

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/

April 13, 2009

Ms. Mary Ann Skilling, Town Planner
Town of Perryville
515 Broad Street, P.O. Box 773
Perryville, Maryland 21903

Re: Perryville Yacht Club – Phase II Site Development
Revised Plan

Dear Ms. Skilling:

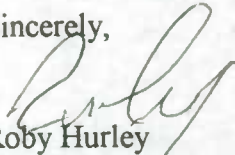
Thank you for providing information on the above referenced project for review and comment regarding Critical Area requirements for redevelopment of this site. The site is located in the Town's Intense Development Area (IDA) and it is mapped Special Buffer Area. My comments below reflect an update to the comments of my letter dated December 11, 2008.

- The applicant included 10% pollutant reduction calculations within the Environmental Assessment and a drainage area map. However, Worksheet B of 10% Calculations was incorrectly filled out. The applicant should be advised that the required removal is 3.36 pounds per year and the actual amount being removed under the proposed plan is 3.51 pounds per year. In summary, the final removal requirement has been met, but the calculations contained mistakes.
- Note 14 on the Plan needs to be changed from Critical Area Circuit Rider to Critical Area Planner.
- The provided plans verify that plantings were required under Phase I approval of this project. However, there is no statement as to whether the plantings have been provided to date.
- In addition to the Bufferyard plantings, the applicant must provide mitigation at a ratio of 2:1 for the extent of the footprint of development activity within the Buffer, not just for the removal of trees. Development activity has been identified to be 42,768 sq. ft, which at 2:1 equals 85,572 sq. ft. It does not appear that this quantity of plants are provided. The site plan and Environmental Assessment should be revised to indicate the square footage of required plantings and identification of species and planting location.



Thank you for the opportunity to provide comments. Please provide this office with a revised Buffer plan which addresses the comments above. If you have any questions, please contact me at (410) 260-3468.

Sincerely,

A handwritten signature in cursive script, appearing to read "Roby Hurley".

Roby Hurley
Natural Resource Planner
PE258-08

Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor



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www.dnr.state.md.us/criticalarea/

December 11, 2008

Ms. Mary Ann Skilling, Town Planner
Town of Perryville
515 Broad Street, P.O. Box 773
Perryville, Maryland 21903

Re: Perryville Yacht Club – Phase II Site Development
Revised Plan

Dear Ms. Skilling:

This office has received the above referenced project for review and comment regarding Critical Area requirements for redevelopment of this site. The site is located in the Town's Intense Development Area and it is a mapped Special Buffer Area. Comments provided below are subsequent to letters previously provided by Kate Schmidt. My comments below reflect an update to those comments.

10% Pollutant Reduction Requirements

The applicant included 10% pollutant reduction calculations within the Environmental Assessment and a drainage area map. However there are a number details missing and contradictions between the plan and drainage area (DA) map. We would appreciate fully engineered stormwater plans in order to verify the 10% calculations are correct and the proposed practices are sufficient. Please address the following concerns:

1. The DA map lacks identification of stormwater (SWM) flow to Best Management Practices (BMP) and should duplicate the Site plan.
2. The site plan SWM details show bypassed BMPs, confusing invert and outlet details and no inlet to the south sand filter.
3. The DA map acreage differs from acreage in the 10% calculations.
4. There are no BMP profile and sizing details provided.
5. There is no invert elevations provided.
6. The existing SWM on Phase I has a direct bearing on this site due to its proximity and upgrade location. As built details including outfalls directed to or entering Phase II should be provided.

25-foot Setback

OK

Section 138.6 of the Comprehensive Zoning Ordinance outlines the requirements of development within Special Buffer Areas. As previously established the applicant had proposed to setback the development 30 ft. to offset for the public walkway and the revised line appears to be accurate. ✓

Special Buffer Area Planting and Mitigation Requirements

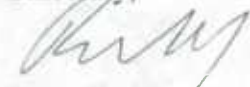
1. The 25-foot setback must be planted per the requirements of Section 138.6.a(9). It appears that the Bufferyard has sufficient plantings to meet the requirement of most of the Bufferyard with the exception of the area of the boat ramp. As this may be considered water dependent, plantings should be provided in an alternate location to offset this area. There are also non native species proposed for planting in the Bufferyard which should be replaced with native species.
2. In addition to the above, the applicant must provide mitigation at a ratio of 2:1 for the extent of the **footprint of development activity** within the Buffer, not just for the removal of trees. Development activity includes all areas of new development and all areas of redevelopment. The site plan and Environmental Assessment should be revised to indicate the square footage of development activity within the 100-foot Buffer and calculate the 2:1 mitigation required. Identification of the disturbed area is provided however no calculation of the mitigation or identification of species and location is provided. I encourage the Town to require use of the Buffer Management Plan form as well as proper identification on the site plan. *Not done*
3. Based on information contained in our records, it appears plantings were required under Phase I approval of this project. These plantings should also be shown on the planting plan and an indication of whether they have been provided to date. *Not done*
4. The non native species proposed for planting in the Buffer should be replaced with native species.

Other Comments

1. The applicant needs to provide an updated DNR Wildlife and Heritage letter that is less than 2 years old. ✓
2. Note 14 on the Plan needs to be changed from Critical Area Circuit Rider to Critical Area Planner.

Thank you for the opportunity to provide comments. Please provide this office with a revised preliminary plan which addresses the comments above. If you have any questions, please contact me at (410) 260-3468.

Sincerely,



Roby Hurley

Natural Resource Planner

PE258-08

Cc: Tammy Davis, Wilson, Deegan and Associates

Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor



Margaret G. McHale
Chair

Ren Serey
Executive Director

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1804 West Street, Suite 100, Annapolis, Maryland 21401

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www.dnr.state.md.us/criticalarea/

June 2, 2008

Ms. Heather Erickson
Town of Perryville
515 Broad Street, P.O. Box 773
Perryville, Maryland 21903

Re: Perryville Yacht Club – Phase II Site Development
Site Plan, Environmental Assessment, and Landscape Plan

Dear Ms. Erickson:

This office has received the above referenced project for review and comment regarding Critical Area requirements for development of this site. I previously provided comments to you on May 1, 2008. My comments below reflect an update to those comments.

10% Pollutant Reduction Requirements

1. The applicant included 10% pollutant reduction calculations within the Environmental Assessment. I utilized Worksheet A from the 10% Rule Guidance Manual to verify whether the calculations were correct. Based on my calculations, the pollutant removal requirement for this site is 3.578 lbs/year. The proposed underground sand filters and the dry swales will treat 3.426 lbs/year. Therefore, a 0.151 acre requirement is still outstanding.

25-foot Setback

2. Section 138.6 of the Comprehensive Zoning Ordinance outlines the requirements of development within Special Buffer Areas. As a mixed commercial and multi-family residential use, new development and redevelopment activities must be set back 25-feet from the edge of mean high water per Section 138.6.a(4).
 - a. The 25-foot setback line should be shown on the site plan.
 - b. The 5-foot wide walkway alongside the entire length of the shoreline is not consistent with this Section of the Ordinance. However, it would appear that the applicant is willing to set the remaining development 25-feet from the edge of walkway, for a setback that is 30-feet in total from the edge of tidal waters.
 - c. The proposed location for Building II from Phase II is within the 25-foot setback and requires a variance from Section 138.6.a(4). This office would not support a

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variance as the entire property is proposed to be redeveloped and the setback can be provided.

- d. It does not appear the applicant intends to minimize paving near the boat ramp access.

Special Buffer Area Planting and Mitigation Requirements

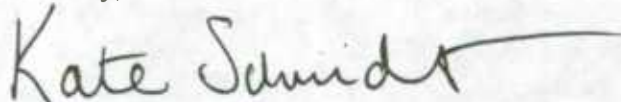
3. The 25-foot setback must be planted per the requirements of Section 138.6.a(9). Previously, I estimated approximately 675 feet of shoreline on this site, which would translate to approximately 34 overstory trees, 68 understory trees, 20 small shrubs and 270 herbaceous plants to be planted in the 25-foot setback area. The applicant is proposing 25 overstory trees, 11 overstory trees, and 189 shrubs. Using the recommended credit for mitigation, I calculated that the applicant should provide 6 additional overstory trees and 12 additional understory trees within the 25-foot setback.
4. In addition to the above, the applicant must provide mitigation at a ratio of 2:1 for the extent of the **footprint of development activity** within the Buffer, not just for the removal of trees. Development activity includes all areas of new development and all areas of redevelopment. The site plan and Environmental Assessment should be revised to indicate the square footage of development activity within the 100-foot Buffer and calculate the 2: mitigation required.
5. The applicant should submit two estimates for planting the remainder of the mitigation that can not be accommodated on site in order for the Town to collect a fee-in-lieu for that mitigation.
6. Based on information contained in our records, it appears plantings were required under Phase I approval of this project. These plantings should also be shown on the planting plan and an indication of whether they have been provided to date.

Other Comments

7. The applicant should submit a copy of the preliminary site plan to DNR Wildlife and Heritage for their comment prior to preliminary site plan approval.

Thank you for the opportunity to provide comments. Please provide this office with a revised preliminary plan which addresses the comments above. If you have any questions, please contact me at (410) 260-3475.

Sincerely,



Kate Schmidt
Natural Resource Planner
PE258-08

cc: Mary Ann Skilling, MDP

258-08

Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor



Margaret G. McHale
Chair

Ren Serey
Executive Director

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May 1, 2008

Ms. Heather Erickson
Town of Perryville
515 Broad Street, P.O. Box 773
Perryville, Maryland 21903

Re: Perryville Yacht Club – Phase II Site Development

Dear Ms. Erickson:

This office has received the above referenced site plan for review and comment regarding Critical Area requirements for development of this site. Mary Ann Skilling provided comments to you on March 17, 2008. These comments will supplement previous ones supplied to your office.

The Perryville Yacht Club property is designated as an Intensely Developed Area (IDA) and a Special Buffer Area. The proposed development of this property was split into Phase I and Phase II. This office provided comments through Mary Ann Skilling of Maryland Department of Planning regarding Phase I in 2004. Phase I consisted of constructing two condominium buildings and parking area outside the 100-foot Buffer. Phase II, the subject of this preliminary plan currently under review is proposing the construction of two additional condominium buildings, parking areas, boat storage areas, a boat ramp, and a marina office. Based on the information submitted, I have the following comments:

10% Pollutant Reduction Requirements

1. The most current plan submitted to this office regarding Phase I is dated June 16, 2004. At that time, the 10% pollutant reduction requirement was to be met by constructing a sand filter and sediment forebay in the same area as the proposed relocation site for the marina office. It does not appear that this facility has been constructed, although the parking lots for Phase I have been constructed. I am concerned that the 10% pollutant reduction requirement has not been met for the construction to date. The applicant must submit calculations to the Town to ensure this requirement will be met.
2. If the applicant is no longer proposing to meet the 10% pollutant reduction rule by the previous sediment forebay and sand filter design, than a revised plan documenting how



- 0.151 short fall
10% pollutant reduction will be met for both Phase I and for Phase II is required. This plan should be submitted at the Preliminary Plan stage.

25-foot Setback

3. Section 138.6 of the Comprehensive Zoning Ordinance outlines the requirements of development within Special Buffer Areas. As a mixed commercial and multi-family residential use, new development and redevelopment activities must be set back 25-feet from the edge of mean high water. The 25-foot setback should be shown on the site plan. X
 - a. Building 1 on Phase II may not be located as shown within the 25-foot setback.
 - b. The 5-foot wide walkway alongside the entire length of the shoreline is not appropriate within the 25-foot setback. Walkways are allowed to access water-dependent facilities such as piers. However, the remainder of the 25-foot setback must be reserved for planting as per the requirements of Section 138.6.a(9).
 - c. Under Section 129, Water Dependent Facilities, new or expanded development activities may be permitted in the Buffer provided they meet the Criteria of 129.4. X
While it may be required to provide pavement within the Buffer to access the existing boat ramp, the paving should be the minimum necessary. It would appear that some pervious area, approximately 5-10 feet wide, alongside the shoreline could be provided and planted.

Special Buffer Area Planting and Mitigation Requirements

4. The 25-foot setback must be planted per the requirements of Section 138.6.a(9). I estimated approximately 675 feet of shoreline on this site. This would translate to approximately 34 overstory trees, 68 understory trees, 20 small shrubs and 270 herbaceous plants to be planted in the 25-foot setback area.
5. In addition to the above, the applicant must provide mitigation at a ratio of 2:1 for the extent of the footprint of development activity within the Buffer. Development activity includes all areas of new development and all areas of redevelopment. These planting should be accommodated on the site, within the 110-foot Buffer to the maximum extent possible.
6. A planting plan detailing all this information should be submitted with the Preliminary Plan prior to approval.
7. Based on information contained in our records, it appears plantings were required under Phase I approval of this project. These plantings should also be shown on the planting plan and an indication of whether they have been provided to date.

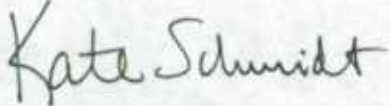
Other Comments

8. In 2002 DNR Wildlife and Heritage commented that the Susquehanna River in this location is a historic waterfowl concentration area. They requested further review of any proposal related to water-dependent facilities on this site. The applicant should submit a copy of the preliminary site plan to DNR Wildlife and Heritage for their comment prior to preliminary site plan approval.

Ms. Heather Erickson
Perryville Yacht Club – Phase II
May 1, 2008
Page 3 of 3

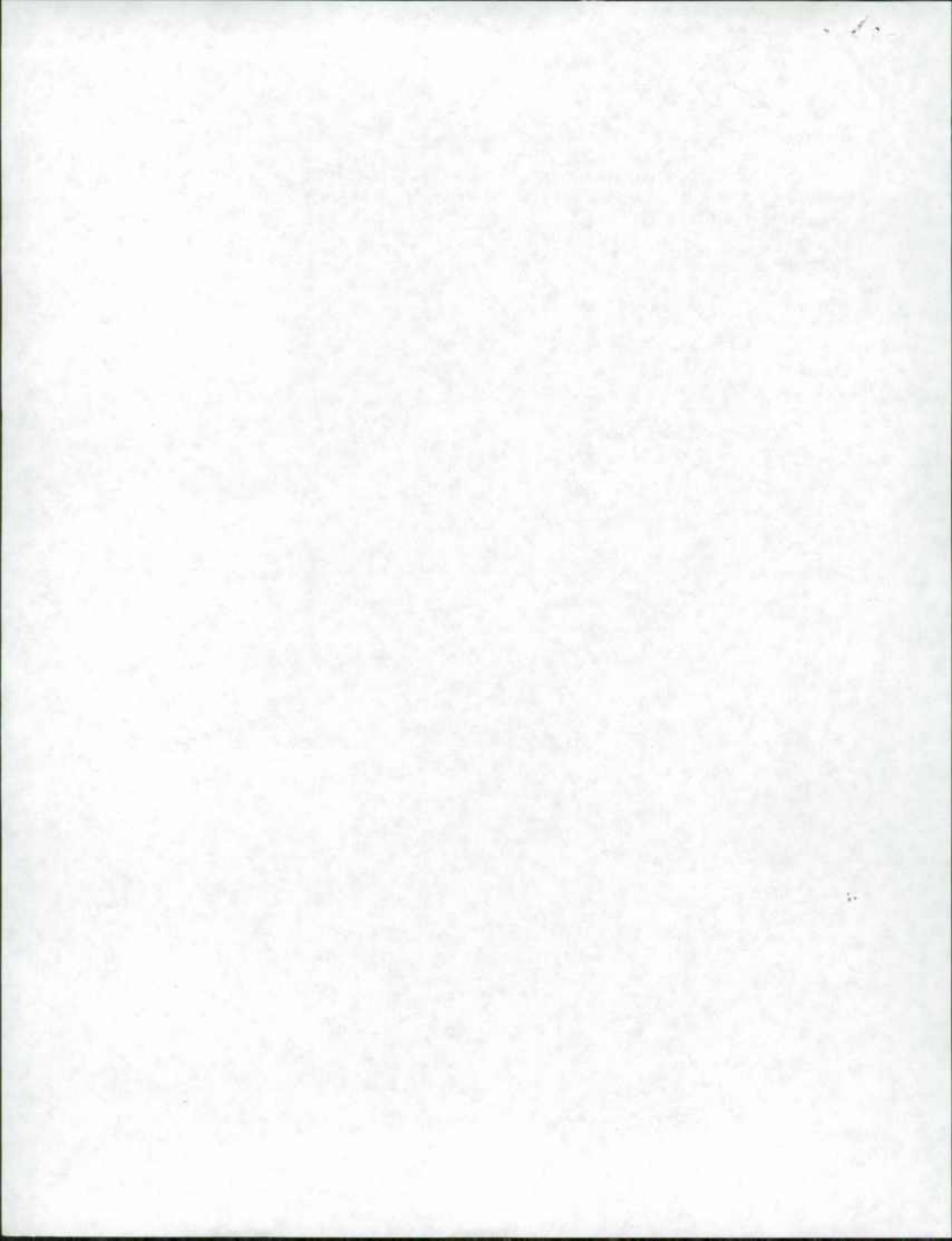
Thank you for the opportunity to provide comments. Please provide this office with a revised preliminary plan which addresses the comments above. If you have any questions, please contact me at (410) 260-3475.

Sincerely,

A handwritten signature in cursive script that reads "Kate Schmidt".

Kate Schmidt
Natural Resource Planner
PE740-02

cc: Mary Ann Skilling, MDP



Robert L. Ehrlich, Jr.
Governor

Michael S. Steele
Lt. Governor



Martin G. Madden
Chairman

Ren Serey
Executive Director

STATE OF MARYLAND
CRITICAL AREA COMMISSION
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www.dnr.state.md.us/criticalarea/

July 20, 2004

Mary Ann Skilling
Critical Area Planner
Maryland Department of Planning
Upper Eastern Shore Regional Office
120 Broadway, Suite 10
Centerville, MD 21617-1000

Re: Perryville Yacht Club

Dear ~~Ms. Skilling~~ ^{Mary Ann} Skilling,

The property is designated an Intensely Developed Area (IDA) and a Buffer Exemption Area (BEA). The property is currently developed with a trailer campground facility and a commercial marina. Based on the information provided, we have the following comments regarding the current development proposal.

- 1) We understand that the applicant wishes to replace the existing trailer campground facility with townhouses, and to retain the existing marina use on the site. As indicated on the current site plan, development of the site will take place in two phases. The Phase I proposal includes development of two townhouse buildings and marina parking outside the Buffer and a stormwater management facility within the Buffer. Several existing structures will be retained on the site, including the marina office/residence, a shed and two trailers. With respect to the Buffer Exemption Area requirements, the phased townhouse development would be considered new development, and expansion or renovation of the existing marina facility would be considered redevelopment.
- 2) As required by the Perryville Zoning Ordinance (Article V, §84-40 Special Buffer Yard Requirements), the project shall comply with the provisions for new development and redevelopment within a Buffer Exemption Area. The following provisions apply to this project.

New development shall minimize the shoreward extent of impervious surface, taking into consideration existing Town yard setback requirements. In no such case may such impervious surface be extended shoreward of any setback line as defined by existing

structures on adjacent lots or parcels or the setback required by the Town Zoning Ordinance.

In this case, the 25-foot setback required by the Town Zoning Ordinance would be the minimum setback for new development. As shown on the current landscape plan, two additional townhouse buildings are planned for Phase II. As measured from the site plan, one of the townhouse buildings (building four), a new structure near the marina office, and part of a concrete walkway are located within the 25-foot setback. As part of the Phase I plan, it appears that the concrete walkway could be eliminated since it does not provide water access or function as part of other water dependent facilities on the site. The 25-foot setback should be addressed with respect to new development proposed as part of the Phase II plan.

Offsets shall be required for new development in a Buffer Exemption Area. The extent of the parcel shoreward of the new development or redevelopment shall be established and maintained in natural vegetation, and natural vegetation of an area equal to two times the area of impervious surface created in the Buffer Exemption Area shall be planted on the site.

As shown on the current landscape plan, plantings will be provided around the perimeter of buildings one and two (outside the Buffer) and along the northern property boundary, adjacent to the proposed stormwater management facility. At this time, it does not appear that plantings will be provided within the 25-foot setback (shoreward of the proposed stormwater management facility) or shoreward of the existing marina facility and trailers on the site. As part of the Phase I plan, we recommend that plantings be provided within the 25-foot setback from the proposed stormwater management facility. As part of the Phase II plan, the 25-foot setback should be planted on the remainder of the site, and the BEA mitigation requirement can be determined based on the scope of the proposed development.

- 3) As indicated in the stormwater management report provided, the proposed stormwater best management practice (sand filter and sediment forebay) meets the 10% Rule requirement for pollutant reduction for redevelopment in an IDA.

Please contact me at (410) 260-3475 if you have questions about our comments. If a revised site plan or other information is provided, we may have additional comments about this project.

Sincerely,



Julie V. LaBranche
Natural Resource Planner

258-06



Town Commissioners of Perryville

515 Broad Street, P.O. Box 773
Perryville, Maryland 21903-0773
(410) 642-6066
(410) 642-6391 (Fax)
Email: townhall@perryvillemd.org

Mayor
James L. Eberhardt

Commissioners
Barbara A. Brown
Alan Fox
James M. Hansen
Gary W. Tennis

Town Administrator
Denise Breder

November 25, 2008

Roby Hurley
Critical Area Commission
1804 West Street, Suite 100
Annapolis, MD 21401

Re: Perryville Yacht Club Phase II – Revised Plan

Dear Roby:

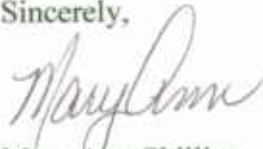
Please find enclosed a copy of the revised Environmental Assessment, 10% calculations and site plan for the Perryville Yacht Club Phase II. There were several communications between the property owner and Commission staff regarding this project in the past. You may want to review those comments as they relate to this plan. The site plan has been revised to provide lot 1 incorporating the marina operation (including marina and shared parking) and a condo regime. The Town **has not received** final approved Sediment and Erosion Control or Stormwater Management Plans that will have to be finalized prior to final site plan approval.

This project has been reconfigured several times due to concerns over the safety of residential uses coexisting with marina uses. The new configuration provides a safer arrangement for both uses. The Town has required the inclusion of a five (5') walkway around the property to connect to the existing trail through Town. This is consistent with the Town's Comprehensive Plan and revitalization efforts in the downtown.

Also enclosed is the proposed planting plan for the site. There may be additional landscaping required per the Town's regulations for new development.

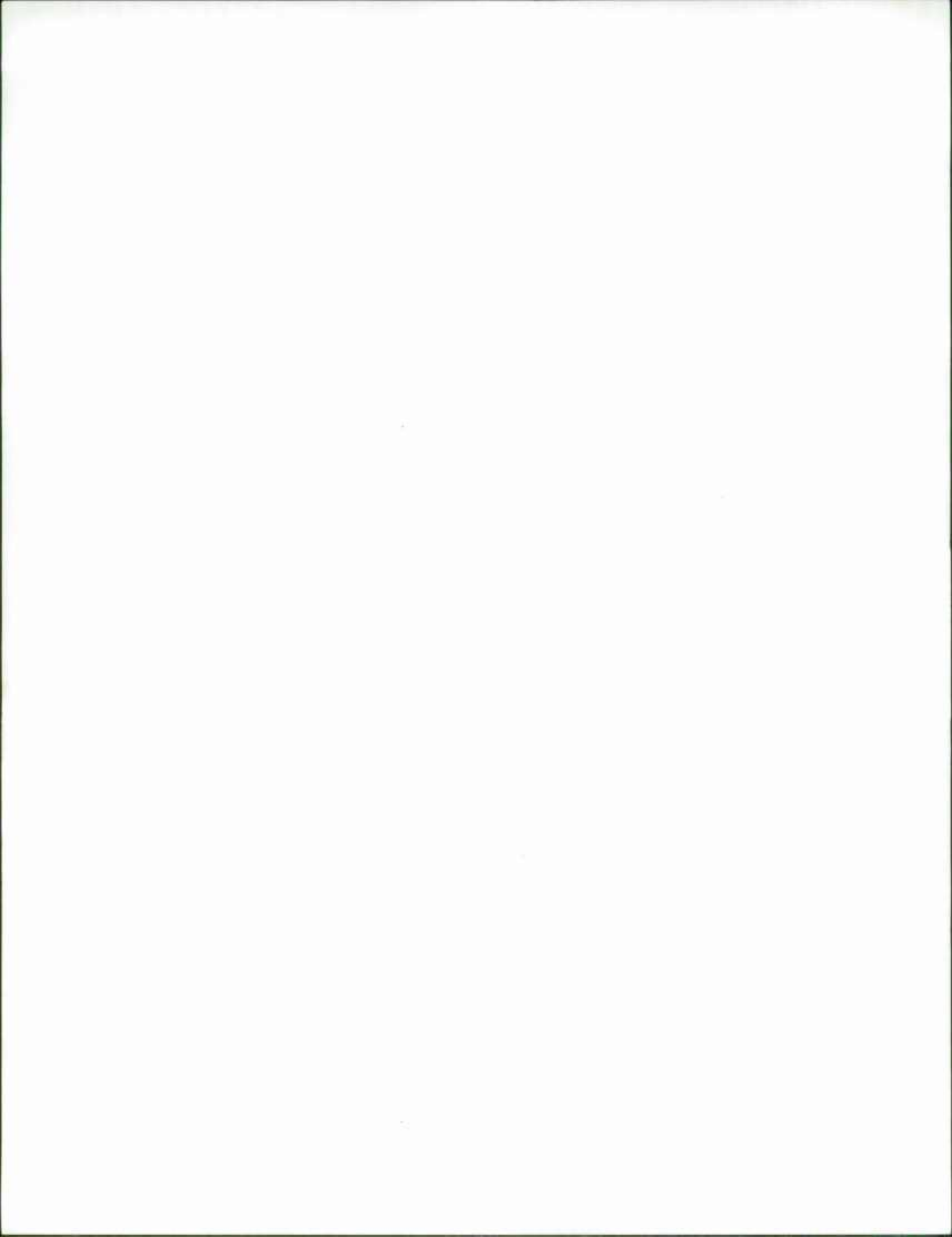
Should you have any questions or need additional information, feel free to contact me.

Sincerely,


Mary Ann Skilling
Town Planner



Enclosures



ENVIRONMENTAL ASSESSMENT REPORT

FOR

PERRYVILLE YACHT CLUB

TOWN OF PERRYVILLE
CECIL COUNTY, MARYLAND

WDA JOB NO.: 02062

February 2009

*SWM
274 DAS*

OWNER:

DFW, L.L.C.
31 River Road
Perryville, Maryland 21903
Contact: Bob Wilson
Phone: 410-808-4635

ENGINEER

WILSON DEEGAN & ASSOCIATES, INC.
2309 BELAIR ROAD, SUITE C
FALLSTON, MARYLAND 21047
(410) 893-3700

RECEIVED

MAR 23 2009

LOCAL AREA COMMISSION
for the Coastal Bay

Environmental Assessment Report

for

Perryville Yacht Club

Perryville, Cecil County, Maryland

February 2009

Background Information:

Wilson Deegan Associates, Inc. (WDA) has prepared this Environmental Assessment Report, at the request of DFW, L.L.C. This report is to provide "a coherent statement of how the proposed development addresses the goals and objectives of the Town of Perryville Chesapeake Bay critical area program," as specified in the Perryville Code (§74-26C.5). This document will describe the existing site conditions and natural resources, and will assess the effects of the proposed development/ redevelopment of the Perryville Yacht Club site.

Site Description:

Perryville Yacht Club is an existing commercial marina/ yacht club with boat docks, piers, and lift, marina office/residence building, pavilion, residential trailers, some with decks and other attached structures, gravel parking/storage areas, and an overhead electric transmission tower. The site is identified as Parcels 721 and 834 on Tax Map 801, located in the town of Perryville, Cecil County, Maryland and is currently zoned R-M (Residential Marine). The subject site consists of 5.5 0± acres that are bisected by River Road, which runs north-south. It also fronts on Roundhouse Road, located to the east. The bullheaded shoreline of Susquehanna River bounds the site to the west. "McMullen's Landing," a similar marina/condominium facility borders the site on the south. To the north of the Perryville Yacht Club site is a single family residence, west of River Road, and an existing macadam drive, town homes fronting on Roundhouse Drive, a stormwater management facility, and an open field, east of River Road. A Site Location Map and an Existing Conditions Plan are enclosed as Appendix A and in a pocket folder of this report, respectively.

The subject site is located entirely within an Intense Development Area (IDA) of the Chesapeake Bay Critical Area (CBCA). A portion of the western half of the site, along the shoreline, is located within the CBCA 100' Critical Area Buffer. However, the site is "Buffer Exempt," and is therefore not subject to the strict environmental regulations typically imposed on activities within the Critical Habitat Buffer.

The portion of the site located west of River Road is relatively flat with elevation of 4± above Mean Sea Level (MSL), landward of the bulkheads and above the boat ramp. This half of the site rises to 10± feet above MSL along River Road. East of River Road the area is divided into two distinct, relatively flat, areas with a moderately steep slope (7 to 22°) between the upper and lower elevations. The existing high point of the site lies in a

longitudinal knob located along Roundhouse Road. The knob rises just above 26± feet above MSL. Generally, the site drains westerly to Susquehanna River. The Federal Emergency Management Agency's Flood Insurance Rate Map for the area (Panel No. 240024 0005 C, revised date September 30, 1992) indicates that the 100-year floodplain

extends across the western portion of the site and slightly east of River Road, at an elevation of 12 feet above MSL.

The western portion of the site contains the majority of the marina development with marina office/residence building, pavilion, and gravel areas. This area also contains numerous trailers and scattered patches of lawn, landscaping, and canopy trees, predominately *Acer saccharinum* (silver maple). A few of the trailers are "mobile home" type structures, while the majority are of the "travel trailer" type. Wooden decks and enclosures have been constructed adjacent to many of the trailers indicating their "permanent" status. East of River Road, the site is used primarily for boat storage. Much of this area contains gravel that has grass growing through it. The eastern and western portions of this half of the site are connected by gravel drives near the northern and southern boundaries of the site. A wooden shed exists near the northeast corner of the site. In between the gravel areas is a vegetated slope dominated with a few larger canopy trees, predominately *Prunus serotina* (black cherry), and *Lonicera japonica* (Japanese honeysuckle). This area also contains scattered piles of waste materials and rubble.

Soils:

As indicated in the U.S. Department of Agriculture, Soil Conservation Service, *Soil Survey of Cecil County, Maryland* (1973), Sheet Number 25, the site is underlain by the following soils:

Beltsville silt loam (BeB2);
Made land (MaB) and
Matapeake silt loam (MoB2).

The delineation of the soils is shown on the Existing Site and Demolition (prepared by MRA) and Preliminary Plan (prepared by WDA) enclosed in pocket folders of this report. None of these soil types are listed as being classified as a hydric soil or "wetland" soil by *Hydric Soils of Maryland* (SCS, 1986). However, Made land (MaB) is listed as potentially containing hydric "inclusions in depressions and flat areas." Much of the areas mapped with Made land (MaB) contain structures, gravel areas, or steeper slopes. Made land (MaB) is land of borrow and fill and unclassified soil types. A field investigation, conducted by MRA in December 2002, did not reveal any areas that would meet the three parameter criteria required to be considered jurisdictional nontidal wetlands on the site. The Beltsville and Matapeake soil series are considered to have an erodability "K value" of greater than 0.35 and, therefore, are considered to highly erodible in steeper situations. However, of the Perryville Yacht Club site, most of the areas mapped with these soil series are relatively flat.

Habitat Protection Areas:

The proposed development will result in a reduction of pollutant runoff from that which is generated by the present conditions. Stormwater runoff will be quality controlled through the implementation of best management practices (BMP's), which will filter pollutants from the stormwater runoff before it discharges into Susquehanna River.

Maryland's Department of Natural Resources Wildlife and Heritage Division (DNR) informed WDA that they "have no records for Federal or State rare, threatened or endangered plants or animals within this project site." However, the letter does express concerns over impacts to "historic waterfowl concentration areas" if there would "be any construction of water- dependent facilities." There are no current plans to construct any new water-dependent facilities. A copy of DNR's letter, dated January 21, 2009, is included in Appendix B of this report.

Presently, the site does not contain any forest and, therefore, would not provide habitat for Forest Interior Dwelling Birds (FIDS). Additionally, the site is not identified on MERLTN Online ("Maryland's Environmental Resources & Land Information Network") as being within or near any Natural Heritage Areas.

Proposed Development:

The proposed redevelopment of the Perryville Yacht Club site will consist of the rehabilitation of the existing marina and the construction of four new three-story condominium buildings with basement garages and associated parking, as shown on the Preliminary Plan, prepared by WDA. attached herewith for your use. Phase I consists of two buildings containing 30 units and is currently under construction. Phase II will consist of two buildings and will contain 33 units, for a total of 63 condominium units. Each condominium building has a garage underneath it at ground level. The four garages provide a total of 109 covered spaces. The remaining required automobile parking for the residential units and the marina, and 20 boat trailer parking spaces will be provided adjacent to the condominium buildings and along River Road. The Town of Perryville requires that all new developments provide an all-weather paving surface. Therefore, the paving shall be bituminous concrete paving.

The residents of the condominium units have the right of ingress & egress of the marina property and may elect to rent a slip pending availability. The boat ramp and marina facilities are also open to the public.

There are no existing buildings to remain except the marina office/residence. At this time there are no plans to expand the marina operation, i.e. number of slips, extent of piers, or ramps. The bulkheads are to be replaced as part of the Phase II construction effort.

Impervious Areas:

Generally, the site slopes westerly toward Susquehanna River and is relatively flat with a sloped area in the eastern half of the site. Much of the site is currently covered with gravel, pavement, buildings, structures, and other impervious surfaces. Under the existing conditions, 2.52± acres or 46% of the 5.50± acre site is impervious. As currently planned, the proposed Site Plan will require that 3.77± acres (68.04%) of the site be covered by impervious materials.

Pollutant Loadings 10% Rule:

The subject site is designated as an IDA within the CBCA. IDA's are areas where redevelopment and/or new development are directed with the use of BMP's to help mitigate potential water quality impacts associated with stormwater runoff. More specifically, it is the goal of the Chesapeake Bay Critical Area Commission (CBCAC) and the Maryland Department of the Environment (MDE) that pollutant runoff is reduced by at least 10% after development compared to the pollutant runoff prior to development. The required analysis indicates that the proposed development, as shown on the Preliminary Plan enclosed with this report, will result in a reduction of impervious area related pollutant loads. Based on the procedure outlined by the CBCAC in Guidance Paper No.5, *A Framework for Evaluating Compliance With the 10% Rule in the Chesapeake Bay Critical Area* and using "Worksheet A: Redevelopment," the computed pollutant loads are as follows:

<u>Estimate Parameters</u>	<u>Pre-Development</u>	<u>Post-Development</u>
P (normal year)	40 inches	40 inches
Pj (annual)	0.9	0.9
A (within Critical Area)	5.54± acres	5.54± acres
Ia (total)	2.52± acres	3.77± acres
I (Ia/A)	45.57	66.73%
Rv 0.05 + 0.009(I)	0.464	0.651
C: (I ≥ 20%)	1.08 mg/l	1.08 mg/l

Pre-Development Loadings (L pre)

L pre (Rv)(C) (A) (8.16)
 (0.464) (0.30) (5.54) (8.16) = 6.237 lbs/yr

Post-Development Loadings (L post)

L post = (Rv)(C) (A) (8.16)
 (0.464) (0.30) (5.54) (8.16) = 8.976 lbs/yr.

Summary

Pre-Development Loading: 6.237 lbs/yr

Post- Development Loading: 8.976 lbs/yr.
Total Loading Increase: 2.69 lbs.yr.

Based on this analysis, the proposed development is required to incorporate stormwater management BMP's to decrease the pollutant loading generated by the site's proposed impervious surfaces.

Stormwater Management/Pollutant Reduction Measures:

The performance standards for Stormwater Management in Maryland are set forth in the *2000 Maryland Stormwater Design Manual Volumes I and II*, "the Manual".

Quantitative management; Channel protection volume (Cpv), Overbank flood protection volume (Qp) and Extreme flood protection volume (Qf) are not required for the development. The project site has direct discharge to tidal water and for that reason Cpv, Qp and Qf requirements are not applicable.

Qualitative stormwater management: Based on the Cecil County Code, Chapter 251: STORMWATER MANAGEMENT, ARTICLE II Definitions 251.3., terms defined, the site is considered redevelopment. Redevelopment is defined as any construction, alteration, or improvement exceeding 5,000 square feet of land disturbance performed on sites where existing land use is commercial, industrial, institutional or multifamily residential. Based on "the Manual" and the Cecil County Code, Stormwater quality volume (WQv) is required for the site. In accordance with "the Manual" and on the Cecil county Code Recharge volume (Rev) is not required for the site. Qualitative stormwater management will be provided to satisfy Section 251.7, Redevelopment, of the Cecil County Stormwater Management Code.

Several, small water quality facilities, BMP's, are planned for the proposed development to provide treatment of stormwater runoff from impervious surfaces on the site. In accordance with the redevelopment provisions of the Cecil County Stormwater Management Code as well as the CBCAC criteria for storm event pollutant reduction/removal, a determinate volume of runoff (WQv) is required to be treated on-site by way of stormwater management BMP's. Subject to final site engineering, we anticipate BMP selection will consist of a combination of devices, such as those identified in Table D.4.7, Appendix D-4, of "the Manual" a copy of which is enclosed as Appendix C. These devices will likely be chosen for their treatment effectiveness, with design consideration given to space limitations and site landscaping plan integration. BMP perimeter plantings and landscaping are anticipated.

For CBCAC 10% rule compliance, the required phosphorus removal and drainage area for BMP's treating runoff are as follows:

Previously Calculated Loading Reduction (Based upon I increase from 46% to 68%)

L increase = 2.69 lbs/ yr (see page 4 of this report)

Total Required Loading Removal by BMP

$L_{\text{post}} - (0.9)(L_{\text{pre}}) = 8.976 \text{ lbs/yr} (0.9)(6.237) = 3.36 \text{ lbs/ yr}$

Drainage Area (D.A.) to be treated by Underground Sand Filters (UGSF) (F-2)

Drainage Area #2	0.6208Ac±	- 0.2295Ac.± (offsite) = 0.3913Ac±
Drainage Area #3	0.5587Ac±	
Drainage Area #4	2.0824Ac±	
Drainage Area #5	0.6497Ac±	
Total	3.6821Ac±	3.6821 / 5.539 = 66.48% of site area

D.A. TP removal by UGSF

$(L_{\text{post}}) (\text{BMPRE}) (\% \text{ DA}) = \text{LR}$

$8.976 \text{ lbs/yr.} \times 50\% \times 66.48\% = 2.983 \text{ lbs/yr}$

Drainage Area (D.A.) to be treated by Pocket Sand Filters (PSF) (F-5)

Drainage Area #1	0.4210Ac±	
Total	0.4210Ac±	0.4210 / 5.539 = 7.60% of site area

D.A. TP removal by PSF

$(L_{\text{post}}) (\text{BMPRE}) (\% \text{ DA}) = \text{LR}$

$8.976 \text{ lbs/yr.} \times 40\% \times 7.60\% = 0.273 \text{ lbs/yr}$

Total Loading Reduction by BMP Required: 3.36 lbs/ yr

Total Loading Reduction by BMP Provided: **3.256 lbs/yr**

Offsite Drainage Area (D.A.) to be treated by Underground Sand Filters (UGSF) (F-2)

Drainage Area	0.0.2295c±
Total	0.2295Ac±

Offsite D.A. TP removal by UGSF

$(\text{BMPRE}) (L_{\text{offsite}}) = \text{Offsite LR}$

$50\% \times 0.2295 = 0.115 \text{ lbs/yr}$

Total Loading Reduction by BMP Required: 3.36 lbs/ yr

Total Onsite Loading Reduction by BMP Provided: 3.256 lbs/yr

Total Offsite Loading Reduction by BMP Provided: 0.115 lbs/yr
Total Loading Reduction by BMP Provided: **3.371 lbs/yr**

Therefore, the use of multiple sand filters (pocket, perimeter and underground) the design provided meets the CBCAC's storm event runoff 10% pollutant removal requirement. The BMP selection is subject to final design engineering as well as site redevelopment compliance with the Cecil County Stormwater Management Code.

Trees and Landscape Plantings:

It is the goal of MDE and the CBCAC to realize no net loss of forest or individual trees within the Critical Area. The proposed redevelopment of Perryville Yacht Club will require the removal of a number of trees that are scattered throughout the site and a small mixed area of scrub-shrub vegetation and trees in the eastern portion of the site. Observed tree species on the site include silver maple, black cherry, *Betula nigra* (river birch), *Fagus sp.* (ash), *Platanus occidentalis* (American sycamore), *Paulownia tormentosa* (empress-tree), *Robinia pseudoacacia* (black locust), and *Quercus pliellos* (willow oak). A surveyed inventory of the vegetation provided by Wilson Deegan & Associates, Inc., indicates that there are 91 individual trees and an additional 3,840± square feet area of woody vegetation.

Please see the attached Landscaping Plans for proposed plantings. Phase I was prepared by Morris & Ritchie Associates, Inc. and has been approved. Phase II is being prepared by Wilson Deegan & Associates, Inc. and is to be approved by Cecil County *Town of PV*

Planted ?

Summary:

The *Perryville Chesapeake Bay Critical Area Program* (May 4, 1988) was legislated to achieve the following overall program goals:

1. Minimize adverse impacts on water quality that result from pollutants that run off from surrounding land;
2. Conserve fish, wildlife, and plant habitat; and
3. Establish land use policies for development in the Chesapeake Bay Critical Area that accommodate growth and also address the fact that, even if pollution is controlled, the number, movement, and activities of persons in an area can create adverse environmental impacts.

It is WDA's professional opinion that the proposed redevelopment of the Perryville Yacht Club site, as shown on the enclosed Site Plan, will not result in an adverse impact of the program goals. The site contains none of the following significant natural resources: nontidal wetlands, habitats of rare, threatened, or endangered species, FIDS habitat, riparian forest, or Natural Heritage Areas. No work is planned within the tidal

Environmental Assessment Report
Perryville Yacht Club
February 2009

areas of Susquehanna River that could adversely affect anadromous fish species, SAV beds, or waterfowl staging areas. The site currently is approximately 46% impervious, which will be increased to approximately 68% for the proposed development. The existing pollutant loading level will be reduced by at least 10% with the implementation of BMP's, improving the overall quality of any water that leaves the site.

Worksheet A: Standard Application Process

Calculating Pollutant Removal Requirements¹

Step 1: Calculate Existing and Proposed Site Imperviousness

A. Calculate Percent Imperviousness

- 1) Site Area within the Critical Area IDA, A = 5.539 acres
- 2) Site Impervious Surface Area, Existing and Proposed, (See Table 4.1 for details)

	(a) Existing (acres)	(b) Proposed (acres)
Roads	_____	_____
Parking lots	_____	_____
Driveways	_____	_____
Sidewalks/paths	_____	_____
Rooftops	_____	_____
Decks	_____	_____
Swimming pools/ponds	_____	_____
Other	_____	_____
Impervious Surface Area	<u>2.52</u>	<u>3.77</u> ?

- 3) Imperviousness (I)

Existing Imperviousness, I_{pre} = Impervious Surface Area / Site Area
 = (Step 2a) / (Step 1)
 = $(\frac{2.52}{5.539})$ ✓
 = 45.5 %

Proposed Imperviousness, I_{post} = Impervious Surface Area / Site Area
 = (Step 2b) / (Step 1)
 = $(\frac{3.77}{5.539})$ ✓
 = 68.0 %

B. Define Development Category (circle)

- 1) New Development: Existing imperviousness less than 15% I (Go to Step 2A)
- 2) Redevelopment: Existing imperviousness of 15% I or more (Go to Step 2B)
- 3) Single Lot Residential Development: Single lot being developed or improved; single family residential development; and more than 250 square feet of impervious area and associated disturbance (Go to Section 5, Residential Approach, for detailed criteria and requirements).

¹ NOTE: All acreage used in this worksheet refers to areas within the IDA of the Critical Area only.

Step 2: Calculate the Predevelopment Load (L_{pre})

A. New Development

$$\begin{aligned} L_{pre} &= (0.5) (A) \\ &= (0.5) (\quad) \\ &= \quad \text{lbs /year of total phosphorus} \end{aligned}$$

Where:

- L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)
0.5 = Annual total phosphorus load from undeveloped lands (lbs/acre/year)
A = Area of the site within the Critical Area IDA (acres)

B. Redevelopment

$$\begin{aligned} L_{pre} &= (R_v) (C) (A) (8.16) \\ R_v &= 0.05 + 0.009 (I_{pre}) \\ &= 0.05 + 0.009 (\underline{45.5}) = \underline{0.460} \\ L_{pre} &= (\underline{0.460}) (\underline{0.30}) (\underline{5.539}) (8.16) \\ &= \underline{6.24} \text{ lbs/year of total phosphorus} \end{aligned}$$

Where:

- L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)
 R_v = Runoff coefficient, which expresses the fraction of rainfall which is converted into runoff
 I_{pre} = Pre-development (existing) site imperviousness (i.e., $I = 75$ if site is 75% impervious)
C = Flow-weighted mean concentration of the pollutant (total phosphorus) in urban runoff (mg/l) = 0.30 mg/l
A = Area of the site within the Critical Area IDA (acres)
8.16 = Includes regional constants and unit conversion factors

Step 3: Calculate the Post-Development Load (L_{post})

A. New Development and Redevelopment:

$$L_{post} = (R_v) (C) (A) (8.16)$$

$$R_v = 0.05 + 0.009 (I_{post})$$

$$= 0.05 + 0.009 (\underline{68.0}) = \underline{0.662}$$

$$L_{post} = (\underline{0.662}) (\underline{0.30}) (\underline{5539}) (8.16)$$

$$= \underline{8.976} \text{ lbs/year of total phosphorus}$$

Where:

L_{post} = Average annual load of total phosphorus exported from the post-development site (lbs/year)

R_v = Runoff coefficient, which expresses the fraction of rainfall which is converted into runoff

I_{post} = Post-development (proposed) site imperviousness (i.e., $I = 75$ if site is 75% impervious)

C = Flow-weighted mean concentration of the pollutant (total phosphorus) in urban runoff (mg/l) = 0.30 mg/l

A = Area of the site within the Critical Area IDA (acres)

8.16 = Includes regional constants and unit conversion factors

Step 4: Calculate the Pollutant Removal Requirement (RR)

$$RR = L_{post} - (0.9) (L_{pre})$$

$$= (\underline{8.976}) - (0.9) (\underline{6.237})$$

$$= \underline{3.36} \text{ lbs/year of total phosphorus}$$

Where:

RR = Pollutant removal requirement (lbs/year)

L_{post} = Average annual load of total phosphorus exported from the post-development site (lbs/year)

L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)

Step 5: Identify Feasible BMP(s)

Select BMP Options using the screening matrices provided in the Chapter 4 of the 2000 Maryland Stormwater Design Manual. Calculate the load removed for each option.

BMP Type	(L _{post})	x	(BMP _{RE})	x	(% DA Served)	=	LR
<u>UGSF (F.2)</u>	<u>8.976</u>	x	<u>50%</u>	x	<u>66.48</u>	=	<u>2.983</u> lbs/year
<u>PSF (F.5)</u>	<u>8.976</u>	x	<u>40%</u>	x	<u>7.60</u>	=	<u>0.273</u> lbs/year
_____	_____	x	_____	x	_____	=	_____ lbs/year
_____	_____	x	_____	x	_____	=	_____ lbs/year

Load Removed, LR (total) = 3.256 lbs/year

Pollutant Removal Requirement, RR (from Step 4) = 3.36 lbs/year

Where:

(.104)

- Load Removed, LR = Annual total phosphorus load removed by the proposed BMP (lbs/year)
- L_{post} = Average annual load of total phosphorus exported from the post-development site (lbs/year)
- BMP_{RE} = BMP removal efficiency for total phosphorus, Table 4.8 (%)
- % DA Served = Fraction of the site area within the critical area IDA served by the BMP (%)
- RR = Pollutant removal requirement (lbs/year)

If the Load Removed is equal to or greater than the Pollutant Removal Requirement computed in Step 4, then the on-site BMP complies with the 10% Rule.

Has the RR (pollutant removal requirement) been met? Yes No

DA
2-5
1

Worksheet B: Standard Application Process

Calculating Removal from Off-site Drainage Areas

Step 1: Project Description

A. Calculate Percent Imperviousness

1) Off-site Drainage Area to be Treated by On-site BMP, $A_{\text{off-site}} = \frac{.3913}{.2295}$ acres

2) Ultimate Off-site Drainage Area Imperviousness

(a) Ultimate Off-site Impervious Area (acres)

Roads	_____	(acres)	
Parking Lots	_____	(acres)	.2085
Driveways	<u>6493sf</u>	(acres)	<u>0.1491</u> ac
Sidewalks/paths	_____	(acres)	
Rooftops	_____	(acres)	
Decks	_____	(acres)	
Swimming pools/ponds	_____	(acres)	
Other	_____	(acres)	
Total Off-site Impervious Area (sum of the above) =			<u>0.1491</u> (acres)

(b) Ultimate Off-site Imperviousness ($I_{\text{off-site}}$)

Off-site Imperviousness ($I_{\text{off-site}}$) = Total Off-site Impervious Area / $A_{\text{off-site}}$

= (Step 2a) / (Step 1)

$.2085 / .3913 = \frac{(0.1491)}{(0.2295)}$

= 64.95 % 53.28 %

B. Define Development Category of Off-site Drainage Area

- 1) New Development: Ultimate imperviousness of off-site drainage area less than 15% I (Go to Step 2A)
- 2) Redevelopment: Ultimate imperviousness of off-site drainage area greater than or equal to 15% I (Go to Step 2B)

Step 2: Calculate Post-Development Load for Off-site Drainage Area ($L_{\text{off-site}}$)

A. New Development

$$\begin{aligned}
 L_{\text{off-site}} &= 0.5 (A_{\text{off-site}}) \\
 &= 0.5 (\quad) \\
 &= \quad \text{lbs/year of total phosphorus}
 \end{aligned}$$

Where:

- $L_{\text{off-site}}$ = Average annual load of total phosphorus exported from the off-site drainage area (lbs/year)
- 0.5 = Annual total phosphorus load from undeveloped lands (lbs/acre/year)
- $A_{\text{off-site}}$ = Off-site drainage area to be treated by on-site BMP (acres)

B. Redevelopment

$$\begin{aligned}
 L_{\text{off-site}} &= (R_v) (C) (A_{\text{off-site}}) 8.16 \\
 R_v &= 0.05 + 0.009 (I_{\text{off-site}}) \\
 &= 0.05 + 0.009 (\overset{53.38}{\underline{24.95}}) = \overset{.529}{\underline{0.635}} \\
 L_{\text{off-site}} &= (\overset{.529}{\underline{0.635}}) (\underline{0.30}) (\overset{.3913}{\underline{0.2295}}) 8.16 \\
 &= \overset{.507}{\underline{0.357}} \text{ lbs/year of total phosphorus}
 \end{aligned}$$

Where:

- $L_{\text{off-site}}$ = Average annual load of total phosphorus exported from the off-site drainage area (lbs/year)
- R_v = Runoff coefficient, which expresses the fraction of rainfall which is converted into runoff
- $I_{\text{off-site}}$ = Ultimate off-site imperviousness (i.e. $I = 75$ if site is 75% impervious)
- C = Flow-weighted mean concentration of the pollutant (total phosphorus) in urban runoff (mg/l) = 0.30 mg/l
- $A_{\text{off-site}}$ = Off-site drainage area to be treated by on-site BMP (acres)
- 8.16 = Includes regional constants and unit conversion factors

$$R_v = \underline{0.635}$$

$$R_v = .529$$

Step 3: Calculate the Load Removed from Off-site Drainage Areas by On-site BMP

Type of BMP: UNDERGROUND SAND FILTER

$$\begin{aligned}
 \text{Off-site Load Removed} &= (\text{BMP}_{\text{RE}}) (L_{\text{off-site}}) \\
 &= (50\%) (0.2295) \\
 &= 0.115 \text{ lbs/year of total phosphorus}
 \end{aligned}$$

0.507
0.2295
0.115

Where:
 BMP_{RE} = BMP removal efficiency for total phosphorus, see Table 4.8 (%)
 $L_{\text{off-site}}$ = Average annual load of total phosphorus exported from the off-site drainage area (lbs/year)

Step 4: Calculate the Total Load Removed by On-site and Off-site BMPs

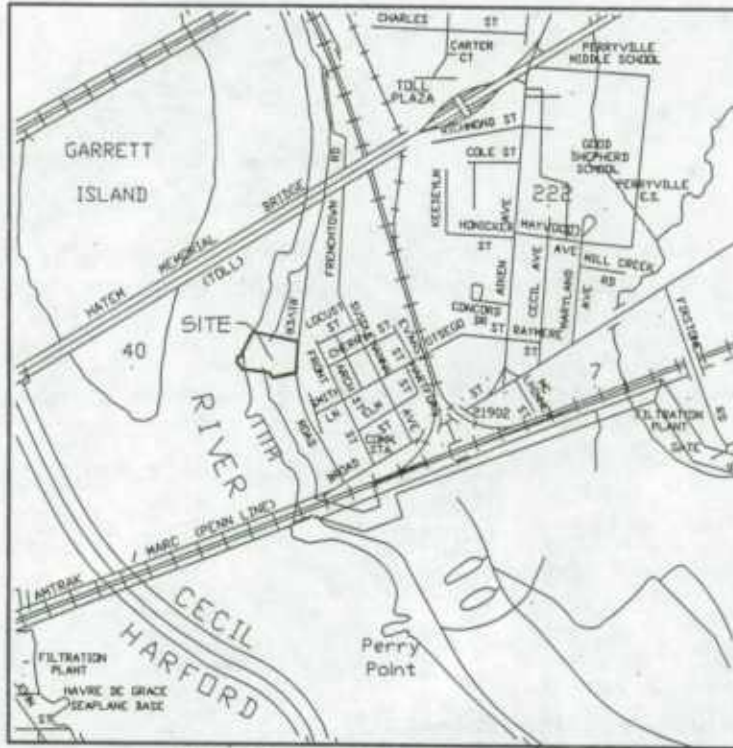
$$\begin{aligned}
 \text{Total Load Removed} &= \text{Load Removed On-site} + \text{Load Removed Off-site} \\
 &= (\text{Worksheet A, Step 5}) + (\text{Step 3}) \\
 &= (3.256) + (0.115) \\
 &= 3.371 \text{ lbs/year of total phosphorus}
 \end{aligned}$$

2535

Pollutant Removal Requirement (Worksheet A, Step 4) = 3.36 lbs/year

If the Load Removed is equal to or greater than the Pollutant Removal Requirement computed in Step 4, then the on-site BMP complies with the 10% Rule.

Has the Pollutant Removal Requirement been met? Yes No



VICINITY MAP
SCALE: 1" = 2000'

DATE:	04-02-08
SCALE:	AS SHOWN
JOB NUMBER:	02062
DRAWN BY:	TAD

*Wilson Deegan
& Associates, Inc.*
SURVEYORS * ENGINEERS
2309 Belair Road - Suite C
Fallston, Maryland 21047
PHONE: (410) 843-3700/FAX: (410) 871-0700

VICINITY MAP
**PERRYVILLE
YACHT CLUB**
RIVER ROAD, PERRYVILLE
SEVENTH ELECTION DISTRICT
CECIL COUNTY, MARYLAND



*Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
John R. Griffin, Secretary
Eric Schwaab, Deputy Secretary*

January 21, 2009

Mr. Steve Eichler
Wilson Deegan Associates, Inc.
2309 Bel Air Road
Fallston, MD 21047

RE: Environmental Review for Perryville Yacht Club, River Road, Perryville, Cecil County, Maryland.

Dear Mr. Eichler:

The Wildlife and Heritage Service has determined that there are no State or Federal records for rare, threatened or endangered species within the boundaries of the project site as delineated. As a result, we have no specific comments or requirements pertaining to protection measures at this time. This statement should not be interpreted however as meaning that rare, threatened or endangered species are not in fact present. If appropriate habitat is available, certain species could be present without documentation because adequate surveys have not been conducted.

We would also like to point out that the open waters that are adjacent to or part of the site are known historic waterfowl concentration areas. If there is to be any construction of water-dependent facilities please contact Larry Hindman of the WHS Service at (410) 221-8838 for further technical assistance regarding waterfowl. Please note that the utilization of state funds, or the need to obtain a state-authorized permit, may warrant additional evaluations that could lead to protection or survey recommendations by the Wildlife and Heritage Service.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

A handwritten signature in cursive script that reads "Lori A. Byrne".

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2008.2327.ce
Cc: L. Hindman, DNR
K. Charbonneau, CAC

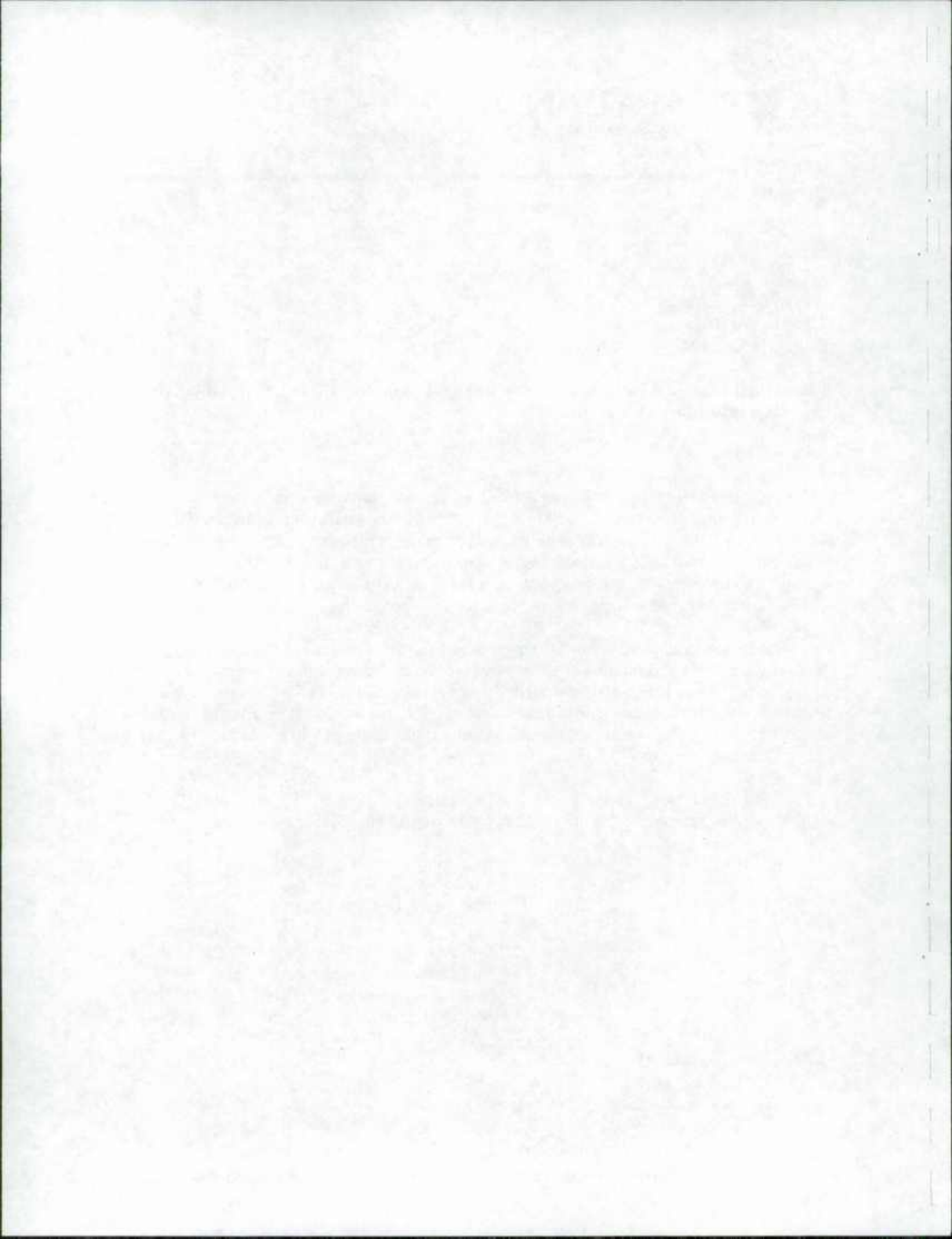


Table D.4.7 Updated Critical Area Keystone Phosphorous Removal Rates

CODE	BMP LIST	TP%
P-1	Micropool ED	40
P-2	Wet Pond	50
P-3	Wet ED Pond	60
P-4	Multiple Pond	65
P-5	Pocket Pond	50
W-1	Shallow Wetland	40
W-2	ED Wetland	40
W-3	Pond/Wetland	55
W-4	Pocket Wetland	40
I-1	Infiltration Trench	65
I-2	Infiltration Basin	65
F-1	Surface Sand Filter	50
F-2	Underground Sand Filter	50
F-3	Perimeter Sand Filter	50
F-4	Organic Filter	50
F-5	Pocket Sand Filter	40
F-6	Bioretention	50
O-1	Dry Swale	65
O-2	Wet Swale	40

STORMWATER MANAGEMENT DESIGN FOR:

DATE 4-Feb-09

**PERRYVILLE YACHT CLUB
WATER QUALITY COMPUTATIONS - TP #1**

1.) WATER QUALITY VOLUME

$$\begin{aligned} R_v &= 0.05 + (0.009)(I) \\ &= 0.05 + (0.009)(65.79) = \end{aligned}$$

WITHOUT CREDITS
where $I = (0.2770 \text{ Ac} / 0.4210 \text{ Ac}) = 0.6579$ or 65.8
0.6421

$$\begin{aligned} \text{WQv PROP} &= [(P)(R_v)(A)] / 12 \\ &= [(1") (0.642) (0.4210)] / 12 \\ &= 0.0225 \text{ AC-FT} = 980 \text{ CF} \end{aligned}$$

MINIMUM REQ'D.
FOR SITES LESS THAN 15% IMPERVIOUS

$$\begin{aligned} \text{WQv(min)} &= (0.2") (5.54) / 12 \\ &= (0.2") (5.54) / 12 \\ &= \text{NA} \quad \text{AC-FT} = \text{##### CF} \leftarrow \end{aligned}$$

STORMWATER MANAGEMENT DESIGN FOR:

DATE: 4/Feb/09
WDA: 02 062

PERRYVILLE YACHT CLUB

Sand Filter Design #1

Type of Sand Filter: Perimeter	Facility Number: #1
Site Imperviousness: 65.79 %	Coefficient of Permability (Sand) (k): 3.5 ft/day
Partical Settling Velocity (W): 0.0004 ft/sec W=0.0004 for l< 75% W=0.0033 for l> 75%	Filter Bed Drain Time (tf): 1.67 days
Depth of Sand Bed (df): 12 in	Efficiency (E'): 2.30
Depth of Storage above filter (hf): 12 in	Discharge Rate from Basin (Qo): 0.0113 cfs
	WQ Volume to be Managed: 980 *cf

PRETREATMENT

Pretreatment Volume Req'd @ 25%:	245 cf
Minimum Surface Area Req'd (As):	65 sf
Pretreatment Volume Provided:	246 cf

SAND FILTER

Surface Area of Filter Bed (Af):	112 sf
Storage above filter required @ 50%:	490 cf
Total Storage Required (V temp):	735 cf
Filter Width Proposed:	3.5 ft
Filter Length Proposed:	40 ft
Filter Area Proposed:	140 sf
Storage in Sand @ 40% of Volume:	56 cf
Storage above Sand:	533 cf
(V temp) Provided:	835 cf

STORMWATER MANAGEMENT DESIGN FOR:

DATE 4-Feb-09

**PERRYVILLE YACHT CLUB
WATER QUALITY COMPUTATIONS - TP #2**

1.) WATER QUALITY VOLUME

$$\begin{aligned} R_v &= 0.05 + (0.009)(I) \\ &= 0.05 + (0.009)(57.60) = \end{aligned}$$

WITHOUT CREDITS
where $I = (0.3576 \text{ Ac} / 0.6208 \text{ Ac}) = 0.5760$ or 57.6
0.5680

$$\begin{aligned} WQ_v \text{ PROP} &= [(P)(R_v)(A)] / 12 \\ &= [(1") (0.568) (0.6208)] / 12 \\ &= 0.0294 \text{ AC-FT} = 1,281 \text{ CF} \end{aligned}$$

MINIMUM REQ'D.
FOR SITES LESS THAN 15% IMPERVIOUS

$$\begin{aligned} WQ_v(\text{min}) &= (0.2") (5.54) / 12 \\ &= (0.2") (5.54) / 12 \\ &= \text{NA} \quad \text{AC-FT} = \text{##### CF} \leftarrow \end{aligned}$$

STORMWATER MANAGEMENT DESIGN FOR:

DATE: 4/Feb/09

WDA: 02 062

PERRYVILLE YACHT CLUB

Sand Filter Design #2

Type of Sand Filter: Perimeter	Facility Number: #2
Site Imperviousness: 57.6 %	Coefficient of Permeability (Sand) (k): 3.5 ft/day
Partial Settling Velocity (W): 0.0004 ft/sec W=0.0004 for I< 75% W=0.0033 for I> 75%	Filter Bed Drain Time (tf): 1.67 days
Depth of Sand Bed (df): 12 in	Efficiency (E'): 2.30
Depth of Storage above filter (hf): 24 in	Discharge Rate from Basin (Qo): 0.0148 cfs
	WQ Volume to be Managed: 1281 *cf

PRETREATMENT

Pretreatment Volume Req'd @ 25%: 320 cf
 Minimum Surface Area Req'd (As): 85 sf
 Pretreatment Volume Provided: 328 cf

SAND FILTER

Surface Area of Filter Bed (Af): 110 sf
 Storage above filter required @ 50%: 641 cf
 Total Storage Required (V temp): 961 cf
 Filter Width Proposed: 4.3 ft
 Filter Length Proposed: 27 ft
 Filter Area Proposed: 116 sf
 Storage in Sand @ 40% of Volume: 46 cf
 Storage above Sand: 655 cf
 (V temp) Provided: 1029 cf

STORMWATER MANAGEMENT DESIGN FOR:

DATE 4-Feb-09

**PERRYVILLE YACHT CLUB
WATER QUALITY COMPUTATIONS - #3**

1.) WATER QUALITY VOLUME

WITHOUT CREDITS

$$\begin{aligned} R_v &= 0.05 + (0.009)(I) \\ &= 0.05 + (0.009)(79.06) = \end{aligned}$$

$$\begin{aligned} \text{where } I &= (0.4417 \text{ Ac} / 0.5587 \text{ Ac}) = 0.7906 \text{ or } 79.1 \\ &0.7610 \end{aligned}$$

$$\begin{aligned} \text{WQv PROP} &= [(P) (R_v) (A)] / 12 \\ &= [(1") (0.761) (0.5587)] / 12 \\ &= 0.0373 \text{ AC-FT} = 1,625 \text{ CF} \end{aligned}$$

MINIMUM REQ'D.

FOR SITES LESS THAN 15% IMPERVIOUS

$$\begin{aligned} \text{WQv(min)} &= (0.2") (5.54) / 12 \\ &= (0.2") (5.54) / 12 \\ &= \text{NA} \quad \text{AC-FT} = \end{aligned}$$

CF ←

STORMWATER MANAGEMENT DESIGN FOR:

DATE: 4/Feb/09
WDA: 02 062

PERRYVILLE YACHT CLUB

Sand Filter Design #3

Type of Sand Filter: Perimeter	Facility Number: #3
Site Imperviousness: 79.1 %	Coefficient of Permeability (Sand) (k): 3.5 ft/day
Partical Settling Velocity (W): 0.0033 ft/sec W=0.0004 for I< 75% W=0.0033 for I> 75%	Filter Bed Drain Time (tf): 1.67 days
Depth of Sand Bed (df): 12 in	Discharge Rate from Basin (Qo): 0.0188 cfs
Depth of Storage above filter (hf): 30 in	WQ Volume to be Managed: 1625 *cf

PRETREATMENT

Pretreatment Volume Req'd @ 25%: 406 cf
Minimum Surface Area Req'd (As): 13 sf
Pretreatment Volume Provided: 410 cf

SAND FILTER

Surface Area of Filter Bed (Af): 124 sf
Storage above filter required @ 50%: 813 cf
Total Storage Required (V temp): 1219 cf
Filter Width Proposed: 4.3 ft
Filter Length Proposed: 29 ft
Filter Area Proposed: 125 sf
Storage in Sand @ 40% of Volume: 50 cf
Storage above Sand: 819 cf
(V temp) Provided: 1279 cf

STORMWATER MANAGEMENT DESIGN FOR:

DATE 4-Feb-09

**PERRYVILLE YACHT CLUB
WATER QUALITY COMPUTATIONS - #4**

1.) WATER QUALITY VOLUME

WITHOUT CREDITS

$$\begin{aligned} R_v &= 0.05 + (0.009)(I) \\ &= 0.05 + (0.009)(71.37) = \end{aligned}$$

where $I = (1.4862 \text{ Ac} / 2.0824 \text{ Ac}) = 0.7137$ or 71.4
0.6923

$$\begin{aligned} \text{WQv PROP} &= [(P)(R_v)(A)] / 12 \\ &= [(1") (0.692) (2.0824)] / 12 \\ &= 0.1201 \text{ AC-FT} = 5,232 \text{ CF} \end{aligned}$$

MINIMUM REQ'D.

$$\begin{aligned} \text{WQv(min)} &= (0.2") (5.54) / 12 \\ &= (0.2") (5.54) / 12 \\ &= \text{NA} \quad \text{AC-FT} = \end{aligned}$$

FOR SITES LESS THAN 15% IMPERVIOUS

CF ←

STORMWATER MANAGEMENT DESIGN FOR:

DATE: 4/Feb/09
WDA: 02 062

PERRYVILLE YACHT CLUB

Sand Filter Design #4

Type of Sand Filter: Perimeter	Facility Number: #4
Site Imperviousness: 71.4 %	Coefficient of Permability (Sand) (k): 3.5 ft/day
Partical Settling Velocity (W): 0.0033 ft/sec W=0.0004 for I< 75% W=0.0033 for I> 75%	Filter Bed Drain Time (tf): 1.67 days
Depth of Sand Bed (df): 12 in	Efficiency (E'): 2.30
Depth of Storage above filter (hf): 42 in	Discharge Rate from Basin (Qo): 0.0606 cfs
	WQ Volume to be Managed: 5232 *cf

PRETREATMENT

Pretreatment Volume Req'd @ 25%: 1308 cf
 Minimum Surface Area Req'd (As): 42 sf
 Pretreatment Volume Provided: 1308 cf

SAND FILTER

Surface Area of Filter Bed (Af): 325 sf
 Storage above filter required @ 50%: 2616 cf
 Total Storage Required (V temp): 3924 cf
 Filter Width Proposed: 4.3 ft
 Filter Length Proposed: 80 ft
 Filter Area Proposed: 344 sf
 Storage in Sand @ 40% of Volume: 137 cf
 Storage above Sand: 2616 cf
 (V temp) Provided: 4061 cf

STORMWATER MANAGEMENT DESIGN FOR:

DATE 4-Feb-09

**PERRYVILLE YACHT CLUB
WATER QUALITY COMPUTATIONS - #5**

1.) WATER QUALITY VOLUME

WITHOUT CREDITS

$$\begin{aligned} R_v &= 0.05 + (0.009)(1) \\ &= 0.05 + (0.009)(84.09) = \end{aligned}$$

$$\begin{aligned} \text{where } I &= (0.5463 \text{ Ac} / 0.6497 \text{ Ac}) = 0.8409 \text{ or } 84.1 \\ &0.8068 \end{aligned}$$

$$\begin{aligned} \text{WQv PROP} &= [(P) (R_v) (A)] / 12 \\ &= [(1") (0.807) (0.6497)] / 12 \\ &= 0.0437 \text{ AC-FT} = 1,904 \text{ CF} \end{aligned}$$

MINIMUM REQ'D.

$$\begin{aligned} \text{WQv(min)} &= (0.2") (5.54) / 12 \\ &= (0.2") (5.54) / 12 \\ &= \text{NA} \quad \text{AC-FT} = \text{##### CF} \quad \leftarrow \end{aligned}$$

FOR SITES LESS THAN 15% IMPERVIOUS

STORMWATER MANAGEMENT DESIGN FOR:

DATE: 4/Feb/09
WDA: 02 062

PERRYVILLE YACHT CLUB

Sand Filter Design 5

Type of Sand Filter: Perimeter	Facility Number: #8
Site Imperviousness: 84.1 %	Coefficient of Permability (Sand) (k): 3.5 ft/day
Partical Settling Velocity (W): 0.0033 ft/sec W=0.0004 for I< 75% W=0.0033 for I> 75%	Filter Bed Drain Time (tf): 1.67 days
Depth of Sand Bed (df): 12 in	Efficiency (E'): 2.30
Depth of Storage above filter (hf): 12 in	Discharge Rate from Basin (Qo): 0.0220 cfs
	WQ Volume to be Managed: 1904 *cf

PRETREATMENT

Pretreatment Volume Req'd @ 25%:	476 cf
Minimum Surface Area Req'd (As):	15 sf
Pretreatment Volume Provided:	483 cf

SAND FILTER

Surface Area of Filter Bed (Af):	217 sf
Storage above filter required @ 50%:	952 cf
Total Storage Required (V temp):	1428 cf
Filter Width Proposed:	8.3 ft
Filter Length Proposed:	115 ft
Filter Area Proposed:	954 sf
Storage in Sand @ 40% of Volume:	381 cf
Storage above Sand:	954 cf
(V temp) Provided:	1818 cf

STORMWATER MANAGEMENT DESIGN FOR:

DATE 4-Feb-09

**PERRYVILLE YACHT CLUB
WATER QUALITY COMPUTATIONS - #6**

I.) WATER QUALITY VOLUME

WITHOUT CREDITS

$$\begin{aligned} R_v &= 0.05 + (0.009)(I) \\ &= 0.05 + (0.009)(93.79) = \end{aligned}$$

$$\begin{aligned} \text{where } I &= (0.2751 \text{ Ac} / 0.2933 \text{ Ac}) = 0.9379 \text{ or } 93.8 \\ &0.8940 \end{aligned}$$

$$\begin{aligned} \text{WQv PROP} &= [(P)(R_v)(A)] / 12 \\ &= [(1") (0.894) (0.2933)] / 12 \\ &= 0.0219 \text{ AC-FT} = \end{aligned}$$

954 CF

MINIMUM REQ'D.

$$\begin{aligned} \text{WQv(min)} &= (0.2") (5.54) / 12 \\ &= (0.2") (5.54) / 12 \\ &= \text{NA} \quad \text{AC-FT} = \end{aligned}$$

FOR SITES LESS THAN 15% IMPERVIOUS

CF ←

STORMWATER MANAGEMENT DESIGN FOR:

DATE: 4/Feb/09
WDA: 02 062

PERRYVILLE YACHT CLUB

Sand Filter Design #6

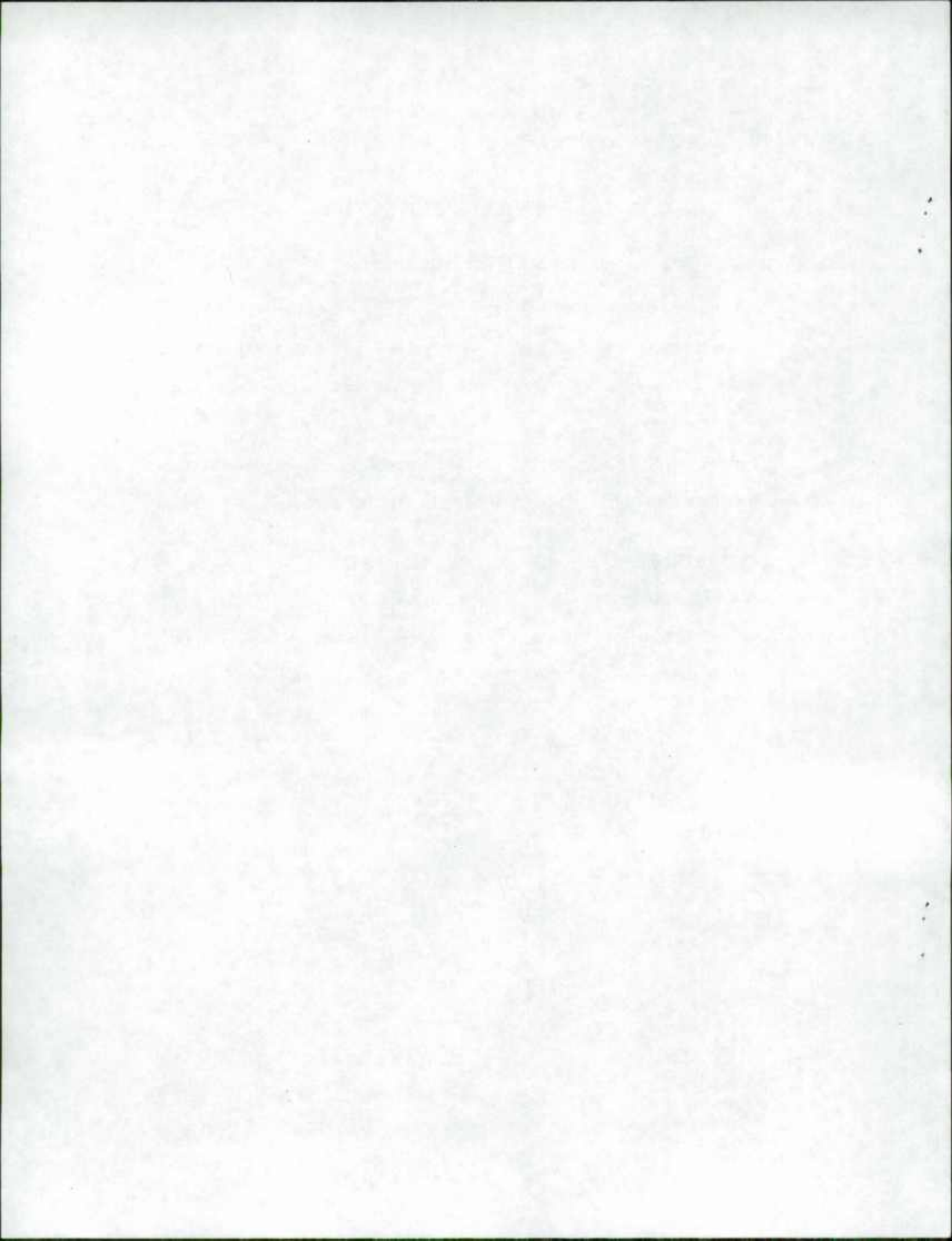
Type of Sand Filter: Perimeter	Facility Number: #6
Site Imperviousness: 93.8 %	Coefficient of Permability (Sand) (k): 3.5 ft/day
Partical Settling Velocity (W): 0.0033 ft/sec W=0.0004 for I< 75% W=0.0033 for I> 75%	Filter Bed Drain Time (tf): 1.67 days
Depth of Sand Bed (df): 12 in	Discharge Rate from Basin (Qo): 0.0110 cfs
Depth of Storage above filter (hf): 20 in	WQ Volume to be Managed: 954 *cf
	Efficiency (E'): 2.30

PRETREATMENT

Pretreatment Volume Req'd @ 25%: 239 cf
 Minimum Surface Area Req'd (As): 8 sf
 Pretreatment Volume Provided: 252 cf

SAND FILTER

Surface Area of Filter Bed (Af): 89 sf
 Storage above filter required @ 50%: 477 cf
 Total Storage Required (V temp): 716 cf
 Filter Width Proposed: 5.5 ft
 Filter Length Proposed: 55 ft
 Filter Area Proposed: 303 sf
 Storage in Sand @ 40% of Volume: 120 cf
 Storage above Sand: 504 cf
 (V temp) Provided: 876 cf



Critical Area 10% Workbook

REDEVELOPMENT ONLY

Calculating Pollutant Removal Requirements

Step 1: Calculate Existing and Proposed Site Imperviousness

A. Calculate Percent Imperviousness

- 1) Site Area Within the Critical Area IDA, A = 5.5 acres
- 2) Site Impervious Surface Area, Existing and Proposed, *See Table 4.1 for Details

	(a) Existing (acres)	(b) Proposed (acres)
Roads	_____	_____
Parking Lots	_____	_____
Driveways	_____	_____
Sidewalks/Paths	_____	_____
Rooftops	_____	_____
Decks	_____	_____
Swimming Pools/Ponds	_____	_____
Other	2.52	3.72
Impervious Surface Area	2.52	3.72

3) **Imperviousness (I)**

Existing Imperviousness, $I_{pre} = \text{Impervious Surface Area} / \text{Site Area}$

or (Step 2a)/(Step 1)
or 0.45818182

so $I_{pre} =$ 45.82 or 45.82%

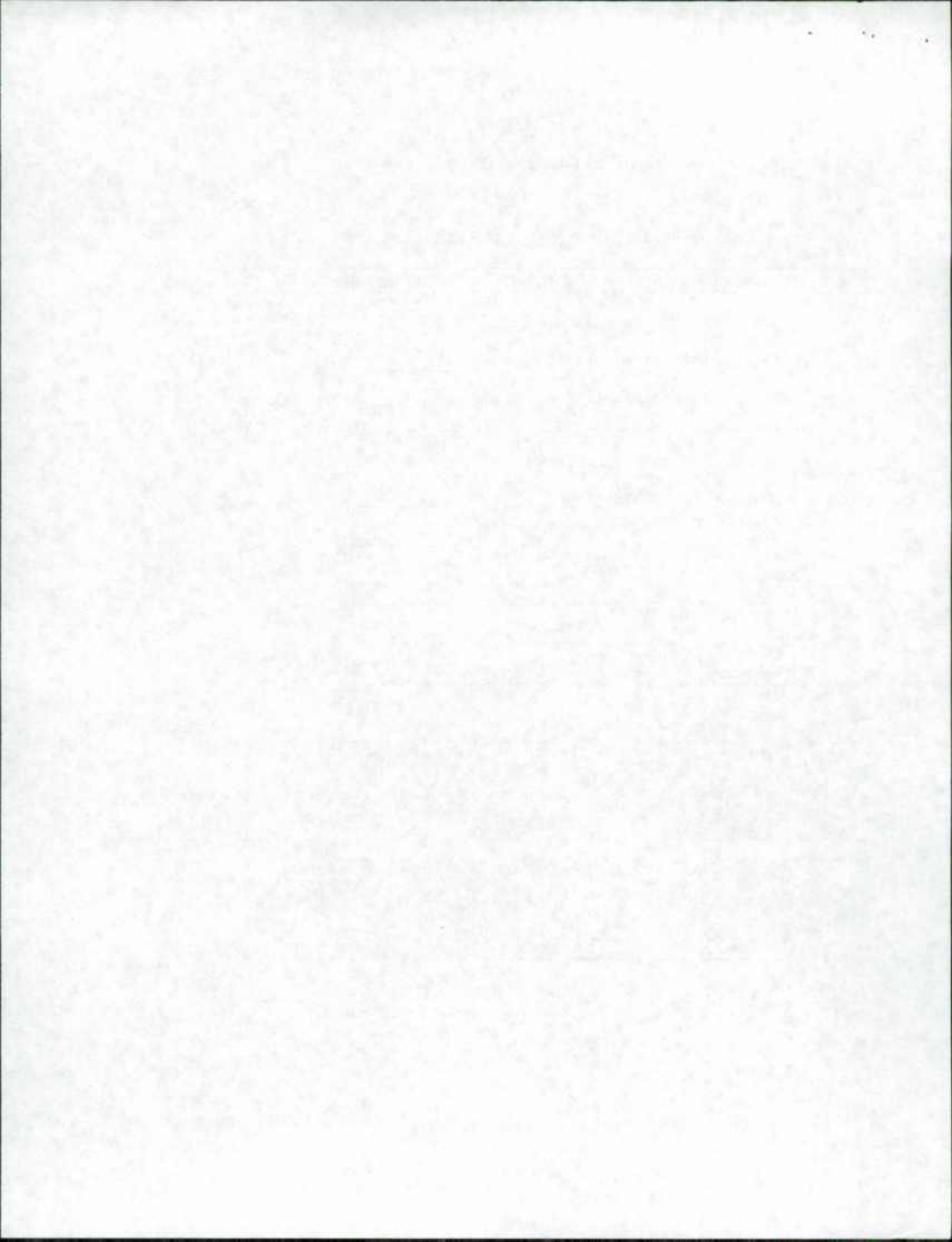
Proposed Imperviousness, $I_{pre} = \text{Impervious Surface Area} / \text{Site Area}$

or (Step 2b)/(Step 1)
or 0.67636364

so $I_{post} =$ 67.64 or 67.64%

Limit of Disturbance: _____ acres

NOTE: All acreage used in this worksheet refers to areas within the IDA of the Critical Area only.



Step 2B: Calculate Predevelopment Load

Redevelopment

$$L_{pre} = (Rv) (C) (A) (8.16)$$

$$Rv = 0.05 + 0.009 (I_{pre})$$

$$\text{or } 0.462$$

$$\text{so } L_{pre} = 6.225 \text{ lbs/year of phosphorus}$$

Where:

L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)

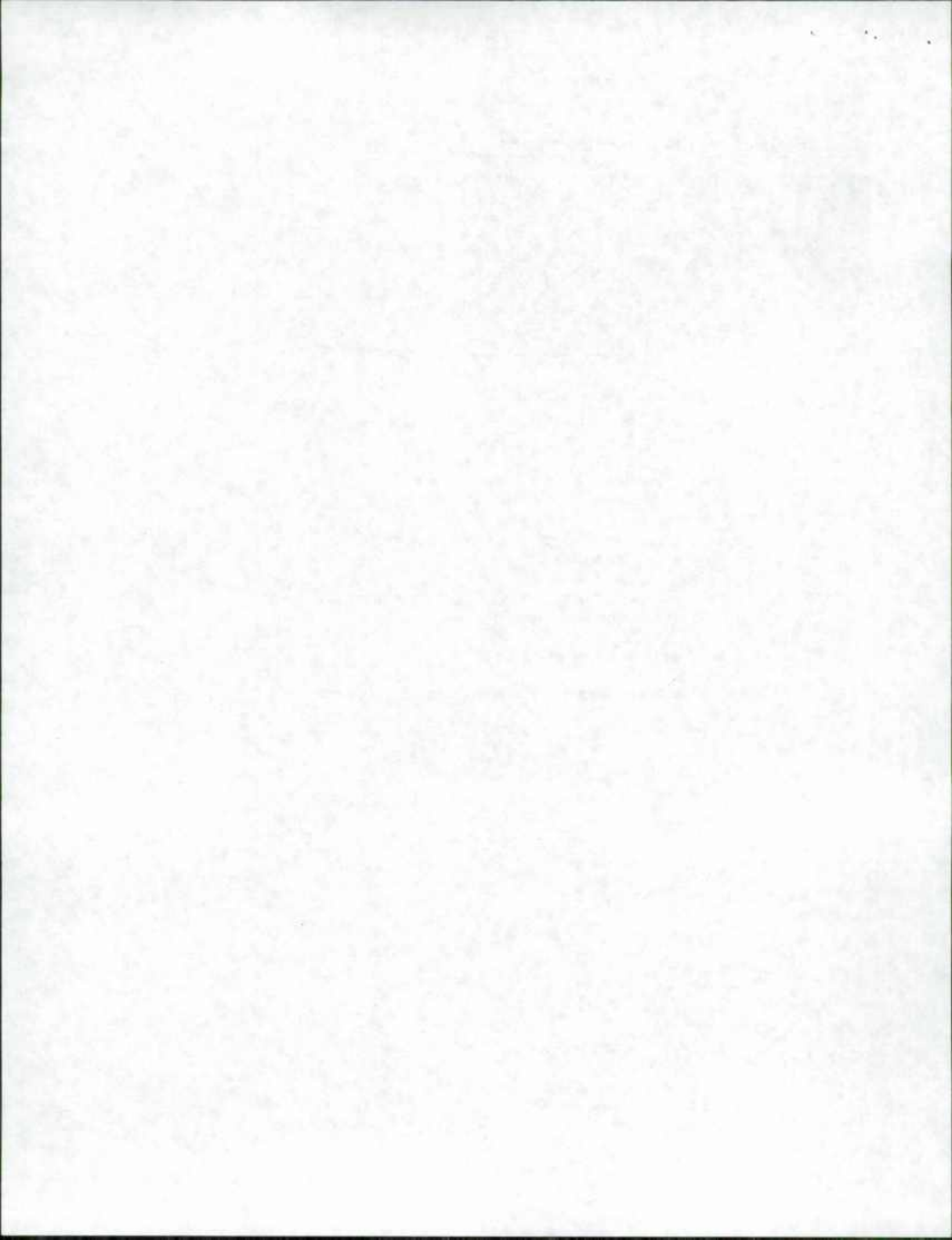
Rv = Runoff coefficient, which expresses the fraction of rainfall which is converted into runoff

I_{pre} = Predevelopment (existing) site imperviousness (i.e. I = 75 if the site is 75% impervious)

C = Flow-weighted mean concentration of the pollutant (total phosphorus) in urban runoff (mg/l) = 0.30mg/l

A = Area of the site within the Critical Area (acres)

8.16 = Includes regional constants and unit conversion factors



Step 3: Calculate the Post-Development Load

A. New Development and Redevelopment:

$$L_{\text{post}} = (Rv) (C) (A) (8.16)$$

$$Rv = 0.05 + 0.009 (I_{\text{post}})$$

$$\text{so } Rv = 0.659$$

$$L_{\text{post}} = 8.869 \text{ lbs/year of total phosphorus}$$

Where:

L_{post} = Average annual load of total phosphorus exported from the post development site (lbs/year)

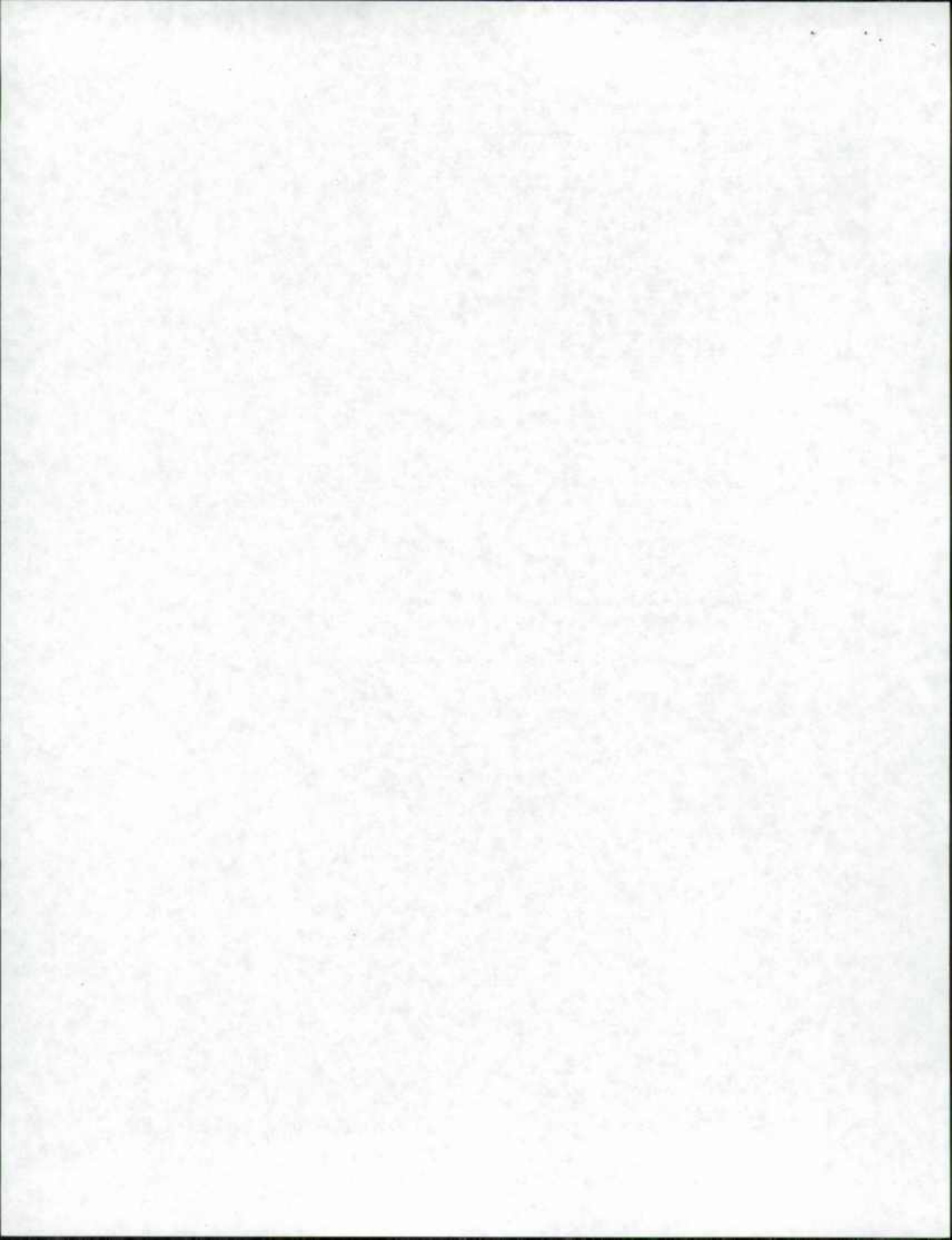
Rv = Runoff coefficient, which expresses the fraction of rainfall which is converted into runoff

I_{post} = Post-development (proposed) site imperviousness (i.e. $I = 75$ if the site is 75% impervious)

C = Flow-weighted mean concentration of the pollutant (total phosphorus) in urban runoff (mg/l) = 0.30mg/l

A = Area of the site within the Critical Area (acres)

8.16 = Includes regional constants and unit conversion factors



Step 4: Calculate the Pollutant Removal Requirement (RR)

$$RR = L_{post} - (0.9)(L_{pre})$$

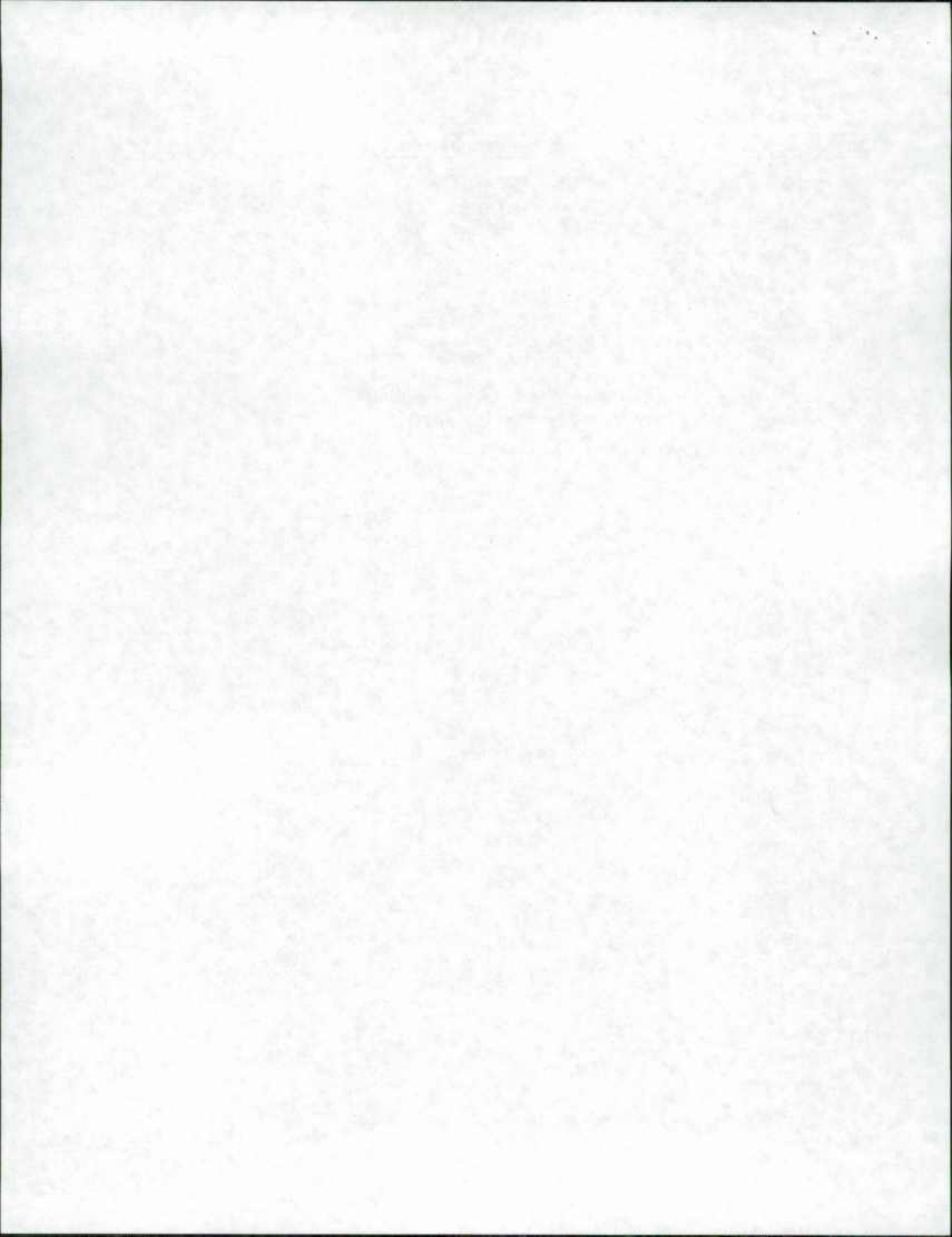
so **3.578 lbs/year of total phosphorus**

Where:

RR= Pollutant removal requirement

L_{post} = Average annual load of total phosphorus exported from the post development site (lbs/year)

L_{pre} = Average annual load of total phosphorus exported from the site prior to development (lbs/year)



Step 5: Identify Feasible BMP's

Select BMP options using the screening matrices provided in Chapter 4 of the 2000 Maryland Stormwater Design Manual. Calculate the Load removed for each option.

BMP Type	(Lpost)	(BMPRE)	(% DA Served)	Load Removed
UGSF	8.869	50.000%	12.000%	0.532
Dry Swales	8.869	65.000%	50.200%	2.894
	8.869			0.000
	8.869			0.000
	8.869			0.000
	8.869			0.000
Load Removed, LR (total)				3.426
Pollutant Removal Requirement, RR				3.578
Surplus\Shortfall				-0.151

Where:

Load Removed = Annual total phosphorus load removed by the proposed BMP (lbs/year)

L_{post} = Average annual load of total phosphorus exported from the post development site (lbs/year)

BMPRE = BMP removal efficiency for total phosphorus, Table 4.8(%)

% DA Served = Fraction of the site area within the Critical Area IDA served by the BMP (%)

RR = Pollutant Removal Requirement

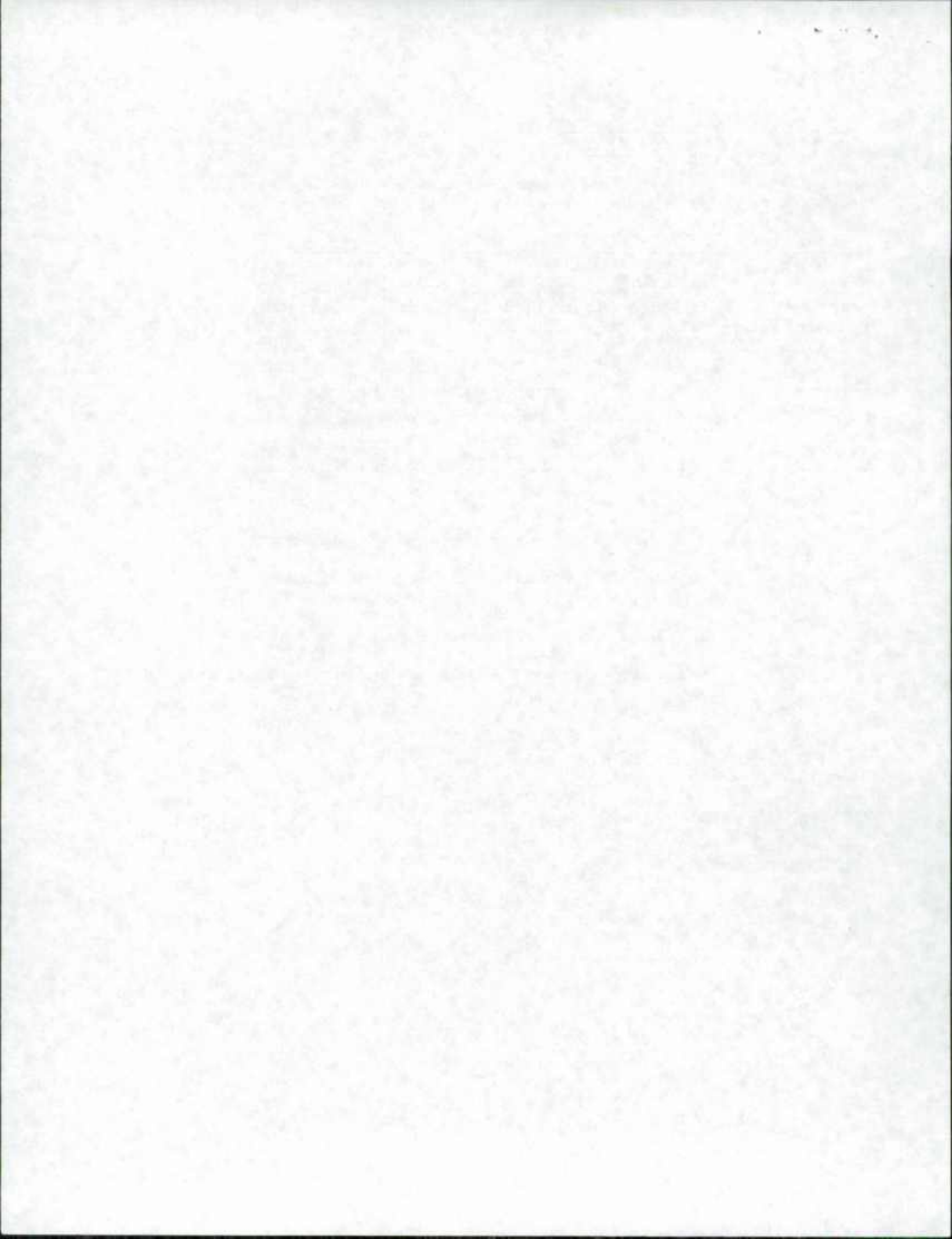
Using Innovative Offsets:

Planting of Trees as an Offset With 400 Stems Per Acre

30	Trees or
27	Shrubs and
18	Trees

Where:

$(.5 \text{ lbs/acre})(\text{Shortfall})(400 \text{ trees/acre})$





Maryland Department of Planning

Robert L. Ebrlich, Jr.
Governor

Michael S. Steele
Lt. Governor

January 23, 2004

Audrey E. Scott
Secretary

Florence E. Burian
Deputy Secretary

Ms. Joanna Hannah
Town of Perryville
515 Broadway, P.O. Box 773
Perryville, Maryland 21903-773

Re: Perryville Yacht Club - Phase I

Dear Joanna:

This review pertains only to Phase 1 of the Perryville Yacht Club. The 10% calculations for stormwater management meet the Critical Area pollutant removal criteria for redevelopment in the IDA. As stated in my January 16, 2003 letter, the Cecil County DPW must approve the final site redevelopment BMPs for this project.

Some of the trees in the plant list noted on the landscape plan are not native species. Although not a requirement, it is recommended that native species be used. When reviewing the plan, the extensive area of parking shoreward of building one and two stood out as being stark and void of vegetation. The Critical Area Criteria specify that permeable areas in the IDA shall be established in vegetation when practicable, development activities shall minimize destruction of forest and woodland vegetation, and programs should be established to enhance urban forests to improve water quality and benefit urban wildlife. It would appear that additional plantings (low growing shrub, grasses, trees) would not only achieve the goals of the Critical Area, but also improve the aesthetic appearance of the site.

Phase 1 of this project will not impact any habitat protection areas.

Based on the information received, this project meets the requirements of the Town's Critical Area Program.

Should you have any question, please feel free to contact me.

Sincerely,

Mary Ann Skilling
Critical Area Planner

RECEIVED

JUN 16 2004

CHESAPEAKE BAY
CRITICAL AREA COMMISSION

✓ Copy: Julie LaBranche, CAC

Journal of the Society of Friends

1840

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Maryland Department of Planning
Mary Ann Skilling
Uppershore Regional Office
410-556-6262 FAX 410-556-6280

MEMORANDUM

RECEIVED

TO: Julie LaBranche
FROM: Mary Ann Skilling
DATE: 2/11/3
OFFICE: CAC
RE: Projects in Perryville

MAR 19 2003

CHESAPEAKE BAY
CRITICAL AREA COMMISSION

Attached are comments on the Perryville Yacht Club and Richmond Hills projects. I am waiting for the environmental assessment on Richmond Hill in order for the Planning Commission to make recommendations to the Mayor and Commissioners on Growth Allocation. The Perryville Yacht Club plan is being revised to address the many comments given at the last P&Z meeting, including my comments. At this time, I don't have the revised plan and P&Z meets next week. I presume they will come in with the revised plan in March.

Call if you have any questions.

RECEIVED

NOV 27 1944

CHESTER RAY
NATIONAL LABOR UNION



Maryland Department of Planning

Parris N. Glendening
Governor

Kathleen Kennedy Townsend
Lt. Governor

Harriet Tregoning
Secretary

Ronald N. Young
Deputy Secretary

January 16, 2003

Ms. Joanna Hanna
Town of Perryville
515 Broadway, P.O. Box 773
Perryville, Maryland 21903-773

Re: Perryville Yacht Club

Dear Joanna:

I have reviewed the Environmental Assessment and Preliminary Plan for the Perryville Yacht Club for consistency with the Town's Critical Area Program and would like to offer the following comments:

1. The site is located in the IDA and has provided the 10% reduction calculations for pollutant loading as required. The present impervious area is approximately 2.52 acres or 46% of the 5.5 acre site. The plan as proposed will increase the impervious area to 61% or approximately 3.35 acres. Although the proposed Best Management Practices (BMPs) are adequate to meet the Critical Area 10% reduction requirements, the Cecil County DPW must approve the final site redevelopment BMPs for stormwater.

2. Tree replacement must be with native species. In order to meet the provisions of creating natural vegetation within the Buffer, areas along the walkway should be planted with trees and or shrub. Tree clusters and low growing shrub can be used to help filter runoff on the landside of the walkway as well as being aesthetically pleasing.

3. "New development in the Buffer exemption area shall minimize the shoreward extent of impervious surfaces insofar as possible taking into consideration existing town yard setback requirements and other such factors. In no case may such impervious surfaces be extended shoreward of any setback line legally required or as defined by existing structures on adjacent lots or parcels." Building four (and the walkway) is within approximately 18 feet of tidal waters. According to the Town's Ordinance, 25 feet is required for front yard setback for condominiums. A variance would be needed for the setback on building 4 unless it can be reconfigured to meet this requirement.

1914

Dear Sir,
I have the honor to acknowledge the receipt of your letter of the 10th inst. in relation to the above matter. The same has been forwarded to the proper authorities for their consideration. I am sorry that I cannot give you a more definite answer at this time, but I will be glad to advise you as soon as a final decision has been reached.

Very respectfully,
[Signature]

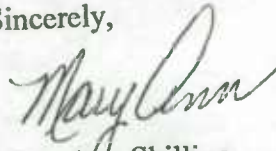
Yours truly,
[Signature]

4. The number of walkways throughout this project seems to be excessive. In order to decrease the impervious area within the Buffer, consideration should be given to reducing some of these walkways.

It is important that these issues are addressed prior to receiving Critical Area approval.

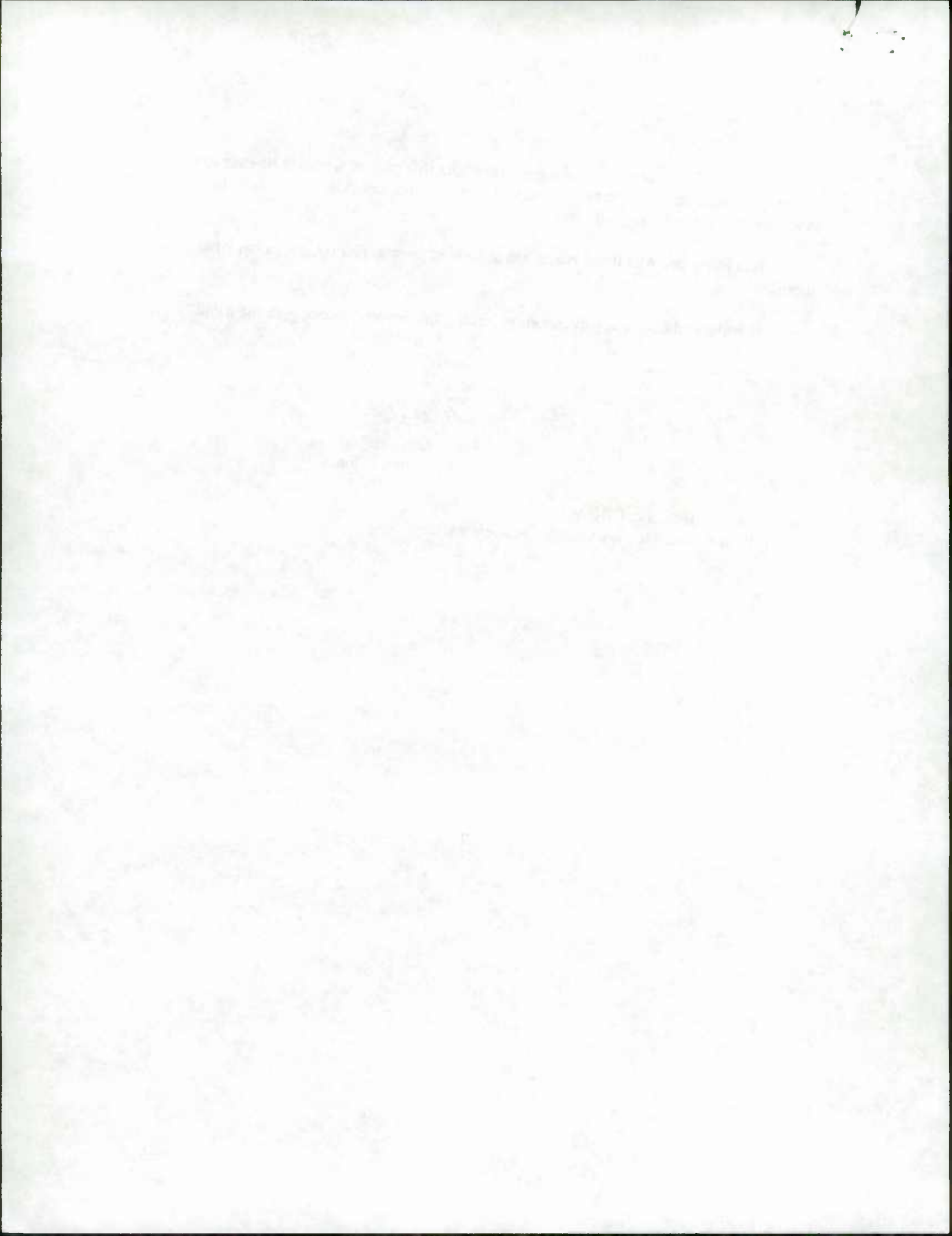
If you should have any questions regarding this review, please give me a call.

Sincerely,



Mary Ann Skilling
Critical Area Planner

Copy: Julie LaBranche, CBCAC
✓ Fred F. Orr, Morris & Ritchie Associates, Inc.





Maryland Department of Planning

Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor

Richard Eberhart Hall
Secretary

Matthew J. Power
Deputy Secretary

March 17, 2008

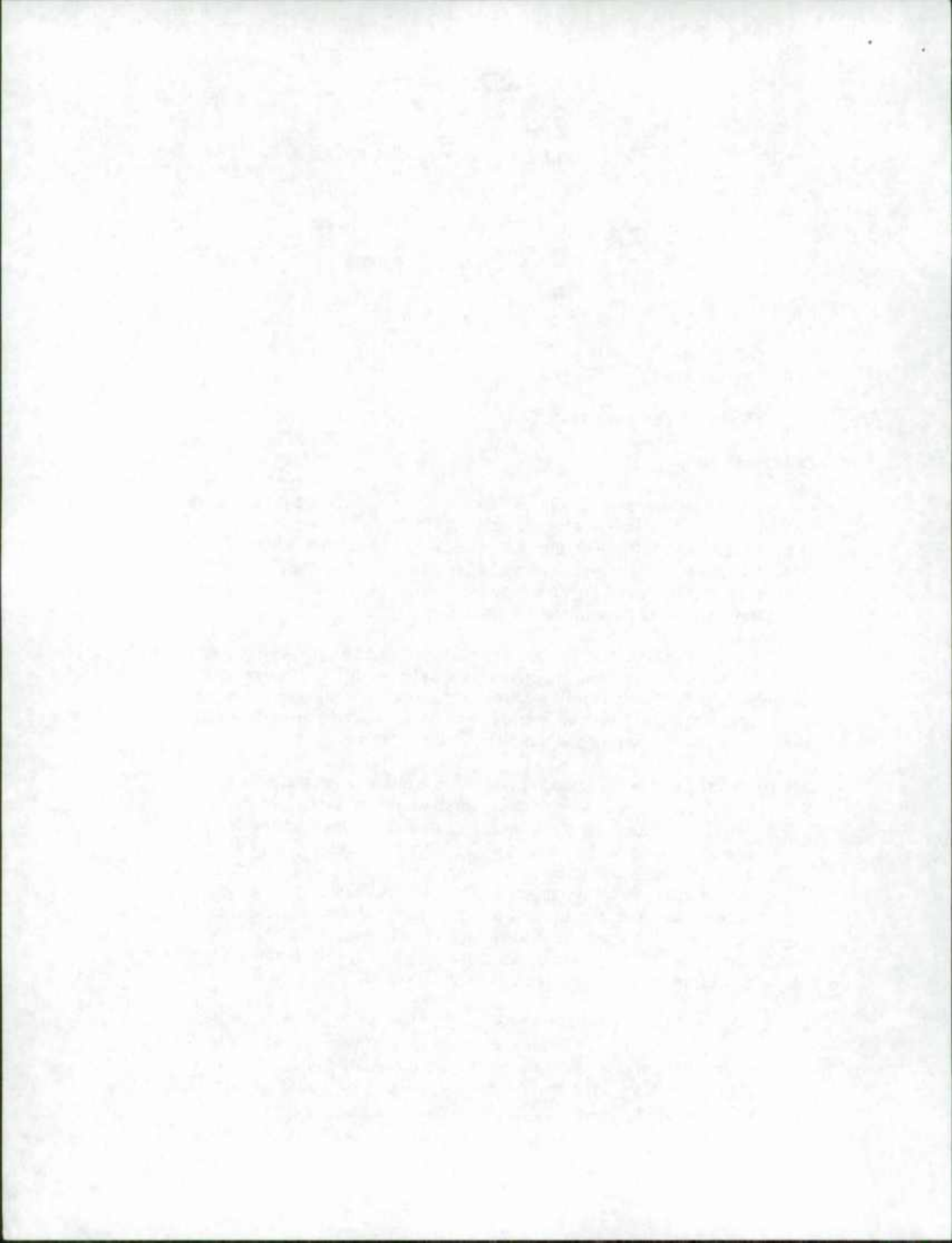
Heather Erickson
Town of Perryville
515 Broad Street, P.O. Box 773
Perryville, MD 21903

Re: Phase II - Perryville Yacht Club

Dear Heather:

I've reviewed the site plan for Phase II for Perryville Yacht Club prepared by Wilson Deegan & Associates, Inc dated 2/28/2008. The project is within the Critical Area designation IDA and within a Special Buffer Area. Phase II consists of condo/apartment residential community and redevelopment of the existing marina. Based on the information provided, I have the following comments regarding the current development proposal.

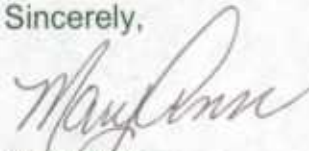
1. Phase II will need an Environmental Assessment addressing its impacts to the Critical Area including compliance with the 10% rule requirement for pollutant reduction for new development prior to Preliminary Site Plan approval. The Environmental Assessment should discuss the relationship between the marina and the residential community.
2. With respect to the Special Buffer Area requirements, the phased condo/apartment building development would be considered new development and the office/residence renovation and expansion of the existing marina facility would be considered redevelopment. With this in mind, it is important to note that a majority of the existing marina site will be impacted by the construction of a residential building. The new location of the marina office provides logistic difficulties and complicates the review of a water dependent facility. I believe it is important for the Planning Commission to evaluate the layout of the site and the intensity of development in an environmental sensitive area.
3. As mentioned in my January 30, 2008 letter, marinas are considered water dependent facilities and are subject to different standards than residential development. Areas that are considered part of the marina should be clearly identified on the site plan including boat parking, fueling facilities, sewage pump-out facilities, etc.



4. The previous plan indicated the filling of the existing "inlet" that is not allowed. If any improvements are being considered for this site, it should be noted on the plan.
5. The Town Zoning Ordinance provides for a minimum 25 foot setback for new development. The 25 foot Special Buffer Area setback should be addressed with respect to new development in the Special Buffer Area (Article IX, Part V, Section-38) for the residential aspects of the site and redevelopment for the marina. This section requires mitigation and/or offsets (see attached). Any required mitigation or offset areas shall be protected from future development through an easement, development agreement, plat notes or other instrument and recorded among the land records of Cecil County.
6. A planting plan associated with Critical Area compliance shall be approved prior to final plan approval.
7. The zoning of this property is considered RM, Residential-Marine District. It is not clear what the nature of proposed dwellings is to be considered under the existing Zoning Ordinance. In order to legitimize this and other such projects, it is important that the Zoning text be revised or a rezoning considered.

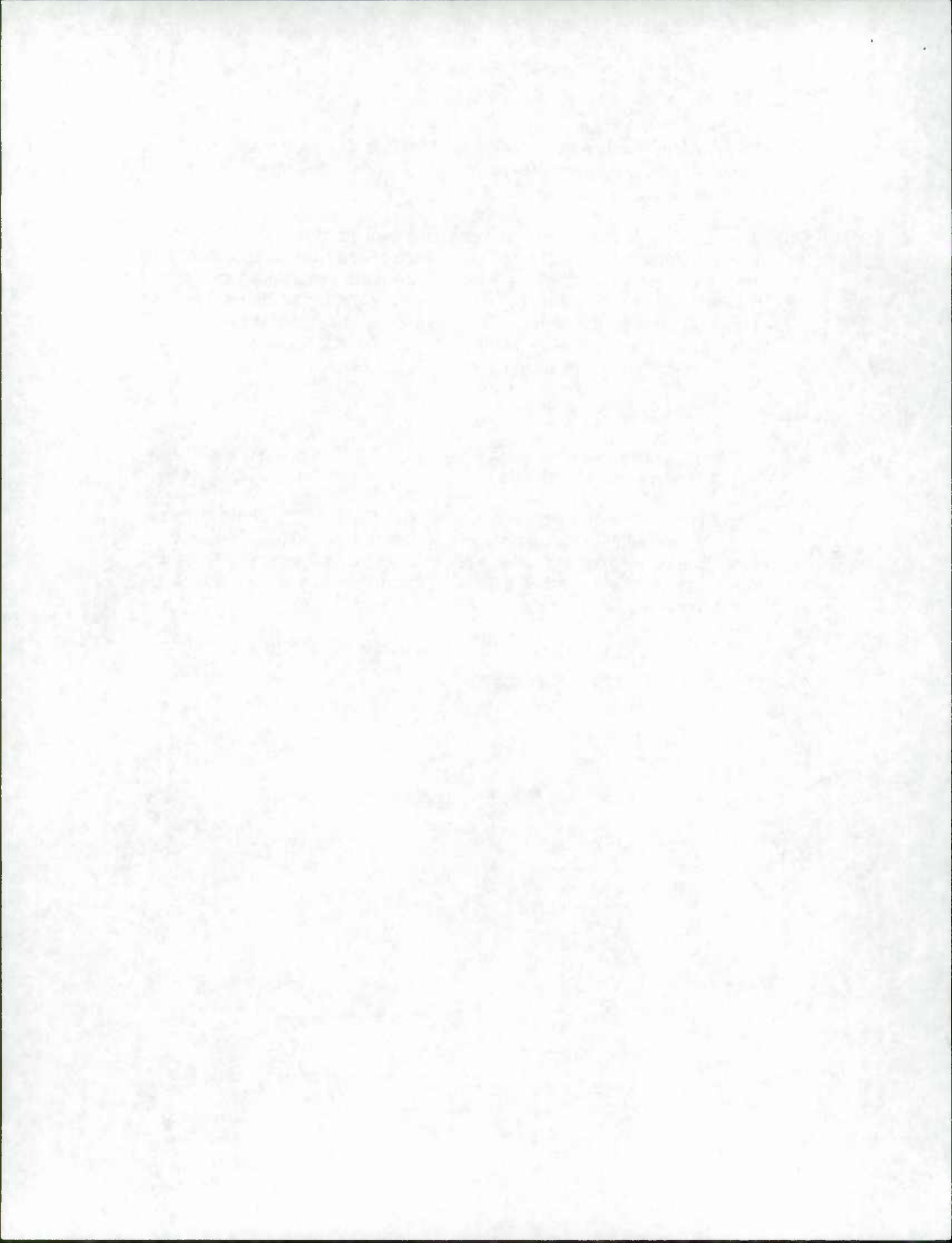
Should you have any questions regarding these comments, feel free to contact me.

Sincerely,



Mary Ann Skilling
Critical Area Circuit Rider

Copy: Chris Rogers, URS



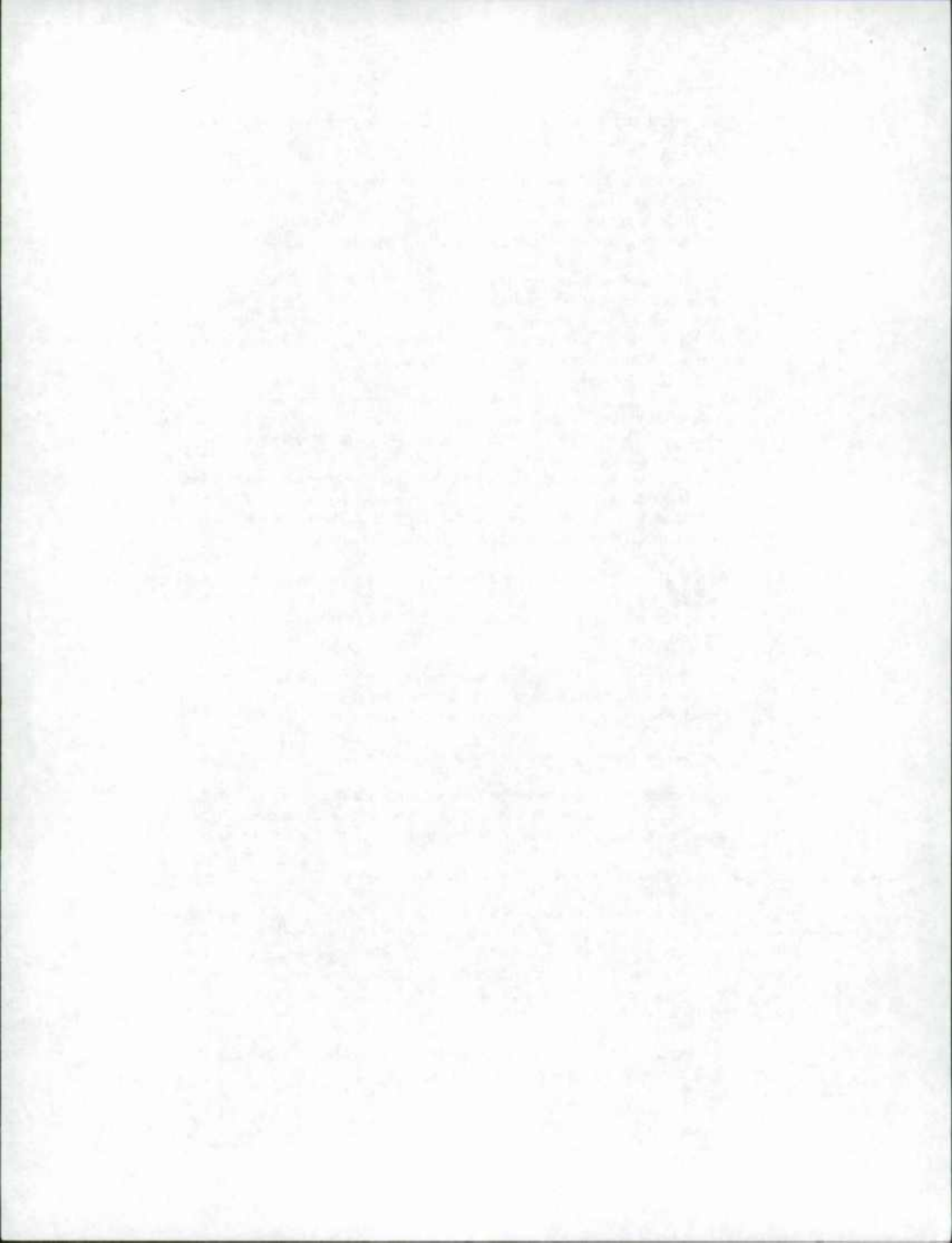
greater the Buffer shall be expanded four feet for every one percent of slope or to the top of the slope, whichever is greater in extent. .

- c. New development activities including structures, roads, parking areas and other impervious surfaces, mining and related facilities or septic tanks may not be allowed in the Buffer except for those necessarily associated with Water-Dependent Facilities approved under Sections 129 and 130 of this Chapter.
 - d. The Buffer shall be maintained in natural vegetation, but may include planted vegetation where necessary to protect, stabilize, or enhance the shoreline. When lands are proposed to be developed or converted to new uses, the Buffer shall be established. In establishing the Buffer, management measures shall be undertaken to provide forest vegetation that assures the Buffer functions set forth in this section.
5. Tree cutting in the Buffer. Individual trees may be cut for personal provided the cutting does not impair the water quality or existing habitat value or other functions of the Buffer set forth in this Section. Cutting or clearing of trees within the Buffer shall be prohibited except that:
- a. Cutting of trees or removal of natural vegetation may be permitted where necessary to provide access to private piers, or to install or construct a shore erosion protection device or measure, or a water-dependent facility, providing the device, measure or facility has received all necessary State and Federal permits.
 - b. Individual trees may be cut for personal use providing that this cutting does not impair the water quality or existing habitat value or other functions of the buffer as set forth in the policies of this plan and provided that the trees are replaced on an equal basis for each tree cut.
 - c. Individual trees may be removed which are in danger of falling and causing damage to dwellings or other structures, or which are in danger of falling and therefore causing the blockage of streams, or resulting in accelerated shore erosion.
 - d. Horticultural practices may be used to maintain the health of individual trees.
 - e. Other cutting techniques may be undertaken within the Buffer and under the advice and guidance of the State Departments of Agriculture and Natural Resources, if necessary to preserve the forest from extensive pest or disease infestation or threat from fire.

→ 6. Special Buffer Area Provisions IDA, LDA and RCA.

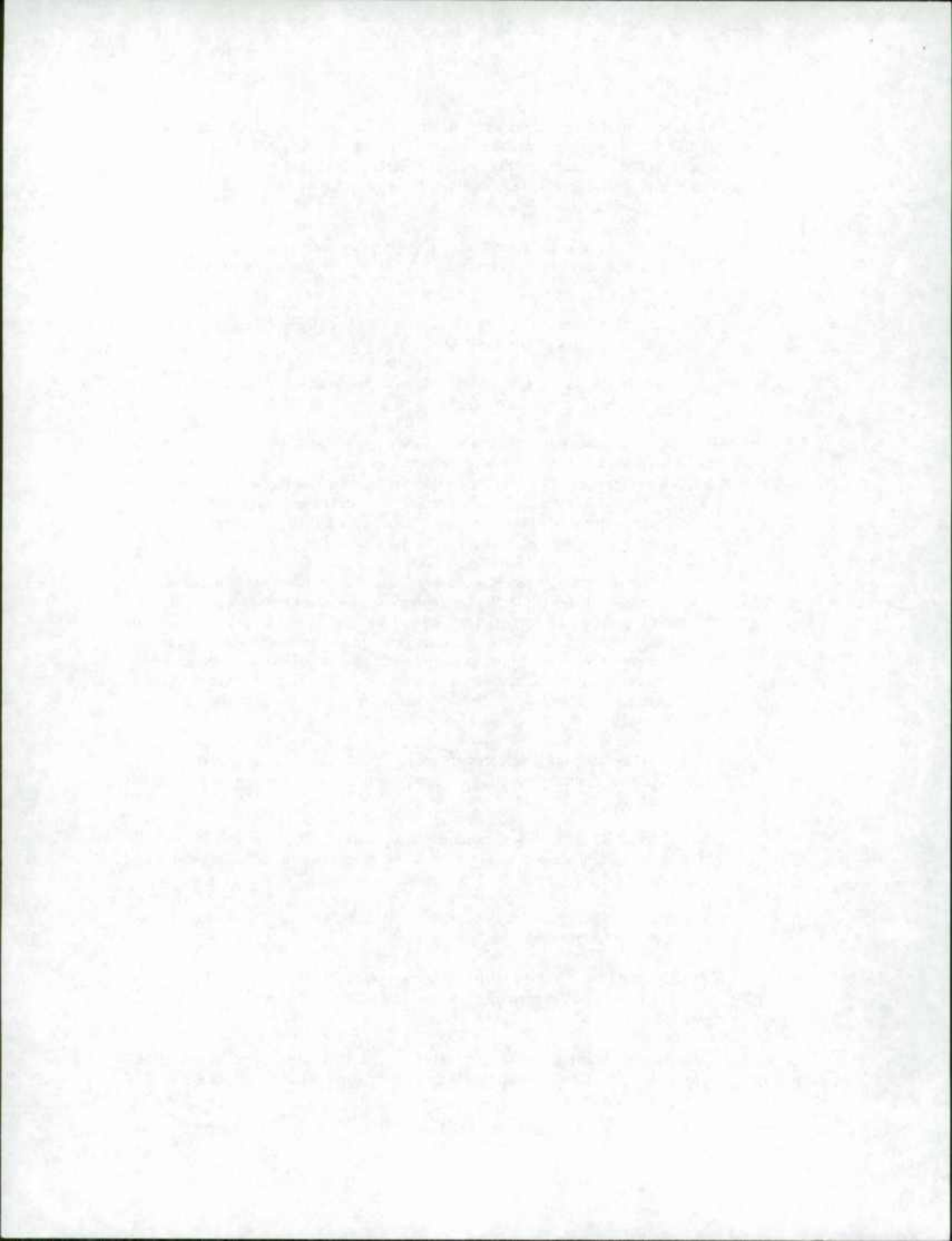
The following provisions are intended to accommodate limited use of shoreline areas that have been mapped as Special Buffer Areas (SBAs) under the provisions of this Ordinance while protecting water quality and wildlife habitat to the extent possible. This section applies only to new development or redevelopment within 100 feet of tidal waters, tidal wetlands and tributary streams on lots of record as of December 1, 1985. The lots shall have been officially designated by the Town, and approved by the Critical Area Commission, as Special Buffer Areas.

- a. Commercial, Industrial, Institutional, Recreational and Multi-family residential Development and Redevelopment Standards.



New development or redevelopment activities, including structures, roads, parking areas and other impervious surfaces or septic systems will not be permitted in the Buffer unless the applicant can demonstrate that there is no feasible alternative and the Planning Commission finds that efforts have been made to minimize Buffer impacts based on the following guidelines:

- (1) Development and redevelopment activities have been located as far as possible from mean high tide, the landward edge of tidal wetlands, or the edge of tributary streams.
- (2) Variances to other local setback requirements have been considered before additional intrusion into the Buffer.
- (3) Convenience or expense were not factors considered when evaluating the extent of allowable impacts to the Buffer.
- (4) New development, including accessory structures, shall minimize the extent of intrusion into the Buffer. New development shall not be located closer to the water (or edge of tidal wetlands) than the local setback for the zoning district or 25 feet, whichever is greater. Structures on adjacent properties shall not be used to determine the setback line. The 25 foot setback shall be maintained for all subsequent development or redevelopment of the property.
- (5) Redevelopment, including accessory structures, shall minimize the extent of intrusion into the Buffer. Redevelopment shall not be located closer to the water (or edge of tidal wetlands) than the local setback for the zoning district or 25 feet, whichever is greater. Structures on adjacent properties shall not be used to determine the setback line. Existing structures located within the setback may remain or a new structure may be constructed on the footprint of an existing structure or impervious surface. Opportunities to establish a 25-foot setback should be maximized.
- (6) Development and redevelopment may not impact any Habitat Protection Area (HPA) other than the Buffer, including nontidal wetlands, other State or federal permits notwithstanding.
- (7) Special Buffer Area designation shall not be used to facilitate the filling of tidal wetlands that are contiguous to the Buffer or to create additional build able land for new development or redevelopment.
- (8) No natural vegetation may be removed in the Buffer except that required by the proposed construction.
- (9) Mitigation for development or redevelopment in the in the Special Buffer Area approved under the provisions of this subsection shall be implemented as follows:
 - (a) A forested or landscaped buffer yard, 25 feet wide, shall be established on the project site between the development and the distance to the



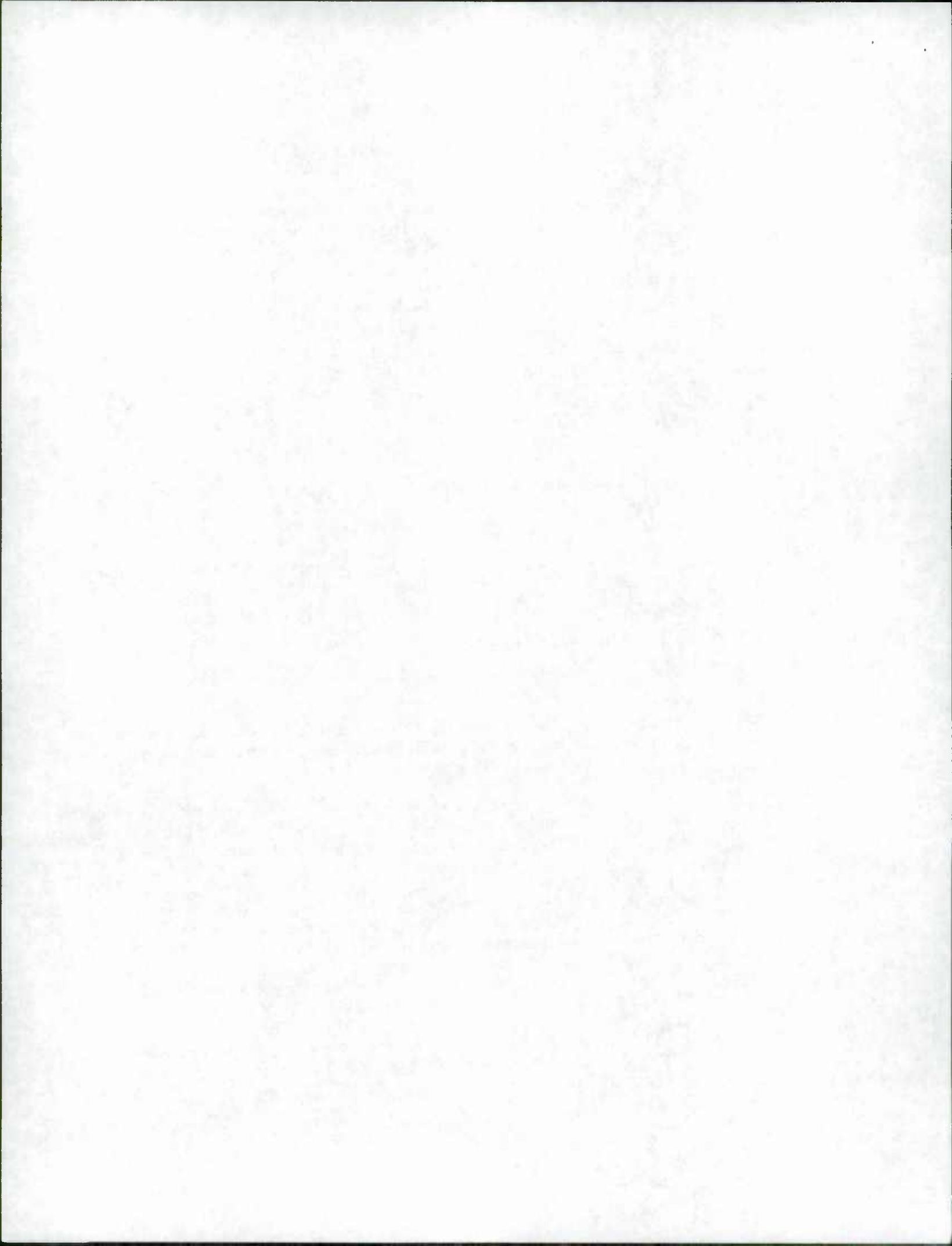
water. This buffer yard shall be densely planted with trees and shrubs in accordance with Table 1.

- (b) Redevelopment sites, where existing structures or those rebuilt on an existing footprint limit the area available for planting, appropriate modifications to the width of the planted buffer yard may be made on a case-by-case basis.

**Table 1
Required Buffer yard Planting**

Area	Quantity and Stocking	Suggested Species
For every 100 linear feet of buffer yard	5 Trees and	White or Red Oak, Pin Oak, Willow Oak, Red Maple, American Holly, Eastern Red Cedar
	10 Understory Trees/Large Shrubs, and	Dogwood, Mountain Laurel, Bayberry, Shadbush, Winterberry
	30 Small Shrubs and	Pepperbush, Chokeberry, Strawberry Bush, Sweetspire
	40 Herbaceous Plants, Grasses, Etc.	Wild Columbine, Butterflyweed, Common Milkweed, Asters

- (10) In addition to establishing a 25-foot buffer yard on site as described above, one of the following mitigation measures shall be implemented based on the following order of preference:
 - (a) Natural forest vegetation of an area twice the extent of the footprint of the development activity within the 100-foot Buffer shall be planted on site in the Buffer or at another location approved by the Planning Commission.
 - (b) Applicants who cannot fully comply with the planting requirement in "a" above, may use offsets to meet the mitigation requirement. Offsets include the removal of an equivalent area of existing impervious surfaces in the Buffer, the construction of Best Management Practices for stormwater, wetland creation or restoration, or other measures that improve water quality or habitat.
 - (c) Applicants who cannot comply with either the planting or offset requirements in a or b above shall pay into a fee-in-lieu program as follows:

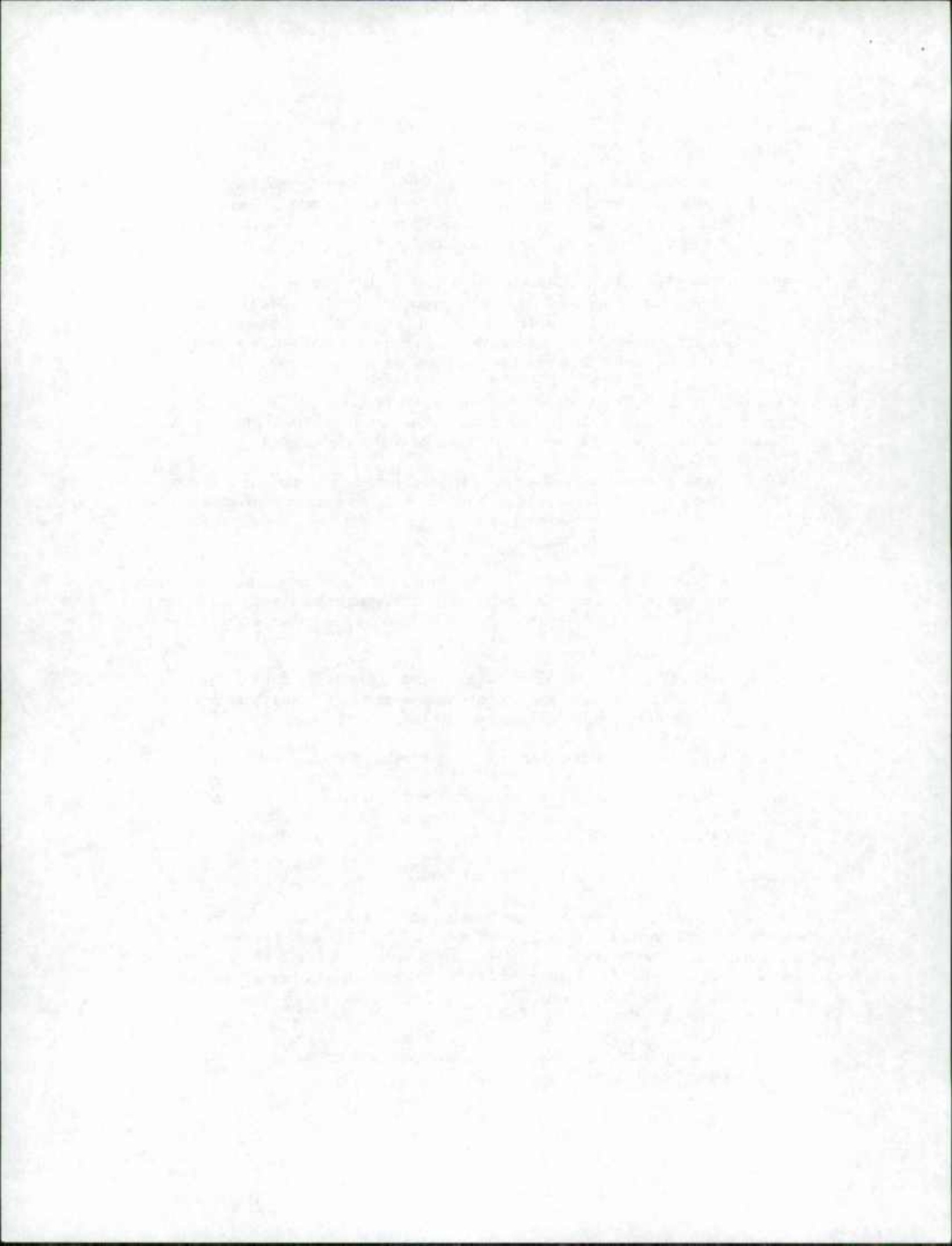


greater the Buffer shall be expanded four feet for every one percent of slope or to the top of the slope, whichever is greater in extent. .

- c. New development activities including structures, roads, parking areas and other impervious surfaces, mining and related facilities or septic tanks may not be allowed in the Buffer except for those necessarily associated with Water-Dependent Facilities approved under Sections 129 and 130 of this Chapter.
 - d. The Buffer shall be maintained in natural vegetation, but may include planted vegetation where necessary to protect, stabilize, or enhance the shoreline. When lands are proposed to be developed or converted to new uses, the Buffer shall be established. In establishing the Buffer, management measures shall be undertaken to provide forest vegetation that assures the Buffer functions set forth in this section.
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 - b. Individual trees may be cut for personal use providing that this cutting does not impair the water quality or existing habitat value or other functions of the buffer as set forth in the policies of this plan and provided that the trees are replaced on an equal basis for each tree cut.
 - c. Individual trees may be removed which are in danger of falling and causing damage to dwellings or other structures, or which are in danger of falling and therefore causing the blockage of streams, or resulting in accelerated shore erosion.
 - d. Horticultural practices may be used to maintain the health of individual trees.
 - e. Other cutting techniques may be undertaken within the Buffer and under the advice and guidance of the State Departments of Agriculture and Natural Resources, if necessary to preserve the forest from extensive pest or disease infestation or threat from fire.
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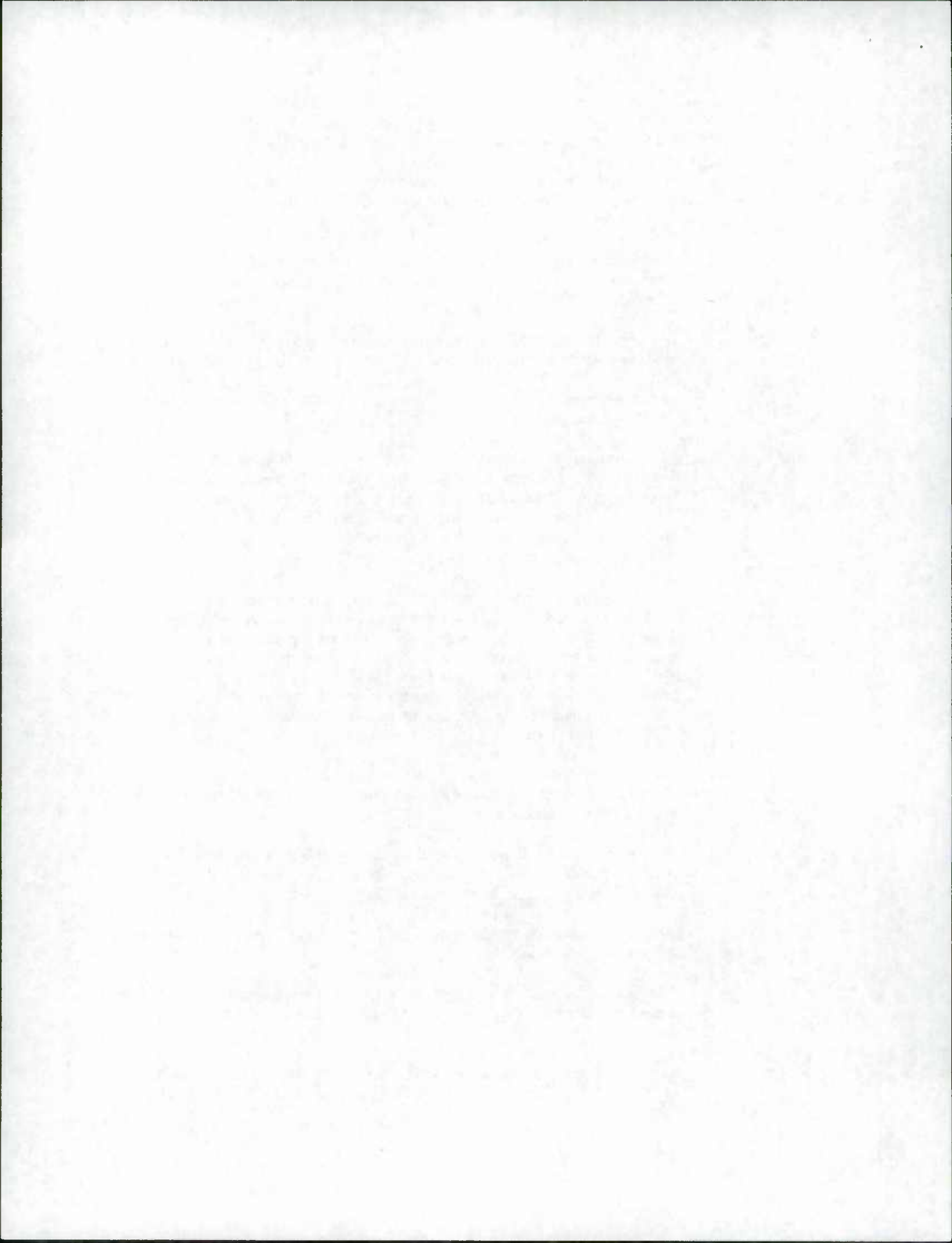
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- (4) New development, including accessory structures, shall minimize the extent of intrusion into the Buffer. New development shall not be located closer to the water (or edge of tidal wetlands) than the local setback for the zoning district or 25 feet, whichever is greater. Structures on adjacent properties shall not be used to determine the setback line. The 25 foot setback shall be maintained for all subsequent development or redevelopment of the property.
- (5) Redevelopment, including accessory structures, shall minimize the extent of intrusion into the Buffer. Redevelopment shall not be located closer to the water (or edge of tidal wetlands) than the local setback for the zoning district or 25 feet, whichever is greater. Structures on adjacent properties shall not be used to determine the setback line. Existing structures located within the setback may remain or a new structure may be constructed on the footprint of an existing structure or impervious surface. Opportunities to establish a 25-foot setback should be maximized.
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- (8) No natural vegetation may be removed in the Buffer except that required by the proposed construction.
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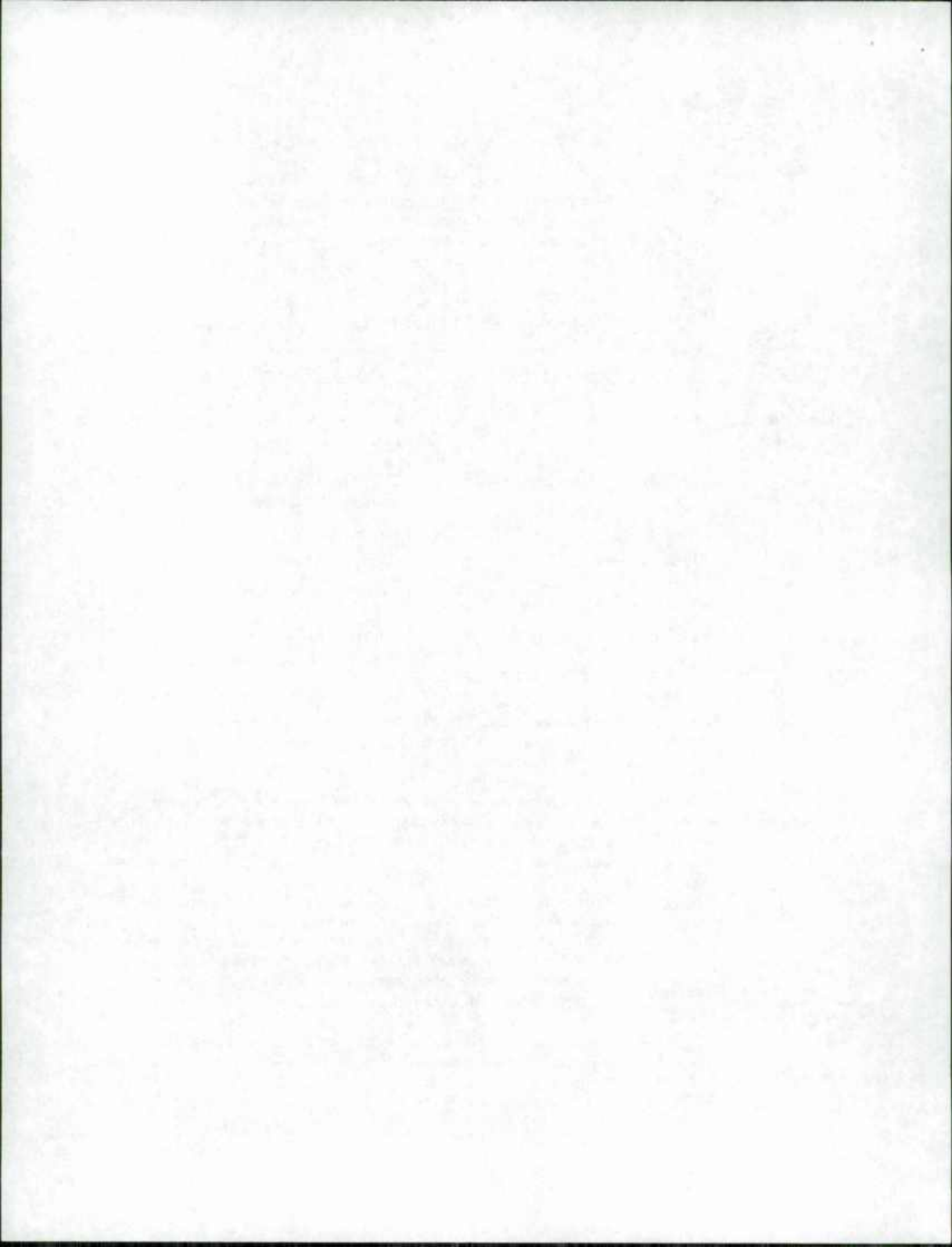
water. This buffer yard shall be densely planted with trees and shrubs in accordance with Table 1.

- (b) Redevelopment sites, where existing structures or those rebuilt on an existing footprint limit the area available for planting, appropriate modifications to the width of the planted buffer yard may be made on a case-by-case basis.

**Table 1
Required Buffer yard Planting**

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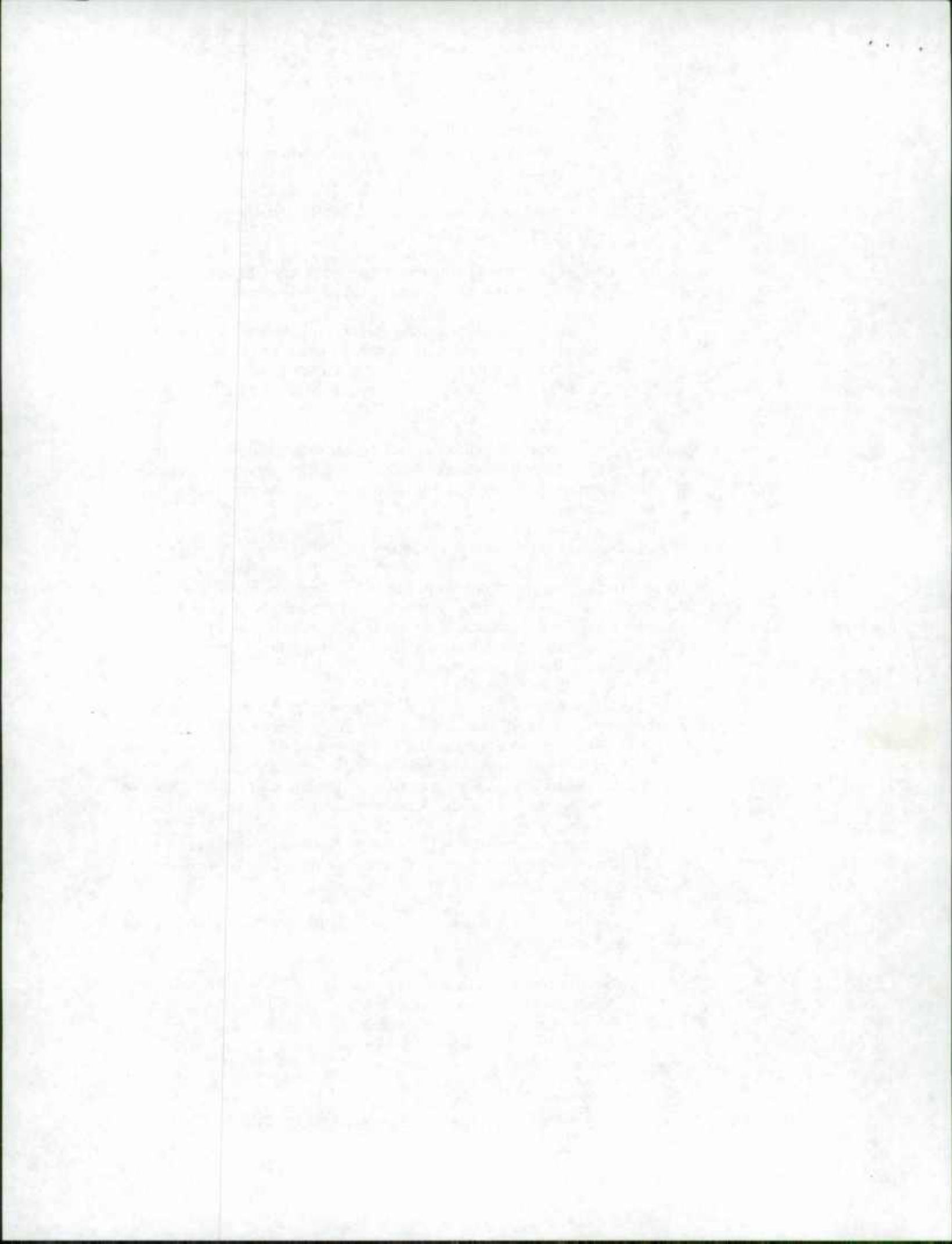
- (10) In addition to establishing a 25-foot buffer yard on site as described above, one of the following mitigation measures shall be implemented based on the following order of preference:
 - (a) Natural forest vegetation of an area twice the extent of the footprint of the development activity within the 100-foot Buffer shall be planted on site in the Buffer or at another location approved by the Planning Commission.
 - (b) Applicants who cannot fully comply with the planting requirement in “a” above, may use offsets to meet the mitigation requirement. Offsets include the removal of an equivalent area of existing impervious surfaces in the Buffer, the construction of Best Management Practices for stormwater, wetland creation or restoration, or other measures that improve water quality or habitat.
 - (c) Applicants who cannot comply with either the planting or offset requirements in a or b above shall pay into a fee-in-lieu program as follows:

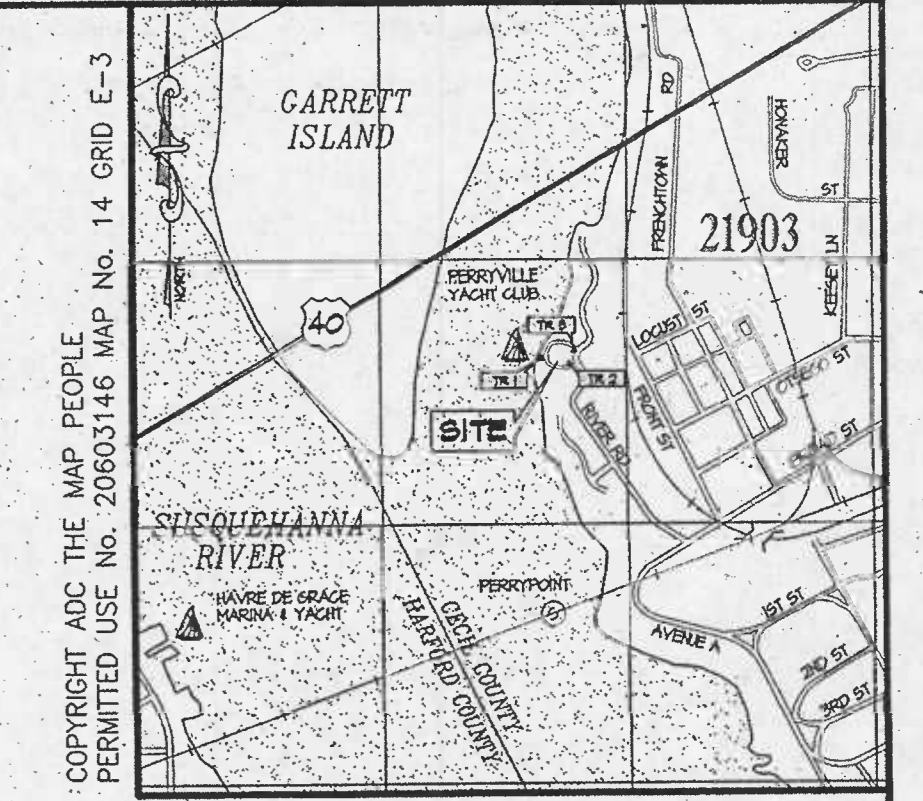


- (1) Applicants shall submit to the Planning Commission two planting proposal cost estimates from qualified landscape businesses for planting the equivalent of a Buffer yard for the disturbed area in the SBA (See Table 1 above). The estimate shall include the cost of stock, planting, staking, mulching and a one year guarantee.
 - (2) The Planning Commission shall determine the amount of the fee-in-lieu based on the average of the two estimates.
- (d) Any fees-in-lieu collected under these provisions shall be placed in an account that will assure their use only for projects within the Critical Area for the benefit of wildlife habitat and water quality improvement. The status of these funds must be reported in the jurisdiction's quarterly reports.
 - (e) Any required mitigation or offset areas shall be protected from future development through an easement, development agreement, plat notes or other instrument and recorded among the land records of the Cecil County.
- b. Single Family Detached Residential Development and Redevelopment Standards.

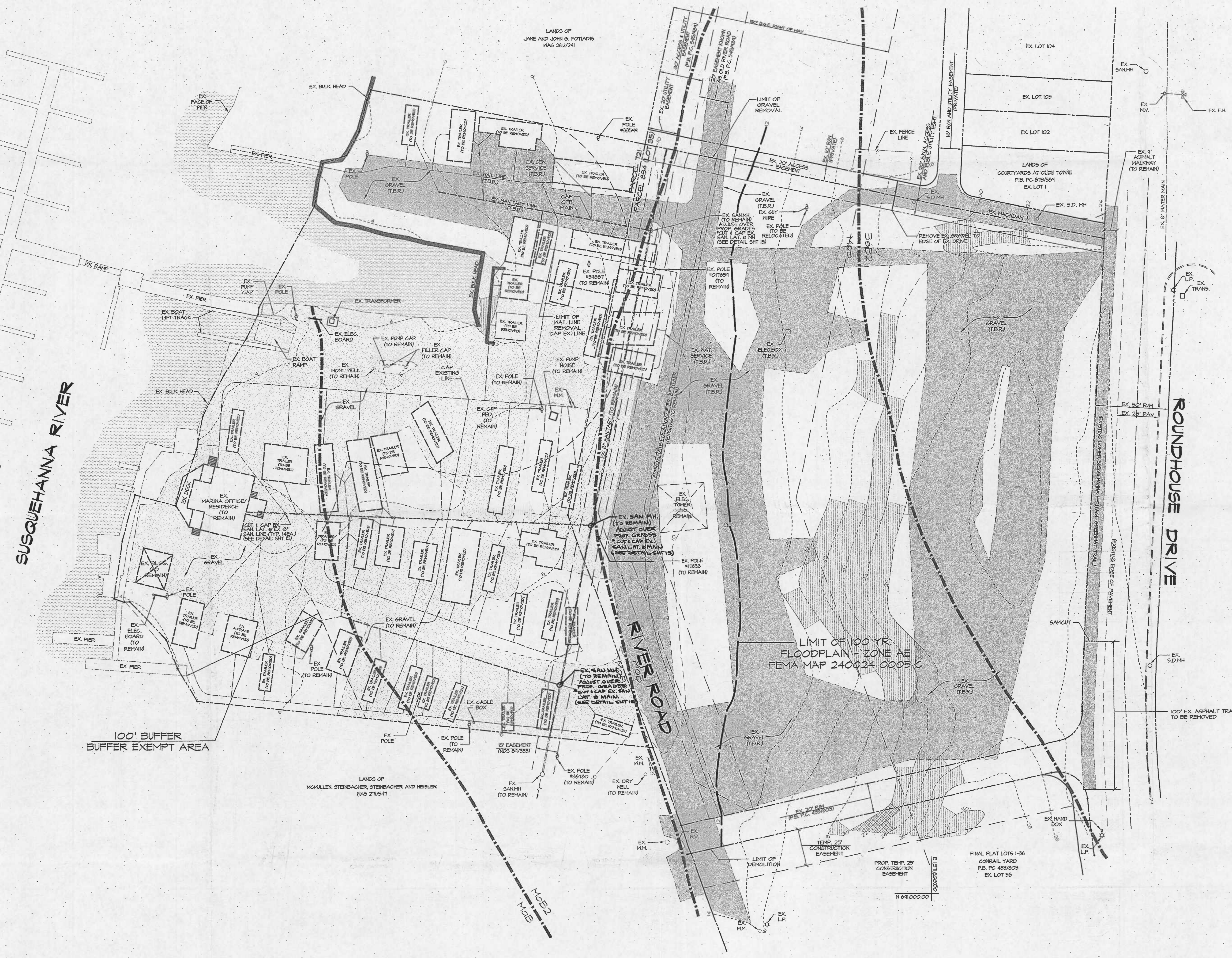
New development or redevelopment activities, including structures, roads, parking areas and other impervious surfaces or septic systems will not be permitted in the Buffer unless the applicant can demonstrate that there is no feasible alternative and the Planning Commission or their designee finds that efforts have been made to minimize Buffer impacts based on the following guidelines:

- (1) New development or redevelopment shall minimize the shoreward extent of intrusion into the Buffer. New development and redevelopment shall not be located closer to the water (or the edge of tidal wetlands) than principal structures on adjacent properties or the local setback for the zoning district, whichever is greater. In no case shall new development or redevelopment be located less than 25 feet from the water (or the edge of tidal wetlands).
- (2) Existing principal or accessory structures in the Buffer may be replaced in the same location. Any increase in impervious area within the Buffer shall comply fully with the requirements of this policy.
- (3) New accessory structures may be permitted in the Buffer in accordance with the following setback requirements:
 - (a) New accessory structures may be located closer to the water or edge of tidal wetlands than the principal dwelling only if it has been determined by the Planning Commission or their designee in consultation with the Critical Area Circuit Rider that there are no other locations for the accessory structures.





VICINITY MAP
SCALE: 1" = 2000'



- GENERAL NOTES:**
1. A GRADING PERMIT IS REQUIRED. SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO START OF ONSITE WORK.
 2. EXISTING UTILITIES ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. THE COMPLETENESS OR ACCURACY OF THESE UTILITIES IS NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION AND DEPTH OF THE EXISTING UTILITIES AT LEAST 72 HOURS PRIOR TO START OF DEMOLITION BY CONTACTING MISS UTILITY 1-800-257-7777 AND BY ON-SITE TEST PITTING. RELOCATION OF EXISTING UTILITIES, WHETHER SHOWN ON THIS PLAN OR NOT, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, INCLUDING THE COST THEREOF.
 3. CONTRACTOR SHALL ENSURE THAT EXISTING TRAILERS TO REMAIN SHALL BE PROTECTED FROM DAMAGE OR DISTURBANCE DURING CONSTRUCTION.
 4. ALL UTILITIES AND STRUCTURES WITHIN THE PUBLIC RIGHT-OF-WAY SHALL REMAIN UNLESS OTHERWISE NOTED.
 5. CONTRACTOR TO USE EXTREME CAUTION WHEN WORKING AROUND EXISTING ELECTRICAL TOWER AND LINES.

SOILS DATA

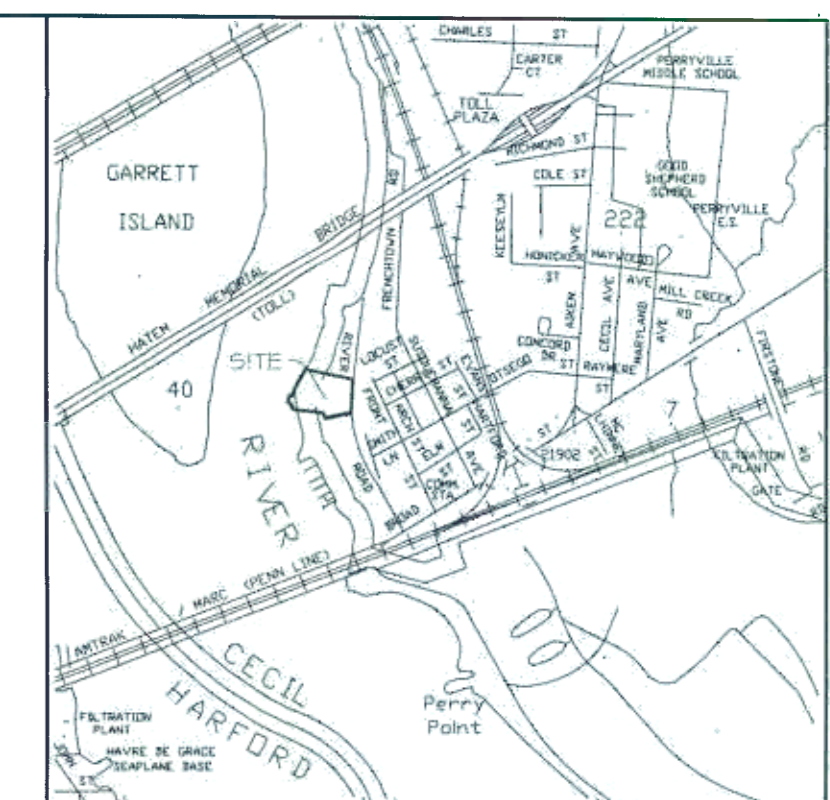
SYMBOL	SOIL SERIES	SLOPE	K-FACTOR	HYDRIC
MoB	MADE LAND	SLOPING	.37	YES
MoB2	MATAPEAKE SILT LOAM	2-5%	.49	NO
BeB2	BELTSVILLE SILT LOAM	2-5%	.49	NO

- LEGEND**
- ETR EXISTING TO REMAIN
 - [Hatched Box] DENOTES LIMITS OF GRAVEL REMOVAL
 - TBR TO BE REMOVED
 - [Diagonal Lines] EXISTING SLOPES 15% TO 25%
 - [Cross-hatched Box] EXISTING SLOPES GREATER THAN 25%

MORRIS & RITCHIE ASSOCIATES, INC.
ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS & LANDSCAPE ARCHITECTS
3445-A BOX HILL CORPORATE CENTER DRIVE
ABINGDON, MARYLAND 21008
(410) 515-9000
FAX (410) 515-9002

DEMOLITION PLAN
FOR
PERRYVILLE YACHT CLUB
PHASE I

DATE	REVISIONS	JOB NO.	SCALE
12/10/04	REMOVED NOTE FOR EX. SAN MAN TVFCAPS	12760	1" = 30'
			03/31/04
			DRAWN BY: JTC/AJH
			DESIGN BY: TFW
			REVIEW BY: TFW
			SHEET: 2 OF 16

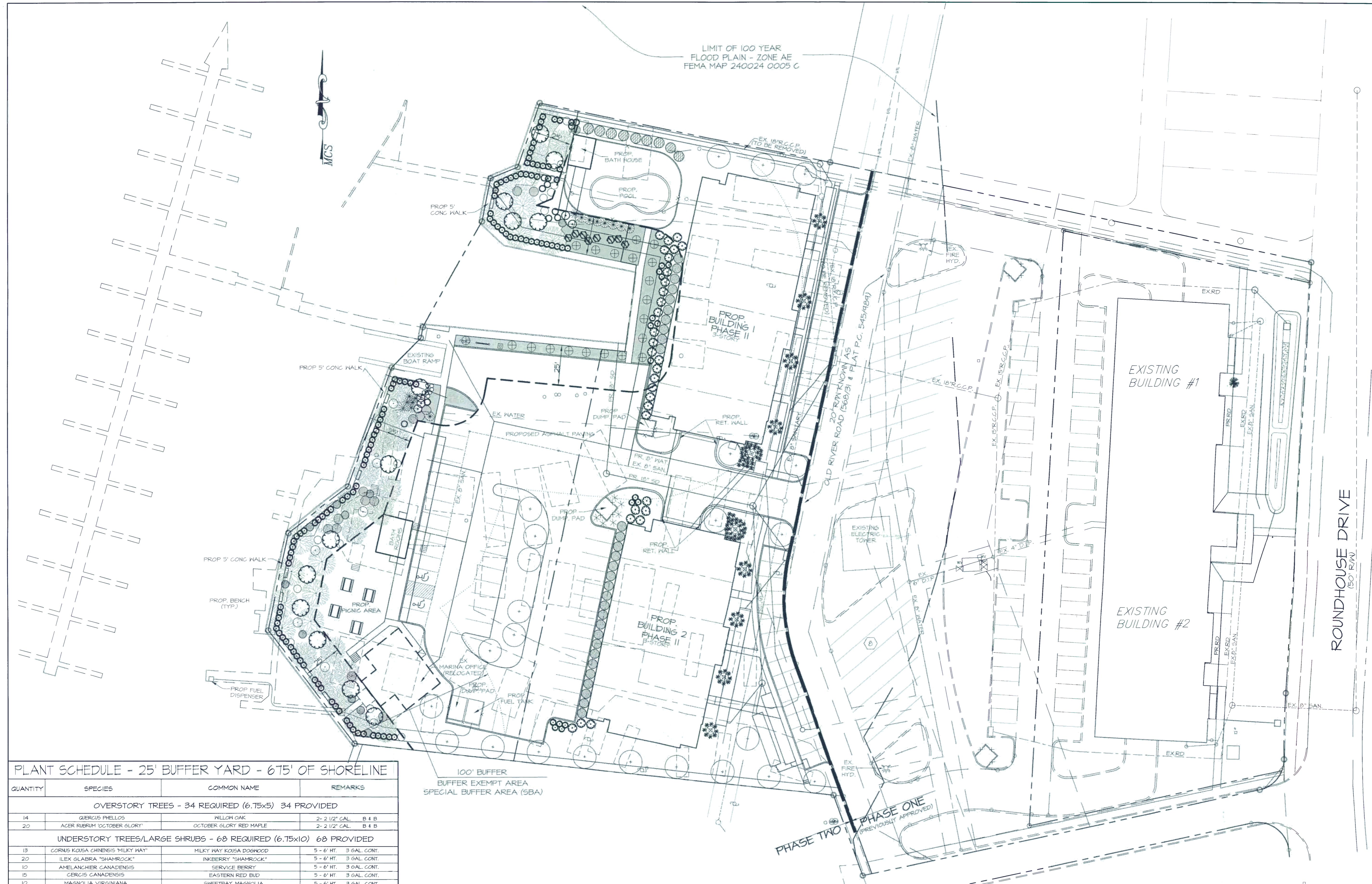


VICINITY MAP
SCALE: 1" = 200'

- LEGEND**
- - - - - LIMIT OF FLOODPLAIN
 - 100' BUFFER
 - PROPERTY LINE
 - RIGHT-OF-WAY LINE
 - EXISTING CURB AND GUTTER
 - EXISTING STORM DRAIN
 - EXISTING SANITARY SEWER
 - EXISTING WATER LINE
 - PROPOSED BENCH

PLANT LEGEND:

- MILLOW OAK
- RED MAPLE
- KOUSA DOGWOOD
- INKBERRY
- SERVICE BERRY
- EASTERN REDBUD
- SHEETS BAY MAGNOLIA
- SHEETSPIRE
- HIGHBUSH CRANBERRY
- FRINGE TREE
- POSSUMHAW
- SOUTHERN ARROW-WOOD
- RED CHOCOBERRY
- LEATHERLEAF ARROW-WOOD
- COASTAL SHEET BELLS
- SHEET PEPPER BUSH
- HERBACEOUS PLANTS AND GRASSES
- BLACK GUM
- ARBORVITAE EMERALD GREEN
- STAR MAGNOLIA
- RHODODENDRON NOVA ZEMBLA
- AZALEA 'CORAL BELL'
- AZALEA 'WHITE GUMP'



PLANT SCHEDULE - 25' BUFFER YARD - 675' OF SHORELINE

QUANTITY	SPECIES	COMMON NAME	REMARKS
OVERSTORY TREES - 34 REQUIRED (6.75x5) 34 PROVIDED			
14	QUERCUS PHELLOS	MILLOW OAK	2- 2 1/2" CAL. B 4 B
20	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2- 2 1/2" CAL. B 4 B
UNDERSTORY TREES/LARGE SHRUBS - 68 REQUIRED (6.75x10) 68 PROVIDED			
13	CORNUS KOUSA CHINENSIS 'MILKY WAY'	MILKY WAY KOUSA DOGWOOD	5- 6' HT. 3 GAL. CONT.
20	ILEX GLABRA 'SHAMROCK'	INKBERRY 'SHAMROCK'	5- 6' HT. 3 GAL. CONT.
10	AMELANCHIER CANADENSIS	SERVICE BERRY	5- 6' HT. 3 GAL. CONT.
15	CERCIS CANADENSIS	EASTERN RED BUD	5- 6' HT. 3 GAL. CONT.
10	MAGNOLIA VIRGINIANA	SHEETS BAY MAGNOLIA	5- 6' HT. 3 GAL. CONT.
SMALL SHRUBS - 203 REQUIRED (6.75x30) 203 PROVIDED			
120	ITEA VIRGINICA	SHEETSPIRE	10"-15" CONT.
14	VIBURNUM AMERICANA	HIGHBUSH CRANBERRY	10"-15" CONT.
7	CHIONANTHUS VIRGINICUS	FRINGE TREE	10"-15" CONT.
15	VIBURNUM NUDUM	POSSUMHAW	10"-15" CONT.
8	VIBURNUM DENTATUM	SOUTHERN ARROW-WOOD	10"-15" CONT.
5	ARGONIA ARBUTIFOLIA	RED CHOCOBERRY	10"-15" CONT.
10	VIBURNUM RHYTIDOPHYLLUM	LEATHERLEAF ARROW-WOOD	10"-15" CONT.
15	LEUCOTHOE AXILARIS	COASTAL SHEET BELLS	10"-15" CONT.
4	CLETHRA ALNIFOLIA	SHEET PEPPER BUSH	10"-15" CONT.
HERBACEOUS PLANTS, GRASSES, ETC. - 270 REQUIRED (6.75x40) 270 PROVIDED			
2863 SF OR 0.07 AC	TRIPSA GUM DACTYLOID POA PALUSTRIS AGROSTIS STOLONIFERA ELYMUS VIRGINICUS Panicum VIRGATUM ACQUILEGIA CANADENSIS ASCLEPIAS TUBEROSA ASCLEPIAS INCARNATA LOBELIA SIPHILITICA	EASTERN GAMMAGRASS POKE BLUEGRASS BENTGRASS, SPREADING VIRGINIA WILD RYE SWITCHGRASS WILD COLUMBINE BUTTERFLY WEED SWAMP MILKWEED GREAT BLUE LOBELIA	5 LBS PER ACRE 2 LBS PER ACRE 5 LBS PER ACRE 5 LBS PER ACRE 5 LBS PER ACRE 2 LBS PER ACRE 1 LB PER ACRE 2 LBS PER ACRE 0.5 LBS PER ACRE

CONDOMINIUM PLANT SCHEDULE - PHASE II

QUANTITY	SPECIES	COMMON NAME	REMARKS
20 x 30	VIBURNUM RHYTIDOPHYLLUM	LEATHERLEAF ARROW-WOOD	10"-15" CONT.
4	MAGNOLIA STELLATA	STAR MAGNOLIA	8- 10' HT. B 4 B TREE-FORM
23	NYSSA SYLVATICA	BLACK GUM	8- 10' HT. B 4 B TREE-FORM
11 x 33	THUJA OCCIDENTALIS	ARBORVITAE 'EMERALD GREEN'	10"-15" CONT.
8	LEUCOTHOE AXILARIS	COASTAL SHEET BELLS	10"-15" CONT.
8	ITEA VIRGINICA	SHEETSPIRE	10"-15" CONT.
10 x 33		RHODODENDRON NOVA ZEMBLA	10"-15" CONT.
40 x 33		AZALEA 'CORAL BELL'	10"-15" CONT.
64 x 33		AZALEA 'WHITE GUMP'	10"-15" CONT.

FOR PHASE I PLANTINGS SEE APPROVED LANDSCAPE PLAN PREPARED BY MORRIS & RITCHIE ASSOCIATES, INC. DATED 9/3/04.

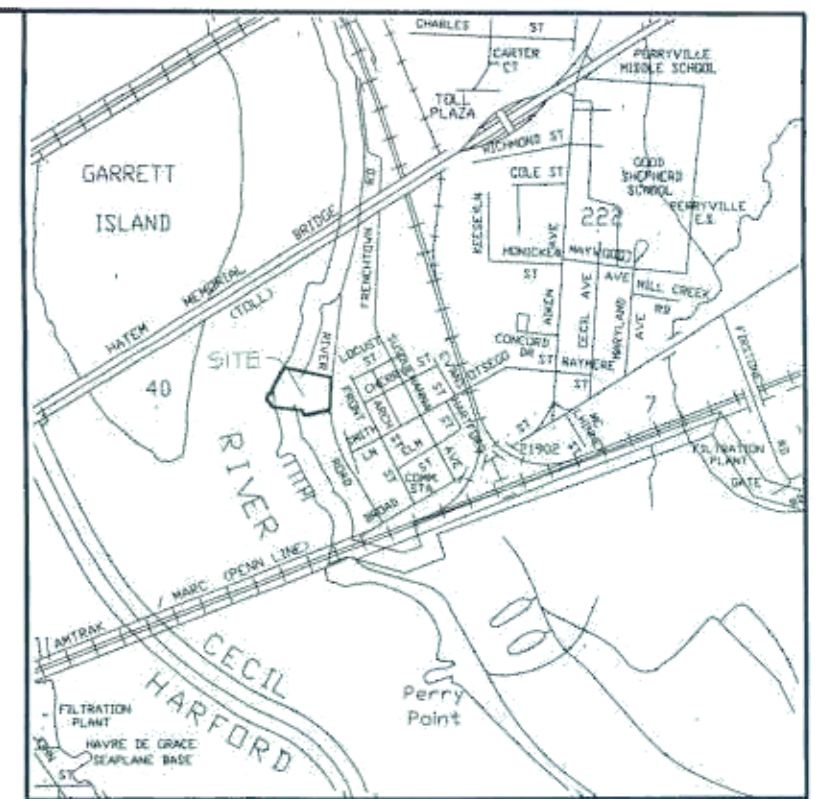
Wilson Deegan & Associates, Inc.
SURVEYORS * ENGINEERS
2309 Belair Road
Fallston, Maryland 21047
PHONE: (410) 893-3700

SCALE: 1" = 30'
JOB NO.: 02062
SHEET: 1 of 1

DATE: 11/13/2008
DRAWN / DESIGN BY: WJSTIFLER
CHECKED BY: RRM

RECEIVED LANDSCAPE PLAN # 85572
MAR 23 2009
PERRYVILLE YACHT CLUB
SEVENTH ELECTION DISTRICT
CECIL COUNTY, MARYLAND

W:\ACAD\2002\085572\085572.dwg, 1/22/09, 1:48:33 PM



VICINITY MAP
SCALE: 1" = 2000'
COPYRIGHT ADG THE MAP PEOPLE
PERMITTED USE NO. 20493261

GENERAL NOTES

1. THE SITE IS IN THE SUSQUEHANNA RIVER WATERSHED.
2. EXISTING ZONING: RM (RESIDENTIAL MARINE)
3. LOT SIZE: PHASE II - 2.720 AC±
LOT 1 - 2.714 AC± (EXISTING MARINA)
LOT 2 - 1.538 AC± (CONDOMINIUM REGIME)
LOT 33 - 1.297 AC± (CONDOMINIUM REGIME)
4. EXISTING USE TO REMAIN: MARINA, MARINA OFFICE/RESIDENCE
PROPOSED USE: 33 CONDOMINIUM UNITS
5. TAX MAP REFERENCE: 801 PARCEL: 721
6. DEED REFERENCES: WLB 1409/ 96 and WLB 2334/ 732
7. CONTRACTOR TO NOTIFY MISS UTILITY @ 1-800-257-7777 48 HOURS PRIOR TO START OF CONSTRUCTION.
8. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF EX. UTILITIES PRIOR TO ORDERING MATERIALS OR STARTING OF CONSTRUCTION.
9. TOTAL DISTURBED AREA:

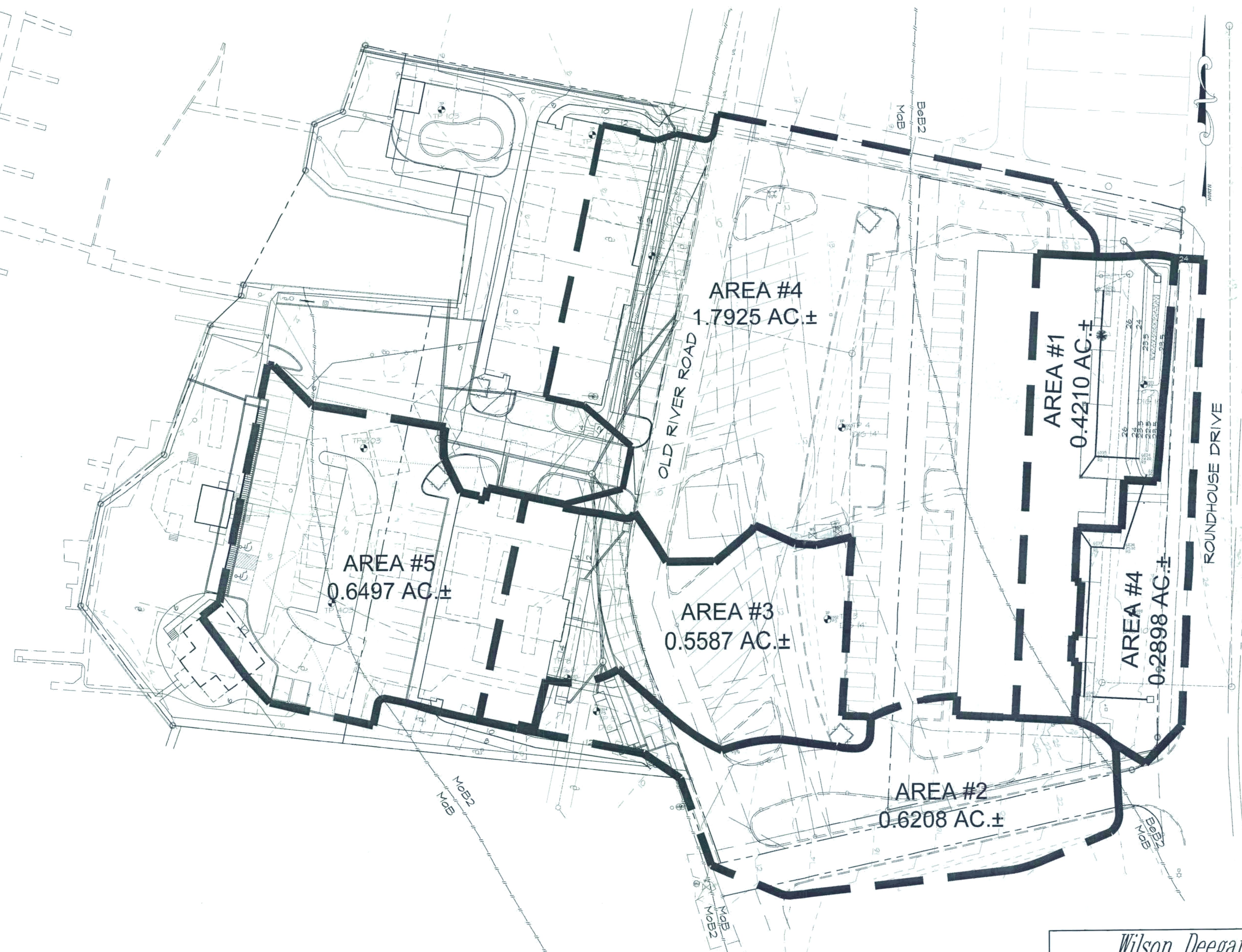
SITE LEGEND

- SITE PROPERTY LINE
- EX. R/W
- EX. 2' CONTOUR
- EX. 10' CONTOUR
- PROP. 2' CONTOUR
- PROP. 10' CONTOUR
- PROP. CURB & GUTTER
- PROP. 15" RECP
- PROP. STORM DRAIN
- EX. WOODS LINE / VEGETATION
- PROP. WOODS LINE
- UTILITY EASEMENT
- SETBACK LINES
- SOIL GROUP DIVIDE
- HYDROLOGIC SOIL GROUP DIVIDE
- EXISTING DRAINAGE AREA
- EXISTING DRAINAGE AREA
- PROPOSED DRAINAGE AREA
- SWM BORING
- STONE/ RIP RAP
- SAND FILTER

STORMWATER DRAINAGE AREA SUMMARY

DRAINAGE AREA	TOTAL AREA	IMPERVIOUS AREA
1	0.4210	0.2710
2	0.6208	0.5576
3	0.5587	0.1491
4	0.6497	0.3085
5	1.7925	1.4862
6	0.6497	0.5463

* AREAS PROVIDED IN ACRES



Wilson Deegan & Associates, Inc.
SURVEYORS * ENGINEERS

2309 Belair Road
Fallston, Maryland 21047
PHONE: (410) 893-3700

SCALE: 1" = 30'
DATE: FEBRUARY 2009
JOB NO.: 02062
DRAWN / DESIGN BY: SEITAD, SE
SHEET: 1 of 5
CHECKED BY: JJD

NO.	DATE	DESCRIPTION	BY
	MAR 23 2009	APPROVED FOR SUBMISSION	

STORMWATER MANAGEMENT
PROPOSED DRAINAGE AREA MAP
PERRYVILLE YACHT CLUB
SEVENTH ELECTION DISTRICT CECIL COUNTY, MARYLAND
OWNER:
DFW, L.L.C.
31 RIVER ROAD
PERRYVILLE, MARYLAND 21043
PHONE: 410.808.4635 (BOB WILSON)

