WATERS OF THE UNITED STATES DELINEATION REPORT
PROPOSED PEDESTRIAN BRIDGE
LEE'S SUMMIT MEDICAL CENTER
LEE'S SUMMIT, MISSOURI

Prepared for:

LEE'S SUMMIT MEDICAL CENTER
LEE'S SUMMIT, MISSOURI

Prepared by:

GEOTECHNOLOGY, LLC DBA UES
OVERLAND PARK, KANSAS

Date:

MAY 2, 2024

Project No.:

J045666.01

SAFETY
TEAMWORK
RESPONSIVENESS
INTEGRITY
VALUE
EXCELLENCE

Via email: jparker@catalyst-dg.com

May 2, 2024

Mr. Jack Parker, PE, LEED AP
Principal, Senior Project Manager
Catalyst Design Group
1524 Williams Drive, Suite 201
Murfreesboro, Tennessee 37129

Re: Waters of the United States Delineation Report
Proposed Pedestrian Bridge
Lee's Summit Medical Center
Lee's Summit, Missouri
Project No. J045666.01

Dear Mr. Parker:

In accordance with our Proposal No. J045666.01 dated April 9, 2024, Geotechnology, LLC, dba UES (UES), is pleased to submit this Waters of the United States (WOTUS) Delineation Report for the referenced project. UES identified two streams on the Site.

We appreciate the opportunity to be of assistance. Please contact me if you have any questions.

Very truly yours,

UES

Jack Finley
Senior Wetland Scientist

JMF/MSR:jmf/jsj

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1.0 SITE DESCRIPTION AND LOCATION

The project location (Site) is adjacent (west) to the Lee's Summit Medical Center located at 2100 SE Blue Parkway in Lee's Summit Missouri. The study area of the Site, approximately 1.4 acres in size, encompasses a relatively small portion of a larger wooded riparian area. This project will construct a pedestrian bridge that will link planned development on the west side of the stream to the Lee's Summit Medical Center.

2.0 BACKGROUND AND METHODOLOGY

UES understands that the purpose of this WOTUS delineation/determination was to assess the Site for the presence of WOTUS prior to proposed development. WOTUS includes wetlands, streams, ponds, lakes, and other waterbodies that may be protected under Sections 404 and 401 of the Clean Water Act. Currently, WOTUS includes traditional navigable waters (TNW), intermittent and perennial tributaries, lakes, ponds, and impoundments of jurisdictional waters, and adjacent wetlands. The United States Army Corps of Engineers (USACE) (*Federal Register 1982*) and the United States Environmental Protection Agency (EPA) (*Federal Register 1980*) jointly define "wetlands" as: *those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions*.

UES performed a wetland delineation according to the methods described in the USACE *Wetlands Delineation Manual* (1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation* Manual*: Midwest Region (Version 2.0)* (USACE, 2010). Wetland conditions are determined by the presence of three criteria: 1) a predominance of hydrophytic (water-loving) vegetation, 2) hydric soils, and 3) wetland hydrology. A hydric soil is a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Documents are obtained and reviewed relative to these three criteria and are field verified by cataloguing plant types in suspected WOTUS locations, by collecting soil samples at multiple locations in representative areas, and by observing indicators of wetland hydrology. Assessment points in the field were located using a Global Positioning System (GPS).

Jurisdictional streams are determined by visual assessment and characterization of stream channel features, as well as by a study of the geomorphology and hydrology of the Site. Of primary importance is the presence of an ordinary high-water mark (OHWM) and bed and bank features which result from the scouring forces of flowing water along channel banks. Upon observation of an OHWM, physical attributes of the stream are surveyed and estimated to determine the extent and frequency of stream flow. Ephemeral channels flow for short durations after rain events and are typically void of pools after several days following a rain event. Intermittent streams flow for seasonal durations, are influenced by groundwater, and often contain pools that provide habitat for macroinvertebrates adapted to aquatic habitats. Perennial streams flow continuously and are often associated with a groundwater source and are also dependent upon upstream ephemeral and intermittent stream flow.

3.0 DOCUMENT REVIEW

UES queried databases, imagery, and maps to provide a desktop review of the Site. A summary of this document review is presented below.

3.1 USGS Topographic Map

UES reviewed the 7.5-minute United States Geological Survey (USGS) Topographic Map adapted from the Site located in the Lake Jacomo, Missouri Quadrangle (USGS, 1996) for land features that may indicate the presence of WOTUS (Figure 2). The map indicates relatively steep topography with a "blue line" un-named stream corridor that receives hydrology from a pond located south of the Site. A slight drainage from the west intersects this un-named stream. This drainage suggests the potential for an ephemeral stream. Site elevations vary between approximately 990 to 1,000 feet above mean sea level (AMSL). The Site lies in the southern-most portion of the Lower Missouri-Crooked watershed (HUC10300101).

3.2 Aerial Imagery Map

UES reviewed Google Earth aerial images dating back to 1990 to identify land uses, changes in natural systems, and areas exhibiting inundation or saturation on the Site (Figure 3; Google Earth Pro, 2024). Aerial imagery from 1990 to 2005 indicates a wooded riparian stream corridor with row crop agriculture located on the east and west sides. This corridor corresponds to the drainage and stream observed in Figure 2. Hard infrastructure was not depicted during this time period. The construction of the current medical center occurred during the years 2006 and 2007. The area west of the stream corridor appeared to be used for construction laydown and staging. Additional parking areas were constructed on the east side of the stream corridor in the years 2019 and 2020. From 2007 to 2022, imagery indicates that the area west of the stream corridor has been fallow or has been used for row crop agriculture.

3.3 National Wetlands Inventory (NWI) Map and National Hydrography Data (NHD)

The United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) data was reviewed to obtain information about NWI-mapped wetlands and waterbodies at the Site (USFWS, 2024, Figure 4). The NWI data indicates the presence of a riverine wetland, which is typically ascribed to linear stream corridors.

The National Hydrography Data (NHD) was also reviewed to determine if streams are located on the Site (USGS, 2024). One intermittent stream was listed in the NHD data. Both the wetland and stream data correspond to those described in Figures 2 and 3.

3.4 FEMA National Flood Hazard Layer (NFHL)

UES reviewed the Federal Emergency Management Agency (FEMA) flood insurance rate map (FEMA, 2017; Firm Panel 29095C0439G). This map indicates that 100-year (1.0%) floodplains do not occur within the Site (Figure 5).

3.5 NRCS Soil Survey

The Web Soil Survey, prepared by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), was reviewed for information concerning hydric soils on the Site (Figure 5). Hydric soils, as defined by the National Technical Committee for Hydric Soils, are "soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions." Two soil types are mapped within and adjacent to the Site:

- 10082 Arisburg-Urban land complex, 1 to 5 percent slopes
- 10180 Udarents-Urban land-Sampsel complex, 2 to 5 percent slopes

The Arisburg-Urban land complex is considered slightly hydric (three percent) by the NRCS.

4.0 FIELD CONDITION SUMMARY

UES conducted field surveys with data collection at the Site on April 24-25, 2024. According to the National Oceanic and Atmospheric Association, approximately 0.99 inches of precipitation fell during the 10 days prior to and including last day of the field visit (NOAA, 2024). Approximately two-thirds of that rainfall was recorded during the last day of the field investigation. Flowing water was observed in the intermittent stream, during both days of the Site visit.

Hardwood and scrub-shrub vegetation dominated the Site. The dominant vegetation in this study area was bush honeysuckle (*Lonicera maackii*). Scattered hardwoods in this community included pecan (*Carya illinoiensis*), hackberry (*Celtis occidentalis*), and American elm (*Ulmus americana*).

5.0 DELINEATED WATERS

Wetlands were not observed at the Site. One intermittent stream and one ephemeral stream were documented on-site. They are described in Table 1, in the Data Forms, and in Figure 7.

Table 1. Delineated Linear Features.

Feature	Type	Length (Feet)	Ordinary High-Water Width (feet)	Comments[1]
S1	Intermittent Stream	441	9	Unknown Jurisdiction
S2	Ephemeral Stream	159	2	Non-jurisdictional

[1] Jurisdiction based on the recent Sackett Ruling.

5.1 Intermittent Stream

An intermittent stream, stream S1, was documented at the Site (Figure 7). This sinuous stream corresponds with the NWI and NHD data described above. It flows from south to north in a channel composed of silt and cobble. Excessive erosion and exposed tree roots were noted within the

channel along with numerous exposed pipes or utilities throughout its stretch. The ordinary high-water mark (OHWM) was approximately nine feet wide with a depth of approximately one foot. The stream was shaded by a thick community of bush honeysuckle.

5.2 Ephemeral Stream

An ephemeral stream, Stream S2, flows into S1 in the northern portion of the Site (Figure 7). This channel showed evidence of an OHWM that was approximately two feet wide and 0.75 feet deep. The substrate was silt and a dense bush honeysuckle community shaded the entire stretch. Significant flow was not observed, but scattered pools were noted.

6.0 CONCLUSIONS

UES conducted a WOTUS delineation/determination for a proposed pedestrian bridge project in Lee's Summit, Missouri. One intermittent stream (S1) was documented. The recent Supreme Court Ruling (Sackett v. EPA) is currently re-defining the regulation of WOTUS. Under the Sackett ruling, some intermittent streams are considered jurisdictional and Stream S1 may be subject to permitting if impacted. This represents the professional opinion of UES. If intermittent stream S1 is jurisdictional and is impacted, it is likely that the project would be covered under several nationwide permits. If this stream is not impacted, then a Section 404 permit from the USACE would not be required.

Stream S2 is an ephemeral stream and under the Sackett Ruling, ephemeral streams are not jurisdictional and do not require permits for their impacts. During this time of regulatory transition, consultation with the USACE is recommended if any part of these streams are impacted.

7.0 REFERENCES

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FIGURES

Legend

Site

N

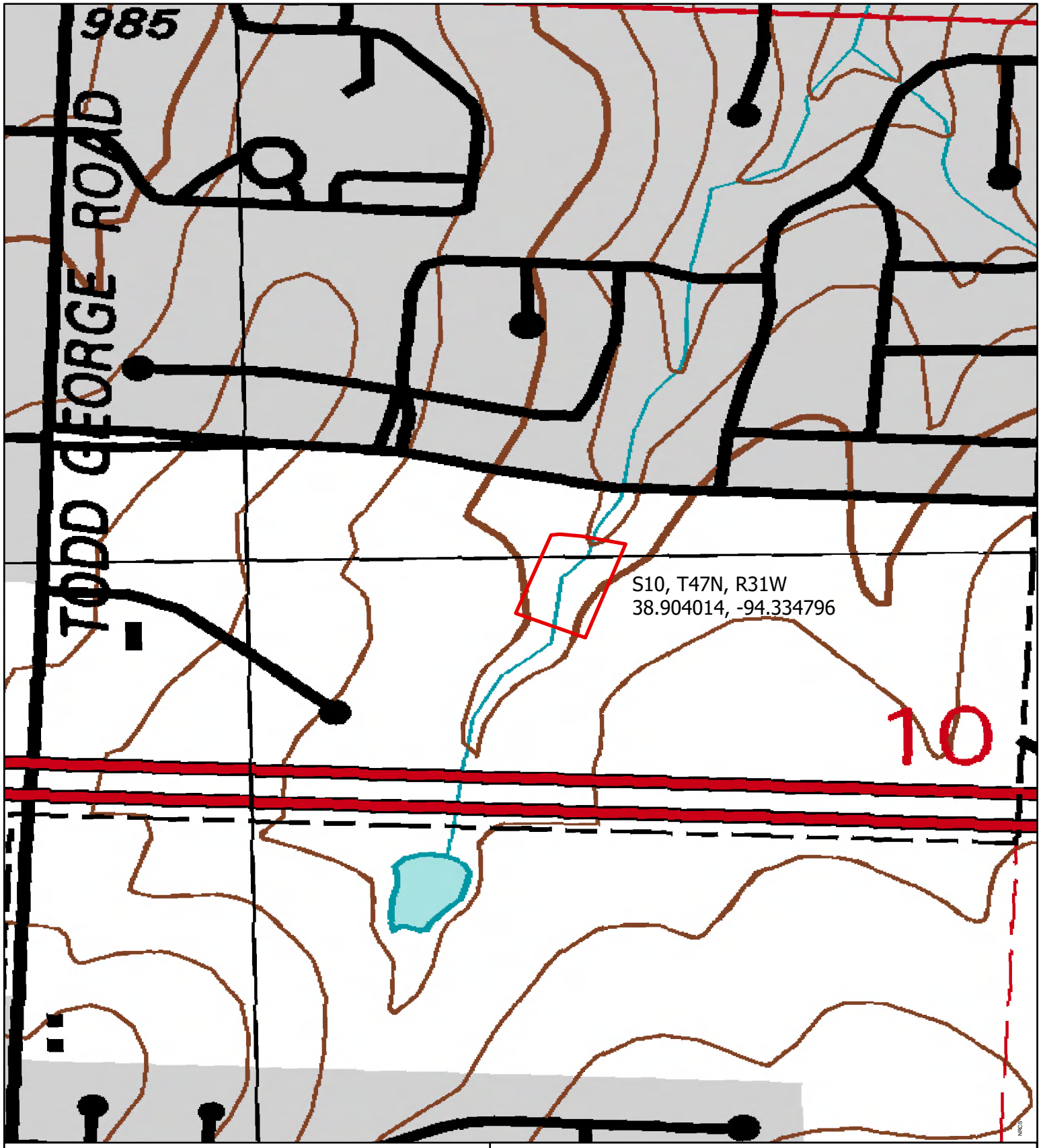
0 250 500 1,000 Feet

FIGURE 1. LOCATION MAP
PROPOSED PEDESTRIAN BRIDGE
LEE'S SUMMIT MEDICAL CENTER
2100 SE BLUE PARKWAY
LEE'S SUMMIT, MISSOURI 64063

Project Number: J045666.01

UES

Drawn by: JMF	Ch'd By: MSR	App'vd By: JMF
Date: 04/29/2024	Date: 05/02/2024	Date: 05/02/2024



Legend

Site

N

0 250 500 1,000 Feet

FIGURE 2. TOPOGRAPHIC MAP
PROPOSED PEDESTRIAN BRIDGE
LEE'S SUMMIT MEDICAL CENTER
2100 SE BLUE PARKWAY
LEE'S SUMMIT, MISSOURI 64063

Project Number: J045666.01

UES

Drawn by: JMF	Ch'd By: MSR	App'vd By: JMF
Date: 04/29/2024	Date: 05/02/2024	Date: 05/02/2024

Legend

Site

N

0 50 100 200

Feet

FIGURE 3. AERIAL MAP
PROPOSED PEDESTRIAN BRIDGE
LEE'S SUMMIT MEDICAL CENTER
2100 SE BLUE PARKWAY
LEE'S SUMMIT, MISSOURI 64063

Project Number: J045666.01

UES

Drawn by: JMF	Ch'd By: MSR	App'vd By: JMF
Date: 04/29/2024	Date: 05/02/2024	Date: 05/02/2024

Legend

- Site
- NWI Riverine Wetland
- NHD Intermittent Stream

0 50 100 200 300 Feet

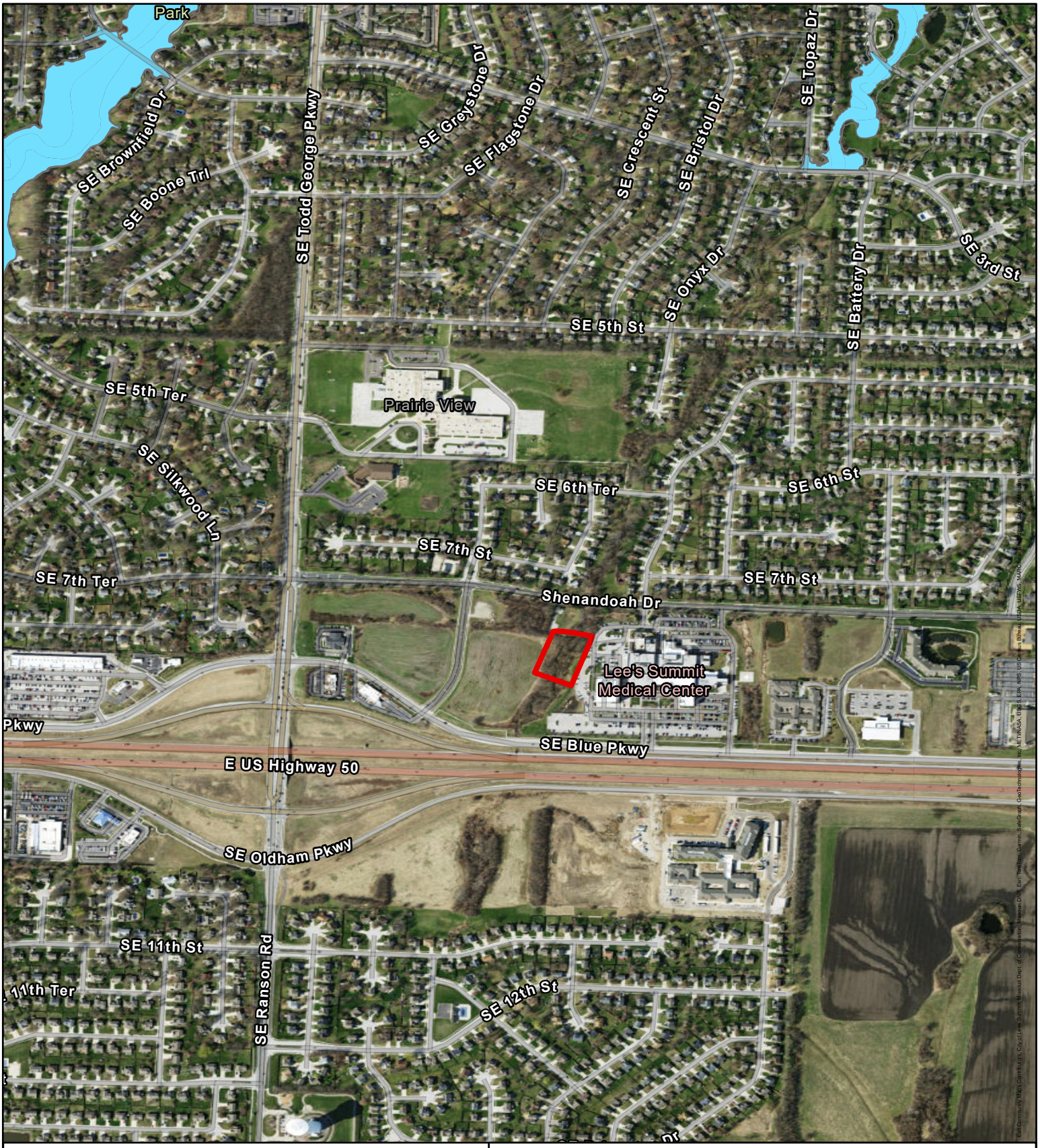
N

FIGURE 4. NATIONAL WETLAND INVENTORY
AND NATIONAL HYDROGRAPHY DATA
PROPOSED PEDESTRIAN BRIDGE
LEE'S SUMMIT MEDICAL CENTER
2100 SE BLUE PARKWAY
LEE'S SUMMIT, MISSOURI 64063

Project Number: J045666.01

UES

Drawn by: JMF	Ch'd By: MSR	App'vd By: JMF
Date: 04/29/2024	Date: 05/02/2024	Date: 05/02/2024



Legend

- Site
- 100 Year (1%) Flood Zone
  Firm Panel 29095C0439G

0 250 500 1,000 1,500 2,000 Feet

N

FIGURE 5. FEMA NATIONAL FLOOD HAZARD LAYER
PROPOSED PEDESTRIAN BRDIGE
LEE'S SUMMIT MEDICAL CENTER
2100 SE BLUE PARKWAY
LEE'S SUMMIT, MISSOURI 64063

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Drawn by: JMF	Ch'd By: MSR	App'vd By: JMF
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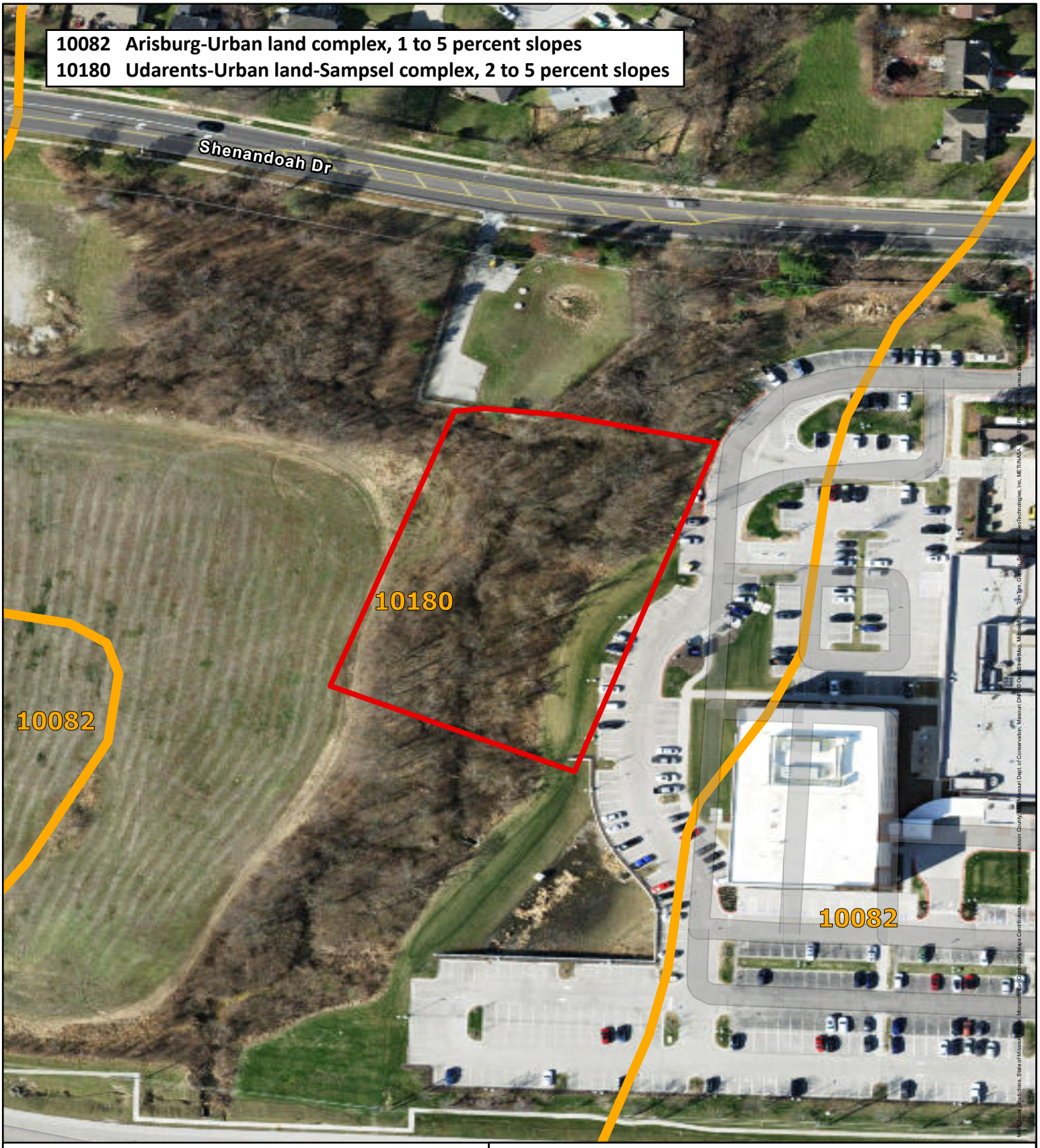


Legend

- Site
- NRCS SOILS

N

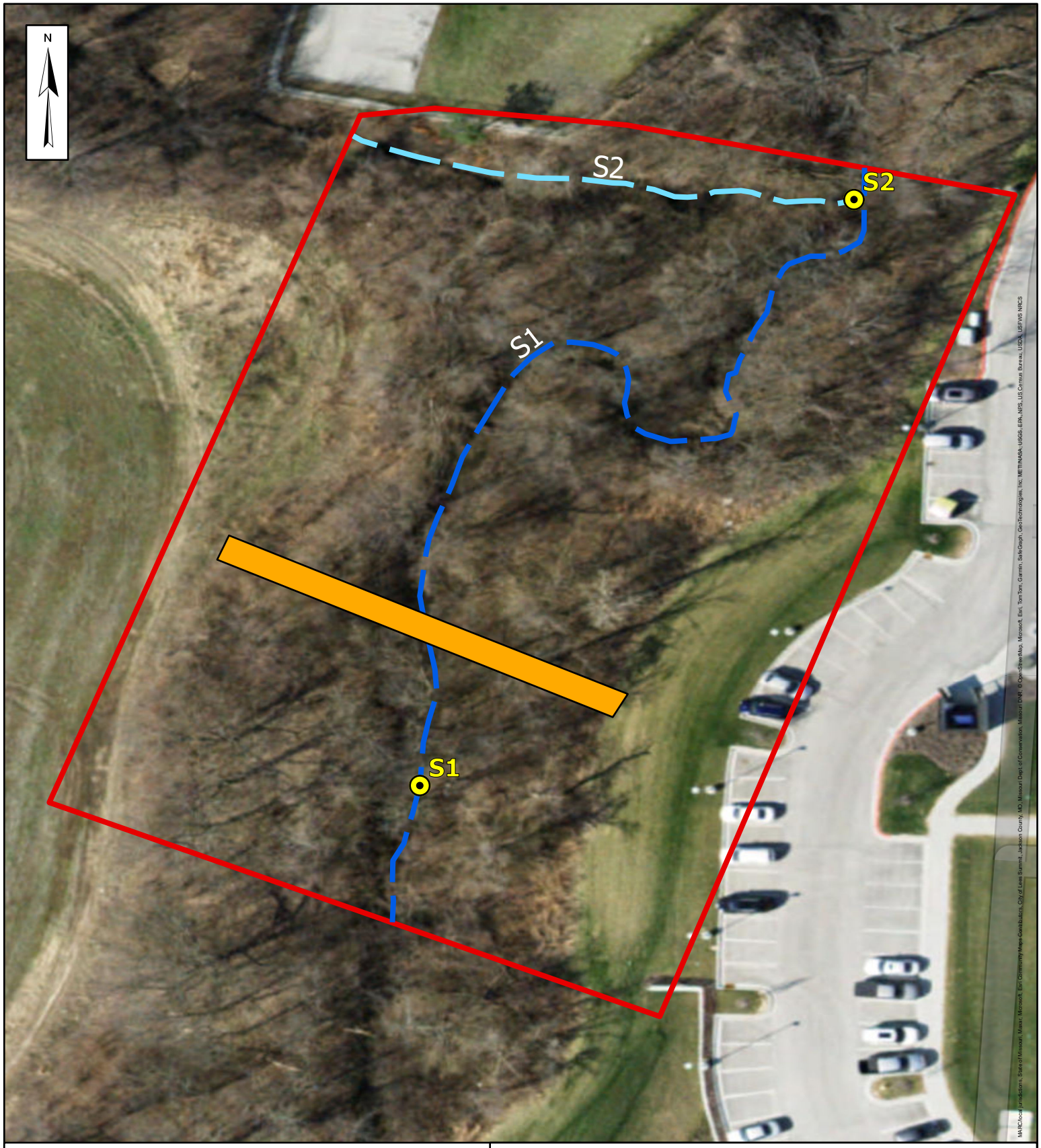
0 50 100 200 300 Feet

FIGURE 6. NRCS SOILS
PROPOSED PEDESTRIAN BRIDGE
LEE'S SUMMIT MEDICAL CENTER
2100 SE BLUE PARKWAY
LEE'S SUMMIT, MISSOURI 64063

Project Number: J045666.01

UES

Drawn by: JMF	Ch'd By: MSR	App'vd By: JMF
Date: 04/29/2024	Date: 05/02/2024	Date: 05/02/2024



Legend

- Site
- Ephemeral Stream
- Intermittent Stream
- Sample Points
- Proposed Bridge

0 50 100 Feet

FIGURE 7. DELINEATED WATERS
PROPOSED PEDESTRIAN BRIDGE
LEE'S SUMMIT MEDICAL CENTER
2100 SE BLUE PARKWAY
LEE'S SUMMIT, MISSOURI 64063

Project Number: J045666.01

UES

Drawn by: JMF	Ch'd By: MSR	App'vd By: JMF
Date: 04/29/2024	Date: 05/02/2024	Date: 05/02/2024

APPENDIX A

DATA FORMS

LINEAR FEATURE DATA FORM

Feature: S1	**Project:** Proposed Pedestrian Bridge	**Project #:** J045666.01	**Date:** 4/24/2024
Location: Lee's Summit Medical Center (38.904062, -94.334745)		**County:** Jackson	**State:** Missouri

Type:
- perennial stream
- ✓ intermittent stream
- ephemeral stream
- gully/draw
- other:

Substrate:
- ✓ silt
- sand
- gravel
- cobble
- bedrock
- artificial:
- other:

Feature Type Rationale:
Well developed channel, stream flow, indicated by NHD data.

Hydrology:
- ✓ flowing
- standing
- none
- other:

Buffer Type:
- ✓ forested
- ✓ scrub-shrub
- herbaceous
- agricultural
- other:

Genesis:
- ✓ natural
- artificial

Water Quality:
- ✓ clear
- turbid
- oily
- other:

Characteristics:
- ✓ exposed tree roots
- vegetated banks
- ✓ excessive erosion
- oxbow
- pools
- disappearing
- ✓ steep slopes
- incised
- bank collapse
- riffles
- other:

OHWM: ✓ present absent

Geometry:
- ✓ straight
- meandering

OHWM Characteristics:
- N/A
- ✓ line on bank
- shelving
- vegetation (%)
- other:

Buffer Vegetation:
Pecan, bush honeysuckle.

N/W Buffer Width (ft.)

S/E Buffer Width (ft.)

OHWM Width (ft.) 9.0

OHWM Depth (ft.) 1.0

Jurisdictional: Unknown.

Reason:
Under the Sackett Guidance, some intermittent streams are jurisdictional and some are not. Further coordination with the U.S. Army Corps of Engineers may be needed to determine jurisdictionality.

Comments:
If this stream is spanned and not impacted, no Section 404 permit will likely be needed.

View looking south (upstream).

View looking north (downstream).

LINEAR FEATURE DATA FORM

Feature: S2	**Project:** Proposed Pedestrian Bridge	**Project #:** J045366.01	**Date:** 4/25/2024
Location: Lee's Summit Medical Center. (38.904383, -94.334716)		**County:** Jackson	**State:** Missouri

Type:
- perennial stream
- intermittent stream
- ✓ ephemeral stream
- gully/draw
- other:

Substrate:
- ✓ silt
- sand
- gravel
- cobble
- bedrock
- artificial:
- other:

Feature Type Rationale:
No flow, poorly developed.

Buffer Type:
- forested
- ✓ scrub-shrub
- herbaceous
- agricultural
- other:

Hydrology:
- flowing
- ✓ standing
- none
- other:

Genesis:
- ✓ natural
- artificial

Water Quality:
- ✓ clear
- turbid
- oily
- other:

Characteristics:
- ✓ exposed tree roots
- ✓ vegetated banks
- excessive erosion
- oxbow
- pools
- disappearing
- steep slopes
- incised
- bank collapse
- riffles
- other:

OHWM: ✓ present / absent

Geometry:
- ✓ straight
- meandering

OHWM Characteristics:
- N/A
- ✓ line on bank
- shelving
- vegetation (%)
- other:

Buffer Vegetation:

N/W Buffer Width (ft.) 100+

S/E Buffer Width (ft.) 100+

OHWM Width (ft.) 2.0

OHWM Depth (ft.) 0.75

Jurisdictional: No

Reason:
Under the Sackett Guidance, ephemeral streams are not jurisdictional.

Comments:

View looking west (upstream).

View looking east (downstream) at it's nexus with S1 (background).

APPENDIX B

SITE PHOTOGRAPHS

Project Name:	Site Location:	Project Number
Proposed Pedestrian Bridge	Lee's Summit Medical Center	J045666.01

View looking south at an existing cement bridge south of the proposed location of the pedestrian bridge.

View north of maintained landscaping east of Stream S1.

View looking west of the dense bush honeysuckle bracketing Stream S1.

View north of riparian vegetation adjacent to Stream S1.

APPENDIX C

REPORT LIMITATIONS

WETLANDS DELINEATION
REPORT LIMITATIONS

1. This report has been prepared on behalf of and for the exclusive use of the addressee, solely for use in a wetland delineation of the site. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, nor used by any other party in whole or in part, without the prior written consent of UES. Unless other contractual agreements were made, the services described in this report were carried out in accordance with the Terms for UES' Services which accompanied the proposal.

2. The delineation provided herein is based upon our research and observations during site reconnaissance. Our findings have been prepared for the client solely for a wetland delineation of the project site. This report may be used as part of a submittal to the United States Army Corps of Engineers (USACE) for confirmation of permit status. UES is not responsible for independent conclusions or recommendations made by others. The USACE has final authority deciding whether the proposed activities associated with planned development require permits. Our delineation and recommendations do not supersede any decision made by the USACE.

3. This delineation was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same geographical area, and UES observed that degree of care and skill generally exercised by other consultants under similar circumstances and conditions. The findings and conclusions stated herein must be considered not as scientific certainties, but rather as professional opinions concerning the significance of the limited data gathered during the course of the wetland delineation. No other warranties, expressed or implied, are made. Specifically, UES does not and cannot represent that the site contains no wetlands or other jurisdictional waterbodies beyond that observed by UES during its site assessment.

4. The observations described in this report were made under the conditions stated therein. The conclusions presented in the report were based solely upon the services described therein, and not on scientific tasks or procedure beyond the scope of described services. Furthermore, such conclusions are based solely on-site condition, and rules and regulations, which were in effect, at the time of the study.

5. In preparing this report, UES has relied on certain information provided by state and local officials and other parties referenced therein, and on information contained in the files of state and/or local agencies available to UES at the time of the site assessment. Although there may have been some degree of overlap in the information provided by these various sources, an attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this site assessment was not made.

6. In the event that information is developed relative to wetlands issues at the site and not contained in this report, such information shall be brought to UES' attention. UES will evaluate such information and, on the basis of this evaluation, may modify the conclusions stated in this Report.

7. The purpose of this Report was to present the results of a wetland delineation performed in substantial conformance with the 2012 USACE Midwest Regional Supplement (Version 2.0) to the Routine Method presented in the 1987 Federal Wetlands Delineation Manual (Environmental Laboratory, 1987), or other superseding local requirements. No specific attempt was made to check on the compliance of present or past owners or operators of the site with federal, state, or local laws and regulations, environmental or otherwise.