

## SUPPORTING A VISION: REDEVELOPING THE PORT OF BELLINGHAM WATERFRONT

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### ABSTRACT

The Port of Bellingham (Port) is working with state and federal agencies, the City of Bellingham (City) and project stakeholders to coordinated cleanup, redevelopment and habitat restoration projects on Bellingham's working waterfront. In support of the waterfront redevelopment vision, the Port recently acquired the 137-acre (55 hectare) properties of Georgia Pacific West Corporation (GP). These properties are located in the heart of the City's waterfront, and include the site of a recently-closed pulp mill, an operating tissue mill and related operations. GP had announced its intent to eventually close the tissue mill and had sought a buyer for the property. Transfer of the property to public ownership was identified by the community as the best way to ensure that redevelopment of the waterfront would be completed in a manner consistent with the needs of the community.

Cleanup and habitat restoration actions are being coordinated with regulatory and resource agencies, local native American tribes and project stakeholders. The Port and City have initiated a program of area-wide land use planning to facilitate redevelopment of the properties. Current plans include two proposed projects described in this paper. These projects include 1) the cleanup and reconfiguration of the Whatcom Waterway, 2) the conversion of a former wastewater treatment basin into an environmentally sustainable state-of-the-art marina.

The Whatcom Waterway is Bellingham's oldest federally authorized navigation channel. The configuration and depth of the channel has been modified several times since the early 1900s. Sediments in the waterway have been impacted from historical industrial operations, and site cleanup is required under Washington's Sediment Management Standards and Model Toxics Cleanup Act regulations. The proposed cleanup will involve multiple actions including dredging, capping, and natural recovery. Preliminary project plans involve 150,000 cubic yards (115,000 cubic meters) of dredging, with upland disposal in a subtitle D landfill as the preferred sediment disposal option. Capping of sediments is proposed for selected portions of the site where capping can be performed protectively, and where this is compatible with navigation and land use requirements.

The wastewater treatment basin was constructed by Georgia Pacific in the late 1970s. The waterfront basin was constructed by dredging former tidelands to a depth of 12 feet (3.7 meters) below mean lower low water and installing a containment berm, outfall and aeration system. The berm encloses an area of approximately 28 acres (11 hectares) of aquatic land, including approximately 350,000 cubic yards (268,000 cubic meters) of accumulated wastewater treatment solids. The Port's proposed cleanup and redevelopment plans for the GP properties include the cleanout of the treatment solids, and the reconfiguration of the treatment basin for the development of a 350-slip state-of-the-art marina.

Implementation of the aquatic cleanup, restoration and redevelopment actions is currently scheduled for 2007 to 2012. The success of these projects will depend on the continued coordination with and the support of regulatory and resource agencies, local Native American tribes and project stakeholders. Timing for the project may be affected by the availability of state and federal grant funds, and the scope and timing of other planning, redevelopment and environmental restoration projects being implemented by or in conjunction with the Port.

**Keywords:** dredging, Bellingham, habitat restoration, waterfront redevelopment, Portfields

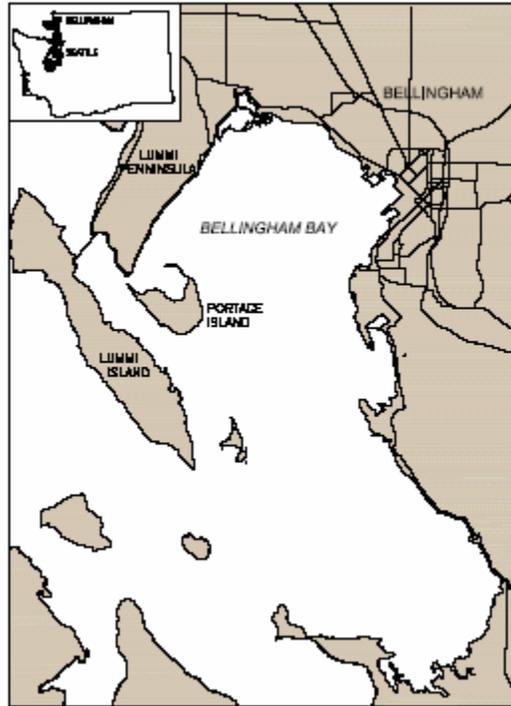
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## PROJECT BACKGROUND

Bellingham is located just south of the Canadian border, along the shores of Washington State. Bellingham is one of three U.S. cities selected by the National Oceanographic Atmospheric Administration (NOAA) as a Portfields Pilot location. The Portfields designation reflects the substantial scope of the economic and land use changes taking place in the community.



**Figure 1. Bellingham Bay**

Bellingham, Washington is located in the northeast corner of Bellingham Bay (Figure 1). The city was incorporated in 1903, consolidating four separate towns that had developed around the bay. During the late 1800s and early 1900s, Bellingham was the site of extensive coal mining, lumber milling and fish processing. The GP properties were originally used as a lumber mill. A pulp mill operated on the site since 1920s, and a tissue mill and chemical plant were added later. GP purchased the operations in the 1960s and expanded operations, including the addition of a chlor-alkali plant and later a wastewater treatment basin. The Port's international shipping terminal has been in operation since 1920, with shipment of break-bulk cargo, vehicles, aluminum and other products. The Port operates two significant marinas in Bellingham Bay, with a current moorage capacity of over 1,400 slips.

### WATERFRONT REDEVELOPMENT PLANNING

Recent land use changes have included a transition away from heavy industrial uses of the waterfront, toward mixed uses. The Port and City have conducted several land use studies to adapt to these demographic changes. During 2003 and 2004 the Port and City sponsored a community planning and visioning effort known as the Waterfront Futures Group. That group affirmed a commitment to move forward with the redevelopment of a mixed-use working waterfront. The Port and City are currently implementing a joint planning effort, including updates to the City zoning, Shoreline Master Plan and neighborhood plans. That work involves extensive community and stakeholder input.

In January 2005, the Port and GP completed the transaction to transfer ownership of all of Georgia Pacific's waterfront property to the Port, including the wastewater treatment basin (Figure 2). Georgia Pacific continues to operate its tissue mill through a lease with the Port, though other former GP operations have ceased and associated

buildings are being demolished. Acquiring the Georgia Pacific property is just the first step in the environmental restoration and redevelopment of the waterfront property. The Port is working with regulatory agencies and project stakeholders to develop final cleanup plans for the Whatcom Waterway, the wastewater treatment basin and other environmentally impaired properties, and is coordinating cleanup actions with land use planning and property redevelopment efforts.



**Figure 2. Property Included in the Transaction between Georgia Pacific and the Port of Bellingham.**

### **CLEANUP AND HABITAT RESTORATION PLANNING**

The final cleanup plans for the Whatcom Waterway and wastewater treatment basin are being developed consistent with the Comprehensive Strategy defined in the Bellingham Bay Pilot process. The Bellingham Bay Pilot is a cooperative process involving local industry, regulatory and resource agencies, Native American tribes and project stakeholders, focused on the integration of cleanup, land use planning and habitat conservation efforts. The Pilot was initially funded by grant support from the Washington Department of Ecology, and several successful projects have already been completed consistent with the Pilot Comprehensive Strategy.

The cleanup plans presented in this paper were developed during late 2004 and early 2005 with the input of the Port, the City, and participating members of the Bellingham Bay Demonstration Pilot. The cleanup approaches will be finalized after appropriate regulatory review and additional stakeholder input. The projects have received preliminary commitments of grant funding support from the Department of Ecology, and may be further supported

with federal grant funding. The projects incorporate land use priorities for the area, including preservation of deepwater uses near the International Shipping Terminal, updating of the Whatcom Waterway federal channel, bulkhead removal and restoration in selected berth areas, and facilitation of public access including construction of new boat launch and transient moorage facilities near downtown. The preferred cleanup approach for the former wastewater treatment basin supports the development of a 350-slip marina, consistent with expanding moorage demand. Habitat conservation and enhancement priorities incorporated into the proposed project include preservation and enhancement of salmonid migration corridors, removal where practicable of former bulkheads and creosoted pilings, and construction of shallow-water habitat benches for salmonid refuge and potential eel grass bed development. The cleanup and reconnection of the wastewater basin to the Bay will provide 28 acres of new open-water habitat, and over 4,000 linear feet of new shoreline for salmonid migration. The project preliminary design incorporates habitat enhancement into the design of the marina. The project provides a unique opportunity to create habitat while expanding navigation opportunities.

### **WHATCOM WATERWAY CLEANUP**

The Whatcom Waterway is Bellingham's oldest federally authorized navigation channel. The configuration and depth of the channel has been modified several times since the early 1900s. The outer portion of the channel currently has authorized depths of 30 feet (9 meters) below mean lower low water (MLLW). The head of the channel has an authorized depth of -18 feet (5.5 meters) MLLW.

Sediments in the waterway have been impacted from historical industrial operations, and site cleanup is required under Washington's Sediment Management Standards and Model Toxics Cleanup Act regulations. The principal contaminant is mercury, which was discharged from the GP chlor-alkali plant to the waterway between 1969 and 1978. Natural recovery of sediments has been significant due to sedimentation associated with the nearby Nooksack River. The site has been extensively studied since the 1970s.

The channel has not been dredged since 1974 due to concerns about contaminated sediments. Portions of the channel and associated berths do not meet current authorized depths due to sedimentation and shoreline erosion. The proposed cleanup will involve multiple actions including dredging, capping, and continued monitored natural recovery. The dredging will be targeted at areas that require restoration of water depths to support area navigation and land use priorities.

Figure 3 shows the preliminary project design concept, as of the date this paper was completed. Preliminary project plans involve 150,000 cubic yards (115,000 cubic meters) of dredging, with upland disposal in a subtitle D landfill as the preferred sediment disposal option. Most of the dredging will be targeted in the deep-water areas of the outer channel, near the shipping terminal. Capping of sediments is proposed for selected portions of the site where capping can be performed protectively, and where this is compatible with navigation and land use requirements. In areas near the head of the channel, berth areas would be restored, including targeted dredging and shoreline cut-backs and armoring, and the removal of historic bulkheads. Berth areas would be dredged to provide usable water depths consistent with the channel reconfiguration and area land use requirements.

As part of the cleanup and redevelopment, the channel configuration and depths are to be updated to support current and anticipated navigation requirements, and to facilitate habitat enhancements along the shoreline. A multi-use channel is proposed with continuing deep-water access [greater than 30 feet 9 meters]) in the outer waterway near the international shipping terminal, and shallower water depths [18 feet 5.5 meters)] near the head of the waterway. The boundary between the 18 foot (5.5 meter) and 30 foot (9meter) channel areas will be modified. The modified channel configuration and depths will allow historic bulkheads to be removed from nearly 1,000 feet (300 meters) of shoreline located in a salmon migration corridor.

### **WASTEWATER BASIN CLEANUP AND MARINA DEVELOPMENT**

The wastewater treatment basin was constructed by Georgia Pacific in the late 1970s. The waterfront basin was constructed by dredging former tidelands to a depth of 12 feet below mean lower low water and installing a containment berm, outfall and aeration system. The berm encloses an area of approximately 28 acres (11 hectares) of aquatic land. The composition of the original berm is shown in Figure 4. It includes an outer stone core and a thick inner dressing of sand and other materials.

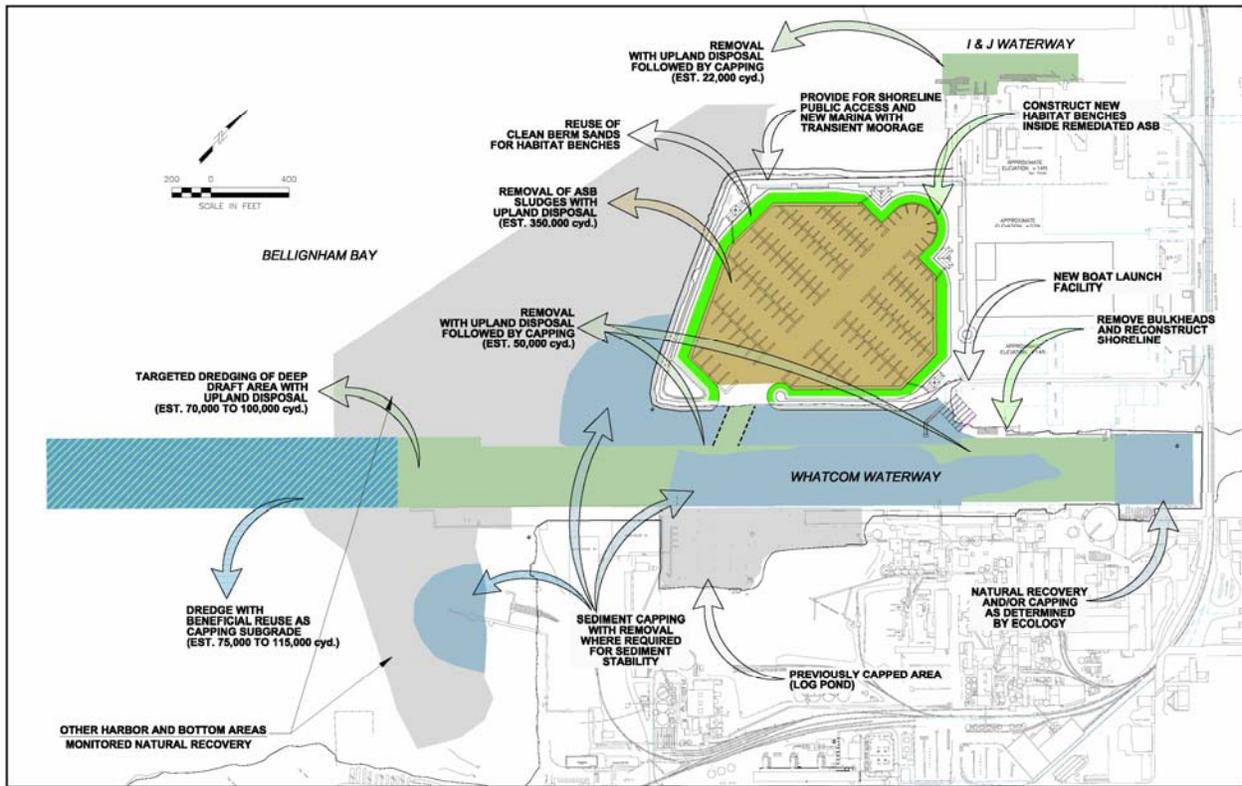


Figure 3. Preliminary Dredge and Capping Plan for the Whatcom Waterway.

The wastewater basin currently includes approximately 350,000 cubic yards (268,000 cubic meters) of accumulated wastewater treatment solids. The wastewater solids are soft silty sediments with very high total organic carbon (TOC) contents (30-40%) and low solids content (< 10 to 20% solids). Contaminants associated with the wastewater solids include phenolics, mercury and other heavy metals.

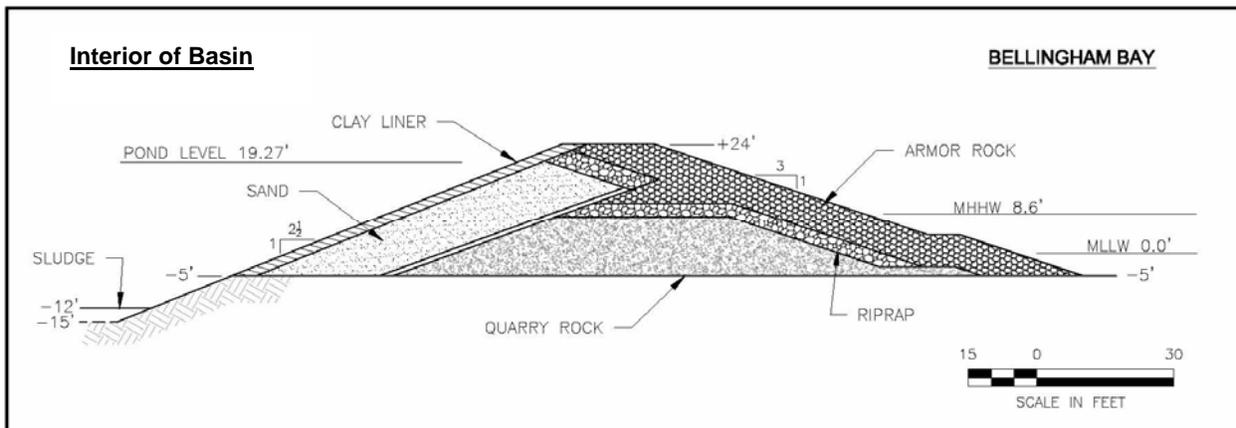


Figure 4. Wastewater Treatment Basin Dike Cross-Section.

The Port's proposed cleanup and redevelopment plans for the GP properties include the cleanout of the treatment solids, and the reconfiguration of the treatment basin for the development of a 350-slip state-of-the-art marina. Figures 3 and 5 show alternative conceptual designs for the proposed marina. Final designs will be subject to further design and permitting.

Under the proposed project, the wastewater treatment solids would be dewatered and disposed of at a subtitle D upland landfill. The project would not be performed until such time as GP ceases use of the facility for wastewater treatment. At that time, additional wastewater treatment facilities, including a large clarifier, will be available for use as part of cleanup implementation. Hydraulic dredging and dewatering of the wastewater solids is considered the most likely approach for removing the majority of the wastewater solids. Multiple alternatives are being considered for management of dredging residuals remaining after completion of mass solids removal.



**Figure 5. Conceptual Design Alternative for New Downtown Marina**

Once the basin has been remediated, there are several opportunities to enhance habitat quantity and quality. First, the basin dike can be breached to open up 28 acres (11 hectares) of nearshore and open-water habitat. Second, the dike can be reconstructed to develop intertidal and shallow subtidal habitat benches on its interior and exterior faces. Third, fish passage can be created in the northern dike to enhance salmonid migration corridors. Finally, excess dike materials can be used for development of additional off-site habitat benches at locations defined in previous inter-agency discussions.

Following removal of the treatment solids, the basin berms will be reconfigured to create a suitable marina breakwater, including trails for public access. The current berm elevation is over 24 feet (7.3 meters) above MLLW. The berm will be cut down to an elevation of approximately 16 feet (4.9 meters) MLLW. Approximately 120,000 cubic yards (92,000 cubic meters) of clean sand materials will be removed from the inner berm dressing to develop nearly a mile (1.6 kilometers) of new shoreline habitat benches for juvenile salmonids. The material removed in this process will then be available for development of additional habitat benches near the project area, but outside the former basin. Armor stone removed during berm reconfiguration will be re-used at the entrance jetties to flatten the more vulnerable outer breakwater slopes.

The Port intends to use the marina project as an opportunity to define and demonstrate best practices for marina design, construction and operation, consistent with the federal Clean Oceans Initiative. The Port is also working to define LEEDS certification standards for marina development. Marina planning will take place between 2005 and 2009. Construction of the marina may be completed between 2010 and 2012 depending on GP mill operations and wastewater treatment needs, state and federal grant funding availability and Port marina development requirements. NOAA has been providing project planning support as part of the federal Portfields program.

#### **CONCLUSIONS**

The revitalization of the Bellingham waterfront is an ambitious undertaking by the Port of Bellingham, the City of Bellingham and their agency and stakeholder partners. Much of the work is to be done over the next decade. The cleanup elements of the proposed project include over 500,000 cubic yards (382,000 cubic meters) of contaminated sediment dredging and upland disposal, with additional areas remediated by capping and monitored natural recovery. Formerly impacted areas of the waterfront are proposed for reuse consistent with local land use priorities, including the development of a new 350-slip state-of-the-art marina. Project designs incorporate habitat enhancement and restoration as integral project features. Updates on the progress, as well as any dredging innovations, will be the subject of presentations at future WEDA meetings.

