

Docket No. #22-ZONE-0098

Blankenbaker Station Community
Association, Inc. concerns related to the
zone change at property located at 1525-
1711 Tucker Station Road,
12850 & 1704 S. Pope Lick Road

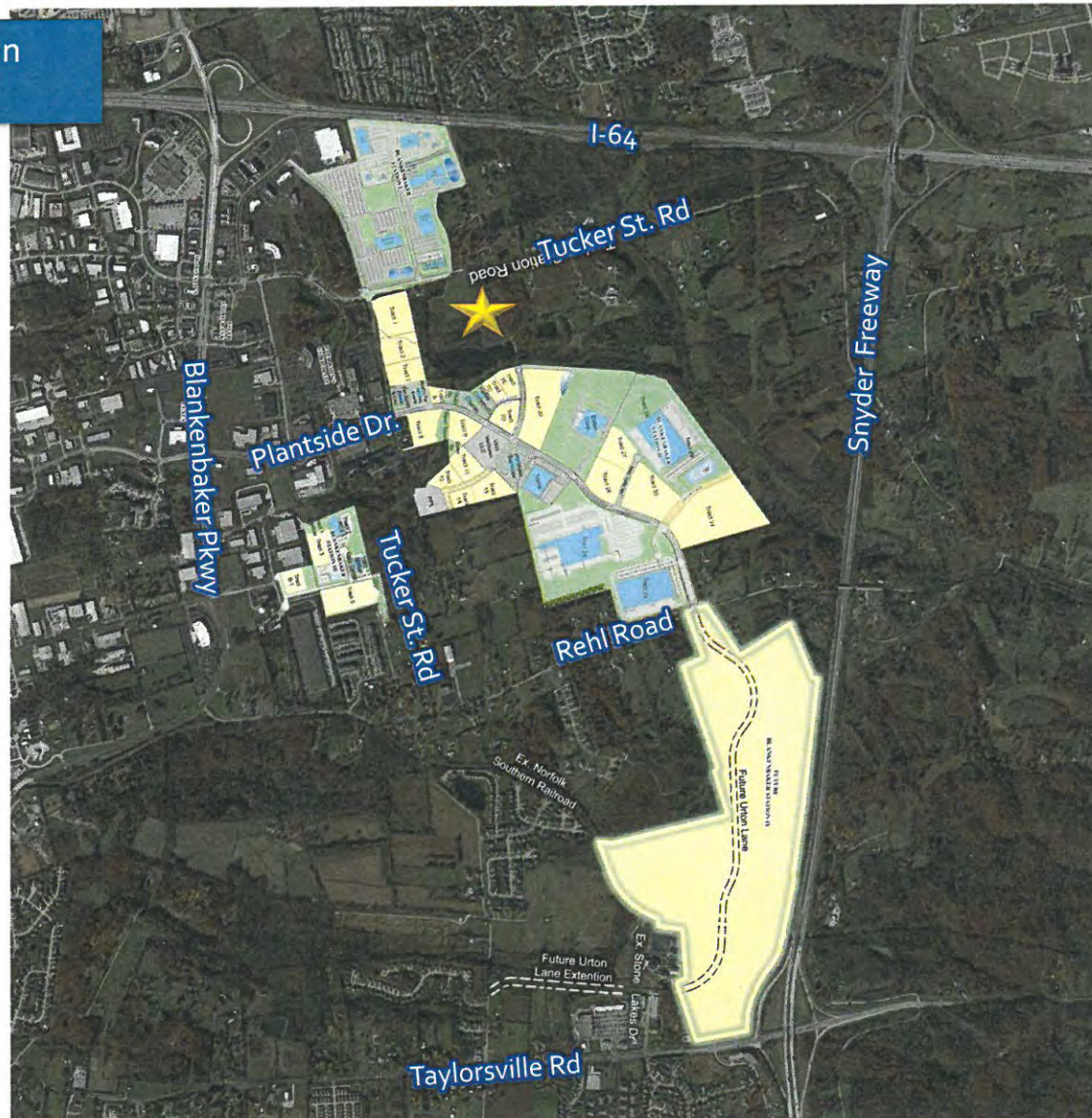
XEBEC TUCKER STATION



Main Concerns

- Tucker Station Road frontage should be widened to 4 lanes with a median similar to Plantside Drive and Bluegrass Parkway
- Schutte Station Place connection to be constructed prior to the Certificate of Occupancy for the first building
- Viewscape of the \$100M+ in office buildings on the Blankenbaker Station side of the lake (tree preservation, additional landscaping, etc.)

Blankenbaker Station
Phases I, II, III, IV







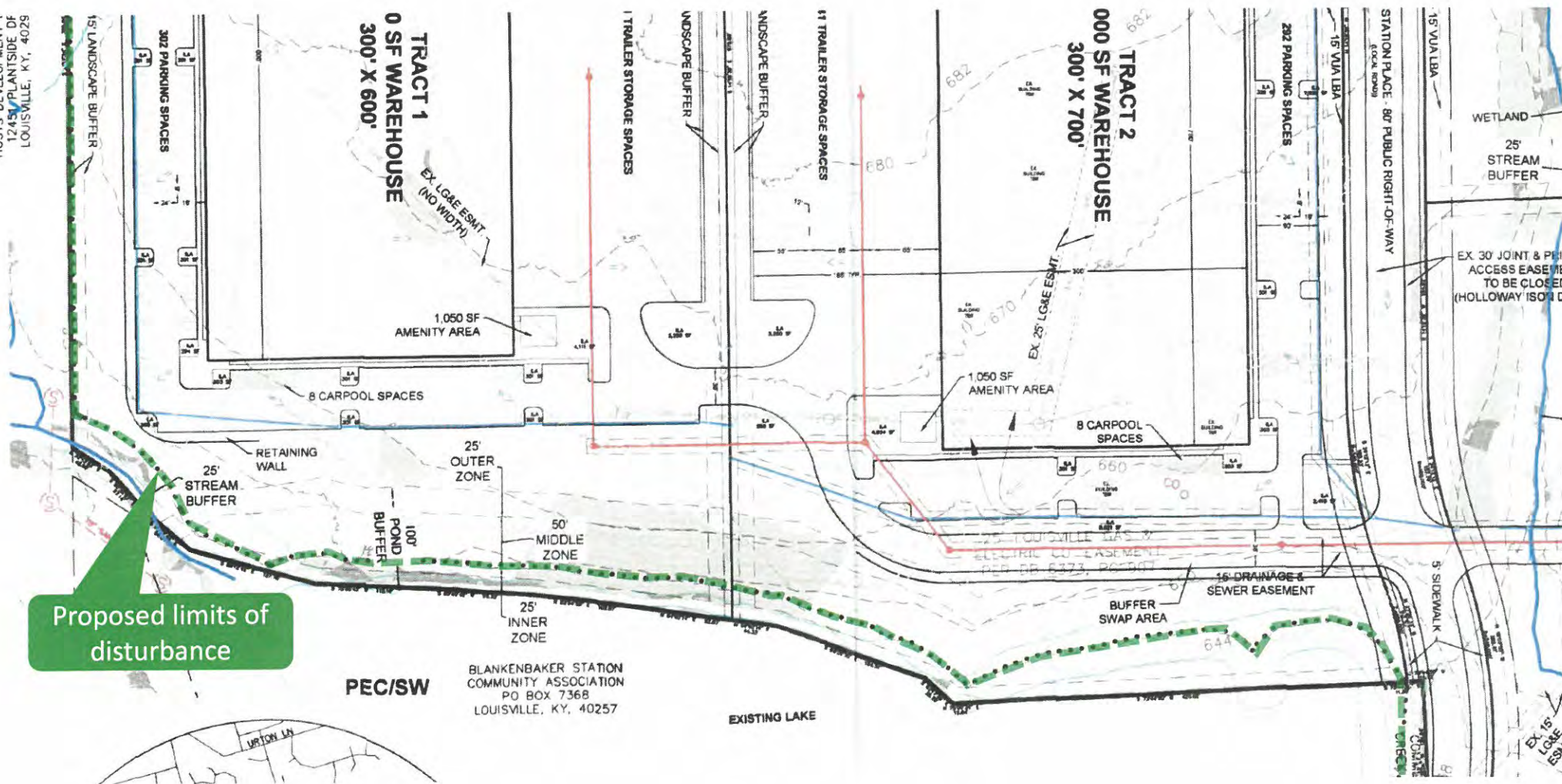


Additions/Revisions to Applicant's Proposed Binding Elements

- The applicant shall contribute an amount not to exceed \$120,000 toward the construction of a signal at Tucker Station Road and South Pope Lick Road. Payment shall be made prior to issuance of a certificate of occupancy for the ~~third~~ **FIRST** building.
- The applicant shall widen Tucker Station Road & South Pope Lick Road to ~~three~~ **FOUR** lanes across the frontage of the property and add turn lanes at the South Pope Lick/Tucker Station/Schutte Station intersection as presented at the Public Hearing on May 25th, 2023. This work shall be completed prior to a certificate of occupancy being issued for the ~~second~~ **FIRST** building.
- The applicant shall complete construction of the extension of Schutte Station Place to Tucker Station/South Pope Lick Road prior to the issuance of a certificate of occupancy for the ~~third~~ **FIRST** building.
- Applicant shall execute and record a set of Covenants, Conditions, and Restrictions (CCRs) for this project that are substantially similar to the CCRs for Blankenbaker Station Business Park as recorded in Deed Book 8375, Page 750 in the Jefferson County Clerk's Office.
- Applicant shall grant an easement to the Blankenbaker Station Community Association, Inc. to construct, use, and maintain a walking path along the north side of the lake on the subject property as an extension of the Blankenbaker Station walking path.



HOSTS DEVELOPMENT 1
12451 PLANTSIDE OF
LOUISVILLE, KY, 40257





PLANNING COMMISSION PUBLIC HEARING

CHANGE IN ZONING FROM R-4 TO PEC
CASE # 22-ZONE-0098

APPLICANT

XEBEC PURSUITS, LLC

REPRESENTATIVES

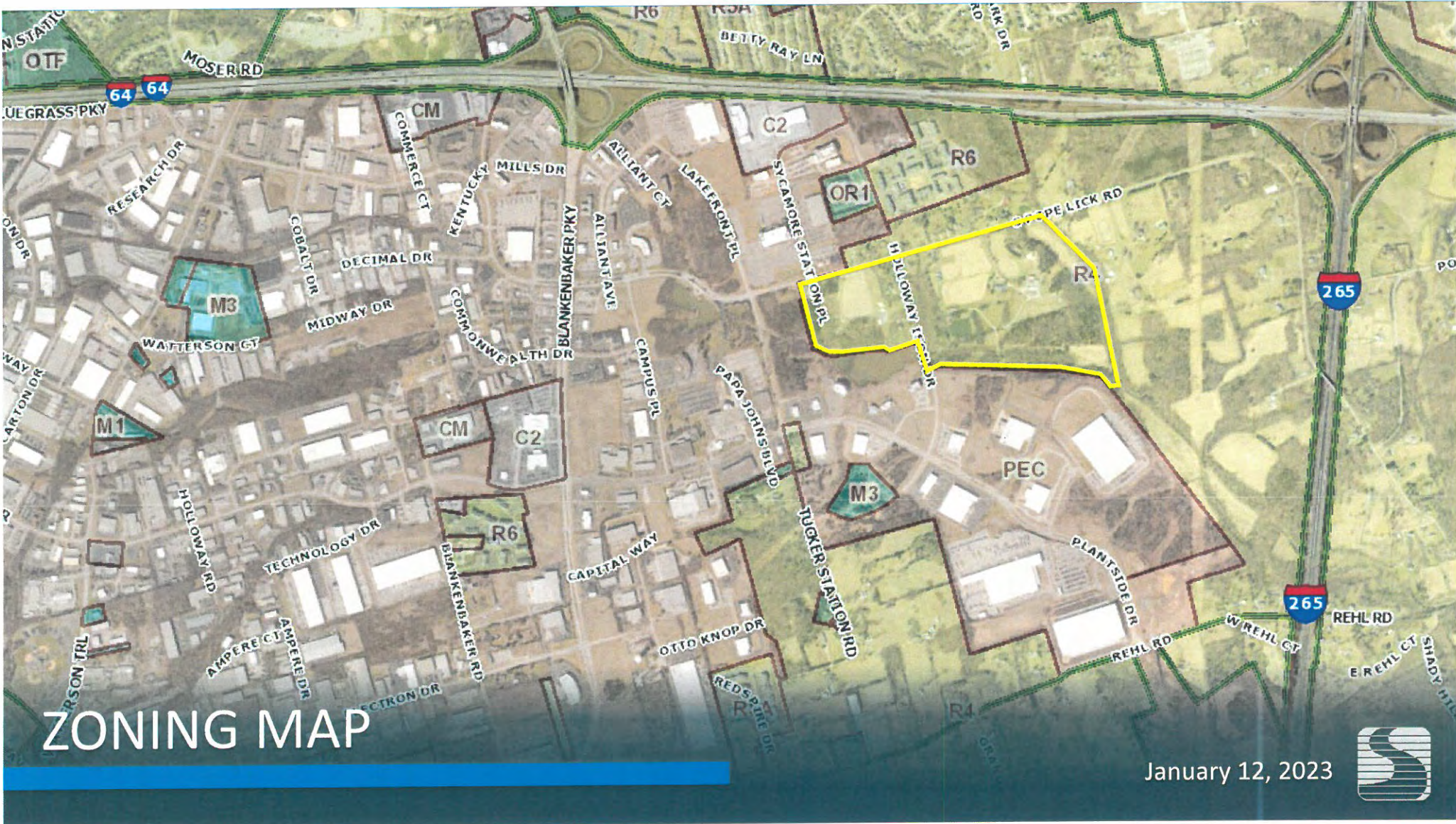
GREG EHRHARD – STITES & HARBISON

KELLI JONES - SABAK, WILSON & LINGO, INC.

XEBEC TUCKER STATION

MAY 25, 2023





ZONING MAP

January 12, 2023





AERIAL MAP

January 12, 2023



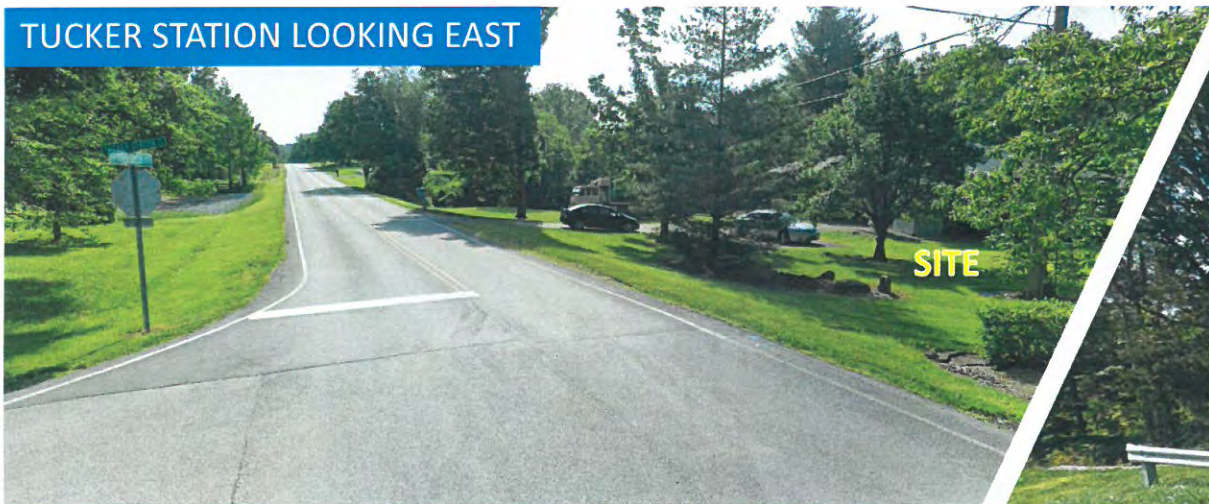


AERIAL MAP

February 23, 2023



TUCKER STATION LOOKING EAST



SCHUTTE STATION LOOKING NORTH



TUCKER STATION LOOKING WEST



S POPE LICK LOOKING NORTH



SURROUNDING ROADS

January 12, 2023





ACROSS THE STREET

February 23, 2023



FedEx Ground



290,000 SF

ProLift



71,000 SF

Rev-A-Shelf



320,000 SF

NEARBY BUSINESS

Quadrant



37,000 SF

January 12, 2023



RENDERING

- INCREASED SETBACK
- 991,700 SF OF WAREHOUSE
- 1,158 PARKING SPACES
- ON-SITE DETENTION

February 23, 2023





February 23, 2023



TUCKER STATION ROAD

S. POPE LICK ROAD

SCHUTTE STATION PLACE

TRACT 1
180,000 SF WAREHOUSE
300' X 600'

TRACT 2
210,000 SF WAREHOUSE
300' X 700'

TRACT 3
145,600 SF WAREHOUSE
260' X 560'

TRACT 4
145,600 SF WAREHOUSE
260' X 560'

TRACT 5
310,500 SF WAREHOUSE
300' X 1035'

PUBLIC RIGHT OF WAY
REQUIRED FROM
ADJACENT PROPERTY

PROPOSED PUBLIC
RIGHT OF WAY

RIGHT-OF-WAY EXTENSION

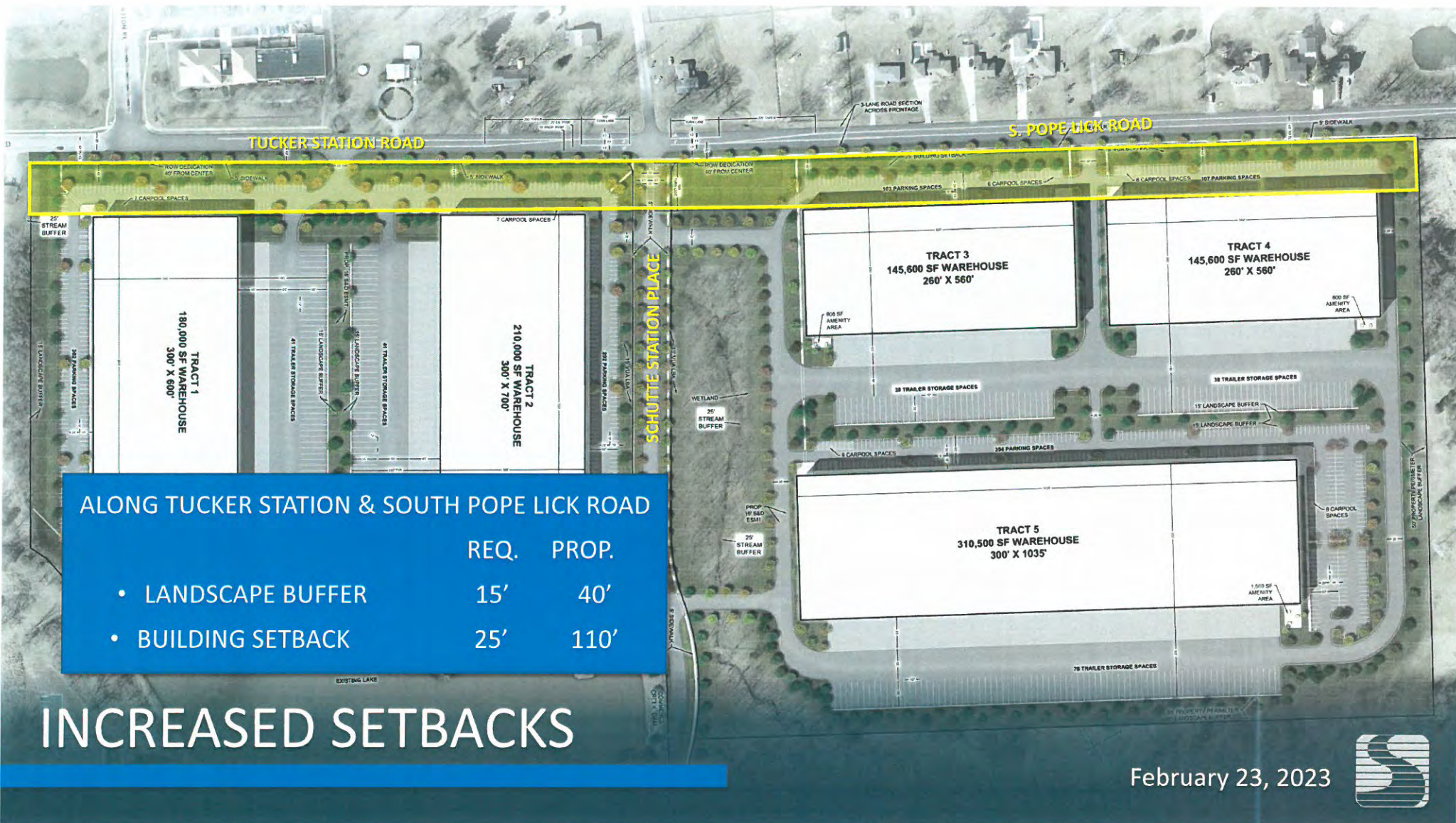
February 23, 2023

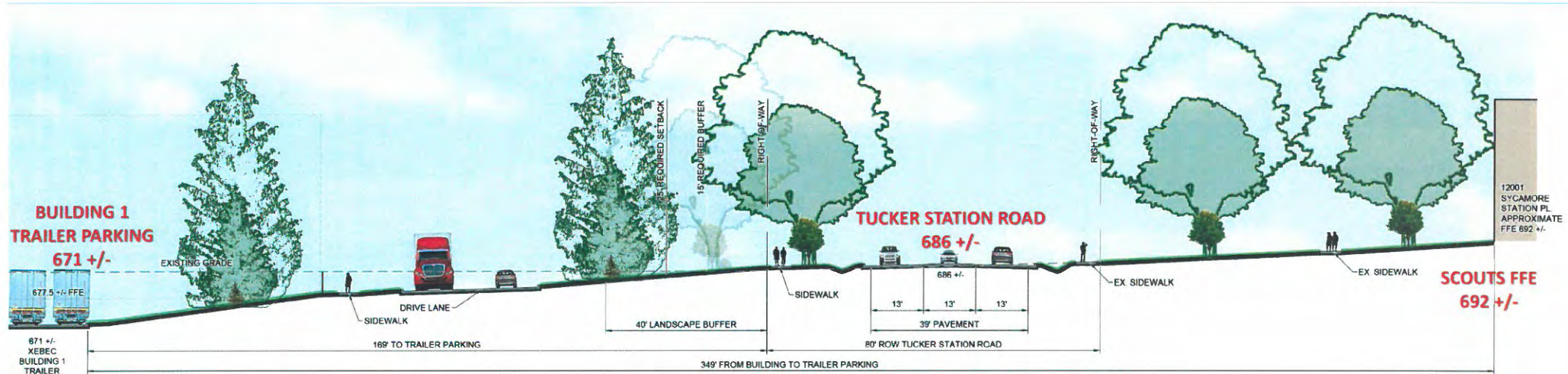




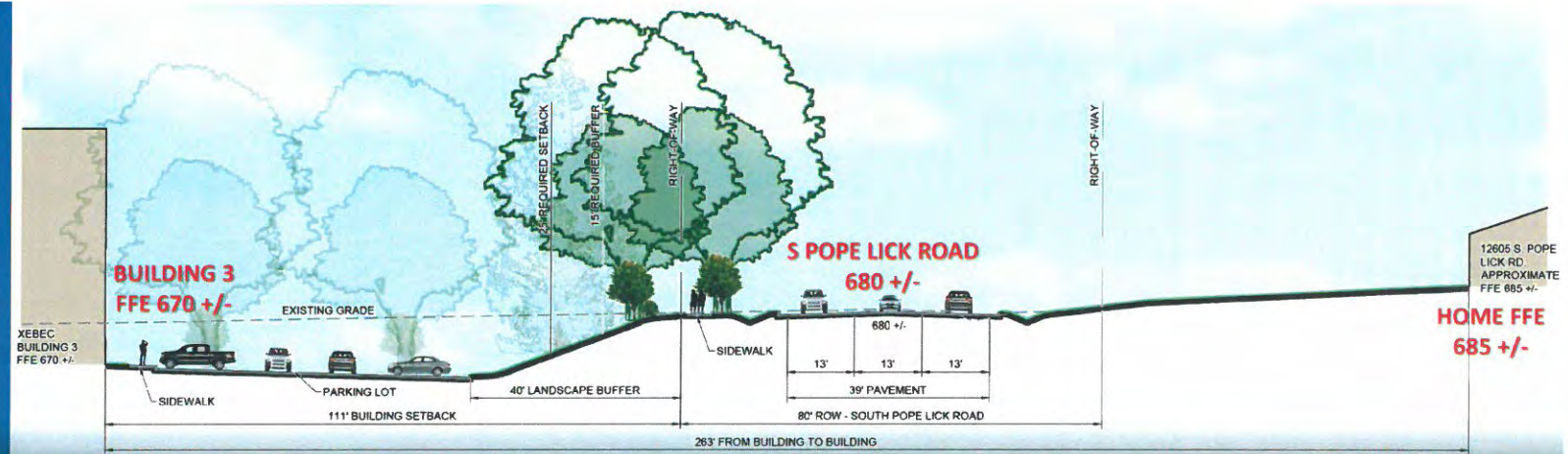
February 23, 2023







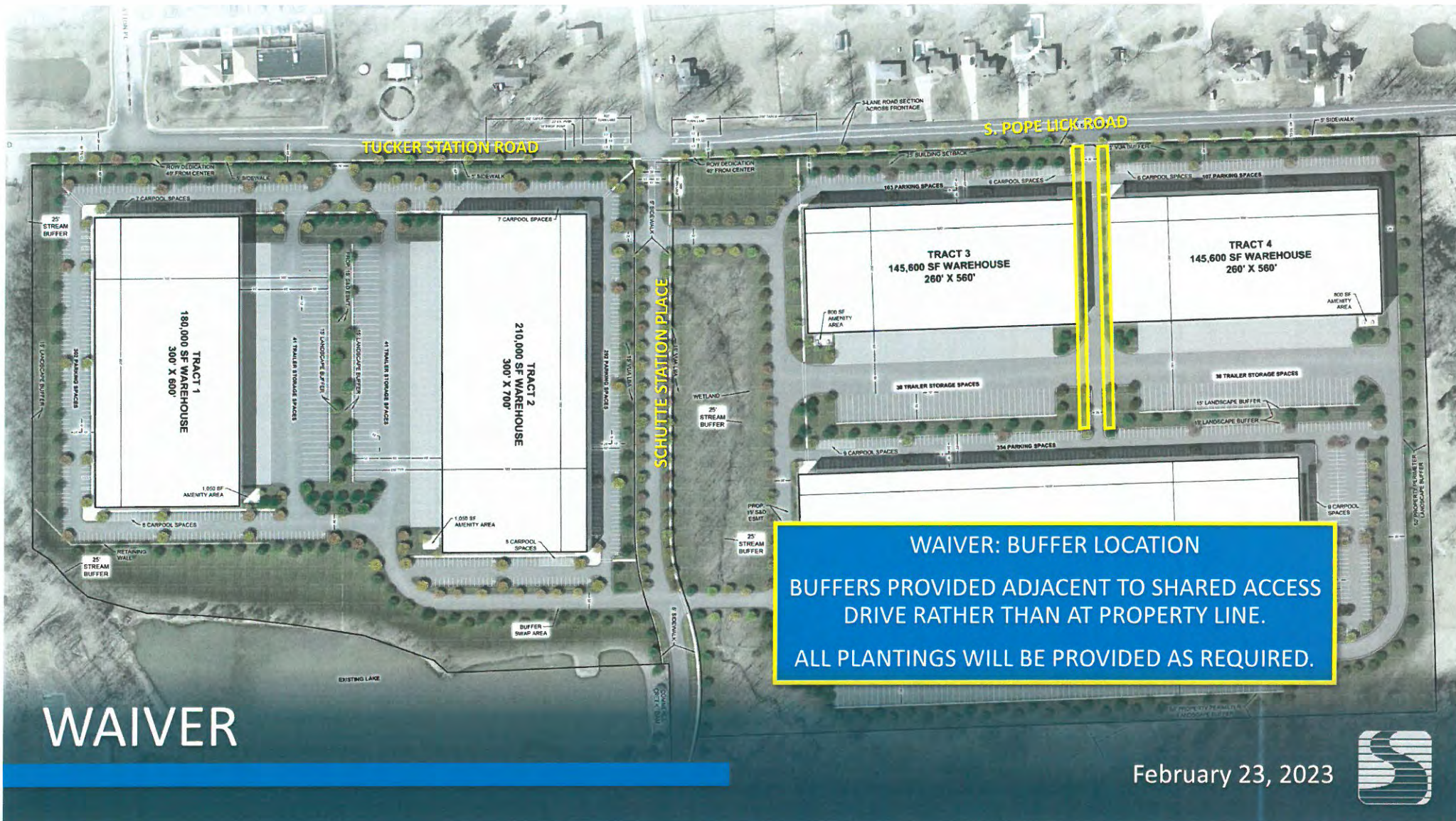
IMPACT MITIGATION
INCREASED SETBACKS
CHANGE IN ELEVATION
SCREENING
(FENCE/PLANTINGS)



SECTIONS

February 23, 2023







BUILDING ELEVATIONS

January 12, 2023





BUILDING ELEVATIONS

January 12, 2023



Table 1: Trip Generation

Land Use	ITE Code	Ind. Var.	Units	AM Peak			Saturday		
				Total	Entering	Exiting	Total	Entering	Exiting
Total				414	359	55	405	85	320
Tract 1	130	196.5	units	81	70	11	79	17	62
Tract 2	130	210	units	86	75	11	84	18	66
Tract 3	130	146.9	units	60	52	8	59	12	47
Tract 4	130	146.9	units	60	52	8	59	12	47
Tract 5	130	310.5	units	127	110	17	124	26	98



Table 2: AM Peak Capacity Analysis Summary

AM PEAK HOUR		2023 No Build		2023 Build		2033 No Build		2033 Build	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Blankenbaker Pkwy at Bluegrass Pkwy	Intersection	E	57.6	E	57.6	E	61.2	E	64.0
	eastbound (Bluegrass)	E	79.0	F	85.8	E	73.7	E	74.3
	westbound (Bluegrass)	F	95.4	F	91.8	F	157.2	F	162.9
	northbound (Blankenbaker)	D	48.9	E	57.9	D	54.4	D	54.6
	southbound (Blankenbaker)	D	49.8	D	45.3	D	41.7	D	45.5
Bluegrass Pkwy at Tucker Station	Intersection	--	--	--	--	--	--	--	--
	eastbound (Bluegrass)	A	1.8	A	1.4	A	1.8	A	1.5
	westbound (Tucker Station)	A	1.6	A	1.7	A	1.6	A	1.7
	northbound (Tucker Station)	D	27.2	D	32.7	D	33.3	E	42.0
	southbound (Lakeside Pl)	C	23.7	D	32.2	D	25.9	E	36.2
S. Pope Lick Rd at Access Point 1	Intersection			--	--			--	--
	westbound (left turn)			A	0.7			A	0.7
	northbound (Access 1)			C	17.7			C	18.3
S. Pope Lick Road at Tucker Station Road	Intersection	D	31.2	F	85.9	E	38.4	F	99.3
	eastbound (Tucker Station)	B	11.1	B	12.6	B	11.5	B	12.8
	westbound (S. Pope Lick)	E	42.7	F	142.2	F	54.1	F	165.7
	northbound (Shute Station)	--	--	B	10.8	--	--	B	10.8
	southbound (Tucker Station)	B	11.7	C	17.6	B	12.2	C	18.3
S. Pope Lick Rd at Access Point 2	Intersection			--	--			--	--
	westbound (left turn)			A	0.7			A	0.7
	northbound (Access 1)			C	15.4			C	15.8
Schute Station at Plantside Drive	Intersection	--	--	--	--	--	--	--	--
	eastbound LT (Plantside)	A	0.5	A	1.6	A	0.5	A	1.6
	westbound LT (Plantside)	A	0.1	A	0.1	A	0.1	A	0.1
	northbound	B	10.7	B	11.8	B	10.9	B	11.9
	southbound	A	8.7	A	9.7	A	8.7	A	9.8



Table 3: PM Peak Capacity Analysis Summary

PM PEAK HOUR		2023 No Build		2023 Build		2033 No Build		2033 Build	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Blankenbaker Pkwy at Bluegrass Pkwy	Intersection	F	117.6	F	130.5	F	123.2	F	131.9
	eastbound (Bluegrass)	F	277.1	F	395.4	F	309.9	F	314.5
	westbound (Bluegrass)	F	307.3	F	334.9	F	294.2	F	320.2
	northbound (Blankenbaker)	D	54.9	E	72.7	E	58.3	E	58.4
	southbound (Blankenbaker)	E	61.0	D	37.9	E	70.0	E	74.0
Bluegrass Pkwy at Tucker Station	Intersection	--	--	--	--	--	--	--	--
	eastbound (Bluegrass)	A	0.2	A	0.2	A	0.2	A	0.2
	westbound (Tucker Station)	A	3.5	A	3.2	A	3.5	A	3.3
	northbound (Tucker Station)	F	107.8	F	189.7	F	162.3	F	273.7
	southbound (Lakeside Pl)	E	37.4	F	65.7	F	51.8	F	105.6
S. Pope Lick Rd at Access Point 1	Intersection			--	--			--	--
	westbound (left turn)			A	0.4			A	0.3
	northbound (Access 1)			C	19.1			D	25.4
S. Pope Lick Road at Tucker Station Road	Intersection	F	84.8	F	61.6	F	102.1	F	72.1
	eastbound (Tucker Station)	F	136.4	C	98.6	F	165.9	F	116.7
	westbound (S. Pope Lick)	B	12.8	B	22.6	B	13.3	C	24.3
	northbound (Shute Station)	--	--	D	13.1	--	--	B	13.3
	southbound (Tuckjer Station)	C	16.1	C	26.0	C	16.9	D	28.6
S. Pope Lick Rd at Access Point 2	Intersection			--	--			--	--
	westbound (left turn)			A	0.4			A	0.4
	northbound (Access 1)			C	19.1			C	19.9
Schute Station at Plantside Drive	Intersection	--	--	--	--	--	--	--	--
	eastbound LT (Plantside)	A	0.2	A	0.7	A	0.2	A	0.6
	westbound LT (Plantside)	A	0.0	A	0.0	A	0.0	A	0.0
	northbound	B	10.3	B	10.8	B	10.5	B	10.9
	southbound	A	9.1	B	10.1	A	9.1	B	10.2



Table 4: Signalized Capacity Analysis Summary

PM PEAK HOUR		2023 AM		2023 PM		2033 AM		2033 PM	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Bluegrass Pkwy at Tucker Station	Intersection	A	5.6	A	9.4	A	6.7	B	10.2
	eastbound (Bluegrass)	A	4.9	A	9.2	A	5.0	B	10.4
	westbound (Tucker Station)	A	5.3	A	7.2	A	7.4	A	7.3
	northbound (Tucker Station)	A	7.5	B	13.3	A	8.5	B	14.4
	southbound (Lakeside Pl)	A	6.7	A	8.0	A	7.5	A	8.1
S. Pope Lick Road at Tucker Station Road	Intersection	A	7.7	A	9.4	A	8.1	A	10.0
	eastbound (Tucker Station)	A	6.3	B	11.4	A	6.6	B	12.1
	westbound (S. Pope Lick)	A	7.0	A	5.8	A	7.3	A	5.9
	northbound (Shute Station)	A	9.9	A	8.2	A	10.4	A	8.5
	southbound (Tuckjer Station)	B	10.7	A	8.5	A	11.3	A	9.0



This table from ITE shows the number of truck trips produced by a typical light industrial user.

Hourly Distribution of Entering and Exiting Truck Trips by Land Use						
Source: ITE Trip Generation Manual , 11th Edition						
Land Use Code	110					
Land Use	General Light Industrial					
Setting	General Urban/Suburban					
Time Period	Weekday					
# Data Sites	27					
Time	% of 24-Hour Truck Trips			24-Hour Truck Trips		
	Total	Entering	Exiting	Total	Entering	Exiting
12:00 - 1:00 AM	0.0%	0.0%	0.0%	0	0	0
1:00 - 2:00 AM	0.0%	0.0%	0.0%	0	0	0
2:00 - 3:00 AM	0.4%	0.0%	0.8%	1	0	1
3:00 - 4:00 AM	0.0%	0.0%	0.0%	0	0	0
4:00 - 5:00 AM	0.0%	0.0%	0.0%	0	0	0
5:00 - 6:00 AM	0.0%	0.0%	0.0%	0	0	0
6:00 - 7:00 AM	0.0%	0.0%	0.0%	0	0	0
7:00 - 8:00 AM	7.6%	9.8%	5.3%	19	12	7
8:00 - 9:00 AM	9.5%	9.1%	9.8%	24	11	13
9:00 - 10:00 AM	15.5%	15.2%	15.9%	39	19	20
10:00 - 11:00 AM	14.8%	12.1%	17.4%	37	15	22
11:00 - 12:00 PM	6.1%	7.6%	4.5%	15	10	5
12:00 - 1:00 PM	8.7%	9.1%	8.3%	22	11	11
1:00 - 2:00 PM	12.9%	12.9%	12.9%	33	16	17
2:00 - 3:00 PM	10.6%	10.6%	10.6%	27	13	14
3:00 - 4:00 PM	9.1%	9.8%	8.3%	23	12	11
4:00 - 5:00 PM	3.4%	3.0%	3.8%	9	4	5
5:00 - 6:00 PM	1.5%	0.8%	2.3%	4	1	3
6:00 - 7:00 PM	0.0%	0.0%	0.0%	0	0	0
7:00 - 8:00 PM	0.0%	0.0%	0.0%	0	0	0
8:00 - 9:00 PM	0.0%	0.0%	0.0%	0	0	0
9:00 - 10:00 PM	0.0%	0.0%	0.0%	0	0	0
10:00 - 11:00 PM	0.0%	0.0%	0.0%	0	0	0
11:00 - 12:00 AM	0.0%	0.0%	0.0%	0	0	0

TRUCK GENERATION & DISTRIBUTION

April 13, 2023



RECOMMENDATIONS

- Dedicated left-turn lanes are recommended at the intersection of Tucker Station Road and S. Pope Lick Road.
- Signalization should be considered for the intersections of Tucker Station Road at Bluegrass Parkway and Tucker Station Road at S. Pope Lick Road.
- Left turn auxiliary lanes are recommended at the proposed access points on Tucker Station Road and S. Pope Lick Road.



3-LANE SECTION ACROSS FRONTAGE

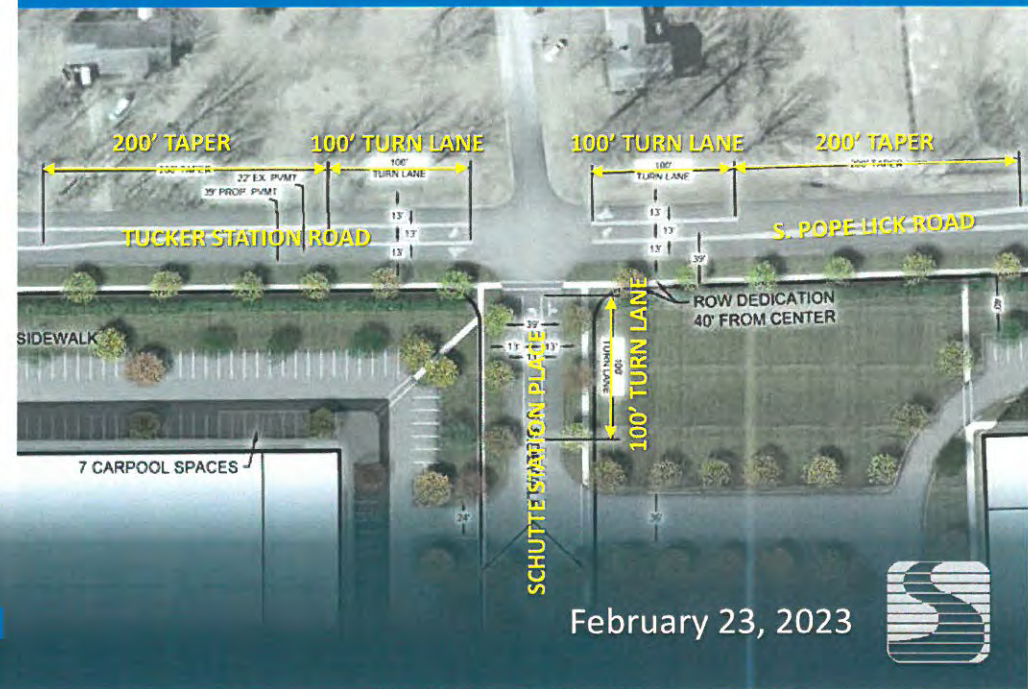


TRANSITION FROM EXISTING 3-LANE CONDITION



ROAD IMPROVEMENTS

TURN LANES AT TUCKER STATION / S. POPE LICK INTERSECTION



February 23, 2023



Tucker Station at BG Parkway

Warrant 1A: Eight-Hour Vehicular Volume

Major Street (BG Parkway)	Warrant Met		Ball Homes	Xebec	Major Street Vol.	Warrant Met
723	1		145	112	980	1
879	1		138	89	1106	1
376	0		104	88	568	1
310	0		112	94	516	1
372	0		122	92	586	1
501	1		133	122	756	1
459	0		141	95	695	1
405	0		154	99	658	1
555	1		176	108	839	1
846	1		211	95	1152	1
885	1		203	118	1206	1
480	0		170	17	667	1
Total Hrs Met	6					12

Minor Street (Tucker St NB)	Warrant Met	Warrant Met (2 Lanes)	Ball Homes	Xebec	Minor Street	Warrant Met (1 lane)	Warrant Met (2 Lanes)
96	0	0	6	39	141	0	0
133	0	0	8	24	165	1	0
141	0	0	7	16	164	1	0
70	0	0	8	17	95	0	0
143	0	0	11	14	168	1	0
144	0	0	11	20	175	1	0
103	0	0	12	19	134	0	0
113	0	0	14	16	143	0	0
191	1	0	17	13	221	1	1
225	1	1	21	9	255	1	1
306	1	1	20	3	329	1	1
97	0	0	17	0	114	0	0
Total Hrs	3					7	3

ESTIMATED SIGNAL COST – \$150,000.00

OTHER CONTRIBUTIONS – \$45,000.00

22-DDP-0083* – \$27,600.00

17-ZONE-1005 – \$10,200.00

16-ZONE-1083 – \$7,200.00

*This project is required to contribute and additional 133,000 at CO if signal has not yet been installed.

REMAINING COST – \$105,000.00

ROAD IMPROVEMENTS – SIGNAL WARRANTS

April 13, 2023



Tucker Station at S. Pope Lick

Warrant 1A: Eight-Hour Vehicular Volume

Major Street (S. Pope Lick)	Warrant Met		Ball Homes	Xebec	Major Street	Warrant Met
553	1		193	156	902	1
463	0		180	106	749	1
273	0		132	89	494	0
225	0		136	94	457	0
270	0		146	87	503	1
363	0		160	118	641	1
333	0		170	99	602	1
294	0		183	96	573	1
402	0		204	95	701	1
668	1		245	78	991	1
732	1		237	77	1046	1
348	0		196	11	555	1
Total Hrs Met	3					10

ESTIMATED SIGNAL COST - \$150,000.00

OTHER CONTRIBUTIONS - \$30,000.00

22-ZONE-0083 – \$30,000.00

REMAINING COST – \$120,000.00

Minor Street (Tucker St. SB)	Warrant Met	Warrant Met (2 Lanes)	Ball Homes	Xebec	Minor Street	Warrant Met (1 lane)	Warrant Met (2 Lanes)
170	1	0	11	72	253	1	1
153	1	0	14	43	210	1	1
148	0	0	12	29	189	1	0
161	1	0	15	31	207	1	1
190	1	0	19	26	235	1	1
208	1	1	21	36	265	1	1
198	1	0	22	34	254	1	1
200	1	0	26	29	255	1	1
212	1	1	31	24	267	1	1
121	0	0	38	16	175	1	0
151	1	0	36	5	192	1	0
187	1	0	31	0	218	1	1
Total Hrs Met	10	2				12	9

ROAD IMPROVEMENTS – SIGNAL WARRANTS

April 13, 2023



BLUEGRASS PARKWAY & TUCKER STATION ROAD

1,305 – TOTAL CARS ON ROAD AT PEAK HOUR

106 – XEBEC CONTRIBUTION TO CARS ON ROAD AT PEAK HOUR

\$150,000 – TYPICAL SIGNAL COST ACCORDING TO PUBLIC WORKS

$106 / 1,305 = 8\%$

$8\% \times \$150,000.00 = \$12,000.00$

XEBEC IS RESPONSIBLE FOR 8% OF THE SIGNAL COST WHICH IS \$12,000.00.

ROAD IMPROVEMENTS – FAIR SHARE CALCS.

April 13, 2023



TUCKER STATION ROAD & SOUTH POPE LICK ROAD

1,084 – TOTAL CARS ON ROAD AT PEAK HOUR

210 – XEBEC CONTRIBUTION TO CARS ON ROAD AT PEAK HOUR

\$150,000 – TYPICAL SIGNAL COST ACCORDING TO PUBLIC WORKS

$210 / 1,084 = 19\%$

$19\% \times \$150,000.00 = \$28,500.00$

XEBEC IS RESPONSIBLE FOR 19% OF THE SIGNAL COST WHICH IS \$28,500.00.

ROAD IMPROVEMENTS – FAIR SHARE CALCS.

April 13, 2023



ORIGINAL REQUEST FROM TRANSPORTATION PLANNING

\$75,000.00

FAIR SHARE BASED ON PERCENTAGE OF IMPACT

\$12,000.00 + \$28,500.00 = \$40,500.00

AS REQUESTED BY TRANSPORTATION PLANNING LAST WEEK

(Percentage of impact at BG & TS and cost less other contributions at TS & SPL)

\$12,000.00 + \$120,000.00 = \$132,000.00

3.25x PERCENTAGE OF IMPACT & 1.75x ORIGINAL REQUEST

AS REQUESTED BY PUBLIC WORKS THIS WEEK

\$150,000.00 + \$75,000.00 = \$225,000.00

5.56x PERCENTAGE OF IMPACT, 3x ORIGINAL REQUEST, 1.7x LAST WEEKS REQUEST

ROAD IMPROVEMENTS – SIGNAL CONTRIBUTION

April 13, 2023



TOTAL ROAD IMPROVEMENTS PROPOSED

- EXTENSION OF SCHUTTE STATION PLACE TO TUCKER STATION ROAD. (1400 LF)
- WIDEN TUCKER STATION RD & S POPE LICK RD TO 3 LANES ACROSS FRONTAGE. (2300 LF)
- INSTALL TURN LANES AT 3 OF 4 APPROACHES AT TUCKER STATION ROAD & SOUTH POPE LICK (NOT ENOUGH ROW FOR TURN LANES AT 4TH APPROACH).
- SIGNAL CONTRIBUTION AT TUCKER STATION ROAD & SOUTH POPE LICK ROAD.
- SIGNAL CONTRIBUTION AT BLUEGRASS PARKWAY & TUCKER STATION ROAD.

ROAD IMPROVEMENTS – REQUESTED TO DATE

April 13, 2023



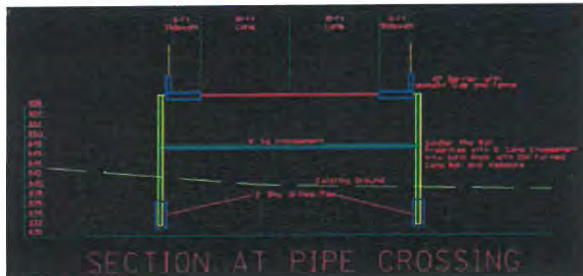


February 21, 2023

Kelli Jones, RLA
Sabak, Wilson & Lingo, Inc.
608 S. 3rd Street
Louisville, KY 40202

Re: Schutte Station Place
XEBEC Tucker Station Development
Constructability Statement

American Engineers, Inc. (AEI) has reviewed the requirement for Schutte Station Place (local road) to be extended across an existing earthen dam which forms an existing lake. AEI feels an engineered solution is possible and constructable with more than one possible solution. One possible solution uses soldier pile retaining walls consisting of steel H-Piles with double formed concrete tiebacks. This wall will support roadway pavement with a sidewalk and concrete barrier with moment slab as shown in below typical section.



Best Regards,
AMERICAN ENGINEERS, INC.

J.B. Tasman
Jon Tasman, P.E.
Project Engineer

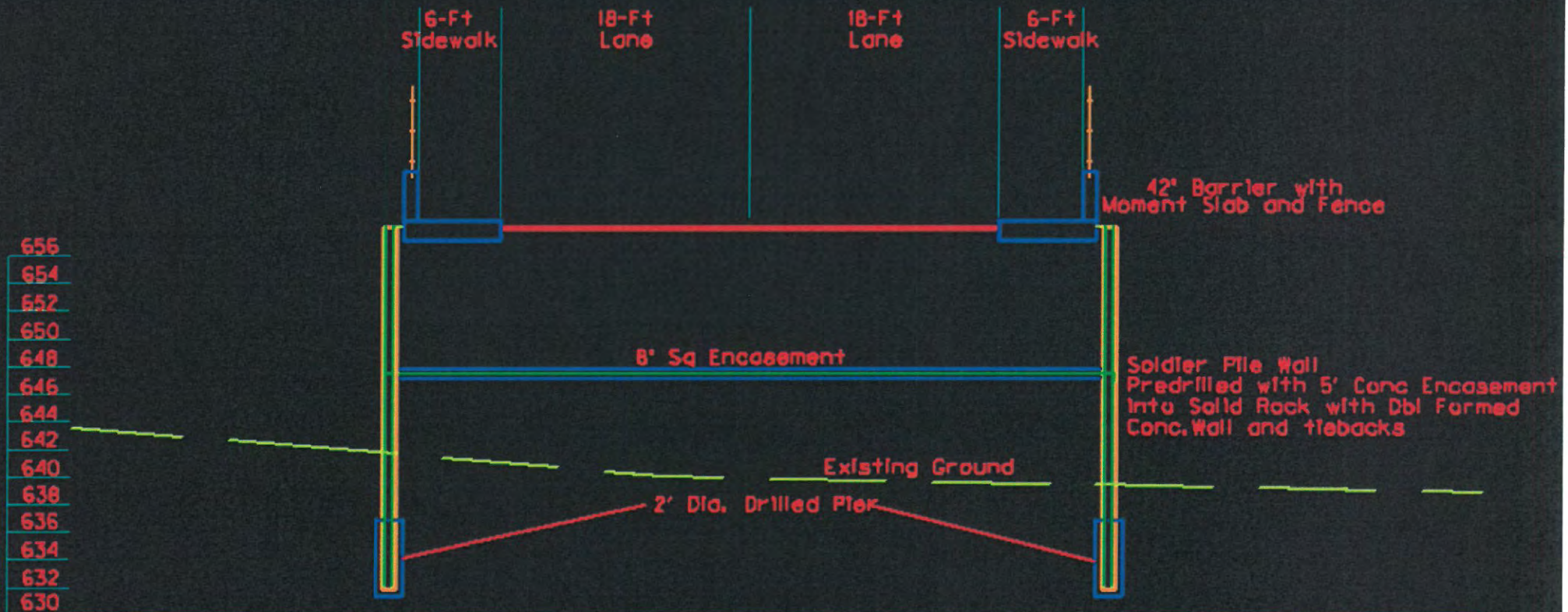
2500 Nelson Miller Parkway Louisville, KY 40223 www.aei.cc

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STRUCTURAL ANALYSIS

February 23, 2023





SECTION AT PIPE CROSSING

STRUCTURAL ANALYSIS

February 23, 2023



PROPOSED BIDDING ELEMENTS

1. The applicant shall contribute \$12,000 toward the construction of a traffic signal at Bluegrass Parkway and Tucker Station Road. Payment shall be made prior to the issuance of a certificate of occupancy for the first building.
2. The applicant shall contribute an amount not to exceed \$120,000 toward the construction of a signal at Tucker Station Road and South Pope Lick Road. Payment shall be made prior to issuance of a certificate of occupancy for the third building.
3. The applicant shall widen Tucker Station Road & South Pope Lick Road to three lanes across the frontage of the property and add turn lanes at the South Pope Lick/Tucker Station/Schutte Station intersection as presented at the Public Hearing on May 25th, 2023. This work shall be completed prior to a certificate of occupancy being issued for the second building.

PROPOSED BINDING ELEMENT

MAY 25, 2023



PROPOSED BIDDING ELEMENTS (cont.)

4. The applicant shall complete construction of the extension of Schutte Station Place to Tucker Station/South Pope Lick Road prior to the issuance of a certificate of occupancy for the third building.
5. No construction traffic shall be permitted on S Pope Lick Road. No construction traffic shall be permitted on Tucker Station Road once the Schutte Station Place connection has been completed.
6. Signage shall be placed at all access points to Tucker Station Road and S Pope Lick Road to direct truck traffic to the Schutte Station Place connection.





February 23, 2023



BARDENWERPER, TALBOTT & ROBERTS, PLLC

Attorneys at law

1000 N. HURSTBOURNE PARKWAY • BUILDING INDUSTRY ASSOCIATION BUILDING • SECOND FLOOR •
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May 3, 2023

Dante St. Germain, AICP
Planner II
Planning & Design Services
Department of Develop Louisville
LOUISVILLE FORWARD
444 South Fifth Street, Suite 300
Louisville, Kentucky 40202

Re: Rezoning from R-4 to PEC for Industrial Distribution Facilities (the “Xebec Development”)
Tracts comprising 73.43 acres on Tucker Station Road / Pope Lick Road (collectively, the “Property”)
Xebec Pursuits, LLC (“Xebec”)
22-ZONE-0098

Dear Dante:

As you are aware from the prior LD&T meetings for the Xebec Development, our firm, Bardenwerper, Talbot and Roberts, PLLC (“BTR”), has been retained by the directors of the Blankenbaker Station Community Association, Inc. (the “Association”) to represent the Association in the public review and re-zoning process of the approximately 73-acre Property directly adjacent to Blankenbaker Station Phase I and Phase II.

BTR has been involved with the developers of the Blankenbaker Station business park (all 4 Phases) (“Blankenbaker Station”) since the initial concept for the development was created. We have represented the developers on all re-zonings and development plan approvals in Blankenbaker Station for the past 25 years.

As explained at the LD&T meetings, the Association has compiled a list of concerns communicated to the Association by its members related to the Xebec Development, including the following:

- 1) Does Xebec intend to implement the same design covenants/standards for a Class A business park as set forth in the Declaration of Covenants, Conditions, and Restrictions

for the Blankenbaker Station Business Park (the “CCRs”), to address such items as required building materials, signage, green space/irrigation, etc.?

- 2) Does Xebec have a conceptual plan (alignment/profile) of how the proposed Schutte Station Place will be constructed? This has been requested numerous times by the Planning Commission with only an engineer letter opining that a connection to Schutte Station Place is technically feasible having been provided to date. The Xebec LD&T presentation indicates additional right-of-way is required from the Association and/or the adjacent business owner in order for the connection at Schutte Station Place to be completed (pasted below), but no agreements have been reached with the Association or the adjacent business owner:



- 3) Has Xebec made any commitments to participate in trash pick-up, etc. for using Blankenbaker Station infrastructure?
- 4) Has Xebec made any commitments to improve Tucker Station Road East of Bluegrass Parkway, other than adding turn lanes at the Tucker Station Road / Pope Lick Road intersection, such as widening Tucker Station Road to four lanes similar to Plantside Drive or constructing a median similar to the medians on Plantside Drive and Bluegrass Parkway? Association members have asked whether Xebec would enter into a binding element prohibiting approval of any construction plans until the Schutte Station Place connection and four-lane widening of Tucker Station Road is complete? This was a commitment that the developers of Blankenbaker Station were required to make on the construction of Plantside Drive prior to the approval of any constructions plan within the Blankenbaker Station development.
- 5) Will Xebec install a Traffic Signal at the intersection of Plantside Drive/Tucker Station Road or make a financial contribution to same?
- 6) At the numerous prior Neighborhood Meetings and Land Development and Transportation Committee Meetings, the Xebec representatives have been asked about the visual impact on neighboring Blankenbaker Station businesses as to the scale and height of the proposed buildings. These impacts are greatly influenced by site grading, building placement, parking lane/drive slopes, first floor elevations, building height, etc.. To date, information related to some of these items have been provided for the Tucker Station Road / Pope Lick Road frontage only, but have not be provided for the west frontage or south frontage.

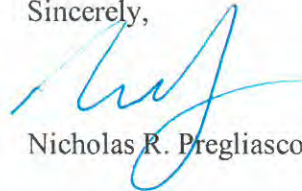
- 7) How does Xebec propose to screen the beautiful office buildings surrounding the lake (Charah, Kelley Construction, Donan Engineering, Eurofins, Farm Credit Mid-America, Boys Scouts of America) from the docks/truck storage areas proposed on the Xebec Development? Will there be wing walls? Landscaping?
- 8) Xebec has been asked if it would it construct and connect to the proposed walking trail/loop around the lake? Phase II of the walking trail in Blankenbaker Staton is under construction presently. To date, only a verbal statement that a walking trail would be provided has been received, without the requested details as to the commitment, location, and timing of construction, etc.
- 9) Xebec has indicated the need to build tall retaining walls at the sound end of the Xebec Development adjacent to the lake (and visible from the Office Buildings noted above). These walls could be as tall as 25' in some areas. No details related to these retaining walls have been provided (materials, etc.).
- 10) Does Xebec propose saving the trees along the lake on its side of the lake? I believe there was a verbal commitment that Xebec will endeavor to save as many trees as possible. The details of which trees will be preserved has not been provided.
- 11) Who will the Xebec tenants be?
- 12) Will this be a 24-hour operation?
- 13) Blankenbaker Station was required to commit to Lighting restrictions above the Land Development Code ("LDC") requirements for the buildings and the site lighting through binding elements related to same. Will the proposed Xebec Development incorporate these same lighting restrictions into its design commitments?

We have heard the same general consensus from the Association members: good development benefits all. Just as Blankenbaker Station was held to a standard – so should adjoining development. Just as Blankenbaker Station established a level of quality in construction, design, and maintenance – so should adjoining development. Just as Blankenbaker Station was required to develop and contribute to the cost of appropriate infrastructure and maintenance – so should adjoining development.

In summation, while some in opposition to the Xebec Development application argue that Xebec's proposed project is just plain too large and incompatible with its neighbors, our argument instead is this — that every applicant must demonstrate compliance with the current form of comprehensive plan. "Plan 2040" (the "Comprehensive Plan") is like "Cornerstone 2020" which was like the 1979 comprehensive plan in that each of these comprehensive plans required and continue to require "impact mitigation". As such, all applicants in every rezoning and development plan case (whether general plan or detailed plan) had and continue to have to answer the same kinds of questions that have been posed to Xebec and its professional representatives Greg Erhard, Esq. and Kelli Jones. Why Xebec continues to ignore the legal requirements of the Comprehensive Plan, especially when each and every one of the Blankenbaker Station business park occupants we represent have had to do, is a mystery. What we've asked them is only what was asked of our clients. Our job here is to inform Xebec as to

what the Comprehensive Plan compels it to do. If it refuses to comply with the Comprehensive Plan like other applicants were obligated to do when they filed and presented their own cases, then their application should be denied. Please file this letter in the official Planning and Zoning record/file.

Sincerely,



Nicholas R. Pregliasco

cc: Blankenbaker Station Community Association, Inc. members
Jeff O'Brien, Chief of Louisville Forward
Emily Liu, Director of Development Louisville

May 16, 2023

Dante St. Germain, AICP
Louisville Metro Planning and Design Services
444 South Fifth Street, Suite 300
Louisville, KY 40202

Re: Case No. 22-ZONE-0098

Dear Dante,

As you know, my firm represents Xebec Pursuits, LLC ("Xebec"), the applicant in the subject rezoning case. Thank you for forwarding Nick Pregliasco's letter on behalf of the Blankenbaker Station Community Association (the "Association"). I am writing to respond to the comments and questions contained in the letter. For ease of reference, I have copied the text of Nick's letter prior to each response.

1. *Does Xebec intend to implement the same design covenants/standards for a Class A business park as set forth in the Declaration of Covenants, Conditions, and Restrictions for the Blankenbaker Station Business Park (the "CCRs"), to address such items as required building materials, signage, green space/irrigation, etc.?*

Response: Xebec is willing to implement a set of covenants and standards for this project that are substantially similar to the CCRs for Blankenbaker Station Business Park as recorded in Deed Book 8375, Page 750 in the Jefferson County Clerk's office. If the request is intended to give the Association or the developer of Blankenbaker Station Business Park oversight or enforcement rights over the covenants and standards for this project, Xebec declines to do so.

2. *Does Xebec have a conceptual plan (alignment/profile) of how the proposed Schutte Station Place will be constructed? This has been requested numerous times by the Planning Commission with only an engineer letter opining that a connection to Schutte Station Place is technically feasible having been provided to date. The Xebec LD&T presentation indicates additional right-of-way is required from the Association and/or the adjacent business owner in order for the connection at Schutte Station Place to be completed, but no agreements have been reached with the Association or the adjacent business owner.*

Response: The proposed alignment for the Schutte Station Place connection is clearly shown on the development plan that is a part of the record of this case and publicly available online via the Louisville Metro Business Portal. The LD&T Committee asked for assurances that the

Schutte Station Place connection could physically be made. To address this concern, Xebec hired a structural engineer to analyze the existing site conditions and make recommendations on whether the connection was reasonably feasible and how it might be constructed. As stated in the letter from American Engineers on February 21, 2003, "AEI feels an engineered solution is possible and constructible with more than one possible solution." A copy of this letter was provided for the case file. We do not have a road profile to share at this time. We are currently in the development plan stage of this project and have not begun construction drawings, as is typical with developments in Jefferson County. A preliminary grading study has been conducted to provide approximate finished floor elevations for the proposed buildings in order to prepare illustrative exhibits to present at LD&T, but full grading and drainage plans have not been prepared, and won't be until zoning approval is obtained.

As we indicated at various LD&T and neighborhood meetings, the extension of Schutte Station Place will require that a portion of the Association's property to the immediate south of the project site be dedicated as right-of-way. The rest of the property required for the extension will be provided from property that Xebec is acquiring. In Case No. 16ZONE1090, the development plan for the Association's property at issue shows a 63-foot strip of such property as "reserved for future R/W," and Binding Element No. 6 states: "*Right of way for the extension of Schutte Station Place, if not already constructed as determined by Metro Public Works, shall be dedicated by the HOSTS Development within 60 days of the request from the Director of Public Works or at the time of the Developer's request for a major subdivision plat.*" This binding element requiring dedication of the right-of-way for the extension of the road is binding on the Association. In fact, Xebec has elected to swing the proposed road alignment further into the property it is acquiring and away from the pond on the Association property, so less of the Association's property will be used for right-of-way than is required to be dedicated under Case No. 16ZONE1090.

3. *Has Xebec made any commitments to participate in trash pick-up, etc. for using Blankenbaker Station infrastructure?*

Response: Similar to the CCRs for Blankenbaker Station Business Park, the covenants, conditions, and restrictions for the Xebec project as described in item 1 above will include a mechanism to ensure that the roads, common areas, and other parts of the Xebec development are properly maintained.

4. *Has Xebec made any commitments to improve Tucker Station Road East of Bluegrass Parkway, other than adding turn lanes at the Tucker Station Road / Pope Lick Road intersection, such as widening Tucker Station Road to four lanes similar to Plantside Drive or constructing a median similar to the medians on Plantside Drive and Bluegrass Parkway? Association members have asked whether Xebec would enter into a binding element prohibiting approval of any construction plans until the Schutte Station Place connection and four-lane widening of Tucker Station Road is complete? This was a commitment that the developers of*

Blankenbaker Station were required to make on the construction of Plantside Drive prior to the approval of any constructions plan within the Blankenbaker Station development.

Response: As stated in our LD&T meetings, Xebec will be installing turn lanes eastbound, westbound, and northbound at the Tucker Station/South Pope Lick/Schutte Station intersection. There isn't enough right-of-way available to install turn lanes in the southbound direction. Xebec will also be widening Tucker Station and South Pope Lick to three lanes for approximately 2,300 feet from the end of the existing three lane section across the frontage of the property in accordance with Metro Public Works requirements. We do not believe that there is any precedent for imposing on Xebec a binding element that restricts all construction approvals until all road improvements are complete. However, Xebec would be willing to agree that the road improvements be completed prior to certain stages of the development as described in the proposed binding elements included with this letter.

5. *Will Xebec install a Traffic Signal at the intersection of Plantside Drive/Tucker Station Road or make a financial contribution to same?*

Response: Xebec has maintained all along that they would be willing to make a traffic signal contribution. The Comprehensive Plan provides that any such contribution should be roughly proportionate to the impact of the proposed development. The proposed binding elements included with this letter include our suggestion as to the appropriate level of Xebec's contribution.

6. *At the numerous prior Neighborhood Meetings and Land Development and Transportation Committee Meetings, the Xebec representatives have been asked about the visual impact on neighboring Blankenbaker Station businesses as to the scale and height of the proposed buildings. These impacts are greatly influenced by site grading, building placement, parking lane/drive slopes, first floor elevations, building height, etc.. To date, information related to some of these items have been provided for the Tucker Station Road / Pope Lick Road frontage only, but have not be provided for the west frontage or south frontage.*

Response: The Land Development Code has specific requirements for buffering between businesses in the PEC zoning district. In accordance with Section 10.2.4.B.8, a minimum 15' landscape buffer with 1 Type A or B tree per 75 feet of boundary will be provided. Building heights will not be taller than 45' as shown on the plan. In our LD&T presentations we provided estimated finish floor elevations for building 1 at 675.0 +/- and building 3 at 670.0 +/- . Others are anticipated to be in this general range or lower as well. Again, these should be considered preliminary estimates since construction plans have not been started. Furthermore, the applicant felt that the impact of these buildings on the adjacent residential warranted detailed exhibits while the impact of one business development on another does not...especially when the existing development has structures larger than what is proposed for the subject site.

7. *How does Xebec propose to screen the beautiful office buildings surrounding the lake (Charah, Kelley Construction, Donan Engineering, Eurofins, Farm Credit Mid-America, Boys Scouts of America) from the docks/truck storage areas proposed on the Xebec Development? Will there be wing walls? Landscaping?*

Response: Again, the Land Development Code has specific requirements for buffering between businesses in the PEC zoning district. In accordance with Section 10.2.4.B.8, a minimum 15' landscape buffer with 1 Type A or B tree per 75 feet of boundary will be provided. It is also likely that wing walls and additional landscaping will be provided, but details about the extent of those features will not be decided until the construction plan process. This is not to suggest that Xebec has not taken seriously the concerns expressed by the Association regarding the views from its side of the lake. In fact, after meeting with some of the directors of the Association early in this case and hearing their concerns, Xebec agreed to purchase additional property so that that it could change the orientation of the proposed buildings to ensure that no truck bays would face the lake.

8. *Xebec has been asked if it would it construct and connect to the proposed walking trail/loop around the lake? Phase II of the walking trail in Blankenbaker Staton is under construction presently. To date, only a verbal statement that a walking trail would be provided has been received, without the requested details as to the commitment, location, and timing of construction, etc.*

Response: Xebec would be willing to grant an easement to the Association to construct and maintain an extension of the path along the northern side of the pond on the property that Xebec is acquiring. The easement would need to include customary insurance and indemnification covenants on the part of the Association.

9. *Xebec has indicated the need to build tall retaining walls at the sound end of the Xebec Development adjacent to the lake (and visible from the Office Buildings noted above). These walls could be as tall as 25' in some areas. No details related to these retaining walls have been provided (materials, etc.).*

Response: Again, we have not begun construction drawings for this project yet and there are no details available for the construction of these walls. They could be stacked block, reinforced concrete, earthen, or any number of other styles based on the structural engineer's design.

10. *Does Xebec propose saving the trees along the lake on its side of the lake? I believe there was a verbal commitment that Xebec will endeavor to save as many trees as possible. The details of which trees will be preserved has not been provided.*

Response: There is no requirement to save trees on this site. Xebec intends to save as many trees along the lake as possible, but this will be a major grading operation and the exact extents of preservation are unknown at this time. At a minimum, a majority of the 25' inner buffer should remain undisturbed, but it is Xebec's intent to save more than that wherever possible. Of

course, tree preservation in this area could be impacted by the Association's extension of the walking path around the pond.

11. *Who will the Xebec tenants be?*

Response: That is presently unknown. As has been stated multiple times, these are speculative buildings that will be built prior to obtaining a specific tenant.

12. *Will this be a 24-hour operation?*

Response: Hours of operation are unknown. Again, this is a speculative building and no specific tenants have been secured at this time.

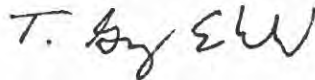
13. *Blankenbaker Station was required to commit to Lighting restrictions above the Land Development Code ("LDC") requirements for the buildings and the site lighting through binding elements related to same. Will the proposed Xebec Development incorporate these same lighting restrictions into its design commitments?*

Response: This development will meet the requirements of the Land Development Code in regards to lighting.

Finally, we were surprised by the letter's suggestion that Xebec and its professional representatives have ignored the requirements of the Comprehensive Plan. We have been to LD&T three times, and each visit involved lengthy discussions regarding issues integral to Plan 2040's Plan Elements, especially the Community Form, Mobility, and Economic Development elements. We look forward to the opportunity to discuss this further at the public hearing.

Very truly yours,

STITES & HARBISON, PLLC



T. Gregory Ehrhard

Case No. 22-ZONE-0098
Proposed Binding Elements

1. The applicant shall contribute \$12,000 toward the construction of a traffic signal at Bluegrass Parkway and Tucker Station Road. Payment shall be made prior to the issuance of a certificate of occupancy for the first building.
2. The applicant shall contribute an amount not to exceed \$120,000 toward the construction of a signal at Tucker Station Road and South Pope Lick Road. Payment shall be made prior to issuance of a certificate of occupancy for the third building.
3. The applicant shall widen Tucker Station Road & South Pope Lick Road to three lanes across the frontage of the property and add turn lanes at the South Pope Lick/Tucker Station/Schutte Station intersection as presented at the Public Hearing on May 25th, 2023. This work shall be completed prior to a certificate of occupancy being issued for the second building.
4. The applicant shall complete construction of the extension of Schutte Station Place to Tucker Station/South Pope Lick Road prior to the issuance of a certificate of occupancy for the third building.
5. No construction traffic shall be permitted on S Pope Lick Road. No construction traffic shall be permitted on Tucker Station Road once the Schutte Station Place connection has been completed.
6. Signage shall be placed at all access points to Tucker Station Road and S Pope Lick Road to direct truck traffic to the Schutte Station Place connection.

MEMORANDUM

TO: Kelli Jones
Sabak, Wilson & Lingo, Inc.

FROM: Adam Kirk
Adam Kirk Engineering
137 McClelland Springs Drive
Georgetown, KY 40324

DATE: January 12, 2023

RE: Xebec Pursuits
Traffic Impact Study Addendum (Signal Warrants and Interim Analysis)

Interim period analysis was conducted to assess the performance of the stop controlled intersection at the intersection of Tucker Station Road and S. Pope Lick Road for an initial reduced development intensity. This analysis assumed a Phase 1 construction of only Tracts 1 and 2, representing 390,000 s.f. of development. Trip generation for the proposed phase 1 development reduced the total number of trips generated in the AM and PM peak hours from 415 (405) vehicles per hour (vph) to 160 (156) vph, as shown in **Table 1**.

Table 1: Xebec Proposed Phase 1 Trip Generation

Tract	ITE Code	Ind. Var.	Units	AM Peak			PM Peak		
				Total	Entering	Exiting	Total	Entering	Exiting
Total				160	139	21	156	33	123
Tract 1	130	180	units	74	64	10	72	15	57
Tract 2	130	210	units	86	75	11	84	18	66
Tract 3	130	0	units	0	0	0	0	0	0
Tract 4	130	0	units	0	0	0	0	0	0
Tract 5	130	0	units	0	0	0	0	0	0

All-way stop control analysis was completed for the study intersection, assuming turning lanes improvements on the east and west approaches, while maintaining the existing traffic control. As shown in Table 2, the PM peak hour delay is reduced significantly from 117 seconds of delay during the No Build scenario, to 40 seconds under the build condition due to the improvements at the intersection. The AM peak hour increases the total intersection delay from 31 seconds to 67 seconds, however, this is a significant reduction of total delay at the intersection over the full build scenario (91.3 seconds). Highway Capacity Software output for this analysis is included in **Attachment A**.

Intersection	Approach	AM Peak Hour				PM Peak Hour			
		2023 No Build		2023 Build		2023 No Build		2023 Build	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
S. Pope Lick Road at Tucker Station Road	Intersection	D	31.2	F	67.6	F	117.6	E	40.0
	eastbound (Tucker Station)	B	11.1	B	10.6	F	277.1	F	57.1
	westbound (S. Pope Lick)	E	42.7	F	102.5	F	307.3	C	16.4
	northbound (Shute Station)	--	--	B	10.2	D	54.9	B	11.4
	southbound (Tuckjer Station)	B	11.7	B	14.4	E	61.0	C	20.9

Signal warrant analysis was also conducted for the intersections of S. Pope Lick at Tucker Station Road. And Bluegrass Parkway at Tucker Station Road for the following scenarios:

- Existing conditions
- No Build Conditions (includes existing plus Ball Homes S. Pope Lick Residential Development
- Phase 1 Build Condition (S. Pope Lick at Tucker Station only)
- Full Build Condition

Signal warrant analysis was conducted for Signal Warrant 1A condition B for the 80% volume based on guidance provided in the Manual on Uniform Traffic Control Devices. Table 3, summarizes the results of this analysis and full analysis is presented in **Attachment B**.

Table 3: Signal Warrant Analysis Summary

Intersection	Number of hours meeting warrant			
	Existing	No Build	Xebec (Phase 1)	Xebec (Full Build)
S. Pope Lick Rd at Tucker Station Rd	1	7	9	10
Bluegrass Pkwy at Tucker Station Rd	5	5	--	10

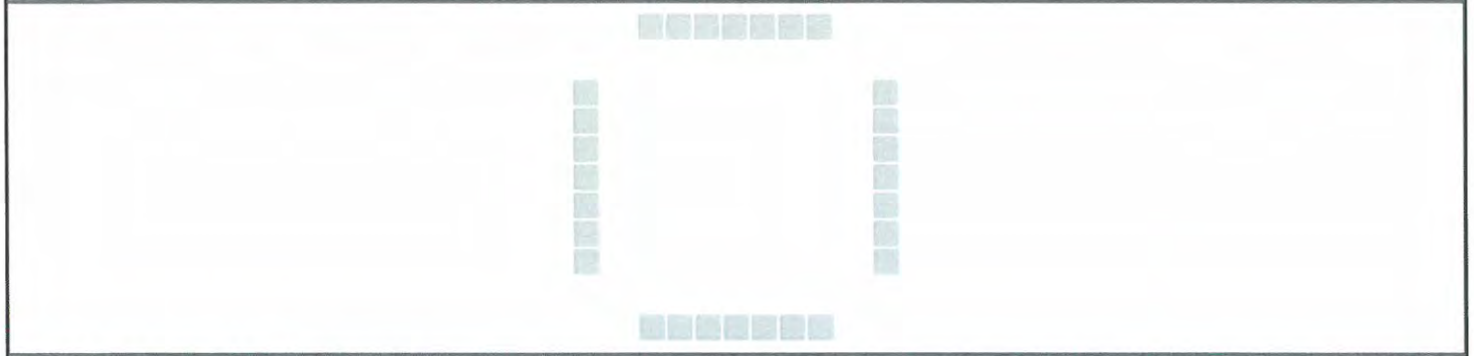
Attachment A

HCS Output

HCS All-Way Stop Control Report

General Information		Site Information	
Analyst	AJK	Intersection	Tucker Station at S. Pope Lick
Agency/Co.	AKE	Jurisdiction	Jefferson
Date Performed	2/20/2023	East/West Street	S. Pope Lick
Analysis Year	2023	North/South Street	Tucker Station
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.92
Time Analyzed	2023 AM No Build		
Project Description	Xebec Development		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	71	107			512	144				30		177
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LT			TR						LR		
Flow Rate, v (veh/h)	193			713						225		
Percent Heavy Vehicles	2			2						2		

[illegible]

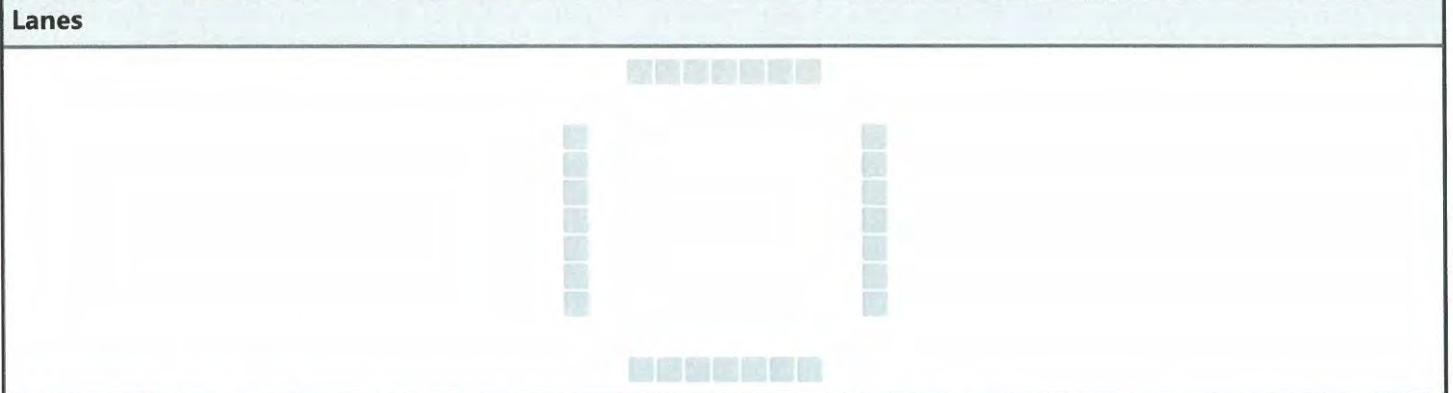
Initial Departure Headway, h_d (s)	3.20			3.20					3.20		
Initial Degree of Utilization, x	0.172			0.634					0.200		
Final Departure Headway, h_d (s)	5.64			4.79					5.66		
Final Degree of Utilization, x	0.303			0.948					0.354		
Move-Up Time, m (s)	2.0			2.0					2.0		
Service Time, t_s (s)	3.64			2.79					3.66		

[illegible]

Flow Rate, v (veh/h)	193			713					225		
Capacity	639			752					636		
95% Queue Length, Q ₉₅ (veh)	1.3			14.1					1.6		
Control Delay (s/veh)	11.1			42.7					11.7		
Level of Service, LOS	B			E					B		
Approach Delay (s/veh)	11.1			42.7						11.7	
Approach LOS	B			E						B	
Intersection Delay, s/veh LOS	31.2						D				

HCS All-Way Stop Control Report

General Information		Site Information	
Analyst	AJK	Intersection	Tucker Station at S. Pope Lick
Agency/Co.	AKE	Jurisdiction	Jefferson
Date Performed	2/20/2023	East/West Street	S. Pope Lick
Analysis Year	2023	North/South Street	Tucker Station
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.92
Time Analyzed	2023 AM Build (Phase 1)		
Project Description	Xebec Development		



Vehicle Volume and Adjustments												
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	71	111	14	10	537	144	2	4	1	30	28	177
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	TR		LTR		
Flow Rate, v (veh/h)	77	136		11	740		2	5		255		
Percent Heavy Vehicles	2	2		2	2		2	2		2		

Departure Headway and Service Time												
Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20		
Initial Degree of Utilization, x	0.069	0.121		0.010	0.658		0.002	0.005		0.227		
Final Departure Headway, hd (s)	6.69	6.12		6.22	5.57		7.92	7.29		6.34		
Final Degree of Utilization, x	0.143	0.231		0.019	1.146		0.005	0.011		0.450		
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.0		
Service Time, ts (s)	4.39	3.82		3.92	3.27		5.62	4.99		4.34		

Capacity, Delay and Level of Service												
Flow Rate, v (veh/h)	77	136		11	740		2	5		255		
Capacity	538	588		578	646		455	494		568		
95% Queue Length, Q ₉₅ (veh)	0.5	0.9		0.1	23.5		0.0	0.0		2.3		
Control Delay (s/veh)	10.5	10.6		9.0	103.9		10.7	10.1		14.4		
Level of Service, LOS	B	B		A	F		B	B		B		
Approach Delay (s/veh)	10.6			102.5			10.2			14.4		
Approach LOS	B			F			B			B		
Intersection Delay, s/veh LOS	67.6						F					

HCS All-Way Stop Control Report

General Information

Analyst	AJK	Intersection	Tucker Station at S. Pope Lick
Agency/Co.	AKE	Jurisdiction	Jefferson
Date Performed	2/20/2023	East/West Street	S. Pope Lick
Analysis Year	2023	North/South Street	Tucker Station
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.92
Time Analyzed	2023 PM No Build		
Project Description	Xebec Development		

Lanes

Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	229	511			142	100				111		191
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LT			TR						LR		
Flow Rate, v (veh/h)	804			263						328		
Percent Heavy Vehicles	2			2						2		

Departure Headway and Service Time

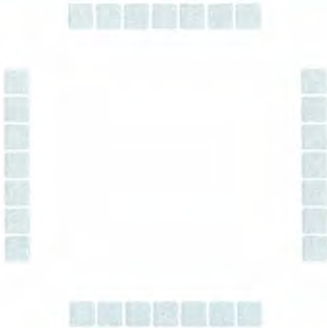
Initial Departure Headway, hd (s)	3.20			3.20						3.20		
Initial Degree of Utilization, x	0.715			0.234						0.292		
Final Departure Headway, hd (s)	5.51			5.73						6.01		
Final Degree of Utilization, x	1.231			0.419						0.548		
Move-Up Time, m (s)	2.0			2.0						2.0		
Service Time, ts (s)	3.51			3.73						4.01		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	804			263					328		
Capacity	653			628					599		
95% Queue Length, Q ₉₅ (veh)	29.2			2.1					3.3		
Control Delay (s/veh)	136.4			12.8					16.1		
Level of Service, LOS	F			B					C		
Approach Delay (s/veh)	136.4			12.8						16.1	
Approach LOS	F			B						C	
Intersection Delay, s/veh LOS	84.8						F				

HCS All-Way Stop Control Report

General Information		Site Information	
Analyst	AJK	Intersection	Tucker Station at S. Pope Lick
Agency/Co.	AKE	Jurisdiction	Jefferson
Date Performed	2/20/2023	East/West Street	S. Pope Lick
Analysis Year	2023	North/South Street	Tucker Station
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.92
Time Analyzed	2023 PM Build (Phase 1)		
Project Description	Xebec Development		

Lanes


Vehicle Volume and Adjustments												
Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	229	533	3	2	148	100	12	25	9	111	7	191
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	L	TR		L	TR		L	TR		LTR		
Flow Rate, v (veh/h)	249	583		2	270		13	37		336		
Percent Heavy Vehicles	2	2		2	2		2	2		2		

Departure Headway and Service Time												
Initial Departure Headway, hd (s)	3.20	3.20		3.20	3.20		3.20	3.20		3.20		
Initial Degree of Utilization, x	0.221	0.518		0.002	0.240		0.012	0.033		0.299		
Final Departure Headway, hd (s)	6.95	6.44		7.62	6.84		8.59	7.92		6.81		
Final Degree of Utilization, x	0.481	1.043		0.005	0.512		0.031	0.081		0.636		
Move-Up Time, m (s)	2.3	2.3		2.3	2.3		2.3	2.3		2.0		
Service Time, ts (s)	4.65	4.14		5.32	4.54		6.29	5.62		4.81		

Capacity, Delay and Level of Service												
Flow Rate, v (veh/h)	249	583		2	270		13	37		336		
Capacity	518	559		473	526		419	455		528		
95% Queue Length, Q ₉₅ (veh)	2.6	16.4		0.0	2.9		0.1	0.3		4.4		
Control Delay (s/veh)	15.9	74.6		10.4	16.5		11.6	11.3		20.9		
Level of Service, LOS	C	F		B	C		B	B		C		
Approach Delay (s/veh)	57.1			16.4			11.4			20.9		
Approach LOS	F			C			B			C		
Intersection Delay, s/veh LOS	40.0						E					

Attachment B
Signal Warrant Analysis

Tucker Station at S. Pope Lick (No Build)

Warrant 1A: Eight-Hour Vehicular Volume

Time Period	Major Street (S. Pope Lick)	Warrant Met	Ball Homes	Major Street	Warrant Met
7:00	553	1	193	746	1
8:00	463	0	180	643	1
9:00	273	0	132	405	0
10:00	225	0	138	363	0
11:00	270	0	146	416	0
12:00	363	0	160	523	1
13:00	333	0	170	503	1
14:00	294	0	183	477	0
15:00	402	0	204	606	1
16:00	668	1	245	913	1
17:00	732	1	237	969	1
18:00	348	0	196	544	1
Total Hrs Met		3			8

Time Period	Minor Street (Tucker St. SB)	Warrant Met (2 lane; 80%)	Ball Homes	Minor Street	Warrant Met (2 lane; 80%)
7:00	170	1	11	181	1
8:00	153	0	14	167	1
9:00	148	0	12	160	0
10:00	161	1	15	176	1
11:00	190	1	19	209	1
12:00	208	1	21	229	1
13:00	198	1	22	220	1
14:00	200	1	26	226	1
15:00	212	1	31	243	1
16:00	121	0	38	159	0
17:00	151	0	36	187	1
18:00	187	1	31	218	1
Total Hrs Met		8			10

Total Hours Met Both Approaches	1			7
---------------------------------	---	--	--	---

Tucker Station at S. Pope Lick (Xebec Ph. 1)

Warrant 1A: Eight-Hour Vehicular Volume

Time Period	Major Street (S. Pope Lick)	Warrant Met	Xebec (Phase 1)	Major Street	Warrant Met
7:00	746	1	59	805	1
8:00	643	1	40	683	1
9:00	405	0	34	439	0
10:00	363	0	36	399	0
11:00	416	0	33	449	0
12:00	523	1	45	568	1
13:00	503	1	38	541	1
14:00	477	0	36	513	1
15:00	606	1	36	642	1
16:00	913	1	30	943	1
17:00	969	1	29	998	1
18:00	544	1	4	548	1
Total Hrs Met		8			9

Time Period	Minor Street (Tucker St. SB)	Warrant Met (2 lane; 80%)	Ball Homes	Minor Street	Warrant Met (2 lane; 80%)
7:00	181	1	11	192	1
8:00	167	1	14	181	1
9:00	160	0	12	172	1
10:00	176	1	15	191	1
11:00	209	1	19	228	1
12:00	229	1	21	250	1
13:00	220	1	22	242	1
14:00	226	1	26	252	1
15:00	243	1	31	274	1
16:00	159	0	38	197	1
17:00	187	1	36	223	1
18:00	218	1	31	249	1
Total Hrs Met		10			12

Total Hours Met Both Approaches	7			9
---------------------------------	---	--	--	---

Tucker Station at S. Pope Lick (Full Build)

Warrant 1A: Eight-Hour Vehicular Volume

Time Period	Major Street (S. Pope Lick)	Warrant Met	Xebec (Full Build)	Major Street	Warrant Met
7:00	746	1	156	902	1
8:00	643	1	106	749	1
9:00	405	0	89	494	0
10:00	363	0	94	457	0
11:00	416	0	87	503	1
12:00	523	1	118	641	1
13:00	503	1	99	602	1
14:00	477	0	96	573	1
15:00	606	1	95	701	1
16:00	913	1	78	991	1
17:00	969	1	77	1046	1
18:00	544	1	11	555	1
Total Hrs Met		8			10

Time Period	Minor Street (Tucker St. SB)	Warrant Met (1 lane)	Xebec (Full Build)	Minor Street	Warrant Met (1 lane)
7:00	181	1	72	253	1
8:00	167	1	43	210	1
9:00	160	0	29	189	1
10:00	176	1	31	207	1
11:00	209	1	26	235	1
12:00	229	1	36	265	1
13:00	220	1	34	254	1
14:00	226	1	29	255	1
15:00	243	1	24	267	1
16:00	159	0	16	175	1
17:00	187	1	5	192	1
18:00	218	1	0	218	1
Total Hrs Met		10			12

Total Hours Met Both Approaches	7			10
---------------------------------	---	--	--	----

Tucker Station at BG Parkway

Warrant 1A: Eight-Hour Vehicular Volume

Time Period	Major Street (BG Parkway)	Warrant Met	Ball Homes	Xebec	Major Street Vol.	Warrant Met (No Build)	Warrant Met (Full Build)
7:00	723	1	145	112	980	1	1
8:00	879	1	138	89	1106	1	1
9:00	376	0	104	88	568	0	1
10:00	310	0	112	94	516	0	1
11:00	372	0	122	92	586	0	1
12:00	501	1	133	122	756	1	1
13:00	459	0	141	95	695	1	1
14:00	405	0	154	99	658	1	1
15:00	555	1	176	108	839	1	1
16:00	846	1	211	95	1152	1	1
17:00	885	1	203	118	1206	1	1
18:00	480	0	170	17	667	1	1
Total Hrs Met		6				9	12

Time Period	Minor Street (Tucker St NB)	80% Warrant Met (No Build)	Ball Homes	Xebec	Minor Street	80% Warrant Met (No Build)	80% Warrant Met (Full Build)
7:00	96	0	6	39	141	0	1
8:00	133	1	8	24	165	1	1
9:00	141	1	7	16	164	1	1
10:00	70	0	8	17	95	0	0
11:00	143	1	11	14	168	1	1
12:00	144	1	11	20	175	1	1
13:00	103	0	12	19	134	0	1
14:00	113	0	14	16	143	0	1
15:00	191	1	17	13	221	1	1
16:00	225	1	21	9	255	1	1
17:00	306	1	20	3	329	1	1
18:00	97	0	17	0	114	0	0
Total Hrs Met		7				7	7

Total Hours Met Both Approaches	5					5	10
---------------------------------	---	--	--	--	--	---	----



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502.625.3009
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6575 West Loop South, Suite 300
Bellaire, TX 77401
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VIA EMAIL

November 9, 2022

Ms. Kelli Jones
Sabak, Wilson, & Lingo, Inc
608 South 3rd Street
Louisville, KY 40202

**Subject: Water/Wetland Delineation Summary Report
Xebec Tucker Station
Jefferson County, Kentucky
RES Project No.: 106425**

Dear Ms. Jones:

RES Kentucky, LLC (RES) is pleased to provide Sabak, Wilson, and Lingo (SWL) with this Water/Wetland Delineation Summary Report for the Xebec Tucker Station development in Louisville, Jefferson County, Kentucky. The approximately 140-acre site lies south of Pope Lick Road and east of Tucker Station Road (Figure 1). The goal of these services was to identify the location and extent of jurisdictional waters/wetlands and threatened/endangered (T/E) species habitat on the property to assist with preliminary project planning.

Based on the delineation, jurisdictional water/wetland features present on site include:

- two perennial streams totaling 4,092 linear feet (2.061 acre)
- three intermittent streams totaling 1,791 linear feet (0.188 acre)
- five ephemeral streams totaling 1,451 linear feet (0.079 acre)
- one wetland measuring 0.012 acre
- one open water pond measuring 0.154 acre

Non-jurisdictional/isolated features present on the site include four ephemeral streams totaling 330 linear feet (0.018 acre), one isolated wetland measuring 0.002 acre, and one isolated open water pond measuring 1.189 acre. In addition, approximately 50 acres of the property is considered suitable summer roosting habitat for the Indiana bat (*Myotis sodalis*) and the northern long-eared bat (*Myotis septentrionalis*).

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METHODOLOGY

The water/wetland delineation included in-house and field components. In-house research involved review of the USGS topographic quadrangle map, aerial photography, the Jefferson County soil survey, and Federal Emergency Management (FEMA) floodplain mapping. Following review of these materials, RES conducted a field delineation on July 13 and 14, 2022, to identify the location and extent of jurisdictional waters/wetlands on the site. During the field visit, the presence of jurisdictional streams and open water bodies was evaluated based on ordinary high-water mark (OHWM), defined bed and bank features, and flow regimes. The quality of the intermittent streams identified within the project boundary was evaluated using the Rapid Bioassessment Protocol developed by the USEPA. Potential wetland areas were investigated using the Routine On-Site Determination Method as defined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountain Piedmont Region – Version 2.0* (April 2012). This technique uses a multi-parameter approach that requires positive evidence of three criteria: wetland hydrology, hydric soils, and hydrophytic vegetation. This delineation has not been verified by the USACE, who holds final authority over determinations of the location and extent of jurisdictional waters/wetlands.

The field assessment was also used to identify the presence of suitable habitat for T/E species known to occur in Jefferson County within the project vicinity, including the Indiana bat, northern long-eared bat, and gray bat (*Myotis grisescens*). Potential impacts to T/E species must be addressed in any federal permitting process.

RESULTS

Based on the delineation, jurisdictional waters present on site include two perennial streams, three intermittent streams, five ephemeral streams, one wetland, and one open water pond. In addition, non-jurisdictional/isolated features identified on the site include four ephemeral streams, one wetland, and one open water pond. The results of the water/wetland delineation are depicted on Figure 2 and summarized in the table on the following page.

Habitat on site consists primarily of mixed-age woods, maintained lawn and open field. The mixed-age woods habitat totaling approximately 45 acres is considered suitable summer roosting habitat for the federally endangered Indiana bat and the federally threatened northern long-eared bat. No gray bat foraging or commuting habitat is present on the site.

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Feature	Stream Length (feet)	Stream Width (feet)	Area (acres)	Status
Perennial Stream 1	2,497	20	1.146	Jurisdictional
Perennial Stream 2	1,595	25	0.915	Jurisdictional
Perennial Stream Total	4,092	--	2.061	--
Intermittent Stream 1	115	8	0.021	Jurisdictional
Intermittent Stream 2	1,510	4.5	0.156	Jurisdictional
Intermittent Stream 3	166	3	0.011	Jurisdictional
Intermittent Stream Total	1,791	--	0.188	--
Ephemeral Stream 1	283	3	0.019	Jurisdictional
Ephemeral Stream 2	381	1.5	0.013	Jurisdictional
Ephemeral Stream 3	57	4	0.005	Jurisdictional
Ephemeral Stream 4	18	2.5	0.001	Non-Jurisdictional
Ephemeral Stream 5	35	4.5	0.004	Non-Jurisdictional
Ephemeral Stream 6	176	2	0.008	Non-Jurisdictional
Ephemeral Stream 7	101	2	0.005	Non-Jurisdictional
Ephemeral Stream 8	33	2	0.002	Jurisdictional
Ephemeral Stream 9	697	2.5	0.040	Jurisdictional
Jurisdictional Ephemeral Stream Total	1,451	--	0.079	--
Non-Jurisdictional Ephemeral Stream Total	330	--	0.018	--
Wetland 1	--	--	0.002	Non-Jurisdictional
Wetland 2	--	--	0.012	Jurisdictional
Jurisdictional Wetland Total	--	--	0.012	--
Non-Jurisdictional Wetland Total	--	--	0.002	--
Open Water 1	--	--	0.154	Jurisdictional
Open Water 2	--	--	1.189	Non-Jurisdictional
Jurisdictional Open Water Total	--	--	0.154	--
Non-Jurisdictional Open Water Total	--	--	1.189	--
Jurisdictional Features Total	7,334	--	2.494	--

DISCUSSION

Potential development-related issues are discussed below in terms of waters/wetlands, federally threatened/endangered species, and cultural-historic and archaeological resources.

WATERS/WETLANDS

Jurisdictional waters of the U.S., including wetlands, are defined by 33 CFR Part 328.3 and are protected by Section 404 of the Clean Water Act (33 USC 1344), which is administered and enforced by the USACE. Many water/wetland impacts are also regulated by the Kentucky Division of Water (KDOW) – Water Quality Certification (WQC) Section. Current permitting thresholds are as follows:

- Avoidance of the jurisdictional water/wetland features would require no permits from, or coordination with, the USACE or KDOW. A formal Jurisdictional Determination (JD) can be obtained from the USACE, if desired.

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- Impacts to less than 0.5 acre of waters can be authorized under the federal Nationwide Permit (NWP) program with the USACE
- Impacts to greater than 0.5 acre of waters require an Individual Section 404 Permit (IP) from the USACE
- Impacts to Pope Lick will require an Individual WQC from the KDOW since it is listed as an Aquatic Life Full Support Stream.
- Impacts to greater than 300 feet of intermittent/perennial stream or 0.5 acre of wetland or an in-line stream basin require an Individual Section 401 WQC from the KDOW.
- Impacts to less than 300 feet of intermittent/perennial stream or 0.5 acre of wetland meet the conditions of a General WQC and do not require coordination with the KDOW.
- Impacts to 0.1 acre or more of jurisdictional wetlands or 0.03 acre or more of jurisdictional stream will require compensatory mitigation. Mitigation ratios for impacts to poor quality perennial, intermittent, and ephemeral streams are 1.5:1, 1:1 and 0.5:1, respectively, with ratios increasing with stream quality. Wetland mitigation must be provided at a ratio of 2:1. If required, mitigation credits can be purchased from either a private mitigation bank or the Kentucky In-Lieu Fee program, which requires a 20% markup to cover temporal losses. The Kentucky In-Lieu Fee program currently charges \$518 per stream credit, and \$78,000 per wetland credit.

Based on the current development plan, impacts to multiple jurisdictional ephemeral streams and one intermittent stream will be required. The project may be authorized under a NWP 39 and Individual WQC from the USACE and KDOW, respectively. NWPs often require a three to six-month review period. Permitting with the KDOW can generally be completed within the federal time frames. Impacts to 0.03 acre or more of jurisdictional stream will require compensatory mitigation.

THREATENED/ENDANGERED SPECIES

Under the Section 404 permitting process, the USACE determines if consultation with the U.S. Fish and Wildlife Service (USFWS) is required to address potential impacts to T/E species. The major T/E species issue of concern at this site is the clearing of suitable Indiana and northern long-eared bat summer habitat. Based on maps released by the USFWS, the project is located in a "Potential" Habitat Zone for the Indiana bat and the northern long-eared bat. Under the 404 permitting process, impacts to this habitat will require consultation with the USFWS. Consultation generally results in a combination of seasonal tree clearing restrictions, presence/absence surveys, and/or mitigation through payments into the Imperiled Bat Conservation Fund (IBCF). Current rates for tree clearing in a "Potential" Habitat Zone are \$2,175/acre in the unoccupied period (October 15 through March 31), \$4,350/acre for clearing in the occupied period (April 1 through October 15, excluding June/July), and \$8,700/acre for clearing during the non-volant period (June 1 through July 31).

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CULTURAL HISTORIC AND ARCHAEOLOGICAL RESOURCES

Under the Section 404 permitting process, the USACE determines if consultation with the State Historic Preservation Office (SHPO) is required to address potential impacts to significant archaeological/historic features. We are not aware of any archaeological features or studies that have been done on the site. We can obtain a quote for these surveys, if required.

CONCLUSION

In conclusion, based on RES's delineation, jurisdictional waters present on the site include two perennial streams totaling 4,092 linear feet (2.061 acres), three intermittent streams totaling 1,791 linear feet (0.188 acre), five ephemeral streams totaling 1,451 linear feet (0.079 acre), one wetland measuring 0.012 acre, and one open water pond measuring 0.154 acre. Non-jurisdictional/isolated features present on the site include four ephemeral streams totaling 330 linear feet (0.018 acre), one wetland measuring 0.002 acre, and one open water pond measuring 1.189 acres. The project can likely be authorized under a NWP 39 and Individual WQC from the USACE and KDOW, respectively. NWPs often require a three to six-month review period. Permitting with the KDOW can generally be completed within the federal time frames. Mitigation scenarios will depend on the final site development plan.

We appreciate the opportunity to assist you on this important project. Please call Valerie Jones or Ron Thomas at (502) 625-3009 with any questions on this report or the overall project.

Sincerely,

Valerie J. Jones
Valerie J. Jones (Nov 9, 2022 14:47 EST)

Valerie J. Jones
Ecologist I

Ronald L. Thomas
Ronald L. Thomas (Nov 9, 2022 14:39 EST)

Ronald L. Thomas
Senior Project Manager

R:\Projects\106425-Xebec Tucker Station\Reports\Xebec Tucker Station_Summary Report.docx

Attachments: Figures

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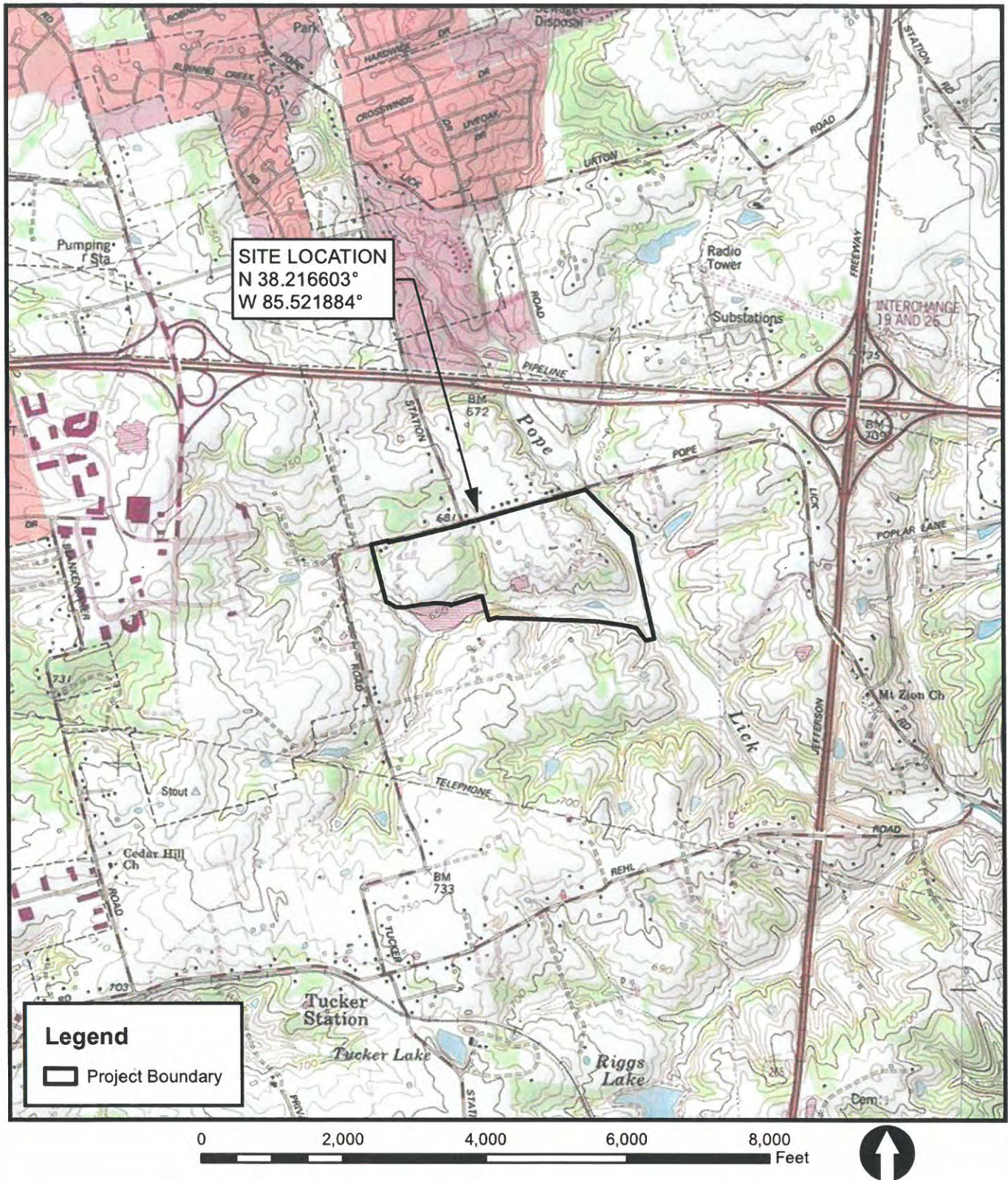
FIGURES

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Source: USA Topo Maps, (2013) National Geographic Society, USGS 7.5-minute Topographic Map - Jeffersontown, Kentucky Quadrangle.



XEBEC TUCKER STATION
JEFFERSON COUNTY, KENTUCKY



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SITE LOCATION MAP
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REVISED DATE: 11-09-22

DRAWN BY: VJJ/EDB

FIGURE 1

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United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Jefferson County, Kentucky**

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July 6, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map (Tucker Station Site).....	9
Legend.....	10
Map Unit Legend (Tucker Station Site).....	11
Map Unit Descriptions (Tucker Station Site).....	11
Jefferson County, Kentucky.....	14
BeB—Beasley silt loam, 2 to 6 percent slopes.....	14
BeC—Beasley silt loam, 6 to 12 percent slopes.....	15
BeD—Beasley silt loam, 12 to 25 percent slopes.....	16
DAM—Dam, large.....	18
FaD—Faywood silt loam, 12 to 25 percent slopes.....	18
NhB—Nicholson silt loam, 2 to 6 percent slopes.....	19
No—Nolin silt loam, 0 to 2 percent slopes, occasionally flooded.....	21
OtC—Otwood silt loam, 6 to 12 percent slopes.....	22
ShC3—Shrouts silt loam, 6 to 12 percent slopes, severely eroded.....	24
ShD3—Shrouts silt loam, 12 to 25 percent slopes, severely eroded, very rocky.....	25
UahC—Urban land-Udorthents complex, 0 to 12 percent slopes.....	26
uBwfA—Boonewood silt loam, 0 to 4 percent slopes, frequently flooded...	27
UqC—Urban land-Alfic Udarents-Nicholson complex, 0 to 12 percent slopes.....	29
W—Water.....	31
Soil Information for All Uses	32
Soil Reports.....	32
AOI Inventory.....	32
Component Legend (Tucker Station Site).....	32
References	35

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

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MAP LEGEND


Area of Interest (AOI)

 Area of Interest (AOI)


Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot


 Landfill


 Lava Flow


 Marsh or swamp


 Mine or Quarry

 Miscellaneous Water

 Perennial Water


 Rock Outcrop


 Saline Spot


 Sandy Spot


 Severely Eroded Spot


 Sinkhole


 Slide or Slip


 Sodic Spot


 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other


 Special Line Features


Water Features


 Streams and Canals


Transportation

 Rails


 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Jefferson County, Kentucky

Survey Area Data: Version 20, Sep 8, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 24, 2019—Oct 13, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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Map Unit Legend (Tucker Station Site)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeB	Beasley silt loam, 2 to 6 percent slopes	1.9	1.3%
BeC	Beasley silt loam, 6 to 12 percent slopes	44.5	30.9%
BeD	Beasley silt loam, 12 to 25 percent slopes	2.2	1.5%
DAM	Dam, large	1.1	0.7%
FaD	Faywood silt loam, 12 to 25 percent slopes	21.5	14.9%
NhB	Nicholson silt loam, 2 to 6 percent slopes	21.0	14.6%
No	Nolin silt loam, 0 to 2 percent slopes, occasionally flooded	8.9	6.2%
OtC	Otwood silt loam, 6 to 12 percent slopes	2.2	1.5%
ShC3	Shrouts silt loam, 6 to 12 percent slopes, severely eroded	5.1	3.5%
ShD3	Shrouts silt loam, 12 to 25 percent slopes, severely eroded, very rocky	0.8	0.6%
UahC	Urban land-Udorthents complex, 0 to 12 percent slopes	9.6	6.7%
uBwfA	Boonewood silt loam, 0 to 4 percent slopes, frequently flooded	16.0	11.1%
UqC	Urban land-Alfic Udarents-Nicholson complex, 0 to 12 percent slopes	6.6	4.6%
W	Water	2.6	1.8%
Totals for Area of Interest		144.0	100.0%

Map Unit Descriptions (Tucker Station Site)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the

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characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered

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practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

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Jefferson County, Kentucky

BeB—Beasley silt loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2vtzk
Elevation: 440 to 1,090 feet
Mean annual precipitation: 36 to 62 inches
Mean annual air temperature: 40 to 68 degrees F
Frost-free period: 139 to 218 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Beasley and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Beasley

Setting

Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluvium
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey residuum weathered from calcareous shale

Typical profile

Ap - 0 to 7 inches: silt loam
Bt - 7 to 29 inches: silty clay
C - 29 to 50 inches: silty clay
Cr - 50 to 60 inches: bedrock

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 40 to 54 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 21 percent
Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Faywood

Percent of map unit: 5 percent



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Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Shrouts

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Nicholson

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

BeC—Beasley silt loam, 6 to 12 percent slopes

Map Unit Setting

National map unit symbol: 1ng8t
Elevation: 500 to 900 feet
Mean annual precipitation: 40 to 46 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 172 to 204 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Beasley and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Beasley

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey residuum weathered from calcareous shale and/or calcareous siltstone

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Typical profile

H1 - 0 to 6 inches: silt loam
H2 - 6 to 48 inches: silty clay
Cr - 48 to 58 inches: weathered bedrock

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 8 percent
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Nicholson

Percent of map unit: 8 percent
Hydric soil rating: No

Faywood

Percent of map unit: 7 percent
Hydric soil rating: No

Shrouts

Percent of map unit: 5 percent
Hydric soil rating: No

BeD—Beasley silt loam, 12 to 25 percent slopes

Map Unit Setting

National map unit symbol: 1n12f
Elevation: 500 to 900 feet
Mean annual precipitation: 40 to 46 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 172 to 204 days
Farmland classification: Not prime farmland

Map Unit Composition

Beasley and similar soils: 80 percent
Minor components: 20 percent

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Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Beasley

Setting

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Clayey residuum weathered from calcareous shale and/or calcareous siltstone

Typical profile

H1 - 0 to 6 inches: silt loam

H2 - 6 to 48 inches: silty clay

Cr - 48 to 58 inches: weathered bedrock

Properties and qualities

Slope: 12 to 25 percent

Depth to restrictive feature: 40 to 60 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 8 percent

Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Faywood

Percent of map unit: 10 percent

Hydric soil rating: No

Shrouts

Percent of map unit: 8 percent

Hydric soil rating: No

Nicholson

Percent of map unit: 2 percent

Hydric soil rating: No

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DAM—Dam, large

Map Unit Setting

National map unit symbol: 1v9ll

Mean annual precipitation: 40 to 46 inches

Mean annual air temperature: 52 to 57 degrees F

Frost-free period: 172 to 204 days

Farmland classification: Not prime farmland

Map Unit Composition

Dam, large: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dam, Large

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydric soil rating: No

FaD—Faywood silt loam, 12 to 25 percent slopes

Map Unit Setting

National map unit symbol: 1ng99

Elevation: 500 to 800 feet

Mean annual precipitation: 40 to 46 inches

Mean annual air temperature: 52 to 57 degrees F

Frost-free period: 172 to 204 days

Farmland classification: Not prime farmland

Map Unit Composition

Faywood and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Faywood

Setting

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Clayey residuum weathered from limestone and shale

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Typical profile

H1 - 0 to 7 inches: silt loam
H2 - 7 to 29 inches: silty clay
R - 29 to 39 inches: unweathered bedrock

Properties and qualities

Slope: 12 to 25 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Beasley

Percent of map unit: 8 percent
Hydric soil rating: No

Caneyville

Percent of map unit: 7 percent
Hydric soil rating: No

Crider

Percent of map unit: 3 percent
Hydric soil rating: No

Shrouts

Percent of map unit: 2 percent
Hydric soil rating: No

NhB—Nicholson silt loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2s2cz
Elevation: 460 to 1,140 feet
Mean annual precipitation: 35 to 59 inches
Mean annual air temperature: 42 to 68 degrees F
Frost-free period: 135 to 218 days
Farmland classification: All areas are prime farmland

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Map Unit Composition

Nicholson and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nicholson

Setting

Landform: Ridges

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Fine-silty noncalcareous loess over clayey residuum weathered from limestone

Typical profile

Ap - 0 to 8 inches: silt loam

Bt - 8 to 28 inches: silt loam

Btx - 28 to 38 inches: silty clay loam

2Bt - 38 to 50 inches: clay

2C - 50 to 80 inches: clay

Properties and qualities

Slope: 2 to 6 percent

Depth to restrictive feature: 16 to 30 inches to fragipan

Drainage class: Moderately well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: About 13 to 27 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Hydric soil rating: No

Minor Components

Lowell

Percent of map unit: 5 percent

Landform: Ridges

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluve, side slope

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Lawrence

Percent of map unit: 5 percent

Landform: Ridges

Landform position (two-dimensional): Summit

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Landform position (three-dimensional): Interfluvium
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

No—Nolin silt loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2tm1s
Elevation: 390 to 1,200 feet
Mean annual precipitation: 40 to 46 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 172 to 204 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Nolin, occasionally flooded, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nolin, Occasionally Flooded

Setting

Landform: Flood plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mixed fine-silty alluvium

Typical profile

Ap - 0 to 10 inches: silt loam
Bw - 10 to 82 inches: silt loam
C - 82 to 101 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: NoneOccasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very high (about 12.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B

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Hydric soil rating: No

Minor Components

Elk, rarely flooded

Percent of map unit: 5 percent

Landform: Stream terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Lindside, occasionally flooded

Percent of map unit: 5 percent

Landform: Flood plains

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Newark, occasionally flooded

Percent of map unit: 4 percent

Landform: Flood plains

Landform position (three-dimensional): Dip

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Dunning, occasionally flooded

Percent of map unit: 1 percent

Landform: Depressions, flood plains

Landform position (three-dimensional): Dip

Down-slope shape: Linear

Across-slope shape: Concave

Hydric soil rating: Yes

OtC—Otwood silt loam, 6 to 12 percent slopes

Map Unit Setting

National map unit symbol: 2wlt8

Elevation: 380 to 1,340 feet

Mean annual precipitation: 36 to 66 inches

Mean annual air temperature: 41 to 68 degrees F

Frost-free period: 139 to 206 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Otwood and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

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Description of Otwood

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Mixed fine-silty alluvium derived from limestone and siltstone

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 27 inches: silt loam
Btx - 27 to 46 inches: silt loam
C - 46 to 91 inches: loam

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 21 to 33 inches to fragipan
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Elk

Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Newark, occasionally flooded

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Otwood, rarely flooded

Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread

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Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

ShC3—Shrouts silt loam, 6 to 12 percent slopes, severely eroded

Map Unit Setting

National map unit symbol: 1ng8n
Elevation: 600 to 700 feet
Mean annual precipitation: 40 to 46 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 172 to 204 days
Farmland classification: Not prime farmland

Map Unit Composition

Shrouts, severely eroded, and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Shrouts, Severely Eroded

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey residuum weathered from calcareous shale and/or siltstone

Typical profile

H1 - 0 to 2 inches: silt loam
H2 - 2 to 20 inches: silty clay
H3 - 20 to 35 inches: silty clay
Cr - 35 to 45 inches: weathered bedrock

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e

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Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Beasley

Percent of map unit: 8 percent

Hydric soil rating: No

Faywood

Percent of map unit: 7 percent

Hydric soil rating: No

Caneyville

Percent of map unit: 5 percent

Hydric soil rating: No

Crider

Percent of map unit: 5 percent

Hydric soil rating: No

ShD3—Shrouts silt loam, 12 to 25 percent slopes, severely eroded, very rocky

Map Unit Setting

National map unit symbol: 1ng8p

Elevation: 600 to 700 feet

Mean annual precipitation: 40 to 46 inches

Mean annual air temperature: 52 to 57 degrees F

Frost-free period: 172 to 204 days

Farmland classification: Not prime farmland

Map Unit Composition

Shrouts, severely eroded, and similar soils: 75 percent

Minor components: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Shrouts, Severely Eroded

Setting

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Clayey residuum weathered from calcareous shale and/or siltstone

Typical profile

H1 - 0 to 2 inches: silt loam

H2 - 2 to 20 inches: silty clay

H3 - 20 to 35 inches: silty clay

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Cr - 35 to 45 inches: weathered bedrock

Properties and qualities

Slope: 12 to 25 percent

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock

Drainage class: Well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Beasley

Percent of map unit: 8 percent

Hydric soil rating: No

Faywood

Percent of map unit: 7 percent

Hydric soil rating: No

Caneyville

Percent of map unit: 5 percent

Hydric soil rating: No

Rock outcrop

Percent of map unit: 5 percent

Hydric soil rating: No

UahC—Urban land-Udorthents complex, 0 to 12 percent slopes

Map Unit Setting

National map unit symbol: 1nks5

Elevation: 380 to 600 feet

Mean annual precipitation: 40 to 46 inches

Mean annual air temperature: 52 to 57 degrees F

Frost-free period: 172 to 204 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 60 percent

Udorthents and similar soils: 40 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

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Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydric soil rating: No

Description of Udorthents

Properties and qualities

Slope: 0 to 12 percent

Depth to restrictive feature: More than 80 inches

Runoff class: Very high

Depth to water table: About 12 to 48 inches

Frequency of flooding: None

Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydric soil rating: No

uBwfA—Boonewood silt loam, 0 to 4 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2zs4n

Elevation: 380 to 1,020 feet

Mean annual precipitation: 40 to 54 inches

Mean annual air temperature: 40 to 66 degrees F

Frost-free period: 135 to 294 days

Farmland classification: Prime farmland if protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Boonewood, frequently flooded, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Boonewood, Frequently Flooded

Setting

Landform: Flood plains

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Fine-silty alluvium derived from limestone

Typical profile

Ap - 0 to 6 inches: silt loam

Bw - 6 to 23 inches: silt loam

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C - 23 to 30 inches: silt loam

R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 0 to 4 percent

Depth to restrictive feature: 20 to 39 inches to lithic bedrock

Drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.13 in/hr)

Depth to water table: About 18 to 28 inches

Frequency of flooding: NoneFrequent

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C/D

Ecological site: F121XY024KY - Colluvial Footslope

Hydric soil rating: No

Minor Components

Boonesboro, frequently flooded

Percent of map unit: 5 percent

Landform: Flood plains

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: F121XY024KY - Colluvial Footslope

Hydric soil rating: No

Nolin, frequently flooded

Percent of map unit: 5 percent

Landform: Flood plains

Landform position (three-dimensional): Rise

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: F121XY033KY - Well Drained & Moderately Well Drained Floodplain

Hydric soil rating: No

Newark, frequently flooded

Percent of map unit: 3 percent

Landform: Flood plains

Landform position (three-dimensional): Dip

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: F121XY031KY - Somewhat Poorly Drained Floodplain

Other vegetative classification: Trees/Timber (Woody Vegetation)

Hydric soil rating: No

Woolper, rarely flooded

Percent of map unit: 2 percent

Landform: Fans

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Landform position (two-dimensional): Foothlope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Convex

Ecological site: F121XY016KY - Well Drained & Moderately Well Drained Terrace

Hydric soil rating: No

UqC—Urban land-Alfic Udarents-Nicholson complex, 0 to 12 percent slopes

Map Unit Setting

National map unit symbol: 1nksd

Elevation: 500 to 900 feet

Mean annual precipitation: 40 to 46 inches

Mean annual air temperature: 52 to 57 degrees F

Frost-free period: 172 to 204 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 50 percent

Nicholson and similar soils: 25 percent

Alfic udarents and similar soils: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydric soil rating: No

Description of Nicholson

Setting

Landform: Ridges

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Thin fine-silty loess over clayey residuum weathered from limestone

Typical profile

H1 - 0 to 7 inches: silt loam

H2 - 7 to 27 inches: silt loam

H3 - 27 to 59 inches: silt loam

H4 - 59 to 74 inches: silty clay loam

H5 - 74 to 87 inches: silty clay

Properties and qualities

Slope: 0 to 12 percent

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Depth to restrictive feature: 16 to 30 inches to fragipan

Drainage class: Moderately well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Hydric soil rating: No

Description of Alfic Udarents

Setting

Landform: Ridges

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Thin fine-silty loess over clayey residuum weathered from limestone

Typical profile

H1 - 0 to 27 inches: silt loam

H2 - 27 to 59 inches: silt loam

H3 - 59 to 74 inches: silty clay loam

H4 - 74 to 87 inches: silty clay

Properties and qualities

Slope: 0 to 12 percent

Depth to restrictive feature: 16 to 30 inches to fragipan

Drainage class: Moderately well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D

Hydric soil rating: No

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W—Water

Map Unit Setting

National map unit symbol: 1nl2g

Mean annual precipitation: 40 to 46 inches

Mean annual air temperature: 52 to 57 degrees F

Frost-free period: 172 to 204 days

Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

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Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

AOI Inventory

This folder contains a collection of tabular reports that present a variety of soil information. Included are various map unit description reports, special soil interpretation reports, and data summary reports.

Component Legend (Tucker Station Site)

This report presents general information about the map units and map unit components in the selected area. It shows map unit symbols and names and the components in each map unit. It also shows the percent of the components in the map units, the kind of component, and the slope range of each component.

Report—Component Legend (Tucker Station Site)

Component Legend—Jefferson County, Kentucky							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
BeB—Beasley silt loam, 2 to 6 percent slopes	2,393						
		85	Beasley	Series	2.0	4.0	6.0
BeC—Beasley silt loam, 6 to 12 percent slopes	6,458						
		80	Beasley	Series	6.0	9.0	12.0

Custom Soil Resource Report

Component Legend—Jefferson County, Kentucky							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
BeD—Beasley silt loam, 12 to 25 percent slopes	1,206						
		80	Beasley	Series	12.0	18.5	25.0
DAM—Dam, large	79						
		100	Dam, large	Miscellaneous area			
FaD—Faywood silt loam, 12 to 25 percent slopes	2,633						
		80	Faywood	Series	12.0	18.5	25.0
NhB—Nicholson silt loam, 2 to 6 percent slopes	2,706						
		90	Nicholson	Series	2.0	4.0	6.0
No—Nolin silt loam, 0 to 2 percent slopes, occasionally flooded	4,170						
		85	Nolin, occasionally flooded	Series	0.0	1.0	2.0
OtC—Otwood silt loam, 6 to 12 percent slopes	314						
		85	Otwood	Series	6.0	9.0	12.0
ShC3—Shrouts silt loam, 6 to 12 percent slopes, severely eroded	3,495						
		75	Shrouts, severely eroded	Series	6.0	9.0	12.0
ShD3—Shrouts silt loam, 12 to 25 percent slopes, severely eroded, very rocky	9,344						
		75	Shrouts, severely eroded	Series	12.0	18.5	25.0
UahC—Urban land-Udorthents complex, 0 to 12 percent slopes	23,396						
		60	Urban land	Miscellaneous area	0.0	6.0	12.0
		40	Udorthents	Taxon above family	0.0	6.0	12.0
uBwfA—Boonewood silt loam, 0 to 4 percent slopes, frequently flooded	2,532						
		85	Boonewood, frequently flooded	Series	0.0	1.0	4.0
UqC—Urban land-Alfic Udarents-Nicholson complex, 0 to 12 percent slopes	3,775						
		50	Urban land	Miscellaneous area	0.0	6.0	12.0
		25	Nicholson	Series	0.0	6.0	12.0
		25	Alfic udarents	Taxon above family	0.0	6.0	12.0

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Custom Soil Resource Report

Component Legend—Jefferson County, Kentucky							
Map unit symbol and name	Map unit acres	Pct. of map unit	Component name	Component kind	Pct. slope		
					Low	RV	High
W—Water	9,715						
		100	Water	Miscellaneous area			

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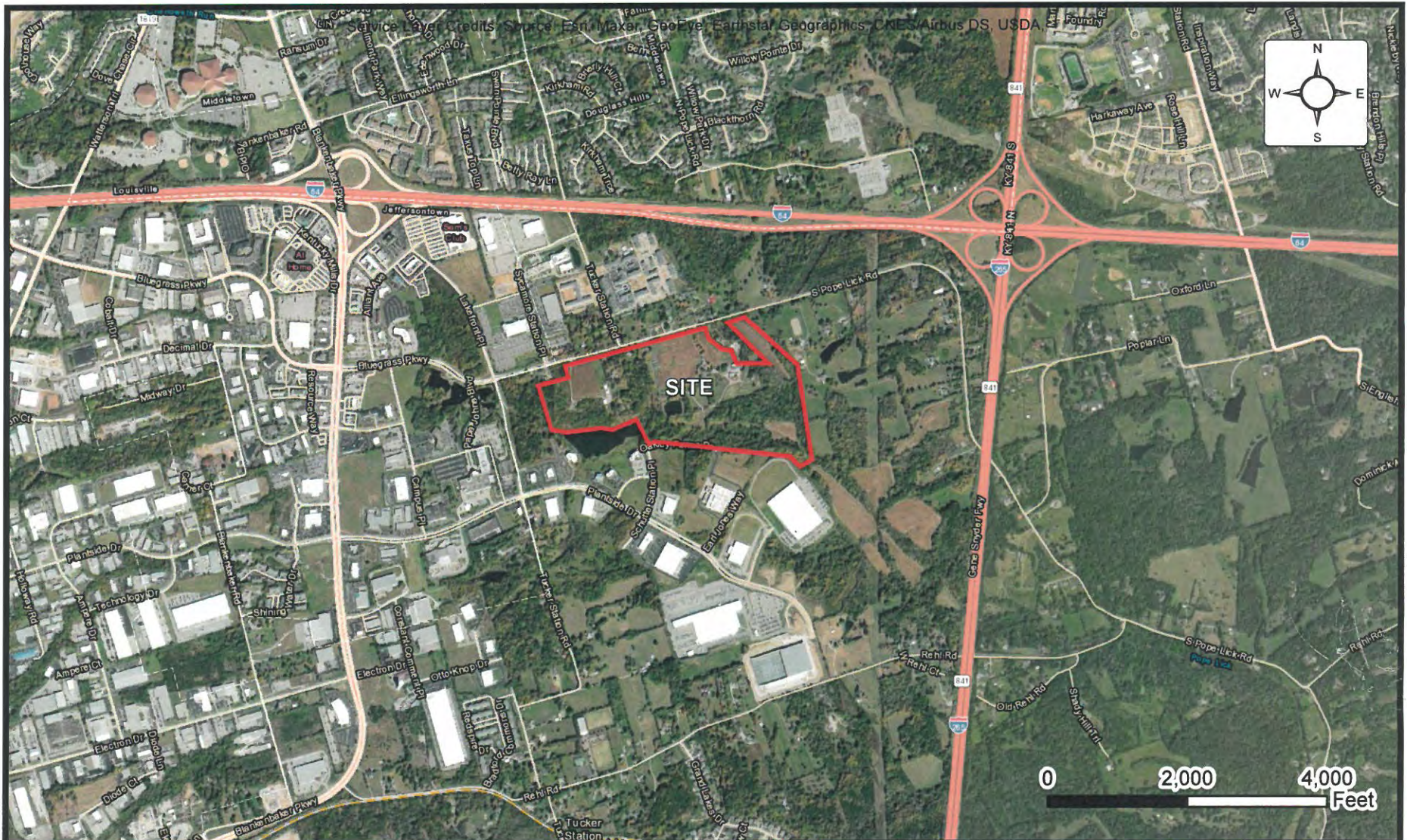
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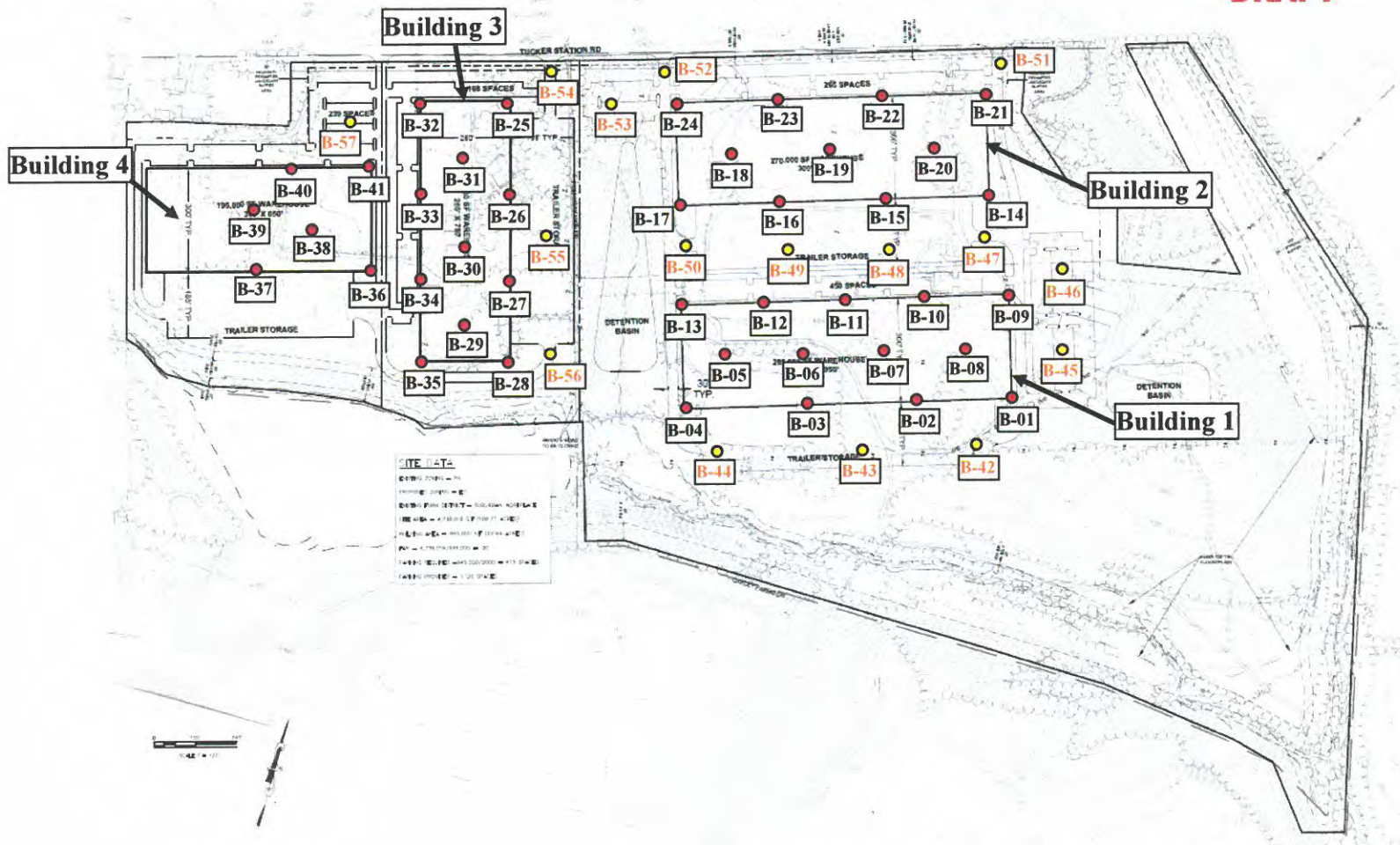


Site Location Diagram TUCKER STATION PROPERTY

1531 TUCKER STATION RD, LOUISVILLE, KENTUCKY
Xebec Realty

ENGINEER B. HASANZADEH
SCALE AS NOTED
PROJECT NO. 61:2606
SHEET 1 OF 1
DATE 12/17/2021

DRAFT



Boring in Proposed Building Areas

Boring in Proposed Pavement Areas

Based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Boring Location Plan

XEBEC - Tucker Station Road Property
Tucker Station Road
Louisville, Jefferson County, KY 40299
ECS Project No. 61:2606



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299
Tel (502) 493-7100 Fax (502) 493-8190

Received August 15, 2022

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22-ZONE-0098



SOIL CLASSIFICATION

MAJOR DIVISIONS			SYMBOLS	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE	GRAVEL AND GRAVELLY SOILS	Clean Gravels	GW	Well graded gravels, gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines
		Gravels with fines	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SAND AND SANDY SOILS	Clean Sands	SW	Well graded sands, gravelly sands, little or no fines
			SP	Poorly graded sands, gravelly sand, little or no fines
		Sands with fines	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE	SILTS AND CLAYS	Liquid Limit less than 50	ML	Inorganic silts, silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to moderate plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS	Liquid Limit greater Than 50	MH	Inorganic silts, micaeaceous or diatomaceous fine sand or silty soils
			CH	Inorganic clays of high plasticity
			OH	Organic clays of moderate to high plasticity, organic silts
			HIGHLY ORGANIC SOILS	

SOIL CONSISTENCY SPT N: Standard Penetration Test N-Value N¹ – Manual Hammer (Rope & Pulley - 60% Efficiency) N² – Automatic Hammer (Free-Fall - 96% Efficiency)

COARSE GRAINED SOILS		
SPT N ¹	SPT N ²	Relative Density
0-4	0-3	Very loose
4-10	3-6	Loose
10-30	6-19	Medium dense
30-50	19-31	Dense
> 50	> 31	Very dense

FINE GRAINED SOILS		
SPT N ¹	SPT N ²	Field Identification
0-2	0-1	Very soft – Easily penetrated several inches by fist
3-4	2-3	Soft – Easily penetrated several inches by thumb
5-7	3-4	Firm – Can be penetrated several inches by thumb with moderate effort
8-15	5-9	Stiff – Readily indented by thumb but penetrated only with great effort
16-30	10-19	Very stiff – Readily indented by thumbnail
> 30	> 19	Hard – Indented with difficulty by thumbnail

SOIL PARTICLE SIZES

Description	Size Limits	Familiar Example
Boulder	12 inches or more	Larger than basketball
Cobble	3 - 12 inches	Orange to basketball
Coarse gravel	¾ - 3 inches	Grape to orange
Fine gravel	4.75 mm (No. 4 sieve) - ¾ inch	Pea to grape
Coarse sand	2-4.75 mm (No. 10 to 4 sieve)	Rock Salt
Medium sand	0.42-2 mm (No. 40 to 10 sieve)	Table Salt
Fine sand	0.075-0.42 mm (No. 200 to 40 sieve)	Powdered sugar
Silt/Clay/Fines	Less than 0.075 mm (No. 200)	Not visible to naked eye

RELATIVE PROPORTIONS

Description	Percent
Trace	1-5
Few	5-15
Little	15-30
Some	30-50
Mostly	50-100

ROCK CONTINUITY

Description	Core Recovery (%)
Incompetent	0-40
Competent	40-70
Fairly Continuous	70-90
Continuous	90-100

ROCK QUALITY DESIGNATION

Description	RQD (%)
Very Poor	0-25
Poor	25-50
Fair	50-75
Good	75-90
Excellent	90-100

ROCK BEDDING

Description	Thickness (in)
Parting	< 0.3
Band	0.3-2.5
Thin Bed	2.5-6.0
Medium bed	6.0-12.0
Thick bed	12.0-36.0
Massive	> 36.0

ROCK HARDNESS (Descriptions for rock core samples)

Description	Definition
Very soft	Can be broken with fingers
Soft	Can be scratched with fingernail; only edges can be broken with fingers
Moderately hard	Can be easily scratched with knife; cannot be scratched with fingernail
Hard	Difficult to scratch with knife; hard hammer blow to break specimen
Very hard	Cannot be scratched with knife; several hard hammer blows to break specimen

ROCK WEATHERING (Descriptions for rock core samples)

Description	Definition
Completely	Rock decomposed to soil; rock fabric and structure completely destroyed
Highly	Most minerals are decomposed; texture indistinct but fabric preserved; strength greatly reduced
Moderately	Discoloration throughout and weaker minerals decomposed; texture preserved but strength less than unweathered rock
Slightly	Discoloration around open fractures; strength preserved
Unweathered	No sign of decomposition



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Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-01
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	672 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	See Comments			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (2 inches)	0.2								
			CLAY, silty, orange brown, low to moderate plasticity, firm, moist, (CL), with trace black oxide nodules			0.0 - 1.5	56	2-2-2	4	22.7		Liquid Limit: 79 Plastic Limit: 24 Plasticity Index: 55
	670.0					1.5 - 3.0	100	2-3-4	7	34.5		
2.5												
			CLAY, silty, tan to orange brown with gray mottling, high plasticity, stiff to very stiff, moist to very moist, (CH), with trace to few black oxide nodules	3.5								
	667.5					4.0 - 5.5	94	5-6-8	14	25.3		
5.0												
			- with completely to highly weathered rock below approximately 5.2 feet									
	665.0			6.8		6.5 - 6.8	100	50/3"	50/3"			
7.5			Boring Terminated at Direct Push Refusal									
	662.5											
10.0												
	660.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name **Tucker Station Road Property**
 Location **Louisville, KY**
 Client **Xebec Realty**
 Driller S. Martin Rig Type Geo-Probe 7822DT
 Drill Method Direct Push Hammer Type Automatic
 Groundwater Not encountered ATD

Boring No. B-02
 Project No. 61:2606
 Elevation 662 (a)
 Started 10/22/2021
 Completed 10/22/2021
 Logged By B. Emery
 Weather 70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (2 inches)	0.2								
	660.0		CLAY, tan to orange brown, gray, low to moderate plasticity, slightly moist to moist, (POSSIBLE FILL), with trace organics and black oxide nodules			0.0 - 1.5	100	1-2-3	5			
2.5						1.5 - 3.0	100	3-3-4	7	20.3		
	657.5		CLAY, tan brown, high plasticity, very stiff, slightly moist to moist, (CH), with trace organics and black oxide nodules	4.5		4.0 - 5.5	100	6-6-7	13	24.2		
5.0			- with completely to highly weathered rock below approximately 6 feet			6.5 - 7.8	100	9-9-50/3"	50/3"	17.8		
7.5	655.0											
			Boring Terminated at Direct Push Refusal	7.8								
	652.5											
10.0												
	650.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-03
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	652 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (2 inches)	0.2								
			CLAY, silty, tan to orange brown with gray mottling, high plasticity, stiff to hard, slightly moist to moist, (CH), with trace to little black oxide nodules			0.0 - 1.5	100	2-2-4	6	18.9		
	650.0											
2.5						1.5 - 3.0	100	6-7-9	16	17.5		
	647.5											
5.0						4.0 - 5.5	100	10-10-10	20			
	645.0											
7.5						6.5 - 8.0	100	10-10-12	22	17.0		
	642.5		- with completely to highly weathered rock below approximately 8.5 feet			9.0 - 9.7	100	20-50/2"	50/2"			
10.0			Boring Terminated at Direct Push Refusal	9.7								
	640.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-04
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	647 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (6 inches)	0.5		0.0 - 1.5	100	1-1-2	3	22.1		
	645.0		CLAY, silty, orange brown, moderate plasticity, soft, moist, (CL), with trace black oxide nodules and roots	2.0		1.5 - 3.0	100	3-3-5	8	25.3		
2.5			CLAY, silty, orange brown with gray mottling, highplasticity, stiff to very stiff, moist, (CH), with few to little black oxide nodules									
	642.5					4.0 - 5.5	100	6-6-8	14	22.8		
5.0			- with completely to highly weathered rock below approximately 6 feet	6.8		6.5 - 6.8	100	50/4"	50/4"			
	640.0		Boring Terminated at Direct Push Refusal									
7.5												
	637.5											
10.0												
	635.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name **Tucker Station Road Property**
 Location **Louisville, KY**
 Client **Xebec Realty**
 Driller S. Martin Rig Type Geo-Probe 7822DT
 Drill Method Direct Push Hammer Type Automatic
 Groundwater Not encountered ATD

Boring No. B-05
 Project No. 61:2606
 Elevation 657 (a)
 Started 10/21/2021
 Completed 10/21/2021
 Logged By B. Emery
 Weather 50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, with crushed stone, (7 inches)	0.6								
	655.0		CLAY, silty, tan to orange brown, low to moderate plasticity, very stiff, dry to slightly moist, (CL), with few to little black oxide nodules			0.0 - 1.5	100	3-4-7	11			
2.5						1.5 - 3.0	83	8-8-9	17	18.7		
	652.5		CLAY, silty, tan to yellow brown with gray mottling, high plasticity, hard, slightly moist, (CH), with few black oxide nodules	4.0		4.0 - 5.5	100	10-13-13	26	17.5		
5.0												
	650.0					6.5 - 8.0	100	15-15-15	30			
7.5												
	647.5		- with completely to highly weathered rock below approximately 10.3 feet			9.0 - 10.4	100	13-15-50/5"	50/5"			
10.0			Boring Terminated at Direct Push Refusal	10.4								
	645.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name **Tucker Station Road Property**
 Location **Louisville, KY**
 Client **Xebec Realty**
 Driller S. Martin Rig Type Geo-Probe 7822DT
 Drill Method Direct Push Hammer Type Automatic
 Groundwater Not encountered ATD

Boring No. **B-06**
 Project No. 61:2606
 Elevation 660 (a)
 Started 10/22/2021
 Completed 10/22/2021
 Logged By B. Emery
 Weather 70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (3 inches)	0.3								
			CLAY, silty, orange brown, low to moderate plasticity, very stiff, slightly moist, (CL), with trace black oxide nodules and fine roots			0.0 - 1.5	100	2-6-7	13			
				2.0								
2.5	657.5		CLAY, silty, orange brown with gray mottling, high plasticity, very stiff, dry to slightly moist, (CH) with trace black oxide nodules			1.5 - 3.0	100	3-4-6	10	19.8		
			- with completely to highly weathered rock below approximately 4.5 feet									
5.0	655.0					4.0 - 5.3	100	6-16-50/4"	50/4"	14.4		
			Boring Terminated at Direct Push Refusal	5.3								
7.5	652.5											
10.0	650.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name **Tucker Station Road Property**
 Location **Louisville, KY**
 Client **Xebec Realty**
 Driller S. Martin Rig Type Geo-Probe 7822DT
 Drill Method Direct Push Hammer Type Automatic
 Groundwater Not encountered ATD

Boring No. **B-07**
 Project No. 61:2606
 Elevation 670 (a)
 Started 10/22/2021
 Completed 10/22/2021
 Logged By B. Emery
 Weather 70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (6 inches)	0.5								
			CLAY, silty, brown, low to moderate plasticity, stiff, dry to slightly moist, (CL), with trace black oxide nodules and fine roots	1.7		0.0 - 1.5	89	3-4-4	8			
			CLAY, silty, orange brown with gray mottling, high plasticity, stiff to hard, dry to slightly moist, (CH), with trace to few black oxide nodules and few rock fragments			1.5 - 3.0	89	6-5-4	9			
2.5	667.5											
						4.0 - 5.5	100	4-6-7	13			
5.0	665.0											
						6.5 - 8.0	100	7-11-12	23			
7.5	662.5											
						9.0 - 10.4	100	17-20-50/5"	50/5"			
10.0	660.0		- with completely to highly weathered rock below approximately 9.8 feet									
			Boring Terminated at Direct Push Refusal	10.4								

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-08
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	672 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (4 inches)	0.3								
			CLAY, silty, orange brown with gray mottling, high plasticity, stiff to hard, dry to moist, (CH), with trace black oxide nodules			0.0 - 1.5	83	2-2-3	5			
	670.0					1.5 - 3.0	100	6-9-9	18	13.9		
2.5												
	667.5					4.0 - 5.5	100	7-7-7	14	24.0		
5.0												
	665.0					6.5 - 8.0	100	7-9-10	19			
7.5												
	662.5					9.0 - 10.3	100	12-15-50/3"	50/3"			
10.0			- with completely to highly weathered rock below approximately 9.5 feet									
			Boring Terminated at Direct Push Refusal	10.3								
	660.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property	Boring No.	B-09
Location	Louisville, KY	Project No.	61:2606
Client	Xebec Realty	Elevation	680 (a)
Driller	S. Martin/D. Underwood	Started	10/22/2021
Drill Method	Direct Push/CFA	Completed	11/09/2021
Groundwater	Not encountered	Logged By	B. Emery
	ATD	Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (4 inches)	0.4		0.0 - 1.5	100	2-6-7	13			
			CLAY, silty, orange brown, low to moderate plasticity, very stiff, dry to slightly moist, (CL) with trace roots	2.5		1.5 - 3.0	100	5-7-7	14	16.9		
			CLAY, silty, orange brown, high plasticity, very stiff, dry to moist, (CH), with trace black oxide nodules			4.0 - 5.5	100	6-8-9	17	27.7		Liquid Limit: 79 Plastic Limit: 26 Plasticity Index: 53
5	675		- with completely to highly weathered rock below approximately 6 feet									Direct Push Refusal at 6.3
10	670											
			LIMESTONE, moderately weathered, light to medium gray, thin to thick bedded, moderately hard	11.6								Begin Rock Coring at Auger Refusal at 11.6 feet.
			LIMESTONE, highly to completely weathered, yellow brown to yellow gray, thin to thick bedded, soft to very soft	13.0								
15	665		LIMESTONE, highly to moderately weathered, gray to yellow gray, thin to thick bedded, soft to moderately hard	14.9								
			SHALE, moderately to highly weathered, medium to dark gray, thin to medium bedded, very soft to soft	15.9								
			LIMESTONE, slightly weathered to unweathered, light to medium gray, medium to massive bedded, moderately hard to hard	16.7								
20	660					11.6 - 21.6	100	RQD: 87%				
			Rock coring Terminated	21.6								Water recovery maintained throughout core run.

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-10
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	676 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (5 inches)	0.4								
	675.0		CLAY, silty, orange brown to red brown, low to moderate plasticity, stiff, slightly moist, (CL), with trace black oxide nodules	1.5		0.0 - 1.5	100	2-3-4	7	20.5		
2.5			CLAY, silty, orange brown, high plasticity, very stiff to hard, dry to moist, (CH), with trace to few black oxide nodules			1.5 - 3.0	100	7-7-8	15	17.6		
	672.5											
5.0						4.0 - 5.5	100	8-10-10	20			
	670.0											
7.5						6.5 - 8.0	100	8-10-11	21			
	667.5											
10.0						9.0 - 10.5	94	10-10-11	21			
	665.0		- with completely to highly weathered rock below approximately 10 feet	11.0								
			Boring Terminated at Direct Push Refusal									

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name

Tucker Station Road Property

Location

Louisville, KY

Client

Xebec Realty

Driller

S. Martin

Rig Type

Geo-Probe 7822DT

Drill Method

Direct Push

Hammer Type

Automatic

Groundwater

Not encountered ATD

Boring No.

B-11

Project No.

61:2606

Elevation

666 (a)

Started

10/22/2021

Completed

10/22/2021

Logged By

B. Emery

Weather

70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (3 inches)	0.3								
	665.0		CLAY, silty, brown, low to moderate plasticity, firm, moist, (CL)			0.0 - 1.5	100	1-2-2	4	24.1		Liquid Limit: 81 Plastic Limit: 28 Plasticity Index: 53
2.5						1.5 - 3.0	78	3-3-5	8	30.8		
	662.5		CLAY, silty, orange brown with gray mottling, high plasticity, stiff, moist to very moist, (CH), with trace black oxide nodules	3.5								
5.0			- with completely to highly weathered rock below approximately 4.5 feet			4.0 - 5.4	100	5-9-50/5"	50/5"			
	660.0		Boring Terminated at Direct Push Refusal	5.4								
7.5												
	657.5											
10.0												
	655.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name

Tucker Station Road Property

Location

Louisville, KY

Client

Xebec Realty

Driller

S. Martin

Rig Type

Geo-Probe 7822DT

Drill Method

Direct Push

Hammer Type

Automatic

Groundwater

Not encountered ATD

Boring No.

B-12

Project No.

61:2606

Elevation

663 (a)

Started

10/22/2021

Completed

10/22/2021

Logged By

B. Emery

Weather

70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	662.5		TOPSOIL, (3 inches)	0.3								
			CLAY, silty, orange brown, low plasticity, soft, moist, (CL), with trace fine roots			0.0 - 1.5	100	1-2-1	3			
				1.5								
			CLAY, silty, orange brown, high plasticity, very stiff to hard, dry to moist, (CH), with trace black oxide nodules			1.5 - 3.0	100	5-6-7	13	19.3		
2.5												
	660.0											
5.0						4.0 - 5.5	78	10-10-11	21	21.1		
	657.5											
7.5			- light gray below approximately 7.2 feet			6.5 - 8.0	100	9-10-14	24	26.0		
	655.0											
			- with completely to highly weathered rock below approximately 9 feet									
				9.3		9.0 - 9.3	100	50/4"	50/4"			
			Boring Terminated at Direct Push Refusal									
10.0												
	652.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name

Tucker Station Road Property

Location

Louisville, KY

Client

Xebec Realty

Driller

S. Martin

Rig Type

Geo-Probe 7822DT

Drill Method

Direct Push

Hammer Type

Automatic

Groundwater

Not encountered ATD

Boring No.

B-13

Project No.

61:2606

Elevation

659 (a)

Started

10/21/2021

Completed

10/21/2021

Logged By

B. Hasanzadeh

Weather

50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (3 inches)	0.3								
			GRAVEL, crushed stone, clayey, (FILL)	0.5								
			CLAY, silty, brown, low to moderate plasticity, stiff, slightly moist to moist, (CL), with trace black oxide nodules and organics	1.5		0.0 - 1.5	100	3-3-3	6	22.6		
2.5	657.5		CLAY, silty, tan brown with gray mottling, high plasticity, very stiff to hard, slightly moist to moist, (CH), with few black oxide nodules			1.5 - 3.0	100	5-8-8	16	24.8		
	655.0		- with completely to highly weathered rock below approximately 4 feet			4.0 - 5.5	100	14-21-17	38			
	652.5			6.8		6.5 - 6.8	100	50/4"	50/4"			
7.5			Boring Terminated at Direct Push Refusal									
	650.0											
10.0												
	647.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property	Boring No.	B-14
Location	Louisville, KY	Project No.	61:2606
Client	Xebec Realty	Elevation	677 (a)
Driller	S. Martin/D. Underwood	Started	10/22/2021
Drill Method	Direct Push/CFA	Completed	11/09/2021
Groundwater	Not encountered ATD	Logged By	B. Emery
		Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (2 inches)	0.2		0.0 - 1.5	100	1-2-1	3	22.3		
	675		CLAY, silty, orange brown, moderate plasticity, soft, moist, (CL), with few black oxide nodules	2.0		1.5 - 3.0	100	3-4-6	10	31.4		
5			CLAY, silty, orange brown, high plasticity, very stiff, moist to very moist, (CH), with few black oxide nodules			4.0 - 5.5	56	7-5-8	13	34.5		
	670		- with completely to highly weathered rock below approximately 5 feet			6.5 - 6.8	100	50/3"	50/3"			Direct Push Refusal at 6.8
10			LIMESTONE, slightly weathered to unweathered, light to medium gray, thin to thick bedded, moderately hard,	9.0								Begin Rock Coring at Auger Refusal at 9 feet.
15	665					9.0 - 19.0	98	RQD: 90%				
	660		- with interbedded shale below approximately 18.5 feet	19.0								Water recovery maintained throughout core run.
20			Rock coring Terminated									
	655											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-15
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	678 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	677.5		TOPSOIL, (3 inches)	0.3								
			CLAY, silty, brown, low to moderate plasticity, soft, moist, (CL)			0.0 - 1.5	100	1-1-1	2	23.8		Liquid Limit: 69 Plastic Limit: 26 Plasticity Index: 43
2.5						1.5 - 3.0	100	4-5-6	11	29.8		
	675.0											
			CLAY, silty, orange brown, high plasticity, very stiff, moist, (CH), with trace black oxide nodules	3.5								
			Boring Terminated at Direct Push Refusal	4.0								
5.0												
	672.5											
7.5												
	670.0											
10.0												
	667.5											


Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name **Tucker Station Road Property**
 Location **Louisville, KY**
 Client **Xebec Realty**
 Driller S. Martin Rig Type Geo-Probe 7822DT
 Drill Method Direct Push Hammer Type Automatic
 Groundwater Not encountered ATD

Boring No. **B-16**
 Project No. 61:2606
 Elevation 668 (a)
 Started 10/22/2021
 Completed 10/22/2021
 Logged By B. Emery
 Weather 70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	667.5		TOPSOIL, (4 inches)	0.3								
			CLAY, silty, brown, moderate plasticity, firm, moist, (CL)			0.0 - 1.5	100	2-2-2	4	23.8		
2.5			- with completely to highly weathered rock below approximately 2.3 feet			1.5 - 3.0	89	5-15-50/4"	50/4"			
	665.0		Boring Terminated at Direct Push Refusal	2.8								
5.0												
	662.5											
7.5												
	660.0											
10.0												
	657.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name
Location
Client
Driller
Drill Method
Groundwater

Tucker Station Road Property

Louisville, KY

Xebec Realty

S. Martin

Rig Type

Geo-Probe 7822DT

Direct Push

Hammer Type

Automatic

Not encountered ATD

Boring No.

B-17

Project No.

61:2606

Elevation

663 (a)

Started

10/21/2021

Completed

10/21/2021

Logged By

B. Emery

Weather

50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	662.5		TOPSOIL, (3 inches)	0.2								
			CLAY, silty, orange brown, moderate plasticity, dry, (POSSIBLE FILL), with trace rock fragments			0.0 - 1.5	83	6-5-5	10			
2.5				2.0								
	660.0		CLAY, silty, red brown, moderate plasticity, very stiff to hard, dry to slightly moist, (CL)			1.5 - 3.0	100	5-8-13	21	21.4		
			- with completely to highly weathered rock below approximately 3.7 feet									
5.0				4.7								
	657.5		Boring Terminated at Direct Push Refusal			4.0 - 5.5	100	20-50/3"	50/3"	12.4		
7.5												
	655.0											
10.0												
	652.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name **Tucker Station Road Property**
 Location **Louisville, KY**
 Client **Xebec Realty**
 Driller S. Martin Rig Type Geo-Probe 7822DT
 Drill Method Direct Push Hammer Type Automatic
 Groundwater Not encountered ATD

Boring No. **B-18**
 Project No. 61:2606
 Elevation 673 (a)
 Started 10/22/2021
 Completed 10/22/2021
 Logged By B. Emery
 Weather 70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	672.5		TOPSOIL, (18 inches)			0.0 - 1.5	94	4-3-1	4			
				1.5								
			CLAY, silty, brown, moderate plasticity, stiff, slightly moist to moist (CL)			1.5 - 3.0	56	3-4-5	9	21.8		
2.5	670.0											
				4.2								
			CLAY, silty, orange brown, high plasticity, very stiff, moist, (CH), with few black oxide nodules			4.0 - 5.5	78	5-7-50/4"	50/4"			
5.0	667.5		- with completely to highly weathered rock below approximately 5 feet	5.3								
			Boring Terminated at Direct Push Refusal									
7.5												
	665.0											
10.0												
	662.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-19
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	675 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (21 inches)			0.0 - 1.5	100	1-1-1	2			
				1.8								
	2.5 672.5		CLAY, silty, orange brown, moderate plasticity, firm, moist, (CL) with trace black oxide nodules			1.5 - 3.0	94	2-2-2	4	25.9		
				3.5								
			CLAY, silty, orange brown, high plasticity, stiff, moist, (CH), with little black oxide nodules			4.0 - 5.5	100	3-4-5	9			
	5.0 670.0											
			- with completely to highly weathered rock below approximately 7 feet			6.5 - 7.3	100	6-50/4	50/4			
	7.5 667.5		Boring Terminated at Direct Push Refusal	7.3								
	10.0 665.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name **Tucker Station Road Property**
 Location **Louisville, KY**
 Client **Xebec Realty**
 Driller S. Martin Rig Type Geo-Probe 7822DT
 Drill Method Direct Push Hammer Type Automatic
 Groundwater Not encountered ATD

Boring No. **B-20**
 Project No. 61:2606
 Elevation 680 (a)
 Started 10/22/2021
 Completed 10/22/2021
 Logged By B. Emery
 Weather 70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (6 inches)	0.5								
			CLAY, silty, orange brown, low to moderate plasticity, stiff, moist, (CL), with trace black oxide nodules and fine roots	1.5		0.0 - 1.5	100	2-2-3	5	22.2		
			CLAY, silty, orange brown, high plasticity, very stiff, slightly moist to moist, (CH), with few black oxide nodules			1.5 - 3.0	89	5-5-6	11	25.3		
2.5	677.5											
			- with completely to highly weathered rock below approximately 4 feet	4.7		4.0 - 4.7	100	15-50/4	50/4			
5.0	675.0		Boring Terminated at Direct Push Refusal									
7.5	672.5											
10.0	670.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name **Tucker Station Road Property**
 Location **Louisville, KY**
 Client **Xebec Realty**
 Driller **S. Martin** Rig Type **Geo-Probe 7822DT**
 Drill Method **Direct Push** Hammer Type **Automatic**
 Groundwater **See comments**

Boring No. **B-21**
 Project No. **61:2606**
 Elevation **670 (a)**
 Started **10/22/2021**
 Completed **10/22/2021**
 Logged By **B. Emery**
 Weather **70's Partly Cloudy**

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (6 inches)	0.5								
			CLAY, silty, orange brown, high plasticity, stiff, moist to very moist, (CH), with few black oxide nodules			0.0 - 1.5	94	2-3-4	7	31.4		
2.5	667.5					1.5 - 3.0	100	5-5-4	9	21.4		
			- with completely to highly weathered rock below approximately 3.8 feet	4.7		4.0 - 4.7	100	19-50/2"	50/2"			Groundwater seepage observed at rock/soil interface.
5.0	665.0		Boring Terminated at Direct Push Refusal									
7.5	662.5											
10.0	660.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1






ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-22
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	678 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	677.5		TOPSOIL, (4 inches)	0.3								
			CLAY, silty, orange brown, high plasticity, stiff, moist, (CH), with few black oxide nodules			0.0 - 1.5	100	1-2-3	5	23.9		
			- with completely to highly weathered rock below approximately 2 feet			1.5 - 2.3	100	5-50/3"	50/3"			
2.5			Boring Terminated at Direct Push Refusal	2.3								
	675.0											
5.0												
	672.5											
7.5												
	670.0											
10.0												
	667.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name

Tucker Station Road Property

Location

Louisville, KY

Client

Xebec Realty

Driller

S. Martin

Rig Type

Geo-Probe 7822DT

Drill Method

Direct Push

Hammer Type

Automatic

Groundwater

Not encountered ATD

Boring No.

B-23

Project No.

61:2606

Elevation

679 (a)

Started

10/22/2021

Completed

10/22/2021

Logged By

B. Emery

Weather

70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (7 inches)									
				0.6								
	677.5		CLAY, silty, orange brown, low plasticity, soft, moist, (CL), with trace black oxide nodules and fine roots			0.0 - 1.5	100	1-1-2	3	25.1		Liquid Limit: 43 Plastic Limit: 24 Plasticity Index: 19
				2.0								
	2.5		CLAY, silty, orange brown, high plasticity, very stiff, moist, (CH), with few black oxide nodules			1.5 - 3.0	100	2-4-7	11	27.8		
	675.0		- with completely to highly weathered rock below approximately 4.8 feet			4.0 - 5.0	83	7-7-50/0"	50/0"			
	5.0			5.0								
			Boring Terminated at Direct Push Refusal									
	672.5											
	7.5											
	670.0											
	10.0											
	667.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name	Tucker Station Road Property			Boring No.	B-24
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	670 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (3 inches)	0.3								
			CLAY, silty, tan brown, low plasticity, stiff, moist to very moist, (CL), with few black oxide nodules and trace fine roots			0.0 - 1.5	100	2-2-3	5	28.5		
			- with completely to highly weathered rock below approximately 2.4 feet			1.5 - 2.9	100	9-13-50/5"	50/5"			
2.5	667.5			2.9								
			Boring Terminated at Direct Push Refusal									
5.0	665.0											
7.5	662.5											
10.0	660.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-25
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	672 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Hasanzadeh
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (4 inches)	0.3								
			CLAY, silty, brown gray, low to moderate plasticity, soft, moist, (POSSIBLE FILL)	0.6		0.0 - 1.5	100	2-2-3	5	22.5		
			CLAY, silty, orange brown, high plasticity, very stiff, moist, (CH), with few to little black oxide nodules									
	670.0		- with completely to highly weathered rock below approximately 2 feet	2.8		1.5 - 2.8	100	7-4-50/3"	50/3"	27.1		
2.5			Boring Terminated at Direct Push Refusal									
	667.5											
5.0												
	665.0											
7.5												
	662.5											
10.0												
	660.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-26
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	682 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (6 inches)	0.5								
			CLAY, silty, tan brown, low plasticity, stiff, slightly moist, (CL), with trace black oxide nodules	1.7		0.0 - 1.5	100	3-3-4	7			
	680.0		CLAY, silty, orange brown with gray mottling, high plasticity, very stiff, moist, (CH), with little black oxide nodules			1.5 - 3.0	100	5-6-6	12	20.4		
2.5												
	677.5		- with completely to highly weathered rock below approximately 5.2 feet			4.0 - 5.3	100	6-6-50/4"	50/4"	26.1		
5.0			Boring Terminated at Direct Push Refusal	5.4								
	675.0											
7.5												
	672.5											
10.0												
	670.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name

Tucker Station Road Property

Location

Louisville, KY

Client

Xebec Realty

Driller

S. Martin

Rig Type

Geo-Probe 7822DT

Drill Method

Direct Push

Hammer Type

Automatic

Groundwater

Not encountered ATD

Boring No.

B-27

Project No.

61:2606

Elevation

669 (a)

Started

10/21/2021

Completed

10/21/2021

Logged By

B. Emery

Weather

50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (3 inches)	0.3								
	667.5		CLAY, silty, orange brown, low plasticity, stiff to very stiff, slightly moist to moist, (CL), with trace fine roots and black oxide nodules			0.0 - 1.5	94	3-3-4	7			
2.5						1.5 - 3.0	100	7-6-5	11	22.1		
	665.0					4.0 - 5.5	100	5-6-6	12	25.0		
5.0						6.5 - 8.0	100	8-9-9	18			
	662.5		CLAY, silty, orange brown with light brown mottling, high plasticity, very stiff, slightly moist, (CH), with trace black oxide nodules	5.8								
7.5						9.0 - 9.9	100	16-50/5"	50/5"			
	660.0		- with completely to highly weathered rock below approximately 9.5 feet									
10.0			Boring Terminated at Direct Push Refusal	9.9								
	657.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-28
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	659 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Hasanzadeh
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (5 inches)	0.4								
	657.5		CLAY, silty, brown with light gray mottling, low to moderate plasticity, stiff to very stiff, slightly moist, (CL), with trace fine roots and trace to little black oxide nodules			0.0 - 1.5	100	2-2-2	4	23.3		
2.5						1.5 - 3.0	100	3-3-3	6	22.7		
	655.0											
5.0						4.0 - 5.5	100	5-5-6	11			
	652.5		CLAY, silty, tan to orange brown, high plasticity, very stiff to hard, slightly moist, (CH), with few to little black oxide nodules	6.0								
7.5						6.5 - 8.0	100	8-9-12	21			
	650.0		- with completely to highly weathered rock below approximately 9.5 feet			9.0 - 9.8	100	23-50/3"	50/3"			
10.0			Boring Terminated at Direct Push Refusal	9.8								
	647.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-29
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	667 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Hasanzadeh
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (4 inches)	0.3								
	665.0		CLAY, silty, brown, low to moderate plasticity, stiff, slightly moist to very moist, (CL), with few to little black oxide nodules and trace fine roots			0.0 - 1.5	100	2-2-3	5	21.3		
2.5						1.5 - 3.0	100	3-4-4	8	30.0		
	662.5		CLAY, silty, tan to orange brown with light gray mottling, high plasticity, very stiff to hard, slightly moist to moist, (CH), few to little black oxide nodules	3.5								
5.0						4.0 - 5.5	100	4-6-8	14			
	660.0					6.5 - 8.0	100	10-11-11	22			
7.5						9.0 - 10.3	100	17-17-50/4"	50/4"			
10.0	657.5		- with completely to highly weathered rock below approximately 9.5 feet	10.3								
			Boring Terminated at Direct Push Refusal									
	655.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name	Tucker Station Road Property			Boring No.	B-30
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	674 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (4 inches)	0.3								
	672.5		CLAY, silty, orange brown, low plasticity, stiff, moist, (CL), with trace black oxide nodules and fine roots			0.0 - 1.5	100	3-3-2	5	21.4		Liquid Limit: 36 Plastic Limit: 21 Plasticity Index: 15
2.5			CLAY, silty, orange brown with dark brown mottling, high plasticity, very stiff, moist to very moist, (CH), with few black oxide nodules	2.0		1.5 - 3.0	100	5-5-6	11	31.5		
	670.0		- with completely to highly weathered rock below approximately 4 feet			4.0 - 5.2	100	13-18-50/2"	50/2"			
5.0			Boring Terminated at Direct Push Refusal	5.1								
	667.5											
7.5												
	665.0											
10.0												
	662.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name	Tucker Station Road Property			Boring No.	B-31
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	680 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (8 inches)									
				0.7		0.0 - 1.5	100	2-2-3	5	29.3		
			CLAY, silty, brown, moderate plasticity, stiff to very stiff, moist to very moist, (CL), with little black oxide nodules									
						1.5 - 2.9	82	8-10-50/5"	50/5"			
2.5	677.5		- with completely to highly weathered rock below approximately 2.2 feet	2.9								
			Boring Terminated at Direct Push Refusal									
5.0	675.0											
7.5	672.5											
10.0	670.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name	Tucker Station Road Property	Boring No.	B-32
Location	Louisville, KY	Project No.	61:2606
Client	Xebec Realty	Elevation	684 (a)
Driller	S. Martin/D. Underwood	Rig Type	Geo-Probe 7822DT/CME-45
Drill Method	Direct Push/CFA	Hammer Type	Automatic
Groundwater	Not encountered	ATD	
		Started	10/21/2021
		Completed	11/08/2021
		Logged By	B. Emery
		Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (4 inches)	0.3		0.0 - 1.5	100	2-2-2	4			
			CLAY, silty, brown, moderate plasticity, firm to very stiff, moist, (CL), with little black oxide nodules and fine roots			1.5 - 3.0	100	4-6-6	12	23.9		
	680			4.0								
5			CLAY, silty, orange brown with gray and light brown mottling, high plasticity, very stiff, moist, (CH) - with weathered rock below approximately 5.5			4.0 - 5.5	100	6-8-8	16	27.4		Liquid Limit: 63 Plastic Limit: 30 Plasticity Index: 33
												Direct Push Refusal at 5.7
	675			9.0								
10			LIMESTONE, slightly weathered to unweathered, light to medium gray, thin to thick bedded, moderately hard									Begin Rock Coring at Auger Refusal at 9 feet.
						9.0 - 19.0	95	RQD: 93%				
15												
	670											
	665			19.0								
20			Rock coring Terminated									Water recovery maintained throughout core run.
	660											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name **Tucker Station Road Property**
 Location **Louisville, KY**
 Client **Xebec Realty**
 Driller S. Martin Rig Type Geo-Probe 7822DT
 Drill Method Direct Push Hammer Type Automatic
 Groundwater Not encountered ATD

Boring No. **B-33**
 Project No. 61:2606
 Elevation 682 (a)
 Started 10/21/2021
 Completed 10/21/2021
 Logged By B. Hasanzadeh
 Weather 50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (3 inches)	0.3								
			CLAY, silty, brown, low to moderate plasticity, firm, moist, (CL), with trace black oxide nodules			0.0 - 1.5	100	1-2-2	4	24.8		
	680.0			2.0								
2.5			CLAY, silty, tan to orange brown with gray mottling, high plasticity, stiff to very stiff, moist to very moist, (CH), with few to little black oxide nodules			1.5 - 3.0	100	5-5-6	11	29.8		
	677.5											
5.0						4.0 - 5.5	100	4-4-5	9	36.4		
			- with completely to highly weathered rock below approximately 6 feet									
	675.0			7.0		6.5 - 7.0	100	15-50/0"	50/0"			
7.5			Boring Terminated at Direct Push Refusal									
	672.5											
10.0												
	670.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-34
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	672 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (2 inches)	0.2								
			CLAY, silty, light brown, high plasticity, stiff, moist, (CH), with trace to few black oxide nodules			0.0 - 1.5	94	2-2-4	6	23.9		
	670.0											
2.5			- with completely to highly weathered rock below approximately 2.2 feet	2.7		1.5 - 2.8	88	5-12-50/2"	50/2"			
			Boring Terminated at Direct Push Refusal									
	667.5											
5.0												
	665.0											
7.5												
	662.5											
10.0												
	660.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name **Tucker Station Road Property**
 Location **Louisville, KY**
 Client **Xebec Realty**
 Driller **S. Martin** Rig Type **Geo-Probe 7822DT**
 Drill Method **Direct Push** Hammer Type **Automatic**
 Groundwater **Not encountered ATD**

Boring No. **B-35**
 Project No. **61:2606**
 Elevation **662 (a)**
 Started **10/21/2021**
 Completed **10/21/2021**
 Logged By **B. Hasanzadeh**
 Weather **50's Partly Cloudy**

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (4 inches)	0.3								
			CLAY, silty, brown, low to moderate plasticity, moist, (FILL), with few to little crushed stone			0.0 - 1.5	89	2-2-6	8	13.7		
	660.0		CLAY, silty, brown, moderate plasticity, very stiff, moist to very moist, (CL), with few to little black oxide nodules	1.8		1.5 - 3.0	83	4-5-6	11	28.5		
2.5												
			CLAY, silty, tan to orange brown with gray mottling, high plasticity, very stiff, slightly moist to moist, (CH), with few to little black oxide nodules	3.5		4.0 - 5.5	100	5-5-6	11			
5.0	657.5											
			- with completely to highly weathered rock below approximately 7 feet			6.5 - 7.2	100	8-50/2"	50/2"			
7.5	655.0		Boring Terminated at Direct Push Refusal	7.2								
	652.5											
10.0												
	650.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-36
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	678 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Hasanzadeh
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	677.5		TOPSOIL, [2 inches]	0.2	X	0.0 - 0.8	100	3-50/3"	50/3"	16.9		
			CLAY, silty, brown, low to moderate plasticity, dry, (FILL), with little crushed stone and asphalt fragments, and trace organics									
				1.5	X	1.5 - 3.0	89	2-4-5	9	28.2		
2.5			CLAY, silty, tan to orange brown, high plasticity, stiff to very stiff, moist, (CH), with trace black oxide nodules									
	675.0											
			- with completely to highly weathered rock below approximately 4.4 feet									
				4.9	X	4.0 - 4.9	100	14-50/5"	50/5"			
5.0			Boring Terminated at Direct Push Refusal									
	672.5											
7.5												
	670.0											
10.0												
	667.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name	Tucker Station Road Property			Boring No.	B-37
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	668 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Hasanzadeh
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	667.5		GRAVEL, crushed stone, clayey, (8 inches)	0.7		0.0 - 1.5	94	9-4-4	8			
2.5	665.0		CLAY, silty, brown, gray brown, gray, low to moderate plasticity, dry to very moist, (FILL), with few to some crushed stone and few organics			1.5 - 3.0	100	3-4-3	7	23.4		
5.0	662.5					4.0 - 5.5	72	2-2-2	4	34.8		
7.5	660.0					6.5 - 8.0	22	10-2-2	4			
10.0	657.5		Boring Terminated at Direct Push Refusal	8.5								

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name	Tucker Station Road Property			Boring No.	B-38
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	678 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Hasanzadeh
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	677.5		TOPSOIL, (6 inches)	0.5								
			CLAY, silty, brown, low to moderate plasticity, stiff, moist, (CL), with trace black oxide nodules	1.5		0.0 - 1.5	83	2-2-3	5			
2.5			CLAY, silty, tan to orange brown, high plasticity, stiff to very stiff, moist, (CH), with trace black oxide nodules			1.5 - 2.9	100	5-11-50/5"	50/5"			
	675.0		- with completely to highly weathered rock below approximately 2.5 feet	2.9								
			Boring Terminated at Direct Push Refusal									
5.0												
	672.5											
7.5												
	670.0											
10.0												
	667.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name **Tucker Station Road Property**
 Location **Louisville, KY**
 Client **Xebec Realty**
 Driller **S. Martin** Rig Type **Geo-Probe 7822DT**
 Drill Method **Direct Push** Hammer Type **Automatic**
 Groundwater **Not encountered ATD**

Boring No. **B-39**
 Project No. **61:2606**
 Elevation **676 (a)**
 Started **10/21/2021**
 Completed **10/21/2021**
 Logged By **B. Hasanzadeh**
 Weather **50's Partly Cloudy**

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (1-inch)	0.1								
	675.0		CLAY, silty, red brown, low to moderate plasticity, moist, (FILL), with few crushed stone			0.0 - 1.5	72	18-5-2	7			
			- mostly crushed asphalt below approximately 0.5 feet	1.5								
			CLAY, silty, brown, moderate plasticity, stiff, moist, (CL), with few black oxide nodules			1.5 - 3.0	100	3-4-5	9	22.0		
2.5												
	672.5											
						4.0 - 5.5	100	3-4-5	9	23.1		
5.0												
	670.0											
			CLAY, silty, brown to tan brown, high plasticity, stiff, slightly moist to moist, (CH), with few black oxide nodules	6.0								
			- with completely to highly weathered rock below approximately 7.1 feet	7.6		6.5 - 7.6	100	4-14-50/1"	50/1"			
7.5			Boring Terminated at Direct Push Refusal									
	667.5											
10.0												
	665.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-40
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	678 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Hasanzadeh
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	677.5		TOPSOIL, (5 inches)	0.4								
			CLAY, silty, brown, low to moderate plasticity, stiff, moist, (CL), with few black oxide nodules			0.0 - 1.5	94	3-2-3	5	22.6		
2.5						1.5 - 3.0	100	3-3-3	6	24.8		
	675.0											
			CLAY, silty, brown to orange brown, high plasticity, stiff, slightly moist to very moist, (CH), with few to little black oxide nodules	3.5								
						4.0 - 5.5	94	3-4-4	8	27.0		
5.0												
	672.5											
			- with completely to highly weathered rock below approximately 7.1 feet			6.5 - 7.8	100	6-6-50/3"	50/3"			
7.5												
	670.0		Boring Terminated at Direct Push Refusal	7.8								
10.0												
	667.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property		Boring No.	B-41
Location	Louisville, KY		Project No.	61:2606
Client	Xebec Realty		Elevation	683 (a)
Driller	S. Martin/D. Underwood	Rig Type Geo-Probe 7822DT/CME-45	Started	10/21/2021
Drill Method	Direct Push/CFA	Hammer Type Automatic	Completed	11/08/2021
Groundwater	Not encountered ATD		Logged By	B. Hasanzadeh
			Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (3 inches)	0.3		0.0 - 1.5	100	1-2-3	5	23.2		
			CLAY, silty, brown to tan brown, low to moderate plasticity, stiff, slightly moist, (CL), with few black oxide nodules	1.5		1.5 - 3.0	100	8-9-8	17	23.0		
	680		CLAY, silty, brown to tan brown with orange and gray mottling, high plasticity, very stiff, slightly moist to moist, (CH), with few to little black oxide nodules - with completely to highly weathered rock below approximately 4.5 feet			4.0 - 4.8	100	7-50/3"	50/3"			Direct Push Refusal at 4.8
5			LIMESTONE, slightly weathered to unweathered, light to medium gray, thin to massive bedded, moderately hard	7.0								Begin Rock Coring at Auger Refusal at 7 feet.
	675											
10												
	670											
15						7.0 - 22.0	94	RQD: 89%				
	665											
20												
	660		Rock coring Terminated	22.0								Water recovery maintained throughout core run.

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-42
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	658 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	657.5		TOPSOIL, (6 inches)	0.5								
			CLAY, silty, medium to dark brown, moderate plasticity, stiff, moist, (CL), with trace fine roots	1.2		0.0 - 1.5	100	2-2-3	5			
			CLAY, silty, orange brown, high plasticity, stiff to very stiff, moist, (CH), with trace black oxide nodules			1.5 - 3.0	83	3-3-5	8	26.3		
2.5	655.0											
			- with completely to highly weathered rock below approximately 5.2 feet			4.0 - 5.5	100	6-8-8	16			
5.0	652.5		Boring Terminated	5.5								
7.5	650.0											
10.0	647.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name	Tucker Station Road Property			Boring No.	B-43
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	648 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	647.5		TOPSOIL, (4 inches)	0.3								
			CLAY, silty, orange brown, high plasticity, stiff to very stiff, dry to moist, (CH), with trace to few black oxide nodules			0.0 - 1.5	100	2-2-4	6	21.8		
			- with light gray mottling below approximately 1.7 feet			1.5 - 3.0	100	3-4-4	8			
2.5	645.0											
						4.0 - 5.5	100	5-7-7	14			
5.0	642.5		Boring Terminated	5.5								
7.5	640.0											
10.0	637.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-44
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	646 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (5 inches)	0.4								
	645.0		CLAY, silty, orange to tan brown, moderate plasticity, stiff to very stiff, dry to slightly moist, (CL), with trace black oxide nodules			0.0 - 1.5	100	2-2-3	5	11.7		
2.5						1.5 - 3.0	100	2-2-3	5	21.6		
	642.5											
						4.0 - 5.5	78	5-7-6	13			
5.0												
	640.0		- with completely to highly weathered rock below approximately 6.1 feet	6.8		6.5 - 6.8	100	50/4"	50/4"			
			Boring Terminated at Direct Push Refusal									
7.5												
	637.5											
10.0												
	635.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-45
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	678 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	677.5		GRAVEL, crushed stone, clayey, (FILL)									
				1.0		0.0 - 1.5	72	10-9-3	12			
			CLAY, silty, orange brown, moderate plasticity, stiff to very stiff, slightly moist, (CL), with few black oxide nodules	2.0								
			CLAY, silty, orange brown, high plasticity, very stiff, moist, (CH), with few black oxide nodules			1.5 - 3.0	100	4-5-5	10	21.8		
2.5	675.0											
						4.0 - 5.5	44	6-6-7	13			
5.0	672.5		Boring Terminated	5.5								
7.5	670.0											
10.0	667.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-46
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	677 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			GRAVEL, crushed stone, clayey, (FILL)			0.0 - 1.5	50	5-7-5	12			
	675.0		CLAY, silty, brown, moderate plasticity, very stiff, dry to slightly moist, (CL), with trace black oxide nodules	1.5		1.5 - 3.0	22	5-6-6	12	14.7		
	672.5		CLAY, silty, orange brown, high plasticity, very stiff, moist, (CH), with trace black oxide nodules	3.5		4.0 - 5.5	100	7-7-9	16			
			Boring Terminated	5.5								
	670.0											
	667.5											
	665.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name **Tucker Station Road Property**
 Location **Louisville, KY**
 Client **Xebec Realty**
 Driller S. Martin Rig Type Geo-Probe 7822DT
 Drill Method Direct Push Hammer Type Automatic
 Groundwater Not encountered ATD

Boring No. **B-47**
 Project No. 61:2606
 Elevation 677 (a)
 Started 10/22/2021
 Completed 10/22/2021
 Logged By B. Emery
 Weather 70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (2 inches)	0.2								
			CLAY, silty, brown, moderate plasticity, soft, moist, (CL)			0.0 - 1.5	100	2-1-1	2			
				1.5								
	675.0		CLAY, silty, brown to orange brown, high plasticity, stiff to very stiff, moist to very moist, (CH), with trace to little black oxide nodules			1.5 - 3.0	100	3-3-4	7	24.0		
2.5												
	672.5					4.0 - 5.5	100	5-6-7	13	32.1		
5.0												
			Boring Terminated	5.5								
	670.0											
7.5												
	667.5											
10.0												
	665.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-48
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	676 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	675.0		TOPSOIL, (2 inches)	0.2		0.0 - 1.5	67	1-2-2	4			
2.5	672.5		CLAY, silty, brown, moderate plasticity, slightly moist, firm, (CL), with trace fine roots	2.2		1.5 - 3.0	100	4-4-5	9	23.0		
5.0			CLAY, silty, orange brown, high plasticity, stiff to very stiff, slightly moist to moist, (CH), with trace black oxide nodules.			4.0 - 5.5	100	6-7-10	17			
	670.0		Boring Terminated	5.5								
7.5												
	667.5											
10.0												
	665.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-49
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	666 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	665.0		TOPSOIL, (2 inches)	0.2		0.0 - 1.5	93	2-2-3	5			
			CLAY, silty, brown, low plasticity, firm, slightly moist, (CL)	0.4								
			CLAY, silty, orange brown, high plasticity, stiff to very stiff, moist to very moist, (CH)									
2.5						1.5 - 3.0	100	5-5-6	11	30.2		
	662.5											
5.0						4.0 - 5.5	67	6-4-6	10			
	660.0		Boring Terminated	5.5								
7.5												
	657.5											
10.0												
	655.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-50
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	662 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (5 inches)	0.4								
			CLAY, silty, red brown, high plasticity, stiff to hard, slightly moist to moist, (CH) with trace fine roots and black oxide nodules			0.0 - 1.5	100	2-4-3	7			
	660.0											
2.5						1.5 - 3.0	100	4-4-6	10	19.6		
	657.5											
5.0						4.0 - 5.5	100	8-10-12	22			
				5.5								
			Boring Terminated									
	655.0											
7.5												
	652.5											
10.0												
	650.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-51
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	673 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	672.5		TOPSOIL, (3 inches)	0.3		0.0 - 1.5	94	2-3-5	8	20.7		
			CLAY, silty, orange brown, high plasticity, stiff, slightly moist, (CH), with trace fine roots									
	2.5		- with completely to highly weathered rock below approximately 2.7 feet			1.5 - 2.9	100	5-6-50/5"	50/5"			
	670.0		Boring Terminated at Direct Push Refusal	2.9								
	5.0											
	667.5											
	7.5											
	665.0											
	10.0											
	662.5											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name	Tucker Station Road Property			Boring No.	B-52
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	666 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (4 inches)	0.3								
	665.0		CLAY, silty, brown, low plasticity, slightly moist, firm, (CL)			0.0 - 1.5	100	3-9-7	16	20.9		
			- with completely to highly weathered rock below approximately 0.6 feet			1.5 - 2.3	100	9-50/3"	50/3"			
2.5			Boring Terminated at Direct Push Refusal	2.3								
	662.5											
5.0												
	660.0											
7.5												
	657.5											
10.0												
	655.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name	Tucker Station Road Property			Boring No.	B-53
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	670 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/22/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/22/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	70's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (6 inches)	0.5								
			CLAY, silty, brown, low to high plasticity, slightly moist, (POSSIBLE FILL), with trace fine roots and few rock fragments			0.0 - 1.5	100	2-3-3	6	19.3		
						1.5 - 3.0	89	3-4-4	8	19.5		
2.5	667.5											
						4.0 - 5.5	28	3-3-3	6			
5.0	665.0			5.5								
			Boring Terminated									
7.5	662.5											
10.0	660.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-54
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	676 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Hasanzadeh
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (3 inches)	0.3								
	675.0		CLAY, silty, brown to tan brown, moderate plasticity, stiff, slightly moist to moist, (CL), with few black oxide nodules and trace organics			0.0 - 1.5	100	2-5-14	19	23.1		
			- with completely to highly weathered rock below approximately 1.3 feet	1.9		1.5 - 1.9	100	50/5"	50/5"			
			Boring Terminated at Direct Push Refusal									
2.5												
	672.5											
5.0												
	670.0											
7.5												
	667.5											
10.0												
	665.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



ECS Southeast, LLP

1762 Watterson Trail
Louisville, Kentucky 40299

BORING RECORD

Project Name	Tucker Station Road Property			Boring No.	B-56
Location	Louisville, KY			Project No.	61:2606
Client	Xebec Realty			Elevation	657 (a)
Driller	S. Martin	Rig Type	Geo-Probe 7822DT	Started	10/21/2021
Drill Method	Direct Push	Hammer Type	Automatic	Completed	10/21/2021
Groundwater	Not encountered ATD			Logged By	B. Emery
				Weather	50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
	657.0		TOPSOIL, (4 inches)	0.3		0.0 - 1.5	94	3-4-4	8			
	655.0		CLAY, silty, tan brown, low plasticity, stiff, dry, (CL), with trace fine roots	1.7		1.5 - 3.0	100	9-12-10	22	12.3		
2.5	652.5		CLAY, silty, orange brown with gray mottling, high plasticity, hard, dry to moist, (CH), with trace black oxide nodules			4.0 - 5.5	94	8-8-9	17			
5.0	650.0					6.5 - 8.0	100	10-10-10	20			
7.5			Boring Terminated	8.0								
10.0	647.5											
	645.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1

**ECS Southeast, LLP**1762 Watterson Trail
Louisville, Kentucky 40299**BORING RECORD**

Project Name **Tucker Station Road Property**
 Location **Louisville, KY**
 Client **Xebec Realty**
 Driller S. Martin Rig Type Geo-Probe 7822DT
 Drill Method Direct Push Hammer Type Automatic
 Groundwater Not encountered ATD

Boring No. **B-57**
 Project No. 61:2606
 Elevation 685 (a)
 Started 10/21/2021
 Completed 10/21/2021
 Logged By B. Hasanzadeh
 Weather 50's Partly Cloudy

Scale, ft.	Elevation, ft.	Soil Symbol	Material Description and Classification	Depth, ft.	Sample Type	Sample Depth, ft.	Recovery, %	Standard Penetration Test Blows	N Value	Water Content, %	Uc, tsf	Comments
			TOPSOIL, (3 inches)	0.3								
			CLAY, silty, brown, low plasticity, firm, moist, (CL)			0.0 - 1.5	100	1-1-3	4	23.1		
				1.5								
			CLAY, silty, brown to orange brown with gray mottling, high plasticity, very stiff, moist to very moist, (CH), with trace black oxide nodules			1.5 - 3.0	100	6-6-5	11	30.8		
2.5	682.5											
			- with completely to highly weathered rock below approximately 4.5 feet			4.0 - 4.8	100	9-50/3"	50/3"			
5.0	680.0		Boring Terminated at Direct Push Refusal	4.8								
7.5	677.5											
10.0	675.0											

Remarks: (a) Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Sheet 1 of 1



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1762 Watterson Trail
Louisville, Kentucky 40299

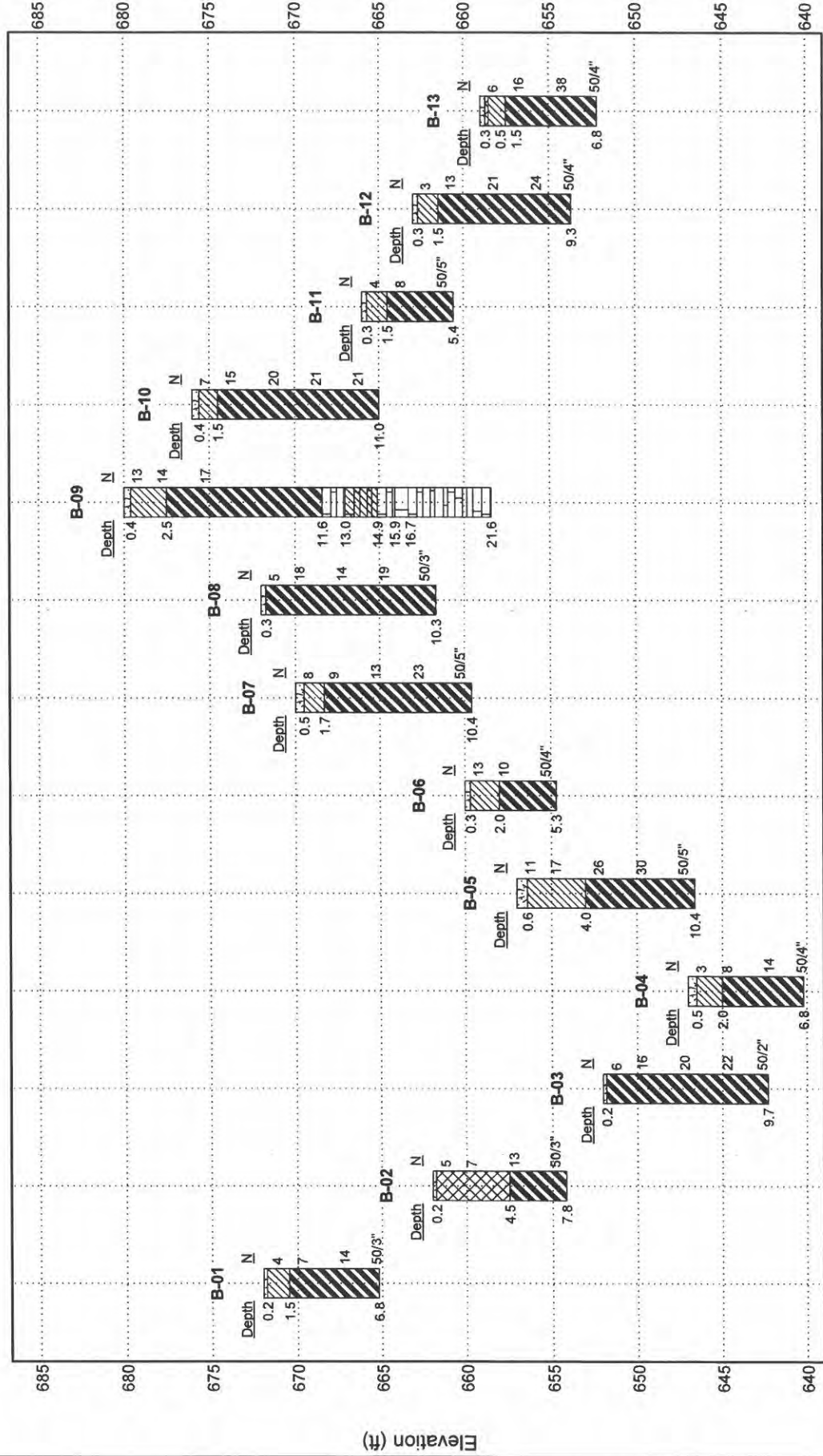
BORING COMPOSITE (Proposed Building 1)

CLIENT Xebec Realty

PROJECT NAME Tucker Station Road Property

PROJECT NUMBER 61:2606

PROJECT LOCATION Louisville, KY



Remark: Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No. 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Received August 15, 2022

Planning & Design

22-ZONE-0098



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Louisville, Kentucky 40299

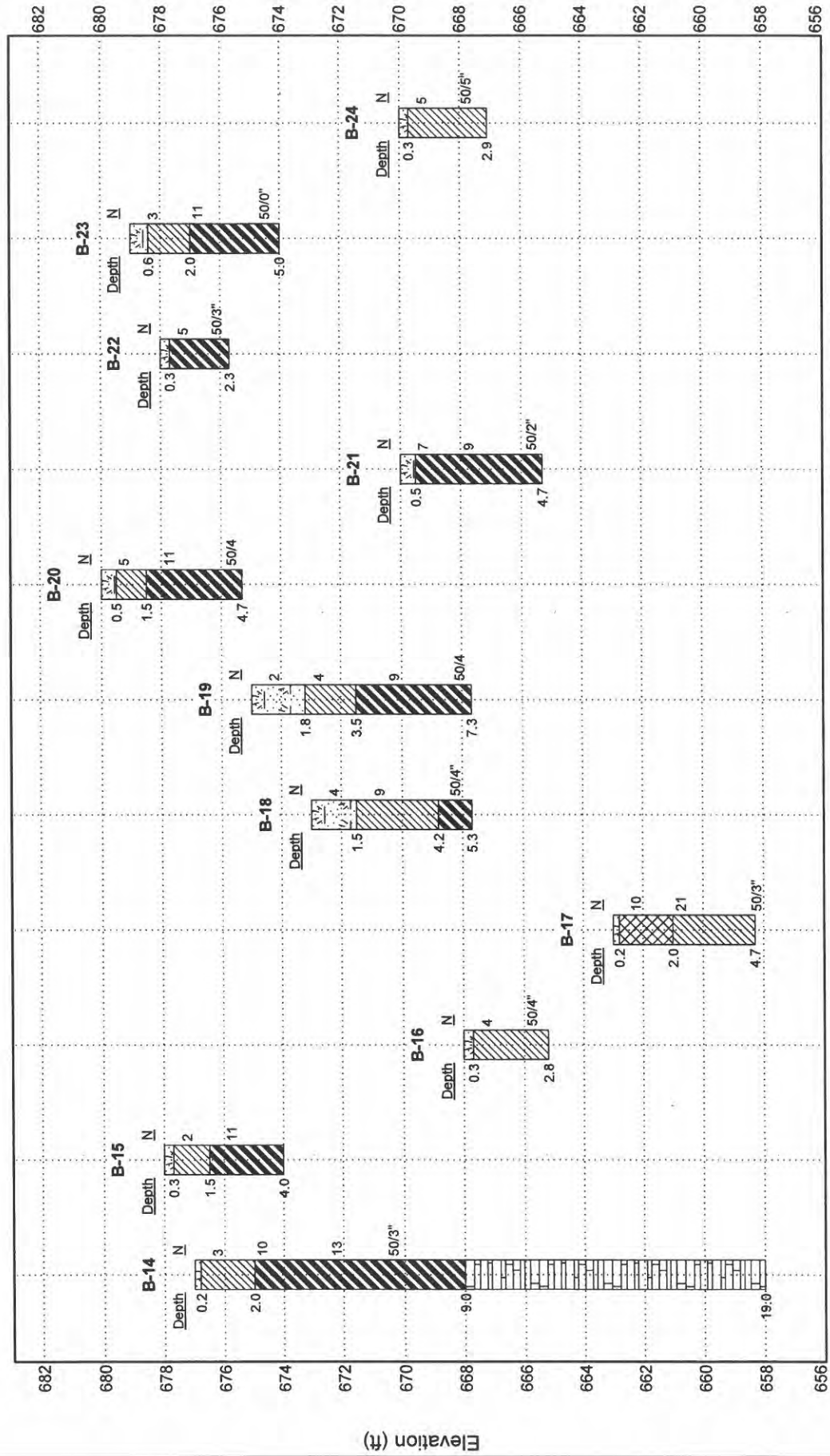
BORING COMPOSITE (Proposed Building 2)

CLIENT Xebec Realty

PROJECT NUMBER 61:2606

PROJECT NAME Tucker Station Road Property

PROJECT LOCATION Louisville, KY



Remark: Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No: 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Received August 15, 2022

Planning & Design

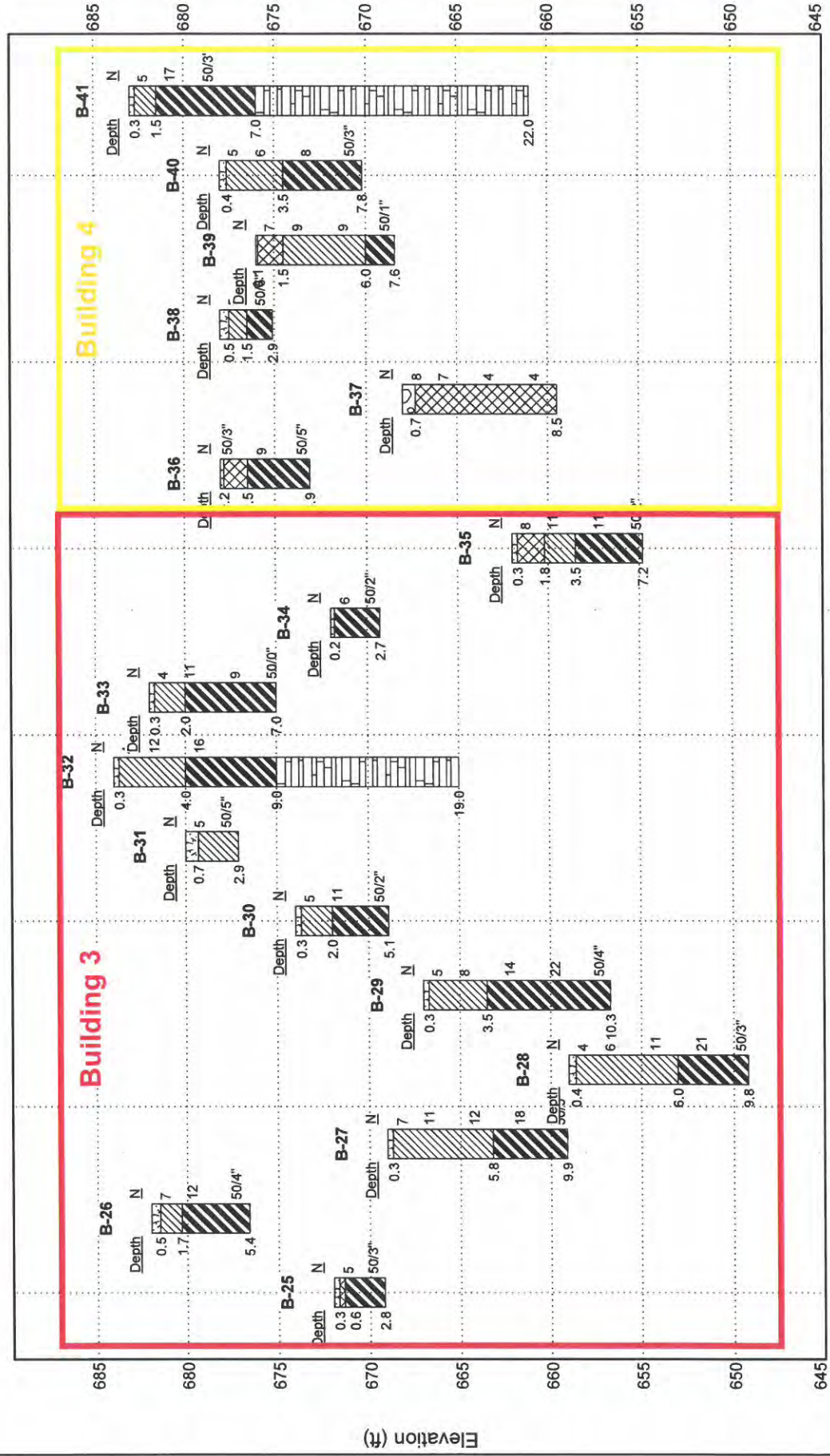
22-ZONE-0098

CLIENT Xebec Realty

PROJECT NAME Tucker Station Road Property

PROJECT NUMBER 61:2606

PROJECT LOCATION Louisville, KY



Remark: Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No. 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.



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1762 Watterson Trail
Louisville, Kentucky 40299

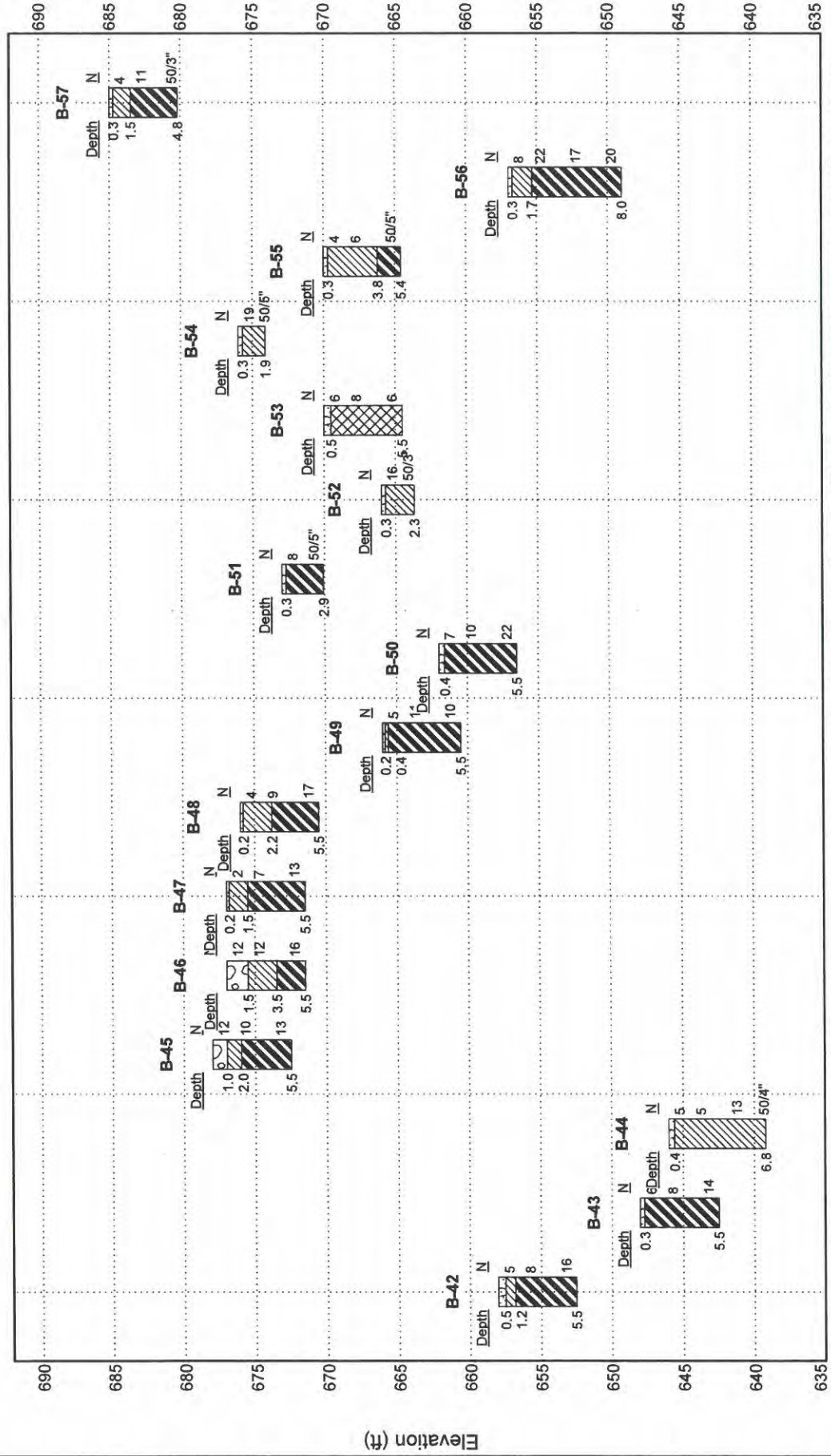
BORING COMPOSITE (Proposed Pavement Areas)

CLIENT Xebec Realty

PROJECT NAME Tucker Station Road Property

PROJECT NUMBER 61:2606

PROJECT LOCATION Louisville, KY



Remark: Ground surface elevations interpolated to +/- 1-foot based on provided "Concept Plan (Drawing No. 1 - Sheet 1 of 1)", prepared by Sabak, Wilson & Lingo, Inc. dated 9/17/2021.

Received August 15, 2022

Planning & Design

22-ZONE-00998

Field Procedures

General

ECS conducts field sampling and testing procedures in general accordance with methods of the American Society for Testing Materials (ASTM) and widely accepted geotechnical engineering standards. A brief description of the procedures we utilize is provided in the following paragraphs.

Soil Borings (ASTM D-1452)

Soil borings are made with hollow stem augers or continuous augers which are mechanically advanced by a powered drill rig. At selected depths, soil samples are obtained with either a split-barrel sampler or a thin wall tube sampler. Soil borings are advanced to refusal, or to maximum depths as defined in our scope of work. The boring data, including sampling intervals, penetration resistances, soil classifications, and groundwater observations, are presented on the attached Boring Records.

Boring Locations and Elevations

Boring locations typically are selected by our project manager. The project manager establishes the boring locations in the field by pacing or measuring distances and estimating angles relative to existing site landmarks. When topographic plans of the site are provided, the project manager estimates the surface elevation of the boring locations using available information. Surveying to determine the locations and elevations of the borings is beyond the scope of typical geotechnical studies; therefore, the boring locations and elevations should be considered approximate.

Standard Penetration Test (SPT) Split-Barrel Samples (ASTM D-1586)

A split-barrel or "splitspoon" is inserted into the borehole to obtain soil samples. The sampler is driven three, 6-inch increments with a 140-pound hammer falling from a height of 30 inches. The "standard penetration resistance" or "N-value" is the number of hammer blows required to drive the sampler the final 12 inches. The N-value, when properly evaluated, is an index of soil strength and/or density. Upon completion of each standard penetration test, the sampler is brought to the surface and the tube is opened to expose the recovered soil. Our project manager examines the sample, records the soil description and other pertinent information, and places a representative portion of the soil into a sealed container for transportation to our laboratory.

Rock Coring (ASTM D-2113)

A diamond studded bit, fastened to the end of a hollow double tube core barrel, is rotated at sufficient speeds to penetrate the refusal material. At the completion of each core run (limited by the length of core barrel, typically 5 or 10 feet), the core barrel is returned to the surface and the materials contained within the swivel mounted inner tube are removed. The materials recovered are placed in a sample box, visually classified, and the core depth, recovery, and Rock Quality Designation (RQD), are determined. The recovery is the percentage of recovered core with respect to the total length cored. The RQD is the percentage of the core recovered in hard, sound and naturally unbroken pieces 4 inches or greater in length. The recovery and RQD are related to the soundness and continuity of the refusal material.

Water Level Readings

Water level readings are taken in each borehole upon the completion of drilling or excavation. In low permeability soils, such as silts and clays, the water level in the boreholes may take many hours to stabilize. Groundwater levels may be dependent upon recent rainfall activity and other site specific factors. Since these conditions may change with time, the water level information presented on the Boring Records represents the conditions only at the time each measurement was taken.

Boring Records

Our interpretation of the conditions encountered at each location is indicated on the Boring Records, which are prepared from the observations of the ECS field engineer or geologist during drilling or excavation, our engineering review of the soil samples obtained, the results of laboratory testing on selected samples, and our experience with similar subsurface conditions. Soil descriptions are made using the Unified Soil Classification System and/or ASTM D-2488 as guides. The depths designating strata changes are estimations and only representative of depths at that specific boring location. In many geologic settings, the transition between strata is gradual. A Boring Legend, which defines the symbols and other pertinent information presented on the Boring Records, is provided with this report. The subsurface conditions indicated on our Boring Records represent only the conditions encountered at the specific boring location at the time of our exploration. The groundwater observations were made at the time of drilling and may vary with changes in the season and weather.

Refusal

Refusal is the term applied to material that cannot be penetrated with augers or has a standard penetration resistance exceeding 50 blows per 6-inch increment. Refusal may be encountered on continuous bedrock, discontinuous floaters, cemented soil, weathered rock, debris, buried structures, or other hard subsurface materials. Refusal materials can be evaluated only by obtaining a core of the material. This limitation must be considered when evaluating refusal depths where coring is not conducted.

Laboratory Procedures

General

Laboratory tests are generally conducted to satisfy one or more of the following objectives: (1) confirmation of visual-manual soil identification; (2) determination of index values used to estimate soil engineering properties (i.e., strength, compressibility and permeability); or (3) direct measurement of specific soil properties. The tests selected for a given project are dependent on the subsurface conditions encountered, as well as specific project requirements, such as structural loads and planned grade changes. The results of laboratory tests conducted for this project are listed on the Boring Records, Laboratory Test Data Summary, or laboratory data curves in the Appendix. Brief descriptions of the test procedures are provided below.

Description and Identification of Soils (Visual-Manual Procedure) (ASTM D 2488)

The Visual-Manual Procedure provides a general guide to the engineering properties of soils and enables the engineer to apply past experience to current situations. Samples obtained during the field exploration are examined and visually described and identified by a geotechnical engineer or geologist. The soils are typically identified according to predominant particle size (clay, silt, sand, etc.), consistency (based on apparent stiffness and the number of blows from standard penetration tests), color, moisture and group symbol (CL, CH, SP, SC, etc.). Unless otherwise indicated, the soil descriptions in this report are based on the Visual-Manual Procedure.

Classification of Soils for Engineering Purposes (Unified Soil Classification System) (ASTM D 2487)

The Visual-Manual Procedure described above is primarily qualitative. The Unified Soil Classification System (USCS) is used when precise soil classification is required. The USCS is based on laboratory determination of particle-size characteristics, liquid limit, and plasticity index. Using these test results, the soil can be classified according to the Unified Classification System, which provides an index for estimating soil behavior.

Water (Moisture) Content of Soil (ASTM D 2216)

Moisture content is one of the most important index properties used in establishing a correlation between soil behavior and soil properties such as strength and compressibility. The moisture content, along with the liquid and plastic limits, are used to express the relative consistency or liquidity index of a soil. Increasing moisture contents typically reflect lower strengths for a given soil. The soil moisture content is the ratio, expressed as a percentage, of the mass of "pore" or "free" water in a given mass of soil to the mass of the solid soil. Moisture content samples are taken from the sealed container obtained during the field exploration phase of a project. Each sample is weighed, and then placed in an oven set to $110^{\circ}\text{C} + 5^{\circ}$. Each sample remains in the oven until the free moisture evaporates. Each dried sample is removed from the oven, allowed to cool, and then weighed. The moisture content is computed by dividing the weight of evaporated water by the weight of the dry sample.

Liquid Limit, Plastic Limit, and Plasticity Index of Soils (ASTM D 4318)

Depending upon the relative moisture content, a fine-grained soil may occur in a liquid, plastic, or solid state. In current usage, the liquid limit (LL) and plastic limit (PL) of a soil are referred to as the "Atterberg Limits", which establish the approximate moisture contents at which the soil changes state. This test method is an integral part of several engineering classification systems to characterize the fine grained fractions of soils. It is also used with other soil properties to correlate with engineering behavior such as compressibility, permeability, compactability, shrink-swell, and shear strength. The liquid limit is the moisture content at which a soil becomes sufficiently "wet" to behave as a heavy viscous fluid (i.e., transition from plastic to liquid state). It is defined as the moisture content at which the soil, when placed in a standard brass bowl, makes a 1/2-inch closure

in a groove cut through the soil after the bowl is dropped 25 times at a specified height and rate. The plastic limit is the moisture content at which the soil begins to lose its plasticity (i.e., transition from plastic to semi-solid state). It is defined as the lowest moisture content at which the soil can be rolled into 1/8-inch diameter threads without crumbling. The plasticity index (PI) is the difference between the liquid limit and the plastic limit, and is the range of moisture content over which a soil deforms as a plastic material.

Important Information about This Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared solely for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled.* No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be, and, in general, if you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying it.* A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may

perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old*.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration*. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists*.



**GEOPROFESSIONAL
BUSINESS
ASSOCIATION**

Telephone: 301/565-2733

e-mail: info@geoprofessional.org www.geoprofessional.org

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LAND DEVELOPMENT & TRANSPORTATION COMMITTEE

CHANGE IN ZONING FROM R-4 TO PEC
CASE # 22-ZONE-0098

APPLICANT

XEBEC PURSUITS, LLC

REPRESENTATIVES

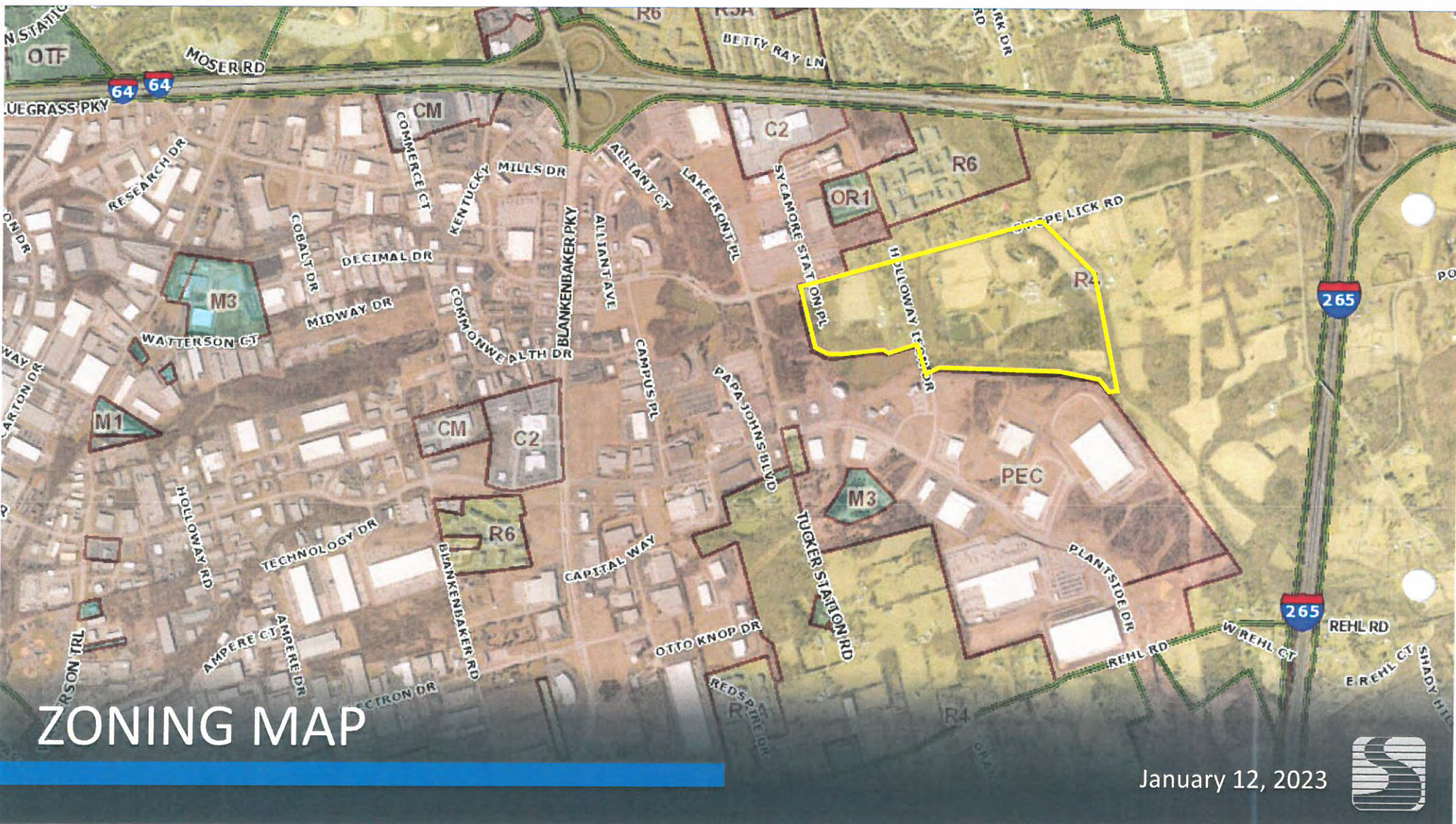
GREG EHRHARD – STITES & HARBISON

KELLI JONES - SABAK, WILSON & LINGO, INC.

XEBEC TUCKER STATION

February 23, 2023





ZONING MAP

January 12, 2023





AERIAL MAP

January 12, 2023





AERIAL MAP

February 23, 2023



TUCKER STATION LOOKING EAST



SCHUTTE STATION LOOKING NORTH



TUCKER STATION LOOKING WEST



S POPE LICK LOOKING NORTH



SURROUNDING ROADS

January 12, 2023





ACROSS THE STREET

February 23, 2023



FedEx Ground



290,000 SF

ProLift



71,000 SF

Rev-A-Shelf



320,000 SF

NEARBY BUSINESS

Quadrant



37,000 SF

January 12, 2023





OLD RENDERING

- INCREASED SETBACK
- 991,700 SF OF WAREHOUSE
- 1,154 PARKING SPACES
- ON-SITE DETENTION

January 12, 2023

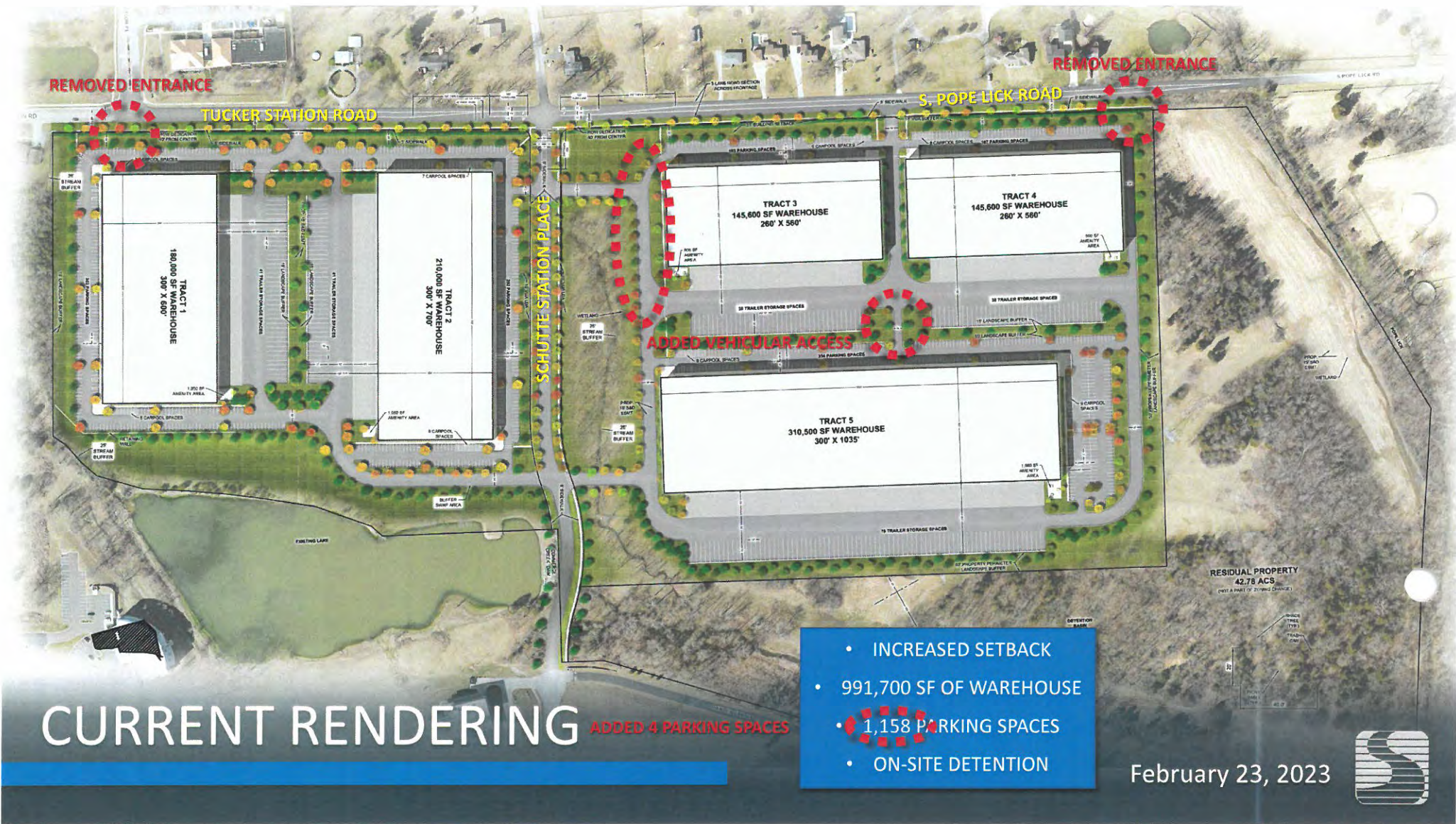


CURRENT RENDERING

- INCREASED SETBACK
- 991,700 SF OF WAREHOUSE
- 1,158 PARKING SPACES
- ON-SITE DETENTION

February 23, 2023





CURRENT RENDERING

ADDED 4 PARKING SPACES

- INCREASED SETBACK
- 991,700 SF OF WAREHOUSE
- 1,158 PARKING SPACES
- ON-SITE DETENTION

February 23, 2023





RESIDUAL PROPERTY

February 23, 2023



TUCKER STATION ROAD

S. POPE LICK ROAD

SCHUTE STATION PLACE

PUBLIC RIGHT OF WAY
REQUIRED FROM
ADJACENT PROPERTY

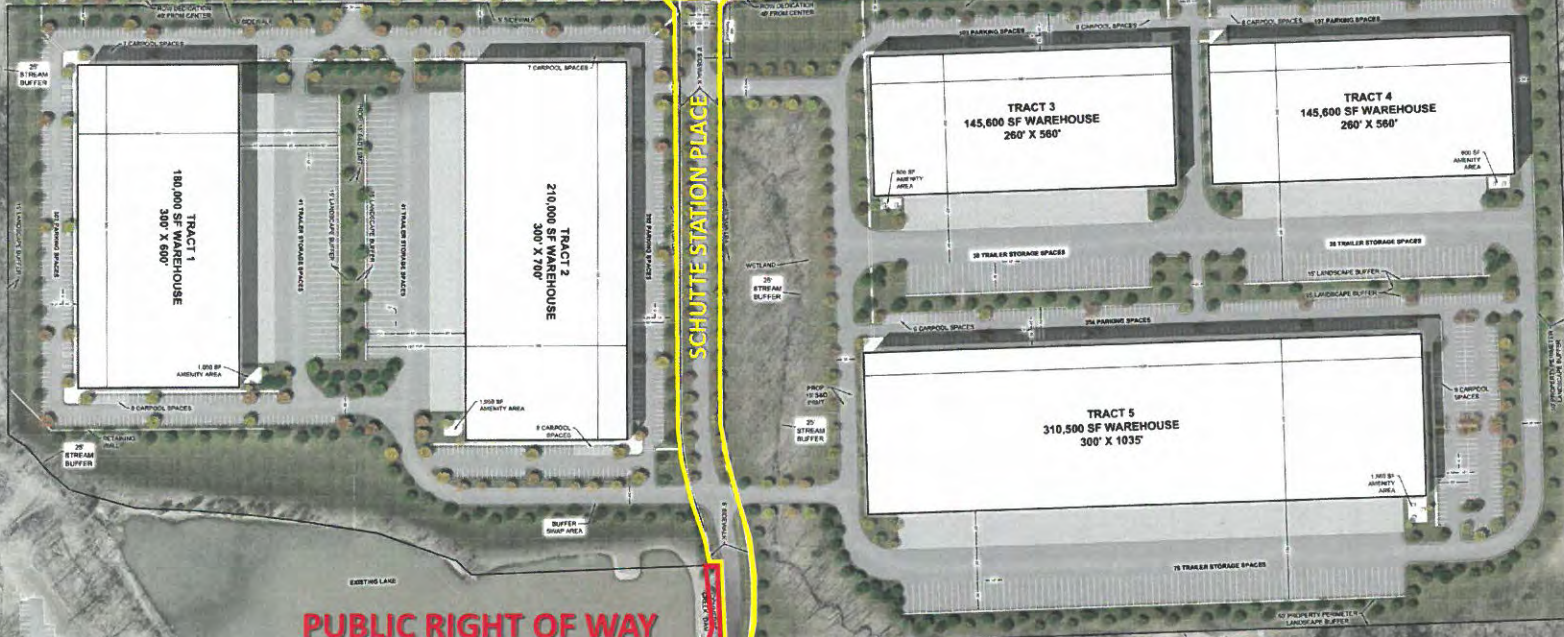
PROPOSED PUBLIC
RIGHT OF WAY

RIGHT-OF-WAY EXTENSION

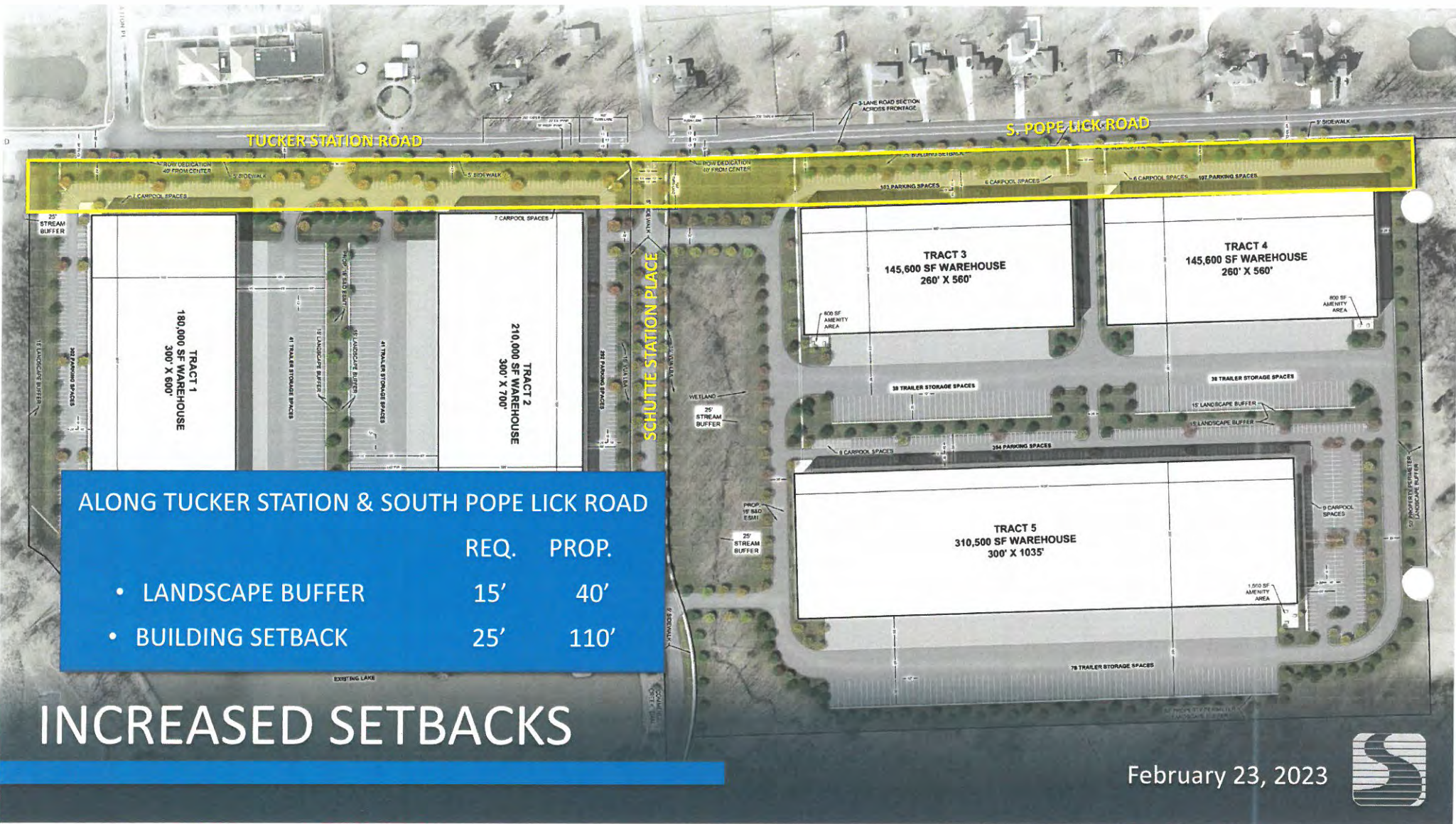
February 23, 2023

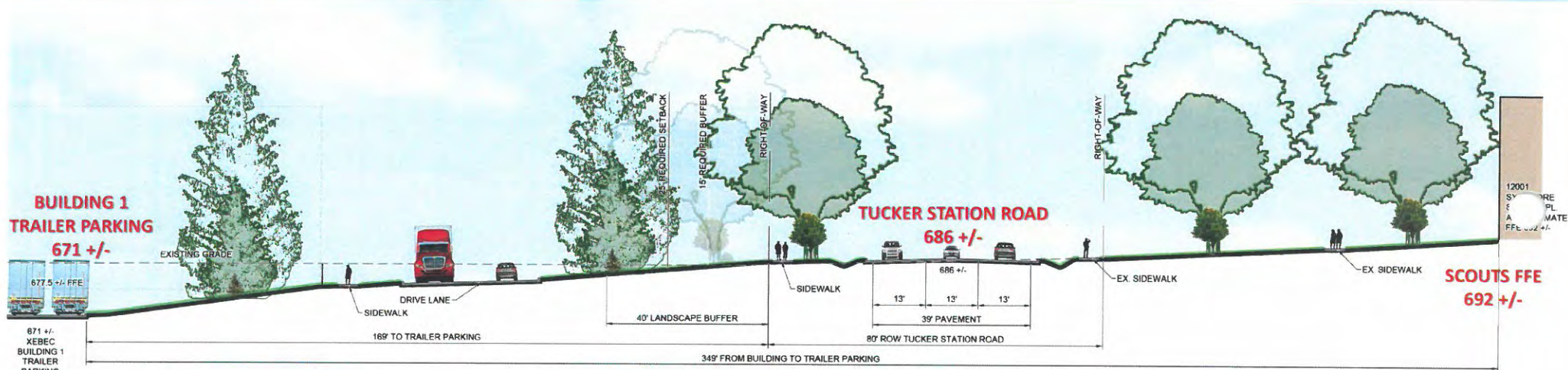


RESIDUAL PROPERTY
42.78 AC5
(PART & PART OF 2 RINGS CHANCE)

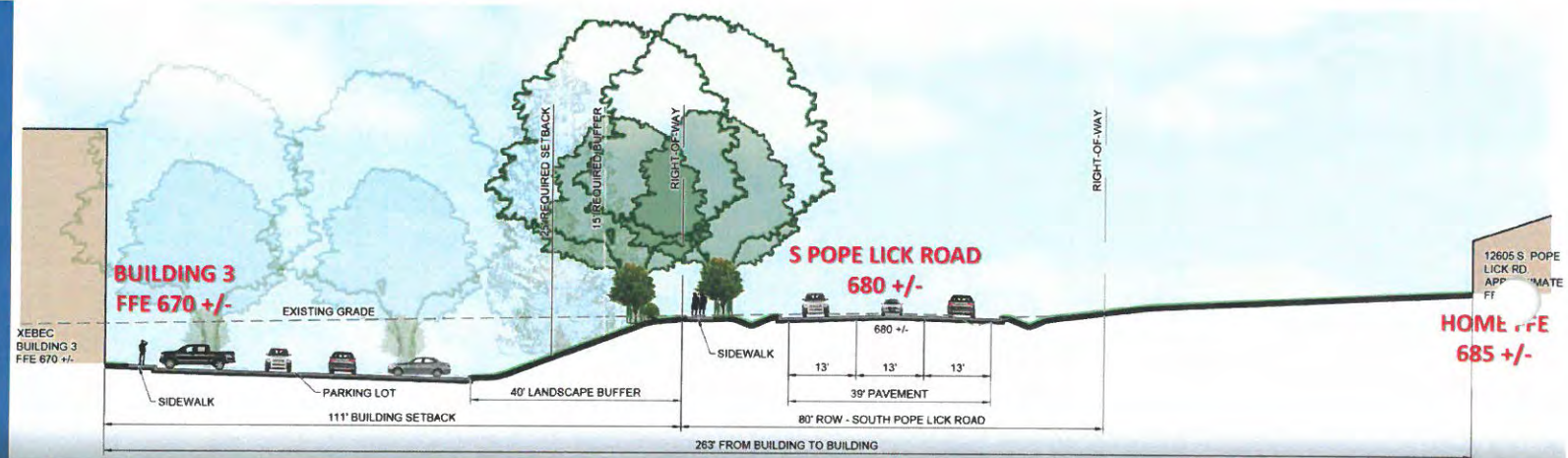








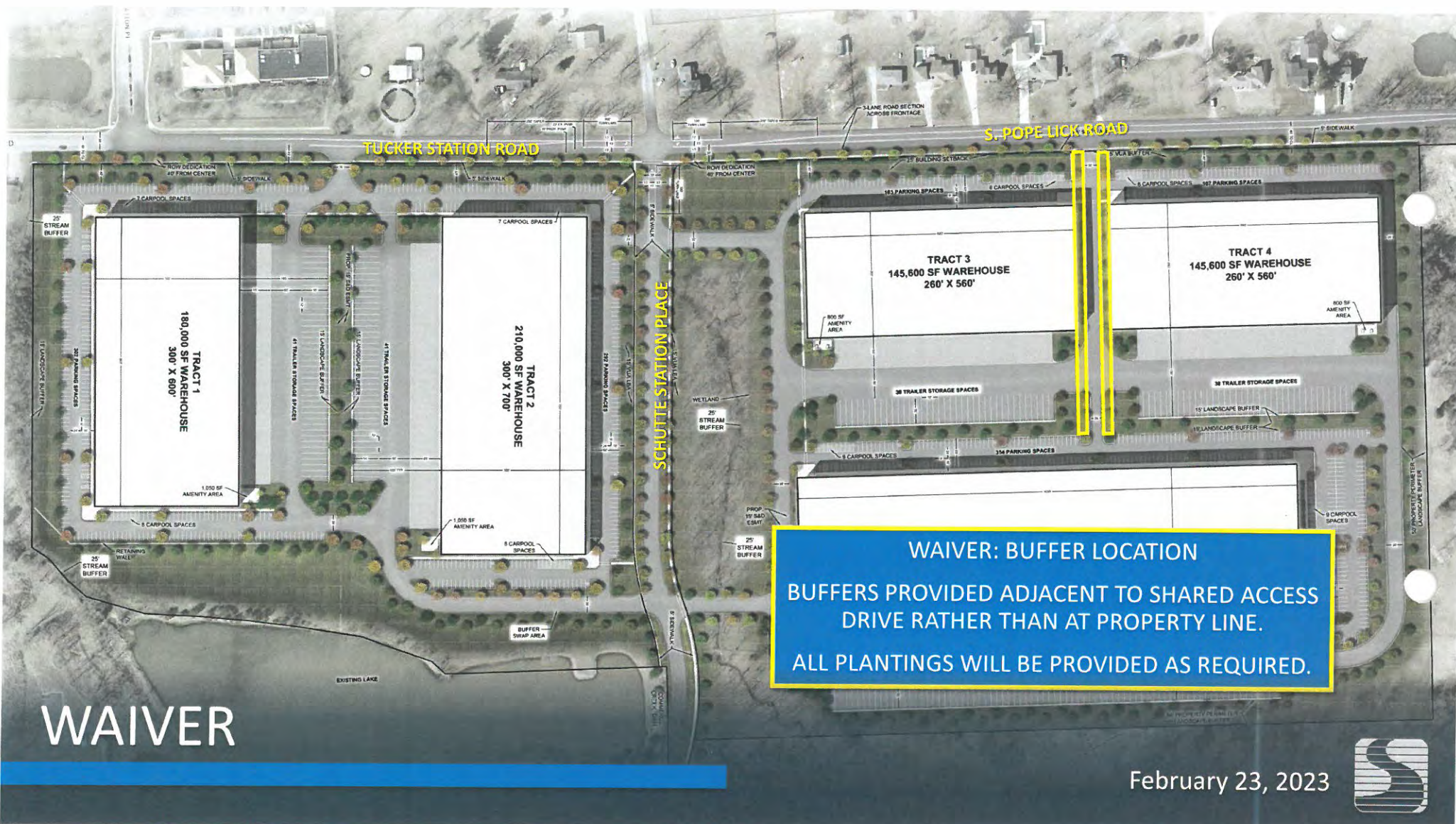
IMPACT MITIGATION
INCREASED SETBACKS
CHANGE IN ELEVATION
SCREENING
(FENCE/PLANTINGS)



SECTIONS

February 23, 2023





WAIVER

WAIVER: BUFFER LOCATION
BUFFERS PROVIDED ADJACENT TO SHARED ACCESS
DRIVE RATHER THAN AT PROPERTY LINE.
ALL PLANTINGS WILL BE PROVIDED AS REQUIRED.

February 23, 2023





BUILDING ELEVATIONS

January 12, 2023





BUILDING ELEVATIONS

January 12, 2023



Table 1: Trip Generation

Land Use	ITE Code	Ind. Var.	Units	AM Peak			Saturday		
				Total	Entering	Exiting	Total	Entering	Exiting
Total				414	359	55	405	85	320
Tract 1	130	196.5	units	81	70	11	79	17	62
Tract 2	130	210	units	86	75	11	84	18	66
Tract 3	130	146.9	units	60	52	8	59	12	47
Tract 4	130	146.9	units	60	52	8	59	12	47
Tract 5	130	310.5	units	127	110	17	124	26	98



Table 2: AM Peak Capacity Analysis Summary

AM PEAK HOUR		2023 No Build		2023 Build		2033 No Build		2033 Build	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Blankenbaker Pkwy at Bluegrass Pkwy	Intersection	E	57.6	E	57.6	E	61.2	E	64.0
	eastbound (Bluegrass)	E	79.0	F	85.8	E	73.7	E	74.3
	westbound (Bluegrass)	F	95.4	F	91.8	F	157.2	F	162.9
	northbound (Blankenbaker)	D	48.9	E	57.9	D	54.4	D	54.6
	southbound (Blankenbaker)	D	49.8	D	45.3	D	41.7	D	45.5
Bluegrass Pkwy at Tucker Station	Intersection	--	--	--	--	--	--	--	--
	eastbound (Bluegrass)	A	1.8	A	1.4	A	1.8	A	1.5
	westbound (Tucker Station)	A	1.6	A	1.7	A	1.6	A	1.7
	northbound (Tucker Station)	D	27.2	D	32.7	D	33.3	E	42.0
	southbound (Lakeside Pl)	C	23.7	D	32.2	D	25.9	E	36.2
S. Pope Lick Rd at Access Point 1	Intersection			--	--			--	--
	westbound (left turn)			A	0.7			A	0.7
	northbound (Access 1)			C	17.7			C	18.3
S. Pope Lick Road at Tucker Station Road	Intersection	D	31.2	F	85.9	E	38.4	F	99.3
	eastbound (Tucker Station)	B	11.1	B	12.6	B	11.5	B	12.8
	westbound (S. Pope Lick)	E	42.7	F	142.2	F	54.1	F	165.7
	northbound (Shute Station)	--	--	B	10.8	--	--	B	10.8
	southbound (Tucker Station)	B	11.7	C	17.6	B	12.2	C	18.3
S. Pope Lick Rd at Access Point 2	Intersection			--	--			--	--
	westbound (left turn)			A	0.7			A	0.7
	northbound (Access 1)			C	15.4			C	15.8
Schute Station at Plantside Drive	Intersection	--	--	--	--	--	--	--	--
	eastbound LT (Plantside)	A	0.5	A	1.6	A	0.5	A	1.6
	westbound LT (Plantside)	A	0.1	A	0.1	A	0.1	A	0.1
	northbound	B	10.7	B	11.8	B	10.9	B	11.9
	southbound	A	8.7	A	9.7	A	8.7	A	9.8



Table 3: PM Peak Capacity Analysis Summary

PM PEAK HOUR		2023 No Build		2023 Build		2033 No Build		2033 Build	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Blankenbaker Pkwy at Bluegrass Pkwy	Intersection	F	117.6	F	130.5	F	123.2	F	131.9
	eastbound (Bluegrass)	F	277.1	F	395.4	F	309.9	F	314.5
	westbound (Bluegrass)	F	307.3	F	334.9	F	294.2	F	320.2
	northbound (Blankenbaker)	D	54.9	E	72.7	E	58.3	E	58.4
	southbound (Blankenbaker)	E	61.0	D	37.9	E	70.0	E	74.0
Bluegrass Pkwy at Tucker Station	Intersection	--	--	--	--	--	--	--	--
	eastbound (Bluegrass)	A	0.2	A	0.2	A	0.2	A	0.2
	westbound (Tucker Station)	A	3.5	A	3.2	A	3.5	A	3.3
	northbound (Tucker Station)	F	107.8	F	189.7	F	162.3	F	273.7
	southbound (Lakeside Pl)	E	37.4	F	65.7	F	51.8	F	105.6
S. Pope Lick Rd at Access Point 1	Intersection			--	--			--	--
	westbound (left turn)			A	0.4			A	0.3
	northbound (Access 1)			C	19.1			D	25.4
S. Pope Lick Road at Tucker Station Road	Intersection	F	84.8	F	61.6	F	102.1	F	72.1
	eastbound (Tucker Station)	F	136.4	C	98.6	F	165.9	F	116.7
	westbound (S. Pope Lick)	B	12.8	B	22.6	B	13.3	C	24.3
	northbound (Shute Station)	--	--	D	13.1	--	--	B	13.3
	southbound (Tuckjer Station)	C	16.1	C	26.0	C	16.9	D	28.6
S. Pope Lick Rd at Access Point 2	Intersection			--	--			--	--
	westbound (left turn)			A	0.4			A	0.4
	northbound (Access 1)			C	19.1			C	19.9
Schute Station at Plantside Drive	Intersection	--	--	--	--	--	--	--	--
	eastbound LT (Plantside)	A	0.2	A	0.7	A	0.2	A	0.6
	westbound LT (Plantside)	A	0.0	A	0.0	A	0.0	A	0.0
	northbound	B	10.3	B	10.8	B	10.5	B	10.9
	southbound	A	9.1	B	10.1	A	9.1	B	10.2



Table 4: Signalized Capacity Analysis Summary

PM PEAK HOUR		2023 AM		2023 PM		2033 AM		2033 PM	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Bluegrass Pkwy at Tucker Station	Intersection	A	5.6	A	9.4	A	6.7	B	10.2
	eastbound (Bluegrass)	A	4.9	A	9.2	A	5.0	B	10.4
	westbound (Tucker Station)	A	5.3	A	7.2	A	7.4	A	7.3
	northbound (Tucker Station)	A	7.5	B	13.3	A	8.5	B	14.4
	southbound (Lakeside Pl)	A	6.7	A	8.0	A	7.5	A	8.1
S. Pope Lick Road at Tucker Station Road	Intersection	A	7.7	A	9.4	A	8.1	A	10.0
	eastbound (Tucker Station)	A	6.3	B	11.4	A	6.6	B	12.1
	westbound (S. Pope Lick)	A	7.0	A	5.8	A	7.3	A	5.9
	northbound (Shute Station)	A	9.9	A	8.2	A	10.4	A	8.5
	southbound (Tuckjer Station)	B	10.7	A	8.5	A	11.3	A	9.0



RECOMMENDATIONS

- Dedicated left-turn lanes are recommended at the intersection of Tucker Station Road and S. Pope Lick Road.
- Signalization should be considered for the intersections of Tucker Station Road at Bluegrass Parkway and Tucker Station Road at S. Pope Lick Road.
- Left turn auxiliary lanes are recommended at the proposed access points on Tucker Station Road and S. Pope Lick Road.



3-LANE SECTION ACROSS FRONTAGE

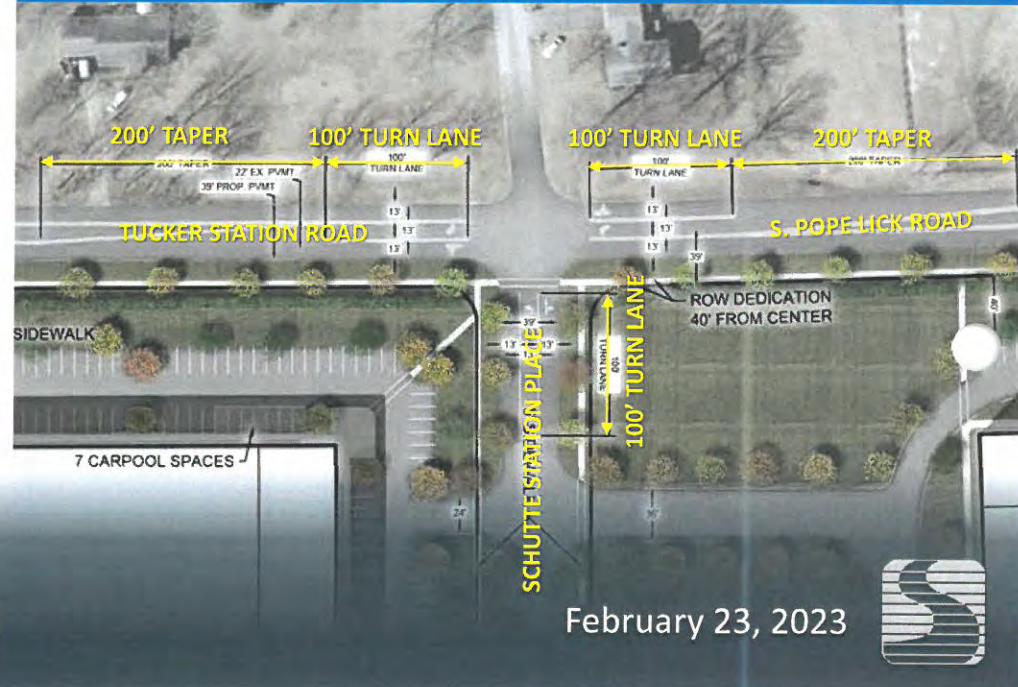


TRANSITION FROM EXISTING 3-LANE CONDITION



ROAD IMPROVEMENTS

TURN LANES AT TUCKER STATION / S. POPE LICK INTERSECTION



February 23, 2023



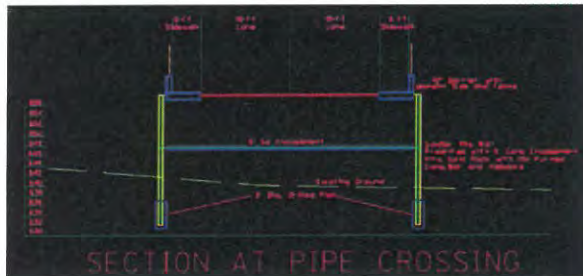


February 21, 2023

Kelli Jones, RLA
Sabak, Wilson & Lingo, Inc.
608 S. 3rd Street
Louisville, KY 40202

Re: Schutte Station Place
XEBEC Tucker Station Development
Constructability Statement

American Engineers, Inc. (AEI) has reviewed the requirement for Schutte Station Place (local road) to be extended across an existing earthen dam which forms an existing lake. AEI feels an engineered solution is possible and constructable with more than one possible solution. One possible solution uses soldier pile retaining walls consisting of steel H-Piles with double formed concrete tiebacks. This wall will support roadway pavement with a sidewalk and concrete barrier with moment slab as shown in below typical section.



Best Regards,
AMERICAN ENGINEERS, INC.
J. B. Tasman
Jon Tasman, P.E.
Project Engineer

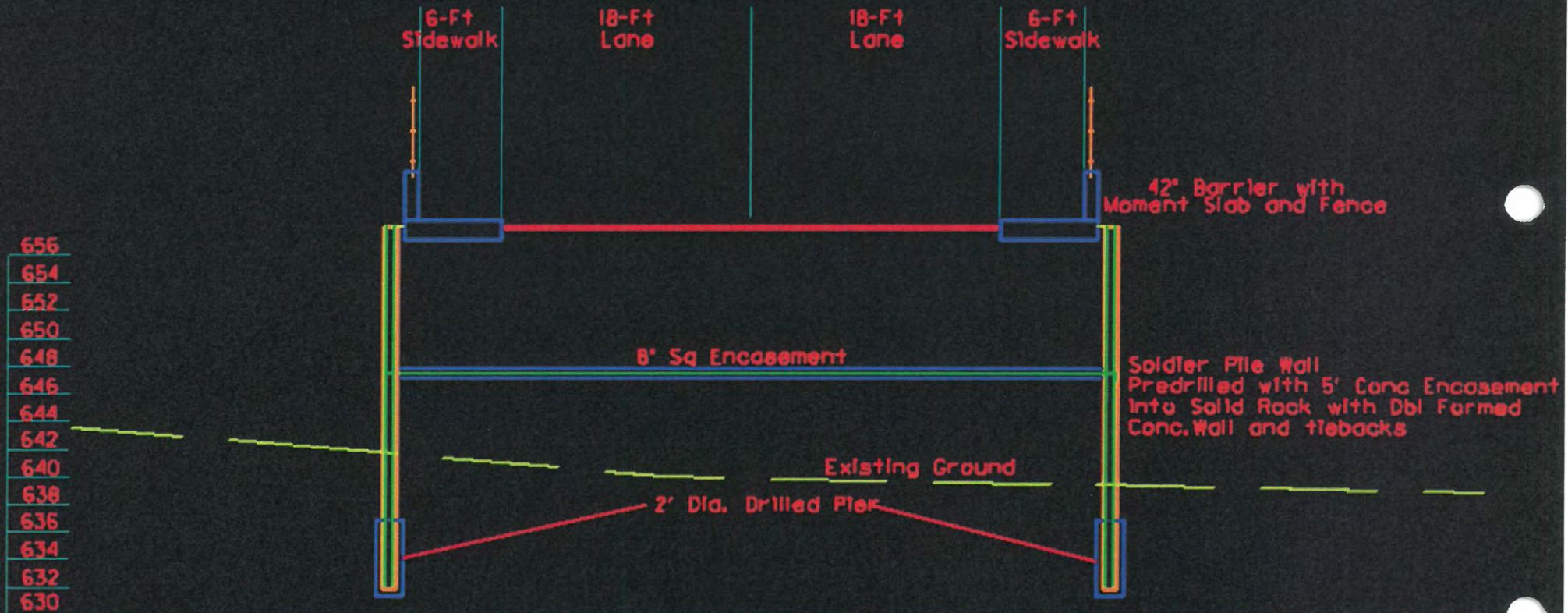
2500 Nelson Miller Parkway Louisville, KY 40223 | www.aei.cc

American Engineers, Inc. (AEI) has reviewed the requirement for Schutte Station Place (local road) to be extended across an existing earthen dam which forms an existing lake. AEI feels an engineered solution is possible and constructable with more than one possible solution. One possible solution uses soldier pile retaining walls consisting of steel H-Piles with double formed concrete tiebacks. This wall will support roadway pavement with a sidewalk and concrete barrier with moment slab as shown in below typical section.

STRUCTURAL ANALYSIS

February 23, 2023





SECTION AT PIPE CROSSING

STRUCTURAL ANALYSIS

February 23, 2023





February 23, 2023





BLANKENBAKER PARKWAY

I-64

sam's club

XSCAPE THEATRES

MAIN EVENT

Millon Garden Inn

Signature

Tucker Station Senior Apartments

Haven Tucker

BAPTIST HEALTH

PAPA JOHN'S

FARM CREDIT

CarKeys Express

Rehabilitation Hospital of Louisville

UNDER CONTRACT FOR MEDICAL / TECHNOLOGY USE

XEBEC PROPOSED

BAPTIST HEALTH

PAPA JOHN'S

UNDER CONTRACT FOR MEDICAL / TECHNOLOGY USE

TRI-ARROWS ALUMINUM INC

DONAN

UniFirst

Chick-fil-A

ISOPURE

Prolift

HORIZON

Cherah Solutions

KELLEY

PharMerica

QUADRANT

ORI

eurofins

eurofins

EAT-N

AMGEN

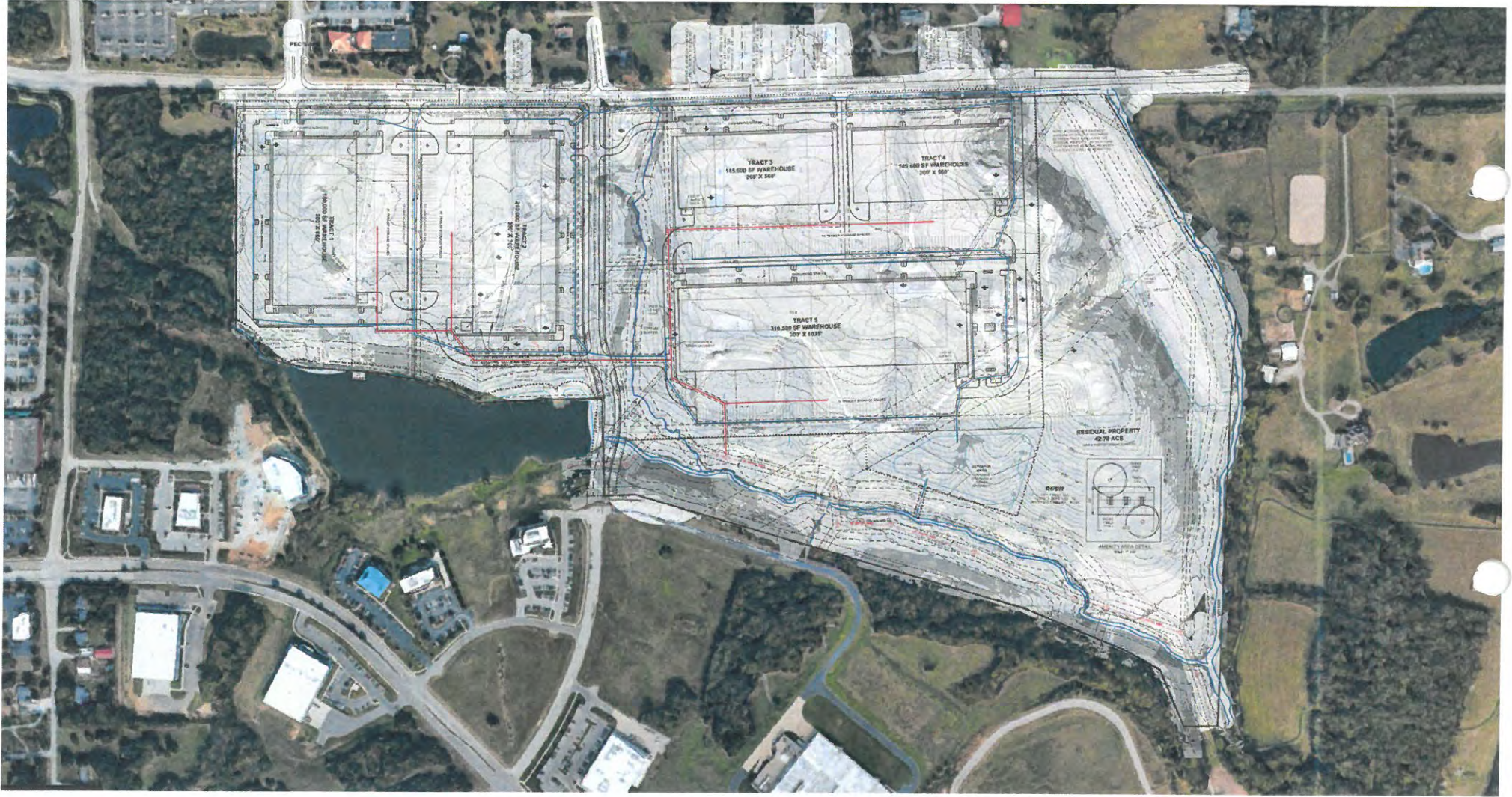
tresco lighting

BIGLOW

TRANE

Prolift

REV-A-SHELF



Traffic Impact Study Report

XEBEC Tucker Station

Louisville, Jefferson Co., KY

Prepared For:

Sabak, Wilson & Lingo, Inc.

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TABLE OF CONTENTS

Introduction	1
Existing Conditions	1
Traffic Forecasting	3
Trip Generation	9
Trip Distribution Methodology	9
Capacity Analysis.....	17
Turn lane warrant analysis.....	20
Recommendations	20

LIST OF FIGURES

Figure 1: Study Area	1
Figure 2: AM Peak Hour Turning Movement Counts	1
Figure 3: PM Peak Hour Turning Movement Counts	2
Figure 4: AM Peak S. Pope Lick Residential Development Trip Generation	4
Figure 5: AM Peak S. Pope Lick Residential Development Trip Generation	4
Figure 6: AM Peak 2023 No Build Traffic Volumes.....	5
Figure 7: PM Peak 2023 No Build Traffic Volumes.....	6
Figure 8: AM Peak 2033 No Build Traffic Volumes.....	7
Figure 9: PM Peak 2033 No Build Traffic Volumes.....	8
Figure 10: Area-wide Origin-Destination Trip Distribution.....	10
Figure 9: Entering Trip Distribution	11
Figure 10: Exiting Trip Distribution	12
Figure 11: AM Peak Hour 2023 Build	13
Figure 12: PM Peak Hour 2023 Build	14
Figure 13: AM Peak Hour 2033 Build	15
Figure 14: PM Peak Hour 2033 Build	16

APPENDICES

- Appendix A: Development Plan
- Appendix B: Traffic Data
- Appendix C: Trip Generation Data
- Appendix D: KYTC Traffic Forecasting Report
- Appendix E: Capacity Analysis Output
- Appendix F: Auxilliary Turn Lane Warrants

INTRODUCTION

The purpose of this document is to summarize the scope and terms for a Traffic Impact Study of a proposed industrial development in Jefferson County, KY. The development is to be located on the south side of S. Pope Lick Road and Tucker Station Road and is to consist of 5 warehousing buildings totaling 1,010,800 s.f of gross floor area. Two access points along Tucker Station Road and S. Pope Lick Road are proposed with a connection to the south to Plantside Drive via Schutte Station Place. This study will evaluate the proposed access points, as well as the intersections listed below.

- Schutte Station at Plantside Drive
- Tucker Station at S. Pope Lick Road
- Tucker Station at Bluegrass Parkway / Lakefront Place
- Bluegrass Parkway at Blanken

Figure 1 shows the proposed site and study intersections. **Appendix A** contains a site plan of the proposed development. The scope of this study is based on a review of existing travel patterns in the area and discussions with Louisville Metro Planning and Design Services.

Figure 1: Study Area



EXISTING CONDITIONS

S. Pope Lick Road is a two-lane roadway with a posted speed of 35 mph. The intersections of S. Pope Lick Road at Tucker Station Road is a T' intersection with all-way stop control. No Auxiliary turn lanes are present at the intersection.

AM and PM turning movement counts were collected on Thursday May 19, 2022 between 7-9 a.m. and 4-6 p.m. at the study intersections. Full turn movement count data is provided in **Appendix B**. AM and PM peak hour traffic volumes are summarized in **Figures 2 and 3**.

Figure 2: AM Peak Hour Turning Movement Counts

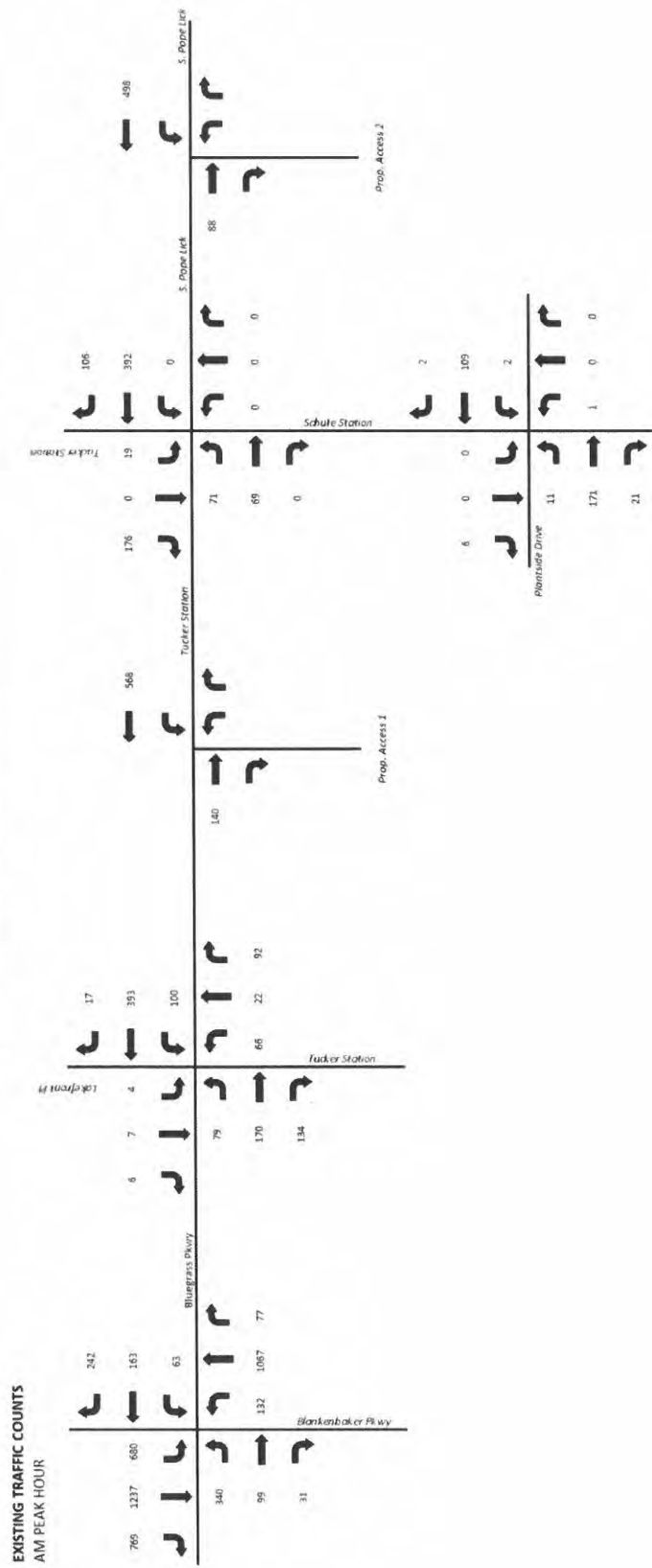


Figure 3: PM Peak Hour Turning Movement Counts

