

CULTURAL RESOURCES REPORT COVER SHEET

Author: Bethany K. Mathews

Title of Report: Cultural Resource Assessment for the Cosser Tiny Homes Development, Chehalis, Lewis County, WA

Date of Report: 22 December 2021

County(ies): Lewis Section: 11, 14 Township: 13 N Range: 2W

Quad: Napavine, WA Acres: 8.3

PDF of report submitted (REQUIRED) Yes

Historic Property Inventory Forms to be Approved Online? Yes No

Archaeological Site(s)/Isolate(s) Found or Amended? Yes No

TCP(s) found? Yes No

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 #:
45LE01066

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**Cultural Resource Assessment for the
Cosser Tiny Homes Development,
Chehalis, Lewis County, WA**

Prepared by:

Bethany K. Mathews, MA, RPA
Archaeologist & Principal
Antiquity Consulting, LLC
1107 West Bay Dr NW
Olympia, WA 98502
antiquityconsulting@gmail.com
www.AntiquityConsulting.com
360.819.4998

Prepared for:

Fuller Designs
1101 Kresky Ave
Centralia, WA 98531

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Lead Agency:

City of Chehalis
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EXECUTIVE SUMMARY

Antiquity Consulting was contracted by Fuller Designs to conduct a cultural resource assessment for the Cosser Tiny Homes Development, located at 2945 Jackson Highway, in Chehalis, Lewis County, WA (Township 13N Range 2W Sections 11, 14; parcel 017808001006). During the project State Environmental Policy Act review, the City of Chehalis requested a cultural resources survey for the project due to the high probability for encountering archaeological resources at this location. Antiquity Consulting completed a cultural resources survey for the proposed project area in December 2021. Pedestrian and subsurface survey was limited across portions of the project area by high groundwater, however subsurface probing indicated A/B/C horizons had been disturbed across the parcel. One edge-modified cobble was observed in the project area. Archaeological monitoring is recommended for the project.

INTRODUCTION

Antiquity Consulting was contracted by Fuller Designs to conduct a cultural resource assessment for the Cosser Tiny Homes Development, located at 2945 Jackson Highway, in Chehalis, Lewis County, WA (Township 13N Range 2W Sections 11, 14; parcel 017808001006). During the project State Environmental Policy Act review, the City of Chehalis requested a cultural resources survey for the project due to the high probability for encountering archaeological resources at this location.

Project Background

During the State Environmental Policy Act review for this project, the City of Chehalis requested a cultural resources survey for the project. The project is located in an area considered high probability for encountering archaeological resources. Per the Washington State Standards for Cultural Resources Reporting (Washington State Department of Archaeology and Historic Preservation 2020A), this cultural resource assessment was led by Secretary of the Interior-qualified Archaeologist Bethany Mathews, MA, RPA.

Project Description

Dave Cosser intends to develop the Cosser Tiny Homes Development, located at 2945 Jackson Highway, in Chehalis, Lewis County, WA (Township 13N Range 2W Section 11 SE $\frac{1}{4}$ SE $\frac{1}{4}$; and Section 14 NW $\frac{1}{4}$ NE $\frac{1}{4}$; parcel 017808001006). The project includes the development of 56 tiny homes and encompasses 8.3 acres. Water and sewer will be provided to each site. A stormwater system and access roads will also be constructed (Figures 1-2).

Tribal Coordination

The Confederated Tribes of the Chehalis Reservation, the Cowlitz Indian Tribe, the Quinault Indian Nation, the Nisqually Indian Tribe, and Squaxin Island Tribe cultural resources staff were notified of the archaeological survey schedule on 12 December 2021. At that time Antiquity Consulting notified the Tribes that a standard pedestrian and subsurface survey would be conducted and requested to incorporate information from the respective departments into the historic context and research design.

Regulatory Context

This survey was completed at the request of the City of Chehalis, to meet the requirements of the State Environmental Policy Act (SEPA). SEPA requires that all major actions sponsored, funded, permitted, or approved by State and/or local agencies provide consideration of the impacts of the planned action on the environment, which includes properties of historical, archaeological, scientific, or cultural importance (Washington Administrative Code 197-11-960). The Department of Archaeology and Historic Preservation is the agency with the technical expertise to consider the effects of a proposed action on cultural resources and to provide formal recommendations to local governments and other State agencies for appropriate treatments or actions.

Washington State protects its archaeology and heritage resources under various laws. In Washington State it is illegal to knowingly disturb archaeological sites or certain archaeological materials on state and private lands. Laws protecting these resources include the Archaeological Sites and Resources Law (RCW 27.53), Indian Graves and Records Law (RCW 27.44), Human Remains Law (RCW 68.50), and Abandoned and Historic Cemeteries and Historic Graves Law (RCW 68.60). Per RCW 27.53.060 and WAC 25-48-060 the Department

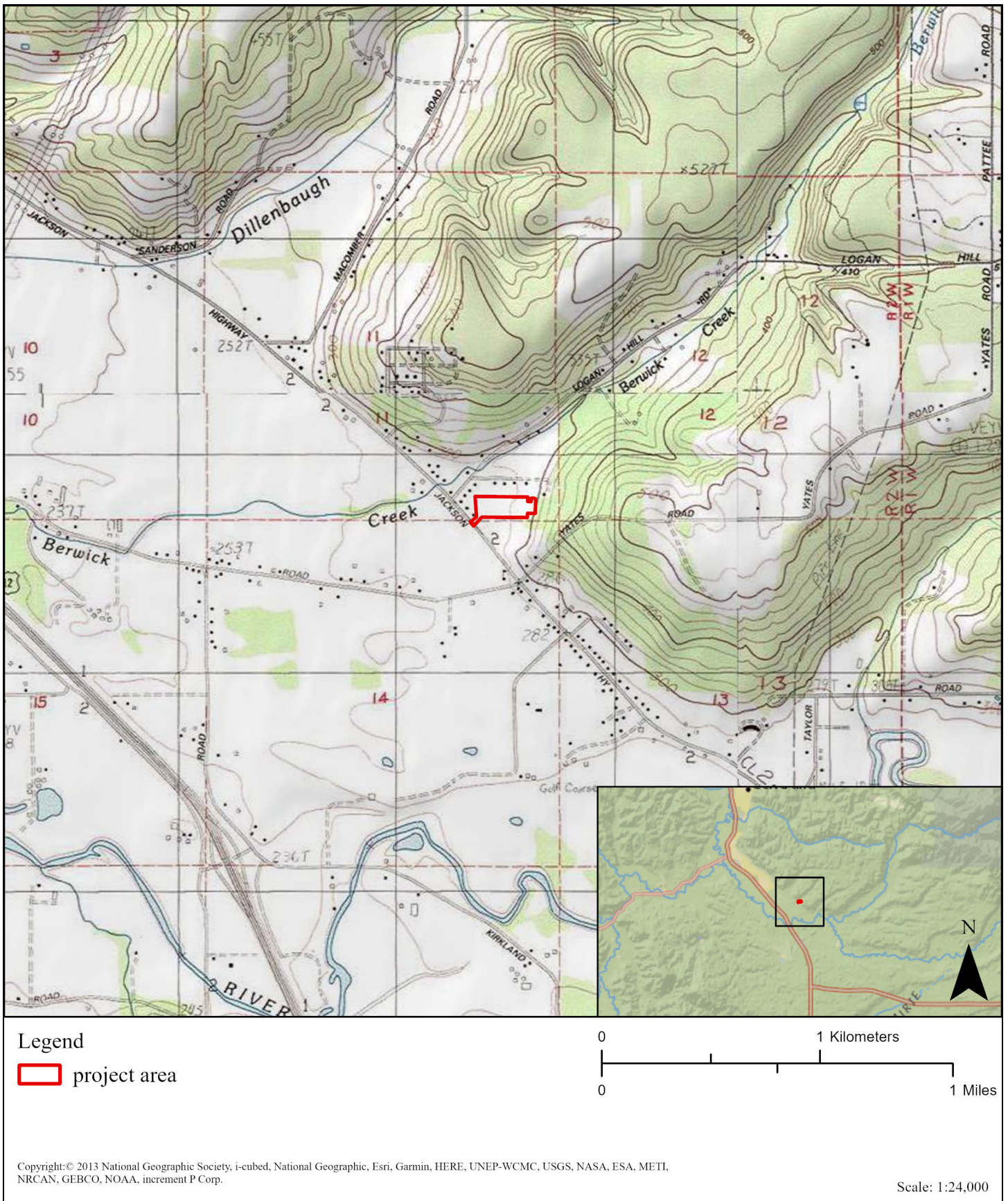


Figure 1. Project location marked on 1:24,000 Napavine, WA USGS 7.5-minute quadrangle.

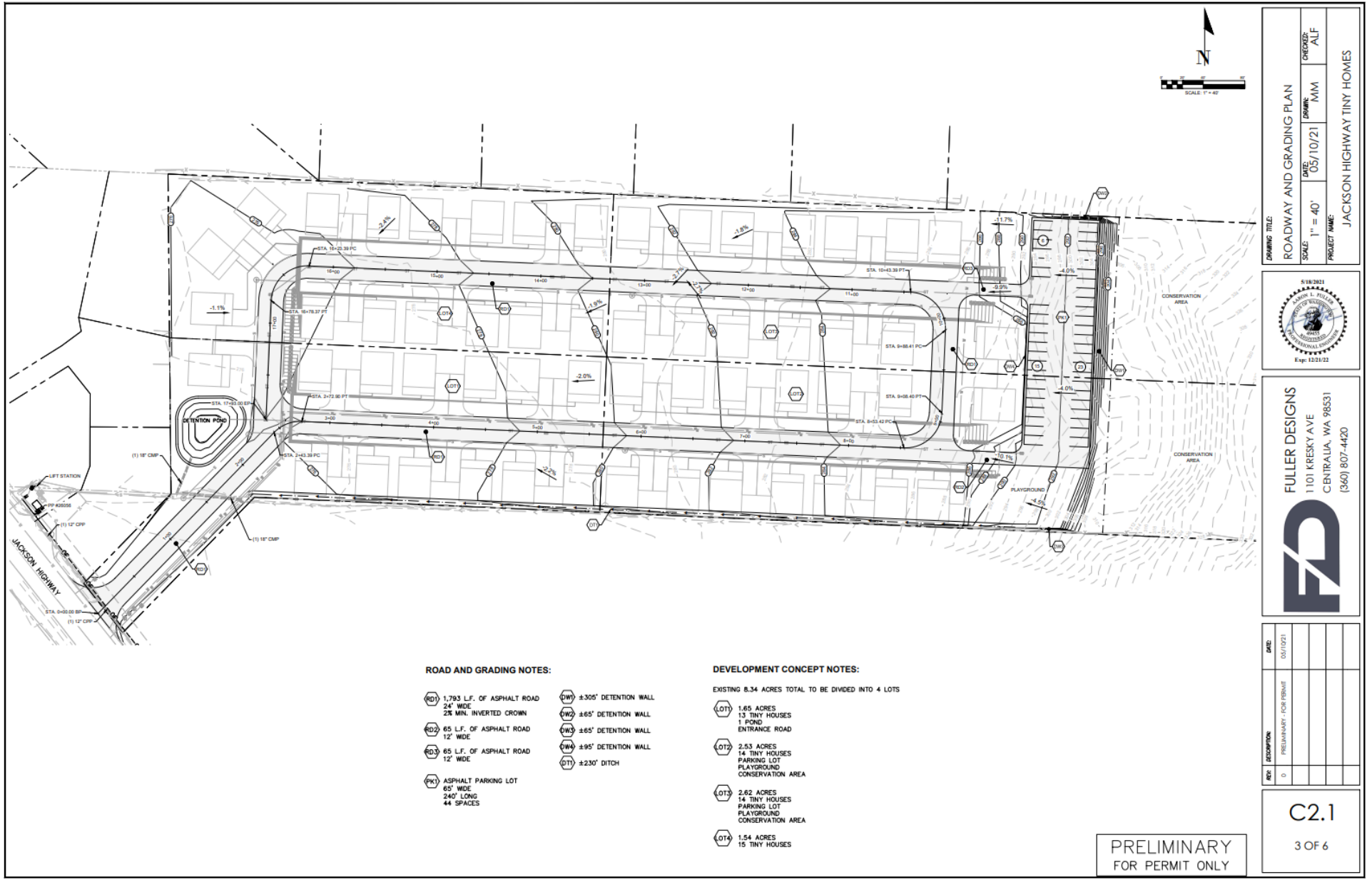


Figure 2. Project site plan, courtesy Fuller Designs.

of Archaeology and Historic Preservation may issue an archaeological site alteration/excavation permit for impacts to an archaeological site in accordance with a professional scientific research plan.

Evaluation of Historic Properties for the City of Chehalis Register

The City of Chehalis Historic Register is a list of buildings, sites, or districts identified by the City of Chehalis Historic Commission as having “significant character, interest, or value as part of the development, heritage, or cultural characteristics of the city, state, or nation.” To be listed on the City of Chehalis Historic Register a property must be 50 years old or of exceptional importance (Chehalis Municipal Code 2.66.110).

Evaluation of Historic Properties for the Washington Heritage Register

The Washington Heritage Register (WHR), which is maintained by the DAHP, is a list of historically significant districts, sites, buildings, structures, and objects that are considered significant in local or state history (Washington State Department of Archaeology and Historic Preservation 2018). To qualify for listing on the WHR a building, site, structure, or object must be at least 50 years old, or should have documented exceptional significance if less than 50 years old. The resource should have documented historical significance at the local, state, or federal level, and should maintain a high to medium level of integrity of important character defining features.

Evaluation of Historic Properties for the National Register of Historic Places

Evaluation of historic properties at local levels is typically modeled after evaluation of historic properties for the National Register of Historic Places. A historic property is defined as “a district, site, building, structure or object significant in American history, architecture, engineering, archeology or culture at the national, state, or local level.” These properties are typically evaluated in terms of historic significance, integrity, and the general stipulation that the property be 50 years old or older (for exceptions see 36 CFR 60.4, Criteria Considerations [a–g]). National Register Bulletin Guidelines state that to be eligible for listing in the NRHP, a historic property must represent a significant part of American history, architecture, archaeology, engineering, or culture (Little and Hardesty 2000; Shrimpton 1990). Additionally, to be considered eligible, a historic property must meet one or more of the four NRHP criteria:

- A) be associated with events that have made a significant contribution to the broad patterns of our history; or
- B) be associated with the lives of persons significant in our past; or
- C) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D) have yielded, or may be likely to yield, information important in prehistory or history.

Most archaeological sites are evaluated under Criterion D, their potential to yield important information. This objective is accomplished by developing historic contexts. A historic context is a body of information about the past and the tangible expressions of past events organized by the elements of theme, place, and time (NPS 1991). The historic context for the project area is summarized in this report and serves as a foundation for evaluating cultural resources in the project area.

Historic Property Integrity

Integrity is the ability of a historic property to convey its significance. Integrity must be evident through historic qualities, which may include location, design, setting, materials, workmanship, feeling, and association (NPS 1991:1). Degree of integrity should be taken into consideration when evaluating resources under the NRHP criteria, for example:

- If eligible for its historic associations under Criterion A, then the resource should retain substantial aspects of its overall integrity, although design and workmanship may not weigh as heavily as those aspects related directly to its historic associations (NPS 1991:44-48).
- To be eligible for its association with a prominent person under Criterion B, the resource should retain some aspects of integrity, although design and workmanship may not be as important as the others (NPS 1991:44–48).
- To be eligible for its architectural merits under Criterion C, a resource must retain its physical features that constitute a significant construction technique or architectural style. Critical aspects of integrity for such properties are design, workmanship, and materials. Location and setting will also be important for those resources whose design reflects their immediate environment (NPS 1991:44–48).
- Resources significant under Criterion D may not have the type of integrity described under the other criteria but are considered to have integrity if these aspects support data potential (NPS 2020:35). Of the seven aspects of integrity, location, design, materials, and workmanship are generally the most important for Criterion D properties (NPS 1991:44–48).

ENVIRONMENTAL SETTING

The natural and cultural characteristics of a place inform the likelihood for encountering cultural resources at a geographic location. Natural and cultural characteristics of the project area were the foundation for establishing a research methodology for this cultural resource assessment. This assessment included a review of environmental information on the project area, as illustrated in reports on regional geology, local soils data, and the environmental history of the project vicinity. Post-depositional processes likely to affect any cultural deposits in the study area were also considered.

Geomorphology

The project is located near Berwick Creek, in the Upper Chehalis watershed, on a Pleistocene alpine glacial outwash deposit adjacent to a landslide deposit originating from Logan Hill, in the Puget Lowland.

Glacial Geomorphology

Puget Lowland landforms were largely shaped by Pleistocene glacial events (Kruckeberg 1991). Beginning two million years ago, the bedrock in this province was depressed and deeply scoured by glaciers, and sediments were deposited and often reworked as glaciers advanced and retreated at least seven times. A mantle of glacial drift and outwash deposits were left across much of the region by the end of this glacial period (Easterbrook 2003). The last glacial advance and retreat to cover the region, the Vashon Stade of the Fraser Glaciation began around 19,000 BP with an advance of the Cordilleran Ice Sheet into the lowlands (Porter and Swanson 1998). The Puget Lobe of this ice sheet advanced from the Cascade Mountains down into the Puget Lowland and reached the Olympia area about 17,350 BP (unknown author 2018). The Puget Lobe began to retreat shortly after reaching its terminus near Tenino and had retreated to Olympia by 16,650 BP (Porter and Swanson 1998). Glacial lakes formed around the margins of the Puget Lobe due to the high topography of the southern Puget Sound and the ice dam of the Puget Lobe which could not yet permit drainage of the glacial meltwater and local runoff to the Pacific Ocean (Figge 2008). Outflow from glacial-lake outbursts and subglacial fluvial erosion typically flowed south toward the Chehalis River valley, and later northward-flowing streams filled the deep glacial outburst troughs with sandy sediments (Walsh et al. 2003A).

Local Geologic Units and Soils

The United States Geological Survey identifies the project parcel as being within geologic unit Qapo(h), which is a Pleistocene pre-Fraser alpine glacial outwash drift deposit; and geologic unit Gls, which is a Quaternary mass-wasting landslide deposit located along the margin of Logan Hill (Figure 3; Washington State Department of Natural Resources 2021A). Soils in the southern portion of the Puget Lowland typically form from glacial parent materials. The project area consists of Reed silty clay loam and Scamman silty clay loam, according to the NRCS (NRCS 2021; Table 1, Figure 4). Reed silty clay loam forms on terraces and flood plains. The typical soil profile of these units is detailed in Table 1.

Recent (2021) ground water management activities on the project parcel include removal of stumps, grinding of surface materials, and tilling/filling to 18 inches below the ground surface across the project parcel, as well as management of ditches along the northern and southern boundaries of the parcel.

Table 1. Soil description of the project area.

Note: derived from Natural Resource Conservation Service 2021.

Map Unit ID	Soil Series	Horizon	Description	Depth (cm)	(in)	Acidity
172	Reed silty clay loam	Ap	Very dark grayish brown silty clay loam	0-15	0-6	Medium acid
		A3	Very dark grayish brown silty clay loam	15-36	6-14	Medium acid
		B21tg	Brown silty clay	36-51	14-20	Very strongly acid
		B22tg	Very dark gray clay	51-64	20-25	Very strongly acid
		B23tg	Dark gray clay	64-79	25-31	Very strongly acid
		B24tg	Dark grayish brown silt clay loam	79-94	31-37	Strongly acid
		B25tg	Black clay	94-152	37-60	Very strongly acid
194	Scamman silty clay loam	Ap	Dark brown silty clay loam	0-15	0-6	Neutral
		E	Dark yellowish brown silty clay loam	15-33	6-13	Moderately acid
		B/E	Dark brown silty clay loam	33-58	13-23	Moderately acid
		Btg1	Grayish brown silty clay	58-81	23-32	Moderately acid
		Btg2	Dark grayish brown silty clay	81-152	32-60	Slightly acid

Water

The study area is situated in an area that is rich in freshwater resources. Berwick Creek is located 125 meters north of the project area. Berwick Creek empties into Dillenbaugh Creek 3.8 kilometers west-northwest of the project area. The Newaukum River is located 3.3 kilometers west of the project area, and the confluence of the Newaukum River and Chehalis River is located 7.7 kilometers northwest of the project.

Vegetation and Fauna

The project area is located within the Western hemlock (*Tsuga heterophylla*) vegetation zone (Franklin and Dyrness 1988). The Puget Lowland forest populated the region shortly after retreat of the glaciers in the late Pleistocene. Prior to historic-era clearing, western Washington forest overstories were dominated by western red cedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), and Douglas fir (*Pseudotsuga menziesii*). Glacial outwash plains support prairie habitat. Under natural conditions Reed soils support cottonwood (*Populus trichocarpa*), red cedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), red alder (*Alnus rubra*), with an understory of marsh grasses, forbes, and shrubs (NRCS 2021). Vertebrate animals common in the Puget Lowland forests include deer, elk, mice, rabbits, squirrels, numerous bird species, black bear, raccoon, beaver, opossum, coyote, bats, cougar, bobcats, weasels, and mole shrews (Kruckeberg 1991).

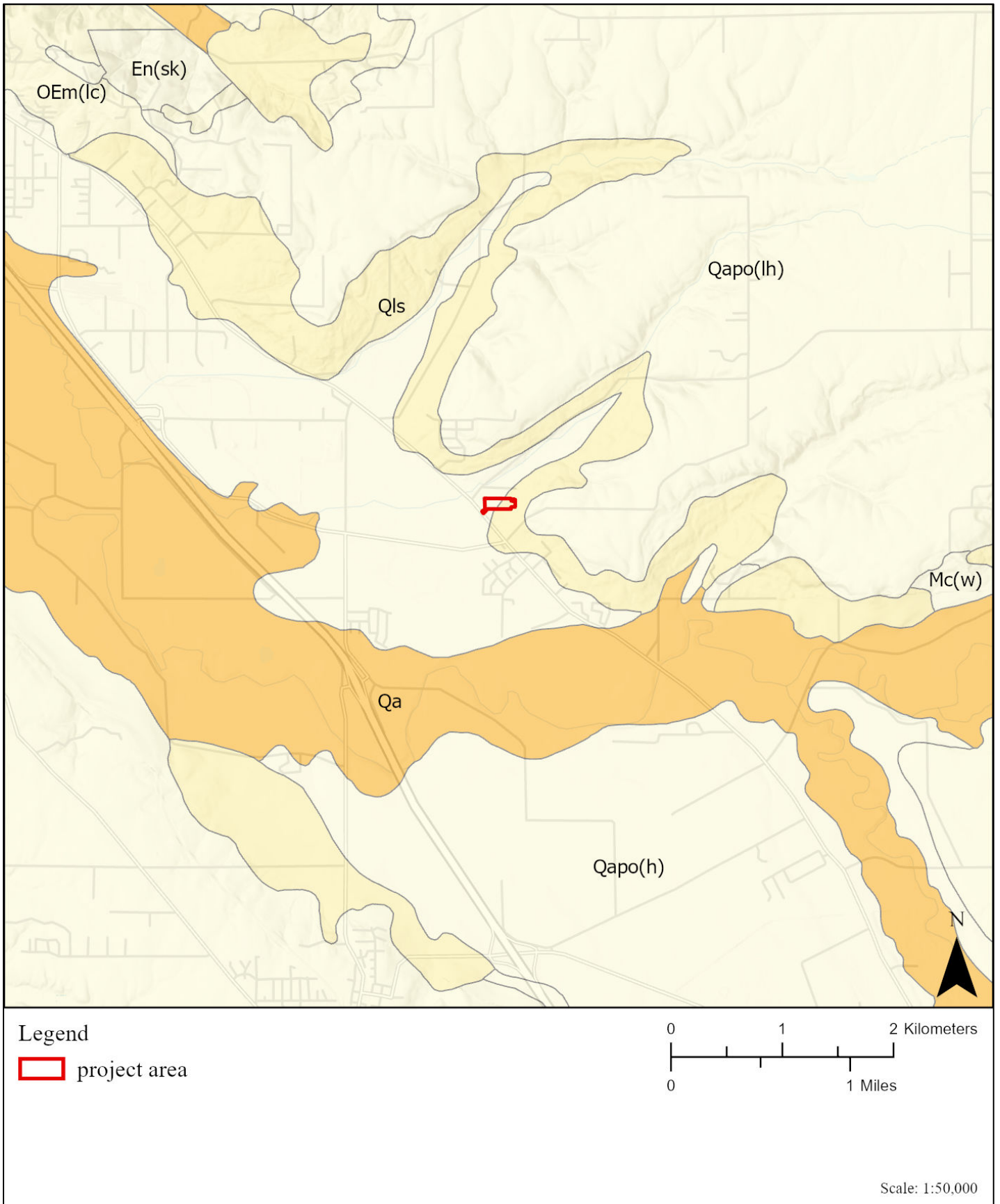


Figure 3. Surface geology of project vicinity (data from WSDNR 2021A).

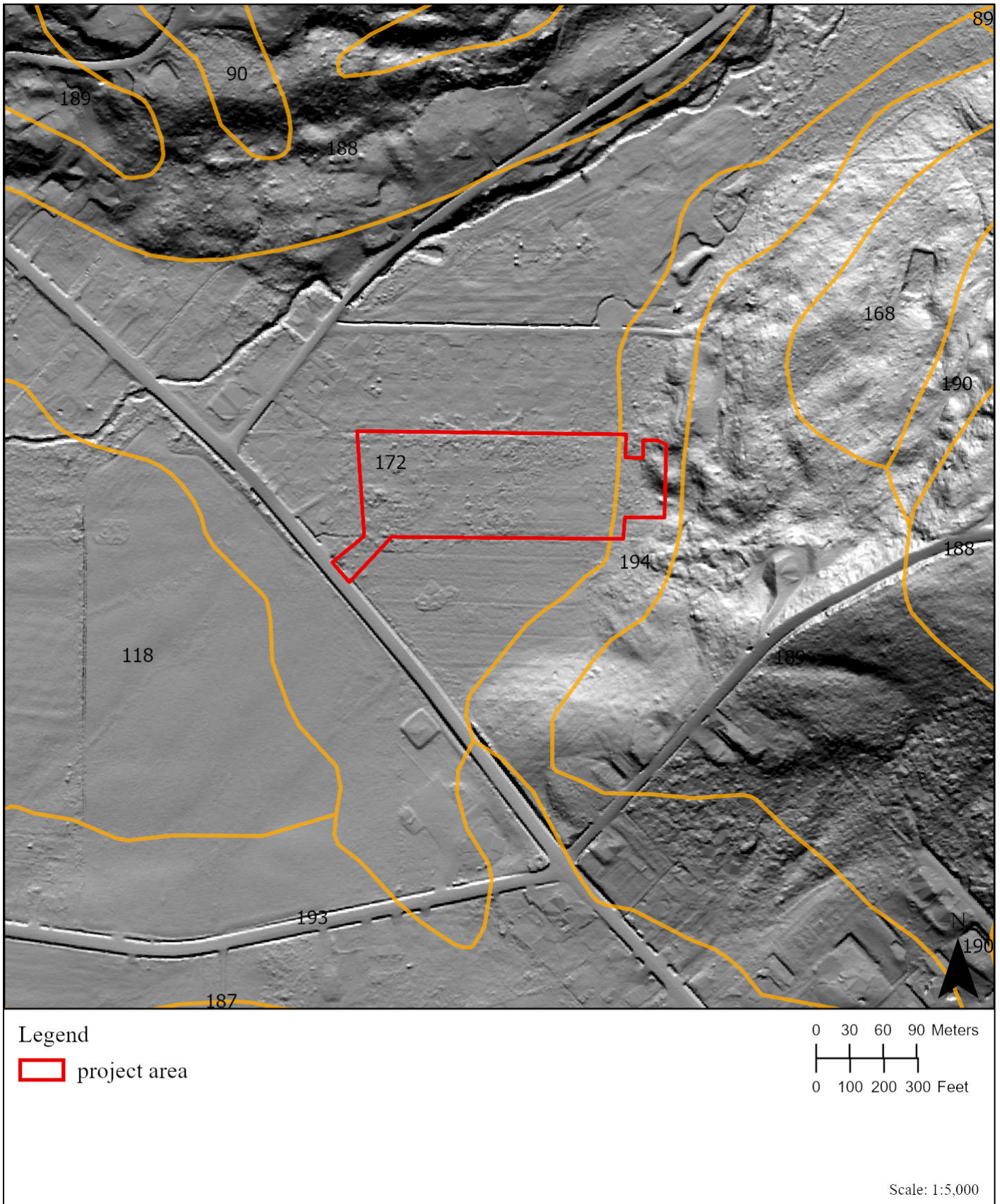


Figure 4. Soil units mapped in project area on LiDAR imagery (data from WSDNR 2021B and NRCS 2021).

CULTURAL SETTING

The project vicinity has hosted a variety of significant historic events of local, regional, and national importance. The probability for historic properties to be located within the project area is primarily based on a review of local environmental and cultural contexts, as well as local cultural resource studies and known cultural, historic, or archaeological sites. Research conducted for this assessment included review of local histories and ethnographies, and resources available in the DAHP's Washington Information System for Architectural and Archaeological Records Data database, United States Surveyor General Bureau of Land Management's General Land Office Survey Records database, HistoryLink.org, HistoricMapWorks.com, and USGS Historical Topographical Map Explorer.

Precontact and Ethnohistoric Periods

The project is located in the traditional territory of the Confederated Tribes of the Chehalis Reservation (Carpenter 2002; Marr et al. 1989:1; Spier 1936:26-32; Suttles and Lane 1990:485-487). The Chehalis fished the Chehalis, Black, Cowlitz, Satsop, Wynoochee, Elk, Johns, Skookumchuck, and Newakum Rivers (Confederated Tribes of the Chehalis Reservation 2021). In the ethnographic period, *Kwaialk* (Upper Chehalis) inhabited the Chehalis River watershed from Cloquallam Creek to the upper reaches of the Chehalis River (Hajda 1990:504; Marr et al. 1989:1; Miller 2017; Ruby et al. 2010:157; Spier 1936:26-32; Suttles and Lane 1990:486). The name Chehalis, derived from the word for sand, originally referred to a village near Westport which was later applied to the river.

Kwaialk Villages

Like many of the Salish territories, Southwestern Coast Salish territories tended to center on major salmon-bearing streams (Hajda 1990:505). Precontact settlements were often located along major waterways, particularly at the confluence of two streams or at heads of bays or inlets, where abundant resources of coastal, riverine and inland environments supported a relatively rich, diverse, and reliable subsistence base. Waterways served as primary travel corridors between villages located on the coast or rivers, and overland trails to inland resource locations and villages were also important travel routes.

Villages in the southwestern Coast Salish region typically housed a group of 25 to 300 people, usually consisting of a man and his wife/wives, their unmarried children and adult sons, and their adult son's families (Hajda 1990:511). Marriage was exogamous, and children usually retained a strong connection to their mother's home village. Winter dwellings at village sites were typically gable-roofed houses large enough to house at least two to four nuclear families, while temporary summer dwellings were typically constructed of cedar bark slabs or pole frames covered with mats or boughs (Hajda 1990:509). When heads of households died, the house may be rebuilt nearby, or the household might disband and establish several new houses.

Although no village sites are located in the immediate vicinity of the project area, the concentration of ethnographic-period village sites along the Chehalis River and its tributaries suggests the project vicinity was well-traveled by *Kwaialk*. The following village descriptions are based on information in Marr et al. 1989, Miller 2017:100,111; Palmer and Stevenson 1992; and Upton 1971:

Tè `wt`n / Skookumchuck River

Tè `wt`n “fording place” was located a mile above the mouth of the Skookumchuck River, at the location now known as Waunch Prairie, north of Centralia.

`aqàytwas / Grand Mound

The Grand Mound area is rich with important *Kwaiailk* sites. Grand Mound is known as a place where part of a star came to earth, and the mima mounds to the west were once porpoises (Miller 2017:100). The settlement at Grand Mound called `aqàytwas (“long prairie”) was a relatively large settlement. The Baker/Rochester Prairie was called *Ich-tals*.

Mouth of Lincoln Creek

A village was located at the mouth of Lincoln Creek. Lincoln Creek was an important place for camas and elk.

Mouth of Scatter Creek

The section of Scatter Creek between Rochester and Tenino was called *Q/waxtn* while the Nisqually called the creek *Wu-thlald*. In winter, Scatter Creek had an abundance of Coho salmon, while Prairie Creek had an abundance of Sockeye salmon.

s`àcəl`t & Black River

The village *s`àcəl`t* “made lake” was located at the mouth of the Black River. A village below the foothills of the Black Hills on the Black River, at the location that would become known as Gate, was a place for burial, ceremony, and potlatching at the time of American colonization. West of Rochester an overland trail, which required portage of canoes, was used during travel to Mud Bay, where *Kwaiailk* would go for shellfishing and fishing.

Mouth of Cedar Creek

A village and fish trap were located near Cedarville on the Chehalis River.

Porter Creek

A village was located at the mouth of Porter Creek below Porter.

`nsxàk^wm / Mox Chehalis

The village `nsxàk^wm “carrot place” was located near Malone.

Kwaiailk Resources

Traditional use of the region is generally oriented toward resource locations (i.e., fresh water, terrestrial and marine food resources, forests, and suitable terrain). Before American colonization, settlements were often located along major waterways and at heads of bays or inlets, where abundant resources of coastal, riverine and inland environments supported a relatively rich, diverse, and reliable subsistence base. During the winter months people lived in large villages of cedar large plank houses. Spring and summer months were spent at seasonal encampments while fishing, hunting, and plant/berry collecting. *Kwaiailk* differed from neighboring Nisqually in that they utilized the marine and inland landscapes (Hajda 1990:505). *Kwaiailk* territory was primarily inland, and as such plant resources were more important here than they were for other Coast Salish peoples (Hajda 1990:507). Prairies were critically important to local economies because they offered diverse

resources (Smith et al. 2008:17). *Kwaiailk* burned prairies every 2 to 3 years to manage plant resources and animal forage (Storm 2004:4). The richness and diversity created by this maintenance of the landscape made these prairies critical places for hunting and gathering in the region (Storm 2004:2). Women from several villages would congregate at camas grounds when they were ready for harvesting (Marr 1989: 5). Camas bulbs were carried home after gathering, typically in the late spring and cooked in an outdoor fire pit or boiled. Many other types of roots were collected on prairies as well.

Dwellings

Three forms of permanent dwellings were used in the Coast Salish region in the ethnohistoric period (Waterman and Greiner 1921). Quinault, Chehalis, Chinook, Clatsop, and Wishram houses were typically “gabled” and measured up to 25 by 75 feet, with a single ridgepole in the center, vertically planked walls, vertically or horizontally planked roofs, and an oval or circular door facing the water. A 3- to 6-foot-deep pit was featured at the center of the dwelling. The most common form throughout the Puget Sound, and including the Makah, Chimakum, and Quileute, was the “shed” style, which measured 40- to 90-foot wide by 500- to 1500-foot long. These dwellings usually paralleled the beach, with entrances facing the water and roofs slanting toward the back of the dwelling. The “shed” style homes featured a 1-foot deep trench extending the length of the building, and some featured one or more central pits. “Gambrel” style houses were also constructed in the Puget Sound area, featuring lean-tos on one or all sides of a “shed” style dwelling. Large ceremonial or festival houses might be temporarily dismantled seasonally, and boards were used at temporary shelters. Summer dwellings were temporary and constructed of cedar bark slabs or pole frames covered with mats or boughs (Hadjia 1999:509).

Archaeological Context

Thousands of years of human occupation in this region area have been summarized in a number of archaeological, ethnographic, and historical investigations over the past 60 years, providing a regional context for evaluating cultural resources in the project area (e.g. Blukis 1987; Greengo 1983; Hajda 1990; Matson and Coupland 1995; Nelson 1990; Suttles and Lane 1990). Archaeological context for evaluating resources in the project vicinity is provided by the local and regional chronological sequence and research problem domains included in Ames and Maschner (1999), Carlson (1990), Larson and Lewarch (1995), Wessen and Stilson (1987), and others.

Historic Period

The landscape of western Washington has been radically transformed over the last 150 years, transitioning from old-growth forest to timberland and farmland, to its current use for residential, recreational, agricultural, and industrial purposes. This shift of land use is typical of western US settlement patterns. The history outlined in this report focuses on regional events as they pertain to cultural resources in the project vicinity.

History of Land Ownership in Washington State, 1800s to 1900s

The first non-native immigrants to the area were European, Hawaiian, and Metis employees of the Hudson’s Bay Company (HBC) who arrived in the early 1800s with the development of HBC trading posts and agricultural stations. The Puget Sound Agricultural Company (PSAC), an agricultural subsidiary of the HBC was established in 1838 (Crooks 2007). PSAC operations focused at two locations: one at Cowlitz Farm (Toledo, WA) and the other at Fort Nisqually (DuPont, WA). By the mid-nineteenth century, the PSAC holdings included 150,000 acres between the Puyallup and Nisqually Rivers, much of which was worked from

outstations and satellite farms.

The project vicinity was jointly occupied by the United Kingdom and the United States until the Oregon Treaty of 1846. The presence of the HBC, a British company, began to decline at this time, being replaced by American settlement and industry. Few American settlers lived in what would become Oregon Territory by the 1840s. To encourage American settlement in Oregon Territory the US passed the Donation Land Claim Act of 1850, which amended previous land claim laws and required that land surveys and claims conform to government standards. The Donation Land Claim Act granted 320 acres of land to white male citizens over 18 (Riddle 2010). A married man could claim 640 acres. Recipients only needed to prove, within 4 years, that they lived on and cultivated the land. If a claimant arrived between 1850 and 1855, they could claim 160 acres if single and 320 acres if married. In 1854, an extension of the act also allowed for purchase of the claims at \$1.25 an acre instead of proof of cultivation and residence. About 25% of western Washington lands were claimed through the Donation Land Claim Act (Mathews 2019).

In 1862, the United States government passed the Homestead Act, which granted 160 acres to heads of households (Muhn and Hanson 1998:20). Homestead applicants were issued a patent on their land if they either proved residence and cultivation after five years, requiring the investment and labor of building a residence, clearing land, and planting crops; or they could purchase the land via a “cash entry” after only 6 months. Only about 40% of claims were “proved up” and 20% of lands in Washington State were claimed through this act (Mathews 2019). In Lewis County, 2% (n=44) of Homestead Act patents were granted to women, which is much lower than in other parts of the West but average for western Washington (Mathews 2021).

The United States also granted lands directly to railroad companies to encourage the development of transcontinental rail lines in the 1860s (Muhn and Hanson 1988:21). In 1862, rail companies were granted five alternate odd-numbered sections for each mile of planned rail railroad, within 10 miles of the planned railroad. In 1864, this was increased to twenty sections for each mile of railroad. Railroad land grants were considered controversial, as they limited the potential for settlement of the area, and the policy of granting to railroads ended in 1871.

The United States passed several land grant acts and amendments to the Homestead Act through the early 1900s, to encourage settlement and industry in the west. The Timber Culture Act of 1873 granted 160 acres to individuals who planted 40 acres with trees, with trees spaced no more than 12 feet apart (6,750 trees), for a period of 10 years (Muhn and Hanson 1988:22). In 1877, the Desert Land Law granted 640 acres to individuals who paid \$0.25 an acre and irrigated dry, treeless property within 3 years. The Dawes Severalty Act of 1887 assigned 160-acre allotments to individual tribe members and opened the remainder of lands to homesteaders (Wilma 2000). The Enlarged Homestead Act of 1909 increased the maximum homestead grant acres to 320 acres for individuals who homesteaded non-irrigable lands (Bradsher 2012). The Stock Raising Act of 1916 granted up to 640 surface acres, to include lands that were deemed only useful for grazing and raising forage crops (United States Congress 1916).

Early American Settlements in Chehalis

American settlers in the region began organizing for self-governance in 1851, resulting in the establishment of Washington Territory in early 1853. Like most western Washington communities, Chehalis began as a

community of land claimants in the mid- to late-1800s. A post office serving the local community was established on Saunders Prairie in 1858 (Crowell 2007:70). The community was bolstered by the construction of a railroad depot in Chehalis in 1873, businesses grew through the 1880s, and by the early 1890s the town had become a community hub (Ott 2008A). Arson fires destroyed many of the town buildings in 1892, but businesses were rebuilt north of the original town core.

Study Area Property Ownership and Land Use History, 1850s to present

In the 1850s, the United States sought to make treaties with Washington tribes and assign them to reservations in order to open land for American settlement (Richards 2005:343). American colonization and settlement of indigenous people's lands began illegally according to the United States' Nonintercourse Act (U.S.C. § 177). In February 1855 the Quinault, Queets, Satsop, Lower Chehalis, Upper Chehalis, Shoalwater Bay, Chinook, and Cowlitz met with Washington Territorial Governor Isaac Stevens at the Chehalis River Treaty Council (Lane and Lane 1999). Most of the tribal representatives were unsatisfied with the United States' proposed relocation to a poorly defined reservation on the Olympic Peninsula. In February 1855 only the Quinault representatives initially agreed to the Chehalis River Treaty terms, which were revised in the Quinault River Treaty and signed by the Quinault in July 1855. Although the Chehalis had not reached an agreement with the United States, their lands were rapidly claimed by American settlers in the 1850s to 1860s, causing the United States to establish the Confederated Tribes of the Chehalis Reservation in 1864 (Hajda 1999:514; Ott 2008B). The United States intended for other local tribes to join the Upper and Lower Chehalis on the Chehalis Reservation, but many did not, although some Cowlitz were among the people who removed to the Chehalis Reservation. Humptulips, Cowlitz, and Shoalwater Bay people refused to accept goods distributed by reservation officials, fearing it would be considered payment for unceded land (Hajda 1990:515; Ruby et al. 2010:130). Many Cowlitz maintained an independent organization, and in the 1870s there were 66 members of the Cowlitz band living at the mouth of the river while 105 "Cowlitz Klickitat" lived on the Upper Cowlitz and its tributaries (Carpenter 2002:200). Some Cowlitz relocated to the Yakima Reservation around 1900 (Hajda 1999:515).

In 1874, Calvin S Garrison was granted 160 acres in Township 13N Range 2W Section 11 SE ¼, which includes the project area, under the authority of the Homestead Act (Bureau of Land Management 2021A). Calvin and Polly Ann Garrison, who were originally from Iowa, had arrived in Washington Territory by 1866 (United States Federal Census 1870). In 1870, 25-year-old Calvin worked as a farmer in the area, most while his 21-year-old wife Polly Ann cared for their 4 children. A small portion of the project access road is located in Section 14 NW ¼ NE ¼, which was purchased by A.H. Nickerson under a Cash Sale entry in 1871 (Bureau of Land Management 2021B).

Historical Map Review

No improvements are recorded within the project area on the 1855 General Land Office survey plat of Township 12N Range 2W (Figure 5; Bureau of Land Management 2021C). The plat map indicates that the wagon road connecting Olympia to Cowlitz Landing was located 160 meters southwest of Jackson Highway. The Dillenbaugh residence had been established 900 meters west-northwest of the project area, and the Omatyre's residence had been established 1 kilometer south of the project. Both of these residences were located within prairies. It is unlikely that the Garrisons were located in the area by this time based on their ages and apparent time of arrival in Washington Territory, and there is no indication of a residence in the SE ¼ of Section 11. The surveyor had noted at the time that timber in Sections 15 and 16 had been "destroyed by fire"

which may have been associated with anthropogenic landscape management practices, based on the historic context of this region. It also appears that in 1855 Berwick Creek abutted the northwest corner of the project area. The Chehalis River basin flooded six times between 1887 and 1915, which may have contributed to the realignment of Berwick Creek after 1855 (McDonald and Fund 2017).

By 1916 Jackson Highway had been constructed along the southwestern boundary of the project area (Figure 6; USGS 1916). Berwick Creek, which may have passed along the northwest corner of the project area in the 1850s, was now recorded along the foot of Logan Hill.

The property was owned by a W. Mason by 1948 (Figure 7; Metsker 1948). Based on the 1954 USGS map, it appears that a residence had been constructed immediately west of the project area by this time. The single-family residence at 2939 Jackson Highway, which is located immediately west of the project, was constructed in 1920, and the garage was constructed in 1930 (Lewis County 2021). No development is noted in the project area on the USGS 1954 or 1985 maps (Figures 8-9; USGS 1954, 1985).

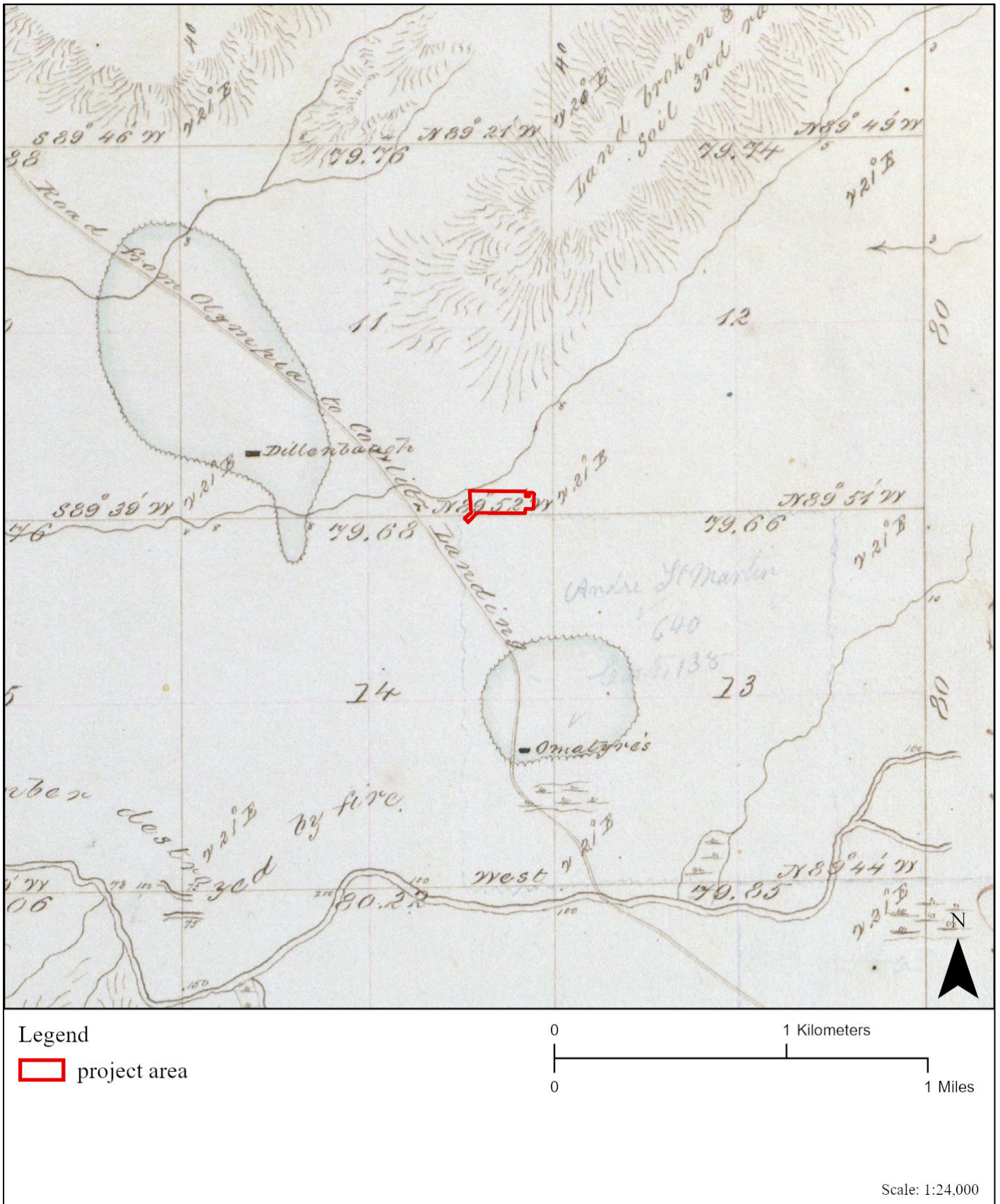


Figure 5. Portion of 1855 Township 13N Range 2W GLO Map, with project location indicated (Source: Bureau of Land Management 2021C).

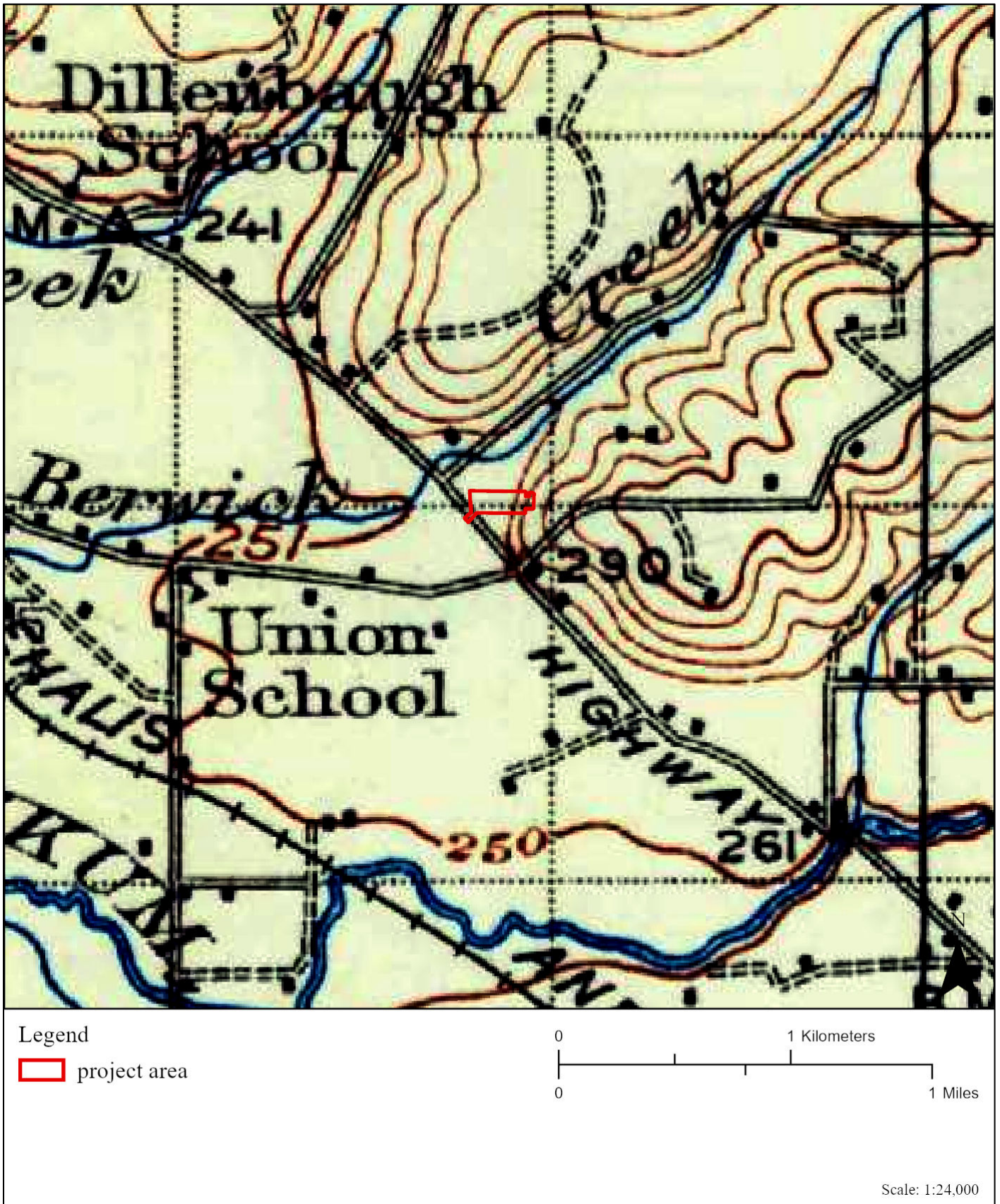


Figure 6. Portion of 1916 1:125,000 Chehalis topographic map, with project location indicated (Source: USGS 1916).



Figure 7. Portion of 1948 Metsker Map, with project location indicated (Source: Metsker 1948).



Figure 8. Portion of 1954 1:62,500 Centralia topographic map, with project location indicated (Source: USGS 1954).



Figure 9. Portion of 1985 1:24,000 Centralia and Napavine topographic maps, with project location indicated (Source: USGS 1985A,B).

LITERATURE REVIEW

The Washington Information System for Architectural and Archaeological Records Data (WISAARD) database (Washington State Department of Archaeology and Historic Preservation 2021A) was reviewed to determine whether any archaeological sites or other historic properties had previously been recorded in the project vicinity (a study radius of one mile). The DAHP archaeological resources predictive model available in WISAARD indicates the project area has a very high risk for containing archaeological resources based on environmental factors, with survey highly advised.

Cultural Resource Surveys

The project area has not been surveyed since at least 1996 (the earliest survey date available in WISAARD). A total of 5 cultural resource assessments have been completed within 2 kilometers of the project area and are available in WISAARD (Table 2). Additionally, a shovel probe survey was completed 100 meters north of the project area in December 2020, but the firm was contacted, and a draft report was not available at the time of this report.

Table 2. Cultural resource surveys completed within two kilometers of project area.

NADB	Author	Title	Survey Method	Resources Observed
1693383	Mathews 2019	Cultural Resource Assessment for the 3040 Jackson Highway Condos Project, Chehalis, Lewis County, WA	Pedestrian and subsurface	none
1693097	Baldwin et al. 2019	A Cultural Resources Assessment of the Hogue/Berwick Creek Fish Passage Improvement Project, Chehalis, Washington	Pedestrian and subsurface	none
1680998	Kopperl et al. 2011	Cultural Resources Assessment of the Berwick Creek Mitigation Site for I-5 Mellen Street to Blakeslee Junction Project (MTB)	Pedestrian and subsurface	45LE520
1347770	Baker et al. 2006	Cultural Resource Survey of Northwest Pipeline Corporation's Capacity Replacement Project, Western Washington, Addendum Eighteen: Berwick Wetland Mitigation Area	Pedestrian and subsurface	45LE521
1340909	Wilson 2002	Cultural Resource Assessment of the City of Chehalis Sewer and Water System Upgrade Project, Lewis County, Washington	Pedestrian and subsurface	45LE1005 45LE1006
n/a	Sarjeant et al. 2020	Berwick Creek Projects (Logan Hill Road)	Unknown	45LE1059

Historic Properties

A total of 67 historic-age properties are located within 2 kilometers of the project area, according to the property inventory database available in WISAARD. No register-eligible properties have been listed within 2 kilometers of the project area. The nearest register-listed properties include: 1) the Harry Gleason Farm (45LE00960; 3.4 kilometers southwest), which consists of a complex of 6 buildings, is listed on the Washington Heritage Barn Register; 2) the Wilson Dairy Barn (45LE00974; 6.3 kilometers south), which is listed on the Washington Heritage Barn Register; and 3) the Hillside Historic District (45DT00143; 6.1 kilometers northwest), which is listed on the National Register of Historic Places for its association with early Chehalis history and the representation of Craftsman, Queen Anne, and Colonial Revival architecture within the district.

Archaeological Sites

Many precontact lithic sites are densely concentrated along the Chehalis River valley. Locally many lithic sites are clustered along Berwick Creek, near the foot of Logan Hill. A total of 11 precontact archaeological sites have been recorded within 2 kilometers of the project area (Table 3).

Table 3. Archaeological sites within 2 kilometers of project area.

Site #	Site Description	Site Setting
45LE520	Lithic scatter: projectile points, thermally affected rock, debitage	Berwick Creek
45LE521	Lithic scatter: projectile point, biface, core, edge modified flake, debitage	Berwick Creek
45LE913	Lithic scatter: core, thermally affected rock, debitage	Berwick Creek
45LE914	Lithic isolate: debitage	Berwick Creek
45LE915	Lithic isolate: debitage	Berwick Creek
45LE916	Lithic isolate: debitage	Berwick Creek
45LE958	Lithic isolate: debitage	Berwick Creek
45LE959	Lithic isolate: debitage	Berwick Creek
45LE1059	Lithic scatter: cores, thermally altered rock, debitage	Berwick Creek
45LE1061	Lithic isolate: biface preform	Berwick Creek
45LE1062	Lithic scatter: core, debitage	Berwick Creek

Cemeteries

No cemeteries have been recorded within two kilometers of the project area.

RESEARCH DESIGN

Information on the local environment and cultural setting were considered prior to fieldwork in order to determine the likelihood for identifying cultural resources in the project area. The DAHP archaeological predictive model and study of the local environment and history indicate the probability for encountering precontact- period archaeological resources is very high. Thorough pedestrian survey and sub-surface testing were planned to assess the potential impacts to cultural resources in the planned project area.

Expectations

The Chehalis River and its tributaries are known to have been economically and culturally important places for indigenous people of this region, and mapped environmental features indicate the project area may have offered resources suitable for sustenance, tool-making, shelter, and other cultural needs. The potential for precontact archaeological sites associated with *Kwaiailk* history should be considered very high for the project area, due to the presence of local resources and archaeological sites. Many precontact lithic scatter sites are concentrated along Berwick Creek. Based on previous studies, the sections of Berwick Creek and Dillenbaugh Creek near the base of Logan Hill should be expected to be continuously scattered with lithic artifacts. Hearth features may also be encountered in this area, although the history of farming and development here may have impacted archaeological deposits.

The potential for encountering significant historic-age cultural resources in the project area should be considered low. Historic-period use of the property was residential after 1930, and no development or use of the project area is known.

The potential for site preservation due to both environmental and cultural factors should be considered very low for the project area, due to the recent impacts to the property. It was anticipated that the relatively shallow A- and B- horizons identified locally had been destroyed by groundwater management practices.

Field Methodology Plan

The archaeological survey was designed to identify archaeological resources in the project area and assess whether proposed project plans might impact cultural resources. Pedestrian survey was planned across the entire project area. Given the high probability for encountering a significant archaeological site within the project area, shovel probes were planned at 30-meter (100 feet) intervals across the project area, in areas that were observed to be relatively undisturbed by previous roadway construction. If archaeological materials were encountered during subsurface testing, additional shovel probes were to be excavated at 5-meter intervals in each cardinal direction, within the project area. Areas of steep slope or massive disturbance were to be deemed low probability for containing significant archaeological resources.

Shovel probes (SPs) were planned to extend approximately 100 centimeters below surface (cmbs; 3.3 feet), to an undisturbed Pleistocene glacial sediment, or until excavation was deemed unproductive, in order to assess the possible presence and depth of cultural deposits. Hand tools were to include shovels, digging bars, bucket augers, trowels, and pruners. Excavated materials were to be screened through 1/4" hardware mesh and returned to the SP. All cultural materials were to be returned SPs upon completion and recordation of the SP data, placed beneath the sod. SP locations, photographs, and data were to be recorded via ArcGIS Survey123 on a Samsung Pro Active tablet with a horizontal accuracy of approximately 5 meters.

SURVEY RESULTS

Field Methodology

Archaeological fieldwork was conducted on 13 December 2021 by Principal Investigator Beth Mathews, MA, RPA, Senior Archaeologist Mike Shong, and Field Technicians Nik Simurdak, BA, Brinn Smith, BA, and Tim Fox, under rainy nearly freezing conditions. Pedestrian and shovel probe survey was completed at approximately 30-meter intervals within the project area (Figure 10). The planned research methodology was limited by high groundwater and loose sediments which prevented walking and probe excavation. Pedestrian survey was possible along the boundaries of the parcel. Ditches along the northern and southern boundaries of the parcel permitted subsurface visibility and some meandering transects were possible at about 30-meter intervals across the entire project area. Shovel probes were attempted primarily in the southern 2/3 of the project area, but surficial ground water and sticky sediments obscured sediment profiles and prevented standard excavation methods resulting in abandonment of most shovel probes at shallow depths.

Shovel probes measured approximately 40 cm in diameter and were excavated stratigraphically in 20 cm arbitrary levels. Probes were terminated in the C-horizon or at groundwater level. All excavated sediments were passed through ¼-inch mesh hardware cloth using a standard shaker-style screen. The findings of each probe including location, photographs, soil data and any observed cultural materials were recorded via ArcGIS Survey123 on a Samsung Pro Active tablet with a horizontal accuracy of approximately 5 meters.

Survey Findings

The project area has previously been cleared of vegetation, and surface visibility was about 75% (Figures 12-13). A total of 13 shovel probes were excavated to an average depth of 42 cm. Shovel probe descriptions are attached to this report in Appendix A. Shovel probes encountered loose grayish brown clay loam across most of the project area, with ground water at the ground surface. The eastern portion of the project area, in the Qls unit, contained a higher fine sand content. In several instances a dark yellowish brown sandy clay was observed at about 30 to 50 cmbs, which is interpreted to be a Pleistocene C-horizon.

Analysis

The project area was considered very high risk for encountering archaeological resources due to the local historic context and the DAHP predictive model. Thorough subsurface testing was limited by site groundwater conditions, but limited probing was possible. Pedestrian survey on recently disturbed mixed A/B/C horizons should have supported identification of disturbed archaeological deposits.

One edge-modified cobble was observed on the southern boundary of the project area (Figures 11-13). The reduction steps indicate the artifact is precontact and not the product of recent excavation or vegetation grinding activities on site, although many mechanically damaged cobbles and pebbles were observed on the ground surface. It is assumed that any previously subsurface deposits may have been at least partially visible after recent mixing of soils and sediments to 18 inches (45 centimeters) below the ground surface.

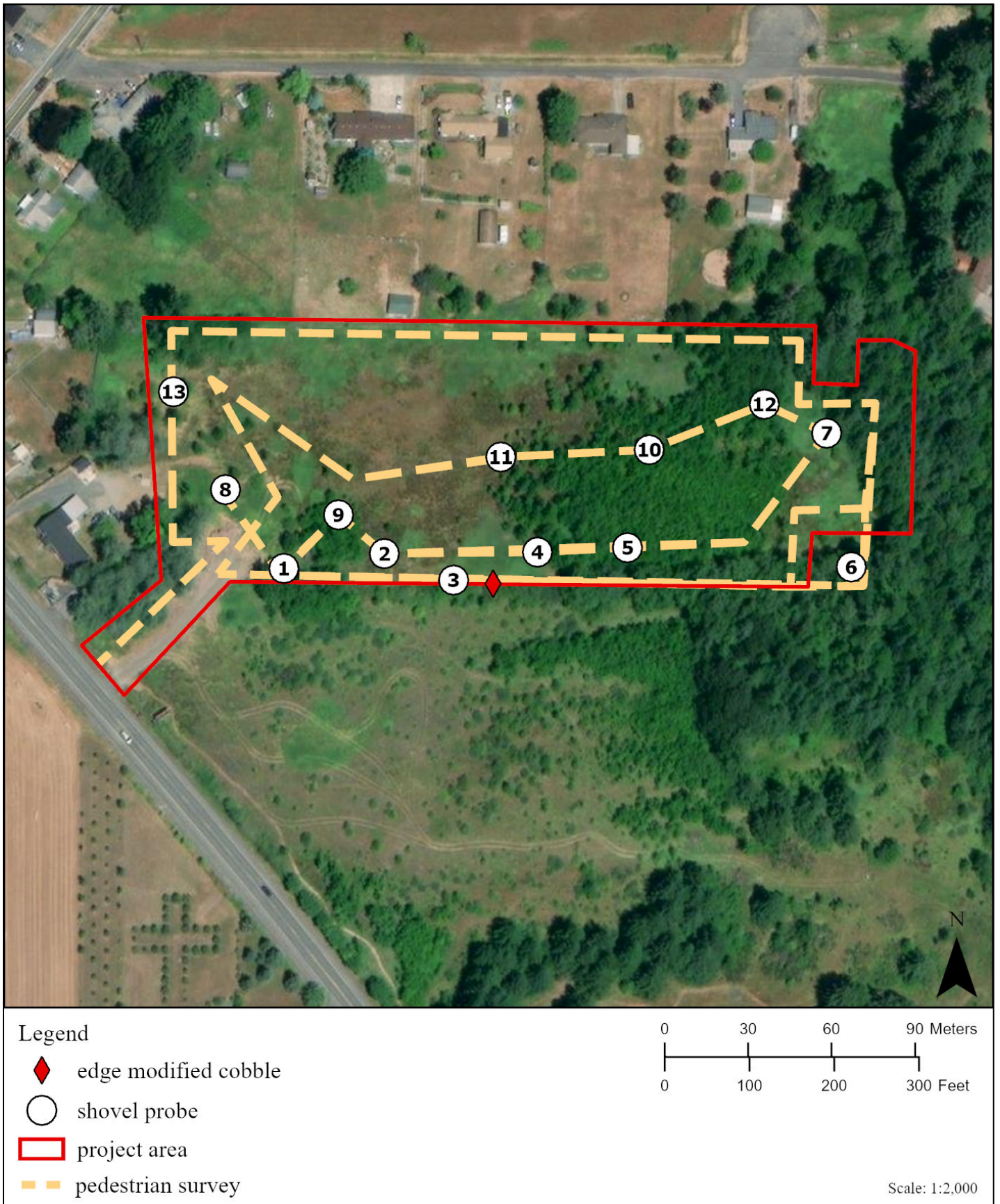


Figure 10. Shovel probe locations illustrated on aerial image.



Figure 11. Edge modified cobble, side view.

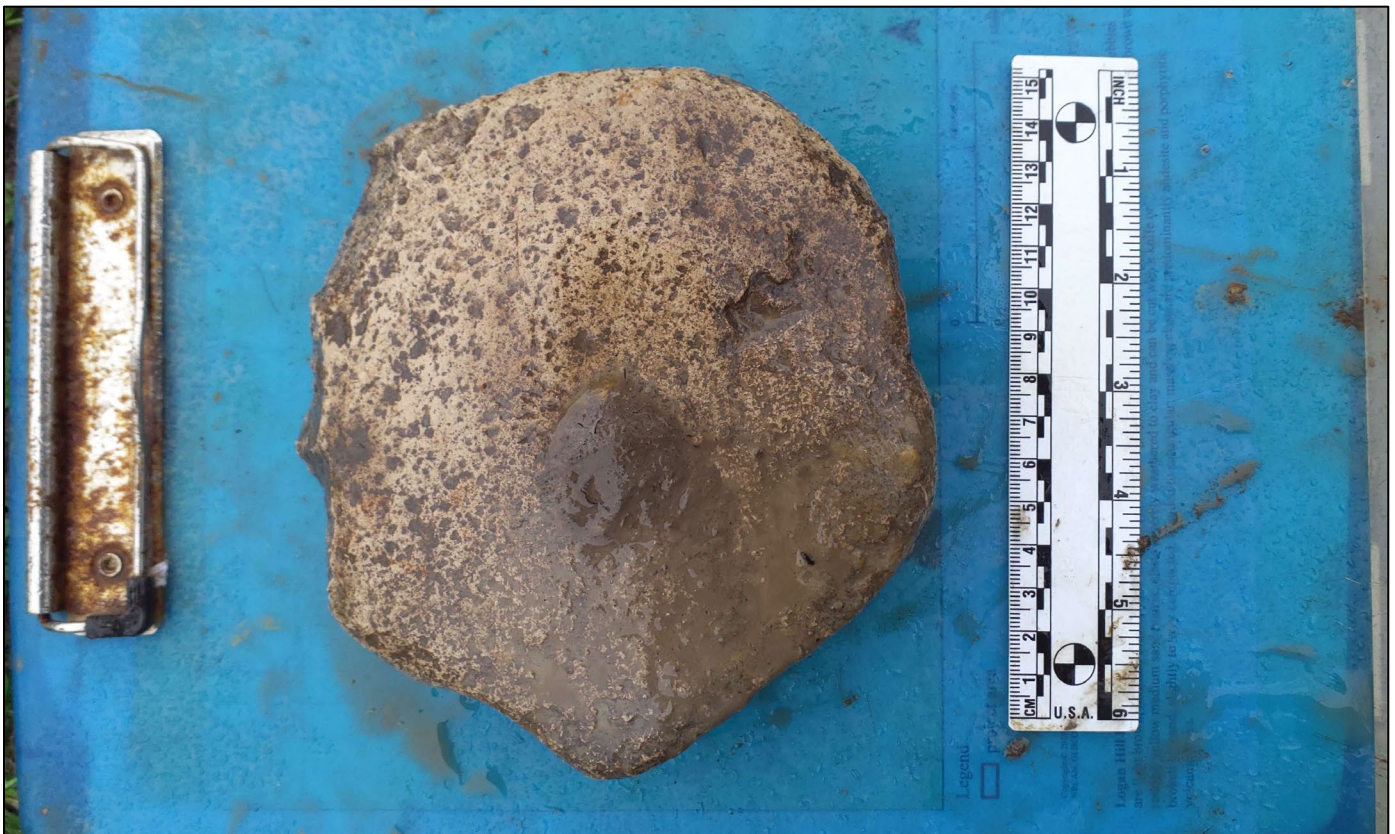


Figure 12. Edge modified cobble, top view.



Figure 13. Location of edge modified cobble find.

CONCLUSIONS AND RECOMMENDATIONS

Background review suggested the proposed development project is located in an area of very high risk for encountering archaeological resources. The project area was surveyed to assess potential project impacts to cultural resources, and one edge modified cobble isolate was observed and recorded as archaeological site 45LE01066. Site groundwater conditions prevented thorough survey across the project area, but subsurface testing determined that the A/B/C horizons had recently been disturbed during groundwater management practices. Antiquity concludes that it is unlikely that intact archaeological deposits would be observed during further subsurface probing, and that archaeological monitoring of project grading has the greatest potential to observe and record *ex situ* archaeological materials. Compliance with an archaeological monitoring plan and standard Inadvertent Discovery Plan is recommended for development of this parcel.

INADVERTENT DISCOVERY PROTOCOL

Archaeological Materials Inadvertent Discovery Protocol

A cultural resource is an object, site, building, or structure that may be eligible for local, state, or national registers. A cultural resource discovery could be prehistoric or historic and is typically more than 50 years old. When in doubt, assume the material is a cultural resource. If any employee, contractor or subcontractor believes that they have uncovered a cultural resource at any point in the project, all work must stop immediately in compliance with RCW 27.53. Leave the surrounding area untouched and provide a demarcation adequate to provide the total security, protection, and integrity of the discovery. Notify on-site project management and personnel of the work stoppage to ensure security of the discovery. Vehicles, equipment, and unauthorized personnel will not be permitted to traverse the discovery site. Work in the immediate area will not resume until treatment of the discovery has been completed.

Contacts

Department of Archaeology and Historic Preservation

Stephanie Jolivette

Local Government Archaeologist

360.628.2755 cell

Human Skeletal Remains Inadvertent Discovery Protocol

In accordance with RCWs 68.50.645, 27.44.055, and 68.60.055, if ground disturbing activities encounter human skeletal remains during the course of construction, then all activity will cease that may cause further disturbance to those remains. The area of the find will be secured and protected from further disturbance until the State provides notice to proceed. The finding of human skeletal remains will be reported to the county medical examiner/coroner and local law enforcement in the most expeditious manner possible. The remains will not be touched, moved, or further disturbed. The county medical examiner/coroner will assume jurisdiction over the human skeletal remains and make a determination of whether those remains are forensic or non-forensic.

If the county medical examiner/coroner determines the remains are non-forensic, then they will report that finding to the Department of Archaeology and Historic Preservation (DAHP) who will then take jurisdiction over the remains. The DAHP will notify any appropriate cemeteries and all affected tribes of the find. 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. The DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains."

Contacts

Lewis County Coroner's Office

Warren McLeod, Coroner

585 NW Center Street

Chehalis, WA 98532

360.740.1376

State Physical Anthropologist

Guy Tasa

Department of Archaeology and Historic Preservation

360.790.1633 cell

Chehalis Police Department

360.748.8605

Assistant State Anthropologist

Juliette Vogel

Department of Archaeology and Historic Preservation

360.890.2633 cell

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APPENDIX A: SHOVEL PROBE LOG

Shovel Probe #1



Date & Time
December 13, 2021 8:57 AM

Probe Diameter
40cm

Reason for Termination
Water inundation;
unproductive excavation

Archaeologist
Brinn Smith, Tim Fox
Tribal Archaeologist

Cultural Materials Present?
None

Stratum I

Soil Horizon A/B MIX

0-30 cmbs

Color
Grayish brown

Sediment Compaction
slightly compact

Sediment Texture
Clay loam

Gravel %
0%

Gravel Sorting

Gravel Angularity

Gravel Size

Shovel Probe #2



Date & Time
December 13, 2021 8:56 AM
Probe Diameter
30cm
Reason for Termination
Water inundation;
unproductive excavation

Archaeologist
Nik Simurdak
Tribal Archaeologist

Cultural Materials Present?
None

Stratum I	Soil Horizon A/B MIX	0-30 cmbs	
Color Brown	Sediment Compaction slightly loose	Sediment Texture Clay loam	
Gravel % 0%	Gravel Sorting	Gravel Angularity	Gravel Size

Notes
Standing water at 10cm, no gravels

Shovel Probe #3



<p>Date & Time December 13, 2021 9:30 AM</p> <p>Probe Diameter 40cm</p> <p>Reason for Termination Water inundation; unproductive excavation</p>	<p>Archaeologist Brinn Smith, Tim Fox Tribal Archaeologist</p>	<p>Cultural Materials Present? None</p>	
<p>Stratum I</p>	<p>Soil Horizon A/B MIX</p>		<p>0-50 cmbs</p>
<p>Color Grayish brown</p>	<p>Sediment Compaction slightly loose</p>	<p>Sediment Texture Clay loam</p>	
<p>Gravel % 0%</p>	<p>Gravel Sorting</p>	<p>Gravel Angularity</p>	<p>Gravel Size</p>

Shovel Probe #4



Date & Time December 13, 2021 10:02 AM Probe Diameter 30cm Reason for Termination Water inundation; unproductive excavation		Archaeologist Nik Simurdak Tribal Archaeologist		Cultural Materials Present? None	
Stratum I		Soil Horizon A/B MIX		0-30 cmbs	
Color Light brownish gray		Sediment Compaction slightly loose		Sediment Texture Clay loam	
Gravel % 0%		Gravel Sorting		Gravel Angularity	
				Gravel Size	
				Lower Boundary Distinctness Abrupt <2cm	
				Lower Boundary Topography Smooth	
Stratum II		Soil Horizon B: SUBSOIL (zone of accumulation)		30-40 cmbs	
Color Yellowish brown		Sediment Compaction very compact		Sediment Texture Clay loam	
Gravel % 0%		Gravel Sorting		Gravel Angularity	
				Gravel Size	

Shovel Probe #5



<p>Date & Time December 13, 2021 9:51 AM</p> <p>Probe Diameter 40cm</p> <p>Reason for Termination Water inundation; unproductive excavation</p>	<p>Archaeologist Brinn Smith, Tim Fox</p> <p>Tribal Archaeologist</p>	<p>Cultural Materials Present? None</p>	
<p>Stratum I</p>	<p>Soil Horizon A/B MIX</p>		<p>0-40 cmbs</p>
<p>Color Grayish brown</p>	<p>Sediment Compaction slightly compact</p>	<p>Sediment Texture Clay loam</p>	
<p>Gravel % 0%</p>	<p>Gravel Sorting</p>	<p>Gravel Angularity</p>	<p>Gravel Size</p>

Shovel Probe #6



Date & Time December 13, 2021 10:27 AM Probe Diameter 40cm Reason for Termination C-horizon/Glacial sediment, unproductive excavation		Archaeologist Brinn Smith, Tim Fox Tribal Archaeologist		Cultural Materials Present? None	
Stratum I		Soil Horizon A/B MIX		0-30 cmbs	
Color Grayish brown		Sediment Compaction slightly compact		Sediment Texture Clay loam	
Gravel % 0%		Gravel Sorting		Gravel Angularity	
				Gravel Size	
				Lower Boundary Distinctness Gradual 5-15cm	
				Lower Boundary Topography Irregular	
Stratum II		Soil Horizon C		30-55 cmbs	
Color Dark yellowish brown		Sediment Compaction slightly compact		Sediment Texture Sandy loam	
Gravel % 0%		Gravel Sorting		Gravel Angularity	
				Gravel Size	

Shovel Probe #7



Date & Time December 13, 2021 11:04 AM Probe Diameter 40cm Reason for Termination C-horizon/Glacial sediment, Water inundation; unproductive excavation		Archaeologist Brinn Smith, Tim fox Tribal Archaeologist		Cultural Materials Present? None	
Stratum I		Soil Horizon A/B MIX		0-30 cmbs	
Color Grayish brown		Sediment Compaction slightly compact		Sediment Texture Clay loam	
Gravel % 0%		Gravel Sorting		Gravel Angularity	
				Gravel Size	
				Lower Boundary Distinctness Gradual 5-15cm	
				Lower Boundary Topography Irregular	
Stratum II		Soil Horizon C		30-55 cmbs	
Color Dark yellowish brown		Sediment Compaction very compact		Sediment Texture Clay loam	
Gravel % 0%		Gravel Sorting		Gravel Angularity	
				Gravel Size	
				Lower Boundary Distinctness	
				Lower Boundary Topography	

Shovel Probe #8



<p>Date & Time December 13, 2021 10:50 AM</p> <p>Probe Diameter 30cm</p> <p>Reason for Termination Water inundation; unproductive excavation</p>	<p>Archaeologist Nik Simurdak Tribal Archaeologist</p>	<p>Cultural Materials Present? None</p>	
<p>Stratum I</p>	<p>Soil Horizon A/B MIX</p>		<p>0-30 cmbs</p>
<p>Color Yellowish brown</p>	<p>Sediment Compaction slightly loose</p>	<p>Sediment Texture Clay loam</p>	
<p>Gravel % 25-40%</p>	<p>Gravel Sorting poorly sorted</p>	<p>Gravel Angularity Sub-angular, Sub-rounded, Rounded</p>	<p>Gravel Size Pebbles</p>
		<p>Lower Boundary Distinctness</p>	<p>Lower Boundary Topography</p>

Shovel Probe #9



<p>Date & Time December 13, 2021 11:04 AM</p> <p>Probe Diameter 40cm</p> <p>Reason for Termination Water inundation; unproductive excavation</p>	<p>Archaeologist Mike Shong Tribal Archaeologist</p>	<p>Cultural Materials Present? None</p>	
<p>Stratum I</p>	<p>Soil Horizon A: SOIL (zone of leaching with high organic content)</p>		<p>0-30 cmbs</p>
<p>Color Brown</p>	<p>Sediment Compaction slightly loose</p>	<p>Sediment Texture Clay loam</p>	
<p>Gravel % 0%</p>	<p>Gravel Sorting</p>	<p>Gravel Angularity</p>	<p>Gravel Size</p>
<p>Notes</p>			
<p>Saturated, sticky seds, standing water at 3 cm</p>			

Shovel Probe #10



Date & Time December 13, 2021 12:09 PM		Archaeologist Brinn Smith, Tim Fox Tribal Archaeologist		Cultural Materials Present? None	
Probe Diameter 40cm					
Reason for Termination C-horizon/Glacial sediment					
Stratum I		Soil Horizon A/B MIX		0-30 cmbs	
Color Grayish brown		Sediment Compaction slightly compact		Sediment Texture Clay loam	
Gravel % 0-5%		Gravel Sorting		Gravel Angularity Gravel Size	
				Lower Boundary Distinctness Gradual 5-15cm	
				Lower Boundary Topography Irregular	
Stratum II		Soil Horizon C		30-50 cmbs	
Color Dark yellowish brown		Sediment Compaction slightly compact		Sediment Texture Clay loam	
Gravel % 0-5%		Gravel Sorting		Gravel Angularity Gravel Size	

Shovel Probe #11



Date & Time December 13, 2021 11:31 AM Probe Diameter 40cm Reason for Termination Water inundation; unproductive excavation		Archaeologist Mike Shong Tribal Archaeologist		Cultural Materials Present? None	
Stratum I		Soil Horizon A/B MIX		0-20 cmbs	
Color Yellowish brown		Sediment Compaction slightly loose		Sediment Texture Sandy clay	
Gravel % 5-15%		Gravel Sorting poorly sorted		Gravel Angularity Rounded	
				Gravel Size Pebbles	
				Lower Boundary Distinctness Clear 2-5cm	
				Lower Boundary Topography Smooth	
Stratum II		Soil Horizon A: SOIL (zone of leaching with high organic content)		20-40 cmbs	
Color Grayish brown		Sediment Compaction slightly loose		Sediment Texture Sandy clay	
Gravel % 0%		Gravel Sorting		Gravel Angularity	
				Gravel Size	
Notes					
Standing water at 10 cm					

Shovel Probe #12



Date & Time December 13, 2021 11:37 AM Probe Diameter 40cm Reason for Termination C-horizon/Glacial sediment	Archaeologist Brinn Smith, Tim fox Tribal Archaeologist	Cultural Materials Present? None	
Stratum I	Soil Horizon A/B MIX	0-30 cmbs	
Color Grayish brown	Sediment Compaction slightly compact	Sediment Texture Clay sand	
Gravel % 0%	Gravel Sorting	Gravel Angularity	Gravel Size
		Lower Boundary Distinctness Gradual 5-15cm	Lower Boundary Topography Irregular
Stratum II	Soil Horizon B: SUBSOIL (zone of accumulation)	30-50 cmbs	
Color Light brownish gray	Sediment Compaction slightly compact	Sediment Texture Clay sand	
Gravel % 0%	Gravel Sorting	Gravel Angularity	Gravel Size

Shovel Probe #13



Date & Time
December 13, 2021 11:39 AM
Probe Diameter
30cm
Reason for Termination
Water inundation;
unproductive excavation

Archaeologist
Nik Simurdak
Tribal Archaeologist

Cultural Materials Present?
None

Stratum I	Soil Horizon A/B MIX	0-40 cmbs	
Color Grayish brown	Sediment Compaction slightly loose	Sediment Texture Clay loam	
Gravel % 15-25%	Gravel Sorting poorly sorted	Gravel Angularity Sub-angular, Sub-rounded	Gravel Size
		Lower Boundary Distinctness	Lower Boundary Topography