

CULTURAL RESOURCES REPORT COVER SHEET

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Replace a draft? Yes No

Satisfy a DAHP Archaeological Excavation Permit requirement? Yes # No

Were Human Remains Found? Yes DAHP Case # No

DAHP Archaeological Site #:

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Archaeological Monitoring Plan for Seattle Public Utilities'
South Transfer Station Phase II Project,
City of Seattle, Washington

Submitted to:
Seattle Public Utilities

Submitted by:
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Seattle, Washington
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HISTORICAL
RESEARCH
ASSOCIATES, INC.

This plan was prepared by HRA archaeologists Jennifer Gilpin, MA, Lynn Compas, MA, RPA, Jenny Dellert, MA, and Jordan Pickrell, PhD who meet the Secretary of the Interior's professional qualifications standards for archaeology. This report is intended for the exclusive use of the Client and its representatives. It contains the procedures to follow for archaeological monitoring during ground disturbing activities, as well as procedures to follow regarding inadvertent discovery of cultural resources and human remains. It should not be considered to constitute project clearance with regard to the treatment of cultural resources or permission to proceed with the project described in lieu of review by the appropriate reviewing or permitting agency. This plan should be submitted to the appropriate state and local review agencies for their comments prior to the commencement of the project.

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1. Introduction

Historical Research Associates, Inc. (HRA) was contracted by Seattle Public Utilities (SPU) to provide an archaeological monitoring and inadvertent discovery plan (MIDP) for the South Recycling & Disposal Station (SRDS) Redevelopment Project, also referred to as the South Transfer Station Phase II Interim Remedial Action Project (STSII; Project). The Project is in Township 24 North, Range 4 East, Section 32, Willamette Meridian, in the South Park neighborhood of the City of Seattle (City), in King County, Washington (Figure 1-1). This plan is intended to cover only the geotechnical boring activity; as additional activities are proposed onsite that will involve ground disturbance, the MIDP will be amended as necessary to incorporate the new information.

1.1 Project Description

The Project is located at the site of the former South Park Landfill, a closed solid waste landfill which operated between the 1930s until 1966, when it was closed. In the 1970s, several facilities, including the SRDS, were constructed over the former landfill. According to research by Floyd | Snider presented in the Remedial Investigation Feasibility Study (RI/FS), the contents of the landfill have likely been heavily degraded (Floyd | Snider-Aspect Team 2014:iii-iv, 4-2). Solid waste disposed of at the location included municipal solid waste, commercial waste from local businesses, residential vehicles, and other recyclable materials. Between 1940s until 1961, the solid waste was occasionally burned. The thickness of landfill deposits varies between 5 and 20 feet (ft). In borings conducted previously, cultural materials recovered from landfill deposits included ash, plastic, glass, tires, organic material, wood, metal, brick, and concrete (Herrera and Aspect Consulting 2015).

SPU plans to redevelop part of the former SRDS site. This was a solid waste transfer station that included a recycling area, hazardous waste facility, vehicle maintenance facility, fueling facilities, and storage areas for intermodal and yard waste transfer containers (LeTourneau and Sundberg 2015). The Project consists of two phases. The first phase is the Interim Remedial Action phase, and the second phase will be the future redevelopment of the SRDS property for SPU uses.

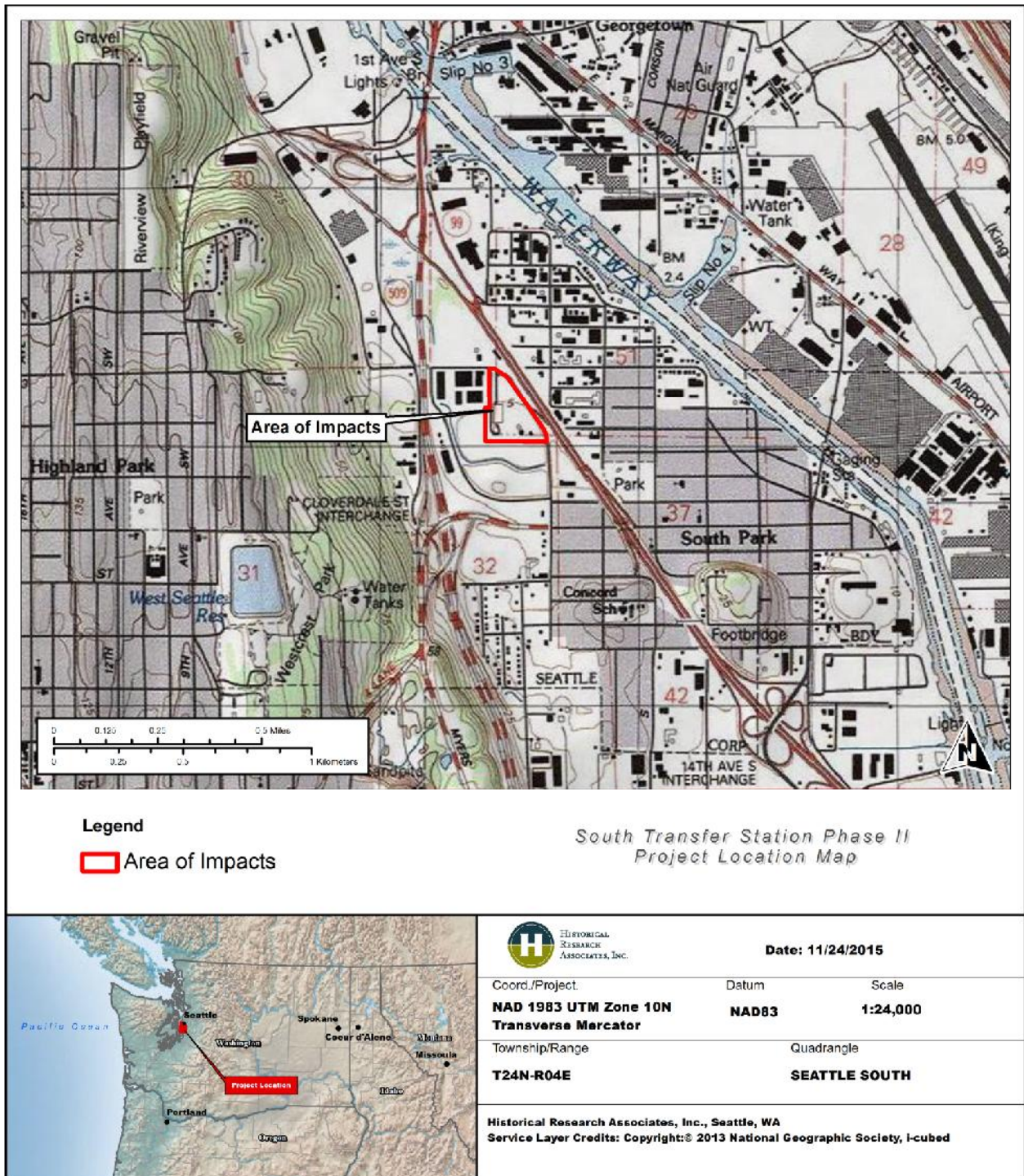


Figure 1-1. Project location and vicinity.

SPU is pursuing an Interim Action under the Washington State Model Toxics Control Act (MTCA) that addresses Landfill issues on the STSII property and where solid waste extends beneath 5th Avenue South. The Interim Remedial Action phase – which is intended to reduce threats to human health and the environment by eliminating or substantially reducing hazardous substance exposure pathways – will include such activities as demolition of existing structures, grading, landfill capping, and installation of gas controls for flammable landfill components (LeTourneau and Sundberg 2015).

During this portion of the Interim Remedial Action phase, SPU will be performing five geotechnical borings (B101 through B105) and two Cone Penetration Tests (CPT-101 and CPT-102) to investigate the subsurface soil and groundwater conditions. The borings and CPTs will extend to depths between approximately 60 and 120 ft below ground surface (bgs) on the STSII site. Figure 1-2 depicts the proposed location of geotechnical borings and their proposed depths: exact locations will be subject to constrictions such as the location of existing utilities and ease of access. This investigation will record geotechnical and groundwater information and collect subsurface soil samples for geotechnical characterization. Spoils from the drilling will be drummed and disposed offsite, and the disturbed surfaces restored at each location.

1.2 Regulatory Context

Since SPU is pursuing the Interim Remedial Action under the auspices of the MTCA, which is overseen by the Department of Ecology (Ecology), the Project must comply with the Washington State Environmental Policy Act (SEPA). SPU has prepared a SEPA checklist for the Interim Remedial Action phase of the Project, and the Project will comply with applicable state laws and regulations, particularly: Title 27, Revised Code of Washington; Chapter 27.44, Indian Graves and Records; and Chapter 27.53, Archaeological Sites and Resources.

1.3 Area of Impact and Proposed Monitoring Areas

The Area of Impact (AI) is described as the zone in which ground-disturbing activities could encounter cultural materials. The AI is herein described as measuring approximately 10 acres: 790 ft east-west by 930 ft north-south, each at the longest point (south and west boundaries - see Figure 1-2). The AI is also defined as extending to approximately 120 ft bgs, to accommodate the proposed depth of geotechnical bores. The eventual vertical extent of proposed remediation may be shallower.



Figure 1-2. Aerial showing Project Area of Impact and proposed boring locations.

2. Background Research

Several sources of archival information on the cultural resources context of the AI were made available to HRA by SPU, and these are summarized below, along with HRA's additional update research.

2.1 King County Review

King County (County) has an Interlocal Agreement with the City, of which SPU is a department. Following Interlocal Agreement DAX 2009-48 (May 2010), King County Archaeologist Philippe D. LeTourneau and King County Historian Charles Sundberg performed a cultural resources review for the initial phase of the Project (LeTourneau and Sundberg 2015). LeTourneau and Sundberg searched records on file with the Department of Archaeology and Historic Preservation's (DAHP's) web-based archive Washington Information System for Architectural and Archaeological Records Data (WISAARD) as well as ethnographic literature on file with the County and the University of Washington to discuss cultural resources surveys, recorded archaeological sites, and recorded ethnographic place names. The review also included reference to the results of nearby geotechnical investigations on file at King County, as well as the County's cultural resources global information system (GIS) model.

LeTourneau and Sundberg limited their search to approximately one-quarter mile (mi) for cultural resources studies, but included studies performed within approximately 1 mi of the AI if they contribute pertinent information (LeTourneau and Sundberg 2015:2). They identified three studies within that search radius: all three involved archaeological monitoring of geotechnical studies (Lockwood and Hoyt 2014; Lockwood and Ostrander 2014; and Marcotte et al. 2013). HRA also identified a fourth geotechnical monitoring report within approximately ¼-mi north and east of the AI (Marcotte and Johnson 2014).

Since the initial phase will not involve anticipated effects to aboveground buildings, structures, or objects (BSOs), LeTourneau and Sundberg limited their search to archaeological sites and cultural resources surveys. Within an approximate 1 mi radius of the AI, three prehistoric archaeological sites (45KI815, 45KI816, and 45KI817) and two historic-period archaeological resources (isolated finds 45KI1142 and 45KI1183) have been recorded, although none were recorded in the Project area. LeTourneau and Sundberg identify 45KI1183 as a precontact site, but it is listed in WISAARD as a historic-period isolated find (LeTourneau and Sundberg 2015:2).

Sites 45KI815, 45KI816, and 45KI817 consisted of moderate to extensive deposits of shell midden, hearth features, and faunal material, along a former side channel of the Duwamish River northeast of the AI. These cultural materials were encountered relatively shallowly below surface, in the upper two to three meters (m) (Blukis Onat 2007a, 2007b, 2007c; Gilpin and Silverman 2010; Schultze 2014). Site 45KI815, the *Lwalb* Old Channel One site, is eligible for listing in the National Register of Historic Places (NRHP) (Blukis Onat 2007a). The isolated historic-period finds identified within approximately 1 mi of the AI include a wooden wagon wheel found during dredging of the Duwamish (45KI1142; Cooper 2013); and a single whiteware fragment, along with three to five red bricks, observed in alluvium beneath several feet of fill north of the AI (45KI1183; Hoyt 2014). HRA found no other archaeological sites recorded since LeTourneau and Sundberg’s review while referencing WISAARD.

LeTourneau and Sundberg noted that one site on record with the Burke Museum – located within 400 m of the AI - contained human remains (LeTourneau and Sundberg 2015:2). Three cemeteries and/or burial sites have been recorded on WISAARD within 1 mi of the AI, according to LeTourneau and Sundberg (45KI1004, 45KI1158, and 45KI1159; LeTourneau and Sundberg 2015:2). Once again, none of these resource types is located within the AI.

LeTourneau and Sundberg describe that four geotechnical investigations have documented landfill deposits up to 17 ft thick above intact Holocene floodplain sediments (LeTourneau and Sundberg 2015:2). Taking into account the cultural resources data detailed above, along with topographic and landscape characteristics, the County’s GIS model classifies the AI as having a high probability for encountering intact prehistoric and historic-period archaeological resources. Similarly, the WISAARD’s predictive model indicates a High Risk for prehistoric cultural resources. DAHP’s predictive model is based on statewide information, using large-scale factors. Information on geology, soils, site types, and landforms, and General Land Office (GLO) maps were used to establish or predict probabilities for prehistoric cultural resources throughout the state. DAHP’s model uses five categories for the predictions: Low Risk, Moderately Low Risk, Moderate Risk, High Risk, and Very High Risk.

LeTourneau and Sundberg emphasize the use-span and history of the South Park Landfill, which they consider an unrecorded archaeological site that “could be significant as a sole or rare surviving expression of the evolution of the City of Seattle’s centralized waste collection and transfer to remote landfills” (LeTourneau and Sundberg 2015:2). Accordingly, archaeological monitoring was recommended for the geotechnical excavations. The reviewers also recommended that a professional archaeologist document and evaluate any deposits associated with the South Park Landfill (LeTourneau and Sundberg 2015:2).

2.2 Remedial Investigation/Feasibility Study Research

Additionally, archival research into the history of the Project AI was performed by FloydSnider during preparation of the RI/FS.

2.3 Historic Period Plat Map Research

Since King County's cultural resources review was performed in late November 2015, HRA limited additional archival review to an examination of historic-period maps and preparation of environmental and cultural contexts. HRA's in-house library was used to obtain information on the environmental, archaeological, and historical context of the AI. Historic nineteenth- and twentieth-century maps from the United States Surveyor General (USSG), GLO; and King County atlases were reviewed for historic structures, features, and land use patterns within the vicinity of the AI. The GLO plat is available online at the U.S. Department of the Interior's Bureau of Land Management (BLM) website. County atlases were reviewed online through HistoricMapWorks.com, and they are also available at the Seattle Public Library (SPL), Central Branch.

Historic maps indicate that the AI was situated mostly within the George Holt Donation Land Claim (DLC) No 51 (USSG 1863) (Table 2-1). This land claim was for 161.81 acres, filed in 1866 under the 1850 Oregon Donation Act (99 Stat 496) (BLM Serial Number WAOAA 072319). By the early twentieth century, the DLC was still shown on the Anderson Map Company's King County atlas, although it was spelled "Geo Holt" (Anderson 1907; Kroll 1912). By the mid-1930s, the South Park neighborhood and several streets in the immediate vicinity of the AI had been platted (Metsker 1936; Sanborn 1929). The USGS maps show a similar trajectory of development between 1894 and the mid-1900s. In the 1890s, the AI is shown as undeveloped, but roads and structures depicted on several of the topographic maps reflect the burgeoning agricultural and residential development of the neighborhood. West of the AI, a creek flows north to eventually join the Duwamish (USGS 1894, 1909, 1968).

Table 2-1. Historic Period Maps Referenced for Archival Research.

Map Reference	Ownership	Cultural Features and Comments
USSG 1863	George Holt	Donation Land Claim No. 51
USGS 1894	None shown	Road and structure north of AI; stream several hundred feet to west.
Anderson 1907	George Holt	Donation Land Claim No. 51
USGS 1909	None shown	Road and structure north of AI; stream several hundred feet to west.
Kroll 1912	None in AI (FH Schneider and Elkav(sp?) Stoll to south	None
Sanborn 1929	None shown	Streets platted in vicinity of AI
Metsker 1936	Unknown	Platted streets and South Park neighborhood
USGS 1968	None shown	Landfill developed with structures and Highway 99 to east.

3. Environmental Setting

Human land-use patterns would have been affected over time by environmental factors such as topography, climate, geology, fauna, and flora. The following sections provide a brief summary of the environmental and cultural resources for the Project vicinity that could have been available during prehistoric and ethnographic times to groups traveling through, residing in, or using the Project vicinity. For more detailed information, the reader is referred to the following reports:

- *45KI815 Archaeological Testing, South Park Bridge Replacement Project, FHWA Federal Aid Number DBP 1491 (001), King County, Washington* (Silverman et al. 2010)
- *Final Cultural Resources Section 106 Technical Report, Cultural Resources Survey for the South Park Bridge Project* (Demuth et al. 2008)
- *Cultural Resources Study for the SR 99 Intelligent Transportation System Improvements Project* (Foutch et al. 2009)

3.1 Topography and Geology

The Project is within the Puget Trough physiographic province. The province extends south from the Canadian border to the confluence of the Willamette River and the Columbia River, and is bounded on the east by the Cascade Range, on the west by the Olympic Mountains, and by the Willamette Valley on the south (Franklin and Dyrness 1973; Troost and Stein 1995). A gently rolling terrain with elevations within 525 feet above mean sea level characterizes the Puget Trough.

Several episodes of ice sheet advances and retreats occurred during the Late Pleistocene, with the Vashon Stade of the Fraser Glaciation being the latest. The Cordilleran Ice Sheet covered Puget Sound approximately 14,000 years ago, carving and scouring the topography during advances and retreats. Glacial outwash materials consisting of porous gravels and sands, and hard till with pockets of silt and clay were deposited as the ice retreated (Booth et al. 2004; Franklin and Dyrness 1973). Floodwaters from the melting ice also influenced the landscape. The glacial activity caused large depressions in the topography of Puget Sound, which later formed bays, inlets, and fjords as the ice melted and sea levels rose (McKee 1972).

More specifically, the Project is located on the West Seattle Peninsula, within the Seattle Fault Zone (Baum et al. 2008:Plate 1). The Project vicinity would have been affected by the episodes of glacial advance and retreat, and changes in sea level due to melting ice and isostatic rebound. Such factors

have direct and significant implications for the existence, preservation, and visibility of archaeological remains within the AI (Whittaker and Stein 1992). The AI is also located within the meandering flood plain of the Duwamish River, which deposited large amounts of alluvium during periodic flooding events. The Duwamish River was channelized in the early 1900s, although the current channel is a similar distance away from historically-mapped meanders of the freely-flowing river (USSG 1863; USGS 1894, 1909). At that time, dredge materials from the channelization were used to fill and stabilize the surrounding ground surface, which was then developed into what is now the South Park neighborhood (Schultze et al. 2013).

Previous subsurface investigation at the AI indicates approximately 20 ft of fill and refuse across much of the AI. The fill soils are typically sand with some silt and gravels. This layer is typically looser density than the underlying sediments. Below the fill and refuse (i.e., landfill), researchers noted silt overbank deposits in several locations within the AI. The overbank was encountered between 5 and 20 ft below surface and measures 2 to 12 ft thick. Loose sands, described as alluvium, are sometimes intermixed and sometimes underlie the overbank deposits, and contain varying amounts of silt, as well as organics and wood fragments. Alluvium was measured between 20 and 45 ft thick. Below the alluvium lies what is described in the Project's Final Geotechnical Report as the estuarine unit, which measures up to 75 ft thick. This unit contains sand and silty sand transitioning to sandy silt with increasing depth. The sediments contain shells and shell fragments. The basal sedimentary unit is glacial till, comprised of unsorted sediments (very dense silts, sands, and gravel) and is present at depths ranging from 105 to 115 ft bgs (Aspect 2015).

3.2 Climate and Vegetation

Climatic changes over the past 20,000 years have affected the landscape and vegetation. The large continental glaciers affected moisture levels allowing for cold, arid conditions in the Pacific Northwest (Broccoli and Manabe 1987:291, 294; Whitlock 1992:5). Moisture was redistributed as the glacial ice retreated and melted, precipitating a rise in land mass temperatures, as well as sea levels (Ruddiman and Wright 1987 in Whitlock 1992:5). On a regional scale, retreat of the glaciers prompted marine waters to flow into the Strait of Juan de Fuca and Puget Sound during backwasting events. Glaciomarine drift sediments were subsequently deposited, causing a cumulative effect for regional climate and vegetation patterns, as seen in paleoecological samples (Easterbrook 1992:65; Whitlock 1992:5).

The climate was colder between 20,000 and 16,000 years ago than what we experience today. Tundra and subalpine species migrated to lower elevations (Whitlock 1992:12). Grass, sedge (*Cyperaceae*), artemisia, and tundra herbs were dominant species in the Puget Trough area during this time (Barnosky 1981, 1985). A warming trend occurred between 12,000 and 7,000 years ago, causing the

climate to become drier. A shift back to cooler, moister conditions happened approximately 6,000 to 5,000 years ago. What was once closed-canopy forest transitioned to mosaic-forest parkland.

Today, the Pacific Northwest climate typically consists of cooler summers and mild, wet winters with westerly prevailing winds off the Pacific Ocean (Suttles 1990:17). Conifer forests, dominated by the western hemlock vegetation zone, cover glacial soils (Franklin and Dyrness 1973:17). Vegetation variations occur in microclimates dependent upon latitude, elevation, and relative location to mountain ranges (Franklin and Dyrness 1973:70–71). Douglas fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), and western redcedar (*Thuja plicata*) are the dominant species in this zone (Pojar and Mackinnon 2004:30–42). Grand fir (*Abies grandis*), Sitka spruce (*Picea sitchensis*), and western white pine (*Pinus monticola*) are less common but present (Barnosky et al. 1987; Brubaker 1991; Franklin and Dyrness 1973:72; Whitlock 1992). Red alder (*Alnus rubra*) and big-leaf maple (*Acer macrophyllum*) are secondary species (Franklin and Dyrness 1973). The vicinity of the AI is largely urbanized and industrial land, with few examples of native vegetation beyond that established in purposeful landscaping.

3.3 Fauna

Fauna was abundant in the vicinity of the AI during prehistoric and ethnographic times. Large terrestrial mammals would have included deer (*Odocoileus hemionus*), elk (*Cervus canadensis*), black bear (*Ursus americanus*), mountain lion (i.e., cougar, *Felis concolor*), and coyote (*Canis latrans*). Smaller mammals consisted of red fox (*Vulpes vulpes*), snowshoe hare (*Lepus americanus*), porcupine (*Erethizon dorsatum*), raccoon (*Procyon lotor*), and weasel (*Mustela frenata*) (Kruckeberg 1991; Larrison 1967).

Chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), pink (*O. gorbuscha*), and chum salmon (*O. keta*) species are indigenous to the White River and Duwamish River (Williams et al. 1975:2, 203). Other riverine resources would have included freshwater fish (such as trout [*Oncorhynchus* sp.] and whitefish [*Coregonus* sp.], eels [*Anguillidae* sp.]), otter (*Lutra canadensis*), muskrat (*Ondatra zibethica*), beaver (*Castor canadensis*), and waterfowl (*Aix* and *Anas* sp.) (Kruckeberg 1991; Larrison 1967; Suttles and Lane 1990).

In general, Southern Coast Salish groups considered shellfish an important part of the diet. Butter clam (*Saxidomus giganteus*), native littleneck clam (*Protothaca staminea*), native oyster (*Ostrea lurida*), geoduck (*Panopea generosa*), thin-shelled clam (*Protothaca tenerrima*), razor clam (*Siliqua patula*), horse clam (*Tresus* sp.), basket cockle (*Clinocardium nuttallii*), barnacle (*Balanus* sp.), and bay mussel (*Mytilus edulis*) were common shellfish species used by Southern Coast Salish people (Belcher 1985:47, 57–58; Suttles 1990:28). Several of these shellfish species were identified during archaeological investigations at the Lwalb Old Channel One Site (45KI815) (Schultze et al. 2013).

4. Cultural Setting

4.1 Prehistory

The landscape of the Pacific Northwest would have been available for human occupation approximately 14,000 years ago, after the retreat of the glaciers. New radiocarbon and DNA analysis information from the Manis Mastodon Site (45CA218) dates pre-Clovis occupation to 13,800 years ago, one of the oldest sites in North America (Waters et al. 2011:351). Although a bone point fragment was found in faunal remains at Site 45CA218, early sites typically consist of low density lithic scatters, believed to represent campsite or foraging areas. Highly acidic soils in the Puget Sound region commonly decompose softer materials such as bone, antler, shell, and other organics. More dense material like lithics tend to be preserved (Nelson 1990:481). Subsequently, the archaeological record for early sites is sparse, making it difficult to recreate the timeline for human land use patterns. Nevertheless, several cultural chronologies have been compiled for the region. Ames and Maschner (1999) have perhaps the most comprehensive chronology.

Ames and Maschner's cultural chronology indicates changes are based on technological advances and the increase in sedentism (1999:57–112). Their chronology is divided into five periods: Paleo-Indian, Archaic, Early Pacific, Middle Pacific, and Late Pacific.

The earliest occupants were nomadic, large-game hunters who would have left minimal trace in the archeological record. Early sites in the Puget Sound primarily consist of lithic scatters, most likely representing short-term camping or foraging locations. Over time, changes in settlement patterns included the use of semi-subterranean pithouses in semi-permanent and permanent village sites, indicating an increase in sedentism (Nelson 1990:483). Use of a variety of microenvironments encouraged the development of the seasonal round, with an emphasis on fishing, hunting, and gathering plants and other materials. Ames and Maschner (1999:25) suggest this is indicative of the emergence of a complex hunter-gather economy, a transitional time from the foraging economy in the Paleo-Indian phase.

Overall increasing social and cultural traits, such as intensification of resources, innovations in technology, permanent winter village sites, and social stratification, occurred (Ames and Maschner 1999:87). These factors continued throughout the Late Prehistoric and the Ethnographic Periods.

4.2 Ethnography and Ethnographic Land Use

The Project vicinity is within the aboriginal territory of the Duwamish tribe, a subgroup of the Southern Coast Salish (Spier 1936; Suttles and Lane 1990:486–487). The Southern Coast Salish was composed of two language groups, Twana and Lushootseed (further subdivided into Northern and Southern groups). The Duwamish were part of the Southern Lushootseed dialect group (Suttles and Lane 1990:486). The Duwamish followed the general Southern Coast Salish subsistence and settlement pattern, and had villages along Lake Washington, and the Duwamish, Cedar, and Black Rivers (Suttles and Lane 1990:488). Duwamish territory extended to the confluence of the White and Green Rivers (Swanton 1952).

The seasonal round developed around terrestrial, marine, and riverine environments (Haeberlin and Gunther 1930). Salmon and shellfish were a dietary staple (Thrush 2007:237–238). Semi-permanent and permanent winter villages were located along water courses, many near key fishing locations. Dwellings in the villages consisted of cedar plank longhouses designed to hold multiple families (Haeberlin and Gunther 1930). Temporary dwellings made from poles and covered with mats were used at campsites. Seasonal camps were utilized during the spring, summer, and fall to obtain specialized resources in a variety of locations, such as berry gathering and hunting at inland locations. Waterfowl and other birds were also utilized, especially during spring and fall migrations (Thrush 2007:237). The Lwalb Old Channel One site (45KI815) is one such example of a seasonal camp site, focused on the collection and processing of shellfish (Schultze et al. 2013).

Three ethnographic place names were recorded in the Project vicinity. A location on the west side of the Duwamish, where a bend in the river washes the foot of the bluffs, was termed *t(ç)q(a)balī*, meaning “where they place aerial net for trapping ducks” or “a place of blocking” (Hilbert et al. 2001:119–123; Thrush 2007:232, Map 2, 237). A small creek entering the Duwamish River from the west was called *īalīž*, meaning “frame from drying fish” or “a place for sliced things” (Hilbert et al. 2001:119, 124; Thrush 2007:232, Map 2, 237). A slough across a cutting point along the Duwamish River was called *īāīçqid*, meaning “head of the short cut” or “across the forehead a little” (Hilbert et al. 2001:119, 124; Thrush 2007:232, Map 2, 237).

4.3 Historic Period Non-Native Settlement

Euroamerican settlement of the South Park vicinity first occurred in 1851, with many DLCs filed, such as that by George Holt in 1866 (GLO 1866). The town of South Park was platted by I. William Adams in 1889, and soon the Grant Street Electric Railway was in place, allowing trolley line transportation between South Park and Seattle, and also over the Duwamish River. Agriculture was still a large venture in the area. By the early twentieth century many Italian and Japanese immigrants owned farms in South Park. After 1907, local agriculturalists supplied produce to the Seattle Public

Farmer's Market (later termed Pike Place by South Park farmer Giuseppe "Joe" Desimone) (Wilma 2001). In 1905, South Park citizens voted to incorporate as a city, with S.J. Bevan elected as the first mayor. Two short years later, South Park was annexed by the City of Seattle, allowing for advantages to the water and electrical utility systems (Lange 2001; Wilma 2001).

Channelization of the Duwamish River in 1913 changed the landscape in the South Park area and other neighboring vicinities. The meandering river was straightened into a deep channel, allowing ocean-going ships and barges access further downstream. In the vicinity of the AI, the Duwamish River once flowed naturally within approximately 0.25 mi northeast of the Project (USSG 1863): the straightened channel is also a similar distance away (Figure 1-1). This increased the land area for South Park by 66 acres. The first South Park Bridge was constructed in 1915, enabling easier access across the Duwamish River (Long 2010a). By the 1920s, industrial businesses were established in South Park. The Boeing Airplane Company (Boeing) established a factory and gravel airstrip just north of South Park. The 14th Avenue Bridge (South Park Bridge) was erected on March 21, 1931, replacing the 1913 structure (Long 2010b). The industrial segment was prospering, prompting Boeing to expand efforts during World War II. By the 1960s, the agricultural landscape gave way to industrial and residential zoning. Today the area is a mixture of industrial, commercial, and residential neighborhoods (Wilma 2001).

The South Park Landfill, operated by the City of Seattle, accepted solid waste from a variety of sources, including municipal, local commercial, and industrial waste, which was periodically burnt to reduce volume. The landfill was in use from the 1930s to 1966, when it was closed and capped with fill. After landfill closure, the area was redeveloped into several parcels, and the landfill was subject to episodes of grading and filling. The landfill covers 39 acres; the SRDS parcel, location of the AI, comprises 10.3 acres of the total landfill area (Floyd|Snider and Aspect 2014:2-1, 2-2).

5. Anticipated Archaeological Finds

Based on the background review provided by LeTourneau and Sundberg (2015), and the Floyd|Snider and Aspect team (2014), as well additional archival research, HRA developed probabilities for prehistoric and ethnographic Native American, and historic non-Native American, archaeological resources in the AI. These probabilities are based on review of environmental, geological, ethnographic, historical archival data, and previously recorded archaeological sites in the vicinity of the Project.

The Project is situated close to the pre-channelized location of the Duwamish River and within 0.5 mi of three prehistoric shell midden sites. The locations of ethnographic places and other landmarks indicate food processing in settings near sources of water. The use of the AI for travel and/or settlement during the prehistoric and ethnographic periods is likely due to its topography and proximity to water and travel routes. HRA considers there to be a moderate to high potential for intact prehistoric and ethnographic-period Native American cultural resources within the AI, likely in the native, possibly intact overbank and alluvial sediments below the landfill/refuse layer. Prehistoric and ethnographic period resources could include lithic, bone, or wooden tools, and possibly the remains of hearth processing features (i.e., fire cracked rock, charcoal, oxidized eary). There is also the potential for shell midden sediments as well as the remnants of food and materials from plants and animals.

The vicinity of the AI has also been modified significantly during the historic-period and during modern times due to residential settlement, commercial and industrial purposes, utilities, roadways, and, most saliently, the use and redevelopment of the South Park Landfill. The probability of historic-period Native and non-Native archaeological materials is high. The presence of the materials associated with the South Park Landfill, which dates between the 1930s and 1960s, has been documented, but the artifacts have not been recorded as an archaeological site. Historic-period resources associated with the landfill may be intermixed with fill sediments, and could include artifacts such as shards of glass bottles and vessels; shards of ceramic dishware or vessels; metal fragments, cans, or machinery parts; structural concrete; and pieces of brick and wood debris. It is also probable that many of these artifacts will be burned or oxidized, and that quantities of ash and charcoal are present.

6. Procedures for Archaeological Monitoring and Inadvertent Discovery Plan (IDP)

SPU will arrange for a professional archaeologist who meets the Secretary of the Interior’s qualifications (36 CFR Part 61; required by the State of Washington in RCW 27.53.030.8) to provide oversight for all cultural resources related activities on the site. If an archaeologist meeting the qualifications is not available but an experienced archaeologist (e.g., one with five or more years of experience in a variety of archaeological field situations) is available to monitor geotechnical exploration, they will be allowed to do so given that a “Supervisory Plan for Archaeological Monitoring” has been filed with DAHP by the consultant prior to their work at the site. The form is located in Appendix A. Appendix B contains a Project Contacts list which includes the names of the supervising archaeologists.

On the first day of monitoring, prior to the commencement of construction activities, HRA’s Archaeological Monitor will brief SPU’s geologist/engineer and the contracted construction operators (e.g., drillers, excavator operators) about potential cultural resource issues. The monitor will briefly explain the purpose of the work, how it will be conducted, and what crew members can help watch for.

6.1 Archaeological Monitoring of Geotechnical Borings

1. An archaeologist will monitor excavation for all proposed geotechnical testing locations.
2. The archaeologist will record the monitoring work as follows: daily activities will be recorded on a Daily Record Form (Appendix C) and in a field notebook, and overview photographs of the geotechnical testing locations, along with detailed photographs of these locations, work in progress, and any cultural materials, will be promptly logged in a field notebook. In addition, the archaeologist will log in sketches/drawings of particular areas, features, and (as feasible) soil profiles, and the locations of testing that have been monitored will be noted on a field map for the Project.
3. During geotechnical testing, the archaeological monitor will examine soils if it is determined that it is safe to do so, including sediments from borings and in soil cuttings. Equipment for examination of soils will include, as appropriate, personal protective equipment (PPE—

anticipated to include at least nitrile gloves as well as hard hat, eye and ear protection, steel-toed boots, and a safety vest), a shovel, trowel, and screen of ¼-inch (in) mesh. The archaeologist will watch for prehistoric or historic-period artifacts or layers/lenses of organic material or shell, and organically enriched midden soils that might indicate past human use.

4. The monitoring archaeologist will work with SPU’s geologist/engineer to obtain accurate sediment descriptions for use in the monitoring report.
5. Excavation at each testing location will not continue until the archaeological monitor has had an opportunity to inspect the sediments in each sample tube, take notes, and collect an overview photograph.
6. SPU will authorize the archaeologist to stop geotechnical testing periodically, as needed, for a closer examination of exposed soils. SPU will inform onsite personnel about the archaeologist’s monitoring work, and make provisions, within its agreement with them, for work stoppage, when applicable, for inspection of possible finds.
7. The archaeological monitor will follow instructions from the onsite representative in matters pertaining to safety and geotechnical exploration activities.
8. It is anticipated that historic-period materials associated with the South Park Landfill will be encountered during archaeological monitoring. The archaeological monitor will examine these materials as visible in the boring sample tubes. The archaeologist will take overview photographs of each diagnostic artifact and describe its characteristics in the field notebook. The archaeologist will also take representative photographs of other, non-diagnostic materials (e.g., brick, glass, or ceramic fragments with no maker’s mark or diagnostic characteristics) but may not photograph each sample. SPU will ensure that work proceeds at a pace to allow the archaeologist to fully describe materials as necessary for assessment of the cultural layer.
9. If the archaeological monitor or any member of the geotechnical exploration crew believes that they have encountered prehistoric (including, but not limited to, intact deposits of midden sediments; clusters of fire-modified rock (FMR), charcoal, or other evidence of fire-related activities; and faunal remains in association with stone chips or tools) or historic-period archaeological materials (such as refuse concentrations, machinery fragments, or house foundations) *other than* the anticipated historic-period South Park Landfill materials during geotechnical testing, the archaeologist will direct SPU’s team to stop work—at least temporarily—at that location to protect potential additional resources.

10. If there is suspicion that the artifacts may be in a fill layer, the archaeologist may request that drilling and sampling continue to assess the nature of sediments below the observed materials.
11. If the artifact(s) were found in a geotechnical bore, as it would be anticipated (as opposed to other forms of geotechnical exploration), it may be feasible for SPU to find another location to continue their work. This location will likely be outside of a 50-ft radius of the cultural materials, but perhaps within 100 ft, as feasible, and will vary depending on the characteristics of the archaeological materials (for instance, whether the find is prehistoric versus historic-period).
12. The archaeological monitor will take overview photographs and form a quick description of the characteristics and location of the cultural materials for further investigation during future phases of construction work, to allow for minimal delays in geotechnical boring.
13. Halting of geotechnical boring for inspection of a possible find may take only a few minutes, but rarely would exceed 30 minutes, to allow the monitoring archaeologist to characterize the deposit and, if feasible, identify whether or not it is an intact archaeological deposit. The archaeologist will take notes on the location observed (e.g., depth in metric units below surface), the sedimentary context, and other pertinent information, and will document the find with photographs.
14. When monitoring work has been completed, HRA will prepare a report discussing the methods and results of the work. The draft report will be provided to SPU within 10 business days of completion of monitoring work (provided no archaeological resources are found). After a short review period, SPU will direct the archaeologist to make revisions that take into account review comments. HRA will provide a final copy to SPU for distribution to the affected Tribes and DAHP.
15. If monitoring reveals human remains, the procedures listed in Section 7.0 will be followed.

7. Inadvertent Discovery of Human Remains

Any human remains that are discovered during project-related geotechnical exploration, construction, maintenance, or operation activities will be treated with dignity and respect.

In the event that human remains are discovered during geotechnical, construction, maintenance, or operation of the Project, the following procedures are to be followed to ensure compliance with RCW 68.60: *Abandoned and Historic Cemeteries and Historic Graves*, and RCW 27.44: *Indian Graves and Records*.

If ground disturbing activities encounter human skeletal remains during the course of geotechnical, construction, maintenance or operation of the Project, then all activity **must** cease that may cause further disturbance to those remains and the area of the find must be secured and protected from further disturbance. In addition, the finding of human skeletal remains **must** be reported to the King County Medical Examiner **and** local law enforcement in the most expeditious manner possible. The remains should not be touched, moved, or further disturbed.

The King County Medical Examiner will assume jurisdiction over the human skeletal remains and make a determination of whether those remains are forensic or non-forensic. If the King County Medical Examiner determines the remains are non-forensic, then they will report that finding to DAHP, who will then take jurisdiction over those remains and report them to the appropriate cemeteries and affected tribes. The State Physical Anthropologist will make a determination of whether the remains are Indian or Non-Indian and report that finding to any appropriate cemeteries and the affected tribes. DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains.

8. References

- Ames, K. M., and H. D. G. Maschner
1999 *Peoples of the Northwest Coast, Their Archaeology and Prehistory*. Thames and Hudson Ltd., London, England.
- Anderson Map Company (Anderson)
1907 *King County 1907 Atlas*. Anderson Map Company, Seattle, Washington. Electronic document, <http://www.historicmapworks.com>, accessed November 13, 2014.
- Aspect Consulting
2015 *South Transfer Station Phase II: Geotechnical Report for Options Analysis*. Prepared for HDR and Seattle Public Utilities. Document provided by Seattle Public Utilities and on file at Historical Research Associates, Inc., Seattle, Washington.
- Barnosky, Cathy W.
1981 A Record of Late Quaternary Vegetation from Davis Lake, Southern Puget Lowland. *Quaternary Research* 16:221–239.
1985 Late Quaternary Vegetation near Battle Ground Lake, Southern Puget Trough, Washington. *Geological Society of America Bulletin* 96:263–271.
- Barnosky, Cathy W., Patricia M. Anderson, and Patrick J. Bartlein
1987 Chapter 14: The Northwestern U.S. During Deglaciation; Vegetational History and Paleoclimatic Implications. In *The Geology of North America, Volume K-3: North America and Adjacent Oceans During the Last Deglaciation*, edited by W. F. Ruddiman and Herbert E. Wright, Jr., pp. 289–321. Geological Society of America, Boulder, Colorado.
- Baum, Rex L., Jonathan W. Godt, and Lynn M. Highland
2008 Landslides and Engineering Geology of the Seattle, Washington, Area. *Reviews in Engineering Geology* XX. The Geological Society of America, Boulder, Colorado.
- Belcher, William R.
1985 Shellfish Utilization among the Puget Salish. Unpublished Master's Thesis, Western Washington University, Bellingham.
- Blukis Onat, Astrida R.
2007a *Lwalb Old Channel One Site (45KI815) State of Washington Archaeological Site Inventory Form*. BOAS, Inc., Seattle, Washington. On file at Department of Archaeology and Historic Preservation, Olympia, Washington.
2007b *Lwalb Old Channel Two Site (45KI816) State of Washington Archaeological Site Inventory Form*. BOAS, Inc., Seattle, Washington. On file at Department of Archaeology and Historic Preservation, Olympia, Washington.
2007c *Site Three (45KI817) State of Washington Archaeological Site Inventory Form*. BOAS, Inc., Seattle, Washington. On file at Department of Archaeology and Historic Preservation, Olympia, Washington.

- Booth, Derek B., Kathy Goetz Troost, John J. Clague and Richard B. Waitt
 2004 The Cordilleran Ice Sheet. In *The Quaternary Period in the United States*, edited by Gillespie. Elsevier Publishing, New York.
- Broccoli, A. J., and S. Manabe
 1987 The Effects of the Laurentide Ice Sheet on North American Climate during the Last Glacial Maximum. *Geographie physique et Quaternaire* XLI(2):291–299.
- Brubaker, Linda B.
 1991 Climate Change and the Origin of Old-Growth Douglas-Fir Forests in the Puget Sound Lowland. In *Wildlife and Vegetation of Unmanaged Douglas-Fir Forests*, edited by Leonard F. Ruggiero, Keith B. Aubry, Andrew B. Carey, and Mark F. Huff, pp. 17–24. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, General Technical Report PNW-GTR-285.
- Cooper, Jason B.
 2013 *Isolate 45KI1142 State of Washington Archaeological Isolate Inventory Form*. On file at Department of Archaeology and Historic Preservation, Olympia, Washington.
- Demuth, Kimberly, Craig Smith, Robin Hoffman, Kirk Ranzetta, Jennifer Flathman, David Harvey, Jeannie Cziesla, Lucy Flynn Zuccotti, Astrida Blukis Onat, and Timothy L. Cowan
 2008 *Final Cultural Resources Section 106 Technical Report-Cultural Resources Survey for the South Park Bridge Project*. Entrix, and BOAS, Inc, Seattle, Washington. Prepared for King County Road Services Division, Seattle, Washington.
- Easterbrook, Don J.
 1992 Advance and Retreat of Cordilleran Ice Sheets in Washington, U.S.A. *Geographie physique et Quaternaire* 46(1):51–68.
- Floyd|Snider-Aspect Team 2015
 2014 *South Park Landfill: Remedial Investigation/Feasibility Study*. Prepared for City of Seattle, South Park Property Development, LLC by Aspect Consulting, LLC, Floyd|Snider, BHC Consultants, and Herrera Environmental Consultants, Inc. Electronic document, <https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=1324>, accessed November 24, 2015.
- Foutch, Amy E., Michele L. Punke, Jon Held, Elizabeth J. O'Brien, and John L. Fagan
 2009 *Cultural Resources Study for the SR 99 Intelligent Transportation System Improvement Project*. Archaeological Investigations Northwest, Inc., Portland, Oregon. Submitted to Washington State Department of Transportation, Urban Corridors Office, Seattle, Washington.
- Franklin, Jerry F., and C. T. Dyrness
 1973 *Natural Vegetation of Oregon and Washington*. USDA Forest Service, General Technical Report PNW-8.
- General Land Office (GLO)
 1866 *Land Patent Record-George Holt. BLM Serial Nr. WAOAA 072319*. Bureau of Land Management, General Land Office Records. Electronic document, <http://www.glorerecords.blm.gov/>, accessed November 23, 2015.

- Gilpin, Jennifer, and Shari M. Silverman
 2010 *Update to Lwalb Old Channel One Site (45KI815) State of Washington Archaeological Site Inventory Form*. Historical Research Associates, Inc., Seattle, Washington. On file at Department of Archaeology and Historic Preservation, Olympia, Washington.
- Haerberlin, Hermann, and Erna Gunther
 1930 *The Indians of Puget Sound*. University of Washington Publications in Anthropology, Seattle.
- Herrera Environmental Consultants and Aspect Consulting
 2015 *Interim Action Work Plan: South Transfer Station Phase II*. Electronic document, <https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=1324>, accessed November 24, 2015.
- Hilbert, Vi, Jay Miller, and Zalmai Zahir
 2001 *Puget Sound Geography: Original Manuscript from T.T. Waterman*. Edited with additional material from Vi Hilbert, Jay Miller, and Zalmai Zahir. Lushootseed Press, Seattle, Washington.
- Kroll Map Company
 1912 *Kroll's Atlas of King County, Wash.* (T.24N, R.4E, W.M.). Kroll Map Company, Seattle, Washington. Electronic document, <http://www.historicmapworks.com/>, accessed November 13, 2014.
- Kruckeberg, Arthur R.
 1991 *The Natural History of Puget Sound Country*. University of Washington Press, Seattle.
- Lange, Greg
 2001 City of Seattle Annexes the Town of South Park on May 3, 1907. Essay # 3316. Electronic document, <http://www.historylink.org>, accessed November 14, 2014.
- Larrison, Earl J.
 1967 *Mammals of the Northwest: Washington, Oregon, Idaho, and British Columbia*. Seattle Audubon Society, Seattle, Washington.
- LeTourneau, Philippe D. and Charles Sundberg
 2015 *South Transfer Sta. Phase II Geotech Investigation, King County Cultural Resources Review*. King County Historic Preservation Program, Seattle, Washington. Submitted to Seattle Public Utilities, Seattle, Washington. Performed November 20, 2015.
- Long, Priscilla
 2010a The First South Park Bridge, a Wooden Swing Bridge Spanning the Duwamish River, Opens on September 3, 1915. Essay # 9471. Electronic document, <http://www.historylink.org>, accessed November 14, 2014.
 2010b South Park (14th Avenue S) Bridge, Spanning the Duwamish Waterway Opens to Traffic on March 21, 1931. Essay # 9470. Electronic document, <http://www.historylink.org>, accessed November 14, 2014.
- McKee, B.
 1972 *Cascadia: The Geologic Evolution of the Pacific Northwest*. McGraw Hill Book Company, New York.

- Marcotte, Jacqueline and Paula Johnson
 2014 *West Duwamish Trail Extension Project, Seattle, King County, Washington: Results of Archaeological Monitoring*. Prepared for Seattle Department of Transportation by ESA, Seattle, Washington. On file at Department of Archaeology and Historic Preservation, Olympia, Washington.
- Marcotte, Jacqueline, Bryan Hoyt, Chris Lockwood, and Paula Johnson
 2013 *West Duwamish Trail Extension Project, Seattle, King County, Washington: Cultural Resources Assessment*. Prepared for Seattle Department of Transportation by ESA, Seattle, Washington. On file at Department of Archaeology and Historic Preservation, Olympia, Washington.
- Metsker, Chas. F (Metsker)
 1936 *King County 1936 Atlas*. Metsker Maps, Seattle, Washington. Electronic document, <http://www.historicmapworks.com>, accessed November 13, 2014.
- Nelson, Charles M.
 1990 Prehistory of the Puget Sound Region. In *Northwest Coast*, edited by Wayne Suttles, pp. 481– 484. Handbook of North American Indians, Vol. 7, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.
- Pojar, Jim, and Andy Mackinnon
 2004 *Revised-Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia, and Alaska*. B.C. Ministry of Forests and Lone Pine Publishing, Vancouver, British Columbia, Canada.
- Ruddiman, W. F., and H. E. Wright, Jr.
 1987 North America and Adjacent Oceans during the Last Deglaciation. *Geological Society of America*. Boulder, Colorado.
- Sanborn Fire Insurance Map Company (Sanborn)
 1929 *Map for City of Seattle, Washington. Volume 7, 1929*. Sanborn Fire Insurance Map Company, Seattle, Washington.
- Schultze, Carol, Brent A. Hicks, Shari Maria Silverman, Jennifer Gilpin
 2013 *45KI815 Archaeological Data Recovery, South Park Bridge Replacement Project, King County, Washington*. Historical Research Associates, Inc., Seattle, Washington. Submitted to HNTB Corporation, Inc., Bellevue, Washington.
- Schultze, Carol
 2014 *Update to Lwalb Old Channel One Site (45KI815) State of Washington Archaeological Site Inventory Form*. Historical Research Associates, Inc., Seattle, Washington. On file at Department of Archaeology and Historic Preservation, Olympia, Washington.
- Spier, Leslie
 1936 Tribal Distribution in Washington. *General Series in Anthropology* 3. George Bant Publishing Company, Menasha, Wisconsin.
- Suttles, Wayne
 1990 Environment. In *Northwest Coast*, edited by Wayne Suttles, pp. 16–29. Handbook of North American Indians, Vol. 7, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

- Suttles, Wayne, and Barbara Lane
 1990 Southern Coast Salish. In *Northwest Coast*, edited by Wayne Suttles, pp. 485–502. Handbook of North American Indians, Vol. 7, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.
- Swanton, John Reed
 1952 *Indian Tribes of Washington, Oregon and Idaho*. Bulletin 145 of the Bureau of American Ethnology, Smithsonian Institution, Washington, D.C.
- Thrush, Coll
 2007 *Native Seattle: Histories from the Crossing-Over Place*. University of Washington Press, Seattle.
- Troost, Kathy, and Julie K. Stein
 1995 Geology and Geoarchaeology of West Point. In *The Archaeology of West Point, Seattle, Washington: 4,000 Years of Hunter-Fisher-Gatherer Land Use in Southern Puget Sound*, edited by Lynn L. Larson and Dennis E. Lewarch, pp. 2.1-2.78. Larson Anthropological / Archaeological Services, Seattle, Washington. Submitted to King County Department of Metropolitan Services (METRO), Seattle, Washington.
- United States Geological Survey (USGS)
 1894 Seattle, Washington 1:62,500 Topographic Quadrangle. Electronic resource, <http://historicalmaps.arcgis.com/usgs/>, accessed November 25, 2015.
 1909 Seattle Special, Washington 1:62,500 Topographic Quadrangle. Electronic resource, <http://historicalmaps.arcgis.com/usgs/>, accessed November 25, 2015.
 1968 Seattle South, Washington 1:24,000 Topographic Quadrangle. Electronic resource, <http://historicalmaps.arcgis.com/usgs/>, accessed November 25, 2015.
- United States Surveyor General (USSG)
 1863 General Land Office Map, Township 24 North, Range 4 East, Willamette Meridian. Washington State Department of Natural Resources, Olympia.
- Waters, Michael R., Thomas W. Stafford, Jr., H. Gregory McDonald, Carl Gustafson, Morten Rasmussen, Enrico Cappellini, Jesper V. Olsen, Damian Szklarczyk, Lars Juhl Jensen, M. Thomas P. Gilbert, and Eske Willerslev
 2011 Pre-Clovis Mastodon Hunting 13,800 Years Ago at the Manis Site, Washington. *Science* 334(October 2011):351–353.
- Whitlock, Cathy
 1992 Vegetational and Climatic History of the Pacific Northwest during the last 20,000 Years: Implications for Understanding Present-Day Biodiversity. *The Northwest Environmental Journal* 8:5–28.
- Whittaker, F. H., and J. K. Stein
 1992 Shell Midden Boundaries in Relation to Past and Present Shorelines. In *Deciphering a Shell Midden*, edited by J. K. Stein, pp. 25–42. Academic Press, Inc., San Diego, California.
- Williams, Walter R., Richard M. Laramie, and James J. Ames
 1975 *Catalog of Washington Streams and Salmon Utilization, Volume 1, Puget Sound Region*. Washington State Department of Fisheries, Olympia.

Wilma, David

2001 Seattle Neighborhoods: South Park-Thumb Nail History. Essay # 2985. Electronic document, <http://www.historylink.org>, accessed November 14, 2014.

Appendix A. Example Supervisory Plan

Supervisory Plan for Archaeological Monitoring

Project: Project

Location: Seattle, King County, Washington

Monitoring Plan: Attachment A (not included herein)

Name of Archaeological Monitor: Name

Monitor's Resume Attachment B (not included herein)

Summary of Monitor's Qualifications:

- At least 5 years of archaeological field experience: Yes No
- Experience in archaeological excavation: Yes No
- Experience with historical and prehistoric archaeological artifacts and deposits that could be found at the monitoring location: Yes No
- Experience in archaeological monitoring: Yes No
(or an HRA onsite supervisor will be present during first monitoring project)

Professional Archaeologist(s) who will serve as Monitoring Supervisor(s):

Name, Degree	Position
Lynn Compas, M.A.	HRA Senior Archaeologist
Jennifer Gilpin, M.A.	HRA Project Archaeologist
Jordan Pickrell, Ph.D.	HRA Research Archaeologist

Supervisory Requirements:

- Monitor will have a cell phone and a digital camera.
- Supervisor will visit the project site at the beginning of the work, if the monitor has not worked at the location previously. Supervisor will visit the project site periodically if the monitoring work continues longer than two full-time weeks. Supervisor will visit the project site if a find is made that needs immediate attention.
- Monitor will record daily notes on HRA's standard monitoring form (Attachment C). Monitor will take at least one photograph daily to record the work progress.
- Monitor will telephone Monitoring Supervisor daily to describe construction work, monitoring methods, and findings, and to discuss any questions.
- Monitor will send electronic photographs of any finds of artifacts or deposits to supervisor for discussion of treatment measures and decisions. The Supervisor will be available to visit site on short notice to view finds that are questionable and/or need immediate attention.
- Monitor will submit written notes weekly for Supervisor's review.

Supervisor will review written notes at least weekly and during site visits, and will sign each monitoring record form.

Appendix B. Project Contacts List

Project Contacts List

Seattle Public Utilities (SPU)

Aaron Clark, L.G., HRA/SPU Field Contact

Work Telephone: (206) 733-9520

Cell: (206) 423-2569

Email: Aaron.Clark@seattle.gov

Clay Antieau, HRA/SPU Contract Manager

Telephone: (206) 233-3711

Email: Clayton.Antieau@seattle.gov

City of Seattle Police Department (SPD)

Precinct Captain Mike Washburn

Seattle Police Department

South Precinct

3001 S. Myrtle

Seattle, WA 98108

(206) 386-1850

King County Medical Examiner

Richard Harruff, Medical Officer

Harborview Medical Center

325 9th Avenue, Box 359792

Seattle, WA 98104-2499

Telephone: (206) 731-3232

Fax: (206) 731-8555

Email: richard.harruff@kingcounty.gov

Archaeological Consultant

Historical Research Associates, Inc. (HRA)

Jennifer Gilpin

Telephone: (206) 343-0226

Tribes

Cecile Hansen, Chairwoman

Duwamish Tribe

4705 W. Marginal Way S.W.

Seattle, WA 98106-1514

Telephone: (206) 431-1582

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Suquamish Tribe

PO Box 498

Suquamish, WA 98392-0498

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Steve Mullen-Moses, Director of Archaeology and Historic Preservation
Snoqualmie Nation
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Kerry Lyste, Cultural Resources
Stillaguamish Tribe
3310 Smokey Point Drive
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Arlington, WA 98223-0277
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Washington State Department of Archaeology and Historic Preservation (DAHP)

State Archaeologist
Dr. Rob Whitlam
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Olympia, WA 98501
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State Physical Anthropologist
Dr. Guy Tasa
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Appendix C. Monitoring Form

Project Name and Number			
Name			
Date	Total Hours on Site	Hours Travel	
Safety Meeting <input type="checkbox"/> Yes <input type="checkbox"/> No	Issues		
Weather Conditions			
Site Location			
Site Setting- Ground visibility, materials visible on surface, etc.			
Nature of Construction Activity- Skidding, grubbing, scraping, excavating, demolition, etc.?			
Equipment working in vicinity of Site(s) Types and number of machines			
Workers Present Names and Companies			
Visitors/Other Monitors Names and Companies			
Arch Monitoring Activities Describe in full if equipment was stopped or asked to move			
Notes on Discussions with others- HRA, other contractors, Tribes			
Halt? <input type="checkbox"/> Temporary <input type="checkbox"/> Extended	Reason?	Client/Agency Contacted? <input type="checkbox"/> Yes <input type="checkbox"/> No	Contact Name Time of Call? <input type="checkbox"/> am
Instructions- Halt activities, continue to monitor, etc.			
Camera Number		Photo Numbers	
Camera Number		Photo Numbers	