

Memorandum

November 25, 2020

To: David Palazzi, Washington State Department of Natural Resources

From: Barbara Bundy, Anchor QEA, LLC

cc: Kathy Ketteridge, Blue Coast Engineering

Re: Whiteman Cove Project Cultural Resources Options Analysis

Introduction

A team of consultants led by Anchor QEA has been retained by the Washington Department of Natural Resources (DNR) to provide analysis, design, permitting, and outreach support for the Whiteman Cove Restoration Architecture and Engineering Design Project (Project). The purpose of the Project is to re-establish anadromous fish passage between Whiteman Cove and Case Inlet in Puget Sound to meet the requirements of the 2013 federal court injunction for fish, which requires fish passage for “all species of salmon at all life stages at all flows where the fish would naturally seek passage” (*United States v. Washington*).

Whiteman Cove was historically a barrier lagoon located on the southwestern shoreline of the Key Peninsula in Pierce County, Washington (Section 16 of Township 20 North, Range 1 West). It is separated from Case Inlet by a natural spit formed by net littoral drift to the north and feeder bluffs to the south. The historical opening to the cove, located at the northern end of the spit, was closed in 1962 to create a perched brackish water lagoon that was intended for the rearing of juvenile salmon. The impounded lagoon is approximately 25 acres in size. Two control structures maintain water surface elevations in the lagoon at an average of 13 feet mean lower low water (MLLW) or 8.9 feet North American Vertical Datum of 1988 (NAVD88). Minimal water exchange occurs through the control structures between the perched lagoon and Case Inlet. Fish passage is almost completely blocked by the control structures. Freshwater input to the cove comes primarily from a small intermittent stream (Whiteman Creek) at the eastern end of the cove that drains the approximately 1.7-square-mile upland watershed.

Four options to provide fish passage to the cove were considered and evaluated as part of a screening-level feasibility study conducted by the Anchor QEA team as part of this Project. The results of that analysis are documented in the Feasibility Report for the Project (Anchor QEA et al. 2020). The screening analysis provided information regarding fish passage, permitting, and site use challenges and opportunities for each of the proposed options. Following the screening analysis, all

four options were moved forward into the feasibility study. This memorandum explains the potential cultural resources impacts of each option, which are described briefly below:

- Option 1: A new gated control structure at the current location of the DNR control structure
- Option 2: A new weir control structure at the historical opening to the north
- Option 3: An open channel at the historical opening of the cove with a bridge crossing
- Option 4: An open channel at the historical opening of the cove with road removal and rerouted access from the south

Regulatory Context

Depending on its specific elements, the selected option could require environmental reviews under the State Environmental Policy Act (SEPA), the National Environmental Policy Act (NEPA), and Section 106 of the National Historic Preservation Act. If Washington State capital funds are used for the Project and Section 106 does not apply, compliance with Governor's Executive Order 05-05 would be required.

Section 106, which would apply if the Project receives federal support, requires federal agencies to consider the effects of their undertakings on historic properties. Historic properties are defined in 36 Code of Federal Regulations (CFR) 800 as prehistoric or historic sites, structures, districts, or objects that are eligible for listing in the National Register of Historic Places (NRHP). Some historic properties may also be Traditional Cultural Properties or Cultural Landscapes if they meet the applicable guidelines. To be NRHP-eligible, a historic property must be older than 50 years, have historic significance, and have sufficient integrity to convey that significance.

SEPA and NEPA require consideration of cultural resources, which is generally understood to mean NRHP-eligible historic properties.

Options

Option 1

This option would construct a single or series of large culverts between Whiteman Cove and Case Inlet that are regulated by a hydraulic gate. The structure(s) would be built in the same location as the existing DNR control structure and would be similar to the existing structure in design. The gate would open to allow tidal exchange at higher tidal elevations, and close at lower tidal elevations to maintain a specific water surface elevation in the lagoon. This structure would also be able to close automatically or manually at extreme higher water levels to prevent flooding of infrastructure in the lagoon (if any is found to occur). No bridge structure is required for this option because the tide gate control structure can be designed to support vehicular access.

Option 2

This option would construct a 40-foot opening in the berm with a non-erodible bottom (e.g., armor rock or concrete sill) at the approximate location of the historical opening to the north. The non-erodible bottom of the opening would act as a weir that would maintain the water level at a set elevation in the lagoon and provide grade control for the outlet channel. The opening would allow some passage of sand and gravels through the opening depending on tidal elevations and flows and nearshore sediment supply. A single-span 40-foot bridge would be constructed over the opening to maintain vehicle access to Camp Colman along the existing roadway.

Option 3

This option would construct a broad, open channel connection between Whiteman Cove and Case Inlet with a natural (sand and gravel) bottom. The channel would be designed at the elevation of the historical channel at the north end of the spit, thought to be about 7 feet MLLW. The elevation of the bottom of the channel would be allowed to fluctuate but is expected to remain stable within a range of a several feet over the long term. Water levels in the lagoon would be synchronized with Case Inlet, except when tides are below the elevation of the bottom of the channel. When tides are below the bottom elevation of the channel (about 7 feet MLLW), most of the lagoon would be dry. This option would require construction of a bridge over the open channel to maintain vehicle access to Camp Colman along the existing roadway. The width of the channel would be limited by the bridge span, which is expected to be between 40 and 80 feet. This would be smaller than the width of the historical opening, which was between 100 and 120 feet wide. Control structures would be decommissioned in place.

Ground disturbance for this option is expected include excavation of the channel, and installation of bridge foundations. There may also be disturbance associated with construction access and staging.

Option 4

This option would construct a broad, open channel connection between Whiteman Cove and Case Inlet with a natural (sand and gravel) bottom. The channel would be designed at the elevation and width of the historical channel, thought to be about 100 to 120 feet wide at 7 feet MLLW. The elevation of the bottom of the channel would be allowed to fluctuate but is expected to remain stable within a range of a few feet over the long term. Water levels in the lagoon would be synchronized with Case Inlet, except when tides are below the elevation of the bottom of the channel. When tides are below the bottom elevation of the channel (about 7 feet MLLW), most of the lagoon would be dry. The location and width of the channel would also be allowed to fluctuate over time but is not expected to migrate or expand significantly beyond its historical location. No bridge would be constructed over the opening and the access to YMCA Camp Colman from the north along the coastal spit would be removed. Control structures would be decommissioned in place.

This option would therefore require construction of a new roadway meeting Pierce County standards through an existing but undeveloped Pierce County right-of-way from the current west terminus of Rouse Road Southwest north to Camp Colman.

Ground disturbance for this option is expected to include excavation of the channel, as well as disturbance associated with road construction (clearing and grubbing, grading, utilities installation, and installation of signs and other appurtenances).

Environmental and Cultural Context

The Project area is in the Puget Trough physiographic province, a valley system that extends from Puget Sound south through the Willamette Valley, and which separates the Olympic Mountains from the Western Cascades (Franklin and Dyrness 1973:16). The ridge-and-trough system was formed as glaciers retreated after the last glacial maximum about 14,000 years ago (Booth et al. 2005; Porter and Swanson 1998). The maximum extent of the Puget Lobe of the Cordilleran Ice Sheet was just north of Centralia, about 35 miles south of the Project area.

Post-glacial sea levels in Puget Sound are complex because they are “the integrated result of eustasy, isostasy, and tectonism” (Booth et al. 2005:30). However, the southern Puget Sound in general experienced mostly eustatic changes, which caused relative sea level rise. The history of sea level rise and tectonic activity means that previous shorelines in the area could be submerged and archaeological materials could be preserved.

At the time of Euroamerican contact, the Project area was a spit between Puget Sound and Whiteman Cove, with an opening at the north end of the spit (Figure 1). The lagoon area would have been an estuarine halocline, supporting a wide variety of fish including Pacific salmon species, forage fish, and shellfish. Nearby uplands would have hosted a variety of terrestrial mammals, birds, and freshwater fish.

The earliest recorded archaeological sites in the Puget Sound area date to the late Pleistocene (Ames and Maschner 1999). These sites are typically sparse stone tool assemblages found in upland areas. By the mid-Holocene, larger populations began to organize in complex ways to exploit a wide range of terrestrial and littoral resources including salmon and shellfish; land mammals; and plant resources such as berries, roots, and bulbs. Cultures around Puget Sound and northward show “an unequivocal adaptation to coastal resources,” though classic Northwest coast developments such as sizeable longhouses and large-scale storage are still absent (Matson and Coupland 1995:97).

Over time, populations grew and began to reside in large semi-sedentary cedar plank house villages located at river mouths and confluences and on protected shorelines. The artifact tool kits became increasingly complex and specialized, allowing for large takes of resources, which were processed

and stored for year-long consumption (Ames and Maschner 1999). These late-Holocene cultures correlate with ethnographically described Southern Coast Salish peoples.

Figure 1
Historic and Modern Conditions in the Project Area



Left: 1878 U.S. Coast Survey T-Sheet; Right: 2018 aerial imagery

The Project area is in the traditional territory of the Sahewamish, a Southern Coast Salish group who spoke the Southern Lushootseed language and whose descendants are now members of the Squaxin Island Tribe, Nisqually Tribe, and Skokomish Tribe (Smith 1940; Henderson et al. 2002; Carpenter et al. 2008). Historically, Southern Coast Salish villages were occupied part of the year, largely in winter, and residents made seasonal journeys to camps near resource-gathering areas. Coastal villages relied on fish (Suttles and Lane 1990), which they caught with various weirs and traps, as well as shellfish and sea mammals (Smith 1940; Ruby and Brown 1986). These food sources were supplemented by various berries, roots, and bulbs (Suttles and Lane 1990; Ruby and Brown 1986:166).

Southern Coast Salish place names have been recorded in the vicinity of the Project area. In the early 20th century, the ethnographer T.T. Waterman recorded two place names in the area: *Tuxwo'lah* for Taylor Bay, about 2.8 miles south of the Project area, and *Tsxwa'dai³* for Herron Island ("where the

tide goes far out”), about 2.7 miles north-northwest of the Project area (Hilbert et al. 2001:266). The nearest village site that Waterman recorded is at the upper end of Case Inlet, about 13 miles north of the Project area.

As Euroamerican presence in the area grew in the mid-1800s, tribes were pressured to sign treaties. The Treaty of Medicine Creek, which assigned the Squaxin Island and Nisqually people (among others) to their respective reservations, was signed in 1854 and renegotiated several times until 1873 (Ruby and Brown 1986).

The first Euroamerican exploration of the Puget Sound region was Captain George Vancouver’s 1792 expedition. Hudson’s Bay Company established Fort Nisqually in 1833. South Puget Sound was not mapped in detail until the Wilkes expedition in 1841 (Morgan 1979; Wilma 2003). Shortly thereafter, settlers began to trickle into the area, encouraged by the Donation Land Act of 1850 (Kirk and Alexander 1990). The Project area appears to have been in state ownership since Washington statehood in 1889.

In 1966, the Colman family acquired 40 acres of property on the south side of the lagoon, and established Camp Colman, which is still in use (YMCA 2020). The road on the spit, and presumably the associated control structures, was in place by 1969, based on topographic maps.

Previous Research

There have been no archaeological surveys in the Project area; however, there have been two surveys nearby, and one of those recorded an archaeological site. A survey at Camp Colman in 2009 located no archaeological resources (Ferris et al. 2009). A 1948 survey located site 45PI37, a shell midden on a low bluff near the base of the spit that forms Whiteman Cove. However, the site area was part of a landslide during the 2001 Nisqually earthquake, and no evidence of the site remained post-quake (Avey 2001).

Currently, it is unknown whether there are archaeological materials present in native sediments, where they remain under fill along the spit.

Comparison of Options

The potential for each option to adversely affect NRHP-eligible historic properties depends on whether ground disturbance could encounter archaeological materials, and whether historic structures would be modified or demolished. Options 2, 3, and 4 include ground disturbance in the area of the historic channel. The area would not have been upland in the late Holocene to historic period, but it is possible that evidence of resource gathering (such as fish weirs or traps) remains. It is also possible that submerged shorelines from the late Pleistocene through mid-Holocene are present. It is less likely that excavation for the channel would encounter these because it would restore the channel to near its previous depth. To the extent that there may be archaeological

resources in the channel area, Option 4 is more likely to encounter them because it includes a wider channel and therefore more ground disturbance.

All three options have the potential to encounter archaeological materials in upland areas during ground disturbance for construction access and staging.

Options 2, 3, and 4 also include decommissioning of one existing DNR control structure, which is older than 50 years. Option 1 includes removal of the structure. It has not been evaluated for NRHP-eligibility. The structure is not currently functioning or being maintained, so there would be no change to existing conditions under Options 2, 3, and 4.

Option 3 includes construction of a bridge. The bridge foundations would require deep ground disturbance, which could impact buried paleoshorelines. The horizontal extent of ground disturbance would presumably be limited to the width of pilings. Depending on how pilings are installed, it may not be possible to test the area beforehand or observe any sediments during construction.

Option 4 includes construction of a new road. Precontact archaeological materials are known to be present in upland areas around the lagoon, so road construction could encounter previously unrecorded sites.

The primary differences between the four options are as follows:

- Option 1 includes removal of the existing DNR control structure, which could be NRHP-eligible.
- Option 3 has more potential to encounter upland resources during road construction.
- Option 4 has more potential to encounter buried paleoshorelines or late Holocene resource gathering-features during channel creation and bridge construction.

The options have equal potential to affect any archaeological resources present in access and staging areas.

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