

Auburn University
Jordan Hare Stadium
Geotechnical Projects

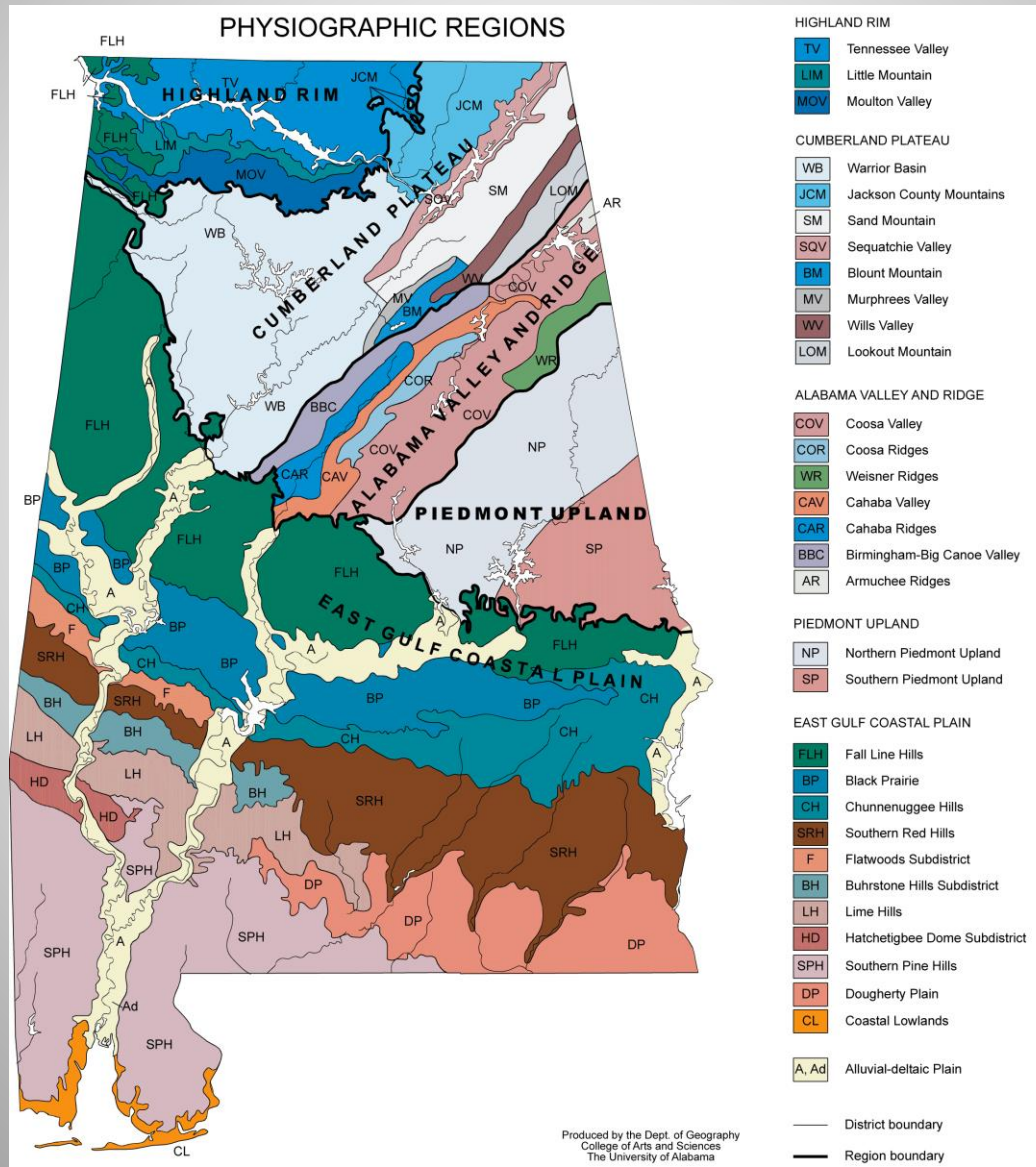
ASCE December 2017

Presented by: Kevin M. Blake P.E.

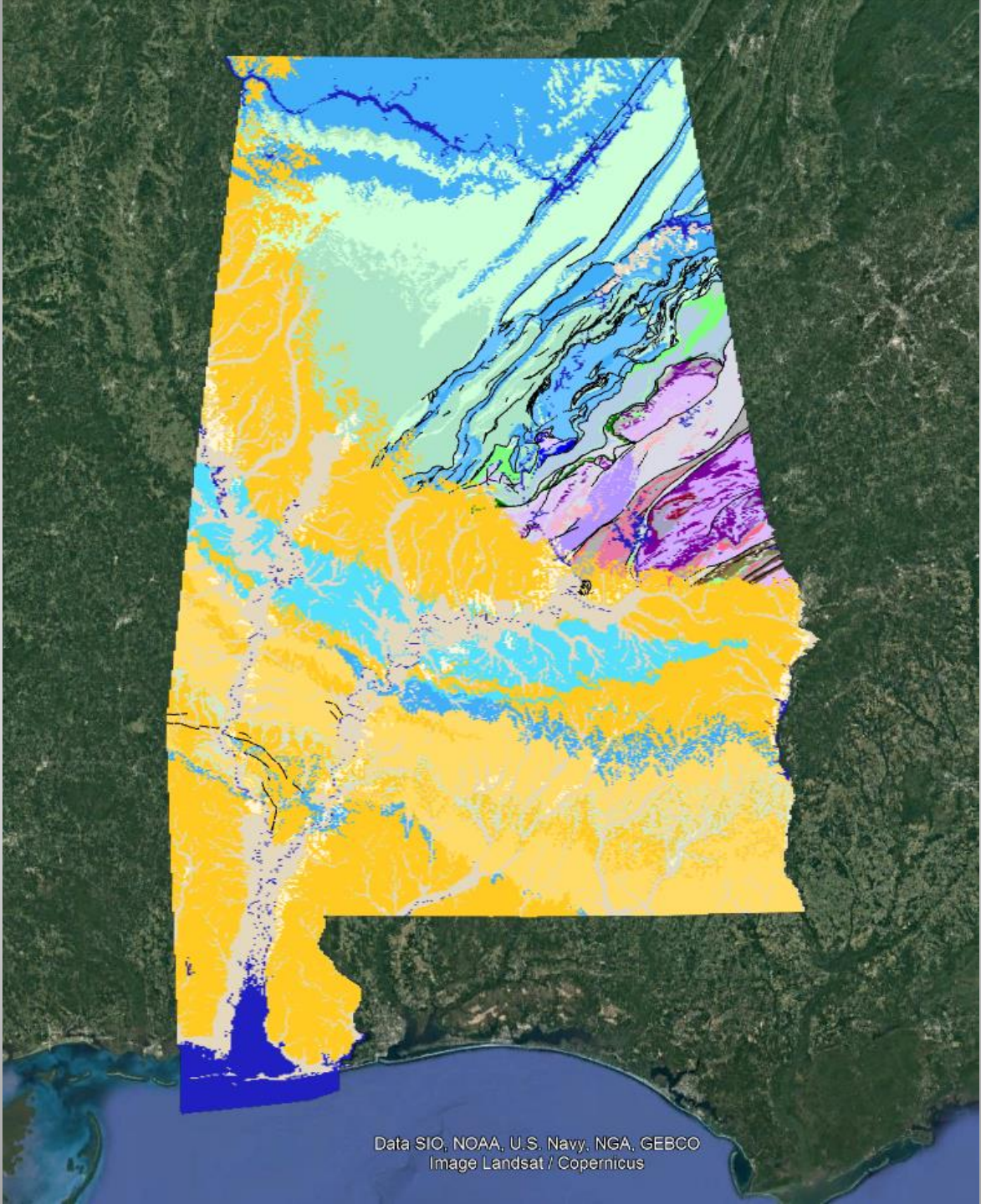
TTL



Alabama Physiographic Regions



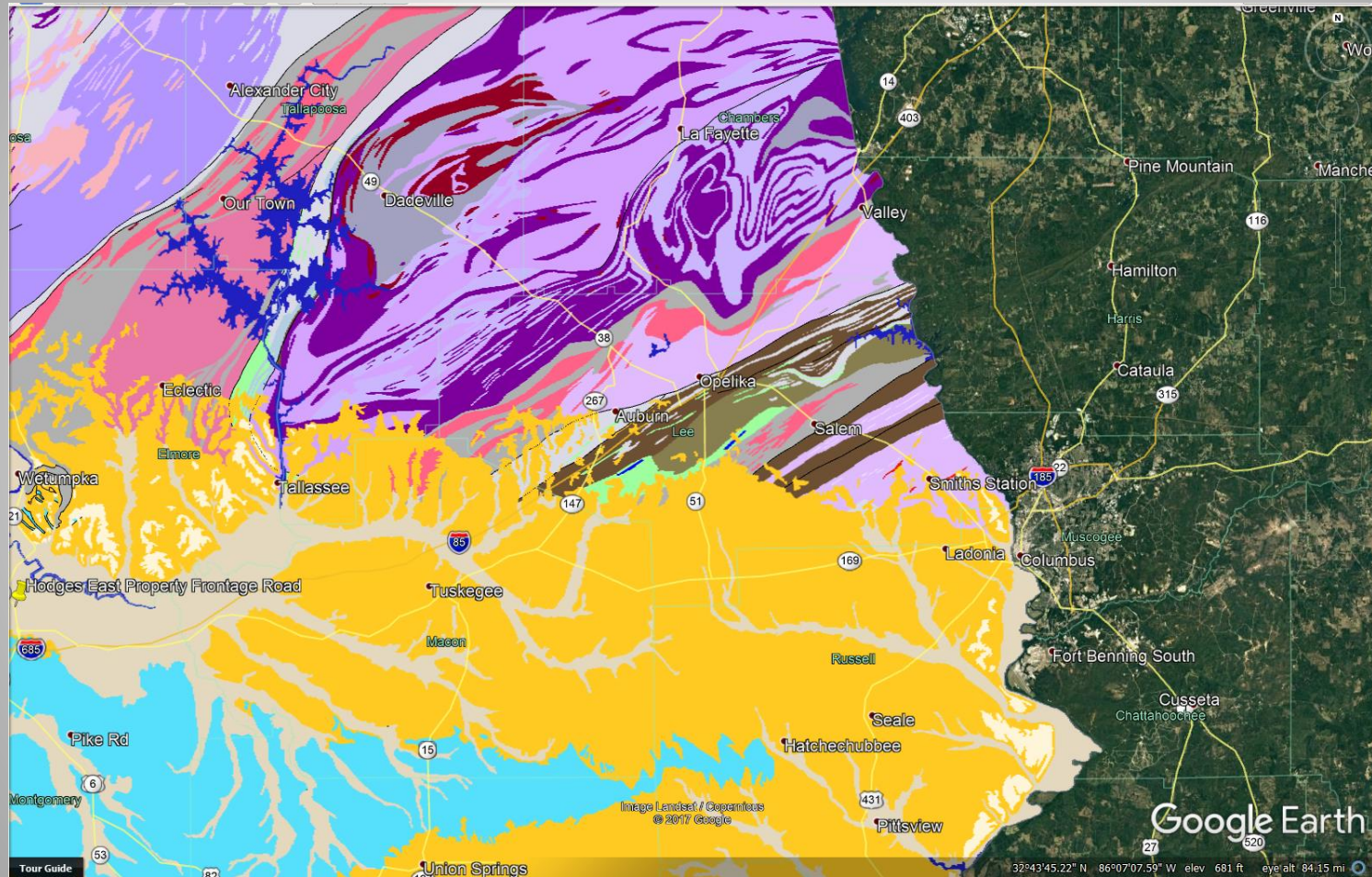
TTL



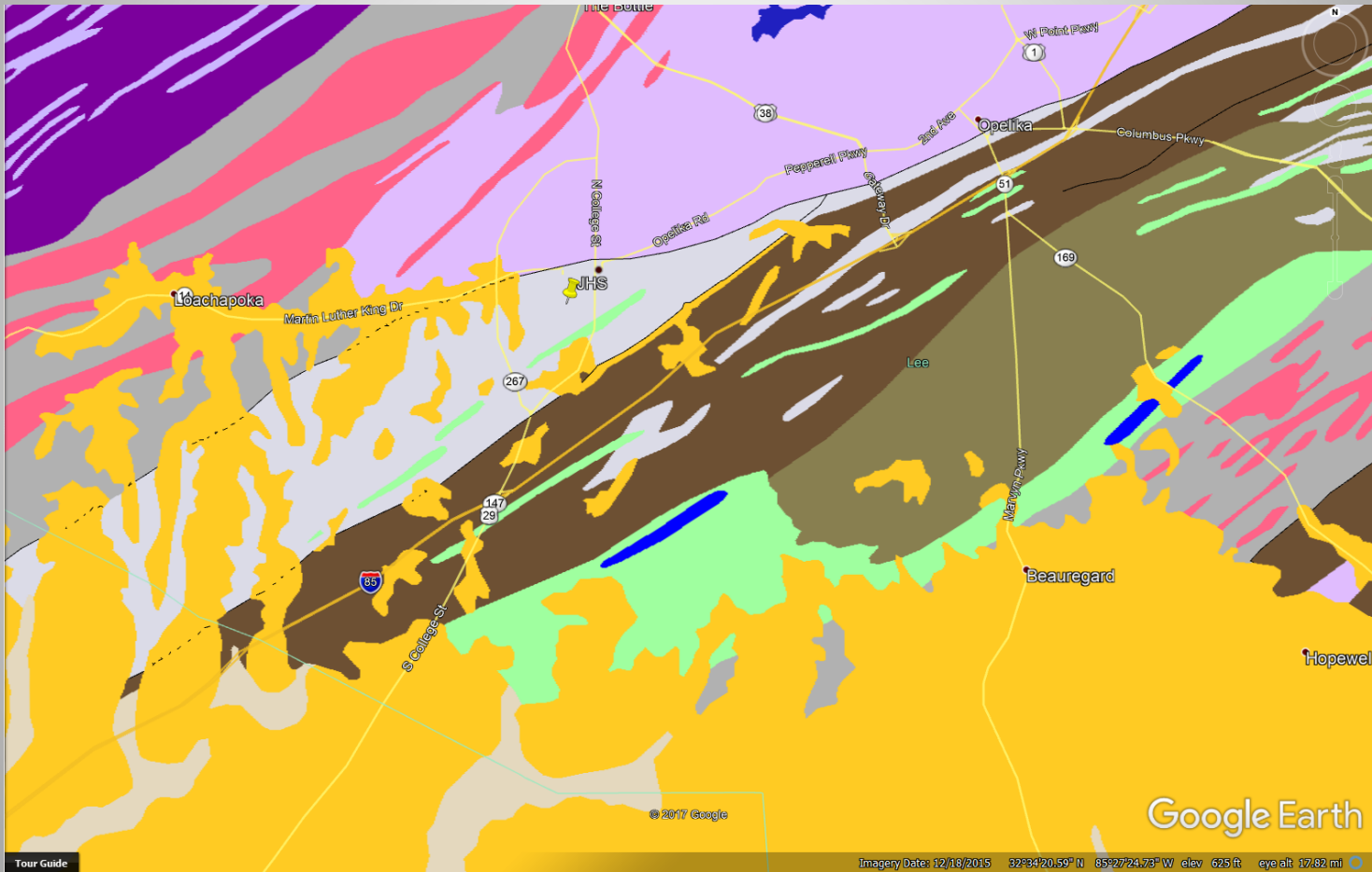
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus

TTL

Geology of East Alabama



Auburn Geology



Cliff Hare Stadium 1939 to 1949

JORDAN-HARE STADIUM

1939



Construction of Auburn Stadium began in 1939. A grandstand was erected on the west sidelines in time for the season finale against Florida.

1949



Cliff Hare Stadium was officially dedicated in 1949 when 14,000 seats were added on the east sidelines which raised the capacity to 21,290.

Cliff Hare Stadium – 1940's



TTL

Cliff Hare Stadium – 1950's



TTL

Cliff Hare Stadium – 1960's



TTL

Cliff Hare Stadium – 1960's



TTL

JHS - 1970's



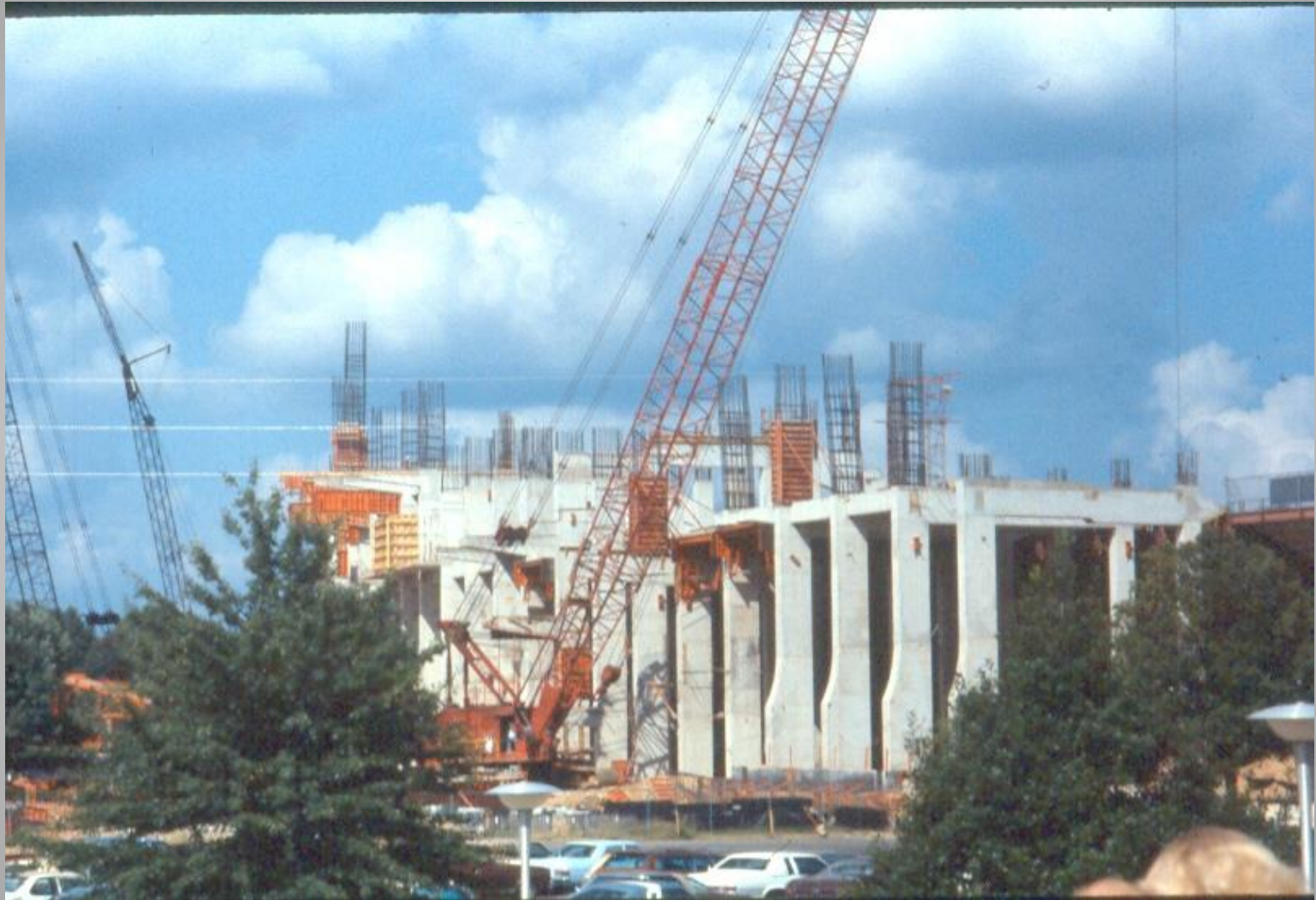
TTL

West Upper Deck Expansion - 1979



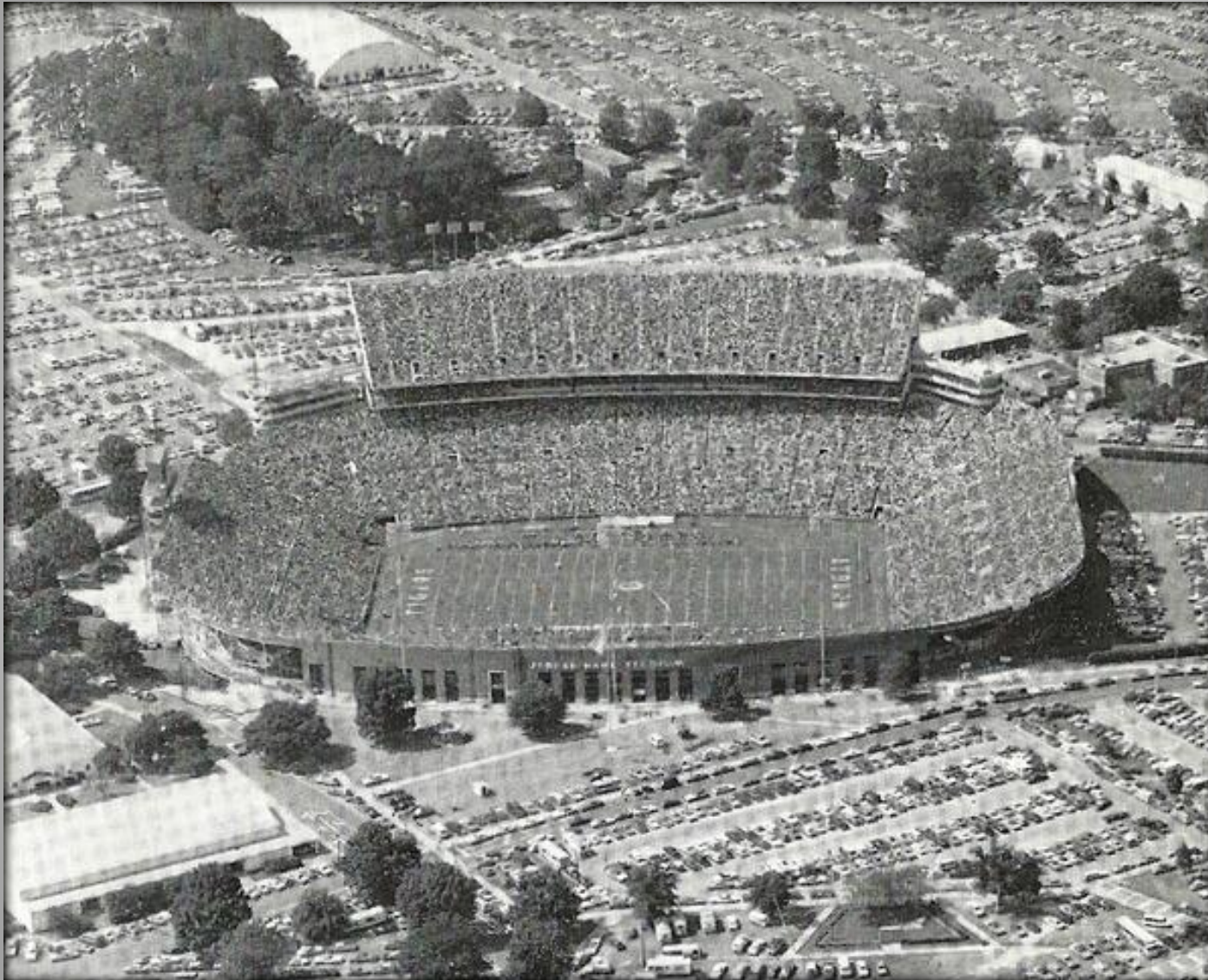
TTL

West Upper Deck Expansion - 1979



TTL

JHS - 1981



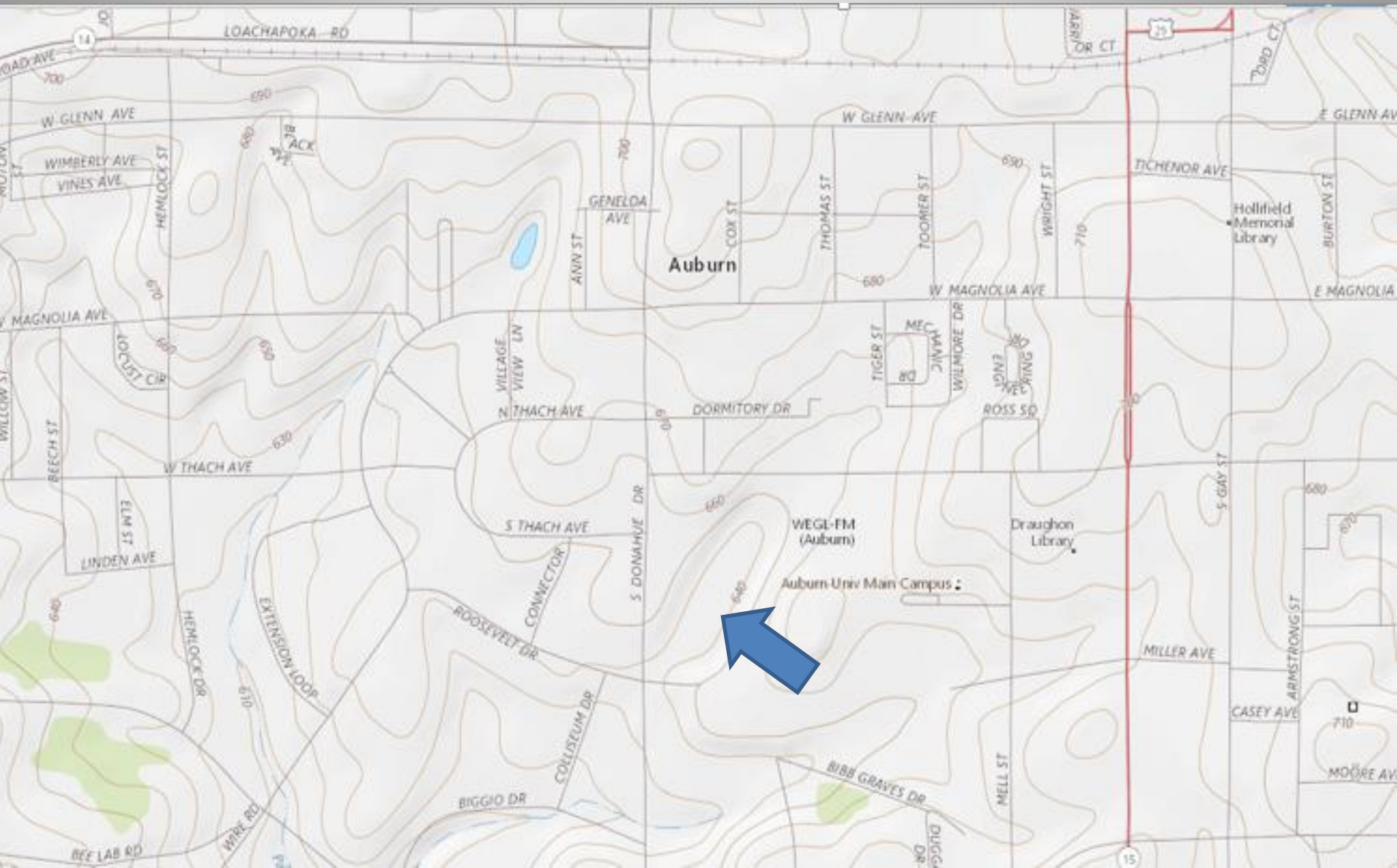
TTL

JHS - 2014

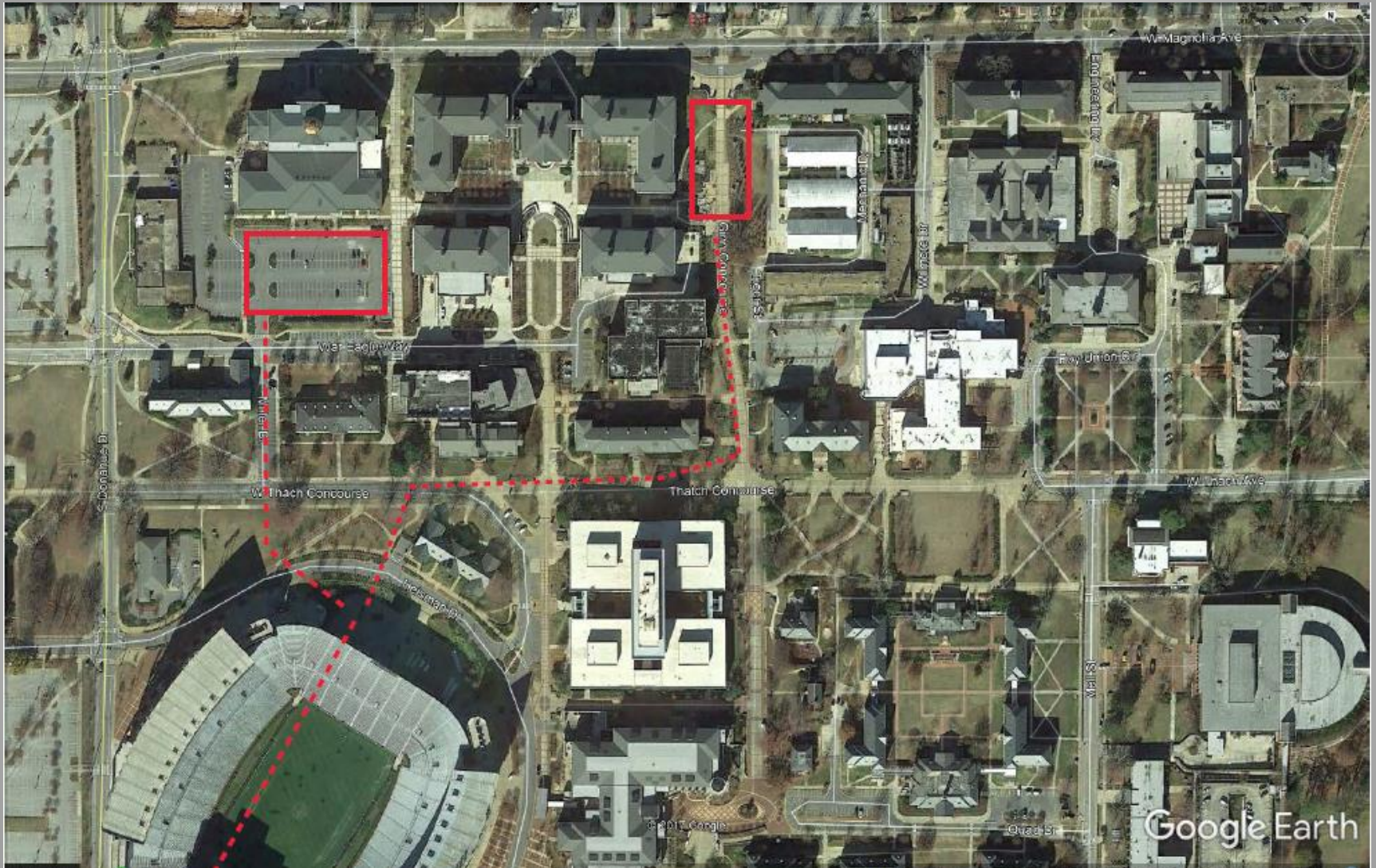


TTL

Auburn Topographic Map



Campus Map



Campus Map



1998 South End Score Board Addition



TTL

Video Board Tower

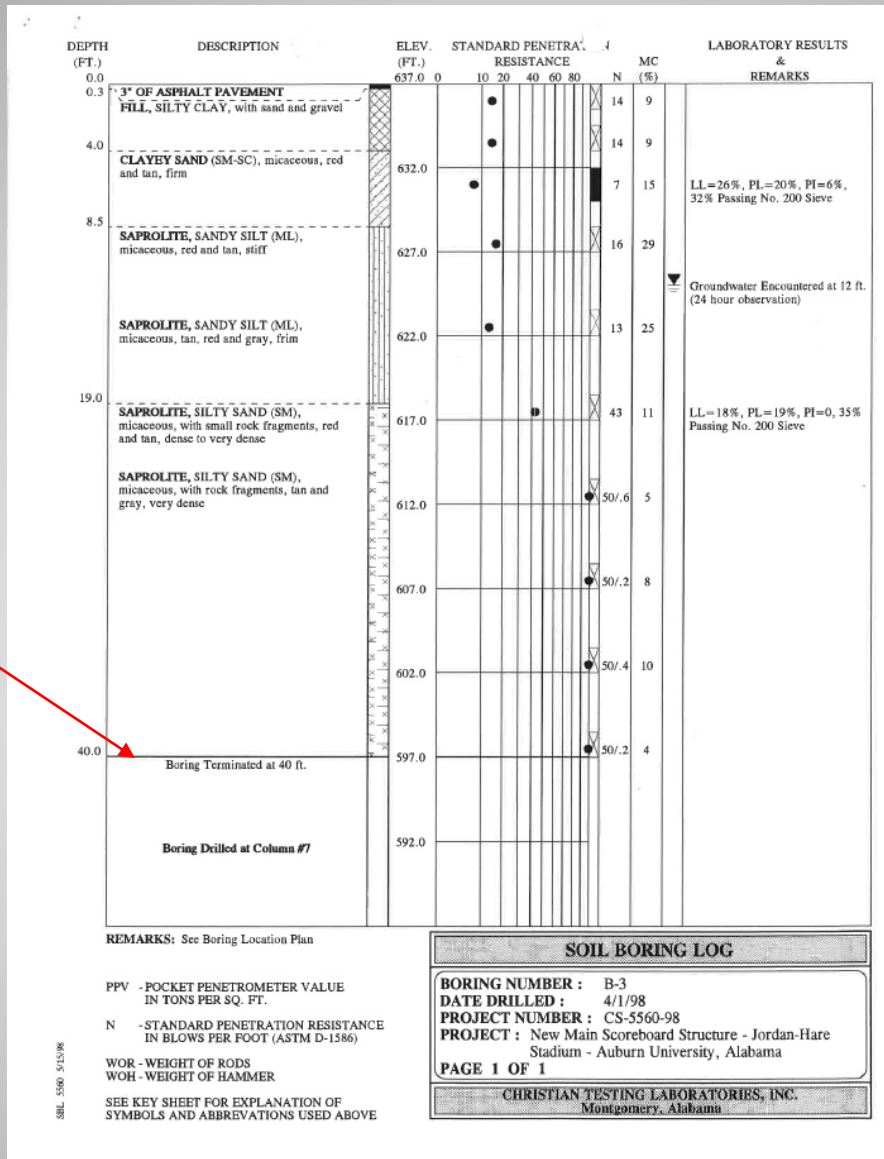


TTL

1998 South End Score Board Addition



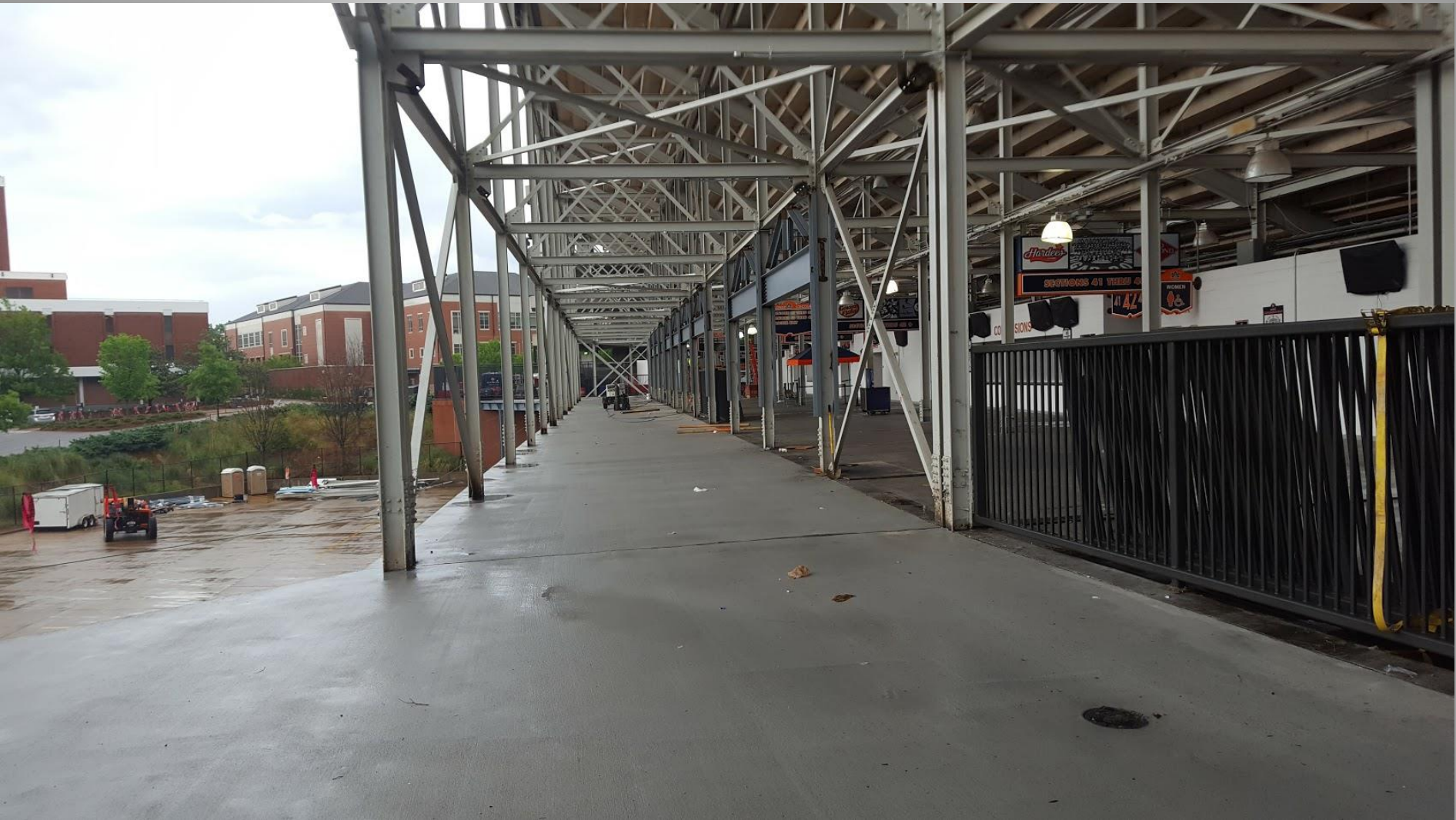
TTL



Boring Log 1998

TTL

NEZ Concourse Expansion 2012 - 2017



TTL

NEZ Concourse Expansion - 2017



TTL

NEZ Concourse Expansion Borings in 2012



TTL

NEZ Concourse Expansion Borings in 2012



TTL

NEZ Concourse Expansion Test Pits



TTL

NEZ Concourse Expansion Test Pits



TTL

South End Zone Video Board - 2016



TTL

South End Zone Video Board - 2014



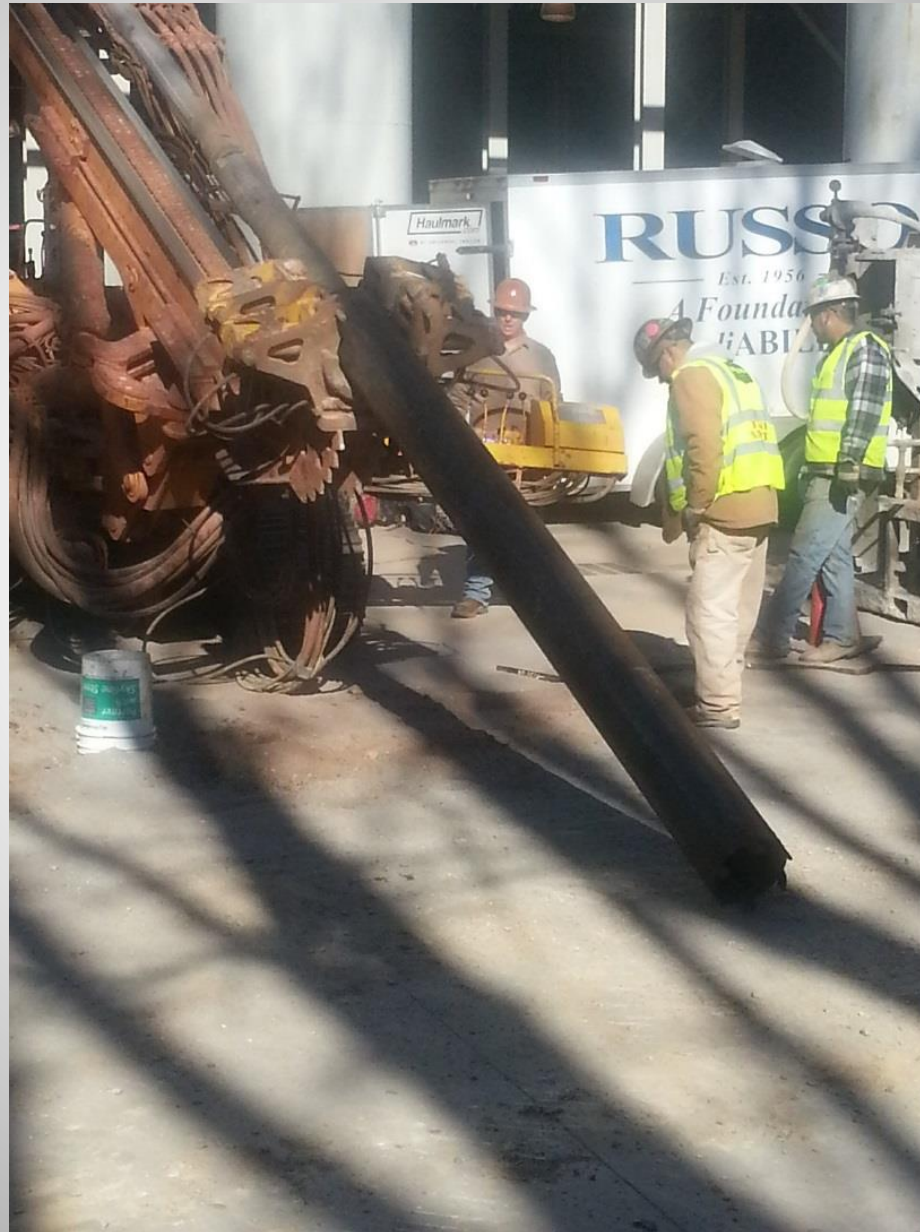
TTL

Micro Pile Foundations - 2015

Initial design included
Drilled Shafts

Contractor VE with
Micro Piles

March 2015



TTL

Micro Pile Foundations



TTL

Micro Pile Foundations



TTL

Micro Pile Foundations



TTL

Micro Pile Foundations



TTL

Micro Pile Load Test



TTL

Micro Pile Load Test

Jack on top of
load frame



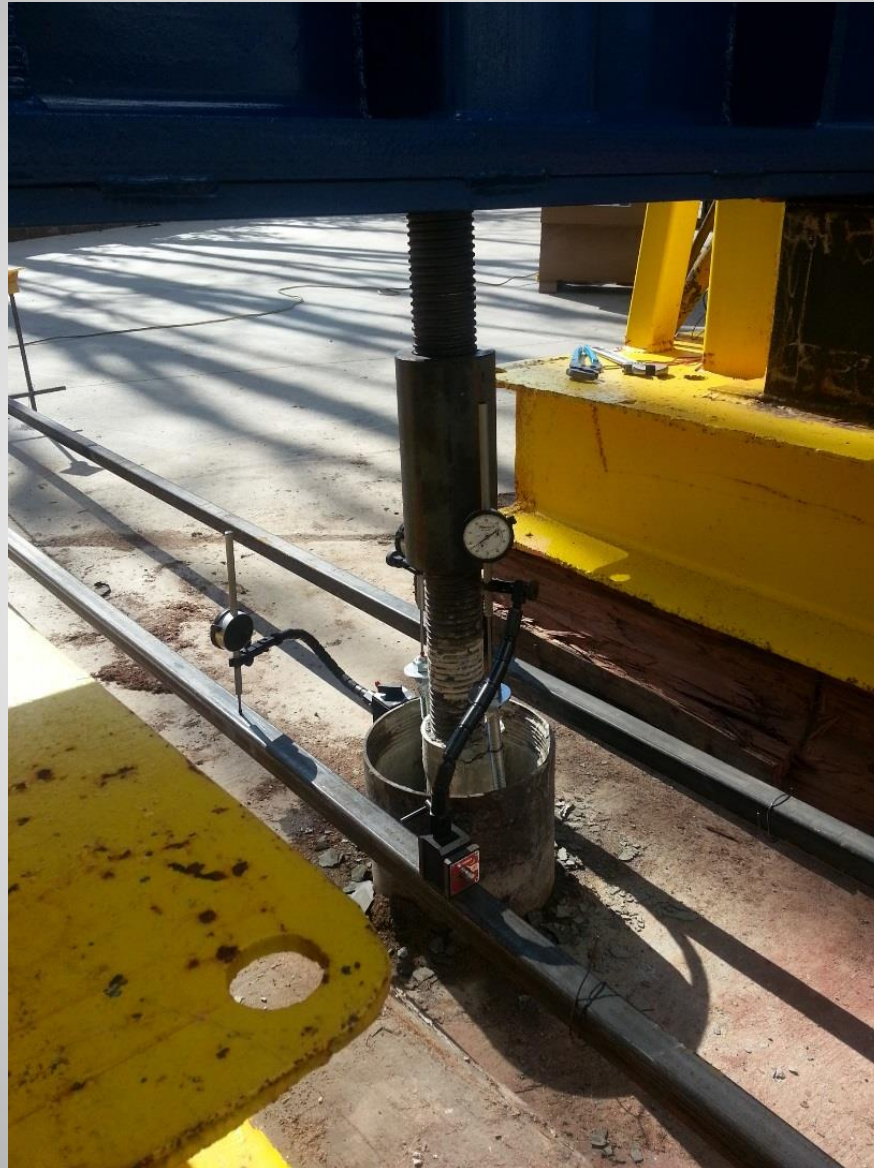
TTL

Micro Pile Load Test



TTL

Micro Pile Load Test



TTL

Test Pile Installation - Video



TTL

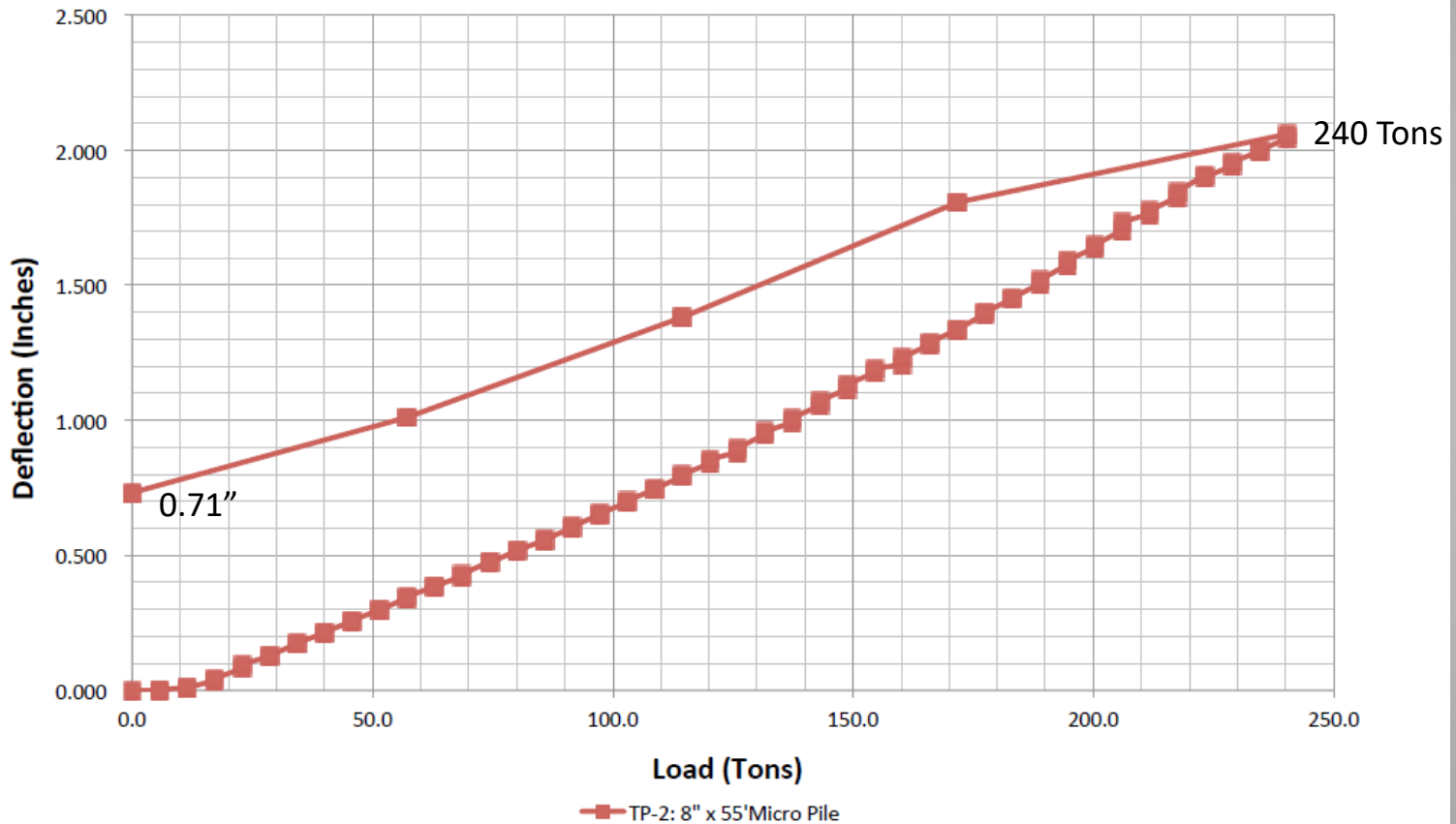
Test Pile Installation - Video

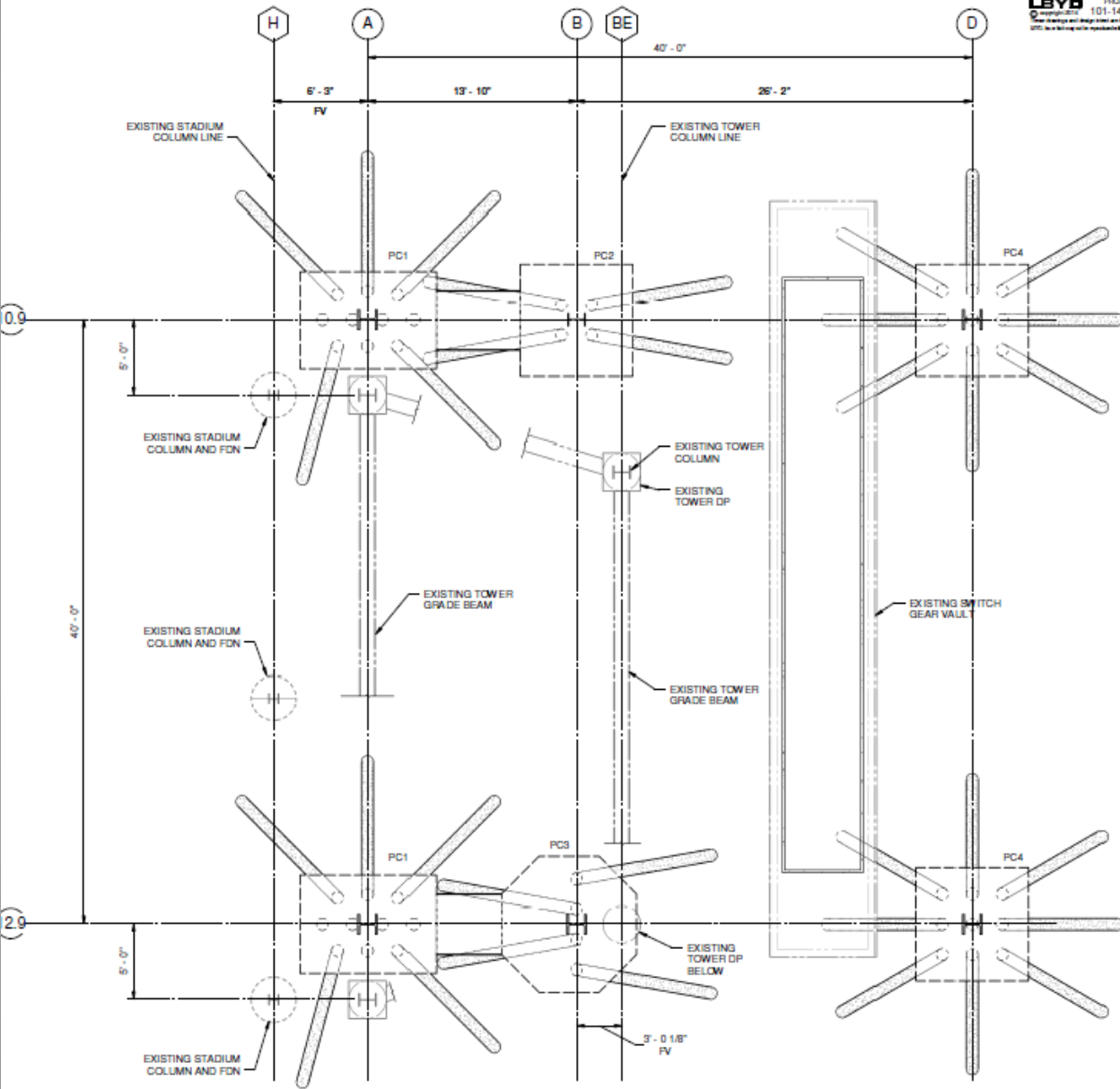


TTL

Load Test Results

Auburn Football Stadium Project:
TP-2 Tension Test Load - Deflection Plot



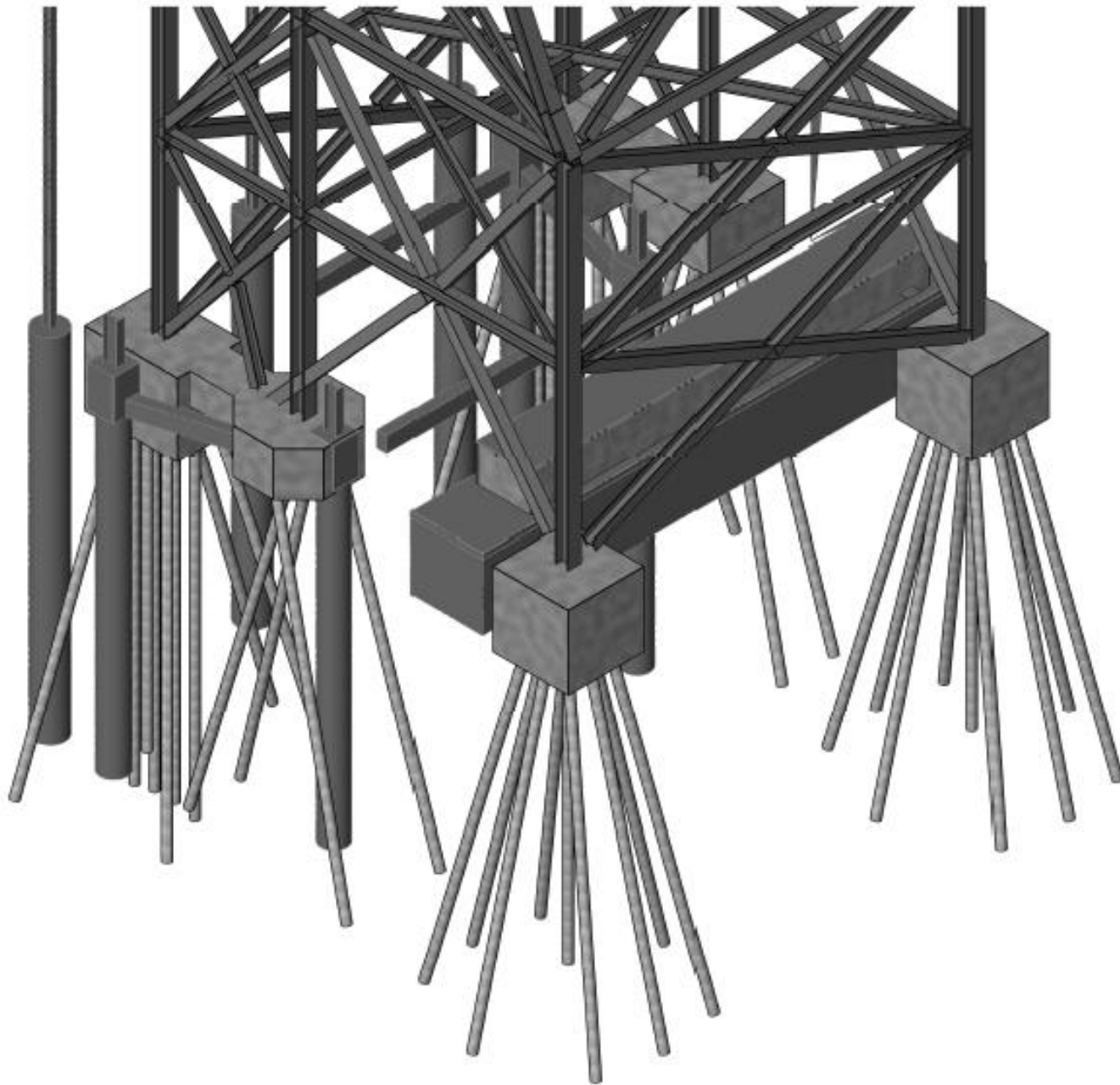


Foundation Plan



2 Foundation Plan
 82.0 1/4" = 1'-0"





Foundation Plan Isometric View

Foundation Construction March – April 2016



TTL

Foundation Construction



TTL

Foundation Construction



TTL

Foundation Construction



TTL

Foundation Construction



Tremmie Cement Grout



TTL

Pile Construction - Video



TTL

Pile Construction - Video



TTL

Pile Cap Construction



Pile Cap Construction



Pile Cap Construction



TTL

Pile Cap Construction



Pile Cap Construction



Pile Cap Construction



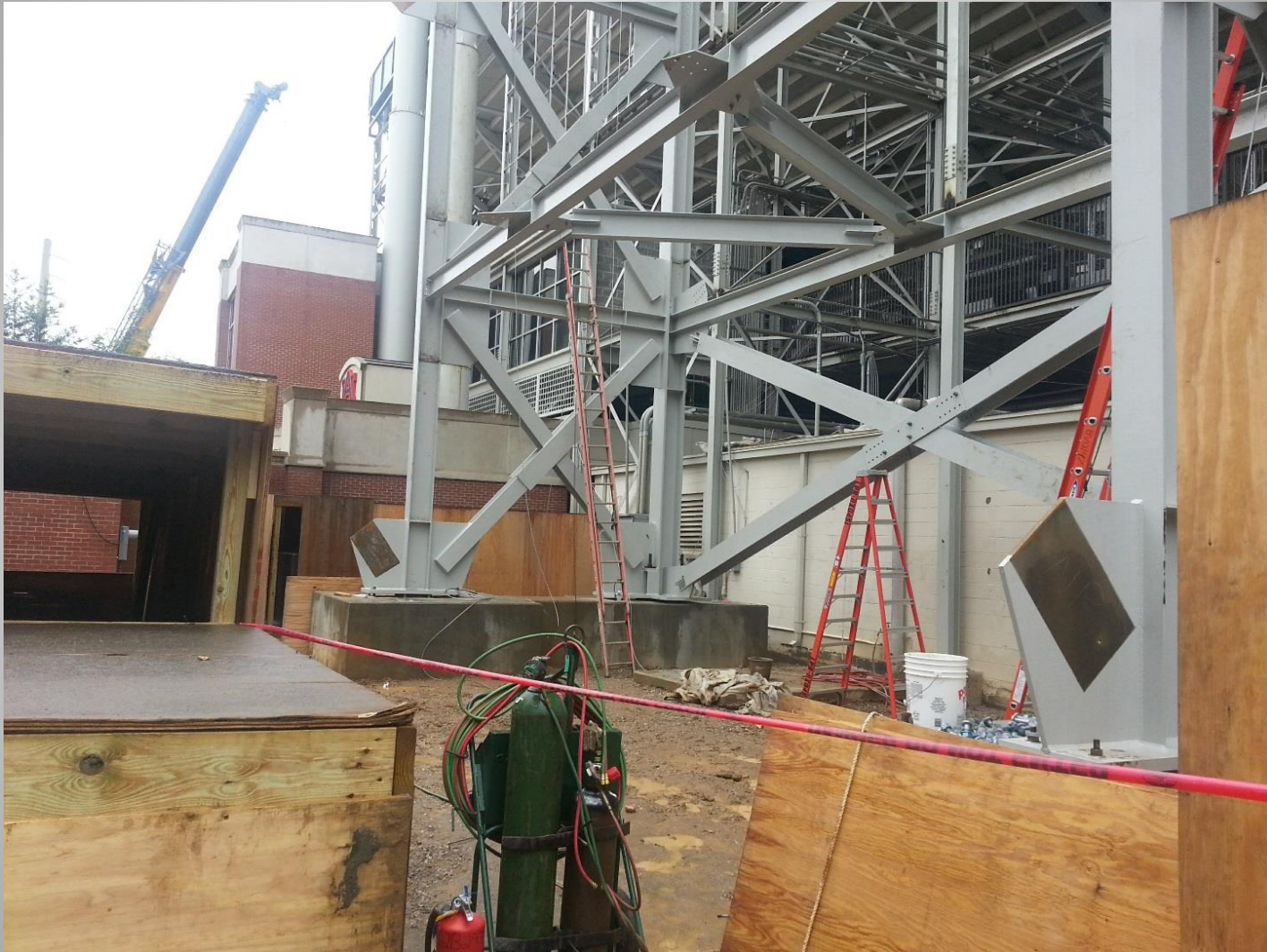
TTL

Pile Cap Construction



TTL

Pile Cap Construction



TTL

Tower Construction - 2016



TTL

Tower Construction



TTL

Tower Construction



TTL

Tower Construction



TTL

Tower Construction



TTL

Future North End Zone Expansion



TTL

Future North End Zone Expansion



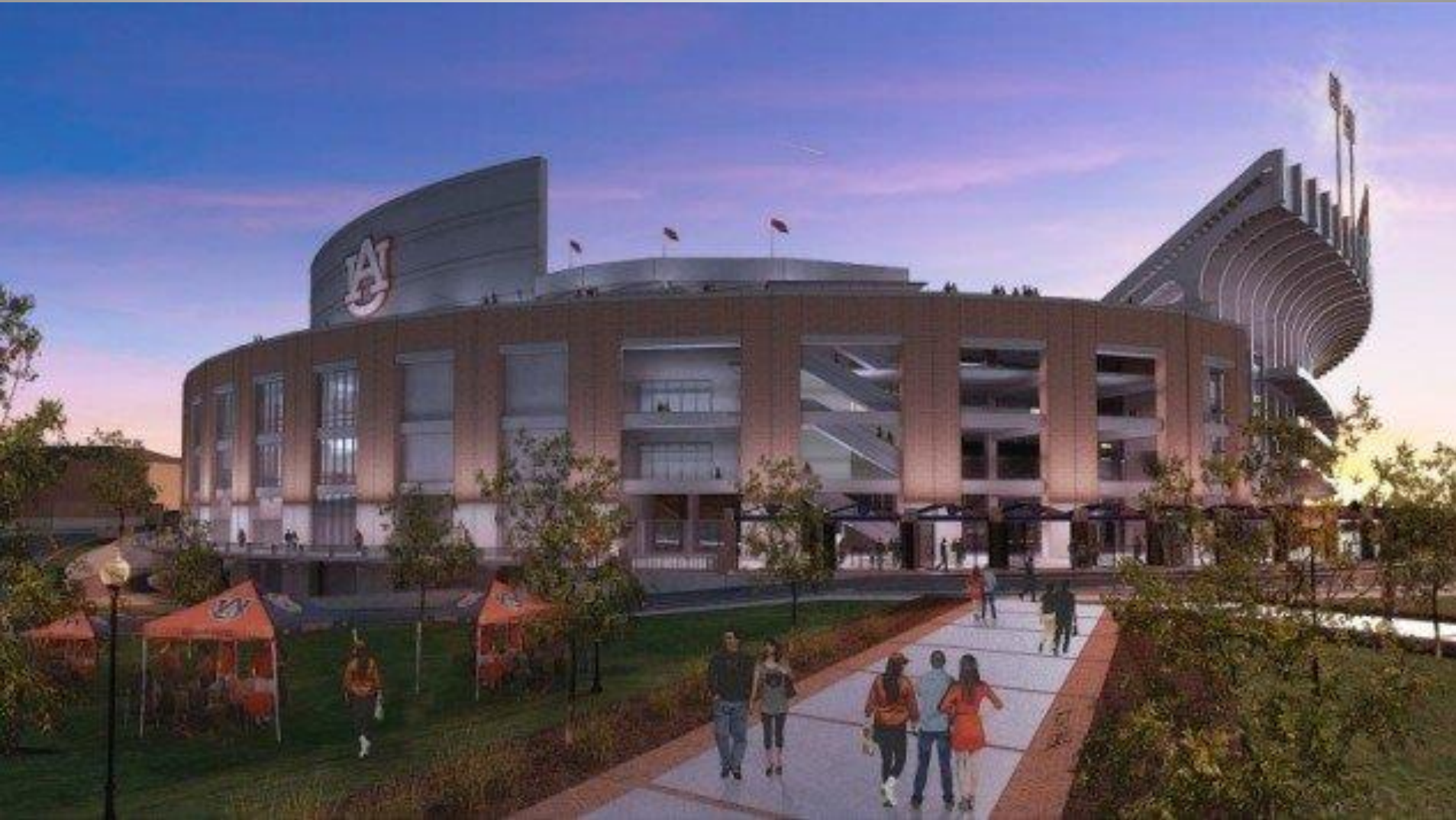
TTL

Future North End Zone Expansion



TTL

Future North End Zone Expansion



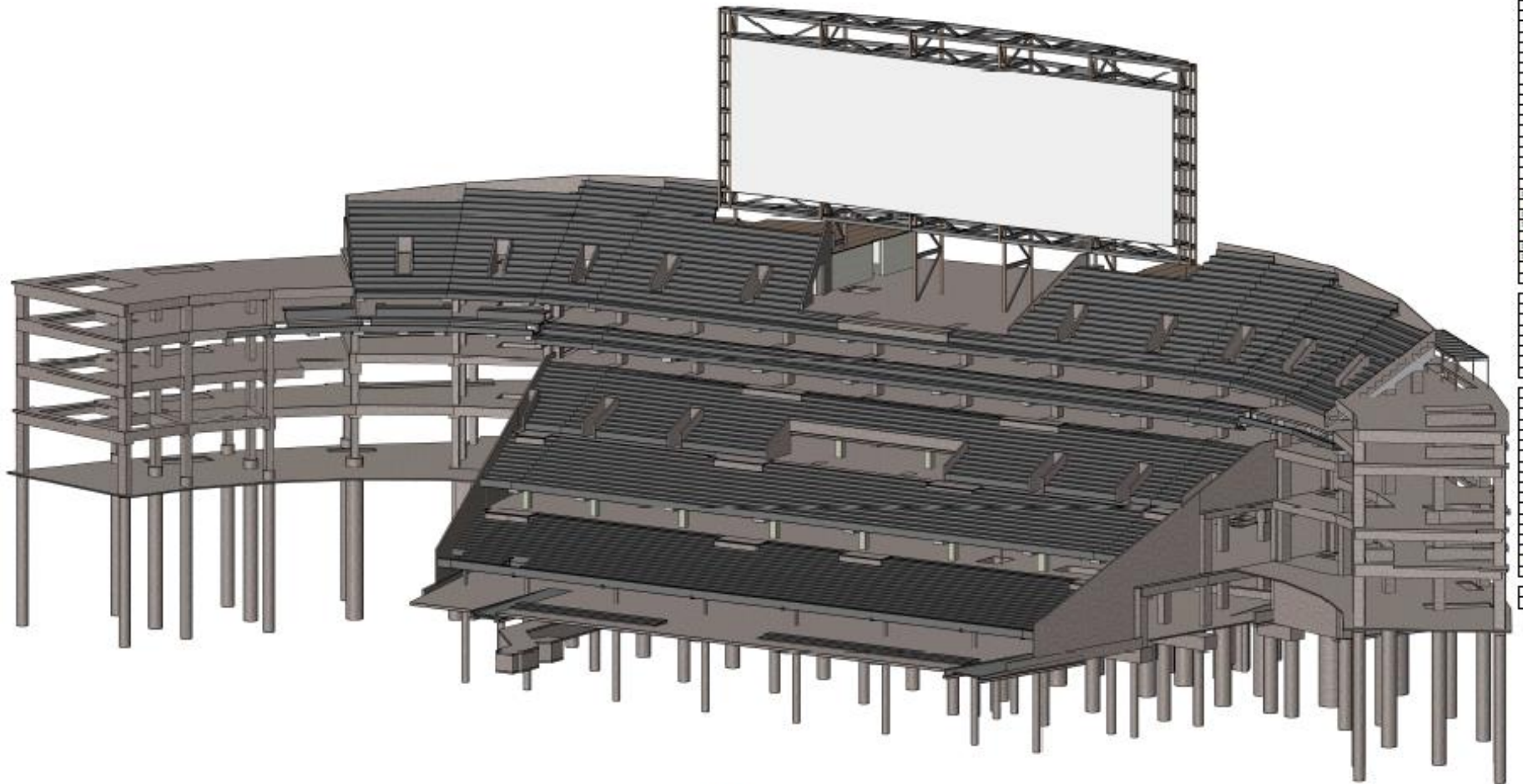
TTL

Future North End Zone Expansion



TTL

Future North End Zone Expansion



Isometric View

North End Zone – Borings 2015

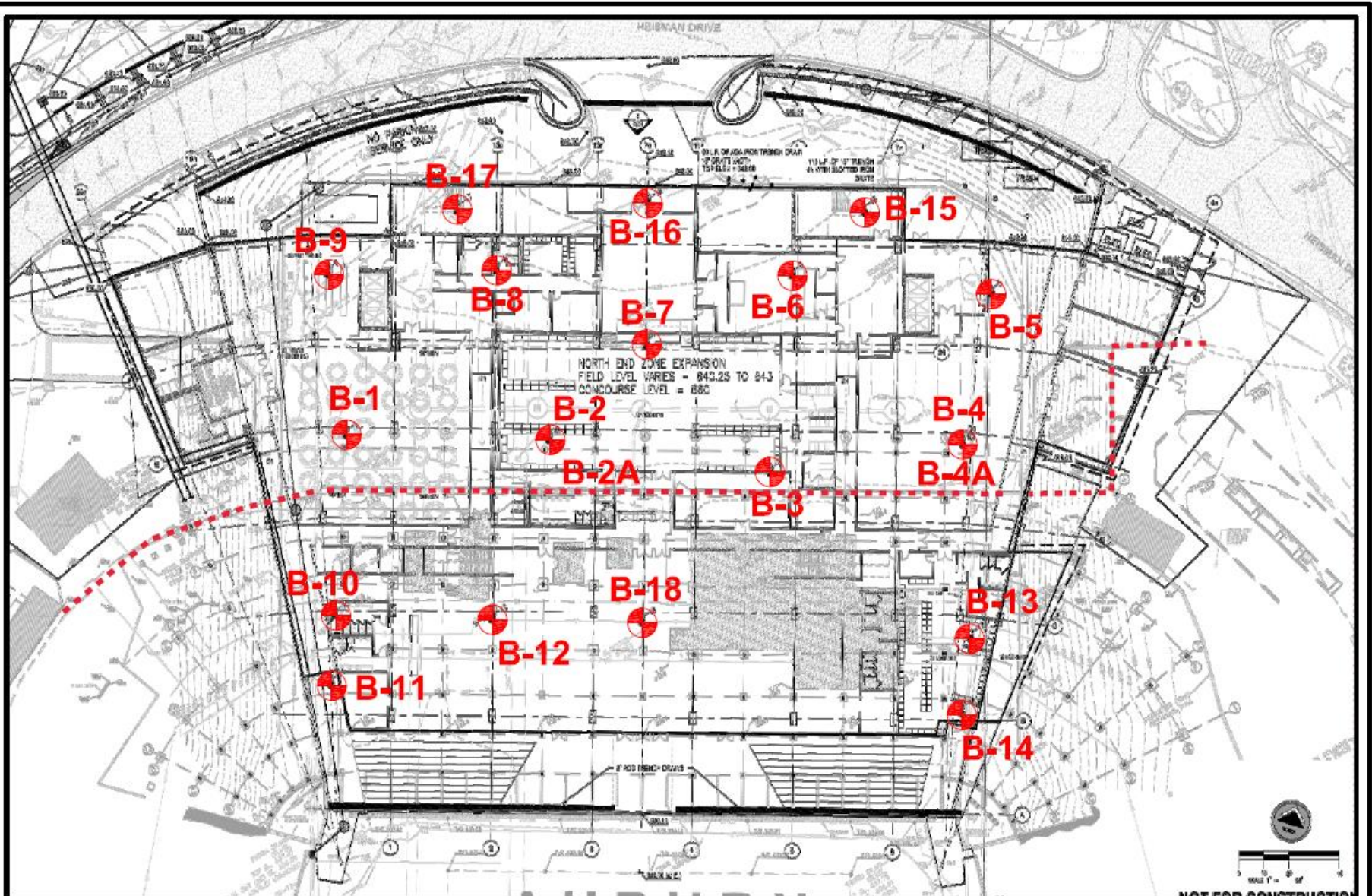


North End Zone – Borings 2015



North End Zone – Borings 2015





Reduced Scale

CTL Project No. CS-9281-15



Boring Location Plan

 - Soil Test Boring

Project:
 Jordan Hare Stadium
 North Endzone Expansion
 Auburn University
 Auburn, Alabama

DEPTH (FT.)	DESCRIPTION	ELEV. (FT.)	STANDARD PENETRATION RESISTANCE					MC N (%)	LABORATORY RESULTS & REMARKS
			0	10	20	40	60		
0.0		638.7							
0.8	9 1/2" Concrete Pavement								
1.1	4" Crushed Stone Base								
2.5	Fill, Sandy Clay (CL), red, brown and gray, stiff						21	14	
	Clayey Sand (SC), micaceous, yellowish-brown and black, loose						7	17	
	Clayey Sand (SC), micaceous, brown and tan, firm	633.7					14	24	
8.0									
	Saprolite, Silty Sand (SM), micaceous, yellowish-brown, gray and black, loose	628.7					6	23	
	Saprolite, Silty Sand (SM), micaceous, gray, tan and yellowish-brown, very dense	623.7					50/5"	3	
19.0	Auger Refusal at 19 ft.	618.7					50/6"	2	Groundwater encountered at 11 ft., 24 hrs. following soil drilling Boring caved at 18 ft. Run 1 (19'-20') REC = 83% RQD = 58% Co = 5190 psi Run 2 (20'-25') REC = 98% RQD = 98% Run 3 (25'-29') REC = 98% RQD = 73%
	Gneiss, slightly-fractured, micaceous, gray and white, very hard	613.7							
29.0	Boring Terminated at 29 ft.	608.7							Drill Rig: CME-75 Driller: H. Camley

Rock @ 19 ft.

REMARKS:

N - STANDARD PENETRATION RESISTANCE
IN BLOWS PER FOOT (ASTM D-1586)

SEE SOIL BORING LEGEND FOR EXPLANATION OF
SYMBOLS AND ABBREVIATIONS USED ABOVE

SHEL CS-9281-15.GPJ 4/29/15

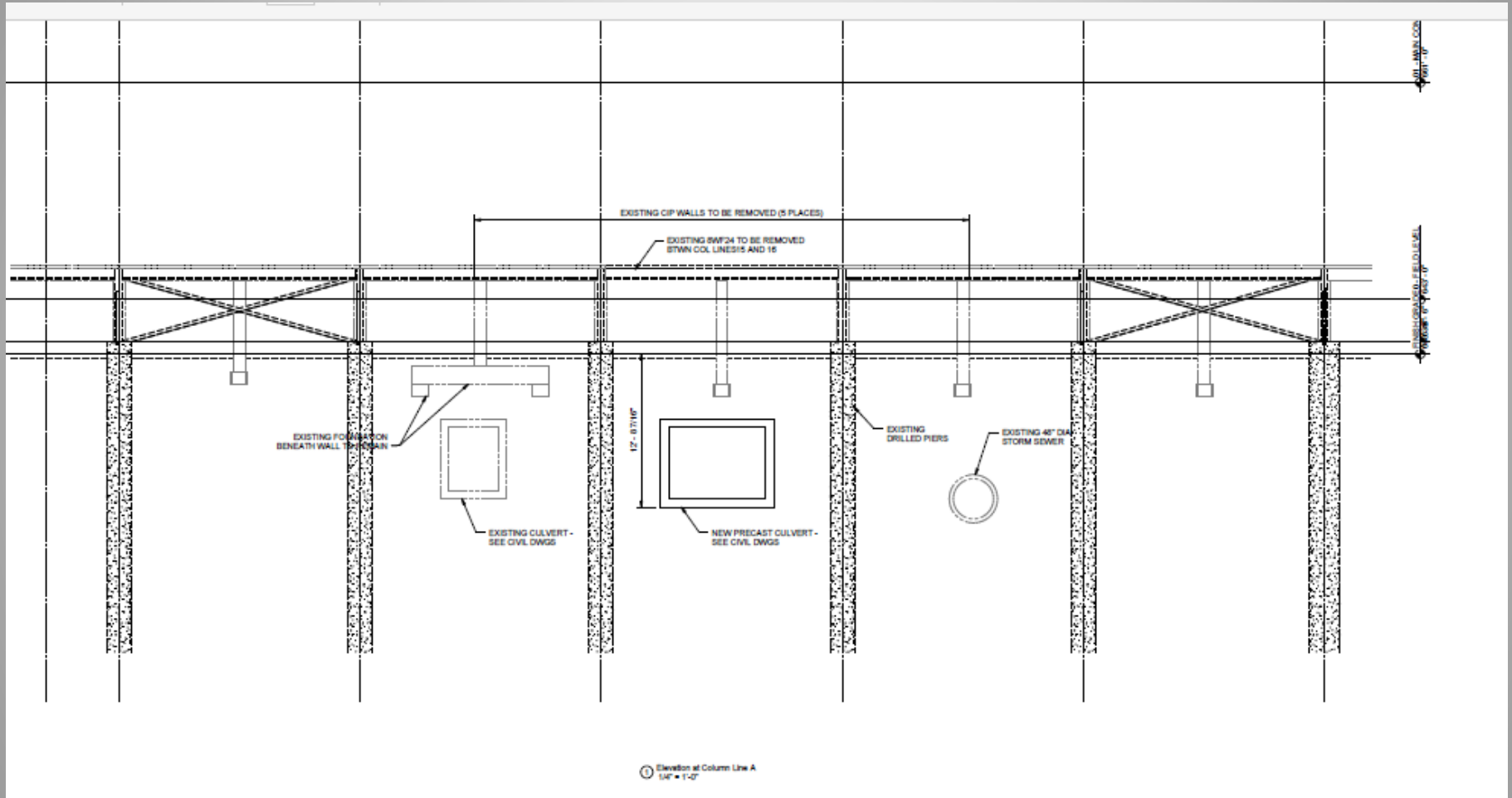
SOIL BORING LOG

BORING NUMBER : B-08
DATE DRILLED : 3/4/15
PROJECT NUMBER : CS-9281-15
PROJECT : Jordan Hare Stadium - North End Zone
Expansion, Auburn University
PAGE 1 OF 1

CHRISTIAN TESTING LABORATORIES, INC.
Montgomery, Alabama



Culvert Replacement - 2015



Culvert Replacement



TTL

Culvert Replacement



TTL

Culvert Replacement



TTL

Culvert Replacement - PIT



TTL

Culvert Replacement - PIT



TTL

Culvert Replacement - PIT



TTL

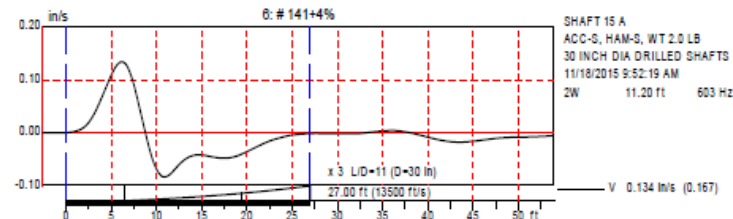
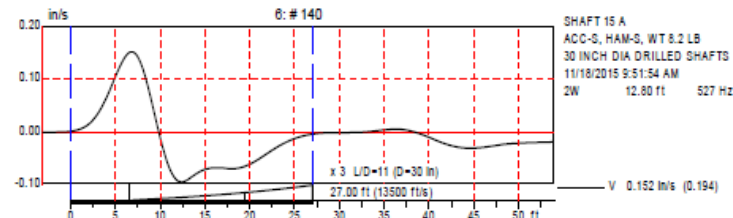
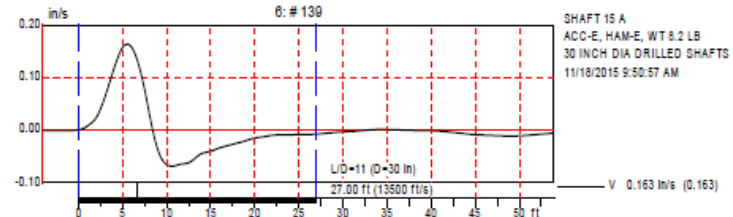
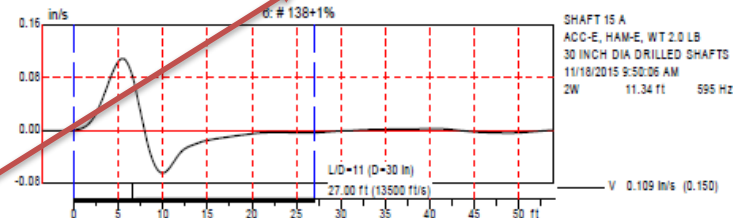
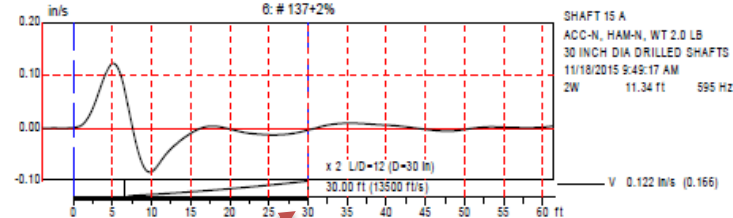
PIT Results

Terracon Consultants, Inc.

11/24/2015

Data

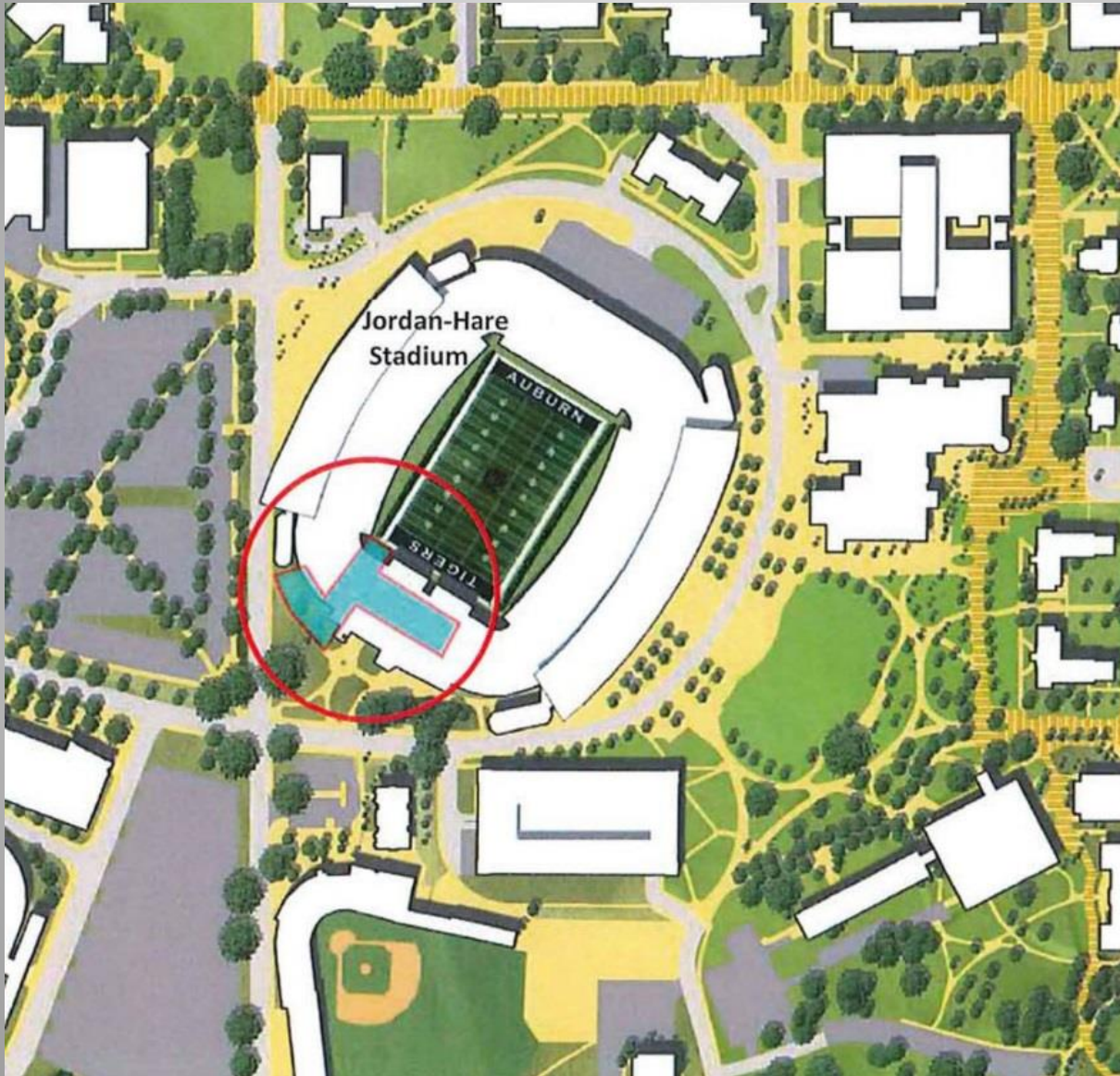
C:\Users\lahhartley\Projects\E1155218 Drilled Shaft Foundation Evaluation, Jordan Hare StadPIT-W™ 2003-2 Rows 15 and 16.PIT



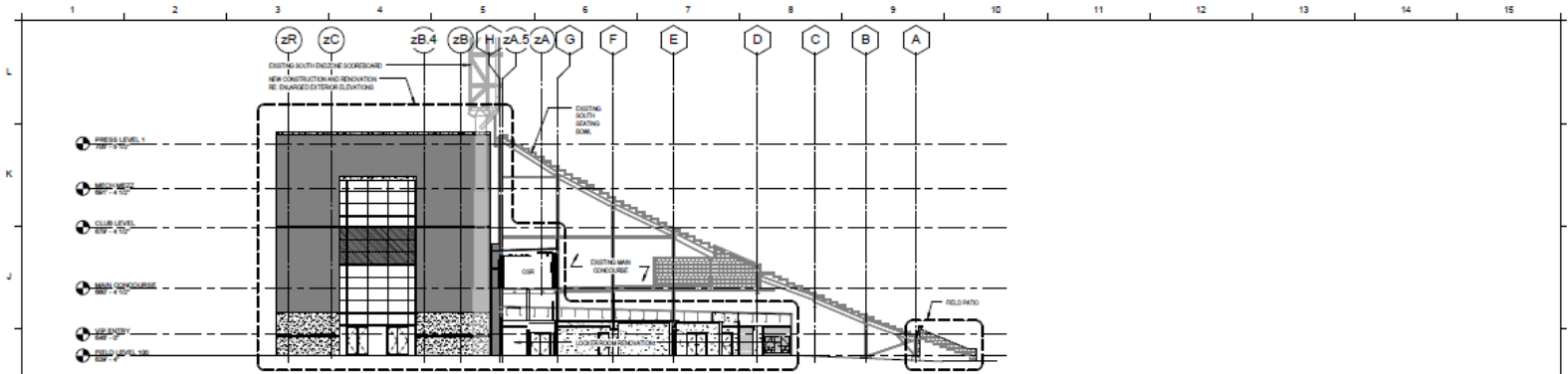
27 ft.



South End Zone Project 2016 - 2018

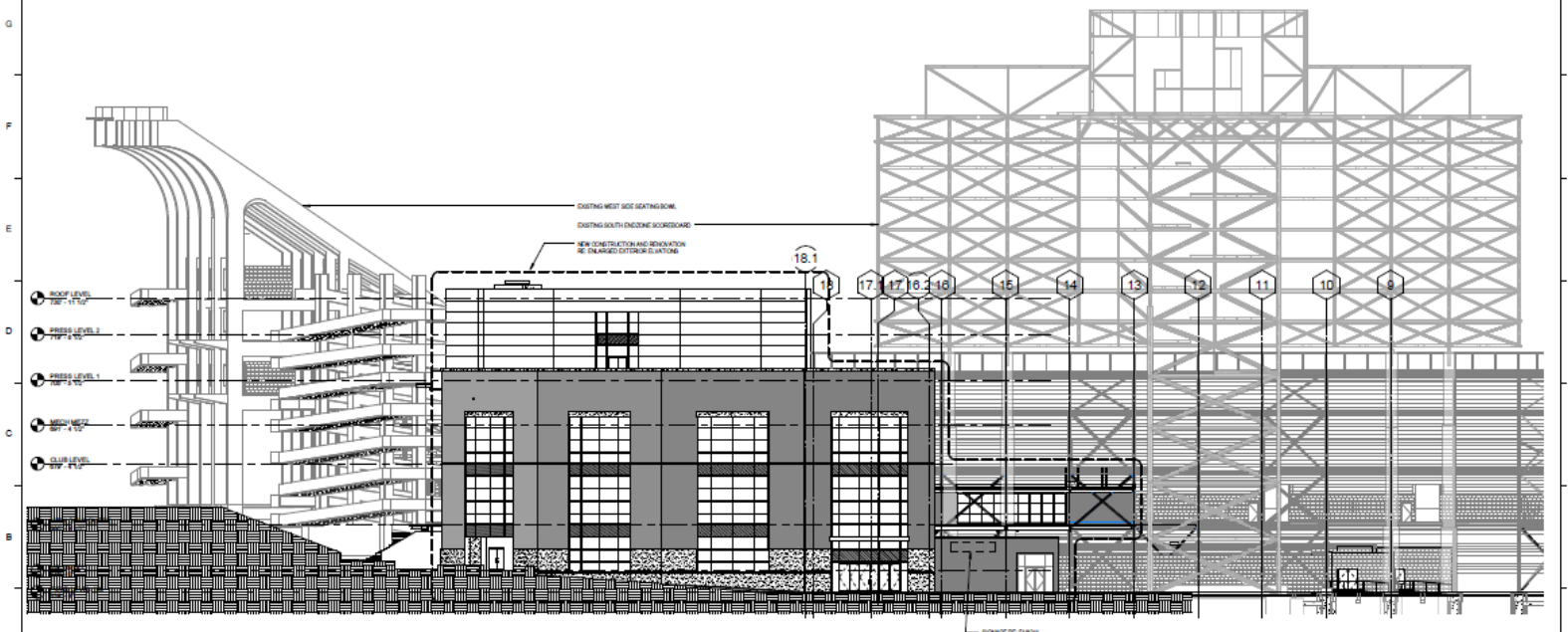


SEZ Game Day Support Facility



H1 EAST ELEVATION

1/16" = 1'-0"



A1 SOUTH ELEVATION - PERSPECTIVE

1/16" = 1'-0"



JORDAN-HARE STADIUM IMPROVEMENTS
 251 South Donahue Drive
 Auburn University, AL 36849
 Prepared For:
Facilities Management
 1161 West Stanford Avenue
 Auburn University, AL 36849
 Phone: (334) 844-9450
 Fax: (334) 844-9458
 Contract No: 15-055



HOK Architects, Inc.
 300 West 22nd Street
 Kansas City, MO 64108 USA
 T +1 816 472 3360 F +1 816 472 2100

All information is the property of HOK. No part of this drawing may be reproduced without the written permission of HOK.

Goodwyn, Mills and Cawood, Inc.
 Architectural Consultant

SL Harbert International
 Construction Manager

LEVD, Inc.
 Structural and Civil

Conway Owen
 MEP, Fire Protection, Security, Lighting

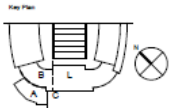
Holcomb Norton Partners
 Landscape

FSC Inc.
 Code and Life Safety

Ed Roether Consulting, LLC
 Accessibility

S2O Consultants
 Food Service

Advert
 Environmental Graphics



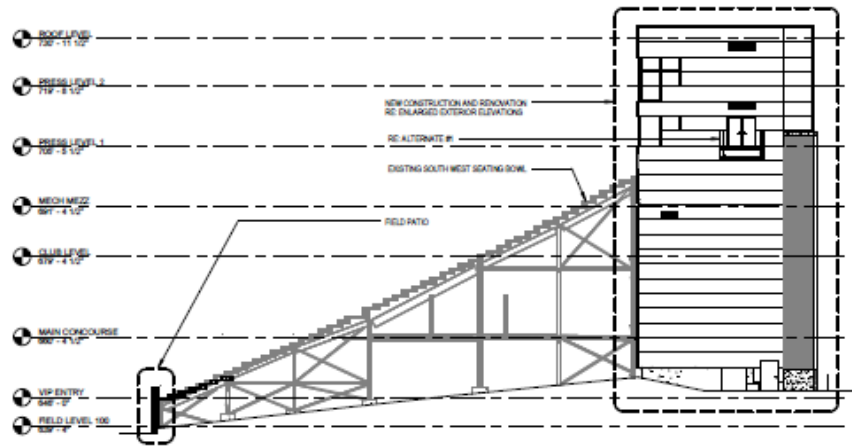
Checklist Date
 SEP 2 10AM 08:15 PM CONSTRUCTION 2015-08-02

Date of Print Issue: 2015-08-19
 Project No.: 15-055-04

Sheet Title:
BUILDING ELEVATIONS

Original Working in A301. Do not show numbers in this heading.
 Sheet Number:

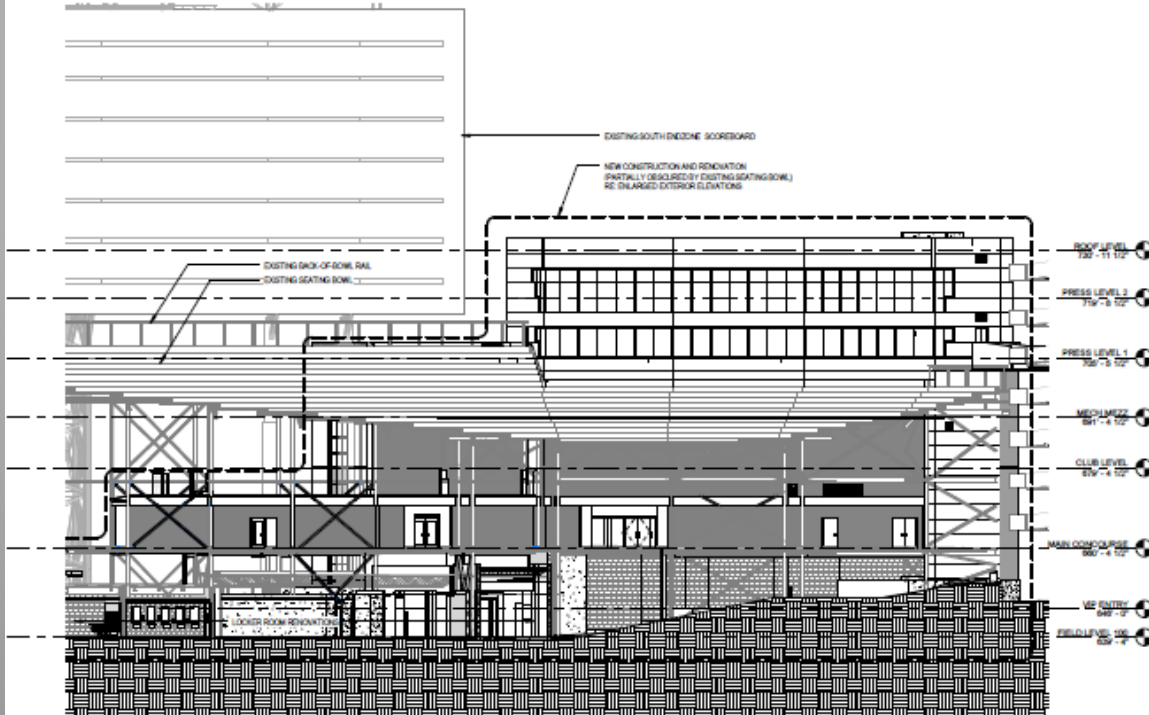
A301



SEZ Game Day Support Facility

G7 WEST ELEVATION

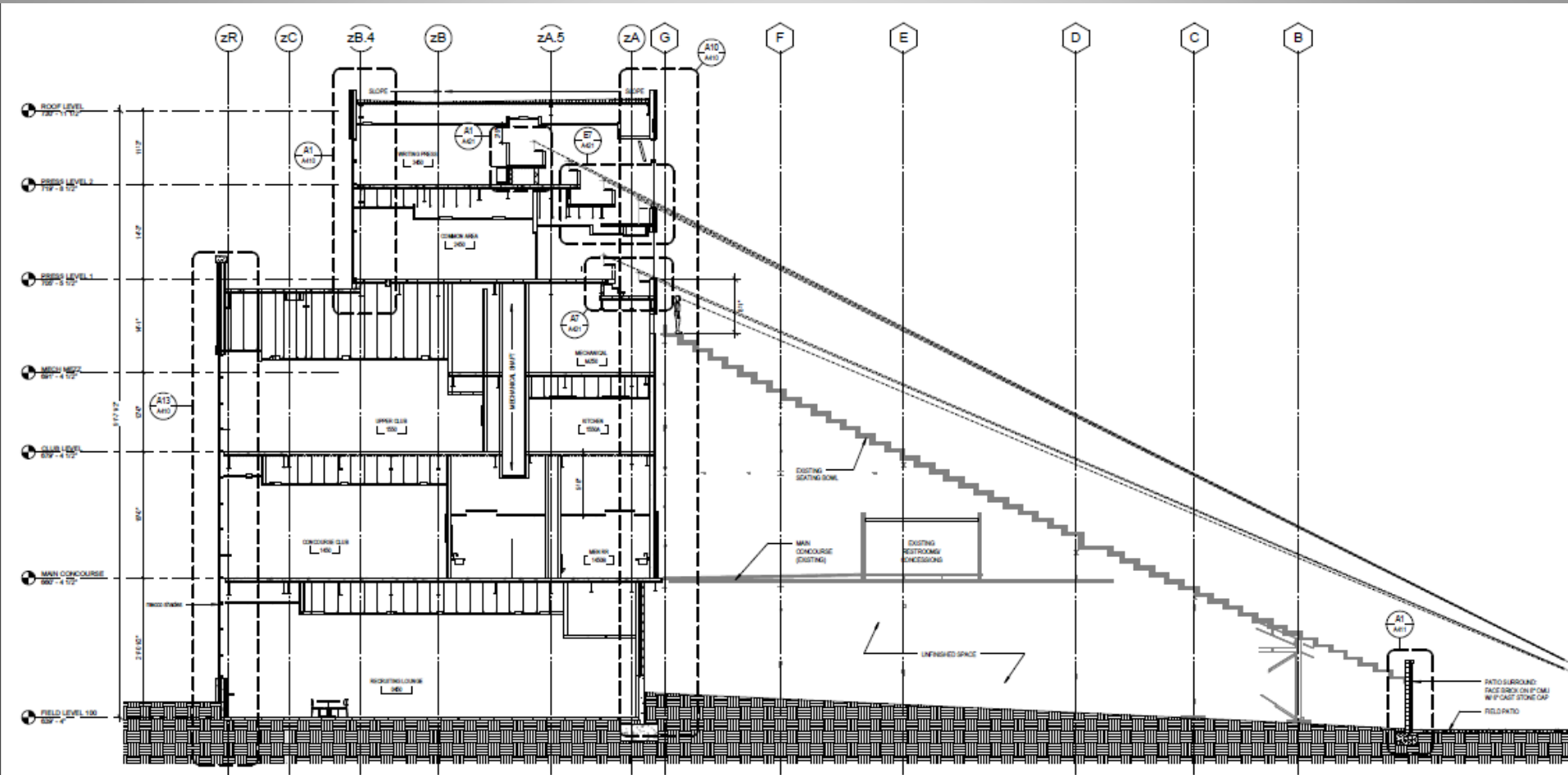
1/16" = 1'-0"



A7 NORTH ELEVATION - PERSPECTIVE



SEZ Game Day Support Facility



A1 TRANSVERSE SECTION AT PRESS BOX.

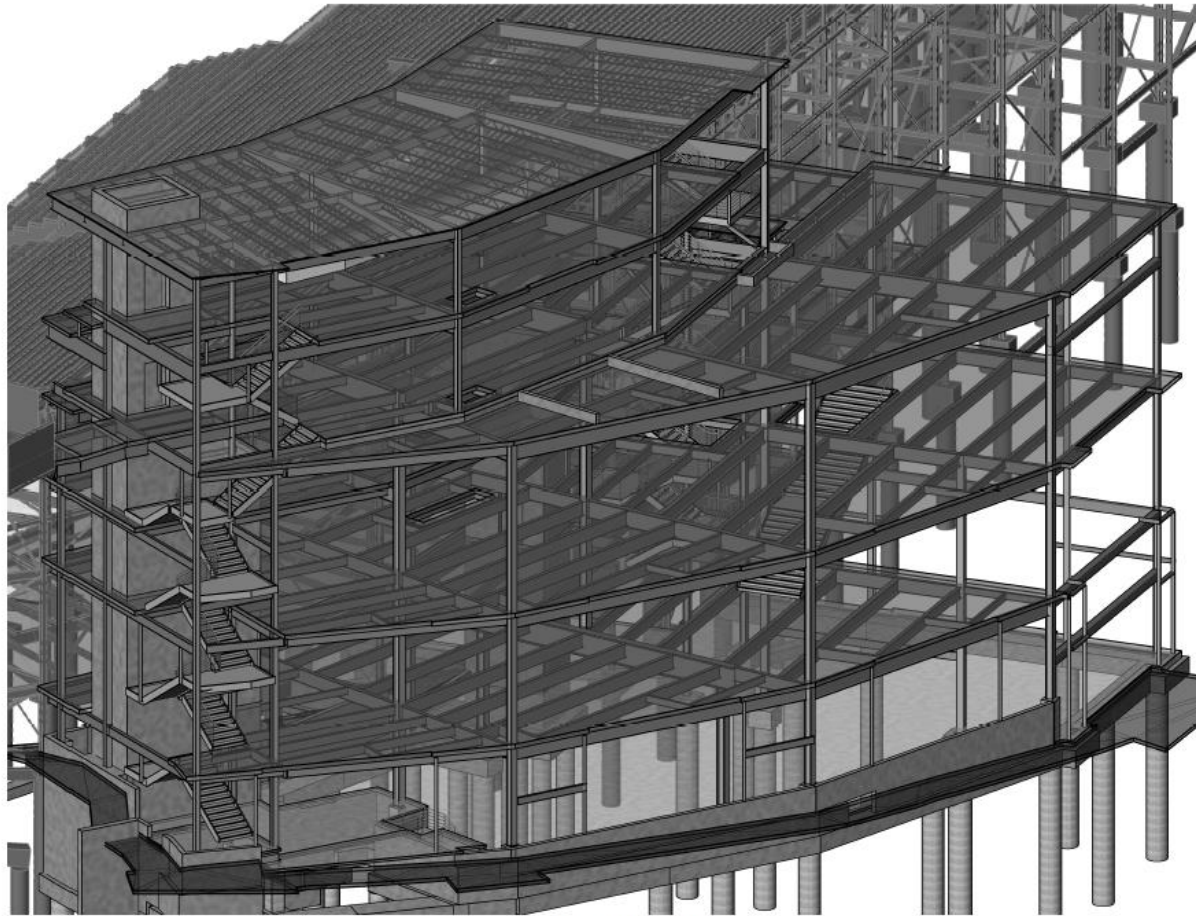
1/8" = 1'-0"

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Game Day Support Facility

LBVD, Inc.
 Civil and Structural Engineers
 716 South 30th Street
 Birmingham, AL 35233
 Main (205) 251-4500
 Fax (205) 234-4181

LBVD PROJECT NO.
 © copyright 2017 101-16-271.001
 These drawings and design reflect the sole property of
 LBVD, Inc. which may not be reproduced without written permission



mo 3/16")

Isometric View

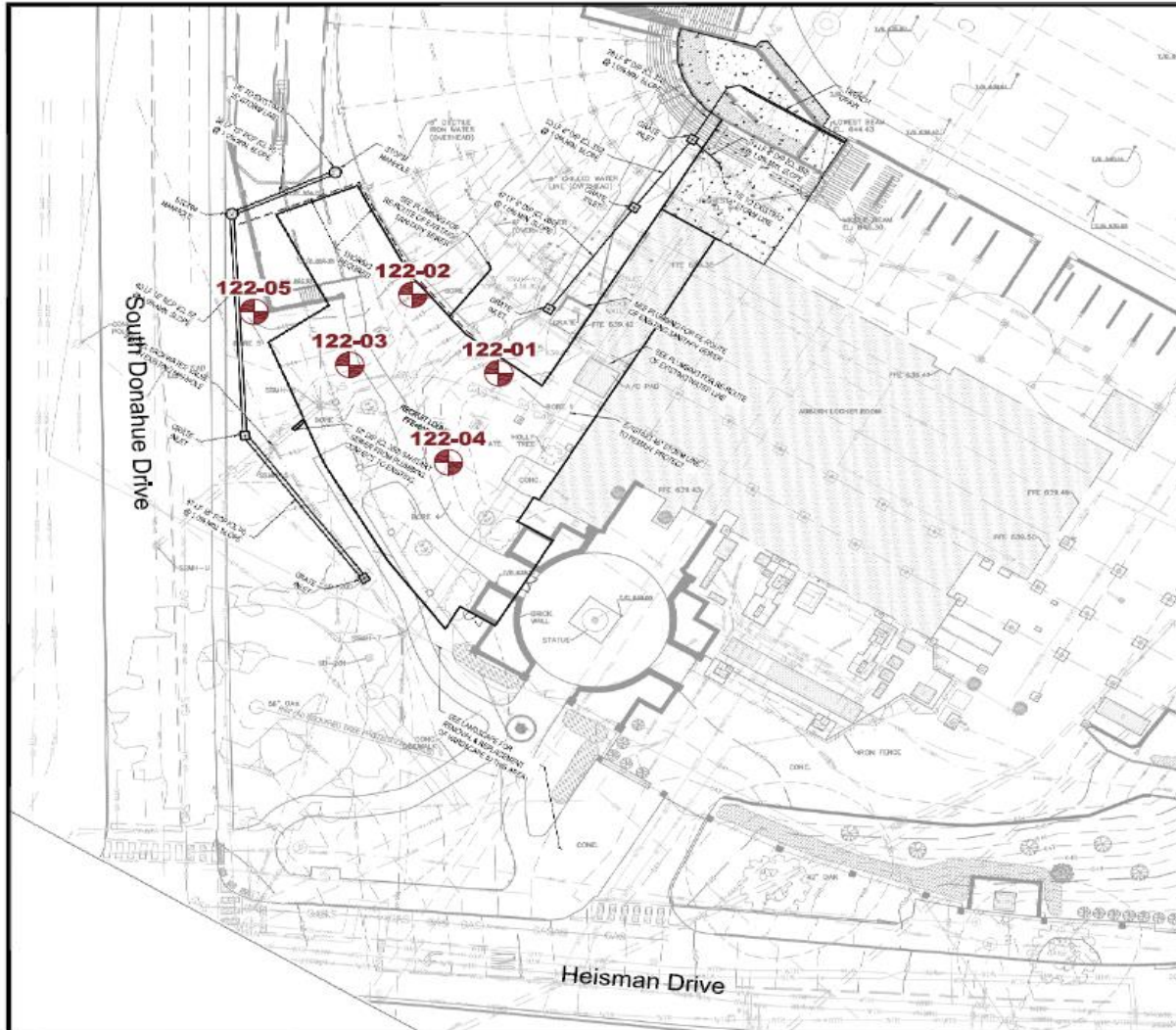
Name
and Legends
Notes
tes (Cont)
and Abbreviations

Sheet List	
Sheet Number	Sheet Name
S102C	Main Concourse Framing Plan - Sector C
S102E	Existing Main Concourse Bracing Plan
S103	Club Level Framing Plan
S103M	Mechanical Mezzanine Framing Plan

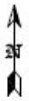
Sheet List	
Sheet Number	Sheet Name
S423	Sections
S425	Sections
S430	Sections
S431	Sections



Game Day Support Facility **Geotech** - August 2016



LEGEND



Boring Location and Identifier **122-05**

Boring locations shown on this Boring Location Schematic were estimated from existing site features and should be considered approximate. A licensed professional land surveyor should be retained if precise boring locations are required.



TTL

27438 Clutter Park Drive West • Montgomery, Alabama 36109
336.244.2788 • Fax: 336.244.2888

APPROXIMATE SCALE: 1" = 30'	TTL PROJECT NO: 100116122
DRAWING PATH: 010-1-19\Tulacalosse Projects\2016\100116122 AU_JHS SEZCAD\16122 BLP.dwg	
DATE CREATED: 09/21/2016	DATE REVISED: n/a
REVISION NUMBER: n/a	
DRAWN BY: mjc	CHECKED BY: KMB
DRAWING SOURCE: Site Drainage and Utility Plan, LB,YD, 09/09/2016	

Boring Location Schematic

Auburn University - Facilities Division
South End Zone Recrullng Lounge
Jordan Hare Stadium
Auburn, Lee County, Alabama



geotechnical • analytical • materials • environmental

Auburn University - Facilities Division South End Zone Recruiting Lounge - Jordan Hare Stadium

Log of Boring 122-03

Auburn, Lee County, Alabama

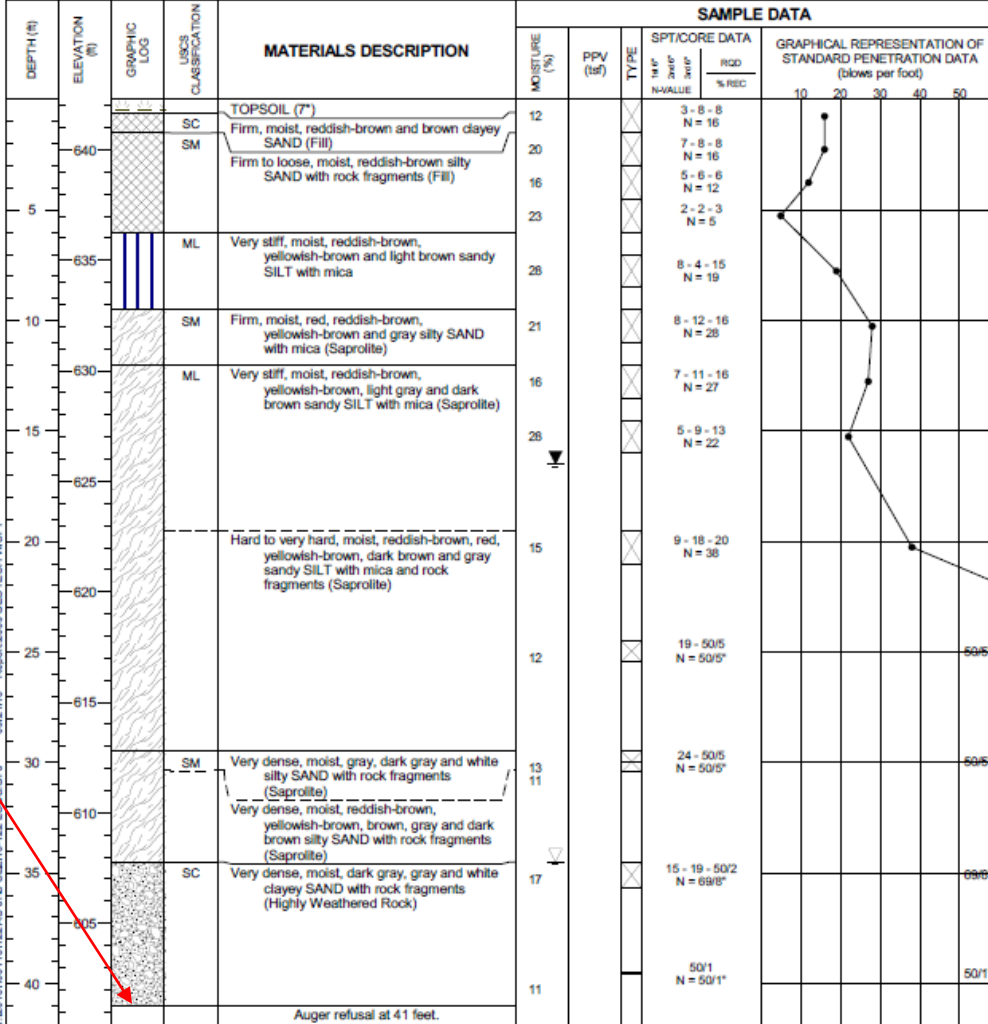
Page 1 of 1

Drilling Co.: TTL, Inc.	TTL Project No.: 100116122
Driller: R. Bell	Date Drilled: 8/23/2016
Logged by: S. Abbett	Boring Depth: 41 feet
Equipment: CME 550X	Boring Elevation: 642.27 feet
Hammer Type: Automatic	Coordinates: N: 764649 E: 761825

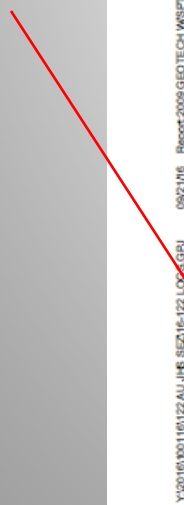
Remarks:
 Water encountered at an approximate elevation of 608 feet Above Mean Sea Level at time of drilling.
 Water recorded at an approximate elevation of 626 feet Above Mean Sea Level on 8/23/2016.

▽ Water level at time of boring. ▽ Delayed water level.

Drilling Method: *Hollow Stem Auger w/SPT Sampling*



Rock @ 41 ft.



Game Day Support Facility **Geotech** - August 2016



TFL

Game Day Support Facility

Geotech - August 2016



TTL

Game Day Support Facility

Geotech - August 2016



TTL

Game Day Support Facility

Geotech - August 2016



TTL

Game Day Support Facility

Geotech - August 2016



TTL



TTL

Game Day Support Facility Construction – June - July 2016



TTL

Game Day Support Facility Construction – June - July 2016



TTL

Game Day Support Facility Construction – June - July 2016



TTL

Game Day Support Facility Construction – June - July 2016



TTL

Game Day Support Facility Construction – June - July 2016



TTL

Game Day Support Facility Construction – June - July 2016



TTL

Game Day Support Facility Construction – June - July 2016



TTL

Game Day Support Facility Construction – June - July 2016



TTL

Game Day Support Facility Construction – June - July 2016



TTL

Game Day Support Facility

Construction – June - July 2016



TTL

AU Special Inspector



TTL

Structural Framing – Nov 2017



TTL

North End Zone Video Board

Geotechnical – Oct. 2017



View of the North Endzone Videoboard from inside Jordan-Hare Stadium

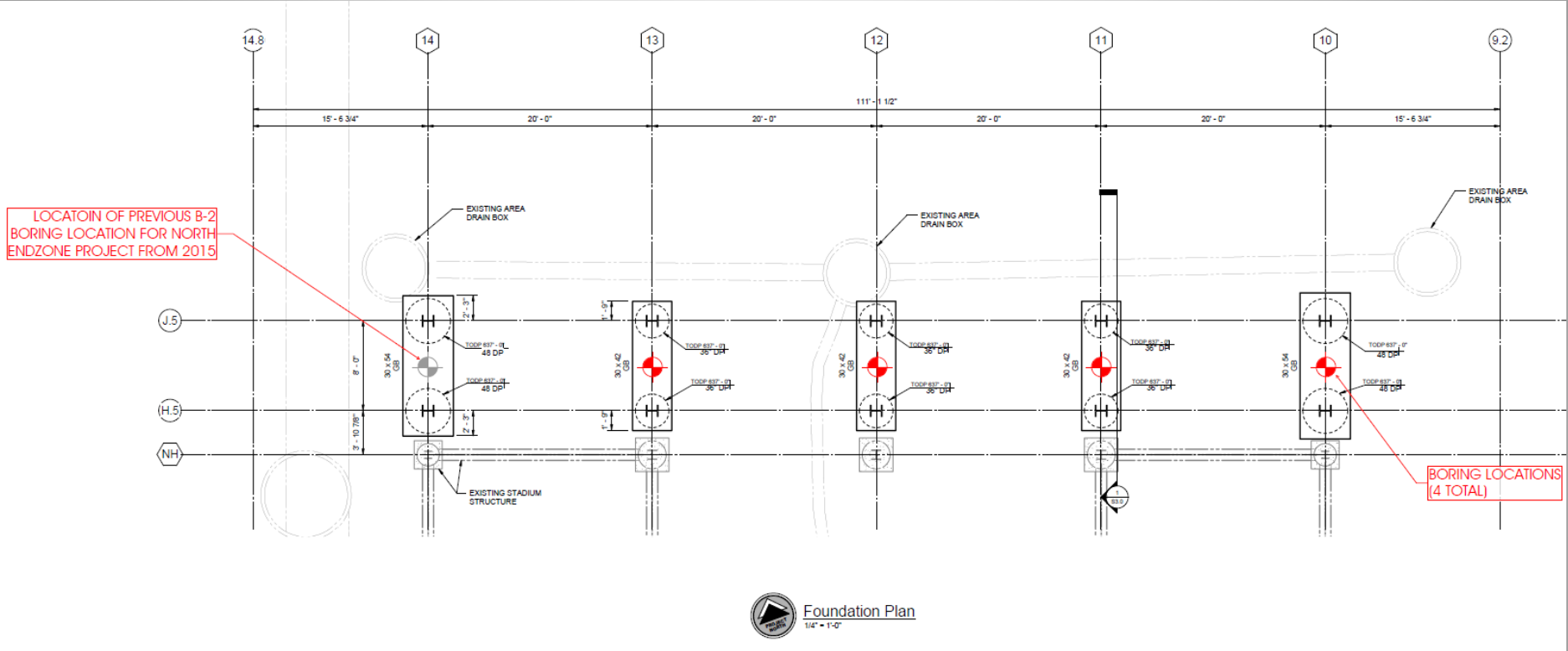
Proposed North Endzone Videoboard



View of the North Endzone Videoboard looking North

TTL

Foundation Plan



North End Zone Video Board

Geotechnical – Oct. 2017



TTL

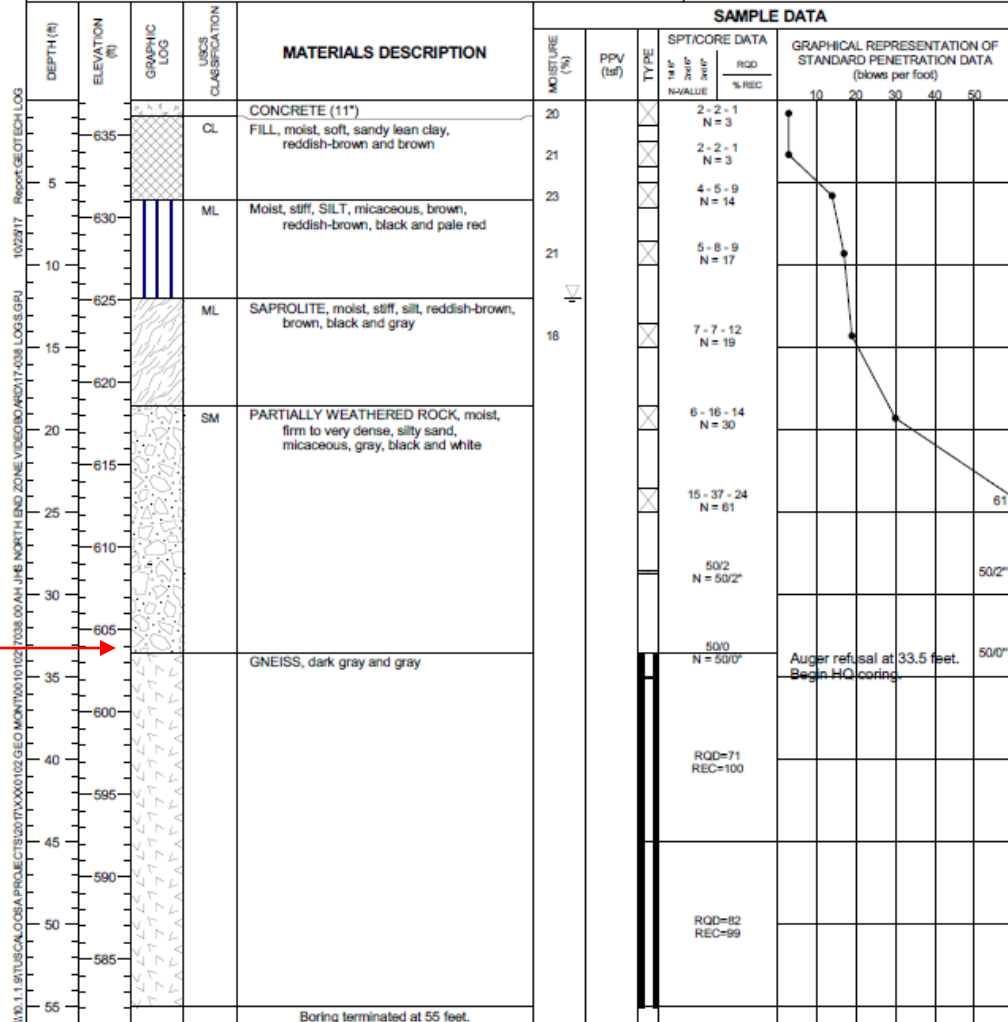


**Auburn University - Facilities Division
Proposed North End Zone Video Board
Jordan Hare Stadium**
Auburn, Lee County, Alabama

**Log of Boring
038-02**

Page 1 of 1

Drilling Co.: <i>Technical Drilling Services</i>	TTL Project No.: <i>001010217038.00</i>	Remarks: Water encountered at an approximate elevation of 625 feet Above Mean Sea Level at time of drilling. Water encountered at an approximate depth of 12 feet Below Land Surface at time of drilling. ▽ Water level at time of boring.
Driller: <i>K. Peak</i>	Date Drilled: <i>10/11/2017</i>	
Logged by: <i>S. Abbett</i>	Boring Depth: <i>55 feet</i>	
Equipment: <i>CME 75</i>	Boring Elevation: <i>637.1 feet</i>	
Hammer Type: <i>Automatic</i>	Coordinates: <i>Not Available</i>	
Drilling Method: <i>Hollow Stem Auger w/SPT Sampling</i>		



Rock @ 33 ft.

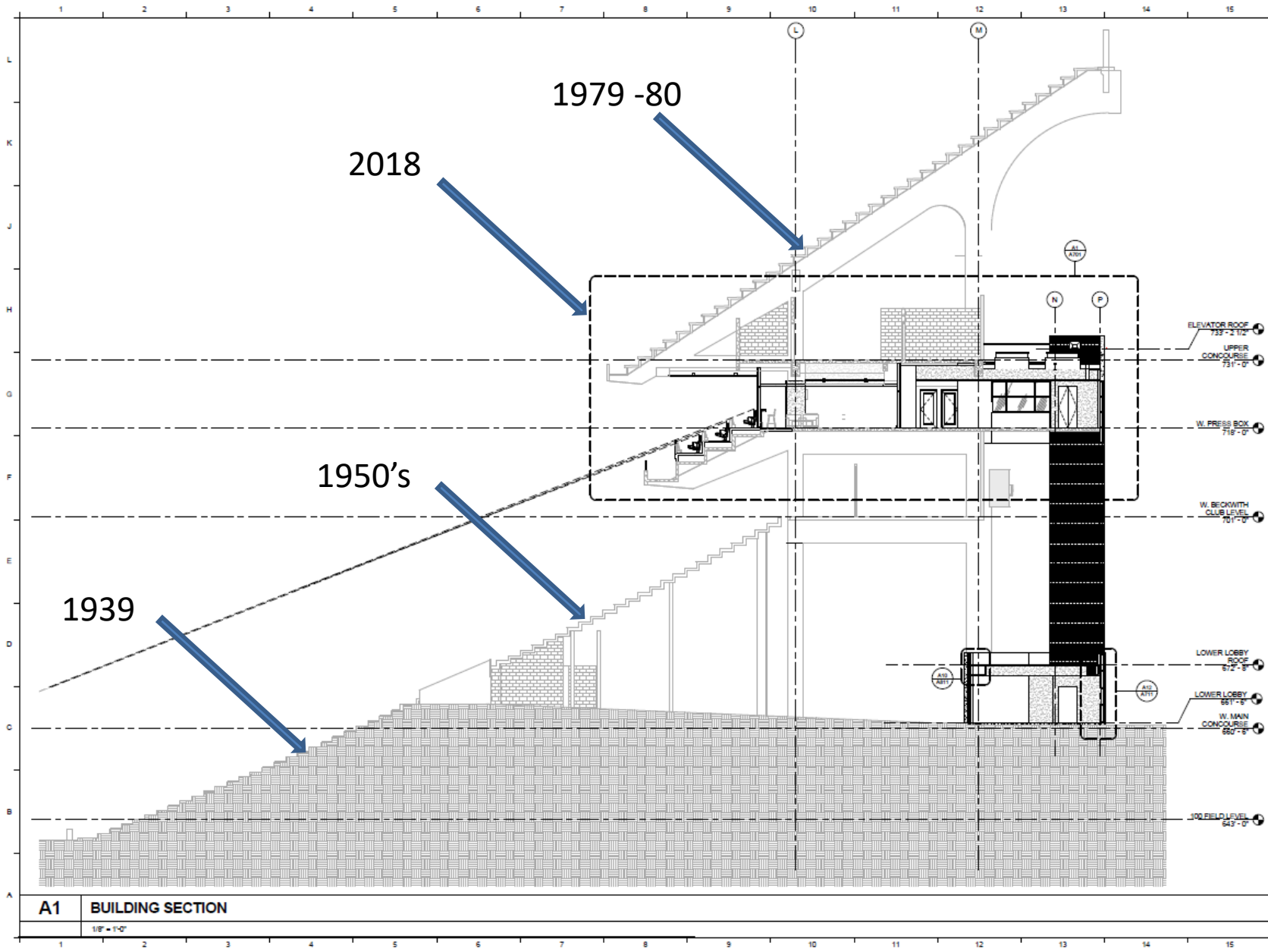


West Press Box Renovations

Geotechnical – Nov. 2017



TTL

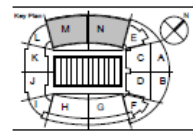


JORDAN-HARE STADIUM IMPROVEMENTS
 251 South Donahue Drive
 Auburn University, AL 36849
 Prepared For
Facilities Management
 1161 West Sanford Avenue
 Auburn University, AL 36849
 Phone: (334) 844-9450 Fax: (334) 844-9458
 Contract No: 16-500



HOK Architects, Inc.
 300 West 23rd Street
 Kansas City, MO 64108 USA
 T +1 816 472 3390 F +1 816 472 2100

- BL Harbert International
Construction Manager
- LEYD, Inc.
Structural Steel Detail
- Conasty Overst
MEP, Fire Protection, Security, Lighting
- WJMW
Broadcasting Consultant
- S2D Consultants
Food Service
- RSC Inc.
Civil and Life Safety
- Ed Roether Consulting, LLC
Accessibility



Description	Date
SEAL FOR CONSTRUCTION	2017-11-10

Date of Final Issue: 2017-11-10
 Project No: 16-20016-06

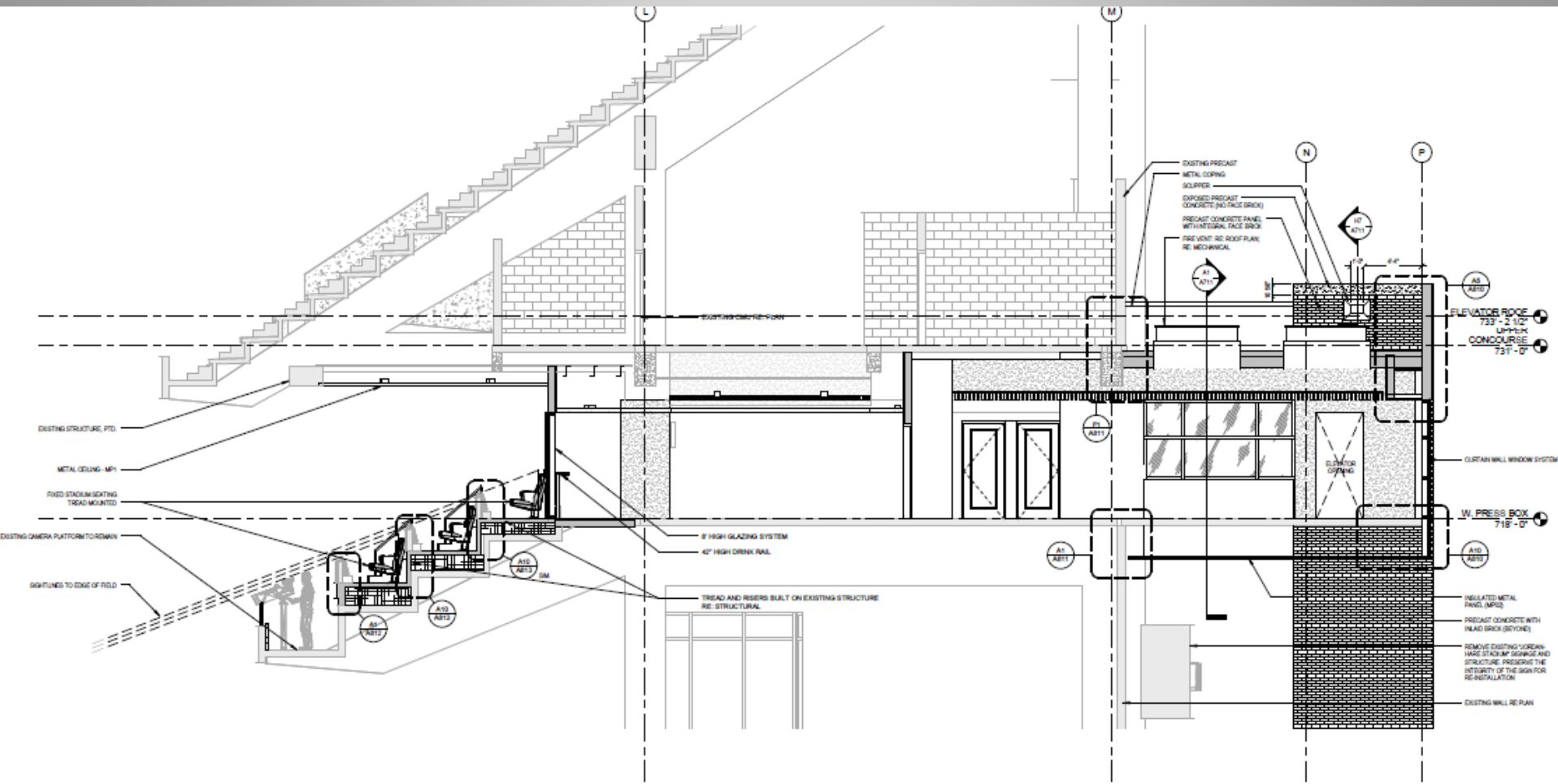
Sheet Title
BUILDING SECTION - OVERALL

Original Drawing is NOT to Scale. Use only the numbers of this drawing.
 Sheet Number:

A700

A1 BUILDING SECTION

1/8" = 1'-0"



A1 PRESS LEVEL SECTION



TTL



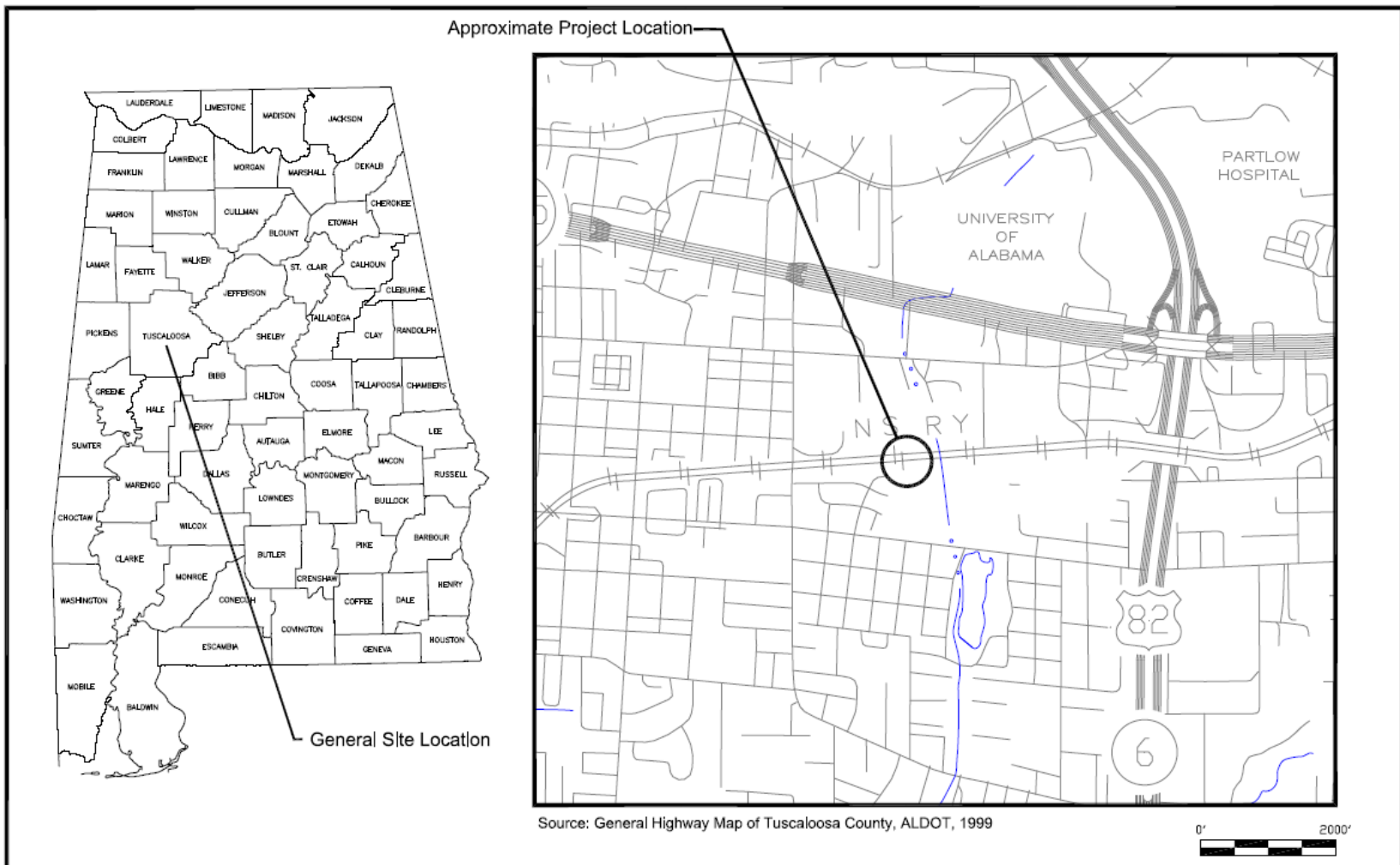
TTL

WAR EAGLE




TTL

University of Alabama



The University of Alabama
 2nd Avenue Overpass
 UA Project No. TRN-17-1106
 Tuscaloosa, Tuscaloosa County, Alabama

 Highway Location Map

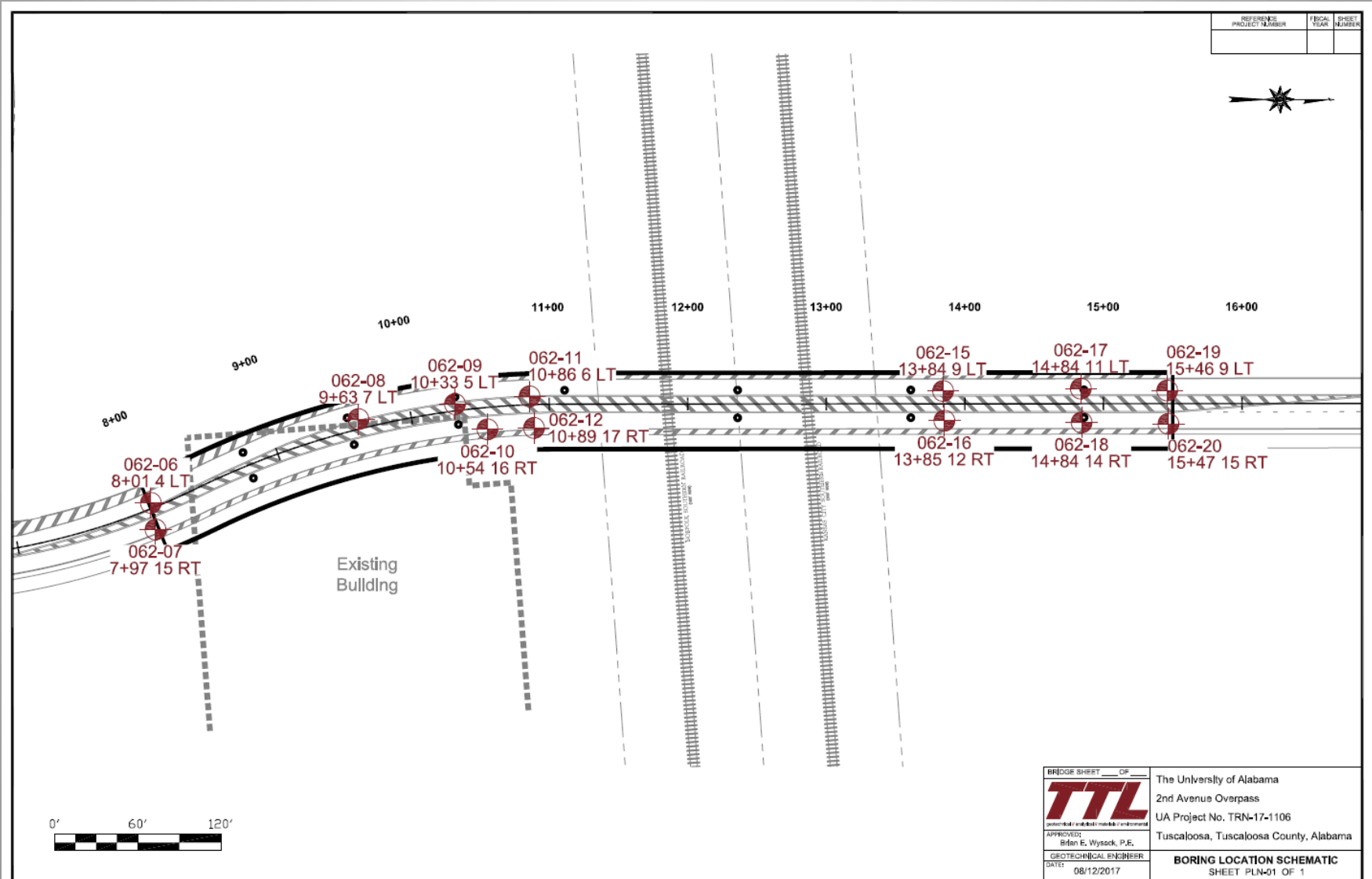
SCALE: 1" = 2000'

DRAWING PATH: <small>\\fs-01\land\user\pjohnson\Tuscaloosa\2nd Avenue Overpass\02-17062.dwg</small>		TTL PROJECT NO.:
DATE CREATED: 08/05/2017		001010117062.00
DATE REVISED: N/A	REVISION NUMBER: N/A	
DRAWN BY: mjc	CHECKED BY: BEW	
APPROVED: Bran E. Wysock, P.E.		
SHEET:		MAP-02 OF 3

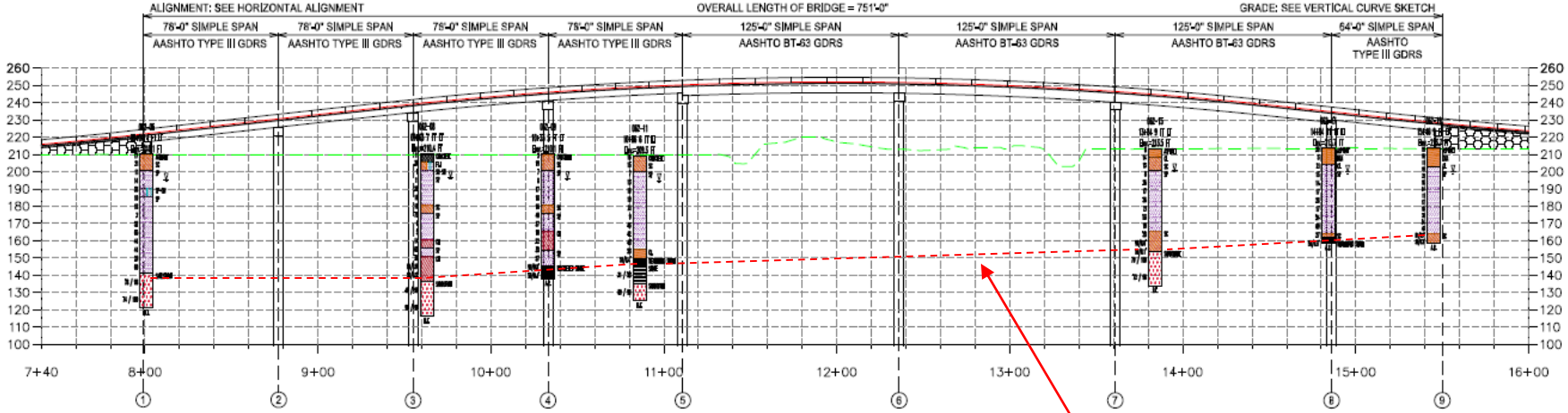


TTL

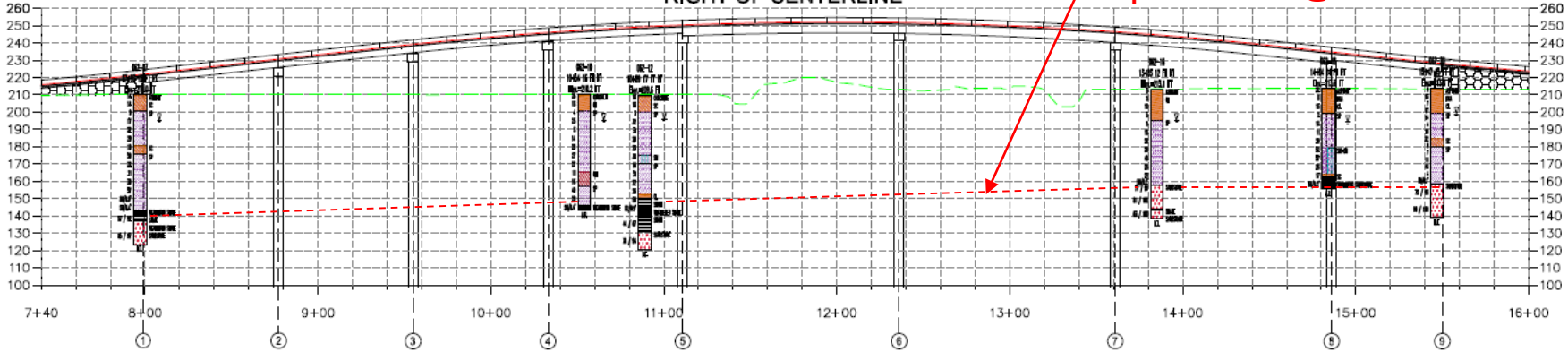
Bridge Boring Locations



LEFT OF CENTERLINE




RIGHT OF CENTERLINE



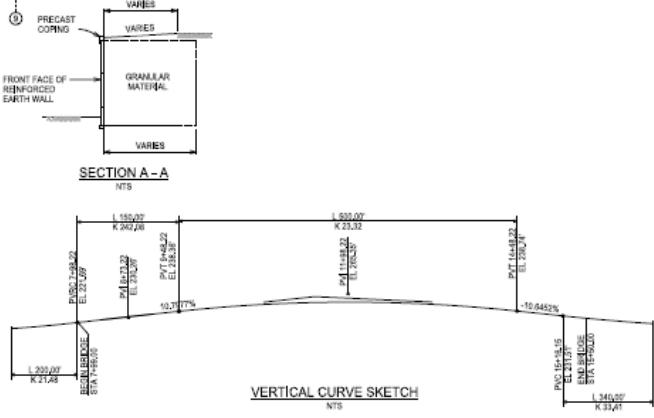
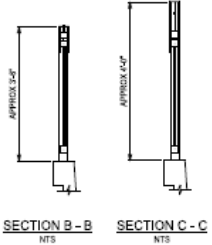
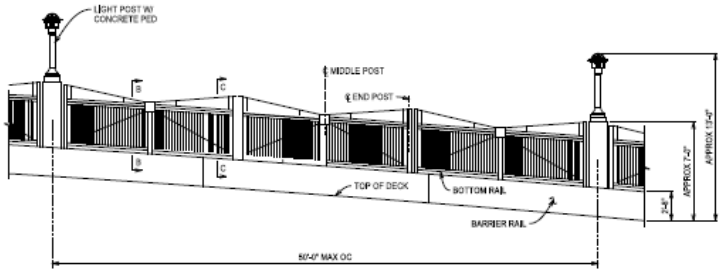
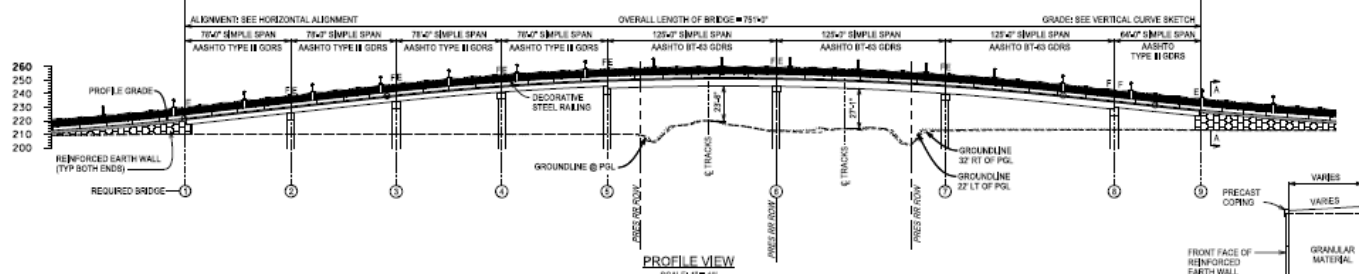
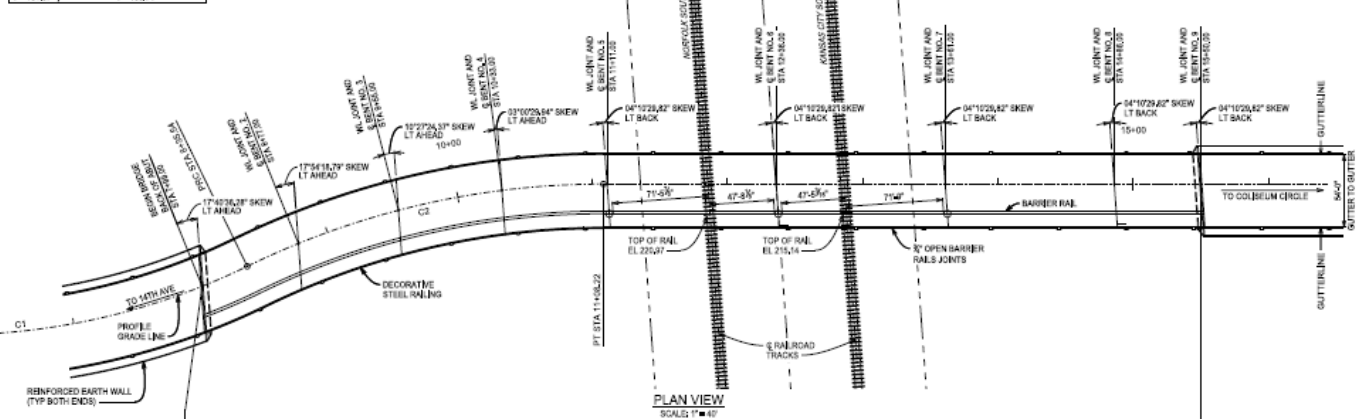
Top of Rock @ 50 – 75 ft.



THESE DRAWINGS ARE BEING PROVIDED FOR REFERENCE PURPOSES AND MAY NEED TO BE MODIFIED FOR FINAL DESIGN PLANS

	SUBSURFACE PROFILE		
	The University of Alabama 2nd Avenue Overpass UA Project No. TRN-17-1106 Tuscaloosa, Tuscaloosa County, Alabama		
DATE CREATED: 08/12/2017	CREATED BY: mjc	CHECKED BY: BEW	
DATE REVISED: N/A	REVISIONS: N/A	REVISIONS BY: N/A	
TPL PROJECT #: 001010117062.00	SCALE: 1" = 60'	SHEET: PRF-01 OF 1	
METEOROLOGICAL DESIGNER: Brian E. Wysock, P.E.		SOURCE FROM ORIGINAL DRAWING BY: McGiffert and Associates, LLC	

CURVE INFO	
CV	CV
PI = STA 9+46.33	PI = STA 9+14.28
RI = 656.20'	RI = 656.20'
DA = 39°52'31.63"	DA = 28°12'22.65"
CA = 11°27'33"	CA = 8°32'57"
L = 372.48'	L = 372.48'
T = 181.24'	T = 135.14'



BKI BURK-KLEINPETER, INC.
ENGINEERS, ARCHITECTS, PLANNERS, ENVIRONMENTAL SCIENTISTS

PRELIMINARY
NOT FOR CONSTRUCTION

McGiffert & Associates, LLC
CIVIL ENGINEERS
2814 STELLMAN BLVD. • P.O. BOX 20559
TUSCALOOSA, ALABAMA 35402-0559
WWW.MCGIFFERT.COM (205)765-1311 FAX (205)765-1824

DATE	REVISION / DESCRIPTION	BY

THE UNIVERSITY OF ALABAMA
2nd AVENUE OVERPASS PROJECT
GENERAL PLAN AND ELEVATION

FILE NAME: DATE OF FIELD SURVEY: 12/01/16 ROAD DESIGN: ROAD: 9900M DESIGN: 9900M SHEET NO. OF 4 TOTAL SHEETS: 4 SHEET NO. 1 OF 4 DRAWN BY: S.T. CHECKED BY: S.T.H.

THIS DRAWING AND ALL INFORMATION HEREON BECOME THE PROPERTY OF THE CLIENT AND WILL NOT BE APPLIED TO ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.