

Appendix A for Floodplain Regulations Environmental Checklist

Historic/Cultural Resources and Earth/Geology Context

Affected Environment

Overview

The area affected by the non-project proposal includes lands and aquatic environment in and near Elliott Bay and portions of the Duwamish River and waterway. This vicinity has been subject to much change in the last 175 years. The presence of indigenous peoples reflect many tribes living near the area's waters that provided abundant resources for thousands of years, including from Puget Sound and surrounding rivers and large lakes. The actions taken subsequent to white settlement transformed the landscape and its use, through extensive filling of tidflats and marshland in the SODO area, and altering the courses of rivers including the Duwamish River and upstream Black River. It also displaced indigenous populations.

These factors have thus shaped and influenced the existing context of Duwamish and Elliott Bay area landforms, land use, the natural environment, the shoreline areas, water resources, and the historic and cultural context. Within the land may lie cultural resources that reflect the longtime presence of indigenous residents, along with the features known through historical records and tribal knowledge. As well, portions of the Duwamish River retain a natural setting, including parts restored through clean-up and preservation efforts.

Indigenous Peoples

The following excerpts from Historical Research Associates' documentation for the EIS for the Seattle Industrial and Maritime Strategy (I&MS) describe characteristics of indigenous peoples' presence in this area.

“Between approximately 6,400 and 2,500 [years ago], there was a gradual shift across the Northwest Coast to an increasingly heavy reliance on marine and riverine resources for subsistence. This shift was coincident with a general trend toward increasing sedentism as more sites were settled along river courses, estuaries, and productive marine environments (Ames and Maschner 1999:93–94; Nelson 1990:483). During this period, settlements began to be occupied on a seasonal basis. Larger, denser artifact concentrations have been identified within sites dating from 6400 to 2400 [years ago], and deep shell middens have been dated to as early as 5,200 years ago (Larson and Lewarch 1995; Mierendorf 1986:57; Wessen 1988). It was during this time that coastal and neighboring inland communities developed their complex suites of lithic, bone, and antler tool technologies suited for marine mammal hunting, riverine fishing, and the further exploitation of terrestrial plant and animal resources (Ames and Maschner 1993:93–95; Blukis Onat et al. 1980:29–30; Kopperl et al. 2016:117–118).

Along with steady population growth and increasingly intensive resource utilization across the broader Northwest Coast, Late Pacific (2,400–200 [years ago]) precontact archaeological sites in the region demonstrate the emergence of status differentiation and complex social hierarchies (Ames and Maschner 1999:95–96). Increased reliance on stored foods and controlled access to resources, including salmon and shellfish, also developed during this period. By this time, the general ethnographic (prior to Euroamerican influence) pattern observed along the Northwest Coast had become well-developed, although these societies saw swift and dramatic changes with the arrival of Euroamerican explorers, traders, and settlers beginning in the late 1700s (Ames and Maschner 1999:95–96, 112).”

Prior to around 1850:

“...the region was inhabited extensively by Coast Salish peoples for thousands of years. Before European contact, the region was one of the most populated centers in North America. The Indians of the Eastern Puget Sound lived in relatively small, autonomous villages and spoke variations of the Lushootseed (txʷəlšucid, dxʷləšúcid), one of the Coast Salish languages. Many tribes were affiliated through intermarriage, political agreement, trade, and material culture. Indigenous people lived in permanent villages of longhouses or winter houses, and traditionally left their winter residences in the spring, summer, and early fall in family canoes to travel to temporary camps at fishing, hunting, and gathering grounds. At the time of the first White settlements around 1850, natives were living in more than 90 longhouses, in at least 17 villages, in modern-day Seattle and environs including in the [Maritime and Industrial Strategy] study area.

Waterways were central to the cultures and livelihoods of native people. "Duwamish" is the Anglo-Europeanized word which meant "people of the inside", dxʷdəwʔabš, referencing the interior waters of the Duwamish, Black and Cedar rivers. The Suquamish take their name from the Lushootseed phrase for "people of the clear salt water," and the people living around Lake Washington were collectively known as hah-choo-AHBSH or hah-chu-AHBSH or Xacuabš, People of HAH-choo or Xachu, "People of a Large Lake" or "Lake People."

“Several Duwamish villages were recorded within the Greater Duwamish Manufacturing and Industrial Center around the former mouth and lower reaches of the Duwamish River. The village of yčl•çad (“basketry cap”) was named for the distinctive woven hats worn by peoples such as the Yakama, perhaps because its residents participated in trade networks that spanned the Cascades (Dailey 2020; Hilbert et al. 2001:119; Thrush 2007:236–237). This village was located along the west bank of the Duwamish River west of Kellogg Island. Site 45KI23 (the Duwamish No. 1 Site) has been identified at this location, and likely represents the archaeological remains of the village. The village of tō...ul...altù (“where herring live” or “herring house”), was situated to the west of the mouth of the Duwamish River under the West Seattle bluff. An unknown Euroamerican settler burned the town down in 1893, and its name was eventually given to the Terminal 107 Park (Hilbert et al. 2001:46; Thrush 2007:234). A third village, dùç•óçd (“Place of the Fish Spear”), was located atop a large flat next to the Duwamish River at what is presently the north end of Boeing Field (Hilbert et al. 2001:47; Thrush 2007:240).”

...

“In 1855, members of the Duwamish and neighboring Puget Sound tribes signed the Treaty of Point Elliott, which directed the removal of Tribal members to reservations. The Duwamish were ordered to relocate to the Port Madison Reservation, along with the Suquamish (Lane 1975:3–4). Many Duwamish remained along the Black River in defiance of government orders but were removed by the early 1900s.” (Historical Research Associates, Final EIS for the Seattle Industrial and Maritime Strategy, 2022).

Alteration of landforms and watercourses

At the western edge of downtown Seattle’s land along Elliott Bay, historic settlement and growth patterns have transformed the bay edge through a series of developments of waterfront piers, and other buildings and land improvements that define the Alaskan Way vicinity, which still includes voids below street level that are protected by seawalls and the structures that comprise the surface street environment. Shorelines and improved piers, adjacent park land, and related port lands also continue to define the near-shore edge of Elliott Bay north of downtown Seattle, extending north and westward to Smith Cove near the base of the Magnolia neighborhood bluffs.

A selective summary of history related to the Seattle waterfront around Elliott Bay includes the following excerpts from Historical Research Associates' documentation for the EIS for the Seattle Industrial and Maritime Strategy.

In the late 1880s and 1890s,

"...Seattle's economy boomed with shipping, railroads, timber extraction and milling, coal mining and shipping, commercial and industrial manufacturing such as iron works, and service industry support. At this time, Seattle's economy was closely tied to other Pacific ports, especially those in California. At various times, a substantial percentage of lumber shipped from Seattle went to San Francisco to aid in its reconstruction from catastrophic fires and, later, the 1906 earthquake that was accompanied by a fire that destroyed some 25,000 buildings. The close connection between these ports can be seen in the creation of Ballast Island¹, an artificial landform on the Seattle waterfront, that is largely made up of rock mined from outcrops in San Francisco and dumped in Elliott Harbor to make space for the Seattle products shipped in return sailings. This rise in production created jobs and encouraged population growth."

...

The Great Seattle Fire occurred in 1889 and leveled the city's 18-block waterfront and 40 blocks of the city center. Destroyed were not only wood-frame buildings and structures, but those constructed of brick and stone, including wharves, piers, depots, mills, warehouses, businesses, offices, banks, stores, hotels, apartment buildings, and some residences. Rebuilding began almost immediately. The City widened some streets and raised others, implemented a new building code, banned wood buildings in the fire zone, and established a city water works (Caldbeck 2020a, 2020b). Many of Seattle's sawmills that had been destroyed in the fire moved north to the north side of Salmon Bay, to what is now Ballard (Wilma 2001a). After the fire, in the 1890s, the Great Northern Railway Company's president, James J. Hill, constructed docks, a grain terminal, grain elevator and warehouse at Smith Cove to facilitate maritime commerce with the Far East. Other private docks and warehouses were also built in the area (McClary 2013).

...

Large projects during that time [1910s] included the flattening of Denny Hill and streets north of downtown Seattle, known as regrades, which allowed for easier transportation routes in and out of the city (Link 2004:8). Much of the earth removed in the regrades was used to fill in wetlands and tidal flats. In 1912, the Great Northern docks at Smith Cove were sold to the newly created Port of Seattle for construction of a deep-sea terminal. The Port's comprehensive plan also included the construction of Fisherman's Terminal on Salmon Bay, the Bell Street Pier, wharves and warehouses on the East Waterway pier and a second pier on the East Waterway, a public wharf and warehouse at the end of Bell Street, a grain elevator at Hanford Street, and a new ferry service on Lake Washington (Oldham 2020). Additionally, man-made alterations along the Duwamish River—rerouting, straightening, and channelizing the river, and draining, dredging, and filling tidelands—and extensive logging, created land for agriculture and industry. The dredged material was used to construct Harbor Island, that split the mouth of the river into two channels. The Port of Seattle would later plan extensive terminals on Harbor Island. The renamed Duwamish Waterway supported shipping and large industrial complexes, such as shipbuilders, foundries, clay and coal plant, terracotta factory,

¹ The Waterfront Seattle FEIS indicates the location of Ballast Island as at the foot of S. Washington and Main Streets.

antimony smelting and refining plant, iron works, flour mill, meat packer and slaughterhouse, creosoting works, lumber mills, warehouses, and Boeing Company's Plant 1 (Oldham 2020; Sanborn Map Co. 1905, 1928, 1950; Updegrave 2016). This industrial growth created additional employment opportunities and additional residences and apartment buildings were constructed to house the influx of workers (Sanborn Map Co. 1905, 1928).

In the early 20th Century, a series of major public works projects rechanneled and dredged the Duwamish River, and filled the extensive tideflats that comprised much of the SODO vicinity in the northern half of the Greater Duwamish Manufacturing and Industrial Center. The tideflats spanned approximately between the bluffs at the base of Beacon Hill and the east edge of West Seattle, with marsh lands also present near the mouth of the Duwamish River including the present-day Kellogg Island in the Duwamish River.

As illustrated in USGS maps, by 1909 the northeast quadrant of Harbor Island had been filled, along with the 1st Avenue S. and Alaskan Way S. vicinity of SODO. By 1943, most of SODO and Harbor Island had been established on fill soils except portions of Terminal 5 land between Harbor Ave. S. and the West Waterway of the Duwamish. This includes fill land between W Marginal Way SW and the Duwamish River channel south to approximately Kellogg Island.

“Construction of a system of locks and cut waterways connecting east to west began in 1911 and culminated in 1916. Waters were connected from Lake Washington's Union Bay to Lake Union, to Salmon Bay through a series of locks to Shilshole Bay. As a result, the waters of Lake Washington were partially drained, lowering the level of that lake by 8.8 ft and drying up more than 1,000 acres of wetlands.

Changes to river flows at the south end of Lake Washington resulted from construction of the ship canal and locks. Prior to the alterations, Lake Washington emptied from its south end into the Black River (which no longer exists). The Black River connected to the Duwamish River, which outlets as it does today to Elliott Bay. The Cedar River, which had previously flowed into the Black River in Renton, was diverted in 1912 directly into the south end of Lake Washington to reduce flooding in Renton. In 1916, when Lake Washington's level dropped, the remaining portion of the Black River dried up. Several indigenous villages were located near the confluence of the Black and Duwamish rivers and the area was long used as a place of refuge. When the Black River vanished, natives were displaced from the area.

During the first decades of the 20th century hundreds of acres of tide flats were also filled in to create dry land as depicted below in Exhibit 3.8-1 [of the Industrial and Maritime Strategy Final EIS]. After the completion of the man-made Harbor Island in 1909, the mouth of the Duwamish River was divided into two channels. A series of major public works projects were undertaken to straighten and dredge the Duwamish riverbed, both to open the area to commercial use and to alleviate flooding. The City of Seattle formed the Duwamish Waterway Commission in order to oversee the re-channeling of the river and beginning in 1913 the river was altered to remove oxbows and meanders to maintain high water flows and turning ships. By 1920, 4½ miles of the Duwamish Waterway had been dredged to a depth of 50 feet, with 20 million cubic feet of mud and sand going into the expansion of Harbor Island. The shallow, meandering, nine-mile-long river became a five-mile engineered waterway capable of handling ocean-going vessels. The Duwamish basin became Seattle's industrial and commercial core area. Activities included cargo handling and storage, marine construction, ship and boat manufacturing, concrete manufacturing, paper and metals fabrication, food processing, and many other industrial operations. Boeing Plant 1 was established on the Lower Duwamish in 1916, and Boeing Plant 2 further upriver in 1936. Through the 1930's and 1940's Boeing's operations and footprint expanded greatly to support United States war efforts.

Native villages on the Duwamish were completely supplanted by white settlement and commercial use through the massive alterations of the land and waterways, the destruction of wildlife and fish habitats it caused, by the occupation of land. There was also deliberate removal of native settlements evidenced by burning of Indian longhouses in 1893. Duwamish people continued to work and fish in the area, using man-made "Ballast Island" on the Seattle waterfront as a canoe haul-out and informal market, but by the mid-1920's, most remnants of traditional life along the river had disappeared."

In the Downtown Seattle waterfront vicinity, construction of a seawall replaced wood trestles and planked roadways serving piers:

"between 1911 and 1917, the City built a concrete seawall along the west side of Railroad Avenue from S. Washington Street to Madison Street. The area to the east of this first section of seawall was then gradually backfilled. This seawall and subsequent seawall construction from 1934 to 1936 established the present shoreline." And: To the south of Pier 48, the Terminal 37/46 complex was created by filling and joining several piers (Hershman et al. 1981). (Waterfront Seattle Final EIS, page 9-6).

Further history of changes includes:

"In the 1970s, a new round of regional civic improvements recognized the change along the waterfront by replacing Pier 58 with Waterfront Park and building an aquarium at Pier 59. Just north of the aquarium, the pier sheds on Pier 62/63 were demolished because of their dilapidated condition in the 1980s. In the early 1990s, Pier 69, which had been used as a warehouse for the nearby American Can Company factory, was completely remodeled into the Port's headquarters building. The large factory building on the east side of Alaskan Way had been closed in the 1970s and was remodeled into a trade center in the 1980s and, later, into offices. In the mid-1990s, more dramatic changes occurred with the Port of Seattle's Central Waterfront Project. Piers 64, 65, and 66 were replaced by a small boat marina, a cruise ship terminal, and the Bell Harbor conference center and restaurant complex. Pedestrian bridges at Bell and Lenora Streets connected Belltown to the waterfront. The upland area directly across Alaskan Way from Pier 66, also owned by the Port of Seattle, was privately developed as condominiums, office buildings, and a large hotel." (Waterfront Seattle Final EIS, page 9-7).

Presence of cultural resources and historic resources in the affected area and vicinity

The analyses of current conditions contained in the Industrial and Maritime Strategy (I&MS) Final EIS and the Waterfront Seattle EIS, and the WSDOT Alaskan Way Viaduct Replacement (AWVR) Project EIS are incorporated by reference. These address the affected area of interest for this floodplain proposal, as well as the Ballard and Interbay industrial vicinities. Types of resources summarized in these studies include: National Register of Historic Places (NRHP) Listed Architectural Properties and Districts; Seattle designated landmarks (SDL); historic-aged parcels with Historic Property Inventory (HPI) forms; and recorded Archaeological Resources.

The NHRP identified resources include but are not limited to:

- Seattle Electric Company Georgetown Steam Plant
- Gorst Field
- Ford Motor Company Assembly Plant
- First Service Station Site
- A.L. Palmer Building
- Triangle Hotel and Bar
- Colman Building
- Federal Office Building
- Launching Site of the U.S.S. Nebraska (Skinner and Eddy Shipyard)

- Admiral’s House, 13th Naval District
- Washington Street Boat Landing

National Historic Landmarks (NHL) include:

- Pioneer Building, Pioneer Place, and pergola

The SDL include:

- Duwamish Railroad Bridge
- Georgetown Steam Plant Pump Station
- Admiral’s House, 13th Naval District
- Seattle Post-Intelligencer globe (relocated)
- Downtown Seattle waterfront piers 54, 55, 56, 57, 59, and Fire Station 5, north of Colman Dock
- 1203-1207 Western Avenue, and Pacific Net and Twine (east side of Alaskan Way)

Numerous other buildings in the First Avenue S vicinity and westward toward the edge of Elliott Bay, including those in the Pioneer Square Preservation District and the Pike Place Market Historical District, are also of historical significance.

The HPI data include a wide scattering of identified sites with several groupings including in the vicinities of: South Park, east side of the Duwamish River north of South Park, West Marginal Way vicinity near Harbor Island, west edge of Harbor Island, a few sites intermittently identified in Port of Seattle terminal properties, and a grouping along primarily the east side of Elliott Ave W. (see the Final EIS un-numbered exhibit entitled “Recorded Historic Period Buildings, Structures, and Objects in the Study Area” FEIS page 3-511).

Archaeological resources

The cited I&MS Final EIS indicates that 31 archaeological sites were identified in the studied industrial areas, of which approximately 20 are in the general vicinity of shorelines along the Duwamish River and Elliott Bay.

“Within the full study area, there are 31 archaeological sites recorded by 83 previous studies that included archaeological investigations (Exhibit 3.11-3 [of the Industrial and Maritime Strategy Final EIS]). One precontact site is listed in the NRHP and WHR [Washington Historic Register], one historic period site has been determined eligible for inclusion in the NRHP, eleven historic period sites have been determined not eligible for inclusion in the NRHP, and the remaining sites, all of which date to the historic period, have not been formally evaluated.

All of the project subareas are considered of High or Very High Risk to contain precontact archaeological resources by DAHP’s precontact archaeological site probability model [see Exhibit 3.11-4 of the I&MS Final EIS].

The WSDOT Alaskan Way Viaduct Replacement Project EIS identified the historic period NRHP eligible property as “Dearborn South Tideland Site (45K1924)” with building foundations and associated refuse (Final EIS Chapter 4, page 101). However, it also identified that construction of the viaduct replacement would unavoidably eliminate this site.

The Waterfront Seattle FEIS also identifies an “historic buried concrete wall site,” near Union Street, which may extend north across Union Street. It was recorded in 2012 when discovered during construction activities, and was potentially vulnerable to construction related to the Waterfront Seattle improvement project.

In the Downtown Seattle waterfront vicinity, the Waterfront Seattle FEIS describes:

Information on encampments, cemeteries, and work areas has been gleaned from historical accounts, records, and photographs (FHWA, WSDOT, and City of Seattle 2011). Several of these occur within the study area, many along the shoreline in former beach or tideland areas. These residential locations represent three periods of historical Native American presence: existing villages and longhouses observed by the earliest American settlers; areas occupied by Indians displaced from traditional sites, but still living in the city and providing important labor and subsistence to the new residents; and temporary camps occupied by transient traders and hop pickers later in the 19th century after exclusionary laws were passed by the City. The use of Elliott Bay by Indians continued, with canoes drawn up and tents pitched for temporary camps on the newly filled tidelands (FHWA, WSDOT, and City of Seattle 2011). The early historical record also includes descriptions of Native American burial sites and cemeteries in and near the study area.”

With respect to “Ballast Island” and indigenous peoples’ use of it, the Waterfront Seattle FEIS indicates:

The deposition of ballast in this location created an island that rose above the tide flats, first appearing on historic maps between 1878 and 1884 (Glover 1878; Wellge 1884). As it expanded, Ballast Island became a gathering spot for Native Americans because it was one of the few places they were permitted to camp within the city. After the City of Seattle passed an ordinance in 1865 restricting Indian encampments to the most outlying regions of the area, often next to muddy tide flats, Ballast Island provided a usable space for Native Americans to establish encampments freely and without fear of expulsion (Dorpat 1984; Watt 1959). Although it was initially used out of necessity, the island evolved into an important place for Native Americans throughout the region and served as both a rendezvous point and a refuge (Elder 2014). As Seattle grew, Ballast Island eventually became attractive to developers. With the waterfront’s land typically consisting of swampy and unstable tide flats, the firm, rocky base of the island had good development potential, especially considering the ever-increasing scarcity of undeveloped land (Elder 2014). Sometime between 1900 and 1904, development of the waterfront extended to and covered Ballast Island, making it no longer available for Indian encampment. In its place, the Pacific Coast Company’s Pier A was built. This pier was later replaced with the Pacific Coast Pier No. 48, which remains today, minus the standing structures it originally held, as shown on Sanborn insurance maps of 1904, 1916, and 1944 (Elder 2014).

With respect to the Ballast Island vicinity, the Waterfront Seattle FEIS further interprets that:

“The most recent investigations...indicate that ballast deposits, consisting of angular sandstone and granite along with pebbles, cobbles, and boulders, are present at depths between 2.5 and 14 feet bgs [below ground surface] (Elder 2014; Manetas 2016). Although occasional historic-era items such as bricks, nails, wood, glass, and ceramic fragments have been found, no artifacts have been identified that can be clearly connected to Native American occupation.”

With respect to near-shore areas in the central waterfront downtown, the executive summary for the Elliott Bay Seawall Draft EIS, indicated that the seawall replacement project would result in disturbance of soils upland and in-water, which would expose (and remove) contaminated soils, stir up contaminants, and would use in-water construction equipment. However, this DEIS summary also indicated that habitat enhancements associated with the project would place new clean fill soils on top of existing sediments, providing uncontaminated surfaces. The DEIS summary also disclosed anticipated “minor” levels of probable impacts on historic resources in the area, and “moderate” levels of impacts on archaeological and cultural resources. The seawall vicinity extends between S Washington Street to the south and Broad Street to the north.

Smith Cove vicinity

The I&MS FEIS indicates that Henry Smith and family settled in the Interbay vicinity in 1853 and filed land claims. It also notes that *“in 1912, the Great Northern docks at Smith Cove were sold to the newly created Port of Seattle for construction of a deep-sea terminal.”*

Another study (by Grette Associates, 2022) indicates:

“From 1913 to 1942, a portion of the T-91 property was owned by the Port. Upland areas were leased by tenants for various uses, including cargo handling and storage for lumber, steel, vegetable and fish oil, and molasses, and a tank farm for petroleum storage (Windward Environmental 2017).

From 1942 to 1976, the property was owned by the United States Navy (Navy). The Navy developed the property into what it is today, and used it as a fuel and lubricating oil transfer station, for supply, repair, and deactivation of vessels, and as a vessel terminal.

The Port reacquired the site in 1976 and has used it for cold storage, maritime services such as offloading fishing vessels, and as a distribution center for imported automobiles. Currently, the property is a passenger cruise ship and factory trawler terminal.” (Grette Associates, 2022)

This study further indicates:

In addition to the wharf and trestle structures [at Terminal 91 Berths 6 and 8] are a boat house and small vessel support floats which are in good condition.

The area adjacent to the project area is Pier 91. Pier 91 is currently used as a cruise ship terminal and for short-term and long-term moorage for fishing and commercial vessels, including factory trawlers, longliners, tugs, barges, ferries, research vessels, ships of state, military and commercial vessels for lay-up or idle status. The area across the channel to the east of the project area is Port of Seattle Tidelands and includes a portion of the Elliott Bay Trail (recreational use).

The Historical Research Associates’ *“Cultural Resources Assessment Technical Report for the Terminal 91 Berths 6 and 8 Redevelopment”*, 2021, (incorporated by reference) notes that Berths 6 and 8 are the last original timber pier structures at Terminal 91, dating to 1913, and are at the end of their service life.

This cited study also indicates the following about other archaeological sites near T-91 at Smith Cove:

“Two previously recorded archaeological sites are located within 0.25 mi of the [Area of Potential Effects for that study] APE, none of which are located within the APE. Archaeological site 45KII033, located within the water adjacent to the APE, is a submerged historic-period debris scatter consisting of munitions associated with the previous use of Pier 91 as a naval supply depot. The site was recorded as part of the USACE Munitions Response Project for Pier 90 and 91 and consisted of a total of 224 pieces of military debris and discarded military munitions located on the seafloor surrounding Pier 91. The cultural materials were associated with the U.S Navy’s supply depot at this location during World War II to 1976 (Kanaby 2011b). No determination has been made on the site’s eligibility for listing in the NRHP.

The second archaeological site is 45KII200, located 0.25 mi west of the APE. This historic-period debris scatter and associated structures were recorded in 2014 during the South Magnolia CSO Storage Tank Project. The cultural materials from the site are associated with a “low-income, multiethnic community that occupied the Smith Cove tide flats between approximately 1911 and 1942” (Valentino 2015:B-4). The artifacts recorded within the site include glass bottles, ceramics, leather shoes, furniture fragments and construction materials with a total of 2,600 total artifacts. No determination has been made on the site’s eligibility for listing in the NRHP.”

Other structures of interest in the vicinity that are indicated as potentially eligible or not evaluated in past studies include but are not limited to: the Bell'ochio Home retail building, the Interbay Post Office, and the Texas Company Oil Pump House.

Regarding the Magnolia vicinity, the Historical Research Associates T-91 analysis indicates that certain landmarks had place names, but there is not an identified indigenous settlement near T-91. The nearest indigenous-named place is the creek that drains into Smith Cove. This report further interprets that, while the contextual information suggests the tidal flats of Smith Cove were used, it is likely that natural actions and modern activities (dredging and propellor wash) have likely destroyed cultural deposits that may have been present at one time.

Other designations

Another heritage designation indicates portions of the study area as part of a maritime heritage area, including Salmon Bay, Lake Union, Smith Cove, and the Duwamish River waterway and associated areas in the SODO vicinity. See Exhibit 3.11-4 of the Final EIS. From that EIS:

The Maritime Washington National Heritage Area (MWNHA) was designated by Congress in 2019 as a place recognized for its nationally important natural, cultural, historic, and recreational resources, which combine to form a nationally important landscape.

Soils as they relate to historic or cultural resources and environmentally critical areas

In addition to factual information presented above, the following describes the soils context, including with respect to historic and cultural resources.

Elliott Bay and Duwamish River and Waterway

A past evaluation for Pier 62 and 63 replacement by the Seattle Department of Parks and Recreation characterized soils in this vicinity as: “*artificial fill underlain by tideflat deposits,*” citing *The Geologic Map of Seattle – A Progress Report* by Troost, Booth, Wisher, and Shimel (2005). The executive summary for the DEIS for the Elliott Bay Seawall project also notes that “*rip-rap (loose foundation stones)*” also existed near the downtown seawall; and these were at least partially removed during the seawall work. Several other vicinities in around Elliott Bay and elsewhere continue to use rip-rap and similar rock installations as armoring strategies at the shoreline edge.

In the Downtown Seattle waterfront vicinity, the Waterfront Seattle FEIS (2016; relevant portions incorporated by reference) describes the nature of soils below ground surface and the potential to uncover artifacts during construction of the recent waterfront improvements:

“Various geological events, including glaciation and seismic activity, have changed the location of the shoreline over time and created complex subsurface layers that have varying potential to contain archaeological deposits. In the late 19th century, the shoreline was subject to extensive grading and filling in efforts to improve waterfront access, hold back the tidal Elliott Bay, and raise the level of the city streets above high tide. As can be seen in Figure 10-1 [page 10-2 of the Waterfront Seattle FEIS], most of the study area was under water prior to the filling; however, it intersects several features of the historic shoreline. Between S. King Street and Yesler Way, the study area extends over a former tidal marsh and lagoon; north of Yesler Way, it is entirely west of the historic shoreline until approximately Pike Street. North of Pine Street, the study area is mostly landward of the historic shoreline, running along former beach areas and up the steep bluff to the east (FHWA et al. 2004).”

In general, areas located on native soils have the potential to contain pre-contact (prior to 1850) cultural resources, while those located in fill areas have the potential to contain historic-era (post-1950) [sic: 1850?] resources.”

Other areas

Along the edge of Puget Sound, uses along shorelines vary between parklands (Alki Beach, Lincoln Park, other small shoreside parks) and intermittent groupings of residential uses in West Seattle. Where present in West Seattle, most residential uses consist of low-density residential structures, although some properties have multifamily uses just south of Alki. Most of the residential properties' shore edges are protected by existing concrete seawalls, or have similar armoring strategies. The shoreline is punctuated with occasional beach areas, in front of some but not all existing seawalls in this area.

In Magnolia, certain portions of the shoreline have residential uses in close proximity to the shore, while slopes and parklands lie adjacent to shorelines. Shilshole Marina and Golden Gardens Park lie north of the ship canal, and north of that most of the shoreline is affected by the slopes of foundational rockeries, walls and rock-beds adjacent to the shoreside railroad that connects to Edmonds and Everett. Carkeek Park's beach and a small beach at Blue Ridge near NW 100th Street are the primary exceptions along this portion of the shoreline.

The ethnographic background in the I&MS EIS refers to the Duwamish as occupying shorelands along Puget Sound, and notes the presence of a longhouse village in the western portion of Salmon Bay in what is now known as Ballard. This suggests that areas outside the Elliott Bay and Duwamish River vicinity also may contain archaeological and cultural resources.

Liquefaction prone environmentally critical areas

Most of the area affected by the proposed action lies within properties dominated by fill soils (or other soils that are prone to liquefaction during seismic events), and so are designated as liquefaction prone environmentally critical areas (ECAs) by the City's mapping of ECAs. This includes nearly all flat land around Elliott Bay (from Magnolia marina southward), the Duwamish Waterway vicinities, and even portions of Alki, and West Point at Magnolia. This also includes in landward portions of many but not all residential properties intermittently present south of Alki Point to Lincoln Park.

The presence of fill soils is largely related to the extensive filling of tideflats and areas near the edges of Elliott Bay in the early 20th Century, as cited in excerpts above, from the I&MS FEIS.

Impacts

Effects of changing floodplain designations

The non-project proposal is not likely to affect whether historic sites or structures might be redeveloped; existing developments and improvements in or adjacent to marine environments would continue to be subject to natural forces such as water and wind that would cause their gradual aging. Existing designated/protected historic sites or structures are effectively protected by current regulations and so they may only be demolished in rare circumstances that occur with consent of the City. The action analyzed in this environmental checklist does not contain provisions that would increase the probability of future development of new buildings, but rather is meant to formally recognize FEMA shoreline designations and FEMA's map for reasons related to accommodating flood insurance. Thus, there is no probable net difference in the potential for known historic site or known cultural resources to experience demolition-related adverse impacts under future development, comparing scenarios with or without the action.

Most cultural resources at risk from future development in Seattle are in unknown locations due to their being buried under soils, although certain vicinities such as near-shore areas are known to have greater potential for presence of such resources given past activities of indigenous peoples. It is acknowledged for example that places along the downtown central waterfront could contain archaeological resources. The evaluation for the Piers 62 and 63 redevelopment noted that “historic scatter” materials were identified in the vicinity of Piers 62 and 63 by a 2012 underwater archaeological survey for the seawall replacement project. But, this material was determined to be not eligible for listing in the NRHP national register of historic places.

The action does not include provisions that further encourage the likelihood of future development of new buildings occurring in any given location or type of flood-affected vicinity such as near-shore areas; and there is little or no probability that the content of non-project action proposals would lead to additional building coverage or substantial site excavations.

Also, implementation of the action would not affect the strength of the City’s regulatory protection of cultural sites or resources if they are discovered during future development, which is also addressed by other State and local regulations, policies, and practices. With or without the action, such processes are mandated to stop construction, assess the resources, and take appropriate next steps for the cultural resources’ protection or preservation.

Potential for impacts on archaeological and cultural resources with future development

The available information suggests that archaeological and cultural resources, including those dating from around 1850 or later, could be present in relatively near-surface locations, particularly those areas with native soils. Similarly, other resources from the past 6,000 years or so of indigenous settlement could be present. However, extensive grading, filling, and recent construction such as for the seawall, waterfront, and Alaskan Way Viaduct replacement projects also has led to alterations of the near-surface environments in the Downtown Seattle waterfront vicinity. The Waterfront Seattle citation above also suggests that complex subsurface layering below the sediment levels in the marine environment may limit the likelihood that other, even older, archaeological resources may be found, if properties along the downtown waterfront are subject future development.

In other parts of the affected Elliott Bay and Duwamish River vicinity, given the extensive past presence of indigenous populations and their reliance on fish and other marine resources, there will continue to be a potential for future development to uncover archaeological and cultural resources. This is reflected by the State’s Department of Archaeology and Historic Preservation’s (DAHP) rating of the area to have a “High” or “Very High Risk” to contain precontact archaeological resources by DAHP’s pre-contact archaeological site probability model.

In other parts of Seattle affected by designation changes, such as Puget Sound shoreline edges, where predominantly residential uses are present along shore edges, many are protected by existing concrete seawall edges with adjacent beach shorelands (depending on tide levels). These areas are likely to not be subject to frequent redevelopment in the future other than renovation or rebuilding of existing structures. In other areas, such as north of Golden Gardens Park, the presence of railroads rather than residential uses is likely to minimize future potential for development. Thus, the potential for future development (if any occurs) to cause disturbance and uncover unknown archaeological or cultural resources should be low.

Future development in relation to earth/geological environmentally critical areas

Any future development in or near Elliott Bay, such as along the central downtown waterfront, would disturb soils and sediments present within marine environment or nearby dry land areas.

By definition, future development proposals would in most cases occur within areas that are liquefaction prone environmentally critical areas, per City of Seattle maps. This means most improvements would be subject to meeting requirements that would ensure adequate protection against seismic impacts.