



March 21, 2019

Granger, Thagard & Associates, Inc.
1806 Oxmoor Road
Birmingham, AL 5209

ATTENTION: Mr. Jack Granger

SUBJECT: Waters of the United States Desktop Assessment
Bowtie Parcel
Birmingham, Jefferson County, Alabama
Project No. 1141-009-30

Via email to: gtabham@yahoo.com

Dear Jack,

Spectrum Environmental, Inc. (Spectrum) has completed a desktop assessment of potential Waters of the United States (WOTUS) for the above referenced property (Survey Area). Spectrum's work has been conducted in general accordance with the approved Scope of Work.

Jurisdictional Evaluation

General Observations

The Survey Area encompasses ± 63 acres and is near the southwestern intersection of Interstate 459 and Highway 280 in Birmingham and Vestavia, Jefferson County, Alabama. The Survey Area is located just south of the Summit shopping center and is centered at Latitude 33.440818° North and Longitude - 86.738967° West (Figure 1).

Desktop Assessment Methods

A Spectrum Biologist conducted a desktop assessment of the Survey Area using United States Geological Survey (USGS) Topographic maps (Figure 2), aerial depictions of the property (Figure 3), and a review of the United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) dataset (Figure 4). Additionally, site soil maps and soil data collected from the Natural Resources Conservation Service - Web Soil Survey website (NRCS-WSS) (Figure 5) were utilized to establish background information and

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to map the potential WOTUS features. This review allowed for preliminary identification of potential wetlands and/or other WOTUS features and provided an understanding of the geology, land use, and general physiography of the site.

The near surface geology consists of upper and lower Pottsville Formation (Pennsylvanian). The upper Pottsville Formation is described as interbedded dark-gray shale, siltstone, medium-gray sandstone and coal in cyclic sequences. The lower Pottsville formation is described as light-gray thick-bedded to massive pebbly quartzose sandstone, containing varying amounts of interbedded dark-gray shale, siltstone, and thin discontinuous coal (Szabo, M.W. et al.) as shown in Figure 6.

Findings

Potential Waterbodies

Spectrum's Biologist identified one (1) mapped stream (S8) and eight (8) inferred stream segments within the Survey Area (Figures 7a-7d).

A summary of the findings is listed in the table below:

Site ID	Latitude (decimal degrees)	Longitude (decimal degrees)	Linear Feet/Acres
S1	33.444501	-86.738464	757
S2	33.445104	-86.738589	268
S3	33.444901	-86.737448	420
S4	33.445132	-86.736634	217
S5	33.443919	-86.738845	538
S6	33.443373	-86.739011	515
S7	33.439101	-86.739311	1617
S8	33.438029	-86.739311	2204
S9	33.436457	-86.740798	188

Conclusions and Recommendations

The Survey Area potentially contains 2,204 linear feet (LF) of a mapped stream and an estimated 4,520 LF of inferred stream segments.


It is important to note that this report is a desktop assessment. Spectrum recommends conducting a jurisdictional site evaluation in order to confirm the location and/or presence of the above inferred streams prior to any project work.

Spectrum appreciates the opportunity to work with you on this project and encourages you to contact me at bmaier@specenviro.com or at 205-651-0866 should you have any questions or need additional assistance.

Sincerely,

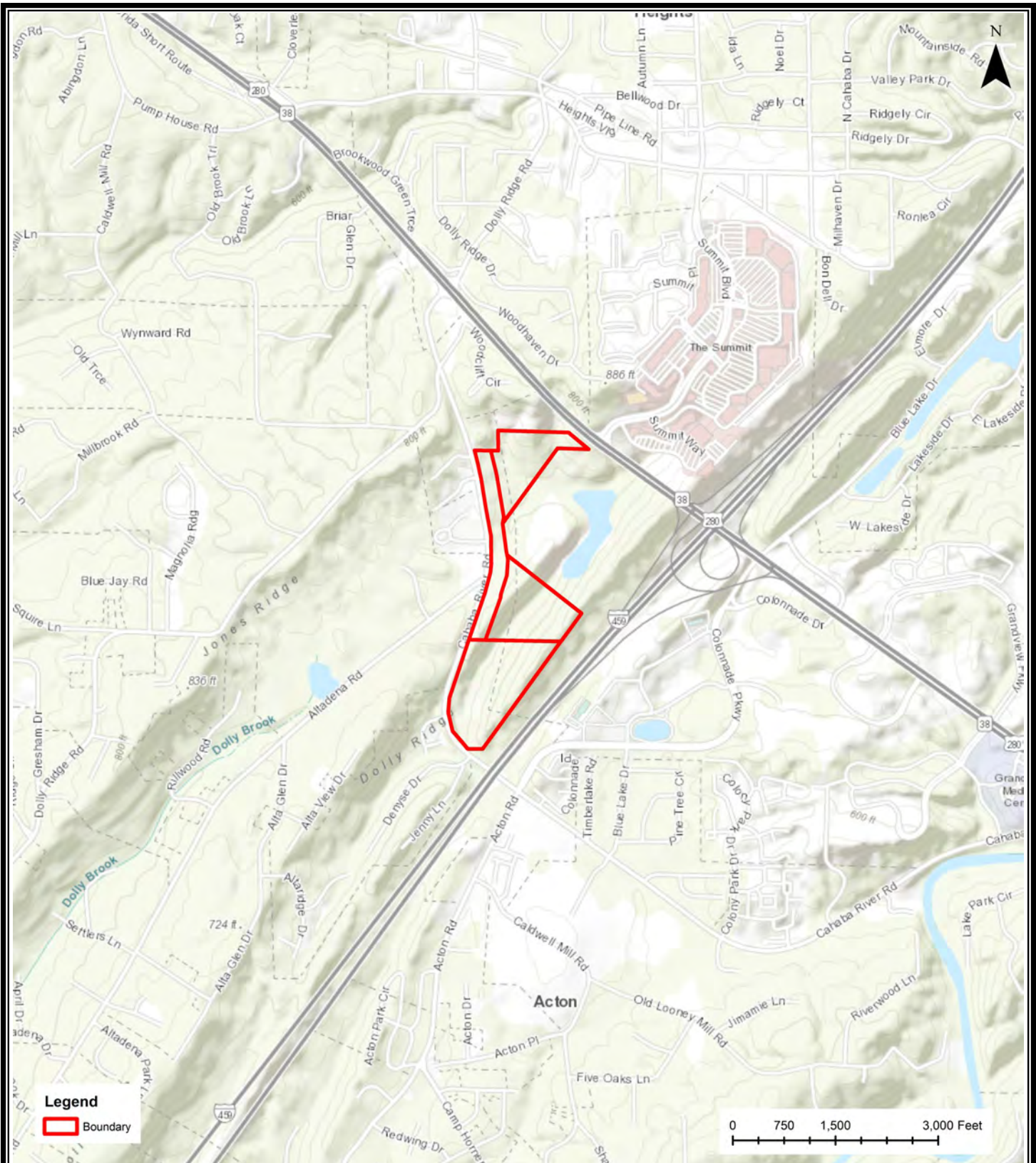
SPECTRUM ENVIRONMENTAL, INC.


Bailey Maier
Staff Biologist


Stephen F. Castleman, ALPG #338
President

Attachments: Figures

FIGURES



Source: Image courtesy of ESRI.

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Figure 1 — Site Location Map Granger, Thagard & Associates, Inc. Bow Tie Parcel WOTUS Birmingham, AL



Source: Image courtesy of ESRI.

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Figure 2 — Site Location Map (Topo) Granger, Thagard & Associates, Inc. Bow Tie Parcel WOTUS Birmingham, AL



Source: Image courtesy of ESRI.

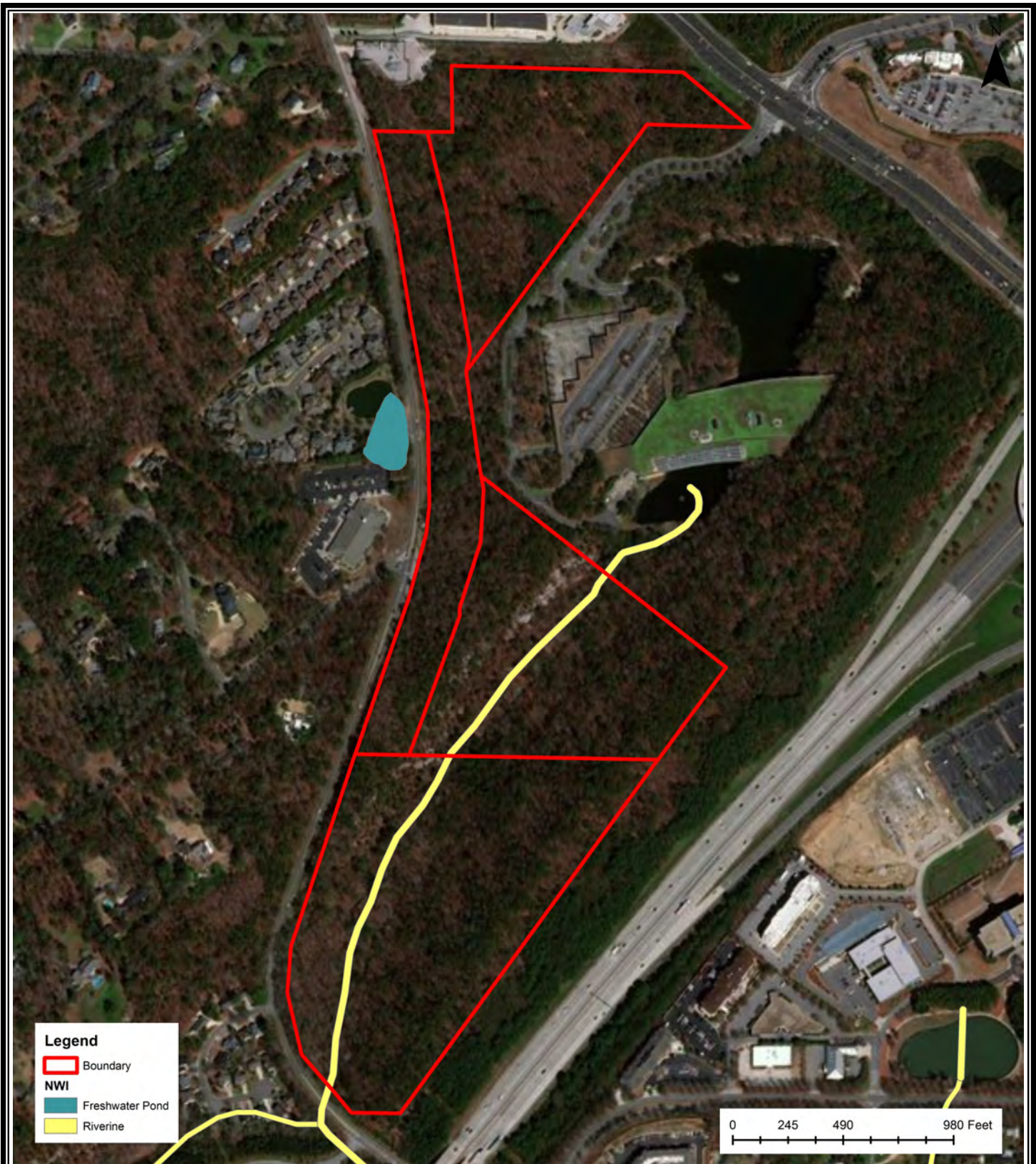
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Figure 3 — Site Location Map (Aerial) Granger, Thagard & Associates, Inc. Bow Tie Parcel WOTUS Birmingham, AL



Source: Image courtesy of National Wetland Survey.

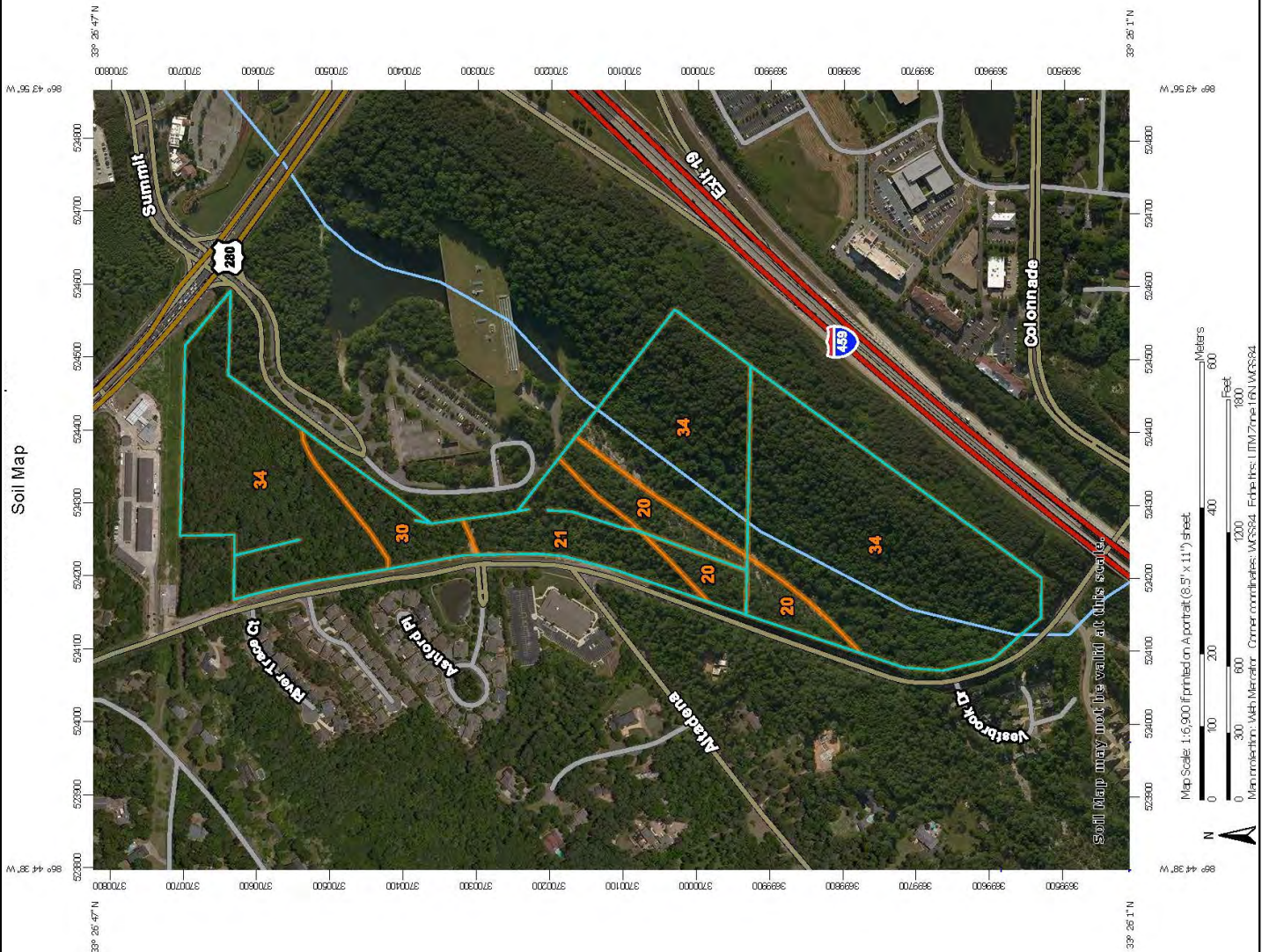
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Figure 4 — NWI Map Granger, Thagard & Associates, Inc. Bow Tie Parcel WOTUS Birmingham, AL



Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
20	Gorgas-Rock outcrop complex, steep	6.2	9.9%
21	Gorgas-Rock outcrop-Urban land complex, 8 to 15 percent slopes	5.6	8.9%
30	Nauvoo fine sandy loam, 2 to 8 percent slopes	3.4	5.5%
34	Nauvoo-Montevallo association, 10 to 40 percent slopes	47.6	75.7%
Totals for Area of Interest		62.9	100.0%

Source: Image courtesy of Web Soil Survey.

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Figure 5 — Site Soils Map Granger, Thagard & Associates, Inc. Bow Tie Parcel WOTUS Birmingham, AL

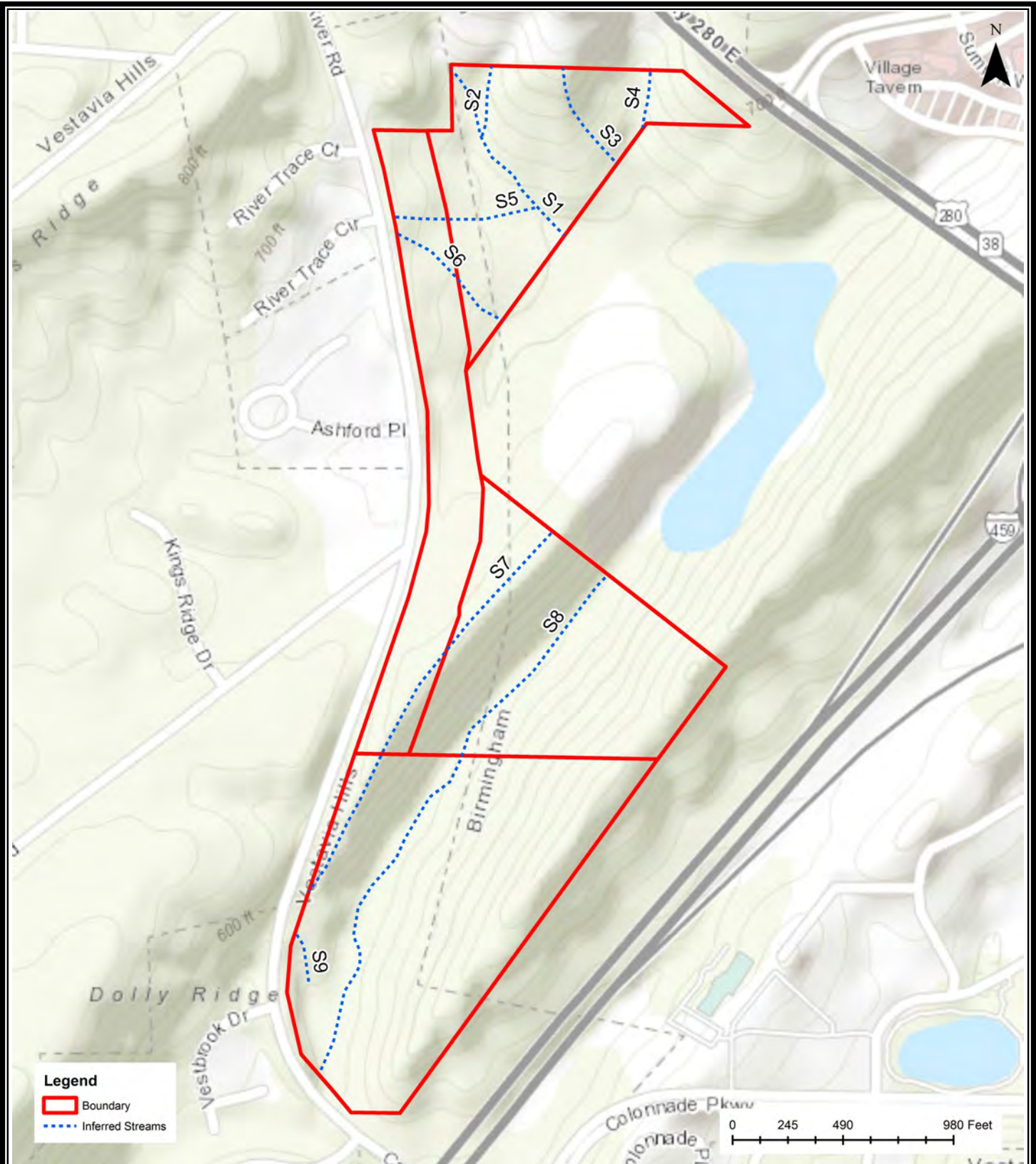


Source: Image courtesy of ESRI.

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Figure 6 — Site Geologic Map Granger, Thagard & Associates, Inc. Bow Tie Parcel WOTUS Birmingham, AL

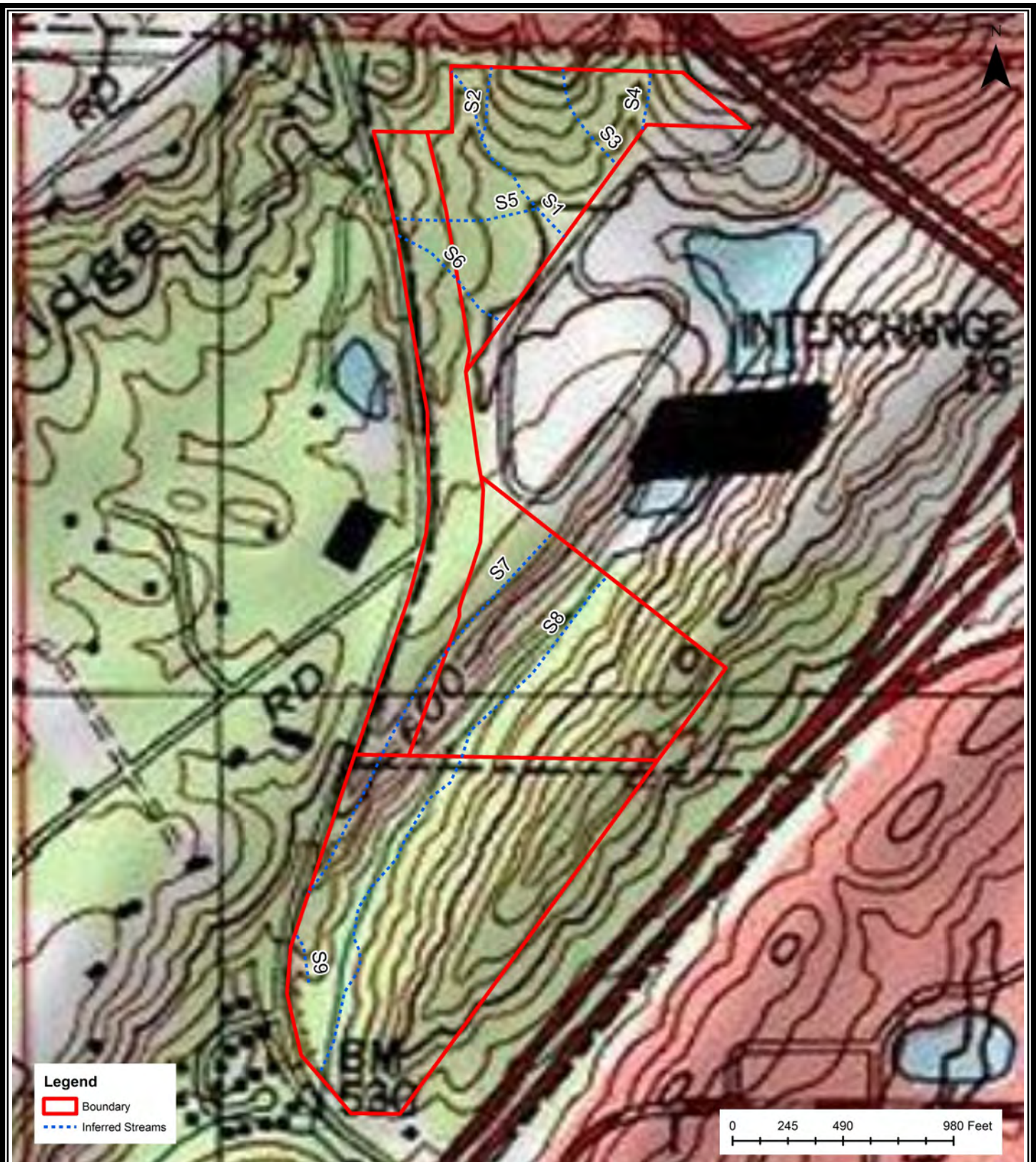


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Figure 7a — Site Delineation Overview Map (Topo) Granger, Thagard & Associates, Inc. Bow Tie Parcel WOTUS Birmingham, AL



Source: Image courtesy of ESRI.

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Figure 7b — Site Delineation Overview Map (USGS Topo) Granger, Thagard & Associates, Inc. Bow Tie Parcel WOTUS Birmingham, AL



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Figure 7c — Site Delineation Overview Map (Aerial) Granger, Thagard & Associates, Inc. Bow Tie Parcel WOTUS Birmingham, AL

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Figure 7d — Site Delineation Overview Granger, Thagard & Associates, Inc. Bow Tie Parcel WOTUS Birmingham, AL