



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

July 14, 2010

U. S. Army Corps of Engineers
Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

ATTN: Mr. Eric Alsmeyer
NCDOT Coordinator

Dear Sir,

Subject: **Application for Section 404 Nationwide Permit 13, Section 401 Water Quality Certification and Neuse Riparian Buffer Authorization** for the Oakwood Cemetery Mitigation Site Remediation along Cemetery Branch, Division 5, T.I.P No. R-2000WM.

Debit \$240.00 from WBS No. 34365.4.5

The North Carolina Department of Transportation (NCDOT) proposes to stabilize 100 feet of Cemetery Branch of the Oakwood Cemetery Mitigation Site.

Please see the enclosed copies of the Pre-Construction Notification (PCN) and permit drawings for the above-referenced project.

This project will begin construction upon receipt of all permits.

A copy of this permit application will be posted on the NCDOT Website at: <http://www.ncdot.org/doh/preconstruct/pe/>. If you have any questions or need additional information, please call Rachele Beauregard at (919) 431-6764.

Sincerely,

A handwritten signature in black ink, appearing to read "G. J. Thorpe".

Gregory J. Thorpe, Ph.D.
Environmental Management Director, PDEA

W/attachment

Mr. Brian Wrenn, NCDWQ (5 Copies)
Mr. J. Wally Bowman, P.E., Division Engineer
Mr. Chris Murray, DEO
Mr. Randy Griffin, NEU

W/o attachment (see website for attachments)

Dr. David Chang, P.E., Hydraulics
Mr. Mark Staley, Roadside Environmental
Mr. Greg Perfetti, P.E., Structure Design
Mr. Victor Barbour, P.E., Project Services Unit
Mr. Jay Bennett, P.E., Roadway Design
Mr. Majed Alghandour, P. E., Programming and TIP
Mr. Art McMillan, P.E., Highway Design
Mr. Scott McLendon, USACE, Wilmington
Mr. Gary Jordan, USFWS
Mr. Travis Wilson, NCWRC
Mr. Eric Midkiff, P.E., PDEA Project Planning Engineer
Ms. Renee Gledhill-Earley, State Historic Preservation Office



Office Use Only:
 Corps action ID no. _____
 DWQ project no. _____
 Form Version 1.3 Dec 10 2008

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	<input checked="" type="checkbox"/> Section 404 Permit	<input type="checkbox"/> Section 10 Permit
1b. Specify Nationwide Permit (NWP) number: 13 or General Permit (GP) number:		
1c. Has the NWP or GP number been verified by the Corps?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
1d. Type(s) of approval sought from the DWQ (check all that apply):		
<input checked="" type="checkbox"/> 401 Water Quality Certification – Regular <input type="checkbox"/> Non-404 Jurisdictional General Permit <input type="checkbox"/> 401 Water Quality Certification – Express <input checked="" type="checkbox"/> Riparian Buffer Authorization		
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	For the record only for Corps Permit: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

2. Project Information

2a. Name of project:	Oakwood Cemetery Mitigation Site Remediation
2b. County:	Wake
2c. Nearest municipality / town:	Raleigh
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no.:	R-2000WM

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	<i>not applicable</i>
3c. Responsible Party (for LLC if applicable):	<i>not applicable</i>
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 431-6764
3g. Fax no.:	(919) 431-2002
3h. Email address:	rbeaugard@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	<input type="checkbox"/> Agent <input type="checkbox"/> Other, specify:
4b. Name:	<i>not applicable</i>
4c. Business name (if applicable):	
4d. Street address:	
4e. City, state, zip:	
4f. Telephone no.:	
4g. Fax no.:	
4h. Email address:	
5. Agent/Consultant Information (if applicable)	
5a. Name:	<i>not applicable</i>
5b. Business name (if applicable):	
5c. Street address:	
5d. City, state, zip:	
5e. Telephone no.:	
5f. Fax no.:	
5g. Email address:	

B. Project Information and Prior Project History	
1. Property Identification	
1a. Property identification no. (tax PIN or parcel ID):	<i>not applicable</i>
1b. Site coordinates (in decimal degrees):	Latitude: . Longitude: - . (DD.DDDDDD) (-DD.DDDDDD)
1c. Property size:	0.18 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	Cemetery Branch
2b. Water Quality Classification of nearest receiving water:	C, NSW
2c. River basin:	Neuse
3. Project Description	
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: In February, 2010, the cemetery contacted NCDOT regarding a bank failure near the Cemetery Office. The eroding stream bank is located along the right facing downstream and is approximately 100 feet in length. It appears that there may be a number of contributing factors to the bank erosion. A utility pole was relocated to the top of the stream bank around 2002. Also it appears that there has been excessive maintenance within the conservation easement that was above and beyond the approved maintenance schedule documented in the conservation easement.	
3b. List the total estimated acreage of all existing wetlands on the property: 0	
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 1300 ft	
3d. Explain the purpose of the proposed project: To stabilize a stream	
3e. Describe the overall project in detail, including the type of equipment to be used: The utility pole and guy wire will be relocated to approximately 10 feet from the office building away from the stream bank. Upon review and after consultation with State and Federal Regulatory Agencies, NCDOT has committed to repair approximately 100 feet of stream bank by sloping the existing bank to 2:1 or flatter and plating with Class II rip-rap from the normal water surface elevation to approximately 3 feet in height from the thalweg of the stream. All disturbed areas will be seeded, mulched, and erosion control matting will be installed. Approximately 0.10 ac. will be planted with live stakes and/or bare root seedlings between December, 2010-March, 2011. This remediation work is similar to the original design and mitigation plan with a flatter slope on the right bank.	
4. Jurisdictional Determinations	
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	<input type="checkbox"/> Preliminary <input checked="" type="checkbox"/> Final
4c. If yes, who delineated the jurisdictional areas? Name (if known):	Agency/Consultant Company: Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. Nationwide Permit 27 obtained in 1999	

5. Project History	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
5b. If yes, explain in detail according to "help file" instructions. The Oakwood Cemetery stream mitigation project is located in Historic Oakwood Cemetery in Raleigh, N.C. NCDOT holds a conservation easement along both sides of the stream between Oakwood Avenue and Boundary Street. The stream mitigation project was approximately 1300 Linear Feet in length. The project was constructed in the March, 1999 to provide up-front mitigation for the I-540 (Wake Expressway). The original construction of the stream projects was permitted utilizing a NW 27 and 401 Water Quality Certification. In May 1999, the stream was utilized to compensate for unavoidable stream impacts for R-2000EA/EB (Northern Wake Expressway).	
6. Future Project Plans	
6a. Is this a phased project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
6b. If yes, explain.	

C. Proposed Impacts Inventory						
1. Impacts Summary						
1a. Which sections were completed below for your project (check all that apply):						
<input type="checkbox"/> Wetlands		<input checked="" type="checkbox"/> Streams - tributaries		<input type="checkbox"/> Buffers		
<input type="checkbox"/> Open Waters		<input type="checkbox"/> Pond Construction				
2. Wetland Impacts						
If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.						
2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	2f. Area of impact (acres)	
Site 1 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 5 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 6 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
2g. Total wetland impacts					X Permanent X Temporary	
2h. Comments:						
3. Stream Impacts						
If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.						
3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10 DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	bank stabilization	Cemetery Branch	<input checked="" type="checkbox"/> PER <input type="checkbox"/> INT	<input checked="" type="checkbox"/> Corps <input type="checkbox"/> DWQ	5	100
Site 2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 4 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 5 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
Site 6 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> PER <input type="checkbox"/> INT	<input type="checkbox"/> Corps <input type="checkbox"/> DWQ		
3h. Total stream and tributary impacts					100 Perm X Temp	
3i. Comments:						

4. Open Water Impacts

If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.

4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact	4d. Waterbody type	4e. Area of impact (acres)
O1 <input type="checkbox"/> P <input type="checkbox"/> T				
O2 <input type="checkbox"/> P <input type="checkbox"/> T				
O3 <input type="checkbox"/> P <input type="checkbox"/> T				
O4 <input type="checkbox"/> P <input type="checkbox"/> T				
4f. Total open water impacts				X Permanent X Temporary

4g. Comments:

5. Pond or Lake Construction

If pond or lake construction proposed, then complete the chart below.

5a. Pond ID number	5b. Proposed use or purpose of pond	5c. Wetland Impacts (acres)			5d. Stream Impacts (feet)			5e. Upland (acres)
		Flooded	Filled	Excavated	Flooded	Filled	Excavated	Flooded
P1								
P2								
5f. Total								

5g. Comments:

5h. Is a dam high hazard permit required?	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, permit ID no:
5i. Expected pond surface area (acres):	
5j. Size of pond watershed (acres):	
5k. Method of construction:	

6. Buffer Impacts (for DWQ)

If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you **MUST** fill out Section D of this form.

6a. Project is in which protected basin?		<input checked="" type="checkbox"/> Neuse <input type="checkbox"/> Catawba		<input type="checkbox"/> Tar-Pamlico <input type="checkbox"/> Randleman		<input type="checkbox"/> Other:	
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)		
B1 <input checked="" type="checkbox"/> P <input type="checkbox"/> T	streambank stabilization	Cemetery Branch	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	885	0		
B2 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No				
B3 <input type="checkbox"/> P <input type="checkbox"/> T			<input type="checkbox"/> Yes <input type="checkbox"/> No				
6h. Total buffer impacts				885	0		
6i. Comments:							

D. Impact Justification and Mitigation		
1. Avoidance and Minimization		
1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project. <p>NCDOT has committed to repair approximately 100 feet of stream bank by sloping the existing bank to 2:1 or flatter and plating with Class II rip-rap from the normal water surface elevation to approximately 3 feet in height for the thalweg of the stream. All disturbed areas will be seeded, mulched, and erosion control matting will be installed. Approximately 0.1 ac. will be planted with live stakes and/or bare root seedlings between December, 2010-March, 2011. This remediation work is similar to the original design and mitigation plan with a flatter slope on the right bank.</p> <p>It is important to note that NCDOT has committed to reclaim and visibly mark the limits of the conservation easement throughout the entire stream reach. The Cemetery has committed to install granite markers along this boundary to make it more visible for mowers and maintenance crews to refrain to excess maintenance activities. The Cemetery also committed to adhere to the conservation easement and accompanying maintenance schedule.</p>		
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques.		
2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State		
2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If no, explain: repair work	
2b. If yes, mitigation is required by (check all that apply):	<input type="checkbox"/> DWQ <input type="checkbox"/> Corps	
2c. If yes, which mitigation option will be used for this project?	<input type="checkbox"/> Mitigation bank <input type="checkbox"/> Payment to in-lieu fee program <input type="checkbox"/> Permittee Responsible Mitigation	
3. Complete if Using a Mitigation Bank		
3a. Name of Mitigation Bank: not applicable		
3b. Credits Purchased (attach receipt and letter)	Type	Quantity
3c. Comments:		
4. Complete if Making a Payment to In-lieu Fee Program		
4a. Approval letter from in-lieu fee program is attached.	<input type="checkbox"/> Yes	
4b. Stream mitigation requested:	linear feet	
4c. If using stream mitigation, stream temperature:	<input type="checkbox"/> warm <input type="checkbox"/> cool <input type="checkbox"/> cold	
4d. Buffer mitigation requested (DWQ only):	square feet	
4e. Riparian wetland mitigation requested:	acres	
4f. Non-riparian wetland mitigation requested:	acres	
4g. Coastal (tidal) wetland mitigation requested:	acres	
4h. Comments:		
5. Complete if Using a Permittee Responsible Mitigation Plan		
5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan.		

6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ

6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?

Yes No

6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.

Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
6f. Total buffer mitigation required:				

6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).

6h. Comments:

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1b. If yes, then is a diffuse flow plan included? If no, explain why. Comments:	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why: Site protected by a conservation easement and still follows the approved Mitigation Plan and project will not increase the amount of stormwater into stream	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan:	
2e. Who will be responsible for the review of the Stormwater Management Plan?	<input type="checkbox"/> Certified Local Government <input type="checkbox"/> DWQ Stormwater Program <input type="checkbox"/> DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	<input type="checkbox"/> Phase II <input type="checkbox"/> NSW <input type="checkbox"/> USMP <input type="checkbox"/> Water Supply Watershed <input type="checkbox"/> Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	<input type="checkbox"/> Coastal counties <input type="checkbox"/> HQW <input type="checkbox"/> ORW <input type="checkbox"/> Session Law 2006-246 <input type="checkbox"/> Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No
5b. Have all of the 401 Unit submittal requirements been met?	<input type="checkbox"/> Yes <input type="checkbox"/> No

F. Supplementary Information	
1. Environmental Documentation (DWQ Requirement)	
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2. Violations (DWQ Requirement)	
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2b. Is this an after-the-fact permit application?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):	
3. Cumulative Impacts (DWQ Requirement)	
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. only streambank stabilization on project and will not have cumulative impacts	
4. Sewage Disposal (DWQ Requirement)	
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility. not applicable	

5. Endangered Species and Designated Critical Habitat (Corps Requirement)	
5a. Will this project occur in or near an area with federally protected species or habitat?	<input type="checkbox"/> Yes <input type="checkbox"/> No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5c. If yes, indicate the USFWS Field Office you have contacted.	<input type="checkbox"/> Raleigh <input type="checkbox"/> Asheville
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat?	
<p>Survey for Michaux's sumac and red-cockaded woodpecker completed July 13, 2010. No habitat present. Area is mowed and forested areas not open enough for sumac. No pine trees present in project area. The following is for dwarf wedgemussel.....Cemetery Branch in the area of the proposed restoration work was approximately one (1) meter wide with a mixed substrate containing sand, gravel, and some cobble (apparently from the original restoration work). While the water was clear at the time of the visit, in areas of slow water velocity, filamentous algae covered all substrate types indicating significant stream enrichment. This condition is typically due to runoff associated with urban areas such as those in which the project site is located. Cemetery Branch flows into Pigeon House Branch which in turn flows into Crabtree Creek. Both of these streams are also located in urban areas and in addition, Pigeon House Branch is listed on the 303d impaired streams list due to exceeding biological criteria. No bivalves of any type were observed during the cursory search of Cemetery Branch in the project area. A review of the NHP database on 7/13/10 revealed no records of any rare mussels in Cemetery Branch, Pigeon House Branch, or Crabtree Creek. Given the lack of any bivalves in the project area and the poor water quality in not only Cemetery Branch but its receiving streams as well, the completion of the stream restoration project will have no effect on any rare mussel species.</p>	
6. Essential Fish Habitat (Corps Requirement)	
6a. Will this project occur in or near an area designated as essential fish habitat?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index	
7. Historic or Prehistoric Cultural Resources (Corps Requirement)	
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? On July 7, 2010, NCDOT met with USACE and SHPO to discuss the problem and the remediation plan. With the measure discussed above, along with the proposal, it was determined that there would be not adverse affect relating to cultural or historic architecture. It was also decided that the work could be permitted as a NW 13 Bank Stabilization project.	
8. Flood Zone Designation (Corps Requirement)	
8a. Will this project occur in a FEMA-designated 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
8b. If yes, explain how project meets FEMA requirements:	
8c. What source(s) did you use to make the floodplain determination? FEMA Maps	

Dr. Gregory J. Thorpe, Ph D
Applicant/Agent's Printed Name

E. L. Fueh

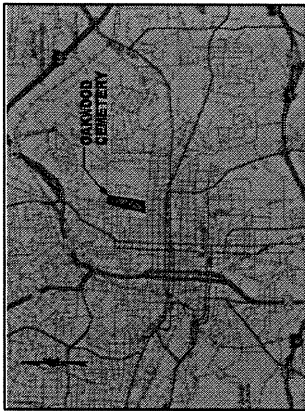
Applicant/Agent's Signature
(Agent's signature is valid only if an authorization letter from the applicant is provided.)

Date

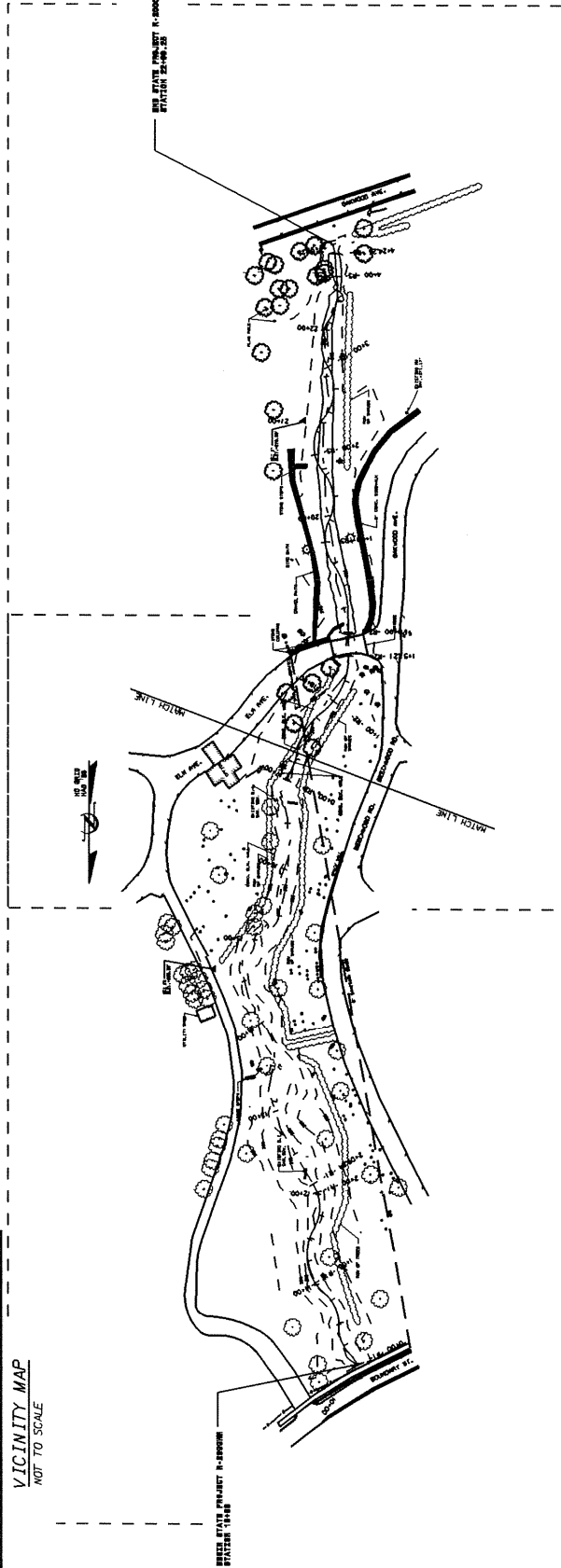
7.14.10

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
WAKE COUNTY

LOCATION: OAKWOOD CEMETERY, RALEIGH
 TYPE OF WORK: STREAM RESTORATION



VICINITY MAP
 NOT TO SCALE



SEE STATE PROJECT R-2000W
 SHEET 1 OF 6

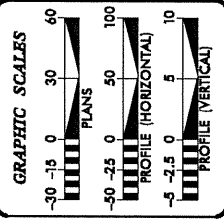
SEE STATE PROJECT R-2000W
 SHEET 1 OF 6

Permit Drawing
 Sheet 1 of 6

STATE	NC
PROJECT NUMBER	16
DATE	
DESIGNER	
CHECKED BY	
DATE	
PROJECT TITLE	P.E. & CONST.

R-2000WM

PROJECT:



DESIGN DATA	
PROJECT LENGTH	= 0.246 MI.
LENGTH OF STREAM RESTORATION	= 0.246 MI.
TOTAL LENGTH OF STATE PROJ. 8.U401712	= 0.246 MI.

Prepared in the Office of:	
DIVISION OF HIGHWAYS	
THE ESTIMATED SPECIFICATIONS	
RIGHT OF WAY DATE:	PROJECT NUMBER:
LETTING DATE:	PROJECT NUMBER:

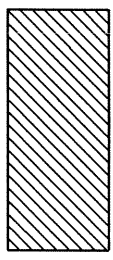
DESIGN ENGINEER	PROJECT NUMBER
PROJECT NUMBER	PROJECT NUMBER

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA	DATE
DESIGN ENGINEER	DATE
PROJECT NUMBER	DATE
PROJECT NUMBER	DATE

PROJECT REFERENCE NO.	PERMIT NO.
R-2000/W	2
SHEET NO.	
2	

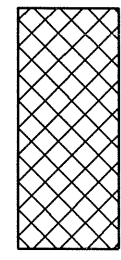
LEWIS & CLARK
 OAKWOOD CEMETERY
 STREAM RESTORATION

Permit Drawing
 Sheet 2 of 6



STONE TOE STABILIZATION
 WITH LIVE STAKES/BARE ROOT
 SEEDLINGS
 (SEE DETAIL)

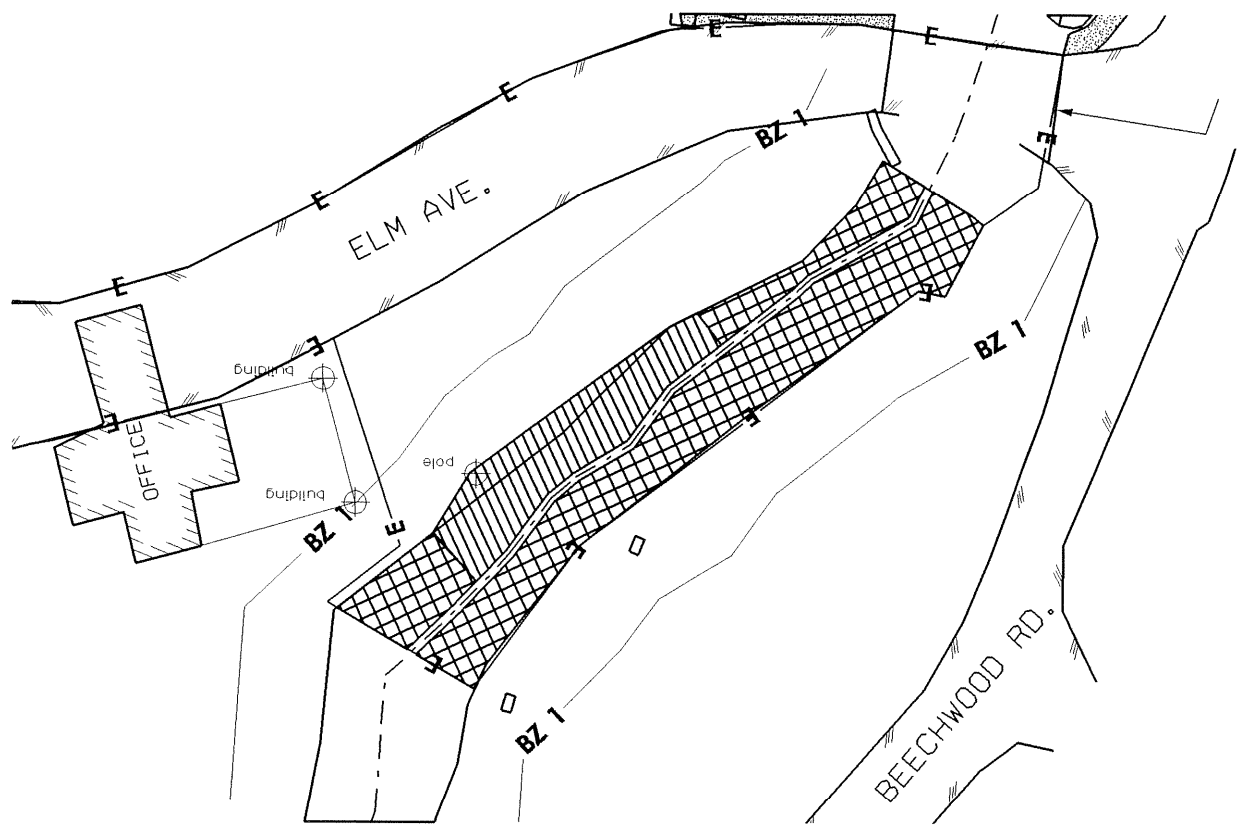
BUFFER ZONE 1 IMPACTS = 885 SF



SLOPE TO BE PLANTED
 WITH LIVE STAKES/BARE
 ROOT SEEDLINGS

BUFFER ZONE 1 IMPACTS = 2370 SF

TOTAL PLANTING AREA
 APPROX. 3255 SF (0.075 AC)

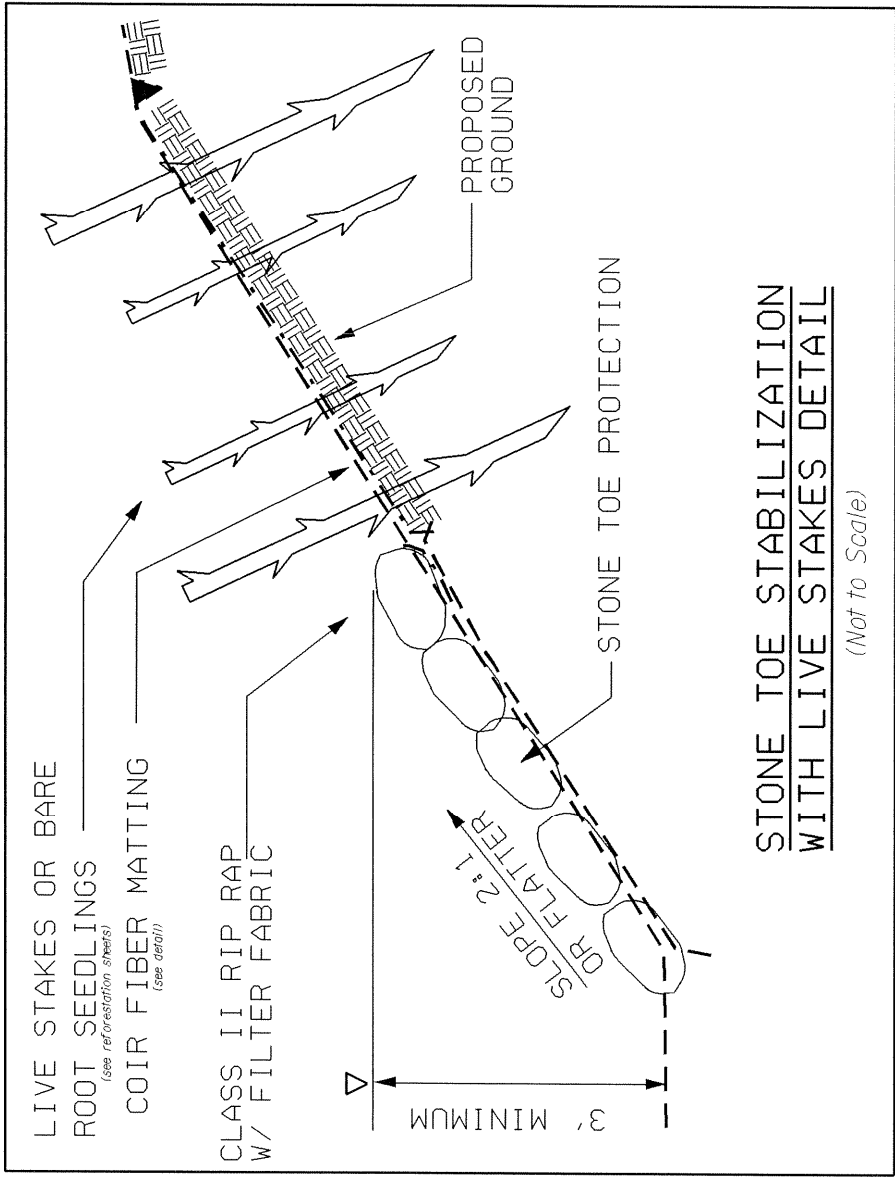


REVISIONS

PROJECT REFERENCE NO. R-2000/W/1
SHEET NO. 3

147600010
OAKWOOD CEMETERY
STREAM RESTORATION

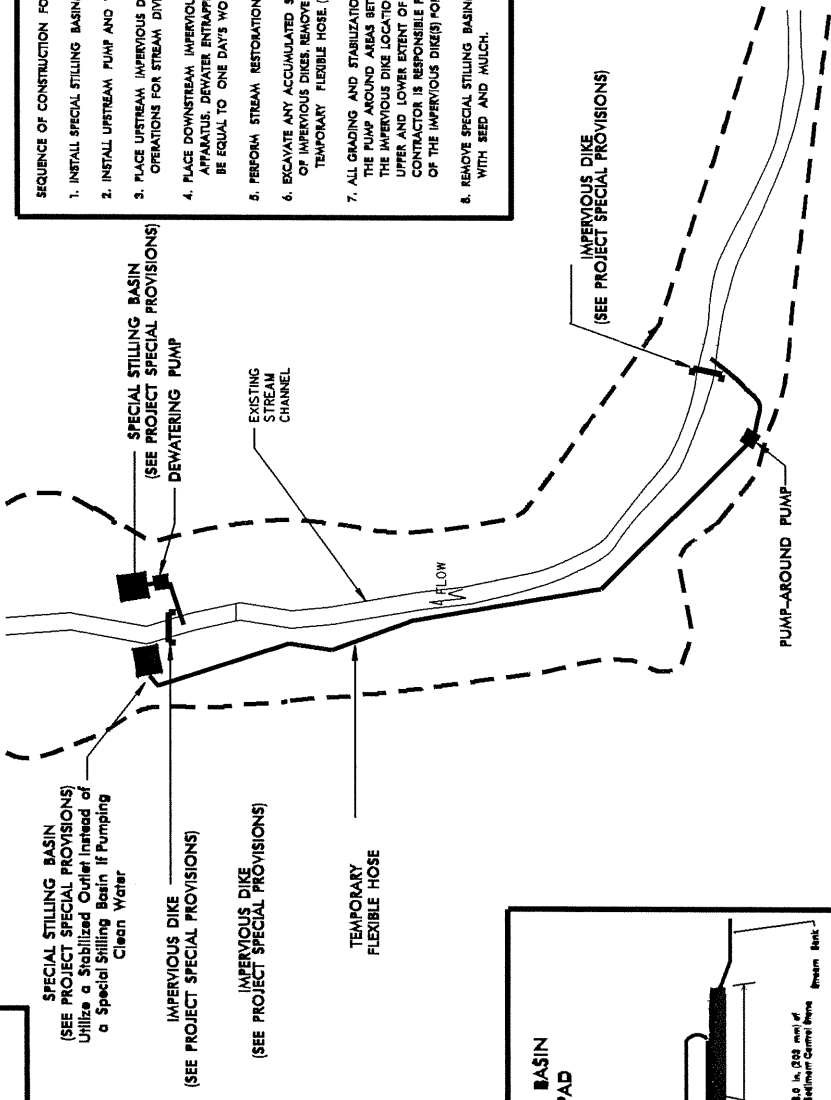
Permit Drawing
Sheet 3 of 6



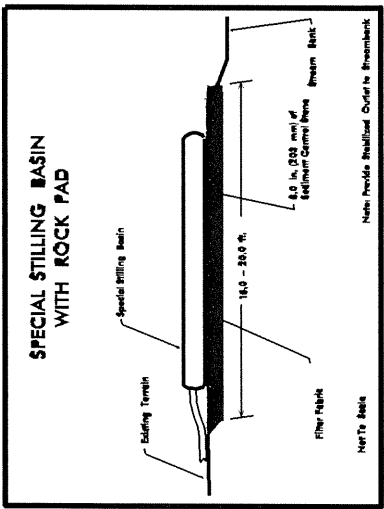
PROJECT REFERENCE NO. R-2000/11	SHEET NO. 4
BY SHEET NO.	
OAKWOOD CEMETERY STREAM RESTORATION	

EXAMPLE OF PUMP-AROUND OPERATION

- NOTES:**
- 1) All excavation shall be performed in only dry or isolated sections of channel.
 - 2) Impervious dikes are to be used to isolate work from stream flow when necessary.
 - 3) All graded areas shall be stabilized within 24 hours.
 - 4) Maintenance of stream flow operations shall be incidental to the work. This includes polyethylene sheeting, diversion pipes, pumps and hoses.
 - 5) Pumps and hoses shall be of sufficient size to dewater the work area.

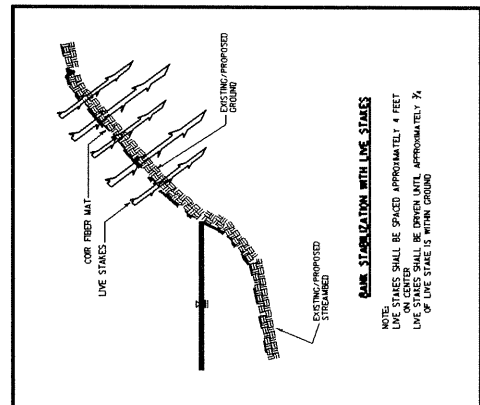
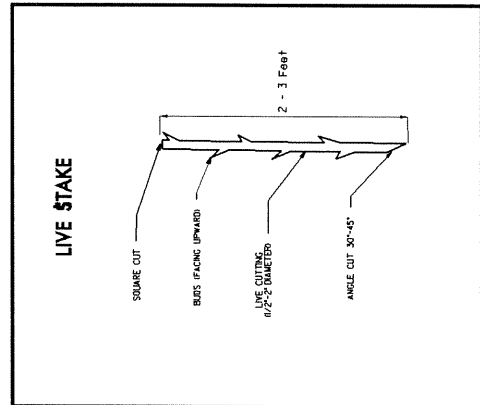


- SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA**
1. INSTALL SPECIAL STILLING BASIN(S).
 2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
 3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
 4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
 5. PERFORM STREAM RESTORATION WORK IN ACCORDANCE WITH THE PLANS.
 6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
 7. ALL GRADING AND STABILIZATION MUST BE COMPLETED IN ONE DAY WITHIN THE PUMP AROUND AREAS BETWEEN THE IMPERVIOUS DIKES. THE IMPERVIOUS DIKE LOCATIONS AS SHOWN ON THIS SHEET ONLY SHOW THE UPPER AND LOWER EXTENT OF WORK FOR EACH STREAM SEGMENT. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION OF THE IMPERVIOUS DIKES(S) FOR EACH DAY'S WORK.
 8. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL STABILIZED DISTURBED AREA WITH SEED AND MULCH.

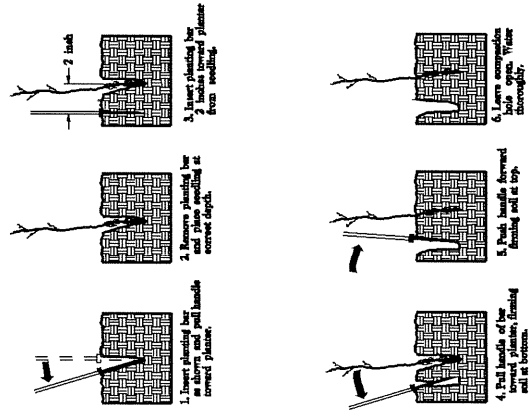


PLANTING DETAILS

LIVE STAKES PLANTING DETAIL



BAREROOT PLANTING DETAIL DIBBLE PLANTING METHOD USING THE RBC PLANTING BAR



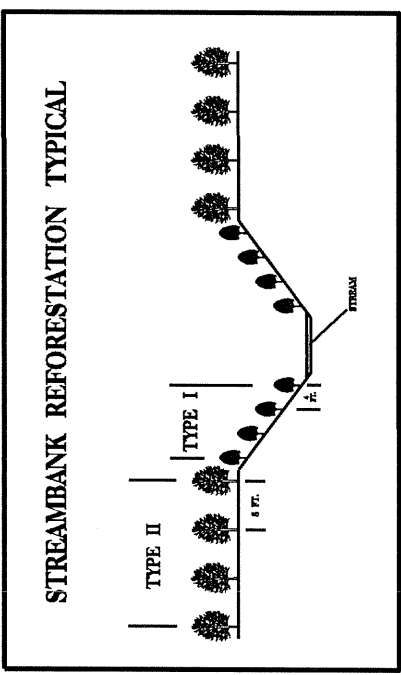
PLANTING NOTES:

- PLANTING BAG**
 Planting bag should have a square hole in the middle of the bag for the seedling to be inserted. The hole should be 2 inches long, 4 inches wide and 1 inch thick at center.
- RBC PLANTING BAR**
 Planting bar should have a square hole in the middle of the bar for the seedling to be inserted. The hole should be 2 inches long, 4 inches wide and 1 inch thick at center.
- ROOT PRUNING**
 All seedlings shall be root pruned, if necessary, so that 10 inches below the root collar.

- TYPE 1 STREAMBANK REFORESTATION SHALL BE PLANTED 3 FT. TO 5 FT. ON CENTER, RANDOM SPACING, AVERAGING 4 FT. ON CENTER, APPROXIMATELY 2774 PLANTS PER ACRE.
- TYPE 2 STREAMBANK REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

NOTE TYPE 1 AND TYPE 2 STREAMBANK REFORESTATION SHALL BE PAID FOR AS "STREAMBANK REFORESTATION"

Permit Drawing
 Sheet 5 of 6



STREAMBANK REFORESTATION MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

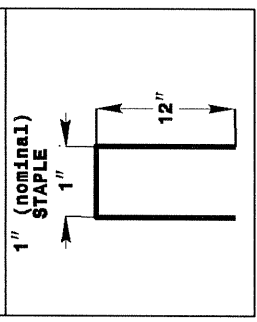
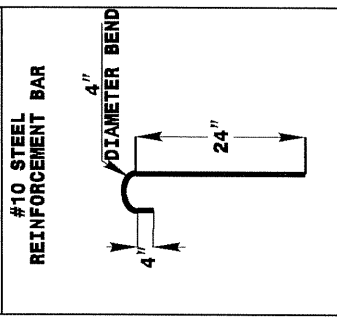
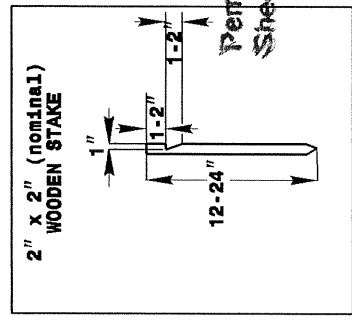
TYPE I	TYPE II
25% CEPHALANTHUS OCCIDENTALIS	BUTTON BUSH
25% CORNUS AMOMUM	SILKY DOGWOOD
25% SAMBUCUS CANADENSIS	ELDERBERRY
25% ALNUS SERRULATA	TAG ALDER
	2 ft - 3 ft LIVE STAKES
	2 ft - 3 ft LIVE STAKES
	2 ft - 3 ft LIVE STAKES
	2 ft - 3 ft LIVE STAKES

NOTE: PLANTING STOCK WILL BE BARE ROOT OR LIVE STAKES, BASED ON AVAILABILITY AT TIME OF PLANTING.

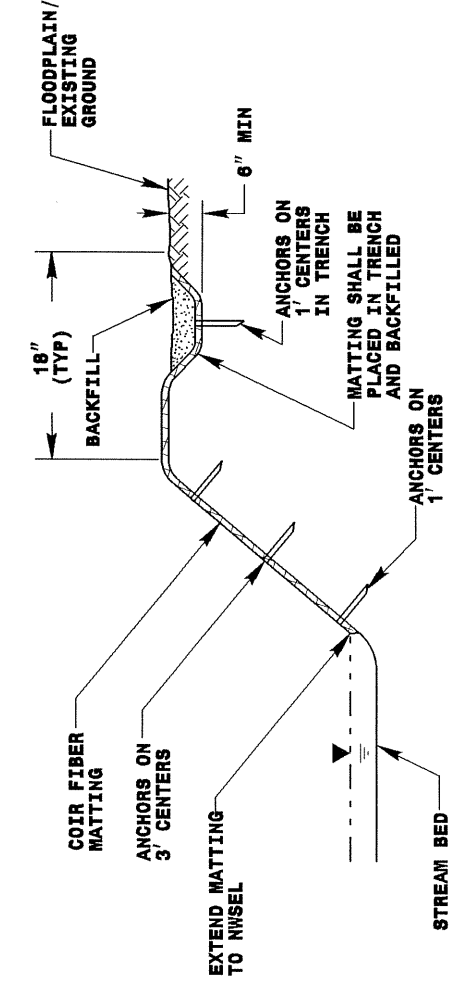
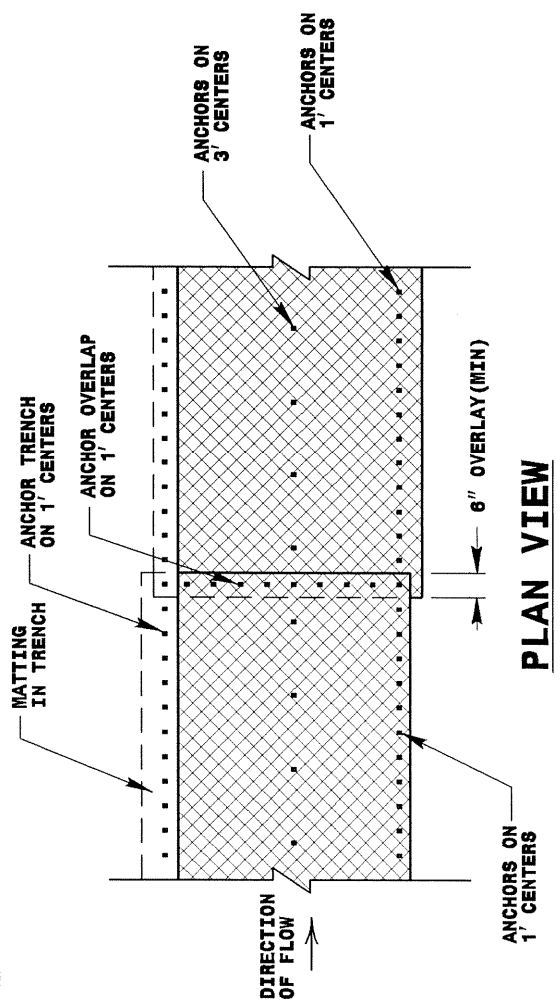
SEE PLAN SHEETS FOR AREAS TO BE PLANTED

PROJECT NUMBER	7-20071
SHEET NO.	5
DESIGNED BY	FORNACEY
CHECKED BY	ENGINEER

Permit Drawing
Sheet 5 of 6



ANCHOR OPTIONS



**STREAMBANK REFORESTATION
DETAIL SHEET 2 OF 2**
NCGA&T - ROADSIDE ENVIRONMENTAL UNIT

COIR FIBER MATTING DETAIL
NOT TO SCALE