February 21, 2022

Amburn Builders
2717 Elmer Lambert Road
Maryville, Tennessee 37803

Attention: Mr. Doug Carnathan

Subject: **Stream Determination**
Parcel 009.00 and 027.00
Loudon County, Tennessee
GEOServices Project No. 24-22103

Dear Mr. Carnathan:

GEOServices, LLC has completed a Stream Determination to assess the jurisdictional status of hydrologic features at the referenced project, located off Lanier Road in Blount County, Tennessee. Please see our findings in the attached report.

GEOServices appreciates the opportunity to continue providing services to you and looks forward to working with you in the future. If you have any questions, please do not hesitate to contact us at your convenience.

Sincerely,
GEOServices, LLC

Jason Mann, PE, TN-QHP # 1042-TN10
Senior Project Manager

STREAM DETERIMINATION

FOR

AMBURN LANIER PROPERTY

MAP 123 PARCEL 059.04

BLOUNT COUNTY, TENNESSEE

Prepared For:

Amburn Builders
2717 Elmer Lambert Road
Maryville, Tennessee 37803

Prepared by:

GEOServices, LLC
2561 Willow Point Way
Knoxville, Tennessee 37931

February 21, 2022

GEOServices Project # 24-22133

1.0 INTRODUCTION

GEOServices, LLC (GEOServices) performed a Stream Determination on multiple hydrologic features located in the headwaters of Williamson Branch, located off Lanier Road in Blount County, Tennessee. The site investigation and hydrologic assessments were conducted on February 10, 2022 by Jason Mann of GEOServices.

2.0 SITE DESCRIPTION

The subject project location is described as Map 123, Parcel 059.04 according to the State of Tennessee Property Data Viewer. The approximate coordinates for the area of concern are Latitude: 35.6211°, Longitude -84.1042°. The overall parcel footprint is roughly 30.6 acres in size; **Figure 1** in **Appendix A**provides an overview of the subject location. The site is bordered on all sides by residential and agricultural properties.

Figure 2 in **Appendix A** illustrates the location of the hydrologic resources evaluated on site. The two channels on site are identified as Channel 1 shows evidence of weak hydrology, biology, and geomorphology characteristics. However, a groundwater connection midway through the parcel allows for a stream to form on site. Therefore, the single drainage feature on site transitions from a wet weather conveyance to a jurisdictional stream.

Based on the USGS 7.5 - Minute Topographic Quadrangle (**Figure 3** in **Appendix A**), Channels 1 and 2 are designated as a "blue line" feature. Additionally, the topography of the parcel has an approximate elevation range between approximately 1040 and 940 feet above mean sea level.

The soils map associated with this site is shown as **Figure 4** in **Appendix A**. There are multiple types of soil found on site, but none correlated with hydric conditions. Hydric soils were only found in Channel 2 during the site investigation.

The entire project lies in the Ninemile Creek Watershed (HUC 060102040405), which is nested within the Little Tennessee River Watershed (HUC 06010204). The site drains to the Williamson Branch which is considered fully supporting of the seven designated surface water uses in Tennessee.

3.0 RESOURCE DESCRIPTION

The single drainage feature on site has been divided into two (2) reaches for evaluation. The upper portion is Channel 1 which is a wet weather conveyance with weak geomorphology and hydrology. A seep/spring is found near the center of the parcel, and Channel 2 has strong hydrology, and moderate biological stream indicators.

4.0 SOIL SURVEY

As shown in **Figure 4**, the site's hydrologic features are predominantly underlain by soils listed in **Table I**. Some of the soils mapped on site have minor components that are listed as hydric by the USDA Web Soil Survey, Hydric Rating by Map Unit.

Table I: Potential Soils Located on the Subject Location

Symbol	Soil Name	Description	Hydric
Em	Emory silt loam	Loamy alluvium over residuum weathered from limestone	NO
Dr	Dewey silty clay	Clayey residuum or clayey alluvium over residuum weathered from limestone	NO

Source: USDA, Web Soil Survey, Hydric Rating by Map Unit

5.0 METHODS

The channels were evaluated using the most current Tennessee Department of Environment and Conservation Hydrologic Determination Field Data form. Weather calculations, field data sheets,

photos, and a copy of QHP Certification 1042-TN10 is provided in the attached appendices.

6.0 RESULTS

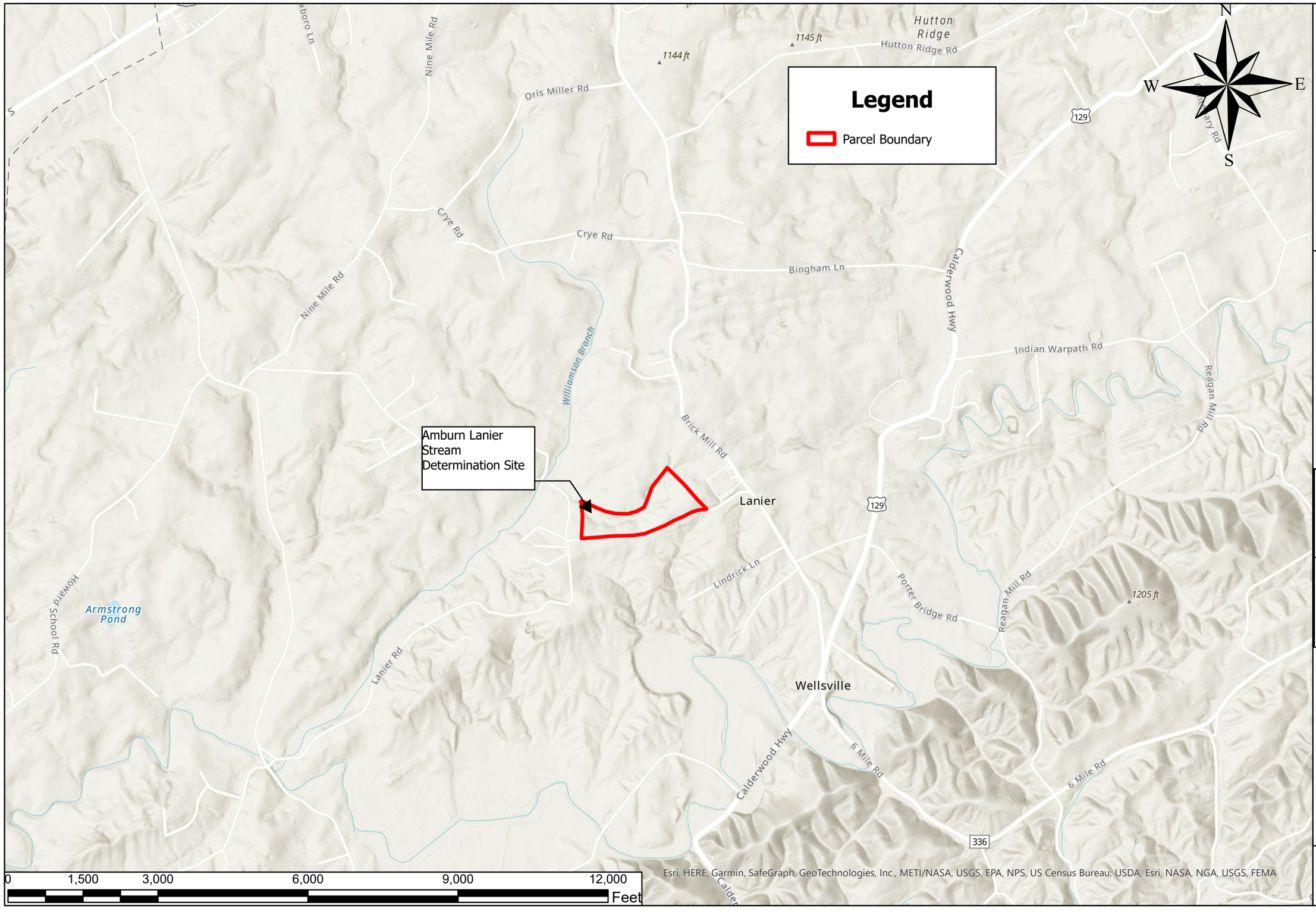
Channel 1, Unnamed Tributary to Williamson Branch – Wet Weather Conveyance due to primary and secondary stream indicators; a secondary indicator scores of 12 was calculated using a rigorous and reasonable amount of effort.

Channel 2, Unnamed Tributary to Williamson Branch – Stream due to primary and secondary stream indicators; a secondary indicator scores of 23 was calculated using a rigorous and reasonable amount of effort.

Figure 2 illustrates the georeferenced locations of the water resources in question, and is included in **Appendix A**.

Appendix A

Figures



NOTES:

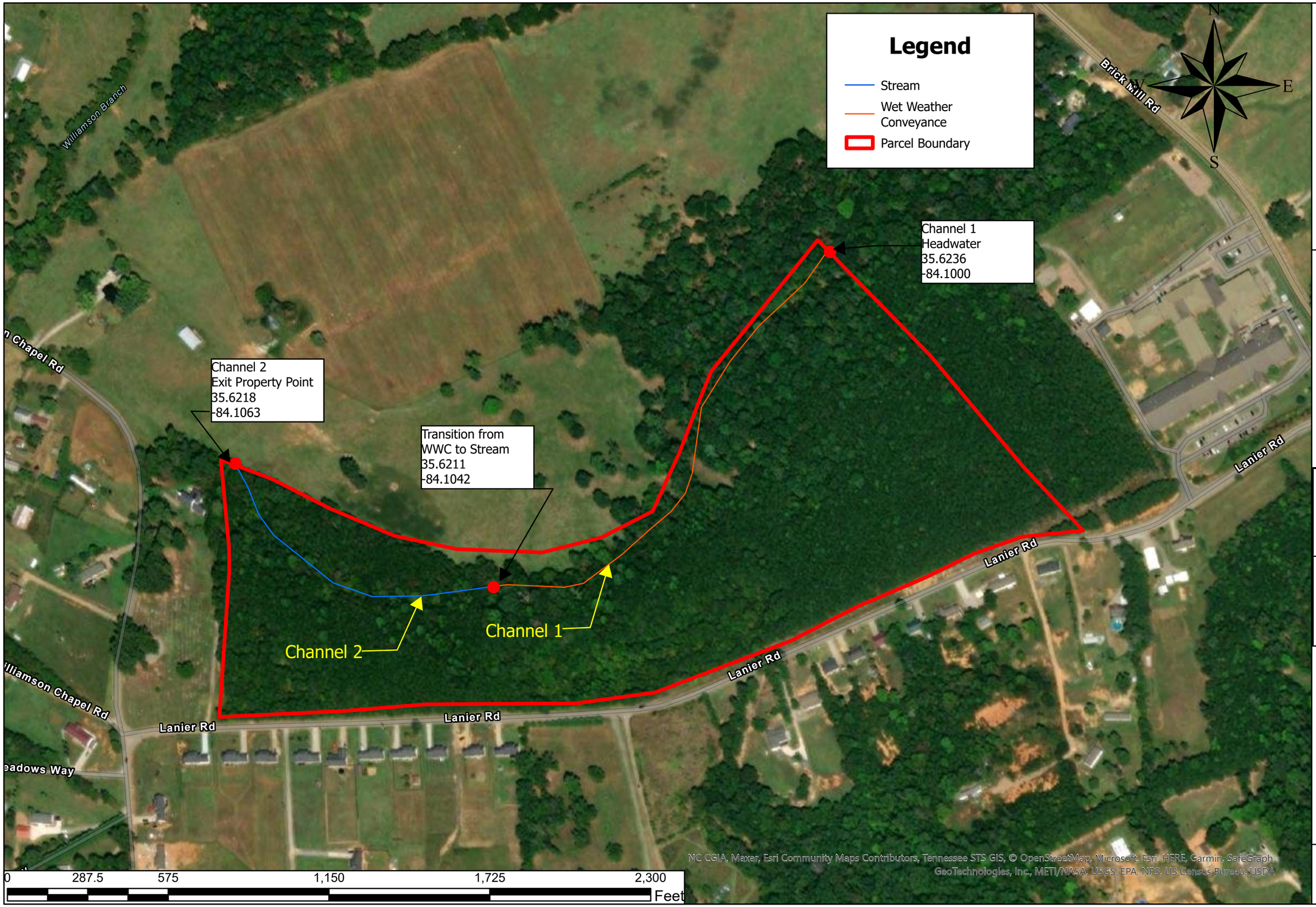
LOCATION MAP

AMBURN LANIER STREAM
DETERMINATION LANIER ROAD
BLOUNT COUNTY, TENNESSEE

DRAWN BY:	CB
REVIEWED BY:	JM
SCALE:	AS SHOWN
JOB NO.:	24-22133
DATE:	2/17/22

GEOS Universal Engineering
Geotechnical, Environmental and Materials Engineers | Sciences

FIGURE 1



NOTES:

FINDINGS MAP

AMBURN LANIER STREAM
DETERMINATION LANIER ROAD
BLOUNT COUNTY, TENNESSEE

DRAWN BY:	CB
REVIEWED BY:	BB
SCALE:	AS SHOWN
JOB NO.:	24-22133
DATE:	2/17/22

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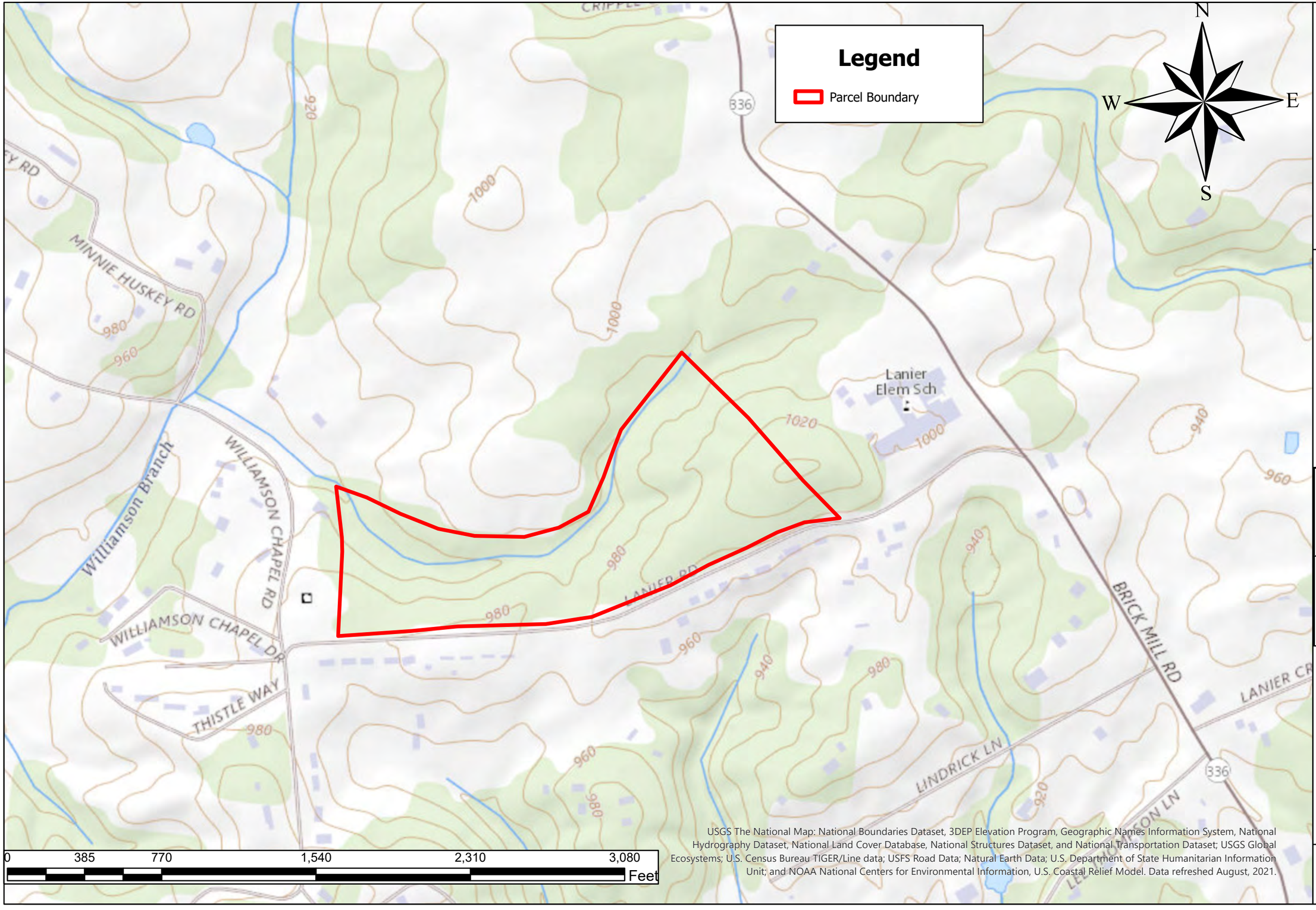
FIGURE 2



USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed August, 2021.

NOTES:

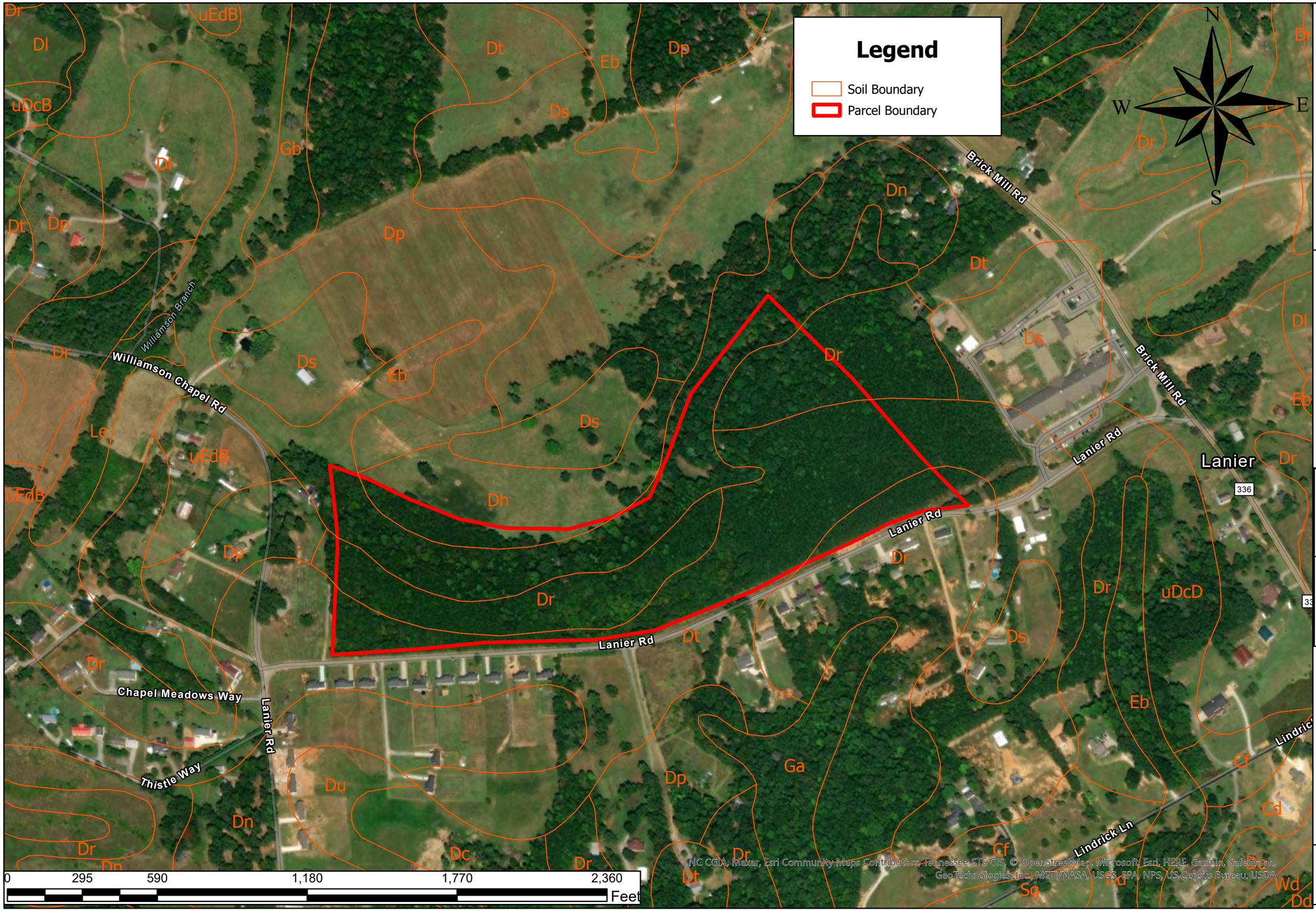
TOPO MAP

AMBURN LANIER STREAM
DETERMINATION LANIER ROAD
BLOUNT COUNTY, TENNESSEE

DRAWN BY:	CB
REVIEWED BY:	JM
SCALE:	AS SHOWN
JOB NO.:	24-22133
DATE:	2/17/22

GEOS Universal Engineering Geotechnical, Environmental and Materials Engineers Sciences

FIGURE 3



NOTES:

SOILMAP

AMBURN LANIER STREAM
DETERMINATION LANIER ROAD
BLOUNT COUNTY, TENNESSEE

DRAWN BY:	CB
REVIEWED BY:	JM
SCALE:	AS SHOWN
JOB NO.:	24-22133
DATE:	2/17/22

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FIGURE 4

Appendix B

Photographs

Photo 1: The property has been cleared before the site review

Photo 2: Upper-most section of Channel 1 near the property boundary

Photo 3: Typical representation of Channel 1

Photo 4: The bright line transition, where groundwater becomes evident

Photo 5: Immediately downgradient of the bright line, flowing water is evident

Photo 6: Typical representation of Channel 2

Photo 7: Recent clearing activities have impacted the evaluation of Channel 2

Photo 8: Channel 2 at the downgradient property boundary is not impacted

Appendix C

Field Data Sheets

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:	UT Williamson Branch CH1	Date/Time:	2/10/22
Assessors/Affiliation:	J. Mann, GEOServices	Project ID:	24-22133
Site Name/Description:	Lanier Amburn		
Site Location:	Lanier Road west of elementary School		
HUC (12 digit):	060102040405	Lat/Long:	35.6211
Previous Rainfall (7-days):	1.83"		-84.1042
Precipitation this Season vs. Normal: abnormally wet elevated (average) low abnormally dry unknown Source of recent & seasonal precip data: NOAA			
Watershed Size:	~39 acres	County:	Blount
Soil Type(s) / Geology:	Eb- Emory Silt Loam	Source:	WSS
Surrounding Land Use:	Rural Residential		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes): Severe Moderate (Slight) Absent			

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	✓	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species		(WWC)
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions		(WWC)
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✓	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except *Gambusia*)	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✓	Stream
9. Evidence watercourse has been used as a supply of drinking water	✓	Stream

NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = WWC

Secondary Indicator Score (if applicable) = 12

Justification / Notes:

U/S: 35.6236°, -84.1001° property boundary
d/S: 35.6211°, -84.1042° bright line

Secondary Field Indicator Evaluation Lanier CH1

A. Geomorphology (Subtotal = 5.5)	Absent	Weak	Moderate	Strong
1. Continuous bed and bank	0	1	2	3
2. Sinuous channel	0	1	2	3
3. In-channel structure: riffle-pool sequences	0	1	2	3
4. Sorting of soil textures or other substrate	0	1	2	3
5. Active/relic floodplain	0	0.5	1	1.5
6. Depositional bars or benches	0	1	2	3
7. Braided channel	0	1	2	3
8. Recent alluvial deposits	0	0.5	1	1.5
9. Natural levees	0	1	2	3
10. Headcuts	0	1	2	3
11. Grade controls	0	0.5	1	1.5
12. Natural valley or drainageway	0	0.5	1	1.5
13. At least second order channel on existing USGS or NRCS map	No = 0		Yes = 3	

B. Hydrology (Subtotal = 3)	Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	0	1	2	3
15. Water in channel and >48 hours since sig. rain	0	1	2	3
16. Leaf litter in channel (January – September)	1.5	1	0.5	0
17. Sediment on plants or on debris	0	0.5	1	1.5
18. Organic debris lines or piles (wrack lines)	0	0.5	1	1.5
19. Hydric soils in channel bed or sides of channel	No = 0		Yes = 1.5	

C. Biology (Subtotal = 3.5)	Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed [1]	3	2	1	0
21. Rooted plants in the thalweg [1]	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	1	2	3
23. Bivalves/mussels	0	1	2	3
24. Amphibians	0	0.5	1	1.5
25. Macrobenthos (record type & abundance)	0	1	2	3
26. Filamentous algae; periphyton	0	1	2	3
27. Iron oxidizing bacteria/fungus	0	0.5	1	1.5
28. Wetland plants in channel bed [2]	0	0.5	1	1.5

[1] Focus is on the presence of terrestrial plants. [2] Focus is on the presence of aquatic or wetland plants.

Total Points = 12

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:	UT Williamson Branch CH2	Date/Time:	2/10/22
Assessors/Affiliation:	J. Mann, GEOServices	Project ID:	24-22133
Site Name/Description:	Lanier Amburn		
Site Location:	Lanier Road west of elementary School		
HUC (12 digit):	060102040405	Lat/Long:	35.6211
Previous Rainfall (7-days):	1.83"		-84.1042
Precipitation this Season vs. Normal: abnormally wet elevated (average) low abnormally dry unknown Source of recent & seasonal precip data: NOAA			
Watershed Size:	~48 acres	County:	Blount
Soil Type(s) / Geology:	Eb- Emory Silt Loam	Source:	WSS
Surrounding Land Use:	Rural Residential		
Degree of historical alteration to natural channel morphology & hydrology (circle one & describe fully in Notes): (Severe) (Moderate) Slight Absent			

Primary Field Indicators Observed

Primary Indicators	NO	YES
1. Hydrologic feature exists solely due to a process discharge	✓	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✓	WWC
3. Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	✓	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	✓	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except *Gambusia*)	✓	Stream
7. Presence of naturally occurring ground water table connection		(Stream)
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✓	Stream
9. Evidence watercourse has been used as a supply of drinking water	✓	Stream

NOTE: If any Primary Indicators 1-9 = "Yes", then no further investigation is necessary. However, assessors may choose to score secondary indicators as supporting evidence.

In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

Guidance for the interpretation and scoring of both the primary & secondary indicators is provided in *TDEC-WPC Guidance For Making Hydrologic Determinations, Version 1.5*

Overall Hydrologic Determination = Stream

Secondary Indicator Score (if applicable) = 23

Justification / Notes:

u/s: 35.6211°, -84.1042° bright line

d/s: 35.6218°, -84.1063° property boundary

Secondary Field Indicator Evaluation Lanier CH2

A. Geomorphology (Subtotal = 8)	Absent	Weak	Moderate	Strong
1. Continuous bed and bank	0	1	(2)	3
2. Sinuous channel	0	1	(2)	3
3. In-channel structure: riffle-pool sequences	0	(1)	2	3
4. Sorting of soil textures or other substrate	0	(1)	2	3
5. Active/relic floodplain	0	(0.5)	1	1.5
6. Depositional bars or benches	(0)	1	2	3
7. Braided channel	0	(1)	2	3
8. Recent alluvial deposits	(0)	0.5	1	1.5
9. Natural levees	(0)	1	2	3
10. Headcuts	(0)	1	2	3
11. Grade controls	(0)	0.5	1	1.5
12. Natural valley or drainageway	0	(0.5)	1	1.5
13. At least second order channel on existing USGS or NRCS map	(No = 0)		Yes = 3	

B. Hydrology (Subtotal = 8)	Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel	0	1	(2)	3
15. Water in channel and >48 hours since sig. rain	0	1	(2)	3
16. Leaf litter in channel (January – September)	1.5	(1)	0.5	0
17. Sediment on plants or on debris	0	(0.5)	1	1.5
18. Organic debris lines or piles (wrack lines)	0	0.5	(1)	1.5
19. Hydric soils in channel bed or sides of channel	No = 0		(Yes = 1.5)	

C. Biology (Subtotal = 7)	Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed [1]	3	(2)	1	0
21. Rooted plants in the thalweg [1]	3	(2)	1	0
22. Crayfish in stream (exclude in floodplain)	(0)	1	2	3
23. Bivalves/mussels	0	(1)	2	3
24. Amphibians eggs only	0	(0.5)	1	1.5
25. Macrobenthos (record type & abundance)	(0)	1	2	3
26. Filamentous algae; periphyton	0	(1)	2	3
27. Iron oxidizing bacteria/fungus	(0)	0.5	1	1.5
28. Wetland plants in channel bed [2]	0	(0.5)	1	1.5

[1] Focus is on the presence of terrestrial plants.

[2] Focus is on the presence of aquatic or wetland plants.

Total Points = 23

Under Normal Conditions, Watercourse is a Wet Weather Conveyance if Secondary Indicator Score < 19 points

Notes :

Appendix D

Weather Data

Normal Weather Conditions
Calculations Table

Knoxville – February 2022

			Long-term rainfall records							
	Month	**Standard Deviation**	**Minus One Std. Dev. (DRY)**	**Normal (Mean inches)**	**Plus One Std. Dev. (WET)**	**Actual Rainfall**	**Condition (elevated, low, average)**	**Condition value**	**Month weight value**	**Product of previous two columns**
1st prior month*	JAN	2.00	2.35	4.35	6.35	5.74	AVE	2	3	6
2nd prior month*	DEC	2.26	2.14	4.40	6.66	3.52	AVE	2	2	4
3rd prior month*	NOV	1.46	2.13	3.59	5.05	1.12	LOW	1	1	1
									Sum =	11

Note:

If sum is:	11 - Average
6-9	then prior period has been abnormally dry
10-14	then prior period has been normal (average)
15-18	Then prior period has been abnormally wet

Condition value:	
Low =	1
Average =	2
Elevated =	3

Climatological Report (Monthly)

Issued by NWS Knoxville/Tri Cities, TN

```
000
CXUS54 KMRX 012002
CLMTYS

CLIMATE REPORT
NATIONAL WEATHER SERVICE MORRISTOWN, TN
302 PM EST TUE FEB 01 2022

.................................

...THE KNOXVILLE MCGHEE TYSON AIRPORT CLIMATE SUMMARY FOR THE MONTH OF JANUARY 2022...

CLIMATE NORMAL PERIOD: 1991 TO 2020
CLIMATE RECORD PERIOD: 1871 TO 2022

WEATHER         OBSERVED          NORMAL  DEPART
                VALUE   DATE(S)   VALUE   FROM
                                          NORMAL
.............................................
TEMPERATURE (F)
HIGHEST           77R  01/01
LOWEST            18   01/29
AVG. MAXIMUM    45.4               48.2    -2.8
AVG. MINIMUM    27.6               30.0    -2.4
MEAN            36.5               39.1    -2.6
DAYS MAX >= 90     0
DAYS MAX <= 32     4
DAYS MIN <= 32    28
DAYS MIN <= 0      0

PRECIPITATION (INCHES)
RECORD
 MAXIMUM       16.98   1882
 MINIMUM        0.95   1986
TOTALS          5.74               4.76    0.98
DAYS >= .01        9
DAYS >= .10        7
DAYS >= .50        5
DAYS >= 1.00       2
GREATEST
 24 HR. TOTAL   2.12   01/01 TO 01/02

SNOWFALL (INCHES)
TOTALS           4.1                1.7     2.4
SINCE 7/1        4.1
SNOWDEPTH AVG.     0
DAYS >= TRACE      8
GREATEST
 SNOW DEPTH        1   01/03
                       01/16
                       01/17

DEGREE DAYS
HEATING TOTAL    878                803      75
 SINCE 7/1      2018               2206    -188
COOLING TOTAL     3                  0       3
```

```
 SINCE 1/1         3                  0       3
.............................................
```

```
WEATHER CONDITIONS. NUMBER OF DAYS WITH
THUNDERSTORM              2     RAIN                      6
SNOW                      3     FOG                      14
FOG W/VIS <= 1/4 MILE     4
```

```
-  INDICATES NEGATIVE NUMBERS.
R  INDICATES RECORD WAS SET OR TIED.
MM INDICATES DATA IS MISSING.
T  INDICATES TRACE AMOUNT.
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$$
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Climatological Report (Monthly)

Issued by NWS Knoxville/Tri Cities, TN

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000
CXUS54 KMRX 011425
CLMTYS

CLIMATE REPORT
NATIONAL WEATHER SERVICE MORRISTOWN, TN
925 AM EST SAT JAN 01 2022

.................................

...THE KNOXVILLE MCGHEE TYSON AIRPORT CLIMATE SUMMARY FOR THE MONTH OF DECEMBER
2021...

CLIMATE NORMAL PERIOD: 1991 TO 2020
CLIMATE RECORD PERIOD: 1871 TO 2021

WEATHER         OBSERVED          NORMAL  DEPART
                VALUE   DATE(S)   VALUE   FROM
                                          NORMAL
.............................................
TEMPERATURE (F)
HIGHEST           74   12/28
LOWEST            25   12/23
AVG. MAXIMUM    61.1              51.0    10.1
AVG. MINIMUM    40.6              32.8     7.8
MEAN            50.9              41.9     9.0
DAYS MAX >= 90     0
DAYS MAX <= 32     0
DAYS MIN <= 32    10
DAYS MIN <= 0      0

PRECIPITATION (INCHES)
RECORD
 MAXIMUM       12.34   1901
 MINIMUM        0.45   1965
TOTALS          3.52              5.00   -1.48
DAYS >= .01       12
DAYS >= .10        4
DAYS >= .50        3
DAYS >= 1.00       1
GREATEST
 24 HR. TOTAL   1.23   12/28 TO 12/29

SNOWFALL (INCHES)
TOTALS           0.0               0.5    -0.5
SINCE 7/1        0.0
SNOWDEPTH AVG.     0
DAYS >= TRACE      0
GREATEST
 SNOW DEPTH        0

DEGREE DAYS
HEATING TOTAL    432               716    -284
 SINCE 7/1      1140              1401    -261
COOLING TOTAL      2                 0       2
 SINCE 1/1      1635              1572      63
```

.....

WEATHER CONDITIONS. NUMBER OF DAYS WITH

THUNDERSTORM	2	RAIN	4
SNOW	0	FOG	15
FOG W/VIS <= 1/4 MILE	4		

- INDICATES NEGATIVE NUMBERS.
R INDICATES RECORD WAS SET OR TIED.
MM INDICATES DATA IS MISSING.
T INDICATES TRACE AMOUNT.

$$

Climatological Report (Monthly)

Issued by NWS Knoxville/Tri Cities, TN

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000
CXUS54 KMRX 011911
CLMTYS

CLIMATE REPORT
NATIONAL WEATHER SERVICE MORRISTOWN, TN
211 PM EST WED DEC 01 2021

.................................

...THE KNOXVILLE MCGHEE TYSON AIRPORT CLIMATE SUMMARY FOR THE MONTH OF
NOVEMBER 2021...

CLIMATE NORMAL PERIOD: 1991 TO 2020
CLIMATE RECORD PERIOD: 1871 TO 2021

WEATHER         OBSERVED          NORMAL  DEPART
                VALUE   DATE(S)   VALUE   FROM
                                          NORMAL
.............................................
TEMPERATURE (F)
HIGHEST           73   11/10
                       11/11
                       11/17
LOWEST            24   11/24
                       11/27
AVG. MAXIMUM    58.1              60.0    -1.9
AVG. MINIMUM    33.8              38.1    -4.3
MEAN            46.0              49.0    -3.0
DAYS MAX >= 90     0
DAYS MAX <= 32     0
DAYS MIN <= 32    13
DAYS MIN <= 0      0

PRECIPITATION (INCHES)
RECORD
 MAXIMUM       10.36   1948
 MINIMUM        0.17   1890
TOTALS          1.12              4.21   -3.09
DAYS >= .01        7
DAYS >= .10        4
DAYS >= .50        0
DAYS >= 1.00       0
GREATEST
 24 HR. TOTAL   0.59   11/21 TO 11/22

SNOWFALL (INCHES)
TOTALS           0.0               0.1    -0.1
SINCE 7/1        0.0
SNOWDEPTH AVG.     0
```

```
DAYS >= TRACE      0
GREATEST
 SNOW DEPTH        0

DEGREE DAYS
HEATING TOTAL    560               482      78
 SINCE 7/1       708               687      21
COOLING TOTAL      0                 3      -3
 SINCE 1/1      1633              1572      61
.............................................


WEATHER CONDITIONS. NUMBER OF DAYS WITH
THUNDERSTORM              0     RAIN                     2
SNOW                      0     FOG                     10
FOG W/VIS <= 1/4 MILE     3

-  INDICATES NEGATIVE NUMBERS.
R  INDICATES RECORD WAS SET OR TIED.
MM INDICATES DATA IS MISSING.
T  INDICATES TRACE AMOUNT.

$$
```

WFO Monthly/Daily Climate Data

Issued by NWS Knoxville/Tri Cities, TN

000
CXUS54 KMRX 141130
CF6TYS
PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

7 day
1.83”

STATION: KNOXVILLE MCGHEE TYSON AIRPORT
MONTH: FEBRUARY
YEAR: 2022
LATITUDE: 35 49 N
LONGITUDE: 83 59 W

TEMPERATURE IN F:							:PCPN:		SNOW:	WIND			:SUNSHINE:		SKY		:PK WND	
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18
									12Z	AVG	MX	2MIN						
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR
1	62	24	43	3	22	0	0.00	0.0	0	3.0	10	230	M	M	3		15	220
2	61	33	47	7	18	0	0.21	0.0	0	6.3	26	180	M	M	9	1	39	190
3	56	45	51	11	14	0	1.38	0.0	0	5.0	13	90	M	M	10	1	17	110
4	58	31	45	4	20	0	0.45	0.1	0	8.9	25	290	M	M	10	1	35	280
5	37	24	31	-10	34	0	0.00	0.0	0	6.3	14	20	M	M	2		18	10
6	50	20	35	-6	30	0	0.00	0.0	0	2.4	9	30	M	M	0		12	30
7	50	24	37	-4	28	0	0.00	0.0	0	2.6	10	260	M	M	3		13	260
8	51	25	38	-3	27	0	0.00	0.0	0	2.8	10	310	M	M	1		16	340
9	60	25	43	1	22	0	0.00	0.0	0	7.3	29	220	M	M	2		37	220
10	62	38	50	8	15	0	0.00	0.0	0	8.5	24	260	M	M	3		37	250
11	68	31	50	8	15	0	0.00	0.0	0	11.7	35	220	M	M	2		43	230
12	57	38	48	6	17	0	0.00	0.0	0	8.1	16	270	M	M	7		21	270
13	42	29	36	-6	29	0	T	0.0	0	7.5	15	350	M	M	6		19	340
SM	714	387		291		0	2.04	0.1		80.4			M		58			
AV	54.9	29.8								6.2	FASTST		M	M	4		MAX(MPH)	
									MISC ---->		35	220					43	230

NOTES:
LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

STATION: KNOXVILLE MCGHEE TYSON AIRPORT
MONTH: FEBRUARY
YEAR: 2022
LATITUDE: 35 49 N
LONGITUDE: 83 59 W

[TEMPERATURE DATA]
AVERAGE MONTHLY: 42.3
DPTR FM NORMAL: 1.2
HIGHEST: 68 ON 11

[PRECIPITATION DATA]
TOTAL FOR MONTH: 2.04
DPTR FM NORMAL: -0.09
GRTST 24HR 1.50 ON 2- 3

SYMBOLS USED IN COLUMN 16
1 = FOG OR MIST
2 = FOG REDUCING VISIBILITY
TO 1/4 MILE OR LESS

LOWEST: 20 ON 6

SNOW, ICE PELLETS, HAIL
TOTAL MONTH: 0.1 INCH
GRTST 24HR 0.1 ON 4- 4
GRTST DEPTH: 0

3 = THUNDER
4 = ICE PELLETS
5 = HAIL
6 = FREEZING RAIN OR DRIZZLE
7 = DUSTSTORM OR SANDSTORM:
    VSBY 1/2 MILE OR LESS
8 = SMOKE OR HAZE
9 = BLOWING SNOW
X = TORNADO

[NO. OF DAYS WITH]

MAX 32 OR BELOW:	0
MAX 90 OR ABOVE:	0
MIN 32 OR BELOW:	9
MIN 0 OR BELOW:	0

[WEATHER - DAYS WITH]

0.01 INCH OR MORE:	3
0.10 INCH OR MORE:	3
0.50 INCH OR MORE:	1
1.00 INCH OR MORE:	1

[HDD (BASE 65)]

TOTAL THIS MO.	291
DPTR FM NORMAL	-18
TOTAL FM JUL 1	2309
DPTR FM NORMAL	-206

CLEAR (SCALE 0-3)	8
PTCLDY (SCALE 4-7)	2
CLOUDY (SCALE 8-10)	3

[CDD (BASE 65)]

TOTAL THIS MO.	0
DPTR FM NORMAL	0
TOTAL FM JAN 1	3
DPTR FM NORMAL	3

[PRESSURE DATA]

HIGHEST SLP M ON M
LOWEST SLP 29.82 ON 3

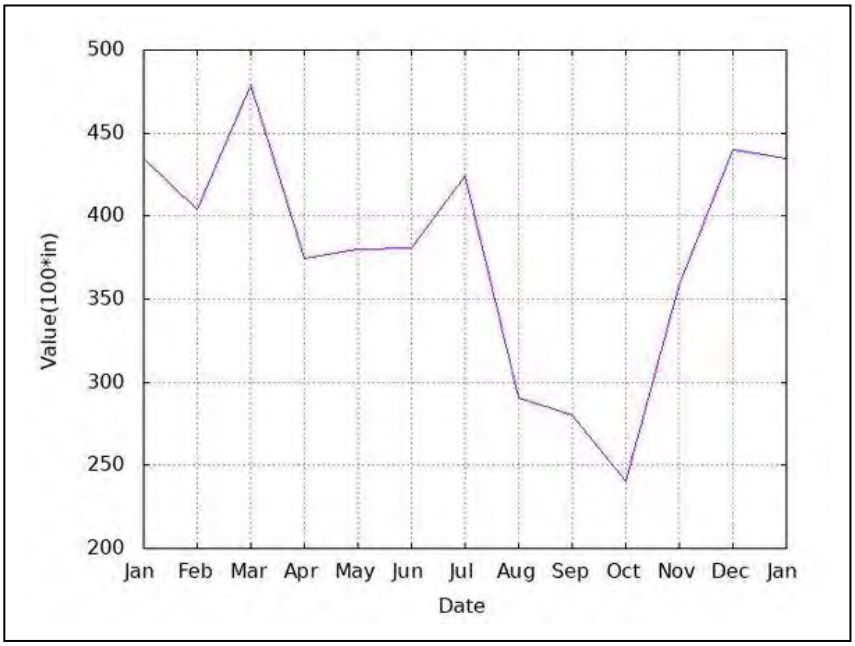
[REMARKS]

Knoxville Normal Weather Data

1991-2020

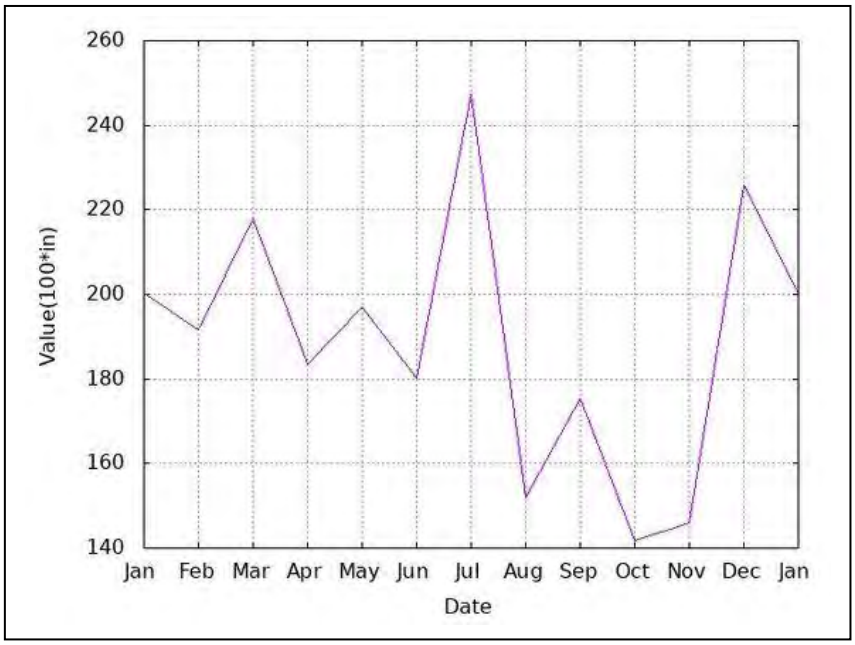
Mean (in.)

1) 4.346
2) 4.037
3) 4.790
4) 3.750
5) 3.802
6) 3.807
7) 4.239
8) 2.906
9) 2.803
10) 2.404
11) 3.586
12) 4.401



Standard Deviation (in.)

1) 2.002
2) 1.915
3) 2.180
4) 1.835
5) 1.969
6) 1.800
7) 2.474
8) 1.519
9) 1.754
10) 1.419
11) 1.459
12) 2.256



Appendix E

Certifications

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

TNQHP TENNESSEE QUALIFIED HYDROLOGIC PROFESSIONAL

11/1/10

Jason Mann
TDEC
3711 Middlebrook Pike
Knoxville, TN 37921

RE: Tennessee Qualified Hydrologic Professional Certification

Dear Mr. Mann

Congratulations, you have successfully completed the Tennessee Hydrologic Determination course. By completing the TN-HDT course, you have also earned 20 Professional Development Hours (PDH). You have now met all the requirements to become a certificated Tennessee Qualified Hydrologic Professional (TN-QHP). Your TN-QHP certification card is attached below.

The TN-QHP certification is valid for three years. You must complete a refresher course within that three year period and submit evidence of course completion along with a renewal application at least 90 days before expiration of your certificate. Should you allow your certification to lapse after 3 years, you will be required to retake the TN-HDT course and submit a new application in order to become a certified TN-QHP.

Please refer to the TDEC website, http://tn.gov/environment/wpc or the TN-HDT training website, www.tnhdt.org for refresher course details and application forms.

Sincerely,

Paul E. Davis, Director
Water Pollution Control

Cc: Timothy Gangaware
TN-HDT Training Program
Coordinator

TDEC TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Tennessee Qualified Hydrologic Professional

TNQHP TENNESSEE QUALIFIED HYDROLOGIC PROFESSIONAL

This card certifies that:

Jason Mann

has successfully completed the 3-day TN HDT course and is a Tennessee Qualified Hydrologic Professional

Certification number **1042-TN10** Expires: **12/31/2014**

Paul E. Davis, P.E.
Director, TDEC-WPC

Timothy Gangaware, AICP
Director, TNWRRC-UT

C-1
8/11

Tennessee Department of Environment & Conservation

This is to certify that

Jason Mann

has successfully completed the three day course to become a
Tennessee Qualified Hydrologic Professional

TN QHP Number **1042-TN10**

Paul E. Davis

Paul E. Davis, P.E.

Timothy Gangaware

Timothy Gangaware, A.I.C.P

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

This certifies that the recipient has earned 20 Professional Development Hours

TNQHP
TENNESSEE QUALIFIED HYDROLOGIC PROFESSIONAL

Tennessee Department of Environment & Conservation

This is to certify that

Jason Mann

successfully completed the one-day
Tennessee Hydrologic Determination Refresher Course

September 22, 2020

Jonathon Burr, DWR

Timothy Gangaware, TNWRRC

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

This certifies that the recipient has earned 6 Professional Development Hours

TENNESSEE QUALIFIED HYDROLOGIC PROFESSIONAL