LYNX Blue Line Extension

(Northeast Corridor)

Light Rail Project

Contract #: 08-477

WBS #: 6.24

Request for Jurisdictional Determination

Prepared by:

STV/Ralph Whitehead Associates

1000 W. Morehead Street, Suite 200
Charlotte, NC 28208

Prepared for:
City of Charlotte
Charlotte Area Transit System

Project #: 2513745
May 28, 2009

Rev. 00

Mr. Stephen Chapin
U.S. Army Corps of Engineers
Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28801

May 28, 2009

SUBJECT: Jurisdictional Determination Report and Request for Verification
CATS LYNX BLE Northeast Corridor Light Rail Project
Mecklenburg County, North Carolina
STV/Ralph Whitehead Associates Project No. 2513745

Dear Mr. Chapin:

On behalf of the Charlotte Area Transit System (CATS), STV/Ralph Whitehead Associates (STV/RWA) is requesting written verification from the U.S. Army Corps of Engineers (USCOE) of the location and extent of jurisdictional Waters of the U.S. in the study area. An Agent Certification of Authorization Form and a Request for Jurisdictional Determination Form are enclosed in Attachment A and Attachment B, respectively.

The proposed project would extend the existing LYNX Blue Line light rail system by approximately 10.6 miles and provide 13 transit stations, including six walk-up stations and seven park-and-ride facilities. The proposed alignment would begin at the LYNX 7th Street Station and travel along CATS-owned right-of-way until approximately 12th Street where it would cross over the CSX rail tracks and then enter the existing Norfolk Southern and North Carolina Railroad (railroad) rights-of-way to the middle of the alignment, near Old Concord Road, where it would then transition into the median of North Tryon Street/US-29. The line would remain in the median until north of Harris Boulevard, where it would turn east and enter the University of North Carolina at Charlotte (UNC Charlotte) campus before returning to the east side of North Tryon Street/US-29 to a terminus just south of I-485 (Attachment C – Figure 1).

Based on Charlotte-Mecklenburg Property Ownership and Land Records Information System (POLARIS) aerial photography and verified by field review, the site consists mostly of disturbed (maintained) right-of-way and landscaped commercial/industrial properties. Commercial and industrial facilities are generally located directly adjacent to the proposed alignment and there are numerous road crossings and longitudinal encroachments. This report documents the methodology used to assess the approximate boundaries of jurisdictional Waters of the U.S., including wetlands, and the findings of our field review.

Background and Methodology

Field surveys were conducted along the proposed Light Rail Alternative corridor by STV/RWA scientists on multiple dates between September 2, 2008 and December 5, 2008. Additional field

surveys were conducted along the railroad right-of-way portion of the alignment on February 9, February 11, and February 13, 2009. The field investigators walked the following locations: the proposed project right-of-way, which measures approximately 200 feet wide; the proposed station locations; the proposed park-and-ride facility locations; and the area encompassing the two design options. Stream crossings were examined and plant communities and their associated wildlife were identified and recorded.

Jurisdictional waters are defined by 33 CFR 328.3(b) and protected by Section 404 of the Clean Water Act (33 U.S.C. 1344). Potential jurisdictional wetlands in the study area were delineated using the U.S. Army Corps of Engineers (USCOE) Routine On-Site Determination Method as defined in the 1987 Corps of Engineers Wetlands Delineation Manual[1]. Potential jurisdictional stream channels were delineated and classified according to recent North Carolina Division of Water Quality (NCDWQ)[2] and USCOE guidance. NCDWQ Stream Identification Forms and USCOE Stream Quality Assessment Worksheets are included in Attachment D. Routine Wetland Determination Data Forms, representing potential jurisdictional wetland areas are included in Attachment E. The Approved Jurisdictional Determination (Rapanos) Forms are included in Attachment F. Representative photographs of the potential jurisdictional features located in the study area are included in Attachment G.

Prior to fieldwork, the following references were reviewed to identify possible Waters of the U.S., including wetland areas:

- U.S. Geological Service (USGS) 7.5-minute quadrangle maps (Charlotte East (1991), Derita (1993), and Harrisburg (1993)).
- U.S. Fish & Wildlife Service (USFWS) National Wetlands Inventory (NWI) Map (Charlotte East, Derita and Harrisburg).
- U.S. Department of Agriculture (USDA) Soil Conservation Service (SCS) (now known as Natural Resources Conservation Service (NRCS)) Soil Survey of Mecklenburg County, NC (1980).
- USDA NRCS Web Soil Survey 2.2 (2008).
- Charlotte-Mecklenburg Property Ownership and Land Records Information System (POLARIS).

The USGS maps depict three named streams (Little Sugar Creek, Toby Creek and Mallard Creek) and four unnamed streams within the study area, while the Soil Survey maps depict three named streams (Little Sugar Creek, Toby Creek and Mallard Creek) and one unnamed stream within the study area. The USFWS NWI map identifies three streams and two wetlands within the study area.

The proposed LYNX BLE Project is located entirely within the Charlotte Belt of the Piedmont Physiographic Province of North Carolina, which is characterized by broad, gently rolling interstream areas and by steeper slopes along drainageways. Based on topographic mapping (Attachment C – Figures 2-A through 2-G), elevations in the study area range from approximately 580 feet above National Geodetic Vertical Datum (NGVD) to 800 feet NGVD. The

[1] *Environmental Laboratory, 1987, "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.*
[2] *North Carolina Division of Water Quality, Identification Methods for the Origins of Intermittent and Perennial Streams. Version 3.1. 2005.*

highest elevations in the study area are located along North Tryon Street/US-29 east of the proposed Old Concord Road Station. The lowest elevations in the study area are located at the proposed crossing at Mallard Creek.

According to the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), the study area contains four interspersed general soil types: Cecil, Cecil-Urban, Wilkes-Enon and Monacan, with small pockets of other soil types, such as Mecklenburg, Pacolet and Helena (Attachment C – Figure 3A through 3G). These soils formed in residuum from acid igneous and metamorphic rock.

Cecil soils are gently sloping to strongly sloping, well-drained upland soils that have a clay loam surface layer and a predominantly clayey subsoil. Historical uses for this soil group include cropland or pasture. The woodland potential productivity is listed as moderate, with clay being the major limitation. These soils are generally found in the central portion of the study area.

Cecil-Urban soils are found in nearly level to strongly sloping urban areas. These soils are well-drained upland soils that have a clay loam surface layer and a clayey or predominantly clayey subsoil. These soils are used almost entirely for urban development and do not have a woodland rating. This mapped soil unit is generally found in the southern portion of the study area.

Wilkes-Enon soils are gently sloping to steep, well-drained soils that have a predominantly clayey subsoil. These soils formed in residuum from diorite, hornblende schist and other basic rock, or from mixed acidic and basic rock. These soils are used mainly as pasture and woodland. Erosion, slope and the depth to bedrock are the main limitations. The woodland potential productivity is listed as moderate. This mapped soil unit is generally found in the northern portion of the study area.

Monacan soils are nearly level, somewhat poorly drained soils that have a sandy loam surface layer and a clayey or loamy subsoil formed in fluvial sediment on floodplains. Historical uses for this soil group include cropland or pasture. The woodland potential productivity is listed as very high, with clay being the major limitation. This soil type is on the hydric soils list for the county because of hydric inclusions of Wehadkee undrained soils. These soils are generally found in the northern portion of the study area in the Mallard Creek floodplain.

Helena soils are moderately well-drained soils on broad ridges, gentle side slopes and in depressions and low areas around the heads of drainageways. The surface layer is light olive brown sandy loam. These soils have a low potential for most urban uses and moderate to high potential for woodland and crops. This soil type is on the hydric soils list for Mecklenburg County because of hydric inclusions of Wehadkee undrained soils and Worsham undrained soils. These soils are generally found in the area of the Sugar Creek Station proposed park-and-ride lot, the Old Concord Road Station proposed park-and-ride lot and along the railroad right-of-way between the Sugar Creek Station proposed park-and-ride lot and the Old Concord Road Station proposed park-and-ride lot.

Mecklenburg soils are nearly level to strongly sloping, moderately well-drained and well-drained soils that have a predominantly clayey subsoil. The surface layer is dark reddish brown fine sandy loam and the subsoil is yellowish red clay. Mecklenburg soils are mainly used as cropland and pasture, with erosion and wetness being the main limitations for farming. This unit

has a moderate potential for woodland. These soils are generally found in areas along the railroad right-of-way between the Sugar Creek Station proposed park-and-ride lot and the Old Concord Road Station proposed park-and-ride lot.

Pacolet soils are gently sloping to steep, well-drained soils that have a predominantly clayey subsoil. The moderately steep to steep Pacolet soils are adjacent to drainageways. The surface layer is very dark grayish brown sandy loam and the subsoil is red clay or clay loam. Pacolet soils are mostly in the forest. Erosion and slope are the main limitations to development. These soils are generally found south of and adjacent to the study area near the northern and southern termini of the project corridor, respectively.

Wilkes soils are gently sloping to steep, well-drained upland soils that have a loamy surface layer and a clayey subsoil. Historical uses for this soil group include woodland or pasture. The woodland potential productivity is listed as moderate, with insignificant limitations or restrictions. These soils are generally found in the area of the UNC Charlotte campus and the Mallard Creek Church Station proposed park-and-ride lot.

According to the Mecklenburg County Land Use and Environmental Services Agency (LUESA) Groundwater & Wastewater Services, there is one public water supply groundwater well and ten locations of privately-owned wells within approximately 2,000 feet of the LYNX Blue Line Extension (BLE) Project (Attachment C - Figure 4). Other pubic water supply wells and privately-owned wells within the project vicinity and a limited area of the project region are also depicted on Attachment C - Figure 4.

The proposed project corridor is located in two drainage basins, the Catawba and Yadkin-Pee Dee River Basins. The southern portion of the study area is located within the Lower Catawba portion of the Catawba River drainage basin, which is referred to as the Santee River Basin by the USGS. The northern portion of the study area is located within the Rocky River portion of the Yadkin-Pee Dee River drainage basin, which is referred to as the Upper Pee Dee River Basin by the USGS. Major streams in the southern half of the project region (Upper Little Sugar Creek and Briar Creek in the Catawba River Basin) generally flow in a southerly direction, while streams in the northern half of the project region (Mallard Creek in the Rocky River portion of the Yadkin-Pee Dee River Basin) generally flow in a northeasterly direction. The eight-digit Hydrologic Unit Code (HUC 8) for the lower Catawba Watershed is 03050103 and the HUC 8 for the Rocky River Watershed is 03040105 (Attachment C - Figure 5).

Findings of Field Review

The results of the on-site field review conducted by STV/RWA environmental scientists indicate 18 potential jurisdictional stream channels (Streams C, D, F, J, K, N, A, AA, B, P, S, Z, E, X, U, T, M and O) are located within the study area. Nine potential jurisdictional wetland areas (Wetland C, Wetland Y, Wetland P, Wetland O, Wetland E, Wetland R, Wetland T, Wetland W, and Wetland N) are located within the study area. The streams are described below in order from south to north Attachment C – Figures 6 through 16 depict the approximate locations of these features. Representative photographs of the potential jurisdictional features located on-site are included in Attachment G.

The potentially jurisdictional features listed in this report were given a letter designation as noted. The lettering was not sequential and was done as the survey work was undertaken, due to right-of-entry delays. The absence of a letter does not indicate a feature was studied during the field survey and does not indicate that data is not provided in this report.

Streams

Potential jurisdictional stream boundaries were delineated and flagged in the field with blue and white striped surveyors tape. The boundaries were surveyed with a Trimble GeoXT hand-held Global Positioning System (GPS) unit capable of sub-meter accuracy and mapped using ArcGIS 9.1 software. The streams are described below in order from south to north:

Stream C (Attachment C - Figure 6) appears to be both an intermittent and perennial unnamed tributary to Little Sugar Creek located in the Little Sugar Creek Watershed Catawba River Basin. Stream C begins at a pipe culvert that is located under the railroad right-of-way and flows southeast from the railroad right-of-way, under North Brevard Street, to Little Sugar Creek (Attachment G – Photograph 1).

Stream D (Attachment C - Figure 6) appears to be both an ephemeral and intermittent potentially non-jurisdictional unnamed tributary to Stream C located in the Little Sugar Creek Watershed, Catawba River Basin. Stream D begins at a pipe culvert that is located under the railroad right-of-way, and flows northeast to Stream C, parallel to the railroad right-of-way embankment (Attachment G – Photograph 2).

Stream F (Attachment C - Figure 7) is a perennial stream (Little Sugar Creek) located in the Little Sugar Creek Watershed, Catawba River Basin. Stream F flows from north to south, across the proposed LYNX BLE Project alignment and under North Brevard Street (Attachment G – Photographs 3 and 4).

Stream J (Attachment C - Figure 7) appears to be an ephemeral potentially non-jurisdictional or intermittent, unnamed tributary to Stream F located in the Little Sugar Creek Watershed, Catawba River Basin. Stream J begins at a pipe culvert that is located under North Brevard Street and Matheson Avenue and flows to the southwest north of and parallel to the proposed LYNX BLE alignment into a pipe culvert to Stream K and then to Stream F (Attachment G – Photograph 5).

Stream K (Attachment C - Figure 7) appears to be an ephemeral potentially non-jurisdictional or intermittent, unnamed tributary to Stream F located in the Little Sugar Creek Watershed, Catawba River Basin. Stream K begins at a pipe culvert from Stream J and flows to the northwest to Stream F.

Stream N (Attachment C - Figure 8) appears to be an isolated, ephemeral potentially non-jurisdictional stormwater drainage feature located in the Little Sugar Creek Watershed, Catawba River Basin. Stream N begins on the south side of the railroad right-of-way as a detention pond, and flows north though a pipe culvert that is located under the railroad right-of-way to Wetland Y (Attachment G – Photograph 6).

Stream A (Attachment C - Figure 9) appears to be both an ephemeral potentially non-jurisdictional and intermittent, unnamed tributary to Stream F located in the Little Sugar Creek Watershed, Catawba River Basin. Stream A begins at a pipe culvert that is located under North Davidson Street and flows as an ephemeral potentially non-jurisdictional drainage channel west, north of and parallel to North Davidson Street as a tributary to the intermittent portion of Stream A. At this point, Stream A flows north through a pipe culvert under the railroad right-of-way and continues flowing north and west to Stream F (Attachment G – Photographs 7, 8 and 9).

Stream AA (Attachment C - Figure 9) appears to be an isolated, ephemeral potentially non-jurisdictional drainage channel located on the north side of the railroad right-of-way, behind a property that may have formerly been used as a mill. Stream AA extends from a stormwater discharge pipe located under East Craighead Road and flows west, north of and parallel to the railroad right-of-way where it dissipates into wooded uplands.

Stream B (Attachment C - Figure 10) appears to be a potentially isolated, ephemeral potentially non-jurisdictional or intermittent, stormwater drainage channel located in the Little Sugar Creek Watershed, Catawba River Basin. The west branch of Stream B begins at a twin pipe culvert that is located in the backyard of a residential dwelling on the north side of Bearwood Avenue. The pipe culverts discharge to the north and the stream turns right and flows to the east, south of and parallel to the railroad right-of-way. The east branch of Stream B begins from a drainage ditch located near the Howie Acres Park playground off of Howie Circle that collects stormwater and discharges it through a concrete flume to the northwest. At the end of the concrete flume, the east branch of Stream B flows northwest to join the west branch of Stream B and drains through a pipe culvert north, under the railroad right-of-way (Attachment G – Photographs 10 and 11).

Stream P (Attachment C - Figure 10) appears to be a potentially isolated, ephemeral potentially non-jurisdictional or intermittent, stormwater drainage channel/basin. The two west branches of Stream P begin at drainage ditches that are located in the back of Raleigh Street industrial facilities on the north side of the railroad right-of way. The drainage ditches flow east, parallel to each other, on either side of a railroad spur, north of and parallel to the railroad right-of-way. The east branch of Stream P begins from a pipe culvert discharging from a Leafmore Drive residential property. The east branch of Stream P flows west to join the west branch at a pipe culvert that is the low point in this linear drainage feature (Attachment G – Photograph 12).

Stream S (Attachment C - Figure 10) appears to be an ephemeral potentially non-jurisdictional or intermittent, unnamed tributary to Stream F located in the Little Sugar Creek Watershed, Catawba River Basin. Stream S begins at a pipe culvert that is located under a truck staging facility at the northeast end of Raleigh Street and flows to the west through the proposed Sugar Creek Station (Sugar Creek Design Option) park-and-ride lot and into another pipe culvert before draining to Stream F.

Stream Z (Attachment C - Figure 11) appears to be both an ephemeral potentially non-jurisdictional and intermittent, unnamed tributary to Briar Creek located in the Briar Creek Watershed, Catawba River Basin. Stream Z begins as two ephemeral drainage ditches. The west branch begins as a drainage ditch adjacent to the railroad right-of-way and the east branch begins at a pipe culvert that is located south of the Old Concord Road Station. The two branches join and discharge under the railroad right-of-way through a concrete box culvert that flows as an intermittent stream to the south (Attachment G – Photographs 13 and 14).

Stream E (Attachment C - Figure 12) appears to be both an ephemeral potentially non-jurisdictional and intermittent, unnamed tributary to Briar Creek located in the Briar Creek Watershed, Catawba River Basin. Stream E begins at a pipe culvert that is located under Old Concord Road and flows as an ephemeral drainage channel to the south through the proposed Old Concord Road Station park-and-ride lot. Stream E then changes to a potentially jurisdictional intermittent stream and continues south to the railroad right-of-way. At this point, Stream E is joined by an ephemeral potentially non-jurisdictional drainage ditch that is located parallel to the railroad right-of-way and flows west from a fibers manufacturing plant (Attachment G – Photograph 15).

Stream X (Attachment C - Figure 13) appears to be an ephemeral potentially non-jurisdictional unnamed tributary to Doby Creek located in the Mallard Creek Watershed, Yadkin-Pee Dee River Basin. Stream X begins as a stormwater drainage ditch within the wooded area of the western portion of the proposed University City Blvd. Station park-and-ride lot, and flows northwest through undeveloped forest to Doby Creek.

Stream U (Toby Creek) is a perennial tributary to Mallard Creek located in the Mallard Creek Watershed, Yadkin-Pee Dee River Basin (Attachment C - Figure 14). Stream U drains to Mallard Creek across the wooded area of the western portion of the UNC Charlotte campus (Attachment G – Photograph 16).

Stream T appears to be a perennial tributary to Mallard Creek located in the Mallard Creek Watershed, Yadkin-Pee Dee River Basin (Attachment C - Figure 15). Stream T drains to Mallard Creek across the wooded area of the eastern portion of the UNC Charlotte campus.

Stream M (Mallard Creek) is a perennial stream located in the Mallard Creek Watershed, Yadkin-Pee Dee River Basin (Attachment C - Figure 16). Stream M drains to the east across the proposed LYNX BLE Project right-of-way, north and west of the proposed Mallard Creek Church Station park-and-ride lot (Attachment G – Photographs 17, 18, 19 and 20).

Stream O (Attachment C - Figure 16) appears to be an ephemeral potentially non-jurisdictional unnamed tributary to Mallard Creek located in the Mallard Creek Watershed, Yadkin-Pee Dee River Basin. Stream O begins as a stormwater drainage ditch from a pipe culvert located under North Tryon Street/US-29 and drains through the proposed I-485/N.Tryon Station park-and-ride facility to the southeast. Stream O is exposed for approximately 38 feet before draining into another pipe culvert and discharges southeast of the proposed I-485/N.Tryon Station park-and-ride facility.

The potential jurisdictional stream channels in the study area are summarized on Tables 1 and 2. More information on the individual stream characteristics can be found on the NCDWQ and USCOE Stream Forms included in Attachment D.

Wetlands

The results of the on-site field review conducted by STV/RWA environmental scientists indicate that there are nine potential jurisdictional wetland areas (Wetland C, Wetland Y, Wetland P, Wetland O, Wetland E, Wetland R, Wetland T, Wetland W, and Wetland N) located within the study area as shown in Attachment C - Figures 6, 8, 10, 11, 12, 14 and 15. Potential

jurisdictional wetland and stream boundaries were delineated and flagged in the field with blue and white striped surveyors tape. The boundaries were surveyed with a Trimble GeoXT hand-held GPS unit capable of sub-meter accuracy and mapped using ArcGIS 9.1 software. The wetlands located within the study area are described below in order from south to north.

Table 1
Description of Potential Jurisdictional Streams in the Study Area[1]

Stream Name	Channel Bottom Width[2]	Bank Height[2]	Substrate	Description of Drainage	Hydrology[3]
Stream C	8-10 ft.	4-5 ft.	Sand, silt, cobble, rock	Crosses under railroad right-of-way. Low flow with depths less than 3".	Intermittent and Perennial
Stream D	3-4 ft.	5-6 ft.	Sand, silt, cobble, rock	Tributary to Stream C. Parallels railroad right-of-way. Low flow with depths less than 3".	Ephemeral and Intermittent
Stream F (Little Sugar Creek)	20-22 ft.	10-14 ft.	Sand , silt, rock, boulders	Crosses under North Brevard Street. High flow observed with depths greater than 14". Fish observed.	Perennial
Stream J	4-6 ft.	4-6 ft.	Sand, silt, gravel, rock	Exposed portion from East 30th Street culvert discharge. Low flow with depths less than 6".	Ephemeral or Intermittent
Stream K	4-6 ft.	4-6 ft.	Sand, silt, gravel	Exposed portion from Stream J culvert. Low flow with depths less than 4".	Ephemeral or Intermittent
Stream N	8-10 ft.	1-2 ft.	Sand, silt	Exposed portions of stormwater drainage to Wetland Y. Headwater pond over 1' deep. No flow in channel.	Ephemeral
Stream A	6-16 ft.	6-10 ft.	Sand, silt, cobble, rock	Crosses under and parallels railroad right-of-way and North Davidson Street. Low flow with depths less than 6".	Ephemeral and Intermittent
Stream AA	1-2 ft.	1-2 ft.	Sand, silt	Parallels railroad right-of-way from stormwater pipe located at Craighead Road. No flow during field review and hydric soils present.	Ephemeral
Stream B	4-5 ft.	1-3 ft.	Sand, silt	Parallels east side of railroad right-of-way north of Bearwood Avenue. Low flow with depths less than 4".	Ephemeral and Intermittent
Stream P	2-6 ft.	1-6 ft.	Sand, silt, rock	Two branches parallel west side of railroad right-of-way. Low flow with depths less than 4".	Ephemeral or Intermittent

Descriptions based on field surveys conducted between September 2, 2008 and February 13, 2009.
1 - Subject to USCOE jurisdictional determination
2 - All stream dimensions are approximate
3 - Two hydrologic classifications are provided if both categories are present in the same reach. Two hydrologic classifications separated by the word or indicate those reaches where the classification is questionable and therefore subject to USCOE and NCDWQ intermittent/perennial and ephemeral/intermittent final determination

Table 1 (continued)

Stream Name	Channel Bottom Width[2]	Bank Height[2]	Substrate	Description of Drainage	Hydrology[3]
Stream S	6-8 ft.	3-5 ft.	Sand, silt, cobble, rock	Exposed portion in the middle of proposed Sugar Creek Station park-and-ride lot. Low flow depths less than 4”.	Ephemeral or Intermittent
Stream Z	2-6 ft.	1-4 ft.	Sand, silt, cobble, rock	Two ephemeral branches drain to culvert and create intermittent stream. Low flow with depths less than 6”.	Ephemeral and Intermittent
Stream E	4-8 ft.	6-10 ft.	Sand, silt, gravel	Crosses under railroad right-of-way at the proposed Old Concord Road Station park-and-ride lot. Has two ephemeral tributaries. Low flow with depths less than 4”.	Ephemeral and Intermittent
Stream X	2-4 ft.	4-6 ft.	Sand, silt	Located at the proposed University City Blvd. Station park-and-ride lot. Low flow with depths less than 2”.	Ephemeral
Stream U (Toby Creek)	20-25 ft.	8-10 ft.	Sand, silt, cobble, rock	Located at UNC Charlotte. High flow observed with depths greater than 24”. Fish observed.	Perennial
Stream T	10-12 ft.	1-2 ft.	Sand, silt, cobble, rock	Located at UNC Charlotte. Moderate flow observed with depths greater than 6”.	Perennial
Stream M (Mallard Creek)	20-25 ft.	12-15 ft.	Sand , silt, rock, boulders	Located at north end of the proposed Mallard Creek Church Station park-and-ride lot. High flow observed with depths greater than 6”. Fish observed.	Perennial
Stream O	4-6 ft.	1-2 ft.	Sand, silt, gravel	Exposed portion from North Tryon Street/US-29 culvert discharge. Low flow with depths less than 3”.	Ephemeral

Descriptions based on field surveys conducted between September 2, 2008 and February 13, 2009.
1 - Subject to USCOE jurisdictional determination
2 - All stream dimensions are approximate
3 - Two hydrologic classifications are provided if both categories are present in the same reach. Two hydrologic classifications separated by the word or indicate those reaches where the classification is questionable and therefore subject to USCOE and NCDWQ intermittent/perennial and ephemeral/intermittent final determination

Table 2
Size of Potential Jurisdictional Streams in the Study Area[1]

Streams	Area (acres)	Linear Feet
Stream C (Attachment C – Figure 6)	0.112	211
Stream D (Attachment C – Figure 6)	0.181	433
Stream F (Little Sugar Creek) (Attachment C – Figure 7)	0.23	545
Stream J (Attachment C – Figure 7)	0.03	103
Stream K (Attachment C – Figure 7)	0.02	127
Stream N (Attachment C – Figure 8)	0.013	76
Stream A & AA (Attachment C – Figure 9)	0.34	1,274
Stream B (Attachment C – Figure 10)	0.06	670
Stream P (Attachment C – Figure 10)	1.07	1,666
Stream S (Attachment C – Figure 10)	0.05	212
Stream Z (Attachment C – Figure 11)	0.04	603
Stream E (Attachment C – Figure 12)	0.17	1,494
Stream X (Attachment C – Figure 13)	0.03	288
Stream U (Toby Creek) (Attachment C – Figure 14)	0.24	416
Stream T (Attachment C – Figure 15)	0.31	893
Stream M (Mallard Creek) (Attachment C – Figure 16)	0.35	527
Stream O (Attachment C – Figure 16)	0.03	125
Total	**3.276**	**9,663**

1 - Descriptions based on field delineations and GPS surveys conducted between September 2, 2008 and February 13, 2009.

Wetland C is a small, linear (approximately 0.02 acre, 296 linear feet), palustrine emergent wetland located west of, adjacent to, and parallel to the railroad right-of-way south of East 16th Street (Attachment C - Figure 6). This wetland is located within a drainage swale that discharges stormwater from East 16th Street. The wetland is dominated by herbaceous species that include soft rush (*Juncus effusus*), broom sedge (*Andropogon virginicus*) and various grasses. This linear wetland drains into a concrete lined stormwater flume and into a pipe culvert that discharges to Stream D, which in turn drains to Stream C (Attachment G – Photograph 21).

Wetland Y is a linear (approximately 0.14 acre, 527 linear feet), potentially isolated, palustrine forested wetland located north of the railroad right-of-way and west of East 36th Street. This wetland is located in a drainage swale located between the railroad right-of-way and the commercial industrial buildings located on Cullman Avenue (Attachment C - Figure 8). The wetland is dominated by an overstory of willow (*Salix* sp.), sweetgum (*Liquidambar styraciflua*) and red maple (*Acer rubrum*). Understory shrub species were dominated by Chinese privet (*Ligustrum sinense*), silky dogwood (*Cornus amomum*), and American holly (*Ilex opaca*). Herbaceous species included Japanese honeysuckle (*Lonicera japonica*) (Attachment G – Photograph 22). This wetland does not appear to be directly associated with any stream

system, and thus, may be considered hydrologically isolated and may not be considered jurisdictional by the USCOE, although the NCDWQ does have the ability to exert jurisdiction pursuant to the State's Isolated Wetlands Rules.

Wetland P is a small (approximately 0.02 acre), potentially isolated, palustrine open water/emergent wetland located adjacent to and west of the railroad right-of-way in the backyard of a residential dwelling located at the end of Leafmore Drive. This potentially isolated wetland may be a result of a former excavation and appears to have a subsurface connection to Stream P, which is located approximately 25 feet to the northwest (Attachment C - Figure 10). The wetland is primarily an open water system but has herbaceous emergent vegetation such as sedges (*Carex* spp.) and woolgrass (*Scirpus cyperinus*) in the eastern portion (Attachment G – Photograph 23). This wetland does not appear to be directly associated with any stream system, and thus, may be considered hydrologically isolated and may not be considered jurisdictional by the USCOE, although the NCDWQ does have the ability to exert jurisdiction pursuant to the State's Isolated Wetlands Rules.

Wetland O is a potentially isolated, palustrine forested wetland (approximately 0.16 acre) located behind the Northpark Mall, west of the railroad right-of-way (Attachment C - Figure 11). This wetland is located at the terminus of a stormwater culvert and concrete flume that conveys stormwater away from the Northpark Mall parking lot into what appears to have been a former detention basin that has not been maintained, and has no apparent outlet. The overstory of this wetland is dominated by American sycamore (*Platanus occidentalis*), sweetgum, and river birch (*Betula nigra*). Understory species include saplings of the aforementioned tree species as well as red maple and blackberry (*Rubus allegheniensis*). Herbaceous groundcover consisted of uptight sedge (*Carex stricta*), soft rush and various other sedges. Vines of poison ivy (*Toxicodendron radicans*) and greenbriar (*Smilax rotundifolia*) were also abundant (Attachment G – Photographs 24 and 25). This wetland does not appear to be directly associated with any stream system, and thus, may be considered hydrologically isolated and may not be considered jurisdictional by the USCOE, although the NCDWQ does have the ability to exert jurisdiction pursuant to the State's Isolated Wetlands Rules.

Wetland E is a small (approximately 0.06 acre), potentially isolated, palustrine open water/emergent wetland located at the Old Concord Road Station proposed park-and-ride lot in the midst of a kudzu (*Pueraria montana* var*. lobata*) monoculture (Attachment C - Figure 12). This potentially isolated wetland may be a result of earthworking activities conducted by the neighboring fibers manufacturing facility, but the presence of standing water and breeding amphibians during the February 13 field review indicates qualities of a vernal pond. Vegetation within the wetland consisted of young groundseltree (*Baccharis halimifolia*), sedges, aster (*Aster* sp.) and broom sedge (Attachment G – Photograph 26). This wetland does not appear to be directly associated with any stream system, and thus, may be considered hydrologically isolated and may not be considered jurisdictional by the USCOE, although the NCDWQ does have the ability to exert jurisdiction pursuant to the State's Isolated Wetlands Rules.

Wetland R is a small (approximately 0.07 acre), potentially isolated, palustrine forested wetland located on the UNC Charlotte campus, west of the proposed UNC Charlotte Station and east of Toby Creek (Attachment C – Figure 14). This wetland is located at the terminus of a stormwater drainageway that is located parallel to Cameron Boulevard. The wetland is dominated by an overstory of sweetgum and red maple with an understory of American hornbeam (*Carpinus caroliniana)* and Chinese privet. Stormwater is discharged from a culvert located adjacent to

Cameron Boulevard, and drains west through a sloped, upland area that is forested. The wetland is located at the bottom of the slope, east of and adjacent to the UNC Charlotte running trail that parallels Toby Creek. The construction of the running trail has created a berm that impedes the drainage of the stormwater to Toby Creek. The accumulation of this stormwater has created the wetland conditions in this area. The wetland is located adjacent to the proposed alignment and is therefore likely to be completely filled in by the proposed project. Wetland R appears to be fed by rainwater and surface water run-off. This wetland does not appear to be directly associated with any stream system, and thus, may be considered hydrologically isolated and may not be considered jurisdictional by the USCOE, although the NCDWQ does have the ability to exert jurisdiction pursuant to the State's Isolated Wetlands Rules.

Wetland T is the largest of the palustrine forested wetlands (approximately 3.41 acres) and is also located on the UNC Charlotte campus within the western floodplain of the unnamed tributary to Mallard Creek (Attachment C – Figure 15). This wetland is dominated by an overstory of American sycamore, sweetgum and red maple with an understory of American hornbeam, Chinese privet, sourwood (*Oxydendrum arboretum*) and flowering dogwood (*Cornus florida*). Herbaceous groundcover species included sedges, soft rush and false nettle (*Boehmeria cylindrica)*. Stormwater and the flooding of the unnamed tributary to Mallard Creek contribute to the hydrology of this wetland (Attachment G – Photographs 27 and 28).

Wetland W is a palustrine forested wetland (approximately 1.19 acres) located within the eastern floodplain of the unnamed tributary to Mallard Creek (Attachment C – Figure 15). This wetland is dominated by an overstory of American sycamore, green ash (*Fraxinus pennsylvanica*) and black willow (*Salix nigra*). The understory consists of American hornbeam, Chinese privet, flowering dogwood and saplings of the aforementioned overstory species. Herbaceous groundcover species included sedges and false nettle. Stormwater and the flooding of the unnamed tributary to Mallard Creek contribute to the hydrology of this wetland (Attachment G – Photographs 29 and 30).

Wetland N is a young, palustrine forested wetland (approximately 1.26 acres) located north of East Mallard Creek Church Road and east of Mallard Creek (Attachment C – Figure 15). This wetland had been recently created to provide mitigation for NCDOT road projects (I-485 loop), and is part of the Mecklenburg County Mallard Creek Park. This wetland is located within the eastern floodplain of Mallard Creek and receives hydrology from stormwater runoff and the flooding of Mallard Creek. This wetland has a boardwalk that has been built through the created wetlands, for recreation and nature observation. Planted species include green ash, black gum (*Nyssa sylvatica*), black willow and water oak (*Quercus nigra*). Volunteer species include American sycamore and cattails (*Typha latifolia*).

The potential jurisdictional wetlands in the study area are summarized in Table 3. More information on the individual wetland parameters can be found on the Routine Wetland Determination Data Forms included in Attachment E.

Table 3
Size of Potential Jurisdictional Wetlands Located Within the Study Area

Wetland Communities	Area (acres)	Linear Feet
Palustrine Emergent (linear) Wetland C (Attachment C – Figure 6)	0.02	296
Palustrine Forested (linear) Wetland Y (Attachment C – Figure 8)	0.14	527
Palustrine Open Water/Emergent Wetland P (Attachment C – Figure 10)	0.02	n/a
Palustrine Forested Wetland O (Attachment C – Figure 11)	0.16	n/a
Palustrine Open Water/Emergent Wetland E (Attachment C – Figure 12)	0.06	n/a
Palustrine Forested Wetland R (Attachment C – Figure 14)	0.07	n/a
Palustrine Forested Wetland T (Attachment C – Figure 15)	3.41	n/a
Palustrine Forested Wetland W (Attachment C – Figure 15)	1.19	n/a
Palustrine Forested Wetland N (Attachment C – Figure 15)	1.26	n/a
Total	**6.33**	**823**

Closing

Please contact us at (704) 372-1885 Ext. 1068 (Mike Iagnocco) or Ext. 1016 (Brandon Phillips) should you have any questions or concerns regarding this request.

Sincerely,

STV/Ralph Whitehead Associates

Brandon J. Phillips, C.H.M.M.
Senior Environmental Specialist

Michael A. Iagnocco, P.W.S.
Senior Scientist

BJP/MAI.bp

Attachment A – Agent Certification of Authorization
Attachment B – Request for Jurisdictional Determination
Attachment C – Figures
Attachment D – NCDWQ and USCOE Stream Data Forms
Attachment E – USCOE Routine Wetland Determination Data Forms
Attachment F – Approved Jurisdictional Determination (Rapanos) Forms
Attachment G – Representative Photographs

Attachment A – Agent Certification of Authorization Form

AGENT CERTIFICATION OF AUTHORIZATION

I, Danny Rogers, P.E., representing the Charlotte Area Transit System, hereby certify that I have authorized Michael A. Iagnocco, P.W.S. of STV/Ralph Whitehead Associates, to act on my behalf and take all actions necessary in the processing, issuance, and acceptance of this jurisdictional determination and any required permit applications and all standards and special conditions attached.

We hereby verify that the above information submitted in this request/application is true and accurate to the best of our knowledge.

Applicant's signature

5/29/2009
Date

Agent's signature

4/16/2009
Date

Completion of this form will allow the agent to sign all future application correspondence.

Attachment B – Request for Jurisdictional Determination Form

REQUEST FOR JURISDICTIONAL DETERMINATION

DATE: April 16, 2009

COUNTY Mecklenburg County, North Carolina TOTAL ACREAGE OF TRACT linear project ~ 514 acres

PROJECT NAME (if applicable) CATS LYNX BLE

PROPERTY OWNER/APPLICANT (name, address and phone):

Charlotte Area Transit System – City of Charlotte

Mr. Danny Rogers, P.E. – Senior Project Manager

600 East Fourth Street

Charlotte, North Carolina 28202

(704) 432-3033

NAME OF CONSULTANT, ENGINEER, DEVELOPER (if applicable):

STV/Ralph Whitehead Associates

Mr. Michael Iagnocco, PWS

1000 W. Morehead St., Suite 200

Charlotte, North Carolina 28208

STATUS OF PROJECT (check one):

( ) On-going site work for development purposes

(X) Project in planning stages
(Type of project: linear - transportation)

( ) No specific development planned at present

( ) Project already completed
(Type of project:)

ADDITIONAL INFORMATION REQUIRED:
Check items submitted - forward as much information as is available. At a minimum, the following first two items must be forwarded.

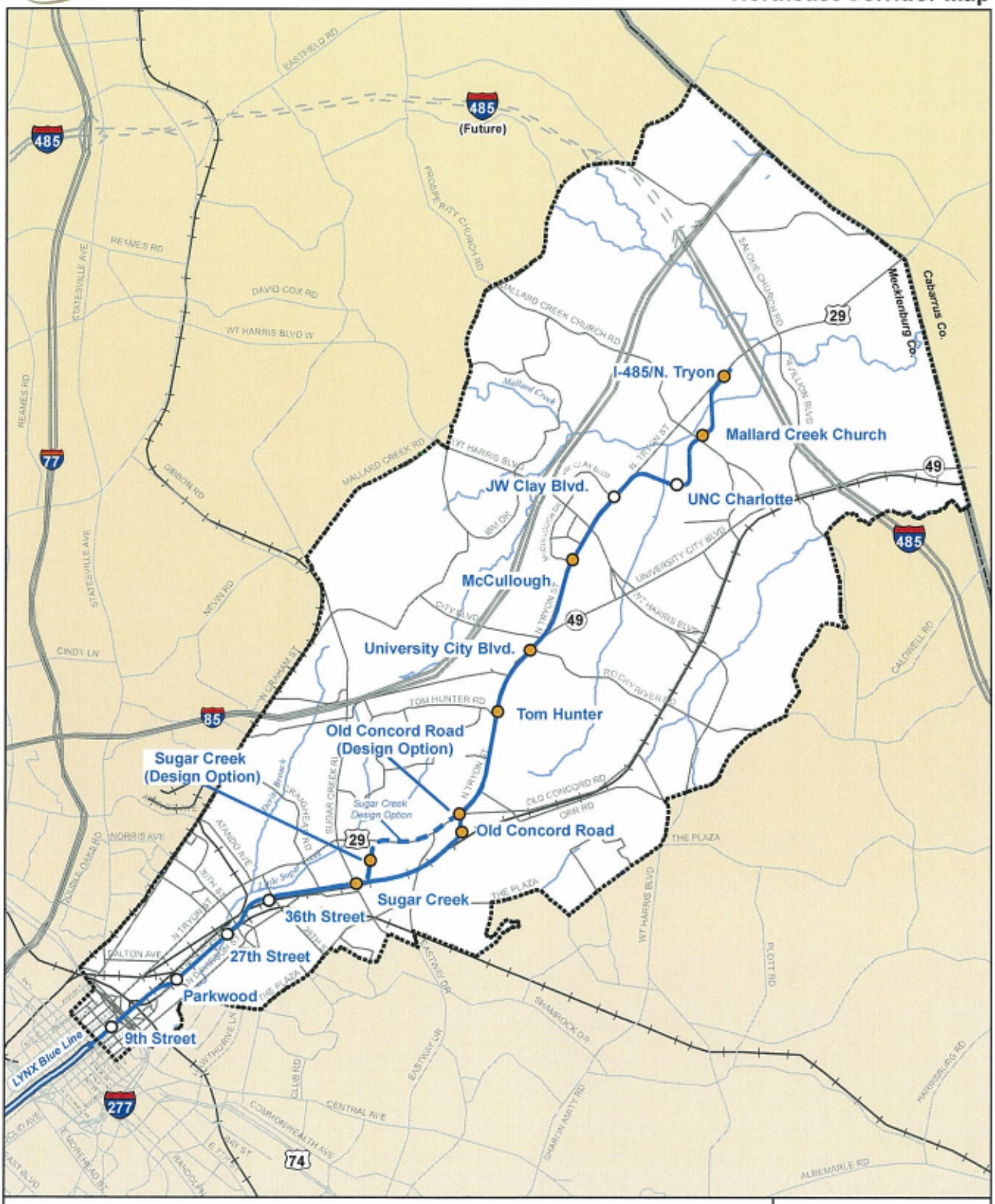
(X) Topographic Maps, Mecklenburg County G.I.S. (Attachment C - Figures 2-A through 2-G)
(X) Soil Survey, Mecklenburg County G.I.S. (Attachment C - Figures 3-A through 3-G)
(X) Approximate Waters of the U.S. Boundary Maps (Attachment C - Figures 6 through 16)
( ) Proposed Impacts
( ) Pre-Construction Notification Pursuant to a Nationwide Permit
(X) Agent Certification of Authorization Form (Attachment A)
(X) Stream Classification Forms (Attachment D)
(X) Routine On-Site Data Forms (Attachment E)
(X) Representative Photographs (Attachment G)

Signature of Property Owner or
Authorized Agent
Mr. Michael Iagnocco, PWS

Attachment C – Figures

LYNX Blue Line Extension

Figure 1
Northeast Corridor Map



Legend

- Northeast Corridor Limits
- Proposed Light Rail Alternative
- Design Option
- Proposed Stations
- Proposed Stations with Park-and-Ride
- LYNX Blue Line
- Highway
- Major Roads
- Highway (Future)
- Streams
- Railroads
- County Line

0 0.5 1 Mile

Data Source:
CATS, City of Charlotte GIS, and Mecklenburg County GIS

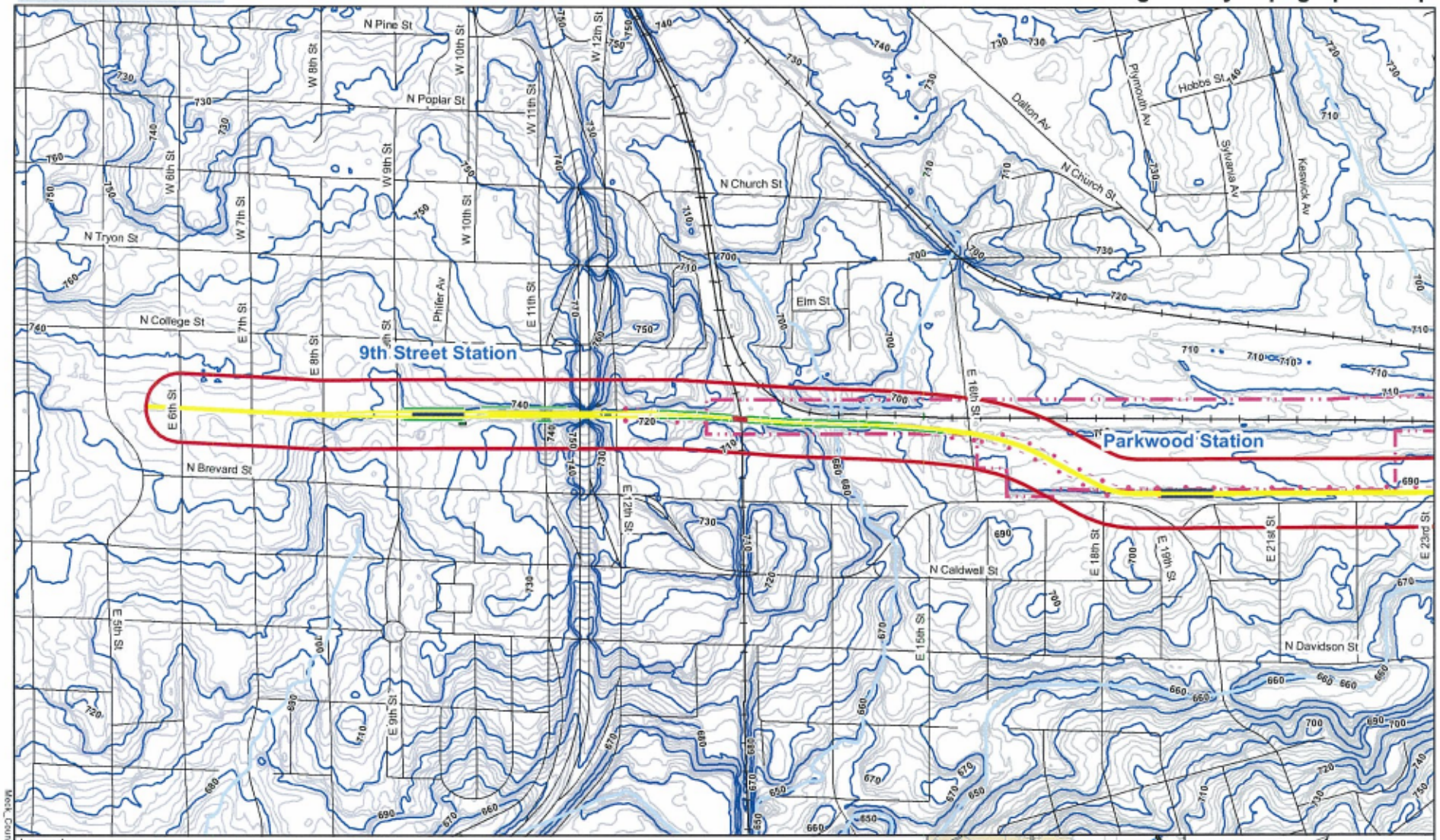
NRTR_Corridor_Map_Rev00.Draft1.pdf

03.29.05

LYNX Blue Line Extension

Figure 2-A

Mecklenburg County Topographic Map



Legend

- Proposed Light Rail Alternative
- Design Option
- Proposed Station Platform
- Proposed Retaining Walls
- Proposed Right-of-Way
- Railroads
- Proposed Park-and-Ride Facilities
- Proposed Structures
- Roads
- Streams
- 2 foot Contour
- 10 foot Contour
- 200 foot Alignment Buffer
- Railroad Right-of-Way

Vicinity Map

400 200 0 400

Feet

1 inch equals 800 feet

Data Source: Charlotte Area Transit System, STV/RWA, and Mecklenburg County GIS

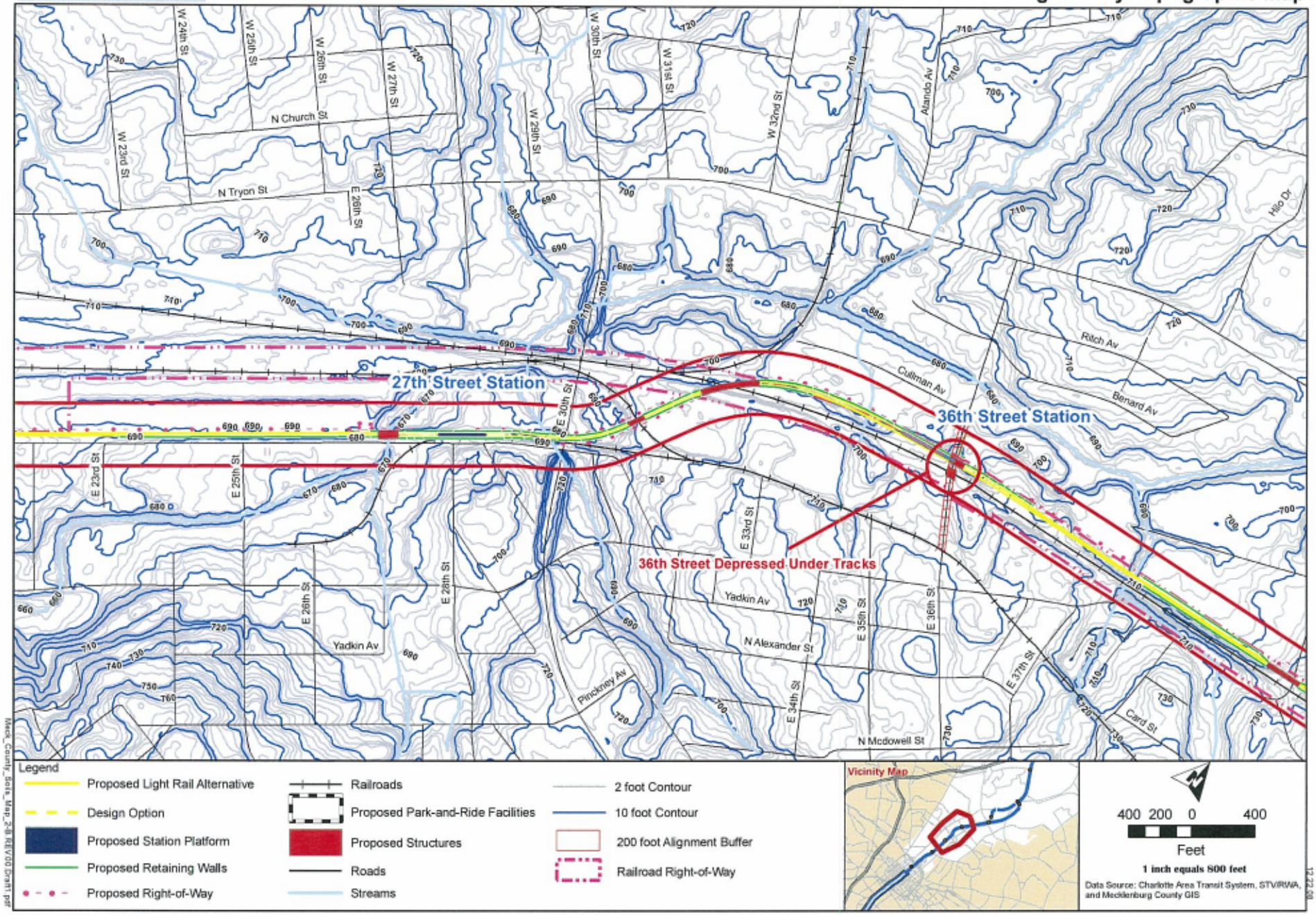
12.22.08

Meck_County_Topo_Map_2-A REV.00 Draft1.pdf

LYNX Blue Line Extension

Figure 2-B

Mecklenburg County Topographic Map



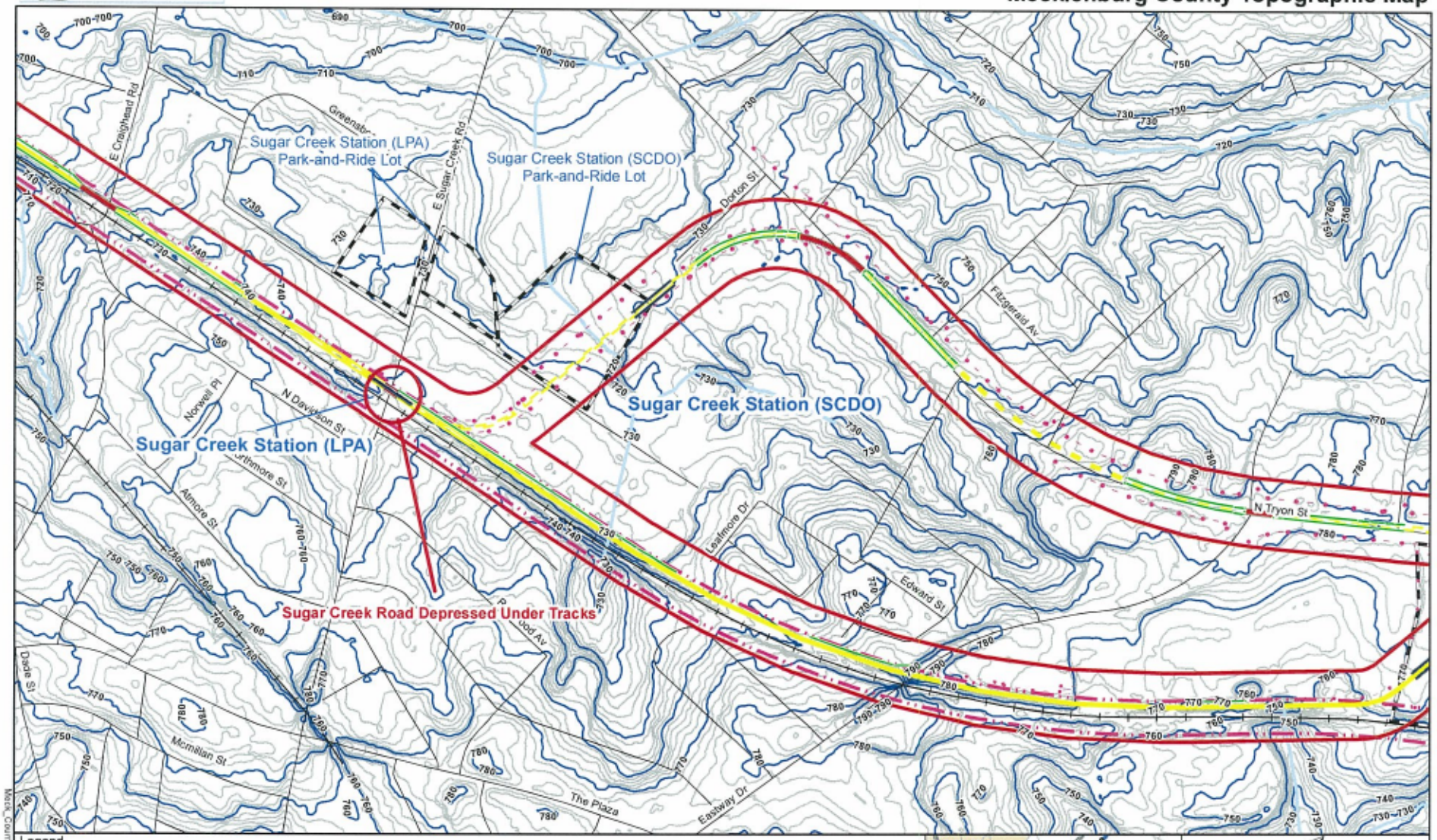
Meck_county_Sect_Map_2-B REV00 Draft.pdf

12.22.09

LYNX Blue Line Extension

Figure 2-C

Mecklenburg County Topographic Map

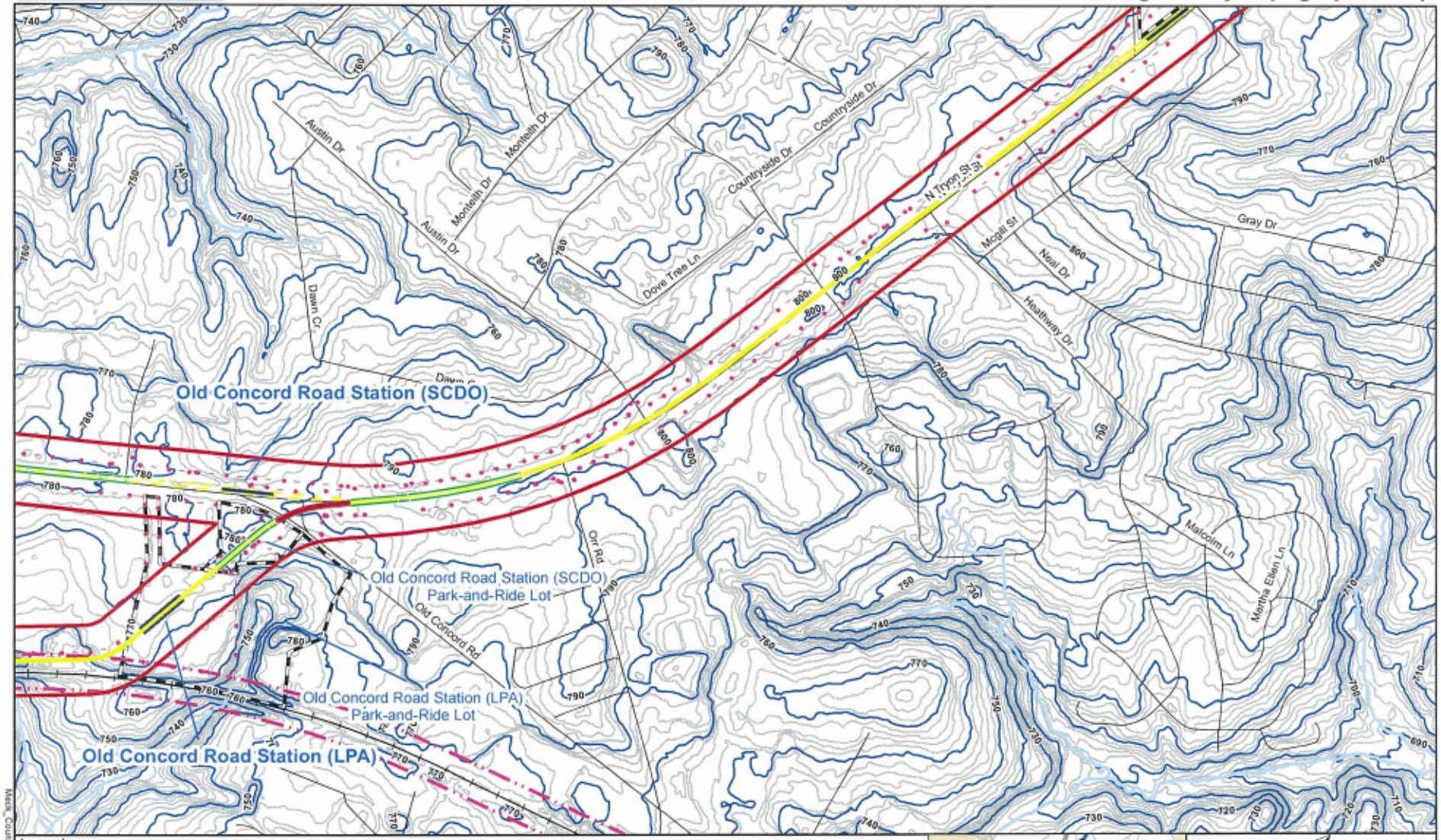


Mock_County_Topo_Map_2-C REV 00 Draft1.pdf

12.22.08

LYNX Blue Line Extension

Figure 2-D
Mecklenburg County Topographic Map

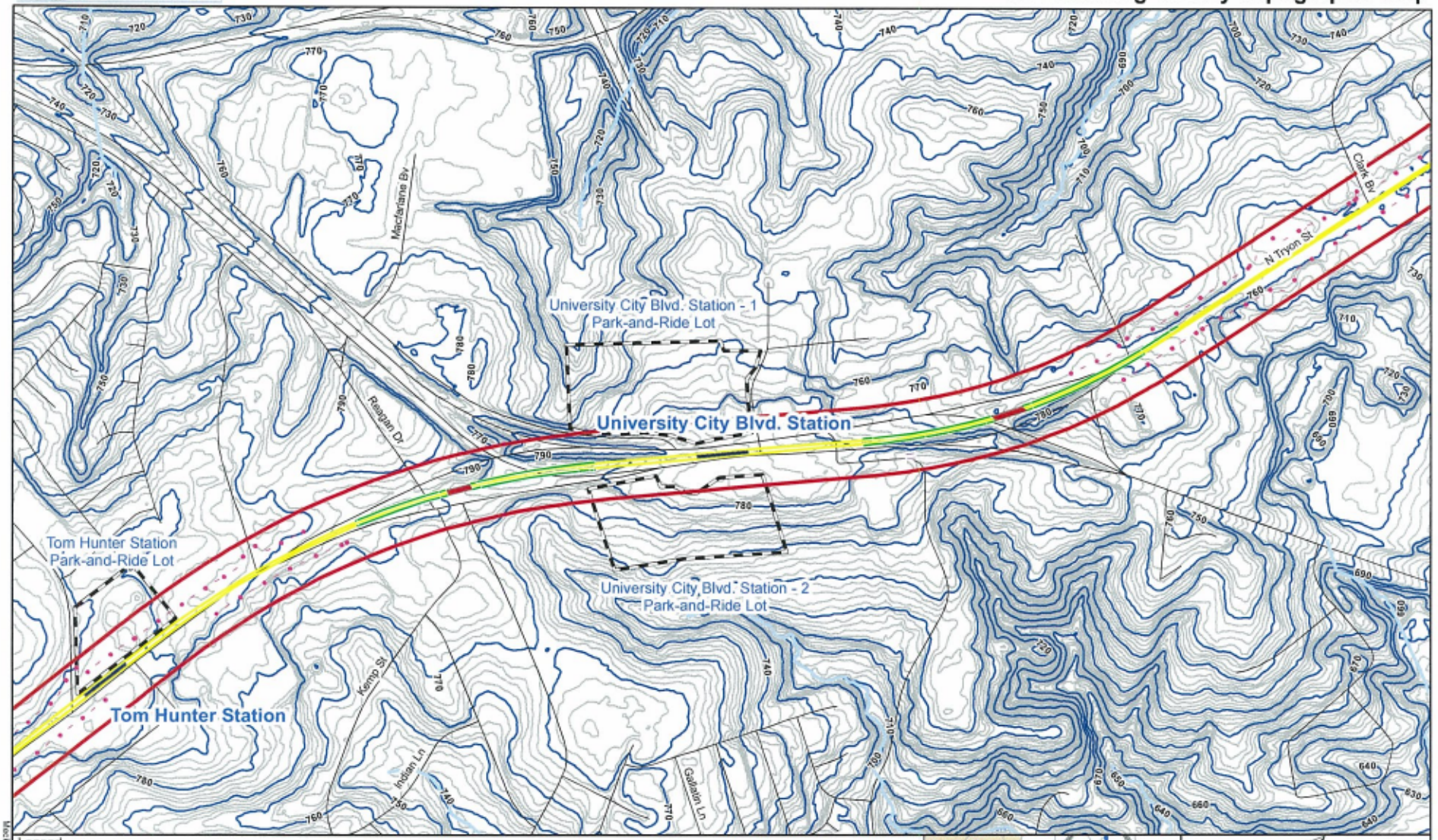


Meck_County_Topo_Map_2-D REV.00 Draft1.pdf

12.22.08

LYNX Blue Line Extension

Figure 2-E
Mecklenburg County Topographic Map



Legend

- Proposed Light Rail Alternative
- Design Option
- Proposed Station Platform
- Proposed Retaining Walls
- Proposed Right-of-Way
- Railroads
- Proposed Park-and-Ride Facilities
- Proposed Structures
- Roads
- Streams
- 2 foot Contour
- 10 foot Contour
- 200 foot Alignment Buffer
- Railroad Right-of-Way

Vicinity Map

400 200 0 400

Feet

1 inch equals 800 feet

Data Source: Charlotte Area Transit System, STV/RWA, and Mecklenburg County GIS

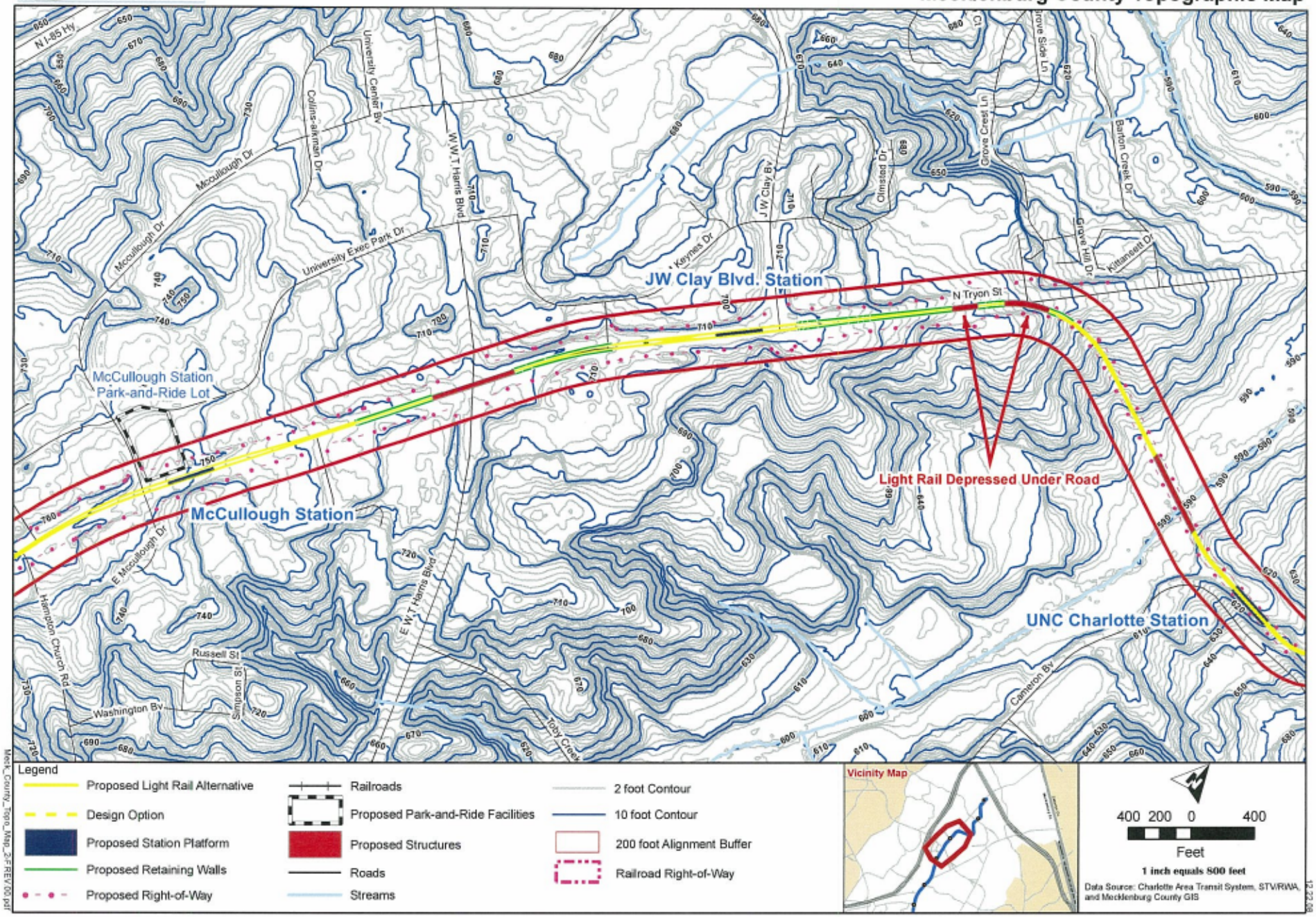
12.22.06

Meck_County_Topo_Map_2E REV00.pdf

LYNX Blue Line Extension

Figure 2-F

Mecklenburg County Topographic Map



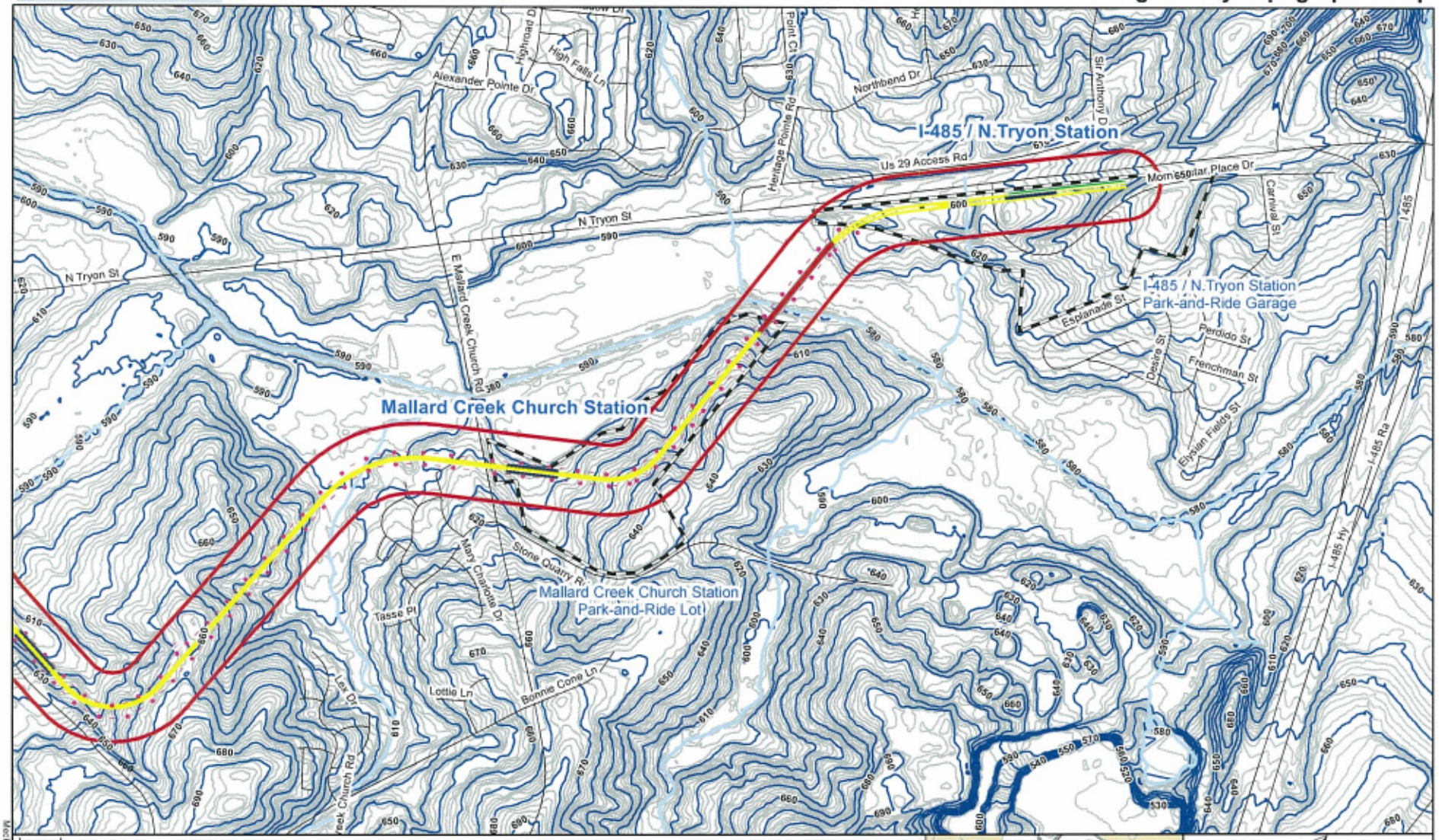
Meck_County_Topo_Map_2-F REV 00.pdf

12.22.08

LYNX Blue Line Extension

Figure 2-G

Mecklenburg County Topographic Map



Legend

- Proposed Light Rail Alternative
- Design Option
- Proposed Station Platform
- Proposed Retaining Walls
- Proposed Right-of-Way
- Railroads
- Proposed Park-and-Ride Facilities
- Proposed Structures
- Roads
- Streams
- 2 foot Contour
- 10 foot Contour
- 200 foot Alignment Buffer
- Railroad Right-of-Way

Vicinity Map

400 200 0 400

Feet

1 inch equals 800 feet

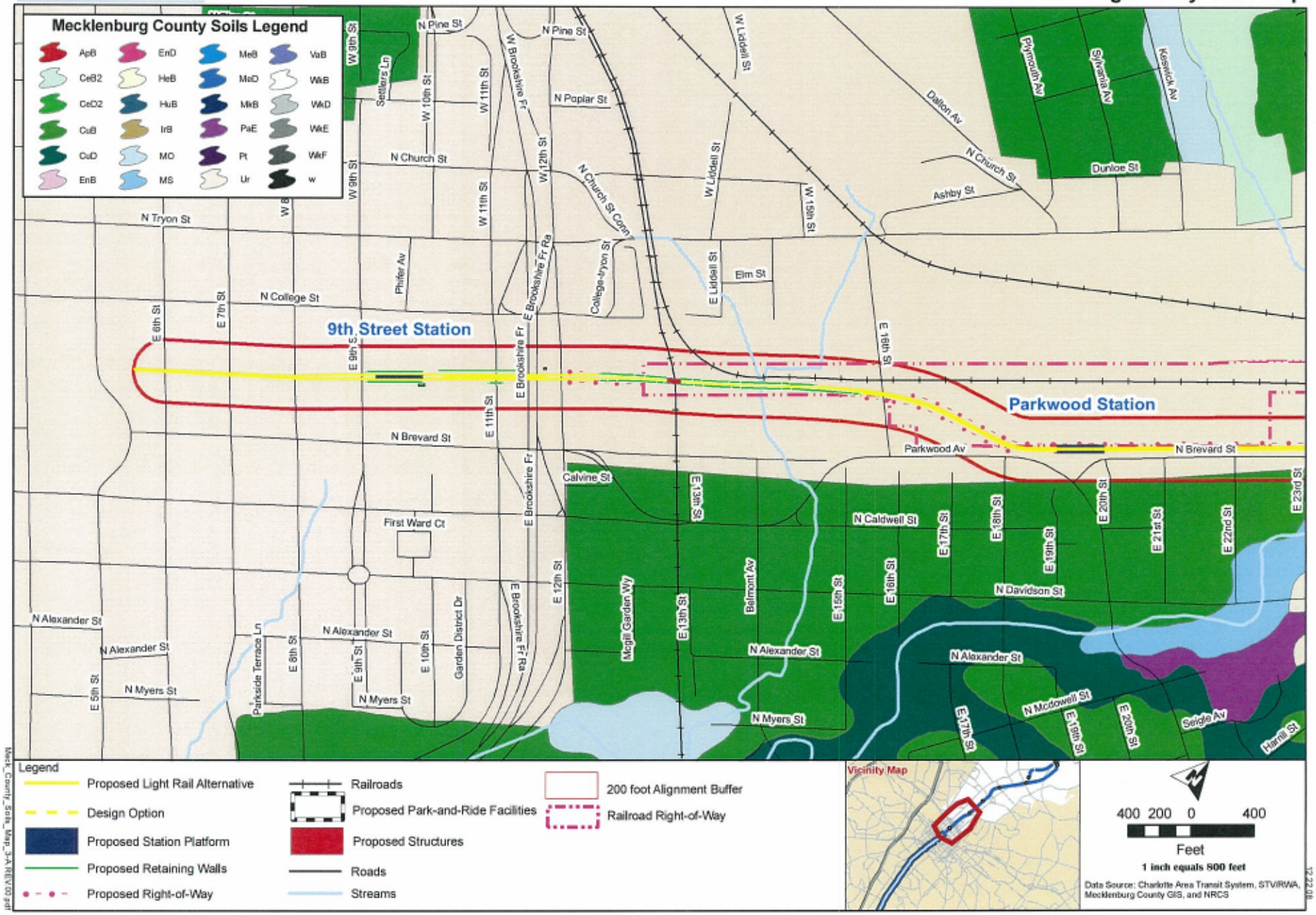
Data Source: Charlotte Area Transit System, STV/RWA, and Mecklenburg County GIS

12.22.08

Meck_County_Topo_Map_2-G REV 00.pdf

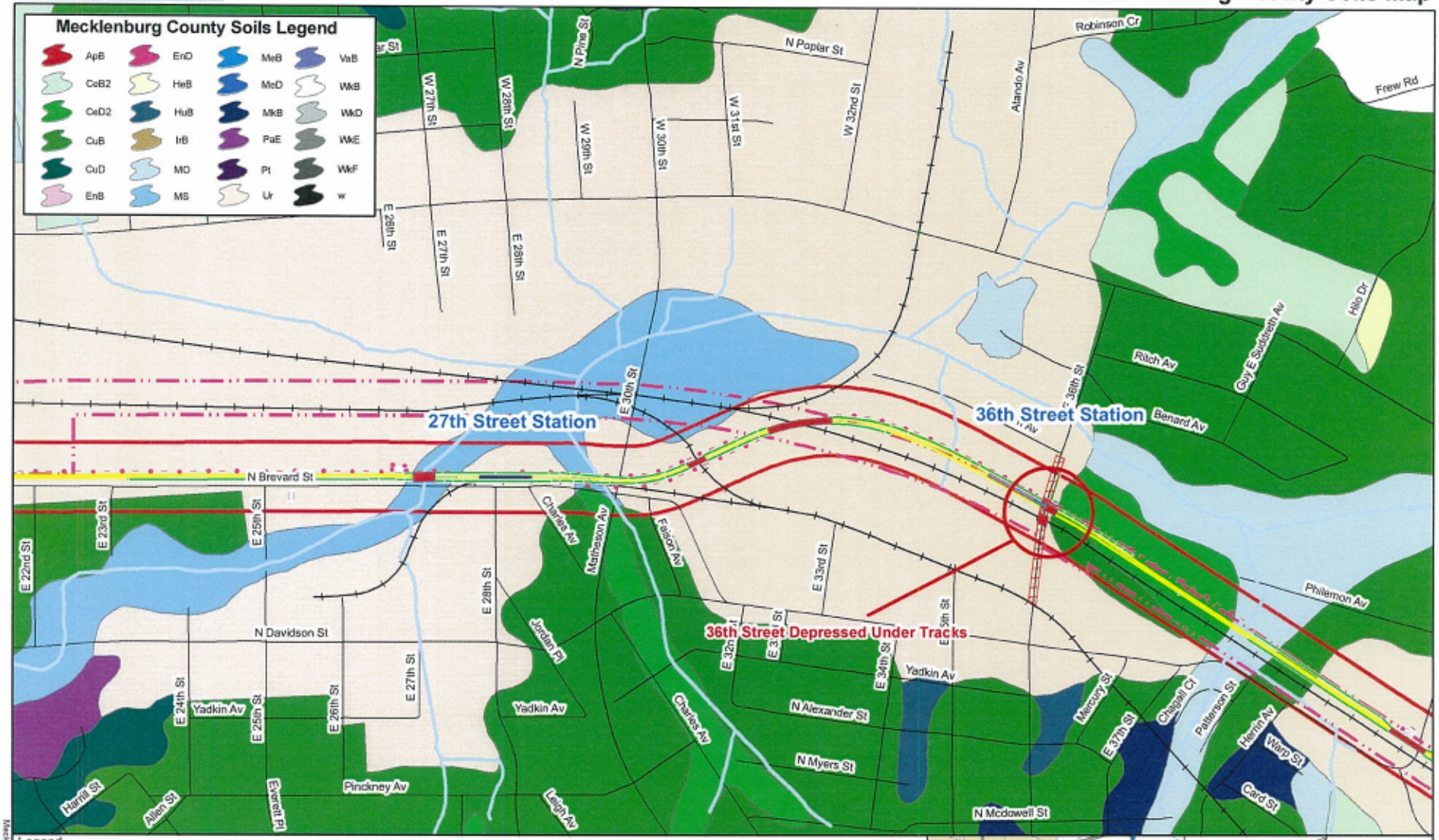
LYNX Blue Line Extension

Figure 3-A
Mecklenburg County Soils Map



LYNX Blue Line Extension

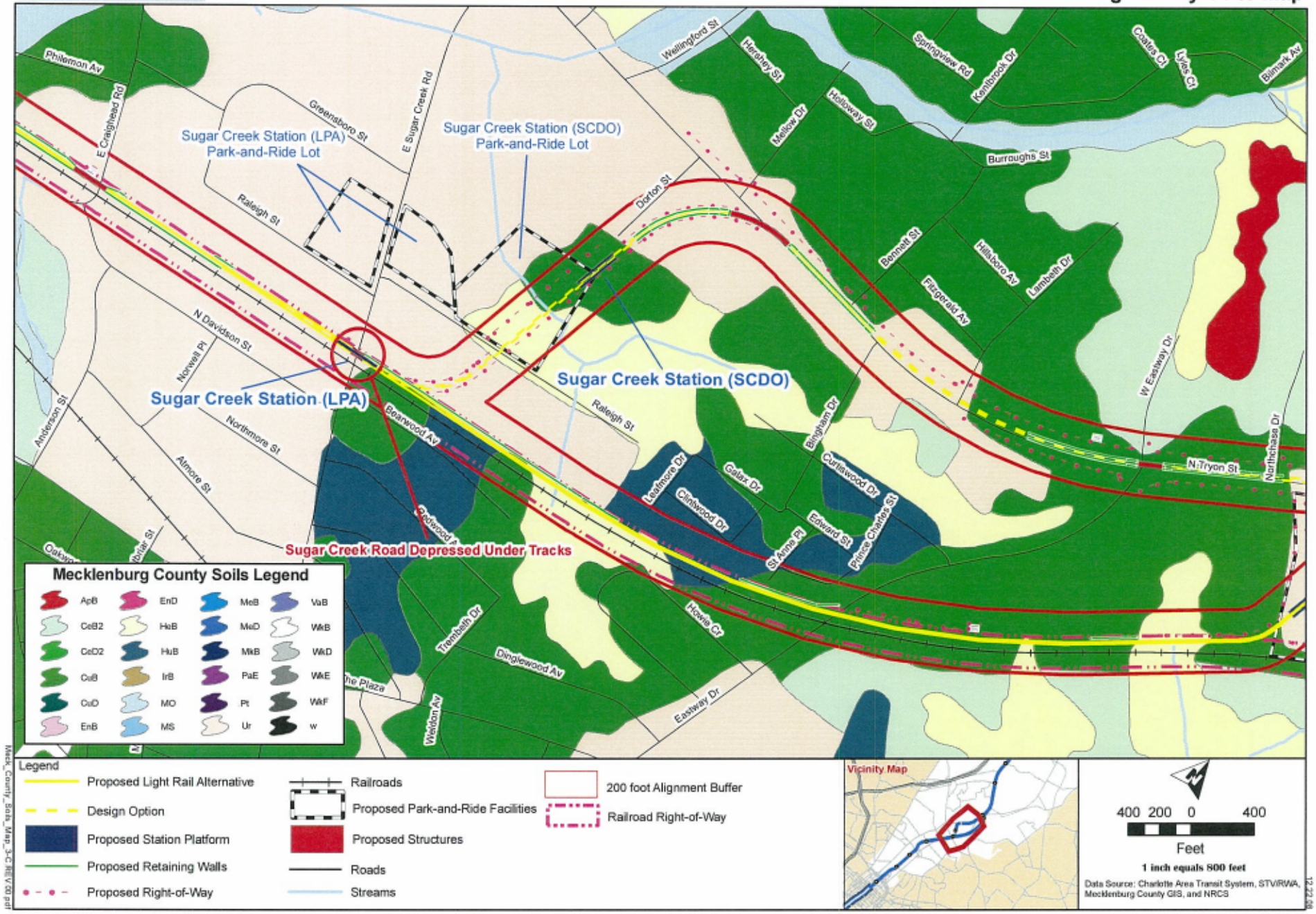
Figure 3-B
Mecklenburg County Soils Map



LYNX Blue Line Extension

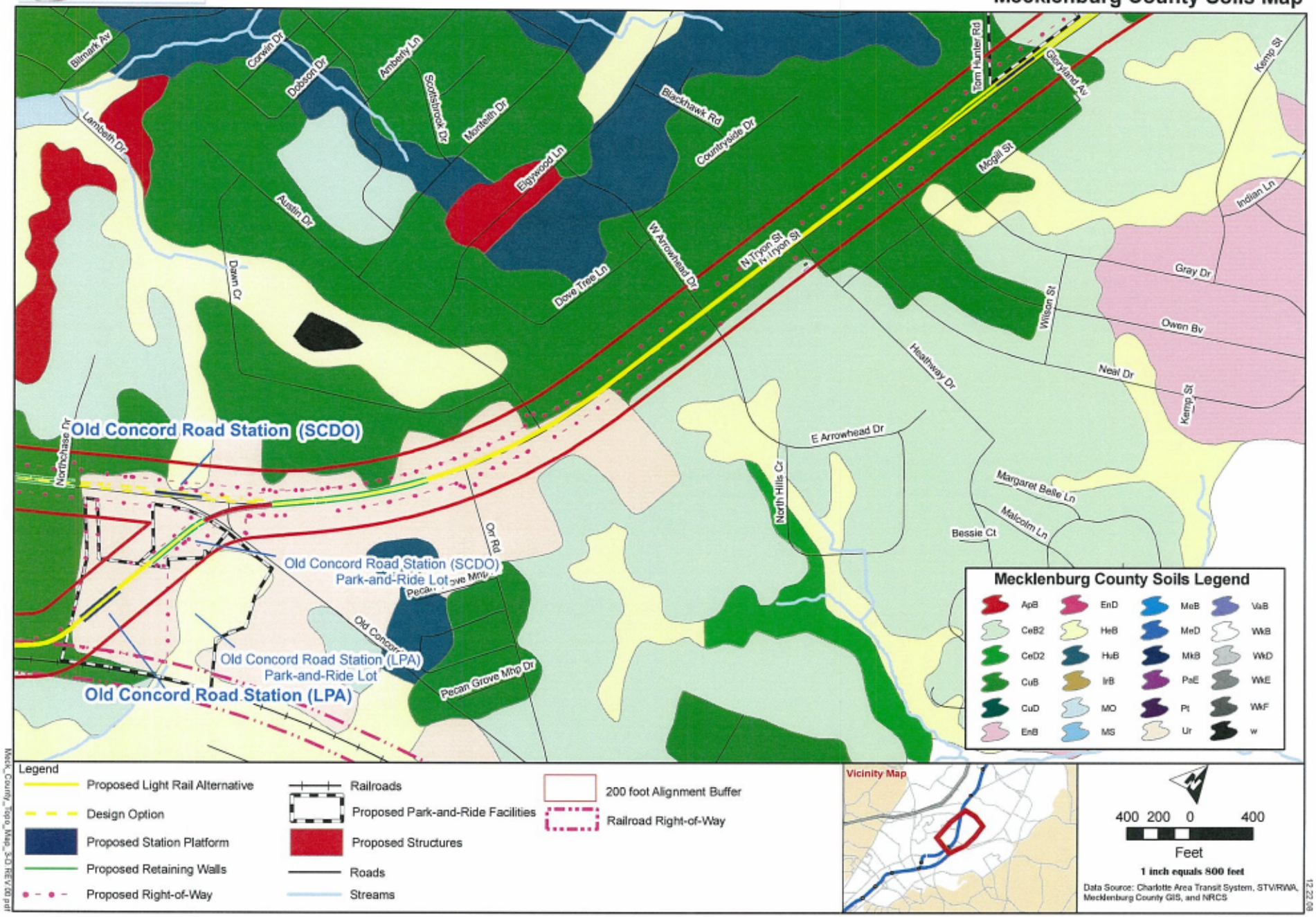
Figure 3-C

Mecklenburg County Soils Map



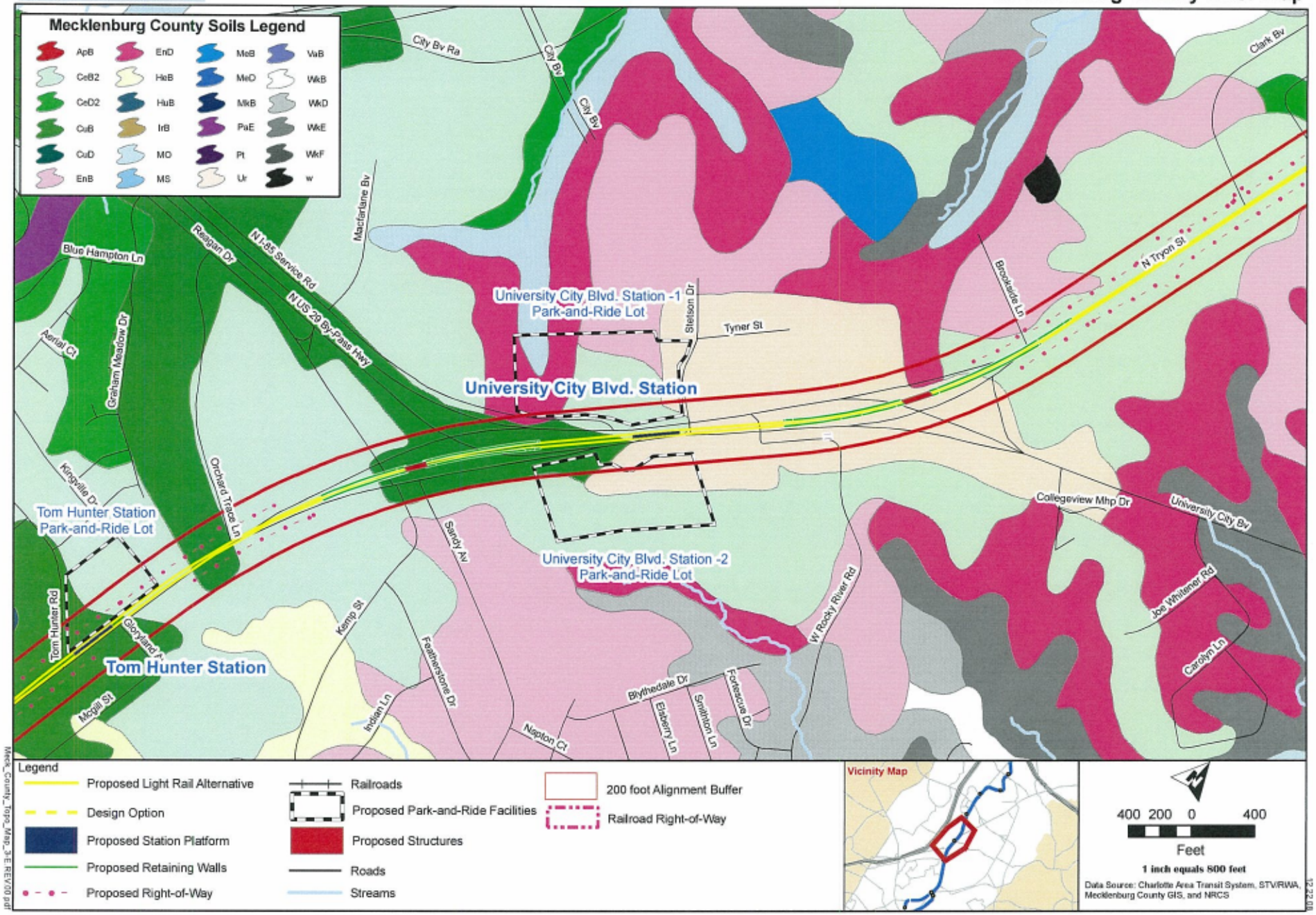
LYNX Blue Line Extension

Figure 3-D
Mecklenburg County Soils Map



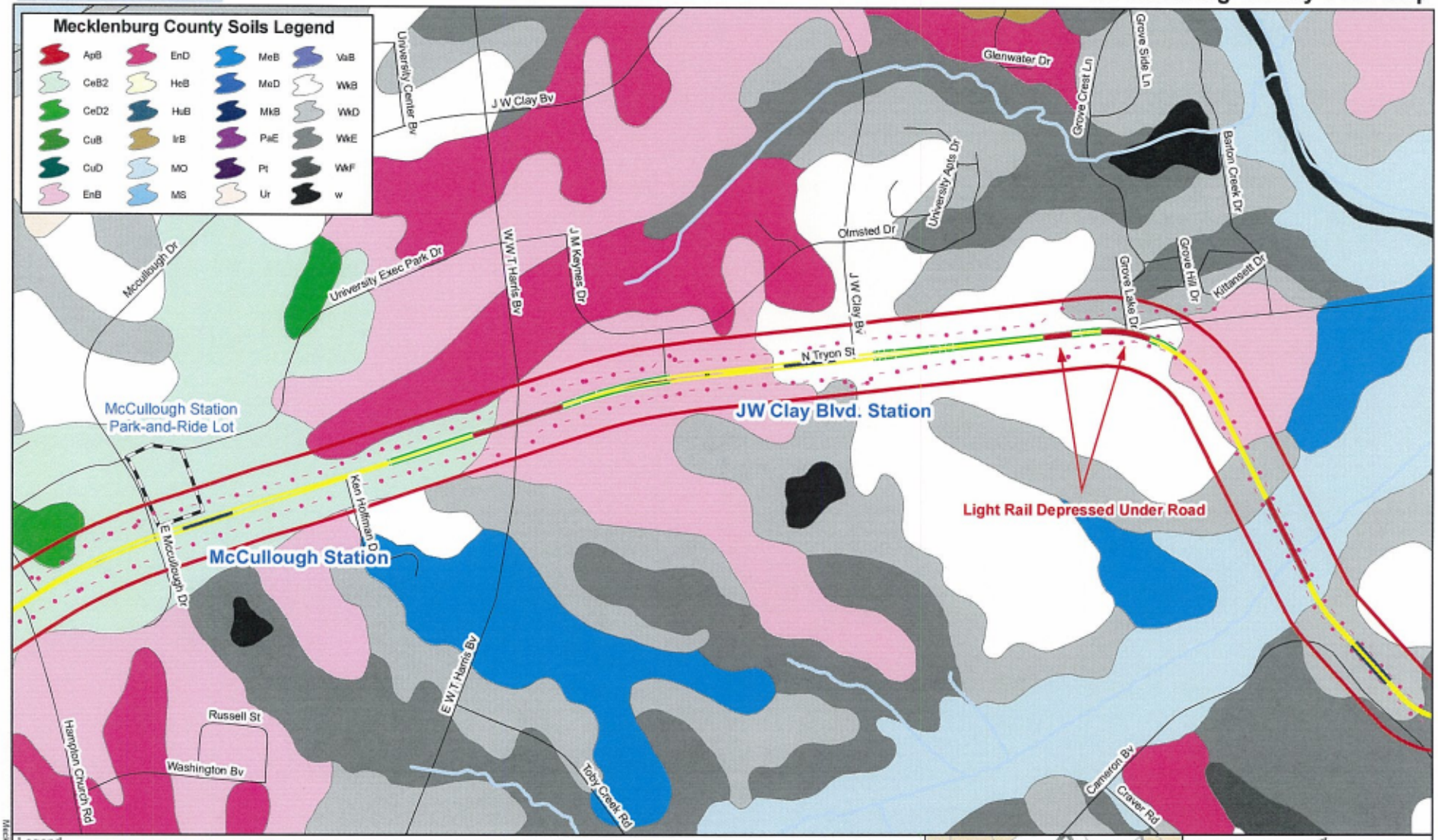
LYNX Blue Line Extension

Figure 3-E
Mecklenburg County Soils Map



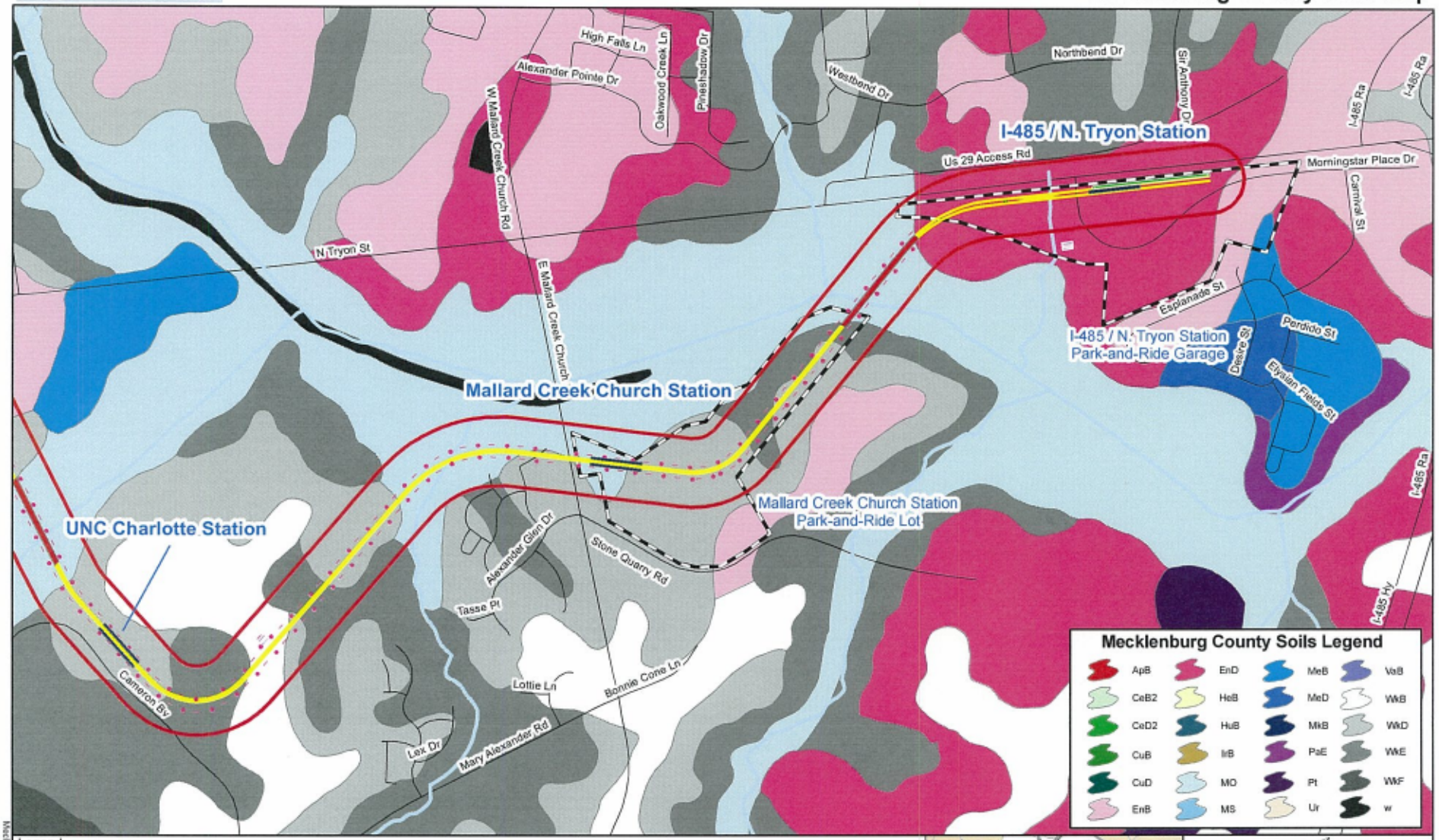
LYNX Blue Line Extension

Figure 3-F
Mecklenburg County Soils Map



LYNX Blue Line Extension

Figure 3-G
Mecklenburg County Soils Map



Legend

- Proposed Light Rail Alternative
- Design Option
- Proposed Station Platform
- Proposed Retaining Walls
- Proposed Right-of-Way
- Railroads
- Proposed Park-and-Ride Facilities
- Proposed Structures
- Roads
- Streams
- 200 foot Alignment Buffer
- Railroad Right-of-Way

Vicinity Map

400 200 0 400

Feet

1 inch equals 800 feet

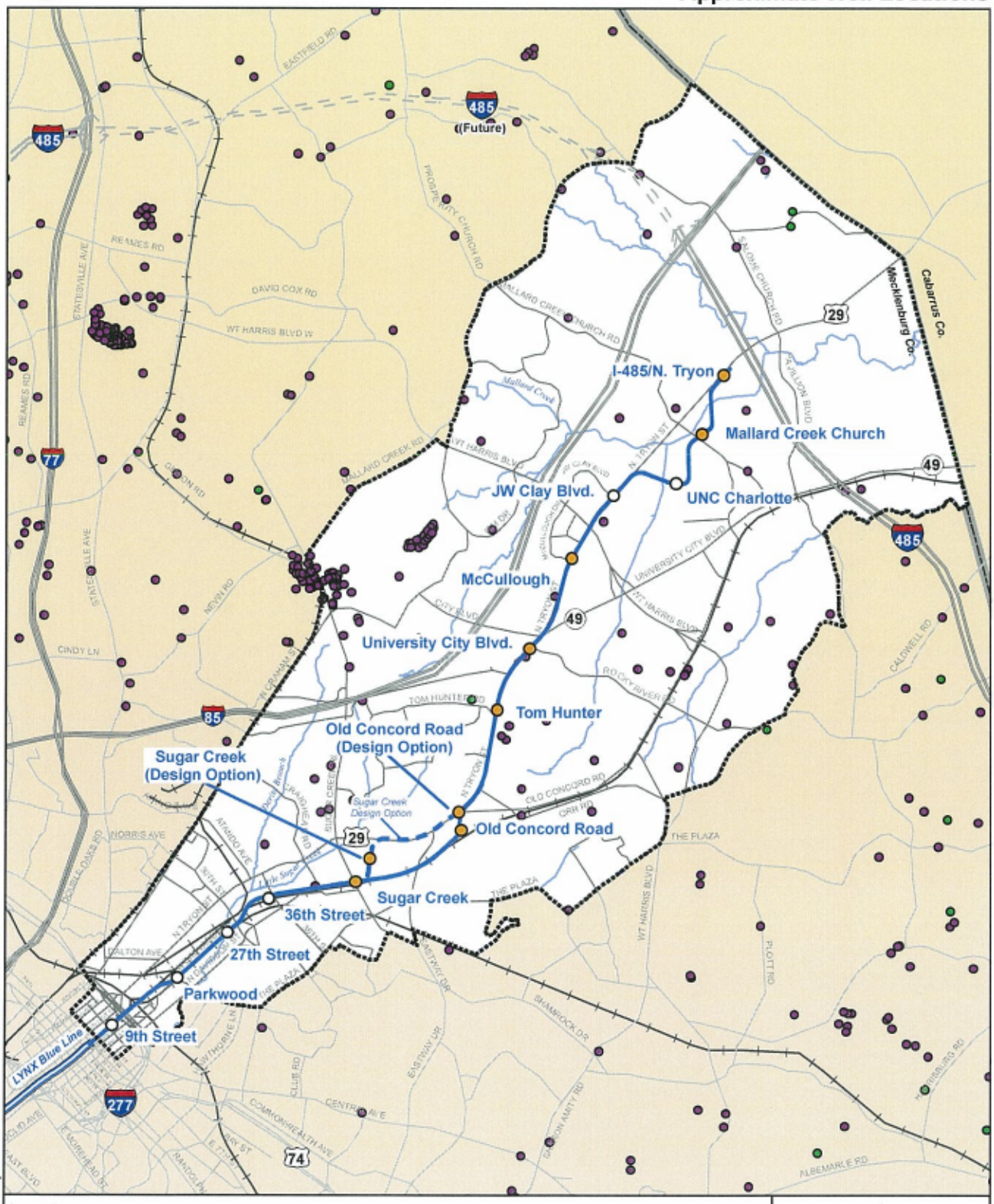
Data Source: Charlotte Area Transit System, STV/RWA, Mecklenburg County GIS, and NRCS

12.22.08

Meck_County_Topo_Map_3-G REV.00.pdf

LYNX Blue Line Extension

Figure 4
Approximate Well Locations

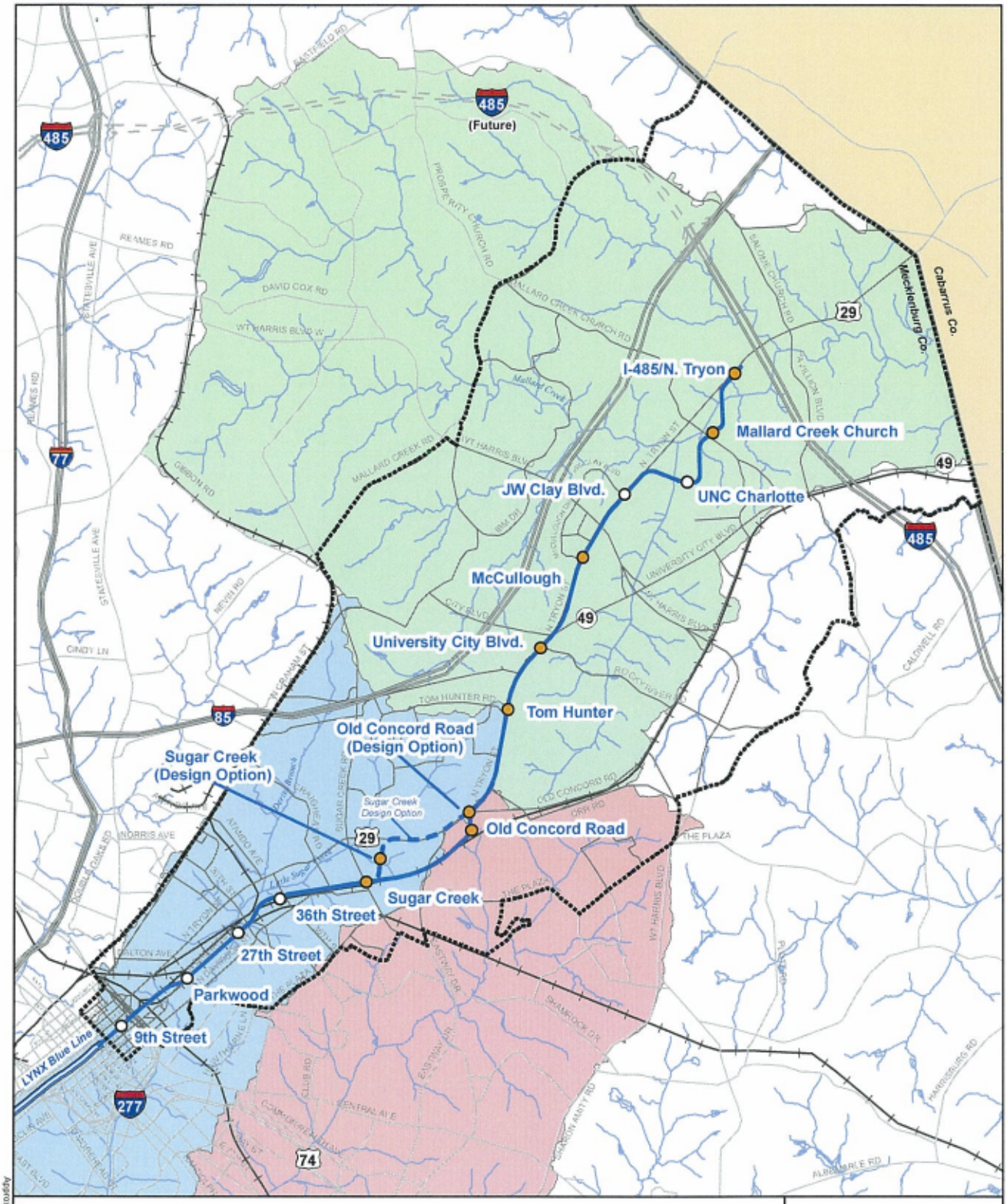


Approximate_Well_Locations_Fig-4.REV.00.pdf

03.13.09

LYNX Blue Line Extension

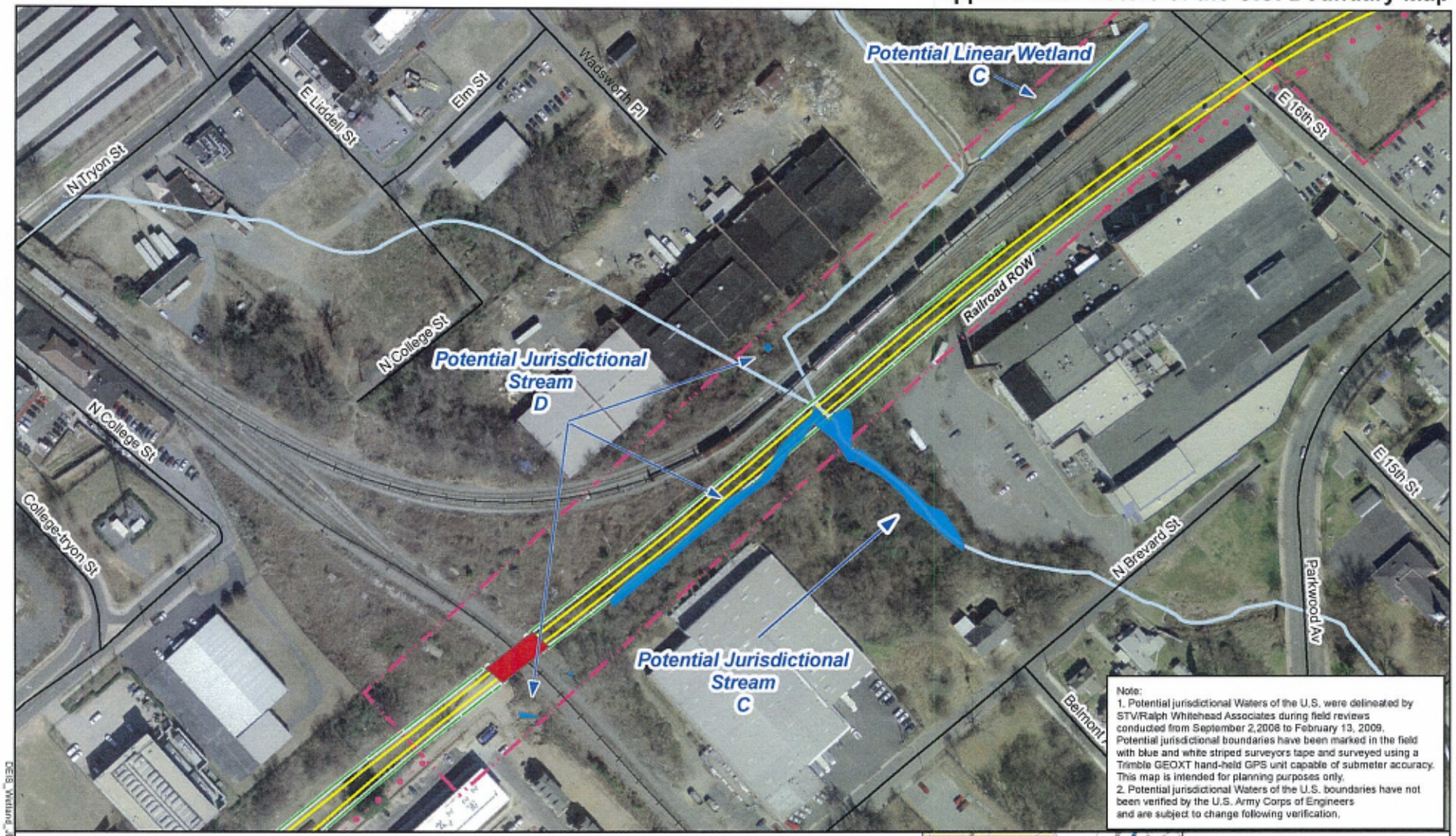
Figure 5
Watersheds



LYNX Blue Line Extension

Figure 6

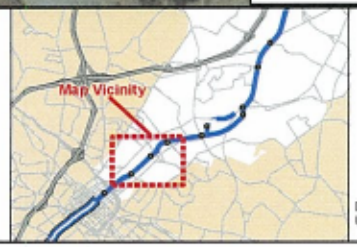
Approximate Waters of the U.S. Boundary Map



Note:
1. Potential jurisdictional Waters of the U.S. were delineated by STV/Ralph Whitehead Associates during field reviews conducted from September 2,2008 to February 13, 2009. Potential jurisdictional boundaries have been marked in the field with blue and white striped surveyors tape and surveyed using a Trimble GEOXT hand-held GPS unit capable of submeter accuracy. This map is intended for planning purposes only.
2. Potential jurisdictional Waters of the U.S. boundaries have not been verified by the U.S. Army Corps of Engineers and are subject to change following verification.

Legend

- Proposed Light Rail Alternative
- Design Option
- Proposed Station Platform
- Proposed Retaining Walls
- Proposed Right-of-Way
- Railroads
- Proposed Substation
- Proposed Signal Houses
- Roads
- Streams
- Proposed Park-and-Ride Facilities
- Potential Wetland
- Potential Jurisdictional Stream
- Proposed Structures



N

100 50 0 100

Feet

1 inch equals 200 feet

Data Source: Charlotte Area Transit System, STV/RWA, USGS NWI Wetland, Mecklenburg County GIS Aerial (2007)

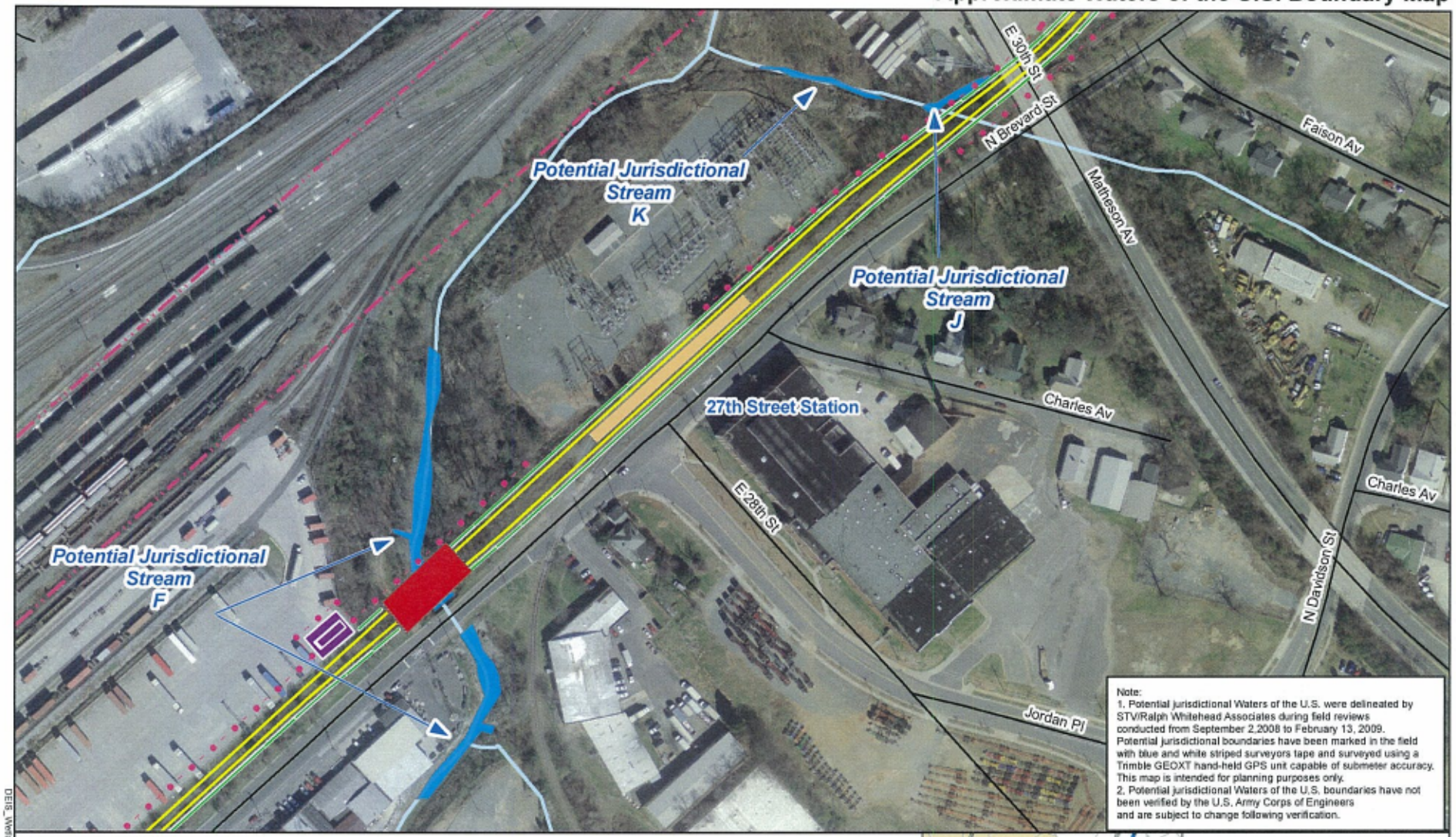
DEIS_Wetland_JD_Stream_Map_Fig_4 REV.00 Draft1.pdf

12.01.09

LYNX Blue Line Extension

Figure 7

Approximate Waters of the U.S. Boundary Map

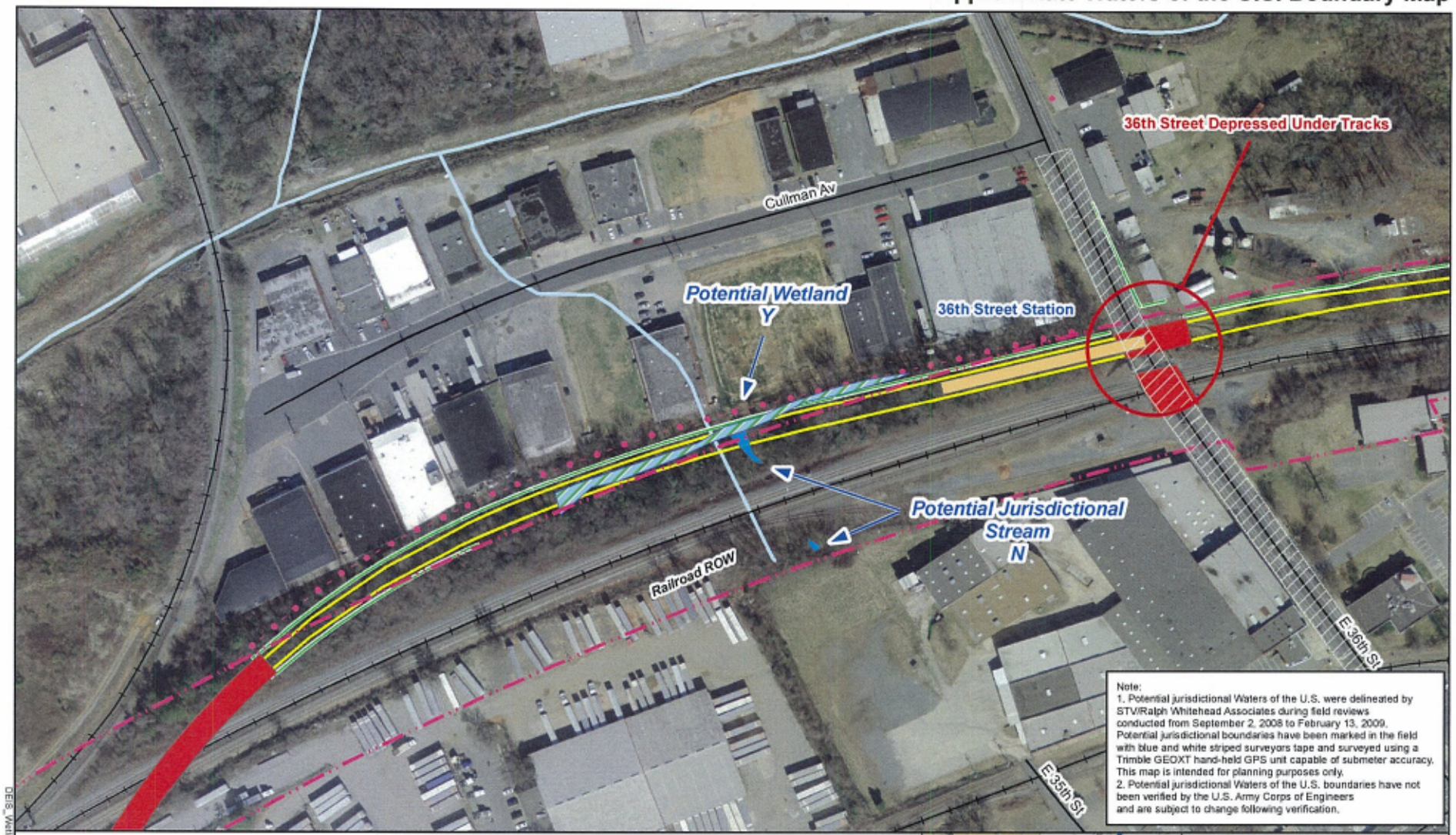


DEIS_Wetland_JD_Stream_Map REV00 Draft.pdf

LYNX Blue Line Extension

Figure 8

Approximate Waters of the U.S. Boundary Map



Legend

- Proposed Light Rail Alternative
- Design Option
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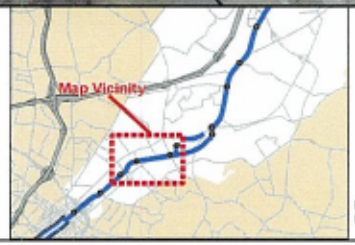
- Railroads
- Proposed Substation
- Proposed Signal Houses
- Roads
- Streams
- Proposed Park-and-Ride Facilities
- Potential Wetland
- Potential Jurisdictional Stream
- Proposed Structures



N

100 50 0 100

Feet

1 inch equals 200 feet

Data Source: Charlotte Area Transit System, STV/RWA, USGS NWI Wetland, Mecklenburg County GIS Aerial (2007)

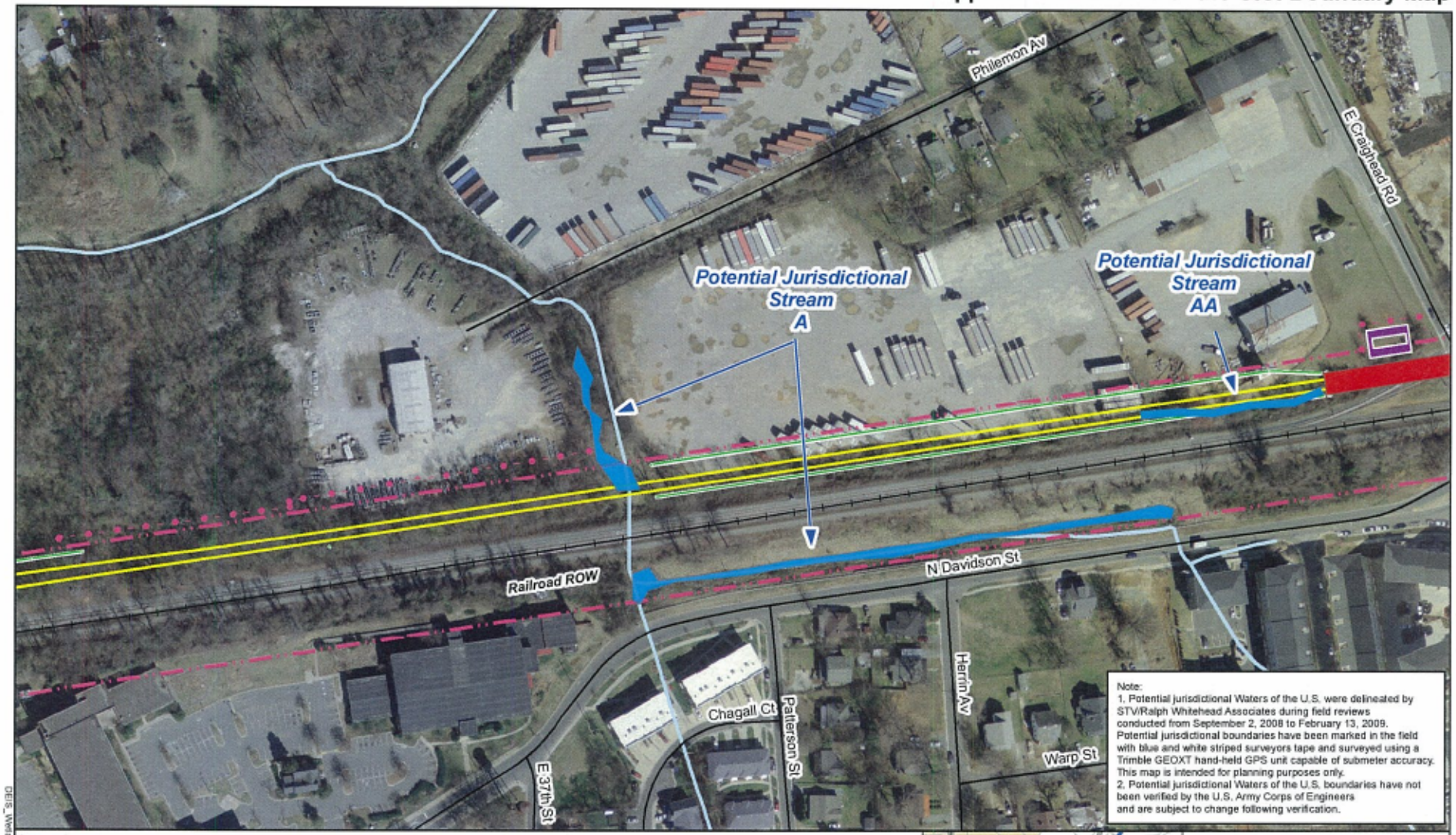
12.01.08

DEIS_Wetland_JD_Stream_Map REV00 Draft1.pdf

LYNX Blue Line Extension

Figure 9

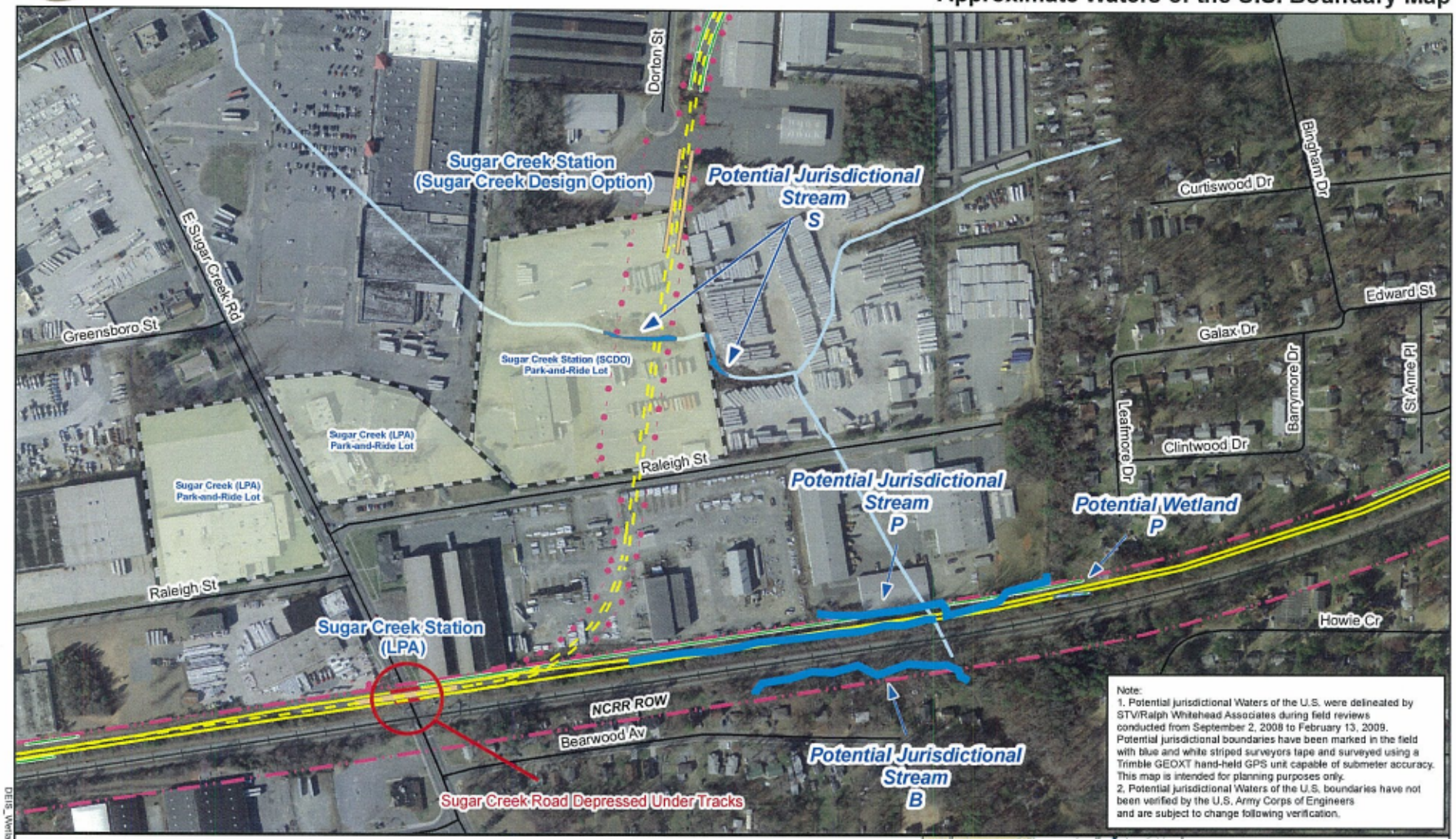
Approximate Waters of the U.S. Boundary Map



LYNX Blue Line Extension

Figure 10

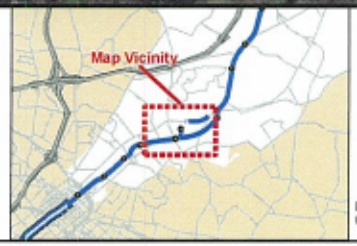
Approximate Waters of the U.S. Boundary Map



Note:
1. Potential jurisdictional Waters of the U.S. were delineated by STV/Ralph Whitehead Associates during field reviews conducted from September 2, 2008 to February 13, 2009. Potential jurisdictional boundaries have been marked in the field with blue and white striped surveyors tape and surveyed using a Trimble GEOXT hand-held GPS unit capable of submeter accuracy. This map is intended for planning purposes only.
2. Potential jurisdictional Waters of the U.S. boundaries have not been verified by the U.S. Army Corps of Engineers and are subject to change following verification.

Legend

- Proposed Light Rail Alternative
- Design Option
- Proposed Station Platform
- Proposed Retaining Walls
- Proposed Right-of-Way
- Railroads
- Proposed Substation
- Proposed Signal Houses
- Roads
- Streams
- Proposed Park-and-Ride Facilities
- Potential Wetland
- Potential Jurisdictional Stream
- Proposed Structures



200 100 0 200

Feet

1 inch equals 400 feet

Data Source: Charlotte Area Transit System, STV/RWA, USGS NWI Wetland, Mecklenburg County GIS Aerial (2007)

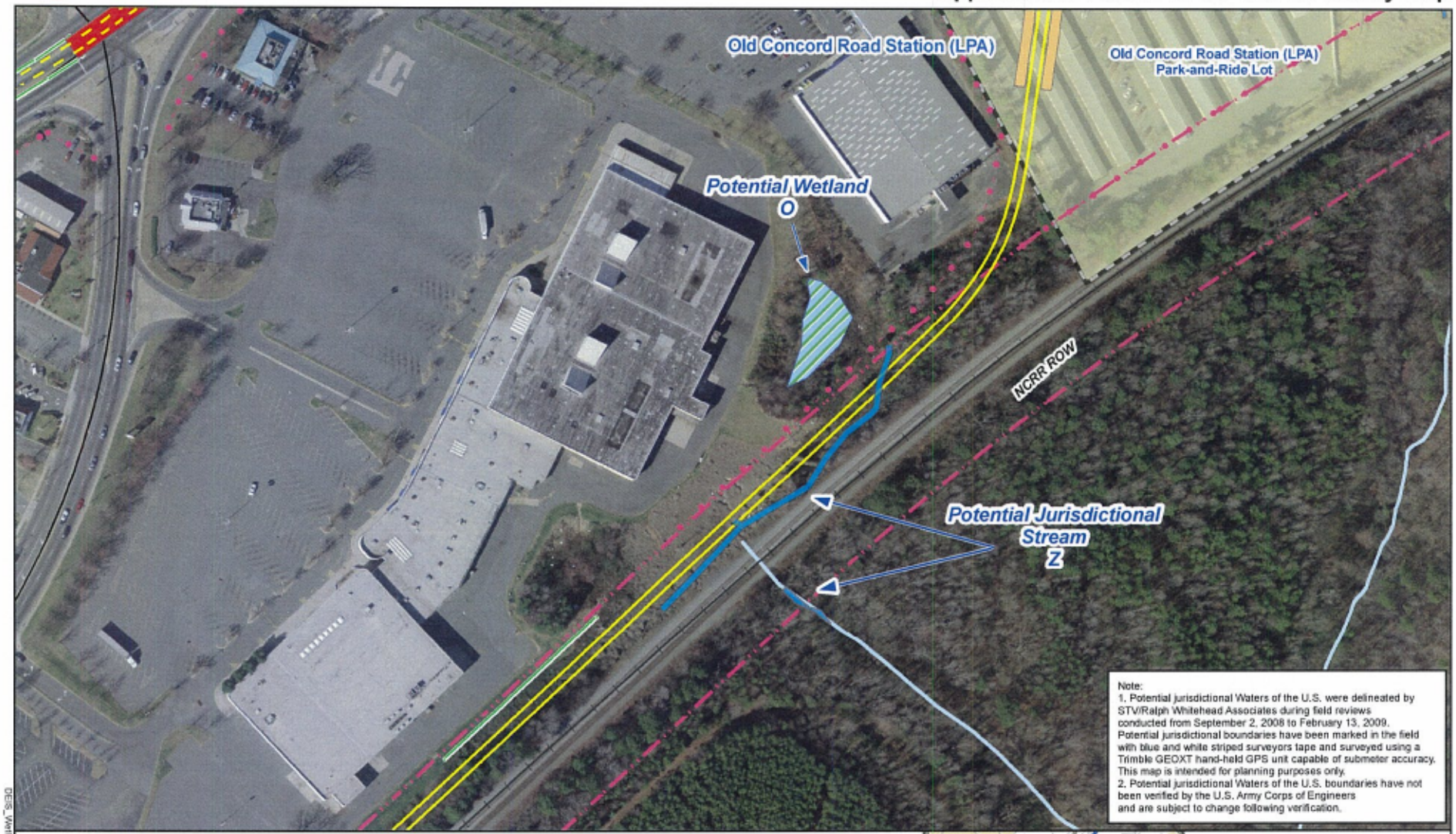
12.01.08

DEIS_Wetland_JD_Stream_Map REV.00 Draft.pdf

LYNX Blue Line Extension

Figure 11

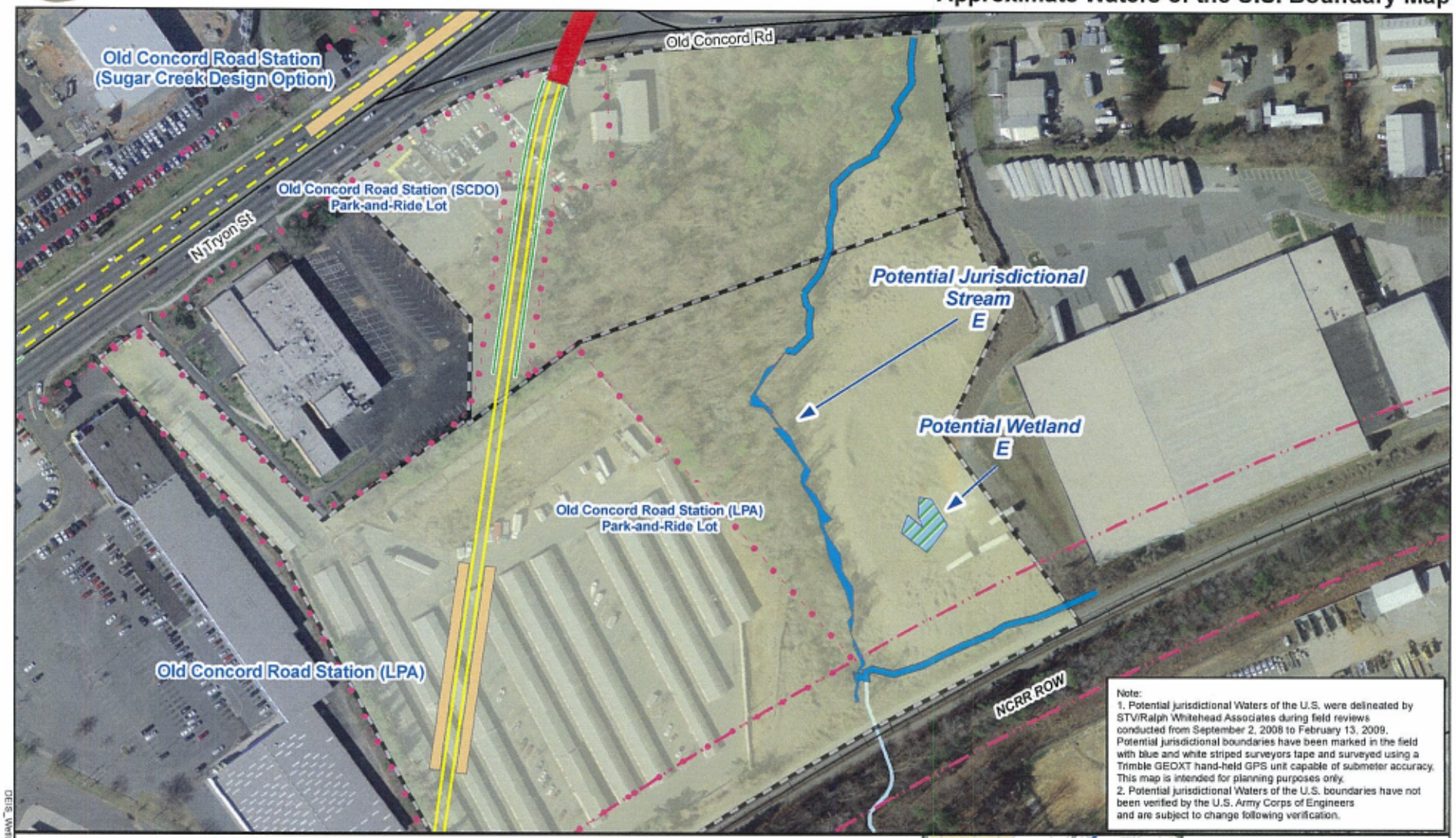
Approximate Waters of the U.S. Boundary Map



LYNX Blue Line Extension

Figure 12

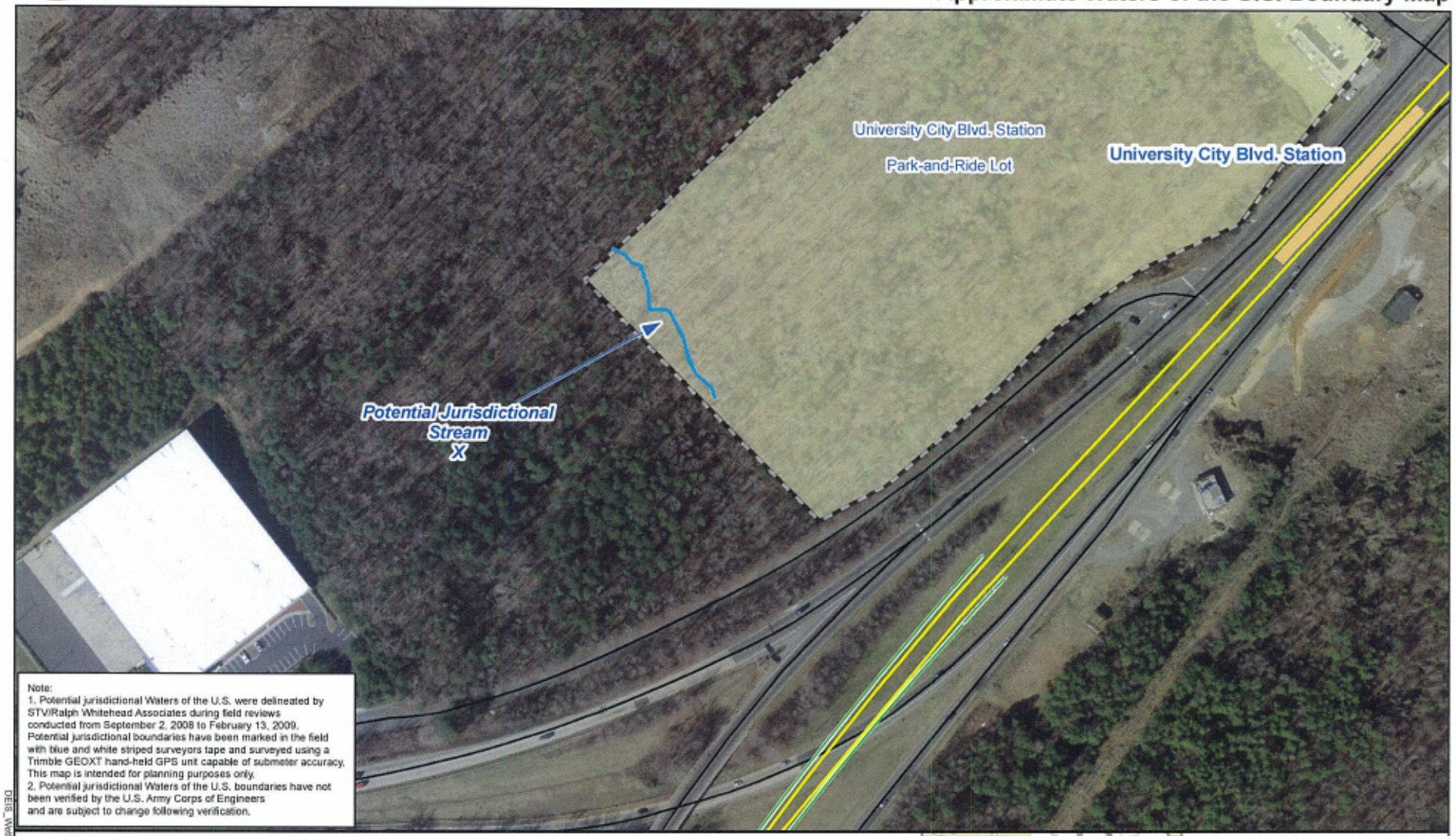
Approximate Waters of the U.S. Boundary Map



LYNX Blue Line Extension

Figure 13

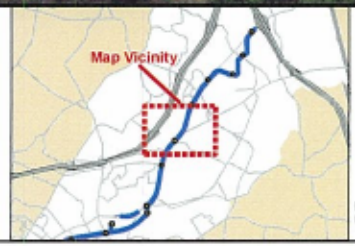
Approximate Waters of the U.S. Boundary Map



Note:
1. Potential jurisdictional Waters of the U.S. were delineated by STV/Ralph Whitehead Associates during field reviews conducted from September 2, 2008 to February 13, 2009. Potential jurisdictional boundaries have been marked in the field with blue and white striped surveyors tape and surveyed using a Trimble GEOXT hand-held GPS unit capable of submeter accuracy. This map is intended for planning purposes only.
2. Potential jurisdictional Waters of the U.S. boundaries have not been verified by the U.S. Army Corps of Engineers and are subject to change following verification.

Legend

- Proposed Light Rail Alternative
- Design Option
- Proposed Station Platform
- Proposed Retaining Walls
- Proposed Right-of-Way
- Railroads
- Proposed Substation
- Proposed Signal Houses
- Roads
- Streams
- Proposed Park-and-Ride Facilities
- Potential Wetland
- Potential Jurisdictional Stream
- Proposed Structures



N

100 50 0 100

Feet

1 inch equals 200 feet

Data Source: Charlotte Area Transit System, STV/RWA, USGS NWI Wetland, Mecklenburg County GIS Aerial (2007)

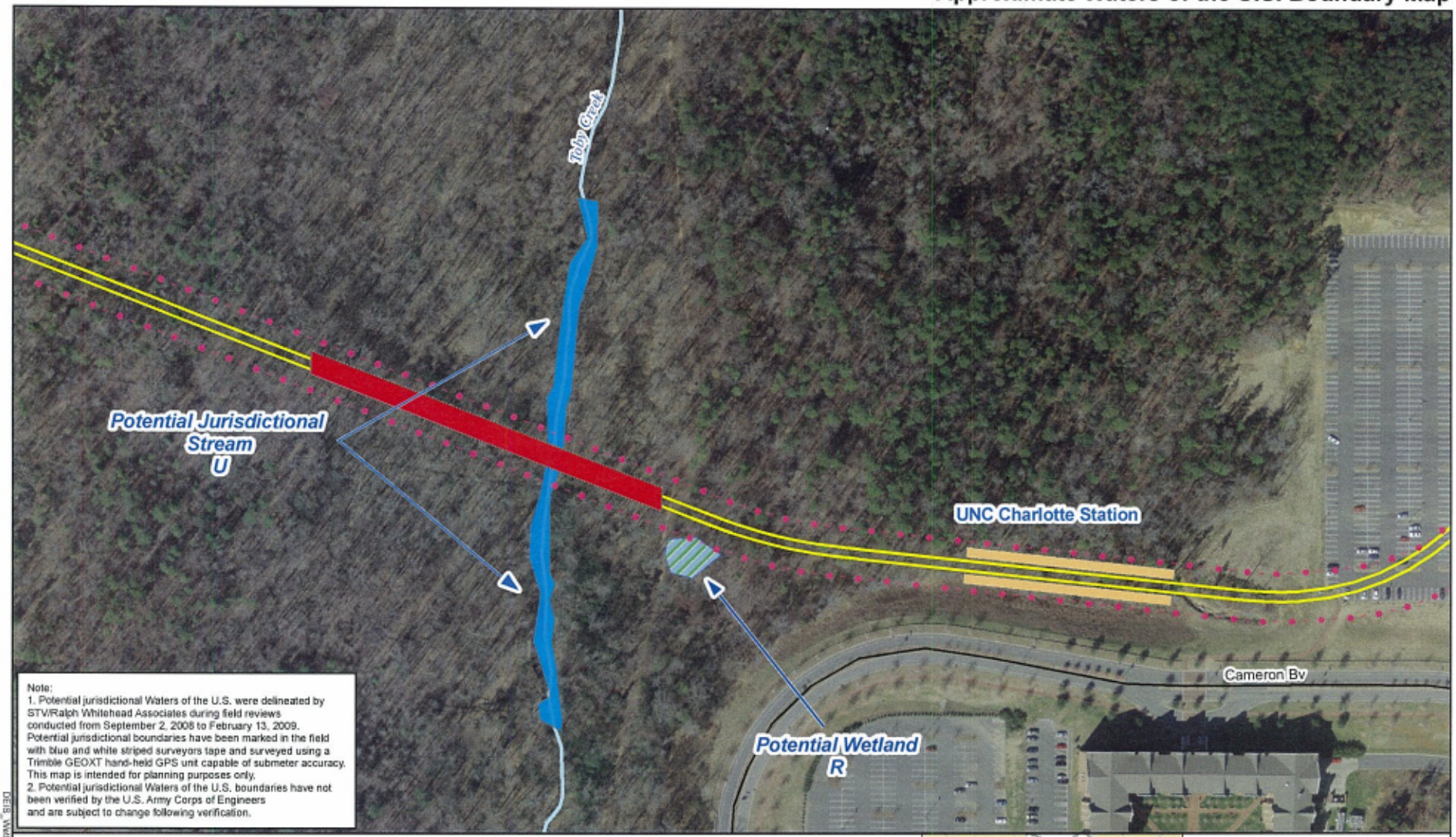
12.01.09

DEIS_Wetland_JD_Stream_Map REV.00 Draft1.pdf

LYNX Blue Line Extension

Figure 14

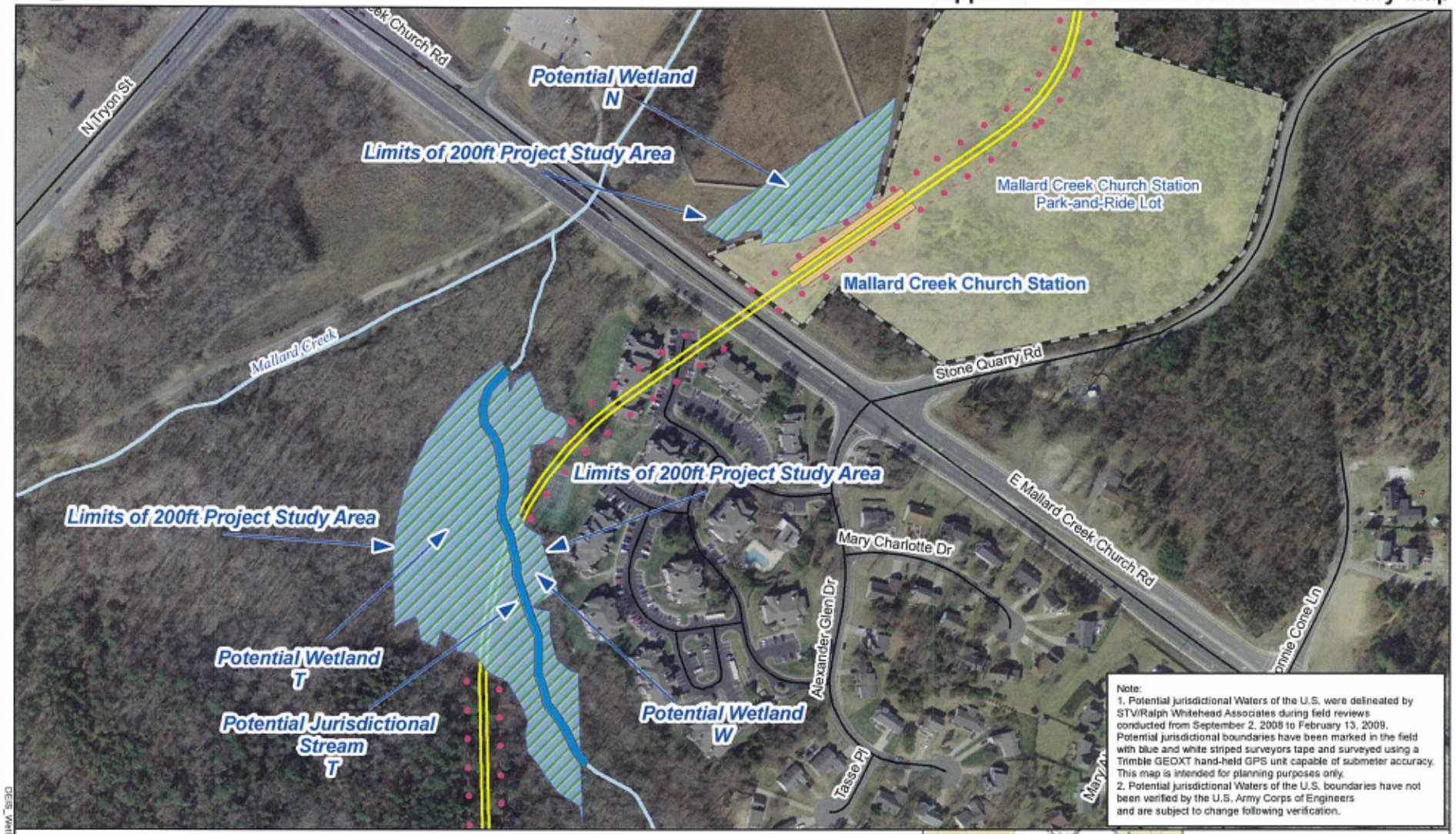
Approximate Waters of the U.S. Boundary Map



LYNX Blue Line Extension

Figure 15

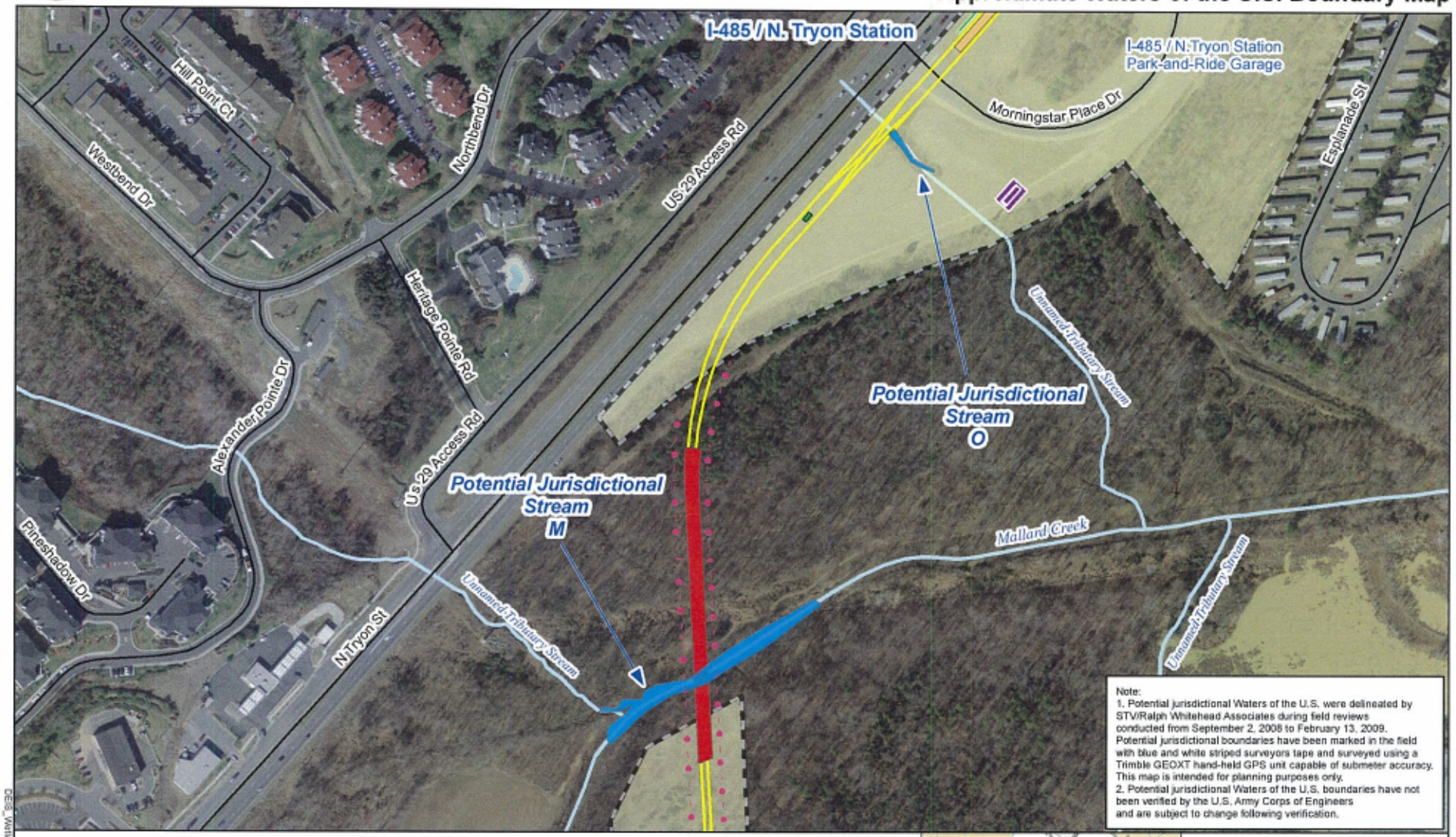
Approximate Waters of the U.S. Boundary Map



LYNX Blue Line Extension

Figure 16

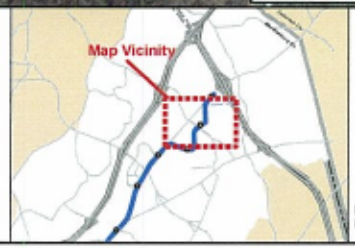
Approximate Waters of the U.S. Boundary Map



Note:
1. Potential jurisdictional Waters of the U.S. were delineated by STV/Ralph Whitehead Associates during field reviews conducted from September 2, 2008 to February 13, 2009. Potential jurisdictional boundaries have been marked in the field with blue and white striped surveyors tape and surveyed using a Trimble GEOXT hand-held GPS unit capable of submeter accuracy. This map is intended for planning purposes only.
2. Potential jurisdictional Waters of the U.S. boundaries have not been verified by the U.S. Army Corps of Engineers and are subject to change following verification.

Legend

- Proposed Light Rail Alternative
- Design Option
- Proposed Station Platform
- Proposed Retaining Walls
- Proposed Right-of-Way
- Railroads
- Proposed Substation
- Proposed Signal Houses
- Roads
- Streams
- Proposed Park-and-Ride Facilities
- Potential Wetland
- Potential Jurisdictional Stream
- Proposed Structures



N

150 75 0 150

Feet

1 inch equals 300 feet

Data Source: Charlotte Area Transit System, STV/RWA, USGS NWI Wetland, Mecklenburg County GIS Aerial (2007)

12.01.09

DEIS_Wetland_JD_Stream_Map REV 0.0 Draft.pdf

Attachment D – NCDWQ and USCOE Stream Data Forms

OFFICE USE ONLY: USACE AID#_____ DWQ #_____

Stream C

STREAM QUALITY ASSESSMENT WORKSHEET

1. Applicant's Name: CATS
2. Evaluator's Name: B. Phillips
3. Date of Evaluation: 10/07/08
4. Time of Evaluation: 9:30 am
5. Name of Stream: unnamed trib to Little Sugar Creek
6. River Basin: Catawba
7. Approximate Drainage Area: <50 acres
8. Stream Order: 2nd
9. Length of Reach Evaluated: 50 ft.
10. County: Mecklenburg
11. Location of reach under evaluation (include nearby roads and landmarks): north of N. Brevard St.; SW of East 16th Street.
12. Site Coordinates (if known): 35.233289 N 80.828530 W
13. Proposed Channel Work (if any):
14. Recent Weather Conditions: cool, dry
15. Site conditions at time of visit: cool, dry
16. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters ___ Nutrient Sensitive Waters ___Water Supply Watershed ____(I-IV)
17. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:
18. Does channel appear on USGS quad map? (YES) NO 19. Does channel appear on USDA Soil Survey? YES (NO)
20. Estimated Watershed Land Use: 40 % Residential 20 % Commercial 35 % Industrial ___% Agricultural 5 % Forested ___% Cleared / Logged ___% Other (_____)
21. Bankfull Width: 8-10 ft
22. Bank Height (from bed to top of bank): 4-5 ft
23. Channel slope down center of stream: X Flat (0 to 2%) ___Gentle (2 to 4%) ___Moderate (4 to 10%) ___Steep (>10%)
24. Channel Sinuosity: X Straight ___Occasional Bends ___Frequent Meander ___Very Sinuous ___Braided Channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 38 **Comments:** Intermittent/Perennial Stream

Evaluator's Signature _____ **Date** 10/7/08

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers in order to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 05/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET
Intermittent/Perennial Stream C

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	2
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	2
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	2
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	2
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	0
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	1
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	2
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	0
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	1
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	3
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	2
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	2
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	3
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	0
	15	**Impact by agriculture or livestock production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	4
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	3
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	2
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	4
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	2
BIOLOGY	20	**Presence of stream invertebrates** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	0
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	1
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						38

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality -- Stream Identification Form; Version 3.1

Date:	10/07/2008	Project:	LYNX BLE	Latitude:	35.233289 deg N
Evaluator:	B. Phillips	Site:	Stream C	Longitude:	80.828530 deg W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	**20.00**	County:	Mecklenburg	Other *e.g. Quad Name:*	Charlotte East, NC

A. Geomorphology (Subtotal = 8.0)		Absent	Weak	Moderate	Strong
1[a]. Continuous bed and bank	2.0	0	1	2	3
2. Sinuosity	1.0	0	1	2	3
3. In-channel structure: riffle-pool sequence	1.0	0	1	2	3
4. Soil texture or stream substrate sorting	1.0	0	1	2	3
5. Active/relic floodplain	1.0	0	1	2	3
6. Depositional bars or benches	1.0	0	1	2	3
7. Braided channel	0.0	0	1	2	3
8. Recent alluvial deposits	0.0	0	1	2	3
9[a]. Natural levees	0.0	0	1	2	3
10. Headcuts	0.0	0	1	2	3
11. Grade controls	0.0	0	0.5	1	1.5
12. Natural valley or drainageway	1.0	0	0.5	1	1.5
13. Second or greater order channel on existing USGS or NRCS map or other documented evidence.	0.0	No = 0		Yes = 3	

[a] Man-made ditches are not rated: see discussions in manual

B. Hydrology (Subtotal = 4.0)					
14. Groundwater flow/discharge	0.0	0	1	2	3
15. Water in channel and > 48 hrs since rain. or Water in channel -- dry or growing season	1.0	0	1	2	3
16. Leaflitter	1.5	1.5	1	0.5	0
17. Sediment on plants or debris	0.0	0	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	0.0	0	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	1.5	No = 0		Yes = 1.5	

C. Biology (Subtotal = 8.00)					
20[b]. Fibrous roots in channel	3.0	3	2	1	0
21[b]. Rooted plants in channel	3.0	3	2	1	0
22. Crayfish	0.0	0	0.5	1	1.5
23. Bivalves	0.0	0	1	2	3
24. Fish	0.0	0	0.5	1	1.5
25. Amphibians	0.0	0	0.5	1	1.5
26. Macrobenthos (note diversity and abundance)	0.0	0	0.5	1	1.5
27. Filamentous algae; periphyton	0.0	0	1	2	3
28. Iron oxidizing bacteria/fungus.	0.5	0	0.5	1	1.5
29[c]. Wetland plants in streambed	1.50	FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; Other = 0			

[c] Items 20 and 21 focus on the presence of upland plants. Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

In forested area with minimal impacts.

Sketch:

OFFICE USE ONLY: USACE AID#_____ DWQ #_____

Stream D

STREAM QUALITY ASSESSMENT WORKSHEET

1. Applicant's Name: CATS
2. Evaluator's Name: B. Phillips
3. Date of Evaluation: 02/09/09
4. Time of Evaluation: 9:30 am
5. Name of Stream: unnamed trib to Little Sugar Creek
6. River Basin: Catawba
7. Approximate Drainage Area: <50 acres
8. Stream Order: 1st
9. Length of Reach Evaluated: 50 ft.
10. County: Mecklenburg
11. Location of reach under evaluation (include nearby roads and landmarks): north of N. Brevard St.; SW of East 16th Street.
12. Site Coordinates (if known): 35.233430 N 80.829721 W
13. Proposed Channel Work (if any):
14. Recent Weather Conditions: warm, dry
15. Site conditions at time of visit: warm, dry
16. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters ___ Nutrient Sensitive Waters ___Water Supply Watershed ____(I-IV)
17. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:_____
18. Does channel appear on USGS quad map? YES (NO) 19. Does channel appear on USDA Soil Survey? YES (NO)
20. Estimated Watershed Land Use: 10 % Residential 50 % Commercial 35 % Industrial ___% Agricultural 5 % Forested ___% Cleared / Logged ___% Other (_____)
21. Bankfull Width: 3-4 ft
22. Bank Height (from bed to top of bank): 5-6 ft
23. Channel slope down center of stream: __Flat (0 to 2%) ___Gentle (2 to 4%) X Moderate (4 to 10%) ___Steep (>10%)
24. Channel Sinuosity: X Straight ___Occasional Bends ___Frequent Meander ___Very Sinuous ___Braided Channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 23 **Comments:** Ephemeral Stream

Evaluator's Signature _____ **Date** 2/9/09

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers in order to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 05/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET
Ephemeral Stream D

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	1
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	0
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	1
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	0
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	0
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	1
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	1
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	0
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	0
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	2
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	1
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	1
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	1
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	1
	15	**Impact by agriculture or livestock production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	4
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	1
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	1
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	4
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	2
BIOLOGY	20	**Presence of stream invertebrates** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	0
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	1
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						23

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date: 02/09/2009	Project: LYNX BLE	Latitude:	35.233430 deg N
Evaluator: B. Phillips	Site: Stream D	Longitude:	80.829721 deg W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30* 17.50	County: Mecklenburg	Other *e.g. Quad Name:*	Harrisburg, NC

A. Geomorphology (Subtotal = 8.0)		Absent	Weak	Moderate	Strong
1[a]. Continuous bed and bank	2.0	0	1	2	3
2. Sinuosity	1.0	0	1	2	3
3. In-channel structure: riffle-pool sequence	1.0	0	1	2	3
4. Soil texture or stream substrate sorting	1.0	0	1	2	3
5. Active/relic floodplain	0.0	0	1	2	3
6. Depositional bars or benches	0.0	0	1	2	3
7. Braided channel	0.0	0	1	2	3
8. Recent alluvial deposits	1.0	0	1	2	3
9[a] Natural levees	0.0	0	1	2	3
10. Headcuts	1.0	0	1	2	3
11. Grade controls	0.5	0	0.5	1	1.5
12. Natural valley or drainageway	0.5	0	0.5	1	1.5
13. Second or greater order channel on existing USGS or NRCS map or other documented evidence.	0.0	No = 0		Yes = 3	

[a] Man-made ditches are not rated; see discussions in manual

B: Hydrology (Subtotal = 4.5)					
14. Groundwater flow/discharge	0.0	0	1	2	3
15. Water in channel and > 48 hrs since rain, or Water in channel -- dry or growing season	2.0	0	1	2	3
16. Leaflitter	1.0	1.5	1	0.5	0
17. Sediment on plants or debris	0.0	0	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	0.0	0	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	1.5	No = 0		Yes = 1.5	

C. Biology (Subtotal = 5.00)					
20[b]. Fibrous roots in channel	2.0	3	2	1	0
21[b]. Rooted plants in channel	3.0	3	2	1	0
22. Crayfish	0.0	0	0.5	1	1.5
23. Bivalves	0.0	0	1	2	3
24. Fish	0.0	0	0.5	1	1.5
25. Amphibians	0.0	0	0.5	1	1.5
26. Macrobenthos (note diversity and abundance)	0.0	0	0.5	1	1.5
27. Filamentous algae; periphyton	0.0	0	1	2	3
28. Iron oxidizing bacteria/fungus.	0.0	0	0.5	1	1.5
29[b]. Wetland plants in streambed	0.00	FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; Other = 0			

[b] Items 20 and 21 focus on the presence of upland plants, Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

unnamed tributary to Stream C

Sketch:

OFFICE USE ONLY: USACE AID#_____ DWQ #_____

Stream F

STREAM QUALITY ASSESSMENT WORKSHEET

1. Applicant's Name: CATS
2. Evaluator's Name: B. Phillips
3. Date of Evaluation: 11/05/08
4. Time of Evaluation: 10:30 am
5. Name of Stream: Little Sugar Creek (Stream F)
6. River Basin: Catawba
7. Approximate Drainage Area: >100 acres
8. Stream Order: 3rd
9. Length of Reach Evaluated: 50 ft.
10. County: Mecklenburg
11. Location of reach under evaluation (include nearby roads and landmarks): north of N. Brevard St., west of 27th St. station
12. Site Coordinates (if known): 35.243313 N 80.815417 W
13. Proposed Channel Work (if any):
14. Recent Weather Conditions: cool, dry
15. Site conditions at time of visit: cool, dry
16. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters ___ Nutrient Sensitive Waters ___Water Supply Watershed ____(I-IV)
17. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:
18. Does channel appear on USGS quad map? (YES) NO 19. Does channel appear on USDA Soil Survey? (YES) NO
20. Estimated Watershed Land Use: 60 % Residential 20 % Commercial 15 % Industrial ___% Agricultural 5 % Forested ___% Cleared / Logged ___% Other (_____)
21. Bankfull Width: 20-22 ft
22. Bank Height (from bed to top of bank): 10-14 ft
23. Channel slope down center of stream: X Flat (0 to 2%) ___Gentle (2 to 4%) ___Moderate (4 to 10%) ___Steep (>10%)
24. Channel Sinuosity: Straight X Occasional Bends ___Frequent Meander ___Very Sinuous ___Braided Channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 51 **Comments:** Perennial Stream

Evaluator's Signature _____ **Date** 11/5/08

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STREAM QUALITY ASSESSMENT WORKSHEET
Perennial Stream F

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	4
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	1
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	2
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	2
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	0
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	2
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	3
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	0
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	2
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	2
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	3
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	2
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	3
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	0
	15	**Impact by agriculture or livestock production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	4
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	3
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	4
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	4
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	3
BIOLOGY	20	**Presence of stream invertebrates** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	1
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	3
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	3
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						51

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date:	11/05/2008	Project:	LYNX BLE	Latitude:	35.243313 deg N
Evaluator:	B. Phillips	Site:	Stream F	Longitude:	80.815417 deg W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	**36.00**	County:	Mecklenburg	Other *e.g. Quad Name:*	Charlotte East, NC

A. Geomorphology (Subtotal = 20.0)		Absent	Weak	Moderate	Strong
1[a]. Continuous bed and bank	3.0	0	1	2	3
2. Sinuosity	1.0	0	1	2	3
3. In-channel structure: riffle-pool sequence	3.0	0	1	2	3
4. Soil texture or stream substrate sorting	2.0	0	1	2	3
5. Active/relic floodplain	2.0	0	1	2	3
6. Depositional bars or benches	1.0	0	1	2	3
7. Braided channel	0.0	0	1	2	3
8. Recent alluvial deposits	1.0	0	1	2	3
9[a]. Natural levees	2.0	0	1	2	3
10. Headcuts	1.0	0	1	2	3
11. Grade controls	0.0	0	0.5	1	1.5
12. Natural valley or drainageway	1.0	0	0.5	1	1.5
13. Second or greater order channel on existing USGS or NRCS map or other documented evidence.	3.0	No = 0		Yes = 3	

[a] Man-made ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 6.5)					
14. Groundwater flow/discharge	0.0	0	1	2	3
15. Water in channel and > 48 hrs since rain, or Water in channel -- dry or growing season	3.0	0	1	2	3
16. Leaflitter	1.0	1.5	1	0.5	0
17. Sediment on plants or debris	0.0	0	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	1.0	0	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	1.5	No = 0		Yes = 1.5	

C. Biology (Subtotal = 9.50)					
20[b]. Fibrous roots in channel	3.0	3	2	1	0
21[b]. Rooted plants in channel	3.0	3	2	1	0
22. Crayfish	0.5	0	0.5	1	1.5
23. Bivalves	0.0	0	1	2	3
24. Fish	1.5	0	0.5	1	1.5
25. Amphibians	0.0	0	0.5	1	1.5
26. Macrobenthos (note diversity and abundance)	0.5	0	0.5	1	1.5
27. Filamentous algae; periphyton	1.0	0	1	2	3
28. Iron oxidizing bacteria/fungus.	0.0	0	0.5	1	1.5
29[b]. Wetland plants in streambed	0.00	FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; Other = 0			

[b] Items 20 and 21 focus on the presence of upland plants. Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

Little Sugar Creek.

Sketch:

OFFICE USE ONLY: USACE AID#_____ DWQ #_____

Stream J

STREAM QUALITY ASSESSMENT WORKSHEET

1. Applicant's Name: CATS
2. Evaluator's Name: B. Phillips
3. Date of Evaluation: 11/05/08
4. Time of Evaluation: 1:30 am
5. Name of Stream: Stream J (UT to Little Sugar Creek)
6. River Basin: Catawba
7. Approximate Drainage Area: < 50 acres
8. Stream Order: 1st
9. Length of Reach Evaluated: 30 ft.
10. County: Mecklenburg
11. Location of reach under evaluation (include nearby roads and landmarks): west of E. 30th Street
12. Site Coordinates (if known): 35.244948 N 80.813376 W
13. Proposed Channel Work (if any):
14. Recent Weather Conditions: cool, dry
15. Site conditions at time of visit: cool, dry
16. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters ___ Nutrient Sensitive Waters ___Water Supply Watershed ____(I-IV)
17. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:
18. Does channel appear on USGS quad map? YES (NO) 19. Does channel appear on USDA Soil Survey? YES (NO)
20. Estimated Watershed Land Use: 60 % Residential 20 % Commercial 15 % Industrial ___% Agricultural 5 % Forested ___% Cleared / Logged ___% Other (_____)
21. Bankfull Width: 4-6 ft
22. Bank Height (from bed to top of bank): 4-6 ft
23. Channel slope down center of stream: X Flat (0 to 2%) ___Gentle (2 to 4%) ___Moderate (4 to 10%) ___Steep (>10%)
24. Channel Sinuosity: _Straight X Occasional Bends ___Frequent Meander ___Very Sinuous ___Braided Channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 18 **Comments:** Ephemeral Stream

Evaluator's Signature _____ **Date** 11/5/08

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STREAM QUALITY ASSESSMENT WORKSHEET
Ephemeral Stream J

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	3
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	0
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	0
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	1
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	0
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	2
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	2
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	0
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	0
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	1
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	1
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	0
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	2
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	0
	15	**Impact by agriculture or livestock production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	4
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	0
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	0
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	0
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	1
BIOLOGY	20	**Presence of stream invertebrates** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	0
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	1
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						18

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date:	11/05/2008	Project:	LYNX BLE	Latitude:	35.244948 deg N
Evaluator:	B. Phillips	Site:	Stream J	Longitude:	80.813376 deg W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	14.25	County:	Mecklenburg	Other *e.g. Quad Name:*	Derita, NC

A. Geomorphology (Subtotal = 4.0)		Absent	Weak	Moderate	Strong
1[a]. Continuous bed and bank	1.0	0	1	2	3
2. Sinuosity	1.0	0	1	2	3
3. In-channel structure: riffle-pool sequence	0.0	0	1	2	3
4. Soil texture or stream substrate sorting	0.0	0	1	2	3
5. Active/relic floodplain	1.0	0	1	2	3
6. Depositional bars or benches	0.0	0	1	2	3
7. Braided channel	0.0	0	1	2	3
8. Recent alluvial deposits	0.0	0	1	2	3
9[a] Natural levees	0.0	0	1	2	3
10. Headcuts	0.0	0	1	2	3
11. Grade controls	0.0	0	0.5	1	1.5
12. Natural valley or drainageway	1.0	0	0.5	1	1.5
13. Second or greater order channel on existing USGS or NRCS map or other documented evidence.	0.0	No = 0		Yes = 3	

[a] Man-made ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 5.5)					
14. Groundwater flow/discharge	0.0	0	1	2	3
15. Water in channel and > 48 hrs since rain, or Water in channel -- dry or growing season	3.0	0	1	2	3
16. Leaflitter	0.0	1.5	1	0.5	0
17. Sediment on plants or debris	0.0	0	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	1.0	0	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	1.5	No = 0		Yes = 1.5	

C. Biology (Subtotal = 4.75)					
20[b]. Fibrous roots in channel	3.0	3	2	1	0
21[b]. Rooted plants in channel	1.0	3	2	1	0
22. Crayfish	0.0	0	0.5	1	1.5
23. Bivalves	0.0	0	1	2	3
24. Fish	0.0	0	0.5	1	1.5
25. Amphibians	0.0	0	0.5	1	1.5
26. Macrobenthos (note diversity and abundance)	0.0	0	0.5	1	1.5
27. Filamentous algae; periphyton	0.0	0	1	2	3
28. Iron oxidizing bacteria/fungus.	0.0	0	0.5	1	1.5
29[b]. Wetland plants in streambed	0.75	FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; Other = 0			

[b] Items 20 and 21 focus on the presence of upland plants, item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

Piped from Stream K.

Sketch:

OFFICE USE ONLY: USACE AID#_____ DWQ #_____

Stream A

STREAM QUALITY ASSESSMENT WORKSHEET

1. Applicant's Name: CATS
2. Evaluator's Name: B. Phillips
3. Date of Evaluation: 9/02/08
4. Time of Evaluation: 10:30 am
5. Name of Stream: Stream A
6. River Basin: Catawba
7. Approximate Drainage Area: <50 acres
8. Stream Order: 1st
9. Length of Reach Evaluated: 30 ft.
10. County: Mecklenburg
11. Location of reach under evaluation (include nearby roads and landmarks): west end of Philemon Ave.
12. Site Coordinates (if known): 35.250525 N 80.801862 W
13. Proposed Channel Work (if any):
14. Recent Weather Conditions: cool, dry
15. Site conditions at time of visit: cool, dry
16. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters ___ Nutrient Sensitive Waters ___Water Supply Watershed ____(I-IV)
17. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:
18. Does channel appear on USGS quad map? YES (NO) 19. Does channel appear on USDA Soil Survey? YES (NO)
20. Estimated Watershed Land Use: 30 % Residential 40 % Commercial 25 % Industrial ___% Agricultural 5 % Forested ___% Cleared / Logged ___% Other (_____)
21. Bankfull Width: 6-16 ft
22. Bank Height (from bed to top of bank): 6-10 ft
23. Channel slope down center of stream: _Flat (0 to 2%) X Gentle (2 to 4%) ___Moderate (4 to 10%) ___Steep (>10%)
24. Channel Sinuosity: _Straight X Occasional Bends ___Frequent Meander ___Very Sinuous ___Braided Channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 23 **Comments:** Intermittent Stream

Evaluator's Signature B. Phillips **Date** 9/2/08

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STREAM QUALITY ASSESSMENT WORKSHEET
Intermittent Stream A

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	1
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	0
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	0
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	1
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	0
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	1
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	1
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	0
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	0
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	1
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	1
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	0
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	3
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	2
	15	**Impact by agriculture or livestock production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	4
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	0
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	0
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	2
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	2
BIOLOGY	20	**Presence of stream invertebrates** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	2
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	2
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						23

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date: 09/02/2008	Project: LYNX BLE	Latitude:	35.250525 deg N
Evaluator: B. Phillips	Site: Stream A	Longitude:	80.801862 deg W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30* 11.75	County: Mecklenburg	Other *e.g. Quad Name:*	Derita, NC

A. Geomorphology (Subtotal = 5.0)		Absent	Weak	Moderate	Strong
1[a]. Continuous bed and bank	1.0	0	1	2	3
2. Sinuosity	1.0	0	1	2	3
3. In-channel structure: riffle-pool sequence	0.0	0	1	2	3
4. Soil texture or stream substrate sorting	0.0	0	1	2	3
5. Active/relic floodplain	1.0	0	1	2	3
6. Depositional bars or benches	0.0	0	1	2	3
7. Braided channel	0.0	0	1	2	3
8. Recent alluvial deposits	0.0	0	1	2	3
9[a] Natural levees	1.0	0	1	2	3
10. Headcuts	0.0	0	1	2	3
11. Grade controls	0.0	0	0.5	1	1.5
12. Natural valley or drainageway	1.0	0	0.5	1	1.5
13. Second or greater order channel on existing USGS or NRCS map or other documented evidence.	0.0	No = 0		Yes = 3	

[a] Man-made ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 3.5)					
14. Groundwater flow/discharge	0.0	0	1	2	3
15. Water in channel and > 48 hrs since rain, or Water in channel -- dry or growing season	2.0	0	1	2	3
16. Leaflitter	0.0	1.5	1	0.5	0
17. Sediment on plants or debris	0.0	0	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	0.0	0	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	1.5	No = 0		Yes = 1.5	

C. Biology (Subtotal = 3.25)					
20[b]. Fibrous roots in channel	1.0	3	2	1	0
21[b]. Rooted plants in channel	1.0	3	2	1	0
22. Crayfish	0.5	0	0.5	1	1.5
23. Bivalves	0.0	0	1	2	3
24. Fish	0.0	0	0.5	1	1.5
25. Amphibians	0.0	0	0.5	1	1.5
26. Macrobenthos (note diversity and abundance)	0.0	0	0.5	1	1.5
27. Filamentous algae; periphyton	0.0	0	1	2	3
28. Iron oxidizing bacteria/fungus.	0.0	0	0.5	1	1.5
29[b]. Wetland plants in streambed	0.75	FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; Other = 0			

[b] Items 20 and 21 focus on the presence of upland plants, Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

Adjacent to concrete fabrication plant, piped under NCRR.

Sketch:

OFFICE USE ONLY: USACE AID#_____ DWQ #_____

Stream B

STREAM QUALITY ASSESSMENT WORKSHEET

1. Applicant's Name: CATS
2. Evaluator's Name: B. Phillips
3. Date of Evaluation: 02/11/09
4. Time of Evaluation: 10:30 am
5. Name of Stream: Stream B
6. River Basin: Catawba
7. Approximate Drainage Area: <50 acres
8. Stream Order: 1st
9. Length of Reach Evaluated: 50 ft.
10. County: Mecklenburg
11. Location of reach under evaluation (include nearby roads and landmarks): north of Bearwood Avenue, south of NCRR R/W.
12. Site Coordinates (if known): 35.251855° N 80.787450° W
13. Proposed Channel Work (if any):
14. Recent Weather Conditions: warm, dry
15. Site conditions at time of visit: warm, dry
16. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters ___ Nutrient Sensitive Waters ___Water Supply Watershed ____(I-IV)
17. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:_____
18. Does channel appear on USGS quad map? YES (NO) 19. Does channel appear on USDA Soil Survey? YES (NO)
20. Estimated Watershed Land Use: 75 % Residential ___% Commercial ___% Industrial ___% Agricultural 25 % Forested ___% Cleared / Logged ___% Other (_____)
21. Bankfull Width: 4-5 ft
22. Bank Height (from bed to top of bank): 5-6 ft
23. Channel slope down center of stream: __Flat (0 to 2%) ___Gentle (2 to 4%) X Moderate (4 to 10%) ___Steep (>10%)
24. Channel Sinuosity: _Straight X Occasional Bends ___Frequent Meander ___Very Sinuous ___Braided Channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 25 **Comments:** **Ephemeral/Intermittent Stream**

Evaluator's Signature _____ **Date** 2/11/09

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers in order to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 05/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET
Ephemeral/Intermittent Stream B

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	2
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	0
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	1
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	2
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	0
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	1
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	1
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	0
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	1
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	2
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	1
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	1
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	1
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	1
	15	**Impact by agriculture or livestock production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	4
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	1
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	1
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	3
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	1
BIOLOGY	20	**Presence of stream invertebrates** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	0
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	1
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						25

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date:	02/11/2009	Project:	LYNX BLE	Latitude:	35.251855 deg N
Evaluator:	B. Phillips	Site:	Stream B	Longitude:	80.787450 deg W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	14.00	County:	Mecklenburg	Other *e.g. Quad Name:*	Derita, NC

A. Geomorphology (Subtotal = 8.5)		Absent	Weak	Moderate	Strong
1[a]. Continuous bed and bank	1.0	0	1	2	3
2. Sinuosity	1.0	0	1	2	3
3. In-channel structure: riffle-pool sequence	1.0	0	1	2	3
4. Soil texture or stream substrate sorting	1.0	0	1	2	3
5. Active/relic floodplain	1.0	0	1	2	3
6. Depositional bars or benches	0.0	0	1	2	3
7. Braided channel	0.0	0	1	2	3
8. Recent alluvial deposits	1.0	0	1	2	3
9[a] Natural levees	0.0	0	1	2	3
10. Headcuts	2.0	0	1	2	3
11. Grade controls	0.5	0	0.5	1	1.5
12. Natural valley or drainageway	0.0	0	0.5	1	1.5
13. Second or greater order channel on existing USGS or NRCS map or other documented evidence.	0.0	No = 0		Yes = 3	

[a] Man-made ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 3.0)					
14. Groundwater flow/discharge	0.0	0	1	2	3
15. Water in channel and > 48 hrs since rain, or Water in channel -- dry or growing season	1.0	0	1	2	3
16. Leaflitter	0.5	1.5	1	0.5	0
17. Sediment on plants or debris	0.0	0	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	0.0	0	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	1.5	No = 0		Yes = 1.5	

C. Biology (Subtotal = 2.50)					
20[b]. Fibrous roots in channel	1.0	3	2	1	0
21[b]. Rooted plants in channel	1.0	3	2	1	0
22. Crayfish	0.0	0	0.5	1	1.5
23. Bivalves	0.0	0	1	2	3
24. Fish	0.0	0	0.5	1	1.5
25. Amphibians	0.0	0	0.5	1	1.5
26. Macrobenthos (note diversity and abundance)	0.0	0	0.5	1	1.5
27. Filamentous algae; periphyton	0.0	0	1	2	3
28. Iron oxidizing bacteria/fungus.	0.0	0	0.5	1	1.5
29[b]. Wetland plants in streambed	0.50	FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; Other = 0			

[b] Items 20 and 21 focus on the presence of upland plants, Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

railroad drainage swale with residential run-off discharges

Sketch:

OFFICE USE ONLY: USACE AID#_____ DWQ #_____

Stream P

STREAM QUALITY ASSESSMENT WORKSHEET

1. Applicant's Name: CATS
2. Evaluator's Name: B. Phillips
3. Date of Evaluation: 02/11/09
4. Time of Evaluation: 11:30 am
5. Name of Stream: Stream P
6. River Basin: Catawba
7. Approximate Drainage Area: <50 acres
8. Stream Order: 1st
9. Length of Reach Evaluated: 50 ft.
10. County: Mecklenburg
11. Location of reach under evaluation (include nearby roads and landmarks): north of Bearwood Avenue, north of NCRR R/W.
12. Site Coordinates (if known): 35.252286° N 80.786663° W
13. Proposed Channel Work (if any):
14. Recent Weather Conditions: warm, dry
15. Site conditions at time of visit: warm, dry
16. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters ___Nutrient Sensitive Waters ___Water Supply Watershed ___(I-IV)
17. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:
18. Does channel appear on USGS quad map? YES (NO) 19. Does channel appear on USDA Soil Survey? YES (NO)
20. Estimated Watershed Land Use: 15 % Residential ___% Commercial 70 % Industrial ___% Agricultural 15 % Forested ___% Cleared / Logged ___% Other (_____)
21. Bankfull Width: 4-5 ft
22. Bank Height (from bed to top of bank): 2-3 ft
23. Channel slope down center of stream: __Flat (0 to 2%) ___Gentle (2 to 4%) X Moderate (4 to 10%) ___Steep (>10%)
24. Channel Sinuosity: X Straight ___Occasional Bends ___Frequent Meander ___Very Sinuous ___Braided Channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 21 **Comments:** Ephemeral/Intermittent Stream

Evaluator's Signature _____ **Date** 2/11/09

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers in order to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 05/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET
Ephemeral/Intermittent Stream P

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	1
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	0
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	0
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	1
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	0
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	0
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	0
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	0
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	0
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	1
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	1
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	1
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	1
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	1
	15	**Impact by agriculture or livestock production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	4
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	0
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	2
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	4
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	1
BIOLOGY	20	**Presence of stream invertebrates** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	0
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	3
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						21

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date: 02/11/2009	Project: LYNX BLE	Latitude:	35.2522865 deg N
Evaluator: B. Phillips	Site: Stream P	Longitude:	80.786663 deg W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30* 12.50	County: Mecklenburg	Other *e.g. Quad Name:*	Derita, NC

A. Geomorphology (Subtotal = 4.5)

		Absent	Weak	Moderate	Strong
1[a]. Continuous bed and bank	1.0	0	1	2	3
2. Sinuosity	0.0	0	1	2	3
3. In-channel structure: riffle-pool sequence	0.0	0	1	2	3
4. Soil texture or stream substrate sorting	0.0	0	1	2	3
5. Active/relic floodplain	0.0	0	1	2	3
6. Depositional bars or benches	0.0	0	1	2	3
7. Braided channel	0.0	0	1	2	3
8. Recent alluvial deposits	2.0	0	1	2	3
9[a] Natural levees	0.0	0	1	2	3
10. Headcuts	1.0	0	1	2	3
11. Grade controls	0.5	0	0.5	1	1.5
12. Natural valley or drainageway	0.0	0	0.5	1	1.5
13. Second or greater order channel on existing USGS or NRCS map or other documented evidence.	0.0	No = 0		Yes = 3	

[a] Man-made ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 3.5)

14. Groundwater flow/discharge	0.0	0	1	2	3
15. Water in channel and > 48 hrs since rain, or Water in channel -- dry or growing season	1.0	0	1	2	3
16. Leaflitter	0.5	1.5	1	0.5	0
17. Sediment on plants or debris	0.5	0	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	0.0	0	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	1.5	No = 0		Yes = 1.5	

C. Biology (Subtotal = 4.50)

20[b]. Fibrous roots in channel	2.0	3	2	1	0
21[b]. Rooted plants in channel	2.0	3	2	1	0
22. Crayfish	0.0	0	0.5	1	1.5
23. Bivalves	0.0	0	1	2	3
24. Fish	0.0	0	0.5	1	1.5
25. Amphibians	0.0	0	0.5	1	1.5
26. Macrobenthos (note diversity and abundance)	0.0	0	0.5	1	1.5
27. Filamentous algae; periphyton	0.0	0	1	2	3
28. Iron oxidizing bacteria/fungus.	0.0	0	0.5	1	1.5
29[b]. Wetland plants in streambed	0.50	FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; Other = 0			

[b] Items 20 and 21 focus on the presence of upland plants. Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

railroad drainage swale, with detention basin discharges

Sketch

OFFICE USE ONLY: USACE AID#_____ DWQ #_____

Stream S

STREAM QUALITY ASSESSMENT WORKSHEET

1. Applicant's Name: CATS
2. Evaluator's Name: B. Phillips
3. Date of Evaluation: 10/06/08
4. Time of Evaluation: 3:30 pm
5. Name of Stream: Stream S
6. River Basin: Catawba
7. Approximate Drainage Area: <50 acres
8. Stream Order: 2nd
9. Length of Reach Evaluated: 30 ft.
10. County: Mecklenburg
11. Location of reach under evaluation (include nearby roads and landmarks): Proposed Sugar Creek Park-and-Ride.
12. Site Coordinates (if known): 35.254506 N 80.789047 W
13. Proposed Channel Work (if any):
14. Recent Weather Conditions: cool, dry
15. Site conditions at time of visit: cool, dry
16. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters ___ Nutrient Sensitive Waters ___Water Supply Watershed ____(I-IV)
17. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:
18. Does channel appear on USGS quad map? (YES) NO 19. Does channel appear on USDA Soil Survey? YES (NO)
20. Estimated Watershed Land Use: 30 % Residential 40 % Commercial 25 % Industrial ___% Agricultural 5 % Forested ___% Cleared / Logged ___% Other (
21. Bankfull Width: 6-8 ft 22. Bank Height (from bed to top of bank): 3-5 ft
23. Channel slope down center of stream: X Flat (0 to 2%) ___Gentle (2 to 4%) ___Moderate (4 to 10%) ___Steep (>10%)
24. Channel Sinuosity: X Straight ___Occasional Bends ___Frequent Meander ___Very Sinuous ___Braided Channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 14 **Comments:** **Ephemeral/Intermittent Stream**

Evaluator's Signature _____ **Date** 10/6/08

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STREAM QUALITY ASSESSMENT WORKSHEET
Intermittent Stream S

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	1
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	0
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	0
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	1
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	0
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	0
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	0
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	0
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	0
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	1
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	1
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	0
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	3
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	0
	15	**Impact by agriculture or livestock production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	4
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	0
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	0
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	2
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	2
BIOLOGY	20	**Presence of stream invertebrates** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	0
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	0
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						14

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date:	10/06/2008	Project:	LYNX BLE	Latitude:	35.254506 deg N
Evaluator:	B. Phillips	Site:	Stream S	Longitude:	80.789047 deg W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	13.50	County:	Mecklenburg	Other *e.g. Quad Name:*	Derita, NC

A. Geomorphology (Subtotal = 5.0)		Absent	Weak	Moderate	Strong
1[a]. Continuous bed and bank	2.0	0	1	2	3
2. Sinuosity	0.0	0	1	2	3
3. In-channel structure: riffle-pool sequence	0.0	0	1	2	3
4. Soil texture or stream substrate sorting	0.0	0	1	2	3
5. Active/relic floodplain	0.0	0	1	2	3
6. Depositional bars or benches	0.0	0	1	2	3
7. Braided channel	0.0	0	1	2	3
8. Recent alluvial deposits	0.0	0	1	2	3
9[a] Natural levees	0.0	0	1	2	3
10. Headcuts	0.0	0	1	2	3
11. Grade controls	0.0	0	0.5	1	1.5
12. Natural valley or drainageway	0.0	0	0.5	1	1.5
13. Second or greater order channel on existing USGS or NRCS map or other documented evidence	3.0	No = 0		Yes = 3	

[a] Man-made ditches are not rated: see discussions in manual

B. Hydrology (Subtotal = 2.0)					
14. Groundwater flow/discharge	0.0	0	1	2	3
15. Water in channel and > 48 hrs since rain, or Water in channel -- dry or growing season	1.0	0	1	2	3
16. Leaflitter	1.0	1.5	1	0.5	0
17. Sediment on plants or debris	0.0	0	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	0.0	0	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	0.0	No = 0		Yes = 1.5	

C. Biology (Subtotal = 6.50)					
20[b]. Fibrous roots in channel	3.0	3	2	1	0
21[b]. Rooted plants in channel	3.0	3	2	1	0
22. Crayfish	0.0	0	0.5	1	1.5
23. Bivalves	0.0	0	1	2	3
24. Fish	0.0	0	0.5	1	1.5
25. Amphibians	0.0	0	0.5	1	1.5
26. Macrobenthos (note diversity and abundance)	0.0	0	0.5	1	1.5
27. Filamentous algae; periphyton	0.0	0	1	2	3
28. Iron oxidizing bacteria/fungus.	0.0	0	0.5	1	1.5
29[b]. Wetland plants in streambed	0.50	FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; Other = 0			

[b] Items 20 and 21 focus on the presence of upland plants. Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

Piped w/ riprap banks in middle of impervous lot.

Sketch:

OFFICE USE ONLY: USACE AID#_____ DWQ #_____

Stream Z

STREAM QUALITY ASSESSMENT WORKSHEET

1. Applicant's Name: CATS
2. Evaluator's Name: B. Phillips
3. Date of Evaluation: 02/11/09
4. Time of Evaluation: 2:30 am
5. Name of Stream: Stream Z
6. River Basin: Catawba
7. Approximate Drainage Area: <50 acres
8. Stream Order: 1st
9. Length of Reach Evaluated: 70 ft.
10. County: Mecklenburg
11. Location of reach under evaluation (include nearby roads and landmarks): east of Eastway Dr. and west of NCRR R/W.
12. Site Coordinates (if known): 35.257537° N 80.774020° W
13. Proposed Channel Work (if any):
14. Recent Weather Conditions: warm, dry
15. Site conditions at time of visit: warm, dry
16. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters ___ Nutrient Sensitive Waters ___Water Supply Watershed ____(I-IV)
17. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:_____
18. Does channel appear on USGS quad map? YES (NO) 19. Does channel appear on USDA Soil Survey? YES (NO)
20. Estimated Watershed Land Use: ___% Residential 85% Commercial ___% Industrial ___% Agricultural 15 % Forested ___% Cleared / Logged ___% Other (_____
21. Bankfull Width: 4-5 ft
22. Bank Height (from bed to top of bank): 3-4 ft
23. Channel slope down center of stream: __Flat (0 to 2%) ___Gentle (2 to 4%) X Moderate (4 to 10%) ___Steep (>10%)
24. Channel Sinuosity: X Straight ___Occasional Bends ___Frequent Meander ___Very Sinuous ___Braided Channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 43 **Comments:** Ephemeral Stream

Evaluator's Signature _____ **Date** 2/11/09

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers in order to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 05/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET
Ephemeral Stream Z

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	3
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	2
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	3
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	2
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	1
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	3
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	2
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	0
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	1
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	1
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	2
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	2
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	2
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	1
	15	**Impact by agriculture or livestock production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	4
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	1
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	2
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	4
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	1
BIOLOGY	20	**Presence of stream invertebrates** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	2
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	1
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	3
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						43

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date:	02/11/2009	Project:	LYNX BLE	Latitude:	35.257537 deg N
Evaluator:	B. Phillips	Site:	Stream Z	Longitude:	80.774020 deg W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	14.25	County:	Mecklenburg	Other *e.g. Quad Name:*	Derita, NC

A. Geomorphology (Subtotal = 8.0)		Absent	Weak	Moderate	Strong
1[a]. Continuous bed and bank	1.0	0	1	2	3
2. Sinuosity	1.0	0	1	2	3
3. In-channel structure: riffle-pool sequence	1.0	0	1	2	3
4. Soil texture or stream substrate sorting	1.0	0	1	2	3
5. Active/relic floodplain	0.0	0	1	2	3
6. Depositional bars or benches	0.0	0	1	2	3
7. Braided channel	0.0	0	1	2	3
8. Recent alluvial deposits	1.0	0	1	2	3
9[a] Natural levees	1.0	0	1	2	3
10. Headcuts	1.0	0	1	2	3
11. Grade controls	0.5	0	0.5	1	1.5
12. Natural valley or drainageway	0.5	0	0.5	1	1.5
13. Second or greater order channel on existing USGS or NRCS map or other documented evidence.	0.0	No = 0		Yes = 3	

[a] Man-made ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 4.5)					
14. Groundwater flow/discharge	0.0	0	1	2	3
15. Water in channel and > 48 hrs since rain, or Water in channel -- dry or growing season	0.0	0	1	2	3
16. Leaflitter	1.5	1.5	1	0.5	0
17. Sediment on plants or debris	0.5	0	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	1.0	0	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	1.5	No = 0		Yes = 1.5	

C. Biology (Subtotal = 1.75)					
20[b]. Fibrous roots in channel	1.0	3	2	1	0
21[b]. Rooted plants in channel	0.0	3	2	1	0
22. Crayfish	0.0	0	0.5	1	1.5
23. Bivalves	0.0	0	1	2	3
24. Fish	0.0	0	0.5	1	1.5
25. Amphibians	0.0	0	0.5	1	1.5
26. Macrobenthos (note diversity and abundance)	0.0	0	0.5	1	1.5
27. Filamentous algae; periphyton	0.0	0	1	2	3
28. Iron oxidizing bacteria/fungus.	0.0	0	0.5	1	1.5
29[b]. Wetland plants in streambed	0.75	FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; Other = 0			

[b] Items 20 and 21 focus on the presence of upland plants, Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

ephemeral portion of stream used as rr drainage swales

Sketch:

OFFICE USE ONLY: USACE AID#_____ DWQ #_____

Stream E

STREAM QUALITY ASSESSMENT WORKSHEET

1. Applicant's Name: CATS
2. Evaluator's Name: B. Phillips
3. Date of Evaluation: 9/08/08
4. Time of Evaluation: 1:30 pm
5. Name of Stream: Stream E
6. River Basin: Catawba
7. Approximate Drainage Area: <50 acres
8. Stream Order: 2nd
9. Length of Reach Evaluated: 30 ft.
10. County: Mecklenburg
11. Location of reach under evaluation (include nearby roads and landmarks): Proposed Old Concord Road Park-and-Ride
12. Site Coordinates (if known): 35.260633 N 80.771185 W
13. Proposed Channel Work (if any):
14. Recent Weather Conditions: cool, dry
15. Site conditions at time of visit: cool, dry
16. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters ___ Nutrient Sensitive Waters ___Water Supply Watershed ____(I-IV)
17. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:
18. Does channel appear on USGS quad map? (YES) NO 19. Does channel appear on USDA Soil Survey? (YES) NO
20. Estimated Watershed Land Use: 20 % Residential 50 % Commercial 15 % Industrial ___% Agricultural 15 % Forested ___% Cleared / Logged ___% Other (_____)
21. Bankfull Width: 4-8 ft
22. Bank Height (from bed to top of bank): 6-10 ft
23. Channel slope down center of stream: _Flat (0 to 2%) X Gentle (2 to 4%) ___Moderate (4 to 10%) ___Steep (>10%)
24. Channel Sinuosity: _Straight X Occasional Bends ___Frequent Meander ___Very Sinuous ___Braided Channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 27 **Comments:** Ephemeral/Intermittent Stream

Evaluator's Signature _____ **Date** 9/8/08

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers in order to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 05/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET
Ephemeral/Intermittent Stream E

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	1
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	1
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	2
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	1
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	2
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	0
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	0
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	0
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	2
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	1
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	1
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	0
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	1
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	2
	15	**Impact by agriculture or livestock production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	4
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	1
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	2
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	2
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	2
BIOLOGY	20	**Presence of stream invertebrates** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	0
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	2
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						27

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date:	09/08/2008	Project:	LYNX BLE	Latitude:	35.260633 deg N
Evaluator:	B. Phillips	Site:	Stream E	Longitude:	80.771185 deg W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	**14.50**	County:	Mecklenburg	Other *e.g. Quad Name:*	Derita, NC

A. Geomorphology (Subtotal = 6.0)		Absent	Weak	Moderate	Strong
1[a]. Continuous bed and bank	0.0	0	1	2	3
2. Sinuosity	2.0	0	1	2	3
3. In-channel structure: riffle-pool sequence	1.0	0	1	2	3
4. Soil texture or stream substrate sorting	0.0	0	1	2	3
5. Active/relic floodplain	0.0	0	1	2	3
6. Depositional bars or benches	0.0	0	1	2	3
7. Braided channel	0.0	0	1	2	3
8. Recent alluvial deposits	0.0	0	1	2	3
9[a] Natural levees	0.0	0	1	2	3
10. Headcuts	1.0	0	1	2	3
11. Grade controls	1.0	0	0.5	1	1.5
12. Natural valley or drainageway	1.0	0	0.5	1	1.5
13. Second or greater order channel on existing USGS or NRCS map or other documented evidence.	0.0	No = 0		Yes = 3	

[a] Man-made ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 3.5)					
14. Groundwater flow/discharge	0.0	0	1	2	3
15. Water in channel and > 48 hrs since rain, or Water in channel -- dry or growing season	1.0	0	1	2	3
16. Leaflitter	1.0	1.5	1	0.5	0
17. Sediment on plants or debris	0.0	0	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	0.0	0	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	1.5	No = 0		Yes = 1.5	

C. Biology (Subtotal = 5.00)					
20[b]. Fibrous roots in channel	2.0	3	2	1	0
21[b]. Rooted plants in channel	1.0	3	2	1	0
22. Crayfish	0.0	0	0.5	1	1.5
23. Bivalves	0.0	0	1	2	3
24. Fish	0.0	0	0.5	1	1.5
25. Amphibians	0.0	0	0.5	1	1.5
26. Macrobenthos (note diversity and abundance)	0.0	0	0.5	1	1.5
27. Filamentous algae; periphyton	0.0	0	1	2	3
28. Iron oxidizing bacteria/fungus.	0.5	0	0.5	1	1.5
29[b]. Wetland plants in streambed	1.50	FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; Other = 0			

[b] Items 20 and 21 focus on the presence of upland plants, Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

At Old Concord Road from stormwater pipe.

Sketch:

OFFICE USE ONLY: USACE AID#_____ DWQ #_____

Stream X

STREAM QUALITY ASSESSMENT WORKSHEET

1. Applicant's Name: CATS
2. Evaluator's Name: B. Phillips
3. Date of Evaluation: 12/05/08
4. Time of Evaluation: 10:30 am
5. Name of Stream: Stream X
6. River Basin: Yadkin
7. Approximate Drainage Area: <50 acres
8. Stream Order: 1st
9. Length of Reach Evaluated: 30 ft.
10. County: Mecklenburg
11. Location of reach under evaluation (include nearby roads and landmarks): Proposed University City Blvd. Park-and-Ride
12. Site Coordinates (if known): 35.286731 N 80.763954 W
13. Proposed Channel Work (if any):
14. Recent Weather Conditions: cool, dry
15. Site conditions at time of visit: cool, dry
16. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters ___ Nutrient Sensitive Waters ___Water Supply Watershed _____(I-IV)
17. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:_____
18. Does channel appear on USGS quad map? (YES) NO 19. Does channel appear on USDA Soil Survey? (YES) NO
20. Estimated Watershed Land Use: 20 % Residential 15 % Commercial ___% Industrial ___% Agricultural 65 % Forested ___% Cleared / Logged ___% Other (_____)
21. Bankfull Width: 2-4 ft
22. Bank Height (from bed to top of bank): 4-6 ft
23. Channel slope down center of stream: _Flat (0 to 2%) ___Gentle (2 to 4%) _X_Moderate (4 to 10%) ___Steep (>10%)
24. Channel Sinuosity: _Straight _X_Occasional Bends ___Frequent Meander ___Very Sinuous ___Braided Channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 35 **Comments:** Ephemeral Stream

Evaluator's Signature _____ **Date** 12/5/08

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STREAM QUALITY ASSESSMENT WORKSHEET

Ephemeral Stream X

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	1
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	4
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	4
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	4
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	0
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	0
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	0
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	0
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	2
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	3
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	1
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	0
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	1
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	0
	15	**Impact by agriculture or livestock production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	4
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	0
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	0
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	5
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	2
BIOLOGY	20	**Presence of stream invertebrates** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	0
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	4
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						35

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date:	12/05/2008	Project:	LYNX BLE	Latitude:	35.286731 deg N
Evaluator:	B. Phillips	Site:	Stream X	Longitude:	80.763954 deg W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	**14.00**	County:	Mecklenburg	Other *e.g. Quad Name:*	Derita, NC

A. Geomorphology (Subtotal = 6.0)		Absent	Weak	Moderate	Strong
1[a]. Continuous bed and bank	0.0	0	1	2	3
2. Sinuosity	2.0	0	1	2	3
3. In-channel structure: riffle-pool sequence	1.0	0	1	2	3
4. Soil texture or stream substrate sorting	0.0	0	1	2	3
5. Active/relic floodplain	0.0	0	1	2	3
6. Depositional bars or benches	0.0	0	1	2	3
7. Braided channel	0.0	0	1	2	3
8. Recent alluvial deposits	0.0	0	1	2	3
9[a] Natural levees	0.0	0	1	2	3
10. Headcuts	2.0	0	1	2	3
11. Grade controls	0.5	0	0.5	1	1.5
12. Natural valley or drainageway	0.5	0	0.5	1	1.5
13. Second or greater order channel on existing USGS or NRCS map or other documented evidence.	0.0	No = 0		Yes = 3	

[a] Man-made ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 2.0)					
14. Groundwater flow/discharge	0.0	0	1	2	3
15. Water in channel and > 48 hrs since rain, or Water in channel -- dry or growing season	0.0	0	1	2	3
16. Leaflitter	0.5	1.5	1	0.5	0
17. Sediment on plants or debris	0.0	0	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	0.0	0	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	1.5	No = 0		Yes = 1.5	

C. Biology (Subtotal = 6.00)					
20[b]. Fibrous roots in channel	3.0	3	2	1	0
21[b]. Rooted plants in channel	3.0	3	2	1	0
22. Crayfish	0.0	0	0.5	1	1.5
23. Bivalves	0.0	0	1	2	3
24. Fish	0.0	0	0.5	1	1.5
25. Amphibians	0.0	0	0.5	1	1.5
26. Macrobenthos (note diversity and abundance)	0.0	0	0.5	1	1.5
27. Filamentous algae; periphyton	0.0	0	1	2	3
28. Iron oxidizing bacteria/fungus.	0.0	0	0.5	1	1.5
29[b]. Wetland plants in streambed	0.00	FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; Other = 0			

[b] Items 20 and 21 focus on the presence of upland plants, item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

University City Blvd. Park-and-Ride drainage to the north.

Sketch:

OFFICE USE ONLY: USACE AID#_____ DWQ #_____

Stream U (Toby Creek)

STREAM QUALITY ASSESSMENT WORKSHEET

1. Applicant's Name: CATS
2. Evaluator's Name: B. Phillips
3. Date of Evaluation: 10/07/08
4. Time of Evaluation: 1:30 pm
5. Name of Stream: Toby Creek (Stream U)
6. River Basin: Yadkin
7. Approximate Drainage Area: >100 acres
8. Stream Order: 2nd
9. Length of Reach Evaluated: 50 ft.
10. County: Mecklenburg
11. Location of reach under evaluation (include nearby roads and landmarks): UNC Charlotte campus
12. Site Coordinates (if known): 35.314436 N 80.736536 W
13. Proposed Channel Work (if any):
14. Recent Weather Conditions: cool, dry
15. Site conditions at time of visit: cool, dry
16. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters ___ Nutrient Sensitive Waters ___Water Supply Watershed ____(I-IV)
17. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:
18. Does channel appear on USGS quad map? (YES) NO 19. Does channel appear on USDA Soil Survey? (YES) NO
20. Estimated Watershed Land Use: 20 % Residential 25 % Commercial ___% Industrial ___% Agricultural 55 % Forested ___% Cleared / Logged ___% Other (
21. Bankfull Width: 20-25 ft 22. Bank Height (from bed to top of bank): 8-10 ft
23. Channel slope down center of stream: _Flat (0 to 2%) X Gentle (2 to 4%) ___Moderate (4 to 10%) ___Steep (>10%)
24. Channel Sinuosity: _Straight X Occasional Bends ___Frequent Meander ___Very Sinuous ___Braided Channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 64 **Comments:** Perennial Stream

Evaluator's Signature _____ **Date** 10/7/08

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers in order to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 05/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET
Perennial Stream U (Toby Creek)

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	3
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	4
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	4
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	4
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	0
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	4
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	3
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	1
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	2
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	3
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	4
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	2
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	3
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	0
	15	**Impact by agriculture or livestock production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	4
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	3
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	4
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	5
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	3
BIOLOGY	20	**Presence of stream invertebrates** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	2
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	2
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	2
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	4
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						64

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date: 10/07/2008	Project: LYNX BLE	Latitude:	35.314436 deg N
Evaluator: B. Phillips	Site: Stream U	Longitude:	80.736536 deg W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30* **32.75**	County: Mecklenburg	Other *e.g. Quad Name:*	Harrisburg, NC

A. Geomorphology (Subtotal = 17.5)		Absent	Weak	Moderate	Strong
1[a]. Continuous bed and bank	1.0	0	1	2	3
2. Sinuosity	1.0	0	1	2	3
3. In-channel structure: riffle-pool sequence	1.0	0	1	2	3
4. Soil texture or stream substrate sorting	1.0	0	1	2	3
5. Active/relic floodplain	3.0	0	1	2	3
6. Depositional bars or benches	1.0	0	1	2	3
7. Braided channel	1.0	0	1	2	3
8. Recent alluvial deposits	2.0	0	1	2	3
9[a] Natural levees	1.0	0	1	2	3
10. Headcuts	0.0	0	1	2	3
11. Grade controls	1.0	0	0.5	1	1.5
12. Natural valley or drainageway	1.5	0	0.5	1	1.5
13. Second or greater order channel on existing USGS or NRCS map or other documented evidence.	3.0	No = 0		Yes = 3	

[a] Man-made ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 7.0)					
14. Groundwater flow/discharge	0.0	0	1	2	3
15. Water in channel and > 48 hrs since rain, or Water in channel -- dry or growing season	3.0	0	1	2	3
16. Leaflitter	1.5	1.5	1	0.5	0
17. Sediment on plants or debris	0.0	0	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	1.0	0	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	1.5	No = 0		Yes = 1.5	

C. Biology (Subtotal = 8.25)					
20[b]. Fibrous roots in channel	3.0	3	2	1	0
21[b]. Rooted plants in channel	3.0	3	2	1	0
22. Crayfish	0.5	0	0.5	1	1.5
23. Bivalves	0.0	0	1	2	3
24. Fish	0.5	0	0.5	1	1.5
25. Amphibians	0.5	0	0.5	1	1.5
26. Macrobenthos (note diversity and abundance)	0.0	0	0.5	1	1.5
27. Filamentous algae; periphyton	0.0	0	1	2	3
28. Iron oxidizing bacteria/fungus.	0.0	0	0.5	1	1.5
29[b]. Wetland plants in streambed	0.75	FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; Other = 0			

[b] Items 20 and 21 focus on the presence of upland plants, Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

Toby Creek. Fish observed in creek

Sketch:

OFFICE USE ONLY: USACE AID#_____ DWQ #_____

Stream M (Mallard Creek)

STREAM QUALITY ASSESSMENT WORKSHEET

1. Applicant's Name: CATS
2. Evaluator's Name: B. Phillips
3. Date of Evaluation: 10/07/08
4. Time of Evaluation: 9:30 am
5. Name of Stream: Mallard Creek (Stream M)
6. River Basin: Yadkin
7. Approximate Drainage Area: >100 acres
8. Stream Order: 3rd
9. Length of Reach Evaluated: 50 ft.
10. County: Mecklenburg
11. Location of reach under evaluation (include nearby roads and landmarks): Mallard Creek Park
12. Site Coordinates (if known): 35.324579 N 80.728916 W
13. Proposed Channel Work (if any):
14. Recent Weather Conditions: cool, dry
15. Site conditions at time of visit: cool, dry
16. Identify any special waterway classifications known: ___Section 10 ___Tidal Waters ___Essential Fisheries Habitat ___Trout Waters ___Outstanding Resource Waters ___ Nutrient Sensitive Waters ___Water Supply Watershed ____(I-IV)
17. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:
18. Does channel appear on USGS quad map? (YES) NO 19. Does channel appear on USDA Soil Survey? (YES) NO
20. Estimated Watershed Land Use: 20 % Residential 15 % Commercial ___% Industrial ___% Agricultural 65 % Forested ___% Cleared / Logged ___% Other (
21. Bankfull Width: 20-25 ft 22. Bank Height (from bed to top of bank): 12-15 ft
23. Channel slope down center of stream: _Flat (0 to 2%) X Gentle (2 to 4%) ___Moderate (4 to 10%) ___Steep (>10%)
24. Channel Sinuosity: _Straight X Occasional Bends ___Frequent Meander ___Very Sinuous ___Braided Channel

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): 77 **Comments:** Perennial Stream

Evaluator's Signature _____ **Date** 10/7/08

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers in order to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 05/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET
Perennial Stream M (Mallard Creek)

	#	CHARACTERISTICS	ECOREGION POINT RANGE			SCORE
			Coastal	Piedmont	Mountain	
PHYSICAL	1	**Presence of flow / persistent pools in stream** (no flow or saturation = 0; strong flow = max points)	0 – 5	0 – 4	0 – 5	4
	2	**Evidence of past human alteration** (extensive alteration = 0; no alteration = max points)	0 – 6	0 – 5	0 – 5	4
	3	**Riparian zone** (no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0 – 4	0 – 5	4
	4	**Evidence of nutrient or chemical discharges** (extensive discharges = 0; no discharges = max points)	0 – 5	0 – 4	0 – 4	4
	5	**Groundwater discharge** (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0 – 4	0 – 4	0
	6	**Presence of adjacent floodplain** (no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0 – 2	4
	7	**Entrenchment / floodplain access** (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0 – 4	0 – 2	4
	8	**Presence of adjacent wetlands** (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0 – 4	0 – 2	3
	9	**Channel sinuosity** (extensive channelization = 0; natural meander = max points)	0 – 5	0 – 4	0 – 3	3
	10	**Sediment input** (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0 – 4	3
	11	**Size & diversity of channel bed substrate** (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0 – 4	0 – 5	4
STABILITY	12	**Evidence of channel incision or widening** (deeply incised = 0; stable bed & banks = max points)	0 – 5	0 – 4	0 – 5	3
	13	**Presence of major bank failures** (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0 – 5	0 – 5	4
	14	**Root depth and density on banks** (no visible roots = 0; dense roots throughout = max points)	0 – 3	0 – 4	0 – 5	0
	15	**Impact by agriculture or livestock production** (substantial impact =0; no evidence = max points)	0 – 5	0 – 4	0 – 5	4
HABITAT	16	**Presence of riffle-pool/ripple-pool complexes** (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0 – 5	0 – 6	5
	17	**Habitat complexity** (little or no habitat = 0; frequent, varied habitats = max points)	0 – 6	0 – 6	0 – 6	5
	18	**Canopy coverage over streambed** (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0 – 5	0 – 5	5
	19	**Substrate embeddedness** (deeply embedded = 0; loose structure = max)	NA*	0 – 4	0 – 4	3
BIOLOGY	20	**Presence of stream invertebrates** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 5	0 – 5	2
	21	**Presence of amphibians** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	0
	22	**Presence of fish** (no evidence = 0; common, numerous types = max points)	0 – 4	0 – 4	0 – 4	4
	23	**Evidence of wildlife use** (no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	5
Total Points Possible			100	100	100	
TOTAL SCORE (also enter on first page)						77

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date:	10/07/2008	Project:	LYNX BLE	Latitude:	35.324579 deg N
Evaluator:	B. Phillips	Site:	Stream M	Longitude:	80.728916 deg W
Total Points: *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	**35.00**	County:	Mecklenburg	Other *e.g. Quad Name:*	Harrisburg, NC

A. Geomorphology (Subtotal = 20.0)		Absent	Weak	Moderate	Strong
1[a]. Continuous bed and bank	2.0	0	1	2	3
2. Sinuosity	2.0	0	1	2	3
3. In-channel structure: riffle-pool sequence	3.0	0	1	2	3
4. Soil texture or stream substrate sorting	2.0	0	1	2	3
5. Active/relic floodplain	3.0	0	1	2	3
6. Depositional bars or benches	2.0	0	1	2	3
7. Braided channel	0.0	0	1	2	3
8. Recent alluvial deposits	1.0	0	1	2	3
9[a] Natural levees	0.0	0	1	2	3
10. Headcuts	0.0	0	1	2	3
11. Grade controls	0.5	0	0.5	1	1.5
12. Natural valley or drainageway	1.5	0	0.5	1	1.5
13. Second or greater order channel on existing USGS or NRCS map or other documented evidence.	3.0	No = 0		Yes = 3	

[a] Man-made ditches are not rated: see discussions in manual

B. Hydrology (Subtotal = 7.0)					
14. Groundwater flow/discharge	0.0	0	1	2	3
15. Water in channel and > 48 hrs since rain, or Water in channel -- dry or growing season	3.0	0	1	2	3
16. Leaflitter	1.5	1.5	1	0.5	0
17. Sediment on plants or debris	0.0	0	0.5	1	1.5
18. Organic debris lines or piles (Wrack lines)	1.0	0	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	1.5	No = 0		Yes = 1.5	

C. Biology (Subtotal = 8.00)					
20[b]. Fibrous roots in channel	3.0	3	2	1	0
21[b]. Rooted plants in channel	3.0	3	2	1	0
22. Crayfish	0.5	0	0.5	1	1.5
23. Bivalves	0.0	0	1	2	3
24. Fish	1.5	0	0.5	1	1.5
25. Amphibians	0.0	0	0.5	1	1.5
26. Macrobenthos (note diversity and abundance)	0.0	0	0.5	1	1.5
27. Filamentous algae; periphyton	0.0	0	1	2	3
28. Iron oxidizing bacteria/fungus.	0.0	0	0.5	1	1.5
29[b]. Wetland plants in streambed	0.00	FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0: Other = 0			

[b] Items 20 and 21 focus on the presence of upland plants. Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

Mallard Creek

Sketch:

Attachment E – USCOE Routine Wetland Determination Data Forms

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	**CATS LYNX BLE**			Date:	**02/09/09**
Applicant/Owner:	**Charlotte**			County:	**Mecklenburg**
Investigator(s):	**Brandon Phillips**			State:	**NC**
Do Normal Circumstances exist on the site?		(Yes)	No	Community ID:	PFO1
Is the site significantly disturbed (Atypical Situation)?		(Yes)	No	Transect ID:	**Y**
Is the area a potential Problem Area? (If needed, explain on reverse.)		Yes	(No)	Plot ID:	**DP-1**
					Wetland N

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Liquidambar styraciflua*	tree	FAC	9		
2 *Acer rubrum*	tree	FAC	10		
3 *Ulmus americana*	tree	FACW	11		
4 *Ilex opaca*	shrub	FAC-	12		
5 *Ligustrum sinense*	shrub	FAC	13		
6 *Lonicera japonica*	herb	FAC-	14		
7			15		
8			16		

83% hydrophytic species

Remarks:

Greater than 50% of the dominant species at FAC or wetter.

HYDROLOGY

Recorded Data (Describe in remarks):
- ____ Stream, Lake or Tide Gauge
- ____ Aerial Photographs
- ____ Other
- X No Recorded Data Available

Field Observations:

Depth of Surface Water:	**0"**	(in.)
Depth to Free Water in Pit:	**>20"**	(in.)
Depth to Saturated Soil:	**0"**	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ____ Inundated
- X Saturated in Upper 12 Inches
- X Water Marks
- ____ Drift Lines
- X Sediment Deposits (on leaves)
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- X Water-Stained Leaves
- ____ Local Soil Survey Data
- ____ FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks:

Several primary wetland hydrology indicators are present.

SOILS - DP 1 continued

Map Unit Name (Series and Phase): **UR - Urban Land** Drainage Class **N/A**

Reference: USDA SCS, Soil Survey of Mecklenburg County, NC, 1980. sheet 5 of 13 Field Observations

Taxonomy (Subgroup): **N/A** Indicate Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A	10YR 3/1	--		
4-20	B	10YR 3/2	10YR 5/8	many, distinct	
			10YR 5/1	many, distinct	

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
X	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed on Local Hydric Soils List (Inclusions)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain in Remarks)

Remarks:

Indicators of hydric soil are present. Multiple soil mottle colors apparent in B-horizon.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No	(Circle)
Wetland Hydrology Present?	(Yes)	No	
Hydric Soils Present?	(Yes)	No	

Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks:

Data point located within disturbed Wetland Y, near flag Y-25. Appears to be man-made drainage collection area for adjacent industrial properties.

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	**CATS LYNX BLE**			Date:	**02/11/09**
Applicant/Owner:	**Charlotte**			County:	**Mecklenburg**
Investigator(s):	**Brandon Phillips**			State:	**NC**
Do Normal Circumstances exist on the site?		(Yes)	No	Community ID:	PFO1
Is the site significantly disturbed (Atypical Situation)?		Yes	(No)	Transect ID:	**O**
Is the area a potential Problem Area? (If needed, explain on reverse.)		Yes	(No)	Plot ID:	**DP-1**
					Wetland N

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Liquidambar styraciflua*	tree	FAC	9		
2 *Betula nigra*	tree	FACW	10		
3 *Ulmus americana*	tree	FACW	11		
4 *Platanus occidentalis*	tree	FACW-	12		
5 *Acer rubrum*	shrub	FAC	13		
6 *Rubus allegheniensis*	shrub	UPL	14		
7 *Juncus effusus*	herb	FACW+	15		
8 *Carex sp.*	herb	FAC-OBL	16		

87.5% hydrophytic species

Remarks:

Greater than 50% of the dominant species at FAC or wetter.

HYDROLOGY

Recorded Data (Describe in remarks):
- ____ Stream, Lake or Tide Gauge
- ____ Aerial Photographs
- ____ Other
- X No Recorded Data Available

Field Observations:

Depth of Surface Water:	**0"**	(in.)
Depth to Free Water in Pit:	**9"**	(in.)
Depth to Saturated Soil:	**0"**	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ____ Inundated
- X Saturated in Upper 12 Inches
- X Water Marks
- ____ Drift Lines
- X Sediment Deposits (on leaves)
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- X Water-Stained Leaves
- ____ Local Soil Survey Data
- ____ FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks:

Several primary wetland hydrology indicators are present.

SOILS - DP 1 continued

Map Unit Name
(Series and Phase): **CuB - Cecil - Urban Land complex** Drainage Class **well drained**
Reference: USDA SCS, Soil Survey of Mecklenburg County, NC, 1980. sheet 5 of 13 Field Observations
Taxonomy (Subgroup): **N/A** Indicate Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6	A	10YR 3/1	--		
6-20	B	Gley1 5/5G	2.5Y 4/6	many, distinct	
			10YR 5/6	many, distinct	

___ Histosol
___ Histic Epipedon
___ Sulfidic Odor
___ Aquic Moisture Regime
___ Reducing Conditions
X Gleyed or Low-Chroma Colors

___ Concretions
___ High Organic Content in Surface Layer in Sandy Soils
___ Organic Streaking in Sandy Soils
___ Listed on Local Hydric Soils List (Inclusions)
___ Listed on National Hydric Soils List
___ Other (Explain in Remarks)

Remarks:

Indicators of hydric soil are present. Multiple soil mottle colors apparent in B- horizon.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No (Circle)	
Wetland Hydrology Present?	(Yes)	No	(Circle)
Hydric Soils Present?	(Yes)	No	Is this Sampling Point Within a Wetland? (Yes) No

Remarks:

Data point located within Wetland O, near flag O-3

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	**CATS LYNX BLE**		Date:	**02/13/09**
Applicant/Owner:	**Charlotte**		County:	**Mecklenburg**
Investigator(s):	**Brandon Phillips**		State:	**NC**
Do Normal Circumstances exist on the site?	(Yes)	No	Community ID:	POW/EM
Is the site significantly disturbed (Atypical Situation)?	(Yes)	No	Transect ID:	**E**
Is the area a potential Problem Area? (If needed, explain on reverse.)	(Yes)	No	Plot ID:	**DP-1**
				Wetland E

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Baccharis halimifolia*	herb	FAC	9		
2 *Carex sp.*	herb	FAC-OBL	10		
3 *Panicum sp.*	herb	FAC-OBL	11		
4			12		
5			13		
6			14		
7			15		
8			16		

100% hydrophytic species

Remarks:

Greater than 50% of the dominant species at FAC or wetter.

HYDROLOGY

Recorded Data (Describe in remarks):
- ___ Stream, Lake or Tide Gauge
- ___ Aerial Photographs
- ___ Other
- X No Recorded Data Available

Field Observations:

Depth of Surface Water:	**2"**	(in.)
Depth to Free Water in Pit:	**0"**	(in.)
Depth to Saturated Soil:	**0"**	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- X Inundated
- X Saturated in Upper 12 Inches
- X Water Marks
- ___ Drift Lines
- X Sediment Deposits (on leaves)
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- X Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

Several primary wetland hydrology indicators are present. Amphibian breeding vernal pool.

SOILS - DP 1 continued

Map Unit Name
(Series and Phase): **Ur - Urban Land** Drainage Class **N/A**
Reference: USDA SCS, Soil Survey of Mecklenburg County, NC, 1980. sheet 5 of 13 Field Observations
Taxonomy (Subgroup): **N/A** Indicate Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4	A	7.5YR 3/1	--		
4-18	B	10YR 4/2	10YR 5/4	many	
			10YR 5/8	many, distinct	
			10YR 2/1	many	

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	___	Listed on Local Hydric Soils List (Inclusions)
___	Reducing Conditions	___	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain in Remarks)

Remarks:

Indicators of hydric soil are present. Earthworking/fill activities in area on-going.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No	(Circle)	
Wetland Hydrology Present?	(Yes)	No		
Hydric Soils Present?	(Yes)	No	Is this Sampling Point Within a Wetland?	(Yes) No

Remarks:

Data point located within disturbed Wetland E, near flag ES-6. Acitive dump and fill area by adjacent industrial property. Multiple soil mottle colors apparent in B- horizon.

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	**CATS LYNX BLE**			Date:	**10/06/08**
Applicant/Owner:	**Charlotte**			County:	**Mecklenburg**
Investigator(s):	**Brandon Phillips**			State:	**NC**
Do Normal Circumstances exist on the site?		(Yes)	No	Community ID:	PFO1
Is the site significantly disturbed (Atypical Situation)?		Yes	(No)	Transect ID:	**R**
Is the area a potential Problem Area? (If needed, explain on reverse.)		Yes	(No)	Plot ID:	**DP-1**
					Wetland R

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Liquidambar styraciflua*	tree	FAC	9		
2 *Acer rubrum*	tree	FAC	10		
3 *Carpinus caroliniana*	shrub	FAC	11		
4 *Ligustrum sinense*	shrub	FAC	12		
5			13		
6			14		
7			15		
8			16		

100% hydrophytic species

Remarks:

Greater than 50% of the dominant species at FAC or wetter.

HYDROLOGY

Recorded Data (Describe in remarks):
- ___ Stream, Lake or Tide Gauge
- ___ Aerial Photographs
- ___ Other
- X No Recorded Data Available

Field Observations:

Depth of Surface Water:	**0"**	(in.)
Depth to Free Water in Pit:	**>20"**	(in.)
Depth to Saturated Soil:	**8"**	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- X Saturated in Upper 12 Inches
- X Water Marks
- ___ Drift Lines
- ___ Sediment Deposits (on leaves)
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- X Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

Several primary wetland hydrology indicators are present.

SOILS - DP 1 continued

Map Unit Name
(Series and Phase): **WkD - Wilkes loam, 8-15 % slopes** Drainage Class **well drained**
Reference: USDA SCS, Soil Survey of Mecklenburg County, NC, 1980. sheet 5 of 13 Field Observations

Taxonomy (Subgroup): **Typic Hapludalfs** Indicate Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8	A	10YR 3/3			
8-20	B	10YR 4/2	10YR 5/8	many, distinct	

___ Histosol	___ Concretions
___ Histic Epipedon	___ High Organic Content in Surface Layer in Sandy Soils
___ Sulfidic Odor	___ Organic Streaking in Sandy Soils
___ Aquic Moisture Regime	___ Listed on Local Hydric Soils List (Inclusions)
___ Reducing Conditions	___ Listed on National Hydric Soils List
X Gleyed or Low-Chroma Colors	___ Other (Explain in Remarks)

Remarks:

Indicators of hydric soil are present

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No	(Circle)
Wetland Hydrology Present?	(Yes)	No	
Hydric Soils Present?	(Yes)	No	

Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks:

Data point located within Wetland R, near flag R-2

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	**CATS LYNX BLE**			Date:	**10/06/08**
Applicant/Owner:	**Charlotte**			County:	**Mecklenburg**
Investigator(s):	**Brandon Phillips**			State:	**NC**
Do Normal Circumstances exist on the site?		(Yes)	No	Community ID:	PFO1
Is the site significantly disturbed (Atypical Situation)?		Yes	(No)	Transect ID:	**T**
Is the area a potential Problem Area? (If needed, explain on reverse.)		Yes	(No)	Plot ID:	**DP-1**
					Wetland T

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Liquidambar styraciflua*	tree	FAC	9		
2 *Platanus occidentalis*	tree	FACW	10		
3 *Carpinus caroliniana*	shrub	FAC	11		
4 *Ligustrum sinense*	shrub	FAC	12		
5 *Oxydendrum arboreum*	shrub	NI	13		
6 *Juncus effusus*	herb	FACW+	14		
7 *Boehmeria cylindrica*	herb	FACW+	15		
8			16		

86% hydrophytic species

Remarks:

Greater than 50% of the dominant species at FAC or wetter.

HYDROLOGY

Recorded Data (Describe in remarks):
- ____ Stream, Lake or Tide Gauge
- ____ Aerial Photographs
- ____ Other
- X No Recorded Data Available

Field Observations:

Depth of Surface Water:	**0"**	(in.)
Depth to Free Water in Pit:	**12"**	(in.)
Depth to Saturated Soil:	**4"**	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ____ Inundated
- X Saturated in Upper 12 Inches
- X Water Marks
- ____ Drift Lines
- ____ Sediment Deposits (on leaves)
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- X Water-Stained Leaves
- ____ Local Soil Survey Data
- ____ FAC-Neutral Test
- ____ Other (Explain in Remarks)

Remarks:

Several primary wetland hydrology indicators are present.

SOILS - DP 1 continued

Map Unit Name
(Series and Phase): **MO - Monacan soils** Drainage Class **poorly drained**
Reference: USDA SCS, Soil Survey of Mecklenburg County, NC, 1980. sheet 5 of 13 Field Observations
Taxonomy (Subgroup): **Fluvaquentic Eutrochrepts** Indicate Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3	A	10YR 2/2			
3-20	B	10YR 2/1	10YR 4/6	many, distinct	

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	X	Listed on Local Hydric Soils List (Inclusions)
___	Reducing Conditions	X	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain in Remarks)

Remarks:

Indicators of hydric soil are present

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No	(Circle)
Wetland Hydrology Present?	(Yes)	No	
Hydric Soils Present?	(Yes)	No	

Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks:

Data point located within Wetland T, near flag T-16

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	**CATS LYNX BLE**			Date:	**10/07/08**
Applicant/Owner:	**Charlotte**			County:	**Mecklenburg**
Investigator(s):	**Brandon Phillips**			State:	**NC**
Do Normal Circumstances exist on the site?		(Yes)	No	Community ID:	PFO1
Is the site significantly disturbed (Atypical Situation)?		Yes	(No)	Transect ID:	**W**
Is the area a potential Problem Area? (If needed, explain on reverse.)		Yes	(No)	Plot ID:	**DP-1**
					Wetland W

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Liquidambar styraciflua*	tree	FAC	9		
2 *Salix nigra*	tree	OBL	10		
3 *Carpinus caroliniana*	shrub	FAC	11		
4 *Ligustrum sinense*	shrub	FAC	12		
5 *Boehmeria cylindrica*	herb	FACW+	13		
6 *Juncus effusus*	herb	FACW+	14		
7 *Carex sp.*	herb	FAC-OBL	15		
8			16		

100% hydrophytic species

Remarks:

Greater than 50% of the dominant species at FAC or wetter.

HYDROLOGY

Recorded Data (Describe in remarks):
- ___ Stream, Lake or Tide Gauge
- ___ Aerial Photographs
- ___ Other
- X No Recorded Data Available

Field Observations:

Depth of Surface Water:	**0"**	(in.)
Depth to Free Water in Pit:	**14"**	(in.)
Depth to Saturated Soil:	**2"**	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- X Saturated in Upper 12 Inches
- X Water Marks
- ___ Drift Lines
- X Sediment Deposits (on leaves)
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- X Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

Several primary wetland hydrology indicators are present.

SOILS - DP 1 continued

Map Unit Name
(Series and Phase): **MO - Monacan soils** Drainage Class **poorly drained**
Reference: USDA SCS, Soil Survey of Mecklenburg County, NC, 1980. sheet 5 of 13 Field Observations

Taxonomy (Subgroup): **Fluvaquentic Eutrochrepts** Indicate Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5	A	10YR 3/3			
5-20	B	10YR 2/1	10YR 5/6	many, distinct	

___	Histosol	___	Concretions
___	Histic Epipedon	___	High Organic Content in Surface Layer in Sandy Soils
___	Sulfidic Odor	___	Organic Streaking in Sandy Soils
___	Aquic Moisture Regime	X	Listed on Local Hydric Soils List (Inclusions)
___	Reducing Conditions	X	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors	___	Other (Explain in Remarks)

Remarks:

Indicators of hydric soil are present

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No	(Circle)	
Wetland Hydrology Present?	(Yes)	No		
Hydric Soils Present?	(Yes)	No		Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks:

Data point located within Wetland W, near flag W-8

Approved by HQUSACE 2/92

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	**CATS LYNX BLE**		Date:	**10/07/08**
Applicant/Owner:	**Charlotte**		County:	**Mecklenburg**
Investigator(s):	**Brandon Phillips**		State:	**NC**
Do Normal Circumstances exist on the site?	(Yes)	No	Community ID:	PFO1
Is the site significantly disturbed (Atypical Situation)?	Yes	(No)	Transect ID:	**N**
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	(No)	Plot ID:	**DP-1**
				Wetland N

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 *Fraxinus pennsylvanica*	tree	FACW	9		
2 *Nyssa sylvatica*	tree	FAC	10		
3 *Quercus nigra*	tree	FAC	11		
4 *Populus deltoides*	shrub	FAC+	12		
5 *Scirpus cyperinus*	herb	OBL	13		
6 *Juncus effusus*	herb	FACW+	14		
7 *Carex sp.*	herb	FAC-OBL	15		
8			16		

100% hydrophytic species

Remarks:

Greater than 50% of the dominant species at FAC or wetter.

HYDROLOGY

Recorded Data (Describe in remarks):
- ___ Stream, Lake or Tide Gauge
- ___ Aerial Photographs
- ___ Other
- X No Recorded Data Available

Field Observations:

Depth of Surface Water:	**0"**	(in.)
Depth to Free Water in Pit:	**>20"**	(in.)
Depth to Saturated Soil:	**12"**	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- X Saturated in Upper 12 Inches
- X Water Marks
- ___ Drift Lines
- X Sediment Deposits (on leaves)
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- X Oxidized Root Channels in Upper 12 Inches
- X Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks:

Several primary wetland hydrology indicators are present.

SOILS - DP 1 continued

Map Unit Name
(Series and Phase): **MO - Monacan soils** Drainage Class **poorly drained**
Reference: USDA SCS, Soil Survey of Mecklenburg County, NC, 1980. sheet 5 of 13 Field Observations

Taxonomy (Subgroup): **Fluvaquentic Eutrochrepts** Indicate Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8	A	10YR 4/3			
8-20	B	10YR 2/2	10YR 5/8	many, distinct	

___ Histosol	___ Concretions
___ Histic Epipedon	___ High Organic Content in Surface Layer in Sandy Soils
___ Sulfidic Odor	___ Organic Streaking in Sandy Soils
___ Aquic Moisture Regime	X Listed on Local Hydric Soils List (Inclusions)
___ Reducing Conditions	X Listed on National Hydric Soils List
X Gleyed or Low-Chroma Colors	___ Other (Explain in Remarks)

Remarks:

Indicators of hydric soil are present

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No	(Circle)
Wetland Hydrology Present?	(Yes)	No	
Hydric Soils Present?	(Yes)	No	

Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks:

Data point located within Wetland N, near flag N-5

Approved by HQUSACE 2/92

Attachment F – Approved Jurisdictional Determination (Rapanos) Forms

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CATS LYNX BLE, Form 1 of 13
State:NC County/parish/borough: Mecklenburg City: Charlotte
Center coordinates of site (lat/long in degree decimal format): Lat. 35.235079° N, Long. -80.828160° W.
Universal Transverse Mercator: N 3899126.8; E 515635.44
Name of nearest waterbody: Little Sugar Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Catawba River
Name of watershed or Hydrologic Unit Code (HUC): 03050103
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 5/16/08, 5/23/08, 8/12/08, and 8/28/08.
☒ Field Determination. Date(s): 10/07/08 and 02/09/09

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** *"waters of the U.S."* within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   ☐ TNWs, including territorial seas
   ☐ Wetlands adjacent to TNWs
   ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   ☐ Non-RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   ☐ Impoundments of jurisdictional waters
   ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: Stream C = 211 feet, Stream D = 433 feet for a total of 644 linear feet: width (ft) and/or 0.293 acres.

   Wetlands: Wetland C = 0.02 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
   Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

---

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: 3,285**square miles**
   Drainage area: <100 **acres**
   Average annual rainfall: 42.81 inches
   Average annual snowfall: 6.4 inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☒ Tributary flows through **2** tributaries before entering TNW.

   Project waters are **15-20** river miles from TNW.
   Project waters are **1-2** river miles from RPW.
   Project waters are **15-20** aerial (straight) miles from TNW.
   Project waters are **1-2** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: Intermittent Stream D drains to Intermittent Stream C, which drains to Little Sugar Creek which drains to Catawba River.

---

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: Streams C & D enter the study area from stormwater discharge pipes in heavily urbanized area.

Tributary properties with respect to top of bank (estimate):
Average width: 9 feet
Average depth: 1 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☒ Cobbles	☐ Gravel	☐ Muck
☒ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: stable .
Presence of run/riffle/pool complexes. Explain: Weak.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 1-5 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: weak but steady.
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☒ shelving	☐ the presence of wrack line
☒ vegetation matted down, bent, or absent	☒ sediment sorting
☒ leaf litter disturbed or washed away	☒ scour
☒ sediment deposition	☒ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☒ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☒ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: Impaired water quality from fecal coliform due to open latrine on bank of Stream D.
Identify specific pollutants, if known: Fecal, and various non-point source roadside and industrial runoff.

---

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☒ Riparian corridor. Characteristics (type, average width): Streams D and C have forested buffer ~20 feet+ in width.
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size:Wetland C = 0.02 acres

Wetland type. Explain:Palustine Emergent Wetland.

Wetland quality. Explain:Low quality from stormwater discharge.

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Ephemeral flow**. Explain: .

Surface flow is**: Discrete**

Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☒ Not directly abutting
  - ☒ Discrete wetland hydrologic connection. Explain: Stormwater conveyance flume and pipe.
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **15-20** river miles from TNW.

Project waters are **15-20** aerial (straight) miles from TNW.

Flow is from: **Wetland to navigable waters.**

Estimate approximate location of wetland as within the **500-year or greater** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: Linear system in ditch from stormwater outfall.

Identify specific pollutants, if known: non-point source road runoff.

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☒ Vegetation type/percent cover. Explain:100% herbaceous cover.
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **1**

Approximately (0.02) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
N	0.02		

Summarize overall biological, chemical and physical functions being performed: stormwater drainage ditch.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: Wetland C drains to concrete lined stormwater drainageway and then by overland sheetflow to stormwater sump and into pipe culvert that drains to Stream D and then to intermittent Stream C, a seasonal RPW, which flows to Little Sugar Creek (a perennial RPW), which flows to the Catawba River (TNW). Wetland C provides for storage of flood waters and the filtration of nutrients and pollutants from the nearby roadways. The wetlands also provide a means for the transfer of nutrients and organic carbon to downstream foodwebs in Stream C.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows

seasonally: Intermittent Streams D and C (RPW's with seasonal flow) observed with evidence of ordinary high water mark and multiple observations of flow from 10/07/08 through 2/09/09 and drains to Little Sugar Creek (RPW with perennial flow), which drains to the Catawba River (TNW).

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☒ Tributary waters: **Streams D & C are 644** linear feet **9** width (ft).
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☒ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: **Wetland C = 0.02** acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   - ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   - ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   - ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.

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[8] See Footnote # 3.

[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Attachment C - Figure 6.
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24000, Charlotte East, NC (1988).
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey of Mecklenburg County (1980), Sheet 7 of 13 .
☒ National wetlands inventory map(s). Cite name: Charlotte East, NC.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Mecklenburg County GIS Aerial (2007) Attachment C - Figure 6.
or ☒ Other (Name & Date): Attachment F - Photos 1 (10/07/09), 2 and 21 (02/09/09).
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The center line of potential jurisdictional waters of the U.S. linear Wetland C and the boundaries of potential jurisdictional waters of the U.S. Stream D and Stream C (Attachment C - Figure 6) were marked and surveyed using a Trimble GeoXT hand-held GPS unit capable of sub-meter accuracy. Linear Wetland C characteristics included hydrophytic vegetation, hydric soils and obvious hydrology from stormwater outfall and met three-parameter requirements of a wetland. Linear Wetland C may be considered to be non-jurisdictional due to creation from stormwater outfall into uplands, the lack of a direct hydrologic connection to any other jurisdictional waterbodies, and a weak significant nexus determination. Stream D was determined to be an RPW with seasonal flow (intermittent) and is likely strongly influenced by stormwater. Stream C was determined to be jurisdictional due to its status as an RPW with seasonal flow that flows to Little Sugar Creek (RPW with perennial flow), which flows to the Catawba River (TNW).

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CATS LYNX BLE, Form 2 of 13
State:NC County/parish/borough: Mecklenburg City: Charlotte
Center coordinates of site (lat/long in degree decimal format): Lat. 35.243313° N, Long. -80.815417° W.
Universal Transverse Mercator: N 3900041.8; E 516793.75
Name of nearest waterbody: Little Sugar Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Catawba River
Name of watershed or Hydrologic Unit Code (HUC): 03050103
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 5/16/08, 5/23/08, 8/12/08, and 8/28/08.
☒ Field Determination. Date(s): 11/05/08

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: Stream F = 545 feet, Stream J = 103, Stream K = 127 feet for a total of 775 linear feet: width (ft) and/or 0.28 acres.
   Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
   Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

---

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: 3,285**square miles**
   Drainage area: <100 **acres**
   Average annual rainfall: 42.81 inches
   Average annual snowfall: 6.4 inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☒ Tributary flows through **2** tributaries before entering TNW.

   Project waters are **15-20** river miles from TNW.
   Project waters are **1-2** river miles from RPW.
   Project waters are **15-20** aerial (straight) miles from TNW.
   Project waters are **1-2** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: Streams J and K (RPW's with seasonal flow) drain to Perennial RPW Stream F (Little Sugar Creek) which drains to Catawba River (TNW).

---

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is:
- ☐ Natural
- ☐ Artificial (man-made). Explain: .
- ☒ Manipulated (man-altered). Explain: From stormwater discharge pipes in heavily urbanized area.

Tributary properties with respect to top of bank (estimate):
Average width: 5 feet
Average depth: 1 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):
- ☒ Silts
- ☒ Sands
- ☐ Concrete
- ☐ Cobbles
- ☒ Gravel
- ☐ Muck
- ☐ Bedrock
- ☐ Vegetation. Type/% cover:
- ☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: stable .
Presence of run/riffle/pool complexes. Explain: Weak.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 1-5 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: weak but steady.
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
- ☐ Dye (or other) test performed: .

Tributary has (check all that apply):
- ☒ Bed and banks
- ☒ OHWM[6] (check all indicators that apply):
  - ☒ clear, natural line impressed on the bank
  - ☐ changes in the character of soil
  - ☒ shelving
  - ☒ vegetation matted down, bent, or absent
  - ☒ leaf litter disturbed or washed away
  - ☒ sediment deposition
  - ☒ water staining
  - ☐ other (list):
  - ☐ the presence of litter and debris
  - ☐ destruction of terrestrial vegetation
  - ☐ the presence of wrack line
  - ☒ sediment sorting
  - ☒ scour
  - ☒ multiple observed or predicted flow events
  - ☐ abrupt change in plant community
- ☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
- ☐ High Tide Line indicated by:
  - ☐ oil or scum line along shore objects
  - ☐ fine shell or debris deposits (foreshore)
  - ☐ physical markings/characteristics
  - ☐ tidal gauges
  - ☐ other (list):
- ☒ Mean High Water Mark indicated by:
  - ☐ survey to available datum;
  - ☒ physical markings;
  - ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: Impaired water quality from non-point source runoff from stormwater discharges.
Identify specific pollutants, if known: Various non-point source roadside and industrial runoff.

---

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain: .

Surface flow is: **Pick List**

Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List.**

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: Perennial Stream F (Little Sugar Creek) has moderate to strong flow, continuous bed and bank, an OHWM, alluvial deposits, and undercut banks. Stream F appears on the USGS and Soils maps as a named stream.
   - ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: Streams J and K appear to be RPW's with seasonal flow due to the presence of flow, OHWM, standing water at the time of the field review and continuous defined bed and bank.

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☒ Tributary waters: **Stream F is 545** linear feet **21** width (ft).
- ☒ Other non-wetland waters: **Streams J and K = 0.05** acres.
  Identify type(s) of waters: **Streams J and K are seasonal RPW's**.

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   - ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   - ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   - ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters: .
- ☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Attachment C - Figure 7.
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: .
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24000, Charlotte East, NC (1988).
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey of Mecklenburg County (1980), Sheet 7 of 13 .
- ☒ National wetlands inventory map(s). Cite name: Charlotte East, NC.
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): Mecklenburg County GIS Aerial (2007) Attachment C - Figure 7.
  or ☒ Other (Name & Date): Attachment F - Photo 3, 4, and 5 (11/05/08).
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The boundaries of potential jurisdictional waters of the U.S. Streams J, K and F (Attachment C - Figure 7) were marked and surveyed using a Trimble GeoXT hand-held GPS unit capable of sub-meter accuracy. Streams J

and K were determined to be RPW's with seasonal flow (intermittent) and are likely strongly influenced by stormwater. Stream F (Little Sugar Creek) was determined to be a jurisdictional water of the U.S. due to its status as a Perennial RPW that flows directly to the Catawba River (TNW).

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CATS LYNX BLE, Form 3 of 13
State:NC County/parish/borough: Mecklenburg City: Charlotte
Center coordinates of site (lat/long in degree decimal format): Lat. 35.248954° **N**, Long. -80.807789° **W**.
Universal Transverse Mercator: N 3900668.8; E 517485.97
Name of nearest waterbody: Little Sugar Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Catawba River
Name of watershed or Hydrologic Unit Code (HUC): 03050103
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 5/16/08, 5/23/08, 8/12/08, and 8/28/08.
☒ Field Determination. Date(s): 02/09/09

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are no** *"waters of the U.S."* within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
   ☐ TNWs, including territorial seas
   ☐ Wetlands adjacent to TNWs
   ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   ☒ Non-RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   ☒ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   ☐ Impoundments of jurisdictional waters
   ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: Stream N = 76 linear feet: 9 width (ft) and/or 0.013 acres.
   Wetlands: Wetland Y = 0.14 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
   Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: 3,285 **square miles**
   Drainage area: <100 **acres**
   Average annual rainfall: 42.81 inches
   Average annual snowfall: 6.4 inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☐ Tributary flows through **2** tributaries before entering TNW.

   Project waters are **15-20** river miles from TNW.
   Project waters are **1-2** river miles from RPW.
   Project waters are **15-20** aerial (straight) miles from TNW.
   Project waters are **1-2** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: Unidentified historic connection to Little Sugar Creek, to the Catawba River.
   Tributary stream order, if known: .

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[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☒ Artificial (man-made). Explain: Stream N enters the study area from stormwater pipe outfall.
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: 9 feet
Average depth: 1.5 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☒ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: highly eroding.
Presence of run/riffle/pool complexes. Explain: none.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 2 %

(c) Flow:

Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: stormwater driven.
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☒ Discontinuous OHWM.[7] Explain:eroded banks from stormwater discharges.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: Industrial property runoff .
Identify specific pollutants, if known: .

---

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size:Wetland Y = 0.14 acres

Wetland type. Explain:Palustrine Forested Wetland.

Wetland quality. Explain:low quality from industrial property runoff.

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **No Flow** . Explain: .

Surface flow is: **Not present**

Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☒ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☒ Separated by berm/barrier. Explain: Historic connection to Little Sugar Creek disrupted by industrial properties and development.

(d) Proximity (Relationship) to TNW

Project wetlands are **15-20** river miles from TNW.

Project waters are **15-20** aerial (straight) miles from TNW.

Flow is from: **No Flow.**

Estimate approximate location of wetland as within the **50 - 100-year** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: industrial property runoff.

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☒ Vegetation type/percent cover. Explain:Forested, shrub and herbacous cover.
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **1**

Approximately (0.14) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
N	0.14		

Summarize overall biological, chemical and physical functions being performed: Linear Wetland Y is ditch-like and appears to be receiving stormwater discharges from Stream N.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: Historic connection to Little Sugar Creek disrupted by development of industrial properties; current connection to Little Sugar Creek difficult to confirm in the field but presumed to exist.

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   - ☒ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☒ Tributary waters: **Stream N=76** linear feet **9** width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   - ☒ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: **Wetland Y = 0.14** acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   - ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   - ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   - ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Attachment C - Figure 8.
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24000, Charlotte East, NC (1988).
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey of Mecklenburg County, Sheet 7 of 13 .
☒ National wetlands inventory map(s). Cite name: Charlotte East, NC.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Attachment C - Figure 8.
or ☒ Other (Name & Date): Attachment F, Photo 6 and 22, 02/09/09.
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The boundaries of potential jurisdictional waters of the U.S. Stream N and Wetland Y (Attachment C - Figure 8) were delineated and surveyed using a Trimble GeoXT hand-held GPS unit capable of sub-meter accuracy.

Stream N was determined to be a non-RPW and is likely strongly influenced by stormwater. Wetland Y characteristics included hydrophytic vegetation, hydric soils and hydrology. Wetland Y may be determined to be non-jurisdictional due to creation from stormwater outfall into uplands and the lack of direct hydrological connection to any other jurisdictional waterbodies. Stream N and Wetland Y have a historic connection (unable to confirm in the field) to Little Sugar Creek (Perennial RPW) which drains to the Catawba River (TNW).

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CATS LYNX BLE, Form 4 of 13
State:NC County/parish/borough: Mecklenburg City: Charlotte
Center coordinates of site (lat/long in degree decimal format): Lat. 35.250525° N, Long. -80.801862° W.
Universal Transverse Mercator: N 3900844.0; E 518024.9
Name of nearest waterbody: Little Sugar Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Catawba River
Name of watershed or Hydrologic Unit Code (HUC): 03050103
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 5/16/08, 5/23/08, 8/12/08, and 8/28/08.
☒ Field Determination. Date(s): 09/02/08, 02/09/09, 02/11/09

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: Stream A including segment AA = 1,274 feet linear feet: 8 width (ft) and/or 0.34 acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: 3,285**square miles**
   Drainage area: <100 **acres**
   Average annual rainfall: 42.81 inches
   Average annual snowfall: 6.4 inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☒ Tributary flows through **2** tributaries before entering TNW.

   Project waters are **15-20** river miles from TNW.
   Project waters are **1-2** river miles from RPW.
   Project waters are **15-20** aerial (straight) miles from TNW.
   Project waters are **1-2** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: Stream A including segment AA (RPW's with seasonal flow) drains to Little Sugar Creek (Perennial RPW) which drains to Catawba River (TNW).

---

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: Stream A including segment AA enter the study area via stormwater discharge pipes in heavily urbanized area.

Tributary properties with respect to top of bank (estimate):
Average width: 12 feet
Average depth: 1 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☒ Cobbles	☐ Gravel	☐ Muck
☒ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: stable .
Presence of run/riffle/pool complexes. Explain: Weak.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 1-5 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: weak but steady.
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☒ shelving	☐ the presence of wrack line
☒ vegetation matted down, bent, or absent	☒ sediment sorting
☒ leaf litter disturbed or washed away	☒ scour
☒ sediment deposition	☒ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☒ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☒ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: Various non-point source roadside and industrial runoff.

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[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☒ Riparian corridor. Characteristics (type, average width): Stream A has forested buffer ~20 feet+ in width.
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is: **Pick List**
Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: Intermittent Stream A (RPW with seasonal flow) including segment AA had moderate to weak flow and had evidence of an OHWM.

Provide estimates for jurisdictional waters in the review area (check all that apply):
☒ Tributary waters: **Intermittent Stream A including segment AA is 1,274** linear feet **8** width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters: .
- ☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:Attachment C - Figure 9.
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: .
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name:1:24000, Charlotte East, NC (1988).
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation:Soil Survey of Mecklenburg County, Sheet 7 of 13 .
- ☒ National wetlands inventory map(s). Cite name:Charlotte East, NC.
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date):Mecklenburg County GIS Aerial (2007) Attachment C - Figure 9.
  or ☒ Other (Name & Date):Attachment F - Photos 7, 8 (09/02/08) and 9 (02/09/09).
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The center line of potential jurisdictional waters of the U.S. Stream AA and the boundaries of potential jurisdictional waters of the U.S. Stream A (Attachment C - Figure 9) were marked and surveyed using a Trimble GeoXT hand-held GPS unit capable of sub-meter accuracy. Stream AA was determined to be an RPW with seasonal flow (intermittent) and

is likely strongly influenced by stormwater. Stream A was determined to be an RPW with seasonal flow that flows to Little Sugar Creek (Perennial RPW) which flows to the Catawba River (TNW).

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CATS LYNX BLE, Form 5 of 13
State:NC County/parish/borough: Mecklenburg City: Charlotte
Center coordinates of site (lat/long in degree decimal format): Lat. 35.252544° **N**, Long. -80.784802° **W**.
Universal Transverse Mercator: N 3901071.0; E 519576.38
Name of nearest waterbody: Little Sugar Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Catawba River
Name of watershed or Hydrologic Unit Code (HUC): 03050103
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 5/16/08, 5/23/08, 8/12/08, and 8/28/08.
☒ Field Determination. Date(s): 02/13/09

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: Streams B and P 2,336 linear feet: 4 width (ft) and/or 1.13 acres.
      Wetlands: Wetland P = 0.02 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: 3,285**square miles**
   Drainage area: <100 **acres**
   Average annual rainfall: 42.81 inches
   Average annual snowfall: 6.4 inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☐ Tributary flows through **2** tributaries before entering TNW.

   Project waters are **15-20** river miles from TNW.
   Project waters are **1-2** river miles from RPW.
   Project waters are **15-20** aerial (straight) miles from TNW.
   Project waters are **1-2** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: Stream B and Stream P were presumed to have a connection to Little Sugar Creek (Perennial RPW), which in turn flows to the Catawba River (TNW).

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[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is:
- ☐ Natural
- ☒ Artificial (man-made). Explain: .
- ☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: 4 feet
Average depth: 3 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):
- ☒ Silts
- ☒ Sands
- ☐ Concrete
- ☐ Cobbles
- ☒ Gravel
- ☐ Muck
- ☐ Bedrock
- ☐ Vegetation. Type/% cover:
- ☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: stablized, artificial, drainage ditches.
Presence of run/riffle/pool complexes. Explain: none, drainage ditch.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 2 %

(c) Flow:

Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: stormwater driven.
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
- ☐ Dye (or other) test performed: .

Tributary has (check all that apply):
- ☒ Bed and banks
- ☒ OHWM[6] (check all indicators that apply):
  - ☒ clear, natural line impressed on the bank
  - ☐ changes in the character of soil
  - ☒ shelving
  - ☒ vegetation matted down, bent, or absent
  - ☒ leaf litter disturbed or washed away
  - ☒ sediment deposition
  - ☒ water staining
  - ☐ other (list):
  - ☒ the presence of litter and debris
  - ☐ destruction of terrestrial vegetation
  - ☐ the presence of wrack line
  - ☐ sediment sorting
  - ☐ scour
  - ☐ multiple observed or predicted flow events
  - ☐ abrupt change in plant community
- ☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
- ☐ High Tide Line indicated by:
  - ☐ oil or scum line along shore objects
  - ☐ fine shell or debris deposits (foreshore)
  - ☐ physical markings/characteristics
  - ☐ tidal gauges
  - ☐ other (list):
- ☐ Mean High Water Mark indicated by:
  - ☐ survey to available datum;
  - ☐ physical markings;
  - ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: Non-point source pollutants from road runoff.

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[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size:Wetland P = 0.02 acres

Wetland type. Explain:Palustrine emergent and open water.

Wetland quality. Explain:low quality with active construction/demolition dumping.

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **No Flow**. Explain: .

Surface flow is: **Not present**

Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☒ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☒ Separated by berm/barrier. Explain: Fill material for backyard separates Wetland P from Stream P.

(d) Proximity (Relationship) to TNW

Project wetlands are **15-20** river miles from TNW.

Project waters are **15-20** aerial (straight) miles from TNW.

Flow is from: **No Flow.**

Estimate approximate location of wetland as within the **500-year or greater** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☒ Vegetation type/percent cover. Explain:herbaceous cover approximately 20% of wetland.
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **1**

Approximately (0.02) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
N	0.02		

Summarize overall biological, chemical and physical functions being performed: Wetland P in excavation in residential backyard near Stream P.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: Wetland P is situated adjacent to Stream P which was determined to be an RPW with seasonal flow. Streams B and P were historically connected to Little Sugar Creek (Perennial RPW); historic connection disrupted by development of residential and railroad properties; current connection to Little Sugar Creek difficult to confirm in the field but presumed to exist. Streams B and P were presumed to have a connection to Little Sugar Creek (Perennial RPW), which in turn flows to the Catawba River (TNW). Streams B and P provide for storage and conveyance of flood waters and the filtration of nutrients and pollutants from nearby industrial and residential properties.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .

☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: Streams B and Stream P exhibited weak flow, OHWM and continuous bed and bank.

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☒ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: **Wetland P = 0.02** acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Attachment C - Figure 10.
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24000, Derita, NC (1993).
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey Mecklenburg County, Sheet 4 of 13 .
☒ National wetlands inventory map(s). Cite name: Derita, NC.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Mecklenburg County GIS Aerial (2007) Attachment C - Figure 10.
or ☒ Other (Name & Date): Attachment F - Photos 10, 11, 12 (02/11/09) and 23 (02/13/09).
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The boundaries of potential jurisdictional waters of the U.S. Stream B and Stream P and Wetland P (Attachment C - Figure 10) were delineated and surveyed using a Trimble GeoXT hand-held GPS unit capable of sub-meter accuracy. Streams P and Stream B were determined to be RPWs with seasonal flow (intermittent) and are likely strongly influenced by stormwater. Wetland P characteristics included hydrophytic vegetation, hydric soils and hydrology. Wetland P may be determined to be non-jurisdictional due to lack of direct connection to other jurisdictional waterbodies and a weak significant nexus determination. Streams B and Stream P have a historic connection (unable to confirm in the field) to Little Sugar Creek (Perennial RPW), which in turn flows to the Catawba River (TNW).

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CATS LYNX BLE, Form 6 of 13
State:NC County/parish/borough: Mecklenburg City: Charlotte
Center coordinates of site (lat/long in degree decimal format): Lat. 35.254506° N, Long. 80.789047° W.
Universal Transverse Mercator: N 3901287.8; E 519190.0
Name of nearest waterbody: Little Sugar Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Catawba River
Name of watershed or Hydrologic Unit Code (HUC): 03050103
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 5/16/08, 5/23/08, 8/12/08, and 8/28/08.
☒ Field Determination. Date(s): 10/06/08

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** *"waters of the U.S."* within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: Stream S = 212 linear feet: width (ft) and/or 0.05 acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: 3,285**square miles**
   Drainage area: <100 **acres**
   Average annual rainfall: 42.81 inches
   Average annual snowfall: 6.4 inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☒ Tributary flows through **2** tributaries before entering TNW.

   Project waters are **15-20** river miles from TNW.
   Project waters are **1-2** river miles from RPW.
   Project waters are **15-20** aerial (straight) miles from TNW.
   Project waters are **1-2** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: Stream S, an RPW with seasonal flow, drains to stormwater pipe culvert, which presumably drains to Little Sugar Creek (Perennial RPW) which drains to Catawba River (TNW).

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[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: Stream S enters study area via stormwater discharge pipes in heavily urbanized area.

Tributary properties with respect to top of bank (estimate):
Average width: 7 feet
Average depth: 1 feet
Average side slopes: **3:1** .

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☒ Cobbles	☐ Gravel	☐ Muck
☒ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: stable .
Presence of run/riffle/pool complexes. Explain: Weak.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 1-5 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: weak.
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☒ scour
☒ sediment deposition	☒ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☒ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☒ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: Impaired water quality non-point source pollutants.
Identify specific pollutants, if known: Various non-point source roadside and industrial runoff.

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[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): Stream S in middle of parking lot.
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain: .

Surface flow is: **Pick List**

Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List.**

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: Stream S may drain to Little Surgar Creek (RPW) through Stormwater drainage pipes under extensive development.

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: Stream S exhibited weak flow, OHWM and continuous bed and bank.

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☒ Tributary waters: **Stream S = 212** linear feet **4** width (ft).
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .
   - ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   - ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   - ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   - ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters: .
- ☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
- ☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource: .
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Attachment C - Figure 10.
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps: .
- ☐ Corps navigable waters' study: .
- ☐ U.S. Geological Survey Hydrologic Atlas: .
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24000, Derita, NC (1993).
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey of Mecklenburg County, Sheet 4 of 13 .
- ☒ National wetlands inventory map(s). Cite name: Derita, NC.
- ☐ State/Local wetland inventory map(s): .
- ☐ FEMA/FIRM maps: .
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☒ Photographs: ☒ Aerial (Name & Date): Mecklenburg County GIS Aerial (2007) Attachment C - Figure 10.
  - or ☐ Other (Name & Date): .
- ☐ Previous determination(s). File no. and date of response letter: .
- ☐ Applicable/supporting case law: .
- ☐ Applicable/supporting scientific literature: .
- ☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The boundaries of potential jurisdictional waters of the U.S. Stream S (Attachment C - Figure 10) were marked and surveyed using a Trimble GeoXT hand-held GPS unit capable of sub-meter accuracy. Stream S was

determined to be an RPW with seasonal flow (intermittent) and is likely strongly influenced by stormwater. Stream S presumably drains via stormwater conveyance pipes to Little Sugar Creek (Perennial RPW), which drains to the Catawba River (TNW).

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CATS LYNX BLE, Form 7 of 13
State:NC County/parish/borough: Mecklenburg City: Charlotte
Center coordinates of site (lat/long in degree decimal format): Lat. 35.258353° N, Long. -80.774002° W.
Universal Transverse Mercator: N 3901717.5; E 520557.7
Name of nearest waterbody: Little Sugar Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Catawba River
Name of watershed or Hydrologic Unit Code (HUC): 03050103
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 5/16/08, 5/23/08, 8/12/08, and 8/28/08.
☒ Field Determination. Date(s): 02/11/09

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** *"waters of the U.S."* within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: Stream Z = 603 linear feet: 3 width (ft) and/or 0.04 acres.
      Wetlands: Wetland O = 0.16 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) **General Area Conditions:**
   Watershed size: 324 **square miles**
   Drainage area: <100 **acres**
   Average annual rainfall: 42.81 inches
   Average annual snowfall: 6.4 inches

   (ii) **Physical Characteristics:**
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☒ Tributary flows through **2** tributaries before entering TNW.

   Project waters are **15-20** river miles from TNW.
   Project waters are **2-5** river miles from RPW.
   Project waters are **15-20** aerial (straight) miles from TNW.
   Project waters are **2-5** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: Stream Z (Seasonal RPW) drains to Briar Creek (Perennial RPW) which drains to Sugar Creek (Perennial RPW) which drains to the Catawba River (TNW).

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[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: Stream Z enters the study area via stormwater discharge pipes from adjacent shopping mall parking lot and drains through pipe under railroad.

Tributary properties with respect to top of bank (estimate):
Average width: 4 feet
Average depth: 1 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☒ Cobbles	☐ Gravel	☐ Muck
☒ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: stable.
Presence of run/riffle/pool complexes. Explain: weak.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 1 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☒ sediment sorting
☒ leaf litter disturbed or washed away	☒ scour
☐ sediment deposition	☒ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: Discolored from stormwater runoff.
Identify specific pollutants, if known: Non-point source pollutants.

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[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): Stream Z has a wide riparian buffer on southeast side of railroad.

☐ Wetland fringe. Characteristics: .

☐ Habitat for:

- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size:Wetland O = 0.16 acres

Wetland type. Explain:Palustrine Forested.

Wetland quality. Explain:low quality from parking lot stormwater runoff discharges.

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **No Flow**. Explain: .

Surface flow is: **Not present**

Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .

☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

☐ Directly abutting

☒ Not directly abutting

- ☐ Discrete wetland hydrologic connection. Explain: .
- ☐ Ecological connection. Explain: .
- ☒ Separated by berm/barrier. Explain: Basin created for impoundment of stormwater.

(d) Proximity (Relationship) to TNW

Project wetlands are **15-20** river miles from TNW.

Project waters are **15-20** aerial (straight) miles from TNW.

Flow is from: **No Flow.**

Estimate approximate location of wetland as within the **500-year or greater** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: Stormwater basin for shopping center parking lot.

Identify specific pollutants, if known: Non-point source runoff.

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width): .

☒ Vegetation type/percent cover. Explain:Forested with nearly 100% cover.

☐ Habitat for:

- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **1**

Approximately (0.16) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
N	0.16		

Summarize overall biological, chemical and physical functions being performed: Stormwater detention basin for shopping center parking lot.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: Wetland O and Stream Z drain to Briar Creek (Perennial RPW) which drains to Sugar Creek (Perennial RPW), which drains into the Catawba River (TNW). Wetland O provides for storage of flood waters and the filtration of nutrients and pollutants from nearby parking lot. Wetland O also provides a natural habitat for particular amphibians that depend on seasonal flooded forest wetland systems for their life cycles.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .

☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: Stream Z exhibited weak flow, OHWM and continuous bed and bank.

Provide estimates for jurisdictional waters in the review area (check all that apply):
☒ Tributary waters: **Stream Z = 603** linear feet **4** width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☒ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: **Wetland 0 = 0.16** acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Attachment C - Figure 11.
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24000, Derita, NC.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey of Mecklenburg County, Sheet 4 of 13 .
☒ National wetlands inventory map(s). Cite name: Derita, NC.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Mecklenburg County GIS Aerial (2007) Attachment C - Figure 11.
or ☒ Other (Name & Date): Attachment F - Photos 13, 14, 24, and 25 (02/11/09).
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The boundaries of potential jurisdictional waters of the U.S.Wetland O and Stream Z (Attachment C - Figure 11) were delineated and surveyed using a Trimble GeoXT hand-held GPS unit capable of sub-meter accuracy. Wetland O characteristics included hydrophytic vegetation, hydric soils and hydrology. Wetland O may be determined to be non-jurisdictional due to the lack of a direct hydrologic connection to any other jurisdictional waterbodies. Stream Z was determined to be an RPW with seasonal flow (intermittent) with a direct connection to a Perennial RPW (Briar Creek) which drains to Sugar Creek (Perennial RPW), which drains to the Catawba River (TNW).

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CATS LYNX BLE, Form 8 of 13
State:NC County/parish/borough: Mecklenburg City: Charlotte
Center coordinates of site (lat/long in degree decimal format): Lat. 35.260484° **N**, Long. -80.770549° **W**.
Universal Transverse Mercator: N 3901954.2; E 520871.5
Name of nearest waterbody: Briar Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Catawba River
Name of watershed or Hydrologic Unit Code (HUC): 03050103
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 5/16/08, 5/23/08, 8/12/08, and 8/28/08.
☒ Field Determination. Date(s): 09/08/08 and 02/13/09

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: Stream E = 1,494 linear feet: width (ft) and/or 0.17 acres.
      Wetlands: Wetland E = 0.06 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: 324 **square miles**
   Drainage area: <100 **acres**
   Average annual rainfall: 42.81 inches
   Average annual snowfall: 6.4 inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☒ Tributary flows through **2** tributaries before entering TNW.

   Project waters are **15-20** river miles from TNW.
   Project waters are **2-5** river miles from RPW.
   Project waters are **15-20** aerial (straight) miles from TNW.
   Project waters are **2-5** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: Stream E (RPW with seasonal flow) drains to Briar Creek (Perennial RPW), which drains to Sugar Creek (Perennial RPW), which drains to Catawba River (TNW).

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[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: first.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: Stream E enters the study area via a stormwater discharge pipe at Old Concord Road.

Tributary properties with respect to top of bank (estimate):
Average width: 8 feet
Average depth: 1 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☒ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: eroding.
Presence of run/riffle/pool complexes. Explain: weak to absent.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 1-5 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: Intermittent or seasonal.
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☒ scour
☒ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: Degraded water quality from various non-point source pollutants.
Identify specific pollutants, if known: Various non-point sources including roads and paved surfaces.

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[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☒ Riparian corridor. Characteristics (type, average width): disturbed forested buffer ~20 feet wide.
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size:Wetland E = 0.06 acres

Wetland type. Explain:Palustrine Emergent.

Wetland quality. Explain:good quality, vernal pool with active amphibian breeding.

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **No Flow**. Explain: .

Surface flow is: **Not present**

Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☒ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☒ Separated by berm/barrier. Explain: In active fill area with soil piles.

(d) Proximity (Relationship) to TNW

Project wetlands are **15-20** river miles from TNW.

Project waters are **15-20** aerial (straight) miles from TNW.

Flow is from: **No Flow.**

Estimate approximate location of wetland as within the **500-year or greater** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: Vernal pool with active amphibian breeding.

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☒ Vegetation type/percent cover. Explain:Herbaceous cover with open water.
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☒ Other environmentally-sensitive species. Explain findings:Amphibian breeding.
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **1**

Approximately (0.06) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
N	0.06		

Summarize overall biological, chemical and physical functions being performed: Amphibian breeding during spring months.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: Wetland E is cconnected hydrologically to Stream E (seasonal RPW) via overland sheet flow. Stream E (seasonal RPW) drains to Briar Creek (Perennial RPW) which drains to Sugar Creek (Perennial RPW), which drains to the Catawba River (TNW). Wetland E provides a natural habitat for particular amphibians that depend on seasonally flooded vernal pools for their life cycles. Stream E provides a means for the transferrence of nutrients and organic carbon to downstream food webs in Briar Creek (Perennial RPW), Sugar Creek (Perennial RPW), and the Catawba River (TNW).

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .

☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: Stream E appears to be a seasonal RPW due to the presence of an OHWM, weak flow and a defined bed and bank and is depicted as intermittent stream on the USGS map.

Provide estimates for jurisdictional waters in the review area (check all that apply):
☒ Tributary waters: **Stream E = 1,494** linear feet **8** width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☒ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: **Wetland E = 0.06** acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]

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[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Attachment C - Figure 12.
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24000, Derita, NC.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey of Mecklenburg County, Sheet 4 of 13 .
☒ National wetlands inventory map(s). Cite name: Derita, NC.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Mecklenburg County GIS Aerial (2007) Attachment C - Figure 12.
or ☒ Other (Name & Date): Attachment F - Photo 15 (09/08/08) and Photo 26 (02/13/09).
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .

☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The boundaries of potential jurisdictional waters of the U.S. (Attachment C - Figure 12) were delineated and surveyed using a Trimble GeoXT hand-held GPS unit capable of sub-meter accuracy. Wetland E characteristics included hydrophytic vegetation, hydric soils and hydrology. Wetland E may be determined to be non-jurisdictional due to the lack of a direct hydrologic connection to any other jurisdictional waterbodies. Stream E was determined to be a RPW with seasonal flow (intermittent) with a direct connection that drains to Briar Creek (Perennial RPW) that drains to Sugar Creek (Perennial RPW) that drains to the Catawba River (TNW).

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CATS LYNX BLE, Form 9 of 13
State:NC County/parish/borough: Mecklenburg City: Charlotte
Center coordinates of site (lat/long in degree decimal format): Lat. 35.286731° N, Long. -80.763954° W.
Universal Transverse Mercator: N 3904866.8; E 521464.2
Name of nearest waterbody: Doby Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Rocky River
Name of watershed or Hydrologic Unit Code (HUC): 03040105
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 5/16/08, 5/23/08, 8/12/08, and 8/28/08.
☒ Field Determination. Date(s): 12/05/08

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** *"waters of the U.S."* within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☒ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: Stream X = 288 linear feet: width (ft) and/or 0.03 acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

---

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: 3,285**square miles**
   Drainage area: <100 **acres**
   Average annual rainfall: 42.81 inches
   Average annual snowfall: 6.4 inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☒ Tributary flows through **3** tributaries before entering TNW.

   Project waters are **15-20** river miles from TNW.
   Project waters are **1-2** river miles from RPW.
   Project waters are **15-20** aerial (straight) miles from TNW.
   Project waters are **1-2** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: Non-RPW (less than seasonal flow) Stream X drains off-site to portion of Stream X with seasonal flow then to Doby Creek (Perennial RPW), which drains to Mallard Creek (Perennial RPW) which drains to Rocky River (TNW).
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: 3 feet
Average depth: 1 feet
Average side slopes: **Vertical (1:1 or less).**

Primary tributary substrate composition (check all that apply):
☒ Silts ☒ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☐ Vegetation. Type/% cover:
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: stable .
Presence of run/riffle/pool complexes. Explain: Weak.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 1-5 %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: weak.
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☒ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank ☐ the presence of litter and debris
☐ changes in the character of soil ☐ destruction of terrestrial vegetation
☐ shelving ☐ the presence of wrack line
☒ vegetation matted down, bent, or absent ☐ sediment sorting
☒ leaf litter disturbed or washed away ☒ scour
☐ sediment deposition ☒ multiple observed or predicted flow events
☒ water staining ☐ abrupt change in plant community
☐ other (list):
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by: ☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects ☐ survey to available datum;
☐ fine shell or debris deposits (foreshore) ☐ physical markings;
☐ physical markings/characteristics ☐ vegetation lines/changes in vegetation types.
☐ tidal gauges
☐ other (list):

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: Good water quality in forested area.

---

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

Identify specific pollutants, if known:

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☒ Riparian corridor. Characteristics (type, average width): Forested upland area over 500 feet wide.
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is: **Pick List**
Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: Stream X (non-RPW) drains to Doby Creek (Perennial RPW) which drains to Mallard Creek (Perennial RPW) which drains to the Rocky River (TNW). Stream X provides a means for the transferrence of nutrients from the surrounding upland forest to downstream food webs in Doby Creek and Mallard Creek.

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☒ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☒ Tributary waters: **Stream X = 288** linear feet **3** width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Attachment C - Figure 13.
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24000, Derita, NC (1993).
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey of Mecklenburg County, Sheet 7 of 13 .
☒ National wetlands inventory map(s). Cite name: Derita, NC.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Mecklenburg County GIS Aerial (2007) Attachment C - Figure 13.
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The center line of potential jurisdictional waters of the U.S. Stream X (Attachment C - Figure 13) was delineated and surveyed using a Trimble GeoXT hand-held GPS unit capable of sub-meter accuracy. Stream X was determined to be a non-RPW (less than seasonal flow) with a direct connection to Doby Creek (Perennial RPW), which drains to Mallard Creek (Perennial RPW) which drains to Rocky River (TNW).

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CATS LYNX BLE, form 10 of 13
State:NC County/parish/borough: Mecklenburg City: Charlotte
Center coordinates of site (lat/long in degree decimal format): Lat. 35.312427° N, Long. -80.736236° W.
Universal Transverse Mercator: N 3907723; E 523977.03
Name of nearest waterbody: Toby Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Rocky River
Name of watershed or Hydrologic Unit Code (HUC): 03040105
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 5/16/08, 5/23/08, 8/12/08, and 8/28/08.
☒ Field Determination. Date(s): 10/06/08

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** *"waters of the U.S."* within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: Stream U = 416 linear feet: 9 width (ft) and/or 0.24 acres.
      Wetlands: Wetland R = 0.07 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) **General Area Conditions:**
   Watershed size: 324**acres**
   Drainage area: >100 **acres**
   Average annual rainfall: 42.81 inches
   Average annual snowfall: 6.4 inches

   (ii) **Physical Characteristics:**
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☐ Tributary flows through **2** tributaries before entering TNW.

   Project waters are **15-20** river miles from TNW.
   Project waters are **1 (or less)** river miles from RPW.
   Project waters are **15-20** aerial (straight) miles from TNW.
   Project waters are **1 (or less)** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: Toby Creek (Stream U) (Perennial RPW) drains to Mallard Creek (Perennial RPW) which drains to the Rocky River (TNW).

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[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: 2nd.

(b) General Tributary Characteristics (check all that apply):

Tributary is:
- ☒ Natural
- ☐ Artificial (man-made). Explain: .
- ☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: 22 feet
Average depth: 3 feet
Average side slopes: **3:1**.

Primary tributary substrate composition (check all that apply):
- ☒ Silts
- ☒ Sands
- ☐ Concrete
- ☒ Cobbles
- ☐ Gravel
- ☐ Muck
- ☒ Bedrock
- ☐ Vegetation. Type/% cover:
- ☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: stable.
Presence of run/riffle/pool complexes. Explain: pool riffle complex present.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 1-5 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: Perennial.
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
- ☐ Dye (or other) test performed: .

Tributary has (check all that apply):
- ☒ Bed and banks
- ☒ OHWM[6] (check all indicators that apply):
  - ☒ clear, natural line impressed on the bank
  - ☒ changes in the character of soil
  - ☒ shelving
  - ☒ vegetation matted down, bent, or absent
  - ☒ leaf litter disturbed or washed away
  - ☒ sediment deposition
  - ☒ water staining
  - ☐ other (list):
  - ☒ the presence of litter and debris
  - ☐ destruction of terrestrial vegetation
  - ☐ the presence of wrack line
  - ☒ sediment sorting
  - ☒ scour
  - ☒ multiple observed or predicted flow events
  - ☐ abrupt change in plant community
- ☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
- ☒ High Tide Line indicated by:
  - ☐ oil or scum line along shore objects
  - ☐ fine shell or debris deposits (foreshore)
  - ☐ physical markings/characteristics
  - ☐ tidal gauges
  - ☐ other (list):
- ☒ Mean High Water Mark indicated by:
  - ☐ survey to available datum;
  - ☐ physical markings;
  - ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: good water quality.
Identify specific pollutants, if known: .

---

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☒ Riparian corridor. Characteristics (type, average width): <500 feet.
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☒ Aquatic/wildlife diversity. Explain findings: fish and wildlife in area.

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size:Wetland R = 0.07 acres

Wetland type. Explain:Palustrine Forested.

Wetland quality. Explain:low quality from stormwater discharge.

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **No Flow** . Explain: .

Surface flow is: **Not present**

Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☒ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☒ Separated by berm/barrier. Explain: Fitness trail path has created berm disrupting drainage from Wetland R to Stream U.

(d) Proximity (Relationship) to TNW

Project wetlands are **15-20** river miles from TNW.

Project waters are **15-20** aerial (straight) miles from TNW.

Flow is from: **No Flow.**

Estimate approximate location of wetland as within the **50 - 100-year** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: Wetland created from stormwater discharges from University parking lot and roadways.

Identify specific pollutants, if known: non-point source runoff.

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☒ Vegetation type/percent cover. Explain:forested with 100% cover .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **1**

Approximately (0.07) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
N	0.07		

Summarize overall biological, chemical and physical functions being performed: Receives and treats stormwater runoff from parking lot and roadways.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: Wetland R provides for storage of flood waters and the filtration of nutrients and pollutants from nearby roads and parking lots. The wetlands also provide a means for the transferrence of nutrients and organic carbon to downstream food webs in Stream U. Fitness trail path has created berm disrupting drainage from Wetland R to Stream U.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: Toby Creek (Stream U) exhibited strong flow, presence of fish and is shown as perennial on USGS maps.

☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☒ Tributary waters: **Stream U = 416** linear feet**22** width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☒ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: **Wetland R = 0.07** acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Attachment C - Figure 14.
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24000, Harrisburg, NC (1998).
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey of Mecklenburg County, Sheet 5 of 13 .
☒ National wetlands inventory map(s). Cite name: Harrisburg, NC.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☐ Photographs: ☒ Aerial (Name & Date): Mecklenburg County GIS Aerial (2007) Attachment C - Figure 14.
or ☒ Other (Name & Date): Attachment F - Photo 16.
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The boundaries of potential jurisdictional waters of the U.S. (Attachment C - Figure 14) were delineated and surveyed using a Trimble GeoXT hand-held GPS unit capable of sub-meter accuracy. Wetland R characteristics included hydrophytic vegetation, hydric soils, and hydrology. Wetland R may be determined to be non-jurisdictional due to the lack of a direct hydrologic connection to any other jurisdictional waterbodies. Toby Creek (Stream U) is a Perennial RPW that drains to Mallard Creek (Perennial RPW) that drains to the Rocky River (TNW).

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CATS LYNX BLE, Form 11 of 13
State:NC County/parish/borough: Mecklenburg City: Charlotte
Center coordinates of site (lat/long in degree decimal format): Lat. 35.317718° N, Long. -80.732905° W.
Universal Transverse Mercator: N 3908310.5; E 524278.53
Name of nearest waterbody: unnamed tributary to Mallard Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Rocky River
Name of watershed or Hydrologic Unit Code (HUC): 03040105
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 5/16/08, 5/23/08, 8/12/08, and 8/28/08.
☒ Field Determination. Date(s): 10/06/08

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** *"waters of the U.S."* within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: Stream T = 893 linear feet: ~15 width (ft) and/or 0.31 acres.
      Wetlands: Wetland T = 3.41 acres, Wetland W = 1.19 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: **Pick List**
   Drainage area: **Pick List**
   Average annual rainfall: inches
   Average annual snowfall: inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☐ Tributary flows through **Pick List** tributaries before entering TNW.

   Project waters are **Pick List** river miles from TNW.
   Project waters are **Pick List** river miles from RPW.
   Project waters are **Pick List** aerial (straight) miles from TNW.
   Project waters are **Pick List** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: .
   Tributary stream order, if known: .

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[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: 14-16 feet
Average depth: 1 to 2 feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):

☐ Silts	☐ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: low,eroding sloughing banks.
Presence of run/riffle/pool complexes. Explain: shallow pools with riffles.
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime: Perennial.
Other information on duration and volume: .

Surface flow is: **Pick List.** Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☒ High Tide Line indicated by:	☒ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: No adverse water quality was observed.
Identify specific pollutants, if known: .

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[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain: .

Surface flow is: **Pick List**

Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately (4.6) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: Stream T is shown as perennial on USGS map. All of Stream T contained within the study area was determined to be an RPW with perennial flow due to a well defined bed and bank, broad floodplain and strong flow. Wetlands T an W were abutting Stream T.
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☒ Tributary waters: **Stream T = 893** linear feet **15** width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☒ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Riparian Wetlands T and W are palustrine forested wetland directly abutting braided channels of perennial RPW (Stream T) an unnamed tributary to Mallard Creek that is depicted on USGS maps and Soil Survey. Wetlands T and W boundaries tied to Stream T boundary at top of bank.**

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: **4.6** acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Attachment C - Figure 15.
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24000, Harrisburg, NC (1988).
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey of Mecklenburg County, Sheet 5 of 13 .
☒ National wetlands inventory map(s). Cite name: Harrisburg, NC.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Mecklenburg County GIS Aerial (2007) Attachment C - Figure 15.
or ☒ Other (Name & Date): Attachment F - Photos 27, 28, 29, and 30 10/06/08.
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The boundaries of potential jurisdictional waters of the U.S. Wetlands T and W and Stream T (Attachment C - Figure 15) were delineated and surveyed using a Trimble GeoXT hand-held GPS unit capable of sub-meter accuracy. Wetlands T and W were determined to be jurisdictional waters of the U.S. due to their abutting a perennial RPW (Stream T). Stream T was determined to be a jurisdictional water of the U.S. due to its status as a perennial RPW that flows to Mallard Creek (Perennial RPW), which is a tributary to Rocky River (TNW).

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CATS LYNX BLE, Form 12 of 13
State:NC County/parish/borough: Mecklenburg City: Charlotte
Center coordinates of site (lat/long in degree decimal format): Lat. 35.317718° N, Long. -80.732905° W.
Universal Transverse Mercator: N 3908310.5; E 524278.53
Name of nearest waterbody: unnamed tributary to Mallard Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Rocky River
Name of watershed or Hydrologic Unit Code (HUC): 03040105
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 5/16/08, 5/23/08, 8/12/08, and 8/28/08.
☒ Field Determination. Date(s): 10/07/08

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☒ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: Stream M 527 linear feet: ~13 width (ft) and/or 0.35 acres.
      Wetlands: Wetland N = 1.26 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: **Pick List**
   Drainage area: **Pick List**
   Average annual rainfall: inches
   Average annual snowfall: inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☐ Tributary flows through **Pick List** tributaries before entering TNW.

   Project waters are **Pick List** river miles from TNW.
   Project waters are **Pick List** river miles from RPW.
   Project waters are **Pick List** aerial (straight) miles from TNW.
   Project waters are **Pick List** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: .
   Tributary stream order, if known: .

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[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is:
- ☐ Natural
- ☐ Artificial (man-made). Explain: .
- ☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
- Average width: feet
- Average depth: feet
- Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):
- ☐ Silts
- ☐ Sands
- ☐ Concrete
- ☐ Cobbles
- ☐ Gravel
- ☐ Muck
- ☐ Bedrock
- ☐ Vegetation. Type/% cover:
- ☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: low,eroding sloughing banks.
Presence of run/riffle/pool complexes. Explain: shallow pools with riffles.
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime: Perennial.
Other information on duration and volume: .

Surface flow is: **Pick List.** Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
- ☐ Dye (or other) test performed: .

Tributary has (check all that apply):
- ☐ Bed and banks
- ☐ OHWM[6] (check all indicators that apply):
  - ☐ clear, natural line impressed on the bank
  - ☐ changes in the character of soil
  - ☐ shelving
  - ☐ vegetation matted down, bent, or absent
  - ☐ leaf litter disturbed or washed away
  - ☐ sediment deposition
  - ☐ water staining
  - ☐ other (list):
  - ☐ the presence of litter and debris
  - ☐ destruction of terrestrial vegetation
  - ☐ the presence of wrack line
  - ☐ sediment sorting
  - ☐ scour
  - ☐ multiple observed or predicted flow events
  - ☐ abrupt change in plant community
- ☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
- ☒ High Tide Line indicated by:
  - ☐ oil or scum line along shore objects
  - ☐ fine shell or debris deposits (foreshore)
  - ☐ physical markings/characteristics
  - ☐ tidal gauges
  - ☐ other (list):
- ☒ Mean High Water Mark indicated by:
  - ☐ survey to available datum;
  - ☐ physical markings;
  - ☐ vegetation lines/changes in vegetation types.

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: No adverse water quality was observed.
Identify specific pollutants, if known: .

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[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain: .

Surface flow is: **Pick List**

Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List.**

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☒ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: Mallard Creek (Stream M) shown as perennial on USGS map. All of Stream M contained within the study area was determined to be perennial due to a well-defined bed and bank, broad floodplain, presence of fish and strong flow. Wetland N abutts Stream M.
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☒ Tributary waters: **Stream M 527** linear feet**13** width (ft).
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   - ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☒ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
     - ☒ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: **Riparian Wetland N is palustrine forested wetland directly abutting perennial RPW Stream M (Mallard Creek) that is depicted on USGS maps and the Soil Survey.**

     - ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: **Wetland N = 1.26** acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   - ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   - ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   - ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   - ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:Attachment C - Figures 15 and 16.
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name:1:24000, Harrisburg, NC (1988).
☒ USDA Natural Resources Conservation Service Soil Survey. Citation:Soil Survey of Mecklenburg County, Sheet 5 of 13 .
☒ National wetlands inventory map(s). Cite name:Harrisburg, NC.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date):Mecklenburg County GIS Aerial (2007) Attachment C - Figures 15 and 16.
or ☒ Other (Name & Date):Attachment F - Photos 17, 18, 19, and 20 10/07/08.
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The boundaries of potential jurisdictional waters of the U.S. Wetland N and Stream M (Attachment C - Figures 15 and 16) were delineated and surveyed using a Trimble GeoXT hand-held GPS unit capable of sub-meter accuracy. Wetland N was determined to be a jurisdictional water of the U.S. due to its position abutting a perennial RPW (Stream M). Stream M (Mallard Creek) was determined to be a jurisdictional water of the U.S. due to its status as a perennial RPW, which is a tributary to Rocky River (TNW).

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION: CATS LYNX BLE, Form 13 of 13
State:NC County/parish/borough: Mecklenburg City: Charlotte
Center coordinates of site (lat/long in degree decimal format): Lat. 35.327520° N, Long. -80.726962° W.
Universal Transverse Mercator: N 3909398.8; E 524815.75
Name of nearest waterbody: unnamed tributary to Mallard Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Rocky River
Name of watershed or Hydrologic Unit Code (HUC): 03040105
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☒ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 5/16/08, 5/23/08, 8/12/08, and 8/28/08.
☒ Field Determination. Date(s): 10/07/08

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** *"waters of the U.S."* within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☒ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: Stream O = 125 linear feet: ~5 width (ft) and/or 0.03 acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) **General Area Conditions:**
   Watershed size: 324 **square miles**
   Drainage area: <100 **acres**
   Average annual rainfall: 42.81 inches
   Average annual snowfall: 6.4 inches

   (ii) **Physical Characteristics:**
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☐ Tributary flows through **2** tributaries before entering TNW.

   Project waters are **2-5** river miles from TNW.
   Project waters are **1 (or less)** river miles from RPW.
   Project waters are **2-5** aerial (straight) miles from TNW.
   Project waters are **1 (or less)** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: Stream O (determined to be a Non-RPW with less than seasonal flow) drains to unnamed RPW with seasonal flow that drains to Mallard Creek (Perennial RPW) which drains to Rocky River (TNW).

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[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is:
- ☐ Natural
- ☒ Artificial (man-made). Explain: from stormwater discharge pipe to stormwater pipe.
- ☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: 4-6 feet
Average depth: 1-2 feet
Average side slopes: **2:1.**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☒ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: low,eroding sloughing banks.
Presence of run/riffle/pool complexes. Explain: shallow pools with riffles.
Tributary geometry: **Relatively straight**
Tributary gradient (approximate average slope): 1 %

(c) Flow:
Tributary provides for: **Ephemeral flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: Perennial.
Other information on duration and volume: .

Surface flow is: **Discrete and confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
- ☐ Dye (or other) test performed: .

Tributary has (check all that apply):
- ☒ Bed and banks
- ☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☐ the presence of litter and debris
☒ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☒ vegetation matted down, bent, or absent	☐ sediment sorting
☒ leaf litter disturbed or washed away	☐ scour
☒ sediment deposition	☐ multiple observed or predicted flow events
☒ water staining	☐ abrupt change in plant community
☐ other (list):	

- ☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☒ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☒ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: No adverse water quality was observed.
Identify specific pollutants, if known: Non-point source pollutants possible.

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[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

☒ Riparian corridor. Characteristics (type, average width): Small forested area (less than 25 feet) on either side of Stream O.

☐ Wetland fringe. Characteristics: .

☐ Habitat for:

- ☐ Federally Listed species. Explain findings: .
- ☐ Fish/spawn areas. Explain findings: .
- ☐ Other environmentally-sensitive species. Explain findings: .
- ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain: .

Surface flow is: **Pick List**

Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain:Palustrine Forested.
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: Stream O (determined to be a Non-RPW with less than seasonal flow) drains to unnamed RPW with seasonal flow that drains to Mallard Creek (Perennial RPW) which drains to Rocky River (TNW). Stream O provides for storage and conveyance of flood waters from nearby roadways. Stream O also provides a means for the transferrence of nutrients and organic carbon to downstream foodwebs in Mallard Creek and the Rocky River.

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .

☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☒ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☒ Tributary waters: **125** linear feet **5** width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.

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[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: Attachment C - Figure 16.
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24000, Harrisburg, NC (1988).
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Soil Survey of Mecklenburg County, Sheet 5 of 13 .
☒ National wetlands inventory map(s). Cite name: Harrisburg, NC.
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Mecklenburg County GIS Aerial (2007) Attachment C - Figure 16.
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: The boundaries of potential jurisdictional waters of the U.S. Stream O (Attachment C - Figure 16) were delineated and surveyed using a Trimble GeoXT hand-held GPS unit capable of sub-meter accuracy. Stream O was determined to be a non-RPW with less than seasonal flow and is likely strongly influenced by stormwater. Stream O drains to unnamed RPW with seasonal flow that drains to Mallard Creek (Perennial RPW), which is a tributary to Rocky River (TNW).

Attachment G – Representative Photographs

LYNX Blue Line Extension
Site Photographs

Photograph 1. View of Stream C, near North Brevard Street and Belmont Avenue.

Photograph 2. View of Stream D, adjacent to the railroad right-of-way.

Photograph 3. View of Little Sugar Creek (Perennial Stream F), near North Brevard Street and East 28th Street.

Photograph 4. View of Little Sugar Creek (Perennial Stream F), south of North Brevard Street.

LYNX Blue Line Extension
Site Photographs

Photograph 5. View of Stream J, near East 30th Street.

Photograph 6. View of Stream N discharge point to Wetland Y.

Photograph 7. View of Stream A, at the end of Philemon Avenue.

Photograph 8. View of Stream A, looking north.

Photograph 9. View of Stream A, where it is parallel to North Davidson Street.

Photograph 10. Start of Stream B, behind a house on Bearwood Avenue.

LYNX Blue Line Extension
Site Photographs

Photograph 11. View of Stream B, adjacent to the railroad right-of-way.

Photograph 12. View of Stream P, behind Raleigh Street industrial property.

Photograph 13. View of the stormwater ditch discharging to Stream Z, on the northwest side of the railroad right-of-way.

Photograph 14. View of Stream Z, on the southeast side of the railroad right-of-way.

Photograph 15. View of the proposed Old Concord Station Road park-and-ride lot and Stream E, hidden in the field of kudzu.

Photograph 16. View of Toby Creek (Perennial Stream U) at the UNC Charlotte campus.

Photograph 17. View of Mallard Creek (Perennial Stream M), near Mallard Creek Church Road.

Photograph 18. View of Mallard Creek (Perennial Stream M), at the Mallard Creek Church Road crossing (looking west).

Photograph 19. View of Mallard Creek (Perennial Stream M), at the Mallard Creek Church Road crossing (looking east).

Photograph 20. View of Mallard Creek (Perennial Stream M), at the Mallard Creek Church Road crossing (looking north).

Photograph 21. View of the linear Wetland C, as it drains into the concrete flume to Stream D on the northwest side of the railroad right-of-way.

Photograph 22. View of the linear Wetland Y, behind the industrial facility on Cullman Avenue, on the north side of the railroad right-of-way.

Photograph 23. View of Wetland P in the backyard of a residential dwelling on the west side of the railroad right-of-way.

Photograph 24. View of Wetland O in a stormwater detention basin behind the Northpark Mall.

Photograph 25. View of Wetland O and the stormwater pipe discharging to this detention basin behind the Northpark Mall.

Photograph 26. View of Wetland E, a vernal pond located at the proposed Old Concord Station Road park-and-ride lot.

Photograph 27. View of Wetland T, near the UNC Charlotte campus and adjacent to Stream T.

Photograph 28. Another view of Wetland T, near the UNC Charlotte campus and adjacent to Stream T.

Photograph 29. View of Wetland W, near Mallard Creek Church Road and adjacent to Stream T.

Photograph 30. View of Wetland W, near Mallard Creek Church Road, behind the Alexander Glen Drive townhouses.