

**A RESOLUTION ACCEPTING A REPORT ON THE  
ECOSYSTEM ENHANCEMENT PROGRAM'S BMP CONCEPTUAL PLANS  
FOR ROBERSON AND CARRBORO TRACKS SITES**

**Resolution No. 144/2006-07**

WHEREAS, the Carrboro Board of Aldermen have supported staff efforts to collaborate with the Ecosystem Enhancement Program in an effort to further the environmental goals of the town and improve water quality in Carrboro, as well as downstream;

NOW, THEREFORE BE IT RESOLVED by the Carrboro Board of Aldermen that the Aldermen accept this report.

**Town of Carrboro  
Planning Department**



---

**MEMORANDUM**

Date: March 20, 2007  
To: Steve Stewart, Town Manager  
Mayor and Board of Aldermen  
Copy: Roy Williford, Trish McGuire: Planning Division  
From: D. Will Autry, Environmental Planner  
Subject: NC Ecosystem Enhancement Program Conceptual Plan for Carrboro BMP Sites  
Attached: Map of Sites

---

**Background**

The Ecosystem Enhancement Program (EEP) was derived from a multi-agency initiative to improve watershed functions through the development of specific plans and projects in advance of environmental impacts from transportation and economic-development improvements. The EEP incorporates the functions of the former NCDENR Wetlands Restoration Program (WRP), established in 1997. As part of the Program's ongoing search for mitigation sites, they conduct watershed planning efforts throughout NC based on restoration needs and opportunities, such as the Morgan and Little Creeks Local Watershed Plan initiated in 2002. At that time, Carrboro entered into a Memorandum of Understanding (MOU) with the WRP to assist in that local watershed planning effort.

The MOU states that WRP would provide a feasibility study for any restoration projects identified by the planning process, and that WRP would implement one or more projects within the Town's planning jurisdiction. On June 7, 2005, Dr. Ranells, former Environmental Planner, presented a prioritized list of restoration opportunities from the plan to the Board of Aldermen, and the Board authorized staff to proceed with a request to EEP to initiate the feasibility study for Site 11, the Carrboro Tracks site.

**Information**

In January 2007 we received a report from EEP on the feasibility study they conducted on this site. Based on additional reconnaissance, the study actually detailed the feasibility of two locations in the vicinity: Carrboro Tracks and the Roberson site. The report can be seen in its entirety at <http://www.townofcarrboro.org/pzi/PDFs/EEPFeasibilityStudy-060506.pdf>.

The study determined that the Carrboro Tracks site would not be cost effective due to the topographical constraints limiting the level of treatment that could be achieved for the stormwater from this ~20 acre watershed.

The Roberson site is a proposed stormwater wetland with a treatment watershed of only 4.12 acres. This type of structural stormwater Best Management Practice (BMP) is estimated to achieve a 40% Nitrogen reduction, 35% Phosphorous reduction, and 85% Total Suspended Solids removal. The site is covered with the invasive non-native, kudzu, so installation of the pocket wetland would be a great improvement in habitat for the BMP area (~.10 acre). However controlling the kudzu could substantially increase the ongoing annual maintenance costs of the BMP.

The estimated total cost of the pocket wetland construction including mobilization and a 10% contingency is \$95,530. This estimate does not include construction plan design costs, which are expected to cost an additional ~25% of the construction cost. The estimated annual maintenance cost of a BMP of this type is \$1,550, which does not include the effective management of the kudzu, a cost that was not determined as part of this study. The EEP cover letter for this report calls this stormwater wetland the most feasible BMP retrofit for this location, but lists a high project cost, potential FEMA requirements, and invasive plant management as concerns.

According to EEP staff, the cost is classified as "high" relative to the EEP mitigation offset payment for pounds per acre per year of nutrients. The EEP fee schedule is set at a rate far below the actual cost of implementation for urban, nutrient-reducing BMPs, so much so that it was recently raised by ~500%, only to be rapidly overturned by the development lobby and sent back to DENR staff for further study. This inadequacy in the fee structure makes almost all stand-alone BMP projects too expensive for EEP to afford, which is why they are presently focused almost exclusively on stream and wetland restorations, and are not funding BMP retrofits such as the Roberson site pocket wetland. The fact that this watershed is not presently subject to a nutrient management program such as the Neuse or Tar-Pamlico Basins also prevents EEP from receiving the credits necessary to allow them to fund this project. In fact, EEP conducted this feasibility study with a known risk; while hoping for changes in funding mechanisms and more flexibility from the US Army Corps of Engineers in projects' mitigation credit eligibility, EEP staff understood that urban retrofits like these might not be able to be funded at this time.

### **Next Steps / Factors to Consider**

The choice to pursue or abandon the Roberson site is relatively simple in relation to the Morgan and Little Creek plan, but becomes complicated when considering it as part of a larger scheme to address the pending Jordan Lake Nutrient Management Strategy. As you will recall, the pending Jordan rules will be requiring the Town to achieve a 35% reduction in Nitrogen and 5% reduction in Phosphorous from the 2001 baseline. A long-term reduction strategy prepared by the Town will have to be submitted within 36 months of the Rules' effective date, and after review and approval by the State, must be initiated by the Town within 48 months after the effective date. These regulations will likely be in place by July 1, 2008. For local governments in the Upper New Hope arm of the lake (Carrboro, Chapel Hill, Durham, Cary, Orange, Chatham, Durham, Wake, etc.) achieving these reductions is expected to be costly and difficult.

The Carrboro Tracks site was initially selected for further study because it was considered to be "low-hanging fruit." At this time, it is not deemed cost-effective. The Roberson site's treatment cost is \$23,000/acre. This cost is described as "high" by EEP due to their inadequate fee structure, but may actually be a reasonable cost/pound of nutrient reduction/acre. To get a sense of the cost of the Jordan rules to the Town, one can inspect the DWQ's recent Fiscal Analysis (<http://h2o.enr.state.nc.us/admin/emc/2007/documents/AttachmentCto07-14FiscalText2-28-07.pdf>) which indicates that the existing development portion of the rules will cost the watershed as a whole \$403 million. If this \$403 million cost, which many believe is underestimated, were to be distributed

evenly across the entire Jordan Watershed, it would be \$674 per watershed resident (~12 million for Carrboro), or \$1,999/acre (~\$8 million for Carrboro). However, the burden on the local governments of the Upper New Hope Arm portion of the watershed will be more difficult due to greater nutrient reductions required here. Still another way of considering the financial impact to the Town is to use a treatment cost estimate of \$20,000/acre for retrofitting our 100 acre downtown, which will be the most difficult. This comes to \$2 million for downtown alone, but the nutrient reductions are required for the entire municipality.

It is clear that this will be no small task. Carrboro should consider any number of options to meet these reductions, and should immediately begin contemplating funding sources. Methods to achieve the goal should be used as an array, and might include, but not be limited to, changes in the property tax rate and/or allocation of local revenues, implementing a stormwater fee, collecting land-disturbance permit fees, seeking grants, requiring "over treatment" for new and redevelopment, and buying or selling "treatment credits" with other local governments or dischargers. If the Jordan Lake rules, when adopted, are reasonably similar to the current draft, the Town will have an opportunity to explore these and other ideas as we prepare to submit our nutrient reduction strategy to DWQ within 36 months after the effective date of the regulations.

### **Conclusion**

This topic will be briefly discussed by Sydney Miller at the next Assembly of Governments meeting on March 29, 2007, and will require further consideration by the BALD during the upcoming months. A decision on whether or not to move forward with the Roberson site project should be made as part of a larger water quality strategy devised by the Town.

# Town of Carrboro Planning Department



## MEMORANDUM

Date: March 20, 2007  
To: Steve Stewart, Town Manager  
Mayor and Board of Aldermen  
Copy: Roy Williford, Trish McGuire: Planning Division  
From: D. Will Autry, Environmental Planner  
Subject: NC Ecosystem Enhancement Program Conceptual Plan for Carrboro BMP Sites  
Attached: Map of Sites

Comment [ToC1]: Revised on March 23 to reflect some corrections that were addressed during the March 20 presentation to the Board. DWA

## Background

The Ecosystem Enhancement Program (EEP) was derived from a multi-agency initiative to improve watershed functions through the development of specific plans and projects in advance of environmental impacts from transportation and economic-development improvements. The EEP incorporates the functions of the former NCDENR Wetlands Restoration Program (WRP), established in 1997. As part of the Program's ongoing search for mitigation sites, they conduct watershed planning efforts throughout NC based on restoration needs and opportunities, such as the Morgan and Little Creeks Local Watershed Plan initiated in 2002. At that time, Carrboro entered into a Memorandum of Understanding (MOU) with the WRP to assist in that local watershed planning effort.

The MOU states that WRP would provide a feasibility study for any restoration projects identified by the planning process, and that WRP would implement one or more projects within the Town's planning jurisdiction. On June 7, 2005, Dr. Ranells, former Environmental Planner, presented a prioritized list of restoration opportunities from the plan to the Board of Aldermen, and the Board authorized staff to proceed with a request to EEP to initiate the feasibility study for Site 11, the Carrboro Tracks site.

## Information

In January 2007 we received a report from EEP on the feasibility study they conducted on this site. Based on additional reconnaissance, the study actually detailed the feasibility of two locations in the vicinity: Carrboro Tracks and the Roberson site. The report can be seen in its entirety at <http://www.townofcarrboro.org/pzi/PDFs/EEPFeasibilityStudy-060506.pdf>.

The study determined that the Carrboro Tracks site would not be cost effective due to the topographical constraints limiting the level of treatment that could be achieved for the stormwater from this ~10 acre watershed.

Deleted: 20

The Roberson site is a proposed stormwater wetland with a treatment watershed of only 4.12 acres. This type of structural stormwater Best Management Practice (BMP) is estimated to achieve a 40% Nitrogen reduction, 35% Phosphorous reduction, and 85% Total Suspended Solids removal. The site is covered with the invasive non-native, kudzu, so installation of the pocket wetland would be a great improvement in habitat for the BMP area (~.10 acre). However controlling the kudzu could substantially increase the ongoing annual maintenance costs of the BMP.

The estimated total cost of the pocket wetland construction including mobilization and a 10% contingency is \$95,530. This estimate does not include construction plan design costs, which are expected to cost an additional ~25% of the construction cost, or the land cost and lost tax revenue. The estimated annual maintenance cost of a BMP of this type is \$1,550, which does not include the effective management of the kudzu, a cost that was not determined as part of this study. The EEP cover letter for this report calls this stormwater wetland the most feasible BMP retrofit for this location, but lists a high project cost, potential FEMA requirements, and invasive plant management as concerns.

According to EEP staff, the cost is classified as "high" relative to the EEP mitigation offset payment for pounds per acre per year of nutrients. The EEP fee schedule is set at a rate far below the actual cost of implementation for urban, nutrient-reducing BMPs, so much so that it was recently raised by ~500%, only to be rapidly overturned by the development lobby and sent back to DENR staff for further study. This inadequacy in the fee structure makes almost all stand-alone BMP projects too expensive for EEP to afford, which is why they are presently focused almost exclusively on stream and wetland restorations, and are not funding BMP retrofits such as the Roberson site pocket wetland. The fact that this watershed is not presently subject to a nutrient management program such as the Neuse or Tar-Pamlico Basins also prevents EEP from receiving the credits necessary to allow them to fund this project. In fact, EEP conducted this feasibility study with a known risk; while hoping for changes in funding mechanisms and more flexibility from the US Army Corps of Engineers in projects' mitigation credit eligibility, EEP staff understood that urban retrofits like these might not be able to be funded at this time.

### **Next Steps / Factors to Consider**

The choice to pursue or abandon the Roberson site is relatively simple in relation to the Morgan and Little Creek plan, but becomes complicated when considering it as part of a larger scheme to address the pending Jordan Lake Nutrient Management Strategy. As you will recall, the pending Jordan rules will be requiring the Town to achieve a 35% reduction in Nitrogen and 5% reduction in Phosphorous from the 2001 baseline. A long-term reduction strategy prepared by the Town will have to be submitted within 36 months of the Rules' effective date, and after review and approval by the State, must be initiated by the Town within 48 months after the effective date. These regulations will likely be in place by July 1, 2008. For local governments in the Upper New Hope arm of the lake (Carrboro, Chapel Hill, Durham, Cary, Orange, Chatham, Durham, Wake, etc.) achieving these reductions is expected to be costly and difficult.

The Carrboro Tracks site was initially selected for further study because it was considered to be "low-hanging fruit." At this time, it is not deemed cost-effective. The Roberson site's treatment cost is \$23,000/acre. This cost is described as "high" by EEP due to their inadequate fee structure, but may actually be a reasonable cost/pound of nutrient reduction/acre for an urban retrofit of this type. To get a sense of the cost of the Jordan rules to the Town, one can inspect the DWQ's recent Fiscal Analysis (<http://h2o.enr.state.nc.us/admin/emc/2007/documents/AttachmentCto07-14FiscalText2-28-07.pdf>) which indicates that the existing development portion of the rules will cost

the watershed as a whole \$403 million. If this \$403 million cost, which many believe is underestimated, were to be distributed evenly across the entire Jordan Watershed, it would be \$674 per watershed resident (~12 million for Carrboro), or \$373/acre (~\$1.5 million for Carrboro). However, the burden on the local governments of the Upper New Hope Arm portion of the watershed will be more difficult due to greater nutrient reductions required here. Still another way of considering the financial impact to the Town is to use a treatment cost estimate of \$20,000/acre for retrofitting our 100 acre downtown, which will be the most difficult. This comes to \$2 million for downtown alone, but the nutrient reductions are required for the entire municipality.

Deleted: 1,999

Deleted: 8

It is clear that this will be no small task. Carrboro should consider any number of options to meet these reductions, and should immediately begin contemplating funding sources. Methods to achieve the goal should be used as an array, and might include, but not be limited to, changes in the property tax rate and/or allocation of local revenues, implementing a stormwater fee, collecting land-disturbance permit fees, seeking grants, requiring "over treatment" for new and redevelopment, and buying or selling "treatment credits" with other local governments or dischargers. If the Jordan Lake rules, when adopted, are reasonably similar to the current draft, the Town will have an opportunity to explore these and other ideas as we prepare to submit our nutrient reduction strategy to DWQ within 36 months after the effective date of the regulations.

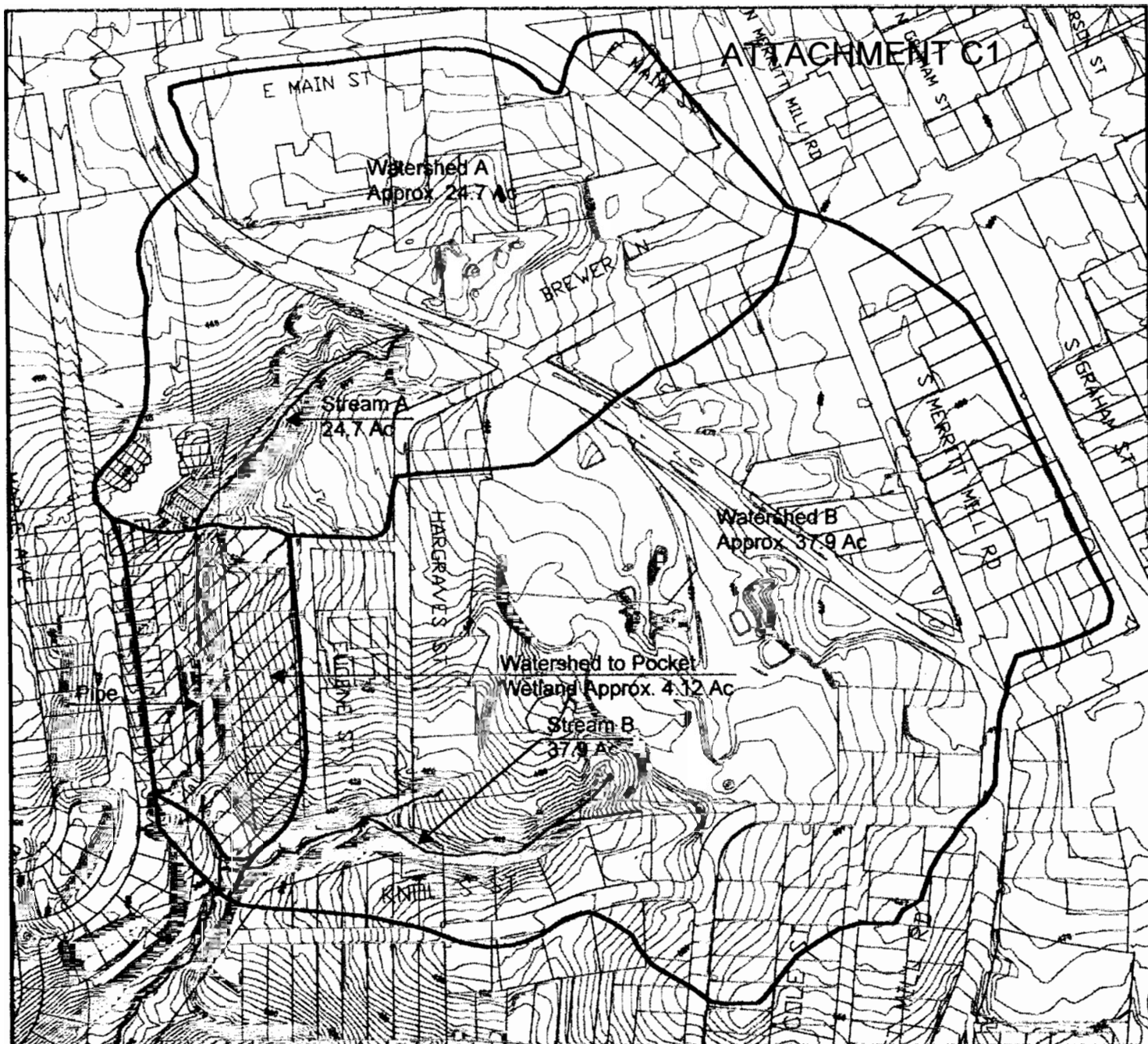
### **Conclusion**

Staff requested that this topic be briefly discussed by Sydney Miller at the next Assembly of Governments meeting on March 29, 2007, and it will require further consideration by the BALD during the upcoming months. A decision on whether or not to move forward with the Roberson site project should be made as part of a larger water quality strategy devised by the Town.

Deleted: T

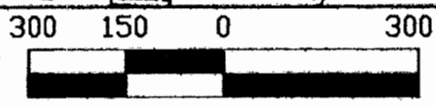
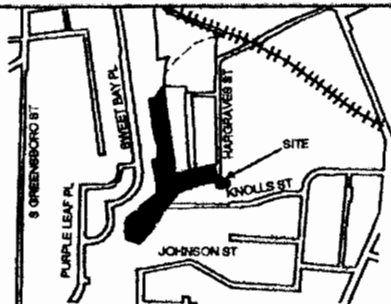
Deleted: will





North Carolina - Ecosystem Enhancement Program

Chapel Hill/Carrboro BMP Sites  
Orange County, North Carolina  
SCO 10 #050657101



DATE: JUNE 5, 2006



## FIGURE 5 ROBERSON WATERSHED MAP

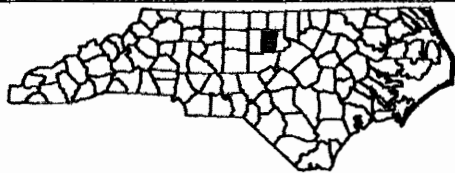
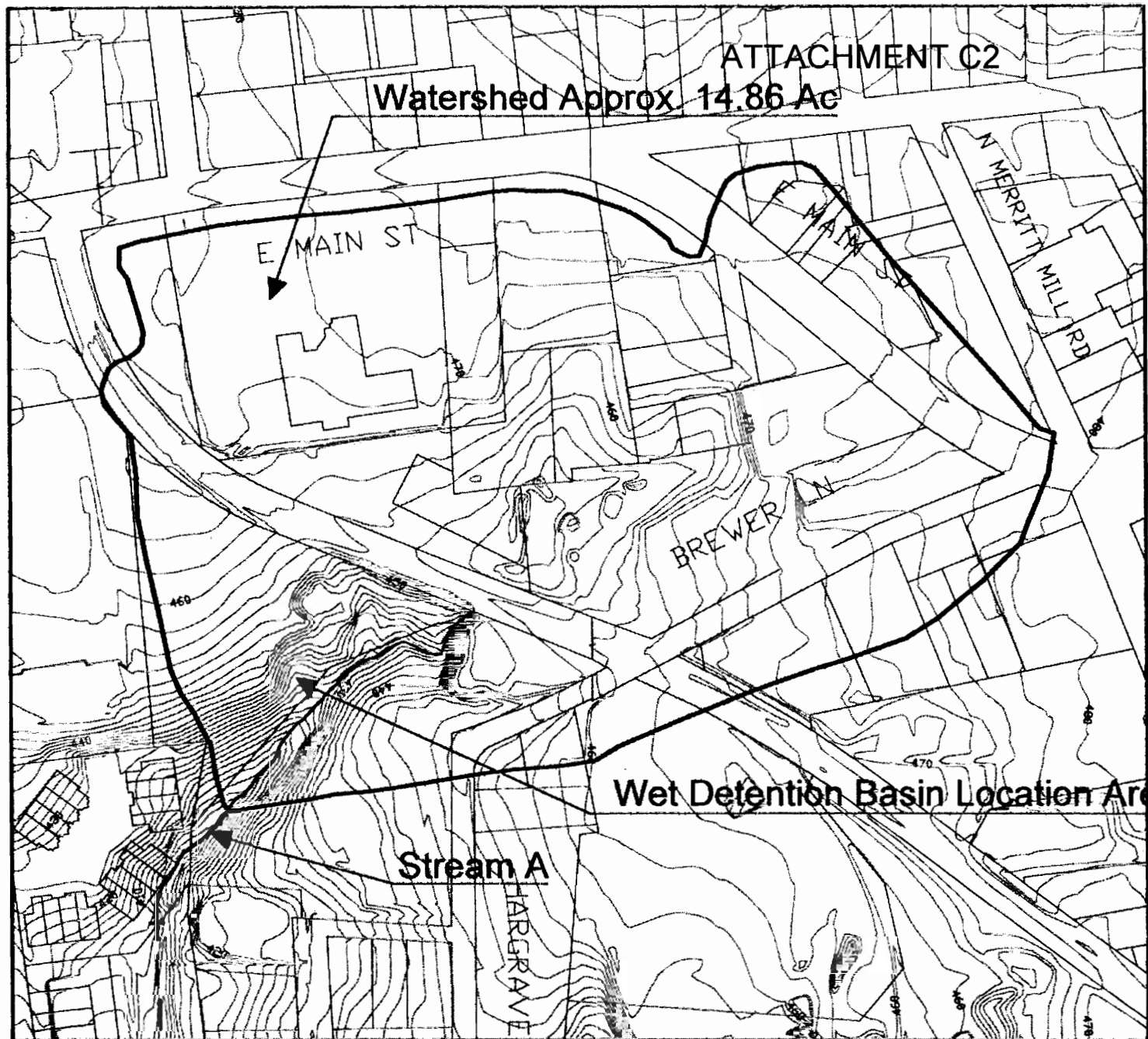
**WARD CONSULTING ENGINEERS, PC**

*Water Management Engineering*

1512 Eglantyne Court  
Raleigh, NC 27613

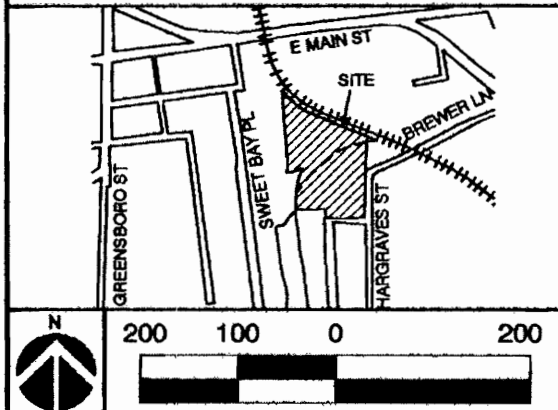
(919) 870-0528  
FAX (919) 870-5359





North Carolina - Ecosystem Enhancement Program

Chapel Hill/Carrboro BMP Sites  
Orange County, North Carolina  
SCO 10 #050657101



## FIGURE 6 CARRBORO TRACKS WATERSHED MAP

DATE: JUNE 5, 2006



WARD CONSULTING ENGINEERS, PC

*Water Management Engineering*

1512 Eglantyne Court  
Raleigh, NC 27613

(919) 870-0528  
FAX (919) 870-5359