



Request for Proposals
Clearing of Debris from Ditches and Canals
Within the Town of Kitty Hawk.

The Town of Kitty Hawk is requesting proposals for the clearing of all debris from ditches and canals at various locations within the Town of Kitty Hawk. This project entails the removal and disposal of vegetative and non-vegetative debris. This project will need to be **completed** by **May 1, 2023**. Sealed proposals will be **received** until **2:00 p.m. on October 25, 2022**.

Information is available at the Kitty Hawk Public Works office, or email wmidgett@kittyhawktown.net for an electronic copy. Please contact Willie Midgett at the email address provided, or at 252-261-1367, for any questions.

**Scope of Work
For
Stream Debris Removal
In the Town of Kitty Hawk, NC**

Background:

The purpose of this project is to remove stream debris resulting from Hurricane Matthew and Tropical Storms Hermine and Julia. The project is being funded by state appropriations from the Disaster Recovery Act of 2016. The Town of Kitty Hawk is responsible for the administration of the grant funding.

Part 1

1.1 DESCRIPTION OF WORK

Snag and Clear

The work for this task includes removal activities including cutting and removing downed and submerged trees, broken tops, and woody/vegetative debris that impede or have the future potential to impede water flow in the streams and tributaries as identified in Attachment A.

Non-Vegetative Debris

The work for this task includes removal of non-vegetative debris such as plastics, tires, wood, and other non-vegetative debris shall also be removed from the waterway.

1.2 Removal of vegetative debris specifically prescribed by the Town of Kitty Hawk

The Town of Kitty Hawk shall identify specific vegetative debris in certain locations as identified in Attachment A.

1.3 Work Limits

The work will be performed in accordance with the location maps and project maps for limits of clearing and snagging and miscellaneous work as illustrated in Attachment A. The limits will not include any work on private property, unless necessary to accomplish the goals of the project and specified by the Town of Kitty Hawk.

1.4 Debris Removal and Disposal

Disposal of vegetative and non-vegetative debris shall be removed and disposed of in accordance with applicable federal, state and local requirements at no additional cost to the Town of Kitty Hawk. Vegetative Debris and non-vegetative debris may be temporarily stored at sites identified by the contractor within the Town limits, however, shall be removed within 10 working days from the Town of Kitty Hawk.

Vegetative Debris and non-vegetative debris shall be removed from the streams and hauled away.

The contractor shall conduct disposal operations in compliance with applicable ordinances and environmental laws. If sediment has been removed as a consequence of removing debris, and has accumulated on the barge/boat deck, the Contractor may not put this material back into the waters. This material must be disposed of by other legal means.

All equipment utilized by the contractor shall also be washed appropriately to prevent the spread of non-native vegetation and other species. Equipment that leaves the site and returns must be washed accordingly.

1.5 Canals & Stream Access

The Town of Kitty Hawk will provide a public access location to access the project area. The Town will also assist in obtaining right-of-entry permits and agreements from private land owners as needed. However, if the contractor or the Town is unable to obtain these agreement(s) the contractor shall find other means to remove the vegetative and non-vegetative debris.

Part 2 PROJECT REQUIREMENTS

2.1 Submittals

The contractor shall submit the following as part of the Bid Package:

1. A brief description of the company to include:
 - a. Name of Company and Address of Business
 - b. Years in Business
 - c. Brief History of your Business
 - d. Provide three (3) references from recently completed projects
2. Proposed Operations Plan
3. Certificate of General Liability Insurance in the amount of \$1,000,000

4. Worker's Compensation Insurance
5. List of any subcontractors
6. A detailed list of equipment and hand tools that the employees and/or subcontractors will be using for the job
7. W-9 Form
8. Acknowledgement that your company has read and understands that Best Management Practices for Selective Clearing and Snagging will be followed at all times during the project. (Attachment B).
9. Completed Bid Schedule (Attachment C).

The contractor shall submit one (1) copy and an electronic copy (flash drive) to:

Mail:

Town of Kitty Hawk
Public Works Department
Willie Midgett
P.O. Box 549, Kitty Hawk, NC 27949

or

Hand Deliver:

Town of Kitty Hawk
Public Works Department
Willie Midgett
101 Veterans Memorial Drive, Kitty Hawk, NC 27949

2.2 Work Hours

The contractor may work during daylight hours Monday through Friday during the week to complete the work. Work involving heavy equipment and noisy hand tools shall only be permitted between the hours of 7:00 a.m. to 6:00 p.m. Weekend work may be authorized by the Town of Kitty Hawk with a minimum of twenty-four (24) hours notice.

2.3 Quality Assurance

The contractor shall demonstrate the ability to perform this type of work and must have experience with similar projects of this magnitude.

The contractor at no expense to the Town of Kitty Hawk, shall protect all government facilities, grounds, equipment, sidewalks, and/or pavement during the completion of the work. Damages caused by the operations of the contractor and/or the contractors crew will be repaired at no expense to the Town of Kitty Hawk.

Clarification of any removal of vegetative debris in streams shall be directed to the Town of Kitty Hawk during the project.

2.4 Equipment

The contractor is required to utilize equipment that satisfies the minimum performance conditions. The contractor must demonstrate the ability to remove all vegetative debris and transport by water if necessary.

The contractor is required to perform cleaning and snagging of debris to the full depth of all canals & streams as identified in Attachment A. The contractor is required to have the capabilities of clearing & snagging below the waterline.

2.5 Project Schedule

The contractor must be able to perform the necessary work between November 1, 2022 and May 1, 2023. The Town may grant an extension depending on weather and other factors that may affect the project.

Part 3 BIDDING INFORMATION

3.1 Pre-bid Meeting

No pre-bid meeting is planned at this time.

3.2 Point of Contact

Questions must be in writing and emailed to wmidgett@kittyhawktown.net. A list of questions and responses will be published online at www.kittyhawknc.gov

3.3 Bid

The contractor shall provide a proposal for work as shown on the attached Bid Schedule. The costs proposed shall include the costs of all labor, material, and equipment necessary to complete the work as provided for in the request for proposal and all related documents.

The completed bid document must be sealed and received by the Town no later than 2:00 p.m. Tuesday, October 25, 2022. Bids will be opened at 2:00 p.m. Tuesday, October 25, 2022 in the Town Council chambers.

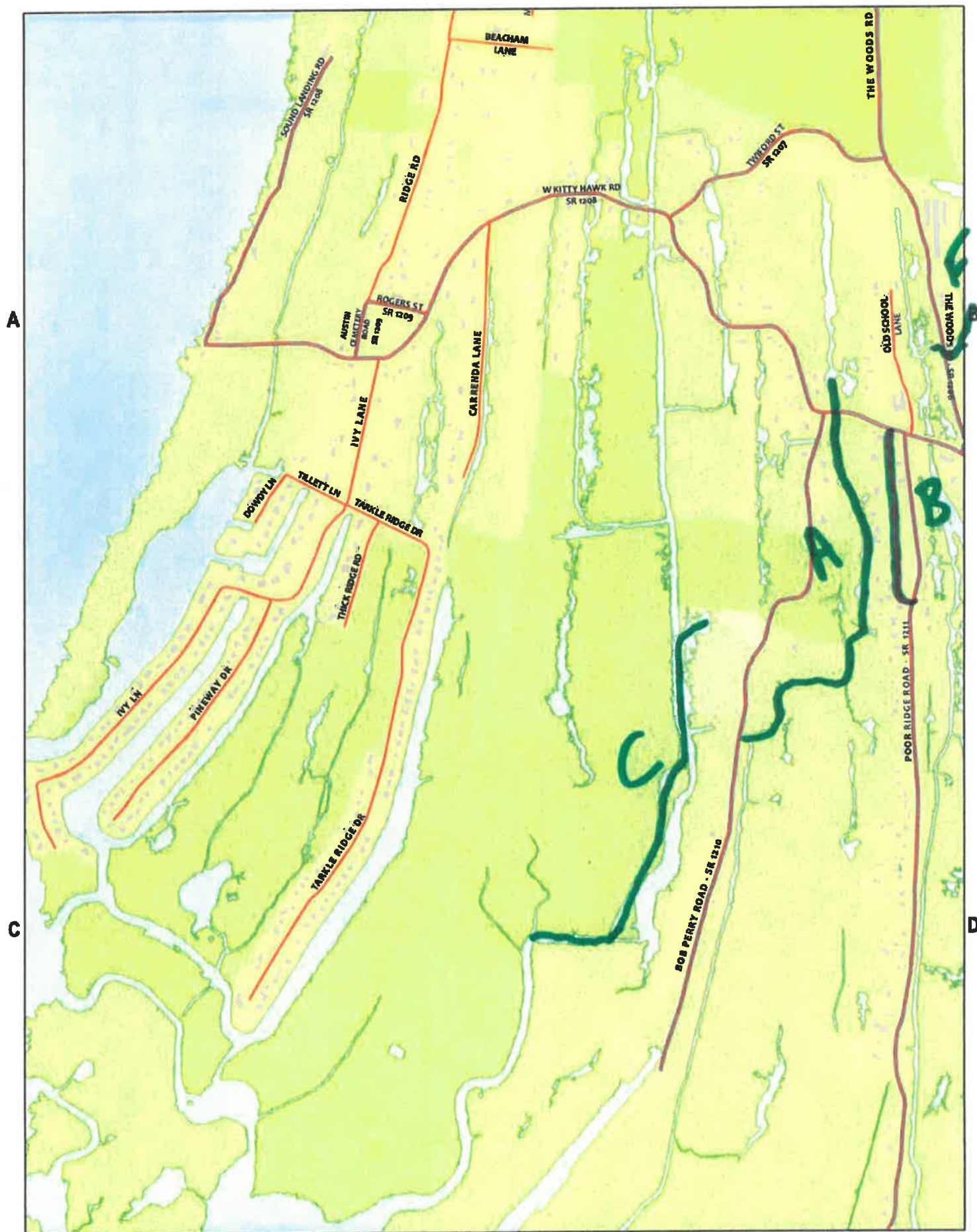
3.4 Attached Documents

The following documents have been attached for your use in preparing the Proposal and performing the work under this task order:

- Attachment A – Canal & Stream location Map
- Attachment B – Acknowledgement of Best Management Practices for Selective Clearing and Snagging
- Attachment C – Bid Schedule

3.5 Notices

The Town reserves the right to reject any and all bids.







Bois Ferry

A

POOR RIDGE RD



401M401TE





WEST
ECKNER ST
NORTH



WEST ECKNER ST SOUTH

SANDY KUN TALL



SANDY RUN CREEK



Best Management Practices Acknowledgement Form

_____ have read and understand the contents of
(Company Name)

**the Best Management and Practices for Selective Clearing and Snagging (attached). I
further understand that these practices will be followed during the entire project and
recognized in a formal contract if awarded the project.**

Company Name: _____

Signature _____

Title in Company: _____

Date: _____

APPENDIX B: BEST MANAGEMENT PRACTICES (BMPs) FOR
SELECTIVE CLEARING AND SNAGGING*

Trees and brush that shade streams and stabilize the banks should not be disturbed. In new channel construction, existing trees and brush should be left in place along the tops of banks. No stream work, including bank clearing and excavation or removal of materials, "snags," or other channel obstructions, should be allowed except at specific locations where significant blockages in streams occur. Channel excavation and snag removal should be accomplished with the minimum streambank clearing needed to provide access to the stream and should not be undertaken unless it is absolutely necessary. The following BMPs prescribe the manner in which snag removal and stream channel clearing should be undertaken:

a. Practices for snagging.

- (1) Logjam removal. Only those log accumulations that are obstructing flows to a degree that results in flooding or significant ponding or sediment deposition should be removed.
- (2) Removal of other logs.
 - Affixed logs. Isolated or single logs should not be disturbed if they are embedded, jammed, rooted, or waterlogged in the channel or the floodplain, if they are not subject to displacement by current, and if they are not presently blocking flows. Generally, embedded logs that are parallel to the channel are not considered to cause blockage problems and should not be removed. Affixed logs that are crossways to the flow of waters in the channel and are trapping debris to the extent that could result in significant flooding or sedimentation may be removed.
 - Free logs. All logs that are not rooted, embedded, jammed, or sufficiently waterlogged to resist movement by stream currents may be removed from the channel.
- (3) Protecting riparian vegetation. No rooted trees, whether alive or dead, should be cut unless:
 - They are leaning over the channel at an angle greater than 30 deg of vertical and they are dead or severely undercut, or damaged root systems are relying upon adjacent vegetation for support and it appears they will fall into the channel within 1 year and create blockage to flows; or
 - Their removal from the floodplain is required to secure access for equipment to a point where a significant blockage has been selected for removal.

* Source: State of New York (1986). The citation for this reference is included with those following the main text of this report.

Trees selected for removal should be cut well above the base, leaving the stump and roots undisturbed. Procedures for removing the felled portion should be the same as for other logs as discussed below.

- (4) Equipment for log removal. First consideration should be given to the use of hand-operated equipment to remove log accumulations. When the use of hand-operated equipment is infeasible, vehicular equipment should be used in accordance with the following guidelines:

- Water-based equipment (e.g., a crane or winch mounted on a small, shallow draft barge or other vessel) should be used for removing material from the stream. A small crawler tractor with winch or similar equipment may be used to remove debris from the channel to selected disposal points.
- When stream conditions are inadequate for the use of water-based equipment, the smallest feasible equipment with tracking systems that minimize ground disturbance should be specified for use. Larger equipment may be employed from nonwooded areas where cables could be stretched down to the channel to drag out materials to be removed.
- Access routes for equipment should be selected to minimize disturbance to existing floodplain vegetation, particularly in the riparian zone. Equipment should be selected which will require little or no tree removal in forested areas.

- (5) Log disposal practices. All logs or trees designated for removal from a stream or floodplain should be removed or secured in such a manner as to preclude their reentry into the channel by floodwaters. Generally, they should be transported well away from the channel and floodway and positioned parallel to the stream channel so as to reduce flood flow impediment. When large numbers of logs are removed at one location (e.g., logjams), their use for firewood may be most appropriate. Burying of removed material should not be permitted.

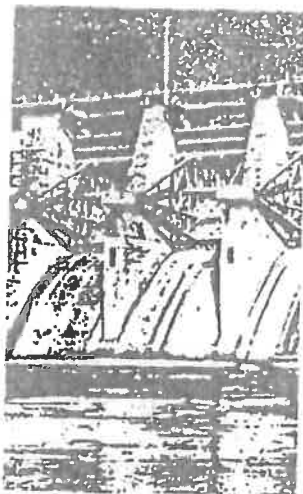
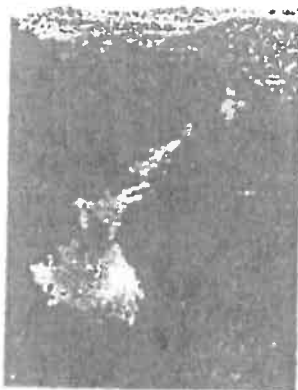
b. Practices for stream channel clearing.

- (1) Small debris accumulation. Small debris accumulations should be left undisturbed unless they are collected around a log or blockage that should be removed. (Small debris accumulations will not constitute a significant blockage to flows. Upon removal of logs and other blockages under these BMPs and the following completion of the project, the changed water velocities will remove and disperse these small debris accumulations so that no significant blockage of water flows will result.)
- (2) Removal of sediment and soils. Major sediment plugs in the channel may be removed if they are presently blocking the channel to a degree that results in ponding and dispersed overland flow through poorly defined or nonexistent channels and, in the opinion of appropriate experts, will not be removed by natural stream or river forces after logs and other obstructions have been removed.

- (3) Disposal of spoil material. Conventional excavating equipment may be required for sediment blockages. This equipment should be employed in a manner which will minimize environmental damages as follows:
- Access routes for equipment should be selected to minimize disturbance to existing floodplain vegetation, particularly in the riparian zone.
 - Material disposal and necessary tree removal should be limited to one side of the original channel at any given location.
 - To the maximum extent possible, excavating equipment should not be employed in the stream channel bed.
 - Where feasible, excavated materials should be removed from the floodplain. If floodplain disposal is the only feasible alternative, the spoil material should be placed on the highest practical elevation and no material should be placed in any tributary or distributary channels which provide for ingress and egress of waters to and from the floodplain.
 - No continuous spoil pile should be created. It is suggested that no pile exceed 50 ft in length or width and a gap of equal or greater length should be left between adjacent spoil piles.
 - Spoil piles should be constructed as high as sediment properties allow.
 - The placement of spoil material around the bases of mature trees should be avoided where possible.
 - All disturbed areas should be reseeded or replanted with plant species which will stabilize soils and benefit fish and wildlife. Revegetation should be in accordance with County Soil and Water Conservation District recommendations.
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US Army Corps
of Engineers



ENVIRONMENTAL IMPACT
RESEARCH PROGRAM

TECHNICAL REPORT EL-92-35

INCREMENTAL EFFECTS OF LARGE WOODY DEBRIS
REMOVAL ON PHYSICAL AQUATIC HABITAT

by

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Environmental Laboratory

DEPARTMENT OF THE ARMY
Waterways Experiment Station, Corps of Engineers
3909 Halls Ferry Road, Vicksburg, Mississippi 39180-6199



November 1992

Final Report

Approved For Public Release; Distribution Is Unlimited

Prepared for DEPARTMENT OF THE ARMY
US Army Corps of Engineers
Washington, DC 20314-1000

Under EIRP Work Unit 32555

PART V: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

LWD plays an important role as a component of aquatic habitat. Although LWD enters food webs as it decays, the major importance of debris lies in its structural characteristics and the way it influences channel flow patterns. Physical processes associated with debris in streams include the formation of pools and retention of fine sediment and organic matter.

Awareness of the adverse effects of complete LWD removal on channel stability and aquatic habitat has led to the development of guidelines for selective removal of LWD as a means of balancing habitat and conveyance objectives. These guidelines (Appendix A) involve the use of manual labor and small equipment to remove only the LWD that causes significant flow obstruction. Removal of bank vegetation and disturbance to stream habitats is minimized. Personnel within some Corps districts have already completed or are in the process of classifying the streams under their jurisdiction according to these guidelines. Use of these guidelines for project planning and design requires quantification of the hydraulic and environmental impacts of incremental LWD removal.

In this study, a simple method for quantifying LWD density and computing associated friction factors was developed and tested using data collected during an LWD removal project on the South Fork Obion River in western Tennessee. Physical conditions of both cleared and uncleared stream reaches were measured by collecting three types of data: LWD density, dye tracer tests (for computing reach mean hydraulic parameters), and physical habitat (depth, velocity, bed type, and cover) at selected transects. The LWD density was the important independent variable, while the dye tracer and physical habitat data were used to study macroscale and microscale effects of LWD, respectively. Macroinvertebrate samples were also collected at low flow conditions, and the results are presented in a companion report to this study (Payne and Miller in preparation).

Conclusions

Removal of LWD from the study reach decreased near-bank-full friction factor by about one third. Impacts on physical aquatic habitat at base flow

were measurable and statistically significant, even though the Stream Obstruction Removal Guidelines (IAFWA 1983) were applied throughout project planning and implementation. Benefits of proposed LWD removal projects should be carefully analyzed in light of costs and environmental impacts. Findings of this study generally agreed with work by others in different types of streams. The simple procedure developed in this study for quantifying LWD density and its effect on channel resistance may be used for environmental impact assessment and hydraulic engineering analyses. Considerable refinement and site-specific adaptation may be in order, however. The method for prediction of channel roughness coefficients does not account for local losses because of bends or flow expansion and contraction at bridges, debris dams, or riffles.

Recommendations

To refine the methodology used in this study, additional data should be collected from two more stream LWD removal projects. Streams with higher LWD density and different types of bed sediment from that encountered in this study would be preferable. Physical data should be collected over a range of flows varying from normal low-flow to bank-full conditions. Concurrent biological data should be collected at base flow. Data should be collected to document preproject and postproject conditions. Investigation of additional methods of determining LWD density, such as using video recorders or low altitude aerial photography to count and measure the LWD formations, is recommended.



Streamflow Rehabilitation Assistance Program

Debris Removal & Processing Recommendations

§ 139-65. Streamflow Rehabilitation Assistance Program, the authorizing legislation for StRAP, states that *"The Commission shall ensure that debris removed from streams with funds provided under this Article are either removed from the 100-year floodplain or processed in such a manner that the debris would not pose a risk of blockage or significant impairment of normal streamflow during a subsequent flood event."*

The Soil & Water Conservation Commission has determined that processing of debris may include any of the following activities:

- Chipping
- Cabling or strapping in a secured manner outside the immediate stream area (minimum of 30 ft. from top of the stream bank)
- Burning (Must comply with all required State Forest Service permits and only under appropriate Air Quality conditions)
- Other processing options approved by the Commission

Removal from the floodplain

- Debris removed from the stream can be hauled away from the floodplain. Debris can be loaded directly into a truck for removal or debris can be floated to a location appropriate for its removal from the stream or floodplain.
- Debris can be removed to a landfill (grantees should confirm that the landfill accepts woody debris), another property, or to another location on the same property as long as it is outside of the floodplain and landowner has granted permission for the debris to be deposited on the site.
- Equipment used for hauling debris from the floodplain should be used in a manner that minimizes the impact to the banks of the stream. Boat mounted equipment may be an effective option for accessing stream debris. Tracked or wheeled equipment should be kept out of the stream channel and may be employed from the bank by using a manipulator arm or cables to drag debris out of the stream channel.¹
- If garbage (such as wooden construction materials) is contributing to blockages in the stream, it can be removed from the stream and disposed outside of the floodplain.

Chipping or Burning Debris

Debris can be left in the floodplain if it has been chipped or burned so that it does not pose a risk of contributing to future blockages if it is washed back into the stream. Wood chips can be left on site or hauled away.

- Wood chips can be placed on the floodplain starting at the top of the bank. Wood chips should not be placed below the top of the bank or in channels that drain from the floodplain into the stream.²

¹ [NRCS Clearing and Snagging Code 326 Practice Standards](#)

² [USACE Best Management Practices for Selective Clearing and Snagging](#)

- Wheeled chippers and other equipment should be used in a manner that reduces impact to soil and vegetation.
- Wood chips should be distributed across the site in as thin a layer as practical to avoid inhibiting plant growth. Wood chips can be left in a pile at the landowner's request.
- Debris can be burned on site. The grantee/contractor is responsible for obtaining and possessing a valid burn permit (if applicable) and for following any other necessary laws or statutes related to burning.

Cabling/Strapping

Cabling or strapping refers to the practice of anchoring logs and other woody debris in place so that it will not be washed back into the stream in subsequent flood events.

- Cabled/strapped debris should be set back at least 30 feet from the top of the stream bank.
- Woody debris cabled/strapped within the floodplain should be anchored in such a way that it will not significantly affect the flow capacity of the floodplain. Securing logs parallel to the direction of the stream flow can help reduce flood flow impediment.
- Cabling debris to an anchor will ensure woody debris will not be moved back into the stream channel during future flood events. The anchor point should be selected based on site-specific factors, such as availability of natural anchors and cost. Examples of anchors include live trees or soil anchors.
- **Live Trees-** Logs and debris may be cabled to live trees or fresh stumps. Fatal damage to live trees should be avoided. Wedging logs against the live tree before the cable/strap is attached will help ensure the attached log is as immobile as possible.
 - If a strap/cable is looped around a tree, leaving a small amount of slack in the loop around the live tree, and between the live tree and the log, may help protect the tree from girdling and prevent the cable from snapping if the anchored log shifts.
 - If stumps are used, the cable/strap should be secured in a way so that it will not slip off the top of the stump in future flood events.
- **Soil Anchors-** Soil anchors may be useful on sites with few live trees to serve as anchors or in other situations when live trees are not desirable as anchors. For technical guidance on use soil anchors, contractors should use refer to [*NRCS Technical Supplement TS14E Soil Anchors*](#).
- **Cable Material:** A variety of cable, rope, or strap options can be used for securing large woody debris to an anchor point.
 - If steel cable is used, a minimum cable diameter of 1/8-inch should be used to secure the debris. If rope or strapping is used, material with a breaking strength equivalent to 1/8-inch diameter steel cable should be used. Contractors should use thicker cables/ropes as necessary to sufficiently secure debris.
- Placing debris as close to the anchor as possible will reduce the amount of rope/cable needed and reduce the risk of landowners tripping over the cable.
- Logs can be anchored individually or in groups. If groups of logs & branches are anchored together, wrapping the cable or rope around the entire bundle of debris can secure the bundle to the anchor.

Attachment C

Bid Schedule

Storm Debris Removal Town of Kitty Hawk

Name/Description of Stream/Ditch	Approximate Length of Stream/Ditch	LF Price	Total
Bob Perry Rd	3,600 LF		
Poor Ridge Rd	1,100 LF		
Ginguite	3,500 LF		
W, Eckner (North)	1,200 LF		
W. Eckner (South)	3,000 LF		
Sandy Run Park	1,000 LF		
Sandy Run Creek	2,000 LF		

Company Name: _____

Signature: _____

Title: _____

Date: _____