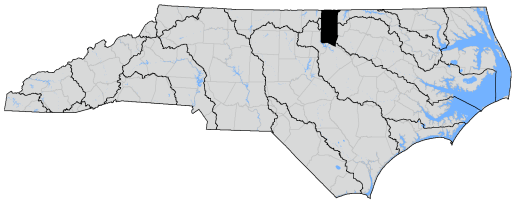
PRELIMINARY FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

A Report of Flood Hazards in

GRANVILLE COUNTY, NORTH CAROLINA AND INCORPORATED AREAS



Community Name	Community Number
CITY OF CREEDMOOR	370107
CITY OF OXFORD	370108
GRANVILLE COUNTY	370325
TOWN OF STEM	370109
TOWN OF STOVALL	370621

NORTH CAROLINA
Cooperating Technical State
FEMA'S COOPERATING TECHNICAL PARTNER

PRELIMINARY: 3/31/2015
REVISED: 3/31/2015
Federal Emergency Management Agency
State of North Carolina
Flood Insurance Study Number
37077CV000
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
4/16/2007	Initial Countywide FIS Report Effective Date

This FIS has been produced as part of the North Carolina Floodplain Mapping Program. Granville 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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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 Granville County and the jurisdictions therein (hereinafter referred to collectively as Granville 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 Granville County, North Carolina, including the jurisdictions listed in Table 1.

Table 1 - Jurisdictions in Granville County

Community	Included in this FIS	If Not Included, Location of Flood Hazard/Flood Insurance Rate Data
CITY OF CREEDMOOR	Yes	*
CITY OF OXFORD	Yes	*
GRANVILLE COUNTY	Yes	*
TOWN OF BUTNER	No	
TOWN OF STEM	Yes	*
TOWN OF STOVALL	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 Granville became Effective on 4/16/2007. 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.

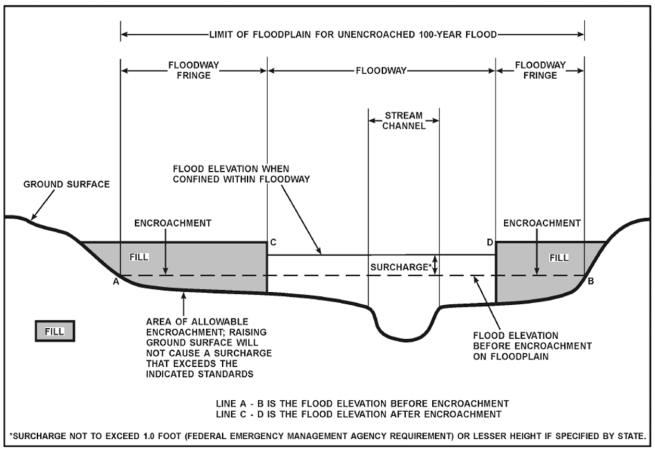

Figure 1- Floodway Schematic

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.

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.

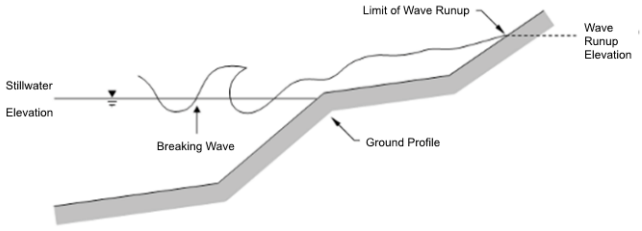

Figure 5: Wave Runup Transect Schematic

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 8, “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 18 and 18P presents the types of coastal analyses that were used in mapping the 1% annual chance floodplain in coastal areas.

Coastal BFEs
CWhere 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 Figure 9, “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.

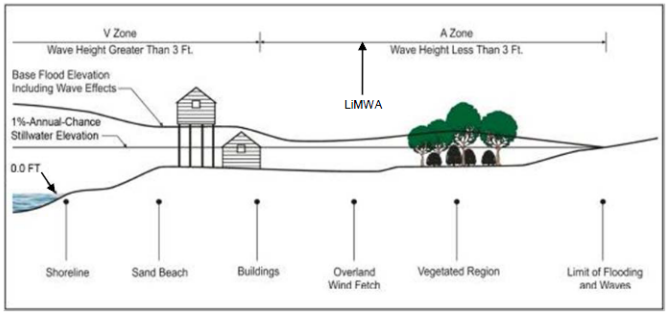

Figure 6: Coastal Transect Schematic

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 using the symbology described in Figure 3, “Map Legend for 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

3.2 Coastal Barrier Resources System

This section is not applicable to this FIS project.

4.0 Area Studied

Granville County is found in the Piedmont region of North Carolina. It is surrounded by Virginia to the north, Vance County to the east, Franklin County to the southeast, Wake County to the south, Durham County to the southwest, and Person County to the west.

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)
Lower Dan	03010104	Dan River	The Lower Dan Basin begins in eastern Rockingham County and flows northeast into southern Virginia. The basin drains parts of Rockingham, Caswell, and Person counties.	1,284
Middle Roanoke	03010102	Roanoke River	The Middle Roanoke River Basin begins in Virginia and drains portions of Pittsylvania and Campbell Counties. The basin then drains southeast to the end of the John H. Kerr Reservoir, and includes drainage from Granville, Warren, and Vance Counties.	1,739
Upper Neuse	03020201	Neuse River	The Upper Neuse Basin is initially drained by the Eno and Flat Rivers in Orange County. Once they confluence near Falls Lake, the basin is then drained by the Neuse River which flows through Durham, Wake, and Johnston Counties.	2,406
Upper Tar	03020101	Tar River	The Upper Tar River Basin begin in east Person County and drains significant portions of Edgecombe, Franklin, Granville, Nash, and Vance Counties along the Tar River.	1,305

4.2 Principal Flood Problems

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

Table 4 - Principal Flood Problems

Flooding Source	Problem
All Sources	Low-lying areas of Granville County are subject to periodic flooding from the Tar River, Fishing Creek, Ledge Creek, Knap of Reeds Creek, Coon Creek, Jordan Creek, and other smaller creeks and tributaries. The most severe flooding on the Tar River is usually the result of heavy rains from tropical storms, but floods can occur with the passing of major storm fronts during any season of the year. The Tar River reaches flood stage about 30 hours after the intense rainfall begins, and can remain out of banks for 2 to 3 days. On the smaller streams, flooding occurs primarily from thunderstorms and frontal systems; peak stages are reached within a few hours of maximum runoff. Areas having the most severe flood problems lie mostly within the Tar River, Coon Creek, and Jordan Creek floodplains.

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.

Table 5, “Historic Flood Elevations”, lists selected flooding sources in Granville 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)
Bollens Creek / Unknown storm	Approximately 2,000 feet downstream of U.S. Highway 15	4566	335.0	9/1/1999	500
Coon Creek / Unknown storm	4720 Fairport Road, Oxford	10006	350.0	9/1/1996	100
Grassy Creek / Hurricane Floyd	Just upstream of Dalton Mill Road	35469	328.4	9/1/1999	100
Grassy Creek / Hurricane Floyd	Approximately 600 feet upstream of the confluence of Little Grassy Creek	39919	344.2	9/1/1999	500
Grassy Creek / Hurricane Floyd	Nail in bridge rail of John Watkins Road	64139	379.5	9/1/1999	10
Grassy Creek / Hurricane Floyd	Just upstream of Dick Blackwell Road	79393	409.5	9/1/1999	500
Grassy Creek / Hurricane Fran	Approximately 850 feet downstream of Grassy Creek Road	22311	318.2	9/1/1996	100
Grassy Creek / Hurricane Isabel	Approximately 600 feet upstream of the confluence of Little Grassy Creek	39919	342.6	9/1/2003	100
Grassy Creek / Hurricane Isabel	Nail in bridge rail of John Watkins Road	64139	378.7	9/1/2003	100
Mountain Creek / Hurricane Floyd	Davis Chapel Road	3406	366.1	9/1/1999	100
North Fork Tar River / Unknown storm	Elam Currin Road, Oxford	23499	416.7	9/1/1996	100
Shelton Creek / Unknown storm	Upstream face of U.S. Highway 158	13916	416.1	9/1/1996	100
Shelton Creek / Unknown storm	6001 Rock Bottom Road, Oxford	24000	428.8	9/1/1999	50
Spewmarrow Creek / Hurricane Floyd	Approximately 1,300 feet downstream of Harry Davis Road	5879	311.0	9/1/1999	500
Spewmarrow Creek / Hurricane Floyd	Harry Davis Road	6591	313.7	9/1/1999	500
Spewmarrow Creek / Hurricane Isabel	Approximately 1,300 feet downstream of Harry Davis Road	5879	318.7	9/1/2003	500
Tar River / Unknown storm	Princeville	*	33.0	7/1/1919	100
Tar River / Unknown storm	Tarboro - U.S. Weather Bureau Stream Gage	*	43.4	7/1/1919	100
Tar River / Unknown storm	Upstream face of Enon Road, Oxford	952391	392.2	9/1/1996	100
Tar River / Unknown storm	Upstream face of Goochs Mill Road	960799	402.5	9/1/1996	100
Tar River / Unknown storm	Upstream face of Tar River Dam, 5109 Goochs Mill Road, Oxford	961210	405.3	9/1/1996	100
Tar River / Unknown storm	Upstream face of Moriah Road	980814	427.3	9/1/1996	100
Tar River / Unknown storm	Unknown	182350	39.4	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 Granville County.

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

4.5 Scope of Study

For this map maintenance revision, a scoping meeting was held in Granville 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 Granville 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 Granville 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	
Coon Creek	Approximately 240 feet downstream of West Antioch Drive	Approximately 310 feet upstream of Winding Oak Road	City Of Oxford Granville County
Coon Creek[1]	The confluence with Fishing Creek	Approximately 5,000 feet downstream of Fairport Road	City Of Oxford Granville County
Fishing Creek	The confluence with Tar River	Approximately 0.5 mile upstream of Knotts Grove Road	City Of Oxford Granville County
Fishing Creek Tributary 1	The confluence with Fishing Creek	Approximately 180 feet upstream of Country Club Drive	City Of Oxford Granville County
Fishing Creek Tributary 1A	The confluence with Fishing Creek Tributary 1	Approximately 410 feet upstream of Lewis Street	City Of Oxford
Founders Branch	The confluence with Fishing Creek Tributary 1	Approximately 100 feet upstream of Ivey Day Road	City Of Oxford
Grassy Creek	Approximately 0.5 mile upstream of Harry Davis Road	Approximately 560 feet upstream of Sam Blackwell Road	Granville County
Hatchers Run	The confluence with Fishing Creek	Approximately 100 feet upstream of Lake Devin Road	City Of Oxford Granville County
Holman Creek	Approximately 640 feet downstream of Tump Wilkins Road	Approximately 370 feet upstream of the confluence of Holman Creek Tributary 1	Granville County Town Of Stem
Holman Creek Tributary 1	The confluence with Holman Creek	Approximately 2,150 feet upstream of the confluence with Holman Creek	Granville County Town Of Stem
Jackson Creek	The confluence with Tar River	Approximately 0.6 mile upstream of Old NC Highway 75	Granville County
Johnson Creek (into Tar River)[1]	Approximately 0.4 mile downstream of Tar River Road	Approximately 1,000 feet upstream of Railroad	Granville County
Jordan Creek	The confluence with Coon Creek	The confluence of Jordan Creek Tributary 1	City Of Oxford
Knap of Reeds Creek	The confluence with Neuse River	The toe of R.D. Holt Reservoir Dam	Town Of Butner
Ledge Creek	Approximately 0.4 mile downstream of U.S. Highway 15	Approximately 0.6 mile upstream of Old NC Highway 75	City Of Creedmoor Granville County Town Of Butner Town Of Stem
Picture Creek[1]	The confluence with Knap of Reeds Creek	Approximately 1,925 feet upstream of Central Avenue Ext	Town Of Butner
Poplar Creek	The confluence with Tabbs Creek	Approximately 0.7 mile upstream of Interstate 85	Granville County
Syble Creek	Approximately 0.7 mile downstream of Northside Road	Approximately 0.8 mile upstream of U.S. Highway 15	Granville County Town Of Butner

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

Source	Riverine Sources		Affected Communties
	From	To	
Tabbs Creek	The Granville/Vance County boundary	Approximately 0.6 mile upstream of West Tom Parham Road	Granville County
Tar River	Approximately 1,400 feet downstream of the confluence of Rocky Creek	Approximately 300 feet upstream of the Person/Granville County Boundary	Granville County

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

Table 9P, “Scope of Revisions: Redelineated - Preliminary” is not applicable in Granville 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	
Aycock Creek	The confluence with Johnson Creek	Approximately 3,150 feet upstream of the confluence with Johnson Creek	Granville County
Bollens Creek[1]	The confluence with Boul Creek	Approximately 1,860 feet upstream of the confluence with Boul Creek	Granville County
Boul Creek[1]	Approximately 125 feet downstream of Sam Usry Road	Approximately 2,760 feet upstream of Sam Usry Road	Granville County
Camp Creek	The Durham/ Granville County Boundary	Approximately 0.6 mile upstream of Red Mountain Road	Granville County
Holman Creek[1]	The confluence with Ledge Creek	Approximately 2,725 feet upstream of Brogden Road	City Of Creedmoor Granville County
Johnson Creek Tributary[1]	The confluence with Johnson Creek	Approximately 225 feet downstream of Tar River Road	Granville County
Jordan Creek	The confluence of Jordan Creek Tributary 1	Approximately 0.7 mile upstream of the confluence of Jordan Creek Tributary 1	City Of Oxford
Jordan Creek Tributary 1	The confluence with Jordan Creek	Approximately 1.4 miles upstream of the confluence with Jordan Creek	City Of Oxford Granville County
Lake Devin	Approximately 175 feet upstream of Lake Devin Road	Approximately 1.2 miles upstream of Lake Devin Road	City Of Oxford Granville County
Ledge Creek	Approximately 0.6 mile upstream of Old Route 75	Approximately 0.63 mile upstream of Little Mountain Road	Granville County Town Of Stem
Ledge Creek Tributary 3[1]	The confluence with Ledge Creek	Approximately 525 feet upstream of South Durham Avenue	City Of Creedmoor
Ledge Creek Tributary 4[1]	The confluence with Ledge Creek Tributary 3	Approximately 1,875 feet upstream of the confluence with Ledge Creek Tributary 3	City Of Creedmoor
Little Grassy Creek[1]	The confluence with Grassy Creek	Approximately 2,400 feet upstream of confluence with Grassy Creek	Granville County
Mountain Creek[1]	The confluence with Grassy Creek	Approximately 1,435 feet downstream of Davis Chapel Road	Granville County
North Fork Tar River Tributary	The confluence with North Fork Tar River	Approximately 0.6 mile upstream of Pine Town Road	Granville County
Owen Creek[1]	The confluence with Tar River	Approximately 2,365 feet upstream of Harper Renn Road	Granville County
Rocky Creek[1]	The confluence with Tar River	Just upstream of James Royster Road	Granville County
Tar River	Approximately 500 feet upstream of Cannadys Mill Road	Approximately 1,400 feet downstream of the confluence of Rocky Creek	Granville County
Tar River Tributary 2[1]	The confluence with Tar River	Approximately 2,450 feet upstream of Tom Hunt Road	Granville County
Tributary to Tabbs Creek	The confluence with Tabbs Creek	Approximately 0.7 mile upstream of confluence with Tabbs Creek	Granville 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	
Coon Creek	Approximately 240 feet downstream of West Antioch Drive	Approximately 310 feet upstream of Winding Oak Road	City Of Oxford Granville County
Coon Creek	The confluence with Fishing Creek	Approximately 240 feet downstream of West Antioch Drive	City Of Oxford Granville County
Fishing Creek	The confluence with Tar River	Approximately 0.5 mile upstream of Knotts Grove Road	City Of Oxford Granville County
Fishing Creek Tributary 1	The confluence with Fishing Creek	Approximately 180 feet upstream of Country Club Drive	City Of Oxford Granville County
Fishing Creek Tributary 1A	The confluence with Fishing Creek Tributary 1	Approximately 410 feet upstream of Lewis Street	City Of Oxford
Founders Branch	The confluence with Fishing Creek Tributary 1	Approximately 100 feet upstream of Ivey Day Road	City Of Oxford
Grassy Creek	Approximately 0.5 mile upstream of Harry Davis Road	Approximately 560 feet upstream of Sam Blackwell Road	Granville County
Hatchers Run	The confluence with Fishing Creek	Approximately 100 feet upstream of Lake Devin Road	City Of Oxford Granville County
Holman Creek	Approximately 0.2 mile upstream of Interstate 85	Approximately 0.1 mile upstream of SR 1136	Granville County Town Of Stem
Holman Creek	Approximately 640 feet downstream of Tump Wilkins Road	Approximately 370 feet upstream of the confluence of Holman Creek Tributary 1	Granville County Town Of Stem
Holman Creek Tributary 1	The confluence with Holman Creek	Approximately 0.4 mile upstream of Tally Ho Road	Granville County Town Of Stem
Holman Creek Tributary 2	The confluence with Holman Creek	Approximately 0.4 mile upstream of the confluence with Holman Creek	Granville County
Jackson Creek	The confluence with Tar River	Approximately 0.6 mile upstream of Old NC Highway 75	Granville County
Johnson Creek (into Tar River)	Approximately 0.4 mile downstream of Tar River Road	Approximately 0.2 mile downstream of Interstate 85	Granville County
Jordan Creek	The confluence with Coon Creek	The confluence of Jordan Creek Tributary 1	City Of Oxford
Jordan Creek	The confluence with Coon Creek	The confluences of Jordan Creek Tributary 1 and Jordan Creek Tributary 2	City Of Oxford
Ledge Creek	Approximately 0.4 mile downstream of U.S. Highway 15	Approximately 0.6 mile upstream of Old NC Highway 75	City Of Creedmoor Granville County Town Of Butner Town Of Stem
North Fork Tar River	The confluence with Tar River	Approximately 1.1 miles upstream of Graham Hobgood Road	Granville County
Poplar Creek	The confluence with Tabbs Creek	Approximately 0.7 mile upstream of Interstate 85	Granville County
Shelton Creek	The confluence with Tar River	Approximately 1,250 feet upstream of Goshen Road	Granville County
Spewmarrow Creek	The confluence with Grassy Creek	Approximately 330 feet downstream of Herbert Faucette Road	Granville County
Syble Creek	Approximately 0.7 mile downstream of Northside Road	Approximately 0.8 mile upstream of U.S. Highway 15	Granville County Town Of Butner
Tabbs Creek	The Granville/Vance County boundary	Approximately 0.6 mile upstream of West Tom Parham Road	Granville County
Tar River	Approximately 0.5 mile downstream of the confluence of Sapony Creek	Approximately 80 feet upstream of the confluence of Fork Creek	Granville County
Tar River	Approximately 1,400 feet downstream of the confluence of Rocky Creek	Approximately 300 feet upstream of the Person/Granville County Boundary	Granville County
Tar River	The Franklin/Granville County boundary	Approximately 500 feet upstream of Cannadys Mill Road	Granville 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	
Knap of Reeds Creek	Entire shoreline within Granville County	Entire shoreline within Granville County	Town Of Butner

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	
Aarons Creek	The North Carolina/Virginia State boundary	Approximately 3.2 miles upstream of Grassy Creek Virgilina Road	Granville County
Aycock Creek	The confluence with Johnson Creek	Approximately 0.4 mile upstream of Sanders Road	Granville County
Bearskin Creek	The confluence with Grassy Creek	Approximately 820 feet upstream of NC Highway 96	Granville County
Beaverdam Creek Tributary 3	The confluence with Beaverdam Creek	Approximately 0.9 mile upstream of Side Road	Granville County
Beaverdam Creek Tributary 5	The confluence with Beaverdam Creek	Approximately 0.4 mile upstream of the confluence with Beaverdam Creek	Granville County
Beech Creek	The confluence with Johnson Creek (into Grassy Creek)	Approximately 0.9 mile upstream of the confluence with Johnson Creek (into Grassy Creek)	Granville County
Blue Creek	The confluence with Little Grassy Creek	Approximately 0.9 mile upstream of Sam Hall Road	Granville County
Blue Creek Tributary 1	The confluence with Blue Creek	Approximately 0.7 mile upstream of confluence with Blue Creek	Granville County
Bollens Creek	The confluence with Boul Creek	Approximately 0.6 mile upstream of U.S. Highway 15	Granville County
Boul Creek	The confluence with Tar River	Approximately 1.5 miles upstream of Sam Usry Road	Granville County
Camp Creek	The Durham/ Granville County Boundary	Approximately 0.6 mile upstream of Red Mountain Road	Granville County
Cedar Branch	The confluence with Grassy Creek/Kerr Reservoir	Approximately 0.5 mile upstream of Unnamed Road	Granville County
Cedar Creek	The confluence with Robertson Creek	Approximately 1.3 miles upstream of Hayes Road	City Of Creedmoor Granville County
Cub Creek	The confluence with Tar River	Approximately 0.1 mile upstream of George Sherman Road	Granville County
Cub Creek Tributary 1	The confluence with Cub Creek	Approximately 0.6 mile upstream of the confluence of Cub Creek Tributary 2	Granville County
Deer Pond Branch	The confluence with Spewmarrow Creek	Approximately 0.5 mile upstream of confluence with Spewmarrow Creek	Granville County
Dickens Creek	The confluence with Knap of Reeds Creek	Approximately 0.3 mile upstream of Little Mountain Road	Granville County Town Of Butner
Fishing Creek	Approximately 700 feet upstream of Knotts Grove Road	Approximately 0.3 mile upstream of Interstate 85	City Of Oxford Granville County
Fork Creek	Confluence with Tar River	Approximately 0.1 mile upstream of State Route 56	Granville County
Fork Creek	The confluence with Tar River	Approximately 0.1 mile upstream of State Route 56	Granville County
Fox Creek	The confluence with Shelton Creek	Approximately 3.4 miles upstream of Sunset Road	Granville County
Gibbs Creek	The confluence with the Tar River	Approximately 4.9 miles upstream of Gray Rock Road	Granville County
Grassy Creek	Approximately 530 feet upstream of Sam Blackwell Road	Approximately 0.4 mile upstream of Noel Tuck Road	Granville County
Grassy Creek	The North Carolina/Virginia State boundary	Approximately 760 feet upstream of the confluence of Johnson Creek (into Grassy Creek)	Granville County
Grassy Creek Tributary 1	The confluence with Grassy Creek/Kerr Reservoir	The North Carolina/Virginia State boundary	Granville County
Grassy Creek Tributary 2	The confluence with Grassy Creek	Approximately 0.5 mile upstream of confluence with Grassy Creek	Granville County
Grassy Creek Tributary 3	The confluence with Grassy Creek	Approximately 1,000 feet upstream of Walnut Grove Road	Granville County
Holman Creek	The confluence with Ledge Creek	Approximately 0.2 mile upstream of Interstate 85	City Of Creedmoor Granville County
Holman Creek Tributary 3	The confluence with Holman Creek	Approximately 0.7 mile upstream of the confluence with Holman Creek	Granville County
Howlett Creek	The confluence with Little Island Creek	Approximately 0.6 mile upstream of confluence with Little Island Creek	Granville County
Island Creek	The North Carolina/ Virginia State boundary	Approximately 0.5 mile upstream of Rockwell Road	Granville County
Island Creek Tributary 1	The confluence with Island Creek	Approximately 0.8 mile upstream of confluence with Island Creek	Granville County
Island Creek Tributary 2	The confluence with Island Creek	Approximately 0.7 mile upstream of confluence with Island Creek	Granville County
Island Creek Tributary 3	The confluence with Island Creek	Approximately 0.5 mile upstream of confluence with Island Creek	Granville County
Jackson Creek	Approximately 0.6 mile upstream of Old Route 75	Approximately 1.6 miles upstream of Old Route 75	Granville County
John H. Kerr Reservoir	The entire shoreline within Granville County	The entire shoreline within Granville County	Granville County

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

Source	Riverine Sources		Affected Communties
	From	To	
Johnson Creek	The confluence with Grassy Creek	Approximately 0.4 mile upstream of Lee Yancey Road	Granville County
Johnson Creek Tributary	The confluence with Johnson Creek	Approximately 0.7 mile upstream of Tar River Road	Granville County
Jordan Creek	The confluence of Jordan Creek Tributary 1	Approximately 0.7 mile upstream of the confluence of Jordan Creek Tributary 1	City Of Oxford
Jordan Creek Tributary 1	The confluence with Jordan Creek	Approximately 1.4 miles upstream of the confluence with Jordan Creek	City Of Oxford Granville County
Knap Creek Tributary	The confluence with Lake Butner	Approximately 0.1 mile upstream of Roberts Chapel Road	Granville County Town Of Butner
Knap of Reeds Creek	The confluence with Lake Butner	Approximately 0.7 mile upstream of Enon Road	Granville County Town Of Butner
Knap of Reeds Creek Tributary 1	The confluence with Knap of Reeds Creek	Approximately 1.1 miles upstream of the confluence with Knap of Reeds Creek	Granville County
Knap of Reeds Creek Tributary 2	The confluence with Knap of Reeds Creek	Approximately 0.6 mile upstream of the confluence with Knap of Reeds Creek	Granville County
Lake Devin	Approximately 175 feet upstream of Lake Devin Road	Approximately 1.2 miles upstream of Lake Devin Road	City Of Oxford Granville County
Ledge Creek	Approximately 0.6 mile upstream of Old Route 75	Approximately 0.63 mile upstream of Little Mountain Road	Granville County Town Of Stem
Ledge Creek Tributary 3	The confluence with Ledge Creek	Approximately 0.7 mile upstream of the confluence with Ledge Creek	City Of Creedmoor
Ledge Creek Tributary 4	The confluence with Ledge Creek Tributary 3	Approximately 0.2 mile upstream of Charles Street	City Of Creedmoor
Lick Branch	The confluence with Spewmarrow Creek	Approximately 1.2 miles upstream of Tilley Road	Granville County
Little Grassy Creek	The confluence with Grassy Creek	Approximately 1.3 miles upstream of Gela Road	Granville County
Little Island Creek	The confluence with Island Creek	Approximately 1.5 miles upstream of Hill Airy Road	Granville County
Little Island Creek Tributary 1	The confluence with Little Island Creek	Approximately 640 feet upstream of Hill Airy Road	Granville County
Little Johnson Creek	The confluence with Johnson Creek (into Grassy Creek)	Approximately 1,400 feet upstream of Oak Hill Road	Granville County
Michael Creek	The confluence with Island Creek	Approximately 1.7 miles upstream of Rockwell Road	Granville County
Mill Creek	The confluence with New Light Creek and West Prong	Approximately 175 feet upstream of Woodland Church Road	Granville County
Mountain Creek	The confluence with Grassy Creek	Approximately 1.5 miles upstream of Cornwall Road	Granville County
North Fork Tar River Tributary	The confluence with North Fork Tar River	Approximately 0.6 mile upstream of Pine Town Road	Granville County
North Fork Tar River Tributary 1	The confluence with North Fork Tar River	Approximately 2.5 miles upstream of the confluence with North Fork Tar River	Granville County
North Fork Tar River Tributary 2	The confluence with North Fork Tar River	Approximately 1.0 miles upstream of Bodie Currin Road	Granville County
Owen Creek	The confluence with Tar River	Approximately 2.1 miles upstream of Harper Renn Road	Granville County
Robertson Creek Tributary 2	The confluence with Robertson Creek	Approximately 0.4 mile upstream of Moss Back Road	Granville County
Rocky Creek	The confluence with Tar River	Approximately 2.9 miles upstream of James Royster Road	Granville County
Spewmarrow Creek	Approximately 330 feet downstream of Herbert Faucette Road	Approximately 1.1 miles upstream of Herbert Faucette Road	Granville County
Spewmarrow Creek Tributary 1	The confluence with Spewmarrow Creek	Approximately 1.2 miles upstream of the confluence with Spewmarrow Creek	Granville County
Tar River	Approximately 500 feet upstream of Cannadys Mill Road	Approximately 1,400 feet downstream of the confluence of Rocky Creek	Granville County
Tar River Tributary 2	The confluence with Tar River	Approximately 1.3 miles upstream of Tom Hunt Road	Granville County
Tar River Tributary 3	The confluence with Tar River Tributary 2	Approximately 1.1 miles upstream of the confluence with Tar River Tributary 2	Granville County
Tar River Tributary 4	The confluence with Tar River	Approximately 1.2 miles upstream of Gene Hobgood Road	Granville County
Tributary to Tabbs Creek	The confluence with Tabbs Creek	Approximately 0.7 mile upstream of confluence with Tabbs Creek	Granville County
West Prong	The confluence with Mill Creek and New Light Creek	Approximately 1.2 miles upstream of Graham Sherron Road	Granville County
West Prong Tributary	The confluence with West Prong	Approximately 650 feet upstream of Woodland Church Road	Granville County

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

This FIS also incorporates the determinations of letters issued by FEMA resulting in map changes (Letters of Map Revision [LOMRs]), as shown in Table 12, “Letters of Map Revision”.

Table 12 - Letters of Map Revision

Case Number	Date Issued	Flooding Source/Description	Communities
10-04-4713P	12/10/2010	Shelton Creek / 10-04-4713P	Granville 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
Aarons Creek					
Approximately 1.0 mile downstream of Grassy Creek Virgilina Road	27.74	*	*	5945	*
Approximately 300 feet upstream of Grassy Creek Virgilina Road	27.33	*	*	5889	*
Approximately 1.2 miles upstream of Grassy Creek Virgilina Road	25.88	*	*	5692	*
Approximately 2.5 miles upstream of Grassy Creek Virgilina Road	23.87	*	*	5411	*
Approximately 2.7 miles upstream of Grassy Creek Virgilina Road	23.79	*	*	5401	*
Aycock Creek					
The confluence with Johnson Creek (into Tar River)	3.41	*	*	1600	*
Approximately 0.83 mile upstream of the confluence with Johnson Creek (into Tar River)	2.71	*	*	1390	*
Approximately 0.63 mile downstream of U.S. Highway 15	2.04	*	*	1160	*
Approximately 0.11 mile downstream of U.S. Highway 15	1.38	*	*	911	*
Approximately 0.38 mile upstream of U.S. Highway 15	1.09	*	*	788	*

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
Bearskin Creek					
The confluence with Grassy Creek	4.93	*	*	2019	*
Approximately 500 feet upstream of the confluence with Grassy Creek	4.89	*	*	2008	*
Approximately 0.5 mile upstream of Unnamed Road	3.85	*	*	1729	*
Approximately 0.7 mile upstream of Unnamed Road	3.80	*	*	1717	*
Approximately 0.6 mile downstream of NC Hwy 96	3.33	*	*	1579	*
Approximately 0.2 mile downstream of NC Hwy 96	2.99	*	*	1479	*
Approximately 800 feet upstream of NC Hwy 96	2.82	*	*	1425	*
Beaverdam Creek					
Approximately 0.08 mile downstream of the confluence with Smith Creek	42.67	*	*	7780	*
The confluence with Smith Creek	31.78	*	*	6470	*
Approximately 0.72 mile upstream of the confluence with Smith Creek	13.96	*	*	3869	*
Approximately 1.57 miles upstream of the confluence with Smith Creek	12.95	*	*	3690	*
Approximately 0.81 mile downstream of Brassfield Road	9.30	*	*	3000	*
Approximately 0.68 mile downstream of Walters Road	4.99	*	*	2030	*
Approximately 0.26 mile downstream of Walters Road	3.90	*	*	1740	*
Approximately 0.50 mile downstream of State Highway 56	1.71	*	*	1040	*
Beaverdam Creek Tributary 3					
The confluence with Beaverdam Creek	3.49	*	*	1630	*
Approximately 1.60 miles upstream of the confluence with Beaverdam Creek	2.66	*	*	1370	*
Approximately 1.83 miles upstream of the confluence with Beaverdam Creek	1.67	*	*	1030	*
Beaverdam Creek Tributary 5					
The confluence with Beaverdam Creek	1.19	*	*	830	*
Beech Creek					
The confluence with Johnson Creek (into Grassy Creek)	8.33	*	*	2803	*
Approximately 0.6 mile upstream of the confluence with Johnson Creek (into Grassy Creek)	8.04	*	*	2741	*
Approximately 0.8 mile upstream of the confluence with Johnson Creek (into Grassy Creek)	7.91	*	*	2713	*
Blue Creek					
The confluence with Little Grassy Creek	8.32	*	*	2801	*
Approximately 1.2 miles upstream of the confluence with Little Grassy Creek	7.56	*	*	2638	*
Approximately 0.2 mile downstream of Sam Hall Road	7.10	*	*	2536	*
The confluence of Blue Creek Tributary 1	2.93	*	*	1459	*
Approximately 0.2 mile upstream of the confluence of Blue Creek Tributary 1	2.80	*	*	1417	*
Blue Creek Tributary 1					
The confluence with Blue Creek	3.67	*	*	1680	*
Approximately 0.6 mile upstream of the confluence with Blue Creek	3.58	*	*	1653	*
Bollens Creek					
The confluence with Boul Creek	1.99	*	*	1150	*
Approximately 0.5 mile downstream of U.S. Highway 15	1.68	*	*	1030	*
Approximately 0.3 mile upstream of U.S. Highway 15	1.35	*	*	900	*
Boul Creek					
The confluence with Tar River	6.63	*	*	2430	*

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 Sam Usry Road	5.06	*	*	2050	*
At the confluence of Bollens Creek	2.96	*	*	1470	*
Approximately 0.5 mile upstream of the confluence of Bollens Creek	2.37	*	*	1280	*
Approximately 1.1 miles upstream of the confluence of Bollens Creek	1.78	*	*	1070	*
Camp Creek					
Approximately 105 feet upstream of the confluence with Knap of Reeds Creek	5.77	*	*	2230	*
Cedar Branch					
The confluence with Grassy Creek	1.92	*	*	1119	*
Approximately 0.3 mile upstream of the confluence with Grassy Creek	1.80	*	*	1075	*
Approximately 650 feet upstream of Unnamed Road	1.34	*	*	895	*
Approximately 0.5 mile upstream of Unnamed Road	1.11	*	*	793	*
Cedar Creek					
The confluence with Robertson Creek	3.53	*	*	1640	*
Approximately 0.3 mile upstream of Moss Hayes Road	2.93	*	*	1460	*
Approximately 0.7 mile upstream of Moss Hayes Road	1.94	*	*	1130	*
Coon Creek					
Just upstream of confluence with Fishing Creek	26.00	2972	4667	5377	7161
Approximately 1,550 feet downstream of Fairport Road	25.33	2924	4593	5293	7051
Approximately 4,250 feet upstream of Fairport Road	23.99	2828	4447	5126	6833
Approximately 320 feet downstream of West Antioch Drive	22.80	2740	4312	4972	6632
Approximately 720 feet downstream of Interstate 85	21.16	2617	4124	4757	6350
Just upstream of confluence with Jordan Creek	10.00	1648	2630	3048	4102
Approximately 125 feet upstream of U.S. Highway 158 Bypass	9.38	1584	2531	2934	3952
Approximately 1,500 feet downstream of Salem Road	8.64	1506	2409	2794	3766
Approximately 850 feet upstream of Railroad	5.60	1152	1857	2159	2924
Approximately 2,825 feet downstream of Horner Siding Road	4.94	1067	1723	2006	2720
Approximately 1,500 feet upstream of Horner Siding Road	3.52	866	1407	1640	2233
Approximately 1,775 feet downstream of Winding Oak Road	2.70	735	1199	1400	1912
At Winding Oak Road	2.46	694	1135	1326	1813
Cozart Creek					
Approximately 1,475 feet downstream of U.S. Highway 15	5.06	1083	1748	2034	2759
Approximately 740 feet downstream of U.S. Highway 15	5.01	*	*	2040	*
Approximately 0.9 mile upstream of Interstate 85	3.73	*	*	1700	*
Approximately 2.5 miles downstream of SR 1103	3.28	*	*	1540	*
Approximately 2,000 feet downstream of SR 1103	1.18	*	*	800	*
Cozart Creek Tributary 1					
Approximately 0.5 mile upstream of the confluence with Cozart Creek	3.81	*	*	1720	*
Approximately 1.1 miles upstream of the confluence with Cozart Creek	2.02	*	*	1160	*
Approximately 2.20 miles upstream of the confluence with Cozart Creek	1.42	*	*	928	*
Cozart Creek Tributary 2					
Approximately 0.02 mile upstream of the confluence with Cozart Creek Tributary 1	1.40	*	*	918	*
Approximately 0.15 mile upstream of the confluence with Cozart Creek Tributary 1	0.81	*	*	651	*
Cozart Creek Tributary 3					

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 Cozart Creek Tributary 2	0.57	*	*	525	*
Cub Creek					
The confluence with the Tar River	17.24	*	*	4420	*
The confluence of Cub Creek Tributary 1	9.25	*	*	2990	*
Approximately 0.7 mile upstream of the confluence of Cub Creek Tributary 1	8.92	*	*	2930	*
Approximately 635 feet upstream of George Sherman Road	8.31	*	*	2800	*
Cub Creek Tributary 1					
The confluence with Cub Creek	7.56	*	*	2640	*
Approximately 0.4 mile upstream of Hobgood Road	7.19	*	*	2560	*
Approximately 1.1 miles upstream of Hobgood Road	6.02	*	*	2290	*
Approximately 470 feet downstream of the Granville/ Person County boundary	5.56	*	*	2180	*
Deer Pond Branch					
The confluence with Spewmarrow Creek	0.65	*	*	568	*
Approximately 600 feet upstream of the confluence with Spewmarrow Creek	0.50	*	*	483	*
Approximately 850 feet downstream of Herbert Faucette Road	0.43	*	*	439	*
Dickens Creek					
Approximately 35 feet upstream of the confluence with Knap of Reeds Creek	4.39	*	*	1880	*
Approximately 0.7 mile upstream of the confluence with Knap of Reeds Creek	4.03	*	*	1780	*
Approximately 2.1 miles upstream of the confluence with Knap of Reeds Creek	3.13	*	*	1520	*
Approximately 2.3 miles upstream of the confluence with Knap of Reeds Creek	2.14	*	*	1200	*
Approximately 160 feet downstream of Little Mountain Road	2.00	*	*	1149	*
Fishing Creek					
At confluence with Tar River	46.80	4271	6639	7623	10086
At Mouth	46.80	*	*	8940	*
Approximately 2,000 feet uppstream of Eaton Road	42.15	4004	6235	7163	9489
Just upstream of confluence with Coon Creek	12.72	1912	3038	3515	4719
Just downstream of confluence with Hatchers Run	6.86	1486	2445	2771	3696
Approximately 150 feet downstream of confluence with Fishing Creek Tributary 1	1.60	535	966	1114	1549
Approximately 495 feet downstream of Interstate 85	1.34	*	*	893	*
Approximately 0.3 mile upstream of Interstate 85	1.02	*	*	754	*
Fishing Creek Tributary 1					
Approximately 200 feet upstream of confluence with Fishing Creek	4.87	1244	2062	2337	3114
Approximately 3,400 feet upstream of confluence with Fishing Creek	4.40	1225	2018	2279	3017
Approximately 2,175 feet downstream of Interstate 85	4.03	1204	1974	2225	2931
Just upstream of Interstate 85	3.53	1111	1832	2066	2726
Approximately 900 feet upstream of Interstate 85	3.09	1016	1688	1907	2524
Just upstream of confluence with Fishing Creek Tributary 1A	1.88	713	1224	1391	1870
Approximately 1,275 feet downstream of Lewsi Street	1.55	595	1045	1195	1627
Just upstream of West Fairview Drive	1.28	464	775	903	1286
Approximately 1,015 feet downstream of Quail Ridge Road	0.63	299	501	590	819
Fishing Creek Tributary 1A					
Just upstream of confluence with Fishing Creek Tributary 1	1.05	534	926	1051	1407
Just upstream of confluence with Fishing Creek Tributary 2	0.47	289	533	614	848

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
Fishing Creek Tributary 2					
Just upstream of confluence with Fishing Creek Tributary 1A	0.42	346	605	684	907
Fork Creek					
At the confluence with the Tar River	10.70	*	*	3270	*
Approximately 1.0 mile upstream of the confluence with Tar River	8.76	*	*	2890	*
Approximately 0.4 mile downstream of Grove Hill Road	7.96	*	*	2720	*
Approximately 0.3 mile upstream of Grove Hill Road	7.25	*	*	2570	*
At Flat Rock Road	5.66	*	*	2200	*
Approximately 0.8 mile upstream of Flat Rock Road	4.21	*	*	1830	*
Approximately 0.4 mile downstream of State Route 56	3.12	*	*	1520	*
Approximately 0.6 mile upstream of State Route 56	2.30	*	*	1250	*
Founders Branch					
Approximately 350 feet downstream of Quail Ridge Road	0.41	230	442	515	730
Approximately 825 feet upstream of Quail Ridge Road	0.12	142	270	311	427
Fox Creek					
The confluence with Shelton Creek	9.98	*	*	3140	*
At Bob Daniel Road	9.39	*	*	3020	*
Approximately 0.3 mile upstream of Sunset Road	7.48	*	*	2620	*
Approximately 1.0 mile upstream of Sunset Road	6.75	*	*	2460	*
Approximately 1.8 miles upstream of Sunset Road	3.75	*	*	1700	*
Approximately 2.4 miles upstream of Sunset Road	3.19	*	*	1540	*
Approximately 3.0 miles upstream of Sunset Road	2.58	*	*	1350	*
Approximately 3.4 miles upstream of Sunset Road	2.04	*	*	1160	*
Gibbs Creek					
The confluence with Tar River	8.08	*	*	2750	*
Approximately 685 feet upstream of Gray Rock Road	6.10	*	*	2310	*
Approximately 1.3 miles upstream of Gray Rock Road	5.52	*	*	2170	*
Approximately 1.8 miles upstream of Gray Rock Road	4.96	*	*	2030	*
Approximately 2.1 miles upstream of Gray Rock Road	4.62	*	*	1940	*
Approximately 2.9 miles upstream of Gray Rock Road	3.35	*	*	1590	*
Approximately 3.5 miles upstream of Gray Rock Road	2.19	*	*	1220	*
Approximately 4.5 miles upstream of Gray Rock Road	1.22	*	*	842	*
Grassy Creek					
Just upstream of North Carolina / Virginia State Boundary	121.78	7705	11785	13453	17615
Approximately 100 feet upstream of the confluence of Cedar Branch	119.85	*	*	14836	*
Just upstream of confluence with Spewmarrow Creek	105.11	7037	10789	12327	16167
The confluence of Spewmarrow Creek	105.11	*	*	13668	*
Approximately 0.3 mile downstream of Harry Davis Road	104.63	*	*	13628	*
Approximately 125 feet upstream of Harry Davis Road	104.41	*	*	13611	*
The confluence of Grassy Creek Tributary 1	103.74	*	*	13556	*
The confluence of Johnson Creek (into Grassy Creek)	66.79	*	*	10295	*
Approximately 2,600 feet upstream of Harry Davis Road	66.77	5318	8218	9415	12409
Approximately 4,300 feet upstream of Dalton Mill Road	36.78	3681	5746	6606	8765
Approximately 2.8 miles upstream of Dalton Mill Road	34.32	3527	5512	6341	8419

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 1.34 miles downstream of Cornwall Road	21.85	2670	4204	4849	6470
Approximately 3,120 feet downstream of Cornwall Road	21.00	2605	4105	4736	6322
Approximately 0.95 miles upstream of John Watkins Road	19.97	2525	3983	4596	6139
At Dick Blackwell Road	18.54	2413	3810	4399	5880
Approximately 0.63 miles upstream of Dick Blackwell Road	17.74	2348	3710	4285	5730
Approximately 1,375 feet upstream of Sam Blackwell Road	16.44	2240	3545	4095	5482
Approximately 0.4 mile downstream of the confluence of Bearskin Creek	16.01	*	*	4217	*
Approximately 0.3 mile downstream of the confluence of Bearskin Creek	15.52	*	*	4134	*
The confluence of Bearskin Creek	10.54	*	*	3247	*
Approximately 0.5 mile downstream of Little Satterwhite Road	9.34	*	*	3010	*
Approximately 0.3 mile upstream of Little Satterwhite Road	8.23	*	*	2782	*
Approximately 0.3 mile upstream of Jack Adcock Road	7.98	*	*	2728	*
Approximately 1.3 miles upstream of Jack Adcock Road	6.82	*	*	2472	*
Approximately 0.6 mile downstream of the confluence of Grassy Creek Tributary 2	5.53	*	*	2169	*
The confluence of Grassy Creek Tributary 2	4.69	*	*	1957	*
Approximately 0.4 mile upstream of the confluence of Grassy Creek Tributary 2	4.20	*	*	1826	*
Approximately 0.4 mile downstream of the confluence of Grassy Creek Tributary 3	3.70	*	*	1687	*
Just downstream of the confluence of Grassy Creek Tributary 3	2.08	*	*	1178	*
Approximately 0.4 mile upstream of Noel tuck Road	1.63	*	*	1012	*
Grassy Creek Tributary 1					
The confluence with Grassy Creek	0.63	*	*	557	*
Grassy Creek Tributary 2					
The confluence with Grassy Creek	0.60	*	*	542	*
Approximately 1.4 mile upstream of the confluence with Grassy Creek	0.52	*	*	493	*
Grassy Creek Tributary 3					
Just downstream of the confluence with Grassy Creek	1.14	*	*	808	*
Approximately 0.2 mile upstream of Walnut Grove Road	0.89	*	*	694	*
Hatchers Run					
Just upstream of confluence with Fishing Creek	5.43	945	1593	1882	2629
Approximately 2,250 feet downstream of Interstate 85	4.69	833	1417	1678	2357
approximately 2,650 feet upstream of U.S. Highway 15	2.39	397	720	871	1270
Approximately1,500 feet downstream of Railroad	1.88	253	487	599	901
Approximately 1,315 feet downstream of Lake Devin Road	1.59	7	73	111	221
Just upstream of Lake Devin Road	1.42	495	816	957	1316
Holman Creek					
Just upstream of confluence with Ledge Creek	9.52	1599	2554	2961	3987
Approximately 2,000 feet upstream of Brogden Road	8.73	1515	2424	2811	3789
Approximately 5,800 feet upstream of Brogden Road	7.73	1406	2254	2616	3531
Approximately 5,800 feet downstream of Hester Road	7.25	1351	2169	2518	3401
Approximately 1,640 feet downstream of Hester Road	6.45	1257	2021	2348	3176
Approximately 405 feet downstream of Hester Road	5.18	1098	1772	2062	2795
Approximately 1,795 feet downstream of Interstate 85	4.45	1001	1619	1885	2560
Approximately 1,085 feet upstream of Interstate 85	2.66	728	1188	1387	1894
Just downstream of Tump Wilkins Road	2.48	697	1139	1331	1818

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 1,510 feet upstream of Tump Wilkins Road	2.32	670	1096	1281	1752
Approximately 4,000 feet upstream of Tump Wilkins Road	2.05	621	1018	1190	1630
Approximately 1.05 miles upstream of Tump Wilkins Road	1.86	584	960	1123	1540
Approximately 1.25 miles upstream of Tump Wilkins Road	1.07	415	689	809	1116
Approximately 15 feet upstream of the confluence of Holman Creek Tributary 2	0.49	*	*	476	*
Approximately 370 feet downstream of SR 1136	0.35	*	*	383	*
Approximately 1,050 feet upstream of SR 1136	0.20	*	*	273	*
Holman Creek Tributary 1					
Approximately 30 feet upstream of the confluence with Holman Creek	0.72	*	*	607	*
Approximately 0.3 mile upstream of the confluence with Holman Creek	0.63	*	*	558	*
Approximately 370 feet downstream of Tally Ho Road	0.48	*	*	470	*
Approximately 0.24 mile upstream of Tally Ho Road	0.34	*	*	379	*
Holman Creek Tributary 2					
The confluence with Holman Creek	0.51	*	*	487	*
Holman Creek Tributary 3					
Approximately 0.7 mile upstream of the confluence with Holman Creek	1.79	*	*	1070	*
Howlett Creek					
The confluence with Island Creek	3.67	*	*	1679	*
Approximately 0.5 mile upstream of the confluence with Island Creek	3.54	*	*	1641	*
Island Creek					
The confluence of Little Island Creek (Vance Co)	39.27	*	*	7387	*
Approximately 0.3 mile upstream of the confluence of Little Island Creek (Vance Co)	38.93	*	*	7346	*
Approximately 2.9 miles upstream of the confluence of Little Island Creek (Vance Co)	38.56	*	*	7303	*
Approximately 1.0 mile downstream of the confluence of Island Creek Tributary 1	38.08	*	*	7246	*
Approximately 0.6 mile downstream of the confluence of Island Creek Tributary 1	37.61	*	*	7190	*
The confluence of Island Creek Tributary 1	36.96	*	*	7112	*
Approximately 550 feet upstream of the confluence of Island Creek Tributary 1	36.53	*	*	7060	*
Approximately 0.3 mile upstream of the confluence of Island Creek Tributary 1	36.39	*	*	7043	*
Approximately 0.7 mile upstream of the confluence of Island Creek Tributary 1	35.89	*	*	6983	*
Approximately 1.1 miles upstream of the confluence of Island Creek Tributary 1	35.01	*	*	6875	*
Approximately 0.9 mile downstream of Buckhorn Road	33.46	*	*	6684	*
The confluence of Island Creek Tributary 2	30.20	*	*	6268	*
The confluence of Michael Creek	19.22	*	*	4726	*
Approximately 0.9 mile upstream of the confluence of Michael Creek	18.92	*	*	4680	*
Approximately 0.9 mile downstream of the confluence of Island Creek Tributary 3	18.42	*	*	4602	*
The confluence of Island Creek Tributary 3	17.18	*	*	4407	*
Approximately 0.4 mile upstream of the confluence of Island Creek Tributary 3	17.08	*	*	4390	*
Approximately 1.0 mile upstream of the confluence of Island Creek tributary 3	16.58	*	*	4309	*
Approximately 1.8 miles upstream of the confluence of Island Creek Tributary 3	16.09	*	*	4229	*
Approximately 1.9 miles downstream of Rockville Road	15.60	*	*	4149	*
Approximately 1.1 miles downstream of Rockville Road	14.79	*	*	4012	*
Approximately 0.5 mile upstream of Rockville Road	13.72	*	*	3828	*
Island Creek Tributary 1					
The confluence with Island Creek	0.53	*	*	501	*

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 0.4 mile upstream of the confluence with Island Creek	0.50	*	*	483	*
Approximately 0.7 mile upstream of the confluence with Island Creek	0.28	*	*	333	*
Island Creek Tributary 2					
The confluence with Island Creek	2.77	*	*	1409	*
Approximately 500 feet upstream of the confluence with Island Creek	2.52	*	*	1326	*
Approximately 0.8 mile upstream of the confluence with Island Creek	2.13	*	*	1194	*
Island Creek Tributary 3					
The confluence with Island Creek	0.76	*	*	628	*
Approximately 0.5 mile upstream of the confluence Island Creek	0.69	*	*	590	*
Jackson Creek					
At confluence with Tar River	5.44	1133	1826	2124	2878
Approximately 1,415 feet upstream of Railroad	4.99	1074	1734	2018	2736
Approximately 4,250 feet downstream of Old N.C. Highway 75	4.59	1020	1649	1920	2606
Approximately 600 feet downstream of Old N.C. Highway 75	4.05	944	1530	1783	2423
Approximately 3,300 feet upstream of Old N.C. Highway 75	3.66	886	1438	1676	2281
Approximately 5,525 feet upstream of Old N.C. Highway 75	2.96	778	1268	1480	2019
Approximately 1.5 miles upstream of Old N.C. Highway 75	1.50	512	844	989	1359
Johnson Creek					
Just upstream of the confluence with Grassy Creek	36.91	*	*	7106	*
Just upstream of the confluence of Beech Creek	28.12	*	*	5995	*
Approximately 0.9 mile upstream of the confluence of Beech Creek	27.71	*	*	5940	*
Approximately 800 feet downstream of Grassy Creek Road	27.21	*	*	5873	*
Approximately 0.5 mile upstream of Grassy Creek Road	26.73	*	*	5809	*
Approximately 0.6 mile upstream of Grassy Creek Road	26.26	*	*	5744	*
Approximately 0.6 mile downstream of the confluence of Little Johnson Creek	26.00	*	*	5708	*
The confluence of Little Johnson Creek	8.43	*	*	2825	*
Approximately 0.4 mile upstream of the confluence of Little Johnson Creek	8.23	*	*	2782	*
Approximately 0.4 mile downstream of Lee Yancey Road	7.83	*	*	2696	*
Approximately 0.6 mile upstream of Lee Yancey Road	6.73	*	*	2453	*
Johnson Creek (into Tar River)					
Approximately 0.5 mile downstream of Tar River Road	7.82	*	*	2690	*
The confluence of Aycock Creek	3.91	*	*	1750	*
Approximately 580 feet downstream of U.S. Highway 15	3.51	*	*	1630	*
Approximately 0.5 mile upstream of U.S. Highway 15	2.81	*	*	1420	*
Approximately 0.9 mile upstream of U.S. Highway 15	2.25	*	*	1240	*
Johnson Creek Tributary					
The confluence with Johnson Creek (into Tar River)	2.62	*	*	1360	*
Approximately 0.2 mile downstream of Tar River Road	1.84	*	*	1090	*
Approximately 0.3 mile upstream of Tar River Road	1.52	*	*	966	*
Approximately 0.7 mile upstream of Tar River Road	1.17	*	*	821	*
Approximately 0.76 mile upstream of Tar River Road	0.60	*	*	535	*
Jordan Creek					
Just upstream of confluence with Coon Creek	9.79	1627	2597	3010	4052
Approximately 500 feet upstream of Salem Road	8.52	1493	2390	2772	3737

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 915 feet upstream of Railroad	7.45	1374	2204	2558	3454
Approximately 980 feet downstream of Raailroad	6.58	1273	2047	2378	3215
Approximately 185 feet upstream of College Street	3.82	911	1477	1722	2342
Just downstream of confluence of Jordan Creek Tributary 1	2.19	646	1057	1236	1692
Approximately 1,345 feet upstream of confluence of Jordan Creek Tributary 1	1.39	489	806	945	1300
Approximately 0.63 mile upstream of confluence of Jordan Creek Tributary 1	1.32	473	781	916	1261
Jordan Creek Tributary 1					
Just upstream of confluence with Jordan Creek	1.48	507	836	980	1347
Approximately 0.5 miles upstream of confluence with Jordan Creek and Jordan Creek Tributary 2	1.35	479	791	927	1276
Approximately 1.13 miles upstream of confluence with Jordan Creek and Jordan Creek Tributary 2	1.03	405	672	789	1089
Knap Creek Tributary					
Approximately 60 feet upstream of the confluence with Knap of Reeds Creek	2.90	*	*	1450	*
Approximately 1.3 miles upstream of the confluence with Knap of Reeds Creek	2.11	*	*	1190	*
Knap of Reeds Creek					
Approximately 60 feet upstream of the confluence with Knap Creek Tributary	22.78	*	*	5260	*
Approximately 1,050 feet upstream of Roberts Chapel Road	22.02	*	*	5150	*
Approximately 0.7 mile upstream of Roberts Chapel Road	17.01	*	*	4380	*
Approximately 2.0 miles upstream of Roberts Chapel Road	10.42	*	*	3220	*
Approximately 0.9 mile upstream of the confluence of Camp Creek	9.47	*	*	3040	*
Ledge Creek					
Approximately 400 feet downstream of Railroad	21.15	2617	4123	4756	6348
Approximately 120 feet upstream of U.S. Highway 15	20.24	2546	4015	4633	6187
Approximately 160 feet upstream of Joe Peed Road	19.33	2475	3906	4509	6024
Approximately 585 feet downstream of N.C. Highway 56	17.58	2334	3689	4261	5699
Approximately 1,265 feet upstream of N.C. Highway 56	7.37	1366	2191	2543	3434
Approximately 1,930 feet downstream of Glen Haven Road	6.32	1242	1998	2321	3140
Approximately 1,475 feet upstream of Glen Haven Road	5.56	1147	1850	2151	2913
Approximately 3,740 feet downstream of Interstate 85	4.41	994	1609	1873	2544
Approximately 375 feet upstream of Lyon Station Road	3.34	838	1363	1590	2165
Approximately 1,900 feet downstream of Railroad	2.59	716	1169	1365	1865
Approximately 2,445 feet upstream of Railroad	2.22	652	1067	1248	1708
Approximately 250 feet downstream of Old N.C. Highway 75	1.80	573	941	1102	1511
Approximately 3,050 feet downstream of Little Mountain Road	1.15	433	717	842	1161
Just downstream of Little Mountain Road	0.54	273	457	539	750
Ledge Creek Tributary 2					
Approximately 160 feet upstream of the confluence with Ledge Creek	0.92	*	*	705	*
Ledge Creek Tributary 3					
Approximately 25 feet upstream of the confluence with Ledge Creek	0.64	*	*	564	*
Approximately 25 feet upstream of the confluence with Ledge Creek	0.20	*	*	274	*
Ledge Creek Tributary 4					
Approximately 22 feet upstream of the confluence with Ledge Creek	0.44	*	*	444	*
Lick Branch					

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 Spewmarrow Creek	3.44	*	*	1613	*
Approximately 0.3 mile upstream of Tilley Road	3.18	*	*	1535	*
Approximately 0.5 mile upstream of Tilley Road	2.68	*	*	1380	*
Approximately 0.6 mile upstream of Tilley Road	2.41	*	*	1291	*
Approximately 1.2 miles upstream of Tilley Road	2.11	*	*	1187	*
Little Grassy Creek					
The confluence with Grassy Creek	24.29	*	*	5471	*
Approximately 0.9 mile downstream of the confluence with Grassy Creek	23.91	*	*	5417	*
Approximately 0.6 mile downstream of Davis Chapel Road	23.41	*	*	5346	*
Approximately 0.4 mile downstream of Davis Chapel Road	23.32	*	*	5333	*
Approximately 2.0 miles upstream of Davis Chapel Road	22.85	*	*	5266	*
Approximately 0.6 mile downstream of Herman Wilkerson Road	21.90	*	*	5128	*
Approximately 700 feet downstream of Herman Wilkerson Road	19.33	*	*	4743	*
Approximately 0.2 mile upstream of Herman Wilkerson Road	19.18	*	*	4719	*
Approximately 0.4 mile downstream of Little Mountain Creek Road	18.68	*	*	4642	*
Just upstream of the confluence of Blue Creek	9.98	*	*	3137	*
Approximately 0.3 mile upstream of the confluence of Blue Creek	8.81	*	*	2902	*
Approximately 0.4 mile upstream of the confluence of Blue Creek	8.80	*	*	2900	*
Approximately 0.5 mile upstream of Unnamed Road	8.30	*	*	2796	*
Approximately 0.9 mile upstream of Unnamed Road	7.80	*	*	2690	*
Approximately 1.1 miles upstream of Unnamed Road	7.53	*	*	2631	*
Approximately 1.5 miles downstream of Gela Road	7.08	*	*	2532	*
Approximately 1.0 mile downstream of Gela Road	6.78	*	*	2463	*
Approximately 0.5 mile upstream of Gela Road	5.30	*	*	2113	*
Approximately 0.6 mile upstream of Gela Road	4.69	*	*	1958	*
Approximately 0.9 mile upstream of Gela Road	4.59	*	*	1932	*
Approximately 0.5 mile downstream of Henry Wilson Road	4.09	*	*	1798	*
Approximately 500 feet downstream of Henry Wilson Road	3.32	*	*	1577	*
Little Island Creek					
The confluence with Island Creek	9.75	*	*	3092	*
Approximately 0.2 mile upstream of the confluence with Island Creek	8.73	*	*	2886	*
The confluence of Little Island Creek Tributary 1	6.34	*	*	2363	*
Approximately 0.2 mile upstream of Mountain Road	6.21	*	*	2334	*
Approximately 0.4 mile downstream of Unnamed Road	4.86	*	*	2000	*
At Unnamed Road	4.46	*	*	1896	*
Approximately 0.7 mile upstream of Hill Airy Road	3.97	*	*	1763	*
Approximately 1.1 miles upstream of Hill Airy Road	1.89	*	*	1108	*
Approximately 1.6 miles upstream of Hill Airy Road	0.58	*	*	532	*
Little Island Creek Tributary 1					
The confluence with Little Island Creek	2.17	*	*	1209	*
Approximately 825 feet downstream of Mountain Road	1.80	*	*	1077	*
Approximately 775 feet upstream of Mountain Road	1.41	*	*	925	*
Little Johnson Creek					
The confluence with Johnson Creek (into Grassy Creek	17.05	*	*	4385	*

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 0.9 mile upstream of Grassy Creek Virgilina Road	14.51	*	*	3964	*
Approximately 300 feet upstream of Cornwall Road	14.10	*	*	3894	*
Approximately 0.2 mile downstream of Private Road	10.44	*	*	3228	*
Approximately 0.8 mile upstream of Private Road	8.52	*	*	2842	*
Approximately 1.0 mile upstream of Private Road	5.75	*	*	2224	*
Approximately 1.2 miles downstream of Oak Hill Road	4.64	*	*	1943	*
Approximately 0.8 mile downstream of Oak Hill Road	3.80	*	*	1715	*
Approximately 0.3 mile downstream of Oak Hill Road	3.59	*	*	1655	*
Approximately 300 feet upstream of Oak Hill Road	3.12	*	*	1518	*
Michael Creek					
Approximately 2.8 miles upstream of the confluence with Island Creek	6.10	*	*	2304	*
Approximately 1.8 miles downstream of Rockwell Road	6.00	*	*	2276	*
Approximately 0.8 mile downstream of Rockwell Road	5.47	*	*	2155	*
Approximately 0.3 mile downstream of Rockwell Road	4.75	*	*	1972	*
Approximately 0.4 mile upstream of Rockwell Road	3.70	*	*	1688	*
Approximately 0.6 mile upstream of Rockwell Road	3.21	*	*	1546	*
Approximately 1.0 mile upstream of Rockwell Road	2.78	*	*	1410	*
Approximately 1.3 miles upstream of Rockwell Road	2.43	*	*	1299	*
Approximately 1.6 miles upstream of Rockwell Road	2.23	*	*	1229	*
Mill Creek					
Approximately 1.0 miles downstream of Woodland Church Road	3.33	*	*	1580	*
Approximately 0.5 mile downstream of Woodland Church Road	3.10	*	*	1510	*
Approximately 260 feet downstream of Woodland Church Road	2.69	*	*	1380	*
Mountain Creek					
The confluence with Grassy Creek	11.38	*	*	3407	*
Approximately 0.2 mile downstream of Davis Chapel Road	11.12	*	*	3358	*
Approximately 0.4 mile upstream of Davis Chapel Road	10.63	*	*	3263	*
Approximately 1.1 miles upstream of Davis Chapel Road	10.25	*	*	3190	*
Approximately 1.0 mile downstream of Cornwall Road	9.78	*	*	3098	*
Approximately 0.7 mile downstream of Cornwall Road	9.30	*	*	3001	*
Approximately 250 feet upstream of Cornwall Road	8.48	*	*	2833	*
Approximately 0.5 mile upstream of Cornwall Road	7.98	*	*	2729	*
Approximately 1.1 miles upstream of Cornwall Road	6.49	*	*	2399	*
Approximately 1.5 miles upstream of Cornwall Road	6.42	*	*	2381	*
North Fork Tar River					
The confluence with Tar River	22.65	*	*	5240	*
Approximately 1,215 feet upstream of the confluence with Tar River	21.45	*	*	5060	*
Approximately 430 feet downstream of Tommie Daniel Road	21.25	*	*	5030	*
At the confluence of North Fork Tar River Tributary 1	16.24	*	*	4250	*
Approximately 580 feet downstream of U.S. Route 158	15.61	*	*	4150	*
Approximately 0.5 mile upstream of U.S. Route 158	15.26	*	*	4090	*
At Elam Currin Road	13.75	*	*	3830	*
Approximately 0.8 mile upstream of Elam Currin Road	10.95	*	*	3330	*
Approximately 0.7 mile downstream of Graham Hobgood Road	8.93	*	*	2930	*

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 the confluence of North Fork Tar River Tributary 2	2.06	*	*	1170	*
Approximately 0.3 mile upstream of the confluence of North Fork Tar River Tributary 2	1.81	*	*	1080	*
Approximately 0.6 mile upstream of the confluence of North Fork Tar River Tributary 2	1.68	*	*	1030	*
North Fork Tar River Tributary					
Just upstream of confluence with North Fork Tar River	2.48	696	1138	1330	1818
Approximately 790 feet downstream of Pine Town Road	2.02	614	1007	1178	1614
Approximately 1,775 feet upstream of Pine Town Road	1.79	570	937	1098	1505
North Fork Tar River Tributary 1					
The confluence with North Fork Tar River	4.47	*	*	1900	*
Approximately 1.1 miles upstream of the confluence with North Fork Tar River	3.81	*	*	1720	*
Approximately 2.0 miles upstream of the confluence with North Fork Tar River	3.16	*	*	1530	*
Approximately 2.3 miles upstream of the confluence with North Fork Tar River	2.63	*	*	1360	*
Approximately 2.6 miles upstream of the confluence with North Fork Tar River	2.04	*	*	1160	*
North Fork Tar River Tributary 2					
The confluence with North Fork Tar River	6.48	*	*	2400	*
Approximately 0.2 mile upstream of Bodie Currin Road	5.20	*	*	2090	*
Approximately 0.6 mile upstream of Bodie Currin Road	5.02	*	*	2040	*
Approximately 1.1 miles upstream of Bodie Currin Road	2.50	*	*	1310	*
Owen Creek					
The confluence with Tar River	5.17	*	*	2080	*
Approximately 0.5 mile upstream of the confluence with Tar River	3.56	*	*	1650	*
Approximately 1.4 miles upstream of the confluence with Tar River	3.22	*	*	1550	*
Approximately 2.3 miles upstream of the confluence with Tar River	1.55	*	*	979	*
Picture Creek					
Approximately 0.2 mile upstream of the confluence of Picture Creek Tributary	0.57	*	*	527	*
Approximately 0.7 mile upstream of the confluence of Picture Creek Tributary	0.40	*	*	393	*
Picture Creek Tributary					
Approximately 105 feet upstream of the confluence with Picture Creek	0.84	*	*	666	*
Approximately 0.3 mile upstream of the confluence with Picture Creek	0.59	*	*	538	*
Poplar Creek					
Approximately 35 feet upstream of confluence with Tabbs Creek	5.75	1171	1887	2194	2971
Approximately 2,600 feet upstream of Railroad	5.28	1111	1793	2085	2826
Approximately 1 mile upstream of Railroad	4.67	1030	1665	1938	2631
Approximately 1.4 miles downstream of U.S. Highway 158 Business	4.25	972	1573	1832	2489
Reedy Branch					
At the confluence with Beaverdam Creek	3.01	*	*	1480	*
Approximately 0.8 mile downstream of Lawrence Road	1.98	*	*	1140	*
Approximately 0.5 mile upstream of Lawrence Road	1.13	*	*	804	*
Robertson Creek					
The confluence with Beaverdam Creek	16.30	*	*	4260	*
Approximately 850 feet upstream of the confluence with Beaverdam Creek	14.85	*	*	4020	*
Approximately 0.8 mile upstream of the confluence with Beaverdam Creek	14.57	*	*	3980	*

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 1.0 miles upstream of the confluence with Beaverdam Creek	13.60	*	*	3810	*
Approximately 0.4 mile downstream of Brassfield Road	12.07	*	*	3530	*
Approximately 0.6 mile downstream of State Highway 56	10.32	*	*	3200	*
Approximately 850 feet upstream of State Highway 56	5.40	*	*	2140	*
Approximately 580 feet upstream of Sam Moss Hayes Road	3.53	*	*	1639	*
Approximately 0.7 mile upstream of Sam Moss Hayes Road	3.12	*	*	1520	*
Approximately 0.9 mile upstream of Sam Moss Hayes Road	2.12	*	*	1190	*
Robertson Creek Tributary 1					
The confluence with Robertson Creek	1.44	*	*	935	*
Robertson Creek Tributary 2					
The confluence with Robertson Creek	0.81	*	*	651	*
Rocky Creek					
The confluence with the Tar River	7.10	*	*	2540	*
Approximately 685 feet downstream of James Royster Road	6.76	*	*	2460	*
Approximately 0.5 mile upstream of James Royster Road	6.30	*	*	2350	*
Approximately 0.6 mile upstream of James Royster Road	5.83	*	*	2240	*
Approximately 1.2 miles upstream of James Royster Road	5.34	*	*	2120	*
Approximately 1.5 miles upstream of James Royster Road	4.91	*	*	2010	*
Approximately 2.3 miles upstream of James Royster Road	3.81	*	*	1720	*
Shelton Creek					
The confluence with Tar River	25.34	*	*	5620	*
Approximately 1.3 miles downstream of U.S. Route 158	24.93	*	*	5560	*
At U.S. Route 158	22.40	*	*	5200	*
Approximately 0.9 mile upstream of U.S. Route 158	21.40	*	*	5050	*
The confluence of Fox Creek	10.67	*	*	3270	*
Approximately 0.9 mile downstream of Sunset Road	9.53	*	*	3050	*
Approximately 0.8 mile downstream of Sunset Road	9.13	*	*	2970	*
Approximately 1,375 feet downstream of Sunset Road	8.88	*	*	2920	*
Approximately 485 feet upstream of Sunset Road	8.30	*	*	2800	*
Approximately 0.6 mile upstream of Sunset Road	7.94	*	*	2720	*
Approximately 1.3 miles upstream of Sunset Road	7.52	*	*	2630	*
Approximately 1.6 miles upstream of Sunset Road	6.89	*	*	2490	*
Approximately 1.9 miles upstream of Sunset Road	6.19	*	*	2330	*
Approximately 0.8 mile downstream of Ben Thorpe Road	6.04	*	*	2290	*
Approximately 220 feet downstream of Ben Thorpe Road	5.41	*	*	2140	*
Approximately 1,475 feet upstream of Ben Thorpe Road	5.00	*	*	2040	*
Approximately 1.1 miles upstream of Ben Thorpe Road	3.71	*	*	1690	*
Approximately 1.9 miles upstream of Ben Thorpe Road	2.75	*	*	1400	*
Smith Creek					
Approximately 105 feet upstream of the confluence with Beaverdam Creek	10.85	*	*	3310	*
Approximately 0.9 mile upstream of the confluence with Beaverdam Creek	9.86	*	*	3110	*
Approximately 1.9 miles upstream of the confluence with Beaverdam Creek	9.40	*	*	3020	*
Approximately 2.8 miles upstream of the confluence with Beaverdam Creek	8.40	*	*	2820	*
Approximately 3.2 miles upstream of the confluence with Beaverdam Creek	7.59	*	*	2640	*

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 0.6 mile downstream of Lawrence Road	6.65	*	*	2430	*
Approximately 0.1 mile upstream of Lawrence Road	5.67	*	*	2200	*
Approximately 0.4 mile upstream of Lawrence Road	4.78	*	*	1980	*
Approximately 1.1 miles upstream of Lawrence Road	4.36	*	*	1870	*
Spewmarrow Creek					
Approximately 650 feet upstream of the confluence with Grassy Creek	14.24	*	*	3918	*
Approximately 0.6 mile downstream of Harry Davis Road	13.75	*	*	3834	*
The confluence of Lick Branch	9.81	*	*	3104	*
Just upstream of the confluence of Deer Pond Branch	8.89	*	*	2918	*
Approximately 550 feet upstream of Herbert Faucette Road	6.65	*	*	2434	*
Approximately 0.5 mile upstream of the confluence of Spewmarrow Creek Tributary 1	6.43	*	*	2385	*
Approximately 0.8 mile upstream of the confluence of Spewmarrow Creek Tributary 1	5.94	*	*	2270	*
Approximately 0.9 mile upstream of the confluence of Spewmarrow Creek Tributary 1	5.90	*	*	2258	*
Spewmarrow Creek Tributary 1					
The confluence with Spewmarrow Creek	1.94	*	*	1126	*
Approximately 0.4 mile upstream of the confluence with Spewmarrow Creek	1.74	*	*	1052	*
Approximately 0.3 mile downstream of Unnamed Road	1.27	*	*	864	*
Approximately 550 feet upstream of Unnamed Road	0.85	*	*	672	*
Syble Creek					
Approximately 2,585 feet downstream of Northside Road	2.93	772	1259	1469	2005
Approximately 415 feet upstream of Northside Road	2.34	673	1101	1286	1759
Approximately 140 feet downstream of U.S. Highway 15	1.86	584	959	1122	1552
Tabbs Creek					
At Ed Harris Road	16.06	*	*	4290	*
Just upstream of confluence with Poplar Creek	9.72	1620	2587	2998	4036
At Dorsey Road	9.69	*	*	3100	*
Approximately 1.0 mile downstream of Interstate 85	7.06	*	*	2530	*
At Interstate 85	4.56	*	*	1910	*
Approximately 275 feet upstream of Tom Parham Road	2.86	*	*	1440	*
Approximately 0.3 mile upstream of Tom Parham Road	1.17	*	*	820	*
Approximately 0.6 mile upstream of Tom Parham Road	0.99	*	*	739	*
Tar River					
Approximately 280 feet upstream of Green Hill Road (SR 1203)	232.44	12600	19600	23000	32000
The confluence of Gibbs Creek	223.47	*	*	21900	*
Approximately 1.3 miles downstream of Cannadys Mill Road	220.39	*	*	21700	*
Approximately 1,785 feet downstream of Cannadys Mill Road	215.52	11390	17177	19594	25587
Approximately 270 feet upstream of Cannadys Mill Road	215.07	*	*	21400	*
Just upstream of confluence with Fishing Creek	167.98	10248	15440	17697	23272
At State Route 96	166.72	*	*	18200	*
Approximately 1.0 mile upstream of N.C. Highway 96	159.34	9835	14844	17010	22365
Approximately 0.89 mile sownstream of Railroad	147.23	9254	14004	16041	21087
Approximately 2,255 feet downstream of Railroad	140.51	8930	13534	15501	20375
Approximately 350 feet upstream of Belltown Road	132.30	8532	12957	14837	19500
Just upstream of confluence with Jackson Creek	122.47	8053	12259	14034	18444

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 of Rocky Creek	113.70	*	*	14400	*
The confluence of Owen Creek	108.11	*	*	13900	*
Approximately 250 feet downstream of Enon Road	104.60	*	*	13600	*
The confluence of North Fork Tar River	81.15	*	*	11600	*
The confluence of Shelton Creek	55.63	*	*	9180	*
Approximately 350 feet upstream of Culbreth Road	52.30	*	*	8830	*
Approximately 0.8 mile upstream of Culbreth Road	48.91	*	*	8470	*
Approximately 635 feet upstream of Moriah Road	45.89	*	*	8140	*
Approximately 1.1 miles upstream of Moriah Road	44.34	*	*	7970	*
The confluence of Cub Creek	26.73	*	*	5810	*
The confluence of Tar River Tributary 4	22.92	*	*	5280	*
Approximately 1.7 miles upstream of the confluence of Tar River Tributary 4	22.17	*	*	5170	*
Approximately 580 feet upstream of Hobgood Road	21.41	*	*	5060	*
Approximately 1,050 feet downstream of the Granville/Person County boundary	19.24	*	*	4730	*
Tar River Tributary 2					
The confluence with Tar River	5.53	*	*	2170	*
At Tom Hunt Road	4.89	*	*	2010	*
The confluence of Tar River Tributary 3	1.56	*	*	982	*
Approximately 0.4 mile upstream of the confluence of Tar River Tributary 3	1.43	*	*	930	*
Approximately 0.7 mile upstream of the confluence of Tar River Tributary 3	1.32	*	*	887	*
Tar River Tributary 3					
The confluence with Tar River Tributary 2	2.94	*	*	1460	*
Approximately 0.5 mile upstream of the confluence with Tar River Tributary 2	2.55	*	*	1340	*
Approximately 0.9 mile upstream of the confluence with Tar River Tributary 2	1.83	*	*	1090	*
Tar River Tributary 4					
The confluence with Tar River	2.96	*	*	1470	*
Approximately 1,050 feet downstream of Gene Hobgood Road	2.57	*	*	1340	*
Approximately 1,320 feet upstream of Gene Hobgood Road	1.95	*	*	1130	*
Approximately 0.9 mile upstream of Gene Hobgood Road	1.57	*	*	986	*
Approximately 1.2 miles upstream of Gene Hobgood Road	1.27	*	*	863	*
Approximately 1.3 miles upstream of Gene Hobgood Road	0.90	*	*	712	*
Tributary to Tabbs Creek					
Approximately 690 feet upstream of confluence with Tabbs Creek	1.65	542	891	1044	1433
West Prong					
The confluence with New Light Creek	5.76	*	*	2220	*
Approximately 105 feet upstream of the confluence with West Prong Tributary	3.59	*	*	1660	*
Approximately 0.6 mile upstream of Graham Sherron Road	2.08	*	*	1180	*
West Prong Tributary					
Approximately 94 feet upstream of the confluence with West Prong	1.95	*	*	1130	*
Approximately 85 feet downstream of Graham Sherron Road	1.87	*	*	1100	*
Approximately 950 feet downstream of Woodland Church Road	1.70	*	*	1040	*

The stillwater elevations have been determined for the 1% [add 10%, 2%, and 0.2% here if that data is available] annual chance flood for the flooding sources studied by detailed methods and are summarized in Table 14, “Summary of Stillwater Elevations.”

Table 14 - Summary of Non-Coastal Stillwater Elevations

Flooding Source	FIRM Panel Number(s)	Elevations (feet NAVD)			
		10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Hatchers Run	3720191200	486	487	487	488

Table 15, “Gage Information”, lists the stream gages located in Granville 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
02081210	Shelton Creek	SHELTON CREEK NEAR OXFORD, N.C.	22.20	1954	2000
02081500	Tar River	TAR RIVER NEAR TAR RIVER, NC	166.70	1940	2011
02081500	Tar River	TAR RIVER NEAR TAR RIVER, NC	167.00	1939	2013

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"
Aarons Creek	0.045	0.060 to 0.160
Aycock Creek	0.043 to 0.045	0.120 to 0.130
Basin 3, Stream 8	0.032 to 0.050	0.035 to 0.090

Table 16 - Roughness Coefficients

Stream	Channel "n"	Overbank "n"
Bearskin Creek	0.045	0.060 to 0.150
Beaverdam Creek Tributary 3	0.050	0.150
Beaverdam Creek Tributary 5	0.050	0.150
Beech Creek	0.045	0.120 to 0.160
Blue Creek	0.045	0.060 to 0.150
Blue Creek Tributary 1	0.045	0.140 to 0.150
Bollens Creek	0.045	0.130
Boul Creek	0.043	0.120
Camp Creek	0.050	0.150 to 1.000
Cedar Branch	0.045	0.060 to 0.150
Cedar Creek	0.050	0.150
Coon Creek	0.027 to 0.064	0.025 to 0.426
Cozart Creek	0.050 to 0.060	0.080 to 0.150
Cozart Creek Tributary 1	0.050	0.150
Cozart Creek Tributary 2	0.050	0.150
Cozart Creek Tributary 3	0.050	0.150
Cub Creek	0.045	0.130
Cub Creek Tributary 1	0.043 to 0.045	0.120 to 0.130
Deer Pond Branch	0.045	0.120 to 0.170
Dickens Creek	0.050	0.150
Fishing Creek	0.045 to 0.060	0.035 to 0.150
Fishing Creek Tributary 1	0.030 to 0.065	0.050 to 0.200
Fishing Creek Tributary 1A	0.040 to 0.070	0.030 to 0.180
Fork Creek	0.055	0.131 to 0.150
Founders Branch	0.050 to 0.055	0.060 to 0.150
Fox Creek	0.045	0.130
Gibbs Creek	0.046 to 0.051	0.140 to 0.154
Grassy Creek	0.035 to 0.060	0.070 to 0.170
Grassy Creek Tributary 1	0.040	0.160
Grassy Creek Tributary 2	0.040	0.140
Grassy Creek Tributary 3	0.040	0.060 to 0.140
Hatchers Run	0.040 to 0.070	0.070 to 0.180
Holman Creek	0.050 to 0.061	0.080 to 0.150
Holman Creek Tributary 1	0.059	0.100 to 0.150
Holman Creek Tributary 2	0.060	0.150
Holman Creek Tributary 3	0.050	0.150
Howlett Creek	0.045	0.110 to 0.130
Island Creek	0.035 to 0.045	0.130 to 0.150
Island Creek Tributary 1	0.045	0.090 to 0.150
Island Creek Tributary 2	0.045	0.150 to 0.160
Island Creek Tributary 3	0.045	0.130
Jackson Creek	0.050 to 0.055	0.080 to 0.156
Johnson Creek	0.015 to 0.060	0.080 to 0.200
Johnson Creek (into Tar River)	0.045	0.050 to 0.200
Johnson Creek Tributary	0.042 to 0.045	0.110 to 0.130
Jordan Creek	0.048 to 0.060	0.015 to 0.150
Jordan Creek Tributary 1	0.050 to 0.052	0.143
Knap Creek Tributary	0.050	0.150
Knap of Reeds Creek	0.035 to 0.055	0.060 to 0.150
Knap of Reeds Creek Tributary 1	0.050	0.150
Knap of Reeds Creek Tributary 2	0.050	0.150
Ledge Creek	0.035 to 0.060	0.035 to 0.150
Ledge Creek Tributary 2	0.050	0.150
Ledge Creek Tributary 3	0.050	0.150
Ledge Creek Tributary 4	0.050	0.150
Lick Branch	0.035	0.140
Little Grassy Creek	0.045	0.080 to 0.160
Little Island Creek	0.045 to 0.050	0.130 to 0.160
Little Island Creek Tributary 1	0.050	0.060 to 0.150
Little Johnson Creek	0.045	0.060 to 0.160
Michael Creek	0.045	0.080 to 0.150

Table 16 - Roughness Coefficients

Stream	Channel "n"	Overbank "n"
Mill Creek	0.035 to 0.050	0.135 to 0.150
Mountain Creek	0.040	0.080 to 0.160
New Light Creek	0.032 to 0.070	0.060 to 0.150
New Light Creek Tributary 4	0.030 to 0.070	0.070 to 0.110
North Fork Tar River	0.038 to 0.057	0.063 to 0.200
North Fork Tar River Tributary	0.050	0.100 to 0.150
North Fork Tar River Tributary 1	0.046	0.130
North Fork Tar River Tributary 2	0.042 to 0.050	0.120 to 0.150
Owen Creek	0.047 to 0.050	0.130 to 0.143
Poplar Creek	0.045 to 0.050	0.070 to 0.150
Robertson Creek Tributary 2	0.050	0.150
Rocky Creek	0.045	0.130
Rocky Creek Tributary 1	0.050	0.100 to 0.150
Shelton Creek	0.030 to 0.060	0.035 to 0.200
Smith Creek	0.050	0.150
Spewmarrow Creek	0.035 to 0.050	0.120 to 0.150
Spewmarrow Creek Tributary 1	0.045	0.110 to 0.160
Syble Creek	0.045 to 0.052	0.035 to 0.160
Tabbs Creek	0.035 to 0.060	0.045 to 0.150
Tar River	0.020 to 0.080	0.030 to 1.000
Tar River Tributary 2	0.047 to 0.050	0.132 to 0.143
Tar River Tributary 3	0.050	0.143
Tar River Tributary 4	0.050	0.143
Tributary to Tabbs Creek	0.050	0.080 to 0.130
West Prong	0.050	0.150
West Prong Tributary	0.050	0.140

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
Aarons Creek				
006	623	6,006	381.0	24 / 128
008	847	6,006	381.3	24 / 43
013	1,286	6,006	382.4	255 / 24
019	1,855	6,006	382.8	328 / 25
023	2,311	5,945	382.8	99 / 36
028	2,778	5,945	383.4	38 / 35
033	3,292	5,945	384.5	69 / 46
038	3,789	5,945	385.2	26 / 41
041	4,117	5,945	386.0	24 / 24
046	4,568	5,945	387.7	81 / 31
049	4,910	5,945	388.4	112 / 31
053	5,309	5,945	389.2	31 / 248
055	5,544	5,945	389.8	31 / 334
060	6,041	5,945	390.0	35 / 106
066	6,555	5,945	390.6	41 / 68
076	7,620	5,889	392.5	91 / 30
086	8,568	5,889	394.0	30 / 30
091	9,124	5,889	395.2	101 / 30
103	10,272	5,889	397.2	350 / 30
108	10,782	5,889	397.8	359 / 195
114	11,428	5,889	398.3	518 / 30
120	12,027	5,889	398.7	867 / 30
126	12,611	5,889	399.1	509 / 124
136	13,559	5,692	399.8	44 / 63
141	14,060	5,692	401.6	30 / 432
146	14,617	5,692	402.1	30 / 30
151	15,050	5,692	405.3	30 / 94
156	15,556	5,692	406.6	72 / 67
161	16,086	5,692	407.7	91 / 141
168	16,806	5,692	408.4	114 / 76
174	17,430	5,692	409.2	406 / 30
183	18,263	5,692	409.7	30 / 424
188	18,821	5,692	410.2	40 / 682
195	19,494	5,692	410.5	339 / 40
203	20,325	5,411	410.9	186 / 165
208	20,836	5,411	411.3	29 / 188
214	21,392	5,401	411.9	209 / 29
219	21,852	5,401	412.5	29 / 240
223	22,331	5,401	412.9	355 / 29
229	22,885	5,401	413.3	205 / 191
234	23,385	5,401	413.5	32 / 293
240	24,000	5,401	414.0	138 / 187
Aycock 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
000	134	1,600	312.4	150 / 20
004	373	1,600	313.2	292 / 47
009	871	1,600	315.0	224 / 19
014	1,420	1,600	317.9	51 / 29
019	1,928	1,600	319.1	178 / 72
025	2,498	1,600	319.7	144 / 157
031	3,126	1,600	320.9	100 / 200
039	3,857	1,600	323.8	256 / 82
044	4,375	1,390	326.1	80 / 21
049	4,946	1,390	328.0	164 / 88
055	5,534	1,390	329.3	87 / 20
060	5,971	1,390	330.9	105 / 22
063	6,261	1,390	331.7	95 / 45
063	6,276	1,390	331.7	95 / 45
067	6,724	1,160	331.9	82 / 83
072	7,231	1,160	334.1	21 / 117
079	7,889	1,160	337.9	42 / 143
084	8,447	1,160	342.6	58 / 35
089	8,863	1,160	347.2	8 / 20
092	9,199	911	351.5	25 / 50
094	9,400	911	352.0	50 / 20
094	9,440	911	353.4	50 / 20
097	9,657	911	353.6	80 / 20
097	9,692	911	354.5	80 / 20
100	9,996	911	354.9	77 / 70
105	10,474	911	355.6	67 / 13
110	11,047	911	357.7	59 / 44
116	11,550	911	360.0	17 / 80
Bearskin Creek				
001	132	2,019	413.6[1]	26 / 48
005	541	2,019	413.6[1]	25 / 101
010	1,016	2,008	413.6[1]	71 / 27
015	1,460	2,008	413.8	88 / 113
018	1,761	2,008	414.3	149 / 85
022	2,249	2,008	414.8	26 / 103
026	2,600	2,008	415.7	83 / 27
036	3,574	2,008	417.5	20 / 20
039	3,921	2,008	418.9	29 / 29
044	4,395	2,008	420.8	74 / 26
049	4,939	2,008	423.1	177 / 27
054	5,419	2,008	424.0	58 / 122
057	5,695	1,729	424.6	25 / 129
062	6,196	1,717	425.4	25 / 135
066	6,639	1,717	426.3	57 / 65
073	7,325	1,717	428.2	36 / 77

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
080	7,969	1,717	430.4	52 / 109
084	8,350	1,579	432.1	86 / 41
088	8,829	1,579	433.5	31 / 15
094	9,397	1,579	435.4	27 / 30
100	10,033	1,579	437.6	155 / 55
104	10,404	1,579	438.2	49 / 136
109	10,864	1,479	439.7	68 / 30
118	11,815	1,479	443.0	149 / 69
121	12,143	1,425	443.2	96 / 190
Beaverdam Creek				
224	22,441	6,471	265.5[1]	321 / 132
236	23,551	6,471	265.5[1]	494 / 102
258	25,831	6,471	265.5[1]	1,532 / 1,062
275	27,518	3,869	265.5[1]	442 / 53
288	28,782	3,869	265.5[1]	504 / 23
303	30,320	3,869	265.5[1]	679 / 23
318	31,830	3,693	265.5[1]	341 / 427
333	33,254	3,693	265.5[1]	446 / 391
347	34,688	3,693	265.5	423 / 460
379	37,941	3,693	270.6	137 / 725
392	39,160	3,001	271.6	160 / 457
405	40,522	3,001	273.5	64 / 665
442	44,195	3,001	280.7	20 / 478
469	46,879	2,034	285.5	213 / 671
475	47,455	1,745	286.1	274 / 282
500	50,023	1,745	294.8	215 / 192
509	50,925	1,745	295.5	86 / 281
525	52,476	1,745	299.9	20 / 132
533	53,304	1,745	304.3	60 / 184
542	54,213	1,043	307.5	21 / 155
549	54,947	1,043	309.2	137 / 41
556	55,634	1,043	311.7	126 / 64
568	56,809	1,043	317.8	115 / 49
Beaverdam Creek Tributary 3				
004	417	1,626	285.0[1]	55 / 276
017	1,654	1,626	286.7	15 / 885
027	2,723	1,626	289.4	15 / 432
037	3,688	1,626	292.3	15 / 408
049	4,923	1,626	296.2	15 / 249
059	5,909	1,626	299.1	15 / 236
079	7,874	1,626	304.6	20 / 430
090	9,006	1,374	308.8	200 / 15
099	9,938	1,026	312.7	316 / 24
110	10,980	1,026	314.8	12 / 168
118	11,849	1,026	318.7	12 / 124
Beaverdam Creek Tributary 5				

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
003	316	830	305.9	100 / 100
009	855	830	306.9	99 / 81
012	1,248	830	308.2	12 / 156
018	1,782	830	311.5	31 / 93
021	2,142	830	313.7	12 / 160
Beech Creek				
010	987	2,803	320.1[1]	461 / 466
021	2,076	2,803	320.1[1]	133 / 133
030	2,993	2,803	320.1[1]	71 / 71
039	3,945	2,741	320.1[1]	27 / 220
048	4,822	2,713	320.1[1]	35 / 117
Blue Creek				
009	942	2,801	363.3[1]	109 / 19
016	1,586	2,801	364.2	18 / 18
023	2,291	2,801	370.0	20 / 27
027	2,713	2,801	371.2	19 / 23
034	3,355	2,801	373.8	21 / 21
040	4,044	2,801	376.5	22 / 22
045	4,460	2,801	377.7	19 / 19
050	5,038	2,801	380.2	77 / 19
058	5,781	2,801	381.9	19 / 88
064	6,373	2,638	383.4	38 / 19
073	7,254	2,638	385.8	213 / 19
076	7,646	2,638	386.1	31 / 32
082	8,209	2,638	388.5	19 / 98
094	9,352	2,638	390.9	84 / 63
100	9,978	2,638	392.0	49 / 28
105	10,483	2,536	393.5	84 / 105
120	11,994	2,536	397.6	79 / 148
125	12,538	2,536	398.0	98 / 102
131	13,124	2,536	398.5	269 / 18
136	13,613	2,536	399.1	246 / 47
143	14,301	2,536	400.3	141 / 22
150	14,974	1,459	402.4	17 / 53
156	15,576	1,417	404.1	28 / 223
160	16,027	1,417	404.6	32 / 15
Blue Creek Tributary 1				
005	509	1,680	402.4[1]	17 / 75
009	931	1,680	402.4[1]	30 / 19
015	1,456	1,680	404.1	24 / 24
022	2,191	1,680	406.2	25 / 25
027	2,693	1,680	408.3	19 / 19
032	3,200	1,680	411.2	20 / 19
039	3,854	1,653	414.3	22 / 20
Bollens Creek				
006	608	1,150	317.6[1]	73 / 98

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
011	1,076	1,150	319.1	15 / 125
017	1,736	1,150	321.4	58 / 121
025	2,472	1,150	323.9	125 / 40
030	3,022	1,150	326.3	150 / 40
035	3,544	1,150	328.8	70 / 49
040	3,984	1,150	330.7	128 / 18
046	4,586	1,030	333.3	50 / 40
049	4,873	1,030	338.0	10 / 10
056	5,586	1,030	354.1	15 / 30
061	6,146	1,030	377.0	25 / 10
067	6,713	1,030	398.5	20 / 40
077	7,674	1,030	399.4	50 / 50
082	8,206	1,030	399.6	60 / 50
089	8,909	900	400.5	70 / 40
095	9,497	900	404.6	35 / 30
100	9,962	900	407.6	56 / 95
Boul Creek				
135	13,539	2,430	314.3[1]	40 / 300
137	13,653	2,050	317.3	50 / 200
142	14,206	2,050	317.5	137 / 261
147	14,749	1,470	317.7	178 / 185
152	15,243	1,470	318.0	304 / 40
162	16,152	1,470	320.0	113 / 85
168	16,849	1,470	323.7	50 / 100
172	17,242	1,470	325.0	91 / 163
177	17,733	1,280	326.7	50 / 200
184	18,387	1,280	328.8	250 / 80
190	18,998	1,280	330.6	50 / 30
195	19,515	1,280	335.1	20 / 30
202	20,209	1,280	338.5	50 / 30
210	20,958	1,070	349.5	77 / 15
215	21,479	1,070	358.1	20 / 20
Camp Creek				
004	437	2,228	381.8	18 / 17
009	908	2,228	388.4	15 / 70
014	1,435	2,228	394.7	20 / 15
019	1,878	2,228	401.1	20 / 17
024	2,369	2,228	409.6	32 / 18
029	2,888	2,228	414.5	20 / 17
029	2,888	2,228	415.2	20 / 18
039	3,903	2,228	421.0	20 / 23
049	4,923	2,228	425.0	122 / 55
Cedar Branch				
013	1,262	1,119	320.1[1]	88 / 138
018	1,784	1,119	320.1[1]	149 / 123
024	2,380	1,075	320.1[1]	134 / 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
029	2,938	1,075	320.1[1]	105 / 46
032	3,206	1,075	320.1[1]	98 / 27
033	3,293	1,075	320.1[1]	98 / 27
039	3,906	1,075	320.1[1]	31 / 149
045	4,506	895	320.1[1]	38 / 80
046	4,606	895	320.1[1]	19 / 180
049	4,899	895	320.1[1]	38 / 92
058	5,758	895	320.1[1]	17 / 119
Cedar Creek				
004	419	1,638	279.3[1]	28 / 383
014	1,381	1,638	282.2	185 / 124
021	2,148	1,638	284.3	200 / 15
028	2,837	1,638	286.2	106 / 131
037	3,692	1,638	288.6	15 / 310
051	5,074	1,638	293.8	225 / 90
058	5,796	1,460	294.7	220 / 125
066	6,550	1,460	296.2	332 / 59
077	7,727	1,128	299.5	64 / 58
085	8,486	1,128	302.8	106 / 13
109	10,929	1,128	311.1	24 / 169
114	11,444	1,128	312.6	74 / 91
Cozart Creek				
057	5,727	2,040	265.5[1]	118 / 107
093	9,273	2,040	269.6	925 / 293
109	10,914	2,040	269.6	490 / 386
117	11,693	2,040	269.6	292 / 671
131	13,052	1,695	269.6	401 / 172
142	14,173	1,695	269.7	54 / 134
154	15,438	1,695	271.0	64 / 61
Cozart Creek Tributary 1				
041	4,068	1,719	265.5[1]	212 / 115
051	5,061	1,719	265.5[1]	60 / 125
Cozart Creek Tributary 2				
007	661	918	265.5[1]	149 / 94
026	2,559	651	265.2	69 / 48
038	3,847	651	267.9	27 / 16
049	4,884	651	277.5	81 / 25
Cozart Creek Tributary 3				
003	299	525	265.5[1]	14 / 92
014	1,430	525	265.5	30 / 146
024	2,400	525	265.5	14 / 14
031	3,091	525	269.7	39 / 22
Cub Creek				
004	393	4,420	433.4[1]	30 / 28
010	1,000	4,420	433.4[1]	100 / 30
016	1,553	4,420	433.4[1]	20 / 32

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
021	2,094	4,420	433.4[1]	20 / 40
028	2,838	4,420	433.6	20 / 70
033	3,269	4,420	434.3	18 / 47
038	3,769	4,420	435.2	40 / 20
042	4,243	4,420	436.1	71 / 24
050	4,973	4,420	437.0	41 / 44
054	5,450	4,420	437.7	47 / 26
058	5,766	4,420	438.5	84 / 66
063	6,331	4,420	439.0	195 / 202
071	7,079	2,990	439.5	248 / 165
075	7,500	2,990	439.6	102 / 111
080	8,000	2,990	440.8	100 / 20
086	8,580	2,990	442.9	96 / 33
090	9,033	2,990	444.8	62 / 24
095	9,500	2,990	446.5	100 / 70
100	10,000	2,990	447.8	66 / 31
104	10,362	2,930	449.4	40 / 15
110	10,975	2,930	452.5	62 / 12
116	11,597	2,930	455.5	51 / 15
121	12,068	2,930	457.0	100 / 20
125	12,492	2,930	457.5	27 / 28
130	13,019	2,930	460.6	20 / 100
134	13,446	2,930	463.3	61 / 12
139	13,898	2,930	464.8	64 / 17
147	14,692	2,930	468.6	112 / 28
153	15,330	2,930	471.0	32 / 27
159	15,868	2,930	473.0	15 / 56
165	16,455	2,930	474.5	20 / 41
169	16,926	2,930	477.2	20 / 20
174	17,432	2,800	478.3	86 / 41
Cub Creek Tributary 1				
006	551	2,640	439.2	20 / 25
010	1,000	2,640	441.4	20 / 25
014	1,390	2,640	444.1	80 / 50
016	1,600	2,640	446.0	32 / 32
022	2,171	2,640	448.3	125 / 25
027	2,661	2,640	451.7	30 / 30
034	3,406	2,640	454.0	20 / 81
040	3,972	2,560	456.3	80 / 40
044	4,419	2,560	456.8	40 / 20
049	4,928	2,560	459.2	32 / 47
054	5,383	2,560	460.3	64 / 18
062	6,235	2,560	463.2	50 / 25
068	6,841	2,560	464.8	32 / 26
074	7,388	2,290	466.3	47 / 127

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
078	7,794	2,290	466.7	22 / 75
083	8,292	2,290	469.2	22 / 27
088	8,814	2,290	471.4	26 / 32
094	9,422	2,290	473.1	106 / 35
100	10,000	2,290	474.3	65 / 91
106	10,612	2,290	475.9	120 / 20
Deer Pond Branch				
006	580	483	320.1[1]	45 / 15
012	1,160	483	320.1[1]	14 / 14
015	1,531	483	320.1[1]	13 / 34
020	1,988	483	320.1[1]	22 / 9
024	2,371	483	322.1	12 / 29
029	2,858	439	325.0	12 / 76
Dickens Creek				
004	378	1,877	360.2[1]	161 / 223
010	1,005	1,877	360.2[1]	174 / 79
017	1,685	1,877	360.2[1]	248 / 51
022	2,188	1,877	360.2[1]	80 / 60
041	4,055	1,781	377.5	34 / 59
044	4,356	1,781	382.6	30 / 60
048	4,796	1,781	389.5	60 / 40
057	5,661	1,781	397.5	16 / 103
066	6,568	1,781	400.4	84 / 60
071	7,072	1,781	401.3	22 / 322
078	7,776	1,781	402.5	67 / 131
083	8,275	1,781	406.6	34 / 16
088	8,816	1,781	413.2	40 / 25
096	9,564	1,781	418.4	25 / 19
100	10,014	1,781	420.9	32 / 29
105	10,495	1,781	422.5	68 / 52
109	10,856	1,781	423.3	178 / 16
114	11,392	1,519	424.5	32 / 77
118	11,836	1,519	425.7	46 / 81
122	12,200	1,519	426.3	14 / 137
129	12,852	1,200	427.5	94 / 64
135	13,531	1,200	429.4	103 / 24
143	14,256	1,200	432.1	10 / 135
153	15,339	1,149	439.2	13 / 195
157	15,726	1,149	439.3	47 / 117
165	16,465	1,149	439.7	61 / 29
Fishing Creek				
477	47,659	991	387.3	35 / 10
483	48,311	893	396.4	20 / 20
489	48,908	893	398.9	39 / 12
491	49,086	893	402.1	55 / 25
495	49,545	893	405.5	12 / 27

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
500	49,981	754	408.5	54 / 20
Flat River				
029	2,912	18,800	265.5[1]	694 / 442
Fork Creek				
005	501	3,315	244.6[1]	31 / 220
010	1,002	3,315	244.6[1]	19 / 40
015	1,502	3,315	244.6[1]	29 / 88
020	2,002	3,315	244.6[1]	154 / 53
025	2,502	3,315	244.6[1]	178 / 346
030	3,001	3,315	244.6[1]	61 / 143
035	3,500	3,315	244.6[1]	298 / 237
040	4,000	3,315	244.6[1]	83 / 327
045	4,499	3,315	244.6[1]	56 / 332
050	5,000	3,315	244.6[1]	61 / 515
060	6,022	2,932	244.6[1]	121 / 221
065	6,501	2,932	244.6[1]	225 / 17
070	7,000	2,932	244.6[1]	367 / 30
075	7,500	2,932	244.6[1]	394 / 100
080	8,001	2,932	244.6[1]	206 / 10
085	8,500	2,932	245.8	109 / 99
090	9,000	2,932	247.4	209 / 85
095	9,500	2,932	249.0	233 / 50
100	10,000	2,932	250.8	117 / 58
105	10,500	2,932	252.9	75 / 31
110	11,000	2,932	254.6	95 / 62
115	11,500	2,762	255.4	131 / 82
120	12,002	2,762	256.0	42 / 246
125	12,504	2,762	256.6	39 / 219
134	13,421	2,762	259.6	46 / 40
135	13,466	2,762	261.4	46 / 40
140	14,003	2,762	263.6	94 / 41
145	14,501	2,762	264.6	276 / 39
150	15,000	2,608	265.2	268 / 62
160	16,000	2,608	267.5	70 / 119
165	16,500	2,608	269.4	86 / 58
170	16,999	2,608	271.7	40 / 58
175	17,500	2,608	276.9	104 / 21
180	18,000	2,608	278.7	162 / 31
185	18,500	2,608	280.2	53 / 170
190	19,000	2,608	282.0	22 / 15
204	20,382	2,608	293.8	52 / 33
210	21,000	2,236	296.3	35 / 18
215	21,501	2,236	299.8	47 / 23
220	22,000	2,236	303.0	20 / 19
225	22,544	2,236	306.9	23 / 310

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
231	23,060	2,236	308.5	131 / 19
235	23,500	2,236	311.0	11 / 112
240	24,000	2,236	313.0	74 / 57
250	25,002	1,860	316.8	176 / 59
255	25,501	1,860	319.2	48 / 22
260	26,002	1,860	321.0	68 / 239
265	26,503	1,860	321.8	12 / 18
270	27,004	1,546	325.6	30 / 117
275	27,505	1,546	327.0	9 / 30
280	28,004	1,546	331.5	27 / 62
285	28,505	1,546	336.2	19 / 18
290	28,953	1,546	340.2	36 / 108
290	29,029	1,546	341.7	72 / 102
295	29,502	1,546	342.0	60 / 53
Fox Creek				
004	403	3,140	432.7	32 / 87
009	946	3,140	433.3	46 / 32
014	1,436	3,140	434.3	15 / 39
018	1,839	3,140	435.3	18 / 43
024	2,364	3,140	436.3	64 / 21
031	3,087	3,140	437.4	75 / 35
036	3,610	3,140	438.0	75 / 50
041	4,132	3,140	438.7	50 / 100
049	4,864	3,140	440.0	185 / 20
054	5,417	3,140	441.3	75 / 75
056	5,630	3,140	441.8	40 / 40
060	5,960	3,020	442.1	30 / 30
066	6,569	3,020	442.9	50 / 30
070	6,987	3,020	443.6	20 / 120
075	7,522	3,020	444.3	115 / 28
080	7,964	3,020	444.7	100 / 25
084	8,406	3,020	445.2	100 / 20
091	9,068	3,020	445.9	23 / 178
098	9,767	3,020	446.5	100 / 25
100	9,961	3,020	447.0	40 / 40
107	10,712	3,020	448.4	98 / 87
113	11,327	3,020	448.8	83 / 251
123	12,292	2,620	449.3	20 / 300
127	12,696	2,620	449.4	25 / 275
132	13,245	2,620	449.7	15 / 250
139	13,889	2,620	450.3	20 / 250
148	14,768	2,620	451.9	40 / 110
153	15,347	2,620	453.6	20 / 140
159	15,927	2,460	454.7	150 / 20
165	16,467	2,460	455.5	137 / 30

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
170	17,017	2,460	456.4	20 / 160
175	17,470	2,460	457.1	20 / 150
180	18,005	2,460	457.9	122 / 23
184	18,439	2,460	458.7	31 / 130
188	18,825	2,460	459.3	20 / 140
193	19,312	2,460	460.0	100 / 20
199	19,884	1,700	461.2	26 / 81
203	20,305	1,700	462.0	69 / 29
207	20,716	1,700	463.4	14 / 64
214	21,412	1,700	466.8	49 / 27
220	22,019	1,700	469.9	70 / 10
226	22,607	1,540	472.9	18 / 60
233	23,271	1,540	475.8	39 / 16
239	23,861	1,540	478.6	68 / 25
245	24,455	1,540	480.0	16 / 132
249	24,897	1,540	480.9	60 / 15
255	25,533	1,540	484.6	50 / 20
261	26,134	1,350	486.7	120 / 14
266	26,593	1,350	487.4	16 / 88
273	27,349	1,350	488.8	88 / 36
281	28,060	1,160	490.5	115 / 9
Gibbs Creek				
003	321	2,750	245.6[1]	25 / 46
008	817	2,750	245.6[1]	42 / 89
014	1,371	2,750	245.6[1]	41 / 23
019	1,859	2,750	245.6[1]	82 / 20
022	2,235	2,750	245.6[1]	90 / 9
028	2,785	2,750	245.6[1]	36 / 50
032	3,151	2,750	245.6[1]	100 / 13
039	3,936	2,750	245.6[1]	34 / 23
045	4,523	2,750	245.6[1]	61 / 24
052	5,181	2,750	245.6[1]	35 / 35
056	5,562	2,750	245.6[1]	46 / 78
060	5,981	2,310	245.6[1]	20 / 15
065	6,496	2,310	245.6[1]	44 / 30
072	7,197	2,310	245.6[1]	20 / 20
079	7,915	2,310	249.6	15 / 75
086	8,633	2,310	259.0	15 / 78
092	9,178	2,310	265.1	20 / 20
098	9,751	2,310	270.9	13 / 10
102	10,201	2,310	274.9	10 / 10
106	10,569	2,310	276.9	15 / 15
113	11,263	2,310	281.3	15 / 20
117	11,661	2,310	283.2	13 / 15
121	12,132	2,170	285.3	20 / 14

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
127	12,676	2,170	286.9	25 / 20
131	13,069	2,170	288.1	20 / 13
135	13,530	2,170	289.1	19 / 14
141	14,136	2,170	291.1	50 / 30
148	14,823	2,170	293.3	22 / 18
155	15,492	2,030	295.7	20 / 30
162	16,242	1,940	298.2	50 / 20
170	17,001	1,940	300.9	30 / 10
175	17,494	1,940	305.3	64 / 11
179	17,944	1,940	307.6	15 / 53
185	18,511	1,940	310.7	20 / 35
190	19,004	1,940	314.3	15 / 9
196	19,578	1,940	321.7	20 / 15
201	20,056	1,940	324.6	20 / 15
208	20,788	1,940	334.5	19 / 20
215	21,489	1,590	339.0	15 / 85
220	21,989	1,590	341.0	80 / 10
225	22,454	1,590	342.1	58 / 76
232	23,182	1,590	343.5	35 / 14
238	23,772	1,590	346.2	25 / 57
246	24,580	1,220	350.3	19 / 31
251	25,106	1,220	352.8	44 / 61
255	25,547	1,220	354.4	16 / 72
259	25,915	1,220	356.4	168 / 20
264	26,412	1,220	358.0	19 / 133
270	27,008	1,220	359.6	24 / 127
275	27,494	1,220	361.2	61 / 137
280	28,006	1,220	363.2	15 / 200
285	28,475	1,220	365.6	100 / 50
290	29,010	1,220	367.8	20 / 200
295	29,486	842	369.0	30 / 211
300	29,959	842	371.6	44 / 39
305	30,451	842	374.5	96 / 83
310	31,027	842	376.4	15 / 150
Grassy Creek				
007	680	14,836	320.1[1]	290 / 290
017	1,707	14,836	320.1[1]	243 / 243
027	2,656	14,836	320.1[1]	294 / 294
036	3,624	14,836	320.1[1]	392 / 392
048	4,785	14,836	320.1[1]	465 / 464
057	5,712	13,628	320.1[1]	603 / 603
066	6,572	13,628	320.1[1]	488 / 488
076	7,575	13,611	320.1[1]	694 / 694
089	8,851	13,556	320.1[1]	631 / 631
864	86,381	4,496	405.5	380 / 25

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
869	86,943	4,287	406.2	295 / 53
874	87,371	4,287	406.6	26 / 79
879	87,864	4,287	407.3	26 / 75
884	88,352	4,287	408.2	134 / 34
889	88,875	4,287	408.7	166 / 40
894	89,418	4,287	409.2	151 / 40
898	89,802	4,217	409.8	137 / 35
904	90,379	4,217	410.6	24 / 95
908	90,769	4,134	411.2	43 / 46
913	91,343	4,134	412.1	40 / 170
919	91,863	4,134	412.2	26 / 77
928	92,797	3,247	413.6	266 / 35
932	93,217	3,247	413.8	66 / 32
939	93,881	3,247	415.4	35 / 174
942	94,226	3,247	415.8	75 / 50
946	94,576	3,247	416.5	82 / 20
951	95,134	3,247	417.9	72 / 51
956	95,637	3,247	418.9	94 / 20
962	96,236	3,010	420.6	36 / 102
967	96,725	3,010	422.0	65 / 33
972	97,171	3,010	423.3	39 / 31
979	97,914	3,010	425.7	172 / 30
983	98,275	3,010	426.4	417 / 45
988	98,777	3,010	426.5	23 / 113
998	99,760	3,010	430.7	50 / 30
1002	100,219	3,010	432.7	35 / 167
1008	100,768	2,782	434.5	38 / 80
1020	101,985	2,782	444.0	161 / 74
1024	102,388	2,782	444.1	60 / 229
1031	103,061	2,782	444.4	51 / 104
1036	103,638	2,728	445.2	135 / 19
1041	104,085	2,728	445.9	157 / 71
1045	104,461	2,728	446.3	133 / 115
1050	105,001	2,728	447.3	200 / 47
1054	105,444	2,728	448.6	170 / 61
1061	106,109	2,728	450.1	40 / 277
1065	106,512	2,728	450.9	74 / 266
1072	107,208	2,728	452.5	290 / 86
1078	107,788	2,728	455.0	93 / 39
1083	108,251	2,728	457.3	91 / 30
1086	108,597	2,472	458.3	37 / 74
1092	109,247	2,472	459.5	43 / 41
1099	109,911	2,169	464.8	45 / 41
1104	110,418	2,169	467.3	50 / 112
1110	110,977	2,169	470.1	72 / 133

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
1115	111,457	2,169	471.5	37 / 167
1118	111,799	2,169	472.8	217 / 52
1124	112,352	2,169	474.1	204 / 42
1129	112,911	1,957	475.3	69 / 205
1134	113,357	1,957	476.1	83 / 169
1140	113,974	1,957	477.2	144 / 53
1145	114,472	1,957	478.0	279 / 40
1150	115,027	1,826	479.5	187 / 90
1156	115,631	1,826	481.0	203 / 52
1161	116,119	1,826	482.6	200 / 54
1168	116,772	1,826	485.7	55 / 151
1172	117,171	1,687	487.6	121 / 46
1177	117,708	1,687	490.2	66 / 204
1183	118,325	1,687	492.1	103 / 188
1187	118,685	1,687	493.1	65 / 44
1190	118,999	1,178	494.9	121 / 44
1197	119,694	1,178	496.6	332 / 43
1202	120,171	1,178	498.0	174 / 43
1207	120,662	1,178	500.5	49 / 88
1211	121,070	1,178	503.0	97 / 51
1217	121,668	1,178	505.8	13 / 133
1227	122,672	1,178	511.4	73 / 67
1232	123,171	1,178	513.9	50 / 100
1235	123,528	1,178	516.6	34 / 80
1239	123,922	1,178	520.2	85 / 91
1244	124,424	1,178	524.1	67 / 74
1249	124,894	1,012	526.6	111 / 51
1255	125,481	1,012	529.7	93 / 32
1261	126,104	1,012	533.2	74 / 89
1266	126,575	1,012	535.4	77 / 32
1271	127,064	1,012	539.0	32 / 32
Grassy Creek Tributary 1				
016	1,578	557	320.1[1]	101 / 98
023	2,257	557	320.1[1]	23 / 23
028	2,765	557	320.1[1]	31 / 36
033	3,268	557	320.1[1]	12 / 11
038	3,767	557	320.1[1]	31 / 11
041	4,122	557	321.8	12 / 32
Grassy Creek Tributary 2				
001	114	542	475.3[1]	11 / 76
003	295	542	475.3[1]	30 / 28
008	784	542	479.4	83 / 11
014	1,417	542	484.2	99 / 11
021	2,052	493	489.8	55 / 34
026	2,566	493	494.5	84 / 16
Grassy Creek Tributary 3				

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
002	190	808	497.0[1]	42 / 33
004	384	808	498.3	40 / 33
009	924	808	508.9	130 / 130
014	1,370	808	508.9	66 / 108
020	1,980	808	517.9	177 / 193
025	2,531	808	517.9	85 / 246
Holman Creek				
018	1,833	3,047	285.2[1]	466 / 120
032	3,207	3,047	287.0	100 / 680
048	4,824	3,047	287.4	20 / 412
060	6,025	2,885	288.4	19 / 420
071	7,118	2,885	289.4	215 / 157
080	7,971	2,885	290.3	107 / 399
098	9,765	2,675	292.6	19 / 118
113	11,275	2,675	294.5	72 / 406
124	12,394	2,675	295.4	231 / 19
131	13,146	2,569	296.8	123 / 52
137	13,729	2,569	297.9	82 / 135
143	14,313	2,569	299.0	100 / 27
157	15,682	2,569	301.0	315 / 131
166	16,645	2,569	301.8	333 / 18
172	17,151	2,569	302.5	120 / 85
192	19,199	2,083	308.6	369 / 182
209	20,888	2,083	308.8	250 / 150
222	22,229	1,327	309.4	150 / 150
229	22,911	1,327	310.8	25 / 25
241	24,070	1,327	312.8	30 / 135
Howlett Creek				
006	606	1,679	363.1[1]	17 / 28
011	1,119	1,679	364.4	15 / 75
016	1,636	1,679	367.2	51 / 36
020	1,985	1,679	369.4	15 / 51
024	2,413	1,679	371.8	75 / 19
029	2,901	1,641	373.0	38 / 92
034	3,398	1,641	373.9	15 / 32
Island Creek				
008	805	9,729	289.4[1]	250 / 130
013	1,313	9,729	289.4[1]	125 / 165
018	1,806	9,729	289.4[1]	65 / 65
023	2,292	9,729	289.4[1]	205 / 255
025	2,507	9,729	289.4[1]	105 / 455
030	3,022	9,729	289.4[1]	35 / 753
036	3,597	9,729	289.4[1]	75 / 145
042	4,216	9,729	289.4[1]	100 / 55
047	4,740	9,729	289.4[1]	165 / 314
053	5,283	9,729	289.4[1]	290 / 55

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
060	6,029	9,729	289.4[1]	110 / 410
067	6,660	9,729	289.4[1]	98 / 107
078	7,760	7,387	289.4[1]	50 / 300
084	8,360	7,387	289.4[1]	682 / 31
088	8,771	7,346	289.4[1]	714 / 242
093	9,315	7,346	289.4[1]	30 / 653
097	9,669	7,346	289.4[1]	60 / 535
102	10,199	7,346	289.4[1]	30 / 79
108	10,799	7,346	289.4[1]	78 / 100
111	11,100	7,346	289.4[1]	73 / 30
117	11,695	7,346	289.4[1]	54 / 292
121	12,081	7,346	289.4[1]	65 / 610
124	12,448	7,346	289.4[1]	50 / 822
139	13,866	7,346	289.4[1]	1,024 / 30
144	14,413	7,303	289.4[1]	839 / 40
155	15,535	7,303	289.4[1]	300 / 50
162	16,211	7,303	289.4[1]	30 / 458
166	16,581	7,246	289.4[1]	30 / 337
172	17,176	7,246	289.4[1]	336 / 30
175	17,481	7,246	289.4[1]	232 / 182
179	17,949	7,246	289.4[1]	207 / 459
185	18,535	7,190	289.4[1]	550 / 224
190	19,028	7,190	289.4[1]	601 / 26
195	19,505	7,190	289.4[1]	622 / 15
200	20,003	7,190	289.4[1]	453 / 30
204	20,440	7,190	289.4[1]	299 / 34
210	20,992	7,190	289.4[1]	291 / 118
214	21,433	7,190	289.4[1]	283 / 30
221	22,066	7,190	289.4[1]	123 / 360
226	22,551	7,190	289.4[1]	42 / 711
231	23,138	7,060	289.4[1]	612 / 580
236	23,599	7,060	289.4[1]	567 / 31
241	24,138	7,043	289.4[1]	197 / 344
245	24,499	7,043	289.4[1]	32 / 551
250	25,002	7,043	289.4[1]	32 / 50
255	25,518	7,043	289.4[1]	107 / 40
255	25,541	7,043	289.4[1]	87 / 40
260	25,981	6,983	289.4[1]	35 / 255
265	26,480	6,983	289.4[1]	46 / 31
268	26,787	6,983	289.4[1]	32 / 31
270	27,033	6,983	289.4[1]	44 / 36
275	27,507	6,983	289.4[1]	71 / 10
280	28,021	6,983	289.4[1]	55 / 100
285	28,494	6,875	289.4[1]	41 / 85
291	29,092	6,875	289.4[1]	44 / 32

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
298	29,765	6,875	289.4[1]	43 / 34
303	30,271	6,875	289.4[1]	52 / 34
308	30,789	6,875	289.4[1]	33 / 37
310	31,001	6,875	289.4	35 / 123
312	31,246	6,875	289.4[1]	52 / 145
319	31,925	6,875	289.4[1]	153 / 267
326	32,591	6,875	289.4[1]	49 / 33
328	32,781	6,684	289.4[1]	89 / 33
331	33,087	6,684	289.5	122 / 35
336	33,631	6,684	289.8	66 / 28
342	34,167	6,684	290.4	40 / 63
345	34,536	6,684	290.8	24 / 82
351	35,085	6,684	291.4	35 / 81
356	35,562	6,684	291.8	45 / 70
360	36,005	6,684	292.2	48 / 46
365	36,495	6,684	292.7	53 / 80
370	36,959	6,684	293.4	133 / 339
373	37,335	6,684	293.4	93 / 53
378	37,788	6,684	294.1	72 / 67
387	38,713	6,268	296.8	50 / 27
390	39,019	6,268	297.2	34 / 30
396	39,556	6,268	298.0	27 / 229
402	40,192	6,268	298.4	180 / 27
406	40,639	6,268	298.6	27 / 202
412	41,248	6,268	299.1	70 / 609
418	41,840	6,268	299.3	33 / 636
428	42,781	6,268	299.8	245 / 345
435	43,497	6,268	299.9	36 / 85
441	44,089	6,268	300.6	17 / 55
445	44,498	4,726	301.1	50 / 50
450	44,998	4,726	303.2	39 / 144
455	45,477	4,726	304.2	48 / 35
456	45,632	4,726	304.5	55 / 17
459	45,918	4,726	306.6	292 / 18
465	46,489	4,726	308.1	54 / 85
470	47,011	4,726	310.1	26 / 146
479	47,869	4,726	312.0	203 / 30
484	48,427	4,726	312.8	77 / 50
490	48,967	4,680	313.9	35 / 59
495	49,468	4,680	315.1	78 / 116
501	50,058	4,680	315.4	22 / 49
508	50,794	4,680	316.6	52 / 27
513	51,330	4,680	317.4	39 / 27
518	51,763	4,680	318.3	31 / 167
523	52,308	4,680	318.8	31 / 42

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
530	52,976	4,680	320.2	21 / 65
535	53,471	4,602	321.0	30 / 32
540	53,998	4,602	322.3	31 / 73
544	54,386	4,602	322.9	52 / 55
550	55,025	4,602	324.1	86 / 54
555	55,508	4,602	324.6	42 / 30
561	56,106	4,602	325.8	59 / 32
567	56,695	4,602	326.6	35 / 30
574	57,361	4,602	329.1	120 / 27
578	57,754	4,602	329.8	50 / 59
582	58,166	4,602	330.4	30 / 50
586	58,648	4,602	331.5	50 / 35
600	59,999	4,407	334.0	75 / 114
605	60,507	4,390	334.8	469 / 51
610	61,016	4,390	335.3	257 / 31
617	61,656	4,390	336.2	45 / 50
622	62,204	4,390	337.6	35 / 81
627	62,679	4,390	338.7	112 / 35
632	63,232	4,390	339.9	291 / 30
638	63,810	4,390	340.6	25 / 97
642	64,203	4,390	341.6	40 / 120
648	64,759	4,309	342.3	280 / 93
652	65,247	4,309	342.7	150 / 139
657	65,660	4,309	343.2	263 / 30
663	66,298	4,309	344.0	26 / 457
668	66,823	4,309	344.3	206 / 257
672	67,151	4,309	344.5	355 / 63
677	67,699	4,309	345.0	107 / 135
684	68,421	4,309	346.1	15 / 278
688	68,848	4,229	346.7	43 / 198
697	69,670	4,229	347.7	362 / 41
701	70,142	4,229	348.1	339 / 27
708	70,755	4,149	348.6	60 / 261
712	71,166	4,149	349.0	30 / 221
717	71,668	4,149	349.7	63 / 300
722	72,206	4,149	350.3	381 / 30
727	72,651	4,149	350.6	89 / 152
733	73,252	4,012	351.4	35 / 395
737	73,720	4,012	351.7	22 / 426
742	74,226	4,012	352.2	298 / 128
748	74,783	4,012	352.7	507 / 38
752	75,168	4,012	353.1	467 / 18
757	75,673	4,012	353.6	178 / 243
761	76,055	4,012	354.0	45 / 291
765	76,495	3,828	354.6	50 / 273

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
770	76,964	3,828	355.4	315 / 48
776	77,606	3,828	356.3	67 / 207
781	78,083	3,828	357.0	40 / 276
793	79,280	3,828	362.2	455 / 30
798	79,799	3,828	362.4	246 / 119
803	80,311	3,828	362.6	34 / 223
808	80,846	3,828	363.0	101 / 360
813	81,286	3,828	363.1	80 / 100
Island Creek Tributary 1				
011	1,108	501	289.1[1]	17 / 23
016	1,563	501	289.1[1]	12 / 40
019	1,938	501	289.1[1]	12 / 24
023	2,315	483	289.1[1]	12 / 28
027	2,687	483	289.1[1]	13 / 60
033	3,349	483	291.8	62 / 17
039	3,855	333	295.5	12 / 40
043	4,347	333	299.2	17 / 12
Island Creek Tributary 2				
005	534	1,326	296.8[1]	16 / 47
008	823	1,326	296.8[1]	16 / 38
015	1,456	1,326	298.2	15 / 62
018	1,829	1,326	300.2	11 / 95
021	2,063	1,326	300.9	16 / 26
027	2,667	1,326	305.0	15 / 26
033	3,297	1,326	309.0	36 / 14
038	3,770	1,326	312.0	41 / 15
Island Creek Tributary 3				
001	141	628	332.0[1]	7 / 155
003	324	628	334.0	7 / 42
006	634	628	336.5	83 / 7
009	887	628	337.5	61 / 10
012	1,156	628	339.2	72 / 20
014	1,368	628	341.2	61 / 7
016	1,569	628	344.3	7 / 17
018	1,783	628	347.7	7 / 50
021	2,145	628	350.3	49 / 20
024	2,423	590	351.7	28 / 31
027	2,659	590	353.3	29 / 29
Jackson Creek				
181	18,147	1,670	430.3	10 / 200
188	18,803	1,670	431.4	39 / 188
193	19,346	1,670	432.6	172 / 49
199	19,922	1,470	433.7	42 / 279
206	20,644	1,470	435.2	45 / 30
212	21,191	1,470	438.4	98 / 14
217	21,728	1,470	439.4	65 / 112

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
225	22,500	959	440.5	21 / 113
228	22,812	959	441.4	5 / 101
Johnson Creek				
016	1,629	7,106	320.1[1]	220 / 220
034	3,353	7,106	320.1[1]	420 / 420
053	5,267	5,995	320.1[1]	76 / 78
075	7,503	5,995	320.1[1]	49 / 49
094	9,415	5,940	320.1[1]	31 / 300
101	10,058	5,940	320.1[1]	111 / 74
108	10,765	5,940	320.1[1]	346 / 25
115	11,548	5,940	320.1[1]	79 / 222
121	12,129	5,873	320.1[1]	102 / 47
131	13,063	5,873	320.1[1]	49 / 215
136	13,592	5,873	320.1[1]	72 / 245
141	14,056	5,873	320.1[1]	351 / 30
146	14,610	5,873	320.1[1]	221 / 189
150	15,001	5,873	320.1[1]	131 / 30
154	15,438	5,809	320.1[1]	229 / 30
161	16,103	5,809	320.1[1]	30 / 74
166	16,621	5,744	320.1[1]	38 / 59
171	17,084	5,744	320.1[1]	79 / 91
175	17,548	5,744	320.1[1]	91 / 30
179	17,947	5,744	320.1[1]	100 / 30
185	18,533	5,744	320.1[1]	204 / 30
189	18,874	5,744	320.1[1]	186 / 30
194	19,380	5,744	320.1[1]	76 / 42
199	19,896	5,744	320.1[1]	48 / 67
204	20,413	5,744	320.1[1]	68 / 30
208	20,840	5,708	320.1[1]	283 / 22
215	21,470	5,708	320.1[1]	38 / 30
220	21,980	5,708	320.1[1]	59 / 30
225	22,461	5,708	320.1[1]	58 / 30
230	22,971	5,708	320.3	30 / 108
235	23,459	5,708	320.7	42 / 92
240	23,975	5,708	321.3	30 / 266
245	24,459	2,825	321.8	23 / 194
250	24,961	2,825	322.2	29 / 293
255	25,466	2,825	322.3	25 / 50
260	25,956	2,782	323.4	42 / 53
265	26,517	2,696	325.1	27 / 49
270	26,984	2,696	326.6	19 / 83
274	27,389	2,696	327.8	31 / 41
277	27,694	2,696	328.7	19 / 88
284	28,351	2,696	330.4	134 / 69
288	28,829	2,696	331.4	121 / 131

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
294	29,353	2,696	332.4	32 / 19
298	29,845	2,696	335.0	23 / 227
303	30,331	2,696	336.0	19 / 75
Johnson Creek Tributary				
007	668	1,360	312.0[1]	216 / 179
013	1,321	1,360	312.0[1]	63 / 245
019	1,903	1,360	312.0[1]	115 / 159
027	2,668	1,090	312.6	250 / 40
032	3,188	1,090	318.3	25 / 50
035	3,500	1,090	318.6	50 / 200
041	4,124	1,090	319.6	150 / 6
045	4,545	1,090	320.8	250 / 15
052	5,181	966	322.2	106 / 59
058	5,824	966	324.5	20 / 150
062	6,245	966	326.0	25 / 82
070	6,998	821	328.9	6 / 107
Jordan Creek				
175	17,534	1,722	443.8	91 / 50
177	17,715	1,236	443.9	32 / 70
181	18,103	1,236	445.2	8 / 50
187	18,726	1,236	447.7	100 / 5
194	19,406	945	450.0	75 / 10
200	20,000	945	453.2	12 / 80
205	20,492	945	456.7	26 / 90
210	21,011	916	459.3	55 / 15
214	21,437	916	461.7	55 / 30
Jordan Creek Tributary 1				
000	258	980	442.4	21 / 75
000	446	980	443.8[1]	8 / 63
001	1,301	980	449.2	8 / 81
002	1,890	980	452.3	42 / 84
002	2,390	980	453.9	110 / 18
003	2,866	927	456.3	40 / 25
003	3,310	927	460.6	55 / 23
004	4,100	927	464.6	18 / 90
005	4,709	927	469.1	50 / 10
005	5,378	927	473.9	31 / 25
006	5,812	927	475.7	24 / 55
006	6,261	789	476.8	16 / 95
007	6,881	789	478.1	73 / 14
007	7,337	789	479.7	25 / 35
Knap Creek Tributary				
018	1,823	1,493	359.5[1]	109 / 89
023	2,290	1,493	359.5[1]	59 / 49
032	3,235	1,493	361.4	30 / 14
039	3,920	1,493	374.5	14 / 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
043	4,286	1,493	380.8	25 / 8
050	4,989	1,493	386.8	14 / 116
056	5,559	1,493	390.3	19 / 36
064	6,430	1,493	395.8	115 / 66
073	7,276	1,227	398.6	18 / 15
080	8,021	1,227	404.6	30 / 38
086	8,622	1,227	407.1	13 / 100
093	9,295	1,227	409.5	19 / 114
098	9,775	1,227	411.0	40 / 49
105	10,534	1,227	414.4	57 / 13
116	11,602	1,227	419.4	131 / 13
Knap of Reeds Creek				
558	55,755	5,256	359.5[1]	214 / 45
564	56,411	5,256	359.5[1]	104 / 152
568	56,803	5,256	359.5[1]	97 / 134
573	57,300	5,145	359.5[1]	153 / 158
580	58,014	5,145	359.5[1]	128 / 137
584	58,385	5,145	359.5	127 / 128
592	59,158	5,145	359.9	99 / 107
596	59,617	5,145	360.1	308 / 298
603	60,292	4,378	360.2	209 / 174
613	61,349	4,378	360.3	389 / 294
621	62,114	4,378	360.3	224 / 228
624	62,404	4,378	360.3	162 / 122
628	62,846	4,378	360.4	128 / 86
633	63,330	4,378	360.6	108 / 69
641	64,107	4,378	361.4	65 / 40
648	64,792	4,378	364.3	32 / 24
653	65,260	4,378	367.4	39 / 43
660	66,024	4,378	369.9	24 / 24
664	66,376	4,378	375.0	24 / 24
668	66,760	3,224	378.1	20 / 20
671	67,084	3,224	382.4	20 / 20
674	67,354	3,224	384.4	20 / 27
676	67,611	3,224	385.3	20 / 28
683	68,290	3,224	388.2	20 / 29
688	68,847	3,224	390.9	23 / 20
692	69,192	3,224	393.0	23 / 31
695	69,475	3,224	394.7	25 / 27
698	69,753	3,224	396.2	37 / 20
703	70,253	3,224	398.3	69 / 45
709	70,885	3,224	400.0	124 / 20
715	71,495	3,037	401.4	75 / 30
721	72,056	3,037	403.4	49 / 20
725	72,510	3,037	405.2	20 / 184

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
729	72,885	3,037	405.7	20 / 39
736	73,573	3,037	408.2	49 / 20
739	73,941	3,037	409.5	129 / 20
745	74,478	3,037	412.1	54 / 22
751	75,087	3,037	414.2	59 / 20
757	75,653	3,037	416.8	20 / 32
762	76,225	3,037	418.6	20 / 24
766	76,640	3,037	420.1	30 / 49
771	77,088	3,037	421.0	20 / 51
774	77,421	3,037	421.6	26 / 66
779	77,933	2,419	422.6	36 / 18
784	78,422	2,419	424.1	28 / 18
790	79,042	2,419	426.1	18 / 43
797	79,689	2,419	429.2	51 / 18
802	80,237	2,419	431.8	18 / 23
806	80,614	2,419	434.2	100 / 13
814	81,352	2,419	435.8	66 / 20
820	82,048	2,419	437.0	58 / 68
831	83,096	2,419	438.5	18 / 155
841	84,124	2,198	440.1	168 / 17
850	84,989	2,198	441.1	17 / 184
868	86,842	2,198	445.4	107 / 145
882	88,199	1,026	446.9	75 / 25
888	88,775	1,026	449.9	33 / 79
894	89,393	1,026	452.2	112 / 12
Knap of Reeds Creek Tributary 1				
006	597	1,132	424.2	37 / 41
012	1,168	1,132	428.7	105 / 3
016	1,645	1,132	432.0	50 / 6
021	2,127	1,132	436.7	32 / 13
025	2,473	1,132	439.5	60 / 6
035	3,530	1,132	446.9	52 / 19
045	4,452	1,132	451.0	18 / 90
053	5,276	1,132	454.8	24 / 56
059	5,886	1,132	459.2	92 / 12
Knap of Reeds Creek Tributary 2				
030	2,993	314	399.3	4 / 18
Knap of Reeds Creek Tributary 2				
002	207	1,546	446.1[1]	91 / 15
008	819	1,546	447.6	168 / 15
014	1,400	1,546	449.2	129 / 20
022	2,179	1,517	452.3	69 / 46
028	2,843	1,517	454.6	67 / 14
033	3,295	1,517	456.1	75 / 20
Ledge Creek				
206	20,550	6,929	265.5	424 / 29

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
217	21,699	6,929	265.5	366 / 375
228	22,809	6,929	265.5	630 / 384
236	23,595	6,929	265.6	713 / 52
243	24,282	6,929	265.7	441 / 349
254	25,424	6,929	265.9	252 / 385
261	26,141	6,929	266.0	383 / 344
271	27,071	6,769	266.3	606 / 34
281	28,076	6,769	266.6	277 / 350
292	29,214	6,645	267.0	794 / 209
311	31,067	6,526	267.8	517 / 351
324	32,363	6,526	268.3	191 / 782
345	34,462	6,526	269.8	380 / 679
070	70,394	1,102	410.7	15 / 49
071	70,710	1,102	413.3	36 / 23
071	70,920	1,102	414.9	16 / 48
071	71,101	1,102	416.0	48 / 13
071	71,427	1,102	417.5	20 / 60
072	71,689	1,102	418.5	49 / 25
072	71,929	842	419.6	13 / 38
072	72,133	842	420.4	12 / 33
072	72,312	842	421.4	34 / 12
072	72,400	842	422.3	28 / 18
072	72,457	842	423.1	28 / 20
073	72,533	842	423.3	36 / 24
073	72,723	842	424.5	15 / 33
073	72,913	842	425.9	24 / 21
073	73,135	842	427.2	35 / 5
073	73,410	842	429.3	10 / 18
074	73,572	842	431.8	42 / 10
074	73,760	842	432.8	38 / 10
074	73,879	842	433.8	11 / 41
074	73,920	842	434.2	16 / 44
074	74,018	842	434.5	27 / 38
074	74,247	842	435.3	18 / 36
075	74,641	842	437.8	16 / 35
075	74,936	539	440.7	30 / 28
075	75,071	539	452.4	30 / 30
075	75,258	539	452.4	18 / 50
076	75,607	539	452.5	46 / 16
076	75,781	539	452.5	23 / 42
076	75,883	539	452.6	30 / 70
076	75,946	539	452.6	26 / 70
076	76,036	539	452.6	13 / 80
076	76,370	539	452.8	54 / 17
077	76,711	539	454.9	13 / 29

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
077	76,878	539	456.6	16 / 16
077	77,002	539	458.4	28 / 11
077	77,161	539	460.4	13 / 17
077	77,395	539	462.6	27 / 12
078	77,642	539	464.8	42 / 7
078	77,791	539	465.9	24 / 14
078	77,963	539	468.4	12 / 12
078	78,138	539	472.1	13 / 8
078	78,366	539	475.2	28 / 4
Ledge Creek Tributary 2				
005	467	705	267.1[1]	193 / 481
021	2,095	705	267.1[1]	11 / 103
031	3,118	705	271.0	11 / 143
040	3,967	705	274.8	11 / 132
045	4,528	705	277.6	11 / 89
050	4,979	705	279.9	11 / 121
Ledge Creek Tributary 3				
018	1,834	274	277.6	14 / 14
024	2,364	274	284.2	14 / 14
028	2,847	274	292.3	14 / 14
032	3,217	274	296.4	14 / 14
039	3,890	274	310.7	14 / 14
Ledge Creek Tributary 4				
010	978	444	276.2[1]	14 / 44
015	1,501	444	279.0	85 / 14
020	2,048	444	283.5	16 / 25
028	2,789	444	295.9	14 / 14
035	3,484	444	303.1	14 / 14
039	3,942	444	313.6	14 / 14
Lick Branch				
001	111	1,613	320.1[1]	127 / 51
005	530	1,613	320.1[1]	124 / 56
010	997	1,613	320.1[1]	83 / 77
016	1,575	1,613	320.1[1]	80 / 110
026	2,557	1,613	320.1[1]	149 / 130
029	2,894	1,613	320.1[1]	47 / 188
033	3,262	1,613	320.1[1]	177 / 151
041	4,053	1,535	320.1[1]	15 / 310
046	4,559	1,535	320.1[1]	15 / 103
050	5,019	1,380	320.1[1]	194 / 14
056	5,553	1,291	320.1[1]	30 / 99
061	6,125	1,291	320.1[1]	95 / 75
066	6,556	1,291	320.1[1]	68 / 25
071	7,054	1,291	320.7	42 / 118
076	7,585	1,291	321.6	109 / 20
081	8,072	1,291	323.3	13 / 75

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
086	8,554	1,291	325.1	57 / 41
Little Grassy Creek				
004	433	5,471	335.9[1]	49 / 49
010	1,004	5,471	335.9[1]	26 / 139
015	1,451	5,471	335.9[1]	49 / 119
019	1,857	5,471	335.9[1]	49 / 57
024	2,401	5,471	335.9[1]	121 / 113
028	2,841	5,471	336.2	113 / 49
032	3,214	5,471	336.5	49 / 23
037	3,710	5,471	337.3	49 / 49
040	4,028	5,471	338.0	124 / 49
045	4,489	5,417	338.5	50 / 40
050	5,039	5,417	339.6	79 / 49
055	5,534	5,417	340.1	43 / 49
060	6,011	5,417	341.8	20 / 30
065	6,498	5,346	343.3	31 / 30
070	6,969	5,346	344.4	55 / 30
074	7,397	5,333	345.2	45 / 30
078	7,810	5,333	345.6	30 / 30
083	8,333	5,333	346.6	30 / 51
087	8,694	5,333	347.0	30 / 81
090	9,025	5,333	347.4	50 / 80
094	9,358	5,333	347.6	90 / 62
095	9,460	5,333	347.8	90 / 65
097	9,742	5,333	348.4	120 / 30
102	10,214	5,333	348.8	30 / 187
106	10,638	5,333	349.0	30 / 85
110	11,039	5,266	349.5	191 / 30
116	11,640	5,266	350.2	30 / 292
121	12,132	5,266	350.3	30 / 53
126	12,638	5,266	351.3	235 / 30
131	13,091	5,266	351.6	188 / 95
137	13,655	5,266	352.1	30 / 207
141	14,082	5,266	352.5	100 / 247
147	14,690	5,266	352.9	50 / 83
153	15,345	5,128	353.7	284 / 166
159	15,927	5,128	353.8	67 / 76
164	16,422	5,128	354.6	175 / 108
167	16,726	5,128	354.8	50 / 160
171	17,137	4,743	355.4	220 / 44
177	17,706	4,743	355.8	175 / 68
180	17,972	4,743	355.9	45 / 114
180	18,037	4,743	356.9	45 / 160
184	18,368	4,743	357.3	50 / 100
188	18,793	4,743	357.4	101 / 68

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
192	19,216	4,719	358.0	39 / 245
199	19,872	4,719	358.6	115 / 184
202	20,235	4,719	358.8	39 / 250
209	20,858	4,719	359.2	215 / 30
213	21,295	4,642	359.6	279 / 30
220	21,954	4,642	360.1	97 / 149
225	22,528	4,642	360.7	284 / 99
230	23,006	4,642	361.1	400 / 32
235	23,455	4,642	361.4	80 / 200
235	23,549	4,642	363.0	80 / 200
241	24,118	3,137	363.3	30 / 200
247	24,721	3,137	363.4	274 / 25
252	25,181	3,137	363.8	91 / 25
258	25,768	2,900	364.8	133 / 30
262	26,243	2,900	365.4	30 / 76
266	26,646	2,900	366.4	168 / 30
271	27,138	2,900	367.0	65 / 60
272	27,219	2,900	369.3	65 / 60
277	27,680	2,900	371.0	40 / 66
283	28,324	2,900	371.8	49 / 46
289	28,902	2,900	374.0	30 / 30
294	29,382	2,900	376.6	72 / 33
298	29,751	2,796	377.5	30 / 30
303	30,261	2,796	379.0	30 / 19
308	30,756	2,796	380.5	111 / 17
314	31,364	2,796	381.4	30 / 49
318	31,797	2,690	382.2	46 / 30
324	32,361	2,690	383.6	30 / 50
327	32,708	2,631	384.4	30 / 37
333	33,281	2,631	385.7	30 / 150
338	33,816	2,631	386.3	224 / 30
342	34,248	2,631	386.7	30 / 99
346	34,613	2,631	387.0	62 / 30
350	35,047	2,532	387.8	30 / 77
356	35,562	2,532	388.3	49 / 30
360	36,008	2,532	389.2	46 / 36
366	36,577	2,532	390.5	30 / 211
371	37,062	2,463	391.2	30 / 81
374	37,352	2,463	391.8	30 / 111
377	37,737	2,463	392.6	12 / 275
382	38,225	2,463	393.2	52 / 141
386	38,647	2,463	394.0	10 / 47
392	39,227	2,463	397.0	97 / 36
397	39,701	2,463	398.5	40 / 86
402	40,207	2,463	399.8	270 / 24

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
407	40,741	2,463	400.6	18 / 366
412	41,188	2,463	401.1	13 / 215
416	41,610	2,463	401.8	30 / 39
427	42,707	2,463	404.9	39 / 34
428	42,846	2,463	405.5	28 / 25
429	42,895	2,463	405.6	50 / 25
433	43,305	2,463	406.2	117 / 25
438	43,832	2,463	407.4	137 / 68
443	44,269	2,463	408.1	35 / 171
447	44,714	2,463	408.7	40 / 219
454	45,365	1,958	409.3	130 / 136
459	45,859	1,958	409.7	271 / 30
463	46,323	1,958	410.2	59 / 30
467	46,744	1,958	411.7	35 / 54
473	47,314	1,798	413.0	134 / 55
478	47,829	1,798	413.8	170 / 41
483	48,272	1,798	414.4	118 / 140
488	48,782	1,798	415.1	111 / 87
492	49,218	1,577	415.8	123 / 134
496	49,598	1,577	416.3	74 / 145
500	49,978	1,577	417.2	176 / 63
Little Island Creek				
000	4	3,828	363.1	80 / 100
005	470	3,092	363.6	56 / 190
010	1,039	2,886	364.2	118 / 172
015	1,503	2,886	364.7	40 / 134
020	1,969	2,886	365.6	45 / 215
025	2,488	2,886	367.0	36 / 87
030	2,999	2,886	368.6	90 / 102
035	3,483	2,886	369.7	30 / 118
040	3,996	2,886	371.1	157 / 41
045	4,477	2,363	372.8	92 / 74
048	4,780	2,363	373.4	83 / 30
056	5,577	2,363	379.3	179 / 30
061	6,100	2,334	379.7	143 / 36
065	6,507	2,334	380.1	30 / 170
070	6,977	2,334	380.9	30 / 139
075	7,497	2,334	382.0	41 / 166
080	8,005	2,334	383.0	187 / 49
085	8,502	2,334	384.4	145 / 30
088	8,837	2,334	385.7	60 / 35
093	9,347	2,334	387.8	81 / 125
098	9,844	2,334	388.7	30 / 61
106	10,556	2,000	391.8	57 / 276
110	10,984	2,000	392.0	33 / 54

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
115	11,534	2,000	396.5	80 / 150
120	11,963	2,000	398.2	83 / 44
125	12,510	1,896	402.0	113 / 40
129	12,884	1,896	402.9	48 / 87
133	13,256	1,896	404.0	55 / 58
141	14,148	1,896	409.0	97 / 89
145	14,547	1,896	409.8	35 / 86
151	15,066	1,896	411.3	40 / 185
156	15,564	1,896	412.2	70 / 48
161	16,077	1,896	413.7	90 / 83
166	16,581	1,896	414.8	36 / 89
170	17,045	1,763	416.2	102 / 33
176	17,623	1,763	417.4	214 / 55
182	18,173	1,763	418.6	118 / 96
186	18,627	1,763	419.8	277 / 29
192	19,162	1,763	421.4	62 / 141
196	19,643	1,763	423.6	69 / 123
202	20,217	1,108	425.4	69 / 68
207	20,732	1,108	426.8	58 / 101
213	21,298	1,108	429.0	55 / 77
218	21,808	532	431.1	20 / 98
223	22,277	532	433.4	46 / 20
Little Island Creek Tributary 1				
002	186	1,209	371.8[1]	52 / 67
005	526	1,209	371.8[1]	26 / 18
008	773	1,209	373.4	26 / 25
011	1,084	1,209	375.3	20 / 25
013	1,284	1,209	377.5	25 / 25
015	1,483	1,209	378.2	20 / 26
017	1,665	1,209	379.8	37 / 37
020	2,041	1,077	381.2	58 / 25
029	2,865	1,077	386.3	90 / 48
031	3,122	1,077	386.7	126 / 33
034	3,388	925	387.0	168 / 30
039	3,869	925	387.9	134 / 31
043	4,323	925	390.3	75 / 31
048	4,797	925	391.4	32 / 64
054	5,400	925	394.0	25 / 69
058	5,798	925	395.7	25 / 24
063	6,262	925	398.0	24 / 38
076	7,628	925	404.6	90 / 24
Little Johnson Creek				
005	499	4,385	321.3[1]	30 / 30
010	1,000	4,385	321.3	53 / 90
016	1,552	4,385	321.9	35 / 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
020	2,016	4,385	322.5	34 / 34
024	2,448	4,385	323.3	61 / 71
030	3,037	4,385	323.7	53 / 34
036	3,551	4,385	324.3	70 / 35
042	4,237	4,385	326.1	41 / 41
045	4,530	4,385	326.4	39 / 39
050	5,033	4,385	327.1	33 / 33
055	5,531	4,385	328.2	36 / 32
060	6,036	4,385	329.0	165 / 46
063	6,343	4,385	329.2	115 / 32
068	6,771	4,385	329.7	74 / 128
071	7,086	4,385	330.0	55 / 55
076	7,569	4,385	330.6	125 / 25
081	8,072	4,385	331.6	49 / 62
085	8,466	4,385	332.4	67 / 52
090	9,046	3,964	333.3	53 / 53
096	9,572	3,964	334.1	49 / 106
101	10,074	3,964	334.8	47 / 28
105	10,547	3,964	335.6	106 / 27
110	11,002	3,964	336.3	57 / 27
115	11,547	3,964	337.3	137 / 69
119	11,882	3,964	337.6	50 / 50
127	12,731	3,894	339.7	74 / 47
130	13,046	3,894	340.0	48 / 79
136	13,572	3,894	340.6	53 / 53
141	14,072	3,894	341.4	75 / 57
146	14,590	3,894	341.9	74 / 38
151	15,078	3,894	342.7	58 / 58
154	15,404	3,228	343.2	52 / 52
157	15,742	3,228	343.8	161 / 48
160	15,958	3,228	344.0	87 / 140
167	16,698	3,228	344.9	87 / 140
171	17,139	3,228	345.2	53 / 53
177	17,688	3,228	346.2	32 / 263
182	18,154	3,228	346.7	44 / 138
186	18,642	3,228	347.6	70 / 88
190	19,010	3,228	348.0	170 / 49
196	19,648	3,228	348.3	301 / 53
202	20,223	3,228	348.7	72 / 57
207	20,669	2,842	349.6	57 / 45
212	21,169	2,842	351.3	47 / 47
217	21,659	2,224	352.8	51 / 51
222	22,186	2,224	353.7	45 / 45
227	22,666	2,224	355.0	48 / 59
229	22,910	2,224	355.5	27 / 115

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
233	23,311	2,224	356.2	49 / 49
238	23,787	2,224	357.5	56 / 56
243	24,252	2,224	358.8	43 / 43
248	24,753	2,224	361.1	46 / 46
253	25,279	2,224	362.4	44 / 44
258	25,766	2,224	363.8	49 / 49
263	26,287	2,224	364.9	52 / 52
268	26,774	2,224	365.7	55 / 44
273	27,277	2,224	367.1	67 / 46
278	27,815	1,943	368.7	43 / 19
283	28,311	1,943	371.0	95 / 45
288	28,812	1,943	372.3	89 / 42
294	29,419	1,715	374.6	40 / 98
299	29,908	1,715	376.3	100 / 40
304	30,419	1,715	377.6	95 / 47
310	31,027	1,715	379.0	42 / 43
316	31,572	1,715	380.9	56 / 42
323	32,305	1,655	384.6	37 / 37
326	32,574	1,655	386.8	39 / 39
329	32,910	1,655	388.5	41 / 61
338	33,775	1,655	393.8	60 / 130
343	34,279	1,518	393.9	63 / 149
348	34,790	1,518	393.9	37 / 37
Michael Creek				
155	15,498	2,304	335.7	33 / 109
160	16,002	2,304	336.7	53 / 164
165	16,503	2,304	337.6	47 / 66
170	16,997	2,276	339.2	104 / 43
175	17,496	2,276	340.2	84 / 89
180	18,001	2,276	341.2	40 / 209
185	18,485	2,276	342.0	25 / 72
190	18,995	2,276	344.2	20 / 99
195	19,508	2,276	346.0	129 / 25
200	20,016	2,276	347.6	35 / 13
206	20,566	2,276	349.7	123 / 79
210	20,998	2,276	350.6	155 / 50
216	21,558	2,276	352.1	78 / 30
220	22,001	2,155	354.3	67 / 226
225	22,500	2,155	355.0	32 / 132
230	23,002	2,155	356.3	127 / 12
235	23,497	2,155	357.6	30 / 381
240	23,998	2,155	358.1	34 / 255
245	24,495	1,972	359.6	12 / 269
250	25,031	1,972	360.7	25 / 83
255	25,512	1,972	363.6	35 / 77

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	25,988	1,972	364.6	35 / 154
264	26,376	1,972	367.2	50 / 50
266	26,601	1,972	367.4	161 / 25
273	27,282	1,972	368.2	30 / 105
279	27,876	1,972	369.1	73 / 152
284	28,437	1,688	369.7	30 / 231
290	28,957	1,688	370.4	30 / 121
295	29,502	1,546	371.6	30 / 208
301	30,076	1,546	372.4	97 / 236
305	30,501	1,546	373.3	30 / 229
310	31,000	1,546	374.8	30 / 160
315	31,503	1,410	376.6	30 / 144
320	32,042	1,410	378.0	145 / 30
325	32,481	1,410	379.0	133 / 25
330	32,992	1,410	380.6	40 / 103
335	33,506	1,299	382.7	30 / 142
340	33,999	1,299	384.1	64 / 139
347	34,657	1,299	385.8	210 / 10
352	35,233	1,229	387.0	92 / 113
Mill Creek				
004	394	1,580	294.4	10 / 10
011	1,139	1,580	301.3	25 / 25
018	1,756	1,580	307.0	15 / 10
023	2,335	1,580	310.5	45 / 235
028	2,761	1,580	310.9	20 / 25
033	3,255	1,511	316.4	70 / 15
037	3,693	1,511	318.3	12 / 200
043	4,265	1,511	322.7	25 / 10
047	4,662	1,511	327.0	14 / 8
057	5,704	1,382	342.7	115 / 182
Mountain Creek				
002	244	3,407	355.3[1]	38 / 35
008	757	3,407	355.3[1]	30 / 25
013	1,322	3,407	355.3[1]	60 / 154
019	1,893	3,358	355.4	46 / 58
025	2,497	3,358	359.6	50 / 100
028	2,808	3,358	360.5	150 / 100
031	3,064	3,358	361.0	37 / 150
033	3,350	3,358	361.6	32 / 42
035	3,451	3,358	363.7	37 / 37
040	4,038	3,358	365.1	500 / 50
045	4,508	3,358	365.3	400 / 14
052	5,174	3,358	367.0	330 / 21
059	5,864	3,263	370.4	50 / 21
064	6,405	3,263	372.7	30 / 170

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
069	6,918	3,263	373.4	31 / 21
075	7,457	3,263	375.4	35 / 154
082	8,201	3,263	376.7	63 / 23
091	9,068	3,190	379.0	217 / 148
097	9,715	3,098	379.3	30 / 35
105	10,460	3,098	382.1	401 / 27
112	11,156	3,001	382.8	142 / 165
115	11,528	3,001	383.4	150 / 30
120	12,032	3,001	385.6	28 / 172
125	12,541	3,001	387.0	20 / 316
132	13,225	3,001	388.2	123 / 118
139	13,927	3,001	389.6	340 / 26
145	14,463	3,001	391.0	222 / 20
148	14,826	3,001	391.0	29 / 20
149	14,948	3,001	391.9	19 / 57
155	15,512	2,833	394.7	67 / 46
159	15,907	2,833	395.7	46 / 23
165	16,482	2,833	397.4	37 / 76
172	17,232	2,833	398.7	130 / 28
178	17,770	2,833	399.7	203 / 80
182	18,231	2,729	400.2	310 / 19
193	19,267	2,729	401.7	35 / 111
198	19,782	2,729	403.3	115 / 26
202	20,221	2,729	404.5	100 / 30
208	20,823	2,729	405.9	88 / 40
214	21,449	2,399	407.3	18 / 30
218	21,834	2,399	408.7	17 / 50
226	22,615	2,399	410.9	25 / 84
230	23,005	2,399	411.6	26 / 63
New Light Creek Tributary 4				
004	399	536	286.2[2]	16 / 14
016	1,625	536	286.5[1]	14 / 235
024	2,430	536	296.1	34 / 14
North Fork Tar River Tributary				
002	158	1,330	424.4[3]	24 / 17
003	329	1,330	425.9	30 / 9
005	492	1,330	428.9	52 / 11
008	762	1,330	431.0	56 / 9
010	958	1,330	432.4	41 / 18
010	998	1,330	433.5	41 / 18
014	1,351	1,330	434.4	68 / 9
020	2,000	1,330	437.1	120 / 26
025	2,500	1,330	438.5	24 / 54
030	3,000	1,330	441.3	27 / 78
036	3,551	1,330	443.4	44 / 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
040	4,000	1,178	445.8	81 / 73
045	4,466	1,178	447.5	24 / 91
048	4,759	1,178	448.7	15 / 114
049	4,863	1,178	452.7	15 / 114
050	5,000	1,178	452.7	10 / 109
055	5,500	1,178	453.8	19 / 50
060	6,000	1,178	458.6	71 / 8
066	6,631	1,098	464.4	8 / 42
070	7,000	1,098	467.8	23 / 27
074	7,374	1,098	471.2	31 / 21
077	7,690	1,098	474.1	20 / 68
078	7,803	1,098	474.5	40 / 97
080	7,998	1,098	474.7	23 / 72
North Fork Tar River Tributary 1				
006	600	1,900	397.2	10 / 50
014	1,355	1,900	401.5	30 / 60
022	2,158	1,900	406.1	40 / 15
027	2,718	1,900	408.7	75 / 17
033	3,279	1,900	410.6	8 / 20
039	3,911	1,900	416.7	15 / 20
044	4,375	1,900	418.3	47 / 10
050	5,028	1,900	420.1	99 / 84
056	5,578	1,900	420.8	65 / 39
060	6,030	1,900	421.9	75 / 12
065	6,505	1,720	423.3	77 / 90
070	7,007	1,720	424.4	30 / 22
074	7,390	1,720	426.4	22 / 95
080	8,011	1,720	428.8	28 / 45
087	8,666	1,720	431.2	10 / 50
093	9,298	1,720	433.3	10 / 120
100	10,024	1,720	435.7	59 / 34
106	10,638	1,720	438.9	13 / 38
108	10,796	1,530	451.4	40 / 80
115	11,520	1,530	451.4	88 / 104
121	12,109	1,360	451.6	67 / 89
130	13,005	1,360	452.3	104 / 77
136	13,608	1,360	453.4	51 / 78
143	14,276	1,160	455.4	68 / 61
147	14,681	1,160	456.0	90 / 98
151	15,137	1,160	456.8	36 / 24
156	15,570	1,160	458.6	19 / 111
North Fork Tar River Tributary 2				
004	450	2,400	444.5[1]	25 / 150
009	936	2,400	444.5[1]	25 / 150
016	1,638	2,400	450.7	75 / 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
022	2,199	2,400	450.9	62 / 177
027	2,710	2,090	451.0	178 / 49
033	3,251	2,090	451.3	225 / 25
039	3,897	2,090	451.7	276 / 33
045	4,545	2,040	452.2	161 / 71
050	4,965	2,040	452.9	63 / 51
054	5,362	2,040	454.3	65 / 21
059	5,946	2,040	455.8	100 / 15
068	6,776	2,040	457.1	52 / 122
072	7,189	2,040	457.8	18 / 101
Owen Creek				
003	338	2,080	384.7[1]	90 / 50
010	964	2,080	384.7[1]	20 / 100
017	1,684	2,080	384.7[1]	50 / 50
019	1,924	2,080	384.7[1]	20 / 80
025	2,533	2,080	384.7[1]	35 / 200
030	3,004	2,080	384.7[1]	100 / 175
032	3,216	2,080	384.7[1]	40 / 100
035	3,543	2,080	384.7[1]	93 / 13
038	3,809	2,080	385.2	55 / 60
041	4,146	2,080	386.4	150 / 30
049	4,899	2,080	389.9	40 / 30
056	5,639	2,080	395.9	30 / 30
064	6,365	2,080	402.2	20 / 50
069	6,916	1,650	403.8	40 / 15
074	7,425	1,550	406.2	32 / 22
080	7,962	1,550	409.3	17 / 34
087	8,674	1,550	413.3	100 / 20
091	9,081	1,550	415.3	100 / 20
092	9,242	1,550	423.1	100 / 20
107	10,660	1,550	425.1	23 / 62
112	11,225	1,550	429.8	39 / 54
120	11,999	1,550	432.6	52 / 40
125	12,492	979	434.5	9 / 84
130	12,960	979	436.1	15 / 100
Robertson Creek				
005	535	4,263	265.5[1]	943 / 758
018	1,822	4,022	265.5[1]	86 / 68
026	2,623	4,022	265.5[1]	23 / 314
033	3,307	4,022	265.5[1]	166 / 344
038	3,791	4,022	265.5[1]	537 / 119
045	4,504	3,976	265.5[1]	356 / 241
052	5,233	3,976	265.5[1]	457 / 90
060	6,019	3,808	265.5[1]	506 / 126
070	6,988	3,808	265.5	564 / 71

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
078	7,816	3,808	265.5	717 / 22
089	8,898	3,808	265.5	639 / 224
103	10,272	3,533	266.1	21 / 181
121	12,067	3,533	272.3	340 / 90
129	12,936	3,533	272.5	706 / 21
139	13,928	3,533	272.8	205 / 244
162	16,243	3,205	274.6	20 / 435
172	17,242	3,205	275.4	378 / 261
182	18,204	3,205	276.0	163 / 319
202	20,166	3,205	279.1	317 / 528
210	21,026	2,137	279.5	257 / 527
220	22,047	2,137	280.4	17 / 286
229	22,859	2,137	282.4	162 / 114
238	23,793	2,137	283.9	296 / 54
247	24,688	2,137	284.8	17 / 368
258	25,811	2,137	286.4	182 / 70
277	27,735	1,639	294.8	290 / 70
282	28,223	1,639	294.9	233 / 319
293	29,253	1,639	295.1	280 / 15
299	29,922	1,639	296.3	240 / 31
306	30,608	1,517	297.7	202 / 113
313	31,270	1,517	298.4	533 / 14
320	32,008	1,192	299.4	231 / 13
328	32,752	1,192	303.4	220 / 42
336	33,626	1,192	307.5	17 / 44
Robertson Creek Tributary 1				
004	355	935	265.5[1]	12 / 521
020	2,003	935	266.1	330 / 101
029	2,865	935	266.2	177 / 32
040	4,048	935	270.3	37 / 14
048	4,782	935	274.8	48 / 18
052	5,232	935	277.2	56 / 72
Robertson Creek Tributary 2				
003	272	651	294.8[1]	14 / 175
015	1,532	651	302.3	71 / 126
020	2,040	651	302.4	79 / 116
024	2,368	651	302.5	151 / 63
030	2,978	651	304.9	18 / 39
Rocky Creek				
006	614	2,540	380.4[1]	250 / 150
014	1,431	2,540	380.4[1]	250 / 50
019	1,865	2,540	380.4[1]	330 / 200
024	2,367	2,540	380.4[1]	100 / 150
030	3,003	2,540	380.4[1]	144 / 26
036	3,575	2,540	380.4[1]	40 / 133
042	4,152	2,460	380.6	19 / 93

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	4,712	2,460	384.0	50 / 30
050	5,001	2,460	384.3	135 / 142
055	5,501	2,460	384.6	19 / 88
060	6,002	2,460	386.0	66 / 35
065	6,468	2,460	387.3	49 / 94
070	7,002	2,460	387.9	200 / 25
075	7,502	2,350	388.2	62 / 128
081	8,058	2,350	389.0	115 / 114
085	8,502	2,350	389.3	493 / 49
092	9,154	2,350	389.6	245 / 72
097	9,738	2,350	391.0	96 / 120
105	10,499	2,240	393.0	36 / 200
113	11,324	2,240	395.0	15 / 100
120	11,987	2,240	397.1	120 / 25
125	12,537	2,240	398.5	33 / 19
130	13,005	2,240	401.1	10 / 25
135	13,485	2,120	404.3	25 / 16
139	13,921	2,120	406.2	10 / 150
146	14,643	2,120	410.6	75 / 20
150	15,021	2,120	413.8	125 / 20
156	15,648	2,010	415.8	21 / 41
160	16,049	2,010	418.5	10 / 50
165	16,523	2,010	420.8	10 / 50
174	17,388	2,010	424.6	45 / 25
178	17,837	2,010	426.4	26 / 37
185	18,530	2,010	428.2	77 / 91
192	19,161	2,010	429.3	53 / 79
197	19,680	1,720	430.8	150 / 30
Rocky Creek Tributary 1				
044	4,376	208	453.7	5 / 35
Smith Creek				
020	2,049	3,307	265.5[1]	21 / 902
033	3,333	3,307	265.5[1]	21 / 627
047	4,681	3,307	265.5	86 / 521
059	5,852	3,115	265.5	610 / 28
069	6,928	3,115	266.6	491 / 20
081	8,143	3,115	269.6	92 / 152
088	8,757	3,115	270.9	160 / 405
097	9,746	3,115	274.0	20 / 647
106	10,563	3,022	277.2	20 / 566
111	11,114	3,022	278.9	20 / 521
115	11,504	3,022	279.8	20 / 520
119	11,927	3,022	280.7	20 / 464
125	12,472	3,022	282.2	54 / 339
134	13,434	3,022	284.7	20 / 404

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
139	13,934	3,022	286.0	20 / 407
146	14,580	2,817	287.4	171 / 337
151	15,112	2,817	288.2	197 / 424
157	15,714	2,817	289.4	273 / 321
162	16,181	2,817	290.8	143 / 307
167	16,670	2,817	292.6	48 / 332
175	17,483	2,644	295.2	169 / 299
180	18,048	2,644	296.6	146 / 239
188	18,755	2,644	298.6	296 / 34
194	19,390	2,644	300.4	365 / 103
202	20,231	2,644	302.3	19 / 416
207	20,683	2,644	303.5	19 / 370
212	21,184	2,644	304.9	100 / 295
218	21,775	2,644	306.4	240 / 87
226	22,642	2,435	308.9	75 / 154
233	23,325	2,435	310.9	89 / 150
238	23,750	2,435	311.9	22 / 217
259	25,899	2,204	318.7	33 / 264
266	26,571	2,204	320.0	40 / 191
278	27,800	1,980	324.6	105 / 125
285	28,462	1,980	326.6	206 / 17
291	29,126	1,980	328.5	50 / 154
296	29,598	1,980	330.1	49 / 152
303	30,282	1,980	332.4	31 / 278
310	30,965	1,870	334.5	27 / 133
319	31,851	1,870	340.1	35 / 93
328	32,847	1,870	345.6	123 / 34
335	33,480	1,870	349.2	18 / 81
342	34,157	1,870	353.2	16 / 129
347	34,731	1,870	355.9	95 / 16
353	35,256	1,870	359.4	16 / 71
358	35,762	1,870	362.1	96 / 16
364	36,398	1,870	365.8	55 / 139
369	36,854	1,870	367.7	31 / 23
373	37,293	1,870	370.5	86 / 72
Spewmarrow Creek				
137	13,747	2,918	320.1[1]	18 / 20
140	14,025	2,918	320.1[1]	36 / 36
141	14,116	2,918	320.1[1]	36 / 36
145	14,452	2,918	320.1[1]	41 / 63
150	15,043	2,434	320.1[1]	25 / 19
156	15,643	2,434	322.4	18 / 323
162	16,230	2,434	323.5	18 / 106
167	16,708	2,434	325.3	77 / 145
172	17,166	2,385	326.0	65 / 126

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
175	17,531	2,385	326.6	18 / 222
179	17,933	2,385	327.2	237 / 18
185	18,451	2,385	327.9	150 / 42
189	18,906	2,270	328.7	256 / 53
194	19,392	2,258	329.3	203 / 45
199	19,873	2,258	330.1	205 / 18
Spewmarrow Creek Tributary 1				
000	40	1,126	320.1[1]	25 / 25
006	623	1,126	321.8	104 / 40
011	1,101	1,126	323.6	47 / 126
014	1,446	1,126	325.3	48 / 35
021	2,070	1,126	327.8	45 / 138
026	2,593	1,052	329.0	42 / 121
031	3,057	1,052	330.1	139 / 54
035	3,533	1,052	331.4	43 / 76
040	3,981	864	333.0	132 / 79
045	4,482	864	334.3	22 / 131
062	6,151	672	339.3	30 / 26
Syble Creek				
051	5,099	1,719	265.5[1]	206 / 52
062	6,240	1,719	265.5	121 / 6
069	6,875	1,719	265.5	119 / 129
074	7,443	1,719	265.5	57 / 181
Tar River				
875	875,244	19,594	289.9	65 / 60
876	875,726	19,594	291.4	75 / 60
876	876,326	19,594	292.6	90 / 85
877	876,926	19,594	293.1	73 / 87
878	877,527	19,594	294.1	71 / 97
878	878,126	19,594	294.8	83 / 62
879	878,728	17,697	295.6	61 / 84
879	879,326	17,697	296.8	66 / 47
880	879,922	17,697	298.0	64 / 53
881	880,525	17,697	299.2	50 / 64
881	881,126	17,697	301.1	59 / 77
882	881,726	17,697	301.5	49 / 63
882	882,326	17,697	303.1	134 / 39
883	882,938	17,697	303.2	65 / 62
884	883,563	17,697	304.0	73 / 43
884	884,055	17,697	305.0	77 / 58
884	884,301	17,697	306.1	113 / 113
884	884,413	17,697	306.3	104 / 106
885	884,745	17,697	306.6	72 / 72
885	885,119	17,697	306.7	212 / 53
886	885,780	17,697	308.5	52 / 494
886	886,386	17,697	309.0	754 / 325

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
887	887,126	17,697	309.2	1,423 / 40
888	887,933	17,697	309.4	1,604 / 784
888	888,326	17,697	309.4	1,856 / 870
889	888,873	17,697	309.5	2,226 / 1,028
890	889,632	17,697	309.6	2,647 / 757
890	890,154	17,010	309.6	2,350 / 660
891	890,787	17,010	309.7	2,098 / 526
891	891,326	17,010	309.7	1,531 / 433
892	891,926	17,010	309.9	1,033 / 171
893	892,544	17,010	310.1	1,225 / 47
893	893,191	17,010	310.4	760 / 1,040
894	893,726	17,010	310.4	876 / 1,047
894	894,315	17,010	310.5	552 / 574
895	894,926	17,010	310.5	596 / 105
896	895,527	17,010	311.0	656 / 529
896	896,124	17,010	311.3	494 / 805
897	896,584	17,010	311.4	542 / 946
897	897,399	17,010	311.7	1,066 / 281
898	897,908	17,010	312.0	981 / 1,035
898	898,446	17,010	312.0	736 / 2,116
899	899,255	17,010	312.1	1,371 / 1,342
900	899,726	17,010	312.2	1,199 / 1,275
900	900,248	17,010	312.3	1,186 / 1,301
901	900,801	17,010	312.4	1,011 / 926
902	901,526	16,041	312.5	2,077 / 270
902	902,212	16,041	312.5	2,101 / 40
903	902,798	16,041	313.0	2,243 / 90
903	903,325	16,041	313.1	1,860 / 51
904	903,795	16,041	313.4	1,861 / 48
904	904,481	16,041	313.5	2,199 / 46
905	905,236	16,041	313.6	1,572 / 641
906	905,787	16,041	313.7	1,380 / 475
906	906,233	16,041	313.8	1,162 / 668
907	907,268	16,041	314.1	621 / 1,478
908	907,712	16,041	314.2	777 / 1,658
908	908,183	16,041	314.2	56 / 2,019
909	908,723	15,501	314.3	433 / 1,258
909	909,409	15,501	314.3	524 / 612
910	909,927	15,501	314.4	603 / 183
911	910,526	15,501	314.6	552 / 59
911	911,159	15,501	315.0	453 / 52
912	911,726	15,501	315.5	436 / 53
912	912,288	15,501	316.1	310 / 165
913	913,057	15,501	316.5	235 / 72
914	913,526	15,501	316.8	102 / 76

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
914	913,904	15,501	316.9	104 / 104
914	914,032	15,501	317.3	104 / 104
915	914,669	15,501	317.9	59 / 80
915	915,326	15,501	318.3	41 / 93
916	915,929	15,501	318.7	86 / 61
917	916,584	15,501	319.3	161 / 65
917	917,114	15,501	319.3	59 / 60
918	917,714	15,501	320.6	56 / 70
918	918,339	15,501	321.7	76 / 94
919	918,787	15,501	322.1	82 / 68
919	919,211	15,501	323.1	71 / 98
920	919,612	15,501	323.5	68 / 71
920	920,126	15,501	325.4	119 / 80
921	920,726	15,501	328.4	43 / 67
921	921,326	15,501	333.9	91 / 41
922	921,829	15,501	335.0	93 / 64
922	922,113	15,501	335.6	105 / 65
922	922,205	15,501	337.0	85 / 74
922	922,237	15,501	337.3	94 / 81
922	922,323	15,501	338.1	94 / 105
922	922,482	15,501	338.7	104 / 97
923	922,887	15,501	339.2	76 / 81
923	923,201	15,501	341.4	78 / 117
923	923,350	15,501	342.7	99 / 125
924	923,727	14,837	343.4	99 / 74
924	924,326	14,837	344.1	56 / 72
925	924,898	14,837	348.2	78 / 92
926	925,526	14,837	349.5	55 / 85
926	926,126	14,837	351.5	61 / 120
927	926,776	14,837	352.5	50 / 60
927	927,420	14,837	356.8	61 / 66
928	927,945	14,837	358.6	87 / 72
929	928,526	14,837	359.4	83 / 68
929	928,893	14,837	360.1	68 / 186
929	929,269	14,034	360.7	77 / 173
930	929,753	14,034	361.2	75 / 64
930	930,326	14,034	362.5	67 / 76
931	930,926	14,034	363.5	60 / 76
932	931,526	14,034	364.6	65 / 60
932	932,066	14,034	365.6	58 / 108
933	932,629	14,034	366.4	65 / 141
933	932,854	14,034	367.2	65 / 195
933	932,941	14,034	367.4	67 / 165
933	933,331	14,034	367.7	66 / 76
934	933,924	14,034	370.1	90 / 40

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
935	934,612	14,034	371.0	73 / 49
935	935,210	14,034	371.8	121 / 97
935	935,343	14,034	372.5	88 / 120
936	935,648	14,034	373.2	43 / 175
936	936,194	14,034	374.5	68 / 153
937	936,702	14,034	376.2	262 / 104
Tar River Tributary 2				
006	564	2,170	309.6[1]	25 / 185
011	1,111	2,170	309.6[1]	20 / 175
015	1,455	2,170	309.6[1]	50 / 100
020	1,980	2,170	309.6[1]	20 / 50
026	2,574	2,170	309.6[1]	30 / 50
033	3,348	2,010	309.6[1]	24 / 66
040	3,956	2,010	310.7	53 / 47
045	4,523	2,010	312.2	30 / 32
050	5,035	2,010	313.9	50 / 100
057	5,655	982	314.8	50 / 200
063	6,314	982	315.4	50 / 160
068	6,827	982	317.7	125 / 15
073	7,277	982	319.4	150 / 25
078	7,834	930	321.8	20 / 100
087	8,710	930	325.5	30 / 50
090	9,017	887	326.2	42 / 125
096	9,630	887	330.2	49 / 7
Tar River Tributary 3				
010	1,031	1,460	315.4	47 / 16
018	1,818	1,460	319.7	156 / 43
024	2,439	1,460	321.0	125 / 20
029	2,944	1,340	322.5	163 / 44
032	3,227	1,340	323.0	60 / 50
036	3,558	1,340	324.3	111 / 102
039	3,890	1,340	325.6	74 / 106
043	4,316	1,340	327.4	20 / 100
049	4,871	1,090	330.2	99 / 58
054	5,440	1,090	331.9	56 / 45
060	6,041	1,090	334.4	26 / 49
Tar River Tributary 4				
002	204	1,470	449.4[1]	18 / 30
005	547	1,470	449.4[1]	48 / 28
009	870	1,470	449.4[1]	10 / 25
014	1,448	1,470	453.8	26 / 27
019	1,933	1,470	457.3	12 / 54
024	2,439	1,470	460.4	32 / 45
028	2,847	1,470	462.1	10 / 60
034	3,354	1,470	464.6	65 / 12
040	3,987	1,340	468.4	8 / 62

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
045	4,500	1,340	471.4	9 / 115
048	4,776	1,340	473.2	30 / 30
055	5,501	1,340	474.4	100 / 20
059	5,870	1,340	476.2	48 / 93
063	6,319	1,130	477.5	100 / 15
069	6,854	1,130	479.5	28 / 45
075	7,515	1,130	482.2	51 / 14
081	8,096	1,130	484.4	102 / 11
089	8,932	1,130	486.2	20 / 121
100	9,962	986	489.0	112 / 11
105	10,537	986	490.7	115 / 24
109	10,932	986	491.7	69 / 42
114	11,396	863	493.2	46 / 144
Tributary to Tabbs Creek				
003	294	1,044	419.4[4]	12 / 85
006	637	1,044	419.5	12 / 102
008	837	1,044	421.4	23 / 54
011	1,113	1,044	423.0	86 / 12
014	1,431	1,044	424.3	84 / 12
018	1,768	1,044	425.5	99 / 12
021	2,095	1,044	426.3	81 / 22
023	2,305	1,044	427.0	44 / 57
027	2,694	1,044	428.7	12 / 85
031	3,120	1,044	430.8	12 / 86
037	3,682	1,044	433.9	45 / 55
West Prong				
005	539	2,225	295.6	109 / 152
011	1,108	2,225	296.0	24 / 135
016	1,555	2,225	297.1	202 / 85
023	2,274	2,225	298.8	128 / 328
028	2,819	2,225	300.1	18 / 407
035	3,457	2,225	303.1	18 / 128
042	4,155	1,655	307.3	61 / 54
049	4,889	1,655	309.6	91 / 83
056	5,577	1,655	312.6	101 / 26
071	7,096	1,655	320.6	81 / 58
078	7,799	1,655	325.7	41 / 22
085	8,467	1,655	329.3	100 / 15
091	9,085	1,655	332.9	15 / 34
095	9,529	1,177	337.3	13 / 46
099	9,889	1,177	339.1	69 / 13
104	10,419	1,177	343.1	34 / 39
110	11,046	1,177	346.8	64 / 30
115	11,547	1,177	349.9	20 / 114
123	12,269	1,177	354.1	94 / 13

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
127	12,722	1,177	356.8	55 / 38
West Prong Tributary				
004	383	1,132	306.6	73 / 19
009	857	1,132	309.9	39 / 13
013	1,337	1,132	313.6	73 / 16
023	2,271	1,100	319.9	65 / 40
029	2,869	1,100	325.4	50 / 65
033	3,319	1,100	329.4	18 / 58
037	3,726	1,100	333.3	20 / 92
042	4,229	1,100	337.6	20 / 13
048	4,784	1,037	343.6	53 / 35
061	6,066	1,037	356.0	110 / 20

[1]Elevation includes backwater effects

[2]Flooding controlled by Newlight Creek (Basin 3, Stream 1)

[3]North Fork Tar River

[4]Tabbs Creek

5.3 Coastal Analyses

This section is not applicable to this FIS project. Table 18 “Summary of Coastal Analyses” does not apply to Granville County.

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 Granville 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 Granville 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)
36.50	-78.75	-0.88
36.50	-78.63	-0.88
36.38	-78.75	-0.88

Table 21 - Datum Conversion Locations and Values

Latitude	Longitude	Conversion from NGVD29 to NAVD88 (feet)
36.38	-78.62	-0.89
36.25	-78.75	-0.88
36.25	-78.63	-0.90
36.13	-78.75	-0.85
36.13	-78.62	-0.89
Average conversion in Granville County from NGVD 29 to NAVD 88 = -0.88 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 Granville 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.

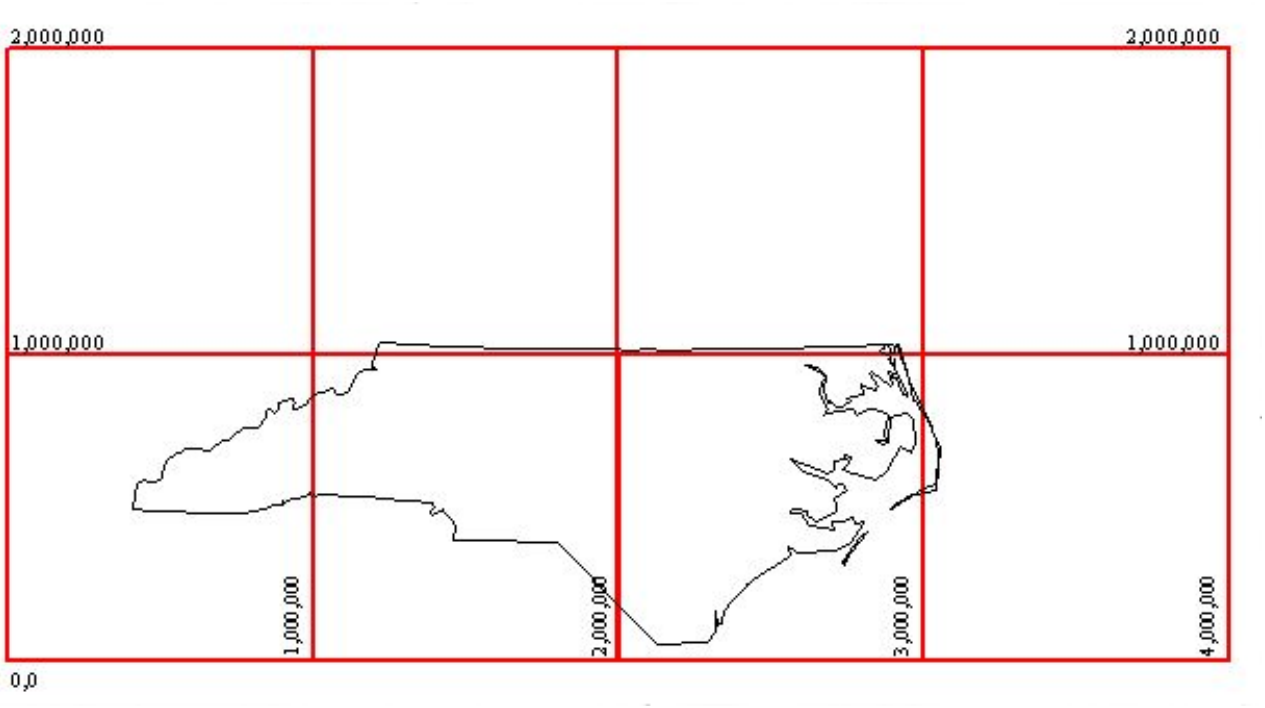

Figure 3 - North Carolina's State Plane Coordinate System

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.

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
Basin 3, Stream 8								
046	4,564	45	119	10.4	310.7	310.7	310.7	0.0
053	5,346	35	126	8.7	331.9	331.9	332.4	0.5
060	5,985	199	684	1.1	357.5	357.5	357.5	0.0
Coon Creek								
002	170	870	3,628	1.6	340.6[1]	335.9	336.9	1.0
005	498	845	3,194	1.8	340.6[1]	336.4	337.4	1.0
010	1,000	610	2,319	2.5	340.6[2]	337.4	338.4	1.0
015	1,500	728	3,224	1.8	340.6[2]	338.6	339.6	1.0
020	2,000	629	3,111	1.8	340.6[2]	339.4	340.3	0.9
022	2,245	376	1,888	3.0	340.6[2]	339.8	340.6	0.8
025	2,488	266	1,417	4.0	340.6[2]	340.4	341.2	0.8
030	3,000	358	2,207	2.6	342.0	342.0	343.0	1.0
035	3,500	353	2,311	2.5	342.9	342.9	343.9	1.0
040	4,000	536	3,727	1.5	343.5	343.5	344.5	1.0
045	4,500	879	6,144	0.9	343.7	343.7	344.7	1.0
050	4,999	418	2,565	2.2	343.9	343.9	344.8	0.9
053	5,284	258	1,541	3.7	344.2	344.2	345.1	0.9
060	6,000	240	1,679	3.4	346.1	346.1	347.0	0.9
065	6,500	231	1,633	3.5	347.0	347.0	347.8	0.8
070	7,003	353	2,556	2.2	347.8	347.8	348.7	0.9
075	7,500	364	2,604	2.2	348.3	348.3	349.2	0.9
090	9,002	884	7,077	0.8	351.0	351.0	351.9	0.9
095	9,503	891	6,287	0.9	351.1	351.1	352.0	0.9
100	10,006	795	5,366	1.0	351.2	351.2	352.1	0.9
105	10,500	713	3,974	1.4	351.4	351.4	352.3	0.9
110	11,000	845	4,972	1.1	351.8	351.8	352.6	0.9
115	11,500	738	3,796	1.5	352.0	352.0	352.9	0.8
118	11,825	773	3,922	1.4	352.4	352.4	353.2	0.8
120	12,000	739	3,756	1.5	352.5	352.5	353.3	0.8
125	12,500	614	2,244	2.5	353.2	353.2	354.0	0.7
130	13,000	479	2,243	2.4	354.2	354.2	355.0	0.8
135	13,500	644	3,079	1.8	354.8	354.8	355.6	0.8
143	14,255	225	1,132	4.8	355.6	355.6	356.3	0.7
145	14,500	213	1,510	3.6	356.6	356.6	357.5	0.9
150	15,000	191	1,504	3.6	357.5	357.5	358.3	0.8
155	15,500	86	798	6.8	358.1	358.1	358.9	0.8
160	16,000	196	1,242	4.4	359.6	359.6	360.4	0.9
165	16,500	195	1,689	3.2	360.8	360.8	361.7	0.9
170	17,000	115	1,026	5.3	361.4	361.4	362.3	0.9
177	17,700	330	2,326	2.3	363.0	363.0	363.9	0.9
183	18,280	340	2,638	2.0	363.3	363.3	364.3	1.0
183	18,280	340	2,639	3.3	363.3	363.3	364.3	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
185	18,491	310	1,750	5.2	363.4	363.4	364.3	0.9
186	18,564	310	2,446	3.5	364.7	364.7	365.4	0.7
188	18,780	165	1,698	6.3	364.8	364.8	365.5	0.6
192	19,228	132	1,336	7.2	365.5	365.5	366.2	0.6
198	19,820	175	1,733	6.3	366.6	366.6	367.3	0.7
205	20,493	300	2,955	3.4	367.3	367.3	368.1	0.8
211	21,122	490	4,532	2.6	367.4	367.4	368.3	0.9
219	21,898	525	4,593	3.3	367.6	367.6	368.5	0.9
227	22,723	495	3,848	3.9	367.9	367.9	368.8	0.9
233	23,338	465	3,184	4.5	368.4	368.4	369.2	0.8
240	23,997	587	3,138	4.8	369.0	369.0	369.8	0.8
248	24,762	141	952	7.0	370.0	370.0	371.0	1.0
251	25,149	105	1,092	5.7	372.0	372.0	372.9	1.0
257	25,664	220	1,684	5.6	372.8	372.8	373.6	0.8
262	26,220	192	1,562	5.8	373.5	373.5	374.3	0.8
268	26,785	251	1,756	5.9	374.2	374.2	375.1	0.8
274	27,370	333	2,163	5.5	375.0	375.0	375.9	0.9
280	28,037	396	2,777	4.2	375.6	375.6	376.5	1.0
287	28,704	224	1,637	6.5	376.1	376.1	377.0	0.9
292	29,157	165	1,077	8.0	376.9	376.9	377.8	0.9
292	29,241	170	1,503	6.0	378.2	378.2	378.8	0.6
297	29,688	365	2,816	4.3	378.7	378.7	379.5	0.8
305	30,530	395	2,646	4.6	379.1	379.1	380.1	1.0
310	31,029	420	2,463	3.3	379.6	379.6	380.6	0.9
315	31,456	255	1,320	5.6	379.8	379.8	380.7	0.9
318	31,814	142	685	7.7	380.4	380.4	381.3	0.9
322	32,232	140	790	6.7	381.8	381.8	382.7	0.9
326	32,596	76	532	7.7	382.5	382.5	383.5	1.0
330	32,969	64	499	8.0	383.9	383.9	384.7	0.8
333	33,319	65	590	7.2	385.3	385.3	385.9	0.6
336	33,596	134	942	5.9	386.3	386.3	386.8	0.5
340	34,023	88	608	7.2	386.7	386.7	387.4	0.7
344	34,429	110	868	6.1	387.6	387.6	388.5	0.9
349	34,860	80	642	5.5	388.2	388.2	389.2	0.9
352	35,223	77	612	5.6	388.9	388.9	389.7	0.8
354	35,429	90	929	4.0	392.6	392.6	393.3	0.7
356	35,642	86	798	5.2	392.7	392.7	393.4	0.7
360	35,985	72	660	5.9	393.0	393.0	393.7	0.7
364	36,386	55	557	6.6	393.4	393.4	394.2	0.8
367	36,718	65	616	6.4	394.0	394.0	394.8	0.8
371	37,055	129	922	5.6	394.8	394.8	395.6	0.7
374	37,406	141	915	5.5	395.2	395.2	396.0	0.8
377	37,713	182	1,108	4.7	395.7	395.7	396.6	0.9
380	38,014	91	573	7.1	395.8	395.8	396.8	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
384	38,447	59	485	7.2	397.4	397.4	398.0	0.7
388	38,783	59	489	7.2	398.5	398.5	399.0	0.5
392	39,156	67	432	7.3	399.7	399.7	400.2	0.4
395	39,465	54	418	7.1	400.9	400.9	401.3	0.4
400	40,015	75	468	6.8	402.9	402.9	403.0	0.2
403	40,318	61	473	6.5	403.6	403.6	403.9	0.4
404	40,414	66	555	5.8	405.0	405.0	405.4	0.4
406	40,585	58	463	7.3	405.3	405.3	405.6	0.3
409	40,863	55	478	6.7	406.2	406.2	406.5	0.3
412	41,184	64	550	6.0	407.0	407.0	407.4	0.3
415	41,465	62	549	6.1	407.5	407.5	407.9	0.4
419	41,852	66	532	6.6	408.1	408.1	408.6	0.4
421	42,106	50	431	8.0	408.5	408.5	409.0	0.6
423	42,293	42	437	7.7	409.0	409.0	409.7	0.7
425	42,487	68	774	6.3	409.9	409.9	410.5	0.6
427	42,716	57	562	7.6	410.1	410.1	410.7	0.7
429	42,933	74	678	7.0	410.6	410.6	411.4	0.7
432	43,195	51	491	6.5	411.1	411.1	411.9	0.8
435	43,500	86	709	5.8	411.9	411.9	412.7	0.8
439	43,916	42	434	5.7	412.4	412.4	413.4	1.0
443	44,252	47	433	6.4	413.0	413.0	414.0	0.9
446	44,623	82	651	5.5	414.0	414.0	414.8	0.8
450	44,955	69	539	6.1	414.4	414.4	415.3	0.9
454	45,363	47	384	7.1	415.1	415.1	416.1	1.0
458	45,759	39	334	7.4	416.5	416.5	417.3	0.8
461	46,123	46	371	7.3	418.1	418.1	418.6	0.5
465	46,546	46	357	7.4	419.5	419.5	420.0	0.5
469	46,929	50	404	6.4	420.5	420.5	421.2	0.7
472	47,230	50	388	6.7	421.3	421.3	422.0	0.7
475	47,518	52	375	6.9	422.3	422.3	422.7	0.4
478	47,754	52	384	6.4	423.0	423.0	423.5	0.5
480	48,027	100	447	6.4	423.9	423.9	424.2	0.4
484	48,382	52	351	6.8	424.6	424.6	425.2	0.6
486	48,650	52	346	6.9	425.5	425.5	426.1	0.6
489	48,858	47	323	7.2	426.0	426.0	426.8	0.7
491	49,086	63	389	6.9	427.2	427.2	427.7	0.5
494	49,397	52	314	7.6	428.1	428.1	428.9	0.8
497	49,724	50	344	6.6	430.0	430.0	430.3	0.4
500	49,983	50	325	7.0	430.8	430.8	431.2	0.3
502	50,226	50	307	7.3	431.9	431.9	432.1	0.2
504	50,446	55	324	6.9	432.9	432.9	433.1	0.2
505	50,546	72	469	5.3	436.8	436.8	436.8	0.0
506	50,607	105	561	7.1	436.9	436.9	436.9	0.0
507	50,657	132	613	7.0	437.1	437.1	437.1	0.0

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
507	50,677	140	686	6.5	437.4	437.4	437.5	0.1
509	50,864	89	538	7.1	437.7	437.7	438.0	0.2
512	51,209	119	677	5.9	438.6	438.6	439.1	0.5
515	51,545	86	673	5.7	439.2	439.2	439.9	0.7
519	51,866	123	583	7.9	440.0	440.0	440.7	0.7
522	52,241	94	524	6.5	441.2	441.2	442.2	1.0
525	52,525	140	886	3.5	442.0	442.0	443.0	1.0
529	52,856	115	614	4.9	442.3	442.3	443.3	1.0
534	53,368	130	636	4.7	443.3	443.3	444.3	1.0
540	53,981	91	482	4.6	444.4	444.4	445.4	1.0
545	54,528	134	560	4.3	445.4	445.4	446.4	1.0
550	55,004	129	458	5.6	446.6	446.6	447.5	0.9
553	55,332	90	323	6.1	447.8	447.8	448.7	0.9
554	55,420	90	580	3.5	450.3	450.3	451.2	0.9
557	55,688	100	574	3.6	450.5	450.5	451.4	0.9
Fishing Creek								
001	136	168	1,412	7.9	295.2[3]	295.0	295.2	0.2
009	853	90	1,197	7.9	296.1	296.1	296.3	0.2
013	1,349	88	1,137	8.8	296.8	296.8	297.0	0.2
019	1,851	92	1,316	8.2	297.8	297.8	298.0	0.2
024	2,393	125	1,199	8.6	298.7	298.7	298.9	0.2
028	2,837	107	1,455	7.2	299.7	299.7	300.0	0.3
033	3,304	114	1,526	6.4	300.4	300.4	300.7	0.3
039	3,905	84	1,198	7.3	300.9	300.9	301.3	0.4
044	4,375	94	1,384	6.6	301.6	301.6	302.0	0.4
049	4,858	121	1,631	6.3	302.2	302.2	302.6	0.4
054	5,361	159	1,849	6.5	302.6	302.6	303.1	0.4
058	5,764	123	1,597	6.3	303.0	303.0	303.5	0.4
063	6,293	102	1,558	5.1	303.6	303.6	304.1	0.5
070	6,996	102	1,531	5.1	304.1	304.1	304.5	0.5
077	7,718	102	1,512	5.2	304.6	304.6	305.0	0.4
085	8,500	102	1,466	5.5	305.2	305.2	305.6	0.4
089	8,943	102	1,430	5.5	305.5	305.5	305.9	0.4
094	9,469	92	1,303	5.9	306.0	306.0	306.4	0.4
100	10,007	74	1,068	7.5	306.4	306.4	306.8	0.4
105	10,520	54	780	10.4	307.1	307.1	307.5	0.4
108	10,790	92	980	12.0	307.9	307.9	308.2	0.3
113	11,305	61	1,068	8.5	309.6	309.6	310.2	0.6
119	11,850	67	1,087	8.5	310.3	310.3	311.0	0.6
123	12,346	101	1,381	8.0	311.2	311.2	311.9	0.7
126	12,599	108	1,620	7.4	311.6	311.6	312.4	0.8
129	12,852	174	1,628	8.6	311.8	311.8	312.5	0.8
132	13,244	80	1,057	10.5	312.1	312.1	312.9	0.8
137	13,648	80	1,191	8.5	313.3	313.3	314.2	0.8
141	14,096	114	1,428	7.9	314.1	314.1	315.0	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
145	14,461	136	1,640	7.3	314.7	314.7	315.6	0.9
149	14,871	117	1,483	8.4	315.1	315.1	316.0	0.9
154	15,365	99	1,616	6.3	316.0	316.0	316.9	0.9
158	15,805	89	1,173	13.5	316.3	316.3	317.1	0.8
162	16,190	83	1,103	9.9	318.2	318.2	319.0	0.8
164	16,367	128	1,377	8.0	319.3	319.3	320.2	0.9
164	16,407	126	1,422	6.8	320.1	320.1	320.9	0.8
167	16,736	94	1,200	11.7	320.6	320.6	321.2	0.6
171	17,101	70	891	14.0	321.5	321.5	322.2	0.7
175	17,500	106	1,184	12.2	324.6	324.6	324.6	0.0
180	18,044	78	1,166	7.9	325.8	325.8	326.7	0.8
184	18,354	69	974	10.0	326.1	326.1	326.9	0.8
187	18,664	72	1,148	7.4	327.2	327.2	328.1	1.0
190	18,981	68	1,054	7.3	327.6	327.6	328.6	1.0
193	19,289	67	1,042	7.4	328.0	328.0	329.0	1.0
195	19,546	80	1,168	7.2	328.5	328.5	329.4	0.9
200	20,039	65	1,007	8.0	329.0	329.0	330.0	0.9
205	20,500	58	861	9.2	329.7	329.7	330.6	0.9
210	21,000	92	1,261	7.9	331.0	331.0	332.0	1.0
214	21,439	81	1,265	7.2	331.7	331.7	332.7	1.0
220	21,980	95	1,452	6.4	332.4	332.4	333.4	1.0
225	22,500	87	1,272	7.4	332.8	332.8	333.8	1.0
230	23,000	111	1,552	6.7	333.6	333.6	334.6	1.0
233	23,342	89	1,379	6.4	333.9	333.9	334.9	1.0
240	23,969	135	1,741	5.9	334.5	334.5	335.5	1.0
246	24,574	118	1,702	6.8	335.0	335.0	336.0	1.0
251	25,120	247	3,075	4.3	335.7	335.7	336.7	1.0
255	25,460	176	2,622	4.4	335.8	335.8	336.8	1.0
259	25,921	235	3,485	4.7	336.1	336.1	337.0	1.0
265	26,500	183	2,225	6.5	336.3	336.3	337.2	1.0
268	26,812	181	2,136	7.8	336.6	336.6	337.6	1.0
273	27,285	218	2,504	4.7	337.5	337.5	338.5	1.0
280	28,025	168	2,039	7.1	338.3	338.3	339.2	1.0
285	28,464	205	2,668	6.1	339.1	339.1	340.1	1.0
289	28,945	282	3,139	5.4	339.7	339.7	340.6	1.0
293	29,278	508	6,524	2.5	340.0	340.0	341.0	1.0
296	29,567	579	7,386	2.5	340.0	340.0	341.0	1.0
301	30,056	633	7,732	2.4	340.2	340.2	341.2	1.0
309	30,876	762	8,327	2.2	340.3	340.3	341.3	1.0
317	31,709	902	10,391	1.4	340.4	340.4	341.4	1.0
321	32,094	1,210	12,615	1.1	340.4	340.4	341.4	1.0
331	33,093	1,200	11,648	1.2	340.5	340.5	341.5	1.0
337	33,692	985	8,442	2.0	340.5	340.5	341.5	1.0
342	34,230	355	2,713	2.6	340.7	340.7	341.7	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
345	34,522	155	1,182	4.3	340.8	340.8	341.8	1.0
349	34,903	75	693	6.7	341.5	341.5	342.2	0.8
353	35,346	109	1,031	5.6	342.7	342.7	343.4	0.7
357	35,674	116	880	6.2	343.2	343.2	344.0	0.8
360	35,987	140	1,318	4.6	343.8	343.8	344.8	1.0
363	36,316	123	888	6.2	344.2	344.2	345.1	1.0
367	36,660	83	685	9.5	345.7	345.7	346.7	1.0
369	36,889	50	549	7.3	346.5	346.5	347.4	0.9
370	36,994	50	612	6.6	347.2	347.2	347.9	0.6
371	37,111	73	874	5.8	347.6	347.6	348.3	0.6
375	37,499	48	594	6.6	348.0	348.0	348.6	0.6
380	38,002	75	838	5.9	348.8	348.8	349.6	0.8
383	38,255	142	1,274	3.8	349.3	349.3	350.1	0.8
386	38,588	177	1,340	4.4	349.5	349.5	350.3	0.8
390	38,962	98	919	4.8	349.7	349.7	350.6	0.9
392	39,242	60	735	5.4	349.9	349.9	350.8	0.9
394	39,411	70	777	4.8	350.1	350.1	351.1	1.0
395	39,496	75	853	4.3	350.7	350.7	351.5	0.8
396	39,597	60	718	5.3	350.8	350.8	351.6	0.8
399	39,863	60	646	4.5	351.3	351.3	352.1	0.8
402	40,248	66	575	5.7	352.2	352.2	352.9	0.7
410	40,989	118	720	5.8	354.3	354.3	355.2	0.8
416	41,569	60	456	6.7	356.3	356.3	357.3	1.0
419	41,870	52	385	7.9	358.2	358.2	358.8	0.6
423	42,268	52	374	8.0	360.8	360.8	361.4	0.6
426	42,614	55	420	7.0	363.1	363.1	363.4	0.3
430	43,000	49	391	7.4	364.9	364.9	365.2	0.2
435	43,517	49	371	8.2	367.7	367.7	367.8	0.2
439	43,879	70	544	6.6	369.2	369.2	369.8	0.6
442	44,218	90	595	5.1	370.1	370.1	371.1	1.0
443	44,296	95	564	6.6	370.9	370.9	371.4	0.5
445	44,471	135	772	6.6	371.8	371.8	372.1	0.3
447	44,708	95	596	3.0	372.5	372.5	372.9	0.3
449	44,949	50	442	3.3	372.7	372.7	373.0	0.4
451	45,132	42	364	3.5	372.8	372.8	373.2	0.4
453	45,278	37	283	4.6	372.9	372.9	373.4	0.4
455	45,529	34	230	5.9	373.6	373.6	374.0	0.4
457	45,681	31	195	6.0	374.1	374.1	374.6	0.5
460	46,046	37	177	6.5	376.8	376.8	377.0	0.2
461	46,138	37	190	6.5	377.6	377.6	377.7	0.1
464	46,378	35	220	7.3	379.0	379.0	379.3	0.4
467	46,665	38	207	6.2	380.4	380.4	381.2	0.9
468	46,841	38	215	5.9	381.8	381.8	382.2	0.4
Fishing Creek Tributary 1								
001	90	41	323	9.0	372.4[1]	371.2	372.1	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
004	362	36	287	9.3	373.3	373.3	374.2	0.9
005	532	29	265	12.4	375.0	375.0	375.3	0.4
007	707	48	429	8.6	377.1	377.1	378.0	1.0
009	927	31	277	11.8	378.3	378.3	379.2	0.9
012	1,151	54	475	8.9	381.0	381.0	382.0	1.0
013	1,316	85	747	6.4	382.3	382.3	383.3	1.0
014	1,430	147	1,172	3.8	382.8	382.8	383.8	1.0
015	1,475	147	790	4.4	383.9	383.9	384.2	0.2
017	1,676	112	499	7.4	384.5	384.5	384.9	0.4
019	1,891	63	393	7.8	385.5	385.5	386.2	0.7
021	2,118	75	428	8.3	386.9	386.9	387.7	0.8
023	2,304	100	805	5.4	388.4	388.4	389.0	0.6
025	2,457	114	882	5.0	388.6	388.6	389.3	0.7
027	2,696	130	974	4.1	388.9	388.9	389.8	0.9
030	2,958	73	481	7.2	389.3	389.3	390.2	0.9
032	3,180	103	826	5.2	390.3	390.3	391.2	1.0
033	3,327	153	1,182	4.0	390.6	390.6	391.6	1.0
035	3,526	129	1,035	4.0	390.9	390.9	391.9	1.0
038	3,803	103	800	5.4	391.3	391.3	392.2	1.0
040	4,025	95	692	6.0	391.8	391.8	392.7	1.0
042	4,218	63	567	6.7	392.3	392.3	393.2	1.0
043	4,331	80	579	6.2	392.7	392.7	393.7	1.0
046	4,564	82	584	6.1	393.5	393.5	394.5	1.0
048	4,754	98	716	5.5	394.2	394.2	395.2	1.0
050	5,009	79	642	5.9	394.9	394.9	395.8	1.0
052	5,243	59	692	4.2	395.4	395.4	396.4	1.0
055	5,504	52	470	6.7	395.7	395.7	396.7	1.0
058	5,778	65	560	5.8	396.7	396.7	397.6	1.0
060	5,979	101	684	6.3	397.5	397.5	398.4	0.9
061	6,109	72	867	4.1	397.8	397.8	398.8	1.0
063	6,329	109	778	4.8	398.0	398.0	399.0	1.0
065	6,488	110	880	4.4	398.3	398.3	399.3	1.0
067	6,743	141	821	4.9	398.6	398.6	399.6	1.0
070	7,005	166	1,175	3.8	399.2	399.2	400.2	1.0
072	7,213	126	824	4.9	399.4	399.4	400.4	1.0
075	7,512	69	511	6.6	400.0	400.0	401.0	1.0
076	7,635	36	316	7.6	400.5	400.5	401.4	0.9
077	7,717	46	456	6.2	402.2	402.2	403.2	1.0
078	7,809	95	729	4.9	402.8	402.8	403.7	0.9
078	7,825	*	*	*	403.0	403.0	*	*
078	7,841	95	732	4.9	403.0	403.0	403.8	0.8
080	7,988	83	871	3.5	403.1	403.1	404.0	1.0
084	8,379	84	863	3.4	405.7	405.7	406.7	1.0
086	8,572	78	899	3.4	406.0	406.0	406.8	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
087	8,731	77	838	3.4	406.0	406.0	407.0	0.9
090	9,009	74	799	3.5	406.2	406.2	407.1	1.0
095	9,456	58	535	6.3	406.7	406.7	407.7	1.0
096	9,607	49	412	7.3	407.1	407.1	408.0	0.9
097	9,722	86	667	5.8	407.8	407.8	408.7	0.9
099	9,947	79	607	6.2	408.5	408.5	409.3	0.8
101	10,070	40	354	9.4	408.8	408.8	409.8	0.9
103	10,255	80	562	7.0	410.1	410.1	411.1	1.0
106	10,586	198	1,601	2.9	411.0	411.0	412.0	1.0
109	10,895	157	1,065	4.3	411.2	411.2	412.2	1.0
112	11,195	170	1,135	4.1	411.6	411.6	412.6	1.0
115	11,506	90	618	4.5	412.0	412.0	413.0	1.0
117	11,651	45	318	6.5	412.2	412.2	413.1	0.8
118	11,794	41	297	7.7	413.1	413.1	413.7	0.6
121	12,065	48	282	7.3	414.8	414.8	415.6	0.8
124	12,370	72	435	6.0	416.6	416.6	417.6	1.0
127	12,741	38	281	5.5	417.9	417.9	418.8	1.0
129	12,880	35	256	5.9	418.5	418.5	419.3	0.8
130	13,048	38	244	6.3	419.5	419.5	420.0	0.5
132	13,162	38	240	6.5	420.3	420.3	420.6	0.4
134	13,422	38	260	6.2	421.1	421.1	422.0	0.9
137	13,670	40	277	6.1	422.3	422.3	423.2	0.9
138	13,834	38	249	6.3	423.0	423.0	423.9	0.9
142	14,207	40	236	7.6	425.6	425.6	426.2	0.6
144	14,432	63	309	6.8	427.3	427.3	427.8	0.6
146	14,616	50	310	5.1	427.8	427.8	428.8	1.0
147	14,728	35	191	7.6	428.3	428.3	429.1	0.8
150	15,043	34	208	6.8	430.7	430.7	431.4	0.7
152	15,209	43	192	8.2	432.0	432.0	432.6	0.6
153	15,325	55	321	5.3	434.0	434.0	434.7	0.7
155	15,540	65	292	7.1	434.5	434.5	435.2	0.7
158	15,774	55	333	4.5	435.3	435.3	436.3	1.0
159	15,941	39	213	5.6	436.1	436.1	436.9	0.8
160	16,027	43	323	3.8	440.5	440.5	440.6	0.0
161	16,083	42	195	7.8	440.5	440.5	440.6	0.0
162	16,173	90	504	3.5	441.6	441.6	441.7	0.0
163	16,252	122	858	2.0	441.9	441.9	441.9	0.0
165	16,477	80	348	4.6	442.0	442.0	442.1	0.1
166	16,610	60	358	4.7	442.2	442.2	442.5	0.2
167	16,689	110	556	3.3	442.4	442.4	442.8	0.3
168	16,751	125	504	4.1	442.5	442.5	442.8	0.3
169	16,918	100	626	2.8	442.5	442.5	443.0	0.5
171	17,089	100	466	3.8	442.6	442.6	443.1	0.6
173	17,304	100	456	3.4	442.6	442.6	443.4	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
174	17,407	95	395	4.2	442.7	442.7	443.6	1.0
175	17,520	60	279	4.3	442.8	442.8	443.8	1.0
177	17,685	58	220	6.5	443.4	443.4	444.3	0.9
178	17,767	65	344	3.8	445.6	445.6	446.4	0.8
179	17,921	70	340	3.7	445.8	445.8	446.7	0.9
180	18,044	55	268	6.2	446.1	446.1	447.0	0.8
182	18,199	42	169	6.7	447.1	447.1	447.8	0.7
184	18,383	50	127	9.0	449.6	449.6	449.6	0.0
185	18,476	43	157	6.7	451.0	451.0	451.2	0.2
186	18,558	67	291	4.2	454.3	454.3	454.3	0.0
187	18,691	70	349	3.6	454.7	454.7	454.7	0.0
188	18,840	78	345	3.5	454.8	454.8	455.0	0.2
189	18,941	51	201	5.9	454.8	454.8	455.2	0.3
190	18,972	51	182	5.5	454.8	454.8	455.2	0.4
191	19,108	51	225	5.7	455.4	455.4	456.2	0.8
193	19,287	78	309	4.0	456.2	456.2	457.2	0.9
195	19,452	52	252	5.0	456.8	456.8	457.7	1.0
196	19,646	48	206	5.5	457.6	457.6	458.6	1.0
198	19,842	61	214	5.7	458.6	458.6	459.5	1.0
199	19,947	50	240	4.8	459.1	459.1	460.1	1.0
200	20,024	50	379	3.1	464.0	464.0	464.8	0.8
201	20,143	80	516	2.5	464.0	464.0	464.9	0.9
203	20,323	58	382	2.2	464.1	464.1	465.0	0.9
205	20,538	61	311	3.8	464.2	464.2	465.2	0.9
208	20,788	58	275	4.4	464.7	464.7	465.7	1.0
209	20,919	45	179	4.5	465.0	465.0	466.0	1.0
211	21,070	35	127	6.6	465.8	465.8	466.7	1.0
212	21,242	40	123	8.2	467.5	467.5	468.5	1.0
213	21,314	35	100	7.5	468.9	468.9	469.8	0.9
214	21,399	40	276	2.7	473.7	473.7	474.6	0.9
215	21,529	72	471	2.5	473.8	473.8	474.8	1.0
Fishing Creek Tributary 1A								
001	94	58	263	6.7	411.7[4]	408.6	409.6	1.0
004	439	65	251	8.6	411.8[2]	410.5	411.4	0.9
007	671	63	282	7.6	412.3	412.3	413.0	0.7
010	996	72	283	7.7	413.7	413.7	414.6	0.9
012	1,209	37	202	8.6	414.6	414.6	415.6	1.0
014	1,449	39	219	8.2	416.6	416.6	417.2	0.7
016	1,622	70	239	9.1	417.4	417.4	418.3	0.9
018	1,803	59	148	6.6	419.2	419.2	420.0	0.8
021	2,064	27	118	7.4	420.6	420.6	421.6	1.0
022	2,193	27	113	7.6	421.6	421.6	422.5	0.9
023	2,347	46	163	6.8	423.0	423.0	424.0	0.9
025	2,484	63	195	6.5	424.1	424.1	425.0	0.9
026	2,642	32	123	8.1	425.2	425.2	426.0	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
028	2,814	47	187	6.6	426.9	426.9	427.8	0.9
029	2,902	20	95	8.9	427.3	427.3	428.1	0.8
030	2,958	37	152	6.7	428.4	428.4	429.1	0.8
030	3,039	30	145	6.0	428.6	428.6	429.6	0.9
031	3,111	27	125	6.6	429.0	429.0	429.8	0.8
031	3,132	46	164	5.7	430.2	430.2	430.3	0.0
032	3,176	27	132	7.2	430.3	430.3	430.3	0.0
032	3,242	20	95	8.2	430.6	430.6	430.6	0.0
034	3,361	33	158	6.6	431.8	431.8	431.8	0.0
035	3,452	29	162	4.9	432.4	432.4	432.4	0.0
038	3,826	45	256	2.7	439.1	439.1	439.7	0.6
040	3,990	45	302	2.6	439.3	439.3	439.8	0.6
042	4,171	45	223	4.6	439.3	439.3	439.9	0.6
Founders Branch								
000	8	63	251	3.8	454.7[4]	452.6	453.5	1.0
001	98	75	204	5.7	454.7[2]	452.7	453.7	1.0
003	288	31	126	7.0	454.7[2]	454.6	455.0	0.4
004	441	41	180	5.3	455.6	455.6	456.2	0.7
006	557	41	340	3.0	460.4	460.4	461.1	0.7
007	731	46	291	2.8	460.4	460.4	461.2	0.8
011	1,092	69	215	4.2	460.9	460.9	461.6	0.7
012	1,218	65	180	5.3	461.5	461.5	462.0	0.5
013	1,286	85	249	3.8	461.8	461.8	462.8	1.0
014	1,375	60	138	8.6	462.3	462.3	462.8	0.5
016	1,603	42	73	9.4	465.2	465.2	466.0	0.8
017	1,707	93	243	3.4	466.6	466.6	467.6	1.0
018	1,838	55	456	1.6	473.2	473.2	473.5	0.3
019	1,913	20	160	2.7	473.2	473.2	473.5	0.3
020	1,974	20	157	2.8	473.2	473.2	473.5	0.4
021	2,055	20	152	2.8	473.2	473.2	473.6	0.5
021	2,110	20	150	2.8	473.2	473.2	473.7	0.5
Grassy Creek								
098	9,841	1,005	22,906	0.4	320.1[2]	313.4	314.4	1.0
105	10,535	1,220	20,422	0.5	320.1[2]	313.4	314.4	1.0
110	10,978	1,030	16,459	0.7	320.1[2]	313.4	314.4	1.0
116	11,650	335	6,674	1.5	320.1[2]	313.4	314.4	1.0
124	12,386	285	5,790	1.7	320.1[2]	313.4	314.4	1.0
131	13,071	305	5,629	1.9	320.1[2]	313.4	314.4	1.0
136	13,567	322	5,679	2.2	320.1[2]	313.4	314.4	1.0
141	14,115	430	6,900	1.8	320.1[2]	313.5	314.4	1.0
146	14,574	303	5,167	2.4	320.1[2]	313.5	314.5	1.0
152	15,238	477	7,082	2.2	320.1[2]	313.6	314.5	1.0
158	15,826	355	5,615	2.4	320.1[2]	313.6	314.6	1.0
163	16,339	590	8,075	2.0	320.1[2]	313.7	314.6	1.0
170	17,041	472	6,587	2.4	320.1[2]	313.7	314.7	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
177	17,682	245	4,012	2.9	320.1[2]	313.8	314.8	1.0
182	18,200	290	4,493	3.2	320.1[2]	313.9	314.9	1.0
189	18,931	245	4,202	3.3	320.1[2]	314.1	315.0	1.0
197	19,732	348	5,098	3.1	320.1[2]	314.3	315.2	1.0
208	20,848	286	4,212	3.5	320.1[2]	314.5	315.5	1.0
219	21,856	340	4,574	3.6	320.1[2]	314.9	315.9	1.0
225	22,548	280	4,121	3.5	320.1[2]	315.1	316.1	1.0
230	23,022	210	3,335	3.4	320.1[2]	315.2	316.2	1.0
231	23,133	220	3,763	3.1	320.1[2]	315.5	316.5	1.0
237	23,711	340	5,427	2.8	320.1[2]	315.7	316.7	1.0
244	24,385	510	5,835	3.4	320.1[2]	315.9	316.8	1.0
250	25,022	420	4,710	4.0	320.1[2]	316.0	317.0	1.0
257	25,656	418	4,736	3.7	320.1[2]	316.2	317.2	1.0
263	26,347	370	3,499	5.0	320.1[2]	316.5	317.5	1.0
272	27,155	415	3,438	5.2	320.1[2]	317.3	318.2	0.9
278	27,755	295	2,435	5.4	320.1[2]	317.7	318.7	1.0
280	27,993	215	2,103	6.8	320.1[2]	317.8	318.8	1.0
282	28,197	154	1,760	6.8	320.1[2]	318.2	319.2	0.9
286	28,650	117	1,620	6.4	320.1[2]	319.3	319.9	0.6
292	29,248	95	1,455	8.2	320.1[2]	320.0	320.7	0.6
297	29,740	112	1,581	7.7	320.9	320.9	321.6	0.7
302	30,186	92	1,416	7.7	321.4	321.4	322.1	0.7
307	30,670	104	1,500	7.2	322.0	322.0	322.6	0.7
311	31,050	99	1,417	7.1	322.3	322.3	323.0	0.7
314	31,362	99	1,306	8.2	322.5	322.5	323.2	0.7
319	31,902	104	1,511	6.6	323.4	323.4	324.1	0.7
326	32,577	101	1,373	7.8	323.9	323.9	324.6	0.6
331	33,130	120	1,750	6.0	324.8	324.8	325.4	0.6
338	33,801	130	1,452	8.1	325.2	325.2	325.7	0.5
345	34,460	95	1,257	8.5	325.9	325.9	326.5	0.6
348	34,760	152	1,642	8.1	326.8	326.8	327.2	0.4
349	34,887	163	1,824	7.5	327.5	327.5	327.7	0.2
351	35,113	91	1,252	8.3	327.5	327.5	327.8	0.3
355	35,500	117	1,397	8.3	328.3	328.3	328.3	0.0
359	35,898	119	1,514	7.2	328.6	328.6	329.0	0.4
362	36,164	133	1,693	6.6	329.1	329.1	329.5	0.4
363	36,350	165	2,156	5.9	329.4	329.4	329.9	0.4
364	36,444	170	2,029	9.0	329.5	329.5	329.9	0.4
367	36,707	155	1,971	5.5	333.4	333.4	333.5	0.1
368	36,787	140	2,247	4.4	333.7	333.7	333.8	0.1
372	37,242	93	1,544	6.4	333.8	333.8	333.9	0.0
380	38,006	187	2,212	6.2	334.7	334.7	334.8	0.1
387	38,703	305	2,788	6.6	335.4	335.4	335.7	0.3
395	39,484	570	4,645	3.7	336.2	336.2	336.8	0.6

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
401	40,068	400	3,207	4.8	336.4	336.4	337.1	0.6
406	40,562	137	1,397	7.0	336.7	336.7	337.4	0.7
415	41,477	104	1,314	6.5	338.1	338.1	339.0	0.8
421	42,086	83	1,131	7.0	338.9	338.9	339.8	0.9
424	42,409	114	1,396	6.5	339.5	339.5	340.4	0.9
429	42,903	88	1,109	7.2	340.1	340.1	341.0	0.9
434	43,362	75	1,001	7.8	340.8	340.8	341.8	1.0
439	43,860	115	1,682	6.0	342.1	342.1	343.1	1.0
443	44,312	89	1,251	6.6	342.5	342.5	343.5	1.0
449	44,857	111	1,337	7.0	343.3	343.3	344.2	0.9
454	45,427	111	1,389	6.6	344.1	344.1	345.1	1.0
458	45,824	211	2,387	5.2	344.9	344.9	345.8	1.0
466	46,571	125	1,476	6.4	345.5	345.5	346.4	0.9
472	47,228	110	1,479	6.3	346.3	346.3	347.3	0.9
476	47,635	135	1,551	6.5	346.9	346.9	347.8	0.9
481	48,131	288	2,706	5.1	347.6	347.6	348.6	0.9
492	49,177	399	3,165	4.1	348.4	348.4	349.3	1.0
499	49,917	273	2,358	5.5	348.7	348.7	349.7	1.0
506	50,584	184	1,515	6.5	349.1	349.1	350.1	1.0
511	51,088	130	1,464	6.3	349.6	349.6	350.6	1.0
516	51,603	121	1,459	6.3	350.1	350.1	351.1	1.0
519	51,853	85	1,134	6.8	350.3	350.3	351.3	1.0
525	52,454	86	1,118	7.0	351.0	351.0	351.9	1.0
530	53,032	135	1,404	6.7	351.9	351.9	352.8	0.9
539	53,872	160	1,505	6.8	353.0	353.0	353.9	0.8
543	54,317	154	1,310	8.1	353.6	353.6	354.5	0.8
547	54,685	220	1,649	7.4	354.6	354.6	355.5	0.9
553	55,343	360	2,851	4.2	356.0	356.0	356.8	0.8
558	55,836	140	1,064	7.4	356.1	356.1	357.0	0.9
565	56,509	76	615	9.1	358.6	358.6	358.9	0.3
570	57,048	81	647	9.4	360.8	360.8	361.0	0.2
576	57,564	76	657	9.1	362.8	362.8	362.9	0.2
581	58,067	97	924	6.8	364.2	364.2	364.7	0.5
585	58,492	140	1,188	6.0	365.0	365.0	365.5	0.6
591	59,078	195	1,332	6.1	365.8	365.8	366.4	0.7
595	59,461	145	950	7.2	366.2	366.2	367.0	0.7
599	59,908	94	751	7.8	367.1	367.1	368.0	0.9
603	60,341	95	781	7.7	368.5	368.5	369.2	0.6
609	60,920	90	735	8.6	370.4	370.4	370.7	0.4
614	61,446	67	569	12.5	372.1	372.1	372.4	0.3
621	62,107	62	625	10.8	375.9	375.9	376.5	0.6
624	62,402	111	996	7.5	377.9	377.9	378.6	0.7
625	62,519	127	1,066	7.2	379.2	379.2	379.4	0.2
628	62,816	150	1,519	6.5	379.5	379.5	380.0	0.5

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
633	63,250	132	1,356	5.9	379.9	379.9	380.4	0.5
636	63,611	135	1,220	6.0	380.3	380.3	380.9	0.6
637	63,704	135	1,498	5.0	381.8	381.8	382.5	0.7
640	63,990	148	1,639	5.8	382.0	382.0	382.7	0.7
644	64,395	192	1,967	4.2	382.4	382.4	383.2	0.8
651	65,101	296	3,261	3.8	382.6	382.6	383.5	0.8
658	65,844	177	1,657	5.5	382.8	382.8	383.6	0.8
665	66,535	150	1,481	5.9	383.4	383.4	384.2	0.8
670	67,031	188	1,595	6.2	383.9	383.9	384.7	0.8
674	67,367	100	1,042	7.3	384.2	384.2	385.0	0.8
680	67,996	225	2,020	4.9	385.2	385.2	386.2	1.0
687	68,699	152	1,392	6.4	385.7	385.7	386.7	1.0
692	69,195	154	1,410	5.9	386.4	386.4	387.3	0.9
698	69,804	151	1,373	6.0	387.1	387.1	388.0	0.9
703	70,299	126	1,178	5.7	387.8	387.8	388.7	0.9
707	70,750	152	1,385	5.6	388.5	388.5	389.4	0.9
712	71,156	165	1,423	5.9	389.1	389.1	390.1	0.9
715	71,547	236	2,018	4.8	389.8	389.8	390.7	1.0
722	72,161	318	2,607	3.6	390.2	390.2	391.2	1.0
726	72,587	281	2,342	3.6	390.5	390.5	391.5	1.0
732	73,211	446	3,694	2.4	390.8	390.8	391.8	1.0
737	73,654	427	3,415	2.7	390.9	390.9	391.9	1.0
741	74,098	353	2,632	3.4	391.0	391.0	392.0	1.0
748	74,815	440	2,588	3.5	391.5	391.5	392.5	1.0
756	75,572	422	2,792	3.2	391.8	391.8	392.8	1.0
761	76,125	140	1,098	5.9	392.2	392.2	393.2	1.0
767	76,673	117	997	6.6	393.3	393.3	394.2	0.9
772	77,166	110	1,093	6.0	394.5	394.5	395.4	0.9
777	77,706	120	1,163	6.2	395.6	395.6	396.4	0.8
783	78,316	212	1,717	5.1	397.0	397.0	397.7	0.7
788	78,788	300	2,320	3.3	397.5	397.5	398.3	0.8
789	78,942	350	2,732	2.9	397.9	397.9	398.4	0.5
795	79,476	366	2,636	4.0	398.0	398.0	398.7	0.7
801	80,111	240	1,817	4.1	398.3	398.3	399.1	0.8
807	80,716	145	1,231	5.9	398.9	398.9	399.6	0.8
812	81,187	155	1,364	5.4	399.6	399.6	400.5	0.8
817	81,690	183	1,575	4.9	400.4	400.4	401.3	0.9
821	82,105	237	1,994	4.4	400.9	400.9	401.8	0.9
827	82,726	370	2,665	3.7	401.6	401.6	402.5	0.9
833	83,302	530	3,375	3.3	402.1	402.1	403.0	0.9
839	83,946	532	3,206	3.7	402.5	402.5	403.4	0.9
846	84,631	380	2,156	4.3	403.1	403.1	404.0	0.9
847	84,732	378	2,616	3.5	404.5	404.5	404.6	0.1
852	85,214	198	1,583	6.0	404.7	404.7	404.8	0.1
Hatchers Run								

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
006	577	25	219	9.6	351.0[2]	347.0	347.3	0.3
009	923	25	214	9.7	351.0[2]	348.7	349.1	0.3
012	1,245	25	148	14.2	351.0[2]	350.7	351.0	0.2
015	1,502	25	180	11.5	354.8	354.8	355.4	0.6
018	1,821	30	162	14.1	359.0	359.0	359.2	0.2
019	1,920	25	183	11.5	360.5	360.5	361.4	0.9
020	2,025	46	269	10.6	362.1	362.1	362.9	0.8
024	2,353	47	269	9.0	365.0	365.0	365.6	0.6
027	2,699	97	571	6.8	366.8	366.8	367.6	0.9
031	3,095	65	409	8.0	367.6	367.6	368.6	1.0
035	3,480	40	243	11.3	369.3	369.3	370.1	0.9
037	3,731	42	264	9.0	372.5	372.5	372.7	0.2
040	3,980	43	215	10.3	374.2	374.2	374.4	0.2
045	4,480	56	237	10.1	379.5	379.5	379.5	0.0
048	4,768	53	279	7.7	382.2	382.2	382.2	0.0
050	4,995	55	306	7.6	383.3	383.3	383.4	0.1
053	5,303	35	169	11.5	384.9	384.9	385.0	0.1
057	5,681	35	211	8.3	389.8	389.8	390.0	0.2
059	5,923	35	180	9.9	391.5	391.5	391.8	0.3
064	6,436	33	217	9.4	396.0	396.0	396.6	0.6
070	7,029	45	252	8.4	399.3	399.3	400.1	0.8
074	7,446	45	302	7.4	400.9	400.9	401.9	1.0
079	7,888	40	217	9.6	402.9	402.9	403.7	0.7
083	8,335	40	343	6.3	405.6	405.6	406.3	0.6
090	9,042	117	756	4.2	406.7	406.7	407.6	0.9
093	9,268	90	468	5.0	406.8	406.8	407.8	1.0
095	9,479	80	647	3.6	409.3	409.3	410.3	1.0
100	10,029	150	1,007	3.6	409.7	409.7	410.6	0.9
106	10,631	70	515	4.7	409.9	409.9	410.9	1.0
111	11,114	50	389	5.4	410.5	410.5	411.5	1.0
117	11,701	50	315	6.9	411.9	411.9	412.6	0.7
123	12,303	55	379	3.3	413.3	413.3	414.3	1.0
129	12,929	40	204	4.8	413.9	413.9	414.9	0.9
135	13,540	40	151	8.1	416.6	416.6	416.9	0.3
142	14,160	70	346	4.4	419.0	419.0	420.0	1.0
146	14,591	55	254	5.4	420.1	420.1	421.1	1.0
151	15,086	70	293	5.2	421.9	421.9	422.9	1.0
156	15,586	90	353	4.7	423.5	423.5	424.5	1.0
161	16,082	85	326	4.8	424.8	424.8	425.7	0.9
166	16,562	119	325	4.6	426.5	426.5	427.2	0.7
166	16,637	119	353	4.2	426.6	426.6	427.4	0.8
171	17,070	100	372	4.9	427.7	427.7	428.7	1.0
177	17,714	75	288	3.2	429.6	429.6	430.2	0.7
181	18,097	75	243	4.9	430.2	430.2	431.0	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
184	18,357	30	136	4.8	431.2	431.2	432.0	0.8
185	18,509	30	128	5.0	431.6	431.6	432.2	0.7
187	18,748	55	178	4.8	433.0	433.0	433.5	0.5
191	19,136	80	248	3.8	434.4	434.4	435.0	0.7
192	19,200	56	195	4.5	435.0	435.0	435.4	0.4
192	19,215	59	219	3.7	435.2	435.2	435.5	0.3
193	19,295	75	322	2.6	436.1	436.1	436.1	0.0
196	19,641	85	248	3.8	436.3	436.3	436.6	0.3
199	19,890	80	233	4.0	436.6	436.6	437.3	0.7
199	19,920	80	245	3.8	436.6	436.6	437.4	0.8
202	20,230	55	191	4.7	437.3	437.3	438.3	1.0
204	20,448	30	123	7.7	438.8	438.8	439.3	0.5
206	20,582	25	104	7.8	439.9	439.9	440.6	0.7
208	20,835	20	128	6.3	441.7	441.7	442.6	0.9
211	21,100	25	118	7.6	443.5	443.5	444.0	0.6
212	21,214	50	100	9.6	446.6	446.6	446.6	0.0
214	21,368	12	26	4.4	450.1	450.1	450.2	0.1
215	21,539	13	16	6.9	453.4	453.4	453.4	0.0
217	21,668	15	28	3.9	456.3	456.3	456.3	0.0
220	21,967	21	19	6.4	463.7	463.7	463.7	0.0
221	22,097	11	17	6.4	468.4	468.4	468.4	0.0
222	22,199	11	17	6.9	472.0	472.0	472.0	0.0
223	22,268	12	19	5.8	474.5	474.5	474.5	0.0
224	22,414	11	16	6.9	481.7	481.7	481.7	0.0
225	22,477	17	27	4.2	483.7	483.7	483.7	0.0
226	22,554	22	24	4.7	485.2	485.2	485.2	0.0
226	22,607	23	31	3.6	485.9	485.9	485.9	0.0
227	22,657	35	100	9.6	487.5	487.5	487.5	0.0
227	22,673	41	149	6.4	488.8	488.8	488.8	0.0
227	22,694	40	129	7.7	488.9	488.9	488.9	0.0
Holman Creek								
246	24,596	232	800	1.7	314.3	314.3	315.2	0.9
251	25,098	55	272	5.0	316.0	316.0	316.8	0.8
257	25,659	67	353	3.9	318.9	318.9	319.7	0.8
261	26,120	60	256	5.4	321.4	321.4	322.1	0.7
263	26,324	165	670	2.0	322.8	322.8	323.6	0.8
266	26,628	195	616	3.6	323.6	323.6	324.5	0.9
269	26,913	122	493	3.7	324.1	324.1	324.9	0.8
272	27,172	122	321	5.5	325.2	325.2	325.8	0.6
274	27,350	175	1,492	1.5	332.0	332.0	332.0	0.0
275	27,546	270	1,892	1.6	332.0	332.0	332.0	0.0
280	27,951	212	1,376	2.3	332.0	332.0	332.1	0.0
281	28,138	173	875	3.3	332.1	332.1	332.1	0.0
283	28,335	106	447	5.1	332.2	332.2	332.3	0.1
285	28,455	67	259	6.0	332.3	332.3	332.5	0.2

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
287	28,736	41	187	7.0	333.6	333.6	333.9	0.3
290	28,974	25	136	9.8	335.4	335.4	335.7	0.4
292	29,188	30	195	6.9	337.3	337.3	337.9	0.6
294	29,437	33	206	6.4	338.6	338.6	339.0	0.4
296	29,557	41	228	5.7	339.4	339.4	339.6	0.3
297	29,713	41	163	8.0	340.4	340.4	340.5	0.1
299	29,891	33	119	10.9	343.2	343.2	343.2	0.0
302	30,235	41	181	7.2	348.6	348.6	348.6	0.0
304	30,440	28	119	10.8	350.9	350.9	351.0	0.0
306	30,638	32	189	6.9	353.9	353.9	353.9	0.0
309	30,856	33	207	6.4	355.0	355.0	355.1	0.0
310	31,036	30	184	7.2	355.7	355.7	355.8	0.1
313	31,289	26	154	7.8	357.2	357.2	357.4	0.2
315	31,476	24	143	8.5	358.7	358.7	358.7	0.0
317	31,667	36	218	5.6	360.3	360.3	360.4	0.1
318	31,848	33	144	8.3	361.3	361.3	361.4	0.1
321	32,092	36	162	7.4	364.1	364.1	364.1	0.0
323	32,296	27	142	8.6	365.7	365.7	365.8	0.0
326	32,580	33	190	6.4	368.0	368.0	368.1	0.2
329	32,868	33	191	6.0	369.2	369.2	369.5	0.3
330	32,984	33	190	6.0	369.8	369.8	370.0	0.2
332	33,196	27	147	7.9	370.9	370.9	371.0	0.1
335	33,479	30	167	6.9	373.1	373.1	373.2	0.0
336	33,599	27	144	8.0	373.8	373.8	373.8	0.1
338	33,848	30	170	6.8	375.8	375.8	375.8	0.0
340	34,010	36	204	4.1	376.6	376.6	376.8	0.2
341	34,120	30	139	5.9	376.8	376.8	377.0	0.2
343	34,320	27	112	7.4	378.2	378.2	378.3	0.1
349	34,868	60	134	7.7	384.2	384.2	384.5	0.4
351	35,079	60	211	6.0	386.0	386.0	386.7	0.8
356	35,645	29	129	6.0	389.1	389.1	389.7	0.6
362	36,154	27	120	6.5	394.5	394.5	395.1	0.6
366	36,602	25	107	4.4	398.9	398.9	399.6	0.7
370	36,972	18	74	6.4	402.8	402.8	403.0	0.2
376	37,620	24	86	5.5	411.1	411.1	411.4	0.3
383	38,291	18	58	8.2	421.7	421.7	421.7	0.0
389	38,930	68	402	1.0	436.2	436.2	437.2	1.0
395	39,512	14	58	6.6	436.5	436.5	437.5	1.0
400	40,012	14	64	4.3	441.0	441.0	441.2	0.2
403	40,328	9	31	8.8	443.3	443.3	443.5	0.2
409	40,896	14	53	5.2	454.9	454.9	455.6	0.7
412	41,247	29	74	3.7	460.2	460.2	460.9	0.7
417	41,696	18	50	5.4	468.6	468.6	469.3	0.6
Holman Creek Tributary 1								
001	62	22	104	5.8	376.2	376.2	378.4	2.2

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
006	589	22	89	6.8	383.8	383.8	384.0	0.2
011	1,102	22	86	7.0	391.5	391.5	391.6	0.2
017	1,733	22	101	5.5	398.8	398.8	399.0	0.2
021	2,099	22	80	7.0	402.7	402.7	402.9	0.3
029	2,935	22	95	5.9	413.5	413.5	413.5	0.0
035	3,500	22	97	5.8	418.6	418.6	418.8	0.2
042	4,220	59	340	1.4	428.0	428.0	428.4	0.4
045	4,529	30	143	3.3	428.1	428.1	428.6	0.5
050	5,023	30	115	4.1	430.0	430.0	430.5	0.5
056	5,562	30	101	3.8	433.2	433.2	433.4	0.2
060	6,000	30	102	3.7	435.5	435.5	435.7	0.2
Holman Creek Tributary 2								
005	465	20	75	6.5	402.6	402.6	402.9	0.3
009	918	20	75	6.5	410.5	410.5	410.7	0.2
013	1,250	25	101	4.8	416.1	416.1	416.5	0.4
016	1,609	23	106	4.6	422.0	422.0	422.3	0.3
021	2,116	26	124	3.9	428.4	428.4	429.3	1.0
Jackson Creek								
006	610	183	989	5.6	360.4[3]	358.8	359.8	1.0
013	1,278	153	792	6.6	360.6	360.6	361.6	1.0
018	1,822	80	469	8.4	362.8	362.8	363.7	0.9
023	2,296	50	213	13.6	367.0	367.0	367.0	0.0
028	2,754	48	280	10.5	373.7	373.7	373.7	0.0
035	3,469	75	414	9.4	379.8	379.8	379.9	0.2
037	3,693	113	587	7.4	381.8	381.8	382.0	0.2
038	3,811	117	806	5.8	383.0	383.0	383.1	0.1
040	4,036	75	442	8.6	383.5	383.5	383.6	0.1
045	4,466	100	594	7.4	385.5	385.5	385.6	0.1
050	4,996	107	671	6.8	386.7	386.7	387.3	0.6
055	5,497	140	768	6.2	387.8	387.8	388.6	0.8
061	6,089	121	698	6.4	389.1	389.1	390.0	0.9
067	6,686	106	653	5.3	390.3	390.3	391.3	1.0
071	7,087	76	363	8.2	391.0	391.0	391.9	0.9
074	7,360	50	288	8.8	392.5	392.5	393.5	1.0
078	7,763	48	282	8.8	396.2	396.2	396.2	0.0
081	8,063	46	271	8.9	397.8	397.8	398.2	0.4
084	8,387	50	287	8.7	400.3	400.3	400.4	0.1
087	8,732	67	393	6.8	402.3	402.3	402.6	0.3
092	9,196	57	299	8.1	404.0	404.0	404.7	0.7
097	9,679	57	370	6.7	406.5	406.5	407.3	0.8
100	10,031	62	400	6.4	408.1	408.1	408.6	0.5
106	10,569	79	416	6.4	409.6	409.6	410.3	0.8
111	11,057	43	300	7.6	411.0	411.0	411.8	0.8
115	11,503	60	407	6.8	413.1	413.1	413.7	0.7
119	11,902	114	635	5.7	414.4	414.4	415.0	0.6

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
126	12,609	183	798	5.5	415.9	415.9	416.7	0.8
132	13,192	166	731	5.8	417.2	417.2	418.0	0.9
133	13,318	204	1,037	3.6	417.6	417.6	418.6	1.0
134	13,379	222	1,047	3.6	417.6	417.6	418.6	1.0
135	13,500	145	554	6.8	417.6	417.6	418.6	1.0
138	13,808	190	671	6.9	419.0	419.0	419.8	0.8
142	14,186	300	1,332	4.4	420.0	420.0	420.8	0.8
148	14,756	90	462	7.2	421.1	421.1	421.7	0.6
149	14,888	110	744	5.1	422.8	422.8	423.4	0.5
154	15,359	155	1,019	4.6	423.5	423.5	424.1	0.6
160	15,957	164	972	5.1	424.3	424.3	425.1	0.8
166	16,551	90	616	7.2	425.9	425.9	426.8	0.8
170	17,015	140	976	5.1	427.7	427.7	428.7	0.9
174	17,431	125	901	5.5	428.8	428.8	429.8	1.0
178	17,832	246	1,705	3.0	429.4	429.4	430.4	1.0
182	18,171	376	2,564	2.2	429.6	429.6	430.6	1.0
Johnson Creek (into Tar River)								
064	6,379	326	1,275	2.1	312.4[2]	305.8	306.8	1.0
070	7,000	323	1,557	1.7	312.4[2]	307.0	308.0	1.0
075	7,500	265	1,056	2.6	312.4[2]	307.9	308.8	1.0
080	8,000	256	1,242	2.2	312.4[2]	309.1	310.0	0.9
090	9,000	174	999	2.7	312.4[2]	310.8	311.6	0.8
095	9,500	276	2,050	1.3	312.4[2]	311.0	311.9	1.0
100	10,000	276	1,530	1.8	312.4[2]	311.0	312.0	1.0
105	10,500	176	892	2.0	312.4[2]	311.3	312.2	0.9
109	10,914	167	555	3.2	312.4[2]	311.6	312.4	0.8
115	11,500	123	281	6.2	314.1	314.1	314.1	0.0
120	12,005	135	557	3.1	316.6	316.6	317.5	1.0
123	12,308	136	608	2.9	318.1	318.1	318.5	0.4
125	12,500	160	639	2.7	318.6	318.6	319.1	0.5
130	13,000	160	642	2.7	319.4	319.4	320.2	0.8
136	13,626	135	617	2.8	320.4	320.4	321.3	0.9
141	14,091	110	688	2.4	323.4	323.4	323.6	0.2
145	14,500	140	728	2.2	323.5	323.5	323.9	0.4
150	15,000	180	871	1.9	323.6	323.6	324.3	0.7
155	15,500	220	716	2.3	323.8	323.8	324.8	1.0
160	16,000	200	770	2.1	325.1	325.1	325.6	0.6
165	16,505	190	640	2.2	326.4	326.4	327.0	0.7
170	17,000	191	700	2.0	327.6	327.6	328.4	0.9
175	17,504	160	503	2.8	328.7	328.7	329.7	1.0
182	18,177	124	589	2.4	330.8	330.8	331.7	0.8
185	18,500	102	440	3.2	331.4	331.4	332.2	0.8
190	19,000	102	217	5.7	333.7	333.7	333.7	0.0
195	19,500	102	406	3.0	336.6	336.6	337.0	0.3
201	20,074	101	307	4.0	338.8	338.8	339.0	0.2

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
205	20,500	101	373	3.3	340.6	340.6	341.5	0.8
210	21,000	60	225	5.5	343.1	343.1	343.6	0.5
215	21,500	60	148	8.4	349.1	349.1	349.1	0.0
220	22,000	38	184	6.8	354.6	354.6	354.8	0.2
225	22,500	38	192	6.5	357.7	357.7	358.4	0.7
230	22,985	27	118	10.5	362.5	362.5	362.6	0.1
Jordan Creek								
004	379	252	1,278	4.8	379.4[2]	377.7	378.7	0.9
009	899	335	1,589	4.1	379.4[2]	378.6	379.5	1.0
017	1,731	168	822	6.0	379.9	379.9	380.9	1.0
021	2,149	124	665	6.4	381.2	381.2	382.2	1.0
026	2,592	69	477	7.2	382.8	382.8	383.7	0.9
030	3,002	69	536	6.5	384.8	384.8	385.3	0.5
034	3,443	69	544	6.3	386.0	386.0	386.6	0.6
038	3,772	87	652	5.9	386.8	386.8	387.5	0.7
042	4,190	126	815	5.5	387.6	387.6	388.4	0.8
049	4,910	164	889	5.6	388.9	388.9	389.7	0.8
054	5,417	139	1,081	5.0	389.8	389.8	390.8	1.0
059	5,869	64	492	7.1	390.5	390.5	391.5	1.0
060	5,965	75	630	6.0	392.0	392.0	392.7	0.7
061	6,136	140	1,025	4.7	392.7	392.7	393.3	0.6
066	6,562	103	752	5.4	393.2	393.2	393.8	0.6
070	7,015	165	1,192	4.7	394.3	394.3	394.7	0.4
074	7,381	230	1,437	4.5	394.9	394.9	395.3	0.4
079	7,890	200	1,112	5.6	395.5	395.5	395.9	0.4
080	7,971	198	1,488	4.2	396.2	396.2	396.5	0.4
084	8,381	230	1,644	4.0	396.5	396.5	396.9	0.4
088	8,833	255	1,550	3.0	396.7	396.7	397.1	0.5
089	8,889	255	1,677	3.9	396.8	396.8	397.4	0.7
092	9,230	350	2,305	3.0	397.0	397.0	397.8	0.7
099	9,881	216	1,076	5.2	397.5	397.5	398.3	0.8
104	10,436	116	645	6.5	398.8	398.8	399.6	0.8
109	10,922	62	423	7.5	400.4	400.4	401.2	0.8
115	11,511	60	458	7.0	402.8	402.8	403.6	0.9
119	11,887	60	307	10.2	404.5	404.5	405.4	0.9
122	12,240	60	350	9.0	409.0	409.0	409.2	0.2
126	12,565	60	319	9.5	411.3	411.3	411.9	0.6
130	13,048	66	369	10.4	417.0	417.0	417.0	0.0
134	13,406	52	295	10.0	419.9	419.9	420.9	1.0
137	13,729	60	398	8.1	423.2	423.2	423.8	0.6
139	13,946	92	585	6.8	424.4	424.4	425.3	0.9
140	14,033	92	699	5.8	425.5	425.5	425.9	0.4
141	14,134	90	608	6.5	425.7	425.7	426.1	0.5
143	14,307	80	501	5.8	426.0	426.0	426.6	0.7
145	14,468	116	927	3.8	427.6	427.6	428.4	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
147	14,708	141	850	3.9	428.0	428.0	428.6	0.6
152	15,162	107	607	4.5	428.5	428.5	429.2	0.7
157	15,735	150	667	5.1	429.7	429.7	430.6	1.0
161	16,055	89	398	7.5	431.1	431.1	432.1	1.0
163	16,279	32	223	8.0	433.1	433.1	433.9	0.8
165	16,491	101	530	5.4	437.1	437.1	437.1	0.0
166	16,606	100	417	9.1	437.6	437.6	437.6	0.0
168	16,754	54	285	11.4	439.2	439.2	439.2	0.0
169	16,928	89	614	6.3	442.4	442.4	442.4	0.0
171	17,099	88	588	7.0	443.0	443.0	443.0	0.0
175	17,534	140	907	5.0	443.8	443.8	444.5	0.8
Ledge Creek								
227	22,666	461	3,365	4.0	270.4	270.4	271.0	0.6
232	23,155	240	1,727	6.7	271.0	271.0	271.6	0.6
237	23,659	128	1,100	7.1	272.0	272.0	272.6	0.5
242	24,163	127	1,192	8.0	273.3	273.3	274.0	0.7
245	24,503	158	1,652	5.7	274.0	274.0	274.8	0.9
247	24,672	167	1,327	7.6	274.2	274.2	275.0	0.8
248	24,789	171	1,960	5.6	275.5	275.5	276.0	0.5
251	25,062	330	3,815	3.0	275.9	275.9	276.4	0.6
255	25,453	450	4,814	2.8	275.9	275.9	276.6	0.7
260	26,015	600	6,171	2.2	276.0	276.0	276.7	0.7
265	26,513	700	6,924	2.0	276.0	276.0	276.8	0.8
268	26,766	770	7,164	1.8	276.0	276.0	276.8	0.8
269	26,855	795	7,716	1.6	276.2	276.2	277.1	0.9
273	27,253	960	8,723	1.3	276.2	276.2	277.1	0.9
276	27,553	1,105	9,584	1.2	276.2	276.2	277.2	0.9
281	28,081	1,240	10,194	1.1	276.2	276.2	277.2	0.9
285	28,490	1,320	10,029	1.1	276.3	276.3	277.2	0.9
290	28,952	1,160	8,411	1.4	276.3	276.3	277.2	0.9
293	29,311	975	6,856	1.6	276.3	276.3	277.3	1.0
300	29,966	930	6,496	1.8	276.4	276.4	277.4	1.0
306	30,571	951	6,364	2.4	276.5	276.5	277.4	1.0
310	31,005	840	5,438	2.9	276.6	276.6	277.5	1.0
315	31,461	436	2,857	4.9	276.8	276.8	277.8	0.9
320	32,004	320	2,204	6.8	277.5	277.5	278.4	1.0
325	32,501	178	1,098	9.4	278.5	278.5	279.4	0.9
328	32,835	140	1,056	5.2	279.8	279.8	280.5	0.7
329	32,910	136	1,192	4.2	280.2	280.2	280.8	0.6
330	32,966	176	1,191	4.4	280.2	280.2	280.8	0.6
332	33,160	845	9,692	0.4	285.2	285.2	285.2	0.0
334	33,444	940	9,964	0.4	285.2	285.2	285.2	0.0
340	34,009	1,163	12,033	0.4	285.2	285.2	285.2	0.0
345	34,494	2,662	21,617	0.2	285.2	285.2	285.2	0.0
350	34,981	2,155	25,802	0.1	285.2	285.2	285.2	0.0

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
355	35,469	871	9,429	0.3	285.2	285.2	285.2	0.0
360	35,990	852	8,378	0.3	285.2	285.2	285.2	0.0
363	36,299	781	6,594	0.4	285.2	285.2	285.2	0.0
369	36,878	323	2,656	1.0	285.2	285.2	285.2	0.0
375	37,491	465	3,681	0.7	285.2	285.2	285.2	0.0
380	38,025	412	2,819	1.1	285.3	285.3	285.3	0.0
385	38,505	388	1,894	3.7	285.3	285.3	285.4	0.0
390	38,989	380	1,849	2.6	285.4	285.4	285.6	0.2
394	39,410	210	1,037	4.2	285.5	285.5	285.8	0.3
398	39,764	185	896	4.8	285.8	285.8	286.1	0.4
400	40,026	200	1,023	4.2	286.0	286.0	286.5	0.5
406	40,604	137	723	5.1	286.5	286.5	287.1	0.6
412	41,152	250	1,098	4.3	287.0	287.0	287.7	0.7
416	41,605	265	1,141	4.2	287.2	287.2	288.0	0.8
420	41,976	466	1,780	3.2	287.5	287.5	288.4	0.9
422	42,249	560	3,055	0.8	287.6	287.6	288.5	0.8
424	42,356	559	2,436	1.0	289.5	289.5	289.6	0.1
427	42,749	340	1,473	1.6	289.5	289.5	289.6	0.1
431	43,089	1,075	3,674	0.7	289.6	289.6	289.7	0.1
436	43,619	371	1,281	1.9	289.7	289.7	289.8	0.1
440	44,045	270	689	4.7	290.4	290.4	290.5	0.1
447	44,655	132	559	5.5	292.3	292.3	292.5	0.2
450	45,018	145	688	5.2	293.4	293.4	293.7	0.3
455	45,534	136	755	4.4	294.5	294.5	294.9	0.4
460	45,968	233	1,393	4.0	295.1	295.1	295.7	0.6
465	46,520	369	2,021	3.0	295.6	295.6	296.3	0.7
470	47,038	356	1,768	3.5	296.0	296.0	296.7	0.7
476	47,628	175	895	5.9	297.2	297.2	297.8	0.6
480	47,992	322	1,632	3.3	297.9	297.9	298.6	0.7
484	48,422	214	1,127	4.2	298.3	298.3	299.1	0.8
488	48,834	196	1,035	4.2	298.9	298.9	299.7	0.8
493	49,342	170	873	4.4	299.7	299.7	300.5	0.8
496	49,649	245	1,224	3.6	300.2	300.2	301.1	0.9
500	49,965	340	1,508	3.3	300.5	300.5	301.4	1.0
506	50,598	430	1,627	3.3	300.8	300.8	301.8	1.0
510	51,006	215	703	5.1	301.3	301.3	302.1	0.8
514	51,374	130	441	5.7	302.4	302.4	302.8	0.4
552	55,247	182	623	6.2	312.8	312.8	313.8	1.0
553	55,327	175	1,050	3.9	314.8	314.8	315.4	0.6
555	55,500	145	754	5.7	314.9	314.9	315.6	0.6
560	55,978	203	991	4.2	315.6	315.6	316.5	0.9
565	56,494	156	736	5.0	316.3	316.3	317.2	0.9
570	56,959	168	725	4.7	317.0	317.0	318.0	1.0
575	57,497	150	479	5.3	318.3	318.3	319.2	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
579	57,940	143	442	5.6	319.7	319.7	320.4	0.8
582	58,166	220	514	4.2	320.5	320.5	321.1	0.7
582	58,233	205	754	3.6	322.6	322.6	322.8	0.3
585	58,464	117	290	7.8	323.0	323.0	323.3	0.3
589	58,942	70	486	4.7	325.0	325.0	325.4	0.4
595	59,533	41	265	7.7	326.9	326.9	327.3	0.4
597	59,720	28	178	8.8	328.2	328.2	328.5	0.3
600	59,993	22	121	12.9	332.6	332.6	332.7	0.1
602	60,189	29	178	10.1	337.3	337.3	337.5	0.2
605	60,459	21	125	11.3	341.5	341.5	341.7	0.1
607	60,688	30	168	8.4	345.4	345.4	345.6	0.2
608	60,809	35	152	9.1	346.7	346.7	346.9	0.2
609	60,864	34	204	6.8	352.2	352.2	352.4	0.1
611	61,132	35	217	8.2	353.7	353.7	353.8	0.0
615	61,507	29	187	8.2	355.5	355.5	356.3	0.7
617	61,725	25	165	9.0	357.5	357.5	357.8	0.3
620	62,017	23	162	9.6	360.4	360.4	360.4	0.0
623	62,260	33	264	6.7	361.9	361.9	362.6	0.8
625	62,522	32	230	8.6	363.1	363.1	363.8	0.7
629	62,854	44	400	5.0	364.4	364.4	365.4	1.0
631	63,061	40	300	6.4	364.8	364.8	365.7	0.9
632	63,237	40	252	7.1	365.3	365.3	366.3	1.0
635	63,486	33	214	7.2	367.0	367.0	367.4	0.4
638	63,768	34	243	6.0	368.4	368.4	368.6	0.3
642	64,160	31	158	9.5	370.4	370.4	370.7	0.3
646	64,590	35	213	7.6	373.8	373.8	374.1	0.3
650	65,040	22	155	9.3	376.1	376.1	376.5	0.4
656	65,565	27	184	9.0	379.8	379.8	380.3	0.5
659	65,902	26	160	10.0	382.0	382.0	382.8	0.8
661	66,093	27	154	10.7	384.6	384.6	384.8	0.2
663	66,310	32	218	9.3	386.4	386.4	387.4	1.0
666	66,588	22	136	12.5	389.3	389.3	389.6	0.4
669	66,946	28	189	11.3	394.6	394.6	395.1	0.4
672	67,161	19	125	10.5	396.6	396.6	397.4	0.8
673	67,300	115	721	3.6	402.3	402.3	402.3	0.0
674	67,410	140	1,013	2.7	402.4	402.4	402.4	0.0
682	68,232	80	495	4.8	403.0	403.0	403.1	0.1
686	68,579	63	369	6.2	403.6	403.6	403.9	0.3
691	69,085	65	356	6.3	405.1	405.1	405.7	0.6
696	69,593	60	400	5.5	407.0	407.0	407.7	0.7
700	69,984	45	325	6.9	408.6	408.6	409.3	0.7
704	70,394	64	314	8.6	410.7	410.7	411.2	0.6
Little Beaverdam Creek (Basin 2, Stream 2)								
154	15,376	75	395	4.3	323.3	323.3	324.2	1.0
New Light Creek								

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
247	24,747	115	697	10.2	281.8	281.8	282.8	1.0
259	25,920	693	2,824	4.2	286.2	286.2	286.9	0.7
275	27,477	441	1,754	6.0	289.9	289.9	290.6	0.7
283	28,272	181	687	14.2	294.4	294.4	294.8	0.4
North Fork Tar River								
020	2,000	58	666	7.6	396.4[2]	385.5	385.9	0.4
026	2,605	50	489	10.4	396.4[2]	386.7	387.0	0.3
035	3,500	83	1,199	4.2	396.4[2]	389.6	390.2	0.7
040	4,000	81	720	7.0	396.4[2]	389.6	390.2	0.6
050	5,000	197	1,554	3.2	396.4[2]	391.6	392.3	0.8
055	5,500	634	5,362	0.9	396.4[2]	392.8	393.7	0.8
060	6,000	311	2,201	2.3	396.4[2]	392.8	393.7	0.8
065	6,500	193	1,990	2.5	396.4[2]	393.3	394.1	0.8
070	7,000	107	936	5.4	396.4[2]	393.3	394.0	0.7
080	8,000	66	747	6.7	396.4[2]	394.4	395.0	0.7
086	8,585	60	696	7.2	396.4[2]	395.3	396.0	0.7
090	9,000	67	728	6.9	396.4[2]	396.1	396.8	0.7
095	9,500	62	749	5.7	397.2	397.2	397.8	0.6
100	10,000	58	848	5.0	397.8	397.8	398.6	0.8
107	10,678	70	706	6.0	398.1	398.1	399.1	0.9
110	11,000	106	891	4.8	398.8	398.8	399.8	1.0
115	11,500	203	1,719	2.5	399.7	399.7	400.6	0.8
120	12,000	128	897	4.7	399.8	399.8	400.8	1.0
125	12,500	84	738	5.8	400.9	400.9	401.7	0.8
130	13,000	80	696	6.1	401.6	401.6	402.5	0.9
135	13,501	82	795	5.4	402.8	402.8	403.5	0.7
137	13,738	71	686	6.2	403.0	403.0	403.8	0.9
140	14,000	73	760	5.6	403.7	403.7	404.4	0.7
145	14,499	74	709	6.0	404.3	404.3	405.0	0.7
150	14,996	104	921	4.6	405.4	405.4	406.0	0.7
155	15,502	84	821	5.1	405.8	405.8	406.5	0.7
156	15,577	69	769	5.4	405.9	405.9	406.6	0.7
159	15,907	54	741	5.6	407.8	407.8	408.3	0.5
160	16,000	65	874	4.8	408.0	408.0	408.6	0.5
165	16,501	65	809	5.1	408.3	408.3	408.8	0.5
170	17,000	66	785	5.3	408.6	408.6	409.2	0.6
175	17,500	71	877	4.7	409.1	409.1	409.8	0.7
180	17,997	94	1,018	4.1	409.5	409.5	410.1	0.6
185	18,501	131	1,377	3.0	409.9	409.9	410.7	0.7
190	18,999	75	976	4.2	410.1	410.1	410.8	0.8
195	19,501	63	728	5.6	410.4	410.4	411.1	0.7
200	20,000	104	1,035	4.0	411.2	411.2	412.0	0.7
205	20,503	112	1,208	3.4	411.8	411.8	412.6	0.8
210	21,004	97	981	4.2	412.1	412.1	412.9	0.8
214	21,431	84	847	4.8	412.6	412.6	413.4	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
220	21,999	87	742	5.5	413.5	413.5	414.1	0.6
225	22,505	137	784	5.2	414.4	414.4	415.2	0.8
230	23,001	63	723	5.7	415.5	415.5	416.4	0.9
233	23,286	64	717	5.3	416.3	416.3	417.3	1.0
235	23,499	64	689	5.6	416.6	416.6	417.5	0.9
240	24,005	61	527	7.3	417.5	417.5	418.3	0.8
245	24,500	64	538	7.1	419.5	419.5	419.8	0.3
250	24,992	70	713	5.4	420.7	420.7	421.2	0.4
257	25,663	119	628	6.1	421.7	421.7	422.2	0.5
260	26,001	113	616	6.2	423.1	423.1	423.4	0.3
265	26,507	100	754	5.1	424.2	424.2	425.1	0.9
270	26,999	34	323	10.3	424.9	424.9	425.7	0.8
275	27,501	39	441	7.6	428.1	428.1	428.9	0.8
280	27,998	71	526	6.3	429.6	429.6	430.4	0.8
282	28,198	70	559	6.0	430.2	430.2	431.0	0.9
285	28,496	87	606	5.5	431.2	431.2	432.1	0.9
290	28,999	81	676	4.9	432.7	432.7	433.6	0.9
295	29,501	226	1,457	2.3	434.0	434.0	434.9	0.8
300	29,998	182	1,426	2.3	434.5	434.5	435.5	1.0
305	30,498	170	1,097	3.0	435.0	435.0	436.0	1.0
310	31,001	168	1,227	2.7	436.0	436.0	436.9	0.9
315	31,548	97	566	5.9	436.3	436.3	437.3	1.0
320	32,008	146	924	3.2	438.3	438.3	439.0	0.7
325	32,492	150	951	3.1	438.9	438.9	439.8	0.8
330	32,981	87	609	4.8	439.7	439.7	440.7	1.0
335	33,495	115	885	3.3	441.2	441.2	441.9	0.7
340	33,998	101	760	3.9	441.8	441.8	442.6	0.8
352	35,223	69	622	4.7	445.0	445.0	445.6	0.6
355	35,497	59	453	6.5	445.0	445.0	446.0	0.9
360	36,004	71	457	2.6	446.9	446.9	447.8	0.9
367	36,672	68	199	5.9	448.2	448.2	448.6	0.4
370	37,006	46	212	5.1	450.7	450.7	451.3	0.6
375	37,505	27	155	7.0	452.8	452.8	453.7	0.9
380	37,995	27	175	6.2	455.5	455.5	456.3	0.7
385	38,497	38	237	4.6	457.2	457.2	458.0	0.8
390	38,987	31	153	7.1	458.6	458.6	459.2	0.5
395	39,496	33	196	5.5	461.4	461.4	462.2	0.7
400	39,997	24	129	8.0	463.8	463.8	464.3	0.4
405	40,496	42	241	4.3	466.8	466.8	467.8	1.0
408	40,790	110	501	2.1	468.0	468.0	469.0	1.0
Poplar Creek								
001	138	50	387	6.4	336.7[5]	334.1	334.2	0.1
004	439	44	274	8.6	336.8[2]	334.8	334.9	0.1
011	1,066	48	385	6.3	337.5	337.5	337.6	0.1
015	1,463	52	367	8.4	338.4	338.4	338.5	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
019	1,903	46	368	6.6	339.6	339.6	340.2	0.6
019	1,929	46	347	6.9	339.6	339.6	340.2	0.7
021	2,103	42	324	7.6	340.2	340.2	340.7	0.5
025	2,549	48	362	7.1	341.7	341.7	342.2	0.5
031	3,139	64	392	7.8	343.1	343.1	343.9	0.7
035	3,529	81	445	8.2	344.4	344.4	345.3	0.9
040	4,004	109	501	8.7	346.1	346.1	347.1	0.9
044	4,419	93	553	7.4	347.7	347.7	348.7	1.0
048	4,815	46	366	8.6	348.6	348.6	349.6	1.0
051	5,122	97	660	5.4	350.0	350.0	350.9	0.9
055	5,487	93	794	5.5	350.5	350.5	351.5	1.0
059	5,860	82	353	10.7	350.8	350.8	351.6	0.8
063	6,299	83	548	7.3	353.6	353.6	354.4	0.8
068	6,827	95	591	7.3	354.9	354.9	355.8	0.9
076	7,562	49	410	6.3	356.5	356.5	357.5	1.0
080	7,990	38	337	6.6	357.3	357.3	358.3	1.0
084	8,401	35	285	7.9	358.4	358.4	359.3	0.9
089	8,912	40	319	7.8	360.4	360.4	361.1	0.7
094	9,413	96	520	6.8	362.0	362.0	362.9	1.0
098	9,801	104	516	6.9	363.1	363.1	364.0	1.0
101	10,111	85	407	8.2	364.2	364.2	365.1	0.9
104	10,420	81	415	8.5	365.6	365.6	366.6	1.0
109	10,920	47	337	8.5	367.9	367.9	368.9	1.0
113	11,306	56	369	7.6	369.8	369.8	370.6	0.7
119	11,904	32	230	11.1	372.0	372.0	372.9	0.9
124	12,413	42	310	7.9	375.8	375.8	376.4	0.5
128	12,808	65	409	7.7	377.4	377.4	378.0	0.6
135	13,454	67	390	8.5	379.7	379.7	380.5	0.8
140	14,006	88	522	6.4	381.9	381.9	382.8	0.9
144	14,404	101	522	6.8	383.1	383.1	383.9	0.8
268	26,785	28	130	7.4	434.7	434.7	435.7	1.0
Shelton Creek								
010	1,000	274	3,488	2.1	399.9	399.9	400.9	0.9
020	2,000	200	2,414	3.0	400.7	400.7	401.6	0.9
030	3,000	230	3,550	2.1	402.0	402.0	402.8	0.8
040	4,000	165	2,318	3.2	403.0	403.0	403.8	0.7
045	4,496	195	2,515	2.9	403.8	403.8	404.4	0.7
050	5,000	216	3,031	2.4	404.4	404.4	405.1	0.6
055	5,500	165	2,185	3.3	404.7	404.7	405.4	0.6
065	6,500	140	1,945	3.8	406.2	406.2	406.8	0.6
075	7,498	180	2,190	3.3	408.1	408.1	408.6	0.6
080	8,000	128	1,686	4.3	408.8	408.8	409.6	0.7
085	8,500	92	1,380	5.2	409.9	409.9	410.6	0.6
090	9,000	206	3,139	2.3	411.0	411.0	411.7	0.7
095	9,500	230	2,730	2.6	411.3	411.3	412.0	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
100	10,000	159	2,044	3.5	411.9	411.9	412.6	0.7
105	10,500	173	2,373	3.0	412.8	412.8	413.5	0.7
108	10,835	208	2,788	2.6	413.3	413.3	414.0	0.7
115	11,500	330	4,339	1.7	413.9	413.9	414.6	0.7
120	11,995	446	5,612	1.3	414.1	414.1	414.9	0.8
125	12,514	450	6,195	1.2	414.3	414.3	415.1	0.8
130	13,000	330	4,234	1.7	414.3	414.3	415.1	0.8
135	13,500	200	2,896	2.5	414.4	414.4	415.3	0.9
141	14,078	250	3,191	2.1	416.8	416.8	417.5	0.7
145	14,500	180	2,290	3.0	416.9	416.9	417.5	0.7
150	15,000	90	1,188	5.7	416.9	416.9	417.5	0.6
155	15,500	127	1,543	4.4	417.2	417.2	417.8	0.7
160	15,955	150	1,450	4.7	417.5	417.5	418.2	0.7
165	16,500	169	1,899	3.6	418.1	418.1	418.9	0.8
170	17,042	220	1,928	3.5	418.4	418.4	419.2	0.8
175	17,500	150	1,425	4.7	418.7	418.7	419.4	0.8
180	18,001	99	1,097	6.2	419.0	419.0	419.8	0.8
185	18,513	75	913	7.4	419.6	419.6	420.4	0.8
189	18,917	77	898	7.3	420.1	420.1	420.9	0.8
195	19,500	130	1,163	5.6	421.3	421.3	422.0	0.8
200	20,000	64	877	7.5	422.1	422.1	422.8	0.6
205	20,500	65	747	8.8	422.4	422.4	423.0	0.6
210	21,000	244	1,473	4.5	423.8	423.8	424.6	0.8
217	21,748	81	821	8.0	425.1	425.1	425.8	0.7
220	22,000	68	794	8.3	425.8	425.8	426.6	0.7
225	22,499	115	1,169	5.6	427.6	427.6	428.5	1.0
230	23,000	80	871	7.5	428.4	428.4	429.2	0.8
235	23,500	110	1,048	6.3	429.7	429.7	430.7	1.0
240	24,000	284	2,336	2.8	431.6	431.6	432.4	0.8
245	24,500	155	1,342	4.9	431.6	431.6	432.6	0.9
250	25,049	320	2,474	2.7	433.2	433.2	433.9	0.7
255	25,500	235	1,845	2.3	433.5	433.5	434.3	0.8
260	26,000	82	656	6.5	433.5	433.5	434.2	0.7
265	26,500	110	629	6.8	433.8	433.8	434.8	1.0
270	27,000	43	390	10.9	435.3	435.3	436.0	0.7
275	27,500	80	762	5.6	437.6	437.6	438.6	1.0
280	28,000	125	673	6.3	437.9	437.9	438.7	0.8
287	28,655	40	368	11.5	439.3	439.3	440.0	0.7
290	28,999	60	500	8.5	441.4	441.4	441.8	0.4
295	29,499	79	644	6.6	443.0	443.0	443.8	0.8
300	30,000	126	912	4.7	443.9	443.9	444.8	0.9
305	30,500	130	930	4.6	444.8	444.8	445.7	0.9
310	31,000	165	1,158	3.7	446.0	446.0	446.9	0.9
313	31,309	180	1,057	4.0	446.4	446.4	447.2	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
320	32,000	240	1,678	2.5	447.8	447.8	448.8	0.9
325	32,500	182	1,242	3.4	448.3	448.3	449.1	0.8
330	33,000	270	1,668	2.4	449.2	449.2	450.1	0.9
335	33,500	270	1,397	2.8	449.7	449.7	450.5	0.8
342	34,196	70	472	8.2	450.0	450.0	450.7	0.7
345	34,503	69	664	5.8	452.2	452.2	453.1	1.0
350	35,000	98	814	4.7	453.0	453.0	454.0	0.9
355	35,500	170	1,371	2.8	454.3	454.3	455.2	0.9
360	36,000	145	1,083	3.6	454.7	454.7	455.5	0.8
365	36,500	123	1,017	3.7	455.3	455.3	456.1	0.8
370	37,000	115	940	4.0	455.9	455.9	456.7	0.8
373	37,332	115	1,019	3.7	456.4	456.4	457.2	0.8
377	37,668	155	1,944	2.0	462.2	462.2	463.0	0.9
380	38,000	315	3,591	1.1	462.3	462.3	463.2	0.9
385	38,500	395	3,920	0.9	462.4	462.4	463.2	0.9
390	39,002	235	2,507	1.4	462.4	462.4	463.3	0.9
395	39,500	254	2,723	1.3	462.5	462.5	463.4	0.9
400	40,000	398	3,813	1.0	462.6	462.6	463.5	0.9
405	40,500	563	4,930	0.7	462.7	462.7	463.5	0.9
410	41,000	460	3,942	0.9	462.7	462.7	463.6	0.9
415	41,500	400	2,957	1.2	462.8	462.8	463.6	0.8
422	42,175	310	1,950	1.8	462.9	462.9	463.8	0.9
425	42,500	180	1,232	2.9	463.1	463.1	463.9	0.8
430	43,000	80	662	5.4	463.3	463.3	464.1	0.8
435	43,500	67	563	6.3	464.0	464.0	464.6	0.6
440	44,000	76	499	7.1	464.3	464.3	464.8	0.5
445	44,500	135	1,035	3.3	466.1	466.1	466.9	0.8
450	45,002	200	1,117	3.1	466.7	466.7	467.5	0.8
455	45,500	132	577	5.9	469.7	469.7	470.0	0.3
458	45,824	230	1,359	2.5	471.7	471.7	472.7	1.0
464	46,438	90	537	6.0	472.7	472.7	473.2	0.5
470	47,000	105	668	4.8	474.1	474.1	475.0	0.9
475	47,500	75	503	6.4	475.2	475.2	476.1	0.9
480	48,000	85	557	5.4	476.3	476.3	477.3	1.0
484	48,444	172	1,171	2.6	477.9	477.9	478.8	0.9
490	49,000	130	744	4.1	478.5	478.5	479.3	0.8
495	49,500	70	525	5.8	479.3	479.3	480.2	0.9
500	50,000	105	638	4.8	480.4	480.4	481.1	0.7
505	50,500	80	513	5.8	481.3	481.3	482.3	1.0
509	50,907	140	928	3.2	483.2	483.2	484.0	0.8
515	51,500	185	968	3.1	484.0	484.0	484.9	0.8
520	52,000	100	504	5.9	484.8	484.8	485.5	0.7
525	52,500	60	337	8.8	486.6	486.6	487.4	0.8
530	53,000	65	422	7.1	489.2	489.2	489.9	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
535	53,500	90	373	8.0	492.0	492.0	492.2	0.2
540	54,000	50	319	9.4	494.7	494.7	495.2	0.5
545	54,500	295	1,451	1.9	499.4	499.4	499.4	0.0
550	55,000	121	649	4.3	499.7	499.7	499.8	0.1
555	55,500	115	478	5.8	501.3	501.3	501.3	0.0
560	56,000	115	499	5.3	504.1	504.1	504.8	0.7
566	56,589	178	770	3.4	506.8	506.8	507.5	0.7
570	57,000	235	566	4.7	508.2	508.2	508.3	0.1
575	57,500	360	1,555	1.7	509.4	509.4	510.3	0.9
580	58,000	360	1,514	1.8	509.8	509.8	510.7	0.9
585	58,500	150	679	3.9	510.2	510.2	511.0	0.8
590	59,000	210	676	3.9	511.2	511.2	512.0	0.7
595	59,500	210	703	3.8	512.8	512.8	513.4	0.6
601	60,052	170	640	3.4	514.0	514.0	514.9	1.0
605	60,500	120	550	4.0	515.2	515.2	516.1	0.8
610	61,000	130	643	3.4	516.6	516.6	517.4	0.8
615	61,500	120	528	4.2	517.4	517.4	518.3	0.8
620	62,000	105	551	4.0	518.4	518.4	519.4	1.0
625	62,500	160	853	2.6	519.6	519.6	520.6	1.0
632	63,225	220	2,027	1.1	529.2	529.2	529.9	0.7
635	63,500	210	1,737	1.3	529.2	529.2	529.9	0.7
640	64,000	130	873	2.5	529.2	529.2	529.9	0.7
642	64,243	130	638	3.4	529.4	529.4	530.0	0.7
Spewmarrow Creek								
000	0	570	7,185	0.6	320.1[2]	311.5	312.5	1.0
016	1,587	258	4,127	0.9	320.1[2]	311.5	312.5	1.0
030	3,002	506	6,006	0.6	320.1[2]	311.6	312.6	1.0
059	5,853	474	4,971	0.8	320.1[2]	311.8	312.8	1.0
082	8,174	449	4,005	0.8	320.1[2]	312.0	313.0	1.0
088	8,753	445	4,561	0.7	320.1[2]	312.1	313.0	1.0
097	9,656	220	2,246	1.4	320.1[2]	312.2	313.2	1.0
121	12,108	93	878	3.3	320.1[2]	313.2	314.1	1.0
133	13,259	35	451	6.5	320.1[2]	315.1	315.9	0.9
137	13,747	35	465	6.3	320.1[2]	316.1	316.8	0.8
Syble Creek								
080	8,042	370	1,952	3.0	265.5[2]	263.9	264.6	0.7
085	8,488	186	950	5.0	265.5[2]	264.3	265.0	0.7
091	9,105	175	684	5.8	265.7	265.7	266.1	0.4
100	9,975	134	712	5.1	267.2	267.2	268.0	0.8
107	10,691	220	1,172	3.5	268.2	268.2	269.0	0.8
110	11,050	154	633	6.1	268.6	268.6	269.5	0.9
115	11,525	140	657	4.6	269.8	269.8	270.7	1.0
118	11,823	230	1,090	3.9	270.3	270.3	271.3	1.0
119	11,942	220	1,527	2.7	273.3	273.3	273.6	0.3
123	12,280	135	927	4.0	273.3	273.3	273.8	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
127	12,721	186	1,234	2.9	273.6	273.6	274.1	0.6
130	13,033	110	863	3.4	273.7	273.7	274.3	0.6
132	13,164	118	1,665	1.9	281.5	281.5	282.2	0.7
133	13,336	260	3,218	1.0	281.6	281.6	282.3	0.7
135	13,452	205	2,620	1.2	281.6	281.6	282.3	0.7
135	13,548	204	3,282	0.8	284.4	284.4	285.4	1.0
138	13,794	291	4,296	0.8	284.4	284.4	285.4	1.0
145	14,453	408	5,569	0.6	284.4	284.4	285.4	1.0
152	15,176	256	3,198	1.1	284.5	284.5	285.4	1.0
159	15,888	417	4,330	0.8	284.5	284.5	285.4	1.0
165	16,489	350	2,898	1.3	284.5	284.5	285.5	1.0
172	17,182	278	2,187	1.6	284.6	284.6	285.5	1.0
178	17,776	163	1,095	3.2	284.7	284.7	285.6	1.0
182	18,245	149	821	3.6	285.0	285.0	286.0	1.0
184	18,361	155	1,061	2.8	286.7	286.7	287.2	0.5
186	18,646	186	1,054	3.0	286.8	286.8	287.4	0.5
Tabbs Creek								
593	59,307	120	1,242	8.0	284.9	284.9	285.3	0.4
599	59,876	193	1,942	5.0	285.7	285.7	286.5	0.8
602	60,197	136	1,500	5.9	286.0	286.0	286.7	0.7
606	60,554	147	1,827	4.9	286.5	286.5	287.2	0.8
610	61,040	140	1,575	5.4	286.8	286.8	287.7	1.0
615	61,534	173	1,982	4.4	287.3	287.3	288.3	1.0
618	61,827	200	2,107	4.6	287.5	287.5	288.5	1.0
622	62,161	171	1,932	4.0	287.8	287.8	288.8	1.0
626	62,618	107	1,365	5.4	288.0	288.0	289.0	1.0
631	63,086	85	1,119	5.6	288.5	288.5	289.5	1.0
635	63,532	83	970	5.8	289.1	289.1	290.0	1.0
640	63,992	93	819	7.8	289.8	289.8	290.7	1.0
645	64,515	84	889	7.1	291.4	291.4	292.4	1.0
650	65,000	103	1,195	5.8	292.6	292.6	293.6	1.0
654	65,368	83	1,160	3.9	293.1	293.1	294.1	1.0
659	65,855	67	662	7.7	293.3	293.3	294.2	0.9
664	66,438	73	728	7.4	295.3	295.3	296.1	0.8
669	66,927	111	900	7.0	296.8	296.8	297.7	0.9
675	67,457	94	841	6.9	298.6	298.6	299.1	0.6
680	67,986	82	674	8.2	299.7	299.7	300.7	1.0
684	68,360	75	518	11.6	301.4	301.4	302.3	0.9
688	68,835	67	848	5.4	304.4	304.4	305.1	0.7
694	69,416	62	739	5.8	305.2	305.2	306.0	0.7
699	69,871	60	741	6.0	306.1	306.1	306.8	0.7
703	70,259	101	1,030	5.2	306.8	306.8	307.5	0.7
709	70,926	126	1,021	6.2	307.7	307.7	308.5	0.8
715	71,545	218	1,076	7.9	309.1	309.1	309.8	0.8
719	71,878	96	853	8.3	309.8	309.8	310.8	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
722	72,192	63	773	8.2	310.8	310.8	311.7	0.9
726	72,594	97	975	6.6	312.1	312.1	313.0	0.9
730	72,981	107	1,017	7.6	312.8	312.8	313.7	0.8
730	73,013	107	1,124	7.1	313.1	313.1	314.1	1.0
733	73,260	89	1,056	6.0	313.8	313.8	314.6	0.8
735	73,530	116	1,269	5.4	314.2	314.2	315.0	0.9
739	73,930	143	1,423	5.6	314.7	314.7	315.5	0.8
744	74,448	129	1,182	7.4	315.3	315.3	316.2	0.8
749	74,944	134	1,191	6.4	316.3	316.3	317.2	0.9
755	75,465	227	1,692	5.6	317.3	317.3	318.3	1.0
759	75,931	109	874	8.8	318.0	318.0	319.0	1.0
764	76,406	64	350	14.9	322.8	322.8	323.1	0.2
769	76,927	39	350	13.5	329.4	329.4	330.4	1.0
774	77,392	52	541	7.9	333.7	333.7	334.6	0.9
778	77,814	53	471	9.9	335.3	335.3	335.7	0.5
780	78,040	68	687	7.0	336.5	336.5	337.2	0.7
783	78,340	90	709	4.9	337.1	337.1	338.1	1.0
784	78,412	95	775	5.1	337.4	337.4	338.4	1.0
787	78,709	73	624	5.6	337.9	337.9	338.7	0.8
790	79,035	51	400	9.3	338.4	338.4	339.0	0.7
792	79,181	219	6,453	1.2	366.6	366.6	367.6	1.0
795	79,521	358	8,328	1.1	366.6	366.6	367.6	1.0
801	80,131	396	11,089	0.8	366.6	366.6	367.6	1.0
804	80,429	286	7,362	1.2	366.6	366.6	367.6	1.0
810	81,002	321	8,429	1.0	366.6	366.6	367.6	1.0
815	81,491	496	13,656	0.6	366.6	366.6	367.6	1.0
819	81,944	503	12,452	0.6	366.6	366.6	367.6	1.0
822	82,226	377	9,301	0.9	366.6	366.6	367.6	1.0
826	82,565	388	7,626	1.0	366.6	366.6	367.6	1.0
831	83,060	447	10,157	0.7	366.6	366.6	367.6	1.0
834	83,448	383	8,307	1.0	366.6	366.6	367.6	1.0
840	83,964	295	6,300	1.0	366.6	366.6	367.6	1.0
845	84,509	268	5,926	1.0	366.6	366.6	367.6	1.0
849	84,922	265	5,311	1.1	366.6	366.6	367.6	1.0
854	85,425	292	5,540	1.2	366.6	366.6	367.6	1.0
858	85,799	391	7,832	1.0	366.6	366.6	367.6	1.0
860	86,045	411	7,277	1.1	366.7	366.7	367.6	1.0
863	86,312	357	6,010	1.3	366.7	366.7	367.6	1.0
866	86,610	306	4,985	1.5	366.7	366.7	367.7	1.0
870	87,008	310	5,254	1.5	366.7	366.7	367.7	1.0
875	87,474	150	2,279	2.9	366.7	366.7	367.7	1.0
879	87,922	123	1,836	3.5	366.8	366.8	367.8	1.0
884	88,427	154	2,237	2.7	366.9	366.9	367.9	1.0
888	88,772	122	1,625	3.7	367.0	367.0	368.0	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
892	89,216	157	2,012	3.1	367.2	367.2	368.1	1.0
894	89,390	280	3,507	2.0	367.2	367.2	368.2	1.0
902	90,157	144	1,625	3.3	367.3	367.3	368.3	1.0
906	90,580	185	2,054	3.0	367.5	367.5	368.5	1.0
909	90,863	188	1,906	3.1	367.6	367.6	368.6	1.0
914	91,449	160	1,453	3.8	367.9	367.9	368.8	1.0
921	92,052	78	691	5.7	368.2	368.2	369.2	1.0
927	92,713	73	664	5.1	369.1	369.1	370.1	1.0
931	93,074	66	607	5.7	369.6	369.6	370.5	1.0
933	93,330	91	661	6.6	370.0	370.0	370.9	1.0
935	93,489	148	975	4.5	370.5	370.5	371.4	0.9
942	94,190	153	856	4.5	371.1	371.1	372.1	1.0
946	94,602	43	428	6.0	371.4	371.4	372.4	1.0
950	94,999	44	455	5.7	372.3	372.3	373.2	0.9
954	95,400	46	419	6.0	373.2	373.2	373.9	0.8
959	95,931	45	335	7.5	374.6	374.6	375.3	0.7
965	96,519	75	528	6.1	376.9	376.9	377.5	0.6
965	96,539	75	509	6.0	377.2	377.2	377.8	0.6
970	97,048	78	525	6.1	378.0	378.0	379.0	1.0
974	97,443	49	356	7.7	379.0	379.0	380.0	1.0
980	97,966	49	354	8.7	381.7	381.7	382.4	0.6
984	98,393	87	686	4.8	383.3	383.3	384.2	0.9
988	98,807	99	672	5.6	384.0	384.0	384.9	0.9
991	99,144	56	441	5.9	384.5	384.5	385.5	1.0
996	99,576	65	436	6.3	385.6	385.6	386.6	1.0
1000	99,991	54	404	6.3	386.8	386.8	387.8	1.0
1004	100,415	47	406	6.0	388.0	388.0	388.9	0.8
1010	100,970	46	431	6.8	389.2	389.2	390.1	0.9
1012	101,245	42	284	9.3	390.0	390.0	390.8	0.9
1013	101,314	52	416	7.0	392.4	392.4	392.4	0.0
1015	101,535	65	436	7.0	393.0	393.0	393.0	0.1
1019	101,927	96	441	8.2	394.3	394.3	394.8	0.5
1024	102,432	78	355	8.9	397.9	397.9	398.5	0.7
1029	102,897	159	729	4.6	400.1	400.1	401.0	0.9
1034	103,356	67	385	7.8	400.8	400.8	401.8	1.0
1035	103,543	49	285	8.6	401.9	401.9	402.7	0.8
1039	103,879	49	463	5.5	405.7	405.7	406.3	0.6
1041	104,100	104	933	3.8	405.9	405.9	406.8	0.9
1044	104,410	124	1,057	3.8	406.1	406.1	407.0	0.9
1049	104,942	180	1,161	3.9	406.5	406.5	407.4	1.0
1054	105,427	171	1,160	3.4	406.9	406.9	407.8	1.0
1058	105,842	129	733	4.1	407.2	407.2	408.2	1.0
1062	106,235	143	793	3.7	407.9	407.9	408.7	0.9
1065	106,452	91	472	7.0	408.0	408.0	409.0	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
1069	106,891	179	1,048	3.9	409.3	409.3	410.3	1.0
1074	107,394	188	907	4.2	410.0	410.0	410.9	1.0
1079	107,932	81	317	9.3	411.3	411.3	412.0	0.7
1084	108,375	52	358	5.6	413.5	413.5	414.4	0.9
1086	108,603	49	255	9.6	414.1	414.1	415.1	1.0
1087	108,685	107	884	3.4	419.2	419.2	419.2	0.0
1089	108,862	91	767	4.0	419.3	419.3	419.3	0.0
1092	109,174	91	772	4.2	419.4	419.4	419.6	0.2
1096	109,604	99	582	3.3	419.5	419.5	420.0	0.5
1099	109,929	78	413	4.3	419.7	419.7	420.4	0.7
1105	110,459	78	290	5.8	420.6	420.6	421.5	0.9
1110	111,028	81	340	5.2	422.6	422.6	423.6	0.9
1114	111,401	43	213	6.5	423.7	423.7	424.7	1.0
1118	111,837	64	242	6.2	426.1	426.1	426.9	0.8
Tar River								
8520	851,958	1,218	18,960	1.2	244.6	244.6	245.6	1.0
8522	852,241	895	13,130	1.8	245.0	245.0	246.0	1.0
8533	853,255	851	11,570	2.0	245.1	245.1	246.0	1.0
8542	854,231	643	10,274	2.2	245.1	245.1	246.1	1.0
8550	854,968	454	8,743	2.6	245.2	245.2	246.2	1.0
8553	855,252	475	8,794	2.6	245.3	245.3	246.2	1.0
8563	856,263	338	6,355	3.6	245.4	245.4	246.4	0.9
8573	857,254	462	8,420	2.7	245.9	245.9	246.8	0.9
8582	858,243	355	6,508	3.5	246.0	246.0	246.9	0.9
8594	859,411	401	6,998	3.2	246.4	246.4	247.3	0.9
8603	860,255	287	5,958	3.8	246.6	246.6	247.4	0.9
8613	861,252	277	5,090	4.5	246.8	246.8	247.7	0.9
8624	862,389	276	5,155	4.4	247.4	247.4	248.2	0.8
8632	863,249	318	6,030	3.8	247.9	247.9	248.8	0.8
8643	864,250	247	4,444	5.1	248.3	248.3	249.1	0.8
8647	864,669	260	4,180	5.4	248.6	248.6	249.4	0.8
8652	865,244	202	2,900	7.8	248.9	248.9	249.6	0.8
8662	866,245	104	1,606	14.1	250.7	250.7	251.4	0.7
8672	867,245	450	4,590	5.0	255.3	255.3	256.3	0.9
8681	868,068	262	2,735	8.3	256.6	256.6	257.3	0.6
8693	869,255	212	2,258	10.0	260.5	260.5	261.0	0.5
8702	870,237	181	2,188	10.3	264.9	264.9	265.7	0.7
8712	871,247	164	2,135	10.6	269.1	269.1	269.5	0.4
8718	871,833	210	2,148	10.5	271.2	271.2	271.8	0.6
8722	872,244	164	1,993	11.3	272.8	272.8	273.4	0.5
8733	873,250	164	1,806	12.4	277.9	277.9	278.7	0.8
8742	874,244	162	2,039	11.0	284.2	284.2	284.8	0.5
8745	874,524	139	1,852	12.1	285.8	285.8	286.1	0.3
8748	874,836	156	2,597	8.6	289.7	289.7	290.0	0.3
9378	937,819	366	3,142	8.6	376.2	376.2	376.6	0.5

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
9384	938,402	271	3,030	8.6	378.2	378.2	378.4	0.2
9388	938,822	399	4,107	7.6	379.6	379.6	379.8	0.2
9398	939,821	450	5,279	5.2	381.5	381.5	381.6	0.1
9403	940,261	450	5,382	7.7	381.9	381.9	382.0	0.1
9408	940,823	460	5,797	7.0	382.9	382.9	383.1	0.2
9418	941,809	595	7,815	3.7	384.0	384.0	384.3	0.3
9428	942,817	725	7,634	5.2	384.4	384.4	384.8	0.3
9437	943,740	741	8,466	3.6	385.0	385.0	385.5	0.5
9448	944,814	687	7,703	4.5	385.6	385.6	386.1	0.5
9458	945,820	576	7,290	5.0	386.2	386.2	386.8	0.5
9468	946,817	769	8,687	4.5	386.9	386.9	387.4	0.6
9476	947,615	705	6,955	6.8	387.3	387.3	387.9	0.6
9488	948,812	720	8,382	5.8	388.8	388.8	389.5	0.7
9498	949,821	652	7,666	4.4	389.7	389.7	390.4	0.7
9508	950,824	800	9,421	4.0	390.2	390.2	390.9	0.7
9518	951,818	1,063	10,822	3.8	390.6	390.6	391.4	0.7
9521	952,086	850	8,801	4.4	390.7	390.7	391.4	0.7
9526	952,615	578	6,469	5.8	391.2	391.2	391.9	0.7
9528	952,821	499	5,880	6.2	391.4	391.4	392.1	0.7
9538	953,823	313	4,974	5.4	392.3	392.3	393.1	0.7
9548	954,814	255	4,541	6.6	393.0	393.0	393.8	0.7
9558	955,825	210	4,107	6.4	394.1	394.1	394.8	0.8
9568	956,754	425	6,800	4.1	395.0	395.0	395.9	0.8
9578	957,818	275	5,018	5.6	395.4	395.4	396.3	0.9
9588	958,813	491	8,244	4.3	396.3	396.3	397.1	0.8
9598	959,821	182	3,613	6.8	396.6	396.6	397.4	0.8
9603	960,270	234	4,141	6.0	397.2	397.2	398.0	0.8
9612	961,157	264	5,645	3.8	398.3	398.3	399.1	0.8
9618	961,821	363	5,949	3.9	399.0	399.0	399.8	0.8
9628	962,818	192	3,373	6.6	399.2	399.2	400.0	0.8
9638	963,805	176	3,149	5.4	400.0	400.0	400.8	0.9
9648	964,820	240	3,949	4.6	400.5	400.5	401.4	0.9
9658	965,825	184	3,441	5.0	400.8	400.8	401.7	0.9
9668	966,823	184	3,163	5.9	401.2	401.2	402.1	0.9
9671	967,113	174	2,896	6.2	401.3	401.3	402.2	0.9
9678	967,824	286	4,278	5.1	401.9	401.9	402.8	0.9
9688	968,816	225	3,391	5.2	402.3	402.3	403.2	0.9
9698	969,814	275	3,670	5.2	402.8	402.8	403.7	0.9
9708	970,830	180	2,674	6.6	403.4	403.4	404.2	0.8
9712	971,200	185	2,682	6.2	403.7	403.7	404.6	0.9
9714	971,380	220	2,857	6.5	405.5	405.5	405.5	0.0
9718	971,820	152	2,255	7.3	405.9	405.9	405.9	0.0
9728	972,824	123	1,577	10.1	407.2	407.2	407.2	0.0
9736	973,608	138	1,328	10.9	409.0	409.0	409.4	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
9748	974,823	111	1,415	10.0	412.5	412.5	413.3	0.8
9758	975,819	173	1,891	8.9	415.2	415.2	416.0	0.8
9770	976,952	105	1,452	10.0	417.0	417.0	417.8	0.8
9778	977,818	107	1,585	8.7	418.6	418.6	419.5	1.0
9788	978,826	176	2,430	7.8	420.2	420.2	421.0	0.8
9798	979,811	130	1,897	8.7	421.0	421.0	421.9	0.8
9803	980,335	205	2,582	7.7	421.8	421.8	422.8	1.0
9810	980,987	173	2,744	5.7	423.2	423.2	423.9	0.7
9818	981,820	127	1,870	8.7	423.6	423.6	424.3	0.7
9828	982,816	330	3,637	4.1	425.0	425.0	425.8	0.8
9838	983,824	400	4,102	4.4	425.3	425.3	426.1	0.8
9848	984,824	160	2,176	7.4	425.5	425.5	426.3	0.8
9858	985,819	139	2,044	7.4	426.7	426.7	427.4	0.7
9861	986,145	211	2,877	6.3	427.2	427.2	427.9	0.8
9868	986,818	113	1,680	7.8	427.5	427.5	428.3	0.8
9878	987,820	168	2,395	4.5	428.9	428.9	429.8	0.9
9888	988,818	90	1,132	9.5	429.5	429.5	430.3	0.8
9901	990,101	275	2,558	4.2	434.0	434.0	434.9	0.9
9908	990,817	135	1,520	5.2	434.9	434.9	435.9	1.0
9918	991,823	125	1,360	5.8	436.7	436.7	437.6	0.8
9928	992,822	105	967	8.1	439.3	439.3	440.0	0.7
9938	993,813	120	1,019	11.9	443.5	443.5	444.4	0.9
9938	993,813	120	1,019	7.7	443.5	443.5	444.4	0.9
9944	994,431	100	1,149	10.3	446.1	446.1	446.9	0.8
9946	994,605	104	1,112	10.2	448.0	448.0	448.1	0.1
9948	994,824	150	1,714	7.9	448.9	448.9	449.3	0.4
9958	995,816	98	937	11.2	450.5	450.5	451.3	0.8
9968	996,821	103	829	12.6	455.8	455.8	456.8	0.9
9978	997,826	190	1,778	6.5	460.1	460.1	461.1	1.0
9990	998,962	180	1,687	6.6	461.8	461.8	462.6	0.8
9998	999,817	109	891	8.2	463.6	463.6	464.0	0.4
10008	1,000,823	135	901	12.5	468.4	468.4	468.4	0.0
10018	1,001,837	192	1,899	6.9	472.8	472.8	472.9	0.2
10028	1,002,821	222	2,070	6.7	474.0	474.0	474.4	0.4
10040	1,003,968	131	1,348	8.5	475.5	475.5	476.2	0.6
10048	1,004,816	267	2,299	6.3	477.1	477.1	478.0	0.9
10058	1,005,821	115	986	11.0	478.4	478.4	479.4	1.0
10068	1,006,821	123	991	10.4	483.9	483.9	484.6	0.7
10078	1,007,816	128	1,065	7.8	487.8	487.8	488.7	1.0
10085	1,008,537	115	906	10.2	490.6	490.6	491.0	0.4
10088	1,008,835	197	1,721	7.7	494.7	494.7	495.3	0.6
10090	1,009,018	162	1,421	8.8	494.8	494.8	495.4	0.6
10100	1,010,017	136	1,308	7.1	496.7	496.7	497.0	0.3
10109	1,010,931	210	1,506	7.3	498.0	498.0	498.2	0.2

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
10118	1,011,834	150	1,192	5.7	498.9	498.9	499.7	0.8
10124	1,012,373	105	864	7.4	499.6	499.6	500.5	1.0

[1]Fishing Creek

[2]Elevation includes backwater effects

[3]Tar River

[4]Fishing Creek Tributary 1

[5]Tabbs 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” is not applicable in Granville County.

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 Granville 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 4/16/2007 North Carolina Statewide FIRM, which includes Granville County, are presented in Table 22, "Community Map History."

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Granville 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 Granville County.

Table 24 - Map Revision History

Community	Initial Identification Date	Initial FIRM Effective Date	FIS Revision Date
CITY OF CREEDMOOR	6/28/1974	6/25/1976	04/16/2013

Table 24 - Map Revision History

Community	Initial Identification Date	Initial FIRM Effective Date	FIS Revision Date
CITY OF OXFORD	11/7/1975	9/28/1990	04/16/2013
GRANVILLE COUNTY	4/21/1978	9/28/1990	04/16/2013
TOWN OF BUTNER	1/31/1975	2/15/1979	05/02/2006
TOWN OF STEM	9/12/1989	9/28/1990	04/16/2013
TOWN OF STOVALL	4/21/1978	9/28/1990	04/16/2013

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 Granville 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
CITY OF CREEDMOOR	4/16/2007	NCFMP	NCFMP	286-000022	12/1/2012
CITY OF CREEDMOOR	4/16/2007	NCFMP	NCFMP	286-000022	12/4/2013
CITY OF CREEDMOOR	4/16/2007	NCFMP	NCFMP	286-000022	7/1/2014
CITY OF OXFORD	4/16/2007	NCFMP	NCFMP	286-000022	12/1/2012
CITY OF OXFORD	4/16/2007	NCFMP	NCFMP	286-000022	12/4/2013
CITY OF OXFORD	4/16/2007	NCFMP	NCFMP	286-000022	7/1/2014
GRANVILLE COUNTY	4/16/2007	NCFMP	NCFMP	286-000022	12/1/2012
GRANVILLE COUNTY	4/16/2007	NCFMP	NCFMP	286-000022	12/4/2013
GRANVILLE COUNTY	4/16/2007	NCFMP	NCFMP	286-000022	7/1/2014
TOWN OF BUTNER	4/16/2007	NCFMP	NCFMP	286-000022	12/1/2012
TOWN OF BUTNER	4/16/2007	NCFMP	NCFMP	286-000022	12/4/2013
TOWN OF BUTNER	4/16/2007	NCFMP	NCFMP	286-000022	7/1/2014
TOWN OF STEM	4/16/2007	NCFMP	NCFMP	286-000022	12/1/2012
TOWN OF STEM	4/16/2007	NCFMP	NCFMP	286-000022	12/4/2013
TOWN OF STEM	4/16/2007	NCFMP	NCFMP	286-000022	7/1/2014
TOWN OF STOVALL	4/16/2007	NCFMP	NCFMP	286-000022	12/1/2012
TOWN OF STOVALL	4/16/2007	NCFMP	NCFMP	286-000022	12/4/2013
TOWN OF STOVALL	4/16/2007	NCFMP	NCFMP	286-000022	7/1/2014

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 Granville County were produced by NCFMP under contract with the State of North Carolina and issued on effective 3/31/2015. 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

The dates of the initial and final CCO meetings held for Granville County and Incorporated Areas were compiled from the previous countywide FIS Report and are shown in Table 26, “Consultation Coordination Officer’s Meetings

Table 26 — Consultation Coordination Officer’s Meetings

Community	For FIS Dated	Initial CCO Date	Attended By	Final CCO Date	Attended By
GRANVILLE COUNTY	9/28/1990	7/29/1986	Representatives of Granville County, FEMA, and the USACE	9/12/1989	Representatives of Granville County, FEMA, and the USACE
GRANVILLE COUNTY	9/28/1990	7/29/1986	Representatives of Granville County, FEMA, and the USACE	11/8/1989	Representatives of FEMA, Tennessee Valley Authority, and the community

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 Granville County are shown in Table 27, “Scoping Meetings.” Meetings held for the map maintenance revision are also included below for Granville County.

Table 27 — Scoping Meetings

Community	Riverbasin	Initial Scoping Date	Attended By	Final Scoping Date	Attended By
CITY OF CREEDMOOR	NEUSE	11/30/2000	Representatives of the City of Creedmoor, the State, FEMA, and Dewberry	4/23/2001	Representatives of the City of Creedmoor, the State, FEMA, and Dewberry
CITY OF CREEDMOOR ETJ	NEUSE	11/30/2000	Representatives of the City of Creedmoor, the State, FEMA, and Dewberry	4/23/2001	Representatives of the City of Creedmoor, the State, FEMA, and Dewberry
CITY OF OXFORD	TAR-PAMLICO	11/30/2000	Representatives of the Granville County, City of Oxford, the State, FEMA, and Dewberry	1/31/2001	Representatives of the Granville County, City of Oxford, the State, FEMA, and Dewberry
CITY OF OXFORD ETJ	TAR-PAMLICO	11/30/2000	Representatives of the Granville County, City of Oxford, the State, FEMA, and Dewberry	1/31/2001	Representatives of the Granville County, City of Oxford, the State, FEMA, and Dewberry
GRANVILLE COUNTY	NEUSE	11/30/2000	Representatives of the Granville County, the State, FEMA, and Dewberry	4/23/2001	Representatives of the Granville County, the State, FEMA, and Dewberry
GRANVILLE COUNTY	NEUSE	11/30/2000	Representatives of the Granville County, the State, FEMA, and Dewberry	12/15/2004	Representatives of the State, FEMA, and Dewberry
GRANVILLE COUNTY	ROANOKE	11/7/2003	Representatives of the Granville County,Town of Stem, Town of Stovall, the State, FEMA, and Dewberry	4/23/2001	Representatives of the Granville County, the State, FEMA, and Dewberry
GRANVILLE COUNTY	ROANOKE	11/7/2003	Representatives of the Granville County,Town of Stem, Town of Stovall, the State, FEMA, and Dewberry	12/15/2004	Representatives of the State, FEMA, and Dewberry
TOWN OF STEM	NEUSE	11/30/2000	Representatives of the Town of Stem, the State, FEMA, and Dewberry	4/23/2001	Representatives of the Town of Stem, the State, FEMA, and Dewberry
TOWN OF STEM	NEUSE	11/30/2000	Representatives of the Town of Stem, the State, FEMA, and Dewberry	12/15/2004	Representatives of the State, FEMA, and Dewberry
TOWN OF STEM	ROANOKE	11/7/2003	Representatives of the Granville County,Town of Stem, Town of Stovall, the State, FEMA, and Dewberry	4/23/2001	Representatives of the Town of Stem, the State, FEMA, and Dewberry
TOWN OF STEM	ROANOKE	11/7/2003	Representatives of the Granville County,Town of Stem, Town of Stovall, the State, FEMA, and Dewberry	12/15/2004	Representatives of the State, FEMA, and Dewberry

Table 27 — Scoping Meetings

Community	Riverbasin	Initial Scoping Date	Attended By	Final Scoping Date	Attended By
TOWN OF STOVALL	ROANOKE	11/7/2003	Representatives of the Granville County,Town of Stem, Town of Stovall, the State, FEMA, and Dewberry	12/15/2004	Representatives of the State, FEMA, 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
GRANVILLE COUNTY	4/16/2007	Oxford	9/8/2003	Granville County and the Incorporated Communities, the State, Dewberry and Watershed Concepts	2/27/2003	NP
GRANVILLE COUNTY	4/16/2007	Oxford	9/8/2003	Granville County and the Incorporated Communities, the State, Dewberry and Watershed Concepts	10/20/2003	NP
GRANVILLE COUNTY	4/16/2007	Oxford	9/8/2003	Granville County and the Incorporated Communities, the State, Dewberry and Watershed Concepts	3/2/2006	NP
GRANVILLE COUNTY	4/16/2013	Louisburg	7/15/2010	Representatives of the State, Granville County, and Dewberry	8/10/2010	Representatives of the State, Franklin County and Incorporated Communities
GRANVILLE COUNTY	4/16/2013	Louisburg	7/15/2010	Representatives of the State, Granville County, and Dewberry	8/10/2010	Representatives of the State, Granville County, and Dewberry
GRANVILLE COUNTY	4/16/2013	Louisburg	7/15/2010	Representatives of the State, Granville County, and Dewberry	8/10/2010	Representatives of the State, Vance County and Incorporated Communities, and Dewberry
GRANVILLE COUNTY	4/16/2013	Louisburg	7/15/2010	Representatives of the State, Granville County, and Dewberry	8/10/2010	Representatives of the State, Wake County and Incorporated Communities, and Dewberry
GRANVILLE COUNTY	4/16/2013	Louisburg	7/15/2010	Representatives of the State, Granville County, and Dewberry	11/15/2010	Representatives of the State, Nash County and Incorporated Communities, and Dewberry
GRANVILLE COUNTY	4/16/2013	Louisburg	7/15/2010	Representatives of the State, Granville County, and Dewberry	1/16/2011	Representatives of the State, Nash County and Incorporated Communities, and Dewberry
GRANVILLE COUNTY	4/16/2013	Louisburg	7/15/2010	Representatives of the State, Granville County, and Dewberry	4/18/2011	Representatives of the State, FEMA, Dewberry, and Wilson County and Incorporated Areas
GRANVILLE COUNTY	4/16/2013	Louisburg	7/15/2010	Representatives of the State, Granville County, and Dewberry	10/19/2011	Representatives of the State, FEMA, Dewberry, and Pitt County and Incorporated Areas
GRANVILLE COUNTY	4/16/2013	Louisburg	7/15/2010	Representatives of the State, Granville County, and Dewberry	10/20/2011	Representatives of the State, FEMA, Dewberry, and Lenoir County and Incorporated Areas
GRANVILLE COUNTY	4/16/2013	Louisburg	7/15/2010	Representatives of the State, Granville County, and Dewberry	12/2/2011	Representatives of the State, FEMA, Dewberry, and Greene County and Incorporated Areas

Table 28 — Preliminary and Public Participation Meetings

Community	For FIS Dated	Meeting Location	Preliminary Meeting Date	Attended By	Public Meeting Date	Attended By
GRANVILLE COUNTY	4/16/2013	Louisburg	7/15/2010	Representatives of the State, Granville County, and Dewberry	12/2/2012	Representatives of the State, FEMA, Dewberry, and Greene County and Incorporated Areas

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 Granville 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 Stem	Stem Town Office, 113 Tally Ho Road	Stem	NC	27581
Town of Butner	Butner Town Hall, 205C West E. Street	Butner	NC	27509
Granville County	Granville County Planning Department, 122 Williamsboro Street	Oxford	NC	27565
City of Oxford	City of Oxford Planning Department, 300 Williamsboro Street	Oxford	NC	27565
City of Creedmoor	City of Creedmoor Planning and Zoning Department, 111 Masonic Street	Creedmoor	NC	27522

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 Granville 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