OKLAHOMA DEPARTMENT OF TRANSPORTATION

CULTURAL RESOURCES SURVEY REPORT

Bryan and Marshall Counties JP 33873(04): Bridge and Approaches: US-70 over Lake Texoma (Roosevelt Bridge)

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Lead Federal Agency: Federal Highway Administration

OKLAHOMA

County:	Bryan and Marshall
J/P#:	33873(04)
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MANAGEMENT SUMMARY:

The Oklahoma Department of Transportation (ODOT), in conjunction with the Federal Highway Administration (FHWA), are proposing improvements to approximately 4.4 miles of the bridge and approaches on US-70 over Lake Texoma (Roosevelt Bridge) in Bryan and Marshall Counties, Oklahoma. The existing facility consists of four 12-foot driving lanes with a central 12-foot turn lane with 10-foot paved outside shoulders that narrows to two 12-foot driving lanes with 10-foot outside shoulders on the bridge approaches to two 12-foot driving lanes with no shoulders across the bridge causeway and bridge. Several alternatives for the project are under consideration, including alternatives that preserve the historic integrity of the bridge. All alternatives will provide a crossing of Lake Texoma that will accommodate four 12-foot driving lanes with shoulders, will have an approach roadway consisting of a four to five lane section with shoulders, and will keep the existing roadway open to traffic during construction.

The project study area includes a total of 404 acres. Of this, approximately 36 acres on the west side of the study area and 128 acres on the east side of the study area (a total of approximately 164 acres) are located above the water level of Lake Texoma. The remaining 240 acres of the study area are covered by the waters of Lake Texoma.

Portions of the study area are located on lands managed by the U.S. Army Corps of Engineers (USACE) and the Bureau of Indian Affairs (BIA). Approximately 135.65 acres of above ground USACE land is within the project study area. ARPA permit DACW56-4-22-072 was obtained on December 20, 2021, to allow access to USACE land. Approximately 4.69 acres of Chickasaw Nation trust land is also within the study area. ARPA permit 22-009A was obtained on December 14, 2021, to allow access to this parcel.

As a result of the cultural resources survey, Site 34BR25 was revisited and updated, one historic-age (built in or before 1976) building complex (Building Complex 1), and one historic-age structure (Structure 2) were documented and assessed. No evidence of Site 34BR25 was located within the study area. Building Complex 1 and Structure 2 are both recommended **not eligible** for National Register of Historic Places (NRHP) listing.

The bridge over the Lake Texoma (ODOT Structure No. 0706 000 X [NBI 10965]) is a 250-foot-long Warren truss bridge with curved top chords and 86 concrete approach spans constructed in 1948. The bridge was documented in the 2007 re-evaluation of *Spans of Time: Oklahoma Historic Highway Bridges* and determined to be **eligible** for inclusion in the NRHP under Criterion C as a rare example of a vehicular, polygonal, Warren through truss in Oklahoma. The bridge assessment was updated under the 2021 *Oklahoma Historic Bridge Update for Metal Truss, Masonry Arch, and Concrete Arch Bridges Constructed through 1980* and the bridge was determined to be **eligible** for NRHP listing (Mead & Hunt 2021) under Criterion A for its association as a vehicular bridge constructed as the result of an important water impoundment project providing primary access over Lake Texoma. The bridge was not redocumented as part of this effort.

Some alternatives under consideration for the proposed improvements to US-70 would likely result in an adverse effect to Roosevelt Bridge (ODOT Structure No. 0706 000 X [NBI 10965]). Because the alternatives analysis is ongoing, the specific impacts to the bridge are unknown at this time. Stantec recommends continued consultation with SHPO to resolve any potential impacts to the bridge. No other historic properties are present within the project study area.

1. PROJECT DESCRIPTION

The Oklahoma Department of Transportation (ODOT), in conjunction with the Federal Highway Administration (FHWA), are proposing improvements to approximately 4.4 miles of the bridge and approaches on US-70 over Lake Texoma (Roosevelt Bridge) in Bryan and Marshall Counties, Oklahoma. The existing facility consists of four 12-foot driving lanes with a central 12-foot turn lane with 10-foot paved outside shoulders that narrows to two 12-foot driving lanes with 10-foot outside shoulders on the bridge approaches to two 12-foot driving lanes with no shoulders across the bridge causeway and bridge. Several alternatives for the project are under consideration, including alternatives that preserve the historic integrity of the bridge. All alternatives will provide a crossing of Lake Texoma that will accommodate four 12-foot driving lanes with shoulders, will have an approach roadway consisting of a four to five lane section with shoulders, and will keep the existing roadway open to traffic during construction.

The western terminus of the study area begins approximately 4.6 miles (7.4 kilometers) east of the intersection of US-70 and SH-32. The study area extends east approximately 4.4 miles (7.1 kilometers); the eastern terminus is approximately 820 feet (250 meters) east of the junction of Willow Springs Road and US-70. The study area varies in width from 320 feet (98 meters) to 1,700 feet (520 meters), reaching its widest point in the middle of the study area, over Lake Texoma. The study area is approximately 404 acres. Of this, approximately 36 acres on the west side of the study area and 128 acres on the east side of the study area (a total of approximately 164 acres) are located above the water level of Lake Texoma. The remaining 240 acres of the study area are covered by the waters of Lake Texoma.

Portions of the study area are located on lands managed by the U.S. Army Corps of Engineers (USACE) and the Bureau of Indian Affairs (BIA). Approximately 135.65 acres of above ground USACE land is within the project study area. ARPA permit DACW56-4-22-072 was obtained on December 20, 2021, to allow access to USACE land. Approximately 4.69 acres of Chickasaw Nation trust land is also within the study area. ARPA permit 22-009A was obtained on December 14, 2021, to allow access to this parcel.

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Legal Location:	Sections 25, 26, 35, and 36 of Township 6S, Range 6E Sections 27, 28, 29, 30, 32, 33, and 34 of Township 6S, Range 7E
USGS Quadrangle:	Kingston North (2018); Kingston South (2018); Little City (2018); Platter (2018)

2. ENVIRONMENTAL SETTING

Geomorphic/Physiographic Region:

The study area is mapped within the Dissected Coastal Plains geomorphic province, which is characterized by south trending Cretaceous sands, gravels, clays, and sometimes limestone of the gulf coastal plain (Johnson 2006). This province is sometimes dissected by streams. The study area is mapped within the Eastern Cross Timbers ecoregion, which has rolling hills, cuestas, and ridges (Woods et al. 2005). The study area crosses Lake Texoma, which was formed by damming the Washita and Red Rivers. The study area crosses terraces above the original channel of the Washita River, which flows south into the Lake. Additionally, Glasses Creek and Little Glasses Creek flow into the

lake from the west.

Geology and Soils:

According to U.S. Geological Survey (USGS) the western portion of the study area is underlain by Early Cretaceous Bokchito Formation, Early Cretaceous Caddo Formation, and Holocene Alluvium, while the east side is underlain by Holocene Alluvium. Bokchito Formation consists of clay, illitic, and kaolinitic, with some tan limestones and sandstones. Caddo formation consists of limestones, marls, and shales, while Holocene Alluvium consists of gravel, sand, silt, and clay (USGS 2022a).

According to Natural Resources Conservation Service (NRCS) data soils within the west side of the study area include eroded Durant clay loam on 1 to 5 percent slopes, Ferris-Tarrant complex on 5 to 12 percent slopes, and Tarrant very cobbly clay on 2 to 15 percent slopes. Soils on the east side of the study area include Karma fine sandy loam on 1 to 3 percent slopes, severely eroded Bernow fine sandy loam on 3 to 8 percent slopes, Boxville fine sandy loam on 3 to 8 percent slopes, and Woodson silt loam on 0 to 1 percent slopes.

Approximately 59 acres (40 percent) of the east side of the study area is mapped as 'Pits', indicating borrow pits are present that have caused extensive damage to existing soils. All the soils in the study area, where present, have A-horizons ranging from 20 to 38 centimeters below surface (cmbs) (Soil Survey Staff 2022).

Vegetation:

The natural vegetation within the Eastern Cross Timbers ecoregion is mostly tall prairie grass with oak-hickory forest in eastern areas. Rangeland, cropland, and riparian areas are present with oak-dominant woodlands present on rocky hills (Woods et al. 2005).

According to the Multi-Resolution Land Characteristics (MRLC) Consortium Viewer (MRLC 2022a), the study area is mapped as Developed (Open Space), Developed (Medium Intensity), and Deciduous Forest. The Developed Areas are on the western end of the study area and the Deciduous Forest is on the east. Open Space Developed areas are those areas that are a combination of landscape vegetation, primarily lawn grass, and constructed materials. Impervious surfaces make up less than 20 percent of total cover in these areas. Medium Intensity Developed Areas have upwards of 79 percent impervious materials. Areas mapped as Deciduous Forest are dominated by trees over 5 meters tall that make up more than 20 percent of vegetation coverage. Up to 75 percent of the trees lose their leaves due to seasonal changes (MRLC 2022b).

Surface Visibility:

XXX	0-25%	Developed areas, grassy and scrubby fields, deciduous forests
_____	25-50%	
XXX	50-75%	Eroded areas and slopes
XXX	75-100%	Cleared areas and construction areas

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3. CULTURAL BACKGROUND:

Background Research:

XXX State Site Files at Oklahoma Archeological Survey (OAS)

XXX SHPO NRHP and DOE Files.

ODOT-CRP conducted an OAS file search on behalf of Stantec in January of 2021 and again in October 2021, and Stantec conducted an additional file search in August 2022. According to OAS, there are two sites (34BR11 and

34BR25) within the study area and four sites (34BR74, 34MA110, 34MA164, and 34MA244) within one mile of the study area. OAS records show that there were three previous surveys conducted within the study area, detailed below in **Table 1**.

Table 1: Previous Surveys in the Study Area

Project	Surveyor	Date of Survey	Results of Survey
US-70 (ODOT CIP 2J-2H) Project	Hartley, Bartlett, and Powell	1999	Site revisit for 34BR25 (discussed below).
Chickasaw Nation Kingston Casino Project	Analytical Environmental Services	January and April 2017	This survey card and report were missing at OAS.
Oklahoma Department of Tourism, New Gulf Course	Picarella and Winchell	May 10, 1997	No sites recorded.

Other surveys within one mile of the study area include:

- the Terracon Cell Meade Tower surveyed by Sissow in May 2002;
- the FY18-0805 Picnic Table Construction, surveyed by Cojeen on March 15-16, June 1, and June 13-18, 2018;
- the BIA/Chickasaw Acquisitions and Controlled Burn, surveyed by Barnette on January 14, 2000 and January 8, 2001;
- Lakeside Spring Operation, surveyed by Cojeen on September 1, 2005;
- Lake Texoma #2 Finley Reservoir, surveyed by Cojeen on November 22, 2002;
- and a survey marked "USCE Survey #22" that was surveyed in 1988.

Site **34BR11** is located within the study area in the NW ¼ of the SW ¼ of Section 30, Township 6S, Range 7E. This site was originally excavated in 1942 by the Works Progress Administration (WPA). The associated report, *The James Site Br-11 An Archeological Site in Bryan County, Oklahoma*, was completed in 1960 and stated that fifteen burials were found during excavation, as well as an array of lithic tools, groundstone, and ceramics (Ray 1960). The report concluded that the site was possibly a burial mound of Early Bryan Focus (900–1200 A.D.) with an Archaic component. The site was revisited in 1999 by Hartley, Bartlett, and Powell for an ODOT survey of US-70 (described above). Judgmental shovel testing of the southern boundary of the site, which intersected with their study area, uncovered no cultural materials. Hartley et al. (1999) concluded that the southern portion of the site had likely been highly disturbed by borrow activity for road construction in 1946. The site has not been assessed for listing in the NRHP. The site is currently under water at the center of the study area.

Site **34BR25** is located within the study area in the southern ½ of Section 29, Township 6S, Range 7E. The OAS site form was recorded by David Bareis in 1955. The site is temporally undefined, and the site form contains no discussion of artifacts, deposits, or features. This site is not specifically mentioned in Ray's 1960 report regarding 34BR11; however, Ray states that 48 known sites had been located in the Lake Texoma area at that time, and that little information had been published. Many of those sites were discovered during a reconnaissance and salvage program involving the WPA in 1940–1941 (Ray 1960). The site has not been assessed for listing in the NRHP. The site is located in the eastern portion of the study area on the north side of the highway.

Site **34BR74** is located 49 feet (15 meters) north of the study area in the E ½ of the SE ¼ of Section 30, Township 6S, Range 7E. This site was recorded by Lawton in 1965 as a multicomponent site with artifacts consisting of copper points, musket balls, military buttons, flintlocks, and projectile points. The NRHP status is unknown, and the site is considered unassessed. This site is currently under water near the center of the study area.

Site **34MA110** is located 0.95 miles (1,529 meters) south of the study area on the shore of Catfish Bay in Lake Texoma, in Section 36 of Township 6S, Range 6E and Section 31 of Township 6S, Range 7E. This site was recorded as part of a salvage project by Pruitt in 1972, revisited by Dillehay in 1972, and then revisited by Cojeen Archaeological Services in 2018. A lithic scraper, many flakes, some firecracked rock, and some cobbles have been found at the site. It has been

described as very eroded. No further work was recommended for this site, but the official NRHP determination is not known, and the site should be considered unassessed.

Site **34MA164** is located 0.64 miles (1,026 meters) south of the study area on the shore of Catfish Bay in Lake Texoma, just north of Joe's Campground Comfort Station #6 and south of the boat ramp and dock. The legal location is the SE ¼ of the NW ¼ of the SW ¼ of Section 36 of Township 6S, Range 6E. This site was recorded by Jim Briscoe in 2003 and revisited by Amy Cojeen in 2018. During both visits, lithic flakes, cobbles, and firecracked rock were found, but the site was described as heavily disturbed by modern construction. No further work was recommended for this site, but the official NRHP determination is not known, and the site should be considered unassessed.

Site **34MA244** is located 0.97 miles (1,554 meters) south of the study area on a peninsula surrounded by Lake Texoma in the NE ¼ of the NW ¼ of the NE ¼ of Section 1 in Township 7S, Range 6E. This site was recorded by Amy Cojeen in 2020 as a farmstead and trash dump from the late 1800s or early 1900s, based on ceramics, glass, and a wrought iron nail found at the site. The site form states that two structures had been shown in this vicinity on the 1899 GLO plats. With no intact features, this site was not recommended for further testing in 2020, but the official NRHP determination is not known, and the site should be considered unassessed.

A review of the Oklahoma SHPO database for NRHP listed properties, DOE, and OLI was conducted. Aside from the existing bridge, no such resources were identified within the study area (OHS 2021a, 2021b, 2021c). No cemeteries were observed on map or other reviewed materials within the study area or within one mile of the study area.

Other materials reviewed include 1872 and 1899 General Land Office (GLO) Survey Plats; Denison 1:125,000 (1901), Tishomingo 1:125,000 (1901), Sherman 1:250,000 (1954, 1958), Ardmore 1:250,000 (1957, 1963), Denison Dam 1:62,500 (1958), Tishomingo SW 1:24,000 (1967), Platter 1:24,000 (1982), Kingston South 1:24,000 (1982), Kingston North 1:24,000 (1967), Sherman 1:100,00 (1985), and Tishomingo 1:100,000 (1985) topographic maps; aerial photographs (1955, 1981, 1995, 2003, 2005, 2006, 2008, 2010, 2011, 2012, 2014-2019); NRHP and DOE listings; OLI; Google Earth imagery; NRCS soil data viewed through the SoilWeb KMZ for Google Earth; and USGS geologic data viewed through the Oklahoma Geologic Database KMZ for Google Earth.

None of the current roadway corridors are depicted on the 1872 GLO map, nor are any structures or roadways mapped within the study area. The Washita River is marked, however. By 1899, the study area crosses five agricultural fields, including one building, the location of which is now covered by Lake Texoma. One additional building is mapped within 300 feet (90 meters) south of the study area and its associated agricultural field extends into the study area (BLM 2022).

The earliest topographic map showing the study area dates to 1901 and shows one road crossing the Washita River and meandering through the study area. One building is mapped within the study area, east of the lake. The subsequent topographic maps date to 1954 and 1957 and are at too coarse a scale to identify structures within the study area; however, Lake Texoma is present, and US-70 is shown in its current alignment. Areas around the banks of Lake Texoma, including portions within the east portion of the study area, are mapped as 'subject to inundation.' Subsequent topographic maps show few changes aside from the construction of some side roads. Nearly the entire eastern portion of the study area is mapped as 'subject to inundation' (USGS 2022b).

The earliest aerial photograph dates to 1955 and mirrors topographic maps from the 1950s onward. No structures or buildings are present within the study area, and extensive damage to the soils in the eastern portion of the study area is visible. Sparse buildings have been constructed by 1981, but otherwise no major changes are visible within the study area. The same is true for the 1995 aerial. By 2003, increased construction is present in the western portion of the study area. No changes are noted on any subsequent aerials (NETR 2022).

Given the nature of the soils, underlying geology, topographic setting, level of disturbance due to the creation of the reservoir, and flooding of the surrounding areas, there was anticipated to be low to moderate likelihood for intact prehistoric-age cultural resources to be within the study area. Although there are numerous documented sites in the region, many are underwater or have been destroyed. If present, prehistoric sites would be expected to be expressed as artifact scatters that could have contained lithic artifacts, pottery, faunal remains, and other materials associated with short- and long-term occupations. Archaic, Woodland, Caddo, and Protohistoric sites are common in this region (Vehik 1984; Wyckoff 1984). Recorded sites also include mound sites, like the Norman Mound (Brooks 2009). However,

preservation can range from excellent to poor depending on the specific setting and topographic and geological characteristics in the region (e.g., bedrock being at or near the surface), and in this case specifically, flooding of the area for the creation of the reservoir.

4. METHODOLOGY

Field Investigation Methodology:

Fieldwork was completed in January and February 2022 following the ODOT-CRP Manual (ODOT 2017) on areas not subject to an ARPA permit. On USACE permitted lands, the Operations Division Standards and Guidelines for Cultural Resource Investigations on Tulsa District Owned Land (dated May 2021) was followed. On BIA permitted lands, Eastern Region BIA standards as outlined in the permit, were followed. Stantec subjected the entire study area to an archeological pedestrian survey that included the excavation of shovel test units. USACE, BIA, and ODOT standards require that survey transects be spaced no more than 30 meters (98.4 feet) apart. Depending on the width of the study area in a given location, multiple transects were surveyed along each side of the existing roadway. ARPA permit DACW56-4-22-072 was obtained on December 13, 2021, to allow access to USACE properties. ARPA permit 22-009A was obtained on December 14, 2021, to allow access to the BIA-controlled parcel.

Stantec excavated shovel tests 30 centimeters in diameter at 30-meter (98.4-foot) intervals along each transect as per USACE, BIA, and ODOT guidelines, except in areas where judgmental shovel testing was employed due to large-scale disturbances (most notably the 'pits' areas on the eastern end of the study area), a slope of 30 degrees or more, and/or observable, buried utility line locations. Shovel tests were excavated in arbitrary 10-centimeter (3.94-inch) levels until reaching a target depth of 20 cm below A/Ap horizon, root or gravel impasse, redoximorphic soils, or evidence or extreme disturbances including borrow pits.

Excavated matrix was screened through 0.64-centimeter (0.25-inch) metal screen, and deposits were described using conventional texture classifications and Munsell color designations. All observations were recorded on the ArcGIS Survey 123 (version 3.12.277) shovel test form and the ArcGIS Collector (version 20.2.2) applications. All shovel test units were backfilled after recordation. Photographs were taken of the project area. Each photograph was recorded in digital format and a photographic log was kept for all photographs. These logs include sequential identification listing the name of the photographer, date, subject, camera orientation, photographic details, and other notes. All field photographs were captured with the subject in focus and with a camera capable of photographic resolution of a minimum of 10 megapixels.

A reconnaissance survey of the built environment was conducted of historic-age (built in or before 1976) buildings, structures, objects, sites, districts, and historic landscapes within the study area. Historic-age and associated non-historic resources were photographed and desktop research was conducted to identify and contextualize them. Identified historic-age resources were documented on HPRI forms according to the standards laid out in *Cultural Resource Studies: A Manual for Cultural Resources Staff and Department Consultants* (ODOT 2017). The documented built environment resources are located on BIA (Building Complex 1) and USACE (Structure 2) lands.

5. RESULTS OF INVESTIGATION

_____ No archeological sites or buildings recorded in study area.

XXX Resources recorded in study area assessed as **not eligible** for the NRHP. Forms being submitted for agency review.

XXX Oklahoma Archeological Site Survey Form(s) for State Archaeologist files.

XXX Historic Preservation Resource Identification Form(s) for SHPO files.

_____ Oklahoma Bridge Survey and Inventory Form.

XXX **NRHP-eligible properties** recorded in study area.

Forms being submitted for agency review.

_____ Oklahoma Archeological Site Survey Form(s) for State Archaeologist files.

_____ Historic Preservation Resource Identification Form(s) for SHPO files.

XXX Oklahoma Bridge Survey and Inventory Form. The bridge has already been documented by ODOT so no form was completed.

_____ Archeological sites requiring further assessment (i.e. evaluative testing)

COMMENTS AND DESCRIPTION OF FINDINGS:

No archeological resources were documented in any surficial or subsurface context within the project area. Two sites (34BR25 and 34BR11) are mapped as intersecting the project study area. Site 34BR11 is located entirely underwater and was not revisited as part of this study. Site (34BR25) intersects the study area east of the bridge, although most of the site is mapped as located outside of the study area. The site was revisited and investigated. Although shovel testing and surface inspection were conducted, no artifacts or evidence of the site was identified within the study area. Three historic-age resources (built in or before 1976) were documented on HPRI forms. The built environment resources were located on BIA and USACE parcels. They include one complex and one structure.

Archeological Survey Results

General Survey Overview

The study area runs east–west and is roughly centered at Lake Texoma's Roosevelt Bridge (**Figure 1**). Archeological survey excluded the bridge and the lake and only covered portions of the study area on either side of the bridge and shoreline. The study area west of Lake Texoma is approximately 0.58 miles (0.93 kilometers) in length and is highly disturbed and developed. The southern side of the roadway in this section is lined with a derelict family fun center, Lake Texoma State Park's lawn, parking lot and driveways, Catfish Marina Mart gas station and market, a sloped and graded open field, and a fenced construction site nearest Lake Texoma (**Figure 3, Photos 1, 2, 3, 4,** and **5**). Pine trees and scrub lined the steep slope just outside of the right-of-way. Surface visibility was zero in developed areas and ranged from zero to 25 percent in grassy and vegetated areas in this portion of the study area. Along the northern side of US-70 west of Lake Texoma, intensive clearing and grading has occurred for residential construction at Pointe Vista, a large, planned development. (**Figure 3, Photo 4**). Scattered areas of trees were present outside of the sloped and eroded right-of-way. Surface visibility was high (75 to 100 percent) in eroded sections within the right-of-way. Surface visibility ranged from zero to 25 percent in areas with grass or vegetation. Surface visibility was 100 percent in cleared areas, though intact landforms were minimal to non-existent. Buried and overhead utilities were present throughout this western portion of the study area.

East of Lake Texoma, large areas of borrow pits are present. The study area is flanked by areas of deciduous forest and scrubby fields. No commercial or residential properties were present within this eastern portion of the study area. Surface visibility was low in both forested and scrubby fields and ranged from zero to 30 percent (**Figure 3, Photos 9** and **10**). Eroded areas along the bridge's causeway or within the right-of-way had higher visibility at 50 to 100 percent.

USACE Lands Survey Results

The 135.65 acres of USACE land were subjected to archeological survey in January and February of 2022 (under ARPA permit DACW56-4-22-072). Current USACE cultural resources standards were followed on all USACE land

(May 2021). Transects were spaced no more than 30-meters apart, with between one and three transects surveyed along each side of the existing roadway, as determined by accessibility, disturbances, and the extent of the study area.

As required by USACE guidelines, shovel tests were generally placed 30 meters apart along transects as allowed by disturbances, bedrock, and/or steep slopes (**Figure 2**). Extensively disturbed areas were subjected to a reconnaissance level survey, photographic documentation, and judgmentally placed shovel tests to determine the extent of disturbance. Extensive disturbances to USACE lands within the study area included borrow pits, steep slopes, construction disturbances including clearing and grading, utility disturbances, and commercial development (**Figure 3, Photos 2, 3, 4, 6, 7, 8,** and **11**).

In the USACE areas, shovel tests ranged in depth, with average termination occurring around 40 cmbs. Soil profiles typically matched mapped soil series. East of Lake Texoma and outside of borrow pit areas, soils most closely resembled the Karma and Boxville soil series. Typical A horizons consisted of dark brown (10YR 4/3 or 4/4), very dark grayish brown (10YR 3/2), or brown (7.5YR 4/4) loam or fine sandy loam extending to an average depth of 17 cmbs. This profile was underlain by red (2.5YR 4/6, 5/6, or 5/8) clay or clay loam. Variations of these typical profiles did exist and are likely due to disturbances primarily from borrow pits. West of Lake Texoma, soils on USACE lands consisted of dark brown (10YR 3/3) or dark grayish brown (10YR4/1 or 4/2), silty clay loam underlain by dark yellowish brown (10YR 4/4) silty clay or clay loam. This profile resembles the Durant mapped soil series. Shovel tests were terminated at a target depth of 20 cm below A/Ap horizon, root or gravel impasse, redoximorphic soils, or evidence or extreme disturbances including borrow pits. Shovel test results are attached as **Appendix A**.

No archeological resources were observed on USACE land.

Site 34BR25 Revisit

Because previously recorded site 34BR25 was mapped as being partially located within the study area, a site revisit was conducted. The OAS site form was recorded by David Bareis in 1955. The site is temporally undefined, and the site form contains no discussion of artifacts, deposits, or features. This site is not specifically mentioned in Ray's 1960 report regarding nearby site 34BR11; however, Ray states that 48 known sites had been located in the Lake Texoma area at that time, and that little information had been published. Many of those sites were discovered during a reconnaissance and salvage program involving the WPA in 1940–1941 (Ray 1960). Site 34BR25 might have been discovered during that time. The site has not been assessed for listing in the NRHP. The site is located in the eastern portion of the study area on the north side of the highway.

The site revisit consisted of pedestrian survey supplemented with the excavation of 20 shovel tests. As only the southernmost portion of the site overlaps with the study area, Stantec personnel placed shovel tests only within and adjacent to the southern portion of site 34BR25. The ARPA permit stipulated that no subsurface investigations take place outside the study area, but pedestrian survey was conducted within the site boundary north of the study area. No archeological materials were encountered either on the ground surface or within any excavated shovel tests.

The general area where the site is mapped is extremely disturbed. The site area is currently situated within areas mapped as "Pits" and profiles in shovel tests were variable, which demonstrates the area has been extensively impacted by previous ground disturbance. Examples of profiles from the shovel tests include brown (10YR 4/4) silt loam underlain with yellowish brown (7.5YR 6/6) silty clay loam with degraded sandstone inclusions and mottling with pale brown (7.5YR 6/4) silty clay loam; reddish brown (2.5YR 4/4) loamy sand underlain with reddish brown (2.5YR 4/4) sand; gray (5YR 6/1) silty clay loam underlain with pink (5YR 7/3) inundated silty clay loam. Shovel tests were typically excavated to a depth of 30 cmbs, with a few exceptions of shallower or deeper units.

No evidence of the site was identified within the project study area. Any portions of the site located outside of the current study area, if they exist, have not been investigated with subsurface investigations. Based on the extensive disturbances to the area of the site, Stantec believes the site may have been completely destroyed.

In summary, no archeological materials were found to be within or adjacent the study area. A site update form has been prepared and the site boundary has been revised to match the limit of the study area for the current project.

BIA Survey Results

The 4.69 acres of BIA land was subjected to archeological survey in January and February of 2022 (under ARPA permit 22-009A) using *BIA Eastern Oklahoma Region Archaeological Survey and Report Guidelines* (BIA 2021). Minimum survey standards for linear projects require that transects be spaced less than 30 meters apart, with one shovel test excavated every 30 meters, to a depth of 50 cm or until sterile soil is encountered. Transects were spaced no more than 30 meters apart, with between one and three transects surveyed along each side of the existing roadway, as determined by accessibility, disturbances, and the extent of the study area.

As required by BIA Standards (BIA 2021), shovel tests were generally placed 30 meters apart along transects as allowed by disturbances (**Figure 2**). Extensively disturbed areas were subjected to a reconnaissance level survey, photographic documentation, and judgmentally placed shovel tests to determine the extent of disturbance. Extensive disturbances to BIA lands included steep slopes, construction disturbances including clearing and grading, and commercial development (**Figure 3, Photos 3** and **5**). A portion of the study area on BIA lands was fenced and intensive mechanical clearing, land levelling, and construction had already occurred and was ongoing. Due to the recent mechanical clearing and land levelling, the probability for intact cultural resources was extremely low; no shovel testing occurred in that area.

In the rest of the BIA land, shovel tests ranged in depth, with average termination occurring between 25 and 40 cmbs. Soil profiles deviated from the mapped soil series, likely due to extensive construction disturbances. A-horizons averaged 15 cmbs and typically consisted of strong brown (7.5YR 4/6) or brown (7.5YR 4/4) silty clay loam or clay loam with gravel and pebble inclusions. This profile was underlain with yellowish brown (10YR 5/6) silty clay loam. Shovel tests were terminated at a target depth of 20 cm below the A/Ap horizon. Shovel test results are attached as **Appendix A**.

No archeological resources were observed on BIA land.

ODOT Survey Results

In areas outside of the USACE and BIA lands, shovel tests were excavated along transects with one transect along each side of US-70. Because these areas were narrower (averaging 40–50 meters) from shoulder to project boundary and were highly disturbed, additional transects were not feasible (**Figure 3, Photos 1** and **4**). Generally, shovel tests were placed every 30 meters. Judgmental shovel test placement was utilized in areas with extensive disturbances including steep slopes, cleared and graded construction areas, sand pits, or further disturbances related to bridge and/or roadway construction and/or maintenance (**Figure 2**).

Shovel tests outside the USACE and BIA controlled areas were terminated at depths between 10 and 40 cmbs, with average termination depth of 28 cmbs. Soil profiles typically matched NRCS mapped soil series. Soils most closely resembled the Durant clay loam soil series. Typical A horizons consisted of dark grayish brown (10YR 4/2), brown (10YR 4/3), or dark yellowish brown (10YR 4/4) silty clay loam or loam. This profile was underlain with dark grayish brown (10YR 4/2), brown (10YR 4/3), dark yellowish brown (10YR 4/4) silty clay loam or clay loam with pebble and gravel inclusions. Shovel tests were terminated at culturally sterile subsoil. Shovel test results are attached as **Appendix A**.

In summary, no archeological resources were documented within the study area, either on the ground surface or within any of the shovel tests excavated within the study area. No evidence of site 34BR25 was located and a site update form showing the revised boundary has been prepared.

Built Environment Survey

The Built Environment survey identified one building complex (Building Complex 1) and one structure (Structure 2)—for a total of three historic-age resources (built in or before 1976) documented on HPRI forms. The resources of Building Complex 1 are on land formerly occupied by a Lake Texoma State Park but are currently vacant and/or abandoned. Structure 2 is an embankment that is connected to, but not part of, the NRHP-eligible Roosevelt Bridge. **Table 2** summarizes these results. Building Complex 1 is located on both BIA and USACE land. Structure 2 is located on USACE land.

Building Complex 1 includes a ca. 1955 utility building (Building 1A), a ca. 1970 sunken concrete tank (Structure 1B), and several non-historic-age resources dating to ca. 1990 (Building 1C, Structure 1D, Structure 1E). Building 1A is a ca. 1955 utility building with a concrete foundation and is constructed of concrete blocks. The building has a flat roof, single-hung metal windows, and a roll-up garage door entrance. The garage door entrance appears to be an enlargement of the opening and replacement door. Several windows are replaced, missing glazing, or have painted panes. The building appears vacant and is not currently in use. Structure 1B is a sunken, open-air concrete tank with two cells. The tank has a metal chain-link fence appended on top of the outside concrete walls of the structure. The structure appears to hold liquid but does not appear to be in any current use. Building 1A and Structure 1B are on a parcel initially developed as part of the Lake Texoma State Park and were likely developed as part of the park. Although their specific use is unknown, Building 1A could have operated as a maintenance garage or facility. Land was acquired to build the Lake Texoma State Park in the early 1950s in a joint effort by the Oklahoma Game and Fish Commission, the Oklahoma Planning and Resources Board, and Oklahoma State Parks (Caneday 2017). By 1955, the primary lodge and several utility buildings were in the process of construction (NETR 2022). Oklahoma State Parks continued to develop the Texoma State Park as a "destination park" by building an airport, a golf course, and many cabins. As the park aged, investment was needed to upgrade facilities (Caneday 2017). State authorities decided to privatize the park and sold the property that encompassed the lodge, cabins, and Building Complex 1 to Pointe Vista Development in 2006 (Caneday 2017). All other built environment resources on the parcel have been removed, most between 2010–2013, with the last building demolished in January 2022.

These resources do not embody distinctive characteristics of a type, period, or method of construction, represent the work of a master, or possess high artistic value. Building 1A's integrity of materials, workmanship, and design has been diminished by the alterations to the windows and doors, and its integrity of setting and feeling has been diminished because of its vacancy and the loss of the remainder of the Lake Texoma State Park buildings on the parcel. Although the building has an association with the former Lake Texoma State Park, it does not retain sufficient integrity or have sufficient individual significance to be eligible for the NRHP. Because the building offers neither a local interpretation of a standard design nor an undocumented construction technique, it has limited potential to yield important information. As a result, it is recommended **not eligible** for the NRHP under Criterion A, B, C, or D.

Structure 2 is an earthen embankment or causeway constructed ca. 1938-1944. The embankment has the two-lane US-70 running centrally on its top. It is approximately one mile long and stretches northwest from the end of the landmass for approximately 0.85 mile then jogs slightly southwest for the remaining 0.15 of a mile. The roadway is lined with a guardrail for its entire length. The steep banks down from the road have grassy vegetation with occasional trees. The embankment was constructed by the USACE in the same effort as the Denison Dam that created Lake Texoma. However, the embankment does not contribute to the water impoundment aspects of the dam or the project at large and is located approximately 12 miles north of the dam. The embankment was built with the intention to eventually provide a crossing for US-70, in conjunction with a bridge once the lake was filled. The bridge built was eventually the NRHP-eligible Roosevelt Bridge (ODOT Structure No. 0706 000 X [NBI 10965]), but the causeway was constructed years before the bridge was let for construction and before its type or form was known. Structure 2 should not be considered a part of the bridge or as part of the Denison Dam.

This resource does not embody distinctive characteristics of a type, period, or method of construction, represent the work of a master, or possess high artistic value. Although Structure 2 has an association both with a vehicular crossing at this location and with the USACE Denison Dam project, it is not a part of either the NRHP-eligible Roosevelt Bridge, or the water impoundment aspects of the Denison Dam and therefore does not hold sufficient significance to be individually eligible for the NRHP. Because the structure offers neither a local interpretation of a standard design nor an undocumented construction technique, it has limited potential to yield important information. As a result, it is recommended **not eligible** for the NRHP under Criterion A, B, C, or D.

Table 2: Documented Historic-Age Resources of the Built Environment

Resource Name/ID	Address/Parcel	Date of Construction	Stylistic Influence	NRHP Recommendation
Building Complex 1	South side of US 70, approx. 1530 ft East of State Park Rd. Kingston vicinity, OK			
Utility Building/ Building 1A		ca. 1955	No style	Not eligible
Tank/Structure 1B		ca. 1970	No style	Not eligible
Structure 2	US 70, 1.8 miles W of Johnson Rd to Lake Texoma Bridge Kingston vicinity, OK			
Embankment/ Structure 2		ca. 1938–1943	No style	Not eligible

The Roosevelt Bridge is within the study area and was previously identified as eligible for the NRHP. The bridge over the Lake Texoma (ODOT Structure No. 0706 000 X [NBI 10965]) is a 250-foot-long Warren truss bridge with curved top chords and 86 concrete spans constructed in 1948. The bridge is documented in the 2007 re-evaluation of *Spans of Time: Oklahoma Historic Highway Bridges* and determined to be **eligible** for inclusion in the NRHP. The bridge assessment was updated under the 2021 *Oklahoma Historic Bridge Update for Metal Truss, Masonry Arch, and Concrete Arch Bridges Constructed through 1980* and the bridge was determined to be **eligible** for NRHP listing (Mead & Hunt 2021). The bridge possesses significance under Criterion A for its association as a vehicular bridge constructed as the result of an important water impoundment project providing primary access over Lake Texoma and also possesses additional significance under Criterion C as a rare example of a vehicular, polygonal, Warren through truss in Oklahoma. The bridge was not redocumented as part of this effort.

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6. RECOMMENDATIONS:

XXX **Plan Notes** requiring avoidance of cultural resources in off-project areas

_____ **Approval Recommended** with the proposed project as planned with no additional research. If subsurface archeological materials are exposed during construction, the contractor and resident engineer shall notify the department archaeologist in accordance with Section 202.04(a), Standard Specifications for Highway Construction.

XXX **Approval NOT Recommended** until one or more of the following measures are completed.

XXX **Additional consultation with SHPO** regarding NRHP-eligible properties

_____ **Revise design** to avoid/protect resources

_____ **NRHP Eligibility Archeological Test Excavations**

_____ **Implementation of MOA** with SHPO regarding Mitigation of Adverse Effects to Historic Properties

SUMMARY AND COMMENTS REGARDING RECOMMENDATIONS:

The Oklahoma Department of Transportation (ODOT), in conjunction with the Federal Highway Administration (FHWA), are proposing improvements to approximately 4.4 miles of the bridge and approaches on US-70 over Lake Texoma (Roosevelt Bridge) in Bryan and Marshall Counties, Oklahoma.

Portions of the study area are located on lands managed by the U.S. Army Corps of Engineers (USACE) and the Bureau of Indian Affairs (BIA). Approximately 135.65 acres of above ground USACE land is within the project study area. ARPA permit DACW56-4-22-072 was obtained on December 20, 2021, to allow access to USACE land. Approximately 4.69 acres of Chickasaw Nation trust land is also within the study area. ARPA permit 22-009A was obtained on December 14, 2021, to allow access to this parcel.

As a result of the cultural resources survey, Site 34BR25 was revisited and updated, one historic-age (built in or before 1976) building complex (Building Complex 1), and one historic-age structure (Structure 2) were documented and assessed. No evidence of Site 34BR25 was located within the study area and an update form with the revised boundary has been prepared. Building Complex 1 and Structure 2 are both recommended **not eligible** for National Register of Historic Places (NRHP) listing.

The bridge over the Lake Texoma (ODOT Structure No. 0706 000 X [NBI 10965]) is a 250-foot-long Warren truss bridge with curved top chords and 86 concrete approach spans constructed in 1948. The bridge was documented in the 2007 re-evaluation of *Spans of Time: Oklahoma Historic Highway Bridges* and determined to be **eligible** for inclusion in the NRHP under Criterion C as a rare example of a vehicular, polygonal, Warren through truss in Oklahoma. The bridge assessment was updated under the 2021 *Oklahoma Historic Bridge Update for Metal Truss, Masonry Arch, and Concrete Arch Bridges Constructed through 1980* and the bridge was determined to be **eligible** for NRHP listing (Mead & Hunt 2021) under Criterion A for its association as a vehicular bridge constructed as the result of an important water impoundment project providing primary access over Lake Texoma. The bridge was not redocumented as part of this effort.

Some alternatives under consideration for the proposed improvements to US-70 would likely result in an adverse effect to Roosevelt Bridge (ODOT Structure No. 0706 000 X [NBI 10965]). Because the alternatives analysis is ongoing, the specific impacts to the bridge are unknown at this time. Stantec recommends continued consultation with SHPO to resolve any potential impacts to the bridge. No other historic properties are present within the project study area.

To avoid non-NRHP-assessed cultural resources during off-project activities such as fill borrowing, it is recommended that the following areas be avoided:

T6S R7E
Section 30: NW ¼, SW ¼
Section 29: S ½
Section 30: E ½, SE ½
Section 31: SW ¼, SW ¼, SW ¼

T6S R6E
Section 36: SE ¼, NW ¼, SW ¼
Section 36: SE ¼, SE ¼, SE ¼

T7S R6E
Section 1: NE ¼, NW ¼, NE ¼

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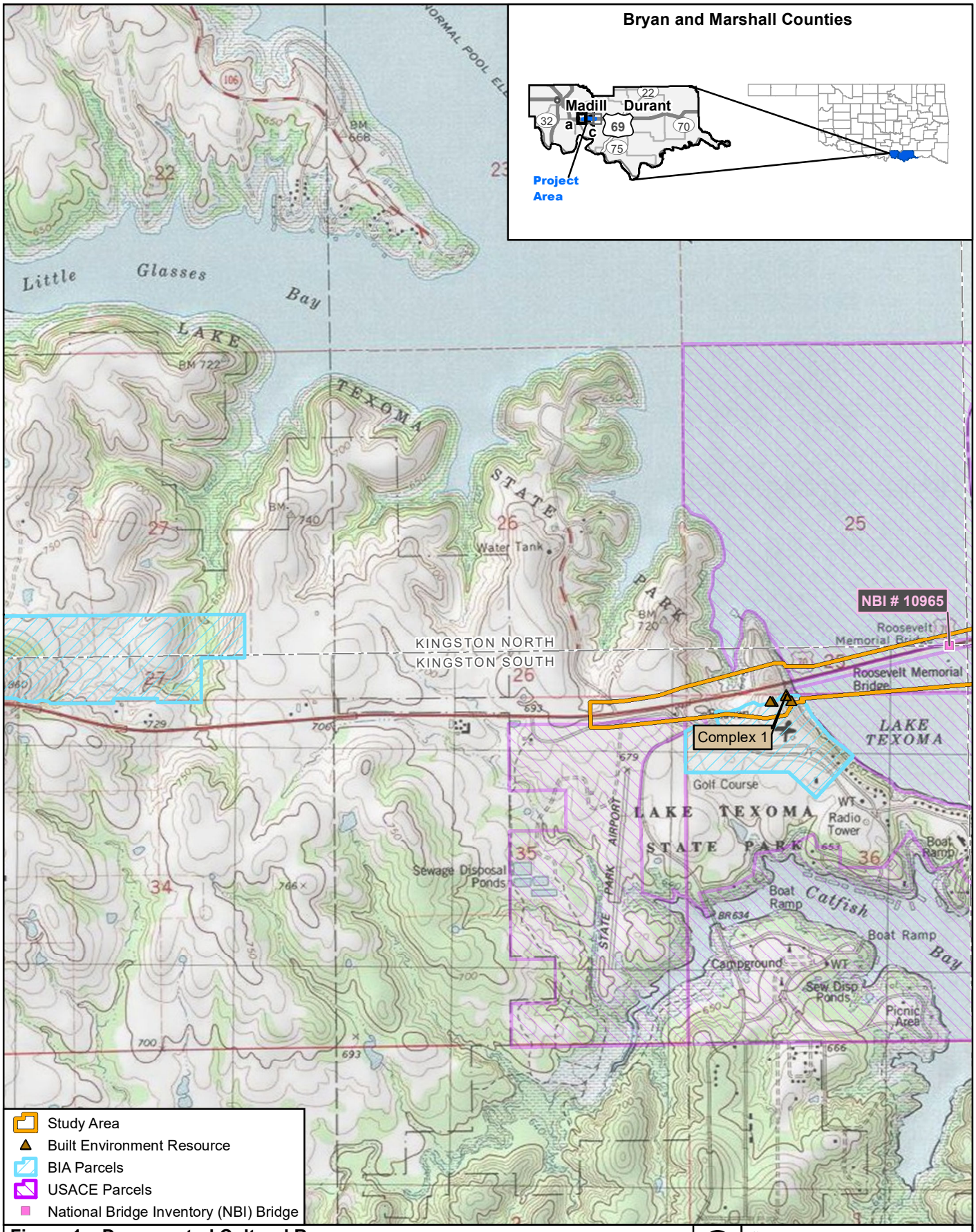

Figure 1a. Documented Cultural Resources

JP 33873(04)
US 70 over Lake Texoma (Roosevelt Bridge)
Bryan and Marshall Counties, Oklahoma

Data Sources: BLM (2020), ODOT (2020)
Topographic Source: USGS Kingston North (1967), Kingston South (1982), Platter (1982), Little City (1967) 7.5' Quadrangles

COX | McLAIN Environmental Consulting now Stantec

0 2,000 Feet
0 600 Meters

1 inch = 2,000 feet
Scale: 1:24,000
Date: 7/27/2022

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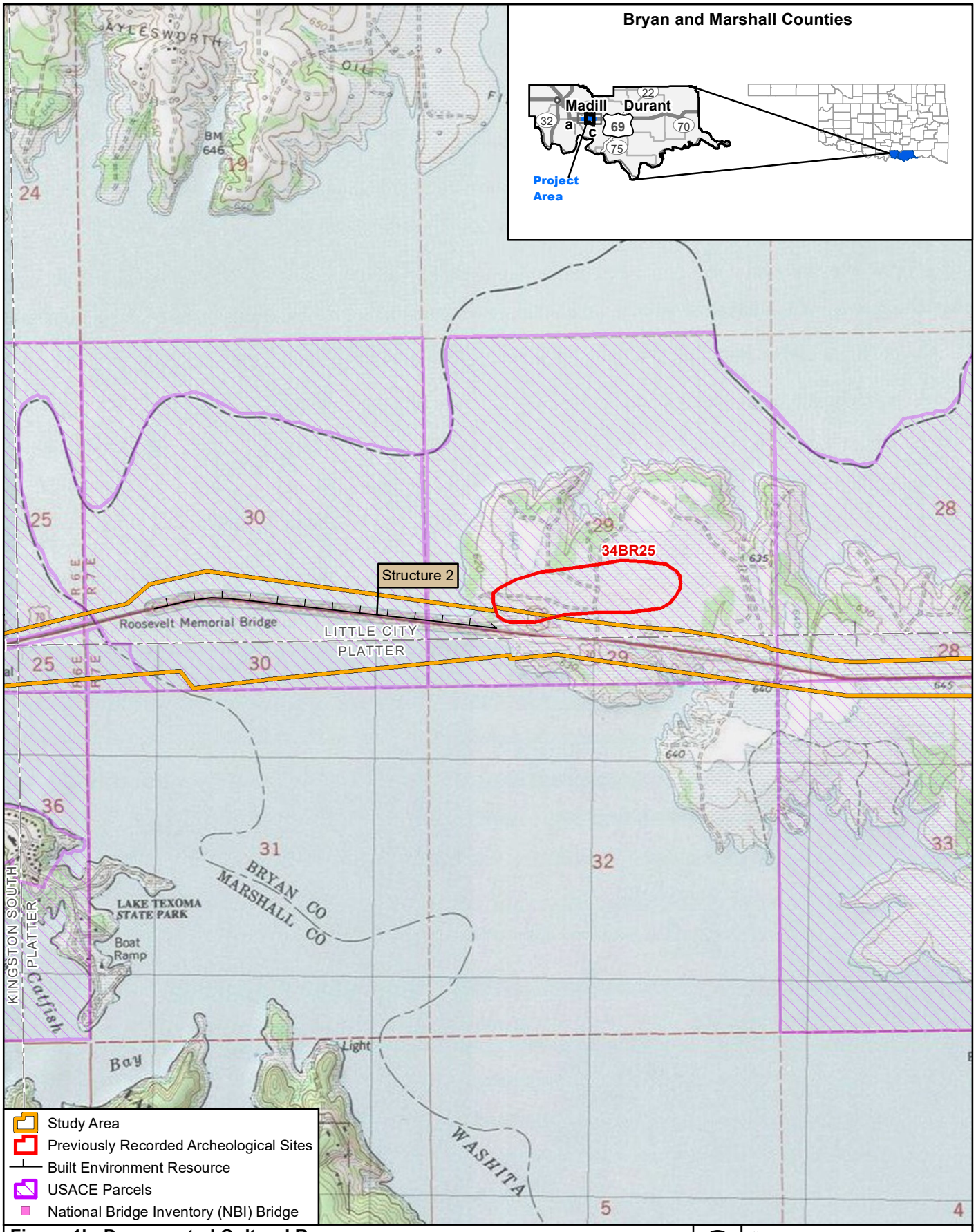

Figure 1b. Documented Cultural Resources

JP 33873(04)
US 70 over Lake Texoma (Roosevelt Bridge)
Bryan and Marshall Counties, Oklahoma

Data Sources: BLM (2020), ODOT (2020)
Topographic Source: USGS Kingston North (1967), Kingston South (1982), Platter (1982), Little City (1967) 7.5' Quadrangles

COX | McLAIN Environmental Consulting now Stantec

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1 inch = 2,000 feet
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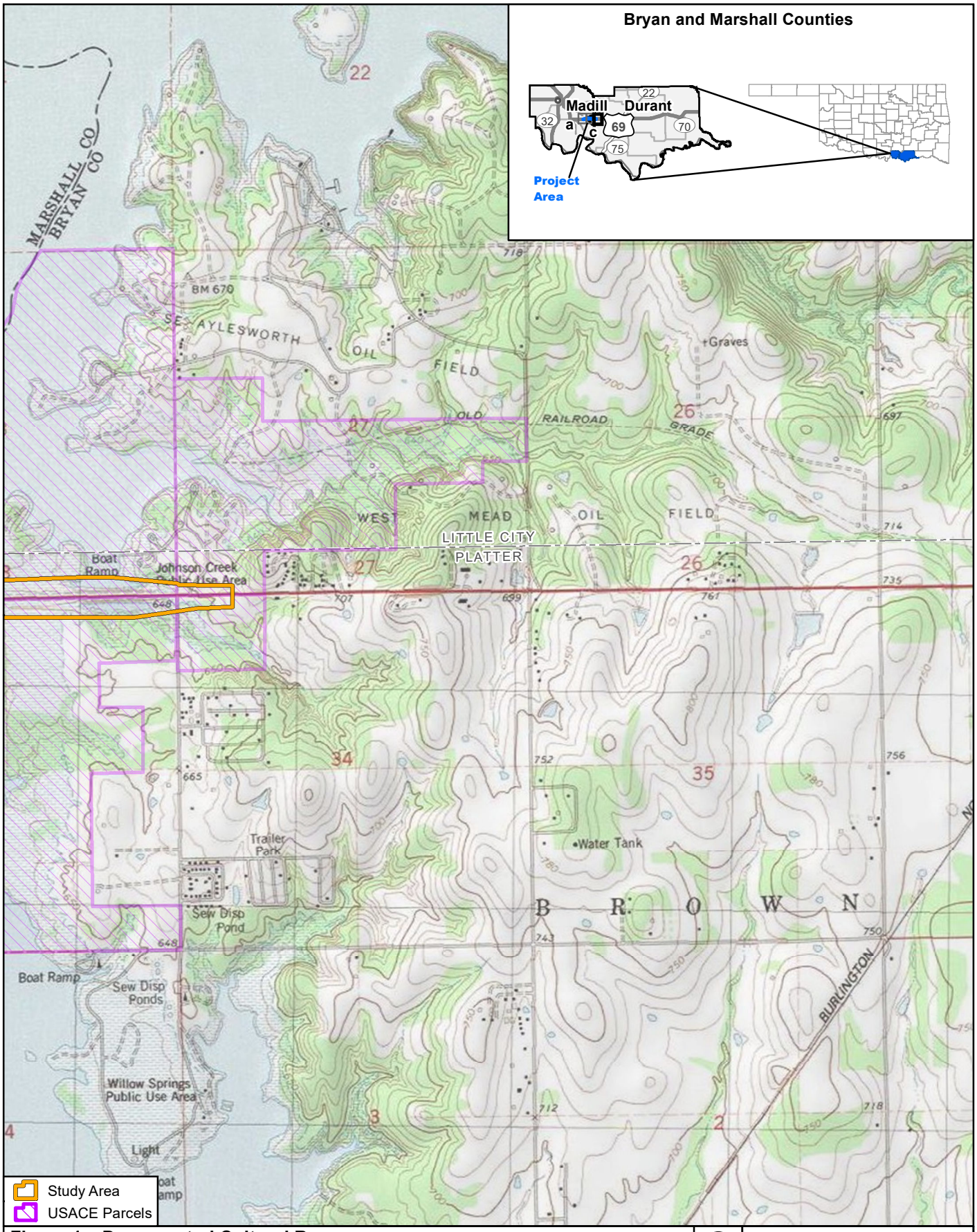

Figure 1c. Documented Cultural Resources

JP 33873(04)
US 70 over Lake Texoma (Roosevelt Bridge)
Bryan and Marshall Counties, Oklahoma

Data Sources: BLM (2020), ODOT (2020)
Topographic Source: USGS Kingston North (1967), Kingston South (1982), Platter (1982), Little City (1967) 7.5' Quadrangles

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1 inch = 2,000 feet
Scale: 1:24,000
Date: 7/27/2022

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Figure 2a. Survey Results

JP 33873(04)
US 70 over Lake Texoma (Roosevelt Bridge)
Bryan and Marshall Counties, Oklahoma

Data Sources: Stantec (2022), ODOT (2022), BLM (2022), Aerial Source: Maxar (2020)

COX | McLAIN Environmental Consulting now Stantec

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0 120 Meters

1 in = 400 feet
Scale: 1:4,800
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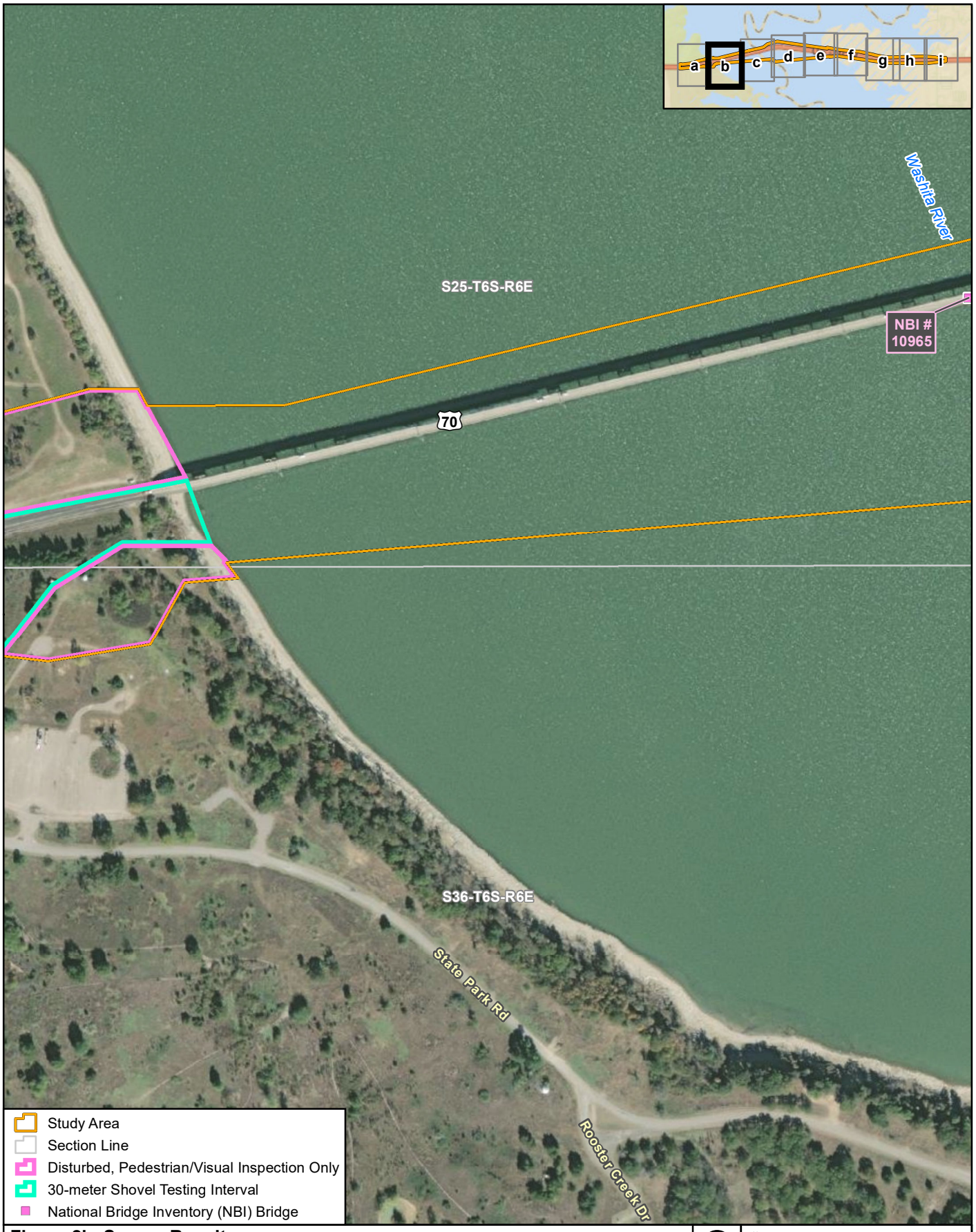

Figure 2b. Survey Results

JP 33873(04)
US 70 over Lake Texoma (Roosevelt Bridge)
Bryan and Marshall Counties, Oklahoma

Data Sources: Stantec (2022), ODOT (2022), BLM (2022), Aerial Source: Maxar (2020)

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Figure 2c. Survey Results

JP 33873(04)
US 70 over Lake Texoma (Roosevelt Bridge)
Bryan and Marshall Counties, Oklahoma

Data Sources: Stantec (2022), ODOT (2022), BLM (2022), Aerial Source: Maxar (2020)

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Figure 2d. Survey Results

JP 33873(04)
US 70 over Lake Texoma (Roosevelt Bridge)
Bryan and Marshall Counties, Oklahoma

Data Sources: Stantec (2022), ODOT (2022), BLM (2022), Aerial Source: Maxar (2020)

COX | McLAIN Environmental Consulting now Stantec

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1 in = 400 feet
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Date: 7/27/2022

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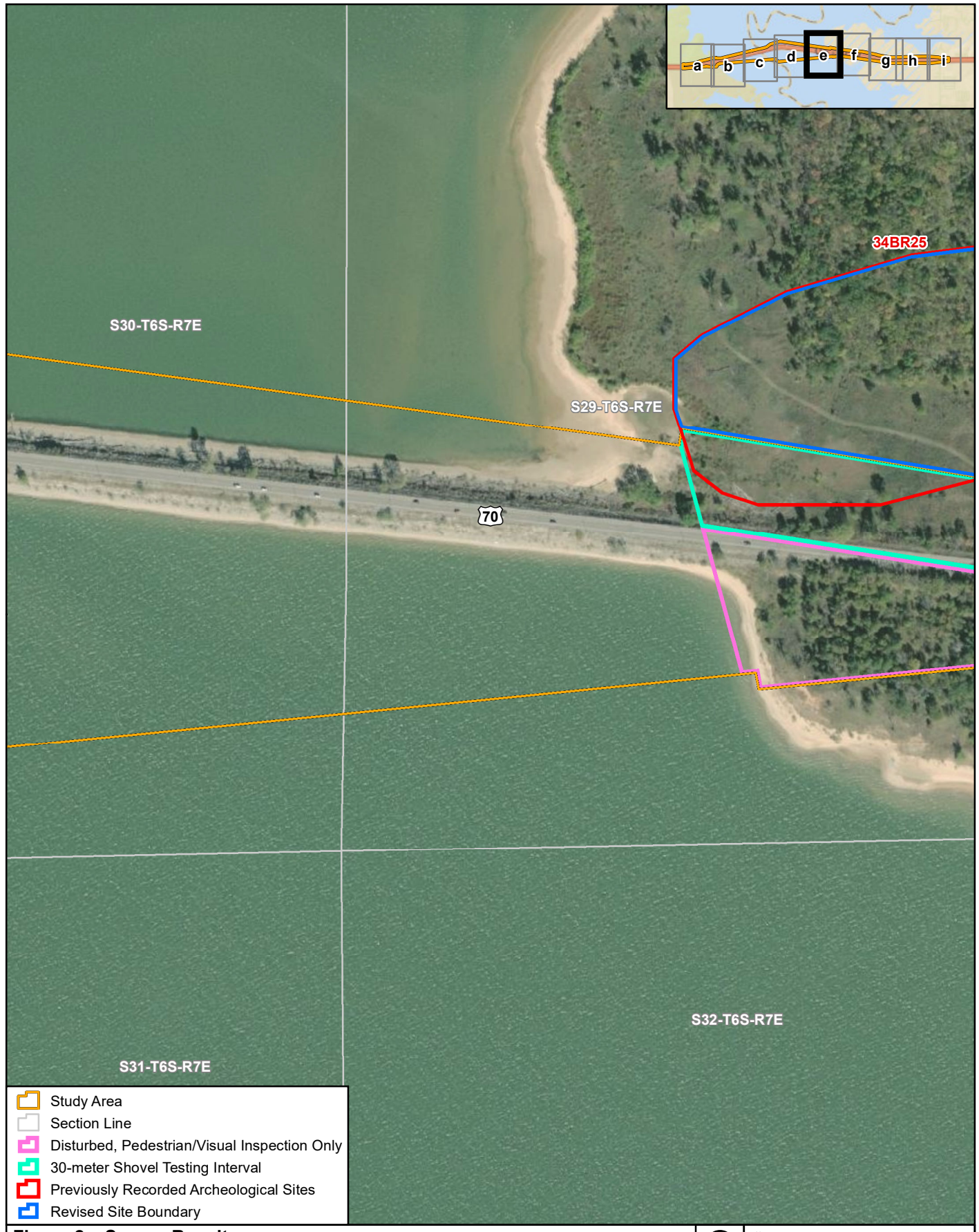

Figure 2e. Survey Results

JP 33873(04)
US 70 over Lake Texoma (Roosevelt Bridge)
Bryan and Marshall Counties, Oklahoma

Data Sources: Stantec (2022), ODOT (2022), BLM (2022), Aerial Source: Maxar (2020)

COX | McLAIN Environmental Consulting now Stantec

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1 in = 400 feet
Scale: 1:4,800
Date: 7/27/2022

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Figure 2f. Survey Results

JP 33873(04)
US 70 over Lake Texoma (Roosevelt Bridge)
Bryan and Marshall Counties, Oklahoma

Data Sources: Stantec (2022), ODOT (2022), BLM (2022), Aerial Source: Maxar (2020)

COX | McLAIN Environmental Consulting now Stantec

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1 in = 400 feet
Scale: 1:4,800
Date: 7/27/2022

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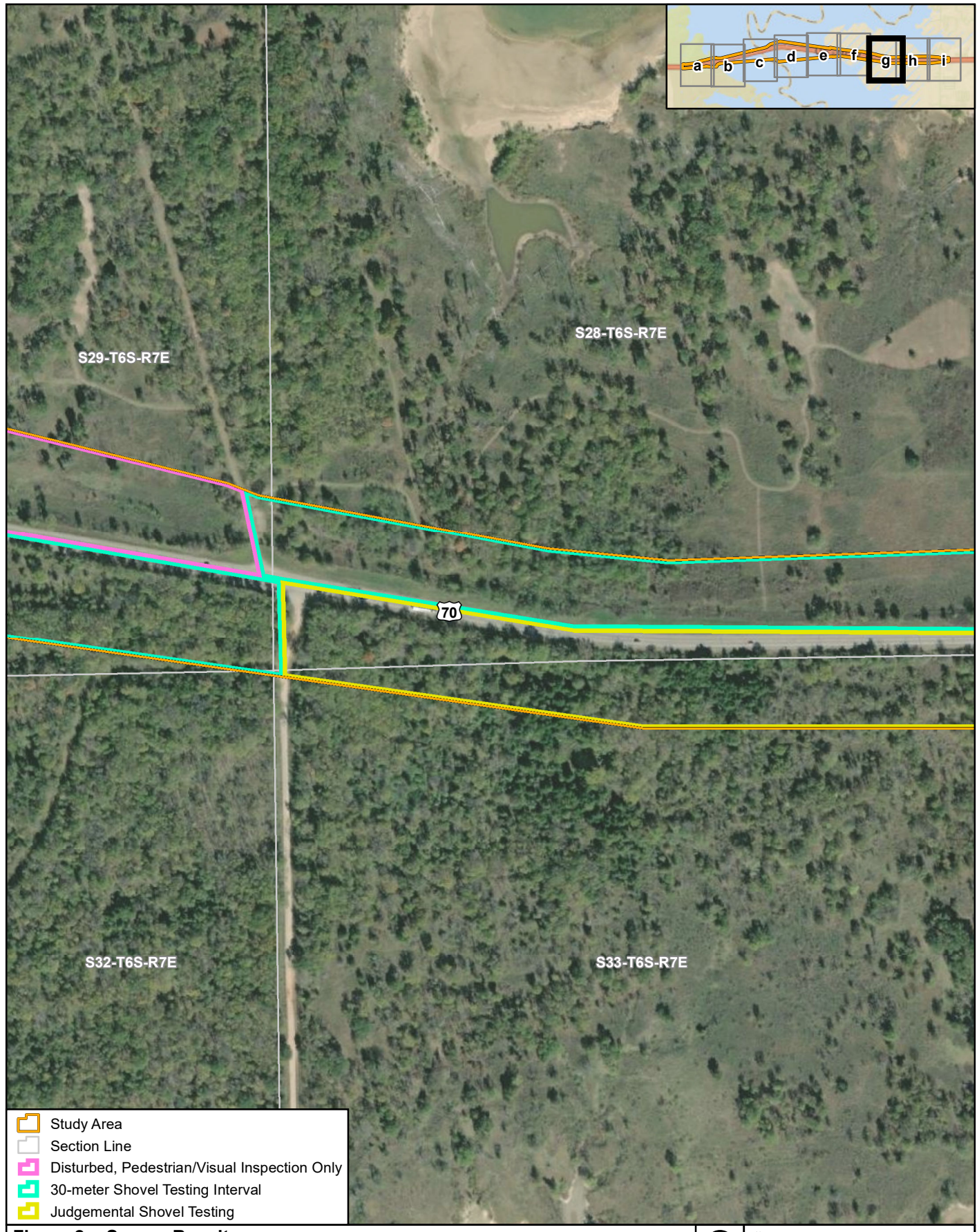

Figure 2g. Survey Results

JP 33873(04)
US 70 over Lake Texoma (Roosevelt Bridge)
Bryan and Marshall Counties, Oklahoma

Data Sources: Stantec (2022), ODOT (2022), BLM (2022), Aerial Source: Maxar (2020)

COX | McLAIN Environmental Consulting now Stantec

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1 in = 400 feet
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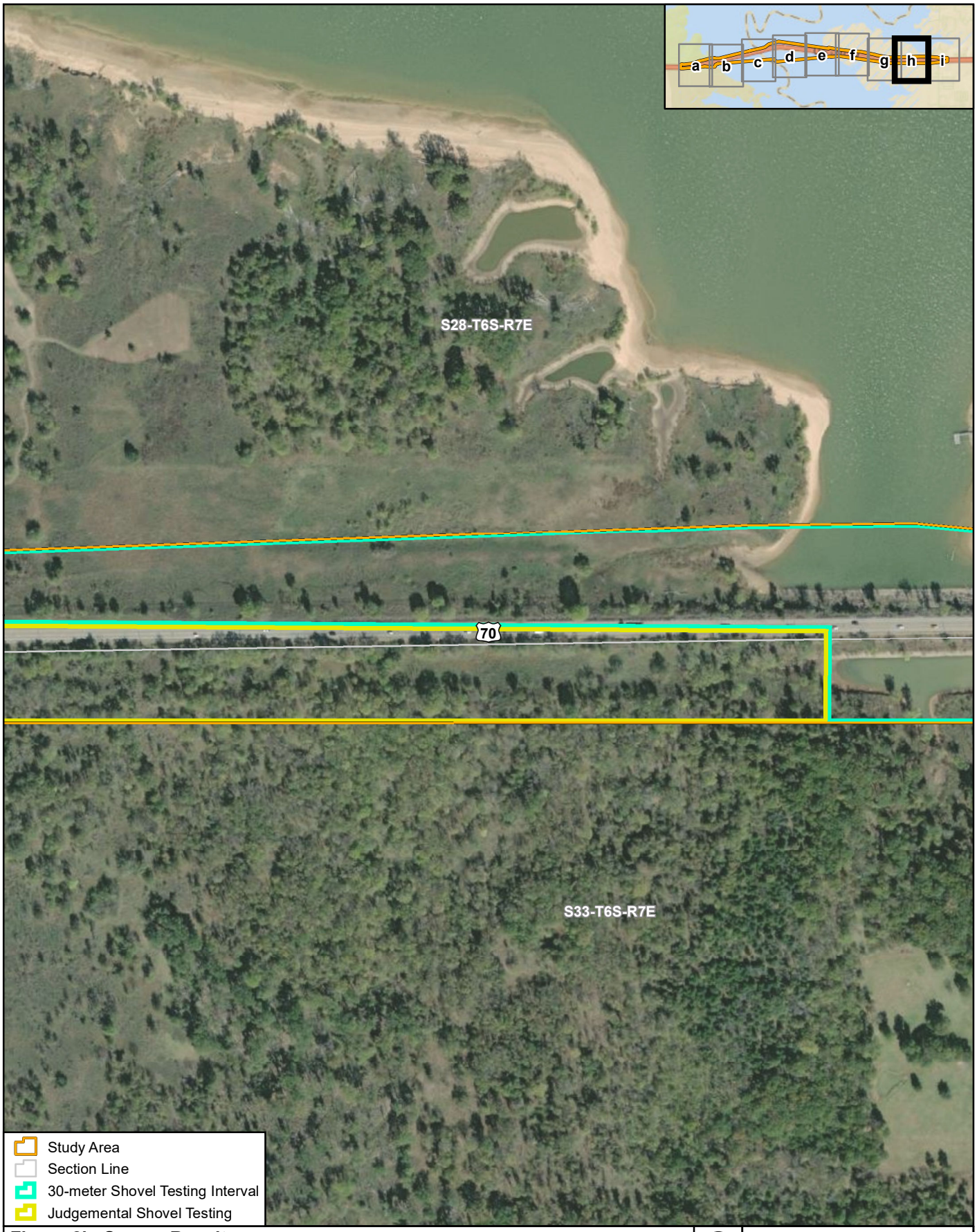

Figure 2h. Survey Results

JP 33873(04)
US 70 over Lake Texoma (Roosevelt Bridge)
Bryan and Marshall Counties, Oklahoma

Data Sources: Stantec (2022), ODOT (2022), BLM (2022), Aerial Source: Maxar (2020)

COX | McLAIN Environmental Consulting now Stantec

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0 120 Meters

1 in = 400 feet
Scale: 1:4,800
Date: 7/27/2022

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Figure 2i. Survey Results

JP 33873(04)
US 70 over Lake Texoma (Roosevelt Bridge)
Bryan and Marshall Counties, Oklahoma

Data Sources: Stantec (2022), ODOT (2022), BLM (2022), Aerial Source: Maxar (2020)

COX | McLAIN Environmental Consulting now Stantec

0 400 Feet
0 120 Meters

1 in = 400 feet
Scale: 1:4,800
Date: 7/27/2022

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Photo 1: Western terminus of the study area from the south side of US-70 – Viewing east.

Photo 2: Southwest quadrant of the study area with extensive disturbances including roadways, parking lot, buried and overhead utilities, and structures – Viewing northeast.

Photo 3: South of US-70 west of Lake Texoma – Viewing east.

Photo 4: Construction disturbance along the north side of US-70, west of Lake Texoma – Viewing north.

Photo 5: Construction disturbance along the south side of US-70, west of Lake Texoma – Viewing southeast.

Photo 6: Eastern terminus of study area, north of US-70 roadway – Viewing southwest.

Photo 7: Disturbances in the US-70 right-of-way – Viewing southeast.

Photo 8: NE quadrant of study area with asphalt, rock, and trash – Viewing west.

Photo 9: Area of deciduous forest north of the roadway in the middle of project area. Viewing north.

Photo 10: briar/brush north of the US-70 roadway, east of Lake Texoma – Viewing southeast.

Photo 11: Asphalt and trash on sloped right-of-way – Viewing northeast.

Appendix A. Survey Results

Shovel Test Number	Soil Profile (depths are in centimeters below surface)	Reason for Termination	Cultural Material
AT001	0-20: brown (10YR 4/3) silt loam 20-40: brown (10YR 4/3) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT002	0-30: brown (10YR 4/3) silt loam 30-50: dark brown (10YR 3/3) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT003	0-10: light red (2.5YR 6/6) sandy clay with pebbles and gravels	Compact soil; gravelly soils	negative
AT004	0-20: grayish brown (10YR 5/2) silty clay with pebbles and Redoximorphic colorations	Redoximorphic; disturbed soils	negative
AT005	0-20: brownish yellow (10YR 6/6) silt loam 20-40: brownish yellow (10YR 6/6) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT006	0-15: brownish yellow (10YR 6/6) silt loam 15-35: yellowish brown (10YR 5/6) silty clay loam with pebbles and gravels	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT007	0-15: brownish yellow (10YR 6/6) silt loam with gravels, cobbles, and pebbles 15-35: brownish yellow (10YR 6/6) silty clay loam with pebbles and gravels	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT008	0-25: yellowish brown (10YR 5/6) sandy clay loam mottled with red and orange clay 25-45: reddish brown (5YR 5/3) sandy clay	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT009	0-15: reddish brown (5YR 5/3) sandy clay loam with pebbles and gravels 15-35: reddish brown (5YR 5/3) sandy clay with pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT010	0-25: brownish yellow (10YR 6/6) loamy sand with pebbles and gravels 25-45: reddish brown (5YR 5/3) sandy clay loam with pebbles and gravels	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT011	0-35: brownish yellow (10YR 6/6) loamy sand with pebbles and gravels 35-55: reddish brown (5YR 5/3) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT012	0-35: light gray (10YR 7/2) sandy clay loam mottled with dark grayish brown (10YR 4/2) and red sandy clay 35-55: reddish brown (5YR 5/3) sandy clay mottled with pale gray (10YR 7/1) and dark grayish brown (10YR 4/2) sandy clay	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT013	0-30: yellowish brown (10YR 5/6) loamy sand 30-50: light reddish brown (10YR 6/3) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT014	0-30: yellowish brown (10YR 5/6) loamy sand 30-50: light reddish brown (10YR 6/3) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative

AT015	0-35: yellowish brown (10YR 5/6) loamy sand 35-55: light reddish brown (10YR 6/3) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT016	0-30: yellowish brown (10YR 5/6) loamy sand 30-50: light reddish brown (10YR 6/3) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT017	0-15: dark grayish brown (10YR 4/2) silty clay loam	Root impasse	negative
AT018	0-25: yellowish brown (10YR 5/6) loamy sand 25-45: light reddish brown (10YR 6/3) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT019	0-5: yellowish brown (10YR 5/6) loamy sand 5-15: grayish brown (10YR 5/2) sandy clay loam with Redoximorphic colorations	Redoximorphic; disturbed soils	negative
AT020	0-20: yellowish brown (10YR 5/6) loamy sand 20-40: light reddish brown (10YR 6/3) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT021	0-30: light yellowish brown (10YR 6/4) sandy loam 30-50: yellow (10YR 7/6) sand	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT022	0-35: dark grayish brown (10YR 4/2) sandy loam 35-55: yellowish brown (10YR 5/6) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT023	0-15: dark brown (10YR 3/3) sandy loam	Root impasse	negative
AT024	0-30: strong brown (7.5YR 5/6) sandy loam 30-50: light red (2.5YR 6/6) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT025	0-25: strong brown (7.5YR 5/6) sandy loam 25-45: light red (2.5YR 6/6) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT026	0-25: dark grayish brown (10YR 4/2) sandy loam 25-45: light red (2.5YR 6/6) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT027	0-20: yellowish brown (10YR 5/6) sand with Redoximorphic colorations	Redoximorphic; disturbed soils	negative
AT028	0-25: strong brown (7.5YR 5/6) loamy sand 25-45: reddish brown (5YR 5/3) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT029	0-20: yellowish brown (10YR 5/6) sand with Redoximorphic colorations	Redoximorphic; disturbed soils	negative
AT030	0-40: yellow (10YR 7/6) sand 40-45: yellowish brown (10YR 5/6) sand with Redoximorphic colorations	Redoximorphic; disturbed soils	negative
AT031	0-25: strong brown (7.5YR 5/6) sandy clay loam	Redoximorphic; disturbed soils	negative

	25-30: yellowish brown (10YR 5/6) sandy clay loam with Redoximorphic colorations		
AT032	0-10: dark grayish brown (10YR 4/2) sandy loam 10-25: yellowish brown (10YR 5/6) sand	Root impasse	negative
AT033	0-15: brownish yellow (10YR 6/6) loamy sand 15-35: light brownish gray (10YR 6/2) sand	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT034	0-15: brownish yellow (10YR 6/6) loamy sand 15-35: light brownish gray (10YR 6/2) sand	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT035	0-15: brownish yellow (10YR 6/6) loamy sand 15-35: light brownish gray (10YR 6/2) sand	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT036	0-25: strong brown (7.5YR 5/6) sandy loam 25-45: reddish brown (5YR 5/3) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT037	0-25: brownish yellow (10YR 6/6) sand 25-45: light red (2.5YR 6/6) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT038	0-30: strong brown (7.5YR 5/6) loamy sand 30-50: reddish brown (5YR 5/3) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT039	0-20: brownish yellow (10YR 6/6) loamy sand 20-40: light red (2.5YR 6/6) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT040	0-10: yellowish brown (10YR 5/6) sandy clay with Redoximorphic colorations	Redoximorphic; disturbed soils	negative
AT041	0-25: dark grayish brown (10YR 4/2) loamy sand 25-30: light red (2.5YR 6/6) sandy clay loam	Redoximorphic; disturbed soils	negative
AT042	0-10: yellowish brown (10YR 5/6) sand with Redoximorphic colorations	Redoximorphic; disturbed soils	negative
AT043	0-10: dark grayish brown (10YR 4/2) sandy loam 10-35: brownish yellow (10YR 6/6) sand	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT044	0-25: strong brown (7.5YR 5/6) loamy sand 25-45: reddish brown (5YR 5/3) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT045	0-40: brown (10YR 4/3) sand 40-60: reddish brown (5YR 4/4) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT046	0-25: brown (10YR 4/3) loamy sand 25-45: reddish brown (5YR 5/3) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT047	0-15: dark grayish brown (10YR 4/2) sandy loam 15-35: reddish brown (5YR 5/3) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
AT048	0-30: strong brown (7.5YR 4/6) sandy clay loam 30-50: strong brown (7.5YR 5/6) sandy clay	Culturally sterile subsoil – 20+ cm below A/Ap	negative

AT049	0-35: strong brown (7.5YR 4/6) loamy sand 35-55: yellowish red (5YR 5/6) sand	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC001	0-15: light brown (7.5YR 6/3) silt loam	Gravelly; disturbed soils	negative
BC002	0-20: dark brown (10YR 3/3) loam 20-40: dark brown (10YR 3/3) clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC003	0-20: dark grayish brown (10YR 4/2) clay loam 20-40: dark grayish brown (10YR 4/2) clay	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC004	0-20: dark brown (10YR 3/3) clay loam 20-40: dark brown (10YR 3/3) clay	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC005	0-20: yellowish brown (10YR 5/6) clay	Gravelly; disturbed soils	negative
BC006	0-20: light brown (7.5YR 6/3) silt loam	Gravelly; disturbed soils	negative
BC007	0-20: yellowish brown (10YR 5/6) loam 20-40: yellowish brown (10YR 5/6) clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC008	0-25: yellowish brown (10YR 5/6) silt loam 25-45: dark yellowish brown silty clay	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC009	0-25: strong brown (7.5YR 5/6) silty clay	Root impasse	negative
BC011	0-20: reddish brown (5YR 5/3) silty clay loam 20-40: light reddish brown (10YR 6/3) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC012	0-15: light brown (7.5YR 6/3) silt loam 15-35: light reddish brown (10YR 6/3) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC013	0-20: light brown (7.5YR 6/3) silt loam 20-40 yellowish red (5YR 5/6) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC014	0-20: light reddish brown (10YR 6/3) silt loam 20-40: yellowish red (5YR 5/6) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC015	0-20: light reddish brown (10YR 6/3) silt loam 20-40: yellowish red (5YR 5/6) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC016	0-20: light reddish brown (10YR 6/3) silt loam 20-40: yellowish red (5YR 5/6) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC017	0-20: light reddish brown (10YR 6/3) silt loam 20-40: yellowish red (5YR 5/6) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC018	0-20: light reddish brown (10YR 6/3) silt loam 20-40: light brownish gray (10YR 6/2) silty clay	Culturally sterile subsoil – 20+ cm below A/Ap	negative

BC019	0-20: light reddish brown (10YR 6/4) sandy clay loam 20-40: yellowish red (5YR 5/6) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC020	0-20: light yellowish brown (10YR 6/4) silty clay loam 20-40: light brownish gray (10YR 6/2) clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC021	0-20: yellowish red (5YR 5/6) silt loam 20-40: yellowish red (5YR 5/6) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC022	0-20: light reddish brown (10YR 6/3) silt loam 20-40: yellowish red (5YR 5/6) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC023	0-20: light reddish brown (10YR 6/3) silt loam 20-40: yellowish red (5YR 5/6) sand	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC024	0-75: yellowish red (5YR 5/6) sand 75-80: yellowish red (5YR 5/6) sandy loam	Sub-soil; depth of shovel	negative
BC025	0-30: light reddish brown (10YR 6/3) clay loam	Root impasse	negative
BC026	0-45: strong brown (7.5YR 5/6) silt loam 45-65: strong brown (7.5YR 5/6) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC027	0-30: light yellowish brown (10YR 6/4) silt loam 30-50: reddish (5YR 5/3) brown silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC028	0-30: dark reddish brown (5YR 3/3) silt loam 30-50: reddish brown (5YR 5/3) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC029	0-15: yellowish red (5YR 5/6) clay loam	Redoximorphic; disturbed soils	negative
BC030	0-20: light brownish gray (10YR 6/2) silty clay	Redoximorphic; disturbed soils	negative
BC031	0-30: yellowish brown (10YR 5/6) sandy loam 30-50: yellowish red (5YR 5/6) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC032	0-30: light gray (10YR 7/2) sandy loam 30-50: light gray (10YR 7/2) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC033	0-20: light brownish gray (10YR 6/2) loamy sand 20-40: light brownish gray (10YR 6/2) sand	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC034	0-20: reddish brown (5YR 5/3) sandy loam	Root impasse	negative
BC035	0-40: brownish yellow (10YR 6/6) loamy sand	Root impasse	negative
BC036	0-20: light brownish gray (10YR 6/2) silt loam	Redoximorphic; disturbed soils	negative

BC038	0-15: light brownish gray (10YR 6/2) loamy sand	Redoximorphic; disturbed soils	negative
BC039	0-35: brownish yellow (10YR 6/6) sandy loam 35-55: reddish brown (5YR 5/3) silt loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC040	0-20: grayish brown (10YR 5/2) silt loam 20-40: grayish brown (10YR 5/2) loamy sand	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC041	0-35: brownish yellow (10YR 6/6) sandy loam 35-55: reddish brown (5YR 5/3) silt loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC042	0-30: reddish brown (5YR 4/4) clay loam 30-50: reddish brown (5YR 4/4) clay	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC043	0-20: reddish brown (5YR 4/4) loamy sand 20-40: reddish brown (5YR 4/4) sand	Culturally sterile subsoil – 20+ cm below A/Ap	negative
BC044	0-20: reddish brown (5YR 4/4) loamy sand 20-40: brownish yellow (10YR 6/6) sand	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL05	0-20: very dark grayish brown (10YR 3/2) silty clay with sub-angular gravels 20-30: brown (10YR 4/3) silty clay	Bedrock	negative
GL06	0-13: light yellowish brown (5Y 5/3) sandy clay 13-35: yellowish brown (5Y 6/3) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL07	0-15: brown (10YR 5/3) sandy loam with road gravels and degraded sandstone, mottled with red (2.5YR 5/6) clay	Gravelly; disturbed soils	negative
GL08	0-10: brown (10YR 4/3) loam with sub-angular gravels 10-20: brownish yellow (10YR 6/6) loam	Gravelly; disturbed soils	negative
GL09	0-10: brown (10YR 5/3) loam 10-30: red (2.5YR 5/6) clay	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL10	0-20: brown (7.5YR 4/4) sandy loam with roots and pebbles 20-40: red (2.5YR 4/6) clay loam and pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL11	0-20: brown (7.5YR 4/4) sandy loam with roots and pebbles 20-30: red (2.5YR 4/6) clay loam with pebbles	Root impasse	negative
GL12	0-25: brown (7.5YR 4/4) sandy loam with roots and pebbles 25-45: brown (7.5YR 3/3) sandy loam with pebbles, mottled with light gray (10YR 7/1) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL13	0-8: brown (7.5YR 4/4) sandy loam with roots and pebbles 8-30: red (2.5YR 4/6) sandy clay loam with pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL14	0-10: brown (7.5YR 4/4) sandy loam with roots and pebbles 10-30: red (2.5YR 4/6) clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative

GL15	0-5: brown (7.5YR 4/4) sandy loam with roots and pebbles 5-30: red (2.5YR 4/6) clay with pebbles, mottled with red (2.5YR 5/8) clay	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL16	0-10: brown (7.5YR 4/4) sandy loam with roots and pebbles 10-30: red (2.5YR 5/8) sandy clay loam, disturbed with degraded rocks and organics, mottled with light gray (10YR 7/1) sandy clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL17	0-10: brown (7.5YR 4/4) sandy loam with roots and pebbles 10-30: red (2.5YR 4/6) sandy clay with pebbles, mottled with very pale brown (10YR 7/3) clay	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL18	0-20: very dark brown (7.5YR 2.5/3) sandy loam with roots and pebbles 20-40: yellowish brown (7.5YR 6/6) clay loam with pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL19	0-10: brown (7.5YR 4/4) sandy loam with roots and pebbles 10-65: yellowish red (5YR 6/8) sand with pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL20	0-10: brown (7.5YR 4/4) sandy loam with roots and pebbles 10-35: yellowish red sand with pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL21	0-10: brown (7.5YR 4/4) sandy loam with roots and pebbles 10-65: yellowish red (5YR 6/8) silty clay with pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL22	0-5: brown (5YR 4/4) sandy loam with roots and pebbles 5-20: red (2.5YR 5/8) sandy clay loam with pebbles	Compact soil	negative
GL23	0-20: brown (7.5YR 4/4) sandy loam with roots and sub-rounded pebbles 20-40: red (2.5YR 4/6) clay loam with sub-rounded and angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL24	0-25: brown (7.5YR 4/4) sandy loam with roots and pebbles 25-45: red (2.5YR 4/6) clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL25	0-20: brown (7.5YR 4/4) sandy loam with roots and pebbles 20-40: red (2.5YR 4/6) clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL26	0-20: brown (7.5YR 4/4) sandy loam with roots and pebbles 20-40: red (2.5YR 4/6) clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL27	0-10: brown (7.5YR 4/4) sandy loam with roots and pebbles 10-30: red (2.5YR 4/6) silty clay loam	Water table	negative
GL28	0-20: dark brown (10YR 4/3) sandy loam with roots and pebbles 20-40: yellowish brown (10YR 5/4) sandy loam with pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative

GL29	0-15: gray (GLEY1 6/1) clay, mottled with degraded sandstone	Redoximorphic; disturbed soils	negative
GL30	0-25: yellowish brown (10YR 5/4) sandy loam with degraded sandstone and roots, mottled with Redoximorphic colorations	Redoximorphic; disturbed soils	negative
GL31	0-20: yellowish brown (10YR 5/4) sandy loam with degraded sandstone and roots and pebbles, mottled with Redoximorphic colorations 20-40: yellowish brown (10YR 5/4) sandy loam with pebbles, mottled with Redoximorphic colorations	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL32	0-20: yellowish brown (10YR 5/4) sandy loam with degraded sandstone and roots and sub-rounded pebbles, mottled with Redoximorphic colorations 20-40: light gray (10YR 7/2) sandy loam with degraded sandstone, mottled with Redoximorphic colorations	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL33	0-20: yellowish brown (10YR 5/4) sandy loam with degraded sandstone and sub-rounded pebbles, mottled with Redoximorphic colorations 20-40: light gray (10YR 7/2) sandy loam with degraded sandstone, mottled with Redoximorphic colorations	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL34	0-20: brown (10YR 4/4) silt loam 20-40: light gray (GLEY1 7/N) silty clay loam with degraded sandstone and sub-rounded pebbles, mottled with brown (10YR 4/4) silty loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL35	0-10: brown (10YR 4/4) silt loam 10-30: light gray (GLEY1 7/N) silty clay loam with degraded sandstone and sub-rounded pebbles, mottled with brown (10YR 4/4) silty loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL36	0-5: brown (10YR 4/4) silt loam 5-30: light gray (GLEY1 7/N) silty clay loam with degraded sandstone and sub-rounded pebbles, mottled with brown (10YR 4/4) silty loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL37	0-10: brown (10YR 4/4) silt loam 10-30: yellowish brown (7.5YR 6/6) silty clay loam with degraded sandstone and sub-rounded pebbles, mottled with brown (10YR 4/4) silty loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL38	0-25: dark brown (10YR 3/3) silty loam with sub-angular pebbles 25-45: dark brown (7.5YR 3/2) loam with sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL39	0-10: brown (10YR 4/4) silt loam with sub-angular pebbles 10-30: yellowish brown (7.5YR 6/6) silty clay loam with degraded sandstone and sub-	Culturally sterile subsoil – 20+ cm below A/Ap	negative

	rounded pebbles, mottled with brown (10YR 4/4) silty loam		
GL40	0-10: brown (10YR 4/4) silt loam with sub-angular pebbles 10-30: yellowish brown (7.5YR 6/6) silty clay loam with sub-rounded pebbles, mottled with brown (10YR 4/4) silty loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL41	0-10: brown (10YR 4/4) silt loam with sub-angular pebbles 10-30: yellowish brown (7.5YR 5/6) silty clay loam with sub-rounded pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL42	0-10: brown (10YR 4/4) silt loam with sub-angular pebbles 10-30: yellowish brown (7.5YR 5/6) silty clay loam with pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL43	0-15: very dark grayish brown (10YR 3/2) silt loam 15-35: brown (10YR 4/3) silt loam with pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL44	0-10: very dark gray (10YR o with roots and pebbles 10-30: gray (10YR 5/1) silty clay with pebbles and degraded sandstone	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL45	0-10 brown (10YR 4/4) silt loam 10-30: yellowish brown (7.5YR 5/6) silty clay loam with sub-rounded pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL46	0-10 brown (10YR 4/4) silt loam 10-30: yellowish brown (7.5YR 6/6) silty clay loam with sub-rounded pebbles, mottled with brown (10YR 4/4) silt loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL47	0-10 brown (10YR 4/4) silt loam 10-30: yellowish brown (7.5YR 6/6) silty clay loam with sub-rounded pebbles, mottled with pale brown (7.5YR 6/4) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
GL48	0-10 brown (10YR 4/4) silt loam with sub-rounded pebbles 10-30: yellowish brown (5YR 5/8) sand with sub-rounded pebbles, mottled with brown (10YR 4/4) silt loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC001	0-25: strong brown (7.5YR 5/6) silty clay loam with pebbles and gravels	Bedrock	negative
JC002	0-23: strong brown (7.5YR 5/6) silty clay loam with chunks of asphalt from adjacent parking lot and sub-rounded and sub-angular pebbles and gravels 23-45: brownish yellow (10YR 6/6) silty clay with angular, sub-rounded, and sub-angular pebbles and gravels	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC003	0-21: strong brown (7.5YR 5/6) silty clay loam with sub-rounded and sub-angular pebbles and gravels	Compact soil; gravel; disturbed soils	negative

	21-35: brownish yellow (10YR 6/6) silty clay with pockets of oxidized (brownish red) soil and white calcium carbonate		
JC004	0-13: strong brown (7.5YR 5/6) silty clay loam 13-29: brownish yellow (10YR 6/6) silty clay with pockets of oxidized (brownish red) soil and white calcium carbonate	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC005	0-13: strong brown (7.5YR 5/6) silty clay loam with sub-rounded gravels 13-25: brownish yellow (10YR 6/6) silty clay with pockets of oxidized (brownish red) soil and white calcium carbonate	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC006	0-9: light brown (7.5YR 6/3) silty clay with sub-rounded and sub-angular pebbles and gravels 9-30: strong brown (7.5YR 5/6) silty clay with sub-rounded and sub-angular pebbles and gravels	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC007	0-20: dark brown (10YR 3/3) silty clay with sub-rounded and sub-angular pebbles and gravels and pockets of oxidized soil	Compact soil; gravel; disturbed soils	negative
JC008	0-21: light brown (7.5YR 6/3) silty clay loam 21-41: reddish brown (5YR 5/3) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC009	0-20: light brown (7.5YR 6/3) silt loam 20-40: light yellowish brown (10YR 6/4) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC010	0-15: light brown (7.5YR 6/3) silty clay loam 15-35: reddish brown (5YR 5/3) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC011	0-7: light brown (7.5YR 6/3) silty clay loam 7-26: reddish brown (5YR 5/3) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC012	0-13: light brown (7.5YR 6/3) silty clay loam 13-35: dark brown (10YR 3/3) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC013	0-11: light brown (7.5YR 6/3) silty clay loam 11-32: reddish brown (5YR 5/3) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC014	0-7: light brown (7.5YR 6/3) silty clay loam 7-25: reddish brown (5YR 5/3) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC015	0-5: light brown (7.5YR 6/3) silty clay loam 5-25: dark yellowish brown (10YR 4/4) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC016	0-5: light brown (7.5YR 6/3) silty clay loam 5-35: reddish brown (5YR 5/3) silty clay loam, with pockets of gray (10YR 5/1) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative

JC017	0-7: light brown (7.5YR 6/3) silty clay loam 7-23: brownish yellow (10YR 6/6) silty clay loam 23-45: light red (2.5YR 6/6) sand	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC018	0-6: light brown (7.5YR 6/3) silty clay loam 6-26: reddish brown (5YR 5/3) silty clay loam, with pockets of gray (10YR 5/1) soil and oxidized (reddish brown) soil	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC019	0-10: dark brown (10YR 3/3) silty clay loam 10-30: grayish brown (10YR 5/2) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC020	0-6: dark brown (10YR 3/3) silty clay loam 6-32: brownish yellow (10YR 6/6) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC037	0-25: brownish yellow (10YR 6/6) silt loam	Root impasse	negative
JC050	0-13: dark brown (7.5YR 3/2) silty clay loam with sub-rounded and sub-angular pebbles 13-31: strong brown (7.5YR 5/6) silty clay loam with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC051	0-7: dark brown (7.5YR 3/2) silty clay loam with sub-rounded and sub-angular pebbles 7-28: strong brown (7.5YR 5/6) silty clay loam with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC052	0-7: dark brown (7.5YR 3/2) silty clay loam with sub-rounded and sub-angular pebbles 7-27: pale brown (10YR 8/4) silty clay loam with sub-rounded and sub-angular pebbles 27-33: strong brown (7.5YR 5/6) silty clay with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC053	0-7: dark brown (7.5YR 3/2) silty clay loam with sub-rounded and sub-angular pebbles 7-20: pale brown (10YR 8/4) sand with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC054	0-7: dark brown (7.5YR 3/2) silty clay loam with sub-rounded and sub-angular pebbles 7-10: pale brown (10YR 8/4) sand 10-25: pale brown (10YR 7/4) silty clay, mottled with (10YR 8/4)	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC055	0-8: dark brown (7.5YR 3/2) silty clay loam with sub-rounded and sub-angular pebbles 8-30: light gray (10YR 7/2) silty clay with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC056	0-5: dark brown (7.5YR 3/2) silty clay loam with sub-rounded and sub-angular pebbles 5-18: reddish brown (5YR 5/3) sand with sub-rounded and sub-angular pebbles	Root impasse	negative
JC057	0-6: dark brown (7.5YR 3/2) silty clay loam with sub-rounded and sub-angular pebbles 6-28: yellowish red (5YR 5/6) silty clay with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative

JC058	0-3: dark brown (7.5YR 3/2) silty clay loam with sub-rounded and sub-angular pebbles 3-22: very pale brown (10YR 8/4) silty clay, mottled with very pale brown (10YR 8/2)	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC059	0-3: dark brown (7.5YR 3/2) silty clay loam with sub-rounded and sub-angular pebbles 3-20: very pale brown (10YR 8/4) silty clay, mottled with very pale brown (10YR 8/2)	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC060	0-6: dark brown (7.5YR 3/2) silty clay loam with sub-rounded and sub-angular pebbles 6-27: light reddish brown (2.5YR 7/4) silty clay, mottled with dark brown (7.5YR 3/2)	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC061	0-5: reddish gray (5YR 5/2) silty clay loam 5-25: light reddish brown (2.5YR 7/4) silty clay, mottled with dark brown (7.5YR 3/2)	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC062	0-9: reddish gray (5YR 5/2) silty clay loam 9-30: light reddish brown (2.5YR 7/4) silty clay, mottled with dark brown (7.5YR 3/2)	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC063	0-2: weak red (2.5YR 6/2) silty clay loam 2-16: light gray (10YR 7/1) clay, mottled with yellow (10YR 7/6)	Compact soil	negative
JC064	0-10: reddish gray (5YR 5/2) silty clay loam 10-19: light reddish brown (2.5YR 7/4) silty clay, mottled with dark brown (7.5YR 3/2)	Compact soil	negative
JC065	0-14: reddish gray (5YR 5/2) silty clay loam 14-35: light reddish brown (2.5YR 7/4) silty clay, mottled with dark brown (7.5YR 3/2)	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC066	0-7: reddish gray (5YR 5/2) silty clay loam 7-30: light reddish brown (2.5YR 7/4) silty clay, mottled with dark brown (7.5YR 3/2)	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC067	0-5: reddish gray (5YR 5/2) silty clay loam 5-25: light reddish brown (2.5YR 7/4) silty clay, mottled with dark brown (7.5YR 3/2) 25-32: reddish brown (5YR 6/4) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC068	0-2: gray (5YR 6/1) silty clay loam 2-28: pink (5YR 7/3) silty clay loam, mottled with reddish yellow (5YR 7/6)	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC069	0-7: gray (5YR 6/1) silty clay loam 7-30: pink (5YR 7/3) silty clay loam, mottled with reddish yellow (5YR 7/6)	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC070	0-5: gray (5YR 6/1) silty clay loam 5-29: pink (5YR 7/3) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC071	0-5: gray (5YR 6/1) silty clay loam 5-22: pink (5YR 7/3) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC072	0-5: gray (5YR 6/1) silty clay loam 5-30: pink (5YR 7/3) silty clay loam, mottled with reddish yellow (5YR 7/6)	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JC073	0-7: gray (5YR 6/1) silty clay loam 7-10: pink (5YR 7/4) silty clay loam 10-30: reddish brown (5YR 6/4) silty clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative

JC074	0-12: gray (5YR 6/1) silty clay loam 12-37: pink (5YR 7/3) silty clay loam, mottled with reddish yellow (5YR 7/6)	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP001	0-35: dark grayish brown (10YR 4/2) silty loam with sub-rounded pebbles, mottled with yellowish brown (10YR 5/6)	Compact soil	negative
JP002	0-35: dark brown (10YR 3/3) silt loam with sub-rounded, angular, and sub-angular pebbles and gravels	Compact soil	negative
JP003	0-35: dark grayish brown (2.5Y 4/2) silty clay loam with sub-rounded pebbles and gravels, mottled with yellowish brown (10YR 5/6)	Compact soil; gravelly soils	negative
JP004	0-25: dark brown (10YR 3/3) silt loam with sub-rounded, angular, and sub-angular pebbles and gravels 25-45: dark gray (2.5Y 4/1) clay loam with angular and sub-rounded pebbles, mottled with yellowish brown (10YR 5/6)	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP005	0-25: dark grayish brown (10YR 4/2) silt loam with sub-rounded pebbles, mottled with yellowish brown (10YR 5/6) 25-45: strong brown (7.5YR 5/6) silty clay loam, mottled with yellowish brown (10YR 5/6)	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP006	0-30: dark brown (10YR 3/3) silt loam with angular and sub-rounded pebbles and gravels	Compact soil; gravelly soils	negative
JP007	0-25: strong brown (7.5YR 4/6) silt loam with sub-rounded pebbles 25-45: yellowish red (5YR 5/6) silt loam with angular and sub-rounded pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP008	0-25: strong brown (7.5YR 4/6) silt loam with sub-rounded pebbles 25-45: yellowish red (5YR 5/6) silt loam with angular and sub-rounded pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP009	0-25: brown (10YR 4/3) silt loam with sub-rounded pebbles 25-45: dark yellowish brown (10YR 3/4) silt loam with angular and sub-rounded pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP010	0-25: very dark grayish brown (10YR 3/2) silt loam with sub-rounded pebbles 25-45: yellowish red (5YR 4/6) clay loam with angular and sub-rounded pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP011	0-25: very dark grayish brown (10YR 3/2) silt loam with sub-rounded pebbles 25-45: yellowish red (5YR 4/6) clay loam with sub-rounded and angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP012	0-25: very dark grayish brown (10YR 3/2) silt loam with sub-rounded pebbles 25-45: strong brown (7.5YR 4/6) silt loam with sub-rounded and angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP013	0-25: very dark grayish brown (10YR 3/2) silt loam with sub-rounded pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative

	25-45: yellowish red (5YR 4/6) silty clay loam with sub-rounded and angular pebbles		
JP014	0-25: very dark grayish brown (10YR 3/2) silt loam with sub-rounded pebbles 25-45: strong brown (7.5YR 4/6) silt loam with sub-rounded and angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP015	0-25: very dark grayish brown (10YR 3/2) silt loam with sub-rounded pebbles 25-45: strong brown (7.5YR 4/6) silt loam with sub-rounded and angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP016	0-25: very dark grayish brown (10YR 3/2) silt loam with sub-rounded pebbles 25-45: strong brown (7.5YR 4/6) silt loam with sub-rounded and angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP017	0-25: very dark grayish brown (10YR 3/2) silt loam with sub-rounded pebbles 25-45: strong brown (7.5YR 4/6) silt loam with sub-rounded and angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP018	0-25: very dark grayish brown (10YR 3/2) silt loam with sub-rounded pebbles 25-45: strong brown (7.5YR 4/6) silt loam with sub-rounded and angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP019	0-25: very dark grayish brown (10YR 3/2) silt loam with sub-rounded pebbles 25-45: strong brown (7.5YR 4/6) silt loam with sub-rounded and angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP020	0-25: very dark grayish brown (10YR 3/2) silt loam with sub-rounded pebbles 25-45: strong brown (7.5YR 4/6) silt loam with sub-rounded and angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP021	0-25: very dark grayish brown (10YR 3/2) silt loam with sub-rounded pebbles 25-45: strong brown (7.5YR 4/6) silt loam with sub-rounded and angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
JP022	0-25: very dark grayish brown (10YR 3/2) silt loam with sub-rounded pebbles	Roots; compact soil	negative
JP023	0-25: very dark grayish brown (10YR 3/2) silt loam with sub-rounded pebbles 25-40: strong brown (7.5YR 4/6) silt loam with sub-rounded and angular pebbles	Roots; compact soil	negative
KW01	0-18: brown (10YR 4/3) clay loam with sub-rounded and sub-angular pebbles, gravels, and cobbles, mottled with very dark grayish brown (10YR 3/2)	Bedrock	negative
KW02	0-10: very dark grayish brown (10YR 3/2) loam 10-35: yellowish brown (10YR 3/4) clay loam with pebbles and gravels	Culturally sterile subsoil – 20+ cm below A/Ap	negative
KW03	0-15: strong brown (7.5YR 4/6) silty clay loam 15-35: dark red (2.5YR 3/6) clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
KW04	0-15: strong brown (7.5YR 4/6) silty clay loam 15-35: dark reddish brown clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative

KW05	0-30: brown (7.5YR 4/4) sandy clay loam 30-50: dark reddish brown (2.5YR 4/6) clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
KW06	0-30: brown (7.5YR 4/4) sandy clay loam 30-50: dark reddish brown clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
KW07	0-20: brownish yellow (10YR 3/4) silty clay loam 20-40: yellowish brown clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
KW08	0-5: dark brown (10YR 3/3) loam 5-20: dark yellowish brown (10YR 4/4) sandy clay loam 20-40: reddish brown (2.5YR 4/4) clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
KW09	0-7: yellowish brown (10YR 5/4) loam 7-20: yellowish red (5YR 4/6) clay loam 20-40: reddish brown (2.5YR 4/4) clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
KW10	0-8: strong brown (7.5YR 4/6) loam	Compact soil; gravelly soils	negative
KW16	0-10: very dark brown (10YR 2/2) sandy loam with sub-rounded and sub-angular pebbles and gravels 10-40: dark reddish brown (2.5YR 3/4) sand	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC001	0-10: dark gray (10YR 4/1) sandy loam with sub-rounded and sub-angular pebbles and gravels 10-30: yellowish brown (10YR 4/4) sandy loam with sub-rounded and sub-angular pebbles and gravels	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC002	0-15: dark grayish brown (10YR 4/2) loam with sub-rounded pebbles and gravels 15-35: dark yellowish brown (10YR 4/4) clay loam with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC003	0-10: dark grayish brown (10YR 4/2) loam with sub-rounded pebbles and gravels 10-35: dark yellowish brown (10YR 4/4) clay loam with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC004	0-10: dark gray (10YR 4/1) loam with sub-rounded pebbles and gravels 10-35: dark grayish brown (10YR 4/2) clay loam with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC005	0-15: grayish brown (10YR 5/2) clay loam with sub-rounded pebbles and gravels 15-35: dark grayish brown (10YR 4/2) silty clay with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC006	0-10: brown (10YR 5/3) loam with sub-rounded pebbles and gravels 10-35: brown (10YR 4/3) clay loam	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC007	0-10: brown (10YR 4/3) loam with sub-rounded pebbles and gravels	Culturally sterile subsoil – 20+ cm below A/Ap	negative

	10-30: dark yellowish brown (10YR 4/4) silty clay loam with sub-rounded and sub-angular pebbles 30-40: yellowish brown (10YR 3/6) silty clay loam with sub-rounded and sub-angular pebbles		
MC008	0-10: dark grayish brown (10YR 4/2) loam with sub-rounded pebbles and gravels 10-20: dark yellowish brown (10YR 4/4) silty clay loam with sub-rounded and sub-angular pebbles 20-35: reddish brown (5YR 4/3) clay loam with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC009	0-10: dark brown (10YR 3/3) silt loam with sub-rounded pebbles and gravels 10-30: yellowish brown (10YR 5/4) sandy clay with sub-rounded and sub-angular pebbles	Compact soil; gravelly soils	negative
MC009.5	0-10: dark brown (10YR 3/3) silt loam with sub-rounded pebbles and gravels 10-25: dark yellowish brown (10YR 3/4) silt loam with sub-rounded and sub-angular pebbles 25-45: dark yellowish brown (10YR 4/4) silty clay loam with sub-rounded and sub-angular pebbles	Root impasse	negative
MC010	0-10: dark brown (10YR 3/3) silt loam with sub-rounded pebbles and gravels 10-25: dark yellowish brown (10YR 4/6) silt loam with sub-rounded and sub-angular pebbles 25-45: reddish brown (2.5YR 4/4) silty clay loam	Root impasse	negative
MC011	0-10: dark brown (10YR 3/3) silt loam with sub-rounded pebbles and gravels 10-25: dark yellowish brown (10YR 4/4) silt loam with sub-rounded and sub-angular pebbles 25-45: reddish brown (2.5YR 4/4) silty clay loam	Root impasse	negative
MC012	0-10: dark brown (10YR 3/3) silt loam with sub-rounded pebbles and gravels 10-25: dark yellowish brown (10YR 4/6) silt loam with sub-rounded and sub-angular pebbles 25-45: reddish brown (2.5YR 4/4) silty clay loam	Root impasse	negative
MC013	0-10: dark brown (10YR 3/3) silt loam with sub-rounded pebbles and gravels 10-20: dark yellowish brown (10YR 4/6) silt loam with sub-rounded and sub-angular pebbles 20-45: reddish brown (2.5YR 4/4) silty clay loam	Root impasse	negative

MC014	0-10: dark brown (10YR 3/3) silt loam with sub-rounded pebbles and gravels 10-20: dark yellowish brown (10YR 4/6) clay loam with sub-rounded and sub-angular pebbles 20-30: yellowish red (5YR 4/6) clay loam with sub-rounded pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC015	0-10: dark brown (10YR 3/3) silt loam with sub-rounded pebbles and gravels 10-20: reddish brown (5YR 5/4) clay loam with sub-rounded and sub-angular pebbles 20-30: yellowish red (5YR 4/6) clay loam with sub-rounded pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC016	0-15: brown (10YR 4/3) loam with sub-rounded and sub-angular pebbles 15-20: dark yellowish brown (10YR 4/4) silt loam with sub-rounded and sub-angular pebbles 20-40: dark yellowish brown (10YR 4/6) silty clay loam with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC017	0-10: brown (10YR 4/3) loam with sub-rounded and sub-angular pebbles 10-20: dark yellowish brown (10YR 4/4) silt loam with sub-rounded and sub-angular pebbles 20-30: dark yellowish brown (10YR 4/6) silty clay with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC018	0-10: dark grayish brown (10YR 4/2) loam with sub-rounded and sub-angular pebbles 10-20: brown (10YR 4/3) silt loam with sub-rounded and sub-angular pebbles 20-35: yellowish red (7.5YR 4/6) silty clay loam with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC019	0-10: dark grayish brown (10YR 4/2) loam with sub-rounded and sub-angular pebbles 10-35: brown (10YR 4/4) sandy loam with sub-rounded and sub-angular pebbles 35-55: strong brown (7.5YR 4/6) sandy clay with sub-rounded and sub-angular pebbles and gravels	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC020	0-10: dark brown (10YR 3/3) loam with sub-rounded and sub-angular pebbles 10-30: dark yellowish brown (10YR 4/4) clay loam with sub-rounded and sub-angular pebbles 30-40: dark yellowish brown (10YR 4/6) silty clay loam with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC021	0-10: dark grayish brown (10YR 4/2) loam with sub-rounded and sub-angular pebbles 10-20: reddish brown (5YR 4/3) silt loam with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative

	20-35: yellowish red (5YR 4/6) silty clay loam with sub-rounded and sub-angular pebbles		
MC022	0-10: gray (10YR 5/1) loam with sub-rounded and sub-angular pebbles 10-20: dark yellowish brown (10YR 4/4) silty clay loam with sub-rounded and sub-angular pebbles 20-35: yellowish brown (10YR 5/4) clay with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC023	0-10: brown (10YR 4/3) loam with sub-rounded and sub-angular pebbles 10-20: dark yellowish brown (10YR 4/4) silty clay loam with sub-rounded and sub-angular pebbles 20-35: yellowish red (5YR 4/6) clay loam with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC024	0-10: very dark grayish brown (10YR 3/2) loam with sub-rounded and sub-angular pebbles 10-20: dark yellowish brown (10YR 4/4) silty clay loam with sub-rounded and sub-angular pebbles 20-35: dark reddish brown (5YR 3/4) silty clay loam with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC025	0-10: very dark gray (5YR 3/1) loam with sub-rounded and sub-angular pebbles 10-20: dark yellowish brown (10YR 4/4) silt loam with sub-rounded and sub-angular pebbles 20-40: yellowish red (5YR 4/6) silty clay with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC026	0-12: very dark gray (5YR 3/1) loam with sub-rounded and sub-angular pebbles 12-30: yellowish red (5YR 4/6) silty clay loam with sub-rounded and sub-angular pebbles	Root impasse	negative
MC027	0-10: very dark gray (5YR 3/2) loam with sub-rounded and sub-angular pebbles 10-25: reddish brown (5YR 5/4) silty clay with sub-rounded and sub-angular pebbles 25-38: yellowish red (5YR 4/6) silty clay with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC028	0-10: very dark gray (5YR 3/2) loam with sub-rounded and sub-angular pebbles 10-25: grayish brown (10YR 5/2) sandy loam with sub-rounded and sub-angular pebbles 25-40: yellowish brown (10YR 5/4) sandy clay with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC029	0-10: dark gray (10YR 4/1) loam with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative

	10-25: brown (10YR 5/3) silty clay loam with sub-rounded and sub-angular pebbles 25-40: yellowish brown (10YR 5/6) silty clay with sub-rounded and sub-angular pebbles, mottled with very pale brown (10YR 7/3)		
MC030	0-10: dark gray (10YR 4/1) loam with sub-rounded and sub-angular pebbles 10-30: grayish brown (10YR 5/2) silt loam with sub-rounded and sub-angular pebbles 30-40: light brownish gray (10YR 6/2) sandy clay loam with sub-rounded and sub-angular pebbles	Root impasse	negative
MC031	0-10: dark gray (10YR 4/1) silt loam with sub-rounded and sub-angular pebbles 10-30: dark grayish brown (10YR 4/2) silty clay	Root impasse; Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC032	0-10: dark gray (10YR 4/1) loam with sub-rounded and sub-angular pebbles 10-20: dark grayish brown (0YR 4/2) clay loam	Root impasse	negative
MC033	0-10: brown (10YR 4/3) loam with sub-rounded and sub-angular pebbles 10-25: dark yellowish brown (10YR 4/4) clay loam with sub-rounded and sub-angular pebbles 25-35: dark yellowish brown (10YR 4/6) silty clay loam with sub-rounded and sub-angular pebbles	Root impasse; Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC034	0-10: brown (7.5YR 4/2) loam with sub-rounded and sub-angular pebbles 10-25: brown (7.5YR 4/4) clay loam with sub-rounded and sub-angular pebbles 25-40: strong brown (7.5YR 4/6) silty clay loam with sub-rounded and sub-angular pebbles	Compact soil; Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC035	0-10: very dark gray (10YR 3/1) with sub-rounded and sub-angular pebbles 10-20: brown (10YR 4/3) silt loam with sub-rounded and sub-angular pebbles 20-30: brown (10YR 4/4) silty clay loam with sub-rounded and sub-angular pebbles, mottled with very pale brown (10YR 7/3)	Root impasse; Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC036	0-10: dark brown (7.5YR 3/2) loam with sub-rounded and sub-angular pebbles 10-30: brown (7.5YR 4/3) silt loam with sub-rounded and sub-angular pebbles 30-35: yellowish red (7.5YR 4/6) silty clay loam with sub-rounded and sub-angular pebbles, mottled with very pale brown (10YR 7/3)	Culturally sterile subsoil – 20+ cm below A/Ap	negative
MC037	0-20: very dark grayish brown (10YR 3/2) loam with sub-rounded and sub-angular pebbles	Culturally sterile subsoil – 20+ cm below A/Ap	negative

	20-50: dark grayish brown (10YR 4/2) silty clay loam with sub-rounded and sub-angular pebbles		
MC038	0-20: dark grayish brown (10YR 4/2) loam with sub-rounded and sub-angular pebbles 20-45: dark brown (10YR 3/3) silty clay with sub-rounded and sub-angular pebbles	Root impasse; Culturally sterile subsoil – 20+ cm below A/Ap	negative