CULTURAL RESOURCES REPORT COVER SHEET

DAHP Project Number: 2021-07-04728

Author: Tom Ostrander Emily Scott Kate Hannah

Title of Report: Supplemental Archaeological Survey for the Freeman Logistics Development Project

Date of Report: July 18, 2024

County: Pierce Section: 20 Township: 20 N Range: 4 E

Quad: N/E Acres: 2.6

PDF of Report uploaded to WISAARD report module (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 #: N/A

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Cultural Resources Short Report

Title:	Freeman Logistics Development Project, Puyallup, Pierce County, Washington – Supplemental Archaeological Survey		
Authors:	Tom Ostrander, M.Sc.; Emily Scott, R.A.; Kate Hannah, M.A.		
Date:	July 2024	**DAHP Project No.**	2021-07-04728
Acreage:	2.6 acres	**ESA Project No.**	D202100711.02
Agency:	City of Puyallup	**Project Proponent:**	Vector Development Company
Regulatory Nexus:	State Environmental Policy Act (SEPA)		
Project Address / Vicinity:	5001–5109 Freeman Road E, Puyallup, WA	**Parcel(s):**	0420201036, 0420205004
USGS Quad:	Puyallup, WA (7.5')	**Township / Range / Section:**	T 20 N, R 4 E, Section 20
Study Area Examined:	1-mile radius of the Project Area		

INTRODUCTION

Assessment Methods

Literature Review, Pedestrian Survey, Shovel Probes, Auger Probes

Project Understanding

Vector Development Company (Vector) is proposing to construct the Freeman Logistics Development Project (Project) in Puyallup, Pierce County, Washington (Figure 1, Figure 2). The Project consists of constructing two new warehouse structures. These buildings will be serviced by parking spaces and supporting infrastructure, such as revisions to the existing roadways, and utilities.

Previously, Environmental Science Associates (ESA) conducted two cultural resources assessments for the Project (refer to Ostrander et al. 2021, 2022). Since the submission of these reports, Vector has acquired two additional parcels: Pierce County Tax Parcel numbers 0420201036 and 0420205004. These two additional parcels have been incorporated into the overall Project. As part of State Environmental Policy Act (SEPA) review, the Puyallup Tribe of Indians has requested that additional archaeological subsurface survey be completed due to the expansion of the Project Area. The SEPA issuing agency, the

City of Puyallup (City), is requiring that Vector conduct the requested additional archaeological survey within the expanded Project Area.

Project Area

The expanded Project Area is located along the west boundary of the City of Puyallup, Pierce County, Washington (Figure 1, Figure 2). The expanded Project Area encompasses the entirety of two parcels, 0420201036 and 0420205004. These two parcels have a combined area of 2.6 acres and were formerly used as residential properties and agricultural land. The aboveground portions of the residential structures have been demolished. Project actions within the expanded Project Area will include vegetation removal and grading, with punctuated excavation for utilities. Excavation will also occur for the warehouse structure foundations and associated utilities. General surface grading for buildings and parking lots will typically require less than 1 meter (3.3 feet) of excavation. In some cases, building foundations and utilities may extend up to 2 meters (6.6 feet) below surface (bs).

NATURAL AND CULTURAL SETTING

Natural Setting

The environmental setting of the Project Area, and the associated 1 mile radius Study Area, has been previously described in the desktop assessment report (Berger 2020) and ESA's cultural resources assessments for the Project (Ostrander et al. 2021, 2022). No additions to the environmental setting contained in these reports were identified for the expanded Project Area. The expanded Project Area is within the floodplain of the Puyallup River to the south and Wapato Creek to the north. Flooding from these waterways has deposited deeply bedded Holocene alluvial material across the Project Area (Berger 2020). Soils within the expanded Project Area are mapped as Puyallup fine sandy loam, which is a low energy alluvial soil (NRCS 2012).

Cultural Setting

The cultural and historical setting of the Project Area has been discussed in previous reports for the Project (Berger 2020; Ostrander et al. 2021, 2022). As discussed in the previous reports, the Project Area is located within the ancestral and reservation lands of the *spuyaləpabš*, who are also known today as the Puyallup Tribe of Indians. The expanded Project Area is within the late 19th century Puyallup Reservation and contains a portion of the land allotment to Kany-Arka-Jim (James Taylor) (Berger 2020). For a more comprehensive discussion of the cultural setting, including Indigenous place names within the Study Area and a history of land ownership in the 19th and 20th centuries, refer to the desktop assessment report for the Project (Berger 2020).

PREVIOUS CULTURAL RESOURCES WORK

Previous Assessments

ESA conducted an updated records search of Department of Archaeology and Historic Preservation's (DAHP) Washington Information System for Architectural and Archaeological Records Data (WISAARD) system on May 22, 2024 (DAHP 2024). This updated research was conducted for the1-mile Study Area surrounding the Project Area. Research included a review of the WISAARD system maintained by DAHP, and digital collections of the U.S. Bureau of Land Management, Washington State Archives, Tacoma Public Library, University of Washington Libraries, Pierce County Assessor, and other online resources within ESA's research library.

In total, 15 cultural resources assessments have been conducted within the Study Area. No additional cultural resources assessments have been conducted within the Study Area since the previous desktop analysis report (Berger 2020) and cultural resources assessments (Ostrander et al. 2021, 2022) for the current Project. No National Register of Historic Places (NRHP)-listed, determined Eligible, or recommended Eligible built environment resources are within or immediately adjacent to the Project Area. No Traditional Cultural Properties have been recorded within the Study Area. No recorded archaeological sites are within or adjacent to the Project Area, and five sites have been recorded within the Study Area. No additional archaeological resources or cemeteries have been recorded within the Study Area since the prior assessments. For a full discussion, see the desktop assessment report (Berger 2020) and cultural resources assessments (Ostrander et al. 2021, 2022).

Historic Built Environment Resources

Three historic resources within the expanded Project Area have previously been inventoried in WISAARD (Table 1). These were inventoried in 2015 and each was determined Not Eligible for listing in the NRHP in 2016 (Yamamoto et al. 2105; DAHP 2024).There are no historic resources within the Project Area that have not yet been inventoried in WISAARD but meet the age threshold. However, it should be noted that all structures recorded with the County Assessor as being within the Project Area have been demolished.

TABLE 1
PREVIOUSLY INVENTORIED RESOURCES WITHIN THE EXPANDED PROJECT AREA

Resource Name	Address	Tax Parcel	Current Owner	Use	NRHP Status[1]	Year Built	DAHP Property ID
W.P. Sunberg House	5001 Freeman Road E	0420201036	Freeman Logistics	Single Family Residence	Determined Not Eligible	1904	680849
--	5005 Freeman Road E	0420201036	Freeman Logistics	Single Family Residence	Determined Not Eligible	1958	680857
--	5109 Freeman Road E	0420205004	Freeman Logistics	Single Family Residence and Detached Garage	Determined Not Eligible	1941[1], 1961[2]	680892

Source: Pierce County Assessor 2024; DAHP 2024

Notes: [1] = date of construction of residence; [2] = date of construction of garage.

Expectations

The DAHP Statewide Predictive Model classifies the expanded Project Area as High to Very High Risk for containing intact precontact-era archaeological resources (DAHP 2010).[2] ESA considers the expanded Project Area to be moderate probability for both precontact and historic period resources. Past survey

[1] Note that DAHP determinations are not set in stone; they can be revised: *"the passage of time, changing perceptions of significance, or incomplete prior evaluations may require the agency official to reevaluate properties previously determined eligible or ineligible"* [36 Code of Federal Regulations 800 (c)(1)]. This is relatively uncommon, however, and in general determinations are not revisited without a specific reason.

[2] The Statewide Predictive Model is a tool used by archaeologists and planners to evaluate potential archaeological risks on a broad scale. The model was developed to statistically evaluate multiple environmental factors (e.g., elevation, slope percent, aspect, distance to water, soils, and landforms) in order to predict where archaeological resources might be found (Kauhi 2013). It is not a substitute for conducting site-specific subsurface investigations.

efforts in the Project Area have found the area to have been cleared and plowed/graded for residential and agricultural use. This action will have impacted historic or more recent precontact period deposits. Additionally, past subsurface survey has found massive moderate energy flood deposits, without buried surfaces or bedded lower energy deposits, which may have the ability to more deeply preserve archaeological resources. Given this known context, the most likely types of resources to be encountered in the expanded Project Area are disturbed scattered historic or precontact artifacts within the near surface plow zone.

FIELD SURVEY

Methods

ESA conducted the archaeological survey of the expanded Project Area on May 14–17, 2024. The survey consisted of both surface and subsurface investigations, and was led by principal investigator Tom Ostrander, M.Sc., and field Director Emily Scott, R.A. The work was conducted by Tom Ostrander, Emily Scott, Jesse Van De Vanter, Arianna Ambrosio, and Emmett Petsche. Weather conditions at the time of survey consisted of clear skies and warm temperatures, with intermittent precipitation. Per Revised Code of Washington (RCW) 19.122, ESA requested a utility locate of the expanded Project Area under ticket numbers 24164076 and 24164077.

Prior to conducting the survey, ESA provided notification of the proposed effort and methods to the Nisqually Indian Tribe, Squaxin Island Tribe, and Puyallup Tribe of Indians. The Tribes were invited to observe the survey effort and provide information or comment to be included in the report. The Puyallup Tribe of Indians Archaeologist, Mike Shong, observed the survey effort.

The methods utilized during this investigation mirrored those used during the previous survey of the original Project Area (Ostrander et al. 2022). The surface survey was conducted across the entire expanded Project Area prior to the subsurface investigations. Gridded transects were aligned at approximately 15-meter (49-foot) intervals. The goals of the surface survey were to identify major landforms and their formation processes, find areas of significant environmental and human disturbance, and select locations suitable for the excavation of subsurface shovel/auger probes (probes). The results of the surface survey were used to inform the subsurface investigations.

In total, 54 probes were excavated across the 2.6-acre expanded Project Area. The probes were excavated at approximate 15-meter (49-foot) intervals, in consideration of locations of past shovel probes conducted during earlier phases of work for the Project. Spacing was modified at the discretion of the field director to excavate probes in locations deemed most likely to contain undisturbed or intact cultural resources within each transect interval. Subsurface investigations were conducted in accessible portions of the Project Area that did not contain prohibitive conditions, such as existing remnants of demolished structures, impervious surfaces, drainage fields, underground utilities, laydown areas, or driveways and roads.

Probes were excavated using a round-nosed shovel with a target diameter of 40 centimeters (cm; 1.3 feet) to a target depth of 100 cm (3.3 feet) bs, or until encountering prohibitive conditions, such as heavily compacted fill, cobble or boulder obstructions, or water table. If impassable conditions were not encountered, probes were extended to a target depth of 210 cm (7 feet) bs utilizing a 10-cm (4-inch) diameter bucket auger.

Probes were excavated stratigraphically, or in 20-cm (8-inch) arbitrary levels within strata. Excavated material was screened through ¼-inch mesh onto a drop cloth. Relevant matrix data (such as color, grain size, gravel content and shape, presence of charcoal, oxidation, reduction, organics, and cultural content) were recorded for each stratum. Detailed notes regarding stratigraphy, probe location, presence or absence of cultural materials, documentation of buildings, general conditions, and photographs were taken. These data were recorded using smartphones and tablets with Global Positioning System/Global Navigation Satellite System (GPS+GLONASS), with a positional accuracy of 3 meters (9.8 feet) or less. Records are saved at ESA offices on a secure server. For full descriptions of the shovel probe data, see attached Appendix A.

Results

No archaeological sites, isolates, or potential indicators of past human activity, such as concentrations of ash, charcoal, heat-affected soil, or shell, were identified during the cultural resources survey of the expanded Project Area.

The expanded Project Area is located within the Puyallup River floodplain. The open, level alluvial plain is the only distinct landform within the immediate area. No evidence of relict channels, terrace banks, or natural glacial high points were identified within the Project Area. There is, however, some variation within the floodplain landform due to the current and past human use of the area. In general, the expanded Project Area is within the southern agricultural area described in the previous cultural resources surveys for the Project (Ostrander et al. 2021, 2022; Figure 3).

The expanded Project Area is adjacent to and east of Freeman Road E and extends south from 50th Street E toward 19th Avenue NW (Figure 4). Previously, the expanded Project Area contained three rural residential properties that have recently been demolished. Remnants of these structures exist within the expanded Project Area and consist of graveled and paved driveways, parking areas, concrete and architectural debris, fence lines, manicured yardscapes, and vegetation planting/gardens. During the pedestrian survey, ground visibility was noted as varying between poor to fair. Visibility ranges were dependent on vegetation cover and recently exposed subsurface related to demolition.

The northern portion of the expanded Project Area is predominantly occupied by a former agricultural field, with residential structures along the western boundary adjacent to Freeman Road E (Figure 5 and Figure 6). To the east, agricultural fields abut the former yard fence lines. While previous surveys noted ground visibility within the agricultural fields as excellent, the fields have since remained unplowed and contain poor ground visibility ranging between 0 and 10 percent. The western portion of the expanded Project Area contains remnants of the former residential structures and has been significantly disturbed during their construction and subsequent demolition (Figure 7 and Figure 8). The southern portion of the expanded Project Area consists of a former residential property. A graveled driveway extends east to Freeman Road E, and a manicured yard with vegetation extends along the southern and western boundaries (Figure 9).

Ground disturbances were noted along the boundary and periphery of the agricultural field and near Freeman Road E, consisting of underground utilities, road drainages, graveled road prisms, modified lawns, and features associated with residential structures and occupation. The agricultural field itself does not appear to have been significantly modified from its natural state beyond plowing and clearing for

agricultural use. Areas noted for additional subsurface survey were located away from the utility and road prism of Freeman Road E, outside of the footprint of demolished buildings and associated structures, and in areas not previously excavated.

A total of 54 shovel/auger probes (276 – 329) were excavated within the expanded Project Area (Figure 4). Disturbed subsurface conditions were noted near the former residences and adjacent to the previous driveways (Figure 10). No significant areas of fill were noted outside of impacts from demolition, and no buried surfaces were identified in any of the probes. In general, encountered subsurface conditions were relatively uniform across the Project Area. A consistent mixed A/B horizon, or plow zone, was found within the expanded Project Area (Table 2) and is consistent with sediments encountered during Phase 1 (Ostrander et al 2021) and Phase 2 (Ostrander et al 2022) field surveys and with mapped soils (NRCS 2012). Encountered soils consisted of an upper plow zone underlain by alluvium and ending in clayey loam or sandy clay (Figure 11 and Figure 12). This area is in close proximity, less than a tenth of a mile, to the historic alignment of the Puyallup River. The sandy basal stratum is likely the result of overbank flooding, in close proximity to the river channel.

TABLE 2
TYPICAL SHOVEL PROBE PROFILE

Depth BS (cm)	Soil Description	Interpretation
0–45	Brown silt loam to sandy loam, medium to fine granular / crumb structure, clear boundary.	Mixed alluvial A/B horizon, plow zone.
45–110	Brown to greyish-brown sandy loam with less than 5% gravels, with a subangular blocky structure, clear boundary.	Intact native alluvium derived from moderate to low energy deposition.
110–210	Greyish-brown fine well-sorted sands.	Intact sand deposits, C horizon.

INTERPRETATIONS

The expanded Project Area, and larger Project Area, is within the floodplain of the Puyallup River. The near-surface material has been deposited by moderate energy flood activity. This deposition has not preserved any secure contexts within the stratigraphy and does not have a high probability of containing cultural resources. The near-surface soils have been heavily disturbed by a combination of grading for existing and historic period infrastructure and plowing for agricultural use. No artifacts were noted during the pedestrian survey of the expanded Project Area. The near-surface deposits would most likely contain material evidence of late Holocene precontact and the 19th or early 20th century. This pervasive disturbance significantly decreases the likelihood of encountering intact cultural resources within the Project Area. No potential indictors of disturbed archaeological contexts, such as fragmentary glass, ceramics, metal, fire-modified rock, sparse shell, or greasy organic soil, were noted during the survey.

The uniform landscape of the Project Area does not contain discrete landforms and presents as a level field. While the Project Area is in close proximity to the northern bank of the Puyallup River, and as a result has a high probability to have been utilized by Indigenous people, this area has experienced high to moderate energy flooding. The presence of deep levee sand deposits here is consistent with the mapped Puyallup series soils (NRCS 2012). These moderate energy flood events are more likely to erode artifacts and features than to bury and preserve them.

RECOMMENDATIONS

Based on the results of the survey, ESA extends no recommendations for further cultural resources work within the Project Area. ESA does recommend that the Inadvertent Discovery Plan (IDP) previously developed for the Project at a part of the previous cultural resources assessment be in place during construction, and its procedures and protocols be followed in the event of a cultural resources discovery during construction (Ostrander et al 2022).

The findings and professional opinions included in this report are based on ESA's current understanding of the Project. Should any expansion of the Project plans occur, ESA recommends that an archaeologist review final design plans to determine if additional cultural resources work is necessary.

Pursuant to 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, and the state regulatory process must be followed.

REFERENCES CITED

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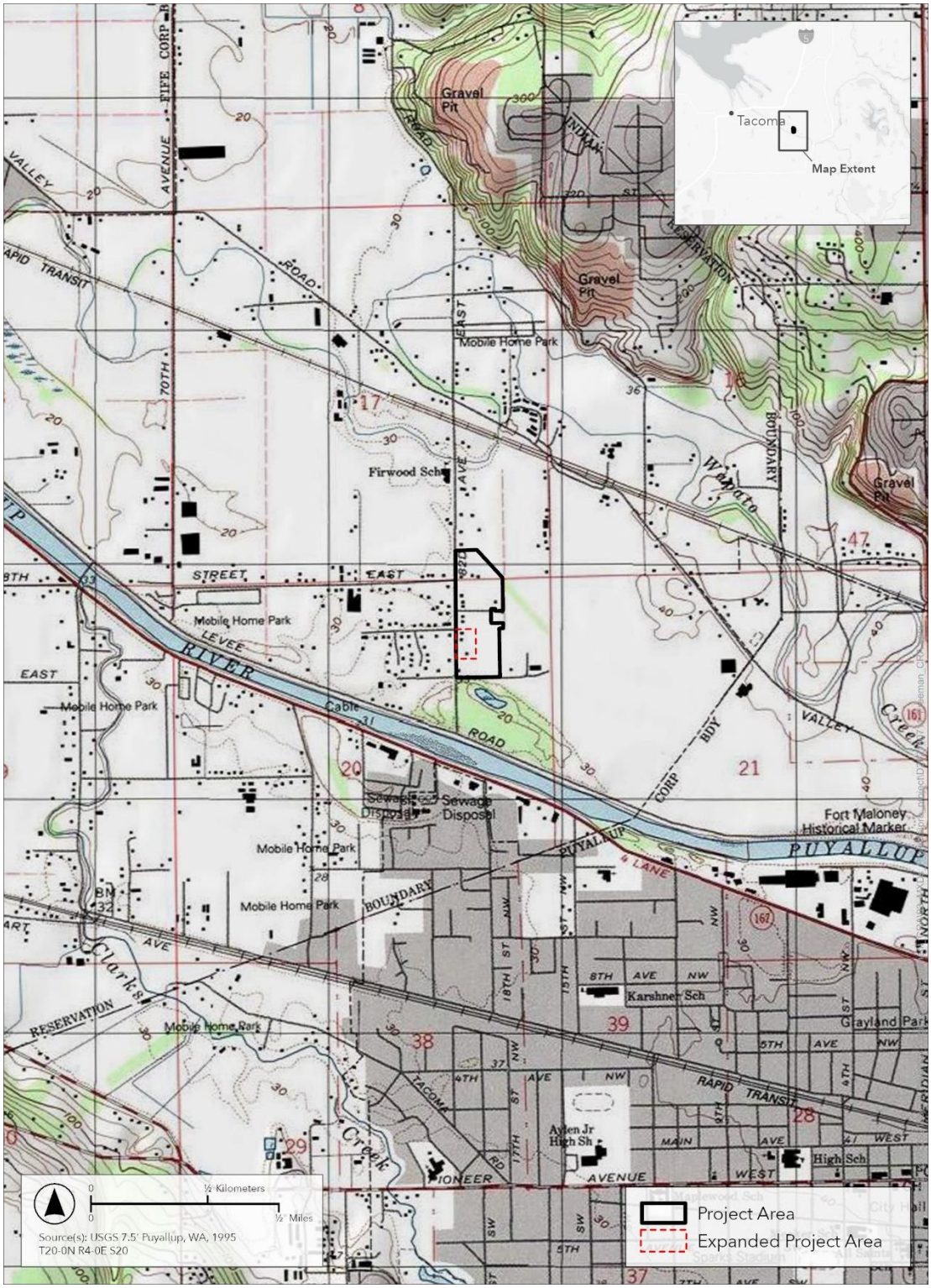
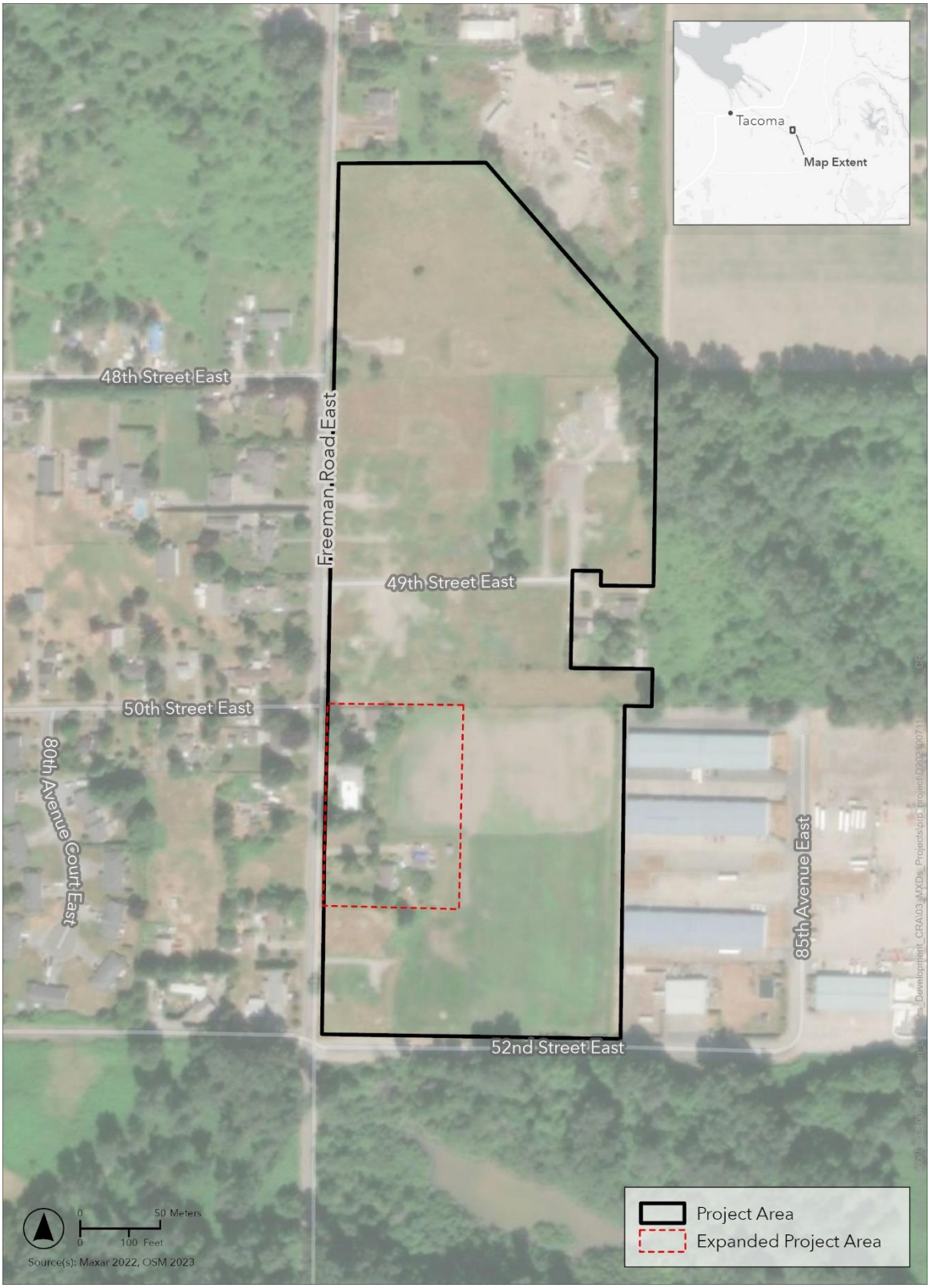


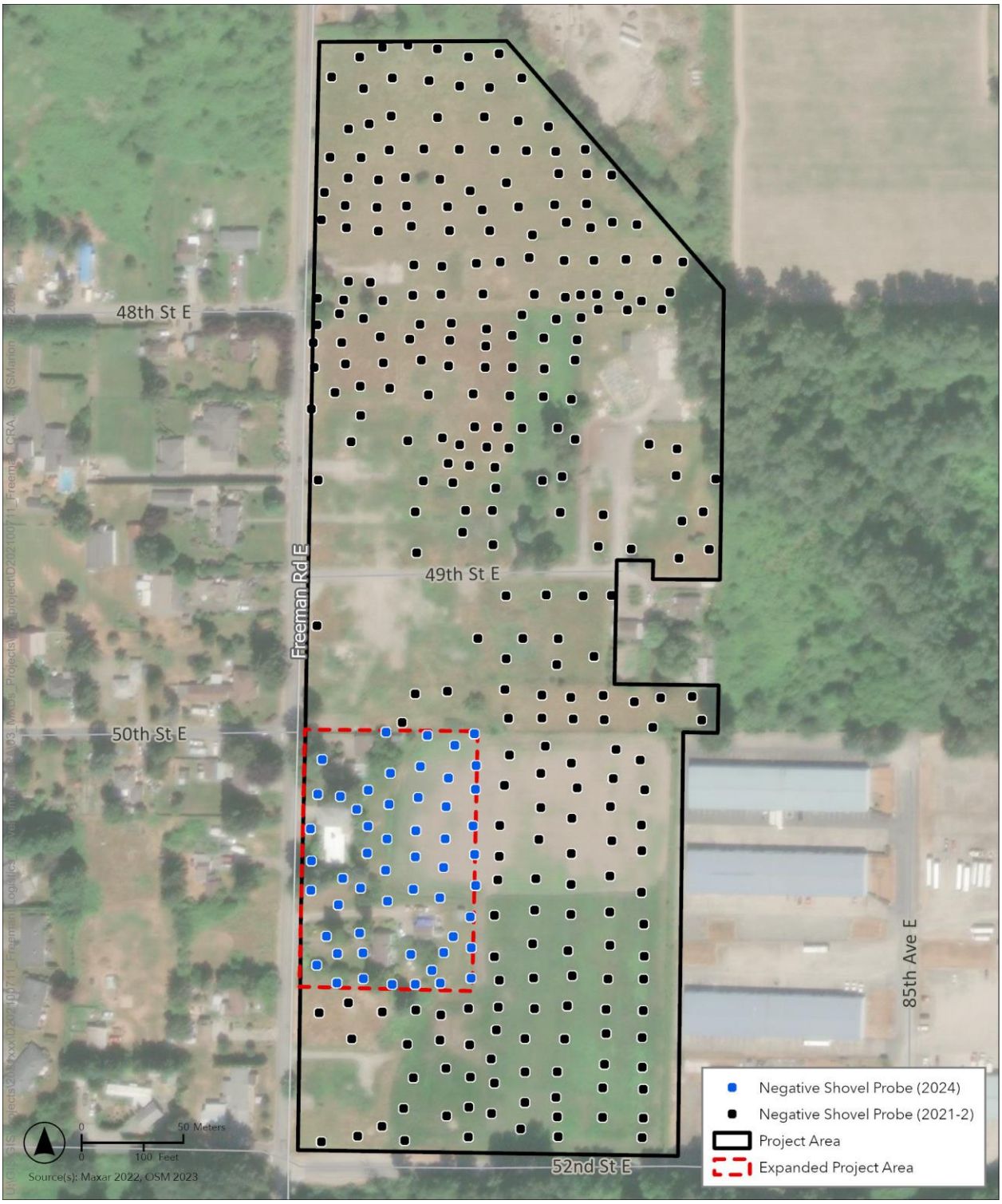
Prepared by ESA 2024

Figure 1
Location of the Freeman Logistics Development Expanded Project Area



Prepared by ESA 2024

Figure 2
Aerial view of the Freeman Logistics Development Expanded Project Area



Prepared by ESA

Figure 3
Previous (2021 – 2022) and Current (2024) Survey Locations

Prepared by ESA

Figure 4
Results of Survey Within the Expanded Project Area

Photo by ESA 2024

Figure 5
Overview of expanded Project Area from northeast corner, view to west

Photo by ESA 2024

Figure 6
Overview of expanded Project Area from northeast corner, view to southwest

Photo by ESA 2024

Figure 7
Overview of former driveway, view to west

Photo by ESA 2024

Figure 8
Overview of demolition, view to southeast

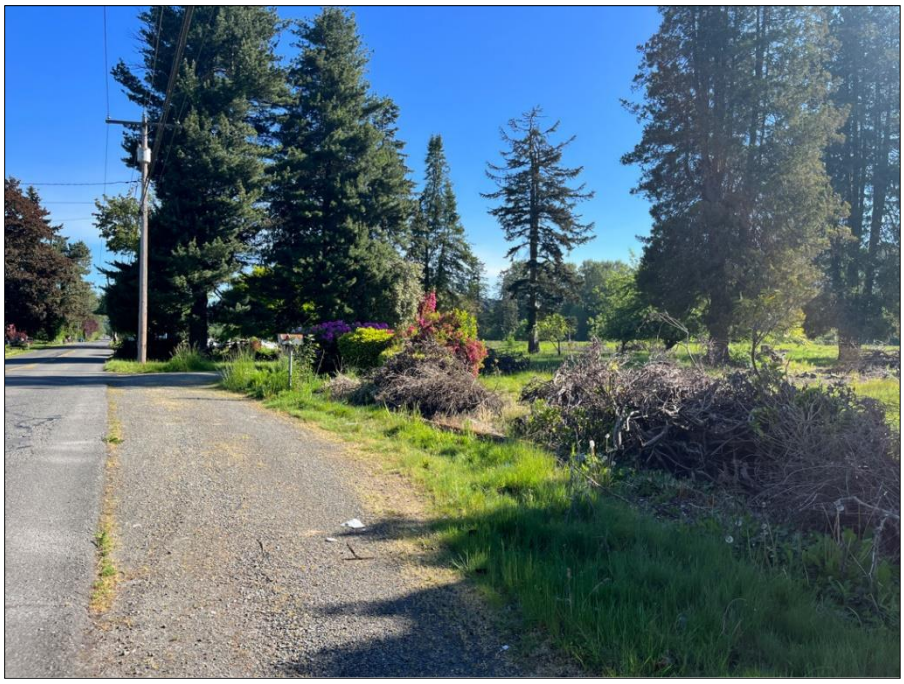


Photo by ESA 2024

Figure 9
Overview of southern expanded Project Area from Freeman Road E, view to northeast

Photo by ESA 2024

Figure 10
Detail of Shovel Probe 310, profile of disturbed sediments and fill

Photo by ESA 2024

Figure 11
Detail of Shovel Probe 277 at base depth of 136 cm bs

Photo by ESA 2024

Figure 12
Detail of Shovel Probe 292 at base depth of 210 cm bs

Attachment A: Shovel Probe Data

HOLE	LAYER	DEPTH (cm)	TOOL	COLOR	TEXTURE	SAND MODE	GRAVEL MODE	CONSISTENCE	PEDS	BOTTOM BOUNDARY	SOIL HORIZON	SPECIAL FEATURES	MODERN DEBRIS	CULTURAL	COMMENTS
276	1	0-15	Shovel,Auger	brown	sandy loam (no bedding)	fine moderately-sorted	no gravel	soft	subangular blocky weak medium	diffuse smooth	A	organics	no	no	Weak A
276	2	15-130	Shovel,Auger	reddish-brown	sandy loam (no bedding)	fine well-sorted	no gravel	soft	subangular blocky weak medium	clear smooth	B	oxidized	no	no	Large amounts of oxidation after 100cm. Sticky material after 80cm due to ground moisture.
276	3	130-210	Shovel,Auger	grayish-brown	loamy sand (no bedding)	very fine well-sorted	no gravel	soft	structureless	no horizon	C	mottled oxidized	no	no	Terminated at desired depth.
277	1	0-56	Shovel,Auger	brown	silt loam (no bedding)	sand absent	no gravel	slightly hard	subangular blocky moderate fine	diffuse smooth	B	organics	yes	no	stripped B horizon
277	2	56-136	Shovel,Auger	brown	silty clay loam (no bedding)	sand absent	no gravel	slightly hard	granular/crumb moderate fine	abrupt smooth	mixed	oxidized	no	no	Oxidized compacted soil and rock layer at 136cmbs . Terminated at gravel/cobble obstruction.
278	1	0-15	Shovel,Auger	brown	sandy loam (no bedding)	fine well-sorted	no gravel	soft	angular blocky weak medium	diffuse smooth	A		yes	no	Fabric at 15cm.
278	2	15-120	Shovel,Auger	grayish-brown	sandy loam (no bedding)	fine well-sorted	no gravel	soft	subangular blocky moderate medium	clear smooth	B	mottled oxidized	no	no	Oxidation increases with depth with material becoming sticky around 80cm.
278	3	120-210	Shovel,Auger	reddish-brown	loamy sand (no bedding)	fine well-sorted	no gravel	loose	granular/crumb strong fine	no horizon	mixed	mottled oxidized	no	no	Terminated at desired depth.
279	1	0-14	Shovel,Auger	brown	sand (no bedding)	fine moderately-sorted	no gravel	slightly hard	granular/crumb moderate fine	abrupt smooth	A	organics	no	no	Weak recent A
279	2	14-140	Shovel,Auger	grayish-brown	sand (no bedding)	very fine well-sorted	no gravel	soft	granular/crumb moderate fine	clear smooth	B	groundwater oxidized	no	no	Alluvium
279	3	140-210	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	fine well-sorted	no gravel	moderately hard	subangular blocky moderate fine	no horizon	C	groundwater oxidized	no	no	Terminated at desired depth.
280	1	0-40	Shovel,Auger	light brown	silt (no bedding)	very fine no sand sorting	no gravel	moderately hard	subangular blocky weak medium	clear smooth	A	trace charcoal organics mottled	no	no	Plow zone.
280	2	40-130	Shovel,Auger	grayish-brown	sand (laminated)	fine moderately-sorted	no gravel	slightly hard	subangular blocky moderate medium	diffuse smooth	B	oxidized	no	no	Alluvial .
280	3	130-210	Shovel,Auger	gray	sand (no bedding)	medium moderately-sorted	no gravel	soft	subangular blocky moderate medium	no horizon	C	oxidized reduced	no	no	Massive levee sands, Terminated at desired depth.
281	1	0-40	Shovel,Auger	brown	sandy loam (no bedding)	fine well-sorted	no gravel	slightly hard	subangular blocky weak medium	diffuse smooth	A		no	no	Low zone
281	2	40-210	Shovel,Auger	grayish-brown	sandy loam (no bedding)	fine well-sorted	no gravel	soft	angular blocky moderate medium	clear smooth	C	oxidized	no	no	Moderate energy alluvium grading into higher energy levee deposits Light brown sand layer appears at 200cm. Terminated at desired depth.
282	1	0-120	Shovel,Auger	grayish-brown	sand (no bedding)	fine well-sorted	no gravel	slightly hard	granular/crumb moderate fine	clear smooth	B	organics	no	no	massive alluvium
282	2	120-210	Shovel,Auger	brown	sandy clay loam (no bedding)	fine moderately-sorted	no gravel	soft	granular/crumb moderate medium	no horizon	C	groundwater oxidized	no	no	Terminated at desired depth.

HOLE	LAYER	DEPTH (cm)	TOOL	COLOR	TEXTURE	SAND MODE	GRAVEL MODE	CONSISTENCE	PEDS	BOTTOM BOUNDARY	SOIL HORIZON	SPECIAL FEATURES	MODERN DEBRIS	CULTURAL	COMMENTS
283	1	0-45	Shovel,Auger	brown	silt loam (no bedding)	very fine no sand sorting	no gravel	slightly hard	subangular blocky weak medium	abrupt smooth	A	trace charcoal organics mottled	no	no	Plow zone.
283	2	45-110	Shovel,Auger	grayish-brown	sand (no bedding)	fine poorly-sorted	no gravel	soft	structureless	clear smooth	B	oxidized	no	no	Sand layers .
283	3	110-205	Shovel,Auger	grayish-brown	sandy clay (no bedding)	fine no sand sorting	no gravel	firm	platy strong medium	no horizon	C	oxidized	no	no	Moist. Terminated at desired depth.
284	1	0-30	Shovel,Auger	brown	sandy loam (no bedding)	fine well-sorted	no gravel	soft	subangular blocky weak medium	diffuse smooth	A	organics	yes	no	Porcelain fragments as well as rusted nail found within layer. Railroad spike at 30cm, none diagnostic/modern
284	2	30-110	Shovel,Auger	grayish-brown	sandy loam (no bedding)	fine well-sorted	no gravel	soft	angular blocky moderate medium	diffuse smooth	B	mottled oxidized	no	no	Oxidation becomes more prevalent with depth.
284	3	110-210	Shovel,Auger	dark brown	loamy sand (no bedding)	very fine well-sorted	no gravel	loose	granular/crumb moderate fine	no horizon	C	mottled oxidized	no	no	Mixed layer of dark brown loamy sand with grayish brown sandy loam . Terminated at desired depth. , disturbed
285	1	0-35	Shovel,Auger	brown	silt loam (no bedding)	very fine no sand sorting	<5% no sorting subrounded medium	slightly hard	subangular blocky weak medium	clear smooth	A	organics mottled	no	no	Grass at surface, plow zone.
285	2	35-50	Shovel,Auger	light brown	silt loam (no bedding)	very fine no sand sorting	no gravel	moderately hard	subangular blocky moderate medium	clear smooth	B	oxidized	no	no	More sand and oxidation .
285	3	50-210	Shovel,Auger	grayish-brown	sand (no bedding)	fine moderately-sorted	no gravel	soft	granular/crumb weak medium	no horizon	C	trace charcoal oxidized	no	no	Moist and clay at base . Terminated at desired depth.
286	1	0-120	Shovel,Auger	brown	sand (no bedding)	fine moderately-sorted	no gravel	soft	granular/crumb moderate fine	clear smooth	mixed	trace charcoal organics	no	no	previously disturbed
286	2	120-210	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	medium well-sorted	no gravel	slightly hard	subangular blocky moderate fine	no horizon	C	oxidized	no	no	Massive alluvium Terminated at desired depth.
287	1	0-20	Shovel,Auger	brown	sandy loam (no bedding)	fine well-sorted	<5% poorly-sorted subrounded fine	soft	subangular blocky weak fine	diffuse smooth	pedogenic A-horizon	organics	no	no	Weak A
287	2	20-120	Shovel,Auger	brown	sand (no bedding)	very fine well-sorted	no gravel	loose	structureless	clear smooth	fill		no	no	Possible fill or disturbed native soils. Glass fragments, brick at 35cm.
287	3	120-210	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	fine well-sorted	no gravel	slightly hard	angular blocky strong medium	no horizon	C	oxidized	no	no	Terminated at desired depth.
288	1	0-30	Shovel,Auger	brown	sandy loam (no bedding)	sand absent	<5% no sorting subrounded fine	slightly hard	subangular blocky moderate medium	clear wavy	A	organics	yes	no	Plow zone.
288	2	30-90	Shovel,Auger	grayish-brown	sandy loam (no bedding)	fine no sand sorting	<5% no sorting subrounded fine	soft	subangular blocky weak medium	clear wavy	B	oxidized reduced	no	no	Massive alluvium
288	3	90-210	Shovel,Auger	brown	loamy sand (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	soft	subangular blocky weak medium	no horizon	C	oxidized reduced	no	no	Terminated at desired depth.
289	1	0-40	Shovel,Auger	brown	loamy sand (no bedding)	fine well-sorted	no gravel	soft	granular/crumb moderate medium	clear smooth	A	organics	no	no	Plow Zone

HOLE	LAYER	DEPTH (cm)	TOOL	COLOR	TEXTURE	SAND MODE	GRAVEL MODE	CONSISTENCE	PEDS	BOTTOM BOUNDARY	SOIL HORIZON	SPECIAL FEATURES	MODERN DEBRIS	CULTURAL	COMMENTS
289	2	40-90	Shovel,Auger	grayish-brown	sand (no bedding)	medium moderately-sorted	no gravel	soft	granular/crumb weak medium	clear smooth	B		no	no	massive alluvium
289	3	90-210	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	fine moderately-sorted	no gravel	soft	granular/crumb moderate medium	no horizon	C	oxidized	no	no	Terminated at desired depth.
290	1	0-30	Shovel,Auger	brown	sandy loam (no bedding)	fine well-sorted	no gravel	soft	subangular blocky weak medium	diffuse smooth	A		no	no	Plow Zone
290	2	30-80	Shovel,Auger	brown	loamy sand (no bedding)	fine well-sorted	no gravel	soft	granular/crumb weak no ped size	clear smooth	B		no	no	Massive alluvium
290	3	80-210	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	fine well-sorted	no gravel	slightly hard	angular blocky moderate coarse	no horizon	C	oxidized	no	no	Terminated at desired depth.
291	1	0-45	Shovel,Auger	brown	sandy loam (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	slightly hard	subangular blocky moderate medium	clear wavy	A	organics	yes	no	Plow Zone
291	2	45-90	Shovel,Auger	brown	loamy sand (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	soft	subangular blocky weak medium	clear wavy	B	oxidized reduced	no	no	Massive alluvium
291	3	90-210	Shovel,Auger	brown	sandy clay loam (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	soft	subangular blocky moderate medium	clear wavy	C	mottled oxidized reduced	no	no	Terminated at desired depth.
292	1	0-40	Shovel,Auger	brown	loamy sand (no bedding)	fine moderately-sorted	no gravel	slightly hard	granular/crumb moderate fine	diffuse smooth	A	organics	no	no	plow zone
292	2	40-120	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	fine moderately-sorted	no gravel	slightly hard	granular/crumb moderate fine	clear smooth	B	oxidized	no	no	massive alluvium
292	3	120-180	Shovel,Auger	reddish-brown	sandy clay loam (no bedding)	fine moderately-sorted	no gravel	slightly hard	granular/crumb moderate medium	abrupt smooth	C	oxidized	no	no	same as above, but oxidized, water table
292	4	180-210	Shovel,Auger	gray	sand (no bedding)	coarse well-sorted	no gravel	loose	granular/crumb weak coarse	no horizon	C		no	no	Levee sand Terminated at desired depth.
293	1	0-60	Shovel,Auger	brown	sandy loam (no bedding)	fine well-sorted	<5% well-sorted subrounded fine	soft	subangular blocky weak fine	clear smooth	A	organics	no	no	area of disturbance
293	2	60-140	Shovel,Auger	grayish-brown	loamy sand (no bedding)	fine well-sorted	no gravel	slightly hard	angular blocky moderate medium	clear smooth	B	mottled oxidized	no	no	massive alluvium
293	3	140-210	Shovel,Auger	dark brown	sand (no bedding)	medium well-sorted	no gravel	loose	structureless	no horizon	C	groundwater	no	no	levee sands, Terminated at desired depth.
294	1	0-100	Shovel,Auger	brown	sandy loam (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	slightly hard	subangular blocky moderate medium	clear wavy	A	organics	yes	no	area of disturbance
294	2	100-180	Shovel,Auger	dark brown	sand (no bedding)	fine no sand sorting	<5% no sorting no gravel shape no dominant size	soft	subangular blocky weak medium	clear wavy	B	groundwater oxidized reduced	no	no	levee sand
294	3	180-210	Shovel,Auger	brown	sandy clay loam (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	soft	subangular blocky moderate medium	no horizon	C	groundwater oxidized reduced	no	no	alluvium, Terminated at desired depth.

HOLE	LAYER	DEPTH (cm)	TOOL	COLOR	TEXTURE	SAND MODE	GRAVEL MODE	CONSISTENCE	PEDS	BOTTOM BOUNDARY	SOIL HORIZON	SPECIAL FEATURES	MODERN DEBRIS	CULTURAL	COMMENTS
295	1	0-30	Shovel,Auger	brown	loamy sand (no bedding)	medium moderately-sorted	no gravel	slightly hard	granular/crumb moderate medium	clear smooth	A	organics	no	no	Plow zone
295	2	30-120	Shovel,Auger	light brown	sand (no bedding)	fine moderately-sorted	no gravel	slightly hard	granular/crumb weak medium	clear smooth	B		no	no	levee sands
295	3	120-180	Shovel,Auger	reddish-brown	sandy clay loam (no bedding)	fine moderately-sorted	no gravel	slightly hard	subangular blocky moderate medium	clear smooth	C	oxidized	no	no	highly oxidized in patches .
295	4	180-210	Shovel,Auger	gray	sand (no bedding)	coarse well-sorted	no gravel	soft	granular/crumb weak coarse	no horizon	C		no	no	Terminated at desired depth.
296	1	0-60	Shovel,Auger	brown	sandy loam (no bedding)	fine well-sorted	no gravel	soft	subangular blocky weak medium	clear smooth	A		no	no	significant disturbance area
296	2	60-150	Shovel,Auger	grayish-brown	sandy loam (no bedding)	fine well-sorted	no gravel	slightly hard	angular blocky moderate medium	clear smooth	B	mottled oxidized	no	no	massive alluvium
296	3	150-210	Shovel,Auger		sand (no bedding)	medium well-sorted	no gravel	loose	granular/crumb weak fine	no horizon	C	oxidized	no	no	levee sands Terminated at desired depth.
297	1	0-30	Shovel,Auger	brown	sandy loam (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	slightly hard	subangular blocky moderate medium	clear wavy	A	trace charcoal organics	yes	no	Plow Zone
297	2	30-150	Shovel,Auger	brown	sandy clay loam (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	slightly hard	subangular blocky moderate medium	clear wavy	B	oxidized reduced	no	no	massive alluvium
297	3	150-210	Shovel,Auger	brown	loamy sand (no bedding)	fine no sand sorting	<5% no sorting no gravel shape no dominant size	soft	subangular blocky weak medium	no horizon	C	oxidized reduced	no	no	Terminated at desired depth.
298	1	0-45	Shovel,Auger	brown	loamy sand (no bedding)	fine well-sorted	no gravel	slightly hard	granular/crumb moderate fine	clear smooth	A	trace charcoal organics	no	no	plow zone, Charcoal at 45-50cmbs concentrated on east wall .
298	2	45-120	Shovel,Auger	yellowish-brown	sandy clay loam (no bedding)	medium well-sorted	no gravel	slightly hard	granular/crumb moderate fine	clear smooth	B	oxidized	no	no	massive alluvium
298	3	120-210	Shovel,Auger	gray	sand (no bedding)	medium moderately-sorted	no gravel	soft	granular/crumb moderate medium	no horizon	C		no	no	Terminated at desired depth.
299	1	0-50	Shovel,Auger	brown	sandy loam (no bedding)	fine well-sorted	no gravel	soft	subangular blocky weak medium	clear smooth	A	organics	yes	no	Smal modern ceramic fragment at 20cm, plow zone
299	2	50-150	Shovel,Auger	grayish-brown	sandy loam (no bedding)	fine well-sorted	no gravel	soft	subangular blocky moderate fine	clear smooth	B	oxidized	no	no	Massive alluvium Heavily oxidation at 130cm.
299	3	150-210	Shovel,Auger	dark gray	loamy sand (no bedding)	medium well-sorted	no gravel	loose	granular/crumb weak fine	no horizon	C	oxidized	no	no	Same as above, grades coarser with depth Terminated at desired depth.
300	1	0-50	Shovel,Auger	brown	sandy loam (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	slightly hard	subangular blocky moderate medium	clear wavy	A	organics	yes	no	plow zone
300	2	50-140	Shovel,Auger	brown	loamy sand (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	soft	subangular blocky weak medium	clear wavy	B	organics oxidized reduced	no	no	massive alluvium

HOLE	LAYER	DEPTH (cm)	TOOL	COLOR	TEXTURE	SAND MODE	GRAVEL MODE	CONSISTENCE	PEDS	BOTTOM BOUNDARY	SOIL HORIZON	SPECIAL FEATURES	MODERN DEBRIS	CULTURAL	COMMENTS
300	3	140-210	Shovel,Auger	brown	sandy clay loam (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	slightly hard	subangular blocky moderate medium	no horizon	C	groundwater oxidized reduced	no	no	ame as above grades finer with depth at desired depth.
301	1	0-30	Shovel,Auger	brown	sandy loam (no bedding)	fine well-sorted	<5% no sorting subrounded fine	soft	subangular blocky weak medium	clear smooth	A	organics	yes	no	Small green ceramic fragment at 10cm, modern, plow zone
301	2	30-70	Shovel,Auger	grayish-brown	sand (no bedding)	medium well-sorted	no gravel	loose	structureless	clear smooth	fill		no	no	Possible fill layer with disturbed native material.
301	3	70-170	Shovel,Auger		sandy clay loam (no bedding)	fine well-sorted	no gravel	moderately hard	platy strong coarse	no horizon	C	mottled oxidized	no	no	Very dense mottle oxidation at 165cm making auger extension impossible. . Terminated at dense/impassable soils.
302	1	0-40	Shovel,Auger	brown	loamy sand (no bedding)	fine well-sorted	no gravel	slightly hard	granular/crumb moderate fine	clear smooth	A	organics	no	no	Plow Zone
302	2	40-140	Shovel,Auger	grayish-brown	sand (no bedding)	medium well-sorted	no gravel	soft	granular/crumb weak medium	abrupt smooth	B	oxidized	no	no	levee sands
302	3	140-180	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	fine moderately-sorted	no gravel	slightly hard	granular/crumb moderate medium	very abrupt smooth	C	oxidized	no	no	170-180 cmbs very oxidized layer slightly more compact than previous sandy clay loam layer. .
302	4	180-210	Shovel,Auger	gray	sand (no bedding)	medium moderately-sorted	no gravel	soft	granular/crumb weak medium	no horizon	C		no	no	Terminated at desired depth.
303	1	0-30	Shovel,Auger	brown	sandy loam (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	slightly hard	subangular blocky moderate medium	clear wavy	A	organics	no	no	plow zone
303	2	30-95	Shovel,Auger	grayish-brown	loamy sand (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	soft	subangular blocky weak medium	clear wavy	B	oxidized reduced	no	no	massive alluvium
303	3	95-180	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	slightly hard	subangular blocky moderate medium	clear wavy	C	oxidized reduced	no	no	perched water table
303	4	180-210	Shovel,Auger	brown	loamy sand (no bedding)	fine no sand sorting	<5% no sorting no gravel shape no dominant size	soft	subangular blocky weak medium	no horizon	C	oxidized reduced	no	no	Terminated at desired depth.
304	1	0-110	Shovel,Auger	brown	loamy sand (no bedding)	fine well-sorted	no gravel	soft	granular/crumb weak fine	clear smooth	A	organics	no	no	Thin ped A horizon dark brown loamy sand 0-5cm. Recently disturbed massive alluvium
304	2	110-170	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	fine well-sorted	no gravel	slightly hard	granular/crumb weak fine	clear smooth	C	groundwater mottled oxidized	no	no	same as above, grade finer with depth= terminated at ground water
305	1	0-40	Shovel,Auger	brown	sandy loam (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	slightly hard	subangular blocky moderate medium	clear wavy	A	trace charcoal organics	yes	no	plow zone
305	2	40-110	Shovel,Auger	grayish-brown	loamy sand (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	soft	subangular blocky weak medium	clear wavy	B	trace charcoal organics oxidized reduced	no	no	massive alluvium

HOLE	LAYER	DEPTH (cm)	TOOL	COLOR	TEXTURE	SAND MODE	GRAVEL MODE	CONSISTENCE	PEDS	BOTTOM BOUNDARY	SOIL HORIZON	SPECIAL FEATURES	MODERN DEBRIS	CULTURAL	COMMENTS
305	3	110-180	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	slightly hard	subangular blocky moderate medium	clear wavy	C	trace charcoal groundwater oxidized reduced	no	no	same as above grades finer
305	4	180-210	Shovel,Auger	brown	loamy sand (no bedding)	fine no sand sorting	<5% no sorting no gravel shape no dominant size	soft	subangular blocky weak medium	no horizon	C	groundwater oxidized reduced	no	no	Terminated at desired depth.
306	1	0-35	Shovel,Auger	brown	loamy sand (no bedding)	fine well-sorted	no gravel	slightly hard	granular/crumb moderate fine	clear smooth	A	organics	no	no	plow zone
306	2	35-120	Shovel,Auger	grayish-brown	sand (no bedding)	medium well-sorted	no gravel	soft	granular/crumb moderate medium	clear smooth	B		no	no	levee sands
306	3	120-180	Shovel,Auger	brown	sandy clay loam (no bedding)	medium well-sorted	no gravel	slightly hard	granular/crumb moderate medium	abrupt smooth	C	oxidized	no	no	Densely compact oxidized layer at 180 cmbs.
306	4	180-210	Shovel,Auger	grayish-brown	sand (no bedding)	fine well-sorted	no gravel	soft	granular/crumb weak fine	no horizon	C		no	no	Terminated at desired depth.
307	1	0-35	Shovel,Auger	light brown	sand (no bedding)	very fine well-sorted	<5% moderately-sorted subrounded medium	soft	granular/crumb weak fine	clear smooth	fill	organics	no	no	plow zone
307	2	35-86	Shovel,Auger	grayish-brown	sand (no bedding)	very fine well-sorted	no gravel	loose	granular/crumb weak fine	no horizon	B	organics	no	no	levee sands Root debris at 86 cmbs . Terminated at log/root/organic obstruction.
308	1	0-30	Shovel,Auger	brown	sandy loam (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	slightly hard	subangular blocky moderate medium	clear wavy	A	organics	yes	no	plow zone
308	2	30-110	Shovel,Auger	grayish-brown	loamy sand (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	soft	subangular blocky weak medium	clear wavy	B	organics oxidized reduced	no	no	massive levee sands
308	3	110-210	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	slightly hard	subangular blocky moderate medium	no horizon	C	organics oxidized reduced	no	no	Terminated at desired depth.
309	1	0-40	Shovel,Auger	brown	sandy loam (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	slightly hard	subangular blocky moderate medium	clear wavy	A	trace charcoal organics	yes	no	plow zone
309	2	40-80	Shovel,Auger	grayish-brown	loamy sand (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	soft	subangular blocky weak medium	no horizon	B	trace charcoal organics oxidized reduced	no	no	levee sands Terminated at log/root/organic obstruction.
310	1	0-81	Shovel,Auger	brown	sandy loam (no bedding)	fine well-sorted	35-60% moderately-sorted subrounded medium	moderately hard	granular/crumb weak fine	no horizon	fill	organics	no	no	Compact soils reaching down to 50cm with possible septic drain field at 60-81cm. Dense gravels 90% 60-81cm. Terminated at gravel/cobble obstruction.
311	1	0-40	Shovel,Auger	brown	sandy loam (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	slightly hard	subangular blocky moderate medium	clear wavy	A	organics	no	no	plow zone

HOLE	LAYER	DEPTH (cm)	TOOL	COLOR	TEXTURE	SAND MODE	GRAVEL MODE	CONSISTENCE	PEDS	BOTTOM BOUNDARY	SOIL HORIZON	SPECIAL FEATURES	MODERN DEBRIS	CULTURAL	COMMENTS
311	2	40-170	Shovel,Auger	grayish-brown	loamy sand (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	soft	subangular blocky weak medium	clear wavy	B	organics oxidized reduced	no	no	massive levee sands
311	3	170-210	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	soft	subangular blocky moderate medium	no horizon	C	organics oxidized reduced	no	no	same as above grads finer with depth. Terminated at desired depth.
312	1	0-90	Shovel,Auger	grayish-brown	loamy sand (no bedding)	fine well-sorted	<5% no sorting subrounded fine	soft	granular/crumb weak fine	clear smooth	A	organics	no	no	disturbed area
312	2	90-190	Shovel,Auger	gray	sandy clay loam (no bedding)	fine no sand sorting	no gravel	slightly hard	angular blocky strong medium	clear smooth	B	mottled oxidized	no	no	massive alluvium
312	3	190-210	Shovel,Auger	dark gray	sand (no bedding)	very fine well-sorted	no gravel	loose	structureless	no horizon	C		no	no	Levee sands Terminated at desired depth.
313	1	0-40	Shovel,Auger	brown	loamy sand (no bedding)	fine well-sorted	no gravel	slightly hard	granular/crumb moderate fine	clear smooth	A	organics	no	no	Plow Zone
313	2	40-135	Shovel,Auger	grayish-brown	sand (no bedding)	medium well-sorted	no gravel	soft	granular/crumb weak medium	clear smooth	B	oxidized	no	no	levee sands
313	3	135-210	Shovel,Auger	reddish-brown	sandy clay loam (no bedding)	fine well-sorted	no gravel	slightly hard	granular/crumb moderate fine	no horizon	C	oxidized	no	no	Terminated at desired depth.
314	1	0-45	Shovel,Auger	brown	loamy sand (no bedding)	fine moderately-sorted	no gravel	slightly hard	granular/crumb moderate fine	clear smooth	A	organics	no	no	plow zone
314	2	45-120	Shovel,Auger	gray	sand (no bedding)	medium moderately-sorted	no gravel	soft	granular/crumb weak medium	clear smooth	C		no	no	levee sands
315	1	0-30	Shovel,Auger	brown	sandy loam (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	slightly hard	subangular blocky moderate medium	clear wavy	A	organics	yes	no	plow zone
315	2	30-160	Shovel,Auger	grayish-brown	loamy sand (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	soft	subangular blocky weak medium	clear wavy	B	organics oxidized reduced	no	no	massive alluvium
315	3	160-210	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	slightly hard	subangular blocky moderate medium	no horizon	C	oxidized reduced	no	no	Terminated at desired depth.
316	1	0-15	Shovel,Auger	brown	sandy loam (no bedding)	very fine well-sorted	no gravel	soft	granular/crumb weak fine	diffuse smooth	pedogenic A-horizon	organics	no	no	planter material
316	2	15-130	Shovel,Auger	brown	loamy sand (no bedding)	fine well-sorted	no gravel	soft	subangular blocky weak fine	clear smooth	A	oxidized	no	no	disturbance
316	3	130-210	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	fine well-sorted	no gravel	slightly hard	angular blocky moderate medium	no horizon	C	mottled oxidized	no	no	massive alluvium Terminated at desired depth.
317	1	0-35	Shovel,Auger	brown	sandy loam (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	slightly hard	subangular blocky moderate medium	clear wavy	A	organics	no	no	plow zone
317	2	35-210	Shovel,Auger	grayish-brown	loamy sand (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	soft	subangular blocky weak medium	no horizon	B	organics oxidized reduced	no	no	Terminated at desired depth.
318	1	0-30	Shovel,Auger	brown	sandy loam (no bedding)	fine no sand sorting	<5% no sorting subrounded fine	soft	subangular blocky weak fine	clear smooth	A	organics	no	no	plow zone

HOLE	LAYER	DEPTH (cm)	TOOL	COLOR	TEXTURE	SAND MODE	GRAVEL MODE	CONSISTENCE	PEDS	BOTTOM BOUNDARY	SOIL HORIZON	SPECIAL FEATURES	MODERN DEBRIS	CULTURAL	COMMENTS
318	2	30-120	Shovel,Auger	gray	sand (no bedding)	very fine well-sorted	35-60% well-sorted subrounded medium	loose	structureless	clear smooth	mixed		no	no	Fill layer with 35-60% gravels 60-80cm within layer.
318	3	120-210	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	fine well-sorted	no gravel	slightly hard	angular blocky moderate medium	no horizon	C	oxidized	no	no	Terminated at desired depth.
319	1	0-50	Shovel,Auger	brown	loamy sand (no bedding)	fine well-sorted	no gravel	slightly hard	granular/crumb moderate fine	clear smooth	A	trace charcoal organics	no	no	plow zone
319	2	50-130	Shovel,Auger	grayish-brown	sand (no bedding)	medium well-sorted	no gravel	soft	granular/crumb weak fine	clear smooth	B	trace charcoal oxidized	no	no	levee sands
319	3	130-210	Shovel,Auger	reddish-brown	sandy clay loam (no bedding)	fine well-sorted	no gravel	slightly hard	granular/crumb moderate fine	no horizon	C	oxidized	no	no	Terminated at desired depth.
320	1	0-35	Shovel,Auger	brown	loamy sand (no bedding)	fine moderately-sorted	no gravel	slightly hard	granular/crumb moderate fine	clear smooth	A	organics	no	no	plow zone
320	2	35-160	Shovel,Auger	grayish-brown	sand (no bedding)	fine well-sorted	no gravel	soft	granular/crumb weak fine	abrupt smooth	B	oxidized	no	no	levee sands
320	3	160-210	Shovel,Auger	reddish-brown	sandy clay loam (no bedding)	fine well-sorted	no gravel	slightly hard	granular/crumb moderate fine	no horizon	C		no	no	Terminated at desired depth.
321	1	0-35	Shovel,Auger	brown	sandy loam (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	slightly hard	subangular blocky moderate medium	clear wavy	A	trace charcoal organics	yes	no	plow zone
321	2	35-110	Shovel,Auger	grayish-brown	loamy sand (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	soft	subangular blocky weak medium	clear wavy	B	trace charcoal organics oxidized reduced	no	no	massive alluvium
321	3	110-210	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	slightly hard	subangular blocky moderate medium	no horizon	C	trace charcoal oxidized reduced	no	no	Terminated at desired depth.
322	1	0-50	Shovel,Auger	brown	sandy loam (no bedding)	fine well-sorted	5-15% well-sorted subangular medium	soft	subangular blocky strong fine	no horizon	A	organics	no	no	Large boulder at 45cm. Terminated at gravel/cobble obstruction.
323	1	0-30	Shovel,Auger	brown	loamy sand (no bedding)	fine well-sorted	no gravel	slightly hard	granular/crumb moderate fine	clear smooth	A	organics	no	no	plow zone
323	2	30-180	Shovel,Auger	grayish-brown	sand (no bedding)	fine moderately-sorted	no gravel	soft	granular/crumb weak fine	abrupt smooth	B		no	no	levee sands
323	3	180-210	Shovel,Auger	reddish-brown	sandy clay loam (no bedding)	fine well-sorted	no gravel	slightly hard	granular/crumb moderate medium	no horizon	C	oxidized	no	no	Terminated at desired depth.
324	1	0-55	Shovel,Auger	brown	sandy loam (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	slightly hard	subangular blocky moderate medium	clear wavy	A	organics	yes	no	plow zone
324	2	55-150	Shovel,Auger	brown	loamy sand (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	soft	subangular blocky weak medium	clear wavy	B	oxidized reduced	no	no	massive alluvium
324	2	150-210	Shovel,Auger	brown	sandy clay loam (no bedding)	very fine no sand sorting	<5% no sorting no gravel shape no dominant size	slightly hard	subangular blocky moderate medium	no horizon	C	organics oxidized reduced	no	no	Terminated at desired depth.

HOLE	LAYER	DEPTH (cm)	TOOL	COLOR	TEXTURE	SAND MODE	GRAVEL MODE	CONSISTENCE	PEDS	BOTTOM BOUNDARY	SOIL HORIZON	SPECIAL FEATURES	MODERN DEBRIS	CULTURAL	COMMENTS
325	1	0-100	Shovel,Auger	brown	loamy sand (no bedding)	fine well-sorted	<5% no sorting subrounded medium	soft	subangular blocky weak fine	clear smooth	mixed	organics	yes	no	Green translucent glass fragment at 30cm, disturbed area
325	2	100-210	Shovel,Auger	grayish-brown	sandy clay (no bedding)	very fine well-sorted	no gravel	soft	angular blocky weak fine	no horizon	C	trace charcoal mottled oxidized	no	no	Trace charcoal clusters at 100-110cm, bioturbated root burn. Heavier oxidation with depth, mixed layer of dark brown sand and grayish brown sandy clay. Disturbance, old tree location Terminated at desired depth.
326	1	0-120	Shovel,Auger	brown	sandy loam (no bedding)	fine well-sorted	no gravel	soft	subangular blocky moderate fine	clear smooth	A	organics	no	no	disturbed area
326	2	120-210	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	fine well-sorted	no gravel	slightly hard	angular blocky moderate medium	no horizon	B	oxidized	no	no	Color of soil changes from grayish brown to brownish gray with depth.. Terminated at desired depth.
327	1	0-45	Shovel,Auger	brown	loamy sand (no bedding)	fine well-sorted	no gravel	slightly hard	granular/crumb moderate medium	clear smooth	A	organics	no	no	plow zone
327	2	45-120	Shovel,Auger	gray	sand (no bedding)	medium well-sorted	no gravel	soft	granular/crumb weak medium	clear smooth	B	organics oxidized	no	no	levee sands
327	3	120-210	Shovel,Auger	brown	sandy clay loam (no bedding)	medium well-sorted	no gravel	slightly hard	granular/crumb moderate medium	no horizon	C		no	no	Terminated at desired depth.
328	1	0-35	Shovel,Auger	brown	sandy loam (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	slightly hard	subangular blocky moderate medium	clear wavy	A	trace charcoal organics	yes	no	plow zone
328	2	35-140	Shovel,Auger	grayish-brown	loamy sand (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	soft	subangular blocky weak medium	clear wavy	B	trace charcoal organics oxidized reduced	no	no	massive alluvium
328	3	140-190	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	very fine no sand sorting	<5% no sorting subrounded fine	slightly hard	subangular blocky moderate medium	clear wavy	C	trace charcoal oxidized reduced	no	no	same as above grades finer with depth
328	4	190-210	Shovel,Auger	brown	loamy sand (no bedding)	fine no sand sorting	<5% no sorting no gravel shape no dominant size	soft	subangular blocky weak medium	no horizon	C	oxidized reduced	no	no	water table, Terminated at desired depth.
329	1	0-15	Shovel,Auger	brown	loam (no bedding)	fine well-sorted	<5% moderately-sorted subangular fine	soft	granular/crumb weak fine	diffuse smooth	pedogenic A-horizon		no	no	Close to existing house footprint 5-10 feet.
329	2	15-80	Shovel,Auger	brown	sandy loam (no bedding)	fine well-sorted	no gravel	soft	granular/crumb weak fine	clear smooth	A	oxidized	no	no	disturbed area
329	3	80-170	Shovel,Auger	grayish-brown	sandy clay loam (no bedding)	fine well-sorted	no gravel	slightly hard	subangular blocky moderate medium	clear smooth	B	trace charcoal oxidized	no	no	Layers of heavy oxidation with brownish gray sandy clay loam. Trace charcoal at 90cm.
329	4	170-210	Shovel,Auger	dark gray	loamy sand (no bedding)	medium well-sorted	no gravel	loose	granular/crumb weak fine	no horizon	C	oxidized	no	no	Terminated at desired depth.