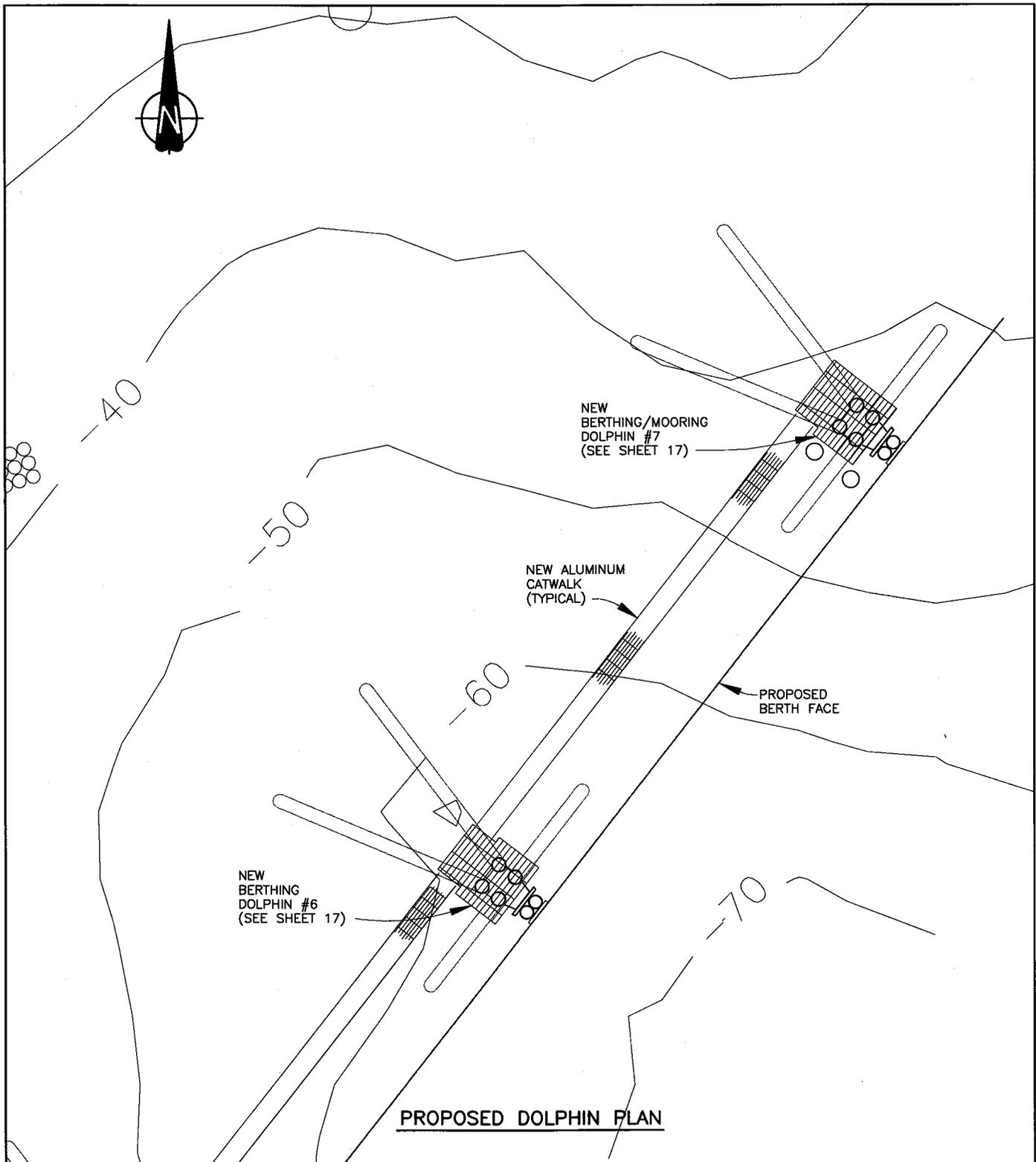
MAURY ISLAND PIER MODIFICATIONS

SCALE: 1"=20'
 NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 10 OF 19 DATE: MAY 2008



PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

DATUM: MLLW

**MAURY ISLAND
 PIER MODIFICATIONS**

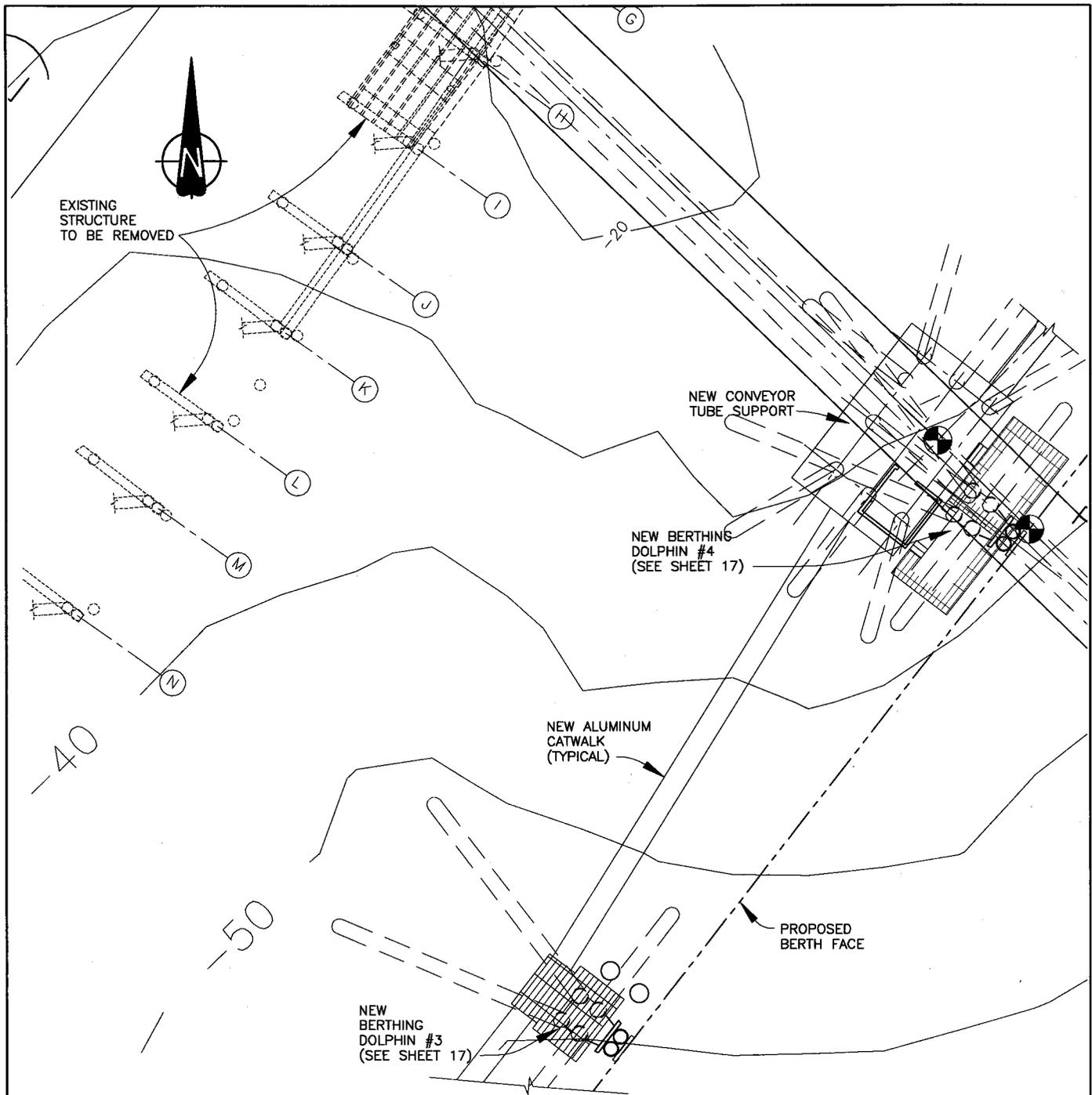
SCALE: 1"=20'

NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 11 OF 19 DATE: MAY 2008



PROPOSED DOLPHIN PLAN

PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

DATUM: MLLW

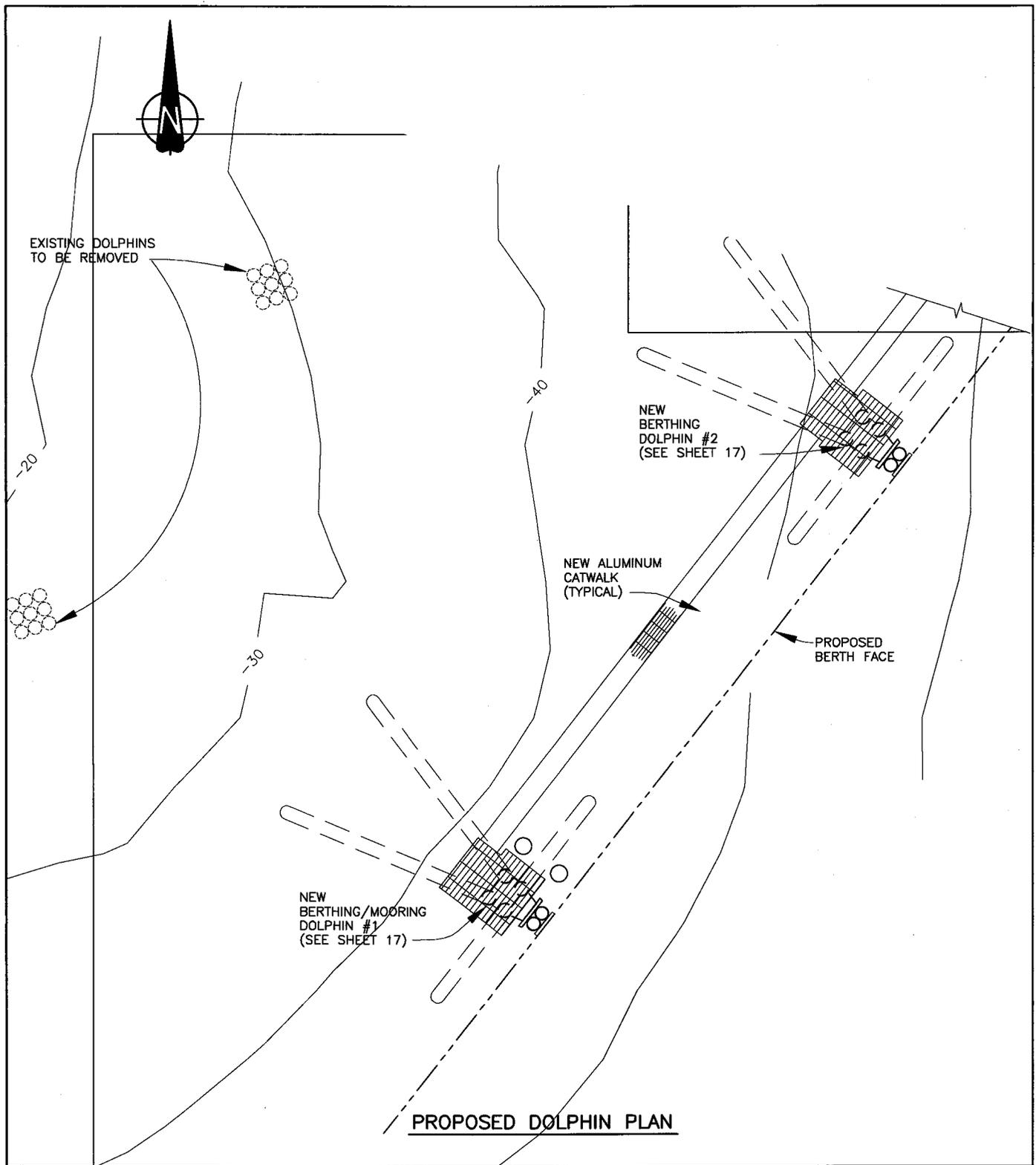
**MAURY ISLAND
 PIER MODIFICATIONS**

SCALE: 1"=20'
 NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 12 OF 19 DATE: MAY 2008



PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

DATUM: MLLW

**MAURY ISLAND
 PIER MODIFICATIONS**

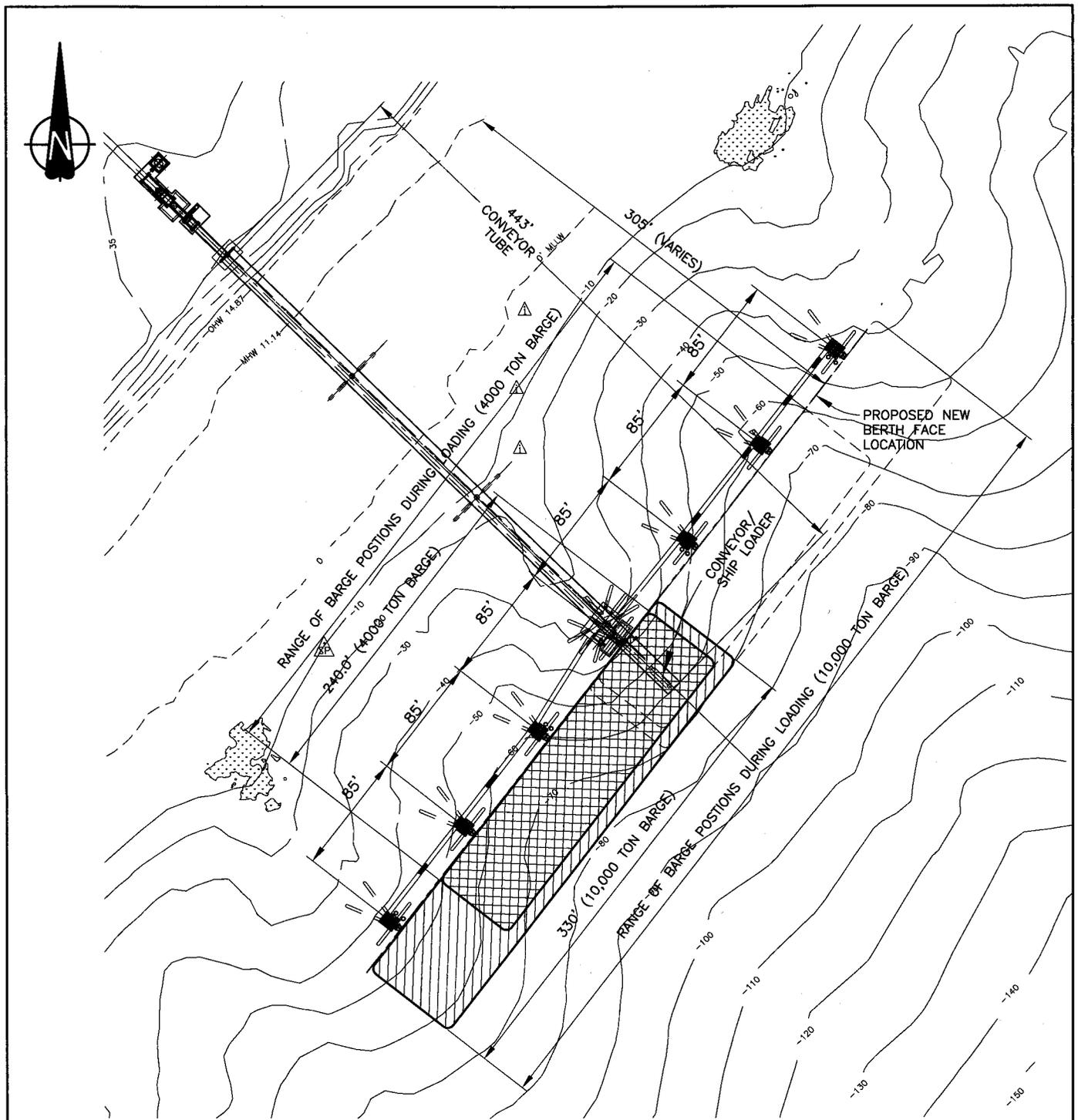
SCALE: 1"=20'

NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 13 OF 19 DATE: MAY 2008



PROPOSED BARGE WARPING PLAN

PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

DATUM: MLLW

**MAURY ISLAND
 PIER MODIFICATIONS**

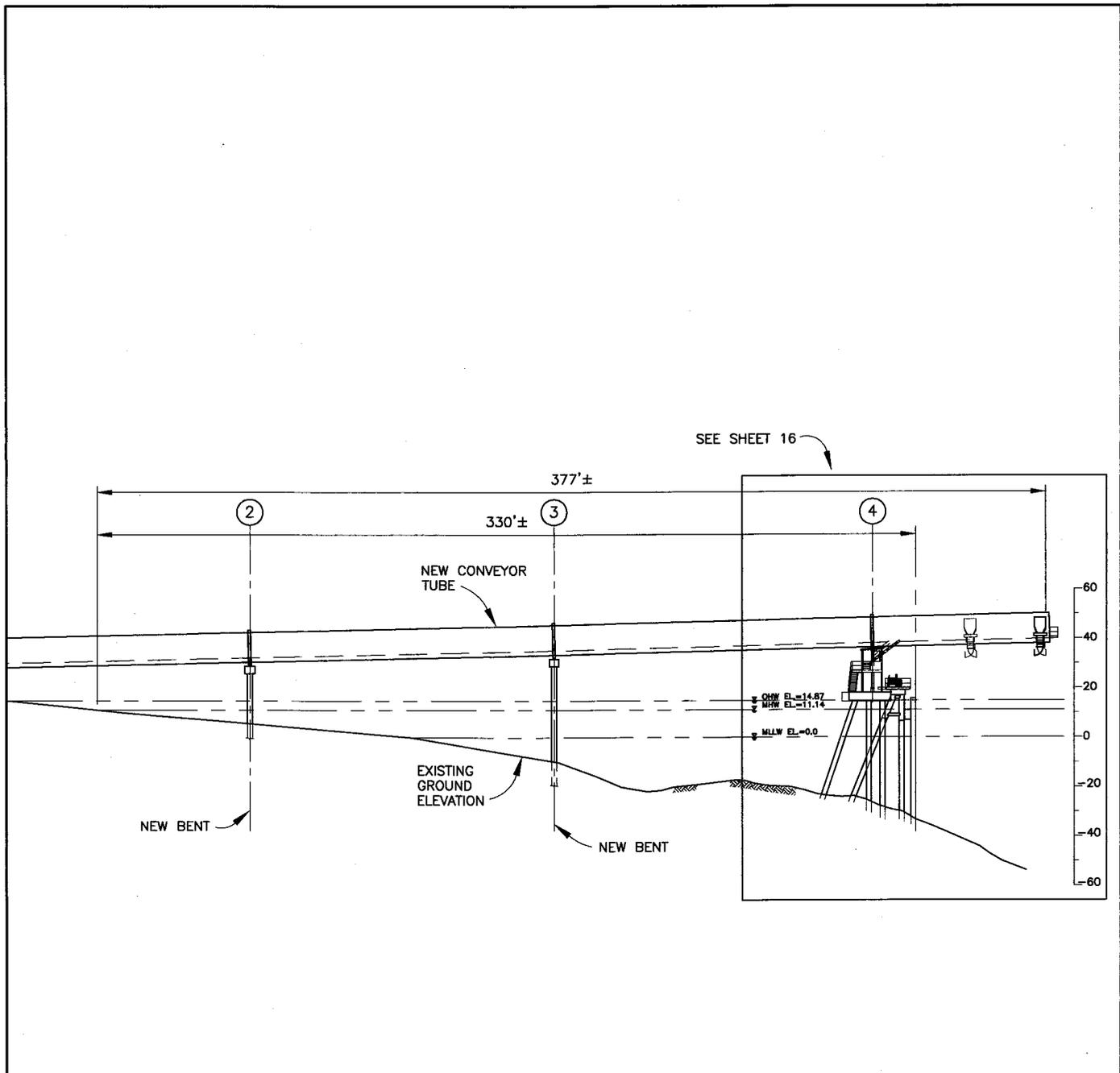
SCALE: 1"=100'

NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 14 OF 19 DATE: MAY 2008



PROPOSED BARGE LOADING CONVEYOR ELEVATION

PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

DATUM: MLLW

**MAURY ISLAND
 PIER MODIFICATIONS**

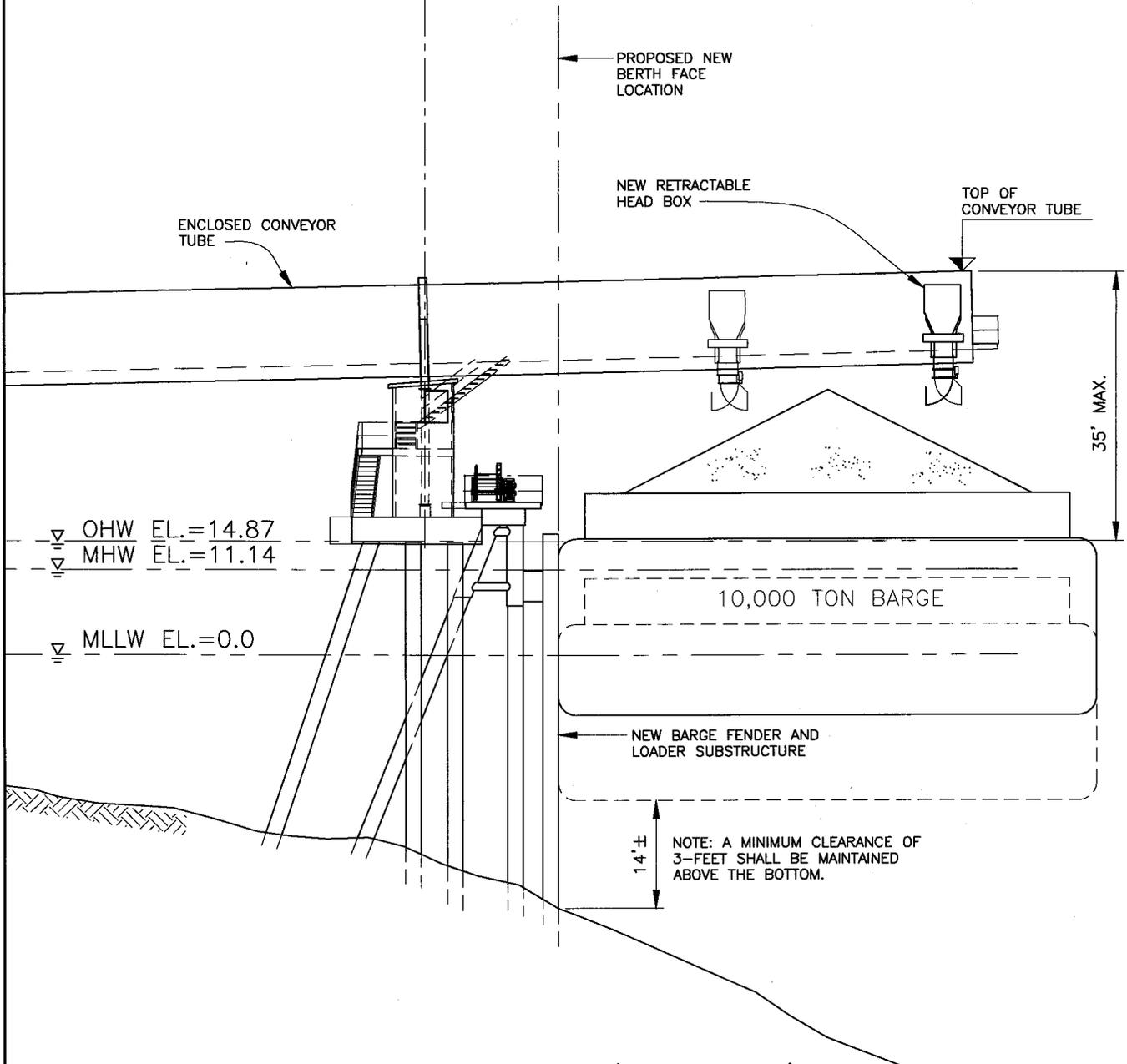
SCALE: 1"=60'
 NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 15 OF 19 DATE: MAY 2008

4



PROPOSED ELEVATION (BARGE LOADER)

PURPOSE:
PROVIDE MOORAGE FOR VESSELS TO
RECEIVE SAND AND GRAVEL BEING
TRANSFERRED OFF-SHORE

DATUM: MLLW

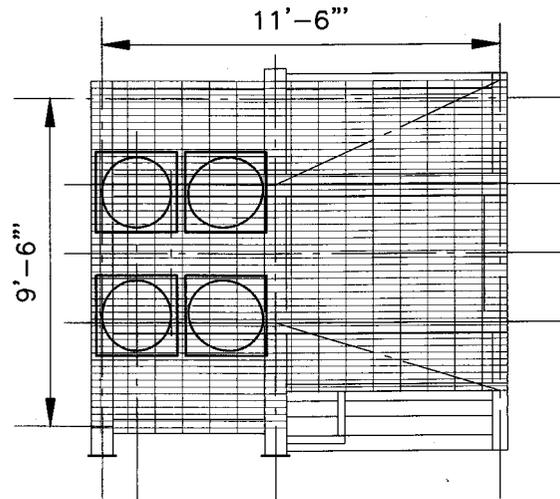
MAURY ISLAND PIER MODIFICATIONS

SCALE: 1"=20'
NAME: NORTHWEST AGGREGATES
ADDRESS: 5975 E. MARGINAL WAY S.
P.O. BOX 1730
SEATTLE, WA 98111

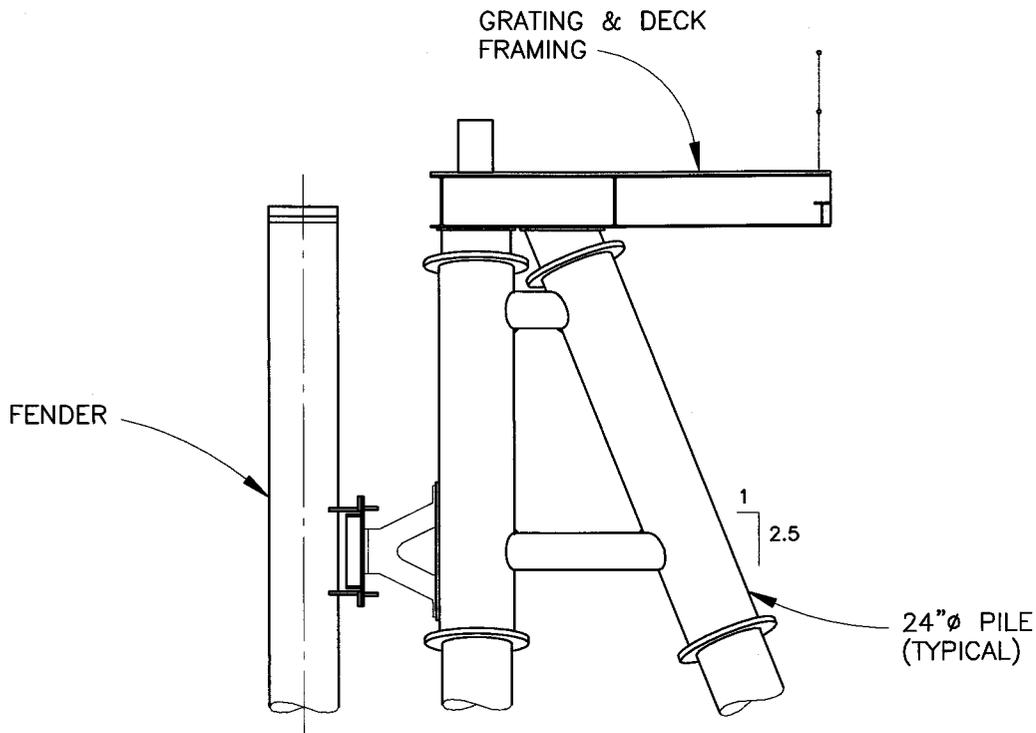
PROPOSED: REPLACEMENT BARGE
LOADING STRUCTURE

IN: EAST PASSAGE
AT: MAURY ISLAND
COUNTY OF: KING
APPLICATION BY: NORTHWEST AGGREGATES

SHEET 16 OF 19 DATE: MAY 2008



PLAN



ELEVATION

(DOLPHINS #1 TO #7)

PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

MAURY ISLAND PIER MODIFICATIONS

SCALE: 3/32"=1'-0"
 NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 17 OF 19 DATE: MAY 2008

NEW CONVEYOR

12'-0" DIAMETER
CONVEYOR TUBE

EXTERNAL TUBE
STIFFENER AT
BENT SUPPORTS

NEW BENT

SECTION

A

8

PURPOSE:
PROVIDE MOORAGE FOR VESSELS TO
RECEIVE SAND AND GRAVEL BEING
TRANSFERRED OFF-SHORE

MAURY ISLAND PIER MODIFICATIONS

SCALE: NOT TO SCALE
NAME: NORTHWEST AGGREGATES
ADDRESS: 5975 E. MARGINAL WAY S.
P.O. BOX 1730
SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
LOADING STRUCTURE

IN: EAST PASSAGE
AT: MAURY ISLAND
COUNTY OF: KING
APPLICATION BY: NORTHWEST AGGREGATES

SHEET 18 OF 19 DATE: MAY 2008

PILE SUMMARY TABLE - EXISTING PIER			
STRUCTURE	PILE TYPE	TOTAL NUMBER OF EXISTING PILES	NUMBER OF TIMBER PILES TO BE REMOVED
CONVEYOR TRESTLE	VERTICAL	26	26
PIER	VERTICAL	32	32
	BATTER	18	18
FENDER SYSTEM	FENDER	21	21
DOLPHINS	VERTICAL	105	105
SUBMERGED DOLPHINS	CLUSTER	26	26
TOTAL		228 PILES	228 PILES

PILE SUMMARY TABLE - NEW PIER		
STRUCTURE	PILE TYPE	NUMBER OF STEEL PILES
CONVEYOR TRESTLE	BATTERED	12
FENDER SYSTEM	VERTICAL	14
DOLPHINS	BATTERED	28
TOTAL		54 PILES

GROSS SURFACE AREA TABLE (TOTAL SF) - EXISTING PIER				
STRUCTURE	PILE AREA AT MUDLINE		STRUCTURE AREA ABOVE MLW	
	EXISTING PILES	REMOVED PILES	EXISTING TIMBER DECK/WALKWAY	REMOVED TIMBER DECK/WALKWAY
CONVEYOR TRESTLE (LOWER LEVEL)	27.1	27.1	2464	2464
PIER (LOWER LEVEL)	62.2	62.2	2520	2520
FENDER SYSTEM	23.5	23.5		
DOLPHIN	127.4	127.4		
SUBMERGED DOLPHINS	33.2	33.2		
CONVEYOR TRESTLE (UPPER LEVEL)			2818	2818
PIER			380	380
TOTALS	273.4	273.4	8182	8182

GROSS SURFACE AREA TABLE (TOTAL SF) - NEW PIER		
STRUCTURE	PILE AREA AT MUDLINE	STRUCTURE AREA ABOVE MLW
CONVEYOR TRESTLE	38	5170
DOLPHINS	88	792
FENDER PILES	44	NA
DOLPHIN WALKWAYS	NA	1593*
TOTALS	170	7555

* OPEN-GRATED STEEL WITH 75% OPEN AREA

PURPOSE:
PROVIDE MOORAGE FOR VESSELS TO
RECEIVE SAND AND GRAVEL BEING
TRANSFERRED OFF-SHORE

MAURY ISLAND PIER MODIFICATIONS

SCALE: NOT TO SCALE
NAME: NORTHWEST AGGREGATES
ADDRESS: 5975 E. MARGINAL WAY S.
P.O. BOX 1730
SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
LOADING STRUCTURE

IN: EAST PASSAGE
AT: MAURY ISLAND
COUNTY OF: KING
APPLICATION BY: NORTHWEST AGGREGATES

SHEET 19 OF 19 DATE: MAY 2008

**PUBLIC NOTICES
NORTHWEST AGGREGATES**

**DRAFT EA
FEBRUARY 8, 2008**

**PUBLIC HEARING
APRIL 14, 2004**

**PROJECT PUBLIC NOTICE
DECEMBER 13, 2004**



US Army Corps
of Engineers
Seattle District

Public Notice of Draft Environmental Assessment

Regulatory Branch
Post Office Box 3755
Seattle, Washington 98124-3755
Telephone (206) 764-3495
ATTN: Olivia Romano, Project Manager

Public Notice Date: February 8, 2008
Expiration Date: March 10, 2008
Reference: NWS-2000-1094-SO
Name: Northwest Aggregates

Interested parties are hereby notified that a Draft Environmental Assessment (Draft EA) is available for public review and comments related to the Northwest Aggregates' application for a Department of the Army permit in accordance with Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (CWA) for certain work described in the Draft EA.

Northwest Aggregates' proposed project was the subject of Public Notice issued December 13, 2004 and Public Notice issued April 14, 2005 under the same reference number listed above. The Draft EA and public notices describing the project are available at the following website:

http://www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=REG&pagename=mainpage_HighProfile

or

<http://www.nws.usace.army.mil/> and scroll down the alphabetical listing of District elements, and click on "Regulatory" and then "Regulatory - Permits" for the Seattle District's Regulatory homepage. Scroll down the listing on left side of the page and select the prominently displayed "High Profile Projects". Select and view the listing for this project.

The Draft EA will be available at the Vashon Library, 17210 Vashon Highway SW, Vashon Island, Washington.

EVALUATION: The decision whether to issue a permit will be based on this Draft EA for the proposed activity. That decision will reflect the national concern for both protection and utilization of important resources.

The U.S. Army Corps of Engineers is soliciting comments from the public; Native American Nations or tribal governments; Federal, State, and local agencies and officials; and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps to determine whether to issue with conditions or deny a permit for the work.

COMMENT AND REVIEW PERIOD: Conventional mail or e-mail comments on this public notice will be accepted and made part of the record and will be considered in determining whether it would be in the public interest to authorize this proposal. In order to be accepted, e-mail comments must originate from the author's e-mail account and must include on the subject line of the e-mail message the permit applicant's name and reference number as shown below. All e-mail comments should be sent to olivia.h.romano@usace.army.mil. Conventional mail comments should be sent U.S. Army Corps of Engineers, Regulatory Branch, Post Office Box 3755, Seattle, Washington, 98124-3755. Both conventional mail or e-mail comments must include the permit applicant's name and reference number, as shown below, and the commentor's name, address, and phone number. All comments whether conventional mail or e-mail must reach this office, no later than the expiration date of this public notice to ensure consideration. Please include the following name and reference number:

Northwest Aggregates, NWS-2000-1094-SO



US Army Corps
of Engineers
Seattle District

Public Notice For Public Hearing

Regulatory Branch
Post Office Box 3755
Seattle, Washington 98124-3755
Telephone (206) 764-3495
ATTN: Olivia Romano, Project Manager

Public Notice and Erratum Date: April 14, 2004
Expiration Date: May 31, 2005
Reference: 200001094
Name: Northwest Aggregates

PUBLIC HEARING AND ERRATUM – The U.S. Army Corps of Engineers, Seattle District, will hold a public hearing to record public comments related to the Northwest Aggregates' application for a Department of the Army permit under the authorities of Section 10 of the Rivers and Harbors Act of March 3, 1899, and Section 404 of the Clean Water Act.

Northwest Aggregates' proposed project was the subject of Public Notice issued December 13, 2004 under the same reference number listed above. The public notice describing the project are available at the following website: [http://www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=REG&pagename=Public Notices Archive](http://www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=REG&pagename=Public%20Notices%20Archive)

Date and Time: May 17, 2005, 7:00 p.m. to 9:00 p.m.

Location: Vashon High School Commons
20120 Vashon Highway SW
Vashon Island, Washington, 98070

Hearing Purpose: The purpose of the hearing is to obtain public views and opinions on the proposed project that are relevant for consideration in making a permit decision for the proposed project.

HEARING FORMAT – The forum will be one formal hearing with verbatim recording. Oral and/or written comments can be presented. The hearing will be conducted in accordance with procedures set forth in 33 CFR, Part 327 (see Federal Register, Volume 51, Number 219, dated November 13, 1986, page 41249 et. Seq.). A brief description of the proposal will be presented. Following this, interested parties may present specific information on the project proposal, potential impacts, alternatives, and other related concerns.

All interested parties are invited to be present or to be represented at this public hearing. Oral statements will be heard, but for accuracy of the administrative record, important testimony should be submitted in writing. Oral statements should be brief (if necessary, a specific time limit may be applied per speaker), and the speaker should summarize any extensive written material so that there will be time for all interested persons to be heard.

COMMENT AND REVIEW PERIOD – The Corps will accept written comments on the proposed project following the hearing, until May 31, 2005. Written comments should be provided at the hearing, e-mailed to Olivia.H.Romano@usace.army.mil, subject line; 200001094 Public Hearing Comment or mailed to: (Comments mailed must be postmarked not later than May 31, 2005; comments e-mailed must be received not later than May 31, 2005)

200001094

U.S. Army Corps of Engineers
Seattle District, Regulatory Branch
Post Office Box 3755
Seattle, Washington 98124-3755
ATTN: CENWS-OD-RG, Olivia Romano, Project Manager

ERRATUM: This erratum adds Section 404 of the Clear Water Act authority for the proposed placement of clean pea gravel or sand in any depressions or holes caused by the removal of 228 timber piles. The placement of clean pea gravel or sand is a conservation measure provided by the applicant as part of the Endangered Species Act Section 7 consultation.

and proposed listing of critical habitat for pacific salmon species and bull trout, the U.S. Army Corps of Engineers will evaluate the potential impacts to killer whales and critical habitat for pacific salmon and bull trout.

The above information was not presented in the Public Notice dated December 13, 2004.

The proposed discharge will be evaluated for compliance with guidelines promulgated by the Environmental Protection Agency under authority of Section 404 (b) (1) of the Clean Water Act. These guidelines require an alternatives analysis for any proposed discharge of dredged or fill material into waters of the United States.

All other information shown on Public Notice No. 200001094 remains unchanged.



US Army Corps
of Engineers
Seattle District

COPY
**Public Notice
of Application
for Permit**

Regulatory Branch
Post Office Box 3755
Seattle, Washington 98124-3755
Telephone (206) 764-3495
ATTN: Olivia Romano, Project Manager

Public Notice Date: December 13, 2004
Expiration Date: January 13, 2005
Reference: 200001094
Name: Northwest Aggregates

Interested parties are hereby notified that an application has been received for a Department of the Army permit in accordance with Section 10 of the Rivers and Harbors Act of March 3, 1899, for certain work described below and shown on the enclosed drawings.

APPLICANT - Northwest Aggregates
Mr. Pete Stoltz
Post Office Box 1730
Seattle, Washington 98111
Telephone: (206) 768-7636

LOCATION - In East Passage, Puget Sound at Maury Island, King County, Washington.

WORK - To replace and extend an existing dock. The removal work consists of:

- a. The removal of the existing conveyor trestle, walkways, pier structures, eight dolphins, and four submerged piles.
- b. The removal of a total of 228 timber piles.

The proposed construction work consists of:

- a. Construction of a barge-loading conveyor tube with three, 4 to 6-pile support bents.
- b. Seven 6-pile berthing dolphins with fenders and aluminum catwalks.
- c. Installation of a maximum of 56 new steel piles.

The new dock will extend up to of 305 feet (ft) waterward of the mean high water line and will run 510 ft parallel to the shoreline. The new dock structure will cover a surface area of 7,796 square feet.

PURPOSE - To load barges with gravel from the existing upland gravel mine on Maury Island.

ADDITIONAL INFORMATION - The proposed project has been modified through the Endangered Species Act (ESA) consultation process and the local shoreline permit processes to reduce the potential impacts to the marine environment. The proposed project extends 120 ft waterward from the outer edge of the existing eelgrass beds to the face of the proposed dock. The conveyor tube is completely enclosed to prevent gravel

Y400

200001094

spillage from the mining area to the loader. A minimum of 3 ft will be maintained between the loaded barges and the substrate at Mean Lower Low Water line. The existing dock structure covers a surface area of 8,940 square feet. The existing sunken barges indicated on Sheet 6 of 19 will remain in place.

MITIGATION - The applicant has proposed a mitigation plan to mitigate for potential impacts from barge-loading operations. The mitigation plan address impacts from gravel spillage, shading, prop wash, and noise associated with operation of the barge-loading dock. A summary of mitigation measures include: dock extending 120 ft from the outer edge of the existing eelgrass beds; only one barge will be allowed at the dock at any one time; empty barges will remain 2,500 ft waterward of the dock while waiting to load; gravel barges and tugboats will not operate shoreward of the dolphins; tugboats will not operate on the shoreward side of barges at the dock; tugboat/barge configurations will approach and depart the dock at the slow speed as weather conditions will allow; haul-back system will be used to move the barge during loading; tugboats will "back" the barge away from the dock as weather conditions will allow; tugboats will not operate within 120 ft of the eelgrass beds; tugboat operators will avoid directing prop wash towards the shore and will avoid use of excessive thrust; a minimum distance of 3 ft will be maintained between the bottom of barges and the seabed; gravel conveyor will be completely enclosed; the conveyor will place the gravel in the center of barge; a manual limit switch will be installed on the conveyor to prevent the conveyor from operating when a barge is not in place to accept material; only barges with bin wall will be loaded and material will be at least 2 ft below the top of bin walls; a trained dock worker will remain stationed on the dock to observe barge-loading operations; tugboat crew will be trained to watch for situations in which the barge and conveyor are misaligned; barge-loading operations will be monitored by video cameras and periodic monitoring and reporting will be conducted to verify that barge-loading procedures are being followed and to confirm that the mitigation measures are successful. The mitigation plan is available for review upon request.

ENDANGERED SPECIES - The ESA of 1973, as amended, requires assessment of potential impacts to listed and proposed species. The bald eagle, (*Haliaeetus leucocephalus*), listed threatened; marbled murrelet (*Brachyramphus marmoratus*), listed threatened; coastal/Puget Sound bull trout, (*Salvelinus confluentus*), listed threatened; Puget Sound chinook, (*Oncorhynchus tshawytscha*), listed threatened; Steller sea lion, (*Eumetopias jubatus*), listed threatened; humpback whale, (*Eumetopias jubatus*), listed threatened; and leatherback sea turtle, (*Dermochelys coriacea*), listed endangered in the state of Washington (State), may occur in the proposed project area. The Corps made a determination of "likely to adversely affect" for bull trout, bald eagle, marbled murrelet, and chinook. A determination of "no effect" was made for Steller sea lion, humpback whale and leatherback sea turtle. Formal consultation under Section 7 of the ESA was initiated with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) on May 9, 2003. As a result of the project modifications proposed by the applicant during consultation, the Corps requested the NMFS and USFWS to concur with a "may affect, not likely to adversely affect" determination for bull trout, bald eagle, marbled murrelet, and chinook. By letter dated February 10, 2004, NMFS concurred with the Corps determination of "may affect, but not likely to adversely affect" for chinook. USFWS, by letter dated April 8, 2004, concurred with Corps determination of "may affect, but not likely to adversely affect" for bull trout, bald eagle and marbled murrelet. Section 7 consultation has been completed.

ESSENTIAL FISH HABITAT - The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996, requires all Federal agencies to consult with the NMFS on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH). EFH for Pacific salmon, groundfish, coastal pelagic species occurs in the project area. The proposed action would impact approximately 3.0 acres of EFH for these species. The Corps determined that the proposed action would adversely affect designated EFH for federally managed fisheries in Washington waters. The Corps initiated EFH consultation with the NMFS on

May 9, 2003. By letter dated, February 10, 2004, NMFS indicated that the conservation measures included as part of the proposed action to address ESA concerns are adequate to avoid, minimize, or otherwise offset potential adverse impacts to EFH, conservation recommendations pursuant to MSA are not necessary. EFH consultation with NMFS has been completed.

CULTURAL RESOURCES - The District Engineer (DE) has reviewed the latest published version of the National Register of Historic Places, lists of properties determined eligible and other sources of information. The following is current knowledge of the presence or absence of historic properties and the effects of the undertaking upon these properties: There are no recorded historic properties within the permit area. The permit area has been so extensively modified by modern development that little likelihood exists for the proposed project to impinge upon an undisturbed historic property.

The DE invites responses to this public notice from Native American Nations or tribal governments, Federal, State, and local agencies, historical and archeological societies, and other parties likely to have knowledge of or concerns with historic properties in the area.

PUBLIC HEARING - Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

EVALUATION - The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

The Corps is soliciting comments from the public; Federal, Native American Nations or tribal governments, State, and local agencies and officials; and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for the work. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the activity.

ADDITIONAL EVALUATION - The State is reviewing this work for consistency with the approved Washington Coastal Zone Management Program.

This proposal is the subject of Shorelines Substantial Development Permit No. 04-009, and 461-08-560, which is in the process of being issued as directed by the Shoreline Hearing Board on November 3, 2004.

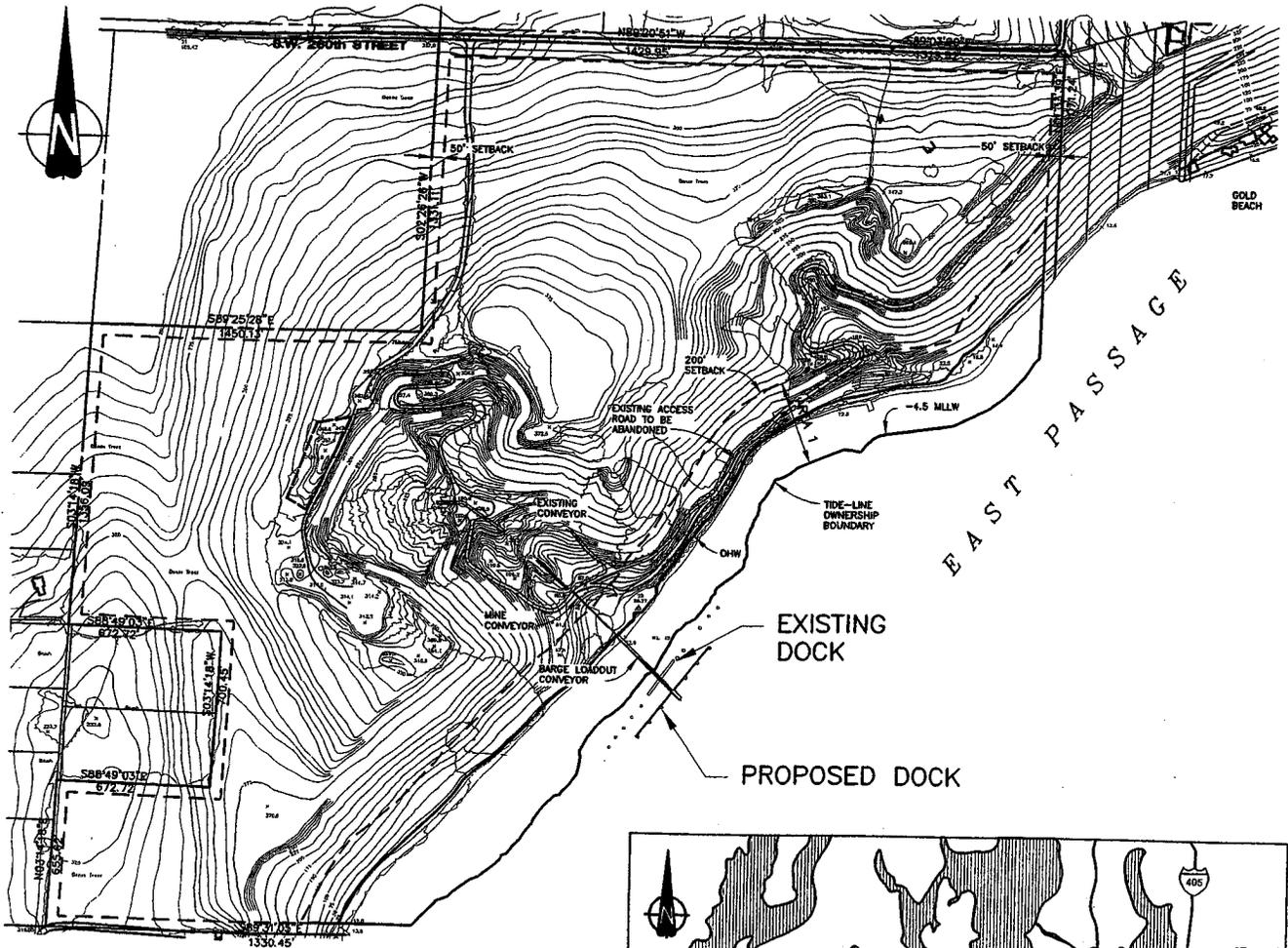
COMMENT AND REVIEW PERIOD - Conventional mail or email comments on this public notice will be accepted and made part of the record and will be considered in determining whether it would be in the public interest to authorize this proposal. In order to be accepted, email comments must originate from the author's email account and must include on the subject line of the email message the permit applicant's name and

200001094

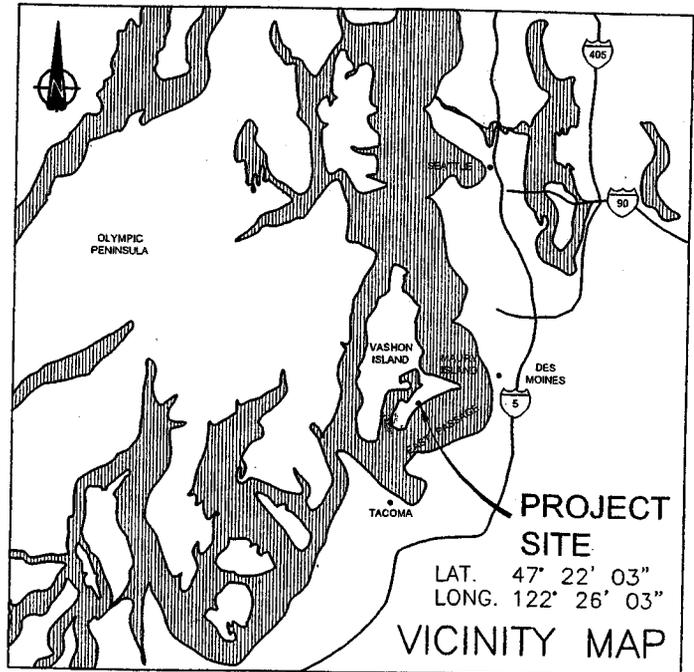
reference number as shown below. All email comments should be sent to Olivia.H.Romano@usace.army.mil. Conventional mail comments should be sent to U.S. Army Corps of Engineers, Regulatory Branch, Post Office Box 3755, Seattle, Washington 98124-3755. Both conventional mail or email comments must include the permit applicant's name and reference number, as shown below, and the commentor's name, address, and phone number. All comments whether conventional mail or email must reach this office, no later than the expiration date of this public notice to ensure consideration. Please include the following name and reference number:

Northwest Aggregates, 200001094

Encl
Drawings (19)



SITE MAP
1"=800'



PROJECT SITE
LAT. 47° 22' 03"
LONG. 122° 26' 03"
VICINITY MAP

PURPOSE:
PROVIDE MOORAGE FOR VESSELS TO
RECEIVE SAND AND GRAVEL BEING
TRANSFERRED OFF-SHORE

DATUM: MLLW

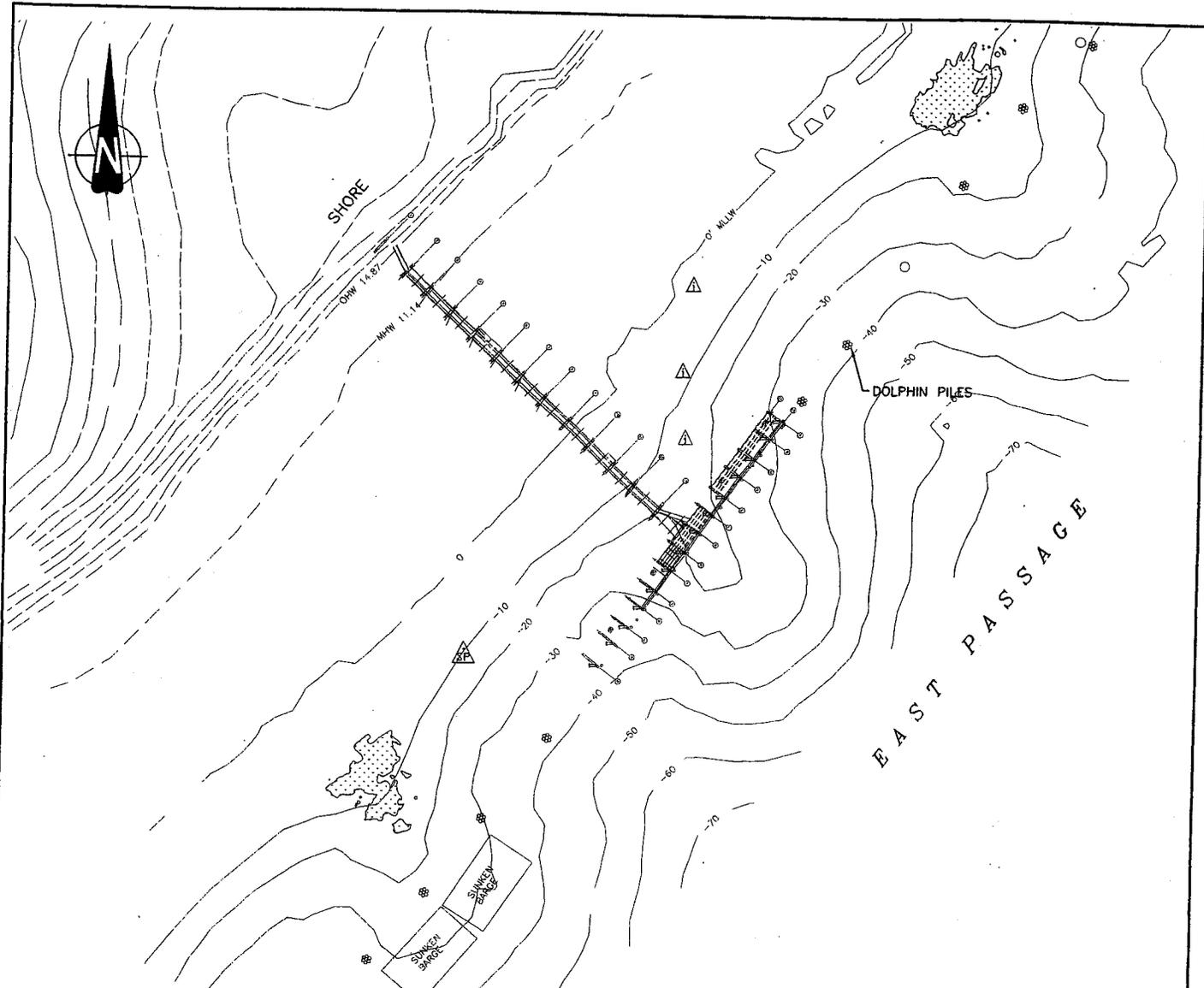
**MAURY ISLAND
PIER MODIFICATIONS**

SCALE: As Noted Above
NAME: NORTHWEST AGGREGATES
ADDRESS: 5975 E. MARGINAL WAY S.
P.O. BOX 1730
SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
LOADING STRUCTURE

IN: EAST PASSAGE
AT: MAURY ISLAND
COUNTY OF: KING
APPLICATION BY: NORTHWEST AGGREGATES

SHEET 1 OF 19 DATE: NOVEMBER 2003



LEGEND:

- EELGRASS
- SMALL PATCH OF EELGRASS
- SINGLE SHOOT OF EELGRASS
- EXISTING ABOVE WATER TIMBER PILE DOLPHINS
- EXISTING SUBMERGED DOLPHINS

NOTE:

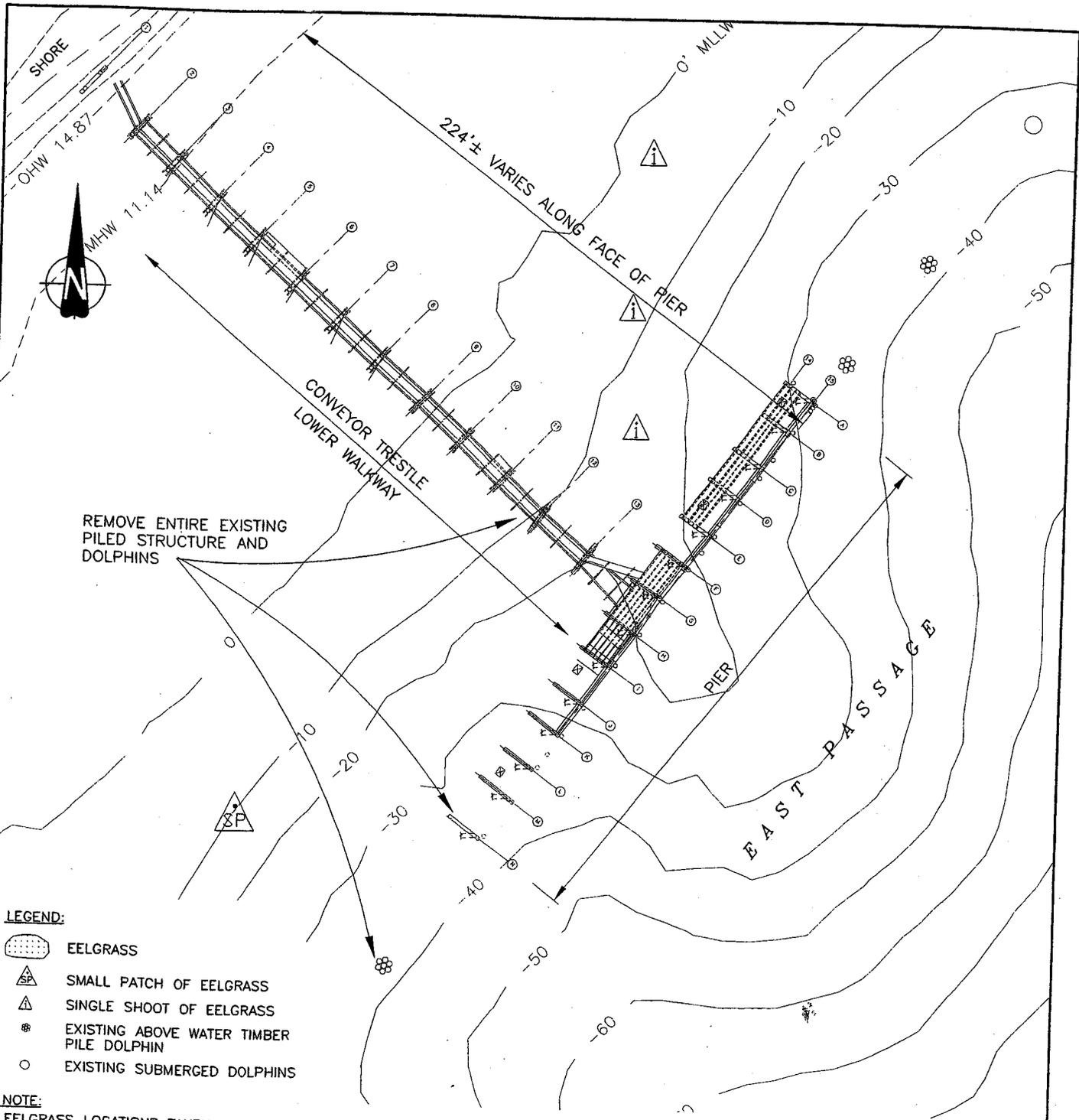
EELGRASS LOCATIONS TAKEN FROM PACIFIC INTERNATIONAL ENGINEERING SURVEY, JUL/AUG 2001.

BATHYMETRY (BLUE WATER ENGINEERING, 1999)

ACCORDING TO NOAA PUBLISHED INFORMATION N.G.V.D. 1929 IS 6.40 FEET HIGHER THAN MEAN LOWER LOW WATER (MLLW=0.0')
 ORDINARY HIGH WATER - LINE OF VEGETATION (OHW) = 14.87 FT
 HIGHEST OBSERVED WATER LEVEL (02/01/1975) = 13.97 FT
 MEAN HIGHER HIGH WATER (MHHW) = 12.05 FT
 MEAN HIGH WATER (MHW) = 11.14 FT
 MEAN TIDE LEVEL (MTL) = 7.01 FT
 *NATIONAL GEODETIC VERTICAL DATUM-1929 (NGVD) = 6.40 FT
 MEAN LOW WATER (MLW) = 2.88 FT
 MEAN LOWER LOW WATER (MLLW) = 0.00 FT
 LOWEST OBSERVED WATER LEVEL (12/24/1975) = -2.01 FT

EXISTING DOCK/DOLPHIN PLAN AND TOPOGRAPHY

<p>PURPOSE: PROVIDE MOORAGE FOR VESSELS TO RECEIVE SAND AND GRAVEL BEING TRANSFERRED OFF-SHORE</p> <p>DATUM: MLLW</p>	<p>MAURY ISLAND PIER MODIFICATIONS</p> <p>SCALE: 1"=100'</p> <p>NAME: NORTHWEST AGGREGATES ADDRESS: 5975 E. MARGINAL WAY S. P.O. BOX 1730 SEATTLE, WA 98111</p>	<p>PROPOSED: REPLACEMENT BARGE LOADING STRUCTURE</p> <p>IN: EAST PASSAGE AT: MAURY ISLAND COUNTY OF: KING APPLICATION BY: NORTHWEST AGGREGATES</p> <p>SHEET 2 OF 19 DATE: NOVEMBER 2003</p>
--	---	--



REMOVE ENTIRE EXISTING
PILED STRUCTURE AND
DOLPHINS

LEGEND:

-  EELGRASS
-  SMALL PATCH OF EELGRASS
-  SINGLE SHOOT OF EELGRASS
-  EXISTING ABOVE WATER
TIMBER PILE DOLPHIN
-  EXISTING SUBMERGED DOLPHINS

NOTE:

EELGRASS LOCATIONS TAKEN
FROM PACIFIC INTERNATIONAL
ENGINEERING SURVEY,
JUL/AUG 2001.

BATHYMETRY (BLUE WATER ENGINEERING, 1999)

EXISTING LOWER LEVEL PLAN

PURPOSE:
PROVIDE MOORAGE FOR VESSELS TO
RECEIVE SAND AND GRAVEL BEING
TRANSFERRED OFF-SHORE

DATUM: MLLW

**MAURY ISLAND
PIER MODIFICATIONS**

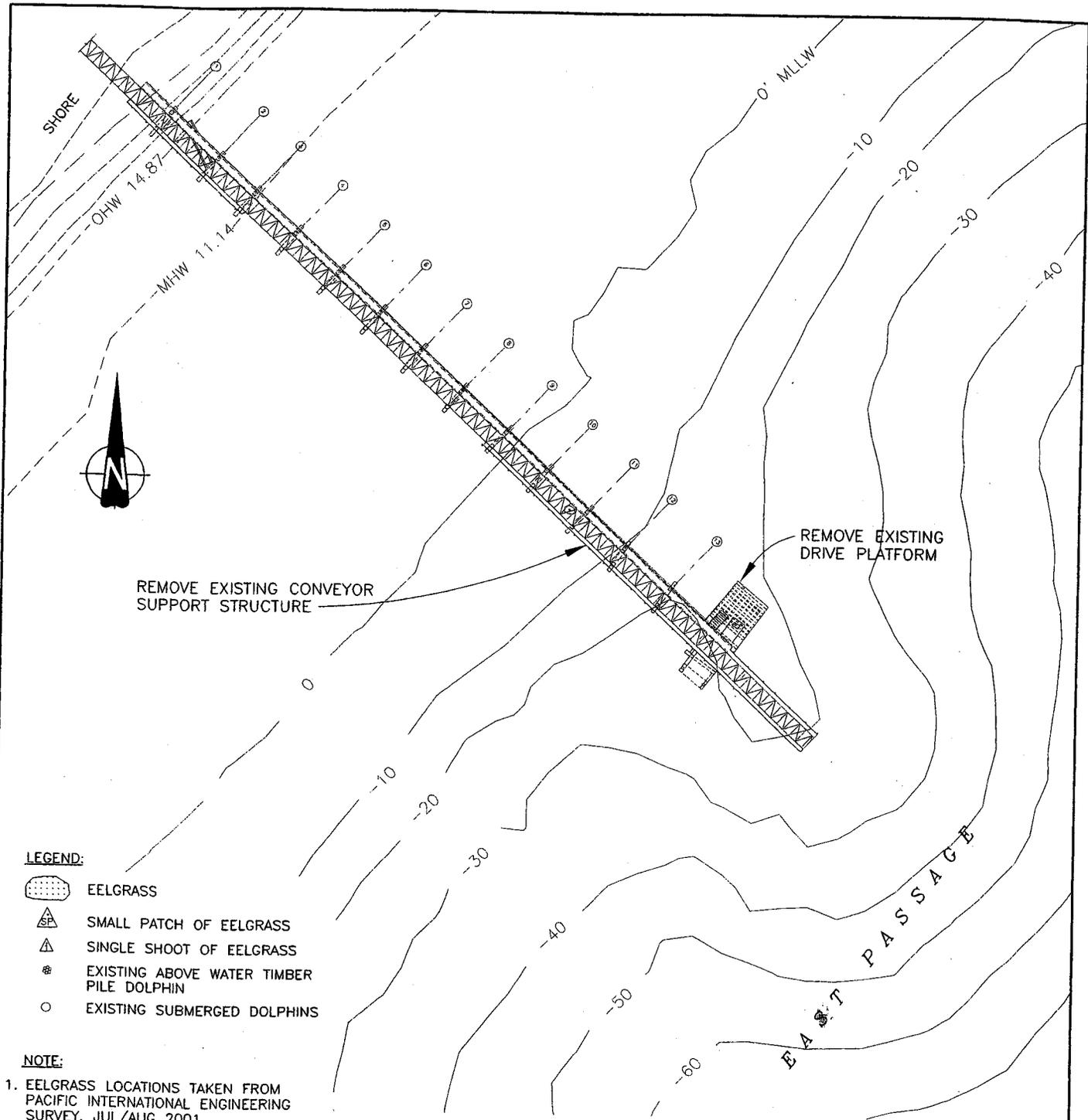
SCALE: 1"=50'

NAME: NORTHWEST AGGREGATES
ADDRESS: 5975 E. MARGINAL WAY S.
P.O. BOX 1730
SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
LOADING STRUCTURE

IN: EAST PASSAGE
AT: MAURY ISLAND
COUNTY OF: KING
APPLICATION BY: NORTHWEST AGGREGATES

SHEET 3 OF 19 **DATE:** NOVEMBER 2003



EXISTING UPPER LEVEL PLAN

- LEGEND:**
- EELGRASS
 - SMALL PATCH OF EELGRASS
 - SINGLE SHOOT OF EELGRASS
 - EXISTING ABOVE WATER TIMBER PILE DOLPHIN
 - EXISTING SUBMERGED DOLPHINS

- NOTE:**
1. EELGRASS LOCATIONS TAKEN FROM PACIFIC INTERNATIONAL ENGINEERING SURVEY, JUL/AUG 2001.
 2. BATHYMETRY (BLUE WATER ENGINEERING, 1999)
 3. LOWER DOCK NOT SHOWN FOR CLARITY.

PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO RECEIVE SAND AND GRAVEL BEING TRANSFERRED OFF-SHORE

DATUM: MLLW

**MAURY ISLAND
 PIER MODIFICATIONS**

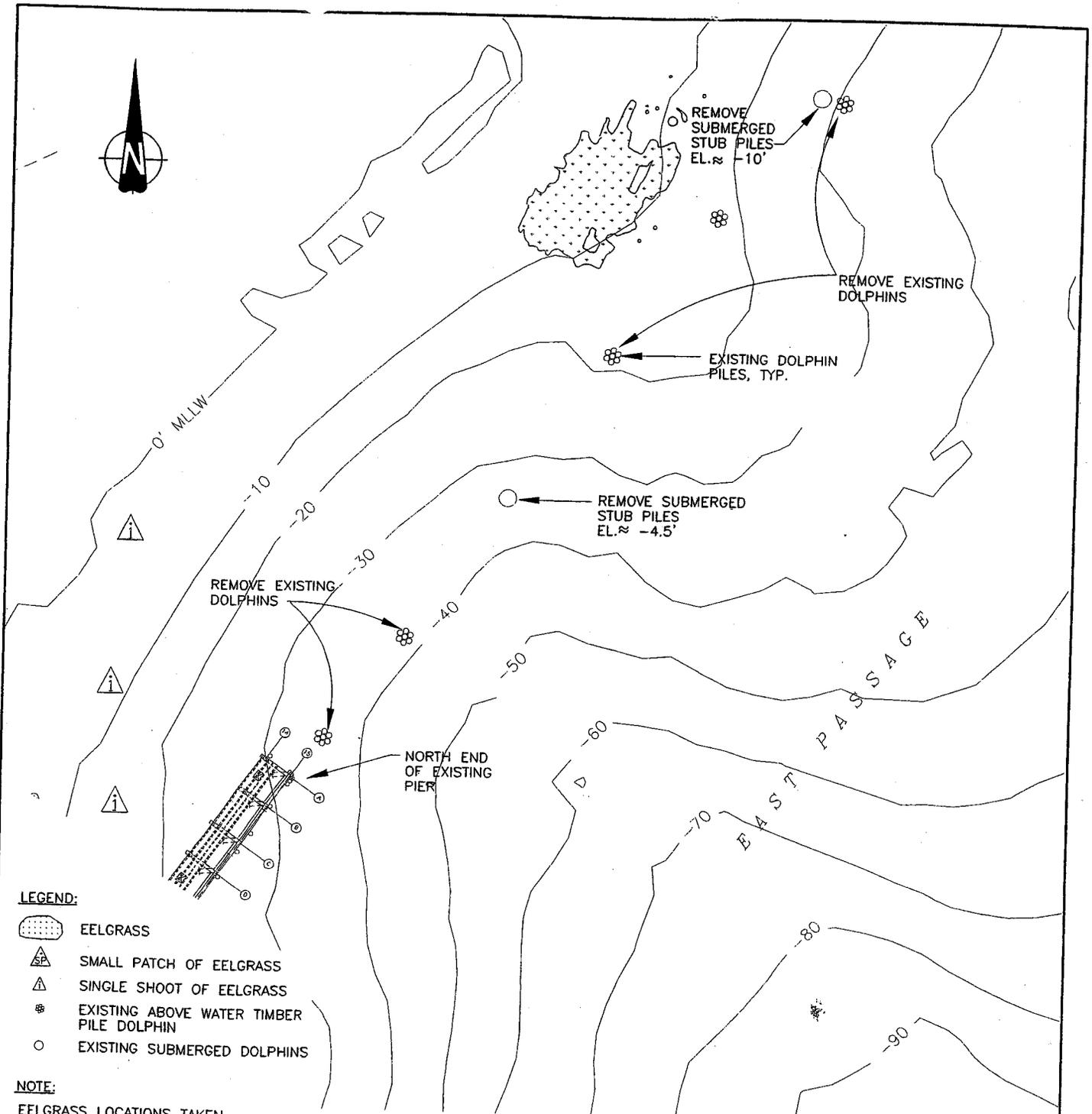
SCALE: 1"=50'

NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 4 OF 19 DATE: NOVEMBER 2003



EXISTING PIER & DOLPHIN LAYOUT - NORTH

LEGEND:

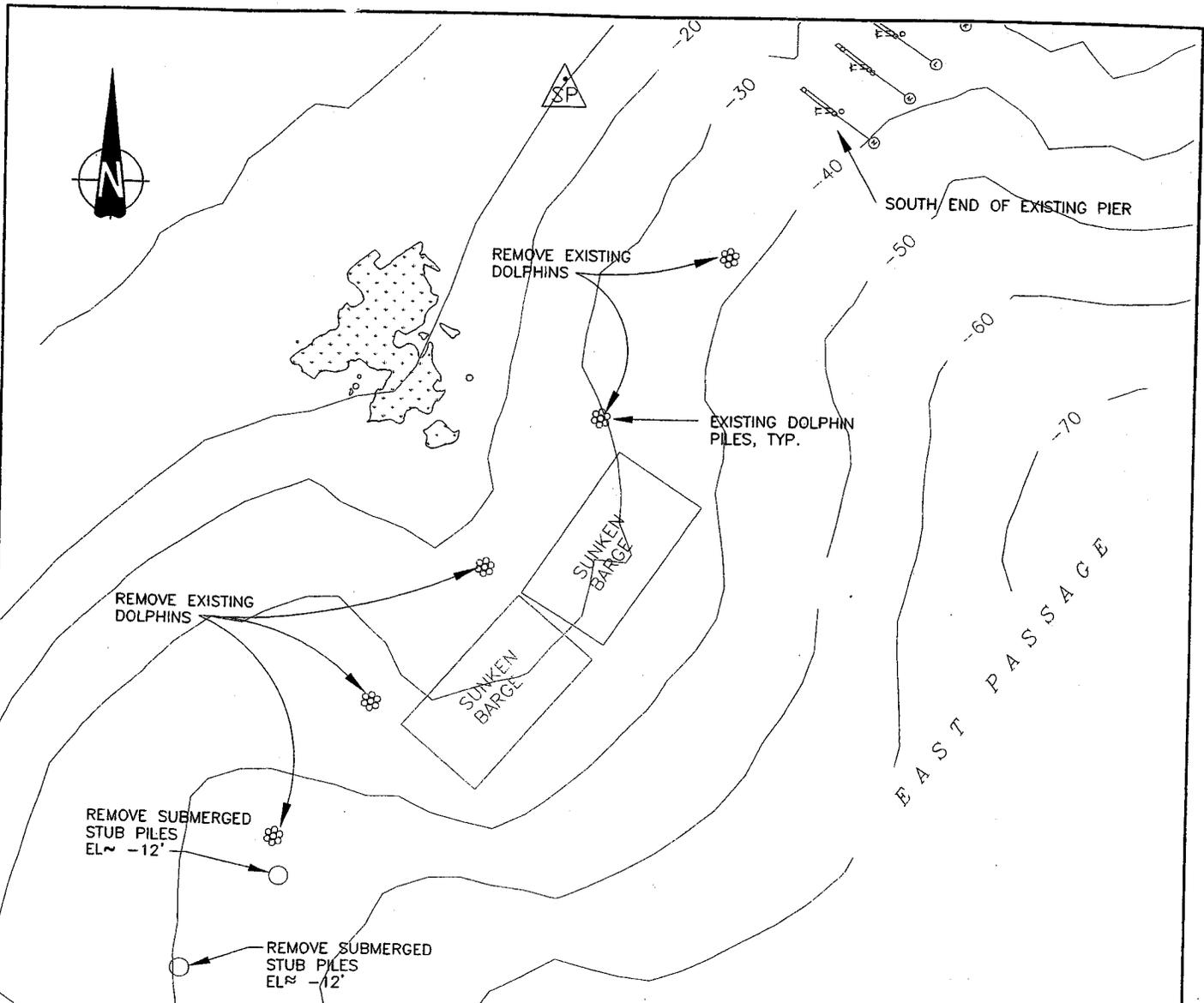
-  EELGRASS
-  SMALL PATCH OF EELGRASS
-  SINGLE SHOOT OF EELGRASS
-  EXISTING ABOVE WATER TIMBER PILE DOLPHIN
-  EXISTING SUBMERGED DOLPHINS

NOTE:

EELGRASS LOCATIONS TAKEN FROM PACIFIC INTERNATIONAL ENGINEERING SURVEY, JUL/AUG 2001.

BATHYMETRY (BLUE WATER ENGINEERING, 1999)

<p>PURPOSE: PROVIDE MOORAGE FOR VESSELS TO RECEIVE SAND AND GRAVEL BEING TRANSFERRED OFF-SHORE</p> <p>DATUM: MLLW</p>	<h2 style="margin: 0;">MAURY ISLAND PIER MODIFICATIONS</h2> <p>SCALE: 1"=50'</p> <p>NAME: NORTHWEST AGGREGATES</p> <p>ADDRESS: 5975 E. MARGINAL WAY S. P.O. BOX 1730 SEATTLE, WA 98111</p>	<p>PROPOSED: REPLACEMENT BARGE LOADING STRUCTURE</p> <p>IN: EAST PASSAGE</p> <p>AT: MAURY ISLAND</p> <p>COUNTY OF: KING</p> <p>APPLICATION BY: NORTHWEST AGGREGATES</p> <p>SHEET 5 OF 19 DATE: NOVEMBER 2003</p>
---	---	--



LEGEND:

- EELGRASS
- SMALL PATCH OF EELGRASS
- SINGLE SHOOT OF EELGRASS
- EXISTING ABOVE WATER TIMBER PILE DOLPHIN
- EXISTING SUBMERGED DOLPHINS

NOTE:

EELGRASS LOCATIONS TAKEN FROM PACIFIC INTERNATIONAL ENGINEERING SURVEY, JUL/AUG 2001. BATHYMETRY (BLUE WATER ENGINEERING, 1999)

EXISTING PIER & DOLPHIN LAYOUT - SOUTH

PURPOSE:
PROVIDE MOORAGE FOR VESSELS TO RECEIVE SAND AND GRAVEL BEING TRANSFERRED OFF-SHORE

DATUM: MLLW

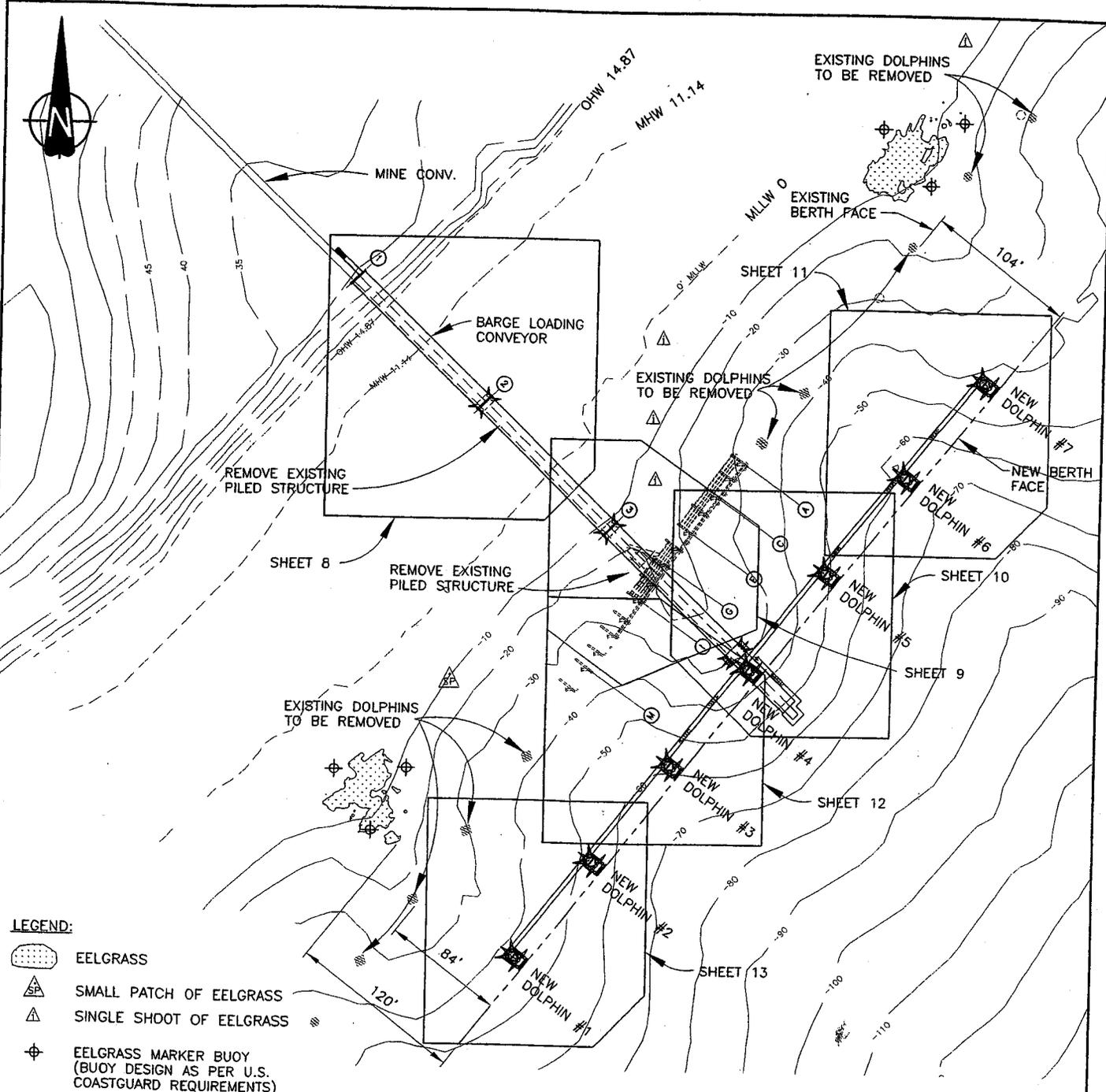
MAURY ISLAND PIER MODIFICATIONS

SCALE: 1"=50'
NAME: NORTHWEST AGGREGATES
ADDRESS: 5975 E. MARGINAL WAY S.
P.O. BOX 1730
SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE LOADING STRUCTURE

IN: EAST PASSAGE
AT: MAURY ISLAND
COUNTY OF: KING
APPLICATION BY: NORTHWEST AGGREGATES

SHEET 6 OF 19 DATE: NOVEMBER 2003



LEGEND:

- EELGRASS
- SMALL PATCH OF EELGRASS
- SINGLE SHOOT OF EELGRASS
- EELGRASS MARKER BUOY (BUOY DESIGN AS PER U.S. COASTGUARD REQUIREMENTS)

NOTE:

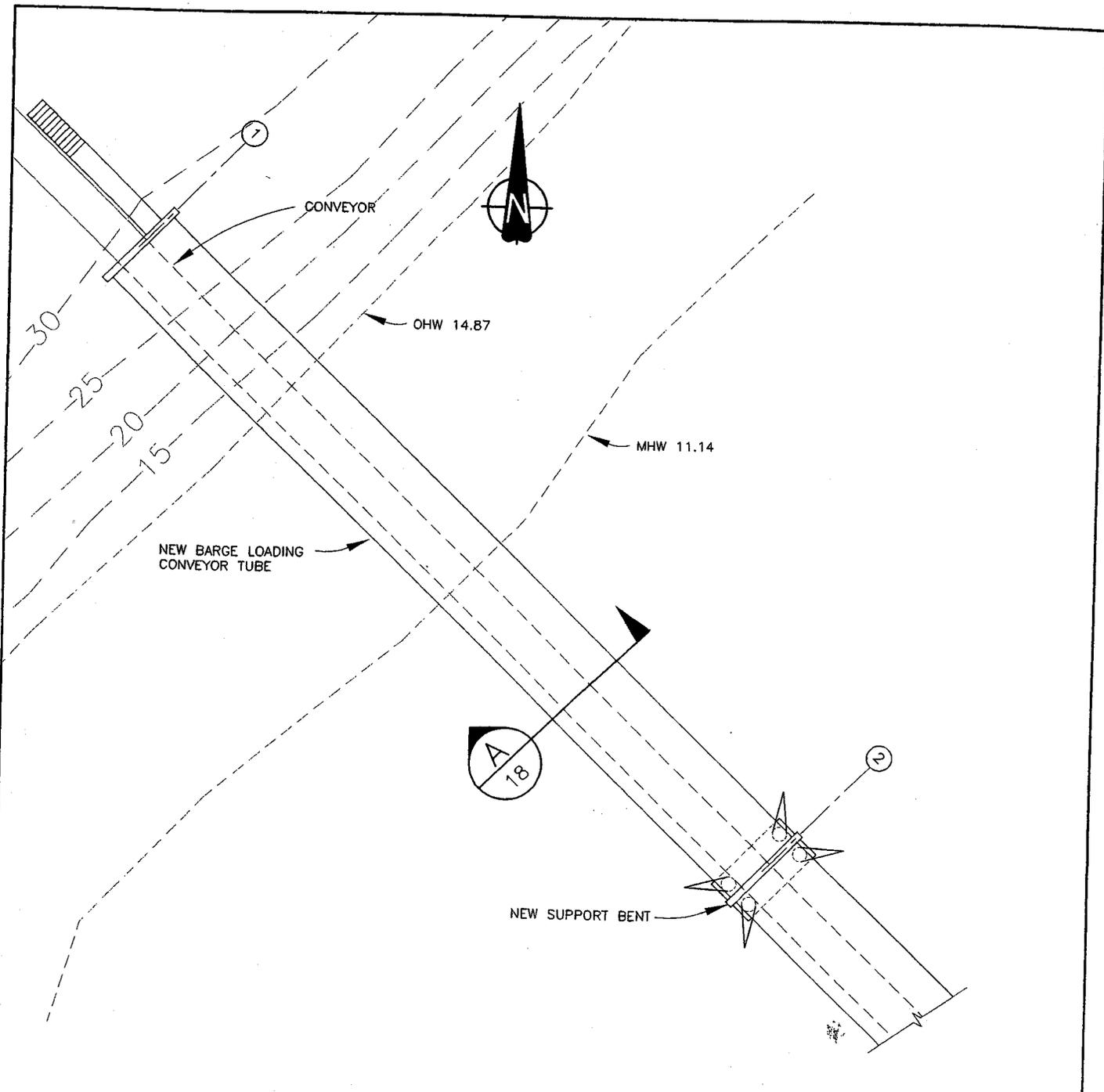
EELGRASS LOCATIONS TAKEN FROM PACIFIC INTERNATIONAL ENGINEERING SURVEY, JUL/AUG 2001.

NOTE:

FOR PILE SUMMARY TABLE & SURFACE AREA TABLE SEE SHEET 19

**PROPOSED NEW PIER AND
NEW ENCLOSED CONVEYOR
KEY PLAN**

<p>PURPOSE: PROVIDE MOORAGE FOR VESSELS TO RECEIVE SAND AND GRAVEL BEING TRANSFERRED OFF-SHORE</p> <p>DATUM: MLLW</p>	<p align="center">MAURY ISLAND PIER MODIFICATIONS</p> <p>SCALE: 1"=100'</p> <p>NAME: NORTHWEST AGGREGATES</p> <p>ADDRESS: 5975 E. MARGINAL WAY S. P.O. BOX 1730 SEATTLE, WA 98111</p>	<p>PROPOSED: REPLACEMENT BARGE LOADING STRUCTURE</p> <p>IN: EAST PASSAGE</p> <p>AT: MAURY ISLAND</p> <p>COUNTY OF: KING</p> <p>APPLICATION BY: NORTHWEST AGGREGATES</p> <p>SHEET 7 OF 19 DATE: NOVEMBER 2003</p>
---	--	--



PROPOSED NEW CONVEYOR TUBE PLAN

PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

DATUM: MLLW

**MAURY ISLAND
 PIER MODIFICATIONS**

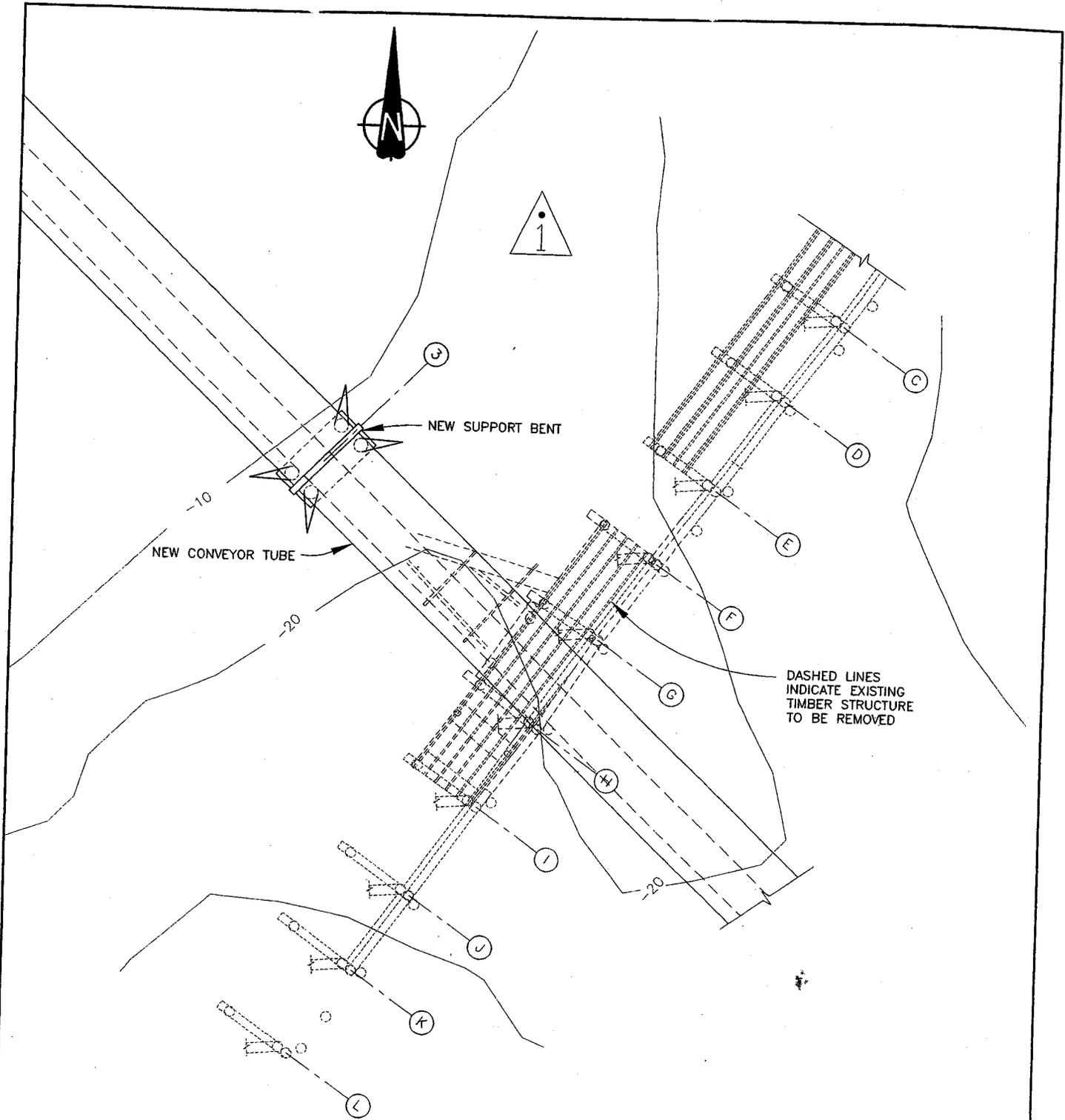
SCALE: 1"=20'

NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 8 OF 19 DATE: NOVEMBER 2003



PROPOSED NEW CONVEYOR TUBE PLAN

PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

DATUM: MLLW

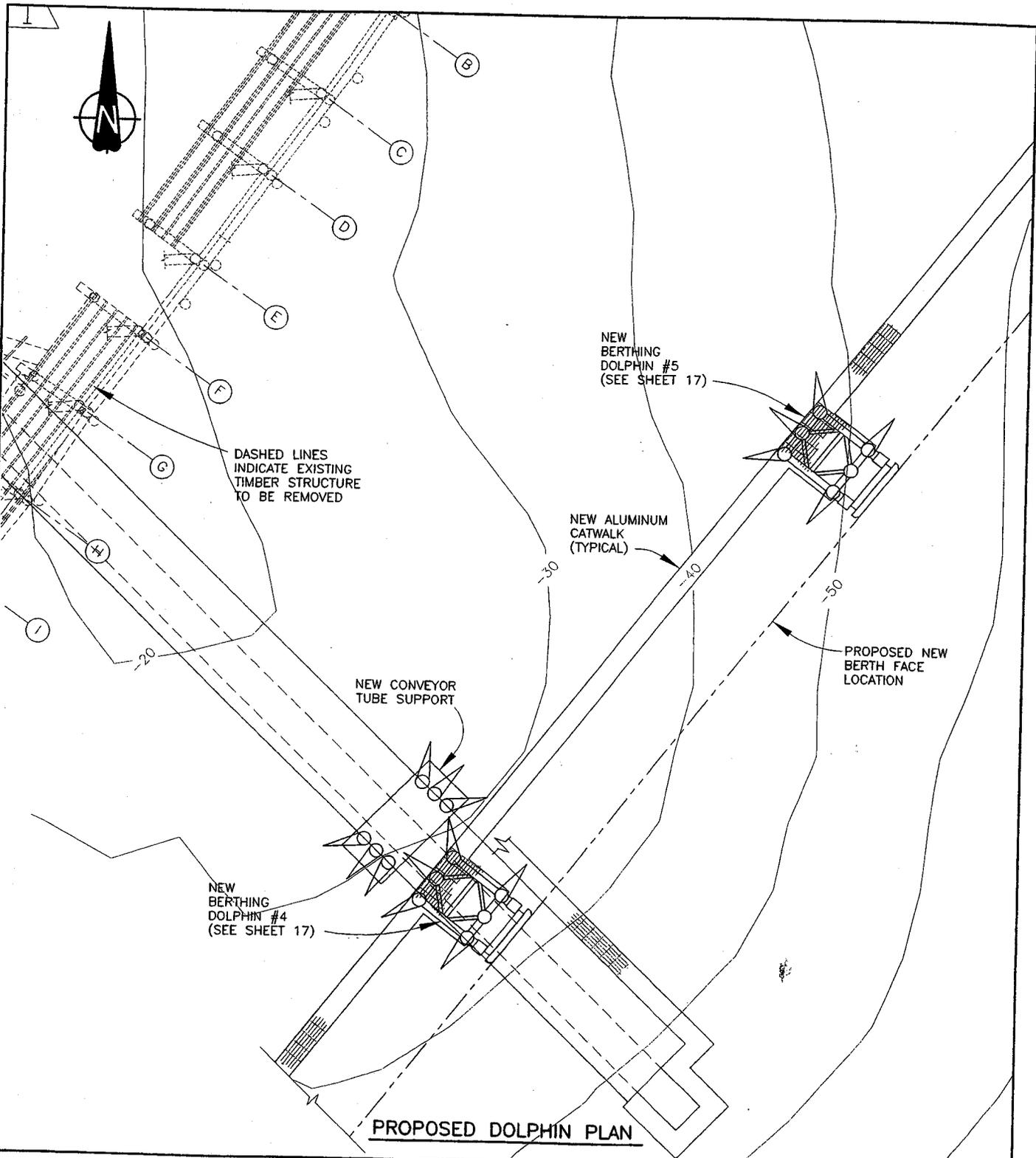
**MAURY ISLAND
 PIER MODIFICATIONS**

SCALE: 1"=20'
 NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 9 OF 19 DATE: NOVEMBER 2003



PROPOSED DOLPHIN PLAN

PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

DATUM: MLLW

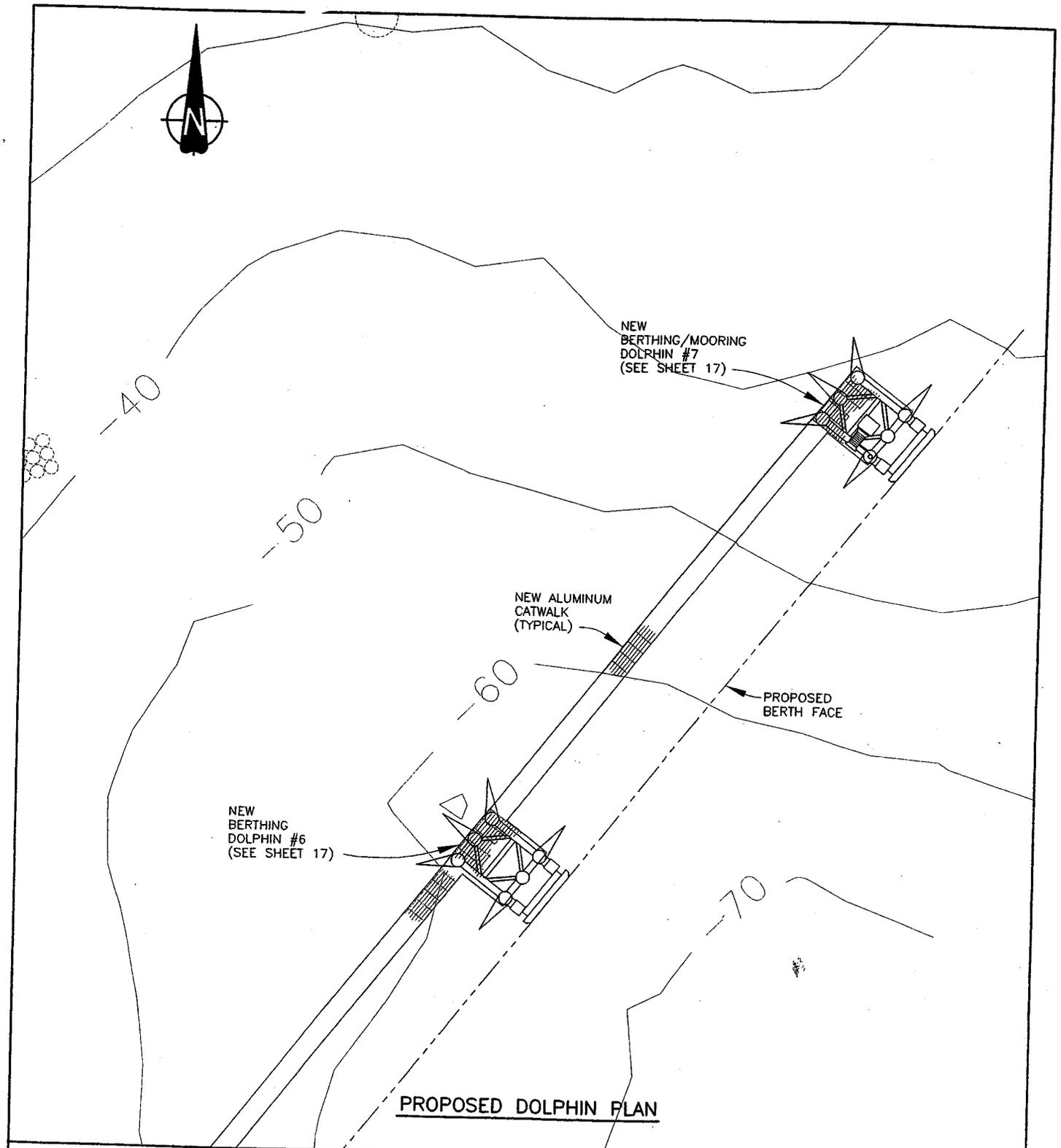
**MAURY ISLAND
 PIER MODIFICATIONS**

SCALE: 1"=20'
 NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 10 OF 19 DATE: NOVEMBER 2003



PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

DATUM: MLLW

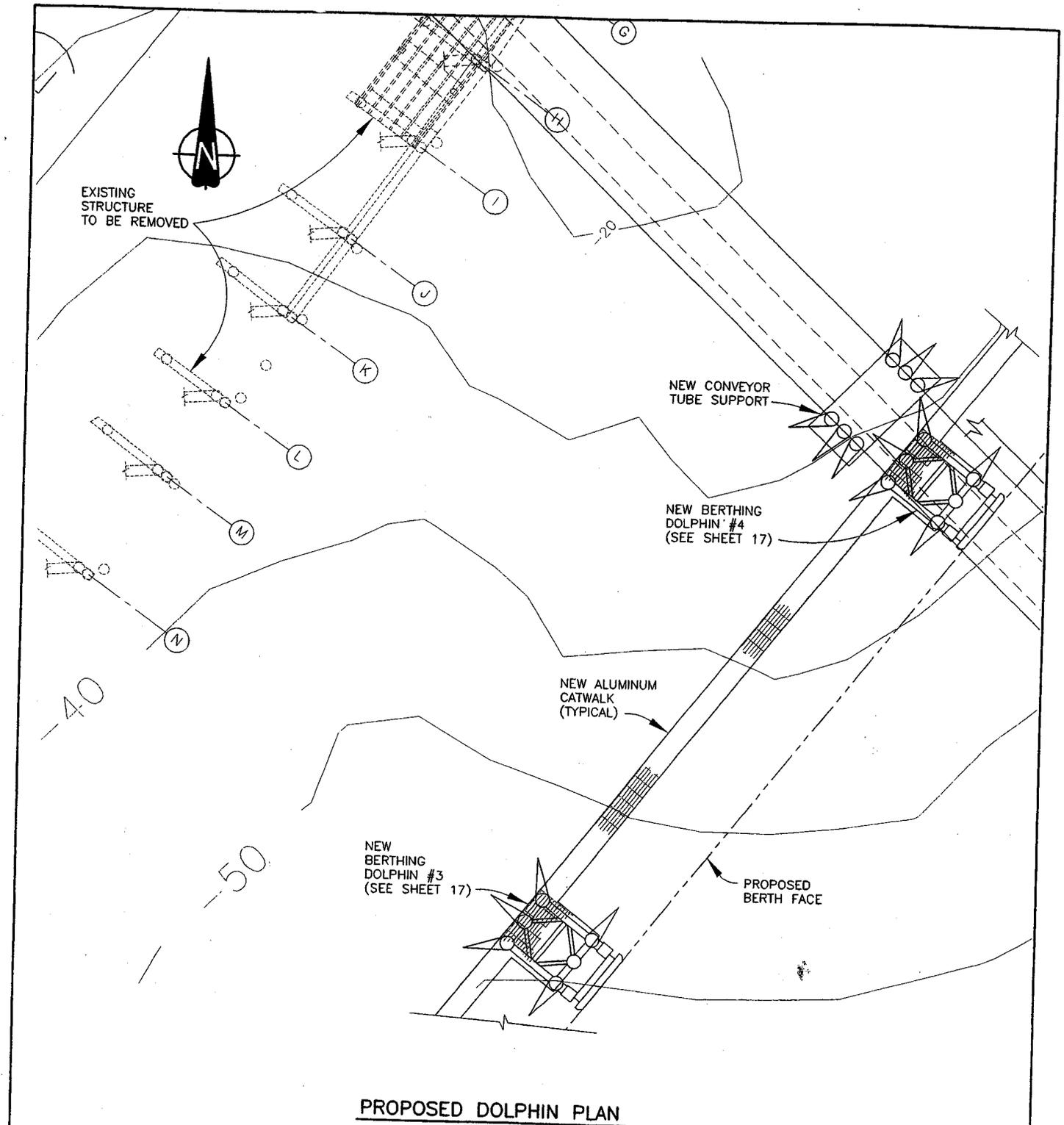
MAURY ISLAND PIER MODIFICATIONS

SCALE: 1"=20'
 NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

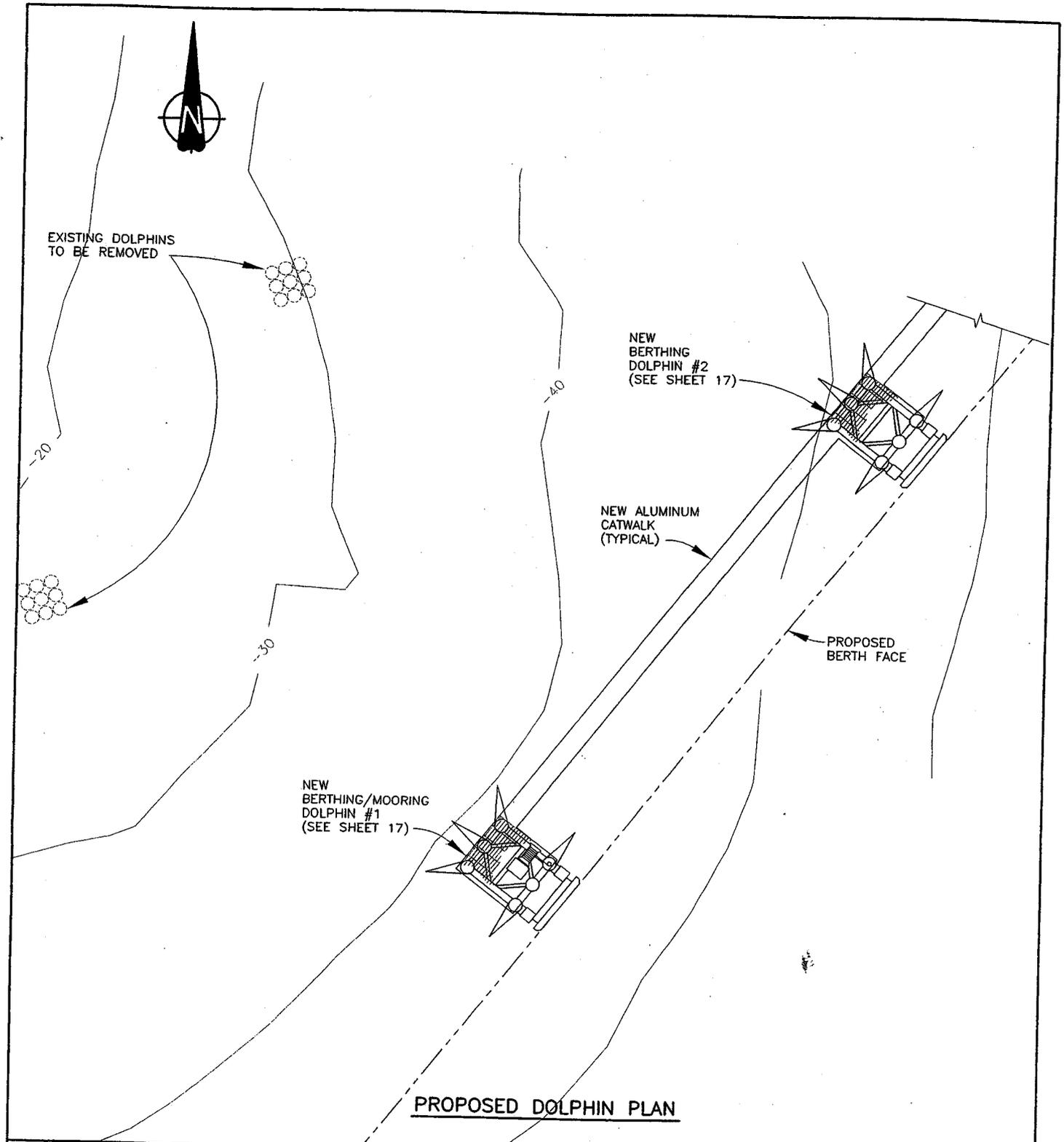
IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 11 OF 19 DATE: NOVEMBER 2003



PROPOSED DOLPHIN PLAN

<p>PURPOSE: PROVIDE MOORAGE FOR VESSELS TO RECEIVE SAND AND GRAVEL BEING TRANSFERRED OFF-SHORE</p>	<p>MAURY ISLAND PIER MODIFICATIONS</p> <p>SCALE: 1"=20'</p> <p>NAME: NORTHWEST AGGREGATES ADDRESS: 5975 E. MARGINAL WAY S. P.O. BOX 1730 SEATTLE, WA 98111</p>	<p>PROPOSED: REPLACEMENT BARGE LOADING STRUCTURE</p> <p>IN: EAST PASSAGE AT: MAURY ISLAND COUNTY OF: KING APPLICATION BY: NORTHWEST AGGREGATES</p> <p>SHEET 12 OF 19 DATE: NOVEMBER 2003</p>
<p>DATUM: MLLW</p>		



PROPOSED DOLPHIN PLAN

PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

DATUM: MLLW

**MAURY ISLAND
 PIER MODIFICATIONS**

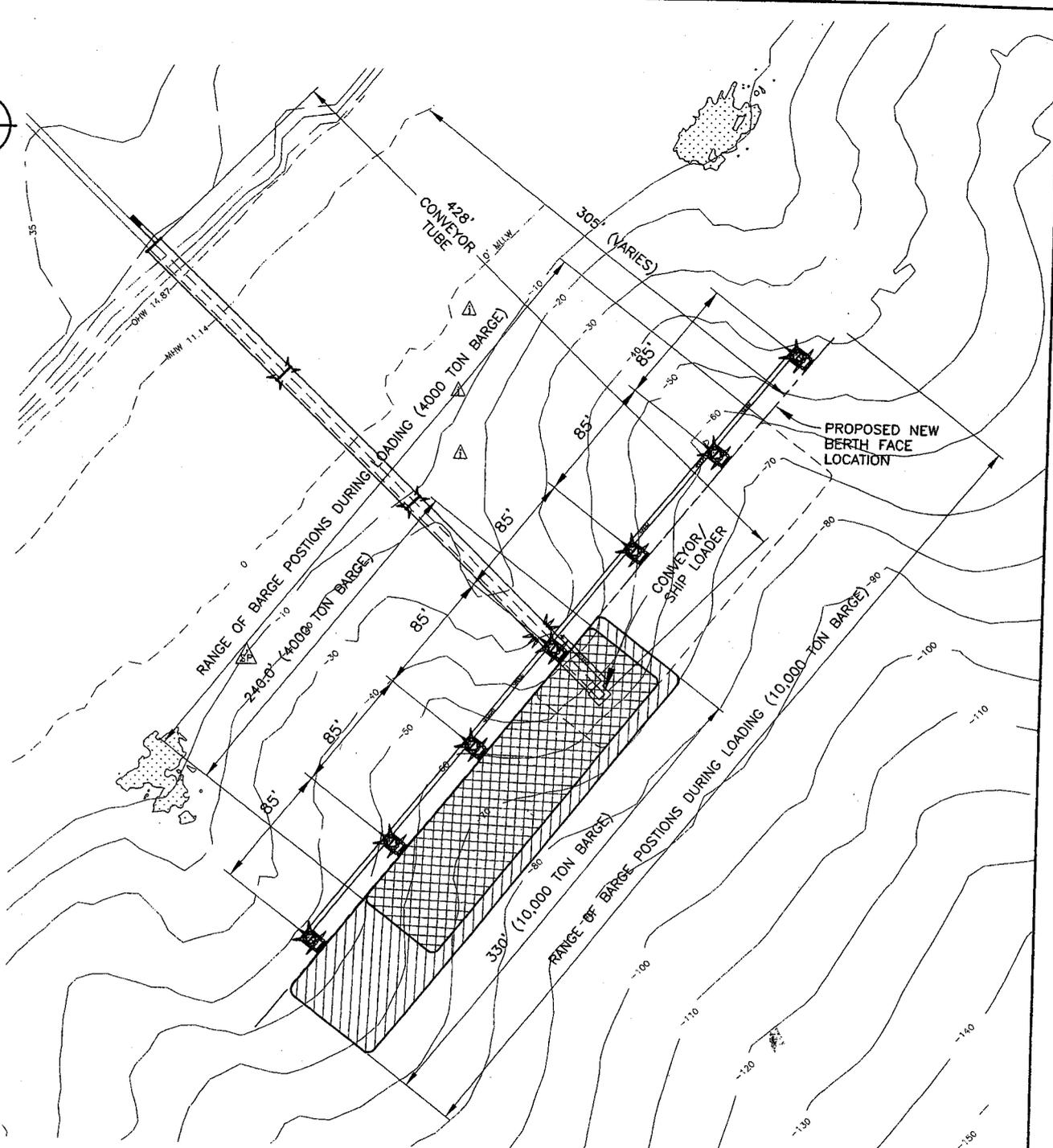
SCALE: 1"=20'

NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 13 OF 19 DATE: NOVEMBER 2003



PROPOSED BARGE WARPING PLAN

PURPOSE:
PROVIDE MOORAGE FOR VESSELS TO
RECEIVE SAND AND GRAVEL BEING
TRANSFERRED OFF-SHORE

DATUM: MLLW

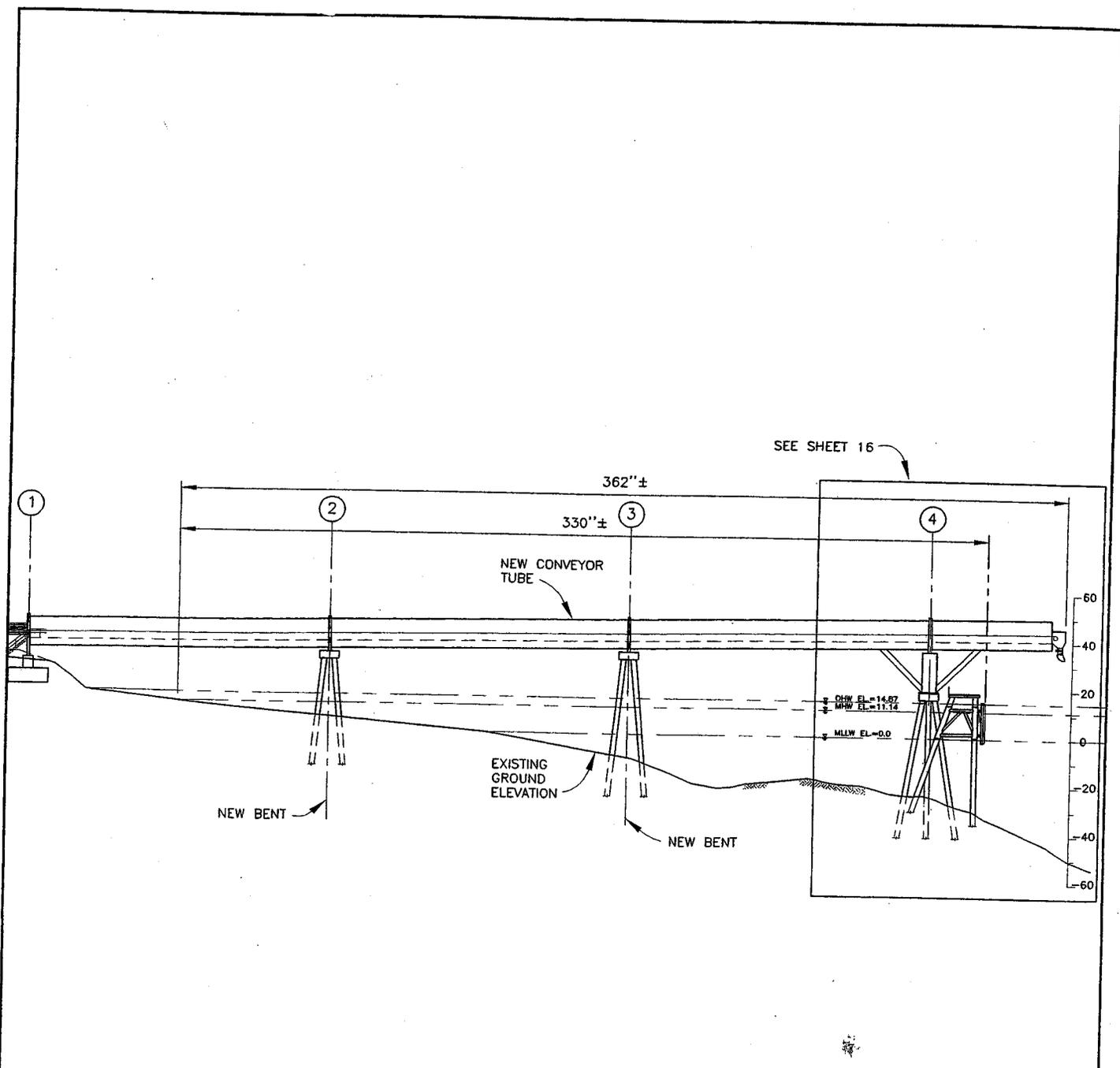
MAURY ISLAND PIER MODIFICATIONS

SCALE: 1"=100'
NAME: NORTHWEST AGGREGATES
ADDRESS: 5975 E. MARGINAL WAY S.
P.O. BOX 1730
SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
LOADING STRUCTURE

IN: EAST PASSAGE
AT: MAURY ISLAND
COUNTY OF: KING
APPLICATION BY: NORTHWEST AGGREGATES

SHEET 14 OF 19 DATE: NOVEMBER 2003



PROPOSED BARGE LOADING CONVEYOR ELEVATION

PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

DATUM: MLLW

**MAURY ISLAND
 PIER MODIFICATIONS**

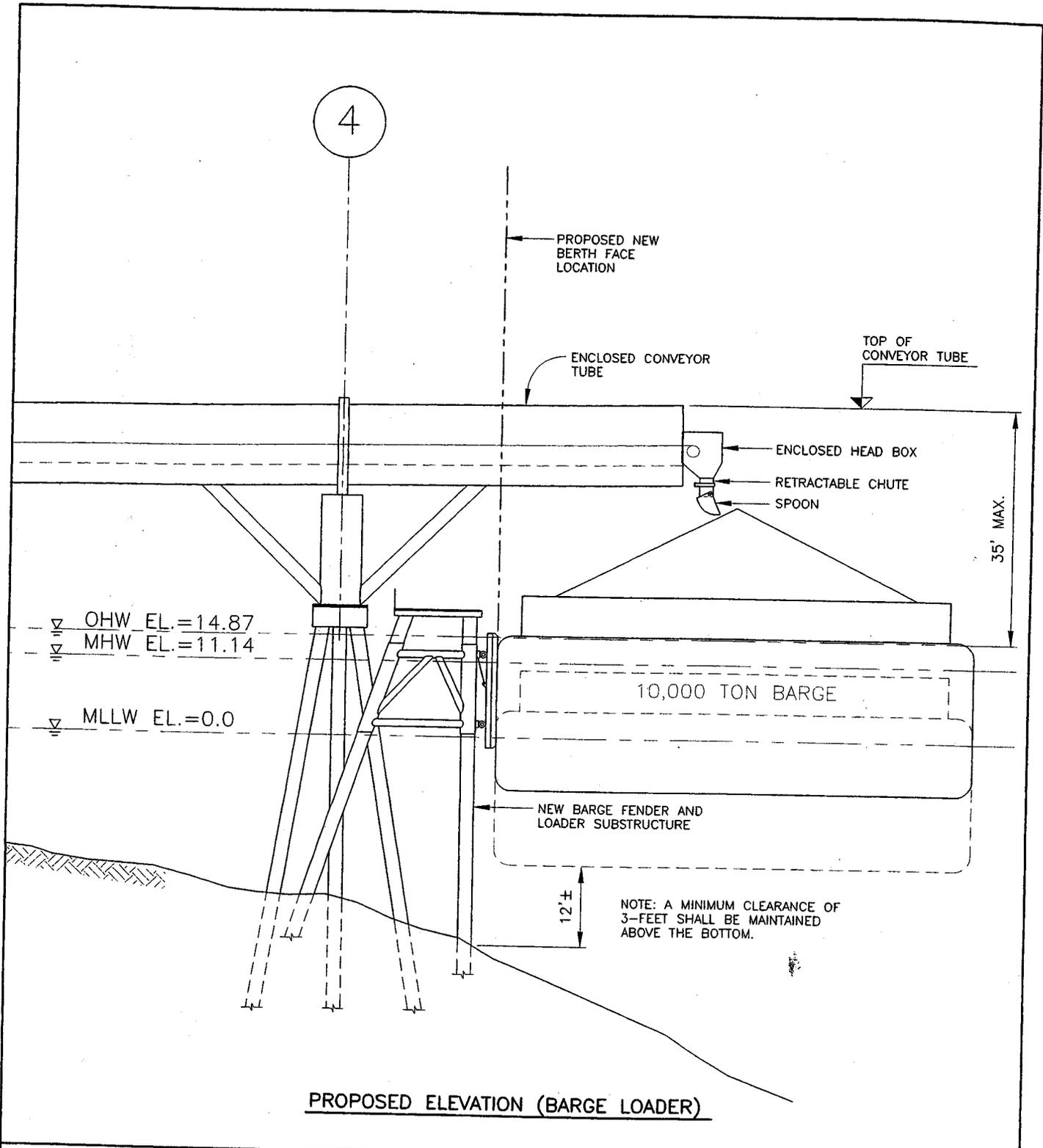
SCALE: 1"=60'

NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 15 OF 19 DATE: NOVEMBER 2003



PROPOSED ELEVATION (BARGE LOADER)

PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

DATUM: MLLW

**MAURY ISLAND
 PIER MODIFICATIONS**

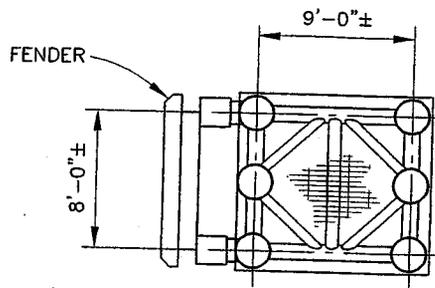
SCALE: 1"=20'

NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

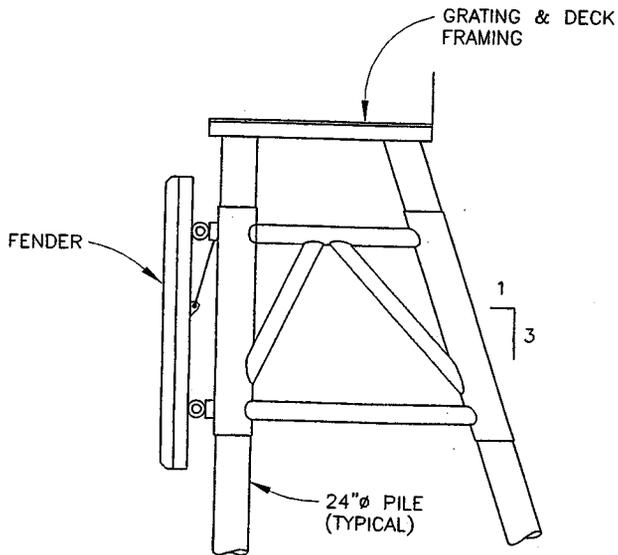
PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 16 OF 19 DATE: NOVEMBER 2003



PLAN



ELEVATION
(DOLPHINS #1 TO #7)

PURPOSE:
PROVIDE MOORAGE FOR VESSELS TO
RECEIVE SAND AND GRAVEL BEING
TRANSFERRED OFF-SHORE

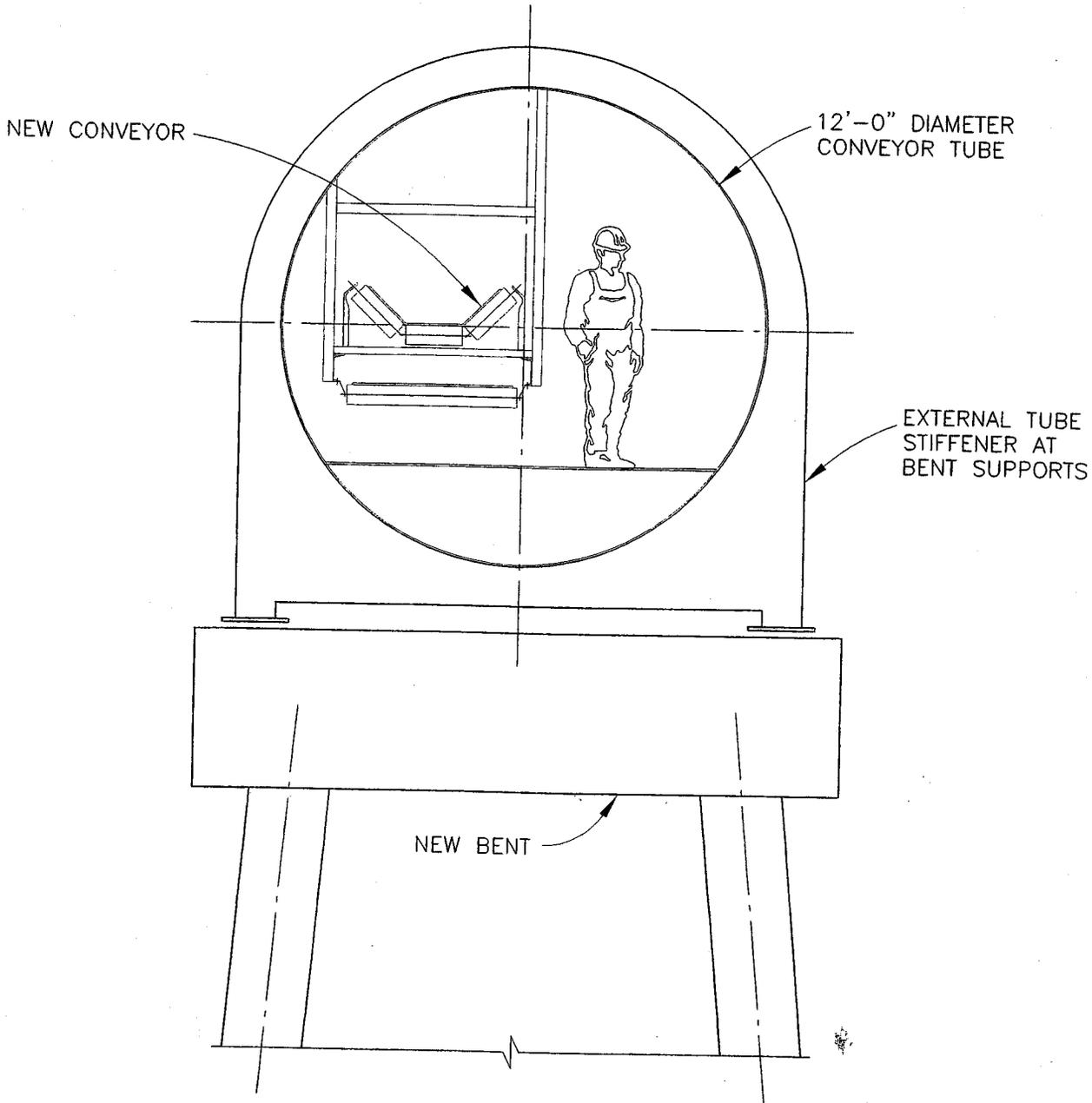
MAURY ISLAND PIER MODIFICATIONS

SCALE: 3/32"=1'-0"
NAME: NORTHWEST AGGREGATES
ADDRESS: 5975 E. MARGINAL WAY S.
P.O. BOX 1730
SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
LOADING STRUCTURE

IN: EAST PASSAGE
AT: MAURY ISLAND
COUNTY OF: KING
APPLICATION BY: NORTHWEST AGGREGATES

SHEET 17 OF 19 DATE: NOVEMBER 2003



SECTION A
8

PURPOSE:
 PROVIDE MOORAGE FOR VESSELS TO
 RECEIVE SAND AND GRAVEL BEING
 TRANSFERRED OFF-SHORE

**MAURY ISLAND
 PIER MODIFICATIONS**

SCALE: NOT TO SCALE

NAME: NORTHWEST AGGREGATES
 ADDRESS: 5975 E. MARGINAL WAY S.
 P.O. BOX 1730
 SEATTLE, WA 98111

PROPOSED: REPLACEMENT BARGE
 LOADING STRUCTURE

IN: EAST PASSAGE
 AT: MAURY ISLAND
 COUNTY OF: KING
 APPLICATION BY: NORTHWEST AGGREGATES

SHEET 18 OF 19 DATE: NOVEMBER 2003

PILE SUMMARY TABLE					
STRUCTURE	PILE TYPE	TOTAL NUMBER OF EXISTING PILES	NUMBER OF TIMBER PILES TO BE REMOVED	NUMBER OF STEEL REPLACEMENT PILES **	TOTAL NUMBER OF PILES AFTER REPAIRS **
CONVEYOR TRESTLE	VERTICAL	26	26	8 TO 14	8 TO 14
PIER	VERTICAL	32	32	0	0
	BATTER	18	18	0	0
FENDER SYSTEM	FENDER	21	21	0	0
DOLPHINS	VERTICAL	105	105	28 TO 42	28 TO 42
SUBMERGED DOLPHINS	CLUSTER	26	26	0	0
TOTAL		228 PILES	228 PILES	36 TO 56 PILES	36 TO 56 PILES

GROSS SURFACE AREA TABLE (TOTAL SF)								
STRUCTURE	EXISTING PILES	REMOVED PILES	**ADDED PILES	** AFTER MODIFICATIONS	EXISTING TIMBER DECK/WALKWAY	REMOVED TIMBER DECK/WALKWAY	ADDED STRUCTURE	FINAL STRUCTURE
CONVEYOR TRESTLE (LOWER LEVEL)	27.1	27.1	25.1 TO 44.0	25.1 TO 44.0	2640	2640	0	0
PIER (LOWER LEVEL)	62.2	62.2	0	0	2520	2520	0	0
FENDER SYSTEM	23.5	23.5	0	0			0	0
DOLPHIN	127.4	127.4	88 TO 131.9	88 TO 131.9			980	980
SUBMERGED DOLPHINS	33.2	33.2	0	0			0	0
CONVEYOR TRESTLE (UPPER LEVEL)					3410	3410	5136	5136
PIER					370	370	1680*	1680*
TOTALS	273.4	273.4	113.1 TO 175.9	113.1 TO 175.9	8940	8940	7796	7796

** THE FINAL NUMBER OF PILES AND THE CORRESPONDING PILE AREA WILL BE DETERMINED DURING FINAL DESIGN AFTER DETAILED GEOTECHNICAL INFORMATION HAS BEEN OBTAINED BY SOIL BORINGS OR TEST PILES.

* OPEN-GRATED STEEL WITH 75% OPEN AREA

PURPOSE: PROVIDE MOORAGE FOR VESSELS TO RECEIVE SAND AND GRAVEL BEING TRANSFERRED OFF-SHORE	MAURY ISLAND PIER MODIFICATIONS	PROPOSED: REPLACEMENT BARGE LOADING STRUCTURE
	SCALE: NOT TO SCALE NAME: NORTHWEST AGGREGATES ADDRESS: 5975 E. MARGINAL WAY S. P.O. BOX 1730 SEATTLE, WA 98111	IN: EAST PASSAGE AT: MAURY ISLAND COUNTY OF: KING APPLICATION BY: NORTHWEST AGGREGATES SHEET 19 OF 19 DATE: NOVEMBER 2003



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6006

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Notice of Application for
Certification of Consistency with the
Washington Coastal Zone Management Program

Date: December 13, 2004

Notice is hereby given that a request has been filed with the Department of Ecology, pursuant to the requirements of Section 307© of the federal Coastal Zone Management Act of 1972(16 U.S.C. 1451), to certify that the project described in the U.S. Army Corps of Engineers Public Notice No. 200001094 will comply with the Washington State Coastal Zone Management Program and that the project will be conducted in a manner consistent with that Program.

Any person desiring to present views on the project pertaining to the project's compliance or consistency with the Washington State Coastal Zone Management Program may do so by providing written comments within 30 days of the above publication date to:

Federal Permit Coordinator
Department of Ecology
SEA Program
Post Office Box 47600
Olympia, Washington 98504-7600

Adjacent Property Owners

1. Dr. Gordon C. Newton
16020 7th Ave. SW
Seattle, WA 98166
2. Earle W. Lovering
7819 SW 259th PL
Vashon, WA 98070
3. Lovering Earle W.
C/O Johnson Sarah
7 Drum Road
Rowayton, CT 06853
4. Brian E. Stroop
7823 SW 259th
Vashon, WA 98070
5. Richard H. Belland
26415 7th Ave S.
Des Moines, WA 98198
6. Celi G. Nendoza
2 Hannah Court
Midland Michigan 48642
7. John B. Stygar
314 NE 91st Street
Seattle, WA 98115
8. Joice Fox
P.O. Box 978
Vashon, WA 98070
9. Val Knight
2246 S. 116th
Seattle, WA 98168
10. Geanne Anglin
27725 156 Ave. SE
Kent, WA 98042
11. Paul Dest
1545 N. Cyrpress
Ontario, CA 91762
12. David Long
25734 79th Ave. SW
Vashon, WA 98070
13. Richard Dixon
P.O. Box 1446
Vashon, WA 98070
14. August Sestrap
P.O. Box 614
Vashon, WA 98070
15. Peter Saunders
8225 SW Van Ounda Rd.
Vashon, WA 98070
16. Joeseoph Zimmer
27410 Sandy Shores Dr. SW
Vashon, WA 98070
17. Stephen Andrus
8901 SW 274th Street
Vashon, WA 98070

APPENDIX C

Mitigation Plans for the Proposed Action

I. Northwest Aggregates. 2004. Mitigation Plan, Maury Island Barge-loading Operations (Extended Dock). June 2, 2004 and revised April 7, 2008.

II. Northwest Aggregates. 2003 (Revised). Barge Approach and Departure Protocol. Northwest Aggregates-Maury Island Barge-Loading Dock, Revised December 2, 2003.

III. Northwest Aggregates. 2004. Draft Conveyor Replacement Mitigation Planting Plan. Prepared by Grette Associates, May 20, 2004.

**MITIGATION PLAN
REVISED APRIL 7, 2008
NORTHWEST AGGREGATES**

Mitigation Plan

Maury Island Barge-Loading Operations (Extended Dock)
Northwest Aggregates

Prepared by:

Pete Stoltz
Northwest Aggregates
4636 E. Marginal Way S., Suite B140
Seattle, WA 98134

June 2, 2004
Revised April 7, 2008

Table of Contents

1.	Introduction	3
2.	Background.....	13
2.1	Potential Impacts from Shading	17
2.2	Potential Impacts from Prop Wash	17
2.3	Potential Impacts from Gravel Spillage	18
2.4	Potential Impacts from Noise	18
3.	Avoidance and Minimization Measures	21
3.1	Mitigation Measures to Avoid Shading Effects on Eelgrass.....	21
3.2	Mitigation Measures to Avoid Prop Wash Effects on Eelgrass.....	21
3.3	Mitigation Measures to Avoid Gravel Spills	22
3.3.1	Large-Scale Spill	22
3.3.2	Small-Scale Spill	24
3.4	Mitigation Measures to Avoid Noise Impacts.....	25
4.	Monitoring for Potential Impacts.....	27
4.1	Temperature Monitoring.....	27
4.2	Eelgrass Dive Surveys	31
4.2.1	Eelgrass Dive Survey Schedule	31
4.2.2	Eelgrass Reference Area Monitoring.....	32
4.3	Evaluation of Eelgrass Monitoring Results	36
4.4	Macroalgae Dive Surveys	37
4.4.1	Macroalgae Survey Method.....	40
4.4.2	Macroalgae Monitoring Schedule	41
4.4.3	Interpretation of Macroalgae Monitoring Results	41
4.5	Herring Spawn Survey	41
4.5.1	Herring Spawn Survey Method.....	42
4.5.2	Herring Spawn Survey Schedule.....	42
4.5.3	Interpretation of Herring Spawn Survey Results	42
4.6	Bathymetry Surveys.....	43
4.6.1	Bathymetry Survey Schedule	43
4.6.2	Interpretation of Bathymetry Survey Data.....	43
4.7	Internal Audits of Barge-Loading Operations	43
4.8	Reporting	44
4.9	Adaptation of the Monitoring Plan	45
5.	Measures to Rectify and/or Reduce Impacts.....	47
5.1	Measures to Rectify and/or Reduce Potential Impacts From Prop Wash	47

5.2	Measures to Rectify and/or Reduce Potential Impacts From Gravel Spillage.....	47
6.	Contingency Planning and Response	49
6.1	Contingency Plan Procedures	49
6.1.1	Problem Recognition.....	49
6.1.2	Contingency Planning and Response Process...	50
7.	References	53

List of Figures

Figure 1	Vicinity Map	3
Figure 2	Maury Island Gravel Dock and Distribution of Eelgrass ...	6
Figure 3	Proposed New Dock Configuration.....	7
Figure 4	Proposed New Dock Configuration – Elevation view of Conveyor.....	8
Figure 5	Proposed New Dock Configuration – Elevation view of Proposed New Dock Face.....	9
Figure 6	Conceptual Model of Potential Impacts from Barge-Loading Operations and Mitigation Measures.....	16
Figure 7	Monitoring Area	33
Figure 8	Eelgrass Reference Area.....	35
Figure 9	Example of contiguous patterns of sample grids with decreased shoot density indicating shading may be impacting eelgrass	38
Figure 10	Example of grid survey results showing changes in shoot density at the North eelgrass patch that do not indicate that shading has impacted eelgrass.....	39
Figure 11	Problem Recognition Process	51
Figure 12	Contingency Planning and Response Process.....	52

List of Tables

Table 1	Schedule of Monitoring Activities	29
---------	---	----

1. Introduction

Northwest Aggregates proposes to replace and extend the dock at its sand and gravel mine on southeastern Maury Island (Figure 1). This document describes measures that will be implemented to mitigate potential impacts from barge-loading operations at the extended dock. Mitigation measures address potential impacts from gravel spillage, shading, prop wash, and noise associated with operation of the barge-loading dock.

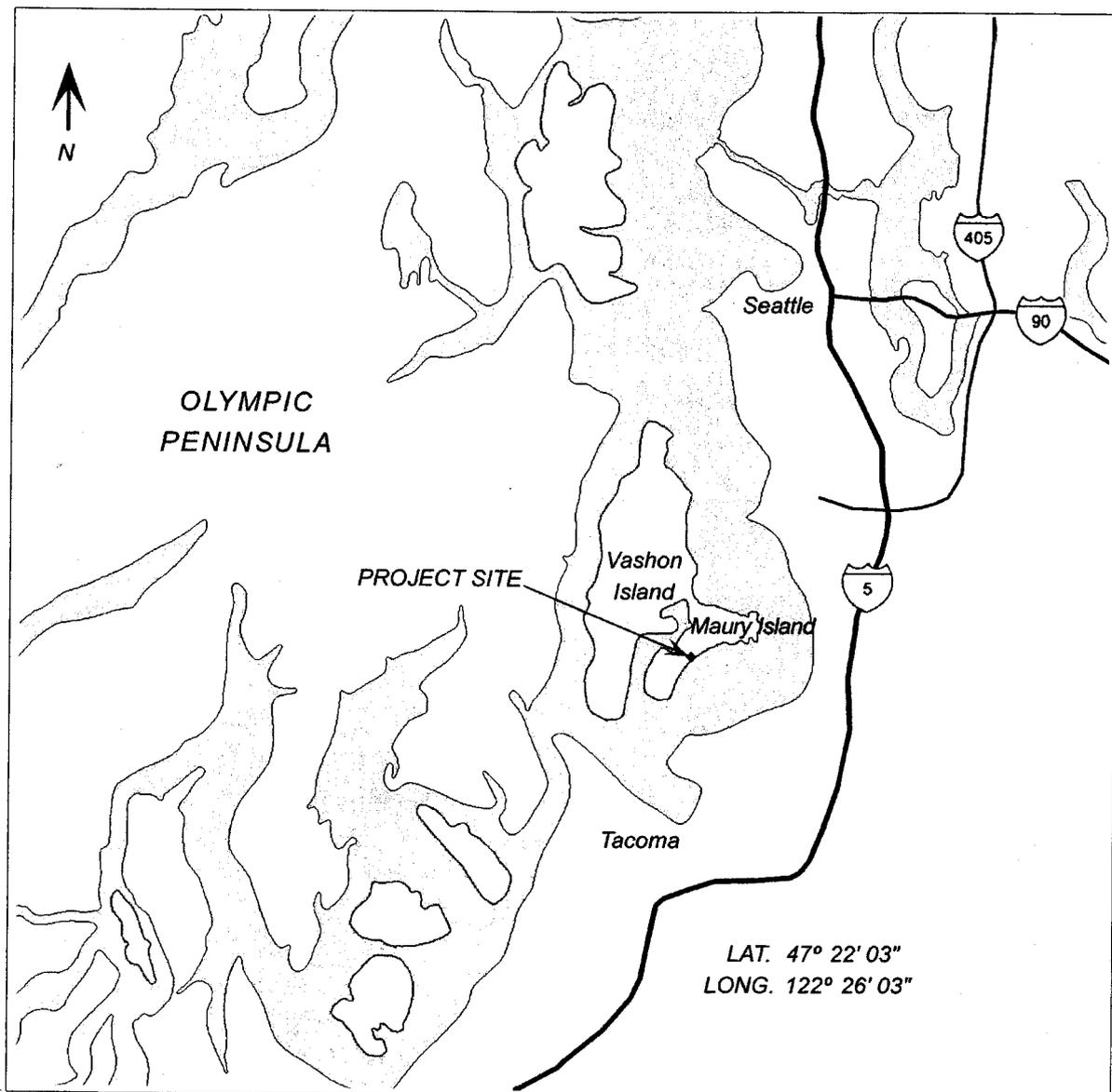


Figure 1 Vicinity Map

Northwest Aggregates originally planned to repair the existing dock and keep it in its current configuration. A Final Mitigation Plan for barge-loading operations at the repaired dock dated May 9, 2002 was submitted to and approved by the Washington Department of Fish and Wildlife (WDFW). The Final Mitigation Plan was incorporated by provision in the Hydraulic Project Approval (HPA) issued by WDFW for the repair project on May 13, 2002 (WDFW Log Number 00-E4751-03).

Subsequent to the issue of the HPA, King County reviewed the project for shoreline management program compliance, and requested replacement of the existing structure and extension of the dock as an added precautionary measure to reduce the risk of potential impacts to eelgrass. Figure 2 shows the existing dock and eelgrass distribution at the site. At the time of this writing the eelgrass at the site has been monitored annually using the same monitoring method. These monitoring results confirm that eelgrass has been confined to the same two areas growing in a similar configuration for the past seven years. Figure 3 shows the proposed new dock configuration. Figure 4 is an elevation view of the conveyor for the proposed new dock configuration. Figure 5 is an elevation view of the proposed new dock face.

In response to the County's request, additional propeller wash modeling was performed. Results of the propeller wash model are summarized in the County's Addendum to the FEIS (King County 2004). To further address concerns related to propeller wash, the Barge Approach and Departure Protocol dated December 2, 2003 will be implemented. The Barge Approach and Departure Protocol restricts barge and tugboat operations and the dock and prescribes a propeller wash monitoring program that will implemented to confirm that conservation measures implemented to avoid propeller wash impacts are effective.

This document has been incorporated into permits issued by all the regulatory agencies that have issued permits for the dock project including WDFW, King County, and the Washington Department of Ecology. It is anticipated that the document will also be incorporated by reference into any permits or leases the might be issued by the U.S. Army Corps of Engineers and the Washington Department of Natural Resources in the future.

According to the Washington Department of Fish and Wildlife (WDFW) policy number POL-M5002 on requiring or recommending mitigation, the purpose of mitigation is to achieve no net loss of habitat functions and values.

The WDFW Hydraulic Code Rules (220-110 WAC) define mitigation as, “actions that shall be required or recommended to avoid or compensate for impacts to fish life resulting from the proposed project activity.” The Rules state that the type(s) of mitigation shall be considered and implemented, where feasible, in the following sequential order of preference:

- A. Avoiding the impact altogether by not taking a certain action or parts of an action.
- B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation
- C. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

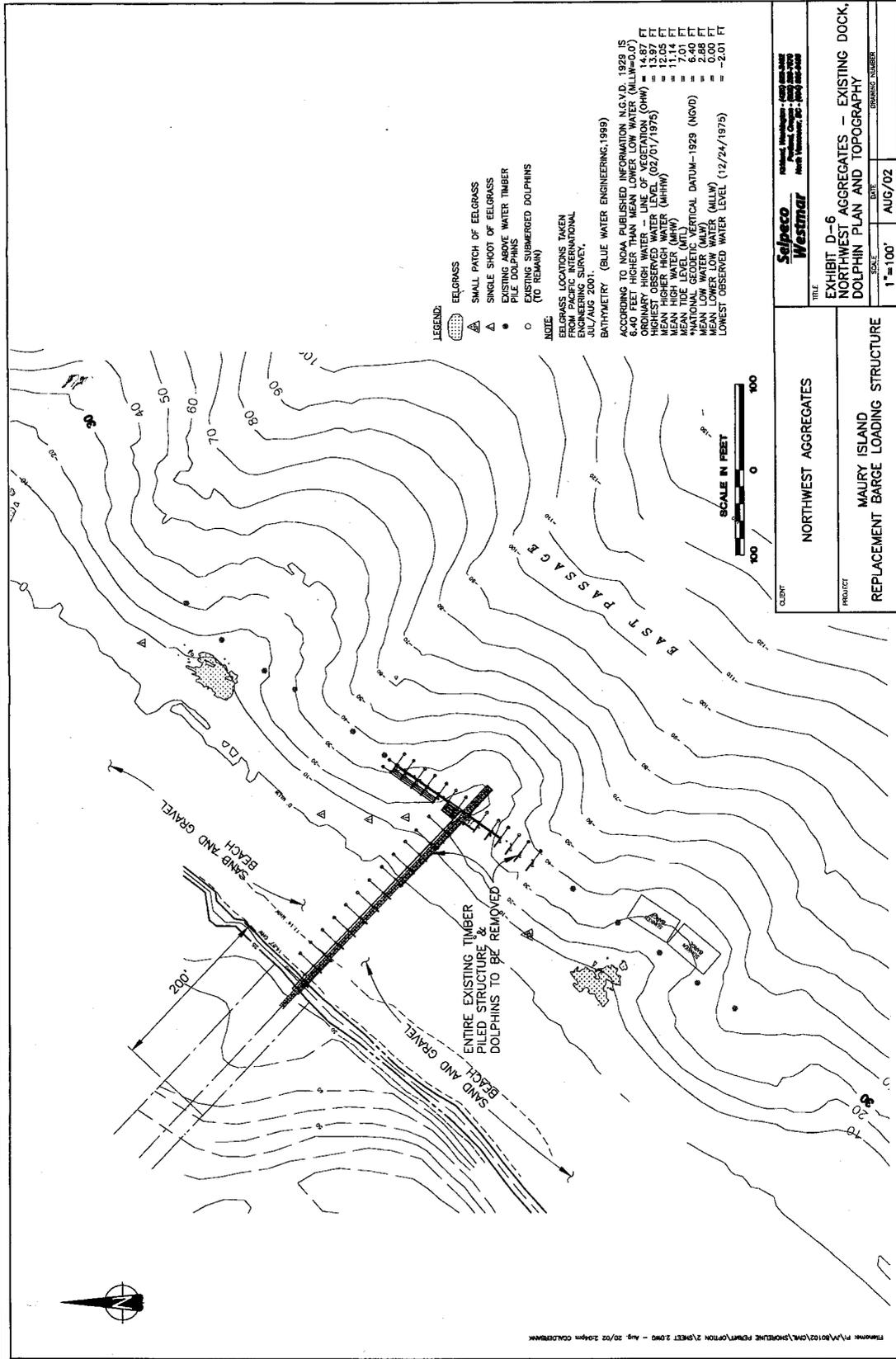


Figure 2 Maury Island Gravel Dock and Distribution of Eelgrass

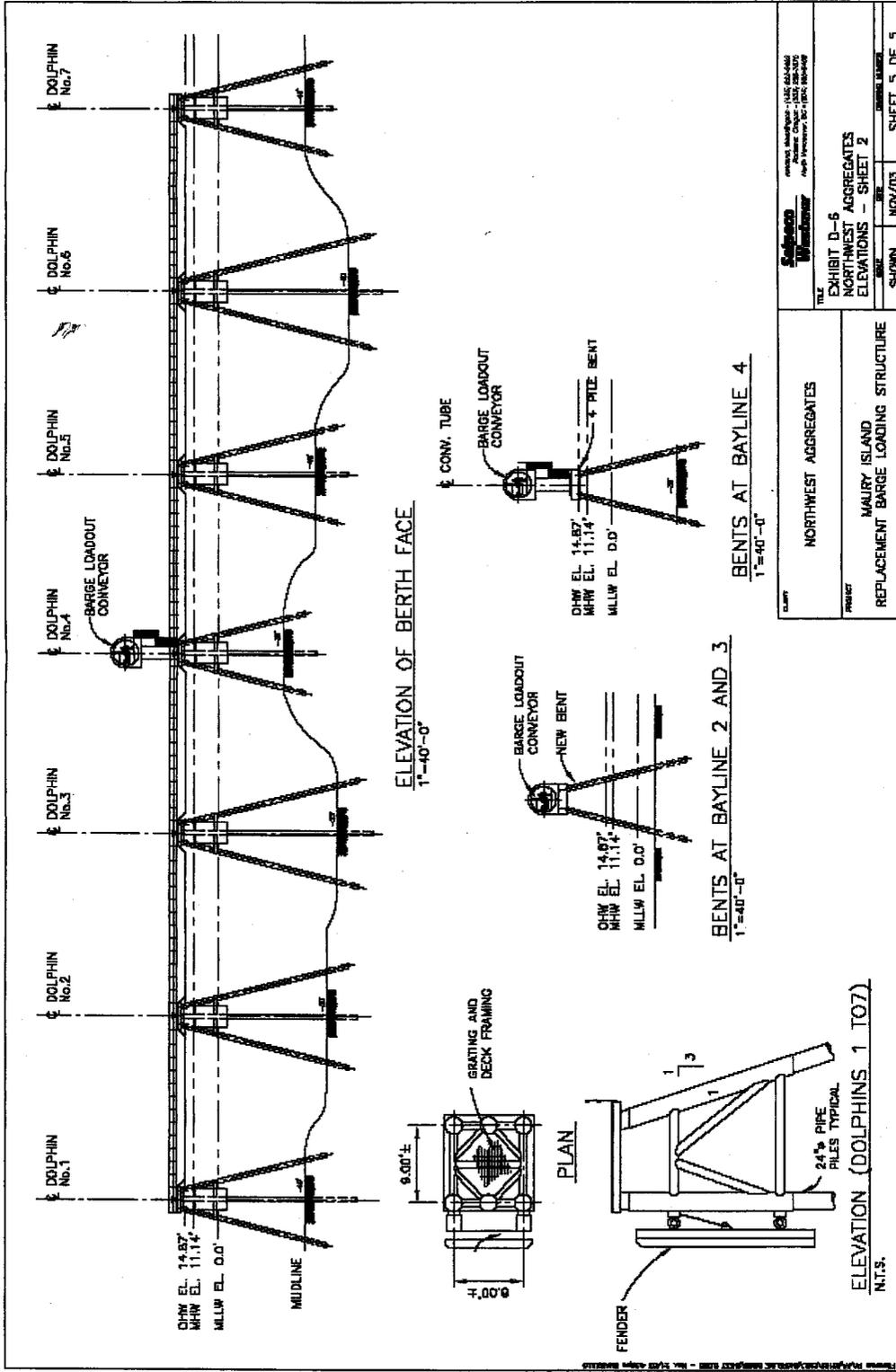


Figure 5 Proposed New Dock Configuration - Elevation view of Proposed New Dock Face

- D. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- E. Compensating for the impact by replacing or providing substitute resources or environments.
- F. Monitoring the impact and taking appropriate corrective measures to achieve the identified goal.

This document describes how the potential for barge-loading operations to impact the aquatic environment have been evaluated, and how mitigation measures that will be incorporated into the operation of the barge-loading dock will avoid and minimize potential impacts. This plan also explains how monitoring results will be used to ensure that avoidance and minimization measures are effective, and how monitoring results may be used to rectify situations that could potentially impact the aquatic environment.

Several surveys of the project area have been completed (AESI 1998, MRC 1998, Jones & Stokes 1999, MRC 2000, EVS 2000, PI Engineering 2001, PI Engineering 2002d, Grette Associates 2003, 2004, 2005a, 2006 and 2007) and several technical documents have been prepared (King County DDES 2000, King County DDES 2004, EVS 2000, PI Engineering 2002a, PI Engineering 2002c, Grette Associates 2005b, Point Environmental 2006) evaluating the potential for barge-loading operations to impact the aquatic environment. Figure 2 shows the gravel dock and distribution of eelgrass.

To implement various proposed mitigation measures, Northwest Aggregates will prepare a Barge-Loading Operations Manual that describes the procedures for operating, maintaining and cleaning barge-loading equipment and maintaining records for the facility. The Barge-Loading Operations Manual will include a barge approach and departure protocol and a gravel spill prevention, control and countermeasures plan and will be completed before barge-loading operations begin. The Barge Approach and Departure Protocol (Glacier Northwest 2004) has been prepared and is included as an appendix to the FEIS Addendum (King County DDES 2004). The Barge Approach and Departure Protocol includes procedures that will be used to monitor propeller wash velocities at the site. Internal audits of the facility will be conducted periodically to ensure that prescribed procedures are being followed and evaluate whether additional training, modification of equipment or updating of the Barge-Loading Operations Manual is needed.

2. Background

Six-Numerous documents have been prepared that evaluate potential impacts of barge-loading operations on aquatic habitat at the site including:

- Maury Island Gravel Mine Final Environmental Impact Statement (FEIS) (King County DDES 2000)
- Maury Island Gravel Mine Impact Study: Nearshore Impact Assessment (EVS 2000)
- Technical Memorandum: Response to WDFW letter dated January 7, 2002 Regarding Hydraulic Project Application; WDFW Log No. 00-E4751-02 (PI Engineering 2002c)
- Summary of Observations Report – Maury Island Barge-Loading Dock, Northwest Aggregates (PI Engineering 2002a)
- 2003-Eelgrass Survey Reports Spanning 2001 through 2007 (PIE 2001, 2002b, Grette Associates 2003, 2004, 2005a, 2006, 2007, (Grette Associates 2003)
- Addendum to the Final EIS (King County DDES 2004).
- Biological Evaluations for Chinook, bull trout and Southern Resident Orca habitat (Grette Associates 2005b and Point Environmental 2006).

The FEIS identified potential impacts, described potential mitigation measures and alternatives, and included analysis of potential impacts from shading, spillage, prop wash, and noise. The EVS report was prepared for the Washington Department of Ecology (Ecology), and included results from prop wash modeling and further discussion of potential impacts from shading, prop wash gravel spillage and noise. The Technical Memorandum included discussion regarding eelgrass distribution at the site, and potential impacts from shading, prop wash, gravel spillage, and noise. The Summary of Observations and Analyses summarizes and includes the 2001 and 2002 eelgrass survey reports, the Shade Analysis Report, and a Technical Memorandum summarizing propeller wash modeling results for tugboats operating at the dock. The Grette Associates report summarizes eelgrass observations from 2003. The Addendum to the Final EIS summarizes additional information compiled since the FEIS was completed, including independent evaluation of propeller wash from tugboat operations at the dock. Figure 6 is a conceptual model of potential impacts from barge-loading operations and mitigation measures. Concurrence letters have been issued to the corps for “not likely to adversely affect” determinations for Chinook, bull trout and Southern Resident Orcas and their habitat.

Maury Island Barge-Loading Operations

Potential Impact Mechanism

Noise

Gravel Spillage

Prop Wash

Shading

Potential Impacts to Fish and Associated Habitat

Alter fish behavior

Eelgrass loss retarded recruitment;
Reduced benthic productivity:

Eelgrass loss;
Increased turbidity

Eelgrass loss and/or retarded recruitment;
Reduced benthic productivity;
Alter fish behavior;
Reduced macroalgae

Avoidance and Minimization Measures

Extend dock
Barges loaded less than approximately half time (annual basis)
Implement barge approach and departure protocol;
Use cable haul-back system.

Incorporate spill prevention systems into repaired dock;
Implement barge-loading operations manual with spill prevention, control and countermeasures plan;
Monitor for spillage and plan compliance

Extend dock
Implement barge approach and departure protocol;
Use cable haul-back system;
Monitor eelgrass distribution

Extend dock
Barges loaded mostly at night;
Monitor eelgrass distribution

Maury Island Barge-Loading Operations

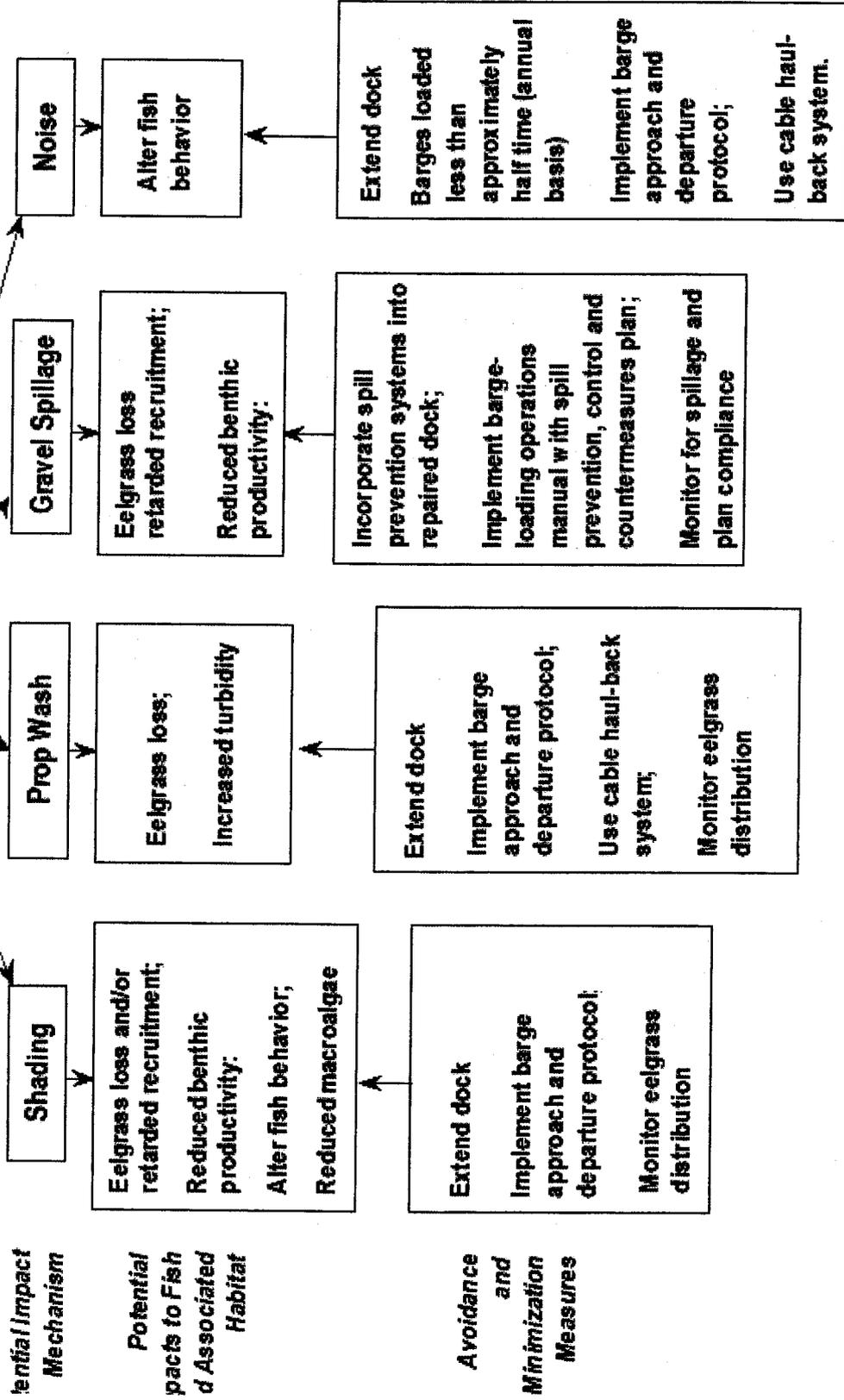


Figure 6 Conceptual Model of Potential Impacts from Barge-Loading Operations and Mitigation Measures

2.1 Potential Impacts from Shading

The shade analysis was conducted to evaluate the potential for barge-loading operations to impact eelgrass if the dock remains in its current configuration. Results of the shade analysis (PI Engineering 2002d) showed that photosynthetically active radiation (PAR) reaching plants below elevation -12 ft (MLLW) could be reduced below the threshold level for eelgrass survival of $3.0 \text{ M m}^{-2} \text{ d}^{-1}$ (moles per meter square per day). Based on the intensive eelgrass survey conducted during summer 2001, the total area of eelgrass below elevation -12 MLLW that may be shaded by barges if the dock remained in its current configuration is less than 50 ft^2 . Because the assumptions used in the shade study are extremely conservative, the report concluded that it is unlikely average daily PAR reaching all but one shoot of eelgrass near the middle of the dock will be measurably reduced as a result of barge-loading operations.

Extending the dock will move barges approximately 92 ft seaward of the location modeled in the shade analysis report. This will substantially reduce the time when barges at the dock will cast shadows on eelgrass at the site to the point that any decrease in PAR resulting from shading from barge loading operations will be negligible; therefore, shading from barges is not expected to affect eelgrass at the site.

2.2 Potential Impacts from Prop Wash

As part of the Nearshore Impact Assessment, EVS (2000) conducted an evaluation of prop wash effects using the equation from Blaauw and van de Kaa (1978) and cited in Maynard (1998) to estimate maximum induced bottom velocity from tugboat prop wash at the barge-loading dock. They concluded that the maximum bottom velocity would be approximately 26 cm/sec. Based on their estimate, EVS concluded that bottom velocities induced by the propeller would be capable of re-suspending bottom sediments in waters immediately adjacent to the loading pier, but would not damage eelgrass.

PI Engineering completed additional modeling of propeller wash to evaluate the extension of the dock as an additional precautionary measure to avoid prop wash impacts on eelgrass. The model JETWASH was used to simulate a "worst case" condition where the largest size tugboat was positioned at the shallowest point along the dock face under maximum maneuvering power while directing propeller wash directly at the main eelgrass patches. Results from the model were compared to results from a flume study conducted for the

Washington State Ferries to evaluate propeller wash impacts on eelgrass (Hart Crowser et. al. 1997) as well as information on eelgrass and current velocity presented in the literature. Results of this comparison showed that propeller-wash-induced near-bottom velocities are unlikely to affect established eelgrass patches at the site.

To address concerns raised by project opponents, Coast and Harbor Engineering conducted a field survey at the Maury Island dock using a tugboat and remote sensors to measure propeller wash velocity. The measurements from the field study were then used to calibrate the propeller wash model. Results from the recalibrated model showed that propeller wash velocities would remain below damage thresholds if the tugboat propeller was 115 ft away from the eelgrass. The new extended dock face would be 120 ft away from eelgrass areas. As an additional precaution, Northwest Aggregates will implement the Barge Approach and Departure Protocol and monitor propeller wash velocities when barge-loading operations begin.

2.3 Potential Impacts from Gravel Spillage

Northwest Aggregates is motivated to prevent a major gravel spill at their barge-loading dock. In addition to the environmental and regulatory consequences, a large-scale spill would likely disrupt barge-loading operations for an extended period of time, damage equipment, and risk injury of personnel working at the site.

Northwest Aggregates will avoid habitat impacts from large- and small-scale spills on the aquatic environment by preventing gravel spills, and minimizing the amount of material spilled.

Areas where gravel spills could occur are at the end of the conveyor and along the barge berthing area. These parts of the gravel dock are away from the areas where eelgrass was observed during the 2001, 2002, and 2003 surveys. Therefore, eelgrass impacts resulting from gravel spillage are not anticipated.

2.4 Potential Impacts from Noise

Potential tugboat-related noise impacts will be limited to times when tugboats are active at the site. The estimated maximum volume of material that could be extracted from the facility is 7.5 million tons per year (King Co. DDES 2000). To reach the maximum rate of extraction, 750 10,000-ton barges would be loaded during a 12-month period. A 10,000-ton barge will be loaded in approximately 4 hours, including ½ hour for the barge to arrive and tie up to the dock, and ½ hour to untie and depart. Assuming, for the purposes of this

discussion, that the tugboat operates at the dock for ½ hour during barge arrival and ½ hour during barge departure, tugboats would be operated at the dock a total of one hour to load each barge. Based on this assumption, noise from tugboats will occur for a total of 750 hours, or eight percent of the time over a 12-month period. Therefore, no tugboat-related noise impacts would occur 92 percent of the time. Because no tugboat maneuvers will occur at the dock at least 92 percent of the time, it is reasonable to conclude that tugboat operations at the dock will not prevent fish from using habitat near the dock.

Fish typically become habituated to continuous and partially masked noise, like that produced by the gravel conveyor (Schwarz and Greer 1984, Schwarz 1985, Knudsen et al. 1997). Therefore, it is unlikely that this noise will stimulate a behavioral response from fish.

Most of the noise resulting from aggregate landing on the barge deck will either be dissipated into air or muffled by aggregate accumulated on the deck of the barge. Therefore, fish may not hear gravel landing on the deck of the barge. If gravel landing on the empty barge deck does elicit a behavioral response, the response will be temporary because the noise will be muffled by aggregate as the barge is loaded.

Extending the dock will locate the source of noise associated with barge movement or gravel entering the barges farther from shore, providing a greater distance over which noise will attenuate before reaching nearshore habitat features such as eelgrass and spawning substrate for forage fish.

3. Avoidance and Minimization Measures

3.1 Mitigation Measures to Avoid Shading Effects on Eelgrass

Concerns regarding effects on eelgrass from shading associated with barge-loading operations will be addressed in the approach and departure protocol included in the Barge-Loading Operations Manual. At a minimum, the manual will include the following conservation measures:

- Dock extended so that dock face is 120 ft from edge of established eelgrass areas identified in the 2001 Eelgrass Survey Report (PI Engineering 2001).
- To reduce shading, only one barge will be allowed at the dock at any one time. Barges will be docked only during loading and the dock will not be used as moorage for barges or tugboats.
- Empty barges approaching the dock will remain at least 2,500 ft waterward of the dock while waiting for loaded barges to depart from the dock.
- Gravel barges and tugs will not operate shoreward of the dolphins where eelgrass may be present.
- Tugboats will not operate on the shoreward side of barges at the dock.

3.2 Mitigation Measures to Avoid Prop Wash Effects on Eelgrass

Concerns regarding effects on eelgrass from prop wash associated with barge-loading operations will be addressed in the Barge Approach and Departure Protocol (Glacier Northwest 2004). Propeller wash monitoring will be conducted as prescribed in the Barge Approach and Departure Protocol. If propeller wash velocities exceed the interpretive criteria, barge loading operations will cease until additional propeller wash controls can be identified, tested and reviewed by and multidisciplinary group to insure that impacts to the eelgrass will be avoided. At a minimum, the manual will include the following conservation measures:

- Dock extended so that dock face is 120 ft from edge of established eelgrass areas identified in the 2001 Eelgrass Survey Report (PI Engineering 2001).
- Gravel barges and tugs will not operate shoreward of the dolphins where eelgrass may be present.

- Tugboats will not operate on the shoreward side of barges except under extreme emergency or adverse weather conditions.
- Tug/barge configurations will approach and depart the dock at the slowest speed practical, given the weather and wind conditions at the time.
- A haul-back system will be used to move the barge during loading. This will eliminate the need for a tug to maneuver the barge during loading, reducing the frequency and duration of tug operation at the facility to avoid and minimize prop wash effects.
- Tugs will “back” the barge away from the dock to minimize prop wash whenever wind and weather conditions allow.
- Tugboats will not operate within 120 ft of the eelgrass reference area.
- Tugboat operators will avoid directing prop wash towards shore, and will avoid use of excessive thrust.
- A minimum distance of three feet will be maintained between the bottom of barges and the seabed.

3.3 Mitigation Measures to Avoid Gravel Spills

Potential gravel spills could fall into two general categories. Steps to avoid and minimize a catastrophic large-scale spill of several hundred cubic yards of material will require different prevention, control and countermeasures than are required for a small-scale spill. At a minimum, the Barge-Loading Operations Manual will incorporate the conservation measures listed for large- and small-scale spills to avoid and minimize gravel spills at the facility.

3.3.1 Large-Scale Spill

Northwest Aggregates is motivated to prevent a major gravel spill at their barge-loading dock. In addition to the environmental and regulatory consequences, a large-scale spill would likely disrupt barge-loading operations for an extended period of time, damage equipment and risk injury of personnel working at the site.

Northwest Aggregates will incorporate the following operational controls and design features to prevent large-scale spills at the dock:

- Over-water sections of the gravel conveyor will be completely enclosed.
- The conveyor will be designed to place the product in the center of the barge.

- A manual limit switch will be installed on the conveyor to prevent the conveyor from operating when a barge is not in place to accept material.
- Only barges with bin walls will be loaded, and material will be loaded so that the material remains at least two feet below the tops of the bin walls.
- Barges will be moved back and forth using a cable haul-back system to ensure even loading.
- A trained dock worker will remain stationed on the dock to observe operations when a barge is loading.
- Tugboat crew and personnel will be trained to watch for situations in which the barge and conveyor are misaligned.
- Operations will be monitored using video cameras, and periodic audits will be conducted to verify that operational controls are being implemented in an effective manner. Annual multibeam bathymetric surveys that provide elevation measurements spaced a maximum distance of 10 ft apart will be conducted to detect accumulated spillage. New operational controls to prevent spills may be identified and implemented following these audits.
- A minimum distance of three feet will be maintained between the bottom of barges and the seabed.

If a large-scale spill does occur, operational controls will be implemented to minimize the amount of material spilled. A detailed description of spill response procedures will be included in the gravel spill prevention, control and countermeasures plan, to be included in the Barge-Loading Operations Manual. At a minimum, these procedures will include the following:

- All barge-loading equipment will be stopped until the source of the spill is identified and any repairs or additional countermeasures are complete.
- All accumulated materials accumulated on the surface of the dock will be cleaned up.
- Washing or sweeping of spilled material into the water will be prohibited.
- One dock worker will remain on the dock at all times during barge-loading operations to monitor for spillage of aggregate material. This person will maintain radio communication with the operator of the facility at all times.

- The gravel spill prevention, control and countermeasures plan will include the instructions for contacting regulatory and company personnel within 24 hours of a spill.
- A multibeam bathymetric survey of the spill area that provides elevation measurements spaced a maximum distance of 10 ft apart will be completed within seven days of the spill.

3.3.2 Small-Scale Spill

Northwest Aggregates will avoid habitat impacts from small-scale gravel spills in the aquatic environment by preventing spills, and minimizing the amount of material spilled.

The following operational controls and design modifications will be incorporated into the barge-loading operation to prevent small-scale spills of gravel into the water:

- The Barge-Loading Operations Manual will specify procedures for cleaning and maintaining equipment.
- Over-water parts of the conveyor will be completely enclosed to prevent wind-blown spillage.
- A fixed downspout will be installed and maintained on the end of the conveyor to prevent wind from blowing material into the water as it is transferred from the conveyor into the barge.
- Washing or sweeping of spilled material into the water will be prohibited.
- The conveyor will be designed to place the product in the center of the barge.
- A manual limit switch will be installed on the conveyor to prevent the conveyor from operating if a barge is not in place to accept material.
- Only barges with bin walls will be loaded, and material will be loaded so that the material remains at least two feet below the tops of the bin walls.
- Barges will be moved back and forth using a cable haul-back system to ensure even loading.
- A trained dock worker will remain stationed on the dock to observe operations when a barge is loading.
- Tugboat crew and personnel will be trained to watch for situations in which the barge and conveyor are misaligned.

- Operations will be monitored using video cameras and periodic audits will be conducted to verify that operational controls are being implemented in an effective manner. Annual bathymetric surveys will be conducted to detect accumulated spillage. New operational controls to prevent spills may be identified and implemented following these audits.
- A minimum distance of three feet will be maintained between the bottom of barges and the seabed.

If a small-scale gravel spill does occur, operational controls will be implemented to minimize the amount of material spilled. A detailed description of spill response procedures will be included in the spill prevention, control and counter measure plan. At a minimum, these procedures will include the following:

- All barge-loading equipment will be stopped until the source of the spill is identified and any repairs or additional countermeasures are complete.
- All accumulated materials in the spill tray or accumulated on the surface of the dock will be cleaned up.
- Washing or sweeping of spilled material into the water will be prohibited.
- One dock worker will remain on the dock at all times during barge-loading operations to monitor for spillage of aggregate material. This person will maintain radio communication with the operator of the facility at all times.
- The gravel spill prevention, control and countermeasures plan will include the instructions for contacting regulatory and company personnel within 48 hours of a spill.

3.4 Mitigation Measures to Avoid Noise Impacts

Noise associated with tugboat maneuvers at the dock may temporarily alter fish behavior. In order to avoid and minimize potential noise impacts to fish behavior, the following mitigation measures will be incorporated into the Barge Approach and Departure Protocol included in the Barge-Loading Operations Manual.

- Dock extended so that dock face is 120 ft from edge of established eelgrass areas identified in the 2001 Eelgrass Survey Report (PI Engineering 2001).
- Gravel barges and tugboats will not operate shoreward of the dolphins.

- Tugboats will not operate on the shoreward side of the barges except under extreme emergency or adverse weather conditions.
- Tug/barge configurations will approach and depart the dock at the slowest speed practical, given the weather and wind conditions at the time.
- A haul-back system will be used to move the barge during loading. This will eliminate the need for a tugboat to maneuver the barge during loading reducing the frequency and duration of tug operation at the facility.
- Barges will only be loaded between 7 AM and 7 PM Monday through Friday.

4. Monitoring for Potential Impacts

Periodic monitoring and reporting will be conducted according to the schedule in Table 1 to verify the barge-loading procedures are being followed and to confirm the mitigation measures are successful. The monitoring plan will be evaluated annually in consultation with ~~WDFW~~the regulatory agencies, and if impacts are observed or barge-loading operations have increased substantially, the monitoring schedule may be modified. Monitoring methods will not deviate from those described in this plan without prior consent from ~~WDFW~~the regulatory agencies. If problems arise during the course of field sampling, the regulatory agencies~~WDFW~~ will be contacted to ensure concerns regarding any deviations to the monitoring plan are adequately addressed. As detailed below, monitoring will include:

- Measurements of temperature which is thought to be an important factor affecting the natural variability of eelgrass distribution and density over time.
- Surveys of eelgrass distribution and density to ensure that eelgrass impacts are successfully being avoided.
- Quantitative and qualitative surveys of macroalgae along the conveyor alignment between the bank and the -30 ft MLLW depth contour will be conducted.
- Survey for herring eggs in eelgrass at the site.
- Bathymetric surveys will be conducted to detect spills and maintain up-to-date baseline bathymetric information.
- Internal audits to verify that procedures in the Barge-Loading Operations Manual are being followed, and are effective.
- Qualitative observations of the presence/absence of fish, macroalgae, substrate conditions, and condition of sunken barges at the south end of the site will be completed according to the schedule shown in Table 1.
- Propeller wash modeling will be conducted as prescribed in the Barge Approach and Departure Protocol.

4.1 Temperature Monitoring

Fluctuations in water temperature may be an important factor affecting the natural variability of eelgrass distribution and density at the site. For this reason, a recording temperature gauge will be used to monitor water temperature at the site.

Water temperature will be monitored beginning in 2002 and will continue as long as the barge-loading dock is in operation. Temperature will be recorded hourly throughout the year. The recording device will be retrieved, cleaned, and maintained, and the data will be downloaded at least annually.

Table 1 Schedule of Monitoring Activities

	Summer 2004	Pre-Construction ¹	Post-Construction	Begin Barge-Loading	2 Weeks	1 Month	3 Months	6 Months	1 Year	18 Months	2 Year	3 Year	4 Year	Ongoing ²
Temperature	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	Continuous
Eelgrass Depth Contour	◆	◆	◆					◆	◆		◆	◆		
Eelgrass Grid Survey	◆	◆	◆			◆		◆	◆		◆	◆		
Eelgrass Qualitative Survey					◆		◆						◆	Annually ³
Eelgrass Reference Site	◆	◆						◆	◆		◆	◆		
Qualitative /Quantitative Macroalgae Transect Surveys	◆		◆						◆	◆	◆	◆		
Qual. Macroalgae Survey													◆	Annually ³
Herring Spawn Survey		◆ ⁴							◆		◆	◆		Years 5,7,9 and 11 then every 5 years
Bathymetry Survey		◆							◆		◆	◆		Every two years
Internal Audits of Barge-Loading Operations					◆			◆	◆		◆	◆		Annually
Technical Summary of Observations	◆	◆	◆			◆		◆		◆				
Monitoring and Operations Report									◆				◆	Annually

1 The annual survey conducted between July 15 and August 15 may be used as the pre-construction survey provided construction commences after completion of the annual survey in that same calendar year, and is completed by January 14 of the following year.

2 The schedule for ongoing monitoring is based on the assumption that no adverse effects are observed during the first four years of monitoring. However, the schedule for ongoing monitoring may be modified after the first four years if deemed necessary by the regulatory agencies (e.g., significant increase in barge-loading activities occur, etc.).

3 Qualitative dive surveys will be conducted annually during the eelgrass and macroalgae growing season. If substantial changes in eelgrass distribution are observed, the regulatory agencies will be notified and eelgrass depth contour survey and/or eelgrass grid survey may be conducted to document the change. If substantial changes in macroalgae distribution or density are observed, the regulatory agencies will be notified and a macroalgae transect survey may be conducted to document the change.

Monitoring for Potential Impacts

- 4 Three diver surveys to check for herring spawn will be conducted during each herring spawn season (Last week in January to third week of February) prior to dock construction.

4.2 Eelgrass Dive Surveys

Dive surveys will be conducted to monitor eelgrass distribution and density using methods described in the Eelgrass Survey Report (PI Engineering 2001). The dive surveys will be conducted in two phases. The first phase will be depth contour surveys where divers will swim each 2-ft depth contour, marking the location of eelgrass patches or plants observed. The purpose of the depth contour survey is to mark the position of individual eelgrass plants or small patches within the survey area. During depth contour surveys, divers will observe bottom substrate looking for changes that may indicate a gravel spill has occurred. If a spill is suspected based on substrate observations, the location of the substrate change will be marked and the position will be recorded using DGPS.

The second phase of the survey will focus on the two main eelgrass patches at the site (see Figure 2). New eelgrass patches observed during monitoring that measure 15 ft x 15 ft (225 ft²) or greater will be monitored using the grid survey technique. During this second phase, divers will use a grid coordinate system to measure eelgrass density, note substrate observations, and map the distribution of eelgrass within the north and south eelgrass patches.

Qualitative dive surveys will be conducted to record general observations according to the schedule shown in Table 1. Qualitative dive surveys will focus on known eelgrass areas and look for substrate changes that may indicate a spill or prop scour has occurred at the site. Visual observations and locations of evidence of spills, prop scour or damage to eelgrass will be recorded. Divers will also survey and record the general conditions of the sunken barges at the south end of the site, and the presence and absence of macroalgae and fish. the regulatory agenciesWDFW will be notified if substantial difference in eelgrass distribution or density is observed during the qualitative dive survey. Depth contour surveys and/or grid surveys may be conducted to document the change.

4.2.1 Eelgrass Dive Survey Schedule

Dive surveys will be conducted according to the schedule shown in Table 1. Both phases of the eelgrass survey will be completed between July 15 and August 15 of 2004 and during each eelgrass growing season before barge-loading operations begin. Results from these surveys will augment baseline eelgrass information for the site, and document the natural variability of eelgrass distribution and shoot density over time.

The annual survey conducted between July 15 and August 15 may be used as the pre-construction survey, provided construction commences after completion of the annual survey for that calendar year, and is

completed by January 14 of the following year. The post-construction survey will be conducted no later than two weeks after construction activities are completed to verify that eelgrass has not been impacted by activities related to the repair of the dock.

Divers will conduct a qualitative survey of the site focusing on the two main eelgrass patches two weeks after barge-loading operations begin. A grid survey of the north and south eelgrass patches will be completed one month after barge-loading operations begin, and a qualitative dive survey will be conducted three months after barge-loading operations begin to verify that no direct impacts from barge-loading operations has occurred in this time. If impacts to eelgrass in the two main eelgrass patches are observed during a qualitative survey, a grid survey of the eelgrass patch will be conducted. Divers will also survey and record the general conditions of the sunken barges at the south end of the site, and the presence and absence of macroalgae and fish.

Both phases of the eelgrass survey will be conducted at the site between July 15 and August 15 of the first three years following the beginning of barge-loading operations. If no eelgrass impacts from barge-loading operations are observed during this time, qualitative surveys of eelgrass and site conditions will be conducted annually at the site. If eelgrass impacts from barge-loading operations are observed at any time, this monitoring schedule may be revised after consulting with the regulatory agenciesWDFW.

4.2.2 Eelgrass Reference Area Monitoring

Monitoring will be conducted at the eelgrass reference area (Figure 7) to measure general changes in eelgrass density and distribution in an area that is removed from the activities at the site. Reference area surveys will be conducted using the same methods used during the 2002 eelgrass survey (PI Engineering 2002b). Figure 8 shows the distribution of eelgrass within the reference area observed in summer 2002.

The grid survey of the reference area will be conducted annually during the growing season, following the same schedule as the depth contour and grid surveys of the two main eelgrass patches and as shown in Table 1, and the same qualitative and quantitative information recorded for patches at the dock will be recorded for the reference area. Results from the reference area monitoring will be compared from year to year to track temporal variability in eelgrass distribution and density. Observed changes in patches at the loading dock will also be compared over time to determine whether changes in distribution and density observed in patches at the barge-loading dock are generally consistent with changes observed at the reference area.

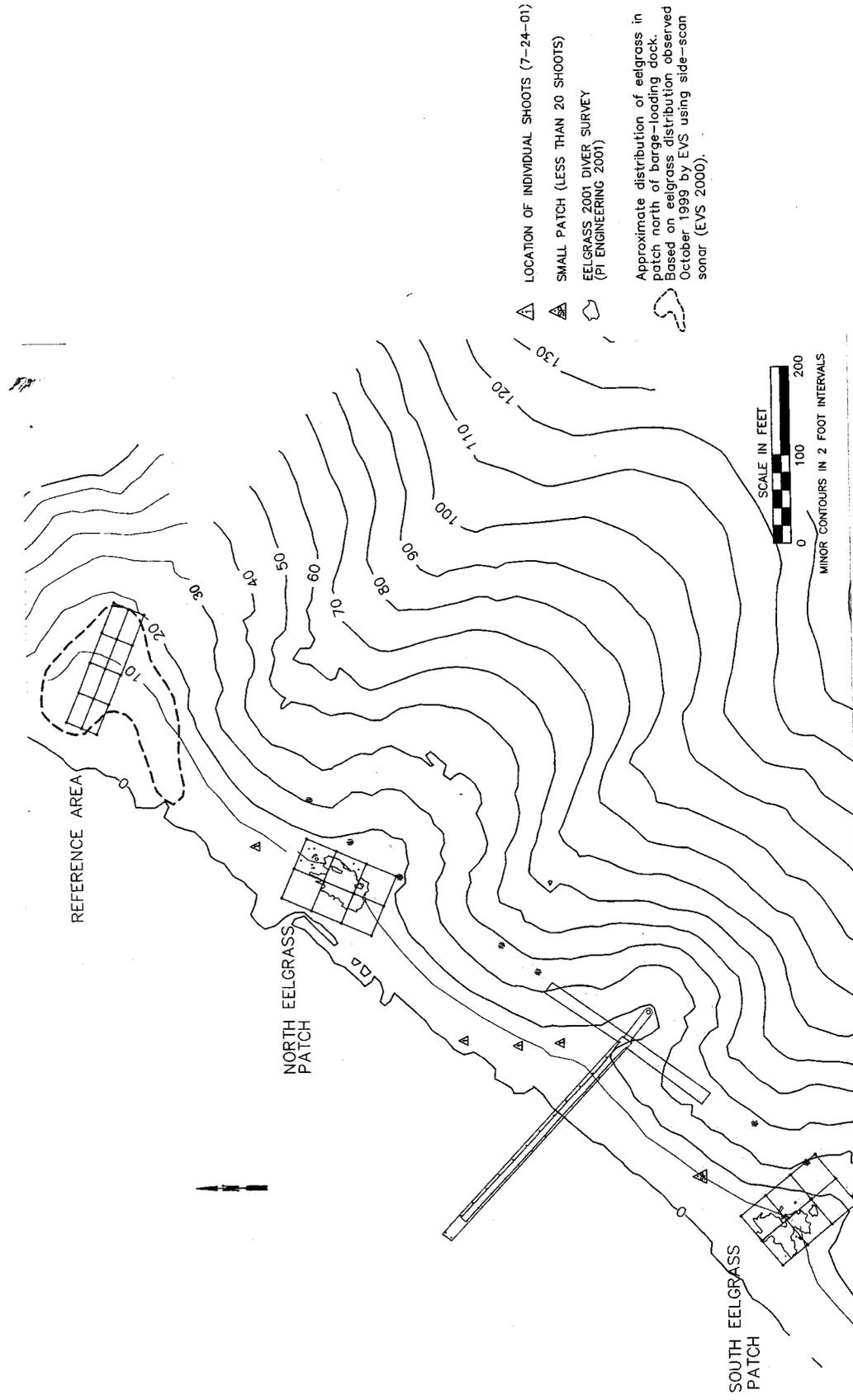
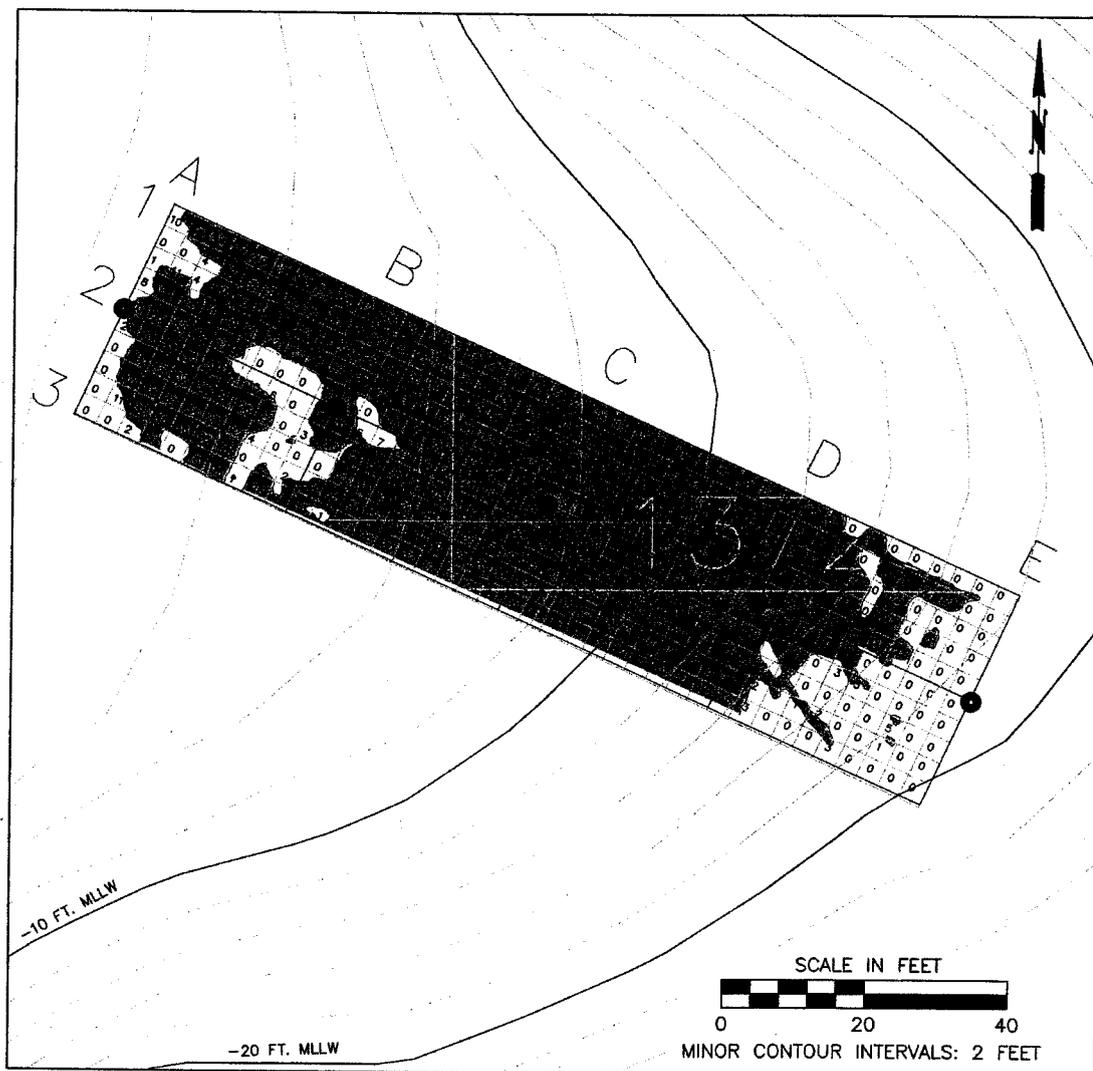


Figure 7 Monitoring Area



- EELGRASS PATCH (7-22-02 to 7-26-02)
 - ④ SHOOT COUNT PER 1/4 m²
 - CENTERLINE REFERENCE STAKES
- NOTE: Figure only shows eelgrass observed within the reference area. Eelgrass is present on either side of the survey grid. No eelgrass was observed landward of the edge of the survey grid.

Figure 8 Eelgrass Reference Area

4.3 Evaluation of Eelgrass Monitoring Results

Eelgrass monitoring results will be compared between surveys to measure changes in shoot density and distribution. Results from the 2001 diver survey and subsequent surveys conducted using the same method prior to construction will be used as baseline and will approximate the amount of natural variability in eelgrass shoot density between years. Differences between the surveys conducted before and after the start of barge-loading operations will then be compared to see if a pattern of change consistent with potential impacts has occurred.

Pre-construction eelgrass surveys completed between 2001 and the date of construction shall be used to (1) determine pre-construction eelgrass location and density, (2) determine interannual variability that can be attributed to natural and non-project related causes, and (3) provide a baseline for measuring post-construction eelgrass area extent and density for impact assessment. To this end, the permittee shall engage the services of an independent consultant to develop and submit to the King County DDES a report outlining statistical performance measures that will detect any changes in eelgrass bed location or density prior to initiating construction of the loading facility. These measures, which may include paired t-tests or ANOVA tests, shall be used to compare each required eelgrass survey with the referenced baseline data. The report outlining the statistical performance measures shall also clearly enunciate how data gathered in the reference eelgrass bed will be used. For consistency, the King County DDES prefers that the permittee re-engage the services of the independent consultant previously engaged in the eelgrass analysis (Ron Thom, Battelle Marine Sciences Lab). NOTE: Eelgrass studies completed prior to 2001, including the 1999 Jones & Stokes eelgrass report and video surveys, may be used as background information but are not suitable for use as statistical baseline data due to differences in data collection methods and scale.

A preponderance of evidence approach will be used to evaluate eelgrass monitoring results in consultation with a recognized, jointly agreed upon eelgrass expert. Maps of eelgrass distribution and data on shoot density will be compared with past eelgrass observations, observed changes in PAR, substrate, temperature and records of barge-loading operations to determine whether changes in eelgrass distribution and shoot density occurred because of barge-loading operations. Changes in eelgrass distribution and density that result from barge loading impacts are expected to occur in a pattern that can be clearly linked to the cause.

For example, eelgrass impacts resulting from propeller wash may be indicated by a pattern of decreased shoot density and distribution coinciding with changes in substrate and bathymetry that form a pattern consistent with prop wash scour.

Because the eelgrass shoot density will be measured in the same locations during each survey event, shoot density within the same survey grid locations taken during different times can be compared to determine if the shoot density within a grid section has increased or decreased compared to shoot density from previous surveys. If lower shoot densities are observed within contiguous grid sections, as shown in Figure 9, a pattern of decreasing shoot density would be indicated. Situations exhibiting a more random distribution of grid sections with differing shoot densities, as shown in Figure 10, would not indicate a pattern consistent with impacts from barge-loading operations.

4.4 Macroalgae Dive Surveys

Dive surveys will be conducted to monitor macroalgae distribution and density as described in the Eelgrass Survey Report (PI Engineering 2002). The purpose of the macroalgae survey will be to document changes in macroalgae density and distribution over time.

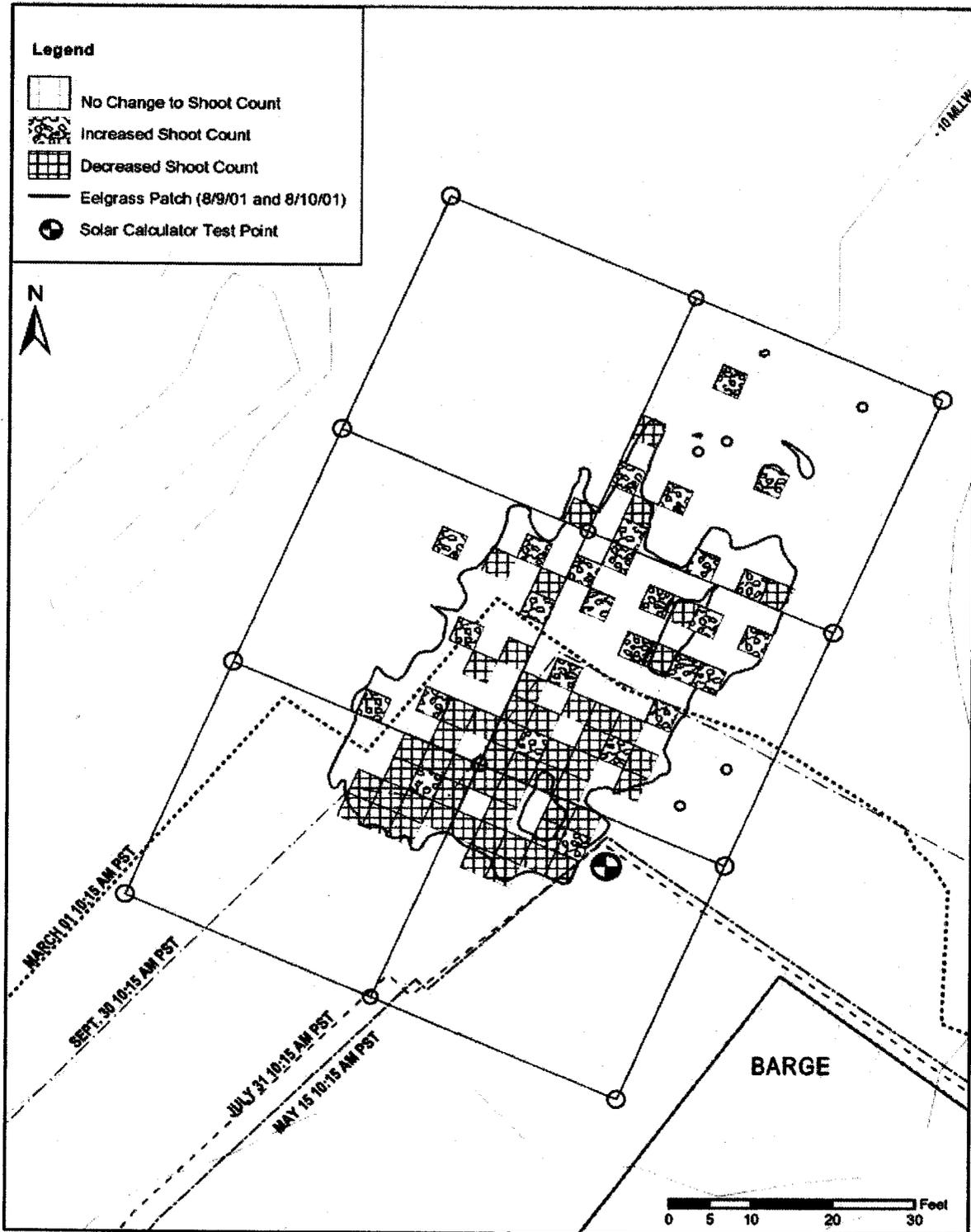


Figure 9 Example of contiguous patterns of sample grids with decreased shoot density indicating shading may be impacting eelgrass

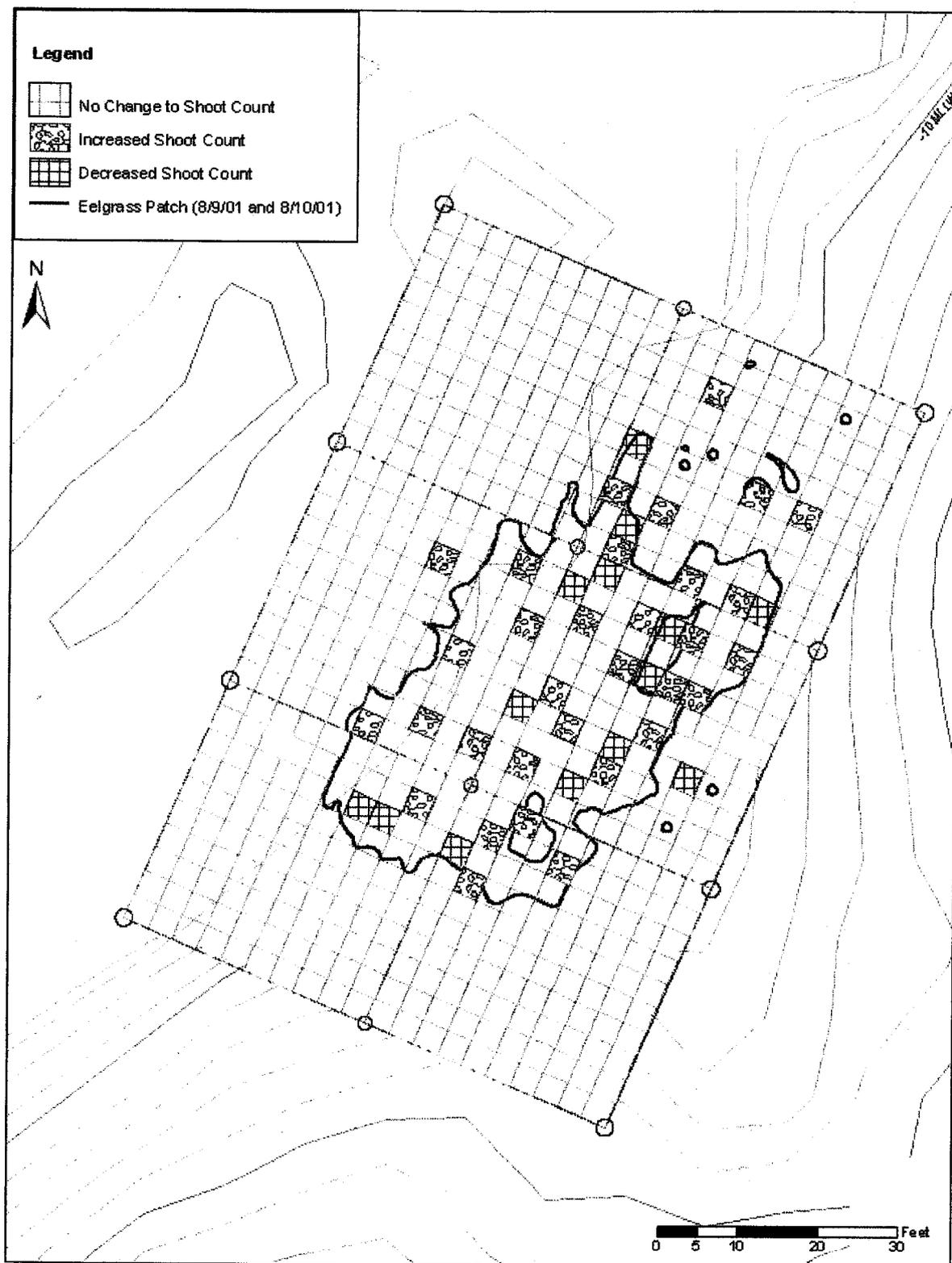


Figure 10 Example of grid survey results showing changes in shoot density at the North eelgrass patch that do not indicate that shading has impacted eelgrass

~~Macroalgae observations were included in annual eelgrass reports for transect surveys were conducted at the same time as the 2002 and 2003 in each year after and including 2002 eelgrass surveys. Results of those surveys are included in the 2002 and 2003 eelgrass survey report.~~ Results of the surveys document the species composition, stipe density and percent cover of macroalgae located under the conveyor between the existing dock face (approximately -18 ft MLLW) and the -30 ft MLLW contour. Macroalgae colonization at the site is confined to limited areas where substrate is suitable for attachment.

No macroalgae was observed attached to the sea bed along the conveyor alignment between the shoreline and the -18 ft MLLW depth contour during any of the dives conducted between 2001 and 2003. Macroalgae attached to the pilings and unattached macroalgae drifting through the site was observed.

4.4.1 Macroalgae Survey Method

Macroalgae surveys will be conducted along a transect lying perpendicular to the shore under the conveyor alignment on a bearing of 110° (magnetic).

Quantitative observations will be made along an approximately 20 meter segment of the transect extending from the reinforced steel bar (rebar) that was installed at the seaward face of the existing dock and centered below the conveyor prior to conducting the transect survey in 2002. The rebar stake is installed at an elevation of approximately -18 ft MLLW.

Divers will proceed along a tape measure used to mark the transect line between the rebar stake and the -30 ft MLLW contour recording observations within one-meter on each side of the transect.

Observations recorded will include number of stipes, substrate type, estimated percent macroalgae cover, depth (in ft relative to MLLW), and distance from the dock face. The rebar stake will be left in place to provide a control point for future macroalgae surveys at the dock.

Qualitative observations of macroalgae will be recorded by divers at least 1 meter on either side of the transect line between the bank of the shore and the -18 ft MLLW contour. The location, species composition, and relative size of macroalgae patches will be recorded on a map showing the location of the dock and depth contours relative to MLLW.

4.4.2 Macroalgae Monitoring Schedule

Quantitative and qualitative macroalgae surveys will be conducted between July 15 and August 15 of each year prior to dock construction. Surveys will also be conducted within two weeks after construction is completed and annually between July 15 and August 15 in years 1, 2 and 3 following construction.

After year three, qualitative dive surveys of the entire macroalgae transect between the bankline and -30 ft MLLW will be conducted annually during the same time the qualitative eelgrass surveys are conducted

4.4.3 Interpretation of Macroalgae Monitoring Results

Quantitative macroalgae transect survey data collected following construction will be compared to macroalgae survey data collected prior to construction. The percent cover for all 40 monitoring points below the -18 ft MLLW contour will be averaged and multiplied times 40 m² (the size of the area monitored). The contingency planning and response process described in Section 6 of this report will be initiated if the total number of square meters determined by this calculation to be covered by macroalgae decreases by more than 50 percent.

Interpretation of the qualitative macroalgae survey data collected between the shoreline and -18 ft. MLLW will be limited to examining overall trends in the spatial location, size of patches, and species composition. ~~If~~ if significant changes occur, the contingency planning and response process described in Section 6 of this report will be initiated and a quantitative macroalgae transect survey may be required.

4.5 Herring Spawn Survey

WDFW has estimated herring spawn biomass for the Quartermaster harbor herring stock annually since 1976. Limited surveys were also conducted between 1972 and 1975. These estimates have not always included sampling at the project site. The WDFW surveys are conducted by sampling from the center of the known spawning grounds outwards to the outer extent of observed spawning area during the survey year. The herring spawning grounds have only been found to extend northward to the project site once. That observation occurred in 2003. The spawning ground was found to extend to a point about 250 yards south of the project site in 1995. Prior to that,

the closest documented spawning was observed at sandy shores approximately 800 yards south of the project site during the 1975 survey. WDFW characterizes the spawn deposition intensity in the vicinity of the project site to be very light.

In order to better characterize the frequency of herring spawning at the project site, dive surveys will be conducted to observe the presence or absence of herring eggs in the vicinity of the dock during peak spawning season.

4.5.1 Herring Spawn Survey Method

Prior to conducting the survey, divers will get sample bottles and preservative from WDFW. Divers will swim zigzag patterns through the two main eelgrass patches shoreward of the dock, looking for herring eggs attached to eelgrass, macroalgae or other substrate during each survey event. The survey should begin along one edge of the eelgrass patch, parallel to the shoreline, moving from the shallowest to the deepest edge of the eelgrass patches, and back again to the shallow edge of the vegetation. If eggs are observed, one or two samples selected from locations representing the eggs and egg density will be collected. Eggs will be collected by clipping a piece of the vegetation, and the clipped vegetation with the eggs still attached will be placed into a sample bottle with preservative. A map of the area will be prepared following the survey showing the locations where herring eggs were observed, the locations where samples were collected, the location of the dock, and depth contours in feet relative to MLLW. The map and any samples, along with the date and any other pertinent observations, will be returned to WDFW.

4.5.2 Herring Spawn Survey Schedule

Herring eggs typically take approximately 14 days from the time they are laid until they hatch. Three herring spawn surveys will be conducted approximately 10 days apart during the peak spawning season, which occurs between the last week of January and the third week of February of each scheduled survey year. Surveys will be conducted during the spawning season of each year prior to dock construction and years 1, 2, 3, 5, 7, 9 and 11 following construction. After year 11, spawning surveys will be conducted every 5 years.

4.5.3 Interpretation of Herring Spawn Survey Results

Observation of herring eggs at the dock for three consecutive spawning seasons will trigger the contingency planning process. As part of the contingency mitigation planning process, WDFW and Glacier Northwest will review the available science and determine whether

additional mitigation measures and/or modification of this monitoring plan are warranted.

4.6 Bathymetry Surveys

Bathymetry surveys of the area between the dock and shore and the barge berthing area will be conducted to detect changes in the bottom contours that may indicate that a spill has occurred, and to maintain an up-to-date baseline contour map. Bathymetric survey data will be updated and corrected for tidal elevation based on the tidal elevations measured by a recording tide gauge installed at the site prior to the survey. Bathymetric surveys will be conducted during high tide to capture elevations along the beach. Surveys will be conducted to provide depth measurement at points spaced a maximum of 10 ft apart.

4.6.1 Bathymetry Survey Schedule

Bathymetry surveys will be conducted according to the schedule shown in Table 1. A bathymetric survey will be conducted prior to construction, and at one-year intervals for the first four years following the beginning of barge-loading operations. After year four, bathymetry surveys will be conducted every other year.

4.6.2 Interpretation of Bathymetry Survey Data

The bathymetry data will be contoured and compared qualitatively to data collected the previous year. If notable changes in bathymetry are observed, the area of interest will be evaluated more closely by reviewing and comparing x, y, z coordinates for depth measurements. Depending on the size and location of the observed feature, additional observations or information may need to be collected to determine whether a spill has occurred.

If substantial changes in bathymetry are observed, the regulatory agencies WDFW will be contacted to discuss the survey results and potential next steps including, but not limited to further surveys of the area of interest.

4.7 Internal Audits of Barge-Loading Operations

Northwest Aggregates will conduct periodic audits of their barge-loading operations to ensure that operations conform to the procedures prescribed in the Barge-Loading Operations Manual, and that prescribed procedures are appropriate and effective. A report will be prepared after each audit is completed. At a minimum, the report will include the following:

- Date internal audit was completed
- The number of barges loaded since the last audit
- Description of any deficiencies observed
- Recommended changes in operations to improve compliance with procedures prescribed in the Barge-Loading Operations Manual
- Recommended changes to the barge-loading operations manual to reduce potential environmental impacts.

4.8 Reporting

Two types of reports will be prepared to update the regulatory agencies WDFW on the monitoring results for the project. The reporting schedule is shown in Table 1.

A technical summary of observations will be prepared to report monitoring results from eelgrass surveys conducted each year prior to and the pre- and post-construction eelgrass surveys. A technical summary of observations will also be prepared summarizing monitoring observations following the first month of barge-loading operations, and at three, six, and 18 months following barge-loading operations.

The technical summary will summarize observations since the last report was presented to the regulatory agencies WDFW and provide qualitative evaluation and interpretation of results. The technical summary report will be submitted to the regulatory agencies WDFW within one month following the last date when data was collected for the reporting period.

An Annual Monitoring and Operations Report will be prepared following each year of barge-loading operations. The annual monitoring report prepared following the first year of barge-loading operations, will compile information and observations from summer 2002 through first year of barge-loading operations. Each subsequent annual report will summarize all monitoring information collected over the previous year, and then compare those data to baseline information and information collected in previous years to determine whether impacts have resulted from barge-loading operations. The report will also describe any changes that have been made to barge-loading operations over the last years and recommend future changes to barge-loading operations or monitoring based on observations over the last year. The annual monitoring and operations report will be

submitted to the regulatory agencies WDFW no later than January 31st of each year following the beginning of barge-loading operations.

4.9 Adaptation of the Monitoring Plan

It may be appropriate to modify this monitoring plan based on further observations or to take advantage of new technology that improves the accuracy or efficiency of data collection, processing, or interpretation.

If eelgrass impacts are observed as a result of any of the monitoring activities, additional monitoring and/or reporting may be warranted. Conversely, it may be appropriate to relax monitoring and/or reporting requirements based on observations at the site over time. The monitoring plan will be evaluated in each annual report and the plan may be modified in consultation with WDFW and other permitting agencies.

5. Measures to Rectify and/or Reduce Impacts

As discussed above, potential impacts from barge-loading operations have been evaluated. This evaluation concluded that impacts from barge-loading operations will be avoided and minimized even if the dock remains in its current configuration. Extending the dock as an added precautionary measure further reduces the risk of impact. However, if monitoring results indicated that impacts resulting from barge-loading operations are occurring or have occurred, the problem recognition process will be implemented with the permitting agencies as described in Section 6. Northwest Aggregates will respond by evaluating their operations to identify changes to rectify or reduce impacts. The changes made will depend on the type of impact observed, and whether the change is practical.

5.1 Measures to Rectify and/or Reduce Potential Impacts From Prop Wash

The potential for prop wash to impact eelgrass was evaluated, and prop wash is not expected to impact eelgrass at the site. In addition, several mitigation measures will be implemented to avoid and minimize prop wash effects. If evidence of prop wash impacts to eelgrass is observed, Northwest Aggregates will review their operations to identify the circumstances under which the damage occurred and evaluate steps to avoid, minimize and reduce further damage. Measures to rectify and/or reduce impacts from prop wash may include modifying the Barge Approach and Departure Protocol, or Barge-Loading Operations Manual, or training personnel to improve compliance with the Barge-Loading Operations Manual. Once measures to avoid future impacts to the area are identified, additional actions may be implemented in consultation with permitting agencies.

5.2 Measures to Rectify and/or Reduce Potential Impacts From Gravel Spillage

Northwest Aggregates is incorporating several spill prevention systems into the dock repair (spill tray, wind screen, etc.). In addition, Northwest Aggregates will prepare a Gravel Spill Prevention Control and Countermeasures Plan before barge-loading operations begin. The plan will establish procedures for responding to a spill event. If a gravel spill occurs, Northwest Aggregates will respond by:

1. Taking steps to stop the spillage and prevent additional spills from occurring
2. Report the spill

3. Estimate the amount of material spilled and determine the extent of impact
4. Consult with the regulatory agencies WDFW to identify the best method for rectifying and/or reducing impacts within 24-48 hours, depending size of spill

6. Contingency Planning and Response

This contingency plan identifies a planning process for selecting appropriate actions to address failure of specific mitigation performance standards. In order to maintain the flexibility needed to respond effectively and appropriately to biological and/or physical conditions, this plan does not present a specific list of actions that will be taken to remedy specific types of failures at the mitigation site.

Northwest Aggregates is committed to ensuring the success of the mitigation efforts at Maury Island, and will undertake additional appropriate actions as may be deemed necessary by WDFW/permitting agencies to ensure complete mitigation of impacts that occur as a result of barge-loading operations.

The potential impact of barge-loading operations has been evaluated, and the mitigation measures described in section 3 are expected to be adequate to avoid and minimize potential impacts. Monitoring will be conducted as described in section 4 to verify that the mitigation measures are effective. If monitoring shows impacts are occurring, measures to rectify and reduce impacts will be implemented as described in section 5.

This contingency plan identifies the steps that will be taken if the measures to avoid, minimize, rectify, and reduce described above fail to mitigate unforeseen impacts from barge-loading operations. Additional contingency actions might include but are not limited to, transplanting eelgrass, or restoring riparian areas at the site.

6.1 Contingency Plan Procedures

The contingency planning procedure consists of three elements: (1) problem recognition, (2) contingency planning, and (3) contingency response.

6.1.1 Problem Recognition

The problem recognition process is an integral part of the monitoring program. As monitoring data are collected, they will be examined and interpreted relative to the performance standards. The purpose of the process is to conduct a rational and deliberate determination of whether there is a problem area, and if so, the nature and extent of the problem. Figure 11 outlines this process and shows potential outcomes of the problem recognition step.

6.1.2 Contingency Planning and Response Process

The purpose of the contingency planning process is to develop contingency actions that may be necessary, depending on the results of the monitoring program and problem recognition step. Figure 12 outlines the contingency planning and response process.

The contingency planning process could result in implementation of an approved response action. Alternatively, it could result in agreement on an approach or set of criteria for taking further action, depending on the results of future monitoring and whether the goal of no net loss is being achieved. In the case of a failure to meet performance standards, the result would depend largely on the reasons for the failure, and the degree to which Northwest Aggregates can predict or control the conditions that contribute to the failure in meeting a specific standard for performance.

Northwest Aggregates and the permitting agencies will make a final determination on an appropriate response, based on available information and scientifically and economically feasible recommendations. Potential responses include, but are not limited to, one or more of the following:

- Concluding that the situation does not require further action,
- Expanding or modifying the monitoring program,
- Developing more specific criteria to evaluate the data, and
- Initiating a corrective action.

If Northwest Aggregates and the permitting agencies cannot reach a consensus, then the permitting agencies will determine the response. If modified or continued monitoring is not an adequate response, the contingency planning and response process will begin as shown in Figure 12.

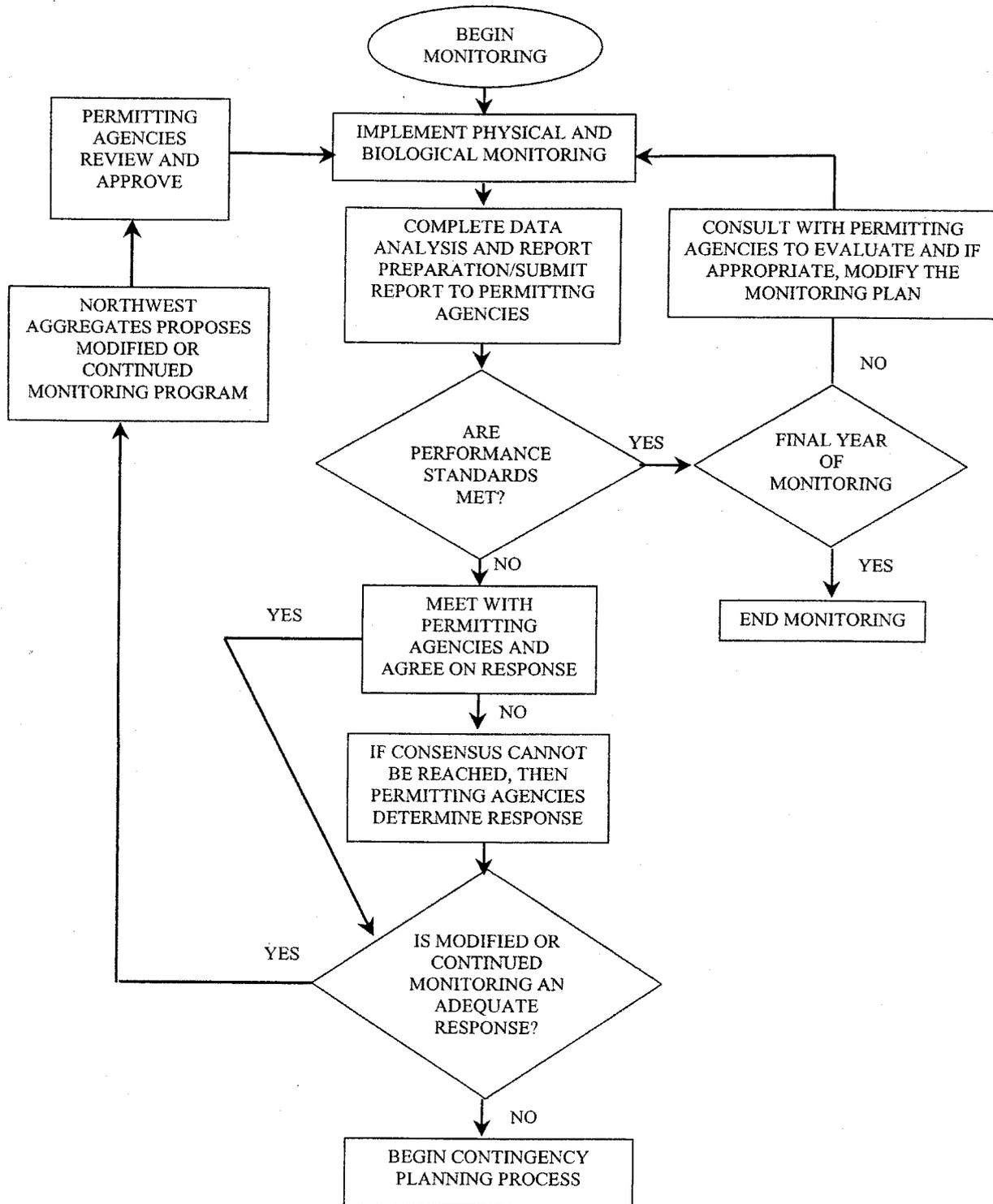


Figure 11 Problem Recognition Process

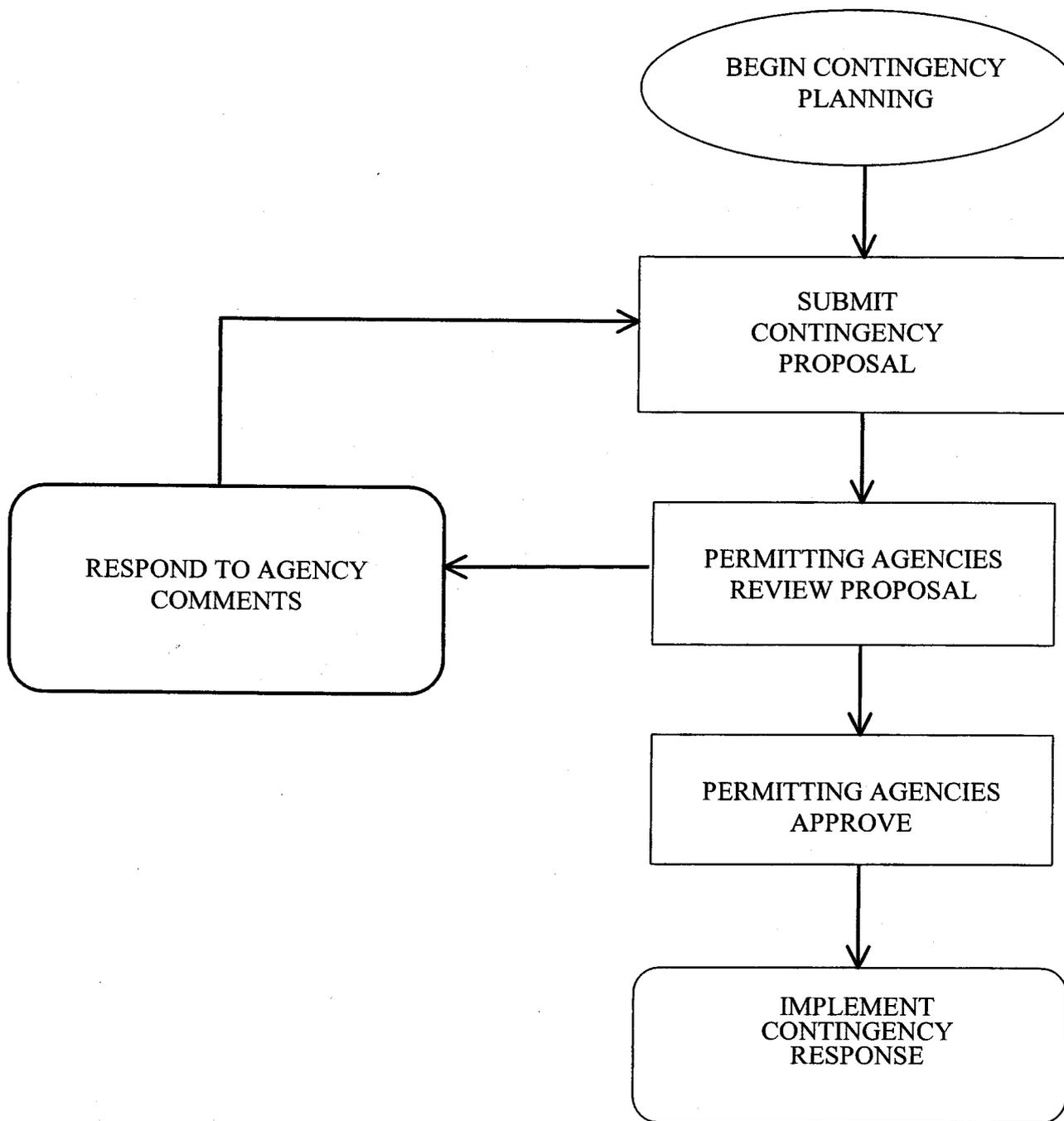


Figure 12 Contingency Planning and Response Process

7. References

- Associated Earth Sciences, Inc. (AESI). 1998. Existing conditions, impacts and mitigation for marine fisheries. Maury Island pit barge loading facility. King County, Washington. Prepared for Lone Star Northwest, Inc. by AESI, Kirkland, Washington.
- Blaauw, H.G., and van de Kaa, E.J. 1978. Erosion of bottom and sloping banks caused by the screw race of manoeuvring ships. Delft Hydraulics Laboratory Publication No. 202.
- EVS Environmental Consultants. 2000. Maury Island Gravel Mine Impact Study: Nearshore Impact Assessment. Prepared for Pacific Groundwater Group. Seattle. Washington.
- Glacier Northwest. 2004. Barge Approach and Departure Protocol.
- Grette Associates LLC. 2003. Northwest Aggregates: Maury Island Gravel Dock 2003 Annual Eelgrass Survey Report. Prepared for Northwest Aggregates by Grette Associates LLC, September 25, 2003.
- Grette Associates LLC. 2004. Northwest Aggregates: Maury Island Gravel Dock 2004 Annual Eelgrass Survey Report. Prepared for Northwest Aggregates by Grette Associates LLC, September 15, 2004.
- Grette Associates LLC. 2005a. Northwest Aggregates: Maury Island Gravel Dock 2005 Annual Eelgrass Survey Report. Prepared for Northwest Aggregates by Grette Associates LLC, December 19, 2005.
- Grette Associates LLC. 2005b. Maury Island Dock Repair Project: Bull Trout and Chinook Salmon Critical Habitat Evaluation. Prepared for Northwest Aggregates by Grette Associates LLC, March 2005.
- Grette Associates LLC. 2006. Northwest Aggregates: Maury Island Gravel Dock 2006 Annual Eelgrass Survey Report. Prepared for Northwest Aggregates by Grette Associates LLC, October 4, 2006.
- Grette Associates LLC. 2007. Northwest Aggregates: Maury Island Gravel Dock 2007 Annual Eelgrass Survey Report. Prepared for Northwest Aggregates by Grette Associates LLC, September 30, 2007.
- Hart Crowser, Battelle and Hartman Associates, 1997. Passenger-Only Ferry Propeller Wash Study, Passenger-Only Ferry Terminal, Vashon Island, Washington, prepared for The Washington State Department of Transportation and Washington State Ferries, July 9, 1997.
- Jones & Stokes Associates, Inc. 1999. Eelgrass/Macroalgae Survey Report, Lone Star Gravel Mine, Maury Island, Washington, Prepared for King County Department of Development and Environmental Services. August, 1999.

References

- King County. 2000. Final environmental impact statement, Maury Island Glacier Northwest gravel mine. King County DDES, Renton, Washington.
- King County. 2004. Addendum to Final environmental impact statement, Maury Island Glacier Northwest gravel mine. King County DDES, Renton, Washington.
- Knudsen, F.R., P.S. Enger, and O. Sand. 1997. Avoidance responses to low frequency sound in downstream migrating Atlantic salmon smolt, *Salmo salar*. *Journal of Fish Biology*. 45:227-233.
- Marine Resources Consultants. 2000. Underwater Videographic Survey at the Northwest Aggregates Maury Island Mining Operation Marine Loading Site. Prepared for Vashon/Maury Island Community Council, January 10, 2000.
- Marine Resources Consultants. 1998. Underwater Videographic Survey at the Northwest Aggregates Maury Island Mining Operation Marine Loading Site. Prepared for Vashon/Maury Island Community Council, February 3, 1999.
- Maynard, S.T. 1998. Bottom shear stress from propeller jets. Conference proceedings – Ports '98, Long Beach, California, M.A. Kraman (ed.), American Society of Civil Engineers.
- Pacific International Engineering^{PLLC}. 2001. Eelgrass Survey Report, Maury Island Barge Loading Dock. Prepared for Northwest Aggregates, October 2001.
- Pacific International Engineering^{PLLC}. 2002a. Summary of Observations and Analyses, Maury Island Barge-Loading Dock. Prepared for Northwest Aggregates, September 2002.
- Pacific International Engineering^{PLLC}. 2002b. 2002 Eelgrass Survey Report, Maury Island Barge-Loading Dock. Prepared for Northwest Aggregates, September 2002.
- Pacific International Engineering^{PLLC}. 2002c. Technical Memorandum. Response to WDFW letter dated January 7, 2002 Regarding Hydraulic Project Application. WDFW Log No. 00-E4751-02. January 2002.
- Pacific International Engineering^{PLLC}. 2002d. Shade Study Report. Maury Island Barge-Loading Operations. Prepared for Northwest Aggregates, January 2002.
- Point Environmental Consulting. 2006. Maury Island dock Replacement Northwest Aggregates: Evaluation of Effects on Southern resident Killer Whales, Prepared by Point Environmental Consulting, April 2005, Revised July 17, 2006.
- Schwarz, A.L. and G.L. Greer. 1984. Responses of Pacific herring, *Clupea harengus pallasii*, to some underwater sounds. *Canadian Journal of Fisheries and Aquatic Science*. 41:1183-1192.

Schwarz, A.L. 1985. The behavior of fishes in their acoustic environment. *Environmental Biology of Fishes*. Vol. 13. No. 1. pp. 3-15.

**BARGE APPROACH AND DEPARTURE
PROTOCOL**

**REVISED DECEMBER 2, 2003
NORTHWEST AGGREGATES**



Barge Approach and Departure Protocol

Northwest Aggregates – Maury Island
Barge-Loading Dock

Revised:

December 2, 2003

Table of Contents

Table of Contents.....	i
List of Tables.....	i
List of Figures.....	i
1 Introduction.....	1
2 Background.....	4
2.1 Tugboat Propulsion Systems.....	4
2.2 Tugboat/Barge Configurations and Maneuvers.....	5
3 Conditions on Tugboat Operations.....	10
4 Propeller Wash Monitoring.....	12

List of Tables

Table 1. Frequency of Data Download, Comparison and Reporting.....	15
--	----

List of Figures

Figure 1. Vicinity Map.....	2
Figure 2. Location of Eelgrass Relative to Proposed Dock.....	3
Figure 3. Configuration of Barge and Tugboat with Push-Knees.....	6
Figure 4. Configuration of Barge and Tugboats with Z-drive or Cycloid Propulsion Systems (Plan View).....	8
Figure 5. Configuration of Barge and Tugboats with Z-drive or Cycloid Propulsion Systems (Elevation View).....	9
Figure 6. Range of Barge Movement With Cable Haul-Back System.....	11
Figure 7. Approximate Locations of Current Meters.....	14

1 Introduction

Tugboat propulsion systems can generate propeller wash velocities that can impact eelgrass directly through physical disturbance of the eelgrass plants and surrounding sediment and indirectly by increasing turbidity in the water column and reducing light levels. The stream of water flowing behind the propeller is called the velocity jet.

Potential propeller wash impacts to eelgrass can be avoided by controlling:

- the proximity of the propeller to eelgrass;
- the direction of the velocity jet relative to eelgrass;
- the depth of water where the propeller is operating and the velocity jet is directed;
- the speed of the propeller, which translates to thrust and current speed in the velocity jet; and
- the frequency of tugboat operation in the vicinity of the eelgrass.

Eelgrass is present between the dock and shore at the Proposed Northwest Aggregates barge-loading dock on Maury Island (Figure 1). This document is a Barge Approach and Departure Protocol. It describes procedures that Northwest Aggregates and marine transportation companies that operate at the site will follow to avoid potential impacts from propeller wash to eelgrass at the site.

The location of eelgrass patches relative to the proposed extended dock is shown in Figure 2. Surveys conducted in 2001, 2002 and 2003 show that eelgrass distribution at the site was similar in all three years. An evaluation of controlling factors for eelgrass suggests that eelgrass distribution at the site is limited, by slope/substrate, depth (light availability) and wave motion, and that eelgrass occupies all of the areas shoreward of the berth face that are likely to be colonized by eelgrass.

The Final Environmental Impact Statement (FEIS) for the project suggested that propeller wash impacts could be avoided by extending the old dock 50 ft offshore from its existing location. Northwest Aggregates revised the proposed project to extend the dock more than 70 ft and orient the dock so that the berth face was at least 120 ft from the established eelgrass patches at either end of the site.

In order to verify that the protocols described in this document are effective, Northwest Aggregates will monitor propeller wash velocities in the vicinity of the eelgrass patches following a monitoring plan provided in Section 4 of this report, and continue to monitor eelgrass distribution and density at the site as required in the Hydraulic Project Approval.

Copies of this document will be provided to transport companies working at the Maury Island barge-loading dock, and copies will be kept on each of the tugboats that will be used at the dock. A copy of the conditions on tugboat operations listed in Section 3.0, will be posted at the barge-loading dock at all times. Northwest Aggregates personnel must report any deviations from this barge approach and departure protocol to the Manager of Regulatory Affairs for Glacier Northwest within 24 hours of their occurrence.

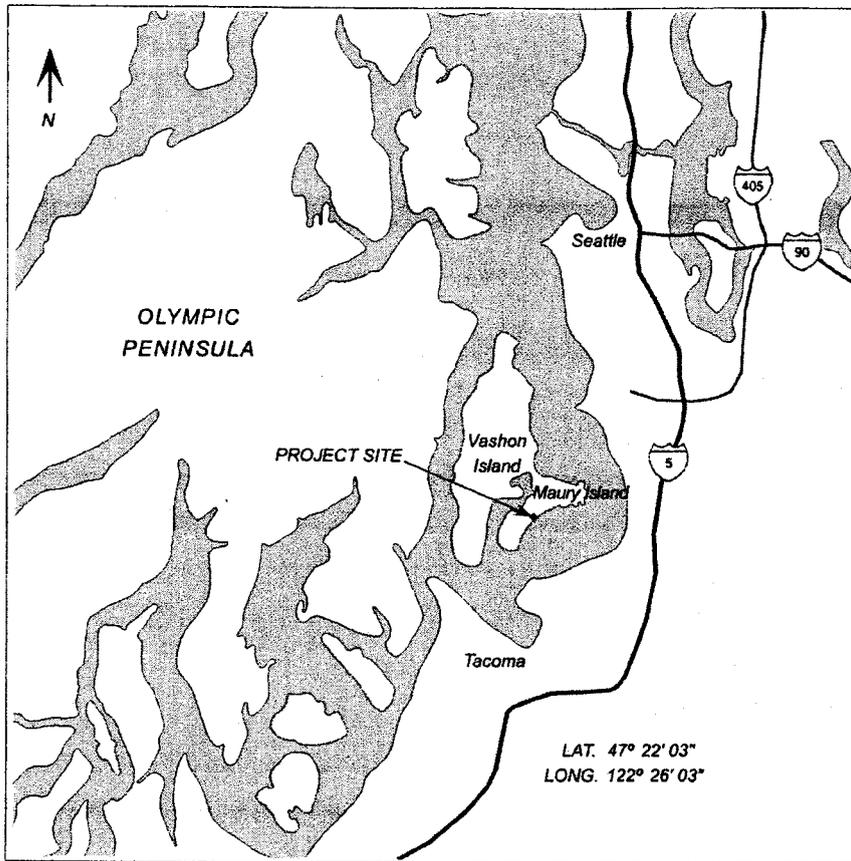


Figure 1. Vicinity Map

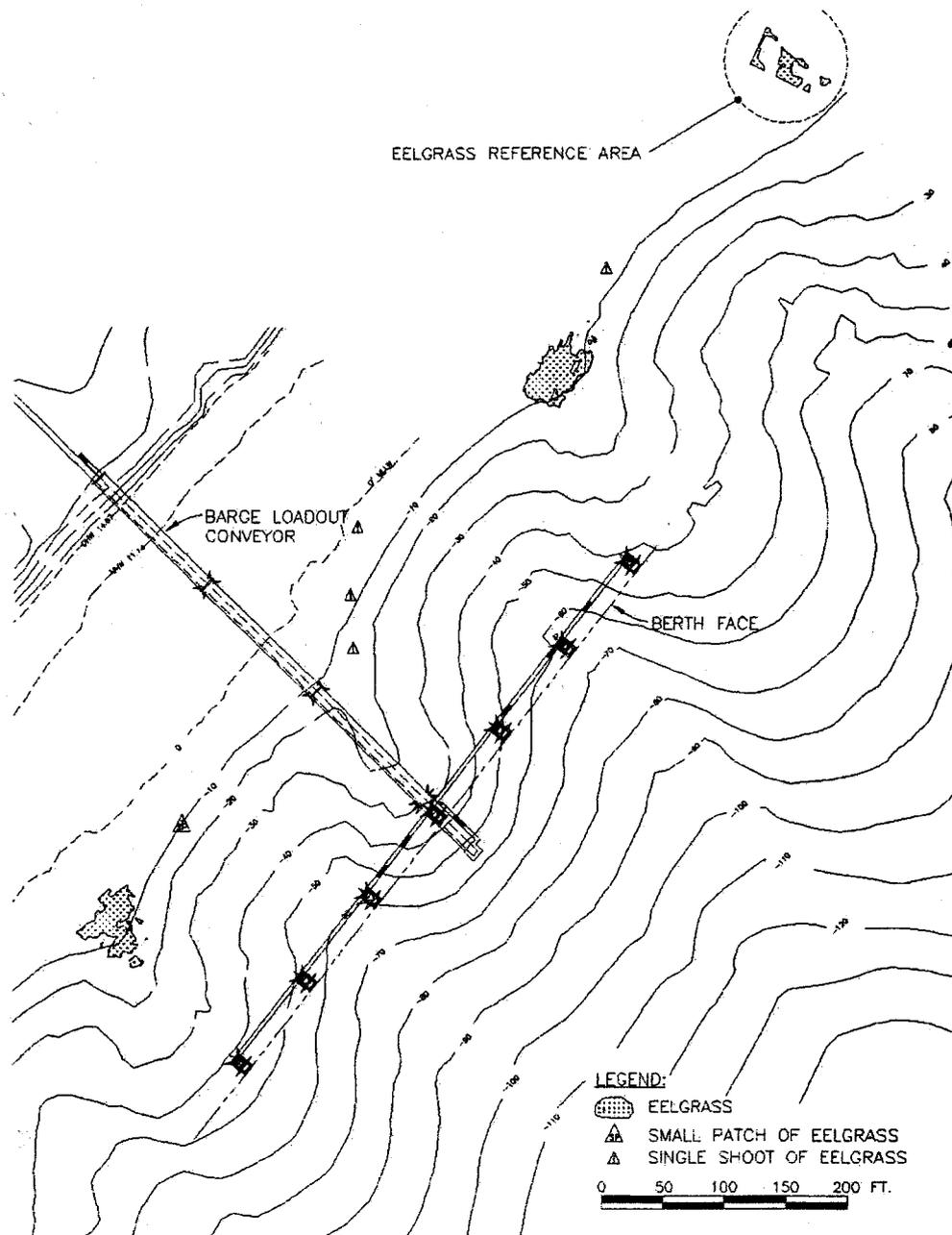


Figure 2. Location of Eelgrass Relative to Proposed Dock

2 Background

An understanding of tugboat maneuvers, operations and propulsion systems is needed to evaluate potential affects of propeller wash from tugboats operating at the proposed Maury Island barge-loading dock. The maneuvers a tugboat makes at the dock will depend largely on the propulsion system used by the tugboat, and the way tugboat is tied or "made-up" to the barge. This section describes the types of tugboats that might be used at the dock and their operations.

2.1 Tugboat Propulsion Systems

There are three basic configurations for tugboat propulsion systems, including a fixed propeller with rudder arrangement, Z-drive configuration, and cycloidal type system.

The fixed propeller system is the most common tugboat propulsion system, and would likely be used most often at the Maury Island barge-loading dock. These types of tugboats typically have one or two propellers that are on a fixed shaft, with rudders aft of (behind) the propeller(s) that are used to direct the thrust and steer the boat. There are variations of the fixed propeller systems including propellers mounted inside a shroud that improves the propeller efficiency; these types of propulsion systems are called kort nozzles. Kort nozzles generate more thrust than open propellers of a similar size.

A Z-drive propulsion system is being installed on newer tugboats. The Z-drive is a shrouded propeller (similar to a kort nozzle) that is mounted in such a way that it can be rotated to direct thrust in any direction. Use of Z-drive propulsion systems improves maneuverability of the tugboat over that obtained with a fixed propeller system without sacrificing thrust. Tugboats with Z-drive propulsion systems may be used occasionally at the Maury Island barge-loading dock.

Cycloidal type propulsion systems are often referred to as eggbeaters because of their configuration. They consist of a series of blades that stick down from the tugboat hull and rotate like an eggbeater instead of a propeller. The angle of the blades can be adjusted causing the vessel to move any direction relatively quickly. Cycloidal propulsion systems are used to optimize the maneuverability of the tugboat, but the power or thrust generated by the tugboat is somewhat compromised. Tugboats with cycloidal drives are most often used to assist ships. It is unlikely that tugboats with cycloidal drives would ever be used to transport barges to and from the Maury Island barge-loading dock.

2.2 Tugboat/Barge Configurations and Maneuvers

Tugboat operators describe the way the tugboat is tied to the barge as “made-up”. There are typically three ways that tugboats are made-up to barges. Some tugboats are made-up to the back of barges and push them. Some tugboats are made-up to barges with a tow line and pull them, and some tugboats are made-up on the side of the barge and pull it along side the tugboat.

The way the tugboat is made-up to the barge is determined to a large extent by the type of tugboat and the maneuver to be performed. Many of the tugboats used to move barges in Puget Sound are equipped with bumpers on the front (bow) called push-knees. Tugboats with push-knees typically push barges from behind. These boats may also push on the offshore side of the barge to maneuver it up to the dock. When the tugboat comes up to the dock, it will be pushing the barge towards shore with its velocity jet directed primarily away or along shore. When departing, the tugboat will back away from the dock directing the velocity jet forward towards the center of the dock. Boats with push-knees are likely to be the most commonly type of tugboat used to transport barges to and from the Maury Island barge-loading dock.

Tugboats without push-knees typically either tow the barge or are made-up along side the barge. The length of tow line can vary from situation to situation. Typically barges are tied close to the tugboat when barges are being towed up to or away from a dock to increase maneuverability and tied further from the tugboat when underway. Tugboats made-up alongside the barge are tied tightly to the offshore side of the barge when pushing the barge up to or away from the dock. Tugboats may tow a barge to the general vicinity of the dock where they will remove the tow line and make-up alongside the barge before maneuvering the barge up to the dock. Once the barge is away from the dock the tugboat may untie from the barge and use a tow line to transport the barge to its destination.

The most common type of tugboat that is likely to be used at Maury Island will be equipped with push-knees and a fixed propeller propulsion system. These types of boats will either be made up behind the barge to push it, or made-up along side the barge (Figure 3). A tow line will not be used to land at or depart from the dock. Because the propellers on these tugboats are fixed, they will be directing their velocity jet along shore, not towards eelgrass areas.

Two types of vessels are capable of directing their velocity jet any direction. Tugboats equipped with cycloid propulsion are unlikely to be used to transport gravel barges. Tugboats with Z-drive systems may be used to maneuver barges at the dock on occasion.

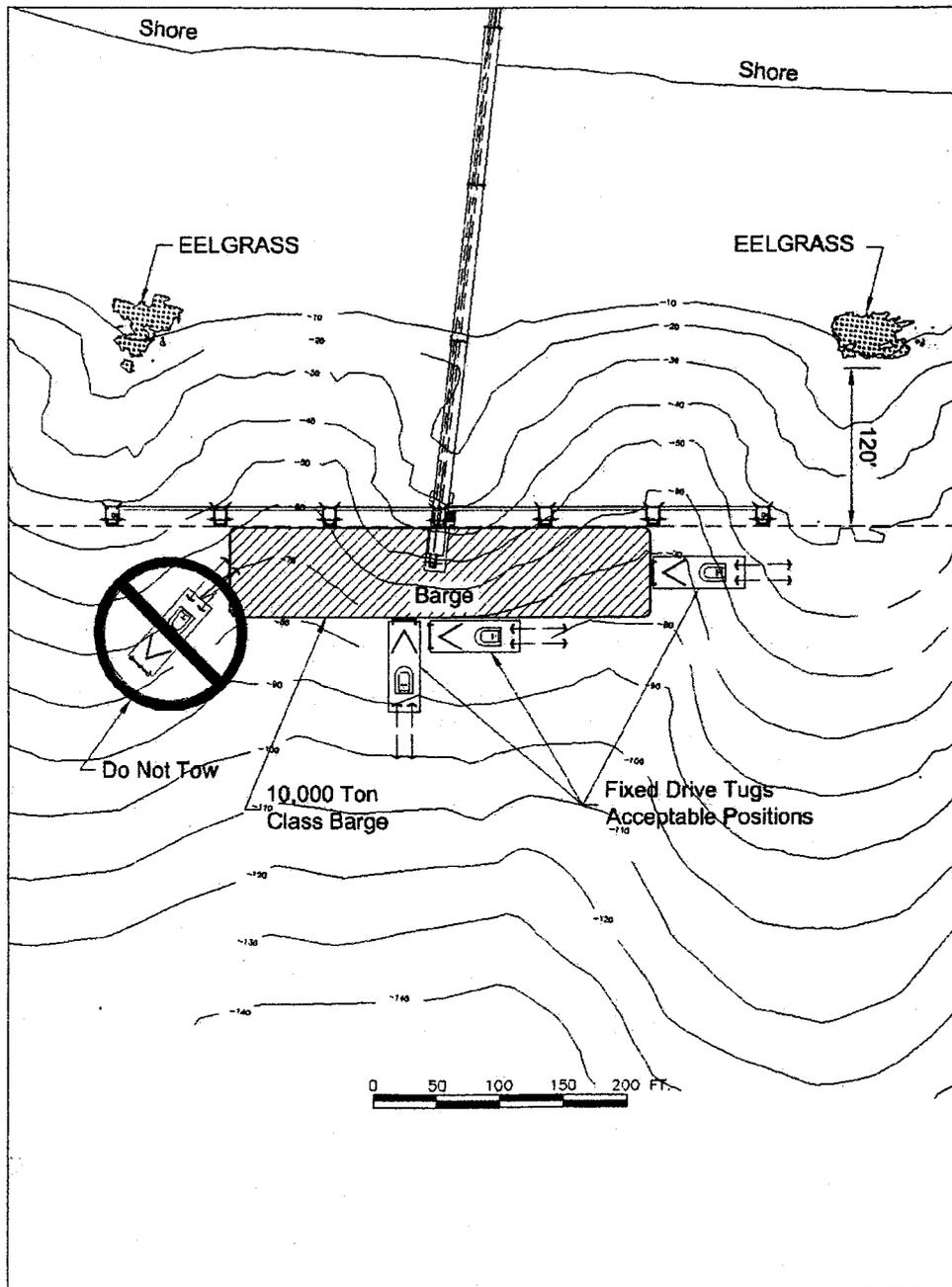


Figure 3. Configuration of Barge and Tugboat with Push-Knees

Potential impacts from either type of vessel can be avoided by controlling the position of the tugboat relative to eelgrass at the dock.

Tugboats with Z-drives or cycloid propulsion will only be allowed to approach or leave the dock with the barge made-up alongside the tugboat (Figure 4). This will keep the tugboat on the offshore side of the barge and place it between approximately 54 and 80 feet water ward of the berth face. Furthermore, when the barges are loaded, they will typically draft more water (float deeper in the water) than the tugboat, effectively providing a barrier between the tugboat propeller and the nearshore area (Figure 5).

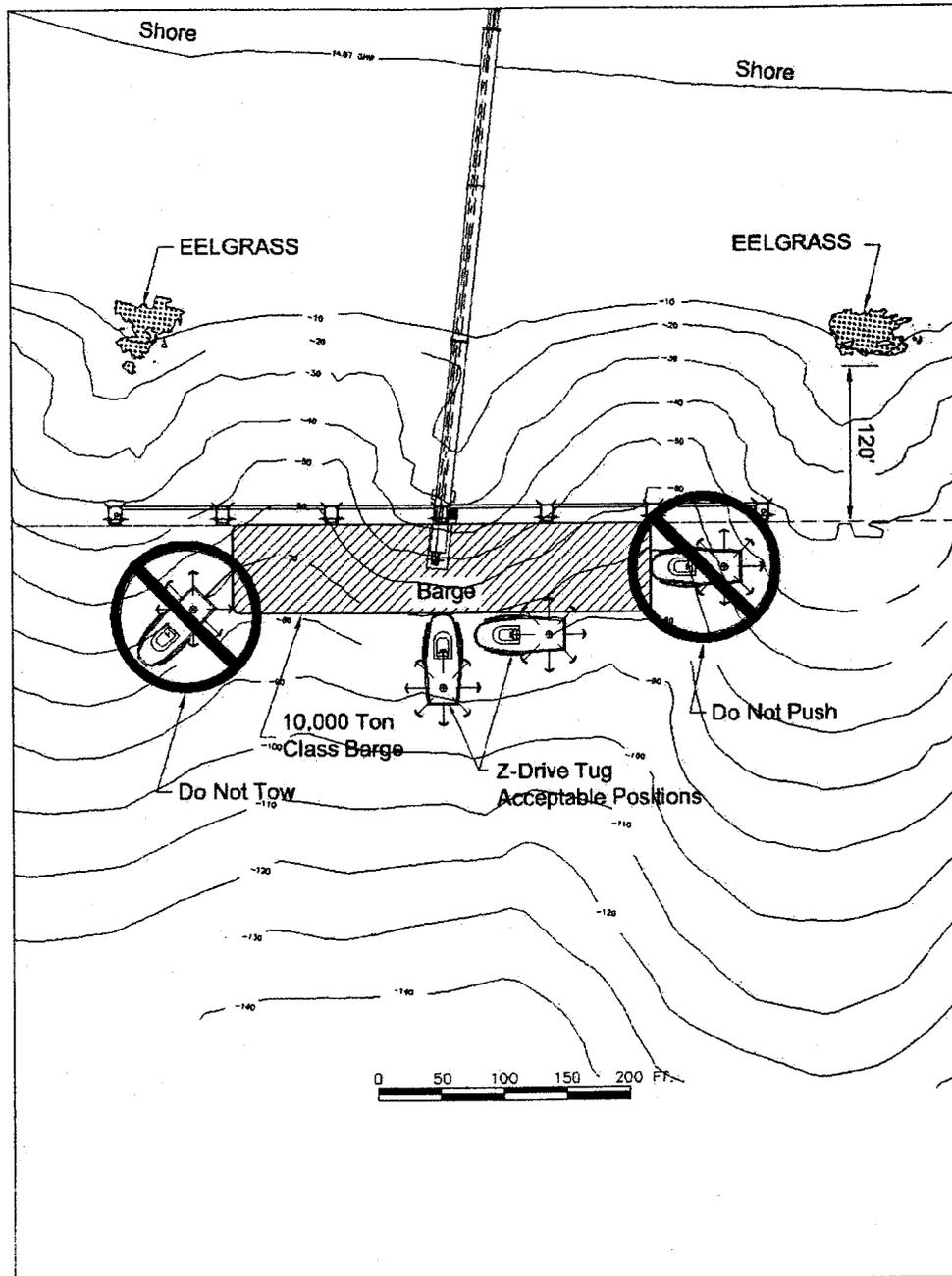


Figure 4. Configuration of Barge and Tugboats with Z-drive or Cycloid Propulsion Systems (Plan View)

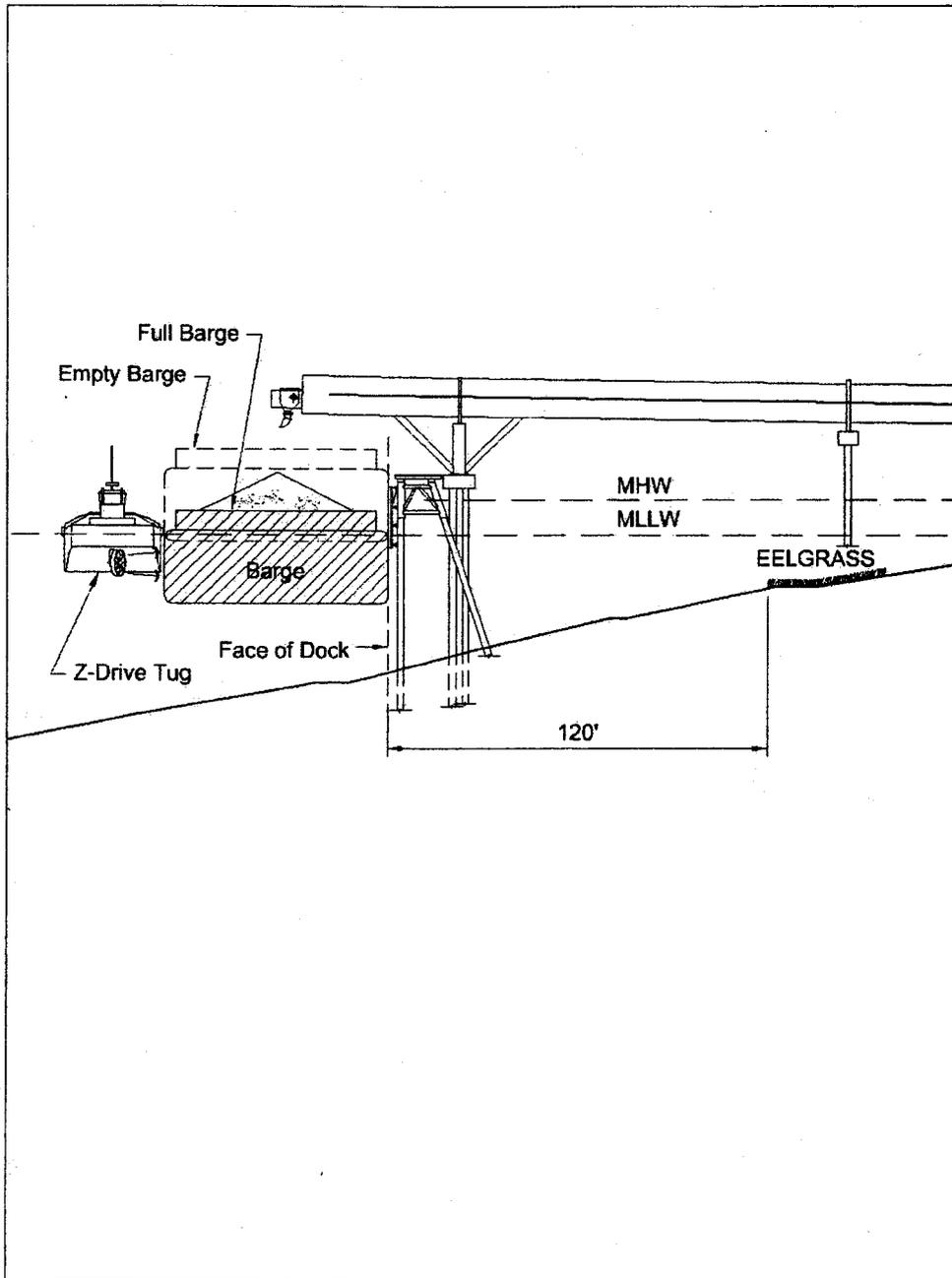


Figure 5. Configuration of Barge and Tugboats with Z-drive or Cycloid Propulsion Systems (Elevation View)

3 Conditions on Tugboat Operations

All tugboats operating at the Maury Island barge-loading dock will operate in accordance with the following conditions:

- Dock extended so that berth face is 120 ft from edge of established eelgrass areas identified in the 2001 Eelgrass Survey Report (PI Engineering 2001).
- Gravel barges and tugboats will not operate shoreward of the dolphins.
- Tugboats will not operate on the shoreward side of barges.
- Tugboat/barge configurations will approach and depart the dock at the slowest speed practical.
- A haul-back system will be used to move the barge during loading. This will eliminate the need for a tugboat to maneuver the barge during loading reducing the frequency and duration of tugboat operation at the facility to avoid and minimize propeller wash effects. If the tugboat is to remain with the barge during loading, the tugboat propellers will remain disengaged during barge loading.
- Tugboats will “back” the barge away from the dock to minimize propeller wash directed towards shore.
- Tugboats with fixed propeller propulsion systems will only be made up along side or behind barges during approach and departure.
- Tugboats with Z-drive or cycloidal propulsion systems will only be made up along the offshore side of the barge during approach and departure.
- The cable haul back system will be used to position the tugboat away from the shallowest areas along the berth face prior to untying the barge from the dock for departure. Figure 6 shows the range of barge movement that can be achieved with the cable haul-back system.
- Barges will not be towed (with tow lines) up to or away from the dock. Barges may be towed to or away from the general vicinity of the dock, but all maneuvers to get the barge up to or away from the dock for loading must be completed following conditions stated here.
- Tugboats will not operate within 120 ft of the eelgrass reference area (Figure 2).
- Tugboat operators will avoid directing propeller wash towards shore, and will avoid use of excessive thrust.
- A minimum distance of three feet will be maintained between the bottom of barges and the seabed.

Tugboat operators are responsible for damages to equipment or docks, and the safety of persons working on their equipment, and should maintain control of their vessel at all times. Operators should not attempt maneuvers in wind or wave conditions that may compromise their ability to maintain control over the vessel.

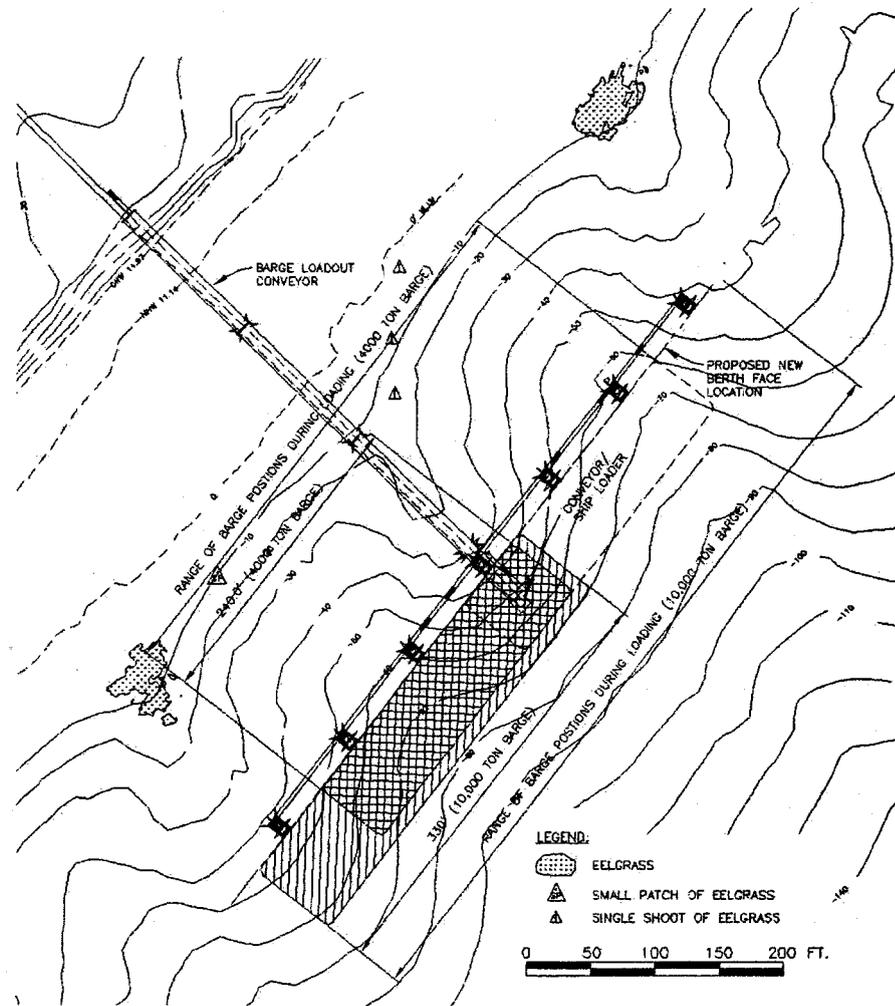


Figure 6. Range of Barge Movement With Cable Haul-Back System

4 Propeller Wash Monitoring

With the implementation of the barge approach and departure protocol propeller wash modeling results predict that propeller wash velocities reaching eelgrass will remain below eelgrass damage thresholds. As an added precaution, recording current meters will be deployed on the seaward edge of the two main eelgrass patches (Figure 7) to monitor for propeller wash in the eelgrass areas. Monitoring will be conducted by an independent third-party to install and operate the current meters for an initial period of 6 months or until 50 barges have been loaded at the site, whichever is longer.

Current meters will be installed as close to the seabed as practical and current meters will be hard wired to a recording station affixed to the dock or designated dolphin.

Current velocity measurements will be time and date stamped so that data from the record can be compared to barge arrival and departure times and video recordings of the dock. The data logger for the velocity meters will be configured to collect velocity measurements at a rate of at least 2 times per second. Velocity measurements will be stored by the data logger without averaging to ensure that individual values measured are available for future statistically evaluation.

Field measurements will be downloaded from the data logger and entered into a spreadsheet program that will be used to average the velocity measurements over 5-second periods. The 5-second average is used because it corresponds to the method used to measure velocity for determining the eelgrass damage thresholds. Data will be downloaded, compared to action values according to the frequency shown in Table 1. The field recorded data and a brief technical memorandum summarizing the velocity observations and comparison to action values will be submitted to the regulatory agencies within 1 week after the scheduled data download and comparison.

If no 5-second mean velocity measurements attributable to the barge-loading operations are observed at velocities above 50 cm/sec during the initial monitoring period, no further propeller wash monitoring will be conducted.

If 5-second mean velocity measurements between 50 and 75 cm/sec are observed during the initial monitoring period, then the initial monitoring period will be extended for another 6 month period. If no mean velocity measurements above 75 cm/sec are observed during the first year of operation, no additional monitoring will be required.

If 5-second mean velocity measurements exceed 75 cm/sec and are attributed to propeller wash from tugboats, the regulatory agencies will be immediately notified, and a multi-disciplinary group comprised of an eelgrass expert, a propeller wash expert, and experienced tugboat skipper will review the operations and available information and recommend additional controls and monitoring to be conducted. The controls implemented will depend on the conditions that caused the velocity to exceed 75 cm/sec. Their recommendations may include operational and/or engineering controls.

Operational controls may include, but are not limited to prohibiting the use of a specific tugboat or type of tugboat from operating at the dock, changing the way a tugboat must be made-up to a barge, or training operators or personnel. Engineering controls may include the construction of a baffle, curtain or other structure to reduce propeller wash velocities observed at the eelgrass.

If 5-second mean velocity measurements exceed 100 cm/sec and are attributed to propeller wash from tugboats, the regulatory agencies will be immediately notified, and all barge loading operations will cease until the multi-disciplinary group identifies and tests additional controls to ensure they will effectively avoid and/or mitigate any propeller wash impacts on eelgrass. The controls implemented will depend on the conditions that caused the velocity to exceed 100 cm/sec. They may include but are not limited to those additional conditions listed above.

If at any time eelgrass monitoring results indicate that propeller wash from tugboats impacted eelgrass, all barge loading operations will cease until additional controls can be identified, tested and reviewed in coordination with the regulatory agencies to ensure that any further impacts to eelgrass will be avoided before barge-loading will be allowed to resume. Any damaged eelgrass will be replanted in the area where the damage occurred. Appropriate operational and engineering controls will be used to prevent damage from reoccurring in the transplanted area(s).

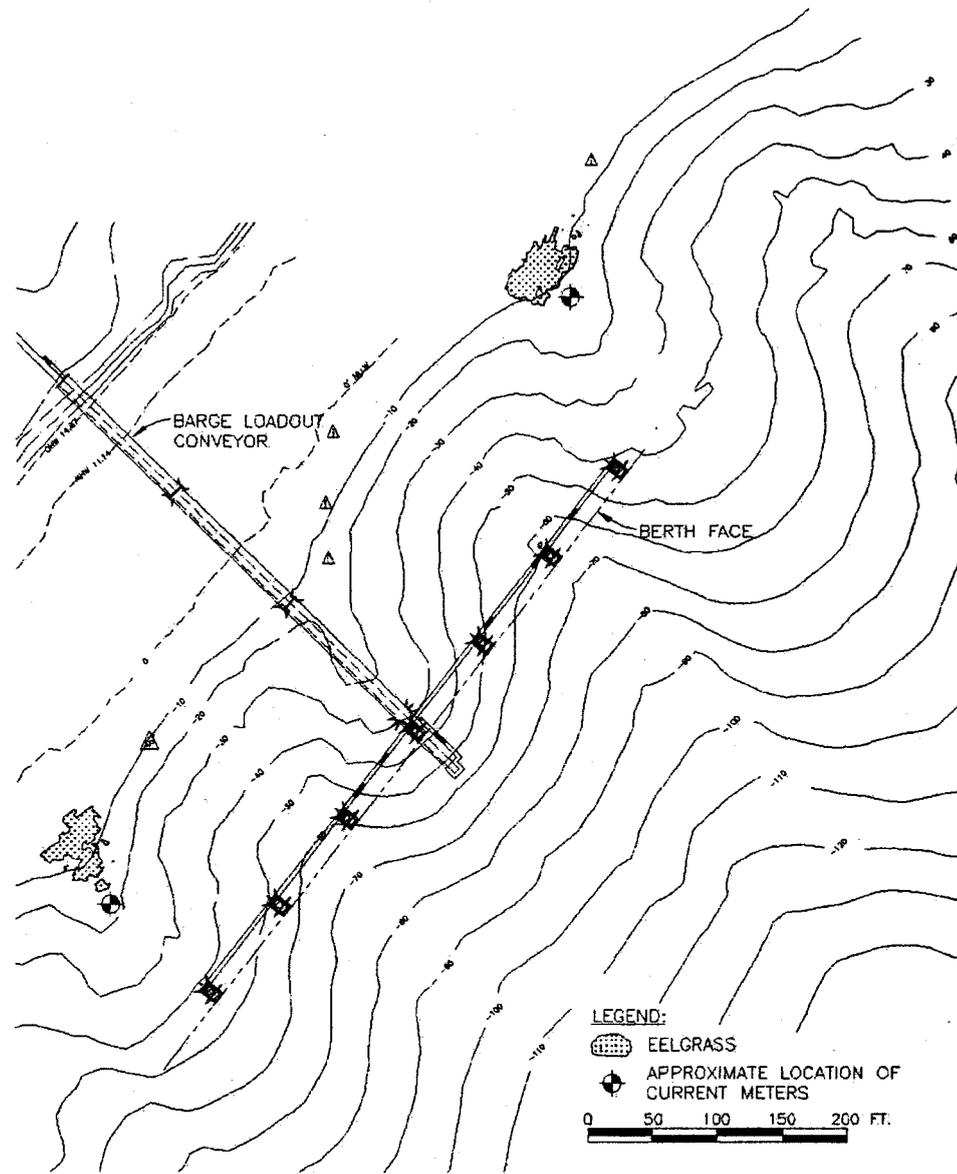


Figure 7. Approximate Locations of Current Meters

Table 1. Frequency of Data Download, Comparison and Reporting.

Number of Barges	Frequency
1 – 5	After Each Barge Load
5 – 20	After Every 5 Barge Loads
20 – 50	After Every 10 Barge Loads
> 50	After Every 10 Barge Loads

Vertical line of text on the left side of the page.

Main body of text, appearing as a very faint and illegible document.

**MITIGATION PLANTING PLAN
MAY 21, 2003
NORTHWEST AGGREGATES**

MAY 21, 2003

MAURY ISLAND CONVEYOR REPLACEMENT

MITIGATION PLANTING PLAN

PREPARED FOR:

NORTHWEST AGGREGATES
5975 EAST MARGINAL WAY
SEATTLE, WA 98134

DRAFT

PREPARED BY:

GRETTE ASSOCIATES^{LLC}
2111 NORTH 30TH STREET
TACOMA, WA 98403

151 SOUTH WORTHEN STREET
SUITE 101
WENATCHEE, WA 98801



Table of Contents

1	INTRODUCTION	1
2	PROJECT DESCRIPTION	1
3	SUMMARY OF IMPACTS	1
4	BASELINE HABITAT CONDITIONS	2
5	MITIGATION DESIGN.....	2
6	MITIGATION MAINTENANCE AND MONITORING.....	3
7	REFERENCES	ERROR! BOOKMARK NOT DEFINED.

1 INTRODUCTION

This document presents the Habitat Mitigation Planting Plan for the proposed construction of a portion of a new barge-loading conveyor system at Northwest Aggregate's Maury Island mining operations ("Project"), located along the east shore of Maury Island, Washington. The new conveyor system will replace the existing conveyor. Construction of the upland portions of the proposed conveyor system will involve work within 200 feet of ordinary high water. The mitigation measures proposed in this plan address impacts to vegetation associated with replacement of a portion of the conveyor system that is located within 200 feet of ordinary high water.

2 PROJECT DESCRIPTION

The majority of the on-shore work within 200 feet of ordinary high water will occur in a 60-foot wide corridor (Sheet 1). This 0.28-acre corridor contains the existing conveyor system to be replaced. Work within the corridor will include removal of existing vegetation, removal of the existing conveyor, minor grading, placing crushed rock surfacing and installing the proposed conveyor system. A 40-foot section of the conveyor corridor adjacent to ordinary high water will be replanted upon completion of construction, and is therefore included in the mitigation planting area (Sheet 1). The remainder of the corridor will be maintained during operation of the barge-loading dock to allow access for future maintenance and repair of the corridor.

Vegetation that is outside the corridor will be protected from damage during construction. Road work will be confined within the existing roadway and will be limited to repairing existing roads.

The existing conveyor system will be removed in sections, loaded into trucks and transported off-site to an approved upland disposal site. New conveyors will be pre-assembled off-site as much as possible to reduce the amount of work required in the shoreline area.

3 SUMMARY OF IMPACTS

The primary adverse impacts of the project would result from the removal of vegetation within a 0.28-acre portion of the 200-foot shoreline buffer (Sheet 1). Vegetation removal would occur within the 60-foot conveyor corridor from the ordinary high water line landward past the 200-foot shoreline buffer boundary. The vegetation will be removed to allow for safe and efficient removal of the existing conveyor and installation of the new conveyor system. In addition, minor grading and gravel resurfacing will occur in portions of the corridor to facilitate removal and replacement of the conveyor, as well as to provide access for operation and maintenance activities.

Once the corridor area is cleared of vegetation and access areas are graded and resurfaced, the existing conveyor will be removed and the new conveyor will be assembled. After completion of the new conveyor, the cleared areas will be maintained for operational safety

and maintenance of the conveyor system.

4 BASELINE HABITAT CONDITIONS

The shoreline portion of the gravel mining area is currently dominated by Scot's broom (*Cytisus scoparius*) and willow (*Salix* spp.) with various grasses and forbs also present. Within the Project area, the vegetation consists primarily of Scot's broom, red alder (*Alnus rubra*), and willow. Himalayan blackberry (*Rubus discolor*) and Pacific madrone (*Arbutus menziesii*) are also present in this area. Scot's broom, red alder, and willow are present along the ordinary high water line. Several unvegetated staging areas and gravel roadways are also present northeast of the conveyor corridor.

5 MITIGATION DESIGN

Construction and grading activities within the conveyor corridor will result in the loss of approximately 0.28 acre of vegetation within 200 feet of ordinary high water.

To mitigate the affects of the loss of vegetation within the shoreline buffer, Glacier Northwest proposes to plant approximately 0.28 acre of native vegetation along an adjacent portion of the shoreline to the northeast (Sheet 1). Currently, the portion of the shoreline immediately northeast of the conveyor is either unvegetated or dominated by Scot's broom.

All non-native invasive species within the mitigation area will be removed and replaced with native trees and shrubs. The planting area will extend northeast approximately 250 feet parallel to the shoreline from the northeast edge of the conveyor corridor (Sheet 1). Plantings will occur from ordinary high water (approximately +15 feet Mean Lower-Low Water [MLLW]) landward approximately 73 feet.

Plantings will be a mix of black cottonwood (*Populus trichocarpa*), Pacific madrone, live Scouler willow (*Salix scouleriana*) stakes, and red-osier dogwood (*Cornus stolonifera*). The cottonwood will be balled and burlap trees of whichever size is readily available (typically b&b trees are 8-15 feet), and will be planted on 9-foot centers. Madrone will be 2-gallon container plantings, and also will be planted on 9-foot centers. Scouler willow stakes and red-osier dogwood seedlings will be planted on 3-foot centers among the cottonwood and madrone plantings. Once trees and shrubs are planted, the mitigation area will be overseeded with native grasses to help prevent colonization by invasive species.

Adding vegetation to the shoreline will stabilize the bank and screen aquatic and nearshore habitat from mining activities. The plantings will provide approximately 0.28 acre of enhanced vegetated area along the shoreline north of the conveyor. The willow and red-osier dogwood will provide nesting and forage habitat for wildlife species. The cottonwood and madrone will provide near-term screening and small bird nesting opportunities, and long-term roosting and perching opportunities for raptors and piscivorous birds. Plants overhanging the shore will shade nearshore intertidal habitat

and introduce leaf litter and insects, important components of quality nearshore habitat for juvenile salmonids.

6 MITIGATION MAINTENANCE AND MONITORING

Northwest Aggregates is committed to providing successful mitigation and compliance with the mitigation plan. While the native species selected for mitigation are hardy and typically thrive in nearshore northwest conditions, some individuals might perish due to dry conditions, poor placement, etc. The project proponent will provide either irrigation or regular watering and plant maintenance for two summers after planting while the vegetation become established. Invasive species will be removed or physically prevented (by mulch or biodegradable fabric) during all three monitoring years. No more than 10 percent cover of invasive species is permitted in any monitoring year. Cottonwood and madrone plantings that fail to survive the first growing season will be replaced.

Scot's broom and Himalayan blackberry, the two invasive species most prevalent on-site are shade intolerant and will not likely thrive within the mitigation site after willows and dogwood establish themselves.

The newly-planted vegetation will be monitored for a period of three years to ensure planted material is thriving on the site. Monitoring will include walk-through surveys to document planted vegetation survival and species composition. Additionally, four permanent photo-points will be established to further document site development over the entire three-year monitoring program. The proposed schedule of monitoring activities is present in Table 1.

Table 1. Proposed schedule of monitoring activities.

Performance Standard	Method	Month	Frequency
Species Composition	Walk-through surveys to document all species present	July	Years 1-3
Planted Vegetation Survival	Walk-through surveys to document plant survival; note presence of seed/fruit	July	Years 1-3
Photo Points	Document site development	July	Years 1-3

Species composition data will be collected once every July for all three monitoring years. Data will be collected by walk-through surveys conducted throughout the entire mitigation site, documenting all plant species present. Documentation will include relative abundance and location of invasive species. This data will be used to identify potential problem areas with respect to invasion of non-native species. All invasive species found during monitoring activities will be removed.

In addition to species composition data, all planted vegetation will be inspected during the walk-through survey to determine percent survival. Parameters such as relative health and

vigor and presence of seeds and/or fruit also will be documented.

Table 2 contains the specific performance standards and the contingency actions to be taken if performance standards are not met within the timeframe prescribed.

Table 2. Performance standards and contingency actions for the mitigation site.

Feature	Monitoring Year	In-Situ Performance Standards	Contingency/Action
Invasive species	1-3	All invasive species occurrences will be removed	None
		Invasive species coverage <10% of total mitigation area	None
		Invasive species coverage >10% of total mitigation area	Evaluate reasons for colonization; consider using mulch covering or biodegradable fabric for prevention.
Tree and shrub survival and growth	1-3	> 80% survival of planted stock	None
		60 - 80% survival of planted stock	Evaluate reasons for mortality; replant to achieve performance standard.
		>60% survival of planted stock	Evaluate reasons for mortality; consider species suitability for site conditions; replant with same or alternate species.
	3	Presence of seed and/or fruit production	None
		Lack of seed and/or fruit production	Evaluate potential reasons for lack of seed and/or fruit production; consider fertilization.

APPENDIX D

I. King County Shorelines Substantial Development Permit and Shorelines Conditional Use Permit, dated 16 June 2005

II. King County Grading Permit (renewed) dated 6 July 2007;

III. Washington Department of Fish and Wildlife's Hydraulic Project Approval, dated 2 May 2007;

IV. Washington Department of Ecology's Water Quality Certification, dated 14 March 2006.

**KING COUNTY SHORELINE PERMITS
MARCH 15, 2005
NORTHWEST AGGREGATES**



King County

Department of Development
and Environmental Services
900 Oakesdale Avenue SW
Renton, WA 98055-1219

RECEIVED
MAR 16 2005

SULATORY

Skadowski

Notice of Decision

Shoreline Type 2

File #s: L02SH012 (Shoreline Conditional Use Permit)
L02SH013 (Shoreline Management Substantial Development Permit)

Applicant: Northwest Aggregates (Glacier Northwest)
P.O. Box 1730
Seattle, WA 98111

DDES Planner: Matthew Caskey

Project Location: Portions of Section 28 and 29, Township 22N, Range 3E, on the eastern edge of Maury Island next to Vashon Island and along the East Passage in King County, WA.

Project Description: Shoreline Conditional Use Permit: To recognize mineral extraction and associated appurtenances, as an identified activity within the use elements of the Conservancy Shoreline Environment under Title 25 of the King County Code and the King County Shoreline Master Program. Shoreline Management Substantial Development Permit: To construct and operate a replacement barge-loading facility to transport sand and gravel material from an upland pit site. The proposed facility constitutes a larger loading pier and is to be located in deeper water than that which currently exists.

Permits Requested: Shoreline Conditional Use Permit (L02SH012)
Shoreline Management Substantial Development Permit (L02SH013)

Department Decision: Approve the Shoreline Management Substantial Development Permit
Approve the Shoreline Conditional Use Permit

SEPA Determination: See Final EIS dated June 2000
See Addendum to Final EIS dated March 2004

Date Mailed: March 15, 2005

Appeal Procedure:

Information on appeal procedures may be obtained from the Shoreline Hearings Board at (360) 459-6327 or the Washington State Department of Ecology Shoreline Appeals Coordinator at (360) 407-6528. To the extent further Shoreline Hearings Board appeals of this decision are available, such requests for review would need to be received by the Shoreline Hearings Board within twenty-one (21) days of the "date of filing" as defined by WAC 174-27-130.

If you require this material in braille, audio cassette, or large print, call (206) 296-6600 (Voice), or (206) 296-7217 (TTY)



King County
Department of Development and Environmental Services
900 Oakesdale Avenue Southwest
Renton, WA 98055-1219
(206) 296-6600

**REVISED REPORT AND DECISION
FOR SHORELINE CONDITIONAL USE PERMIT
AND SHORELINE MANAGEMENT SUBSTANTIAL DEVELOPMENT PERMIT**

Application Nos. Shoreline Conditional Use Permit DDES File L02SH012
Shoreline Management Substantial Development Permit DDES
File L02SH013

Applicant: Northwest Aggregates (also known as Glacier Northwest)

Project Location: Portions of Section 28 and 29, Township 22N, Range 3E, on the eastern edge of Maury Island next to Vashon Island and along the East Passage in King County, Washington.

Waterbody: Puget Sound

Shoreline Designation: Conservancy Environment

Shoreline of State Significance: Yes

Date of Decision: March 15, 2005

INTRODUCTION/BACKGROUND:

This revised report and decision is issued pursuant to the findings of fact, conclusions of law, and order of the State of Washington Shoreline Hearings Board in SHB#04-009 and 04-010.

King County denied Northwest Aggregates' ("Glacier Northwest") shoreline permit application to replace an existing but non-functional conveyor and barge loading dock used to export sand and gravel, on March 16, 2004. The King County decision was appealed by the applicant, Preserve Our Islands, Washington Environmental Council, and People for Puget Sound to the Washington State Shoreline Hearings Board ("Board") within the 21-day "Notice of Filing" for Shoreline Management Substantial Development and Shoreline Conditional Use Permits (WAC 173-27-130 (6) & (7) Filing with the department). The Board held a hearing in this matter from August 16-25, 2004. On

November 3, 2004, the Board ordered that King County's denials of the subject Shoreline Management Substantial Development Permit (SSDP) and Shoreline Conditional Use Permit (SCUP) be reversed. The Board instructed King County to approve the subject SSDP & SCUP with eleven (11) specific project conditions. Those conditions are incorporated into the conditions section of this report. The Board further concluded that the SEPA review of the project was adequate, that the proposal will not have adverse environmental impacts in violation of SEPA or the Shoreline Management Act ("SMA"), but that absent conditions, the project as proposed could be inconsistent with King County Shoreline Management Program (KCSMP) and SMA requirements relating to recreation, noise, and the existing character of the shoreline.

The applicant (Glacier Northwest) sought approval to annually mine and export sand and gravel, using up to 10,000-ton barges. The 235-acre site on which proposed mining activities would occur is located on the eastern edge of Maury Island, King County, Washington (within portions of Section 28 and 29, Township 22N, Range 3E).

Glacier Northwest initially requested a King County Shoreline Exemption for repairs and upgrades to the existing barge and conveyor system, in order to make these features operational for the proposed exporting of excavated materials. Under the proposal for the exemption, the conveyor system would also have been replaced. The dock is likewise in substantial disrepair and has become overgrown with trees and bushes protruding through the structures. Glacier Northwest asserted that this proposal was exempt from shoreline permit requirements as "normal and routine maintenance and repair." King County denied the exemption request on May 31, 2002, upon determining that the project did not qualify as an exempt activity under WAC 173-27-040(2)(b).

In September 2002, Glacier Northwest applied for a shoreline management substantial development permit and a shoreline conditional use permit for a proposed replacement of the existing barge-loading facility on Maury Island. The applicant's September 2002 proposal was to replace and extend by approximately 72 feet the existing dock in Puget Sound to support barge loading and transport of sand and gravel. The proposed dock extension is one of the recommended mitigation options identified in the Final EIS. The dock extension is intended to move tugboats and barges farther away from nearby eelgrass to reduce potential impacts associated with shading and propeller wash. The applicant's revised proposal also incorporated other recommended mitigation measures identified in the Final EIS.

In May 2003, Glacier Northwest submitted a Draft Mitigation Plan describing measures that would be implemented to mitigate potential impacts from barge-loading operations at the extended dock. Mitigation is intended to address potential impacts from gravel spillage, shading, propeller wash, and noise associated with operations. In August 2003, Glacier Northwest submitted a Barge Approach and Departure Protocol to be incorporated into their proposal. The operational procedures specified by the applicant are intended to avoid potential impacts to eelgrass beds from tugboats maneuvering barges at or near the dock. A monitoring plan is also incorporated into the applicant's

proposal to monitor propeller wash velocities at the site to verify that the approach and departure protocol is working effectively.

On December 2, 2003, Glacier Northwest submitted a further revision to their proposal extending the dock an additional 20 feet from their previous proposed extension. The revised proposal ensures that the dock face is 120 feet at its closest point from eelgrass in the area. No additional pilings will be required to construct this additional extension from the previous design. Also on December 2, 2003, Glacier Northwest submitted a revision to the Barge Approach and Departure Protocol that incorporates the recommendations contained in a report by Tetra Tech FW, Inc. to improve the monitoring plan and to specify a contingency plan if eelgrass damage is detected.¹

Shoreline Hearings Board Ruling:

On November 3, 2004, the State of Washington Shoreline Hearings Board issued an order directing King County to issue shoreline permits for the proposed sand and gravel operation. Such shoreline permits are to include conditions set forth in the Board's order. This Revised Report and Decision implements the Shoreline Hearings Board's November 3, 2004 Order.

The Applicant's Project Description:

Up to 193 acres were proposed to be mined in phases over 11 to 50 years, depending upon the rate of extraction. The rate would vary with market demand and limitations imposed by various permits. Bulldozers would excavate materials by pushing materials from the slope tops down to collection points, where material would be placed on a collection feeder. The feeder would load a conveyor belt, which would then deliver materials to waiting barges, tended by tugs, at the end of the loading dock.

Proposed mining would occur from 6 a.m. to 10 p.m. weekdays and from 9 a.m. to 6 p.m. on Saturdays. Barge loading would occur at any time, with up to four 10,000-ton barges (measuring 330 by 80 feet) or a greater number of smaller barges being loaded per day. Up to four 10,000-ton barges a day would be loaded at the facility. Each barge loading operation would take approximately 4.5 hours.

Glacier Northwest's proposal as of December of 2003 is summarized as follows:

- The dock would be open-grated steel with approximately 75 percent open area. Relative to the existing 270-foot in length dock, the new dock would extend 71.5 feet further into the water at the conveyor.

¹ In addition to these shoreline modifications, on February 25, 2004, Glacier Northwest revised its mining site plans and submitted a revision to its grading permit application (C92G0075) reducing the area of mining along the bluff of the shoreline in order to address KC DDES environmental concerns. Except in areas where the bluffs are not present near the shore area, the revised boundary would be at least 400 feet along the shore of Puget Sound and greater in some areas. The applicant's original proposal was to maintain a 200-foot boundary from the shoreline.

- The existing conveyors and conveyor supports would be replaced with a similar conveyor system for loading barges. The new system would use steel channel conveyor frames, a steel-framed platform at the conveyor transfer location, a steel-framed take-up tower to keep tension in the barge-loading conveyor belt and cast-in-place concrete foundations.
- The new barge loading dock and conveyor system would require a total of between 62 and 82 piles depending on the results of the geotechnical testing, compared to 228 creosote-treated timber piles for the existing dock. All new piles would be made of steel.
- The main elements of the redesigned dock and conveyor system include a 54-inch-wide barge-loading conveyor that will connect the mine to the loading dock. The conveyor would start about 100 feet landward of the shoreline and would extend about 400 feet from shore over Puget Sound. The over-water section of the conveyor (between the shoreline and dock) would be fully enclosed within a 12-foot-diameter steel pipe called a gallery. The gallery would prevent spillage of materials from the conveyor into the water, reduce noise, and shield conveyor/walkway lighting.
- A telescoping spout will be attached to the discharge end of the conveyor to lower the material to the barge and reduce wind blown dust. The spout will have an adjustable "spoon" chute attached to the end to help distribute the material to the center of the barges.
- Seven dolphins will be constructed to berth and moor the barges. The actual number of piles would be determined during the final design, based on the geotechnical conditions at the site. The dolphins would be spaced about 85 feet apart and extend about 510 feet parallel to the shoreline. Each dolphin would consist of four to six steel piles, two feet in diameter that are connected at the top by a steel frame.
- A "haul-back" system – i.e., a system of winches, cables and pulley wheels used to position the barge during loading operations – would be attached to the top of the dolphin frames. This system will minimize the need for tugboats to use their propellers during barge loading.
- The dock and conveyor would be open-grated steel painted a gray/green color to reduce the appearance of bulk.
- The existing timber dock, trestle, conveyor and dolphins would be removed using water-borne equipment. The above-water portions of the structures will be cut, disassembled, and removed in sections using a derrick (i.e., barge-mounted crane). The removed material would be placed on a barge for transport to an off-site upland work area where it will be unloaded, cut into smaller pieces, and either recycled or trucked to an approved disposal site.

- The in-water work would involve the removal of 228 creosote-treated timber piles, including: 26 piles for the trestle, 71 piles for the dock, 105 piles for the dolphins and 26 piles for the submerged dolphins.

Applicable Standards for Reviewing Shoreline Conditional Use Permit

WAC 173-27-160 indicates that “[t]he purpose of a conditional use permit is to provide a system within the master program which allows flexibility in the application of use regulations in a manner consistent with the policies of RCW 90.58.020. In authorizing a conditional use, special conditions may be attached to the permit by local government or the department to prevent undesirable effects of the proposed use and/or to assure consistency of the project with the act and the local master program.”

The section further provides that “uses which are not classified or set forth in the applicable master program may be authorized as conditional uses provided the applicant can demonstrate consistency with the requirements of this section and the requirements for conditional uses in the master program. WAC 173-27-160(3).

King County’s Shoreline Code specifies: The Director is authorized to issue shoreline conditional use permits only under the following circumstances: 1) The development must be compatible with uses which are permitted within the master program environment in which the development is proposed. 2) The use will cause no unreasonable adverse effects on the shoreline or surrounding properties and uses. (3) The use will promote or not interfere with public use of surface waters. (4) The development of the site will not be contrary to the policies of the master program. KCC 25.32.050(A).

King County Shoreline Code makes clear that the burden of proving that a proposed shoreline conditional use permit meets the foregoing criteria rests with the applicant. Absence of such proof shall be grounds for denial of the application; provided, however, that the director is authorized to determine and impose, on a case by case basis, those conditions and standards which may be required to enable any proposed Shoreline conditional use to satisfy the conditional use permit criteria. KCC 25.32.050(B).

Applicable Standards for Reviewing Shoreline Substantial Development Permit

The review criteria for substantial development permits are set forth in WAC 173-27-150. The section provides that: (1) A substantial development permit shall be granted only when the development proposed is consistent with: (a) The policies and procedures of the act; (b) The provisions of this regulation; and (c) The applicable master program adopted or approved for the area. WAC 173-27-150.

KC DDES has finalized its SEPA review of the proposed dock/barge/conveyor facility. A Final EIS was issued in June 2000. Subsequent to the publication of the Final EIS, the County issued an EIS Addendum in March 2003 that further evaluated project impacts on nearshore eelgrass beds. The County thereafter withdrew this Addendum in April 2003

in order to address additional issues raised by the Vashon Island community. Following further environmental analysis, DDES reissued an EIS Addendum on March 16, 2004.

ACTION:

APPROVE Shoreline Conditional Use Permit: DDES File No. L02SH012, subject to the following conditions;

APPROVE Shoreline Management Substantial Development Permit: DDES File No. L02SH013, subject to the following conditions:

CONDITIONS

1. Nothing in this permit shall be construed as excusing the applicant from compliance with any federal, state, or local statutes, ordinances, or regulations applicable to this project other than the permit requirements of the Shoreline Management Act of 1971.
2. This permit may be rescinded pursuant to RCW 90.58.140(8) in the event the permittee fails to comply with any conditions thereof.
3. Pursuant to RCW 90.58.140(5), construction pursuant to this permit may not begin until twenty-one (21) days from the date of filing as defined by RCW 90.58.140(6). RCW 90.58.140 may impose further restrictions on the timing of construction. Please note that additional restrictions on the applicant's ability to undertake construction pursuant to these permits are imposed as a result of the March 3, 2005 Stipulation and Order Regarding Stay in Preserve Our Islands, et al. v. Shoreline Hearings Board, King County Superior Court Case No. 04-2-37969-5SEA (Armstrong, J.).
4. The following requirements shall apply to these approvals (WAC 173-27-090):
 - i. Construction shall be commenced within two years of the effective date of the shoreline permits. Provided, that King County may authorize a single extension for a period not to exceed one year based on reasonable factors, if a request for extension has been filed before the expiration date and notice of the proposed extension is given to parties of record and the Washington State Department of Ecology.
 - ii. Construction of all elements of the proposal within shorelines jurisdiction shall be completed no later than five years after the effective date of this approval. Provided, that King County may authorize a single extension for a period not to exceed one year based on reasonable factors, if a request for extension has been filed before the expiration date and notice of the proposed

- extension is given to parties of record and the Washington State Department of Ecology.
- iii. The effective date of the shoreline permits shall be the date of the last action required on the shoreline permits and all other government permits and approvals that authorize the development to proceed, including all administrative and legal actions on any such permit or approval. It is the responsibility of the applicant to inform King County of the pendency of other permit applications filed with agencies other than King County and of any related administrative and legal actions on any permit or approval. If no notice of the pendency of other permits or approvals is given to King County prior to the date established by the shoreline permits or the provisions of this section, the expiration date shall be based on the date of this approval.
 - iv. Conditions of the SSDP and SCUP related to construction shall be satisfied prior to occupancy or use of the barge loading facility.
 - v. Revisions to the shoreline permits may be authorized under WAC 173-27-100 after original permit authorization has expired under subsection (2) of Conditions #4 of this approval, provided, that this procedure shall not be used to extend the original permit time requirements or to authorize substantial development after the time limits of the original permit.
 - vi. King County is required to notify the Washington State Department of Ecology in writing of any change to the effective date of these permits under WAC 173-27-100, as authorized by the above subsections of Condition #4 of this approval, with an explanation of the basis for approval of the change. Any change to the time limits of these permits other than those authorized by the above subsections of Condition #4 of this approval shall require new permit applications.
5. Copies of other approved state and federal permits from the Washington State Department of Fish and Wildlife, U.S. Army Corps of Engineers, and the Washington State Department of Ecology shall be submitted to King County Land Use Services Division of the Department of Development and Environmental Services (DDES) prior to construction. Additionally, a copy of the executed Washington State Department of Natural Resources "Aquatic Lands Lease" shall also be submitted.
 6. The permittee shall be required to obtain a King County Building Permit for construction of the barge loading facility and associated structures. Minor modifications resulting from implementing conditions of the

Building Permit may be allowed provided they are within the scope and intent of the SSDP and SCUP approvals and no substantial adverse environmental impact will be caused by the project revision. Any subsequent changes to the approved shoreline plans (Exhibit D-7) may require the permittee to obtain a revision to the SSDP and SCUP pursuant to WAC 173-27-100.

7. Construction shall occur in conformance with the approved project plans. A copy of the approved Shoreline Management Substantial Development Permits and Building Permit plans shall be kept available on-site at all times.
8. The permittee or contractor shall notify the DDES of the anticipated project start date at least ten (10) days prior to initiating construction.
9. King County shall be notified within ten (10) days of completion of construction so that compliance with Shoreline Conditional Use Permit #L02SH012 and Shoreline Management Substantial Development Permit #L02SH013 can be verified.
10. All work and materials shall conform to King County standards and specifications, and to the specifications and details shown on approved Building Permit plans.
11. Compliance with the "Mitigation Plan: Maury Island Barge-Loading Operations (Extended Dock), Northwest Aggregates" dated June 2, 2004 is required as a condition of this approval. Compliance monitoring shall be completed by an independent consultant.
12. Elements of the "Mitigation Plan: Maury Island Barge-Loading Operations (Extended Dock), Northwest Aggregates" dated June 2, 2004 that require consent or approval from the Washington State Department of Fish and Wildlife shall also require the consent or approval of the King County DDES.
13. All monitoring reports specified within the "Mitigation Plan: Maury Island Barge-Loading Operations (Extended Dock), Northwest Aggregates" document dated June 2, 2004 that are to be submitted to the Washington State Department of Fish and Wildlife shall also be submitted to the King County DDES.
14. Compliance with the "Barge Approach and Departure Protocol: Northwest Aggregates – Maury Island Barge Loading Dock" dated December 2, 2003 is required as a condition of this approval. Compliance monitoring shall be completed by an independent consultant.
15. To ensure compliance with the noise standards enumerated under King County Code 12.88, and control noise levels such that the character of the conservancy shoreline is maintained, the permittee will engage the

services of an independent consultant to produce and submit a noise monitoring and mitigation plan for review and approval by the DDES prior to operation. The plan will propose a monitoring program to monitor noise levels produced by the operation of the conveyor and barge loading facility (including equipment and vessel operation in the vicinity of the berthing area). Monitoring stations will, at a minimum, be located within adjacent neighborhoods and properties, including the Sandy Shores and Gold Beach communities, and include at least one station representative of adjacent upland properties outside those communities. The same (or other) independent consultant will conduct the monitoring activities prescribed by the approved plan and report findings to King County in accordance with an approved reporting schedule. For those sources that are exempt from noise limitations under KCC12.88, such as 'watercraft', the noise monitoring and mitigation plan shall propose mitigation measures in accordance with best available technologies for noise abatement.

16. Should monitoring reveal noise levels exceeding allowable limits, the permittee shall immediately notify King County DDES, which may require project operations to cease until measures to prevent further exceedences can be identified and subsequently implemented.
17. Pursuant to Shoreline Hearings Board Order, Condition #1 (SHB No. 04-009,10), the hours of operation of the conveyor and barge loading dock shall be limited to 7:00 a.m. to 7:00 p.m. Monday through Friday. King County may develop reasonable exceptions authorizing operation of the conveyor and barge loading dock during other time periods. Any requested exception to these hours of operation shall require additional review to insure that exceptions shall not produce conditions that are inconsistent with the 'Conservancy' shoreline environment or public health. Such review shall be completed through the revision process for modifying the King County Clearing and Grading Permit that authorizes the mine's operation. The revision process review will include notification to a list of interested parties maintained by the DDES, consultation with Seattle King County Department of Public Health, and review by the Critical Areas Section of the DDES, by the SEPA Section of DDES, and by the Site Development Services Section of the DDES.
18. The permittee will provide signage or other appropriate measures to notify the public that public access to the conveyor, barge loading dock, and mine site is prohibited.
19. Pursuant to Shoreline Hearings Board Order, Condition #11 (SHB No. 04-009,10), the permittee is encouraged to develop, in coordination with King County, other local, state, and federal agencies, citizens, and recreation associations and businesses, methods to inform the public of preferred times for recreational opportunity around the site.

20. In order to permanently protect bluff functions in a manner consistent with the conclusions of the Shoreline Hearings Board, the bluff areas identified in Glacier Northwest's February 25, 2004 letter and the revised site map attached thereto (Exhibit A) shall remain free of any mining. Any proposed development activity within protected bluff areas shall be reviewed pursuant to codes in effect at the time that such proposals are submitted. The specific requirements of this condition shall be recorded in a covenant, easement or other agreement, in a form approved by King County. The instrument shall specify the functions provided by the bluff area that are to be protected, which include: beach nourishment (i.e. sand delivery to the adjacent beach), visual screening for the Gold Beach and Sandy Shores communities, noise screening for the Gold Beach and Sandy Shores communities, and wildlife habitat.
21. Best Management Practices for piling removal shall be employed to control turbidity and sediments reentering the water column during pile removal, capture debris, and for pile/debris disposal, including but not limited to the following:
 - i. Existing pilings shall be removed by vibratory extraction. If pilings landward of the -12.0 MLLW elevation are too deeply embedded and cannot be removed by vibratory extraction, they may be removed by limited excavation around the base of the pile. Pilings waterward of the -12.0 MLLW elevation that cannot be removed by vibratory extraction may be cut off at least 1.0' below the mudline using a pneumatic underwater chainsaw. Project specific standards for pile-cutoff shall be set by the project engineer considering the mudline and tidal elevations. Upon completion of the piling removal portion of the project, the permittee shall provide the DDES with the number and location of pilings that have been cut off.
 - ii. If a pile is broken or breaks above the mudline during vibratory extraction, a chain shall be used to attempt to entirely remove the broken pile.
 - iii. To minimize turbidity in the water column as well as sediment disturbance, the crane operator shall be trained to remove piles slowly.
 - iv. Work surface on the barge deck shall include a containment basin for piles and any sediment removed during pulling. Basin may be constructed of durable plastic sheeting with sidewalls supported by hay bales or support structure to contain all sediment. Water run off can be discharged back to the marine environment.
 - v. Upon removal of piles from the substrate, they shall be moved expeditiously from the water and placed into the containment basins. The pilings shall not be shaken, hosed-off, left hanging to drip or any

other action intended to clean or remove adhering material from the pile.

- vi. Pilings, sediments, construction residue and plastic sheeting from the containment basins shall be disposed at a facility that complies with federal and state regulations.
 - vii. A floating surface boom shall be installed to capture floating surface debris produced during piling removal. Contained debris shall be collected and placed in containment basins.
22. Piling installation shall use vibratory insertion to the maximum extent possible.
 23. Where impact pile driving is necessary to install new pilings, bubble curtains shall be employed to reduce underwater noise impacts.
 24. Project activities (including construction and operation) shall be suspended when Killer Whales (*Orcinus orca*) are sited within 300 yards of the project site.
 25. Immediately subsequent to removal of the existing creosote treated pilings, an independent consultant engaged by the applicant shall evaluate sediments in the area from which all pilings that are landward of the -12.0 MLLW elevation contour have been removed. Results of the evaluation shall be reported to the DDES prior to initiating construction of the new facility. The evaluation and report shall conform to the standards enumerated in the "Sediment Sampling and Analysis Plan Appendix: Guidance on the Development of Sediment Sampling and Analysis Plans Meeting the Requirements of the Sediment Management Standards (Chapter 173-204 WAC)" published by the Washington State Department of Ecology (Pub. No. 03-09-043). Contaminated sediments (i.e. those sediments exceeding Cleanup Standards enumerated by the Washington State Sediment Quality Standards (WAC 173-204)) that are landward of the -12.0 MLLW elevation contour and that are attributable to the presence or historic operation of the existing facility shall be addressed using methods consistent with best management practices for contaminated sediment.
 26. All trenches, depressions, or holes created in the intertidal or subtidal area during construction shall be restored to pre-existing grade using clean (uncontaminated) sand.
 27. Dock lighting shall incorporate shields, screening and / or protective covering to minimize night time lighting of the water below the dock.
 28. To avoid spillage of sand and gravel into the marine environment,

- i. The conveyor will be designed to place the product in the center of the barge;
 - ii. A fixed downspout will be installed and maintained on the end of the conveyor to prevent wind from blowing material into the water as it is transferred from the conveyor into the barge.
29. The permittee shall routinely inspect, test and maintain the barge "haul back" system to insure its proper functioning.
 30. Barge loading will not occur if the "haul back" system has been rendered inoperable for any reason.
 31. Pursuant to Shoreline Hearings Board Order, Condition #11 (SHB No. 04-009,10), barge decks shall be lined with concrete, wood, asphalt, or other suitable material to minimize noise during barge loading.
 32. If onsite containment of arsenic or other contaminants is an element of the final approved grading plan, there shall be no direct stormwater runoff pathway to Puget Sound from the containment cells.
 33. All project-related debris or deleterious material resulting from construction shall be removed from the shoreline environment and disposed of in an approved landfill prior to initiating barge loading operations.
 34. Extreme care shall be taken to ensure that no petroleum products, hydraulic fluid, or any other toxic or deleterious materials are allowed to enter or leach into surface waters. The permittee shall report all spills immediately to King County DDES and to the Washington Department of Ecology.
 35. A spill control kit shall be on site at all times.
 36. Wet concrete shall be prevented from entering the marine environment. Forms for any concrete structure shall be constructed to prevent leaching of wet concrete. Impervious materials shall be placed over any exposed concrete not lined with the forms that will come in contact with the water. Forms and impervious materials shall remain in place until the concrete is cured.
 37. Chemically treated wood products are not approved for use in this project.
 38. Excavated materials, construction materials and equipment shall not be staged or stockpiled on the seabed below the ordinary high water line.
 39. Any excavated or stockpiled material placed in pre-approved staging and stockpiling areas shall be removed from the shoreline environment within seventy-two (72) hours of completion of work.

40. Project activities shall employ best management practices for temporary erosion and sediment control to minimize turbidity and siltation in the marine environment.
41. Project activities shall comply with all applicable water quality standards.
42. The permittee shall engage the services of an independent consultant to monitor construction for compliance with permit conditions during demolition and removal of the existing dock facility, and during construction of the new facility. The inspector(s) will report findings of noncompliance to the permittee, who will be responsible for immediately notifying King County (in writing) and taking immediate corrective actions. Construction monitoring shall include water quality monitoring to ensure that turbidity caused by construction activities does not exceed Washington State Water Quality Standards as required pursuant to subpart (viii) of Condition #50 of this approval.
43. If a fish kill occurs or fish are observed in distress, construction shall immediately cease and the King County DDES-Critical Areas Section (Contact phone #206-296-6600) and Washington Department of Fish and Wildlife shall be notified immediately.
44. Eelgrass shall not be adversely impacted due to project activities. Barges and all other vessels shall not ground, equipment shall not operate, and other project activities shall not occur in eelgrass anywhere on the project site. Compliance with this condition shall be documented by the pre-construction and post-construction eelgrass monitoring and reporting requirements enumerated in the "Mitigation Plan: Maury Island Barge-Loading Operations (Extended Dock), Northwest Aggregates" dated June 2, 2004.
45. Adverse impacts to macroalgae shall be avoided to the maximum extent practicable. Compliance with this condition shall be documented through the pre-construction and post-construction macroalgae monitoring and reporting requirements enumerated in the "Mitigation Plan: Maury Island Barge-Loading Operations (Extended Dock), Northwest Aggregates" dated June 2, 2004.
47. Should project activities (construction, maintenance or operation) result in significant impacts to eelgrass, it shall constitute a violation of the conditions of this approval. In such case, the permittee shall engage the services of an independent consultant to develop and submit an eelgrass restoration plan that outlines remedial measures necessary to reestablish pre-existing eelgrass conditions. The approved plan shall include performance standards and financial guarantee measures, and shall be implemented within one-year of its approval.

48. Unless otherwise modified by King County, tug and barge approach and departure operations are prohibited when tidal elevations are below 0' or Mean Lower Low Water (MLLW). This restriction may be lifted or modified if propeller wash monitoring results demonstrate to the satisfaction of King County that tide height does not affect propeller wash velocities in a way that could impact eelgrass.
49. Pre-construction eelgrass surveys completed between 2001 and the date of construction shall be used to (1) determine pre-construction eelgrass location and density, (2) determine interannual variability that can be attributed to natural and non-project related causes, and (3) provide a baseline for measuring post-construction eelgrass area extent and density for impact assessment. To this end, the permittee shall engage the services of an independent consultant to develop and submit to the DDES a report outlining statistical performance measures that will detect any changes in eelgrass bed location or density prior to initiating construction of the loading facility. These measures, which may include paired t-tests or ANOVA tests, shall be used to compare each required eelgrass survey with the referenced baseline data. The report outlining the statistical performance measures shall also clearly enunciate how data gathered in the reference eelgrass bed will be used. For consistency, the DDES prefers that the permittee re-engage the services of the independent consultant previously engaged in the eelgrass analysis (Ron Thom, Battelle Marine Sciences Lab). NOTE: Eelgrass studies completed prior to 2001, including the 1999 Jones & Stokes eelgrass report and video surveys, may be used as background information but are not suitable for use as statistical baseline data due to differences in data collection methods and scale.
50. Eelgrass monitoring and mitigation measures shall include but not be limited to the following:
 - i. To avoid physical damage to eelgrass during construction, the two eelgrass beds on the project site will be marked in a manner that will alert construction personnel of their presence and location. These beds shall remain marked throughout the course of construction activities.
 - ii. Marking of eelgrass beds prior to construction shall be done in a manner that does not degrade nor otherwise harm eelgrass beds.
 - iii. Both pre-construction and post- construction grid surveys and video transects shall use the same methods so that data will be comparable and changes over time can be identified.
 - iv. Prior to construction, eelgrass beds shall be videotaped by a qualified independent consultant to record pre-project conditions. Videotaping shall be conducted along transects parallel to the shoreline within each

of the two eelgrass beds on the site. Permanent stakes shall be used to ensure the reproducibility of the survey.

- v. Immediately following construction, a second set of video transects that mirror the pre-project transects shall be recorded to demonstrate (qualitatively) that impacts to eelgrass have been avoided during construction. Videotapes shall be submitted to King County DDES within thirty (30) days of the completion of construction. The DDES recognizes that eelgrass often loses its leaves during winter and that because construction is likely to occur during the late fall and winter construction window it is expected that some leaf loss may occur during construction from natural causes. As such, if the video transects are recorded during late fall, winter or early spring, an additional video transect will be recorded in the reference area for comparison. The DDES will consider seasonal eelgrass change when reviewing the monitoring results.
- vi. Pursuant to Shoreline Hearings Board Order, Condition #3 (SHB No. 04-009,10), section four (4) of the "Barge Approach and Departure Protocol: Northwest Aggregates – Maury Island Barge Loading Dock" dated December 2, 2003, which regards "Propeller Wash Monitoring", shall be modified to include diver inspection of the north and south eelgrass beds on-site after the first twenty-five (25) barge loads. Table 1 of the "Mitigation Plan: Maury Island Barge-Loading Operations (Extended Dock), Northwest Aggregates" dated June 2, 2004 shall be amended to reflect this requirement.
- vii. During the dive inspection to be completed in accordance with subpart (vi) of Condition #50 of this approval, video monitoring shall occur at the seaward edge of each eelgrass bed concurrent with barge loading. The video recording device shall be stationed so that the substrate, eelgrass plants and a velocity meter (installed as close to the bottom as possible) are clearly visible, and the tug operator shall be directed to direct prop wash directly towards the velocity meter at the seaward edge of the bed. The tug shall be moored to the aft of the loaded barge, and slowly ramp prop wash velocities upwards toward seventy-five (75) cm / second without exceeding that threshold. The degree of sediment mobilization and effects on eelgrass observed by divers shall be noted, along with tidal elevation, time of day, and barge size. This information shall be included in a monitoring report to be submitted to King County within (30) days of the inspection. If at any time during the test eelgrass damage is observed, the test shall be immediately terminated, and the multidisciplinary group process described in subparts (viii) and (ix) of Condition #51 of this approval shall be initiated.
- viii. Water quality monitoring for turbidity shall be conducted concurrent with the eelgrass and prop wash monitoring required pursuant to subpart (vii) of Condition #50 of this approval. Water quality monitoring shall

include both water sampling and photographic documentation (taken from atop the facility) of conditions landward of the berthing face. Turbidity caused by construction activities from this project shall not exceed Washington State Water Quality Standards.

- ix. Statistical performance measures proposed pursuant to Condition #49 of this approval shall incorporate appropriate confidence intervals for determining whether any percent loss of eelgrass cover or density is statistically significant for any observation year. A decline will be considered statistically significant if it occurs outside the specified confidence interval when compared to trends at the reference site.
- x. Where unanticipated local factors cause the eelgrass reference area to the north of the project site to be unsuitable for statistical comparison, the comprehensive Washington State Department of Natural Resources (WDNR) eelgrass data set shall be used as a coarse-scale control to establish whether changes in eelgrass bed size or density on the project site are attributable to landscape level phenomena, such as fluctuations in climate, water chemistry or currents, or, whether changes are due to project activities. Should this scenario transpire, i.e. the reference site becomes unsuitable, statistical performance measures shall be modified accordingly and submitted for DDES approval. NOTE: WDNR data shall not be used for direct statistical comparison due to variability in data collection and spatial scale.
- xi. As specified in the eelgrass sampling design, the sampling frame for quantitative eelgrass monitoring shall continue to be adjusted as necessary to ensure that the entire area of each bed continues to be sampled if it extends out of the pre-existing sampling frame.
- xii. Monitoring results for quantitative (grid) and qualitative eelgrass surveys shall be reported together and submitted as a unified report to the extent the monitoring schedule allows. Otherwise, quantitative and qualitative surveys may be reported separately. All reports shall include clear and objective discussion of observed eelgrass bed density, bed area, bed shape, and estimate of total shoot count (calculated as bed area x density / sq. meter; this metric to be used for quantitative reporting only). Additionally, all reports shall include diver observations of bed scour, sedimentation, epiphyte growth, disease/pathogen outbreak, plant vigor, presence of associated organisms such as Dungeness crabs, herring spawn, and juvenile salmonids, and any / all other information collected by divers conducting transects that may be useful in assessing ecosystem health.
- xiii. Eelgrass monitoring reports that include mapped grid surveys shall also include data submitted in digital format (ArcView or CAD).

- xiv. Diver inspection completed after the twenty-fifth barge load pursuant to Shoreline Hearings Board Order, Condition #3 (SHB No. 04-009,10), shall be documented by video of permanent transects created in accordance with subparts (iv) and (v) of Condition #50 of this approval. A second iteration of the video prop wash monitoring described in subpart (vii) of Condition #50 of this approval shall also occur. Results will be reported to King County DDES within twenty (20) days of the inspection.
 - xv. Annual qualitative monitoring events described in Table 1 of the "Mitigation Plan: Maury Island Barge-Loading Operations (Extended Dock), Northwest Aggregates" dated June 2, 2004 shall include video transect surveys as described in subparts (iv) and (v) of Condition #50 of this approval.
 - xvi. Quantitative monitoring schedule described in Table 1 of the "Mitigation Plan: Maury Island Barge-Loading Operations (Extended Dock), Northwest Aggregates" dated June 2, 2004 shall be extended to include a quantitative eelgrass grid survey at year five (5) of operations to coincide with periodic review requirements associated with the mine operating (grading) permit. Grid survey shall be completed during the growing season for each of the two eelgrass beds on site as well as for the reference site, and results reported to the DDES during the periodic review process.
 - xvii. If at any time eelgrass monitoring results indicate that project activities have caused a statistically significant loss in eelgrass coverage or density in either of the two mapped eelgrass beds on the site, or video monitoring indicates that prop wash velocities are causing scour sufficient to expose the rhizomes of observed eelgrass plants, all barge loading operations will cease until additional prop wash or other necessary controls can be identified, tested, and reviewed in coordination with regulatory agencies to insure that any additional impacts to eelgrass will be avoided.
 - xviii. Prior to the implementation of any additional controls required by the multidisciplinary group, a revised mitigation monitoring schedule for quantitative and qualitative eelgrass monitoring surveys shall be submitted for review and approval.
51. Prop wash (velocity) mitigation and monitoring measures shall include but not be limited to the following:
- i. Prior to initiating barge loading, the permittee shall engage the services of an independent consultant to install and monitor velocity meters to measure current velocities at 0.5 second intervals during barge approach, berthing, and departure for the duration of the prop wash monitoring period. Velocity meters shall be installed at the seaward edge of both

eelgrass beds, as close to the seabed as possible, and shall be hard-wired to a data gathering device on the dock facility.

- ii. Diver inspection completed after the twenty-fifth barge load shall include inspection and testing of the installed velocity meters. Should the diver inspection indicate that velocity meters are not operating reliably, prop wash velocity data shall be collected and reported for another (25) twenty-five consecutive barge loads.
- iii. Prop wash velocity data collected during the first twenty five (25) barge loads shall be reported as unaveraged 0.5 second values. These unaveraged values shall be plotted against values averaged as five (5) second means and included with monitoring reports.
- iv. If unaveraged velocities do not exceed seventy-five (75) cm/sec, all additional monitoring, i.e. after the twenty-fifth barge load, may be reported solely as five (5) second averages, except as follows:
 - (a) If the first twenty-five (25) barge loads do not occur between July 1 and August 31, then unaveraged velocities will be reported for the first twenty-five (25) consecutive barge loads that occur during that time period;
 - (b) If quantitative surveys indicate that project activities are causing statistically significant reductions in eelgrass density or coverage, then unaveraged velocities will continue to be reported for all future velocity monitoring report requirements.
- v. If unaveraged velocities exceed seventy-five (75) cm/sec, they will continue to be reported for the remainder of the velocity monitoring period.
- vi. If five (5) second mean velocities between fifty (50) cm/sec and seventy-five (75) cm/sec are observed during the initial velocity monitoring period, then the velocity monitoring period will be extended for six (6) months. The extended velocity monitoring period shall commence such that at least sixty (60) days of the extended period occur between July 1 and September 30.
- vii. If five (5) second mean velocities greater than seventy-five (75) cm/sec but less than one-hundred (100) cm/sec are observed at any time during the monitoring period, a multidisciplinary group will be convened to review operations and provide recommendations on how to reduce velocities to below damage thresholds.
- viii. If five (5) second mean velocities equal to or greater than one-hundred (100) cm/sec are observed at any time during the monitoring period, barge loading operations will be required to immediately cease until additional prop wash controls can be identified, tested, and reviewed by

the multidisciplinary group, to insure that impacts to eelgrass will be avoided.

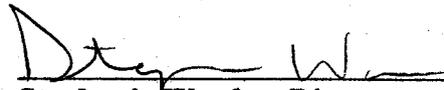
- ix. Should the multidisciplinary group be convened and subsequently require additional prop wash controls pursuant to the above subsections of Condition #51 of this approval, the prop wash velocity monitoring period shall be extended for at least (6) months following the installation of said controls. The extended monitoring period shall commence such that at least sixty (60) days of the extended period occur between July 1 and September 30.
- x. The multidisciplinary group convened to recommend additional prop wash controls will generally include representatives from King County Department of Development and Environmental Services, Washington State Department of Fish and Wildlife, Washington State Department of Natural Resources, the Washington State Department of Ecology, and the permittee or their assigned agent. Upon the convening of the multidisciplinary group, notice shall be made to a list of interested parties maintained by the DDES. Timely comments submitted by interested parties during the deliberations of the multidisciplinary group will be considered prior to issuing final recommendations. The final recommendations of the multidisciplinary group shall subsequently be made available to the interested parties prior to their implementation.
- xi. Recommendations resulting from the process enumerated in the subsections of Condition #50 and Condition #51 of this approval shall be required to be implemented by the permittee within a reasonable time frame or barge loading operations shall be required to cease.
- xii. The regulatory agency representatives in the multidisciplinary group shall concur that the additional prop wash controls developed pursuant to the above subsections of Condition #51 of this approval will be adequate to ensure that any further impacts to eelgrass will be avoided before barge loading will be allowed to resume.
- xiii. The duration of the prop wash monitoring period shall be extended as necessary to insure that the sample size (i.e. number of barge loadings) is adequate to evaluate prop wash across the full range of expected conditions. The monitoring data set shall contain no less than fifty (50) barge loadings, representing data collected during a representative range of tidal elevations. The monitoring data set shall include at least ten (10) loadings during an incoming tide, and ten (10) loadings during an outgoing tide. NOTE: The monitoring period may also need to be extended pursuant to subpart (xiv) of Condition #51 of this approval.
- xiv. Unless otherwise authorized by the King County DDES, prop wash velocity monitoring shall not terminate until at least ten (10) barge loadings have been recorded for each of the seven (7) possible tug

- configurations ('make-ups'): three (3) for fixed drive tugs and two (2) each for Z-drive and cycloidal propulsion systems. Monitoring reports required pursuant to the "Mitigation Plan: Maury Island Barge-Loading Operations (Extended Dock), Northwest Aggregates" dated June 2, 2004, and the "Barge Approach and Departure Protocol: Northwest Aggregates - Maury Island Barge Loading Dock" dated December 2, 2003 shall include indication of the tug configuration correlating with each recorded barge loading, tide level, and arrival / departure times. In the event that specific tug types or configurations are not actually used in the operation of the facility, King County may waive the monitoring requirement for that tug type or configuration. In such case, use of the unevaluated tug type or configuration shall not subsequently occur unless specifically authorized by King County.
52. Anchors shall not be placed within twenty feet (20') of either of the sunken barge habitats on the site.
 53. Anchor lines and chains shall be managed so as not to scour or otherwise degrade eelgrass, kelp and sunken barge habitats.
 54. The permittee shall identify a designated fuel area to contain spills during equipment refueling. Spill containment best management practices shall be applied in the designated fuel area.
 55. Drip pans or tarps will be placed under stationary construction vehicle engines to reduce the potential for petroleum contaminants entering surface waters.
 56. Removal or destruction of shoreline vegetation within the corridor where the dock and conveyor meet the shoreline shall be avoided to the maximum extent possible.
 57. Any vegetation maintenance necessary in the corridor where the dock and conveyor meet the shoreline shall employ best management practices for "Integrated Pest Management".
 58. For the protection of migrating salmonids and forage fish, construction work below the OHWM shall be restricted to comply with timing limitations imposed by the Washington State Department of Fish and Wildlife's Hydraulic Project Approval (HPA) and Army Corps of Engineers Section 10 permit issued for this project.
 59. The permittee shall notify the Washington State Department of Natural Resources and comply with any mitigation requirements that agency may impose for impacts to geoduck clams (*Panopea abrupta*).
 60. Vessels being used during construction and for post-construction maintenance (i.e. painting, spall repairs, inspection, etc.) of the facility shall only operate at idle speeds, except as necessary to safely maneuver

construction barges into location and / or maintain vessel safety. In the event that construction and maintenance vessels are required to operate above idle speeds, they shall avoid directing prop wash towards known locations of eelgrass.

61. Vessels being used for construction and for post-construction maintenance at the project site shall maintain at least five feet (3') of clearance between the propeller and the seafloor.
62. Vessels used during loading operations shall remain waterward of the berthing face and maintain at least three (3') of clearance between the propeller and the seafloor.
63. If sea water is to be withdrawn for any construction or maintenance activities, pumps will not draw water if juvenile fish are observed within a distance of ten feet (10') of the pump intake.
64. All equipment that is used for in-water work shall be cleaned to remove external oil, grease, dirt and mud prior to placing the equipment in the water. Wash sites shall be placed so that wash water does not flow into Puget Sound without adequate treatment.
65. Garbage and non-biodegradable debris produced during any phase of the operations of the facility shall be removed from the site and disposed of or recycled as appropriate.
66. Unless otherwise authorized by King County, pressure washing and / or chemical controls to remove biofouling of pilings is prohibited.
67. Painting of the gallery enclosure should be undertaken prior to installation, outside of shoreline jurisdiction. If painting is to occur after installation, appropriate containment best management practices shall be employed to prevent paint from entering the marine environment.
68. To maintain safe navigation around the project area, the permittee shall clearly mark or submerge anchor lines and cables to prevent obstruction.
69. Toilet facilities for construction personnel shall be provided on site and regularly maintained. Sewage produced by the toilet facilities shall be transported off-site and legally disposed.

70. Pursuant to Shoreline Hearings Board Order, Condition #9 (SHB No. 04-009,10), the permittee is encouraged to continue allowing access to the beach and tidelands under its ownership.


Stephanie Warden, Director 3/15/05
King County DDES **Date**

Transmittal Date: March 15, 2005

TRANSMITTED to the following Parties and Persons of Interest: See Attachment B.

ATTACHMENTS:

- Attachment A – Right to Appeal
- Attachment B – Parties and Persons of Interest

**KING COUNTY GRADING PERMIT
NOVEMBER 9, 2004
NORTHWEST AGGREGATES**



King County
 Department of Development and
 Environmental Services
 Land Use Services Section
 900 Oakesdale Avenue Southwest
 Renton, WA 98055-1219

Project No: C92G0075
 Activity No: L04GI029
 Date: August 3, 2004

GRADING/ CLEARING PERMIT EXTENSION

INSP: FWHI

Permit Type: G-INSPCT

Sub Type: INSPGRAD

Title: MAURY ISLAND PIT #1128-714

Submitted:

Description: Extraction.

Date Issued:

Expires: 02-11-05

Site Location: Maury Island, WA

Parcel No.: 282203 9057

Applicant: Glacier Northwest

Owner's Name: Lone Star Northwest

Address: 5975 E. Marginal Wy. S.
 Seattle, WA 98134

Address:

Please refer to the above project number when making inquiries regarding this application. For Permit information or requests for inspections, call your Grading/Clearing Inspector at 206-296-6783.

-----CERTIFICATION-----

I understand that failure to comply with all conditions of approval attached to this project/extension shall necessitate an immediate work stoppage until such time as compliance with the stipulated conditions is attained. Failure to comply or repeated violations of permit conditions may result on enforcement actions, civil penalties as authorized under K.C.C. Title 23, and/or permit suspension or revocation. The granting of this permit shall not be construed as satisfying the requirements of other applicable Federal, State or Local government permits or regulations. The operation and maintenance of facilities authorized under this permit shall be conducted in accordance with the conditions contained herein and shall generally comply with all provisions of K.C.C. 16.28 and other applicable County Codes.

X [Signature]
 Owner /Applicant Signature

X VP/GM
 Title

X 9 Nov 2004
 Date

Permit Approval Conditions Document / *Extension Activity 20465029*

Clearing and Grading Review

Tracking Number: 1128-714 Glacier NW Maury Island Pit

The following conditions apply to the above referenced permit:

The permittee shall be responsible for all costs associated with the review and/or inspection of this permit by responsible department staff. These costs shall be in accordance with the fees set forth in King County Title 27. Failure to remain current with fee balances may be cause for suspension or revocation of the permit.

Development authorized by this permit or approval may require other state and/or federal permits, including, but not limited to, a Washington State Hydraulics Project Approval (HPA) or a U.S. Army Corps of Engineers 404 or Section 10 permit. If such other permit(s) is/are required, this/these other permits must be issued prior to issuance of this permit or approval. Failure to secure these other permits before beginning work authorized by this permit or approval is a violation of this condition, and may result in suspension or revocation of this permit/approval, and/or pursuing other enforcement actions. Should any other required permit be suspended, revoked or in anyway be subjected to other enforcement actions, this permit may be suspended until all defects causing said enforcement actions have been remedied. In addition, the granting of this permit or approval does not authorize the applicant to violate any provisions of the Endangered Species Act as set forth at 16 U.S.C. §§ 1531-1543, including the prohibition on the "take" of threatened or endangered species. "Take" is defined at 16 U.S.C. §§ 1532(19).

General Requirements

- 5035 - Work shall be limited to that shown on the approved plans. A copy of the approved plans, conditions and permit must be on the job site whenever work is in progress.
- 5050 - All work shall comply with the provisions of King County Ordinance 3139, relating to noise control.
- 5060 - Hours of operation shall be limited to 7:00 a.m. to 7:00 p.m., Monday through Friday, and 9:00 a.m. to 6:00 p.m. on Saturdays. Hours of operation may be further restricted during peak traffic hours.
- 5070 - Permittee shall abide by the regulations of the Puget Sound Clean Air Agency (PSCAA).
- 5125 - Cut/fill slopes shall be no steeper than is safe for the intended use and shall not exceed 2 foot horizontal to 1 foot vertical unless otherwise approved by DDES.

Erosion Control Requirements

- 5305 - The implementation of these ESC plans and the construction, maintenance, replacement, and upgrading of these ESC facilities is the responsibility of the permittee until all construction is approved.
 - 5315 - The ESC facilities shown on this plan are the minimum requirements for anticipated site conditions. During the construction period, these ESC facilities shall be upgraded (e.g. additional sumps, relocation of ditches and silt fences, etc.) as needed for unexpected storm events.
 - 5320 - The ESC facilities shall be inspected daily by the permittee and maintained as necessary to ensure their continued functioning.
 - 5325 - The ESC facilities on inactive sites shall be inspected and maintained a minimum of once a month or within the 48 hours following a storm event.
 - 5345 - Where seeding for temporary erosion control is required, use the standard set forth in the current King County Surface Water Design Manual.
 - 5350 - Where straw mulch for temporary erosion control is required, it shall be applied at a minimum thickness of 2 inches.
 - 5360 - Temporary sediment control facilities shall be constructed in accordance with the details shown. Temporary sediment control facility locations may be moved to suit field conditions subject to approval of the engineer and applicable governmental agencies.
-
- 5370 - All ponds and ditches and other erosion-sedimentation facilities shall be maintained in good working condition throughout construction.

Mining Requirements

- 5410 - Upon the exhaustion of minerals or materials or the permanent abandonment of the quarrying or mining operation, all buildings, structures, apparatus, or appurtenances accessory to the operation will be removed or otherwise dismantled to the satisfaction of the director.
- 5415 - All graded or backfilled areas shall be topsoiled and seeded or surfaced with soil of a quality at least equal to the topsoil of the land areas immediately surrounding and to a depth of at least 4 inches or a depth equivalent to that of surrounding areas, whichever is lesser.
- 5455 - Fencing where required by the director to protect life, limb, and property shall be installed with lockable gates which must be closed and locked when

not working the site. The fence must be no less than five feet in height and the fence material shall have no horizontal opening no larger than two inches.

- 5445 - Dust, dirt, and fly ash or airborne solids from any source shall not be emitted in quantities as to adversely affect adjacent property. (KCC 21A.22.070)
- 5450 - During hauling operations, permittee shall provide effective dust control measures consisting of water, asphalt treated base, chemical dust palliatives, or equivalent measures to control dust from this operation (KCC 21A.22.070.C)
- 5460 - Permittee shall be responsible for implementing all appropriate measures needed (i.e. paving, sweepers, and/or other techniques) to keep streets and roads used as haul routes for export or import of material clean and free from debris, mud, etc. R5465 - Permittee shall provide a wheel wash facility and a paved access road between the wheel wash location and public road as directed by DDES.
- 5470 - Any damage to pavement edges, sidewalk, curb and gutter, etc., resulting from operations authorized by this permit shall be repaired immediately.
- 5015 - Permittee shall provide the name of a responsible person or agent who can be contacted 24 hours a day.

In addition, the permittee shall comply with the following additional conditions:

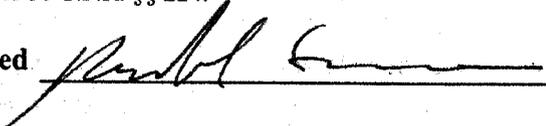
1. **At least 48 hours prior to resumption of extractive operations, permittee shall call for and hold an onsite preconstruction meeting with the department's assigned inspector. During the preconstruction meeting, the permittee shall identify the proposed staging, mining, processing, and loading areas. The department's inspector, upon approval, will note the areas on the approved plan set for permit #1128-713.**
2. **The permittee shall provide the department with a copy of the current active NPDES permit issued by the state Department of Ecology for this operation. The permittee shall comply with all conditions of the NPDES permit and all conditions of that permit are incorporated into the grading permit.**
3. **All proposed mining shall be limited to those areas currently open. The proposed mining areas shall be identified to the department and approved by the department prior to resumption of mining. No additional removal of topsoil is permitted. No extraction or other clearing and grading shall occur within the shoreline environment.**

- 4. The extracted material shall be hauled from the site by truck.
- 5. The permittee shall comply with all conditions associated with grading permit #1128-713 not superseded by the preceding conditions.

5416 - Reclamation and revegetation of the project site shall occur in accordance with the Washington State Department of Environmental Services Natural Resources approved mining reclamation permit for this site.

I have read the attached conditions of approval and understand that failure to comply with all conditions set forth herein may necessitate an immediate work stoppage until such time as compliance with the stipulated conditions is attained. I certify that I have made a diligent inquiry regarding the need for concurrent state or federal permits to engage in the work authorized by this permit and no such permits are required or I have obtained the required permits. I understand that the granting of this permit shall not be construed as satisfying the requirements of other applicable Federal, State, or local laws or regulations. In addition, I understand and agree that this permit does not authorize the violation of the Endangered Species Act as set forth at 16 U.S.C. §§ 1531-1543, including the prohibition on the "take" of threatened or endangered species. "Take" is defined at 16 U.S.C. §§ 1532(19). I fully understand that it is my sole responsibility to determine whether such "take" restrictions would be violated by work done pursuant to this permit, and I understand that I am precluded by Federal Law from undertaking work authorized by this permit if that work would violate the "take" restrictions set forth at 16 U.S.C. §§ 1538, 50 C.F.R. §§ 17.31, 50 C.F.R. §§ 223 and 50 C.F.R. §§ 224.

Sign and date

X Signed 

X Date 9 Nov 2004

**WASHINGTON DEPARTMENT OF FISH AND
WILDLIFE HYDRAULIC PROJECT APPROVAL
MAY 2, 2007**

NORTHWEST AGGREGATES



HYDRAULIC PROJECT APPROVAL

RCW 77.55.021 - Appeal pursuant to Chapter 34.05 RCW

North Puget Sound
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
(425) 775-1311

*Rec'd
10 May 07*

Issue Date: May 02, 2007

Control Number: 108837-1

Project Expiration Date: February 15, 2012

FPA/Public Notice #: N/A

<u>PERMITTEE</u>	<u>AUTHORIZED AGENT OR CONTRACTOR</u>
Northwest Aggregates Company-Glacier Northwest ATTENTION: Pete Stoltz PO BOX 1730 Seattle, WA 98111 206-768-7636	

Project Name: Maury Island Gravel Dock

Project Description: Rebuild Pier, Dolphins, and Conveyor for Gravel On-Loading Facility

PROVISIONS

1. **TIMING LIMITATIONS:** The project may begin August 15, 2007 and shall be completed by February 15, 2012, provided:

a. Work below the ordinary high water line shall not occur from February 16 through August 14 of any year for the protection of migrating juvenile salmonids.

b. From October 15 through April 1 of any year, work that will occur below the ordinary high waterline and landward of -2.0 MLLW shall be subject to a weekly surf smelt spawn survey conducted by a WDFW certified biologist using WDFW survey protocols that verifies the absence of surf smelt spawn at the project site. If surf smelt spawn is absent from the project site, then in water work below the ordinary high water line is permitted subject to the general provisions of this permit. If surf smelt spawn is present at the project site, permitted work below the ordinary high water line during this time period shall not include the operation of equipment on the beach, in water impact pile driving of steel piles and pile driving landward of the -2.0 tide elevation (MLLW = 0.00).

c. Work below the ordinary high water line shall not occur from January 15 through April 14 of any year for the protection of herring spawning beds.

2. **NOTIFICATION REQUIREMENT:** The permittee or contractor shall notify WDFW Enforcement Sgt. Rich Phillips at (425) 775-1311 at least three working days prior to the start of construction activities. Notification shall include the permittee's name, project location, starting date for work, and the control number for this Hydraulic Project Approval.

3. **NOTIFICATION REQUIREMENT:** The permittee or contractor shall notify the Area Habitat Biologist (AHB) listed below by phone (425)379-2306, fax (425)379-2323, or email (arberlma@dfw.wa.gov) of the project start date. Notification shall be received by the AHB at least 10 working days prior to the start of construction activities. The AHB listed below shall also be contacted by phone (425)379-2306, fax (425)379-2323, or email (arberlma@dfw.wa.gov) within seven days of project completion. All notifications shall include the permittee name and the control number for this HPA.



HYDRAULIC PROJECT APPROVAL

RCW 77.55.021 - Appeal pursuant to Chapter 34.05 RCW

North Puget Sound
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
(425) 775-1311

Issue Date: May 02, 2007

Control Number: 108837-1

Project Expiration Date: February 15, 2012

FPA/Public Notice #: N/A

4. **FINAL WORK PLAN:** No later than one month prior to commencement of work, the proponent shall provide WDFW a final work plan outlining construction methods to be used for the rebuilt pier. At a minimum, the work plan shall identify who the contractor will be, how long construction will take, the number of pilings to be installed, and the number and types of equipment needed to complete the project. Work shall not begin until WDFW has reviewed and approved the work plan.

5. **MONITORING AND MITIGATION PLAN:** The Mitigation Plan: Maury Island Barge-Loading Operations (Extended Dock) Northwest Aggregates, dated June 2, 2004 shall be incorporated by reference into this HPA. The permittee shall comply with the Mitigation Plan as long as this facility is used to load gravel by barge.

6. **BARGE OPERATIONS PLAN:** Prior to commencement of work, the proponent shall provide WDFW a copy of the Barge Loading Operations Manual that describes procedures for operating, maintaining and cleaning barge-loading equipment (e.g., conveyor, spill tray, etc.).

7. **SURVEY REQUIREMENTS:** Surveys, which started in 2002, shall be conducted between July 15 - August 15, 2002 and continue on an annual basis until construction commences in order to accumulate additional baseline habitat information at the project site. As outlined in the mitigation plan, dated June 2, 2004, the July - August surveys will be used as the preconstruction survey if dock construction commences after completion of the annual survey in the same calendar year, and, all work is completed no later than January 14 of the following year. A post-construction survey shall be conducted no later than two weeks after dock reconstruction and dolphin replacement is complete. The same survey methods employed during the 2001 PIE Eelgrass Survey shall be implemented for the annual July - August surveys unless the proponent and WDFW agree upon any proposed changes prior to the survey.

8. **REPORTING REQUIREMENTS:** The following reports shall be submitted to WDFW within one month following the date data was last collected during that reporting period. Refer to Table 1, page 24, in the Mitigation Plan for reporting schedules:

- a. Temperature report.
- b. Eelgrass Depth Contour survey.
- c. Eelgrass Grid survey.
- d. Eelgrass Qualitative survey.
- e. Eelgrass Reference Site survey.
- f. Qualitative/Quantitative Macroalgae Transect surveys (conducted between July 15 and August 15 of each year prior to dock construction, within two weeks after construction is complete, and annually between July 15 and August 15 in years 1, 2, and 3 following construction).
- g. Qualitative Macroalgae survey.



HYDRAULIC PROJECT APPROVAL

RCW 77.55.021 - Appeal pursuant to Chapter 34.05 RCW

North Puget Sound
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
(425) 775-1311

Issue Date: May 02, 2007

Control Number: 108837-1

Project Expiration Date: February 15, 2012

FPA/Public Notice #: N/A

-
- h. Herring Spawn survey.
 - i. Bathymetry survey.
 - j. Technical Summary of Observations report.
 - k. The Internal Audits of Barge-Loading Operations report.
 - l. The Monitoring and Operations report.

PIER AND DOLPHIN REPAIR

- 9. Work shall be accomplished per plans and specifications entitled, Maury Island Pier Repair, dated November 2003, and submitted to the Washington Department of Fish and Wildlife, except as modified by this Hydraulic Project Approval. A copy of these plans shall be available on site during construction.
- 10. The creosote-treated pilings shall be removed by vibratory extraction. The existing pilings shall be removed and disposed of upland such that they do not enter waters of the state.
- 11. In the event that pilings cannot be removed by vibratory extraction the following shall apply:
 - a. If pilings landward of -12.0 MLLW cannot be removed by vibratory extraction, they may be removed by limited excavation around the base of the pile. If piling waterward of -12.0 MLLW cannot be removed by vibratory extraction, the remainder of the pile shall be cut off 2 ft below the mudline using a pneumatic underwater chainsaw.
 - b. If a pile is broken or breaks above the mudline during vibratory extraction, a chain shall be used to attempt to entirely remove the broken pile.
- 12. Clean sand shall be placed in the vacated footprint of each piling approximately 5 feet in diameter and 6 inches in depth to reduce leaching of residual creosote into the water column.
- 13. The new rebuilt pier shall be installed in the same location as the existing pier, except, the new barge docking face or T section of the new pier shall be located approximately 92-feet waterward of the existing structure and shall be located no more than 120 feet from the closest eelgrass patch.
- 14. As specified in the approved plans and specifications, all new pilings (including the dolphins) shall be steel.
- 15. The footprint of the 36 to 56 (actual number of pilings will be determined prior to construction) new steel pilings on the beach and seabed shall be no more than 176 square feet.



Washington
Department of
FISH and
WILDLIFE

HYDRAULIC PROJECT APPROVAL

RCW 77.55.021 - Appeal pursuant to Chapter 34.05 RCW

North Puget Sound
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
(425) 775-1311

Issue Date: May 02, 2007

Control Number: 108837-1

Project Expiration Date: February 15, 2012

FPA/Public Notice #: N/A

16. The new 24 inch - diameter steel pilings shall be installed using a vibratory hammer, except, an impact hammer may be used provided a bubble curtain is installed around the perimeter of each piling to diffuse sound pressure impacts and avoid fish mortality.

17. As illustrated in the approved plans and specifications, the gravel conveyor system shall be completely enclosed in order to minimize gravel spillage.

GENERAL PROJECT PROVISIONS

18. During construction, a containment boom and absorbent pads shall be placed around the perimeter of the work area to capture wood debris and other materials released into marine waters as a result of construction activities. All accumulated debris shall be collected and disposed upland at an approved disposal site.

19. An emergency spill containment kit shall be located on site along with a pollution prevention plan detailing planned fueling, materials storage, and equipment storage. Waste storage areas shall be prepared to address prevention and cleanup of accidental spills.

20. Beach area depressions created during project activities shall be reshaped to preproject beach level upon project completion.

HABITAT PROVISIONS

21. Barges shall be restricted to tide elevations adequate to prevent grounding of the barge.

22. If kelp, eelgrass, or macroalgae beds are present, vessel operation shall be restricted to tidal elevations adequate to prevent propeller related damage to vegetation.

23. Eelgrass and macroalgae shall not be adversely impacted due to any project activities (e.g., barge shall not ground, equipment shall not operate and anchors shall not be located in eelgrass and macroalgae).

24. Removal or destruction of overhanging bankline vegetation shall be limited to that necessary for the construction of the project.

25. Intertidal wetland vascular plants shall not be adversely impacted due to project activities (e.g., barge shall not ground, equipment shall not operate, and other activities shall not occur in intertidal wetland vascular plants). If such vegetation is adversely impacted, it shall be replaced using proven methodology.

26. All natural habitat features on the beach larger than 12 inches in diameter, including trees, stumps, logs, and large rocks, shall be retained on the beach following construction. These habitat features may be moved during construction if necessary.



HYDRAULIC PROJECT APPROVAL

RCW 77.55.021 - Appeal pursuant to Chapter 34.05 RCW

North Puget Sound
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
(425) 775-1311

Issue Date: May 02, 2007

Control Number: 108837-1

Project Expiration Date: February 15, 2012

FPA/Public Notice #: N/A

WATER QUALITY PROVISIONS

- 27. Project activities shall be conducted to minimize siltation of the beach area and bed.
- 28. If at any time, as a result of project activities, fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills), immediate notification shall be made to the Washington Department of Ecology at 1-800-258-5990, and to the Area Habitat Biologist listed below.
- 29. All debris or deleterious material resulting from construction shall be removed from the beach area and bed and prevented from entering waters of the state.
- 30. No petroleum products or other deleterious materials shall enter surface waters.
- 31. Project activities shall not degrade water quality to the detriment of fish life.

NOTES

At the request of Pete Stoltz, on April 12, 2007, this Hydraulic Project Approval (HPA), which now supersedes all previous HPAs for this project, is a new HPA and Control No. replacing the previous HPA Control No. E4751-5, last modified June 15, 2006. See Provision 1.

PROJECT LOCATIONS

Location #1 26000 - 79th Avenue SW

WORK START: August 15, 2007				WORK END: February 15, 2012		
WRIA: 09.9110		Waterbody: Wria 09 Marine		Tributary to: Puget Sound		
1/4 SEC: SE 1/4	Section: 29	Township: 22 N	Range: 03 E	Latitude: N 47.368	Longitude: W 122.434	County: King
Location #1 Driving Directions						
Maury Island						

APPLY TO ALL HYDRAULIC PROJECT APPROVALS

This Hydraulic Project Approval pertains only to those requirements of the Washington State Hydraulic Code, specifically Chapter 77.55 RCW (formerly RCW 77.20). Additional authorization from other public agencies may be necessary for this project. The person(s) to whom this Hydraulic Project Approval is issued is responsible for applying for and obtaining any additional authorization from other public agencies (local, state and/or federal) that may be



HYDRAULIC PROJECT APPROVAL

RCW 77.55.021 - Appeal pursuant to Chapter 34.05 RCW

North Puget Sound
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
(425) 775-1311

Issue Date: May 02, 2007

Control Number: 108837-1

Project Expiration Date: February 15, 2012

FPA/Public Notice #: N/A

necessary for this project.

This Hydraulic Project Approval shall be available on the job site at all times and all its provisions followed by the person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work.

This Hydraulic Project Approval does not authorize trespass.

The person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work may be held liable for any loss or damage to fish life or fish habitat that results from failure to comply with the provisions of this Hydraulic Project Approval.

Failure to comply with the provisions of this Hydraulic Project Approval could result in a civil penalty of up to one hundred dollars per day and/or a gross misdemeanor charge, possibly punishable by fine and/or imprisonment.

All Hydraulic Project Approvals issued pursuant to RCW 77.55.021 (EXCEPT agricultural irrigation, stock watering or bank stabilization projects) or 77.55.141 are subject to additional restrictions, conditions or revocation if the Department of Fish and Wildlife determines that new biological or physical information indicates the need for such action. The person(s) to whom this Hydraulic Project Approval is issued has the right pursuant to Chapter 34.04 RCW to appeal such decisions. All agricultural irrigation, stock watering or bank stabilization Hydraulic Project Approvals issued pursuant to RCW 77.55.021 may be modified by the Department of Fish and Wildlife due to changed conditions after consultation with the person(s) to whom this Hydraulic Project Approval is issued: PROVIDED HOWEVER, that such modifications shall be subject to appeal to the Hydraulic Appeals Board established in RCW 77.55.301.

APPEALS INFORMATION

If you wish to appeal the issuance or denial of, or conditions provided in a Hydraulic Project Approval, there are informal and formal appeal processes available.

A. INFORMAL APPEALS (WAC 220-110-340) OF DEPARTMENT ACTIONS TAKEN PURSUANT TO RCW 77.55.021, 77.55.141, 77.55.181, and 77.55.291: A person who is aggrieved or adversely affected by the following Department actions may request an informal review of:

(A) The denial or issuance of a Hydraulic Project Approval, or the conditions or provisions made part of a Hydraulic Project Approval; or

(B) An order imposing civil penalties. A request for an INFORMAL REVIEW shall be in WRITING to the Department of Fish and Wildlife HPA Appeals Coordinator, 600 Capitol Way North, Olympia, Washington 98501-1091 and shall be RECEIVED by the Department within 30 days of the denial or issuance of a Hydraulic Project Approval or receipt of an order imposing civil penalties. If agreed to by the aggrieved party, and the aggrieved party is the Hydraulic Project Approval applicant, resolution of the concerns will be facilitated through discussions with the Area Habitat Biologist and his/her supervisor. If resolution is not reached, or the aggrieved party is not the Hydraulic Project Approval applicant, the Habitat Technical Services Division Manager or his/her designee shall conduct a review and recommend a decision to the Director or his/her designee. If you are not satisfied with the results of this informal appeal, a formal appeal may be filed.

B. FORMAL APPEALS (WAC 220-110-350) OF DEPARTMENT ACTIONS TAKEN PURSUANT TO RCW 77.55.021 (EXCEPT agricultural irrigation, stock watering or bank stabilization projects) or 77.55.291:

A person who is aggrieved or adversely affected by the following Department actions may request a formal review of:

(A) The denial or issuance of a Hydraulic Project Approval, or the conditions or provisions made part of a Hydraulic Project Approval;

(B) An order imposing civil penalties; or

(C) Any other 'agency action' for which an adjudicative proceeding is required under the Administrative Procedure Act, Chapter 34.05 RCW.

A request for a FORMAL APPEAL shall be in WRITING to the Department of Fish and Wildlife HPA Appeals Coordinator, shall be plainly labeled as 'REQUEST FOR FORMAL APPEAL' and shall be RECEIVED DURING



HYDRAULIC PROJECT APPROVAL

RCW 77.55.021 - Appeal pursuant to Chapter 34.05 RCW

North Puget Sound
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
(425) 775-1311

Issue Date: May 02, 2007

Control Number: 108837-1

Project Expiration Date: February 15, 2012

FPA/Public Notice #: N/A

OFFICE HOURS by the Department at 600 Capitol Way North, Olympia, Washington 98501-1091, within 30-days of the Department action that is being challenged. The time period for requesting a formal appeal is suspended during consideration of a timely informal appeal. If there has been an informal appeal, the deadline for requesting a formal appeal shall be within 30-days of the date of the Department's written decision in response to the informal appeal.

C. FORMAL APPEALS OF DEPARTMENT ACTIONS TAKEN PURSUANT TO RCW 77.55.021 (agricultural irrigation, stock watering or bank stabilization only), 77.55.141, 77.55.181, or 77.55.241: A person who is aggrieved or adversely affected by the denial or issuance of a Hydraulic Project Approval, or the conditions or provisions made part of a Hydraulic Project Approval may request a formal appeal. The request for FORMAL APPEAL shall be in WRITING to the Hydraulic Appeals Board per WAC 259-04 at Environmental Hearings Office, 4224 Sixth Avenue SE, Building Two - Rowe Six, Lacey, Washington 98504; telephone 360/459-6327.

D. FORMAL APPEALS OF DEPARTMENT ACTIONS TAKEN PURSUANT TO CHAPTER 43.21L RCW: A person who is aggrieved or adversely affected by the denial or issuance of a Hydraulic Project Approval, or the conditions or provisions made part of a Hydraulic Project Approval may request a formal appeal. The FORMAL APPEAL shall be in accordance with the provisions of Chapter 43.21L RCW and Chapter 199-08 WAC. The request for FORMAL APPEAL shall be in WRITING to the Environmental and Land Use Hearings Board at Environmental Hearings Office, Environmental and Land Use Hearings Board, 4224 Sixth Avenue SE, Building Two - Rowe Six, P.O. Box 40903, Lacey, Washington 98504; telephone 360/459-6327.

E. FAILURE TO APPEAL WITHIN THE REQUIRED TIME PERIODS results in forfeiture of all appeal rights. If there is no timely request for an appeal, the department action shall be final and unappealable.

ENFORCEMENT:

Habitat Biologist

Laura Arber

425-379-2306

for Director
WDFW

CC: Kathryn McLeod, Attorney General Office
Laura Casey, King County DDES
Steve Roos, Hillis Clark Martin & Peterson
David Mann, Preserve Our Islands

**WASHINGTON DEPARTMENT OF ECOLOGY
WATER QUALITY CERTIFICATION
MARCH 14, 2006**

NORTHWEST AGGREGATES



RECEIVED

MAR 16 2006

REGULATORY

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

March 14, 2006

REGISTERED MAIL
RR 359 893 981 US

Northwest Aggregates
Attn: Pete Stoltz
PO Box 1730
Seattle, WA 98111

RE: Water Quality Certification Order #2882 and Coastal Zone Management Consistency Determination for U.S. Army Corps of Engineers (Corps) Reference #200001094, Maury Island Dock Replacement and Extension, East Passage, Puget Sound, King County, Washington *Romano*

Dear Mr. Stoltz:

On May 3, 2005, Northwest Aggregates submitted a Joint Aquatic Resources Permit Application (JARPA) to the Department of Ecology (Ecology) for a Section 401 Water Quality Certification (401 Certification) under the federal Clean Water Act for the proposed Maury Island Dock Replacement and Extension. The Corps issued a public notice on December 13, 2004, and a subsequent public notice for public hearing and erratum on April 15, 2005 for the proposed project. Ecology issued a public notice of public hearing on May 4, 2005. A public hearing was held on May 17, 2005.

On behalf of the State of Washington, Ecology certifies that the work described in the JARPA and the public notice complies with applicable provisions of Sections 301, 302, 303, 306 and 307 of the Clean Water Act, as amended and applicable state laws. This certification is subject to the conditions contained in the enclosed Order.

On June 28, 2005, Northwest Aggregates, submitted a Certification of Consistency with the Washington State Coastal Zone Management Program (CZMP). On December 19, 2005, Ecology and Northwest Aggregates jointly requested a CZM extension from the Corps until March 15, 2006. Pursuant to Section 307(c)(3) of the Coastal Zone Management Act of 1972 as amended, Ecology concurs with the applicant's determination that the proposed work is consistent with Washington's CZMP. This concurrence is based upon the applicant's compliance with all applicable enforceable policies of the CZMP, including Section 401 of the Federal Water Pollution Control Act.



If you have any questions, please contact Rebekah Padgett at (425) 649-7129. The enclosed Order may be appealed by following the procedures described in the Order.

Sincerely,



Geoff Tallent
Section Manager
Northwest Regional Office
Shorelands and Environmental Assistance Program

GT:rrp:cja
Enclosure

cc: Olivia Romano, U.S. Army Corps of Engineers
Laura Praye, Washington Department of Fish and Wildlife
Sharon Holley, Washington State Department of Natural Resources
Thom Hooper, National Marine Fisheries Service
Nancy Brennan-Dubbs, U.S. Fish and Wildlife Service
Stephanie Warden, King County Dept. of Development and Environmental Services
Congressman Jim McDermott
Don and Sharon Marsland
David Mann, Gendler & Mann LLP
JW Turner, Preserve Our Islands
Kathy Fletcher, People for Puget Sound
Washington Environmental Council
Arlene Brown
Robert Fuerstenberg
Laura Wishik
David Bain, University of Washington
Dow Constantine, King County Council
Representative Joe McDermott
Representative Eileen Cody
Terry Dievendore, Cascade Chapter, Sierra Club
Susie Kalhorn, Dockton Water Association
Becky Cox, League of Women Voters, King County South
Joseph Bogaard, Save Our Wild Salmon
Ann Stateler, Puget Sound Chapter, American Cetacean Society
Toby Welch, Harbor School
Ed Swan, Vashon-Maury Island Audubon Society

e-cc: Penny Keys, HQ
Loree' Randall, HQ
David Pater, NWRO

IN THE MATTER OF GRANTING A) **ORDER #2882**
WATER QUALITY) **Corps Reference No. 200001094**
CERTIFICATION TO) Maury Island Dock Replacement and Extension,
Northwest Aggregates) East Passage, Puget Sound, King County,
in accordance with 33 U.S.C. 1341) Washington.
(FWPCA § 401), RCW 90.48.120, RCW)
90.48.260 and Chapter 173-201A WAC)

TO: Northwest Aggregates
Attn: Pete Stoltz
PO Box 1730
Seattle, WA 98111

On May 3, 2005, Northwest Aggregates submitted a Joint Aquatic Resources Permit Application (JARPA) to the Department of Ecology (Ecology) requesting a Section 401 Water Quality Certification. A public notice for a proposed Section 10 Permit from the U.S. Army Corps of Engineers (Corps) and Coastal Zone Management consistency determination from Ecology was distributed by the Corps for the above-referenced project on December 13, 2004. A subsequent public notice for public hearing and erratum, which included a public notice for a proposed Section 404 Permit from the Corps and a proposed water quality certification from Ecology pursuant to the provisions of Chapter 173-225 WAC, was distributed by the Corps on April 15, 2005.

The proposed project includes the following work:

- Removal of the existing conveyor trestle, walkways, pier structures, eight dolphins, and four submerged piles;
- Removal of a total of 228 timber piles;
- Construction of a barge-loading conveyor tube with three 4 to 6-pile support bents;
- Construction of a new 305-foot dock;
- Installation of seven 6-pile berthing dolphins with fenders and aluminum catwalks; and
- Installation of a maximum of 56 new steel piles.

Mitigation for potential impacts from barge-loading activities addresses impacts from gravel spillage, shading, prop wash, and noise. These include: a completely enclosed conveyor tube to prevent gravel spillage from the mining area to the loader; maintaining a minimum of 3 feet between the loaded barges and the substrate at Mean Lower Low Water line; and extension of the dock 120 feet from the outer edge of the existing eelgrass beds.

The proposed work will take place at 26000 79th Avenue SW, Maury Island, East Passage, Puget Sound, King County, Washington, WRIA #15.

AUTHORITIES:

In exercising authority under 33 U.S.C. § 1341, 16 U.S.C. § 1456, RCW 90.48.120, and RCW 90.48.260, Ecology has examined this application pursuant to the following:

1. Conformance with applicable water quality-based, technology-based, and toxic or pretreatment effluent limitations as provided under 33 U.S.C. §§ 1311, 1312, 1313, 1316, and 1317 (FWPCA §§ 301, 303, 306 and 307);
2. Conformance with the state water quality standards contained in Chapter 173-201A WAC and authorized by 33 U.S.C. § 1313 and by Chapter 90.48 RCW, and with other applicable state laws; and
3. Conformance with the provision of using all known, available and reasonable methods to prevent and control pollution of state waters as required by RCW 90.48.010.

WATER QUALITY CERTIFICATION CONDITIONS:

Through issuance of this Order, Ecology certifies that it has reasonable assurance that the activity as proposed and conditioned will be conducted in a manner that will not violate applicable water quality standards and other appropriate requirements of state law. In view of the foregoing and in accordance with 33 U.S.C. § 1341, RCW 90.48.120, RCW 90.48.260 Chapter 173-200 WAC, and Chapter 173-201A WAC, water quality certification is granted to the Applicant subject to the conditions within this Order.

Certification of this proposal does not authorize the Applicant to exceed applicable state water quality standards (Chapter 173-201A WAC), ground water quality standards (Chapter 173-200 WAC), or sediment quality standards (Chapter 173-204 WAC). Furthermore, nothing in this certification shall absolve Northwest Aggregates from liability for contamination and any subsequent cleanup of surface waters, ground waters, or sediments occurring as a result of project construction or operations.

General Conditions:

- A1. For purposes of this Order, the term "Applicant" shall mean Northwest Aggregates, and its agents, assignees and contractors.

- A2. For purposes of this Order, all submittals required by conditions shall be sent to Ecology's Northwest Regional Office, Attn: 401/CZM Federal Project Manager, Shorelands and Environmental Assistance Program, 3190 160th Avenue SE, Bellevue, WA 98008 or faxed to 425/ 649-7098. All submittals shall reference Order #2882 and Corps Reference #200001094.
- A3. Work authorized by this Order is limited to the work described in the JARPA received by Ecology on May 3, 2005, and supplemental materials reviewed and approved by Ecology. The Applicant will be out of compliance with this Order and must reapply with an updated application if the information contained in the JARPA is voided by subsequent changes to the project not authorized by this Order.
- A4. Within 30 days of receipt of an updated JARPA, Ecology will determine if the revised project requires a new water quality certification and public notice or if a modification to this Order is required.
- A5. This Order shall be rescinded if the Corps does not issue a Section 404 permit.
- A6. This Order does not exempt, and is provisional upon compliance with other statutes and codes administered by federal, state, and local agencies.
- A7. Copies of this Order shall be kept on the job site and readily available for reference by Ecology personnel, the construction superintendent, construction managers and lead workers, and state and local government inspectors.
- A8. The Applicant shall provide access to the project site and all mitigation sites upon request by Ecology personnel for site inspections, monitoring, necessary data collection, and/or to ensure that conditions of this Order are being met.
- A9. The Applicant shall ensure that all appropriate project engineers and contractors at the project site have read and understand relevant conditions of this Order and all permits, approvals, and documents referenced in this Order. The Applicant shall provide Ecology a signed statement (see Attachment A for an example) from each project engineer and contractor that they have read and understand the conditions of this Order and the above-referenced permits, plans, documents and approvals. These statements shall be provided to Ecology before construction begins at the project.
- A10. Nothing in this Order waives Ecology's authority to issue additional Orders if Ecology determines that further actions are necessary to implement the water quality laws of the state. Further, Ecology retains continuing jurisdiction to make modifications hereto through supplemental order, if additional impacts due to project construction or operation are identified (e.g., violations of water quality standards, downstream erosion, etc.), or if additional conditions are necessary to further protect water quality.

- A11. This Order does not authorize direct, indirect, permanent, or temporary impacts to waters of the state or related aquatic resources, except as specifically provided for in conditions of this Order.
- A12. Any person who fails to comply with any provision of this Order shall be liable for a penalty of up to ten thousand dollars (\$10,000.00) per violation per day for each day of continuing noncompliance.

B. In-Water Construction Water Quality Conditions:

- B1. East Passage, Puget Sound is classified as Class AA waters of the state. Certification of this proposal does not authorize the Applicant to exceed applicable state water quality standards (Chapter 173-201A WAC) or sediment quality standards (Chapter 173-204 WAC). Water quality criteria contained in WAC 173-201A-030(1) and WAC 173-201A-040 shall apply to this project, unless otherwise authorized by Ecology. This Order does not authorize temporary exceedances of the turbidity standard beyond the limits established in WAC 173-201A-110(3).
- B2. **In-Water Construction Water Quality Sampling and Monitoring:** An in-water construction Water Quality Monitoring Plan shall be developed and implemented. "In-water construction" is defined as all work below the ordinary high water mark of the East Passage, Puget Sound. **The Water Quality Monitoring Plan shall be submitted to Ecology for review and approval at least 60 days before construction is scheduled to begin.** Ecology may require changes and modifications to the plan. The plan shall include the following minimum requirements:
- a. Locations of samples: Locations of water quality sampling sites shall be identified and described in the plan and on a map. At a minimum, sampling shall take place at the point of compliance as specified in WAC 173-201A-110(3), which allows a temporary mixing zone for turbidity resulting from disturbance of in-place sediments. The allowed mixing zone is 150 feet in East Passage, Puget Sound. Background samples shall be collected outside the area of influence of the inwater work. These samples shall be collected at the same frequency as the point of compliance samples.
 - b. Number of samples: Samples shall be collected a minimum of every two (2) hours throughout the first day of in-water construction activity. Subsequent sampling is dependent on monitoring results, but shall be a minimum of three (3) times per day during in-water activity if no exceedances are detected. Additional sampling may be required if turbidity exceedances are observed or measured to be above the WAC 173-201A-110(3) temporary mixing zone criteria.

- c. Parameters to be sampled: Turbidity shall be sampled for this project.
- d. Equipment: Sampling for turbidity is to be accomplished using a turbidometer properly calibrated according to the operator's manual.
- e. Detection of exceedances: Water quality standards for turbidity in Class AA waters are as follows: turbidity shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU. If exceedances of this standard at the point of compliance specified in WAC 173-201A-110(3) are detected as a result of water quality sampling and monitoring, the Applicant shall immediately take action to stop, contain, and prevent unauthorized discharges or otherwise stop the violation and correct the problem. After such an event, the Applicant shall assess the efficacy of the site Best Management Practices (BMPs) and update or improve the BMPs used at the work site in an effort to reduce or prevent recurrence of the turbidity exceedance.
- f. Notification of exceedances: Notification of exceedances that are detected through water quality sampling shall be made to Ecology within 24 hours of occurrence. Notification shall be made with reference to Order #2882, Attn: 401/CZM Federal Project Manager, by telephone at (425) 649-7129 or (425) 649-7000, or by fax to (425) 649-7098. The Applicant shall, at a minimum, provide Ecology with the following information:
 - i. A description of the nature and cause of non-compliance, including the quantity and quality of any unauthorized discharges;
 - ii. The period of non-compliance, including exact dates, duration, and times and/or the anticipated time when the Applicant will return to compliance; and
 - iii. The steps taken, or to be taken, to reduce, eliminate, and prevent recurrence of the non-compliance.
 - iv. In addition, within five (5) days after notification of an exceedance, the Applicant shall submit a written report to Ecology that describes the nature of the violation, corrective action taken and/or planned, steps to be taken to prevent a recurrence, results of any samples taken, photographs, and any other pertinent information.
- g. Submittal of reports: Turbidity sampling results can be included in a weekly "status report." The weekly status reports shall be submitted no later than the Tuesday of the week following the week samples were collected. Reports shall summarize the scope of inspections, personnel conducting the inspection, results of turbidity sampling, date

of the inspection and/or sampling event, summary of any non-compliance, and actions taken as a result of the inspections/sampling for the previous week and proposed construction for the upcoming week. Status reports shall be submitted in accordance to condition A2 above.

C. Sediment Sampling Conditions:

- C1. The Applicant shall develop a sediment Sampling and Analysis Plan (SAP) and submit the SAP to Ecology for its review and approval 30 days before construction is scheduled to begin. Construction shall not begin until the SAP is approved by Ecology in writing.
- C2. The Applicant shall collect sediment samples from the footprint of the area being impacted by removal and construction activities as per the SAP approved by Ecology (Condition C1). The purpose of such sampling is to demonstrate that degradation of surface sediments (the top 10 centimeters) has not occurred due to removal and construction activities. If the surface sediment is found to have degraded due to the removal and construction activities, the Applicant shall take appropriate action, as approved by Ecology, to restore sediment quality to that found before the removal and construction activity.

C3. Sampling Data Submittal – Sediments

Sediment sampling data for all required fields listed in the current version of SEDQUAL (Sediment Quality Information System) shall be submitted to Ecology electronically in SEDQUAL data entry templates including, but not limited to REFERENCE, SURVEY, STATION, SAMPLE, CHEMISTRY, BIOASSAY and BIOASSAY CONTROL. Station locations should include latitude/longitude coordinates in NAD83 HARN south zone feet and chemical concentration data should be reported in dry weight units.

Electronic SEDQUAL template data must be verified to be compatible with the current version of SEDQUAL which uses ASCII protocol, comma delimited text files prior to delivery to Ecology. Verification shall be conducted by the consultant importing each of the data templates into their SEDQUAL database, correcting any errors, and then exporting the corrected final templates for delivery to Ecology.

Sediment sampling data shall also be submitted to Ecology in hardcopy reports containing data tables in both dry weight and total organic carbon normalized units in comparison to applicable state regulatory criteria. Electronic SEDQUAL template data shall be submitted to Ecology simultaneously with the hardcopy report.

The current version of SEDQUAL can be found at
<http://www.ecy.wa.gov/programs/tcp/smu/sedqualfirst.htm>.

- C4. The Applicant must establish a sediment quality baseline by either conducting a new baseline study, approved by Ecology or use the sediment quality as characterized in the May 2000 "Maury Island Gravel Impact Study: Nearshore Impact Assessment."

D. Project Mitigation Conditions:

- D1. The Applicant shall implement the requirements of the *Mitigation Plan, Maury Island Barge-Loading Operations (Extended Dock), Northwest Aggregates*, prepared by Northwest Aggregates, dated June 2, 2004.
- D2. Any unanticipated adverse impacts not identified in the JARPA must be reported to Ecology per Condition A2. The Applicant may be subject to additional mitigation requirements as a result of these impacts.
- D3. The Applicant shall avoid eelgrass beds during construction. Placement of derrick anchors (or spuds) in areas designated as eelgrass beds is prohibited. Eelgrass beds shall not be shaded for more than three (3) consecutive days during peak growing times (i.e. May through August).

E. Conditions for In-Water and Over-Water Construction Activities:

General Conditions:

- E1. Work shall be accomplished per plans and specifications entitled, "Maury Island Pier Repair" dated November 2003, except as modified by this Order. A copy of this plan shall be available on site during construction.
- E2. During construction, a containment boom and absorbent pads shall be placed around the perimeter of the work area to capture wood debris and other materials released into the waters as a result of construction activities. All accumulated debris shall be collected and disposed of upland at an approved disposal site.
- E3. During construction the Applicant shall have a boat available on site at all times to retrieve debris from the water.
- E4. The Applicant shall use tarps when painting over water to prevent materials from entering the water.
- E5. The Applicant shall use tarps or other containment method when cutting or drilling over water to prevent sawdust and other materials from entering the water.

- E6. All construction debris shall be properly disposed of on land so that it cannot enter a waterway or cause water quality degradation to state waters.
- E7. Machinery and equipment used during construction shall be serviced, fueled and maintained upland, unless otherwise approved by Ecology, in order to prevent contamination to any surface water.

Piling Removal:

- E8. All piling shall be removed by vibratory extraction. In the event pilings break off during extraction, the remaining piling may be removed by using a clamshell bucket or a chain.
- E9. Work surface on the barge deck shall include a containment basin for piles and any sediment removed during pulling of the piling. Basins may be constructed of durable plastic sheeting with sidewalls supported by hay bales or support structure to contain all sediment.
- E10. All existing creosote treated pilings (including dolphins) shall be completely extracted, removed from marine waters, and disposed of at an approved upland disposal site. Clean sand must be deposited in the area where the creosote piling has been removed in order to avoid creosote leaching into marine waters. If the pilings are unable to be completely removed they shall be cut off at a minimum of one (1) foot below grade or at greater depth required by the Washington Department of Fish and Wildlife Hydraulic Project Approval. The hole then shall be capped with clean sand.
- E11. Piles removed from substrate: the pile shall be moved immediately from the water into the barge lined with filter fabric or straw bales around the perimeter. The pile shall not be shaken, hosed-off, left hanging to drip or any other action intended to clean or remove adhering material from the pile.

Pile Driving:

- E12. All new pilings shall be steel.
- E13. The Applicant shall employ a bubble curtain around steel piles when using an impact hammer. The bubble curtain shall be deployed in a manner to ensure that bubbles completely engulf the piles during the impact driving.

F. Conditions for Upland Construction Activities:

- F1. Construction stormwater, sediment, and erosion control BMPs (e.g., detention areas, filter fences, etc.) suitable to prevent exceedances of state water quality standards shall be in place before starting construction at the site.
- F2. Direct discharge of construction stormwater to waters of the state (including wetlands) is prohibited. All stormwater from disturbed areas must be treated before discharge and/or managed on site.
- F3. The project shall be clearly marked/staked prior to commencing any construction activities. Clearing limits, travel corridors and stockpile sites shall be clearly marked. Sensitive areas to be protected from disturbance shall be delineated and marked with brightly colored construction fence, so as to be clearly visible to equipment operators. All project staff shall be trained to recognize construction fencing that identifies sensitive areas boundaries (wetlands, streams, riparian corridors, buffers, etc.). Equipment shall enter and operate only within the delineated clearing limits, corridors and stockpile areas.
- F4. The Applicant shall submit to Ecology for review a Temporary Erosion and Sediment Control (TESC) Plan at least 30 days prior to beginning construction. This Plan shall be submitted to Ecology's Federal Permits Manager per condition A2 above. This plan shall include the following information:
- Name and phone number of person responsible for implementing the plan;
 - BMPs anticipated to be implemented;
 - Frequency of BMP inspections and staff person responsible for BMP inspections; and
 - Contingency plans in the event of adverse weather conditions or other unforeseeable conditions.
- F5. The Applicant shall periodically inspect and maintain all erosion control structures. Inspections shall be conducted no less than every seven (7) days from the start of the project to final site stabilization. Daily inspections of sedimentation ponds shall occur during wet seasons. Additional inspections shall be conducted after rainfall events greater than 0.5 inch per 24-hour period, to ensure erosion control measures are in working condition. These inspections shall be conducted within 24 hours after the event. Any damaged structures shall be repaired immediately. If it is determined during the inspection that additional measures are needed to control stormwater and erosion, such measures shall be implemented immediately. Inspections shall be documented in writing and shall be available for Ecology's review upon request.

F6. The Applicant shall establish and maintain a designated area for washing down equipment and vehicles so that wash waters are managed. Wash water containing oils, grease, or other hazardous materials resulting from wash down of equipment or working areas shall not be discharged into state waters except as authorized by an NPDES permit or state waste discharge permit.

F7. Vehicles shall be cleaned of mud, rock, and other material before entering a paved public highway so that tracking of sediment onto the highway does not occur.

G. Facility Operational Conditions:

G1. During operation of the facility the Applicant shall comply with all requirements within the Sand and Gravel General Permit No. WAG 503178 issued on January 5, 2005 for this project. During operation of the facility the temporary turbidity mixing zone established in WAC 173-201A-110 (3) and referenced in Condition B1 above **does not apply**.

Handling Potentially Contaminated Soils:

G2. Management of any arsenic-contaminated soils will occur in compliance with the Model Toxics Control Act (MTCA; RCW 70.105D) under the Voluntary Cleanup Program. Because the actions of the Applicant are not being conducted under a consent decree with Ecology, this certification does not constitute a settlement by the State under RCW 70.105D.040(4) or any other provision of MTCA. As such, this certification does not limit Ecology's authority nor bind the agency under that statutory scheme. The Applicant must conduct the necessary monitoring and maintenance to assure that this site does not pose a threat to human health or the environment.

If Ecology determines that the mitigation measures applied by the Applicant to address arsenic contamination at the site do not prevent degradation of existing surface and groundwater quality conditions due to arsenic contamination, Ecology shall require additional corrective action.

G3. The Applicant shall prepare and submit for Ecology review and approval a Cleanup Action Plan (CAP) for arsenic contamination at the property that complies with all relevant MTCA requirements. The CAP shall be submitted to and approved by Ecology no later than 60 days prior to start of construction of the containment facility. The CAP shall meet all requirements set out in the *Northwest Aggregates Maury Island Final Environmental Impact Statement*, dated June 2000, including but not limited to those requirements outlined in the *Draft Environmental Impact Statement, Maury Island Lone Star Gravel Mine*, Appendix C, dated July 1999.

- G4. The Applicant intends to construct the containment facility in phases. At the conclusion of any phase of construction of the containment facility, the Applicant shall provide an As-Built Report, including as-built plans or drawings and specifications, to Ecology for review and approval. These As-Built Reports shall be submitted to Ecology within 90 days of completion of each phase. The final As-Built Report, at completion of the containment facility, shall be submitted within 120 days.
- G5. The Applicant shall submit facility inspection and secondary containment monitoring reports on an annual basis to Ecology for review. These reports shall be submitted to Ecology starting one (1) year from completion of containment facility and shall continue in perpetuity.
- G6. All sampling data, including monitoring data, shall be submitted to Ecology's Environmental Information Management (EIM) database. See Ecology's EIM web site at <http://www.ecy.wa.gov/eim/>

Barge Loading:

- G7. The Applicant shall implement the requirements of the *Mitigation Plan, Maury Island Barge-Loading Operations (Extended Dock), Northwest Aggregates*, prepared by Northwest Aggregates, dated June 2, 2004 including the following:
- a. The overwater conveyor system shall be completely enclosed with a telescoping spout attached to the discharge end in order to prevent and minimize gravel spillage.
 - b. Only barges with bin walls will be loaded and material will be loaded so that the materials remains at least two (2) feet below the top of the bin walls.
 - c. The Applicant shall notify Ecology and receive appropriate approval if removal of spilled material is needed.
- G8. During loading of the barges, if any material is observed spilling off the barge or conveyors into the water, the Applicant or their contractor shall visually monitor for a turbidity plume and estimate the outer limit of the plume from the distance of the spill. The Applicant or the contractor shall take immediate appropriate measures to correct the problem and/or prevent further spills of material into the water. Within 24 hours of the spill, the Applicant shall notify Ecology's 401/CZM Federal Project Manager of the spill, the amount of material spilled, cause of the spill, and estimated distance of the plume.

Barge Traffic:

- G9. The Applicant shall implement the requirements of the *Barge Approach and Departure Protocol, Northwest Aggregates—Maury Island Barge-Loading Dock* (Appendix D),

Addendum to the Final Environmental Impact Statement, March 16, 2004) prepared by Glacier Northwest and revised December 2, 2003, including the following:

- a. The Applicant shall submit the field recorded data and a brief technical memorandum summarizing the velocity observations and comparison to action values to Ecology within one (1) week after the scheduled data download and comparison.
- b. During the initial period of six (6) months or until 50 barges have been loaded at the site (which ever is longer) the Applicant shall immediately notify Ecology if any five (5) second mean velocity measurements exceed 75 cm/sec and are attributed to propeller wash from tugboats.

Groundwater Protection:

- G10. The site shall be excavated to an elevation that would maintain a minimum 15-foot buffer between the bottom of the gravel pit floor and the measured or predicted static groundwater level.
- G11. The Applicant shall submit a Groundwater Monitoring Plan that focuses on groundwater levels within the pit. The Plan shall be submitted to Ecology's 401/CZM Federal Project Manager within 30 days of issuance of this Order for review and approval. The initial approval may be modified following data collection.
- G12. Notification of violation of Condition G10: Notification of any violation of Condition G10 shall be made to Ecology within 24 hours of occurrence. Notification shall be made with reference to Order #2882, Attn: 401/CZM Federal Project Manager, by telephone at (425) 649-7129 or (425) 649-7000, or by fax to (425) 649-7098. The Applicant shall, at a minimum, provide Ecology with the following information:
 - a. A description of the nature and cause of non-compliance, including the quantity and quality of any unauthorized discharges;
 - b. The period of non-compliance, including exact dates, duration, and times and/or the anticipated time when the Applicant will return to compliance; and
 - c. The steps taken, or to be taken, to reduce, eliminate, and prevent recurrence of the non-compliance.
 - d. In addition, within five (5) days after notification of a violation, the Applicant shall submit a written report to Ecology that describes the nature of the violation, corrective action taken and/or planned, steps to be taken to prevent a recurrence, results of any samples taken, photographs, and any other pertinent information.

APPENDIX E

- I. Tacoma/ARSCO Smelter Plume Map
- II. Upland Mine's contaminated Soil Maps
- III. Upland mining Sequence Map
- IV. Reclamation Sequence Plan
- V. Revegetation Map.

Tacoma Smelter Plume



Legend

Major Roads

- State Highway
- US Highway
- Interstate
- Streets

Water Bodies

- Reservoir
- Glacier
- Marsh
- Rock
- Island
- Water
- Streams

Tacoma Smelter Plume

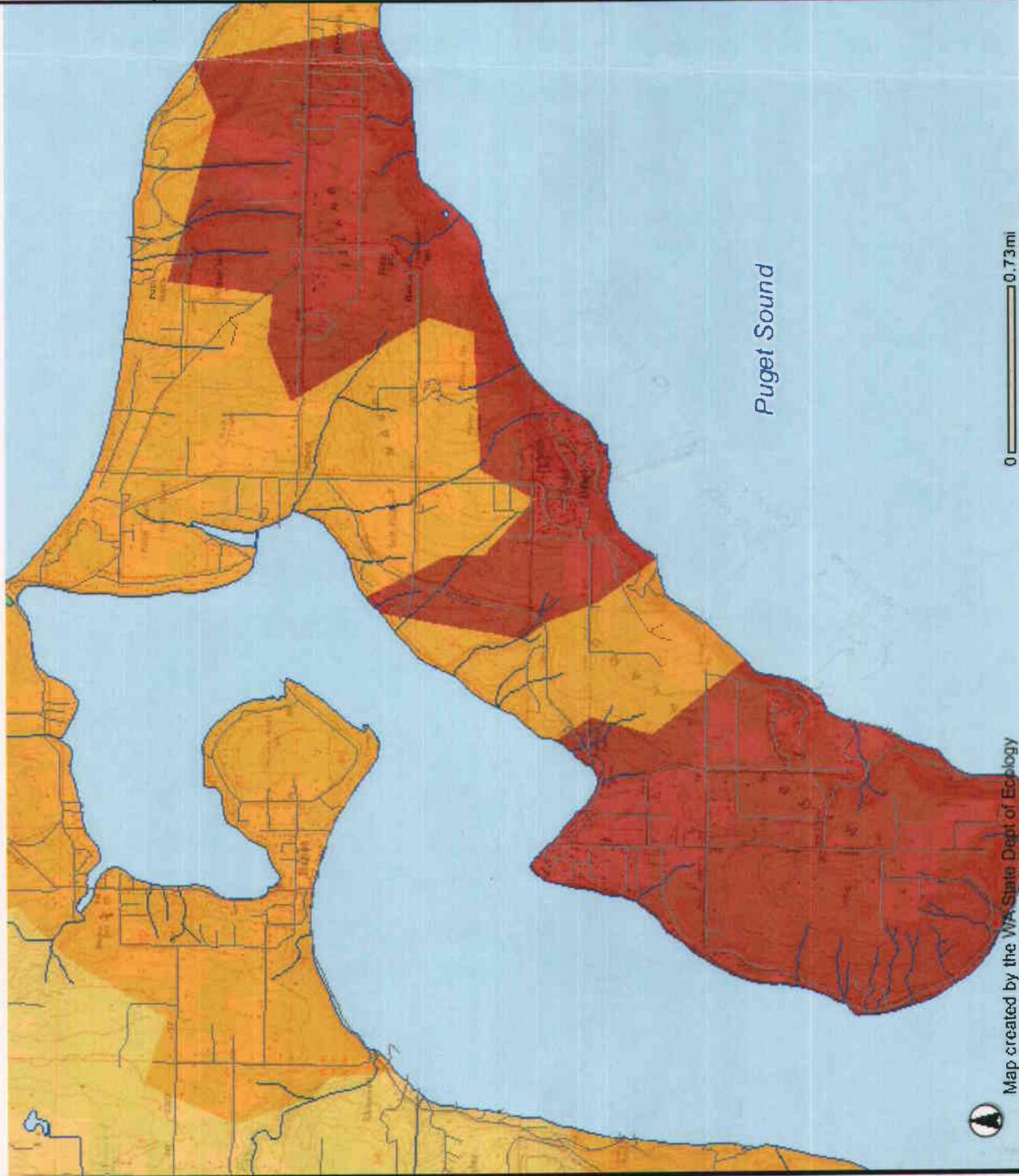
Military Base

- Non-Detect to 20.0 ppm
- Non-Detect to 20.0 ppm; Max > 20.0
- 20.1 ppm to 40.0 ppm
- 40.1 ppm to 100.0 ppm
- 100.1 ppm to 200.0 ppm
- Greater than 200.0 ppm
- Ruiston Superfund Site
- Not Tested - Possibly Contaminated

USGS Topo Maps (24K)

Background

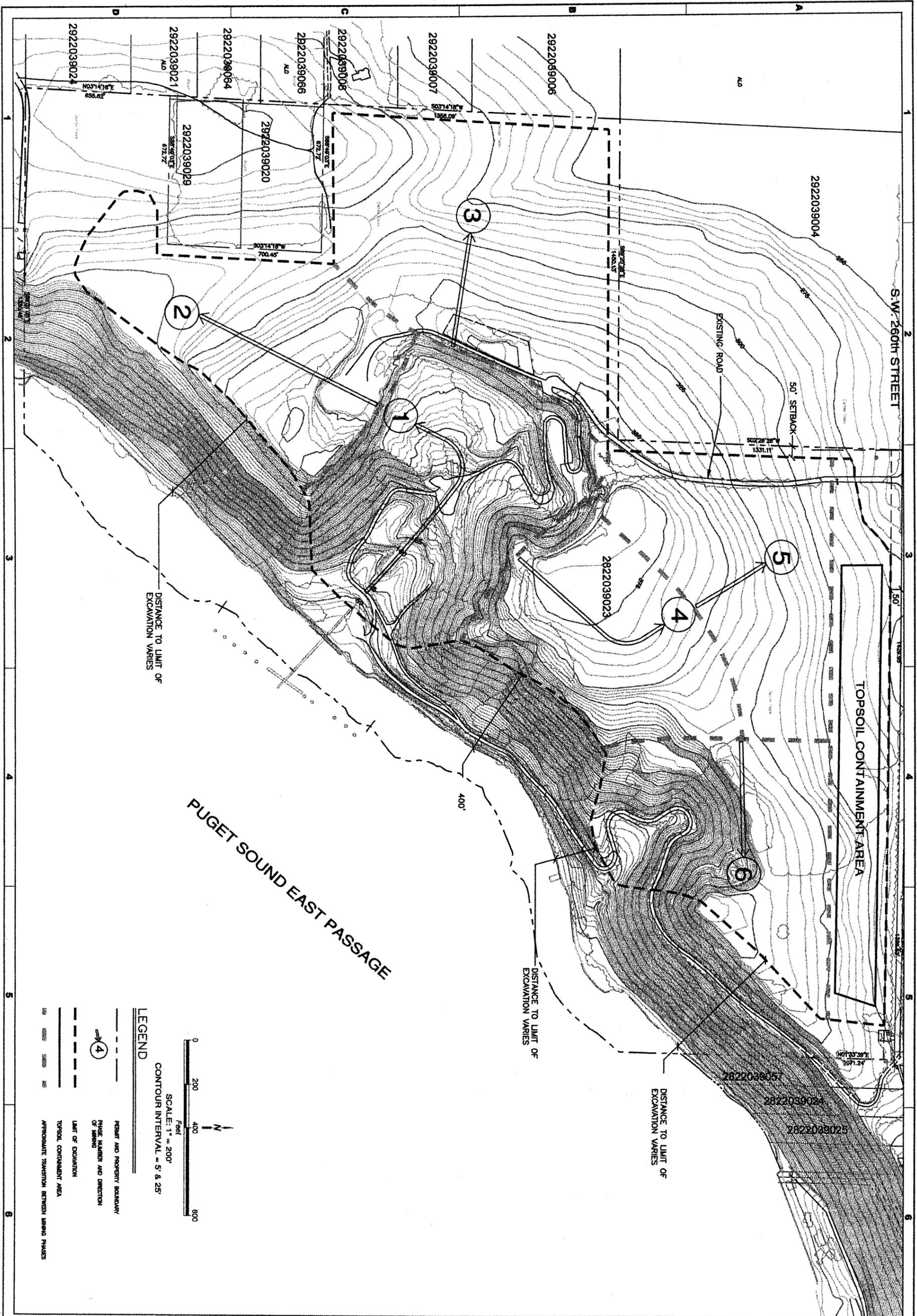
- Water
- Non-Washington Land



0 0.73mi

Map created by the WA State Dept of Ecology





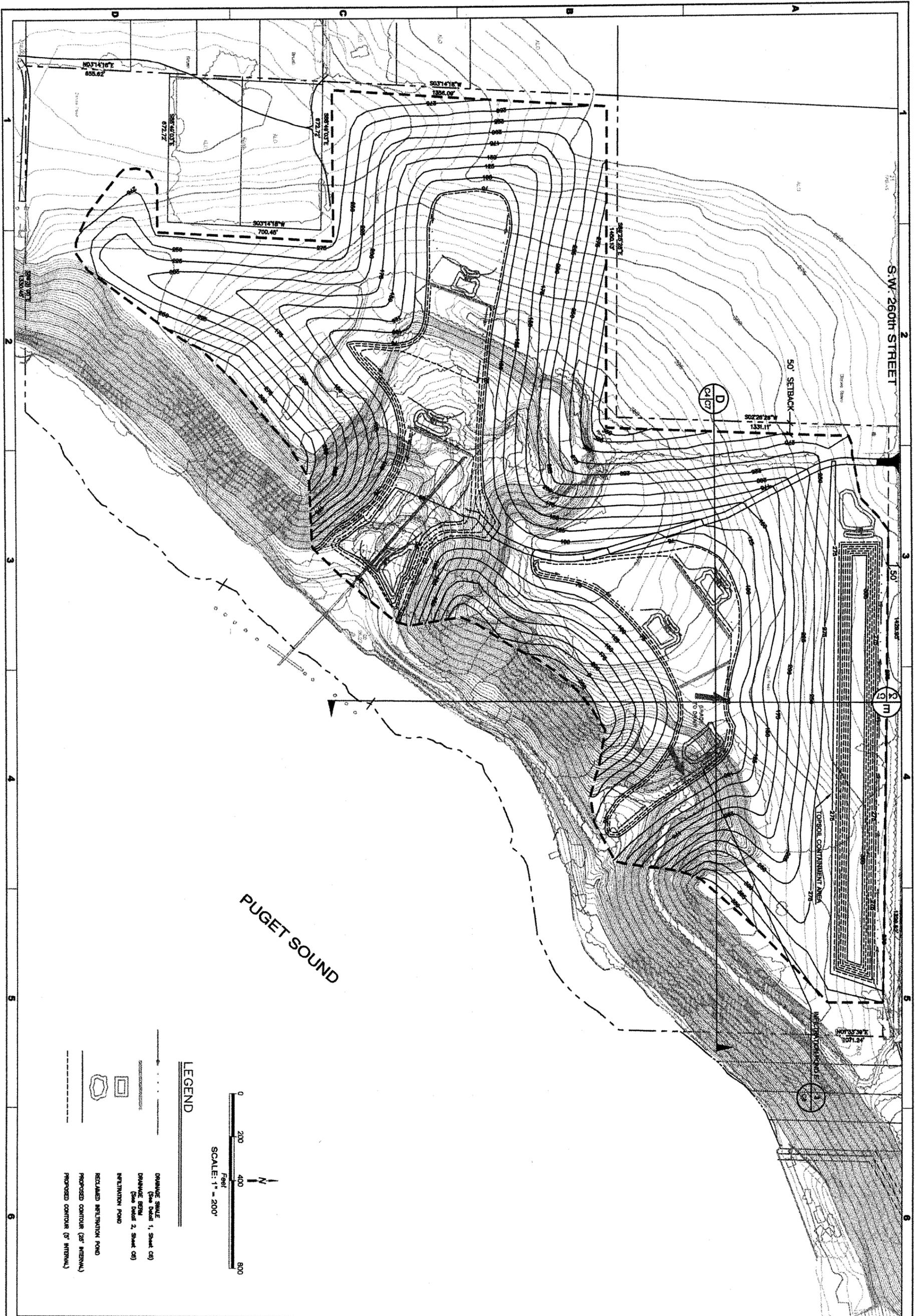
Mining Sequence and Phases
 Mining Operation
 Maury Island, Washington

Aspect consulting
 IN-DEPTH PERSPECTIVE
 170 Madrona Lane North
 Bainbridge Island, WA 98110
 (206) 780-9370
 811 First Avenue #400
 Seattle, WA 98104
 (206) 328-7443



DATE	REVISION	PROJECT NUMBER	DESIGNED BY	DRAWN BY	REVIEWED BY	REV	DESCRIPTION	DATE	APPR
January 2008	1	050011	JWC	JRS		1		01/08	JWC

SHEET
 REFERENCE
 NUMBER:
G3
 SHEET 3 OF 11



SHEET
REFERENCE
NUMBER
C4
SHEET 7 OF 11

**Mining Grading and Drainage
Phase 6**

Mining Operation
Maury Island, Washington

Aspect consulting
IN-DEPTH PERSPECTIVE

170 Machine Lane North
Bellevue Island, WA 98110
(206) 780-8370

811 First Avenue #480
Seattle, WA 98104
(206) 328-7443

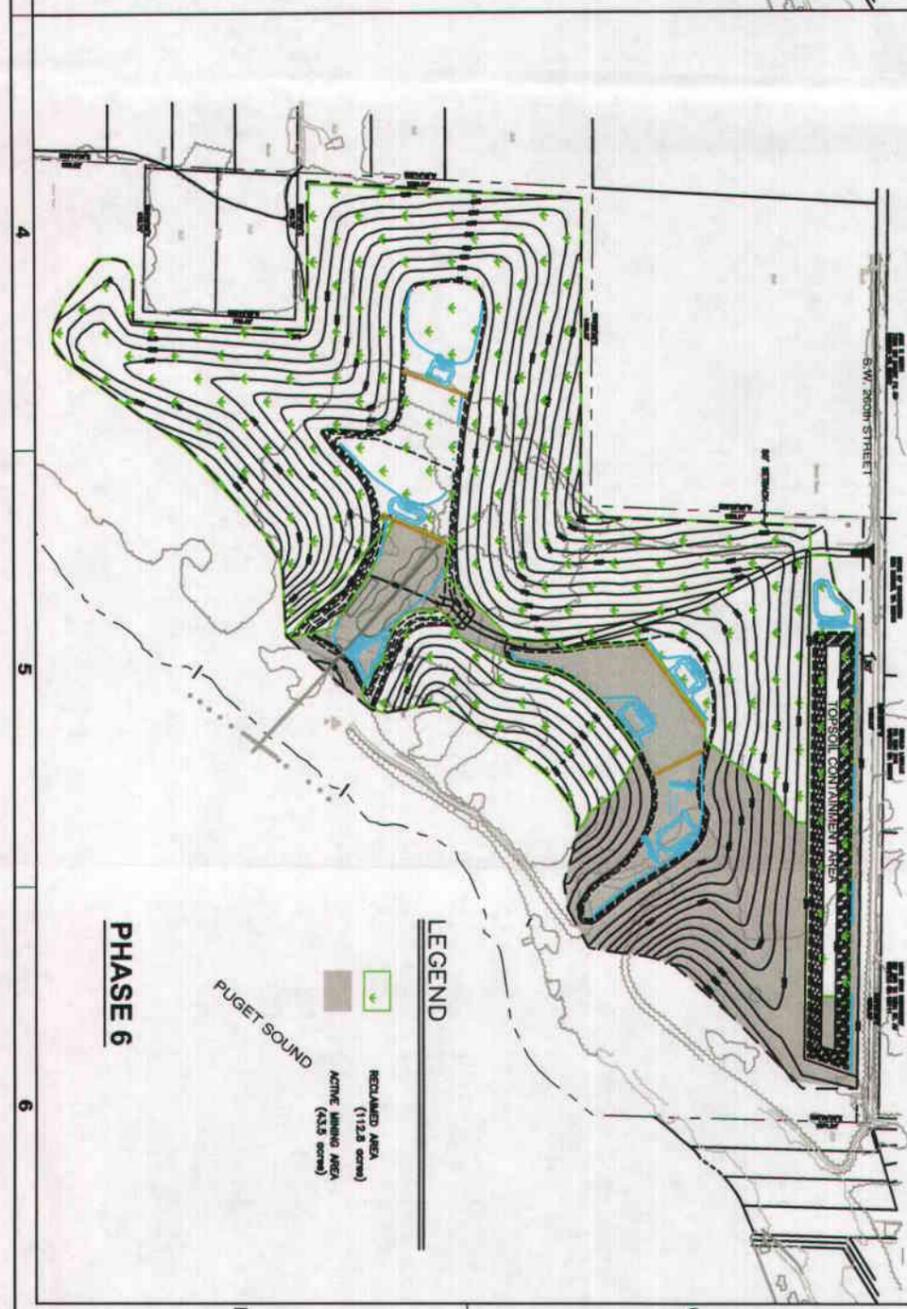
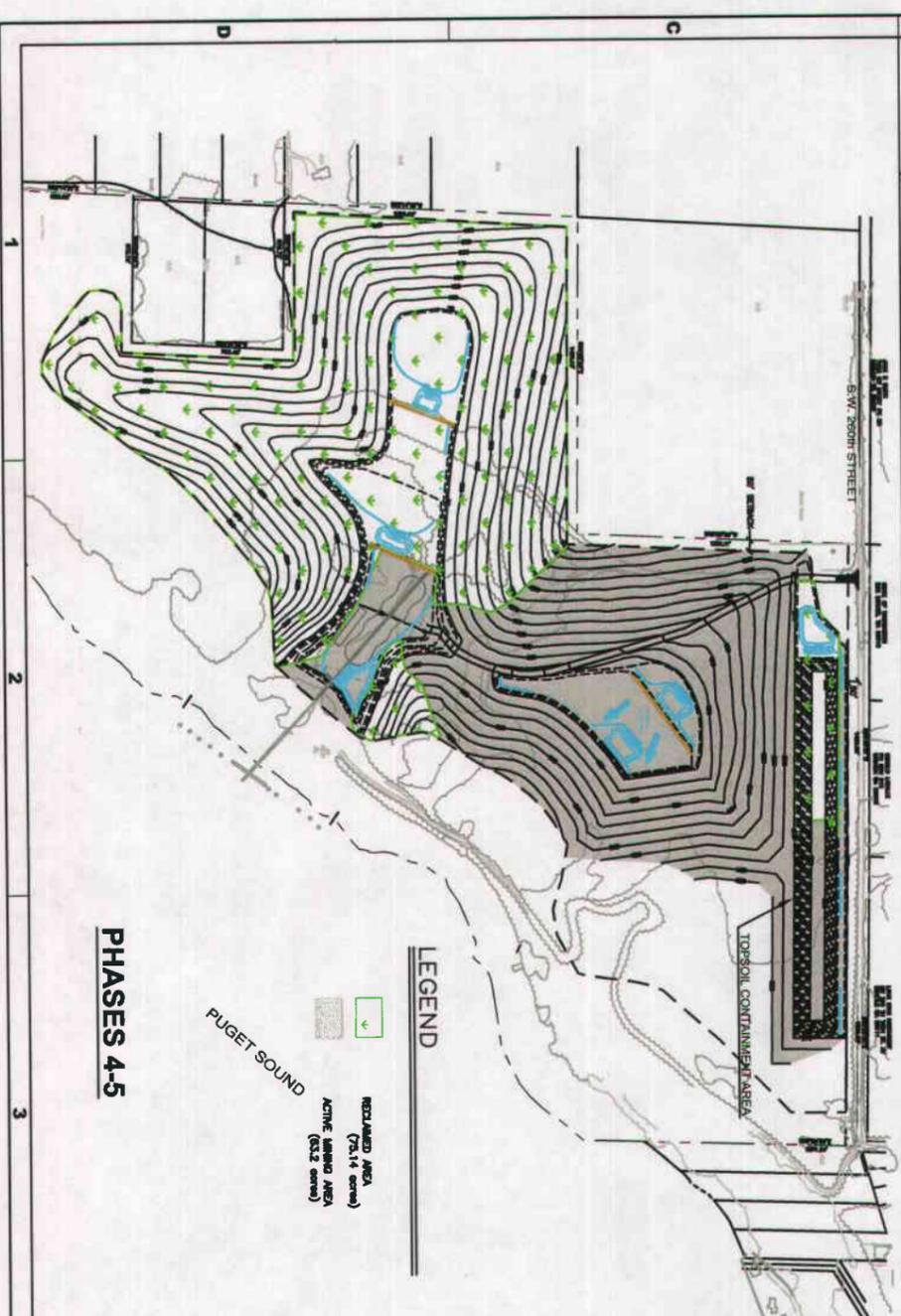
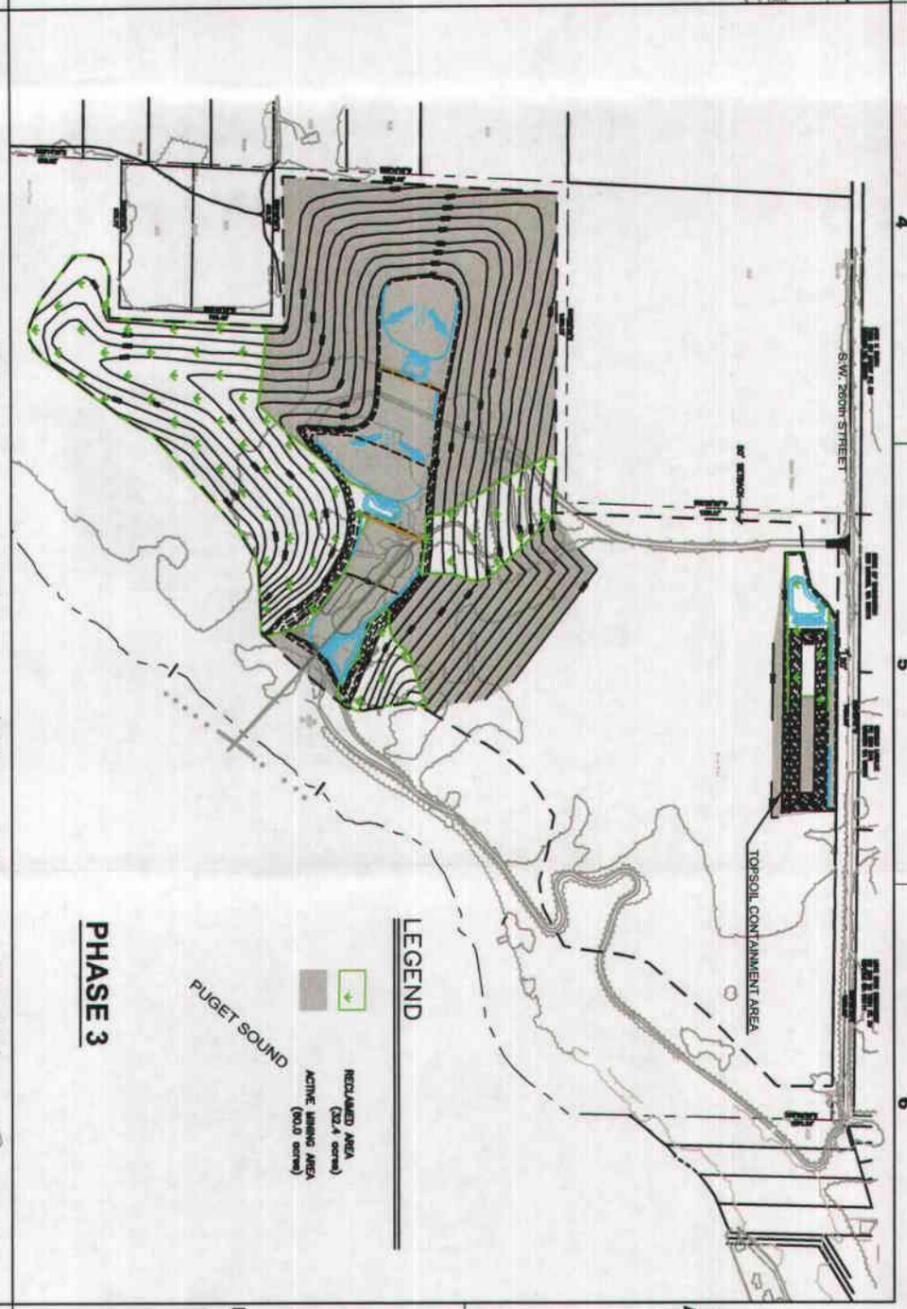
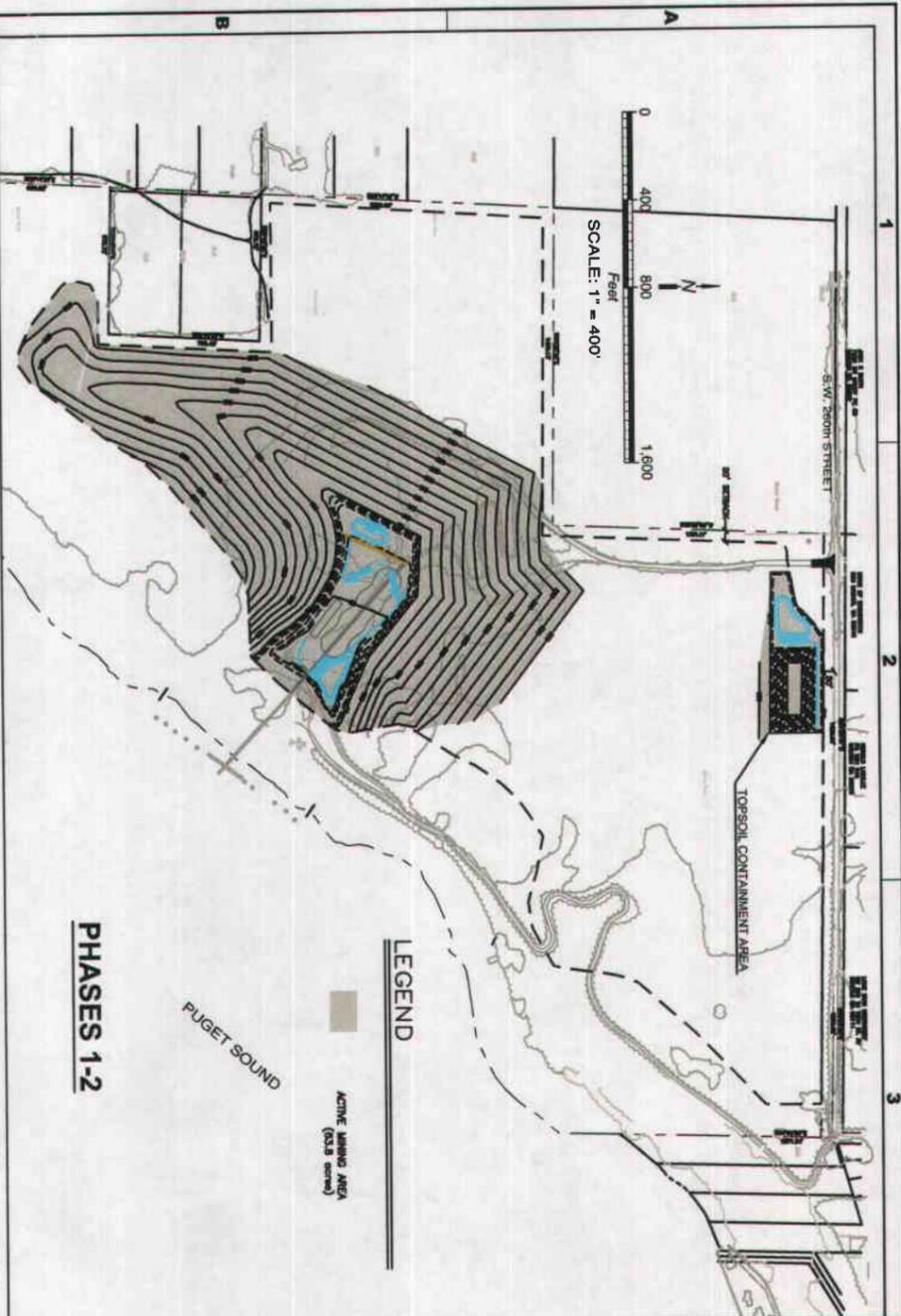
GLACIER
NORTHWEST

DESIGNED BY: JWC
DRAWN BY: JRS
REVISED BY:

REV	DESCRIPTION	DATE	APPR
1	Revised	01/06	JWC

MAURY ISLAND
STATE OF WASHINGTON
SUTIA
RECREATION BOARD

EXPRES: 06/11/06



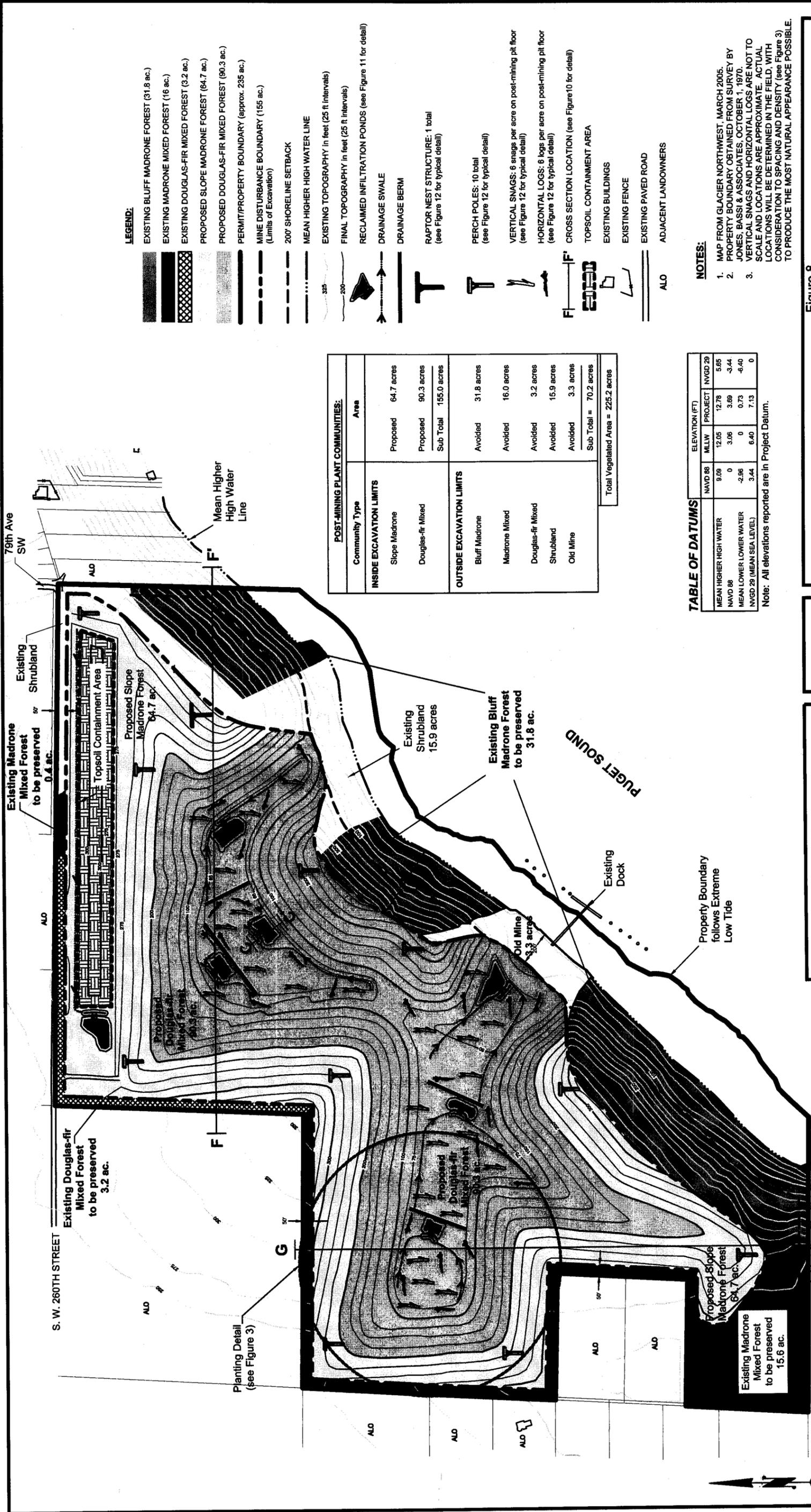
REV.	DESCRIPTION	DATE	APPV.
1	Revised	01/06	JWC

GLACIER
 NORTHWEST
 DESIGNED BY: JWC
 DRAWN BY: JRS
 REVISED BY:

Aspect consulting
 IN-DEPTH PERSPECTIVE
 179 Madrone Lane North
 Sebastopol, CA 95972
 (707) 780-9370
 811 First Avenue #480
 Seattle, WA 98104
 (206) 328-7443

Reclamation Sequence
 Mining Operation
 Maury Island, Washington

SHEET
 REFERENCE
 NUMBER:
C5
 SHEET 8 OF 11



LEGEND:

- EXISTING BLUFF MADRONE FOREST (31.8 ac.)
- EXISTING MADRONE MIXED FOREST (16 ac.)
- EXISTING DOUGLAS-FIR MIXED FOREST (3.2 ac.)
- PROPOSED SLOPE MADRONE FOREST (64.7 ac.)
- PROPOSED DOUGLAS-FIR MIXED FOREST (90.3 ac.)
- PERMIT/PROPERTY BOUNDARY (approx. 235 ac.)
- MINE DISTURBANCE BOUNDARY (Limits of Excavation)
- 200' SHORELINE SETBACK
- MEAN HIGHER HIGH WATER LINE
- EXISTING TOPOGRAPHY in feet (25 ft intervals)
- FINAL TOPOGRAPHY in feet (25 ft intervals)
- RECLAIMED INFILTRATION PONDS (see Figure 11 for detail)
- DRAINAGE SWALE
- DRAINAGE BERM
- RAPTOR NEST STRUCTURE: 1 total (see Figure 12 for typical detail)
- PERCH POLES: 10 total (see Figure 12 for typical detail)
- VERTICAL SNAGS: 6 snags per acre on post-mining pit floor (see Figure 12 for typical detail)
- HORIZONTAL LOGS: 6 logs per acre on post-mining pit floor (see Figure 12 for typical detail)
- CROSS SECTION LOCATION (see Figure 10 for detail)
- TOPSOIL CONTAINMENT AREA
- EXISTING BUILDINGS
- EXISTING FENCE
- EXISTING PAVED ROAD
- ALO ADJACENT LANDOWNERS

NOTES:

1. MAP FROM GLACIER NORTHWEST, MARCH 2005.
2. PROPERTY BOUNDARY OBTAINED FROM SURVEY BY JONES, BASSI & ASSOCIATES, OCTOBER 1, 1970.
3. VERTICAL SNAGS AND HORIZONTAL LOGS ARE NOT TO SCALE AND LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS WILL BE DETERMINED IN THE FIELD, WITH CONSIDERATION TO SPACING AND DENSITY (see Figure 3) TO PRODUCE THE MOST NATURAL APPEARANCE POSSIBLE.

POST-MINING PLANT COMMUNITIES:		Area
INSIDE EXCAVATION LIMITS	Slope Madrone	Proposed 64.7 acres
	Douglas-fir Mixed	Proposed 90.3 acres
		Sub Total 155.0 acres
OUTSIDE EXCAVATION LIMITS	Bluff Madrone	Avoided 31.8 acres
	Madrone Mixed	Avoided 16.0 acres
	Douglas-fir Mixed	Avoided 3.2 acres
	Shrubland	Avoided 15.9 acres
	Old Mine	Avoided 3.3 acres
		Sub Total = 70.2 acres
		Total Vegetated Area = 225.2 acres

TABLE OF DATUMS

	ELEVATION (FT)	
	NAVD 88	PROJECT NVGD 29
MEAN HIGHER HIGH WATER	9.09	12.78
NAVD 88	0	3.69
MEAN LOWER LOWER WATER	-2.96	0
NAVD 29 (MEAN SEA LEVEL)	3.44	6.40
		7.13
		0

Note: All elevations reported are in Project Datum.

DATE 02-17-06
 DWN. MPM
 APPR. _____
 PROJ.# 1138.01

ECOLOGICAL LAND SERVICES, INC.
 1157 3rd Ave., Suite 220 Longview, WA 98632
 (360) 578-1371 Fax: (360) 414-9305

Figure 8
REVEGETATION MAP
 Maury Island Sand & Gravel Mine - DNR Permit #10256
 Northwest Aggregates
 King County, Washington
 Sections 28 & 29, Township 22N, Range 3E, W.M.



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

CENWS-OD-RG

Final
Northwest Aggregates Permit Application No. 200001094
Maury Island, King County, Washington

Finding Of No Significant Impact

1. Background. The Corps received an application from Northwest Aggregates (hereafter the applicant) for the proposed repairs and upgrades to the existing dock on 14 August 2000. In September 2000, the Corps informed the applicant that the proposed work would require an individual Section 10 Department of the Army permit. The applicant began the King County permit process two years earlier in 1998 with a request for a shoreline exemption for the proposed repairs. The applicant revised the 2000 proposed project in November 2004 to include all the changes developed during the King County permit process from September 2002 through November 2004.

The Corps circulated a public notice for project proposal on 13 December 2004. The expiration date for public comments was 13 January 2005. During the public comment period, the Corps received numerous comments and requests for a public hearing. On 14 April 2005, the Corps issued a public notice for the public hearing, and a public notice erratum which extended the Corps' evaluation to include a review under authority of Section 404 of the Clean Water Act of the proposed placement of clean pea gravel or sand in holes caused by the removal of timber piles. The expiration date for public comments on the erratum was 31 May 2005. The public hearing was held on 17 May 2005 on Vashon Island in King County. The purpose of the hearing was to obtain public views and opinions on the proposed project that were relevant for consideration in making the Corps' permit decision for the proposed project.

The Corps circulated a public notice for the draft Environmental Assessment (EA) on 8 February 2008. The expiration date for public comments on the draft EA was 10 March 2008. This expiration date was extended until 20 March 2008 after numerous requests for extension were received. To date, the Corps has received over 1,228 comments, including verbal and written comment letters, e-mails and cards during the public hearing, the public comment periods, and additional written comments received since the end of the public comment periods. While the expiration date for the public comments on the project has since passed, the Corps has and will continue to consider all comments received up to the date of the DA permit decision.

The major issues identified during the public hearing and comment periods included groundwater supplies, visual and noise disturbances, the effect of existing arsenic-contaminated topsoils, removal of upland forest habitat, potential impacts on recreational use in the area, navigation

impacts, the loss of property values, and potential effects on nearshore habitat including eelgrass, forage fish, and endangered and threatened species.

2. Project Location. The proposed dock would be located on the southeast shoreline of Maury Island, King County, Washington. The upland mine is about 235 acres, mining activities would take place on 155 acres adjacent to the barge loading facility. The remaining 80 acres are in the protected buffer areas, beach and tidelands.

3. Proposed Project. The applicant proposes replace an existing barge loading facility (dock). The proposed work consists of the removal of the existing conveyor trestle, walkways, pier structures, eight dolphins, and four submerged pilings. The demolition work includes removal of 228 timber piling and backfilling depressions left by their removal with up to 82 cubic yards of clean pea gravel or sand. The existing sunken barges located near the southwest end of the existing dolphin alignment would remain in place. The proposed work includes construction of a barge-loading conveyor tube with three 4- to 6-pile support bents and seven 6-pile berthing dolphins with fenders and aluminum catwalks. A maximum of 56 24-inch steel piles will be installed to support the new trestle and seven berthing dolphins. The new dock would extend up to 305 feet waterward of the Mean High Water (MHW) line and the dock face would run 510 feet parallel to the shoreline. The new dock would cover about 7,555 square feet waterward of the MHW line. Steel grating with 75% open area would cover the dock. To prevent gravel spillage from the mine to the barge, the conveyor tube would be completely enclosed with a telescoping spout attached to the discharge end of the conveyor to lower the material into the barge. The spout would have a retractable chute and spoon to prevent dust and help distribute the material into the barge. A haul-back system (i.e., a system of winches, cables and pulley wheels used to position the barge during loading operations) would be attached to the top of the dolphin frames.

4. Summary of Impacts. During the proposed construction activities, there will be short-term adverse impacts to substrate, general water quality, fish and wildlife species, threatened and endangered species, shellfish, invertebrates, noise levels, aquatic habitat, shoreline vegetation, aesthetics, and recreation. Avoidance of eelgrass areas and nearshore habitat will result in the preservation of the aquatic resources that exhibit the highest physical and biological functions in the project area. Implementation of mitigation measures would reduce the short-term construction impacts substantially.

Operation of the dock will increase the volume of marine traffic in the project area above the current baseline conditions, and will result in long-term direct changes in the baseline conditions of noise aesthetics and navigation. Dock operation will be limited (7AM to 7PM five days a week) and implementation of the Barge Approach and Departure Protocol Plan proposed by the applicant will minimize long-term adverse impacts. Further, the applicant's proposed use of long term monitoring of the nearshore habitat will provide notification of any unforeseen changes observed at the site, including changes in water temperature, eelgrass, macroalgae, herring

spawning, and bathymetry surveys. The mitigation plan includes measures to reduce potential impacts through implementation of changes in dock operations and barge movements to address any previously unidentified impacts after consultation with permitting agencies, including King County, Washington Department of Fish and Wildlife, Washington Department of Ecology, and Washington Department of Natural Resources. These mitigation plans and Barge Approach and Departure Protocol are conditions of local and state permits and will be conditions of any Department of Army permit.

Operation of the mine will result in long-term direct changes in baseline conditions for wildlife and wildlife habitat, noise, aesthetics, and recreation. Operational noise levels will increase from the current baseline levels. Noise levels are not expected to exceed the King County Noise Code for an industrial noise source due to the limited hours of mine operation (7 AM to 7PM five days a week and 9 AM to 6PM on Saturday), vegetated buffers and implementation of other types noise barriers. Recreational use of the mine site would continue to be prohibited and use of the beach by local residents will be affected by the operation of the mine and dock. Groundwater impacts are not expected to occur since there will be a 15 foot zone maintained between the mine floor and groundwater, implementation of stormwater treatment and infiltration system, collection of data from groundwater monitoring wells and implementation of Spill Prevention plan and Stormwater Pollution Prevention plan on the mine site. At an extraction rate of 1.5 to 2 million tons per year, it is estimated that 4 to 5 years of mine operations may proceed without mining any portion of the site with contaminated surface soils. The contaminated soils would be managed in a separate phase of the cell as a Cleanup Action under MTCA. Implementation of contaminated soil control and dust control measures will limit direct impacts from contaminated soils to the mine site. No topsoils would be removed from the site. The proposed project may result in minor decline of property values for residences closest to the site due to increase in noise and visual disturbance.

The proposed project would result in economic benefits to Puget Sound region by meeting regional demand for products that are important in the construction of infrastructure, utilities, and commercial and residential developments.

The applicant has obtained all local and state permits/approvals with the exception of the WDNR aquatic lease, which the applicant can not obtain until all other permits have been issued for the project.

5. Findings of Compliance with the Restrictions on Discharge [40 CFR 230.12].

The proposed discharge of up to 82 cubic yards of clean sand or gravel as fill into depression or holes from the removal of old timber piles was evaluated pursuant to Section 404 of the Clean Water Act in accordance with the Guidelines promulgated by the Environmental Protection Agency for evaluation of the discharge of fill material into waters of the United States (40 CFR 230.10). Considerations were given to the need for the work (ESA conservation measure and condition of the WDFW permit) and to such water quality standards as are appropriate and

applicable by law. Alternatives not requiring the discharge of fill material into water of the U.S. are not available. The proposed discharge represents the least environmentally damaging practicable alternative and includes all appropriate and practicable measures to minimize adverse effects on the aquatic environment. The work will not result in the unacceptable degradation of the aquatic environment. The discharge and methods specified in the proposed work are in accordance with the Section 404(b)(1) Guidelines [40 CFR 230.12].

6. Findings for Compliance with NEPA. Based on the project described above, and provided in more detailed in the environmental assessment, this project is not a major Federal action significantly affecting the quality of the human environment, and therefore does not require preparation of an Environmental Impact Statement because the potential impact(s) of this project as a whole shall be mitigated to insignificance.

30 June 2008

Date



Michael McCormick
Colonel, Corps of Engineers
District Engineer