

STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION

REGION 3 PROJECT DEVELOPMENT

ENVIRONMENTAL TECH GROUP

6601 CENTENNIAL BOULEVARD NASHVILLE, TENNESSEE 37243-0360 (615) 350-4250

Madalyn Brown

JOSEPH GALBATO, III
INTERIM COMMISSIONER

BILL LEE GOVERNOR

MEMORANDUM

To: Sharon Schutz

Region 3 Project Development

From: Madalyn Brown

Region 3 Environmental Tech Group

Date: December 20, 2021

Subject: Environmental Boundaries for:

Davidson County, SR-11 (US-31W, North Main Street), From Fannin Drive to

Old Stone Bridge Road, including the CSX R/R Overpass Structure

PIN: 124781.00 PE: 19031-1217-14

An ecological evaluation of the subject project has been conducted with the following results:

STREAMS: There are six streams and four ephemeral streams (WWC/EPH) within the project area. STR-2, Manskers Creek, has been assessed and is not supporting due to siltation and E. coli. STR-5, Lumsley Fork, has been assessed and is not supporting due to E. coli.

WETLANDS: There are three wetlands within the project area. WTL-1 did not require a TRAM score because it falls under the first category on the TRAM Guidance Red Flag Section: Wetland is a "roadside ditch" and not part of a larger wetland – constructed primarily to convey runoff. WTL-2 and WTL-3 are low resource value.

OTHER FEATURES: There is one wet weather conveyance (WWC/UDF) within the project area.

SPECIES: A species search of the Natural Heritage Inventory Program's rare species database was done on August 23, 2021. Correspondence from USFWS, TWRA, and TDEC DNA is included with this report.

SPECIAL NOTES: There are no special notes for the subject project.

COMMITMENTS: The following is a commitment and will be added in PPRM:

Due to the presence of the state endangered Streamside Salamander (*Ambystoma barbouri*), a sweep shall be conducted immediately prior to any construction. Any surveys prior to construction must be conducted from December 15th to March 15th. The contractor shall contact the Region 3 Environmental Tech Group, at least 14 days prior to construction to coordinate the sweep: 615-335-8783, R3.EnvTechOffice@tn.gov, 6601 Centennial Blvd Bldg A 2nd Flr Nashville, TN 37243.

Due to the presence of the state endangered Streamside Salamander (*Ambystoma barbouri*), construction is prohibited from December 15th through June 1st to minimize impacts during breeding season and development of embryos.

If the scope of work for this project is revised, please contact the Regional biologist for additional review and agency coordination as soon as possible. Your assistance is appreciated. If you have any questions or comments, please contact me at (615) 350-4209 or <a href="mailto:m

xc: Aso Hawrami
Anthony Myers
Wesley Peck
Melissa Portell
R3.EnvTechOffice
TDOT.Env.Ecology
TDOT.Env.Permits
TDOT.Env.Mitigation
TDOT.Env NEPA

Natural Resources Impact Table Davidson County, SR-11 (US-31W, North Main Street), From Fannin Drive to Old Stone Bridge Road, including the CSX R/R Overpass Structure PIN: 124781.00 PE: 19031-1217-14

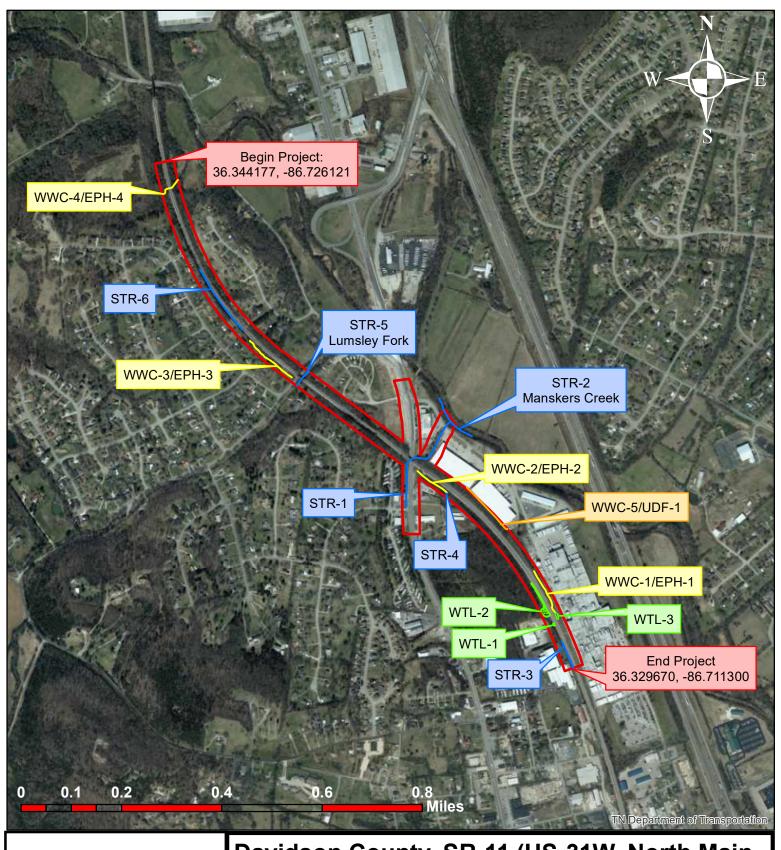
Labels	T *	Function	Ovality	Impacts **						
Labeis	Labels Type * Function		Quality	Permanent	Temporary	Total				
Wetlands										
WTL-1	Slope	Groundwater discharge	Low	0.0 ac	0.01 ac	0.01 ac				
WTL-2	Slope	Stormwater filtration	Low	0.0 ac	0.21 ac	0.21 ac				
WTL-3	Slope	Stormwater filtration	Low	0.0 ac	0.04 ac	0.04 ac				
					Total	0.26 ac				

Labels	Tuno *	Function	Quality	Impacts **						
Labels	туре	Type * Function		Permanent	Temporary	Total				
STR-1	Perennial		Not Assessed	560 ft	0 ft	560 ft				
STR-2 Manskers Creek	Perennial		Not Supporting	0 ft	0 ft	0 ft				
STR-3	Perennial		Not Assessed	0 ft	0 ft	0 ft				
STR-4	Perennial		Not Assessed	0 ft	0 ft	0 ft				
STR-5 Lumsley Fork	Perennial		Not Supporting	145 ft	0 ft	145 ft				
STR-6	Perennial		Not Assessed	0 ft	0 ft	0 ft				
WWC-1/EPH-1	Ephemeral		N/A	0 ft	0 ft	0 ft				
WWC-2/EPH-2	Ephemeral		N/A	0 ft	0 ft	0 ft				
WWC-3/EPH-3	Ephemeral		N/A	0 ft	0 ft	0 ft				
WWC-4/EPH-4	Ephemeral		N/A	0 ft	0 ft	0 ft				
					Total	705 ft				

Labels	Tuno *	Function	Quality	Impacts **							
Labels	Туре	Type * Function Quality		Permanent	Temporary	Total					
Wet Weather Conveyances											
WWC-5/UDF-1	Wet Weather Conveyance			0 ft	0 ft	0 ft					
					Total	0 ft					
				•							

^{*} Identification of features has not been reviewed by regulatory agencies and determinations of stream type could possibly be changed.

^{**} Estimated impacts are considered "Preliminary". Impact determination will not be completely accurate and impact type is unknown until the time of Permit Application.





Davidson County, SR-11 (US-31W, North Main Street), from Fannin Drive to Old Stone Bridge Road, including the CSX R/R Overpass

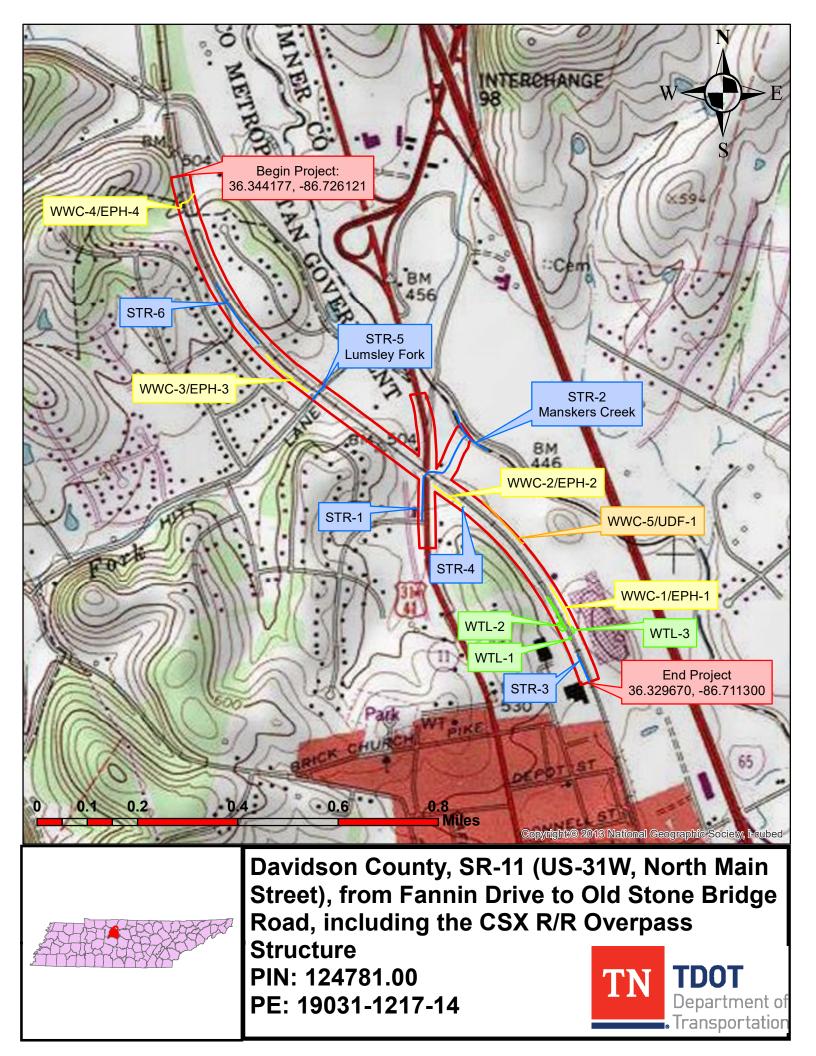
TDOT

Department of Transportation

Structure

PIN: 124781.00

PE: 19031-1217-14



Project:	avidson	Co. SR-11 (US-3	1W, North	Main St	reet), from Fa	annin D	rive to C	ld Sto	ne Bridge	e Roa	d, includir	ng CSX I	₹/R Ov	/erpas	ss Structure	PIN 1247	781.00
Biologist:		MLB	Affi	iliatio	n:	TD	ОТ			[Date:				11/0)8/2021	
1-Station : from plar	าร																
2-Map label and na	me	WWC-4/EPH-4															
3-Latitude/Longitu	de	36.343266, -8	6.72609	97													
4-Feature descripti																	
-channel identification		perennial strear	n	$\overline{\Box}$	intermitter	ıt strea	ım	$\overline{\Box}$	ephen	neral	stream	Г	7 v	NWC			\overline{V}
-HD score (if applicable)	·						15.	.25								
-OHWM indicators		bed & banks	\checkmark	depos	ition	✓	preser debris		itter /	√	scour				veg abse matted	nt, bent,	
		change in plant community			ıction of trial veg		flow	events	oserved s		sedime	ent sort	ing		water sta	ining	
		change in soil character		leaf litt or abse	er disturbed ent		natura impre		n bank		shelvir	g			wracking		
-channel bottom width		3 ft					-top	of ba	ank wic	dth		15 ft					
-width at ordinary high mark	water	6 inches from	botton	n, 4 ft	wide												
-bank height		LDB - 10 ft							RDB -	- 8 ft							
-riffle/pool complex or specialized habitat pre		no															
-dominant riparian spe	cies:	LDB: oak, Ch	inese p	rivet													
(LDB /RDB)		RDB: oak, Ch	inese p	rivet													
-date of PJD request																	
5-photo numbers		19 & 20															
6-HUC -8 Code & Nan	ne	05130202, Che	atham L	_ake													
7-Assessed		yes			no			/									
8-ETW		yes			no			√									
9-303 (d) List		yes		Ħ	siltation			Ħ	habitat:		.		O	other:			\Box
)		no		7									<u> </u>				
10-Notes				النا													
Subst	rate	fine sedimen	t														

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: UT to Manskers Creek	Date/Time: 11/08/2021
Assessors/Affiliation: MLB -TDOT	Project ID :
Site Name/Description: WWC-4/EPH-4	124781.00
Site Location:	
HUC (12 digit): 051302020301, Madison Creek	Lat/Long:
Previous Rainfall (7-days): 0 inches	36.343266, -86.726097
Precipitation this Season vs. Normal: abnormally wet elevated average Source of recent & seasonal precipidata: NOAA past weather/AgACIS last 7 days	low abnormally dry unknown
Watershed Size : <0.5 square miles	County: Davidson Co.
Soil Type(s) / Geology : Mimosa silt loam	Source: NRCS
Surrounding Land Use : Forested and railroad	
Degree of historical alteration to natural channel morphology & hydrology (circle Severe Moderate Slight	e one & describe fully in Notes) : Absent

Primary Field Indicators Observed

Primary Indicators	NO	YES
Hydrologic feature exists solely due to a process discharge	✓	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✓	WWC
Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	√	WWC
Daily flow and precipitation records showing feature only flows in direct response to rainfall	√	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	√	Stream
6. Presence of fish (except Gambusia)	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✓	Stream
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 = Wet Weather Conveyance / Ephemeral Stream	
Secondary Indicator Score (if applicable) = 15.25	

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 8.25)		Absent	Weak	Moderate	Strong	
Continuous bed and bank	3	0	1	2	3	
2. Sinuous channel	2	0	1	2	3	
3. In-channel structure: riffle-pool sequences	0	0	1	2	3	
4. Sorting of soil textures or other substrate	0	0	1	2	3	
5. Active/relic floodplain	0	0	0.5	1	1.5	
6. Depositional bars or benches	1	0	1	2	3	
7. Braided channel	0	0	1	2	3	
Recent alluvial deposits	0	0	0.5	1	1.5	
9. Natural levees	0	0	1	2	3	
10. Headcuts	0	0	1	2	3	
11. Grade controls	0.75	0	0.5	1	1.5	
12. Natural valley or drainageway	1.5	0	0.5	1	1.5	
13. At least second order channel on existing USGS or NRCS map 0		No = 0		Yes = 3		

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

C. Biology (Subtotal = 5)		Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed 1	3	3	2	1	0
21. Rooted plants in the thalweg 1	2	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	0	1	2	3
23. Bivalves/mussels	0	0	1	2	3
24. Amphibians	0	0	0.5	1	1.5
25. Macrobenthos (record type & abundance)	0	0	1	2	3
26. Filamentous algae; periphyton	0	0	1	2	3
27. Iron oxidizing bacteria/fungus	0	0	0.5	1	1.5
28.Wetland plants in channel bed ²	0	0	0.5	1	1.5

¹ Focus is on the presence of terrestrial plants.

Total Points = 15.25

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

Notes:

14. one location of a pool with a seep

16. N/A due to season

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

Project:	avidson	Co. SR-11 (US-3	31W, North	Main S	treet), from Fa	nnin D	rive to O	ld Sto	ne Bridge	Roa	d, includi	ng CS	X R/R	Overpa	ass Structure PII	N 1247	81.00
Biologist:		MLB	Aff	iliati	on:	TD	ОТ			[Date:				11/08/	2021	
1-Station: from plan	าร																
2-Map label and na	me	STR-6															
3-Latitude/Longitu	de	36.341077, -8	36.7247	31													
4-Feature descripti	on:																
-channel identification		perennial strea	ım	\checkmark	intermitten	t strea	ım [ephem	neral	stream			WWC			
-HD score (if applicable))																
-OHWM indicators		bed & banks			sition		presen debris				scour				veg absent, l matted		✓
		change in plant community	t	terre	uction of strial veg	√	flow e	vents	served		sedim	ent so	rting		water stainir	ng	
		change in soil character		leaf lit or abs	ter disturbed ent	√	natura impres		n bank		shelvii	ng			wracking		
-channel bottom width		2 ft					-top	of ba	ank wid	lth		2 ft					
-width at ordinary high mark	water	2 ft, 4 in fron	n botton	า													
-bank height		LDB - 4 in							RDB -	4 in							
-riffle/pool complex or specialized habitat pres		no															
-dominant riparian spe	cies:	LDB: none															
(LDB /RDB)	[RDB: grasses	3														
-date of PJD request																	
5-photo numbers		11 & 12															
6-HUC -8 Code & Nan	ne	05130202, Ch	eatham l	_ake													
7-Assessed		yes			no			✓									
8-ETW		yes			no		[√									
9-303 (d) List		yes			siltation		[habita	t:			$\underline{\hspace{1cm}}$	other	-:		
		no		\checkmark													
10-Notes																	
Substi	rate	railroad balla	ast														

Tennessee Division of Water Pollution Control, Version 1.5

·							
Named Waterbody:	Date/Time: 11/08/2021						
Assessors/Affiliation: MLB -TDOT	Project ID:						
Site Name/Description: STR-6	124781.00						
Site Location:							
HUC (12 digit): 051302020301, Madison Creek	Lat/Long:						
Previous Rainfall (7-days): 0 inches	36.341077, -86.724781						
Precipitation this Season vs. Normal: abnormally wet elevated average low absource of recent & seasonal precipidata: NOAA past weather/AgACIS last 7 days	normally dry unknown						
Watershed Size : <0.5 square miles County: [Davidson Co.						
Soil Type(s) / Geology : Armour silt loam, Mimosa silt loam Source: NRCS							
Surrounding Land Use : low density residential, railroad							
Degree of historical alteration to natural channel morphology & hydrology (circle one & control of the control	describe fully in Notes) : absent						

Primary Field Indicators Observed

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

Project:	avidson	Co. SR-11 (US-3	1W, North	Main S	Street), from Fa	nnin D	rive to O	ld Sto	ne Bridg	e Roa	d, including CS	X R/R	Overpa	ass Structure PIN 12	4781.00
Biologist:		MLB	Affi	liati	on:	TD	ОТ			- 1	Date:			11/08/202	1
1-Station: from plan	าร														
2-Map label and na	me	WWC-3/EPH-3	3												
3-Latitude/Longitu	de	36.338572, -8	6.72242	20											
4-Feature descripti	on:														
-channel identification		perennial strea	m		intermitten	t strea	m		epher	meral	stream	\checkmark	WWC		√
-HD score (if applicable))							6	3						
-OHWM indicators		bed & banks	\checkmark	depo	sition		presen debris			√	scour			veg absent, bent matted	
		change in plant community		terre	uction of strial veg		flowe	events	served		sediment so	orting		water staining	
		change in soil character		leaf lit or abs	ter disturbed sent		natura impres		n bank		shelving			wracking	✓
-channel bottom width		1 ft					-top	of ba	ank wi	dth	8 ft				
-width at ordinary high mark	water	6 inches fron	n botton	n, 1.5	ft wide										
-bank height		LDB - 3 ft							RDB ·	- 3 ft					
-riffle/pool complex or specialized habitat pres		no													
-dominant riparian spe	cies:	LDB: silver m	aple, A	meric	an elm, ha	ckbe	rry								
(LDB /RDB)		RDB:silver m	aple, ha	ackbe	erry										
-date of PJD request															
5-photo numbers		17 & 18													
6-HUC -8 Code & Nan	ne	05130202, Che	eatham L	ake											
7-Assessed		yes			no			√							
8-ETW		yes			no			√							
9-303 (d) List		yes			siltation				habita	at:			other	:	
		no		√											
10-Notes															
Subst	rate	fine sedimen	t												

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:	Date/Time: 11/08/2021
Assessors/Affiliation: MLB -TDOT	Project ID :
Site Name/Description: WWC-3/EPH-3	124781.00
Site Location:	
HUC (12 digit): 051302020301, Madison Creek	Lat/Long:
Previous Rainfall (7-days): 0 inches	36.338572, -86.722420
Precipitation this Season vs. Normal: abnormally wet elevated average low a Source of recent & seasonal precipidata: NOAA past weather/AgACIS last 7 days	abnormally dry unknown
Watershed Size : <0.5 square miles County	y: Davidson Co.
Soil Type(s) / Geology : Armour silt loam and Arrington silt loam	Source: NRCS
Surrounding Land Use : low density residential	
Degree of historical alteration to natural channel morphology & hydrology (circle one of Severe Moderate Slight	& describe fully in Notes) : Absent

Primary Field Indicators Observed

Primary Indicators	NO	YES
Hydrologic feature exists solely due to a process discharge	✓	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✓	WWC
Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	√	WWC
Daily flow and precipitation records showing feature only flows in direct response to rainfall	√	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	√	Stream
6. Presence of fish (except Gambusia)	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✓	Stream
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 = Wet Weather Conveyance / Ephemeral	
Secondary Indicator Score (if applicable) = ⁶	

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 3.5)		Absent	Weak	Moderate	Strong		
Continuous bed and bank	2	0	1	2	3		
2. Sinuous channel	0	0	1	2	3		
3. In-channel structure: riffle-pool sequences	0	0	1	2	3		
4. Sorting of soil textures or other substrate	0	0	1	2	3		
5. Active/relic floodplain	0	0	0.5	1	1.5		
6. Depositional bars or benches	0	0	1	2	3		
7. Braided channel	0	0	1	2	3		
Recent alluvial deposits	0	0	0.5	1	1.5		
Natural levees	0	0	1	2	3		
10. Headcuts	1	0	1	2	3		
11. Grade controls	0	0	0.5	1	1.5		
12. Natural valley or drainageway	0.5	0	0.5	1	1.5		
13. At least second order channel on existing UNRCS map	JSGS or 0	No:	= 0	Yes = 3			

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

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

¹ Focus is on the presence of terrestrial plants.

Total Points = 6

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

Notes:

16. N/A due to season

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

Project:	avidson	Co. SR-11 (US-3	1W, North	Main S	treet), from Fa	nnin D	rive to O	ld Sto	ne Bridg	e Roa	d, includ	ing CS	X R/R	Overpa	ass Structure PIN	12478	31.00
Biologist:		MLB	Aff	iliati	on:	TD	ОТ			[Date:				11/05/2	021	
1-Station: from plan	าร																
2-Map label and na	me	STR-5, Lumsle	y Fork														
3-Latitude/Longitu	de	36.337945, - 8	6.72112	28													
4-Feature descripti	on:																
-channel identification		perennial strea	m	\checkmark	intermitten	t stre <i>a</i>	ım [epher	neral	stream			WWC			
-HD score (if applicable))																
-OHWM indicators		bed & banks	\checkmark	depo	sition		presen debris		itter /	√	scour				veg absent, be matted		√
		change in plant community		terres	uction of strial veg	√	flow e	vents	served		sedim	nent so	rting		water staining	; [
		change in soil character	\checkmark	leaf lit or abs	ter disturbed ent		natura impres		n bank		shelvi	_			wracking		\underline{J}
-channel bottom width		12 ft					-top	of ba	ank wid	dth		15 f	t				
-width at ordinary high mark	water	10 in from bo	ottom, 1	2 ft w	ide												
-bank height		LDB - 3 ft							RDB -	- 3 ft							
-riffle/pool complex or specialized habitat pres		no															
-dominant riparian spe	cies:	LDB: sugar h	ackberr	у													
(LDB /RDB)		RDB: grasses	;														
-date of PJD request																	
5-photo numbers		9 & 10															
6-HUC -8 Code & Nan	ne	05130202, Che	eatham l	_ake													
7-Assessed		yes		√	no												
8-ETW		yes			no		[√									
9-303 (d) List		yes		√	siltation		[habita	at:			\Box	other	·:		✓
		no															
10-Notes		Stream ID: T Habitat Impa						ork									
Substi	rate	bedrock															

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Lumsley Fork	Date/Time: 11/05/2021
Assessors/Affiliation: MLB -TDOT	Project ID :
Site Name/Description: STR-5, Lumsley Fork	124781.00
Site Location:	
HUC (12 digit): 051302020301, Madison Creek	Lat/Long:
Previous Rainfall (7-days): 0.40 inches	36.337945, -86.721128
Precipitation this Season vs. Normal: abrormally wet elevated average low Source of recent & seasonal precip data: NOAA past weather/AgACIS last 7 days	abnormally dry unknown
Watershed Size : 3.27 square miles Cou	inty: Davidson Co.
Soil Type(s) / Geology : Arrington silt loam	Source: NRCS
Surrounding Land Use: low density residential	
Degree of historical alteration to natural channel morphology & hydrology (circle on Severe Moderate Slight	e & describe fully in Notes) : Absent

Primary Field Indicators Observed

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

Macroinvertebrates not confirmed

Project:	avidson	Co. SR-11 (US-3	1W, North I	Main S	treet), from Fa	nnin D	rive to C	ld Sto	ne Bridge	Road	, including	CSX R/R	R Overpa	ass Structure	PIN 1247	81.00
Biologist:	MLI	B, SLN	Affil	iati	on:	TD	ОТ			D	ate:			08/2	6/2021	
1-Station: from plan	าร															
2-Map label and na	me	STR-1														
3-Latitude/Longitu	de	36.335737, -8	6.71679	6												
4-Feature descripti	on:															
-channel identification		perennial strear	n [√	intermittent	t strea	ım		ephem	neral s	tream		wwc			
-HD score (if applicable))															
-OHWM indicators		bed & banks	√	depo	sition	√	preser debris	;			scour			veg abser matted	nt, bent, [
		change in plant community			uction of strial veg	\checkmark	multi flow e		served		sedimen	t sorting	5	water stai	ning	
		change in soil character		leaf lit	ter disturbed ent	/	natura impre		n bank		shelving			wracking		
-channel bottom width		6 ft			<u> </u>	<u>ب</u>			ank wid	th	1	5 ft		l		_
-width at ordinary high mark	water	1.5 ft from bo	ttom, 8	ft wic	de						<u>'</u>					
-bank height		LDB - 5 ft							RDB -	8 ft						
-riffle/pool complex or specialized habitat pres		no														
-dominant riparian spe	cies:	LDB: winter c	reeper, l	boxe	lder, Chine	ese p	rivet,	com	mon ha	ackb	erry, bu	sh hon	eysuc	kle		
(LDB /RDB)		RDB: winter c	reeper, l	boxe	lder, Chine	ese p	rivet,	com	mon ha	ackb	erry, bu	sh hon	eysuc	kle		
-date of PJD request																
5-photo numbers		1 & 2														
6-HUC -8 Code & Nan	ne	05130202, Che	eatham La	ake												
7-Assessed		yes			no			✓								
8-ETW		yes			no			√								
9-303 (d) List		yes			siltation				habitat	t:			other	:		
		no		\checkmark												
10-Notes																
Substi	rate	fine sedimen	t and sp	arse	bedrock											

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: UT to Manskers Creek	Date/Time: 08/26/202	1
Assessors/Affiliation: MLB, SLN -TDOT	Project ID:	
Site Name/Description: STR-1	124781.00	
Site Location:		
HUC (12 digit): 051302020301, Madison Creek	Lat/Long:	
Previous Rainfall (7-days): 2.42 inches	36.335737, -86.716796	
Precipitation this Season vs. Normal: apnormally web elevated average lo Source of recent & seasonal precipidata: NOAA past weather/AgACIS last 7 days	ow abnormally dry unknown	
Watershed Size : 0.18 square miles	County: Davidson Co.	
Soil Type(s) / Geology : Lindell silt loam, Arrington silt loam,	Source: NRCS	
Surrounding Land Use : Industrial, residential, and commercial		
Degree of historical alteration to natural channel morphology & hydrology (circle Severe Moderate Slight	one & describe fully in Notes) : Absent	

Primary Field Indicators Observed

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

- -Heptageniidae and fish observed
- -'Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase' not confirmed

Project:	avidson	Co. SR-11 (US-3	1W, North	Main Str	eet), from Fa	ınnin D	rive to O	ld Sto	ne Bridge	e Road	, includi	ng CSX F	R/R Ove	erpas	s Structure P	PIN 1247	81.00
Biologist:	ML	B, SLN	Affi	liatio	n:	TD	ОТ			D	ate:				08/26	3/2021	
1-Station: from plan	าร																
2-Map label and na	me	STR-2, Manske	ers Creek	<													
3-Latitude/Longitu	de	36.336786, -8	6.71575	8													
4-Feature descripti																	
-channel identification		perennial strea	m		intermitten	t strea	ım	\Box	ephem	neral s	tream	Т	T w	wc			$\overline{\Box}$
-HD score (if applicable))		'														
-OHWM indicators		bed & banks	√	depos	ition	\checkmark	presen debris		itter /		scour				veg absent, matted	, bent,	✓
		change in plant community	✓		ction of crial veg		flow e	vents	oserved s		sedim	ent sorti	ng		water stain	ing	
		change in soil character		leaf litte or abse	er disturbed nt	✓	natura impres		n bank		shelvi	ng			wracking		
-channel bottom width		66 ft					-top	of ba	ank wid	dth		75 ft					
-width at ordinary high mark	water	2 ft from botto	om, 67 f	t wide	:												
-bank height		LDB - 15 ft							RDB -	15 ft							
-riffle/pool complex or specialized habitat pres		no															
-dominant riparian spe	cies:	LDB: mimosa	, black v	walnut	t, green a	sh, p	ersimr	mon									
(LDB /RDB)		RDB: America	ın elm, l	ooxeld	ler, osage	e orai	nge										
-date of PJD request																	
5-photo numbers		3 & 4															
6-HUC -8 Code & Nan	16	05130202, Che	atham I	ake													
7-Assessed	10	yes			no	Т											
8-ETW		yes		H	no	+		√									
9-303 (d) List		yes		才	siltation	+	<u> </u>	7	habita	t·	Τ	√	o th	her:	Т		$\overline{}$
J-303 (d) El3t		no		H	Situation			<u> </u>	Habita			LV		iici.			
10-Notes		Waterbody I Imapried/Not															
Subst	rate	bedrock and	some fi	ne sed	diment												

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody: Manskers Creek	Date/Time: 08/26/2021
Assessors/Affiliation: MLB, SLN -TDOT	Project ID:
Site Name/Description: STR-2, Manskers Creek	124781.00
Site Location:	
HUC (12 digit): 051302020301, Madison Creek	Lat/Long:
Previous Rainfall (7-days): 2.42 inches	36.336786, -86.715758
Precipitation this Season vs. Normal: abnormally wet elevated average to Source of recent & seasonal precipidata: NOAA past weather/AgACIS last 7 days	ow abnormally dry unknown
Watershed Size : 27.72 square miles	County: Davidson Co.
Soil Type(s) / Geology : Arrington silt loam, 0 to 2 percent slopes, occasional	ly flooded Source: NRCS
Surrounding Land Use: Industrial, residential, and commercial	
Degree of historical alteration to natural channel morphology & hydrology (circle Moderate Slight	one & describe fully in Notes) : Absent

Primary Field Indicators Observed

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

fish observed macroinvertebrates not confirmed

Project:	avidson	Co. SR-11 (US-3	31W, North	Main S	treet), from Fa	nnin D	rive to O	ld Sto	ne Bridg	e Roa	d, including CS	X R/R	Overpa	ass Structure PIN 12	4781.00
Biologist:	MLE	B, EWD	Aff	iliati	on:	TD	ОТ			[Date:			09/07/202	1
1-Station : from plar	าร														
2-Map label and na	me	WWC-2/EPH-2	2												
3-Latitude/Longitu	de	36.335277, -8	86.7167	30											
4-Feature descripti															
-channel identification		perennial strea	m		intermitten	t strea	ım	\Box	epher	meral	stream		wwc		√
-HD score (if applicable))							9.:	25						
-OHWM indicators		bed & banks		depo	sition		presen debris		itter /	√	scour			veg absent, bent matted	, (
		change in plant community		terres	uction of strial veg	\checkmark	flow e	events	served		sediment so	orting		water staining	
		change in soil character		leaf lit or abs	ter disturbed ent		natura impres		n bank		shelving			wracking	
-channel bottom width		1.5 ft					-top	of ba	ank wi	dth	2.5	ft			
-width at ordinary high mark	water	2 inches fron	n bottor	n, 2 ft	wide										
-bank height		LDB - 1 ft							RDB -	- 1 ft					
-riffle/pool complex or specialized habitat pres		no													
-dominant riparian spe	cies:	LDB: bush ho	neysuo	kle, c	ommon ha	ackbe	erry, bl	ack	willow	,					
(LDB /RDB)		RDB: bush ho	neysuo	kle, c	ommon ha	ackbe	erry, bl	ack	willow	,					
-date of PJD request															
5-photo numbers		15 & 16													
6-HUC -8 Code & Nan	ne	05130202, Ch	eatham l	_ake											
7-Assessed		yes			no			√							
8-ETW		yes			no			√							
9-303 (d) List		yes			siltation		Ī		habita	at:			other	:	
		no		√							•				
10-Notes															
Subst	rate	fine sedimen	it												

Tennessee Division of Water Pollution Control, Version 1.5

,	
Named Waterbody:	Date/Time: 09/07/2021
Assessors/Affiliation: MLB, EWD -TDOT	Project ID :
Site Name/Description: WWC-2/EPH-2	124781.00
Site Location:	
HUC (12 digit): 051302020301, Madison Creek	Lat/Long:
Previous Rainfall (7-days): 2.36 inches	36.335277, -86.716780
Precipitation this Season vs. Normal: abnormally wet elevated average Source of recent & seasonal precipidata: NOAA past weather/AgACIS last 7 days	low abnormally dry unknown
Watershed Size : <0.5 square miles	County: Davidson Co.
Soil Type(s) / Geology : Lindell silt loam, Byler silt loam	Source: NRCS
Surrounding Land Use : Industrial, Commercial, Railroad	
Degree of historical alteration to natural channel morphology & hydrology (circ	cle one & describe fully in Notes) : Absent

Primary Field Indicators Observed

Primary Indicators	NO	YES
Hydrologic feature exists solely due to a process discharge	✓	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✓	WWC
Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	√	WWC
Daily flow and precipitation records showing feature only flows in direct response to rainfall	√	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	√	Stream
6. Presence of fish (except Gambusia)	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✓	Stream
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 = Wet Weather Conveyance/Ephemeral Stream	
Secondary Indicator Score (if applicable) = 9.25	

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 1.		Absent	Weak	Moderate	Strong
Continuous bed and bank	1	0	1	2	3
2. Sinuous channel	0	0	1	2	3
3. In-channel structure: riffle-pool sequences	0	0	1	2	3
4. Sorting of soil textures or other substrate	0	0	1	2	3
5. Active/relic floodplain	0	0	0.5	1	1.5
6. Depositional bars or benches	0	0	1	2	3
7. Braided channel	0	0	1	2	3
Recent alluvial deposits	0	0	0.5	1	1.5
9. Natural levees	0	0	1	2	3
10. Headcuts	0	0	1	2	3
11. Grade controls	0	0	0.5	1	1.5
12. Natural valley or drainageway	0.75	0	0.5	1	1.5
13. At least second order channel on existing UNRCS map	JSGS or 0	No:	= 0	Yes	= 3

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

C. Biology (Subtotal = 6)		Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed 1	3	3	2	1	0
21. Rooted plants in the thalweg 1	3	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	0	1	2	3
23. Bivalves/mussels	0	0	1	2	3
24. Amphibians	0	0	0.5	1	1.5
25. Macrobenthos (record type & abundance)	0	0	1	2	3
26. Filamentous algae; periphyton	0	0	1	2	3
27. Iron oxidizing bacteria/fungus	0	0	0.5	1	1.5
28.Wetland plants in channel bed ²	0	0	0.5	1	1.5

¹ Focus is on the presence of terrestrial plants.

Total Points = 9.25

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

Notes:

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

Project:	avidson	Co. SR-11 (US-3	1W, North N	∕lain S	treet), from Fa	nnin D	rive to O	ld Sto	ne Bridge F	Road, in	cluding CS	SX R/R	Overpa	iss Structure	PIN 1247	81.00
Biologist:	MLB	B, EWD	Affil	iati	on:	TD	ОТ			Dat	:e:			09/0	7/2021	
1-Station : from plan	าร															
2-Map label and na	me	STR-4														
3-Latitude/Longitu	de	36.334735, -8	6.715888	3												
4-Feature descripti																
-channel identification		perennial strear	n [√	intermitten	t strea	ım	$\overline{}$	epheme	ral stre	am	$\overline{\Box}$	wwc			一
-HD score (if applicable))		_													
-OHWM indicators		bed & banks		depo	sition		presen debris		٧	/ sc	our			veg abser matted	nt, bent,	
		change in plant community			uction of strial veg		multip flow e		served	se	diment s	orting		water sta	ning	
		change in soil character		leaf lit or abs	ter disturbed ent		natura impres		n bank	sh	elving			wracking		
-channel bottom width		2.5 ft					-top	of ba	ank widt	h	3.5	ft			•	
-width at ordinary high mark	water	6 in from bott	om, 3 ft	wide	;						·					
-bank height		LDB - 1ft							RDB - 1	ft						
-riffle/pool complex or specialized habitat pres		no														
-dominant riparian spe	cies:	LDB: cotton w	ood, bu	sh h	oneysuckle	e, ha	ckberr	У								
(LDB /RDB)		RDB: black wi	llow, bus	sh ho	oneysuckle	e, ha	ckberr	у								
-date of PJD request																
5-photo numbers		7 & 8														
6-HUC -8 Code & Nam	ne	05130202, Che	atham La	ake												
7-Assessed		yes			no			✓								
8-ETW		yes		\Box	no			√								
9-303 (d) List		yes		同	siltation		Ī	Ħ	habitat:				other	:		П
		no		√			<u>, </u>									
10-Notes																
Substi	rate	fine sedimen	t													

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:	Date/Time: 09/07/202	1:1
Assessors/Affiliation: MLB, EWD -TDOT	Project ID:	
Site Name/Description: STR-4	124781.00	
Site Location:		
HUC (12 digit): 051302020301, Madison Creek	Lat/Long:	
Previous Rainfall (7-days): 2.36 inches	36.334735, -86.715888	
Precipitation this Season vs. Normal: abnormally wet elevated average low Source of recent & seasonal precipidata: NOAA past weather/AgACIS last 7 days	ow abnormally dry unknown	Ī
Watershed Size : <0.5 square miles	county: Davidson Co.	
Soil Type(s) / Geology : Byler silt loam	Source: NRCS	
Surrounding Land Use : Industrial, Commercial, Railroad		
Degree of historical alteration to natural channel morphology & hydrology (circle of Severe Moderate Slight	one & describe fully in Notes) : Absent	

Primary Field Indicators Observed

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

- -Water is cold while outside temperature is ~72°
- -Hydrology travels underground and back out
- -Stream is black (organic matter on bottom is black)
- -Chlorine test resulted in absence of chlorine

Project:	avidson	Co. SR-11 (US-3	1W, North	Main S	Street), from Fa	nnin D	rive to C	ld Sto	ne Bridg	e Roa	d, including C	SX R/R	Overpa	ass Structure PIN 1247	781.00
Biologist:		MLB	Aff	iliati	on:	TD	ОТ				Date:			11/10/2021	
1-Station : from plan	าร														
2-Map label and na		WWC-5/UDF-1													
3-Latitude/Longitu		36.334715, -8	6.7150	14											
4-Feature descripti															
-channel identification		perennial strea	m		intermitten	t strea	m		epher	neral	stream		wwc		√
-HD score (if applicable))							4	.5						
-OHWM indicators		bed & banks		depo	sition		preser debris		itter /		scour			veg absent, bent, matted	
		change in plant community		terre	uction of strial veg		flow	events	served s		sediment s	orting		water staining	
		change in soil character		leaf lit or abs	ter disturbed sent		natura impre		n bank		shelving			wracking	
-channel bottom width		4 ft					-top	of b	ank wid	dth	7 f	1			
-width at ordinary high mark	water	4 ft wide, 4 ir	iches fr	om th	e bottom										
-bank height		LDB - N/A							RDB -	- N/A					
-riffle/pool complex or specialized habitat pres		no													
-dominant riparian spe	cies:	LDB: box elde	er, blac	k walı	nut, sycam	ore									
(LDB /RDB)	[RDB: bush ho	neysuc	kle, b	lack walnu	ıt, sy	camor	е							
-date of PJD request															
5-photo numbers		21 & 22													
6-HUC -8 Code & Nam	ne	05130202, Che	eatham l	_ake											
7-Assessed		yes			no			\checkmark							
8-ETW		yes			no			√							
9-303 (d) List		yes			siltation				habita	at:			other	:	
		no		✓											
10-Notes		Bank height	is not a	pplica	able becau	se th	ere is	no p	oresen	ce o	f bed & ba	nks			
Substi	rate	fine sedimen	t and g	ravel	from fill										

Tennessee Division of Water Pollution Control, Version 1.5

·	
Named Waterbody:	Date/Time: 11/10/2021
Assessors/Affiliation: MLB -TDOT	Project ID:
Site Name/Description: WWC-5/UDF-1	124781.00
Site Location:	
HUC (12 digit): 051302020301, Madison Creek	Lat/Long:
Previous Rainfall (7-days): 0 inches	36.334715, -86.715044
Precipitation this Season vs. Normal: abnormally wet elevated average Source of recent & seasonal precipidata: NOAA past weather/AgACIS last 7 days	low abnormally dry unknown
Watershed Size : <0.5 square miles	County: Davidson Co.
Soil Type(s) / Geology : Byler silt loam	Source: NRCS
Surrounding Land Use : Industrial	
Degree of historical alteration to natural channel morphology & hydrology (circles Severe Moderate Slight	e one & describe fully in Notes) : Absent

Primary Field Indicators Observed

Primary Indicators	NO	YES
Hydrologic feature exists solely due to a process discharge	✓	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✓	WWC
Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	√	WWC
Daily flow and precipitation records showing feature only flows in direct response to rainfall	√	WWC
5. Presence of multiple populations of obligate lotic organisms with ≥ 2 month aquatic phase	√	Stream
6. Presence of fish (except Gambusia)	✓	Stream
7. Presence of naturally occurring ground water table connection	✓	Stream
8. Flowing water in channel and 7 days since last precip >0.1" in local watershed	✓	Stream
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 = Wet Weather Conveyance	
Secondary Indicator Score (if applicable) = 4.5	

Secondary Field Indicator Evaluation

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

B. Hydrology (Subtotal = 2.5)	Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel 1	0	1	2	3
15. Water in channel and >48 hours since sig. rain 1	0	1	2	3
16. Leaf litter in channel (January – September) 0	1.5	1	0.5	0
17. Sediment on plants or on debris 0.25	0	0.5	1	1.5
18. Organic debris lines or piles (wrack lines) 0.25	0	0.5	1	1.5
19. Hydric soils in channel bed or sides of channel 0	No	= 0	Yes =	= 1.5

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

¹ Focus is on the presence of terrestrial plants.

Total Points = 4.5

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

Notes:

14. water standing in pools in one area, hyporheic zone is saturated, when digging water comes up possible high water table. It is not a wetland due to the absence of hydric soils and hydrophytic vegetation.

16. N/A due to season

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

Project:	avidson	Co. SR-11 (US-31	IW, North	Main St	reet), from Fa	nnin D	rive to C	old Sto	ne Bridg	e Roa	d, including C	SX R/F	R Overpa	ass Structure	PIN 1247	81.00
Biologist:	MLB	, EWD	Affi	liatio	n:	TD	ОТ]	Date:			09/0	7/2021	
1-Station : from plan	าร															
2-Map label and na	me	WWC-1/EPH-1														
3-Latitude/Longitu	de	36.331985, -86	6.71242	2												
4-Feature descripti	on:															
-channel identification		perennial strear	n		intermitten	t strea	m		ephen	neral	stream	√	wwc			
-HD score (if applicable))							1	2							
-OHWM indicators		bed & banks	√	depos	ition		preser debris		itter /		scour		√	veg absen matted	t, bent,	√
		change in plant community	√		iction of trial veg		multi flow e		oserved s		sediment	sorting	5	water stai	ning	
		change in soil character		leaf litte or abse	er disturbed ent		natura impre		n bank		shelving			wracking		
-channel bottom width		1.5 ft					-top	of b	ank wid	dth	3	ft				
-width at ordinary high mark	water	4 inches from	bottom	ı, 2 ft '	wide											
-bank height		LDB - 1 ft							RDB -	1.5 1	ft					
-riffle/pool complex or specialized habitat pres		no														
-dominant riparian spe	cies:	LDB: boxelde	LDB: boxelder, black gum													
(LDB /RDB)		RDB: multiflora	a rose,	boxel	der											
-date of PJD request																
5-photo numbers		13 & 14														
6-HUC -8 Code & Nan	ne	05130202, Che	atham L	ake												
7-Assessed		yes			no											
8-ETW		yes			no			<u> </u>								
9-303 (d) List		yes			siltation			\Box	habita	nt:			other	r:		
		no		\overline{V}												
10-Notes																
Subst	rate	fine sediment	, gravel	and s	some cob	ble										

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:	Date/Time: 09/07/2021
Assessors/Affiliation: MLB, EWD -TDOT	Project ID:
Site Name/Description: WWC-1/EPH-1	124781.00
Site Location:	
HUC (12 digit): 051302020301, Madison Creek	Lat/Long:
Previous Rainfall (7-days): 2.36 inches	36.331985, -86.712422
Precipitation this Season vs. Normal: abnormally web elevated average low Source of recent & seasonal precipidata: NOAA past weather/AgACIS last 7 days	abnormally dry unknown
Watershed Size : <0.5 square miles Cou	unty: Davidson Co.
Soil Type(s) / Geology : Mimosa silt loam	Source: NRCS
Surrounding Land Use : Industrial and railroad	
Degree of historical alteration to natural channel morphology & hydrology (circle or Severe Moderate Slight	ne & describe fully in Notes) : Absent

Primary Field Indicators Observed

Primary Indicators	NO	YES
Hydrologic feature exists solely due to a process discharge	✓	WWC
2. Defined bed and bank absent, vegetation composed of upland and FACU species	✓	WWC
Watercourse dry anytime during February through April 15th, under normal precipitation / groundwater conditions	√	WWC
Daily flow and precipitation records showing feature only flows in direct response to rainfall	√	WWC
 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 = Wet Weather Conveyance/Ephemeral Stream	
Secondary Indicator Score (if applicable) = 12	

Secondary Field Indicator Evaluation

A. Geomorphology (Subtotal = 4.5)		Absent	Weak	Moderate	Strong
Continuous bed and bank	3	0	1	2	3
2. Sinuous channel	0	0	1	2	3
3. In-channel structure: riffle-pool sequences	0	0	1	2	3
4. Sorting of soil textures or other substrate	1	0	1	2	3
5. Active/relic floodplain	0	0	0.5	1	1.5
6. Depositional bars or benches	0	0	1	2	3
7. Braided channel	0	0	1	2	3
Recent alluvial deposits	0.5	0	0.5	1	1.5
9. Natural levees	0	0	1	2	3
10. Headcuts	0	0	1	2	3
11. Grade controls	0	0	0.5	1	1.5
12. Natural valley or drainageway	0	0	0.5	1	1.5
13. At least second order channel on existing L NRCS map	JSGS or 0	No:	= 0	Yes	= 3

B. Hydrology (Subtotal = 2.5)	Absent	Weak	Moderate	Strong
14. Subsurface flow/discharge into channel 1	0	1	2	3
15. Water in channel and >48 hours since sig. rain 1	0	1	2	3
16. Leaf litter in channel (January – September) 0	1.5	1	0.5	0
17. Sediment on plants or on debris 0	0	0.5	1	1.5
18. Organic debris lines or piles (wrack lines) 0.5	0	0.5	1	1.5
19. Hydric soils in channel bed or sides of channel 0	No	= 0	Yes =	= 1.5

C. Biology (Subtotal = 5)		Absent	Weak	Moderate	Strong
20. Fibrous roots in channel bed 1	2	3	2	1	0
21. Rooted plants in the thalweg ¹	3	3	2	1	0
22. Crayfish in stream (exclude in floodplain)	0	0	1	2	3
23. Bivalves/mussels	0	0	1	2	3
24. Amphibians	0	0	0.5	1	1.5
25. Macrobenthos (record type & abundance)	0	0	1	2	3
26. Filamentous algae; periphyton	0	0	1	2	3
27. Iron oxidizing bacteria/fungus	0	0	0.5	1	1.5
28.Wetland plants in channel bed ²	0	0	0.5	1	1.5

¹ Focus is on the presence of terrestrial plants.

Total Points = 12

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

Notes:

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

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: SR-11, PIN 124781.0	0	City/C	County: David				09/07/2021
Applicant/Owner:		tment of Transportation	(TDOT)				
Investigator(s):	MLB, EWD	Section	on, Township, Range: _				
Landform (hillslope, terrace, etc.):	Hillslope/esc	arpment Local rel	ief (concave, convex, no	ne):	oncave	Slope	(%):
Subregion (LRR or MLRA):	LRR N La	36.33130	2 Long:	-86.712	430	Datum:	WGS-84
Soil Map Unit Name:		Mimosa silt loam					FO
Are climatic / hydrologic conditions			_				
Are Vegetation, Soil							No
Are Vegetation, Soil	or Hydrology	naturally problema	atic? (If needed.	explain any an	swers in Ren	narks.)	
, ee. <u> </u>	<u></u>	natarany problem	(onpiani any an			
SUMMARY OF FINDINGS	- Attach site	map showing san	npling point location	ons, transe	cts, impo	rtant feat	tures, etc.
Hydrophytic Vegetation Present?	Yes ✓	No	Is the Sampled Area				
Hydric Soil Present?	Yes	No_ ✓	within a Wetland?	Yes	✓ No		
Wetland Hydrology Present?		No					
Remarks:							
Photo #: 25 & 26							
Climatic conditions are abr	ormally wet for	this time of year					
Cilifiatic Conditions are abi	ioimally wet loi	uns une or year.					
HYDROLOGY							
Wetland Hydrology Indicators:	•			Secondary In	dicators (min	imum of tw	o required)
Primary Indicators (minimum of		ock all that apply)		Surface :			<u>o requirea)</u>
	•		D14)				urface (DO)
Surface Water (A1) ✓ High Water Table (A2)		True Aquatic Plants (Hydrogen Sulfide Od		Sparsely Drainage			nace (bo)
Saturation (A3)			es on Living Roots (C3)				
Water Marks (B1)		_ Presence of Reduced			son Water Ta		
Sediment Deposits (B2)		Recent Iron Reduction	, ,	✓ Crayfish			
✓ Drift Deposits (B3)		Thin Muck Surface (0		Saturatio			ery (C9)
Algal Mat or Crust (B4)		Other (Explain in Rer			or Stressed F	_	0.9 (00)
Iron Deposits (B5)	_	_	,		hic Position		
Inundation Visible on Aerial	Imagery (B7)			Shallow			
Water-Stained Leaves (B9)					ographic Reli		
Aquatic Fauna (B13)				FAC-Neu			
Field Observations:							
Surface Water Present?	′es No √	Depth (inches):					
		Depth (inches): 4	in				
		Depth (inches): sur		Hydrology Pre	sent? Yes	. ✓	No
(includes capillary fringe)		, ,					
Describe Recorded Data (stream	n gauge, monitoring	well, aerial photos, pre	evious inspections), if ava	ailable:			
Remarks:							
							I

WTL-2 **VEGETATION** (Five Strata) – Use scientific names of plants. Sampling Point: Absolute Dominant Indicator **Dominance Test worksheet:** 10m Tree Stratum (Plot size: _ % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: Yes FACW 1. Fraxinus pennsylvanica (green ash) 10 (A) 2. Salix nigra (black willow) Yes 10 OBL **Total Number of Dominant** 7 Species Across All Strata: (B)

4				
5				Percent of Dominant Species That Are OBL, FACW, or FAC:57 (A/B)
6		-		That Are OBL, FACW, or FAC:3/ (A/B)
<u> </u>		= Total Co	vor	Prevalence Index worksheet:
-10				Total % Cover of: Multiply by:
50% of total cover:10	_ 20% of	f total cove	r:4	OBL species x 1 =
Sapling Stratum (Plot size:)				FACW species x 2 =
1. Fraxinus pennsylvanica (green ash)	80	Yes	FACW	FAC species x 3 =
2			_	FACU species x 4 =
3				
4				UPL species x 5 = Column Totals: 0
5				Column Totals: (A) (B)
6				Prevalence Index = B/A =
	0.0	= Total Co	ver	Hydrophytic Vegetation Indicators:
				1 - Rapid Test for Hydrophytic Vegetation
50% of total cover: 40	_ 20% of	total cove	r:10	✓ 2 - Dominance Test is >50%
Shrub Stratum (Plot size:)				
1			_	3 - Prevalence Index is ≤3.0 ¹
2				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
3				Problematic Hydrophytic Vegetation ¹ (Explain)
4				
5			_	¹ Indicators of hydric soil and wetland hydrology must
6				be present, unless disturbed or problematic.
_	0	= Total Co	ver	Definitions of Five Vegetation Strata:
50% of total cover:0	20% of	f total cove	r: 0	
Herb Stratum (Plot size: 1.5m)	_			Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in.
1 Ligustrum sinense (Chinese privet)	10	Yes	FACU	(7.6 cm) or larger in diameter at breast height (DBH).
2 Campsis radicans (trumpet creeper)	10	Yes	FAC	
		-		Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
3				than 3 in. (7.6 cm) DBH.
4				
5				Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
6				approximately 3 to 20 ft (1 to 0 m) in height.
7				Herb – All herbaceous (non-woody) plants, including
8				herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3
9				ft (1 m) in height.
10				
11				Woody vine – All woody vines, regardless of height.
	20	= Total Co	ver	
50% of total cover: 10		f total cove		
40	_ 20% 01	i total cove	I	
Woody Vine Stratum (Plot size: 10m) Rubus argutus (sawtooth blackberry)	10	Yes	FACU	
2 Parthenocissus quinquefolia (Virginia creeper)	5			
2. Partiferiocissus quiriqueiolia (Virginia creeper)		Yes	FACU	
3				
4				
5			_	Hydrophytic
_	15	= Total Co	ver	Vegetation
50% of total cover: 7.5	20% വ	f total cove	r: 3	Present? Yes No
Remarks: (Include photo numbers here or on a separate she				
	,			

Sampling Point: WTL-2

SOIL

	cription: (Describe	to the dept	h needed to docun	ient the indi	cator or	confirm	the abser	ice of indicators.)
Depth	Matrix			K Features	. 1	. 2		
(inches)	Color (moist)		Color (moist)	<u>%</u> T	ype¹	Loc ²	Texture	Remarks
0-5	10YR3/2	100					SILO	
5-10	5 YR 4/6	100					SILO	
								-
								
¹ Type: C=C	oncentration, D=Dep	letion, RM=	Reduced Matrix, MS	=Masked Sa	nd Grain	S.		: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators:						Inc	dicators for Problematic Hydric Soils ³ :
Histosol	(A1)		Dark Surface					_ 2 cm Muck (A10) (MLRA 147)
Histic E	pipedon (A2)		Polyvalue Be		, ,		48)	_ Coast Prairie Redox (A16)
Black H	istic (A3)		Thin Dark Su			', 148)		(MLRA 147, 148)
	en Sulfide (A4)		Loamy Gleye					_ Piedmont Floodplain Soils (F19)
	d Layers (A5)		Depleted Mat					(MLRA 136, 147)
	uck (A10) (LRR N)	- (044)	Redox Dark S	, ,	7\		_	_ Very Shallow Dark Surface (TF12)
	d Below Dark Surfac ark Surface (A12)	e (A11)	Depleted Dar Redox Depre		')			Other (Explain in Remarks)
	Aucky Mineral (S1) (L	DD N	Iron-Mangan		E12) /I D	D N		
	A 147, 148)	-IXIX I V ,	MLRA 13		1 12) (LIX	.ix iv,		
	Gleyed Matrix (S4)		Umbric Surfa	,	RA 136.	122)	3	Indicators of hydrophytic vegetation and
	Redox (S5)		Piedmont Flo					wetland hydrology must be present,
	l Matrix (S6)		Red Parent N				,	unless disturbed or problematic.
Restrictive	Layer (if observed):							
Type:								
Depth (in	ches):						Hydric S	Soil Present? Yes No _
Remarks:	/						,	
	ill material froi	m the ra	ilroad is prev	entina hy	dric s	oils fro	m forn	nina
			•					•
4	-6 inch transiti	on zone	wnere top ia	yer and i	oollon	ı ıayer	are m	ixed

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: SR-11,PIN 124781	.00	City	y/ Odditty.		Sampling Date: _	
Applicant/Owner:	Tennessee De	epartment of Transportati	on (TDOT)	_ State: TN	Sampling Point	: WTL-2 UPL
Investigator(s):		Se	ction, Township, Range: _			
Landform (hillslope, terrace, etc	.):Esca	arpment Local	relief (concave, convex, no	ne): Conv	vex Slope	e (%):
Subregion (LRR or MLRA):	LRR N	_ Lat: 36.331	379 Long:	-86.712441	Datum	: WGS-84
Soil Map Unit Name:		Mimosa silt loam		NWI classific		
Are climatic / hydrologic condition			Yes No ✓	(If no, explain in Re	emarks.)	
Are Vegetation, Soil						, No
Are Vegetation, Soil				explain any answei		
, v og okakion, ook	, c , a. c. cg,	, p. 00.0	(11100000,	onpiani any anono.	· · · · · · · · · · · · · · · · · · ·	
SUMMARY OF FINDING	S – Attach si	ite map showing sa	ampling point location	ons, transects	, important fea	atures, etc.
					-	
Hydrophytic Vegetation Prese		No ✓	Is the Sampled Area		/	
Hydric Soil Present?		No ✓	within a Wetland?	Yes	No	
Wetland Hydrology Present?	Yes _	No <u>✓</u>				
Remarks:						
Climatic conditions are a	bnormally wet	for this time of year				
Hydrophytic vegetation u	ınable to be dε	etermined; however,	study area is still not	considered a v	vetland due to l	ack of
wetland hydrology and h		, ,	,			
Woulding Try arology and Tr	y an 10 00 110					
HADBOI OCA						
HYDROLOGY						
Wetland Hydrology Indicato					tors (minimum of to	wo required)
Primary Indicators (minimum o	of one is required;			Surface Soil		
Surface Water (A1)		True Aquatic Plant			etated Concave S	urface (B8)
High Water Table (A2)		Hydrogen Sulfide (Drainage Pat		
Saturation (A3)			neres on Living Roots (C3)	Moss Trim Li	nes (B16)	
Water Marks (B1)		Presence of Reduce	ced Iron (C4)	Dry-Season \	Nater Table (C2)	
Sediment Deposits (B2)		Recent Iron Reduc	ction in Tilled Soils (C6)	Crayfish Burr	ows (C8)	
Drift Deposits (B3)		Thin Muck Surface	e (C7)	Saturation Vi	sible on Aerial Ima	gery (C9)
Algal Mat or Crust (B4)		Other (Explain in F	Remarks)	Stunted or St	ressed Plants (D1))
Iron Deposits (B5)				Geomorphic	Position (D2)	
Inundation Visible on Aeri	al Imagery (B7)			Shallow Aqui	tard (D3)	
Water-Stained Leaves (BS	9)			Microtopogra	phic Relief (D4)	
Aquatic Fauna (B13)				FAC-Neutral	Test (D5)	
Field Observations:						
Surface Water Present?	Yes No _	Depth (inches): _				
Water Table Present?		✓ Depth (inches): _				
Saturation Present?		✓ Depth (inches):		Hydrology Presen	t? Yes	No √
(includes capillary fringe)						
Describe Recorded Data (stre	am gauge, monito	oring well, aerial photos, p	previous inspections), if av	ailable:		
Remarks:						

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

/EGETATION (Five Strata) – Use scientific na	ames of	plants.		Sampling Point: WTL-2 UPL
10	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size: 10m)		Species?		Number of Dominant Species
1. Fraxinus pennsylvanica (green ash)	10	Yes	FACW	That Are OBL, FACW, or FAC: (A)
2			·	Total Number of Dominant
3			·	Species Across All Strata: (B)
4			·	Percent of Dominant Species
5		-		That Are OBL, FACW, or FAC: (A/B)
6	10			Prevalence Index worksheet:
		= Total Cov		Total % Cover of: Multiply by:
50% of total cover:5	20% of	total cover:	2	OBL species x 1 =
Sapling Stratum (Plot size: 5m		\/		FACW species x 2 =
1. Fraxinus pennsylvanica (green ash)	50	Yes	FACW	FAC species x 3 =
2. Rhus glabra (smooth sumac)	30	Yes		FACU species x 4 =
3				UPL species x 5 =
4				Column Totals:0 (A)(B)
5				(-)
6				Prevalence Index = B/A =
	80	= Total Cov	er er	Hydrophytic Vegetation Indicators:
50% of total cover:40	20% of	total cover:	16	1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (Plot size:)				2 - Dominance Test is >50%
1. Lonicera maackii (Amur honeysuckle)	20	Yes		3 - Prevalence Index is ≤3.0 ¹
2				4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
3				Problematic Hydrophytic Vegetation¹ (Explain)
4				residentation yetophytic vegetation (Explain)
5				¹ Indicators of hydric soil and wetland hydrology must
6				be present, unless disturbed or problematic.
		= Total Cov	er er	Definitions of Five Vegetation Strata:
50% of total cover:10	20% of	total cover:	4	Tree – Woody plants, excluding woody vines,
Herb Stratum (Plot size: 1.5m)				approximately 20 ft (6 m) or more in height and 3 in.
1. Solidago erecta (showy goldenrod)	15	Yes		(7.6 cm) or larger in diameter at breast height (DBH).
2. Geum canadense (white avens)	15	Yes	FACU	Sapling – Woody plants, excluding woody vines,
3				approximately 20 ft (6 m) or more in height and less
4				than 3 in. (7.6 cm) DBH.
5				Shrub – Woody plants, excluding woody vines,
6				approximately 3 to 20 ft (1 to 6 m) in height.
7				Herb – All herbaceous (non-woody) plants, including
8				herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3
9				ft (1 m) in height.
10				Woody vine – All woody vines, regardless of height.
11				woody vine – All woody vines, regardless of height.
	30	= Total Cov	er er	
50% of total cover:15	20% of	total cover:	6	
Woody Vine Stratum (Plot size:)				
1. Parthenocissus quinquefolia (Virginia creeper)	10	Yes	FACU	
2				
3				
4				
5				Hydrophytic
	10	= Total Cov	er	Hydrophytic Vegetation
50% of total cover:5	20% of	total cover:	2	Present? Yes No
Remarks: (Include photo numbers here or on a separate s				1

No indicator status for smooth sumac, amur honeysuckle, or showy goldenrod. Dominance test unable to be determined.

Sampling Point: WTL-2 UPL

SOIL

Profile Desc	ription: (Describe	to the depth	needed to docun	nent the ir	ndicator	or confirm	the absenc	ce of indicators.)	
Depth	Matrix			x Features	5				
(inches)	Color (moist)	<u></u> %	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks	
0-6	10YR 3/3	20					SILO		
0-6	5YR 4/6	80					SILO		
								- -	
								_	
¹Type: C=Cd	oncentration, D=Dep	letion RM=F	Reduced Matrix MS	S=Masked	Sand Gra	nins	² Location:	PL=Pore Lining, M=Matrix.	
Hydric Soil		iction, rtivi–i	Codoca Matrix, Mc)—IVIASKCU	Odrid Ore	iii 13.		cators for Problematic Hydric Soils ³ :	
Histosol			Dark Surface	(97)				2 cm Muck (A10) (MLRA 147)	
					o (S8) (M	II DA 147		Coast Prairie Redox (A16)	
Histic Epipedon (A2)Black Histic (A3)Polyvalue Below Surface (S8) (MLRA 147, 1Thin Dark Surface (S9) (MLRA 147, 1							140)	(MLRA 147, 148)	
Black Histic (A3) Inin Dark Surface (S9) (MLRA 147, 148) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)								Piedmont Floodplain Soils (F19)	
Rydrogen Sunide (A4) Edamy Gleyed Matrix (F2) Stratified Layers (A5) Depleted Matrix (F3)							_	(MLRA 136, 147)	
2 cm Muck (A10) (LRR N) Redox Dark Surface (F6)								Very Shallow Dark Surface (TF12)	
Z cm Muck (A10) (LRK N) Redox Dark Surface (F6) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)								Other (Explain in Remarks)	
Depleted Below Bark Surface (A11) Depleted Bark Surface (17) Redox Depressions (F8)							_	Carol (Explain in Nomarko)	
	lucky Mineral (S1) (I	RR N	Iron-Mangan			RR N			
	147, 148)		MLRA 13		/o (i iz) (i				
	sleyed Matrix (S4)			•	MI RA 13	6 122)	³ Ir	ndicators of hydrophytic vegetation and	
	ledox (S5)			 Umbric Surface (F13) (MLRA 136, 122) Piedmont Floodplain Soils (F19) (MLRA 148) wetland hydrology must be present, 					
-	Matrix (S6)		Red Parent Material (F21) (MLRA 127, 147) wetland hydrology must be present, unless disturbed or problematic.						
	_ayer (if observed):			ratoriai (i z	_ · / (· ·		1	inico dictarsed of presionatio.	
Type:								,	
	ches):	_				Hydric So	oil Present? Yes No		
			_				Tiyane oo	ni resent: res No	
Remarks:									

An affirmative response to any of numbers 1-6 of the Decision Table identifies the wetland per rule as an Outstanding National Resource Water or Exceptional Tennessee Water. A positive response to <u>7-13 requires a final determination by the Department.</u>

#	Wetland Feature Decision Table WTL-2	Yes/No	Affirmative Result
1	The wetland has been designated as an Outstanding National Resource Water (ONRW) by the Department under 0400-40-0306(5)(a).	No	ORNW
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-0306(4)(a)	No	ETW
3	The wetland is within a state or national park, wildlife refuge, forest, wilderness area, or natural area.	No	ETW
4	The wetland is known to contain a documented non-experimental population of a state or federally listed threatened or endangered aquatic or semi-aquatic plant(s), or aquatic animal(s).	No	ETW
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as "Critical Habitat" for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal.	No	ETW
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	ETW
7	The wetland exhibits outstanding ecological or recreational values such as, <u>but not limited to</u> , those as outlined in 8-12	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee ranked G2, G1, or more imperiled at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g., "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is an inherently valuable resource (e.g., vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an older aged forested wetland comprised of overstory trees with an average diameter at breast height (dbh) being greater than or equal to 30 in within the WAA.	No	Determination Required by TDEC
11	The wetland is observed and documented to be a significant fish and wildlife habitat area . These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	No	Determination Required by TDEC
12	The wetland is hydrologically connected to and/or has significant ecological contribution to an ETW	No	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a score of 75 or above using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual)	No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

TRAM Summary Worksheet

Project: Davidson Co. SR-11, PIN 124781.00 WTL-2

EXCEPTIONAL STATUS WETLANDS	Check if applicable
1. ONRW	
ETW Turther Review Requested: Attach Wetland Background and	
Exceptional Status Wetlands Worksheet COMMENTS/NOTES:	
WETLAND FUNCTION (FCI)	SCORE
Maintain Hydrologic Regime	0.25
Maintain Biogeochemical Processes	0.33
Retain Particulates (Riverine Only)	
Maintain Characteristic Plant Community	0.36
Maintain Characteristic Wildlife Community	0.35
Quantitative Score (Average of FCIsX100)	32.00
Value Added Total	
TOTAL SCORE	32.00

HGM FUNCTIONAL ASSESSMENT SLOPE WETLANDS

Date: <u>09/07/2021</u>	Project Name SR-11, from Fannin Dr. to Old Stone Bridge Rd. PIN 124781.00					
Field Personnel MLB, EWD	Wetland Name/Location WTL-2					
	sessments. If project area is large or highly heterogeneous requiring the assessment should be performed for each WAA. CHECK THE					
71: Hydroperiod (HYDRO)						
1. Hydrology not altered (SI = 1.0)						
- no fill material or excessive sediment	- no roads or other impediments to surface or groundwater					
- no ditches/drainage tiles	- no excavation					
-no alteration to overland runoff, groundwater of	discharge/recharge					
2. Hydrology slightly altered (SI = 0.75)						
- portion of site with minimal fill or sediment	- roads or other impediments, water flow slightly altered					
- portion of site with drainage ditches/tiles	- minor portion of site excavated					
-some alteration to overland runoff, groundwate	er discharge/recharge					
3. Hydrology moderately altered (SI = 0.5) - portion of site with moderate fill or sediment	roads or other impediments, water flow moderately altered					
 portion of site with moderate fin of sediment portion of site with drainage ditches/tiles 	roads or other impediments, water flow moderately alteredmoderate portion of site excavated					
- some alteration to overland runoff, groundwat						
4. Hydrology significantly altered (SI = 0.25)	or disording of roomarge					
- portion of site with significant fill or sediment	t - roads or other impediments, water flow significantly altered					
- portion of site with drainage ditches/tiles	- significant portion of site excavated					
- significant alteration to overland runoff, groun	ndwater					
discharge/recharge						
5. Hydrology severely altered (SI = 0.1)						
 entire site impacted by fill or excessive sedim entire site with numerous drainage ditches/tile no contributions to or from overland runoff, g discharge/recharge 	es - entire wetland affected					
72: Wetland Watershed Integrity (WSHEDINT))					
Use weighted average as discussed on page 10. Examinated below	mples of land uses and multipliers					
C = Percentage low density residential, construct D = Percentage high density residential, or simil E = Percentage urban, commercial, industrial, or	f course, pasture, hay, orchard, tree farm, or similar) 0 ction, or similar 20 ilar 0 or similar 65					
$V2 = (A \times 1.0) + (B \times 0.75) + (C \times 0.5) + (D \times 0.05)$	$(0.25) + (E \times 0.01)/(100) = 0.26$					
73: Canopy Tree Size Class (TSIZE) 1. Average size of canopy trees > 3 in. DBH > 15 in. (SI = 1.0)	(5) $$ 6 – 9 in. (SI = 0.5) $\boxed{ \checkmark }$ 3 – 5 in. (SI = 0.25)					
74: Canopy Tree Density (TDEN) 1. Average number of canopy trees (> 3 in. DBH)	per 30-ft. radius plot $> 15 \text{ (SI = 0.5)}$ $1 - 4 \text{ (SI = 0.5)}$					

V5: Shrub Cover (SCOV)						
1. Average percent cover of shrubs (woody stems < 3 in. DBH and taller than 3 ft.) per 30-ft. radius plot						
> 20 (SI = 1.0) $< 20, go to V6$						
V6: Ground Vegetation Co						
1. Average percent cover of g						
	69 (SI = 0.75) 45	-54 (SI = 0.5) 30 -	44 (SI = 0.25) $20 - 29$	(SI = 0.1)		
<pre>< 20 (SI=0.0)</pre>						
V7: Vegetation Composition	and Diversity (COM	P)				
				, check the dominants in the next		
				up 1 or 2 species based on the		
			species are assigned to Group			
			cies are checked regardless o			
GROUP 1 (Refere	nce Standard)	GROUP 2 ((Native Ubiquitous)	GROUP 3		
Water oak	Pin oak	American elm	✓ Green ash	(Invasive) European/Chinese privet		
Bur oak	Shumard oak	Slippery elm	Red maple	Japanese honeysuckle		
Willow oak	Bald cypress	Sweetgum	Silver maple	Japanese stiltgrass		
Swamp chestnut oak	Water tupelo	Blackgum	✓ Black willow	Purple loosestrife		
Cherrybark oak	S. black gum	Silky dogwood	Sycamore	Giant reed		
Swamp white oak	Persimmon	Boxelder		Tall fescue		
Nuttall oak	Am. hornbeam	Tulip poplar	<u> </u>	Phragmites		
Overcup oak		Number native sl	hruh spp			
	H	Number native h	1.1			
2 Using the number of dor	ninants in Groups 1-2 s		uality index (Q) using the fol	lowing formula: [(1.0 x # of		
			(0.0 x # of checked dominus)			
checked dominants in all g		r				
3. Multiply Q above by one		nts that reflects species ri	ichness:1			
\bigcirc a) if \geq 4 species from G	roups 1 and/or 2 occur a	s dominants, multiply Q l	by 1.0			
O b) if 3 species from Gro	ups 1 and/or 2 occur as	dominant, multiply Q by	0.75			
© c) if 2 species from Gro	ups 1 and/or 2 occur as	dominants, multiply Q by	0.50			
Od) if 1 species from Gro	ups 1 and/or 2 occurs as	dominant, multiply Q by	0.25			
O e) if no species from Gr	oups 1 and/or 2 occurs a	s dominant, multiply Q b	y 0.0			
4. Calculate the square roo	ot of the value from Step	3 above. This value is th	e SI for V7 = 0.47			
*In some Depression wetland	s and in some small WA	As (e.g., <0.5 acres), rela	atively few species (e.g., over	cup oak) may be present. In		
cases in which this is the norm	nal condition, Q can be	multiplied by 1.0 if only	1 or 2 species are dominant.			
V8: Soil Organic Matter (O						
1. Surface horizons unalter						
100 percent cover of 0	O and/or A horizon prese	ent (SI = 1.0)				
2. Surface horizons altered	. Estimate the percent of	the WAA in which neith	er an O or A horizon is presen	_{nt.} 50		
3. Subtract the sum of the v	alues from Step 2 from	100. Convert this value t	o a decimal. This value is the	e SI for V8 (e.g., if 75 %		
			e, it will have an SI of 0.25).			
V9: Buffer (BUFFER)			· · · · · · · · · · · · · · · · · · ·			
	on Index (CI) by estimat	ing the percent of the wet	land surrounded by suitable b	ouffer habitat		
90% - 100% (CI = 1.			$\%$ (CI = 0.5) \square 10% – 39% (
< 10% (CI = 0.1)	<i>,,</i>		· (er •:e) <u> </u>	(100)		
2. Multiply the CI by one i	f the following values:					
a) if average buffer width						
• b) if average buffer is 98						
o c) if average buffer width						
O d) if average buffer widt		0.1				
3. This value is the SI for V	<u></u>					
VALUES HEFD TO) CALCIII.ATE FIINC	CTIONAL CAPACITY	INDICES (ECIs)			
SUBINDEX VALUES:	, CALCULATE FUNC	TIOTAL CALACITI	HADIOED (FOIS)			
V1 0.25 (HYDRO)	V3 0.25 (TSIZE)	V5 (SCOV) V	/7 0.47 (COMP) V9 0.33	(BUFFER)		
	`			- · · · · · · · · · · · · · · · · · · ·		

(GVC) V8 0.50

(ORGANIC)

(TDEN) V6_

V2_0.26

(WSHEDINT) V4<u>0.50</u>

WETLAND FUNCTIONS

FUNCITION 1: MAINTAIN HYDROLOGIC REGIME

FCI 1:
$$(V1 \times V2)^{1/2} \implies (0.25 \times 0.26)^{1/2} = 0.25$$

FUNCTION 2: MAINTAIN BIOGEOCHEMICAL PROCESSES

FCI (trees present)=
$$\left((V1 \times V2)^{1/2} \times \left(\frac{\frac{V3+V4}{2}+V8}{2} \right) \right)^{1/2} \longrightarrow \left((FCI \ 1) \times \left(\frac{\left(\frac{0.25+0.50}{2} \right)+0.50}{2} \right) \right)^{1/2} = 0.33$$

FCI (shrubs present)=
$$\left((V1 \times V2)^{1/2} \times \left(\frac{V5+V8}{3} \right) \right)^{1/2} \Longrightarrow \left((FCI \ 1) \times \left(\frac{-+---}{3} \right) \right)^{1/2} = \underline{\qquad}$$

FCI (ground cover)
$$\left((V1 \times V2)^{1/2} \times \left(\frac{V6+V8}{5} \right) \right)^{1/2} \implies \left((FCI \ 1) \times \left(\frac{--+---}{5} \right) \right)^{1/2} = \underline{\qquad}$$

FUNCTION 3: MAINTAIN CHARACTERISTIC PLANT COMMUNITY

FCI (trees present) =
$$\frac{(V1 \times V2)^{1/2} + 2(\frac{V3 + V4 + V7}{3})}{3} \implies \frac{(FCI \ 1) + 2(\frac{0.25}{3} + \frac{0.50}{3} + \frac{0.47}{3})}{3} = \underline{0.36}$$

FCI (shrubs present) =
$$\frac{(\text{V1 x V2})^{1/2} + 2\left(\frac{\text{V5+V7}}{2}\right)}{6} \implies \frac{(\text{FCI 1}) + 2\left(\frac{\text{--+}}{2}\right)}{6} = \underline{\qquad}$$

FCI (groundcover) =
$$\frac{(V1 \times V2)^{1/2} + 2\left(\frac{V6 + V7}{2}\right)}{9} \Longrightarrow \frac{(FCI \ 1) + 2\left(\frac{--+--}{2}\right)}{9} = \underline{\qquad}$$

FUNCTION 4: MAINTAIN CHARACTERISTIC WILDILFE COMMUNITY

FCI (trees) =
$$\frac{(V1 \times V2)^{1/2} + 2(\frac{V3 + V4 + V7}{3}) + V9}{4} \implies \frac{(FCI \ 1) + 2(\frac{0.25}{3} + \frac{0.50}{3}) + \frac{0.47}{3}}{4} = \underline{0.35}$$

FCI (groundcover) =
$$\frac{(V1 \times V2)^{1/2} + 2\left(\frac{V6 + V7}{2}\right) + V9}{9} \qquad \Longrightarrow \qquad \frac{(FCI \ 1) + 2\left(\frac{--+---}{2}\right) + ----}{9} = \underline{\qquad}$$

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: SR-11, from Fannin Drive to Old Stone	Bridge Road, including CSX R/R Ov	erpass Structure PIN 124781.00 City/C	County: Davids	son Co.	Sampling	Date:	11/05/2021
Applicant/Owner:	Tennessee Depa	artment of Transportation	(TDOT)	_ State:TI	N Sampli	ing Point:	WTL-3
Investigator(s):	MLB	Secti	on, Township, Range:				
Landform (hillslope, terrace, etc.):	Escarpr	nent Local rel	lief (concave, convex, no	ne): Co	oncave	Slope	(%):
Subregion (LRR or MLRA):		at: 36.33112	8 Long:	-86.7118	93	Datum:	WGS-84
Soil Map Unit Name:		Mimosa silt loam		NWI class	sification:	PF	-O
Are climatic / hydrologic condition							
Are Vegetation, Soil						Yes 🗸	No
Are Vegetation, Soil	or Hydrology	naturally problem	atic? (If needed, e	explain anv ans	wers in Rema	arks.)	
, co			(o, p.a a			
SUMMARY OF FINDINGS	S – Attach site	map showing san	npling point location	ons, transec	cts, import	ant feat	ures, etc.
Hydrophytic Vegetation Present	? Yes <u></u> ✓	, No	Is the Sampled Area				
Hydric Soil Present?		No	within a Wetland?	Yes	√_ No_		
Wetland Hydrology Present?		No					
Remarks:							
Photo #: 27 & 28							
Climatic conditions are abi	normally wet fo	r this time of year					
Cilitiatic conditions are abi	normally wet ic	i tilis tillie or year.					
HYDROLOGY							
Wetland Hydrology Indicators				Secondary Inc	licators (minir	mum of tw	o required)
Primary Indicators (minimum of		eck all that apply)		Surface S			<u> </u>
Surface Water (A1)	-	True Aquatic Plants ((B14)	Sparsely			rface (B8)
✓ High Water Table (A2)		Hydrogen Sulfide Od		Drainage			nace (Bo)
Saturation (A3)			res on Living Roots (C3)	Moss Trin			
Water Marks (B1)		Presence of Reduce		Dry-Seas			
Sediment Deposits (B2)	_	Recent Iron Reduction	, ,		Burrows (C8)	10 (02)	
Drift Deposits (B3)		Thin Muck Surface (0		Saturation		erial Imag	erv (C9)
Algal Mat or Crust (B4)		Other (Explain in Rei			r Stressed Pla	_	- , (/
Iron Deposits (B5)	_	_ ` ` '	,		hic Position (I		
Inundation Visible on Aerial	Imagery (B7)			Shallow A	quitard (D3)	•	
Water-Stained Leaves (B9)				Microtopo	graphic Relie	ef (D4)	
Aquatic Fauna (B13)				FAC-Neur	tral Test (D5)		
Field Observations:							
Surface Water Present?	Yes No _ ▼	Depth (inches):					
Water Table Present?	Yes <u> </u>	Depth (inches): sur	face				
Saturation Present?	Yes <u> </u>	Depth (inches): sur	face Wetland H	Hydrology Pres	sent? Yes	<u> </u>	No
(includes capillary fringe)							
Describe Recorded Data (stream	n gauge, monitorin	g well, aerial photos, pre	evious inspections), if ava	allable:			
Remarks:							

		Absolute	Dominant	Indicator	Dominance Test worksheet:		
ree Stratum (Plot size:	10m)		Species?		Number of Dominant Species		
. Fraxinus pennsylvanica (green	ash)	5	Yes	FACW	That Are OBL, FACW, or FAC:	6	(A)
Acer negundo (boxelder)		15	Yes	FAC	T		
3.					Total Number of Dominant Species Across All Strata:	6	(B)
							_ (D)
					Percent of Dominant Species	100	(A/B
					That Are OBL, FACW, or FAC:		_ (A/D
•			= Total Cov	or	Prevalence Index worksheet:		
					Total % Cover of:	Multiply by:	
	50% of total cover:10	20% of	total cover:		OBL species x 1	=	
Sapling Stratum (Plot size: _)				FACW species x 2		
•					FAC species x 3		
					FACU species x 4		
					UPL species x 5		
					Column Totals: 0 (A)		
					Column Totals (A)		(D)
					Prevalence Index = B/A =		
			= Total Cov	er	Hydrophytic Vegetation Indicate		
	50% of total cover: 0				1 - Rapid Test for Hydrophytic		
N 1 01 1 1 1 1 1		20% 01	total cover.		2 - Dominance Test is >50%	, vogotation	
Shrub Stratum (Plot size: Acer negundo (boxelder))	15	Yes	FAC	3 - Prevalence Index is ≤3.0 ¹		
Fraxinus pennsylvanica (gre	on och)	5	Yes			1 (Dravida au	ınnartin
- 1				FACW	4 - Morphological Adaptations data in Remarks or on a se	eparate sheet	ibbornii it)
3					Problematic Hydrophytic Vege	•	,
ł						, (=,,p.	,
5					1 Indicators of budrie soil and water	and budgeless	, must
S					¹ Indicators of hydric soil and wetla be present, unless disturbed or pro		must
		20	= Total Cov	er	Definitions of Five Vegetation S		
	50% of total cover:10	20% of	total cover	4	John Marie of Five Togotation o		
Herb Stratum (Plot size:	4.5	2070 01	total cover.		Tree – Woody plants, excluding w		10:
Leerisa oryzoides (rice cutg	/	80	Yes	OBL	approximately 20 ft (6 m) or more (7.6 cm) or larger in diameter at br		
uid sedge		20	Yes	FAC			
			103		Sapling – Woody plants, excludin		
3					approximately 20 ft (6 m) or more than 3 in. (7.6 cm) DBH.	in neight and	less
					, ,		
					Shrub – Woody plants, excluding approximately 3 to 20 ft (1 to 6 m)		,
S		-			approximately 3 to 20 ft (1 to 6 ff)	in neigni.	
7					Herb - All herbaceous (non-wood	y) plants, incl	luding
3					herbaceous vines, regardless of si plants, except woody vines, less the	ize, and wood	dy
9					ft (1 m) in height.	іап арргохіп	iatery 3
					Woody vine – All woody vines, re	gardless of h	ieight.
			= Total Cov	er			
	50%						
A	50% of total cover: 50 10m	20% of	total cover:				
Noody Vine Stratum (Plot size							
2							
3							
1							
					Hydrophytic		

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

UID sedge presumed FAC due to presence only in hydrology.

50% of total cover: ____0 ___ 20% of total cover:_

Present?

SOIL Sampling Point: WTL-3

Profile Desc	ription: (Describe t	o the dept	h needed to docun	nent the i	ndicator	or confirm	the absenc	e of indicators.)
Depth	Matrix		Redo	x Features				
(inches)	Color (moist)	<u>%</u>	Color (moist)		Type ¹	Loc ²	Texture	Remarks
0-6	10 YR 5/2	75	2.5 yr 3/6	5	C	M	SILO	
¹ Type: C=C	oncentration, D=Depl	etion RM=	Reduced Matrix MS	S=Masked	Sand Gr	aine	² Location:	PL=Pore Lining, M=Matrix.
Hydric Soil		elion, ixivi–	reduced Matrix, Mc	-iviaskeu	i Sanu Gi	allis.		cators for Problematic Hydric Soils ³ :
Histosol			Dark Surface	(\$7)				2 cm Muck (A10) (MLRA 147)
	pipedon (A2)		Polyvalue Be		ce (S8) (N	/II RΔ 147		Coast Prairie Redox (A16)
Black Hi			Thin Dark Su				,	(MLRA 147, 148)
	n Sulfide (A4)		Loamy Gleye			, ,		Piedmont Floodplain Soils (F19)
	d Layers (A5)		✓ Depleted Mat		,		_	(MLRA 136, 147)
	ick (A10) (LRR N)		Redox Dark S		6)			Very Shallow Dark Surface (TF12)
Depleted	d Below Dark Surface	(A11)	Depleted Dar	k Surface	(F7)		_	Other (Explain in Remarks)
	ark Surface (A12)		Redox Depre					
	lucky Mineral (S1) (L	RR N,	Iron-Mangan		es (F12) (LRR N,		
	A 147, 148)		MLRA 13				2	
	Gleyed Matrix (S4)		Umbric Surfa					dicators of hydrophytic vegetation and
	Redox (S5)		Piedmont Flo					vetland hydrology must be present,
	Matrix (S6)		Red Parent N	laterial (F	21) (MLR	A 127, 147	<u>')</u> u	nless disturbed or problematic.
	_ayer (if observed):							
Type:								./
Depth (inc	ches):						Hydric So	il Present? Yes No
Remarks:								

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: SR-11, from Fannin Drive to Old Stone	Bridge Road, including CSX R/R Overpass St	tructure PIN 124781.00 City/C	ounty: David	son Co. Sar	mpling Date:11/05/2021
Applicant/Owner:	Tennessee Departme	nt of Transportation	(TDOT)	State: TN S	Sampling Point: WTL-3 UPL
Investigator(s):	MLB		on, Township, Range: _		
Landform (hillslope, terrace, etc.):	Escarpment	L ocal reli	ef (concave convex no	one). Concave	Slone (%):
Subregion (LRR or MLRA):					
Soil Map Unit Name:		imosa silt loam	_	NWI classification	
Are climatic / hydrologic conditions		this time of year? V			
Are Vegetation, Soil					
Are Vegetation, Soil					
Are vegetation, Soil	, or Hydrology	_ naturally problema	auc? (ii fieeded,	explain any answers in	Remarks.)
SUMMARY OF FINDINGS	6 – Attach site ma	p showing sam	pling point locati	ons, transects, in	nportant features, etc.
Hydrophytic Vegetation Present	? Yes	No. ✓	In the Committee Anna		
Hydric Soil Present?	Yes	No ✓	Is the Sampled Area within a Wetland?	Yes	No. ✓
Wetland Hydrology Present?	Yes	No ✓			
Remarks:					
Climatic conditions are abi	normally wet for thi	s time of year			
Climatic conditions are abi	iormany wet for the	3 tillie or year.			
HYDROLOGY					
				Canadam, Indiantam	(:-:
Wetland Hydrology Indicators		- II the steement A			(minimum of two required)
Primary Indicators (minimum of o				Surface Soil Crad	
Surface Water (A1)		rue Aquatic Plants (ted Concave Surface (B8)
High Water Table (A2)		ydrogen Sulfide Odd		Drainage Pattern	
Saturation (A3)			es on Living Roots (C3)		
Water Marks (B1)		resence of Reduced	n in Tilled Soils (C6)	Dry-Season Wate	
Sediment Deposits (B2) Drift Deposits (B3)		hin Muck Surface (C		Crayfish Burrows	e on Aerial Imagery (C9)
Algal Mat or Crust (B4)		other (Explain in Ren		Saturation visible Stunted or Stress	
Iron Deposits (B5)		THE (Explain III Non	narko)	Geomorphic Pos	
Inundation Visible on Aerial	Imagery (B7)			Shallow Aquitard	
Water-Stained Leaves (B9)				Microtopographic	
Aquatic Fauna (B13)				FAC-Neutral Tes	
Field Observations:					
	Yes No [Depth (inches):			
	Yes No [
	/es No [I	Hydrology Present?	Yes No ✓
(includes capillary fringe)					
Describe Recorded Data (stream	n gauge, monitoring well	II, aerial photos, pre	vious inspections), if av	ailable:	
Remarks:					

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

/EGETATION (Five Strata) – Use scientific na	ames of	plants.		Sampling Point: WTL-3 UPL
	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:10m) 1		Species?		Number of Dominant Species That Are OBL, FACW, or FAC:0 (A)
2				Total Number of Dominant
3				Species Across All Strata: 2 (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC:0 (A/B)
6				
	0	= Total Cov	er	Prevalence Index worksheet:
50% of total cover:0	20% of	total cover:	0	Total % Cover of: Multiply by:
Sapling Stratum (Plot size: 5m)				OBL species x 1 =
1				FACW species x 2 =
2				FAC species x 3 =
3				FACU species x 4 =
4				UPL species x 5 =
5				Column Totals:0 (A)(B)
6		-		Prevalence Index = B/A =
·	0	= Total Cov	er	Hydrophytic Vegetation Indicators:
0				1 - Rapid Test for Hydrophytic Vegetation
50% of total cover: 0 Shrub Stratum (Plot size: 5m)	20% of	total cover:		2 - Dominance Test is >50%
on ab ottatum (i lot size.	5	Yes	FACU	3 - Prevalence Index is ≤3.0 ¹
1. Juniperus virginiana (Eastern red cedar)		No	FACU	
2. Pyrus calleryana (Callery pear)		-	-	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
3				Problematic Hydrophytic Vegetation ¹ (Explain)
4				
5				¹ Indicators of hydric soil and wetland hydrology must
6				be present, unless disturbed or problematic.
	8	= Total Cov	er	Definitions of Five Vegetation Strata:
50% of total cover: 4	20% of	total cover:	1.6	Tree – Woody plants, excluding woody vines,
Herb Stratum (Plot size:)				approximately 20 ft (6 m) or more in height and 3 in.
1. Solidago erecta (showy goldenrod)	5	No		(7.6 cm) or larger in diameter at breast height (DBH).
2. Plantago lanceolata (narrowleaf plantain)	20	Yes	UPL	Sapling – Woody plants, excluding woody vines,
3. Ligustrum sinense (Chinese privet)	5	No	FACU	approximately 20 ft (6 m) or more in height and less
4				than 3 in. (7.6 cm) DBH.
5				Shrub – Woody plants, excluding woody vines,
6				approximately 3 to 20 ft (1 to 6 m) in height.
7				Herb – All herbaceous (non-woody) plants, including
8				herbaceous vines, regardless of size, and woody
9				plants, except woody vines, less than approximately 3 ft (1 m) in height.
10				
11				Woody vine – All woody vines, regardless of height.
	2.0	= Total Cov	er	
50% of total cover: 15	20% of	total acyar	6	
Woody Vine Stratum (Plot size: 10m)	20 /6 01	total cover.	·	
violaty vino ottatami (i lot size.				
1				
2				
3				
4		-	-	
5	0	T. () C		Hydrophytic
		= Total Cov		Vegetation Present? Yes No ✓
50% of total cover: $_{}$	20% of	total cover:	0	11036III: 163 NO V
Remarks: (Include photo numbers here or on a separate s				1

Sampling Point: WTL-3 UPL

Depth	Matrix		Redox Features	1 / 2	T 4	D
nches)	Color (moist)	%	Color (moist) % Ty	pe ¹ Loc ²	Texture	Remarks
0-4	10 yr 3/2	100			SILO	
vne: C=Co	ncentration D=Denl	etion RM=Re	educed Matrix, MS=Masked San	nd Grains	² Location: P	L=Pore Lining, M=Matrix.
dric Soil In		Ction, rtivi–rtt	badea Matrix, MO-Maskea Car	id Orallis.		ators for Problematic Hydric Soils ³ :
_ Histosol (Dark Surface (S7)			cm Muck (A10) (MLRA 147)
	pedon (A2)		Polyvalue Below Surface (S	88) (MI RA 147		Coast Prairie Redox (A16)
_ Black His			Thin Dark Surface (S9) (ML		0	(MLRA 147, 148)
	Sulfide (A4)		Loamy Gleyed Matrix (F2)	,	Р	riedmont Floodplain Soils (F19)
	Layers (A5)		Depleted Matrix (F3)			(MLRA 136, 147)
	k (A10) (LRR N)		Redox Dark Surface (F6)		∨	ery Shallow Dark Surface (TF12)
_ Depleted	Below Dark Surface	(A11)	Depleted Dark Surface (F7)		c	Other (Explain in Remarks)
_ Thick Dar	k Surface (A12)		Redox Depressions (F8)			
_ Sandy Μι	ıcky Mineral (S1) (L	RR N,	Iron-Manganese Masses (F	12) (LRR N,		
	147, 148)		MLRA 136)			
	eyed Matrix (S4)		Umbric Surface (F13) (MLR			icators of hydrophytic vegetation and
_ Sandy Re			Piedmont Floodplain Soils (tland hydrology must be present,
	Matrix (S6)		Red Parent Material (F21) (MLRA 127, 147) un	less disturbed or problematic.
estrictive La	ayer (if observed):					
Type:			_			
			_		Hydric Soil	Present? Yes No
	nes):					
Depth (inch	nes):					
Depth (inch	nes):					
Depth (inch	nes):					
Depth (inch	nes):					
Depth (inch	nes):					
Depth (inch	nes):					
Depth (inch	nes):					
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Depth (inch	nes):					
Depth (inch	nes):					
	nes):					
Depth (inch	nes):					
Depth (inch	nes):					
Depth (inch	nes):					
Depth (inch	nes):					

An affirmative response to any of numbers 1-6 of the Decision Table identifies the wetland per rule as an Outstanding National Resource Water or Exceptional Tennessee Water. A positive response to <u>7-13 requires a final determination by the Department.</u>

#	Wetland Feature Decision Table WTL-3	Yes/No	Affirmative Result
1	The wetland has been designated as an Outstanding National Resource Water (ONRW) by the Department under 0400-40-0306(5)(a).	No	ORNW
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-0306(4)(a)	No	ETW
3	The wetland is within a state or national park, wildlife refuge, forest, wilderness area, or natural area.	No	ETW
4	The wetland is known to contain a documented non-experimental population of a state or federally listed threatened or endangered aquatic or semi-aquatic plant(s), or aquatic animal(s).	No	ETW
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as "Critical Habitat" for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal.	No	ETW
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	ETW
7	The wetland exhibits outstanding ecological or recreational values such as, <u>but not limited to</u> , those as outlined in 8-12	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee ranked G2, G1, or more imperiled at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g., "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is an inherently valuable resource (e.g., vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an older aged forested wetland comprised of overstory trees with an average diameter at breast height (dbh) being greater than or equal to 30 in within the WAA.	No	Determination Required by TDEC
11	The wetland is observed and documented to be a significant fish and wildlife habitat area . These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	No	Determination Required by TDEC
12	The wetland is hydrologically connected to and/or has significant ecological contribution to an ETW	No	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a score of 75 or above using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual) End of Narrative Rating, Begin Quantitative Rating.	No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

TRAM Summary Worksheet

Project: Davidson Co. SR-11, PIN 124781.00 WTL-3

EXCEPTIONAL STATUS WETLANDS	Check if applicable
1. ONRW	
2. ETW	
3. Further Review Requested: Attach Wetland Background and Exceptional Status Wetlands Worksheet	
COMMENTS/NOTES:	
WERL AND EUNCRION (ECU)	CCOPE
WETLAND FUNCTION (FCI) Maintain Hydralagia Pagima	O.50
Maintain Hydrologic Regime Maintain Biogeochemical Processes	0.46
Retain Particulates (Riverine Only)	
Maintain Characteristic Plant Community	0.32
Maintain Characteristic Wildlife Community	0.36
Quantitative Score (Average of FCIsX100)	41.00
Value Added Total	
TOTAL SCORE	41.00

HGM FUNCTIONAL ASSESSMENT SLOPE WETLANDS

Date: 11/05/2021	Project Name SR-11, from Fannin Dr. to Old Stone Bridge Rd. PIN 124781.00
Field Personnel MLB	Wetland Name/Location WTL-3
	nents. If project area is large or highly heterogeneous requiring the ssment should be performed for each WAA. CHECK THE
71: Hydroperiod (HYDRO) 1. Hydrology not altered (SI = 1.0)	
 no fill material or excessive sediment no ditches/drainage tiles 	no roads or other impediments to surface or groundwaterno excavation
-no alteration to overland runoff, groundwater disch 2. Hydrology slightly altered (SI = 0.75)	arge/recharge
portion of site with minimal fill or sedimentportion of site with drainage ditches/tiles	- roads or other impediments, water flow slightly altered - minor portion of site excavated
-some alteration to overland runoff, groundwater dis 3. Hydrology moderately altered (SI = 0.5)	charge/recharge
 portion of site with moderate fill or sediment portion of site with drainage ditches/tiles some alteration to overland runoff, groundwater dis 	- roads or other impediments, water flow moderately altered - moderate portion of site excavated
4. Hydrology significantly altered (SI = 0.25) - portion of site with significant fill or sediment - portion of site with drainage ditches/tiles - significant alteration to overland runoff, groundwar	 roads or other impediments, water flow significantly altered significant portion of site excavated
discharge/recharge 3. Hydrology severely altered (SI = 0.1)	
 entire site impacted by fill or excessive sediment entire site with numerous drainage ditches/tiles no contributions to or from overland runoff, groun discharge/recharge 	- roads or other impediments, water flow completely blocked - entire wetland affected dwater
72: Wetland Watershed Integrity (WSHEDINT)	
Use weighted average as discussed on page 10. Example isted below	s of land uses and multipliers
A = Percentage forested with no impervious surface: B = Percentage permeable land, (e.g., park, golf cou C = Percentage low density residential, construction D = Percentage high density residential, or similar E = Percentage urban, commercial, industrial, or sim	rse, pasture, hay, orchard, tree farm, or similar), or similar 20
$\mathbf{V2} = (\mathbf{A} \times 1.0) + (\mathbf{B} \times 0.75) + (\mathbf{C} \times 0.5) + (\mathbf{D} \times 0.25)$	$+ (E \times 0.01)/(100) = 0.21$
73: Canopy Tree Size Class (TSIZE) 1. Average size of canopy trees > 3 in. DBH	6 - 9 in. (SI = 0.5) $3 - 5 in. (SI = 0.25)$
74: Canopy Tree Density (TDEN) 1. Average number of canopy trees (> 3 in. DBH) per $= 5 - 10$ (SI = 1.0) $= 11 - 15$ (SI = 0.75)	

V5: Shrub Cover (SCOV)	
1. Average percent cover of shrubs (woody stems < 3 in. DBH and taller than 3 ft.) per 30-ft. radius plot > 20 (SI = 1.0)	
V6: Ground Vegetation Cover (GVC) 1. Average percent cover of ground vegetation per 30-ft. radius plot	
V7: Vegetation Composition and Diversity (COMP) 1. Check the dominant species from Groups 1, 2, and 3 below using the 50/20 rule. If tree cover is < 20%, check the dominants in the n tallest stratum. If a dominant does not appear in lists below, but is a native species, it can be added to Group 1 or 2 species based on the scientific literature or professional judgement. Native shrub and herbaceous species are assigned to Group 2. When using shrub or herbaceous write in the number of dominant species. Dominant invasive species are checked regardless of stratum. **GROUP 1 (Reference Standard)** GROUP 2 (Native Ubiquitous)* GROUP 3	
Water oak	ret
Number native herbaceous spp. 2. Using the number of dominants in Groups 1, 2, and 3 above, calculate a quality index (Q) using the following formula: [(1.0 x # of checked dominants in Group 1) + (0.66 x # of checked dominants in Group 2) + (0.0 x # of checked dominants in Group 3)]/ total # of checked dominants in all groups = 0.86 3. Multiply Q above by one of the following constants that reflects species richness:¹ ○ a) if ≥ 4 species from Groups 1 and/or 2 occur as dominants, multiply Q by 1.0 ○ b) if 3 species from Groups 1 and/or 2 occur as dominant, multiply Q by 0.75 ○ c) if 2 species from Groups 1 and/or 2 occur as dominants, multiply Q by 0.50 ○ d) if 1 species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.25 ○ e) if no species from Groups 1 and/or 2 occurs as dominant, multiply Q by 0.0 4. Calculate the square root of the value from Step 3 above. This value is the SI for V7= *In some Depression wetlands and in some small WAAs (e.g., <0.5 acres), relatively few species (e.g., overcup oak) may be present. In cases in which this is the normal condition, Q can be multiplied by 1.0 if only 1 or 2 species are dominant.	
 V8: Soil Organic Matter (ORGANIC) 1. Surface horizons unaltered ✓ 100 percent cover of O and/or A horizon present (SI = 1.0) 2. Surface horizons altered. Estimate the percent of the WAA in which neither an O or A horizon is present. 3. Subtract the sum of the values from Step 2 from 100. Convert this value to a decimal. This value is the SI for V8 (e.g., if 75 % of the WAA does not have an O or A horizon due to a significant disturbance, it will have an SI of 0.25). 	
V9: Buffer (BUFFER) 1. Determine the Connection Index (CI) by estimating the percent of the wetland surrounded by suitable buffer habitat. □ 90% - 100% (CI = 1.0) □ 75% - 89% (CI = 0.75) □ 40% - 74% (CI = 0.5) ☑ 10% - 39% (CI = 0.25) □ < 10% (CI = 0.1) 2. Multiply the CI by one if the following values: ② a) if average buffer width is ≥ 492 ft., multiply by 1.0 ○ b) if average buffer is 98 ft to 491 ft., multiply by 0.66 ○ c) if average buffer width is < 33 ft. o 97 ft., multiply by 0.33 ○ d) if average buffer width is < 33 ft., multiply by 0.1 3. This value is the SI for V9 = 0.25.	
VALUES USED TO CALCULATE FUNCTIONAL CAPACITY INDICES (FCIs) SUBINDEX VALUES: V1 0.50 (HYDRO) V3 0.00 (TSIZE) V5 1.00 (SCOV) V7 0.57 (COMP) V9 0.25 (BUFFER)	

(GVC) V8 1.00

(ORGANIC)

(TDEN) V6 0.00

V2_0.21

(WSHEDINT) V4<u>0.00</u>

WETLAND FUNCTIONS

FUNCITION 1: MAINTAIN HYDROLOGIC REGIME

FCI 1:
$$(V1 \times V2)^{1/2} \implies (0.50 \times 0.21)^{1/2} = 0.32$$

FUNCTION 2: MAINTAIN BIOGEOCHEMICAL PROCESSES

FCI (trees present)=
$$\left((V1 \times V2)^{1/2} \times \left(\frac{\frac{V_3+V_4}{2}+V_8}{2} \right) \right)^{1/2} \longrightarrow \left((FCI \ 1) \times \left(\frac{\frac{V_3+V_4}{2}+V_8}{2} \right) \right)^{1/2} = \underline{\qquad}$$

$$FCI (shrubs present) = \left((V1 \times V2)^{1/2} \times \left(\frac{V5 + V8}{3} \right) \right)^{1/2} \Longrightarrow \left((FCI \ 1) \times \left(\frac{1.00 + 1.00}{3} \right) \right)^{1/2} = \underline{0.46}$$

FCI (ground cover)
$$\left((V1 \times V2)^{1/2} \times \left(\frac{V6+V8}{5} \right) \right)^{1/2} \implies \left((FCI \ 1) \times \left(\frac{--+---}{5} \right) \right)^{1/2} = \underline{\qquad}$$

FUNCTION 3: MAINTAIN CHARACTERISTIC PLANT COMMUNITY

FCI (trees present) =
$$\frac{(\text{V1 x V2})^{1/2} + 2\left(\frac{\text{V3+V4+V7}}{3}\right)}{3} \implies \frac{(\text{FCI 1}) + 2\left(\frac{\text{---} + \text{---} + \text{---}}{3}\right)}{3} = \underline{\qquad}$$

FCI (shrubs present) =
$$\frac{(V1 \times V2)^{1/2} + 2(\frac{V5 + V7}{2})}{6}$$
 \implies $\frac{(FCI \ 1) + 2(\frac{1.00 + 0.57}{2})}{6}$ = $\frac{0.32}{}$

FCI (groundcover) =
$$\frac{(V1 \times V2)^{1/2} + 2\left(\frac{V6 + V7}{2}\right)}{9} \Longrightarrow \frac{(FCI \ 1) + 2\left(\frac{--+--}{2}\right)}{9} = \underline{\qquad}$$

FUNCTION 4: MAINTAIN CHARACTERISTIC WILDILFE COMMUNITY

FCI (trees) =
$$\frac{(V1 \times V2)^{1/2} + 2(\frac{V3 + V4 + V7}{3}) + V9}{4} \implies \frac{(FCI 1) + 2(\frac{-+--+--}{3}) + ----}{4} = \underline{\qquad}$$

FCI (shrubs present) =
$$\frac{(V1 \times V2)^{1/2} + 2(\frac{V5 + V7}{2}) + V9}{6} \implies \frac{(FCI \ 1) + 2(\frac{1.00 + 0.57}{2}) + \frac{0.25}{6}}{6} = \underline{0.36}$$

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: SR-11, PIN 124781.0	0	City/Co	unty: Davids	son Co.	_ Sampling	Date:	09/07/2021					
Applicant/Owner:	Tennessee Departme	nt of Transportation (TDOT)	_ State:TN	Sampli	ng Point:	WTL-1					
Investigator(s):	MLB, EWD		n, Township, Range:									
Landform (hillslope, terrace, etc.):	Escarpment	Local relie	f (concave, convex, no	ne): Co	ncave	Slope	(%):					
Subregion (LRR or MLRA):		36.331522	Long:	-86.71241	4	 Datum:	WGS-84					
Soil Map Unit Name:		imosa silt loam		NWI classi	fication:	PE	M					
Are climatic / hydrologic conditions												
Are Vegetation, Soil						Yes ✓	No					
Are Vegetation, Soil	or Hydrology	naturally problemat	ic? (If needed, e	explain any ansv	ers in Rema	arks.)						
7.10 Vogetation, con		_ naturally problemat	io. (ii rioddda, c	oxpiair arry arrov	roro iri rtorne							
SUMMARY OF FINDINGS	6 – Attach site ma	p showing sam	oling point location	ons, transect	ts, import	ant feat	ures, etc.					
Hydrophytic Vegetation Present?	Yes <u>√</u>	No	Is the Sampled Area									
Hydric Soil Present?	Yes	No ✓	within a Wetland?	Yes	No							
Wetland Hydrology Present?		No										
Remarks:		I										
Photo #: 23 & 24												
Climatic conditions are abr	normally wet for thi	s time of year										
Cilifiatic Conditions are abi	ioimally wet for the	3 time of year										
HYDROLOGY												
Wetland Hydrology Indicators:	:			Secondary Indi	cators (minin	num of tw	o required)					
Primary Indicators (minimum of o		all that apply)		Surface Sc			o roquirou <u>r</u>					
✓ Surface Water (A1)	•	rue Aquatic Plants (B	14)				rface (B8)					
\ <u></u>				Sparsely Vegetated Concave Surface (B8)Drainage Patterns (B10)								
Saturation (A3)	✓ High Water Table (A2) Hydrogen Sulfide Odor (C1) ✓ Saturation (A3) Oxidized Rhizospheres on Living Roots (C3)											
Water Marks (B1)		resence of Reduced		Dry-Season Water Table (C2)								
Sediment Deposits (B2)	· 	ecent Iron Reduction	, ,	✓ Crayfish B		10 (02)						
Drift Deposits (B3)		hin Muck Surface (C7		Saturation		erial Imag	erv (C9)					
Algal Mat or Crust (B4)		ther (Explain in Rem			Stressed Pla	_	- , (,					
Iron Deposits (B5)	_	` '	,		ic Position ([
Inundation Visible on Aerial	Imagery (B7)			Shallow Ad		ŕ						
Water-Stained Leaves (B9)				Microtopog	raphic Relie	f (D4)						
Aquatic Fauna (B13)				FAC-Neutr	al Test (D5)							
Field Observations:												
Surface Water Present?	′es	Depth (inches): 2 ir	1									
Water Table Present?	′es _ √ No I	Depth (inches): SURFA	ACE									
Saturation Present?	′es	Depth (inches): SURF	ACE Wetland H	Hydrology Pres	ent? Yes_	<u> </u>	No					
(includes capillary fringe)												
Describe Recorded Data (stream	n gauge, monitoring we	II, aeriai photos, prev	ious inspections), if ava	allable:								
Remarks:												

VEGETATION (Five Strata) – Use scientific names of plants. WTL-1 Sampling Point: Absolute Dominant Indicator **Dominance Test worksheet:** Tree Stratum (Plot size: ___ 10m ___) % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: Total Number of Dominant 2 (B) Species Across All Strata: Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B) Prevalence Index worksheet: 0 = Total Cover Total % Cover of: Multiply by: 50% of total cover: 0 20% of total cover: 0OBL species _____ x 1 =____ Sapling Stratum (Plot size: ___ FACW species _____ x 2 =____ FAC species _____ x 3 =____ FACU species _____ x 4 =____ UPL species x 5 = Column Totals: 0 (A) 0 (B) Prevalence Index = B/A = 0 = Total Cover **Hydrophytic Vegetation Indicators:** 1 - Rapid Test for Hydrophytic Vegetation 50% of total cover: 0 20% of total cover: 0✓ 2 - Dominance Test is >50% Shrub Stratum (Plot size: ___ 3 - Prevalence Index is ≤3.0¹ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. 0 = Total Cover **Definitions of Five Vegetation Strata:** 50% of total cover: 0 20% of total cover: 0 Tree – Woody plants, excluding woody vines, 1.5m __) Herb Stratum (Plot size: approximately 20 ft (6 m) or more in height and 3 in. 1 Cyperus esculentus (yellow nutsedge) **FACW** (7.6 cm) or larger in diameter at breast height (DBH). Yes 2 Echinochloa muricata (rough barnyardgrass) Yes **FACW** Sapling – Woody plants, excluding woody vines, 5 3. Eclipta prostrata (false daisy) No FAC approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine - All woody vines, regardless of height. 35 = Total Cover 50% of total cover: ___17.5__ 20% of total cover: ___7 Woody Vine Stratum (Plot size: ______) Hydrophytic 0 = Total Cover Vegetation Yes No Present? 50% of total cover: ____0 20% of total cover:

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

SOIL Sampling Point: WTL-1

Profile Desc	ription: (Describe to the o	epth needed to document the indicator or confirm	the absence of indicators.)
Depth	Matrix	Redox Features	
(inches)	Color (moist) %	Color (moist) % Type ¹ Loc ²	Texture Remarks
			
		M=Reduced Matrix, MS=Masked Sand Grains.	² Location: PL=Pore Lining, M=Matrix.
Hydric Soil I	ndicators:		Indicators for Problematic Hydric Soils ³ :
Histosol	(A1)	Dark Surface (S7)	2 cm Muck (A10) (MLRA 147)
		Polyvalue Below Surface (S8) (MLRA 147,	
	oipedon (A2)		,
Black Hi	,	Thin Dark Surface (S9) (MLRA 147, 148)	(MLRA 147, 148)
	n Sulfide (A4)	Loamy Gleyed Matrix (F2)	Piedmont Floodplain Soils (F19)
Stratified	I Layers (A5)	Depleted Matrix (F3)	(MLRA 136, 147)
2 cm Mu	ck (A10) (LRR N)	Redox Dark Surface (F6)	Very Shallow Dark Surface (TF12)
	Below Dark Surface (A11)	Depleted Dark Surface (F7)	Other (Explain in Remarks)
	rk Surface (A12)	Redox Depressions (F8)	
	lucky Mineral (S1) (LRR N,		
		Iron-Manganese Masses (F12) (LRR N,	
	147, 148)	MLRA 136)	
Sandy G	leyed Matrix (S4)	Umbric Surface (F13) (MLRA 136, 122)	³ Indicators of hydrophytic vegetation and
Sandy R	edox (S5)	Piedmont Floodplain Soils (F19) (MLRA 148	wetland hydrology must be present,
	Matrix (S6)	Red Parent Material (F21) (MLRA 127, 147)	
	_ayer (if observed):		
Type:			
Depth (ind	ches):		Hydric Soil Present? Yes No
Remarks:			
	ravel from railroad	was mixed in with soil preventing us	from getting a proper soil sample.
		1 3	3 3 1 1

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: SR-11, PIN 124781.0	00	Citv/C	ounty: Davi	dson Co.	Sampling Date:	09/07/2021			
Applicant/Owner:	Tennessee Departme	ent of Transportation	(TDOT)	State: TN	Sampling Poi	int: WTL-1 UPL			
Investigator(s):			on, Township, Range:						
Landform (hillslope, terrace, etc.):	Escarpment	Local reli	ef (concave, convex, n	ione): Conv	ex Slo	ope (%):			
Subregion (LRR or MLRA):									
Soil Map Unit Name:		limosa silt loam	_	NWI classifica					
Are climatic / hydrologic conditions		this time of year? Y							
Are Vegetation, Soil						√ No			
Are Vegetation, Soil									
, July 1 ogotation, July	<u>_</u> , c , a. c. cg, <u></u>		(, explain any anemon	o toao.,				
SUMMARY OF FINDINGS	- Attach site ma	p showing sam	pling point locat	ions, transects,	important f	eatures, etc.			
		/							
Hydrophytic Vegetation Present?		No	Is the Sampled Area	1					
Hydric Soil Present?	Yes	No	within a Wetland?	Yes	No ✓	_			
Wetland Hydrology Present?	Yes	No <u>▼</u>							
Remarks:									
Climatic conditions are abr	normally wet for th	is time of year							
HYDROLOGY									
Wetland Hydrology Indicators:				Secondary Indicat	ors (minimum o	f two required)			
Primary Indicators (minimum of o	one is required; check	all that apply)		Surface Soil 0	Cracks (B6)				
Surface Water (A1)	Т	rue Aquatic Plants (B14)	Sparsely Vegetated Concave Surface (B8)					
High Water Table (A2)		lydrogen Sulfide Od		Drainage Patterns (B10)					
Saturation (A3)			es on Living Roots (C3	_					
Water Marks (B1)		Presence of Reduced			Vater Table (C2))			
Sediment Deposits (B2)			n in Tilled Soils (C6)	Crayfish Burro	ows (C8)				
Drift Deposits (B3)	T	hin Muck Surface (C	27)	Saturation Vis	sible on Aerial In	nagery (C9)			
Algal Mat or Crust (B4)	0	Other (Explain in Ren	narks)	Stunted or Str	ressed Plants (D)1)			
Iron Deposits (B5)				Geomorphic F	Position (D2)				
Inundation Visible on Aerial	Imagery (B7)			Shallow Aquit					
Water-Stained Leaves (B9)					ohic Relief (D4)				
Aquatic Fauna (B13)				FAC-Neutral	Test (D5)				
Field Observations:	1								
	/es No _ √								
	res No _ ✓					,			
	/es No _ √	Depth (inches):	Wetland	l Hydrology Present	? Yes	_ No <u></u> ✓			
(includes capillary fringe) Describe Recorded Data (stream	n gauge, monitoring we	ell, aerial photos, pre	vious inspections), if a	vailable:					
,	0 0 7		, ,,						
Remarks:									
I									

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

VEGETATION (Five Strata) – Use scientific na	mes of	plants.		Sampling Point: WTL-1 UPL
10	Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Plot size:10m) 1. Acer negundo (boxelder)	% Cover 2	Species?	Status FAC	Number of Dominant Species That Are OBL, FACW, or FAC:1 (A)
2				Total Number of Dominant
3				Species Across All Strata:3 (B)
5				Percent of Dominant Species That Are OBL_FACW_or_FAC: 33 (A/B)
6.				That Are OBL, FACW, or FAC:33 (A/B)
<u> </u>	2	= Total Cov	/er	Prevalence Index worksheet:
50% of total cover:1	20% of	total cover	. 0.4	Total % Cover of: Multiply by:
Sapling Stratum (Plot size: 5m)	2070 01	10101 00701		OBL species x 1 =
1				FACW species x 2 =
2				FAC species x 3 = FACU species x 4 =
3				UPL species x 4
4				Column Totals: (A) (B)
5				(i) (b)
6		-		Prevalence Index = B/A =
		= Total Cov		Hydrophytic Vegetation Indicators:
50% of total cover:0	20% of	total cover	·· <u> </u>	1 - Rapid Test for Hydrophytic Vegetation
Shrub Stratum (Plot size: 5m				2 - Dominance Test is >50%
1. Sambucus nigra (black elderberry)	10	Yes	FAC	3 - Prevalence Index is ≤3.0 ¹
2. Apocynum cannabinum (Indianhemp)	5	No	FACU	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
3. Lonicera maackii (Amur honeysuckle)	10	Yes		Problematic Hydrophytic Vegetation ¹ (Explain)
4. Lonicera japonica (Japanese honeysuckle)	5	No	FACU	
5				¹ Indicators of hydric soil and wetland hydrology must
0	30	= Total Cov		be present, unless disturbed or problematic.
50% 51.1.				Definitions of Five Vegetation Strata:
50% of total cover:15 Herb Stratum (Plot size: 1.5m)	20% of	total cover	:	Tree - Woody plants, excluding woody vines,
Herb Stratum (Plot size:1.5m) 1 Ligustrum sinense (Chinese privet)	2	No	FACU	approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
2 Euonymus fortunei (winter creeper)	50	Yes		
3.				Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less
4				than 3 in. (7.6 cm) DBH.
5				Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
6				Herb – All herbaceous (non-woody) plants, including
8				herbaceous vines, regardless of size, and woody
9				plants, except woody vines, less than approximately 3 ft (1 m) in height.
10				
11				Woody vine – All woody vines, regardless of height.
	52	= Total Cov	/er	
50% of total cover: 26	20% of	total cover	10.4	
Woody Vine Stratum (Plot size:)				
1				
2				
3				
4		-		
5				Hydrophytic
		= Total Cov		Vegetation Present? Yes No
50% of total cover:0		total cover	:0	rieseiit! iesNO_▼
Remarks: (Include photo numbers here or on a separate s Indicator status of Lonicera maack	,	unava	ilable.	

Sampling Point: WTL-1 UPL

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)	 Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2) 	
ydric 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)	 Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2) 	Indicators for Problematic Hydric Soils ³ : 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16)
ydric 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)	 Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2) 	Indicators for Problematic Hydric Soils ³ : 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16)
Adric 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)	 Dark Surface (S7) Polyvalue Below Surface (S8) (MLRA 147, 148) Thin Dark Surface (S9) (MLRA 147, 148) Loamy Gleyed Matrix (F2) 	Indicators for Problematic Hydric Soils ³ : 2 cm Muck (A10) (MLRA 147) Coast Prairie Redox (A16)
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 Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) 	Loamy Gleyed Matrix (F2)	(MI DA 447, 440)
 Hydrogen Sulfide (A4) Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11) 	Loamy Gleyed Matrix (F2)	(MLRA 147, 148)
Stratified Layers (A5) 2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11)		Piedmont Floodplain Soils (F19)
2 cm Muck (A10) (LRR N) Depleted Below Dark Surface (A11)	Depleted Matrix (F3)	(MLRA 136, 147)
Depleted Below Dark Surface (A11)	Redox Dark Surface (F6)	Very Shallow Dark Surface (TF12)
	Depleted Dark Surface (F7)	Other (Explain in Remarks)
Thick Dark Surface (A12)	Redox Depressions (F8)	Other (Explain in Remarks)
Thick Dark Surface (A12) Sandy Mucky Mineral (S1) (LRR N,		
	Iron-Manganese Masses (F12) (LRR N,	
MLRA 147, 148)	MLRA 136)	3
Sandy Gleyed Matrix (S4)	Umbric Surface (F13) (MLRA 136, 122)	³ Indicators of hydrophytic vegetation and
Sandy Redox (S5)	Piedmont Floodplain Soils (F19) (MLRA 148)	
Stripped Matrix (S6)	Red Parent Material (F21) (MLRA 127, 147)	unless disturbed or problematic.
Restrictive Layer (if observed):		
Type:		
Depth (inches):		Hydric Soil Present? Yes No
Deptil (iliches).		Tryunc Son Fresent: Tes No

An affirmative response to any of numbers 1-6 of the Decision Table identifies the wetland per rule as an Outstanding National Resource Water or Exceptional Tennessee Water. A positive response to <u>7-13 requires a final determination by the Department.</u>

#	Wetland Feature Decision Table WTL-1	Yes/No	Affirmative Result
1	The wetland has been designated as an Outstanding National Resource Water (ONRW) by the Department under 0400-40-0306(5)(a).	No	ORNW
2	The wetland has previously been designated and documented as an Exceptional Tennessee Water (ETW) by the Department under 0400-40-0306(4)(a)	No	ETW
3	The wetland is within a state or national park, wildlife refuge, forest, wilderness area, or natural area.	No	ETW
4	The wetland is known to contain a documented non-experimental population of a state or federally listed threatened or endangered aquatic or semi-aquatic plant(s), or aquatic animal(s).	No	ETW
5	The wetland or the area it is in has been designated by the U.S. Fish and Wildlife Service as "Critical Habitat" for any threatened or endangered aquatic or semi-aquatic plant or aquatic animal.	No	ETW
6	The wetland falls within an area designated as Lands Unsuitable for Mining pursuant to the federal Surface Mining Control and Reclamation Act where such designation is based in whole or in part on impacts to water resource values	No	ETW
7	The wetland exhibits outstanding ecological or recreational values such as, <u>but not limited to</u> , those as outlined in 8-12	No	Determination Required by TDEC
8	The wetland fits within the species composition concept for any plant community found in the state of Tennessee ranked G2, G1, or more imperiled at the "Association" classification level according to the NatureServe and Natural Heritage Ranking system (e.g., "bog", "fen", and "wet prairie/barren" communities).	No	Determination Required by TDEC
9	The wetland is an inherently valuable resource (e.g., vernal pools, headwater wetlands, sinks, spring/seeps, glades, newly described communities, high recreational or socioeconomic value) in the region and/or is deemed such by concurrence of qualified scientists.	No	Determination Required by TDEC
10	The wetland is an older aged forested wetland comprised of overstory trees with an average diameter at breast height (dbh) being greater than or equal to 30 in within the WAA.	No	Determination Required by TDEC
11	The wetland is observed and documented to be a significant fish and wildlife habitat area . These may include rookeries, migratory congregations, nesting sites, breeding areas, etc.	No	Determination Required by TDEC
12	The wetland is hydrologically connected to and/or has significant ecological contribution to an ETW	No	Determination Required by TDEC
13	The wetland has High Resource Value as determined by a score of 75 or above using the TRAM or non-HGM TRAM (to be determined after completing the quantitative portion of this manual) End of Narrative Rating, Begin Quantitative Rating.	No	Determination Required by TDEC

End of Narrative Rating. Begin Quantitative Rating on Next Page.

Tram User Guide

SITUATION

TRAM REQUIRED



- Wetland impacts greater than 0.10 acre.....YES

NOTE: The Exceptional Status Wetland section must be completed for all proposed wetland alterations, including wetlands situations where HGM assessment is not required or the Non-HGM TRAM is used, including proposed wetlands impacts less than 0.10 acre.

Ecology Field Data Sheet: Water Resources

Project:	avidson	Co. SR-11 (US-31	IW, North	Main St	reet), from Fa	ınnin D	rive to Ol	ld Sto	ne Bridge	Road	l, includi	ng CSX I	R/R Ove	erpas	ss Structure P	IN 1247	81.00
Biologist:	MLI	B, SLN	Affi	liatio	n:	TD	ОТ			D	ate:				08/26	/2021	
1-Station: from plan	าร																
2-Map label and na	me	STR-3															
3-Latitude/Longitu	de	36.330152, -86	6.71160)7													
4-Feature descripti	on:																
-channel identification		perennial strean	n	1	intermitten	t stre <i>a</i>	ım [ephem	nerals	stream		T w	/WC			\Box
-HD score (if applicable))																
-OHWM indicators		bed & banks		depos	ition		presen debris	ce of li	itter /		scour				veg absent, matted	bent,	√
		change in plant community			uction of multiple obstrial veg flow events							ing		water staini	ng		
		change in soil character		leaf litt or abse	er disturbed ent	√	natura impres		n bank		shelvii	ng			wracking		
-channel bottom width		1.5 ft					-top	of ba	ank wid	dth		1.5 ft					
-width at ordinary high mark	water	1.5 ft, 2 in. fro	m botto	om													
-bank height		LDB - 3.5 ft							RDB -	3.5 f	t						
-riffle/pool complex or specialized habitat pres		no															
-dominant riparian spe	cies:	LDB: None	DB: None														
(LDB /RDB)		RDB: boxelder	RDB:boxelder, green ash, bush honeysuckle, black walnut, Chinese privet														
-date of PJD request																	
5-photo numbers		5 & 6															
6-HUC -8 Code & Nam	ne	05130202, Che	atham L	.ake													
7-Assessed		yes			no			✓									
8-ETW		yes			no		[√									
9-303 (d) List		yes			siltation		Ī	T	habitat	t:			ot	her:			П
		no		V							•						
10-Notes		Feature is at	the toe	of the	railroad l	ned											
		i eature is at	ine toe	or the	raill Gau i	Jeu											
Substi	rate	gravel/ballast	bed														

Hydrologic Determination Field Data Sheet

Tennessee Division of Water Pollution Control, Version 1.5

Named Waterbody:	Date/Time: 08/26/2021								
Assessors/Affiliation: MLB, SLN -TDOT	Project ID :								
Site Name/Description: STR-3	124781.00								
Site Location:									
HUC (12 digit): 051302020301, Madison Creek	Lat/Long:								
Previous Rainfall (7-days): 2.42 inches	36.330152, -86.711607								
Precipitation this Season vs. Normal: abnormally wet elevated average low abnormally dry unknown Source of recent & seasonal precip data: NOAA past weather/AgACIS last 7 days									
Watershed Size : <0.5 square miles	County: Davidson Co.								
Soil Type(s) / Geology : Mimosa silt loam, 5 to 12 percent slopes,	eroded Source: NRCS								
Surrounding Land Use : Industrial, railroad									
Degree of historical alteration to natural channel morphology & hydr Severe Moderate Sli	rology (circle one & describe fully in Notes) : ight Absent								

Primary Field Indicators Observed

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

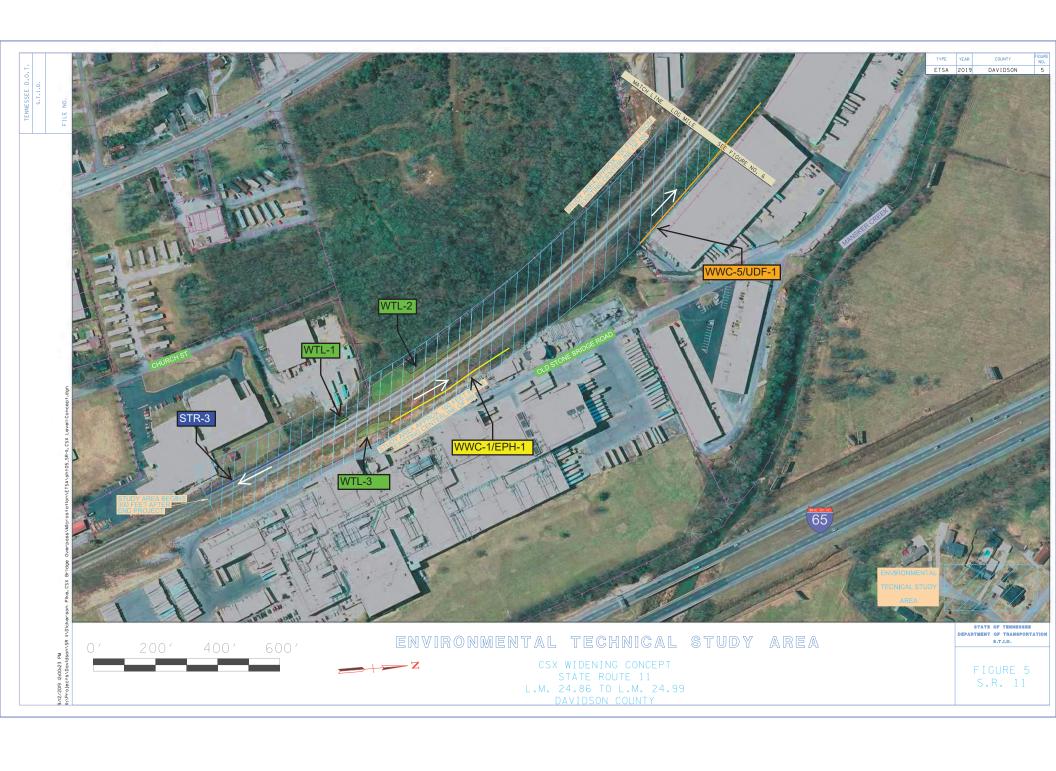
In the absence of a primary indicator, or other definitive evidence, complete the secondary indicator table on page 2 of this sheet, and provide score below.

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:

multiple seeps observed on RDB, iron sheen on water surface









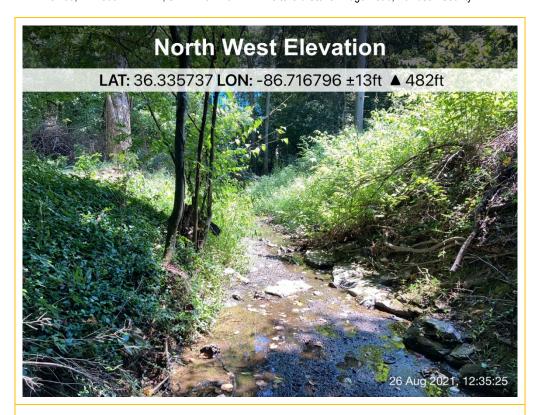


Photo 1: STR-1, view downstream



Photo 2: STR-1, view upstream



Photo 3: STR-2, Manskers Creek, view upstream



Photo 4: STR-2, Manskers Creek, view downstream

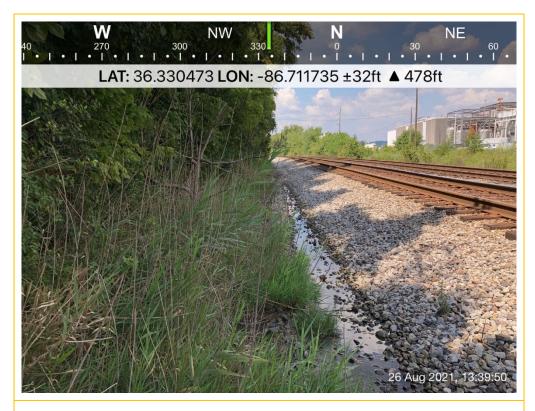


Photo 5: STR-3, view upstream

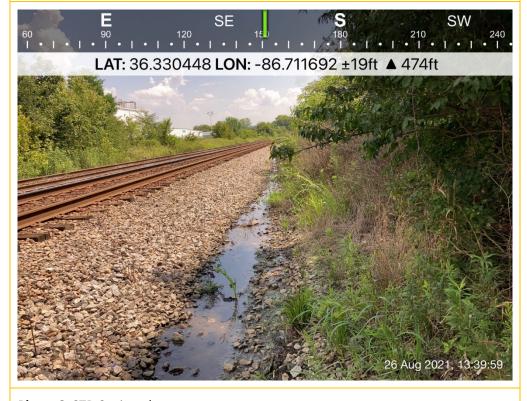


Photo 6: STR-3, view downstream



Photo 7: STR-4, view downstream



Photo 8: STR-4, view upstream

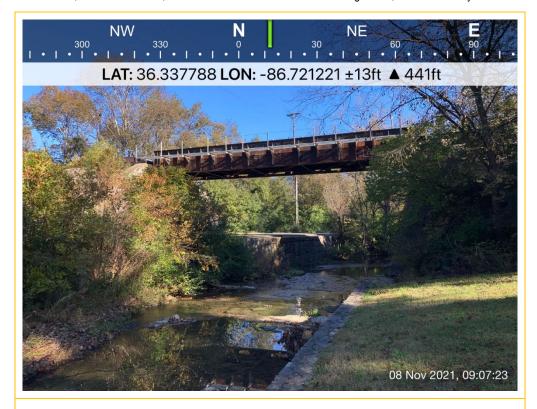


Photo 9: STR-5, Lumsley Fork, view usptream



Photo 10: STR-5, Lumsley Fork, view downstream



Photo 11: STR-6, view downstream



Photo 12: STR-6, view upstream showing beginning



Photo 13: WWC-1/EPH-1, view downgradient



Photo 14: WWC-1/EPH-1, view upgradient



Photo 15: WWC-2/EPH-2, view upgradient



Photo 16: WWC-2/EPH-2, view downgradient



Photo 17: WWC-3/EPH-3, view upgradient



Photo 18: WWC-3/EPH-3, view downgradient



Photo 19: WWC-4/EPH-4, view upgradient



Photo 20: WWC-4/EPH-4, view downgradient



Photo 21: WWC-5/UDF-1, view upgradient



Photo 22: WWC-5/UDF-1, view downgradient



Photo 23: WTL-1



Photo 24: WTL-1



Photo 25: WTL-2



Photo 26: WTL-2



Photo 27: WTL-3



Photo 28: WTL-3

Project: SR-11, from Fannin Drive to Old Stone Bridge, including the CSX R/R Overpass Structure PIN: 124781.00 PE: 19031-1217-14

Date of field study: 08/26/21 – 11/10/21 Date TDEC database checked: 08/23/21 Completed by: MLB

Species reported within 1 mile radius of project:

Species Scientific and common names, followed by (A) for animal or (P) for plant	St	atus	Species is potentially present in R-O-W because: (A) it is listed by TDEC within ROW (B) habitat is present (C) observed during site visit (D) critical habitat present within ROW	Species is considered likely NOT present in R-O-W because: (A) Present habitat unsuitable (B) Not observed during site visit (C) Original record questionable (D) Considered extinct/extirpated	included on project plans (C) Individuals will be impacted. (D) Accommodations not practical due to broad habitat description or	Habitat (include blooming, breeding or other information; where found according to TDEC database; year last observed; reference)	Comments / ACOE Effects Determination Notes
	Fed	TN					
Streamside Salamander, Ambystoma barbourin (A)		E	В		В	A. barbouri can be found in glades and cedar woodlands close to streams, as well as seasonally ephemeral and intermittent karst streams in middle Tennessee (Krous and Petranka, 1989; TDEC 2016). It breeds in shallow limestone streams with flat rock or boulders and natural barriers that prevent fish migration upstream from December to February in Middle Tennessee (TDEC DNA, 2019). Populations occur in the Cumberland, Stones, Harpeth and Red Rivers watersheds (NatureServe 2019). LOD: 2020	-Species sweep required per TWRA -In-stream construction prohibition from December 15 th through June 1 st per TWRA

PE: 19031-1217-14

PIN: 124781.00

Project: SR-11, from Fannin Drive to Old Stone Bridge, including the CSX R/R Overpass Structure

Species reported within 1-mile to 4-mile radius of project:

Species Scientific and common names, followed by (A) for animal or (P) for plant		atus	Species is potentially present in R-O-W because: (A) it is listed by TDEC within ROW (B) habitat is present (C) observed during site visit (D) critical habitat present within ROW	Species is considered likely NOT present in R-O-W because: (A) Present habitat unsuitable (B) Not observed during site visit (C) Original record questionable (D) Considered extinct/extirpated	Accommodations to minimize impacts: (A) BMPs are sufficient to protect species (B) Special Notes are included on project plans (C) Individuals will be impacted. (D) Accommodations not practical due to broad habitat description or mobility of species	Habitat (include blooming, breeding or other information; where found according to TDEC database; year last observed; reference)	Comments / ACOE Effects Determination Notes
	Fed	TN					
Streamside Salamander, Ambystoma barbourin (A)		Е	В		В	A. barbouri can be found in glades and cedar woodlands close to streams, as well as seasonally ephemeral and intermittent karst streams in middle Tennessee (Krous and Petranka, 1989; TDEC 2016). It breeds in shallow limestone streams with flat rock or boulders and natural barriers that prevent fish migration upstream from December to February in Middle Tennessee (TDEC DNA, 2019). Populations occur in the Cumberland, Stones, Harpeth and Red Rivers watersheds (NatureServe 2019). LOD: 2020	-Species sweep required per TWRA -In-stream construction prohibition from December 15th through June 1st per TWRA
Davis' Sedge, Carex davisii (P)		S		А	А	Davis' Sedge habitat includes bottomlands, riparian soils, and calcareous floodplain forests and meadows in the Western Highland Rim and Central Basin. Both flowering and fruiting occurs between May and July. (TN Flora Committee, 2015; TDEC, 2016). LOD: 1968	
Prairie Parsley, Polytaenia nuttallii (P)		Т		А	А	In Prairie Parsley's native range, it is found in high quality prairie and rarely found in areas of disturbance, such as roadsides. Prairie Parsley may remain as a basal rosette of leaves for 2 or more years before bolting and producing flowers and fruit, after which the plant dies. Though it may produce abundant fruit, little of it germinates. The leaves are more finely divided than other yellow-flowering members of the carrot family, such as Wild Parsnip (Pastinaca sativa), Hairy-jointed Meadow Parsnip (Thaspium barbinode) or Alexanders (Zizia species). LOD: 1882	
Baker Station Cave Beetle, Pseudanophthalmus insularis (A)		Rare, not state listed		А	А	Niemiller et al. (2017) confirmed the existence of this species in two caves in 2013 and 2014; it was previously thought to be possibly extinct. Niemiller et al. (2017) collected this beetle at Bakers Station Cave in 2013 and Blasted Spring Cave in 2014. Prior to this, it had not been observed for 60 years from either of the two historical localities. No other cave beetles were observed during additional surveys of five nearby caves in Cheatham (two caves), Davidson (two caves), and Sumner (one cave) counties (Niemiller et al. 2017). LOD: 1960	

PE: 19031-1217-14

PIN: 124781.00

Migratory Birds

USFWS letter: Yes _X (attached) No _ (explain) Biological Assessment: Yes _ (response letter attached; see below) No _X Species (scientific and common names) USFWS conclusion¹ ¹ Choose from "no effect"; "not likely to adversely affect," or "likely to adversely affect," is chosen, indicate "no jeopardy to species and no adverse modification to habitat" or "jeopardy to species, or adverse modification to habitat" based on FWS concurrence letter List Natural Areas, management areas, refuges, or similar sites within or adjacent to project (attach 7.5 minute topographic map with pertine boundaries of area marked) Area Name Type of Area Pertinent Notes None List locations that contain potential Indiana bat habitat (Provide an aerial that indicates areas checked) Location (description; lat/long or station number) Tree Species Photograph # None		Species (Scientific and Common Name) Approximate No. of Nests Location of Nests (or Individuals) Nesting Dates and Reference (Include Latitude & Longitude)											
Species (scientific and common names) USFWS conclusion¹			None										
Species (scientific and common names) USFWS conclusion¹													
Species (scientific and common names) USFWS conclusion¹ ¹Choose from "no effect"; "not likely to adversely affect;" or "likely to adversely affect;". If "likely to adversely affect" is chosen, indicate "no jeopardy to species and no adverse modification to habitat" or "jeopardy to species, or adverse modification to habitat" based on FWS concurrence letter List Natural Areas, management areas, refuges, or similar sites within or adjacent to project (attach 7.5 minute topographic map with pertine boundaries of area marked) Area Name Type of Area Pertinent Notes None List locations that contain potential Indiana bat habitat (Provide an aerial that indicates areas checked) Location (description; lat/long or station number) Tree Species Photograph #	JSFWS letter: Yes X	(attached) No	_ (explain)										
¹ Choose from "no effect"; "not likely to adversely affect;" or "likely to adversely affect;". If "likely to adversely affect" is chosen, indicate "no jeopardy to species and no adverse modification to habitat" or "jeopardy to species, or adverse modification to habitat" based on FWS concurrence letter List Natural Areas, management areas, refuges, or similar sites within or adjacent to project (attach 7.5 minute topographic map with pertine boundaries of area marked) Area Name Type of Area Pertinent Notes None List locations that contain potential Indiana bat habitat (Provide an aerial that indicates areas checked) Location (description; lat/long or station number) Photograph #	Biological Assessment: Ye	es (response letter atta	ached; see below) No _X										
¹ Choose from "no effect"; "not likely to adversely affect;" or "likely to adversely affect;". If "likely to adversely affect" is chosen, indicate "no jeopardy to species and no adverse modification to habitat" or "jeopardy to species, or adverse modification to habitat" based on FWS concurrence letter List Natural Areas, management areas, refuges, or similar sites within or adjacent to project (attach 7.5 minute topographic map with pertine boundaries of area marked) Area Name Type of Area Pertinent Notes None List locations that contain potential Indiana bat habitat (Provide an aerial that indicates areas checked) Location (description; lat/long or station number) Photograph #	Spec	ies (scientific and commo	n names)	JSFWS conclusion ¹									
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Location (description; lat/long or station number) Tree Species Photograph #	Area Name		Type of Area										
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	ist locations that contain	potential Indiana bat h	None abitat (Provide an aerial that ind										
	ist locations that contain	potential Indiana bat h	None abitat (Provide an aerial that ind Tree Spe										

Species (scientific and common names)	USACOE Effects Determination
Indiana bat, Myotis sodalis	Section 7 Clearance Granted
Northern long-eared bat, Myotis septentrionalis	Section 7 Clearance Granted

Madalyn Brown

From: Casey Parker

Sent: Wednesday, December 8, 2021 10:55 AM

To: Madalyn Brown

Cc: Vincent Pontello; TDOT.Env Ecology

Subject: RE: Coordination Request - Davidson Co, SR-11 Widening, PIN 124781.00

Subject: Coordination Request - Davidson Co, SR-11 Widening, PIN 124781.00

Ms. Madalyn Brown,

The Tennessee Wildlife Resources Agency has reviewed the information that you provided regarding the proposed widening of SR-11 in Davidson County, Tennessee. In-stream work is expected, therefore to minimize impacts to the State Endangered species, Streamside Salamander - *Ambystoma barbouri* (2020), I am requesting species sweeps immediately prior to in-stream work and relocating the species to suitable habitat upstream of a barrier. Additionally, survey preference is recommended from December 15th through March 15th for this species and prohibit in-stream construction from December 15th through June 1st to minimize impacts during breeding season and development of embryos. Thank you for the opportunity to review and comment, please contact me if you need further assistance.

Casey Parker - Wildlife Biologist
Liaison to TDOT & Federal Highway Administration
Tennessee Wildlife Resources Agency
Environmental Services Division
Email: casey.parker@tn.gov



From: Madalyn Brown <Madalyn.Brown@tn.gov>

Sent: Friday, November 12, 2021 2:19 PM **To:** Casey Parker < Casey.Parker@tn.gov>

Cc: Vincent Pontello <Vincent.Pontello@tn.gov>; TDOT.Env Ecology <TDOT.Env.Ecology@tn.gov>

Subject: Coordination Request - Davidson Co, SR-11 Widening, PIN 124781.00

Good Afternoon Casey,

TDOT is requesting your review and comment on the subject project. The project involves widening SR-11 to five lanes and replacing the CSX overpass. I have attached supporting information and a KMZ file for the project. Please let me know if you have any questions or need additional information.

Thank You,



Madalyn Brown l Environmental Studies Specialist Region 3 Environmental Tech Group 6601 Centennial Blvd. Bldg A 2nd Floor Nashville, TN 37243-0360 Office: (615) 350-4209

Cell: (615) 956-1029

Madalyn Brown

From: Griffith, John <john_griffith@fws.gov>
Sent: Wednesday, December 1, 2021 3:52 PM

To: Madalyn Brown

Cc: R3 EnvTechOffice; TDOT.Env Ecology; Sikula, Nicole R

Subject: Re: [EXTERNAL] Coordination Request - Davidson Co, SR-11 Widening, PIN 124781.00

*** This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email - STS-Security. ***

Madalyn,

Thank you for your correspondence regarding the proposed State Route (SR) 11 widening from Fannin Drive to Old Stone Bridge Road in Davidson County, Tennessee. The project would involve widening of SR 11 to five lanes and replacement of the CSX Railroad Overpass. You have requested a list of federally threatened or endangered species that may be present in the project area.

A review of our database does not indicate that any federally listed or proposed species occur in your project area. Therefore, based on the best information available at this time, we believe that the requirements of the Endangered Species Act (ESA) are fulfilled for all species that currently receive protection under the ESA. Obligations under section 7 of the ESA should be reconsidered if (1) new information reveals impacts of the proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

The information provided indicate that wetlands are present within the proposed alignment. The U.S. Army Corps of Engineers, Nashville District, Regulatory Branch can be reached at 615-369-7500.

TDOT would ensure that standard construction BMPs are implemented and that construction-related pollutants are kept out of area streams. Equipment staging and maintenance areas should be located an appropriate distance from streams to prevent entry of petroleum-based pollutants into the water. Fresh concrete and cement dust must be kept out of the water as they alter chemical properties and can be toxic to aquatic species.

This email will serve as our official project response. Please let me know if we can offer further assistance. Thanks,

John Griffith
Transportation Biologist
U.S. Fish and Wildlife Service
Tennessee Field Office
931-525-4995 (office)
931-528-7075 (fax)

From: Madalyn Brown < Madalyn.Brown@tn.gov>

Sent: Friday, November 12, 2021 2:23 PM **To:** Griffith, John <john_griffith@fws.gov>

Cc: R3 EnvTechOffice <R3.EnvTechOffice@tn.gov>; TDOT.Env Ecology <TDOT.Env.Ecology@tn.gov>

Subject: [EXTERNAL] Coordination Request - Davidson Co, SR-11 Widening, PIN 124781.00

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Good Afternoon John,

TDOT is requesting your review and comment on the subject project. The project involves widening SR-11 to five lanes and replacing the CSX overpass. I have attached supporting information and a KMZ file for the project. Please let me know if you have any questions or need additional information.

Thank You,



Madalyn Brown I Environmental Studies Specialist Region 3 Environmental Tech Group 6601 Centennial Blvd. Bldg A 2nd Floor Nashville, TN 37243-0360

Office: (615) 350-4209 Cell: (615) 956-1029



STATE OF TENNESSEE

DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Natural Areas Natural Heritage Program William R. Snodgrass Tennessee Tower 312 Rosa L. Parks Avenue, 2nd Floor Nashville, Tennessee 37243 Phone 615/532-0431 Fax 615/532-0046

December 13, 2021

Madalyn Brown TDOT 6601 Centennial Blvd Bldg. A 2nd Floor Nashville, TN 37243

Subject: SR-11 Widening to Five Lanes and CSC Overpass Replacement

TDOT PIN 124781.00

Northern Terminus SR-11: (36.33900° -86.71798°) Southern Terminus SR-11: (36.33349° -86.71716°) Northern Terminus CSX: (36.34612° -86.72647°) Southern Terminus CSX: (36.32716° -86.71013°)

Stream Section of UNT to Mansker Creek #1: (36.33478° -86.71738°) Stream Section of UNT to Mansker Creek #2: (36.33605° -86.71632°)

Davidson County, TN

Rare Species Database Review

Dear Ms. Brown:

Thank you for your correspondence of 12 November 2021 requesting a rare species database review for the proposed widening of SR-11 and replacement of a CSX overpass.

We have reviewed the state's natural heritage database with regard to the project boundaries, and we find that the following rare species has been observed previously within one mile of the project area:

Туре	Scientific Name	Common Name	Global Rank	St. Rank	Fed. Prot.	St. Prot.	Habitat
Vertebrate Animal	Ambystoma barbouri	Streamside Salamander	G4	S2		E	Seasonally flowing karst streams; middle Tennessee.

Within four miles of the project area the following additional rare species have been reported:

Туре	Scientific Name	Common Name	Global Rank	St. Rank	Fed. Prot.	St. Prot.	Habitat
Vascular Plant	Carex davisii	Davis' Sedge	G4	S1		S	Bottomlands, Riparian Soils

Туре	Scientific Name	Common Name	Global Rank	St. Rank	Fed. Prot.	St. Prot.	Habitat
Vascular Plant	Dalea foliosa	Leafy Prairie- clover	G2G3	S2S3	LE	E	Rocky Washes in Glades
Vascular Plant	Polytaenia nuttallii	Prairie Parsley	G5	S1	1	Т	Prairies and Open Dry Areas
International Vegetation Classification - Natural	Quercus stellata / Viburnum rufidulum / Schizachyrium scoparium - (Sorghastrum nutans, Helianthus eggertii) Woodland	Western Highland Rim Escarpment Post Oak Barrens	G2G3	S2	1	Rare, Not State Listed	
Invertebrate Animal	Pseudanophthalmus insularis	Baker Station Cave Beetle	G1	S1		Rare, Not State Listed	Terrestrial cave obligate; northern Central Basin; known from single historical record in Davidson County.

The Division of Natural Areas - Natural Heritage Program has reviewed the location of the proposed project workspace with respect to rare plant species. Based on the habitat within the project area and the type of project, we do not anticipate any impacts to occurrences of rare, threatened, or endangered plant species from this project.

We ask that you coordinate this project with the Tennessee Wildlife Resources Agency contact assigned to your agency to ensure that legal requirements for protection of state listed rare animals are addressed. Additionally, we ask that you contact the U.S. Fish and Wildlife Service Field Office, Cookeville, Tennessee (931-525-4970) for comments regarding federally listed species. Please ensure that best management practices to address erosion and sediment are implemented and maintained during construction activities. Note that the General Aquatic Resource Alteration Permit states that "use of monofilament-type erosion control netting or blanket is prohibited in the stream channel, stream banks, or any disturbed riparian areas within 30 feet of top of bank." Where necessary and feasible, we encourage use of biodegradable netting under the CGP (Construction General Stormwater Permit) as well.

Thank you for considering Tennessee's rare species throughout the planning of this project. Should you have any questions, please do not hesitate to contact me at 615-532-4799 or dillon.blankenship@tn.gov.

Sincerely,

Dillon

Dillon Blankenship | Environmental Review Coordinator Tennessee Natural Heritage Program