APPENDIX J

Plants and Animals Technical Memorandum

MEMORANDUM:
NEW WHATCOM REDEVELOPMENT
UPDATES TO THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

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Based on the information provided in the Draft Environmental Impact Statement (DEIS), ongoing public input, additional analysis and master planning, and coordination between the Port of Bellingham (Port) and the City of Bellingham (City), as well as other agencies, groups and stakeholders, the Port staff prepared a recommended Proposal to serve as the Preferred Alternative for analysis in this Supplemental DEIS (SDEIS). The purpose of this Memorandum is to assess the impacts of the Preferred Alternative of the SDEIS for the New Whatcom Redevelopment Project (Project) prepared by the Port, as it relates to the assessment presented in the Plants and Animals section of the DEIS and DEIS Appendix H of the January 2008 DEIS. All substantive changes to the Preferred Alternative are to the marine environment; no substantive changes to the discussion of impacts to upland habitat are warranted with the Preferred Alternative. The Preferred Alternative includes more specific information related to shoreline restoration plans, the addition of wave attenuator systems to the proposed transient moorage floats in the Whatcom Waterway, correcting an incorrect acreage of bulkhead/riprap slope removal that was reported in the DEIS, and changing the proposed boat launch in the proposed ASB Marina from a 5-lane to a 2-lane boat launch. Additionally, this Memo assesses the potential for fill placement-related impacts to occur to valuable intertidal/shallow subtidal habitat features such as eelgrass and forage fish spawning beds. The impacts of these changes are assessed below, with a discussion of the previous assessment of the New Whatcom Project (as defined by DEIS Alternatives 1-3) , followed by the proposed changes and an updated conclusion on the impacts of the Preferred Alternative in light of more specific information and changes.

1. SHORELINE TREATMENTS

Based on the more specific shoreline habitat plan of the Preferred Alternative, fill would be placed along the shoreline of much of the New Whatcom Redevelopment site shoreline to improve intertidal habitats. Two categories of habitats would be created: nearshore habitat and

fringe habitat. Within both types, a range of configurations is proposed. An assessment of the comparative values of these habitats is presented below.

Nearshore Habitat

Nearshore habitat would be created along the shoreline of portions of the Marine Trades, Downtown Waterfront, Log Pond and Cornwall Beach Redevelopment Areas (referred to as Redevelopment Areas 1-4 and 8-10 in the DEIS). Nearshore habitat would occur below the Ordinary High Water Mark (OHWM) and would consist of sand/mud/cobble depending on slopes and wave energy, with areas of higher energy including coarser substrate. Nearshore habitat would vary in slope but would generally be relatively low-slope, comparable to the existing slopes. The flattest nearshore habitat would be constructed in the Log Pond Area. Additionally, in the Downtown Waterfront and northern portion of the Log Pond Areas, a nearly flat bench would be created in the upper end of nearshore habitat. Nearshore habitat areas with lower slopes and finer substrate would be of higher quality than similar habitats with steeper slopes and coarser substrate. Thus, nearshore habitat in the southern portion of the Log Pond area would be of higher quality than nearshore habitat in the Downtown Waterfront Area, which would in turn be of higher quality than that of the Cornwall Beach Area.

Fringe Habitat

Fringe habitat would be created landward of nearshore habitat, between OHWM and approximately 12.5 ft MLLW. Four types of fringe habitat would be created: marina breakwater habitat (marina breakwater), rocky shoreline habitat (southern portion of Cornwall Beach), terraced shoreline habitat (Downtown Waterfront and northern portion of the Log Pond), and beach habitat (southern portion of the Log Pond and northern portion of Cornwall Beach).

- Marina breakwater habitat would consist of a steep riprap shoreline along the marina breakwater. Marina breakwater habitat already exists in this area. The Project would remove some of the interior of the breakwater and place additional fill on the Whatcom Waterway side of the breakwater. The marina breakwater habitat to be created would be identical to the existing habitat. Very little vegetation would likely establish on this habitat type. This habitat would be the lowest quality of all fringe habitats due to its steeper slopes, riprap substrate, and low opportunity for vegetative establishment.

- Rocky shoreline fringe habitat would consist of a short, steep rocky shoreline habitat along the Cornwall Beach shoreline. Substrate would be suitable to withstand high-energy storm conditions that would occur in this area, and would consist of riprap or cobble. Limited vegetation would be expected to establish on this habitat type due to the large substrate. Salt marsh vegetation would not be expected to establish. Rocky shoreline would provide low to moderate shoreline habitat function.

- Terraced shoreline habitat would consist of moderately sloped shoreline with gravel/cobble substrate. Terraced habitat would be constructed in the Downtown Waterfront and northern portion of the Log Pond. This habitat would have potential for colonization by lower quality salt marsh vegetation such as salt grass and pickleweed. Terraced shoreline habitat would provide moderate habitat function.

- Beach habitat would be created in the northern portion of the Marine Trades area, the southern portion of the Log Pond area and northern portion of the Cornwall Beach shoreline. Beach habitat would generally be very low slope and consist of sand and

gravel substrate. Beach habitat would be suitable for colonization by a wider variety of salt marsh species and thus higher quality of salt marsh habitat. Because of proposed low slopes, finer substrate, and potential for high quality salt marsh communities, beach habitat would be the highest quality fringe habitat.

The assessment of shoreline improvements presented in the Plants and Animals section of the DEIS and DEIS Appendix H concluded that Alternatives 1-3 would substantially benefit intertidal/shallow subtidal habitat, as much of the shoreline habitat would replace existing low quality habitat such as bulkheads, piers, and riprap. This assessment is still valid for the Preferred Alternative as it would result in substantial shoreline habitat improvements. The effects of each type of fringe habitat would be as follows:

- The areas converted to marina breakwater (ASB) and rockery habitats (southern Cornwall Beach) would remain essentially the same as the existing conditions.
- The areas converted to terraced shoreline (Downtown Waterfront area) would be significantly improved. Terraced shoreline would replace existing ovewater piers, creosote-treated piles, riprap shorelines, and concrete bulkheads. The creation of lower-sloped intertidal/shallow subtidal shoreline with an upper intertidal bench and opportunities for limited salt marsh vegetation would greatly improve existing habitat.
- Areas converted to beach habitat would also be improved by the Preferred Alternative, though the proposed condition would be similar to existing conditions. The southern portion of the Log Pond is currently low-sloped habitat with finer substrates and would be improved through the establishment of a wide beach area in the upper intertidal. The southern portion of the Shipping Terminal consists of finer-substrate in the lower intertidal with some salt marsh vegetation and riprap in the higher intertidal. Creation of beach habitat would benefit this area by decreasing the intertidal slope and removing riprap. The opportunity for salt marsh vegetation would increase.

2. WAVE ATTENUATOR SYSTEMS

Wave attenuator systems would be constructed on both the north and south sides of Whatcom Waterway. Each system would include a deep draft float (20 ft by 230 ft on the north side of Whatcom Waterway and 20 ft by 180 ft on the south side of Whatcom Waterway) with a possible 6 ft by 120 ft public access ramp from the upland, and an 0.34-acre rock groin. In total, the wave attenuators would encompass 0.22 acre, 0.02 of which would occur over intertidal/shallow subtidal habitat with the balance over subtidal habitat. 18-22 guide piles would be required to anchor the wave attenuator floats. The two rock groins would entail a total of 5,000 cubic yards (cy) of fill, would encompass approximately 0.34 acre of intertidal/shallow subtidal area and would extend into the waterway approximately 150 ft.

Previous Assessment and Conclusion

The DEIS evaluates the impacts of changes in overwater coverage resulting from the overall New Whatcom Project (Alternatives 1-3), including the removal of existing piers and the construction of new transient moorage floats. The conclusion is that the net result of these actions would be a 1.53-acre net reduction of overwater coverage of intertidal/shallow subtidal habitat and a net increase of 0.75 acre of overwater coverage of subtidal habitat. It was

concluded that the reduction in intertidal/shallow subtidal shading would substantially benefit aquatic habitat in the site area and particularly along the Whatcom Waterway.

The wave attenuators would require guide piles. Impacts from pile driving noise are assessed in DEIS Appendix H, as pile driving was assumed to be required to anchor the transient moorage floats. The conclusion is that, if steel piles are used to anchor the moorage floats, and if they are driven with an impact hammer, there is potential for noise to be generated that would affect aquatic and upland species. If they are driven with a vibratory hammer, noise impacts would be negligible. As part of future state and federal permitting, measures would be required and implemented to avoid and minimize impacts of pile driving on aquatic and upland species (such as use of a bubble curtain).

The proposed rock groins were not assumed in DEIS Alternative 1-3. Construction of the groins would entail placement of rock. DEIS Appendix H assesses the placement of finer material, which was indicated as a potential construction impact, resulting in temporary turbidity that would be mitigated through best management practices (BMPs). Temporary impacts on benthic/epibenthic organisms in the footprint of the fill is also identified in the DEIS. Placement of fill is not considered a long-term habitat impact in the DEIS, as the fill to be placed would only result in the reconfiguration of existing aquatic habitat and not the loss or degradation of habitat. Coupled with excavation proposed to the breakwater within the marina area, the net effect is to move aquatic habitat but not change the habitat quality.

Changes to Assessment

The Preferred Alternative would increase overwater coverage through the construction of wave attenuator floats and possible associated access ramps attached to the westernmost end of the transient moorage floats on the north and south sides of Whatcom Waterway. The proposed wave attenuators would increase overwater coverage by 0.12 acre on the north side of the waterway and 0.10 acre on the south side of the waterway, for a total increase of 0.22 acre of overwater coverage. Of this 0.22 acre increase, approximately 0.02 acre of this would occur over intertidal/shallow subtidal habitat and the balance would occur over subtidal habitat. This would change the previous net reduction of shaded intertidal/shallow subtidal habitat as a result of the project from 1.53 acres to 1.51 acres. The wave attenuators and access ramps would change the net increase of subtidal shading from 0.75 acre to 0.95 acre.

Installation of the rock groins would entail placing 5,000 cubic yards of fill over 0.34 acre in Whatcom Waterway. Placement of rock would not generate turbidity as compared to the placement of finer material. The groin in the southern Whatcom Waterway shoreline would occur on finer substrate. Thus, the groin would convert a small area of finer substrate to a riprap-like substrate. The rock groin on the northern Whatcom Waterway shoreline would be similar substrate as the existing riprap Marina (ASB) breakwater. Benthic/epibenthic invertebrates present in the substrate would be affected by rock placement.

The groins may convert a small, unquantifiable area of subtidal to intertidal/shallow subtidal habitat, which would be a small habitat benefit. However, the habitat would be lower quality rocky habitat. The groins would direct migrating juvenile salmonids around them, similar to a sloped riprap shoreline. This is not expected to affect migratory conditions. Since the north groin would consist of substrate similar to the existing rocky substrate present on the marina breakwater, impacts to benthic/epibenthic invertebrates would be temporary. These populations would be expected to recover to previous levels within a few months. Since the south groin

would convert silty/sandy substrate to rocky substrate, benthic infauna would likely be eliminated in the footprint of the southern groin. This is not expected to affect salmonids, as benthic invertebrates are not typically salmonid prey. Epibenthic populations in the footprint of the southern groin would be expected to re-establish, though the population would likely change with the substrate and would not likely re-establish to pre-construction levels. Since salmonids typically prey on epibenthic invertebrates, this change would have the potential to affect salmonids. However, this impact would be minimal due to the small area affected. The wave attenuation caused by the groins would reduce wave energy within Whatcom Waterway and facilitate further development of finer substrate beaches; in addition, these would increase the potential for establishment of eelgrass beds and salt marsh vegetation in the Downtown Waterfront and northern portion of the Log Pond Areas, which would be a habitat benefit.

As mentioned above, the wave attenuator floats would require driving a total of 18-22 guide piles, either by impact pile driving or vibratory pile driving. Driving of guide piles associated with wave attenuator floats would result in similar noise impacts as those driven to support transient moorage floats. The wave attenuators would marginally increase the duration of pile driving noise.

Updated Conclusions

The addition of wave attenuators and access ramps would slightly decrease the habitat benefit of reduced intertidal/shallow subtidal shading, from a 1.53 acre to a 1.51 acre shading reduction. The proposed wave attenuators and ramps would also slightly increase the previous net increase of subtidal habitat, from a 0.75 acre increase to a 0.95 acre increase. These changes would be negligible, and the Preferred Alternative would also result in substantial overall improvements in overwater coverage conditions.

The construction of the rock groins would result in some minor impacts and benefits to aquatic habitat. Overall, the groins would not substantially alter aquatic habitat and would not change the overall conclusion of a substantial benefit.

The conclusion in the DEIS is that that there is potential for impacts due to pile driving noise that would be mitigated through construction timing and use of a bubble curtain, should steel piles be driven with an impact hammer. This conclusion does not change as a result of the addition of the wave attenuator guide piles. The overall number of piles to be driven would remain relatively low, and potential impacts would still be mitigated through the BMPs listed above and in the DEIS.

3. CORRECTED ACREAGE OF RIPRAP SLOPE AND BULKHEAD REMOVAL

The DEIS described the area of a bulkhead and riprap slope that would be removed along the southern Whatcom Waterway as 1,890 square feet, when the area is actually 18,900 square feet. This is stated in the DEIS as a habitat benefit, but the extent of the benefit was, therefore, understated.

Previous Assessment and Conclusion

The DEIS evaluates the impacts of removal of bulkhead and riprap shoreline along the southern shoreline of Whatcom Waterway and replacement with a natural-slope shoreline. However, it describes the replacement action as 1,030 linear feet of shoreline habitat improvements (this

action is not described in terms of area in DEIS Appendix H, whereas the Plants and Animals section of the DEIS describes it by both linear feet and area).

Changes to Assessment

The removal of riprap is a habitat benefit, and the DEIS understates this benefit with regard to area.

Updated Conclusions

The updated area corrects the understatement of the actual habitat benefits as previously reported in the DEIS.

4. CHANGES TO PROPOSED BOAT LAUNCH IN ASB MARINA

In the DEIS it was assumed that the proposed boat launch in the Marina would be a 5-lane boat launch. Under the Preferred Alternative this has been changed to a 2-lane boat launch.

Previous Assessment and Conclusion

The ASB is currently not aquatic habitat since it is isolated from Bellingham Bay by a breakwater. The DEIS Appendix H described the proposed ASB Marina as new aquatic habitat that would be created when the breakwater is breached. The new habitat would include a boat launch and overwater coverage. Thus, the boat launch and overwater coverage were not discussed as habitat impacts, but rather as components of the new aquatic habitat that lower its habitat quality. A boat launch would typically provide lower quality habitat than adjacent habitat due to differences in substrate between the two habitats.

Changes to Assessment

The change in boat launch configuration would change the DEIS assessment in that it would marginally increase natural or park space in the upland area of the Marina and would marginally increase the quality of a small area of the new intertidal/shallow subtidal habitat that would be higher quality substrate than a boat launch provides.

Updated Conclusions

A smaller boat launch would result in a small additional area of higher quality new intertidal/shallow subtidal habitat created in the Marina than what was proposed as part of Alternatives 1-3 and assessed in the DEIS. However, this improvement would not be substantial.

5. Potential Impacts to Important Habitat Features from Placement of Fill

Existing Conditions

Sparse eelgrass has been noted in a few scattered locations in the site area. Eelgrass has been identified in the I & J Waterway along the north side of the ASB, along the south side of the ASB, in the Log Pond area, and along the eastern shore of the Cornwall Beach area. Other scattered patches are possibly present in the site area. Based on eelgrass delineations conducted in Bellingham Bay south of the Cornwall Beach area for separate projects, the upper extent of eelgrass is approximately -1.5 ft MLLW, depending on the energy regime of the particular site. Additionally, documented surf smelt habitat is present in the eastern corner of the Cornwall Beach Area.

General Impacts of Fill Placement

Placement of material during creation of the proposed nearshore and fringe habitats would generate temporary turbidity in the immediate vicinity. Elevated levels of suspended sediments would be expected to settle out within the mixing zone. Placement of fill would also temporarily impact benthic and epibenthic organism populations in the footprint of the fill. However, these populations would be expected to recover within a few months to pre-construction levels.

Potential Impacts to Important Habitat Features

Fill placed in eelgrass beds would eliminate existing eelgrass in the fill footprint and could alter the elevation of the bed to the degree that it would be unsuitable for eelgrass colonization. No fill is proposed in the I & J Waterway along the north side of the Marina. Fill in the Log Pond would only occur down to approximately MLLW, whereas eelgrass does not appear to be present above -1.5 ft MLLW based on available aerial photography (Photograph 1) and based upon previous eelgrass delineations in the vicinity. Thus, impacts to eelgrass are not expected in the Log Pond.

Photograph 1. Log Pond oblique aerial photo (Ecology Coastal Atlas 2006); tide level approximately -1.7 ft MLLW.

Fill below MHHW would occur along the south side of the Marina associated with breaching the breakwater. Any eelgrass present in the footprint of the fill would be eliminated. Based on existing information, eelgrass along the south side of the Marina consists of small areas of patchy or sparse eelgrass, rather than dense beds. To the extent possible, placement of fill in eelgrass habitat would be avoided. During federal and state permitting, eelgrass beds would be delineated. Impacts would be avoided and/or minimized to the extent possible. If impacts are unavoidable, the impacts could be mitigated through planting of additional eelgrass (see "*New Mitigation Measures*" below).

The only documented forage fish spawning habitat in areas where fill would be placed is at the waterward corner of the boundary between the Shipping Terminal and Cornwall Beach Areas, where beach habitat would be created. Fill placed in forage fish spawning beds would only be an impact if the fill were placed during a critical spawning period or if fill changes the existing substrate to a substrate unsuitable to forage fish spawning. Existing substrate consists of sand and gravel. Since the proposed beach habitat would also be similar substrate, the fill would not be expected to result in long-term impacts to forage fish spawning habitat. Adherence to work windows would avoid construction impacts of placing fill during a critical time for forage fish.

New Mitigation Measures

- Impacts to eelgrass would be avoided and minimized to the extent possible. Unavoidable impacts could be mitigated through planting of additional eelgrass. Monitoring would likely occur to ensure success of the mitigation planting.
- In-water construction would occur during approved in-water work windows for salmonids and forage fish. Appropriate work windows would be determined during permitting.