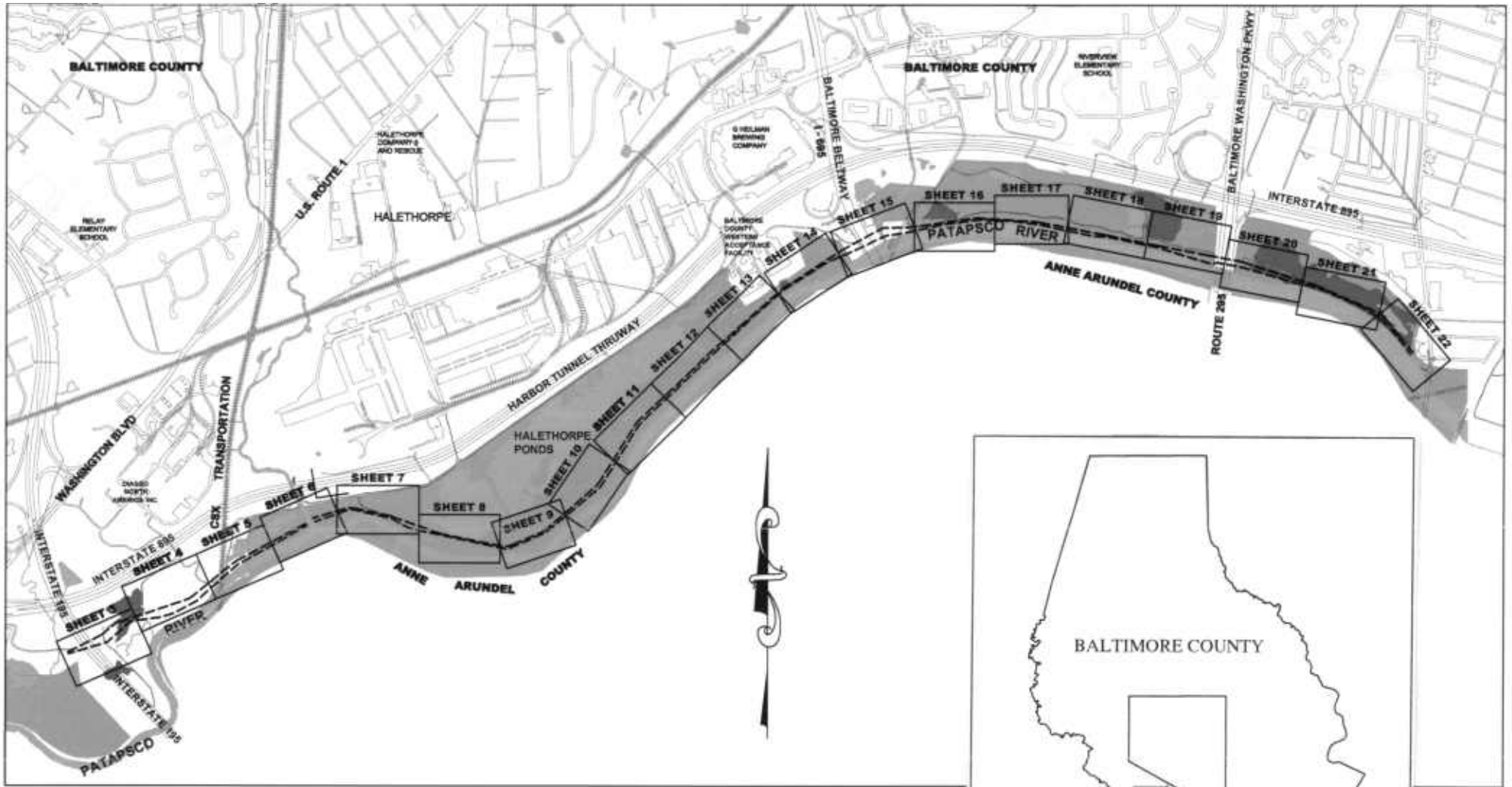





BC 32-05 Patapsco Interceptor  
Site Plan

MSA-S-1829-4792



LEGEND

-  = DEPT. OF NATURAL RESOURCES
-  = PATAPSCO SEWER TO BE REHABILITATED
-  = WETLANDS

VICINITY MAP

LOCATION MAP

REHABILITATION OF  
THE PATAPSCO  
INTERCEPTOR & RELIEF  
JOB ORDER NO.  
201-0077-0036



**URS**  
1800 WASHINGTON BLVD.  
SUITE 410  
BALTIMORE, MD 21230  
SHEET 2 OF 23

### Planting Agreement for State/Local Projects

State/Local Agency

Baltimore County, DPW

Project Number

A086806

Agency Contact

Rene Henry

Phone Number

(410) 887-3730

Commision Approval Date

September 09, 2008

CAC Planner

Julie Roberts

Project Name

Patapsco Sewer Interceptor Rehabilitation

Project Location

Halethorpe, Maryland - Along the Patapsco River

Square Feet Cleared Outside 100ft Buffer

1.90 acres

Mitigation Ratio for Clearing Outside Buffer

1:1

Mitigation Calculation Outside Buffer

1.90 acres

Square Feet Disturbed/Cleared Within Buffer\*

0.24 acres

Mitigation Ratio for Disturbance/Clearing Within Buffer\*

3:1

15% Afforestation Requirement Met?

Yes

Mitigation Calculation Within Buffer

0.24

Total Mitigation Requirement

0.72 acres

Planting and Natural Regeneration Plan (attach additional sheets if necessary)

See Attached Plans (Drawing Number 2008-0311 and 2008-0312)

Planting Date

Year

First Site Visit Date

Completed by

Second Site Visit Date

Completed By

Date Mitigation Complete

Responsible Contact for Mitigation (Print)

Signature

Date

\*See reverse for details

Martin O'Malley  
*Governor*

Anthony G. Brown  
*Lt. Governor*



Margaret G. McHale  
*Chair*

Ren Serey  
*Executive Director*

**STATE OF MARYLAND  
CRITICAL AREA COMMISSION  
CHESAPEAKE AND ATLANTIC COASTAL BAYS**

1804 West Street, Suite 100, Annapolis, Maryland 21401  
(410) 260-3460 Fax: (410) 974-5338  
[www.dnr.state.md.us/criticalarea/](http://www.dnr.state.md.us/criticalarea/)

September 5, 2008

Ms. Rene' Henry  
Baltimore County Sewer Design  
111 West Chesapeake Ave., Room 200  
Towson, MD 21204

Re: Patapsco Sewer Interceptor and Relief

Dear Ms. Henry:


At its meeting on September 3, 2008, the Critical Area Commission for the Chesapeake and Atlantic Coastal Bays unanimously approved the above-referenced project with the following conditions:

1. Prior to the start of construction activities, the Department of Public Works shall obtain Sediment and Erosion Control and Stormwater Management permits from Baltimore County Department of Environmental Protection and Resource Management. A copy of these permits shall be provided to Commission staff.
2. Prior to the start of construction activities, the appropriate modifications are made to the MDE permit.
3. Prior to the start of construction activities, the applicant adds protective language to the contract documents to indicate the eagle zone restrictions.

Please fill out the attached plantings agreement and return it to my attention as soon as possible. Also, please notify this office once mitigation has been completed. Should any changes to the site plan be proposed in the future, additional review and approval by the Commission will be required. Thank you and your staff for your assistance with this project. Please call me if you have any questions at (410) 260-3476.

Ms. Henry  
Page 2 of 2  
9/4/2008

Sincerely,

A handwritten signature in black ink, appearing to read 'Julie Roberts', with a long horizontal line extending to the right.

Julie Roberts  
Natural Resources Planner

Enclosure: Plantings Agreement

Cc: Glenn Schaffer, Baltimore County  
Pat Farr, Baltimore County  
Pedro Ramirez, URS Corp.

7-08

## ***Critical Area Commission***

### **STAFF REPORT**

September 3, 2008

**APPLICANT:** Maryland Department of Natural Resources and  
Baltimore County Department of Public Works

**PROPOSAL:** Patapsco Sewer Interceptor Repair

**JURISDICTION:** Baltimore County

**COMMISSION ACTION:** Conditional Approval

**STAFF RECOMMENDATION:** Approval with Conditions

**STAFF:** Julie Roberts

**APPLICABLE LAW/  
REGULATIONS:** COMAR 27.02.06 Conditional Approval of State or  
Local Agency Programs in the Critical Area

### **DISCUSSION:**

The Baltimore County Department of Public Works is charged under a Consent Decree by the U.S. Department of Justice, the Environmental Protection Agency, and Maryland Department of the Environment to rehabilitate the Patapsco Interceptor and Relief Sewer by June 30, 2009. The portion of the sewer line proposed for rehabilitation runs parallel to the Patapsco River between I-195 and Route 648 and is in the Patapsco Valley State Park owned by the Department of Natural Resources. The entire project will include the replacement of 37,690 linear feet of various sized sewer piping. The repairs are necessary to eliminate sewer overflows, which occur during wet weather conditions, and pose significant public health and environmental concerns. In order to replace this piping, the County will require access to all manholes spanning the length of the interceptor. Some portions of the Interceptor can be reached by an existing access road, however some new and limited temporary access roads are proposed.

URS and Baltimore County designed the rehabilitation work to be performed via trenchless techniques through cured-in-place pipe (CIPP) lining. This 'No-Dig' rehabilitation method consists of lining the interior of an existing pipe with a thermosetting resin material without the need for open cut repair. A resin-saturated, felt tube is inverted or pulled into a sewer segment through a manhole. Next, hot water or steam is run through the tube to cure the resin and form a tight-fitting, jointless and corrosion-resistant replacement pipe. Additionally, manholes will be rehabilitated to include cleaning, replacing frames and covers, raising manhole rim elevations above river flood levels, installing chimney seals and lining with a cement coating.

While some new disturbance is necessary to gain access to existing manholes, these temporary paths will be constructed using un-compacted wood chips as a base for placing construction mats. The mats will be moved along the alignment of the sewer interceptors as work progresses and sections of the interceptors are rehabilitated, until the rehabilitation of the pipes and manholes is completed.

### **Proposed Impacts**

The total project area is 5.16 acres of which 3.88 acres is within the Critical Area and considered area not Intensely Developed. The applicant proposes to clear 0.60 acres of forested area within the Critical Area of the project. Approximately 0.24 acres of this clearing is proposed in the 100-foot Buffer to the Patapsco River and 0.09 acres of clearing is proposed outside of the Buffer. Maryland Department of the Environment has also permitted an additional 0.26 acres of impact to forested and emergent nontidal wetlands.

The applicants are responsible for mitigating at a 1:1 ratio for all clearing outside of the Buffer and at a 3:1 ratio for all clearing inside in the 100-foot Buffer. Additionally, all impacts to nontidal wetlands require in-kind restoration once the work is complete. The applicant is proposing to plant with a mix of native species similar to the vegetation being cleared. The remaining 2:1 mitigation associated with the disturbance to the Buffer will be planted with a mix of species in an unforested area in the Buffer on site. Please see table below for disturbance within the Critical Area:

| Location of Clearing | Disturbed Area | Area to be Reforested |
|----------------------|----------------|-----------------------|
| Buffer (3:1)         | 0.24 acres     | 0.72 acres            |
| Outside Buffer (1:1) | 0.09 acres     | 0.09 acres            |
| Wetland (1:1)        | 0.26 acres     | 0.26 acres            |
| Total                |                | 1.07 acres            |

### **Permits**

The Department of Natural Resources (DNR) Wildlife and Heritage Service has indicated that there is an eagle's nest (west of I-295) in the 660' protection zone. As a result, no construction activities are permitted during the breeding season, which is from December 15 to June 15. To accommodate this restriction the County proposes to use manholes outside the zone to insert and receive the liner. The County will make its contractors aware of this restriction and propose to include some language to that effect in the contract documents.

Authorization from Maryland Department of the Environment (MDE) and the U.S. Army Corps of Engineers (ACE) for wetland impacts was obtained on February 14, 2008 (permit #06-NT-0051/200662027). Modifications are currently being made to this permit due to a slight change in proposed disturbance to the nontidal wetlands.

Stormwater and sediment erosion control will be reviewed by Baltimore County Department of

Environmental Protection and Resource Management (DEPRM) after conditional approval is obtained from the Critical Area Commission.

Maryland Historical Trust (MHT) has indicated that there are no historic properties affected by the proposed project.

### **Conditional Approval Process**

*In order to qualify for consideration by the Commission for conditional approval, it shall be shown by the proposing or sponsoring agency that the project or program has the following characteristics:*

**The following are the responses of the applicant. The Commission staff has reviewed these responses.**

***(1) That there exist special features of the site or there are other special circumstances such that the literal enforcement of these regulations would prevent a project or program from being implemented;***

The rehabilitation of the Patapsco Interceptor and Relief sewer system will remediate deficiencies in the existing sanitary sewer system running through the Patapsco State Park. The repairs are necessary to eliminate sewer overflows, which occur during wet weather conditions, and pose significant public health and environmental concerns. The sewer pipes were built approximately 40 years prior to the inception of the Critical Area law. Consequently impacts to the Buffer, wetlands, and forest areas are unavoidable and necessary to repair the sewer and prevent further sewage overflows. This project is a requirement of the Consent Decree imposed upon Baltimore County by the United States Environmental Protection Agency (EPA), and has a mandatory completion date of June 30, 2009.

***(2) That the project otherwise provides substantial public benefits to the Critical Area Program;***

As previously stated, the project's intent is to help eliminate the sewer overflows occurring during wet weather. Extraneous water enters the sewers, causing raw sewage to be spilled along the sewer alignment and into tidal and non-tidal surface waters, in turn causing a public health hazard and potential damage to the environmentally sensitive park area.

***(3) That the project is otherwise in conformance with this subtitle;***

Except for new temporary impacts to the 100-foot Buffer and nontidal wetlands which will be restored to original condition, this project is otherwise in conformance. All necessary mitigation will be provided on-site.



*The Commission must find that the conditional approval request contains the following items:*

- (1) A showing that the literal enforcement of the provisions of this subtitle would prevent the conduct of an authorized State agency project;***

The existing sewer line is experiencing serious and chronic sewer overflows during wet-weather conditions which pose a public health hazard. Baltimore County has selected a repair method which will create the least amount of impact to existing resources as necessary.

However, given the location of the existing sewer line, a literal enforcement of the regulations would preclude the repair of this facility.

- (2) A proposed process by which the project could be so conducted as to conform, insofar as possible, with the approved local Critical Area program or if the development is to occur on State-owned lands, with the criteria set forth in COMAR 27.02.05.***

This project has been reviewed by Baltimore County Department for the Environmental Protection and Resources Management (DEPRM) and it has been found to be in compliance with local program regulations, which are as strict as or stricter than the criteria set forth in COMAR 27.02.05.

- (3) Measures proposed to mitigate adverse effects of the project or an approved local Critical Area program or, if on State-owned lands, on the criteria set forth in COMAR 27.02.05.***

The project will temporarily disturb the 100-foot Buffer and nontidal wetlands, however, there will be no increase in impervious surface and all new impacts are temporary. The project will take advantage of existing access roads belonging to Baltimore Gas and Electric (BGE) to reach most of the project area.

All cleared areas of forest within the 100-foot Buffer will be mitigated at a ratio of 3:1, with 1:1 of the mitigation occurring within the limit of disturbance once the work is completed and the remainder provided on-site within and adjacent to the Buffer. All cleared areas of forest outside the 100-foot Buffer will be mitigated at a ratio of 1:1 by also planting within the limit of disturbance after work is complete. Lastly, the temporary impacts to 0.34 acres of emergent tidal wetlands and 0.26 acres of forested wetland are permitted by Maryland Department of Environment and will be restored to original condition (including in-place reforestation) once the temporary access roads are removed. Reforestation would be completed no later than October 30, 2010 allowing for any unforeseen delays associated with the sewer repair work.

**The Commission shall approve, deny, or request modifications to the request for conditional approval based on the following factors:**

*E. (1) The extent to which the project is in compliance with the requirements of the relevant chapters of this subtitle;*

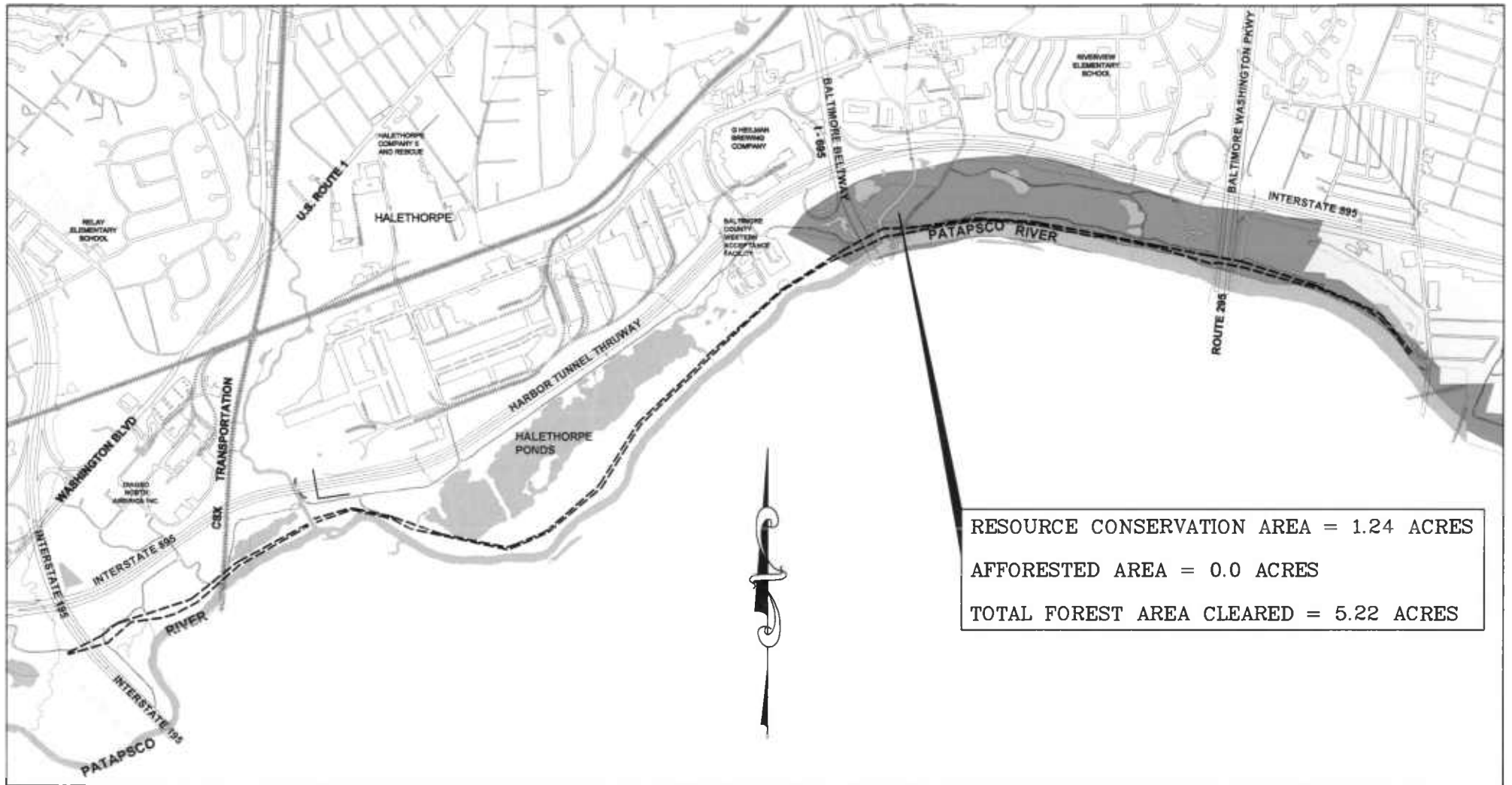
*E. (2) The adequacy of any mitigation measures proposed to address the requirements of this subtitle that cannot be met by the project; and*

*E. (3) The extent to which the project, including any mitigation measures, provides substantial public benefits to the overall Critical Area Program.*

**Staff Recommendation**

Staff recommends approval of this project with three conditions:




1. Prior to the start of construction activities, the Department of Public Works shall obtain Sediment and Erosion Control and Stormwater Management permits from Baltimore County Department of Environmental Protection and Resource Management (DEPRM). A copy of these permits shall be provided to Commission staff.
2. Prior to the start of construction activities, the appropriate modifications are made to the MDE permit.
3. Prior to the start of construction activities, the applicant adds protective language to the contract documents to indicate the eagle zone restrictions.



RESOURCE CONSERVATION AREA = 1.24 ACRES  
 AFFORESTED AREA = 0.0 ACRES  
 TOTAL FOREST AREA CLEARED = 5.22 ACRES

CRITICAL AREA MAP

LEGEND

-  = RESOURCE CONSERVATION AREA
-  = INTENSELY DEVELOPED AREA
-  = PATAPSCO SEWER TO BE REHABILITATED

REHABILITATION OF  
 THE PATAPSCO  
 INTERCEPTOR & RELIEF  
 JOB ORDER NO.  
 201-0077-0036



**URS**  
 1800 WASHINGTON BLVD.  
 SUITE 410  
 BALTIMORE, MD 21230  
 SHEET 3 OF 23

Robert L. Ehrlich, Jr.  
Governor

Michael S. Steele  
Lt. Governor



Martin G. Madden  
Chairman

Ren Serey  
Executive Director

**STATE OF MARYLAND  
CRITICAL AREA COMMISSION  
CHESAPEAKE AND ATLANTIC COASTAL BAYS**  
1804 West Street, Suite 100, Annapolis, Maryland 21401  
(410) 260-3460 Fax: (410) 974-5338  
[www.dnr.state.md.us/criticalarea/](http://www.dnr.state.md.us/criticalarea/)

March 24, 2005

Mr. Calvin D. Farr, Jr., PE  
URS Corporation  
Montgomery Park Business Center  
1800 Washington Blvd., Suite 320  
Baltimore, Maryland 21230

Re: Patapsco Interceptor

Dear Mr. Farr:

Thank you for arranging the field visit to the above-referenced project. I would like to take this opportunity to provide you with some preliminary feedback from the Critical Area Commission staff concerning various elements of your project.

1. It appears that the total area of your project is only partially inside the Critical Area. Based on the maps in our office and that of the Baltimore County Department of Environment and Resource Management (DEPRM), it appears the 1,000 foot Critical Area boundary lines extends from the eastern portion of your project to approximately where it intersects with I-695. Therefore, all proposed development activities west of I-695 are not in the Critical Area and will not require review and approval by the Commission.
2. For those portions of the project inside the Critical Area, I will need the followed information:

Total square footage of area cleared.

Total square footage of area graded.

Total square footage of road area.

The 100-foot tidal Buffer delineated on the plan sheets.

For those areas where hydric soils are contiguous with the 100-foot line, the Buffer should be expanded to the edge of those hydric soils.

The limits of the 1,000-foot Critical Area boundary should appear on Sheet 8.

Mr. Farr  
March 24, 2005  
Page Two

3. Since some of the proposed road alignment is within the 100-foot Buffer to the Patapsco River all disturbance will require mitigation. A 3:1 mitigation ratio will be required for all disturbance.
4. As discussed in the field today, timber mats as an alternative to crusher run may be the preferred method for truck access for this project. Please continue to consider this option in consultation with the Army Corps of Engineers and the Maryland Department of the Environment reviewers.
5. Please provide us with a copy of the survey your office performed for the Swamp Pink, and include any verification received from the Department of Natural Resources.
6. The issue of Forest Interior Dwelling Bird (FID) habitat may require further review. Any forest removed in a FID habitat will require mitigation that creates new FID habitat; therefore, please inform us as soon as possible of potential sites for replanting. This information should be known prior to approval by the Critical Area Commission.
7. The proposed clearing and construction must take place outside the FID breeding season, which can vary from February-April through August.
8. Every effort should be made to maintain canopy closure along those areas of the roadway that currently have canopy closure.
9. The impacts to the nontidal wetland and their associated 25-foot buffers, including any required mitigation, will be handled by the Corps and MDE reviewers.
10. All other permits, including sediment and erosion control and stormwater management must be secured prior to Commission approval.
11. Appropriate stormwater management measures should occur along the roadway. Please provide us with those plans.
12. All permits and required information must be submitted to Commission staff a minimum of 30 days prior to the next meeting of the Critical Area Commission. The Commission meets the first Wednesday of each month. If you have any questions about scheduling your project for Commission review and approval, please contact me at anytime to discuss it.

Mr. Farr  
March 24, 2005  
Page Two

Thank you again for arranging the site visit. Please telephone me with any questions or concerns at (410) 260-3478.

Sincerely,

A handwritten signature in cursive script that reads "Lisa A. Hoerger".

Lisa A. Hoerger  
Natural Resources Planner

cc: Ms. Abby Hopkins, ACOE  
Mr. Aaron Brown, MDE  
Mr. Gary Burnett, DNR  
Mr. Dave Lykens, Balto. Co. DEPRM  
BC 32-05

Robert L. Ehrlich, Jr.  
*Governor*



Martin G. Madden  
*Chairman*

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**STATE OF MARYLAND  
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[www.dnr.state.md.us/criticalarea/](http://www.dnr.state.md.us/criticalarea/)

September 21, 2004

Shawn Clotworthy  
Resource Planning  
Tawes State Office Building  
580 Taylor Ave.  
Annapolis, MD 21401

Re: Patapsco Valley SP, Interceptor Rehabilitation

Dear Mr. Clotworthy:

Thank you for providing information on the above referenced project that lies within Patapsco State Park in Baltimore County. It appears as though portions of the project lie within the Critical Area in a designated Resource Conservation Area (RCA). Based on the information provided, it appears as though the project may require formal review and approval from the Commission.

Specifically, the project description mentions the construction of access roads and the possible clearing of trees and brush. Based on the project description provided, it appears as though some of the temporary access roads may cross through wetland areas. The type of project activities described above are considered to be development activity regulated under COMAR 27.02.05, Development in the Critical Area resulting from State and Local agency programs. Regulations include limits on impervious surface coverage, identification of Habitat Protection Areas, mitigation for removal of vegetation, and minimization of disturbance within the Critical Area and 100-foot Buffer.

In order to determine whether full Commission approval is required for this project, further information is needed regarding the extent of proposed development activities on the site. I am enclosing a checklist that outlines the items needed in order to further evaluate this type of project. Not all of the items on the list may apply to this particular project.

Once I have received detailed site plans and have had the opportunity to review them, I will be able to determine whether the project requires the review and approval of the full Commission. The Commission meets on the first Wednesday of each month. The complete project should be submitted for processing by the Commission at least 30 days before a Commission meeting.

Shawn Clotworthy  
Patapsco Valley SP Project  
September 21, 2004  
Page 2

Thank you for the opportunity to provide comments on this development project. Please contact me at 410-260-3482 if you have any questions.

Sincerely,

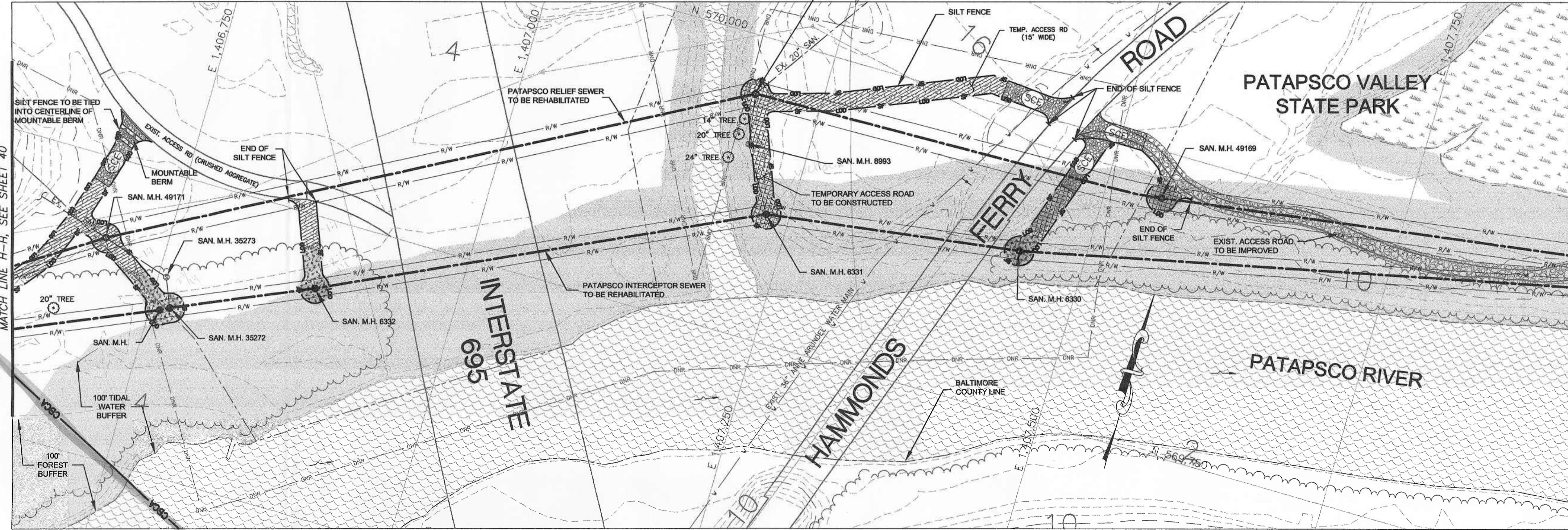


Kerrie L. Gallo  
Natural Resource Planner

Cc: Patricia Farr (Baltimore County, DEPRM)



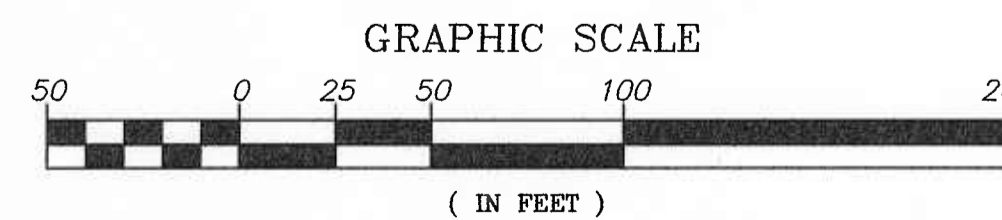
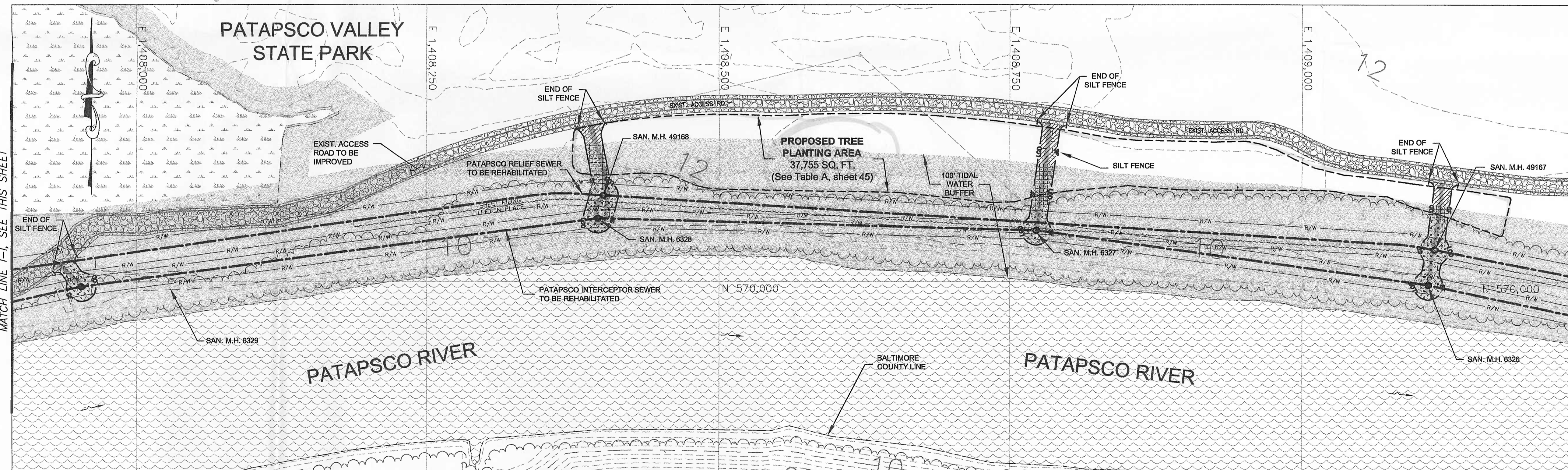
| Disturbed Area      |               |
|---------------------|---------------|
| Forested            | 1,417 sq. ft. |
| Non-Forested        | 6,376 sq. ft. |
| Forested Buffer     | 1,091 sq. ft. |
| Non-Forested Buffer | 3,515 sq. ft. |
| Emergent Wetland    |               |
| Forested Wetland    |               |



**LEGEND**

|                         |  |
|-------------------------|--|
| [Hatched pattern]       | RESTORATION BY SEEDING WITH UPLAND MIX<br>SEE TABLE D, SHEET 45                      |
| [Cross-hatched pattern] | RESTORATION BY SEEDING WITH EMERGENT WETLAND MIX<br>SEE TABLE C, SHEET 45            |
| [Dotted pattern]        | RESTORATION BY SEEDING WITH FORESTED BUFFER AND WETLAND MIX<br>SEE TABLE A, SHEET 45 |

| Disturbed Area   |               |
|------------------|---------------|
| Forested         | 1,120 sq. ft. |
| Non-Forested     | 3,530 sq. ft. |
| Forested Buffer  | 1,290 sq. ft. |
| Emergent Wetland |               |
| Forested Wetland |               |



| AS-BUILT PER RECORD PRINT  |      | REVISION       | DATE                                   | BY        | P. W. A. NO. | KEY SHEETS   | POSITION SHEETS | DRAWING SCALE   | DEPARTMENT OF PUBLIC WORKS |                |                                    |       |
|--|------|----------------|--|-----------|--------------|--------------|-----------------|-----------------|----------------------------|----------------|------------------------------------|-------|
| DRAFTSMAN  | DATE |                |  |           |              | CNE          | 26SW 6,11       | PLAN : 1" = 50' | APPROVED                   | DIRECTOR       |                                    |       |
|  |      |                |  |           |              | CNW          | 26SW 6,9        | PROFILE : N/A   |                            |                |                                    |       |
|  |      |                |  |           |              | RIGHT OF WAY |                 |                 |                            |                |                                    |       |
| I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 95997, Expiration Date 01/15/2010. |      | DESIGN BY: PRR | BUREAU OF ENGINEERING AND CONSTRUCTION | BUILDINGS | HIGHWAYS     | STRUCTURES   | STORM DRAINS    | SEWER           | WATER                      | FIELD ENGINEER | BUR. OF ENGINEERING & CONSTRUCTION |       |
| ENGINEER: PEDRO R. RAMIREZ<br>DATE: 03/19/08 LIC. NO.: 92667   |      | DWN BY: RW     | REVIEWED                               |           |              |              |                 |                 |                            |                | APPROVED                           | CHIEF |
|  |      | CHKD BY: TKP   | DATE                                   |           |              |              |                 |                 |                            |                |                                    |       |

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

REHABILITATION OF THE PATAPSCO INTERCEPTOR & RELIEF  
EROSION & SEDIMENT CONTROL

SUBDIVISION: HALETHORPE

ELECT. DISTRICT NO. 13c1

**URS** 1800 WASHINGTON BLVD.  
SUITE 410  
BALTIMORE, MD 21230



|                |               |
|----------------|---------------|
| CONTRACT NO.   | 08011SXO      |
| JOB ORDER NO.  | 201-0077-0036 |
| SHEET 41 OF 45 |               |
| DRAWING NO.    | 2008-0308     |
| FILE NO.       |               |

DWG FILENAME: S:\1165657-Patapsco\Design\DWG

**FOREST CONSERVATION EASEMENT**

**STANDARD NON-DISTURBANCE NOTE**

There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Buffer or critical area, except as permitted by the Baltimore County Department of Environmental Protection and resource management.

**FOREST BUFFER EASEMENT**

**STANDARD NON-DISTURBANCE NOTE**

There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Buffer or critical area, except as permitted by the Baltimore County Department of Environmental Protection and resource management.

**ACCESS EASMENT**

A blanket access easement over proposed drive aisles and parking areas will be provided to Baltimore County for access purposes.

**PENALTY FOR VIOLATION**

Any construction activity within forest retention and planting areas not specifically permitted within the forest conservation plan will result in a fine of \$1.20 per square foot assessed to the contractor at the time of observation by the developer, resource professional, or county reviewer. Trees which die outside the limit of disturbance will not be considered the fault of the contractor unless an unpermitted activity has occurred within the forest retention area.

**LONG TERM FOREST PROTECTION**

An easement will be created for all retention and planting areas. The easement will require that the removal of any tree (except those which pose a safety hazard) must be approved by the Baltimore county department of environmental protection and resource management.

**PENALTIES FOR VIOLATION**

A person who violates any provision of the subtitle or any regulation order plan or management agreement under this subtitle is liable for a penalty no exceeding \$1,000.00, which may be recovered in a civil action brought by the department. Each day of violation is separate violation under this subtitle. The county may issue an injunction requiring the person to cease the violation and take corrective action to restore or reforest an area.

**NOTE:**

A person found to be in noncompliance with the forest conservation plan or the associated forest establishment shall be assessed by the Department the penalty of \$1.20 dollars per square foot of the area found to be in noncompliance with the required forest conservation.

**MANAGEMENT NOTES FOR FOREST RETENTION AREAS**

- All proposed activities shall adhere to the conditions, schedules and terms of an approved sediment control and erosion plan.
- After the boundaries of the retention area have been staked and flagged and before any disturbance has taken place on-site, a preconstruction meeting at the construction site shall take place. The developer, contractor or project manager, and appropriate Baltimore County DEPRM inspectors shall attend.
- Tree protection for all retained areas:
  - All retention areas within 50 feet of proposed construction activities shall be protected by highly visible, well anchored temporary protection devices (silt fence or blaze orange plastic mesh).
  - All protection devices shall be in place prior to any grading or land clearing.
  - All protection devices shall be properly maintained and shall remain in place until construction has ceased.
  - Attachment of signs, fencing or other objects to trees is prohibited.
  - No equipment, machinery, vehicles, materials or excessive pedestrian traffic shall be allowed within protected areas.

- If the critical root zone is affected by construction activities such as grade change, digging for foundations and roads or utility installation:
  - Prune roots with a clean cut using proper pruning equipment
  - Water and fertilize as needed.

- During construction phase, monitor and correct condition of retained trees for soil compaction, root injury, flood conditions, drought conditions and other stress signs.

- Post-Construction Phase
  - Inspect existing trees around the perimeter of disturbed limits for evidence of soil compaction, root injury, limb injury, or other stress signs and correct with proper management techniques such as root or limb pruning, soil aeration, fertilization, crown reduction or watering. Inspection and evaluation shall be performed by a licensed arborist.
  - Inspect for dead or dying trees or limbs which may pose safety hazard and remove.
  - No burial or discarded materials will occur onsite within the conservation areas.
  - No burning within 100 feet of wooded area.
  - All temporary forest protection structures will be removed after construction.
  - Following completion of construction, prior to use, the County inspector shall inspect the entire area.

| Type    | Species  | Size                        | Condition / Quantity (each) |
|---------|--|-----------------------------|-----------------------------|
| Trees:  | American Sweetgum ( <i>Liquidambar styraciflua</i> ) | 1" Caliper                  | Container grown / 116       |
|         | Red maple ( <i>Acer rubrum</i> )                     | 1" Caliper                  | Container grown / 116       |
|         | Sycamore ( <i>Platanus occidentalis</i> )            | 1" Caliper                  | Container grown / 116       |
|         | Black willow ( <i>Salix nigra</i> )                  | 1" Caliper                  | Container grown / 116       |
|         | Pin oak ( <i>Quercus palustris</i> )                 | 1" Caliper                  | Container grown / 116       |
|         |  |                             | Subtotal Trees: 580         |
| Shrubs: | Southern arrowood ( <i>Viburnum dentatum</i> )       | 1 Gal. Pots (24" high min.) | Container grown / 115       |
|         | Winterberry ( <i>Ilex verticillata</i> )             | 1 Gal. Pots (24" high min.) | Container grown / 115       |
|         | Spicebush ( <i>Lindera benzoin</i> )                 | 1 Gal. Pots (24" high min.) | Container grown / 115       |
|         |  |                             |                             |
|         |  |                             | Total Plants: 925           |

\* ALL TREES TO BE PLANTED WITH 3.0' TUBEX TREE PROTECTORS AND STAKES  
 \* ALL PLANTS SHOULD BE CONTAINER GROWN  
 \* ALL UNPROTECTED DISTURBED SOIL WITHIN PLANTING ROWS SHOULD BE SEEDED WITH APPROPRIATE ANNUAL RYE MIXTURE OF AT RATE OF 50LBS/AC

**PLANTING SPECIFICATIONS**

1. The existing utilities are not shown on the plan. It is the Contractor's responsibility to locate all utilities. The contractor may contact Miss Utility (1-800-257-7777) 48 hours in advance for this service.

2. All stock will be planted as received; No root or top pruning will be done at the site. Stock not meeting specifications shall be returned to the supplier.

3. All planting stock shall be protected for sunscald, desiccation, and structural damage during shipment to the site. Materials held for planting will be moistened and placed in cool, shaded areas until ready for placement. During planting all materials will be kept moist with the roots protected from desiccation.

- All plants shall conform to the sizes indicated. Nomenclature shall conform to standardized plant names. All nursery stock shall be in accordance with standard nursery stock, as set forth in the latest approved standards of the American Nursery Standards Association, Inc.
- Root-stock of the trees shall be kept moist during transport from the source to the job site and until planted. Plant material shall be planted in the soil with each planting pit excavated to size sufficient to contain the entire root-stock or the entire root-mass without cramping.
- Substitutions in plant species, size, quantities or other materials, shall be made only with written approval by the Landscape Architect.

**4. Plant Material Quality**

- All plants shall be sound, healthy, vigorous, well-branched, and free from plant diseases, pests, eggs, or larvae. Plants shall be nursery grown. No heeled - cold storage or collected stock will be accepted. Trees shall have been growing in same climate conditions as the location of the project for at least one (1) years prior to award date of this contract and shall have healthy well developed root systems.
- The Contractor shall be responsible for selecting plant materials of the size and characteristics indicated on the plant list and of the quantity specified. The Contractor shall not accept nor deliver to the site any plants, which have broken branches, broken leaders, or otherwise in damaged condition, they shall be removed from the site and replaced with acceptable material at the expense of the contractor.

**5. Inspection**

- Plants delivered to the site may be subject to inspection by Baltimore County DPW and/or DEPRM. Should Baltimore County DPW and/or DEPRM find plants to be crooked, broken, or otherwise in damaged condition, they shall be removed from the site and replaced with acceptable material at the expense of the contractor.

**6. Clean-Up After Planting**

- At the completion of the job, the Contractor shall remove all excess materials from the job site and clean up all areas affected by this work or storage of materials. The Contractor shall replace or repair, at no cost to the Owners, all site areas or surrounding items damaged by work of this contract. All paved areas and walkways shall be left broom-clean.

7. Mulching material for plants shall be well-aged, fine shredded hardwood, dark brown in color, pine bark or approved equal. Material shall be mulching grade; uniform in size and free of foreign matter.

8. The Contractor shall make the necessary arrangements to obtain clean fresh water for use during planting operations.

9. Plants: All plants shall be carefully handled at all times so that roots are protected from drying, breakage, and from sun and drying winds and from freezing temperatures.

**10. Backfilling**

- All plants shall be backfilled and tamped to two-thirds depth of the pit and thoroughly watered with an open hose at low pressure of mist nozzle before bringing backfill to proper grade. Flood plant pit again to that backfill is thoroughly saturated and settled.

**11. Mulching**

- Shall be done as soon as backfilling has been completed. Mulch to the limit of the plant pits to a depth of two (2) inches around trees & shrubs and over beds/

12. Areas will be planted in later winter early spring. Planting may begin as soon as the ground is no longer frozen and the danger of killing frosts is minimal. Earliest planting dates will vary from year to year.

13. Soil amendments and fertilization shall be based upon the results of soil analysis for nitrogen phosphorus, potassium, organic matter content and pH.

14. All reforestation shall be within or adjacent to the Limit Of Disturbance (LOD) as indicated on drawings.

| Disturbed Area / Area to be Reforested            | 1.55 acres | 1.55 acres |
|---|------------|------------|
| Outside of Chesapeake Bay Critical Area           |            |            |
| Total Forest Cleared (Reforestation Required 1:1) | 1.55 acres | 1.55 acres |
| Onsite Reforestation*                             | 1.55 acres |            |
| Within Chesapeake Bay Critical Area               |            |            |
| Forested Area Cleared:                            | 0.60 acres |            |
| Within Buffer (Reforestation Required 3:1)        | 0.24 acres | 0.73 acres |
| Outside Buffer (Reforestation Required 1:1)       | 0.10 acres | 0.10 acres |
| Wetland (Reforestation Required 1:1)              | 0.26 acres | 0.26 acres |
| Onsite Reforestation*                             | 0.60 acres |            |
| Total Area to be Reforested                       |            | 2.64 acres |

\*Onsite Reforestation will be within the limit of disturbance

| % of Mix | Scientific name               | Common Name             |
|----------|-------------------------------|-------------------------|
| 25.00%   | <i>Carex vulpinoidea</i>      | Fox Sedge               |
| 25.00%   | <i>Elmus virginicus</i>       | Virginia Wild Rye       |
| 8.00%    | <i>Sparganium americanum</i>  | Eastern Bur Reed        |
| 7.00%    | <i>Juncus effusus</i>         | Soft Rush               |
| 6.50%    | <i>Onclea sensibilis</i>      | Sensitlve Fern          |
| 5.00%    | <i>Aster umbellatus</i>       | Flat Topped White Aster |
| 4.00%    | <i>Carex cornosa</i>          | Cosmos / Bristly Sedge  |
| 4.00%    | <i>Carex lasiocarpa</i>       | Lund / Shallow Sedge    |
| 4.00%    | <i>Scirpus polyphyllus</i>    | Many Leaved Butrush     |
| 3.00%    | <i>Sagittaria latifolia</i>   | Duck Potato / Arrowhead |
| 3.00%    | <i>Scirpus ssp. sp.</i>       | Wool Grass              |
| 2.00%    | <i>Carex lupulina</i>         | Hop Sedge               |
| 1.00%    | <i>Carex gynandra</i>         | Nodding Sedge           |
| 0.50%    | <i>Caltha palustris</i>       | Marsh Marigold          |
| 0.50%    | <i>Cinna arundinacea</i>      | Wood Reedgrass          |
| 0.50%    | <i>Dulichium arundinaceum</i> | Three Way Sedge         |
| 0.50%    | <i>Juncus canadensis</i>      | Canada Rush             |
| 0.50%    | <i>Scirpus expansus</i>       | Wood Butrush            |

**POST CONSTRUCTION REFORESTATION MANAGEMENT NOTES**

**MAINTENANCE OF PLANTINGS AFTER INTIAL ACCEPTANCE**

After acceptance of installation of plant material the Contractor shall be responsible for maintenance and replacement of plant materials until Final Acceptance of plantings by Baltimore County, Department of Environmental Protection and Resource Management, or three years after acceptance of installation of plant material, whichever occurs first.

**CONTRACTORS RESPONSIBILITIES DURING MAINTENANCE PERIOD:**

- Watering:** The Contractor shall provide watering of plant materials as necessary to assure survival.
- Contractor shall be responsible for furnishing water and equipment at his own expense.
  - An initial watering to thoroughly soak each plant is required.
  - Subsequent watering during each growing season will be performed on an as needed basis.
- Protection from Pests, Diseases and Mechanical Injury:**
- Maintain tree shelters as needed to protect tree whips from animal damage.
  - Prune dead and diseased branches with a clean cut.
  - Tighten, repair and reset plant materials to proper vertical positions as required.
  - Application of herbicide according to EPA registered labeling may be used to control weeds.

**Removal of Dead or Disfigured Plant Materials:**

1. The contractor shall be responsible for prompt removal of dead or disfigured plant materials.

**Annual Inspections during Maintenance Period:**

The Contractor shall schedule annual inspections with the Owner to review success of reforestation plantings and to determine need for replacement plantings. Replacement plantings shall be provided within 30 days after inspection.

**Contractor's Default:**

The Owner shall provide the Contractor with written notification of any deficiencies in the execution of his responsibilities under the Maintenance Agreement. The Contractor shall correct these deficiencies within thirty days.

**REFORESTATION NOTES:**

- Disturbance to emergent wetlands and buffer within and outside of the Chesapeake Bay Critical Area shall be restored by seeding with an emergent wetland species seed mix as indicated on the Specialized Wetland Mix Table by Ernst Conservation Seeds or with an approved equal.
- Disturbance within the project not located within a wetland, buffer or forest shall be restored by seeding with Plateau Tolerant Wildflower & Grass Seed Mix by Ernst Conservation Seeds or with an approved equal.
- Trees to be used in reforestation shall be a minimum 1" caliper container grown, native deciduous trees. Shrubs for reforestation shall be native deciduous species a minimum of 24 inches high container grown stock. Replanting density of trees and shrubs shall be 350 stems per acre.
- Prior to grading, all tree protection fencing shall be installed in accordance with Baltimore County Standards. All trees within the limits of disturbance shall be protected and/or removed in a manner that will not damage adjacent trees. Trees to be removed shall be labeled clearly or marked with spray paint and approved by the County prior to any clearing of trees.
- The Contractor shall take measures to protect tree roots within the limit of disturbance during construction. This shall include tree root protection from compaction, flooding, storage of materials, excessive wetting, spillage and drainage of any materials hazardous to trees. Removal of topsoil or root mat within the limit of disturbance is prohibited.
- If disturbance to a tree outside of the limit of disturbance becomes necessary during construction, the Contractor shall obtain permission from the County before proceeding.
- If any tree within the limit of disturbance is killed or severely damaged by negligence on part of the Contractor, the Contractor will be responsible for the cost of removal and replacement of the tree.
- Contractor shall reforest all vegetation removed from the Chesapeake Bay Critical Area buffer during the course of Patapsco Interceptor Rehabilitation Project at a 3:1 ratio in any buffer area in accordance with this reforestation plan. All vegetation removed from outside of CBCA buffer shall be replaced at a 1:1 ratio in accordance with this reforestation plan.
- There shall be no clearing, grading, construction, or disturbance of vegetation in the Forest Buffer or Critical Area Buffer/Protection Areas except as permitted by the Baltimore County Department of Environmental Protection and Resource Management.
- All onsite planting and restoration as well as any offsite planting shall occur prior to October 30, 2010. Planting schedule of trees and shrubs shall conform to Baltimore Standard Specifications for Construction and Materials. All onsite planting and restoration atop sewer interceptors shall be restricted to shrubs only.

| % of Mix | Scientific name                 | Common Name            |
|----------|---------------------------------|------------------------|
| 12.00%   | <i>Chamaecrista fasciculata</i> | Partridge Pea          |
| 10.00%   | <i>Andropogon gerardii</i>      | Niagara Big Bluestem   |
| 10.00%   | <i>Andropogon scoparius</i>     | Camper Little Bluestem |
| 10.00%   | <i>Bouteloua curtipendula</i>   | Butte Side Oats Grama  |
| 10.00%   | <i>Sorghastrum nutans</i>       | Tonahawk Indian Grass  |
| 9.50%    | <i>Echinochloa purpurea</i>     | Purple Coneflower      |
| 7.00%    | <i>Linum perenne</i>            | Perennial Blue Flax    |
| 6.00%    | <i>Lupinus perennis</i>         | Wild Blue Lupine       |
| 4.00%    | <i>Chrysanthemum maximum</i>    | Shasta Daisy           |
| 4.00%    | <i>Coneopsis fasciculata</i>    | Lance Leaved Coneopsis |
| 4.00%    | <i>Rudbeckia hirta</i>          | Black Eyed Susan       |
| 3.50%    | <i>Gullardia aristata</i>       | Blanket Flower         |
| 2.00%    | <i>Cymbalaria cyrenus</i>       | Bachelor's Button      |
| 2.00%    | <i>Cosmos bipinnatus</i>        | Cosmos                 |
| 2.00%    | <i>Desmanthus illinoensis</i>   | Illinois Bundleflower  |
| 2.00%    | <i>Desmodium canadense</i>      | Snowy Tick Trefoil     |
| 1.00%    | <i>Baptista Australis</i>       | Blue False Indigo      |
| 1.00%    | <i>Liatris spicata</i>          | Spiked Gayfeather      |

| TREE | COMMON NAME  | SCIENTIFIC NAME         | DBH (inches) | REMOVE |
|------|--------------|-------------------------|--------------|--------|
| ○    | Silver Maple | <i>Acer saccharinum</i> | 12           | No     |
| ○    | Silver Maple | <i>Acer saccharinum</i> | 12           | No     |
| ○    | Black Willow | <i>Salix nigra</i>      | 18           | No     |
| ○    | Silver Maple | <i>Acer saccharinum</i> | 20           | No     |
| ○    | Silver Maple | <i>Acer saccharinum</i> | 15           | No     |
| ○    | Silver Maple | <i>Acer saccharinum</i> | 18           | No     |
| ○    | Silver Maple | <i>Acer saccharinum</i> | 14           | No     |
| ○    | Silver Maple | <i>Acer saccharinum</i> | 12           | No     |
| ○    | Red Maple    | <i>Acer rubrum</i>      | 14           | No     |
| ○    | Silver Maple | <i>Acer saccharinum</i> | 15           | No     |
| ○    | Silver Maple | <i>Acer saccharinum</i> | 12           | No     |
| ○    | Box Elder    | <i>Acer negundo</i>     | 13           | No     |
| ○    | Red Maple    | <i>Acer rubrum</i>      | 14           | No     |
| ○    | Silver Maple | <i>Acer saccharinum</i> | 14           | No     |
| ○    | Black Willow | <i>Salix nigra</i>      | 14           | No     |

|  |              |          |           |  |            |                       |                     |                            |                                    |
|--|--------------|----------|-----------|--|------------|-----------------------|---------------------|----------------------------|------------------------------------|
| AS-BUILT PER RECORD PRINT  | REVISION     | DATE     | BY        | P. W. A. NO.                           | KEY SHEETS | POSITION SHEETS       | DRAWING SCALE       | DEPARTMENT OF PUBLIC WORKS |                                    |
| DRAFTSMAN  | DATE         |          |           |  | CNE        | 28SW 6,11<br>28SW 8,9 | PLAN :<br>PROFILE : | APPROVED<br>DIRECTOR       |                                    |
| I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 36567, Expiration Date 01/16/2010. |              |          |           | BUREAU OF ENGINEERING AND CONSTRUCTION |            |                       |                     |                            | BUR. OF ENGINEERING & CONSTRUCTION |
| ENGINEER: PEDRO R. RAMIREZ<br>DATE: 09/19/08 LIC. NO.: 36567   | DSGN BY: PRR | REVIEWED | BUILDINGS | HIGHWAYS                               | STRUCTURES | STORM DRAINS          | SEWER               | WATER                      |                                    |
| SEAL   | DWN BY: DJW  | DATE     |           |  |            |                       |                     | APPROVED<br>CHIEF          |                                    |
|  | CHKD BY: TKP |          |           |  |            |                       |                     | DATE                       |                                    |

BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING & CONSTRUCTION

REHABILITATION OF THE PATAPSCO INTERCEPTOR & RELIEF FOREST CONSERVATION PLAN/ CRITICAL AREA MITIGATION PLAN

SUBDIVISION: HALETHORPE

ELECT. DISTRICT NO. 13c1

**URS** 1800 WASHINGTON BLVD. SUITE 410 BALTIMORE, MD 21230

CONTRACT NO. 08011SX0  
 JOB ORDER NO. 201-0077-0036  
 SHEET 45 OF 45  
 DRAWING NO. 2008-0312  
 FILE NO.

DWG FILENAME: S:\1166597-Patapsco\Design\DWG