STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3655

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

MEMORANDUM

To: Shane Hester
Region 3, CE Manager 2

From: Steve Walker
Environmental Division

Date: 6-24-16

Subject: **Environmental Boundaries For**: Saturn Parkway Extension from SR-396 to SR-247 at Beechcroft Rd.
PE: 60100-1209-04 **PIN:** 123399.00

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

SPRINGS/STREAMS

There are two streams within the project limits.

- STR-1 is a perennial stream that flows North to South thru project area.
- STR-2 will not be impacted by project

WETLANDS

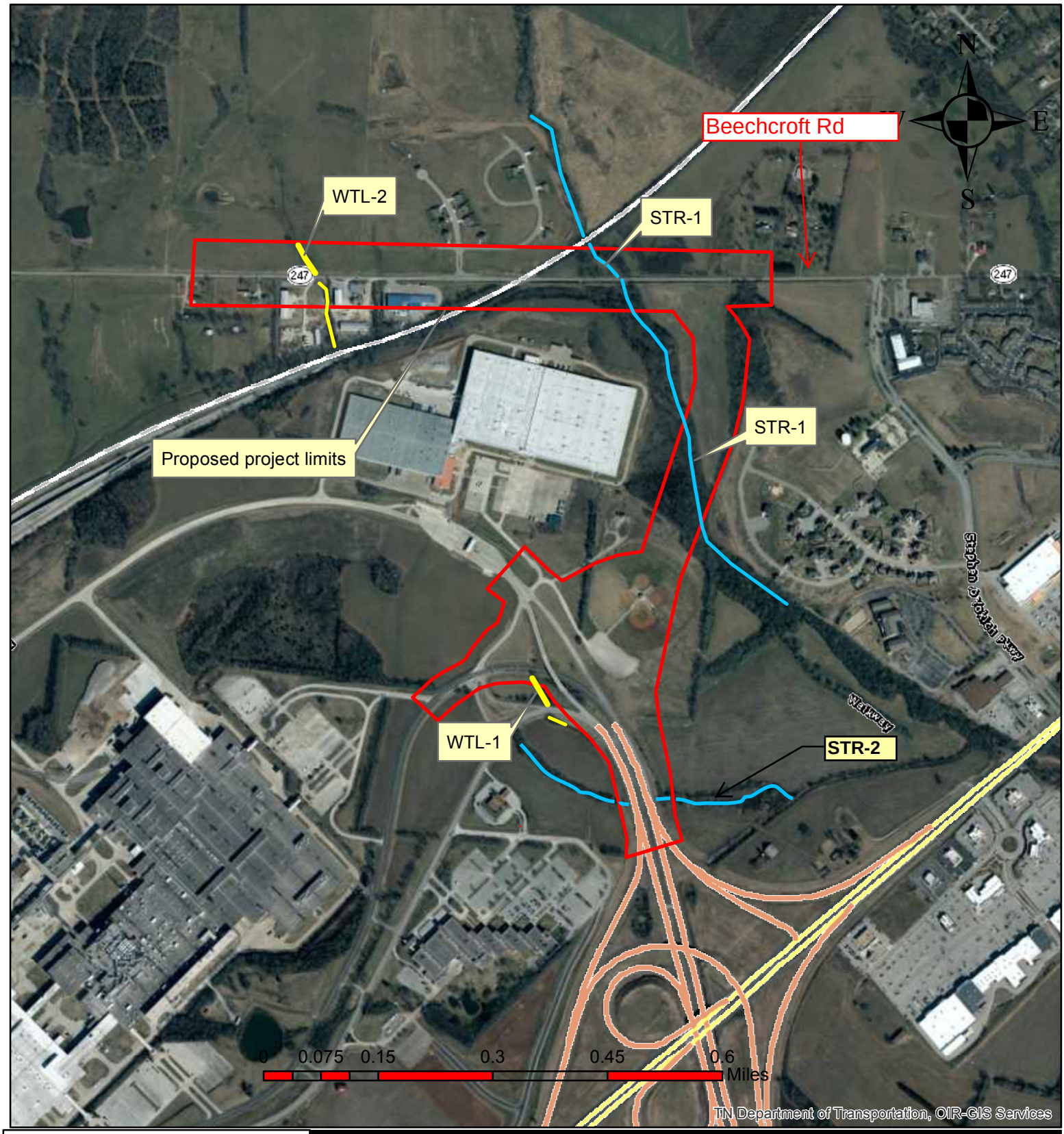
There are two wetlands within project area. WTL-2 will not be impacted by project

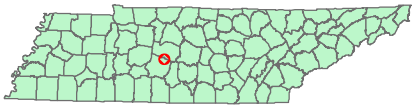
PROTECTED SPECIES

A search of the TDEC rare species database was done on June 6, 2016. A bat survey has been conducted and coordination with USFWS has been initiated. USFWS response will be uploaded to file net once received. STR-1 one is unassessed and has been sent to TDEC for assessment.

Your assistance is appreciated. If you have any questions or comments, please contact Steve Walker in the Environmental Division at 615-253-9908 or steve.a.walker@tn.gov

xc: Shane Hester
Anthony Myers
Melanie Bumpus
John Hewitt
Wesley Peck
Melissa Portel
(see contact list-subject to change)

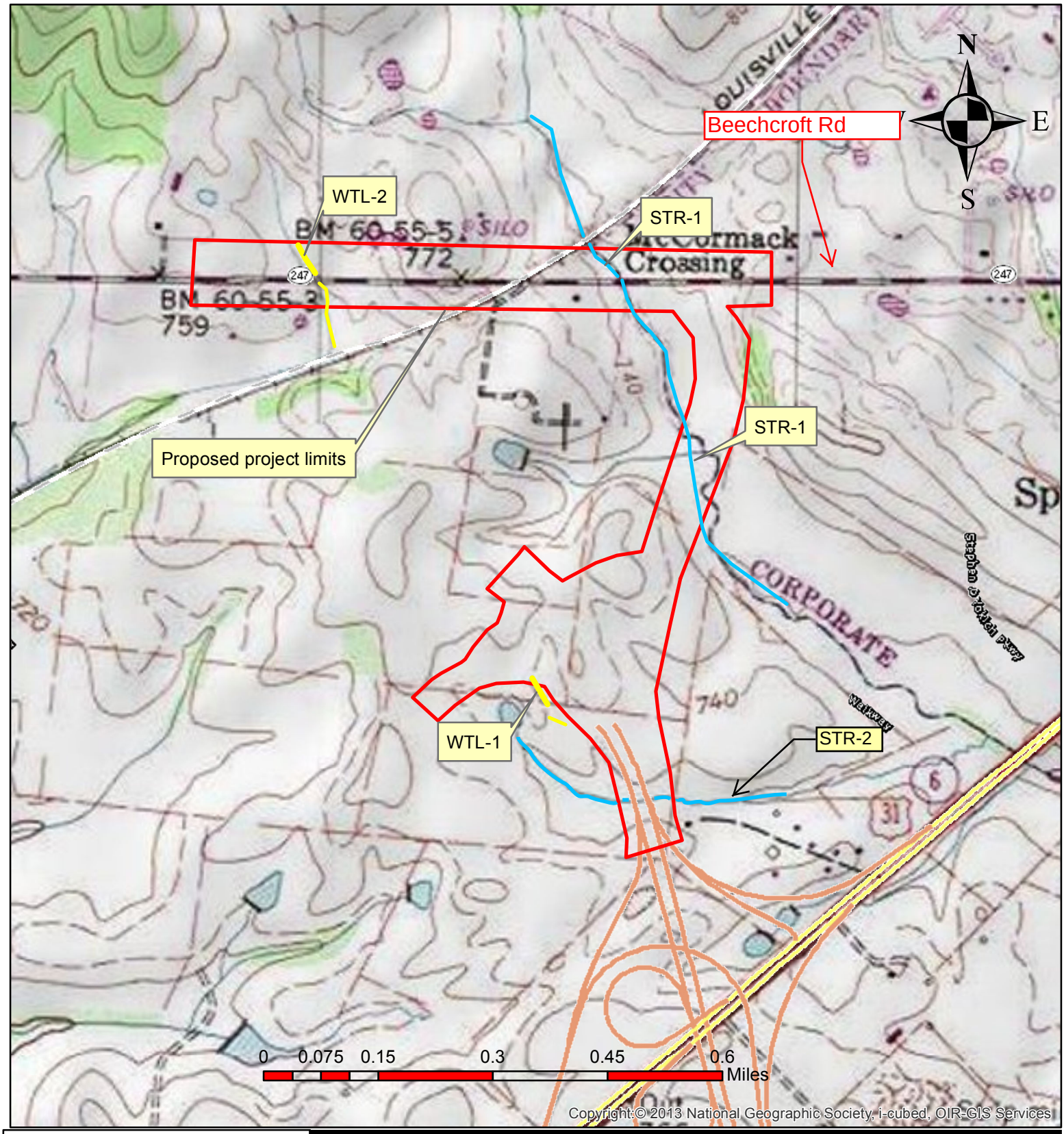


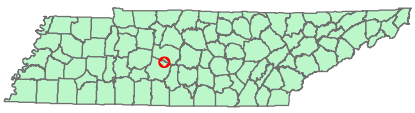


Maury County, Saturn Parkway Extension project

P.E. 60100-1209-04
PIN 123399.00

TN TDOT Department of Transportation





Maury County, Saturn Parkway Extension project

P.E. 60100-1209-04
PIN 123399.00

TN TDOT Department of Transportation

Ecology Field Data Sheet: **Water Resources**

Project:	Maury County; Saturn Parkway Extension; P.E. 60100-1209-04, PIN 123399.00				
Biologist:	Steve Walker	**Affiliation:**	TDOT Ecology	**Date:**	6-3-16

1-Station: from plans					
2-Map label and name	STR-1 UNT McCutcheon Creek				
3-Latitude/Longitude	35.7482, -86.9468				
4-Potential impact	bridge/crossing/runoff				
5-Feature description:					
-channel identification	perennial stream ✓	intermittent stream ☐	ephemeral stream ☐	wwc ☐	
-HD score (if applicable)					
-OHWM indicators	bed & banks ✓	deposition ☐	presence of litter / debris ☐	scour ✓	veg absent, bent, matted ☐
	change in plant community ☐	destruction of terrestrial veg ☐	multiple observed flow events ☐	sediment sorting ☐	water staining ☐
	change in soil character ☐	leaf litter disturbed absent ☐	natural line impressed on bank ☐	shelving ☐	wracking ✓
-sinuosity	absent ☐	weak ✓	moderate ☐	strong ☐	
-channel bottom width	20 feet	-top of bank width	25 feet		
- avg. gradient of stream (%)	2-5 %				
-bank height and slope ratio	LDB - 1 foot	RDB - 1 foot			
-water flow	fast ☐	moderate ✓	slow ☐	isolated pools ☐	none ☐
-water depth (riffles / pools)		water width (riffles / pools)			
-bank stability: LDB, RDB	LDB: Stable ☐	Eroding ✓	Undercutting ☐	Sloughing ☐	Exposed Roots ☐
	RDB: Stable ☐	Eroding ✓	Undercutting ☐	Sloughing ☐	Exposed Roots ☐
-dominant riparian species: ----------(LDB /RDB)----------	LDB: locust, hackberry, Privet, Box elder				
	RDB: Walnut, Privet, Box Elder				
-habitat assessment score	139				
	epifaunal substrate	6	channel alteration	19	
	riffle embeddedness	15	frequency of re-ox zones	17	
	velocity / depth regime	10	bank stability	LDB 7	RDB 7
	sediment deposition	15	bank vegetative protection	LDB 10	RDB 10
	channel flow status	7	riparian veg zone width	LDB 6	RDB 10
-benthos	yes				
-fish	yes				
-algae or other aquatic life	yes				
6-photo numbers	2 and 3				
7-rainfall information					
8-HUC -12 Code & Name	TN06040003034_0310 Unnamed tributary to McCutcheon Creek				
9-Confirmed by:					
10-Assessed	yes ☐	no ✓			
11-ETW	yes ☐	no ✓			
12-303 (d) List	yes ☐	siltation ☐	habitat: ☐	other: ☐	
	no ✓				
13-Notes	STR-1 in wooded area at GM property North of Ball Fields				

Revised 04.01.2016

Ecology Field Data Sheet: **Water Resources**

Project:	Maury County; Saturn Parkway Extension; P.E. 60100-1209-04, PIN 123399.00				
Biologist:	Steve Walker	**Affiliation:**	TDOT Ecology	**Date:**	6-3-16

1-Station: from plans					
2-Map label and name	STR-1 UNT McCutcheon Creek at Beechcroft Rd				
3-Latitude/Longitude	35.7528, -86.9487				
4-Potential impact	bridge/crossing/runoff				
5-Feature description:					
-channel identification	perennial stream ✓	intermittent stream ☐	ephemeral stream ☐	wwc ☐	
-HD score (if applicable)					
-OHWM indicators	bed & banks ✓	deposition ☐	presence of litter / debris ☐	scour ✓	veg absent, bent, matted ☐
	change in plant community ☐	destruction of terrestrial veg ☐	multiple observed flow events ☐	sediment sorting ☐	water staining ☐
	change in soil character ☐	leaf litter disturbed absent ☐	natural line impressed on bank ☐	shelving ☐	wracking ✓
-sinuosity	absent ☐	weak ✓	moderate ☐	strong ☐	
-channel bottom width	12-15	-top of bank width	15-20		
- avg. gradient of stream (%)	2-5 %				
-bank height and slope ratio	LDB - 5-6 feet	RDB - 5-6 feet			
-water flow	fast ☐	moderate ✓	slow ☐	isolated pools ☐	none ☐
-water depth (riffles / pools)	4-6 inches/ 1-1.5 feet	water width (riffles / pools)	6-8 feet/ 8- 10 feet		
-bank stability: LDB, RDB	LDB: Stable ☐	Eroding ✓	Undercutting ☐	Sloughing ☐	Exposed Roots ☐
	RDB: Stable ☐	Eroding ✓	Undercutting ☐	Sloughing ☐	Exposed Roots ☐
-dominant riparian species: ----------(LDB /RDB)----------	LDB: Hackberry, Privet, Box elder, oak				
	RDB: Privet, Box Elder, oak, maple				
-habitat assessment score	129				
	epifaunal substrate	12	channel alteration	14	
	riffle embeddedness	14	frequency of re-ox zones	12	
	velocity / depth regime	10	bank stability	LDB 6	RDB 6
	sediment deposition	11	bank vegetative protection	LDB 6	RDB 8
	channel flow status	13	riparian veg zone width	LDB 7	RDB 10
-benthos	yes				
-fish	yes				
-algae or other aquatic life	yes				
6-photo numbers	4 and 5				
7-rainfall information					
8-HUC -12 Code & Name	TN06040003034_0310 Unnamed tributary to McCutcheon Creek				
9-Confirmed by:					
10-Assessed	yes ☐	no ✓			
11-ETW	yes ☐	no ✓			
12-303 (d) List	yes ☐	siltation ☐	habitat: ☐	other: ☐	
	no ✓				
13-Notes	STR-1 at Beechcroft Rd.				

Revised 04.01.2016

Ecology Field Data Sheet: **Water Resources**

Project:	Maury County; Saturn Parkway Extension; P.E. 60100-1209-04, PIN 123399.00				
Biologist:	Steve Walker	**Affiliation:**	TDOT Ecology	**Date:**	6-20-16

1-Station: from plans					
2-Map label and name	STR-2				
3-Latitude/Longitude	u/s 35.7429, -86.9489 to d/s 35.7429, -86.9472				
4-Potential impact	No Impact				
5-Feature description:					
-channel identification	perennial stream ☐	intermittent stream ✓	ephemeral stream ☐	wwc ☐	
-HD score (if applicable)					
-OHWM indicators	bed & banks ✓	deposition ✓	presence of litter / debris ☐	scour ✓	veg absent, bent, matted ☐
	change in plant community ☐	destruction of terrestrial veg ☐	multiple observed flow events ☐	sediment sorting ☐	water staining ☐
	change in soil character ☐	leaf litter disturbed absent ☐	natural line impressed on bank ☐	shelving ☐	wracking ✓
-sinuosity	absent ☐	weak ☐	moderate ✓	strong ☐	
-channel bottom width	3-6 feet	-top of bank width	8 feet		
- avg. gradient of stream (%)	2-5 %				
-bank height and slope ratio	LDB - 2 feet	RDB - 2-3 feet			
-water flow	fast ☐	moderate ☐	slow ☐	isolated pools ✓	none ☐
-water depth (riffles / pools)	NA/ 1-2 feet	water width (riffles / pools)	3/6 feet		
-bank stability: LDB, RDB	LDB: Stable ☐	Eroding ✓	Undercutting ☐	Sloughing ☐	Exposed Roots ☐
	RDB: Stable ☐	Eroding ✓	Undercutting ☐	Sloughing ☐	Exposed Roots ☐
-dominant riparian species: ----------(LDB /RDB)----------	LDB: Maple, Privet, Hackberry				
	RDB: Maple, Privet, Hackberry				
-habitat assessment score	94				
	epifaunal substrate	13	channel alteration	8	
	riffle embeddedness	10	frequency of re-ox zones	7	
	velocity / depth regime	13	bank stability	LDB 3	RDB 3
	sediment deposition	13	bank vegetative protection	LDB 7	RDB 7
	channel flow status	2	riparian veg zone width	LDB 4	RDB 4
-benthos	Yes				
-fish	Yes				
-algae or other aquatic life	Yes				
6-photo numbers					
7-rainfall information					
8-HUC -12 Code & Name	TN06040003034_0310 UNT to McCutcheon Creek				
9-Confirmed by:					
10-Assessed	yes ☐	no ✓			
11-ETW	yes ☐	no ☐			
12-303 (d) List	yes ☐	siltation ☐	habitat: ☐	other: ☐	
	no ☐				
13-Notes	Majority of tributary dry. Some Isolated pools observed that contained fish (Perch species)				

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Maury County; Saturn Parkway Extension Map Label: WTL-1

P.E. and PIN: 60100-1209-04 and 123399.00 Date: 6-3-16 Station: _____

Investigator(s): Steve Walker, Greg Harris HUC 12 (code and name): TN06040003034_0310 UNT McCutcheon Creek

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR or MLRA): _____ Lat: 35.7450 Long: -86.9505 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✓ No _____ Hydric Soil Present? Yes ✓ No _____ Wetland Hydrology Present? Yes ✓ No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Remarks: Photos: 1 Buffer (ft.): _____ Approximate Size (ac.): _____ Portion Affected (permanent) (ac.): _____ Portion Affected (temporary) (ac.): _____	Confirmation (by, date): _____ Mitigation (to be included in design): _____ Notes:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Map Label: WTL-1

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Black Willow			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Green Bulrush			
2. Cattail			
3. Fox Sedge			
4. Franks Sedge			
5. Umbrella Sedge			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	_____	x 3 = _____
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	_____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

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

SOIL

Map Label: WTL-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
10-12 inces	10YR 4/2							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

No mottling observed soil is problematic numerous streaks of red clay fill material observed.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont

Project/Site: Maury County; Saturn Parkway Extension Map Label: WTL-2

P.E. and PIN: 60100-1209-04 and 123399.00 Date: 6-3-16 Station: _____

Investigator(s): Steve Walker, Greg Harris HUC 12 (code and name): TN06040003034_0310 UNT McCutcheon Creek

Landform (hillslope, terrace, etc.): manmade depressional area Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR or MLRA): _____ Lat: 35.7526 Long: -86.9559 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ✓ No _____ Hydric Soil Present? Yes ✓ No _____ Wetland Hydrology Present? Yes ✓ No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Remarks: Photos: 6 and 7 Buffer (ft.): _____ Approximate Size (ac.): _____ Portion Affected (permanent) (ac.): _____ Portion Affected (temporary) (ac.): _____	Confirmation (by, date): _____ Mitigation (to be included in design): _____ Notes:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Map Label: WTL-2

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Green Bulrush			
2. Fescue			
3. Fox Sedge			
4. Franks Sedge			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	_____	x 3 = _____
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	_____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

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

SOIL

Map Label: WTL-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
6-8 inches	10YR 4/1							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(MLRA 147)**
- ___ Coast Prairie Redox (A16) **(MLRA 147, 148)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:
Altered depressional area adjacent to Gas Pipeline at Beechcroft Rd.

Photo Summary: 6-3-16
Project Description: Maury County; Saturn Parkway Extension Project, **P.E. 60100-1209-04**, **PIN 123399.00**

Photo 1. WTL-1 looking East. N35.7452, W86.9505

Photo 2. STR-1 looking downstream N35.7482, W86.9468 (In wooded area north of Ball Fields)

Photo 3. STR-1 looking upstream N35.7482, W86.9468 (In wooded area north of Ball Fields)

Photo 4. STR-1 at Beechcroft Rd looking upstream.

Photo 5. STR-1 at Beechcroft Rd looking downstream

Photo 6. WTL-2 North of Beechcroft Rd

Photo 7. WTL-2 south of Beechcroft Rd.

Photo 8. STR-2 u/s of Saturn Pkwy looking West. 35.7429, -86.9489

Photo 9. STR-2 u/s Saturn Pkwy looking East 35.7429, -86.9489

Photo 11. STR-2 d/s Saturn Pkwy looking West. 35.7429, -86.9475

Photo 10. STR-2 d/s Saturn Pkwy looking East 35.7429, -86.9475

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Tennessee ES Office
446 Neal Street
Cookeville, Tennessee 38501

June 13, 2016

Mr. Dennis Crumby
Tennessee Department of Transportation
Environmental Planning and Permits Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243-0334

Subject: FWS# 16-I-0615. Proposed extension of Saturn Parkway from the intersection with State Route (SR) 6 (Main Street) to SR 247 (Beechcroft Road) in Spring Hill; PIN# 123399.00, P.E. 60100-1209-04, Maury County, Tennessee.

Dear Mr. Crumby:

Thank you for your email correspondence dated May 25, 2016, transmitting mist netting survey results for the proposed extension of Saturn Parkway from the intersection with SR 6 to SR 247 in Spring Hill, Maury County, Tennessee. The Tennessee Department of Transportation (TDOT) has determined that the project is "not likely to adversely affect" the federally endangered Indiana bat (*Myotis sodalis*) or the threatened northern long-eared bat (NLEB) (*Myotis septentrionalis*) based on negative survey results for these species. Personnel of the U.S. Fish and Wildlife Service (Service) have reviewed the subject proposal and offer the following comments.

A mist netting survey was performed from May 15 through May 17, 2016, at one site determined to be a suitable netting location. Efforts resulted in the capture of five eastern red bats (*Lasiurus borealis*). Due to negative survey results for the Indiana bat and the NLEB, we concur with TDOT's determinations of "not likely to adversely affect" for these species. Unless new information otherwise indicates species use of the area, this survey will be valid until April 1, 2019. Although there is no requirement to implement a winter tree cutting timeframe restriction on this project, we would appreciate consideration given to the removal of trees with a DBH (diameter at breast height) of three inches or greater from October 15 through March 31 to further minimize potential for harm.

We are unaware of any federally listed or proposed species that would be impacted by the project. Therefore, based on the best information available at this time, we believe that the requirements of section 7 of the Endangered Species Act (Act) of 1973, as amended, are fulfilled for all species that currently receive protection under the Act. Obligations under section 7 of the

Act must 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.

If you have any questions regarding our comments, please contact John Griffith of my staff at 931/525-4995 or by email at *john_griffith@fws.gov*.

Sincerely,

for Mary E. Jennings
Field Supervisor

TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER
P. O. BOX 40747
NASHVILLE, TENNESSEE 37204

June 23' 2016

Dennis Crumby
Tennessee Department of Transportation
Environmental Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243-1402

Subject: Maury County: SR-396, Saturn Parkway Extension
P.E. 60100-1209-04 PIN 123399.00

Dear Mr. Crumby:

The Tennessee Wildlife Resources Agency has reviewed your request regarding the SR-396, Saturn Parkway Extension Project in Maury County, Tennessee. Your letter to the Agency requested comments regarding potential impacts to endangered species, wetlands, and other areas of concern we may think pertinent to this proposed project.

It is our understanding from what was sent that this project is not expected to impact any state-listed species that are Deemed-in-Need-of-Management, Threatened, or Endangered.

Based upon these understandings, the TWRA does request that all applicable TDEC and US EPA approved Erosion Prevention/Silt Control measures and Best Management Practices be scheduled, implemented, monitored, and maintained. The TWRA requests that any major changes to the plans, construction methodology, or right-of-way will immediately void this comment and require another review to the changes. The TWRA requests that this comment is put on the construction plans for all to review.

Thank you for the opportunity to review and comment on this proposed project. If you have any further questions, please contact me at 731-293-9776 or Ed.Harsson@tn.gov .

Sincerely,

Ed Harsson
Wildlife Biologist
Federal Highway Admin. and TN DOT Liaison
731-293-9776
Ed.Harsson@tn.gov

CC: Rob Todd, TWRA NEPA Coordinator
Tim Cleveland, TWRA Region 2 Manager
David Sims, TWRA Region 2 Habitat Biologist
John Griffith, USFWS
Stephanie Whitaker, TDEC

1 mile species

SCIENTIFIC_NAME	COMMON_NAME	FED_PROTECTION	ST_PROTECTION	EO_RANK	HABITAT
Etheostoma luteovinctum	Redband Darter	--	D	Historical	Limestone streams; Nashville Basin & portions of Highland Rim.
Etheostoma luteovinctum	Redband Darter	--	D	Verified extant (viability not assessed)	Limestone streams; Nashville Basin & portions of Highland Rim.
Etheostoma luteovinctum	Redband Darter	--	D	Verified extant (viability not assessed)	Limestone streams; Nashville Basin & portions of Highland Rim.

4 mile species

SCIENTIFIC_NAME	COMMON_NAME	LAST_OBS_DATE	FED_PROTECTION	ST_PROTECTION	EO_RANK
Etheostoma luteovinctum	Redband Darter	1937-04-27	--	D	Historical
Etheostoma luteovinctum	Redband Darter	1993-05-12	--	D	Verified extant (viability not assessed)
Hemitremia flammea	Flame Chub	1937-04	--	D	Historical
Tyto alba	Barn Owl	2008-07-19	--	D	Verified extant (viability not assessed)
Etheostoma luteovinctum	Redband Darter	1994-07-12	--	D	Verified extant (viability not assessed)
Etheostoma luteovinctum	Redband Darter	2009-06-15	--	D	Verified extant (viability not assessed)
Etheostoma luteovinctum	Redband Darter	1937-04-28	--	D	Historical
Phemeranthus calcaricus	Limestone Fame-flower	2007-04-17	--	S	Excellent, good, or fair estimated viability
Etheostoma luteovinctum	Redband Darter	1937-04-27	--	D	Historical
Etheostoma luteovinctum	Redband Darter	1937-04-27	--	D	Historical
Etheostoma luteovinctum	Redband Darter	1993-10-20	--	D	Verified extant (viability not assessed)
Etheostoma luteovinctum	Redband Darter	1986-06-06	--	D	Verified extant (viability not assessed)
Stellaria fontinalis	Water Stitchwort	2007-04-17	--	S	Verified extant (viability not assessed)