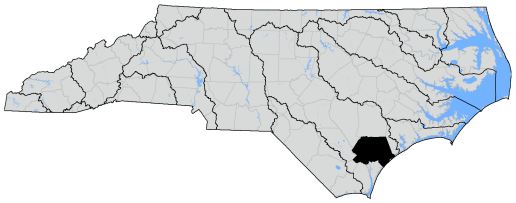
# PRELIMINARY FLOOD INSURANCE STUDY

## FEDERAL EMERGENCY MANAGEMENT AGENCY

**A Report of Flood Hazards in**

**PENDER COUNTY, NORTH CAROLINA AND INCORPORATED AREAS**



| Community Name | Community Number |
|---|---|
| PENDER COUNTY | 370344 |
| TOWN OF ATKINSON | 370542 |
| TOWN OF BURGAW | 370483 |
| TOWN OF SURF CITY | 370186 |
| TOWN OF TOPSAIL BEACH | 370187 |
| TOWN OF WATHA | 370486 |
| VILLAGE OF SAINT HELENA | 370649 |

NORTH CAROLINA
Cooperating Technical State
FEMA'S COOPERATING TECHNICAL PARTNER

**PRELIMINARY: 4/30/2014**
**REVISED: 8/29/2014**
**Federal Emergency Management Agency**
**State of North Carolina**
**Flood Insurance Study Number**
**37141CV000**
**www.fema.gov and www.ncfloodmaps.com**

# FOREWORD

This countywide Flood Insurance Study (FIS) Report was produced through a unique cooperative partnership between the State of North Carolina and the Federal Emergency Management Agency (FEMA). The State of North Carolina has implemented a long-term approach to floodplain management to decrease the costs associated with flooding. This is demonstrated by the State's commitment to map floodplain areas at the state level. As a part of this effort, the State of North Carolina has joined with FEMA in a Cooperating Technical State (CTS) agreement to produce and maintain this FIS Report and the accompanying digital Flood Insurance Rate Map (FIRM) for North Carolina.

# NOTICE TO FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

The following is a list of the publication dates of this Countywide FIS Report starting with the initial Report accompanying the North Carolina Statewide FIRM:

| Date | Reason |
|---|---|
| 2/16/2007 | Initial Countywide FIS Report Effective Date |

This FIS has been produced as part of the North Carolina Floodplain Mapping Program. Pender County, North Carolina, falls under the administrative jurisdiction of Region IV of the Federal Emergency Management Agency (FEMA). Questions concerning this FIS may be directed to the North Carolina Floodplain Mapping Program at www.ncfloodmaps.com, the FEMA Map Assistance Center by calling the toll-free information line at 1-877-FEMA MAP (1-877-336-2627), or by contacting the FEMA Regional Office at the following address:

**FEMA, Federal Insurance and Mitigation Administration**
**Koger Center - Rutgers Building**
**3003 Chamblee Tucker Road**
**Atlanta, Georgia 30341**
**(770) 220-5400**

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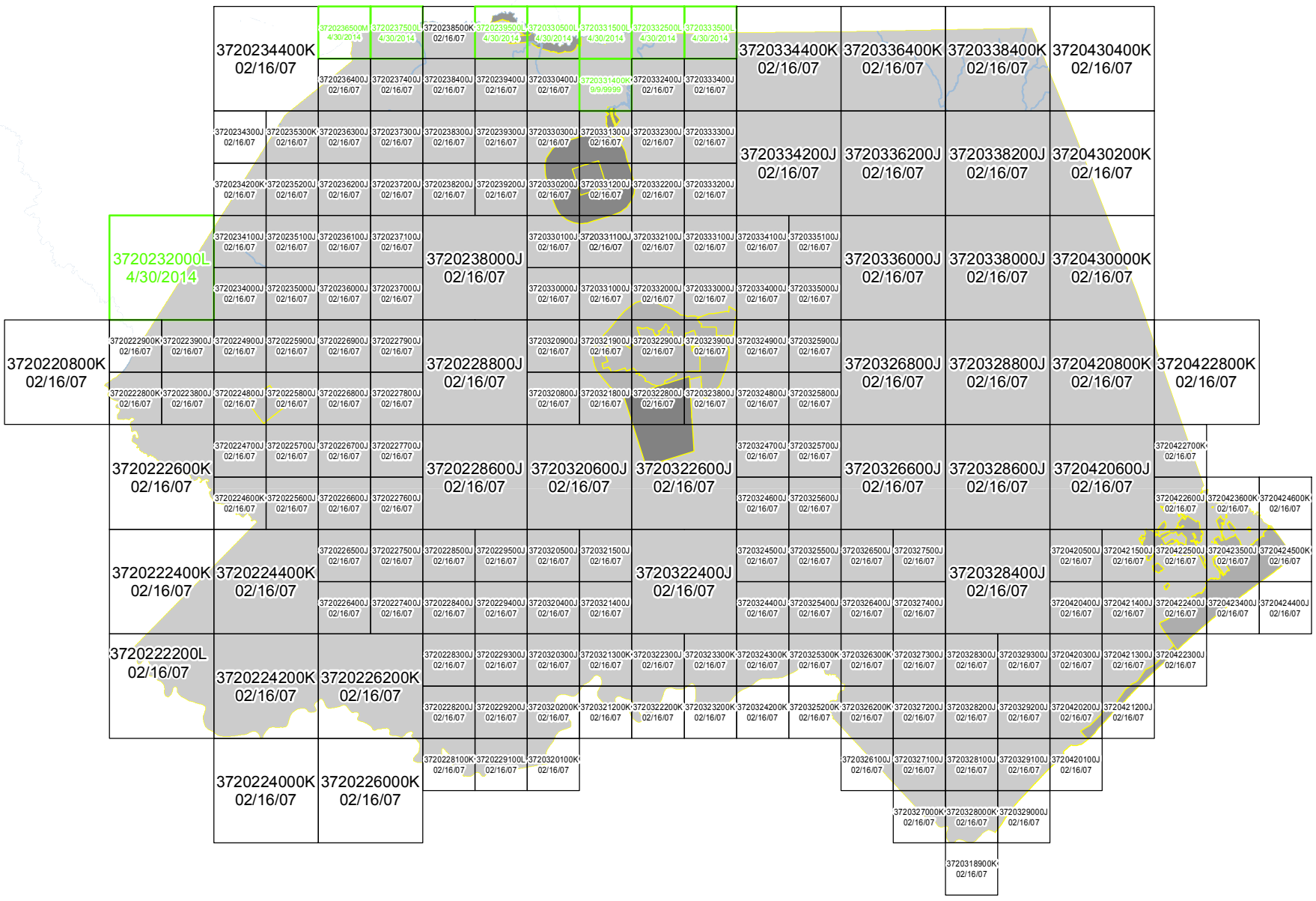



PRELIMINARY

APRIL 30, 2014

*PANEL NOT PRINTED

1 in = 5 miles

0 1 2 4 6 Miles

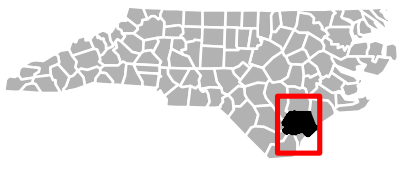
Map Projection:
Lambert Conformal Conic
North American Datum 1983

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTP://FRIS.NC.GOV/FRIS

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

COUNTY LOCATOR



# NATIONAL FLOOD INSURANCE PROGRAM

## FLOOD INSURANCE RATE MAP INDEX

**PENDER COUNTY, NORTH CAROLINA** And Incorporated Areas
**PANELS PRINTED:**
2320, 2365, 2375, 2395, 3305, 3315, 3325, 3335, 3314

FEMA

MAP NUMBER
37141CIND0B

MAP REVISED
**APRIL 30, 2014**

# 1.0 Introduction

## 1.1 The National Flood Insurance Program

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer-funded disaster relief for flood victims and the increasing amount of damage caused by floods. The NFIP makes federally backed flood insurance available in communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. Federally backed flood insurance is available in more than 19,000 communities across the United States and its territories.

The NFIP is managed by the Federal Insurance and Mitigation Administration of the Federal Emergency Management Agency (FEMA). The Federal Insurance and Mitigation Administration manages the insurance component of the NFIP and oversees the flood hazard mapping and the floodplain management aspects of the program.

The NFIP, through involvement with communities, the insurance industry, and the lending industry, helps reduce flood damage by nearly $800 million a year. Further, buildings constructed in compliance with NFIP building standards suffer approximately 80% less damage annually than those not built in compliance. In addition, every $3 paid in flood insurance claims saves $1 in disaster assistance payments. The NFIP is self-supporting for the average historical loss year, which means that operating expenses and flood insurance claims are not paid by the taxpayer, but through premiums collected for flood insurance policies.

Additional information of interest to homeowners, community officials, insurance companies, lenders, and study contractors is available in Section 9.0 of this FIS Report and on the NFIP Internet homepage at http://www.fema.gov/business/nfip/.

## 1.2 Purpose of this Flood Insurance Study

Flood Insurance Studies (FISs) are one of the primary means by which the NFIP administers the National Flood Insurance Act of 1968, the Flood Disaster Protection Act of 1973, and the National Flood Insurance Reform Act of 1994. FISs develop flood risk data that are used to establish actuarial flood insurance rates. The information in this FIS Report will also be used by Pender County and the jurisdictions therein (hereinafter referred to collectively as Pender County) to facilitate the adoption and maintenance of floodplain management ordinances, which form the basis of communities' continued participation in the NFIP. Minimum requirements for participation in the NFIP are set forth in Title 44, Part 60, Section 3 of the Code of Federal Regulations (44 CFR 60.3). In some States and/or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. In such cases, the more restrictive criteria will take precedence, and the State and/or community (or other jurisdictional agency) will be able to explain them.

This FIS investigates the existence and severity of flood hazards in, or revises and updates previous FISs for, the geographic area of Pender County, North Carolina, including the jurisdictions listed in Table 1.

**Table 1 - Jurisdictions in Pender County**

| Community | Included in this FIS | If Not Included, Location of Flood Hazard/Flood Insurance Rate Data |
|---|---|---|
| PENDER COUNTY | Yes | * |
| TOWN OF ATKINSON | Yes | * |
| TOWN OF BURGAW | Yes | * |
| TOWN OF SURF CITY | Yes | * |
| TOWN OF TOPSAIL BEACH | Yes | * |
| TOWN OF WATHA | Yes | * |
| VILLAGE OF SAINT HELENA | Yes | * |

# 1.3 FIS Components

A Flood Insurance Study (FIS) is an analysis of flood hazards, typically presented as a set of Flood Insurance Rate Map (FIRM) panels and the FIS Report, which includes a set of Flood Profiles and/or Water-surface elevation rasters.

**Flood Insurance Study Report**

The FIS Report provides a context for the information shown on the FIRM, as well as a summary of the data upon which the analyses are based. It also includes an index of sources of additional information on the NFIP.

# 1.4 Considerations for Using this Flood Insurance Study Report

The NFIP encourages State and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood elevations (the 1% annual chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1% annual chance and 0.2% annual chance floodplains; and 1% annual chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for a specific FIS).

It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 27, “Map Repositories,” within this FIS Report.

New FIS Reports are frequently developed for multiple communities, such as entire counties. A countywide FIS Report incorporates previous FIS Reports for individual communities and the unincorporated area of the county (if not jurisdictional) into a single document and supersedes those documents for the purposes of the NFIP.

The Initial Countywide FIS Report for Pender became Effective on 2/16/2007. Refer to Table XX for information about subsequent revisions to FIRMs.

Selected FIRM panels for the community may contain information (such as floodways and cross sections) that was previously shown separately on the corresponding Flood Boundary and Floodway Map panels. In addition, former flood hazard zone designations have been changed as follows:

| Old Zone | New Zone |
|---|---|
| A1 through A30 | AE |
| V1 through V30 | VE |
| B | X (shaded) |
| C | X (unshaded) |

FEMA does not impose floodplain management requirements or special insurance ratings based on Limit of Moderate Wave Action (LiMWA) delineations at this time. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. If the LiMWA is shown on the FIRM, it is being provided by FEMA as information only. For communities that do adopt Zone VE building standards in the area defined by the LiMWA, additional Community Rating System (CRS) credits are available. Refer to Section 2.5.4 for additional information about the LiMWA.

The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Visit the FEMA Web site at http://www.fema.gov or contact your appropriate FEMA Regional Office for more information about this program.

Previous FIS Reports and FIRMs may have included levees that were accredited as reducing the risk associated with the 1% annual chance flood based on the information available and the mapping standards of the NFIP at that time. For FEMA to continue to accredit

the identified levees, the levees must meet the criteria of the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10), titled "Mapping of Areas Protected by Levee Systems.

Since the status of levees is subject to change at any time, the user should contact the appropriate agency for the latest information regarding levees presented in Table 9 of this FIS Report. For levees owned or operated by the U.S. Army Corps of Engineers (USACE), information may be obtained from the USACE national levee database. For all other levees, the user is encouraged to contact the appropriate local community.

FEMA has developed a Guide to Flood Maps (FEMA 258) and online tutorials to assist users in accessing the information contained on the FIRM. These include how to read panels and step-by-step instructions to obtain specific information. To obtain this guide and other assistance in using the FIRM, visit the FEMA Web site at http://www.fema.gov.

# 2.0 Floodplain Management Applications

Flood events of a magnitude expected to occur with a 10%, 2%, 1%, or 0.2% annual chance have been selected as having special significance for developing sound floodplain management programs. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10%, 2%, 1%, and 0.2% chance, respectively, of being equaled in any given year. Therefore, FIS Reports typically determine water-surface elevations for floods with these probabilities. The FIRM delineates 1% and 0.2% annual chance floodplains and 1% annual chance floodway boundaries, and depicts 1% annual chance flood elevations, rounded to the nearest foot, to assist in developing floodplain management measures.

## 2.1 Floodplains

To provide a national standard without regional discrimination, the 1% annual chance flood has been adopted by FEMA as the base flood for floodplain management purposes. A 1% annual chance flood, or base flood, is defined as that having a 1% chance of being equaled or exceeded in any given year. The 1% annual chance floodplains shown on the FIRM identify areas that are expected to be inundated by the 1% annual chance flood. This 1% annual chance floodplain is also called a Special Flood Hazard Area (SFHA), where the NFIP's floodplain management regulations must be enforced by the community as a condition of participation in the NFIP. The 0.2% annual chance floodplain is employed to indicate additional areas of flood risk associated with exceptionally severe floods.

## 2.2 Floodways

Encroachment on floodplains such as that caused by placement of structures and fill reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, floodways are provided as a tool to assist local communities in this aspect of floodplain management. Under this concept, the 1% annual chance riverine floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. Figure 1, "Floodway Schematic," illustrates this principle. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this FIS are presented to local agencies as a minimum standard that can be adopted directly or that can be used as a basis for additional encroachment studies.

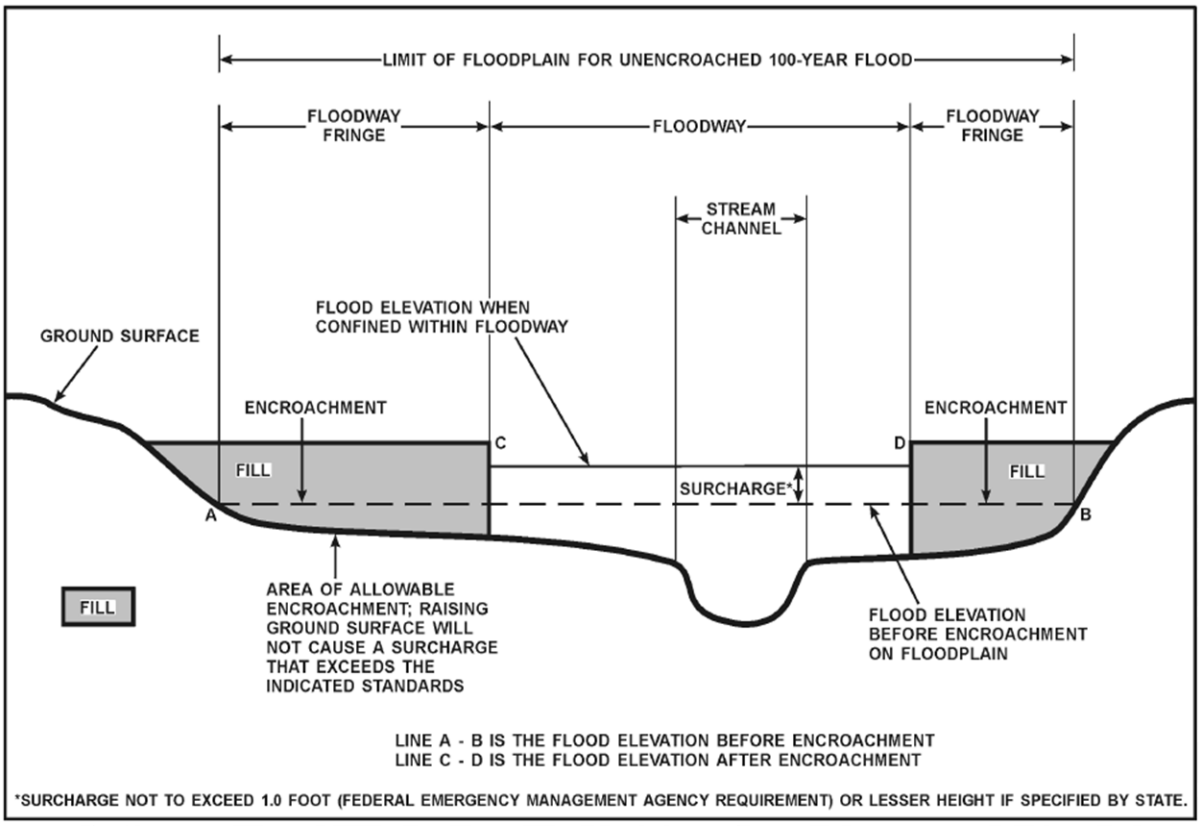



**Figure 1- Floodway Schematic**

# 2.3 Base Flood Elevations

The hydraulic characteristics of flooding sources were analyzed to provide estimates of the elevations of floods of the selected recurrence intervals. The Base Flood Elevation (BFE) is the elevation of the 1% annual chance flood. These BFEs are most commonly rounded to the whole foot, as shown on the FIRM, but in certain circumstances or locations they may be rounded to 0.1 foot. Cross section lines shown on the FIRM may also be labeled with the BFE rounded to 0.1 foot. Whole-foot BFEs derived from engineering analyses that apply to coastal areas, areas of ponding, or other static areas with little elevation change may also be shown at selected intervals on the FIRM. Cross sections with BFEs shown on the FIRM correspond to the cross sections shown in the Floodway Data table and Flood Profiles in this FIS Report. BFEs are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM.

Coastal flood elevations are provided in the Summary of Coastal Stillwater Elevations table in this report. If the elevation on the FIRM is higher than the elevation shown in this table, a wave height, wave runup and/or wave setup component likely exists, in which case, the higher elevation should be used for construction and/or floodplain management purposes.

# 2.4 Watershed Characteristics

Because a FIS is a probability analysis that may not account for some of the factors listed below, communities are strongly encouraged to consider adopting more restrictive or higher floodplain management criteria or ordinances than the minimum Federal requirements. Communities may also increase the validity of their flood hazard data by investing in continuous maintenance of river gages (see the Data Validity and Reliability paragraph below). If the U.S. Geological Survey (USGS) or other agencies do not maintain gages on the flooding sources of interest, partnerships with the USGS may be pursued, or local gages may be installed. For more information, see Section 9.0 of this report.

This flood hazard study represents an analysis of certain watershed characteristics, some of which are summarized as follows:

**Drainage Area**

In general, streams that drain larger areas have greater flood hazards. FISs, in North Carolina, do not typically analyze flood hazards in places with rural drainage areas of less than one square mile and within urban drainage areas of less than ½ square mile.

**Soil Permeability and Infiltration**

Differences in the types of soil and the amount of vegetation in a watershed have a significant effect on the amount of water that the soil can absorb; soils with a high sand content absorb much more water than soils with a high clay content. The presence of vegetation increases infiltration; the presence of pavement decreases infiltration and also speeds runoff to receiving waters. As soil permeability and infiltration decrease, the volume and rate of overland flow increases.

**Soil Moisture Conditions**

In addition to soil permeability and infiltration, the level of the water table helps determine the saturation point, beyond which no water is absorbed. As rainfall duration increases, the height of the water table increases.

**Channel and Floodplain Geometry**

The geometric contour of a streambed, termed channel geometry, and the geometric contour of a floodplain determine the volume of water that a channel can hold and partially determine the rate at which water flows through it.

**Channel and Floodplain Roughness**

The roughness of a surface affects the characteristics of runoff whether the water is on the surface of the watershed or in the channel.

FIS Reports include analyses of how these factors will combine to produce overland flow patterns during floods that have a certain probability of occurring in any given year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at shorter intervals or even within the same year. The risk of experiencing a rare flood increases when longer periods are considered. For example, the risk of having a flood which equals or exceeds the 1% annual chance flood (1% chance of annual exceedence) in any 50-year period is approximately 40% (4 in 10), but for any 90-year period, the risk increases to approximately 60% (6 in 10).

It is important to note that the 1% annual chance flood is used as the national standard to allow a consistent approach to floodplain management, flood hazard assessment, and flood hazard mapping. In any given community, a number of factors may result in flooding characteristics that do not conform to predicted conditions. Therefore, the determination that an area is not shown on the FIRM as being within a Special Flood Hazard Area is no guarantee that it will not flood during a 1% annual chance flood. Examples of these factors include Data Validity and Reliability; Developmental and Topographic Changes Over Time; Erosion, Deposition, and Debris Flow; and Meandering and Lateral Migration.

**Data Validity and Reliability**

Certain types of analysis methods yield more justifiable characterizations of flood hazards. For example, a gage analysis, to determine peak discharges, is based on actual measurements of watershed conditions over time and, therefore, is typically considered the most accurate method of hydrologic analysis. However, it is not feasible to install enough gages to gather data on every stream. In addition, for many of the gage sites that do exist, there are interruptions in the period of record. The usefulness of gage data for the purpose of predicting flooding behavior decreases with interruptions in the period of record; predicted flooding conditions over a 100-year period based on 20 years of measurements spread over a 35-year period are less valid than those based on 30 years of continuous measurements. A regression analysis is typically considered the best method in the absence of gage data, as it uses gage data from watersheds with similar characteristics to estimate flood frequency and magnitude in an ungaged watershed. Regression equations reflect average conditions for a region; therefore, the results will not exactly match the results of a gage analysis at a particular location. The standard errors of the North Carolina rural regression equations range from 44 to 51 percent for estimates of the 1% annual chance flood. That means the difference between the results of the regression equation and the gage analysis for approximately two-thirds of the locations that gage data exists are within 44 to 51 percent of the gage analysis results. A rainfall-runoff hydrologic analysis may be used for gaged or ungaged watersheds, and can estimate the effects of storage areas and flood control structures and measures. This method is most valid when calibrated against historical data.

**Developmental and Topographic Changes Over Time**

A FIRM is based on the best topographic and planimetric information available to FEMA and the State of North Carolina at the time the

study is produced. In time, however, development and/or natural phenomena can alter the physical characteristics of a watershed and its drainage channels, resulting in changes in the flood hazards in those areas. For example, constructing a housing subdivision reduces the amount of soil that is available to absorb water; this in turn causes an increase in the volume of surface water that flows into the channel.

**Erosion, Deposition, and Debris Flow**

The flood hazards shown on a FIRM are based on the assumption of unobstructed flow. The FIRM does not reflect an analysis of areas that are subject to erosion caused by the increased water-surface elevations and velocities that occur during flooding. In addition to the risks of landslides or a weakening of the ground underneath roads or structures, any sediment that is removed from one location will be deposited in another; accumulated deposits may have a pronounced effect on flood hazards in those areas. Similarly, debris such as fallen trees or branches, litter, or other items may obstruct stream channels or hydraulic structures, increasing water-surface elevations, velocities, and floodplain width.

**Meandering and Lateral Migration**

FISs are based on the assumption that channel geometry will remain stable during normal drainage and during flood events. This assumption is valid for most streams, which flow over bedrock or between bedrock outcroppings that form non-alluvial channels. However, alluvial streams change the channel geometry with time, significantly so during flood events. Alluvial streams are subject to erosion and deposition, which may result in braided or meandering channels. Streams of this type may be characterized by lateral migration, or channel shifting, in which the stream may change course entirely during a flood. Whenever clear evidence is available, a FIRM will identify the alluvial nature of a studied flooding source and designate wider floodways to allow for potential migration. However, these floodways are based on qualitative assessments and not on quantitative geomorphic and engineering analyses.

# 2.5 Coastal Flood Hazard Areas

For most areas along rivers, streams, and small lakes, BFEs and floodplain boundaries are based on the amount of water expected to enter the area during a 1% annual chance flood and the geometry of the floodplain. Floods in these areas are typically caused by storm events. However, for areas on or near ocean coasts, large rivers, or large bodies of water, BFE and floodplain boundaries may need to be based on additional components, including storm surges and waves. Communities on or near ocean coasts face flood hazards caused by offshore seismic events as well as storm events.

Coastal flooding sources that are included in this Flood Risk Project are shown in Table XX.

## 2.5.1 Water Elevations and the Effects of Waves

Specific terminology is used in coastal analyses to indicate which components have been included in evaluating flood hazards.

The stillwater elevation (SWEL or still water level) is the surface of the water resulting from astronomical tides, storm surge, and freshwater inputs, but excluding wave setup contribution or the effects of waves.

- *Astronomical tides* are periodic rises and falls in large bodies of water caused by the rotation of the earth and by the gravitational forces exerted by the earth, moon and sun.
- *Storm surge* is the additional water depth that occurs during large storm events. These events can bring air pressure changes and strong winds that force water up against the shore.
- *Freshwater inputs* include rainfall that falls directly on the body of water, runoff from surfaces and overland flow, and inputs from rivers.

The 1% annual chance stillwater elevation is the stillwater elevation that has been calculated for a storm surge from a 1% annual chance storm. The 1% annual chance storm surge can be determined from analyses of tidal gage records, statistical study of regional historical storms, or other modeling approaches. Stillwater elevations for storms of other frequencies can be developed using similar approaches.

The total stillwater elevation (also referred to as the mean water level) is the stillwater elevation plus wave setup contribution but excluding the effects of waves.

- *Wave setup* is the increase in stillwater elevation at the shoreline caused by the reduction of waves in shallow water. It occurs as breaking wave momentum is transferred to the water column.

Like the stillwater elevation, the total stillwater elevation is based on a storm of a particular frequency, such as the 1% annual chance storm. Wave setup is typically estimated using standard engineering practices or calculated using models, since tidal gages are often sited in areas sheltered from wave action and do not capture this information.

Coastal analyses may examine the effects of overland waves by analyzing storm-induced erosion, overland wave propagation, wave runup, and/or wave overtopping.

- *Storm-induced erosion* is the modification of existing topography by erosion caused by a specific storm event, as opposed to general erosion that occurs at a more constant rate.
- *Overland wave propagation* describes the combined effects of variation in ground elevation, vegetation, and physical features on wave characteristics as waves move onshore.
- *Wave runup* is the uprush of water from wave action on a shore barrier. It is a function of the roughness and geometry of the shoreline at the point where the stillwater elevation intersects the land.
- *Wave overtopping* refers to wave runup that occurs when waves pass over the crest of a barrier.

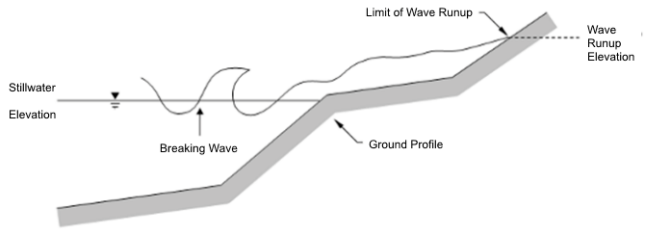



**Figure 5: Wave Runup Transect Schematic**

### 2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

For coastal communities along the Atlantic and Pacific Oceans, the Gulf of Mexico, the Great Lakes, and the Caribbean Sea, flood hazards must take into account how storm surges, waves, and extreme tides interact with factors such as topography and vegetation. Storm surge and waves must also be considered in assessing flood risk for certain communities on rivers or large inland bodies of water.

Beyond areas that are affected by waves and tides, coastal communities can also have riverine floodplains with designated floodways, as described in previous sections.

**Floodplain Boundaries**

In many coastal areas, storm surge is the principle component of flooding. The extent of the 1% annual chance floodplain in these areas is derived from the total stillwater elevation (stillwater elevation including storm surge plus wave setup) for the 1% annual chance storm. The methods that were used for calculation of total stillwater elevations for coastal areas are described in Section 5.3 of this FIS Report. Location of total stillwater elevations for coastal areas are shown in Figure 5, “1% Annual Chance Total Stillwater Levels for Coastal Areas.

In some areas, the 1% annual chance floodplain is determined based on the limit of wave runup or wave overtopping for the 1% annual chance storm surge. The methods that were used for calculation of wave hazards are described in Section 5.3 of this FIS Report.

Table 26 presents the types of coastal analyses that were used in mapping the 1% annual chance floodplain in coastal areas.

**Coastal BFEs**

Where they apply, coastal BFEs are calculated along transects extending from offshore to the limit of coastal flooding onshore. Results of these analyses are accurate until local topography, vegetation, or development type and density within the community undergoes

major changes.

Parameters that were included in calculating coastal BFEs for each transect included in this FIS Report are presented in Table 20, “Coastal Transect Parameters.” The locations of transects are shown in the Appendix, “Transect Location Map.” More detailed information about the methods used in coastal analyses and the results of intermediate steps in the coastal analyses are presented in Section 5.3 of this FIS Report. Additional information on specific mapping methods is provided in Section 6.4 of this FIS Report.

### 2.5.3 Coastal High Hazard Areas

Certain areas along the open coast and other areas may have higher risk of experiencing structural damage caused by wave action and/or high-velocity water during the 1% annual chance flood. These areas will be identified on the FIRM as Coastal High Hazard Areas.

- *Coastal High Hazard Area (CHHA)* is a SFHA extending from offshore to the inland limit of the primary frontal dune (PFD) or any other area subject to damages caused by wave action and/or high-velocity water during the 1% annual chance flood.
- *Primary Frontal Dune (PFD)* is a continuous or nearly continuous mound or ridge of sand with relatively steep slopes immediately landward and adjacent to the beach. The PFD is subject to erosion and overtopping from high tides and waves during major coastal storms.

CHHAs are designated as “V” zones (for “velocity wave zones”) and are subject to more stringent regulatory requirements and a different flood insurance rate structure. The areas of greatest risk are shown as VE on the FIRM. Zone VE is further subdivided into elevation zones and shown with BFEs on the FIRM.

The landward limit of the PFD occurs at a point where there is a distinct change from a relatively steep slope to a relatively mild slope; this point represents the landward extension of Zone VE. Areas of lower risk in the CHHA are designated with Zone V on the FIRM. More detailed information about the identification and designation of Zone VE is presented in Section 6.4 of this FIS Report.

Areas that are not within the CHHA but are SFHAs may still be impacted by coastal flooding and damaging waves; these areas are shown as “A” zones on the FIRM.

Figure 6, “Coastal Transect Schematic,” illustrates the relationship between the base flood elevation, the 1% annual chance stillwater elevation, and the ground profile as well as the location of the Zone VE and Zone AE areas in an area without a PFD subject to overland wave propagation. This figure also illustrates energy dissipation and regeneration of a wave as it moves inland.

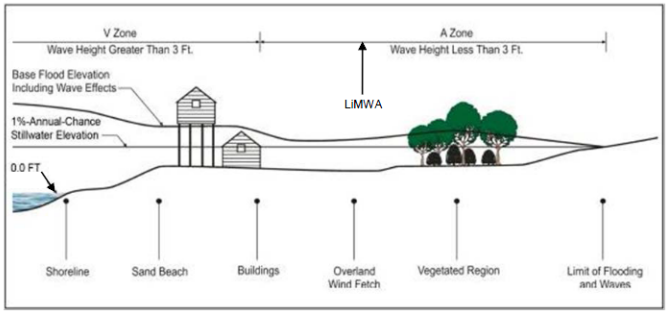



**Figure 6: Coastal Transect Schematic**

Methods used in coastal analyses in this Flood Risk Project are presented in Section 5.3 and mapping methods are provided in Section 6.4 of this FIS Report.

Coastal floodplains are shown on the FIRM. In many cases, the BFE on the FIRM is higher than the stillwater elevations shown in Table 17 due to the presence of wave effects. The higher elevation should be used for construction and/or floodplain management purposes.

### 2.5.4 Limit of Moderate Wave Action

Laboratory tests and field investigations have shown that wave heights as little as 1.5 feet can cause damage to and failure of typical Zone AE building construction. Wood-frame, light gage steel, or masonry walls on shallow footings or slabs are subject to damage when exposed to waves less than 3 feet in height. Other flood hazards associated with coastal waves (floating debris, high velocity flow, erosion, and scour) can also damage Zone AE construction.

Therefore, a LiMWA boundary may be shown on the FIRM as an informational layer to assist coastal communities in safe rebuilding practices. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The location of the LiMWA relative to Zone VE and Zone AE is shown in Figure 6.

The effects of wave hazards in Zone AE between Zone VE (or the shoreline where Zone VE is not identified) and the limit of the LiMWA boundary are similar to, but less severe than, those in Zone VE where 3-foot or greater breaking waves are projected to occur during the 1% annual chance flooding event. Communities are therefore encouraged to adopt and enforce more stringent floodplain management requirements than the minimum NFIP requirements in the LiMWA. The NFIP Community Rating System provides credits for these actions.

Where wave runup elevations dominate over wave heights, there is no evidence to date of significant damage to residential structures by runup depths less than 3 feet. Examples of these areas include areas with steeply sloped beaches, bluffs, or flood protection structures that lie parallel to the shore. In these areas, the FIRM shows the LiMWA immediately landward of the VE/AE boundary. Similarly, in areas where the zone VE designation is based on the presence of a primary frontal dune or wave overtopping, the LiMWA is delineated immediately landward of the Zone VE/AE boundary.

# 3.0 Insurance Applications

## 3.1 National Flood Insurance Program Insurance Zones

For flood insurance applications, the FIRM designates flood insurance rate zones and, in 1% annual chance floodplains that were studied by detailed methods, shows selected whole-foot BFEs or average depths. Insurance agents use the zones and BFEs in conjunction with information on structures and their contents to assign premium rates for flood insurance policies. Table 2, “Flood Zone Designations,” includes a description of each type of flood hazard zone.

**Table 2 - Flood Designations**

| Zone | Description |
|---|---|
| A | Zone A is the flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined in the FIS Report by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no Base Flood Elevations or depths are shown within this zone. |
| AE | Zone AE is the flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined in the FIS Report by detailed methods. In most instances, whole-foot Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone. |
| AH | Zone AH is the flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone. |
| AO | Zone AO is the flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone. |
| AR | Zone AR is the flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood. |
| A99 | Zone A99 is the flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No Base Flood Elevations or depths are shown within this zone. |

| | |
|---|---|
| V | Zone V is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no Base Flood Elevations are shown within this zone. |
| VE | Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Whole-foot Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone. |
| X | Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2% annual chance floodplain, areas within the 0.2% annual chance floodplain, and to areas of 1% annual chance flooding where average depths are less than 1 foot, areas of 1% annual chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1% annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone. |
| X (Future) | Zone X (Future Base Flood) is the flood insurance risk zone that corresponds to the 1-percent-annual-chance floodplains that are determined based on future-conditions hydrology. No BFEs or base flood depths are shown within this zone. |
| D | Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible. |

## 3.2 Coastal Barrier Resources System

The Coastal Barrier Resources Act (CBRA) of 1982 was established by Congress to create areas along the Atlantic and Gulf coasts and the Great Lakes, where restrictions for Federal financial assistance including flood insurance are prohibited. In 1990, Congress passed the Coastal Barrier Improvement Act (CBIA), which increased the extent of areas established by the CBRA and added "Otherwise Protected Areas" (OPA) to the system. These areas are collectively referred to as the John. H Chafee Coastal Barrier Resources System (CBRS). The CBRS boundaries that have been identified in the project area are in Table 4: Coastal Barrier Resource System Information.

Table 4: "Coastal Barrier Resources System Information" is not applicable in Pender County.

# 4.0 Area Studied

Pender County is found in the Coastal Plain region of North Carolina. It is surrounded by Duplin County to the north, Bladen and Sampson counties to the west, Onslow County to the northeast, and the Atlantic Ocean to the southeast.

## 4.1 Basin Description

Table 3, "Basin Description" contains a description of the characteristics of the HUC-8 sub-basins within which each community falls. The table includes the main flooding sources within each basin, a brief description of the basin, and its area.

**Table 3 - Basin Description**

| HUC-8 Sub-Basin Name | HUC-8 Sub-Basin Number | Primary Flooding Source | Description | HUC Area (square miles) |
|---|---|---|---|---|
| Black | 03030006 | Black River | The Black River Basin begins in the northeastern region of Harnett County, North Carolina. The basin then drains southeast through significant portions of Bladen, Cumberland, and Sampson Counties, ending at the Cape Fear River in Pender County. | 1,574 |
| Lower Cape Fear | 03030005 | Cape Fear River | The Lower Cape Fear River Basin begins in Cumberland County, southeast of Fayetteville, North Carolina. The basin then drains southeast through Bladen, Brunswick, Columbus, New Hanover, and Pender Counties. | 1,122 |
| New River | 03020302 | New River | The New River Basin begins above the northwestern corner of Onslow County. The basin also includes coastal regions of Brunswick, New Hanover, Pender, and Onslow Counties. | 891 |
| Northeast Cape Fear | 03030007 | Northeast Cape Fear River | The Northeast Cape Fear River Basin begins in the northeastern region of Sampson County and along the Wayne/Duplin County boundary. The basin then drains south through Pender County, ending at the Cape Fear River in New Hanover County. | 1,741 |

# 4.2 Principal Flood Problems

Table 4, “Principal Flood Problems” contains a list of principal flooding problems in Pender County.

**Table 4 - Principal Flood Problems**

| Flooding Source | Problem |
|---|---|
| All Sources | The dominant source of flooding in Pender County is wind driven surge generated in the Atlantic Ocean by tropical storms and hurricanes which propagate into Topsail Sound. During such an event, flooding can occur along the oceanfront. High winds associ |
| All Sources | The dominant source of flooding in Pender County is wind driven surge generated in the Atlantic Ocean by tropical storms and hurricanes which propagate into Topsail Sound. During such an event, flooding can occur along the oceanfront. High winds associated with tropical storms can also produce extremely high waves which create higher than normal tides. The wave action during a tidal flood an be much more damaging than the higher water level. Areas located adjacent to Topsail Sound are subject to these wave attacks. Riverine flooding from heavy rainfall occurs in Bear Den Branch, Bull Branch, Bulltail Creek, Burgaw Creek, Burgaw Creek Tributary, Buxton Branch, Colvins Creek, Crooked Run Brook, Doctors Creek, Lewis Creek, Long Creek (near Burgaw), Long Creek (near Montague), Mill Branch (of Buxton Branch), Mill Branch (of Moores Creek), Moores Creek, Mulberry Branch, Northeast Cape Fear River, Rileys Creek, Rockfish Creek, Sills Creek, Sills Creek Tributaries 1 and 2, Taylor Branch, and Tuckahoe Branch. Not all storms which pass close to the study area produce extremely high surge. Similarly, storms which produce flooding conditions in one area may not necessarily produce flooding conditions in other parts of the study area. North Carolina experiences hurricanes, tropical storms, and severe extratropical cyclones usually referred to as northeasters. Unlike a hurricane which may pass over a coastal location in a fraction of a day, a northeaster may blow from the same direction and over long distances for several days (Baker, 1978). Through a special analysis, the contribution from northeasters to the overall storm surge elevation in the Pender County area was found to be insignificant compared to hurricanes; therefore, only the effects of hurricane and tropical storm induced surge elevations were considered. In other areas of North Carolina, particularly the Outer Banks area of the northern part of the State, northeasters were found to provide a significant contribution to the overall storm surge. |

# 4.3 Historic Flood Elevations

**Hurricane Floyd**
**(9/16/1999)**

Hurricane Floyd made landfall near Wilmington with category two winds of 105 to 110 mph. Rainfall totals from Floyd were as high as 15 to 20 inches over portions of eastern North Carolina; with a record of 23.45 inches of rain falling in the month of September at Wilmington, NC. This breaks the previous record of 21.12 inches set in July 1886. These rains combined with saturated ground from previous rain events, including Hurricane Dennis, to produce an inland flood disaster. There were 74 deaths in the United States, including 52 in North Carolina, due to drowning from flood waters. This makes Floyd the deadliest U.S. hurricane since Agnes in 1972. Data from the USGS indicate that eleven of their stream gage monitoring sites in North Carolina (Ahoskie, Rocky Mount, Hilliardston, White Oak, Enfield, Tarboro, Lucama, Hookerton, Trenton, Chinquapin, and Freeland) exceeded 0.2% annual chance flood levels due to Floyd. Total losses in North Carolina approach $5 billion with an estimated $3.5 billion in damages to North Carolina homes, businesses, roads, and infrastructure. Floyd passed relatively close to the entire U.S. east coast, justifying hurricane warnings from Florida to Massachusetts and requiring an estimated two million people to evacuate. The last hurricane to require warnings for as large a stretch of coastline was Hurricane Donna in 1960.

**Hurricane Bonnie**
**(8/26/1998)**

The landfall location of Bonnie was in southern North Carolina near Cape Fear very close to landfall of both Hurricanes Bertha and Fran in 1996. Even though a powerful storm, damage from Bonnie was much less than Fran, which was also Category 3. Winds gusted up to 100 knots and storm tides of 5 to 8 feet above normal were reported mainly in eastern beaches of Brunswick County, while a storm surge of 6 feet was reported at Pasquotank and Camden Counties in the Albemarle Sound.

**Hurricane Fran**
**(9/5/1996)**

The landfall location of Fran near the city of Wilmington and its progression into the Raleigh-Durham area caused an estimated $1.275 billion in damage in North Carolina alone. Fran hit with gusts up to 105 mph and a storm surge of approximately 16 feet. Over $1 billion in damage was reported in North Topsail Beach and Surf City and 23 people were killed.

**Hurricane Bertha**
**(7/12/1996)**

1996 was a damaging year in the hurricane history of North Carolina. Tropical Storm Arthur, Hurricane Bertha, and Hurricane Fran all made direct landfall on the North Carolina coastline. It was the most active tropical cyclone season in the state since 1955, when Hurricanes Connie, Diane, and Ione all hit the coast. Bertha entered North Carolina in North Topsail Beach with 105 mph gust and a

storm surge of approximately 5 feet.

**Hurricane Gloria**
**(9/26/1985)**
The landfall location of Gloria was Cape Hatteras, with 90 knot winds and a storm surge of approximately 6-8 feet.

**Hurricane Diana**
**(9/13/1984)**
The landfall location of Diana was 38 miles south of Wilmington with 90 mph winds at its closest approach to Wilmington. Diana had 115 mph sustained winds before landfall. Storm surge was approximately 5-6 feet.

**Hurricane Donna**
**(8/29/1960)**
Hurricane Donna crossed the North Carolina coast between Wilmington and Morehead City of September 11, 1960. The center of the storm passed a few miles east of Wrightsville Beach, although Wilmington and Wrightsville Beach were each in the eye for about an hour. The lowest barometric pressure recorded during this storm was 962 mb at Wilmington. High tides, 6 to 8 feet above normal, together with high winds, caused severe damage at many points. Winds of hurricane force, up to 97 mph, were reported from Wilmington. During the night of September 11, the storm center moved northward, parallel, and slightly east of a line drawn between Wilmington and Norfolk. Wind gusts were in excess of 97 mph and tides were 4 to 8 feet above normal. High tides of 10.3 and 8.3 feet NGVD were reported at Atlantic Beach and Wrightsville Beach, respectively. Coastal communities from Wilmington to Nags Head suffered heavy structural damage and considerable beach erosion. Eight deaths and approximately 100 injuries were attributed to the storm. Damages were estimated at millions of dollars.

**Hurricane Helene**
**(9/21/1958)**
Hurricane Helene was one of the most powerful storms of recent history. Fortunately for the people of North Carolina, the storm center was well out at sea as it moved north on September 26 and 27. Nevertheless, high winds were recorded at Wilmington, with the highest winds measured at 85 mph and peak gusts recorded at 135 mph. The lowest reported central pressure of the storm was 932 mb; this measurement was recorded south-southeast of Cape Fear early on the morning of September 27. There was some beach erosion due to seas and tides, but this erosion was minimized by the fact that the storm occurred at the time of low astronomical tides. High tides were estimated at 3 to 5 feet above normal; a high tide of 5.1 feet NGVD was reported at Wrightsville Beach. Tides were higher on the southern edge of Pamlico Sound, when the wind shift as the storm center passed brought the tides 7 to 8 feet above normal.

**Hurricane Ione**
**(9/10/1955)**
Hurricane Ione moved up from the south and crossed the North Carolina coast near Salter Path, 10 miles west of Morehead City, at about 5 a.m. on September 19. It then slowly curved to the northeast and went out to sea near the Virginia border early on September 20. When Ione entered North Carolina, winds gusted to over 100 mph. Wind speeds of 75 mph with gusts to 107 mph were recorded at Cherry Point. The minimum barometric pressure recorded over North Carolina during this storm was 960 mb. Heavy rains also accompanied Ione. At the same time, prolonged easterly winds drove tidal water onto beaches and into sounds and estuaries to heights of 3 to 10 feet above normal. The result was the largest inundation of eastern North Carolina ever known to have occurred. At New Bern, the depth of the flood was the greatest ever recorded, about 10.5 feet above mean low water; forty city blocks were flooded, several hundred homes were washed away, and thousands more were flooded with up to 4 feet of water. A high tide of 6.9 feet NGVD was reported at Atlantic Beach, North Carolina, and an estimated 5.3 feet NGVD at Wrightsville Beach.

**Hurricane Diane**
**(8/7/1955)**
Five days after Hurricane Connie, and before the damage from that storm could be estimated, Hurricane Diane struck the coast near Carolina Beach about 6 a.m. on August 17. The highest wind speed reported during this storm was 74 mph at Wilmington Airport. Storm tides ranged from 5 to 9 feet above mean low water on the beaches (6.8 feet NGVD at Wrightsville Beach), and in some areas of sounds and rivers emptying into sounds, estimated water levels were 5 to 9 feet above normal. Water was 3 feet above flood level in

the business district of Belhaven and “waist deep” in parts of Washington and New Bern. Diane caused severe beach erosion along the North Carolina coast. The total damage caused in North Carolina by both Connie and Diane was estimated to be in excess of $90 million. No deaths or injuries in North Carolina were attributed to either of the storms.

**Hurricane Connie**
**(8/3/1955)**
Hurricane Connie entered North Carolina close to Cape Lookout at about 8:30 a.m. on August 12. The prolonged pounding of high waves against the coast caused tremendous beach erosion, probably worse than that caused by Hazel in 1954. Storm tides along the coast from Southport to Nags Head were reported to be about 7 feet NGVD (6.9 feet NGVD at Wrightsville Beach and 7.5 feet NGVD at Kure Beach). Water in sounds and near the mouths of rivers was 5 to 8 feet above normal. At Wilmington, winds were reported at 72 mph, gusting to 83 mph. At Fort Macon, winds of 75 mph, gusts of 100 mph, and barometric pressure of 962 mb were reported. The storm also brought torrential rains with the maximum rainfall, around 12 inches in 48 hours, occurring near Morehead City. Total damage throughout the state was estimated at $50 million.

**Hurricane Hazel**
**(10/5/1954)**
Hurricane Hazel was the most destructive storm in the history of North Carolina. The storm crossed the coast just north of Myrtle Beach, South Carolina, as hurricane winds hit the Atlantic coast between Georgetown, South Carolina, and Cape Lookout, North Carolina. Storm tides (i.e., hurricane surge) devastated the immediate ocean front of this stretch of coast. Every fishing pier along 170 miles of coast, from Myrtle Beach to Cedar Island, North Carolina, was destroyed. The waterfront between the South Carolina/North Carolina state boundary and Cape Fear was destroyed. Beach homes, which had been built in a continuous line five miles long behind and along grass-covered dunes (some of which were 20 feet high), simply disappeared – dunes, houses, and all. From Cape Fear to Cape Lookout, the degree of devastation was not as great, but oceanfront property was damaged an average of 50 percent along this entire stretch. To the north of Cape Lookout, the damage was relatively light. Storm surges of 16.6 feet above NGVD were observed at Holden Beach Bridge and Calabash, North Carolina. The highest tide of record was observed during Hurricane Hazel, when ocean tide levels reached approximately 10 feet NGVD at Wrightsville Beach and 11 feet NGVD at Carolina Beach. The lowest recorded barometric pressure of the storm was 938 millibars (mb), reported at Little River Inlet on the North Carolina/South Carolina border. Maximum wind speeds were 83 miles per hour (mph), with gusts recorded at 98 mph at Wilmington, North Carolina, 106 mph at Myrtle Beach, South Carolina, and an estimated 150 mph at Cape Fear. The storm continued inland through North Carolina, causing widespread damage due to high winds and record rainfalls. Nineteen people were killed and 200 injured during this storm.

Table 5, “Historic Flood Elevations”, lists selected flooding sources in Pender County with records of past stages. The table shows the historic peak, a location description, approximate stream station, the date of the historic peak, and approximate recurrence interval of the flood elevation. The approximate recurrence interval for a flood is often estimated based on an analysis of rainfall amounts from a storm and /or stream gage data.

**Table 5 - Historic Flood Elevations**

| Flooding Source/Tropical Storm | Location Description | Approx. Stream Station | Historic Peak (Feet NAVD 88) | Date | Approximate Recurrence Interval (in years) |
|---|---|---|---|---|---|
| Black River / Hurricane Floyd | At Beattys Bridge Road | 175997 | 25.4 | 9/1/1999 | * |
| Doctors Creek / Hurricane Floyd | At NC Highway 41 - Trailer | 36931 | 59.6 | 9/1/1999 | * |
| Northeast Cape Fear River / Hurricane Floyd | Deep Bottom Road | 433108 | 32.8 | 9/1/1999 | 500 |
| Northeast Cape Fear River / Hurricane Floyd | Approximately 5.3 miles downstream of Deep Bottom Road | 404913 | 35.2 | 9/1/1999 | 500 |
| Northeast Cape Fear River / Hurricane Floyd | Window | 455062 | 41.4 | 9/1/1999 | 500 |
| Northeast Cape Fear River / Hurricane Floyd | At NC Highway 24 Westbound | 532819 | 49.5 | 9/1/1999 | 500 |
| Northeast Cape Fear River / Hurricane Floyd | At NC Highway 11 | 600379 | 68.3 | 9/1/1999 | 500 |
| Northeast Cape Fear River / Hurricane Floyd | John Grady Road | 624313 | 77.3 | 9/1/1999 | 500 |
| Northeast Cape Fear River / Hurricane Floyd | Outlaw Road | 640381 | 84.1 | 9/1/1999 | 500 |

* Data Not Available

# 4.4 Flood Protection Measures

Flood protection measures may be structural (such as levees, dams, and reservoirs) or non-structural (such as land-use management ordinances, policies, or practices).

Table 6, “Non-Levee Flood Protection Measures” is not applicable in Pender County.

Table 7, “Levees” is not applicable in Pender County.

# 4.5 Scope of Study

For this map maintenance revision, a scoping meeting was held in Pender County to present the results of initial research to the county and communities within the county and to discuss their floodplain mapping needs. The county and communities were asked to provide input on proposed study priorities and analysis methods. These meetings resulted in the identification of flooding sources having a floodplain mapping need. Map Maintenance Plans were developed based on the results of the scoping meetings and were both mailed to each jurisdiction within Pender County and posted to the State’s website at www.ncfloodmaps.com.

Draft basin plans were developed based on the results of the initial scoping meetings. Final scoping meetings were held by the State and FEMA to provide counties and communities an overview of the draft basin plans, including the proposed scope and schedule for the project, and to provide an opportunity for additional county and community input. After the final scoping meeting was held, the Final Basin Plans were produced.

This FIS covers the geographic area of Pender County, North Carolina, and all jurisdictions therein. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction. Limits of detailed study are indicated on the Flood Profiles and/or Water-surface elevation rasters and/or the FIRM.

Table 8P, “Scope of Revisions: Revised or New Detailed Study -Preliminary”, lists flooding sources that were newly studied by detailed methods or were previously studied by detailed methods and had a change in backwater elevation due to flooding effects from a newly studied flooding source.

**Table 8P - Scope of Revisions: Revised or New Detailed Study - Preliminary**

| Source | Riverine Sources | | Affected Communties |
|---|---|---|---|
| | From | To | |
| Bear Den Branch | The confluence with Moores Creek (near Atkinson) | Approximately 50 feet upstream of U.S. Highway 421 | Pender County |
| Bull Branch | The confluence with Doctors Creek | Approximately 0.2 mile upstream of Sunny Trail Road | Pender County |
| Bulltail Creek | Approximately 0.4 mile upstream of Indian Hill Road | Approximately 0.5 mile upstream of Indian Hill Road | Pender County |
| Burgaw Creek[1] | The confluence with Northeast Cape Fear River | Approximately 2.46 miles upstream of Stag Park Road | Pender County<br>Town Of Burgaw |
| Buxton Branch | The confluence with Moores Creek (near Atkinson) | Approximately 50 feet upstream of U.S. Highway 421 | Pender County |
| Cape Fear River | Approximately 2.6 miles downstream of the confluence with Black River | Approximately 15.6 miles upstream of the confluence of Hood Creek | Pender County |
| Cape Fear River | The confluence with Cape Fear River | Approximately 1.5 miles upstream of NC Highway 210 | Pender County |
| Crooked Run | The confluence with Sills Creek | The upstream side of Pelham Road | Pender County |
| Doctors Creek | Approximately 2.3 miles upstream of the confluence with Rockfish Creek | Just downstream of Alderman Road (SR 1157) | Pender County |
| Dry Branch | The confluence with Moores Creek (near Atkinson) | Approximately 20 feet upstream of U.S. Highway 421 | Pender County |
| Guffords Branch | Just downstream of NC Highway 210 | Approximately 0.3 mile upstream of Highsmith Road | Pender County |
| Horse Branch Creek | The confluence with Long Creek | Approximately 100 feet upstream of Lake Road | Pender County |
| Island Creek | Approximately 150 feet upstream of confluence with Island Creek Tributary | Approximately 1 mile upstream of Sidbury Road | Pender County |
| Island Creek | The confluence with Northeast Cape Fear River | Approximately 150 feet upstream of confluence with Island Creek Tributary | Pender County |
| Jones Creek | Just downstream of the unnamed road at the outlet of Lake Ann | Approximately 110 feet upstream of Beattys Bridge Road | Pender County |
| Lewis Creek | The confluence with Northeast Cape Fear River | Just upstream of the confluence of North Branch | Pender County<br>Town Of Watha |
| Long Creek | Approximately 1,300 feet downstream of NC Highway 53 | Approximately 170 feet upstream of Coras Grove Road | Pender County |

## Table 8P - Scope of Revisions: Revised or New Detailed Study - Preliminary

| Source | Riverine Sources | | Affected Communties |
|---|---|---|---|
| | From | To | |
| Long Creek[1] | Approximately 3.5 miles upstream of confluence with Northeast Cape Fear River | Approximately 1,585 feet upstream of NC Highway 210 | Pender County |
| Mill Branch (of Buxton Branch) | The confluence with Buxton Branch | Approximately 60 feet upstream of NC Highway 53 | Pender County |
| Mill Branch (of Moores Creek) | Approximately 150 feet upstream of NC Highway 53 | Approximately 0.5 mile upstream of NC Highway 53 | Pender County<br>Town Of Atkinson |
| Moores Creek (near Atkinson) | Approximately 1,600 feet downstream of John Henry Store Road | Approximately 1 mile upstream of U.S. Highway 421 | Pender County |
| Moores Creek (near Atkinson) | The confluence with Cape Fear River | Approximately 0.6 mile upstream of NC Highway 210 | Pender County |
| Mulberry Branch | The confluence with Long Creek | Approximately 0.4 mile upstream of Herrings Chapel Road | Pender County |
| North Branch | The confluence with Lewis Creek | Approximately 125 feet upstream of Mary Slocum Road Northeast | Town Of Watha |
| Northeast Cape Fear River | Approximately 900 feet downstream of NC Highway 210 | Approximately 2.2 miles upstream of Crooms Bridge Road | Pender County |
| Osgood Canal | The confluence with Burgaw Creek | Approximately 75 feet downstream of Railroad | Town Of Burgaw |
| Rockfish Creek | Approximately 560 feet downstream of Willard Railroad Street | Approximately 1.16 miles upstream of Wallace Airport Road (SR 1307) | Pender County<br>Town Of Wallace |
| Rockfish Creek | The confluence with the Northeast Cape Fear River | Approximately 0.5 mile upstream of the confluence of Little Rockfish Creek | Pender County<br>Town Of Wallace |
| Sills Creek | Approximately 450 feet downstream of Old Mill Road | Approximately 390 feet upstream of Englishtown Road | Pender County<br>Town Of Wallace |
| Sills Creek Tributary 1 | The confluence with Sills Creek | Approximately 30 feet upstream of Raccoon Road | Pender County |
| Sills Creek Tributary 2 | The confluence with Sills Creek | Approximately 0.1 mile upstream of Raccoon Road | Pender County |
| Taylor Branch | The confluence with Moores Creek (near Atkinson) | Approximately 30 feet upstream of U.S. Highway 421 | Pender County |
| Tuckahoe Branch | The confluence with White Oak Branch | Approximately 75 feet upstream of Halfway Branch School Road | Pender County |
| Turkey Creek | The confluence with Northeast Cape Fear River | Approximately 2.3 miles upstream of NC Highway 133 | Pender County |
| White Oak Branch | The confluence with Moores Creek (near Atkinson) | The confluence with Tuckahoe Branch | Pender County |

**[1]Revised to reflect backwater effects from new detailed study**

Table 9P, “Scope of Revisions: Redelineated - Preliminary” is not applicable in Pender County.

Table 10P, “Scope of Revisions: Limited Detailed - Preliminary”, lists flooding sources that were newly studied by limited detailed methods or were previously studied by limited detailed methods and had a change in backwater elevation due to flooding effects from a newly studied flooding source.

## Table 10P - Scope of Revisions: Limited Detailed - Preliminary

| Source | Riverine Sources | | Affected Communties |
|---|---|---|---|
| | From | To | |
| Ashes Creek[1] | Approximately 2.2 miles downstream of Shaw Highway | Approximately 240 feet upstream of Shaw Highway | Pender County |
| Bear Den Branch | Approximately 50 feet upstream of U.S. Highwayy 421 | Approximately 0.8 mile upstream of U.S. Highway 421 | Pender County |
| Beckys Creek[1] | Approximately 1.5 miles downstream of NC Highway 210 | Approximately 28 feet downstream of NC Highway 210 | Pender County<br>Town Of Surf City |
| Big Branch[1] | The confluence with Colvins Creek | Slocum Trail | Pender County |
| Black River[1] | Approximately 9.4 miles upstream of the confluence with the Cape Fear River | Approximately 6.9 miles upstream of the confluence with the Cape Fear River | Pender County |
| Bull Branch | Approximately 0.2 mile upstream of Sunny Trail Road | Approximately 0.8 mile upstream of Sunny Trail Road | Pender County |
| Catskin Creek | The confluence with Merricks Creek | Approximately 6.6 miles upstream of confluence with Merricks Creek | Pender County |
| Colly Creek[1] | The confluence with Black River | Approximately 2.7 miles upstream of NC Highway 11 | Pender County |
| Colvins Creek[1] | The confluence with Black River | Approximately 2.8 miles upstream of the confluence with Black River | Pender County |
| Cypress Creek (near Stag Park)[1] | The confluence with Northeast Cape Fear River | Approximately 1 mile upstream of Stag Park Road | Pender County<br>Village Of Saint Helena |

## Table 10P - Scope of Revisions: Limited Detailed - Preliminary

| Source | Riverine Sources | | Affected Communties |
|---|---|---|---|
| | From | To | |
| Dry Branch | Approximately 20 feet upstream of NC Highway 421 | Approximately 1 mile upstream of NC Highway 421 | Pender County |
| Godfrey Creek | Approximately 2.1 miles upstream of confluence with Harrisons Creek | The confluence of Godfrey Creek Tributary | Pender County |
| Guffords Branch | Approximately 0.3 mile upstream of Highsmith Road | Approximately 0.7 mile upstream of Highsmith Road | Pender County |
| Harrisons Creek[1] | The downstream side of NC Highway 210 | Approximately 1,035 feet upstream of NC Highway 210 | Pender County |
| Holly Shelter Creek[1] | The confluence with Northeast Cape Fear River | Approximately 5 miles upstream of Shaw Highway | Pender County |
| Island Creek Tributary[1] | Approximately 0.4 mile upstream of the confluence with Island Creek | Approximately 0.8 mile upstream of the confluence with Island Creek | Pender County |
| Lillington Creek[1] | Approximately 0.8 mile downstream of Shaw Highway | Approximately 0.8 mile upstream of Shaw Highway | Pender County |
| Lillington Creek Tributary[1] | The confluence with Lillington Creek | Approximately 1,425 feet upstream of the confluence with Lillington Creek | Pender County |
| Merricks Creek | Approximately 100 feet downstream of NC Highway 210 | Approximately 0.3 mile upstream of NC Highway 210 | Pender County |
| Mill Branch (of Buxton Branch) | Approximately 60 feet upstream of NC Highway 53 | Approximately 0.6 mile upstream of NC Highway 53 | Pender County |
| Mill Pond | Approximately 1.5 miles upstream of NC Highway 53 | Approximately 2.2 miles upstream of NC Highway 53 | Pender County |
| Mill Pond[1] | The confluence with Holly Shelter Creek | Approximately 1.5 miles upstream of NC Highway 53 | Pender County |
| Moores Creek (near Atkinson) | Approximately 0.6 miles upstream of NC Highway 210 | Approximately 1,600 feet downstream of John Henry Store Road | Pender County |
| North Branch | Approximately 125 feet upstream of Mary Slocum Road Northeast | Approximately 0.3 mile upstream of Mary Slocum Road NE | Town Of Watha |
| Pike Creek[1] | The confluence with Northeast Cape Fear River | Approximately 1,055 feet downstream of Ashton Lake Road | Pender County |
| Players Creek | The confluence with Merricks Creek | Approximately 2.5 miles upstream of confluence with Merricks Creek | Pender County |
| Rockfish Creek | Approximately 0.5 mile upstream of the confluence of Little Rockfish Creek | Approximately 500 feet downstream of Williard Railroad Street | Pender County<br>Town Of Wallace |
| Sawyer Creek[1] | The confluence with Sills Creek | Approximately 0.75 mile upstream of confluence with Sills Creek | Pender County<br>Town Of Wallace |
| Sills Creek[1] | The confluence with Sawyer Creek | Approximately 0.85 mile upstream of confluence with Rockfish Creek | Pender County<br>Town Of Wallace |
| Sills Creek Tributary 2 | Approximately 0.1 mile upstream of Raccoon Road | Approximately 0.5 mile upstream of the confluence with Sills Creek Tributary 2 | Pender County |
| Tuckahoe Branch | Approximately 75 feet upstream of Halfway Branch School Road | Approximately 0.6 mile upstream of Halfway Branch School Road | Pender County |
| Turkey Creek Tributary[1] | The confluence with Turkey Creek | Approximately 540 feet upstream of the confluence with Turkey Creek | Pender County |
| White Oak Branch | Approximately 3.5 miles upstream of Tuckahoe Road | Approximately 3.8 miles upstream of Tuckahoe Road | Pender County |
| White Oak Branch | The confluence with Tuckahoe Branch | Approximately 3.5 miles upstream of Tuckahoe Road | Pender County |

**[1]Revised to reflect backwater effects from new detailed study**

Table 8, “Flooding Sources Studied by Detailed Methods”, lists all flooding sources within the county that were studied by detailed methods for this FIS and previous FISs.

## Table 8 - Flooding Sources Studied by Detailed Methods: Revised or Newly Studied

| Source | Riverine Sources | | Affected Communties |
|---|---|---|---|
| | From | To | |
| Bear Den Branch | The confluence with Moores Creek (near Atkinson) | Approximately 50 feet upstream of U.S. Highway 421 | Pender County |
| Black River | Approximately 3.7 miles downstream of Beattys Bridge Road | At the confluence of South River | Pender County |
| Bull Branch | The confluence with Doctors Creek | Approximately 0.2 mile upstream of Sunny Trail Road | Pender County |
| Bulltail Creek | Approximately 0.4 mile upstream of Indian Hill Road | Approximately 0.5 mile upstream of Indian Hill Road | Pender County |
| Burgaw Creek | The confluence with Northeast Cape Fear River | Approximately 0.3 mile upstream of NC Highway 53 | Pender County<br>Town Of Burgaw |
| Buxton Branch | The confluence with Moores Creek (near Atkinson) | Approximately 50 feet upstream of U.S. Highway 421 | Pender County |

## Table 8 - Flooding Sources Studied by Detailed Methods: Revised or Newly Studied

| Source | Riverine Sources | | Affected Communties |
|---|---|---|---|
| | From | To | |
| Cape Fear River | Approximately 2.6 miles downstream of the confluence with Black River | Approximately 15.6 miles upstream of the confluence of Hood Creek | Pender County |
| Cape Fear River | The confluence with Cape Fear River | Approximately 1.5 miles upstream of NC Highway 210 | Pender County |
| Colvins Creek | Approximately 97 feet downstream of first crossing of Slocum Trail | Approximately 315 feet upstream of Beattys Bridge Road | Pender County |
| Crooked Run | The confluence with Sills Creek | The upstream side of Pelham Road | Pender County |
| Doctors Creek | Approximately 2.3 miles upstream of the confluence with Rockfish Creek | Just downstream of Alderman Road (SR 1157) | Pender County |
| Dry Branch | The confluence with Moores Creek (near Atkinson) | Approximately 20 feet upstream of U.S. Highway 421 | Pender County |
| Guffords Branch | Just downstream of NC Highway 210 | Approximately 0.3 mile upstream of Highsmith Road | Pender County |
| Horse Branch Creek | The confluence with Long Creek | Approximately 100 feet upstream of Lake Road | Pender County |
| Island Creek | Approximately 370 feet upstream of Holy Shelter Road | Approximately 4.6 miles upstream of Holy Shelter Road | Pender County |
| Island Creek | The confluence with Northeast Cape Fear River | Approximately 0.6 mile upstream of confluence with Island Creek Tributary | Pender County |
| Jones Creek | Just downstream of the unnamed road at the outlet of Lake Ann | Approximately 110 feet upstream of Beattys Bridge Road | Pender County |
| Jones Creek | The confluence with Colvins Creek | Just downstream of the unnamed road at the outlet of Lake Ann | Pender County |
| Lewis Creek | The confluence with Northeast Cape Fear River | Just upstream of the confluence of North Branch | Pender County<br>Town Of Watha |
| Long Creek | Approximately 1,300 feet downstream of NC Highway 53 | Approximately 170 feet upstream of Coras Grove Road | Pender County |
| Long Creek | Approximately 3.5 miles upstream of confluence with NE Cape Fear River | Approximately 0.3 mile upstream of NC Hwy 210 | Pender County |
| Long Creek | Approximately 3.5 miles upstream of confluence with Northeast Cape Fear River | Approximately 0.3 mile upstream of NC Highway 210 | Pender County |
| Mill Branch (of Buxton Branch) | The confluence with Buxton Branch | Approximately 60 feet upstream of NC Highway 53 | Pender County |
| Mill Branch (of Moores Creek) | Approximately 150 feet upstream of NC Highway 53 | Approximately 0.5 mile upstream of NC Highway 53 | Pender County<br>Town Of Atkinson |
| Moores Creek (near Atkinson) | Approximately 1,600 feet downstream of John Henry Store Road | Approximately 1 mile upstream of U.S. Highway 421 | Pender County |
| Moores Creek (near Atkinson) | The confluence with Cape Fear River | Approximately 0.6 mile upstream of NC Highway 210 | Pender County |
| Mulberry Branch | The confluence with Long Creek | Approximately 0.4 mile upstream of Herrings Chapel Road | Pender County |
| North Branch | The confluence with Lewis Creek | Approximately 125 feet upstream of Mary Slocum Road Northeast | Town Of Watha |
| Northeast Cape Fear River | Approximately 900 feet downstream of NC Highway 210 | Approximately 2.2 miles upstream of Crooms Bridge Road | Pender County |
| Osgood Canal | The confluence with Burgaw Creek | Approximately 75 feet downstream of Railroad | Town Of Burgaw |
| Rileys Creek | The confluence with Long Creek | Approximately 2.2 miles upstream of confluence with Long Creek | Pender County |
| Rockfish Creek | Approximately 560 feet downstream of Willard Railroad Street | Approximately 1.16 miles upstream of Wallace Airport Road (SR 1307) | Pender County<br>Town Of Wallace |
| Rockfish Creek | The confluence with the Northeast Cape Fear River | Approximately 0.5 mile upstream of the confluence of Little Rockfish Creek | Pender County<br>Town Of Wallace |
| Sills Creek | Approximately 450 feet downstream of Old Mill Road | Approximately 390 feet upstream of Englishtown Road | Pender County<br>Town Of Wallace |
| Sills Creek Tributary 1 | The confluence with Sills Creek | Approximately 30 feet upstream of Raccoon Road | Pender County |
| Sills Creek Tributary 2 | The confluence with Sills Creek | Approximately 0.1 mile upstream of Raccoon Road | Pender County |
| Taylor Branch | The confluence with Moores Creek (near Atkinson) | Approximately 30 feet upstream of U.S. Highway 421 | Pender County |
| Tuckahoe Branch | The confluence with White Oak Branch | Approximately 75 feet upstream of Halfway Branch School Road | Pender County |
| Turkey Creek | The confluence with Northeast Cape Fear River | Approximately 2.3 miles upstream of NC Highway 133 | Pender County |
| White Oak Branch | The confluence with Moores Creek (near Atkinson) | The confluence with Tuckahoe Branch | Pender County |

Table 9, “Flooding Sources Studied by Detailed Methods: Redelineated”, lists all flooding sources that were studied by detailed

methods for the pre- statewide FIS and redelineated for previous FISs. These flooding sources were not part of this revision and their effective analyses remain valid.

## Table 9 - Flooding Sources Studied by Detailed Methods: Redelineated

| Source | Riverine Sources | | Affected Communties |
|---|---|---|---|
| | From | To | |
| Doctors Creek | Confluence of Bull Branch | Approximately 2.4 miles upstream of confluence of the Bull Branch | Pender County |

Table 10, “Flooding Sources Studied by Detailed Methods: Limited Detailed”, lists all flooding sources within the county that were studied by limited detailed methods for either this FIS or previous FISs.

## Table 10 - Flooding Sources Studied by Detailed Methods: Limited Detailed

| Source | Riverine Sources | | Affected Communties |
|---|---|---|---|
| | From | To | |
| Angola Creek | The confluence with Holly Shelter Creek | Approximately 0.3 mile downstream of the Duplin/Pender County line | Pender County |
| Angola Creek Tributary 3 | The confluence with Angola Creek | Approximately 0.6 mile upstream of NC Hwy 50 | Pender County |
| Angola Creek Tributary 4 | The confluence with Angola Creek | Approximately 0.2 mile upstream of Murphy Honor Road | Pender County |
| Ashes Creek | Approximately 2.2 miles downstream of Shaw Highway | Approximately 12.4 miles upstream of Shaw Highway | Pender County |
| Bear Branch | The confluence with the Black River | Approximately 0.4 mile upstream of Blueberry Road | Pender County |
| Bear Den Branch | Approximately 50 feet upstream of U.S. Highwayy 421 | Approximately 0.8 mile upstream of U.S. Highway 421 | Pender County |
| Beckys Creek | Approximately 1.5 miles downstream of NC Highway 210 | Approximately 1.0 mile upstream of NC Highway 210 | Pender County<br>Town Of Surf City |
| Bee Branch | Approximately 0.3 mile downstream of Messick Road | Approximately 700 feet upstream of Shiloh Road | Pender County |
| Big Branch | The confluence with Colvins Creek | The confluence with Big Branch Tributary | Pender County |
| Big Branch Tributary | The confluence with Big Branch | Approximately 0.3 mile upstream of the confluence with Big Branch | Pender County |
| Black River | Approximately 9.4 miles upstream of the confluence with the Cape Fear River | Approximately 3.7 miles downstream of Beattys Bridge Road | Pender County |
| Bull Branch | Approximately 0.2 mile upstream of Sunny Trail Road | Approximately 0.8 mile upstream of Sunny Trail Road | Pender County |
| Cape Fear River | Confluence with the Black River | Approximately 190 feet downstream of Bladen/Cumberland County boundary | Pender County |
| Cat Creek | Confluence with Black River | Approximately 1.0 mile upstream of Private Road | Pender County |
| Catskin Creek | At the confluence with Merricks Creek | Approximately 6.6 miles upstream of confluence with Merricks Creek | Pender County |
| Catskin Creek | The confluence with Merricks Creek | Approximately 6.6 miles upstream of confluence with Merricks Creek | Pender County |
| Colly Creek | The confluence with Black River | Approximately 0.3 mile upstream of Susie Sand Hill Road | Pender County |
| Colvins Creek | Approximately 320 feet upstream of Beattys Bridge Road | Approximately 210 feet upstream of a private road | Pender County |
| Colvins Creek | The confluence with Black River | Approximately 100 feet upstream of the first crossing of Slocum Trail | Pender County |
| Colvins Creek Tributary | The confluence with Colvins Creek | Approximately 0.5 mile upstream of Slocum Trail | Pender County |
| Cypress Creek (near Stag Park) | The confluence with Northeast Cape Fear River | Approximately 800 feet upstream of Front Street | Pender County<br>Village Of Saint Helena |
| Cypress Creek (near Wards Corner) | The confluence with Long Creek | Approximately 0.5 mile upstream of Shiloh Road | Pender County |
| Doctors Creek | Approximately 85 feet downstream of Alderman Road | Sampson-Duplin County boundary | Pender County |
| Doctors Creek | Confluence with Rockfish Creek | Approximately 1.3 miles upstream of Doctors Creek Road | Pender County |
| Dry Branch | Approximately 20 feet upstream of NC Highway 421 | Approximately 1 mile upstream of NC Highway 421 | Pender County |
| Flat Swamp | Confluence with Juniper Swamp | Approximately 2.3 miles upstream of Preston Wells Road | Pender County |
| Godfrey Creek | Approximately 2.1 miles upstream of confluence with Harrisons Creek | The confluence of Godfrey Creek Tributary | Pender County |
| Godfrey Creek | At the confluence with Harrisons Creek | Approximately 2.1 miles upstream of confluence with Harrisons Creek | Pender County |

## Table 10 - Flooding Sources Studied by Detailed Methods: Limited Detailed

| Source | Riverine Sources | | Affected Communties |
|---|---|---|---|
| | From | To | |
| Guffords Branch | Approximately 0.3 mile upstream of Highsmith Road | Approximately 0.7 mile upstream of Highsmith Road | Pender County |
| Harrisons Creek | The downstream side of NC Highway 210 | Approximately 300 feet upstream of Holiday Drive | Pender County |
| Holly Shelter Creek | The confluence with Northeast Cape Fear River | Approximately 1.6 miles upstream of Onslow/Pender County boundary | Pender County |
| Island Creek Tributary | Approximately 0.4 mile upstream of confluence with Island Creek | Approximately 2.8 miles upstream of confluence with Island Creek | Pender County |
| Island Creek Tributary | Approximately 0.4 mile upstream of the confluence with Island Creek | Approximately 2.8 miles upstream of the confluence with Island Creek | Pender County |
| Juniper Swamp | The confluence with Shaken Creek | Approximately 4.7 miles upstream of U.S. Highway 50 | Pender County |
| Kellys Creek | The confluence with Rileys Creek | Approximately 300 feet upstream of Little Kelly Road | Pender County |
| Lillington Creek | Approximately 0.8 mile downstream of Shaw Highway | Approximately 2.7 miles upstream of Shaw Highway | Pender County |
| Lillington Creek Tributary | The confluence with Lillington Creek | Approximately 0.9 mile upstream of Vogler Drive | Pender County |
| Long Creek | Approximately 0.3 mile upstream of NC Hwy 210 | At NC Hwy 53 | Pender County |
| Long Creek Tributary | The confluence with Long Creek | Approximately 0.3 mile upstream of confluence with Long Creek | Pender County |
| Merricks Creek | Approximately 100 feet downstream of NC Highway 210 | Approximately 0.3 mile upstream of NC Highway 210 | Pender County |
| Mill Branch (of Buxton Branch) | Approximately 60 feet upstream of NC Highway 53 | Approximately 0.6 mile upstream of NC Highway 53 | Pender County |
| Mill Creek | The confluence with Holly Shelter Creek | Approximately 1.5 miles upstream of Hwy 53 | Pender County |
| Mill Creek Tributary | Approximately 0.2 mile upstream of confluence with Muddy Creek | Approximately 3.2 miles upstream of Lyman Road | Pender County |
| Mill Pond | Approximately 1.5 miles upstream of NC Highway 53 | Approximately 2.2 miles upstream of NC Highway 53 | Pender County |
| Mill Pond | The confluence with Holly Shelter Creek | Approximately 1.5 miles upstream of NC Highway 53 | Pender County |
| Moores Creek | The confluence with Holly Shelter Creek | Approximately 1.6 miles upstream of Andemora Road | Pender County |
| Moores Creek (near Atkinson) | Approximately 0.6 miles upstream of NC Highway 210 | Approximately 1,600 feet downstream of John Henry Store Road | Pender County |
| Moores Creek Tributary 1 | The confluence with Moores Creek | Approximately 1.0 mile upstream of Tomahawk Road | Pender County |
| Moores Creek Tributary 2 | The confluence with Moores Creek | Approximately 570 feet upstream of NC Highway 53 | Pender County |
| Moores Creek Tributary 6 | The confluence with Moores Creek | Approximately 1.3 miles upstream of Joshua James Road | Pender County |
| Moores Creek Tributary 7 | The confluence with Moores Creek Tributary 6 | Approximately 1.0 mile upstream of Cypress Creek Road | Pender County |
| North Branch | Approximately 125 feet upstream of Mary Slocum Road Northeast | Approximately 0.3 mile upstream of Mary Slocum Road NE | Town Of Watha |
| Northeast Cape Fear River | Approximately 2.2 miles upstream of Crooms Bridge Road | Approximately 0.3 mile downstream of Bennetts Bridge Road | Pender County |
| Pike Creek | The confluence with Northeast Cape Fear River | Approximately 2.1 miles upstream of Interstate 40 | Pender County |
| Players Creek | The confluence with Merricks Creek | Approximately 2.5 miles upstream of confluence with Merricks Creek | Pender County |
| Rileys Creek | Approximately 2.2 miles upstream of the confluence with Long Creek | At the confluence ofRizzo Creek and Mill Creek | Pender County |
| Rizzo Creek | The confluence with Rileys Creek | Approximately 0.5 mile upstream of confluence with Rileys Creek | Pender County |
| Rockfish Creek | Approximately 0.5 mile upstream of the confluence of Little Rockfish Creek | Approximately 500 feet downstream of Williard Railroad Street | Pender County<br>Town Of Wallace |
| Rockfish Creek | Confluence of Rockfish Creek Tributary | Approximately 0.9 mile upstream of Blue Newkirk Road | Pender County<br>Town Of Wallace |
| Sandy Run Swamp | The confluence with Holly Shelter Creek | Approximately 0.9 mile upstream of Haw Run Road | Pender County |
| Sawyer Creek | The confluence with Sills Creek | Approximately 1.0 mile upstream of Test Farm Road | Pender County<br>Town Of Wallace |
| Shaken Creek | The confluence with Holly Shelter Creek | Approximately 0.3 mile downstream of the Onslow/Pender County line | Pender County |
| Shelter Swamp Creek | The confluence with Sandy Run Swamp | Approximately 3.2 miles upstream of South Coston Road | Pender County |
| Sills Creek | The confluence with Sawyer Creek | Approximately 450 feet downstream of Old Mill Road | Pender County<br>Town Of Wallace |
| Sills Creek Tributary 2 | Approximately 0.1 mile upstream of Raccoon Road | Approximately 0.5 mile upstream of the confluence with Sills Creek Tributary 2 | Pender County |

### Table 10 - Flooding Sources Studied by Detailed Methods: Limited Detailed

| Source | Riverine Sources | | Affected Communties |
|---|---|---|---|
| | From | To | |
| Trumpeter Swamp | The confluence with Catskin Creek | Approximately 1.2 miles upstream of JA Drive | Pender County |
| Tuckahoe Branch | Approximately 75 feet upstream of Halfway Branch School Road | Approximately 0.6 mile upstream of Halfway Branch School Road | Pender County |
| Turkey Creek Tributary | The confluence with Turkey Creek | Approximately 850 feet upstream of Arvida Spur Road | Pender County |
| Washington Creek | The confluence with Northeast Cape Fear River | Approximately 0.7 mile upstream of Interstate 40 | Pender County<br>Town Of Watha |
| Washington Creek Tributary | The confluence with Washington Creek | Approximately 0.7 mile upstream of confluence with Washington Creek | Pender County<br>Town Of Watha |
| White Oak Branch | Approximately 3.5 miles upstream of Tuckahoe Road | Approximately 3.8 miles upstream of Tuckahoe Road | Pender County |
| White Oak Branch | The confluence with Tuckahoe Branch | Approximately 3.5 miles upstream of Tuckahoe Road | Pender County |

### Additional Flooding Sources included in this FIS Report studied by Other Methods

| Source | Riverine Sources | | Affected Communties | Study Type |
|---|---|---|---|---|
| | From | To | | |
| Mulberry Branch | Approximately 0.4 mile upstream of Herrings Chapel Road | Approximately 0.6 mile upstream of Herrings Chapel Road | Pender County | DIGITAL CONVERSION |
| NP | NP | NP | Pender County<br>Town Of Burgaw<br>Town Of Surf City<br>Village Of Saint Helena | NP |
| Taylor Branch | Approximately 30 feet upstream of U.S. Highway 421 | Approximately 0.6 mile upstream of U.S. Highway 421 | Pender County | DIGITAL CONVERSION |

Table 11, “Stream Name Changes” is not applicable in Pender County.

Table 12, “Letters of Map Revision” is not applicable in Pender County.

# 5.0 Engineering Methods

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2% annual chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

## 5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. For details on the county’s hydrologic analyses, the hydrologic report is available by request.

A summary of the drainage area-peak discharge relationships for the flooding sources studied by detailed methods is shown in Table 13, “Summary of Discharges”.

# Table 13 - Summary of Discharges

| Flooding Source | | Discharges (cfs) | | | |
|---|---|---|---|---|---|
| Location | Drainage Area (square miles) | 10% Annual Chance | 2% Annual Chance | 1% Annual Chance | 0.2% Annual Chance |
| **Angola Creek** | | | | | |
| The confluence with Holly Shelter Creek | 69.67 | * | * | 6970 | * |
| Approximately 700 feet downstream of NC Hwy 53 | 65.64 | * | * | 6730 | * |
| Approximately 1.0 mile upstream of NC Hwy 53 | 28.06 | * | * | 4160 | * |
| Approximately 2.1 miles upstream of NC Hwy 53 | 22.75 | * | * | 3690 | * |
| Approximately 3.4 miles upstream of NC Hwy 53 | 19.57 | * | * | 3390 | * |
| Approximately 4.6 miles upstream of NC Hwy 53 | 17.61 | * | * | 3190 | * |
| Approximately 4.8 miles upstream of NC Hwy 53 | 16.19 | * | * | 3050 | * |
| Approximately 5.3 miles upstream of NC Hwy 53 | 14.81 | * | * | 2900 | * |
| **Angola Creek Tributary 3** | | | | | |
| The confluence with Angola Creek | 2.24 | * | * | 992 | * |
| Approximately 700 feet upstream of NC Hwy 50 | 1.52 | * | * | 798 | * |
| Approximately 400 feet downstream of Cypress Creek Road | 0.32 | * | * | 326 | * |
| **Angola Creek Tributary 4** | | | | | |
| The confluence with Angola Creek | 4.56 | * | * | 1480 | * |
| At NC Hwy 50 | 3.38 | * | * | 1250 | * |
| Approximately 0.5 mile downstream of Murphy Honour Road | 2.56 | * | * | 1070 | * |
| Approximately 0.3 mile upstream of Murphy Honour Road | 1.32 | * | * | 736 | * |
| **Ashes Creek** | | | | | |
| Approximately 3.4 miles downstream of Shaw Highway | 48.57 | * | * | 5680 | * |
| Approximately 1.2 miles upstream of Shaw Highway | 46.96 | * | * | 5570 | * |
| Approximately 3.3 miles upstream of Shaw Highway | 44.57 | * | * | 5410 | * |
| Approximately 6.5 miles upstream of Shaw Highway | 40.52 | * | * | 5120 | * |
| Approximately 7.9 miles upstream of Shaw Highway | 37.24 | * | * | 4880 | * |
| Approximately 10.3 miles upstream of Shaw Highway | 32.20 | * | * | 4500 | * |
| Approximately 12.0 miles upstream of Shaw Highway | 27.07 | * | * | 4080 | * |
| **Bear Branch** | | | | | |
| The confluence with Black River | 2.29 | * | * | 747 | * |
| Approximately 800 feet downstream of Blueberry Road | 0.78 | * | * | 406 | * |
| **Bear Den Branch** | | | | | |
| At the confluence with Moores Creek (near Atkinson) | 4.05 | 525 | 1008 | 1275 | 2074 |
| Approximately 0.45 mile downstream of U.S. Highway 421 | 3.63 | 491 | 944 | 1195 | 1947 |
| Just upstream of U.S. Highway 421 | 3.15 | 450 | 867 | 1099 | 1792 |
| Approximately 0.55 mile upstream of U.S. Highway 421 | 2.07 | 347 | 674 | 856 | 1403 |
| **Beckys Creek** | | | | | |
| Approximately 1.6 miles downstream of NC Hwy 210 | 3.25 | * | * | 1230 | * |
| Approximately 1.0 mile downstream of NC Hwy 210 | 2.95 | * | * | 1160 | * |
| Approximately 200 feet downstream of NC Hwy 210 | 2.04 | * | * | 941 | * |
| Approximately 0.5 mile upstream of Atkinson Loop Road | 1.33 | * | * | 737 | * |
| **Bee Branch** | | | | | |
| Approximately 0.4 mile downstream of Messick Road | 6.16 | * | * | 1760 | * |
| Approximately 0.5 mile upstream of Messick Road | 5.14 | * | * | 1590 | * |
| At Shiloh Road | 3.16 | * | * | 1210 | * |

# Table 13 - Summary of Discharges

| Flooding Source | | Discharges (cfs) | | | |
|---|---|---|---|---|---|
| Location | Drainage Area (square miles) | 10% Annual Chance | 2% Annual Chance | 1% Annual Chance | 0.2% Annual Chance |
| **Big Branch** | | | | | |
| The confluence with Colvins Creek | 2.68 | * | * | 817 | * |
| Approximately 0.4 mile upstream of Slocum Trail | 1.04 | * | * | 479 | * |
| **Big Branch Tributary** | | | | | |
| The confluence with Big Branch | 0.62 | * | * | 355 | * |
| **Black River** | | | | | |
| Just upstream of confluence with Cape Fear River | 1573.92 | 16313 | 25597 | 30131 | 40164 |
| Approximately 16.1 miles downstream of NC Hwy 210 | 1573.56 | * | * | 30200 | * |
| Approximately 10.7 miles downstream of NC Hwy 210 | 1544.60 | * | * | 29900 | * |
| Approximately 9.8 miles downstream of NC Hwy 210 | 1543.16 | * | * | 29800 | * |
| Approximately 8.1 miles downstream of NC Hwy 210 | 1541.37 | * | * | 29800 | * |
| Approximately 7.0 miles downstream of NC Hwy 210 | 1539.06 | * | * | 29800 | * |
| Approximately 6.0 miles downstream of NC Hwy 210 | 1536.97 | * | * | 29800 | * |
| Approximately 4.8 miles downstream of NC Hwy 210 | 1532.52 | * | * | 29700 | * |
| Approximately 4.45 miles upstream of confluence with Cape Fear River | 1527.82 | 16017 | 25144 | 29603 | 39474 |
| Approximately 2.8 miles downstream of confluence with Moores Creek (near Atkinson) | 1518.68 | 15957 | 25054 | 29498 | 39336 |
| Approximately 3.6 miles downstream of NC Hwy 210 | 1439.36 | * | * | 28700 | * |
| Approximately 1.4 miles downstream of NC Hwy 210 | 1437.48 | * | * | 28700 | * |
| At confluence with Moores Creek (near Atkinson) | 1417.66 | 15294 | 24040 | 28316 | 37789 |
| At N.C. Highway 210 | 1415.51 | 15280 | 24019 | 28291 | 37756 |
| Approximately 0.6 mile upstream of NC Hwy 210 | 1301.11 | * | * | 27100 | * |
| Approximately 0.55 miles upstream of N.C. Highway 210 | 1293.24 | 14451 | 22751 | 26812 | 35819 |
| Approximately 3.7 miles downstream of Beattys Bridge Road | 1277.40 | 15300 | 23100 | 26800 | 36500 |
| Approximately 3.7 miles downstream of Beattys Bridge Road | 1277.36 | 15300 | 23100 | 26800 | 36500 |
| Approximately 0.95 mile downstream of Pender/Bladen County boundary | 1269.78 | 14289 | 22503 | 26522 | 35438 |
| **Bull Branch** | | | | | |
| Just upstream of confluence with Doctors Creek | 3.86 | 510 | 980 | 1240 | 2019 |
| Just upstream of Willard Road | 3.31 | 464 | 893 | 1131 | 1845 |
| Approximately 1,665 feet downstream of Sunny Trail Road | 2.13 | 353 | 686 | 871 | 1427 |
| Approximately 2,415 feet upstream of Sunny Trail Road | 1.28 | 257 | 504 | 642 | 1058 |
| **Bulltail Creek** | | | | | |
| Just upstream of confluence with Moores Crek (near Atkinson) | 3.75 | 501 | 963 | 1220 | 1986 |
| Approximately 1,500 feet downstream of Indian Hill Road | 2.06 | 346 | 672 | 853 | 1398 |
| Approximately 2,540 feet upstream of Indian Hill Road | 1.06 | 229 | 450 | 575 | 949 |
| **Burgaw Creek** | | | | | |
| Approximately 2.6 miles downstream of the downstream crossing of Stag Park Road | 30.18 | 1530 | 3430 | 4330 | 7090 |
| Approximately 0.5 mile upstream of the downstream crossing of Stag Park Road | 27.43 | 1440 | 3240 | 4110 | 6720 |
| Approximately 1.0 mile downstream of NC Hwy 53 | 23.05 | 1290 | 2940 | 3720 | 6100 |
| Approximately 900 feet upstream of I-40 | 16.43 | 1050 | 2420 | 3070 | 5050 |
| Approximately 0.7 mile downstream of Old Savannah Road | 5.56 | 540 | 1300 | 1660 | 2760 |
| Approximately 800 feet downstream of Old Savannah Road | 2.44 | 667 | 1210 | 1420 | 2030 |
| Approximately 0.6 mile downstream of West Wallace Street | 1.90 | 619 | 1120 | 1310 | 1860 |
| Approximately 0.3 mile downstream of West Wilmington Street | 1.15 | 381 | 743 | 881 | 1310 |

# Table 13 - Summary of Discharges

| Flooding Source | | Discharges (cfs) | | | |
|---|---|---|---|---|---|
| Location | Drainage Area (square miles) | 10% Annual Chance | 2% Annual Chance | 1% Annual Chance | 0.2% Annual Chance |
| **Buxton Branch** | | | | | |
| Just upstream of confluence with Moores Creek (near Atkinson) | 6.50 | 703 | 1340 | 1690 | 2735 |
| Approximately 190 feet upstream of Bell Williams Road | 4.59 | 567 | 1086 | 1374 | 2231 |
| Approximately 1,425 feet upstream of Bell Williams Road | 4.51 | 561 | 1076 | 1360 | 2210 |
| Approximately 0.8 mile upstream of Bell Williams Road | 1.60 | 296 | 577 | 734 | 1207 |
| Approximately 0.9 mile upstream of Bell Williams Road | 1.51 | 285 | 557 | 709 | 1165 |
| Approximately 550 feet downstream of U.S. Highway 421 | 1.01 | 223 | 439 | 560 | 924 |
| **Cape Fear River** | | | | | |
| Downstream of Black River | 7055.00 | 71800 | 108000 | 131000 | 195000 |
| At confluence with Black River | 5465.78 | 66920 | 104540 | 124150 | 177920 |
| Approximately 2.5 miles upstream of Pender/Brunswick/ Columbus county boundaries | 5407.97 | 66730 | 104420 | 123910 | 177290 |
| Approximately 1.8 miles downstream of Pender/Bladen/Columbus county bondaries | 5298.65 | 66370 | 104180 | 123430 | 176100 |
| At the Columbus/ Pender/Brunswick County boundary | 5258.00 | * | * | 123000 | * |
| At the Bladen/Columbus County boundary | 5022.30 | * | * | 121000 | * |
| **Catskin Creek** | | | | | |
| The confluence with Merricks Creek | 34.35 | * | * | 4660 | * |
| Approximately 0.8 mile upstream of the confluence with Merricks Creek | 34.10 | * | * | 4650 | * |
| Approximately 1.5 miles upstream of the confluence with Merricks Creek | 33.77 | * | * | 4620 | * |
| Approximately 2.4 miles upstream of the confluence with Merricks Creek | 33.12 | * | * | 4570 | * |
| Approximately 2.8 miles upstream of the confluence with Merricks Creek | 19.85 | * | * | 3420 | * |
| Approximately 3.9 miles upstream of the confluence with Merricks Creek | 19.12 | * | * | 3350 | * |
| Approximately 4.6 miles upstream of the confluence with Merricks Creek | 17.73 | * | * | 3210 | * |
| Approximately 6.1 miles upstream of the confluence with Merricks Creek | 15.93 | * | * | 3020 | * |
| **Colly Creek** | | | | | |
| At the Bladen/Pender County boundary | 122.50 | * | * | 2773 | * |
| **Colvins Creek** | | | | | |
| The confluence with Black River | 20.79 | * | * | 2920 | * |
| Approximately 2.5 miles downstream of NC Hwy 53 | 17.16 | * | * | 2620 | * |
| Approximately 0.7 mile downstream of NC Hwy 53 | 14.75 | 1100 | 1950 | 2400 | 3690 |
| At Slocum Trail | 13.56 | 1050 | 1860 | 2290 | 3530 |
| Approximately 1.4 miles downstream of Slocum Trail | 7.48 | 726 | 1320 | 1640 | 2560 |
| Approximately 0.6 mile downstream of Slocum Trail | 6.62 | 673 | 1230 | 1530 | 2400 |
| Approximately 1,000 feet upstream of Slocum Trail | 5.04 | 570 | 1050 | 1310 | 2070 |
| Approximately 315 feet upstream of Beattys Bridge Road | 2.90 | * | * | 957 | * |
| At Beattys Bridge Road | 2.90 | 405 | 761 | 957 | 1540 |
| **Colvins Creek Tributary** | | | | | |
| The confluence with Colvins Creek | 1.49 | * | * | 587 | * |
| Approximately 0.3 mile upstream of Slocum Trail | 0.62 | * | * | 357 | * |
| **Crooked Run** | | | | | |
| Just upstream of confluence with Sills Creek | 4.36 | 550 | 1055 | 1334 | 2168 |
| Approximately 570 feet upstream of Pelham Road | 3.23 | 457 | 881 | 1116 | 1820 |
| Just upstream of Penderlea Highway | 1.83 | 322 | 626 | 796 | 1306 |
| **Cypress Creek (near Stag Park)** | | | | | |

## Table 13 - Summary of Discharges

| Flooding Source | | Discharges (cfs) | | | |
|---|---|---|---|---|---|
| Location | Drainage Area (square miles) | 10% Annual Chance | 2% Annual Chance | 1% Annual Chance | 0.2% Annual Chance |
| The confluence with Northeast Cape Fear River | 6.47 | * | * | 1810 | * |
| Approximately 1.8 miles downstream of I-40 | 5.10 | * | * | 1580 | * |
| Approximately 1,000 feet downstream of I-40 | 3.42 | * | * | 1260 | * |
| Approximately 0.8 mile upstream of I-40 | 1.90 | * | * | 904 | * |
| Approximately 0.3 mile upstream of US Hwy 117 | 0.84 | * | * | 570 | * |
| **Cypress Creek (near Wards Corner)** | | | | | |
| Approximately 1.4 miles downstream of NC Hwy 53 | 20.55 | * | * | 3490 | * |
| Approximately 0.6 mile downstream of NC Hwy 53 | 18.53 | * | * | 3290 | * |
| Approximately 0.7 mile downstream of Piney Woods Road | 16.64 | * | * | 3090 | * |
| Approximately 210 feet downstream of Piney Woods Road | 14.68 | * | * | 2880 | * |
| Approximately 0.8 mile upstream of Piney Woods Road | 13.19 | * | * | 2710 | * |
| Approximately 2.5 miles downstream of Shiloh Road | 12.11 | * | * | 2580 | * |
| Approximately 1.9 miles downstream of Shiloh Road | 11.31 | * | * | 2480 | * |
| Approximately 1.1 miles downstream of Shiloh Road | 10.00 | * | * | 2320 | * |
| Approximately 0.5 mile downstream of Shiloh Road | 2.60 | * | * | 1080 | * |
| Approximately 160 feet downstream of Shiloh Road | 2.34 | * | * | 1020 | * |
| **Doctors Creek** | | | | | |
| The confluence with Rockfish Creek | 50.80 | * | * | 5820 | * |
| Approximately 1.1 miles upstream of the confluence with Rockfish Creek | 49.79 | * | * | 5760 | * |
| At confluence with Bull Branch | 49.06 | * | * | 5642 | * |
| Approximately1.3 mile downstream of Alderman Road | 46.49 | * | * | 5465 | * |
| Approximately 0.78 mile downstream of Alderman Road | 45.51 | * | * | 5396 | * |
| Just upstream of the confluence of Bull Branch | 44.90 | * | * | 5430 | * |
| Just upstream of the confluence of Mill Creek | 22.73 | * | * | 3690 | * |
| **Dry Branch** | | | | | |
| At confluence with Moores Creek (near Atkinson) | 3.29 | 462 | 889 | 1127 | 1837 |
| Approximately 0.5 mile upstream of US Hwy 421 | 2.18 | * | * | 727 | * |
| **Godfrey Creek** | | | | | |
| Approximately 330 feet upstream of confluence with Harrisons Creek | 4.51 | 562 | 1076 | 1361 | 2211 |
| Approximately 1.0 mile upstream of confluence with Harrisons Creek | 3.35 | 467 | 900 | 1140 | 1859 |
| Approximately 1.75 miles upstream of confluence with Harrisons Creek | 2.61 | 401 | 775 | 984 | 1608 |
| Approximately 0.7 mile downstream of Hoover Road | 1.68 | 305 | 595 | 757 | 1244 |
| **Guffords Branch** | | | | | |
| At confluence with Rileys Creek | 2.02 | 341 | 663 | 843 | 1382 |
| Approximately 1,300 feet upstream of N.C. Highway 210 | 1.64 | 301 | 586 | 746 | 1225 |
| Approximately 530 feet downstream of Highsmith Road | 1.11 | 237 | 465 | 592 | 977 |
| **Harrisons Creek** | | | | | |
| At NC Hwy 210 | 14.72 | * | * | 2890 | * |
| Approximately 0.4 mile upstream of NC Hwy 210 | 14.31 | * | * | 2840 | * |
| Approximately 1.6 miles upstream of NC Hwy 210 | 12.33 | * | * | 2610 | * |
| Approximately 1.7 miles downstream of Holiday Drive | 12.06 | * | * | 2580 | * |
| Approximately 1.0 mile downstream of Holiday Drive | 2.48 | * | * | 1050 | * |
| Approximately 0.6 mile downstream of Holiday Drive | 2.34 | * | * | 1020 | * |
| At Holiday Drive | 1.99 | * | * | 927 | * |

## Table 13 - Summary of Discharges

| Flooding Source | | Discharges (cfs) | | | |
|---|---|---|---|---|---|
| Location | Drainage Area (square miles) | 10% Annual Chance | 2% Annual Chance | 1% Annual Chance | 0.2% Annual Chance |
| **Holly Shelter Creek** | | | | | |
| The confluence with Northeast Cape Fear River | 270.27 | * | * | 12000 | * |
| Approximately 5.3 miles downstream of Shaw Highway | 269.58 | * | * | 12000 | * |
| Approximately 3.8 miles downstream of Shaw Highway | 267.84 | * | * | 11900 | * |
| Approximately 2.9 miles downstream of Shaw Highway | 265.94 | * | * | 11900 | * |
| Approximately 1.0 mile downstream of Shaw Highway | 262.43 | * | * | 11800 | * |
| Approximately 0.5 mile upstream of Shaw Highway | 259.91 | * | * | 11700 | * |
| Approximately 3.1 miles upstream of Shaw Highway | 249.25 | * | * | 11500 | * |
| Approximately 5.6 miles upstream of Shaw Highway | 248.47 | * | * | 11400 | * |
| Approximately 6.5 miles downstream of Old Maple Hill Road | 176.74 | * | * | 9420 | * |
| Approximately 5.5 miles downstream of Old Maple Hill Road | 176.29 | * | * | 9400 | * |
| Approximately 0.4 mile downstream of Old Maple Hill Road | 101.27 | * | * | 6850 | * |
| Approximately 1.2 miles upstream of Old Maple Hill Road | 100.42 | * | * | 6810 | * |
| Approximately 2.1 miles upstream of Old Maple Hill Road | 22.51 | * | * | 2900 | * |
| Approximately 2.4 miles downstream of NC Hwy 50 | 21.56 | * | * | 2830 | * |
| Approximately 1.4 miles downstream of NC Hwy 50 | 20.82 | * | * | 2770 | * |
| Approximately 0.3 mile downstream of NC Hwy 50 | 20.01 | * | * | 2710 | * |
| Approximately 700 feet upstream of NC Hwy 50 | 19.62 | * | * | 2680 | * |
| Approximately 0.6 mile downstream of Maple Hill School Road | 4.79 | * | * | 1200 | * |
| Approximately 0.6 mile downstream of Webbtown Road | 3.19 | * | * | 947 | * |
| **Horse Branch Creek** | | | | | |
| Just upstream of confluence with Long Creek | 10.10 | 923 | 1745 | 2196 | 3536 |
| Approximately 1,900 feet upstream of Long Creek | 9.75 | 903 | 1708 | 2149 | 3463 |
| Approximately 2,200 feet upstream of Coras Grove Road | 8.83 | 850 | 1610 | 2027 | 3270 |
| Approximately 1.4 miles upstream of Coras Grove Road | 7.58 | 773 | 1468 | 1851 | 2990 |
| Approximately 1.8 miles upstream of Coras Grove Road | 7.01 | 736 | 1401 | 1767 | 2857 |
| Approximately 2,300 feet downstream of Mary Slocum Road | 5.85 | 659 | 1257 | 1587 | 2571 |
| Approximately 1,130 feet downstream of Mary Slocum Road | 5.30 | 620 | 1185 | 1496 | 2427 |
| Just upstream of Mary Slocum Road | 4.09 | 528 | 1014 | 1284 | 2088 |
| Approximately 1,240 feet upstream of Mary Slocum Road | 2.73 | 412 | 796 | 1010 | 1650 |
| Approximately 1,720 feet upstream of Mary Slocum Road | 2.33 | 374 | 724 | 919 | 1505 |
| Approximately 2,060 feet upstream of Lake Road | 0.61 | 163 | 323 | 413 | 687 |
| **Island Creek** | | | | | |
| Just upstream of confluence with Northeast Cape Fear River | 18.60 | 1345 | 2516 | 3155 | 5047 |
| Approximately 0.56 mile upstream of confluence with Northeast Cape Fear River | 18.28 | 1331 | 2491 | 3123 | 4997 |
| Approximately 1.5 miles upstream of confluence with Northeast Cape Fear River | 16.49 | 1249 | 2341 | 2938 | 4705 |
| At Holly Shelter Road | 16.25 | 1239 | 2331 | 2928 | 4689 |
| Approximately 0.85 mile downstream of Island Creek Road | 15.98 | 1225 | 2297 | 2883 | 4619 |
| Just upstream of Island Creek Road | 14.19 | 1138 | 2139 | 2686 | 4310 |
| Approximately 0.9 mile upstream of Holly Shelter Road | 11.77 | 1016 | 1921 | 2417 | 3885 |
| Approximately 1 mile upstream of Island Creek Road | 8.81 | 848 | 1607 | 2024 | 3264 |
| **Island Creek Tributary** | | | | | |
| Approximately 0.3 mile upstream of confluence with Island Creek | 4.22 | * | * | 1420 | * |
| Approximately 0.9 mile upstream of confluence with Island Creek | 3.46 | * | * | 1270 | * |

## Table 13 - Summary of Discharges

| Flooding Source | | Discharges (cfs) | | | |
|---|---|---|---|---|---|
| Location | Drainage Area (square miles) | 10% Annual Chance | 2% Annual Chance | 1% Annual Chance | 0.2% Annual Chance |
| Approximately 1.8 miles upstream of confluence with Island Creek | 2.63 | * | * | 1090 | * |
| Approximately 2.4 miles upstream of confluence with Island Creek | 1.87 | * | * | 895 | * |
| **Jones Creek** | | | | | |
| At confluence with Colvins Creek | 5.45 | 631 | 1206 | 1523 | 2469 |
| Approximately 1.3 miles upstream of confluence with Colvins Creek | 4.58 | 567 | 1086 | 1373 | 2231 |
| Approximately 0.93 mile upstream of Slocum Trail | 4.10 | 529 | 1015 | 1284 | 2089 |
| Approximately 2,240 feet downstream of Beatty's Bridge Road | 3.45 | 476 | 916 | 1160 | 1891 |
| Approximately 0.7 mile upstream of Beattys Bridge Road | 2.37 | * | * | 854 | * |
| Approximately 1,885 feet upstream of Beatty's Bridge Road | 2.36 | 377 | 730 | 926 | 1516 |
| **Juniper Swamp** | | | | | |
| The confluence with Shaken Creek | 41.21 | * | * | 5170 | * |
| **Kellys Creek** | | | | | |
| The confluence with Rileys Creek | 8.18 | * | * | 2070 | * |
| Approximately 800 feet downstream of Little Kelly Road | 7.49 | * | * | 1970 | * |
| **Lewis Creek** | | | | | |
| At confluence with Northeast Cape Fear River | 9.00 | 859 | 1628 | 2050 | 3305 |
| Approximately 125 feet upstream of confluence with Northeast Cape Fear River | 8.49 | 829 | 1572 | 1981 | 3196 |
| Approximately 1,725 feet downstream of U.S. Highway 117 | 7.91 | 794 | 1507 | 1899 | 3066 |
| Approximately 315 feet upstream of U.S. Highway 117 | 7.41 | 762 | 1449 | 1826 | 2951 |
| Approximately 3,215feet upstream of U.S. Highway 117 | 6.21 | 683 | 1303 | 1644 | 2662 |
| **Lillington Creek** | | | | | |
| The confluence with Northeast Cape Fear River | 16.81 | * | * | 3110 | * |
| Approximately 1.1 miles downstream of Shaw Highway | 14.30 | * | * | 2840 | * |
| Approximately 0.3 mile downstream of Shaw Highway | 13.40 | * | * | 2730 | * |
| Approximately 0.6 mile upstream of Shaw Highway | 9.59 | * | * | 2260 | * |
| Approximately 1.6 miles upstream of Shaw Highway | 7.55 | * | * | 1980 | * |
| Approximately 2.4 miles upstream of Shaw Highway | 4.83 | * | * | 1530 | * |
| **Lillington Creek Tributary** | | | | | |
| The confluence with Lillington Creek | 1.99 | * | * | 928 | * |
| Approximately 0.5 mile upstream of confluence with Lillington Creek | 1.77 | * | * | 867 | * |
| Approximately 0.8 mile upstream of confluence with Lillington Creek | 0.54 | * | * | 444 | * |
| **Long Creek** | | | | | |
| At confluence with Northeast Cape Fear River | 141.40 | 4702 | 8499 | 10527 | 16468 |
| At confluence with Morgan Creek | 134.95 | 4569 | 8264 | 10239 | 16025 |
| Approximately 1.5 miles upstream of confluence with Morgan Creek | 131.95 | 4506 | 8154 | 10103 | 15817 |
| Approximately 7.7 miles downstream of NC Hwy 210 | 130.25 | 3760 | 7910 | 9930 | 16000 |
| Approximately 7.3 miles downstream of NC Hwy 210 | 129.67 | 3750 | 7890 | 9910 | 16000 |
| Approximately 6.2 miles downstream of NC Hwy 210 | 128.83 | 3730 | 7860 | 9870 | 15900 |
| Approximately 5.3 miles downstream of NC Hwy 210 | 126.30 | 3690 | 7770 | 9760 | 15700 |
| Approximately 4.6 miles downstream of NC Hwy 210 | 125.39 | 3670 | 7740 | 9720 | 15700 |
| Approximately 3.3 miles downstream of NC Hwy 210 | 123.48 | 3630 | 7670 | 9640 | 15500 |
| Approximately 2.6 miles downstream of NC Hwy 210 | 121.03 | 3590 | 7580 | 9530 | 15400 |
| At confluence with Rileys Creek | 87.89 | 3507 | 6390 | 7937 | 12481 |
| Just upstream of confluence with Mulberry Branch | 83.12 | 3388 | 6179 | 7678 | 12081 |

## Table 13 - Summary of Discharges

| Flooding Source | | Discharges (cfs) | | | |
|---|---|---|---|---|---|
| Location | Drainage Area (square miles) | 10% Annual Chance | 2% Annual Chance | 1% Annual Chance | 0.2% Annual Chance |
| Approximately 1.4 miles upstream of NC Hwy 210 | 78.90 | * | * | 7470 | * |
| Approximately 2.1 miles upstream of NC Hwy 210 | 74.71 | * | * | 7250 | * |
| Approximately 3.3 miles downstream of Malpass Corner Road | 68.06 | * | * | 6870 | * |
| Approximately 2.4 miles downstream of Malpass Corner Road | 66.10 | * | * | 6760 | * |
| Approximately 1.1 miles downstream of Malpass Corner Road | 61.45 | * | * | 6490 | * |
| Approximately 0.3 mile downstream of Malpass Corner Road | 58.54 | * | * | 6310 | * |
| At confluence with Cypress Creek (near Wards Corner) | 35.32 | 1998 | 3697 | 4618 | 7335 |
| Approximately 1.98 miles upstream of confluence with Cypress Creek (near Wards Corner) | 31.35 | 1856 | 3442 | 4302 | 6843 |
| Approximately 0.6 mile downstream of confluence with Keith Branch | 25.38 | 1630 | 3033 | 3795 | 6050 |
| Just downstream of confluence with Keith Branch | 19.41 | 1381 | 2582 | 3236 | 5174 |
| Approximately 0.55 mile upstream of confluence with Keith Branch | 18.50 | 1341 | 2508 | 3145 | 5031 |
| Approximately 0.92 mile upstream of confluence with Keith Branch | 17.85 | 1311 | 2455 | 3079 | 4927 |
| Just downstream of confluence with Horse Branch Creek | 7.50 | 768 | 1460 | 1840 | 2973 |
| Approximately 2,400 feet upstream of confluence with Horse Branch Creek | 7.24 | 752 | 1429 | 1802 | 2912 |
| Approximately 5,300 feet upstream of confluence with Horse Branch Creek | 6.27 | 688 | 1311 | 1654 | 2677 |
| Approximately 620 feet upstream of Coras Grove Road | 3.70 | 497 | 955 | 1210 | 1970 |
| **Long Creek Tributary** | | | | | |
| The confluence with Long Creek | 0.62 | * | * | 478 | * |
| **Merricks Creek** | | | | | |
| Approximately 600 feet downstream of NC Hwy 210 | 42.13 | * | * | 5240 | * |
| Approximately 350 feet upstream of NC Hwy 210 | 41.94 | * | * | 5220 | * |
| **Mill Branch (of Buxton Branch)** | | | | | |
| Approximately 1,275 feet upstream of Buxton Branch | 1.69 | 306 | 597 | 759 | 1246 |
| Approximately 615 feet upstream of N.C. Highway 53 | 1.49 | 283 | 554 | 705 | 1159 |
| Approximately 1.6 miles upstream of N.C. Highway 53 | 1.06 | 230 | 451 | 575 | 950 |
| **Mill Branch (of Moores Creek)** | | | | | |
| Approximately 70 feet upstream of confluence with Moores Creek (near Atkinson) | 6.25 | 686 | 1308 | 1650 | 2672 |
| Approximately 2,550 feet downstream of Point Caswell Road | 5.65 | 645 | 1231 | 1554 | 2519 |
| Approximately 245 feet upstream of Point Caswell Road | 4.62 | 570 | 1092 | 1380 | 2242 |
| **Mill Creek** | | | | | |
| Approximately 0.4 mile downstream of Highsmith Road | 3.79 | * | * | 1340 | * |
| **Mill Pond** | | | | | |
| At confluence with Holly Shelter Creek | 8.19 | 811 | 1538 | 1938 | 3128 |
| Approximately 1.3 miles upstream of confluence with Holly Shelter Creek | 5.88 | 661 | 1261 | 1591 | 2578 |
| Approximately 1.62 miles upstream of confluence with Holly Shelter Creek | 4.43 | 555 | 1064 | 1346 | 2187 |
| Approximately 1.77 miles upstream of confluence with Holly Shelter Creek | 3.94 | 516 | 992 | 1255 | 2042 |
| **Moores Creek** | | | | | |
| The confluence with Holly Shelter Creek | 14.25 | * | * | 2830 | * |
| Approximately 0.7 mile downstream of Webbtown Road | 13.78 | * | * | 2780 | * |
| Approximately 1,000 feet upstream of Webbtown Road | 11.20 | * | * | 2470 | * |
| Approximately 1,000 feet upstream of NC Hwy 53 | 10.87 | * | * | 2430 | * |
| Approximately 0.4 mile upstream of NC Hwy 53 | 10.78 | * | * | 2420 | * |
| Approximately 1.0 mile upstream of NC Hwy 53 | 10.22 | * | * | 2350 | * |

## Table 13 - Summary of Discharges

| Flooding Source | | Discharges (cfs) | | | |
|---|---|---|---|---|---|
| Location | Drainage Area (square miles) | 10% Annual Chance | 2% Annual Chance | 1% Annual Chance | 0.2% Annual Chance |
| Approximately 1.1 miles upstream of NC Hwy 53 | 6.72 | * | * | 1850 | * |
| Approximately 1.6 miles upstream of NC Hwy 53 | 5.36 | * | * | 1630 | * |
| Approximately 2.1 miles upstream of NC Hwy 53 | 5.14 | * | * | 1590 | * |
| **Moores Creek (near Atkinson)** | | | | | |
| Just upstream of confluence with Black River | 93.49 | 3643 | 6631 | 8233 | 12938 |
| Approximately 1.2 miles upstream of NC Hwy 210 | 86.35 | * | * | 6540 | * |
| Approximately 1.7 miles upstream of NC Hwy 210 | 81.69 | * | * | 6330 | * |
| Approximately 2.1 miles downstream of John Henry Store Road | 79.25 | * | * | 6230 | * |
| Approximately 0.9 mile downstream of John Henry Store Road | 76.98 | * | * | 6130 | * |
| Approximately 2,600 feet downstream of confluence with Mill Branch (of Moores Creek) | 75.40 | 3190 | 5828 | 7246 | 11413 |
| Just upstream of confluence with Mill Branch (of Moores Creek) | 68.73 | 3013 | 5513 | 6858 | 10814 |
| Approximately 0.7 mile upstream of confluence with Mill Branch (of Moores Creek) | 67.20 | 2972 | 5439 | 6767 | 10673 |
| Approximately 725 feet upstream of N.C. Highway 53 | 64.44 | 2896 | 5304 | 6601 | 10415 |
| Approximately 85 feet upstream of confluence with Buxton Branch | 57.36 | 2695 | 4946 | 6160 | 9732 |
| Approximately 0.5 mile upstream of confluence with Buxton Branch | 56.38 | 2666 | 4895 | 6097 | 9634 |
| Approximately 0.65 mile downstream of Point Caswell Road | 55.47 | 2640 | 4848 | 6038 | 9544 |
| Approximately 0.12 mile upstream of Point Caswell Road | 51.64 | 2526 | 4644 | 5787 | 9154 |
| Approximately 1 mile upstream of Point Caswell Road | 50.86 | 2502 | 4602 | 5735 | 9073 |
| Approximately 40 feet upstream of confluence with Bear Den Branch | 45.88 | 2348 | 4326 | 5394 | 8544 |
| Approximately 55 feet upstream of confluence with Taylor Branch | 44.25 | 2296 | 4233 | 5279 | 8365 |
| At confluence with White Oak Branch | 23.12 | 1538 | 2867 | 3590 | 5729 |
| Approximately 0.75 mile upstream of confluence with White Oak Branch | 22.38 | 1508 | 2812 | 3522 | 5622 |
| Approximately 0.58 mile upstream of Shiloh Road | 21.88 | 1487 | 2774 | 3475 | 5549 |
| Approximately 215 feet uostream of confluence with Dry Branch | 17.71 | 1305 | 2444 | 3065 | 4906 |
| Approximately 2,070 feet upstream of Tedder Road | 16.62 | 1255 | 2352 | 2951 | 4726 |
| Approximately 3,125 feet downstream of confluence of Laurel Creek | 15.52 | 1203 | 2258 | 2834 | 4542 |
| At confluence with Laurel Creek | 12.43 | 1049 | 1976 | 2484 | 3991 |
| Approximately 140 feet upstream of Bulltail Creek | 8.51 | 830 | 1574 | 1983 | 3199 |
| Approximately 1,415 feet downstream of U.S. Highway 421 | 8.01 | 800 | 1518 | 1913 | 3089 |
| Approximately 875 feet downstream of U.S. Highway 421 | 7.52 | 770 | 1462 | 1843 | 2978 |
| Approximately 300 feet upstream of U.S. Highway 421 | 6.60 | 710 | 1351 | 1705 | 2758 |
| At confluence with Bullhead Branch | 4.60 | 568 | 1089 | 1376 | 2236 |
| Approximately 2,150 feet upstream of confluence with Bullhead Branch | 2.99 | 435 | 840 | 1065 | 1738 |
| Approximately 3,375 feet upstream of confluence with Bullhead Branch | 2.17 | 357 | 693 | 880 | 1442 |
| Approximately 5,415 feet upstream of confluence with Bullhead Branch | 1.70 | 308 | 600 | 763 | 1252 |
| **Moores Creek Tributary 1** | | | | | |
| The confluence with Moores Creek | 2.15 | * | * | 970 | * |
| Approximately 0.8 mile upstream of the confluence with Moores Creek | 1.54 | * | * | 801 | * |
| Approximately 1.1 miles upstream of the confluence with Moores Creek | 1.37 | * | * | 752 | * |
| **Moores Creek Tributary 2** | | | | | |
| The confluence with Moores Creek | 1.21 | * | * | 700 | * |
| Approximately 0.2 mile upstream of the confluence with Moores Creek | 0.92 | * | * | 598 | * |
| **Moores Creek Tributary 6** | | | | | |

## Table 13 - Summary of Discharges

| Flooding Source | | Discharges (cfs) | | | |
|---|---|---|---|---|---|
| Location | Drainage Area (square miles) | 10% Annual Chance | 2% Annual Chance | 1% Annual Chance | 0.2% Annual Chance |
| The confluence with Moores Creek | 3.32 | * | * | 1240 | * |
| Approximately 800 feet upstream of Joshua James Road | 2.36 | * | * | 1020 | * |
| Approximately 0.6 mile upstream of Joshua James Road | 2.00 | * | * | 929 | * |
| Approximately 1.2 miles upstream of Joshua James Road | 1.56 | * | * | 807 | * |
| **Moores Creek Tributary 7** | | | | | |
| The confluence with Moores Creek Tributary 6 | 0.68 | * | * | 506 | * |
| At Cypress Creek Road | 0.59 | * | * | 467 | * |
| Approximately 0.7 mile upstream of Cypress Creek Road | 0.37 | * | * | 359 | * |
| Approximately 1.0 mile upstream of Cypress Creek Road | 0.17 | * | * | 230 | * |
| **Mulberry Branch** | | | | | |
| Just upstream of confluence with Long Creek | 0.81 | 195 | 384 | 490 | 812 |
| Approximately 75 feet upstream of Herrings Chapel Road | 0.53 | 149 | 297 | 381 | 633 |
| **North Branch** | | | | | |
| At confluence with Lewis Creek | 2.89 | 427 | 824 | 1045 | 1706 |
| Approximately 2,550 feet upstream of confluence with Lewis Creek | 2.04 | 344 | 669 | 850 | 1392 |
| Approximately 850 feet downstream of Mary Slocum Road | 1.46 | 280 | 547 | 696 | 1146 |
| **Northeast Cape Fear River** | | | | | |
| At confluence with Long Creek | 1534.04 | 20472 | 35531 | 43383 | 66110 |
| At confluence with Turkey Creek | 1519.05 | 20348 | 35322 | 43131 | 65733 |
| At Interstate 40 | 1493.61 | 20137 | 34966 | 42701 | 65089 |
| At confluence with Island Creek | 1462.70 | 19879 | 34530 | 42174 | 64300 |
| Approximately 1.2 miles upstream of confluence with Island Creek | 1408.32 | 19420 | 33754 | 41235 | 62895 |
| Approximately 5,125 feet upstream of N.C. Highway 210 | 1389.24 | 19257 | 33479 | 40902 | 62397 |
| Approximately 3.2 miles upstream of N.C. Highway 210 | 1377.66 | 19158 | 33311 | 40699 | 62093 |
| Approximately 9.5 miles downstream of NC Hwy 210 | 1338.17 | 15700 | 30000 | 37200 | 58600 |
| At confluence with Burgaw Creek | 1320.05 | 18660 | 32468 | 39680 | 60566 |
| Approximately 1.3 miles downstream of confluence with Ashes Creek | 1309.08 | 18564 | 32306 | 39483 | 60272 |
| At the confluence with Ashes Creek | 1246.91 | 18015 | 31377 | 38359 | 58587 |
| At the confluence with Holly Shelter Creek | 990.81 | 15632 | 27334 | 33462 | 51238 |
| Just upstream of N.C. Highway 53 | 986.18 | 15587 | 27257 | 33369 | 51098 |
| Approximately 2 miles downstream of Croomsbridge Road | 978.76 | 15515 | 27134 | 33220 | 50873 |
| Approximately 1,280 feet upstream of Croomsbridge Road | 967.79 | 15407 | 26951 | 32998 | 50540 |
| Just upstream of confluence with Lewis Creek | 954.89 | 15280 | 26735 | 32736 | 50146 |
| Approximately 3.4 miles upstream of Croomsbridge Road | 945.00 | * | * | 30551 | * |
| NP | 938.90 | * | * | 30440 | * |
| Approximately 1.4 miles upstream of the confluence of Washington Creek | 937.70 | * | * | 30417 | * |
| Approximately 2.7 miles upstream of the confluence of Washington Creek | 934.80 | * | * | 30365 | * |
| At confluence with Rockfish Creek | 763.33 | * | * | 27189 | * |
| **Osgood Canal** | | | | | |
| The confluence with Burgaw Creek | 2.90 | 400 | 815 | 1060 | 1870 |
| **Pike Creek** | | | | | |
| The confluence with Northeast Cape Fear River | 9.40 | * | * | 2240 | * |
| Approximately 1.2 miles downstream of Ashton Lake Road | 7.54 | * | * | 1970 | * |
| Approximately 0.4 mile downstream of Ashton Lake Road | 6.43 | * | * | 1800 | * |

## Table 13 - Summary of Discharges

| Flooding Source | | Discharges (cfs) | | | |
|---|---|---|---|---|---|
| Location | Drainage Area (square miles) | 10% Annual Chance | 2% Annual Chance | 1% Annual Chance | 0.2% Annual Chance |
| At I-40 | 4.22 | * | * | 1420 | * |
| Approximately 1.3 miles upstream of I-40 | 2.04 | * | * | 941 | * |
| **Players Creek** | | | | | |
| The confluence with Merricks Creek | 7.53 | * | * | 1970 | * |
| Approximately 0.4 mile upstream of the confluence with Merricks Creek | 6.52 | * | * | 1820 | * |
| Approximately 0.8 mile upstream of the confluence with Merricks Creek | 6.09 | * | * | 1750 | * |
| Approximately 1.8 miles upstream of the confluence with Merricks Creek | 5.41 | * | * | 1640 | * |
| **Rileys Creek** | | | | | |
| The confluence with Long Creek | 35.13 | 1680 | 3740 | 4720 | 7720 |
| Approximately 1.0 mile upstream of confluence with Long Creek | 34.32 | 1650 | 3690 | 4660 | 7620 |
| Approximately 1.1 miles downstream of NC Hwy 210 | 32.22 | 1590 | 3560 | 4500 | 7350 |
| Approximately 0.3 mile downstream of NC Hwy 210 | 29.53 | * | * | 4280 | * |
| Approximately 0.2 mile upstream of NC Hwy 210 | 28.32 | * | * | 4180 | * |
| Approximately 0.3 mile upstream of Scott Road | 27.57 | * | * | 4120 | * |
| Approximately 1.0 mile upstream of Scott Road | 26.85 | * | * | 4060 | * |
| Approximately 1.5 miles upstream of Scott Road | 22.17 | * | * | 3640 | * |
| Approximately 2.4 miles upstream of Scott Road | 13.10 | * | * | 2700 | * |
| **Rizzo Creek** | | | | | |
| The confluence with Rileys Creek | 9.04 | * | * | 2190 | * |
| **Rockfish Creek** | | | | | |
| At the confluence with Northeast Cape Fear River | 178.50 | 5429 | 9774 | 12089 | 18863 |
| At Confluence with Northeast Cape Fear River | 177.78 | * | * | 12123 | * |
| Approximately 0.75 mile upstream of Interstate 40 | 174.10 | 5346 | 9628 | 11911 | 18590 |
| Approximately 1.4 miles upstream of Interstate 40 | 173.00 | 5325 | 9591 | 11865 | 18520 |
| Approximately 0.95 mile downstream of US Highway 117 | 162.40 | 5122 | 9236 | 11430 | 17854 |
| At the confluence of Little Rockfish Creek | 161.42 | * | * | 11448 | * |
| Approximately 0.3 mile upstream of Railroad | 132.95 | 4527 | 8190 | 10148 | 15887 |
| At the confluence with Sills Creek | 132.81 | * | * | 10195 | * |
| At confluence with Rockfish Creek Tributary | 129.32 | * | * | 10035 | * |
| Approximately 1.1 miles upstream of Wallace Airport Road | 128.86 | * | * | 9870 | * |
| Approximately 1.4 miles upstream of Wallace Airport Road | 126.38 | * | * | 9760 | * |
| Approximately 2.2 miles upstream of Wallace Airport Road | 124.95 | * | * | 9700 | * |
| Approximately 0.8 mile downstream of the confluence of Doctors Creek | 123.47 | * | * | 9640 | * |
| **Rockfish Creek Tributary** | | | | | |
| At the confluence with Rockfish Creek | 1.63 | * | * | 1081 | * |
| **Sandy Run Swamp** | | | | | |
| The confluence with Holly Shelter Creek | 77.14 | * | * | 7380 | * |
| Approximately 4.0 miles downstream of Williams Road | 76.98 | * | * | 7370 | * |
| Approximately 3.1 miles downstream of Williams Road | 75.55 | * | * | 7290 | * |
| Approximately 2.3 miles downstream of Williams Road | 73.59 | * | * | 7190 | * |
| Approximately 1.0 mile downstream of Williams Road | 23.76 | * | * | 3780 | * |
| Approximately 0.5 mile upstream of Williams Road | 22.82 | * | * | 3700 | * |
| Approximately 1.6 miles upstream of Williams Road | 20.59 | * | * | 3490 | * |
| **Sawyer Creek** | | | | | |

## Table 13 - Summary of Discharges

| Flooding Source | | Discharges (cfs) | | | |
|---|---|---|---|---|---|
| Location | Drainage Area (square miles) | 10% Annual Chance | 2% Annual Chance | 1% Annual Chance | 0.2% Annual Chance |
| The confluence with Sills Creek | 6.13 | * | * | 1760 | * |
| Approximately 0.7 mile downstream of NC Hwy 11 | 5.13 | * | * | 1590 | * |
| At NC Hwy 11 | 1.44 | * | * | 772 | * |
| **Shaken Creek** | | | | | |
| The confluence with Holly Shelter Creek | 71.49 | * | * | 7070 | * |
| Approximately 2.3 miles upstream of Old Maple Hill Road | 70.46 | * | * | 7010 | * |
| Approximately 4.0 miles upstream of Old Maple Hill Road | 68.40 | * | * | 6890 | * |
| Approximately 5.7 miles upstream of Old Maple Hill Road | 63.73 | * | * | 6620 | * |
| Approximately 9.6 miles upstream of Old Maple Hill Road | 57.30 | * | * | 6240 | * |
| Approximately 10.2 miles upstream of Old Maple Hill Road | 53.38 | * | * | 5990 | * |
| Approximately 12.8 miles upstream of Old Maple Hill Road | 44.67 | * | * | 5410 | * |
| Approximately 14.3 miles upstream of Old Maple Hill Road | 1.25 | * | * | 712 | * |
| **Shelter Swamp Creek** | | | | | |
| The confluence with Sandy Run Swamp | 48.58 | * | * | 5680 | * |
| Approximately 1.4 miles downstream of Williams Road | 47.85 | * | * | 5630 | * |
| Approximately 500 feet upstream of Williams Road | 46.96 | * | * | 5570 | * |
| Approximately 0.8 mile upstream of Williams Road | 45.64 | * | * | 5480 | * |
| Approximately 1.1 miles upstream of Williams Road | 45.24 | * | * | 5450 | * |
| Approximately 2.0 miles upstream of Williams Road | 43.78 | * | * | 5350 | * |
| **Sills Creek** | | | | | |
| Approximately 200 feet upstream of confluence with Rockfish Creek | 20.30 | 1420 | 2652 | 3323 | 5311 |
| Approximately 3,670 feet downstream of Willard Road | 18.92 | 1360 | 2543 | 3188 | 5098 |
| Approximately 135 feet downstream of Willard Road | 17.76 | 1307 | 2447 | 3069 | 4912 |
| Approximately 2,380 feet upstream of Willard Road | 16.51 | 1250 | 2343 | 2940 | 4709 |
| Approximately 1.4 miles upstream of Willard Road | 14.06 | 1132 | 2128 | 2672 | 4288 |
| Approximately 0.8 mile downstream of Crooked Run Road | 12.42 | 1049 | 1975 | 2483 | 3989 |
| Approximately 0.35 mile downstream of Crooked Run Road | 12.05 | 1029 | 1940 | 2438 | 3919 |
| Just upstream of confluence with Crooked Run Creek | 7.24 | 751 | 1428 | 1801 | 2911 |
| Just downstream of confluence with Sills Creek Tributary 1 | 6.21 | 683 | 1303 | 1644 | 2662 |
| Approximately 1,045 feet downstream of confluence with Sills Creek Tributary 2 | 4.42 | 554 | 1063 | 1344 | 2184 |
| Approximately 115 feet upstream of confluence with Sills Creek Tributary 2 | 1.65 | 302 | 589 | 749 | 1231 |
| **Sills Creek Tributary 1** | | | | | |
| Just upstream of confluence with Sills Creek | 0.79 | 191 | 377 | 482 | 799 |
| Approximately 600 feet downstream of Giddeons Pond Road | 0.65 | 170 | 336 | 430 | 713 |
| Approximately 90 feet upstream of Giddeons Pond Road | 0.54 | 151 | 301 | 385 | 640 |
| Approximately 170 feet downstream of Sills Creek Road | 0.49 | 142 | 283 | 362 | 603 |
| Approximately 830 feet upstream of Sills Creek Road | 0.42 | 131 | 261 | 334 | 557 |
| Approximately 565 feet downstream of Racoon Road | 0.36 | 118 | 235 | 302 | 504 |
| **Sills Creek Tributary 2** | | | | | |
| Just upstream of confluence with Sills Creek | 2.66 | 405 | 784 | 994 | 1625 |
| Approximately 185 feet upstream of Racoon Road | 1.37 | 270 | 527 | 671 | 1105 |
| **Taylor Branch** | | | | | |
| Approximately 40 feet upstream of confluence with Moores Creek (near Atkinson) | 1.60 | 296 | 578 | 735 | 1208 |
| Approximately 3,030 feet upstream of confluence with Moores Creek (near Atkinson) | 1.28 | 258 | 505 | 643 | 1059 |

## Table 13 - Summary of Discharges

| Flooding Source | | Discharges (cfs) | | | |
|---|---|---|---|---|---|
| Location | Drainage Area (square miles) | 10% Annual Chance | 2% Annual Chance | 1% Annual Chance | 0.2% Annual Chance |
| Approximately 275 feet upstream of U.S. Highway 421 | 1.03 | 226 | 444 | 566 | 935 |
| **Trumpeter Swamp** | | | | | |
| The confluence with Catskin Creek | 12.65 | * | * | 2650 | * |
| Approximately 1.2 miles upstream of confluence of Catskin Creek | 11.88 | * | * | 2560 | * |
| Approximately 3.3 miles downstream of J A Drive | 10.55 | * | * | 2390 | * |
| Approximately 1.4 miles downstream of J A Drive | 8.70 | * | * | 2140 | * |
| Approximately 200 feet downstream of J A Drive | 5.25 | * | * | 1610 | * |
| Approximately 0.8 mile upstream of J A Drive | 1.14 | * | * | 678 | * |
| **Tuckahoe Branch** | | | | | |
| Approximately 50 feet upstream of confluence with White Oak Branch | 5.87 | 792 | 1545 | 1960 | 3192 |
| Approximately 0.55 mile upstream of confluence with White Oak Branch | 5.31 | 620 | 1186 | 1498 | 2430 |
| Approximately 0.77 mile upstream of confluence with White Oak Branch | 4.69 | 575 | 1101 | 1392 | 2261 |
| Approximately 1,300 feet downstream of Halfway Branch School | 4.22 | 539 | 1033 | 1307 | 2125 |
| Just upstream of Halfway Branch School | 3.73 | 499 | 960 | 1215 | 1978 |
| Approximately 2,550 feet upstream of Halfway Branch School | 3.00 | 437 | 843 | 1068 | 1743 |
| **Turkey Creek** | | | | | |
| Just upstream of confluence with Northeast Cape Fear River | 14.64 | 1160 | 2180 | 2737 | 4389 |
| Approximately 2 miles upstream of confluence with Northeast Cape Fear River | 12.36 | 1106 | 2120 | 2675 | 4319 |
| Approximately 2.25 miles upstream of confluence with Northeast Cape Fear River | 11.06 | 1070 | 2075 | 2627 | 4258 |
| Approximately 0.65 mile downstream of N.C. Highway 133 | 10.29 | 1045 | 2040 | 2586 | 4202 |
| Just downstream of N.C. Highway 133 | 9.56 | 1018 | 2000 | 2539 | 4134 |
| Approximately 0.6 mile upstream of N.C. Highway 133 | 7.37 | 818 | 1589 | 2014 | 3274 |
| At confluence with Turkey Creek Tributary | 5.29 | 629 | 1208 | 1527 | 2480 |
| Approximately 0.4 mile upstream of confluence with Turkey Creek Tributary | 3.04 | 440 | 849 | 1076 | 1756 |
| Approximately 0.65 mile upstream of confluence with Turkey Creek Tributary | 2.29 | 369 | 715 | 908 | 1487 |
| Approximately 1 mile downstream of N.C. Highway 210 | 1.87 | 326 | 634 | 806 | 1322 |
| Approximately 0.73 mile downstream of N.C. Highway 210 | 1.42 | 275 | 538 | 685 | 1126 |
| **Turkey Creek Tributary** | | | | | |
| Approximately 0.8 mile downstream of Arvida Spur Road | 1.80 | * | * | 876 | * |
| Approximately 400 feet upstream of Arvida Spur Road | 1.12 | * | * | 670 | * |
| **Washington Creek** | | | | | |
| NP | 4.06 | * | * | 1390 | * |
| **Washington Creek Tributary** | | | | | |
| The confluence with Washington Creek | 2.95 | * | * | 1160 | * |
| **White Oak Branch** | | | | | |
| At confluence with Tuckahoe Branch | 20.94 | 1447 | 2702 | 3385 | 5408 |
| Approximately 70 feet upstream of confluence with tuckahoe Branch | 14.98 | 1177 | 2210 | 2774 | 4448 |
| At confluence with Big Rattlesnake Creek | 5.07 | 604 | 1154 | 1458 | 2367 |

Table 14, “Summary of Stillwater Elevations” is not applicable in Pender County.

Table 15, “Gage Information”, lists the stream gages located in Pender County, including the drainage area of the flooding source at the gage and the period of record available at the time of the publication of this FIS Report.

### Table 15 - Gage Information

| Gage Number | Flooding Source | Site Name | Drainage Area (square miles) | Period of Record | |
|---|---|---|---|---|---|
| | | | | From | To |
| 02108610 | Pike Creek | PIKE CREEK NEAR BURGAW, N. C. | 1.10 | 1953 | 1971 |
| 02108630 | Turkey Creek | TURKEY CREEK NEAR CASTLE HAYNE, N. C. | 10.19 | 1953 | 1971 |

# 5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the flood elevations for the selected recurrence intervals. Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles and/or Water-surface elevation rasters. For stream segments for which BFEs were computed, selected cross-section locations are also shown on the FIRM. Flood Profiles and/or Water-surface elevation rasters were developed showing computed water-surface elevations for floods of the selected recurrence intervals.

Users should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles and/or Water-surface elevation rasters or in the Floodway Data tables in the FIS Report. For construction and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in the FIS in conjunction with the data shown on the FIRM.

The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the Flood Profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

For details on the county’s hydraulic analyses, the hydraulic report is available by request.

For the streams studied by detailed methods, water surface elevations of floods of the selected recurrence intervals were computed through use of the Army Corps of Engineers' HEC RAS step backwater computer program . The hydraulic analyses were based on unobstructed flow. The flood elevations shown on the Profiles and/or Water-surface elevation rasters are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail. The computer models were calibrated using historic high water data collected during field investigations.

The cross section geometries were obtained from a combination of digital elevation data obtained by Light Detection and Ranging (LIDAR) and field surveys. All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry. Natural floodplain cross sections were surveyed approximately every 4000 feet along the detail study reaches to obtain the channel geometry between bridges and culverts. Overbank cross section data for the backwater analyses were obtained from recently flown LIDAR data.

Channel roughness factors (Manning’s “n”) used in the hydraulic computations were made in the field by an engineer where stream access was possible, with orthophotos used to supplement areas that could not be accessed. The channel and overbank “n” values for all of the streams studied by detailed methods are shown in Table 16, “Roughness Coefficients”.

### Table 16 - Roughness Coefficients

| Stream | Channel "n" | Overbank "n" |
|---|---|---|
| Angola Creek | 0.050 | 0.150 |
| Angola Creek Tributary 3 | 0.050 | 0.150 |
| Angola Creek Tributary 4 | 0.040 | 0.120 |
| Ashes Creek | 0.040 | 0.130 |
| Bear Branch | 0.045 | 0.100 to 0.150 |
| Bear Den Branch | 0.050 to 0.090 | 0.060 to 0.200 |
| Beckys Creek | 0.013 to 0.045 | 0.090 to 0.150 |
| Bee Branch | 0.024 to 0.041 | 0.101 |
| Big Branch | 0.045 | 0.159 |
| Big Branch Tributary | 0.045 | 0.159 |
| Black River | 0.038 to 0.072 | 0.070 to 0.280 |
| Bull Branch | 0.055 to 0.090 | 0.070 to 0.200 |
| Bulltail Creek | 0.050 to 0.090 | 0.060 to 0.200 |
| Burgaw Creek | 0.015 to 0.060 | 0.080 to 0.200 |

# Table 16 - Roughness Coefficients

| Stream | Channel "n" | Overbank "n" |
|---|---|---|
| Buxton Branch | 0.052 to 0.090 | 0.060 to 0.200 |
| Cape Fear River | 0.030 to 0.059 | 0.050 to 0.666 |
| Cat Creek | 0.045 to 0.050 | 0.110 to 0.150 |
| Catskin Creek | 0.022 to 0.040 | 0.130 |
| Colly Creek | 0.040 to 0.050 | 0.110 to 0.150 |
| Colvins Creek | 0.040 to 0.045 | 0.090 to 0.200 |
| Colvins Creek Tributary | 0.045 | 0.100 to 0.150 |
| Crooked Run | 0.050 to 0.090 | 0.060 to 0.200 |
| Cypress Creek (near Stag Park) | 0.015 to 0.050 | 0.110 to 0.140 |
| Cypress Creek (near Wards Corner) | 0.024 to 0.350 | 0.100 to 0.160 |
| Cypress Lake | 0.045 to 0.050 | 0.140 to 0.150 |
| Doctors Creek | 0.025 to 0.090 | 0.060 to 0.200 |
| Dry Branch | 0.045 to 0.090 | 0.060 to 0.200 |
| Flat Swamp | 0.045 to 0.050 | 0.110 to 0.150 |
| Godfrey Creek | 0.035 to 0.045 | 0.081 to 0.120 |
| Guffords Branch | 0.050 to 0.090 | 0.070 to 0.200 |
| Harrisons Creek | 0.035 | 0.080 |
| Holly Shelter Creek | 0.037 to 0.050 | 0.100 to 0.135 |
| Horse Branch Creek | 0.035 to 0.090 | 0.060 to 0.200 |
| Island Creek | 0.030 to 0.090 | 0.070 to 0.500 |
| Island Creek Tributary | 0.045 | 0.131 |
| Jones Creek | 0.035 to 0.090 | 0.020 to 0.200 |
| Juniper Swamp | 0.045 to 0.050 | 0.120 to 0.150 |
| Kellys Creek | 0.045 | 0.140 to 0.150 |
| Lewis Creek | 0.052 to 0.090 | 0.050 to 0.200 |
| Lillington Creek | 0.025 to 0.065 | 0.180 |
| Lillington Creek Tributary | 0.023 to 0.045 | 0.090 to 0.120 |
| Long Creek | 0.045 to 0.090 | 0.060 to 0.200 |
| Long Creek Tributary | 0.045 | 0.140 |
| Merricks Creek | 0.045 | 0.101 |
| Mill Branch (of Buxton Branch) | 0.055 to 0.090 | 0.060 to 0.200 |
| Mill Branch (of Moores Creek) | 0.050 to 0.090 | 0.060 to 0.200 |
| Mill Creek | 0.025 to 0.045 | 0.140 |
| Mill Creek Tributary | 0.045 | 0.140 |
| Mill Pond | 0.041 | 0.120 |
| Moores Creek | 0.040 to 0.050 | 0.125 to 0.150 |
| Moores Creek (near Atkinson) | 0.035 to 0.090 | 0.035 to 0.200 |
| Moores Creek Tributary 1 | 0.045 | 0.120 to 0.130 |
| Moores Creek Tributary 2 | 0.040 to 0.045 | 0.120 to 0.130 |
| Moores Creek Tributary 6 | 0.042 | 0.130 |
| Moores Creek Tributary 7 | 0.050 | 0.150 |
| Mulberry Branch | 0.060 to 0.090 | 0.060 to 0.200 |
| North Branch | 0.048 to 0.090 | 0.035 to 0.200 |
| Northeast Cape Fear River | 0.030 to 0.090 | 0.035 to 0.240 |
| Osgood Canal | 0.044 to 0.090 | 0.080 to 0.200 |
| Pike Creek | 0.020 to 0.040 | 0.101 |
| Players Creek | 0.045 | 0.150 |
| Rileys Creek | 0.013 to 0.060 | 0.150 to 0.180 |
| Rizzo Creek | 0.045 to 0.060 | 0.170 to 0.180 |
| Rockfish Creek | 0.013 to 0.090 | 0.030 to 0.200 |
| Sandy Run Swamp | 0.035 to 0.050 | 0.110 to 0.150 |
| Sawyer Creek | 0.025 to 0.045 | 0.140 |
| Shaken Creek | 0.040 to 0.050 | 0.120 to 0.130 |
| Shelter Swamp Creek | 0.040 to 0.050 | 0.120 to 0.150 |
| Sills Creek | 0.040 to 0.090 | 0.060 to 0.200 |
| Sills Creek Tributary 1 | 0.035 to 0.090 | 0.060 to 0.200 |
| Sills Creek Tributary 2 | 0.055 to 0.090 | 0.060 to 0.200 |
| Taylor Branch | 0.035 to 0.090 | 0.060 to 0.200 |
| Trumpeter Swamp | 0.024 to 0.065 | 0.180 |
| Tuckahoe Branch | 0.050 to 0.090 | 0.060 to 0.200 |
| Turkey Creek | 0.052 to 0.520 | 0.140 |

## Table 16 - Roughness Coefficients

| Stream | Channel "n" | Overbank "n" |
|---|---|---|
| Turkey Creek Tributary | 0.045 | 0.140 |
| Washington Creek | 0.013 to 0.050 | 0.160 |
| Washington Creek Tributary | 0.045 | 0.140 |
| White Oak Branch | 0.024 to 0.090 | 0.050 to 0.200 |

For flooding sources studied by limited detailed methods in the county, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this report and the FIRM panels. This method entails developing a HEC-RAS hydraulic model, resulting in the calculation of BFEs and the delineation of the 1% annual chance floodplain (designated as Zone AE). Cross sections for the flooding sources studied by limited detailed methods were obtained using digital elevation data obtained with LIDAR technology developed as part of the North Carolina Statewide Floodplain Mapping Program. The hydraulic model is prepared using this digital elevation data, without surveying bathymetric or structural data. Where bridge or culvert data are readily available, such as from the North Carolina Department of Transportation, these data have been reflected in the hydraulic model. If these structural data are not readily available, field measurements of these structures were made to approximate their geometry in the hydraulic models. In addition, this method does not include field surveys that determine specifics on channel and floodplain characteristics. A limited detailed study is a “buildable” product that can be upgraded to a fully detailed study at a later date by verifying stream channel characteristics, bridge and culvert opening geometry, and by analyzing multiple recurrence intervals.

The results of the HEC-RAS computations are tabulated for all cross sections (Table 17, “Limited Detailed Flood Hazard Data”). Flood Profiles have not been developed for streams studied by limited detailed methods. Water-surface elevation rasters were developed for steams studied by limited detailed methods. In addition, floodways for streams studied by limited detailed methods are not delineated on the FIRM. However, the 1% annual chance water-surface elevations, flood discharges, and non-encroachment widths from the limited detailed studies for every modeled cross section are given in Table 17. The non-encroachment widths given at modeled cross sections can be used by communities to enforce floodplain management ordinances that meet the requirement defined in 44 CFR 60.3(c)(10).

Between cross sections for streams studied by limited detailed methods, 1% annual chance water-surface elevations can be calculated by mathematical interpolation using the distance along the stream centerline. Non-encroachment widths and, therefore, the location of a non-encroachment area boundary between cross sections should be determined based on either 1) mathematical interpolation, or 2) the non-encroachment width at the upstream or downstream cross section, whichever is larger. If the width determined by this second method is wider than the Special Flood Hazard Area (SFHA) or the 1% annual chance floodplain delineated on the FIRM for this location along the stream, the non-encroachment area shall be considered to be coincident with the SFHA. A full detailed study incorporating field survey data in the HEC-RAS hydraulic model may be submitted for a Letter of Map Revision (LOMR) request to map a regulatory floodway along a section of a stream in lieu of applying the non-encroachment widths listed in Table 17.

## Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| **Angola Creek** | | | | |
| 016 | 1,590 | 6,970 | 20.0 | 298 / 373 |
| 022 | 2,218 | 6,970 | 20.1 | 650 / 381 |
| 031 | 3,073 | 6,970 | 20.3 | 540 / 247 |
| 039 | 3,910 | 6,970 | 20.5 | 343 / 434 |
| 046 | 4,552 | 6,970 | 20.6 | 250 / 358 |
| 053 | 5,320 | 6,970 | 20.8 | 348 / 302 |
| 066 | 6,648 | 6,730 | 21.3 | 70 / 70 |
| 067 | 6,698 | 6,730 | 21.8 | 70 / 70 |
| 072 | 7,214 | 6,730 | 22.4 | 306 / 781 |
| 080 | 8,033 | 6,730 | 22.5 | 1,252 / 343 |
| 092 | 9,170 | 6,730 | 22.6 | 1,218 / 172 |

## Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 106 | 10,606 | 6,730 | 22.9 | 381 / 323 |
| 134 | 13,388 | 4,160 | 23.8 | 604 / 669 |
| 142 | 14,178 | 4,160 | 24.0 | 743 / 424 |
| 147 | 14,747 | 4,160 | 24.1 | 638 / 470 |
| 155 | 15,524 | 4,160 | 24.4 | 428 / 366 |
| 165 | 16,515 | 4,160 | 24.8 | 388 / 496 |
| 175 | 17,481 | 4,160 | 25.4 | 438 / 383 |
| 193 | 19,315 | 3,690 | 26.9 | 132 / 569 |
| 210 | 21,020 | 3,690 | 27.6 | 713 / 759 |
| 220 | 22,004 | 3,690 | 27.8 | 560 / 648 |
| 229 | 22,897 | 3,690 | 28.0 | 589 / 609 |
| 236 | 23,576 | 3,690 | 28.2 | 556 / 606 |
| 243 | 24,335 | 3,690 | 28.5 | 551 / 636 |
| 252 | 25,227 | 3,390 | 28.8 | 412 / 667 |
| 261 | 26,113 | 3,390 | 29.0 | 468 / 812 |
| 269 | 26,926 | 3,390 | 29.2 | 189 / 755 |
| 278 | 27,796 | 3,390 | 29.5 | 402 / 583 |
| 288 | 28,831 | 3,390 | 29.7 | 217 / 877 |
| 296 | 29,585 | 3,390 | 29.9 | 502 / 831 |
| 305 | 30,513 | 3,390 | 30.1 | 638 / 817 |
| 313 | 31,304 | 3,190 | 30.2 | 728 / 767 |
| 320 | 31,952 | 3,190 | 30.3 | 608 / 836 |
| 331 | 33,055 | 3,050 | 30.4 | 601 / 892 |
| 340 | 34,014 | 3,050 | 30.6 | 672 / 385 |
| 350 | 35,020 | 3,050 | 30.8 | 790 / 840 |
| 359 | 35,915 | 2,900 | 30.9 | 745 / 825 |
| 369 | 36,882 | 2,900 | 31.0 | 721 / 813 |
| 380 | 37,959 | 2,900 | 31.1 | 749 / 811 |
| 397 | 39,694 | 2,900 | 31.4 | 725 / 784 |
| **Angola Creek Tributary 3** | | | | |
| 048 | 4,792 | 992 | 22.9[1] | 277 / 332 |
| 055 | 5,496 | 992 | 23.5 | 122 / 354 |
| 063 | 6,303 | 992 | 26.0 | 50 / 181 |
| 070 | 6,972 | 992 | 28.1 | 45 / 88 |
| 070 | 7,049 | 992 | 29.3 | 45 / 88 |
| 076 | 7,585 | 798 | 30.1 | 14 / 80 |
| 081 | 8,096 | 326 | 31.7 | 60 / 44 |
| 084 | 8,438 | 326 | 32.0 | 30 / 64 |
| 085 | 8,512 | 326 | 32.0 | 30 / 64 |
| 089 | 8,859 | 326 | 33.0 | 0 / 86 |
| **Angola Creek Tributary 4** | | | | |
| 032 | 3,217 | 1,480 | 26.9[1] | 487 / 13 |
| 038 | 3,762 | 1,480 | 26.9 | 131 / 141 |
| 052 | 5,153 | 1,250 | 29.6 | 6 / 312 |
| 064 | 6,419 | 1,250 | 31.6 | 200 / 196 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 065 | 6,498 | 1,250 | 34.6 | 200 / 196 |
| 076 | 7,623 | 1,250 | 34.8 | 323 / 18 |
| 086 | 8,558 | 1,250 | 35.1 | 116 / 310 |
| 095 | 9,491 | 1,250 | 35.6 | 157 / 256 |
| 104 | 10,406 | 1,070 | 36.5 | 62 / 216 |
| 111 | 11,143 | 1,070 | 37.6 | 150 / 200 |
| 121 | 12,088 | 1,070 | 38.8 | 5 / 330 |
| 121 | 12,148 | 1,070 | 39.4 | 5 / 330 |
| 129 | 12,913 | 1,070 | 40.6 | 4 / 185 |
| 135 | 13,472 | 1,070 | 42.1 | 84 / 85 |
| **Ashes Creek** | | | | |
| 073 | 7,278 | 5,680 | 17.6[2] | 156 / 84 |
| 082 | 8,208 | 5,680 | 17.6[2] | 130 / 100 |
| 099 | 9,943 | 5,680 | 17.6[2] | 76 / 226 |
| 122 | 12,226 | 5,680 | 17.6[2] | 400 / 130 |
| 148 | 14,833 | 5,680 | 17.6[2] | 50 / 300 |
| 165 | 16,459 | 5,680 | 17.6[2] | 200 / 130 |
| 180 | 18,024 | 5,680 | 17.6[2] | 130 / 155 |
| 187 | 18,724 | 5,680 | 17.6[2] | 100 / 100 |
| 188 | 18,770 | 5,680 | 17.6[2] | 100 / 100 |
| 196 | 19,572 | 5,680 | 17.8 | 238 / 206 |
| 200 | 20,027 | 5,680 | 17.9 | 279 / 336 |
| 205 | 20,525 | 5,680 | 17.8 | 130 / 724 |
| 214 | 21,445 | 5,680 | 18.0 | 142 / 385 |
| 223 | 22,349 | 5,680 | 18.0 | 231 / 390 |
| 230 | 23,029 | 5,680 | 18.0 | 288 / 266 |
| 234 | 23,406 | 5,680 | 18.1 | 385 / 382 |
| 239 | 23,948 | 5,680 | 18.2 | 582 / 340 |
| 246 | 24,578 | 5,680 | 18.2 | 514 / 318 |
| 251 | 25,075 | 5,680 | 18.3 | 224 / 311 |
| 257 | 25,705 | 5,570 | 18.3 | 277 / 352 |
| 262 | 26,156 | 5,570 | 18.4 | 429 / 302 |
| 269 | 26,871 | 5,570 | 18.4 | 495 / 295 |
| 273 | 27,328 | 5,570 | 18.4 | 129 / 359 |
| 280 | 28,014 | 5,570 | 18.5 | 373 / 129 |
| 285 | 28,471 | 5,570 | 18.6 | 280 / 325 |
| 292 | 29,200 | 5,570 | 18.7 | 442 / 339 |
| 304 | 30,388 | 5,570 | 18.8 | 55 / 519 |
| 312 | 31,157 | 5,570 | 18.9 | 437 / 185 |
| 319 | 31,941 | 5,570 | 19.1 | 301 / 377 |
| 327 | 32,655 | 5,570 | 19.2 | 673 / 391 |
| 337 | 33,710 | 5,570 | 19.4 | 129 / 152 |
| 351 | 35,052 | 5,570 | 19.8 | 40 / 483 |
| 362 | 36,170 | 5,570 | 20.1 | 129 / 129 |
| 370 | 36,962 | 5,410 | 20.4 | 78 / 307 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 381 | 38,122 | 5,410 | 20.7 | 422 / 180 |
| 405 | 40,488 | 5,410 | 21.6 | 229 / 305 |
| 414 | 41,407 | 5,410 | 21.7 | 727 / 315 |
| 420 | 42,043 | 5,410 | 21.8 | 700 / 300 |
| 425 | 42,523 | 5,410 | 21.8 | 907 / 558 |
| 439 | 43,924 | 5,410 | 22.1 | 872 / 236 |
| 454 | 45,357 | 5,410 | 22.4 | 459 / 331 |
| 461 | 46,080 | 5,410 | 22.5 | 400 / 350 |
| 468 | 46,821 | 5,410 | 22.7 | 350 / 350 |
| 476 | 47,598 | 5,410 | 22.8 | 691 / 400 |
| 483 | 48,338 | 5,410 | 22.9 | 800 / 371 |
| 492 | 49,221 | 5,410 | 22.9 | 800 / 356 |
| 493 | 49,267 | 5,410 | 22.9 | 800 / 356 |
| 499 | 49,912 | 5,410 | 23.0 | 300 / 700 |
| 507 | 50,699 | 5,410 | 23.1 | 128 / 847 |
| 517 | 51,737 | 5,410 | 23.2 | 400 / 800 |
| 525 | 52,478 | 5,410 | 23.3 | 600 / 700 |
| 533 | 53,323 | 5,410 | 23.4 | 796 / 128 |
| 542 | 54,223 | 5,120 | 23.7 | 600 / 391 |
| 555 | 55,475 | 5,120 | 24.1 | 271 / 416 |
| 564 | 56,423 | 5,120 | 24.4 | 126 / 543 |
| 572 | 57,195 | 5,120 | 24.8 | 126 / 393 |
| 584 | 58,380 | 5,120 | 25.3 | 221 / 619 |
| 593 | 59,336 | 5,120 | 25.6 | 241 / 634 |
| 604 | 60,355 | 5,120 | 25.9 | 550 / 450 |
| 618 | 61,756 | 4,880 | 26.2 | 310 / 950 |
| 642 | 64,194 | 4,880 | 26.6 | 200 / 970 |
| 655 | 65,537 | 4,880 | 26.8 | 650 / 1,000 |
| 665 | 66,526 | 4,880 | 26.9 | 390 / 1,040 |
| 683 | 68,290 | 4,880 | 27.2 | 300 / 1,200 |
| 694 | 69,429 | 4,880 | 27.4 | 315 / 870 |
| 707 | 70,738 | 4,880 | 27.7 | 190 / 650 |
| 718 | 71,774 | 4,880 | 28.0 | 400 / 700 |
| 724 | 72,395 | 4,880 | 28.2 | 350 / 275 |
| 737 | 73,733 | 4,880 | 29.2 | 250 / 475 |
| 747 | 74,737 | 4,880 | 29.9 | 625 / 340 |
| 763 | 76,342 | 4,500 | 30.6 | 565 / 515 |
| 781 | 78,054 | 4,500 | 31.1 | 585 / 275 |
| 789 | 78,910 | 4,500 | 31.5 | 350 / 150 |
| 806 | 80,563 | 4,500 | 32.9 | 750 / 550 |
| 806 | 80,609 | 4,500 | 33.2 | 750 / 550 |
| 820 | 81,996 | 4,500 | 33.7 | 650 / 650 |
| 833 | 83,301 | 4,500 | 34.2 | 1,050 / 700 |
| 848 | 84,810 | 4,080 | 34.5 | 1,250 / 1,000 |
| 858 | 85,817 | 4,080 | 34.7 | 2,150 / 400 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 870 | 87,037 | 4,080 | 34.8 | 2,600 / 1,500 |
| 891 | 89,082 | 4,080 | 34.9 | 4,000 / 450 |
| **Bear Branch** | | | | |
| 047 | 4,671 | 747 | 18.5[3] | 23 / 100 |
| 053 | 5,255 | 747 | 18.5[3] | 55 / 24 |
| 059 | 5,931 | 747 | 18.5[1] | 28 / 63 |
| 064 | 6,412 | 747 | 18.5[1] | 12 / 50 |
| 069 | 6,907 | 747 | 18.5[1] | 42 / 20 |
| 078 | 7,758 | 747 | 18.5[1] | 28 / 40 |
| 086 | 8,615 | 747 | 18.5[1] | 48 / 27 |
| 094 | 9,365 | 406 | 19.8 | 14 / 53 |
| 100 | 9,991 | 406 | 22.9 | 15 / 30 |
| 100 | 10,024 | 406 | 23.7 | 16 / 16 |
| 101 | 10,124 | 406 | 27.2 | 16 / 16 |
| 108 | 10,792 | 406 | 27.6 | 40 / 30 |
| 115 | 11,524 | 406 | 27.8 | 50 / 40 |
| 121 | 12,055 | 406 | 28.2 | 40 / 40 |
| **Bear Den Branch** | | | | |
| 078 | 7,831 | 1,099 | 46.3 | 35 / 115 |
| 084 | 8,431 | 1,099 | 46.5 | 30 / 195 |
| 090 | 9,011 | 1,099 | 46.8 | 30 / 155 |
| 100 | 10,041 | 856 | 47.9 | 30 / 105 |
| 107 | 10,706 | 856 | 49.0 | 12 / 175 |
| 115 | 11,464 | 856 | 50.3 | 10 / 130 |
| **Beckys Creek** | | | | |
| 134 | 13,363 | 941 | 14.7 | 75 / 75 |
| 138 | 13,831 | 941 | 14.7 | 75 / 75 |
| 144 | 14,365 | 941 | 14.7 | 75 / 75 |
| 144 | 14,450 | 941 | 15.1 | 75 / 75 |
| 149 | 14,892 | 941 | 15.3 | 41 / 80 |
| 155 | 15,495 | 941 | 16.9 | 39 / 68 |
| 160 | 15,988 | 941 | 18.7 | 105 / 34 |
| 168 | 16,806 | 941 | 22.2 | 49 / 27 |
| 173 | 17,296 | 737 | 24.9 | 12 / 72 |
| 178 | 17,766 | 737 | 27.2 | 22 / 102 |
| 185 | 18,485 | 737 | 29.4 | 227 / 60 |
| **Bee Branch** | | | | |
| 007 | 687 | 1,760 | 45.8[1] | 169 / 189 |
| 015 | 1,473 | 1,760 | 45.8[1] | 292 / 75 |
| 021 | 2,082 | 1,760 | 46.2 | 18 / 312 |
| 023 | 2,329 | 1,760 | 46.2 | 27 / 27 |
| 024 | 2,401 | 1,760 | 48.5 | 27 / 27 |
| 030 | 3,003 | 1,760 | 49.1 | 291 / 20 |
| 038 | 3,756 | 1,760 | 49.3 | 324 / 18 |
| 046 | 4,575 | 1,760 | 49.6 | 160 / 243 |
| 050 | 5,046 | 1,590 | 49.8 | 54 / 230 |

## Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 059 | 5,856 | 1,590 | 50.4 | 133 / 77 |
| 065 | 6,495 | 1,590 | 51.0 | 92 / 308 |
| 072 | 7,212 | 1,590 | 51.5 | 49 / 209 |
| 080 | 7,984 | 1,590 | 52.2 | 136 / 122 |
| 087 | 8,732 | 1,590 | 53.0 | 26 / 235 |
| 095 | 9,468 | 1,590 | 53.8 | 147 / 122 |
| 098 | 9,770 | 1,210 | 54.2 | 132 / 133 |
| 099 | 9,909 | 1,210 | 54.2 | 70 / 70 |
| 100 | 9,978 | 1,210 | 54.2 | 70 / 70 |
| 106 | 10,605 | 1,210 | 54.9 | 20 / 50 |
| **Big Branch** | | | | |
| 003 | 319 | 817 | 19.7[1] | 110 / 34 |
| 008 | 765 | 817 | 19.7[1] | 100 / 30 |
| 013 | 1,255 | 817 | 19.7[1] | 80 / 30 |
| 019 | 1,857 | 817 | 19.7[1] | 30 / 80 |
| 025 | 2,452 | 817 | 19.7[1] | 81 / 50 |
| 029 | 2,890 | 817 | 19.7[1] | 28 / 151 |
| 032 | 3,211 | 817 | 19.7[1] | 69 / 26 |
| 036 | 3,607 | 817 | 19.7[1] | 129 / 60 |
| 037 | 3,705 | 817 | 19.7[1] | 22 / 22 |
| 038 | 3,778 | 817 | 21.3 | 22 / 22 |
| 044 | 4,365 | 817 | 21.6 | 50 / 50 |
| 049 | 4,934 | 817 | 22.1 | 70 / 54 |
| 054 | 5,372 | 817 | 22.6 | 70 / 40 |
| 057 | 5,699 | 817 | 23.3 | 50 / 50 |
| **Big Branch Tributary** | | | | |
| 002 | 192 | 355 | 23.1 | 25 / 25 |
| 008 | 807 | 355 | 26.1 | 25 / 20 |
| 013 | 1,317 | 355 | 28.6 | 20 / 20 |
| 020 | 1,982 | 355 | 33.2 | 20 / 20 |
| **Black River** | | | | |
| 943 | 94,315 | 27,099 | 19.7[1] | 189 / 1,841 |
| 951 | 95,149 | 27,099 | 19.7[1] | 189 / 1,902 |
| 960 | 95,974 | 27,099 | 19.7[1] | 189 / 1,699 |
| 970 | 97,020 | 27,099 | 19.7[1] | 573 / 1,897 |
| 979 | 97,910 | 27,099 | 19.7[1] | 773 / 1,679 |
| 989 | 98,884 | 27,099 | 19.7[1] | 679 / 1,770 |
| 999 | 99,875 | 27,099 | 19.7[1] | 189 / 1,971 |
| 1007 | 100,737 | 27,099 | 19.7[1] | 189 / 1,194 |
| 1015 | 101,501 | 26,818 | 19.7[1] | 571 / 1,504 |
| 1026 | 102,585 | 26,818 | 19.7[1] | 930 / 1,488 |
| 1042 | 104,218 | 26,818 | 19.7[1] | 1,730 / 547 |
| 1052 | 105,179 | 26,818 | 19.7[1] | 1,535 / 507 |
| 1062 | 106,155 | 26,818 | 19.7[1] | 1,780 / 391 |
| 1082 | 108,232 | 26,818 | 19.7[1] | 1,746 / 577 |
| 1102 | 110,187 | 26,818 | 19.7[1] | 2,223 / 372 |

## Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 1124 | 112,388 | 26,818 | 19.7[1] | 2,117 / 234 |
| 1142 | 114,156 | 26,818 | 19.7[1] | 1,558 / 868 |
| 1161 | 116,113 | 26,818 | 19.7[1] | 1,430 / 187 |
| 1165 | 116,514 | 26,818 | 19.7[1] | 238 / 145 |
| 1166 | 116,573 | 26,818 | 19.7[1] | 238 / 145 |
| 1176 | 117,574 | 26,818 | 19.7[1] | 1,795 / 120 |
| 1196 | 119,641 | 26,818 | 19.7[1] | 1,553 / 1,061 |
| 1216 | 121,555 | 26,818 | 19.7[1] | 589 / 2,212 |
| 1232 | 123,189 | 26,818 | 19.7[1] | 198 / 2,612 |
| 1258 | 125,789 | 26,818 | 19.7[1] | 438 / 2,221 |
| 1271 | 127,100 | 26,818 | 19.7[1] | 593 / 1,858 |
| 1287 | 128,670 | 26,818 | 19.7[1] | 418 / 1,224 |
| 1298 | 129,778 | 26,818 | 19.7[1] | 198 / 1,298 |
| 1312 | 131,207 | 26,818 | 19.7[1] | 198 / 2,394 |
| 1330 | 132,973 | 26,818 | 19.7[1] | 732 / 1,327 |
| 1350 | 135,001 | 26,818 | 19.7[1] | 1,155 / 694 |
| 1372 | 137,181 | 26,818 | 19.7[1] | 1,400 / 926 |
| 1391 | 139,075 | 26,818 | 19.7[1] | 583 / 1,731 |
| 1406 | 140,580 | 26,818 | 19.7[1] | 745 / 1,537 |
| 1426 | 142,599 | 26,818 | 19.7[1] | 929 / 1,540 |
| 1442 | 144,231 | 26,818 | 19.8 | 1,213 / 1,297 |
| 1460 | 145,972 | 26,818 | 19.9 | 1,100 / 1,848 |
| 1472 | 147,247 | 26,818 | 19.9 | 900 / 1,920 |
| 1508 | 150,763 | 26,818 | 20.2 | 135 / 2,700 |
| 1524 | 152,426 | 26,818 | 20.3 | 459 / 2,032 |
| 1536 | 153,589 | 26,818 | 20.4 | 202 / 1,900 |
| 1550 | 155,026 | 26,818 | 20.5 | 138 / 2,800 |
| 1566 | 156,579 | 26,818 | 20.7 | 495 / 2,000 |
| **Bull Branch** | | | | |
| 113 | 11,280 | 871 | 61.0 | 82 / 35 |
| 121 | 12,113 | 871 | 62.3 | 9 / 162 |
| 127 | 12,654 | 871 | 63.1 | 124 / 79 |
| 132 | 13,177 | 642 | 63.9 | 73 / 174 |
| 139 | 13,908 | 642 | 64.9 | 124 / 45 |
| 144 | 14,403 | 642 | 65.8 | 53 / 91 |
| **Cape Fear River** | | | | |
| 2849 | 284,857 | 123,000 | 19.1 | 13,200 / 1,595 |
| 2870 | 286,956 | 123,000 | 19.4 | 12,500 / 859 |
| 2895 | 289,500 | 123,000 | 19.9 | 11,000 / 1,800 |
| 2928 | 292,761 | 123,000 | 20.4 | 13,800 / 217 |
| 2955 | 295,459 | 123,000 | 20.8 | 12,100 / 1,232 |
| 2978 | 297,760 | 123,000 | 21.2 | 11,500 / 421 |
| 3014 | 301,371 | 123,000 | 21.8 | 9,000 / 2,100 |
| 3044 | 304,414 | 123,000 | 22.5 | 9,300 / 450 |
| **Catskin Creek** | | | | |
| 000 | 1 | 4,660 | 10.1 | 502 / 38 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 001 | 136 | 4,660 | 10.1 | 460 / 95 |
| 007 | 659 | 4,660 | 10.4 | 370 / 256 |
| 011 | 1,134 | 4,660 | 10.7 | 40 / 150 |
| 016 | 1,599 | 4,660 | 11.3 | 259 / 281 |
| 019 | 1,860 | 4,660 | 11.4 | 346 / 648 |
| 023 | 2,280 | 4,660 | 11.5 | 816 / 300 |
| 028 | 2,787 | 4,660 | 11.6 | 912 / 67 |
| 031 | 3,089 | 4,660 | 11.6 | 984 / 33 |
| 036 | 3,552 | 4,660 | 11.7 | 361 / 50 |
| 041 | 4,088 | 4,650 | 12.5 | 33 / 400 |
| 048 | 4,845 | 4,650 | 13.2 | 68 / 500 |
| 054 | 5,438 | 4,650 | 13.4 | 224 / 550 |
| 057 | 5,708 | 4,650 | 13.5 | 24 / 850 |
| 057 | 5,728 | 4,650 | 13.5 | 24 / 850 |
| 057 | 5,748 | 4,650 | 13.5 | 24 / 850 |
| 062 | 6,203 | 4,650 | 13.7 | 384 / 1,000 |
| 066 | 6,587 | 4,650 | 13.7 | 939 / 876 |
| 074 | 7,406 | 4,650 | 13.8 | 33 / 1,481 |
| 079 | 7,905 | 4,620 | 13.9 | 33 / 1,279 |
| 089 | 8,860 | 4,620 | 14.0 | 247 / 990 |
| 096 | 9,580 | 4,620 | 14.2 | 400 / 499 |
| 105 | 10,485 | 4,620 | 14.5 | 571 / 175 |
| 111 | 11,088 | 4,620 | 14.9 | 467 / 277 |
| 118 | 11,820 | 4,620 | 15.2 | 281 / 445 |
| 124 | 12,375 | 4,620 | 15.4 | 33 / 629 |
| 129 | 12,868 | 4,570 | 15.5 | 33 / 726 |
| 135 | 13,521 | 4,570 | 15.7 | 86 / 720 |
| 149 | 14,887 | 3,420 | 16.3 | 30 / 541 |
| 156 | 15,574 | 3,420 | 16.9 | 97 / 255 |
| 162 | 16,233 | 3,420 | 17.5 | 27 / 268 |
| 171 | 17,075 | 3,420 | 18.1 | 456 / 70 |
| 177 | 17,663 | 3,420 | 18.3 | 26 / 444 |
| 186 | 18,561 | 3,420 | 18.7 | 218 / 268 |
| 192 | 19,250 | 3,420 | 19.0 | 102 / 520 |
| 200 | 19,954 | 3,420 | 19.6 | 108 / 278 |
| 208 | 20,769 | 3,350 | 20.3 | 186 / 246 |
| 216 | 21,633 | 3,350 | 20.9 | 188 / 235 |
| 225 | 22,522 | 3,350 | 21.7 | 180 / 261 |
| 234 | 23,420 | 3,350 | 22.4 | 158 / 458 |
| 245 | 24,549 | 3,210 | 23.4 | 110 / 218 |
| 255 | 25,455 | 3,210 | 24.4 | 101 / 366 |
| 264 | 26,387 | 3,210 | 25.0 | 177 / 312 |
| 276 | 27,644 | 3,210 | 26.0 | 82 / 259 |
| 288 | 28,827 | 3,210 | 27.5 | 183 / 121 |
| 304 | 30,386 | 3,210 | 29.2 | 231 / 337 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 316 | 31,568 | 3,210 | 30.2 | 163 / 108 |
| 326 | 32,644 | 3,020 | 31.6 | 136 / 191 |
| 338 | 33,759 | 3,020 | 32.7 | 56 / 341 |
| 352 | 35,178 | 3,020 | 34.0 | 745 / 106 |
| **Colvins Creek** | | | | |
| 023 | 2,310 | 2,920 | 19.7[1] | 67 / 396 |
| 030 | 2,952 | 2,920 | 19.7[1] | 123 / 67 |
| 035 | 3,506 | 2,920 | 19.7[1] | 67 / 262 |
| 041 | 4,130 | 2,920 | 19.7[1] | 310 / 67 |
| 052 | 5,184 | 2,920 | 19.7[1] | 153 / 200 |
| 060 | 5,974 | 2,920 | 19.7[1] | 163 / 223 |
| 067 | 6,707 | 2,920 | 19.7[1] | 67 / 142 |
| 072 | 7,214 | 2,920 | 19.7[1] | 67 / 243 |
| 076 | 7,565 | 2,920 | 19.7[1] | 229 / 170 |
| 082 | 8,199 | 2,920 | 19.7[1] | 166 / 153 |
| 089 | 8,867 | 2,620 | 19.7[1] | 284 / 64 |
| 094 | 9,430 | 2,620 | 19.7[1] | 324 / 132 |
| 101 | 10,144 | 2,620 | 19.7[1] | 88 / 80 |
| 107 | 10,715 | 2,620 | 19.7[1] | 129 / 109 |
| 111 | 11,142 | 2,620 | 19.7[1] | 64 / 101 |
| 116 | 11,645 | 2,620 | 19.7[1] | 250 / 50 |
| 122 | 12,223 | 2,620 | 19.7[1] | 250 / 35 |
| 127 | 12,747 | 2,620 | 19.7[1] | 73 / 64 |
| 132 | 13,177 | 2,620 | 19.7[1] | 157 / 158 |
| 138 | 13,841 | 2,620 | 19.7[1] | 150 / 86 |
| 143 | 14,304 | 2,620 | 19.7[1] | 129 / 173 |
| 149 | 14,854 | 2,620 | 20.0 | 64 / 239 |
| 157 | 15,708 | 2,620 | 21.2 | 136 / 223 |
| 162 | 16,225 | 2,620 | 21.8 | 115 / 91 |
| 167 | 16,684 | 2,620 | 22.7 | 294 / 64 |
| 173 | 17,303 | 2,620 | 23.6 | 64 / 241 |
| 179 | 17,879 | 2,620 | 24.6 | 64 / 155 |
| 183 | 18,273 | 2,400 | 25.2 | 138 / 92 |
| 187 | 18,663 | 2,400 | 25.5 | 193 / 206 |
| 191 | 19,058 | 2,400 | 25.7 | 63 / 129 |
| 196 | 19,581 | 2,400 | 26.3 | 78 / 123 |
| 201 | 20,057 | 2,400 | 26.8 | 122 / 124 |
| 206 | 20,551 | 2,400 | 27.2 | 120 / 181 |
| 211 | 21,064 | 2,400 | 27.6 | 125 / 186 |
| 215 | 21,462 | 2,400 | 27.9 | 229 / 200 |
| 216 | 21,574 | 2,400 | 27.7 | 26 / 26 |
| 216 | 21,647 | 2,400 | 28.9 | 26 / 26 |
| 222 | 22,199 | 2,400 | 29.8 | 160 / 87 |
| 229 | 22,878 | 2,400 | 30.1 | 63 / 410 |
| 235 | 23,545 | 2,400 | 30.3 | 66 / 173 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 241 | 24,069 | 2,400 | 30.8 | 158 / 63 |
| 246 | 24,584 | 2,400 | 31.4 | 30 / 286 |
| 252 | 25,161 | 2,400 | 32.0 | 63 / 167 |
| 259 | 25,902 | 2,400 | 32.8 | 177 / 63 |
| 263 | 26,262 | 2,400 | 33.2 | 124 / 100 |
| 267 | 26,717 | 2,400 | 33.7 | 200 / 200 |
| 275 | 27,475 | 2,400 | 34.1 | 90 / 264 |
| 281 | 28,108 | 2,400 | 34.5 | 90 / 130 |
| 286 | 28,632 | 2,400 | 35.0 | 100 / 150 |
| 289 | 28,947 | 2,400 | 35.2 | 100 / 100 |
| 471 | 47,079 | 957 | 60.1 | 75 / 194 |
| 477 | 47,743 | 957 | 60.2 | 190 / 41 |
| 482 | 48,228 | 957 | 61.0 | 75 / 69 |
| 483 | 48,298 | 957 | 61.1 | 75 / 69 |
| 491 | 49,142 | 957 | 64.4 | 81 / 19 |
| 500 | 50,033 | 957 | 68.5 | 175 / 20 |
| 506 | 50,560 | 957 | 68.9 | 80 / 80 |
| 506 | 50,616 | 957 | 69.6 | 80 / 80 |
| 508 | 50,820 | 957 | 69.7 | 75 / 50 |
| **Colvins Creek Tributary** | | | | |
| 002 | 228 | 587 | 25.2[1] | 62 / 20 |
| 008 | 835 | 587 | 25.2[1] | 34 / 75 |
| 012 | 1,209 | 587 | 25.2[1] | 57 / 33 |
| 017 | 1,651 | 587 | 26.1 | 68 / 12 |
| 022 | 2,165 | 587 | 27.6 | 50 / 20 |
| 028 | 2,805 | 587 | 29.5 | 20 / 65 |
| 033 | 3,327 | 587 | 31.4 | 20 / 25 |
| 035 | 3,452 | 587 | 32.2 | 20 / 20 |
| 035 | 3,522 | 587 | 37.5 | 20 / 20 |
| 038 | 3,849 | 587 | 37.6 | 123 / 56 |
| 042 | 4,231 | 587 | 37.8 | 26 / 85 |
| 048 | 4,774 | 587 | 38.4 | 29 / 40 |
| 052 | 5,225 | 357 | 39.9 | 25 / 26 |
| 057 | 5,679 | 357 | 41.7 | 37 / 11 |
| 062 | 6,195 | 357 | 43.8 | 14 / 36 |
| **Cypress Creek (near Stag Park)** | | | | |
| 003 | 288 | 1,810 | 13.0[1] | 221 / 54 |
| 007 | 664 | 1,810 | 13.0[1] | 163 / 178 |
| 012 | 1,247 | 1,810 | 13.0[1] | 83 / 266 |
| 016 | 1,632 | 1,810 | 13.0[1] | 60 / 60 |
| 017 | 1,680 | 1,810 | 13.0[1] | 60 / 60 |
| 019 | 1,887 | 1,810 | 13.0[1] | 46 / 214 |
| 023 | 2,343 | 1,810 | 13.0[1] | 109 / 70 |
| 028 | 2,783 | 1,810 | 13.0[1] | 47 / 152 |
| 033 | 3,271 | 1,810 | 13.0[1] | 195 / 72 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 041 | 4,057 | 1,810 | 13.0[1] | 48 / 145 |
| 049 | 4,907 | 1,810 | 13.0[1] | 290 / 62 |
| 060 | 5,969 | 1,810 | 13.0[1] | 55 / 106 |
| 066 | 6,605 | 1,810 | 13.0[1] | 183 / 67 |
| 074 | 7,351 | 1,810 | 13.4 | 57 / 99 |
| 080 | 7,964 | 1,810 | 14.6 | 49 / 176 |
| 084 | 8,428 | 1,810 | 15.4 | 160 / 52 |
| 090 | 8,977 | 1,580 | 16.2 | 204 / 93 |
| 095 | 9,498 | 1,580 | 16.8 | 89 / 128 |
| 099 | 9,907 | 1,580 | 17.4 | 82 / 94 |
| 103 | 10,332 | 1,580 | 17.9 | 45 / 227 |
| 107 | 10,705 | 1,580 | 18.3 | 62 / 250 |
| 111 | 11,143 | 1,580 | 18.8 | 23 / 183 |
| 116 | 11,580 | 1,580 | 19.4 | 79 / 159 |
| 124 | 12,359 | 1,580 | 20.4 | 17 / 161 |
| 129 | 12,930 | 1,580 | 21.4 | 184 / 17 |
| 134 | 13,428 | 1,580 | 22.2 | 20 / 264 |
| 140 | 13,955 | 1,580 | 23.1 | 97 / 117 |
| 149 | 14,896 | 1,580 | 24.6 | 206 / 51 |
| 157 | 15,652 | 1,580 | 25.9 | 67 / 152 |
| 162 | 16,153 | 1,580 | 27.3 | 115 / 108 |
| 169 | 16,908 | 1,580 | 28.8 | 175 / 45 |
| 175 | 17,522 | 1,260 | 29.8 | 179 / 16 |
| 180 | 18,048 | 1,260 | 30.4 | 185 / 69 |
| 182 | 18,240 | 1,260 | 30.4 | 25 / 25 |
| 184 | 18,440 | 1,260 | 37.0 | 25 / 25 |
| 191 | 19,076 | 1,260 | 37.0 | 153 / 335 |
| 198 | 19,795 | 1,260 | 37.1 | 277 / 97 |
| 205 | 20,531 | 1,260 | 37.2 | 143 / 79 |
| 211 | 21,066 | 1,260 | 37.5 | 237 / 21 |
| 216 | 21,601 | 1,260 | 38.0 | 36 / 202 |
| 224 | 22,398 | 904 | 38.6 | 198 / 15 |
| 229 | 22,902 | 904 | 39.1 | 31 / 94 |
| 234 | 23,428 | 904 | 40.4 | 15 / 130 |
| 240 | 24,017 | 904 | 41.5 | 15 / 212 |
| 245 | 24,530 | 904 | 42.5 | 129 / 56 |
| 249 | 24,878 | 904 | 42.6 | 30 / 30 |
| 250 | 24,954 | 904 | 45.0 | 30 / 30 |
| 252 | 25,205 | 904 | 45.2 | 104 / 137 |
| 257 | 25,663 | 904 | 45.3 | 138 / 60 |
| 261 | 26,104 | 904 | 45.7 | 39 / 88 |
| 265 | 26,541 | 904 | 47.2 | 45 / 53 |
| 271 | 27,112 | 904 | 49.3 | 64 / 20 |
| 278 | 27,760 | 570 | 50.3 | 54 / 88 |
| 284 | 28,393 | 570 | 50.7 | 14 / 48 |

## Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 287 | 28,697 | 570 | 50.8 | 50 / 50 |
| 288 | 28,767 | 570 | 52.8 | 50 / 50 |
| 288 | 28,770 | 570 | 52.8 | 50 / 50 |
| 289 | 28,860 | 570 | 56.6 | 50 / 50 |
| 295 | 29,505 | 570 | 56.6 | 200 / 326 |
| **Cypress Creek (near Wards Corner)** | | | | |
| 010 | 990 | 3,490 | 25.4[1] | 622 / 436 |
| 023 | 2,310 | 3,490 | 25.4[1] | 161 / 365 |
| 036 | 3,633 | 3,490 | 26.2 | 432 / 169 |
| 047 | 4,662 | 3,290 | 26.7 | 269 / 483 |
| 057 | 5,738 | 3,290 | 27.0 | 370 / 610 |
| 072 | 7,174 | 3,290 | 27.3 | 112 / 463 |
| 076 | 7,587 | 3,290 | 27.5 | 69 / 68 |
| 076 | 7,644 | 3,290 | 27.6 | 69 / 68 |
| 083 | 8,272 | 3,290 | 28.5 | 224 / 265 |
| 088 | 8,804 | 3,290 | 28.9 | 256 / 66 |
| 098 | 9,783 | 3,290 | 30.0 | 172 / 524 |
| 109 | 10,894 | 3,290 | 30.6 | 25 / 500 |
| 118 | 11,849 | 3,290 | 30.9 | 560 / 381 |
| 135 | 13,477 | 3,090 | 31.4 | 100 / 392 |
| 141 | 14,129 | 3,090 | 31.8 | 447 / 82 |
| 151 | 15,065 | 3,090 | 32.5 | 309 / 254 |
| 161 | 16,114 | 3,090 | 33.1 | 148 / 255 |
| 171 | 17,067 | 3,090 | 34.0 | 64 / 63 |
| 171 | 17,121 | 2,880 | 34.2 | 64 / 63 |
| 178 | 17,757 | 2,880 | 35.2 | 140 / 514 |
| 185 | 18,455 | 2,880 | 35.4 | 433 / 195 |
| 189 | 18,907 | 2,880 | 35.7 | 346 / 236 |
| 195 | 19,542 | 2,880 | 36.2 | 64 / 402 |
| 202 | 20,152 | 2,880 | 36.8 | 211 / 248 |
| 209 | 20,929 | 2,880 | 37.4 | 212 / 324 |
| 216 | 21,566 | 2,710 | 37.7 | 204 / 134 |
| 222 | 22,176 | 2,710 | 38.1 | 118 / 349 |
| 232 | 23,155 | 2,710 | 38.7 | 247 / 420 |
| 240 | 23,983 | 2,710 | 39.2 | 240 / 109 |
| 247 | 24,677 | 2,580 | 40.0 | 476 / 274 |
| 253 | 25,312 | 2,580 | 40.3 | 397 / 234 |
| 263 | 26,257 | 2,580 | 40.9 | 146 / 452 |
| 271 | 27,110 | 2,580 | 41.2 | 177 / 177 |
| 272 | 27,150 | 2,480 | 42.1 | 177 / 177 |
| 275 | 27,469 | 2,480 | 42.2 | 464 / 368 |
| 284 | 28,422 | 2,480 | 42.4 | 317 / 190 |
| 295 | 29,550 | 2,480 | 42.6 | 284 / 634 |
| 302 | 30,234 | 2,480 | 42.7 | 194 / 432 |
| 313 | 31,280 | 2,320 | 43.1 | 147 / 483 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 319 | 31,890 | 2,320 | 43.4 | 273 / 132 |
| 325 | 32,491 | 2,320 | 43.8 | 133 / 348 |
| 334 | 33,383 | 2,320 | 44.4 | 48 / 381 |
| 340 | 33,983 | 2,320 | 44.8 | 211 / 283 |
| 349 | 34,857 | 1,080 | 45.4 | 149 / 252 |
| 353 | 35,267 | 1,080 | 45.8 | 249 / 17 |
| 355 | 35,502 | 1,080 | 46.1 | 186 / 17 |
| 360 | 35,972 | 1,080 | 47.0 | 133 / 101 |
| 365 | 36,495 | 1,080 | 48.1 | 9 / 266 |
| 369 | 36,942 | 1,080 | 48.5 | 22 / 23 |
| 370 | 37,009 | 1,020 | 51.0 | 22 / 23 |
| 376 | 37,559 | 1,020 | 51.2 | 152 / 119 |
| 378 | 37,840 | 1,020 | 51.3 | 179 / 136 |
| 386 | 38,565 | 1,020 | 51.9 | 164 / 13 |
| 395 | 39,483 | 1,020 | 53.4 | 48 / 102 |
| **Doctors Creek** | | | | |
| 005 | 481 | 5,820 | 39.3[1] | 188 / 143 |
| 008 | 766 | 5,820 | 39.3[1] | 190 / 269 |
| 010 | 1,050 | 5,820 | 39.3[1] | 46 / 46 |
| 017 | 1,730 | 5,820 | 39.3[1] | 363 / 55 |
| 022 | 2,242 | 5,820 | 39.3[1] | 46 / 46 |
| 027 | 2,715 | 5,820 | 39.3[1] | 263 / 46 |
| 031 | 3,078 | 5,820 | 39.3[1] | 387 / 46 |
| 037 | 3,708 | 5,820 | 39.3[1] | 319 / 46 |
| 041 | 4,133 | 5,820 | 39.3[1] | 925 / 126 |
| 046 | 4,594 | 5,820 | 39.3[1] | 46 / 46 |
| 051 | 5,125 | 5,820 | 39.3[1] | 88 / 46 |
| 056 | 5,609 | 5,820 | 39.3[1] | 136 / 46 |
| 061 | 6,057 | 5,760 | 39.3[1] | 46 / 152 |
| 065 | 6,489 | 5,760 | 39.3[1] | 150 / 150 |
| 065 | 6,535 | 5,760 | 39.3[1] | 150 / 150 |
| 069 | 6,858 | 5,760 | 39.3[1] | 200 / 100 |
| 072 | 7,243 | 5,760 | 39.3[1] | 200 / 200 |
| 079 | 7,865 | 5,760 | 39.3[1] | 200 / 200 |
| 083 | 8,350 | 5,760 | 39.3[1] | 200 / 200 |
| 089 | 8,902 | 5,760 | 39.3 | 200 / 100 |
| 093 | 9,347 | 5,760 | 39.5 | 200 / 100 |
| 100 | 9,977 | 5,760 | 39.6 | 137 / 544 |
| 104 | 10,389 | 5,760 | 39.7 | 400 / 83 |
| 109 | 10,949 | 5,760 | 40.0 | 300 / 200 |
| 115 | 11,452 | 5,760 | 40.2 | 150 / 200 |
| 246 | 24,643 | 5,430 | 50.2 | 486 / 160 |
| 247 | 24,719 | 5,430 | 50.2 | 260 / 300 |
| 248 | 24,775 | 5,430 | 50.6 | 260 / 300 |
| 254 | 25,438 | 5,430 | 50.8 | 425 / 450 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 260 | 25,956 | 5,430 | 51.0 | 475 / 400 |
| 628 | 62,772 | 980 | 87.5 | 50 / 168 |
| **Dry Branch** | | | | |
| 033 | 3,336 | 1,127 | 49.7 | 64 / 214 |
| 040 | 4,040 | 1,127 | 50.1 | 143 / 168 |
| 046 | 4,610 | 1,127 | 50.4 | 160 / 102 |
| 052 | 5,247 | 1,127 | 50.9 | 242 / 63 |
| 061 | 6,075 | 1,127 | 51.9 | 69 / 157 |
| 066 | 6,574 | 1,127 | 52.8 | 123 / 75 |
| 073 | 7,276 | 1,127 | 54.1 | 44 / 131 |
| 078 | 7,802 | 1,127 | 55.4 | 44 / 76 |
| **Godfrey Creek** | | | | |
| 004 | 384 | 1,500 | 15.7[1] | 44 / 47 |
| 005 | 479 | 1,500 | 15.7[1] | 66 / 72 |
| 011 | 1,053 | 1,500 | 17.6 | 99 / 185 |
| 014 | 1,409 | 1,500 | 18.3 | 112 / 62 |
| 019 | 1,851 | 1,500 | 19.5 | 28 / 138 |
| 022 | 2,220 | 1,500 | 20.3 | 130 / 96 |
| 027 | 2,672 | 1,500 | 20.8 | 17 / 158 |
| 029 | 2,924 | 1,500 | 21.2 | 17 / 126 |
| 032 | 3,241 | 1,460 | 22.0 | 97 / 96 |
| 036 | 3,564 | 1,460 | 22.4 | 89 / 115 |
| 039 | 3,863 | 1,460 | 22.8 | 51 / 135 |
| 042 | 4,203 | 1,460 | 23.3 | 55 / 96 |
| 047 | 4,688 | 1,460 | 24.0 | 127 / 62 |
| 050 | 5,046 | 1,460 | 24.3 | 16 / 164 |
| 054 | 5,358 | 1,460 | 24.7 | 38 / 156 |
| 057 | 5,695 | 1,460 | 25.0 | 70 / 85 |
| 060 | 6,034 | 1,390 | 25.5 | 147 / 28 |
| 064 | 6,400 | 1,390 | 26.1 | 49 / 142 |
| 066 | 6,623 | 1,390 | 26.4 | 65 / 94 |
| 069 | 6,940 | 1,390 | 26.9 | 80 / 88 |
| 072 | 7,201 | 1,390 | 27.3 | 134 / 48 |
| 075 | 7,516 | 1,390 | 27.7 | 98 / 16 |
| 078 | 7,763 | 1,390 | 28.2 | 152 / 29 |
| 081 | 8,088 | 1,390 | 28.5 | 143 / 25 |
| 085 | 8,522 | 1,390 | 29.0 | 86 / 53 |
| 090 | 8,985 | 1,390 | 29.7 | 68 / 43 |
| 093 | 9,290 | 1,390 | 30.2 | 41 / 101 |
| 097 | 9,731 | 1,390 | 30.8 | 16 / 98 |
| 102 | 10,201 | 1,190 | 31.5 | 65 / 91 |
| 106 | 10,619 | 1,190 | 31.8 | 157 / 90 |
| 111 | 11,058 | 984 | 32.1 | 77 / 17 |
| 113 | 11,308 | 984 | 33.2 | 119 / 9 |
| 116 | 11,600 | 984 | 33.7 | 109 / 125 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 119 | 11,943 | 984 | 34.1 | 78 / 248 |
| 124 | 12,400 | 984 | 34.9 | 59 / 139 |
| 128 | 12,800 | 984 | 35.7 | 187 / 34 |
| 132 | 13,200 | 984 | 36.2 | 137 / 74 |
| 135 | 13,495 | 984 | 36.7 | 190 / 29 |
| 140 | 14,000 | 757 | 37.7 | 46 / 240 |
| **Guffords Branch** | | | | |
| 068 | 6,826 | 592 | 25.4 | 51 / 56 |
| 072 | 7,152 | 592 | 26.4 | 74 / 23 |
| 075 | 7,533 | 592 | 27.4 | 70 / 38 |
| 078 | 7,799 | 592 | 28.0 | 12 / 77 |
| 081 | 8,054 | 592 | 28.8 | 75 / 18 |
| 083 | 8,345 | 592 | 29.7 | 35 / 52 |
| **Harrisons Creek** | | | | |
| 196 | 19,628 | 2,890 | 8.8[1] | 68 / 66 |
| 197 | 19,681 | 2,890 | 9.0 | 68 / 66 |
| 200 | 19,957 | 2,890 | 9.1 | 23 / 447 |
| 204 | 20,390 | 2,890 | 9.2 | 131 / 483 |
| 207 | 20,727 | 2,890 | 9.2 | 101 / 401 |
| 210 | 20,953 | 2,890 | 9.3 | 87 / 506 |
| 211 | 21,131 | 2,890 | 9.3 | 47 / 481 |
| 215 | 21,470 | 2,890 | 9.4 | 391 / 142 |
| 217 | 21,729 | 2,840 | 9.5 | 503 / 208 |
| 221 | 22,086 | 2,840 | 9.6 | 297 / 252 |
| 223 | 22,284 | 2,840 | 9.7 | 281 / 482 |
| 225 | 22,479 | 2,840 | 9.7 | 246 / 329 |
| 227 | 22,720 | 2,840 | 9.8 | 257 / 158 |
| 232 | 23,153 | 2,840 | 10.0 | 248 / 238 |
| 234 | 23,380 | 2,840 | 10.1 | 229 / 306 |
| 237 | 23,749 | 2,840 | 10.3 | 143 / 346 |
| 242 | 24,161 | 2,840 | 10.5 | 283 / 220 |
| 243 | 24,332 | 2,840 | 10.6 | 103 / 307 |
| 249 | 24,860 | 2,840 | 10.9 | 23 / 443 |
| 252 | 25,234 | 2,840 | 11.1 | 55 / 513 |
| 257 | 25,690 | 2,840 | 11.3 | 23 / 475 |
| 259 | 25,892 | 2,610 | 11.4 | 58 / 469 |
| 262 | 26,210 | 2,610 | 11.6 | 158 / 333 |
| 267 | 26,653 | 2,610 | 11.8 | 448 / 181 |
| 269 | 26,860 | 2,610 | 11.9 | 333 / 254 |
| 273 | 27,270 | 2,610 | 12.1 | 90 / 385 |
| 276 | 27,591 | 2,610 | 12.3 | 110 / 564 |
| 281 | 28,065 | 2,610 | 12.5 | 233 / 397 |
| 284 | 28,362 | 2,610 | 12.7 | 125 / 442 |
| 287 | 28,690 | 2,610 | 12.9 | 184 / 289 |
| 289 | 28,920 | 2,610 | 13.1 | 106 / 352 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 291 | 29,116 | 2,610 | 13.4 | 229 / 258 |
| 295 | 29,504 | 2,580 | 13.7 | 426 / 129 |
| 298 | 29,820 | 2,580 | 14.0 | 305 / 249 |
| 304 | 30,379 | 2,580 | 14.8 | 97 / 299 |
| 308 | 30,795 | 2,580 | 15.5 | 128 / 385 |
| 310 | 31,011 | 2,580 | 15.7 | 269 / 57 |
| 314 | 31,356 | 1,050 | 16.3 | 178 / 141 |
| 316 | 31,640 | 1,050 | 16.6 | 30 / 162 |
| 320 | 31,974 | 1,050 | 17.4 | 118 / 139 |
| 323 | 32,321 | 1,050 | 18.2 | 78 / 104 |
| 327 | 32,744 | 1,050 | 19.4 | 30 / 176 |
| 332 | 33,170 | 1,050 | 20.5 | 50 / 128 |
| 338 | 33,816 | 1,050 | 21.3 | 70 / 70 |
| 339 | 33,869 | 1,050 | 21.5 | 70 / 70 |
| 343 | 34,272 | 1,020 | 22.4 | 70 / 130 |
| 346 | 34,604 | 1,020 | 23.4 | 156 / 50 |
| 350 | 35,013 | 1,020 | 24.0 | 95 / 50 |
| 354 | 35,444 | 1,020 | 24.6 | 93 / 60 |
| 358 | 35,824 | 1,020 | 25.3 | 137 / 13 |
| 362 | 36,239 | 1,020 | 26.1 | 147 / 40 |
| 367 | 36,747 | 1,020 | 27.2 | 108 / 3 |
| 371 | 37,061 | 1,020 | 28.3 | 64 / 13 |
| 371 | 37,107 | 1,020 | 28.4 | 30 / 29 |
| 372 | 37,160 | 927 | 29.2 | 30 / 29 |
| 375 | 37,454 | 927 | 29.3 | 24 / 59 |
| **Holly Shelter Creek** | | | | |
| 063 | 6,319 | 15,000 | 17.8[2] | 650 / 1,440 |
| 080 | 7,974 | 15,000 | 17.8[2] | 1,025 / 475 |
| 093 | 9,273 | 15,000 | 17.8[2] | 750 / 420 |
| 105 | 10,547 | 15,000 | 17.8[2] | 925 / 340 |
| 114 | 11,393 | 14,900 | 17.9[2] | 600 / 610 |
| 120 | 11,958 | 14,900 | 17.9[2] | 840 / 310 |
| 126 | 12,632 | 14,900 | 17.9[2] | 790 / 400 |
| 139 | 13,924 | 14,900 | 17.9[2] | 380 / 1,200 |
| 157 | 15,729 | 14,900 | 18.0[2] | 1,430 / 220 |
| 164 | 16,396 | 14,900 | 18.0[2] | 1,360 / 320 |
| 174 | 17,437 | 14,900 | 17.9[2] | 800 / 1,100 |
| 181 | 18,133 | 14,900 | 18.0[2] | 1,170 / 1,075 |
| 197 | 19,710 | 14,900 | 17.8[2] | 450 / 1,700 |
| 214 | 21,416 | 14,900 | 17.8[2] | 380 / 1,700 |
| 220 | 21,992 | 14,900 | 17.8[2] | 880 / 1,200 |
| 231 | 23,129 | 14,900 | 17.8[2] | 640 / 1,675 |
| 236 | 23,648 | 14,900 | 17.8[2] | 750 / 1,300 |
| 250 | 24,961 | 14,900 | 17.8[2] | 115 / 825 |
| 263 | 26,285 | 14,800 | 17.8[2] | 175 / 260 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 268 | 26,776 | 14,800 | 17.8[2] | 212 / 209 |
| 274 | 27,450 | 14,800 | 17.8[2] | 190 / 105 |
| 282 | 28,169 | 14,800 | 17.8[2] | 105 / 105 |
| 290 | 28,968 | 14,800 | 17.8[2] | 170 / 108 |
| 298 | 29,848 | 14,800 | 17.8[2] | 105 / 105 |
| 305 | 30,462 | 14,800 | 17.8[2] | 105 / 105 |
| 311 | 31,135 | 14,800 | 17.8[2] | 105 / 303 |
| 312 | 31,246 | 14,800 | 17.8[2] | 110 / 103 |
| 313 | 31,302 | 14,800 | 17.8[2] | 110 / 103 |
| 317 | 31,658 | 14,800 | 17.8[2] | 144 / 399 |
| 322 | 32,194 | 14,800 | 17.7[2] | 105 / 177 |
| 328 | 32,836 | 14,800 | 17.7[2] | 148 / 357 |
| 333 | 33,308 | 14,800 | 17.7[2] | 105 / 123 |
| 338 | 33,847 | 14,800 | 17.7[2] | 104 / 104 |
| 343 | 34,260 | 14,700 | 17.7[2] | 195 / 491 |
| 351 | 35,066 | 14,700 | 17.7[2] | 107 / 104 |
| 358 | 35,783 | 14,700 | 17.7[1] | 339 / 104 |
| 364 | 36,406 | 14,700 | 17.7[1] | 350 / 64 |
| 374 | 37,439 | 14,700 | 17.7[1] | 104 / 104 |
| 381 | 38,142 | 14,700 | 17.7[1] | 104 / 104 |
| 388 | 38,833 | 14,700 | 17.7[1] | 104 / 381 |
| 397 | 39,745 | 14,700 | 17.7[1] | 710 / 98 |
| 402 | 40,242 | 14,700 | 17.7[1] | 458 / 224 |
| 407 | 40,744 | 14,700 | 17.7[1] | 98 / 265 |
| 414 | 41,385 | 14,700 | 17.7[1] | 98 / 281 |
| 422 | 42,192 | 14,700 | 17.7[1] | 110 / 110 |
| 432 | 43,162 | 14,700 | 17.7[1] | 256 / 110 |
| 441 | 44,057 | 14,700 | 17.7[1] | 110 / 212 |
| 450 | 44,960 | 14,700 | 17.7[1] | 104 / 244 |
| 455 | 45,515 | 14,700 | 17.7[1] | 189 / 104 |
| 463 | 46,280 | 14,700 | 17.7[1] | 104 / 180 |
| 471 | 47,050 | 14,700 | 17.7[1] | 104 / 104 |
| 486 | 48,568 | 14,300 | 17.7[1] | 372 / 102 |
| 494 | 49,397 | 14,300 | 17.7[1] | 102 / 172 |
| 501 | 50,073 | 14,300 | 17.7[1] | 102 / 102 |
| 513 | 51,331 | 14,300 | 17.7[1] | 137 / 102 |
| 522 | 52,195 | 14,300 | 17.7[1] | 102 / 356 |
| 529 | 52,938 | 14,300 | 17.7[1] | 102 / 102 |
| 546 | 54,554 | 14,300 | 17.7[1] | 102 / 211 |
| 560 | 55,957 | 14,300 | 17.7[1] | 192 / 102 |
| 572 | 57,216 | 14,300 | 17.7[1] | 573 / 371 |
| 578 | 57,808 | 14,300 | 17.7 | 102 / 102 |
| 589 | 58,933 | 14,300 | 17.9 | 102 / 499 |
| 594 | 59,382 | 14,300 | 17.9 | 102 / 344 |
| 600 | 59,982 | 14,300 | 18.0 | 102 / 725 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 615 | 61,483 | 11,800 | 18.1 | 1,854 / 669 |
| 628 | 62,801 | 11,800 | 18.2 | 266 / 2,126 |
| 638 | 63,844 | 11,800 | 18.3 | 310 / 903 |
| 651 | 65,108 | 11,800 | 18.4 | 90 / 449 |
| 661 | 66,085 | 11,800 | 18.4 | 220 / 1,015 |
| 666 | 66,624 | 11,800 | 18.5 | 221 / 507 |
| 674 | 67,399 | 11,800 | 18.6 | 422 / 1,903 |
| 683 | 68,300 | 11,800 | 18.6 | 85 / 2,172 |
| 693 | 69,274 | 11,800 | 18.6 | 490 / 2,155 |
| 698 | 69,757 | 11,800 | 18.7 | 128 / 1,937 |
| 703 | 70,340 | 11,800 | 18.7 | 157 / 1,658 |
| 709 | 70,908 | 11,800 | 18.7 | 85 / 2,119 |
| 714 | 71,375 | 11,800 | 18.7 | 1,067 / 2,151 |
| 720 | 72,049 | 11,800 | 18.8 | 1,349 / 1,947 |
| 728 | 72,812 | 11,800 | 18.8 | 1,607 / 548 |
| 734 | 73,369 | 11,800 | 18.8 | 1,473 / 406 |
| 745 | 74,458 | 11,800 | 18.8 | 920 / 549 |
| 753 | 75,325 | 11,800 | 18.9 | 729 / 1,578 |
| 757 | 75,693 | 11,800 | 18.9 | 480 / 1,568 |
| 764 | 76,395 | 11,800 | 18.9 | 85 / 527 |
| 771 | 77,081 | 11,800 | 19.0 | 605 / 1,057 |
| 778 | 77,829 | 11,800 | 19.0 | 439 / 1,084 |
| 787 | 78,702 | 11,800 | 19.1 | 85 / 1,443 |
| 801 | 80,133 | 11,800 | 19.3 | 85 / 1,428 |
| 825 | 82,458 | 11,800 | 19.6 | 1,198 / 194 |
| 837 | 83,665 | 11,800 | 19.7 | 187 / 2,031 |
| 845 | 84,521 | 11,800 | 19.8 | 671 / 2,570 |
| 861 | 86,120 | 11,800 | 19.8 | 227 / 2,807 |
| 872 | 87,166 | 11,800 | 19.8 | 85 / 2,798 |
| 885 | 88,515 | 11,800 | 19.8 | 85 / 2,846 |
| 899 | 89,873 | 11,800 | 19.8 | 1,126 / 236 |
| 914 | 91,445 | 11,800 | 20.0 | 905 / 1,146 |
| 943 | 94,314 | 8,610 | 20.1 | 495 / 2,259 |
| 953 | 95,300 | 8,610 | 20.2 | 1,675 / 1,937 |
| 953 | 95,341 | 8,610 | 20.2 | 1,675 / 1,937 |
| 976 | 97,559 | 8,610 | 20.3 | 320 / 67 |
| 983 | 98,280 | 8,610 | 20.4 | 1,261 / 613 |
| 997 | 99,659 | 8,610 | 20.5 | 911 / 213 |
| 1009 | 100,864 | 8,610 | 20.6 | 183 / 485 |
| 1014 | 101,354 | 8,610 | 20.7 | 621 / 901 |
| 1024 | 102,437 | 8,570 | 20.8 | 767 / 1,337 |
| 1038 | 103,771 | 8,570 | 20.8 | 1,426 / 949 |
| 1053 | 105,320 | 8,570 | 21.0 | 1,329 / 355 |
| 1065 | 106,546 | 3,670 | 21.0 | 1,939 / 37 |
| 1078 | 107,782 | 3,670 | 21.0 | 1,971 / 37 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 1087 | 108,748 | 3,670 | 21.1 | 1,461 / 480 |
| 1088 | 108,793 | 3,670 | 21.1 | 1,461 / 480 |
| 1093 | 109,347 | 3,670 | 21.1 | 1,762 / 618 |
| 1100 | 109,995 | 3,670 | 21.1 | 2,012 / 156 |
| 1109 | 110,855 | 3,670 | 21.2 | 1,509 / 302 |
| 1125 | 112,534 | 3,580 | 21.3 | 1,106 / 718 |
| 1150 | 114,994 | 3,580 | 21.5 | 769 / 198 |
| 1170 | 116,963 | 3,510 | 21.9 | 563 / 267 |
| 1181 | 118,077 | 3,510 | 22.4 | 241 / 414 |
| 1193 | 119,252 | 3,510 | 22.9 | 427 / 478 |
| 1201 | 120,136 | 3,510 | 23.3 | 408 / 421 |
| 1208 | 120,796 | 3,510 | 23.5 | 183 / 605 |
| 1213 | 121,291 | 3,510 | 23.8 | 610 / 281 |
| 1220 | 121,971 | 3,510 | 24.1 | 714 / 44 |
| 1227 | 122,651 | 3,430 | 24.4 | 215 / 158 |
| 1234 | 123,370 | 3,430 | 24.9 | 210 / 254 |
| 1237 | 123,692 | 3,430 | 24.9 | 71 / 71 |
| 1237 | 123,742 | 3,430 | 25.8 | 71 / 71 |
| 1245 | 124,496 | 3,400 | 27.0 | 383 / 92 |
| 1250 | 125,009 | 3,400 | 27.2 | 259 / 288 |
| 1256 | 125,591 | 3,400 | 27.4 | 800 / 800 |
| 1269 | 126,908 | 1,530 | 27.7 | 17 / 813 |
| 1274 | 127,433 | 1,530 | 27.8 | 42 / 512 |
| 1282 | 128,172 | 1,530 | 27.9 | 189 / 393 |
| 1288 | 128,800 | 1,530 | 28.0 | 100 / 337 |
| 1288 | 128,846 | 1,530 | 28.3 | 100 / 337 |
| 1294 | 129,413 | 1,530 | 28.5 | 180 / 75 |
| 1299 | 129,936 | 1,530 | 28.9 | 37 / 275 |
| 1305 | 130,491 | 1,530 | 29.6 | 159 / 155 |
| 1311 | 131,063 | 1,530 | 30.2 | 212 / 231 |
| 1316 | 131,630 | 1,530 | 30.6 | 359 / 247 |
| 1322 | 132,197 | 1,530 | 30.9 | 420 / 133 |
| 1330 | 133,024 | 1,210 | 31.6 | 14 / 457 |
| 1337 | 133,663 | 1,210 | 32.3 | 109 / 153 |
| 1345 | 134,460 | 1,210 | 33.1 | 108 / 208 |
| 1350 | 135,047 | 1,210 | 33.8 | 71 / 235 |
| 1354 | 135,427 | 1,210 | 34.5 | 165 / 26 |
| 1355 | 135,508 | 1,210 | 34.4 | 165 / 26 |
| 1362 | 136,184 | 1,210 | 35.5 | 14 / 549 |
| 1369 | 136,888 | 1,210 | 35.8 | 14 / 721 |
| 1373 | 137,306 | 1,210 | 36.2 | 14 / 524 |
| 1377 | 137,711 | 1,210 | 37.0 | 97 / 518 |
| **Island Creek Tributary** | | | | |
| 023 | 2,262 | 1,420 | 8.4[1] | 187 / 79 |
| 028 | 2,768 | 1,420 | 8.7 | 110 / 158 |

## Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 034 | 3,378 | 1,420 | 9.5 | 112 / 183 |
| 039 | 3,928 | 1,420 | 10.2 | 16 / 209 |
| 046 | 4,621 | 1,420 | 11.6 | 128 / 26 |
| 053 | 5,263 | 1,270 | 12.8 | 85 / 94 |
| 058 | 5,765 | 1,270 | 13.4 | 208 / 55 |
| 063 | 6,347 | 1,270 | 13.9 | 365 / 46 |
| 070 | 6,978 | 1,270 | 14.5 | 103 / 184 |
| 076 | 7,570 | 1,270 | 15.6 | 140 / 67 |
| 083 | 8,273 | 1,270 | 16.8 | 172 / 181 |
| 089 | 8,861 | 1,270 | 17.8 | 15 / 153 |
| 094 | 9,353 | 1,270 | 19.2 | 94 / 126 |
| 100 | 9,995 | 1,090 | 20.5 | 125 / 97 |
| 105 | 10,494 | 1,090 | 21.4 | 113 / 82 |
| 113 | 11,350 | 1,090 | 22.7 | 61 / 184 |
| 117 | 11,729 | 1,090 | 23.2 | 112 / 103 |
| 122 | 12,210 | 1,090 | 23.8 | 120 / 98 |
| 127 | 12,660 | 1,090 | 24.4 | 36 / 172 |
| 132 | 13,216 | 895 | 25.1 | 18 / 249 |
| 137 | 13,652 | 895 | 25.5 | 83 / 205 |
| 140 | 14,020 | 895 | 26.0 | 14 / 182 |
| 144 | 14,370 | 895 | 26.4 | 124 / 65 |
| 149 | 14,861 | 895 | 27.2 | 152 / 38 |
| **Juniper Swamp** | | | | |
| 000 | 0 | 5,410 | 33.9 | 800 / 781 |
| 005 | 522 | 5,170 | 34.0 | 735 / 1,651 |
| 010 | 962 | 5,170 | 34.1 | 533 / 1,380 |
| 015 | 1,474 | 5,170 | 34.3 | 469 / 1,167 |
| 025 | 2,540 | 5,170 | 34.6 | 455 / 964 |
| 031 | 3,071 | 5,170 | 34.8 | 36 / 1,588 |
| 036 | 3,584 | 5,170 | 35.0 | 111 / 1,527 |
| 046 | 4,589 | 5,170 | 35.3 | 747 / 978 |
| 050 | 4,966 | 5,170 | 35.4 | 854 / 772 |
| 056 | 5,562 | 5,170 | 35.5 | 605 / 706 |
| 059 | 5,908 | 5,170 | 35.6 | 1,001 / 625 |
| **Kellys Creek** | | | | |
| 004 | 375 | 2,070 | 24.7[1] | 430 / 429 |
| 008 | 844 | 2,070 | 24.7[1] | 199 / 75 |
| 012 | 1,212 | 2,070 | 24.7[1] | 122 / 271 |
| 016 | 1,640 | 2,070 | 24.7 | 27 / 337 |
| 021 | 2,078 | 2,070 | 25.2 | 145 / 262 |
| 025 | 2,464 | 2,070 | 25.6 | 19 / 391 |
| 028 | 2,757 | 2,070 | 25.9 | 19 / 321 |
| 032 | 3,180 | 2,070 | 26.5 | 77 / 154 |
| 035 | 3,472 | 2,070 | 27.0 | 19 / 491 |
| 038 | 3,768 | 2,070 | 27.2 | 19 / 392 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 040 | 3,955 | 2,070 | 27.4 | 19 / 360 |
| 042 | 4,223 | 1,970 | 27.6 | 18 / 348 |
| 045 | 4,544 | 1,970 | 27.9 | 69 / 377 |
| 051 | 5,053 | 1,970 | 28.2 | 251 / 310 |
| 054 | 5,367 | 1,970 | 28.4 | 92 / 265 |
| 056 | 5,615 | 1,970 | 28.5 | 50 / 55 |
| 057 | 5,663 | 1,970 | 28.9 | 50 / 55 |
| 059 | 5,941 | 1,970 | 29.1 | 18 / 260 |
| **Lillington Creek** | | | | |
| 146 | 14,589 | 2,840 | 13.2[2] | 172 / 721 |
| 159 | 15,939 | 2,840 | 13.2[2] | 260 / 143 |
| 168 | 16,797 | 2,840 | 13.2[1] | 130 / 315 |
| 174 | 17,401 | 2,730 | 13.2[1] | 383 / 278 |
| 182 | 18,171 | 2,730 | 13.2[1] | 168 / 288 |
| 186 | 18,564 | 2,730 | 13.2[1] | 150 / 150 |
| 186 | 18,639 | 2,730 | 13.2[1] | 150 / 150 |
| 191 | 19,077 | 2,730 | 13.2[1] | 329 / 143 |
| 200 | 19,982 | 2,730 | 13.2[1] | 185 / 227 |
| 207 | 20,734 | 2,730 | 13.2[1] | 621 / 67 |
| 217 | 21,684 | 2,730 | 13.2[1] | 322 / 180 |
| 224 | 22,386 | 2,260 | 13.2[1] | 311 / 76 |
| 230 | 23,018 | 2,260 | 13.4 | 215 / 299 |
| 242 | 24,231 | 2,260 | 14.2 | 203 / 204 |
| 245 | 24,454 | 2,260 | 14.3 | 150 / 150 |
| 245 | 24,489 | 2,260 | 14.3 | 150 / 150 |
| 250 | 24,951 | 2,260 | 14.9 | 318 / 200 |
| 256 | 25,613 | 2,260 | 15.4 | 269 / 193 |
| 262 | 26,216 | 2,260 | 15.9 | 25 / 549 |
| 271 | 27,113 | 1,980 | 16.9 | 65 / 294 |
| 279 | 27,862 | 1,980 | 17.9 | 114 / 165 |
| 286 | 28,626 | 1,980 | 19.0 | 100 / 215 |
| 293 | 29,292 | 1,980 | 19.6 | 24 / 458 |
| 300 | 29,991 | 1,980 | 20.3 | 60 / 60 |
| 300 | 30,026 | 1,980 | 21.1 | 60 / 60 |
| 308 | 30,790 | 1,530 | 23.7 | 150 / 50 |
| 314 | 31,376 | 1,530 | 25.7 | 200 / 150 |
| 322 | 32,241 | 1,530 | 27.8 | 300 / 30 |
| 331 | 33,121 | 1,530 | 29.0 | 300 / 50 |
| **Lillington Creek Tributary** | | | | |
| 006 | 619 | 928 | 13.2[1] | 179 / 33 |
| 010 | 1,026 | 928 | 13.2[1] | 70 / 150 |
| 019 | 1,911 | 928 | 13.9 | 56 / 107 |
| 026 | 2,615 | 928 | 14.6 | 369 / 41 |
| 032 | 3,237 | 867 | 15.3 | 18 / 116 |
| 039 | 3,886 | 867 | 16.0 | 177 / 21 |

## Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 047 | 4,696 | 444 | 16.4 | 45 / 183 |
| 054 | 5,390 | 444 | 16.6 | 168 / 244 |
| 061 | 6,115 | 444 | 16.6 | 87 / 266 |
| **Long Creek** | | | | |
| 650 | 64,976 | 7,510 | 12.5 | 700 / 312 |
| 658 | 65,839 | 7,510 | 12.6 | 700 / 312 |
| 665 | 66,511 | 7,510 | 12.6 | 700 / 758 |
| 677 | 67,661 | 7,510 | 12.8 | 507 / 1,298 |
| 686 | 68,613 | 7,510 | 12.8 | 258 / 1,353 |
| 693 | 69,307 | 7,510 | 13.0 | 132 / 1,503 |
| 699 | 69,881 | 7,470 | 13.0 | 256 / 1,084 |
| 704 | 70,383 | 7,470 | 13.1 | 331 / 1,535 |
| 710 | 71,023 | 7,470 | 13.2 | 106 / 1,738 |
| 721 | 72,140 | 7,470 | 13.5 | 757 / 2,014 |
| 732 | 73,174 | 7,470 | 13.7 | 799 / 259 |
| 741 | 74,090 | 7,250 | 14.0 | 550 / 216 |
| 755 | 75,543 | 7,250 | 14.4 | 455 / 1,154 |
| 771 | 77,062 | 7,250 | 14.7 | 626 / 354 |
| 780 | 77,965 | 7,250 | 15.1 | 326 / 397 |
| 792 | 79,172 | 7,250 | 15.6 | 269 / 352 |
| 804 | 80,365 | 7,250 | 16.1 | 382 / 576 |
| 815 | 81,489 | 6,870 | 16.5 | 290 / 827 |
| 825 | 82,467 | 6,870 | 16.8 | 874 / 804 |
| 836 | 83,633 | 6,870 | 17.0 | 262 / 1,074 |
| 847 | 84,709 | 6,870 | 17.4 | 269 / 1,395 |
| 856 | 85,590 | 6,760 | 17.7 | 626 / 1,094 |
| 865 | 86,504 | 6,760 | 18.0 | 493 / 695 |
| 876 | 87,605 | 6,760 | 18.6 | 454 / 812 |
| 889 | 88,900 | 6,760 | 19.0 | 1,064 / 743 |
| 898 | 89,809 | 6,760 | 19.4 | 1,005 / 819 |
| 906 | 90,612 | 6,760 | 19.6 | 509 / 1,245 |
| 919 | 91,887 | 6,760 | 20.1 | 414 / 1,128 |
| 927 | 92,711 | 6,490 | 20.4 | 436 / 1,018 |
| 939 | 93,866 | 6,490 | 21.0 | 487 / 748 |
| 954 | 95,376 | 6,490 | 21.7 | 1,125 / 621 |
| 963 | 96,301 | 6,490 | 22.1 | 1,031 / 637 |
| 974 | 97,411 | 6,310 | 22.6 | 1,249 / 641 |
| 982 | 98,187 | 6,310 | 23.1 | 646 / 434 |
| 990 | 99,019 | 6,310 | 23.4 | 773 / 124 |
| 991 | 99,071 | 6,310 | 23.5 | 773 / 124 |
| 1000 | 99,957 | 6,310 | 23.7 | 1,182 / 398 |
| 1009 | 100,852 | 6,310 | 24.2 | 1,079 / 132 |
| 1016 | 101,603 | 6,310 | 24.5 | 1,283 / 81 |
| 1032 | 103,172 | 6,310 | 25.4 | 437 / 356 |
| 1041 | 104,140 | 4,740 | 25.9 | 1,143 / 240 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 1052 | 105,217 | 4,740 | 26.2 | 615 / 877 |
| 1068 | 106,821 | 4,670 | 26.8 | 142 / 733 |
| 1074 | 107,437 | 4,670 | 27.2 | 199 / 408 |
| 1078 | 107,842 | 4,670 | 27.5 | 71 / 70 |
| 1079 | 107,888 | 4,670 | 28.1 | 71 / 70 |
| 1088 | 108,761 | 4,670 | 29.0 | 436 / 600 |
| 1096 | 109,619 | 4,670 | 29.2 | 432 / 933 |
| 1104 | 110,429 | 4,670 | 29.4 | 400 / 750 |
| 1113 | 111,325 | 4,670 | 29.6 | 350 / 750 |
| **Long Creek Tributary** | | | | |
| 006 | 644 | 478 | 26.2[1] | 187 / 69 |
| 011 | 1,069 | 478 | 26.5 | 25 / 96 |
| 015 | 1,519 | 478 | 29.5 | 59 / 32 |
| **Merricks Creek** | | | | |
| 005 | 521 | 5,240 | 8.8[1] | 385 / 1,675 |
| 039 | 3,853 | 5,240 | 8.8[1] | 40 / 1,296 |
| 055 | 5,499 | 5,240 | 8.8[1] | 40 / 1,550 |
| 070 | 7,031 | 5,240 | 8.8[1] | 123 / 1,441 |
| 085 | 8,532 | 5,240 | 8.8[1] | 230 / 877 |
| 125 | 12,485 | 5,240 | 8.8[1] | 1,174 / 123 |
| 144 | 14,393 | 5,240 | 8.8[1] | 622 / 184 |
| 166 | 16,579 | 5,240 | 8.8[1] | 279 / 544 |
| 195 | 19,499 | 5,240 | 8.8[1] | 390 / 597 |
| 214 | 21,361 | 5,240 | 8.8[1] | 745 / 93 |
| 225 | 22,503 | 5,240 | 8.8[1] | 889 / 40 |
| 240 | 23,974 | 5,240 | 8.8[1] | 405 / 427 |
| 252 | 25,227 | 5,240 | 8.8[1] | 591 / 214 |
| 265 | 26,531 | 5,240 | 8.9 | 727 / 29 |
| 274 | 27,408 | 5,240 | 9.2 | 450 / 285 |
| 277 | 27,680 | 5,240 | 9.3 | 600 / 275 |
| 277 | 27,723 | 5,240 | 9.4 | 486 / 156 |
| 278 | 27,762 | 5,240 | 9.6 | 486 / 156 |
| 278 | 27,801 | 5,240 | 9.6 | 486 / 156 |
| 281 | 28,062 | 5,240 | 9.7 | 297 / 126 |
| 284 | 28,389 | 5,220 | 9.8 | 665 / 55 |
| 286 | 28,632 | 5,220 | 9.9 | 640 / 36 |
| 290 | 29,035 | 5,220 | 10.0 | 433 / 36 |
| 292 | 29,230 | 5,220 | 10.1 | 483 / 136 |
| 293 | 29,269 | 4,660 | 10.1 | 502 / 38 |
| **Mill Branch (of Buxton Branch)** | | | | |
| 037 | 3,654 | 705 | 45.7 | 20 / 20 |
| 039 | 3,902 | 705 | 45.7 | 20 / 25 |
| 042 | 4,180 | 575 | 45.8 | 20 / 26 |
| 046 | 4,558 | 575 | 45.8 | 20 / 20 |
| 048 | 4,770 | 575 | 45.8 | 20 / 20 |
| 051 | 5,058 | 575 | 45.9 | 20 / 23 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 053 | 5,280 | 575 | 45.9 | 25 / 35 |
| 055 | 5,499 | 575 | 46.0 | 25 / 35 |
| 058 | 5,788 | 575 | 46.2 | 33 / 36 |
| 061 | 6,074 | 575 | 46.4 | 30 / 15 |
| 063 | 6,331 | 575 | 46.8 | 25 / 15 |
| **Mill Creek** | | | | |
| 003 | 339 | 1,340 | 27.2[1] | 100 / 300 |
| 008 | 808 | 1,340 | 27.2[1] | 200 / 200 |
| 011 | 1,132 | 1,340 | 27.2 | 151 / 91 |
| 017 | 1,652 | 1,340 | 28.4 | 147 / 70 |
| 020 | 2,032 | 1,340 | 29.1 | 80 / 142 |
| 022 | 2,247 | 1,340 | 29.0 | 70 / 60 |
| 023 | 2,308 | 1,340 | 29.7 | 70 / 60 |
| 025 | 2,473 | 1,340 | 29.9 | 80 / 172 |
| **Mill Creek Tributary** | | | | |
| 054 | 5,410 | 980 | 67.9 | 18 / 18 |
| 055 | 5,464 | 980 | 69.7 | 18 / 18 |
| 056 | 5,618 | 980 | 70.7 | 131 / 105 |
| 058 | 5,753 | 980 | 70.7 | 23 / 23 |
| 058 | 5,838 | 980 | 72.1 | 23 / 23 |
| **Mill Pond** | | | | |
| 002 | 240 | 2,170 | 17.7[1] | 144 / 14 |
| 003 | 349 | 2,170 | 17.7[1] | 17 / 17 |
| 004 | 429 | 2,170 | 17.7[1] | 17 / 17 |
| 011 | 1,115 | 2,170 | 17.7[1] | 161 / 283 |
| 018 | 1,830 | 2,170 | 17.7[1] | 75 / 235 |
| 025 | 2,545 | 2,090 | 17.7[1] | 82 / 234 |
| 030 | 3,037 | 2,090 | 17.7[1] | 114 / 171 |
| 035 | 3,539 | 2,090 | 17.7[1] | 186 / 103 |
| 041 | 4,123 | 2,090 | 17.7[1] | 99 / 156 |
| 045 | 4,519 | 2,090 | 17.7[1] | 189 / 128 |
| 048 | 4,827 | 2,090 | 17.7[1] | 164 / 138 |
| 055 | 5,543 | 1,970 | 17.7[1] | 102 / 188 |
| 062 | 6,203 | 1,970 | 17.7[1] | 104 / 143 |
| 068 | 6,750 | 1,970 | 17.7[1] | 175 / 59 |
| 074 | 7,378 | 1,970 | 17.7[1] | 176 / 27 |
| 083 | 8,267 | 1,591 | 17.7[1] | 297 / 14 |
| 088 | 8,800 | 1,591 | 17.7[1] | 148 / 122 |
| 092 | 9,200 | 1,346 | 17.8 | 75 / 208 |
| 096 | 9,600 | 1,346 | 18.0 | 263 / 124 |
| 100 | 10,000 | 1,346 | 18.2 | 155 / 166 |
| 104 | 10,400 | 1,255 | 18.5 | 166 / 173 |
| 108 | 10,836 | 1,255 | 19.1 | 11 / 196 |
| 113 | 11,313 | 1,255 | 19.9 | 65 / 245 |
| 120 | 11,951 | 1,255 | 20.7 | 29 / 250 |
| **Moores Creek** | | | | |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 017 | 1,698 | 2,830 | 27.7 | 727 / 204 |
| 025 | 2,492 | 2,830 | 28.0 | 353 / 278 |
| 030 | 2,995 | 2,830 | 28.4 | 220 / 396 |
| 038 | 3,822 | 2,830 | 28.8 | 309 / 324 |
| 045 | 4,475 | 2,830 | 29.0 | 911 / 84 |
| 051 | 5,125 | 2,780 | 29.2 | 882 / 81 |
| 056 | 5,598 | 2,780 | 29.5 | 697 / 346 |
| 070 | 7,034 | 2,780 | 30.3 | 665 / 248 |
| 074 | 7,363 | 2,780 | 30.5 | 406 / 458 |
| 078 | 7,789 | 2,780 | 30.7 | 442 / 324 |
| 083 | 8,296 | 2,780 | 30.9 | 38 / 38 |
| 084 | 8,355 | 2,780 | 32.4 | 38 / 38 |
| 094 | 9,438 | 2,470 | 32.7 | 81 / 534 |
| 098 | 9,828 | 2,470 | 32.9 | 269 / 376 |
| 106 | 10,597 | 2,470 | 33.2 | 321 / 348 |
| 110 | 11,029 | 2,470 | 33.3 | 365 / 289 |
| 114 | 11,434 | 2,470 | 33.5 | 38 / 38 |
| 115 | 11,484 | 2,470 | 33.8 | 38 / 38 |
| 120 | 11,996 | 2,470 | 34.5 | 797 / 69 |
| 124 | 12,373 | 2,470 | 34.6 | 574 / 132 |
| 129 | 12,917 | 2,430 | 34.8 | 416 / 426 |
| 136 | 13,601 | 2,430 | 35.1 | 441 / 328 |
| 142 | 14,222 | 2,420 | 35.3 | 473 / 241 |
| 147 | 14,743 | 2,420 | 35.5 | 247 / 320 |
| 152 | 15,200 | 2,420 | 35.7 | 706 / 213 |
| 158 | 15,781 | 2,420 | 35.9 | 463 / 343 |
| 167 | 16,681 | 2,420 | 36.4 | 285 / 346 |
| 172 | 17,242 | 2,420 | 36.9 | 332 / 433 |
| 176 | 17,604 | 2,350 | 37.1 | 275 / 597 |
| 184 | 18,353 | 1,850 | 37.4 | 20 / 645 |
| 191 | 19,123 | 1,850 | 38.0 | 55 / 178 |
| 198 | 19,826 | 1,850 | 38.8 | 39 / 336 |
| 202 | 20,211 | 1,850 | 39.1 | 299 / 61 |
| 209 | 20,890 | 1,630 | 39.8 | 283 / 163 |
| 214 | 21,432 | 1,630 | 40.2 | 52 / 441 |
| 220 | 22,013 | 1,630 | 40.6 | 120 / 215 |
| 225 | 22,475 | 1,630 | 41.0 | 119 / 225 |
| 231 | 23,135 | 1,630 | 41.6 | 102 / 193 |
| 236 | 23,566 | 1,590 | 42.1 | 21 / 318 |
| 238 | 23,814 | 1,590 | 42.3 | 18 / 349 |
| 241 | 24,096 | 1,590 | 42.5 | 198 / 80 |
| **Moores Creek (near Atkinson)** | | | | |
| 291 | 29,078 | 8,233 | 18.7[1] | 670 / 329 |
| 299 | 29,917 | 8,233 | 18.7[1] | 433 / 559 |
| 304 | 30,361 | 8,233 | 18.7[1] | 350 / 945 |

## Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 309 | 30,903 | 8,233 | 18.7[1] | 299 / 546 |
| 316 | 31,578 | 8,233 | 18.7[1] | 295 / 658 |
| 329 | 32,933 | 8,233 | 18.7[1] | 987 / 224 |
| 336 | 33,605 | 8,233 | 18.7[1] | 883 / 247 |
| 341 | 34,104 | 8,233 | 18.7[1] | 1,128 / 395 |
| 345 | 34,537 | 8,233 | 18.7[1] | 1,269 / 233 |
| 349 | 34,949 | 8,233 | 18.7[1] | 1,452 / 298 |
| 355 | 35,534 | 8,233 | 18.7[1] | 1,296 / 233 |
| 362 | 36,177 | 8,233 | 18.7[1] | 958 / 153 |
| 369 | 36,936 | 8,233 | 18.7[1] | 359 / 702 |
| 379 | 37,876 | 8,233 | 18.7[1] | 436 / 310 |
| 386 | 38,571 | 8,233 | 18.7[1] | 165 / 236 |
| 393 | 39,270 | 8,233 | 18.7[1] | 639 / 186 |
| 399 | 39,856 | 8,233 | 18.7[1] | 1,062 / 295 |
| 404 | 40,393 | 8,233 | 18.7[1] | 1,553 / 61 |
| 412 | 41,225 | 8,233 | 18.7[1] | 1,036 / 117 |
| 419 | 41,945 | 8,233 | 18.7[1] | 673 / 361 |
| 424 | 42,437 | 8,233 | 18.7[1] | 398 / 815 |
| 430 | 43,000 | 8,233 | 18.7[1] | 492 / 604 |
| 435 | 43,543 | 8,233 | 18.7[1] | 329 / 692 |
| 442 | 44,177 | 8,233 | 18.7[1] | 107 / 1,000 |
| 449 | 44,887 | 8,233 | 18.7[1] | 400 / 600 |
| 457 | 45,727 | 8,233 | 18.7[1] | 300 / 528 |
| 464 | 46,386 | 8,233 | 18.7[1] | 600 / 200 |
| 469 | 46,888 | 8,233 | 18.7[1] | 800 / 47 |
| 475 | 47,503 | 8,233 | 18.8 | 341 / 382 |
| 479 | 47,884 | 8,233 | 19.3 | 198 / 485 |
| 483 | 48,347 | 7,246 | 19.8 | 423 / 404 |
| **Moores Creek Tributary 1** | | | | |
| 012 | 1,225 | 970 | 32.9[1] | 21 / 193 |
| 022 | 2,176 | 970 | 32.9[1] | 250 / 59 |
| 029 | 2,883 | 970 | 32.9[1] | 50 / 163 |
| 036 | 3,599 | 970 | 34.4 | 60 / 170 |
| 042 | 4,203 | 970 | 36.0 | 117 / 125 |
| 050 | 4,977 | 801 | 37.8 | 72 / 155 |
| 056 | 5,563 | 801 | 38.8 | 12 / 147 |
| 060 | 6,048 | 801 | 41.0 | 80 / 33 |
| 065 | 6,525 | 752 | 43.5 | 18 / 151 |
| 071 | 7,098 | 752 | 44.9 | 57 / 63 |
| 077 | 7,654 | 752 | 47.1 | 47 / 27 |
| 082 | 8,249 | 752 | 49.5 | 130 / 28 |
| 087 | 8,725 | 752 | 50.2 | 74 / 50 |
| 096 | 9,646 | 752 | 50.9 | 158 / 15 |
| **Moores Creek Tributary 2** | | | | |
| 004 | 442 | 700 | 39.8[1] | 95 / 113 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 007 | 730 | 700 | 39.8[1] | 88 / 79 |
| 013 | 1,267 | 598 | 42.0 | 17 / 192 |
| 019 | 1,877 | 598 | 43.9 | 52 / 87 |
| 025 | 2,491 | 598 | 45.4 | 99 / 64 |
| **Moores Creek Tributary 6** | | | | |
| 012 | 1,169 | 1,240 | 38.1[1] | 253 / 107 |
| 019 | 1,943 | 1,240 | 38.1[1] | 207 / 199 |
| 024 | 2,419 | 1,240 | 38.1[1] | 200 / 113 |
| 030 | 2,951 | 1,240 | 38.8 | 22 / 22 |
| 030 | 3,023 | 1,240 | 40.0 | 22 / 22 |
| 033 | 3,291 | 1,240 | 40.8 | 108 / 153 |
| 043 | 4,269 | 1,020 | 41.6 | 115 / 309 |
| 050 | 5,043 | 1,020 | 42.2 | 75 / 206 |
| 057 | 5,653 | 1,020 | 42.9 | 104 / 132 |
| 064 | 6,436 | 929 | 43.8 | 88 / 119 |
| 069 | 6,905 | 929 | 44.6 | 88 / 102 |
| 076 | 7,646 | 929 | 46.2 | 151 / 51 |
| 082 | 8,240 | 929 | 47.3 | 92 / 104 |
| 089 | 8,944 | 929 | 48.5 | 122 / 35 |
| 097 | 9,678 | 807 | 50.3 | 39 / 134 |
| **Moores Creek Tributary 7** | | | | |
| 002 | 223 | 506 | 41.6[1] | 62 / 63 |
| 006 | 571 | 506 | 41.6[1] | 40 / 117 |
| 011 | 1,064 | 506 | 42.1 | 29 / 106 |
| 015 | 1,461 | 506 | 44.2 | 16 / 104 |
| 018 | 1,816 | 506 | 45.2 | 24 / 106 |
| 019 | 1,886 | 506 | 47.8 | 24 / 106 |
| 022 | 2,202 | 467 | 47.9 | 18 / 119 |
| 028 | 2,826 | 467 | 49.5 | 16 / 84 |
| 034 | 3,395 | 467 | 52.4 | 51 / 65 |
| 038 | 3,850 | 467 | 55.1 | 16 / 69 |
| 044 | 4,387 | 467 | 57.5 | 49 / 75 |
| 049 | 4,938 | 467 | 60.4 | 16 / 49 |
| 054 | 5,364 | 359 | 62.9 | 75 / 72 |
| 059 | 5,946 | 359 | 66.4 | 89 / 16 |
| 065 | 6,535 | 359 | 71.0 | 67 / 55 |
| 070 | 7,026 | 230 | 73.9 | 54 / 22 |
| **North Branch** | | | | |
| 070 | 7,028 | 696 | 47.7 | 71 / 75 |
| 074 | 7,386 | 696 | 48.6 | 40 / 55 |
| 078 | 7,806 | 696 | 50.1 | 31 / 87 |
| 083 | 8,326 | 696 | 50.7 | 107 / 103 |
| **Northeast Cape Fear River** | | | | |
| 3158 | 315,789 | 30,700 | 22.6 | 1,985 / 398 |
| 3170 | 316,964 | 30,600 | 22.8 | 1,985 / 680 |
| 3182 | 318,245 | 30,600 | 22.9 | 1,371 / 376 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 3195 | 319,453 | 30,600 | 23.0 | 1,985 / 177 |
| 3207 | 320,739 | 30,600 | 23.2 | 1,841 / 177 |
| 3222 | 322,167 | 30,600 | 23.4 | 1,072 / 307 |
| 3235 | 323,457 | 30,600 | 23.6 | 811 / 637 |
| 3244 | 324,386 | 30,600 | 23.7 | 548 / 810 |
| 3255 | 325,502 | 30,600 | 23.9 | 392 / 800 |
| 3275 | 327,515 | 30,600 | 24.2 | 177 / 1,355 |
| 3295 | 329,453 | 30,600 | 24.5 | 803 / 353 |
| 3306 | 330,629 | 30,600 | 24.7 | 803 / 177 |
| 3320 | 331,998 | 30,600 | 24.9 | 1,287 / 1,155 |
| 3331 | 333,110 | 30,400 | 25.1 | 1,670 / 835 |
| 3350 | 335,027 | 30,400 | 25.3 | 1,990 / 705 |
| 3364 | 336,350 | 30,400 | 25.4 | 238 / 1,032 |
| 3384 | 338,397 | 30,400 | 25.6 | 176 / 2,546 |
| 3396 | 339,558 | 30,400 | 25.7 | 1,119 / 1,807 |
| 3408 | 340,780 | 30,400 | 25.7 | 2,640 / 707 |
| 3417 | 341,708 | 30,400 | 25.8 | 3,006 / 196 |
| 3429 | 342,860 | 30,400 | 25.9 | 4,548 / 213 |
| 3445 | 344,468 | 30,400 | 25.9 | 2,894 / 1,419 |
| 3458 | 345,774 | 30,400 | 26.0 | 3,366 / 176 |
| 3475 | 347,529 | 30,400 | 26.0 | 9 / 176 |
| 3491 | 349,131 | 30,400 | 26.1 | 4,255 / 1,184 |
| 3512 | 351,194 | 30,400 | 26.1 | 2,580 / 4,344 |
| 3519 | 351,947 | 30,400 | 26.1 | 2,791 / 4,001 |
| 3528 | 352,788 | 30,400 | 26.1 | 2,177 / 2,886 |
| 3538 | 353,818 | -8,888 | 26.2 | 2,280 / 3,179 |
| **Pike Creek** | | | | |
| 026 | 2,568 | 2,240 | 11.1[1] | 422 / 323 |
| 037 | 3,708 | 2,240 | 11.1[1] | 326 / 87 |
| 044 | 4,405 | 2,240 | 11.1[1] | 176 / 203 |
| 053 | 5,287 | 2,240 | 11.1[1] | 108 / 260 |
| 065 | 6,470 | 2,240 | 11.1[1] | 274 / 44 |
| 072 | 7,218 | 1,970 | 11.1[1] | 349 / 49 |
| 077 | 7,681 | 1,970 | 11.1[1] | 183 / 155 |
| 084 | 8,400 | 1,970 | 11.1[1] | 123 / 232 |
| 094 | 9,438 | 1,970 | 11.1[1] | 68 / 164 |
| 101 | 10,089 | 1,970 | 11.1[1] | 78 / 163 |
| 107 | 10,707 | 1,970 | 11.1[1] | 337 / 40 |
| 113 | 11,269 | 1,970 | 11.1[1] | 310 / 34 |
| 118 | 11,758 | 1,800 | 11.1[1] | 179 / 89 |
| 126 | 12,611 | 1,800 | 11.3 | 144 / 133 |
| 134 | 13,362 | 1,800 | 12.4 | 176 / 138 |
| 136 | 13,586 | 1,800 | 12.2 | 94 / 94 |
| 137 | 13,658 | 1,800 | 13.3 | 94 / 94 |
| 137 | 13,676 | 1,800 | 13.0 | 74 / 74 |

## Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 138 | 13,761 | 1,800 | 18.4 | 74 / 74 |
| 139 | 13,897 | 1,800 | 18.6 | 238 / 292 |
| 143 | 14,251 | 1,800 | 18.6 | 251 / 194 |
| 147 | 14,679 | 1,800 | 18.6 | 211 / 192 |
| 151 | 15,138 | 1,800 | 18.6 | 74 / 74 |
| 153 | 15,318 | 1,420 | 24.6 | 74 / 74 |
| 158 | 15,848 | 1,420 | 24.7 | 277 / 139 |
| 162 | 16,167 | 1,420 | 24.7 | 141 / 270 |
| 166 | 16,648 | 1,420 | 24.7 | 83 / 362 |
| 170 | 17,035 | 1,420 | 24.7 | 29 / 290 |
| 177 | 17,674 | 1,420 | 24.7 | 54 / 223 |
| 183 | 18,326 | 1,420 | 24.8 | 216 / 110 |
| 186 | 18,589 | 1,420 | 24.8 | 118 / 246 |
| 193 | 19,337 | 1,420 | 24.8 | 47 / 226 |
| 199 | 19,935 | 1,420 | 25.0 | 112 / 197 |
| 206 | 20,565 | 1,420 | 25.1 | 120 / 190 |
| 211 | 21,074 | 1,420 | 25.2 | 101 / 326 |
| 219 | 21,886 | 941 | 25.5 | 20 / 228 |
| 227 | 22,686 | 941 | 26.0 | 367 / 13 |
| 236 | 23,582 | 941 | 27.2 | 13 / 158 |
| 241 | 24,122 | 941 | 29.1 | 144 / 43 |
| 252 | 25,166 | 941 | 31.1 | 70 / 83 |
| 261 | 26,097 | 941 | 34.1 | 28 / 61 |
| **Players Creek** | | | | |
| 002 | 237 | 1,550 | 10.1[1] | 104 / 199 |
| 007 | 700 | 1,550 | 10.1[1] | 101 / 245 |
| 012 | 1,155 | 1,550 | 10.1[1] | 104 / 240 |
| 016 | 1,636 | 1,550 | 10.3 | 30 / 265 |
| 021 | 2,083 | 1,430 | 10.8 | 115 / 114 |
| 026 | 2,552 | 1,430 | 11.5 | 81 / 295 |
| 031 | 3,096 | 1,430 | 12.3 | 56 / 190 |
| 035 | 3,544 | 1,430 | 12.8 | 192 / 129 |
| 040 | 4,011 | 1,430 | 13.2 | 154 / 129 |
| 047 | 4,725 | 1,370 | 13.9 | 539 / 55 |
| 054 | 5,351 | 1,370 | 14.2 | 398 / 119 |
| 062 | 6,181 | 1,370 | 14.8 | 199 / 126 |
| 068 | 6,834 | 1,370 | 16.0 | 122 / 127 |
| 074 | 7,410 | 1,370 | 17.1 | 166 / 92 |
| 083 | 8,251 | 1,370 | 18.6 | 30 / 211 |
| 088 | 8,811 | 1,370 | 19.3 | 46 / 261 |
| 095 | 9,482 | 1,280 | 20.1 | 33 / 236 |
| 105 | 10,454 | 1,280 | 21.9 | 95 / 47 |
| 114 | 11,438 | 1,280 | 23.4 | 234 / 141 |
| 122 | 12,247 | 1,280 | 24.0 | 206 / 199 |
| 130 | 12,985 | 1,280 | 24.6 | 296 / 220 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| **Rileys Creek** | | | | |
| 118 | 11,830 | 4,500 | 8.2 | 100 / 100 |
| 122 | 12,163 | 4,500 | 9.3[1] | 93 / 107 |
| 125 | 12,495 | 4,500 | 9.3[1] | 157 / 292 |
| 129 | 12,868 | 4,500 | 9.6 | 72 / 415 |
| 131 | 13,127 | 4,500 | 9.9 | 86 / 404 |
| 135 | 13,452 | 4,280 | 10.2 | 71 / 392 |
| 138 | 13,794 | 4,280 | 10.7 | 88 / 454 |
| 142 | 14,150 | 4,280 | 11.1 | 119 / 441 |
| 145 | 14,480 | 4,280 | 11.4 | 217 / 333 |
| 149 | 14,858 | 4,280 | 11.7 | 417 / 180 |
| 151 | 15,113 | 4,280 | 11.4 | 49 / 49 |
| 152 | 15,184 | 4,280 | 12.3 | 49 / 49 |
| 156 | 15,559 | 4,280 | 13.4 | 300 / 254 |
| 159 | 15,939 | 4,280 | 13.6 | 230 / 553 |
| 163 | 16,336 | 4,180 | 13.8 | 106 / 664 |
| 167 | 16,668 | 4,180 | 13.9 | 300 / 400 |
| 170 | 17,024 | 4,180 | 14.0 | 333 / 346 |
| 173 | 17,339 | 4,180 | 14.2 | 271 / 214 |
| 177 | 17,680 | 4,180 | 14.5 | 330 / 432 |
| 181 | 18,117 | 4,180 | 14.7 | 170 / 539 |
| 185 | 18,505 | 4,180 | 15.0 | 124 / 575 |
| 188 | 18,849 | 4,180 | 15.2 | 165 / 538 |
| 191 | 19,117 | 4,180 | 15.4 | 71 / 523 |
| 193 | 19,293 | 4,180 | 15.6 | 45 / 360 |
| 193 | 19,341 | 4,180 | 15.6 | 45 / 360 |
| 198 | 19,767 | 4,180 | 16.5 | 249 / 568 |
| 201 | 20,066 | 4,180 | 16.7 | 286 / 523 |
| 205 | 20,530 | 4,180 | 17.0 | 145 / 538 |
| 209 | 20,912 | 4,120 | 17.3 | 159 / 343 |
| 212 | 21,161 | 4,120 | 17.5 | 328 / 564 |
| 214 | 21,370 | 4,120 | 17.6 | 109 / 676 |
| 218 | 21,765 | 4,120 | 17.9 | 187 / 514 |
| 223 | 22,305 | 4,120 | 18.2 | 172 / 573 |
| 226 | 22,632 | 4,120 | 18.4 | 162 / 441 |
| 229 | 22,923 | 4,120 | 18.7 | 70 / 646 |
| 233 | 23,342 | 4,120 | 19.0 | 110 / 710 |
| 238 | 23,784 | 4,120 | 19.4 | 70 / 591 |
| 243 | 24,288 | 4,060 | 19.7 | 302 / 585 |
| 247 | 24,712 | 4,060 | 19.9 | 452 / 350 |
| 252 | 25,182 | 4,060 | 20.2 | 386 / 223 |
| 257 | 25,670 | 4,060 | 20.6 | 462 / 350 |
| 261 | 26,057 | 4,060 | 20.9 | 388 / 300 |
| 266 | 26,558 | 4,060 | 21.2 | 593 / 175 |
| 269 | 26,944 | 3,640 | 21.5 | 585 / 130 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 273 | 27,323 | 3,640 | 21.7 | 574 / 68 |
| 276 | 27,604 | 3,640 | 21.9 | 677 / 150 |
| 280 | 27,994 | 3,640 | 22.2 | 189 / 660 |
| 283 | 28,287 | 3,640 | 22.3 | 68 / 828 |
| 286 | 28,571 | 3,640 | 22.4 | 148 / 945 |
| 289 | 28,932 | 3,640 | 22.6 | 216 / 829 |
| 293 | 29,313 | 3,640 | 22.8 | 533 / 220 |
| 297 | 29,665 | 3,640 | 23.1 | 538 / 119 |
| 300 | 30,005 | 3,640 | 23.5 | 204 / 332 |
| 304 | 30,368 | 3,640 | 24.0 | 68 / 425 |
| 307 | 30,664 | 3,640 | 24.2 | 68 / 740 |
| 311 | 31,093 | 3,640 | 24.5 | 577 / 196 |
| 315 | 31,550 | 2,700 | 24.7 | 668 / 109 |
| 319 | 31,909 | 2,700 | 24.9 | 620 / 62 |
| 322 | 32,155 | 2,700 | 25.2 | 525 / 62 |
| 325 | 32,509 | 2,700 | 25.6 | 444 / 62 |
| 328 | 32,793 | 2,700 | 26.0 | 473 / 165 |
| 331 | 33,116 | 2,700 | 26.3 | 539 / 62 |
| 334 | 33,382 | 2,700 | 26.5 | 500 / 62 |
| 338 | 33,755 | 2,700 | 26.9 | 300 / 500 |
| 343 | 34,254 | 2,700 | 27.2 | 300 / 500 |
| **Rizzo Creek** | | | | |
| 000 | 1 | 2,700 | 27.2 | 300 / 500 |
| 006 | 553 | 2,190 | 27.5 | 161 / 353 |
| 009 | 911 | 2,190 | 27.8 | 198 / 150 |
| 012 | 1,247 | 2,190 | 28.2 | 217 / 130 |
| 016 | 1,559 | 2,190 | 28.5 | 60 / 385 |
| 019 | 1,926 | 2,190 | 28.7 | 100 / 350 |
| 024 | 2,409 | 2,190 | 29.0 | 150 / 218 |
| **Rockfish Creek** | | | | |
| 266 | 26,582 | 11,430 | 26.6 | 1,279 / 68 |
| 272 | 27,222 | 11,430 | 26.7 | 1,455 / 57 |
| 286 | 28,555 | 11,430 | 26.8 | 632 / 1,001 |
| 293 | 29,262 | 11,430 | 26.6 | 114 / 114 |
| 293 | 29,318 | 11,430 | 26.9 | 114 / 114 |
| 294 | 29,398 | 11,430 | 26.9 | 114 / 114 |
| 305 | 30,510 | 11,430 | 27.8 | 920 / 160 |
| 325 | 32,473 | 11,430 | 28.0 | 919 / 729 |
| 335 | 33,518 | 11,430 | 28.0 | 962 / 220 |
| 356 | 35,594 | 11,430 | 28.3 | 214 / 1,428 |
| 535 | 53,513 | 9,760 | 34.6 | 557 / 1,198 |
| 557 | 55,658 | 9,760 | 35.2 | 142 / 1,282 |
| 574 | 57,414 | 9,700 | 35.8 | 919 / 1,459 |
| 597 | 59,668 | 9,700 | 36.4 | 1,300 / 147 |
| 616 | 61,635 | 9,700 | 37.0 | 1,091 / 924 |

## Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 635 | 63,532 | 9,700 | 37.5 | 307 / 1,141 |
| 654 | 65,430 | 9,640 | 38.2 | 141 / 672 |
| 671 | 67,123 | 9,640 | 38.8 | 937 / 542 |
| 690 | 69,026 | 9,640 | 39.3 | 643 / 336 |
| **Sandy Run Swamp** | | | | |
| 028 | 2,799 | 7,380 | 20.9[1] | 984 / 1,208 |
| 036 | 3,575 | 7,370 | 20.9[1] | 132 / 630 |
| 049 | 4,920 | 7,370 | 20.9[1] | 174 / 488 |
| 057 | 5,668 | 7,370 | 20.9[1] | 121 / 623 |
| 066 | 6,571 | 7,370 | 20.9[1] | 62 / 49 |
| 084 | 8,351 | 7,290 | 22.4 | 594 / 145 |
| 095 | 9,484 | 7,290 | 22.9 | 428 / 628 |
| 107 | 10,658 | 7,290 | 23.3 | 161 / 890 |
| 119 | 11,852 | 7,190 | 23.6 | 515 / 567 |
| 127 | 12,654 | 7,190 | 23.7 | 249 / 1,274 |
| 136 | 13,585 | 7,190 | 23.8 | 621 / 667 |
| 149 | 14,863 | 7,190 | 24.0 | 1,100 / 49 |
| 157 | 15,696 | 7,190 | 24.2 | 513 / 522 |
| 166 | 16,580 | 7,190 | 24.4 | 625 / 247 |
| 172 | 17,177 | 7,190 | 24.6 | 1,304 / 49 |
| 185 | 18,528 | 3,780 | 24.8 | 655 / 372 |
| 196 | 19,640 | 3,780 | 25.0 | 274 / 359 |
| 211 | 21,070 | 3,780 | 25.4 | 221 / 881 |
| 218 | 21,829 | 3,780 | 25.5 | 648 / 489 |
| 230 | 22,966 | 3,780 | 25.6 | 543 / 678 |
| 233 | 23,274 | 3,780 | 25.7 | 299 / 572 |
| 233 | 23,310 | 3,780 | 25.8 | 299 / 572 |
| 239 | 23,855 | 3,780 | 25.9 | 365 / 463 |
| 246 | 24,588 | 3,780 | 26.0 | 713 / 255 |
| 255 | 25,492 | 3,780 | 26.1 | 288 / 277 |
| 264 | 26,435 | 3,700 | 26.4 | 561 / 317 |
| 278 | 27,757 | 3,700 | 26.8 | 522 / 146 |
| 285 | 28,481 | 3,700 | 27.0 | 358 / 271 |
| 290 | 28,963 | 3,700 | 27.2 | 345 / 126 |
| 296 | 29,601 | 3,700 | 27.6 | 217 / 203 |
| 303 | 30,255 | 3,700 | 27.8 | 456 / 181 |
| 310 | 31,017 | 3,700 | 28.1 | 305 / 122 |
| 317 | 31,707 | 3,490 | 28.4 | 836 / 247 |
| 327 | 32,732 | 3,490 | 28.6 | 512 / 475 |
| 337 | 33,708 | 3,490 | 28.9 | 393 / 369 |
| **Sawyer Creek** | | | | |
| 004 | 376 | 1,760 | 29.3[1] | 183 / 50 |
| 007 | 707 | 1,760 | 29.3[1] | 135 / 50 |
| 013 | 1,341 | 1,760 | 29.3[1] | 50 / 40 |
| 016 | 1,648 | 1,760 | 29.3[1] | 98 / 35 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 023 | 2,341 | 1,760 | 29.3[1] | 65 / 19 |
| 029 | 2,893 | 1,760 | 29.3[1] | 43 / 26 |
| 033 | 3,260 | 1,760 | 29.3[1] | 60 / 20 |
| 040 | 3,988 | 1,760 | 29.3[1] | 95 / 67 |
| 045 | 4,519 | 1,760 | 29.7 | 70 / 50 |
| 051 | 5,093 | 1,760 | 31.0 | 50 / 50 |
| 056 | 5,564 | 1,760 | 32.3 | 88 / 136 |
| 060 | 6,004 | 1,760 | 32.6 | 127 / 109 |
| 066 | 6,565 | 1,760 | 33.0 | 88 / 63 |
| 070 | 6,971 | 1,760 | 33.6 | 62 / 54 |
| 074 | 7,376 | 1,760 | 34.2 | 155 / 105 |
| 077 | 7,742 | 1,760 | 34.5 | 110 / 104 |
| 081 | 8,146 | 1,760 | 34.6 | 75 / 75 |
| 082 | 8,222 | 1,760 | 34.6 | 75 / 75 |
| 086 | 8,614 | 1,760 | 34.8 | 200 / 311 |
| 090 | 9,020 | 1,760 | 35.0 | 200 / 272 |
| 096 | 9,590 | 1,760 | 35.4 | 200 / 334 |
| 100 | 9,984 | 1,590 | 35.8 | 200 / 220 |
| 105 | 10,465 | 1,590 | 36.2 | 100 / 141 |
| 108 | 10,803 | 1,590 | 36.8 | 100 / 110 |
| 113 | 11,263 | 1,590 | 37.7 | 100 / 200 |
| 117 | 11,718 | 1,590 | 38.4 | 200 / 50 |
| 121 | 12,117 | 1,590 | 39.5 | 200 / 20 |
| 125 | 12,536 | 1,590 | 41.1 | 100 / 50 |
| 129 | 12,899 | 772 | 42.1 | 100 / 50 |
| **Shaken Creek** | | | | |
| 002 | 160 | 7,070 | 18.2[1] | 70 / 70 |
| 002 | 239 | 7,070 | 18.2[1] | 45 / 45 |
| 003 | 279 | 7,070 | 18.2[1] | 45 / 45 |
| 008 | 794 | 7,070 | 18.2[1] | 45 / 50 |
| 015 | 1,548 | 7,070 | 18.2[1] | 49 / 107 |
| 025 | 2,463 | 7,070 | 18.2[1] | 174 / 50 |
| 030 | 3,033 | 7,070 | 18.2[1] | 53 / 136 |
| 040 | 4,047 | 7,070 | 18.2[1] | 449 / 70 |
| 047 | 4,701 | 7,070 | 18.2[1] | 271 / 141 |
| 057 | 5,712 | 7,070 | 18.2[1] | 91 / 603 |
| 067 | 6,671 | 7,070 | 18.2[1] | 348 / 441 |
| 072 | 7,232 | 7,070 | 18.2[1] | 47 / 650 |
| 081 | 8,082 | 7,070 | 18.2[1] | 98 / 610 |
| 088 | 8,784 | 7,070 | 18.2[1] | 441 / 342 |
| 092 | 9,169 | 7,070 | 18.2[1] | 348 / 100 |
| 098 | 9,823 | 7,070 | 18.2[1] | 95 / 100 |
| 103 | 10,251 | 7,070 | 18.2[1] | 109 / 50 |
| 110 | 10,991 | 7,070 | 18.2[1] | 80 / 191 |
| 120 | 11,999 | 7,070 | 18.2[1] | 87 / 50 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 124 | 12,422 | 7,070 | 18.2[1] | 70 / 50 |
| 135 | 13,507 | 7,010 | 18.2[1] | 138 / 80 |
| 144 | 14,367 | 7,010 | 18.4 | 309 / 239 |
| 149 | 14,879 | 7,010 | 18.5 | 716 / 50 |
| 159 | 15,913 | 7,010 | 18.8 | 243 / 217 |
| 170 | 17,006 | 7,010 | 19.1 | 144 / 746 |
| 177 | 17,715 | 7,010 | 19.2 | 125 / 789 |
| 188 | 18,812 | 7,010 | 19.5 | 581 / 50 |
| 192 | 19,241 | 7,010 | 19.6 | 444 / 246 |
| 198 | 19,766 | 7,010 | 19.7 | 500 / 106 |
| 205 | 20,496 | 7,010 | 19.8 | 500 / 189 |
| 214 | 21,406 | 7,010 | 19.9 | 290 / 355 |
| 221 | 22,062 | 6,890 | 20.0 | 174 / 437 |
| 228 | 22,817 | 6,890 | 20.2 | 333 / 509 |
| 234 | 23,360 | 6,890 | 20.2 | 306 / 392 |
| 239 | 23,894 | 6,890 | 20.3 | 300 / 456 |
| 243 | 24,335 | 6,890 | 20.4 | 682 / 230 |
| 249 | 24,857 | 6,890 | 20.5 | 758 / 115 |
| 254 | 25,448 | 6,890 | 20.6 | 847 / 100 |
| 262 | 26,226 | 6,890 | 20.7 | 559 / 240 |
| 269 | 26,945 | 6,890 | 20.8 | 562 / 394 |
| 275 | 27,482 | 6,890 | 20.9 | 635 / 436 |
| 280 | 28,028 | 6,890 | 21.0 | 537 / 454 |
| 285 | 28,458 | 6,890 | 21.1 | 626 / 290 |
| 288 | 28,826 | 6,890 | 21.2 | 186 / 645 |
| 289 | 28,876 | 6,890 | 21.2 | 186 / 645 |
| 294 | 29,448 | 6,890 | 21.3 | 275 / 682 |
| 301 | 30,141 | 6,890 | 21.5 | 164 / 639 |
| 307 | 30,663 | 6,620 | 21.6 | 250 / 684 |
| 312 | 31,186 | 6,620 | 21.7 | 495 / 364 |
| 317 | 31,717 | 6,620 | 21.9 | 382 / 399 |
| 323 | 32,329 | 6,620 | 22.0 | 740 / 90 |
| 330 | 33,035 | 6,620 | 22.2 | 879 / 131 |
| 341 | 34,053 | 6,620 | 22.5 | 1,023 / 100 |
| 347 | 34,664 | 6,620 | 22.7 | 707 / 465 |
| 353 | 35,332 | 6,620 | 22.9 | 930 / 120 |
| 366 | 36,595 | 6,620 | 23.2 | 724 / 1,126 |
| 378 | 37,806 | 6,620 | 23.5 | 100 / 1,199 |
| 384 | 38,450 | 6,620 | 23.7 | 200 / 1,212 |
| 396 | 39,605 | 6,620 | 24.2 | 400 / 658 |
| 404 | 40,449 | 6,620 | 24.6 | 400 / 951 |
| 423 | 42,279 | 6,620 | 24.9 | 440 / 2,397 |
| 439 | 43,933 | 6,620 | 25.2 | 100 / 1,566 |
| 452 | 45,205 | 6,620 | 25.5 | 1,045 / 342 |
| 458 | 45,753 | 6,620 | 25.6 | 1,400 / 37 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 458 | 45,803 | 6,620 | 25.6 | 1,400 / 37 |
| 467 | 46,664 | 6,620 | 25.9 | 1,093 / 184 |
| 482 | 48,194 | 6,620 | 26.3 | 506 / 597 |
| 497 | 49,661 | 6,620 | 26.8 | 458 / 786 |
| 507 | 50,650 | 6,620 | 27.1 | 1,413 / 120 |
| 516 | 51,565 | 6,240 | 27.4 | 769 / 553 |
| 524 | 52,409 | 6,240 | 27.6 | 300 / 986 |
| 532 | 53,234 | 6,240 | 27.8 | 300 / 929 |
| 538 | 53,836 | 6,240 | 27.9 | 312 / 737 |
| 545 | 54,469 | 5,990 | 28.1 | 211 / 551 |
| 552 | 55,213 | 5,990 | 28.5 | 243 / 122 |
| 561 | 56,067 | 5,990 | 29.0 | 651 / 384 |
| 571 | 57,146 | 5,990 | 29.2 | 400 / 1,686 |
| 581 | 58,126 | 5,990 | 29.3 | 500 / 1,485 |
| 589 | 58,943 | 5,990 | 29.4 | 533 / 1,638 |
| 600 | 59,977 | 5,990 | 29.5 | 833 / 1,009 |
| 609 | 60,867 | 5,990 | 29.6 | 1,247 / 367 |
| 612 | 61,232 | 5,990 | 29.6 | 1,631 / 161 |
| 624 | 62,424 | 5,990 | 29.8 | 944 / 162 |
| 631 | 63,123 | 5,990 | 29.9 | 757 / 446 |
| 637 | 63,734 | 5,990 | 30.0 | 176 / 717 |
| 646 | 64,557 | 5,990 | 30.2 | 288 / 802 |
| 656 | 65,582 | 5,990 | 30.5 | 799 / 283 |
| 662 | 66,246 | 5,990 | 30.7 | 549 / 669 |
| 669 | 66,925 | 5,990 | 30.9 | 550 / 1,051 |
| 675 | 67,459 | 5,990 | 31.0 | 300 / 2,099 |
| 684 | 68,413 | 5,990 | 31.2 | 300 / 2,480 |
| 697 | 69,681 | 5,410 | 31.4 | 224 / 1,518 |
| 704 | 70,356 | 5,410 | 31.5 | 381 / 1,015 |
| 711 | 71,145 | 5,410 | 31.6 | 300 / 1,188 |
| 718 | 71,823 | 5,410 | 31.7 | 147 / 1,206 |
| 723 | 72,340 | 5,410 | 31.8 | 441 / 751 |
| 731 | 73,113 | 5,410 | 32.0 | 152 / 1,321 |
| 736 | 73,571 | 5,410 | 32.2 | 404 / 262 |
| 741 | 74,114 | 5,410 | 32.6 | 442 / 546 |
| 748 | 74,848 | 5,410 | 32.9 | 241 / 617 |
| 757 | 75,650 | 5,410 | 33.3 | 171 / 766 |
| 766 | 76,587 | 5,410 | 33.6 | 740 / 705 |
| 779 | 77,919 | 712 | 33.9 | 685 / 161 |
| 789 | 78,858 | 712 | 33.9 | 518 / 26 |
| **Shelter Swamp Creek** | | | | |
| 005 | 475 | 5,680 | 24.8[1] | 389 / 275 |
| 015 | 1,530 | 5,680 | 24.8[1] | 441 / 274 |
| 023 | 2,332 | 5,680 | 24.8[1] | 743 / 682 |
| 034 | 3,387 | 5,680 | 24.8[1] | 820 / 220 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 043 | 4,278 | 5,680 | 24.8[1] | 529 / 420 |
| 045 | 4,496 | 5,680 | 24.8[1] | 155 / 555 |
| 053 | 5,255 | 5,630 | 24.8 | 259 / 39 |
| 064 | 6,360 | 5,630 | 25.2 | 45 / 391 |
| 076 | 7,591 | 5,630 | 25.6 | 286 / 39 |
| 082 | 8,170 | 5,630 | 25.9 | 61 / 441 |
| 090 | 8,966 | 5,630 | 26.1 | 463 / 386 |
| 099 | 9,885 | 5,630 | 26.3 | 741 / 91 |
| 109 | 10,892 | 5,630 | 26.5 | 506 / 168 |
| 120 | 11,951 | 5,630 | 26.9 | 308 / 476 |
| 120 | 12,001 | 5,630 | 26.9 | 308 / 476 |
| 124 | 12,383 | 5,630 | 27.2 | 410 / 436 |
| 130 | 12,952 | 5,570 | 27.4 | 299 / 533 |
| 134 | 13,390 | 5,570 | 27.5 | 458 / 106 |
| 139 | 13,949 | 5,570 | 27.8 | 845 / 70 |
| 144 | 14,369 | 5,570 | 27.9 | 420 / 97 |
| 150 | 15,001 | 5,570 | 28.4 | 146 / 682 |
| 156 | 15,621 | 5,570 | 28.6 | 248 / 163 |
| 162 | 16,181 | 5,480 | 29.1 | 309 / 758 |
| 170 | 16,982 | 5,480 | 29.4 | 309 / 629 |
| 177 | 17,676 | 5,480 | 29.7 | 750 / 480 |
| 184 | 18,355 | 5,450 | 29.9 | 810 / 448 |
| 192 | 19,185 | 5,450 | 30.1 | 623 / 459 |
| 201 | 20,065 | 5,450 | 30.5 | 154 / 781 |
| 210 | 21,045 | 5,450 | 30.9 | 641 / 274 |
| 219 | 21,867 | 5,450 | 31.3 | 657 / 830 |
| 229 | 22,878 | 5,350 | 31.7 | 572 / 803 |
| 243 | 24,349 | 5,350 | 32.3 | 588 / 530 |
| 255 | 25,462 | 5,350 | 32.8 | 483 / 880 |
| 260 | 26,037 | 5,350 | 33.1 | 304 / 460 |
| 270 | 27,003 | 5,350 | 33.8 | 179 / 815 |
| **Sills Creek** | | | | |
| 008 | 790 | 3,410 | 29.3[1] | 278 / 26 |
| 010 | 1,024 | 3,410 | 29.3[1] | 26 / 26 |
| 015 | 1,507 | 3,410 | 29.3[1] | 26 / 46 |
| 020 | 2,006 | 3,410 | 29.3[1] | 121 / 26 |
| 025 | 2,489 | 3,410 | 29.3[1] | 112 / 26 |
| 028 | 2,812 | 3,410 | 29.3[1] | 26 / 78 |
| 033 | 3,284 | 3,410 | 29.3[1] | 26 / 68 |
| 039 | 3,932 | 3,410 | 29.3[1] | 139 / 26 |
| 045 | 4,506 | 3,410 | 29.3[1] | 26 / 96 |
| 050 | 5,012 | 3,410 | 29.5 | 101 / 64 |
| 055 | 5,469 | 3,410 | 30.1 | 46 / 94 |
| 060 | 6,010 | 3,410 | 30.9 | 26 / 98 |
| 065 | 6,471 | 3,410 | 31.6 | 90 / 60 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 068 | 6,849 | 3,410 | 31.8 | 100 / 300 |
| 074 | 7,398 | 3,410 | 32.1 | 100 / 150 |
| **Sills Creek Tributary 2** | | | | |
| 038 | 3,818 | 671 | 61.2 | 79 / 10 |
| 042 | 4,189 | 671 | 62.4 | 44 / 30 |
| **Trumpeter Swamp** | | | | |
| 003 | 341 | 2,650 | 15.7[1] | 198 / 587 |
| 004 | 425 | 2,650 | 15.6 | 160 / 200 |
| 005 | 478 | 2,650 | 15.5 | 160 / 200 |
| 010 | 981 | 2,650 | 16.2 | 1,008 / 360 |
| 015 | 1,461 | 2,650 | 16.6 | 634 / 266 |
| 019 | 1,877 | 2,650 | 17.1 | 1,057 / 60 |
| 025 | 2,538 | 2,650 | 17.6 | 1,131 / 228 |
| 030 | 3,011 | 2,650 | 17.7 | 712 / 724 |
| 035 | 3,490 | 2,650 | 17.8 | 395 / 126 |
| 041 | 4,072 | 2,650 | 18.3 | 208 / 618 |
| 046 | 4,615 | 2,650 | 18.6 | 251 / 587 |
| 051 | 5,073 | 2,650 | 18.9 | 134 / 466 |
| 057 | 5,740 | 2,650 | 19.5 | 269 / 193 |
| 065 | 6,534 | 2,560 | 20.3 | 124 / 403 |
| 073 | 7,277 | 2,560 | 20.7 | 297 / 225 |
| 078 | 7,789 | 2,560 | 20.9 | 443 / 138 |
| 085 | 8,523 | 2,560 | 21.3 | 206 / 342 |
| 092 | 9,152 | 2,560 | 21.5 | 328 / 501 |
| 100 | 10,009 | 2,560 | 21.8 | 263 / 474 |
| 108 | 10,762 | 2,390 | 22.0 | 315 / 336 |
| 119 | 11,922 | 2,390 | 22.4 | 403 / 252 |
| 124 | 12,382 | 2,390 | 22.6 | 366 / 307 |
| 134 | 13,443 | 2,390 | 23.1 | 157 / 395 |
| 147 | 14,669 | 2,390 | 23.7 | 22 / 956 |
| 154 | 15,385 | 2,390 | 24.0 | 259 / 698 |
| 163 | 16,321 | 2,390 | 24.5 | 144 / 406 |
| 170 | 17,023 | 2,390 | 24.9 | 129 / 530 |
| 176 | 17,639 | 2,390 | 25.2 | 164 / 451 |
| 182 | 18,182 | 2,390 | 25.4 | 370 / 400 |
| 190 | 19,037 | 2,390 | 25.9 | 213 / 441 |
| 198 | 19,767 | 2,390 | 26.3 | 258 / 284 |
| 207 | 20,699 | 2,140 | 26.9 | 657 / 19 |
| 216 | 21,609 | 2,140 | 27.8 | 188 / 125 |
| 227 | 22,662 | 2,140 | 29.1 | 233 / 237 |
| 236 | 23,642 | 2,140 | 29.9 | 47 / 546 |
| 246 | 24,642 | 2,140 | 30.6 | 132 / 280 |
| 253 | 25,271 | 2,140 | 31.1 | 188 / 316 |
| 258 | 25,782 | 2,140 | 31.5 | 192 / 271 |
| 266 | 26,617 | 2,140 | 32.0 | 85 / 491 |

## Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 272 | 27,247 | 2,140 | 32.4 | 82 / 509 |
| 280 | 27,954 | 2,140 | 32.8 | 121 / 121 |
| 280 | 28,014 | 1,610 | 34.6 | 121 / 121 |
| 288 | 28,771 | 1,610 | 34.8 | 575 / 189 |
| 293 | 29,291 | 1,610 | 34.8 | 1,207 / 305 |
| 297 | 29,729 | 1,610 | 34.9 | 1,109 / 591 |
| 304 | 30,365 | 1,610 | 34.9 | 253 / 646 |
| 311 | 31,090 | 1,610 | 35.2 | 341 / 600 |
| 318 | 31,798 | 1,610 | 35.6 | 406 / 865 |
| 324 | 32,448 | 678 | 36.0 | 491 / 12 |
| 334 | 33,400 | 678 | 38.0 | 69 / 183 |
| 342 | 34,202 | 678 | 40.1 | 294 / 142 |
| 348 | 34,836 | 678 | 41.9 | 123 / 128 |
| **Tuckahoe Branch** | | | | |
| 100 | 10,000 | 1,215 | 56.9 | 130 / 140 |
| 106 | 10,564 | 1,215 | 58.0 | 185 / 46 |
| 112 | 11,235 | 1,215 | 59.1 | 10 / 304 |
| 118 | 11,806 | 1,068 | 59.8 | 126 / 172 |
| **Turkey Creek Tributary** | | | | |
| 002 | 173 | 876 | 11.5[4] | 148 / 20 |
| 007 | 726 | 876 | 11.9 | 20 / 218 |
| 014 | 1,391 | 876 | 12.9 | 37 / 118 |
| 022 | 2,199 | 876 | 15.5 | 97 / 104 |
| 027 | 2,694 | 876 | 16.7 | 20 / 204 |
| 034 | 3,351 | 876 | 18.1 | 173 / 25 |
| 041 | 4,143 | 876 | 20.7 | 52 / 31 |
| 045 | 4,464 | 876 | 22.6 | 37 / 36 |
| 045 | 4,516 | 876 | 24.0 | 37 / 36 |
| 049 | 4,924 | 670 | 26.3 | 20 / 20 |
| 054 | 5,356 | 670 | 28.2 | 20 / 144 |
| **Washington Creek** | | | | |
| 005 | 502 | 1,390 | 24.9[1] | 1,176 / 49 |
| 009 | 937 | 1,390 | 24.9[1] | 731 / 20 |
| 016 | 1,570 | 1,390 | 24.9[1] | 336 / 209 |
| 023 | 2,251 | 1,390 | 24.9[1] | 209 / 21 |
| 029 | 2,917 | 1,390 | 24.9[1] | 102 / 154 |
| 034 | 3,429 | 1,390 | 24.9[1] | 35 / 17 |
| 036 | 3,559 | 1,390 | 24.9[1] | 35 / 17 |
| 039 | 3,928 | 1,390 | 24.9[1] | 114 / 20 |
| 045 | 4,466 | 1,390 | 24.9[1] | 56 / 91 |
| 054 | 5,446 | 1,390 | 24.9[1] | 21 / 77 |
| 057 | 5,739 | 1,390 | 24.9[1] | 36 / 22 |
| 061 | 6,111 | 1,390 | 22.0 | 35 / 35 |
| 064 | 6,381 | 1,390 | 25.6 | 35 / 35 |
| 066 | 6,643 | 1,390 | 25.6 | 172 / 21 |
| 071 | 7,133 | 1,390 | 26.0 | 99 / 48 |

# Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 076 | 7,649 | 1,390 | 26.9 | 126 / 22 |
| **Washington Creek Tributary** | | | | |
| 001 | 59 | 1,160 | 26.9[1] | 21 / 47 |
| 005 | 462 | 1,160 | 28.9 | 24 / 88 |
| 010 | 969 | 1,160 | 30.8 | 41 / 35 |
| 016 | 1,566 | 1,160 | 34.1 | 12 / 51 |
| 021 | 2,141 | 1,160 | 36.5 | 12 / 71 |
| 027 | 2,716 | 1,160 | 38.4 | 12 / 88 |
| 033 | 3,316 | 1,160 | 40.3 | 24 / 76 |
| 040 | 3,969 | 1,160 | 43.6 | 18 / 37 |
| **White Oak Branch** | | | | |
| 031 | 3,123 | 2,091 | 40.0 | 319 / 200 |
| 036 | 3,557 | 2,091 | 40.3 | 173 / 278 |
| 038 | 3,792 | 2,091 | 40.4 | 150 / 186 |
| 038 | 3,839 | 2,091 | 41.1 | 150 / 186 |
| 042 | 4,172 | 2,091 | 41.3 | 290 / 209 |
| 047 | 4,652 | 2,091 | 41.5 | 330 / 214 |
| 054 | 5,400 | 2,091 | 41.8 | 197 / 169 |
| 059 | 5,920 | 2,091 | 42.1 | 271 / 187 |
| 065 | 6,504 | 2,091 | 42.5 | 281 / 115 |
| 071 | 7,065 | 2,091 | 42.9 | 213 / 287 |
| 076 | 7,580 | 2,091 | 43.2 | 250 / 356 |
| 082 | 8,248 | 2,091 | 43.6 | 120 / 328 |
| 089 | 8,903 | 2,091 | 44.1 | 294 / 67 |
| 096 | 9,600 | 2,091 | 44.6 | 302 / 159 |
| 103 | 10,327 | 2,091 | 44.9 | 450 / 58 |
| 106 | 10,622 | 2,091 | 45.0 | 433 / 54 |
| 111 | 11,115 | 2,091 | 45.3 | 361 / 268 |
| 119 | 11,861 | 2,091 | 45.9 | 189 / 90 |
| 128 | 12,764 | 2,091 | 47.1 | 124 / 225 |
| 134 | 13,381 | 2,091 | 47.7 | 379 / 91 |
| 141 | 14,133 | 2,091 | 48.0 | 51 / 513 |
| 148 | 14,808 | 2,091 | 48.4 | 307 / 116 |
| 153 | 15,287 | 2,091 | 48.7 | 475 / 115 |
| 157 | 15,719 | 2,091 | 48.9 | 438 / 47 |
| 162 | 16,163 | 2,091 | 49.2 | 429 / 84 |
| 167 | 16,694 | 2,091 | 49.4 | 274 / 168 |
| 171 | 17,101 | 2,091 | 49.8 | 294 / 51 |
| 177 | 17,675 | 1,837 | 50.3 | 428 / 26 |
| 180 | 18,038 | 1,837 | 50.5 | 333 / 71 |
| 184 | 18,426 | 1,837 | 50.8 | 505 / 40 |
| 189 | 18,915 | 1,837 | 51.0 | 309 / 80 |
| 196 | 19,559 | 1,458 | 53.2 | 264 / 43 |
| 198 | 19,771 | 1,837 | 51.6 | 199 / 165 |
| 201 | 20,119 | 1,458 | 53.8 | 75 / 194 |

## Table 17 - Limited Detailed Flood Hazard Data

| Cross Section | Stream Station | Flood Discharge (cfs) | 1% Annual Chance Water-Surface Elevation (feet NAVD 88) | Non-Encroachment Width (feet) Left/Right from Stream Centerline |
|---|---|---|---|---|
| 204 | 20,388 | 1,837 | 51.9 | 296 / 173 |
| 205 | 20,518 | 1,458 | 54.3 | 84 / 172 |
| 210 | 20,950 | 1,837 | 52.2 | 179 / 156 |
| 211 | 21,079 | 1,458 | 55.0 | 103 / 106 |
| 215 | 21,492 | 1,458 | 56.0 | 12 / 209 |
| 216 | 21,582 | 1,458 | 52.6 | 68 / 444 |

[1]Elevation includes backwater effects

[2]Northeast Cape Fear River

[3]Black River

[4]Turkey Creek

# 5.3 Coastal Analyses

For the areas of Pender County that are impacted by coastal flooding processes, coastal flood hazard analyses were performed to provide estimates of coastal BFEs. Coastal BFEs reflect the increase in water levels during a flood event due to extreme tides and storm surge as well as overland wave effects.

The following subsections provide summaries of how each coastal process was considered for the FIS Report. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation. Table 15 summarizes the methods and/or models used for each of the coastal analyses. Refer to Section 2.5.1 for descriptions of the terms used in this section.

Table 18P, “Summary of Coastal Analyses - Preliminary: Revised or Newly Studied”

## Table 18P - Summary of Coastal Analyses - Preliminary: Revised or Newly Studied

| Flooding Source | Study Limits From | Study Limits To | Hazard Evaluated | Model or Method Used | Date Analysis Was Completed | Study Type |
|---|---|---|---|---|---|---|
| Atlantic Ocean | From Coastline on Atlantic Ocean | Just downstream of U.S. Highway 17 | * | ADCIRC | 1/22/2013 | DETAILED STUDY |
| Atlantic Ocean | From Coastline on Atlantic Ocean | Just downstream of U.S. Highway 17 | * | CHAMP / RUNUP 2.0 (2007) | 11/13/2013 | DETAILED STUDY |
| Atlantic Ocean | From Coastline on Atlantic Ocean | Just downstream of U.S. Highway 17 | * | CHAMP 2.0 | 11/13/2013 | DETAILED STUDY |
| Atlantic Ocean | From Coastline on Atlantic Ocean | Just downstream of U.S. Highway 17 | * | Removal / Retreat | 11/13/2013 | DETAILED STUDY |
| Atlantic Ocean | From Coastline on Atlantic Ocean | Just downstream of U.S. Highway 17 | * | WHAFIS 4.0 | 11/13/2013 | DETAILED STUDY |
| Atlantic Ocean | New Hanover/ Pender County boundary | Pender/Brunswick County boundary | * | ADCIRC | 1/22/2013 | DETAILED STUDY |
| Atlantic Ocean | New Hanover/ Pender County boundary | Pender/Brunswick County boundary | * | CHAMP / RUNUP 2.0 (2007) | 12/3/2013 | DETAILED STUDY |
| Atlantic Ocean | New Hanover/ Pender County boundary | Pender/Brunswick County boundary | * | Removal | 12/3/2013 | DETAILED STUDY |
| Atlantic Ocean | New Hanover/ Pender County boundary | Pender/Brunswick County boundary | * | WHAFIS 4.0 | 12/3/2013 | DETAILED STUDY |

Table 18, “Summary of Coastal Analyses”

## Table 18 - Summary of Coastal Analyses

| Flooding Source | Study Limits From | Study Limits To | Hazard Evaluated | Model or Method Used | Date Analysis Was Completed |
|---|---|---|---|---|---|
| Atlantic Ocean | From Coastline on Atlantic Ocean | Just downstream of U.S. Highway 17 | * | ADCIRC | 1/22/2013 |
| Atlantic Ocean | From Coastline on Atlantic Ocean | Just downstream of U.S. Highway 17 | * | CHAMP / RUNUP 2.0 (2007) | 11/13/2013 |
| Atlantic Ocean | From Coastline on Atlantic Ocean | Just downstream of U.S. Highway 17 | * | CHAMP 2.0 | 11/13/2013 |

## Table 18 - Summary of Coastal Analyses

| | | | | | |
|---|---|---|---|---|---|
| Atlantic Ocean | From Coastline on Atlantic Ocean | Just downstream of U.S. Highway 17 | * | Removal / Retreat | 11/13/2013 |
| Atlantic Ocean | From Coastline on Atlantic Ocean | Just downstream of U.S. Highway 17 | * | WHAFIS 4.0 | 11/13/2013 |
| Atlantic Ocean | New Hanover/ Pender County boundary | Pender/Brunswick County boundary | * | ADCIRC | 1/22/2013 |
| Atlantic Ocean | New Hanover/ Pender County boundary | Pender/Brunswick County boundary | * | CHAMP / RUNUP 2.0 (2007) | 12/3/2013 |
| Atlantic Ocean | New Hanover/ Pender County boundary | Pender/Brunswick County boundary | * | Removal | 12/3/2013 |
| Atlantic Ocean | New Hanover/ Pender County boundary | Pender/Brunswick County boundary | * | WHAFIS 4.0 | 12/3/2013 |

### 5.3.1 Total Stillwater Elevations

The total stillwater elevations (stillwater including storm surge plus wave setup) for the 1% annual chance flood were determined for areas subject to coastal flooding. The models and methods that were used to determine storm surge and wave setup are listed in Table 15. The stillwater elevation that was used for each transect in coastal analyses is shown in Table 20, “Coastal Transect Parameters.”

**Astronomical Tide**
Astronomical tidal statistics were generated directly from local tidal constituents by sampling the predicted tide at random times throughout the tidal epoch.

**Storm Surge Statistics**
Storm surge is modeled based on characteristics of actual storms responsible for significant coastal flooding. The characteristics of these storms are typically determined by statistical study of the regional historical record of storms or by statistical study of tidal gages.

When historic records are used to calculate storm surge, characteristics such as the strength, size, track, etc., of storms are identified by site. Storm data was used in conjunction with numerical hydrodynamic models to determine the corresponding storm surge levels. An extreme value analysis was performed on the storm surge modeling results to determine a stillwater elevation for the 1% annual chance event.

Tidal gages can be used instead of historic records of storms when the available tidal gage record for the area represents both the astronomical tide component and the storm surge component. Table 16 provides the gage name, managing agency, gage type, gage identifier, start date, end date, and statistical methodology applied to each gage used to determine the stillwater elevations. For areas between gages, peak stillwater elevations for selected recurrence intervals were estimated by combining interpolation between gages and observed high water marks during major storms. A regionalized statistical approach was applied to the gage data so that stillwater elevations in areas between gages could be identified.

Table 19, “Tide Gage Analysis Specifics” is not applicable in Pender County.

**Combined Riverine and Tidal Effects**
Riverine and surge rates for the lower reaches of the Inundation River were combined by developing curves for rate of occurrence vs. flood level for each flood source.

**Wave Setup Analysis**
Wave setup was computed during the storm surge modeling through the methods and models listed in Table 15 and included in the frequency analysis for the determination of the total stillwater elevations. The oscillating component of wave setup, dynamic wave setup, was calculated for areas subject to wave runup hazards.

### 5.3.2 Waves

A coastal wave model (Coastal State University 2007) was used to calculate the nearshore wave fields required for the addition of wave setup effects. Three nested grids were used to obtain sufficient nearshore resolution to represent the radiation stress gradients required as ADCIRC inputs. Radiation stress fields output from the inner grids are used by ADCIRC to estimate the contribution of breaking

waves (wave setup effects) to the total stillwater elevation.

### 5.3.3 Coastal Erosion

A single storm episode can cause extensive erosion in coastal areas. Storm-induced erosion was evaluated to determine the modification to existing topography that is expected to be associated with flooding events. Erosion was evaluated using the methods listed in Table 15. The post-event eroded profile was used for the subsequent transect-based onshore wave hazard analyses.

### 5.3.4 Wave Hazard Analyses

Overland wave hazards were evaluated to determine the combined effects of ground elevation, vegetation, and physical features on overland wave propagation and wave runup. These analyses were performed at representative transects along all shorelines for which waves were expected to be present during the floods of the selected recurrence intervals. The results of these analyses were used to determine elevations for the 1% annual chance flood.

Transect locations were chosen with consideration given to the physical land characteristics as well as development type and density so that they would closely represent conditions in their locality. Additional consideration was given to changes in the total stillwater elevation. Transects were spaced close together in areas of complex topography and dense development or where total stillwater elevations varied. In areas having more uniform characteristics, transects were spaced at larger intervals. Transects shown in Figure 9, “Transect Location Map,” are also depicted on the FIRM. Table 17 provides the location, stillwater elevations, and starting wave conditions for each transect evaluated for overland wave hazards. In this table, “starting” indicates the parameter value at the beginning of the transect.

**Wave Height Analysis**

Wave height analyses were performed to determine wave heights and corresponding wave crest elevations for the areas inundated by coastal flooding and subject to overland wave propagation hazards. Refer to Figure 6 for a schematic of a coastal transect evaluated for overland wave propagation hazards.

Wave heights and wave crest elevations were modeled using the methods and models listed in Table 18, “Summary of Coastal Analyses”.

**Wave Runup Analysis**

Wave runup analyses were performed to determine the height and extent of runup beyond the limit of stillwater inundation for the 1% annual chance flood. Wave runup elevations were modeled using the methods and models listed in Table 15.

Table 20, “Coastal Transect Parameters”

## Table 20: Coastal Transect Parameters

| Coastal Transect | Starting Wave Conditions for the 1% Annual Chance | | Starting Stillwater Elevations (ft NAVD88) Range of Stillwater Elevations (ft NAVD88) | | | | |
|---|---|---|---|---|---|---|---|
| | Significant Wave Height Hs (ft) | Peak Wave Period Tp (sec) | 10% Annual Chance | 4% Annual Chance | 2% Annual Chance | 1% Annual Chance | .2% Annual Chance |
| **Atlantic Ocean** | | **From the New Hanover/ Brunswick County boundary** | | | **To The Pender/ New Hanover County boundary** | | |
| 76 | 19.7 | 12.6 | * | * | * | 10.8 | 14.5 |
| | | | * | * | * | 10.8 - 12.8 | 11.2 - 16.9 |
| 78 | 19.7 | 12.6 | * | * | * | 11.1 | 14.8 |
| | | | * | * | * | 11.1 - 12.1 | 14.8 - 16.1 |
| **Topsail Sound** | | **From New Hanover/ Pender County boundary** | | | **To Pender/Brunswick County boundary** | | |
| 1 | 19.7 | 12.6 | * | * | * | 10.9 | 14.6 |
| | | | * | * | * | 10.9 - 12.8 | 14.6 - 16.9 |
| 3 | 18.2 | 12.0 | * | * | * | 10.7 | 14.6 |
| | | | * | * | * | 10.3 - 12.2 | 14.5 - 16.2 |
| 5 | 18.2 | 12.0 | * | * | * | 11.0 | 14.8 |
| | | | * | * | * | 11.0 - 12.4 | 14.8 - 16.5 |
| 7 | 16.9 | 11.0 | * | * | * | 11.4 | 15.2 |
| | | | * | * | * | 11.3 - 12.2 | 15.1 - 16.2 |
| 9 | 16.9 | 11.0 | * | * | * | 11.4 | 15.1 |
| | | | * | * | * | 11.3 - 12.4 | 15.1 - 16.4 |

**Table 20: Coastal Transect Parameters**

| Coastal Transect | Starting Wave Conditions for the 1% Annual Chance | | Starting Stillwater Elevations (ft NAVD88) Range of Stillwater Elevations (ft NAVD88) | | | | |
|---|---|---|---|---|---|---|---|
| | Significant Wave Height Hs (ft) | Peak Wave Period Tp (sec) | 10% Annual Chance | 4% Annual Chance | 2% Annual Chance | 1% Annual Chance | .2% Annual Chance |
| 11 | 16.9 | 11.0 | * | * | * | 11.1 | 14.9 |
| | | | * | * | * | 11.0 - 12.2 | 14.8 - 16.9 |
| 13 | 16.9 | 11.0 | * | * | * | 11.0 | 14.6 |
| | | | * | * | * | 10.9 - 12.0 | 14.6 - 16.2 |
| 15 | 16.9 | 11.0 | * | * | * | 10.8 | 14.6 |
| | | | * | * | * | 10.8 - 11.6 | 14.6 - 15.8 |
| 17 | 16.9 | 11.0 | * | * | * | 10.9 | 14.6 |
| | | | * | * | * | 10.8 - 11.4 | 14.6 - 15.6 |
| 19 | 18.3 | 12.6 | * | * | * | 10.8 | 14.6 |
| | | | * | * | * | 10.7 - 11.4 | 14.6 - 15.6 |
| 21 | 18.3 | 12.6 | * | * | * | 10.6 | 14.6 |
| | | | * | * | * | 10.6 - 11.3 | 14.6 - 15.6 |
| 23 | 18.3 | 12.6 | * | * | * | 10.6 | 14.6 |
| | | | * | * | * | 10.4 - 11.3 | 14.5 - 15.7 |
| 25 | 18.3 | 12.6 | * | * | * | 10.5 | 14.6 |
| | | | * | * | * | 10.3 - 11.0 | 14.6 - 15.5 |
| 27 | 17.2 | 14.7 | * | * | * | 10.6 | 14.6 |
| | | | * | * | * | 10.3 - 11.0 | 14.6 - 15.4 |
| 29 | 17.2 | 14.7 | * | * | * | 10.7 | 14.6 |
| | | | * | * | * | 10.4 - 11.1 | 14.6 - 15.5 |
| 31 | 17.2 | 14.7 | * | * | * | 10.7 | 14.6 |
| | | | * | * | * | 10.4 - 11.0 | 14.6 - 15.4 |
| 33 | 17.2 | 14.7 | * | * | * | 10.6 | 14.6 |
| | | | * | * | * | 10.3 - 11.0 | 14.5 - 15.3 |
| 35 | 18.2 | 12.2 | * | * | * | 10.5 | 14.6 |
| | | | * | * | * | 10.4 - 11.2 | 14.5 - 15.4 |
| 37 | 18.2 | 12.2 | * | * | * | 10.6 | 14.6 |
| | | | * | * | * | 10.4 - 11.3 | 14.5 - 15.6 |
| 39 | 18.2 | 12.2 | * | * | * | 10.8 | 14.5 |
| | | | * | * | * | 10.4 - 11.8 | 14.4 - 16.2 |

# 6.0 Mapping Methods

## 6.1 Vertical and Horizontal Control

**Vertical Datum**

All FISs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. With the finalization of the North American Vertical Datum of 1988 (NAVD 88), all North Carolina FISs have been prepared using NAVD 88 as the referenced vertical datum.

All flood elevations shown on the FIRM for Pender County are referenced to NAVD 88. Structure and ground elevations in the county must, therefore, be referenced to NAVD 88. It is important to note that FISs for adjacent communities in neighboring states may be referenced to NGVD 29. This may result in BFE differences across political boundaries between the communities.

As noted above, the elevations shown in this FIS are referenced to NAVD 88. Ground, structure, and flood elevations may be compared and/or referenced to NGVD 29 by applying a standard conversion factor. The conversion factor for Pender County is # feet. The locations used to establish the conversion factor were USGS quadrangle corners that fell within the county, as well as those that were within 2.5 miles outside the county. The benchmarks are referenced to NAVD 88. Table 21, “Datum Conversion Locations and Values,” is shown below.

Table 21, “Datum Conversion Locations and Values.”

## Table 21 - Datum Conversion Locations and Values

| Latitude | Longitude | Conversion from NGVD29 to NAVD88 (feet) |
|---|---|---|
| 34.38 | -78.12 | -0.98 |
| 34.63 | -78.13 | -0.83 |
| 34.63 | -78.00 | -0.85 |
| 34.63 | -77.88 | -0.96 |
| 34.63 | -77.75 | -0.99 |
| 34.50 | -78.13 | -0.88 |
| 34.50 | -78.00 | -0.85 |
| 34.50 | -77.87 | -0.92 |
| 34.50 | -77.75 | -0.98 |
| 34.50 | -77.63 | -1.00 |
| 34.37 | -78.00 | -0.94 |
| 34.37 | -77.88 | -0.95 |
| 34.38 | -77.75 | -0.97 |
| 34.37 | -77.62 | -1.00 |
| Average conversion in Pender County from NGVD 29 to NAVD 88 = -0.94 feet | | |

The vertical datum conversion factor for all flooding sources which run along a county boundary are in accordance with the conversion factor used in those contiguous counties.

BFEs shown on the FIRM represent whole-foot rounded values. For example, a 1% annual chance water-surface elevation of 102.4 feet will appear as 102 on the FIRM and 102.6 feet will appear as 103. Therefore, users who wish to convert the elevations in this FIS to NGVD 29 should apply the stated conversion factor(s) to elevations shown on the Flood Profiles and/or Water-surface elevation rasters and supporting data tables in the FIS Report, which are shown, at a minimum, to the nearest 0.1 foot.

For more information on NAVD 88, see Converting the National Flood Insurance Program to the North American Vertical Datum of 1988, or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20910 (http://www.ngs.noaa.gov).

**Vertical Control Monuments**

Qualifying bench marks within Pender County that are cataloged by the National Geodetic Survey (NGS) and entered into the National Spatial Reference System (NSRS) as First or Second Order Vertical, with a vertical stability classification of A, B, or C, are shown and labeled on the FIRM with their 6-character NSRS Permanent Identifier (PID).

The National Geodetic Survey establishes precisely located monuments on the North Carolina Grid System and Bench Marks referenced to a vertical datum (NGVD 1929 and NAVD 1988).

Bench marks cataloged by the NGS and entered into the NSRS vary widely in vertical stability classification. NSRS vertical stability classifications are as follows:

- Stability A: Monuments of the most reliable nature, expected to hold position/elevation well (e.g., mounted in bedrock)
- Stability B: Monuments which generally hold their position/elevation well (e.g., concrete bridge abutment)
- Stability C: Monuments which may be affected by surface ground movements (e.g., concrete monument below frost line)
- Stability D: Mark of questionable or unknown vertical stability (e.g., concrete monument above frost line, or steel witness post)

Monuments with a Stability D classification may be used as Elevation Reference Marks (ERMs) when a Stability C or better monument is not an option. These ERMs must be approved by NCGS and can be set and used as elevation bench marks to establish vertical control and produce NC DFIRMs. Including such ERMs will greatly augment North Carolina's useable vertical control network.

In addition, when local jurisdictions have established their own vertical monument network, these monuments may also be shown on

the FIRM with the appropriate designations. Local monuments will be placed on the FIRM if the community has requested that they be included and if the monuments meet the aforementioned criteria.

North Carolina Geodetic Survey (NCGS) and contractor surveyed vertical control monuments will be shown on the FIRM panels. Those cataloged by NCGS meet similar requirements to the NGS monuments as described above. Most monuments that have been cataloged by NCGS have been established to NGS standards, but have not been submitted to NGS for inclusion into the NSRS. The qualifying criteria for depicting bench marks established by the State's contractors on the new digital FIRM panels include:

- GPS surveying of permanent 3-D survey monuments to 5-centimeter or better local network accuracy guidelines, in accordance with NOAA Technical Memorandum NOS NGS-58 "Guidelines for Establishing GPS-Derived Ellipsoid Heights (Standards: 2 cm and 5 cm)," and conversion to NAVD 88 orthometric heights using NGS' latest geoid mode;
- Requiring a stability classification of "C" or better; and
- Submitting GPS files and station descriptions to NCGS.

To obtain current information for cataloging local bench marks in the NSRS, please visit the Data Sheet page of the NGS website at http://www.ngs.noaa.gov/cgi-bin/datasheet.prl, or contact the NGS Information Services Branch at:

**NGS Information Services**
**NOAA, N/NGS12**
**National Geodetic Survey**
**SSMC-3, #9202**
**1315 East-West Highway**
**Silver Spring, Maryland 20910-32822**
**(301) 713-3242**

Information regarding the NCGS or State contractor bench marks can be obtained through the NCGS website at www.ncgs.state.nc.us, or by phone at (919) 733-3836.

It is important to note that temporary vertical monuments, sometimes called Elevation Reference Marks, are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, interested individuals may contact FEMA to access this information.

**Horizontal Datum and Control**
The digital files that comprise the FIRM are georeferenced to an established coordinate system. The coordinate system used for the production of this FIRM is North Carolina State Plane (FIPSZONE 3200) referenced to the North American Datum of 1983 (NAD83), GRS80 ellipsoid.

# 6.2 Base Map

The FIRMs and FIS Report for this project have been produced in a digital format. The flood hazard information was converted to a Geographic Information System (GIS) format that meets FEMA's FIRM database specifications and geographic information standards. This information is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community. The FIRM Database includes most of the tabular information contained in the FIS Report in such a way that the data can be associated with pertinent spatial features.

The projection used in the preparation of this map was the North Carolina State Plane Coordinate System. The horizontal datum was NAD83, GRS80 spheroid. Differences in datum, spheroid, or projection used in the production of FIRMs for adjacent states may result in slight positional differences in map features across the state boundary. These differences do not affect the accuracy of this FIRM.

As part of the North Carolina CTS Initiative, North Carolina digital FIRM panel numbers are consistent with the North Carolina Land

Records Management Program (LRMP).

The 11-digit digital FIRM panel numbering system for North Carolina is: SS MM LLLL PP X, where SS = State Federal Information Processing Code (37); MM = Easting-Northing (EN) 1,000,000-foot coordinates; LLLL = LRMP map numbers to include the EN 100,000-foot coordinates, and the EN 10,000-foot coordinates; PP = place holders for additional EN 1,000-foot coordinates; and X = suffix (“J” for the initial edition). North Carolina’s State Plane Coordinate System origin is outside the State boundary to the southwest (in Georgia), the eastings range from approximately 0,404,000 (Tennessee border) to 3,040,000 (Atlantic Ocean); and the northings range from approximately 0,045,000 (South Carolina border) to 1,043,000 (Virginia border). Digital FIRM panels were compiled at either 1"=1,000', covering an area of 20,000 feet x 20,000 feet (20" x 20" panels); or at 1"=500', covering an area of 10,000 feet x 10,000 feet (20" x 20" panels). An additional 2 digits (both zeros) are held in reserve as a “place holder” in the event that future FIRMs are printed at a larger scale; e.g., 1"=250', covering an area of 5,000 feet x 5,000 feet for which the 1,000-foot coordinates would either be 0 or 5.

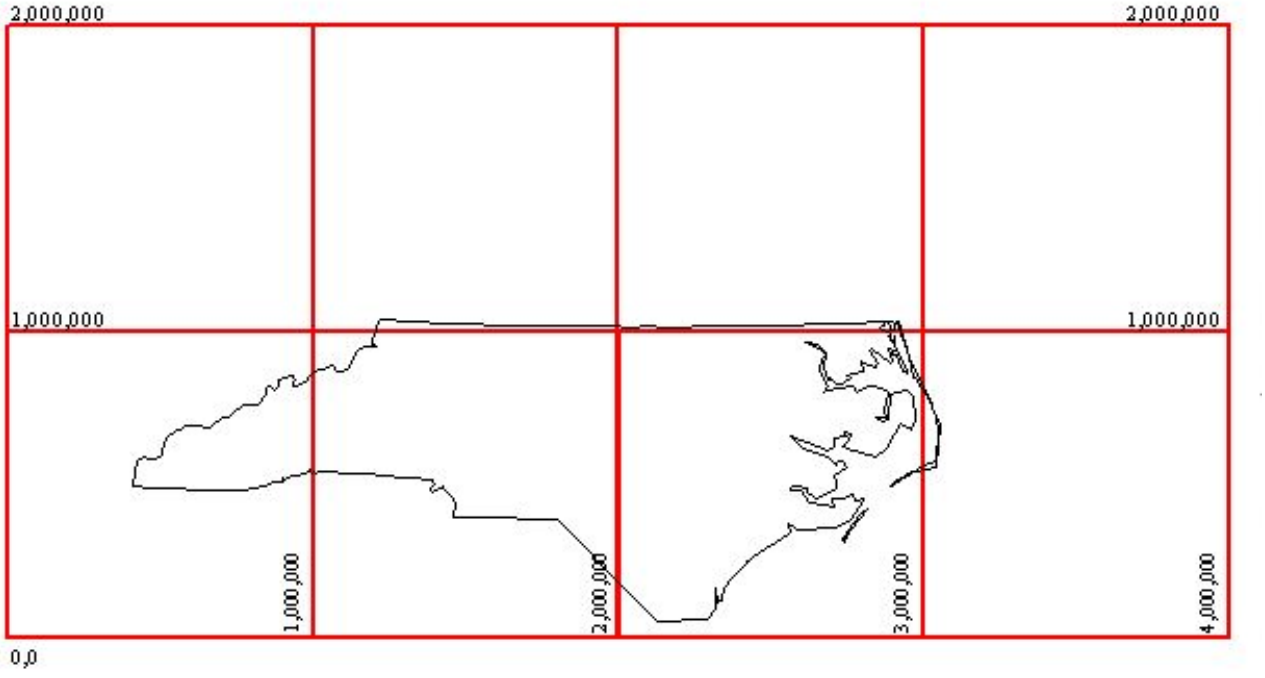



**Figure 3 - North Carolina’s State Plane Coordinate System**

# 6.3 Floodplain and Floodway Delineation

**Floodplain Boundaries**

For streams restudied by detailed and limited detailed methods, the 1% and 0.2% annual chance floodplains were delineated using flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic data acquired using airborne Light Detection and Ranging (LIDAR). This LIDAR data was acquired during the (insert date from basin plan and update for map maintenance, if necessary) flying season.

The topographic data satisfies a vertical root-mean-square error (RMSE) accuracy standard of 20 cm (1.3 feet accuracy at the 95% confidence limit) for the Outer Banks and 25 cm (1.6 feet accuracy at the 95% confidence limit) for those portions of the basin lying west of the Outer Banks. These data could be contoured at roughly a 2-foot vertical contour interval. All elevations were referenced to the NAVD 88 and reflect orthometric heights. Variably spaced, bare-earth digital topographic data in ASCII point file format were combined with imagery (either flown concurrently with the LIDAR data or using existing digital orthophotos) to establish a Triangulated Irregular Network (TIN) of digital elevation points, which include selected breaklines to be used for hydraulic modeling. Furthermore, a uniformly spaced sampling of the TIN resulted in uniformly spaced Digital Elevation Models (DEMs), with 20 ft x 20 ft post spacing, which was generated in multiple file formats.

For coastal floodplains, after analyzing wave heights along each transect, wave elevations were interpolated between transects.

Various source data were used in the interpolation, including topographic data described above. Controlling features affecting the elevations were identified and considered in relation to their positions at particular transect and their variation between transects. •

The 1% annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones VE, AO, AH, A99, AR, A, and AE), and the 0.2% annual chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundaries have been shown.

**Floodway Delineation**

The floodways presented in this FIS were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (Table 22, "Floodway Data"). The computed floodway is shown on the FIRM. In cases where the floodway and 1% annual chance floodplain boundaries are either close together or collinear, only the floodway boundary is shown. In areas where the top of the bridge or road is higher than the 1.0-percent annual chance (100-year) flood, the FIRM will show the flood discharge as contained within the structure for emergency management purposes. It is important to note that FEMA and community floodway regulations still apply in and around those areas.

## Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| **Bear Den Branch** | | | | | | | | |
| 025 | 2,477 | 130 | 605 | 2.1 | 37.7[1] | 36.1 | 37.0 | 1.0 |
| 031 | 3,080 | 122 | 506 | 2.5 | 37.7[2] | 37.4 | 38.3 | 0.9 |
| 035 | 3,536 | 200 | 784 | 1.6 | 38.6 | 38.6 | 39.5 | 0.9 |
| 041 | 4,138 | 189 | 1,044 | 1.2 | 39.3 | 39.3 | 40.2 | 1.0 |
| 046 | 4,639 | 164 | 931 | 1.3 | 39.8 | 39.8 | 40.7 | 1.0 |
| 052 | 5,154 | 186 | 1,070 | 1.1 | 40.3 | 40.3 | 41.2 | 1.0 |
| 055 | 5,492 | 146 | 685 | 1.7 | 40.6 | 40.6 | 41.5 | 0.9 |
| 059 | 5,937 | 144 | 658 | 1.8 | 41.4 | 41.4 | 42.3 | 0.9 |
| 065 | 6,479 | 143 | 625 | 1.9 | 42.2 | 42.2 | 43.1 | 0.9 |
| 073 | 7,298 | 150 | 1,043 | 1.0 | 46.1 | 46.1 | 46.7 | 0.6 |
| **Black River** | | | | | | | | |
| 828 | 82,781 | 3,112 | 33,031 | 0.8 | 19.7[3] | 12.5 | 13.4 | 0.9 |
| 839 | 83,866 | 3,100 | 32,534 | 0.8 | 19.7[3] | 12.6 | 13.5 | 0.9 |
| 847 | 84,697 | 2,900 | 32,028 | 0.8 | 19.7[2] | 12.7 | 13.6 | 0.9 |
| 858 | 85,824 | 2,610 | 30,394 | 0.9 | 19.7[2] | 12.8 | 13.7 | 0.9 |
| 867 | 86,695 | 2,575 | 28,230 | 1.0 | 19.7[2] | 12.9 | 13.8 | 0.9 |
| 876 | 87,589 | 2,290 | 24,582 | 1.1 | 19.7[2] | 13.1 | 14.0 | 0.9 |
| 883 | 88,274 | 2,212 | 24,410 | 1.1 | 19.7[2] | 13.2 | 14.1 | 0.9 |
| 1576 | 157,623 | 2,090 | 25,944 | 1.0 | 20.8 | 20.8 | 21.8 | 1.0 |
| 1587 | 158,748 | 2,075 | 25,582 | 1.0 | 21.0 | 21.0 | 22.0 | 1.0 |
| 1605 | 160,547 | 2,750 | 36,947 | 0.7 | 21.2 | 21.2 | 22.2 | 1.0 |
| 1628 | 162,798 | 2,230 | 29,566 | 0.9 | 21.4 | 21.4 | 22.4 | 1.0 |
| 1642 | 164,247 | 2,565 | 32,496 | 0.8 | 21.5 | 21.5 | 22.5 | 1.0 |
| 1657 | 165,667 | 2,150 | 28,609 | 0.9 | 21.7 | 21.7 | 22.7 | 1.0 |
| 1665 | 166,464 | 2,050 | 27,226 | 1.0 | 21.8 | 21.8 | 22.8 | 1.0 |
| 1672 | 167,180 | 1,750 | 22,741 | 1.2 | 21.8 | 21.8 | 22.8 | 1.0 |
| 1684 | 168,374 | 2,000 | 23,676 | 1.1 | 22.0 | 22.0 | 23.0 | 1.0 |
| 1696 | 169,624 | 1,890 | 20,715 | 1.3 | 22.2 | 22.2 | 23.2 | 1.0 |
| 1721 | 172,114 | 1,775 | 20,920 | 1.3 | 22.6 | 22.6 | 23.6 | 1.0 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 1788 | 178,788 | 1,875 | 22,975 | 1.2 | 24.2 | 24.2 | 25.2 | 0.9 |
| 1797 | 179,674 | 2,050 | 27,779 | 1.0 | 24.4 | 24.4 | 25.4 | 1.0 |
| **Bull Branch** | | | | | | | | |
| 001 | 119 | 220 | 817 | 1.5 | 40.5[4] | 38.4 | 39.4 | 1.0 |
| 007 | 668 | 163 | 505 | 2.4 | 40.7[4] | 40.4 | 41.3 | 1.0 |
| 010 | 1,044 | 174 | 847 | 1.5 | 41.8 | 41.8 | 42.8 | 1.0 |
| 015 | 1,549 | 229 | 1,028 | 1.2 | 42.6 | 42.6 | 43.6 | 1.0 |
| 019 | 1,888 | 44 | 161 | 7.7 | 43.2 | 43.2 | 43.8 | 0.6 |
| 024 | 2,431 | 93 | 583 | 2.1 | 46.9 | 46.9 | 47.5 | 0.6 |
| 028 | 2,786 | 167 | 955 | 1.3 | 47.2 | 47.2 | 48.1 | 0.9 |
| 031 | 3,124 | 163 | 885 | 1.4 | 47.5 | 47.5 | 48.4 | 0.9 |
| 037 | 3,651 | 134 | 738 | 1.7 | 48.0 | 48.0 | 49.0 | 1.0 |
| 040 | 4,001 | 115 | 674 | 1.8 | 48.4 | 48.4 | 49.4 | 1.0 |
| 047 | 4,731 | 196 | 1,233 | 0.9 | 51.5 | 51.5 | 52.0 | 0.6 |
| 050 | 5,042 | 189 | 1,128 | 1.0 | 51.6 | 51.6 | 52.2 | 0.6 |
| 053 | 5,322 | 179 | 823 | 1.4 | 51.7 | 51.7 | 52.4 | 0.6 |
| 056 | 5,569 | 233 | 1,047 | 1.1 | 51.9 | 51.9 | 52.6 | 0.7 |
| 059 | 5,940 | 223 | 1,011 | 1.1 | 52.2 | 52.2 | 52.9 | 0.7 |
| 064 | 6,368 | 268 | 1,321 | 0.9 | 52.4 | 52.4 | 53.1 | 0.7 |
| 067 | 6,650 | 218 | 1,114 | 1.0 | 52.5 | 52.5 | 53.3 | 0.8 |
| 071 | 7,121 | 152 | 784 | 1.4 | 52.9 | 52.9 | 53.7 | 0.8 |
| 075 | 7,539 | 124 | 624 | 1.8 | 53.4 | 53.4 | 54.3 | 0.9 |
| 078 | 7,786 | 210 | 1,097 | 1.0 | 53.7 | 53.7 | 54.6 | 0.9 |
| 081 | 8,092 | 155 | 767 | 1.5 | 53.9 | 53.9 | 54.8 | 0.9 |
| 084 | 8,380 | 107 | 556 | 2.0 | 54.4 | 54.4 | 55.3 | 0.9 |
| 088 | 8,779 | 120 | 583 | 1.5 | 55.0 | 55.0 | 56.0 | 0.9 |
| 094 | 9,441 | 113 | 523 | 1.7 | 55.8 | 55.8 | 56.8 | 0.9 |
| 099 | 9,914 | 90 | 456 | 1.9 | 56.5 | 56.5 | 57.4 | 0.9 |
| 101 | 10,110 | 110 | 404 | 2.2 | 56.8 | 56.8 | 57.7 | 0.9 |
| 104 | 10,436 | 146 | 832 | 1.0 | 60.0 | 60.0 | 61.0 | 1.0 |
| 108 | 10,754 | 115 | 579 | 1.5 | 60.3 | 60.3 | 61.3 | 1.0 |
| 113 | 11,280 | 118 | 563 | 1.6 | 61.0 | 61.0 | 62.0 | 1.0 |
| **Bulltail Creek** | | | | | | | | |
| 004 | 363 | 220 | 839 | 1.4 | 49.4[1] | 47.4 | 48.1 | 0.7 |
| 008 | 813 | 185 | 664 | 1.8 | 49.5[1] | 47.9 | 48.6 | 0.7 |
| 014 | 1,449 | 220 | 722 | 1.7 | 49.5[2] | 49.4 | 49.7 | 0.4 |
| 026 | 2,639 | 240 | 866 | 1.4 | 51.0 | 51.0 | 51.5 | 0.4 |
| 035 | 3,539 | 218 | 989 | 1.2 | 52.1 | 52.1 | 52.7 | 0.6 |
| 042 | 4,198 | 156 | 740 | 1.6 | 52.9 | 52.9 | 53.6 | 0.7 |
| 049 | 4,916 | 162 | 722 | 1.7 | 54.1 | 54.1 | 55.0 | 0.9 |
| 057 | 5,666 | 137 | 674 | 1.8 | 55.4 | 55.4 | 56.4 | 0.9 |
| 064 | 6,421 | 112 | 612 | 2.0 | 56.7 | 56.7 | 57.6 | 0.9 |
| 069 | 6,891 | 85 | 523 | 1.6 | 57.4 | 57.4 | 58.3 | 0.9 |
| 072 | 7,244 | 62 | 345 | 2.5 | 57.7 | 57.7 | 58.6 | 0.9 |
| 078 | 7,768 | 110 | 537 | 1.6 | 58.4 | 58.4 | 59.3 | 0.8 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 087 | 8,680 | 150 | 907 | 0.9 | 62.3 | 62.3 | 63.0 | 0.8 |
| 095 | 9,489 | 170 | 703 | 1.2 | 62.7 | 62.7 | 63.6 | 0.9 |
| 102 | 10,186 | 134 | 592 | 1.4 | 63.6 | 63.6 | 64.6 | 1.0 |
| 109 | 10,867 | 130 | 533 | 1.6 | 64.9 | 64.9 | 65.9 | 1.0 |
| 113 | 11,254 | 96 | 347 | 1.7 | 65.8 | 65.8 | 66.7 | 1.0 |
| **Burgaw Creek** | | | | | | | | |
| 060 | 5,992 | 140 | 1,651 | 2.6 | 15.8[2] | 10.2 | 11.2 | 1.0 |
| 064 | 6,436 | 440 | 3,946 | 1.1 | 15.8[2] | 10.5 | 11.5 | 1.0 |
| 070 | 7,002 | 80 | 1,150 | 3.8 | 15.8[2] | 10.6 | 11.6 | 1.0 |
| 075 | 7,496 | 125 | 1,652 | 2.6 | 15.8[2] | 10.9 | 11.9 | 1.0 |
| 080 | 8,028 | 80 | 1,302 | 3.3 | 15.8[2] | 11.1 | 12.1 | 1.0 |
| 085 | 8,499 | 80 | 1,341 | 3.2 | 15.8[2] | 11.3 | 12.2 | 1.0 |
| 089 | 8,926 | 220 | 2,407 | 1.8 | 15.8[2] | 11.5 | 12.5 | 1.0 |
| 092 | 9,180 | 220 | 2,517 | 1.7 | 15.8[2] | 11.6 | 12.5 | 1.0 |
| 095 | 9,486 | 100 | 1,600 | 2.7 | 15.8[2] | 11.6 | 12.6 | 1.0 |
| 110 | 10,999 | 100 | 1,567 | 2.8 | 15.8[2] | 12.0 | 12.9 | 1.0 |
| 115 | 11,497 | 110 | 1,395 | 3.1 | 15.8[2] | 12.1 | 13.0 | 0.9 |
| 120 | 12,002 | 150 | 1,781 | 2.4 | 15.8[2] | 12.3 | 13.3 | 1.0 |
| 123 | 12,250 | 175 | 2,110 | 2.1 | 15.8[2] | 12.4 | 13.4 | 1.0 |
| 125 | 12,498 | 220 | 2,621 | 1.7 | 15.8[2] | 12.5 | 13.4 | 0.9 |
| 131 | 13,102 | 300 | 3,168 | 1.4 | 15.8[2] | 12.6 | 13.6 | 1.0 |
| 135 | 13,488 | 225 | 2,502 | 1.7 | 15.8[2] | 12.7 | 13.7 | 1.0 |
| 147 | 14,685 | 270 | 3,228 | 1.3 | 15.8[2] | 13.3 | 14.1 | 0.9 |
| 150 | 15,015 | 280 | 3,447 | 1.3 | 15.8[2] | 13.4 | 14.2 | 0.9 |
| 156 | 15,562 | 350 | 4,566 | 1.0 | 15.8[2] | 13.5 | 14.4 | 0.9 |
| 160 | 16,025 | 525 | 6,876 | 0.6 | 15.8[2] | 13.5 | 14.5 | 1.0 |
| 165 | 16,493 | 700 | 7,678 | 0.6 | 15.8[2] | 13.6 | 14.5 | 1.0 |
| 171 | 17,126 | 850 | 9,005 | 0.5 | 15.8[2] | 13.6 | 14.6 | 1.0 |
| 177 | 17,687 | 933 | 10,720 | 0.4 | 15.8[2] | 13.6 | 14.6 | 1.0 |
| 182 | 18,157 | 800 | 7,729 | 0.5 | 15.8[2] | 13.6 | 14.6 | 1.0 |
| 187 | 18,659 | 700 | 7,804 | 0.5 | 15.8[2] | 13.7 | 14.7 | 1.0 |
| 191 | 19,139 | 560 | 6,141 | 0.7 | 15.8[2] | 13.7 | 14.7 | 1.0 |
| 196 | 19,644 | 630 | 7,061 | 0.6 | 15.8[2] | 13.8 | 14.8 | 1.0 |
| 201 | 20,069 | 530 | 5,809 | 0.7 | 15.8[2] | 13.8 | 14.8 | 1.0 |
| 207 | 20,661 | 525 | 5,696 | 0.7 | 15.8[2] | 13.9 | 14.9 | 1.0 |
| 212 | 21,166 | 650 | 6,397 | 0.6 | 15.8[2] | 13.9 | 14.9 | 1.0 |
| 217 | 21,669 | 600 | 5,380 | 0.8 | 15.8[2] | 14.0 | 15.0 | 1.0 |
| 221 | 22,104 | 480 | 4,707 | 0.9 | 15.8[2] | 14.1 | 15.0 | 1.0 |
| 227 | 22,689 | 300 | 2,704 | 1.5 | 15.8[2] | 14.2 | 15.2 | 1.0 |
| 236 | 23,649 | 450 | 4,572 | 0.9 | 15.8[2] | 14.5 | 15.4 | 1.0 |
| 241 | 24,130 | 520 | 4,672 | 0.9 | 15.8[2] | 14.5 | 15.5 | 1.0 |
| 246 | 24,649 | 610 | 5,045 | 0.8 | 15.8[2] | 14.6 | 15.6 | 1.0 |
| 252 | 25,237 | 540 | 4,595 | 0.9 | 15.8[2] | 14.8 | 15.8 | 1.0 |
| 257 | 25,651 | 560 | 4,690 | 0.9 | 15.8[2] | 15.0 | 15.9 | 1.0 |
| 262 | 26,159 | 740 | 5,734 | 0.7 | 15.8[2] | 15.2 | 16.1 | 0.9 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 265 | 26,459 | 720 | 5,769 | 0.7 | 15.8[2] | 15.2 | 16.2 | 0.9 |
| 271 | 27,135 | 750 | 5,637 | 0.7 | 15.8[2] | 15.5 | 16.4 | 0.9 |
| 277 | 27,658 | 630 | 4,362 | 0.9 | 15.8[2] | 15.6 | 16.6 | 0.9 |
| 283 | 28,305 | 529 | 3,646 | 1.1 | 16.1 | 16.1 | 17.0 | 1.0 |
| 287 | 28,654 | 570 | 4,134 | 1.0 | 16.3 | 16.3 | 17.3 | 1.0 |
| 292 | 29,160 | 480 | 3,684 | 1.1 | 16.6 | 16.6 | 17.6 | 1.0 |
| 297 | 29,671 | 510 | 3,832 | 1.1 | 17.0 | 17.0 | 18.0 | 1.0 |
| 301 | 30,150 | 600 | 4,491 | 0.9 | 17.3 | 17.3 | 18.3 | 1.0 |
| 306 | 30,632 | 480 | 3,518 | 1.1 | 17.6 | 17.6 | 18.6 | 1.0 |
| 311 | 31,148 | 430 | 3,274 | 1.1 | 18.0 | 18.0 | 19.0 | 1.0 |
| 316 | 31,617 | 520 | 4,052 | 0.9 | 18.4 | 18.4 | 19.3 | 0.9 |
| 322 | 32,162 | 520 | 3,688 | 1.0 | 18.7 | 18.7 | 19.6 | 0.9 |
| 326 | 32,611 | 570 | 4,033 | 0.9 | 19.0 | 19.0 | 19.9 | 0.9 |
| 329 | 32,923 | 660 | 4,512 | 0.8 | 19.2 | 19.2 | 20.1 | 0.9 |
| 336 | 33,568 | 600 | 4,287 | 0.9 | 19.5 | 19.5 | 20.4 | 0.9 |
| 343 | 34,273 | 630 | 4,398 | 0.9 | 19.8 | 19.8 | 20.7 | 0.9 |
| 347 | 34,665 | 550 | 3,793 | 1.0 | 20.0 | 20.0 | 20.9 | 0.9 |
| 352 | 35,163 | 254 | 1,924 | 1.9 | 20.1 | 20.1 | 21.1 | 0.9 |
| 359 | 35,889 | 608 | 5,013 | 0.7 | 21.5 | 21.5 | 22.4 | 0.9 |
| 366 | 36,632 | 840 | 5,784 | 0.6 | 21.6 | 21.6 | 22.6 | 0.9 |
| 376 | 37,562 | 680 | 4,626 | 0.8 | 21.8 | 21.8 | 22.8 | 0.9 |
| 383 | 38,343 | 680 | 3,988 | 0.9 | 22.1 | 22.1 | 23.1 | 1.0 |
| 393 | 39,259 | 640 | 4,877 | 0.8 | 22.6 | 22.6 | 23.4 | 0.8 |
| 402 | 40,161 | 600 | 4,137 | 0.9 | 22.9 | 22.9 | 23.7 | 0.8 |
| 411 | 41,143 | 550 | 3,792 | 1.0 | 23.4 | 23.4 | 24.1 | 0.7 |
| 422 | 42,191 | 930 | 6,156 | 0.6 | 23.6 | 23.6 | 24.4 | 0.8 |
| 443 | 44,343 | 1,831 | 10,234 | 0.3 | 25.7 | 25.7 | 26.7 | 0.9 |
| 450 | 44,977 | 1,968 | 10,435 | 0.3 | 25.8 | 25.8 | 26.7 | 0.9 |
| 464 | 46,374 | 2,102 | 8,359 | 0.4 | 26.0 | 26.0 | 26.8 | 0.8 |
| 475 | 47,547 | 1,702 | 6,837 | 0.5 | 26.4 | 26.4 | 27.1 | 0.7 |
| 487 | 48,660 | 1,195 | 4,265 | 0.7 | 27.2 | 27.2 | 27.5 | 0.4 |
| 498 | 49,762 | 1,361 | 4,887 | 0.6 | 28.0 | 28.0 | 28.2 | 0.2 |
| 507 | 50,691 | 1,215 | 4,526 | 0.7 | 28.5 | 28.5 | 28.7 | 0.2 |
| 516 | 51,633 | 1,109 | 3,786 | 0.8 | 29.1 | 29.1 | 29.3 | 0.2 |
| 526 | 52,625 | 1,286 | 4,171 | 0.7 | 30.0 | 30.0 | 30.1 | 0.1 |
| 533 | 53,262 | 1,029 | 4,515 | 0.7 | 30.4 | 30.4 | 30.6 | 0.2 |
| 551 | 55,082 | 494 | 2,191 | 0.8 | 31.4 | 31.4 | 31.5 | 0.2 |
| 556 | 55,627 | 682 | 2,431 | 0.7 | 31.6 | 31.6 | 31.8 | 0.2 |
| 561 | 56,126 | 524 | 1,787 | 0.9 | 31.8 | 31.8 | 32.1 | 0.3 |
| 566 | 56,629 | 279 | 1,067 | 1.6 | 32.1 | 32.1 | 32.6 | 0.4 |
| 572 | 57,174 | 279 | 1,039 | 1.6 | 32.8 | 32.8 | 33.5 | 0.7 |
| 577 | 57,671 | 279 | 905 | 1.8 | 34.2 | 34.2 | 34.7 | 0.5 |
| 583 | 58,255 | 351 | 1,083 | 1.5 | 35.3 | 35.3 | 36.0 | 0.7 |
| 587 | 58,695 | 178 | 663 | 2.1 | 36.0 | 36.0 | 36.9 | 0.9 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 597 | 59,750 | 215 | 1,002 | 1.3 | 37.9 | 37.9 | 38.8 | 1.0 |
| 601 | 60,147 | 200 | 645 | 2.0 | 38.7 | 38.7 | 39.4 | 0.7 |
| 606 | 60,623 | 200 | 670 | 2.0 | 40.1 | 40.1 | 40.5 | 0.4 |
| 612 | 61,154 | 110 | 497 | 2.6 | 41.2 | 41.2 | 41.6 | 0.4 |
| 622 | 62,170 | 140 | 429 | 3.1 | 42.2 | 42.2 | 43.0 | 0.8 |
| 631 | 63,148 | 345 | 1,079 | 1.2 | 47.7 | 47.7 | 48.7 | 1.0 |
| 637 | 63,672 | 383 | 932 | 1.2 | 48.1 | 48.1 | 48.8 | 0.7 |
| 642 | 64,153 | 417 | 1,156 | 1.1 | 48.7 | 48.7 | 49.2 | 0.5 |
| 646 | 64,638 | 350 | 1,111 | 0.8 | 49.1 | 49.1 | 49.5 | 0.4 |
| 652 | 65,155 | 365 | 808 | 1.1 | 49.2 | 49.2 | 49.7 | 0.6 |
| 657 | 65,651 | 286 | 654 | 1.4 | 49.7 | 49.7 | 50.1 | 0.4 |
| 667 | 66,665 | 454 | 984 | 0.9 | 50.8 | 50.8 | 51.3 | 0.6 |
| 671 | 67,127 | 454 | 1,191 | 0.7 | 50.9 | 50.9 | 51.7 | 0.8 |
| 680 | 67,953 | 454 | 907 | 1.0 | 51.2 | 51.2 | 52.2 | 1.0 |
| **Buxton Branch** | | | | | | | | |
| 004 | 432 | 870 | 2,808 | 0.6 | 27.7[1] | 23.0 | 23.6 | 0.6 |
| 012 | 1,155 | 550 | 1,429 | 1.2 | 27.7[1] | 23.7 | 24.3 | 0.6 |
| 019 | 1,896 | 285 | 1,167 | 1.4 | 27.7[2] | 24.9 | 25.4 | 0.5 |
| 025 | 2,451 | 295 | 711 | 2.4 | 27.7[2] | 26.0 | 26.4 | 0.4 |
| 029 | 2,919 | 390 | 1,234 | 1.4 | 27.7[2] | 26.8 | 27.2 | 0.4 |
| 040 | 4,005 | 90 | 442 | 3.1 | 28.5 | 28.5 | 28.7 | 0.2 |
| 044 | 4,424 | 81 | 374 | 3.7 | 29.0 | 29.0 | 29.4 | 0.4 |
| 050 | 4,982 | 140 | 588 | 2.3 | 30.6 | 30.6 | 31.0 | 0.4 |
| 056 | 5,648 | 205 | 927 | 1.5 | 31.3 | 31.3 | 32.2 | 0.8 |
| 064 | 6,362 | 215 | 943 | 1.4 | 32.7 | 32.7 | 33.6 | 0.9 |
| 070 | 6,995 | 245 | 1,129 | 1.2 | 33.7 | 33.7 | 34.7 | 0.9 |
| 077 | 7,664 | 226 | 908 | 1.5 | 34.3 | 34.3 | 35.3 | 1.0 |
| 083 | 8,260 | 129 | 577 | 1.3 | 35.3 | 35.3 | 36.3 | 1.0 |
| 086 | 8,645 | 98 | 388 | 1.8 | 36.0 | 36.0 | 37.0 | 1.0 |
| 090 | 8,997 | 70 | 303 | 2.3 | 37.1 | 37.1 | 38.0 | 0.9 |
| 094 | 9,365 | 82 | 233 | 3.0 | 38.9 | 38.9 | 39.7 | 0.8 |
| 098 | 9,758 | 96 | 476 | 1.5 | 40.7 | 40.7 | 41.4 | 0.7 |
| 101 | 10,095 | 98 | 458 | 1.6 | 41.2 | 41.2 | 42.0 | 0.8 |
| 105 | 10,480 | 85 | 425 | 1.7 | 42.0 | 42.0 | 42.8 | 0.8 |
| 108 | 10,803 | 82 | 397 | 1.8 | 42.7 | 42.7 | 43.5 | 0.8 |
| 112 | 11,210 | 68 | 325 | 1.7 | 43.4 | 43.4 | 44.5 | 1.0 |
| 118 | 11,808 | 66 | 340 | 1.6 | 45.3 | 45.3 | 45.9 | 0.6 |
| 121 | 12,064 | 53 | 247 | 2.3 | 45.8 | 45.8 | 46.4 | 0.7 |
| 123 | 12,252 | 68 | 280 | 2.0 | 46.3 | 46.3 | 47.1 | 0.8 |
| 125 | 12,537 | 80 | 283 | 2.0 | 47.2 | 47.2 | 48.1 | 0.9 |
| **Cape Fear River** | | | | | | | | |
| 2098 | 209,758 | 5,970 | 68,080 | 1.9 | 12.6 | 12.6 | 13.1 | 0.5 |
| 2146 | 214,635 | 7,402 | 100,789 | 1.3 | 14.6 | 14.6 | 15.2 | 0.7 |
| 2173 | 217,280 | 9,750 | 145,485 | 0.9 | 15.4 | 15.4 | 16.1 | 0.7 |
| 2203 | 220,350 | 11,018 | 163,374 | 0.8 | 15.6 | 15.6 | 16.4 | 0.8 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 2250 | 225,030 | 13,000 | 194,696 | 0.7 | 15.9 | 15.9 | 16.6 | 0.8 |
| 2277 | 227,726 | 12,450 | 189,274 | 0.7 | 16.2 | 16.2 | 17.0 | 0.8 |
| 2307 | 230,716 | 13,350 | 207,215 | 0.6 | 16.4 | 16.4 | 17.3 | 0.8 |
| 2364 | 236,426 | 14,300 | 210,693 | 0.6 | 16.8 | 16.8 | 17.7 | 0.9 |
| 2398 | 239,795 | 14,650 | 228,202 | 0.6 | 17.0 | 17.0 | 17.9 | 0.9 |
| 2447 | 244,703 | 9,650 | 146,302 | 0.8 | 17.4 | 17.4 | 18.4 | 1.0 |
| 2474 | 247,353 | 9,400 | 138,300 | 0.9 | 17.7 | 17.7 | 18.7 | 1.0 |
| 2503 | 250,344 | 11,019 | 162,227 | 0.8 | 18.2 | 18.2 | 19.1 | 0.9 |
| 2532 | 253,224 | 11,450 | 163,472 | 0.8 | 18.5 | 18.5 | 19.4 | 0.9 |
| 2575 | 257,474 | 14,409 | 201,467 | 0.6 | 18.8 | 18.8 | 19.7 | 0.9 |
| 2622 | 262,212 | 16,560 | 224,668 | 0.6 | 19.0 | 19.0 | 19.9 | 0.9 |
| 2687 | 268,665 | 18,550 | 236,563 | 0.5 | 19.3 | 19.3 | 20.1 | 0.9 |
| 2732 | 273,180 | 19,610 | 259,889 | 0.5 | 19.4 | 19.4 | 20.3 | 0.9 |
| 2764 | 276,361 | 19,200 | 238,808 | 0.5 | 19.6 | 19.6 | 20.4 | 0.8 |
| 2792 | 279,155 | 19,050 | 209,406 | 0.6 | 19.8 | 19.8 | 20.7 | 0.8 |
| 2825 | 282,482 | 17,350 | 144,986 | 0.8 | 20.2 | 20.2 | 21.0 | 0.8 |
| 2858 | 285,774 | 16,750 | 157,070 | 0.8 | 20.7 | 20.7 | 21.5 | 0.8 |
| 2914 | 291,382 | 17,000 | 179,538 | 0.7 | 21.2 | 21.2 | 22.0 | 0.8 |
| 2951 | 295,119 | 15,350 | 149,759 | 0.8 | 21.6 | 21.6 | 22.4 | 0.8 |
| 2983 | 298,261 | 14,230 | 135,647 | 0.9 | 21.9 | 21.9 | 22.7 | 0.8 |
| 3018 | 301,816 | 12,670 | 111,764 | 1.1 | 22.3 | 22.3 | 23.2 | 0.9 |
| 3038 | 303,846 | 11,910 | 116,387 | 1.1 | 22.6 | 22.6 | 23.6 | 1.0 |
| **Colvins Creek** | | | | | | | | |
| 293 | 29,268 | 198 | 1,258 | 1.8 | 36.1 | 36.1 | 36.9 | 0.8 |
| 302 | 30,219 | 150 | 839 | 2.7 | 36.6 | 36.6 | 37.5 | 0.9 |
| 309 | 30,904 | 205 | 1,031 | 2.2 | 37.2 | 37.2 | 38.2 | 0.9 |
| 313 | 31,332 | 300 | 1,546 | 1.5 | 37.6 | 37.6 | 38.6 | 0.9 |
| 318 | 31,831 | 210 | 1,117 | 2.1 | 37.9 | 37.9 | 38.8 | 0.9 |
| 328 | 32,847 | 80 | 587 | 2.8 | 38.7 | 38.7 | 39.6 | 0.9 |
| 333 | 33,323 | 80 | 581 | 2.8 | 39.0 | 39.0 | 39.8 | 0.8 |
| 338 | 33,796 | 80 | 546 | 3.0 | 39.2 | 39.2 | 40.0 | 0.8 |
| 344 | 34,350 | 80 | 514 | 3.2 | 39.6 | 39.6 | 40.4 | 0.8 |
| 349 | 34,861 | 80 | 429 | 3.8 | 40.0 | 40.0 | 40.8 | 0.7 |
| 353 | 35,330 | 80 | 440 | 3.7 | 40.7 | 40.7 | 41.3 | 0.6 |
| 358 | 35,799 | 81 | 436 | 3.8 | 41.2 | 41.2 | 41.9 | 0.6 |
| 363 | 36,265 | 80 | 435 | 3.8 | 41.8 | 41.8 | 42.6 | 0.8 |
| 368 | 36,799 | 80 | 434 | 3.5 | 42.5 | 42.5 | 43.3 | 0.8 |
| 373 | 37,278 | 81 | 473 | 3.2 | 43.0 | 43.0 | 43.8 | 0.8 |
| 378 | 37,777 | 105 | 611 | 2.5 | 43.4 | 43.4 | 44.3 | 0.9 |
| 383 | 38,323 | 94 | 509 | 3.0 | 43.8 | 43.8 | 44.7 | 0.9 |
| 390 | 38,970 | 110 | 571 | 2.7 | 44.4 | 44.4 | 45.4 | 1.0 |
| 395 | 39,470 | 113 | 525 | 2.9 | 45.0 | 45.0 | 45.9 | 1.0 |
| 400 | 39,986 | 180 | 784 | 2.0 | 45.7 | 45.7 | 46.6 | 0.9 |
| 410 | 41,006 | 200 | 1,038 | 1.5 | 49.1 | 49.1 | 49.8 | 0.7 |
| 416 | 41,562 | 260 | 1,208 | 1.3 | 49.6 | 49.6 | 50.4 | 0.8 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 420 | 42,041 | 310 | 1,312 | 1.0 | 50.2 | 50.2 | 51.0 | 0.9 |
| 425 | 42,541 | 290 | 1,265 | 1.0 | 50.6 | 50.6 | 51.6 | 1.0 |
| 430 | 43,041 | 245 | 941 | 1.4 | 51.4 | 51.4 | 52.4 | 1.0 |
| 435 | 43,513 | 232 | 483 | 2.7 | 53.3 | 53.3 | 54.0 | 0.6 |
| 440 | 44,042 | 395 | 1,314 | 1.0 | 55.2 | 55.2 | 56.2 | 1.0 |
| 445 | 44,541 | 280 | 1,267 | 1.0 | 55.9 | 55.9 | 56.8 | 0.9 |
| 451 | 45,065 | 235 | 981 | 1.3 | 56.5 | 56.5 | 57.4 | 0.9 |
| 455 | 45,472 | 205 | 962 | 1.4 | 57.2 | 57.2 | 58.1 | 0.9 |
| 460 | 46,041 | 131 | 680 | 1.9 | 58.4 | 58.4 | 59.2 | 0.8 |
| 465 | 46,505 | 150 | 761 | 1.7 | 59.3 | 59.3 | 60.2 | 1.0 |
| 471 | 47,079 | 269 | 1,565 | 0.6 | 60.1 | 60.1 | 61.1 | 1.0 |
| **Crooked Run** | | | | | | | | |
| 002 | 231 | 292 | 1,400 | 1.0 | 49.8[2] | 49.2 | 50.2 | 1.0 |
| 005 | 511 | 190 | 895 | 1.5 | 49.8[2] | 49.4 | 50.4 | 1.0 |
| 010 | 1,000 | 195 | 995 | 1.3 | 50.0 | 50.0 | 51.0 | 1.0 |
| 015 | 1,500 | 196 | 1,003 | 1.3 | 50.4 | 50.4 | 51.4 | 1.0 |
| 020 | 2,000 | 173 | 783 | 1.7 | 51.0 | 51.0 | 52.0 | 1.0 |
| 024 | 2,366 | 191 | 774 | 1.7 | 51.6 | 51.6 | 52.5 | 1.0 |
| 031 | 3,127 | 268 | 1,444 | 0.9 | 53.3 | 53.3 | 54.0 | 0.7 |
| 035 | 3,500 | 287 | 1,533 | 0.9 | 53.4 | 53.4 | 54.1 | 0.7 |
| 040 | 4,000 | 163 | 806 | 1.6 | 53.6 | 53.6 | 54.4 | 0.7 |
| 044 | 4,406 | 276 | 1,212 | 1.1 | 54.0 | 54.0 | 54.8 | 0.8 |
| 049 | 4,900 | 227 | 1,081 | 1.2 | 54.5 | 54.5 | 55.2 | 0.6 |
| 055 | 5,500 | 205 | 1,232 | 0.9 | 55.0 | 55.0 | 55.7 | 0.7 |
| 060 | 6,000 | 175 | 1,037 | 1.1 | 55.2 | 55.2 | 56.0 | 0.8 |
| 065 | 6,500 | 229 | 1,093 | 1.0 | 55.6 | 55.6 | 56.4 | 0.8 |
| 070 | 7,000 | 242 | 1,069 | 1.0 | 56.0 | 56.0 | 56.9 | 0.9 |
| 073 | 7,280 | 177 | 641 | 1.7 | 56.4 | 56.4 | 57.3 | 0.9 |
| 075 | 7,500 | 208 | 999 | 1.1 | 56.9 | 56.9 | 57.8 | 1.0 |
| 085 | 8,500 | 333 | 1,820 | 0.4 | 59.5 | 59.5 | 59.9 | 0.4 |
| 090 | 9,000 | 272 | 994 | 0.8 | 59.5 | 59.5 | 59.9 | 0.4 |
| 096 | 9,556 | 152 | 370 | 2.2 | 59.7 | 59.7 | 60.2 | 0.5 |
| 100 | 10,000 | 119 | 324 | 2.5 | 60.5 | 60.5 | 61.4 | 0.9 |
| 105 | 10,500 | 127 | 294 | 2.7 | 62.1 | 62.1 | 63.1 | 1.0 |
| 112 | 11,165 | 210 | 470 | 1.7 | 63.7 | 63.7 | 64.6 | 0.9 |
| **Doctors Creek** | | | | | | | | |
| 124 | 12,430 | 2,059 | 7,903 | 0.5 | 49.9 | 49.9 | 50.9 | 1.0 |
| 128 | 12,784 | 630 | 2,815 | 2.0 | 41.3 | 41.3 | 42.3 | 1.0 |
| 132 | 13,220 | 1,172 | 5,015 | 0.8 | 50.2 | 50.2 | 51.2 | 1.0 |
| 134 | 13,431 | 540 | 2,873 | 2.0 | 42.3 | 42.3 | 43.3 | 1.0 |
| 140 | 14,028 | 500 | 3,151 | 1.8 | 43.1 | 43.1 | 44.0 | 1.0 |
| 155 | 15,453 | 900 | 4,970 | 1.1 | 44.1 | 44.1 | 45.0 | 0.9 |
| 168 | 16,771 | 600 | 3,684 | 1.5 | 44.9 | 44.9 | 45.8 | 0.9 |
| 179 | 17,877 | 975 | 6,041 | 0.9 | 45.5 | 45.5 | 46.4 | 0.9 |
| 181 | 18,082 | 900 | 5,094 | 1.1 | 45.6 | 45.6 | 46.5 | 0.9 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 190 | 19,036 | 1,100 | 5,895 | 0.9 | 46.0 | 46.0 | 46.9 | 1.0 |
| 197 | 19,706 | 1,140 | 6,213 | 0.9 | 46.2 | 46.2 | 47.2 | 1.0 |
| 208 | 20,806 | 1,325 | 5,425 | 1.0 | 46.6 | 46.6 | 47.6 | 1.0 |
| 216 | 21,595 | 1,220 | 6,125 | 0.9 | 47.2 | 47.2 | 48.2 | 1.0 |
| 225 | 22,521 | 1,110 | 6,449 | 0.8 | 47.8 | 47.8 | 48.8 | 1.0 |
| 227 | 22,700 | 1,095 | 6,404 | 0.8 | 47.9 | 47.9 | 48.9 | 1.0 |
| **Dry Branch** | | | | | | | | |
| 005 | 493 | 215 | 841 | 1.3 | 43.9[2] | 43.1 | 43.6 | 0.5 |
| 010 | 1,000 | 175 | 930 | 1.2 | 43.9[2] | 43.7 | 44.2 | 0.5 |
| 015 | 1,541 | 205 | 843 | 1.3 | 44.2 | 44.2 | 44.7 | 0.5 |
| 018 | 1,792 | 126 | 555 | 2.0 | 44.4 | 44.4 | 44.9 | 0.5 |
| 028 | 2,758 | 262 | 1,795 | 0.6 | 49.5 | 49.5 | 50.0 | 0.5 |
| **Guffords Branch** | | | | | | | | |
| 003 | 346 | 145 | 481 | 1.8 | 9.9[5] | 6.9 | 7.9 | 1.0 |
| 010 | 950 | 115 | 347 | 2.4 | 10.3[5] | 8.6 | 9.5 | 0.9 |
| 016 | 1,598 | 100 | 506 | 1.7 | 12.0 | 12.0 | 12.7 | 0.7 |
| 020 | 2,023 | 94 | 455 | 1.8 | 12.5 | 12.5 | 13.5 | 1.0 |
| 024 | 2,402 | 124 | 567 | 1.5 | 13.3 | 13.3 | 14.3 | 1.0 |
| 027 | 2,737 | 124 | 431 | 1.7 | 14.1 | 14.1 | 15.0 | 0.9 |
| 032 | 3,184 | 114 | 389 | 1.9 | 15.4 | 15.4 | 16.3 | 0.8 |
| 037 | 3,661 | 100 | 401 | 1.9 | 17.1 | 17.1 | 17.9 | 0.8 |
| 041 | 4,094 | 110 | 484 | 1.5 | 18.2 | 18.2 | 19.1 | 0.9 |
| 045 | 4,505 | 100 | 419 | 1.4 | 19.0 | 19.0 | 19.9 | 0.9 |
| 052 | 5,215 | 85 | 380 | 1.6 | 21.5 | 21.5 | 22.3 | 0.8 |
| 057 | 5,717 | 113 | 408 | 1.4 | 22.1 | 22.1 | 23.1 | 1.0 |
| 061 | 6,080 | 87 | 364 | 1.6 | 23.0 | 23.0 | 24.0 | 1.0 |
| 064 | 6,366 | * | * | * | 23.9 | 23.9 | * | * |
| **Horse Branch Creek** | | | | | | | | |
| 005 | 500 | 278 | 1,493 | 1.5 | 36.5[2] | 34.8 | 35.7 | 1.0 |
| 010 | 1,000 | 329 | 1,693 | 1.3 | 36.5[2] | 35.2 | 36.1 | 1.0 |
| 015 | 1,500 | 288 | 1,559 | 1.4 | 36.5[2] | 35.5 | 36.5 | 1.0 |
| 020 | 2,000 | 475 | 2,675 | 0.8 | 36.5[2] | 35.8 | 36.8 | 1.0 |
| 025 | 2,500 | 427 | 2,043 | 1.0 | 36.5[2] | 36.0 | 37.0 | 1.0 |
| 030 | 3,000 | 421 | 2,058 | 1.0 | 36.5[2] | 36.4 | 37.3 | 1.0 |
| 036 | 3,550 | 279 | 2,022 | 1.1 | 36.6 | 36.6 | 37.6 | 1.0 |
| 045 | 4,500 | 235 | 1,154 | 1.9 | 37.4 | 37.4 | 38.4 | 1.0 |
| 050 | 5,000 | 409 | 1,559 | 1.4 | 38.1 | 38.1 | 39.1 | 1.0 |
| 055 | 5,500 | 342 | 1,627 | 1.3 | 38.6 | 38.6 | 39.6 | 1.0 |
| 059 | 5,914 | 347 | 1,369 | 1.6 | 38.9 | 38.9 | 39.9 | 1.0 |
| 066 | 6,594 | 251 | 1,391 | 1.5 | 39.7 | 39.7 | 40.6 | 1.0 |
| 070 | 7,000 | 233 | 1,098 | 1.8 | 40.0 | 40.0 | 41.0 | 1.0 |
| 075 | 7,500 | 236 | 1,593 | 1.3 | 40.6 | 40.6 | 41.5 | 1.0 |
| 080 | 8,000 | 273 | 1,862 | 1.1 | 40.8 | 40.8 | 41.8 | 1.0 |
| 085 | 8,500 | 252 | 1,529 | 1.3 | 41.1 | 41.1 | 42.1 | 1.0 |
| 090 | 9,000 | 289 | 1,837 | 1.1 | 41.5 | 41.5 | 42.4 | 1.0 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 095 | 9,500 | 374 | 2,262 | 0.9 | 41.7 | 41.7 | 42.7 | 1.0 |
| 099 | 9,945 | 284 | 1,747 | 1.2 | 42.0 | 42.0 | 43.0 | 1.0 |
| 105 | 10,476 | 260 | 1,528 | 1.3 | 42.4 | 42.4 | 43.3 | 1.0 |
| 109 | 10,949 | 280 | 1,383 | 1.5 | 42.8 | 42.8 | 43.8 | 1.0 |
| 115 | 11,500 | 366 | 2,149 | 0.9 | 43.2 | 43.2 | 44.2 | 1.0 |
| 120 | 12,000 | 351 | 2,143 | 0.9 | 43.4 | 43.4 | 44.4 | 1.0 |
| 125 | 12,496 | 307 | 1,641 | 1.1 | 43.7 | 43.7 | 44.7 | 1.0 |
| 135 | 13,500 | 294 | 1,698 | 1.0 | 44.3 | 44.3 | 45.3 | 1.0 |
| 140 | 14,000 | 268 | 1,714 | 1.0 | 44.6 | 44.6 | 45.6 | 1.0 |
| 146 | 14,634 | 292 | 1,520 | 1.2 | 44.9 | 44.9 | 45.9 | 1.0 |
| 150 | 15,000 | 289 | 1,339 | 1.3 | 45.0 | 45.0 | 46.0 | 1.0 |
| 155 | 15,500 | 290 | 1,392 | 1.3 | 45.5 | 45.5 | 46.4 | 1.0 |
| 160 | 16,000 | 309 | 1,746 | 1.0 | 45.8 | 45.8 | 46.8 | 1.0 |
| 164 | 16,375 | 287 | 1,411 | 1.2 | 46.0 | 46.0 | 47.0 | 1.0 |
| 167 | 16,681 | 358 | 1,965 | 0.9 | 46.3 | 46.3 | 47.3 | 1.0 |
| 175 | 17,500 | 389 | 1,698 | 0.9 | 46.7 | 46.7 | 47.7 | 1.0 |
| 180 | 18,047 | 247 | 1,279 | 1.2 | 47.1 | 47.1 | 48.0 | 1.0 |
| 185 | 18,500 | 255 | 1,346 | 1.1 | 47.3 | 47.3 | 48.3 | 1.0 |
| 195 | 19,500 | 207 | 1,044 | 1.2 | 48.5 | 48.5 | 49.1 | 0.6 |
| 200 | 20,000 | 180 | 915 | 1.4 | 48.8 | 48.8 | 49.5 | 0.7 |
| 205 | 20,500 | 146 | 671 | 1.5 | 49.2 | 49.2 | 49.9 | 0.8 |
| 210 | 21,000 | 105 | 496 | 1.8 | 49.6 | 49.6 | 50.4 | 0.8 |
| 215 | 21,500 | 96 | 455 | 2.0 | 50.0 | 50.0 | 50.9 | 1.0 |
| 220 | 22,000 | 76 | 374 | 2.5 | 50.5 | 50.5 | 51.4 | 0.9 |
| 223 | 22,302 | 44 | 332 | 2.8 | 50.8 | 50.8 | 51.7 | 0.9 |
| 235 | 23,490 | 365 | 3,385 | 0.3 | 58.2 | 58.2 | 58.4 | 0.2 |
| 240 | 24,000 | 321 | 3,537 | 0.3 | 58.2 | 58.2 | 58.4 | 0.2 |
| 245 | 24,500 | 267 | 2,589 | 0.4 | 58.2 | 58.2 | 58.4 | 0.2 |
| 252 | 25,195 | 127 | 1,084 | 0.4 | 58.2 | 58.2 | 58.4 | 0.2 |
| 260 | 26,012 | 85 | 416 | 1.0 | 58.2 | 58.2 | 58.4 | 0.2 |
| 265 | 26,500 | 94 | 398 | 1.0 | 58.3 | 58.3 | 58.5 | 0.2 |
| **Island Creek** | | | | | | | | |
| 013 | 1,303 | 800 | 1,991 | 3.5 | 8.4[6] | 8.4 | 2.3 | -6.1 |
| 075 | 7,481 | 950 | 4,456 | 2.4 | 8.4[6] | 8.4 | 4.6 | -3.8 |
| 124 | 12,424 | 800 | 4,195 | 2.5 | 8.4[2] | 8.4 | 6.2 | -2.2 |
| 165 | 16,472 | 750 | 3,545 | 2.7 | 8.4 | 8.4 | 7.5 | -0.9 |
| 186 | 18,640 | 620 | 3,673 | 2.2 | 8.4 | 8.4 | 7.9 | -0.5 |
| 201 | 20,113 | 546 | 3,478 | 1.8 | 8.4 | 8.4 | 8.2 | -0.2 |
| 211 | 21,086 | 550 | 3,320 | 1.2 | 8.4 | 8.4 | 8.3 | -0.1 |
| 215 | 21,530 | 294 | 1,725 | 3.4 | 8.4 | 8.4 | 8.6 | 0.2 |
| 227 | 22,691 | 430 | 2,688 | 2.2 | 8.4 | 8.4 | 9.3 | 0.9 |
| 242 | 24,215 | 399 | 2,430 | 2.5 | 9.1 | 9.1 | 10.0 | 0.9 |
| **Jones Creek** | | | | | | | | |
| 007 | 727 | 60 | 366 | 4.3 | 38.3[2] | 38.2 | 38.6 | 0.4 |
| 015 | 1,500 | 84 | 441 | 3.6 | 39.6 | 39.6 | 40.0 | 0.4 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 019 | 1,942 | 69 | 347 | 4.5 | 40.4 | 40.4 | 41.0 | 0.6 |
| 030 | 3,000 | 99 | 412 | 3.8 | 43.2 | 43.2 | 44.2 | 1.0 |
| 034 | 3,434 | 159 | 814 | 1.9 | 44.3 | 44.3 | 45.2 | 0.9 |
| 039 | 3,921 | 162 | 855 | 1.8 | 44.8 | 44.8 | 45.8 | 1.0 |
| 045 | 4,491 | 112 | 566 | 2.8 | 45.6 | 45.6 | 46.5 | 0.9 |
| 050 | 5,000 | 129 | 678 | 2.3 | 46.5 | 46.5 | 47.4 | 0.9 |
| 055 | 5,500 | 108 | 594 | 2.7 | 47.2 | 47.2 | 48.0 | 0.9 |
| 059 | 5,856 | 129 | 732 | 2.2 | 47.6 | 47.6 | 48.5 | 0.9 |
| 063 | 6,288 | 132 | 710 | 2.2 | 48.0 | 48.0 | 48.9 | 1.0 |
| 070 | 7,000 | 95 | 524 | 2.9 | 49.0 | 49.0 | 49.9 | 0.9 |
| 080 | 8,024 | 484 | 5,105 | 0.2 | 59.1 | 59.1 | 59.1 | 0.0 |
| 086 | 8,553 | 313 | 3,020 | 0.4 | 59.1 | 59.1 | 59.1 | 0.0 |
| 090 | 8,958 | 305 | 2,662 | 0.5 | 59.1 | 59.1 | 59.1 | 0.0 |
| 093 | 9,263 | 400 | 813 | 1.6 | 59.1 | 59.1 | 59.1 | 0.0 |
| 094 | 9,394 | 481 | 4,294 | 0.3 | 59.1 | 59.1 | 59.2 | 0.0 |
| 096 | 9,594 | 291 | 2,530 | 0.5 | 59.1 | 59.1 | 59.2 | 0.0 |
| 101 | 10,051 | 355 | 2,856 | 0.4 | 59.1 | 59.1 | 59.2 | 0.0 |
| 104 | 10,445 | 298 | 1,959 | 0.7 | 59.2 | 59.2 | 59.2 | 0.0 |
| 111 | 11,064 | 107 | 581 | 2.0 | 59.2 | 59.2 | 59.2 | 0.0 |
| 115 | 11,457 | 135 | 763 | 1.5 | 59.4 | 59.4 | 59.5 | 0.2 |
| 120 | 12,045 | 153 | 735 | 1.6 | 59.8 | 59.8 | 60.4 | 0.6 |
| 125 | 12,501 | 178 | 822 | 1.4 | 60.2 | 60.2 | 61.2 | 0.9 |
| 130 | 13,003 | 156 | 634 | 1.8 | 61.4 | 61.4 | 62.3 | 1.0 |
| 138 | 13,801 | 168 | 827 | 1.4 | 63.8 | 63.8 | 64.7 | 0.9 |
| 142 | 14,239 | 196 | 1,082 | 1.1 | 64.3 | 64.3 | 65.2 | 0.9 |
| 147 | 14,669 | 177 | 932 | 1.2 | 64.7 | 64.7 | 65.7 | 1.0 |
| 151 | 15,051 | 204 | 1,028 | 1.1 | 65.1 | 65.1 | 66.1 | 1.0 |
| 154 | 15,429 | 133 | 646 | 1.4 | 65.6 | 65.6 | 66.5 | 1.0 |
| 157 | 15,714 | 113 | 614 | 1.5 | 66.1 | 66.1 | 67.1 | 1.0 |
| **Lewis Creek** | | | | | | | | |
| 013 | 1,305 | 82 | 682 | 2.9 | 22.6[6] | 14.6 | 14.7 | 0.1 |
| 026 | 2,596 | 155 | 1,128 | 1.8 | 22.6[6] | 15.6 | 16.0 | 0.4 |
| 033 | 3,304 | 100 | 676 | 2.9 | 22.8[2] | 15.9 | 16.7 | 0.8 |
| 039 | 3,898 | 122 | 855 | 2.3 | 22.8[2] | 17.6 | 18.0 | 0.4 |
| 045 | 4,517 | 190 | 1,439 | 1.4 | 22.8[2] | 18.2 | 18.6 | 0.4 |
| 050 | 5,001 | 140 | 1,198 | 1.6 | 22.8[2] | 18.4 | 18.9 | 0.5 |
| 055 | 5,469 | 160 | 958 | 2.1 | 22.8[2] | 18.8 | 19.3 | 0.5 |
| 063 | 6,344 | 205 | 1,063 | 1.9 | 22.8[2] | 19.9 | 20.5 | 0.5 |
| 072 | 7,201 | 220 | 1,169 | 1.7 | 22.8[2] | 20.7 | 21.4 | 0.7 |
| 078 | 7,810 | 185 | 1,052 | 1.9 | 22.8[2] | 21.4 | 22.1 | 0.7 |
| 083 | 8,256 | 185 | 1,148 | 1.7 | 22.8[2] | 22.0 | 22.7 | 0.7 |
| 087 | 8,727 | 190 | 1,010 | 1.9 | 22.8[2] | 22.4 | 23.2 | 0.8 |
| 094 | 9,351 | 190 | 1,120 | 1.7 | 23.3 | 23.3 | 24.1 | 0.8 |
| 100 | 10,014 | 175 | 937 | 2.0 | 24.1 | 24.1 | 24.9 | 0.8 |
| 110 | 11,041 | 260 | 1,643 | 1.1 | 26.6 | 26.6 | 27.4 | 0.9 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 117 | 11,738 | 237 | 1,525 | 1.2 | 27.0 | 27.0 | 28.0 | 1.0 |
| 123 | 12,342 | 280 | 1,611 | 1.1 | 27.5 | 27.5 | 28.5 | 0.9 |
| 129 | 12,882 | 263 | 1,542 | 1.2 | 28.0 | 28.0 | 29.0 | 1.0 |
| 135 | 13,541 | 238 | 1,308 | 1.4 | 28.8 | 28.8 | 29.8 | 1.0 |
| 141 | 14,095 | 171 | 863 | 1.9 | 29.9 | 29.9 | 30.8 | 0.9 |
| 146 | 14,567 | 200 | 1,032 | 1.6 | 31.0 | 31.0 | 31.9 | 0.9 |
| 153 | 15,329 | 244 | 1,550 | 1.1 | 31.5 | 31.5 | 32.5 | 1.0 |
| 160 | 16,025 | 325 | 1,866 | 0.9 | 31.9 | 31.9 | 32.9 | 1.0 |
| 168 | 16,830 | 215 | 618 | 2.7 | 32.3 | 32.3 | 33.3 | 0.9 |
| 173 | 17,319 | 320 | 1,537 | 1.1 | 34.0 | 34.0 | 34.6 | 0.6 |
| 185 | 18,481 | 280 | 3,000 | 0.6 | 40.4 | 40.4 | 41.3 | 0.9 |
| 189 | 18,855 | 185 | 1,948 | 0.8 | 40.4 | 40.4 | 41.3 | 0.9 |
| **Long Creek** | | | | | | | | |
| 190 | 19,010 | 2,614 | 21,268 | 0.5 | 8.3 | 8.3 | 7.8 | -0.5 |
| 195 | 19,497 | 2,373 | 19,474 | 0.5 | 8.3 | 8.3 | 7.9 | -0.5 |
| 199 | 19,879 | 2,790 | 20,892 | 0.5 | 8.3 | 8.3 | 7.9 | -0.4 |
| 205 | 20,548 | 2,498 | 18,557 | 0.5 | 8.3 | 8.3 | 7.9 | -0.4 |
| 210 | 20,992 | 2,722 | 21,014 | 0.5 | 8.4 | 8.4 | 8.0 | -0.4 |
| 218 | 21,812 | 2,949 | 22,162 | 0.5 | 8.4 | 8.4 | 8.0 | -0.4 |
| 225 | 22,487 | 2,992 | 22,224 | 0.5 | 8.4 | 8.4 | 8.1 | -0.3 |
| 231 | 23,061 | 2,774 | 21,893 | 0.5 | 8.4 | 8.4 | 8.1 | -0.3 |
| 235 | 23,486 | 2,740 | 22,253 | 0.5 | 8.4 | 8.4 | 8.1 | -0.3 |
| 240 | 24,034 | 2,458 | 20,467 | 0.5 | 8.4 | 8.4 | 8.2 | -0.3 |
| 246 | 24,615 | 2,510 | 21,952 | 0.5 | 8.4 | 8.4 | 8.2 | -0.3 |
| 250 | 24,972 | 2,193 | 20,258 | 1.3 | 8.5 | 8.5 | 8.2 | -0.3 |
| 258 | 25,787 | 1,888 | 17,191 | 1.4 | 8.5 | 8.5 | 8.2 | -0.3 |
| 265 | 26,529 | 1,893 | 17,584 | 0.6 | 8.5 | 8.5 | 8.2 | -0.2 |
| 270 | 27,013 | 1,897 | 17,099 | 0.6 | 8.5 | 8.5 | 8.3 | -0.2 |
| 287 | 28,702 | 1,768 | 16,731 | 0.6 | 8.5 | 8.5 | 8.3 | -0.2 |
| 289 | 28,897 | 1,837 | 16,331 | 0.6 | 8.5 | 8.5 | 8.3 | -0.2 |
| 296 | 29,585 | 1,835 | 16,364 | 0.6 | 8.6 | 8.6 | 8.4 | -0.2 |
| 301 | 30,142 | 1,771 | 15,247 | 0.7 | 8.6 | 8.6 | 8.4 | -0.1 |
| 312 | 31,174 | 1,739 | 15,431 | 0.6 | 8.6 | 8.6 | 8.5 | -0.1 |
| 316 | 31,572 | 2,112 | 18,011 | 0.6 | 8.6 | 8.6 | 8.6 | -0.1 |
| 326 | 32,592 | 1,932 | 16,899 | 0.6 | 8.7 | 8.7 | 8.6 | -0.1 |
| 332 | 33,170 | 1,833 | 16,863 | 0.6 | 8.7 | 8.7 | 8.6 | 0.0 |
| 344 | 34,415 | 1,821 | 16,868 | 0.6 | 8.7 | 8.7 | 8.7 | 0.0 |
| 349 | 34,902 | 2,333 | 20,132 | 0.5 | 8.7 | 8.7 | 8.7 | 0.0 |
| 355 | 35,521 | 2,411 | 21,694 | 0.5 | 8.7 | 8.7 | 8.8 | 0.0 |
| 359 | 35,947 | 2,611 | 22,693 | 0.4 | 8.8 | 8.8 | 8.8 | 0.0 |
| 365 | 36,546 | 2,049 | 18,222 | 0.5 | 8.8 | 8.8 | 8.8 | 0.0 |
| 373 | 37,344 | 2,080 | 18,300 | 0.5 | 8.8 | 8.8 | 8.9 | 0.1 |
| 380 | 37,995 | 2,185 | 19,639 | 0.5 | 8.8 | 8.8 | 8.9 | 0.1 |
| 385 | 38,516 | 2,423 | 20,020 | 0.5 | 8.8 | 8.8 | 9.0 | 0.1 |
| 390 | 39,016 | 2,321 | 20,634 | 0.5 | 8.9 | 8.9 | 9.0 | 0.1 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 395 | 39,518 | 2,177 | 19,421 | 0.5 | 8.9 | 8.9 | 9.0 | 0.1 |
| 400 | 40,008 | 2,162 | 17,923 | 0.5 | 8.9 | 8.9 | 9.0 | 0.2 |
| 405 | 40,462 | 2,348 | 18,810 | 0.5 | 8.9 | 8.9 | 9.1 | 0.2 |
| 410 | 41,024 | 2,259 | 18,378 | 0.5 | 8.9 | 8.9 | 9.1 | 0.2 |
| 421 | 42,055 | 2,125 | 18,247 | 0.5 | 9.0 | 9.0 | 9.2 | 0.2 |
| 430 | 43,024 | 1,983 | 17,744 | 0.6 | 9.0 | 9.0 | 9.3 | 0.3 |
| 445 | 44,458 | 1,813 | 15,707 | 0.6 | 9.1 | 9.1 | 9.4 | 0.3 |
| 450 | 44,978 | 1,911 | 16,891 | 0.6 | 9.2 | 9.2 | 9.5 | 0.3 |
| 468 | 46,811 | 1,943 | 17,759 | 0.5 | 9.3 | 9.3 | 9.7 | 0.4 |
| 480 | 48,036 | 2,121 | 19,544 | 0.5 | 9.3 | 9.3 | 9.8 | 0.4 |
| 485 | 48,509 | 2,328 | 20,824 | 0.5 | 9.4 | 9.4 | 9.8 | 0.5 |
| 490 | 48,999 | 2,206 | 20,177 | 0.5 | 9.4 | 9.4 | 9.8 | 0.5 |
| 500 | 49,981 | 1,772 | 16,295 | 0.6 | 9.4 | 9.4 | 9.9 | 0.5 |
| 506 | 50,597 | 1,968 | 18,704 | 1.5 | 9.4 | 9.4 | 9.9 | 0.5 |
| 515 | 51,491 | 1,653 | 14,420 | 0.7 | 9.5 | 9.5 | 10.0 | 0.5 |
| 521 | 52,071 | 1,558 | 14,269 | 0.7 | 9.5 | 9.5 | 10.0 | 0.5 |
| 529 | 52,925 | 1,361 | 13,082 | 0.7 | 9.6 | 9.6 | 10.1 | 0.5 |
| 539 | 53,929 | 1,738 | 16,062 | 0.5 | 9.6 | 9.6 | 10.2 | 0.5 |
| 561 | 56,150 | 1,341 | 12,700 | 0.6 | 9.8 | 9.8 | 10.3 | 0.6 |
| 575 | 57,511 | 1,048 | 10,637 | 0.7 | 9.8 | 9.8 | 10.5 | 0.6 |
| 580 | 58,042 | 1,475 | 14,017 | 1.6 | 9.9 | 9.9 | 10.5 | 0.6 |
| 585 | 58,502 | 1,336 | 12,698 | 0.6 | 9.9 | 9.9 | 10.6 | 0.6 |
| 589 | 58,936 | 1,103 | 10,703 | 0.7 | 10.0 | 10.0 | 10.6 | 0.6 |
| 595 | 59,488 | 1,307 | 11,785 | 0.6 | 10.0 | 10.0 | 10.7 | 0.7 |
| 638 | 63,789 | 1,012 | 11,833 | 0.6 | 12.4 | 12.4 | 13.2 | 0.8 |
| 1121 | 112,063 | 1,200 | 7,865 | 0.6 | 29.8 | 29.8 | 30.6 | 0.8 |
| 1140 | 114,000 | 747 | 5,903 | 0.8 | 30.3 | 30.3 | 31.1 | 0.8 |
| 1153 | 115,287 | 760 | 5,402 | 0.8 | 30.6 | 30.6 | 31.5 | 0.9 |
| 1170 | 117,035 | 766 | 5,049 | 0.8 | 30.9 | 30.9 | 31.9 | 1.0 |
| 1180 | 118,000 | 758 | 5,008 | 0.8 | 31.1 | 31.1 | 32.1 | 1.0 |
| 1187 | 118,723 | 695 | 4,657 | 0.8 | 31.3 | 31.3 | 32.3 | 1.0 |
| 1200 | 120,019 | 651 | 4,413 | 0.7 | 32.2 | 32.2 | 33.0 | 0.8 |
| 1207 | 120,670 | 411 | 2,781 | 1.2 | 32.3 | 32.3 | 33.1 | 0.8 |
| 1214 | 121,384 | 420 | 2,934 | 1.1 | 32.5 | 32.5 | 33.4 | 0.9 |
| 1220 | 122,000 | 450 | 2,666 | 1.2 | 32.8 | 32.8 | 33.7 | 1.0 |
| 1229 | 122,947 | 375 | 2,171 | 1.4 | 33.4 | 33.4 | 34.4 | 1.0 |
| 1238 | 123,763 | 545 | 3,711 | 0.8 | 34.0 | 34.0 | 34.9 | 1.0 |
| 1242 | 124,221 | 586 | 3,565 | 0.9 | 34.1 | 34.1 | 35.1 | 1.0 |
| 1246 | 124,581 | 449 | 2,999 | 1.0 | 34.3 | 34.3 | 35.3 | 1.0 |
| 1254 | 125,386 | 359 | 2,341 | 1.3 | 34.8 | 34.8 | 35.8 | 1.0 |
| 1262 | 126,154 | 512 | 3,546 | 0.9 | 35.2 | 35.2 | 36.2 | 1.0 |
| 1274 | 127,394 | 351 | 1,926 | 1.0 | 36.6 | 36.6 | 37.1 | 0.6 |
| 1281 | 128,059 | 316 | 2,061 | 0.9 | 36.7 | 36.7 | 37.3 | 0.6 |
| 1289 | 128,934 | 313 | 1,862 | 1.0 | 36.9 | 36.9 | 37.6 | 0.7 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 1299 | 129,893 | 210 | 1,059 | 1.7 | 37.4 | 37.4 | 38.2 | 0.8 |
| 1309 | 130,876 | 285 | 1,562 | 1.2 | 38.1 | 38.1 | 39.1 | 1.0 |
| 1316 | 131,633 | 235 | 1,026 | 1.8 | 38.6 | 38.6 | 39.6 | 1.0 |
| 1321 | 132,073 | 165 | 944 | 1.8 | 39.0 | 39.0 | 40.0 | 1.0 |
| 1328 | 132,803 | 137 | 815 | 2.0 | 40.0 | 40.0 | 40.8 | 0.8 |
| 1334 | 133,422 | 130 | 637 | 2.6 | 40.6 | 40.6 | 41.5 | 0.8 |
| 1337 | 133,718 | 190 | 964 | 1.7 | 40.9 | 40.9 | 41.9 | 1.0 |
| 1345 | 134,493 | 112 | 1,013 | 1.6 | 41.4 | 41.4 | 42.4 | 1.0 |
| 1350 | 135,000 | 110 | 555 | 2.2 | 41.8 | 41.8 | 42.7 | 0.9 |
| 1353 | 135,274 | 125 | 589 | 2.0 | 42.1 | 42.1 | 43.0 | 0.9 |
| 1356 | 135,605 | 145 | 654 | 1.8 | 42.6 | 42.6 | 43.4 | 0.8 |
| 1361 | 136,052 | 150 | 678 | 1.8 | 43.0 | 43.0 | 43.8 | 0.8 |
| 1364 | 136,415 | 150 | 545 | 2.2 | 43.3 | 43.3 | 44.1 | 0.8 |
| **Mill Branch (of Buxton Branch)** | | | | | | | | |
| 002 | 170 | 163 | 262 | 2.9 | 28.3[7] | 26.8 | 27.0 | 0.3 |
| 007 | 696 | 90 | 418 | 1.8 | 30.8 | 30.8 | 31.5 | 0.7 |
| 009 | 935 | 118 | 496 | 1.5 | 31.4 | 31.4 | 32.2 | 0.8 |
| 011 | 1,115 | 107 | 448 | 1.7 | 31.8 | 31.8 | 32.8 | 0.9 |
| 012 | 1,242 | 71 | 320 | 2.4 | 32.4 | 32.4 | 33.3 | 0.9 |
| 013 | 1,349 | 75 | 209 | 3.4 | 33.2 | 33.2 | 34.0 | 0.8 |
| 015 | 1,513 | 122 | 447 | 1.6 | 34.2 | 34.2 | 35.2 | 1.0 |
| 016 | 1,633 | 135 | 473 | 1.5 | 34.6 | 34.6 | 35.6 | 1.0 |
| 019 | 1,853 | 87 | 389 | 1.8 | 35.2 | 35.2 | 36.2 | 1.0 |
| 020 | 2,042 | 87 | 378 | 1.9 | 35.6 | 35.6 | 36.6 | 1.0 |
| 022 | 2,246 | 50 | 239 | 3.0 | 35.9 | 35.9 | 36.9 | 1.0 |
| 025 | 2,506 | 43 | 207 | 3.4 | 36.5 | 36.5 | 37.5 | 1.0 |
| 028 | 2,788 | 43 | 219 | 3.2 | 37.3 | 37.3 | 38.1 | 0.8 |
| 031 | 3,118 | 43 | 217 | 3.2 | 37.9 | 37.9 | 38.7 | 0.8 |
| **Mill Branch (of Moores Creek)** | | | | | | | | |
| 007 | 737 | 159 | 752 | 2.2 | 20.1[8] | 16.1 | 17.0 | 0.9 |
| 012 | 1,161 | 156 | 755 | 2.2 | 21.0[8] | 17.3 | 18.2 | 0.9 |
| 015 | 1,515 | 124 | 579 | 2.8 | 21.0[2] | 18.3 | 19.2 | 0.9 |
| 021 | 2,115 | 185 | 778 | 2.1 | 21.0[2] | 20.1 | 21.1 | 1.0 |
| 024 | 2,441 | 158 | 806 | 2.0 | 21.0[2] | 20.9 | 21.9 | 1.0 |
| 029 | 2,948 | 255 | 1,498 | 1.1 | 21.4 | 21.4 | 22.4 | 1.0 |
| 035 | 3,455 | 194 | 1,142 | 1.4 | 21.8 | 21.8 | 22.8 | 1.0 |
| 040 | 4,000 | 328 | 1,747 | 0.9 | 22.3 | 22.3 | 23.3 | 1.0 |
| 044 | 4,381 | 257 | 1,254 | 1.3 | 22.6 | 22.6 | 23.6 | 1.0 |
| 048 | 4,760 | 179 | 891 | 1.8 | 23.1 | 23.1 | 24.1 | 1.0 |
| 058 | 5,822 | 165 | 868 | 1.9 | 24.6 | 24.6 | 25.6 | 1.0 |
| 063 | 6,293 | 150 | 853 | 1.8 | 24.9 | 24.9 | 25.9 | 1.0 |
| 068 | 6,783 | 150 | 888 | 1.8 | 25.2 | 25.2 | 26.1 | 1.0 |
| 072 | 7,162 | 95 | 343 | 4.5 | 26.0 | 26.0 | 26.7 | 0.7 |
| 075 | 7,508 | 56 | 341 | 4.6 | 27.4 | 27.4 | 28.0 | 0.6 |
| 080 | 7,990 | 53 | 396 | 3.9 | 28.2 | 28.2 | 29.1 | 0.9 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 088 | 8,815 | 54 | 468 | 3.0 | 29.5 | 29.5 | 30.2 | 0.8 |
| 094 | 9,375 | 59 | 404 | 3.4 | 30.1 | 30.1 | 30.9 | 0.8 |
| 099 | 9,871 | 62 | 345 | 4.0 | 31.2 | 31.2 | 31.9 | 0.7 |
| 102 | 10,182 | 58 | 320 | 4.3 | 32.2 | 32.2 | 32.7 | 0.5 |
| 106 | 10,578 | 101 | 367 | 3.8 | 33.8 | 33.8 | 34.3 | 0.5 |
| 110 | 10,982 | 231 | 916 | 1.5 | 35.1 | 35.1 | 36.0 | 0.9 |
| 113 | 11,296 | 185 | 826 | 1.7 | 35.7 | 35.7 | 36.6 | 0.9 |
| 119 | 11,943 | 172 | 790 | 1.5 | 37.2 | 37.2 | 38.1 | 0.9 |
| 123 | 12,293 | 239 | 1,188 | 1.0 | 37.7 | 37.7 | 38.7 | 1.0 |
| 125 | 12,486 | 143 | 460 | 2.6 | 38.4 | 38.4 | 39.3 | 0.9 |
| 128 | 12,752 | 201 | 845 | 1.4 | 39.6 | 39.6 | 40.6 | 1.0 |
| 131 | 13,069 | 247 | 1,034 | 1.2 | 40.2 | 40.2 | 41.2 | 1.0 |
| 135 | 13,469 | 199 | 848 | 1.4 | 40.9 | 40.9 | 41.9 | 1.0 |
| 140 | 14,000 | 242 | 1,022 | 1.2 | 42.0 | 42.0 | 43.0 | 1.0 |
| 146 | 14,620 | 179 | 684 | 1.8 | 43.4 | 43.4 | 44.4 | 1.0 |
| 151 | 15,099 | 139 | 421 | 2.3 | 45.3 | 45.3 | 46.1 | 0.8 |
| 156 | 15,566 | 148 | 610 | 1.6 | 46.5 | 46.5 | 47.4 | 0.8 |
| 159 | 15,940 | 125 | 602 | 1.6 | 47.1 | 47.1 | 48.0 | 0.9 |
| 165 | 16,463 | 133 | 606 | 1.6 | 47.9 | 47.9 | 48.9 | 1.0 |
| 170 | 17,000 | 73 | 315 | 2.4 | 48.8 | 48.8 | 49.8 | 1.0 |
| 182 | 18,158 | 144 | 740 | 1.0 | 52.5 | 52.5 | 53.2 | 0.7 |
| 185 | 18,500 | 165 | 667 | 1.2 | 52.8 | 52.8 | 53.6 | 0.7 |
| 190 | 19,000 | 106 | 434 | 1.8 | 54.1 | 54.1 | 54.9 | 0.9 |
| 196 | 19,596 | 97 | 281 | 2.2 | 56.1 | 56.1 | 57.0 | 0.8 |
| 199 | 19,858 | 71 | 228 | 2.7 | 58.2 | 58.2 | 58.8 | 0.6 |
| 201 | 20,086 | 122 | 401 | 1.5 | 59.3 | 59.3 | 60.3 | 1.0 |
| **Moores Creek (near Atkinson)** | | | | | | | | |
| 012 | 1,153 | 2,406 | 16,408 | 0.5 | 18.6[9] | 7.3 | 8.2 | 0.9 |
| 048 | 4,799 | 1,550 | 10,587 | 0.8 | 18.6[9] | 7.5 | 8.4 | 0.9 |
| 065 | 6,541 | 1,100 | 7,956 | 1.0 | 18.7[9] | 7.6 | 8.5 | 0.8 |
| 100 | 9,982 | 1,375 | 9,353 | 0.9 | 18.7[2] | 8.0 | 8.7 | 0.8 |
| 119 | 11,910 | 900 | 6,896 | 1.2 | 18.7[2] | 8.1 | 8.8 | 0.7 |
| 135 | 13,502 | 950 | 7,208 | 1.1 | 18.7[2] | 8.3 | 9.0 | 0.7 |
| 159 | 15,928 | 1,308 | 10,411 | 0.8 | 18.7[2] | 8.8 | 9.4 | 0.6 |
| 174 | 17,384 | 900 | 7,247 | 1.1 | 18.7[2] | 9.0 | 9.6 | 0.6 |
| 198 | 19,800 | 800 | 6,631 | 1.2 | 18.7[2] | 9.2 | 10.0 | 0.7 |
| 208 | 20,762 | 773 | 6,780 | 1.2 | 18.7[2] | 9.4 | 10.2 | 0.8 |
| 232 | 23,243 | 482 | 4,224 | 2.0 | 18.7[2] | 10.8 | 11.4 | 0.6 |
| 271 | 27,054 | 435 | 5,103 | 1.6 | 18.7[2] | 12.5 | 13.4 | 1.0 |
| 286 | 28,609 | 335 | 3,690 | 2.2 | 18.7[2] | 13.1 | 14.1 | 1.0 |
| 487 | 48,741 | 833 | 8,083 | 0.9 | 19.9 | 19.9 | 20.6 | 0.7 |
| 493 | 49,318 | 502 | 4,800 | 1.5 | 20.1 | 20.1 | 20.8 | 0.7 |
| 511 | 51,115 | 512 | 5,292 | 1.3 | 21.0 | 21.0 | 21.9 | 0.9 |
| 520 | 52,017 | 727 | 7,343 | 0.9 | 21.2 | 21.2 | 22.1 | 0.9 |
| 530 | 53,005 | 783 | 7,010 | 1.0 | 21.4 | 21.4 | 22.3 | 0.9 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 540 | 54,027 | 825 | 6,558 | 1.0 | 21.6 | 21.6 | 22.6 | 0.9 |
| 549 | 54,912 | 700 | 6,058 | 1.1 | 21.9 | 21.9 | 22.8 | 0.9 |
| 560 | 56,008 | 605 | 5,351 | 1.3 | 22.3 | 22.3 | 23.2 | 0.9 |
| 569 | 56,870 | 740 | 6,498 | 1.0 | 22.6 | 22.6 | 23.5 | 0.9 |
| 580 | 58,000 | 725 | 6,095 | 1.1 | 22.9 | 22.9 | 23.9 | 1.0 |
| 590 | 59,000 | 490 | 4,108 | 1.6 | 23.4 | 23.4 | 24.4 | 0.9 |
| 597 | 59,695 | 927 | 7,696 | 0.9 | 23.8 | 23.8 | 24.7 | 1.0 |
| 602 | 60,243 | 876 | 5,910 | 1.2 | 24.0 | 24.0 | 25.0 | 1.0 |
| 607 | 60,705 | 872 | 5,582 | 1.2 | 24.3 | 24.3 | 25.2 | 1.0 |
| 621 | 62,052 | 487 | 4,402 | 1.5 | 26.9 | 26.9 | 27.2 | 0.3 |
| 629 | 62,935 | 841 | 7,389 | 0.9 | 27.1 | 27.1 | 27.6 | 0.5 |
| 640 | 64,000 | 694 | 6,208 | 1.1 | 27.4 | 27.4 | 27.9 | 0.6 |
| 648 | 64,845 | 1,021 | 8,462 | 0.8 | 27.6 | 27.6 | 28.1 | 0.6 |
| 660 | 65,986 | 643 | 4,851 | 1.3 | 28.0 | 28.0 | 28.7 | 0.6 |
| 670 | 67,000 | 797 | 6,612 | 0.9 | 28.3 | 28.3 | 29.0 | 0.7 |
| 678 | 67,750 | 567 | 5,234 | 1.2 | 28.6 | 28.6 | 29.3 | 0.7 |
| 683 | 68,331 | 857 | 6,998 | 0.9 | 28.8 | 28.8 | 29.5 | 0.8 |
| 690 | 68,988 | 775 | 6,442 | 1.0 | 29.0 | 29.0 | 29.8 | 0.8 |
| 700 | 70,000 | 1,037 | 7,694 | 0.8 | 29.2 | 29.2 | 30.0 | 0.8 |
| 710 | 71,028 | 925 | 7,300 | 0.8 | 29.4 | 29.4 | 30.2 | 0.8 |
| 719 | 71,852 | 711 | 5,411 | 1.1 | 29.7 | 29.7 | 30.6 | 0.8 |
| 730 | 73,000 | 636 | 4,954 | 1.2 | 30.2 | 30.2 | 31.1 | 0.9 |
| 740 | 74,000 | 846 | 6,139 | 1.0 | 30.7 | 30.7 | 31.6 | 0.9 |
| 748 | 74,806 | 894 | 6,889 | 0.9 | 31.0 | 31.0 | 31.9 | 0.9 |
| 759 | 75,928 | 952 | 7,050 | 0.9 | 31.3 | 31.3 | 32.3 | 0.9 |
| 766 | 76,611 | 1,098 | 7,551 | 0.8 | 31.5 | 31.5 | 32.5 | 0.9 |
| 791 | 79,079 | 1,350 | 6,513 | 0.9 | 33.0 | 33.0 | 34.0 | 0.9 |
| 799 | 79,927 | 1,435 | 10,311 | 0.6 | 33.2 | 33.2 | 34.2 | 1.0 |
| 809 | 80,890 | 1,314 | 8,492 | 0.7 | 33.4 | 33.4 | 34.3 | 1.0 |
| 820 | 82,001 | 877 | 5,282 | 1.1 | 33.7 | 33.7 | 34.7 | 1.0 |
| 829 | 82,891 | 659 | 4,536 | 1.3 | 34.2 | 34.2 | 35.2 | 1.0 |
| 839 | 83,853 | 799 | 5,184 | 1.1 | 34.8 | 34.8 | 35.8 | 1.0 |
| 846 | 84,555 | 785 | 5,578 | 1.0 | 35.2 | 35.2 | 36.2 | 1.0 |
| 853 | 85,265 | 712 | 4,969 | 1.2 | 35.5 | 35.5 | 36.5 | 1.0 |
| 864 | 86,417 | 960 | 6,052 | 1.0 | 36.1 | 36.1 | 37.1 | 1.0 |
| 872 | 87,223 | 902 | 6,051 | 1.0 | 36.4 | 36.4 | 37.4 | 1.0 |
| 880 | 87,950 | 859 | 5,341 | 1.1 | 36.8 | 36.8 | 37.7 | 1.0 |
| 884 | 88,437 | 800 | 4,784 | 1.2 | 37.1 | 37.1 | 38.0 | 1.0 |
| 890 | 89,000 | 864 | 5,372 | 1.1 | 37.4 | 37.4 | 38.4 | 1.0 |
| 897 | 89,696 | 838 | 5,777 | 0.9 | 37.8 | 37.8 | 38.8 | 1.0 |
| 903 | 90,251 | 791 | 5,197 | 1.0 | 38.0 | 38.0 | 39.0 | 1.0 |
| 909 | 90,935 | 1,075 | 7,482 | 0.7 | 38.3 | 38.3 | 39.3 | 1.0 |
| 920 | 92,000 | 935 | 6,822 | 0.8 | 38.5 | 38.5 | 39.5 | 1.0 |
| 928 | 92,811 | 670 | 3,772 | 1.4 | 39.1 | 39.1 | 40.0 | 1.0 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 938 | 93,847 | 1,089 | 8,042 | 0.7 | 39.4 | 39.4 | 40.4 | 1.0 |
| 950 | 94,987 | 683 | 4,414 | 0.8 | 39.7 | 39.7 | 40.6 | 1.0 |
| 956 | 95,608 | 780 | 5,324 | 0.7 | 39.8 | 39.8 | 40.8 | 1.0 |
| 970 | 97,000 | 557 | 3,680 | 1.0 | 40.5 | 40.5 | 41.4 | 0.9 |
| 980 | 98,000 | 654 | 4,495 | 0.8 | 40.8 | 40.8 | 41.7 | 0.9 |
| 990 | 99,022 | 675 | 4,477 | 0.8 | 41.0 | 41.0 | 42.0 | 0.9 |
| 1000 | 100,000 | 472 | 2,943 | 1.2 | 41.4 | 41.4 | 42.3 | 0.9 |
| 1010 | 101,023 | 565 | 3,512 | 1.0 | 41.8 | 41.8 | 42.7 | 1.0 |
| 1020 | 102,000 | 560 | 3,447 | 1.0 | 42.2 | 42.2 | 43.1 | 0.9 |
| 1024 | 102,411 | 842 | 5,048 | 0.7 | 42.3 | 42.3 | 43.3 | 1.0 |
| 1030 | 103,046 | 472 | 2,794 | 1.2 | 42.6 | 42.6 | 43.5 | 1.0 |
| 1034 | 103,420 | 365 | 2,306 | 1.5 | 42.9 | 42.9 | 43.9 | 1.0 |
| 1039 | 103,904 | 455 | 2,808 | 1.2 | 43.3 | 43.3 | 44.3 | 1.0 |
| 1043 | 104,276 | 774 | 4,311 | 0.8 | 43.5 | 43.5 | 44.5 | 1.0 |
| 1048 | 104,768 | 776 | 3,809 | 0.9 | 43.7 | 43.7 | 44.7 | 1.0 |
| 1060 | 105,963 | 497 | 3,264 | 0.9 | 44.8 | 44.8 | 45.6 | 0.8 |
| 1070 | 107,000 | 645 | 3,990 | 0.8 | 45.1 | 45.1 | 45.9 | 0.8 |
| 1077 | 107,663 | 416 | 2,909 | 1.0 | 45.3 | 45.3 | 46.1 | 0.9 |
| 1091 | 109,140 | 560 | 3,144 | 1.0 | 45.7 | 45.7 | 46.6 | 0.9 |
| 1097 | 109,727 | 404 | 2,484 | 1.2 | 45.9 | 45.9 | 46.8 | 0.9 |
| 1104 | 110,391 | 449 | 2,751 | 1.1 | 46.2 | 46.2 | 47.1 | 0.9 |
| 1109 | 110,853 | 315 | 1,722 | 1.6 | 46.4 | 46.4 | 47.3 | 0.9 |
| 1114 | 111,425 | 539 | 2,622 | 1.1 | 46.7 | 46.7 | 47.6 | 1.0 |
| 1119 | 111,913 | 814 | 3,149 | 0.9 | 46.9 | 46.9 | 47.8 | 1.0 |
| 1124 | 112,434 | 486 | 2,111 | 1.3 | 47.1 | 47.1 | 48.0 | 1.0 |
| 1130 | 113,000 | 424 | 2,416 | 1.2 | 47.4 | 47.4 | 48.3 | 1.0 |
| 1135 | 113,450 | 440 | 2,422 | 1.2 | 47.6 | 47.6 | 48.5 | 1.0 |
| 1139 | 113,864 | 492 | 2,346 | 1.2 | 47.8 | 47.8 | 48.8 | 1.0 |
| 1143 | 114,253 | 323 | 1,717 | 1.4 | 48.3 | 48.3 | 49.3 | 1.0 |
| 1147 | 114,663 | 385 | 2,144 | 1.2 | 48.7 | 48.7 | 49.7 | 1.0 |
| 1154 | 115,397 | 400 | 2,578 | 1.0 | 49.1 | 49.1 | 50.1 | 1.0 |
| 1158 | 115,770 | 364 | 2,255 | 1.1 | 49.3 | 49.3 | 50.3 | 1.0 |
| 1164 | 116,409 | 361 | 2,009 | 1.0 | 49.6 | 49.6 | 50.6 | 1.0 |
| 1170 | 117,004 | 290 | 1,777 | 1.1 | 50.0 | 50.0 | 50.9 | 1.0 |
| 1175 | 117,511 | 212 | 1,450 | 1.4 | 50.3 | 50.3 | 51.2 | 1.0 |
| 1178 | 117,842 | 321 | 1,931 | 1.0 | 50.5 | 50.5 | 51.5 | 1.0 |
| 1183 | 118,286 | 254 | 1,394 | 1.4 | 50.8 | 50.8 | 51.8 | 1.0 |
| 1186 | 118,635 | 278 | 1,388 | 1.4 | 51.1 | 51.1 | 52.1 | 1.0 |
| 1190 | 118,980 | 251 | 1,419 | 1.4 | 51.4 | 51.4 | 52.4 | 1.0 |
| 1195 | 119,497 | 326 | 1,879 | 1.1 | 51.8 | 51.8 | 52.8 | 1.0 |
| 1201 | 120,133 | 332 | 1,756 | 1.0 | 52.2 | 52.2 | 53.2 | 1.0 |
| 1205 | 120,452 | 322 | 1,439 | 1.3 | 52.4 | 52.4 | 53.4 | 1.0 |
| 1216 | 121,633 | 258 | 1,779 | 1.0 | 56.0 | 56.0 | 56.7 | 0.6 |
| 1222 | 122,150 | 284 | 2,014 | 0.8 | 56.1 | 56.1 | 56.8 | 0.7 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 1229 | 122,919 | 286 | 1,556 | 1.1 | 56.4 | 56.4 | 57.2 | 0.8 |
| 1236 | 123,595 | 246 | 1,508 | 1.1 | 56.7 | 56.7 | 57.5 | 0.8 |
| 1240 | 124,000 | 242 | 1,503 | 0.9 | 56.9 | 56.9 | 57.7 | 0.8 |
| 1246 | 124,609 | 209 | 1,563 | 0.9 | 57.1 | 57.1 | 57.9 | 0.8 |
| 1251 | 125,101 | 221 | 1,172 | 1.2 | 57.3 | 57.3 | 58.2 | 0.9 |
| 1257 | 125,744 | 178 | 977 | 1.4 | 57.8 | 57.8 | 58.7 | 0.9 |
| 1261 | 126,115 | 178 | 982 | 1.1 | 58.1 | 58.1 | 59.0 | 0.9 |
| 1266 | 126,579 | 146 | 787 | 1.4 | 58.4 | 58.4 | 59.4 | 0.9 |
| **Mulberry Branch** | | | | | | | | |
| 003 | 336 | 321 | 783 | 0.6 | 12.4[10] | 2.9 | 3.9 | 1.0 |
| 010 | 1,032 | 170 | 459 | 1.1 | 12.5[10] | 3.7 | 4.7 | 1.0 |
| 018 | 1,794 | 100 | 250 | 2.0 | 12.5[10] | 6.4 | 6.9 | 0.6 |
| 021 | 2,136 | 75 | 184 | 2.7 | 12.5[2] | 9.0 | 9.2 | 0.2 |
| 024 | 2,432 | 77 | 280 | 1.8 | 12.5[2] | 10.5 | 11.0 | 0.5 |
| 027 | 2,735 | 95 | 253 | 1.9 | 12.5[2] | 11.7 | 12.2 | 0.5 |
| 032 | 3,191 | 61 | 200 | 2.4 | 14.0 | 14.0 | 14.7 | 0.8 |
| 035 | 3,529 | 66 | 361 | 1.0 | 16.4 | 16.4 | 17.3 | 0.9 |
| 039 | 3,884 | 59 | 254 | 1.5 | 16.7 | 16.7 | 17.7 | 1.0 |
| 042 | 4,246 | 49 | 166 | 2.3 | 17.9 | 17.9 | 18.7 | 0.9 |
| 045 | 4,478 | 39 | 142 | 2.7 | 19.0 | 19.0 | 19.8 | 0.8 |
| 047 | 4,729 | 42 | 149 | 2.6 | 20.6 | 20.6 | 21.3 | 0.7 |
| 050 | 4,972 | 44 | 150 | 2.5 | 21.8 | 21.8 | 22.7 | 0.9 |
| 052 | 5,235 | 37 | 147 | 2.6 | 23.1 | 23.1 | 24.1 | 1.0 |
| 054 | 5,397 | 44 | 169 | 2.3 | 24.2 | 24.2 | 24.9 | 0.7 |
| 056 | 5,578 | 52 | 210 | 1.8 | 24.9 | 24.9 | 25.6 | 0.7 |
| **North Branch** | | | | | | | | |
| 003 | 327 | 126 | 721 | 1.4 | 40.4[2] | 35.8 | 36.8 | 1.0 |
| 005 | 526 | 140 | 770 | 1.4 | 40.4[2] | 36.0 | 37.0 | 1.0 |
| 011 | 1,123 | 178 | 866 | 1.2 | 40.4[2] | 36.5 | 37.4 | 1.0 |
| 016 | 1,598 | 174 | 712 | 1.5 | 40.4[2] | 37.0 | 37.9 | 0.9 |
| 020 | 2,015 | 153 | 567 | 1.8 | 40.4[2] | 37.8 | 38.6 | 0.8 |
| 024 | 2,436 | 148 | 656 | 1.6 | 40.4[2] | 38.7 | 39.5 | 0.8 |
| 028 | 2,836 | 133 | 637 | 1.3 | 40.4[2] | 39.2 | 40.1 | 0.9 |
| 032 | 3,197 | 92 | 429 | 2.0 | 40.4[2] | 39.7 | 40.6 | 0.8 |
| 036 | 3,587 | 111 | 509 | 1.7 | 40.9 | 40.9 | 41.6 | 0.7 |
| 040 | 4,031 | 132 | 586 | 1.4 | 41.7 | 41.7 | 42.6 | 0.8 |
| 044 | 4,405 | 150 | 618 | 1.4 | 42.5 | 42.5 | 43.3 | 0.8 |
| 048 | 4,811 | 163 | 698 | 1.2 | 43.3 | 43.3 | 44.0 | 0.7 |
| 052 | 5,238 | 200 | 966 | 0.9 | 43.6 | 43.6 | 44.4 | 0.7 |
| 056 | 5,587 | 97 | 335 | 2.5 | 44.1 | 44.1 | 44.8 | 0.7 |
| 059 | 5,905 | 112 | 467 | 1.5 | 45.1 | 45.1 | 45.9 | 0.8 |
| 063 | 6,286 | 80 | 370 | 1.9 | 45.4 | 45.4 | 46.4 | 1.0 |
| 068 | 6,831 | 105 | 535 | 1.3 | 47.6 | 47.6 | 48.0 | 0.4 |
| **Northeast Cape Fear River** | | | | | | | | |
| 1140 | 114,000 | 591 | 16,682 | 2.6 | 8.0 | 8.0 | 6.2 | -1.8 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 1155 | 115,500 | 509 | 13,241 | 3.3 | 8.0 | 8.0 | 6.2 | -1.8 |
| 1165 | 116,479 | 420 | 13,734 | 3.1 | 8.0 | 8.0 | 6.3 | -1.7 |
| 1195 | 119,507 | 419 | 12,849 | 3.4 | 8.0 | 8.0 | 6.4 | -1.6 |
| 1210 | 121,001 | 341 | 9,837 | 4.4 | 8.0 | 8.0 | 6.4 | -1.6 |
| 1219 | 121,894 | 565 | 9,982 | 4.3 | 8.0 | 8.0 | 6.6 | -1.4 |
| 1225 | 122,463 | 641 | 9,206 | 4.7 | 8.0 | 8.0 | 6.8 | -1.2 |
| 1230 | 123,046 | 629 | 9,797 | 4.4 | 8.0 | 8.0 | 7.0 | -1.0 |
| 1255 | 125,515 | 482 | 11,528 | 3.7 | 8.0 | 8.0 | 7.4 | -0.6 |
| 1275 | 127,500 | 521 | 12,981 | 3.3 | 8.0 | 8.0 | 7.6 | -0.4 |
| 1289 | 128,931 | 512 | 12,576 | 3.4 | 8.0 | 8.0 | 7.7 | -0.3 |
| 1306 | 130,555 | 508 | 12,158 | 3.5 | 8.0 | 8.0 | 7.8 | -0.2 |
| 1321 | 132,082 | 512 | 12,326 | 3.5 | 8.0 | 8.0 | 7.9 | -0.1 |
| 1335 | 133,500 | 486 | 11,592 | 3.7 | 8.0 | 8.0 | 8.0 | 0.0 |
| 1349 | 134,943 | 536 | 12,783 | 3.3 | 8.0 | 8.0 | 8.2 | 0.2 |
| 1359 | 135,889 | 580 | 13,443 | 3.2 | 8.0 | 8.0 | 8.2 | 0.2 |
| 1382 | 138,248 | 510 | 11,224 | 3.8 | 8.0 | 8.0 | 8.4 | 0.4 |
| 1395 | 139,505 | 543 | 10,619 | 4.0 | 8.1 | 8.1 | 8.4 | 0.4 |
| 1424 | 142,415 | 810 | 16,547 | 2.6 | 8.3 | 8.3 | 8.8 | 0.5 |
| 1450 | 145,009 | 1,280 | 15,719 | 2.7 | 8.3 | 8.3 | 8.9 | 0.6 |
| 1479 | 147,909 | 2,350 | 28,748 | 1.5 | 8.6 | 8.6 | 9.3 | 0.7 |
| 1506 | 150,596 | 2,050 | 26,902 | 1.6 | 8.7 | 8.7 | 9.4 | 0.8 |
| 1531 | 153,067 | 3,230 | 36,777 | 1.2 | 8.8 | 8.8 | 9.6 | 0.8 |
| 1562 | 156,232 | 2,227 | 28,020 | 1.5 | 8.8 | 8.8 | 9.7 | 0.9 |
| 1590 | 159,000 | 2,517 | 31,465 | 1.3 | 8.9 | 8.9 | 9.8 | 0.9 |
| 1619 | 161,895 | 2,014 | 24,912 | 1.7 | 9.0 | 9.0 | 9.8 | 0.8 |
| 1641 | 164,059 | 1,860 | 21,995 | 1.9 | 9.1 | 9.1 | 9.9 | 0.8 |
| 1661 | 166,129 | 2,104 | 22,336 | 1.8 | 9.2 | 9.2 | 10.1 | 0.9 |
| 1685 | 168,457 | 1,961 | 17,354 | 2.4 | 9.4 | 9.4 | 10.2 | 0.8 |
| 1708 | 170,810 | 1,491 | 19,603 | 2.1 | 9.9 | 9.9 | 10.7 | 0.8 |
| 1725 | 172,486 | 1,348 | 18,599 | 2.2 | 10.1 | 10.1 | 10.9 | 0.8 |
| 1742 | 174,213 | 1,410 | 19,233 | 2.1 | 10.2 | 10.2 | 11.0 | 0.8 |
| 1763 | 176,301 | 1,660 | 19,189 | 2.1 | 10.4 | 10.4 | 11.2 | 0.8 |
| 1779 | 177,942 | 1,535 | 20,384 | 2.0 | 10.6 | 10.6 | 11.4 | 0.8 |
| 1817 | 181,701 | 1,890 | 25,448 | 1.6 | 11.0 | 11.0 | 11.9 | 0.9 |
| 1831 | 183,099 | 2,040 | 25,090 | 1.6 | 11.1 | 11.1 | 12.0 | 0.9 |
| 1850 | 184,986 | 2,160 | 26,586 | 1.5 | 11.4 | 11.4 | 12.3 | 0.9 |
| 1901 | 190,139 | 4,140 | 48,446 | 0.8 | 12.0 | 12.0 | 12.9 | 0.9 |
| 1923 | 192,340 | 4,006 | 48,840 | 0.8 | 12.1 | 12.1 | 13.1 | 1.0 |
| 1959 | 195,911 | 4,250 | 53,769 | 0.8 | 12.3 | 12.3 | 13.3 | 1.0 |
| 1981 | 198,078 | 4,300 | 53,009 | 0.8 | 12.5 | 12.5 | 13.4 | 0.9 |
| 2005 | 200,550 | 4,900 | 59,877 | 0.7 | 12.6 | 12.6 | 13.5 | 0.9 |
| 2043 | 204,293 | 4,370 | 55,524 | 0.7 | 12.8 | 12.8 | 13.7 | 0.9 |
| 2056 | 205,633 | 3,980 | 50,907 | 0.8 | 12.9 | 12.9 | 13.8 | 1.0 |
| 2119 | 211,938 | 4,886 | 61,963 | 0.7 | 13.2 | 13.2 | 14.1 | 1.0 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 2154 | 215,424 | 3,570 | 45,421 | 0.9 | 13.3 | 13.3 | 14.3 | 1.0 |
| 2174 | 217,400 | 1,600 | 21,141 | 1.9 | 13.6 | 13.6 | 14.5 | 1.0 |
| 2194 | 219,368 | 1,640 | 22,478 | 1.8 | 14.1 | 14.1 | 15.1 | 1.0 |
| 2215 | 221,504 | 1,750 | 21,779 | 1.9 | 14.8 | 14.8 | 15.7 | 0.9 |
| 2236 | 223,586 | 1,700 | 26,106 | 1.6 | 15.4 | 15.4 | 16.3 | 0.9 |
| 2257 | 225,694 | 2,020 | 30,239 | 1.4 | 15.7 | 15.7 | 16.6 | 0.9 |
| 2277 | 227,732 | 2,775 | 40,065 | 1.0 | 15.9 | 15.9 | 16.9 | 1.0 |
| 2299 | 229,903 | 3,420 | 48,289 | 0.8 | 16.1 | 16.1 | 17.1 | 1.0 |
| 2318 | 231,773 | 2,950 | 42,969 | 0.9 | 16.2 | 16.2 | 17.2 | 1.0 |
| 2338 | 233,839 | 3,403 | 48,317 | 0.8 | 16.4 | 16.4 | 17.4 | 1.0 |
| 2359 | 235,913 | 2,835 | 40,832 | 1.0 | 16.5 | 16.5 | 17.5 | 1.0 |
| 2383 | 238,309 | 3,575 | 51,109 | 0.8 | 16.8 | 16.8 | 17.8 | 1.0 |
| 2422 | 242,202 | 4,650 | 69,946 | 0.6 | 17.0 | 17.0 | 18.0 | 1.0 |
| 2455 | 245,481 | 4,440 | 65,922 | 0.6 | 17.1 | 17.1 | 18.1 | 1.0 |
| 2491 | 249,074 | 3,000 | 46,754 | 0.8 | 17.3 | 17.3 | 18.3 | 1.0 |
| 2515 | 251,525 | 3,190 | 48,242 | 0.8 | 17.5 | 17.5 | 18.5 | 1.0 |
| 2530 | 252,959 | 4,400 | 62,090 | 0.6 | 17.6 | 17.6 | 18.6 | 1.0 |
| 2613 | 261,349 | 3,200 | 45,820 | 0.7 | 17.8 | 17.8 | 18.8 | 1.0 |
| 2636 | 263,635 | 2,700 | 40,707 | 0.8 | 18.2 | 18.2 | 19.1 | 1.0 |
| 2655 | 265,500 | 3,350 | 43,377 | 0.8 | 18.4 | 18.4 | 19.3 | 1.0 |
| 2676 | 267,569 | 3,075 | 36,529 | 0.9 | 18.6 | 18.6 | 19.5 | 0.9 |
| 2699 | 269,915 | 2,260 | 27,548 | 1.2 | 18.9 | 18.9 | 19.8 | 0.9 |
| 2727 | 272,750 | 1,130 | 16,045 | 2.1 | 19.3 | 19.3 | 20.2 | 0.9 |
| 2744 | 274,391 | 1,875 | 25,560 | 1.3 | 19.7 | 19.7 | 20.6 | 1.0 |
| 2756 | 275,603 | 1,865 | 21,250 | 1.6 | 19.9 | 19.9 | 20.8 | 0.9 |
| 2779 | 277,903 | 1,880 | 21,319 | 1.6 | 20.3 | 20.3 | 21.2 | 0.9 |
| 2800 | 280,008 | 2,210 | 27,787 | 1.2 | 20.6 | 20.6 | 21.5 | 0.9 |
| 2847 | 284,682 | 3,150 | 40,661 | 0.8 | 21.1 | 21.1 | 22.0 | 0.9 |
| 2883 | 288,276 | 3,142 | 39,182 | 0.8 | 21.4 | 21.4 | 22.3 | 0.9 |
| 2925 | 292,455 | 3,950 | 53,153 | 0.6 | 21.7 | 21.7 | 22.6 | 0.9 |
| 2949 | 294,863 | 4,450 | 60,189 | 0.6 | 21.8 | 21.8 | 22.7 | 0.9 |
| 2983 | 298,317 | 5,500 | 60,736 | 0.6 | 21.9 | 21.9 | 22.8 | 0.9 |
| 3045 | 304,480 | 4,355 | 63,201 | 0.5 | 22.0 | 22.0 | 22.9 | 0.9 |
| 3065 | 306,453 | 3,580 | 46,664 | 0.7 | 22.0 | 22.0 | 23.0 | 0.9 |
| 3081 | 308,131 | 4,320 | 56,101 | 0.6 | 22.2 | 22.2 | 23.1 | 0.9 |
| 3109 | 310,897 | 3,195 | 38,743 | 0.8 | 22.3 | 22.3 | 23.2 | 0.9 |
| 3127 | 312,658 | 2,790 | 31,280 | 1.0 | 22.5 | 22.5 | 23.4 | 0.9 |
| 3144 | 314,431 | 2,720 | 31,768 | 1.0 | 22.6 | 22.6 | 23.6 | 1.0 |
| **Osgood Canal** | | | | | | | | |
| 003 | 282 | 94 | 369 | 2.8 | 31.7[2] | 30.9 | 31.8 | 1.0 |
| 008 | 837 | 98 | 464 | 2.2 | 31.9 | 31.9 | 32.8 | 0.9 |
| 013 | 1,256 | 88 | 503 | 2.1 | 32.8 | 32.8 | 33.5 | 0.7 |
| 017 | 1,674 | 105 | 453 | 2.3 | 33.4 | 33.4 | 34.1 | 0.7 |
| 022 | 2,179 | 76 | 279 | 3.7 | 34.3 | 34.3 | 35.2 | 0.9 |
| 026 | 2,598 | 63 | 342 | 3.0 | 35.4 | 35.4 | 36.3 | 0.9 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 030 | 3,047 | 99 | 566 | 1.8 | 36.7 | 36.7 | 37.7 | 1.0 |
| 040 | 4,000 | 162 | 856 | 1.2 | 39.1 | 39.1 | 39.6 | 0.5 |
| 045 | 4,500 | 118 | 669 | 1.5 | 39.3 | 39.3 | 39.8 | 0.6 |
| 050 | 4,966 | 105 | 590 | 1.7 | 39.9 | 39.9 | 40.7 | 0.8 |
| 056 | 5,585 | 130 | 851 | 1.2 | 42.6 | 42.6 | 43.4 | 0.8 |
| 061 | 6,141 | 165 | 732 | 1.4 | 42.8 | 42.8 | 43.6 | 0.8 |
| 067 | 6,658 | 160 | 754 | 1.3 | 43.3 | 43.3 | 44.0 | 0.7 |
| 070 | 7,000 | 114 | 354 | 1.8 | 43.4 | 43.4 | 44.1 | 0.8 |
| 075 | 7,500 | 80 | 359 | 1.8 | 44.0 | 44.0 | 44.9 | 0.9 |
| 079 | 7,918 | 50 | 246 | 2.6 | 44.6 | 44.6 | 45.3 | 0.7 |
| 084 | 8,408 | 34 | 166 | 3.8 | 45.2 | 45.2 | 46.1 | 0.9 |
| 091 | 9,115 | 37 | 130 | 3.6 | 46.4 | 46.4 | 47.4 | 0.9 |
| **Rileys Creek** | | | | | | | | |
| 008 | 752 | 119 | 1,215 | 4.0 | 9.3[2] | 2.3 | 3.3 | 1.0 |
| 015 | 1,482 | 119 | 1,121 | 4.4 | 9.3[2] | 3.0 | 3.8 | 0.8 |
| 021 | 2,073 | 119 | 1,064 | 4.6 | 9.3[2] | 3.6 | 4.3 | 0.8 |
| 025 | 2,515 | 119 | 1,036 | 4.8 | 9.3[2] | 4.0 | 4.7 | 0.7 |
| 035 | 3,481 | 142 | 1,703 | 3.0 | 9.3[2] | 5.0 | 5.7 | 0.7 |
| 040 | 4,029 | 142 | 1,534 | 3.2 | 9.3[2] | 5.2 | 5.9 | 0.7 |
| 050 | 4,971 | 142 | 1,400 | 3.6 | 9.3[2] | 5.6 | 6.3 | 0.7 |
| 055 | 5,500 | 200 | 1,713 | 3.4 | 9.3[2] | 5.7 | 6.6 | 0.8 |
| 065 | 6,462 | 200 | 1,760 | 3.3 | 9.3[2] | 6.1 | 7.0 | 0.9 |
| 074 | 7,447 | 400 | 2,973 | 2.8 | 9.3[2] | 6.4 | 7.4 | 1.0 |
| 085 | 8,488 | 400 | 2,872 | 2.8 | 9.3[2] | 6.8 | 7.7 | 0.9 |
| 090 | 8,976 | 400 | 2,713 | 2.9 | 9.3[2] | 6.9 | 7.9 | 0.9 |
| 095 | 9,503 | 200 | 1,672 | 3.2 | 9.3[2] | 7.1 | 8.0 | 1.0 |
| 100 | 9,986 | 200 | 1,681 | 3.3 | 9.3[2] | 7.3 | 8.2 | 1.0 |
| 105 | 10,507 | 200 | 1,650 | 3.3 | 9.3[2] | 7.5 | 8.4 | 1.0 |
| 110 | 10,988 | 200 | 1,643 | 3.3 | 9.3[2] | 7.7 | 8.7 | 0.9 |
| 114 | 11,444 | 200 | 1,580 | 3.5 | 9.3[2] | 7.9 | 8.9 | 1.0 |
| 118 | 11,830 | 200 | 1,471 | 3.7 | 9.3[2] | 8.2 | 9.1 | 0.9 |
| **Rockfish Creek** | | | | | | | | |
| 781 | 781 | 2,371 | 13,864 | 0.9 | 26.2[2] | 19.1 | 20.0 | 0.9 |
| 038 | 3,789 | 489 | 3,539 | 3.4 | 26.2[2] | 19.9 | 20.8 | 0.9 |
| 061 | 6,079 | 1,226 | 6,714 | 1.8 | 26.2[2] | 21.8 | 22.8 | 0.9 |
| 101 | 10,068 | 1,301 | 8,780 | 1.4 | 26.2[2] | 23.2 | 24.2 | 1.0 |
| 130 | 12,961 | 1,429 | 8,796 | 1.4 | 26.2[2] | 25.0 | 25.8 | 0.8 |
| 155 | 15,515 | 1,541 | 10,118 | 1.2 | 26.2[2] | 25.3 | 26.2 | 0.8 |
| 199 | 19,919 | 1,889 | 17,771 | 0.7 | 26.2[2] | 25.8 | 26.7 | 0.9 |
| 235 | 23,505 | 1,038 | 7,667 | 1.6 | 26.2[2] | 26.1 | 27.0 | 0.9 |
| 266 | 26,582 | 1,347 | 15,255 | 0.8 | 26.6 | 26.6 | 27.6 | 1.0 |
| 356 | 35,592 | 1,642 | 9,918 | 1.1 | 28.8 | 28.8 | 29.5 | 0.7 |
| 358 | 35,794 | 1,160 | 8,041 | 1.4 | 28.8 | 28.8 | 29.5 | 0.7 |
| 361 | 36,054 | 750 | 6,304 | 1.8 | 29.0 | 29.0 | 29.6 | 0.7 |
| 363 | 36,286 | 735 | 6,926 | 1.6 | 29.0 | 29.0 | 29.9 | 0.9 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 366 | 36,609 | 680 | 6,270 | 1.8 | 29.0 | 29.0 | 29.9 | 0.9 |
| 369 | 36,884 | 815 | 7,037 | 1.6 | 29.1 | 29.1 | 30.0 | 0.9 |
| 378 | 37,753 | 885 | 8,563 | 1.3 | 29.2 | 29.2 | 30.1 | 0.9 |
| 386 | 38,552 | 815 | 10,375 | 1.0 | 29.4 | 29.4 | 30.4 | 0.9 |
| 396 | 39,574 | 850 | 7,020 | 1.4 | 29.4 | 29.4 | 30.4 | 1.0 |
| 404 | 40,395 | 995 | 6,981 | 1.5 | 29.6 | 29.6 | 30.6 | 1.0 |
| 415 | 41,517 | 633 | 6,777 | 1.5 | 30.0 | 30.0 | 31.0 | 1.0 |
| 425 | 42,468 | 630 | 6,084 | 1.7 | 30.2 | 30.2 | 31.2 | 1.0 |
| 434 | 43,448 | 655 | 5,832 | 1.8 | 30.6 | 30.6 | 31.5 | 0.9 |
| 445 | 44,480 | 710 | 5,753 | 1.8 | 31.0 | 31.0 | 32.0 | 0.9 |
| 456 | 45,631 | 798 | 7,689 | 1.3 | 31.4 | 31.4 | 32.4 | 1.0 |
| 463 | 46,322 | 1,193 | 6,294 | 1.6 | 31.7 | 31.7 | 32.6 | 0.9 |
| 464 | 46,425 | 1,193 | 7,399 | 1.4 | 31.8 | 31.8 | 32.8 | 1.0 |
| 468 | 46,815 | 1,100 | 8,559 | 1.2 | 31.8 | 31.8 | 32.8 | 1.0 |
| 469 | 46,927 | 1,085 | 8,572 | 1.2 | 31.9 | 31.9 | 32.8 | 1.0 |
| 480 | 47,952 | 1,100 | 6,085 | 1.7 | 32.2 | 32.2 | 33.2 | 1.0 |
| 491 | 49,067 | 1,450 | 11,417 | 0.9 | 32.7 | 32.7 | 33.7 | 1.0 |
| 499 | 49,914 | 760 | 6,275 | 1.6 | 32.9 | 32.9 | 33.8 | 1.0 |
| 508 | 50,847 | 1,090 | 10,818 | 0.9 | 33.3 | 33.3 | 34.2 | 0.9 |
| 515 | 51,536 | 1,175 | 7,174 | 1.4 | 33.5 | 33.5 | 34.4 | 0.9 |
| 517 | 52,545 | 1,959 | 10,659 | 0.9 | 34.0 | 34.0 | 35.0 | 1.0 |
| **Sills Creek** | | | | | | | | |
| 084 | 8,420 | 303 | 1,936 | 1.7 | 32.4 | 32.4 | 33.4 | 1.0 |
| 087 | 8,728 | 240 | 1,359 | 2.4 | 33.0 | 33.0 | 33.8 | 0.8 |
| 095 | 9,500 | 360 | 2,497 | 1.3 | 35.1 | 35.1 | 36.1 | 1.0 |
| 100 | 10,000 | 311 | 2,240 | 1.5 | 35.4 | 35.4 | 36.4 | 1.0 |
| 105 | 10,500 | 534 | 3,119 | 1.1 | 35.8 | 35.8 | 36.8 | 1.0 |
| 110 | 11,000 | 378 | 2,519 | 1.3 | 36.0 | 36.0 | 37.0 | 1.0 |
| 115 | 11,502 | 399 | 2,415 | 1.3 | 36.4 | 36.4 | 37.4 | 1.0 |
| 120 | 12,002 | 463 | 2,373 | 1.3 | 36.9 | 36.9 | 37.9 | 1.0 |
| 126 | 12,585 | 690 | 3,996 | 0.8 | 37.4 | 37.4 | 38.3 | 1.0 |
| 130 | 13,002 | 629 | 2,373 | 1.3 | 37.6 | 37.6 | 38.6 | 1.0 |
| 134 | 13,382 | 544 | 2,631 | 1.2 | 38.1 | 38.1 | 39.1 | 0.9 |
| 142 | 14,152 | 522 | 2,755 | 1.2 | 38.8 | 38.8 | 39.7 | 0.9 |
| 145 | 14,502 | 622 | 2,866 | 1.1 | 39.1 | 39.1 | 40.0 | 0.8 |
| 150 | 15,002 | 718 | 3,175 | 1.0 | 39.5 | 39.5 | 40.4 | 0.9 |
| 155 | 15,502 | 628 | 4,024 | 0.8 | 40.0 | 40.0 | 40.8 | 0.8 |
| 160 | 16,002 | 618 | 3,866 | 0.8 | 40.1 | 40.1 | 40.9 | 0.8 |
| 165 | 16,502 | 499 | 3,088 | 1.0 | 40.3 | 40.3 | 41.1 | 0.8 |
| 170 | 17,002 | 633 | 3,498 | 0.9 | 40.5 | 40.5 | 41.4 | 0.9 |
| 175 | 17,502 | 477 | 2,567 | 1.2 | 40.8 | 40.8 | 41.7 | 0.9 |
| 180 | 18,002 | 576 | 3,022 | 1.0 | 41.2 | 41.2 | 42.1 | 0.9 |
| 185 | 18,502 | 924 | 4,600 | 0.6 | 41.4 | 41.4 | 42.4 | 0.9 |
| 190 | 19,002 | 875 | 3,939 | 0.8 | 41.6 | 41.6 | 42.6 | 1.0 |
| 195 | 19,502 | 678 | 2,700 | 1.1 | 42.0 | 42.0 | 42.9 | 1.0 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 200 | 20,002 | 630 | 2,024 | 1.4 | 42.7 | 42.7 | 43.7 | 0.9 |
| 205 | 20,502 | 556 | 2,669 | 1.1 | 43.5 | 43.5 | 44.4 | 0.9 |
| 210 | 21,002 | 570 | 1,833 | 1.6 | 44.1 | 44.1 | 45.0 | 0.9 |
| 217 | 21,694 | 538 | 2,722 | 1.1 | 45.0 | 45.0 | 45.9 | 0.9 |
| 223 | 22,271 | 811 | 3,958 | 0.7 | 45.3 | 45.3 | 46.3 | 1.0 |
| 229 | 22,927 | 607 | 3,223 | 0.9 | 45.7 | 45.7 | 46.6 | 0.9 |
| 233 | 23,313 | 464 | 2,300 | 1.2 | 46.0 | 46.0 | 47.0 | 0.9 |
| 240 | 24,002 | 554 | 2,808 | 1.0 | 46.6 | 46.6 | 47.5 | 0.9 |
| 245 | 24,502 | 511 | 2,608 | 1.0 | 47.0 | 47.0 | 47.9 | 0.9 |
| 250 | 25,002 | 579 | 3,020 | 0.9 | 47.3 | 47.3 | 48.3 | 0.9 |
| 255 | 25,502 | 657 | 2,998 | 0.9 | 47.6 | 47.6 | 48.5 | 0.9 |
| 263 | 26,315 | 430 | 2,242 | 1.1 | 47.9 | 47.9 | 48.8 | 0.9 |
| 270 | 27,002 | 634 | 3,430 | 0.7 | 48.2 | 48.2 | 49.1 | 0.9 |
| 274 | 27,440 | 669 | 3,216 | 0.8 | 48.4 | 48.4 | 49.3 | 0.9 |
| 280 | 28,002 | 545 | 2,780 | 0.9 | 48.7 | 48.7 | 49.6 | 0.9 |
| 285 | 28,502 | 565 | 2,796 | 0.9 | 48.9 | 48.9 | 49.8 | 0.9 |
| 290 | 28,976 | 598 | 3,133 | 0.8 | 49.1 | 49.1 | 50.0 | 0.8 |
| 295 | 29,502 | 540 | 2,711 | 0.9 | 49.4 | 49.4 | 50.2 | 0.8 |
| 305 | 30,502 | 480 | 2,520 | 1.0 | 49.7 | 49.7 | 50.7 | 1.0 |
| 311 | 31,071 | 385 | 2,241 | 0.8 | 49.9 | 49.9 | 50.9 | 1.0 |
| 315 | 31,502 | 380 | 2,035 | 0.9 | 50.1 | 50.1 | 51.0 | 1.0 |
| 324 | 32,400 | 306 | 1,931 | 0.9 | 50.5 | 50.5 | 51.4 | 0.9 |
| 328 | 32,761 | 265 | 1,619 | 1.1 | 50.7 | 50.7 | 51.6 | 0.9 |
| 334 | 33,433 | 344 | 1,938 | 0.9 | 51.0 | 51.0 | 51.9 | 0.9 |
| 339 | 33,895 | 298 | 1,580 | 1.1 | 51.2 | 51.2 | 52.1 | 0.9 |
| 345 | 34,502 | 280 | 1,377 | 1.2 | 51.6 | 51.6 | 52.5 | 1.0 |
| 350 | 35,002 | 256 | 1,279 | 1.3 | 52.0 | 52.0 | 52.9 | 1.0 |
| 355 | 35,502 | 188 | 899 | 1.8 | 52.4 | 52.4 | 53.4 | 0.9 |
| 360 | 36,002 | 239 | 1,194 | 1.4 | 53.0 | 53.0 | 54.0 | 1.0 |
| 365 | 36,502 | 230 | 1,149 | 1.4 | 53.4 | 53.4 | 54.4 | 1.0 |
| 368 | 36,820 | 281 | 1,377 | 1.2 | 53.7 | 53.7 | 54.7 | 1.0 |
| 374 | 37,376 | 302 | 1,562 | 1.0 | 54.1 | 54.1 | 55.1 | 1.0 |
| 380 | 38,002 | 387 | 2,017 | 0.8 | 54.4 | 54.4 | 55.4 | 1.0 |
| 385 | 38,502 | 314 | 1,557 | 1.1 | 54.7 | 54.7 | 55.7 | 1.0 |
| 389 | 38,851 | 211 | 1,067 | 1.5 | 55.0 | 55.0 | 56.0 | 1.0 |
| 393 | 39,293 | 180 | 950 | 1.4 | 55.5 | 55.5 | 56.4 | 1.0 |
| 398 | 39,818 | 285 | 1,379 | 1.0 | 55.9 | 55.9 | 56.8 | 1.0 |
| 404 | 40,424 | 182 | 772 | 1.0 | 56.2 | 56.2 | 57.2 | 1.0 |
| 415 | 41,489 | 44 | 187 | 4.0 | 57.0 | 57.0 | 57.8 | 0.9 |
| **Sills Creek Tributary 1** | | | | | | | | |
| 002 | 196 | 113 | 362 | 1.3 | 51.3[2] | 49.5 | 50.4 | 0.9 |
| 004 | 352 | 75 | 167 | 2.9 | 51.3[2] | 50.2 | 50.9 | 0.7 |
| 008 | 824 | 53 | 200 | 2.4 | 53.3 | 53.3 | 54.0 | 0.7 |
| 012 | 1,200 | 71 | 269 | 1.8 | 54.3 | 54.3 | 55.3 | 1.0 |
| 016 | 1,600 | 64 | 267 | 1.6 | 55.3 | 55.3 | 56.2 | 1.0 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 024 | 2,357 | 36 | 145 | 2.6 | 57.1 | 57.1 | 58.0 | 0.9 |
| 025 | 2,486 | 34 | 156 | 2.5 | 57.5 | 57.5 | 58.4 | 0.9 |
| 027 | 2,659 | 21 | 87 | 4.4 | 58.1 | 58.1 | 58.8 | 0.7 |
| 028 | 2,781 | 21 | 98 | 3.9 | 59.0 | 59.0 | 59.6 | 0.6 |
| 030 | 2,987 | 28 | 125 | 3.1 | 59.9 | 59.9 | 60.4 | 0.5 |
| 033 | 3,302 | 21 | 106 | 3.6 | 60.9 | 60.9 | 61.4 | 0.5 |
| 036 | 3,566 | 29 | 98 | 3.9 | 61.8 | 61.8 | 62.6 | 0.8 |
| 037 | 3,744 | 24 | 83 | 4.4 | 62.5 | 62.5 | 63.4 | 0.9 |
| 044 | 4,400 | 497 | 545 | 0.7 | 63.9 | 63.9 | 64.4 | 0.5 |
| 063 | 6,255 | 562 | 330 | 0.9 | 65.2 | 65.2 | 65.4 | 0.2 |
| **Sills Creek Tributary 2** | | | | | | | | |
| 003 | 307 | 159 | 590 | 1.7 | 56.0[2] | 55.2 | 56.2 | 0.9 |
| 005 | 479 | 174 | 670 | 1.5 | 56.0[2] | 55.7 | 56.7 | 1.0 |
| 009 | 946 | 143 | 640 | 1.6 | 56.8 | 56.8 | 57.7 | 1.0 |
| 015 | 1,480 | 141 | 675 | 1.5 | 57.8 | 57.8 | 58.8 | 1.0 |
| 020 | 2,043 | 142 | 705 | 1.4 | 58.8 | 58.8 | 59.7 | 0.9 |
| 026 | 2,628 | 212 | 1,040 | 1.0 | 59.4 | 59.4 | 60.3 | 0.9 |
| 030 | 2,989 | 194 | 933 | 1.1 | 59.6 | 59.6 | 60.6 | 0.9 |
| 034 | 3,377 | 154 | 608 | 1.1 | 59.9 | 59.9 | 60.9 | 1.0 |
| **Taylor Branch** | | | | | | | | |
| 011 | 1,118 | 170 | 568 | 1.3 | 38.1[1] | 35.5 | 36.3 | 0.8 |
| 016 | 1,614 | 115 | 305 | 2.4 | 38.1[1] | 37.6 | 38.4 | 0.9 |
| 021 | 2,101 | 295 | 1,579 | 0.5 | 40.9 | 40.9 | 40.9 | 0.0 |
| 024 | 2,400 | 220 | 1,017 | 0.7 | 40.9 | 40.9 | 40.9 | 0.0 |
| 029 | 2,886 | 286 | 1,108 | 0.7 | 42.0 | 42.0 | 42.0 | 0.0 |
| 034 | 3,414 | 242 | 778 | 0.8 | 42.7 | 42.7 | 42.7 | 0.0 |
| 041 | 4,081 | 331 | 2,281 | 0.3 | 50.6 | 50.6 | 50.6 | 0.0 |
| 045 | 4,511 | 264 | 1,685 | 0.4 | 50.6 | 50.6 | 50.6 | 0.0 |
| 049 | 4,892 | 144 | 868 | 0.7 | 50.6 | 50.6 | 50.6 | 0.0 |
| 052 | 5,182 | 150 | 690 | 0.9 | 50.6 | 50.6 | 50.6 | 0.0 |
| 054 | 5,360 | 130 | 276 | 2.3 | 50.8 | 50.8 | 50.8 | 0.0 |
| 055 | 5,518 | 112 | 388 | 1.7 | 51.3 | 51.3 | 51.9 | 0.6 |
| 060 | 6,046 | 130 | 674 | 0.8 | 55.3 | 55.3 | 56.0 | 0.7 |
| **Tuckahoe Branch** | | | | | | | | |
| 004 | 352 | 165 | 887 | 2.2 | 39.7[2] | 39.5 | 40.1 | 0.5 |
| 010 | 1,019 | 182 | 1,174 | 1.7 | 40.9 | 40.9 | 41.7 | 0.8 |
| 015 | 1,541 | 260 | 1,542 | 1.3 | 41.4 | 41.4 | 42.3 | 0.9 |
| 021 | 2,121 | 175 | 936 | 2.1 | 42.2 | 42.2 | 43.0 | 0.8 |
| 025 | 2,530 | 236 | 1,295 | 1.5 | 43.1 | 43.1 | 44.0 | 0.8 |
| 030 | 2,992 | 225 | 1,102 | 1.8 | 44.1 | 44.1 | 45.0 | 0.9 |
| 034 | 3,427 | 290 | 1,498 | 1.0 | 44.9 | 44.9 | 45.9 | 1.0 |
| 038 | 3,759 | 224 | 1,172 | 1.3 | 45.3 | 45.3 | 46.2 | 0.9 |
| 042 | 4,152 | 296 | 1,443 | 1.0 | 45.7 | 45.7 | 46.7 | 1.0 |
| 048 | 4,784 | 315 | 1,319 | 1.1 | 46.4 | 46.4 | 47.4 | 1.0 |
| 055 | 5,516 | 227 | 751 | 1.8 | 48.0 | 48.0 | 48.9 | 0.9 |

# Table 22 - Floodway Data

| Floodway Source | | Floodway | | | Water Surface Elevation | | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (Feet Above Mouth) | Width (Feet) | Section Area (Square Feet) | Mean Velocity (Feet Per Second) | Regulatory | Without Floodway | With Floodway | Increase |
| 061 | 6,060 | 309 | 1,176 | 1.2 | 49.4 | 49.4 | 50.3 | 1.0 |
| 066 | 6,634 | 247 | 1,001 | 1.4 | 50.4 | 50.4 | 51.3 | 1.0 |
| 072 | 7,162 | 256 | 1,017 | 1.4 | 51.4 | 51.4 | 52.3 | 1.0 |
| 077 | 7,692 | 268 | 987 | 1.3 | 52.4 | 52.4 | 53.3 | 1.0 |
| 082 | 8,213 | 252 | 999 | 1.3 | 53.3 | 53.3 | 54.2 | 1.0 |
| 086 | 8,611 | 241 | 903 | 1.4 | 54.0 | 54.0 | 54.9 | 1.0 |
| 093 | 9,267 | 267 | 1,197 | 1.0 | 56.1 | 56.1 | 56.8 | 0.7 |
| **Turkey Creek** | | | | | | | | |
| 196 | 19,644 | 351 | 2,165 | 3.3 | 8.0[2] | 7.4 | 6.9 | -0.5 |
| 205 | 20,461 | 350 | 2,115 | 3.6 | 8.0[2] | 7.6 | 7.4 | -0.2 |
| 220 | 21,976 | 502 | 3,064 | 2.2 | 8.8 | 8.8 | 9.4 | 0.6 |
| 235 | 23,500 | 379 | 2,331 | 3.2 | 9.4 | 9.4 | 10.0 | 0.6 |
| 245 | 24,510 | 358 | 1,969 | 3.0 | 10.1 | 10.1 | 11.0 | 0.9 |
| 265 | 26,481 | 319 | 1,542 | 2.8 | 11.7 | 11.7 | 12.7 | 1.0 |
| 275 | 27,496 | 357 | 1,751 | 2.4 | 12.6 | 12.6 | 13.5 | 0.9 |
| 286 | 28,599 | 245 | 1,142 | 2.4 | 14.2 | 14.2 | 15.2 | 1.0 |
| 301 | 30,062 | 214 | 753 | 3.4 | 16.5 | 16.5 | 17.4 | 0.9 |
| 316 | 31,563 | 213 | 909 | 2.8 | 18.7 | 18.7 | 19.7 | 1.0 |
| 325 | 32,538 | 207 | 830 | 2.5 | 20.0 | 20.0 | 20.9 | 0.9 |
| 336 | 33,641 | 113 | 359 | 4.4 | 21.8 | 21.8 | 22.8 | 1.0 |
| **White Oak Branch** | | | | | | | | |
| 015 | 1,487 | 394 | 2,380 | 1.4 | 39.5[1] | 38.3 | 39.3 | 1.0 |
| 021 | 2,059 | 348 | 2,266 | 1.5 | 39.5[1] | 39.2 | 40.1 | 1.0 |
| 025 | 2,508 | 540 | 3,438 | 1.0 | 39.6 | 39.6 | 40.6 | 1.0 |
| 029 | 2,878 | 500 | 2,962 | 0.9 | 39.8 | 39.8 | 40.8 | 1.0 |

**[1]Moores Creek (near Atkinson)**

**[2]Elevation includes backwater effects**

**[3]Cape Fear River**

**[4]Doctors Creek**

**[5]Rileys Creek**

**[6]Northeast Cape Fear River**

**[7]Buxton Branch**

**[8]Moores Creek**

**[9]Black River**

**[10]Long Creek**

* Values not computed for this station

# 6.4 Coastal Flood Hazard Mapping

Flood insurance zones and BFEs including the wave effects were identified on each transect based on the results from the onshore wave hazard analyses. Between transects, elevations were interpolated using topographic maps, land-use and land-cover data, and knowledge of coastal flood processes to determine the aerial extent of flooding. Sources for topographic data are shown in Table 23.

Zone VE is subdivided into elevation zones and BFEs are provided on the FIRM.

The limit of Zone VE shown on the FIRM is defined as the farthest inland extent of any of these criteria (determined for the 1% annual chance flood condition):

- *The primary frontal dune* zone is defined in 44 CFR Section 59.1 of the NFIP regulations. The primary frontal dune represents a continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes that occur immediately landward and adjacent to the beach. The primary frontal dune zone is subject to erosion and overtopping from high tides and waves during major coastal storms. The inland limit of the primary frontal dune zone occurs at the point where there is a distinct change from a relatively steep slope to a relatively mild slope.
- *The wave runup zone* occurs where the (eroded) ground profile is 3.0 feet or more below the 2-percent wave runup elevation.
- *The wave overtopping splash zone* is the area landward of the crest of an overtopped barrier, in cases where the potential 2-percent wave runup exceeds the barrier crest elevation by 3.0 feet or more.
- *The breaking wave height zone* occurs where 3-foot or greater wave heights could occur (this is the area where the wave crest profile is 2.1 feet or more above the total stillwater elevation).
- *The high-velocity flow zone* is landward of the overtopping splash zone (or area on a sloping beach or other shore type), where the product of depth of flow times the flow velocity squared (hv2) is greater than or equal to 200 ft3/sec2. This zone may only be used on the Pacific Coast.

The SFHA boundary indicates the limit of SFHAs shown on the FIRM as either “V” zones or “A” zones.

**Table 23: Summary of Coastal Transect Mapping Considerations**

| Source | Coastal Transect | Primary Frontal Dune (PFD) Identified | Wave Runup Analysis | Wave Height Analysis | Zone VE Limit | SFHA Boundary |
|---|---|---|---|---|---|---|
| | | | Zone Designation and BFE (ft NAVD 88) | Zone Designation and BFE (ft NAVD 88) | | |
| Atlantic Ocean | 1 | X | * | AE 8<br>VE 3-11 | PFD | SWEL |
| | 2 | * | * | VE 3-11 | WHAFIS | SWEL |
| | 3 | * | * | VE 0-12 | WHAFIS | SWEL |
| | 4 | X | * | AE 5<br>VE 2-11 | PFD | SWEL |
| | 5 | X | * | AE 6<br>VE 2-11 | PFD | SWEL |
| | 6 | X | * | AE 3-5<br>VE 5-11 | WHAFIS | SWEL |
| | 7 | X | * | AE 1-5<br>VE 4-11 | WHAFIS | SWEL |
| | 8 | X | * | AE 3-6<br>VE 4-11 | WHAFIS | SWEL |

## Table 23: Summary of Coastal Transect Mapping Considerations

| Source | Coastal Transect | Primary Frontal Dune (PFD) Identified | Wave Runup Analysis | Wave Height Analysis | Zone VE Limit | SFHA Boundary |
|---|---|---|---|---|---|---|
| | | | Zone Designation and BFE (ft NAVD 88) | Zone Designation and BFE (ft NAVD 88) | | |
| | 9 | X | * | AE 2<br>VE 11 | WHAFIS | SWEL |
| | 76 | X | * | AE 6<br>VE 11 | PFD | SWEL |
| | 77 | X | * | AE 8<br>VE 11 | PFD | SWEL |
| | 78 | * | * | VE 11 | WHAFIS | SWEL |
| | 10 | X | * | AE 6<br>VE 2-11 | PFD | SWEL |
| | 11 | X | * | AE 0-6<br>VE 1-11 | PFD | SWEL |
| | 12 | * | * | AE 0-5<br>VE 3-11 | WHAFIS | SWEL |
| | 13 | * | * | AE 1-5<br>VE 3-11 | WHAFIS | SWEL |
| | 14 | X | * | AE 6<br>VE 11 | PFD | SWEL |
| | 15 | X | * | AE 1-6<br>VE 1-11 | PFD | SWEL |
| | 16 | X | * | AE 1-6<br>VE 2-11 | PFD | SWEL |
| | 17 | X | * | AE 2-5<br>VE 3-11 | WHAFIS | SWEL |
| | 18 | X | * | AE 1-6<br>VE 3-11 | WHAFIS | SWEL |
| | 19 | X | * | AE 1-5<br>VE 1-11 | PFD | SWEL |
| | 20 | X | * | AE 2-6<br>VE 1-11 | PFD | SWEL |
| | 21 | X | * | AE 0-8<br>VE 1-11 | PFD | SWEL |
| | 22 | X | * | AE 6<br>VE 2-11 | PFD | SWEL |
| | 23 | X | * | AE 7<br>VE 3-11 | PFD | SWEL |
| | 24 | X | * | AE 0-5<br>VE 2-11 | PFD | SWEL |
| | 25 | X | * | AE 0-5<br>VE 1-11 | PFD | SWEL |
| | 26 | X | * | AE 1-6<br>VE 1-11 | PFD | SWEL |

**Table 23: Summary of Coastal Transect Mapping Considerations**

| Source | Coastal Transect | Primary Frontal Dune (PFD) Identified | Wave Runup Analysis | Wave Height Analysis | Zone VE Limit | SFHA Boundary |
|---|---|---|---|---|---|---|
| | | | Zone Designation and BFE (ft NAVD 88) | Zone Designation and BFE (ft NAVD 88) | | |
| | 27 | X | * | AE 7<br>VE 11 | PFD | SWEL |
| | 28 | X | * | AE 7<br>VE 11 | PFD | SWEL |
| | 29 | X | * | AE 6<br>VE 11 | PFD | SWEL |
| | 30 | X | * | AE 0-7<br>VE 11 | PFD | SWEL |
| | 31 | X | * | AE 6<br>VE 0-10 | PFD | SWEL |
| | 32 | X | * | AE 0-7<br>VE 11 | PFD | SWEL |
| | 33 | X | * | AE 1-6<br>VE 1-11 | PFD | SWEL |
| | 34 | X | * | AE 0-7<br>VE 11 | PFD | SWEL |
| | 35 | X | * | AE 0-5<br>VE 2-11 | PFD | SWEL |
| | 36 | X | * | AE 0-5<br>VE 1-11 | PFD | SWEL |
| | 37 | X | * | AE 6<br>VE 2-11 | PFD | SWEL |
| | 38 | X | * | AE 0-6<br>VE 2-11 | PFD | SWEL |
| | 39 | X | * | AE 2-10<br>VE 2-11 | PFD | SWEL |

A LiMWA boundary has also been added in coastal areas subject to wave action for use by local communities in safe rebuilding practices. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. In areas where the Zone VE designation is based on the presence of a primary frontal dune the LiMWA was not delineated.

# 7.0 Revising the FIS

## 7.1 Letters of Map Amendment and Letters of Map Revision - Based on Fill

LOMAs and LOMR-Fs are documents issued by FEMA that officially remove a property and/or a structure from a Special Flood Hazard Area (SFHA), if data supporting the removal are submitted. LOMAs and LOMR-Fs are generally determinations regarding areas that are too small to be shown on a FIRM panel; consequently, the changes they describe become official without revising the FIRM or the FIS Report.

NFIP regulations require that the lowest adjacent grade (the lowest ground touching the structure) be at or above the 1% annual chance flood elevation for a LOMA to be issued. Currently, there is no fee for FEMA's review of a LOMA request, but the requester of a LOMA is responsible for providing all the information needed for the review, which may include structure and/or property elevations certified by a licensed land surveyor or professional engineer. Therefore, LOMA requesters may need to retain the services of a land surveyor or engineer.

A LOMA cannot be used for property on which fill has been placed. For those situations, a LOMR-F must be used. As a participant in the NFIP, a local government must adopt ordinances that meet the minimum Federal floodplain management standards, which are outlined in Section 60.3 of the NFIP regulations. For a number of reasons, these ordinances generally vary from community to community. Nonetheless, because the placement of fill within the floodplain can affect flood hazards in the surrounding area, additional information is needed before FEMA can process a LOMR-F request. Among the data required for a LOMR-F is the community acknowledgment form. This form is FEMA's assurance that all appropriate Federal, State, and local floodplain management requirements have been met. Furthermore, NFIP regulations require that the lowest adjacent grade (the lowest ground touching the structure) be at or above the 1% annual chance flood elevation for a LOMR-F to be issued removing the structure from the floodplain. Because LOMR-F requests are the result of changed physical conditions rather than limitations of scale or topographic definition, FEMA charges a fee for the review of a LOMR-F request. As with the LOMA, the requester of a LOMR-F is responsible for providing all supporting information, including structure and/or property elevation data.

In cases where property owners plan to add fill in the SFHA, NFIP regulations require plans and technical information to be submitted for review by FEMA before construction takes place. FEMA will issue a conditional LOMR-F stating how flood hazards would change and what portions of the property, if any, would remain in the SFHA if the project were built according to the submitted plans.

The issuance of a LOMA or LOMR-F ends the property owner's obligation to purchase flood insurance as a condition of Federal or federally backed financing. However, the property owner's mortgage company maintains the prerogative to require flood insurance as a condition of providing financing. Before attempting to obtain a LOMA or LOMR-F, property owners are advised to consult their mortgage companies regarding this policy. Even if the mortgage company indicates that it will require flood insurance if a LOMA or LOMR-F is issued, it may be advantageous for property owners to request a LOMA or LOMR-F because flood insurance premiums are lower for properties removed from the SFHA than for properties that remain within the SFHA.

For additional information regarding LOMAs, LOMR-Fs, conditional LOMR-Fs, or current application fees, please call the FEMA Map Information eXchange (FMIX) toll-free information line at 1-877-FEMA MAP (1-877-336-2627).

## 7.2 Letters of Map Revision

A Letter of Map Revision (LOMR) is a document issued by FEMA and the NCFMP that revises an FIS Report and/or FIRM. A LOMR is used to change flood risk zones, floodplain and/or floodway delineations, flood elevations, or planimetric features such as road systems or corporate limits. A LOMR provides FEMA and the NCFMP with a cost-effective means of revising the FIS information without physically changing and reprinting the map or report itself. A portion of the FIRM panel or FIS Report showing the revised information is issued with the LOMR. The LOMR is sent to all affected communities and is archived in the communities' NFIP map repository for public reference.

In cases where a proposed project (such as construction in the 1% annual chance floodplain) would result in a significant rise in 1% annual chance water-surface elevations, NFIP regulations require the community to submit plans and technical information for review by FEMA and the NCFMP before construction takes place. This assures communities participating in the NFIP that proposed projects meet minimum NFIP requirements. The result of FEMA and the NCFMP reviews is documented in a conditional LOMR.

For additional information regarding LOMRs, conditional LOMRs, or current application fees, please call the FEMA Map Assistance Center toll-free information line at 1-877-FEMA MAP (1-877-336-2627) or the NCFMP at 919-715-5711.

## 7.3 Physical Map Revisions

Physical Map Revisions (PMRs) are processed to incorporate information concerning conditions present in the community that are not reflected in the FIS, and involve distributing republished FISs that supersede the most current NFIP data in the community repository. PMRs may be initiated by a request from a community resident or agency, or FEMA may initiate a PMR to incorporate one or more LOMRs, to reflect significant changes in corporate limits, to correct errors, or to update flood hazards to match new information from an adjacent community's FIS. Due to the costs associated with updating and distributing FISs, map revisions will be processed as LOMRs rather than PMRs whenever possible. For more information regarding PMRs, please contact the FEMA Map Information eXchange (FMIX) toll-free information line at 1-877-FEMA MAP (1-877-336-2627), the FEMA Regional Office at the address listed on the Notice to Flood Insurance Study Users page at the front of this report, or the NCFMP at 919-715-5711.

## 7.4 Contracted Restudies

The NFIP provides for a periodic review and restudy of flood hazards in a given community. FEMA accomplishes this through a national mapping needs assessment process that assigns priorities and allocates funds to sponsor or subsidize new flood hazard analyses used to update FIS Reports. For map maintenance restudies within the state of North Carolina, scoping will be performed by county approximately 2.5-3.5 years after the previous effective date. Scoping will focus on streams with restudy needs within those previously effective counties rather than on full countywide restudies. A restudy refers specifically to updating or reevaluating engineering analyses that were performed for a flood mapping project that directly impact BFEs and/or flood hazard boundary extents or analysis of previously unstudied flood prone areas. Restudy project evaluation triggers and prioritization values are an essential component of the map maintenance program. For more information regarding NCFMP-contracted restudies, please contact the NCFMP at 919-715-5711 or at www.ncfloodmaps.com. For more information regarding FEMA-contracted restudies, please contact the FEMA Map Information eXchange (FMIX) toll-free information line at 1-877-FEMA MAP(1-877-336-2627) or the FEMA Regional Office at the address listed on the Notice to Flood Insurance Study Users page at the front of this report.

## 7.5 Map Revision History

The current FIRM is a subset of the Statewide FIRM, showing flood hazard information for the entire geographic area of Pender County. Previously, separate Flood Hazard Boundary Maps (FHBMs), Flood Boundary and Floodway Maps (FBFMs), and/or FIRMs were prepared for each identified flood prone jurisdiction within the county. Historical data relating to the NFIP maps prepared for each community prior to and including the 2/16/2007 North Carolina Statewide FIRM, which includes Pender County, are presented in Table 22, "Community Map History."

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Pender County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS Reports, FHBMs, FIRMs, and/or FBFMs for all of the incorporated and unincorporated jurisdictions within Pender County.

**Table 24 - Map Revision History**

| Community | Initial Identification Date | Initial FIRM Effective Date | FIS Revision Date |
|---|---|---|---|
| PENDER COUNTY | 10/29/2007 | 2/15/1985 | 02/16/2007 |
| TOWN OF ATKINSON | 2/16/2007 | 2/16/2007 | 02/16/2007 |
| TOWN OF BURGAW | 1/19/2000 | 1/19/2000 | 02/16/2007 |
| TOWN OF SURF CITY | 5/24/1974 | 5/2/1977 | 02/16/2007 |
| TOWN OF TOPSAIL BEACH | 6/7/1974 | 9/30/1977 | 02/16/2007 |
| TOWN OF WALLACE | 6/14/1974 | 4/2/1986 | 02/16/2006 |
| TOWN OF WATHA | 10/29/1976 | 2/15/1985 | 02/16/2007 |
| VILLAGE OF SAINT HELENA | 10/29/1976 | 2/15/1985 | 02/16/2007 |

# 8.0 Study Contracting and Community Coordination

# 8.1 Authority and Acknowledgments

The sources of authority for this FIS are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

This FIS revises and updates the previous countywide FIS for the geographic area of Pender County and Incorporated Areas. Table 25, "Authority and Acknowledgments," includes information for the previous countywide FIS and for this revision. This table also includes information for the single-jurisdiction FISs published for each community included in this countywide FIS (if available) as compiled from their previously printed FIS Reports

**Table 25 — Authority and Acknowledgments**

| Community | FIS Dated | Study Contracted By | Data Source | Contract or IAA Number | Work Completed In |
|---|---|---|---|---|---|
| PENDER COUNTY | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 3/1/2013 |
| PENDER COUNTY | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 2/5/2014 |
| PENDER COUNTY | 2/16/2007 | NCFMP | NCFMP | 286-0000-23 | 8/8/8888 |
| TOWN OF ATKINSON | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 3/1/2013 |
| TOWN OF ATKINSON | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 2/5/2014 |
| TOWN OF ATKINSON | 2/16/2007 | NCFMP | NCFMP | 286-0000-23 | 8/8/8888 |
| TOWN OF BURGAW | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 3/1/2013 |
| TOWN OF BURGAW | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 2/5/2014 |
| TOWN OF BURGAW | 2/16/2007 | NCFMP | NCFMP | 286-0000-23 | 8/8/8888 |
| TOWN OF SURF CITY | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 3/1/2013 |
| TOWN OF SURF CITY | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 2/5/2014 |
| TOWN OF SURF CITY | 2/16/2007 | NCFMP | NCFMP | 286-0000-23 | 8/8/8888 |
| TOWN OF TOPSAIL BEACH | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 3/1/2013 |
| TOWN OF TOPSAIL BEACH | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 2/5/2014 |
| TOWN OF TOPSAIL BEACH | 2/16/2007 | NCFMP | NCFMP | 286-0000-23 | 8/8/8888 |
| TOWN OF WALLACE | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 3/1/2013 |
| TOWN OF WALLACE | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 2/5/2014 |
| TOWN OF WALLACE | 2/16/2007 | NCFMP | NCFMP | 286-0000-23 | 8/8/8888 |
| TOWN OF WATHA | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 3/1/2013 |
| TOWN OF WATHA | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 2/5/2014 |
| TOWN OF WATHA | 2/16/2007 | NCFMP | NCFMP | 286-0000-23 | 8/8/8888 |
| VILLAGE OF SAINT HELENA | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 3/1/2013 |
| VILLAGE OF SAINT HELENA | 2/16/2007 | NCFMP | NCFMP | 286-000022 | 2/5/2014 |
| VILLAGE OF SAINT HELENA | 2/16/2007 | NCFMP | NCFMP | 286-0000-23 | 8/8/8888 |

This FIS Report was produced through a unique cooperative partnership between the State of North Carolina and FEMA. The State of North Carolina, through FEMA's Cooperating Technical Partner (CTP) Initiative, has become the first Cooperating Technical State (CTS) and will assume primary ownership of the NFIP FIRM panels for all North Carolina communities. This role has traditionally been fulfilled by FEMA. The North Carolina Floodplain Mapping Program is conducting flood hazard analyses and producing updated, digital FIRM panels. The hydrologic and hydraulic analyses and the FIRM panels for the initial statewide mapping for Pender County were produced by NCFMP under contract with the State of North Carolina and issued on effective 4/30/2014. For this revision, the hydrologic and hydraulic analyses and the FIRM panels were produced by NCFMP, under contract with the State of North Carolina.

# 8.2 Consultation Coordination Officer's Meetings/Scoping Meetings

In general, for each FIS an initial Consultation Coordination Officer's (CCO) meeting is held with representatives from FEMA, the communities, and the study contractors to explain the nature and purpose of the FIS and to identify the streams to be studied by detailed methods. A final CCO meeting is held with representatives from FEMA, the communities, and the study contractors to review the results of the study

Table 26, "Consultation Coordination Officer's Meetings" is not applicable in Pender County.

For each FIS produced during the initial phase of statewide, an Initial Scoping Meeting was held with representatives from FEMA, the county, the incorporated communities, and the State of North Carolina. A Final Scoping meeting was held to review the Draft Basin Plan and finalize the streams to be studied by detailed methods. This information was then used to create the Final Basin Plan.

For map maintenance revisions, only one scoping meeting was held to identify the streams to be newly studied by detailed methods, redelineated, or to be studied by limited detailed methods. This information was then used to create the Map Maintenance Plan.

The historical dates of the Initial and Final Scoping Meetings held during the first round of statewide mapping for Pender County are shown in Table 27, "Scoping Meetings." Meetings held for the map maintenance revision are also included below for Pender County.

## Table 27 — Scoping Meetings

| Community | Riverbasin | Initial Scoping Date | Attended By | Final Scoping Date | Attended By |
|---|---|---|---|---|---|
| PENDER COUNTY | CAPE FEAR | 12/7/2000 | Representatives of Pender County and Incorporated Communities, FEMA, NCDEM, NC CGIA, and Dewberry | 3/8/2001 | Representatives of Pender County and Incorporated Communities, FEMA, NCDEM, NC CGIA, and Dewberry |
| TOWN OF ATKINSON | CAPE FEAR | 12/6/2000 | Representatives of Pender County and Incorporated Communities, FEMA, NCDEM, NC CGIA, and Dewberry | 3/8/2001 | Representatives of Pender County and Incorporated Communities, FEMA, NCDEM, NC CGIA, and Dewberry |
| TOWN OF BURGAW | CAPE FEAR | 12/7/2000 | Representatives of Pender County and Incorporated Communities, FEMA, NCDEM, NC CGIA, and Dewberry | 3/8/2001 | Representatives of Pender County and Incorporated Communities, FEMA, NCDEM, NC CGIA, and Dewberry |
| TOWN OF BURGAW ETJ | CAPE FEAR | 12/7/2000 | Representatives of Pender County and Incorporated Communities, FEMA, NCDEM, NC CGIA, and Dewberry | 3/8/2001 | Representatives of Pender County and Incorporated Communities, FEMA, NCDEM, NC CGIA, and Dewberry |
| TOWN OF SURF CITY | CAPE FEAR | 12/7/2000 | Representatives of Pender County and Incorporated Communities, FEMA, NCDEM, NC CGIA, and Dewberry | 3/8/2001 | Representatives of Pender County and Incorporated Communities, FEMA, NCDEM, NC CGIA, and Dewberry |
| TOWN OF TOPSAIL BEACH | CAPE FEAR | 12/7/2000 | Representatives of Pender County and Incorporated Communities, FEMA, NCDEM, NC CGIA, and Dewberry | 3/8/2001 | Representatives of Pender County and Incorporated Communities, FEMA, NCDEM, NC CGIA, and Dewberry |
| VILLAGE OF SAINT HELENA | CAPE FEAR | 12/7/2000 | Representatives of Pender County and Incorporated Communities, FEMA, NCDEM, NC CGIA, and Dewberry | 3/8/2001 | Representatives of Pender County and Incorporated Communities, FEMA, NCDEM, NC CGIA, and Dewberry |

Preliminary Meetings are held in each county to disseminate and review the FIS Report and FIRM panels. This meeting is required by FEMA. Public Participation Meetings are not required by FEMA, but provide an opportunity to review and discuss the FIS Report and FIRM panels for each jurisdiction in a public setting. The dates for the preliminary and public participation meetings are shown in Table 28, "Preliminary and Public Participation Meetings."

## Table 28 — Preliminary and Public Participation Meetings

| Community | For FIS Dated | Meeting Location | Preliminary Meeting Date | Attended By | Public Meeting Date | Attended By |
|---|---|---|---|---|---|---|
| TOWN OF BURGAW | 2/16/2007 | Town of Burgaw | 7/25/2005 | Officials from Pender county, NCDEM, Dewberry and Watershed Concepts | 8/16/2005 | The Public |
| TOWN OF BURGAW | 2/16/2007 | Town of Burgaw | 7/25/2005 | Officials from Pender county, NCDEM, Dewberry and Watershed Concepts | 9/7/2005 | The Public |
| TOWN OF BURGAW ETJ | 2/16/2007 | Town of Burgaw | 7/25/2005 | Officials from Pender county, NCDEM, Dewberry and Watershed Concepts | 8/16/2005 | The Public |
| TOWN OF BURGAW ETJ | 2/16/2007 | Town of Burgaw | 7/25/2005 | Officials from Pender county, NCDEM, Dewberry and Watershed Concepts | 9/7/2005 | The Public |

# 9.0 Guide to Additional Information

Information concerning the pertinent data used in the preparation of this FIS Report can be obtained by submitting an order with any required payment to the FEMA Engineering Library. For more information on this process, see http://www.fema.gov.

The Map Repositories table below lists locations where FIRMs for Pender County can be viewed. Please note that the maps at these locations are for reference only and are not for distribution. Also, please note that only the maps for the community listed in the table are available at that particular repository. A user may need to visit another repository to view maps from an adjacent community.

**Table 27 — Map Repositories**

| Community | Address | City | State | Zip Code |
|---|---|---|---|---|
| Town of Wallace | Wallace Town Hall, 316 East Murray Street | Wallace | NC | 28466 |
| Pender County | Pender County Planning Department, 805 South Walker Street | Burgaw | NC | 28425 |
| Town of Watha | Watha Town Hall, 425 Watha Road | Watha | NC | 28478 |
| Town of Atkinson | Atkinson Town Hall, 200 North Town Hall Avenue | Atkinson | NC | 28421 |
| Town of Burgaw | Burgaw City Hall, 109 North Walker Street | Burgaw | NC | 28425 |
| Village of Saint Helena | Saint Helena Village Hall, 305 East Main St | Saint Helena | NC | 28425 |
| Town of Surf City | Surf City Building Inspection Department, 214 North New River Drive | Surf City | NC | 28445 |
| Town of Topsail Beach | Topsail Beach Building Inspection Department, 820 South Anderson Boulevard | Topsail Beach | NC | 28445 |

## 9.1 Additional Information

All FIRM panels created for the State of North Carolina are produced in a seamless statewide format; however, FIS Reports are produced for individual counties.

Copies of FIRM panels are available for a nominal fee. To obtain a copy of the current flood map for a specific community, contact the FEMA Map Service Center at 1-800-358-9616. To facilitate the processing of your request, please review the current flood map on file at your local community repository and obtain the panel number in which you are interested. If necessary, users may also order a FIRM Index from the Map Service Center to determine the appropriate panel numbers. The Map Service Center also accepts orders for the Community Status Book and the Flood Insurance Manual. The FIS Report, FIRM panels, and digital data used to produce the FIRM panels are available online at www.ncfloodmaps.com.

Information concerning the data used in the preparation of this FIS, contained in an Engineering Study Data Package, may be obtained by contacting the FEMA Regional Office at the address listed on the Notice to Flood Insurance Study Users page at the front of this report.

Table 28, “Additional Information” is not applicable in Pender County.

# 10.0 Appendix

## 10.1 Bibliography

All bibliography and reference information associated within this Flood Insurance Study are maintained and accessible within the geodatabase structure and associated metadata. Users requiring more specific information should contact the North Carolina Floodplain Mapping Program (NCFMP) at www.ncfloodmaps.com under the Contacts menu