



ATLAS

Data and Document Standards

Abstract

This document outlines Data Standards that were developed by the ATLAS team for better management, sharing and integration of data across the many subject areas

Version 1.9

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Section 1 Versioning

The ATLAS Data and Document Standards is a living document that is updated regularly. Any versions of this document found offline are not to be considered current.

Please visit the following SharePoint [location](#) for the latest version.

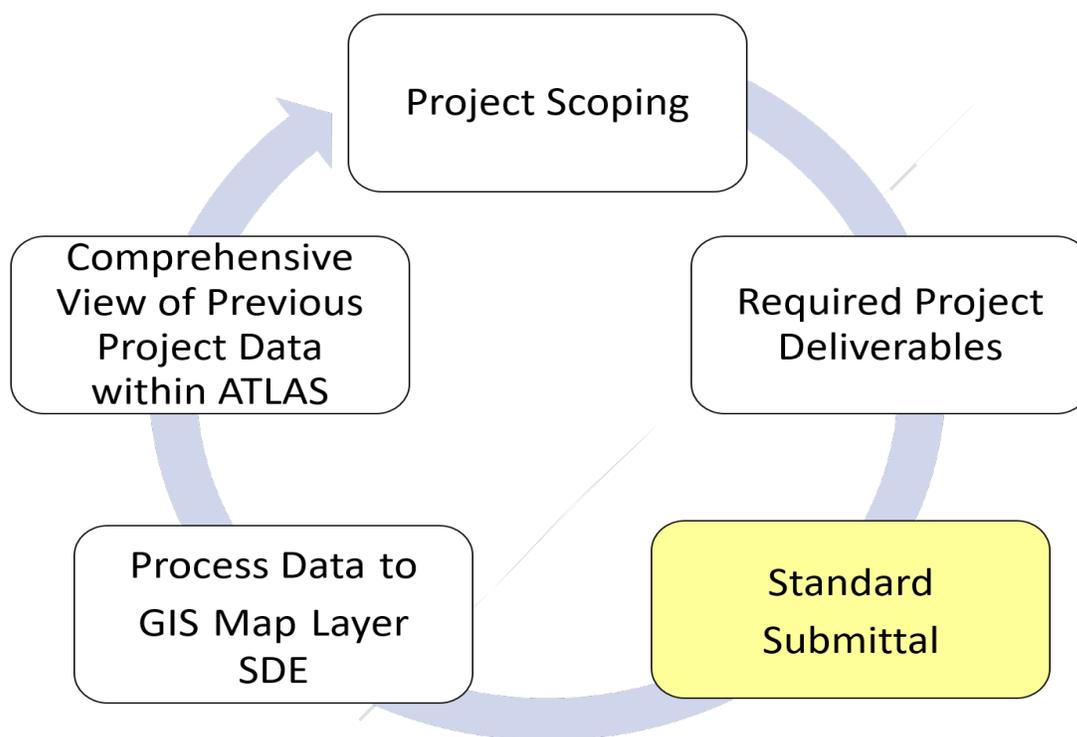
Please contact ATLAS@ncdot.gov for any questions.

Version	Date	Action	Performed by
1.0	March 2019	Working Copy	ATLAS BA
1.1	June 2019	Working Copy	ATLAS BA
1.2	September 2019	Updated document and spatial data standards	ATLAS Team
1.3	September 2019	Moved documents from Historic Architecture and Archaeology section to the Project Management section.	ATLAS Team
1.4, 1.5, 1.6	October to December 2019	Changes to reflect updates to the ATLAS Workbench based on meetings with SMEs	ATLAS Team
1.7	January 2020	Changes to reflect Complete Streets documentation for preconstruction	ATLAS Team
1.8	February 2020	Updates to change Municipal Agreement section to the LGA Coordination section and other related updates. Updated Public Involvement section.	ATLAS Team
1.9	March 2020	Updates to GIS files in the NRTR and PM sections; added project shelving document	ATLAS Team

Section 2 Introduction

Project ATLAS has documented numerous workflows for various disciplines (subject areas) for which data is produced for NCDOT. This document outlines Data Standards that were developed by the ATLAS team for better management, sharing and integration of data across the many subject areas.

Each subject area generates a variety of data (documents and geospatial data), many of which are required to be delivered to NCDOT during, or upon completion, of a project. Basic data standards are being outlined in this document and all reports and geospatial data that are uploaded to the NCDOT SharePoint platform are expected to adhere to these standards. These standards will ensure that spatial data received by NCDOT can be incorporated into tools developed by NCDOT.



Project ATLAS has identified, that data being created and submitted to NCDOT can be divided into several different subject areas. These are noted below:

- Scoping Feasibility
- Preconstruction Scoping
- Public & Local Involvement
- Municipal Agreements
- Merger
- Survey & Photogrammetry
- CCR – Community Characteristics Report
- Traffic
- T&E – Threatened & Endangered Species
- NRTR – Natural Resources Technical Report
- Air Quality



- Traffic Noise Analysis
- Historical Architecture
- Archaeology
- Geo-Environmental
- Permitting
- Community Impacts Assessment
- Hydraulics
- ICI – Indirect & Cumulative Effects / Impacts
- Roadways
- Utilities
- Right of Way
- Bicycle & Pedestrian
- Value Engineering
- Project Management

The data created under these subject areas can be broadly categorized into two types:

1. Documents (non-geospatial data that would include report documents).
2. Geospatial Data (GIS/CAD data that are field collected and/or created using GIS/CAD software).



Section 3 Overall Document Standards

Only final version of documents shall be uploaded to the SharePoint via the ATLAS Workbench.

Deliverable documents shall be named in the general format:

ProjectID_ReportName.pdf

- ProjectID is usually the Project Number (e.g.: U-5711, 17BP.1.R.84, B-5606, 44833)
- Report Name is a short name for the report depending on the Subject Area the document is created for.
- Periods, Dash and Underscores are allowed in creating a name. No spaces or other special characters are allowed.

E.g.: A CCR Report for Project Number U-5711 is named:
U-5711_CCR.pdf

E.g.: A Traffic Forecast Report for Project Number 17BP.1.R.84 is named:
17BP.1.R.84_TrafficForecast.pdf

E.g.: A LUSA report for Project 17BP.1.R.91 Chowan, 3 (B-5501) is named:
17BP.1.R.91_LUSA.pdf

- Each of the Subject Areas in [Section 7](#) lists the file names that **must** be used to upload documents to the ATLAS Workbench.
- Required Reports shall be submitted as a searchable, bookmarked PDF.

Over time new Reports may be introduced in any of the subject areas. These Reports shall be named in the manner described above. Contact ATLAS@ncdot.gov for adding new uploads to the list of Standards and Workbench tool.



Section 4 Overall Geospatial Data Standards

Geospatial data must meet the standards being outlined below. (These standards are in line with NCDOT's Geospatial Standards and Practices found at: <https://connect.ncdot.gov/resources/gis/Pages/GIS-Standards.aspx>)

A set of blank template shapefiles are available for download [here](#).

1. Spatial Reference –

All GIS Data shall be in the North American Datum 1983 (NAD83) Horizontal geodetic datum and referenced in the NC State Plane Coordinate System (NCSPC) and in the North American Vertical Datum of 1988 (NAVD88). Measurement units are in US Survey feet. The NCDOT's LRS is referenced to this common spatial reference.

Details –

Projected Coordinate System:

NAD_1983_StatePlane_North_Carolina_FIPS_3200_Feet

Projection:	Lambert_Conformal_Conic
False_Easting:	2000000.00261667
False_Northing:	0.00000000
Central_Meridian:	-79.00000000
Standard_Parallel_1:	34.33333333
Standard_Parallel_2:	36.16666667
Latitude_Of_Origin:	33.75000000
Linear Unit:	Foot_US

Geographic Coordinate System: GCS_North_American_1983

Datum: D_North_American_1983

Prime Meridian: Greenwich

Angular Unit: Degree

2. Accuracy Requirements –

All GIS data shall have a known spatial accuracy. Positional accuracy is a statement of how closely the location of a feature represents a true position on the ground. Attribute accuracy is the closeness of attribute values to their true values. A description of positional and attribute accuracy shall be included with the GIS data.

3. Supported Data Formats –

As a rule, all spatial data should be delivered as ESRI shapefiles. Exceptions are noted in the individual subject area sections. Shapefiles shall be submitted as individual zipped shapefiles. All Shapefiles shall include at a minimum a .shp, .shx, .dbf, .prj .

CAD files shall be submitted in .dgn format where required.



4. Metadata –

Template shapefiles downloaded from the SharePoint link (above) contain metadata. This metadata is compliant with the NCDOT Metadata Content Standard for Geospatial Data.

<https://xfer.services.ncdot.gov/gisdot/GISStandardsAndPractices/NCDOT%20GIS%20Metadata%20Content%20Standard.pdf>

Metadata is not required to be updated by the end user unless new fields are added to the shapefiles for upload to the Workbench.

5. General Naming Convention-

- Deliverable shapefiles shall be named in the general format:

ProjectID_ShapefileName.shp

- ProjectID is usually the Project Number (e.g.: U-5711, 17BP.1.R.84, B-5606, 44833)
- Shapefile Name is a short name for the Shapefile. No spaces are allowed in the name. Periods, Dash and Underscores are allowed. Each of the Subject Areas lists the file names that **must** be used to upload geospatial data to the ATLAS Workbench.
- DGN file naming will follow [NCDOT CADD Standards](#).
- Each Shapefile or DGN must be zipped up before upload to the Workbench in the general format:

ProjectID_ShapefileName.zip

- Each of the Subject Areas in [Section 7](#) lists the file names that **must** be used to upload geospatial documents to the ATLAS Workbench.

Examples:

E.g.: A CCR DCIA shapefile for Project Number U-5711 is named:
U-5711_ccrDCIA.zip &
U-5711_ccrDCIA.shp

E.g.: A Traffic Forecast Project Limit Shapefile for Project Number 17BP.1.R.84 is named:
17BP.1.R.84_ProjectLimit.zip &
17BP.1.R.84_ProjectLimit.shp

E.g.: A Traffic Noise Monitoring Sites shapefile for Project 17BP.1.R.91 Chowan 3 (B-5501) is named:
17BP.1.R.91_MonitoringSites.zip &
17BP.1.R.91_MonitoringSites.shp

Over time new geospatial data may be introduced in any of the subject areas. These data files shall be named in the manner described above. Contact ATLAS@ncdot.gov for adding new uploads to the list of Standards and Workbench tool.



Section 5 ATLAS fields

Every shapefile (including shapefiles being created under the subject areas) shall contain the four fields outlined in the table below. These tables will help ensure spatial data received by NCDOT can be incorporated into tools being developed by ATLAS. Every shapefile uploaded to SharePoint using ATLAS tools shall at a minimum contain the four ATLAS fields (highlighted in grey below). Shapefile specific fields follow these eight fields.

In the table below:

Field Name – This is the name of the shapefile field. Shapefile field names must be limited to 10 characters. No underscores are allowed, and field names must be in CamelCase. Do ensure that the names of fields are spelled exactly as in the table below. Please see Section 6 for specific fields that are added to shapefiles by Subject Area.

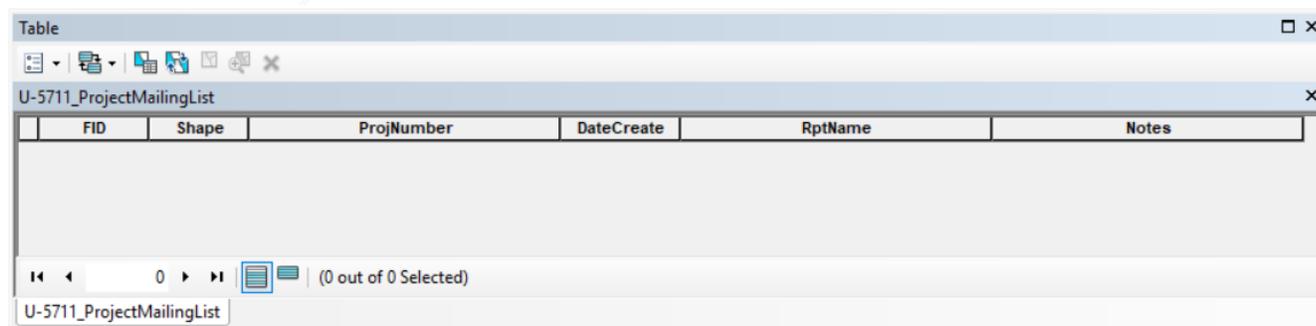
R/NR- This field specifies if the particular field is Required or Not Required to be populated by the creator of the shapefile. The required fields are: ProjNumber, DateCreate, RptName. The Notes field refers to any other (miscellaneous) data that needs to be included with the shapefile. This is not a required field to populate.

Type & Length – These are the field specifications for the field.

Description – This is a brief description of the field.

Field Name	R/NR for creator	Type	Length	Description
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile
Notes	NR	Text	254	User notes

Screenshot of blank Shapefile





Section 6 Project Study Area

The Project Study Area is the shapefile created in the Environmental Documents (EIS, EA etc.). A shapefile shall be created for this using the specification underlined in the table below. The shapefile shall be named as

ProjectID_ProjectStudyArea.shp

Project Study Area

Delivery format: Zipped Shapefile

Feature Type: Polygon

Format: Shapefile

File Name Example: U-5777_ProjectStudyArea.shp

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile Example: U-5777_EA.pdf
Notes	NR	Text	254	User notes

Refer section 7.25 for more details.



Section 7 Data Standards by Subject Areas

7.1 Scoping Feasibility

A. Document Standards-

A.1 Output Files:

The following documents are required and are submitted through the scoping site (not the Preconstruction site). Link to scoping site <https://connect.ncdot.gov/site/scoping/default.aspx>

	Output Report	Required?	File Name for upload
1.	Complete Streets Project Sheet	Yes	xxxxx_CompleteStreets.pdf
2.	Pre-Scoping Report	Yes	xxxxx_PreScopingReport.pdf
3.	Final Design Map	Yes	xxxxx_FinalDesignMap.pdf
4.	Plan Sheet	Yes	xxxxx_PlanSheet.pdf

* xxxxx is the ProjectID

B. GIS Data Standards-

B.1 Output Files: The following files were identified as deliverables for the Feasibility process:

	Spatial Data Content	Feature Type(s)	Required?	File Name for upload
1.	Proposed Design	Point, Line, Polygon (DGN)	Yes	xxxxx_ProposedDesign.ZIP
2.	Profiles	Point, Line, Polygon(DGN)	Yes	xxxxx_Profiles.ZIP
3.	Proposed Right-of-Way	Point, Line, Polygon(DGN) + Polygon Shapefile	Yes	xxxxx_ProposedROWdgn.ZIP xxxxx_ProposedROW.ZIP
4.	Temporary Slope Stakes	Point, Line, Polygon(DGN)	Yes	xxxxx_TempSlopeStakes.ZIP
5.	Typical Sections	Point, Line, Polygon(DGN)	Yes	xxxxx_TypicalSections.ZIP
6.	Cross Sections	Point, Line, Polygon(DGN)	Yes	xxxxx_CrossSections.ZIP
7.	Alignment	Polyline Shapefile	Yes	xxxxx_Alignment.ZIP



B.2 Spatial Data Specifications:

Most Feasibility deliverables are in CADD (MicroStation DGN) format. Files must conform to [NCDOT CADD Standards](#). DGN files must be zipped up for submittal on the ATLAS Workbench.

B.2.1 ROW polygon

Special Instruction: To be converted to a closed polygon.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile
Notes	NR	Text	254	User notes

B.2.2 Alignment

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile
Notes	NR	Text	254	User notes



7.2 Preconstruction Scoping

A. Document Standards-

A.1 Output Files:

The following documents are required and are submitted through the preconstruction site (not the Scoping site). Link to Preconstruction site <https://connect.ncdot.gov/site/preconstruction/default.aspx>

	Output Report	Required?	File Name for upload
1.	Scoping Report	Yes	xxxxx_ScopingReport.pdf
2.	Screening Report	Yes	xxxxx_ScreeningReport.pdf
3.	Notice to Proceed (NTP)	Yes	xxxxx_NTP.pdf

B. GIS Data Standards-

No GIS data uploads have been identified as part of Preconstruction Scoping.



7.3 Public Involvement

A.1 Output Files: The document(s) listed below are some of the reports generated as part of public and local involvement process.

	Output Report	Required?	File Name for upload
1.	Public Involvement Plan	Yes, if applicable	xxxxx_PublicInvolvementPlan.pdf
2.	Local Official Informational Invitation Letter	Yes, if applicable	xxxxx.LOI.pdf
Public Involvement Event 1 <i>*If there are multiples of any of the following, upload a combined PDF or included multiple files in zip folder.</i>			
3.	Mailing List(s)	Yes, if applicable	xxxxx_MailingList1.xlsx
4.	Postcard(s) (Standard)	Yes, if applicable	xxxxx_Postcard1.pdf
5.	Postcard(s) (Every Door Direct Mailer)	Yes, if applicable	xxxxx_EDDMPostcard1.pdf
6.	Door Hanger(s)	Yes, if applicable	xxxxx_DoorHanger1.pdf
7.	Newsletter(s)	Yes, if applicable	xxxxx_Newsletter1.pdf
8.	Handout(s)	Yes, if applicable	xxxxx_Handout1.pdf
9.	Presentation(s)	Yes, if applicable	xxxxx_Presentation1.pdf
10.	Display(s)	Yes, if applicable	xxxxx_Display1.pdf
11.	Map(s)	Yes, if applicable	xxxxx_Map1.pdf
12.	Visualization(s)	Yes, if applicable	xxxxx_Visualization1.zip
13.	Sign in Sheet(s)	Yes, if applicable	xxxxx_SignInSheet1.pdf
14.	Event Summary	Yes, if applicable	xxxxx_EventSummary1.pdf
15.	Transcript	Yes, if applicable	xxxxx_Transcript1.pdf
16.	Final Materials Package <i>The event's materials package should include final versions of any communications or documentation created for event, including but not limited to: any postcards, newsletters, public notices, handouts, visualizations, PowerPoint, and sign-in sheets.</i>	Yes, if applicable	xxxxx_FinalMaterialsPackage1.zip
Public Involvement Event 2 <i>*If there are multiples of any of the following, upload a combined PDF or included multiple files in zip folder.</i>			



17.	Mailing List	Yes, if applicable	xxxxx_MailingList2.xlsx
18.	Postcard (Standard)	Yes, if applicable	xxxxx_Postcard2.pdf
19.	Postcard (Every Door Direct Mailer)	Yes, if applicable	xxxxx_EDDMPostcard2.pdf
20.	Door Hanger	Yes, if applicable	xxxxx_DoorHanger2.pdf
21.	Newsletter	Yes, if applicable	xxxxx_Newsletter2.pdf
22.	Handout	Yes, if applicable	xxxxx_Handout2.pdf
23.	Presentation	Yes, if applicable	xxxxx_Presentation2.pdf
24.	Display(s)	Yes, if applicable	xxxxx_Display2.pdf
25.	Map(s)	Yes, if applicable	xxxxx_Map2.pdf
26.	Visualization(s)	Yes, if applicable	xxxxx_Visualization2.zip
27.	Sign in Sheet(s)	Yes, if applicable	xxxxx_SignInSheet2.pdf
28.	Event Summary	Yes, if applicable	xxxxx_EventSummary2.pdf
29.	Transcript	Yes, if applicable	xxxxx_Transcript2.pdf
30.	Final Materials Package <i>The event's materials package should include final versions of any communications or documentation created for event, including but not limited to: any postcards, newsletters, public notices, handouts, visualizations, PowerPoint, and sign-in sheets.</i>	Yes, if applicable	xxxxx_FinalMaterialsPackage2.zip
Public Involvement Event 3 <i>*If there are multiples of any of the following, upload a combined PDF or included multiple files in zip folder..</i>			
31.	Mailing List	Yes, if applicable	xxxxx_MailingList3.xlsx
32.	Postcard (Standard)	Yes, if applicable	xxxxx_Postcard3.pdf
33.	Postcard (Every Door Direct Mailer)	Yes, if applicable	xxxxx_EDDMPostcard3.pdf
34.	Door Hanger	Yes, if applicable	xxxxx_DoorHanger3.pdf
35.	Newsletter	Yes, if applicable	xxxxx_Newsletter3.pdf
36.	Handout	Yes, if applicable	xxxxx_Handout3.pdf
37.	Presentation	Yes, if applicable	xxxxx_Presentation3.pdf
38.	Display(s)	Yes, if applicable	xxxxx_Display3.pdf



39.	Map(s)	Yes, if applicable	xxxxx_Map3.pdf
40.	Visualization(s)	Yes, if applicable	xxxxx_Visualization3.zip
41.	Sign in Sheet(s)	Yes, if applicable	xxxxx_SignInSheet3.pdf
42.	Event Summary	Yes, if applicable	xxxxx_EventSummary3.pdf
43.	Transcript	Yes, if applicable	xxxxx_Transcript3.pdf
44.	Final Materials Package <i>The event's materials package should include final versions of any communications or documentation created for event, including but not limited to: any postcards, newsletters, public notices, handouts, visualizations, PowerPoint, and sign-in sheets.</i>	Yes, if applicable	xxxxx_FinalMaterialsPackage3.zip
Public Involvement Event 4 <i>*If there are multiples of any of the following, upload a combined PDF or included multiple files in zip folder.</i>			
45.	Mailing List	Yes, if applicable	xxxxx_MailingList4.xlsx
46.	Postcard (Standard)	Yes, if applicable	xxxxx_Postcard4.pdf
47.	Postcard (Every Door Direct Mailer)	Yes, if applicable	xxxxx_EDDMPostcard4.pdf
48.	Door Hanger	Yes, if applicable	xxxxx_DoorHanger4.pdf
49.	Newsletter	Yes, if applicable	xxxxx_Newsletter4.pdf
50.	Handout	Yes, if applicable	xxxxx_Handout4.pdf
51.	Presentation	Yes, if applicable	xxxxx_Presentation4.pdf
52.	Display(s)	Yes, if applicable	xxxxx_Display4.pdf
53.	Map(s)	Yes, if applicable	xxxxx_Map4.pdf
54.	Visualization(s)	Yes, if applicable	xxxxx_Visualization4.zip
55.	Sign in Sheet(s)	Yes, if applicable	xxxxx_SignInSheet4.pdf
56.	Event Summary	Yes, if applicable	xxxxx_EventSummary4.pdf
57.	Transcript	Yes, if applicable	xxxxx_Transcript4.pdf
58.	Final Materials Package <i>The event's materials package should include final versions of any communications or documentation created for event, including but not limited to: any postcards, newsletters, public notices, handouts,</i>	Yes, if applicable	xxxxx_FinalMaterialsPackage4.zip



	<i>visualizations, PowerPoint, and sign-in sheets.</i>		
Public Involvement Event 5 <i>*If there are multiples of any of the following, upload a combined PDF or included multiple files in zip folder.</i>			
59.	Mailing List	Yes, if applicable	xxxxx_MailingList5.xlsx
60.	Postcard (Standard)	Yes, if applicable	xxxxx_Postcard5.pdf
61.	Postcard (Every Door Direct Mailer)	Yes, if applicable	xxxxx_EDDMPostcard5.pdf
62.	Door Hanger	Yes, if applicable	xxxxx_DoorHanger5.pdf
63.	Newsletter	Yes, if applicable	xxxxx_Newsletter5.pdf
64.	Handout	Yes, if applicable	xxxxx_Handout5.pdf
65.	Presentation	Yes, if applicable	xxxxx_Presentation5.pdf
66.	Display(s)	Yes, if applicable	xxxxx_Display5.pdf
67.	Map(s)	Yes, if applicable	xxxxx_Map5.pdf
68.	Visualization(s)	Yes, if applicable	xxxxx_Visualization5.zip
69.	Sign in Sheet(s)	Yes, if applicable	xxxxx_SignInSheet5.pdf
70.	Event Summary	Yes, if applicable	xxxxx_EventSummary5.pdf
71.	Transcript	Yes, if applicable	xxxxx_Transcript5.pdf
72.	Final Materials Package <i>The event's materials package should include final versions of any communications or documentation created for event, including but not limited to: any postcards, newsletters, public notices, handouts, visualizations, PowerPoint, and sign-in sheets.</i>	Yes, if applicable	xxxxx_FinalMaterialsPackage5.zip

A. GIS Data Standards-

B.1 Output Files: The file(s) listed below are some of the GIS data that is created as part of the Public & Local Involvement workflow and are usually required submittals.

	Spatial Data Content	Feature Type(s)	Required?	File Name for upload
1.	Project Mailing List	Polygon	Yes, if applicable	xxxxx_ProjectMailingList.ZIP



B.2 Spatial Data Specifications: The following fields are required parts of the shapefile and must be populated (based on R/NR field). Shapefiles that are missing information may be rejected. Additional fields may be included, but they may not be recognized by NCDOT tools.

B.2.1 Project Mailing List

Content: This boundary is used to generate a mailing list from county GIS records by the GIS Unit. When developing the mailing list boundary, it is important to take into context the project study area. Close attention is paid to developments (i.e. residential, commercial, and/or industrial parks) adjacent to a proposed project to capture the entire development. While all the properties/businesses may not be directly impacted, they will be indirectly, due to construction activities.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile.
Notes	NR	Text	254	Feature specific notes
MailDescr	R	Text	254	What public involvement event/mailing is this polygon associated with?



7.4 LGA Coordination

A. Document Standards-

A.1 Output Files:

The following documents are required reports generated as part of Local Government Agency (LGA) Coordination and Municipal Agreements workflow.

	Output Report	Required?	File Name for upload
1.	Initial LGA Coordination Table	Yes, if applicable	xxxxx_InitialLGATable.xlsx
2.	Final LGA Coordination Table	Yes, if applicable	xxxxx_FinalLGATable.xlsx
3.	LGA Commitment Document(s) <i>(If commitments are received from multiple stakeholders, then upload a combined PDF with all commitments included.)</i>	Yes, if applicable	xxxxx_LGACommitment.pdf
4.	Executed Municipal Agreement(s) <i>(If there are multiple Municipal Agreements, then upload a combined PDF with all Executed Municipal Agreements included.)</i>	Yes, if applicable	xxxxx_ExecutedMunicipalAgreement.pdf

B. GIS Data Standards-

No GIS data uploads have been identified as part of Municipal Agreements.



7.5 Merger

A. Document Standards-

A.1 Output Files:

The following documents are required reports generated as part of Merger workflow.

	Output Report	Required?	File Name for upload
1.	Merger Screening Meeting Minutes	Yes, if applicable	xxxxx_MergerScreeningMeetingMinutes.pdf
2.	Concurrence Point 1	Yes, if applicable	xxxx_CP1.pdf
3.	Concurrence Point 2	Yes, if applicable	xxxx_CP2.pdf
4.	Concurrence Point 2A	Yes, if applicable	xxxx_CP2A.pdf
5.	Concurrence Point 3	Yes, if applicable	xxxx_CP3.pdf
6.	Concurrence Point 4A	Yes, if applicable	xxxx_CP4A.pdf
7.	Concurrence Point 4B	Yes, if applicable	xxxx_CP4B.pdf
8.	Concurrence Point 4C	Yes, if applicable	xxxx_CP4C.pdf

B. GIS Data Standards-

No GIS data uploads have been identified as part of Merger.



7.6 Survey & Photogrammetry

A. Document Standards-

No documents have been identified as part of the Survey & Photogrammetry workflow.

B. GIS Data Standards-

B.1 Output Files: The file(s) listed below are some of the GIS data that is created as part of the Survey & Photogrammetry workflow and are usually required submittals.

	Spatial Data Content	Feature Type (s)	Required?	File Name for upload
1.	Limits of Survey	Polygon	Yes	xxxxx_LimitsofSurvey.ZIP

B.2 Spatial Data Specifications:

The file(s) listed below are some of the GIS data that is created as part of the Survey & Photogrammetry workflow and are usually required submittals.

B.2.1 Limits of Survey

Content: Project study area for Survey

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: No Report Associated</i>
Notes	NR	Text	254	User notes



7.7 CCR – Community Characteristics Report

A. Document Standards-

A.1 Output Files: The document(s) listed below are some of the reports generated as part of CCR / CIA workflow.

	Output Report	Required?	File Name for upload
1.	Community Characteristics Report	Yes	xxxxx_CCR.pdf

B. GIS Data Standards-

B.1 Output Files: The file(s) listed below are some of the GIS data that is created as part of the CCR / CIA workflow and are usually required submittals.

	Spatial Data Content	Feature Type (s)	Required?	File Name for upload
1.	Direct Community Impact Area (DCIA)	Polygon	Yes	xxxxx_ccrDCIA.ZIP
2.	Demographic Study Area Boundary (DSA)	Polygon	Yes	xxxxx_ccrDSA.ZIP

B.2 Spatial Data Specifications: The following fields are required parts of the shapefile and must be populated (based on R/NR field). Shapefiles that are missing information may be rejected. Additional fields may be included, but they may not be recognized by NCDOT tools.

B.2.1 Direct Community Impact Area

Content: Delineated area to be assessed for direct impacts

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile. Example: U-5711_CCR.pdf
Notes	NR	Text	254	Feature specific notes



B.2.2 Demographic Study Area

Content: Delineated based on the extents of the DCIA and represents all Block Groups that overlap with the DCIA and contain the population group for which demographic data will be analyzed.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile. Example: U-5711_CCR.pdf
Notes	NR	Text	254	Feature specific notes



7.8 Traffic

A. Document Standards-

A.1 Output Files: The document(s) listed below are some of the reports generated as part of Traffic workflow.

	Output Report	Required?	File Name for upload
1.	Project Level Traffic Forecast Report	Yes	xxxxx_TrafficForecastReport.pdf
2.	Capacity Analysis Report	Yes	xxxxx_CapacityAnalysisReport.pdf

B. GIS Data Standards-

B.1 Output Files: The file(s) listed below are some of the GIS data that is created as part of Traffic workflow and are usually required submittals.

	Spatial Data Content	Feature Type(s)	Required?	File Name for upload
1.	Project Limit	Polyline	Yes	xxxxx_ProjectLimit.ZIP

B.2 Spatial Data Specifications: The following fields are required parts of the shapefile and must be populated (based on R/NR field). Shapefiles that are missing information may be rejected. Additional fields may be included, but they may not be recognized by NCDOT tools.

B.2.1 Project Limit

Content: Project limit line for Traffic Forecasting

Specific Instruction: Output geometry must match LRS at ncdot.maps.arcgis.com (traffic forecasting data)

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile. Example: U-5711_TrafficForecastReport.pdf
Notes	NR	Text	254	Feature specific notes
BaseYr	R	Long		The base year of the traffic forecast. This is the present year when the data was collected.



HorizonYr	R	Long		The horizon year of the traffic forecast. This is often 20 to 25 years into the future but can vary.
Status	R	Text	50	Indicates whether the traffic forecast is in progress or completed. Traffic forecasts are considered completed once they have been accepted as ready to use by the state traffic engineer. Refer here for values
CreatedBy	R	Text	50	Indicates whether the traffic forecast was created by NCDOT or a private consulting engineering firm. The name of the company or NCDOT division employing the traffic engineer is stated here.
DueDate	R	Date		When NCDOT expected the forecast to be finished, based on the typical amount of time needed to count traffic and calculate future traffic based on land use plans and existing traffic.
DeliveryDt	R	Date		When the forecast was completed and accepted by NCDOT staff.



7.9 T&E – Threatened & Endangered Species

A. Document Standards-

A.1 Output Files: The following key documents were identified as part of the Threatened & Endangered Species workflow. Some of these documents contain spatial components.

	Output Report	Secure?	Required?	File Name for upload
1.	Aquatic Survey Report	Yes	Yes, If applicable	xxxxx_AquaticSurveyReport.pdf
2.	Aquatic Data Sheet	Yes	Yes, If applicable	xxxxx_AquaticDataSheet.pdf
3.	Bat Habitat Assessment Form	Yes	Yes, If applicable	xxxxx_BatHabitatAssessment.pdf
4.	Red-cockaded woodpecker (RCW) Survey Report	Yes	Yes, If applicable	xxxxx_RCWSurveyReport.pdf
5.	Other species survey report(s)	Yes	Yes, If applicable	xxxxx_OtherSpeciesSurvey.pdf
6.	Biological Assessment		Yes, If applicable	xxxxx_BA.pdf
7.	Biological Opinion		Yes, If applicable	xxxxx_BO.pdf
8.	Biological Evaluation		Yes, If applicable	xxxxx_BE.pdf

B. GIS Data Standards

B.1 Output Files: The following files were identified as deliverables for the Threatened & Endangered Species workflow:

	Spatial Data Content	Feature Type(s)	Secure?	Required?	File Name for upload
1.	Aquatic Survey Start and End points	Point		Yes	xxxxx_AquaticSurveyLocation.ZIP
2.	Aquatic Survey Reach	Polyline		Yes	xxxxx_AquaticSurveyReach.ZIP
3.	RCW Study Area	Polygon	Yes	Yes, if survey done	xxxxx_RCWStudyArea.ZIP
4.	Protected Species Point	Point	Yes	Yes, if applicable	xxxxx_ProtectedSpeciesPoint.ZIP
5.	Protected Species Polygon	Polygon	Yes	Yes, if applicable	xxxxx_ProtectedSpeciesPolygon.ZIP
6.	Bats - Bridges	Point	Yes	Yes, if survey done	xxxxx_BatBridges.ZIP
7.	Bats - Culverts	Point	Yes	Yes, if survey done	xxxxx_BatCulverts.ZIP
8.	Bats - Abandoned Structures	Point	Yes	Yes, if survey done	xxxxx_BatAbandonedStructures.ZIP
9.	Bats – Caves & Mines	Point	Yes	Yes, if survey done	xxxxx_BatCavesMines.ZIP
10.	Bats – Other	Point	Yes	Yes, if survey done	xxxxx_BatOther.ZIP



B.2 Spatial Data Specifications:

The following fields are required and must be populated (with two exceptions as noted below). Shapefiles that are missing information may be rejected. Additional fields may be included, but they may not be recognized by NCDOT tools.

B.2.1 Aquatic Survey Location

Content: Survey Location

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User Defined Notes

B.2.2 Aquatic Survey Reach

Content: Survey reach along linear water feature

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User Defined Notes

B.2.3 RCW Study Area

Content: RCW survey area

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User Defined Notes



B.2.4 Protected Species Point

Content: Points of protected species locations. For full list of species see [here](#).

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User Defined Notes
ComName	R	Text	100	Species common name Refer here for values
SciName	R	Text	100	Species scientific name Refer here for values
SurveyDate	R	Date		Date Survey conducted for element occurrence
FirstObs	NR	Date		Date element occurrence was first observed
HabCom	NR	Text	254	Brief description of the known habitats in which an element is found.
PhysProv	NR	Text	254	Known physiographic provinces in which the element occurs. These should not be regarded as the only possible provinces and habitats of the species in the state; our knowledge of the flora and fauna of North Carolina is still imperfect. The physiographic province values are: M Mountains (Blue Ridge) = All parts of North Carolina west of the foot of the Blue Ridge Escarpment. Refer here for values
SurveySite	NR	Text	254	Description of Survey site
EOData	NR	Text	254	Elemental Occurrence data description
Surveyors	NR	Text	254	Names of surveyors
GenDesc	NR	Text	254	Any other general description

B.2.5 Protected Species Polygons

Content: Polygon area field collected with GPS or drawn from multiple protected species point locations. For full list of species see [here](#).



Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User Defined Notes
ComNam	R	Text	100	Species common name Refer here for values
SciNam	R	Text	100	Species scientific name Refer here for values
SurveyDate	R	Date		Date Survey conducted
FirstObs	NR	Date		Date species first observed
HabCom	NR	Text	254	Brief description of the known habitats in which an element is found.
PhysProv	NR	Text	254	Known physiographic provinces in which the element occurs. These should not be regarded as the only possible provinces and habitats of the species in the state; our knowledge of the flora and fauna of North Carolina is still imperfect. The physiographic province values are: M Mountains (Blue Ridge) = All parts of North Carolina west of the foot of the Blue Ridge Escarpment. Refer here for values
Acres	NR	Double		Area occupied by element occurrence.
SurveySite	NR	Text	254	Description of Survey site
EOData	NR	Text	254	Elemental Occurrence data description
Surveyors	NR	Text	254	Names of surveyors
GenDesc	NR	Text	254	Any other general description

B.2.6 Bat Bridges

Content: Field data collected during bat bridge surveys. (Attributes described below are taken from the NCDOT standard DDF file for GPS data collection.)

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint



DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User notes
Observers	R	Text	30	Names of field staff
ProjectNu	R	Text	30	Project number
CollDate	R	Date		Date of bridge habitat assessment
CollTime	R	Text	10	Time of bridge habitat assessment (format: hh:mm am/pm)
RoadName	R	Text	30	Road Name or SR Number
				County name
County	R	Text	60	Refer here for values
BridgeNum		Text	30	NCDOT bridge number
Waterbody		Text	50	Name of waterbody or road crossed by bridge
UrbanCo		Float		Approximate percent of urban or commercial area within 1 mile of the project footprint
Subburba		Float		Approximate percent of suburban or residential area within 1 mile of the project footprint
NaturalAr		Float		Percent Natural/Rural area w/in 1 mile of Project footprint
Agricult		Float		Approximate percent of cultivated or planted area within 1 mile of the project footprint
F3DBH		Text	60	Are there any trees >3" DBH (diameter at breast height) in the project footprint? Refer here for values
F5DBHHo		Text	60	Are there any shaggy trees/snag/hollow >5" DBH (diameter at breast height) within project footprint? Refer here for values
SunlightH		Text	60	If yes to shaggy trees/snag/hollows, how much sunlight do they receive during the day? Refer here for values
HabitatTr		Text	100	If yes to shaggy trees/snag/hollows, list species of habitat trees >5" DBH (diameter at breast height)
CavesProj		Text	60	Caves in project footprint Refer here for values
CavesVici		Text	60	Caves in vicinity (w/in 0.5 mile)



				Refer here for values
MinesProj		Text	60	Abandoned mines in project footprint Refer here for values
MinesVici		Text	60	Mines in vicinity (w/in 0.5 mi) Refer here for values
WaterProj		Text	60	Major water source in project footprint Refer here for values
SuitableD		Text	60	Presence of suitable drinking habitat in the form of non-stagnant, smooth or slack water areas. Refer here for values
GuardRail		Text	60	Type of guard rail Refer here for values
Deck		Text	60	Deck type Refer here for values
BeamType		Text	60	Beam type Refer here for values
EndorBac		Text	60	End/Back wall type Refer here for values
CresoteEv		Text	60	Creosote evidence Refer here for values
SHLVertic		Text	60	Shallow Vertical Top-Sealed Crevices (½” to 1 ¼” wide and 4-12” deep that have a seal across the top) Refer here for values
DPVertica		Text	60	Deep Vertical Unsealed Crevices (vertical crevices that are ½” to 1 ¼” wide and >12” deep that DO NOT have a seal across the top) Refer here for values
BridgeRoo		Float		Maximum height in feet of bridge deck above the ground or water that bats could use for roosting.
NightRoos		Text	60	Night Roost Habitat Protected? Refer here for values
BridgeAli		Text	60	Bridge Alignment (direction in which bridge is oriented) Refer here for values



				Hours of sun exposure to bridge
BridgeSun		Text	60	Refer here for values
				Human disturbance under the bridge
HumanDist		Text	60	Refer here for values
				Was an emergence count performed?
Emergence1		Text	60	Refer here for values
				Evidence of bats using bird/wasp nests?
BatsUsing		Text	60	Refer here for values
				Evidence of bats using bridge
BatsUsin2		Text	60	Refer here for values
				Bat species present in bridge
BatSpecie		Text	60	Refer here for values
				Additional bat species present in bridge (if more than one).
BatSpeci2		Text	60	Refer here for values
				Field notes, including description of the structure and where observers were placed for the emergence count.
Notes2		Text	100	

B.2.7 Bat Culverts

Content: Field data collected during bat culvert surveys.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User notes
Observers	R	Text	30	Names of field staff
ProjectNu	R	Text	30	Project number
CollDate	R	Date		Date of culverts habitat assessment
CollTime	R	Text	10	Time of culverts assessment (format: hh:mm am/pm)
RoadName	R	Text	30	Road Name or SR Number
				County
County	R	Text	60	Refer here for values



Structure		Text	30	Structure number assigned by field observer
Waterbody		Text	50	Name of waterbody that culvert is on
UrbanCo		Float		Approximate percent of urban or commercial area within 1 mile of the project footprint.
Surburba		Float		Approximate percent of suburban or residential land area within 1 mile of the project footprint
NaturalAr		Float		Percent Natural/Rural area w/in 1 mile of Project footprint
Agricult		Float		Approximate percent of cultivated or planted area within 1 mile of the project footprint
F3DBH		Text	60	Are there any trees >3" DBH (diameter at breast height) in the project footprint? Refer here for values
F5DBHHo		Text	60	Are there any shaggy trees/snag/hollow >5" DBH (diameter at breast height) within project footprint? Refer here for values
SunlightH		Text	60	If yes to shaggy trees/snag/hollows, how much sunlight do they receive during the day? Refer here for values
HabitatTr		Text	100	If yes to shaggy trees/snag/hollows, list species of habitat trees >5" DBH (diameter at breast height) Refer here for values
CavesProj		Text	60	Caves in project footprint Refer here for values
CavesVici		Text	60	Caves in vicinity (w/in 0.5 mile) Refer here for values
MinesProj		Text	60	Abandoned mines in project footprint Refer here for values
MinesVici		Text	60	Abandoned mines in vicinity (w/in 0.5 mi) Refer here for values
WaterProj		Text	60	Major water source in project footprint Refer here for values

				Presence of suitable drinking habitat in the form of non-stagnant, smooth or slack water areas
SuitableD		Text	60	Refer here for values
GuardRail		Text	60	Type of guard rail Refer here for values
ConcreteB		Text	60	Is this a concrete box culvert? Refer here for values
Culvert5		Text	60	Is height inside culvert > 5 feet? Refer here for values
CulvertLe		Float		Length in feet of culvert from shoulder to shoulder under roadway
Protected		Text	60	Are openings protected from high winds? Refer here for values
Crevices		Text	60	Presence of crevices 0.5" to 1.25" wide within culvert for bats to roost Refer here for values
RoughSurf		Text	60	Presence of rough surfaces, imperfections, or bird nests Refer here for values
HumanDist		Text	60	Human disturbance and traffic under the culvert Refer here for values
Emergence1		Text	60	Was an emergence count performed? Refer here for values
BatsUsing		Text	60	Evidence of bats using bird/wasp nests? Refer here for values
BatsUsin2		Text	60	Evidence of bats using culverts. Refer here for values
BatSpecie		Text	60	Bat species present in culvert Refer here for values
BatSpeci2		Text	60	Additional bat species present in culvert (if more than one). Refer here for values
Notes2		Text		Field notes, including description of the structure and where observers were placed for the emergence count.



B.2.8 Bat Abandoned Structures

Content: Field data collected during bat abandoned structures survey.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User notes
Observers	R	Text	30	Names of field staff
ProjectNu	R	Text	30	Project number
CollDate	R	Date		Date of abandoned structure habitat assessment
CollTime	R	Text	10	Time of abandoned structure habitat assessment (format: hh:mm am/pm)
RoadName	R	Text	30	Road Name or SR Number
				County
County	R	Text	60	Refer here for values
PropertyO		Text	50	Property Owner
Structure		Text	30	Structure number assigned by field observer
				Percent closed canopy cover at structure
CanopyCov		Text	60	Refer here for values
UrbanCo		Float		Approximate percent of urban or commercial area within 1 mile of the project footprint
Suburba		Float		Approximate percent of suburban or residential area within 1 mile of the project footprint
NaturalAr		Float		Percent Natural/Rural area w/in 1 mile of Project footprint
Agricult		Float		Approximate percent of cultivated or planted area within 1 mile of the project footprint
Distancet		Text	60	Distance to nearest woodlot Refer here for values
WaterSour		Text	60	The major water source within 1 mile.
Structure2		Text	60	Structure type
Structure3		Text	60	Structure condition

RoofType		Text	60	Roof type
Structure4		Text	100	Structure description. Include information such as the location of the bats and signs of use.
HumanDist		Text	60	Regular human use or disturbance? Refer here for values
Structure5		Long		Structure length in feet
Structure6		Long		Structure width in feet
Structure7		Long		Structure height in feet
GuanoStai		Text	60	Exterior evidence of bat use (guano or urine staining) on structure Refer here for values
DescribeB		Text	100	If evidence of bat use, describe what and where.
InteriorA		Text	60	Noticeable airflow inside Refer here for values
Interior2		Text	60	Interior air temperature vs outside air temperature
Inaccessib		Text	50	Description of inaccessible areas of the structure that could house bats (e.g. attics, ceiling spaces).
DescibeBa		Text	50	Description of evidence of bats roosting in the structure (guano, urine staining, piles of insect parts).
BatSpecie		Text	60	Bat species present Refer here for values
BatSpeci2		Text	60	Bat species present (if more than one) Refer here for values
Emergence1		Long		Temperature (degrees Fahrenheit) at start of emergence count
Emergence2		Text	30	Time at start of emergence count (format: hh:mm am/pm)
Emergence3		Text	30	Time of sunset (format: hh:mm am/pm)
Emergence4		Text	30	Time at end of emergence count (format: hh:mm am/pm)
Emergence5		Long		Number of bats leaving structure
BatsppEm		Text	60	Bat species emerging Refer here for values
Emergence		Text	50	Place on structure from which bats exited the structure
Notes2		Text	100	Field notes, including description of the structure and where observers were placed for the emergence count.



B.2.9 Bat Caves & Mines

Content: Field data collected during bat cave and mine surveys.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User notes
Observers	R	Text	30	Names of field staff
ProjectNu	R	Text	30	Project number
CollDate	R	Date		Date of caves/mines habitat assessment
CollTime	R	Text	10	Time of caves/mines assessment (format: hh:mm am/pm)
RoadName	R	Text	30	Road Name or SR Number
				County
County	R	Text	60	Refer here for values
PortalNum		Text	30	Entrance/Portal Number. This is a number created to represent the entrance to the cave or mine portal. Typically starts with 1.
CanopyCov		Text	60	Percent canopy closure at entrance of cave or mine (approximate). Refer here for values
OpeningTy		Text	60	Opening type Refer here for values
OpeningHe		Float		Opening height in feet
OpeningWi		Float		Opening width in feet
Lengthof		Long		Length of Portal/Opening in feet
InternalH		Float		Internal height in feet
InternalW		Float		Internal width in feet
Slope		Text	60	Slope up or down from entrance Refer here for values
EntranceS		Text	60	Is entrance stable? Refer here for values
Direction		Text	60	Direction of airflow Refer here for values



				Amount of airflow
Amountof		Text	60	Refer here for values
				Internal air temperature relative to outside temperature.
Airwarmer		Text	60	Refer here for values
				Evidence of collapse
Evidenceo		Text	60	Refer here for values
				Ceiling condition. Captures the overall "texture" inside the cave or mine. For instance, are the walls and ceiling generally smooth, or are there lots of cracks, and crevices. Are the walls/ceiling crumbling? Loose rock inside?
CeilingCo		Text	30	
				Depth of water observed in the opening, in inches
DepthofW		Float		
				Is there evidence of past flooding?
PastFlood		Text	60	Refer here for values
				Distance to nearest water source in miles
Distancet		Float		
				Foraging signs (evidence of bats). For example, insect wings, legs, etc.
ForagingS		Text	50	
				List any portals which are known to be connected.
PortalCon		Text	100	
				Other passages that were noticed in the cave or mine.
SidePassa		Text	100	
				Bat species present
BatSpecie		Text	60	Refer here for values
				Bat species present (if more than 1)
BatSpeci2		Text	60	Refer here for values
				Field notes, including description of the structure and where observers were placed for the emergence count.
Notes2		Text	100	

B.2.10 Bat - Other

Content: Other field data collected during bat surveys.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>



Notes	NR	Text	254	User notes
Comment	NR	Text	100	Comments



7.10 NRTR – Natural Resources Technical Report

A. Document Standards-

A.1 Output Files: The following key documents were identified as part of the Natural Resources workflow. Some of these documents contain spatial components.

	Output Report	Required?	File Name for upload
1.	Natural Resource Technical Report (NRTR)	Yes, if applicable	xxxxx_NRTR.pdf
2.	Land Owner Notification Letter	Yes, if applicable	xxxxx_LONL.pdf
3.	Land Owner mailing List	Yes, if applicable	xxxxx_LOML.pdf
4.	Preliminary Jurisdictional Determination Package	Yes, if applicable	xxxxx_PJDPackage.pdf
5.	Approved Jurisdictional Determination Package	Yes, if applicable	xxxxx_AJDPackage.pdf
6.	Preliminary Jurisdictional Form (Issued by USACE)	Yes, if applicable	xxxxx_PJD.pdf
7.	Approved Jurisdictional Form (Issued by USACE)	Yes, if applicable	xxxxx_AJD.pdf
8.	Addendum	No	xxxxx_Addendum.pdf

B. GIS Data Standards

B.1 Output Files: The following files were identified as deliverables for the NRTR process:

	Spatial Data Content	Feature Type(s)	Required?	File Name for upload
1.	Potential Jurisdictional Wetlands GIS (WEX, WET)	Polygon	Yes, if applicable	xxxxx_PotJurisWetlandsWEX.ZIP xxxxx_PotJurisWetlandsWET.ZIP
2.	Potential Jurisdictional Streams GIS (WEX, WET)	Polyline	Yes, if applicable	xxxxx_PotJurisStreamsWEX.ZIP xxxxx_PotJurisStreamsWET.ZIP
3.	Potential Surface Waters GIS (WEX, WET)	Polygon	Yes, if applicable	xxxxx_PotSurfaceWatersWEX.ZIP xxxxx_PotSurfaceWatersWET.ZIP
4.	Endangered Plant Boundary GIS	Polygon	Yes, if applicable	xxxxx_EPBSshapefile.zip
5.	Endangered Plant Boundary	DGN	Yes, if applicable	xxxxx_EPB.zip



6.	Corrected GPS files	COR files	No	xxxxx_GPSNRTR.ZIP
7.	WEX file*	DGN	Yes, if applicable	xxxxx_WEX.ZIP
8.	WET file*	DGN	Yes, if applicable	xxxxx_WET.ZIP

* NOTE: WEX and WET files will be delivered as CADD files (DGN format).

** NOTE: Although the corrected GPS (.cor) files are part of the NRTR package submitted to NCDOT, they are not used by ATLAS tools and are not addressed in this document. The data contained in these GPS files is captured in other wetlands shapefiles in this document.

B.2 Spatial Data Specifications:

The following fields are required and must be populated (with two exceptions as noted below). Shapefiles that are missing information may be rejected. Additional fields may be included, but they may not be recognized by NCDOT tools.

B.2.1 Potential Jurisdictional Wetlands WEX

Content: Wetland polygons created from wetland flags. These are the wetlands used for creating the WEX/WET files.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User Defined Notes
MapID	R	Text	20	ID used in the NRTR map
Type	R	Text	100	Classification (NCWAM) Refer here for values
Rating	R	Text	20	Rating (NCWAM) Refer here for values
HydroClass	R	Text	20	Hydrological classification Refer here for values
Cowardin	R	Text	20	Cowardin classification - Classification of Wetlands and Deepwater Habitats Refer here for values
AreaInSA	R	Double		Area (acres) within study area



B.2.2 Potential Jurisdictional Wetlands WET

Content: Wetland polygons created from wetland flags. These are the wetlands used for creating the WEX/WET files.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User Defined Notes
MapID	R	Text	20	ID used in the NRTR map
Type	R	Text	100	Classification (NCWAM) Refer here for values
Rating	R	Text	20	Rating (NCWAM) Refer here for values
HydroClass	R	Text	20	Hydrological classification Refer here for values
Cowardin	R	Text	20	Cowardin classification - Classification of Wetlands and Deepwater Habitats Refer here for values
AreaInSA	R	Double		Area (acres) within study area

B.2.3 Potential Jurisdictional Streams WEX

Content: Stream lines created from field delineations. These are the streams used for creating the WEX/WET files.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User Defined Notes
MapID	R	Text	20	ID used in the NRTR map
Type	R	Text	100	Classification (NCSAM) Refer here for values



Rating	R	Text	20	Rating (NCSAM) Refer here for values
HydroClass	R	Text	20	Hydrological classification Refer here for values
Buffer	R	Text	10	Is the stream located in a buffer basin? Yes/No
LenInSA	R	Double		Length (feet) within study area

B.2.4 Potential Jurisdictional Streams WET

Content: Stream lines created from field delineations. These are the streams used for creating the WEX/WET files.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User Defined Notes
MapID	R	Text	20	ID used in the NRTR map
Type	R	Text	100	Classification (NCSAM) Refer here for values
Rating	R	Text	20	Rating (NCSAM) Refer here for values
HydroClass	R	Text	20	Hydrological classification Refer here for values
Buffer	R	Text	10	Is the stream located in a buffer basin? Yes/No
LenInSA	R	Double		Length (feet) within study area

B.2.5 Potential Surface Waters WEX

Content: Polygons of surface waters from field delineations. These surface waters are used to create the WEX/WET file.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint



DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User Defined Notes
MapID	R	Text	20	Map ID used in the NRTR map
Name	NR	Text	100	Name of water body
AreaInSA	R	Double		Area of water body

B.2.6 Potential Surface Waters WET

Content: Polygons of surface waters from field delineations. These surface waters are used to create the WEX/WET file.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User Defined Notes
MapID	R	Text	20	Map ID used in the NRTR map
Name	NR	Text	100	Name of water body
AreaInSA	R	Double		Area of water body

B.2.7 Endangered Plant Boundary

Content: Polygons created from field protected species surveys. These are the polygons used for creating the EPB.dgn

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_NRTR.pdf</i>
Notes	NR	Text	254	User Defined Notes
SciName	R	Text	100	Scientific name of endangered plant species
AreaInSA	R	Double		Area (acres) in study area



B.2.8 WEX file

Feature Type: Point, Line, Polygon

Format: DGN

Content: Wetlands, streams

Note: WEX files are in CADD (DGN) format. File name and contents must conform to the North Carolina Board of Examiners for Engineers and Surveyors Wetlands Mapping Policy ([BP-1005-4 Rev. 2](#)).

B.2.9 WET file

Feature Type: Point, Polyline, Polygon

Format: DGN

Content: Wetlands, streams

Note: WET files are in CADD (DGN) format. File name and contents must conform to the North Carolina Board of Examiners for Engineers and Surveyors Wetlands Mapping Policy ([BP-1005-4 Rev. 2](#)).



7.11 Air Quality Study

A. Document Standards-

A.1 Output Files: The following document is required:

	Output Report	Required?	File Name for upload
1.	Air Quality Report	Yes	xxxxx_AQR.pdf

B. GIS Data Standards

B.1 Output Files: The following file was identified as a deliverable for the Air Quality process:

	Spatial Data Content	Feature Type(s)	Required?	File Name for upload
1.	Quantitative MSAT Study Area	Polygon	Yes	xxxxx_QuantMSAT.ZIP

B.2 Spatial Data Specifications:

The following fields are required for use by ATLAS. Shapefiles that are missing information may be rejected. Additional fields may be included, but they may not be recognized by NCDOT tools.

B.2.1 Quantitative MSAT Study Area

Content: Locations of projects that had a Quantitative MSAT study completed

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile
Notes	R	Text	254	User notes
DesignYr	NR	Text	254	Year of design for which Quantitative MSAT was performed
AADT	NR	Text	254	AADT on which Quantitative MSAT was performed
ModelVer	NR	Text	254	EPA Mobile Source Emission Model and Version on which Quantitative MSAT was performed (e.g. MOVES2014a)



7.12 Traffic Noise Analysis

A. Document Standards- The following documents were identified as part of the Noise workflow.

A.1 Output Files: The following documents are required:

	Output Report	Required?	File Name for upload
1.	Traffic Noise Report (TNR)	Yes	xxxxx_TNR.pdf

B. GIS Data Standards-

B.1 Output Files: The following files were identified as deliverables for the Noise Study process:

	Spatial Data Content	Feature Type(s)	Required?	File Name for upload
1.	Noise Study Area	Polygon	Yes	xxxxx_StudyAreaNoise.ZIP
3.	Long Term Monitoring Sites	Point	Yes	xxxxx_LTMonitoringSites.ZIP

B.2 Spatial Data Specifications:

B.2.1 Noise Study Area

Content: Noise Study Area boundary

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile
Notes	NR	Text	254	User notes
NSA	NR	Text	254	Noise Study Area # (e.g. NSA 1, NSA 2, etc.)
AbateYN	R	Text	254	Is abatement likely: Y (yes) or N(no) *Provide reason for Yes in the Notes field*
NoReason	NR	Text	254	If no abatement is likely, input reason.



B.2.2 Long Term Monitoring Sites

Content: Monitoring Sites

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile
Notes	NR	Text	254	User notes
XCoord	R	Double		X coordinate of monitoring site in NC State Plane. (For use by Traffic Noise Model TNM software)
YCoord	R	Double		Y coordinate of monitoring site in NC State Plane. (For use by Traffic Noise Model TNM software)
ZCoord	R	Double		Ground elevation in US Feet. (For use by Traffic Noise Model TNM software)
SiteID	R	Text	50	Site identifier number
DuraMeasur	R	Text	254	Duration of measurement (e.g. 24 hours)
RangMeasur	R	Text	254	Range of Measurements in dB(A) e.g. 45 dB(A) to 61 dB(A)
LoudestHR	R	Text	254	Loudest Hourly Measurement [in dB(A)) and time of day] e.g. 56 dB(A) between 3PM and 4PM.
DateMeasur	R	Date		Month/Day/Year of loudest hourly measurement e.g. June 6, 2019



7.13 Historic Architecture

A. Document Standards-

A.1 Output Files: The document(s) listed below are some of the reports generated as part of Historic Architecture workflow.

	Output Report	Required?	File Name for upload
1.	No Historic Architecture Survey Required Form	Yes, if applicable	xxxxx_NoHistArchSurveyReq.pdf
2.	Historic Architecture Survey Required Form	Yes, if applicable	xxxxx_HistArchSurveyReq.pdf
3.	No Historic Architecture Properties Present or Affected Form	Yes, if applicable	xxxxx_NoHistPropPres.pdf
4.	Effects Required Form	Yes, if applicable	xxxxx_HistoricEffectsReq.pdf

B. GIS Data Standards-

B.1 Output Files: The following files were identified as deliverables for the Historic Architecture Workflow:

	Spatial Data Content	Feature Type(s)	Secure?	Required?	File Name for upload
1.	Historic Architecture Survey Area	Polygon		Yes	xxxxx_HistoricArchitectureSurveyArea.ZIP

B.2 Spatial Data Specifications: The following fields are required parts of the shapefile and must be populated (based on R/NR field). Shapefiles that are missing information may be rejected. Additional fields may be included, but they may not be recognized by NCDOT tools.

B.2.1 Historic Architecture Survey Area

Content:

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile
Sites	R	Text	254	List of sites associated, or if too many, a number of sites associated in the format "31" followed by



				a two-letter abbreviation of the county in which the site was recorded, then the number that represents the order in which it was recorded within the county. Site numbers are assigned by State Historic Preservation Office (SHPO).
Notes	NR	Text	254	User notes



7.14 Archaeology

A. Document Standards-

A.1 Output Files: The document(s) listed below are some of the reports generated as part of Historic Architecture workflow.

	Output Report	Required?	File Name for upload
1.	No Archaeological Survey Required Form	Yes, if applicable	xxxxx_NoArchSurveyReq.pdf
2.	Archaeological Survey Required Form	Yes, if applicable	xxxxx_ArchSurveyReq.pdf
3.	No NRHP Eligible or Listed Archaeological Sites Present Form	Yes, if applicable	xxxxx_NoArchPropPres.pdf
4.	No NRHP Eligible or Listed Archaeological Sites Affected Form	Yes, if applicable	xxxxx_NoArchSiteAffected.pdf
5.	Archaeological Adverse Effect Determination Form	Yes, if applicable	xxxxx_ArchAdverse.pdf

B. GIS Data Standards-

B.1 Output Files: The following files were identified as deliverables for the Archaeology Workflow:

	Spatial Data Content	Feature Type(s)	Secure?	Required?	File Name for upload
1.	Archaeological Area of Potential Effect	Polygon		Yes	xxxxx_ArchaeologicalAPE.ZIP

B.2 Spatial Data Specifications: The following fields are required parts of the shapefile and must be populated (based on R/NR field). Shapefiles that are missing information may be rejected. Additional fields may be included, but they may not be recognized by NCDOT tools.

B.2.1 Archaeological Area of Potential Effect

Content: The geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is the maximum geographic area where your project could potentially have an effect on historic properties, if any are present.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint



DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile
Notes	NR	Text	254	User notes
Sites	R	Text	254	List of sites associated or if too many, a number of sites associated in the format "31" followed by a two-letter abbreviation of the county in which the site was recorded, then the number that represents the order in which it was recorded within the county. Site numbers are assigned by Office of State Archaeology (OSA).



7.15 Geo-Environmental

A. Document Standards-

A.1 Output Files: The document(s) listed below are some of the reports generated as part of Geo-Environmental workflow.

	Output Report	Required?	File Name for upload
1.	GeoEnvironmental Pre-Scoping Comments	Yes, if applicable	xxxxx_GEPreScopingComments.pdf
2.	GeoEnvironmental Phase 1 Report	Yes, if applicable	xxxxx_GEPH1Report.pdf

B. GIS Data Standards-

B.1 Output Files: The file(s) listed below are some of the GIS data that is created as part of the Geo-Environmental workflow and are usually required submittals.

	Spatial Data Content	Feature Type (s)	Required?	File Name for upload
1.	GeoEnvironmental Sites of Concern	Point Shapefile	Yes, if applicable	xxxxx_GESitesofConcern.ZIP

B.2 Spatial Data Specifications: The following fields are required parts of the shapefile and must be populated (based on R/NR field). Shapefiles that are missing information may be rejected. Additional fields may be included, but they may not be recognized by NCDOT tools.

B.2.1 GE Sites of Concern

Content: This shapefile should include PreScoping and Phase I sites.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_GEPH1SitesofConcern pdf</i>
Notes	NR	Text	254	User notes
ProjMgr	R	Text	50	GeoEnvironmental Project Manager Name
ParcelNo	NR	Text	20	NCDOT Parcel Number



ProName	R	Text	50	Business Name
ProAdr	NR	Text	50	Property Address line 1
ProAdr2	NR	Text	50	Property Address line 2
ProCity	R	Text	50	Property City
ProZip	NR	Text	15	Property Zip code
ProCounty	R	Text	10	Property County
ProPh	NR	Text	15	Property Phone Number
USTOwnName	NR	Text	50	Underground Storage Tank Owner Name
USTOwnAdr	NR	Text	50	Underground Storage Tank Owner Address line 1
USTOwnAdr2	NR	Text	50	Underground Storage Tank Owner Address line 2
USTOwnCity	NR	Text	50	Underground Storage Tank Owner City
USTOwnStat	NR	Text	20	Underground Storage Tank Owner State
USTOwnZip	NR	Text	15	Underground Storage Tank Owner Zip code
ProOwnName	NR	Text	50	Property Owner Name
ProOwnAdr	NR	Text	50	Property Owner Address line 1
ProOwnAdr2	NR	Text	50	Property Owner Address line 2
ProOwnCity	NR	Text	50	Property Owner City
ProOwnStat	NR	Text	20	Property Owner State
ProOwnZip	NR	Text	15	Property Owner Zip code
ProOwnPh	NR	Text	15	Property Owner Phone Number
Status	R	Text	50	Comments such as No Further Action, Tanks Removed, Additional Assessment Need
USTNo	NR	Text	20	Underground Storage Tank Number
Contamn	NR	Text	5	Is Site Contaminated? (Yes/No)
Lat	R	Double		Latitude
Long	R	Double		Longitude
FacilityID	NR	Text	10	Facility ID Number
IncType	NR	Text	50	Incident Type / ID Number
SitePhoto	NR	Text	254	Site Photograph
RptType	NR	Text	50	Report Type: Pre-Scope, Phase I, Phase II, Phase III, or Other
EngFirm	NR	Text	50	Prime Consulting Firm Responsible for the Product
RptDate	NR	Date		Date of Phase I, II or III Reports
SubConFirm	NR	Text	50	Subcontracted Firm
EnteredBy	NR	Text	5	Initials of Person Entering the Data
SiteNo	NR	Text	10	Site Number from Phase I Report
AnticRisk	NR	Text	15	Anticipated Risk to the Project, High, Moderate, or Low
SiteType	NR	Text	30	Petroleum, Dry Cleaner, Landfill, Small Business, Manufacturing...



7.16 Permitting

A. Document Standards-

A.1 Output Files: The document(s) listed below are some of the reports generated as part of Permitting process.

	Output Report	Required?	File Name for upload
1.	Mailing List	Yes, if applicable	xxxxx_MailingList.pdf

B. GIS Data Standards-

B.1 Output Files: The file(s) listed below are some of the GIS data that is created as part Permitting workflow and are usually required submittals.

	Spatial Data Content	Feature Type(s)	Required?	File Name for upload
1.	Project Mailing List Area	Polygon	Yes	xxxxx_ProjectMailingListArea.ZIP

B.2 Spatial Data Specifications: The following fields are required parts of the shapefile and must be populated (based on R/NR field). Shapefiles that are missing information may be rejected. Additional fields may be included, but they may not be recognized by NCDOT tools.

B.2.1 Project Mailing List Area

Content: This boundary is used to generate a mailing list from county GIS records by the GIS Unit. When developing the mailing list boundary, it is important to take into context the project study area. Close attention is paid to developments (i.e. residential, commercial, and/or industrial parks) adjacent to a proposed project to capture the entire development. While all the properties/businesses may not be directly impacted, they will be indirectly due to construction activities.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile.
Notes	NR	Text	254	Feature specific notes



7.17 CIA – Community Impacts Assessment

A. Document Standards-

A.1 Output Files: The document(s) listed below are some of the reports generated as part of CCR / CIA workflow.

	Output Report	Required?	File Name for upload
1.	Community Impacts Assessment Report or Tech Memo	Yes	xxxxx_CIAReport.pdf

B. GIS Data Standards-

B.1 Output Files: The file(s) listed below are some of the GIS data that is created as part of the CCR / CIA workflow and are usually required submittals.

	Spatial Data Content	Feature Type (s)	Required?	File Name for upload
1.	CIA Direct Community Impact Area (DCIA)	Polygon	Yes	xxxxx_ciaDCIA.ZIP
2.	CIA Demographic Study Area Boundary (DSA)	Polygon	Yes	xxxxx_ciaDSA.ZIP

B.2 Spatial Data Specifications: The following fields are required parts of the shapefile and must be populated (based on R/NR field). Shapefiles that are missing information may be rejected. Additional fields may be included, but they may not be recognized by NCDOT tools.

B.2.4 CIA Direct Community Impact Area

Content: Delineated area to be assessed for direct impacts

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_CIAReport.pdf</i>
Notes	NR	Text	254	User notes



B.2.2 CIA Demographic Study Area

Content: Delineated based on the extents of the DCIA and represents all Block Groups that overlap with the DCIA and contain the population group for which demographic data will be analyzed.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile <i>Example: U-5711_CIAReport.pdf</i>
Notes	NR	Text	254	User notes



7.18 Hydraulics

A. Document Standards-

A.1 Output Files: The document(s) listed below are some of the reports generated as part of Hydraulics process.

	Output Report	Required?	File Name for upload
1.	Hydraulic Planning Report	Yes, if applicable	xxxxx_HYD_PlanningReport.pdf
2.	Drainage Plans	Yes, if applicable	xxxxx_HYD_DrainagePlans.pdf
3.	Drainage Computations	Yes, if applicable	xxxxx_HYD_DrainageComps.pdf
4.	NFIP Approval(s)	Yes, if applicable	xxxxx_HYD_NFIPApproval.zip
5.	Stormwater Management Plan	Yes	xxxxx_HYD_SMP.pdf
6.	Permit Drawings	Yes, if applicable	xxxxx_HYD_PermitDrawings.zip

B. GIS Data Standards-

No GIS data uploads have been identified as part of Hydraulics.



7.19 ICE – Indirect & Cumulative Effects / ICI – Indirect and Cumulative Impacts

A. Document Standards-

A.1 Output Files: The document(s) listed below are some of the reports generated as part of ICE/ICI workflow.

	Output Report	Required?	File Name for upload
1.	Traffic Influencing Construction Activity Assessment	Yes, if applicable	xxxxx_TICA.pdf
2.	Indirect & Cumulative Effects Screening Report or Tech Memo	Yes, if applicable	xxxxx_ICEReport.pdf
3.	Land Use Scenario Assessment Report	Yes, if applicable	xxxxx_LUSA.pdf
4.	Quantitative LUSA	Yes, if applicable	Xxxxx_QLUSA.pdf
5.	Indirect and Cumulative Impacts Study Report	Yes, if applicable	xxxxx_ICIReport.pdf

B. GIS Data Standards-

B.1 Output Files: The file(s) listed below are some of the GIS data that are created as part of the ICE / ICI workflow and are usually required submittals.

	Spatial Data Content	Feature Type (s)	Required?	File Name for upload
1.	ICE Future Land Use Study Area	Polygon	Yes, if applicable	xxxxx_iceFLUSA.ZIP
2.	LUSA Land Use Mapping	Polygon	Yes, if applicable	xxxxx_LUSALandUseMapping.ZIP
3.	QLUSA Impervious Surface Mapping	Polygon	Yes, if applicable	xxxxx_QLUSAImperviousSurfaceMapping.ZIP
4.	ICI Watershed Runoff Mapping	Polygon	Yes, if applicable	xxxxx_ICIWatershedRunoffMapping.ZIP



B.2 Spatial Data Specifications: The following fields are required parts of the shapefile and must be populated (based on R/NR field). Shapefiles that are missing information may be rejected. Additional fields may be included, but they may not be recognized by NCDOT tools.

B.2.1 Future Land Use Study Area (ICE)

Content: Delineated area of all parcels that could be indirectly affected by the project and combined projects.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile. Example: Example: U-5711_ICEReport.pdf
Notes	NR	Text	254	Feature specific notes

B.2.2 Land Use Mapping (LUSA)

Content: Land Use mapping areas identified in the study area.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile. Example: Example: U-5711_LUSA.pdf
Notes	NR	Text	254	Feature specific notes

B.2.2 Impervious Surface Mapping (QLUSA)

Content: Impervious surfaces identified in the study area.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile. Example: Example: U-5711_QLUSA.pdf
Notes	NR	Text	254	Feature specific notes



B.2.2 Watershed Runoff Mapping (ICI)

Content: Watershed runoff areas identified in the study area.

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile. Example: Example: U-5711_ICIReport.pdf
Notes	NR	Text	254	Feature specific notes



7.20 Roadways

COMING SOON !!





7.21 Utilities

COMING SOON !!





7.22 Right of Way

A. Document Standards-

A.1 Output Files: The document(s) listed below are some of the reports generated as part of Right of Way process.

	Output Report	Required?	File Name for upload
1.	Right of Way Plans	Yes, if applicable	xxxxx_ROWPlans.pdf

B. GIS Data Standards-

No GIS data uploads have been identified as part of Right of Way.



7.23 Bicycle, Pedestrian, & Transit

A. Document Standards-

A.1 Output Files: The document(s) listed below are some of the reports generated as part of Bicycle & Pedestrian process.

	Output Report	Required?	File Name for upload
1.	Complete Streets Project Sheet	Yes, if applicable	xxxxx_CompleteStreetsProjectSheet.pdf
2	Complete Streets Exception Documentation	Yes, if applicable	xxxxx_CompleteStreetsException.pdf

B. GIS Data Standards-

No GIS data uploads have been identified as part of Bicycle & Pedestrian.



7.24 Value Engineering

COMING SOON !!





7.25 Project Management

A. Document Standards-

A.1 Output Files:

The following documents are required deliverables for Project Management.

	Output Report	Required?	File Name for upload
1.	Categorical Exclusion Checklist (CE Checklist)	Yes, if applicable	xxxxx_CECheclist.pdf
2.	Minimum Criteria Determination Checklist (MCDC)	Yes, if applicable	xxxxx_MCDC.pdf
3.	Categorical Exclusion Document (CE)	Yes, if applicable	Xxxxx_CE.pdf
4.	Environmental Assessment (EA)	Yes, if applicable	xxxxx_EA.pdf
5.	Finding of no Significant Impact (FONSI)	Yes, if applicable	xxxxx_FONSI.pdf
6.	Environmental Impact Statement (EIS)	Yes, if applicable	xxxxx_EIS.pdf
7.	Record of Decision (ROD)	Yes, if applicable	xxxxx_ROD.pdf
8.	Consultation	Yes, if applicable	xxxxx_Consultation.pdf
9.	Re-evaluation	Yes, if applicable	xxxxx_Reevaluation.pdf
10.	Programmatic Agreement (PA) Checklist	Yes, if applicable	xxxxx_PAScreenCheckList .pdf
11.	e106 Document	Yes, if applicable	xxxxx_e106.pdf
12.	Project Shelving Document	Yes, if applicable	Xxxxx_ProjectShelvingDoc.pdf

B. GIS Data Standards-

B.1 Output Files: The file(s) listed below are some of the GIS data that is created as part of the Project Management workflow and are usually required submittals.



	Spatial Data Content	Feature Type (s)	Required?	File Name for upload
1.	Project Study Area	Polygon	Yes	xxxxx_ProjectStudyArea.ZIP

B.2 Spatial Data Specifications: The following fields are required parts of the shapefile and must be populated (based on R/NR field). Shapefiles that are missing information may be rejected. Additional fields may be included, but they may not be recognized by NCDOT tools.

B.2.1 Project Study Area

Field Name	R/NR	Type	Length	Description
FID	NR	Object ID		System-defined unique identifier
Shape	NR	Geometry		System-defined Geometry
ProjNumber	R	Text	254	Project Number from SharePoint
DateCreate	R	Date		Date shapefile was compiled
RptName	R	Text	254	Report name associated with the shapefile Example: U-5777_EnvDoc.pdf
Notes	NR	Text	254	User notes



Section 8 APPENDIX A – Threatened & Endangered Species List

Full List of Species

These lists are current as of August 10, 2018 and is subject to change.

Fish and Mussel Species

Common Name	Scientific Name
Appalachian elktoe	<i>Alasmidonta raveneliana</i>
Carolina heelsplitter	<i>Lasmigona decorata</i>
Cumberland bean (pearlymussel)	<i>Villosa trabalis</i>
dwarf wedgemussel	<i>Alasmidonta heterodon</i>
James spiny mussel	<i>Pleurobema collina</i>
littlewing pearlymussel	<i>Pegias fabula</i>
Tar River spiny mussel	<i>Elliptio steinstansana</i>
tan riffleshell	<i>Epioblasma florentina walkeri (=E. walkeri)</i>
yellow lance	<i>Elliptio lanceolata</i>
Atlantic pigtoe	<i>Fusconaia masoni</i>
green floater	<i>Lasmigona subviridis</i>
brook floater	<i>Alasmidonta varicosa</i>
Cape Fear shiner	<i>Notropis mekistocholas</i>
Roanoke logperch	<i>Percina rex</i>
shortnose sturgeon	<i>Acipenser brevirostrum</i>
spotfin chub	<i>Erimonax monachus</i>
Waccamaw silverside	<i>Menidia extensa</i>
Atlantic sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>
oceanic whitetip shark	<i>Carcharhinus longimanus</i>
giant manta ray	<i>Manta birostris</i>



Bat Species

Common Name	Scientific Name
Indiana bat	<i>Myotis sodalis</i>
northern long-eared bat (NLEB)	<i>Myotis septentrionalis</i>
Virginia big-eared bat	<i>Plecotus townsendii virginianus</i>
gray bat	<i>Myotis grisescens</i>

Shorebirds and Wading Bird Species

Common Name	Scientific Name
piping plover	<i>Charadrius melodus</i>
red knot	<i>Calidris canutus rufa</i>
roseate tern	<i>Sterna dougallii dougallii</i>
wood stork	<i>Mycteria americana</i>

Other Bird Species

Common Name	Scientific Name
red-cockaded woodpecker (RCW)	<i>Picoides borealis</i>
bald eagle	<i>Haliaeetus leucocephalus</i>

Mammal Species

Common Name	Scientific Name
red wolf	<i>Canis rufus</i>
Carolina northern flying squirrel	<i>Glaucomys sabrinus</i>
West Indian manatee	<i>Trichechus manatus</i>
blue whale	<i>Balaenoptera musculus</i>
fin whale	<i>Balaenoptera physalus</i>



North Atlantic right whale	<i>Eubalaena glacialis</i>
sei whale	<i>Balaenoptera borealis</i>
sperm whale	<i>Physeter macrocephalus</i>

Sea Turtle Species

Common Name	Scientific Name
green sea turtle	<i>Chelonia mydas</i>
hawksbill sea turtle	<i>Eretmochelys imbricata</i>
Kemp's Ridley sea turtle	<i>Lepidochelys kempii</i>
leatherback sea turtle	<i>Dermochelys coriacea</i>
loggerhead sea turtle	<i>Caretta caretta</i>

Insect and Arachnid Species

Common Name	Scientific Name
St. Francis Satyr Butterfly	<i>Neonympha mitchellii francisci</i>
rusty-patched bumble bee	<i>Bombus affinis</i>
spruce-fir moss spider	<i>Microhexura montivaga</i>
yellow-banded bumblebee	<i>Bombus terricola</i>

Mollusk Species

Common Name	Scientific Name
noonday snail	<i>Peters clarkia nantahala</i>

Reptile Species

Common Name	Scientific Name
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American alligator	<i>Alligator mississippiensis</i>
bog turtle	<i>Glyptemys muhlenbergii</i>

Plants

Common Name	Scientific Name
bunched arrowhead	<i>Sagittaria fasciculata</i>
Blue ridge goldenrod	<i>Solidago spithamea</i>
dwarf-flowered heartleaf	<i>Hexastylis naniflora</i>
green pitcher plant	<i>Sarracenia oreophila</i>
Heller's blazing star	<i>Liatris helleri</i>
mountain golden heather	<i>Hudsonia montana</i>
mountain sweet pitcher plant	<i>Sarracenia rubra ssp. jonesii</i>
roan mountain bluet	<i>Hedyotis purpurea var. montana</i>
rock gnome lichen	<i>Gymnoderma lineare</i>
small whorled pogonia	<i>Isotria medeoloides</i>
spreading avens	<i>Geum radiatum</i>
swamp pink	<i>Helonias bullata</i>
Virginia spiraea	<i>Spiraea virginiana</i>
white irisette	<i>Sisyrinchium dichotomum</i>
small-anthered bittercress	<i>Cardamine micranthera</i>
American chaffseed	<i>Schwalbea americana</i>
Canby's dropwort	<i>Oxypolis canbyi</i>
Cooley's meadowrue	<i>Thalictrum cooleyi</i>
golden sedge	<i>Carex lutea</i>
harperella	<i>Ptilimnium nodosum (=fluviatile)</i>
Michaux's sumac	<i>Rhus michauxii</i>



pondberry	<i>Lindera melissifolia</i>
rough-leaf loosestrife	<i>Lysimachia asperulaefolia</i>
Schweinitz's sunflower	<i>Helianthus schweinitzii</i>
seabeach amaranth	<i>Amaranthus pumilus</i>
sensitive joint-vetch	<i>Aeschynomene virginica</i>
smooth coneflower	<i>Echinacea laevigata</i>



Section 9 APPENDIX B - Expected Values / Domains

9.1 Traffic-

9.1.1 B.2.1 Project Limit

Field	Expected Values
Status	Forecasting Status Values: In Progress Completed

9.2 Threatened & Endangered Species-

9.2.1 B.2.5 Protected Species Point

Field	Expected Values
ComName	Species common name (refer Appendix B Common Name)
SciName	Species scientific name (refer Appendix B Scientific Name)
PhysProv	<p>Physiographic Province Values</p> <p>M Mountains (Blue Ridge) = All parts of North Carolina west of the foot of the Blue Ridge Escarpment.</p> <p>P Piedmont = All parts of North Carolina east of the foot of the Blue Ridge Escarpment and west of the Fall Line, including outlying "foothill" ranges, such as the Brushy, Uwharrie, Sauratown, and South mountains.</p> <p>S Sandhills = The southwestern portion of the Coastal Plain province consisting mostly of deep aeolian sands of the Middendorf and Pinehurst formation (portions of Cumberland, Harnett, Hoke, Lee, Moore, Richmond, Scotland, and Montgomery counties). The Sandhills are actually part of the Coastal Plain but are here distinguished because of their distinctive geomorphology and vegetation.</p> <p>C Coastal Plain = All parts of North Carolina east of the Fall Line, but excluding the Sandhills region and those portions associated with tidal water (ocean, sounds, barrier islands, and mainland brackish or salt marshes).</p> <p>T Tidewater = That part of the state associated with tidal water, such as the ocean and barrier islands, sounds, estuaries and mainland brackish or salt marshes.</p>

9.2.2 B.2.6 Protected Species Polygon

Field	Expected Values
ComNam	Species common name (refer Appendix B Common Name)
SciNam	Species scientific name (refer Appendix B Scientific Name)
PhysProv	<p>Physiographic Province Values</p> <p>M Mountains (Blue Ridge) = All parts of North Carolina west of the foot of the Blue Ridge Escarpment.</p> <p>P Piedmont = All parts of North Carolina east of the foot of the Blue Ridge Escarpment and west of the Fall Line, including outlying "foothill" ranges, such as the Brushy, Uwharrie, Sauratown, and South mountains.</p> <p>S Sandhills = The southwestern portion of the Coastal Plain province consisting mostly of deep aeolian sands of the Middendorf and Pinehurst formation (portions of Cumberland, Harnett, Hoke, Lee, Moore, Richmond, Scotland, and Montgomery counties). The Sandhills are actually part of the Coastal Plain but are here distinguished because of their distinctive geomorphology and vegetation.</p> <p>C Coastal Plain = All parts of North Carolina east of the Fall Line, but excluding the Sandhills region and those portions associated with tidal water (ocean, sounds, barrier islands, and mainland brackish or salt marshes).</p> <p>T Tidewater = That part of the state associated with tidal water, such as the ocean and barrier islands, sounds, estuaries and mainland brackish or salt marshes.</p>

9.2.3 B.2.9 Bat Bridges



Field	Expected Values																																																																																																				
County	<table border="0"> <tr><td>Alamance</td><td>Cumberland</td><td>Johnston</td><td>Randolph</td></tr> <tr><td>Alexander</td><td>Currituck</td><td>Jones</td><td>Richmond</td></tr> <tr><td>Alleghany</td><td>Dare</td><td>Lee</td><td>Robeson</td></tr> <tr><td>Anson</td><td>Davidson</td><td>Lenoir</td><td>Rockingham</td></tr> <tr><td>Ashe</td><td>Davie</td><td>Lincoln</td><td>Rowan</td></tr> <tr><td>Avery</td><td>Duplin</td><td>Macon</td><td>Rutherford</td></tr> <tr><td>Beaufort</td><td>Durham</td><td>Madison</td><td>Sampson</td></tr> <tr><td>Bertie</td><td>Edgecombe</td><td>Martin</td><td>Scotland</td></tr> <tr><td>Bladen</td><td>Forsyth</td><td>McDowell</td><td>Stanly</td></tr> <tr><td>Brunswick</td><td>Franklin</td><td>Mecklenburg</td><td>Stokes</td></tr> <tr><td>Buncombe</td><td>Gaston</td><td>Mitchell</td><td>Surry</td></tr> <tr><td>Burke</td><td>Gates</td><td>Montgomery</td><td>Swain</td></tr> <tr><td>Cabarrus</td><td>Graham</td><td>Moore</td><td>Transylvania</td></tr> <tr><td>Caldwell</td><td>Granville</td><td>Nash</td><td>Tyrrell</td></tr> <tr><td>Camden</td><td>Greene</td><td>New Hanover</td><td>Union</td></tr> <tr><td>Carteret</td><td>Guilford</td><td>Northampton</td><td>Vance</td></tr> <tr><td>Caswell</td><td>Halifax</td><td>Onslow</td><td>Wake</td></tr> <tr><td>Catawba</td><td>Harnett</td><td>Orange</td><td>Warren</td></tr> <tr><td>Chatham</td><td>Haywood</td><td>Pamlico</td><td>Watauga</td></tr> <tr><td>Cherokee</td><td>Henderson</td><td>Pasquotank</td><td>Washington</td></tr> <tr><td>Chowan</td><td>Hertford</td><td>Pender</td><td>Wayne</td></tr> <tr><td>Clay</td><td>Hoke</td><td>Perquimans</td><td>Wilkes</td></tr> <tr><td>Cleveland</td><td>Hyde</td><td>Person</td><td>Wilson</td></tr> <tr><td>Columbus</td><td>Iredell</td><td>Pitt</td><td>Yadkin</td></tr> <tr><td>Craven</td><td>Jackson</td><td>Polk</td><td>Yancey</td></tr> </table>	Alamance	Cumberland	Johnston	Randolph	Alexander	Currituck	Jones	Richmond	Alleghany	Dare	Lee	Robeson	Anson	Davidson	Lenoir	Rockingham	Ashe	Davie	Lincoln	Rowan	Avery	Duplin	Macon	Rutherford	Beaufort	Durham	Madison	Sampson	Bertie	Edgecombe	Martin	Scotland	Bladen	Forsyth	McDowell	Stanly	Brunswick	Franklin	Mecklenburg	Stokes	Buncombe	Gaston	Mitchell	Surry	Burke	Gates	Montgomery	Swain	Cabarrus	Graham	Moore	Transylvania	Caldwell	Granville	Nash	Tyrrell	Camden	Greene	New Hanover	Union	Carteret	Guilford	Northampton	Vance	Caswell	Halifax	Onslow	Wake	Catawba	Harnett	Orange	Warren	Chatham	Haywood	Pamlico	Watauga	Cherokee	Henderson	Pasquotank	Washington	Chowan	Hertford	Pender	Wayne	Clay	Hoke	Perquimans	Wilkes	Cleveland	Hyde	Person	Wilson	Columbus	Iredell	Pitt	Yadkin	Craven	Jackson	Polk	Yancey
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F3DBH	<p>Are there any trees >3" DBH (diameter at breast height) in the project footprint?</p> <p>Values: Yes No</p>																																																																																																				
F5DBHHo	<p>Are there any shaggy trees/snag/hollow >5" DBH (diameter at breast height) within project footprint?</p> <p>Values: Yes No</p>																																																																																																				
SunlightH	<p>If yes to shaggy trees/snag/hollows, how much sunlight do they receive during the day?</p> <p>Values: 1-3 hours sunlight</p>																																																																																																				



	4-6 hours sunlight 7+ hours sunlight
CavesProj	Caves in project footprint. Values: Yes No
CavesVici	Caves in vicinity (w/in 0.5 mile) Values: Yes No
MinesProj	Abandoned mines in project footprint Values: Yes No
MinesVici	Abandoned mines in vicinity (w/in 0.5 mi) Values: Yes No
WaterProj	Major water source in project footprint Values: River Stream/Creek Pond Lake Swamp
SuitableD	Presence of suitable drinking habitat in the form of non-stagnant, smooth or slack water areas. Values: Yes No
GuardRail	Type of guard rail Values: None Concrete Timber Metal



Deck	Deck type Values: Open Grid Concrete Timber Metal
BeamType	BeamType Values: None Concrete Timber Steel
EndorBac	End/Back wall type Values: Concrete Timber Masonry
CresoteEv	Creosote evidence Values: Yes No
SHLVertic	Shallow Vertical Top-Sealed Crevices ($\frac{1}{2}$ " to $1\frac{1}{4}$ " wide and 4-12" deep that have a seal across the top) Values: Yes No
DPVertica	Deep Vertical Unsealed Crevices (vertical crevices that are $\frac{1}{2}$ " to $1\frac{1}{4}$ " wide and >12" deep that DO NOT have a seal across the top) Values: Yes No
NightRoos	Night Roost Habitat Protected Values: Yes No
BridgeAli	Bridge Alignment (direction in which bridge is oriented)



	<p>Values: N/S E/W NW/SE NE/SW</p>
BridgeSun	<p>Hours of sun exposure to bridge</p> <p>Values: 0-1 2-3 >3</p>
HumanDist	<p>Human disturbance under the bridge</p> <p>Values: High Low None</p>
Emergence1	<p>Was an emergence count performed?</p> <p>Values: Yes No</p>
BatsUsing	<p>Evidence of bats using bird/wasp nests?</p> <p>Values: Yes No</p>
BatsUsin2	<p>Evidence of bats using bridge</p> <p>Values: Yes No</p>
BatSpecie	<p>Bat species present in bridge</p> <p>Values:</p> <p> "COA" "LABO" "MYAU" "MYSE" "COTO" "LACI" "MYGR" "LAIN" "EPFU" "NYHU" "MYLE" "LASE" "LANO" "PESU" "MYLU" "TABR" </p>



BatSpeci2	Additional bat species present in bridge (if more than one). Values: "CORA" "LABO" "MYAU" "MYSE" "COTO" "LACI" "MYGR" "LAIN" "EPFU" "NYHU" "MYLE" "LASE" "LANO" "PESU" "MYLU" "TABR"
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9.2.4 B.2.10 Bat Culverts

Field	Expected Values			
County	Alamance	Cumberland	Johnston	Randolph
	Alexander	Currituck	Jones	Richmond
	Alleghany	Dare	Lee	Robeson
	Anson	Davidson	Lenoir	Rockingham
	Ashe	Davie	Lincoln	Rowan
	Avery	Duplin	Macon	Rutherford
	Beaufort	Durham	Madison	Sampson
	Bertie	Edgecombe	Martin	Scotland
	Bladen	Forsyth	McDowell	Stanly
	Brunswick	Franklin	Mecklenburg	Stokes
	Buncombe	Gaston	Mitchell	Surry
	Burke	Gates	Montgomery	Swain
	Cabarrus	Graham	Moore	Transylvania
	Caldwell	Granville	Nash	Tyrrell
	Camden	Greene	New Hanover	Union
	Carteret	Guilford	Northampton	Vance
	Caswell	Halifax	Onslow	Wake
	Catawba	Harnett	Orange	Warren
	Chatham	Haywood	Pamlico	Watauga
	Cherokee	Henderson	Pasquotank	Washington
	Chowan	Hertford	Pender	Wayne
	Clay	Hoke	Perquimans	Wilkes
	Cleveland	Hyde	Person	Wilson
	Columbus	Iredell	Pitt	Yadkin
	Craven	Jackson	Polk	Yancey
F3DBH	Are there any trees >3" DBH (diameter at breast height) in the project footprint? Values: Yes No			
F5DBHHo	Are there any shaggy trees/snag/hollow >5" DBH (diameter at breast height) within project footprint? Values: Yes No			



SunlightH	<p>If yes to shaggy trees/snag/hollows, how much sunlight do they receive during the day?</p> <p>Values: 1-3 hours sunlight 4-6 hours sunlight 7+ hours sunlight</p>
CavesProj	<p>Caves in project footprint.</p> <p>Values: Yes No</p>
CavesVici	<p>Caves in vicinity (w/in 0.5 mile)</p> <p>Values: Yes No</p>
MinesProj	<p>Abandoned mines in project footprint</p> <p>Values: Yes No</p>
MinesVici	<p>Abandoned mines in vicinity (w/in 0.5 mi)</p> <p>Values: Yes No</p>
WaterProj	<p>Major water source in project footprint</p> <p>Values: River Stream/Creek Pond Lake Swamp</p>
SuitableD	<p>Presence of suitable drinking habitat in the form of non-stagnant, smooth or slack water areas.</p> <p>Values: Yes No</p>



GuardRail	Type of guard rail Values: None Concrete Timber Metal
Deck	Deck type Values: Open Grid Concrete Timber Metal
BeamType	BeamType Values: None Concrete Timber Steel
EndorBac	End/Back wall type Values: Concrete Timber Masonry
CresoteEv	Creosote evidence Values: Yes No
SHLVertic	Shallow Vertical Top-Sealed Crevices ($\frac{1}{2}$ " to $1\frac{1}{4}$ " wide and 4-12" deep that have a seal across the top) Values: Yes No
DPVertica	Deep Vertical Unsealed Crevices (vertical crevices that are $\frac{1}{2}$ " to $1\frac{1}{4}$ " wide and >12" deep that DO NOT have a seal across the top) Values: Yes No



NightRoos	Night Roost Habitat Protected Values: Yes No
BridgeAli	Bridge Alignment (direction in which bridge is oriented) Values: N/S E/W NW/SE NE/SW
BridgeSun	Hours of sun exposure to bridge Values: 0-1 2-3 >3
HumanDist	Human disturbance under the bridge Values: High Low None
Emergence1	Was an emergence count performed? Values: Yes No
BatsUsing	Evidence of bats using bird/wasp nests? Values: Yes No
BatsUsin2	Evidence of bats using bridge Values: Yes No



BatSpecie	Bat species present in bridge Values: "CORA" "LABO" "MYAU" "MYSE" "COTO" "LACI" "MYGR" "LAIN" "EPFU" "NYHU" "MYLE" "LASE" "LANO" "PESU" "MYLU" "TABR"
BatSpeci2	Additional bat species present in bridge (if more than one). Values: "CORA" "LABO" "MYAU" "MYSE" "COTO" "LACI" "MYGR" "LAIN" "EPFU" "NYHU" "MYLE" "LASE" "LANO" "PESU" "MYLU" "TABR"



9.2.5 B.2.11 Bat Abandoned Structures:

Field	Expected Values																																																																																																				
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CanopyCov	<p>Percent closed canopy cover at structure</p> <p>Values:</p> <p>"0-25%"</p> <p>"26-50%"</p> <p>"51-75%"</p> <p>"76-100%"</p>																																																																																																				
Distancet	<p>Distance to nearest woodlot</p> <p>Value:</p> <p>">1000 feet"</p> <p>"<1000 feet"</p>																																																																																																				



HumanDist	<p>Regular human use or disturbance?</p> <p>Values: "Yes" "No"</p>
GuanoStai	<p>Exterior evidence of bat use (guano or urine staining) on structure</p> <p>Values: "Yes" "No"</p>
InteriorA	<p>Noticeable airflow inside</p> <p>Values: "Yes" "No"</p>
BatSpecie	<p>Bat species present in structure</p> <p>Values: "CORA" "LABO" "MYAU" "MYSE" "COTO" "LACI" "MYGR" "LAIN" "EPFU" "NYHU" "MYLE" "LASE" "LANO" "PESU" "MYLU" "TABR"</p>
BatSpeci2	<p>Additional bat species present in structure (if more than one).</p> <p>Values: "CORA" "LABO" "MYAU" "MYSE" "COTO" "LACI" "MYGR" "LAIN" "EPFU" "NYHU" "MYLE" "LASE" "LANO" "PESU" "MYLU" "TABR"</p>
BatsppEm	<p>Bat species emerging</p> <p>Values: "CORA" "LABO" "MYAU" "MYSE" "COTO" "LACI" "MYGR" "LAIN" "EPFU" "NYHU" "MYLE" "LASE" "LANO" "PESU" "MYLU" "TABR"</p>



9.2.6 B.2.12 Bat Caves Mines

Field	Expected Values																																																																																																				
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CanopyCov	<p>Percent canopy closure at entrance of cave or mine (approximate).</p> <p>Values:</p> <ul style="list-style-type: none"> 0-25% 26-50% 51-75% 76-100% 																																																																																																				
OpeningTy	<p>Type of opening</p> <p>Values:</p> <ul style="list-style-type: none"> Cave Quarry Shaft 																																																																																																				



Slope	Slope up or down from entrance Values: Up Down
Entrances	Is entrance stable? Values: Yes No
Direction	Direction of airflow Values: Into cave Out of cave
Amountof	Amount of airflow Values: Heavy Slight None
Airwarmer	Internal air temperature relative to outside temperature. Values: Warmer than outside Cooler than outside Same
Evidenceo	Evidence of collapse Values: Yes No
PastFlood	Is there evidence of past flooding? Values: Yes No



BatSpecie	Bat species present in bridge Values: "CORA" "LABO" "MYAU" "MYSE" "COTO" "LACI" "MYGR" "LAIN" "EPFU" "NYHU" "MYLE" "LASE" "LANO" "PESU" "MYLU" "TABR"
BatSpeci2	Additional bat species present in bridge (if more than one). Values: "CORA" "LABO" "MYAU" "MYSE" "COTO" "LACI" "MYGR" "LAIN" "EPFU" "NYHU" "MYLE" "LASE" "LANO" "PESU" "MYLU" "TABR"



9.3 NRTR-

9.3.1 B.2.1 NRTR Jurisdictional Wetlands WEX

Field	Expected Values
Type	NCWAM wetland type classification Values: "Salt/Brackish Marsh" "Estuarine Woody Wetland" "Tidal Freshwater Marsh" "Riverine Swamp Forest" "Seep" "Hardwood Flat" "Non-Riverine Swamp Forest" "Pocosin" "Pine Savanna" "Pine Flat" "Basin Wetland" "Bog" "Non-Tidal Freshwater Marsh" "Floodplain Pool" "Headwater Forest" "Bottomland Hardwood Forest"
Rating	Rating from NCWAM Values: "High" "Medium" "Low"
HydroClass	Hydrological classification Values: "Riparian" "Non-Riparian"



Cowardin	Classification of Wetlands and Deepwater Habitats			
	Values:			
PFO1/EM1Bd	PEM1/SS4C	PSS4/1Sd	PSS1/EM1Fh	
PFO3/1E	E2EM1Ps	PFO1S	PSS3/1A	
PFO4Bg	PSS4/1Cd	PFO4/SS3C	PFO4/SS7B	
PSS2F	PFO1/SS1R	PSS4E	PFO/SS1Fh	
PSS5F	E2SS4/EM1Pd	R1UBVx	R5UBFx	
L1UBHh	PEM5Ch	PFO4/SS7Bd	PSS2/1F	
PFO4/3B	PEM1/AB4F	PEM1/SS4A	PSS3/FO4B	
E2US2P	PSST	PSS1/EM1Ax	L1UB1Kx	
PFO4Bb	PSS3/4Bh	PAB4Gh	PFO6Bd	
PSS5Fd	PFO1/4Cd	PEM1/SS3B	L2UBHh	
E2USMh	PFO5Fx	E2USNs	PEM1/FO4B	
E2SS3/EM1Pd	PEM5Rh	Pf	PSS4/3B	
PFO3/4Bd	PFO1Kx	PFO1/2Ch	PUB/SS5F	
E2SS3/1P	PFO6F	PFO1Ab	E2FO4/1P	
E2FO1/4Ps	PSS3/FO4Bd	E2EM5Ps	PFO1/SS4R	
E2US2/EM1Pd	PFO1/2Rd	PAB/EM1Fx	PEM1/SS1Sd	
PSS1/3Ah	PAB3G	PFO3/SS1B	PFO2/1E	
PUSC	E2USM	PEM1/FO1A	PUBHb	
PSS7A	E2EM1/USN	PSS1Ad	E2SS3/4Ps	
E2EM1/USN6	PFO5/EM1Fh	PUB3G	PFO1Cb	
L2UBGx	PFO2/1Bd	PFO6Ch	PFO5Fh	
E2EM1/USPd	PUS2Ch	PUBGb	R2UB2H	
PSS4C	PFO1/2Cb	PFO4Ch	E2USN6	
PFO1/SS3R	E2EM1/US2P	R3RB1H	PSS1/5Fh	
PABF	PSS7Cd	PSS1E	PFO1/5F	
R3RSA	PFO4Ah	R4SB2C	PUS2C	
PFO1/5Fh	R3UB2H	PSS6/EM1F	PSS7C	
PEM1/SS1Eb	M2USP	PFO5/EM1F	PFO4/EM1C	
PSS3/EM1Bd	PABH	PEM1Th	PSS4/FO1A	
PFO1/SS1Ch	PSS5/EM1F	PEM1/SS1A	PFO4/1Ch	
PEM1/FO4R	PFO3Ah	PFO/SS1Ch	PFO1T	
L1RB1Hx	PSS1F	PUBFd	PFO1/4Ah	
PUBV	PFO4/2C	PUB/ABHh	PFO2Fx	
L2AB3Fh	PSS6Fx	PUB1Hx	PFO4/SS3R	
PFO7/6Bd	PSS3C	PSS4/1A	PSS/FO4A	
PFO2/SS1B	PAB4Fb	PFO6/UBT	PFO5/UBH	
PFO3E	PEM1A	E2SS1/3P	PUB/FO1Fh	
PFO1/3Ch	PFO1B	PSS/FO1Ch	R2UBHx	
PAB4G	PEM1/FO1B	PFO4/1Bg	E2SS1P	
PUB/SS1F	PFO4/2Bd	PFO/EM1Cb	PUB/EM1Fb	
PEM5Fd	PFO1/SS7R	PFO4/EM1A	PFO1/EM1Cb	
PFO1/2Ad	PFO4Cx	PFO2/4Cd	PUBG	

PFO6/SS1B	PEM1/SS3K	PFO1/SS3Cd	PSS1/3Bd
PSS7/6B	PFO1/EM1Fh	PSS6/7A	PSS3/1B
PSS3Bd	E2SS4/1Ps	E2FO4/EM1Pd	L1ABHh
PFO4/SS1R	PSS3E	PSS1/3Rd	PSS1Cd
L2USAh	PSS1/USK	PFO1/SS3Bh	PSS4/EM1B
PSS1C	L1ABHx	PSS1/FO1Fd	PSS6/FO7B
PSS4R	E2EM1/SS3P	R2UB3H	PSS4/3C
PEM1F	L1UBKx	PFO4/SS3Bd	PABK
PFO2E	PFOT	PFO6T	PFO4/SS1Ad
PFO4/1B	PSS1/2Fx	PSS4/1R	PSS1Ch
PFO4/SS4S	E2FO3/1P	E2EM1P5	PEM1Sh
PFO1R	E1UB2L	PEM5Bd	PSS1Ab
E2SS1/EM1Pd	PFO1/4S	PSS1/FO2R	PFO1/SS3B
PSS6/7C	PSS1/4Bd	PFO2T	PFO2A
PFO6Cd	PEM1Ex	PFO6/4B	PSS1/FO1Ad
R4SBAr	PFO3Bd	PFO2/3C	PFO7B
E2SS7Ps	PFO3/1B	PUSCh	PAB3Gh
PSS2Fh	PFO1/2Fx	PFO2Ad	PUSKx
PFO1/ABF	PEM1Cd	PSS/EM1Fh	PSS1/4A
PEM1/SS1R	PFO5H	E2EM1Pd	PSS1Ed
PFO1/EM1A	M1UBL	PSS1/3B	PFO4/EM1B
PFO/SS1Bd	E2SS3/1Ps	PFO1/2Fh	PFO2Rd
PSS1/FO4B	E2FO4P	PSS6C	PUB/SS1Fh
PSS/EM1B	L2US3Ah	PSS7/6Bd	PAB3Hb
PFO1/4Bg	PEM1/SS4B	PSS1Rd	E2USPh
PFO1Fh	PUBFh	PFO1/SS1F	PFO1/SS1A
L2AB3H	E2SS7P	PFO1/4Eh	PSS6F
PFO/SS4Bd	E2EM1/FO4P	PSS5Hx	PSS4/3Cd
PFO3/SS1Bd	PFO4/3R	PSS1/EM1K	PSS1/FO1B
PFO4Ax	PSS1/UBFb	PUBHx	PFO1Bb
PSS1/2Ch	R2UBH	E2SS3Ps	PUSAh
E2FO3/4Ps	PUB3Hh	PFO5Gh	R2UBHh
L2UBVh	PSS1/FO1R	PUB1G	L2USCx
PSS4Cd	PEM1K	E2US2/EM1P	E2SS1/4Ps
PSS1/3Cd	PSS1/4Ed	PSS1/UBF	PFO3/SS4Bd
PEM1S	E2FO3/4P	PSS1/EM1Ch	PAB/SS1F
E1ABLx	PFO4/3Cd	PSS1/2T	PEM1/SS4Rd
E2SS4P	PFOCd	PFO1/4B	PSS4/FO1Bd
PSS4/EM1R	PFO1Eh	PFO1/SS4Bd	PSS1/4Cb
PFO4/SS1B	E1UBL6	PFO1/SS3Bd	PSS/FO1B
PFO/SS1Cb	PSS1/EM1A	PUB/ABFb	PFO3/1C
PEM1/SS1Cb	L1UBHx	E2SS4Ph	E2FO5P
PSS6/FO7A	PFO2/1B	PSS3/4Cd	PFO1/4Ch
PFO4/SS4A	E2SS4/EM1P	L1UB4H	PFO4/3Bd
E2EM1Nh	PSS4B	PSS3Rd	PSS4/FO4Cd

PSS6A	PSS7Ad	L2US3C	E2US/EM1P
PFO1/3C	PSS6/7Bd	PSS3Cx	L1UB3H
PAB4Fh	PSS7/EM1B	PEM1Tb	PEM1Cx
E2SS4/EM1P6	PSS1/4Ad	PSS1Rh	PFO/EM1A
PFO1/4Ab	PABFh	PFO1/UBFh	PFO2Bd
PFO3/4Rd	PSS1/EM1C	PSS3/FO1A	PAB3Fb
E2EM1Nd6	PFO1/EM1Rd	L1UB3Hh	PFO4A
PEM1R	R3USAr	PFO4/EM1R	PUB1Kx
PFO6/SS6B	E2SS5M	E2SS1/EM5Pd	PUS/EM1Ah
PFO4/1Cd	L1UBH	PFO1/SS4B	E2EM1/SS7Ps
PEM2Fh	PSS1/EM1R	PSS1/FO2C	PSS1Fb
PFO1/SS4C	M1ABL	E2SS3/USP	PEM1Eh
PFO1/SS1Cd	PSS6Fh	E2ABN	E1UB3L
E2FO4Ps	PFO6/4Bg	PFO6/SS6F	L2EM2F
PSS1/FO4C	PFO6/7B	E2EM1/SS4P6	PSS4/FO3Bd
R2UBFh	PFO1/4Cb	PEM1/SS1T	PUSAx
R2ABHh	E2EM1/SS1Pd	PFO6Fh	PFO2/1Fd
PFO4Rd	PFO1/3Ad	PFO1/2A	PSS1/3E
PFO1/4C	PUB3Hx	E2SS3/EM1P	PUBFh
PUBH	PSS5Hh	PFO1/4A	E2SS3/4Ph
L1ABH	L1UBGh	PSS1/2Fb	PFO1/SS1Fh
PAB1Fh	PUB/ABH	PFO4Cd	PSS1/4Ch
PSS1/4Ah	PFO1/2C	PSS1/5Fd	E2EM5Ph
PEM1Rd	PAB4F	PSS1/2Ad	E2US3N
PFO3/1A	PSS2/1A	PFO1Eb	E2SS3/4Pd
PEM1Ad	PEM1/SS1Ch	PSS1/EM1Sd	PSS1S
PSS3/1C	R2UBF	PFO6/UBF	PFO1/SS3Ed
PUB3Fh	E2SS3P6	PSS4/EM1Sd	L2USCh
PEM1C	PUBFb	PFO5/1Fh	R3US3C
PFO3/SS3Bd	E2USPd	E2RSP	PEM1/SS1Ad
PSS3/FO1Bb	PFO1/SS3A	PFO7C	PSS1/2Cb
PEM5T	PSS6/FO1B	PFO3/2C	PSS1/2Fh
PSS1Kx	PSS1/FO2F	PEM1/SST	PFO7A
E2SS1/4P	L2ABVh	PUBF	PSS1/4R
PSS4/EM1Ad	L2UB/EM2Gh	PFO1/2Fb	PSS1Rs
E2EM1/SS4P	L2ABHh	L1ABK	PSS3/FO1B
E1UBL	PSS4/FO1C	PFO6/EM1F	PEM5Ad
L2UB3Fh	PABFh	PFO3/EM1B	L1UB1Hx
PFO6E	PFO2/1C	PSS3/FO1Ad	PSS2/1C
PSS3/FO4A	PUB/FO5Hb	PEM1/FO2F	PUBKx
PAB4Fh	E1UB4L6	PSS3/FO4Cd	PSS4Ax
E2SS1/3Ps	PFO4/SS1C	R1UBV	PFO/EM1Ch
PEM5F	E2US2M	R2AB1H	PSS6/7Ad
PFO1/4E	PSS3/FO1Cd	PFO1/2F	PFO1/2E
L2AB3Hx	PUSAd	R2UBFh	PSS3/EM1Ch

PFO4/SS1Cd	PFO2/SS4B	E2EM1Pd6	PFO1Cx
PEM1/FO5F	M2USN	PSS1/FO5Fb	PFO5Hh
PSS3Ch	PSS3/1E	PEM1/SS4Ad	L2UBFx
PFO4/1Ah	PSS/EM1Eh	PFO5Hb	PABFd
PEM1Sd	PEM5Th	PUSA	PSS6Ch
PSS1Fh	E2USN	E2EM1/USP	PFO6Fb
PSS1/3C	PSS1Eh	PSS3/FO3B	R2UB1H
PFO5/SS1F	PFO1/2Cd	PSS4/1Bd	M2USM
M2US2M	PFO1/SS1Ah	PFO2Cb	PSS1/EM1Fd
PFO1/UBF	E2EM5/SS4Pd	PSS/EM1Fb	PEM1/FO1Cd
PSS4/1C	PSS1Sh	PFO1A	PFO5/UBF
PSS1Bx	R5UBH	E2SS1/EM1P6	PEM1Kx
PFO4S	PSS1/3Ad	PEM1/SS3Cd	PFO4/SS3Cd
E2SS6P	L2AB3K	PAB/EM1F	PFO7Ad
PFO2F	E2SS5P	PFO6A	PSS3/FO4C
PFO1/4Rd	PFO1Ax	PAB3H	PFO4C
PSS5/FO5F	E2RS2Pr	PEM1/FO1Ad	PFO1/SS1B
PSS1Fd	E1UBLh	PFO2/1A	PEM1T
PSS6T	PSS3/4Rd	PSS4/FO1Ad	R2RSC
PFO4/SS4Cd	PSS4/EM1Cd	PFO/EM1Fb	M2RS2Pr
L2ABF	PFO3/4Ad	PFO2R	PEM1/FO1F
PFO4/1Bh	PFO4/2B	PSS6B	PEM1/FO4A
PEM1/SS1Fh	PSS3Ad	PSS1Cx	PSS1/EM1Fb
PSS3/1Bd	PFO/UBFx	PFO3/4C	PFO2Ed
PSS4/2B	E2USPs	E2FO1/4P	PEM5Cd
R4SB1C	PSS7/FO2B	PEM1/SS4E	PSS4/FO3B
E2FO4/EM1P	PFO4/SS4R	PSS2C	PSS1/4Cd
L2EM2Gh	PEM1/SS1Eh	PFO3/2B	PSS1/FO4Ad
L2UBHx	PEM1/SS1Rd	PSS4Ad	L1UBK
R3US1C	E2US2P6	R3UBH	M2US2N
E2EM1Px	E2EM1Ph	PFO4/SS4B	PSS/EM1Ad
PEM1Ax	PSSF	PFO2/SS1C	PFO5G
PSS1/FO4Ed	PFO4E	PUBGh	PFO1/EM1Sd
L2UB3Kx	PSS3Cd	PSS4/FO1B	PSS1/FO3C
PSS4/3Bd	PSS1/EM1F	R1UB3V	PFO2B
PFO3/SS4B	PSS1/EM1E	PSS1Eb	R3RB2H
PSS1/3A	E2FO1P	PAB3Hx	PSS7R
PFO3Rd	PFO1/3E	PFO1Ah	PSS6/UBF
PFO1/SS1E	PFO5/EM1Fb	PFO5/1F	PSS4S
PFO4/3Ad	PFO3R	PFO4/EM1Cd	PSS/FO1Eh
PFO3Ch	PFO3B	PEM1/SS1Fb	PSS4Sd
R4SBCx	L2UBH	PEM1/FO1C	PSS1/FO1A
R2UBG	PSS4Cx	PAB3Fh	R3RBF
PFO1/2T	PEM1/UBFh	PSS6/EM1T	PFO1/EM1F
PSS1/4S	PFO4/1Ax	PUB/FO5F	PSS/EM1C



PUB/FO5Hx	PFO/SS1Eb	PFO4/1R	PFO4/SS3A
PEM1/SS3A	E2FO3Pd	PSS1B	PSS1/4C
PFO1/4Sd	PUB/FO5Fb	PFO2/4B	PFO4/2A
PAB4Hh	PFO4/SS4C	PFO1/3Cd	E2SS4/1P
PSS1Ah	PFO4Ad	PFO5Gb	PSS4/FO4B
PFO2/EM1F	PSS/EM1Eb	PSS1Cb	R1ABV
PFO4/SS3Ad	E2USMs	PSS1/FO1Fb	E2EM1N
R4SB3C	PSS4Rs	E2EM1Nd	R2USCx
PFO/SS1Ad	PUSCx	PSS1A	E2SS4/1Pd
PUBKr	PFO6C	PFO1Ch	PUB/FO1Fb
PSS3B	PSS6Fd	PSS/EM1Ch	PFO2C
PEM1Bd	PSS4/FO4Ad	PSS1/2C	PFO1/UBFh
PSS1/FO1E	PSS6/7B	PUSCd	PFO/SS4B
E2FO4/1Ps	E2EM1Ns	PUBGx	PAB3Fx
L2USC	PFO1/EM1B	PAB4H	PSS4/EM1Rd
PSS1/FO1Rd	PFO1Cd	PFO6Fd	L2US2J
PSS1/EM2F	PFO7/1B	PEM5R	PSS4/EM1A
R3USC	PEM1/SS3Bd	PEM1Fb	PSS1/FO4Rd
L2USA	PSS1/FO4A	PUB3Kr	E2FO4/SS4P
PSS3Ah	PFO1/5Fb	PFO1/3Bd	PFO1/SS5F
L2EM2Hh	E2EM1/SS1P6	PEM1/SS1B	PSS3/ABC
PFO1/7B	PFO1/2Eh	PFO1/3B	E2US2Ps
PSS5/FO1F	PFO4Cs	PFO4/SS1A	PSS1/FO1F
PFO4Bdg	PEM1B	PFO3/1Bd	PSS3/FO4Rd
PFO4/2Cd	E2EM1/SS1P	E2FO4P6	PFO4/SS6B
E2ABM	PEM1/FO1Sd	E2USMd	E2SS3P
PSS/FO1Eb	PSS3/EM1R	PSS3R	E2USP
PSS4/3Ad	PFO3/1Ad	PFO1/4Ad	R3UB3H
L2USAx	PSS1T	PFO7Bd	PFO1/2R
PEM1/FO4Ad	PFO4/3C	PFO1/2Fd	PAB/FO1F
E2FO1P6	R3USA	PFO/EM1Eb	E2SS1/3Pd
PSS7/FO6B	PSS3/2C	E2SS7Pd	PFO7/SS7B
R1USQ	E2US/EM1N	PSS1R	PFO3C
PFO4/EM1Ad	PSS7/6C	E2USM6	PFO4/1Bd
PSS1/FO3B	PEM1/FO1Fd	R2USA	PSS3/4A
R3UBF	PSS1Td	PFO1/4R	PSS/FO1Ad
PFO1/EM1Fd	PSS1/4E	PFO1C	R2UBGx
R3UBHx	E2EM1/SS4Pd	PSS1/2Fd	PSS4/1Rd
PFO2/SS3R	PSS1/3Cb	E1UBLx6	PFO/SS1Cd
E2EM1P	L2AB3Hh	PSS1/UBFh	PSS7B
PEM1/FO4Cd	PSS4/1Ad	PSS7/1A	PFO3/2A
PEM1Fd	E2SS4/3P	PSS7Ax	PSS1/4B
PEM1Eb	E2SS1/4Pd	PFO3/1Cd	E2SS1Ps
PUBVx	L1UB1Hh	E2EM1/SS3Pd	PAB3F
PFO1F	PSS1/FO4Bd	PSS1Ax	PFO5Fd

PSS1/2B	E2FO3P	L2UBK	PSS4/FO4A
PFO2Fh	PEM5Td	E2SS1/US2P	PFO1Bh
R4SBA	PFO1/EM1R	PFO1/4Bh	PEM1/SS2F
PSS7Bd	PFO1Sd	PFO3/1R	L1UBVx
PFO1/4Cx	PFO4B	PEM1/SS1F	PSS4Bd
PSS/EM1A	PSS5/1F	PFO4/1Cx	E2FO1Ps
R4SBC	PFO1/SS4Cd	PFO1/2Bd	PSS5Fh
PSS1/EM1Ad	R3UBHh	E1ABL	PABFb
PFO1Fb	PSS1/FO4E	E2SS4/FO4P	PFO3/SS3B
PFO2/4C	L2USK	PSS4/1B	PEM1/SS1E
R4SBax	PFO1Rd	PAB1F	PSS3/4R
E2SS1Pd	PSS6/7S	PFO1/EM1Eb	PFO6B
E2SS4P6	E2SS6/7P	PFO4/1Ed	PSS/EM1F
PFO1/SS3Ad	PSS4/EM1E	PSS1/FO5F	PFO7/6B
PFO1/4Ax	PSS1/EM1Cb	PSS4Rd	PSS1/EM1Cd
PFO4/SS1Bd	PSS5Gh	PFO4/SS3B	PEM1/SS1Cd
R3RSC	PFO1/4Bd	PSS/EM1Bd	PFO1/UBFb
PFO1/SS7B	PEM1Bh	PFO1/SS4Ad	PFO1/3Cx
PFO3/4R	PEM2F	PUSR	PAB4Gb
PFO4Rs	E2SS3/4P	E2EM5/SS1Pd	E2SS4Ps
PFO4/1C	PFO1/SS1Bd	PFO2/1R	PFO6/SS7B
PFO5/UBHx	PSS1/EM1B	PEM1/FO1Fb	PFO4/SS4Ad
PEM1Ch	PFO7/1E	PFO4/1A	PFO1/SS1Fd
PAB4Hb	PFO4/SS4Bd	E2FO4Pd	E2SS3/1Pd
PABHh	PFO2/SS1F	PUB/SS1Fx	PFO3Ad
PSS3/FO1C	E2EM5P	PSS3/4Ad	PFO4Bx
PEM1/FO4Bd	PFO4Cb	E2FO3/4Pd	PFO/EM1C
PSS1Cs	PEM1/SS3Rd	R3RB1F	PFO6R
PSS6/FO2B	E2FO5M	PSS1/2F	PSS1K
PFO1/SS1C	PSS1/FO2Cd	PFO2Ch	R3UB1H
PFO1/EM1E	PSS4Ch	PSS1/FO1Bd	PFO5F
PFO4/SS4Rd	PEM1Ah	PFO1Bd	PFO1/3R
PSS4/EM1Bd	PSS3/EM1C	PFO1/4Ed	L2USCb
PFO6/7Bd	E2US/EM1Nd	L2USJh	PSS/EM1A
R2ABH	E2EM1/SS1Pd 6	PSS3/EM1B	R3UB1F
PEM1Ab	L2EM2Fh	PEM1/SS1Bd	PFO3/4S
PUB/SS1Fb	PSS3/FO4R	PEM1/SS5F	PFO1/SS7A
PSS1/FO1C	PSS4K	PSS4/FO1Cd	PUB1Gx
PEM1/SS4Bd	PUB/FO5Fh	PSS3/4B	PUB/FO5Hh
PAB3Gb	PFO1Ed	PFO4/1Sd	PSS3/FO2B
PFO2/3A	PFO3/4B	PFO4/3Bg	E2SS1Ph
PFO4/1Rd	PSS1/2Cd	PSS1/EM1Rd	PSS3/4C
PFO4/1Ad	PSS4Ah	L2UB/EM2Hh	L2ABHx
E2SS1P6	PSS3A	PFO1/SS3Rd	E2EM1Pd5



PFO1/SS1Rd	PFO4Ab	PSS/FO1Fh	L2EM2K
PFO1Fd	PFO1E	PFO5/1Fb	E2USNd
PSS4/FO4Bd	PSS1/EM1Kx	PFO1/2B	PFO4/EM1E
PSS2/3C	PSS3/1Ad	E2FO1Pd	PEM1/SS4Cd
PAB/UBFh	PSS1/EM5Rd	PFO6/7A	PAB1H
E2US/EM1Pd	PSS1/EM1Bd	PEM1/FO1Bd	PFO7/6C
PEM1/FO1T	PFO2Cd	PSS3/EM1Cd	PFO1/SS3C
PFO2/1Cd	PSS4/FO4C	PSS3/EM1Rd	PFO1/EM1Cd
PSS3/FO3Bd	PSS3S	E2US2N	PEM1/SS1Ed
R3RBH	PEM2Gh	PEM1Fx	PFO4Bh
PSS1/4Rd	M2US2P	PFO1/SS4A	PFO2/SS3B
PEM1/USC	PEM1E	PABHx	PFO1/3Ah
PEM1/SS4R	PSS3/1Cd	PSS3Cb	PSS1/FO1Cd
E2SS4Pd	E2EM5Pd	PSS/EM1Cb	PFO4/SS1Sd
PEM5/SS1Rd	PSS4A	PFO6/7C	PEM1Cb
PFO5Fb	PSS1/FO3Bd	PFO1/SS3E	E2US2/SS1P
PEM1Fh	E2SS7/EM1P	PEM1/FO1E	PSS/FO1Cb
PEM1/SS1C	PFO4/SS7A	L1UBHb	PFO5T
PEM1/FO4C	PSS1Bb	PFOC	PSS1/FO2B
PSS3/4Bd	PSS3/1R	PUB/EM1Fh	R2ABHx
PUBK	PSS3/FO1Bd	PUSK	L2UBGh
R3RBFx	PFO1Ad	PFO1/EM1C	PSS3/FO4Ad
PSS7/FO4B	PFO3Cd	E2USNh	PFO5/UBFb
PSS4/3R	PSS4/EM1C	PSS4/1S	PSS1/3Ch
E1UB3Lx	PSS3/1Rd	L2AB4Hh	PAB4Hx
PEM1/FO1Rd	E2SS4/1P6	PFO/EM1E	PFO4/EM1Bd
PFO4Sd	PSS4/FO2B	PUBHh	PABKx
PSS1/FO7B	PSS1/EM1T	PFO2/1F	PFO4/1E
PFO4Bd	R2USC	E2RSN	PUB3H
PEM5Rd	L2US3Ch	PSS1/4Sd	PSS1/FO4R
E2SS1/EM1P	PEM1/SS3R	PSS1Bd	PSS1Fx
PSS1/2A	PSS1Bh	PSS3Bdg	PSS6/FO4B
L2ABH	PEM1/FO5Fd	PSS1Sd	PSS1/3R
E2EM1P6	PUB1H	PFO1/SS1Fb	PSS1/FO4Cd
PEM1Rh	PFO3/4A	PEM1/SS3Ch	PUB/FO2F
PFO4Ed	E1UB2Lx	PEM5Fx	PFO3A
PEM5Fh	PEM1/UBF	PFO3/4Cd	PFO1Fx
PFO4R	PFO/SS1E	E2SS3Pd	PFO/EM1Ah
PEM1/SS1Fd	PUB3Gx	PEM1Ed	PFO1/3A
E2EM1N6	PAB3Hh	PFO4/EM1Rd	PFO1/SS1Ad
PUBVh	L2UBFh	PFO6/4C	



9.3.2 B.2.2 NRTR Jurisdictional Wetlands WET

Field	Expected Values
Type	NCWAM Wetland type classification Values: "Salt/Brackish Marsh" "Estuarine Woody Wetland" "Tidal Freshwater Marsh" "Riverine Swamp Forest" "Seep" "Hardwood Flat" "Non-Riverine Swamp Forest" "Pocosin" "Pine Savanna" "Pine Flat" "Basin Wetland" "Bog" "Non-Tidal Freshwater Marsh" "Floodplain Pool" "Headwater Forest" "Bottomland Hardwood Forest"
Rating	Rating from NCWAM Values: "High" "Medium" "Low"
HydroClass	Hydrological classification Values: "Riparian" "Non-Riparian"



Cowardin	Classification of Wetlands and Deepwater Habitats.			
	Values:			
PFO1/EM1Bd	PEM1/SS4C	PSS4/1Sd	PSS1/EM1Fh	
PFO3/1E	E2EM1Ps	PFO1S	PSS3/1A	
PFO4Bg	PSS4/1Cd	PFO4/SS3C	PFO4/SS7B	
PSS2F	PFO1/SS1R	PSS4E	PFO/SS1Fh	
PSS5F	E2SS4/EM1Pd	R1UBVx	R5UBFx	
L1UBHh	PEM5Ch	PFO4/SS7Bd	PSS2/1F	
PFO4/3B	PEM1/AB4F	PEM1/SS4A	PSS3/FO4B	
E2US2P	PSST	PSS1/EM1Ax	L1UB1Kx	
PFO4Bb	PSS3/4Bh	PAB4Gh	PFO6Bd	
PSS5Fd	PFO1/4Cd	PEM1/SS3B	L2UBHh	
E2USMh	PFO5Fx	E2USNs	PEM1/FO4B	
E2SS3/EM1Pd	PEM5Rh	Pf	PSS4/3B	
PFO3/4Bd	PFO1Kx	PFO1/2Ch	PUB/SS5F	
E2SS3/1P	PFO6F	PFO1Ab	E2FO4/1P	
E2FO1/4Ps	PSS3/FO4Bd	E2EM5Ps	PFO1/SS4R	
E2US2/EM1Pd	PFO1/2Rd	PAB/EM1Fx	PEM1/SS1Sd	
PSS1/3Ah	PAB3G	PFO3/SS1B	PFO2/1E	
PUSC	E2USM	PEM1/FO1A	PUBHb	
PSS7A	E2EM1/USN	PSS1Ad	E2SS3/4Ps	
E2EM1/USN6	PFO5/EM1Fh	PUB3G	PFO1Cb	
L2UBGx	PFO2/1Bd	PFO6Ch	PFO5Fh	
E2EM1/USPd	PUS2Ch	PUBGb	R2UB2H	
PSS4C	PFO1/2Cb	PFO4Ch	E2USN6	
PFO1/SS3R	E2EM1/US2P	R3RB1H	PSS1/5Fh	
PABF	PSS7Cd	PSS1E	PFO1/5F	
R3RSA	PFO4Ah	R4SB2C	PUS2C	
PFO1/5Fh	R3UB2H	PSS6/EM1F	PSS7C	
PEM1/SS1Eb	M2USP	PFO5/EM1F	PFO4/EM1C	
PSS3/EM1Bd	PABH	PEM1Th	PSS4/FO1A	
PFO1/SS1Ch	PSS5/EM1F	PEM1/SS1A	PFO4/1Ch	
PEM1/FO4R	PFO3Ah	PFO/SS1Ch	PFO1T	
L1RB1Hx	PSS1F	PUBFd	PFO1/4Ah	
PUBV	PFO4/2C	PUB/ABHh	PFO2Fx	
L2AB3Fh	PSS6Fx	PUB1Hx	PFO4/SS3R	
PFO7/6Bd	PSS3C	PSS4/1A	PSS/FO4A	
PFO2/SS1B	PAB4Fb	PFO6/UBT	PFO5/UBH	
PFO3E	PEM1A	E2SS1/3P	PUB/FO1Fh	
PFO1/3Ch	PFO1B	PSS/FO1Ch	R2UBHx	
PAB4G	PEM1/FO1B	PFO4/1Bg	E2SS1P	
PUB/SS1F	PFO4/2Bd	PFO/EM1Cb	PUB/EM1Fb	
PEM5Fd	PFO1/SS7R	PFO4/EM1A	PFO1/EM1Cb	
PFO1/2Ad	PFO4Cx	PFO2/4Cd	PUBG	

PFO6/SS1B	PEM1/SS3K	PFO1/SS3Cd	PSS1/3Bd
PSS7/6B	PFO1/EM1Fh	PSS6/7A	PSS3/1B
PSS3Bd	E2SS4/1Ps	E2FO4/EM1Pd	L1ABHh
PFO4/SS1R	PSS3E	PSS1/3Rd	PSS1Cd
L2USAh	PSS1/USK	PFO1/SS3Bh	PSS4/EM1B
PSS1C	L1ABHx	PSS1/FO1Fd	PSS6/FO7B
PSS4R	E2EM1/SS3P	R2UB3H	PSS4/3C
PEM1F	L1UBKx	PFO4/SS3Bd	PABK
PFO2E	PFOT	PFO6T	PFO4/SS1Ad
PFO4/1B	PSS1/2Fx	PSS4/1R	PSS1Ch
PFO4/SS4S	E2FO3/1P	E2EM1P5	PEM1Sh
PFO1R	E1UB2L	PEM5Bd	PSS1Ab
E2SS1/EM1Pd	PFO1/4S	PSS1/FO2R	PFO1/SS3B
PSS6/7C	PSS1/4Bd	PFO2T	PFO2A
PFO6Cd	PEM1Ex	PFO6/4B	PSS1/FO1Ad
R4SBAr	PFO3Bd	PFO2/3C	PFO7B
E2SS7Ps	PFO3/1B	PUSCh	PAB3Gh
PSS2Fh	PFO1/2Fx	PFO2Ad	PUSKx
PFO1/ABF	PEM1Cd	PSS/EM1Fh	PSS1/4A
PEM1/SS1R	PFO5H	E2EM1Pd	PSS1Ed
PFO1/EM1A	M1UBL	PSS1/3B	PFO4/EM1B
PFO/SS1Bd	E2SS3/1Ps	PFO1/2Fh	PFO2Rd
PSS1/FO4B	E2FO4P	PSS6C	PUB/SS1Fh
PSS/EM1B	L2US3Ah	PSS7/6Bd	PAB3Hb
PFO1/4Bg	PEM1/SS4B	PSS1Rd	E2USPh
PFO1Fh	PUBFh	PFO1/SS1F	PFO1/SS1A
L2AB3H	E2SS7P	PFO1/4Eh	PSS6F
PFO/SS4Bd	E2EM1/FO4P	PSS5Hx	PSS4/3Cd
PFO3/SS1Bd	PFO4/3R	PSS1/EM1K	PSS1/FO1B
PFO4Ax	PSS1/UBFb	PUBHx	PFO1Bb
PSS1/2Ch	R2UBH	E2SS3Ps	PUSAh
E2FO3/4Ps	PUB3Hh	PFO5Gh	R2UBHh
L2UBVh	PSS1/FO1R	PUB1G	L2USCx
PSS4Cd	PEM1K	E2US2/EM1P	E2SS1/4Ps
PSS1/3Cd	PSS1/4Ed	PSS1/UBF	PFO3/SS4Bd
PEM1S	E2FO3/4P	PSS1/EM1Ch	PAB/SS1F
E1ABLx	PFO4/3Cd	PSS1/2T	PEM1/SS4Rd
E2SS4P	PFOCd	PFO1/4B	PSS4/FO1Bd
PSS4/EM1R	PFO1Eh	PFO1/SS4Bd	PSS1/4Cb
PFO4/SS1B	E1UBL6	PFO1/SS3Bd	PSS/FO1B
PFO/SS1Cb	PSS1/EM1A	PUB/ABFb	PFO3/1C
PEM1/SS1Cb	L1UBHx	E2SS4Ph	E2FO5P
PSS6/FO7A	PFO2/1B	PSS3/4Cd	PFO1/4Ch
PFO4/SS4A	E2SS4/EM1P	L1UB4H	PFO4/3Bd
E2EM1Nh	PSS4B	PSS3Rd	PSS4/FO4Cd



PSS6A	PSS7Ad	L2US3C	E2US/EM1P
PFO1/3C	PSS6/7Bd	PSS3Cx	L1UB3H
PAB4Fh	PSS7/EM1B	PEM1Tb	PEM1Cx
E2SS4/EM1P6	PSS1/4Ad	PSS1Rh	PFO/EM1A
PFO1/4Ab	PABFx	PFO1/UBFx	PFO2Bd
PFO3/4Rd	PSS1/EM1C	PSS3/FO1A	PAB3Fb
E2EM1Nd6	PFO1/EM1Rd	L1UB3Hh	PFO4A
PEM1R	R3USAr	PFO4/EM1R	PUB1Kx
PFO6/SS6B	E2SS5M	E2SS1/EM5Pd	PUS/EM1Ah
PFO4/1Cd	L1UBH	PFO1/SS4B	E2EM1/SS7Ps
PEM2Fh	PSS1/EM1R	PSS1/FO2C	PSS1Fb
PFO1/SS4C	M1ABL	E2SS3/USP	PEM1Eh
PFO1/SS1Cd	PSS6Fh	E2ABN	E1UB3L
E2FO4Ps	PFO6/4Bg	PFO6/SS6F	L2EM2F
PSS1/FO4C	PFO6/7B	E2EM1/SS4P6	PSS4/FO3Bd
R2UBFx	PFO1/4Cb	PEM1/SS1T	PUSAx
R2ABHh	E2EM1/SS1Pd	PFO6Fh	PFO2/1Fd
PFO4Rd	PFO1/3Ad	PFO1/2A	PSS1/3E
PFO1/4C	PUB3Hx	E2SS3/EM1P	PUBFx
PUBH	PSS5Hh	PFO1/4A	E2SS3/4Ph
L1ABH	L1UBGh	PSS1/2Fb	PFO1/SS1Fh
PAB1Fh	PUB/ABH	PFO4Cd	PSS1/4Ch
PSS1/4Ah	PFO1/2C	PSS1/5Fd	E2EM5Ph
PEM1Rd	PAB4F	PSS1/2Ad	E2US3N
PFO3/1A	PSS2/1A	PFO1Eb	E2SS3/4Pd
PEM1Ad	PEM1/SS1Ch	PSS1/EM1Sd	PSS1S
PSS3/1C	R2UBF	PFO6/UBF	PFO1/SS3Ed
PUB3Fh	E2SS3P6	PSS4/EM1Sd	L2USCh
PEM1C	PUBFb	PFO5/1Fh	R3US3C
PFO3/SS3Bd	E2USPd	E2RSP	PEM1/SS1Ad
PSS3/FO1Bb	PFO1/SS3A	PFO7C	PSS1/2Cb
PEM5T	PSS6/FO1B	PFO3/2C	PSS1/2Fh
PSS1Kx	PSS1/FO2F	PEM1/SST	PFO7A
E2SS1/4P	L2ABVh	PUBF	PSS1/4R
PSS4/EM1Ad	L2UB/EM2Gh	PFO1/2Fb	PSS1Rs
E2EM1/SS4P	L2ABHh	L1ABK	PSS3/FO1B
E1UBL	PSS4/FO1C	PFO6/EM1F	PEM5Ad
L2UB3Fh	PABFh	PFO3/EM1B	L1UB1Hx
PFO6E	PFO2/1C	PSS3/FO1Ad	PSS2/1C
PSS3/FO4A	PUB/FO5Hb	PEM1/FO2F	PUBKx
PAB4Fx	E1UB4L6	PSS3/FO4Cd	PSS4Ax
E2SS1/3Ps	PFO4/SS1C	R1UBV	PFO/EM1Ch
PEM5F	E2US2M	R2AB1H	PSS6/7Ad
PFO1/4E	PSS3/FO1Cd	PFO1/2F	PFO1/2E
L2AB3Hx	PUSAd	R2UBFh	PSS3/EM1Ch

PFO4/SS1Cd	PFO2/SS4B	E2EM1Pd6	PFO1Cx
PEM1/FO5F	M2USN	PSS1/FO5Fb	PFO5Hh
PSS3Ch	PSS3/1E	PEM1/SS4Ad	L2UBFx
PFO4/1Ah	PSS/EM1Eh	PFO5Hb	PABFd
PEM1Sd	PEM5Th	PUSA	PSS6Ch
PSS1Fh	E2USN	E2EM1/USP	PFO6Fb
PSS1/3C	PSS1Eh	PSS3/FO3B	R2UB1H
PFO5/SS1F	PFO1/2Cd	PSS4/1Bd	M2USM
M2US2M	PFO1/SS1Ah	PFO2Cb	PSS1/EM1Fd
PFO1/UBF	E2EM5/SS4Pd	PSS/EM1Fb	PEM1/FO1Cd
PSS4/1C	PSS1Sh	PFO1A	PFO5/UBF
PSS1Bx	R5UBH	E2SS1/EM1P6	PEM1Kx
PFO4S	PSS1/3Ad	PEM1/SS3Cd	PFO4/SS3Cd
E2SS6P	L2AB3K	PAB/EM1F	PFO7Ad
PFO2F	E2SS5P	PFO6A	PSS3/FO4C
PFO1/4Rd	PFO1Ax	PAB3H	PFO4C
PSS5/FO5F	E2RS2Pr	PEM1/FO1Ad	PFO1/SS1B
PSS1Fd	E1UBLh	PFO2/1A	PEM1T
PSS6T	PSS3/4Rd	PSS4/FO1Ad	R2RSC
PFO4/SS4Cd	PSS4/EM1Cd	PFO/EM1Fb	M2RS2Pr
L2ABF	PFO3/4Ad	PFO2R	PEM1/FO1F
PFO4/1Bh	PFO4/2B	PSS6B	PEM1/FO4A
PEM1/SS1Fh	PSS3Ad	PSS1Cx	PSS1/EM1Fb
PSS3/1Bd	PFO/UBFx	PFO3/4C	PFO2Ed
PSS4/2B	E2USPs	E2FO1/4P	PEM5Cd
R4SB1C	PSS7/FO2B	PEM1/SS4E	PSS4/FO3B
E2FO4/EM1P	PFO4/SS4R	PSS2C	PSS1/4Cd
L2EM2Gh	PEM1/SS1Eh	PFO3/2B	PSS1/FO4Ad
L2UBHx	PEM1/SS1Rd	PSS4Ad	L1UBK
R3US1C	E2US2P6	R3UBH	M2US2N
E2EM1Px	E2EM1Ph	PFO4/SS4B	PSS/EM1Ad
PEM1Ax	PSSF	PFO2/SS1C	PFO5G
PSS1/FO4Ed	PFO4E	PUBGh	PFO1/EM1Sd
L2UB3Kx	PSS3Cd	PSS4/FO1B	PSS1/FO3C
PSS4/3Bd	PSS1/EM1F	R1UB3V	PFO2B
PFO3/SS4B	PSS1/EM1E	PSS1Eb	R3RB2H
PSS1/3A	E2FO1P	PAB3Hx	PSS7R
PFO3Rd	PFO1/3E	PFO1Ah	PSS6/UBF
PFO1/SS1E	PFO5/EM1Fb	PFO5/1F	PSS4S
PFO4/3Ad	PFO3R	PFO4/EM1Cd	PSS/FO1Eh
PFO3Ch	PFO3B	PEM1/SS1Fb	PSS4Sd
R4SBCx	L2UBH	PEM1/FO1C	PSS1/FO1A
R2UBG	PSS4Cx	PAB3Fh	R3RBF
PFO1/2T	PEM1/UBFh	PSS6/EM1T	PFO1/EM1F
PSS1/4S	PFO4/1Ax	PUB/FO5F	PSS/EM1C



PUB/FO5Hx	PFO/SS1Eb	PFO4/1R	PFO4/SS3A
PEM1/SS3A	E2FO3Pd	PSS1B	PSS1/4C
PFO1/4Sd	PUB/FO5Fb	PFO2/4B	PFO4/2A
PAB4Hh	PFO4/SS4C	PFO1/3Cd	E2SS4/1P
PSS1Ah	PFO4Ad	PFO5Gb	PSS4/FO4B
PFO2/EM1F	PSS/EM1Eb	PSS1Cb	R1ABV
PFO4/SS3Ad	E2USMs	PSS1/FO1Fb	E2EM1N
R4SB3C	PSS4Rs	E2EM1Nd	R2USCx
PFO/SS1Ad	PUSC _x	PSS1A	E2SS4/1Pd
PUBKr	PFO6C	PFO1Ch	PUB/FO1Fb
PSS3B	PSS6Fd	PSS/EM1Ch	PFO2C
PEM1Bd	PSS4/FO4Ad	PSS1/2C	PFO1/UBFh
PSS1/FO1E	PSS6/7B	PUSCd	PFO/SS4B
E2FO4/1Ps	E2EM1Ns	PUBG _x	PAB3F _x
L2USC	PFO1/EM1B	PAB4H	PSS4/EM1Rd
PSS1/FO1Rd	PFO1Cd	PFO6Fd	L2US2J
PSS1/EM2F	PFO7/1B	PEM5R	PSS4/EM1A
R3USC	PEM1/SS3Bd	PEM1Fb	PSS1/FO4Rd
L2USA	PSS1/FO4A	PUB3Kr	E2FO4/SS4P
PSS3Ah	PFO1/5Fb	PFO1/3Bd	PFO1/SS5F
L2EM2Hh	E2EM1/SS1P6	PEM1/SS1B	PSS3/ABC
PFO1/7B	PFO1/2Eh	PFO1/3B	E2US2Ps
PSS5/FO1F	PFO4Cs	PFO4/SS1A	PSS1/FO1F
PFO4Bdg	PEM1B	PFO3/1Bd	PSS3/FO4Rd
PFO4/2Cd	E2EM1/SS1P	E2FO4P6	PFO4/SS6B
E2ABM	PEM1/FO1Sd	E2USMd	E2SS3P
PSS/FO1Eb	PSS3/EM1R	PSS3R	E2USP
PSS4/3Ad	PFO3/1Ad	PFO1/4Ad	R3UB3H
L2USAx	PSS1T	PFO7Bd	PFO1/2R
PEM1/FO4Ad	PFO4/3C	PFO1/2Fd	PAB/FO1F
E2FO1P6	R3USA	PFO/EM1Eb	E2SS1/3Pd
PSS7/FO6B	PSS3/2C	E2SS7Pd	PFO7/SS7B
R1USQ	E2US/EM1N	PSS1R	PFO3C
PFO4/EM1Ad	PSS7/6C	E2USM6	PFO4/1Bd
PSS1/FO3B	PEM1/FO1Fd	R2USA	PSS3/4A
R3UBF	PSS1Td	PFO1/4R	PSS/FO1Ad
PFO1/EM1Fd	PSS1/4E	PFO1C	R2UBG _x
R3UBHx	E2EM1/SS4Pd	PSS1/2Fd	PSS4/1Rd
PFO2/SS3R	PSS1/3Cb	E1UBL _x 6	PFO/SS1Cd
E2EM1P	L2AB3Hh	PSS1/UBFh	PSS7B
PEM1/FO4Cd	PSS4/1Ad	PSS7/1A	PFO3/2A
PEM1Fd	E2SS4/3P	PSS7Ax	PSS1/4B
PEM1Eb	E2SS1/4Pd	PFO3/1Cd	E2SS1Ps
PUBV _x	L1UB1Hh	E2EM1/SS3Pd	PAB3F
PFO1F	PSS1/FO4Bd	PSS1Ax	PFO5Fd



PSS1/2B	E2FO3P	L2UBK	PSS4/FO4A
PFO2Fh	PEM5Td	E2SS1/US2P	PFO1Bh
R4SBA	PFO1/EM1R	PFO1/4Bh	PEM1/SS2F
PSS7Bd	PFO1Sd	PFO3/1R	L1UBVx
PFO1/4Cx	PFO4B	PEM1/SS1F	PSS4Bd
PSS/EM1A	PSS5/1F	PFO4/1Cx	E2FO1Ps
R4SBC	PFO1/SS4Cd	PFO1/2Bd	PSS5Fh
PSS1/EM1Ad	R3UBHh	E1ABL	PABFb
PFO1Fb	PSS1/FO4E	E2SS4/FO4P	PFO3/SS3B
PFO2/4C	L2USK	PSS4/1B	PEM1/SS1E
R4SBAx	PFO1Rd	PAB1F	PSS3/4R
E2SS1Pd	PSS6/7S	PFO1/EM1Eb	PFO6B
E2SS4P6	E2SS6/7P	PFO4/1Ed	PSS/EM1F
PFO1/SS3Ad	PSS4/EM1E	PSS1/FO5F	PFO7/6B
PFO1/4Ax	PSS1/EM1Cb	PSS4Rd	PSS1/EM1Cd
PFO4/SS1Bd	PSS5Gh	PFO4/SS3B	PEM1/SS1Cd
R3RSC	PFO1/4Bd	PSS/EM1Bd	PFO1/UBFb
PFO1/SS7B	PEM1Bh	PFO1/SS4Ad	PFO1/3Cx
PFO3/4R	PEM2F	PUSR	PAB4Gb
PFO4Rs	E2SS3/4P	E2EM5/SS1Pd	E2SS4Ps
PFO4/1C	PFO1/SS1Bd	PFO2/1R	PFO6/SS7B
PFO5/UBHx	PSS1/EM1B	PEM1/FO1Fb	PFO4/SS4Ad
PEM1Ch	PFO7/1E	PFO4/1A	PFO1/SS1Fd
PAB4Hb	PFO4/SS4Bd	E2FO4Pd	E2SS3/1Pd
PABHh	PFO2/SS1F	PUB/SS1Fx	PFO3Ad
PSS3/FO1C	E2EM5P	PSS3/4Ad	PFO4Bx
PEM1/FO4Bd	PFO4Cb	E2FO3/4Pd	PFO/EM1C
PSS1Cs	PEM1/SS3Rd	R3RB1F	PFO6R
PSS6/FO2B	E2FO5M	PSS1/2F	PSS1K
PFO1/SS1C	PSS1/FO2Cd	PFO2Ch	R3UB1H
PFO1/EM1E	PSS4Ch	PSS1/FO1Bd	PFO5F
PFO4/SS4Rd	PEM1Ah	PFO1Bd	PFO1/3R
PSS4/EM1Bd	PSS3/EM1C	PFO1/4Ed	L2USCb
PFO6/7Bd	E2US/EM1Nd	L2USJh	PSS/EM1A
R2ABH	E2EM1/SS1Pd 6	PSS3/EM1B	R3UB1F
PEM1Ab	L2EM2Fh	PEM1/SS1Bd	PFO3/4S
PUB/SS1Fb	PSS3/FO4R	PEM1/SS5F	PFO1/SS7A
PSS1/FO1C	PSS4K	PSS4/FO1Cd	PUB1Gx
PEM1/SS4Bd	PUB/FO5Fh	PSS3/4B	PUB/FO5Hh
PAB3Gb	PFO1Ed	PFO4/1Sd	PSS3/FO2B
PFO2/3A	PFO3/4B	PFO4/3Bg	E2SS1Ph
PFO4/1Rd	PSS1/2Cd	PSS1/EM1Rd	PSS3/4C
PFO4/1Ad	PSS4Ah	L2UB/EM2Hh	L2ABHx
E2SS1P6	PSS3A	PFO1/SS3Rd	E2EM1Pd5



PFO1/SS1Rd	PFO4Ab	PSS/FO1Fh	L2EM2K
PFO1Fd	PFO1E	PFO5/1Fb	E2USNd
PSS4/FO4Bd	PSS1/EM1Kx	PFO1/2B	PFO4/EM1E
PSS2/3C	PSS3/1Ad	E2FO1Pd	PEM1/SS4Cd
PAB/UBFh	PSS1/EM5Rd	PFO6/7A	PAB1H
E2US/EM1Pd	PSS1/EM1Bd	PEM1/FO1Bd	PFO7/6C
PEM1/FO1T	PFO2Cd	PSS3/EM1Cd	PFO1/SS3C
PFO2/1Cd	PSS4/FO4C	PSS3/EM1Rd	PFO1/EM1Cd
PSS3/FO3Bd	PSS3S	E2US2N	PEM1/SS1Ed
R3RBH	PEM2Gh	PEM1Fx	PFO4Bh
PSS1/4Rd	M2US2P	PFO1/SS4A	PFO2/SS3B
PEM1/USC	PEM1E	PABHx	PFO1/3Ah
PEM1/SS4R	PSS3/1Cd	PSS3Cb	PSS1/FO1Cd
E2SS4Pd	E2EM5Pd	PSS/EM1Cb	PFO4/SS1Sd
PEM5/SS1Rd	PSS4A	PFO6/7C	PEM1Cb
PFO5Fb	PSS1/FO3Bd	PFO1/SS3E	E2US2/SS1P
PEM1Fh	E2SS7/EM1P	PEM1/FO1E	PSS/FO1Cb
PEM1/SS1C	PFO4/SS7A	L1UBHb	PFO5T
PEM1/FO4C	PSS1Bb	PFOC	PSS1/FO2B
PSS3/4Bd	PSS3/1R	PUB/EM1Fh	R2ABHx
PUBK	PSS3/FO1Bd	PUSK	L2UBGh
R3RBFx	PFO1Ad	PFO1/EM1C	PSS3/FO4Ad
PSS7/FO4B	PFO3Cd	E2USNh	PFO5/UBFb
PSS4/3R	PSS4/EM1C	PSS4/1S	PSS1/3Ch
E1UB3Lx	PSS3/1Rd	L2AB4Hh	PAB4Hx
PEM1/FO1Rd	E2SS4/1P6	PFO/EM1E	PFO4/EM1Bd
PFO4Sd	PSS4/FO2B	PUBHh	PABKx
PSS1/FO7B	PSS1/EM1T	PFO2/1F	PFO4/1E
PFO4Bd	R2USC	E2RSN	PUB3H
PEM5Rd	L2US3Ch	PSS1/4Sd	PSS1/FO4R
E2SS1/EM1P	PEM1/SS3R	PSS1Bd	PSS1Fx
PSS1/2A	PSS1Bh	PSS3Bdg	PSS6/FO4B
L2ABH	PEM1/FO5Fd	PSS1Sd	PSS1/3R
E2EM1P6	PUB1H	PFO1/SS1Fb	PSS1/FO4Cd
PEM1Rh	PFO3/4A	PEM1/SS3Ch	PUB/FO2F
PFO4Ed	E1UB2Lx	PEM5Fx	PFO3A
PEM5Fh	PEM1/UBF	PFO3/4Cd	PFO1Fx
PFO4R	PFO/SS1E	E2SS3Pd	PFO/EM1Ah
PEM1/SS1Fd	PUB3Gx	PEM1Ed	PFO1/3A
E2EM1N6	PAB3Hh	PFO4/EM1Rd	PFO1/SS1Ad
PUBVh	L2UBFh	PFO6/4C	



9.3.3 B.2.3 NRTR Jurisdictional Streams WEX

Field	Expected Values
Type	NCSAM Stream type classification Values: "Oa1" "Oa2" "Oa3" "Oa4" "Ia1" "Ia2" "Ia3" "Ia4" "Ib1" "Ib2" "Ib3" "Ib4" "Pa1" "Pa2" "Pa3" "Pa4" "Pb1" "Pb2" "Pb3" "Pb4" "Ma1" "Ma2" "Ma3" "Ma4" "Mb1" "Mb2" "Mb3" "Mb4" "TM"
Rating	Rating from NCSAM Values: "High" "Medium" "Low"



HydroClass	Hydrological classification Values: "Riparian" "Non-Riparian"
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9.3.4 B.2.4 NRTR Jurisdictional Streams WET

Field	Expected Values
Type	NCSAM Stream type classification Values: "Oa1" "Oa2" "Oa3" "Oa4" "Ia1" "Ia2" "Ia3" "Ia4" "Ib1" "Ib2" "Ib3" "Ib4" "Pa1" "Pa2" "Pa3" "Pa4" "Pb1" "Pb2" "Pb3" "Pb4" "Ma1" "Ma2" "Ma3" "Ma4" "Mb1" "Mb2" "Mb3" "Mb4" "TM"



Rating	Rating from NCSAM Values: "High" "Medium" "Low"
HydroClass	Hydrological classification Values: "Riparian" "Non-Riparian"