Shoreline Conditional Use Permit
Over-Water-Walkway: Boulevard Park to Cornwall
November 17, 2010

PROPOSAL: Construction of a pedestrian and bicycle over-water walkway (OWW) connecting Cornwall Avenue Landfill and Boulevard Park. OWW is approximately 2,350-feet in length and 14-feet in width (18.5-feet in width for resting 'bump-outs') and includes the following elements:

- Approximately 1,500 square feet of grated decking to allow light penetration to bed-lands within near shore areas.
- Height of the OWW will be approximately 8-feet above the elevation of mean higher high water.
- Approximately 96 twenty-four inch steel pilings (50-feet on center)
- Railings and low-level lighting are included.
- Construction of walkway abutments and landings to be ADA accessible.
- The 5,600 sq.ft. landing / abutment at Boulevard Park includes placement of approx. 600 cyds of material and construction of wing-walls.
- The 12,300 sq.ft. landing / abutment at Cornwall includes placement of approx. 800 cyds of material and wing-walls as well as additional heavy material for slope and bank protection.

Prior to commencing project, demolition and removal of an existing timber pier (877 sq.ft.), an existing timber wharf (2,455 sq.ft) and its 87 creosote pilings as well as removal of 9 isolated creosote pilings will occur. (This pier and wharf are presently unavailable to public access due to safety concerns.) In addition, near the Cornwall abutment, removal of concrete rip-rap that is in-water is also proposed in order to reestablish a more natural substrate condition.

Please see EXHIBIT A for site plans and project schematics.

PROJECT APPLICANT: Anchor QEA, LLC, Derek Koellmann, contact, 360-733-4311x221 or via email: dkoellmann@anchorqea.com acting as agent for the City of Bellingham Parks and Recreation Department. Gina Gobo Austin, project manager, 360-778-7000 and email: gaustin@cob.org

PROJECT LOCATION: Generally located abutting Boulevard Park then over-water to the Cornwall Avenue Landfill. Specifically, Area 6, South Hill Neighborhood, zoned Public and the Cornwall Avenue Landfill, Area 21, CBD Neighborhood, zoned Industrial Marine. Project occurs within Conservancy II, III, Urban Maritime shoreline designations.

RECOMMENDATION: Approval with conditions as specified on page 34 of this staff report.

Staff will suggest to the Hearing Examiner at the beginning of the Public Hearing that the written public comment period be extended until 5:00 PM on Monday, November 29, 2010.

Staff will also suggest a deadline of 5:00 PM on Monday, December 6, 2010 to provide written responses to comments submitted between the November 17, 2010 Public Hearing and November 29, 2010.

EXECUTIVE SUMMARY:

- ✓ The over-water-walkway (OWW) is a water-enjoyment public access use that – if approved – will connect two publicly owned shoreline recreational and public use areas on the shorelines of Bellingham Bay; Boulevard Park and the future Cornwall Avenue Park.
- ✓ The project is compliant with the applicable elements of the City's Shoreline Master Program, Critical Areas Ordinance as well as the Shoreline Management Act as demonstrated in this staff report.
- ✓ There has been extensive input from resource agencies in order to design this project consistent with respective recommendations and management strategies such that it will result in no net loss of shoreline ecological function.
- ✓ Removal of existing derelict over and in-water structures as well as removal of large concrete / rubble materials within the inter-tidal zone near the Cornwall abutment is expected to improve natural processes and therefore shoreline ecological function at the project site.
- ✓ There has been extensive public process dating back to at least 2004 where this amenity has been identified as a future capital project in order to benefit the citizens of Bellingham, Whatcom County and Washington State.
- ✓ Taylor Avenue Dock and over-water-walkway is able to provide useful and relevant data in terms of successful eelgrass mitigation results.
- ✓ The OWW satisfies a public demand for visual and physical access to the waterfront and waters of Bellingham Bay.

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EXHIBITS:

I. **PROCESS:** The project requires a shoreline conditional use permit (SCUP). A SCUP requires a TYPE IIIA process. SCUP's are reviewed by the Hearing Examiner at a public hearing. After the Hearing Examiner issues her decision it is forwarded to the Department of Ecology for *final* approval. (The Hearing Examiner's decision is not appealable as it is not the FINAL decision.)

At that point, DOE may deny, approve or approve with conditions the project. Parties of record are notified when DOE issues their final decision. A 21-day appeal period starts from the date that they issue final approval. SCUP's are appealable to the Washington State Shorelines Hearings Board pursuant to RCW 90.58.180.

The 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.

WAC 173-27-160 (3) states, "Other 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 contained in the master program."

The City's Planning Director issued a Memorandum to the City's Parks and Recreation Director to this effect on May 14, 2009. **Please see EXHIBIT B.**

II. **BACKGROUND:** A significant amount of time and work and funds have been spent by the City's Administration, Parks Department Staff, consultants, agencies and the general public in regards to this project. This section intends only to summarize these efforts. We acknowledge that the total effort expended is significant and voluminous. Please refer to the September 2009 Feasibility Report by Reid Middleton at this address: http://www.cob.org/documents/parks/development/projects/boulevard-over-water-walkway-feasibility-report.pdf

Documents identifying OWW as a potential and/or future project (Not an exhaustive list) :

- ✓ 2002 Parks Recreation and Open Space Plan as well as the 2008 Update.
- ✓ 2004 Waterfront Futures Group Vision and Framework Plan.
- ✓ 2006 City of Bellingham Comprehensive Plan.
- ✓ Waterfront District Master Plan, including DEIS, both SEIS's and FEIS.
- ✓ 2009 Shoreline Master Program, approved locally and awaiting DOE approval.
- ✓ Waterfront District Preliminary Sub-Area Plan 2010.

City Council Meetings:
May 24, 2010
Agenda Bill AB18865
Capital Project update for the Over Water Walkway, Power Point Presentation.

June 1, 2009
AB18428 Resolution #2009-16
RESOLUTION ADOPTING THE 2010-2015 TRANSPORTATION IMPROVEMENT PROGRAM (TIP)
Project #5: Boulevard Park to Cornwall Avenue Overwater Pedestrian Walkway.

Additional City Council meetings include a public hearing for a Comprehensive Plan amendment adopting the 2008 Parks, Recreation and Open Space Plan and adoption of the City budget and capital facilities plan for the years 2008-2010.

Planning Commission:
Public Hearing and work session recommending a Comprehensive Plan amendment adopting the 2008 Parks, Recreation and Open Space Plan.

General Public Meeting for Over Water Walkway
June 26, 2008
Bellingham Public Library
Public Meeting to review overall design and obtain input.

Park Board:
Beginning in February 2009 the Boulevard Over Water Walkway has been included as a regular board reporting agenda item at every meeting. The project status, new developments, and project updates are discussed as needed at each meeting.

July 9, 2008, Presentation to Park Board: Boulevard Park and Over Water Walkway.

Greenway Advisory Committee:
June 19, 2008, Subcommittee report on the Boulevard Park Over Water Walkway.

February 17, 2010, Subcommittee report on the Boulevard Park Over Water Walkway.

Agency meetings on the project(not an exhaustive list):

- ✓ A scheduled meeting on November 15, 2010 @ Lummi Nation with consultants and parks staff.
- ✓ September 10, 2010 conference call with USACE, USCG, DOE, DNR, WDFW, consultants, parks and planning staff.
- ✓ September 9, 2010 meeting @ Lummi Nation with consultants, parks and planning staff.
- ✓ April 15, 2010 agency meeting with DNR, DOE, WDFW, consultants, parks staff.
- ✓ Other agency coordination is specified in Chapter 7.0 of the Feasibility Study available on website page listed directly below.

Materials considered: Shoreline CUP Application including JARPA, SEPA Checklist, Biological Assessment, Mitigation Report and SMP Compliance Report.

Feasibility Study including Appendices – September 22, 2009 by Reid Middleton: Document is available on the City's webpage:http://www.cob.org/government/departments/parks/projects/index.aspx
(A portion of the document is devoted to feasibility of upgrades and retrofitting of the Pattle Point Trestle – which is currently underway – as well as shoreline restoration along certain shorelines within Boulevard Park.)

III. OTHER AGENCIES ISSUING PERMITS:

Department of Ecology: Shoreline CUP and 401 Water Quality Certification
Washington State Department of Fish and Wildlife: Hydraulic Project Approval
Department of Natural Resources: Aquatic Resource Use Authorization
United States Coast Guard: Individual Permit (in place of USACE Section 10 for navigable waters.)
Department of Archaeology and Historic Preservation: Section 106 Concurrence

United States Fish & Wildlife & National Marine Fisheries Services: Endangered Species Act Concurrence
Federal Highway Administration: NEPA Compliance
City of Bellingham: Preliminary review of Shoreline CUP, Building and Stormwater Permits.

IV. SEPA: A Mitigated Determination of Non-Significance was issued on September 29, 2010. (SEP2010-00027) The project consultant provided responses to the MDNS.

The MDNS as well as the consultant's responses to comments made on the MDNS are attached as EXHIBIT C.

The conditions specified in the MDNS are as follows:

1. Grated decking shall be installed on walkway bents that cover bed-lands up to a depth of minus 15-feet MLLW.

   STAFF RESPONSE: Initially, grated decking was only provided over depths to where existing eelgrass is located – approximately out to minus 10-feet MLLW. The extension of the grated decking over depths up to minus 15-feet is intended to allow eelgrass opportunity to colonize and establish beyond its existing footprint.

2. Trees greater than 6-inches diameter at breast height that are removed shall be replaced at a ratio of 2:1 and shall be similar or native species. Replacement trees shall be installed within the shoreline jurisdiction anywhere within Boulevard Park.

   STAFF RESPONSE: The intent of this condition is to reestablish existing vegetation and function that it provides in terms of habitat structure for refuge, food and perching.

3. A shoreline erosion and sediment transport evaluation based upon the proposed alignment of the over-water-walkway shall be provided to the PCDD by a qualified professional prior issuance of public noticing for the Hearing Examiner public hearing. Erosion and sediment transport at the two landings, the shoreline reach between landings and reaches approximately 300-feet beyond each landing shall be included in the evaluation.

   STAFF RESPONSE: This information was provided on November 2, 2010. This information is necessary in order to conduct the analysis as required in Section 27 (Use Activity Regulations) in the City's SMP.

4. A revised Mitigation and Monitoring Plan shall be approved by WDFW, DNR and the City of Bellingham prior to issuance of any site work or building permits with the exception of any permits required for exploratory borings. Revised Plan shall include elements pertaining to acquisition of pre-project baseline data on macro-algae presence along proposed centerline of OWW and post project monitoring of eelgrass colonization at each end of the OWW to be consistent with WDFW guidelines. All other existing mitigation and monitoring elements within the Plan are satisfactory.

   STAFF RESPONSE: WDFW and DNR have specific mitigation guidelines and monitoring standards that have been developed by their respective in-agency biologists. The intent of this condition is to echo the requirements provided by these agencies.

The applicant has submitted a Revised Mitigation Report to the agencies including WDFW and the City. This is required in order for the WDFW to issue an H.P.A. for the project and for the DNR to issue a lease for the OWW.

5. A staging and construction / access plan shall be submitted and approved by the PCDD for each of the two abutments prior to issuance of any site work or building permits with the exception of any permits required for exploratory borings.

   STAFF RESPONSE: The majority of work on the project will be staged from barges and pile-driving-like vessels. The abutments and shoreline stabilization elements will take place at each end. However, it will be useful to understand hours of operation and expected number of heavy equipment trips through Boulevard Park and along Cornwall Avenue – a designated truck route.

6. Mitigation and monitoring as required by other Local, State and Federal agencies shall be implemented as required.

   STAFF RESPONSE: This ensures that other mitigating measures are implemented and provides consistency among the various permits required for this proposal.

   Additional conditions may be put forward by staff or the Hearing Examiner before the shoreline CUP is forwarded to the Department of Ecology for final review and approval.

V. EXISTING CONDITION and NO NET LOSS OF SHORELINE ECOLOGICAL FUNCTION: Boulevard Park is located at south end of OWW. Existing pier, wharf and associated pilings are currently roped off and inaccessible due to safety concerns. (These will be removed as specified above.)

Cornwall Avenue Landfill is located at north end of OWW. This site is a historic municipal landfill operated by the city. Since closure of that landfill it has been utilized by various industrial users.

It has been listed as a MTCA site and is under a consent decree / agreed order executed by the DOE. Currently, it is fenced off and not used. However, a remedial investigation and feasibility study is underway for cleanup activities which include not only cleanup but also habitat creation and public access improvements.

Portion of Cornwall Avenue Landfill where abutment is proposed is owned by COB and will be developed to be consistent with proposed cleanup action so as to prevent exacerbation of historical landfill and soil operations.

Shoreline between abutments consists of large boulders and rip-rap intended to stabilize the BNSF railroad grade. Eelgrass is present along the entire stretch of shoreline within the project area and has established itself generally between -2 and -10 MLLW.

The South Bay Trail travels parallel to but is located approximately 100 feet from the OHWM and averages approximately 40-feet in elevation above the OHWM. The South Bay Trail is heavily vegetated and during the summer months offers select 'window' views of Bellingham Bay. The South Bay Trail connects downtown Bellingham and Boulevard Park. The trail will continue to exist and function once the OWW is completed.

The City was required to perform a Shoreline Characterization and Inventory (SCI) as part of the update to the City's SMP. The project area is within 3 reaches identified in the SCI; marine reaches 7-9. The

northerly abutment is within marine reach 7 which includes the Cornwall Avenue Landfill. The over-water portion of the OWW is located almost entirely in marine reach 8. The southerly abutment at Boulevard Park is located in marine reach 9. **The data sheets for these three reaches can be found in EXHIBIT D. Additional information on existing condition is provided in EXHIBIT E.**

This inventory is necessary in order to establish a baseline condition by which "no net loss of shoreline ecological function of measured." Projects must demonstrate no net loss of shoreline ecological function by way of their location, configuration and design, construction as well as their mitigating elements. This is accomplished via the permitting process and through maintenance and monitoring of mitigation elements – typically over a five year period.

Demonstration of no net loss of shoreline ecological function is achieved by employing mitigation sequencing – which is described on page 27 of this staff report. The underlying objective, however, is to maintain the *natural processes* that occur at the project site. Examples of natural process occurring at this specific project site are wave energy, tidal currents, long-shore drift, sediment transport and natural or ambient light patterns. Based upon the project design and certain material presented in the EXHIBITS, staff expects that the natural processes at the project site will be maintained. Removal of derelict over-water structures and large concrete rubble material near the Cornwall abutment are expected to *re-introduce* some of these natural processes at the project site where currently they are absent.

Maintenance and re-introduction of natural processes will, over time, influence and form habitat structure. Examples of habitat structure present at the project site include (but are not limited to) an accretion beach at Boulevard Park, extensive and contiguous eelgrass beds, near-shore substrate of sand / gravel / cobble and a gently sloping inter-tidal area along the BNSF railroad grade. Based on the information presented in this staff report, staff expects habitat structure to be maintained with an opportunity for improvement.

Finally, presence of habitat structure provides habitat function or, ecological function. In order for habitat to function properly natural processes must be in place to form appropriate structure. Habitat function is often classified as impaired, moderate and high or, properly functioning. Please refer again to the marine reach sheets in EXHIBIT D. For each reach there is a 'Function Analysis' section where these classifications can be found.

Based upon the existing condition of habitat function within the project area, design and configuration and mitigating elements specified in the Mitigation Report staff concludes that the project will result in no net loss of shoreline ecological function.

VI. SMP / CAO INTERFACE: The City must ensure that the OWW is compliant with both the City's Shoreline Master Program (SMP) and the Critical Areas Ordinance. (CAO, BMC 16.55)

The SMP administers uses, setbacks and other regulations for development along / within marine waters. However, the applicable SMP that is applied to this project was adopted in 1989. The 2009 SMP, approved by City Council last December is not valid until the Department of Ecology reviews and issues its final approval which has not yet occurred.

The City of Bellingham adopted its CAO in December 2005. Specifically, subsection 16.55.050 requires that the CAO be applied to this particular project because it provides more protection to the critical area than does the SMP.

Furthermore, state law requires that municipalities like Bellingham who have an adopted CAO per the Growth Management Act but whom do not yet have an approved SMP pursuant to the 2003 DOE

Shoreline Master Program Guidelines (WAC 173-26) must implement critical area protection within shorelines until approval of an updated SMP is issued by DOE. (RCW 36.70A.480)

VII. SMP COMPLIANCE: This section intends to demonstrate compliance with the applicable sections of the City's 1989 Shoreline Master Program. (SMP)

NOTE: PLEASE ALSO REFER TO EXHIBIT F WHICH IS THE SMP CONSISTENCY REPORT PREPARED BY CONSULTANT.

Section 13: CONDITIONAL USES:

A. The purpose of the Conditional Use provision is to provide more control and flexibility for implementing the regulations of the Master Program. It is realized that many activities, if properly designed and controlled, can exist on the shorelines without detriment to the shoreline area.

STAFF RESPONSE: The entire project is being processed as Shoreline Conditional Use Permit. This allows flexibility in application of certain use activity regulations. However, in no case are buffer or setback widths being reduced nor is the proposed use being allowed within a shoreline designation where it is strictly prohibited.

B. All applications for conditional uses shall comply with the provisions of the Washington Administrative Code 173-14-140.

STAFF RESPONSE: The statute above states that, paraphrased, no use or development is permitted on shorelines of the state without demonstrating that the project is consistent with the policy and provisions of the Shoreline Management Act and the City's SMP. The remainder of this staff report will demonstrate compliance with this rule.

C. An applicant for a Substantial Development Permit, which requires a Conditional Use Permit shall submit applications for both permits simultaneously.

STAFF RESPONSE: Please see response to 'A' above.

D. Conditional Use Permit applications shall be considered by the Hearing Examiner at a public hearing, except for over-water, water-enjoyment uses proposed in the Urban Multi-Use Environment, in accordance with Section 25 (C) 4c, which shall be considered by the City Council. In addition to the notice requirement in RCW 90-58.140, notice of such public hearing shall be published no less than ten days prior to the date of the hearing.

STAFF RESPONSE: The proposed use is not within an Urban Multi-Use Environment. Notice of the November 17, 2010 Public Hearing was mailed out to abutting property owners and placed on the City's 'Notices' web-page on November 2, 2010. Public Notice signs were posted at Boulevard Park on November 3, 2010. Notice of Public Hearing was published in the Bellingham Herald on November 7, 2010.

E. Prior to the granting of a Conditional Use Permit, the Hearing Examiner must find that:

1. The conditions spelled out in the Master Program have been met.

STAFF RESPONSE: The conditions within the SMP have been met as demonstrated in the remainder of this staff report.

2. The use will cause no unreasonable adverse effects on the environment or other uses.

STAFF RESPONSE: Staff concludes that the project and its design will cause no unreasonable adverse effects on the environment or other uses. Please refer to the STAFF RESPONSE in Section 26 – General Use Regulations: subsection A.2 pertaining to development within a setback or water-body on page 14.

3. The use will not interfere with the public use of public shorelines.

STAFF RESPONSE: Staff concludes that the project will not interfere with the public use of the shorelines and in fact is intended to enhance existing public use and recreation within the project area. Please refer to the STAFF RESPONSE in Section 26 – General Regulations: subsection G. pertaining to development of public access on page 19.

4. Design of the site will be compatible with the surroundings.

STAFF RESPONSE: The OWW will be compatible with its surroundings in that recreation and public access are currently provided at Boulevard Park. The OWW is a new feature where presently none exist except for the derelict pier, wharf and pilings at the Boulevard Park abutment. However, the OWW will complement existing public access amenities currently available at Boulevard Park. The OWW will provide pedestrian accessibility to the waters of Bellingham Bay where presently none exists.

The OWW may not be compatible with its surroundings at the Cornwall Avenue abutment at the time it is constructed. However, as specified within the Waterfront District Preliminary Sub-Area Plan the OWW will connect to future habitat, shoreline edge and public access improvements at the Cornwall Avenue Landfill abutment on or before 2013-2014.

5. The proposed use will not be contrary to the purpose and intent of the environment designation in which it is located and the general intent of the Master Program.

STAFF RESPONSE: The following excerpts of the SMP are from the Purpose and Intent sections from each of the three shoreline designations that the project is located within.

Section 20: CONSERVANCY ENVIRONMENT II: The purpose of the Conservancy Environment II is to preserve those area which do not have physical limitations and are not uniquely natural, but offer opportunities for the general public to enjoy the shorelines of the City, whether said shorelines be natural or intensively developed.

STAFF RESPONSE: The OWW is consistent with the purpose statement above. Nearly all of the shorelines of the state within the City that are designated Conservancy II are also public parks or public access amenities; Boulevard Park, Lake Padden Park, Padden Creek Trail downstream of and including Fairhaven Park, Padden Lagoon, Post Point Lagoon, Arroyo Park, Cornwall Park and Whatcom Falls Park.

Section 21: CONSERVANCY ENVIRONMENT III: The purpose of the Conservancy Environment III is to preserve those areas which do not have physical limitations and are not uniquely natural, but which offer views of the water from public property and/or substantial numbers of residential properties.

STAFF RESPONSE: The OWW is consistent with the purpose statement above. Development on uplands within the City's only Conservancy III shoreline designation is virtually impossible given the BNSF railroad, steep slope, South Bay Trail and then additional steep slope up to State Street. (Which would be considered to have physical limitations contrary to the purpose stated above.)

The intent was to preserve the northern extent of Boulevard Park (along South State Street) and the South Bay Trail in order to maintain visual access of Bellingham Bay. Furthermore, in-water development of this nature was not anticipated at the time the 1989 SMP was developed. There is not an "Aquatic " shoreline designation in the 1989 SMP. The Cornwall Avenue landfill was fully occupied by Georgia Pacific log storage and processing operations while public access opportunities were available at Boulevard Park. Technically, the bed-lands are owned and managed by the Department of Natural Resources, a public agency responsible for ensuring that such areas are managed for resource protection as well as allowing public use and recreation in certain areas.

Section 24: URBAN MARITIME ENVIRONMENT: The purpose of the Urban Maritime Environment is to reserve areas of land use activities that require proximity to navigable waters.

STAFF RESPONSE: The OWW is consistent with the purpose statement above. The Cornwall Avenue Landfill is land area that is proximate to navigable waters. However, within the Waterfront District Preliminary Master Plan as well as the yet-to-be approved SMP the area is planned for future land use actions that do not include water-dependent uses but rather site clean-up, habitat creation and public access and recreation. Furthermore, the land area utilized for the northern landing of the OWW is a very small percentage of the total Urban Maritime shoreline area and marine infrastructure does not exist. Finally, over-water construction of publicly owned recreational uses are allowed in the Urban Maritime shoreline designation.

NOTE: The OWW falls within 3 different shoreline designations; Conservancy II, III and Urban Maritime. The OWW is not an expressly prohibited use in any of these designations. The OWW is not an expressly allowed use in the Conservancy II and III designations. Hence the project is being processed as a Shoreline Conditional Use Permit as provided for in WAC 173-27-160 (3).

It should also be noted that shoreline designations extend out into the water. It has never been determined at which angle extending out from the shoreline these boundaries exist or how far water-ward these designations extend. There is no Aquatic shoreline designation in the City's SMP. Nonetheless, staff have applied all three designations below to the project.

The City's 1989 SMP shoreline designation map is included in EXHIBIT G.

The Hearing Examiner may require additional conditions as are necessary to insure proper compliance with the intent and purpose of the environment designation and Master Program or to insure protection of the surrounding environment and uses.

F. Any Conditional Use Permit granted by the City must be forwarded to the Department of Ecology for its approval or approval with conditions or denial.

Additional compliance with WAC 173-27-160(2): CUMULATIVE IMPACTS: The law states, "In the granting of all conditional use permits, consideration shall be given to the cumulative impact of additional requests for like actions in the area. For example, if conditional use permits were granted for other developments in the area where similar circumstances exist, the total of the conditional uses shall

also remain consistent with the policies of RCW 90.58.020 and shall not produce substantial adverse effects to the shoreline environment.

STAFF RESPONSE: The intent of this policy is to analyze the cumulative impacts on the shoreline environment or, ecological function within proximity of the project area *if other similar developments or structures are also required to obtain a shoreline CUP.*

The law clearly states as an example, "if conditional use permits were granted for other developments in the area where similar circumstances exist, *the total of the conditional uses* shall also remain consistent with the policies of RCW 90.58.020 ...."

The law clearly requires the cumulative impact analysis to include the effect of additional requests for *shoreline CUP's* for similar projects in the area. The law does not require a similar analysis on the cumulative effect of potentially requested shoreline CUP's *as well as* potentially requested shoreline substantial development permits for similar developments within the project vicinity.

The Shorelines Hearings Board agreed with DOE in SHB No. 08-031 in that, "Ecology did not find a significant risk that numerous similar requests would be received or that approval of any such requests would cumulatively lead to a violation of shoreline policies or to substantial adverse effect to the shoreline environment." (Pursuant to the Mason County SMP, a shoreline CUP was required in this case because grading and filling and installation of a retaining wall was necessary to install the driveway to a proposed SFR and was considered non-water-dependent upland landfill.)

In a similar fashion, this very same cumulative impact analysis is required for a shoreline *variance* request. For example, what cumulative impacts would result to a stream buffer if every property owner requested the same 25-foot variance (reduction) from the 100-foot buffer requirement in order to build a single-family home?

The variance criteria in WAC 173-27-170 (4) states, " In the granting of all variance permits, consideration shall be given to the cumulative impact of additional requests for like actions in the area. For example if variances were granted to other developments and/or uses in the area where similar circumstances exist the total of the variances shall also remain consistent with the policies of RCW 90.58.020 and shall not cause substantial adverse effects to the shoreline environment."

The Shorelines Hearings Board ruled in SHB No. 07-029 that, "Approval of the variance could trigger others to seek similar variances, and there would be a cumulative impact on Lake Curlew's shoreline. Thus consideration of such a cumulative impact is also a legitimate basis upon which to conclude that the variance should be denied."

A cumulative impact analysis is required for this project. However, this analysis is not required to analyze the cumulative impacts to shoreline ecological function for ALL future requests for similar over-water public access features where they are permitted outright.

Please refer to EXHIBIT G which is the 1989 SMP shoreline designation map.

Shorelines from the foot of the Cornwall Avenue Landfill around to the head of the I and J Waterway (generally) are designated Urban Maritime. Within the Urban Maritime shoreline designation over-water public access features are allowed upon approval of a *shoreline substantial development permit* per C.1.b and c, below. A SCUP is not required for this type of feature in the Urban Maritime designation. Furthermore, the Waterfront District Preliminary Sub-Area Plan (The entire Cornwall

Avenue Landfill is within a portion of this Sub-Area) does include any over-water public access features.

The shoreline around the Bellwether Peninsula as well as the area surrounding Taylor Avenue Dock is designated Urban Multi-Use. In this designation over-water public access features are also allowed upon approval of a *shoreline substantial development permit* pursuant to Section 25 C.4.b. of the City's SMP.

A shoreline CUP would be required for additional over-water public access features in a Conservancy II designation. All shorelines within Boulevard Park – extending south to Bennett Avenue are designated Conservancy II.

The City's Parks Department owns and manages Boulevard Park. Existing over-water public access features include the Pattle Point Trestle (A complete retrofitting is underway) and the northern abutment of the Taylor Avenue Dock. A public access trail is provided along the entire shoreline edge of Boulevard Park.

Additional over-water public access features are not planned for at this time nor are additional over-water public access features shown or proposed in any comprehensive planning documents within this area.

In fact, shoreline restoration improvements to habitat and ecological function are planned for certain reaches between Woods Coffee (generally) and the southern abutment of the OWW. This concept is presented in the September 2009 Feasibility Study by Reid Middleton and is shown in EXHIBIT H.

Staff concludes that there will be no cumulative impacts that will adversely affect the shoreline environment from similar projects in the area requiring SCUP's based upon the following:

- ✓ **No additional over-water public access features are proposed within the Conservancy II shoreline designation (or within this project vicinity).**
- ✓ **Over-water public access features in other proximate shoreline designations are permitted outright.**

Section 20: CONSERVANCY ENVIRONMENT II:

A. DEFINITION: Areas which offer unique opportunity for the citizens of Bellingham to enjoy physical access to the shorelines and water.

B. PURPOSE AND INTENT: The purpose of the Conservancy Environment II is to preserve those area which do not have physical limitations and are not uniquely natural, but offer opportunities for the general public to enjoy the shorelines of the City, whether said shorelines be natural or intensively developed.

C. REGULATIONS: No clearing within 50 feet of the ordinary high water mark. No fills, hard surfacing, permanent structures or storage shall be located within 100 feet of the ordinary high water mark or clearing within 50 feet of the ordinary high water mark, unless permitted by Section 26 of this ordinance or the following:

D. CONDITIONAL USES: Setback may be reduced to 50 feet if the proposed development is of the nature and design that it takes advantage of and enhances the physical access to the shorelines for the general public.

STAFF RESPONSE: The OWW offers the citizens of Bellingham as well as all citizens of the State an opportunity to have physical access to the shorelines and the waters of Bellingham Bay. Conservancy

II designations vary in their certain abilities to offer physical access to the water. For example, in Whatcom Falls Park many of the trails do not formally allow or promote physical access *to* the water (nor is it necessarily safe to do so, especially in the gorge) but rather access to views *of* the water. This is different than Lake Padden which provides a swimming area open to the public where one may have physical access *to* the water.

Section 26 (General Regulations) of the SMP - allows for public access to be developed within required setback areas and/or water-bodies.

Section 21: CONSERVANCY ENVIRONMENT III:

A. DEFINITION: Areas which offer unique opportunity for the citizens of Bellingham to enjoy visual access to the shorelines and water.
B. PURPOSE AND INTENT: The purpose of the Conservancy Environment III is to preserve those areas which do not have physical limitations and are not uniquely natural, but which offer views of the water from public property and/or substantial numbers of residential properties.
C. REGULATIONS: No fills, hard surfacing, permanent structures, or storage shall be located within 25 feet of the ordinary high water mark, unless permitted by Section 26 of this ordinance.

Any development undertaken on the shorelines of a Conservancy III Environment shall be designed so that the highest point of any structure will be no higher than the level of the nearest adjacent upland public street right-of-way which is relatively parallel to the shoreline.

STAFF RESPONSE: The OWW is not on uplands within the Conservancy III shoreline designation. However, staff applies the regulations for the specific designation as they do for in-water marina facilities at Squalicum Harbor or in the Fairhaven Area. (Urban Maritime)

The OWW will allow citizens of Bellingham as well as all citizens of the State to enjoy visual access to the shorelines, Bellingham Bay and beyond. There is no upland development proposed within this designation. The height of the OWW including the railings will be the same approximate height as the BNSF railroad grade and hence will not impact views from the South Bay Trail or South State Street.

Section 24 – URBAN MARITIME ENVIRONMENT:

A. DEFINITION: Areas proximate to navigable waters and are suitable for water borne commerce or other water dependent use.
B. PURPOSE AND INTENT: The purpose of the Urban Maritime Environment is to reserve areas of land use activities that require proximity to navigable waters.
C. REGULATIONS:
    1. Permitted uses must be:
        a. Water-dependent, or
        b. Publicly owned waterfront recreational uses, which make use of a unique shoreline resource such as a waterfront park, view, tower, public pathway, public maritime interpretive display, or aquarium.
        c. Required public access features. The above uses are permitted on over- water construction.
    2. Non-water dependent uses, excluding residences, may be permitted as accessory uses provided they functionally support a permitted use. Accessory uses must be vacated if the primary use they support is vacated. Uses permitted as accessory uses shall not be built on over-water construction in the Urban Maritime Environment.

3. Conditional Uses: Water enjoyment uses may be permitted as conditional uses on land above the ordinary high water mark in the Urban Maritime Environment provided they meet all other ordinances, codes and regulations and provided they meet the following conditions:

a. The proposed development provides continuous public access at the water's edge.

b. The proposed use does not interfere or restrict existing or permitted water-dependent uses. Water-dependent commercial and industrial uses have primary over water-enjoyment uses in the Urban Maritime Environment.

Other conditions as set by the Direction of the Planning and Economic Development. Water enjoyment uses except for publicly owned waterfront recreational uses may not be built on over-water construction in the Urban Maritime Environment.

STAFF RESPONSE: The OWW is a permitted use in the Urban Maritime designation pursuant to subsection 1.b, above. Water dependent uses are not planned for this area within the Waterfront District Preliminary Master Plan. This portion of the Cornwall Avenue Landfill is intended for site remediation pursuant to an Agreed Order with the Department of Ecology and will also include significant habitat creation as well as new public access and recreation opportunities.

Section 26: GENERAL REGULATIONS:

A. The following activities are allowed within the setbacks required in Section 18 through 25 of this ordinance or in any water body, EXCEPT in a Natural Environment.

2. Development necessary to facilitate public access subject to the following:

a. Structures necessary to facilitate public access shall be designed so as not to impair the function of the water body.

b. Public access development within a required setback shall be limited to pedestrian or bicycle access.

c. Public access development shall consider and protect adjacent private properties.

STAFF RESPONSE: The OWW has been through significant review by other agencies with jurisdiction and permitting authority in order avoid impairment to the function of the proximate intertidal and near-shore areas. The mandate of all agencies is for a project to result in "no net loss of shoreline ecological function." The project has been designed and redesigned in order to achieve that objective.

Certain over and in water structures will be removed prior to construction of the OWW and abutments. These include a 3,300 square foot wharf / pier structure presently closed to access. This structure shades intertidal area, is unsafe and is supported by 87 creosote pilings.

Nine other isolated creosote pilings within the project area will also be removed. (A supporting wall for the existing pier / wharf may also be removed.) Removal of these structures will improve upon the existing circumstances and function.

The abutment at the Boulevard Park end has been designed so that approximately 600 cubic yards heavy loose rip-rap material will be placed above the elevation of mean higher high water. (MHHW) Existing loose rip-rap material will remain in place below the MHHW. A very small amount of material will be placed between the MHHW and the OHWM. Two wing-walls will also be constructed in order to support the landing of the OWW beginning at the elevation of the OHWM and extending landward. The main purpose for the large amount of material is to make certain that the landing(s) are ADA accessible.

The first four panels of the OWW decking will include grating that allow approximately 70% of light transmission into near-shore areas where eelgrass is present or may establish itself. (The MDNS requires that grated decking be installed on panels that extend out to minus 15-feet MLLW.) The remaining panels will not include the grating but are over water that has depths exceeding minus 15-feet MLLW. In this specific location eelgrass is present between approximately minus 1.7 and minus-10 feet MLLW. Typically, eelgrass does not establish or colonize beyond a depth of minus 15-feet MLLW.

Each panel is approximately 50-feet in length. At each bent (where panels are joined) there will be two 24-inch diameter steel galvanized pilings. At each bent the pilings are approximately 10-feet apart at the bed-lands. The OWW is aligned to be as near to north – south as possible. In fact, the alignment is within several degrees of true north and south alignment. Base of OWW panels are designed to be approximately 8-feet above elevation of MHHW.

Low-level lighting will be installed along railings and will be directed inwards towards the OWW deck panels with the exception of where the grating decking is used.

The abutment at the Cornwall end has been designed with similar concepts as the Boulevard Park abutment. The Cornwall shoreline is eroding and is more abrupt or, steep so the amount of materials is nearly double (12,300 cubic yards) in order to accommodate ADA accessibility. All material at the Cornwall end will be placed above the elevation of MHHW. However, wing-walls are not required only a concrete footing landward of the OHWM.

Same panel and piling design will be employed at the Cornwall end. Grated decking is required to extend to the minus 15-feet depth per the MDNS for this project.

There are numerous best available science documents and reports as well as certain "white papers" concluding that over-water and certain in-water structures, generally, can result in negative impacts to or degradation of shoreline ecological function in marine near-shore areas.

One example of best available science (for marine waters) in this regard is a document titled, "Regional Nearshore and Marine Aspects of Salmon Recovery in Puget Sound," compiled by Scott Redman, Doug Myers, Dan Averill (Puget Sound Action Team) and Kurt Fresh and Bill Graeber, NOAA Fisheries, June 28, 2005. In fact, this particular document was utilized during the update of the City's SMP during 2006-2009.

Specific to the subject proposal, summarized, these are:

SHADING FROM OVER-WATER STRUCTURES IN NEAR-SHORE AREAS. Shading can confuse salmonids – especially juveniles - and force them into deeper water where refuge and structure are less available and they become prey. Shading can cause fish schools to disperse resulting in smaller groups more easily preyed upon. Shading alters vision and can temporarily blind as fish leave shaded water and enter unobstructed water. Shading can stunt eelgrass growth or colonization and establishment. If eelgrass is not present or diminishes then species such as juvenile salmonids (Chinook and steelhead), forage fish (herring), and shellfish (Dungeness crab) lack cover and food sources. Shading can stunt macro-algae growth necessary for supporting eelgrass and other benthic (bed-land) organisms which are food sources for shell and forage fish.

PILINGS. Installation can disrupt bed-land characteristics, shell hash communities and cause mortality of benthic organisms. Installation noise can cause semi or permanent brain damage to certain salmonid species, especially juveniles or can result in confusion and/or re-location to unfamiliar areas

including deep water where structure and refuge is absent. Installation noise can also cause school fragmentation or dispersal. Pilings can alter and/or increase wave velocities and orbital scouring and thereby alter bed-land composition and near-shore sediment deposition and transport. These alterations can result in a decrease of benthic organisms and disruption to macro-algae communities.

IN-WATER / SHORELINE ARMORING. In-water armoring disrupts sediment transport and deposition along the shoreline. Armoring – especially bulkheads – increases wave, current and energy velocities in the near-shore areas. This results in disruption of and displacement of sand / gravel / cobble which in the near-shore areas, is important for eelgrass and macro-algae colonization, forage fish spawning and feeding and is home to a variety of benthic organisms. Certain salmonids and shellfish depend on these same species as a food source throughout various life stages.

LIGHTING: Lighting that is directed towards water-bodies, especially in near-shore and riparian areas can adversely impact diel pattern (natural or, ambient light) which in turn can cause salmonids to become confused and alter their behavior in terms of feeding, seeking refuge, spawning, schooling and movement into and out of their natal streams.

However, best available science documents also include certain management recommendations from agencies such as WDFW and NOAA that specify certain mitigating design elements for structures such as the OWW. These documents include but are not limited to:

- ✓ **Overwater Structures: Marine Issues, June 2001 prepared by University of Washington for Washington State Transportation Commission, DOT, FHWA and U.S. Department of Transportation.**
- ✓ **Land Use Planning for Salmon, Steelhead and Trout, October 2009 by WDFW.**
- ✓ **Protection of Marine Riparian Functions in Puget Sound, Washington, June 15, 2009 by Washington Sea Grant.**
- ✓ **Non-Fishing Impacts to Essential Fish Habitat and Recommended Conservation Measures, August 2003 by NOAA.**

The relative excerpts are included in EXHIBIT I.

A summary of recommended mitigating design elements for over-water structures specified in these reports include (but are not limited to):

- ✓ **Utilization of grated decking for piers and floats to allow light penetration to bed-lands – especially in near-shore areas.**
- ✓ **Alignment of piers in a north-south direction to prevent 'static' shaded areas.**
- ✓ **Alignment of piers in a perpendicular orientation.**
- ✓ **Alignment of piers in water deeper than minus 15-feet MLLW – preferably deeper than minus 30-feet MLLW and as perpendicular as possible to shorelines.**
- ✓ **Maximize height of over-water structures above OHWM.**

For pilings:

- ✓ **Maximize spacing between pilings (bents).**
- ✓ **Minimize size of pilings while meeting structural requirements .**
- ✓ **Maximize number of pilings in water deeper than minus 15-feet MLLW.**
- ✓ **Do not use creosote or treated wood.**
- ✓ **Install pilings during work-windows established by WDFW & USACE.**
- ✓ **Install pilings at low / slack tide in intertidal areas.**
- ✓ **Install and remove pilings with vibratory hammer.**

For shoreline armoring:

- ✓ **Utilization of bio-techniques / soft engineering.**
- ✓ **<u>Placement of armoring at or above elevation of OHWM.</u>**
- ✓ **Maintain native vegetation along shoreline edge.**

Lighting:

- ✓ **<u>Use lowest level lighting possible.</u>**
- ✓ **<u>Direct away from or shield from water.</u>**

Those design elements above that are underlined have been incorporated into the OWW project.

<u>Section 26: GENERAL REGULATIONS:</u>

F. CLEARING OF NATURAL VEGETATION – The clearing of vegetation is prohibited in the natural environment except as necessary to alleviate a condition damaging to the natural environment. The clearing of vegetation is prohibited within 50 feet of the shoreline in the Conservancy I and Conservancy II environments except in the following situations:

1. Vegetation may be cut where necessary to provide public access.
2. Vegetation may be cut in the 50-foot setback to alleviate a factor that is damaging to the natural environment or preventing normal water flow.
3. Vegetation may be cut in the 50 foot setback where maintaining the natural condition would prohibit the effective use of the property as permitted by other requirements of this Shoreline Master Program and other applicable ordinances.
4. Vegetation may be cut on residential properties if such cutting is not detrimental to fish habitat or stream ecology.
5. Vegetation may be removed as part of a city-approved program to enhance wildlife habitat or ecological conditions.

STAFF RESPONSE: Several mature conifers and deciduous trees are required to be removed at the Boulevard Park abutment in order to develop the ADA accessible landing. The MDNS (SEP2010-00027) that was issued for the project included a condition that trees greater than 6-inches diameter at breast height (dbh) are required to be replaced at a 2:1 ratio and installed within the shoreline jurisdiction.

G. PUBLIC ACCESS: Public access shall be encouraged wherever possible. The Bellingham Open Space Plan shall be used as a guideline for where access is most desirable.

1. No development shall block or interfere with the normal public use of or public access to publicly owned shorelines and water bodies.
2. All developments shall be designed to protect and enhance views and visual access to the water and shorelines.
3. All developments, including recreational, multi-family residential, commercial or industrial, located along public shorelines or unique shoreline areas shall be required to provide view corridors, public access-ways, trail easements or other amenities upon a determination by the City that the action would enhance public enjoyment of the shoreline, not unduly conflict with the proposed use, adjacent uses or public safety nor adversely impact the shoreline environment and is consistent with the City of Bellingham Open Space Plan.
4. Any required public access easement shall be of a size and design appropriate to the site, size, and general nature of the proposed development. Such easements shall be

recorded on a property deed or face of a plat as a condition running in perpetuity with the land.

5. Signs which indicate the public's right of access shall be installed as required by the Director of Planning and Economic Development Department.
6. Public use on private property which is a condition of a shoreline permit may be limited to daylight hours or otherwise restricted to prevent use conflicts.
7. Where possible, public access sites shall have direct and easy access from the street.
8. Public access may be considered unfeasible and not be required where;
   a. Unavoidable hazards to the public in gaining access exist.
   b. Inherent security requirements of the use cannot be satisfied.
   c. Unavoidable interference with the use would occur.
   d. The cost of providing the access is unreasonably disproportionate to the total cost of the proposed development.
   e. Where damage to the natural ecology of the area would result and could not be mitigated.
   f. In the above, the applicant shall first demonstrate and the City shall determine that all reasonable alternatives have been exhausted, including but not limited to 1) maintaining a gate and limiting hours of use, or modifying operations and scheduling 2) designed separation of uses and activities, i.e. fences, terracing, use of one-way glazings, hedges, landscaping, etc. 3) provision of or contribution to an access at a site geographically separated from the proposal.
9. Public access to the shoreline shall be required on all public property, except as indicated above or as follows:
   a. In harbor areas completely occupied by water-dependent uses.
   b. In street ends or waterways occupied by water-dependent uses under permit or lease.
10. On property where public access is infeasible, the applicant may be permitted to provide off-site public access in the form of view platform, interpretive display or other public access enhancement consistent with the Open Space Plan in lieu of on-site access.
11. Required public access sites shall be fully developed and available for public use at the time of occupancy of the development unless the required public access site is on an undeveloped segment of a trail route designated in the Bellingham Open Space Plan. In this case, the required public access shall be fully developed and available for use when the trail segment is developed.
12. Where public access is not required on-site due to one of the factors cited in 8 or 9 above, a payment in lieu may be required prior to permit approval to provide a similar or equivalent amenity.
13. "Required public access" shall include not less than a pedestrian bicycle pathway of suitable surfacing and standards to meet the intended purpose, adequate signage to inform the public of the public access, design features and landscaping to make the facility in harmony with the shoreline setting, and where appropriate, facilities which are designed to meet the anticipated use including use by disabled persons.
    Where required public access is located on a trail route indicated in the City of Bellingham Open Space Plan, the access-way shall connect to adjoining trail sections including access points and vistas, either existing or planned. If the required access does not connect to a continuous public trail, the required access shall connect to a public right-of-way.
14. Future actions by the applicant shall not diminish the usefulness or value of the public access site.

STAFF RESPONSE: Specifically, responses to numbers 1,2,7 and 8e: The OWW is intended to be a public access amenity for the entire community and those citizens residing outside the community as well. The OWW will not interfere with the existing public access amenities currently available within the project area. Public access will continue to exist as it does in it's present configuration. It will provide new access at / to the Cornwall Avenue Landfill area – although access to the shoreline edge itself at the Cornwall end will not be accessible until the implementation of the Cleanup Plan.

Non-motorized craft will continue to have navigational access to the entire shoreline within the project area. The vessels that are currently moored within the project area are unauthorized. A lease granted by the DNR is required for either individual vessels to moor or for an entity such as the Port or City of Bellingham to install and manage a moorage facility within the project area. Larger motorized vessels and those with masts will be prevented from having navigational access to waters landward of the OWW.

RCW 90.58 intends for there to be an allowance "...for limited reduction of rights of the public in the navigable waters" provided the development "will promote and enhance the public interest." The OWW is not within proximity of nor will it disrupt common routes of travel for vessels to and from the Whatcom Waterway and both basins of the Squalicum Marina.

The OWW is proposed to be located within waters that are part of Lummi Nation's Usual and Accustomed Treaty Rights and fishing grounds. The OWW, if constructed, would prevent Lummi Nation from harvesting certain fisheries from that area. The OWW is designed such that a typical Lummi Nation fishing vessel would not be able to access the waters between the OWW and the abutting shoreline.

Parks Department staff and their consultants are meeting with Lummi Nation representatives on Monday November 15, 2010 to resolve this issue. CONDITION #4 on page 34 addresses this.

Views will be enhanced because citizens will have a new vantage from out over the waters of Bellingham Bay. The OWW will not obstruct any upland public views. Views from upland private residences will not be impacted.

Section 27: USE ACTIVITY REGULATIONS:

E. BULKHEADS: The following regulations apply to the construction of bulkheads and seawalls and the placement of rip-rap.

1. Prior to the granting of a permit, the effect of the bulkhead on downstream or adjacent properties shall be determined by the Department of Planning and Economic Development and the disposition of the permit shall reflect such determination. The applicant for a permit to construct a bulkhead shall supply information as to the configuration of the shoreline and consistency of bank materials for properties within 300 feet in both directions from the proposed bulkhead.
2. Construction of bulkheads for the indirect purpose of creating land by filling behind the bulkhead shall be prohibited unless such landfill is permitted by the Master Program.
3. Bulkheads shall be prohibited which adversely affect public access to publicly owned shorelines.
4. The surface of any bulkhead shall be kept free of protruding wires, cables, metal straps, etc. Broken concrete or asphalt, or scrap metal materials shall not be used on the surface of any bulkhead.

5. The placement of rip-rap and other bank protection materials shall be done in conformance with Department of Fisheries and Department of Wildlife regulations.
6. The top of any bulkhead or rip-rap installation shall be no higher than the adjacent upland shoreline. Bulkhead materials shall not be placed landward so as to prevent the reestablishment of shoreline vegetation.
7. Bulk-heading for the sole purpose of channelization or channel stabilization is prohibited.

STAFF RESPONSE: The abutments at each end of the OWW include a small amount of material below the elevation of the OHWM in order to prevent erosion in order to maintain structural integrity. Therefore this section applies. Bulkheads are defined in the SMP as "Structures or rip-rapping erected parallel to or near the high water mark for the purpose of protecting adjacent uplands from the action of waves or currents."

An evaluation of erosion and sediment transport as a result of the constructed OWW (pilings and abutments) was provided to Planning Department Staff by Coast & Harbor Engineering. This evaluation is provided in EXHIBIT J.

This evaluation concluded that during a certain 'worst case' storm event that produces the largest wind and waves at the project site. The storm event that was modeled included winds up to nearly 54 m.p.h. originating from 240-degrees. (Approximately 7 o'clock) The evaluation also states that the majority of wind comes from a southerly direction and that the project site is mostly sheltered due to headlands of Boulevard Park. (Footnote #3)

The analysis shows that this storm event would not change existing natural processes. And in fact, wave heights and bottom scouring that occurs in concert with wave energy (orbital velocities) would be equal to or less than those associated with existing conditions (i.e. No over-water-walkway)

The bulkhead / abutments do not create new usable land areas, do not impact the public's ability to access publicly owned shorelines in either location and consist of large boulders and smaller quarry spalls.

The elevation of the abutments will be higher than the adjacent upland. However, this is necessary in order for the OWW to be ADA compliant AND to be elevated approximately 8-feet above the elevation of the MHHW in order to avoid shading impacts to existing eelgrass. (Recall that Section 13.A. on page 8 provides flexibility to these use regulations.)

J. LANDFILL: The following regulations shall apply to all landfill operations on the shorelines of the City.

1. Landfills, which result in water surface reduction, shall only be permitted to accommodate water dependent and/or public uses.
2. All landfills shall be provided with vegetation, retaining walls and/or other mechanisms as are necessary for erosion prevention. Retaining walls or bank protection shall conform to regulations pertaining to bulkheads.
3. Fill materials shall be used which do not pose a potential threat to water quality. When dredge spoils are used for fill materials, the fill must be placed behind an impermeable dike or bulkhead.
4. Landfills shall blend with existing topography in order to not interfere with the visual and/or physical shoreline access of the public or adjacent residents.

5. Landfill within 200 feet of the point of entrance of a freshwater stream into marine waters shall not interfere with or endanger the migration of anadromous fish species nor reduce the area of estuarine mudflats which are exposed at mean low tide.

STAFF RESPONSE: The definition of landfill in the SMP is the "creation of dry upland areas by the filling or depositing of sand, soil or gravel into a water body or wetland area." The abutments at each end do not necessarily create 'new' dry upland areas but a small amount of materials are certainly intended to be placed below the OHWM.

The purpose for these materials are explained in the STAFF RESPONSE to 'bulkheads' above. However, this material is necessary for a public use. The materials intended to be used (which are NOT dredge spoils) will not impact or threaten water quality. The abutments are not within proximity of an estuarine system.

N. PIERS: The following regulations shall apply to the installation of all piers, docks, and floats on the shorelines of the City.

1. Piers, docks or floats shall be constructed so as to cause minimum interference with the public use of the water surface and shoreline, and so as to cause no undue harm to adjacent properties.
2. Prior to the granting of a permit for a pier, dock or float, the effect of that structure upon adjacent shorelines shall be determined by the Director of the Bellingham Planning and Economic Development Department and the disposition of the permit shall reflect such determination.
3. Where feasible pile or floating piers and docks shall be used instead of rip-rapped or bulk-headed supports.
4. Piers, docks, or floats within 200 feet of the point of entrance of a freshwater stream into marine waters shall not interfere with or endanger the migration of anadromous fish species nor be constructed over estuarine mudflats which are exposed at mean lower low tide.
5. No covered moorage or boathouses shall be constructed on the shorelines except in an authorized marina.
6. Use of treated wood on Lake Whatcom: Piles, floats or other members in direct contact with the water on Lake Whatcom shall not be treated or coated with paint, pentachlorophenol, arsenate compounds, creosote or other preservative treatment. Wooden members situated above the water may be constructed of factory applies copper arsenate providing it is approved by the U.S. Environmental Protection Agency (EPA) for the purpose and the EPA regulations for its use are adhered to. No field application of paint, preservative treatment or other chemical is permitted over the water of Lake Whatcom or in a location where water run-off could enter the lake.

STAFF RESPONSE: The OWW will result in minimal interference with the public's use of the water surface and has been designed to cause no undue harm to adjacent properties. Floating piers are not proposed. Covered moorage and treated wood pilings are not proposed.

(Please refer to the STAFF RESPONSE to sub-sections A.2 and G. in Section 26 – GENERAL REGULATIONS on page 14 and sub-section E. in Section 27 – pertaining to bulkhead on page 20.

P. RECREATION: The following regulations shall apply to the development of all recreational facilities on the shorelines of the City.

1. Recreational development shall be designed to minimize adverse effects on the natural amenities of the shoreline while enhancing its recreational value and protecting the public health and safety.
2. Public recreational development shall recognize the wide variety of recreational needs and desires.
3. Commercial recreational development shall conform to regulations contained herein relating to commercial development.

STAFF RESPONSE: The shorelines themselves in the project area are NOT natural. Both the Cornwall and Boulevard Park land areas are historic land-fills. The shoreline abutting the BNSF railroad has been heavily armored to prevent erosion.

Nonetheless, there are existing amenities that have been created over time such as Boulevard Park, the South Bay Trail and a small accretion beach at the northeast corner of Boulevard Park that is utilized as launch area for hand-carry water-craft.

The OWW will serve to enhance the existing amenities at Boulevard Park by providing public access out over the water. The OWW will complete a water-front linkage from Boulevard Park to the future habitat and public access improvements at Cornwall Avenue Landfill when the WDMP is implemented. Ultimately, the WDMP intends a connecting multi-modal trail from the Cornwall abutment all the way to Central Avenue at the mouth of Whatcom Creek. The OWW will be a multi-use linkage intended to accommodate pedestrians and cyclists. (Only small maintenance vehicles *may* utilize the OWW.)

S. SHORELINE PROTECTION:

1. Diking for the purpose of protection from flooding shall not be permitted within any required setback.
2. Dikes shall be planted with suitable vegetation to prevent erosion.
3. Bank stabilization for the purpose of protecting property from erosion shall conform to the regulations contained herein relating to bulkheads.

STAFF RESPONSE: Please see STAFF RESPONSE to Section 27 – Use Activity Regulations; subsection E. pertaining 'bulkheads' on page 20.

VIII. SHORELINE MANAGEMENT ACT COMPLIANCE: RCW 90.58.020 enunciates the policy of the Shoreline Management Act (SMA) and provides use preferences to those developments occurring within Shorelines of Statewide Significance (SSWS). The project is located within a SSWS (marine waters of Puget Sound and those bed-lands extending water-ward of the elevation of MLLW) and therefore must comply with the seven objectives specified below.

"The legislature declares that the interest of all of the people shall be paramount in the management of shorelines of statewide significance. The department, in adopting guidelines for shorelines of statewide significance, and local government, in developing master programs for shorelines of statewide significance, shall give preference to uses in the following order of preference which:

(1) Recognize and protect the statewide interest over local interest;
(2) Preserve the natural character of the shoreline;
(3) Result in long term over short term benefit;
(4) Protect the resources and ecology of the shoreline;
(5) Increase public access to publicly owned areas of the shorelines;

(6) Increase recreational opportunities for the public in the shoreline;
(7) Provide for any other element as defined in RCW 90.58.100 deemed appropriate or necessary.

In the implementation of this policy the public's opportunity to enjoy the physical and aesthetic qualities of natural shorelines of the state shall be preserved to the greatest extent feasible consistent with the overall best interest of the state and the people generally. To this end uses shall be preferred which are consistent with control of pollution and prevention of damage to the natural environment, or are unique to or dependent upon use of the state's shoreline. Alterations of the natural condition of the shorelines of the state, in those limited instances when authorized, shall be given priority for single family residences and their appurtenant structures, ports, shoreline recreational uses including but not limited to parks, marinas, piers, and other improvements facilitating public access to shorelines of the state, industrial and commercial developments which are particularly dependent on their location on or use of the shorelines of the state and other development that will provide an opportunity for substantial numbers of the people to enjoy the shorelines of the state. Alterations of the natural condition of the shorelines and shorelands of the state shall be recognized by the department.

(1) Recognize and protect the statewide interest over local interest;
STAFF RESPONSE: The OWW is located in an area in which federal and state listed anadromous salmonids have a primary association. These include – but are not limited to – Puget Sound Chinook, Steelhead and Bull Trout (Dolly Varden). The OWW is located in a priority habitat as specified by WDFW. This priority habitat – the marine near-shore environment – includes extensive and intact eelgrass beds within the entire project area. Maintaining (and improving) the existing shoreline ecological function within the marine near-shore environment is vital to the overall health of Puget Sound as specified by the Puget Sound Partnership and other state agencies such as WDFW and DOE. The health of Puget Sound correlates directly with the way many if not most Washingtonians view their quality of life.

The OWW has been designed in order to protect and maintain these existing shoreline ecological functions as is demonstrated in this staff report and within the Revised Mitigation Report submitted by Anchor QEA in November, 2010.

Please also see the STAFF RESPONSE to Section 26 – General Use Regulations A.2 pertaining to development in order to facilitate public access on page 14 as well as the STAFF RESPONSE to Section 27 – Use Activity Regulations pertaining to bulkheads on page 20.

The OWW will provide a unique public access recreation opportunity for citizens outside of Bellingham and Whatcom County. The same attraction that exists for the linkages and amenities that Taylor Avenue Dock provides should also be realized for the OWW. Together, with over-water connections to Fairhaven and the future Waterfront District and *its* planned shoreline public access, citizens from all parts of Washington State - especially Puget Sound – will enjoy this feature for many years to come.

(2) Preserve the natural character of the shoreline;
STAFF RESPONSE: While the shoreline within the project area is not uniquely natural the existing character is being preserved. The OWW abutments at each end of the project are located on historic landfills. The shoreline parallel to the OWW is heavily armored to preserve the existing BNSF railroad bed. New abutments include new rip-rap material placed entirely above the elevation of the MHHW. (A small amount of material will be placed between the MHHW and the OHWM at each abutment for structural integrity.)

In fact, removal of derelict and pollution generating structures such as an over-water pier and wharf and its associated pilings as well as isolated in-water pilings along the railroad bed is expected to improve the character and function of the shoreline within the project area.

(3) Result in long term over short term benefit;
STAFF RESPONSE: In the long term, the OWW will provide a waterfront connection between the existing City owned and heavily used public access shoreline recreation area at Boulevard Park to the planned public access shoreline recreation area at the historic Cornwall Avenue Landfill. The planned improvements at Cornwall Avenue – which will also be City owned - include landfill remediation, habitat creation and public park areas. Presently, the shoreline at Cornwall is eroding and minimal shoreline ecological function exists. The Cornwall abutment will improve that situation at that location.

Planned improvements at Cornwall as specified above are intended to be implemented on or before 2013-2014. At that point the OWW will serve as a long-term and direct public access connection from one public recreation area to another

The OWW will also serve as a link in the Coast Millennium Trail that provides public access to shoreline areas from Vancouver, Washington to White Rock, British Columbia.

(4) Protect the resources and ecology of the shoreline;
STAFF RESPONSE: Please see response to number (1), above and STAFF RESPONSE to Section 26 – General Use Regulations A.2 pertaining to development in order to facilitate public access on page 14.

(5) Increase public access to publicly owned areas of the shorelines;
STAFF RESPONSE: The OWW, a publicly owned water-enjoyment use will increase access to publicly owned areas of shorelines and water-bodies. Please also see number (3) above and STAFF RESPONSE to Section 26 – G; public access on page 19.

(6) Increase recreational opportunities for the public in the shoreline;
STAFF RESPONSE: Please see responses to number (5), above. The OWW is consistent with prior adopted planning processes that not only identify this project specifically but also provide additional opportunities for the general public to recreate within the waters of Bellingham Bay.

(7) Provide for any other element as defined in RCW 90.58.100 deemed appropriate or necessary.

IX. CRITICAL AREAS ORDINANCE COMPLIANCE (CAO): The City's CAO also applies to the OWW because it is proposed within areas that are designated as Fish and Wildlife Habitat Conservation Areas (FWHCA) pursuant to BMC 16.55.470.A. which states, "Areas With Which State or Federally Designated Endangered, Threatened, and Sensitive Species Have a Primary Association." At a minimum, the following subsections qualify the project area as a FWHCA:

.470.A.1.a: "Federally designated endangered and threatened species are those fish and wildlife species identified by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service that are in danger of extinction or threatened to become endangered. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service should be consulted for current listing status."
(Puget Sound Chinook and Puget Sound Steelhead)

.470.A.1.b: "State designated endangered, threatened, and sensitive species are those fish and wildlife species native to the state of Washington identified by the Washington Department of Fish and Wildlife, that are in danger of extinction, threatened to become endangered, vulnerable, or declining and are

likely to become endangered or threatened in a significant portion of their range within the state without cooperative management or removal of threats. State designated endangered, threatened, and sensitive species are periodically recorded in WAC 232-12-014 (state endangered species) and WAC 232-12-011 (state threatened and sensitive species). The state Department of Fish and Wildlife maintains the most current listing and should be consulted for current listing status."
(Puget Sound Chinook, Chum, Coho and Bull Trout (Dolly Varden)

.470.A.1.c: "State Priority Habitats and Areas Associated With State Priority Species are considered to be priorities for conservation and management. Priority species require protective measures for their perpetuation due to their population status, sensitivity to habitat alteration, and/or recreational, commercial, or tribal importance. Priority habitats are those habitat types or elements with unique or significant value to a diverse assemblage of species. A priority habitat may consist of a unique vegetation type or dominant plant species, a described successional stage, or a specific structural element. Priority habitats and species are identified by the state Department of Fish and Wildlife."
(Puget Sound Nearshore)

.470.A.2: "Kelp and Eelgrass Beds and Herring, Smelt and Sand Lance Spawning Areas."

.470.A.6: "Waters of the State. Waters of the state include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington, as classified in WAC 222-16-031 (or WAC 222-16-030 depending on classification used)."

.470.B. All areas within the City meeting one or more of these criteria, regardless of any formal identification, are hereby designated Critical Areas and are subject to the provisions of this Chapter and shall be managed consistent with the best available science.

The CAO provides more protection of these FWHCA's than does the SMP so the CAO must be applied pursuant to BMC 16.55.050. Compliance with CAO sections are specified below. There are instances where information provided in certain STAFF RESPONSE's above will also be applicable to the following CAO sections. (Only those sections of the CAO that apply to this project are included below.)

<u>BMC 16.55.200 - Review Criteria</u>

A. Any alteration to a Critical Area, unless otherwise provided for in this Chapter, shall be reviewed and approved, approved with conditions, or denied based on the proposal's ability to comply with all of the following criteria:

1. The proposal minimizes the impact on Critical Areas in accordance with Mitigation Sequencing [Section 16.55.250];
2. The proposal does not pose an unreasonable threat to the public health, safety, or welfare on or off the development proposal site;
3. The proposal is consistent with the general purposes of this Chapter and the public interest;
4. Any alterations permitted to the Critical Area are mitigated in accordance with Mitigation Plan Requirements [Section 16.55.260] and additional requirements as outlined in specific Critical Area sections;
5. The proposal protects the Critical Area functions and values consistent with the best available science and results in no net loss of Critical Area functions and values; and
6. The proposal is consistent with other applicable regulations and standards.

B. The City may condition the proposed activity as necessary to mitigate impacts to Critical Areas and to conform to the standards required by this Chapter.
C. Except as provided for by this Chapter, any project that cannot adequately mitigate its impacts to Critical Areas in the sequencing order of preferences in Section 16.55.250 shall be denied.

STAFF RESPONSE: Compliance with these REVIEW CRITERIA will be demonstrated in the sections below. Mitigation sequencing has been implemented. The proposal has been designed to avoid unreasonable threats to public health, safety and welfare at and beyond the project site. The project has a mitigation plan that is consistent with the requirements in subsection .260. The project has been designed to be consistent with BAS and is expected to result in no net loss of shoreline ecological function. As shown in prior sections above, the project is also compliant with the SMP.

BMC 16.55.250 - Mitigation Sequencing

Applicants shall demonstrate that all reasonable efforts have been examined with the intent to avoid and minimize impacts to Critical Areas. When an alteration to a Critical Area is proposed, applicants shall follow the mitigation sequential order of preference below:

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, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;
C. Rectifying the impact to wetlands, critical aquifer recharge areas, frequently flooded areas, and habitat conservation areas by repairing, rehabilitating, or restoring the affected environment to the historical conditions or the conditions existing at the time of the initiation of the project;
D. Minimizing or eliminating the hazard by restoring or stabilizing the hazard area through engineered or other methods;
E. Reducing or eliminating the impact or hazard over time by preservation and maintenance operations during the life of the action;
F. Compensating for the impact to wetlands, critical aquifer recharge areas, frequently flooded areas, and habitat conservation areas by replacing, enhancing, or providing substitute resources or environments; and
G. Monitoring the hazard or other required mitigation and taking remedial action when necessary. Mitigation for individual actions may include a combination of the above measures.

STAFF RESPONSE: Chapter 5 of the Revised Mitigation Report for the OWW provides demonstration of mitigation sequencing. Please see EXHIBIT K. To summarize:

- ✓ **Eelgrass bed at the Cornwall end of the OWW have been avoided.**
- ✓ **The OWW minimizes impacts to the eelgrass bed at the Boulevard Park end of the OWW by crossing over the narrowest portion of the bed.**
- ✓ **The shading from the OWW is minimized in areas where eelgrass is present and may establish by utilization of grated decking.**
- ✓ **Impacts to substrate within the inter-tidal and near-shore are minimized by using the fewest number of pilings possible.**
- ✓ **Low level lighting is used in order to minimize impacts to natural light patterns.**
- ✓ **Near-shore area is rectified by removal of historic and derelict over-water and in-water structures at Boulevard abutment (wharf and pier).**
- ✓ **Near-shore area is rectified by removal of large concrete rip-rap within the water near Cornwall abutment.**

- ✓ **Monitoring will continue up to 5-years after project completion to ensure that eelgrass continues to thrive and colonize.**
- ✓ **Monitoring will also occur for noise associated with piling installation during the project.**

It is important to indicate that other agencies conduct their review and permitting according to mitigation sequencing as it is an element of State law embodied in the State Environmental Policy Act. (SEPA: WAC 197-11-768)

Finally, it should be noted that avoidance of this project altogether would nullify significant amount of time and money invested by countless individuals in the reporting and analysis conducted by professionals and consultants, review by advisory boards and City Council, preparation of grant applications, agency coordination not to mention the general public's participation and involvement.

This project has been identified in multiple planning processes such as the Waterfront Futures Group Framework Plan, the 2002 & 2008 Parks and Recreation Open Space Plans and the 2009 Shoreline Master Program as a recreation amenity intended to improve waterfront access to the shorelines. Furthermore, this project intends to complete multi-modal linkages to the Waterfront District and beyond. This amenity will become part of the Coast Millennium Trail which is comprised of a corridor of on-and-off street pedestrian/bicycle facilities extending northward from northwestern Skagit County to White Rock, British Columbia.

In addition, sentiment exists that the OWW is a "duplicative" trail segment due to its proximity to the South Bay Trail and therefore, the construction and associated impacts of the OWW can be avoided.

However, the South Bay Trail (SBT) provides different functions as well as a different trail experience than the proposed OWW.

First, the SBT connects Boulevard Park directly to the Central Business District. The OWW will connect Boulevard Park to the Waterfront District including planned park and trail amenities along the shoreline. Access to the Central Business District is not directly available from the OWW nor is access to the shoreline directly available from the SBT.

Second, the SBT has an at-grade railroad crossing which are not entirely safe. A second at-grade crossing (at Wharf Street) is required in order to access the waterfront and the existing pocket beach at the foot of Cornwall Avenue. There is little to no shoulder or sidewalk along either side of Wharf Street. The OWW requires no at-grade railroad crossings.

Third, as the Central Business District and Fairhaven and the south side generally continue to develop more housing units over time this trail segment may become stressed and could require expansion. However, the OWW provides an alternate linkage designed to handle a larger volume of users and could inherit a percentage of the SBT overage.

Fourth, the trail experience along the SBT is different than the experience expected along the OWW. During the summer months along certain portions of the SBT views of the shoreline edge and Bellingham Bay itself are obstructed by mature vegetation along the trail and along the bluff below. The narrow corridor cut out along the steep hillside can *feel* more like sections of the inter-urban trail than a *shoreline* trail.

The OWW will afford unobstructed views of Bellingham Bay and land masses beyond, the Waterfront District, Squalicum Peninsula and Marina views back towards the shoreline itself as well as close observation of marine birds, mammals, and near-shore / inter-tidal processes. These views and

observations not nearly as available along the SBT between the Central Business District and Boulevard Park.

16.55.480 - Critical Area Report - Additional Requirements For Habitat Conservation Areas

In addition to the general critical area report requirements of [Section 16.55.210], critical area reports for habitat conservation areas must meet the requirements of this Section. Critical area reports for two or more types of Critical Areas must meet the report requirements for each relevant type of critical area.

A. Prepared by a Qualified Professional. A Critical Areas report for a habitat conservation area shall be prepared by a qualified professional in accordance with BMC 16.55.510.

B. Areas Addressed in Critical Area Report. The following areas shall be addressed in a critical area report for habitat conservation areas:

1. The project area of the proposed activity;
2. All habitat conservation areas and recommended buffers within 300' of the project area; and
3. All shoreline areas, floodplains, other Critical Areas, and related buffers within 300' of the project area.

C. Habitat Assessment. A habitat assessment is an investigation of the project area to evaluate the potential presence or absence of designated critical fish or wildlife species or habitat. A critical area report for a habitat conservation area shall contain an assessment of habitats including the following site- and proposal-related information at a minimum:

1. Detailed description of vegetation on and adjacent to the project area and its associated buffer;
2. Identification of any species of local importance, priority species, or endangered, threatened, sensitive, or candidate species that have a primary association with habitat on or adjacent to the project area, and assessment of potential project impacts to the use of the site by the species;
3. A discussion of any federal, state, or local special management recommendations, including Washington Department of Fish and Wildlife habitat management recommendations, that have been developed for species or habitats located on or adjacent to the project area;
4. A detailed discussion of the direct and indirect potential impacts on habitat by the project, including potential impacts to water quality;
5. A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing habitats and restore any habitat that was degraded prior to the current proposed land use activity and to be conducted in accordance with Mitigation Sequencing [Section 16.55.250]; and
6. A discussion of ongoing management practices that will protect habitat after the project site has been developed, including proposed monitoring and maintenance programs.

STAFF RESPONSE: A Biological Assessment and a Mitigation Report were prepared for this project by Anchor QEA, LLC in June 2010 as part of the shoreline permit application. A subsequent Revised Mitigation Report was prepared in November 2010.

The Biological Assessment has been reviewed and is submitted as part of this staff report and record. However, The BA is lengthy (125 pages) and is available on the City's webpage. The cover, table of contents, summary and conclusion is provided in EXHIBIT L.

D. Additional Information May Be Required. When appropriate due to the type of habitat or species present or the project area conditions, the Director may also require the habitat management plan to include:

1. An evaluation by an independent qualified professional regarding the applicant's analysis and the effectiveness of any proposed mitigating measures or programs, to include any recommendations as appropriate;
2. A request for consultation with the Washington Department of Fish and Wildlife or other appropriate agency; and
3. Detailed hydrologic features both on and adjacent to the site.

STAFF RESPONSE: The consultants for the project have had numerous interactions (meetings and phone calls) with agencies regarding this project – most notably WDFW and DNR in order to establish mitigation and post project monitoring that results in no net loss of shoreline ecological function.

16.55.490 - Performance Standards - General Requirements

A. Non-indigenous Species. No plant, wildlife, or fish species not indigenous to the region shall be introduced into a habitat conservation area unless authorized by a state or federal permit or approval.

B. Mitigation and Contiguous Corridors. Mitigation sites shall be located to preserve or achieve contiguous wildlife habitat corridors in accordance with a mitigation plan that is part of an approved critical area report to minimize the isolating effects of development on habitat areas, so long as mitigation of aquatic habitat is located within the same aquatic ecosystem as the area disturbed.

C. Approval of Activities. The Director shall condition approvals of activities allowed within or adjacent to a habitat conservation area or its buffers, as necessary to minimize or mitigate any potential adverse impacts. Conditions shall be based on the best available science and may include, but are not limited to, the following:

1. Establishment of buffer zones;
2. Preservation of critically important vegetation and/or habitat features such as snags and downed wood;
3. Limitation of access to the habitat area, including fencing to deter unauthorized access;
4. Seasonal restriction of construction activities;
5. Establishment of a duration and timetable for periodic review of mitigation activities; and
6. Requirement of a performance bond, when necessary, to ensure completion and success of proposed mitigation.

D. Mitigation and Equivalent or Greater Biological Functions. Mitigation of alterations to habitat conservation areas shall achieve equivalent or greater biologic and hydrologic functions and shall include mitigation for adverse impacts upstream or downstream of the development proposal site. Mitigation shall address each function affected by the alteration to achieve functional equivalency or improvement on a per function basis.

E. Approvals and the Best Available Science. Any approval of alterations or impacts to a habitat conservation area shall be supported by the best available science.

F. Buffers.

1. Establishment of Buffers. **DOES NOT APPLY**
2. Seasonal Restrictions. When a species is more susceptible to adverse impacts during specific periods of the year, seasonal restrictions may apply. Larger buffers may be required and activities may be further restricted during the specified season.
3. Habitat Buffer Averaging. **DOES NOT APPLY**
4. All land and shoreline uses, development, occupancy, and critical area resource management of any kind shall comply with the provisions of the City of Bellingham

Shoreline Master Program (SMP). The SMP shall establish all permitted uses adjacent to, and critical area buffers and setbacks from, the ordinary high water mark of marine waters and Lake Whatcom and Lake Padden.

STAFF RESPONSE: Non-indigenous species are not proposed to be introduced into the project area. Mitigation as proposed is intended to occur at the project site such as removal of derelict structures and pilings, installation of grated decking and observance of seasonal restrictions. Off site mitigation is not proposed at this point.

Conditions imposed in order to approve the project will include full compliance with the Revised Mitigation Report (November 2010), installation of additional grated decking, replacement of upland vegetation removed in order to construct the project.

The project has been designed and is expected to result in no net loss of shoreline ecological function based upon the Revised Mitigation Report and the Erosion and Sediment Transport evaluation by Coast & Harbor Engineering (November 2010).

In addition, there is useful and relative data from a similar designed project within close proximity of the OWW. The Taylor Avenue Dock and over-water-walkway has a similar design, included nearly the same amount of pilings in a similar intertidal area in which eelgrass was prominent. Excerpts from monitoring of eelgrass presence during years 1, 3 and 5 AFTER the project was completed are shown in EXHIBIT M.

To summarize, eelgrass continued to colonize and expand within and outside of the project area of Taylor Avenue Dock beyond bi-yearly minimums established by WDFW. The City expects similar results from the Boulevard Park to Cornwall OWW.

<u>16.55.500 - Performance Standards - Specific Habitats</u>

A. Endangered, Threatened, and Sensitive Species.

1. No development shall be allowed within a habitat conservation area or buffer with which state or federally endangered, threatened, or sensitive species have a primary association, except that which is provided for by a management plan established by the Washington Department of Fish and Wildlife or applicable state or federal agency.
2. Whenever activities are proposed adjacent to a habitat conservation area with which state or federally endangered, threatened, or sensitive species have a primary association, such area shall be protected through the application of protection measures in accordance with a critical area report prepared by a qualified professional and approved by the City. Approval for alteration of land adjacent to the habitat conservation area or its buffer shall not occur prior to consultation with the Washington Department of Fish and Wildlife for animal species, the Washington State Department of Natural Resources for plant species, and other appropriate federal or state agencies.
3. Bald eagle habitat shall be protected pursuant to the Washington State Bald Eagle Protection Rules (WAC 232-12-292). Whenever activities are proposed adjacent to a verified nest territory or communal roost, a habitat management plan shall be developed by a qualified professional. Activities are adjacent to bald eagle sites when they are within 800 feet or within one half mile (2,640 feet) and in a shoreline foraging area. The City shall verify the location of eagle management areas for each proposed activity. Approval of the activity shall not occur prior to approval of the habitat management plan by the Washington Department of Fish and Wildlife.

STAFF RESPONSE: The OWW is within a FWHCA where federal and state endangered / threatened / sensitive species have a primary association as specified in on page 25. There are several management plans that have been established by state and federal agencies that provide for the development of these types of features.

These are; "Land Use Planning for Salmon, Steelhead and Trout," October, 2009 by WDFW and "Non-Fishing Impacts to Essential Fish Habitat and Recommended Conservation Measures," August, 2003 by NOAA. The project specific Mitigation Report (Original and Revised) were both developed with input and involvement from WDFW and DNR.

These management plans do not outright prohibit development within FWHCA's but rather recommend certain design elements and mitigating measure for incorporation directly into project designs and mitigation plans.

It is also important to note that WDFW also requires demonstration of both mitigation sequencing and no net loss of ecological function prior to permitting such proposals.

There are no documented bald eagle nests within the project area.

B. Anadromous Fish.

1. All activities, uses, and alterations proposed to be located in water bodies used by anadromous fish or in areas that affect such water bodies shall give special consideration to the preservation and enhancement of anadromous fish habitat, including, but not limited to, adhering to the following standards:
    a. Activities shall be timed to occur only during the allowable work window as designated by the Washington Department of Fish and Wildlife for the applicable species;
    b. An alternative alignment or location for the activity is not feasible;
    c. The activity is designed so that it will not degrade the functions or values of the fish habitat or other Critical Areas;
    d. Shoreline erosion control measures shall be designed to use bioengineering methods or soft armoring techniques, according to an approved critical area report; and
    e. Any impacts to the functions or values of the habitat conservation area are mitigated in accordance with an approved critical area report.
2. Structures that prevent the migration of salmonids shall not be allowed in the portion of water bodies currently or historically used by anadromous fish. Fish bypass facilities shall be provided that allow the upstream migration of adult fish and shall prevent fry and juveniles migrating downstream from being trapped or harmed.
3. Fills, when authorized by the Shoreline Master Program, shall not adversely impact anadromous fish or their habitat or shall mitigate any unavoidable impacts and shall only be allowed for a water-dependent use.

STAFF RESPONSE: Allowable work windows in FWHCA's pertaining to anadromous fish for this proposal have been specified by WDFW and USACE to be between September 1 and October 14. (There is overlap for each agency resulting in a short work window.)

Alignment alternatives were considered within the September 22, 2009 Feasibility Report by Reid Middleton. These are shown in EXHIBIT N.

The proposed alignment was determined to be the most desirable by the general public and the one that can achieve a no net loss of shoreline ecological function standard. The OWW will not prevent migration of salmonids within the marine near-shore.

The primary purpose of the abutments – including the placement of rip-rap materials within and above the OHWM at each end is to provide structural integrity of the deck structure while at the same time preventing shoreline erosion from wave and tidal currents that would threaten those same structural components. The abutments are not stand alone shoreline erosion measures, which if proposed are required to utilize the techniques specified in subsection d., above.

C. Wetland Habitats. **DOES NOT APPLY.**

D. Riparian Habitat Areas (Buffers). **DOES NOT APPLY.**

E. Aquatic Habitat. The following specific activities may be permitted within a riparian habitat area, pond, lake, water of the state, and marine habitat or associated buffer when the activity complies with the provisions set forth in the SMP and subject to the standards of this Subsection. The standards that provide the most protection to protected habitat and species shall apply.

1. Clearing and Grading. When clearing and grading is permitted as part of an authorized activity or as otherwise allowed in these standards, the following shall apply:
    a. Grading is allowed only during the dry season, which is typically regarded as beginning on May 1 and ending on October 1 of each year, provided that the City may extend or shorten the dry season on a case-by-case basis, determined on actual weather conditions.
    b. Filling or modification of a wetland or wetland buffer is permitted only if it is conducted as part of an approved wetland alteration.
    c. The soil duff layer shall remain undisturbed to the maximum extent possible. Where feasible, any soil disturbed shall be redistributed to other areas of the project area.
    d. The moisture-holding capacity of the topsoil layer shall be maintained by minimizing soil compaction or re-establishing natural soil structure and infiltrative capacity on all areas of the project area not covered by impervious surfaces.
    e. Erosion and sediment control that meets or exceeds the standards set forth in BMC 15.42 shall be provided.

STAFF RESPONSE: Condition will be included to ensure grading work associated with abutments occur during the specified seasonal window.

2. Shoreline Erosion Control Measures. New, replacement, or substantially improved shoreline erosion control measures may be permitted in accordance with an approved critical area report that demonstrates the following:
    a. Natural shoreline processes will be maintained. The project will not result in increased beach erosion or alterations to, or loss of, shoreline substrate within one-quarter (1/4) mile of the project area.
    b. The shoreline erosion control measures will not degrade fish or wildlife habitat conservation areas or associated wetlands.
    c. Adequate mitigation measures ensure that there is no net loss of the functions or values of intertidal habitat or riparian habitat as a result of the proposed shoreline erosion control measures.
    d. The proposed shoreline erosion control measures do not result in alteration of intertidal migration corridors.

STAFF RESPONSE: Please see STAFF RESPONSE to Section 27 – Use Activity Regulations pertaining to Bulkheads on page 20.

3. Stream Bank Stabilization. **DOES NOT APPLY**
4. Roads, Trails, Bridges, and Rights-of-Way. Construction of trails, roadways, and minor road bridging, less than or equal to 30' wide, may be permitted in accordance with an approved critical area report subject to the following standards:
   a. There is no other feasible alternative route with less impact on the environment;
   b. The crossing minimizes interruption of downstream movement of wood and gravel;
   c. Roads in riparian habitat areas or their buffers shall not run parallel to the water body;
   d. Trails shall be located on the outer edge of the riparian area or buffer, except for limited viewing platforms and crossings;
   e. Crossings, where necessary, shall only occur as near to perpendicular with the water body as possible;
   f. Mitigation for impacts is provided pursuant to a mitigation plan of an approved critical area report;

STAFF RESPONSE: The OWW and its supporting elements are allowed subject to approval of a shoreline CUP. Mitigation has been provided in the Revised Mitigation Report dated November 2010.

X. RESPONSES TO PUBLIC COMMENT: The Planning Department has received comments in opposition to and in support of the OWW project. **The public comments received on this project are included in EXHIBIT O.**

This section intends to address or show where in this report those questions / concerns / issues have been addressed.

- Should have required an EIS: **Please see E-mail response from Interim Director / SEPA Official Jeff Thomas at the beginning of the public comments, EXHIBIT O.**
- Duplicity of the OWW based upon the existence of the South Bay Trail: **Please see STAFF RESPONSE on page 27.**
- Cumulative impact analysis not completed at the time of SEPA Determination: **Please see STAFF RESPONSE regarding cumulative impacts on page 11.**
- Lack of adequacy for impacts to eelgrass: **Please see EXHIBIT K, Revised Mitigation Report.**
- Usual and Accustomed Treaty Rights for Lummi Nation: **Please see the CONDITONS at the bottom of this page.**

XI. SUMMARY, RECOMMENDATION AND CONDITIONS: Based upon the information in this staff report and the attached EXHIBITS staff concludes that the proposal for the OWW:

- ✓ **Complies with the requirements in the City's Shoreline Master Program and Critical Areas Ordinance as well as the Shoreline Management Act.**
- ✓ **Will achieve no net loss of shoreline ecological function.**
- ✓ **Utilizes best available science in terms of understanding potential impacts to marine near-shore and inter-tidal areas.**
- ✓ **Implements agency management recommendations and best available science in the project design and location.**

- ✓ **Employed mitigation sequencing appropriately.**
- ✓ **Provides a public access over-water linkage from an existing shoreline recreation area at Boulevard Park to a future shoreline recreation area at Cornwall Avenue Park.**

Staff recommends that the Hearing Examiner approve the proposal and forward her approval to the Department of Ecology for final review and approval. Staff recommends that the following conditions be included in the Hearing Examiner Decision:

1. **All Conditions of SEPA MDNS #SEP2010-00027 shall apply. (SEP2010-00027 is attached as EXHIBIT C)**
2. **Lighting on portions of the OWW where grated decking exists shall be directed away from the water surface.**
3. **Grading and filling activity required to develop both abutments shall not occur between October 1 and May 1 of any given year.**
4. **The Hearing Examiner shall not issue a decision on this SCUP until the issues raised by Lummi Nation have been resolved. If said resolution includes a realignment of the OWW land-ward of its existing location, an additional public hearing before the Hearing Examiner including required comment periods for that hearing shall be established.**

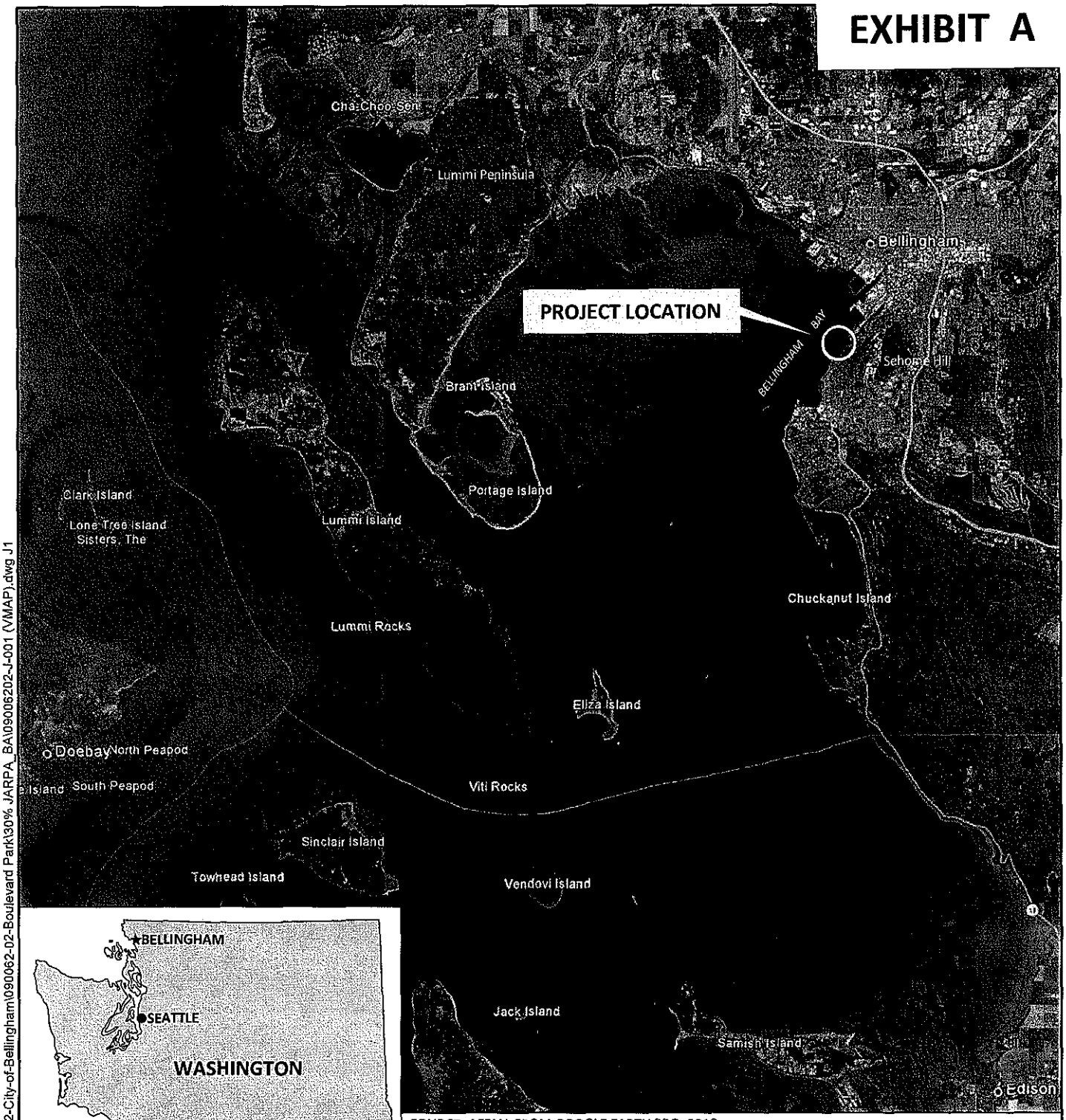
Prepared by:

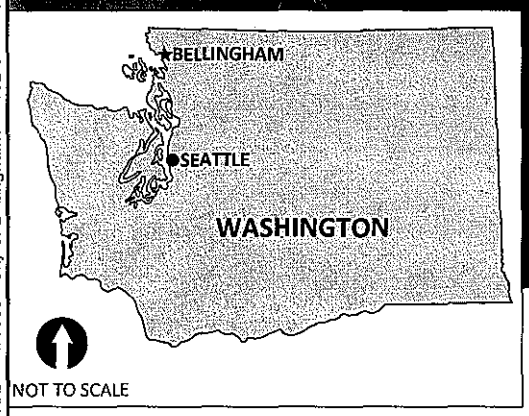
Steven Sundin
Planner

Approved by:

Kurt Nabbefeld
Senior Planner

EXHIBIT A



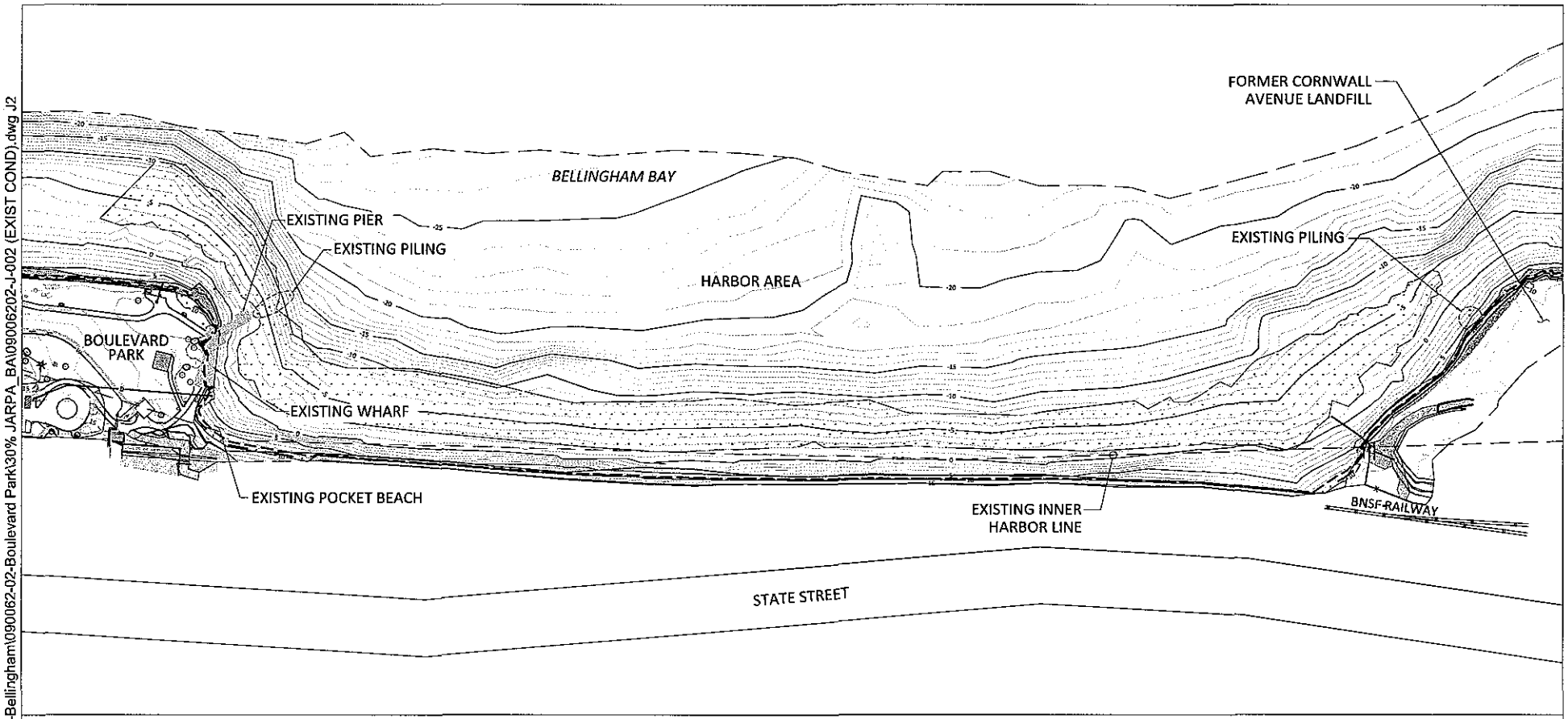


SOURCE: AERIAL FROM GOOGLE EARTH PRO, 2010.

0 2
SCALE IN MILES

VICINITY MAP

PURPOSE: IMPROVE PUBLIC SHORELINE ACCESS	NAME: BOULEVARD/CORNWALL OVERWATER PEDESTRIAN WALKWAY	PROPOSED: OVERWATER WALKWAY
DATUM: MLLW 0.0' LATITUDE: 48°44'07.87"N, LONGITUDE: -122°19'54.95"W S-T-R: 36-38N-2E	ADJACENT PROPERTY OWNERS: 1 - CITY OF BELLINGHAM PARKS AND RECREATION DEPARTMENT 2 - BURLINGTON NORTHERN SANTA FE 3 - PORT OF BELLINGHAM 4 - WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES	IN: BELLINGHAM BAY NEAR/AT: BELLINGHAM COUNTY OF: WHATCOM STATE: WASHINGTON
SITE LOCATION ADDRESS: BOULEVARD PARK, FORMER CORNWALL AVENUE LANDFILL, STATE-OWNED AQUATIC LANDS (LEASE #22-084455) BELLINGHAM, WASHINGTON 98225		DATE: JUNE 2010 SHEET: 1 OF 9



LEGEND:

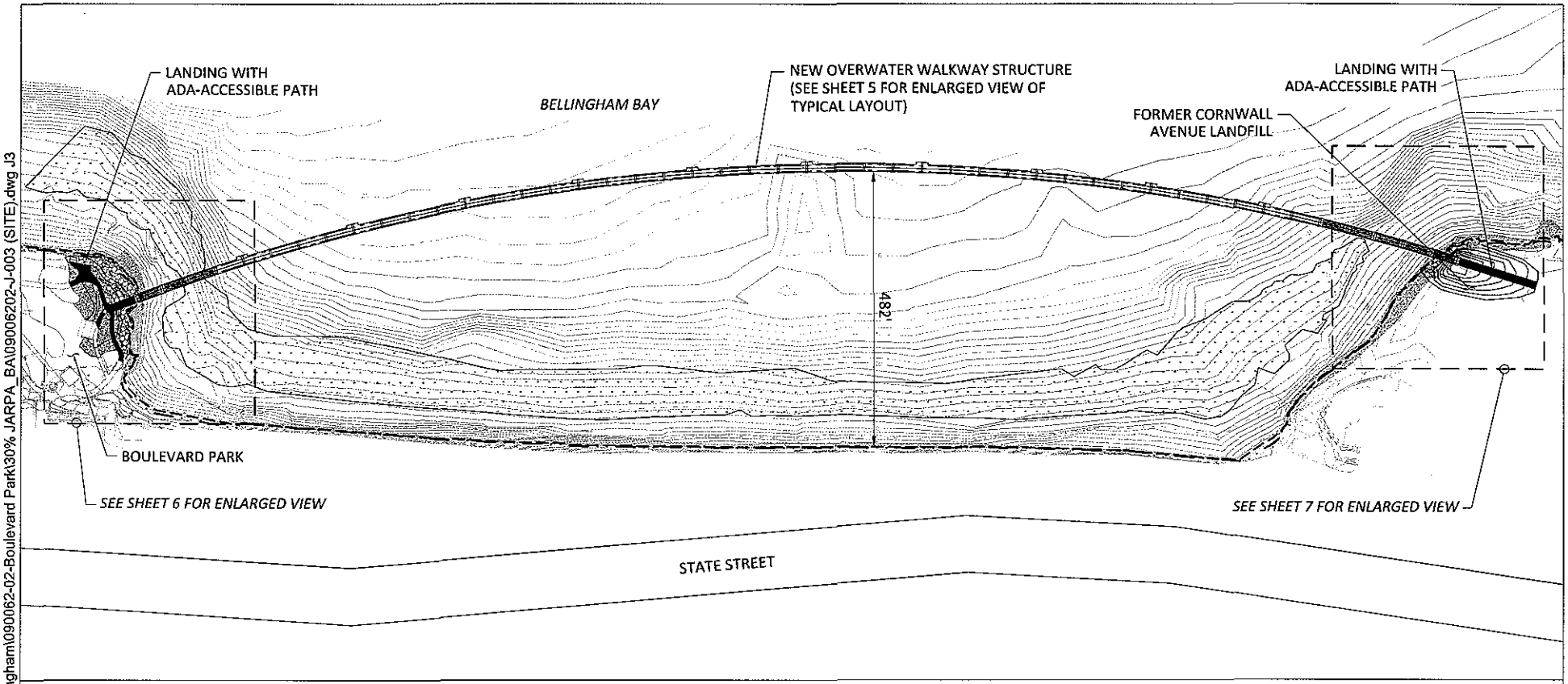
- EXISTING EELGRASS BED
- MEAN HIGHER HIGH WATER (+8.51' MLLW)
- ORDINARY HIGH WATER MARK (+9.51' MLLW)

0 260
SCALE IN FEET

SOURCE: DRAWING BY BERGER/ABAM DATED 3/2010.
NOTES: ELEVATION DATUM MLLW

EXISTING CONDITIONS

PURPOSE: IMPROVE PUBLIC SHORELINE ACCESS	NAME: BOULEVARD/CORNWALL OVERWATER PEDESTRIAN WALKWAY	PROPOSED: OVERWATER WALKWAY
DATUM: MLLW 0.0' LATITUDE: 48°44'07.87"N, LONGITUDE: -122°19'54.95"W S-T-R: 22-21N-3E		IN: BELLINGHAM BAY NEAR/AT: BELLINGHAM COUNTY OF: WHATCOM STATE: WASHINGTON
SITE LOCATION ADDRESS: BOULEVARD PARK, FORMER CORNWALL AVENUE LANDFILL, STATE-OWNED AQUATIC LANDS (LEASE #22-084455) BELLINGHAM, WASHINGTON 98225	ADJACENT PROPERTY OWNERS: 1 - CITY OF BELLINGHAM PARKS AND RECREATION DEPARTMENT 2 - BURLINGTON NORTHERN SANTA FE 3 - PORT OF BELLINGHAM 4 - WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES	DATE: JUNE 2010 SHEET: 2 OF 9



LEGEND:

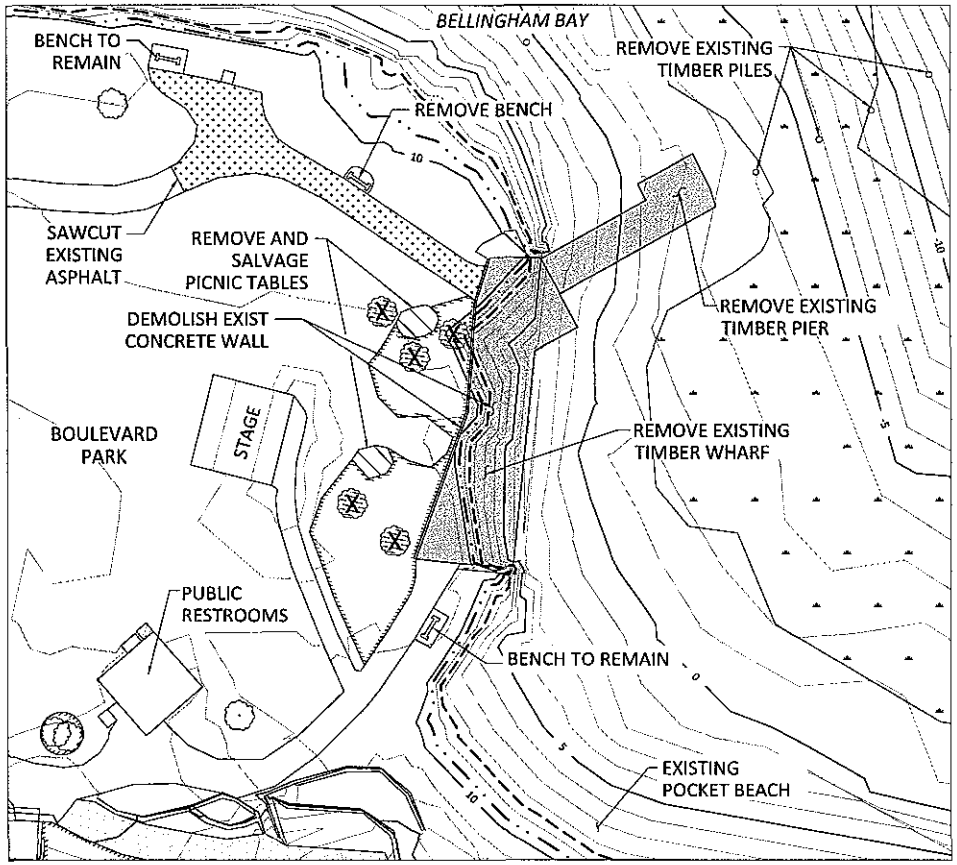
- EXISTING EELGRASS BED
- MEAN HIGHER HIGH WATER (+8.51' MLLW)
- ORDINARY HIGH WATER MARK (+9.51' MLLW)

0 260
SCALE IN FEET

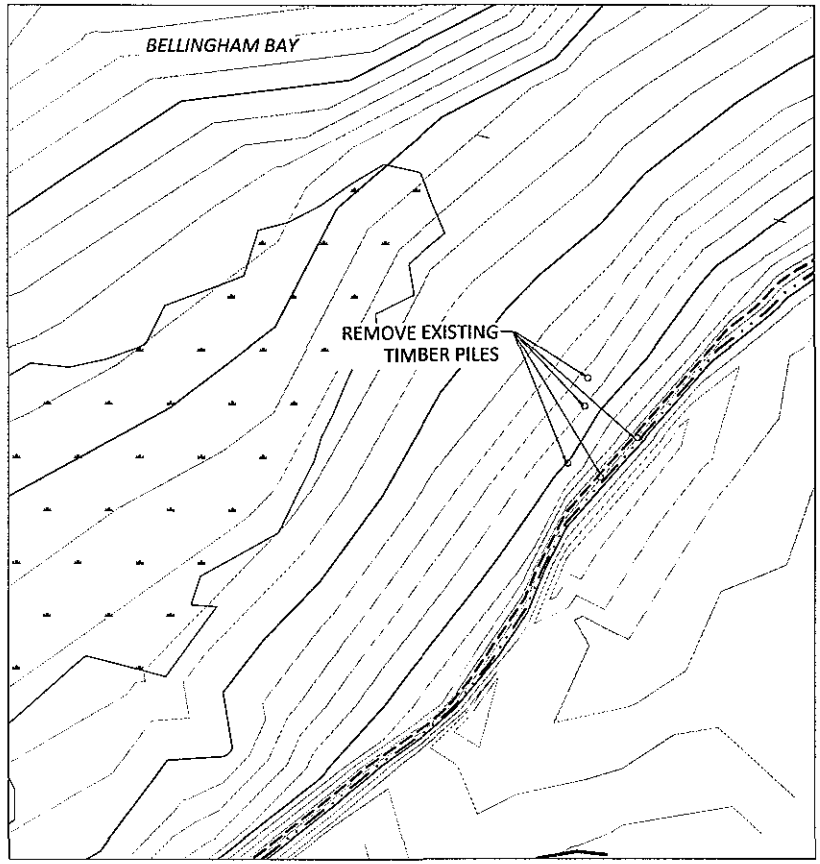
SOURCE: DRAWING BY BERGER/ABAM DATED 3/2010.
NOTE: FOR TYPICAL STRUCTURE LAYOUT SEE SHEET 5.

COMPOSITE SITE PLAN

PURPOSE: IMPROVE PUBLIC SHORELINE ACCESS	NAME: BOULEVARD/CORNWALL OVERWATER PEDESTRIAN WALKWAY	PROPOSED: OVERWATER WALKWAY
DATUM: MLLW 0.0' LATITUDE: 48°44'07.87"N, LONGITUDE: -122°19'54.95"W S-T-R: 22-21N-3E		IN: BELLINGHAM BAY NEAR/AT: BELLINGHAM COUNTY OF: WHATCOM STATE: WASHINGTON
SITE LOCATION ADDRESS: BOULEVARD PARK, FORMER CORNWALL AVENUE LANDFILL, STATE-OWNED AQUATIC LANDS (LEASE #22-084455) BELLINGHAM, WASHINGTON 98225	ADJACENT PROPERTY OWNERS: 1 - CITY OF BELLINGHAM PARKS AND RECREATION DEPARTMENT 2 - BURLINGTON NORTHERN SANTA FE 3 - PORT OF BELLINGHAM 4 - WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES	DATE: JUNE 2010 SHEET: 3 OF 9



BOULEVARD PARK



FORMER CORNWALL AVENUE LANDFILL

LEGEND:

- DEMOLISH EXISTING STRUCTURE
- DEMOLISH EXISTING ASPHALT PATH
- TREE TO BE REMOVED
- EXISTING TREE TO REMAIN
- EXISTING EELGRASS BED
- ORDINARY HIGH WATER MARK (OHW, +9.51' MLLW)
- MEAN HIGHER HIGH WATER (MHHW, +8.51' MLLW)

0 60
SCALE IN FEET

SOURCE: DRAWING BY BERGER/ABAM DATED 3/2010.

DEMOLITION PLAN

PURPOSE: IMPROVE PUBLIC SHORELINE ACCESS

DATUM: MLLW 0.0'
LATITUDE: 48°44'07.87"N, LONGITUDE: -122°19'54.95"W
S-T-R: 22-21N-3E

SITE LOCATION ADDRESS:
BOULEVARD PARK, FORMER CORNWALL AVENUE LANDFILL,
STATE-OWNED AQUATIC LANDS (LEASE #22-084455)
BELLINGHAM, WASHINGTON 98225

NAME: BOULEVARD/CORNWALL OVERWATER PEDESTRIAN WALKWAY

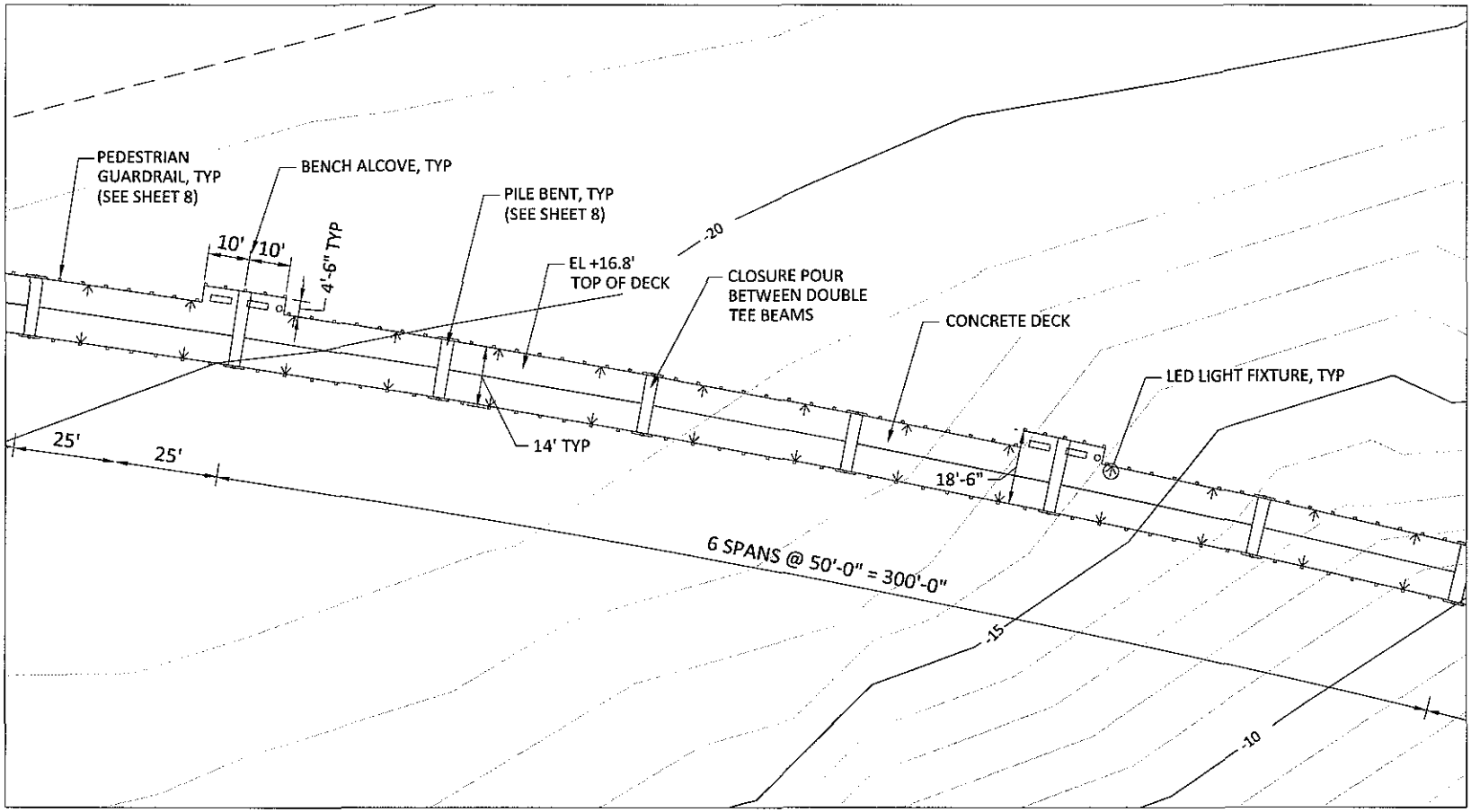
ADJACENT PROPERTY OWNERS:
1 - CITY OF BELLINGHAM PARKS AND RECREATION DEPARTMENT
2 - BURLINGTON NORTHERN SANTA FE
3 - PORT OF BELLINGHAM
4 - WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

PROPOSED: OVERWATER WALKWAY

IN: BELLINGHAM BAY
NEAR/AT: BELLINGHAM
COUNTY OF: WHATCOM
STATE: WASHINGTON

DATE: JUNE 2010

SHEET: 4 OF 9

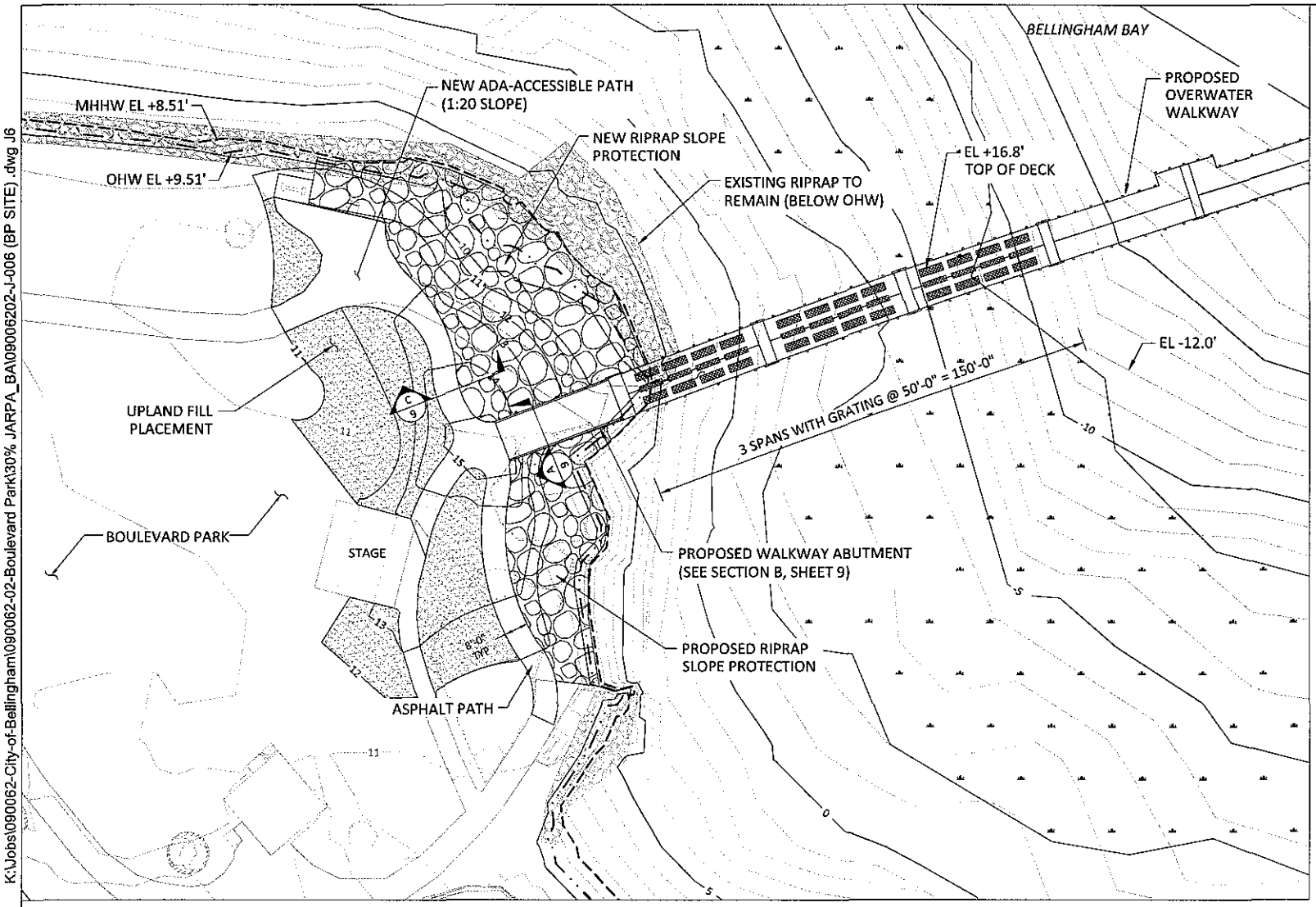


0 40
SCALE IN FEET

SOURCE: DRAWING BY BERGER/ABAM DATED 3/2010.

OVERWATER WALKWAY TYPICAL LAYOUT (ENLARGED)

PURPOSE: IMPROVE PUBLIC SHORELINE ACCESS	NAME: BOULEVARD/CORNWALL OVERWATER PEDESTRIAN WALKWAY	PROPOSED: OVERWATER WALKWAY
DATUM: MLLW 0.0' LATITUDE: 48°44'07.87"N, LONGITUDE: -122°19'54.95"W S-T-R: 22-21N-3E		IN: BELLINGHAM BAY NEAR/AT: BELLINGHAM COUNTY OF: WHATCOM STATE: WASHINGTON
SITE LOCATION ADDRESS: BOULEVARD PARK, FORMER CORNWALL AVENUE LANDFILL, STATE-OWNED AQUATIC LANDS (LEASE #22-084455) BELLINGHAM, WASHINGTON 98225	ADJACENT PROPERTY OWNERS: 1 - CITY OF BELLINGHAM PARKS AND RECREATION DEPARTMENT 2 - BURLINGTON NORTHERN SANTA FE 3 - PORT OF BELLINGHAM 4 - WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES	DATE: JUNE 2010 SHEET: 5 OF 9



LEGEND:

- EXISTING EELGRASS BED
- MEAN HIGHER HIGH WATER (+8.51' MLLW)
- ORDINARY HIGH WATER MARK (+9.51' MLLW)
- GRATING
- CONCRETE DECK

0 50
SCALE IN FEET

SOURCE: DRAWING BY BERGER/ABAM DATED 3/2010.

BOULEVARD PARK ENLARGED SITE PLAN

PURPOSE: IMPROVE PUBLIC SHORELINE ACCESS

DATUM: MLLW 0.0'
LATITUDE: 48°44'07.87"N, LONGITUDE: -122°19'54.95"W
S-T-R: 22-21N-3E

SITE LOCATION ADDRESS:
BOULEVARD PARK, FORMER CORNWALL AVENUE LANDFILL,
STATE-OWNED AQUATIC LANDS (LEASE #22-084455)
BELLINGHAM, WASHINGTON 98225

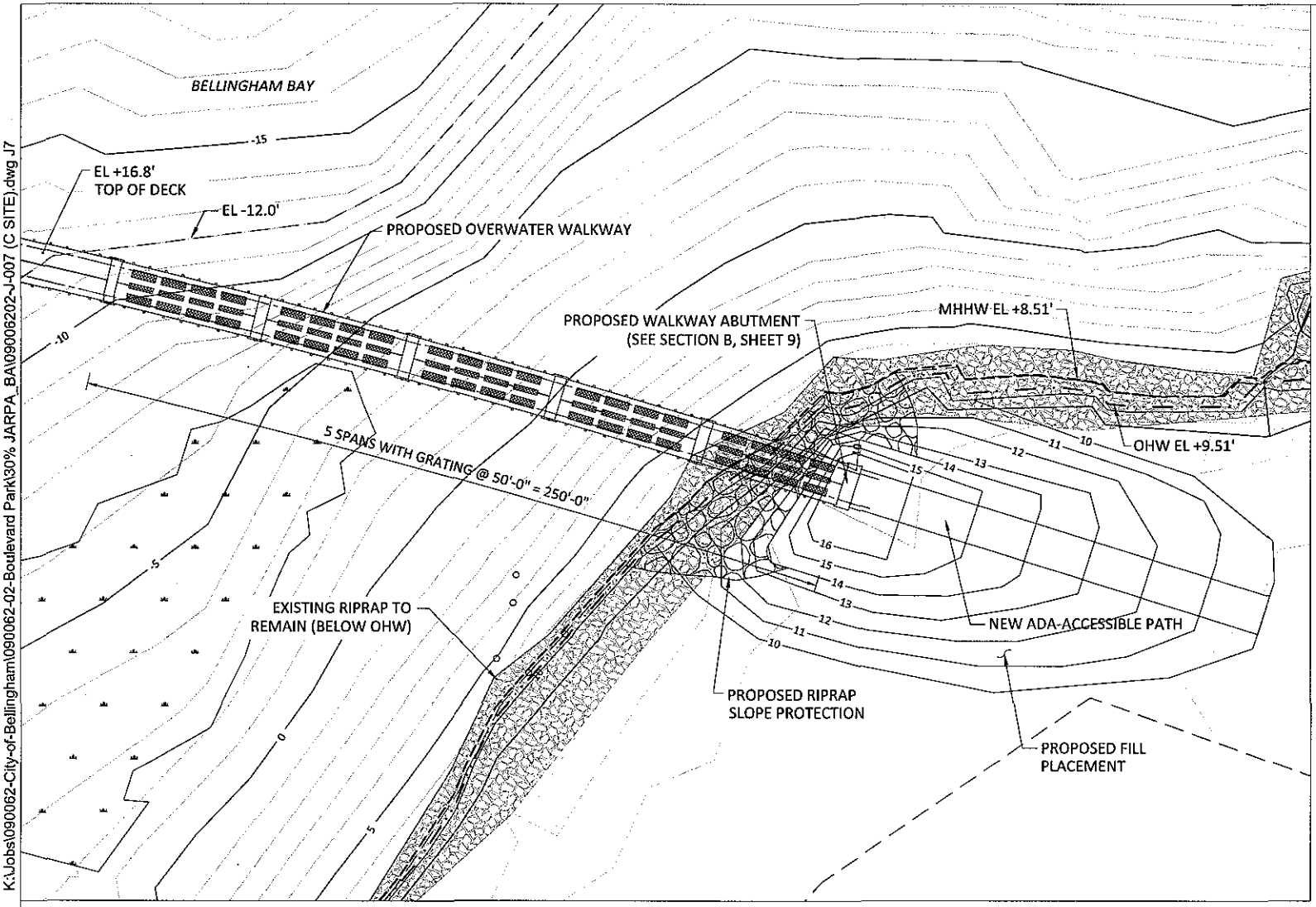
NAME: BOULEVARD/CORNWALL OVERWATER PEDESTRIAN WALKWAY

ADJACENT PROPERTY OWNERS:
1 - CITY OF BELLINGHAM PARKS AND RECREATION DEPARTMENT
2 - BURLINGTON NORTHERN SANTA FE
3 - PORT OF BELLINGHAM
4 - WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

PROPOSED: OVERWATER WALKWAY

IN: BELLINGHAM BAY
NEAR/AT: BELLINGHAM
COUNTY OF: WHATCOM
STATE: WASHINGTON

DATE: JUNE 2010



LEGEND:

- EXISTING EELGRASS BED
- MEAN HIGHER HIGH WATER (+8.51' MLLW)
- ORDINARY HIGH WATER MARK (+9.51' MLLW)
- GRATING
- CONCRETE DECK

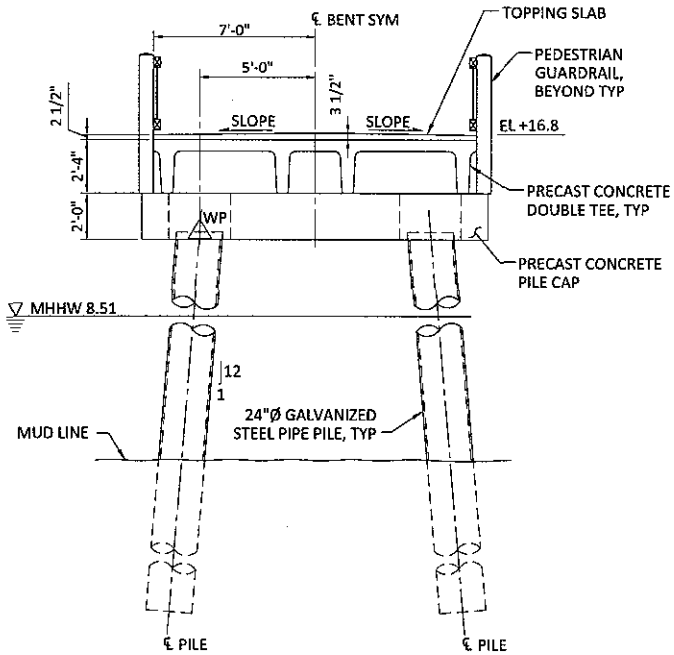
0 50
SCALE IN FEET

SOURCE: DRAWING BY BERGER/ABAM DATED 3/2010.

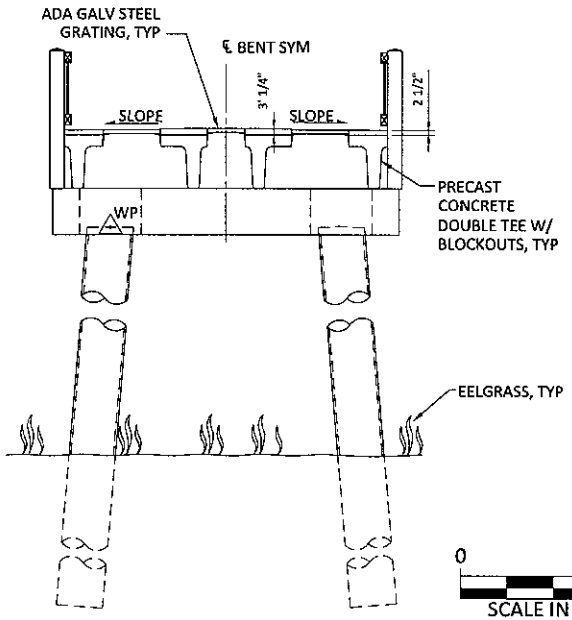
FORMER CORNWALL AVENUE LANDFILL ENLARGED SITE PLAN

PURPOSE: IMPROVE PUBLIC SHORELINE ACCESS	NAME: BOULEVARD/CORNWALL OVERWATER PEDESTRIAN WALKWAY	PROPOSED: OVERWATER WALKWAY
DATUM: MLLW 0.0' LATITUDE: 48°44'07.87"N, LONGITUDE: -122°19'54.95"W S-T-R: 22-21N-3E		IN: BELLINGHAM BAY NEAR/AT: BELLINGHAM COUNTY OF: WHATCOM STATE: WASHINGTON
SITE LOCATION ADDRESS: BOULEVARD PARK, FORMER CORNWALL AVENUE LANDFILL, STATE-OWNED AQUATIC LANDS (LEASE #22-084455) BELLINGHAM, WASHINGTON 98225	ADJACENT PROPERTY OWNERS: 1 - CITY OF BELLINGHAM PARKS AND RECREATION DEPARTMENT 2 - BURLINGTON NORTHERN SANTA FE 3 - PORT OF BELLINGHAM 4 - WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES	DATE: JUNE 2010 SHEET: 7 OF 9

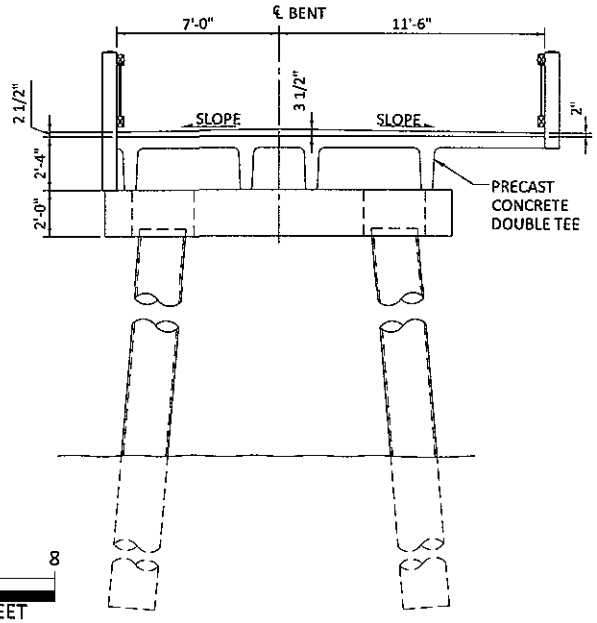
SECTION - TYPICAL BENT



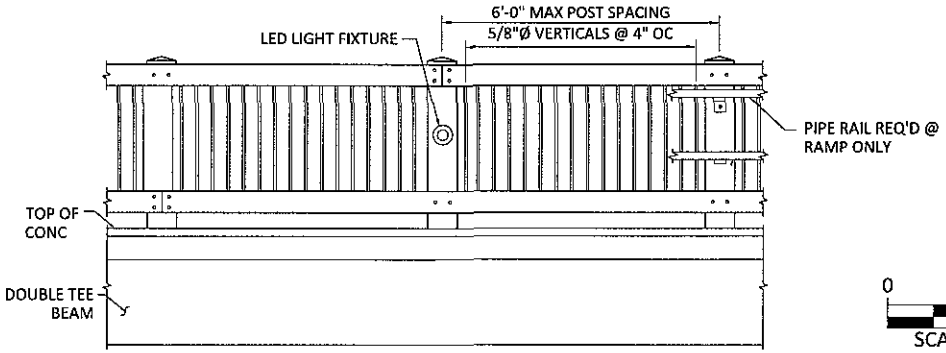
SECTION - TYPICAL BENT WITH GRATING



SECTION - TYPICAL BENT WITH ALCOVE

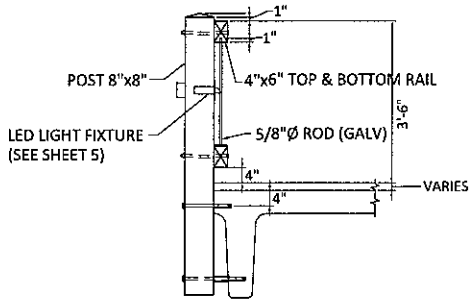


0 8
SCALE IN FEET



ELEVATION - TYPICAL PEDESTRIAN GUARDRAIL

0 4
SCALE IN FEET

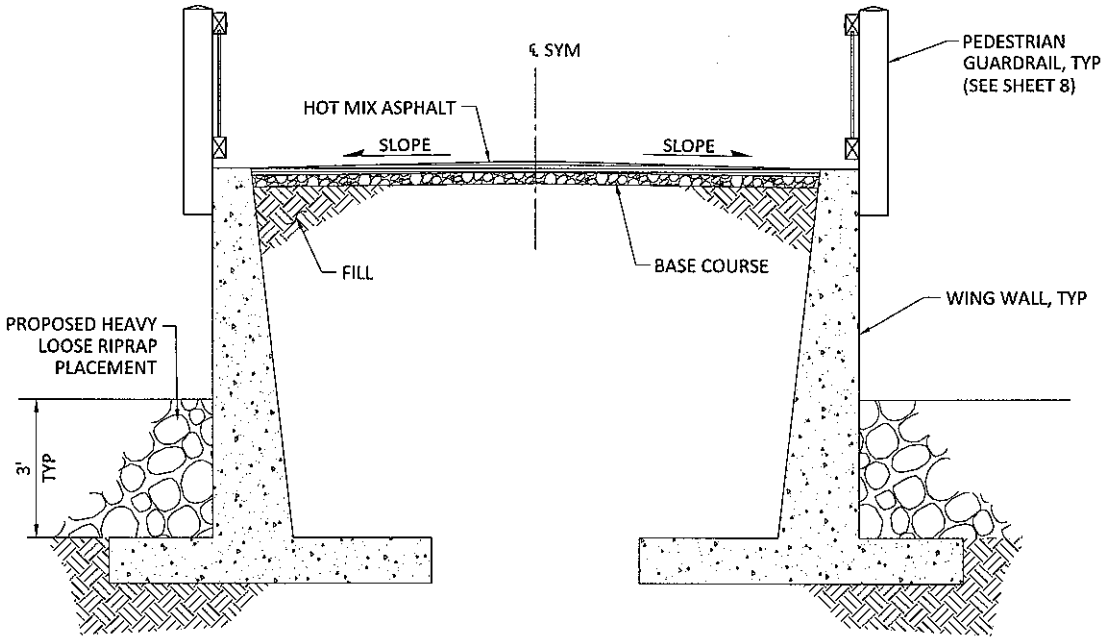


SECTION - PEDESTRIAN GUARDRAIL

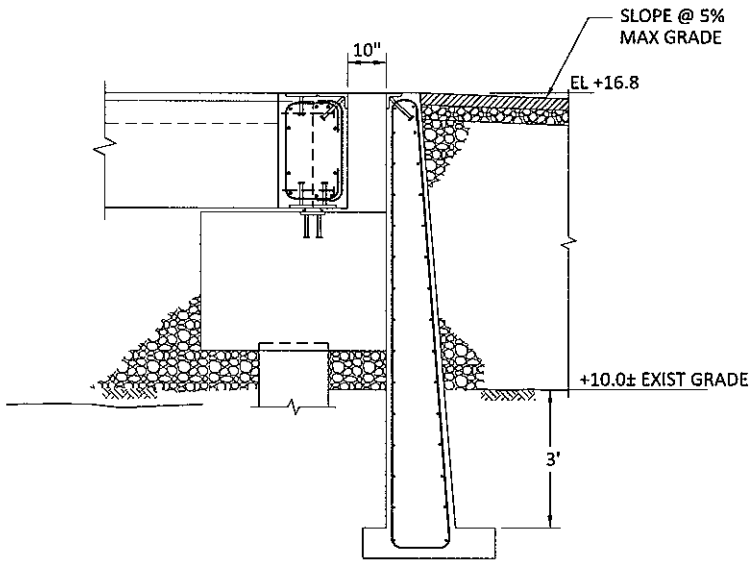
SOURCE: DRAWING BY BERGER/ABAM DATED 3/2010.

DETAILS

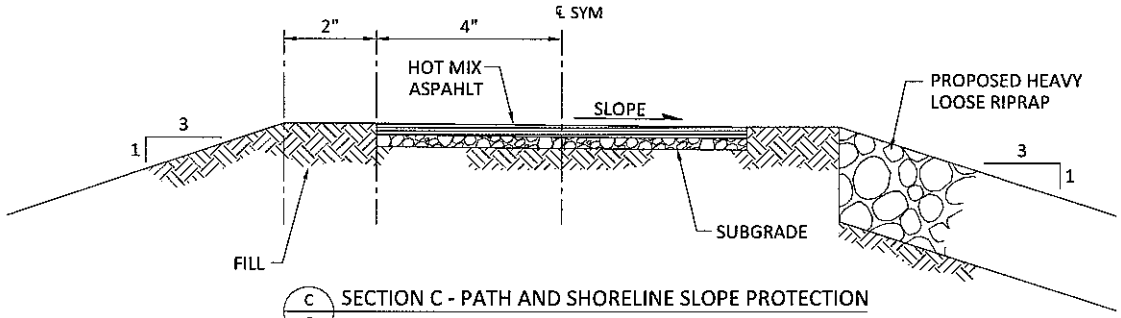
PURPOSE: IMPROVE PUBLIC SHORELINE ACCESS	NAME: BOULEVARD/CORNWALL OVERWATER PEDESTRIAN WALKWAY	PROPOSED: OVERWATER WALKWAY
DATUM: MLLW 0.0' LATITUDE: 48°44'07.87"N, LONGITUDE: -122°19'54.95"W S-T-R: 22-21N-3E		IN: BELLINGHAM BAY NEAR/AT: BELLINGHAM COUNTY OF: WHATCOM STATE: WASHINGTON
SITE LOCATION ADDRESS: BOULEVARD PARK, FORMER CORNWALL AVENUE LANDFILL, STATE-OWNED AQUATIC LANDS (LEASE #22-084455) BELLINGHAM, WASHINGTON 98225	ADJACENT PROPERTY OWNERS: 1 - CITY OF BELLINGHAM PARKS AND RECREATION DEPARTMENT 2 - BURLINGTON NORTHERN SANTA FE 3 - PORT OF BELLINGHAM 4 - WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES	DATE: JUNE 2010 SHEET: 8 OF 9



A/6 SECTION A - BOULEVARD PARK LANDING



8/6 SECTION B - WALKWAY ABUTMENT



C/6 SECTION C - PATH AND SHORELINE SLOPE PROTECTION

0 4
SCALE IN FEET

SOURCE: DRAWING BY BERGER/ABAM DATED 3/2010.

LANDING AND ABUTMENT DETAILS

PURPOSE: IMPROVE PUBLIC SHORELINE ACCESS	NAME: BOULEVARD/CORNWALL OVERWATER PEDESTRIAN WALKWAY	PROPOSED: OVERWATER WALKWAY
DATUM: MLLW 0.0' LATITUDE: 48°44'07.87"N, LONGITUDE: -122°19'54.95"W S-T-R: 22-21N-3E	ADJACENT PROPERTY OWNERS: 1 - CITY OF BELLINGHAM PARKS AND RECREATION DEPARTMENT 2 - BURLINGTON NORTHERN SANTA FE 3 - PORT OF BELLINGHAM 4 - WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES	IN: BELLINGHAM BAY NEAR/AT: BELLINGHAM COUNTY OF: WHATCOM STATE: WASHINGTON
SITE LOCATION ADDRESS: BOULEVARD PARK, FORMER CORNWALL AVENUE LANDFILL, STATE-OWNED AQUATIC LANDS (LEASE #22-084455) BELLINGHAM, WASHINGTON 98225		DATE: JUNE 2010 SHEET: 9 OF 9

EXHIBIT B

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT
210 Lottie Street, Bellingham, WA 98225
Telephone: (360) 778-8300 Fax: (360) 778-8302

MEMORANDUM

TO: Paul Leuthold, Parks Director

FROM: Tim Stewart, Planning Director

DATE: May 14, 2009

SUBJECT: Over-water Walkway linking Boulevard Park to the Waterfront District

I understand that the Parks Department is poised to begin State and Federal permitting with the agencies in order to construct the proposed Over-Water Walkway that would connect Boulevard Park with the Waterfront District at the foot of the Cornwall Avenue Landfill.

Construction in or over water requires a City Shoreline Permit which would also include SEPA review and a subsequent environmental determination.

However, the project is located in three different shoreline designations per the City's 1989 Shoreline Master Program. The abutment at Boulevard Park is designated Conservancy II, the overwater portion is within a Conservancy III designation and the Waterfront District abutment is designated Urban Maritime. Only the Urban Maritime designation allows over-water construction. Conservancy II and III designations promote and often require public access *to* the shoreline but don't allow for over-water public access features to be built. Providing public access to shorelines is also one of the major objectives within the Washington State Shoreline Management Act as well as the City's SMP.

However, code section WAC 173-27-160-3 (Washington Administrative Code – Shoreline Management and Enforcement Procedures) authorizes these types of projects upon approval of a Shoreline Conditional Use Permit.

A Shoreline CUP requires a public hearing before the Hearing Examiner. Once the Hearing Examiner makes a decision on the permit, FINAL approval is granted by the Department of Ecology's Shorelands Section at the Bellingham Field Office.

I recommend contacting Steven Sundin in the Planning Department for details on submittal requirements and process steps for a Shoreline CUP. He can be reached at 778-8359 or via email: ssundin@cob.org

We look forward to working with your Department on this very exciting and important project !!!

EXHIBIT C

PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT
210 Lottie Street, Bellingham, WA 98225
Telephone: (360) 778-8300 Fax: (360) 778-8302 TTY: (360) 778-8382

FILE

SEP2010-00027

Mitigated Determination of Non-Significance (MDNS)

Date of Issuance of Threshold Determination: September 29, 2010

Description of Proposal: Construction of an over-water walkway (OWW) approximately 2,350-feet in length and 14-feet in width (18.5-feet in width for resting 'bump-outs') including approximately 96 twenty-four inch steel pilings (50-feet on center), approximately 1,500 square feet of grated decking to allow light penetration in near shore areas. Height of the OWW will be approximately 8-feet above the elevation of mean higher high water. Railings and low-level lighting are included. Construction of walkway abutments and landings to be ADA accessible. The 5,600 sq.ft. landing / abutment at Boulevard includes placement of approx. 600 cyds of material and construction of wing-walls. The 12,300 sq.ft. landing / abutment at Cornwall includes placement of approx. 800 cyds of material and wing-walls as well as additional heavy material for slope and bank protection. Demolition of an existing timber pier (877 sq.ft.), an existing timber wharf (2,455 sq.ft) and its 87 creosote pilings and removal of 9 isolated creosote pilings are also proposed.

This project requires a City Shoreline Conditional Use Permit. Shoreline CUP's require a public hearing before the Hearing Examiner. The Hearing Examiner considers public comments and the application materials and then forwards her decision to the Department of Ecology for final approval. **(A Hearing Examiner public hearing date has not yet been scheduled.)**

Applicant: Derek Koellmann, Anchor QEA, 360-733-4311 x221 or email: dkoellmann@anchorenv.com authorized agent for the City of Bellingham Parks and Recreation Department.

Location of Proposal: Boulevard Park, Area 6, South Hill Neighborhood and Cornwall Avenue Landfill, Area 21 CBD Neighborhood. Conservancy II, III, Urban Maritime shoreline designations.

Lead Agency: City of Bellingham, Planning and Community Development Department (PCDD)

Permits / approvals required for this proposal: W.D.F.W. Hydraulic Project Approval, D.N.R. Lease Approval, U.S.C.G. Individual Permit, D.O.E. 401 Water Quality Certification and Shoreline CUP, City Building Permits.

Mitigating Conditions Required for this Proposal:

1. Grated decking shall be installed on walkway bents that cover bed-lands up to a depth of minus 15-feet MLLW.
2. Trees greater than 6-inches diameter at breast height that are removed shall be replaced at a ratio of 2:1 and shall be similar or native species. Replacement trees shall be installed within the shoreline jurisdiction anywhere within Boulevard Park.
3. A shoreline erosion and sediment transport evaluation based upon the proposed alignment of the over-water-walkway shall be provided to the PCDD by a qualified professional prior issuance of public noticing for the Hearing Examiner public hearing. Erosion and sediment transport at the two landings, the shoreline reach between landings and reaches approximately 300-feet beyond each landing shall be included in the evaluation.

SCANNED
Into Tidemark

Staff Contact: Steven Sundin, Planner. Email: ssundin@cob.org
Planning and Community Development Department
210 Lottie Street, Bellingham, WA 98225
(360) 778-8359

Appeal rights: Pursuant to BMC 16.20.210(B)(2), this determination may be appealed, within 14 days of the date of issuance, to the City of Bellingham Hearing Examiner in accordance with BMC 21.10.250.

The City of Bellingham seeks to comply with the American Disabilities Act. If you have special needs, please call (360) 778-8300 (voice) or (360) 676-6883 (TDD).

SEPA Comment Response Matrix
Boulevard Overwater Walkway Project

Comment No.	Comment	Response
Comments by the Lummi Nation in Response to SEPA MDNS – Letter dated 8/30/10		
1	The proposed walkway will preclude the exercise of treaty rights by excluding fishing in an area of approximately 25 acres.	The City of Bellingham (City) is committed to working with the Lummi Tribe to address impacts to treaty rights as a result of the project. The Federal Highway Administration (FHWA), as the lead federal agency for National Environmental Policy Act (NEPA) compliance, will consult with the Lummi Tribe and determine appropriate mitigation for project impacts, including impacts to treaty rights. A meeting is planned between FHWA, Washington State Department of Transportation (WSDOT), and the Lummi Tribe for November 13, 2010, to further discuss these matters.
2	The area is actively fished and shellfished by Lummi tribal members, and therefore the Corps cannot issue a permit under *Northwest Seafarms v. US Army COE*.	The project does not require a U.S. Army Corps of Engineers (Corps) permit under the terms of a 1977 Memorandum of Agreement between the Corps and the U.S. Coast Guard (see attached Corps letter dated August 12, 2010). The City is aware of the Lummi Tribe's usual and accustomed fish and shellfish harvest rights and will work with the Tribe through FHWA to address potential project impacts.
3	Cumulative effects issues are not adequately addressed in the review documents provided.	The anticipated cumulative effects from the project were addressed in the SEPA and Shoreline Conditional Use Permit documentation submitted to the City. The construction-related, built project, and mitigation effects were in included in this documentation and represent the total of effects stemming from the project. Additionally, cumulative effects for the project will be further addressed under the NEPA and Endangered Species Act (ESA) processes lead by FHWA, National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS), in compliance with all applicable policies and guidance. The lead agencies will consult with the Lummi Tribe under both the NEPA and ESA processes.

Comment No.	Comment	Response
4	Environmental Justice issues are not addressed in the review document provided.	Environmental Justice for the project will be addressed under NEPA and ESA processes lead by FHWA and WSDOT Highways and Local Programs Division (HLP), in compliance with the WSDOT Environmental Procedures Manual, the HLP Local Agency Guidelines, and other applicable guidance. The lead agencies will consult with tribes on Environmental Justice issues under both processes.
5	All practicable measures to avoid impacts to tribal fisheries have not been taken. - Design should be modified to avoid or minimize impacts to tribal fishing areas. Compensatory mitigation is needed for unavoidable impacts.	The design of the proposed walkway was determined through a series of public processes. Various alternatives were considered and the resulting project is the preferred alternative for the community. Modifications were made during the design process to minimize impacts to eelgrass beds, nearshore areas, and associated juvenile salmon habitats. FHWA will continue to consult with the Lummi Tribe regarding appropriate mitigation during the NEPA process.
Comments by the WDFW in Response to the HPA Application – Letter dated 8/23/10		
6	Written notice of SEPA compliance must be submitted.	SEPA was not completed at the time of the Washington State Department of Fish and Wildlife's (WDFW's) letter, but the Mitigated Determination of Non-Significance (MDNS) has since been issued by the City and provided to WDFW.
7	The work window is not consistent with the work window that WDFW implements in Bellingham Bay.	The duration of the in-water work window for the project has been updated per WDFW's letter. WDFW's in-water work window coupled with the Corps' in-water work window results in an in-water work window from September 1 to October 14. This revised in-water work window was discussed with WDFW and is expected to be a condition of WDFW's Hydraulic Project Approval (HPA).
8	The eelgrass monitoring and mitigation plan should use a viable reference site to be consistent with WDFW guidelines.	The eelgrass monitoring plan has been updated per WDFW request and will be provided to WDFW for final approval. Approval of the eelgrass monitoring and mitigation plan is expected to be a condition of WDFW's HPA.

Comment No.	Comment	Response
9	Eelgrass adjacent to the north trestle appears to be within the shadow footprint of the new trestle and should be monitored.	The eelgrass monitoring plan has been updated per WDFW request and will be provided to WDFW for final approval. Approval of the eelgrass monitoring and mitigation plan is expected to be a condition of WDFW's HPA.
10	Monitoring transects should be perpendicular to the trestle to be more representative of trestle impacts across depth contours.	The eelgrass monitoring plan has been updated per WDFW request and will be provided to WDFW for final approval. Approval of the eelgrass monitoring and mitigation plan is expected to be a condition of WDFW's Hydraulic Project Approval (HPA).
11	Specific mitigation sites and actions need to be identified in case eelgrass diminishes.	The eelgrass monitoring plan has been updated per WDFW request and will be provided to WDFW for final approval. Approval of the eelgrass monitoring and mitigation plan is expected to be a condition of WDFW's HPA.
Comments by ReSources in Response to SEPA MDNS – Letter dated 10/23/10		
12	The walkway is not needed because there is a parallel trail on land.	The existing South Bay Trail provides access from Boulevard Park to downtown Bellingham. Water access via the South Bay Trail requires users to navigate two at-grade railroad crossings and backtrack approximately 1.1 miles to access the new waterfront park at the Cornwall Landfill site. Additionally, access from the South Bay Trail via Wharf Street has steep slopes that do not meet Americans with Disabilities Act (ADA) requirements. Wharf Street may potentially close. The new proposed overwater walkway and trail will provide access from Boulevard Park to the new development at the former Georgia Pacific site, does not require navigation across at-grade crossings, and will be ADA accessible. The two trails are separated by a significant vertical grade, have different termini, and could potentially serve different user groups. Therefore, each trail has independent utility.
13	Impacts are not necessarily unavoidable if the project is defined correctly. The stated project purpose is not appropriate: "We would put forth that the purpose of a pedestrian/ bicycle park trail is to	The Boulevard Overwater Walkway Project will provide visual and physical access to the waterfront and a trail connection to planned waterfront development in response to public demand. The need for a connection between Boulevard Park and Cornwall Landing has been identified in the

Comment No.	Comment	Response
	safely allow bikers and walkers to get from point A to point B, with minimum interference with motorized vehicles and in a pleasing setting. Its purpose is not to be overwater, per se."	City's Parks, Recreation, and Open Space Plan (2002, 2008), Waterfront Futures Group and Vision Framework (2004), Waterfront District Development Plan (2006), and Shoreline Master Program Update (2007). All of these plans included public participation. While pedestrian and bicycle safety are of utmost importance to the City, the purpose of the project is to provide water access to the public.
14	A cumulative impacts analysis is required for a conditional use permit, and no such analysis has been done.	The anticipated cumulative effects from the project were addressed in the SEPA and Shoreline Conditional Use Permit documentation submitted to the City. The construction-related, built project, and mitigation effects were in included in this documentation and represent the total of effects stemming from the project.
15	Proposed mitigation is insufficient to impacts. - Mitigation for temporary construction impacts should be included. Proposed mitigation for permanent impacts are insufficient, based on WDFW Aquatic Habitat Guidelines and the 2006 white paper. The City should include a restoration project near the impact site.	Project mitigation will be conducted in compliance with applicable local, state, and federal requirements. Best management practices (BMPs) and conservation measures will be employed to mitigate for temporary construction impacts. The City will continue to work with WDFW and other applicable regulatory agencies to ensure that the project provides adequate mitigation for project impacts. WDFW has been consulted and is expected to issue an HPA for the project that addresses required mitigation for project impacts.
16	Impacts to eelgrass have not been adequately considered.	Eelgrass and macroalgae baseline studies have or will be performed for the project in accordance with WDFW and Washington Department of Natural Resources (WDNR) requirements. The City will adhere to requirements imposed by these agencies as part of the HPA and Aquatic Lease issued for the project. These agencies will require, at a minimum, that the project result in no net loss of eelgrass.
17	The eelgrass reference site is inappropriate because it is within the shadow of the overwater structure. A different site should be chosen.	The final eelgrass reference site to be used for the project will be reviewed and approved by WDFW as part of the eelgrass monitoring and mitigation plan. Approval of the eelgrass monitoring and mitigation plan is expected to be a condition of WDFW's HPA.

Comment No.	Comment	Response
18	The Lummi Tribe's concerns should be addressed.	Comment noted.
19	Information is missing, including: • The WDFW requested update to the eelgrass survey and mitigation report • The shoreline and erosion transportation and evaluation study	The shoreline erosion transportation and evaluation study will be completed by the time of the shoreline permit hearing. The City is currently negotiating a contract with the design consultant for this work. The eelgrass survey and mitigation report has been revised.
20	"We find there are too many unanswered questions and that the mitigation is too weak for us to support this project without a full EIS and subsequent mitigation."	Comment noted.
Comment by the U.S. Army Corps of Engineers in Response to Permit Application NWS-2010-928 – Letter dated 8/12/10		
21	The project is a bridge across navigable waters, and is therefore regulated by the Coast Guard rather than the Corps. The work needs no authorization from the Corps.	Comment noted.
Comments by Wendy Harris in response to SEPA MDNS – Email dated 8/30/10		
22	Lummi Nation Treaty Rights: As reflected in the attached letter, the Lummi Nation asserts that this development will impair their ability to access approximately 25 acres of land used for fishing rights that are protected under Treaty. It is my understanding that the City is proceeding with its permitting and SEPA process although this matter is not resolved. Expensive litigation to determine whether the City violated tribal treaty rights is not in the public's interest.	Comments raised by the Lummi Tribe in a letter dated August 30, 2010, are previously addressed in this response to comments. The City is committed to working with the Lummi Tribe to address impacts to treaty rights as a result of the project. The FHWA, as the lead federal agency for NEPA compliance, will consult with the Lummi Tribe and determine appropriate mitigation for project impacts, including impacts to treaty rights.
23	Public Navigation: Under the Public Trust Doctrine and the Shoreline Management Act, one of the government's roles is to protect the public's right to navigation, including navigation over aquatic lands	The City will obtain all needed permits and approvals to construct the overwater walkway: • WDNR will require a state Aquatic Lease for the project and can impose conditions upon the project to ensure the essence of the Public Trust

Comment No.	Comment	Response
	managed by the DNR. Although studies by the City indicate that part of the structure will be built within navigable waters, this impact is not addressed or, analyzed, avoided or mitigated. This impact is corroborated by the attached letter from the Army Corps. Of Engineers, deeming the project a "bridge", which is defined as a structure over navigable waters that may interfere with the passage of boats.	Doctrine is met for use of affected public lands. The City will adhere to the requirements of the WDNR Aquatic Lease. • The City will require a Shoreline Conditional Use Permit and can impose conditions upon the project to ensure the intent and conditions of the Shoreline Management Act are met. • The U.S. Coast Guard will regulate the project as a bridge and require a Bridge Permit under the terms of a 1977 Memorandum of Agreement between the Corps and the U.S. Coast Guard (see attached Corps letter of August 12, 2010). Federal law prohibits the construction of any bridge across navigable waters without prior authorization from the U.S Coast Guard. The permits and approvals required for the project will address the protection of the public's right to navigation.
24	SEPA Threshold Decision Made Without Adequate Information: The SEPA process ensures that a project is not built unless there is adequate protection against environmental degradation. For this reason, DOE recommends that all studies be completed before a threshold decision is made. However, the City issued the MDNS before it completed revised studies that were required by WDFW, and instead included the studies as the asserted mitigation. Additionally, the City issued the MDNS before it completed a staff report and cumulative impact analysis that is required as part of the conditional use permit process that is being processed simultaneously with the SEPA review. Since it is known that the most harmful impacts from overwater structures results from cumulative impacts, there was no reason that the City rushed to a SEPA threshold decision before obtaining the	The City of Bellingham, as the SEPA lead agency for the project, can rely on the expertise of other agencies to address specific issues related to a particular agencies expertise. The project and associated mitigation has been thoroughly discussed with WDFW, updates have been made to the mitigation plan as requested by WDFW, and WDFW will have ultimate authority as to whether to issue an HPA for the project. It is expected that the City will require a HPA to be issued by WDFW prior to project construction commencing as a condition of project approval. The anticipated cumulative effects from the project were addressed in the SEPA and Shoreline Conditional Use Permit documentation submitted to the City of Bellingham. The construction related effects, effects from the built project, and mitigation effects were in included in this documentation and represent the total of effects stemming from the project.

Comment No.	Comment	Response
	results of the cumulative impact analysis.	
25	For the above reasons, I request that the City rescind the SEPA determination and re-issue its threshold determination after the issues and information discussed above are resolved.	Comment noted.
26	I believe this action is also appropriate based on fiscal concerns. Given the City's current financial problems, there are less expensive and less environmentally damaging alternatives to public shoreline access. As People for Puget Sound pointed out in their comments on the waterfront redevelopment draft, an elevated land-based shoreline trail along Cornwall, connecting to the S. Bay trail, would protect the environment and the taxpayer's purses.	Comment noted.

URBAN MARITIME

EXHIBIT D

SHORELINE AREA (Reach Code): Marine 7 Cornwall Landfill | **REACH NUMBER: 33**

Land Use	Current Land Use	Vacant industrial land. (Ref # 8, 54, 71)
	Zoning	13.3 acres water, 12.6 acres industrial, 1.5 acres public (Ref # 54)
Potential Species Present	Wildlife species	10.1 acres of mustelid habitat; 11.0 acres of pinneped habitat; areas of significant importance and vulnerability for water birds; sea haul outs indicated offshore (logs); high concentrations of winter marine birds offshore. (Ref # 3, 70, 71, 105)
	Fish species	Pandalid shrimp offshore, demersal groundfish off-shore. Presumed presence of Coho and Bull trout. (Ref # 3, 70, 71, 105)
	PHS species/habitat	Importance and vulnerability for water birds/ sea haul outs indicated offshore (logs), high concentrations of winter marine birds offshore. (Ref # 3, 70, 71, 105)
	TSE species	Chinook in Bay (FT and SC). Coho (FCo) and Bull trout (FT) presumed. (Ref # 92, 93, 105)
	Invasive wildlife/fish species	No data
Physical Environment	Acres of land in reach	27.4 acres total with 12.7 acres of land and 14.7 acres of water (Ref # 13)
	Aquatic vegetation	1.5 acres mixed algae, 0.2 acres eelgrass, 0.2 acres green algae (Ref #97, 98)
	Slope	0-5% slopes dominate. Small areas of 20-34% slopes present adjacent to shoreline. (Ref # 47, 103)
	Buildings	7 buildings covering 2.09 total acres (Ref # 16)
	Culverts/stormwater utilities	No detention facilities. Sewer and storm mains in reach. One stormwater outfall. (Ref # 41, 42, 40)
	Geology	Glacial marine drift and continental glacial outwash. Seismic hazard area (man-made fill) is indicated in the reach. (Ref # 21, 51, 63)
	Tributary Creeks	None indicated (Ref #8, 42, 71)
	Impervious surface	59% impervious, 31% semi-pervious, 10% pervious (Ref #12)
	Invasive plant species	No data
	Roads/transportation	0.1 miles rail, no roads (Ref # 34, 44, 46)
	Soils	Infiltration rates: 14.9 acres very slow with high runoff potential (Hydrologic soil Group D), 0.8 acres moderate (Group B). Erosion potential: 26.6 acres severe risk, 0.8 acres slight risk. (Ref # 51, 63)
	Topography	Range 0 feet to 87 feet; mean 8 feet (Ref # 47)
	FEMA	11.3 acres in 100 year floodplain, no floodway in reach (Ref # 19)
	Terrestrial Vegetation	No significant vegetation cover in reach, some weedy growth on Cornwall Ave landfill and some marine dune species on the beach at toe of Cornwall (Ref # 8, 71)
Marine Aquatic Function	Substrate type	1.8 acres artificial, 2.8 acres mixed fines, 0.2 acres mixed coarse (Ref # 3, 99)
	Creosote structures	Pilings and old dock structure at toe of Cornwall Avenue (Ref # 71, 73, 74, 99)
	In-water structures	3 structures – old ferry dock, many piles (Ref # 71, 73, 74, 99)
	Bulkheads	Entire reach riprap (Ref # 71, 73, 74, 99)
	DOE 303(d)	Inner Bay, no data. Outer Bay – Category 5 for dissolved O2, Category 2 for pH, Category 1 for Fecal coliform, pH, and temperature. (Ref # 81)
	Toxic sites/land fills	**Cornwall Ave. Landfill** – Sediment: area exceeds MCUL, (confirmed) metals (copper, lead, zinc), organics, PCB's, bis(2ethylhexyl)phthalate (suspected) EPA priority pollutants, PCB's, pesticides, inorganic contaminants. Groundwater: (confirmed) EPA priority pollutants, metals, fecal coliform, inorganic contaminants. **RG Haley Intl Corp site** (500 Cornwall). Sediments and Groundwater (confirmed) dioxin, PAH's, base/neutral/acid organics. Groundwater (confirmed) pentachlorophenol. (Ref # 79, 80)
	Bathymetry	-14.0 to 0.0' range; -4.1' mean (Ref # 25, 31)

SHORELINE AREA (Reach Code): Marine 7 Cornwall Landfill | **REACH NUMBER: 33**

	Wave energy	4.8 acres partially enclosed (Ref #3, 99)
	Point source pollution	No data
	Waterways/dredge beds	None identified (Ref # 3, 99)
	Drift cells	South (Ref # 3, 99)
Marine Foreshor	Beach characterization	No data
	High-Low tide lines	2.98 acres beach
	Erosion/accretion zones	No data
Historic & Cultural	Historic aerials	See waterfront futures website http://www.waterfrontfutures.org/learnmore/lm_photo_gallery.htm (Ref # 99)
	Archeological sites	No data
	Historic sites	Old landfill (Ref # 77)
	Parks & public access	No direct shoreline access. Greenway trail on bank at upland edge of reach. (Ref # 33, 34, 36, 48)
Function Analysis	**Reach Function**	
	• Hydrologic	Partially impaired – shoreline armoring (Ref # 1, 2, 5, 71)
	• Shoreline Vegetation	Impaired – absent in most areas. Non-native species dominate where present. (Ref # 1, 2, 5,69, 70, 71)
	• Habitat	Terrestrial – impaired (Ref # 1, 2, 5,69, 70, 71) Intertidal – impaired in most locations, but moderate to high function at toe of Cornwall Ave beach. (Ref # 1, 2, 5,69, 70, 71) Shallow and deepwater habitat – moderate to high function. Shallow water habitat limited. (Ref # 1, 2, 5,69, 70, 71)
	Limiting Factors	Old landfill – sediment and groundwater contamination Rip rap armoring shoreline (Ref # for above 1, 2, 5,69, 70, 71)
	Functions	
	• Sustainable	All functions sustainable with enhancements
	• Not Sustainable	None
	Priority Actions	• See preservation/ enhancement section. Action # 20 was rated as a high priority action. (Ref # 73) • Conserve and enhance eelgrass beds (Ref # 1)
	Current Enhancement Projects	None identified (Ref # 1, 73)
	Preservation/Enhancement Opportunities	• Remove garbage from in-water portion of landfill. Reform shoreline to create foreshore and backshore and intertidal habitat. Establish riparian plantings (BBDP action # 20). (Ref # 73) • Create pocket marshes at stormwater outfalls. (Ref # 1)

CONSERVANCY III

SHORELINE AREA (Reach Code): Marine 8		REACH NUMBER: 34
Land Use	Current Land Use	Primarily undeveloped forested (shrub) hill slope with greenways trail. (Ref # 8, 54, 71)
	Zoning	8.6 acres water, 8.5 acres public, 0.3 acres residential (Ref # 54)
Potential Species Present	Wildlife species	6.8 acres of pinneped habitat; areas of significant importance and vulnerability for water birds (high concentrations of marine diving birds in winter); grey whales have occurred offshore (Ref # 3, 70, 71, 105)
	Fish species	Pandalid shrimp offshore; demersal groundfish off-shore. Presumed presence of Coho and Bull trout. (Ref # 3, 70, 71, 105)
	PHS species/habitat	Importance and vulnerability for water birds (high concentrations of marine diving birds in winter); grey whales have occurred offshore(Ref # 3, 70, 71, 105)
	TSE species	Chinook in bay (FT & SC). Coho (FCo) and Bull trout (FT) presumed. (Ref #92, 93, 105)
	Invasive wildlife/fish species	No data
Physical Environment	Acres of land in reach	17.4 acres total with 8.3 acres of land and 9.1 acres of water (Ref # 13)
	Aquatic vegetation	1.7 acres green algae, 0.1 acres eelgrass (Ref # 97, 98)
	Slope	20-50% slopes dominate, areas of 0-10% slopes also present mainly adjacent to the shoreline. (Ref # 47, 103)
	Buildings	0 buildings (Ref # 16)
	Culverts/stormwater utilities	No detention basins. 2 stormwater outfalls within reach (Ref # 41, 42, 40)
	Geology	Continental sedimentary deposits or rock. Land slide hazard area indicated on slopes 15-35% or greater (Ref # 21, 51, 63)
	Tributary Creeks	None indicated (Ref # 8, 42, 71)
	Impervious surface	45% semi-pervious, 33% impervious, 22% pervious (Ref # 12)
	Invasive plant species	Traveler's Joy clematis in upland forest (Ref # 71)
	Roads/transportation	0.1 miles road (0.6 acres),0.3 miles rail (Ref #34, 44, 46)
	Soils	8.1 acres of soils with moderately well drained soils with moderate infiltration rates (Hydrologic soil Group B). Erosion potential: 9.3 acres severe risk, 8.1 acres slight risk. (Ref # 51, 63)
	Topography	Range 0 to 85'; mean 20' (Ref # 47)
	FEMA	7.7 acres in 100 year floodplain, no floodway in reach (Ref # 19)
	Terrestrial Vegetation	Uplands dominated by mixed deciduous forest and shrub (Ref # 8, 71)
Marine Aquatic Function	Aquatic substrate type	1.8 acres mixed coarse, 1.2 acres artificial, 0.5 acres mixed fines (Ref #3, 99)
	Creosote structures	Old in-water rail trestle piles and cross structures (Ref # 71, 73, 74, 99)
	In-water structures	1 structure – old trestle(Ref # 71, 73, 74, 99)
	Bulkheads	Entire reach rock riprap. (Ref # 71, 73, 74, 99)
	DOE 303(d)	Inner Bay, no data. Outer Bay – cat 5 dissolved O2, Cat 2 pH, Cat 1 for Fecal, pH, and temp./ creosote piles in old trestle remains along shore (Ref # 81).
	Toxic sites/land fills	**Starr Rock Site** off-shore –sediment exceeds mercury bioaccumulation levels and MCUL levels (Ref # 79, 80)
	Bathymetry	-3.0' to 0.0' range; mean -0.4' (Ref # 25, 31)
	Wave energy	3.5 acres partially enclosed (Ref # 3, 99)
	Point source pollution	No data
	Waterways/dredge beds	None indicated (Ref # 3, 99)
	Drift cells	South (Ref # 3, 99)

SHORELINE AREA (Reach Code): Marine 8		REACH NUMBER: 34
Marine Foreshore	Beach characterization	No data
	High-Low tide lines	1.1 acres beach
	Erosion/accretion zones	No data
Historic & Cultural	Historic aerials	See Waterfront futures website http://www.waterfrontfutures.org/learnmore/lm_photo_gallery.htm (Ref #99)
	Archeological sites	No data
	Historic sites	None indicated (Ref # 77)
	Parks & public access	Most of reach in public ownership. Public access limited to greenways trail. No water access. (Ref # 33, 34, 36, 48)
Function Analysis	**Reach Function**	
	• Hydrologic	Slightly impaired by rip rap at base of railroad tracks. (Ref# 1, 2, 5, 71)
	• Shoreline Vegetation	Slightly impaired – invasive species and reduced canopy (Ref# 1, 2, 5, 69, 70, 71)
	• Habitat	• Terrestrial habitat slightly impaired – connectivity limited • Intertidal habitat – slightly impaired by rip rap • Shallow and deepwater habitat – moderate to high function. High function for offshore winter bird habitat. (Ref# for above 1, 2, 5, 69, 70, 71)
	Limiting Factors	• Shoreline vegetation limited in function by percentage of invasive plant species. • Shoreline vegetation limited by restricted canopy cover. • Hydrology and intertidal habitat limited by rip rap. (Ref# for above 1, 2, 5, 69, 70, 71)
	Functions	
	• Sustainable	All functions sustainable
	• Not Sustainable	None
	Priority Actions	Invasive plant species control in shoreline vegetation communities. (Ref# 71)
	Current Enhancement Projects	None identified (Ref# 1, 73, 71)
	Preservation/Enhancement Opportunities	Removal of derelict in-water structures. (Ref# 1, 73, 71)

CONSERVANCY II

SHORELINE AREA (Reach Code): Marine 9 Boulevard Park | **REACH NUMBER: 35**

Land Use	Current Land Use	Public park and multifamily uses (Ref# 8, 54, 71)
	Zoning	21.2 acres water, 12.5 acres public, 4.1 acres residential, 1.3 acres commercial (Ref# 54)
Potential Species Present	Wildlife species	3.7 acres of mustelid and 13.6 acres of pinneped habitat; vulnerable water bird habitat (offshore winter diving bird concentrations). Pigeon guillemot nesting within reach – nests may have been destroyed with Taylor Street dock work. (Ref# 3, 70, 71,105)
	Fish species	Surf smelt and sand lance spawning at south end of reach. Presumed presence of Coho and Bull trout. (Ref# 3, 70, 71,105)
	PHS species/habitat	Vulnerable water bird habitat (offshore winter diving bird concentrations). Pigeon Gillemot nesting in this reach (docks, bluffs?). Surf smelt and sand lance spawning at south end of reach (vulnerable aggregations). (Ref# 3, 70, 71,105)
	TSE species	Chinook in bay (FT & SC). Coho (FCo) and Bull trout (FT) presumed. (Ref# 92, 93)
	Invasive wildlife/fish species	No data
Physical Environment	Acres of land in reach	39.1 acres total with 16.7 acres of land and 22.4 acres of water (Ref# 13)
	Aquatic vegetation	5.6 acres green algae, 1.9 acres eelgrass (Ref# 97, 98)
	Slope	Slope in this reach range from areas of 0-5% slopes and 20-50% slopes or greater. (Ref# 47, 103)
	Buildings	10 buildings covering 1.05 total acres (Ref# 16)
	Culverts/stormwater utilities	One stormwater outfall near Taylor dock. No retention basins identified. (Ref# 40, 41, 42)
	Geology	Continental sedimentary deposits and alluvium. Land slide hazard area indicated on slopes 15-35% or greater. Seismic hazard area (man-made fill) is also indicated (Ref# 21, 51, 63)
	Tributary Creeks	None indicated (Ref# 8, 42, 71)
	Impervious surface	42% impervious, 38% semi pervious, 20% pervious (Ref# 12)
	Invasive plant species	No data
	Roads/transportation	0.3 miles (0.7 acres) roads, 0.5 miles rail (Ref# 34, 44, 46)
	Soils	22.7 acres of soils with high infiltration rates and low runoff potential (Hydrologic soil Group A). Erosion potential: 22.7 acres slight risk, 16.5 acres high risk. (Ref# 51, 63)
	Topography	Range 0 to 76'; mean 11' (Ref# 47)
	FEMA	21.5 acres in 100 year floodplain, no floodway in reach (Ref# 19)
	Terrestrial Vegetation	Mix of landscaped lawns and shrub communities. (Ref# 8, 71)
Marine Aquatic Function	Aquatic substrate type	4.5 acres mixed coarse, 3.4 acres mixed fines, 2.1 acres artificial, 1.0 acres gravels (Ref# 3, 99)
	Creosote structures	Creosote structures present along board walk (Ref# 71, 73, 74, 99)
	In-water structures	Taylor street dock, Boulevard Park boardwalk and dock (Ref# 71, 73, 74, 99)
	Bulkheads	Rip-rap bulkhead along most of reach (Ref# 71, 73, 74, 99)
	DOE 303(d)	Inner Bay, no data. Outer Bay – cat 5 dissolved O2, Cat 2 pH, Cat 1 for Fecal, pH, and temp. (Ref# 81)
	Toxic sites/land fills	**Off Boulevard Park**. Sediment: (confirmed) EPA priority pollutants, petroleum products, and PAH's, including areas that exceeds SQS levels. Suspected: Organic conventional contaminants (organic matter that elevates BOD, COD, or TOC). Groundwater (confirmed) EPA priority pollutants, petroleum products, and PAH. **Exxon Mobil Oil Corp site** (908 10th St). Sediments: (confirmed) EPA priority pollutants, PAH's (suspected) petroleum products, non-halogenated solvents. Groundwater (suspected) petroleum, non-halogenated solvents, and

SHORELINE AREA (Reach Code): Marine 9 Boulevard Park	REACH NUMBER: 35

		EPA priority pollutants. **Taylor Avenue Dock**. Sediments (confirmed) PAH's. (Ref# 79, 80)
	Bathymetry	-24.0' to 0' range; -3.1 mean (Ref# 25,31)
	Wave energy	14.3 acres partially enclosed (Ref# 3, 99)
	Point source pollution	No data
	Waterways/dredge beds	None identified (Ref# 3, 99)
	Drift cells	South (Ref# 3, 99)
Marine Foreshor	Beach characterization	No data
	High-Low tide lines	4.5 acres- beach
	Erosion/accretion zones	No data
Historic & Cultural	Historic aerials	See Waterfront futures website http://www.waterfrontfutures.org/learnmore/lm_photo_gallery.htm (Ref# 99)
	Archeological sites	No data
	Historic sites	None indicated (Ref# 77)
	Parks & public access	2.4 acres in open space (12.4 acres in parks zoning) (Ref# 33, 34, 36, 48)
Function Analysis	**Reach Function**	(Ref# for following 1, 2, 5, 69, 70, 71)
	• Hydrologic	Slightly impaired – rip rap
	• Shoreline Vegetation	Impaired to slightly impaired. Areas within main body of park dominated by lawn. Native shrubs and trees are interspersed along board walk
	• Habitat	• Terrestrial – impaired to slightly impaired, poor cover and connectivity • Intertidal – impaired in areas with rip rap and armoring/functioning in areas without armoring • Shallow and deep water habitats – moderate to high function. High forage fish spawning in pocket beaches.
	Limiting Factors	• Rip rap along Boulevard park and railroad tracks, shoreline armaments • Off shore toxic site may present contamination risk • Limited shoreline vegetation • Existing active park uses may compete with habitat enhancement needs.
	Functions	
	• Sustainable	All functions sustainable particularly with enhancements
	• Not Sustainable	None identified
	Priority Actions	• Remove rip rap and large rock along Boulevard Park shoreline and replace with finer substrate; or the addition of finer substrate between interstices to increase subtidal eelgrass beds (BBDP action # 21). (Ref# 73) • Conservation of eelgrass bed. (Ref# 1, 73)
	Current Enhancement Projects	• Taylor Street dock reconstruction has been performed that included removal of creosote piles. • Shoreline plantings by City of Bellingham along portions of boardwalk.
	Preservation/Enhancement Opportunities	• Enhance wetland located north of the Taylor Street dock. (Ref# 1, 73) • Continue shoreline plantings.

3 EXISTING CONDITIONS

3.1 Existing Conditions/Site Characterization

The Boulevard/Cornwall overwater pedestrian walkway will span the Bellingham Bay embayment to connect the north end of Boulevard Park to the south end of the former Cornwall Avenue Landfill site (see Figure 2 for existing conditions). In-kind mitigation for the Project will occur on site, elements of which are described in Section 5 and illustrated in Figure 10.

The southern terminus of the proposed overwater walkway will be located within Boulevard Park, a major public waterfront park facility in Bellingham that is owned, managed, and maintained by Parks. The park is located adjacent to Bellingham Bay between the Fairhaven District (south) and the Bellingham Waterfront District (north), and includes maintained lawn and landscaping, a small performance stage, public restrooms, picnic facilities, parking, trails, and 'The Woods' coffee shop. The park and its trails are used extensively for recreation by locals and visitors due to their scenic value and central location on Bellingham Bay. Subsurface conditions of the park are characterized by relatively soft soils and soft fill, with borings near the proposed overwater walkway encountering approximately 5 feet of earthen fill, 19 feet of wood waste fill, and 1 foot of sandy beach deposits over bedrock (Landau 2009). There is no shoreline access except for a small pocket beach at the northeast corner of the park (Photo 1). The remainder of the shoreline is heavily armored with rock and concrete riprap.

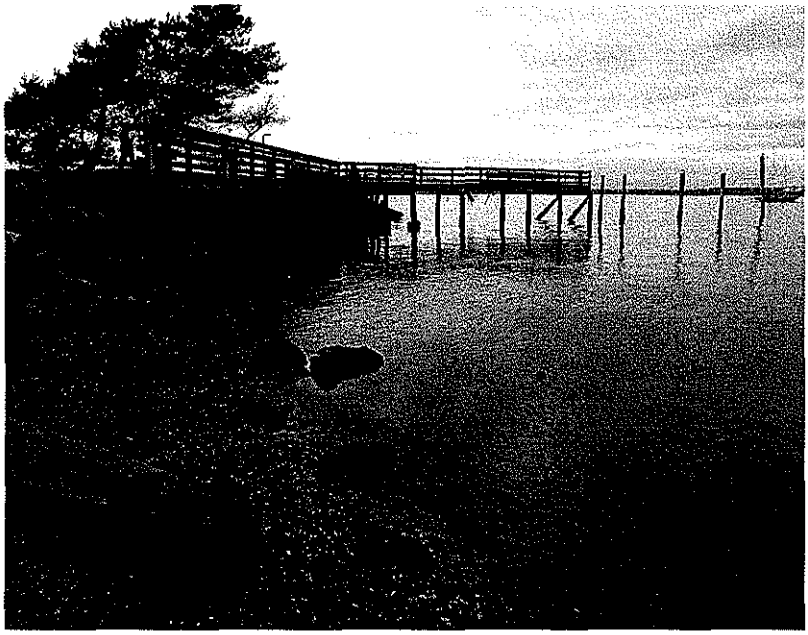


Photo 1 – Profile view of the existing pier at Boulevard Park from the adjacent pocket beach located at the northeast corner of Boulevard Park (facing west)

An existing wharf and pier are located at the north end of Boulevard Park in the approximate location of the southern terminus of the proposed overwater walkway (Photo 2). The pier is in structurally unsafe condition and is, therefore, closed to the public. The overwater portion of the pier is supported by pier bents supported by 1-foot by 1-foot timber caps and eight corroded steel H-piles. The overwater portion of the wharf is supported by approximately 87 creosote-treated timber piles. A low concrete wall topped with riprap supports the wharf on the landward side. The wharf, pier, and associated piles will be removed as part of the compensatory mitigation described in Section 5.

Photo 2 – View from Boulevard Park of the existing pier where the southern end of the overwater walkway will land (facing north)

The former Cornwall Avenue Landfill site is located at the north end of the proposed walkway within the City's Waterfront District redevelopment area. The upland portion is currently undeveloped and public access is restricted. Vegetation on the site is unmaintained. Non-native and invasive herbaceous plant species dominate the area near the proposed landing site. Subsurface conditions at the former Cornwall Avenue Landfill site are somewhat similar to Boulevard Park, in that the conditions include mostly soft soils and soft fill. Borings near the proposed overwater walkway landing encountered about 2 feet of granular fill, 23 feet of landfill refuse, 10 feet of wood waste fill and 8 feet of Nooksack Deposits/Glaciomarine Drift over bedrock (Landau 2009). The shoreline is heavily armored with riprap and concrete rubble.

Five derelict creosote-treated piles are located immediately offshore of the southwest corner of the property in the vicinity of the proposed walkway (Photo 3). These piles will be removed as part of the compensatory mitigation described in Section 5.

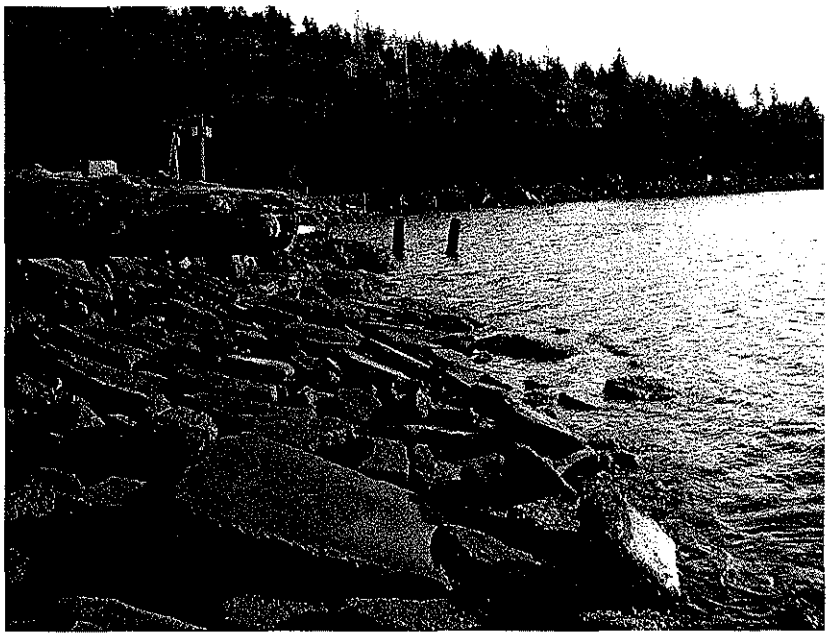


Photo 3 – View of the former Cornwall Avenue Landfill site where the north abutment of the proposed overwater walkway will land (facing southeast)

The outermost portion of the embayment (a part of Bellingham Bay) between Boulevard Park and the former Cornwall Avenue Landfill site (Photo 4), is presently used for transient vessel moorage; however, these transient vessels do not have WDNR authorization to moor in this area. The bathymetry of the embayment between Boulevard Park and the former Cornwall Avenue Landfill site indicates that the shoreline is gently sloping from the upland toward the Whatcom Waterway navigation channel. The substrate along the shoreline of the Project area waterward of the riprap at each landing site primarily consists of gravel, cobble, sand, and shell fragments. A geotechnical study was conducted for the Project in October 2009, and borings indicated the material below elevation -20 feet MLLW is primarily composed of sand, soft clay, and silt. Four isolated creosote-treated piles are located within this portion of the embayment; these piles will be removed as part of the compensatory mitigation described in Section 5.

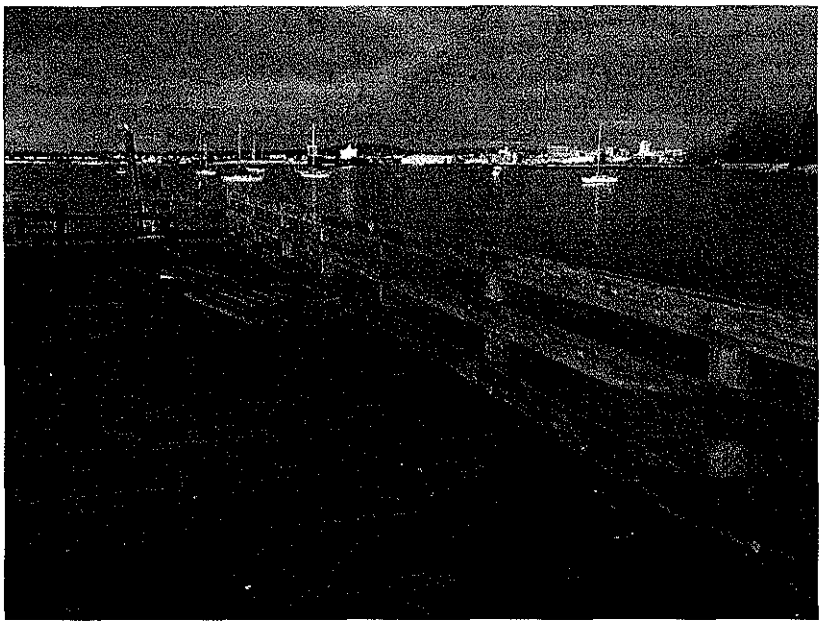


Photo 4 – View of proposed overwater walkway location from the existing pier at Boulevard Park where the southern end of the walkway will land (facing northeast)

Grette Associates conducted an underwater eelgrass survey within the embayment and mapped the extent of existing eelgrass beds. This survey occurred June 3 through June 5, 2008 (Grette Associates 2009), and employed a modified version of the Washington Department of Fish and Wildlife (WDFW) Intermediate Eelgrass/Macroalgae survey methods, modified to meet the needs of the Project and approved by WDFW (WDFW 2008). The results of the survey (Grette Associates 2009) showed that eelgrass is present along the entire embayment between Boulevard Park and the former Cornwall Avenue Landfill site. In general, eelgrass begins at an upper elevation of approximately -1.7 to -2.0 feet MLLW and extends waterward to approximately -8 to -10 feet MLLW. At the Boulevard Park landing, eelgrass density is lowest and the eelgrass band is narrowest at the existing pier. At the former Cornwall Avenue Landfill site, eelgrass density is generally similar along the entire shoreline area.

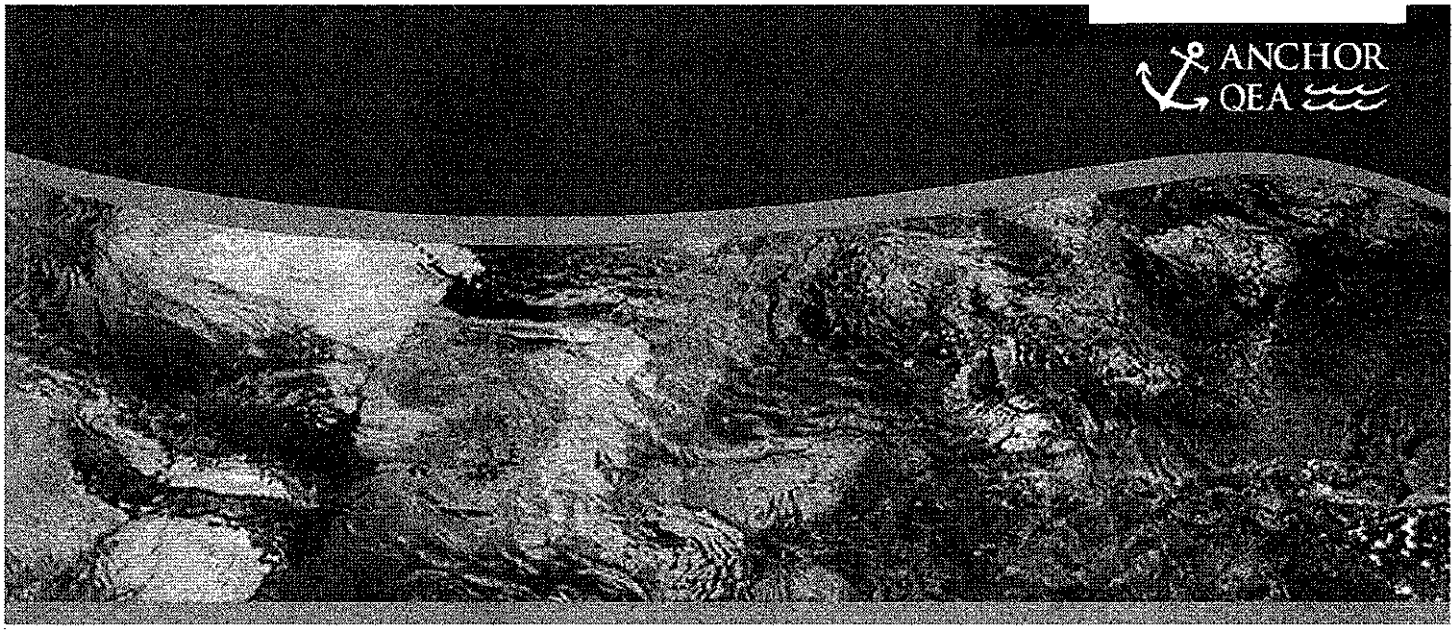
In addition, macroalgae was consistently found landward of the eelgrass bed surveyed. Fucus and Ulva were present on most transects, and sparse Laminaria was observed further waterward on some transects (Grette Associates 2009).

Further biological conditions of the Project site are discussed in detail in the Biological Assessment (Anchor QEA 2010). While the Project site is located within the 100-year floodplain, there are no streams or wetlands within the Project site. Generally, wildlife within the area includes mammals such as harbor seal, California sea lion, and harbor porpoise; fish including salmon, herring, and forage fish species; and upland bird species including heron, eagle, and songbirds.

3.2 MTCA Remedial Actions Associated with the Overwater Walkway

The proposed overwater walkway is located within the boundaries of three Model Toxics Control Act (MTCA) sites that are regulated by the Washington State Department of Ecology (Ecology): the Boulevard Park (also known as the South State Street Manufactured Gas Plant [MGP] Site), Cornwall Avenue Landfill, and Whatcom Waterway sites. The Boulevard Park site is undergoing investigation under an Ecology Agreed Order (AO) for soil and groundwater contamination related to the former South State Street MGP. The Cornwall Avenue Landfill site is undergoing investigation under an Ecology AO for contamination associated with a former municipal landfill. The landings of the overwater walkway will fall within the boundaries of the Boulevard Park and Cornwall Avenue Landfill MTCA sites. The overwater walkway structure will cross over aquatic lands that are within the natural recovery area of the Whatcom Waterway site, which is undergoing cleanup and long-term monitoring consistent with the Whatcom Waterway Consent Decree. The Boulevard/Cornwall Overwater Pedestrian Walkway Project and the various MTCA projects are coordinated by the City. The landings for the walkway have been designed not to interfere with any future proposed restoration actions at the Boulevard Park and Cornwall Avenue Landfill MTCA sites.

EXHIBIT F



CITY OF BELLINGHAM SHORELINE MANAGEMENT MASTER PROGRAM CONSISTENCY REPORT
BOULEVARD/CORNWALL OVERWATER PEDESTRIAN WALKWAY

Prepared for

City of Bellingham Parks and Recreation Department

Prepared by

Anchor QEA, LLC
1605 Cornwall Avenue
Bellingham, Washington 98225

June 2010

CITY OF BELLINGHAM SHORELINE MANAGEMENT MASTER PROGRAM CONSISTENCY REPORT

BOULEVARD/CORNWALL OVERWATER PEDESTRIAN WALKWAY PROJECT

Prepared for

The City of Bellingham

Planning and Community Development Department

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1605 Cornwall Avenue

Bellingham, Washington 98225-4634

June 2010

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List of Appendices

INTRODUCTION

Washington State's Shoreline Management Act (SMA) of 1972 requires that developments undertaken within "shorelines of the state" must adhere to the regulations provided within the local shoreline master program. The purpose of this report is to detail the consistency of the Boulevard/Cornwall Overwater Pedestrian Walkway Project (Project) with the policies, goals, and objectives of the applicable elements, use activities, and shoreline designations in the current City of Bellingham (City) Shoreline Management Master Program (SMMP) (COB 1989). Additionally, this report provides information on how the Project is consistent with the Shoreline Conditional Use Permit (SCUP) requirements in the SMMP.

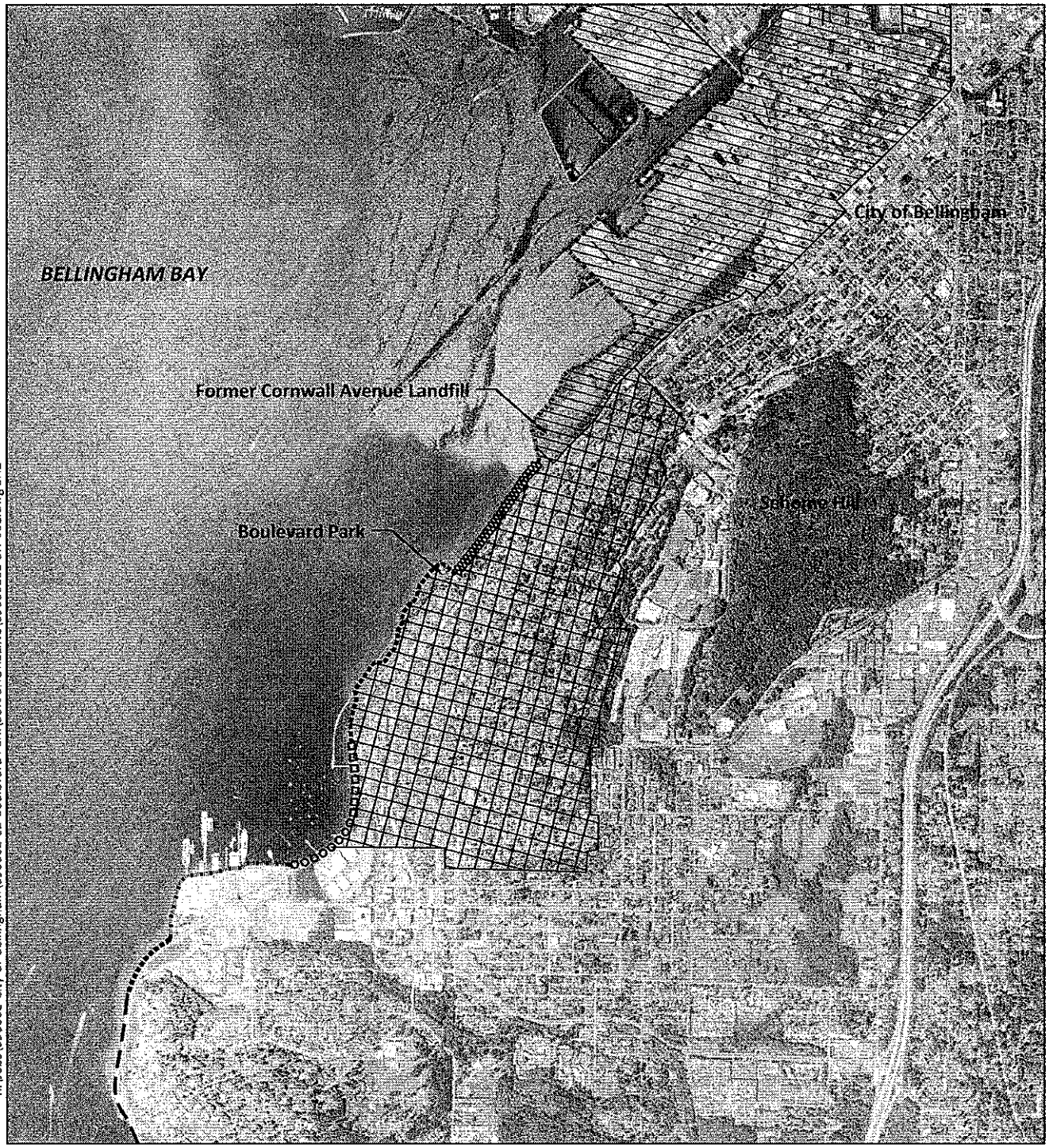
Project Summary

The City Parks and Recreation Department (Parks) proposes construction of an overwater walkway structure between Boulevard Park and the former Cornwall Avenue Landfill site, a future park site. The construction of the proposed overwater walkway will significantly improve public shoreline access along Bellingham's waterfront by providing a continuous shoreline trail between Fairhaven and the former Cornwall Avenue Landfill site. The proposed overwater walkway complements the existing overwater walkway system including Taylor Avenue Dock and the Pattle Point Trestle located to the south of the proposed Project. Drawing Sheets for the proposed overwater walkway, including a vicinity map and composite site plan, are included in Appendix A.

The proposed overwater walkway has been identified in several planning documents as an important link in the network of Bellingham's waterfront trail system, including the 2002 *City of Bellingham Parks, Recreation and Open Space Plan* (COB Parks 2002) and its 2008 update (COB Parks 2008); the 2004 *Waterfront Vision and Framework Plan: Connecting Bellingham with the Bay* (WFG 2004); the 2006 *New Whatcom Preliminary Draft Framework Plan* (COB and POB 2006); the 2009 draft update of the *City of Bellingham Shoreline Master Program* (COB 2009); and the mayor's 2008 *Waterfront Connections Plan* (COB 2008). The Project has also been part of a Bellingham public vote, the third greenways levy, which was approved by voters in 2006. Prior to the vote, in an adopted ordinance, the Bellingham City Council recorded intent to pursue a list of potential greenway projects that

included the overwater walkway. The list was assembled by citizens who examined the City's current plans and needs.

The Project will occur across several parcels under varying ownership: Boulevard Park is owned by the City, the former Cornwall Avenue Landfill site is jointly owned by the City and the Port of Bellingham, and aquatic lands are owned by the Washington Department of Natural Resources (WDNR). Per the SMMP, the Boulevard Park portion of the Project is designated Conservancy II, the former Cornwall Avenue Landfill portion is Urban Maritime, and the overwater portion is Conservancy III as shown in Figure 1.



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LEGEND:

- Conservancy I
- Conservancy II
- Conservancy III
- Urban I
- Urban Maritime
- Urban Multi-Use
- Central Business District (Contains Industrial/Waterfront Mixed-Use and Central Commercial Land Use with 1000 ft of the Project Area)
- South Hill (Contains Public Parks and Residential Land Use within 1000 ft of the Project Area)

0 2000
Scale in Feet

SOURCE: Information taken from City of Bellingham Shoreline Management Master Program (1989) and City of Bellingham Neighborhood Map (2010).

Figure 1
Existing Conditions (Shoreline)
Shoreline Permit Application
Boulevard/Cornwall Overwater Pedestrian Walkway

ANCHOR QEA

METHODOLOGY

This section describes the methodology used in this memorandum to determine consistency between the proposed Project and the SMMP. The 1989 City of Bellingham SMMP is the current version adopted by the City and that is used for this analysis. On December 14, 2009, the Bellingham City Council approved the November 2009 version of the City's Draft Shoreline Master Program (SMP) and has submitted the draft copy to the Washington State Department of Ecology (Ecology) for final review and approval. The 2009 Draft SMP is not anticipated to be approved by Ecology prior to the shoreline permit application for the Project being submitted to the City (Sundin pers. comm. 2010).

This memorandum is arranged to first detail the City SMMP goals, policies, and objectives (in italics) that are relevant to the proposed Project. After each SMMP section, a statement is provided that details how the Project is consistent with each goal, policy, or objective.

SHORELINE GOALS AND OBJECTIVES

Shoreline Use Element

GOAL: *Coordinate the regulation of shoreline uses so as to insure uses which result in long-term over short-term benefit, protect the resources and ecology of the shorelines, increase both visual and physical public access to the shorelines, and accommodate water dependent uses.*

OBJECTIVE: *Identify and reserve shoreline and water areas with unique attributes for particular long-term uses, including commercial, industrial, residential, recreational and conservational uses.*

OBJECTIVE: *All uses should be developed in a manner which will result in the least modification of the shoreline unless such modification contributes to the attainment of Master Program goals.*

OBJECTIVE: *Uses which will provide an opportunity for a substantial number of people to enjoy the shorelines should be permitted.*

The following describes how the proposed Project meets or exceeds the goals and objectives of the City SMMP Shoreline Use Element:

- The Project will result in a long-term recreational and educational benefit to the citizens of Bellingham and result in opportunities for substantial numbers of people to enjoy the shoreline.
- The overwater walkway is designed to minimize impacts to the resources and ecology of the shoreline, including minimizing impacts to the shoreline and eelgrass beds and removing existing structures and creosote treated piling from the shoreline environment.
- The Project will increase both visual and physical public access to the shoreline.
- The overwater walkway will complement the existing Bellingham waterfront trail system that includes Taylor Avenue Dock and Pattle Point Trestle, which are located to the south of the proposed overwater walkway.
- Shoreline modifications, including installation of riprap, for the Project will occur above Ordinary High Water (OHW) and Mean Higher High Water (MHHW) in existing modified shoreline areas.

Economic Development Element

GOAL: *Provide for economic activity and development of water dependent uses and permit water enjoyment uses in appropriate locations, consistent with environmental goals.*
GOAL: *Recognize the finite quantity of waterfront land and the limits of funds for public acquisition, direct development towards a multi-use concept to provide public access to the shorelines and protect the habitat while enhancing and maintaining the economic viability of the use.*
OBJECTIVE: *Where navigability is a viable asset, and in appropriate environments, economic development on the shorelines of the City should be water surface dependent or should provide an opportunity for a substantial number of the general public to enjoy the shorelines.*
OBJECTIVE: *Economic activity on shorelines of the City where navigability is not a viable asset, and in appropriate environments, should not interfere with the natural function of the shoreline and water body and should provide open space along the shoreline adequate for potential public access.*
OBJECTIVE: *Future appropriate economic development on the shorelines of the City should be compatible with existing appropriate uses.*

The following describes how the proposed Project meets or exceeds the goals and objectives of the City SMMP Economic Development Element:

- The Project will provide for economic activity by increasing public access to present or future businesses located along the City of Bellingham waterfront.
- The proposed Project is a water-oriented use as defined by the SMMP, meaning it is a combination of water-dependent and water-enjoyment uses.
- The overwater walkway is being designed to provide public access to the shorelines and minimize impacts to the natural functions of the shoreline and shoreline habitats.
- The Project will provide an opportunity for a substantial number of people to enjoy the shorelines.
- The overwater walkway is compatible with existing uses because it will complement the existing Bellingham waterfront trail system that includes Taylor Avenue Dock and Pattle Point Trestle, which are located to the south of the proposed overwater walkway.

Public Access Element

GOAL: *Increase public access to the shorelines of the City and preserve and enhance views of the shoreline and water.*
OBJECTIVE: *Identify public properties adjacent to shorelines as well as public rights-of-way which offer physical and/or visual access to the shoreline.*
OBJECTIVE: *Existing areas of public access should be developed in a manner to protect public health and safety while at the same time protecting the areas' natural attributes.*
OBJECTIVE: *Access to shorelines should be pedestrian access from upland parking areas (where necessary) and bicycle access.*
OBJECTIVE: *Public agencies should be required to provide public access opportunities at new shoreline facilities and encouraged to provide similar opportunities at existing facilities.*
OBJECTIVE: *The objectives of the City of Bellingham Open Space Plan should be implemented where applicable through shoreline management policies and requirements. To that end the acquisition of land and the construction of bicycle/pedestrian trails along shoreline trail routes as indicated on the Open Space Plan should be pursued. Along proposed trail routes, the City should pursue an ongoing program of shoreline land acquisition, through dedication or the granting of public access easements in shoreline setback areas. The City should explore ways to make shoreline property and easement dedication more attractive to property owners including assistance in solving security, storm water management, and other shoreline protection issues. Where the proposed development is on an Open Space Plan trail route that is not going to be constructed immediately, it may be preferable to require that the property owner sign a waiver not to contest a specified access easement enacted when the trail is built. Dedicated land or access/conservation easements should be sought along both sides of creeks where future bicycle and pedestrian trails are indicated in the Open Space Plan.*

The following describes how the proposed Project meets or exceeds the goals and objectives of the City SMMP Public Access Element:

- The Project will provide for increased recreational opportunities and enhance visual and physical public access to the shoreline.
- The Project is located on publicly-owned property that is adjacent to shorelines and

contains public right-of-ways.

- The overwater walkway is being designed according to the Guide Specifications for Design of Pedestrian Bridges published by the American Association of State Highway and Transportation Officials (AASHTO 2009) to protect the public health and safety. Additionally, the walkway will meet American Disabilities Act (ADA) standards.
- The overwater walkway is designed to minimize impacts to the natural attributes of the shoreline and shoreline habitats.
- The overwater walkway will accommodate bicycle and pedestrian access opportunities and is located adjacent to Boulevard Park, which contains existing upland parking and public facilities.
- The Project is designed to meet Ecology's most current stormwater manual, the Stormwater Management Manual for Western Washington (2005).
- The overwater walkway has been called for in several planning documents including the 2002 *City of Bellingham Parks, Recreation and Open Space Plan*, and its 2008 update.

Circulation Element

***GOAL**: Develop a balanced and efficient water and land transportation system, which will minimize the adverse environmental impact on the shorelines while contributing to the functional and visual enhancement of the system.*

***OBJECTIVE**: Existing shoreline circulation should be redesigned to accommodate varied modes of transportation and, where feasible, be utilized as a means of increasing public enjoyment of the shorelines.*

***OBJECTIVE**: Maintain existing water transport systems, both commercial and recreational, and, where feasible, improve these systems to enhance the economic and recreational benefits to the public.*

The following describes how the proposed Project meets or exceeds the goals and objectives of the City SMMP Circulation Element:

- The overwater walkway will contribute to a balanced and efficient land and water transportation system by complementing the existing Bellingham waterfront trail

system that includes Taylor Avenue Dock and Pattle Point Trestle located to the south of the proposed overwater walkway.

- The overwater walkway is designed to minimize impacts to the shoreline and shoreline habitats.
- The overwater walkway will accommodate bicycle and pedestrian access opportunities and is located adjacent to Boulevard Park, which contains existing parking and public facilities.
- The Project will provide for economic activity by increasing public access to present or future businesses located along the Bellingham waterfront.
- The Project will enhance recreational benefits to the public by increasing visual and physical public access to the shoreline.

Recreation Element

***GOAL**: Increase the amount of shorelines dedicated to public recreation and optimize their potential.*

***OBJECTIVE**: Shorelines which provide a locally unique opportunity for public recreation should be obtained for public use as soon as possible.*

***OBJECTIVE**: Recreational development where warranted, should be designed to minimize adverse effects on the natural amenities of the shoreline while enhancing its recreational value and protecting the public health and safety.*

***OBJECTIVE**: Shorelines, which exist as relatively untouched natural areas, should be recognized as having recreational and educational attributes in their natural state.*

The following describes how the proposed Project meets or exceeds the goals and objectives of the City SMMP Recreation Element:

- The Project will provide for increased recreational opportunities and will enhance visual and physical public access to the shoreline.
- The shoreline along which the overwater walkway will be located provides a locally unique opportunity for public recreation due to its location on the water.
- The overwater walkway is designed to minimize adverse effects on the natural amenities of the shoreline.
- The overwater walkway is being designed according to the Guide Specifications for

Design of Pedestrian Bridges published by the American Association of State Highway and Transportation Officials (AASHTO 2009) to protect the public health and safety. Additionally, the walkway will meet ADA standards.

- Shoreline modifications, including installation of riprap, for the Project will occur above OHW and MHHW in existing modified shoreline areas to preserve the recreational and educational attributes of adjacent shorelines in their natural state.

Conservation Element

GOAL: *Preserve, protect, and restore shoreline areas to optimize the support of wild, botanic, and aquatic life.*

OBJECTIVE: *Conservation efforts should be aimed at preserving the natural function of the watercourse as well as the aesthetic and ecological qualities of the shoreline.*

OBJECTIVE: *Areas, which are biologically and aesthetically degraded, should be reclaimed and restored to the greatest extent feasible while maintaining appropriate use of the shoreline.*

OBJECTIVE: *Standards should be developed for shoreline use, which will insure the optimal harmonious integration of human use of the shorelines with the shorelines' natural system.*

The following describes how the proposed Project meets or exceeds the goals and objectives of the City SMMP Conservation Element:

- The Project is using avoidance and minimization measures and mitigation actions to offset impacts to Bellingham Bay caused by the Project and optimize the support of wild, botanic, and aquatic life.
- Avoidance and minimization measures and mitigation actions for the Project include:
  - Removal of an existing timber pier, piles, and wharf at the north end of Boulevard Park
  - Removal of nine additional creosote-treated timber piles in the embayment between Boulevard Park and the former Cornwall Avenue Landfill
  - Project design minimizes impacts to nearshore habitat (e.g., the widened deck portions will be located over areas with seafloor depths of -12 feet MLLW or lower)

- Location of the overwater walkway crosses over the narrowest area of eelgrass near the Boulevard Park Landing (at the approximate location of the existing pier) and avoids crossing over the eelgrass areas near the former Cornwall Avenue Landfill site landing to minimize new macroalgae shading impacts from the overwater walkway
- The new structure was designed to include grating of spans located above nearshore areas (-12 feet MLLW or higher): the three spans closest to the Boulevard Park landing and the five spans closest to the former Cornwall Avenue Landfill site landing; the grating will be sized to provide 70% light transmission
- All proposed fill material, including riprap, will be placed above OHW and MHHW
- Steel piling is used for the Project instead of chemically treated-wood piles to minimize adverse impacts to the aquatic environment

- The Project will preserve the natural functions of Bellingham Bay in the Project area to the greatest extent possible and maintain or improve the aesthetic and ecological qualities of the shoreline.
- The Project area is currently biologically and aesthetically degraded by an existing pier and wharf that are supported by creosote-treated timber piles. Restoration activities will include the removal of the existing pier and wharf and associated creosote-treated timber piles, as well as nine additional creosote-treated piles within the embayment that the Project is located.
- The overwater walkway will integrate human use of the shorelines while preserving the shorelines' natural system.

USE ACTIVITY POLICIES

Utilities

***POLICY**: Provisions should be made for the protection of the shoreline during utility installation. Following installation/maintenance projects, project areas must be returned to pre-project configuration and adequate vegetation installed to prevent erosion.*
***POLICY**: Utilities on the shorelines should be installed underground.*

The following describes how the proposed Project complies with the City SMMP Utilities Policies:

- The Project will use Best Management Practices (BMPs) during construction activities, including during utility installation, such as implementation of a Temporary Erosion and Sediment Control (TESC) plan to prevent adverse affects to the shoreline and aquatic environment.
- Areas impacted by utility installation or maintenance will be returned to pre-Project configuration and adequate vegetation will be installed to prevent erosion following construction of the overwater walkway.
- No new above-ground utilities will be located on the shoreline and all utilities adjacent to the shoreline will be installed underground.

Bulkheads

Bulkheads are defined in the SMMP, Section 4 – DEFINITIONS as *rip-rapping erected parallel to or near the high water mark for the purpose of protecting adjacent uplands from the action of waves or currents.* Additionally, the Use Activity Policy for Shoreline Protection states that "*bank stabilization for the purposes of protecting property from erosion should conform to the policies contained herein relating to bulkheads.*"

Since the Project includes placement of heavy, loose riprap to replace existing riprap above OHW and MHHW and to stabilize the side slope of the fill area, it must conform to the policies as defined in the bulkhead section.

***POLICY**: Prior to the granting of a permit for bulkhead construction, the effect of the bulkhead on downstream or adjacent properties should be determined by the Planning and Economic Development Department and the disposition of the permit should reflect such determination.*

***POLICY**: Construction of bulkheads for the indirect purpose of creating land by filling behind the bulkhead should be prohibited unless such landfill is permitted by the Master Program.*

***POLICY**: Bulkheads should be prohibited which adversely affect public access to publicly owned shorelines.*

***POLICY**: Bulkheads should be designed so as not to detract from the aesthetic qualities of the shoreline.*

The following describes how the proposed Project complies with the City SMMP Bulkheads Policies:

- New riprap will be installed above OHW to protect the overwater walkway structure and will be placed in an area that is currently covered by existing riprap (existing riprap will be removed or reused on site).
- Riprap is not being placed for the indirect purpose of creating land by filling behind it.
- New riprap is being installed to facilitate safe public access to the shoreline.
- Because the riprap is being installed in an area that is currently covered by riprap, impacts to the aesthetic qualities of the shoreline are negligible.

Shoreline Protection

***POLICY**: Bank stabilization for the purposes of protecting property from erosion should conform to the policies contained herein relating to bulkheads.*

The following describes how the proposed Project complies with the City SMMP Shoreline Protection Policies:

- The Project conforms to the policies contained in the SMMP regarding bulkheads.

Archeological Areas and Historic Sites

POLICY: *Cooperation should be encouraged among public and private groups in the research and study of archeological and historic/cultural sites within the City.*

The following describes how the proposed Project complies with the City SMMP Archeological Areas and Historic Sites Policies:

- A cultural resources assessment has been completed for the Project and is pending review to determine if any significant archeological areas or historic sites are located in the vicinity of the Project. According to the assessment, no impacts to any significant archeological areas or historic sites are anticipated (Wessen & Associates, Inc. 2010).

Recreation

POLICY: *The procurement, for public use, of shorelines, which provide a locally unique opportunity for public recreation should be encouraged.*
POLICY: *Recreational development should be designed to minimize adverse effects on the natural amenities of the shoreline while enhancing its recreational value and protecting the public health and safety.*
POLICY: *The recreational and educational benefits of natural shorelines should be considered in recreational planning.*
POLICY: *Recreational planning and development should recognize the wide variety of recreational needs and desires.*
POLICY: *The applicable objectives stated and actions recommended in the City of Bellingham Open Space Plan should be pursued through Shoreline Master Program requirements and by the ongoing acquisition of property and development of public access along shoreline trail routes identified in the Open Space Plan.*

The following describes how the proposed Project complies with the City SMMP Recreation Policies:

- The shoreline along which the overwater walkway will be located provides a locally unique opportunity for public recreation due to its location on the water.
- The overwater walkway is designed to minimize adverse effects on the natural

amenities of the shoreline.

- The Project will provide for increased recreational opportunities and enhance visual and physical public access to the shoreline.
- The overwater walkway is being designed according to the Guide Specifications for Design of Pedestrian Bridges published by the American Association of State Highway and Transportation Officials (AASHTO 2009) to protect the public health and safety. Additionally, the walkway will meet ADA standards.
- Shoreline modifications, including installation of riprap, for the Project will occur above OHW and MHHW in existing modified shoreline areas to preserve the recreational and educational attributes of adjacent shorelines in their natural state.
- The Project will result in a long-term recreational and educational benefit to the City and citizens.
- The overwater walkway will provide long-term benefits and promote a wide variety of recreational needs and desires.
- The proposed overwater walkway has been called for in several planning documents including the 2002 *City of Bellingham Parks, Recreation and Open Space Plan*, and its 2008 update.

CONDITIONAL USE REQUIREMENTS

Section 13 – Conditional Uses

The SMMP requires a SCUP be applied for projects that propose overwater features to be built within a Conservancy Environment II or Conservancy Environment III shoreline designation (Stewart 2009; see Appendix B). The Conditional Uses Section of the SMMP contains six subsections (labeled A through F) as detailed below in italics. Under each subsection, information is provided as to how the Project meets these conditions.

Section 13.A

The purpose of the Conditional Use provision is to provide more control and flexibility for implementing the regulations of the Master Program. It is realized that many activities, if properly designed and controlled, can exist on the shorelines without detriment to the shoreline area.

The Project requires a SCUP because it includes an overwater feature to be built within a Conservancy Environment II and Conservancy Environment III shoreline designation. The Project will implement avoidance and minimization measures and mitigation actions to offset impacts to the shoreline area.

Section 13.B

All applications for conditional uses shall comply with the provisions of the Washington Administrative Code 173-14-140 (Amended to WAC 173-27-160).

WAC 197-27-160 establishes the review criteria for SCUPs. The purpose of a conditional use permit is to provide a system within the master program that allows flexibility in the application of use regulations in a manner consistent with the policies of the Revised Code of Washington (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 following conditions must be met for the City to approve a SCUP per WAC 198-27-160:

1. *Uses which are classified or set forth in the applicable master program as conditional uses may be authorized provided that the applicant demonstrates all of the following:*
    a. *That the proposed use is consistent with the policies of RCW 90.58.020 and the master program;*
    b. *That the proposed use will not interfere with the normal public use of public shorelines;*
    c. *That the proposed use of the site and design of the project is compatible with other authorized uses within the area and with uses planned for the area under the comprehensive plan and shoreline master program;*
    d. *That the proposed use will cause no significant adverse effects to the shoreline environment in which it is to be located; and*
    e. *That the public interest suffers no substantial detrimental effect.*
2. *In the granting of all conditional use permits, consideration shall be given to the cumulative impact of additional requests for like actions in the area. For example, if conditional use permits were granted for other developments in the area where similar circumstances exist, the total of the conditional uses shall also remain consistent with the policies of RCW 90.58.020 and shall not produce substantial adverse effects to the shoreline environment.*
3. *Other 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 contained in the master program.*
4. *Uses which are specifically prohibited by the master program may not be authorized pursuant to either subsection (1) or (2) of this section.*

The following describes how the proposed Project complies with WAC 198-27-160:

- The Project is consistent with RCW 90.58.020 as described in this section and is consistent with the goals, policies, and objectives of the City SMMP, as detailed in this report.
- The overwater walkway will not interfere with the normal public use of public shorelines, by complementing the existing Bellingham waterfront trail system that includes Taylor Avenue Dock and Pattle Point Trestle located to the south of the

proposed overwater walkway.

- The overwater walkway has been called for in several planning documents including the 2002 *City of Bellingham Parks, Recreation and Open Space Plan*, and the 2008 update, and is consistent with the City SMMP, as detailed in this report.
- The Project is designed to cause no significant adverse effects to the shoreline environment in which it is located through the implementation of avoidance and minimization measures and mitigation actions.
- The Project has also been part of a Bellingham public vote, the third greenways levy, which was approved by voters in 2006.
- Taylor Avenue Dock, located to the south of the proposed Project, was rebuilt and the associated eelgrass mitigation for the dock has exceeded expectations for the Washington Department of Fish and Wildlife (WDFW). The Project will increase recreational opportunities and shoreline access to the public. The former Cornwall Avenue Landfill, where the north landing of the overwater walkway will be located, is a future park site and will provide additional public access. Although two cleanup sites are located at each landing, in no way will this result in these cleanups not occurring.
- The Project is consistent with the requirements of this section, including RCW 90.58.020, and the requirements for conditional uses contained in the SMMP, as detailed in this report.
- The Project is not prohibited by the SMMP.

The following conditions must be met for the City to approve a SCUP per RCW 90.58.020:

The legislature declares that the interest of all of the people shall be paramount in the management of shorelines of statewide significance. The department, in adopting guidelines for shorelines of statewide significance, and local government, in developing master programs for shorelines of statewide significance, shall give preference to uses in the following order of preference which:

1. *Recognize and protect the statewide interest over local interest;*
2. *Preserve the natural character of the shoreline;*
3. *Result in long term over short term benefit;*
4. *Protect the resources and ecology of the shoreline;*

5. *Increase public access to publicly owned areas of the shorelines;*
6. *Increase recreational opportunities for the public in the shoreline;*
7. *Provide for any other element as defined in RCW 90.58.100 deemed appropriate or necessary.*

The following describes how the proposed Project complies with RCW 90.58.020:

- RCW 90.58.020 requires the preservation of the natural character and ecology of the shoreline environment and enforces the promotion of long-term recreational benefit and increased access to the public. These requirements are consistent with the policies outlined in the City of Bellingham SMMP and are addressed by the proposed Project as described in this report.

Section 13.C

An applicant for a Substantial Development Permit, which requires a Conditional Use Permit shall submit applications for both permits simultaneously.

The SCUP and Substantial Development Permit applications were submitted simultaneously.

Section 13.D

Conditional Use Permit applications shall be considered by the Board of Adjustment at a public hearing, except for overwater, water-enjoyment uses proposed in the Urban Multi-Use Environment, in accordance with Section 25 (C) 4c, which shall be considered by the City Council. In addition to the notice requirement in RCW 90-58.140, notice of such public hearing shall be published no less than ten days prior to the date of the hearing.

The Board of Adjustment will be considering the SCUP application for the proposed Project because it does not lie within an Urban Multi-Use Environment. All public notices will be completed in accordance with the requirements of this subsection.

Section 13.E

Prior to granting of a Conditional Use Permit, the Board, or City council where applicable, must find that:

1. *The conditions spelled out in the Master Program have been met.*
2. *The use will cause no unreasonable adverse effects on the environment or other uses.*
3. *The use will not interfere with the public use of public shorelines.*
4. *Design of the site will be compatible with the surroundings.*
5. *The proposed use will not be contrary to the purpose and intent of the environment designation in which it is located and the general intent of the Master Program.*

The Project will adhere to the applicable goals, policies, and objectives associated with SMMP as discussed in various sections of this report. No unreasonable adverse effects on the environment or other uses are anticipated for the proposed Project. The Project is consistent with the public use of public shorelines and is compatible with the surroundings, because it complements the existing Bellingham waterfront trail system that includes Taylor Avenue Dock and Pattle Point Trestle located to the south of the proposed overwater walkway. The overwater walkway will not be contrary to the purpose and intent of the environment designation in which it is located and the general intent of the SMMP, as described in this report.

Section 13.F

Any Conditional Use Permit granted by the City must be forwarded to the Department of Ecology for its approval or approval with conditions or denial.

The Project SCUP will be forwarded to Ecology upon receiving it from City Council or the Board of Adjustment.

LAND USE DESIGNATIONS

According to the City SMMP, the Project is located within three different shoreline designations. Per the SMMP, the Boulevard Park portion of the Project is designated Conservancy II, the Cornwall Avenue Landfill portion Urban Maritime, and the overwater portion Conservancy III, as shown in Figure 1. The actions associated with the proposed Project are allowed under Section 26 – General Regulations, which is discussed below. Section 26 supersedes the requirements in the individual shoreline designation sections, of which the Project adheres to. Providing shoreline public access is a major objective outlined in the Washington State SMA and the City SMMP. Additionally, WAC 173-27-160-3 – Shoreline Management and Enforcement Procedures, authorizes overwater public access features to be built upon approval of a SCUP (Stewart 2009; see Appendix B).

Section 20: Conservancy Environment II

DEFINITION: *Areas which offer unique opportunity for the citizens of Bellingham to enjoy physical access to the shorelines and water.*
PURPOSE AND INTENT: *The purpose of the Conservancy Environment II is to preserve those areas which do not have physical limitations and are not uniquely natural, but offer opportunities for the general public to enjoy the shorelines of the City, whether said shorelines be natural or intensively developed.*
REGULATIONS: *No clearing within 50 feet of the ordinary high water mark. No fills, hard surfacing, permanent structures or storage shall be located within 100 feet of the ordinary high water mark or clearing within 50 feet of the ordinary high water mark, unless permitted by Section 26 of this ordinance or the following:*
CONDITIONAL USES: *Setback may be reduced to 50 feet if the proposed development is of the nature and design that it takes advantage of and enhances the physical access to the shorelines for the general public.*

The following describes how the proposed Project complies with the City SMMP Section 20 – Conservancy Environment II:

The overwater walkway includes a landing and associated improvements to be built on the northern shoreline of Boulevard Park, which is within a Conservancy Environment II

shoreline designation. The Project will provide opportunities for the general public to enjoy the shorelines of the City by increasing recreational opportunities and enhancing visual and physical public access to the shoreline.

Project elements including clearing, grading, filling, and construction of the Boulevard Park landing will occur within 50 feet of OHW. However, SMMP Section 26.A.2 under General Regulations allows for development necessary to facilitate public access subject to the following:

a. *Structures necessary to facilitate public access shall be designed so as not to impair the function of the water body.*
b. *Public access development within a required setback shall be limited to pedestrian or bicycle access.*

The Project will facilitate public access to the shoreline and is designed to not impair the function of Bellingham Bay. The overwater walkway will be limited to pedestrian and bicycle access, similar to the existing Bellingham waterfront trail system that includes Taylor Avenue Dock and Pattle Point Trestle located to the south of the proposed overwater walkway. Providing shoreline public access is a major objective outlined in the Washington State SMA and the City SMMP (Stewart 2009; see Appendix B). Therefore, the Project adheres to the SMMP.

Section 21: Conservancy Environment III

DEFINITION*: Areas which offer unique opportunity for the citizens of Bellingham to enjoy visual access to the shorelines and water.*

PURPOSE AND INTENT*: The purpose of the Conservancy Environment III is to preserve those areas which do not have physical limitations and are not uniquely natural, but which offer views of the water from public property and/or substantial numbers of residential properties.*

REGULATIONS*: No fills, hard surfacing permanent structures, or storage shall be located within 25 feet of the ordinary high water mark, unless permitted by Section 26 of this ordinance.*

Any development undertaken on the shorelines of a Conservancy III Environment shall be designated so that the highest point of any structure will be no higher than the level of the nearest adjacent upland public street right-of-way which is relatively parallel to the shoreline.

The following describes how the proposed Project complies with the City SMMP Section 21 – Conservancy Environment III:

The overwater walkway includes an overwater walkway structure to be built over the embayment between Boulevard Park and the former Cornwall Avenue Landfill, which is within a Conservancy Environment III shoreline designation. The Project will increase public access to the shoreline and offer a unique opportunity for the citizens of Bellingham to enjoy visual access to the shorelines and water. Additionally, State Street, which is located parallel to the shoreline along the embayment between Boulevard Park and the former Cornwall Avenue Landfill, will remain higher in elevation than the level of the overwater walkway, so no views of the shoreline or Bellingham Bay will be impeded by the Project.

Project elements, including clearing, grading, filling, and construction of the Boulevard Park landing, will occur within 25 feet of OHW. However, SMMP Section 26.A.2 under General Regulations allows for development necessary to facilitate public access subject to the following:

a. *Structures necessary to facilitate public access shall be designed so as not to impair the function of the water body.*
b. *Public access development within a required setback shall be limited to pedestrian or bicycle access.*

The Project will facilitate public access to the shoreline and is designed to not impair the function of Bellingham Bay. The overwater walkway will be limited to pedestrian and bicycle access, similar to the existing Bellingham waterfront trail system that includes Taylor Avenue Dock and Pattle Point Trestle located to the south of the proposed overwater walkway. Providing shoreline public access is a major objective outlined in the Washington State SMA and the City SMMP (Stewart 2009; see Appendix B). Therefore, the Project adheres to the SMMP.

Section 24: Urban Maritime Environment

DEFINITION: *Areas proximate to navigable waters and are suitable for water borne commerce or other water dependent use.*

PURPOSE AND INTENT: *The purpose of the Urban Maritime Environment is to reserve areas of land use activities that require proximity to navigable waters.*

REGULATIONS:

Permitted uses must be:

a. *Water-dependent, or*
b. *Publicly owned waterfront recreational uses, which make use of a unique shoreline resource such as a waterfront park, view, tower, public pathway, public maritime interpretive display, or aquarium.*
c. *Required public access features. The above uses are permitted on overwater construction.*

Non-water dependent uses, excluding residences, may be permitted as accessory uses provided they functionally support a permitted use. Accessory uses must be vacated if the primary use they support is vacated. Uses permitted as accessory uses shall not be built on overwater construction in the Urban Maritime Environment.

Conditional Uses: Water enjoyment uses may be permitted as conditional uses on land above the ordinary high water mark in the Urban Maritime Environment provided they meet all other ordinances, codes and regulations and provided they meet the following conditions:

a. *The proposed development provides continuous public access at the water's edge.*
b. *The proposed use does not interfere or restrict existing or permitted water-dependent uses. Water-dependent commercial and industrial uses have primary over water-enjoyment uses in the Urban Maritime Environment.*
c. *Other conditions as set by the Direction of the Planning and Economic Development. Water enjoyment uses except for publicly owned waterfront recreational uses may not be built on overwater construction in the Urban Maritime Environment.*

The following describes how the Project complies with the City of Bellingham SMMP Section 24 – Urban Maritime Environment:

- The overwater walkway includes a landing and associated improvements to be built

on the southern shoreline of the former Cornwall Avenue Landfill, which is within an Urban Maritime shoreline designation. The Project will provide for increased recreational opportunities and enhance visual and physical public access to the shoreline, as well as result in a long-term recreational and educational benefit to the City and citizens where none currently exist. The overwater walkway will be a publicly-owned waterfront pathway that will complement the existing Bellingham waterfront trail system that includes Taylor Avenue Dock and Pattle Point Trestle, which are located to the south of the proposed overwater walkway.

Section 26: General Regulations

Per Section 20 – Conservancy Environment II and Section 21 – Conservancy Environment III of the SMMP, the Project cannot be conducted within said shoreline designations unless permitted by Section 26 – General Regulations. This section details the General Regulations that are relevant to the aforementioned sections and the proposed Project.

Section 26.A

The following activities are allowed within the setbacks required in Section 18 through 25 of this ordinance or in any water body, EXCEPT in a Natural Environment.

2. *Development necessary to facilitate public access subject to the following:*
    a. *Structures necessary to facilitate public access shall be designed so as not to impair the function of the water body.*
    b. *Public access development within a required setback shall be limited to pedestrian or bicycle access.*
3. *Bulkheads necessary to protect property from erosion; must conform to regulations pertaining to bulkheads contained herein.*
4. *Landscaping:*
    a. *Contour alterations resulting from site preparation shall not be substantially different from existing contours.*
    b. *Landscaping materials shall be used which will prevent soil erosion.*
5. *Minor channel improvements necessary to maintain the carrying capacity of the waterway. Alteration of channel route is prohibited except in connection with road or railroad construction necessary to span the shoreline.*

a. *[B]ulkheading activities shall conform to pertinent regulations contained herein.*
b. *Removal of incompatible debris and/or structures is permitted.*

The following describes how the Project is consistent with General Regulations Section 26.A:

- The Project will facilitate public access to the shoreline and is designed to not impair the function of Bellingham Bay.
- The overwater walkway will be limited to pedestrian and bicycle access, similar to the existing Bellingham waterfront trail system that includes Taylor Avenue Dock and Pattle Point Trestle located to the south of the proposed overwater walkway.
- The Project conforms to the policies contained in the SMMP regarding bulkheads.
- Modification of the shorelines for the Project will be conducted in previously modified areas and will contribute to the attainment of SMMP goals.
- Landscaping materials used for the Project will help prevent soil erosion.
- Removal of the existing pier, piles, and wharf located at the north end of Boulevard Park is permitted by Section 26 Part A.5.b.

Section 26.G

PUBLIC ACCESS: *Public access shall be encouraged wherever possible. The Bellingham Open Space Plan shall be used as a guideline for where access is most desirable.*

The following describes how the Project complies with the General Regulations Section 26.G:

- The Project will provide for increased recreational opportunities and enhance visual and physical public access to the shoreline.The proposed overwater walkway has been called for in several planning documents including the 2002 *City of Bellingham Parks, Recreation and Open Space Plan*, and its 2008 update.

SECTION 27: USE ACTIVITY REGULATIONS

The regulations outlined in Section 27 – Use Activity Regulations must be complied with by any developments established that are consistent with Section 17 through 25 of the City SMMP.

Section 27.E.

BULKHEADS

1. *Prior to the granting of a permit, the effect of the bulkhead on downstream or adjacent properties shall be determined by the Department of Planning and Economic Development and the disposition of the permit shall reflect such determination. The applicant for a permit to construct a bulkhead shall supply information as to the configuration of the shoreline and consistency of bank materials for properties within 300 feet in both directions from the proposed bulkhead.*
2. *Construction of bulkheads for the indirect purpose of creating land by filling behind the bulkhead shall be prohibited unless such landfill is permitted by the Master Program.*
3. *Bulkheads shall be prohibited which adversely affect public access to publicly owned shorelines.*
4. *The surface of any bulkhead shall be kept free of protruding wires, cables, metal straps, etc. Broken concrete or asphalt, or scrap metal materials shall not be used on the surface of any bulkhead.*
5. *The placement of rip-rap and other bank protection materials shall be done in conformance with Department of Fisheries and Department of Wildlife regulations.*
6. *The top of any bulkhead or rip-rap installation shall be no higher than the adjacent upland shoreline. Bulkhead materials shall not be placed landward so as to prevent the reestablishment of shoreline vegetation.*
7. *Bulkheading for the sole purpose of channelization or channel stabilization is prohibited.*

The following describes how the Project complies with the Use Activity Regulations Section 27.E:

- The riprap will be installed at or above OHW per SMMP requirements, and the City

of Bellingham lead engineer will be consulted during the design phase of the Project to ensure minimal effects to adjacent properties.

- The shoreline permit applications will supply information as to the configuration of the shoreline and consistency of bank materials for properties within 300 feet in both directions from the proposed riprap.
- The riprap is being constructed to protect the overwater walkway structure and will be installed in an area that is currently contained by riprap. Installation of riprap is not for the indirect purpose of creating land by filling behind the bulkhead.
- The riprap is being installed to facilitate safe public access to the shoreline.
- The surface of the riprap will be kept free of protruding wires, cables, metal straps, or any similar materials. Broken concrete or asphalt, or scrap metal materials will not be used on the surface of the riprap.
- WDFW will be consulted during the Project design process. Additionally, the Project will conform to the guidelines detailed in the WDFW Hydraulic Project Approval (HPA) once it is received.
- The top of the riprap installation will be no higher than the adjacent upland shoreline.
- The riprap is not being installed for the sole purpose of channelization or channel stabilization.

Section 27.P

RECREATION

1. *Recreational development shall be designed to minimize adverse effects on the natural amenities of the shoreline while enhancing its recreational value and protecting the public health and safety.*
2. *Public recreational development shall recognize the wide variety of recreational needs and desires.*

The following describes how the Project complies with the Use Activity Regulations Section 27.P:

- The overwater walkway is designed to minimize adverse effects on the natural amenities of the shoreline.

- The overwater walkway will provide long-term benefits and promote a wide variety of recreational needs and desires.

Section 27.S

SHORLINE PROTECTION

3. *Bank stabilization for the purpose of protecting property from erosion shall conform to the regulations contained herein relating to bulkheads.*

The following describes how the Project complies with the Use Activity Regulations Section 27.S:

- The Project conforms to the policies contained in the SMMP regarding bulkheads.

Section 27.U

UTILITIES

1. *All utilities shall be placed underground where feasible. Following installation/maintenance projects, project areas shall be returned to pre-project configuration and shall be planted with shrubs, grasses and trees of similar types and concentration as exists in the general vicinity of the project, PROVIDED, the requirement for vegetative installation may be waived or altered if, in the opinion of the Planning and Economic Development Department the utility easement may be utilized for public access and such access is consistent with the protection of private property.*

The following describes how the Project complies with the Use Activity Regulations Section 27.U:

- No new above-ground utilities will be located on the shoreline and all utilities adjacent to the shoreline will be installed underground.
- Areas impacted by utility installation or maintenance will be returned to pre-Project configuration and adequate vegetation will be installed to prevent erosion following construction of the overwater walkway.

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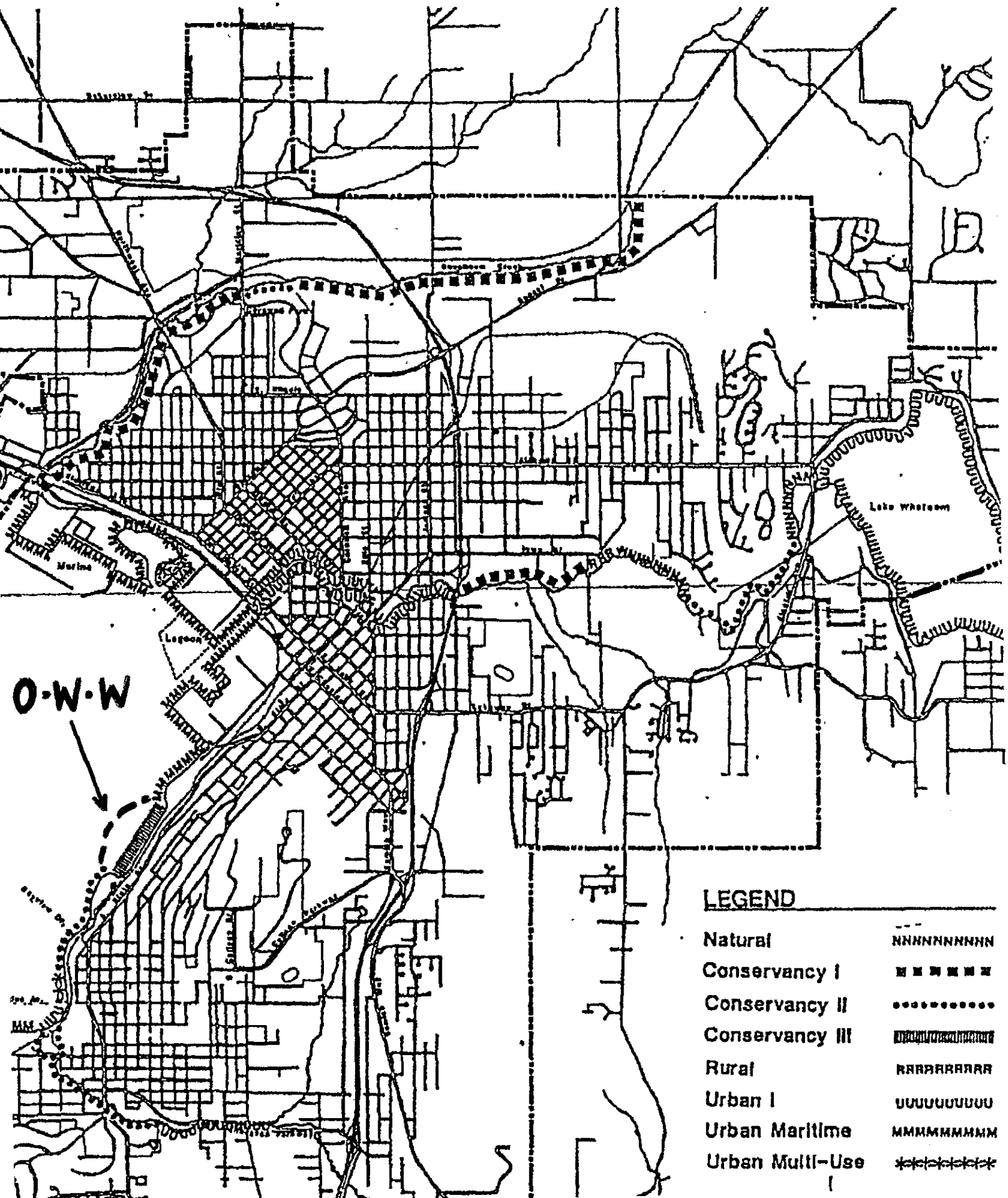
EXHIBIT G


O·W·W
Lagoon
Marina
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Conservancy III
Rural
Urban I
Urban Maritime
Urban Multi-Use

EXHIBIT H

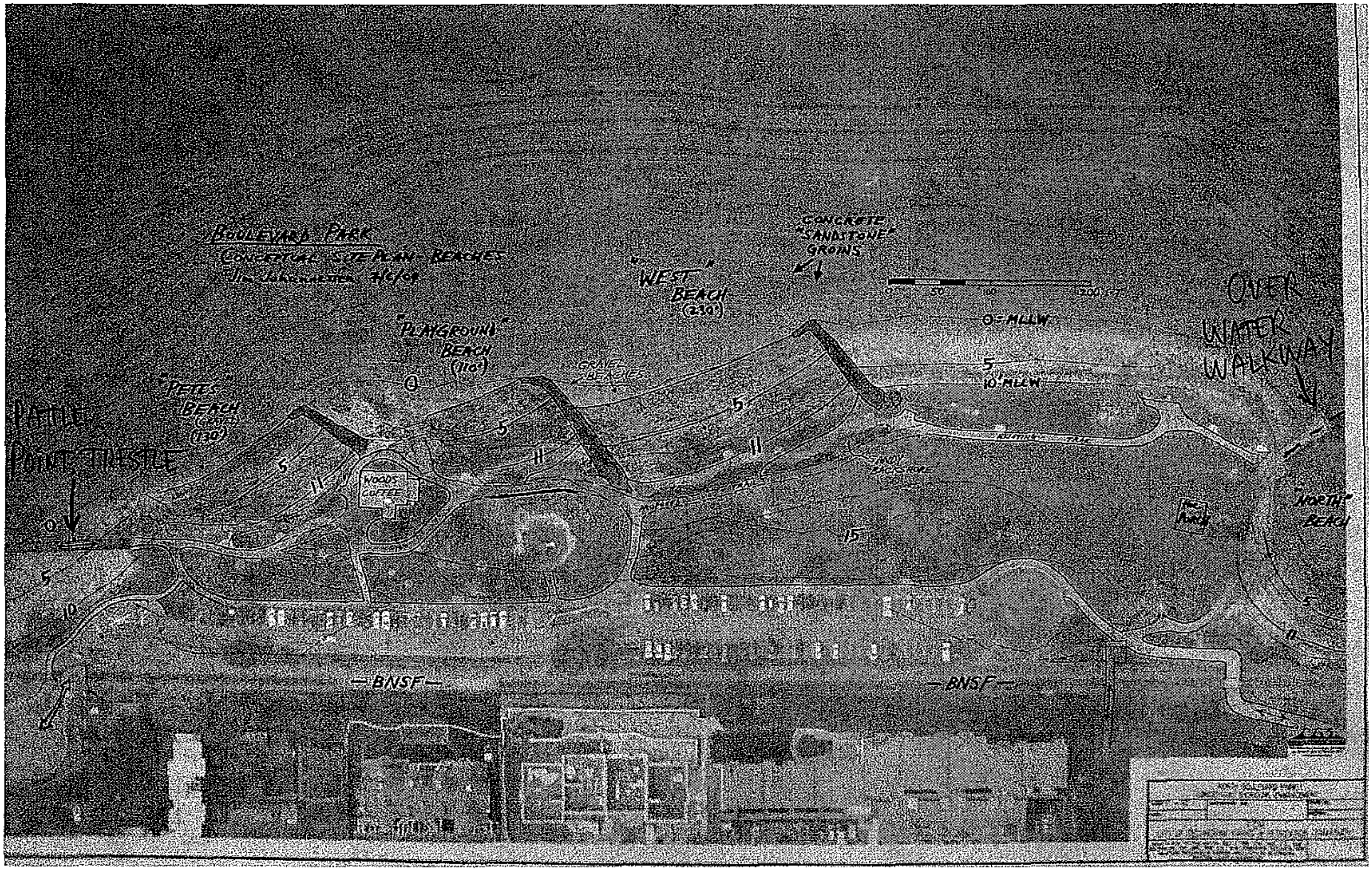

Figure 2 Preliminary Concept Plan for Three Major Beach and Public Access Improvement Areas.

EXHIBIT I

White Paper
Research Project T1803, Task 35
Overwater Whitepaper

OVERWATER STRUCTURES: MARINE ISSUES

by

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Federal Highway Administration

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Physical Structure Effects

A growing body of literature, accumulated over the past 30 years, documents what is known about the impacts of overwater structures to important habitats for juvenile marine fishes and juvenile salmon migratory corridors in the Pacific Northwest. In this section, we identify those information sources and present the scientific uncertainties and empirically supported evidence presented in those sources pertaining to how specific types of overwater structures and associated activities can create physical and behavioral barriers to migrating juvenile salmon and other marine fish and shellfish populations. This paper also identifies data gaps and makes recommendations for further research. The paradigm under which we present these findings can be stated as:

Overwater structures have been documented to pose the following potential risks for increasing the mortality of juvenile fishes utilizing shallow estuarine and nearshore marine habitats.

- "Behavioral barriers" that can deflect or delay migration
- Prey resource production and availability (i.e. "carrying capacity") limitations
- Altered predator-prey relationships associated with high intensity night lighting changes to the nighttime ambient light regime

Reflective of this paradigm, we have classified our findings on the overwater structure effects due to light, wave energy, and substrate regimes as due to:

- Light Reduction
  - Vegetation Responses
  - Animal Responses
  - Migration
  - Predation
- Wave Energy and Substrate Changes
- Other Mechanisms
  - Water Quality

Fixed Piers and Pilings

Throughout the region, numerous studies over the past 30 years have documented the effects of fixed piers and pilings to fish and plant assemblages. Table 13 captures findings from these sources.

Table 13. Dock Study Findings

Study	Animal Responses		Vegetation Responses	Findings
	Migration	Predation	Prey Resources	
Burdick & Short 1995 Massachusetts			• Dock features impact light availability and eelgrass quality. • Sediments scoured by prop scouring.	• Dock Height is #1 variable for predicting light avail. & eelgrass quality. • Docks should be over 3 m above bottom; N-S orientation, and placed in deep waters.
Cardwell, et al. 1980 Skyline Marina, Anacortes				• Oysters in marina were high in copper and zinc concentrations. Likely due to bottom paint leaching. • Marina water significantly warmer and more oxygenated than the bay. Surface zooplankton less dense and rich in marina.
Dames & Moore 1994 Manchester Naval Pier	• Migration dependent upon preferred prey resource avail. Most catches and observations were nearshore.	• No determination of pier causing increased or decreased predation.		• Pier design diminishes its shade impact on prey resources.
Duffy-Anderson & Able 1998 New York Harbor			• Juvenile fish (flounder & Walbaum) unable to feed on prey resources in dark aproned areas.	• Although prey resources were present under pier aprons, fish held in under-dock environments were in starved condition. Light limitation is believed to limit prey capture.
Fresh et al. 1995 Bellingham San Juans			• Reduced plant growth from shade dependent upon dock design & use. Docks & pilings changed community structure and substrate.	• Shading is the major reason for decreased eelgrass around and under docks. Docks significantly reduce eelgrass density. Size of shading dependent upon dock characteristics.
Heiser & Finn 1970 Puget Sound	• Juv. Pinks and chum concentrated inside marinas were reluctant to leave shoreline for bulkheads or breakwaters. Sizes 50 – 70mm moved offshore to deeper waters in response to large pier.	• Unable to derive actual predation rates. Predation appeared to be discouraged due to human presence.		• Very little evidence of predation.
Loflin 1993 Charlotte Harbor			• Seagrass reduced by dock shadow	• Docks contribute substantially to seagrass loss.

Table 13. Dock Study Findings (continued)

Study	Animal Responses		Vegetation Responses	Findings
	Migration	Predation	Prey Resources	
Miller 1980 Seattle Terminal 91 & 37	• Fish abundance in the Terminal 91 area is only 20% as large as comparable shallow-mud sand habitats without piers.			• Riprap and pilings act as artificial reefs attracting surfperch and rockfish w/ surfperch being dominant. • Common species: Eng. Sole, rock sole, flathead sole, Dover sole, speckled sanddab, shiner perch, pile perch, brown and quillback rockfishes.
Olson et al. 1997 Ferry Terminals			• Assuming summer condition plant adaptation, there is insufficient light at all stations. Assuming winter plant adaptation, there is sufficient light at all stations.	• Dock shade footprint is measurable. • Shade footprint dependent upon dock dimensions, bathymetry, piling configs., lat/longs. and time of day
Pentec 1997 Everett Harbor	• Fish encountering piers milled around w/ schools breaking up. Most fish along shoreline w/fewer fish seen at piers. Smaller schools at piers. Most pierside observations were at shoreline end of piers.	• Observed: cormorant and larger salmonid preying on juveniles.	• Higher abundances of juv. salmon observed along riprapped and bulkheaded shores rather than along piers. Feeding only observed along riprap shoreline.	• Unable to assess net effect of juv. salmon encountering piers. Schools dispersed and fish moved around piers upon encountering piers. Inferences on under- pier behavior were not empirically supported.
Penttila & Aguero 1978 Birch Bay Marina	• Marina heavily utilized by juv. marine fishes. Likely due to adjacent spawning areas outside marina. Chinook,chum, pinks, sockeye, and trout found in marina. Marina may trap fish in it.	• Predation is a concern due to the many co-occurring sizes and species of marine fishes. Steep sided marina basin provides little protection. Evidence of predation is minimal.	• Prey resources may be compromised by the co-occurring juveniles that share specific prey resource species such as calanoids and harpacticoids.	• Most abundant marine fish were Pacific herring. Most widely distributed were smelt. Followed by 3-spine stickleback, anchovies, and sand lance were also in abundance. Other marine species include sculpins, penpoint gunnels, pile perch, surfperch, pipefish, poachers, tubesnouts, and Dungeness crab.
Penttila & Doty 1990 Anacortes & Hood Canal			• Net loss in veg. due to shade. Fixed docks can reduce eelgrass densities to zero depending on dock features. Pilings alter community structure, bathymetry, and substrates.	• Dock shading in littoral zones largely eliminated existing macroflora. Dock designs can mitigate some impacts.

Table 13. Dock Study Findings (continued)

Study	Animal Responses		Vegetation Responses	Findings
	Migration	Predation	Prey Resources	
Prinslow et al. 1979 Bangor, Hood Canal	• Artificial lighting can delay migration at high intensities while lower intensities did not.	• Insignificant predation detected. < 4% of predators contained salmonid remains. Few implicated predators observed.		• Too few tests to conclude migration delay cause.
Ratte and Salo (1985) Commencement Bay	• Coho and pink appear to prefer dark under-pier habitat during early marine life-history	• No evidence of predator aggregations in under dock habitat		• Effect of artificial lights on fish abundance is inconclusive under piers.
Roni and Weitkamp (1996) Manchester Naval Fuel Pier	• 1996 beach seines findings showed juv. chum were not travelling out around the end of the pier but likely passing under the pier.		• Juvenile chum salmon remained in shallow, nearshore areas with cover and fed on epibenthic organisms upon their first entry into saltwater.	• Pier design (i.e. structural design and materials) reduced light limitation effects. Chum salmon size data indicated that smaller chum were feeding nearshore and moving offshore as they got larger
Salo et al. 1980 Bangor, Hood Canal	• Offshore movement of small juv. chum around piers appeared to occur.. Outmigration speed decreased as migration period progressed. • Movement from the epibenthic zone to the pelagic zone occurred at night.	• No significant predation observed.		• Small fry were found further offshore when they were around piers than in habitats that did not have piers. • Juv. chum yearly changes in location preferences likely reflected pier construction activities.
Taylor & Willey 1997 POS Pier 66 Bell Harbor	• Juv. salmon appeared to migrate through facility N-S pattern using fish passage opening, shorelines and edges of dock structures.	• No unusual congregation of predators observed. On occasion grebes & mergansers seen catching fish.		• Fish migrated through the facility using shorelines and edges of facility structures. Considerable predation not observed. No avian predation at peak migration.

Table 13. Dock Study Findings (continued)

Study	Animal Responses		Vegetation Responses	Findings
	Migration	Predation	Prey Resources	
Thom et al. 1997 Bremerton, Kingston, Southworth and Vashon Ferry Terminals			• Bremerton, the least vegetated habitat had far fewer fish. All sites except Bremerton had substantial eelgrass beds. Damage to eelgrass beds was observed from construction, shading and prop wash. Large stands of drifting ulvoid algae observed.	• Causes of bare patches are unknown but believed to be related to prop wash, shading and terminal construction. Further study of restoration potential is needed.
Thom et al. 1996 Vashon Pass.- Only Ferry			• Light limitations, substrate erosion from vessel shading and prop wash.	• Benthic communities impacted by sediment and light changes.
Thom & Shreffler 1996 Clinton, Edmonds, Port Townsend Ferry Terminals			• Benthic plant taxa absent or severely limited under terminals	• Substrate changes observed from shell hash accumulation associated with piling communities. Substrate changes due to prop scour. Terminal construction appeared to eliminate eelgrass in places without recovery. Annual maintenance activities with tugs and barges disturb bottom sediments and eelgrass.
Thom et al. 1988 Blaine Marina	• Salmon densities in Mudflat:eelgrass habitat = 1:8		• Light energy correlated to increased primary production. Epibenthos and fish density correlated to vegetation types.	• Fish assemblages in eelgrass habitat showed increased species richness over mudflat habitat. 14 acres of high intertidal mudflats = 3 acres of eelgrass habitat based on prey resource abundance.
Weitkamp & Shadt 1980 Duwamish Waterway	• 30-49mm salmon fed on nearshore epibenthos. 50-89mm fish fed on pelagic zooplankton. 80+mm fish fed entirely on pelagics.			• Chinook – mid May peak w/size 71-74mm and used shallow shoreline. Chum April (39-40mm) with steady increase to 81mm. Peaks in early April & May; coho in May only. Pinks 40-47mm in late April-May.

Table 13. Dock Study Findings (continued)

Study	Animal Responses		Vegetation Responses	Findings
	Migration	Predation	Prey Resources	
Weitkamp 1982 Seattle Terminal 91	• Juv. chum and chinook seen feeding on west side of piers and near log booms. Juv. reluctant to pass under piers except where piers were open to light.			• Fish distribution appeared to correlate to light availability.
Weitkamp 1981 Shilshole Bay Marina	• 38-53mm chum migrated along bulkheaded shoreline. 120-127mm coho found in open waters of the marina.		• Predation not observed.	• Large schools of Juv. chum (38-53mm) observed migrating along bulkheaded shoreline only. Not found under floating docks or riprap breakwater. Large school of coho (120-127mm) found in open waters of marina. Herring found along bulkheaded shoreline. Cabezon, greenling perch, flatfish and rockfish were also along bulkheaded shoreline and breakwaters.
Williams & Weitkamp 1991 Sitcom & Blair Waterways		• No predators observed	• Non-apron sites had higher total epibenthos than apron sites.	• Riprap is less productive than finer substrates. Results on substrate and slope effects to prey densities were inconclusive. Harpacticus densities were significantly reduced under aprons.

Light Reduction

Vegetation Responses

Light regimes under fixed docks show considerable variation depending upon the characteristics of the structure itself. Burdick and Short (1995) found dock height over the marine bottom to be the most important variable for predicting the relative light reaching the eelgrass and hence eelgrass bed quality under the docks. Increased dock height diminishes the intensity of shading by providing a greater distance for light to diffuse and refract around the dock surface before reaching the eelgrass canopy. A north-south dock orientation has been shown to increase underwater light availability by allowing varying shadow periods as the sun moves across the sky. This movement of the shade footprint decreases the stress imposed on eelgrass (Burdick and Short 1995; Olson et al.1996,1997; Fresh et al 1995). In studies at ferry terminals in Puget Sound, Thom and Shreffler (1996) found the level of photosynthetically active radiation (PAR) to be substantially reduced under terminal docks with PAR levels increasing rapidly in locations away from the edges of the terminals. In the laboratory component of these under-dock studies, Thom and Shreffler (1996) found PAR variations to also affect epiphyte production. Similarly, in studies of ferry docks at Clinton, Bainbridge, Southworth and Clinton, Blanton et al. (2001) found east/west dock orientation to decrease light availability to the bottom to an extent that precluded the light requirements for eelgrass survival. The study also suggested that macroalgae density could also decrease light and out compete eelgrass at some sites.

Piling density and construction material also determine the extent of light limitation that can alter plant production. Increased numbers of pilings used to support a given dock, increase the shade cast by pilings on the underwater environment. The piling material (i.e. concrete, wood, or steel) also determines underwater light as concrete and steel pilings refract more light to the underwater environment than light-absorbing wood piles. An open-pile structure offers many fish and shellfish benefits over filled structure. A filled structure intrudes on more habitat area, can produce a darker underwater light environment that limits plant growth, and will likely alter fish distribution and migratory behavior. Adequate spacing between piles is important to reduce light limitations to the underwater environment and prevent interference with water and sediment movements (Fresh et al. 1998). Minimizing the number of pilings, using construction materials that reflect light, and increasing the space between pilings can minimize habitat impacts.

Animal Responses

Light is a determining factor in both fish migration and prey capture. Salmon fry are known to use darkness and turbidity for refuge. However, they tend to migrate along the edges of shadows rather than penetrate them (Simenstad et al. 1999). Studies in the northwest have documented this behavioral tendency to use shadow edges for cover during migration (Shreffler and Moursund 1999; Taylor and Willey 1997; Pentec 1997). The underwater light environment also determines the ability of fishes to see and capture their prey. Able et al (1998) found juvenile fish abundance to be reduced under piers when compared to open-water or areas with only piles but no overwater structure. Similarly, Weitkamp (1991) found non-apron stations to have significantly higher total epibenthos and juvenile salmonid prey epibenthos than the apron

stations. Variations in substrate and slope also appeared to influence prey abundance. In a New York study of pier impacts to fish growth and prey resource abundance, Duffy-Anderson and Able (1999) compared growth rates of caged juvenile fish under municipal piers to those of fish caged at pier edges and open waters beyond piers. Those fishes caged under the piers showed periods of starvation potentially making these individuals more vulnerable to predation, physiological stress and disease. Along the pier edge, they found growth rate variability to be very high and to be likely light related. They concluded that light availability might be an important component of feeding success. They concluded that large piers do not appear to be suitable habitat for some species of juvenile fish and that increased sunlight enhanced growth. Evidence suggested that this could have been related more to reduced light levels reducing prey capture rates.

In addition to structural light reduction effects, increased turbidity from pile driving and associated construction is likely to reduce primary productivity, interfere with fish respiration, alter the suitability of spawning areas, reduce bottom habitat diversity, and smother benthic organisms (Mulvihill et al. 1980). Sediment disturbance from vessel prop scour is an additional source of turbidity (Thom et al 1996).

Migration

Fixed piers supported by piles vary in habitat impacts. Large, densely located pier aggregations such as the industrial shipping areas in Elliott Bay, Seattle and Commencement Bay, Tacoma contain shorelines lined with large piers and aprons 75 and 130 feet wide and often 2400 feet in length with light levels reduced by 2 -4 orders of magnitude. Based upon light behavior criteria identified by Ali (1959), light levels in areas under the industrial docks near the outer edges are found to be high enough to facilitate feeding and schooling. However, areas nearer to dock bulkheads and at times of ship presence have shown reduced light levels where cessation of feeding and schooling would occur (Ratte and Salo 1985). In studies in the Port of Seattle's Terminal 91, Weitkamp observed juvenile chum and chinook using the zone bordering the large piers in comparably equal abundances to the number using adjacent shoreline areas. He also observed that juvenile salmon were reluctant to pass beneath the pier aprons into darkened areas. Studies have consistently documented a tendency for juvenile salmon to avoid entering shaded habitats (Pentec 1997; Weitkamp 1982; Heiser and Finn 1970). Similarly, Feist (1991) and Feist et al. (1992) found that although salmon fry appeared to be attracted to in-water objects such as piles, they were rarely seen to pass under floating objects. Rather they would pause or move around them. In studies of juvenile salmonid behavior around Port of Seattle Terminals 90 and 91, Weitkamp (1982) observed very marked, significant, and consistent differences between the numbers of juveniles observed on the east side of the piers compared to the west side and between the juveniles observed under a west sun-exposed opening compared to the east opening with predominant distribution occurring in the more sun-exposed west side. Salo et al. (1980) observed that chum salmon appeared to shift from nearshore migration routes to offshore areas upon encountering a wharf in Hood Canal. Similarly, in a pilot study of ferry terminal impacts, Shreffler and Moursund (1999) found that within 5 minutes, released chinook fry stopped their migration at the dock shadow line instead of continuing under the terminal. For approximately one hour of observation, chinook fry were observed and video taped as they repeatedly swam

from the dock shadow line to the surface to apparently feed during this period of migratory pause. As the sun dropped lower on the horizon and the shadow line moved under the terminal, the school appeared to follow the shadow line remaining near the light-dark transition area. Similarly, in the Pentec (1997) study of juvenile salmonid behavior in Everett Harbor, juvenile chum were observed milling around with no net gain for periods ranging from 30 minutes to 2 hours in duration. Fewer and smaller schools were observed at piers while the greatest number and largest schools were observed along riprapped shorelines. Similarly, feeding was observed along these shorelines and not under piers. The study concluded that the net effect of juvenile salmon encountering overwater structures was impossible to assess given the available data but that upon encountering piers, fish split up and moved around the piers. Similarly, the Dames and Moore (1994) study of the Manchester Naval Fuel Pier reported most catches of juvenile chum to occur nearshore with fish movement believed to be dependent upon prey resources in adjacent eelgrass beds. The physical design (height, width, orientation, etc.) reduced the shadow cast by the Navy pier and likely diminished its impact on prey habitat.

However, in other instances juvenile chum appeared to be attracted to wharves during daylight hours. Ratte's (1985) findings suggest a preference for dark areas for some species. Based on laboratory studies of juvenile chinook behavior in turbid versus clear conditions, shade at the edge of a dock presents the possibility of juvenile fish using it as cover. Gregory and Northcote (1993) suggest that turbidity can be used by juvenile salmon as a protective cover. Fish responses in Gregory's study supported such a "turbidity as cover" model. Consistently studies of fish behavior around piers have identified the breaking-up of schools upon encountering the shade cast by an overwater structure (Pentec 1997). Taylor and Willey (1996) found that fish tended to use the shoreline and edges of structures in their migration through a marina facility. These studies reflect that the level of darkness does inhibit their ability to pass under the dock. The extent this factor impairs their migration (and potentially their fitness) has not been quantified.

Predation

Overwater structures could increase the exposure of juvenile salmon to potential predators by:

- Providing predator habitat near salmon refugia, such as eelgrass beds
- Reducing refugia, such as eelgrass
- Diverting juveniles into deeper waters upon encountering docks (i.e. migration alteration)
- Altering prey detection through alterations to light and turbidity

However, there is very little empirical evidence to support the above possibilities of increased predation. Lists of potential predators have been cited through the literature of the past 30 years with very little empirical validation. Table 14 identifies suspected predators and the types of empirical validation in existing overwater structure studies.

Table 14. Potential, Observed, Questionable, and Validated Predators of Juvenile Salmon

Fresh et al. (1978) [validated][1]	Prinslow et al. (1982)[2] [validated]	Ratte and Salo (1985) [validated]	Dames and Moore and Biosonics (1994) [not validated]	Taylor and Willey (1997) [not validated][3]	Pentec Environmental (1997) [not validated]
spiny dogfish	spiny dogfish	Cutthroat	Trout	western grebe	cormorants[6]
ratfish	cutthroat[5]	steelhead	steelhead	belted kingfisher	40-cm salmonids
coho	chinook	Dolly Varden	*Pacific tomcod*	red-breasted merganser	
chinook	coho	Coho	Pacific hake	common merganser	
cutthtroat	Pacific hake	Chinook	*buffalo sculpin*		
steelhead	"cottids"	Pacific cod	Great sculpin		
walleye Pollock		Walleye Pollock	Pacific staghorn sculpin		
copper rockfish		Pacific hake	*shiner perch*		
quillback rockfish		*Pacific tomcod*	*striped perch*		
Pacific staghorn sculpin[4]		Prickly sculpin	*C-O sole*		
Great sculpin		Pacific staghorn sculpin	*English sole*		
cabezon		brown rockfish	rock sole		
rock sole			starry flounder		
starry flounder					

Normal typeface = potential predators
Double underline = validated by stomach contents or unambiguous observation
Italicized = questionable.
(Simenstad et al. 1999)
1. Validated by stomach contents analysis on all species in this list of potential predators
2. In Prinslow and Bax (Chap. 2)
3. No stomach contents analysis or otherwise unambiguous determination; observation only
4. Stomach contents analysis: n=2, 50% (1/2) frequency; chum fry
5. Stomach contents analysis: n=60, 3.3% (2/60) frequency; percent total Index of Relative Importance=1.1%
6. Unambiguous observation

Simenstad et al. (1999) reports that the significance of predation to migrating populations has never been empirically assessed. No studies have examined mortality due to predation much less that mortality is attributable to overwater structures. Upon narrowing down the above list to only those empirically validated predators implicated with overwater structures only cormorants, cutthroat, and Pacific staghorn sculpin remain on the validated predator list without any indication that there were aggregations of these predators. In contrast, inference from existing literature suggests piscivorous fishes, birds, or marine mammals do not aggregate around docks. A more comprehensive evaluation of the issue of predation requires further exploration of predator responses to dock structures and effects, such as nighttime artificial lighting. In ferry terminal studies in Puget Sound, Simenstad et al. (1999) reported the most common and abundant species under terminals to be such species as pile perch (*Damalichthys vacca*), sanddabs (*Citharichthys* spp.) unidentified flatfish (*Bothidae and Pleuronectidae*), identified

sculpins (*Cottidae*), English Sole (*Pleuronectes vetulus*), and saddleback gunnels (*Pholis ornata*). Species common but only moderately abundant included striped perch (*Embiotoca lateralis)*, copper rockfish (*Sebastes caurinus*), chinook salmon smolts (*Oncorhynchus tshwaytscha*), and ratfish (*Hydrolagus colliei*).

Fresh and Cardwell (1978) listed 17 potential predators of juvenile salmon in the southern Puget Sound region finding only three (maturing chinook, copper rockfish, and staghorn sculpins) to prey extensively on nearshore fishes. Their analysis of food habits by stomach contents showed only staghorn sculpins having juvenile salmon in their stomach contents. Their study around the dock did not show staghorn sculpins in greater abundance than elsewhere in the study area. Ratte (1985) found sea perch and pile perch to be the most abundant fish under docks. These fish are not potential predators of juvenile salmon. Ratte's data suggested that there was no indication that predatory fish aggregated in under-pier habitat. In fact, the most often reported predators were other salmonids. Ratte's data indicates predators to be less abundant in shaded habitat. There was no evidence of predatory fish targeting juvenile salmonids during the spring outmigration period and gut contents of potential predators did not show a single juvenile salmonid prey item. Similarly, Heiser and Finn (1970) noted that predation in marina areas was less than expected. Weitkamp (1982a) also observed no fish preying on juvenile salmon at Pier 91 at Port of Seattle. Similarly, Salo et al (1980) found less than 4% of the total diet of suspected predatory species (i.e. cutthroat, trout, staghorn sculpins and Pacific cod) to be juvenile salmon.

Alteration of Shoreline Energy Regime

Pilings

Substrate Changes

Pilings provide surface area for encrusting communities of mussels and other sessile organisms such as seastars that prey upon the shellfish attached to the dock. Such changes in substrate result in large depositions of shellhash on the adjacent substrates and changes in the biologic communities associated with those substrates. The introduction of piling communities also impacts eelgrass production. The reef effect of docks enhances seastar and Dungeness crab populations. As shellhash accumulates at the piling base due to seastar predation on piling shellfish populations, the substrate becomes piled high with shellhash. It also becomes a prime settling habitat for Dungeness crab. Both crab and seastar foraging activity can disrupt eelgrass and retard recruitment. In the presence of large crab populations, crabs burrowing into the substrate to avoid predation may significantly inhibit eelgrass recruitment (Thom and Shreffler 1996). Such disturbance of seagrass meadows by animal foraging is also reported elsewhere (Camp et al 1973; Orth 1975; Williams 1988; Baldwin and Lovvorn 1994).

The driving and insertion of pilings alters the substrate area previous used by biota. Ratte (1985) and Penttila and Doty (1990) also found that pilings changed the flow of water around the pilings and over the substrate thereby changing the bathymetry of the substrate and the flow of water in the immediate area. Open pile structures tend to interfere less with sediment transport.

Water Quality

Disturbance and relocation of bottom sediments during pile-driving and removal and from prop scouring can recontaminate the water column and substrate surfaces. It is likely that fishes may also be attracted to construction sites due to the increased suspension of benthic organisms. This magnifies the importance of not contaminating such sites.

Noise

Noise is a documented influence on fish behavior. Fish are known to detect and respond to sound and use sound for prey, predator detection and social interaction (Hawkins 1986; Fay 1988; Kalmijn 1988; Cox et al. 1988; Myrberg 1972; Myrberg and Riggio 1985; Wisby et al. 1964; Nelson 1965; Nelson et al 1969; Richard 1968). Feist (1991, Feist et al. 1992) found that based upon the known range of salmonid hearing, pile-driving noise would be expected to be heard by salmonids within a radius of least 600m from the noise source. Throughout the study of pile driving effects on juvenile pink and chum salmon at Everett Homeport, Feist (1991) found pile-driving operations to affect the distribution and behavior of fish schools around the site. The presence of fish schools during non-pile driving days was two-fold. Salmonids have been observed engaged in "startle" behavior characterized by sudden swimming bursts. Blaxter (1981) found Atlantic herring to show an avoidance response to sound stimuli and Schwarz and Greer (1984) found similar responses on the part of Pacific herring. Sound has been shown to affect growth rates, fat stores, and reproduction (Meier and Horseman 1977; Banner and Hyatt 1973). High intensity sounds can also permanently damage fish hearing (Popper and Clark 1976; Enger 1981; Cox et al 1987). Although pile-driving is not at the same levels of sound as these particular studies, it is considered conceivable that pile-driving sounds can damage salmonid hearing (Feist 1991; Feist et al. 1992). Auditory masking and habituation to pile driving sounds may also decrease the ability of salmonids to detect approaching predators (Feist 1991, Feist 1992).

Recommendations

Assessing Individual and Cumulative Impacts of Overwater Structures

The existing scientific knowledge clearly identifies a range of potential impacts on fish and shellfish from overwater structures, depending upon shoreline habitat and setting and the type, size, and orientation of the structure.

Approaches Mitigating Impact of Overwater Structures

Fixed Docks

- Increase height to allow light transmission in under the dock
- Decrease dock width to decrease shade footprint
- Align dock in North-South orientation to allow arc of sun to cross perpendicular to dock to reduce duration of light limitation
- Place dock in deep waters to avoid intertidal and shade impacts
- Insert glass blocks to allow under-dock light transmission across the
- Insert dock gratings to allow under-dock light transmission across the intertidal
- Explore the effects of under-pier artificial lighting during daylight hours to avoid fish behavioral changes due to interference with ambient light conditions
- Use reflective paint on underside of dock to reflect light to under-pier areas

Pilings

- Use materials (i.e. concrete or metal) that reflect light as opposed to dark wood
- Use the fewest number of pilings necessary to allow light into under-pier areas
- Drive piles using environmental windows that include protection for spawning periods and periods of presence of juvenile salmonids, forage fish and groundfish.

Floats

- Use chains to attach dock to land to allow dock movement and decrease sustained duration of light reduction
- Minimize dock width to decrease under-dock shadow area

- Place floats in deep water to avoid light limitation and grounding impacts to the intertidal
- Align floats in North-South orientation to allow ace of sun to cross perpendicular to dock to reduce light limitation
- Remove docks during the season of low use

Marinas

- Place marina where it does not interfere with drift sectors determining adjacent habitats
- Place marina where maintenance dredging to keep waterways open to navigation will not require maintenance will not be required
- Avoid impacts to wave energy that determines characteristics of adjacent habitats
- Encourage only seasonal use of docks and off-season haul-outs
- Assure marina access to surrounding community to minimize need for additional facilities and single-family docks
- Use upland boat storage to minimize need for overwater structures
- Excavate uplands to create marina basins rather than converting intertidal or shallow subtidal to deeper subtidal for basin creation
- Place marinas in natural deep water areas to minimize or preclude dredging and groundings
- Place marinas in areas of low biological abundance and diversity
- Leave marine riparian buffers in place to enhance intertidal microclimate and nutrient input
- Build in fish passageways to allow fish in and out of the marinas

Floating Breakwaters

- Use floating breakwaters whenever possible, removing them during periods of low dock use
- Use waveboards to minimize effects on littoral drift and benthic habitats
- Avoid use of solid breakwaters whenever possible
- Use alternative wave energy buffer designs that serve both human and fish uses
- Minimize use of breakwaters whenever possible

Barges and Rafts

- Anchor work barges and boats in deep water to avoid groundings of barge and work boats and avoid damage to intertidal fish, shellfish and vegetation

Ramps and Haul-outs

- Avoid placing ramps across spawning substrates
- Use elevated railway launches
- Use hoist or lift launches to minimize disturbance in intertidal areas
- Use natural substrate materials for ramps to maintain integrity and continuity of intertidal area
- Use elevated ramps to minimize to reduce area of disturbance in the intertidal
- Place all parking lots associated with ramp and marina areas upland connecting them with storm run-off catchment and run-off systems to minimize contaminant inputs into marine waters

Research Required to Address Significant Gaps in Knowledge

Throughout this synthesis, we have acknowledged that there are significant gaps and uncertainties in the extent of scientific knowledge about impacts of overwater structures on estuarine and nearhsore marine biota. Some of these gaps are very basic to understanding the ecology and life history of potentially impacted species, such as those defining the extent and "ecological dependence" of shoreline habitat use by certain biota. Examples of knowledge gaps include understanding why certain forage fishes such as surf smelt and Pacific sand lance choose certain beaches to spawn or understanding the significance of plant and animal responses to shoreline structures. We consider the following to be fundamental gaps in our knowledge base that are required to effectively assess the impact of shoreline structures and mitigate for the potentially significant impacts.

Determine the conditions for and the significance of avoidance of shoreline structures by migrating juvenile salmon

Presently, although we know that under some conditions small juvenile salmon will delay or otherwise alter their shoreline movements when encountering an overwater structure, the conditions under which this behavioral modification is significant to the fishes' fitness and survival is relatively unknown. Such behavioral responses may be short-term lasting from minutes to hours, based on sun angle and tidal stage, or may persist into diel or nocturnal periods. The consequence to juvenile salmon under these different scenarios needs to be examined in terms of increased vulnerability to predation, reduced foraging, and other potential acute and chronic impacts to their migration and survival.

Further measure the effects of using artificial lights in under-pier environments to avoid interference with natural ambient light patterns in shallow nearshore habitats

If behavioral avoidance of mobile biota, such as juvenile salmon, is the primary mechanism of response to overwater structures, reducing the shadow contrast beneath structures may mitigate that response and promote fish passage.

Further quantify the effects of overwater structures on salmonid prey resource abundance

The effect of overwater structures on juvenile salmonid prey resources has yet to be rigorously examined. However, the WSDOT Research Office is presently supporting on-going graduate student study[1] of the influences of overwater structures on juvenile salmon prey resources at three WSDOT ferry terminals in Puget Sound. Information from this study, available in early 2002, should significantly improve our understanding of this issue.

Develop a scientifically based approach to determining cumulative impact thresholds

We suggest that the ultimate assessment of impact of overwater structures likely rests in determining the cumulative impacts of multiple structures along a shoreline segment or the relative sensitivity of certain ecologically significant regions of shorelines. This, in part, rests in understanding how estuarine and nearshore marine shorelines are organized and maintained by phsyiochemical processes, such as shoreline geology, gemorphology, and physical and chemical oceanography, and how these processes influence ecological functions. The scientific basis for understanding both the biophysical organization of shoreline habitats and how to determine impact thresholds of cumulative shoreline development, such as overwater structures is sorely deficient.

Because estuarine ecological functions are determined by diverse and dynamic physiochemical processes that interact across landscape elements, we recommend a landscape ecology approach for identifying impact thresholds. Using the definition of a landscape as a geographic area encompassing diverse yet connected habitats that contain a pool of materials and energy transferred between component ecosystems (Simenstad 2000; Leibowitz1992), a shoreline drift cell (sector) could constitute a reasonable landscape unit, within which materials and energy are transferred as a result of a variety of ecological processes. The ecological processes of bluff erosion, wave energy, and littoral transport provide sediments to the drift cell ecosystem that maintains shoreline habitats that support viable fish populations. We recommend that development of a scientifically based cumulative assessment include the following steps:

- Develop a landscape scale model of shoreline processes that create and maintain biological habitats
- Develop assessment indices for identifying ecological responses to overwater structures within the context of the model

[1] Ms. Melora Haas, Wetland Ecosystem Team, School of Aquatic and Fishery Sciences, University of Washington

- Identify landscape-level sub-units, such as shoreline drift cells (sectors)
- Identify landscape elements in terms of connectivity and homogeneity using the fundamental definitions of corridors, matrices, patches and other landscape attributes in order to guide the design and placement of specific types of overwater structures

To some degree, the first element in this sequence is presently being developed under Washington Sea Grant funding within the context of the Nearshore PRISM Working Group at the University of Washington.

LAND USE PLANNING
FOR SALMON, STEELHEAD AND TROUT:

A land use planner's guide to salmonid habitat protection and recovery

October 2009

Aquatic Habitat Guidelines Program

Washington Department of FISH and WILDLIFE

Table 3.2.4: Nearshore Areas Management Recommendations[17]

Regulatory Example (Overwater structures): *Marinas or launch ramps shall not be permitted within the following marine shoreline habitats because of their scarcity, biological productivity and sensitivity unless no alternative location is feasible, the project would result in a net enhancement of shoreline ecological functions, and the proposal is otherwise consistent with this Program: (1) Marshes, estuaries and other wetlands; (2) Tidal pools on rock shores; (3) Kelp beds, eelgrass beds, spawning and holding areas for forage fish (such as herring, surf smelt and sandlance); Whatcom County Shoreline Master Program, Boating Facilities: Marinas and Launch Ramps, 23.100.04.* ***Regulatory Example (Shoreline Armoring):*** *All shoreline development shall be located and designed to avoid or minimize the need for shoreline stabilization measures and flood protection works, such as bulkheads, revetments, dikes, levees, dikes, or substantial site regrades. Where measures and works are demonstrated to be necessary, biostabilization techniques shall be the preferred design option unless demonstrated to be infeasible or where other alternatives will provide less impact to the shoreline environment. [sic] City of Sumner Shoreline Master Program, General Environmental Impact Regulations, 16.16.020 (E).* ***Regulatory Example (Nearshore Habitat Protection):*** *All shoreline development and activity shall be located, designed, constructed, operated, and managed to minimize interference with beneficial natural shoreline processes including those that contribute to properly functioning conditions for proposed, threatened and endangered species, such as water circulation, sand and gravel movement, erosion, and accretion. City of Sumner Shoreline Master Program, General Environmental Impact Regulations, 16.16.020 (F).*	
Planning Resources	**Protecting Nearshore Habitat and Functions in Puget Sound:** Washington State Aquatic Habitat Guidelines Program (Envirovision et al. 2007), *http://wdfw.wa.gov/hab/nearshore_guidelines/*. **Marine and Estuarine Shoreline Modification Issues and Overwater Structures:** Washington State Aquatic Habitat Guidelines Program White Papers, *http://wdfw.wa.gov/hab/ahg/ahgwhite.htm*. **The Importance of Estuarine Habitats to Anadromous Salmonids:** United States Fish and Wildlife Service (Aetkin 1998), *www.fws.gov/westwafwo/fisheries/Publications/FP005.pdf*. **Mapping Resources (listed in Appendix A):** • *Salmonscape* • *WDFW Priority Habitats and Species* • *DNR Shorezone Inventory* • *Ecology Coastal Zone Atlas* • *PSNERP Change Analysis*

Table 3.2.4: Nearshore Areas Management Recommendations[17]

Policy Considerations	• Designate natural shoreline buffers of a width based on best available science to protect salmonid habitat processes and functions. (See table 3.2.3 riparian areas for more on buffers.) • Designate natural shoreline buffers that maintain native riparian vegetation and encourage the restoration of riparian vegetation. When removal cannot be avoided, require mitigation that addresses cumulative impacts and requires replanting. • Maintain the connectivity and nursery habitat at the mouths of tributaries, estuaries, and wetlands and other nearshore habitats through the establishment of habitat buffers. • Identify and protect potential and known forage fish (herring, smelt, and sand lance) spawning areas. • Allow new bank stabilization of shorelines only after an imminent threat to existing residential or business structures or critical public facilities has been demonstrated by a geotechnical or hydrologic analysis and reviewed by a qualified third party. Structure relocations and innovative, bioengineering alternatives to hard armoring should always be considered first. • Require proposed bulkhead rebuild projects to evaluate the effectiveness of alternative designs (e.g., structure relocations and soft-shore approaches) as opposed to in-kind replacement. • Identify feeder bluffs and protect them (and their functions) through appropriate shoreline designation and SMP regulations. • Identify intact beach systems (including sediment delivery, transport, and accretion areas) and protect them through appropriate shoreline designation and SMP regulations. • Locate new or enlarged piers, floating docks, mooring buoys, navigational aids and swimming floats away from (and not in) marine aquatic vegetation beds and are sufficiently restricted to protect salmonid rearing areas and migration corridors. • Encourage community use projects for piers, boat ramps, and access sites.

[17] See also Table 3.2.3 Riparian Areas Management Recommendations.

Table 3.2.4: Nearshore Areas Management Recommendations[17]

Policy Example (Nearshore Habitat Designation and Protection): *The county should identify and protect, consistent with best available science, important, sensitive marine habitats, such as juvenile salmon migration corridors, kelp and eelgrass beds, shellfish beds, and herring and smelt spawning areas. Thurston County Comprehensive Plan Chapter Nine, Environment, Policy C.3.2.*	
Regulatory Considerations	• Establish marine riparian habitat areas and management zones consistent with best available science (examples include Knutson and Naef 1997; Tri-County Assembly 2000; Envirovision et al. 2007) extending on a horizontal plane, landward from the ordinary high water mark. The marine riparian habitat area retains existing conditions, including native vegetation. When conditions are degraded, replanting of native vegetation may be a condition for upland development. Development permitted in the marine riparian management zone is restricted as necessary to minimize adverse impacts to existing native vegetation that have a beneficial impact on marine critical areas, such as forage fish-spawning beaches. Development in the marine riparian management area requires a vegetation conservation plan or habitat management plan with measures to promote and sustain native vegetation and facilitate dispersion and filtering of runoff. • Include provisions for overwater structures such as, no grounding of floats, use of inert materials that do not pose a risk to water or sediment quality, full compliance with *U.S. Army Corps of Engineer Regional General Permit Number 6*, timing restrictions to protect critical forage fish spawning and incubation time, no fill or armoring of the shoreline, grating/materials that allow sunlight to penetrate docks, piers, and floats, and loss of existing native vegetation requires mitigation. Overwater structures should be constructed of materials that will not adversely affect water quality or aquatic plants and animals in the long term. • Prohibit bulkheads and piping systems that result in water falling rather than flowing and dispersing onto the shore. • Prohibit shoreline structures (e.g., boat ramps, groins) that disrupt drift cell function (such as sediment and gravel transport). • Replace disturbed marine riparian vegetation with equivalent native species appropriate for the site. Mitigation provides 100 % replacement of lost vegetation, and provide for an equal amount of vegetative function.

PROTECTION OF MARINE RIPARIAN FUNCTIONS IN PUGET SOUND, WASHINGTON

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Section VI. General Conclusions and Management Recommendations for Protecting Marine Riparian Function

This section is divided into three categories: (1) general conclusions adapted solely from the NRC (2002); (2) overarching recommendation; s; and (3) impact-specific recommendations adapted from the literature review with input by the science panel as described above. These recommendations are intended to offer guidelines and approaches for protecting marine riparian functions addressed in this guidance document.

1. General Conclusions Adapted Solely from the NRC (2002)

- Riparian areas perform important hydrologic, geomorphic, and biological functions. These areas encompass complex above- and below-ground habitats created by the convergence of biophysical processes in the transition zone between aquatic and terrestrial ecosystems.
- Riparian areas cannot be thought of in isolation from associated water bodies. The characteristic geomorphology, plant communities, and associated aquatic and wildlife species of riparian and marine systems are intrinsically linked.
- Natural riparian systems have adapted to specific disturbance regimes. Managing riparian areas without regard to their dynamic patterns and influences of adjacent water bodies ignores a fundamental aspect of how these systems function.
- Riparian areas, in proportion to their area within a watershed, perform more biologically productive functions than do uplands. Riparian areas provide a wide range of functions, such as microclimate modification and shade, bank stabilization and modification of sediment processes, contributions of organic matter and large wood to aquatic systems, nutrient retention and cycling, wildlife habitat, and general food web support for a wide range of aquatic and terrestrial organisms.
- Riparian areas are effective in filtering and transforming materials (such as dissolved and particulate nonpoint source pollutants) from hill slope runoff.
- Because riparian areas are located at the convergence of terrestrial and aquatic ecosystems, they are regional hot spots of biodiversity and often exhibit high rates of biological productivity in marked contrast to the larger landscape.
- During the last decade, a patchwork of federal, state, and local laws and programs has come to acknowledge the importance of riparian areas and to require or encourage special management to restore or protect their essential functions, although the degree of protection, the focus, and the spatial coverage of these laws and programs are highly variable among federal, state, and local levels.

2. Overarching Recommendations

This section contains general management recommendations that broadly address riparian areas.

- Protect marine riparian soils and vegetation – prevent damage to native riparian soils and vegetation, including clearing and grading, compaction, covering (paving) and removal.
- Restore damaged marine riparian habitat – restore vegetation, soil characteristics.

- Account for scale issues (temporal and spatial) when evaluating riparian condition, current functions and potential for future functions, and cumulative effects of alterations. The dynamic nature and connectivity of riparian areas and linkages between riparian and aquatic systems operate at multiple scales.
- Exclude all major sources of contamination from the riparian buffer, including construction, impervious surfaces, mining, septic system drain fields, agricultural activity, clear cutting and application of pesticides and herbicides.
- Manage riparian areas for the long-term. For many sites, substantial time, on the order of years to decades, will be required for vegetation to become fully functional (NRC 2002).
- Require additional structural setbacks (10-30 ft) landward of buffers will allow routine maintenance of structures without compromising buffer function integrity.

3. Recommendations to Avoid or Minimize Specific Impacts

The following recommendations are directed at protecting riparian functions from activities associated with development:

- Avoid vegetation removal on shorelines and bluffs. If vegetation must be removed, minimize the area and amount removed and locate the disturbed area as far from the water as possible. Minimize ground disturbance, removal of mature trees, and introduction of nonnative vegetation, especially invasive species such as English Ivy.
- Avoid locating impervious surfaces in riparian buffers. If impervious surfaces must be located in riparian areas, minimize footprint, and mitigate impacts through techniques including pervious surfaces such as pervious pavers and concrete; bioretention facilities such as rain gardens; green roofs, cisterns, etc. Promote infiltration and implement approved methods/designs for controlling rates of surface runoff and pollutant loading. Caution should be taken when designing and installing bioretention and other facilities that infiltrate water along slopes and bluffs so as to not increase the likelihood of mass failures or erosion.
- Avoid shoreline modification; maintain existing native vegetation, particularly at and near the land-water interface. If shoreline alterations must occur they should be done in a way that minimizes potential negative impacts to natural functions and should use the least intrusive methods including bioengineering or relocating structures where feasible and practicable. All adverse impacts should receive full compensatory mitigation to ensure no net loss of ecological functions.
- Remove invasive plant species from marine riparian areas; Purple Loosestrife, Himalayan blackberry, English Ivy and other invasive plants compete with native species, particularly in disturbed sites along marine bluffs and shorelines.
- Restore and replant marine riparian areas with native vegetation to improve the connectivity of upland and marine riparian habitat, and to restore functions that benefit the nearshore and beach ecosystems. Ensure that replanted marine riparian areas are properly maintained to improve plant survival.

- Avoid building in the riparian buffers. If building must occur, then minimize footprint, site disturbance and locate structures far enough back from the water's edge to ensure maintenance of functional riparian areas.
- Avoid locating septic and waste water systems in the riparian area. If they must be located in the riparian area, then they should be designed, maintained, and operated in such a way that that human waste and nutrients are prevented from leaching into local water bodies.
- Avoid disturbance to native vegetation in the riparian area, especially near the water's edge, with the goal of maintaining vegetation communities that are resilient to disturbance from surrounding land uses and able to regenerate with minimal human intervention; and to help ensure that nutrients, pathogens, toxics, and fine sediments associated with land-use practices are prevented from entering water bodies.
- Avoid land use practices in riparian areas that involve the use or generation of nutrients, pathogens, and toxics. Avoid salvage or removal of downed trees, LWD or snags in riparian areas and on beaches. Maintain complex, multi-aged riparian forest cover and wide buffers to allow natural recruitment of LWD over long time frames.

NON-FISHING IMPACTS TO ESSENTIAL FISH HABITAT AND RECOMMENDED CONSERVATION MEASURES

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1.0 INTRODUCTION

Background on Essential Fish Habitat

In 1996, the U. S. Congress added new habitat conservation provisions to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), the federal law that governs U.S. marine fisheries management. The renamed Magnuson-Stevens Act mandated the identification of Essential Fish Habitat[2] (EFH) for federally managed species and consideration of measures to conserve and enhance the habitat necessary for these species to carry out their life cycles.

The act also requires federal agencies to consult with National Oceanic and Atmospheric Administration (NOAA) Fisheries on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect[3] EFH. Federal agencies do this by preparing and submitting an EFH Assessment to NOAA Fisheries. The EFH Assessment is a written assessment of the effects of the proposed federal action on EFH. Regardless of federal agency compliance to this directive, the act requires NOAA Fisheries to recommend conservation measures to federal as well as state agencies once it receives information or determines from other sources that EFH may be adversely affected. These EFH conservation recommendations are provided to conserve and enhance EFH by avoiding, minimizing, mitigating, or otherwise offsetting the adverse effects to EFH.

Activities proposed to occur in EFH areas do not automatically require consultation. Consultations are triggered only when the proposed action may adversely affect EFH, and then, only federal actions require consultation.

By providing EFH conservation recommendations before an activity begins, NOAA Fisheries may help prevent habitat damage before it occurs rather than restoring it after the fact, which is less efficient, unpredictable, and often more costly. This could ultimately save American taxpayers millions of dollars in habitat restoration funds and could save industries from having to remedy environmental problems down the road. Furthermore, EFH conservation will lead to more robust fisheries, providing benefits to coastal communities and commercial and recreational fishers alike (Benaka 1999).

This consultation process is usually integrated into existing environmental review procedures in accordance with the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), or the Fish and Wildlife Coordination Act, for instance, to provide the greatest level of efficiency.

Within 30 days of receiving NMFS' conservation recommendations, federal action agencies must provide a detailed response in writing to NMFS. The response must include measures proposed for avoiding, mitigating, or offsetting the impact of a proposed activity on EFH. State agencies are not required to respond to EFH conservation recommendations. If the federal action agency chooses not to adopt NMFS' conservation recommendations, it must provide an explanation. Examples of federal action agencies that permit or undertake activities that may trigger the EFH consultation process include, but are not limited

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[2] EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." *Waters* include aquatic areas and their associated physical, chemical, and biological properties. *Substrate* includes sediment underlying the waters. *Necessary* means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem. *Spawning, breeding, feeding, or growth to maturity* covers all habitat types utilized by a species throughout its life cycle.

[3] Adverse effect is any impact which reduces the quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to benthic organisms, prey species, and their habitat, and other ecosystem components. Adverse effects may be site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions [50 CFR 600.910(a)]

boating, aquaculture (see Section 4.11), biotechnology, and aquariums. The transportation of nonindigenous organisms to new environments can have many severe impacts on habitat (Omori et al. 1994).

Potential Adverse Impacts

Long-term impacts of the introduction of nonindigenous and reared species can change the natural community structure and dynamics, lower the overall fitness and genetic diversity of natural stocks, and pass and/or introduce exotic lethal disease. Overall, exotic species introductions create five types of negative impacts: 1) habitat alteration, 2) trophic alteration, 3) gene pool alteration, 4) spatial alteration, and 5) introduction of diseases. Habitat alteration includes the excessive colonization of exotic species (e.g., *Spartina* grasses) which preclude the growth of endemic organisms (e.g., eelgrass). The introduction of exotic species may alter community structure by predation on native species or by population explosions of the introduced species. Spatial alteration occurs when territorial introduced species compete with and displace native species. Although hybridization is rare, it may occur between native and introduced species and can result in gene pool deterioration.

Non-native plants and algae can degrade coastal and marine habitats by changing natural habitat qualities. Introduced organisms increase competition with indigenous species or forage on indigenous species, which can reduce fish and shellfish populations. Long-term impacts from the introduction of nonindigenous and reared species can change the natural community structure and dynamics, lower the overall fitness and genetic diversity of natural stocks, and pass and/or introduce exotic lethal diseases. The introduction of exotic organisms also threatens native biodiversity and could lead to changes in relative abundances of species and individuals that are of ecological and economic importance.

The introduction of bacteria, viruses, and parasites is another severe threat to EFH as it may reduce habitat quality. New pathogens or higher concentrations of disease can be spread throughout the environment resulting in deleterious habitat conditions.

Recommended Conservation Measures

1. Encourage vessels to perform a ballast water exchange in marine waters (in accordance with the U.S. Coast Guard's voluntary regulations) to minimize the possibility of introducing exotic estuarine species into similar habitats. Ballast water taken on in marine waters will contain fewer organisms and these will be less likely to become invasive in estuarine conditions than species transported from other estuaries.
2. Discourage vessels that have not performed a ballast water exchange from discharging their ballast water into estuarine receiving waters.
3. Require vessels brought from other areas over land via trailer to clean any surfaces that may harbor non-native plant or animal species (propellers, hulls, anchors, fenders, etc.). Bilges should be emptied and cleaned thoroughly using hot water or a mild bleach solution. These activities should be performed in an upland area to prevent introduction of non-native species during the cleaning process.
4. Exclude exotic species from aquaculture operations until a thorough scientific evaluation and risk assessment is performed (see Section 4.11).
5. Aquaculture facilities rearing non-native species should be located upland and use closed-water circulation systems whenever possible.
6. Treat effluent from public aquaria displays, and laboratories, and educational institutes using exotic species prior to discharge to prevent the introduction of viable animals, plants, reproductive material, pathogens, or parasites into the environment.

4.5 Pile Installation and Removal

Pilings are an integral component of many overwater and in-water structures. They provide support for the decking of piers and docks, function as fenders and dolphins to protect structures, support navigation markers, and are used to construct breakwaters and bulkheads. Materials used in pilings include steel, concrete, wood (both treated and untreated), plastic or a combination thereof. Piles are usually driven into the substrate using one of two types of hammer: impact hammers and vibratory hammers. Impact hammers consist of a heavy weight that is repeatedly dropped onto the top of the pile, driving it into the

substrate. Vibratory hammers utilize a combination of a stationary, heavy weight and vibration, in the plane perpendicular to the long axis of the pile, to force the pile into the substrate. The type of hammer used depends on a variety of factors, including pile material and substrate type. Impact hammers can be used to drive all types of piles, while vibratory hammers are generally most efficient at driving piles with a cutting edge (e.g., hollow steel pipe) and are less efficient at driving "displacement" piles (those without a cutting edge that must displace the substrate). Displacement piles include solid concrete, wood, and closed-end steel pipe. While impact hammers are able to drive piles into most substrates (including hardpan, glacial till, etc.), vibratory hammers are limited to softer, unconsolidated substrates (e.g., sand, mud, gravel). Since vibratory hammers do not use force to drive the piles, the bearing capacity is not known and the piles must often be "proofed" with an impact hammer. This involves striking the pile a number of times with the impact hammer to ensure that it meets the designed bearing capacity. Under certain circumstances, piles may be driven using a combination of vibratory and impact hammers. The vibratory hammer makes positioning and plumbing of the pile easier; therefore, it is often used to drive the pile through the soft, overlying material. Once the pile stops penetrating the sediment, the impact hammer is used to finish driving the pile to final depth. An additional advantage of this method is that the vibratory hammer can be used to extract and reposition the pile, while the impact hammer cannot.

Overwater structures must often meet seismic stability criteria, requiring that the supporting piles are attached to, or driven into, the underlying hard material. This requirement often means that at least some impact driving is necessary. Piles that do not need to be seismically stable, including temporary piles, fender piles, and some dolphin piles, may be driven with a vibratory hammer, providing the type of pile and sediments are appropriate.

Piles can be removed using a variety of methods, including vibratory hammer, direct pull, clam shell grab, or cutting/breaking the pile below the mudline. Vibratory hammers can be used to remove all types of pile, including wood, concrete, and steel. However, old, brittle piles may break under the vibrations and necessitate another method. The direct pull method involves placing a choker around the pile and pulling upward with a crane or other equipment. Broken stubs are often removed with a clam shell and crane. In this method, the clam shell grips the pile near the mudline and pulls it out. In other instances, piles may be cut or broken below the mudline, leaving the buried section in place.

4.5.1 Pile Driving

Potential Adverse Impacts

Pile driving can generate intense underwater sound pressure waves that may adversely affect the ecological functioning of EFH. These pressure waves have been shown to injure and kill fish (e.g., CalTrans 2001, Longmuir and Lively 2001, Stotz and Colby 2001, Stadler, pers. obs. 2002). Injuries associated directly with pile driving are poorly studied, but include rupture of the swimbladder and internal hemorrhaging (CalTrans 2001; Abbott and Bing-Sawyer 2002; Stadler, pers. obs. 2002). Sound pressure levels (SPL) 100 decibels (dB) above the threshold for hearing is thought to be sufficient to damage the auditory system in many fishes (Hastings 2002).

The type and intensity of the sounds produced during pile driving depend on a variety of factors, including, but not limited to, the type and size of the pile, the firmness of the substrate into which the pile is being driven, the depth of water, and the type and size of the pile-driving hammer. SPLs are positively correlated with the size of the pile, as more energy is required to drive larger piles. Wood and concrete piles appear to produce lower sound pressures than hollow steel piles of a similar size, although it is not yet clear if the sounds produced by wood or concrete piles are harmful to fishes. Hollow steel piles as small as 14-inch diameter have been shown to produce SPLs that can injure fish (Reyff 2003). Firmer substrates require more energy to drive piles, and produce more intense sound pressures. Sound attenuates more rapidly with distance from the source in shallow than in deep water (Rogers and Cox 1988).

Driving hollow steel piles with impact hammers produce intense, sharp spikes of sound which can easily reach levels that injure fish. Vibratory hammers, on the other hand, produce sounds of lower intensity,

with a rapid repetition rate. A key difference between the sounds produced by impact hammers and those produced by vibratory hammers is the responses they evoke in fish. When exposed to sounds which are similar to those of a vibratory hammer, fish consistently displayed an avoidance response (Enger et al. 1993, Dolat 1997, Knudsen et al. 1997, Sand et al. 2000), and did not habituate to the sound, even after repeated exposure (Dolat 1997, Knudsen et al. 1997). Fishes may respond to the first few strikes of an impact hammer with a "startle" response. After these initial strikes, the startle response wanes and the fishes may remain within the field of a potentially harmful sound (Dolat 1997, NOAA Fisheries 2001). The differential responses to these sounds are due to the differences in the duration and frequency of the sounds. When compared to impact hammers, the sounds produced by vibratory hammers are of longer duration (minutes vs. msec) and have more energy in the lower frequencies (15-26 Hz vs 100-800 Hz) (Würsig, et al. 2000, Carlson et al. 2001). Studies have shown that fish respond to particle acceleration of 0.01 m/s^2 at infrasound frequencies, that the response to infrasound is limited to the nearfield (< 1 wavelength), and the fish must be exposed to the sound for several seconds (Enger et al. 1993, Knudsen et al. 1994, Sand et al. 2000). Impact hammers, however, produce such short spikes of sound with little energy in the infrasound range, that fish fail to respond to the particle motion (Carlson et al. 2001). Thus, impact hammers may be more harmful than vibratory hammers because they produce more intense pressure waves and because the sounds produced do not elicit an avoidance response in fishes, which exposes them for longer periods to those harmful pressures.

The degree to which an individual fish exposed to sound will be affected is dependent upon a number of variables, including 1) species of fish, 2) fish size, 3) presence of a swimbladder, 4) physical condition of the fish, 5) peak sound pressure and frequency, 6) shape of the sound wave (rise time), 7) depth of the water around the pile, 8) depth of the fish in the water column, 9) amount of air in the water, 10) size and number of waves on the water surface, 11) bottom substrate composition and texture, 12) effectiveness of bubble curtain sound/pressure attenuation technology, 13) tidal currents, and 14) presence of predators.

Depending on these factors, effects on fish can range from changes in behavior to immediate mortality. There is little data on the SPL required to injure fish. Short-term exposure to peak SPL above 190 dB (re:1 μPa) are thought to injure physical harm on fish (Hastings 2002). However, 155 dB (re: 1 μPa) may be sufficient to temporarily stun small fish (J. Miner, pers. comm. 2002). Stunned fish, while perhaps not physically injured, are more susceptible to predation. Small fish are more prone to injury by intense sound than are larger fish of the same species (Yelverton et al. 1975). For example, a number of surfperches (*Cymatogaster aggregata* and *Embiotoca lateralis*) were killed during impact pile driving (Stadler, pers. obs. 2002). Most of the dead fish were the smaller *C. aggregata* and similar sized specimens of *E. lateralis*, even though many larger *E. lateralis* were in the same area. Dissections revealed that the swimbladder of the smallest fish (80 mm forklength [FL]) were completely destroyed, while those of the largest individual (170 mm FL) was nearly intact, indicating a size-dependent effect. The SPLs that killed these fish are not yet known. Of the reported fish kills associated with pile driving, all have occurred during use of an impact hammer on hollow steel piles (Longmuir and Lively 2001, NOAA Fisheries 2001, Stotz and Colby 2001, NOAA Fisheries 2003).

Systems successfully designed to reduce the adverse effects of underwater SPLs on fish have included the use of air bubbles. Both confined (i.e., metal or fabric sleeve) and unconfined air bubble systems have been shown to attenuate underwater sound pressures up to 28 dB (Wursig et al. 2000, Longmuir and Lively 2001, Christopherson and Wilson 2002, Reyff and Donovan 2003). When using an unconfined air bubble system in areas of strong currents, it is critical that the pile is fully contained within the bubble curtain. To accomplish this, adequate air flow and ring spacing both vertically and distance from the pile are factors that should be considered when designing the system.

Recommended Conservation Measures

1. Install hollow steel piles with an impact hammer at a time of year when larval and juvenile stages of fish species with designated EFH are not present. If this is not possible, then the following measures should be incorporated to minimize adverse effects.
2. Drive piles during low tide periods when located in intertidal and shallow subtidal areas.
3. Use a vibratory hammer when driving hollow steel piles. Under those conditions where impact hammers are required for reasons of seismic stability or substrate type, it is recommended that the pile be

driven as deep as possible with a vibratory hammer prior to the use of the impact hammer.
4. Monitor peak SPLs during pile driving to ensure that they do not exceed the 190 dB re:1 μPa threshold for injury to fish.
5. Implement measures to attenuate the sound should SPLs exceed the 180 dB re: 1 μPa threshold. If sound pressure levels exceed acceptable limits, implement mitigative measures. Methods to reduce the sound pressure levels include, but are not limited to, the following:
   a) Surround the pile with an air bubble curtain system or air-filled coffer dam.
   b) Since the sound produced has a direct relationship to the force used to drive the pile, use of a smaller hammer should be used to reduce the sound pressures.
   c) Use a hydraulic hammer if impact driving cannot be avoided. The force of the hammer blow can be controlled with hydraulic hammers; reducing the impact force will reduce the intensity of the resulting sound.
6. Drive piles when the current is reduced (i.e., centered around slack current) in areas of strong current to minimize the number of fish exposed to adverse levels of underwater sound.

4.5.2 Pile Removal

Potential Adverse Impacts

The primary adverse effect of removing piles is the suspension of sediments, which may result in harmful levels of turbidity and release of contaminants contained in those sediments (see Section 4.1). Vibratory pile removal tends to cause the sediments to slough off at the mudline, resulting in relatively low levels of suspended sediments and contaminants. Vibratory removal of piles is gaining popularity because it can be used on all types of piles, providing that they are structurally sound. Breaking or cutting the pile below the mudline may suspend only small amounts of sediment, providing the stub is left in place and little digging is required to access the pile. Direct pull or use of a clamshell to remove broken piles, however, may suspend large amounts of sediment and contaminants. When the piling is pulled from the substrate using these two methods, sediments clinging to the piling will slough off as it is raised through the water column, producing a potentially harmful plume of turbidity and/or contaminants. The use of a clamshell may suspend additional sediment if it penetrates the substrate while grabbing the piling.

While there is a potential to adversely affect EFH during the removal of piles, many of those removed are old creosote-treated timber piles. In some cases, the long-term benefits to EFH obtained by removing a consistent source of contamination may outweigh the temporary adverse effects of turbidity.

Recommended Conservation Recommendations

1. Remove piles completely rather than cutting or breaking off if the pile is structurally sound.
2. Minimize the suspension of sediments and disturbance of the substrate when removing piles. Measures to help accomplish this include, but are not limited to, the following:
   a) When practicable, remove piles with a vibratory hammer, rather than the direct pull or clamshell method.
   b) Remove the pile slowly to allow sediment to slough off at, or near, the mudline.
   c) The operator should first hit or vibrate the pile to break the bond between the sediment and pile to minimize the potential for the pile to break, as well as reduce the amount of sediment sloughing off the pile during removal.
   d) Place a ring of clean sand around the base of the pile. This ring will contain some of the sediment that would normally be suspended.
   e) Encircle the pile, or piles, with a silt curtain that extends from the surface of the water to the substrate.
3. Complete each pass of the clamshell to minimize suspension of sediment if pile stubs are removed with a clamshell.
4. Fill all holes left by the piles with clean, native sediments if possible.
5. Place piles on a barge equipped with a basin to contain all attached sediment and runoff water after removal. Creosote-treated timber piles should be cut into short lengths to prevent reuse, and all debris, including attached, contaminated sediments, should be disposed of in an approved upland facility.

6. Drive broken/cut stubs using a pile driver, sufficiently below the mudline to prevent release of contaminants into the water column as an alternative to their removal.

4.6 Overwater Structures

Overwater structures include commercial and residential piers and docks, floating breakwaters, barges, rafts, booms, and mooring buoys. These structures are typically located in intertidal areas out to about 15 meters below the area exposed by the mean lower low tide (i.e., the shallow subtidal zone). Light, wave energy, substrate type, depth and water quality are the primary factors controlling the plant and animal assemblages found at a particular site. Overwater structures and associated activities can alter these factors and interfere with key ecological functions such as spawning, rearing, and refugia. Site-specific factors (e.g., water clarity, current, depth, etc.) and the type and use of a given overwater structure determine the occurrence and magnitude of these impacts.

Potential Adverse Impacts

Overwater structures and associated developments may adversely affect EFH in a variety of ways, primarily by changes in ambient light conditions, alteration of the wave and current energy regime, and through activities associated with the use and operation of the facilities (Nightingale and Simenstad 2001b).

Overwater structures create shade which reduces the light levels below the structure. The size, shape and intensity of the shadow cast by a particular structure depends upon its height, width, construction materials, and orientation. High and narrow piers and docks produce narrower, more diffuse shadows than do low and wide structures. Increasing the numbers of pilings used to support a given pier increases the shade cast by pilings on the under-pier environment. In addition, less light is reflected underneath structures built with light-absorbing materials (e.g., wood) than from structures built with light-reflecting materials (e.g., concrete or steel). Structures that are oriented north-south produce a shadow that moves across the bottom throughout the day, resulting in a smaller area of permanent shade than those that are oriented east-west.

The shadow cast by an overwater structure affects both the plant and animal communities below the structure. Distributions of plants, invertebrates, and fishes have been found to be severely limited in under-dock environments when compared to adjacent, unshaded vegetated habitats. Light is the single most important factor affecting aquatic plants. Under-pier light levels have been found to fall below threshold amounts for the photosynthesis of diatoms, benthic algae, eelgrass, and associated epiphytes and other autotrophs. These photosynthesizers are an essential part of nearshore habitat and the estuarine and nearshore foodwebs that support many species of marine and estuarine fishes. Eelgrass and other macrophytes can be reduced or eliminated, even through partial shading of the substrate, and have little chance to recover.

Fishes rely on visual cues for spatial orientation, prey capture, schooling, predator avoidance, and migration. The reduced-light conditions found under an overwater structure limit the ability of fishes, especially juveniles and larvae, to perform these essential activities. Shading from overwater structures may also reduce prey organism abundance and the complexity of the habitat by reducing aquatic vegetation and phytoplankton abundance (Kahler et al. 2000, Haas et al. 2002). Glasby (1999) found that epibiotic assemblages on pier pilings at marinas subject to shading were markedly different than in surrounding areas. Other studies have shown shaded epibenthos to be reduced relative to that in open areas. These factors are thought to be responsible for the observed reductions in juvenile fish populations found under piers and the reduced growth and survival of fishes held in cages under piers, when compared to open habitats (Able et al. 1998, Duffy-Anderson and Able 1999).

The shadow cast by an overwater structure may increase predation on EFH managed species by creating a light/dark interface that allows ambush predators to remain in a darkened area (barely visible to prey) and watch for prey to swim by against a bright background (high visibility) (Helfman 1981). Prey species moving around the structure are unable to see predators in the dark area under the structure and are more susceptible to predation. Furthermore, the reduced vegetation (i.e., eelgrass) densities

associated with overwater structures decrease the available refugia from predators.

In addition to piscivorous predation, in-water structures (e.g., pilings) also provide perching platforms for avian predators such as double-crested cormorants (*Phalacrocorax auritis*), from which they can launch feeding forays or dry their plumage.

Wave energy and water transport alterations from overwater structures can impact the nearshore detrital foodweb by altering the size, distribution, and abundance of substrate and detrital materials. Disruption of longshore transport can alter substrate composition and can present potential barriers to the natural processes that build spits and beaches and provide substrates required for plant propagation, fish and shellfish settlement and rearing, and forage fish spawning.

Pilings can alter adjacent substrates with increased shell deposition from piling communities and changes to substrate bathymetry (see Section 4.5). Changes in substrate type can alter the nature of the flora and fauna native to a given site. In the case of pilings, native dominant communities typically associated with sand, gravel, mud, and eelgrass substrates are replaced by communities associated with shell hash substrates.

Treated wood used for pilings and docks releases contaminants into saltwater environs. Poly-aromatic hydrocarbons (PAHs) are commonly released from creosote-treated wood. PAHs can cause a variety of deleterious effects (cancer, reproductive anomalies, immune dysfunction, and growth and development impairment) to exposed fish (Johnson et al. 1999, Johnson 2000, Stehr et al. 2000). Wood also is commonly treated with other chemicals such as ammoniacal copper zinc arsenate (ACZA) and chromated copper arsenate (CCA) (Poston 2001). These preservatives are known to leach into marine waters for a relatively short period of time after installation, but the rate of leaching is highly variable and dependent on many factors. Concrete or steel, on the other hand, are relatively inert and do not leach contaminants into the water.

Construction and maintenance of overwater structures often involves driving of pilings (see Section 4.5) and dredging of navigation channels (see Section 4.1). Both activities may also adversely affect EFH.

While the effect of some individual overwater structures on EFH may be minimal, the overall impact may be substantial when considered cumulatively. The additive effects of these structures increases the overall magnitude of impact and reduces the ability of the EFH to support native plant and animal communities.

Recommended Conservation Measures

1. Use upland boat storage whenever possible to minimize need for overwater structures.
2. Locate overwater structures in sufficiently deep waters to avoid intertidal and shade impacts, to minimize or preclude dredging, to minimize groundings, and to avoid displacement of submerged aquatic vegetation, as determined by a pre-construction survey.
3. Design piers, docks, and floats to be multi-use facilities in order to reduce the overall number of such structures and the nearshore habitat that is impacted.
4. Incorporate measures that increase the ambient light transmission under piers and docks. These measures include, but are not limited to, maximizing the height of the structure and minimizing the width of the structure to decrease shade footprint; grated decking material; using solar tubes to direct light under the structure and glass blocks to direct sunlight under the structure; illuminating the under-structure area with metal halide lamps and use of reflective paint or materials (e.g., concrete or steel instead of materials that absorb light such as wood) on the underside of the dock to reflect ambient light; using the fewest number of pilings necessary to support the structures to allow light into under-pier areas and minimize impacts to the substrate; and aligning piers, docks and floats in north-south orientation to allow arc of sun to cross perpendicular to structure and reduce duration of light limitation.
5. Use floating breakwaters whenever possible and remove them during periods of low dock use. Encourage seasonal use of docks and off-season haul-out.
6. Use waveboards to minimize effects on littoral drift and benthic habitats.
7. Locate floats in deep water to avoid light limitation and grounding impacts to the intertidal zone, and

maintain at least one foot of water between the substrate and the bottom of the float.
8. Conduct in-water work during the time of year when EFH-managed species and prey species are least likely to be impacted.
9. Avoid use of treated wood timbers or pilings to the extent practicable. Use of alternative materials such as untreated wood, concrete, or steel is recommended.
10. Fit all pilings and navigational aids, such as moorings and channel markers, with devices to prevent perching by piscivorous bird species.
11. Orient night lighting such that illumination of the surrounding waters is avoided.
12. Mitigate for unavoidable impacts to benthic habitats that is adequately provided, properly monitoried, and adaptively managed.

4.7 Flood Control/Shoreline Protection

The protection of riverine and estuarine communities from flooding events can result in varying degrees of change in the physical, chemical, and biological characteristics of existing shoreline and riparian habitat. The use of dikes and berms can also have long-term adverse effects in tidal marsh and estuarine habitats. Tidal marshes are highly variable, but typically have freshwater vegetation at the landward side, saltwater vegetation at the seaward side, and a gradient of species in between that are in equilibrium with the prevailing climatic, hydrographic, geological, and biological features of the coast. These systems normally drain through highly dendritic tidal creeks that empty into the bay or estuary. Freshwater entering along the upper edges of the marsh drain across the surface and enter the tidal creeks. Structures placed for coastal shoreline protection include, but are not limited to, concrete or wood seawalls; rip-rap revetments (sloping piles of rock placed against the toe of the dune or bluff in danger of erosion from wave action); dynamic cobble revetments (natural cobble placed on an eroding beach to dissipate wave energy and prevent sand loss); vegetative plantings; and sandbags.

Potential Adverse Impacts

Dikes, levees, ditches, or other water controls at the upper end of a tidal marsh can cut off all tributaries feeding the marsh, preventing freshwater flushing and annual flushing, annual renewal of sediments and nutrients, and the formation of new marshes. Water controls within the marsh proper intercept and carry away freshwater drainage, block freshwater from flowing across seaward portions of the marsh, increase the speed of runoff of freshwater to the bay or estuary, lower the water table, permit saltwater intrusion into the marsh proper, and create migration barriers for aquatic species. In deeper channels where reducing conditions prevail, large quantities of hydrogen sulfide are produced that are toxic to marsh grasses and other aquatic life. Acid conditions of these channels can also result in release of heavy metals from the sediments

Long-term effects on the tidal marsh include land subsidence (sometimes even submergence), soil compaction, conversion to terrestrial vegetation, greatly reduced invertebrate populations, and general loss of productive wetland characteristics. Loss of these low-salinity environments reduces estuarine fertility, restricts suitable habitat for aquatic species, and creates abnormally high salinity during drought years. Low-salinity environments form a barrier that prevents the entrance of many marine species, including competitors, predators, parasites and pathogens.

Armoring of shorelines to prevent erosion and maintain or create shoreline real estate simplifies habitats, reduces the amount of intertidal habitat, and affects nearshore processes and the ecology of a myriad of species (Williams and Thom 2001). Hydraulic effects to the shoreline include increased energy seaward of the armoring, reflected wave energy, dry beach narrowing, substrate coarsening, beach steepening, changes in sediment storage capacity, loss of organic debris, and downdrift sediment starvation (Williams and Thom 2001). Installation of breakwaters and jetties can result in community changes from burial or removal of resident biota; changes in cover and preferred prey species; and predator attraction (Williams and Thom 2001). As with armoring, breakwaters and jetties modify hydrology and nearshore sediment transport as well as movement of larval forms of many species (Williams and Thom 2001).

Recommended Conservation Measures

1. Minimize the loss of riparian habitats as much as possible.
2. The diking and draining of tidal marshlands and estuaries should not be undertaken unless a satisfactory compensatory mitigation plan is in effect and monitored.
3. Wherever possible, "soft" approaches (such as beach nourishment, vegetative plantings, and placement of large woody debris) to shoreline modifications should be utilized.
4. Include efforts to preserve and enhance EFH by providing new gravel for spawning areas; removing barriers to natural fish passage; and using weirs, grade control structures, and low flow channels to provide the proper depth and velocity for fish.
5. Construct a low-flow channel to facilitate fish passage and help maintain water temperature in reaches where water velocities require armoring of the riverbed.
6. Replace in-stream fish habitat by providing rootwads, deflector logs, boulders, rock weirs and by planting shaded riverine aquatic cover vegetation.
7. Use an adaptive management plan with ecological indicators to oversee monitoring and ensure mitigation objectives are met. Take corrective action as needed.

4.8 Water Control Structures

Many coastal areas of the Pacific Northwest utilize Water Control Structures (WCSs), such as pumping stations and tidegates, to regulate water levels in nearshore and estuary settings. WCSs enable certain agricultural crops to survive through floods, maintain high water tables, and manage the threat of saltwater intrusion. In some cases, infrastructures such as roads, industrial and residential developments, and sewer treatment plants have been built because of the enhanced drainage. These structures have been installed within streams, blind and distributary sloughs, and marsh/wetlands within estuarine and nearshore areas.

Tide gates have typically been installed on culverts passing through levees, dikes, and berms to prevent tidal inundation in areas landward of the berms. As the tide backs up and closes the tide gate, fish passage upstream is blocked. As the tide turns and begins to flow out or the river level drops, a conventional tide gate opens a little but often not enough to allow upstream passage or with such velocity as to constitute a complete or partial blockage (Charland 1998). Pump stations are used to maintain more consistent control of water levels in nearshore and estuary settings. Some pumps are also used in conjunction with tide gates; many act as dams by stopping tidal or river stage levels, thus extending the capacity of the drainage system. While there is variability in the design and operation of these structures, they generally pump surface water from the drainage system to the respective receiving body.

Potential Adverse Impacts

Adverse effects to EFH from the installation and operation of WCSs can occur through 1) partially or completely blocked habitat, 2) altered water chemistry composition through suppressed mixing of fresh and saltwater, 3) decreased sediment and nutrient delivery, and 4) degraded water quality through thermal loading.

Various life stages of some EFH-managed species utilize nearshore and estuarine habitats, and food produced from these areas in the form of small fish and other aquatic organisms are important for overall food web function (PFMC 1998, PFMC 2003). WCSs can limit or eliminate habitat access to areas that may be important for food sources and refuge from predators of these species.

Depending on their location, WCSs alter the normal circulation and mixing of fresh and saltwater. Estuaries are biologically rich and productive areas, partly because of the complex gradient of fresh and salt water mixing process. Estuaries accumulate nutrients such as potassium and nitrogen, which are concentrated and recycled in a repeating interactive process by which the incoming tidal water resuspends nutrients at the fresh-saltwater interface while moving them back up the estuary to meet the seaward moving land-based nutrients (Day 1989). Estuarine food chains are extremely complex and sensitive to alterations in the physical and chemical range of stresses (Day 1989). Loss or disruption of one element can have a cascading effect on species presence and productivity. The inhibition of the gradual mixing of salt and fresh water and nutrients over the original volume of habitat can decrease the overall productivity of the estuary and may cause prey community changes.

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(ORIGINAL SUBMITTED ON NOV. 2, 2010)

EXHIBIT J

COAST & HARBOR
ENGINEERING

Technical Memorandum
Coastal Engineering Analysis and Assistance with Design
Boulevard Park Gravel Beach, Bellingham, Washington

Erosion and Sediment Transport Evaluation

1. Introduction

This Technical Memorandum summarizes the results of coastal modeling and analysis to determine the littoral impacts of the overwater walkway at Boulevard Park Gravel Beach in Bellingham, Washington. The objective of the study was to determine whether or not the walkway will affect erosion and sediment transport at the two landings, the shoreline reach between the landings, and the areas extending approximately 300 feet beyond each landing. This evaluation is required by the Mitigated Determination of Non-Significance, (MDNS), dated September 23, 2010 issued by the City of Bellingham Planning and Community Development Department.

2. Methodology and Input Data

The analysis of impacts from the overwater walkway was conducted based on the assumption that impacts would occur if at least one of two factors controlling sediment transport, erosion, and deposition in the project area changes: wave characteristics (wave period and wave height) and sediment transport potential in a swash zone[1]. Therefore, analysis and modeling was conducted to determine if construction of the overwater walkway can possibly change wave characteristics and sediment transport potential along the shoreline at the two landings, the shoreline reach between the landings, and the areas extending approximately 300 feet beyond each landing.

The analysis was conducted using a 2-Dimensional (2-D) wave refraction/diffraction numerical model SWAN ((Holthuijsen *et al.*, 2004). Modeling was conducted for existing (pre-project) and post-project conditions. Analysis of the potential impacts was based on comparison of wave orbital current velocities[2] and sediment transport potentials for existing and post-project conditions. A 25-year return period of occurrence wind-wave storm event was used as a criterion for the impact analysis. It is believed that the smaller (more

[1] Swash zone is the upper beach area where breaking of waves and dissipation of wave energy is observed. In this zone uprush and backwash, motions of waves mobilize and transport large quantities of sediment compared to other regions. Sediment transport potential characterizes a theoretical, maximum possible sediment movement by waves in a swash zone.

[2] In wave theory wave motion is described by orbital movement of water particles in a water column. When a wave interacts with the bottom slope, the orbital motion transforms to elliptical motion. The height of elliptical motion reduces with depth, and at the bottom layer this motion is presented by uprush and downrush motions. Bottom orbital velocity describes the maximum speed of water in this motion.

frequently recurring events) would not be as sensitive to the changes from the project; and therefore would be less likely to cause any changes or impacts.

Wind data to construct the 25-year return period storm event were obtained from the compilation and statistical analysis of long-term wind data. These data and the analysis are described in more detail in CHE's Technical Memorandum *Coastal Engineering Analysis and Assistance with Design Boulevard Park Gravel Beach, Bellingham, Washington* (CHE April 16, 2010). The results of the wind statistical and extremal analyses are shown in Table 1.

Table 1. Bellingham Bay, Return Periods of Wind Events from Wave-Forming Fetches

BELLINGHAM BAY, WA[1]
BOULEVARD-CORNWALL OVERWATER WALKWAY
RETURN PERIOD WIND SPEEDS (mph)
(1-min duration)

Return Period (yr)	Wind Direction (°T)															
	230	240	250	260	270	280	290	300	310	320	330	340	350	360	10	20
2	40.7	42.0	36.8	30.8	34.1	38.9	35.5	31.7	31.2	30.8	25.4	24.6	16.3	21.0	23.9	33.0
5	46.5	47.2	42.5	36.6	39.0	42.8	39.8	35.2	34.8	35.3	29.4	29.1	20.4	27.1	31.3	39.9
10	49.8	50.2	45.8	39.9	41.8	45.1	42.3	37.2	36.8	37.9	31.7	31.7	23.5	31.0	36.1	43.8
25	53.4	53.6	49.4	43.6	44.9	47.6	45.0	39.3	39.1	40.8	34.3	34.6	27.6	35.7	41.9	48.2
50	55.9	55.8	51.8	46.1	46.9	49.3	46.8	40.8	40.6	42.7	36.0	36.5	30.7	39.0	45.9	51.2
100	58.1	57.8	54.0	48.3	48.8	50.8	48.5	42.1	42.0	44.5	37.5	38.3	33.8	42.2	49.7	53.8

Notes:
[1]Period of record: 1973-2007

Based on previous analysis and sensitivity modeling, it was determined that the wind-wave fetch of 240°T produces the largest wave parameters at the project site.[3] Therefore, this direction (240°T) was used to generate the design storm events. All modeling was conducted at the MHHW tidal elevation.

An approach using two numerical modeling grids (large and nested) similar to that from a previous modeling study (CHE, April 16 2010) was used for the wave modeling and impact analysis. The large numerical modeling grid, which includes all of Bellingham Bay, is shown in Figure 1.

[3] The predominant wind direction for Bellingham Bay is from the south, with most winds in the 0-20 mph range up to and exceeding 30 mph. However, the project site is sheltered from southerly winds and direct southerly wind waves by the headland to the south, and the dominant remaining events are as shown in Table 1.

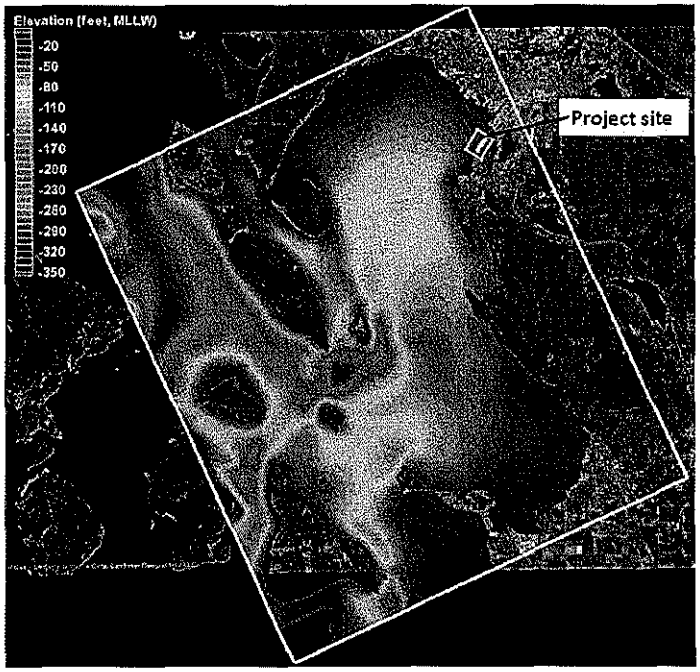


Figure 1. Large numerical modeling grid for Bellingham Bay

The nested modeling grid was modified to optimize the modeling effort and provide detailed information on wave parameters at the project shoreline, as well as along the overwater pedestrian walkway. A fine-detail nested numerical modeling grid was built at locations of overwater piles and along the shoreline. The nested modeling grid is shown in Figure 2.

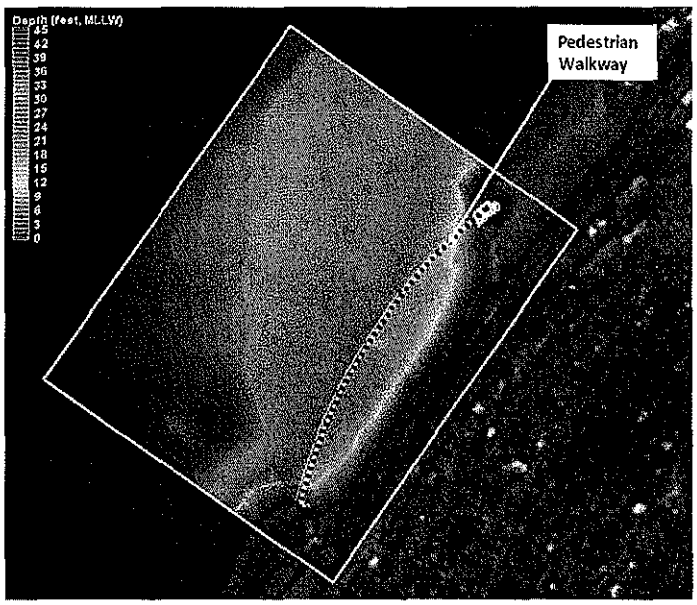


Figure 2. Zoomed-in nested numerical modeling grid for overwater pedestrian walkway

For the comparative analysis, 13 (thirteen) control stations were established on the modeling grid. Wave parameters (height and period) were obtained from the modeling results that were extracted from these stations and compared. The location of the controlling stations is shown in Figure 3.

Figure 3. Controlling stations selected to extract the wave and bottom velocities

3. Modeling Results

Results of the modeling, wave heights and wave orbital velocities, are presented graphically in Figures 4a, 4b and 5a, 5b. Figures 4a and 4b show wave height distributions over the nested modeling grid for existing conditions (no overwater walkway) and for post-project conditions (with overwater walkway). Figures 5a and 5b show bed orbital velocities over the nested modeling grid for the same existing post-project conditions in color format. Figures 4b and 5b also show the alignment of the overwater pedestrian walkway.

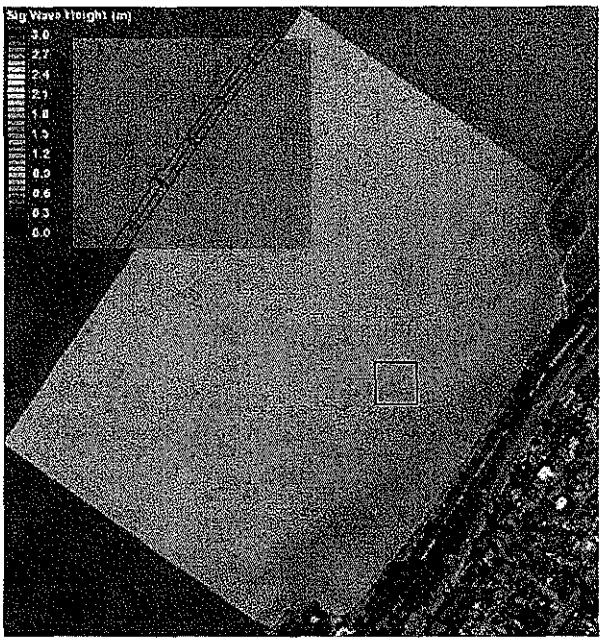


Figure 4a. Modeled Wave Heights for Existing Conditions

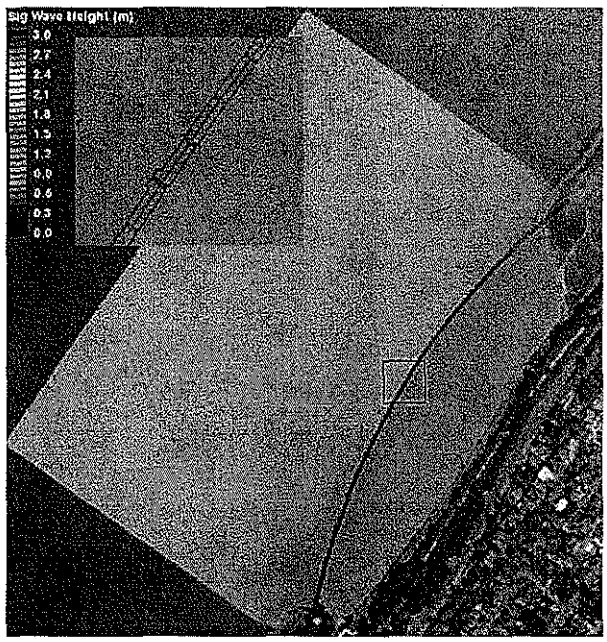


Figure 4b. Model Wave Heights for Post-Project Conditions

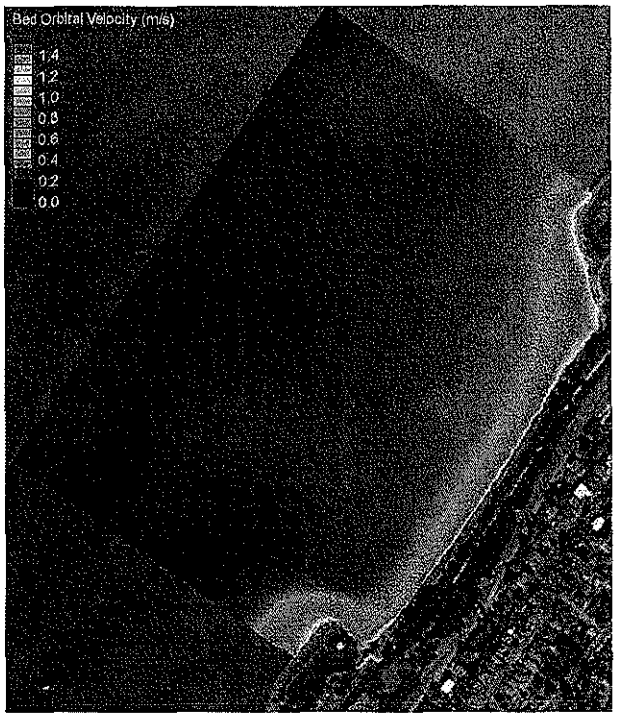


Figure 5a. Bed Orbital Velocities for Existing Conditions

Figure 5b. Bed Orbital Velocities for Post-Project Conditions

Wave heights and orbital velocities were extracted from the modeling results for existing and post-project conditions at each of the 13 controlling stations (See Figure 3 above). Table 2 shows the extracted wave parameters (significant wave heights) for both, existing and post-project conditions. The table also computes possible changes of wave heights between existing and post-project conditions.

Table 2. Significant Wave Heights and percent of wave height reduction/increase at the controlling stations

Point #	Existing Condition Wave Height (m)	Post-project Condition Wave Height (m)	Percent of Reduction
1	1.76	1.76	0.0
2	1.57	1.57	0.0
3	1.19	1.08	8.9
4	1.19	1.13	5.0
5	1.35	1.27	6.1
6	1.41	1.32	6.3
7	1.44	1.35	6.4
8	1.50	1.40	6.6
9	1.55	1.43	7.9
10	1.58	1.42	10.1
11	1.68	1.37	18.2
12	1.69	1.69	0.0
13	1.64	1.64	0.0

The table shows that no or insignificant (less than 10 percent[4]) change in wave heights would occur at most of the controlling stations after construction of the project. A small reduction of wave heights, 10-18 percent, may occur at Stations 10 and 11. These stations are located in close proximity to the walkway and are likely in a shading area of the adjacent piles.

Table 3 depicts the extracted wave parameters (wave orbital velocities) for both existing and post-project conditions. The table also computes shear velocities at the bottom generated by wave orbital velocities.

[4] Changes less than 10 percent may be due to the vicinity of model accuracy and should be disregarded.

Table 3. Wave Orbital Velocities at the controlling stations

Point #	Existing Bottom Orbital Velocities (m/s)	Existing Shear Velocities (m/s)	Post-project Bed Orbital Velocities (m/s)	Post Project Shear Velocities (m/s)
1	0.71	0.114	0.71	0.114
2	0.53	0.093	0.53	0.093
3	0.31	0.064	0.28	0.060
4	0.35	0.071	0.32	0.069
5	0.39	0.077	0.36	0.073
6	0.44	0.082	0.40	0.078
7	0.43	0.081	0.39	0.077
8	0.43	0.082	0.39	0.077
9	0.48	0.087	0.42	0.081
10	0.49	0.089	0.42	0.082
11	0.54	0.094	0.42	0.080
12	0.59	0.101	0.59	0.101
13	0.43	0.081	0.43	0.081

The data in the table (similar to Table 2) show no or insignificant change in orbital and shear velocities at most of the controlling stations after construction of the project. A small reduction of shear stress velocities 0.006-0.014 m/s (0.6 – 1.4 cm/second) may occur at Stations 9 through 11 due to close proximity of these stations to the walkway alignment.

Analysis of sediment on sediment transport potential in the nearshore zone was conducted to determine the importance of small changes in shear velocities due to construction of the overwater structure. The analysis was conducted using results of the study from the Naval Research Laboratory, Stennis Space Center, Mississippi, USA (Phaphitis, 2001).

Figure 6 shows that shear velocities at Stations 9 through 11 during the design storm will be able to move beach sand and gravel sediment up to 0.5" size. Reduction of shear velocities to 0.6-1.4 cm/second at Stations 9-11 will not change the ability of waves to move beach sediment by any significant amount. Reduction of shear velocity will not result in shoreline erosion. Quite the opposite could occur, resulting in small localized accumulations of coarser sediment particles at the shoreline close to the walkway. However, the amount of this accumulation most likely would be small, and may not be detected by available measurement (survey) techniques.

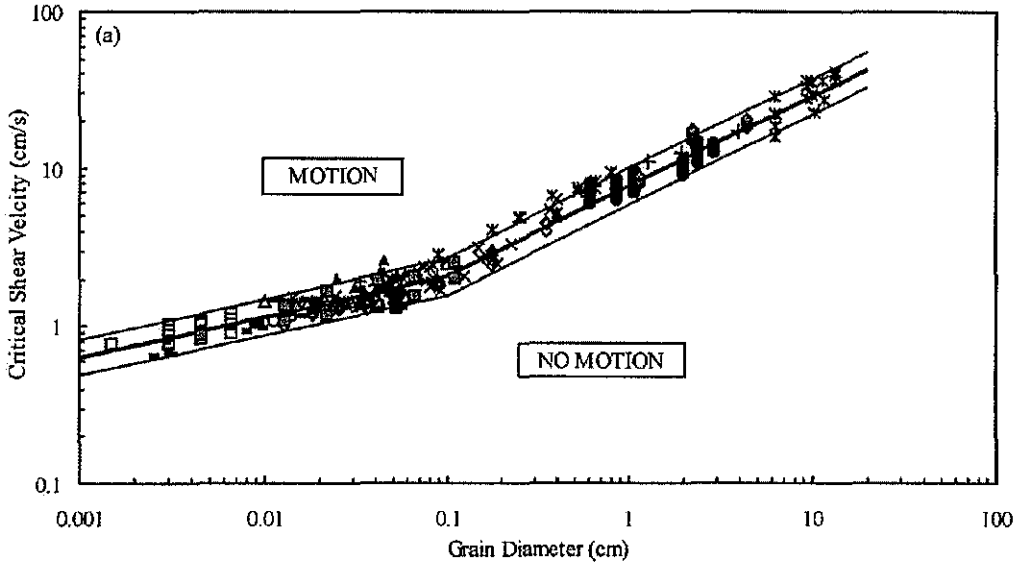


Figure 6. Critical shear velocity as a function of grain diameter

4. Conclusions

The modeling results show that the changes in wave climate affected by the structure are barely discernible for the 25-year event. Changes for smaller wave events should be even lower.

The results of the analysis show that the shoreline will not be impacted negatively after construction of the pedestrian walkway. No shoreline erosion is expected to occur at the two landings, the shoreline reach between the landings, and in the areas extending approximately 300 feet beyond each landing

5. References

Holthuijsen, L.H., Booij, N., Ris, R.C., Haagsma, IJ.G., Kieftenburg, A.T.M.M., Kriezi, E.E.,Zijlema, M. and A.J. van der Westhuysen. February 5, 2004. "SWAN Cycle III Version 40.31 User Manual."

Phaphitis, D., 2001. Sediment movement under unidirectional flows: an assessment of empirical threshold curves. Coastal Engineering 43 (2001) 227-245.

5 PROPOSED MITIGATION APPROACH

This section discusses the mitigation approach including goals and objectives of mitigation, fundamentals of the mitigation elements, and performance standards to be used to evaluate the effectiveness of the proposed mitigation.

5.1 Goals

Construction impacts related to the proposed overwater walkway structure were first and foremost avoided, minimized, and rectified to the maximum extent practicable. Additional mitigating measures were incorporated into the Project to help compensate for unavoidable impacts.

The goal of the Project's proposed mitigation is to compensate for the unavoidable overwater shading and construction impacts on the intertidal area. Specifically, the overall mitigation goals include:

1. Minimize permanent overwater structure shading within the intertidal zone
2. Compensate for permanent overwater structure shading within the intertidal zone
3. Provide protection and enhancement of sensitive eelgrass beds within the Project area

5.2 Objectives

To achieve the goals, the following objectives have been identified for the mitigation action:

1. Integrate grating into the deck surface of the overwater walkway over intertidal areas (between MHHW and -12 feet MLLW), allowing for light penetration
2. Remove and dispose of 3,332 square feet of timber frame pier and wharf structures, and 87 associated creosote-treated timber piles and 8 steel H-piles
3. Monitor Project site eelgrass beds and follow adaptive management and contingency plan if further shading impacts occur

5.3 Mitigation Sequencing

5.3.1 Mitigation Sequencing Followed

According to the Washington State Environmental Policy Act (SEPA) (Chapter 197.11 WAC), mitigation requires the following sequence of steps:

1. Avoid the impact altogether
2. Minimize impacts
3. Rectify impacts by repairing, rehabilitating, or restoring the affected environment
4. Reduce or eliminate impacts over time
5. Compensate for impacts by replacing, enhancing, or providing substitute resources or environments
6. Monitor the impact and take appropriate corrective actions

5.3.2 Avoidance and Minimization

The proposed overwater walkway cannot be modified to entirely avoid impacts to the intertidal area and existing eelgrass beds because the walkway must cross over intertidal areas in order to connect the two upland landing sites.

Avoidance and minimization measures are built into the Project design to lessen impacts to nearshore habitat. An eelgrass survey was conducted in 2008 (Grette Associates 2009) to determine the extent of the existing eelgrass bed. Subsequently, the location of the proposed structure was modified to avoid shading existing eelgrass. In addition, light transmitting grating was incorporated into the decking surface of the proposed structure between elevations 8.5 feet MHHW and -12 feet MLLW to minimize shading impacts on eelgrass. The location of the overwater walkway partially occurs over the footprint of the existing pier to be removed. Locating the walkway within this area consolidates intertidal impacts to an area that will already be disturbed due to demolition activities, rather than impacting a new, relatively pristine portion of the site. The design of the overwater walkway minimizes impacts to eelgrass beds by locating the widened deck portions over areas with a seafloor depth of -12 feet MLLW or lower. In addition, the preliminary overwater walkway design was modified based on discussions with WDFW (Williams, pers. comm. 2010) to ensure that the overwater walkway crosses over the narrowest area of eelgrass near the Boulevard Park landing (at the approximate location of the existing pier) and avoids crossing over the

eelgrass areas near the former Cornwall Avenue Landfill site landing. In addition to the above measures designed to minimize new macroalgae shading impacts, approximately 30% of the spans of the proposed structure located above nearshore areas (-12 feet MLLW or higher) will be grated at a size to provide 70% light transmission. Finally, piles used for the proposed walkway will be steel rather than treated wood; thus, they will not be pollution generating.

5.3.3 Compensatory Mitigation

The proposed compensatory mitigation for the Project includes removing an existing timber pier and wharf at the north end of Boulevard Park and nine additional creosote-treated timber piles in the embayment. The pier is supported by eight steel H-piles (each 8 inches square) and the wharf is supported by approximately 87 creosote-treated piles, all of which will be removed. The wharf is supported on the southern (landward) end by an existing concrete wall that will also be removed.

Four creosote-treated, 12-inch-diameter timber piles located immediately north of the existing pier at Boulevard Park and five creosote-treated, 12-inch-diameter timber piles immediately offshore of the southwest corner of the former Cornwall Avenue Landfill site will also be removed. BMPs (see Section 3.5 of the Biological Assessment; Anchor QEA 2010) as identified by the U.S. Army Corps of Engineers (USACE) Dredged Materials Management Office (DMMO) and the WDNR Puget Sound Initiative will be employed during removal of the piles.

The removal of the pier, wharf, and piles will decrease the amount of pollution-generating surfaces at the Project site. Removal of the wharf will increase the area of the existing pocket beach, potentially increasing habitat area for juvenile salmon and forage fish. Table 4 summarizes the anticipated changes in overwater cover resulting from the Project; Table 5 summarizes the changes in piling.

Potential mitigation opportunities to compensate for impacts to existing eelgrass beds include the recovery of eelgrass on the Boulevard Park side where the existing timber pier will be removed, and in areas where the derelict pilings will be removed. Another potential

opportunity may be to remove rubble and debris in the intertidal zone on the Cornwall Avenue Landfill side within the elevation bands of -1.7 and -10 feet MLLW. This would provide the necessary substrate and area suitable for eelgrass reestablishment.

Table 4
Summary of Changes in Overwater Cover/Shading in the Intertidal Zone

Project Component	Removal of Existing Overwater Cover [1]	Total New Overwater Cover [1]	New Overwater Grated Areas [1, 3]	Net Change in Overwater Shading [1, 2]
Existing wharf, piles, and pier to be removed	-3,332	0	0	-3,332
Existing isolated piles (nine total) to be removed [4]	-7	0	0	-7
Proposed overwater walkway structure	0	5,396	1,705 (1,193 open area)	4,203
Total	-3,339	5,396	1,705 (1,193 open area)	864

Table Notes:
1. All areas are in square feet
2. Changes in overwater cover are only detailed for intertidal areas where the seafloor elevations range between -12 feet MLLW and +8.5 feet MLLW (MHHW)
3. New overwater grated areas were calculated based on quantities and specifications provided by BergerABAM (approximately 30% grating—for areas described under item 2 above—with 70% openings)
4. Pile square footage is approximate and based on outside dimensions of the piles

Table 5
Summary of Changes in Piling

Project Component	Removal of Existing Piles	New Piles
Piles	9 isolated piles 8 H-piles 87 creosote treated piles	96[1] steel piles

Table Notes:
1 Four of these piles are above MHHW

5.4 Proposed Timing and Schedule

The entire mitigation project, including demolition and disposal of the existing pier, wharf, and piles, is expected to take approximately 1 week to complete. However, the duration and

total period of in-water work, including piling removal, would be affected by several factors, including the type of construction equipment and procedures selected by the contractor, and the sequencing of work elements. If it is necessary to perform certain work at night during a low tide, appropriate City, Whatcom County, and any other necessary approvals would be obtained.

In-water work will occur according to the allowable USACE and WDFW in-water work windows for Bellingham Bay and/or in accordance with the requirements and conditions of the Hydraulic Project Approval (HPA) issued by WDFW and appropriate concurrence recommendations identified by the federal agencies during Endangered Species Act (ESA) consultation, and during potential work window extensions. The WDFW in-water work window for the Project is from September 1 to February 14 and the USACE in-water work window is from July 16 to October 14. Therefore, the expected overall allowable work window for construction of the in-water portion of the project is September 1 to October 14. Construction activities may occur during two in-water work window periods.

5.5 Performance Standards

Performance standards for the Project correspond to the design goals and objectives identified in Sections 5.1 and 5.2. They define measurable criteria that are evaluated to predict when a mitigation element has been successfully implemented or accomplished and whether overall mitigation goals have been met at the end of the monitoring program. Noise monitoring during pile driving activities and monitoring of Project and reference site eelgrass beds will occur to assess the success of the performance standards, and a contingency plan of additional mitigation will be triggered in the event of a failure to meet these standards. The monitoring plan and impacts determination analysis are described in more detail in Section 6; the adaptive management and contingency plan is described in Section 7. Table 6 summarizes the design goals, design criteria, and final performance standards associated with the proposed mitigation approach.

Table 6

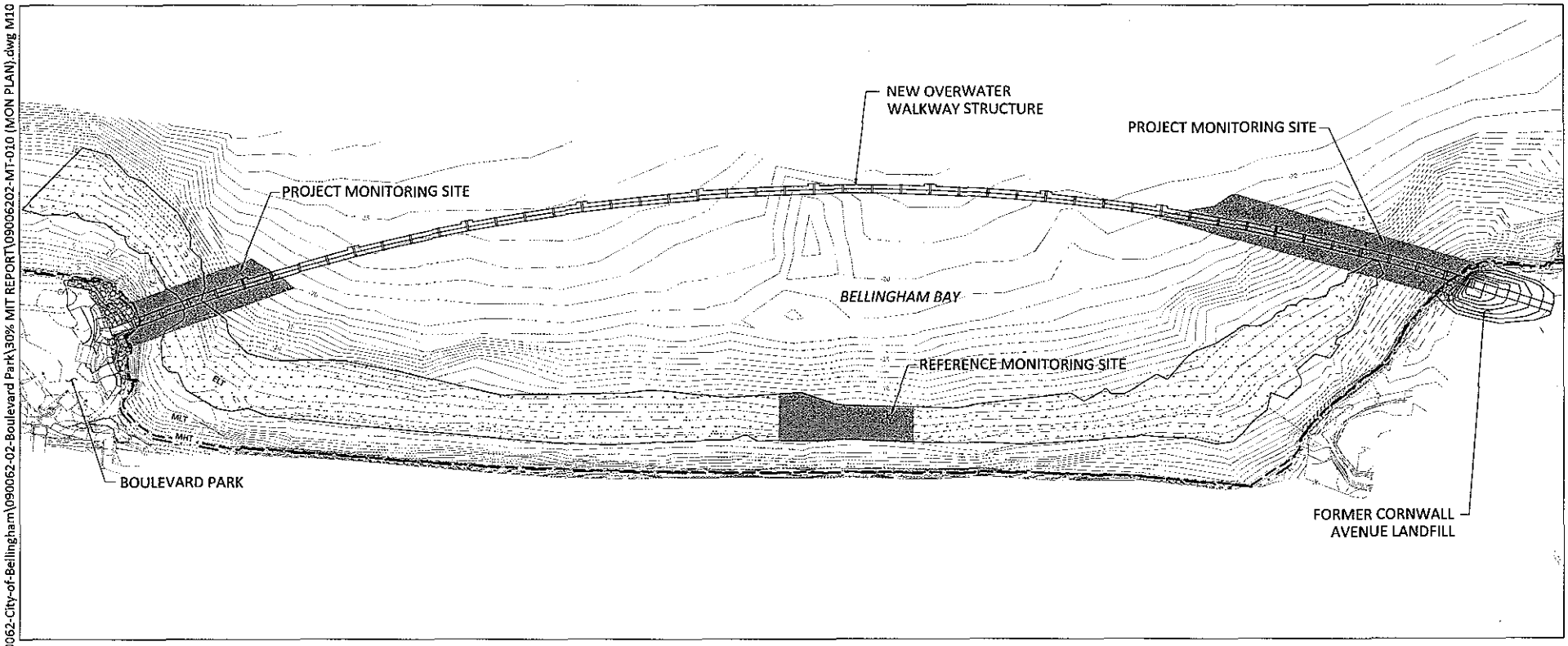
Mitigation Goals with Associated Design Criteria and Final Performance Standards

Design Goals	Design Criteria	Final Performance Standards
Minimize permanent overwater structure shading within the intertidal zone.	Locate overwater structure over footprint of existing structures (to be removed) and mostly outside of intertidal area (with seafloor depths of -12 feet MLLW or lower). Provide grating within walkway depth over intertidal areas.	70% of walkway shall be located over seafloor depths of -12 feet MLLW or lower. Approximately 30% of overwater walkway shall contain grating sized to provide 70% light transmission.
Compensate for permanent overwater structure shading within the intertidal zone.	Remove and dispose of existing pollution-generating derelict structures and piles.	Remove 3,332 sf of pier, wharf, and 95 associated piles adjacent to Boulevard Park. Remove five isolated piles adjacent to the former Cornwall Avenue landfill site. Remove four isolated piles within the Project embayment.
Provide protection and enhancement of sensitive eelgrass beds within the Project area. Compensate for any lost eelgrass area at a 1:1 ratio.	Avoid crossing eelgrass beds with walkway when possible. Maintain or expand eelgrass area within the overwater walkway Project monitoring site. [1]	After 5 years, Project site eelgrass area will be equal to or greater than Project site pre-construction eelgrass area. [2]

Notes:

1 See Figure 10 for Project monitoring site area.

2 Pre- and post-construction Project site eelgrass area shall be compared with reference site eelgrass beds to account for regional inter-annual trends in eelgrass density. The process of monitoring and analyzing performance standards/determining eelgrass impacts is described in more detail in Section 6.



LEGEND:

- Project Monitoring Site
- Reference Monitoring Site
- Existing Eelgrass Bed
- Mean Higher High Water (+8.51' MLLW)
- Ordinary High Water Mark (+9.51' MLLW)

0 260
Scale in Feet

SOURCE: Drawing by Berger/ABAM dated 3/2010.

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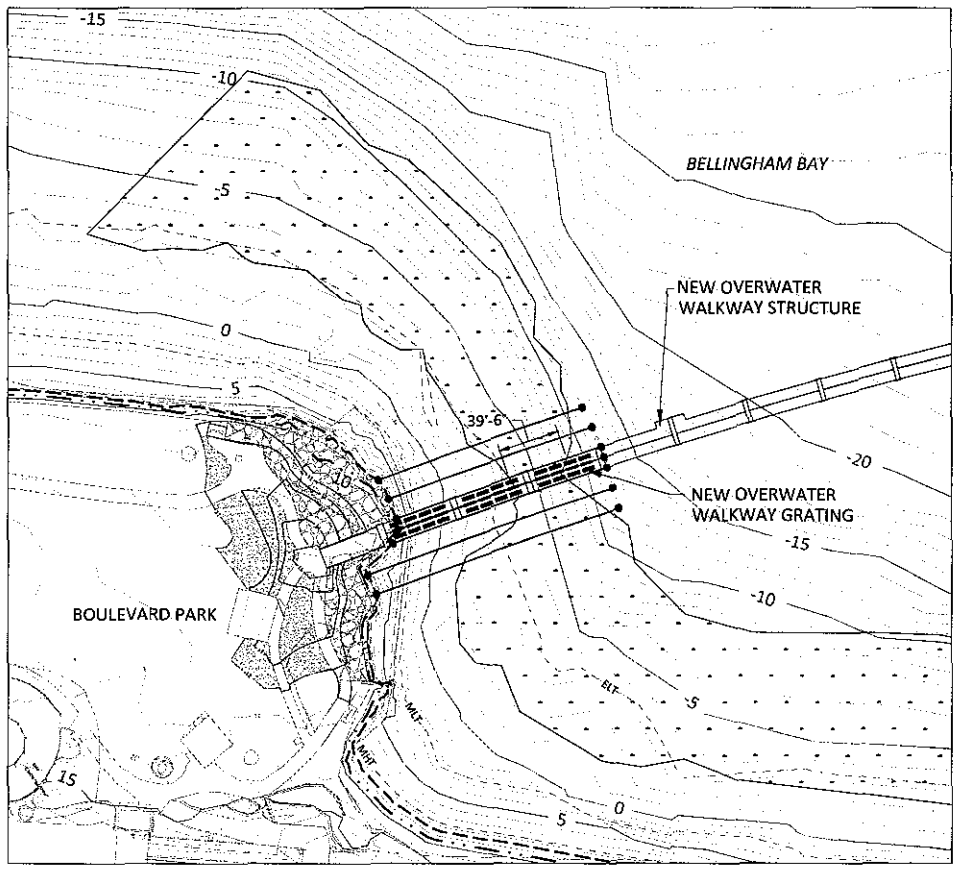
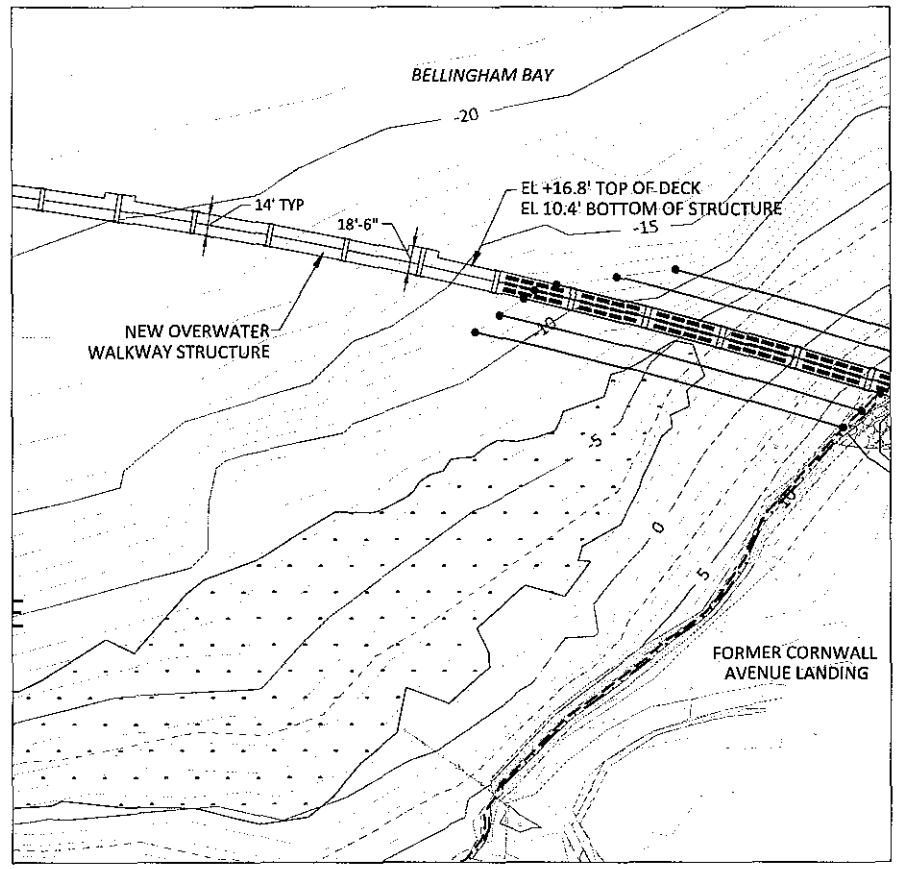
ANCHOR QEA

Figure 10
Monitoring Areas
Mitigation Report
Boulevard/Cornwall Overwater Pedestrian Walkway



BOULEVARD PARK



FORMER CORNWALL AVENUE LANDFILL

LEGEND:

- Transect Location
- Existing Eelgrass Bed
- Mean Higher High Water (+8.51' MLLW)
- Ordinary High Water Mark (+9.51' MLLW)

0 120
Scale in Feet

SOURCE: Drawing by Berger/ABAM dated 3/2010.

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ANCHOR QEA

Figure 10A
Transect Layout
Mitigation Report
Boulevard/Cornwall Overwater Pedestrian Walkway

Table 8
Impact Determination Process

Row	Test 1 Project Site Comparisons	Test 2 Reference Site Comparisons	Conclusions	Test 3 Project Site Comparisons	Conclusions	Mitgation Needed
1	Post-Construction Eelgrass Density ≥ Pre-Construction Eelgrass Density	Post-Construction Eelgrass Density ≤ Pre-Construction Eelgrass Density	No Impact			No Mitigation
		Post-Construction Eelgrass Density > Pre-Construction Eelgrass Density	Potential Impact	Post-Construction Eelgrass Density ÷ Pre-Construction Eelgrass Density ≥ 0.9	No Impact	No Mitigation
				Post-Construction Eelgrass Density ÷ Pre-Construction Eelgrass Density < 0.9	Impact	Mitigation based on the percent decrease in pre-construction and post-construction turion densities at the Project Site plus percent increase at the Reference Site.
2	Post-Construction Eelgrass Density < Pre-Construction Eelgrass Density	Post-Construction Eelgrass Density ≥ Pre-Construction Eelgrass Density	Impact			No Mitigation
		Post-Construction Eelgrass Density < Pre-Construction Eelgrass Density	Potential Impact	Project Site: Post-Construction Eelgrass Density ÷ Pre-Construction Eelgrass Density ≥ Reference Site: Post-Construction Eelgrass Density ÷ Pre-Construction Eelgrass Density	No Impact	No Mitigation
				Project Site: Pre-Construction Eelgrass Density ÷ Post-Construction Eelgrass Density < Reference Site: Pre-Construction Eelgrass Density ÷ Post-Construction Eelgrass Density	Impact	Mitigation for the impact will be based on the difference in percent turion density between the pre- and post-construction Reference site data and pre- and post-construction project site data.

6 MONITORING PLAN

The City proposes to monitor potential short and long-term impacts to natural resources through noise monitoring during construction and eelgrass bed monitoring following construction. This section discusses the monitoring methods, data analysis, and impact determination process that will be utilized.

6.1 Short-term Noise Monitoring

Because construction activities will include vibratory and impact pile driving, underwater noise levels will be monitored to ensure pile driving noise does not exceed the threshold and result in physical harm to fish, marine mammals, and bird species. Noise reduction assumptions as detailed in the Biological Assessment (Anchor QEA 2010) include a 10 decibel (dB) reduction in underwater noise through the use of a bubble curtain, lowering the anticipated peak sound pressure to 179 dB_{RMS} and 202 dB_{PEAK}.

6.1.1 Methodology

Two hydrophones will be placed underwater 10 meters horizontally from the pile: one will be located at mid-depth, the other will be lowered to just above the seafloor bottom. The boat that staff will be working from will be anchored or tied down in order to maintain its position. The horizontal location of the hydrophones will be recorded using differential global positioning system (GPS) and the depth (measured through 1-meter increments recorded on the line) will also be recorded. The calibration of the hydrophones will occur at the start of each monitoring activity. Positioning of the hydrophones will occur prior to the initiation of pile driving.

Environmental data will be gathered prior to and during pile driving activities. This data will include wind speed and direction, air temperature, humidity, surface water temperature, water depth, wave height, weather, and other factors that may contribute to the underwater sound measured (e.g., boats, traffic, aircraft).

Peak levels of underwater noise will be monitored in real time to determine if construction activities exceed 202 dB_{PEAK}. When monitoring is able to determine that this exceedance level has not been reached for three piles in a row, it will be assumed that further pile

driving will also avoid exceeding this threshold and no further noise monitoring will be conducted. If the threshold is reached, the City will work with the Project contractor to make changes to the existing noise attenuation measures or employ additional measures until the required reduction can be met. If exceedances continue to persist, the size of the monitoring area will be reevaluated and increased. The City will immediately notify the U.S. Fish and Wildlife Service (USFWS) if there is an increase in the size of the monitoring area.

If fish are observed to be in distress or a fish kill occurs, all work will cease and WDFW will be notified immediately, as anticipated to be required by the HPA to be issued for the Project. Work can recommence with the authorization of the WDFW-certified biologist.

6.1.2 Data Analysis

Post-analysis of the noise monitoring data will include determination of:

- Absolute peak under and over-pressure levels recorded for each pile
- Root Mean Square (dB_{RMS}) value for each absolute peak pile strike (calculated between where 5% and 95% of the pulse energy occurs)
- Rise time (the time taken for the impulse to reach its peak pressure)
- Average duration of the sound level for each pile strike
- Average number of strikes per pile
- Sound Exposure Level (dB_{SEL}) of the absolute peak pile strike (calculated from data between 5% and 95% of the pulse energy)
- Mean db_{SEL}
- Cumulative db_{SEL} (accumulated SEL = single strike SEL + 10*log(# hammer strikes)

6.1.3 Reporting

A final report summarizing the data collected will be submitted by the City to USFWS and the National Marine Fisheries Service (NMFS) within 90 days of the termination of noise monitoring. Any anomalous bird or fish behavior observed in the area by trained observers in the field will be correlated to underwater sound levels occurring at that time. Additionally, a comparison between the measurements made at the hydrophones will be included.

6.2 Long-term Eelgrass Monitoring

The City proposes to assess impacts from the proposed overwater walkway by monitoring eelgrass density underneath and adjacent to the proposed structure (Project site) and comparing it to monitoring results from a nearby reference eelgrass patch (reference site). The reference site will provide data to compare to Project site data to inform whether any observed eelgrass changes in the Project site may be related to regional inter-annual trends in eelgrass rather than Project impacts. Reference site monitoring will occur within the Project's embayment and within the same eelgrass bed, outside of the overwater walkway's shadow. The locations of the Project site and reference site are shown on Figure 10.

6.2.1 Methodology

Sampling methods will follow WDFW's *Eelgrass/Macroalgae Habitat Interim Survey Guidelines* (WDFW Guidelines; WDFW 2008) and the *Washington DNR Aquatic Vegetation Preliminary Survey Guidelines* (WDNR Guidelines) for both the Project site and reference site (WDFW 2008). Monitoring of the Project site will include pre and post-construction sampling efforts to evaluate potential shading impacts from the proposed overwater walkway on eelgrass. Eelgrass monitoring will include a pre-construction baseline survey, and post construction monitoring in years 3 and 5. Samples will be taken along both portions of the walkway (i.e., the Cornwall Avenue Landfill side and the Boulevard Park side) that cross through suitable depths for eelgrass (Project Monitoring Site, Figure 10). The potential shading impact areas are assumed to extend as far as two times the width (equal to 28 feet) of the walkway.

6.2.1.1 Pre-construction (Baseline) Survey and Establishment of Monitoring Sites

A pre-construction eelgrass survey will be conducted to establish baseline eelgrass distribution. The outcome of this survey will be used to determine the monitoring approach, in consultation with WDFW, for post-construction year 3 and year 5 evaluations of Project impacts to existing eelgrass beds. Monitoring transects will be established running parallel to the proposed structure alignment. One transect will be located along the center of the structure, two along the edges of the structure (i.e., transects are located 7 feet to either side of the center transect), and two on either side of the structure extending to 14 feet and to 28

feet from the outside edge of the proposed structure (see Figures 10 and 10A). Transects will extend from the upper intertidal zone to approximately -12 feet MLLW.

6.2.1.1.1 Cornwall Avenue Landfill Side

Existing survey data (Grette Associates 2009) indicate that the proposed walkway was designed to not cross over any of the eelgrass bed shown in the Grette Associates survey. Despite that data, the pre-construction survey described above purposely includes survey transects in areas shown by Grette Associates to not have eelgrass in order to confirm the baseline distribution in the potential area shaded by the walkway and to provide additional information on other macroalgae species. The results of the pre-construction survey in the Project site will be used to determine the appropriate reference site sampling approach as shown in Table 7).

Table 7

Sampling Approach in Project Site on Cornwall Avenue Landfill Side and Reference Site

Pre-Construction Survey Eelgrass Distribution on Cornwall Avenue Landfill Side	Reference Site Sampling
If there is a large enough eelgrass bed in the Project site survey area to meet WDFW (2008) statistical power requirements through quadrat subsampling, then quadrat subsampling per WDFW guidelines will be conducted.	Quadrat subsampling per WDFW (2008) will be conducted in the reference site. Survey transects will be established along the same orientation to the shoreline as in the Project site (i.e., not perpendicular to the shoreline because the proposed walkway is not perpendicular to the shoreline).
If there is a large enough eelgrass bed in the Project site survey area to meet WDFW (2008) statistical power requirements through quadrat subsampling, then a full census of eelgrass shoots will be conducted in the survey area.	A full census of eelgrass shoots in an equal area in the reference site will be conducted. The reference site survey area will be of the same shape and be in the same depth contours as the eelgrass found in the Project site survey.

6.2.1.1.2 Boulevard Park Side

Existing survey data indicate that the proposed walkway alignment crosses over an existing eelgrass bed in this location. Based on Grette Associates (2009) data, there will be enough eelgrass in the impact monitoring area to conduct quadrat subsampling survey per WDFW guidelines.

6.2.1.2 Post-Construction Sampling

Post-construction year 3 and year 5 eelgrass monitoring activities will be determined based on the pre-construction survey results and in consultation with the WDFW Area Habitat Biologist. An initial expectation is that the pre-construction survey approach (i.e., quadrat subsampling or full census of shoots) will be repeated in post-construction surveys. One aspect of the post-construction monitoring approach to be discussed with WDFW will be whether the Cornwall Avenue Landfill side survey area can be reduced if only a small portion of an eelgrass bed (such as documented in Grette Associates 2009) is found in the pre-construction survey.

6.2.2 Data Analysis

Data analysis will follow the WDFW and WDNR Guidelines (WDFW 2008; WDNR n.d.). Impacts of shading will be determined by comparing pre- and post-construction eelgrass densities within the Project site transect and using the reference site samples to validate the Project site data, accounting for changes in density that are a result of normal, seasonal variations instead of a result of shading impacts.

Pre- and post-construction density data will be compared using a two-sampled, one-tailed t-test (α=0.10, power (1-β) = 0.90).

6.2.3 Reporting

Pre- and post-construction monitoring data that are collected will be summarized in report format in accordance with the WDFW Guidelines and the WDNR Guidelines. The reports will be submitted to the City, USFWS, WDNR, and NMFS within 90 days following the monitoring activities.

6.2.4 Impact Determination Process

Table 8 illustrates the impact determination process.

The comparison between pre and post-construction data will be tested following the null hypothesis:

Hypothesis 1: Post-construction eelgrass density at the Project site will be statistically greater or equal to the pre-construction eelgrass density at the Project site (evaluated in Row 1, Test 1 of Table 8).

Outcome 1: Hypothesis is not rejected (Project site post-construction density is greater than or equal to pre-construction density, shown in Row 1, Test 1 of Table 8).
If Project site post-construction eelgrass density is greater than or equal to pre-construction density, the null hypothesis cannot yet be rejected, because it is possible that a region-wide increase in eelgrass density occurred and was not seen at the Project site; this could indicate an impact. To test for this occurrence, a similar statistical comparison with the reference site would be performed. This will be tested by the null hypothesis:

Hypothesis 2a: Post-construction eelgrass density at the reference site will be statistically less than the pre-construction eelgrass density at the reference site (Evaluated in Row 1, Test 2 of Table 8).
If the reference site post-construction eelgrass density is less than pre-construction density, hypothesis 2a is not rejected. This would indicate that a regional increase in eelgrass density has not occurred and therefore would validate the results of testing Hypothesis 1, thus signifying that no impacts to Project site eelgrass have occurred from shading. No additional mitigation would be triggered.

Conversely, if the reference site post-construction eelgrass density is significantly greater than pre-construction eelgrass density, hypothesis 2a is rejected. This would indicate that eelgrass density has increased significantly at the reference site and likely at region-wide sites. If a decrease in density is shown at the Project site, shading impacts have likely occurred. This possibility will be tested by a non-statistical test to examine the rate of decrease in eelgrass density at the Project site (evaluated in Row 1, Test 3 of Table 8). The rate of decrease is determined by dividing post-construction density by pre-construction density. If density levels are shown to have decreased by 90% or greater from pre-Project

eelgrass density, it will be assumed that shading related impacts have occurred and additional mitigation will be triggered.

Outcome 2: Hypothesis is rejected (Project site post-construction eelgrass density is less than Project site pre-construction density, shown in Row 2, Test 1 of Table 8).
If Project site post-construction eelgrass density is less than pre-construction density, it is likely but not decisively evident that there has been a shading impact on the Project site. There is a chance that decreases in eelgrass density are due to a regional pattern, rather than a Project impact. To test for this occurrence, a similar test will be performed against the reference site, as illustrated in the null hypothesis:

Hypothesis 2b: Post-construction eelgrass density at the reference site will be statistically less than the pre-construction eelgrass density at the reference site. (Outcomes are shown in Row 2, Test 2 of Table 8).
If this hypothesis is rejected and therefore reference site post-construction eelgrass density is greater than or equal to pre-construction density, this would signify that a regional decline in eelgrass density has not occurred. This would further validate the testing results of Hypothesis 1 and indicate that shading impacts have occurred at the Project site and additional mitigation could be triggered.

If reference site density has decreased between the pre- and post-construction sampling, this indicates that a region-wide decrease may have occurred. Whether this decrease is due solely to regional elements or combined regional and shading impacts is determined through a non-statistical comparison illustrated in Row 2, Test 3 of Table 8.

The rate of decrease is determined by dividing post-construction density by pre-construction density. If the rate of decrease at the Project site is greater than or equal to the rate of decrease at the reference site, it is assumed that a shading impact has occurred and mitigation would be triggered. If the rate of decrease at the Project site is less than the reference site rate, it is assumed that no shading impact has occurred and therefore no additional mitigation is required.

7 ADAPTIVE MANAGEMENT AND CONTINGENCY PLAN

If conclusions from eelgrass bed monitoring and sample testing indicate that shading impacts have occurred at the Project site, mitigation needs would be calculated based on the area subject to shading from the overwater walkway. At this time, the area of potential eelgrass shading is assumed to be the area of walkway over the existing eelgrass bed, approximately 360 square feet. The area of potential construction impacts would include areas within a 50-foot buffer from the walkway footprint.

Mitigation requirements would be determined based on the nature of the impacts. It is assumed that for all impacts resulting in eelgrass density loss, a 2:1 mitigation ratio would be applied. The possible impact scenarios include varying degrees of Project site eelgrass density loss in comparison to the reference site eelgrass density.

Impact Type 1: Project site eelgrass density does not decrease significantly; however, it does decrease by at least 10%, and eelgrass density at the reference site increases significantly.

Mitigation Result: This result would indicate that a regional inter-annual increase in eelgrass density seen at the reference site was not reflected at the Project site, indicating a shading impact. Mitigation would be determined by the Project site percent decrease in eelgrass densities between pre- and post-construction time periods plus the percent increase in density at the reference site. A 2:1 mitigation ratio would be applied to this area, resulting in the amount of eelgrass restoration required.

Impact Type 2: Project site eelgrass density decreases significantly and reference site eelgrass density increases significantly or remains the same.

Mitigation Results: Mitigation under this scenario would be equal to the percent decrease between pre- and post-construction densities at the Project site. A 2:1 mitigation ratio would be applied to this area, resulting in the amount of eelgrass restoration required.

Impact Type 3: Both the Project and reference sites eelgrass densities decrease significantly; however, the Project site eelgrass density decreases at a higher rate than the reference site.

Mitigation Result: Mitigation required would be based on the difference in percent decreases between the two sites. A 2:1 mitigation ratio would be applied to this area, resulting in the amount of eelgrass restoration required.

7.1 Contingency Planning

If eelgrass bed impact Types 1, 2 or 3 (described above) are determined after monitoring years 3 and 5, the City proposes to establish new eelgrass areas based on the calculated need described above.

If monitoring and statistical testing results after year 3 and year 5 indicate no impacts, the monitoring plan will conclude and no mitigation will be triggered. If impacts are not shown after monitoring year 3 but impacts are detected after year 5, a mitigation plan would be prepared based on the amount of mitigation needed, described above. If impacts are detected in year 3 monitoring, mitigation would be anticipated; however, a mitigation plan would not be finalized until after results of year 5 monitoring are collected.

EXHIBIT L

BIOLOGICAL ASSESSMENT BOULEVARD/CORNWALL OVERWATER PEDESTRIAN WALKWAY PROJECT

Prepared for

City of Bellingham Parks and Recreation Department
3424 Meridian Street
Bellingham, Washington 98225-1764

Prepared by

Anchor QEA, LLC
1605 Cornwall Avenue
Bellingham, Washington 98225-4427

June 2010

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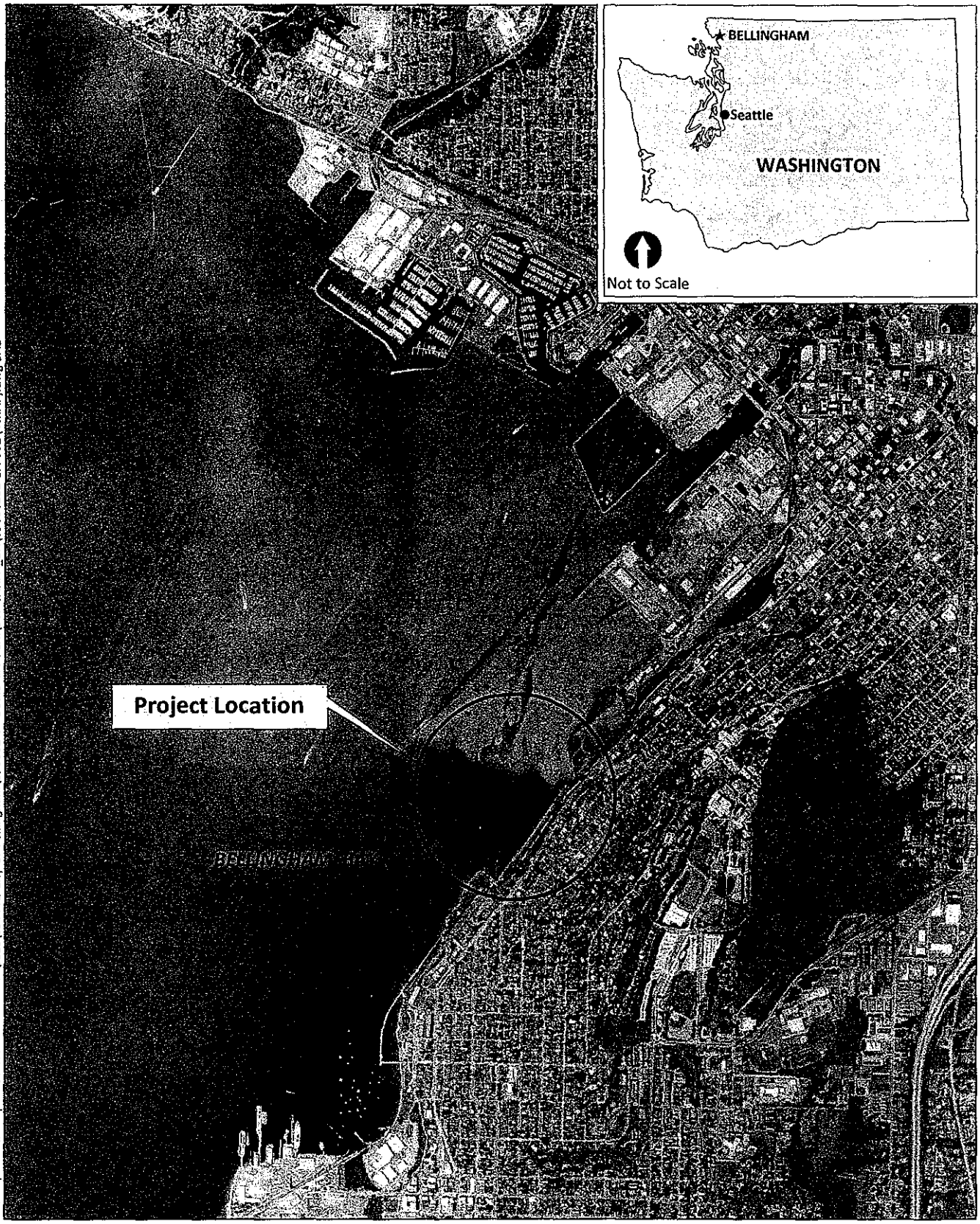
1 PROJECT SUMMARY

This Biological Assessment (BA) has been prepared for the City of Bellingham (City) Parks and Recreation Department (Parks) Boulevard/Cornwall Overwater Pedestrian Walkway Project (Project) located in Bellingham Bay near the city of Bellingham, Washington (Figure 1). The Project is being proposed to provide increased overwater public access to the Bellingham Bay shoreline. Parks proposes construction of an overwater walkway structure between Boulevard Park and the former Cornwall Avenue Landfill site, a future park site. The new facility will include a new overwater pedestrian walkway, 7 to 14 feet in width, with benches. The walkway will be constructed of steel and concrete with wood pedestrian guardrails to meet Americans with Disabilities Act (ADA) requirements. The landing to the south will connect to Boulevard Park, which is connected to the Coast Millennium Trail route. The connection to the north at the former Cornwall Avenue Landfill site is connected to the waterfront district. Proposed mitigation for the Project includes removing an existing 3,332 square foot timber frame pier and wharf where the new south overwater walkway abutment will be located. Additionally, for mitigation, four isolated piles will be removed from the Boulevard Park side of the Project and five will be removed from the south side of the former Cornwall Avenue Landfill site.



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ANCHOR QEA

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Scale in Miles

Figure 1
Vicinity Map
Biological Assessment
Boulevard/Cornwall Overwater Pedestrian Walkway

1.1 Purpose of Biological Evaluation

The National Marine Fisheries Service (NMFS) has identified the threatened Puget Sound evolutionarily significant unit (ESU) of Chinook salmon (*Oncorhynchus tshawytscha*) and the threatened Puget Sound distinct population segment (DPS) of steelhead (*O. mykiss*) as potentially occurring in the Project vicinity (NMFS 2010, provided in Appendix A). NMFS has also identified the threatened Southern DPS of green sturgeon (*Acipenser medirostris*), the endangered Georgia Basin DPS of bocaccio (*Sebastes paucispinus*), the threatened Georgia Basin DPS of yelloweye rockfish (*S. ruberrimus*), the threatened Georgia Basin DPS of canary rockfish (*S. pinninger*), the threatened Southern DPS of Pacific eulachon (*Thaleichthys pacificus*), the endangered Southern Resident DPS of killer whale (*Orcinus orca*), the endangered humpback whale (*Megaptera novaeangliae),* and the threatened Steller sea lion (*Eumetopias jubatus*) as possibly occurring in Puget Sound waters (NMFS 2010, provided in Appendix A). The U.S. Fish and Wildlife Service (USFWS) has identified the threatened Coastal-Puget Sound DPS of bull trout (*Salvelinus confluentus*) and the threatened marbled murrelet (*Brachyramphus marmoratus*) as potentially occurring in the vicinity of the Project (USFWS 2007, provided in Appendix A). This BA provides the biological information necessary to evaluate the potential effects of the Project on listed species for compliance with Section 7 of the Endangered Species Act (ESA).

This BA was prepared to determine how populations of ESA-listed and proposed species that may occur in the area would be affected by the proposed Project. The evaluation presented herein is based on literature reviews, site visits, and interviews with local and state agency biologists. Table 1 summarizes the effect determination findings.

Table 1

ESA Listed and Proposed Species and Critical Habitat in the Action Area[1]

Species	Status	Agency	Effects Determination	Critical Habitat Status	Critical Habitat Effects Determination
Chinook salmon (*Oncorhynchus tshawytscha*) Puget Sound ESU	Threatened	NMFS	LAA	Designated	NLAA
Steelhead (*Oncorhynchus mykiss*) Puget Sound DPS	Threatened	NMFS	NLAA	None proposed or designated	N/A
Green sturgeon (*Acipenser medirostris*) Southern DPS	Threatened	NMFS	No effect	None in Puget Sound	N/A
Pacific eulachon (*Thaleichthys pacificus*) Southern DPS	Threatened	NMFS	No effect	None proposed or designated	N/A
Bocaccio (*Sebastes paucispinus*) Georgia Basin DPS	Endangered	NMFS	LAA	None proposed or designated	N/A
Yelloweye rockfish (*Sebastes ruberrimus*) Georgia Basin DPS	Threatened	NMFS	LAA	None proposed or designated	N/A
Canary rockfish (*Sebastes pinninger*) Georgia Basin DPS	Threatened	NMFS	LAA	None proposed or designated	N/A
Killer whale (*Orcinus orca*) Southern Resident DPS	Endangered	NMFS	NLAA	Designated	NLAA
Humpback whale (*Megaptera novaeangliae*)	Endangered	NMFS	No effect	None proposed or designated	N/A
Steller sea lion (*Eumetopias jubatus*)	Threatened	NMFS	No effect	None in Washington State	N/A
Bull trout (*Salvelinus confluentus*) Coastal-Puget Sound DPS	Threatened	USFWS	NLAA	Designated	NLAA
Marbled murrelet (*Brachyramphus marmoratus*)	Threatened	USFWS	NLAA	None in Action Area	No effect

Table Notes:
NLAA – may affect, not likely to adversely affect
LAA – may affect, likely to adversely affect
ESU – Evolutionary Significant Unit
DPS – Distinct Population Segment
NMFS – National Marine Fisheries Service
USFWS – U.S. Fish and Wildlife Service
N/A – not applicable
1 – USFWS identifies the additional species of Canada lynx (*Lynx Canadensis*), gray wolf (*Canis lupus*), grizzly bear (*Ursus arctos*), and Northern spotted owl (*Strix occidentalis caurina*) to be present in Whatcom County (USFWS 2007); however, these species are not addressed in this BA due to lack of suitable habitat within and adjacent to the Action Area.

This BA also serves as a resource document for concurrent Essential Fish Habitat (EFH) consultation with NMFS in compliance with the Magnuson-Stevens Fishery Conservation and Management Act (known as the Magnuson-Stevens Act). EFH consultations are required under the Magnuson-Stevens Act for federally managed fishery species, including the three EFH composite groups of groundfish, coastal pelagic fish, and Pacific salmon. Chinook, pink (*Oncorhynchus gorbuscha*), and coho (*O. kisutch*) salmon habitat comprise the Pacific salmon EFH composite, and these species may occur in the Project vicinity. This BA determines that the proposed Project **will not adversely affect EFH for salmonid, groundfish, and coastal pelagic species** (Appendix C).

Legend

Year-1 Survey Area

Year-0 Native Eelgrass Extent

Year-0 Native Eelgrass Bed (dense, continuous)

Year-1 Native Eelgrass Extent

Year-1 Native Eelgrass Bed (dense, continuous)

Notes:
1. Base map prepared from electronic file provided by Berger/Abam Engineers, Inc.
2. Horizontal Datum - WA SPN NAD83.

0 120
Scale in Feet

Oct 25, 2005 2:47pm cdavidson K:\Jobs\050062-TAYLOR AVE DOCK\05006201\05006201-03.dwg FIG 4

EXHIBIT M

ANCHOR ENVIRONMENTAL, L.L.C.

Figure 4
Comparison of Year-0 and Year-1 Native Eelgrass Distributions
Taylor Avenue Dock
Bellingham, Washington

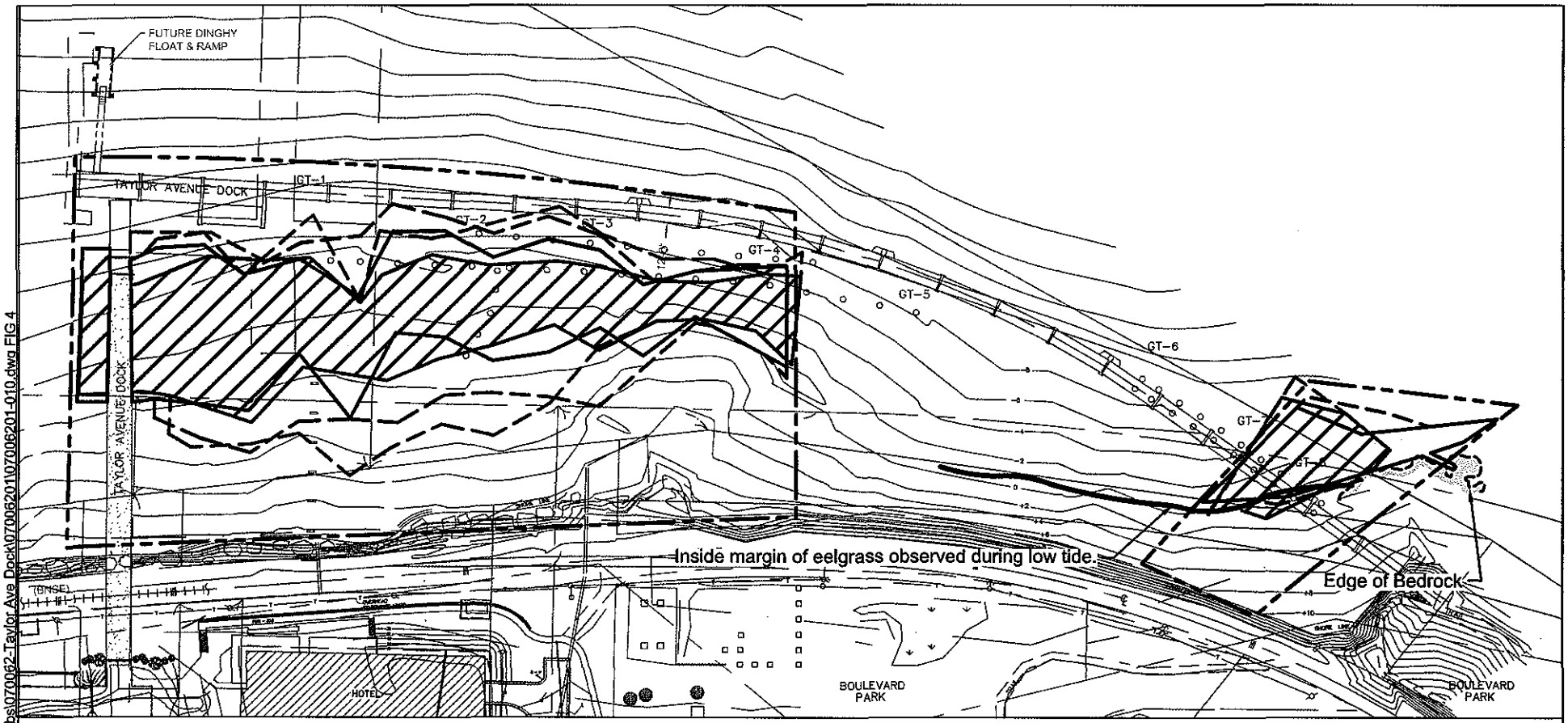
Table 4
Year-1 Monitoring Results Compared to Performance Standards

Year	Performance Standard[a]	Survey Results	Performance Standard Achieved?
Year-0 (August 2004)	n/a	6,418	—
Year-1 (August 2005)	1,374 eelgrass shoots (10 percent of Year-5)	14,701	**Yes**
Year-3 (August 2007)	6,870 eelgrass shoots (50 percent of Year-5)	—	**Yes**
Year-5 (August 2009)	13,741 eelgrass shoots	—	**Yes**

a – Area Where Eelgrass Recovery Is Evaluated: 1,430ft² in the 15,790ft² Restored Area

In terms of area colonized by the eelgrass, only 11 percent of the Restored Area has no new eelgrass. On the other hand, 52 percent of the Restored Area is dense eelgrass bed and 37 percent is sparsely colonized. In the Available Area, 5 percent is dense bed, 53 percent has sparse eelgrass, and 42 percent has no new eelgrass. These numbers are conservative since only a portion of the Available Area was surveyed.

The eelgrass bed between MLLW and the pedestrian pier is reacting quickly and positively to the restoration of substrate at the site. However, the response at north end of the eelgrass, which was directly impacted by the pedestrian pier construction, is not as well understood. A comparison of the pre-construction data (1998 and 2003) and Year-0 post-construction data (2004) indicates that there was little immediate change (impact) in this area due to construction. However, Year-1 data indicate that the eelgrass distribution in this area has declined. There may be several explanations for this, including: (1) impacts from turbidity and/or shading are only now becoming apparent; (2) this is an exhibit of natural variation; or (3) something unrelated to construction activities is contributing to the decline of the eelgrass. Nonetheless, the compensation for impacts in this area is apparent in that the eelgrass bed is extending rapidly into areas where structures have been removed and where the sediments have been restored.



Legend

- Year-3 Survey Area
- Year-0 Native Eelgrass Extent - Includes Dense, Continuous, and Patchy Areas
- Year-0 Native Eelgrass Bed (dense, continuous)
- Year-3 Native Eelgrass Extent - Includes Dense, Continuous, and Patchy Areas
- Year-3 Native Eelgrass Bed (dense, continuous)

0 120
Scale in Feet

Notes:
1. Base map prepared from electronic file provided by Berger/Abam Engineers, Inc.
2. Horizontal Datum - WA SPN NAD83.
3. Edge of bedrock at waterline (-3.1 ft MLLW) during low tide survey on December 23, 2007.
Bedrock extended into water but could not be further delineated during walking survey.
4. Inside margin of eelgrass observed during low tide. Walking survey on December 23, 2007.

Jan 03, 2008 4:06pm cdavidson K:\Jobs\070062-Taylor Ave Dock\07006201\07006201-010.dwg FIG 4

ANCHOR ENVIRONMENTAL, L.L.C.

Figure 4
Comparison of (Year-0 and -3) Native Eelgrass Distributions
Taylor Avenue Dock
Bellingham, Washington

3.2 Comparison to Performance Standards

As in other years, Year-3 shoot density results were compared to the performance standards set forth in the *Eelgrass Mitigation Plan* (Pacific International Engineering 2000; Appendix A) and described in Section 2.2 using the conservative estimate of 120 shoots per m^2 in areas delineated as dense[4]. The total number of shoots in a 1,430 ft^2 portion of the Restored Area containing dense eelgrass (Figure 5) was 15,942 shoots. In comparison to the Performance Standards, this total shoot count far exceeds the Year-3 Performance Standard of 6,870 shoots (Table 3). As found in Year-1 monitoring, the Year-3 total shoot count also exceeds the Year-5 Performance Standard of 13,741 shoots. The Year-3 shoot count continues the observed trend of an increasing shoot count.

Table 3
Year-3 Monitoring Results Compared to Performance Standards

Year	Performance Standard[a]	Restored Area[a] Shoot Counts	Performance Standard Achieved?
Year-0 (August 2004)	N/A	6,418	N/A
Year-1 (August 2005)	1,374 eelgrass shoots (10 percent of the Year-5 standard)	14,701	Yes
Year-3 (August 2007)	6,870 eelgrass shoots (50 percent of the Year-5 standard)	15,942	Yes
Year-5 (August 2009)	13,741 eelgrass shoots	—[b]	—[b]

Notes:

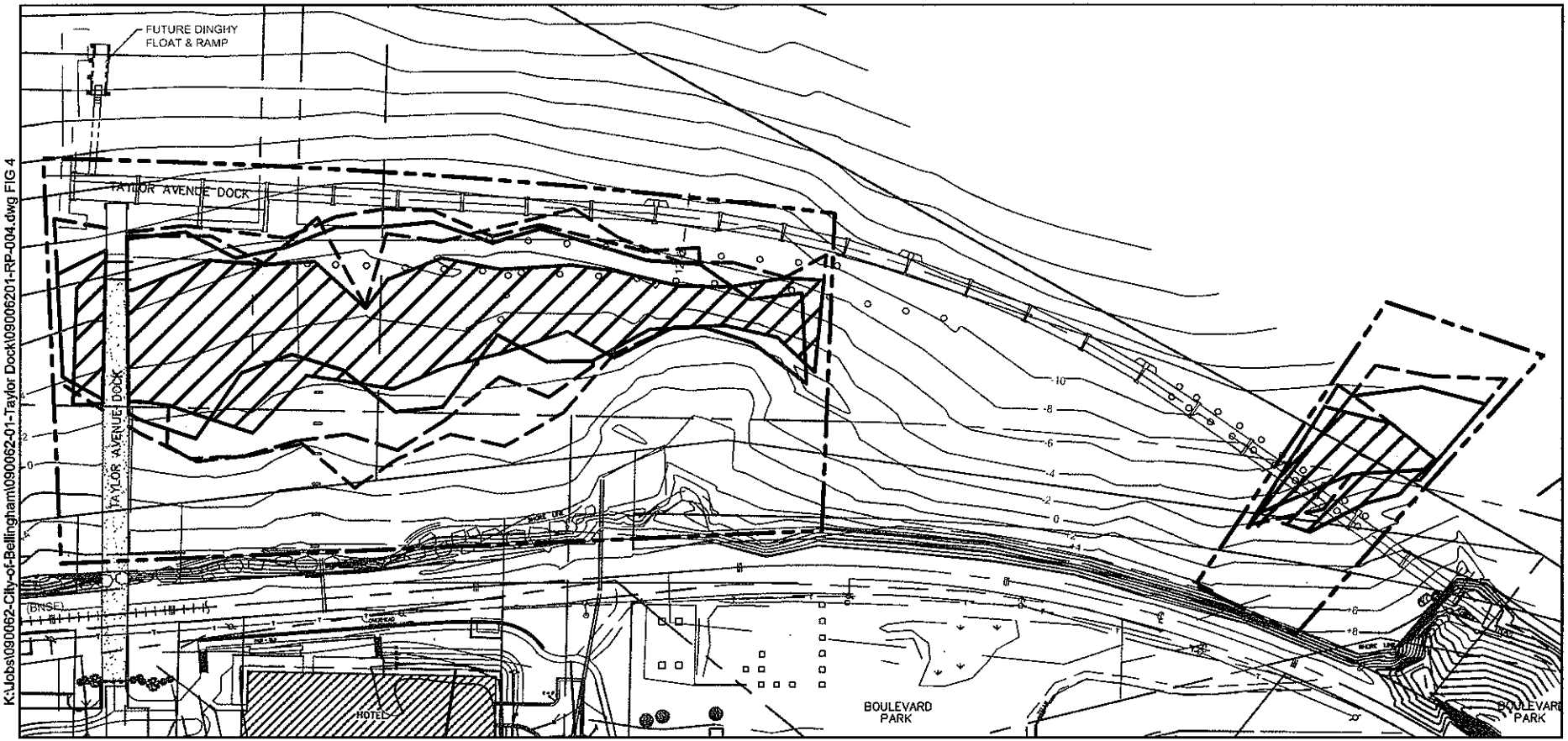
a Area where eelgrass recovery is evaluated is 1,430 ft^2 of the total 15,790 ft^2 Restored Area.

b Year-5 surveyed scheduled to be conducted in 2009.

In terms of colonization patterns, results from the Year-3 survey show that the native eelgrass bed in the survey area has maintained a generally similar size and shape as compared to previous years' monitoring. With respect to all years of monitoring, some variations in eelgrass density and location have occurred, but with no distinct pattern that would warrant concern for overall eelgrass survival in the area. For example, as compared to Year-0, the offshore and inshore margins of the continuous eelgrass bed appeared to have expanded in some places and contracted in others (see Figure 5). Similarly, the offshore margin of the Year-3 patchy eelgrass appeared to have expanded in some places and

[4] Areas were characterized as "dense" where shoot densities exceeded 30 shoots/0.25m^2 quadrat. Higher eelgrass shoot densities were almost always present in these dense areas, thus making the assumption of 120 shoots per m^2 in shoot density calculations a conservative one.

contracted in others compared to Year-0, while the inshore margin appeared to have moved slightly offshore. Despite these variations, the shoot estimate in the performance standard area of the Restored Area has continued to increase (see Table 3).



LEGEND:

- Year-5 Survey Area
- Year-0 Native Eelgrass Extent - Includes Dense, Continuous, and Patchy Areas
- Year-0 Native Eelgrass Bed (dense, continuous)
- Year-5 Native Eelgrass Extent - Includes Dense, Continuous, and Patchy Areas
- Year-5 Native Eelgrass Bed (dense, continuous)

Notes:

1. Base map prepared from electronic file provided by Berger/Abam Engineers, Inc.
2. Horizontal Datum - WA SPN NAD83.

0 80
Scale in Feet

K:\Jobs\0900062-City-of-Bellingham\0900062-01-Taylor Dock\09006201-RP-004.dwg FIG 4

Oct 26, 2009 9:15am cdavidson

ANCHOR QEA

Figure 4
Comparison of (Year-0 and -5) Native Eelgrass Distributions
Taylor Avenue Dock
Bellingham, Washington

estimate far exceeds the Year-5 performance standard of 13,741 shoots. Total shoot counts from Year-1 and Year-3 monitoring exceeded their respective standards as well.

Table 3
Year-5 Monitoring Results Compared to Performance Standards

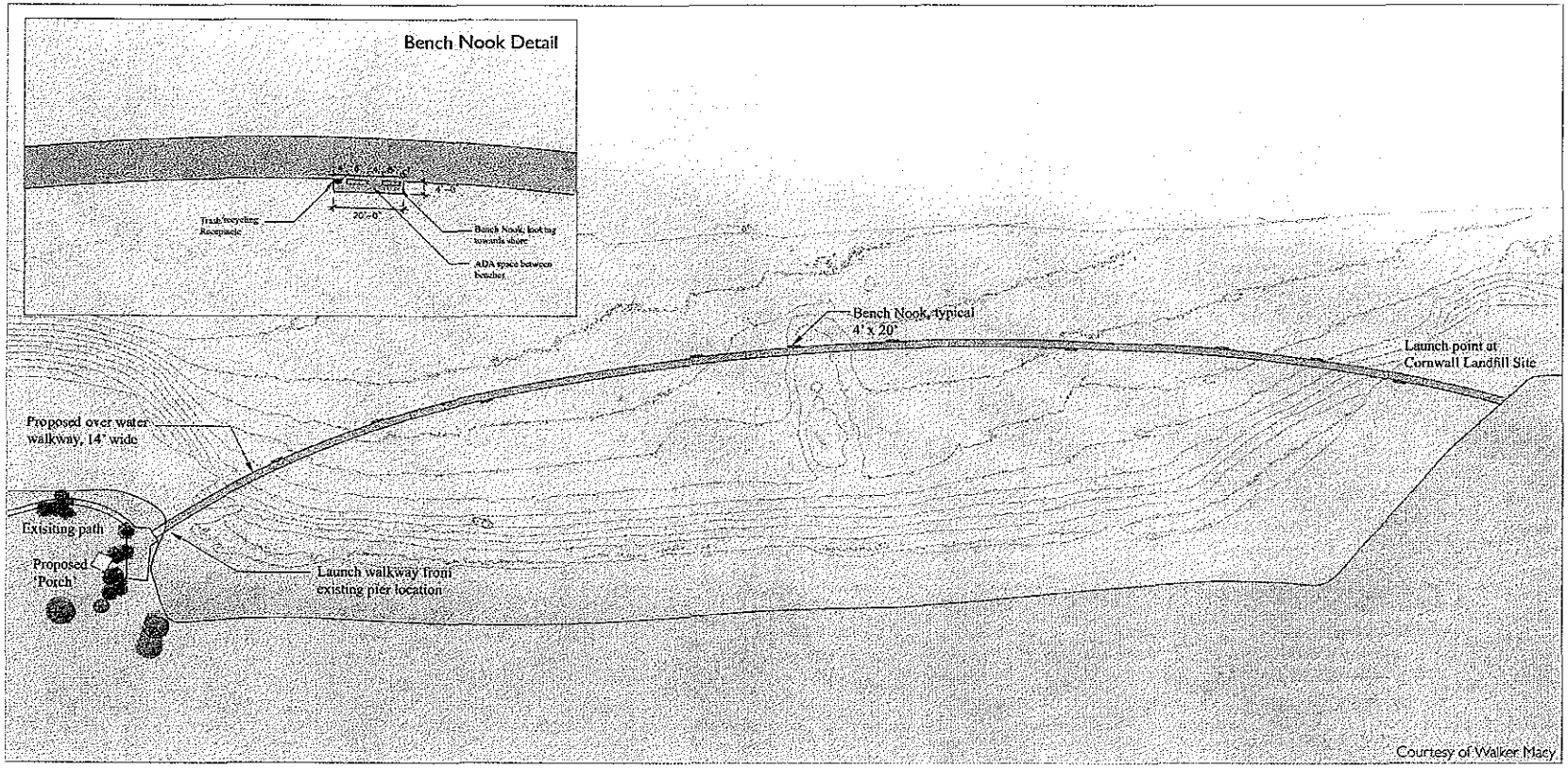
Year	Performance Standard [a]	Restored Area [a] Shoot Estimate	Performance Standard Achieved?
Year-0 (August 2004)	N/A	6,418	N/A
Year-1 (August 2005)	1,374 eelgrass shoots (10 percent of the Year-5 standard)	14,701	Yes
Year-3 (August 2007)	6,870 eelgrass shoots (50 percent of the Year-5 standard)	15,942	Yes
Year-5 (August 2009)	13,741 eelgrass shoots	15,942	Yes

Notes:
a Area where eelgrass recovery is evaluated is 1,430 ft^2 of the total 15,790-ft^2 Restored Area.

In terms of colonization patterns, results from the Year-5 survey show that the native eelgrass bed in the survey area for Transects 1 through 15 has maintained a generally similar size and shape as compared to previous years' monitoring. With respect to all years of monitoring, some variations in eelgrass density and location have occurred, but with no distinct pattern that would warrant concern for overall eelgrass survival in the area. For example, as compared to Year-0, the offshore and inshore margins of the continuous eelgrass bed appear to have expanded in some places and contracted in others (see Figure 5). Similarly, the offshore margin of the Year-5 patchy eelgrass appears to have expanded in some places and contracted in others compared to Year-0 (see Figure 5). Despite these variations, the shoot estimate in the performance standard area of the Restored Area has continued to increase (see Table 3).

EXHIBIT N

BOULEVARD PARK



Conceptual Design Overwater Trail – Layout 1

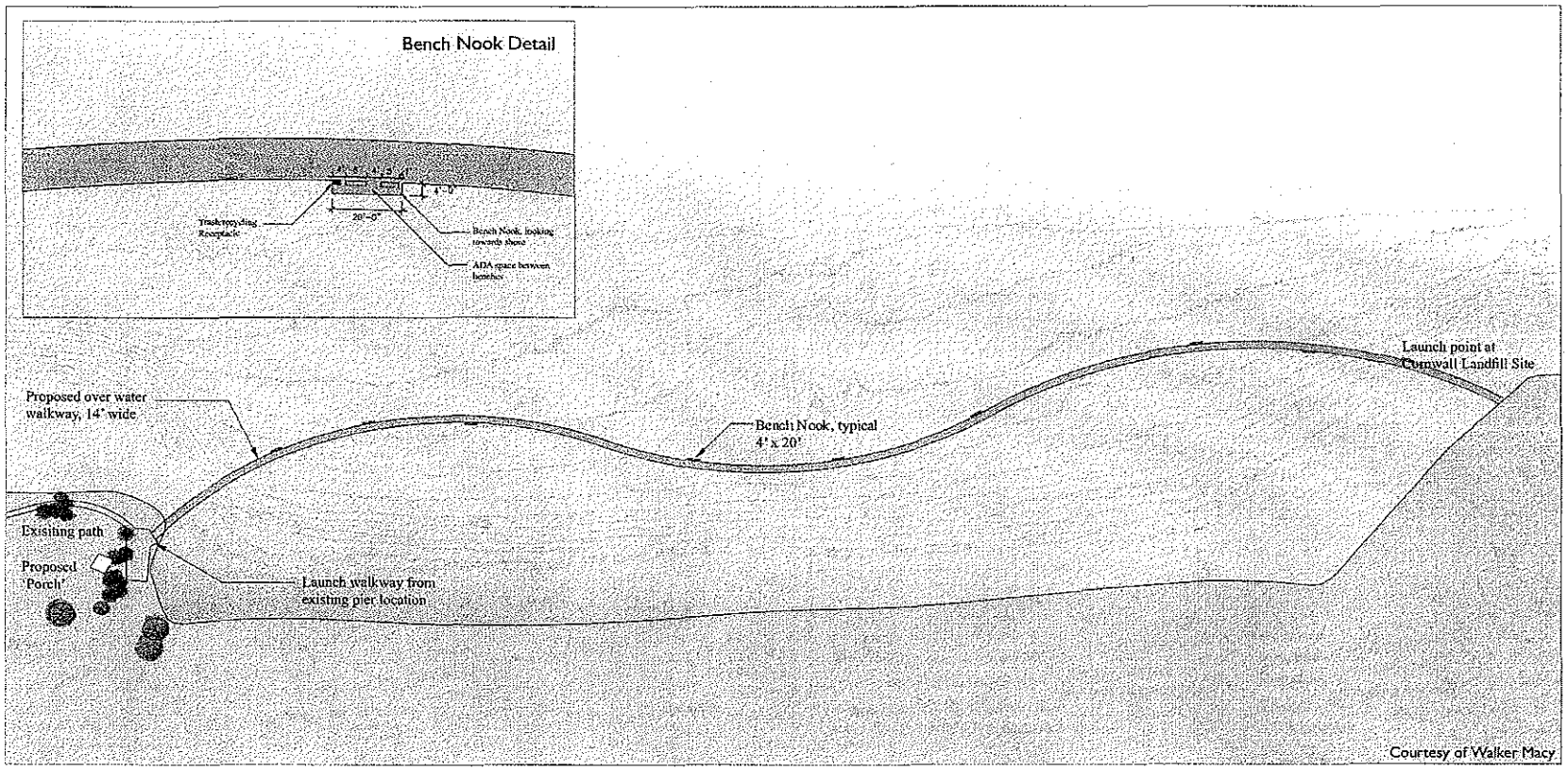
Bellingham Parks & Recreation

Public Open House
June 26, 2008

ReidMiddleton

Walker Macy | Grette Associates
Landau Inc. | RMC Architects
AJO Consulting | Hennenkohl Consulting

BOULEVARD PARK



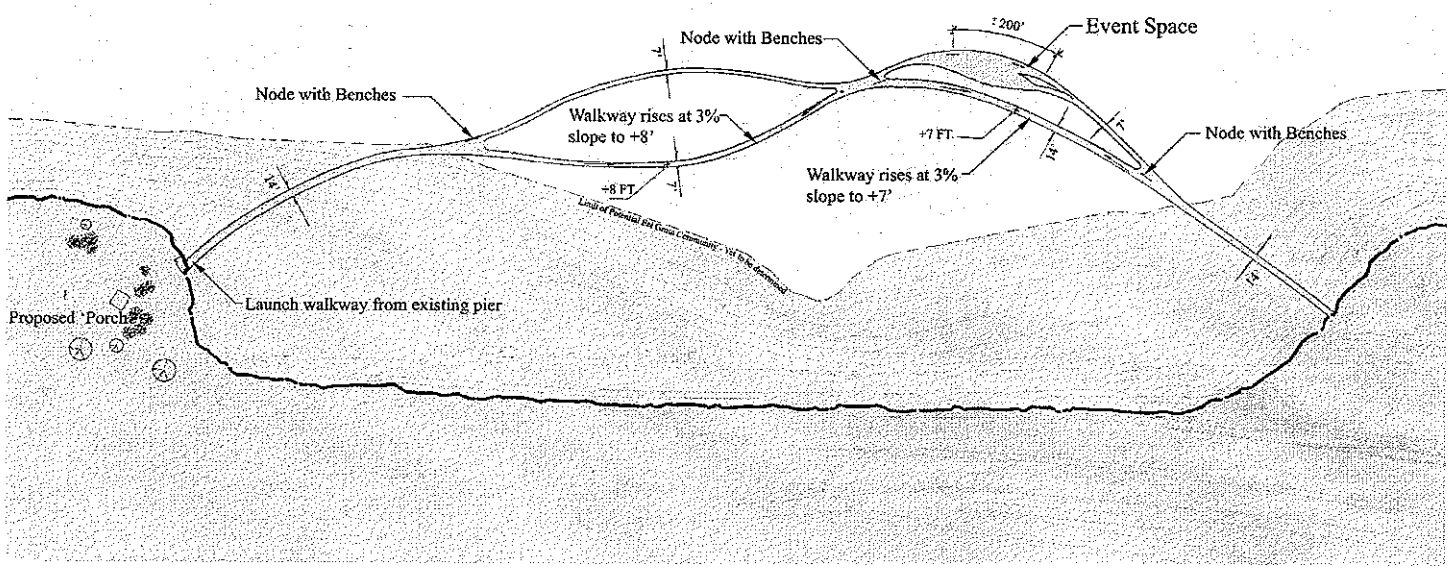
Conceptual Design Overwater Trail – Layout 2

Bellingham Parks & Recreation

Public Open House
June 26, 2008

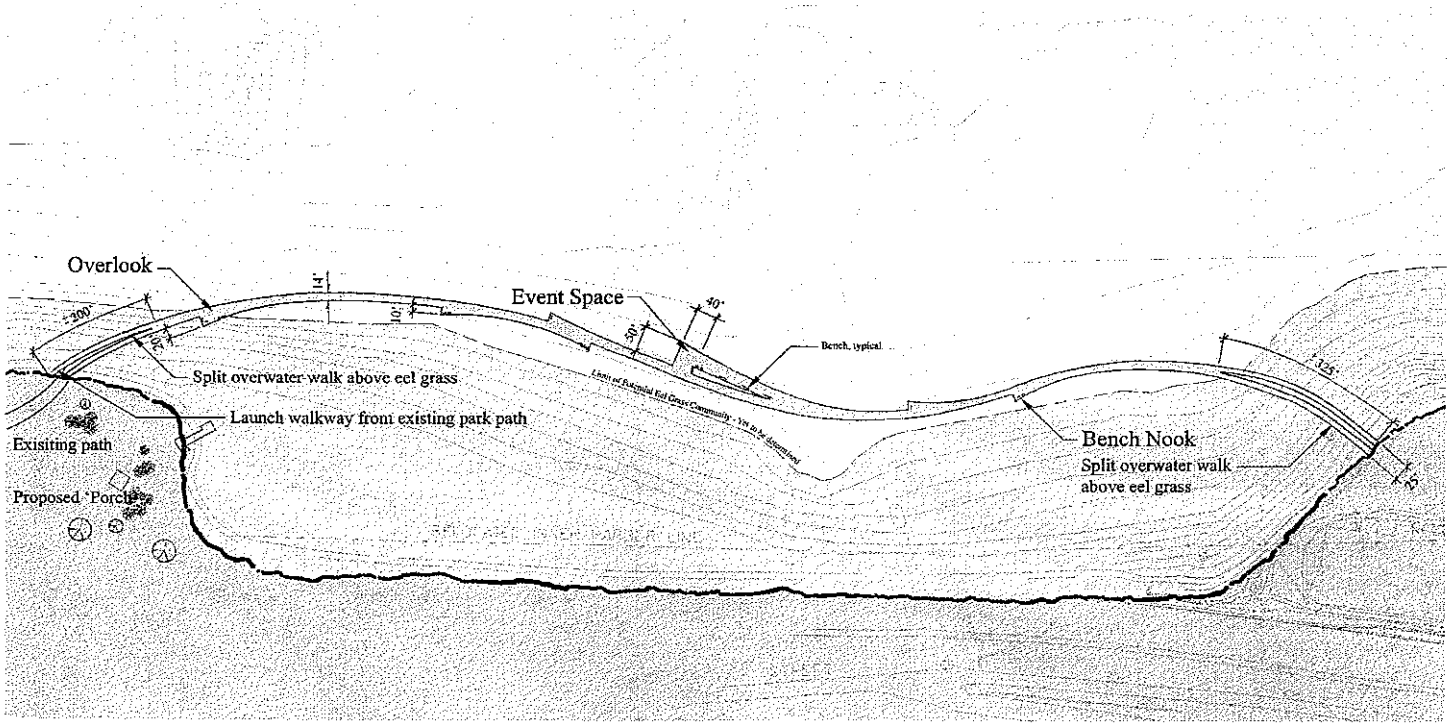
ReidMiddleton

Walker Macy | Grette Associates
Landau Inc. | RMC Architects
AjO Consulting | Herrenkohl Consulting



Plan

Scheme C - Braided Eel Grass

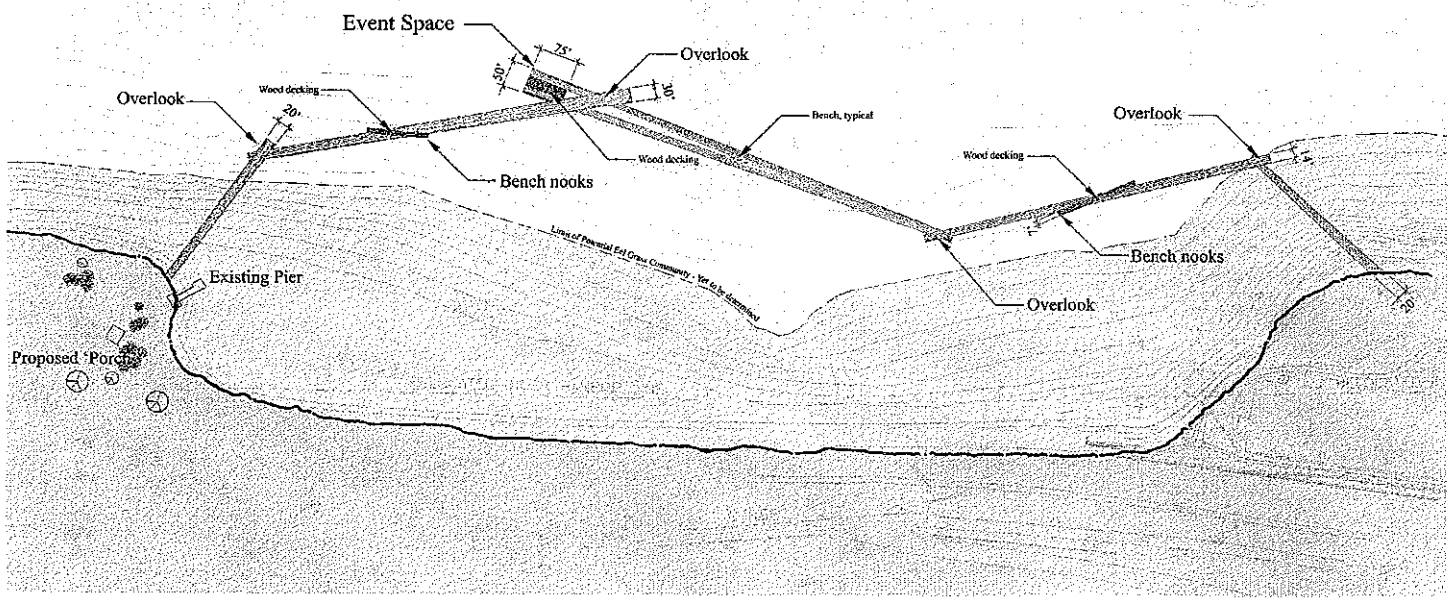


Plan

Scheme A - Bathymetrics

Walker Macy

Bellingham Boulevard Park Over-Water Walkway



Plan

Scheme B - Logbooms

Walker Macy

Bellingham Boulevard Park Over-Water Walkway

EXHIBIT P

Washington State
Department of Transportation
Paula J. Hammond, P.E.
Secretary of Transportation

Transportation Building
310 Maple Park Avenue S.E.
P.O. Box 47300
Olympia, WA 98504-7300

360-705-7000
TTY: 1-800-833-6388
www.wsdot.wa.gov

October 26, 2009

RECEIVED
OCT 28 2009
LOCAL PROGRAMS

The Honorable Henry Cagey
Lummi Nation
2616 Kwina Road
Bellingham, WA 98226-9298

City of Bellingham
Boulevard/Cornwall Overwater Pedestrian Walkway Project
Initiation of Section 106 // APE
Fed Aid # not yet assigned

Dear Chairperson Cagey:

The City of Bellingham is proposing to construct a pedestrian walkway with funding from the Federal Highway Administration (FHWA). The Washington State Department of Transportation Highways and Local Programs Division is assisting the City and acting on behalf of the FHWA in processing federal environmental compliance documentation.

FHWA and WSDOT would like to initiate government-to-government consultation for this project. Among other things, we would like this consultation to address the cultural and historic resource issues, pursuant to the regulations implementing Section 106 of the National Historic Preservation Act (36 CFR Part 800). WSDOT has entered into the environmental review phase of this project and will prepare documentation to support the determination of this project as a Documented Categorical Exclusion under the National Environmental Policy Act (NEPA). We are inviting your comments on the Area of Potential Effects (APE) for this project pursuant to 36 CFR 800.4.

Recognizing the government-to-government relationship that the Federal Highway Administration has with the tribe, FHWA will continue to play a key role in this project as the responsible federal agency. If this project requires a permit from the US Army Corps of Engineers (USACE), this consultation will also serve to meet their Section 106 responsibilities. However, since WSDOT has been delegated the authority from FHWA to initiate consultation and to directly manage the cultural resources studies as part of carrying out this undertaking you may contact FHWA at any time for assistance with the process and/or the undertaking.

The proposed project is located in Bellingham Bay, between Boulevard Park and Cornwall Landing, in the City of Bellingham (Township 38 North, Range 2 East, Section 36). The project will construct a 2,300-foot-long, 18-foot-wide pedestrian walkway

which will be built on steel pipe pile bents driven into subtidal surfaces of Bellingham Bay. The project includes construction of abutments at each end of the walkway structure that will occupy areas of approximately 45 feet by 15 feet. An existing pier, wharf, and seawall at Boulevard Park will be removed as part of the project. In addition, six geotechnical borings will be excavated into subtidal deposits along the proposed alignment of the walkway.

The APE for the proposed project is defined as the footprint of the construction items listed above. Excavations for the abutments are expected to extend to about 10 feet below surface. A staging/laydown area of about 0.8 acres in size will be located at Cornwall Landing and a smaller staging area of about 0.15 acres will be located at Boulevard Park. No excavations are proposed for the either staging area.

Your response to this letter, acknowledging your interest in participating in this undertaking as a consulting party, in identifying any historic properties, including Traditional Cultural Properties (TCPs) that may exist within the project's APE, and providing any key tribal contacts, is greatly appreciated. We are also inviting comments regarding any other tribal concerns the proposed project may raise. Please provide a response by 30 November 2009 so that we may discuss this undertaking and any of those identified areas of interest. Similar letters have been sent to the State Historic Preservation Officer and the Nooksack, Samish, Sauk-Suiattle, Suquamish, and Swinomish Indian Tribes. Should you have any questions about this project, please contact me at (360) 705-7879 or deboert@wsdot.wa.gov.

Sincerely,

Trent de Boer, RPA
WSDOT Archaeologist
Highways & Local Programs Division

TDB:ac

cc: Lena Tso, Lummi Tribal Historic Preservation Officer, w/attachments
Merle Jefferson, Lummi Natural Resources
Brian Hasselbach, FHWA, MS 40943
Ed Conyers, Northwest Region Local Programs Engineer

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

REPLY TO
ATTENTION OF

Regulatory Branch

AUG 12 2010

Dina Austin
Bellingham Parks and Recreation
Design and Development Division
3424 Meridian Street
Bellingham, Washington 982258

Reference: NWS-2010-928
Bellingham Parks and Recreation

Dear Ms. Austin:

We recently received your application for Department of the Army authorization to construct an overwater walkway between the northwestern corner of Boulevard Park and the southwest corner of the former Cornwall Street Landfill, in Bellingham, Washington. We determined that the walkway is actually a bridge, and the Corps of Engineers (Corps) does not issue permits for bridges over navigable waters.

It is the U.S. Coast Guard, not the Corps, that administers the Federal permit program for bridges across navigable waters. The Corps regulates all other work in navigable waters, and work that could be construed as "a discharge of dredged or fill material" into any water of the United States. In 1977, the Corps and the Coast Guard entered into a Memorandum of Agreement (MOA) which appeared in the Federal Register, Vol. 42, No. 138—Tuesday, July 19, 1977. The MOA defines a "bridge" as follows:

> For purposes of this agreement . . . a "bridge" is any structure over, on, or in the navigable waters of the United States which (1) is used for the passage or conveyance of persons, vehicles, commodities, and other physical matter and (2) is constructed in such a manner that either the vertical or horizontal clearance, or both, may affect the passage of vessels or boats through or under the structure. This definition includes, but is not limited to, highway bridges, railroad bridges, foot bridges, aqueducts, aerial tramways and conveyors, overhead pipelines and similar structures of like function . . .

In this case, the Coast Guard is the sole Federal permitting agency. Based on the information you have provided, the work does not involve a discharge of dredged or fill material into a water of the United States. The work needs no authorization from the Corps of Engineers. Accordingly, I have cancelled the permit application.

State of Washington
DEPARTMENT OF FISH AND WILDLIFE
Region 4 Office: 16018 Mill Creek Boulevard - Mill Creek, Washington 98012 - (425) 775-1311

August 23, 2010

City of Bellingham Parks and Recreation
Attention: Gina Gobo Austin
3424 Meridian Street
Bellingham, WA. 98225

SUBJECT: Incomplete Hydraulic Project Application Package – Boulevard/Cornwall Overwater Pedestrian Walkway – Bellingham Bay – Whatcom County, WRIA 01.9000

Dear Ms. Gina Gobo Austin,

The Washington Department of Fish and Wildlife (WDFW) received your application for a Hydraulic Project Approval (HPA) on June 18, 2010. WDFW submitted preliminary comments regarding the completeness of your application via an email to Anchor QEA on June 22, 2010 and through a meeting with Anchor QEA on July 26, 2010. Your application will be held on file until the following information has been submitted to me.

1. Written notice of compliance with the State Environmental Policy Act (SEPA), including exemption or type of determination, date of exemption or final determination date, and lead agency is required. Please contact your local planning department for information regarding SEPA requirements and procedures.

2. The work window that you have identified in your application materials is not consistent with the work window that WDFW implements in Bellingham Bay and will need to be changed. Based on near shore fish sampling conducted by the Lummi Tribe on behalf of the Bellingham Bay Pilot Action Team in 2003, WDFW implements the following work window in Bellingham Bay:

> **Work below the ordinary high water line in not allowed from February 15 through July 15 of any year for the protection of migrating juvenile salmonids. (USFWS implements a bull trout closure of February 15 – July 15)**

> **Work below the ordinary high water line is only allowed in the dry from July 16 through August 31 of any year for the protection of migrating juvenile salmonids.**

In water work below the ordinary high water line is allowed from September 1 through February 14 of any year.

3. Your eelgrass monitoring and mitigation plan will need to be modified.

a. We will need to meet and discuss the eelgrass monitoring and mitigation plan. The eelgrass monitoring and mitigation plan is not consistent with WDFW's 2007 survey guidelines. It appears that the eelgrass monitoring and mitigation plan was based on the plan developed for the City of Bellingham's Prattle Point trestle project. The Prattle Point plan deviates from WDFW's 2007 survey guidelines because we could not establish a viable reference site. Hence the alternative decision matrix. A viable reference site is possible for the Boulevard/Cornwall project and the plan should be consistent with WDFW's guidelines. WDFW guidelines use the initial 30 samples to determine the average density and variance in the bed. This information is used to conduct a power analysis which determines how many samples must be taken to measure, at a minimum, a 20% change in the bed. Under the 2007 guidelines, the treatment site data is compared to the reference site data. This comparison is conducted in years 3 and 5.

b. Why is the eelgrass adjacent to the north trestle landing not being monitored? It appears to be within the shadow footprint of the new trestle.

c. Why are the monitoring transects located parallel to the trestle and not perpendicular? Perpendicular transects are more representative of the potential trestle impacts across depth contours.

d. The mitigation contingency plan also needs further development. Specific mitigation sites and actions need to be identified in the event that the eelgrass bed diminishes.

Once this office has received the above referenced information, your application will be evaluated for approval.

If you have any questions, please contact me at (360) 466-4345, extension 250.

Sincerely,

Brian Williams

Brian Williams
Area Habitat Biologist

LUMMI INDIAN BUSINESS COUNCIL
2616 KWINA ROAD • BELLINGHAM, WASHINGTON 98226 • (360) 384-1489

August 30, 2010

Ms. Gina G. Austin, Project Engineer
City of Bellingham – Parks/Design and Development Division
3424 Meridian Street
Bellingham, WA 98225

Subject: Boulevard/Cornwall Overwater Pedestrian Walkway Project

Dear Ms. Austin:

The purpose of this letter is threefold: (1) to confirm our scheduled meeting at 1:30 pm on September 9, 2010 at the Lummi Natural Resources Department office regarding the Boulevard/Cornwall Overwater Pedestrian Walkway Project, (2) to provide background information about the Lummi Nation, and (3) to identify initial concerns that we have about the proposed project.

I understand that your office requested a meeting with the Lummi Natural Resources Department to review the proposed project with your design team and that you were provided a copy of the document entitled, *A Guide for Analysis of Project Impacts on the Lummi Nation* (Meyer 2004). My office has received a copy of the State Department of Transportation's Environmental Classification Summary for the Boulevard/Cornwall Overwater Pedestrian Walkway Project.

Background Information: The Lummi Nation is one of the signatories to the Point Elliot Treaty of January 22, 1855 (12 Stat. 927), which was ratified by the United States Senate on March 8, 1859, Proclaimed April 11, 1859, and which reserves certain rights for the Lummi people including but not limited to "the right of taking fish at usual and accustomed grounds and stations" and "hunting and gathering roots and berries on open and unclaimed lands." The decision of *United States v. Washington* (384 F. Supp. 312, 377, W.D. Wash. 1974), aff'd, 520 F.2d 676 (9th Cir. 1975), cert. denied, 423 U.S. 1086 (1976)) and subsequent court orders, as upheld by the United States Supreme Court, provide rules of engagement of the Lummi Nation and other co-managers relating to natural resources management. The Lummi Nation is a federally recognized Indian tribe; the Lummi Indian Business Council (LIBC) is the duly constituted governing body of the Lummi Indian Reservation by the authority of the Constitution and By-laws of the Lummi Nation of the Lummi Reservation, Washington.

The Lummi Nation is a fishing tribe and has used the waters and shorelines of Bellingham Bay since time immemorial. Prior to and following the arrival of Euro-

Americans, the shorelines of Bellingham Bay were used as fishing villages and the tidelands and waters of Bellingham Bay were used to harvest fin- and shellfish for commercial, subsistence, and ceremonial purposes. Although the Lummi Nation still fishes the waters of Bellingham Bay, the resources have been degraded by human activities and shoreline development has precluded the use of traditional hunting, fishing, and gathering sites along the bay. Approximately 748 acres of the Bellingham Bay nearshore has been impacted (dredged, filled, or armored) including the Whatcom Waterway, the Cornwall Avenue Landfill, and the large areas currently owned by either the Port of Bellingham or the City of Bellingham. In addition to these actions, which have physically precluded the exercise of tribal treaty rights in these areas, the Whatcom Waterway, the ASB, and surrounding areas are contaminated with a number of substances released from industrial waterfront activities including mercury discharges from the former Georgia Pacific chlor-alkali plant.

Initial Concerns: Based on the history of how our fishing areas along the Bellingham Bay shoreline have been impacted and the summary information that we have about the proposed Boulevard/Cornwall Overwater Pedestrian Walkway Project, I have the following initial comments:

1. Although we support proposed project elements such as the removal of approximately 100 creosote-treated timber piles, the proposed walkway will further preclude our abilities to exercise of our treaty rights in this area. Specifically, the proposed pedestrian walkway will preclude fishing in an additional area (the total area is not possible to estimate based on the available drawings but appears to be approximately 25 acres) at this location along the Bellingham Bay shoreline. Lummi fishers harvested both finfish and shellfish in the very waters that will be interdicted by this project, and continue to catch fish where the project, if built, will be located.
2. This area is still an actively fished portion of Lummi usual and accustomed fishing grounds and stations (U&A) as determined in *United States v. Washington*. Under the rule in *Northwest Seafarms v. US Army COE*, 931 F.Supp. 1515 (W.D. Wash. 1996), the Corps cannot issue a permit for development that will interdict tribal access to an actively fished part of Lummi U&A. We will be pleased to supply such evidence as is necessary to demonstrate active fishing if this is needed.
3. Cumulative effects and environmental justice issues are not adequately addressed in the summary environmental review documents that we have been provided.
4. It does not appear that mitigation sequencing related to impacts to tribal resources was applied. Similar to the mitigation sequencing associated with wetlands, we oppose permitting activities by the Corps of Engineers unless all practicable measures to avoid impacts to tribal fishing areas and other tribal resources are implemented. If impacts can not be avoided, then all practicable measures to minimize impacts must be implemented and any unavoidable impacts must be mitigated. Although efforts to avoid and minimize impacts to eelgrass beds are helpful, the current design extends nearly 500 feet from the shoreline and would preclude access to approximately 25 acres of treaty-protected fishing grounds. Additional work is needed to modify the design so that the proposed walkway avoids or minimizes these impacts. Compensatory mitigation is needed for any unavoidable impacts.

I understand that this project has been underdevelopment for many years. A meeting to further discuss the proposed project and its impacts on Lummi Nation interests and treaty rights is long overdue. I understand that you have confirmed that key people involved in the project can meet at 1:30 pm on September 9, 2010 at the Lummi Natural Resources Department office. I can be contacted directly by telephone (360-384-2225) or through email (merlej@lummi-nsn.gov).

Sincerely,

Merle Jefferson

Merle Jefferson, Executive Director
Lummi Natural Resources

cc: Henry Cagey, Lummi Indian Business Council Chairman
Elden Hillaire, Lummi Natural Resources Commission Chairman
Leroy Deardorff, Lummi Environmental Program Director

EXHIBIT O

Public Comments

RE: Boulevard to Cornwall Over Water Walkway - September 27 Public Comment

Jeffrey B Thomas to: Grp_Council 09/28/2010 11:47 AM

Cc: Dan Pike, David R Webster, Paul A Leuthold, Gina Gobo Austin, Steve C Sundin

History: This message has been replied to and forwarded.

City Council Members -

Last evening you received public comment from Wendy Harris regarding the proposed Boulevard to Cornwall over water walkway. Specifically, Ms. Harris raised a number of her concerns with the proposal including environmental impacts and costs. I would like to take this opportunity to brief you on the permitting and environmental review process to date for this proposal.

The proposal is being managed by Gina Gobo of the Parks Department. Anchor QEA LLC in Bellingham is the project consultant.

In addition to a host of Federal and State permits and reviews, this proposal requires a Shoreline Conditional Use Permit and SEPA review by the City of Bellingham. After extensive SEPA review of the proposal including coordination with other agencies such as DOE, DNR, WDFW, DOT, United States Coast Guard, United States Army Corps of Engineers and Lummi Nation as well as review of a substantial amount of environmental reports and documentation the Planning Department has determined that the proposal has been designed and can be conditioned to mitigate potential impacts.

For example, the proposal includes pilings spaced 50-feet apart and grating is used in order to allow maximum amount of light to pass through (instead of concrete) over portions of bed-lands where eelgrass is or could establish. The structure is proposed out as deep as -25 feet MLLW (nearly 500-feet from shore at its apex) which minimizes impacts to near-shore areas and intertidal zones in terms of sediment transport and wave energy erosional forces. The use of low level lighting is employed on the structure. The removal of used creosoted and dilapidated pilings and other over-water structure are proposed. The landing at Cornwall end is designed so as to not affect future cleanup actions under MTCA.

To complete SEPA review for this proposal, the Planning Department will be issuing a Mitigated Determination of Non-Significance (MDNS) on approximately October 1, 2010. To distinguish from the comments of Ms. Harris, this is not an Environmental Impact Statement (EIS).

Following the issuance of the MDNS, there is a 14-day public comment period after which the proposal could be amended and/or additional information provided. After the City takes action on the MDNS, there is a 14-day appeal period.

A public hearing is anticipated in November with the Hearing Examiner for the Shoreline Conditional Use Permit. The Hearing Examiner will forward a recommendation to the DOE for final approval. Any SEPA appeal of the MDNS from above would also be conducted by the Hearing Examiner. The Shoreline Conditional Use Permit can be appealed to the Washington State Shorelines Hearing Board within 21-days of the issuance of the final approval by DOE.

A summary of the funding for this proposal and and links to other documents for the proposal can be found here:

http://www.cob.org/government/departments/parks/projects/boulevard-over-water-walkway.aspx

Thanks - Jeff

RECEIVED

JUL 20 2010

City of Bellingham Planning

If you would like to become a party of record for this proposal and receive the final decision, please submit your name and address to the PCDD.

Date of application:	June 15, 2010
Complete application:	July 9, 2010
Required permits and approvals:	Shoreline C.U.P., SEPA Determination, WDFW H.P.A, USACE Section 404 and 10, NEPA compliance, DOE 401 and CZM Cert., DNR Aquatic authorization, NMFS / USFWS E.S.A. concurrence, DAHP Section 106 concurrence.
Existing Environmental documents:	Please see #12, Section A of SEPA Checklist prepared on 6/11/2010.

Send written comments and requests for information to: Steven Sundin, Planning and Community Development Department, City Hall, 210 Lottie Street, Bellingham, WA 98225 or email: ssundin@cob.org

---

The new (proposed) structure would be parallel to an existing wonderful trail. It should be ~~better~~ possible to find a better use for the millions that will be used (wasted) on the structure.

480 Bayview: Boulevard / Cornwall Over-Water-Walkway
SHR2010-28 & SEP2010-27

If you want to receive notification of the decision, please complete and return this section to the Planning and Community Development Department, City Hall, 210 Lottie Street, Bellingham, WA 98225.

No ~~Yes~~, I would like to know the action taken.

Name William Hogan

Address 4915 Samish Way #13
Bellingham 98229

480 Bayview: Boulevard / Cornwall Over-Water-Walkway
SHR2010-28 & SEP2010-27

If you want to receive notification of the decision, please complete and return this section to the Planning and Community Development Department, City Hall, 210 Lottie Street, Bellingham, WA 98225.

✓ Yes, I would like to know the action taken.

RECEIVED
JUL 20 2010
City of Bellingham
Planning

Name Helen Lewis

Address 241 S. State
Bellingham, Wa 98225

SHR2010-00028: Over-Water-Walkway

RECEIVED

JUL 20 2010

Planning

If you would like to become a party of record for this proposal and receive the final decision, please submit your name and address to the PCDD.

Date of application:	June 15, 2010
Complete application:	July 9, 2010
Required permits and approvals:	Shoreline C.U.P., SEPA Determination, WDFW H.P.A, USACE Section 404 and 10, NEPA compliance, DOE 401 and CZM Cert., DNR Aquatic authorization, NMFS / USFWS E.S.A. concurrence, DAHP Section 106 concurrence.
Existing Environmental documents:	Please see #12, Section A of SEPA Checklist prepared on 6/11/2010.

Send written comments and requests for information to: Steven Sundin, Planning and Community Development Department, City Hall, 210 Lottie Street, Bellingham, WA 98225 or email: ssundin@cob.org

---

We hope this goes forward – A wonderful project

480 Bayview: Boulevard / Cornwall Over-Water-Walkway
SHR2010-28 & SEP2010-27

If you want to receive notification of the decision, please complete and return this section to the Planning and Community Development Department, City Hall, 210 Lottie Street, Bellingham, WA 98225.

X Yes, I would like to know the action taken.

Name Barbara J. Curry

Address 9445 Sunrise Rd.
Blaine, WA 98230

Public record, SHR2010-00028 and SEP2010-00027
Tom Olsen to: ssundin 07/18/2010 02:48 PM

History: This message has been replied to and forwarded.

Dear Mr. Sundin:

If you will be assembling a file of public comments regarding the "Over-water walkway" project covered by the title permit applications, I would appreciate if you would include this email input in that file.

As a Bellingham residents and taxpayers, my wife and I strongly endorse the proposed project and urge approval of the (twelve, yikes!) relevant permits. We are frequent users of the existing South Bay trail from the Taylor Dock through Boulevard Park, as are many, many others.

This proposed project will significantly extend and improve the South Bay Trail for pedestrian and non-motorized conveyance, thereby improving public health, complementing environmentally-friendly transportation, burnishing Bellingham tourism and generally enhancing quality of life in our community. It will also leverage planned development of the so-called New Whatcom (G-P) site.

Please show us in the strongly-supportive tally.

--

Thomas & Marilyn Olsen
2024 Falcon Ct
Bellingham, WA 98229
Ph 360.647.1223
Email tom.olsen@comcast.net

over-water walkway
timothy morris to: ssundin 07/19/2010 01:01 PM

History: This message has been replied to and forwarded.

Steve,
I support the over-water walkway project!
Regards,
Tim Morris
Lettered Streets

Waterfront Walkway

Elizabeth Kilanowski to: ssundin 07/19/2010 01:38 PM

History: This message has been replied to and forwarded.

Steve:

Thank you for the opportunity to comment on the proposed waterfront walkway.

We strongly support this project and look forward to the day when we can use it.

Elizabeth Kilanowski
Bert Rubash
Bellingham

Boardwalk Addition

Harvey Schwartz to: ssundin 07/20/2010 07:22 AM

History: This message has been replied to and forwarded.

Hi,

I wish to offer my opinion that the current Boardwalk is one of the best features of Bellingham.
When people from out of town ask me about what to do here - the first thing I tell them about is the Boardwalk.
Its popularity is evident by all of its use.

You cannot have too much of a good thing.
It is both imaginative and practical to extend it.
It will be the perfect eco-friendly tie in to the new Waterfront Development.

I strongly support the new project and am excited to see it built.

Sincerely,
Harvey Schwartz
2501 38th ST.
Bellingham, WA 98229
360-733-6046

WALKWAY
rlquade@juno.com to: ssundin 07/24/2010 01:43 PM

History: This message has been replied to and forwarded.

IF THE BAY IS CLEANDED UP THERE WILL BE WILD LIFE ALL OVER, WE NEED PROVISIONS FOR FISHING FROM THE WALKWAY

THANK YOU
RICHARD L.

SULLIVAN

1727 22nd ST.

BELLINGHAM, WA 98225

Comment on Cornwall Overwater Walkway
Wendy Harris to: waterfront, info 08/13/2010 06:04 PM
Cc: SSundin

History: This message has been forwarded.

I believe that the Port and City should reconsider the plans to build an over-water walkway to connect the Cornwall landfill with Boulevard Park. This does not promote environmental stewardship. Over-water structures are responsible for some of the greatest degradation in the ecological functions of our waters and are discouraged by the State Department of Ecology. Even with state of the art materials, they still create shadows that allow nonnative species of plants and fish to grow, threatening local species. It creates impervious surface over an impaired shoreline of statewide significance, which increases nonpoint source pollution.

I appreciate the care taken to protect the eelgrass beds. However, the problem is that the walkway does not mitigate for the harmful impacts of increased human activity and noise. Fish, birds and other marine life are much less likely to access the eelgrass beds if they have to pass under bikes, dogs, screaming children, joggers, etc. The result would be eelgrass beds that exist, but that perform limited ecological function. The walkway is simply not needed, particularly since the Cornwall landfill is being redeveloped as a shoreline park, which will by itself, increase public access to the shoreline. Moreover, the Shoreline Management Act does not promote public access to shorelines unless it results in no loss in the ecological function and value of shorelines and water bodies.

While human impacts will have the greatest harmful impacts, there is also the need to mitigate against environmental harm that is created during the construction process. In particular, care must be given to ensure that noise and activities during construction will not disturb the breeding and nesting activities of the Caspian tern colony located close by. As you may be aware, this is now the second largest Caspian tern colony on the Pacific Coast, and members of DOE, WDFW, and the local Audubon, among others, have been involved in studying and banding new fledglings. This has provided exciting new opportunities to increase our understanding of not only Caspian Terns, but of factors that influence successful breeding colonies of our dwindling sea bird populations.

At a minimum, the SEPA and JARPA process should reflect the recent relocation and presence of this breeding colony as part of its assessment of shoreline functions. It should also reflect the many harbor seals and their pups that I currently see sunning on logs close to the Cornwall landfill site. They will clearly be frightened away if a walkway if extended out over the water. Until the hot summer months, I regularly saw a small flock of Harlequin ducks that used the water and shoreline of the Cornwall landfill site, and I am sure that many other sea birds can be found in this area.

From a financial perspective, the walkway is a very costly project. I have been advised that it will cost approximately 3 million dollars. There is growing public concern regarding the costs of the waterfront project, and this particular "trail" is among the most costly individual components of

the earlier phase projects. If the over-water walkway was replaced with a pedestrian overpass by the railroad onto the South Bay trail, this would still allow for a connection between Cornwall Park and Boulevard Park,

In summary, the Cornwall Over-Water Walkway is not necessary and should be eliminated from project plans. This would not only save residents a good portion of the allocated 3 million dollars for the walkway, but would limit our harmful environmental impacts to water quality and to fish and wildlife. Eliminating the over-water walkway helps our community meet the prioritized requirements for shorelines of statewide significance under the Shoreline Management Act.

Wendy Harris
3925 E. Connecticut Street
Bellingham WA 98226

EIS needed for Overwater Walkway In Bellingham Bay
Wendy Harris to: SSundin 08/26/2010 11:30 PM
Cc: "Wenger, Barry \(ECY\)", waterfront, parks, planning, citycouncil

History: This message has been forwarded.

EIS Required For Proposed Over-Water Structure

Bellingham is engaged in a SEPA review of the proposed overwater structure from Boulevard Park to the Cornwall Landfill, but has not yet made a threshold determination. I urge the City to issue an Environmental Impact Statement for this project. As discussed below, the analysis and studies conducted by the City to date have significant flaws that require additional independent assessment to determine the impacts on shoreline ecological functions.

First, this project involves construction of a large overwater structure. Overwater structures can have particularly damaging environmental impacts, and are discouraged under DOE policy. This project is of special concern because it will be constructed under outdated shoreline development standards. The City's current SMP is from 1989 and is not compliant with current Shoreline Management Act standards. Moreover, this walkway will create 34,000 sq. ft of mostly impervious surface, for almost half a mile, over nearshore and shallow waters. There will be 96 pilings constructed. The project will use large amounts of concrete rip rap to stabilize the shorelines on both sides, and involves landfill and grading changes. 4 large trees at Boulevard Park will be removed without any requirement for replacement. Many of these actions would not be permitted under the updated 2009 SMP currently undergoing DOE review.

The overwater walkway is located within the boundaries of three Model Toxics Control Act (MTCA) sites that are undergoing DOE investigation for contamination and remediation. One of those sites has been given the highest ranking for potential threat to human health and the environment if not cleaned up. http://www.ecy.wa.gov/pubs/1009042a.pdf. An impaired water body on the EPA 303d list for PAH's is also in the vicinity of the proposal. An EIS is prudent to ensure that the proposal will not compromise public health and safety.

The overwater walkway, which is located away from the shoreline, may restrict access to a portion of the Whatcom Waterway Navigation Channel. City review has not analyzed this type of potential violation of the Shoreline Management Act.

Additionally, the overwater walkway will cover water designated as a natural recovery area of the Whatcom Waterway site, which is undergoing clean-up and long term monitoring consistent with the Whatcom Waterway Consent Decree. Thus, the project is being constructed over waters particularly sensitive to environmental impacts.

The City has not analyzed the consequences of intensified use resulting from a greater human presence in the nearshore and shallow waters of Bellingham Bay, although

these are among the hardest impacts to mitigate. Review of the Impacts from this project have focused almost exclusively on the nearshore, ignoring the fact that the overwater walkway will be largely constructed in shallow waters immediately adjacent to the nearshore.

The City review of fish and wildlife impacts has focused on priority fish and wildlife species, and has determined that there will be harmful impacts to several fish species. However, the SMA, which focuses on shoreline ecological functions, requires analysis of all fish and wildlife species, whether or not priority species. Additionally, since the City conducted its studies, the second largest breeding colony of Caspian terns on the Pacific Coast has established itself near the proposed overwater walkway, and an EIS would provide the opportunity to review this new situation.

Much of what has been treated as "mitigation" in City review actually involves removal of creosote logs and structures that obstruct the proposed overwater trail, or that are required to be removed under other state and federal laws. Thus, no meaningful mitigation has been analyzed and discussed beyond protection of shoreline eelgrass beds. An EIS would allow for discussion of meaningful mitigation, including compensation for lost shoreline functions through creation of additional fish and wildlife habitat, or enhanced shoreline buffers.

The seminal work by Nightingale and Simenstad (Overwater Structures: Marine Issues, White Paper, 2001, prepared for state and federal transportation industries,) referenced in the Biological Assessment, indicates that the greatest harm results not from individual projects, but from cumulative impacts of other shoreline projects. The overwater walkway, which connects to the Cornwall Landfill, is the first project that will be built within the area designated for waterfront redevelopment. Waterfront redevelopment, in totality, is likely to result in enormous cumulative impacts to the Bellingham Bay shoreline. Review of nearby Taylor Dock at Boulevard Park would not be sufficient for a meaningful cumulative impacts analysis. Only a more comprehensive EIS would provide the level of review required under the SMA.

The EIS would also provide the opportunity to compare impacts from alternative options for public access to the shoreline, such as a land based shoreline trail, and determine if it is feasible to connect the Cornwall Park shoreline trail to the S. Bay trail in lieu of an overwater walkway. If a land based shoreline trial is feasible, construction of a more environmentally damaging overwater walkway could violate the mitigation sequencing required under the SMA. It should be noted that mitigation sequencing is not included in the 1989 SMP shoreline development standards.

Additionally, the EIS could evaluate whether the proposed overwater walkway, located further offshore than the eelgrass beds, would become a barrier that actually restricts fish and wildlife from traveling to and from the eelgrass beds. It would be important to determine if the proposal results in eelgrass beds with functional value. The EIS is also necessary to determine whether the proposed design sufficiently mitigates for impacts from reduced light or ambient wave energy patterns and substrate types. These issues

are discussed in City review, but are not quantified, and thus, do not indicate whether they constitute adequate mitigation.

An EIS is also indicated because the overwater walkway is part of a 7 million dollar project that is being partially funded through a federal grant. A project of this size and this cost requires careful consideration, and federal grant money should not be used for a project that may not comply with state law. Finally, if the EIS supports an alternative land-based trail, this would save the City millions of dollars in construction costs, which could then be used for mitigation and restoration projects to increase shoreline ecological function in conjunction with public access to the shorelines.

These facts, in totality, indicate that it would be irresponsible for the City to attempt to undertake such a large and expensive project, constructed within the waters of Bellingham Bay, without preparing an Environmental Impact Statement.

Sincerely,
Wendy Harris
Bellingham Resident

EIS needed for proposed walkway to Cornwall Ave from Blvd Park

Laura Brakke to: ssundin 08/31/2010 01:33 PM

History: This message has been forwarded.

Steve Sundin, Shoreline Administrator City of Bellingham,

I am writing to request a thorough EIS be required for the Proposed overwater walkway connecting Boulevard park to Cornwall Ave. It is also important not to use an outdated SMP to review this project. Using a 1989 version of a management document will not protect our environment to the standard required by current standards.

I am also curious why in this era of lack of funds the City Parks is willing and able to spend millions of dollars on an unnecessary connection, when the Southbay trail is open to the public and paralells the exact same course the expensive and intrusive piling supported walkway will traverse.

Please, spend taxpayer money wisely and make sure that the project has the necessary review with a full EIS requirement.

Thank you for your consideration.

Laura Leigh Brakke

Fw: Problems Ignored Re Boulevard Park/Cornwall Landfill Bridge
Kurt Nabbefeld to: Steve C Sundin, Jeffrey B Thomas 10/11/2010 01:53 PM

I think we need to set up a quick meeting to discuss our options. I'll have Shannon do so.

Kurt Nabbefeld, Senior Planner
City of Bellingham
Planning and Community Development
Tel: (360) 778-8351
Fax: (360) 778-8302
----- Forwarded by Kurt Nabbefeld/planning/cob on 10/11/2010 01:52 PM -----

"Wendy Harris"
<w.harris2007@comcast.net>

10/11/2010 12:02 AM

To <DPike@cob.org>
cc <citycouncil@cob.org>, <planning@cob.org>, <parks@cob.org>
Subject Problems Ignored Re Boulevard Park/Cornwall Landfill Bridge

Dear Mayor Pike:

I am requesting that the City rescind the recent SEPA Mitigated Determination of NonSignificance issued for the pedestrian bridge over Bellingham Bay to connect Boulevard Park to the Cornwall Landfill. I believe that there are issues and concerns that have not been adequately addressed for this project that warrant additional time and analysis before the City makes a SEPA threshold decision. A few of these issues are as follows:

1. **Lummi Nation Treaty Rights:** As reflected in the attached letter, the Lummi Nation asserts that this development will impair their ability to access approximately 25 acres of land used for fishing rights that are protected under Treaty. It is my understanding that the City is proceeding with its permitting and SEPA process although this matter is not resolved. Expensive litigation to determine whether the City violated tribal treaty rights is not in the public's interest.
2. **Public Navigation:** Under the Public Trust Doctrine and the Shoreline Management Act, one of the government's roles is to protect the public's right to navigation, including navigation over aquatic lands managed by the DNR. Although studies by the City indicate that part of the structure will be built within navigable waters, this impact is not addressed or , analyzed, avoided or mitigated. This impact is corroborated by the attached letter from the Army Corps. Of Engineers, deeming the project a "bridge", which is defined as a structure over navigable waters that may interfere with the passage of boats.
3. **SEPA Threshold Decision Made Without Adequate Information:** The SEPA process ensures that a project is not built unless there is adequate protection against environmental degradation. For this reason, DOE recommends that all

studies be completed before a threshold decision is made. However, the City issued the MDNS before it completed revised studies that were required by WDFW, and instead included the studies as the asserted mitigation. Additionally, the City issued the MDNS before it completed a staff report and cumulative impact analysis that is required as part of the conditional use permit process that is being processed simultaneously with the SEPA review. Since it is known that the most harmful impacts from overwater structures results from cumulative impacts, there was no reason that the City rushed to a SEPA threshold decision before obtaining the results of the cumulative impact analysis.

For the above reasons, I request that the City rescind the SEPA determination and re-issue its threshold determination after the issues and information discussed above are resolved.

I believe this action is also appropriate based on fiscal concerns. Given the City's current financial problems, there are less expensive and less environmentally damaging alternatives to public shoreline access. As People for Puget Sound pointed out in their comments on the waterfront redevelopment draft, an elevated land-based shoreline trail along Cornwall, connecting to the S. Bay trail, would protect the environment and the taxpayer's purses.

Thank you for consideration of my request.

Wendy Harris army.corps.letter.pdf lummi nation letter.pdf wdfw.letter.doc

ReSources
for Sustainable Communities

2309 Meridian Street • Bellingham, WA 98225 • (360) 733-8307 • fax (360) 715-8434 • resource@re-sources.org

Kristina Bowker, City of Bellingham Hearings Examiner
City of Bellingham
210 Lottie St., Bellingham WA 98225
[via e-mail: kbowker@cob.org]

Jeff Thomas, Assistant Director
Planning & Community Development Dept.
210 Lottie, St., Bellingham, WA 98225
[via e-mail: jthomas@cob.org]

Gina Gobo-Austin, Project Engineer
Parks/Design & Development Division
3424 Meridian St., Bellingham, WA 98225
[via e-mail: gaustin@cob.org]

Steve Sundin, Planner
Planning & Community Development Dept.
210 Lottie, St., Bellingham, WA 98225
[via e-mail: ssundin@cob.org

October 13, 2010

Subject: Comments on MDNS for SEP2010-00027- Boulevard to Cornwall Over-Water-Walkway

To whom it may concern:

The North Sound Baykeeper Team is concerned about the MDNS issued for the Boulevard to Cornwall Over-Water-Walkway. Our concerns chiefly rely on the following points:

1) The walkway is not needed as there is a parallel trail on land for walkers and bikers to get safely from Boulevard to Cornwall. The State Environmental Policy Act (SEPA) requires that mitigation sequencing follow specified steps; the first being avoidance of an impact. The proponents of the project argue that impacts cannot be avoided because the project is inherently impactful as its purpose it to be an overwater structure connecting two upland landing sites. The defined purpose of the project is narrowly constrained and in and of itself prescribes an impact, not an actual need. We would put forth that the purpose of a pedestrian/ bicycle park trail is to safely allow bikers and walkers to get from point A to

point B, with minimum interference with motorized vehicles and in a pleasing setting. Its purpose is not to be overwater, per se.

2) As a conditional use permit, cumulative impacts from additional like requests in the area must be taken into account, and the sum of those cumulative impacts "shall not produce substantial adverse effects to the shoreline environment". No cumulative analysis for this project was done. We believe that a cumulative analysis of this dock and others in the area would discover adverse impacts to eelgrass, fish, and other benthic and intertidal creatures as a cumulative result of changes in shading and sedimentation.

3) We find that the mitigation proposed (June 2010 Mitigation Report) is insufficient to the impacts.
    a. Temporary impacts from noise and turbidity generated from pile installation and use of heavy equipment is not included. There should be some compensation for these impacts.
    b. Permanent impacts, accounting for both the installation of new overwater areas and the removal of existing overwater areas, include a net increase in nearly 1000 square feet of shaded area, and the loss of riparian vegetation at the two landing sites. The science is clear that shading from overwater structures and changes in sediment transport from structures negatively impact the nearshore and the plants and animals that use it. [Washington Department of Fish and Wildlife, Overwater Structures and Non Structural Piling White Paper, December 2006, and EnviroVision, Herrera Environmental, and Aquatic Habitat Guidelines Program, Protecting Nearshore Habitat and Functions in Puget Sound, October 2007, Revised June 2010]. We propose that additional mitigation be required to compensate for this project, if it indeed goes forward. In exchange for permanent impairment of the environment we suggest that the City undertake a restoration projects near the impact site. Many of these are outlined in the City of Bellingham's SMP. Restoration of the Roeder St. mudflat and Central Ave. beach might be appropriate.

4) Impacts to eelgrass have not been adequately considered, per the Washington Department of Fish and Wildlife (WDFW) letter of August 23, 2010. In addition, we are concerned about the choice of reference site. The reference site is within the shadow of the overwater structure and any changes to sediment transport from the placement of landings and piles may be translated to this area. We believe that a more appropriate reference site should be chosen, in coordination with WDFW.

5) We are concerned how some of the considerations found in WAC 198-27-160 jibe with concerns of the Lummi Nation, and we feel these must be addressed. These are the following: "That the public interest suffers no substantial detrimental effect" and to "Recognize and protect the statewide interest over local interest". The Lummi Nation's concerns, whose public interests are also those of a sovereign state, speak directly to both public and state-wide interests. Their letter not only cites concerns with mitigation sequencing and cumulative impacts, as does ours, but infringement upon their treaty right to fish in usual and accustomed areas. All of these concerns must be addressed.

6) In addition to the concerns listed above, we find that not all of the information is needed in the file to comment adequately on the project. The WDFW requested update to the

eelgrass survey and mitigation report is not available. As well, the shoreline and erosion transportation and evaluation study is also not available. Impacts to eelgrass and sediment transportation and deposition are two of the biggest concerns with this project (the third being shading). It is essential that the public have a completed file to review in order to provide appropriate comment. Interestingly, these two reports are considered "mitigating conditions required for this proposal" in the MDNS. Perhaps there is a difference in parlance here, but these reports are not mitigations and should be considered prior to assertion of an MDNS.

Thank you for the opportunity to comment on this issue. In closing, we find that there is insufficient justification to permit the Boulevard to Cornwall Overwater Walkway. Additionally, if the case were made to justify the Walkway, we find there are too many unanswered questions and that the mitigation is too weak for us to support this project without a full EIS and subsequent mitigation.

Please notify us regarding hearings and decisions on this matter.

Sincerely,

Wendy Steffensen, Lead Scientist
Matt Krogh, North Sound Baykeeper

North Sound Baykeeper Team

1123 Railroad Avenue
Bellingham WA. 98225
360-671-3389
November 4, 2010

Hearing Examiner
City of Bellingham

I am writing as a proponent for the overwater walkway project in Bellingham .

I have been involved with this project for more than ten years through the waterfront master planning process and my involvement in the Bellingham Greenways program, which has provided substantial funding for this project. The community's commitment of four million dollars to this project, reflects the high level of interest and commitment by the citizens of Bellingham. The willingness of community members to reach in to their pockets via taxes to make this publicly voted on project happen shows that a large majority of community feels strongly that this project will enrich their lives and become a treasured asset to the community .

It is important economically to the City of Bellingham because it completes a water linkage from The Fairhaven area to the downtown waterfront . It will also serve as a first step in economic revitalization of our currently blighted downtown waterfront area left vacant after the closing of our GP mill.

It is important aesthetically as it will bring thousands of people to a waterfront which has not been accessible for more than a hundred years. It will allow the community to tie the existing and heavily used Boulevard Park on the south end of the connector to a new park which will cap an existing garbage dump. These parks can only be directly connected by the over water connector because of the railroad at the shore edge and hilly topography beyond preclude easy access.. The connector with new trails will provide a safe walking/biking route to many who commute from the south side to the downtown for work , or a place to go to watch the sunset, exercise , meet friends, study nature.
This project will also be a first step in naturalizing the water's edge with soft shoring, native plants and careful near shore reconstruction.

I urge you to approve this project so that construction can go forward in a timely fashion. It's a good one.

Sincerely, JOHN BLETHEN

Chair Bellingham Greenways Committee

SUBMITTED ON NOVEMBER 4, 2010.

Fw: Violation of procedural fairness regarding CUP for Cornwall/Boulevard Bridge

Kristina J Bowker to: Steve C Sundin 11/08/2010 08:47 AM

Did you receive this e-mail? Please add it to the public comments.

Thank you,
Kristi Bowker
Assistant to the Hearing Examiner
City of Bellingham

Office Hours: Monday, Wednesday and Friday, 8:00 a.m. - 3:00 p.m.
----- Forwarded by Kristina J Bowker/mayor/cob on 11/08/2010 08:46 AM -----

"Wendy Harris"
<w.harris2007@comcast.net>

11/08/2010 01:58 AM

To <hearing@cob.org>

cc <parks@cob.org>, <planning@cob.org>, "city council" <citycouncil@cob.org>, <rgro461@ecy.wa.gov>

Subject Violation of procedural fairness regarding CUP for Cornwall/Boulevard Bridge

To the COB Office Of Hearing Examiner:

I would like to bring to your attention the fact that a Bellingham Parks Department Project Engineer has engaged in conduct that fails to ensure a fair and impartial public hearing with regard to the conditional use permit application for the proposed Cornwall Landfill/Boulevard Park Overwater Pedestrian Bridge. The Hearing Examiner should be aware of this situation to ensure that the public hearing is not tainted. As you are aware, quasi-judicial review of this matter is subject to the Appearance of Fairness Doctrine. RCW 42.36.010; BMC 2.56.010.C.

This doctrine attempts to bolster public confidence in fair and unbiased decision-making by making certain that in both appearance and fact parties to an argument receive equal treatment. However, the Project Engineer has violated basic principles of procedural fairness and due process by engaging in advocacy under color of office.

On November 2, 2010, the Project Engineer sent out an email, from her City email address, signed in her official capacity, to an undisclosed recipient list. The email contained notice regarding the November 17, 2010 public hearing on the Cornwall bridge and noted that, "**Supporters of the Boulevard to Cornwall Over Water Walkway are encouraged to attend the meeting. If you cannot attend the meeting, you are welcome to submit written comments of support.**" I am on record as someone who opposes this project. However, I was never sent notice of the public hearing, or added to a group email post.

Because only "supporters" of the project received a personal email from the Project Engineer, this may result in disproportionate attendance at the public hearing, leaving the Hearings Examiner with the false impression that this project is overwhelmingly

supported by our community. If this belief influences the decision of the Hearing Examiner to even the smallest degree, than the public process has been tainted by the private agenda of the Project Engineer.

There are a number of other implications that flow from the Project Engineer's conduct. Since she has attempted to use her official City position to solicit support for the public hearing, the handling of this entire project is called into question. Has this project been handled in a fair and impartial manner, with proper consideration given to the factors reflected in BMC 20.16.010.E, when it appears that the Project Engineer is not objective and impartial?

Relevant to this concern is the public notice posted on-site at Boulevard Park by the Public Engineer. This notice treats the project not as a proposal subject to review by state agencies as well as the public, but as a project that has received final approval and is being built. (See attached photo.) The notice states that, "that Boulevard Park Over-Water Walkway will connect Boulevard Park to the new Bellingham Waterfront District (former BP site)."

Additional statements are that the new walkway will look very similar to the existing Taylor Avenue Dock, the walkway will be coordinated with clean-up actions at the Cornwall Landfill, and the existing dock will be removed and considered habitat mitigation for the walkway. Project funding is listed, as are permit and construction timelines. In other words, this project is being held out to the public as a matter that will be moving forward. The Project Engineer's contact information is listed prominently. However, when I contacted the Project Engineer by telephone, it was clear to me that she was not particularly open to public inquiry that questioned the proposal. This is contrary to my normal experience with City employees.

Public notice for this proposal is issued by the Planning Department. I assume that the Project Engineer sent her advocacy email without notice to or approval by the Planning Department or the Legal Department Thus, the conduct of the Project Engineer reflects negligence, if not actual disregard, for the procedures and policies of related City Departments, as well as poor judgment. Again, this reflects on her handling of the entire project.

Finally, I am concerned about whether the Project Engineer's conduct violated the terms and policies of the Federal Transportation Enhancement Grant, and I suggest that someone at the City look into this situation and determine whether this funding source is in potential jeopardy.

In sum, the Hearing Examiner should be advised that the Project Engineer handled the notice of public hearing in a manner that will reduce public confidence in fair and equal treatment for each side on this issue, and for the project in totality. These issues should be addressed in the appropriate manner to avoid the appearance of unfairness at the quasi-judicial level.

Sincerely,
Wendy Harris
3925 E. Connecticut Street
Bellingham, Wa,98226

Attachments:

1. photo of public notice of project on-site at Boulevard Park
2. email from Project Engineer, sent to undisclosed email recipients. advocacy.email.doc

notice.cornwall.JPG

Subject: Hearing Examiner Date - Over Water Walkway Blvd to Cornwall

X-KeepSent: DD6B9DA3:06C4EE55-882577CF:0078562D;
type=4; name=$KeepSent
From: gaustin@cob.org
Date: Tue, 2 Nov 2010 15:04:29 -0700
To: undisclosed-recipients:;

Below is the agenda for the November 17, 2010 hearing examiner meeting.

Supporters of the Boulevard to Cornwall Over Water Walkway are encouraged to attend the meeting. If you cannot attend the meeting, you are welcome to submit written comments of support.

AGENDA
WEDNESDAY, NOVEMBER 17, 2010, 06:00 PM

City Council Chambers

City Hall, 210 Lottie Street

The City of Bellingham Hearing Examiner will hold a public hearing to take testimony on the following proposals:

1. SHR2010-00028 / SEP2010-00027: Construction of a public access over-water walkway (OWW) from the north end of Boulevard Park to the southern extent of the Cornwall Avenue Landfill. The OWW is approximately 2,350' in length and 14' in width (18.5' in width for resting 'bump-outs'). Height of the OWW will be approximately 8' above the elevation of mean higher high water. Railings and low-level lighting are included. Construction of walkway abutments and landings will be ADA accessible. Demolition of existing dilapidated over and in-water structures are also proposed. City of Bellingham Parks & Recreation Department, owner/applicant; Derek Koellmann, Anchor QEA, contact person. Conservancy II, III and Urban Maritime Shoreline Designations. South Hill Neighborhood, Area 6 and Central Business District, Area 21.
This project requires a City Shoreline Conditional Use Permit. Shoreline CUP's require a public hearing before the Hearing Examiner. The Hearing Examiner considers public comments and the application materials and then forwards her decision to the Department of Ecology for final approval.

The full applications are available for viewing at the address listed below. Staff reports will be available at the Planning Department approximately one week before the hearing.

You may comment on the proposal by sending written comments to the Planning Department, City Hall, 210 Lottie Street, Bellingham, WA 98225. All written comments should be received during office hours before the hearing, or you may submit them at the hearing if you include an additional copy for the recording secretary. You may also request a copy of the Hearing Examiner's decision and your appeal rights.

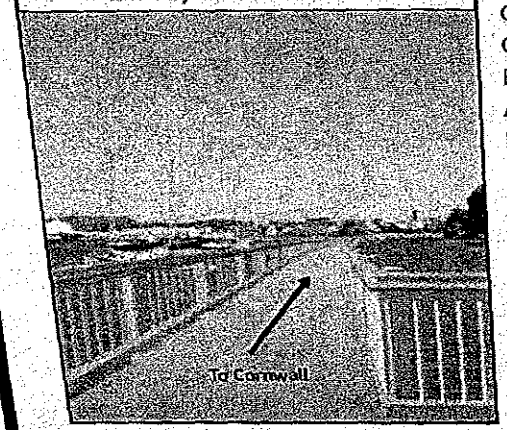
The City of Bellingham complies with the Americans with Disabilities Act. The hearing assistance system is now available. If you need special accommodations please call the Hearing Examiner office 752-1149 (voice) or 676-6883 (TDD) at least one day prior to the hearing.

FUTURE WATERFRONT DEVELOPMEI

Date Posted: May 17, 2010

BOULEVARD PARK OVER-WATER WALKWAY

Walkway Photo Simulation



Project Contact:
Gina Gobo Austin, PE, Project Engineer
City of Bellingham Parks & Recreation
Design & Development Division
Address: 3424 Meridian Street, Bellingham 98225
Phone: (360) 778-7000, 8am – 5pm
Email: gaustin@cob.org URL: www.cob.org

Project Schedule:
Permit approvals are expected to take 1 to 2 years.
Construction may begin in the Summer of 2012.

Project Description:
Public access to the waterfront and enjoyment of the stunning views of Bellingham Bay from our parks and trails system are part of what makes Bellingham such a wonderful place to live and visit.

Increasing both visual and physical public access to the shoreline has been a long term goal for the people of Bellingham. The popularity of the Taylor Dock walkway (located just south of Boulevard Park) has reinforced the public's awareness of how these goals become a reality.

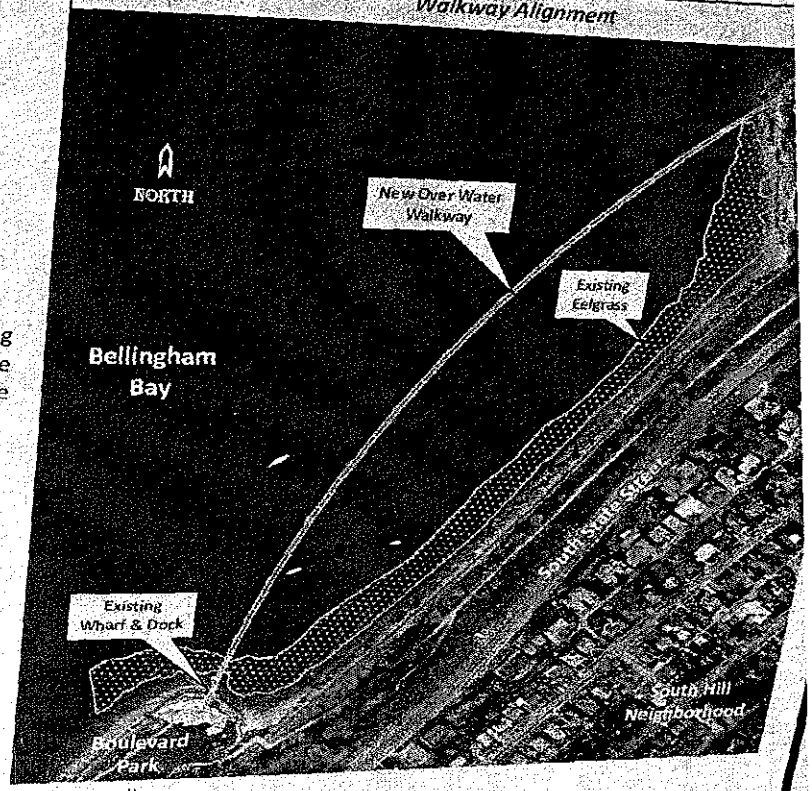
The Boulevard Park Over-Water Walkway will connect Boulevard Park to the new Bellingham Waterfront District (former GP site). This project is included in the City Comprehensive Plan, the voter-approved Greenway III Levy, and the City's Shoreline Master Program.

In 2008, the City completed a feasibility study report for the new walkway. The study includes information about habitat, soils, structural design concepts, and permitting requirements.

In 2009, the City began the design and permitting phase of this project. The proposed walkway length is approximately 2,700 linear feet from Boulevard to Cornwall. The new walkway will look very similar to the existing Taylor Avenue Dock walkway located just south of Boulevard Park. Construction of the 14-foot-wide over-water walkway will be coordinated with cleanup actions planned at the Cornwall Landfill site and at Boulevard Park (South State Street Manufactured Gas Plant site).

The existing dock at the north end of Boulevard Park is currently closed to the public due to damage of the supporting structural members. The existing wharf is also in need of repair. The existing wharf and dock will be removed and considered as habitat mitigation for the new over-water walkway.

Walkway Alignment



Project Funding:

Greenway Levy III - Waterfront Redevelopment:	*$4,000,000*
Federal Transportation Enhancement Grant:	*$2,139,000*
Real Estate Excise Tax:	*$150,000*

For More Information:
For more information about this project, please contact the City's Project Engineer Gina Gobo Austin at 360-778-7000, or visit the City's web site at www.cob.org and search for the key words "Boulevard Over Water Walkway"

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