



February 23, 2022

Mr. Lew Hoffman
TDEC-Division of Water Resources
Memphis Environmental Field Office
8383 Wolf Lake Drive
Bartlett, TN 38133

**Subject: SR Clarksville II
Hydrologic Determination Request
Montgomery County, Tennessee**

Mr. Hoffman:

A subsidiary of Silicon Ranch Corporation (SRC), SR Clarksville, LLC intends to develop a site within the city limits of Clarksville, Tennessee as a photovoltaic (PV) solar power generating facility. The SR Clarksville II site ("Project Site") includes approximately 140 acres bordered by I-24 to the west, Rossvie Road to the north, and the Red River to the south, in Clarksville, Montgomery County, TN (Appendix A, Figures 1 and 2). On behalf of its subsidiary SR Clarksville, LLC, SRC has authorized HDR Engineering, Inc. (HDR) as its agent to submit the enclosed Hydrologic Determination (HD) request for written approval from the Tennessee Department of Environmental Conservation (TDEC) regarding the extent of Wet Weather Conveyance (WWC) features within the Project Site.

	Requestor/Applicant	Consultant/Requestor	Current Property Owners
Name	Emma Tillitski	Benjamin Burdette, WPIT, QHP	City of Clarksville
Affiliation	SR Bolivar, LLC	HDR	n/a
Mailing Address	222 2 nd Avenue South Suite 1900 Nashville, TN, 37201	440 S. Church Street Suite 1200 Charlotte, NC 28202	Clarksville, TN
Phone Number	615-577-4617	704-249-3619	931-648-6138
Parcel ID:	n/a	n/a	n/a

Project Location: City of Clarksville, TN

Basin: Red River (Hydrologic Unit Code [HUC] (051302060708)

Nearest City: Clarksville

County: Montgomery County

Center Decimal Degree Coordinates of Project Area: 36.547306 °, -87.237242°

USGS Quadrangle Name: Clarksville, TN (1957) (1":24,000'-scale)

Project Site Description

Prior to undertaking fieldwork, HDR scientists conducted a desktop review of the Project Site utilizing a number of resources including U.S. Geological Survey (USGS) topographic maps (Appendix A, Figure 2), aerial imagery (Appendix A, Figure 3), United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey (Appendix A, Figure 4), the USGS National Hydrography Dataset (NHD), U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI), Federal Emergency Management Act (FEMA) floodplains (Appendix A, Figure 5), and 12-digit HUC watershed areas (Appendix A, Figure 6). All figures are attached in Appendix A.

According to the USDA NRCS Soil Survey of Montgomery County, TN, 10 different soil types were identified within the Project Site (Appendix A, Figure 4). There are no hydric soils present within the Project Site according to the NRCS National Hydric Soils List for Montgomery County (NRCS 2017).

Review of the USFWS NWI depicts one pond within the Project Site (Appendix A, Figure 5). Review of the USGS NHD depicts an unnamed tributary (UNT) that crosses the northwest corner of the Project Site and flows south where it flows into Red River west of the Project Site (Appendix A, Figure 5). According to FEMA floodplain data, approximately 87% of the Project Site is classified as FEMA Flood Zone X. Zone X is defined as a moderate- to low-risk area of minimal flood hazard due to areas being outside the special flood hazard area and higher than an elevation of the 0.2 percent annual chance flood. Approximately 13% of the Project Site is classified as FEMA Flood Zone AE, which is an area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year (Appendix A, Figure 5). The 1-percent annual chance flood is also referred to as the base flood or 100-year flood.

Based on aerial imagery and the field investigation, the Project Site consists of cultivated cropland with small areas of developed open space, forested and herbaceous wetlands, Red River and its associated tributaries, and mixed deciduous forest (see Appendix A, Figure 3). Dominant woody species consist of black walnut (*Juglans nigra*), southern red oak (*Quercus falcata*), red oak species (*Quercus sp.*), American sycamore (*Platanus occidentalis*), black gum (*Nyssa sylvatica*), shagbark hickory (*Carya ovata*), mockernut hickory (*Carya tomentosa*), eastern red cedar (*Juniperus virginiana*), sugar maple (*Acer saccharum*), common hackberry (*Celtis occidentalis*), and honey locust (*Gleditsia triacanthos*) in the canopy layer. The understory is composed primarily of black gum, black walnut, pawpaw (*Asimina triloba*), eastern red cedar, and Chinese privet (*Ligustrum sinense*). Common herbaceous and vine species include wingstem (*Verbesina alternifolia*), greenbriar (*Smilax rotundifolia*), poison ivy (*Toxicodendron radicans*), and a sedge species (*Carex sp.*).

Jurisdictional Delineation and Hydrological Determination

On November 2, 2021 HDR environmental scientists Lyranda Thiem, Tennessee Qualified Hydrologic Professional in Training (TN-QHP-IT), and Amanda Mills reviewed the Project Site for jurisdictional waters of the U.S. under Section 404 of the Clean Water Act. Jurisdictional waters of the U.S. were delineated according to the methodology and guidance described in the USACE 1987 Wetland Delineation Manual, USACE 2008 Rapanos Guidance, and the 2012 USACE Eastern Mountains and Piedmont Regional Supplement (Version 2.0). Streams were classified utilizing the methodology and guidance provided in the Regulatory Guidance Letter (RGL) 05-05 and the Tennessee Department of Environment and Conservation (TDEC) Division of Water Pollution Control Guidance for Making Hydrologic Determinations (Version 1.4) (TDEC 2011) for the identification and classifications of streams. Potential jurisdictional waters of the U.S. were flagged in the field and mapped using a Trimble® Geo7X GPS unit capable of sub-meter accuracy and post-processed utilizing Trimble® GPS Pathfinder Office software. Attached to this submittal are Preliminary Jurisdictional Determination Request forms (Appendix B), completed USACE Wetland Determination Data Forms, Hydrologic Determination Field Data Forms (Appendix C), as well as representative photographs of on-site waters (Appendix D).

Results

The results of the on-site field investigation conducted by HDR indicate that there are four (4) jurisdictional stream channels, six (6) jurisdictional wetland, and sixteen (16) non-jurisdictional WWCs located within the Project Site (Appendix A, Figure 7).

The on-site surface waters drain to Red River in the Red River watershed (HUC 051302060708). The on-site surface waters are classified for Domestic Water Supply, Industrial Water Supply, Fish and Aquatic Life, Recreation, Livestock Watering and Wildlife, Navigation, and Irrigation uses as designated by the TDEC Division of Water Resources Water Pollution Control.¹

Wetland Waters

There are six wetlands located within the Project Site, two forested wetlands and four emergent wetlands. On-site wetland waters total approximately 1.66 acres (Appendix A, Figure 7). A summary of on-site wetland waters are summarized in Table 1.

¹ [0400-40-04_20160301.pdf \(tnsosfiles.com\)](#)

Table 1. Summary of on-site wetland waters within the Project Site

Feature Name	Coordinates (decimal degrees)	Type of Aquatic Resource	Cowardin Classification ¹	Estimated Amount of Aquatic Resource in Review Area (acres)
Wetland Waters				
Wetland 1	36.543018 / -87.232402	non section 10, non 404 - wetland	PEM	0.06
Wetland 2	36.542459 / -87.232402	non section 10 - wetland	PEM	0.02
Wetland 3	36.541966 / -87.235623	non section 10 - wetland	PEM	0.09
Wetland 4	36.542869 / -87.235246	non section 10 - wetland	PFO	0.81
Wetland 5	36.545315 / -87.236027	non section 10 - wetland	PFO	0.12
Wetland 6	36.549137 / -87.239230	non section 10 - wetland	PEM	0.51
Total Wetland Waters:				1.66 ac.

¹ PEM = Palustrine emergent
PFO = Palustrine forested

Jurisdictional Streams

There are four jurisdictional streams located within the Project Site totaling approximately 2,422 linear feet (0.05 acres) (Appendix A, Figure 7). A summary of on-site non-wetland waters are summarized in Table 2.

Table 1. Summary of on-site non-wetland waters in Project Site

Feature Name	Starting Coordinates (decimal degrees)	Ending Coordinates (decimal degrees)	Type of Aquatic Resource	Cowardin Classification ¹	Estimated Amount of Aquatic Resource in Review Area
Non-Wetland Waters					
Stream 1	36.545752 / -87.232543	36.543796 / -87.233087	non section 10 - non-wetland	R4SB5	Length: 785 feet Width: 4 feet Area: 0.01 acre
Stream 2	36.542106 / -87.232589	36.541691 / -87.235882	non section 10 - non-wetland	R1SB5	Length: 1050 feet Width: 30 feet Area: 0.02 acre
Stream 3	36.552273 / -87.244036	36.551228 / -87.244387	non section 10 - non-wetland	R5UB1	Length: 474 feet Width: 8 feet Area: 0.01 acre
Stream 4	36.551399 / -87.244553	36.551132 / -87.244608	non section 10 - non-wetland	R4SB3	Length: 113 feet Width: 6 feet Area: < 0.01 acre
Total Non-Wetland Waters:					Length: 2,422 linear feet Area: 0.05 ac.

¹ R4SB5 = Riverine, intermittent, mud streambed; R4SB3 = Riverine, intermittent, cobble, gravel streambed; R5UB1 = Riverine, unknown perennial, unconsolidated bottom; R1SB5= Mud, Unconsolidated Bottom, Tidal, Riverine

Wet Weather Conveyances (Non-Jurisdictional)

There are sixteen non-jurisdictional WWCs located within the Project Site totaling approximately 4,114 linear feet (0.094 acres) (Appendix A, Figure 7). A summary of on-site WWCs are summarized in Table 3.

Table 3. Summary of on-site Wet Weather Conveyances

Feature Name	Start Coordinates (decimal degrees)	End Coordinates (decimal degrees)	Estimated Amount of WWC in Review Area (lf or ac.)
WWC 1	36.545409/ -87.233668	36.544429/ -87.233351	Length: 349 Width: 2 Area: < 0.01
WWC 2	36.542429/ -87.232644	36.542116/ -87.232668	Length: 125 Width: 3 Area: 0.002
WWC 3	36.542077/ -87.235888	36.541998/ -87.236108	Length: 39 Width: 2 Area: 0.0009
WWC 4	36.543233 / -87.236376	36.542939/ -87.236205	Length: 106 Width: 2 Area: 0.002
WWC 5	36.543155/ -87.235864	36.542978/ -87.235815	Length: 83 Width: 2 Area: 0.002
WWC 6	36.542919/ -87.235644	36.543233/ -87.235669	Length: 132 Width: 1 Area: 0.003
WWC 7	36.546741/ -87.234205	36.546565/ -87.234595	Length: 167 Width: 3 Area: 0.004
WWC 8	36.547368/ -87.234083	36.546428 / -87.234864	Length: 414 Width: 5 Area: 0.009
WWC 9	36.546957 / -87.235913	36.546761/ -87.235815	Length: 100 Width: 5 Area: 0.002
WWC 10	36.547898/ -87.236254	36.546937/ -87.236035	Length: 423 Width: 8 Area: 0.001
WWC 11	36.548486/ -87.237669	36.547898/ -87.236254	Length: 513 Width: 4 Area: 0.012
WWC 12	35.260454/ -89.018287	35.260692/ -89.018228	Length: 596 Width: 8 Area: 0.014

Feature Name	Start Coordinates (decimal degrees)	End Coordinates (decimal degrees)	Estimated Amount of WWC in Review Area (lf or ac.)
WWC 13	36.548995/ -87.242036	36.549465/ -87.243646	Length: 527 Width: 3 Area: 0.012
WWC 14	36.550034/ -87.241816	36.549348/ -87.242499	Length: 327 Width: 1 Area: 0.008
WWC 15	36.549955 / -87.243744	36.549955 / -87.243963	Length: 97 Width: 1 Area: 0.002
WWC 16	36.552229/ -87.243500	36.552072/ -87.243890	Length: 116 Width: 10 Area: 0.003
Total Wet Weather Conveyances:			Length: 4,114 lf Area: 0.094 ac

On behalf of SRC, HDR is hereby requesting a HD verification for WWCs within the Project Site. Should you have any questions or require additional information following your review of the enclosed materials, please me at (615)-507-9167 or lyranda.thiem@hdrinc.com.

Sincerely,
HDR Inc,

Lyranda Thiem

Lyranda Thiem- QHP-IT
Environmental Scientist

Ben Burdette

Ben Burdette- QHP 1204-TN21
Environmental Scientist

Appendices:

Appendix A: Figures

- Figure 1. Project Location
- Figure 2. USGS Topographic Quadrangles
- Figure 3. Aerial Imagery
- Figure 4. NRCS Soils Survey of Montgomery County, TN
- Figure 5. USGS NHD, USFWS NWI, and FEMA Floodplains
- Figure 6. HUC 12 Watershed
- Figure 7. Jurisdictional Delineation Map

Appendix B: Data Forms and Normal Weather Conditions

- USACE Wetland Determination Data Forms
- Hydrologic Determination Data Sheets
- Normal Weather Conditions

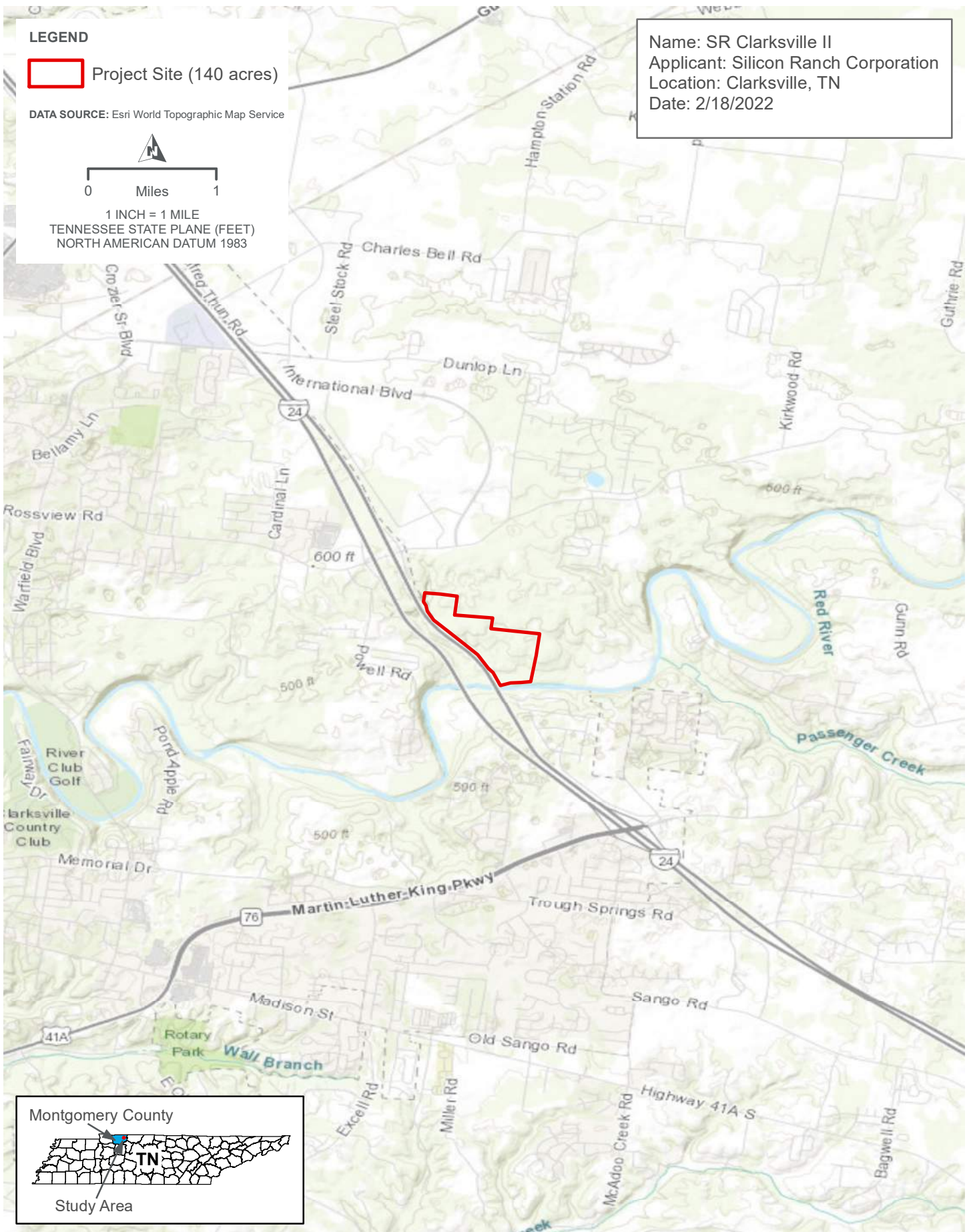
Appendix C: Site Photographs

cc: Emma Tillitski, Silicon Ranch Corporation



Appendix A

Figures



LEGEND



Project Site (140 acres)



USGS Topographic Quadrangles

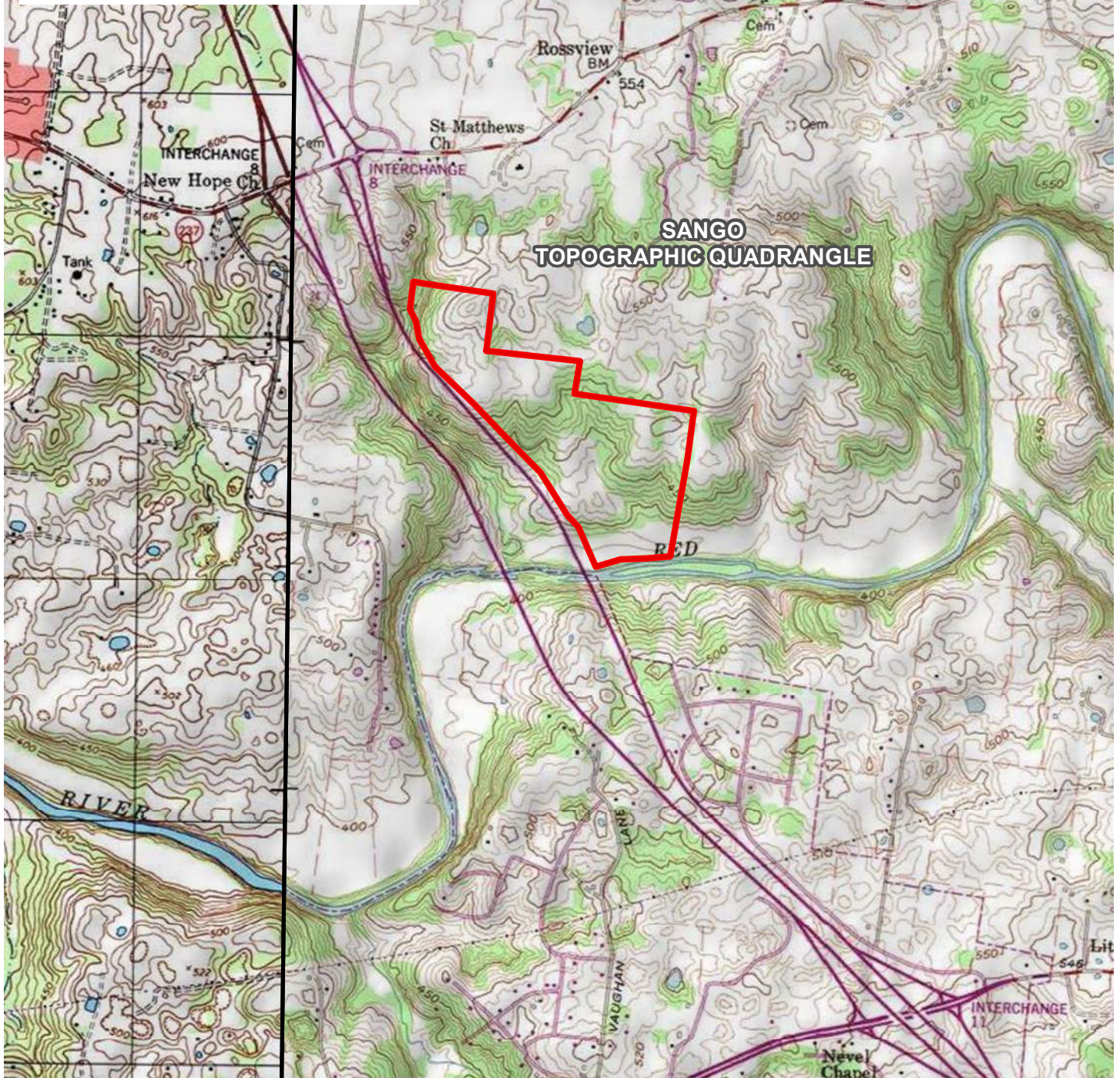
DATA SOURCE: USGS Quadrangle: Sango, TN (1957); ESRI World Topographic Map Service



0 Feet 2,000

1 INCH = 2,000 FEET
TENNESSEE STATE PLANE (FEET)
NORTH AMERICAN DATUM 1983

Name: SR Clarksville II
Applicant: Silicon Ranch Corporation
Location: Clarksville, TN
Date: 2/18/2022



LEGEND

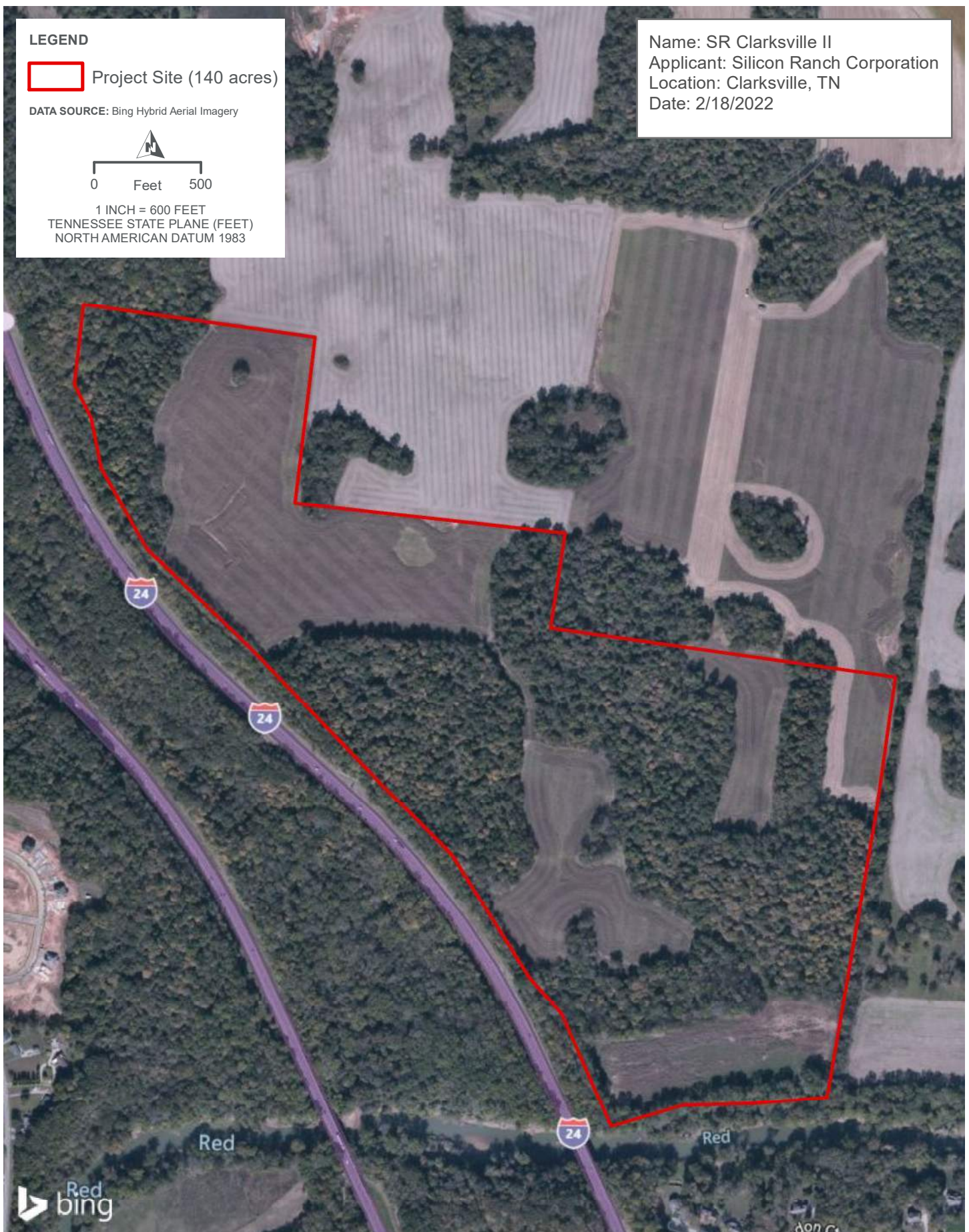
 Project Site (140 acres)

DATA SOURCE: Bing Hybrid Aerial Imagery



1 INCH = 600 FEET
TENNESSEE STATE PLANE (FEET)
NORTH AMERICAN DATUM 1983

Name: SR Clarksville II
Applicant: Silicon Ranch Corporation
Location: Clarksville, TN
Date: 2/18/2022



Name: SR Clarksville II
 Applicant: Silicon Ranch Corporation
 Location: Clarksville, TN
 Date: 2/18/2022

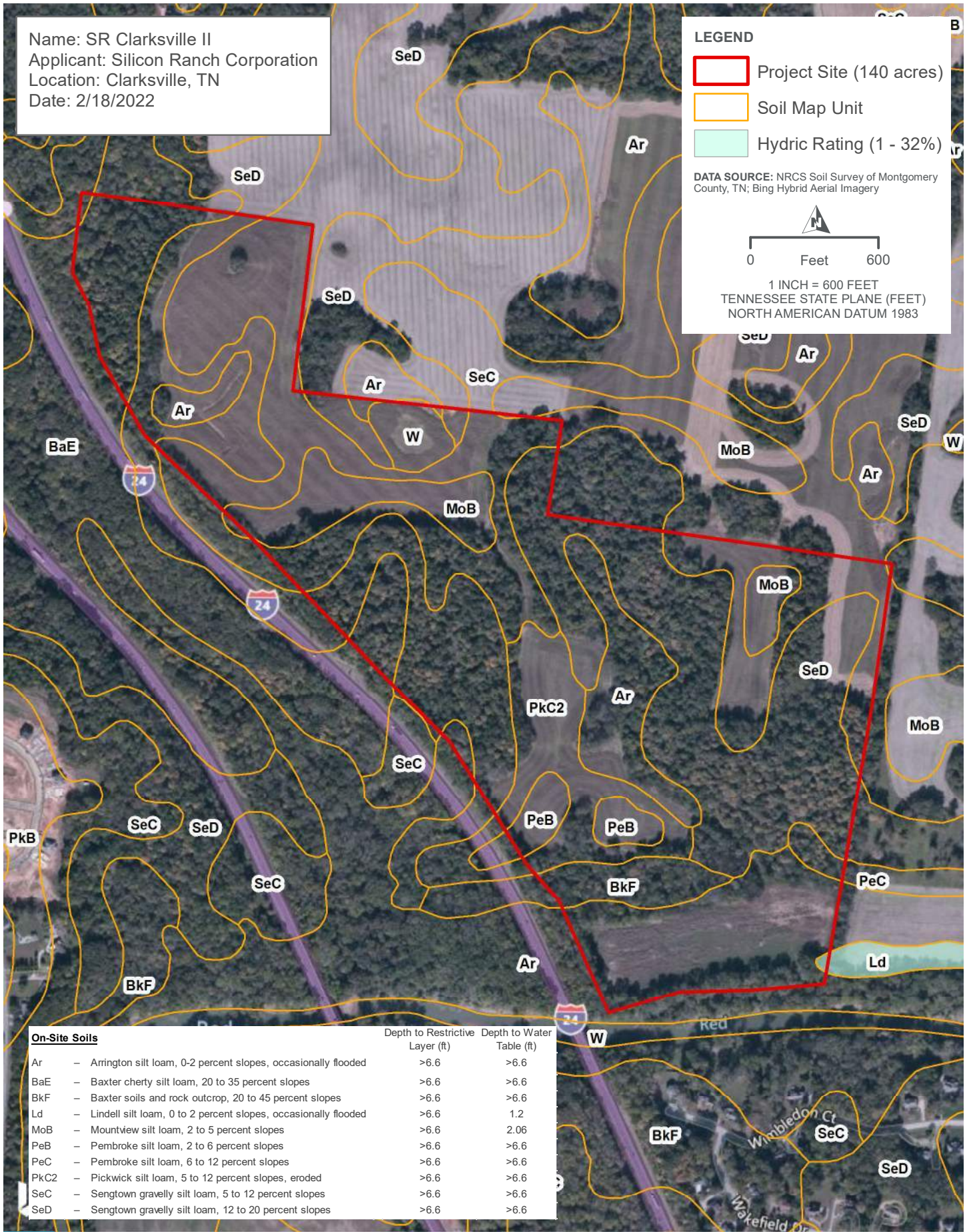
LEGEND

- Project Site (140 acres)
- Soil Map Unit
- Hydric Rating (1 - 32%)

DATA SOURCE: NRCS Soil Survey of Montgomery County, TN; Bing Hybrid Aerial Imagery



1 INCH = 600 FEET
 TENNESSEE STATE PLANE (FEET)
 NORTH AMERICAN DATUM 1983









On-Site Soils

		Depth to Restrictive Layer (ft)	Depth to Water Table (ft)
Ar	– Arrington silt loam, 0-2 percent slopes, occasionally flooded	>6.6	>6.6
BaE	– Baxter cherty silt loam, 20 to 35 percent slopes	>6.6	>6.6
BkF	– Baxter soils and rock outcrop, 20 to 45 percent slopes	>6.6	>6.6
Ld	– Lindell silt loam, 0 to 2 percent slopes, occasionally flooded	>6.6	1.2
MoB	– Mountview silt loam, 2 to 5 percent slopes	>6.6	2.06
PeB	– Pembroke silt loam, 2 to 6 percent slopes	>6.6	>6.6
PeC	– Pembroke silt loam, 6 to 12 percent slopes	>6.6	>6.6
PkC2	– Pickwick silt loam, 5 to 12 percent slopes, eroded	>6.6	>6.6
SeC	– Sengtown gravelly silt loam, 5 to 12 percent slopes	>6.6	>6.6
SeD	– Sengtown gravelly silt loam, 12 to 20 percent slopes	>6.6	>6.6

Name: SR Clarksville II
Applicant: Silicon Ranch Corporation
Location: Clarksville, TN
Date: 2/18/2022

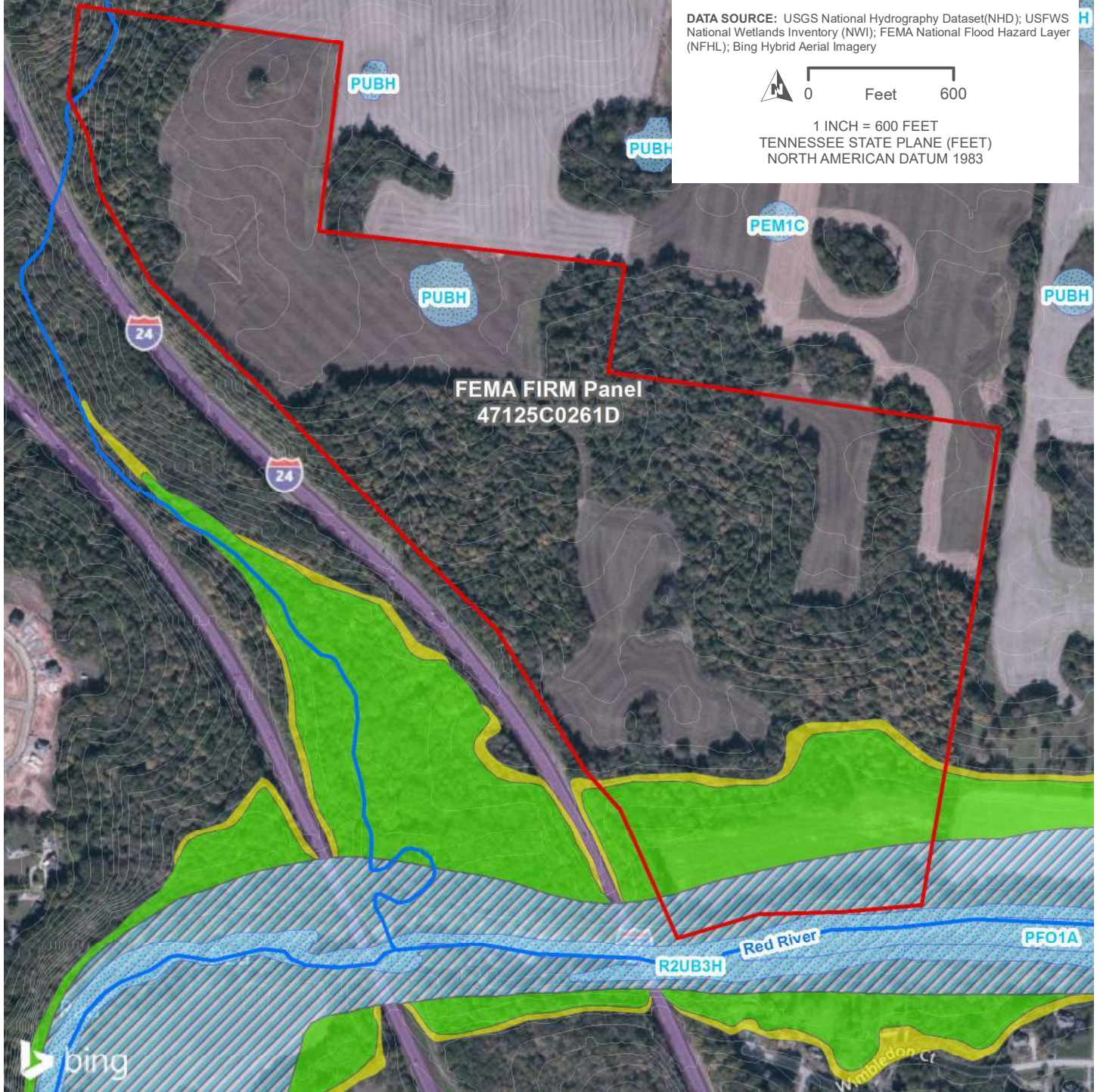
LEGEND

-  Project Site (140 acres)
-  USGS National Hydrography Dataset
-  USFWS National Wetlands Inventory
- FEMA Flood Zone**
 -  Floodway
 -  100-Year Flood Zone
 -  500-Year Flood Zone



DATA SOURCE: USGS National Hydrography Dataset(NHD); USFWS National Wetlands Inventory (NWI); FEMA National Flood Hazard Layer (NFHL); Bing Hybrid Aerial Imagery

 0 Feet 600

1 INCH = 600 FEET
TENNESSEE STATE PLANE (FEET)
NORTH AMERICAN DATUM 1983



LEGEND

-  Project Site (140 acres)
-  HUC 12 Watershed Boundaries

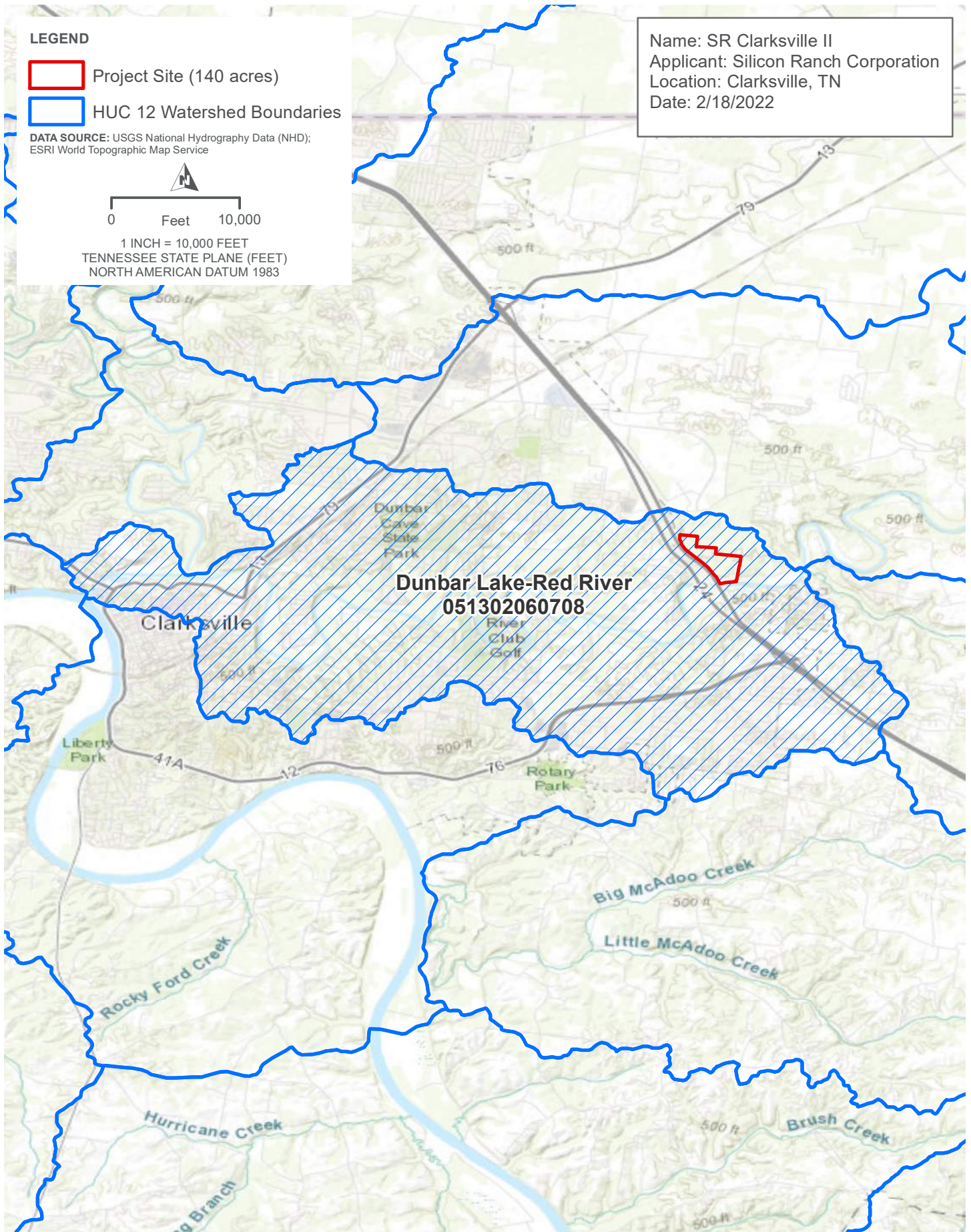
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ESRI World Topographic Map Service

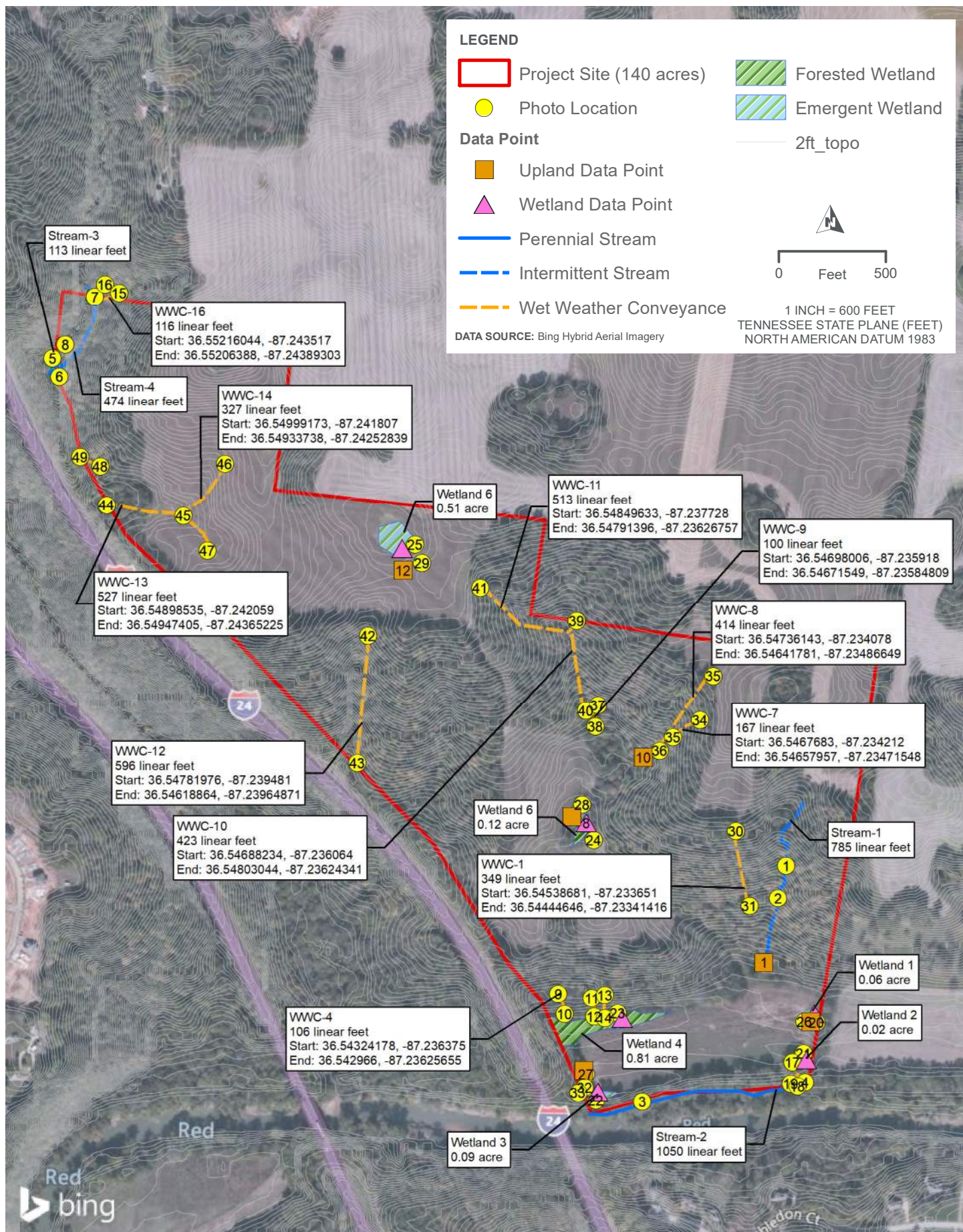


0 Feet 10,000

1 INCH = 10,000 FEET
TENNESSEE STATE PLANE (FEET)
NORTH AMERICAN DATUM 1983

Name: SR Clarksville II
Applicant: Silicon Ranch Corporation
Location: Clarksville, TN
Date: 2/18/2022







Appendix B

Data Forms and Normal
Weather Conditions

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

Project/Site: SR Clarksville City/County: Montgomery Sampling Date: 11/2/2021
Applicant/Owner: SRC State: TN Sampling Point: DP1-UP1
Investigator(s): Lyranda Thiem Section, Township, Range: _____
Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): CONCAVE Slope (%): 2-5
Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.712740 Long: -86.543505 Datum: WGS 1984
Soil Map Unit Name: Arrington silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: Upland point located right after a stream	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ____ Surface Water (A1) ____ True Aquatic Plants (B14) ____ High Water Table (A2) ____ Hydrogen Sulfide Odor (C1) ____ Saturation (A3) ____ Oxidized Rhizospheres on Living Roots (C3) ____ Water Marks (B1) ____ Presence of Reduced Iron (C4) ____ Sediment Deposits (B2) ____ Recent Iron Reduction in Tilled Soils (C6) ____ Drift Deposits (B3) ____ Thin Muck Surface (C7) ____ Algal Mat or Crust (B4) ____ Other (Explain in Remarks) _____ ____ Iron Deposits (B5) ____ Inundation Visible on Aerial Imagery (B7) ____ Water-Stained Leaves (B9) ____ Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> ____ Surface Soil Cracks (B6) ____ Sparsely Vegetated Concave Surface (B8) ____ Drainage Patterns (B10) ____ Moss Trim Lines (B16) ____ Dry-Season Water Table (C2) ____ Crayfish Burrows (C8) ____ Saturation Visible on Aerial Imagery (C9) ____ Stunted or Stressed Plants (D1) ____ Geomorphic Position (D2) ____ Shallow Aquitard (D3) ____ Microtopographic Relief (D4) ____ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Wetland hydrology is not present		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP1-UP1

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer saccharum</u>	<u>30</u>	<u>Yes</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25.0%</u> (A/B)																
2. <u>Quercus rubra</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Celtis occidentalis</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>																	
4. <u>Carya ovata</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
70 =Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>15</u></td> <td>x 2 = <u>30</u></td> </tr> <tr> <td>FAC species <u>15</u></td> <td>x 3 = <u>45</u></td> </tr> <tr> <td>FACU species <u>115</u></td> <td>x 4 = <u>460</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>145</u> (A)</td> <td><u>535</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.69</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>15</u>	x 2 = <u>30</u>	FAC species <u>15</u>	x 3 = <u>45</u>	FACU species <u>115</u>	x 4 = <u>460</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>145</u> (A)	<u>535</u> (B)	Prevalence Index = B/A = <u>3.69</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>15</u>	x 2 = <u>30</u>																			
FAC species <u>15</u>	x 3 = <u>45</u>																			
FACU species <u>115</u>	x 4 = <u>460</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>145</u> (A)	<u>535</u> (B)																			
Prevalence Index = B/A = <u>3.69</u>																				
50% of total cover: <u>35</u> 20% of total cover: <u>14</u>																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. <u>Asimina triloba</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. <u>Symphoricarpos orbiculatus</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
30 =Total Cover																				
50% of total cover: <u>15</u> 20% of total cover: <u>6</u>																				
Herb Stratum (Plot size: <u>5</u>)																				
1. <u>Verbesina alternifolia</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine – All woody vines greater than 3.28 ft in height.																
2. <u>Persicaria virginiana</u>	<u>5</u>	<u>No</u>	<u>FAC</u>																	
3. <u>Poacea spp.**</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
40 =Total Cover																				
50% of total cover: <u>20</u> 20% of total cover: <u>8</u>																				
Woody Vine Stratum (Plot size: <u>5</u>)																				
1. <u>Lonicera japonica</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
5 =Total Cover																				
50% of total cover: <u>3</u> 20% of total cover: <u>1</u>																				

Remarks: (Include photo numbers here or on a separate sheet.)

. **Species indicator status range OBL-UPL. Assigned FACU status for wetland/upland determination.

SOIL

Sampling Point: DP1-UP1**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	10YR 4/3	100					Sandy	
3-20	10YR 4/4	100					Sandy	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10) (**LRR N**)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7)

☐ Polyvalue Below Surface (S8) (**MLRA 147, 148**)
☐ Thin Dark Surface (S9) (**MLRA 147, 148**)
☐ Loamy Mucky Mineral (F1) (**MLRA 136**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
☐ Umbric Surface (F13) (**MLRA 122, 136**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 148**)
☐ Red Parent Material (F21) (**MLRA 127, 147, 148**)

Indicators for Problematic Hydric Soils³:

☐ 2 cm Muck (A10) (**MLRA 147**)
☐ Coast Prairie Redox (A16) (**MLRA 147, 148**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
☐ Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

, Hydric Soils are not present.


WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

Project/Site: SR Clarksville City/County: Montgomery Sampling Date: 11/1/2021
 Applicant/Owner: SRC State: TN Sampling Point: DP2-W1
 Investigator(s): Lyranda Thiem Section, Township, Range: _____
 Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): CONCAVE Slope (%): 0-2
 Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.543018 Long: -87.232402 Datum: WGS 1984
 Soil Map Unit Name: Arrington silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: PEM
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____		
Wetland Hydrology Present?	Yes <u>X</u> No _____		
Remarks: PEM Wetland located within an agricultural field.			

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <u>X</u> Surface Water (A1) True Aquatic Plants (B14) <u>X</u> High Water Table (A2)  Hydrogen Sulfide Odor (C1) <u>X</u> Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) <u>X</u> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) <u>X</u> Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) <u>X</u> Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)	
Field Observations: Surface Water Present? Yes <u>X</u> No _____ Depth (inches): <u>1</u> Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>0</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>0</u> (includes capillary fringe)		Wetland Hydrology Present? Yes <u>X</u> No _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Wetland hydrology is present.			

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP2-W1

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>20</u></td> <td>x 2 = <u>40</u></td> </tr> <tr> <td>FAC species <u>5</u></td> <td>x 3 = <u>15</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>25</u> (A)</td> <td><u>55</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.20</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>20</u>	x 2 = <u>40</u>	FAC species <u>5</u>	x 3 = <u>15</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>25</u> (A)	<u>55</u> (B)	Prevalence Index = B/A = <u>2.20</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>20</u>	x 2 = <u>40</u>																			
FAC species <u>5</u>	x 3 = <u>15</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>25</u> (A)	<u>55</u> (B)																			
Prevalence Index = B/A = <u>2.20</u>																				
50% of total cover: _____ 20% of total cover: _____																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> <u>2</u> - Dominance Test is >50% <input checked="" type="checkbox"/> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
50% of total cover: _____ 20% of total cover: _____																				
Herb Stratum (Plot size: <u>5</u>)																				
1. <u>Polygonum sp.</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine – All woody vines greater than 3.28 ft in height.																
2. <u>Elymus virginicus</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u>Ranunculus sp.</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
=Total Cover				Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
50% of total cover: <u>13</u> 20% of total cover: <u>5</u>																				
Woody Vine Stratum (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Remarks: (Include photo numbers here or on a separate sheet.) **Species indicator status range OBL-UPL. Assigned FACW status for wetland/upland determination.																				

SOIL

Sampling Point: DP2-W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/2	95	7.5YR 3/4	5	C	M	Loamy/Clayey	
4-18	10YR 4/3	90	7.5YR 3/4	10	C	M	Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)
<input type="checkbox"/> Dark Surface (S7)	

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> (MLRA 147, 148)
<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> (MLRA 136, 147)
<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> (outside MLRA 127, 147, 148)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if observed):**
 Type: _____
 Depth (inches): _____
Hydric Soil Present? Yes ☒ No ☐

Remarks:

, Hydric Soils are present.

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

Project/Site: SR Clarksville City/County: Montgomery Sampling Date: 11/2/2021
Applicant/Owner: SRC State: TN Sampling Point: DP3-UP2
Investigator(s): Lyranda Thiem Section, Township, Range: _____
Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): CONCAVE Slope (%): 0-2
Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.542900 Long: -87.232379 Datum: WGS 1984
Soil Map Unit Name: Arrington silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: Upland datapoint upslope of wetland wetland 1 located within a corn field.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ____ Surface Water (A1) ____ True Aquatic Plants (B14) ____ High Water Table (A2) ____ Hydrogen Sulfide Odor (C1) ____ Saturation (A3) ____ Oxidized Rhizospheres on Living Roots (C3) ____ Water Marks (B1) ____ Presence of Reduced Iron (C4) ____ Sediment Deposits (B2) ____ Recent Iron Reduction in Tilled Soils (C6) ____ Drift Deposits (B3) ____ Thin Muck Surface (C7) ____ Algal Mat or Crust (B4) ____ Other (Explain in Remarks) _____ ____ Iron Deposits (B5) ____ Inundation Visible on Aerial Imagery (B7) ____ Water-Stained Leaves (B9) ____ Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> ____ Surface Soil Cracks (B6) ____ Sparsely Vegetated Concave Surface (B8) ____ Drainage Patterns (B10) ____ Moss Trim Lines (B16) ____ Dry-Season Water Table (C2) ____ Crayfish Burrows (C8) ____ Saturation Visible on Aerial Imagery (C9) ____ Stunted or Stressed Plants (D1) ____ Geomorphic Position (D2) ____ Shallow Aquitard (D3) ____ Microtopographic Relief (D4) ____ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Wetland hydrology is not present		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP3-UP2

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>20</u></td> <td>x 3 = <u>60</u></td> </tr> <tr> <td>FACU species <u>5</u></td> <td>x 4 = <u>20</u></td> </tr> <tr> <td>UPL species <u>40</u></td> <td>x 5 = <u>200</u></td> </tr> <tr> <td>Column Totals: <u>65</u> (A)</td> <td><u>280</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.31</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>20</u>	x 3 = <u>60</u>	FACU species <u>5</u>	x 4 = <u>20</u>	UPL species <u>40</u>	x 5 = <u>200</u>	Column Totals: <u>65</u> (A)	<u>280</u> (B)	Prevalence Index = B/A = <u>4.31</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>20</u>	x 3 = <u>60</u>																			
FACU species <u>5</u>	x 4 = <u>20</u>																			
UPL species <u>40</u>	x 5 = <u>200</u>																			
Column Totals: <u>65</u> (A)	<u>280</u> (B)																			
Prevalence Index = B/A = <u>4.31</u>																				
50% of total cover: _____ 20% of total cover: _____																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Herb Stratum (Plot size: <u>5</u>)																				
1. <u>Zea mays</u>	<u>40</u>	<u>Yes</u>	<u>UPL</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Ranunculus arvensis</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u>**Lactuca sp.</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
4. _____	_____	_____	_____	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine – All woody vines greater than 3.28 ft in height.																
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
65 =Total Cover																				
50% of total cover: <u>33</u> 20% of total cover: <u>13</u>																				
Woody Vine Stratum (Plot size: <u>5</u>)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				

Remarks: (Include photo numbers here or on a separate sheet.)
 **Species indicator status range OBL-UPL. Assigned FACU status for wetland/upland determination.

SOIL

Sampling Point: DP3-UP2**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 4/4	100					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10) (**LRR N**)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7)

☐ Polyvalue Below Surface (S8) (**MLRA 147, 148**)
☐ Thin Dark Surface (S9) (**MLRA 147, 148**)
☐ Loamy Mucky Mineral (F1) (**MLRA 136**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
☐ Umbric Surface (F13) (**MLRA 122, 136**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 148**)
☐ Red Parent Material (F21) (**MLRA 127, 147, 148**)

Indicators for Problematic Hydric Soils³:

☐ 2 cm Muck (A10) (**MLRA 147**)
☐ Coast Prairie Redox (A16) (**MLRA 147, 148**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
☐ Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

, Hydric Soils are not present.

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

Project/Site: SR Clarksville City/County: Montgomery Sampling Date: 11/2/2021
 Applicant/Owner: SRC State: TN Sampling Point: DP4-W2
 Investigator(s): Lyranda Thiem Section, Township, Range: _____
 Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): CONCAVE Slope (%): 0-2
 Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.542419 Long: -87.232445 Datum: WGS 1984
 Soil Map Unit Name: Arrington silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: PEM
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____		
Wetland Hydrology Present?	Yes <u>X</u> No _____		
Remarks: PEM Wetland located within an agricultural field and upslope from the Red River			

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)	
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>10</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>0</u> (includes capillary fringe)		Wetland Hydrology Present? Yes <u>X</u> No _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Wetland hydrology is present.			

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP4-W2

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>50</u></td> <td>x 2 = <u>100</u></td> </tr> <tr> <td>FAC species <u>5</u></td> <td>x 3 = <u>15</u></td> </tr> <tr> <td>FACU species <u>10</u></td> <td>x 4 = <u>40</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>65</u> (A)</td> <td><u>155</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.38</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>50</u>	x 2 = <u>100</u>	FAC species <u>5</u>	x 3 = <u>15</u>	FACU species <u>10</u>	x 4 = <u>40</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>65</u> (A)	<u>155</u> (B)	Prevalence Index = B/A = <u>2.38</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>50</u>	x 2 = <u>100</u>																			
FAC species <u>5</u>	x 3 = <u>15</u>																			
FACU species <u>10</u>	x 4 = <u>40</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>65</u> (A)	<u>155</u> (B)																			
Prevalence Index = B/A = <u>2.38</u>																				
50% of total cover: _____ 20% of total cover: _____																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Herb Stratum (Plot size: <u>5</u>)																				
1. <u>Arctium minus</u>	<u>10</u>	<u>No</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>X</u> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>Problematic Hydrophytic Vegetation</u> ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Elymus virginicus</u>	<u>5</u>	<u>No</u>	<u>FAC</u>																	
3. <u>Ranunculus sp.</u>	<u>50</u>	<u>Yes</u>	<u>FACW</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
65 =Total Cover																				
50% of total cover: <u>33</u> 20% of total cover: <u>13</u>																				
Woody Vine Stratum (Plot size: <u>5</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

SOIL

Sampling Point: DP4-W2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/2	95	7.5YR 3/4	5	C	M	Loamy/Clayey	
4-18	10YR 4/3	90	7.5YR 3/4	10	C	M	Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)
<input type="checkbox"/> Dark Surface (S7)	

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> (MLRA 147, 148)
<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> (MLRA 136, 147)
<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> (outside MLRA 127, 147, 148)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

Remarks:

, Hydric Soils are present.


WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

Project/Site: SR Clarksville City/County: Montgomery Sampling Date: 11/2/2021
Applicant/Owner: SRC State: TN Sampling Point: DP5-W3
Investigator(s): Lyranda Thiem Section, Township, Range: _____
Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): CONCAVE Slope (%): 0-2
Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.541938 Long: -87.235739 M3 Datum: WGS 1984
Soil Map Unit Name: Arrington silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: PEM Wetland located within an agricultural field and upslope from the Red River	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <u>X</u> Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2)  Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) <u>X</u> Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <u>X</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) <u>X</u> Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u>X</u> No _____ Depth (inches): <u>2</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Wetland hydrology is present.		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP5-W3

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>25</u></td> <td>x 2 = <u>50</u></td> </tr> <tr> <td>FAC species <u>25</u></td> <td>x 3 = <u>75</u></td> </tr> <tr> <td>FACU species <u>25</u></td> <td>x 4 = <u>100</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>75</u> (A)</td> <td><u>225</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>25</u>	x 2 = <u>50</u>	FAC species <u>25</u>	x 3 = <u>75</u>	FACU species <u>25</u>	x 4 = <u>100</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>75</u> (A)	<u>225</u> (B)	Prevalence Index = B/A = <u>3.00</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>25</u>	x 2 = <u>50</u>																			
FAC species <u>25</u>	x 3 = <u>75</u>																			
FACU species <u>25</u>	x 4 = <u>100</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>75</u> (A)	<u>225</u> (B)																			
Prevalence Index = B/A = <u>3.00</u>																				
50% of total cover: _____ 20% of total cover: _____																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> <u>2</u> - Dominance Test is >50% <input checked="" type="checkbox"/> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Herb Stratum (Plot size: <u>5</u>)																				
1. <u>Arctium minus</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine – All woody vines greater than 3.28 ft in height.																
2. <u>Elymus virginicus</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u>Ranunculus sp.</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>																	
4. <u>Sorghum halepense</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
5. <u>Ambrosia trifida</u>	<u>5</u>	<u>No</u>	<u>FAC</u>																	
6. <u>Ranunculus abortivus</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
75 =Total Cover																				
50% of total cover: <u>38</u> 20% of total cover: <u>15</u>																				
Woody Vine Stratum (Plot size: <u>5</u>)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point: DP5-W3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/2	95	7.5YR 3/4	5	C	M	Loamy/Clayey	
4-18	10YR 4/3	90	7.5YR 3/4	10	C	M	Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)
<input type="checkbox"/> Dark Surface (S7)	

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> (MLRA 147, 148)
<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> (MLRA 136, 147)
<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> (outside MLRA 127, 147, 148)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if observed):**
Type: _____
Depth (inches): _____
Hydric Soil Present? Yes ☒ No ☐

Remarks:

, Hydric Soils are present.

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

Project/Site: SR Clarksville City/County: Montgomery Sampling Date: 11/2/2021
Applicant/Owner: SRC State: TN Sampling Point: DP6-UP3
Investigator(s): Lyranda Thiem Section, Township, Range: _____
Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): CONCAVE Slope (%): 0-2
Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.542232 Long: -87.236005 Datum: WGS 1984
Soil Map Unit Name: Arrington silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: Upland datapoint upslope of wetland wetland 3 and 4 located within a corn field.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ____ Surface Water (A1) ____ True Aquatic Plants (B14) ____ High Water Table (A2) ____ Hydrogen Sulfide Odor (C1) ____ Saturation (A3) ____ Oxidized Rhizospheres on Living Roots (C3) ____ Water Marks (B1) ____ Presence of Reduced Iron (C4) ____ Sediment Deposits (B2) ____ Recent Iron Reduction in Tilled Soils (C6) ____ Drift Deposits (B3) ____ Thin Muck Surface (C7) ____ Algal Mat or Crust (B4) ____ Other (Explain in Remarks) _____ ____ Iron Deposits (B5) ____ Inundation Visible on Aerial Imagery (B7) ____ Water-Stained Leaves (B9) ____ Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> ____ Surface Soil Cracks (B6) ____ Sparsely Vegetated Concave Surface (B8) ____ Drainage Patterns (B10) ____ Moss Trim Lines (B16) ____ Dry-Season Water Table (C2) ____ Crayfish Burrows (C8) ____ Saturation Visible on Aerial Imagery (C9) ____ Stunted or Stressed Plants (D1) ____ Geomorphic Position (D2) ____ Shallow Aquitard (D3) ____ Microtopographic Relief (D4) ____ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Wetland hydrology is not present		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP6-UP3

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>40</u></td> <td>x 3 = <u>120</u></td> </tr> <tr> <td>FACU species <u>10</u></td> <td>x 4 = <u>40</u></td> </tr> <tr> <td>UPL species <u>40</u></td> <td>x 5 = <u>200</u></td> </tr> <tr> <td>Column Totals: <u>90</u> (A)</td> <td><u>360</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>40</u>	x 3 = <u>120</u>	FACU species <u>10</u>	x 4 = <u>40</u>	UPL species <u>40</u>	x 5 = <u>200</u>	Column Totals: <u>90</u> (A)	<u>360</u> (B)	Prevalence Index = B/A = <u>4.00</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>40</u>	x 3 = <u>120</u>																			
FACU species <u>10</u>	x 4 = <u>40</u>																			
UPL species <u>40</u>	x 5 = <u>200</u>																			
Column Totals: <u>90</u> (A)	<u>360</u> (B)																			
Prevalence Index = B/A = <u>4.00</u>																				
50% of total cover: _____ 20% of total cover: _____																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Herb Stratum (Plot size: <u>5</u>)																				
1. <u>Zea mays</u>	<u>40</u>	<u>Yes</u>	<u>UPL</u>	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine – All woody vines greater than 3.28 ft in height.																
2. <u>Ranunculus arvensis</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u>Sorghum halepense</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
4. <u>Polygonum sp. **</u>	<u>10</u>	<u>No</u>	<u>FAC</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
90 =Total Cover																				
50% of total cover: <u>45</u> 20% of total cover: <u>18</u>																				
Woody Vine Stratum (Plot size: <u>5</u>)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u> </u> No <u> X </u>																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				

Remarks: (Include photo numbers here or on a separate sheet.)
 **Species indicator status range OBL-UPL. Assigned FAC status for wetland/upland determination.

SOIL

Sampling Point: DP6-UP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 4/4	100					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10) (**LRR N**)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7)

☐ Polyvalue Below Surface (S8) (**MLRA 147, 148**)
☐ Thin Dark Surface (S9) (**MLRA 147, 148**)
☐ Loamy Mucky Mineral (F1) (**MLRA 136**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
☐ Umbric Surface (F13) (**MLRA 122, 136**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 148**)
☐ Red Parent Material (F21) (**MLRA 127, 147, 148**)

Indicators for Problematic Hydric Soils³:

☐ 2 cm Muck (A10) (**MLRA 147**)
☐ Coast Prairie Redox (A16) (**MLRA 147, 148**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
☐ Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

, Hydric Soils are not present.

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

Project/Site: SR Clarksville City/County: Montgomery Sampling Date: 11/2/2021
 Applicant/Owner: SRC State: TN Sampling Point: DP7-W4
 Investigator(s): Lyranda Thiem Section, Township, Range: _____
 Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): CONCAVE Slope (%): 0-2
 Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.542927 Long: -87.235373 Datum: WGS 1984
 Soil Map Unit Name: Arrington silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: PFO
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____		
Wetland Hydrology Present?	Yes <u>X</u> No _____		
Remarks: PFO Wetland located near an agricultural field.			

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ _____ Inundation Visible on Aerial Imagery (B7) <u>X</u> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) <u>X</u> Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) <u>X</u> Stunted or Stressed Plants (D1) <u>X</u> Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)	
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes <u>X</u> No _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Wetland hydrology is present.			

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP7-W4

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Platanus occidentalis</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>9</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)																
2. <u>Celtis occidentalis</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Acer rubrum</u>	<u>10</u>	<u>No</u>	<u>FAC</u>																	
4. <u>Acer saccharinum</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>																	
5. <u>Robinia pseudoacacia</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
85 =Total Cover																				
50% of total cover: <u>43</u>		20% of total cover: <u>17</u>																		
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. <u>Symphoricarpos orbiculatus</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>	Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>50</u></td> <td>x 2 = <u>100</u></td> </tr> <tr> <td>FAC species <u>55</u></td> <td>x 3 = <u>165</u></td> </tr> <tr> <td>FACU species <u>35</u></td> <td>x 4 = <u>140</u></td> </tr> <tr> <td>UPL species <u>5</u></td> <td>x 5 = <u>25</u></td> </tr> <tr> <td>Column Totals: <u>145</u> (A)</td> <td><u>430</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>2.97</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>50</u>	x 2 = <u>100</u>	FAC species <u>55</u>	x 3 = <u>165</u>	FACU species <u>35</u>	x 4 = <u>140</u>	UPL species <u>5</u>	x 5 = <u>25</u>	Column Totals: <u>145</u> (A)	<u>430</u> (B)	Prevalence Index = B/A = <u>2.97</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>50</u>	x 2 = <u>100</u>																			
FAC species <u>55</u>	x 3 = <u>165</u>																			
FACU species <u>35</u>	x 4 = <u>140</u>																			
UPL species <u>5</u>	x 5 = <u>25</u>																			
Column Totals: <u>145</u> (A)	<u>430</u> (B)																			
Prevalence Index = B/A = <u>2.97</u>																				
2. <u>Carya tomentosa</u>	<u>5</u>	<u>Yes</u>	<u>UPL</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
15 =Total Cover																				
50% of total cover: <u>8</u>		20% of total cover: <u>3</u>																		
Herb Stratum (Plot size: <u>5</u>)																				
1. <u>Verbesina alternifolia</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>X</u> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Persicaria virginiana</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u>Toxicodendron radicans</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
35 =Total Cover																				
50% of total cover: <u>18</u>		20% of total cover: <u>7</u>																		
Woody Vine Stratum (Plot size: _____)																				
1. <u>Smilax rotundifolia</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine – All woody vines greater than 3.28 ft in height.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
10 =Total Cover																				
50% of total cover: <u>5</u>		20% of total cover: <u>2</u>																		
Remarks: (Include photo numbers here or on a separate sheet.) Wetland vegetation is present.																				

SOIL

Sampling Point: DP7-W4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 4/2	100					Loamy/Clayey	
6-18	10YR 4/2	90	10YR 5/6	10	C	M	Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)
<input type="checkbox"/> Dark Surface (S7)	

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> (MLRA 147, 148)
<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> (MLRA 136, 147)
<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> (outside MLRA 127, 147, 148)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if observed):**
 Type: _____
 Depth (inches): _____
Hydric Soil Present? Yes ☒ No ☐

Remarks:

, Hydric Soils are present.

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

Project/Site: SR Clarksville City/County: Montgomery Sampling Date: 11/2/2021
 Applicant/Owner: SRC State: TN Sampling Point: DP8-W5
 Investigator(s): Lyranda Thiem Section, Township, Range: _____
 Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): CONCAVE Slope (%): 0-2
 Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.545413 Long: -87.236005 Datum: WGS 1984
 Soil Map Unit Name: Arrington silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation Yes, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: PFO wetland located in a forested island within an agricultural field. The wetland is sparsly vegetated with upland plants growing around the outside of the wetland.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u>X</u> No _____ Depth (inches): <u>6</u> Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>12</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>12</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Wetland hydrology is present.	

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP8-W5

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Juglans nigra</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40.0%</u> (A/B)																
2. <u>Carya tomentosa</u>	<u>5</u>	<u>Yes</u>	<u>UPL</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species <u>20</u></td> <td>x 3 = <u>60</u></td> </tr> <tr> <td>FACU species <u>20</u></td> <td>x 4 = <u>80</u></td> </tr> <tr> <td>UPL species <u>15</u></td> <td>x 5 = <u>75</u></td> </tr> <tr> <td>Column Totals: <u>60</u> (A)</td> <td><u>225</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.75</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>5</u>	x 2 = <u>10</u>	FAC species <u>20</u>	x 3 = <u>60</u>	FACU species <u>20</u>	x 4 = <u>80</u>	UPL species <u>15</u>	x 5 = <u>75</u>	Column Totals: <u>60</u> (A)	<u>225</u> (B)	Prevalence Index = B/A = <u>3.75</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>5</u>	x 2 = <u>10</u>																			
FAC species <u>20</u>	x 3 = <u>60</u>																			
FACU species <u>20</u>	x 4 = <u>80</u>																			
UPL species <u>15</u>	x 5 = <u>75</u>																			
Column Totals: <u>60</u> (A)	<u>225</u> (B)																			
Prevalence Index = B/A = <u>3.75</u>																				
50% of total cover: <u>13</u> 20% of total cover: <u>5</u>																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. <u>Asimina triloba</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. <u>Carya tomentosa</u>	<u>10</u>	<u>Yes</u>	<u>UPL</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ = Total Cover																				
50% of total cover: <u>15</u> 20% of total cover: <u>6</u>																				
Herb Stratum (Plot size: <u>5</u>)																				
1. <u>Polygonum achoreum</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
_____ = Total Cover																				
50% of total cover: <u>3</u> 20% of total cover: <u>1</u>																				
Woody Vine Stratum (Plot size: <u>5</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
_____ = Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Remarks: (Include photo numbers here or on a separate sheet.)																				

SOIL

Sampling Point: DP8-W5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	2.5Y 5/2	90	7.5YR 4/4	10	C	M	Loamy/Clayey	
4-18	2.5Y 6/2	80	5YR 4/6	20	C	M	Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)
<input type="checkbox"/> Dark Surface (S7)	

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> (MLRA 147, 148)
<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> (MLRA 136, 147)
<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> (outside MLRA 127, 147, 148)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if observed):**
 Type: _____
 Depth (inches): _____
Hydric Soil Present? Yes ☒ No ☐

Remarks:

, Hydric Soils are present.

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

Project/Site: SR Clarksville City/County: Montgomery Sampling Date: 11/2/2021
Applicant/Owner: SRC State: TN Sampling Point: DP9-UP5
Investigator(s): Lyranda Thiem Section, Township, Range: _____
Landform (hillside, terrace, etc.): Flat Local relief (concave, convex, none): CONCAVE Slope (%): 0
Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.545546 Long: -87.236205 Datum: WGS 1984
Soil Map Unit Name: Arrington silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: Upland datapoint upslope of wetland 5 located within a corn field.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ____ Surface Water (A1) ____ True Aquatic Plants (B14) ____ High Water Table (A2) ____ Hydrogen Sulfide Odor (C1) ____ Saturation (A3) ____ Oxidized Rhizospheres on Living Roots (C3) ____ Water Marks (B1) ____ Presence of Reduced Iron (C4) ____ Sediment Deposits (B2) ____ Recent Iron Reduction in Tilled Soils (C6) ____ Drift Deposits (B3) ____ Thin Muck Surface (C7) ____ Algal Mat or Crust (B4) ____ Other (Explain in Remarks) _____ ____ Iron Deposits (B5) ____ Inundation Visible on Aerial Imagery (B7) ____ Water-Stained Leaves (B9) ____ Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> ____ Surface Soil Cracks (B6) ____ Sparsely Vegetated Concave Surface (B8) ____ Drainage Patterns (B10) ____ Moss Trim Lines (B16) ____ Dry-Season Water Table (C2) ____ Crayfish Burrows (C8) ____ Saturation Visible on Aerial Imagery (C9) ____ Stunted or Stressed Plants (D1) ____ Geomorphic Position (D2) ____ Shallow Aquitard (D3) ____ Microtopographic Relief (D4) ____ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Wetland hydrology is not present		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP9-UP5

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>20</u></td> <td>x 3 = <u>60</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>50</u></td> <td>x 5 = <u>250</u></td> </tr> <tr> <td>Column Totals: <u>70</u> (A)</td> <td><u>310</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.43</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>20</u>	x 3 = <u>60</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>50</u>	x 5 = <u>250</u>	Column Totals: <u>70</u> (A)	<u>310</u> (B)	Prevalence Index = B/A = <u>4.43</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>20</u>	x 3 = <u>60</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>50</u>	x 5 = <u>250</u>																			
Column Totals: <u>70</u> (A)	<u>310</u> (B)																			
Prevalence Index = B/A = <u>4.43</u>																				
50% of total cover: _____ 20% of total cover: _____																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)				Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
=Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
50% of total cover: _____ 20% of total cover: _____																				
Herb Stratum (Plot size: <u>5</u>)				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine – All woody vines greater than 3.28 ft in height.																
1. <u>Zea mays</u>	<u>50</u>	<u>Yes</u>	<u>UPL</u>																	
2. <u>Ranunculus arvensis</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: <u>35</u> 20% of total cover: <u>14</u>																				
Woody Vine Stratum (Plot size: <u>5</u>)				Hydrophytic Vegetation Present? Yes <u> </u> No <u> X </u>																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Remarks: (Include photo numbers here or on a separate sheet.) **Species indicator status range OBL-UPL. Assigned FAC status for wetland/upland determination.																				

SOIL

Sampling Point: DP9-UP5**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 4/4	100					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10) (**LRR N**)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7)

☐ Polyvalue Below Surface (S8) (**MLRA 147, 148**)
☐ Thin Dark Surface (S9) (**MLRA 147, 148**)
☐ Loamy Mucky Mineral (F1) (**MLRA 136**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
☐ Umbric Surface (F13) (**MLRA 122, 136**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 148**)
☐ Red Parent Material (F21) (**MLRA 127, 147, 148**)

Indicators for Problematic Hydric Soils³:

☐ 2 cm Muck (A10) (**MLRA 147**)
☐ Coast Prairie Redox (A16) (**MLRA 147, 148**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
☐ Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

, Hydric Soils are not present.

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

Project/Site: SR Clarksville City/County: Montgomery Sampling Date: 11/2/2021
 Applicant/Owner: SRC State: TN Sampling Point: DP10-UP6
 Investigator(s): Lyranda Thiem Section, Township, Range: _____
 Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): CONCAVE Slope (%): 5-10
 Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.546321 Long: -87.234974 Datum: WGS 1984
 Soil Map Unit Name: Arrington silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: Upland datapoint upslope of wetland wetland 5 located within a corn field.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Wetland hydrology is not present	

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP10-UP6

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer saccharinum</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>57.1%</u> (A/B)																
2. <u>Celtis occidentalis</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Juglans nigra</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
4. <u>Prunus serotina</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
5. <u>Quercus alba</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
75 =Total Cover																				
50% of total cover: <u>38</u>		20% of total cover: <u>15</u>																		
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. <u>Asimina triloba</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>20</u></td> <td>x 2 = <u>40</u></td> </tr> <tr> <td>FAC species <u>40</u></td> <td>x 3 = <u>120</u></td> </tr> <tr> <td>FACU species <u>70</u></td> <td>x 4 = <u>280</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>130</u> (A)</td> <td><u>440</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.38</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>20</u>	x 2 = <u>40</u>	FAC species <u>40</u>	x 3 = <u>120</u>	FACU species <u>70</u>	x 4 = <u>280</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>130</u> (A)	<u>440</u> (B)	Prevalence Index = B/A = <u>3.38</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>20</u>	x 2 = <u>40</u>																			
FAC species <u>40</u>	x 3 = <u>120</u>																			
FACU species <u>70</u>	x 4 = <u>280</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>130</u> (A)	<u>440</u> (B)																			
Prevalence Index = B/A = <u>3.38</u>																				
2. <u>Cornus florida</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
3. <u>Fagus grandifolia</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
30 =Total Cover																				
50% of total cover: <u>15</u>		20% of total cover: <u>6</u>																		
Herb Stratum (Plot size: <u>5</u>)																				
1. <u>Verbesina alternifolia</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Persicaria virginiana</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u>Polystichum acrostichoides</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
25 =Total Cover																				
50% of total cover: <u>13</u>		20% of total cover: <u>5</u>																		
Woody Vine Stratum (Plot size: <u>5</u>)																				
1. _____	_____	_____	_____	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine – All woody vines greater than 3.28 ft in height.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
_____ =Total Cover																				
50% of total cover: _____		20% of total cover: _____																		
Hydrophytic Vegetation Present? Yes <u>X</u> No _____																				
Remarks: (Include photo numbers here or on a separate sheet.) **Species indicator status range OBL-UPL. Assigned FACU status for wetland/upland determination.																				

SOIL

Sampling Point: DP10-UP6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	7.5YR 4/4	100					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ 2 cm Muck (A10) (**LRR N**)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7)

☐ Polyvalue Below Surface (S8) (**MLRA 147, 148**)
☐ Thin Dark Surface (S9) (**MLRA 147, 148**)
☐ Loamy Mucky Mineral (F1) (**MLRA 136**)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
☐ Umbric Surface (F13) (**MLRA 122, 136**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 148**)
☐ Red Parent Material (F21) (**MLRA 127, 147, 148**)

Indicators for Problematic Hydric Soils³:

☐ 2 cm Muck (A10) (**MLRA 147**)
☐ Coast Prairie Redox (A16) (**MLRA 147, 148**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
☐ Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

, Hydric Soils are not present.

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

Project/Site: SR Clarksville City/County: Montgomery Sampling Date: 11/2/2021
 Applicant/Owner: SRC State: TN Sampling Point: DP11-W6
 Investigator(s): Lyranda Thiem Section, Township, Range: _____
 Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): CONCAVE Slope (%): 0-2
 Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.548941 Long: -87.238966 Datum: WGS 1984
 Soil Map Unit Name: Arrington silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: PEM
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation Yes, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: PEM Wetland located within an agricultural field. Vegetation is disturbed because it is within a heavily used corn field.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ _____ Inundation Visible on Aerial Imagery (B7) <u>X</u> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <u>X</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) <u>X</u> Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Wetland hydrology is present.	

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP11-W6

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>20</u></td> <td>x 2 = <u>40</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>30</u></td> <td>x 4 = <u>120</u></td> </tr> <tr> <td>UPL species <u>40</u></td> <td>x 5 = <u>200</u></td> </tr> <tr> <td>Column Totals: <u>90</u> (A)</td> <td><u>360</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>20</u>	x 2 = <u>40</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>30</u>	x 4 = <u>120</u>	UPL species <u>40</u>	x 5 = <u>200</u>	Column Totals: <u>90</u> (A)	<u>360</u> (B)	Prevalence Index = B/A = <u>4.00</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>20</u>	x 2 = <u>40</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>30</u>	x 4 = <u>120</u>																			
UPL species <u>40</u>	x 5 = <u>200</u>																			
Column Totals: <u>90</u> (A)	<u>360</u> (B)																			
Prevalence Index = B/A = <u>4.00</u>																				
50% of total cover: _____ 20% of total cover: _____																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)				Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
=Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
50% of total cover: _____ 20% of total cover: _____																				
Herb Stratum (Plot size: <u>5</u>)				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine – All woody vines greater than 3.28 ft in height.																
1. <u>Digitaria sanguinalis</u>	<u>30</u>	<u>Yes</u>	<u>FACU</u>																	
2. <u>Stellaria media</u>	<u>20</u>	<u>Yes</u>	<u>UPL</u>																	
3. <u>Panicum dichotomiflorum</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>																	
4. <u>Zea mays</u>	<u>20</u>	<u>Yes</u>	<u>UPL</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: <u>45</u> 20% of total cover: <u>18</u>																				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>																
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Remarks: (Include photo numbers here or on a separate sheet.) Wetland vegetation is present in small amounts due to being within a highly disturbed corn field.																				

SOIL

Sampling Point: DP11-W6**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	2.5Y 5/2	80	7.5YR 4/6	20	C	PL/M	Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)
<input type="checkbox"/> Dark Surface (S7)	

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> (MLRA 147, 148)
<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> (MLRA 136, 147)
<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> (outside MLRA 127, 147, 148)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if observed):**Type: _____
Depth (inches): _____Hydric Soil Present? Yes ☒ No ☐

Remarks:

, Hydric Soils are present.

WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region

Project/Site: SR Clarksville City/County: Montgomery Sampling Date: 11/2/2021
Applicant/Owner: SRC State: TN Sampling Point: DP12-UP7
Investigator(s): Lyranda Thiem Section, Township, Range: _____
Landform (hillside, terrace, etc.): Flat Local relief (concave, convex, none): CONCAVE Slope (%): 0
Subregion (LRR or MLRA): LRR N, MLRA 122 Lat: 36.548620 Long: -87.238999 Datum: WGS 1984
Soil Map Unit Name: Arrington silt loam, 0 to 2 percent slopes, occasionally flooded NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: Upland datapoint upslope of wetland 6 located within a corn field.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ____ Surface Water (A1) ____ True Aquatic Plants (B14) ____ High Water Table (A2) ____ Hydrogen Sulfide Odor (C1) ____ Saturation (A3) ____ Oxidized Rhizospheres on Living Roots (C3) ____ Water Marks (B1) ____ Presence of Reduced Iron (C4) ____ Sediment Deposits (B2) ____ Recent Iron Reduction in Tilled Soils (C6) ____ Drift Deposits (B3) ____ Thin Muck Surface (C7) ____ Algal Mat or Crust (B4) ____ Other (Explain in Remarks) _____ ____ Iron Deposits (B5) ____ Inundation Visible on Aerial Imagery (B7) ____ Water-Stained Leaves (B9) ____ Aquatic Fauna (B13)		<u>Secondary Indicators (minimum of two required)</u> ____ Surface Soil Cracks (B6) ____ Sparsely Vegetated Concave Surface (B8) ____ Drainage Patterns (B10) ____ Moss Trim Lines (B16) ____ Dry-Season Water Table (C2) ____ Crayfish Burrows (C8) ____ Saturation Visible on Aerial Imagery (C9) ____ Stunted or Stressed Plants (D1) ____ Geomorphic Position (D2) ____ Shallow Aquitard (D3) ____ Microtopographic Relief (D4) ____ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks: Wetland hydrology is not present		

VEGETATION (Four Strata) – Use scientific names of plants.

 Sampling Point: DP12-UP7

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>5</u></td> <td>x 3 = <u>15</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>70</u></td> <td>x 5 = <u>350</u></td> </tr> <tr> <td>Column Totals: <u>75</u> (A)</td> <td><u>365</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.87</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>5</u>	x 3 = <u>15</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>70</u>	x 5 = <u>350</u>	Column Totals: <u>75</u> (A)	<u>365</u> (B)	Prevalence Index = B/A = <u>4.87</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>5</u>	x 3 = <u>15</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>70</u>	x 5 = <u>350</u>																			
Column Totals: <u>75</u> (A)	<u>365</u> (B)																			
Prevalence Index = B/A = <u>4.87</u>																				
50% of total cover: _____ 20% of total cover: _____																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)																				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Herb Stratum (Plot size: <u>5</u>)																				
1. <u>Zea mays</u>	<u>70</u>	<u>Yes</u>	<u>UPL</u>	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine – All woody vines greater than 3.28 ft in height.																
2. <u>Ranunculus arvensis</u>	<u>5</u>	<u>No</u>	<u>FAC</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: <u>38</u> 20% of total cover: <u>15</u>																				
Woody Vine Stratum (Plot size: <u>5</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Remarks: (Include photo numbers here or on a separate sheet.) **Species indicator status range OBL-UPL. Assigned FAC status for wetland/upland determination.																				

SOIL

Sampling Point: DP12-UP7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 4/4	100					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.²Location: PL=Pore Lining, M=Matrix.**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136)
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)
<input type="checkbox"/> Dark Surface (S7)	

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> (MLRA 147, 148)
<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> (MLRA 136, 147)
<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> (outside MLRA 127, 147, 148)
<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.**Restrictive Layer (if observed):**
 Type: _____
 Depth (inches): _____
Hydric Soil Present? Yes _____ No X**Remarks:**

, Hydric Soils are not present.

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:		Date/Time: 11/2/2021
Assessors/Affiliation: HDR INC/ Lyrandia Thiem		Project ID : SR Clarksville
Site Name/Description: WWC 2		
Site Location: located within a forested portion on the southern part of the project area		
HUC (12 digit): Red River (Hydrologic Unit Code [HUC] (051302060708)		Lat/Long: 36.543155/ -87.235864
Previous Rainfall (7-days) : In the previous seven days it rained 1.73 inches		
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : ESRL and AHPS		
Watershed Size : 40,200 acres	County: Montgomery	
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasionally flooded		USDA: Web Soil Survey Source:
Surrounding Land Use : Agricultural, forested, and residential/commerical		
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	NA	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	NA	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	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) = 21

Justification / Notes :

This is an intermittent stream with appromitelly 4-6 ft bank width that runs from an agricultural field through a forested stand down a hillslope.

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 14.5)	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 = 2)	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 = 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 = 21

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

Notes :

Some gravel was sorting from the cobble. Lots of larger headcuts occurred throughout the stream as well.

[illegible]

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Red River		Date/Time: 11/2/2021
Assessors/Affiliation: HDR INC/ Lyranda Thiem		Project ID : SR Clarksville
Site Name/Description: S2		
Site Location: located within a forested portion on the southern part of the project area		
HUC (12 digit): Red River (Hydrologic Unit Code [HUC] (051302060708)		Lat/Long: 36.542106° / -87.232589°
Previous Rainfall (7-days) : In the previous seven days it rained 1.73 inches		
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : ESRL and AHPS		
Watershed Size : 40,200 acres	County: Montgomery	
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasionally flooded		USDA: Web Soil Survey Source:
Surrounding Land Use : Agricultural, forested, and residential/commercial		
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	NA	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	NA	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	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) = 42

Justification / Notes :

This a section of the Red River. The bank width ranges from 15 feet to over 30 feet.

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 22)

A. Geomorphology (Subtotal = 22)	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 = 9)

B. Hydrology (Subtotal = 9)	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 = **11**)

C. Biology (Subtotal = 11)	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 = 42

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

Notes :

[illegible]

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: UNT to Red River		Date/Time: 11/2/2021
Assessors/Affiliation: HDR INC/ Lyranda Thiem		Project ID : SR Clarksville
Site Name/Description: S3		
Site Location: located within a forested portion on the northern part of the project area		
HUC (12 digit): Red River (Hydrologic Unit Code [HUC] (051302060708)		Lat/Long: 36.552273°/ -87.244036°
Previous Rainfall (7-days) : In the previous seven days it rained 1.73 inches		
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : ESRL and AHPS		
Watershed Size : 40,200 acres	County: Montgomery	
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasionally flooded		USDA: Web Soil Survey Source:
Surrounding Land Use : Agricultural, forested, and residential/commerical		
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	NA	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	NA	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	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) =

Justification / Notes :

This is a UNT to the Red River. Only a portion of the head of the stream starts in the project area.

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 14.5)	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 = 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	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 = 29.5

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

Notes : The perennial stream starts off project where groundwater is coming out of hillside and starting the stream. The stream has lost of cobble and gravel sorting from eachother. The intermittent stream flows into this perennial.

[illegible]

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: UNT to Red River		Date/Time: 11/2/2021
Assessors/Affiliation: HDR INC/ Lyranda Thiem		Project ID : SR Clarksville
Site Name/Description: S4		
Site Location: located within a forested portion on the northern part of the project area		
HUC (12 digit): Red River (Hydrologic Unit Code [HUC] (051302060708)		Lat/Long: 36.551399° / -87.244553°
Previous Rainfall (7-days) : In the previous seven days it rained 1.73 inches		
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : ESRL and AHPS		
Watershed Size : 40,200 acres	County: Montgomery	
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasionally flooded		USDA: Web Soil Survey Source:
Surrounding Land Use : Agricultural, forested, and residential/commercial		
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	NA	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	NA	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	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) = 19.5

Justification / Notes :

This is a UNT to the Red River. Only a portion of the head of the stream starts in the project area. This intermittent stream flows into S3

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 11)

A. Geomorphology (Subtotal = 11)	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 = 1.5)

B. Hydrology (Subtotal = 1.5)	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 = 6)

C. Biology (Subtotal = 6)	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 = 19.5

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

Notes : This is an intermittent stream that has steep banks (5-8 feet) with a cobble bottom stream.

[illegible]

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:		Date/Time: 11/2/2021
Assessors/Affiliation: HDR INC/ Lyrandia Thiem		Project ID : SR Clarksville
Site Name/Description: WWC 1		
Site Location: located within a forested portion on the southern part of the project area		
HUC (12 digit): Red River (Hydrologic Unit Code [HUC] (051302060708)		Lat/Long: 36.543155/ -87.235864
Previous Rainfall (7-days) : In the previous seven days it rained 1.73 inches		
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : ESRL and AHPS		
Watershed Size : 40,200 acres	County: Montgomery	
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasionally flooded		USDA: Web Soil Survey Source:
Surrounding Land Use : Agricultural, forested, and residential/commercial		
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	NA	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	NA	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	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) = 13

Justification / Notes :

This is a WWC that flows into the Red River, bank width ranges from 2 to 4 feet and bank height ranges from 6 inches to 5 feet.

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 8)

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 = 1)

B. Hydrology (Subtotal = 1)	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 = 4)

C. Biology (Subtotal = 4)	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 = 13

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

Notes :

[illegible]

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:		Date/Time: 11/2/2021
Assessors/Affiliation: HDR INC/ Lyrandia Thiem		Project ID : SR Clarksville
Site Name/Description: WWC 2 and 3		
Site Location: located within a forested portion on the southern part of the project area		
HUC (12 digit): Red River (Hydrologic Unit Code [HUC] (051302060708)		Lat/Long: 36.543155/ -87.235864
Previous Rainfall (7-days) : In the previous seven days it rained 1.73 inches		
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : ESRL and AHPS		
Watershed Size : 40,200 acres	County: Montgomery	
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasionally flooded		USDA: Web Soil Survey Source:
Surrounding Land Use : Agricultural, forested, and residential/commercial		
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	NA	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	NA	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	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) = 13

Justification / Notes :

This is a WWC that flows into the Red River, bank width ranges from 2 to 4 feet and bank height ranges from 6 inches to 5 feet.

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 8)

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 = 1)

B. Hydrology (Subtotal = 1)	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 = 4)

C. Biology (Subtotal = 4)	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 = 13

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

Notes :

[illegible]

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:		Date/Time: 11/2/2021
Assessors/Affiliation: HDR INC/ Lyrandia Thiem		Project ID : SR Clarksville
Site Name/Description: WWC 4,5,6		
Site Location: Located in the southern portion of the Project site, within a forested stand. All three flow into Wetland 4		
HUC (12 digit): Red River (Hydrologic Unit Code [HUC] (051302060708)		Lat/Long: 36.542919/ -87.235644
Previous Rainfall (7-days) : In the previous seven days it rained 1.73 inches		
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : ESRL and AHPS		
Watershed Size : 40,200 acres	County: Montgomery	
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasionally flooded		USDA: Web Soil Survey Source:
Surrounding Land Use : Agricultural, forested, and residential/commercial		
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	NA	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	NA	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	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) = 13

Justification / Notes :

These WWC flow from a forested hillside into wetland 4. The bank width ranges from 2 to 4 feet.

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 6)	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 = 0)	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 = 2)	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 = 8

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

Notes :

Each of these WWC have plants growing in the bed and there were lots of leaves within the channel.

Each of these WWC started with a medium to large headcut.

[illegible]

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:		Date/Time: 11/2/2021
Assessors/Affiliation: HDR INC/ Lyrandia Thiem		Project ID : SR Clarksville
Site Name/Description: WWC 7 and 9		
Site Location: located in the eastern section of the project, flows from agricultural field into WWC 8		
HUC (12 digit): Red River (Hydrologic Unit Code [HUC] (051302060708)		Lat/Long: 36.548486/ -87.237669
Previous Rainfall (7-days) : In the previous seven days it rained 1.73 inches		
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : ESRL and AHPS		
Watershed Size : 40,200 acres	County: Montgomery	
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasionally flooded		USDA: Web Soil Survey Source:
Surrounding Land Use : Agricultural, forested, and residential/commercial		
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	NA	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	NA	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	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) =

Justification / Notes :

WWC 7 flows from an agricultural field into WWC 8. Bank width is approximately 2 to 3 feet

WWC 9 flows near WWC 10 but ends in a karst rocky feature.

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 9.5)	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 = 0)	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)	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 :

WWC 9 ends in a kast rocky feature that flows underground

[illegible]

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:		Date/Time: 11/2/2021
Assessors/Affiliation: HDR INC/ Lyrandia Thiem		Project ID : SR Clarksville
Site Name/Description: WWC 8 ,10, and 11		
Site Location: located in the eastern section of the project, flows from agricultural field into WWC 8		
HUC (12 digit): Red River (Hydrologic Unit Code [HUC] (051302060708)		Lat/Long: 35.260454/ -89.018287
Previous Rainfall (7-days) : In the previous seven days it rained 1.73 inches		
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : ESRL and AHPS		
Watershed Size : 40,200 acres	County: Montgomery	
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasionally flooded		USDA: Web Soil Survey Source:
Surrounding Land Use : Agricultural, forested, and residential/commerical		
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	NA	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	NA	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	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) = 15

Justification / Notes :

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 10)

A. Geomorphology (Subtotal = 10)	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 = 0.5)

B. Hydrology (Subtotal = 0.5)	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 = 4.5)

C. Biology (Subtotal = 4.5)	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 = 15

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

Notes :

WWC flows from agricultural field into a forested area. The WWC is highly eroded with bank heights of 5 to 8 feet.

There were some locations along the stream that had gravel seperating from the other material

[illegible]

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:		Date/Time: 11/2/2021
Assessors/Affiliation: HDR INC/ Lyrandia Thiem		Project ID : SR Clarksville
Site Name/Description: WWC 12		
Site Location: located in the western portion of project site. Flows down into UNT to red river that is offsite		
HUC (12 digit): Red River (Hydrologic Unit Code [HUC] (051302060708)		Lat/Long: 36.548995/ -87.242036
Previous Rainfall (7-days) : In the previous seven days it rained 1.73 inches		
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : ESRL and AHPS		
Watershed Size : 40,200 acres	County: Montgomery	
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasionally flooded		USDA: Web Soil Survey Source:
Surrounding Land Use : Agricultural, forested, and residential/commerical		
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	NA	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	NA	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	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) = 15

Justification / Notes :

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 11)	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 = 0)	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 = 4)	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. Macroinvertebrates (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 = **15**

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

Notes :

This WWC flows from an agricultural field down into forested stand and finally meets a UNT to Red River that occurs offsite. Lots of bedrock and cobble in sections of the channel but little to no sorting. Sections of the channel are highly eroded.

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:		Date/Time: 11/2/2021
Assessors/Affiliation: HDR INC/ Lyrandia Thiem		Project ID : SR Clarksville
Site Name/Description: WWC 13 and 14		
Site Location: These two channels are eroisonal features located in a corn field		
HUC (12 digit): Red River (Hydrologic Unit Code [HUC] (051302060708)		Lat/Long: 36.550034/ -87.241816
Previous Rainfall (7-days) : In the previous seven days it rained 1.73 inches		
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : ESRL and AHPS		
Watershed Size : 40,200 acres	County: Montgomery	
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasionally flooded		USDA: Web Soil Survey Source:
Surrounding Land Use : Agricultural, forested, and residential/commerical		
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	NA	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	NA	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	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) = 10.5

Justification / Notes :

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 7.5)	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 = 0)	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)	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 = 10.5

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

Notes :

This WWC is an eroisonal features that flow in a corn field. WWC 14 flows into WWC 13. WWC 13 flows down into the forested area where the channel has be altered into concrete and eventually flows offsite.

[illegible]

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:		Date/Time: 11/2/2021
Assessors/Affiliation: HDR INC/ Lyrandia Thiem		Project ID : SR Clarksville
Site Name/Description: WWC 15		
Site Location: These two channels are eroisonal features located in a corn field		
HUC (12 digit): Red River (Hydrologic Unit Code [HUC] (051302060708)		Lat/Long: 36.549955 / -87.243744
Previous Rainfall (7-days) : In the previous seven days it rained 1.73 inches		
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : ESRL and AHPS		
Watershed Size : 40,200 acres	County: Montgomery	
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasionally flooded		USDA: Web Soil Survey Source:
Surrounding Land Use : Agricultural, forested, and residential/commerical		
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	NA	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	NA	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	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) =

Justification / Notes :

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 7.5)	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 = 0)	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)	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 =

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

Notes :

[illegible]

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:		Date/Time: 11/2/2021
Assessors/Affiliation: HDR INC/ Lyrandia Thiem		Project ID : SR Clarksville
Site Name/Description: WWC 16		
Site Location: located in the northern most section of the project site, flows into S4 and starts out of project site		
HUC (12 digit): Red River (Hydrologic Unit Code [HUC] (051302060708)		Lat/Long: 36.542429/ -87.232644
Previous Rainfall (7-days) : In the previous seven days it rained 1.73 inches		
Precipitation this Season vs. Normal : abnormally wet elevated average low abnormally dry unknown		
Source of recent & seasonal precip data : ESRL and AHPS		
Watershed Size : 40,200 acres	County: Montgomery	
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasionally flooded		USDA: Web Soil Survey Source:
Surrounding Land Use : Agricultural, forested, and residential/commercial		
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	NA	WWC
4. Daily flow and precipitation records showing feature only flows in direct response to rainfall	NA	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	✓	Stream
6. Presence of fish (except <i>Gambusia</i>)	✓	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) = 15

Justification / Notes :

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 11)	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 = 0)	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 = 4)	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. Macroinvertebrates (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 = 15

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

Notes :

This WWC flows from an agricultural field down into forested stand and finally meets a UNT to Red River that occurs offsite. Lots of bedrock and cobble in sections of the channel but little to no sorting. Sections of the channel are highly eroded.

November 2021 Mobilization			
Criteria- values are in inches	<u>1st Month Prior</u>	<u>2nd Month prior</u>	<u>3rd Month Prior</u>
	October- 21	September- 21	August-21
Standard Deviation	1.56	1.97	2.02
Minus 1 Std. Deviation	1.26	1.22	1.28
Normal Precipitation	2.82	3.19	3.30
Plus 1 Std. Deviation	4.38	5.16	5.32
Actual Estimated Rainfall	6.0	3.0	8.0
Condition (elevated, low, average)	Elevated	Average	Elevated
Conditional Score	3	2	3
Weight	3	2	1
Product	9	4	3
		Sum=	16
Overall Wetness*			Elevated



Appendix C

Photographs





Photograph 1- Stream 1 Intermittent, facing south and downstream.



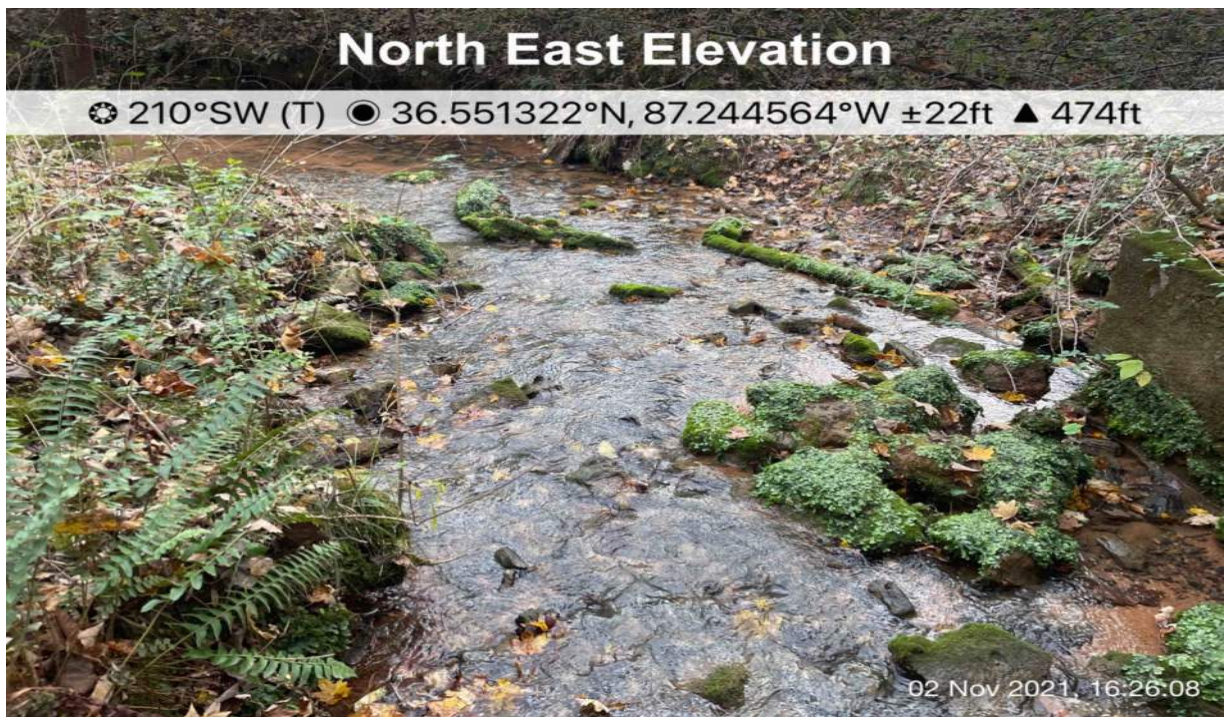
Photograph 2- Stream 1 facing southwest and upstream.



Photograph 3- Stream 2 Red River, facing northeast and downstream.



Photograph 4- Stream 2 Red River, facing northeast and upstream.



Photograph 5- Stream 3 Perennial UNT to Red River, facing northeast and downstream.



Photograph 6- Stream 3 Perennial UNT to Red River facing southeast and upstream.



Photograph 7- Stream 4 Intermittent facing north and downstream.



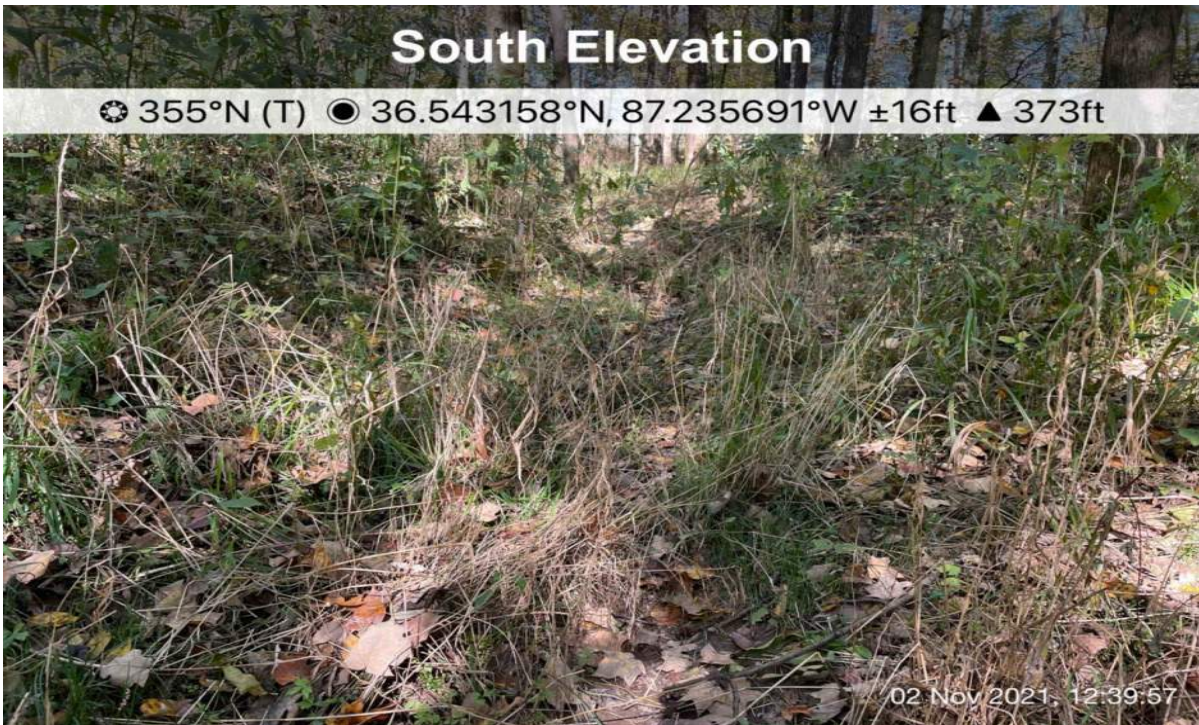
Photograph 8- Stream 4 Intermittent facing southwest and upstream



Photograph 9- WWC 4, facing south and upstream.



Photograph 10- WWC 4, facing south and upstream.



Photograph 11- WWC 5, facing south and upstream.



Photograph 12- WWC 5, facing north and downstream.



Photograph 13- WWC 6, facing south and upstream.



Photograph 14- WWC 6, facing northeast and downstream.



Photograph 15- WWC 16, facing west and upstream.



Photograph 16- WWC 16, facing northeast and downstream.



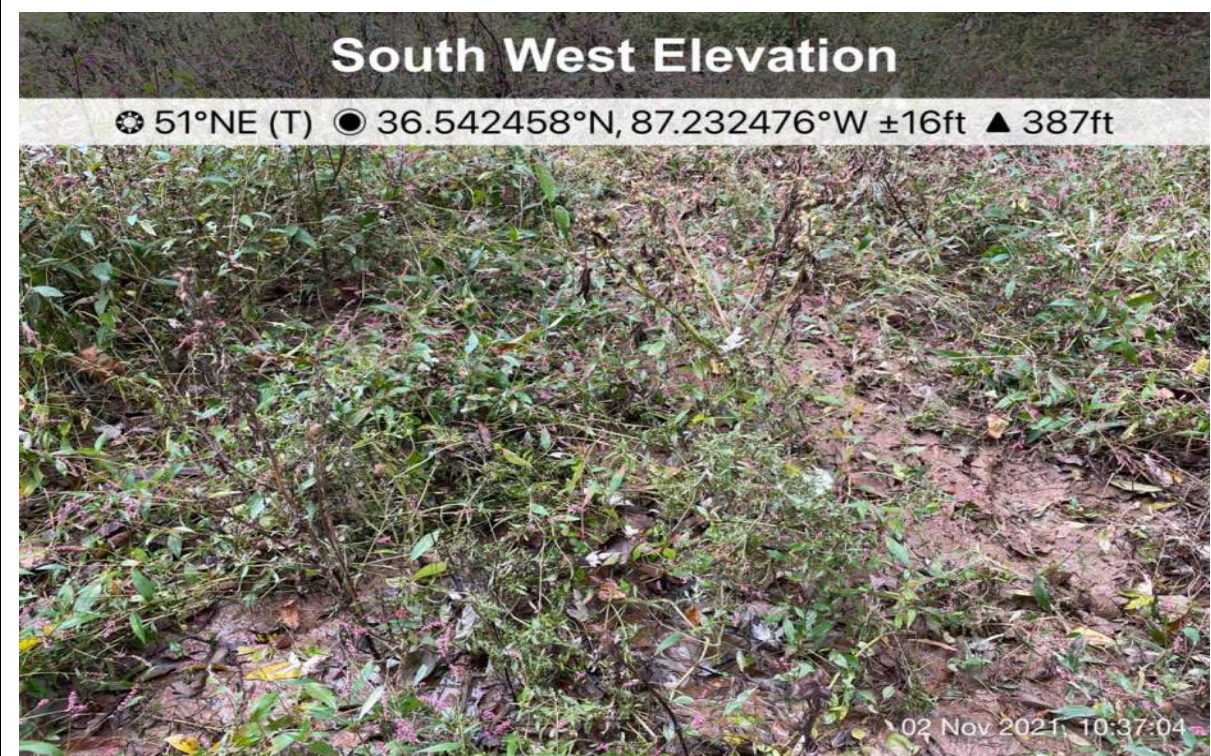
Photograph 17- WWC 2, facing north and downstream.



Photograph 19- WWC 2, facing northwest and upstream.



Photograph 20- Wetland 1 PEM, facing east.



Photograph 21- Wetland 2 PEM southwest.

West Elevation

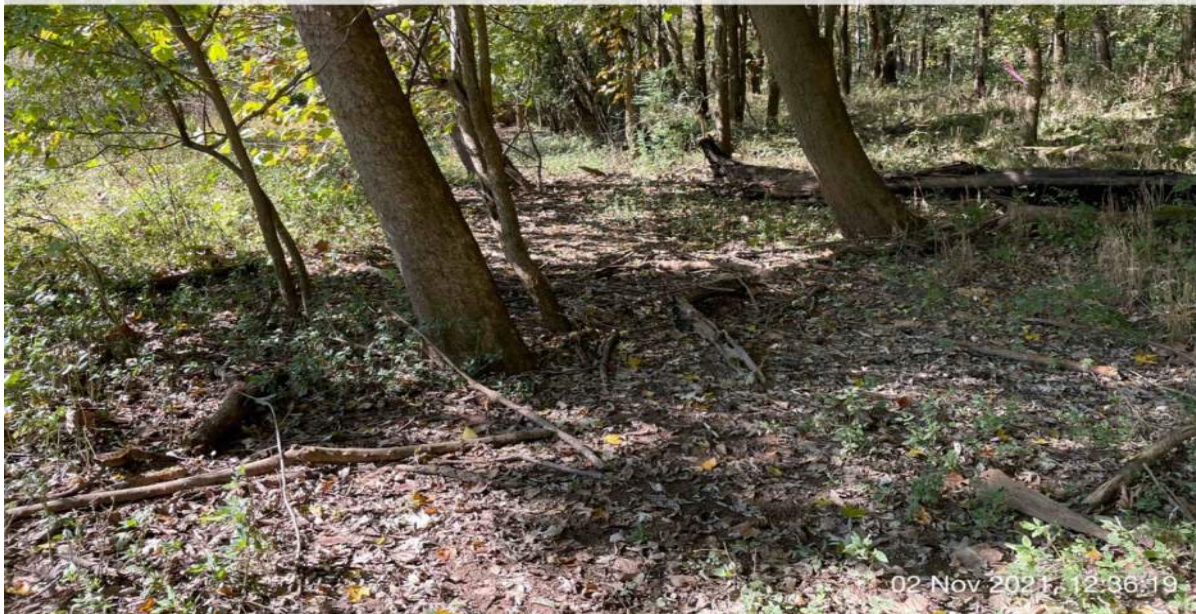
☼ 101°E (T) ● 36.541931°N, 87.235746°W ±9ft ▲ 390ft



Photograph 22- Wetland 3 PEM, facing west.

East Elevation

☼ 272°W (T) ● 36.543001°N, 87.235443°W ±196ft ▲ 363ft



Photograph 23- Wetland 4 PFO, facing east.



Photograph 24- Wetland 5 PFO, facing south.



Photograph 25- Wetland 6 PEM, facing east.

North East Elevation

☼ 206°SW (T) ● 36.542942°N, 87.232375°W ±13ft ▲ 390ft



Photograph 26- Upland 1(DP1), facing north.

South West Elevation

☼ 66°NE (T) ● 36.542210°N, 87.235938°W ±16ft ▲ 393ft



Photograph 27- Upland 2 (DP3), facing southwest.

South East Elevation

☼ 299°NW (T) ● 36.545551°N, 87.236226°W ±13ft ▲ 434ft



Photograph 28- Upland 3 (DP6), facing southeast.

South Elevation

☼ 346°N (T) ● 36.548743°N, 87.238889°W ±16ft ▲ 512ft



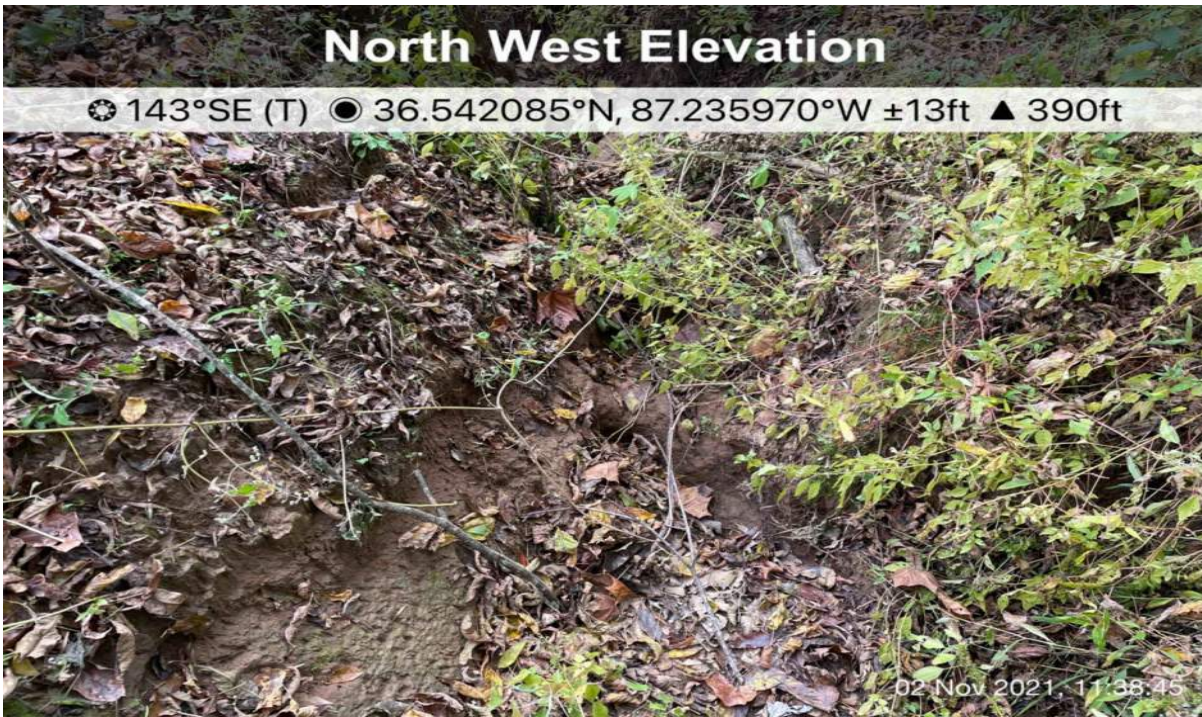
Photograph 29- Upland 4 (DP9), facing south.



Photograph 30- WWC 1, facing north and downstream.



Photograph 31- WWC 1, facing southeast and upstream.



Photograph 32- WWC 3, facing northwest and downstream.



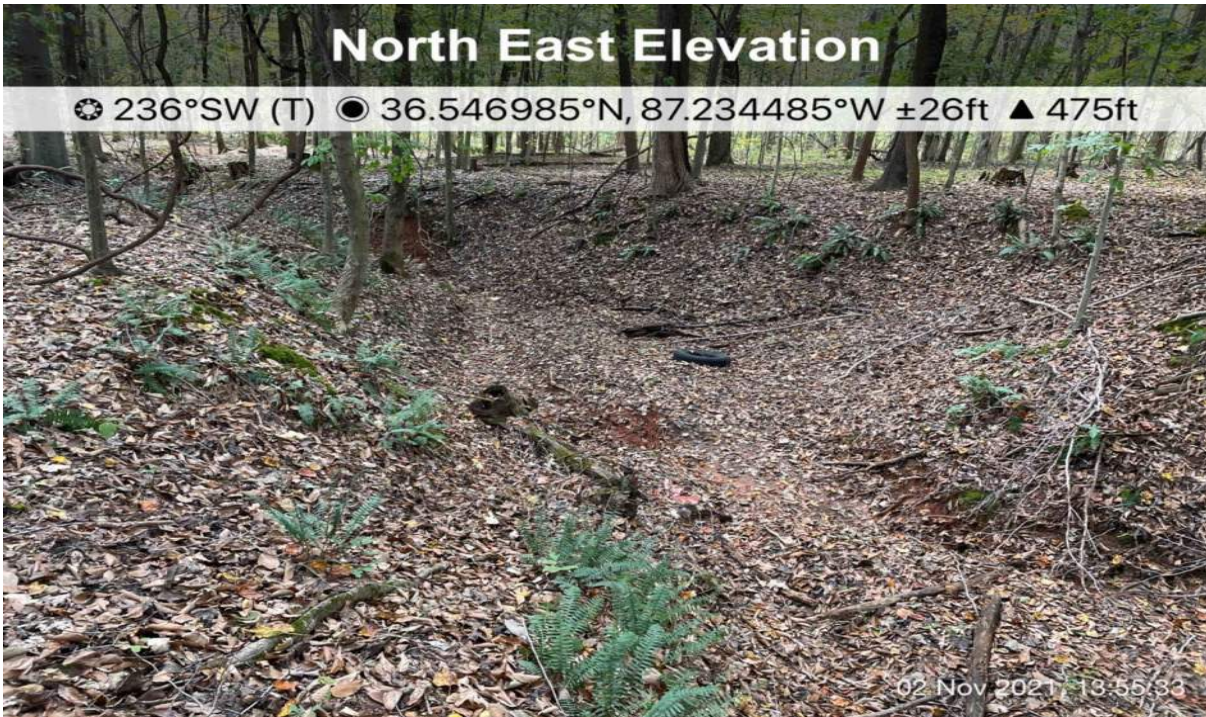
Photograph 33- WWC 3, facing west and upstream.



Photograph 34- WWC 7, facing east and downstream.



Photograph 35- WWC 7, facing southwest and upstream.



Photograph 35- WWC 8, facing northeast and downstream.



Photograph 36- WWC 8, facing southwest and upstream.



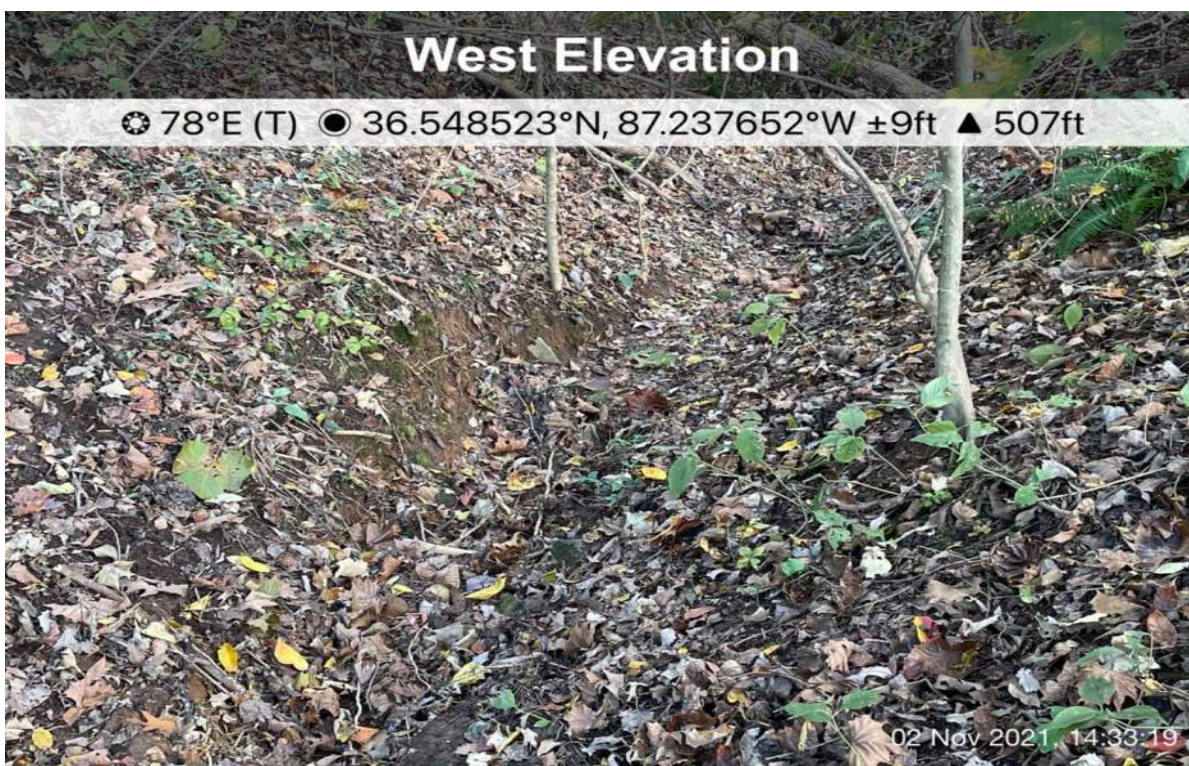
Photograph 37- WWC 9, facing north and downstream.



Photograph 38- WWC 9, facing south and upstream.



Photograph 39- WWC 10, facing north and upstream.



Photograph 40- WWC 10, facing west and downstream.



Photograph 41- WWC 11, facing southeast and upstream.



Photograph 42- WWC 12, facing northwest and downstream.



Photograph 43- WWC 12, facing south and upstream.



Photograph 44- WWC 13, facing southeast and downstream.



Photograph 45- WWC 13, facing west and upstream.



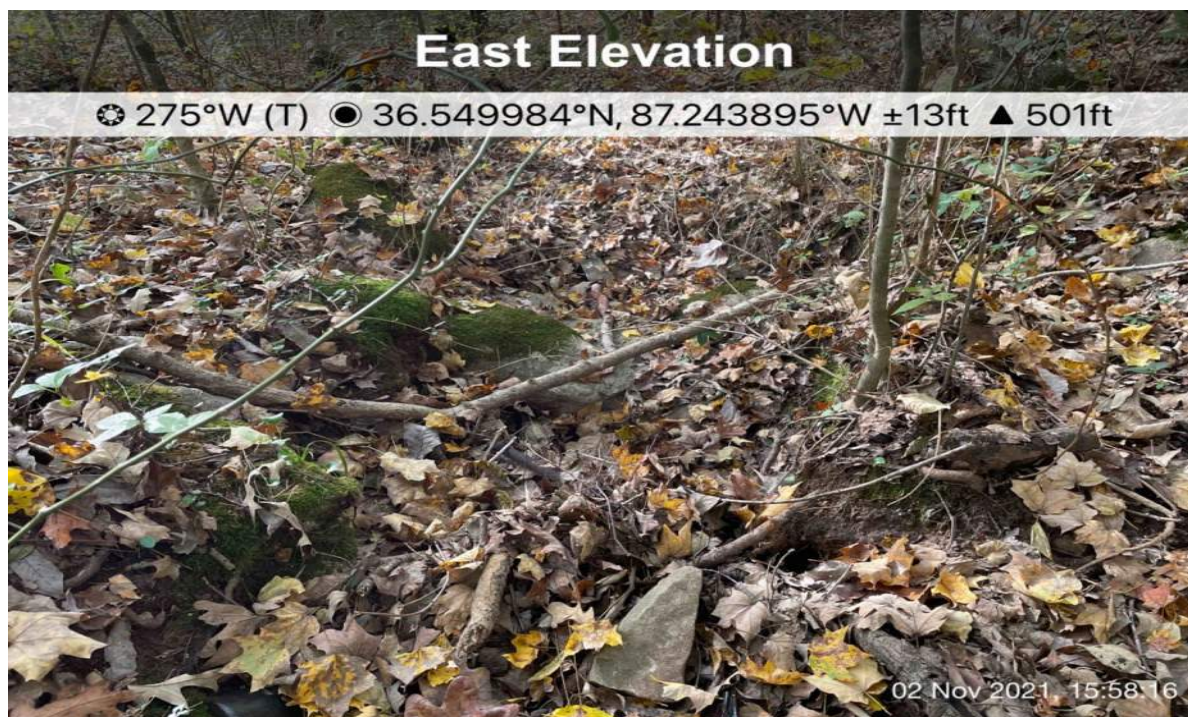
Photograph 46-WWC 14, facing north and downstream.



Photograph 47- WWC 14, facing west and upstream.



Photograph 48- WWC 15, facing east and downstream.



Photograph 49- WWC 15, facing east and upstream.