

ST 774-06 St. Michaels Nature Trail  
Cond. Approval

MSA.S.1829-6064

Comments 12/14/86

Commission Approval  
2/7/87 - KED

12/20/06 - Relay to get revised plans from Gene  
and to send them by first week in January  
as well as conditional approval responses



STATE OF MARYLAND  
CRITICAL AREA COMMISSION  
CHESAPEAKE AND ATLANTIC COASTAL BAYS

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

March 12, 2007

Ms. Debbie Renshaw  
St. Michaels Planning Office  
P.O. Box 206  
St. Michaels, Maryland 21663-0206

Re: Town Trail Project

Dear Ms. Renshaw:

The purpose of this letter is to officially notify you of the Critical Area Commission's action on the above referenced project. On March 7, 2007, the Critical Area Commission unanimously approved the Town's proposal and site plan to construct a public hiker/biker trail within the IDA and LDA. The Commission approved the trail construction using an impervious asphalt paving material. However, as you requested, Commission staff asked the Commission to consider and vote on whether the Town's use of a semi-pervious paving surface would be acceptable as an alternative to the asphalt surface. The Commission was agreeable to this proposal, provided that the proposed change, if desired by the Town, is reviewed by Commission staff to ensure that the proposed material does not present additional adverse impacts to aquatic or upland habitats.

In addition, please notify Commission staff once the approved mitigation plantings have been implemented so that a site visit can be conducted to view the plantings. Please note that should any changes to the site plan be proposed for the completion of the project, additional review and approval by the full Commission would be required. Should you have any questions, please feel free to contact me at 410-260-3482.

Sincerely,

A handwritten signature in cursive script that reads "Kerrie L. Gallo".

Kerrie L. Gallo  
Natural Resource Planner

Cc: Roby Hurley, 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  
CHESAPEAKE AND ATLANTIC COASTAL BAYS**

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December 18, 2006

Ms. Debbie Renshaw  
St. Michaels Planning Office  
P.O. Box 206  
St. Michaels, Maryland 21663-0206

Re: Town of Saint Michaels' Nature Trail

Dear Ms. Renshaw:

Thank you for providing information on the above referenced trail project. The purpose of this letter is to provide you with a summary of outstanding questions regarding the site plan and mitigation information submitted in connection with the proposed trail.

Before Commission staff can continue processing the Town's request for presentation to the full Commission, please provide written clarification via a site plan or revised mitigation plan regarding the following:

1. Phase 1, Plate 1: This plate indicates that 6,000 square feet of disturbance will occur within the Buffer associated with the trail, resulting in an 18,000 square foot mitigation requirement. In addition, this plate includes mitigation for 1,300 linear feet of trail at a 2:1 ratio. Please clarify what the 2:1 mitigation is for. In general, impacts outside of the Buffer would be mitigated at a 1:1 ratio, not 2:1 as indicated. In addition, mitigation is not generally required for impacts within the Intensely Developed Area (IDA) where they occur outside of the Buffer.
2. Phase 1, Plate 3: This plate details that the proposed 18,000 square feet of Buffer mitigation is to be accomplished through marsh creation (12,600 square feet) and the removal of invasive species (6,300 square feet). For impacts to the Buffer, 3:1 mitigation is required; however, the Commission can consider a minimum of 1:1 mitigation in the form of upland plantings, and the remaining 2:1 can be accomplished through alternative measures. Generally, the Commission does not consider the creation of marsh habitat to be a trade-off for the creation of upland Buffer habitat, as both are ecologically distinct communities. However, if upland plantings have been provided at a 1:1 ratio and it can be demonstrated that there are no other opportunities to plant the Buffer along the project site or within the upland outside of the Buffer, then the marsh plantings may be considered. Please submit a revised mitigation plan which demonstrates the location, species, and stock of a minimum of 6,000 square feet of upland Buffer plantings. In addition, please indicate whether additional

TTY for the Deaf

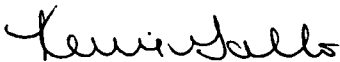
Annapolis: (410) 974-2609 D.C. Metro: (301) 586-0450

Buffer planting or upland planting opportunities outside of the Buffer are feasible within the project area.

3. Phase 1, Plate 3-A: Please provide the stock for the upland herbaceous and grass plantings. In addition, please provide a summary of how the quantity of proposed plantings correlates to the required acreage of mitigation. For example, the Commission considers one large tree, minimum 1.5-2 inch caliper, balled and burlapped, equivalent to 100 square feet of credit. A cluster of one large tree and three understory shrub plantings (minimum 2-3 gallon) would be given 400 square feet of credit. Individual 1-2 gallon grass and herbaceous plantings would be granted 25 square feet of credit each, and one seedling-sized tree would be granted 50 square feet of credit.
4. Phase 2, Plate 1: As in Phase 1, there is 2:1 mitigation proposed for the trail through the Limited Development Area (LDA). It appears that the entirety of the trail within the LDA is outside of the Buffer. As such, mitigation would be required only for the amount of vegetation being removed, and only at a 1:1 ratio. Please clarify the extent of impacts to the LDA outside of the Buffer and provide a revised mitigation plan.
5. Phase 2, Plate 2: It appears feasible to utilize the proposed mitigation plantings in mitigation Area #4 to meet the overall mitigation requirements for the site. However, as in Phase 1, please provide a chart summarizing the stock and credits given for the amount and type of plantings proposed.

I hope this letter provides clarification for the nature of the outstanding questions and concerns regarding the proposed project and mitigation. Please contact me at (410) 260-3482 if you have questions.

Sincerely,



Kerrie L. Gallo  
Natural Resource Planner  
ST 774-06

## ***Critical Area Commission***

### **STAFF REPORT**

**February 7, 2007**

**APPLICANT:** Town of St. Michaels

**PROPOSAL:** St. Michaels Nature Trail

**JURISDICTION:** Town of St. Michaels

**COMMISSION ACTION:** Vote

**STAFF  
RECOMMENDATION:** Conditional Approval

**STAFF:** Roby Hurley and Kerrie Gallo

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

### **DISCUSSION:**

The Town of St. Michaels proposes to construct 3460 linear feet of trail, entirely in the Town's Critical Area. In an attempt to establish park connection, promote environmental education and improve access to San Domingo Creek, St. Michaels in partnership with Environmental Concern and the Rotary Club is proposing to construct an extensive trail on the eastern side of Town. In addition to the Trail, demonstration bioretention and wetland creation areas are proposed. Due to existing site constraints and the existing railroad location, there are impacts to the Buffer however the Town has been successful in mitigating for these impacts.

The project is located in the IDA, LDA and partially in the 100 ft. Buffer and represents redevelopment of an existing public park and railroad right of way. In the IDA or Phase 1 the trail is 1825 ft. long and at a width of 8 ft. creates 14,400 sq. ft. of impervious surfaces. 10% pollutant reduction for both on site and some off site impervious surfaces is accomplished through wetland pond (W-3) and bioretention areas.

Also in the IDA, 500 ft. of the trail are located in the 100 ft. Buffer. In phase 1 the trail enters the Buffer, crosses a small tidal inlet over a proposed bridge and then crosses out of the Buffer on the north side. The 8 ft. trail therefore impacts 4000 sq. ft. of Buffer. 3:1 mitigation is required and is provided by 5700 sq. ft. of tree and shrub plantings and 6300 sq. ft. of non-native/ invasive species removal and native species planting. In addition 500 ft of shoreline

marsh will be created. All wetland permits have been granted.

In the LDA or Phase 2 the trail will traverse approximately 1635 linear feet. At 8 ft. in width it will cover 13,080 sq. ft. for a total impervious surface of 1.9%. Because there is no tree or shrub clearing there is no mitigation required however through non native species removal and planting, 52,000 sq. ft of native vegetation will be established. There are no impacts to any HPAs in Phase 2.

### **Conditional Approval Process**

In order to qualify for consideration by the Commission for conditional approval, the proposing agency must show that the project or program has the following characteristics:

**The following are the response offered by the applicant:**

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

The intent of this project is to establish park connection, provide walking paths, promote environmental education and improve access to San Domingo Creek. The site exists today as an abandoned railway that enters the Buffer and at one time spanned a tidal inlet. Circumnavigating the Buffer is impossible or nearly so (based on location) due to private property and structures. As such, there is no practical manner of constructing any of the trail outside of the Buffer.

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

The public benefits of this project include shoreline access, recognized in COMAR 8-1808, which describes designation of shoreline areas suitable for parks and public access.

***B. (3) That the project or program is otherwise in conformance with this subtitle;***

Except for the Buffer intrusion, the project conforms in all ways to the Critical Area Program.

*The conditional approval request shall, at a minimum, contain the following:*

***C. (1) A showing that the literal enforcement of the provisions of this subtitle would prevent the conduct of an authorized State or local agency program or project;***

Literal enforcement of the provisions of this subtitle will prevent shoreline access, connectivity, and walk ability of residents and visitors. The trail cannot be located outside

of the Buffer due to private property and associated structures. The trail is located on a previously impacted site and is designed to lie lightly on the land, minimize impacts to the Buffer and mitigate for those impacts.

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

The disturbance is the minimum necessary for the proposed trail and will conform to the Town of St. Michaels Critical Area Program.

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

Mitigation measures include native tree and shrub planting and removal of a large amount of non-native invasive species.

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

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

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

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

**Staff Recommendation**

Staff recommends that this project be approved.





## The Commissioners of St. Michaels

300 Mill Street  
P.O. BOX 206

St. MICHAELS, MARYLAND 21663-0206

SETTLED 1670-80  
INCORPORATED 1804

(410) 745-9535  
FACSIMILE (410) 745-3463  
TDD/TTY RELAY 1-800-735-2258

February 6, 2007

Critical Area Commission for the Chesapeake and Atlantic Coastal Bays  
1804 West Street, Suite 100  
Annapolis, MD 21401  
Attn: Kerrie Gallow

Re: Transportation Enhancement Program – St. Michaels Nature Trail Project

Dear Commission Members and Ms. Gallow,

This letter is written in support of the St. Michaels Nature Trail Project – a collaborative effort of the Town of St. Michaels, The Rotary Club of St. Michaels and Environmental Concern, Inc.

When completed, the trail will provide a scenic, safe route from the community space at the south end of town, through a pristine waterfront park, over the San Domingo Creek inlet to our Community Parks at Railroad Ave. The trail project has expanded from its early planning phase and is now more than 7,000 feet long and will connect diverse neighborhoods on the Town's westerly edge via seven convenient access points. The trail will be complimented by educational signage, identifying the native plantings and other points of interest.

The Commissioners of St. Michaels have supported this project from the beginning, recognizing the benefits to the citizens and visitors alike. Appropriately, this trail has become a key element in the update to our Comprehensive Plan, now in its final phase. For the past three years, the Rotary and Environmental Concern have donated time, money, skills and materials to the development and engineering of this trail. They are waging a major fund-raising campaign to finance the trail's construction. The Rotary's members themselves have already committed \$50,000 to this project and are committed to raising another \$150,000. This project has already received a generous matching grant of \$470,830 from the Maryland Department of Transportation, Transportation Enhancement Program.

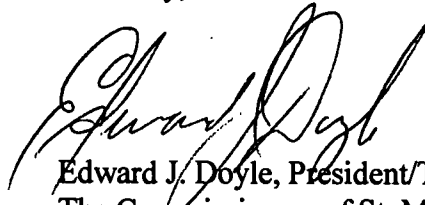
The Commissioners of St. Michaels have committed to be the responsible party and to stand behind Rotary and Environmental Concern with any financing that may be needed to augment their fund-raising efforts and ensure that the trail is completed as

Critical Area Commission  
Nature Trail Project  
February 6, 2007  
Page 2 of 2

planned.

On behalf of the Commissioners of St Michaels, I would like to thank you for your thoughtful consideration of the merits of the St. Michaels Nature Trail. Your approval will move this unique and valuable asset for the Town and the State closer to realization.

Sincerely,

A handwritten signature in cursive script, appearing to read "Edward J. Doyle".

Edward J. Doyle, President/Treasurer  
The Commissioners of St. Michaels



*Maryland Department of Planning*

*Robert L. Ehrlich, Jr.*  
Governor

*Michael S. Steele*  
Lt. Governor

*Audrey E. Scott*  
Secretary

*Florence E. Burian*  
Deputy Secretary

July 20, 2005

Ms. Cheril Thomas, Town Manager  
Town of St. Michaels  
300 Mill St.  
St. Michaels, MD 21663

Re: Public Walkways/ Town Trail

Dear Sherry:

Over the last few months I have been asked to review various plans for the proposed Town trail. Most of the plans were for a trail that was about 6 foot in width. Generally this width is acceptable to the Critical Area Commission, but approval of a trail of greater width is unlikely and would require substantial justification. I have enclosed a Critical Area Guidance Paper illustrating aspects of trail construction.

Depending on whether the land is owned by private or public entities, project notification or Critical Area Commission approval may be necessary and I will be happy to assist the Town in that endeavor.

Sincerely,

Roby Hurley  
Critical Area Planner

Cc: Debbie Renshaw

*Lower Eastern Shore Regional Office*  
*Salisbury Multi-Service Center*  
201 Baptist Street • Suite 24 • Salisbury, Maryland 21801-4974  
Telephone: 410.749.4618 • Fax: 410.543.6777  
Internet: [www.MDP.state.md.us](http://www.MDP.state.md.us)

## CRITICAL AREA BUFFER MANAGEMENT PLAN

The Rotary Club of St. Michaels and Environmental Concern Inc., in partnership with the Town of St. Michaels, proposes to construct The St. Michaels Nature Trail (Trail). The Trail will be constructed on lands owned by the State Highway Administration (SHA) and leased to the Town of St. Michaels. The Trail will extend from Boundary Lane to Railroad Ave.

The Trail will cross San Domingo Creek at San Domingo Park, permanently impacting 6,000 sq.ft m/l. within the 100 ft. tidal buffer. This Buffer Management Plan constitutes the official record of the proposed Buffer impacts as well as the proposed mitigation for these impacts.

### Property Background Information

**Property Owner (responsible party):** The Commissioners of St. Michaels (Cheril S. Thomas, Town Manager)

**Property Owner's address:** 300 Mill Street, P.O. Box 206, St Michaels MD 21663

**Property Owner's (or Contact's Phone):** Gene Slear, Environmental Concern Inc. (410)745-9620

**Project Address:** The Trail will cross several parcels owned by the SHA. Parcels within the 100 ft buffer are listed below:

**Tax Map # 201 Parcel # 1920; Tax Map # 201 Parcel # 1921**

### Proposed Buffer Disturbance:

The Trail will permanently impact 6,000 sq.ft. of the tidal buffer in San Domingo Creek Park, south and north of the San Domingo Creek tidal inlet. (Plate 3).

**BEA:** The property is not in a designated Buffer Exemption Area (BEA)

**Plat Restrictions:** The Trail bridge will cross tidal wetlands. The earthwork required to support the proposed bridge will permanently impact Tidal wetlands. Plans for this Trail bridge are included in the JOINT FEDERAL/STATE APPLICATION FOR THE ALTERATION OF ANY FLOODPLAIN, WATERWAY, TIDAL OR NON TIDAL WETLAND IN MARYLAND, submitted by The Commissioners of St. Michaels to the MDE on March 9, 2006 (copy attached).

**Proposed Project:** The Trail will be constructed along an existing railroad bed. Approximately 41,700 sq.ft. within the Critical Area will be permanently impacted. Of this 41,700 sq.ft., 6,000 sq.ft. lies within the Buffer.

Invasive species (Phragmites and Bamboo) will be eradicated and the areas (6,300 sq. ft.) will be restored with native vegetation. Five diseased/dying trees will be removed as a result of the marsh creation and this construction (Plate 3-A). Seven new trees will be planted within the park (Plate 3).

The earthwork required to support the proposed trail and bridge foundation will permanently impact the Buffer. A bulldozer, crane, excavator, and LGP rubber-track loaders will be used to construct the Trail foundation and the bridge. A small paving machine will be used to emplace the impervious wear surface. Tri-axle dump trucks will be used to transport materials to the site.

**Justification:** This project will provide a pedestrian link between San Domingo Park and Bradley Park. It will also provide opportunities for biking, hiking, and enjoyment of nature. The bridge is the critical link between Grace Street and West Chew. Buffer impacts are unavoidable.

**Long-term management plans:** Environmental Concern Inc. in partnership with the Town of St. Michaels will manage the tidal wetland and the Buffer.



ENVIRONMENTAL  
CONCERN

**Calculation of Mitigation**

**Step 1 - Amount of Buffer Disturbance**

Buffer disturbance is based on the area disturbed. The area disturbed is 6,000 sq.ft.

**Step 2 - Mitigation Ratios**

The proposed trail is new development/redevelopment in a non BEA area. CAC guidelines require a mitigation ratio of 3:1 for this type of disturbance.

**Step 3 - Mitigation Amount**

Mitigation Amount: 6,000 sq.ft. disturbed X 3:1 mitigation ratio = 18,000 sq.ft.

**Buffer Planting Plan**

**Planting Location**

1. On-site within the Buffer:
  - a. A 12,600 sq.ft. tidal marsh will be created <sup>2/3</sup> *? should be upland veg*
  - b. Invasive vegetation will be removed (6,300 sq ft) and the area replanted with warm season grasses.  
(see Plate 3; Plate 3A).
2. On-site adjacent to existing Buffer:
3. On-site within the Critical Area: Mitigation Area 1 (Plate 1) is less than 300 ft. south of the buffer. The detailed planting plan for Mitigation Area 1 is presented on Plate 2 and Plate 2A - attached.

**Schematic Drawing**

Schematic drawings are attached. These scaled drawings indicate in plan view, the disturbed area within the Buffer, existing trees and shrubs and the proposed location for replanting. The drawings include a list of the specific types and amount of vegetation which will be used for mitigation.

*I certify these statements to be true and accurate and that any trees to be removed are on the SHA property covered in a use permit to Town of St. Michaels. I hereby grant County/Local Jurisdiction officials permission to enter this property for inspections of this Buffer Management Plan.*

**Applicant Signature: The Commissioners of St. Michaels**  
BY:

\_\_\_\_\_  
Cheril S. Thomas, Town Manager

\_\_\_\_\_  
Date

**Approval information: FOR OFFICIAL USE ONLY**  
This Buffer Management Plan is approved as of \_\_\_\_\_

**Attachments:**

- Plate 1: Boundary Lane to Railroad Avenue
- Plate 2: Phase 1 Boundary Lane to West Chew
- Plate 2A: Detail - Phase 1 Boundary Lane to West Chew
- Plate 3: Phase 1 - West Chew to Grace Street
- Plate 3A: Additional Detail - Phase 1 West Chew to Grace Street
- Plate 4: Phase 2 Grace Street to Railroad Avenue.





The Commissioners of Saint Michaels  
P.O. BOX 206

SAINT MICHAELS, MARYLAND 21663-0206

SETTLED 1670-80  
INCORPORATED 1804

(410) 745-9535  
FACSIMILE (410) 745-3463  
TDD/TTY RELAY 1-800-735-2258

January 5, 2007

Kerrie L. Gallo  
Natural Resource Planner  
Critical Area Commission  
1804 West Street  
Suite 100  
Annapolis, MD 21401

RE: St. Michaels Nature Trail  
Buffer Mitigation Plan

Dear Kerrie:

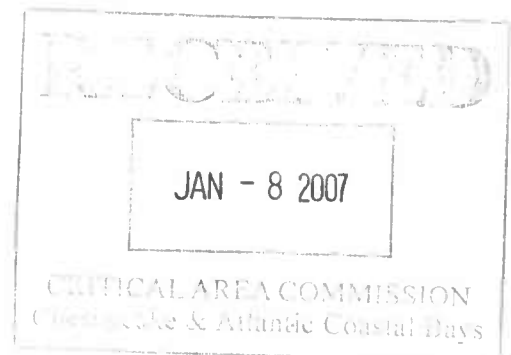
I am forwarding for your review the drawings, as prepared by Environmental Concern Inc. relating to the St. Michaels Nature Trail. Please note that the Phase II Mitigation Table is in fact simply **other additional plantings**. As there are no trees or shrub being cleared, there is no mitigation required. It is my understanding in speaking with Roby that he has spoken to you concerning the submittal of the required Consistency Report. This report will be forwarded to you under separate cover and should be delivered to you the early part of next week.

With the submittal of this information, I am requesting that this matter be placed on the Critical Area Commission's February agenda. Should you have any questions concerning the information contained herein, please do not hesitate to contact me.

Sincerely,

Deborah A. Renshaw  
Zoning Inspector

Enclosures  
CERTIFIED MAIL 7002 0860 0004 0317 0646



774-06



The Commissioners of Saint Michaels

P.O. BOX 206

SAINT MICHAELS, MARYLAND 21663-0206

SETTLED 1670-80  
INCORPORATED 1804

(410) 745-9535  
FACSIMILE (410) 745-3463  
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Ms. Kerrie Gallo, Critical Area Planner  
Chesapeake Bay Critical Area Commission  
1804 West St. S-100  
Annapolis, MD 21401

November 30, 2006

Project Notification: Town of St. Michaels Nature Trail (Trail)

Dear Ms. Gallo:

The Town of St. Michaels hereby provides Chapter 2 Notification and related Conditional Approval request for the Town Trail. The project is located in the IDA, LDA and partially in the 100 ft. Buffer and represents redevelopment of an existing public park and railroad right of way. Please find enclosed 10% and impervious surfaces calculations, Buffer Management Plan form and site plans.

In an attempt to establish park connection, promote environmental education and improve access to the San Domingo Creek, St. Michaels in partnership with Environmental Concern and the Rotary Club is proposing to construct an extensive trail on the eastern side of Town. In addition to the Trail, demonstration bioretention and wetland creation areas are proposed. Due to existing site constraints and the existing railroad location, there are impacts to the Buffer however the Town has been successful in mitigating for these impacts.

The Town of St. Michaels respectfully requests consideration of this application at the January 2007 Critical Area Commission meeting. If we can provide additional information please contact the Town Staff or Roby Hurley.

Sincerely,

Deborah A. Renshaw  
Zoning Officer

cc- Roby Hurley

RECEIVED

DEC 1 2006

CRITICAL AREA COMMISSION  
& Atlantic Coastal Bays



Phase 2 - Mitigation Summary Table

Description	Length of Trail (ft)	Disturbed Area (sq ft)	Mitigation Required (sq ft)	Mitigation Credits (sq ft)
<b>PHASE 2</b>				
Trail (1:1)	1,635	13,080	0	
Existing Road	215			40,000
Mitigation Area 4				12,000
Invasive Species Removal				52,000
<b>Total</b>	<b>1,850</b>	<b>13,080</b>	<b>0</b>	

Total Impervious Surface = 13,100 sq ft  
 Total Site Area = 680,860 sq ft  
 % Impervious = 1.9 %

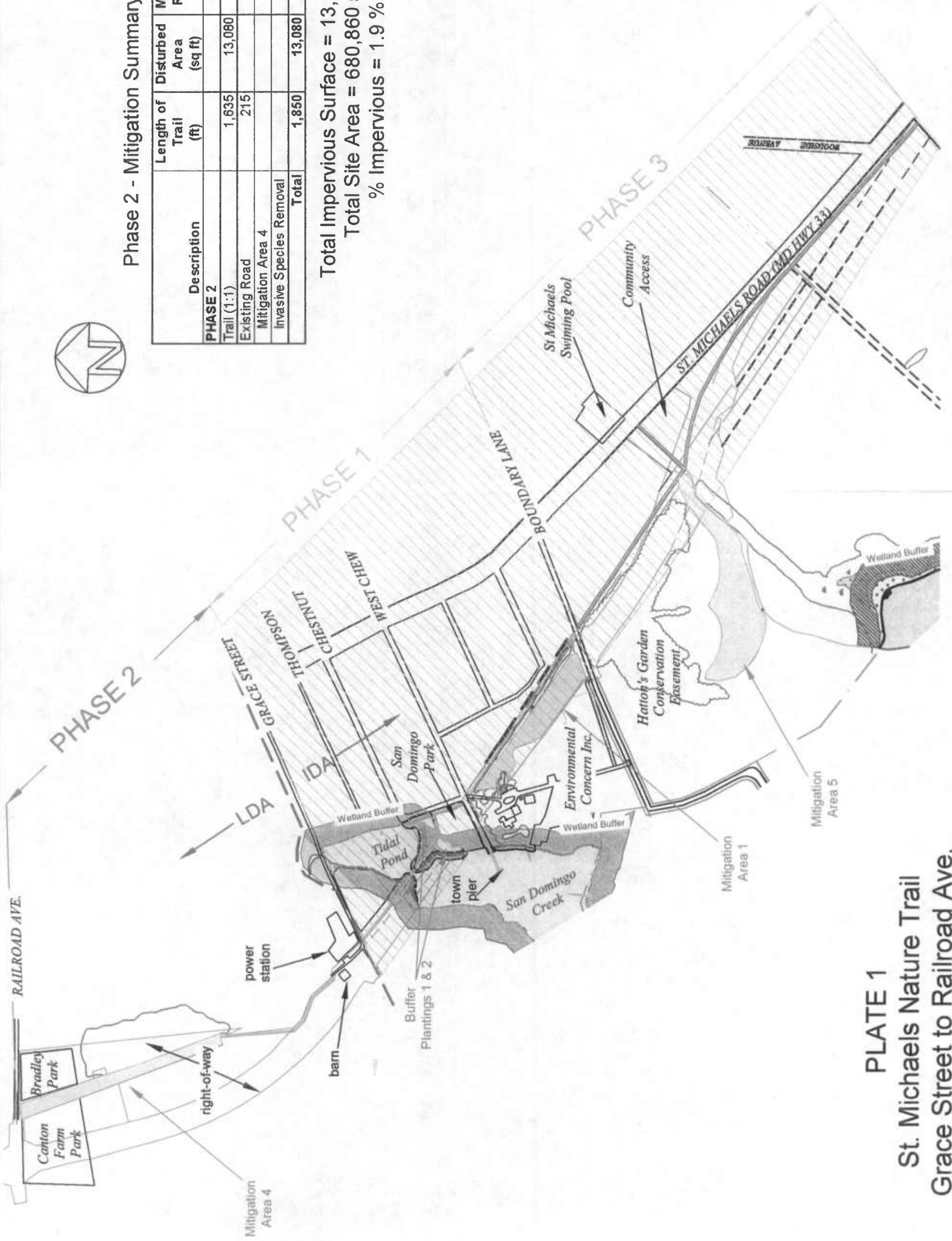


PLATE 1  
 St. Michaels Nature Trail  
 Grace Street to Railroad Ave.

RECEIVED

JAN - 8 2007

CRITICAL AREA COMMISSION  
 Chesapeake & Atlantic Coastal Bays

Phase 2 - Mitigation Plan

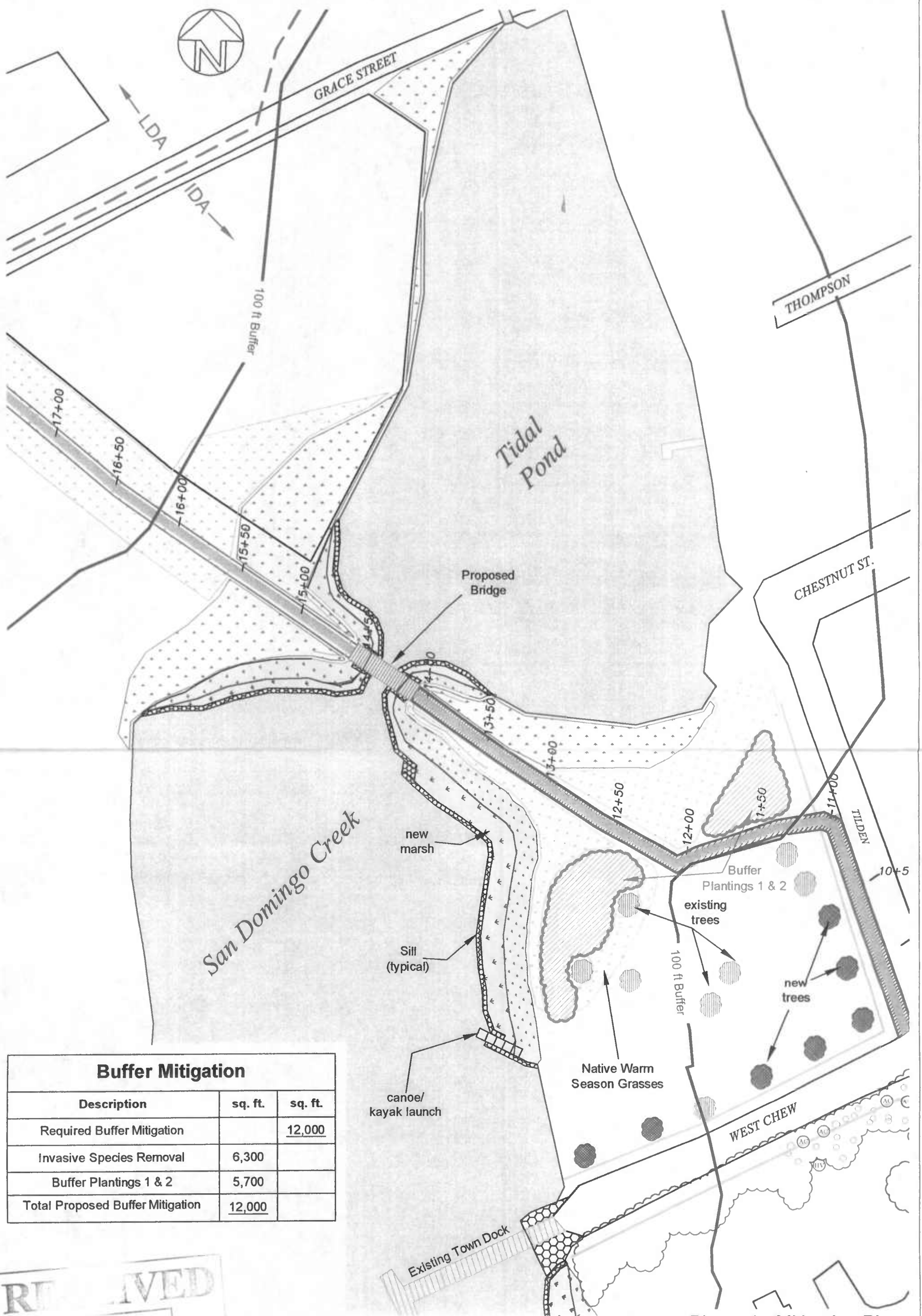


Environmental Concern Inc.  
 P.O. Box P  
 St. Michaels, MD 21663

St. Michaels Nature Trail  
 St. Michaels, MD

Scale: 1" = 400 ft.  
 Date: 12/21/2006






Buffer Mitigation		
Description	sq. ft.	sq. ft.
Required Buffer Mitigation		<u>12,000</u>
Invasive Species Removal	6,300	
Buffer Plantings 1 & 2	5,700	
Total Proposed Buffer Mitigation	<u>12,000</u>	

Phase 1 - Mitigation Plan

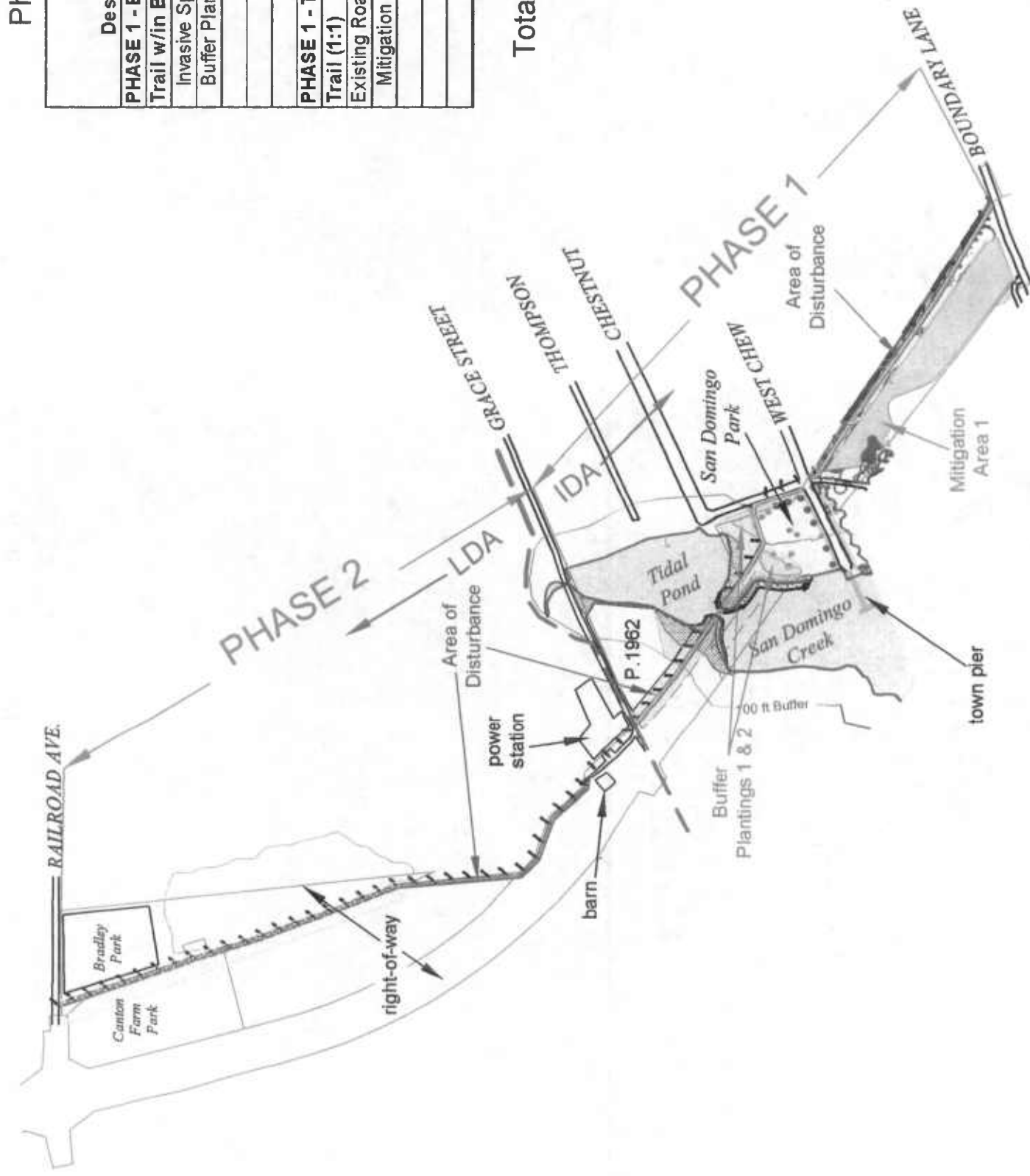
PLATE 3  
 St. Michaels Nature Trail  
 Phase 1 - West Chew to Grace Street

 Environmental Concern Inc.  
 P.O. Box P  
 St. Michaels, MD 21663

St. Michaels Nature Trail  
 St. Michaels, MD

1 inch = 60 ft.  
 rev. 12/21/2006

**RECEIVED**  
 JAN - 8 2007  
 CAPITAL AREA COMMISSION  
 Chesapeake & Atlantic Coast



Phase 1 - Mitigation Summary Table

Description	Length of Trail (ft)	Disturbed Area (sq ft)	Mitigation Required (sq ft)	Mitigation Credits (sq ft)
<b>PHASE 1 - Buffer</b>				
Trail w/in Buffer (3:1)	500	4,000	12,000	
Invasive Species Removal				6,300
Buffer Plantings 1 & 2				5,700
<b>Sub-total</b>	<b>500</b>	<b>4,000</b>	<b>12,000</b>	<b>12,000</b>
<b>PHASE 1 - Trail</b>				
Trail (1:1)	1,300	10,400	0	
Existing Road	25			
Mitigation Area 1				68,300
<b>Sub-total</b>	<b>1,325</b>	<b>10,400</b>	<b>0</b>	<b>68,300</b>
<b>Total</b>	<b>1,825</b>	<b>14,400</b>	<b>12,000</b>	<b>80,300</b>

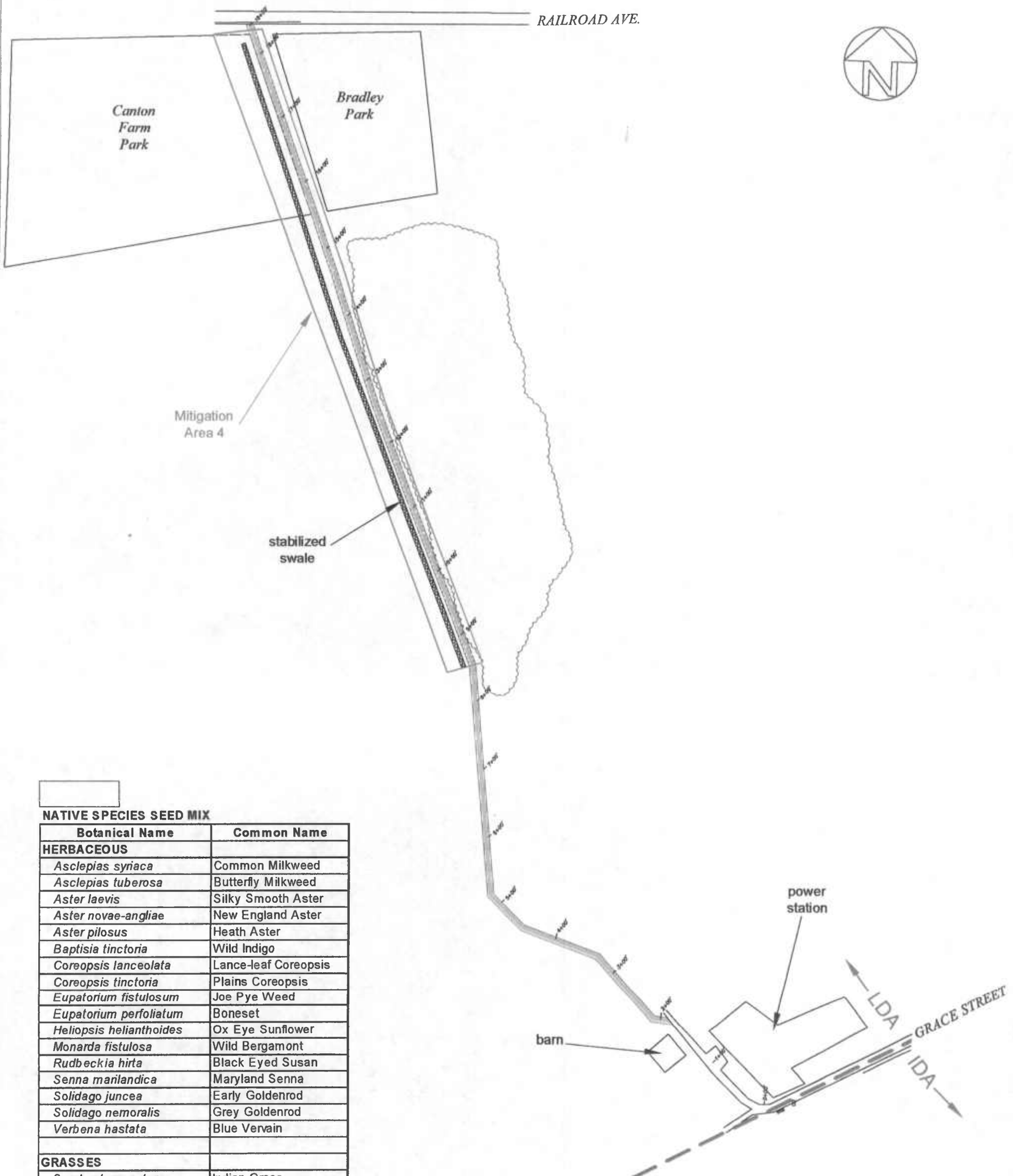
Total Impervious Surface = 14,400 sq ft  
 Total Site Area = 256,680 sq ft  
 % Impervious = 5.6 %



Phase 1 - Mitigation Plan



Environmental Concern Inc.  
 P.O. Box P  
 St. Michaels, MD 21663



**NATIVE SPECIES SEED MIX**

Botanical Name	Common Name
<b>HERBACEOUS</b>	
<i>Asclepias syriaca</i>	Common Milkweed
<i>Asclepias tuberosa</i>	Butterfly Milkweed
<i>Aster laevis</i>	Silky Smooth Aster
<i>Aster novae-angliae</i>	New England Aster
<i>Aster pilosus</i>	Heath Aster
<i>Baptisia tinctoria</i>	Wild Indigo
<i>Coreopsis lanceolata</i>	Lance-leaf Coreopsis
<i>Coreopsis tinctoria</i>	Plains Coreopsis
<i>Eupatorium fistulosum</i>	Joe Pye Weed
<i>Eupatorium perfoliatum</i>	Boneset
<i>Heliopsis helianthoides</i>	Ox Eye Sunflower
<i>Monarda fistulosa</i>	Wild Bergamont
<i>Rudbeckia hirta</i>	Black Eyed Susan
<i>Senna marilandica</i>	Maryland Senna
<i>Solidago juncea</i>	Early Goldenrod
<i>Solidago nemoralis</i>	Grey Goldenrod
<i>Verbena hastata</i>	Blue Vervain
<b>GRASSES</b>	
<i>Sorghastrum nutans</i>	Indian Grass
<i>Schizachrium scoparium</i>	Little Bluestem
<i>Panicum virgatum</i>	Shelter Switch Grass
<i>Elymus canadensis</i>	Canada Wild Rye
<i>Andropogon gerardii</i>	Big Bluestem
<i>Andropogon virginicus</i>	Broomsedge


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Chesapeake & Atlantic Coastal Bays

**PLATE 2**  
**St. Michaels Nature Trail**  
**Grace Street to Railroad Ave.**

**Phase 2 - Mitigation Plan**

 **Environmental Concern Inc.**  
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St. Michaels, MD 21663

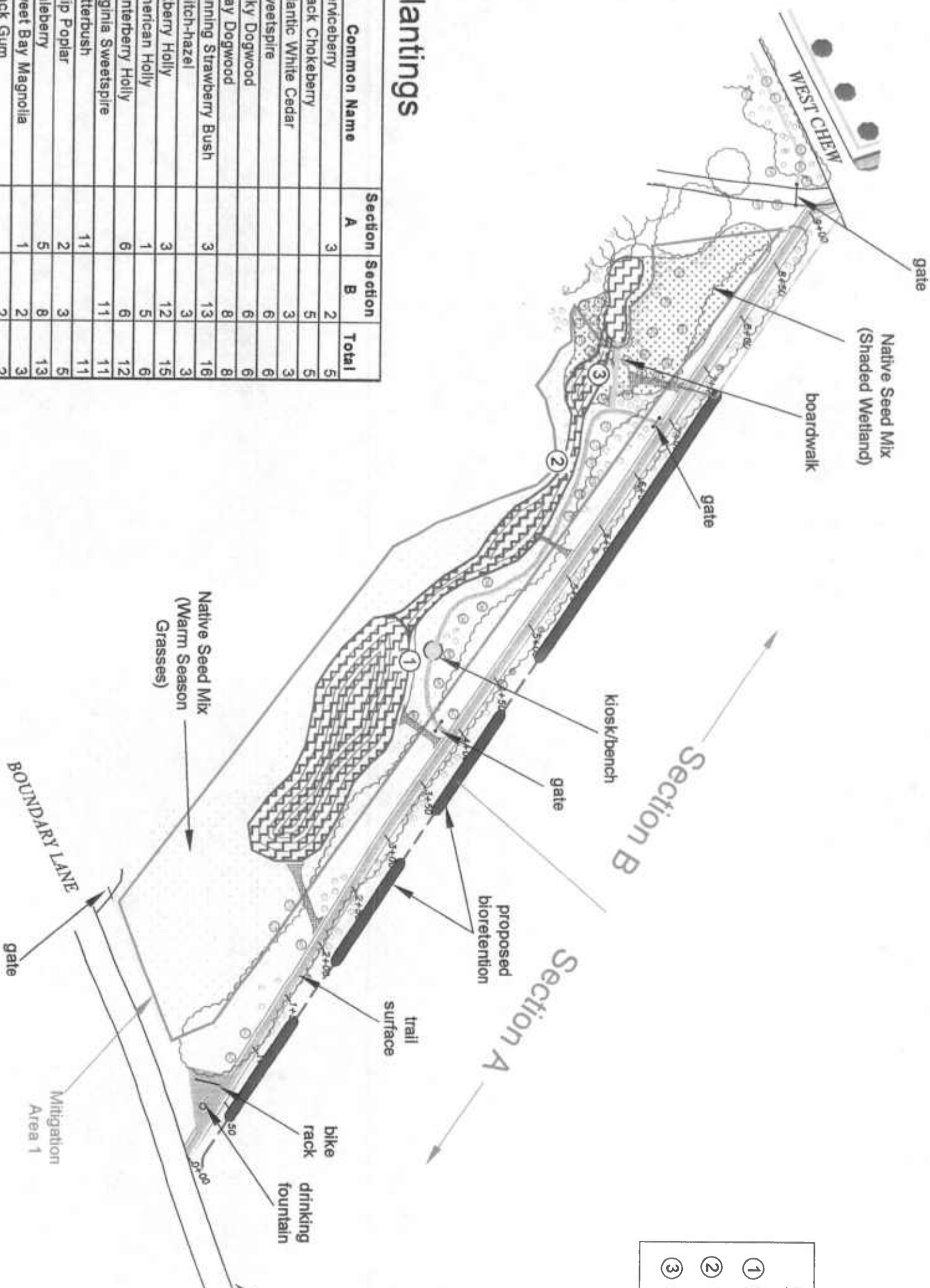
St. Michaels Nature Trail  
St. Michaels, MD

Scale: 1"= 150'  
Date: 09/05/2006



## Tree and Shrub Plantings

ID	Botanical Name	Common Name	Section		Total
			A	B	
AmC	<i>Amelanchier canadensis</i>	Serviceberry	3	2	5
AM	<i>Aronia melanocarpa</i>	Black Chokeberry		5	5
CT	<i>Chamaecyparis thyoides</i>	Atlantic White Cedar		3	3
CIA	<i>Clethra alnifolia</i>	Sweetspire		6	6
CA	<i>Cornus amomum</i>	Silky Dogwood		6	6
CR	<i>Cornus racemosa</i>	Gray Dogwood		8	8
EA	<i>Euonymus americanus</i>	Running Strawberry Bush	3	13	16
HV	<i>Hammamelis virginiana</i>	Witch-hazel		3	3
IG	<i>Ilex glabra</i>	American Holly	3	12	15
IO	<i>Ilex opaca</i>	Winterberry Holly	1	5	6
NV	<i>Ilex verticillata</i>	Virginia Sweetspire	6	6	12
IV	<i>Itea virginica</i>	Fetterbush		11	11
LR	<i>Leucothoe racemosa</i>	Tulip Poplar	11		11
LT	<i>Liriodendron tulipifera</i>	Maleberry	2	3	5
LL	<i>Lyonia ligustrina</i>	Sweet Bay Magnolia	5	8	13
MV	<i>Magnolia virginiana</i>	Black Gum	1	2	3
NS	<i>Nyssa sylvatica</i>	Sycamore	2	2	4
PO	<i>Plantanus occidentalis</i>	Swamp Chestnut Oak	4	3	7
QM	<i>Quercus michauxii</i>	Water Oak	3	3	6
QN	<i>Quercus nigra</i>	Elderberry	3	3	6
SC	<i>Sambucus canadensis</i>	Bald Cypress	10	10	20
TD	<i>Taxodium disticum</i>	Highbush Blueberry	4	4	8
VC	<i>Vaccinium corymbosum</i>		3	3	6
<b>TOTAL</b>			<b>36</b>	<b>122</b>	<b>167</b>



- Educational Signage**
- ① Meadow; Wetland Pond
  - ② Native Plant Nursery
  - ③ Wet Meadow; Wetland Pond

State of Maryland  
Right-of-way

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Chesapeake & Atlantic Coastal Bays

### Phase 1 - Mitigation Plan

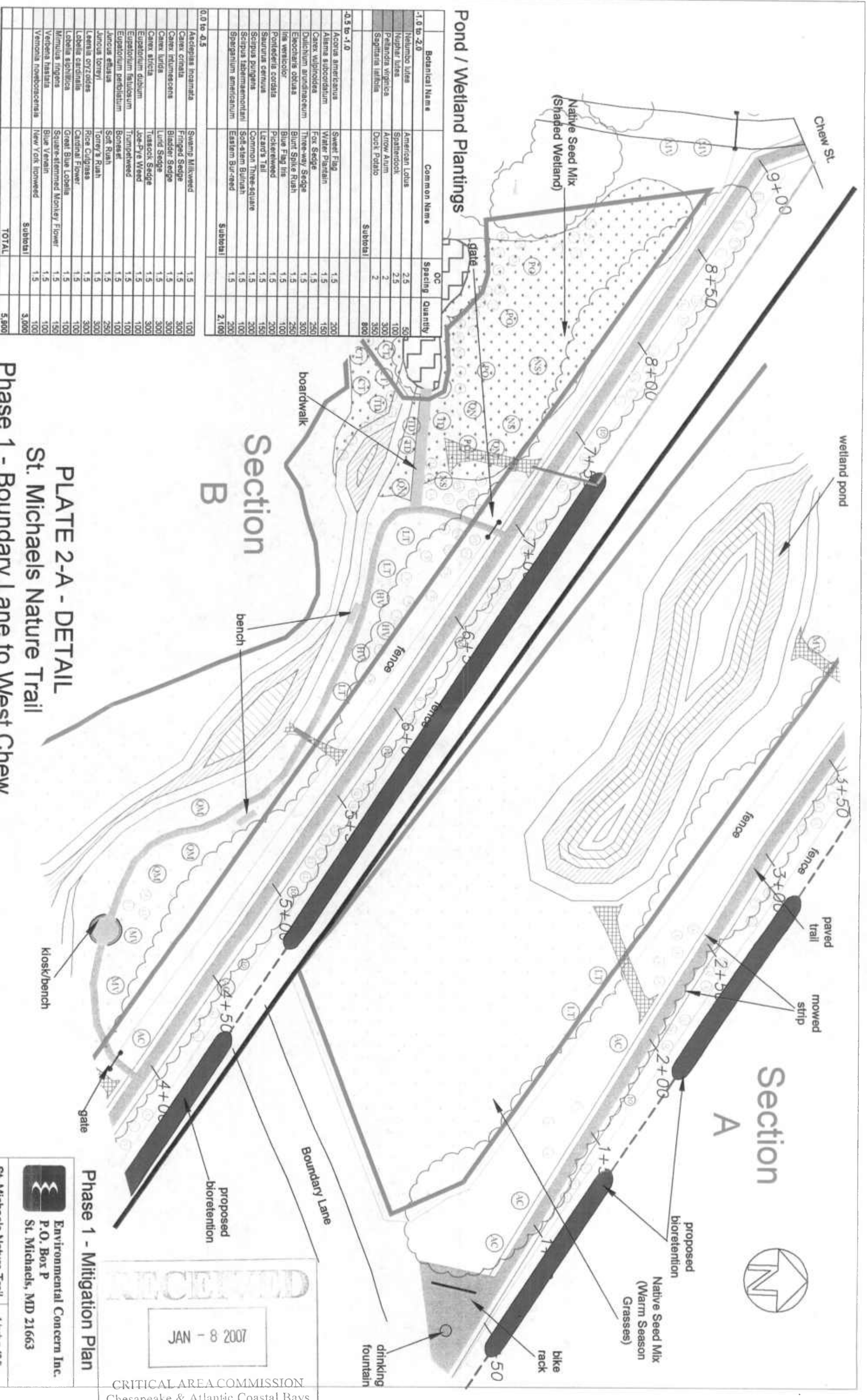
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St. Michaels, MD 21663

St. Michaels Nature Trail  
St. Michaels, MD

1 inch = 100 ft.  
rev. 05/15/2006

**PLATE 2**  
**St. Michaels Nature Trail**  
**Phase 1 - Boundary Lane to West Chew**





**Pond / Wetland Plantings**

Botanical Name	Common Name	OC	Spacing	Quantity
<b>-1.0 to -2.0</b>				
<i>Nelumbo lutea</i>	American Lotus	50	2.5	50
<i>Nuphar lutea</i>	Spatterdock	100	2.5	100
<i>Peltandra virginica</i>	Arrow Arum	300	2	300
<i>Sagittaria latifolia</i>	Duck Potato	350	2	350
Subtotal: 800				
<b>-0.5 to -1.0</b>				
<i>Acrostichum americanum</i>	Sweet Flag	15	1.5	200
<i>Alisma subcordatum</i>	Water Plantain	15	1.5	150
<i>Carex vulpinoidea</i>	Fox Sedge	15	1.5	250
<i>Dulichium arundinaceum</i>	Three-way Sedge	15	1.5	300
<i>Eriocystis obtusa</i>	Blunt Spike Rush	15	1.5	250
<i>Iris versicolor</i>	Blue Flag Iris	15	1.5	100
<i>Portulaca oleracea</i>	Pickercow	15	1.5	200
<i>Saururus cernuus</i>	Lizard's Tail	15	1.5	150
<i>Scirpus pungens</i>	Common Three-square	15	1.5	200
<i>Scirpus tabernaemontani</i>	Soft-stem Bulrush	15	1.5	200
<i>Sperganium americanum</i>	Eastern Bur-reed	15	1.5	200
Subtotal: 2,100				
<b>0.0 to 0.5</b>				
<i>Azadirachta indica</i>	Swamp Milkweed	15	1.5	100
<i>Carex crinita</i>	Fringed Sedge	15	1.5	300
<i>Carex intumescens</i>	Bladder Sedge	15	1.5	300
<i>Carex lurida</i>	Lund Sedge	15	1.5	300
<i>Carex stricta</i>	Tussock Sedge	15	1.5	300
<i>Eupatorium dubium</i>	Joe-Pye Weed	15	1.5	100
<i>Eupatorium fulvolum</i>	Trumpetweed	15	1.5	100
<i>Eupatorium perfoliatum</i>	Boneset	15	1.5	250
<i>Juncus effusus</i>	Soft Rush	15	1.5	300
<i>Juncus torreyi</i>	Torrey's Rush	15	1.5	300
<i>Lobelia cardinalis</i>	Rice Cutgrass	15	1.5	300
<i>Lobelia siphilitica</i>	Cardinal Flower	15	1.5	100
<i>Mimulus ringens</i>	Great Blue Lobelia	15	1.5	100
<i>Verbena hastata</i>	Square-stemmed Monkey Flower	15	1.5	150
<i>Veronica hastata</i>	Blue Verain	15	1.5	100
<i>Veronica noveboracensis</i>	New York Ironweed	15	1.5	100
Subtotal: 3,000				
<b>TOTAL: 5,900</b>				

**Section B**

**Section A**

**PLATE 2-A - DETAIL**  
**St. Michaels Nature Trail**  
**Phase 1 - Boundary Lane to West Chew**

**Phase 1 - Mitigation Plan**

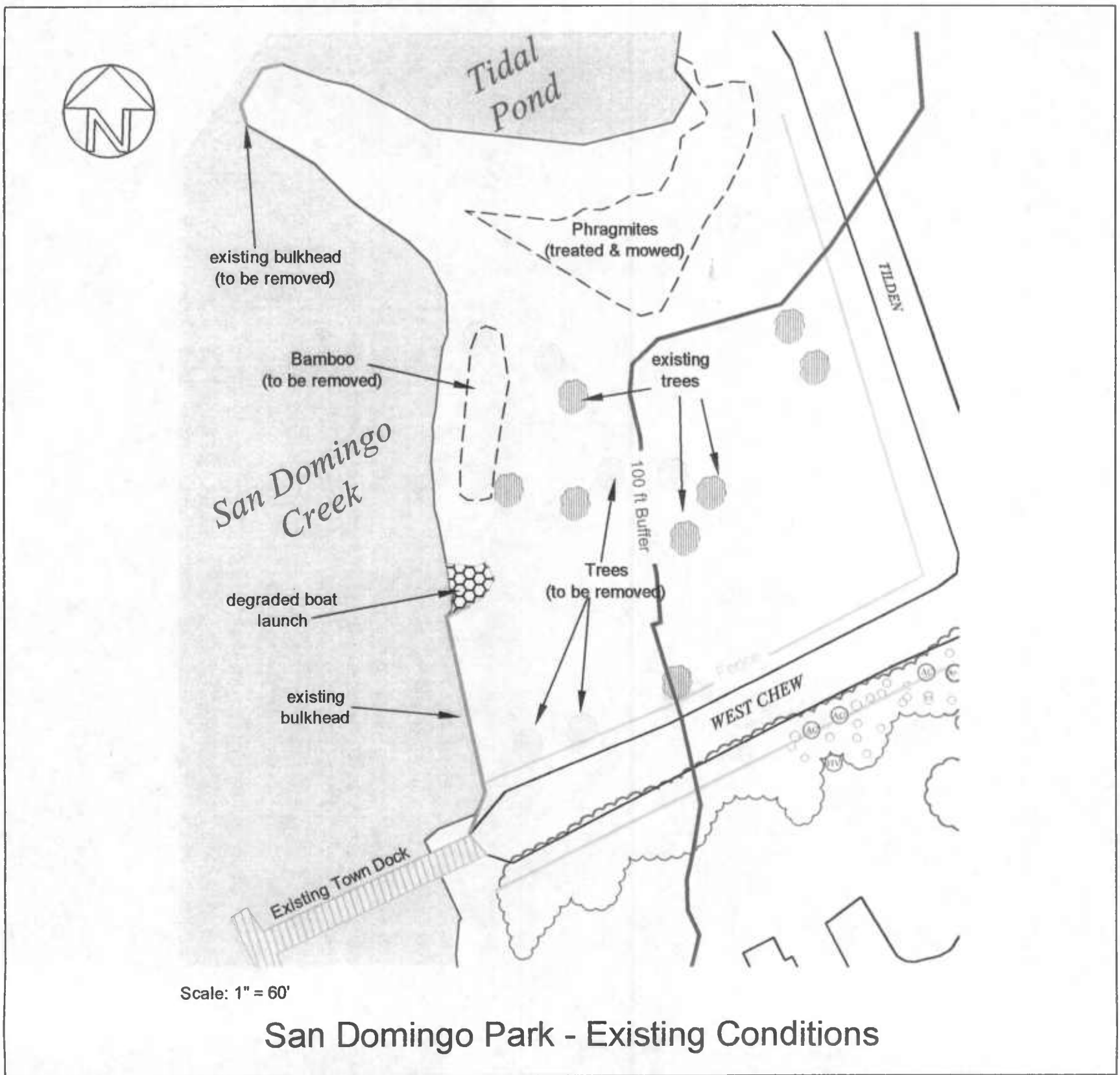
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St. Michaels Nature Trail  
 St. Michaels, MD

JAN - 8 2007

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 Chesapeake & Atlantic Coastal Bays

1 inch = 40 ft.  
 rev. 05/15/2006



### Buffer Plant Lists

#### NATIVE SPECIES SEED MIX

Botanical Name	Common Name
<b>HERBACEOUS</b>	
<i>Asclepias syriaca</i>	Common Milkweed
<i>Asclepias tuberosa</i>	Butterfly Milkweed
<i>Aster laevis</i>	Silky Smooth Aster
<i>Aster novae-angliae</i>	New England Aster
<i>Aster pilosus</i>	Heath Aster
<i>Baptisia tinctoria</i>	Wild Indigo
<i>Coreopsis lanceolata</i>	Lance-leaf Coreopsis
<i>Coreopsis tinctoria</i>	Plains Coreopsis
<i>Eupatorium fistulosum</i>	Joe Pye Weed
<i>Eupatorium perfoliatum</i>	Boneset
<i>Heliopsis helianthoides</i>	Ox Eye Sunflower
<i>Monarda fistulosa</i>	Wild Bergamont
<i>Rudbeckia hirta</i>	Black Eyed Susan
<i>Senna marilandica</i>	Maryland Senna
<i>Solidago juncea</i>	Early Goldenrod
<i>Solidago nemoralis</i>	Grey Goldenrod
<i>Verbena hastata</i>	Blue Vervain
<b>GRASSES</b>	
<i>Sorghastrum nutans</i>	Indian Grass
<i>Schizachrium scoparium</i>	Little Bluestem
<i>Panicum virgatum</i>	Shelter Switch Grass
<i>Elymus canadensis</i>	Canada Wild Rye
<i>Andropogon gerardii</i>	Big Bluestem
<i>Andropogon virginicus</i>	Broomsedge

(see Plate 3 for location)

#### NEW TREES

Botanical Name	Common Name	Size	Quantity
<i>Quercus phellos</i>	Willow Oak	1 1/2" Caliper	3
<i>Quercus palustris</i>	Pin Oak	1 1/2" Caliper	4
<b>TOTAL</b>			<b>7</b>

(see Plate 3 for location)

#### MITIGATION SHRUB PLANTINGS

ID	Botanical Name	Common Name	Buffer Planting 1	Buffer Planting 2	Total
CIA	<i>Clethra alnifolia</i>	Sweetspire	12	5	17
CA	<i>Cornus amomum</i>	Silky Dogwood	12	5	17
IG	<i>Ilex glabra</i>	Inkberry Holly	20	15	35
IV	<i>Ilex verticillata</i>	Winterberry Holly	12	6	18
ItV	<i>Itea virginica</i>	Virginia Sweetspire	12	3	15
MC	<i>Morella cerifera</i>	Wax Myrtle	20	15	35
VC	<i>Vaccinium corymbosum</i>	Highbush Blueberry	15	6	21
			<b>103</b>	<b>55</b>	<b>158</b>

(see Plate 3 for location)

#### Phase 1 - Mitigation Plan

CEIV

JAN - 8 2007

### PLATE 3-A - Additional Detail St. Michaels Nature Trail Phase 1 - West Chew to Grace Street

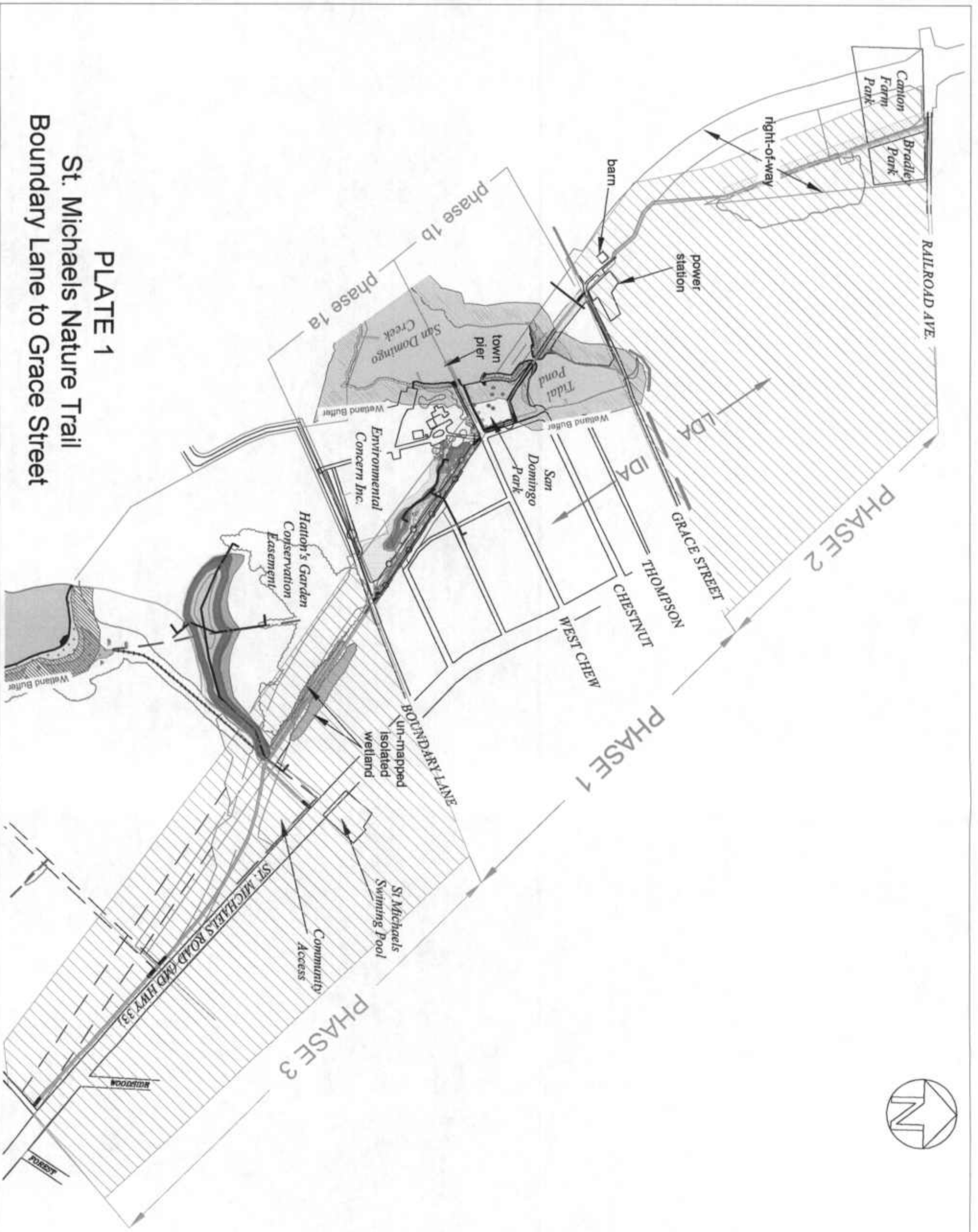


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St. Michaels Nature Trail  
St. Michaels, MD

rev. 12/21/2006





**PLATE 1**  
**St. Michaels Nature Trail**  
**Boundary Lane to Grace Street**

**Phase 1-**  
**Stormwater Management**

  
 Environmental Concern Inc.  
 P.O. Box P  
 St. Michaels, MD 21663

St. Michaels Nature Trail  
 St. Michaels, MD

Scale: n/a  
 Date: 09/01/2006



# Planting Plan

Botanical Name	Common Name	OC Spacing	Quantity
<b>-1.0 to -2.0</b>			
<i>Neulumbo lutea</i>	American Lotus	2.5	50
<i>Nuphar lutea</i>	Spatterdock	2.5	100
<i>Peltandra virginica</i>	Arrow Arum	2	300
<i>Sagittaria latifolia</i>	Duck Potato	2	350
	<b>Subtotal</b>		<b>800</b>
<b>-0.5 to -1.0</b>			
<i>Acorus americanus</i>	Sweet Flag	1.5	200
<i>Alisma subcordatum</i>	Water Plantain	1.5	150
<i>Carex vulpinoidea</i>	Fox Sedge	1.5	250
<i>Dulichium arundinaceum</i>	Three-way Sedge	1.5	300
<i>Eleocharis obtusa</i>	Blunt Spike Rush	1.5	250
<i>Iris versicolor</i>	Blue Flag Iris	1.5	100
<i>Pontederia cordata</i>	Pickereelweed	1.5	200
<i>Saururus cernuus</i>	Lizard's Tail	1.5	150
<i>Scirpus pungens</i>	Common Three-square	1.5	200
<i>Scirpus tabernaemontani</i>	Soft-stem Bulrush	1.5	100
<i>Spartanium americanum</i>	Eastern Bur-reed	1.5	200
	<b>Subtotal</b>		<b>2,100</b>
<b>0.0 to -0.5</b>			
<i>Asclepias incarnata</i>	Swamp Milkweed	1.5	100
<i>Carex crinata</i>	Fringed Sedge	1.5	300
<i>Carex intumescens</i>	Bladder Sedge	1.5	300
<i>Carex lurida</i>	Lurid Sedge	1.5	300
<i>Carex stricta</i>	Tussock Sedge	1.5	300
<i>Eupatorium dubium</i>	Joe-Pye Weed	1.5	100
<i>Eupatorium fistulosum</i>	Trumpetweed	1.5	100
<i>Eupatorium perfoliatum</i>	Bonaset	1.5	100
<i>Juncus effusus</i>	Soft Rush	1.5	250
<i>Juncus torreyi</i>	Torrey's Rush	1.5	300
<i>Leersia oryzoides</i>	Rice Cutgrass	1.5	300
<i>Lobelia cardinalis</i>	Cardinal Flower	1.5	100
<i>Lobelia siphilitica</i>	Great Blue Lobelia	1.5	100
<i>Mimulus ringens</i>	Square-stemmed Monkey Flower	1.5	150
<i>Verberna hastata</i>	Blue Vervain	1.5	100
<i>Vernonia noveboracensis</i>	New York Ironweed	1.5	100
	<b>Subtotal</b>		<b>3,000</b>
	<b>TOTAL</b>		<b>6,900</b>

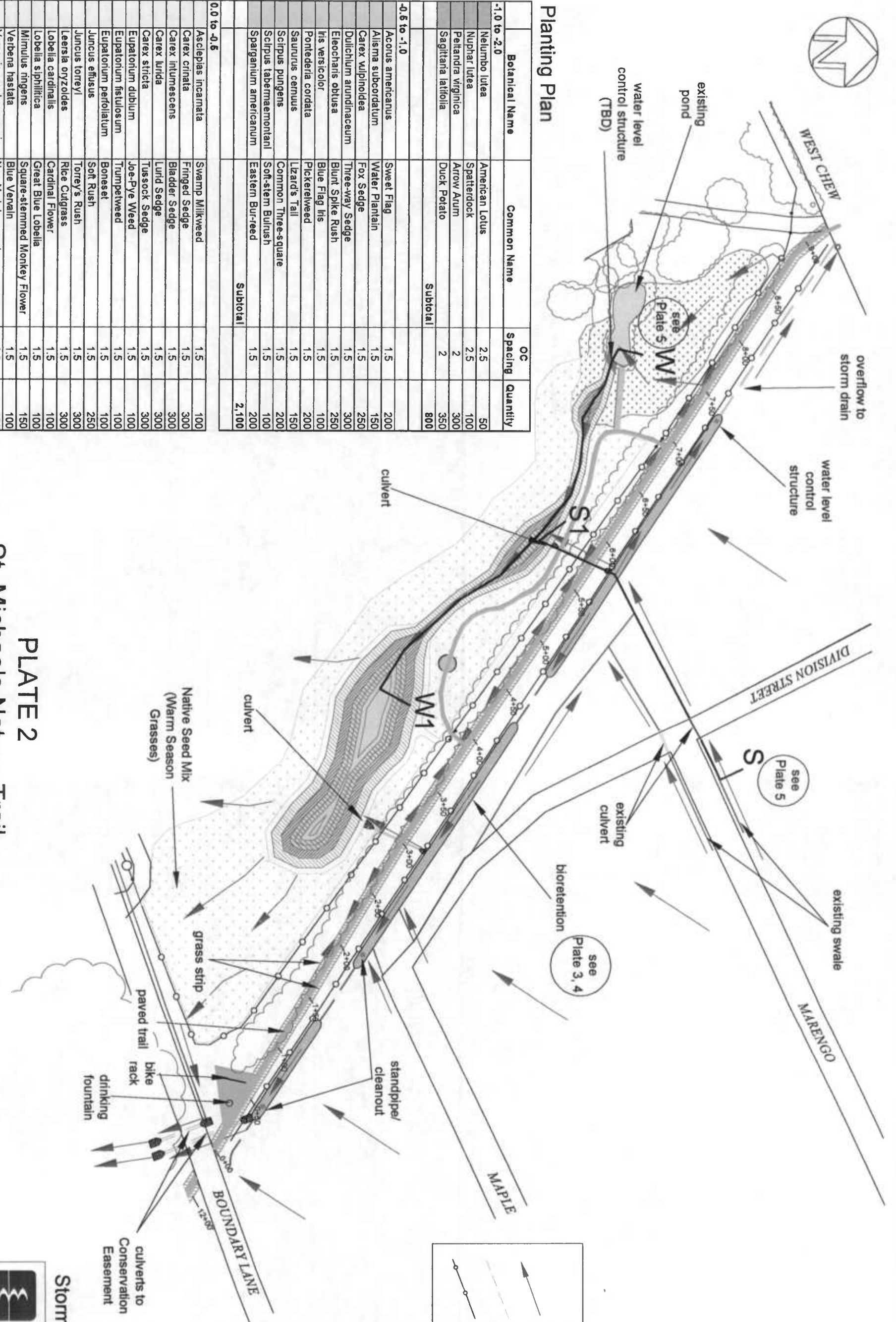


PLATE 2  
 St. Michaels Nature Trail  
 Boundary Lane to West Chew

**Legend**

- Surface Water Flow
- Buried Pipe / Culvert
- Fence

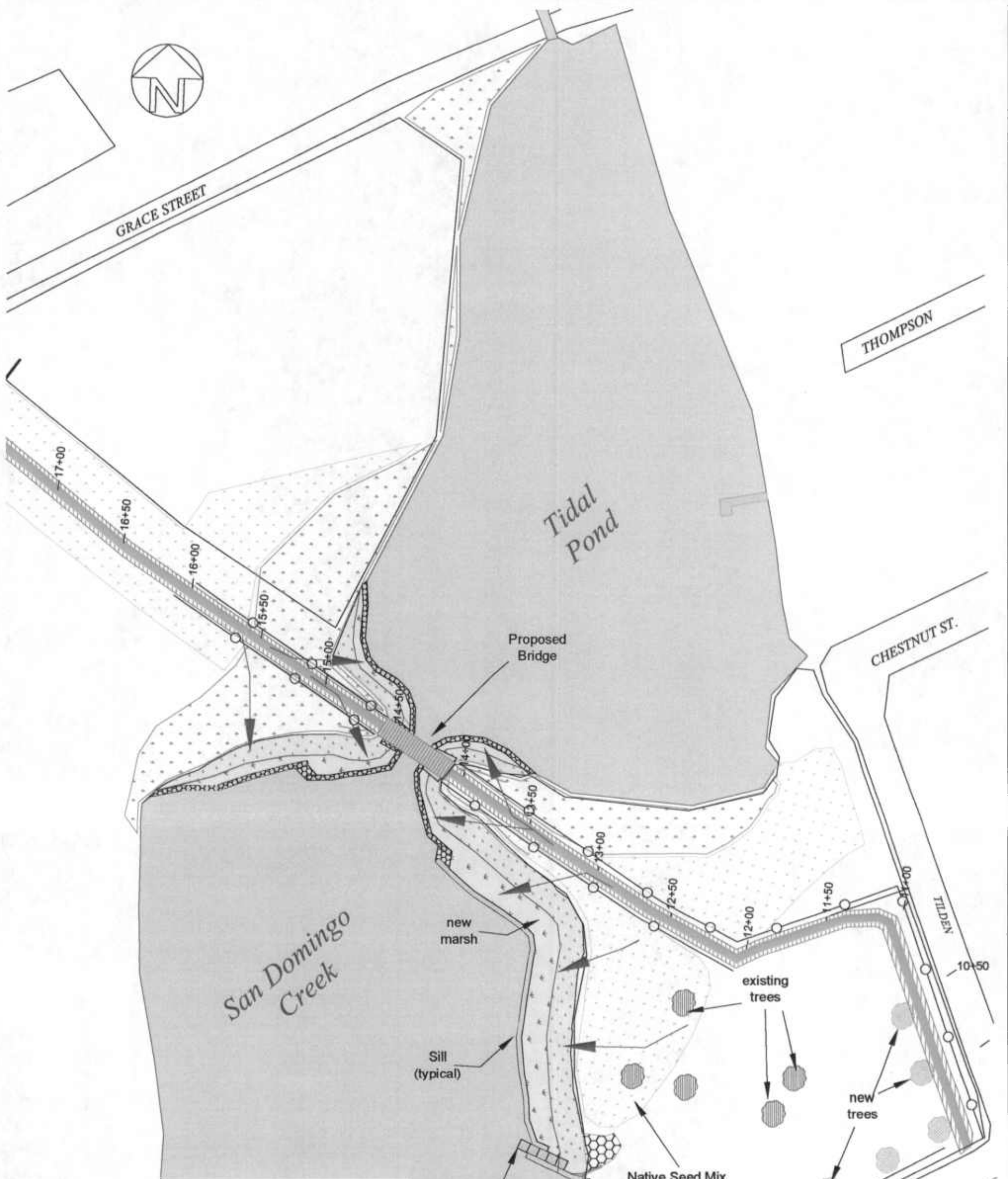
## Phase 1a - Stormwater Management

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St. Michaels Nature Trail  
 St. Michaels, MD

Scale: 1" = 80'  
 Date: 09/01/2006  
 rev. 09/27/2006





**Planting Plan**

Botanical Name	Common Name	OC Spacing (ft)	Quantity
<b>Low Marsh</b>			
<i>Spartina alterniflora</i>	Smooth Cordgrass	1	6,600
<b>High Marsh</b>			
<i>Spartina patens</i>	Saltmeadow Hay	1	2,800
<i>Distichlis spicata</i>	Spike Grass	1	600
<i>Juncus roemerianus</i>	Black Needlerush	1	600
<i>Scirpus robustus</i>	Saltmeadow Bulrush	1	400
<i>Hibiscus moscheutos</i>	Marsh Hibiscus	1	250
<i>Scirpus pungens</i>	Common Three-Square	1	400
<i>Solidago sempervirens</i>	Seaside Goldenrod	1	200
	Subtotal		5,250
	<b>TOTAL</b>		<b>11,850</b>

**PLATE 2a**  
**St. Michaels Nature Trail**  
**West Chew to Grace Street**

**Phase 1b -**  
**Stormwater Management**



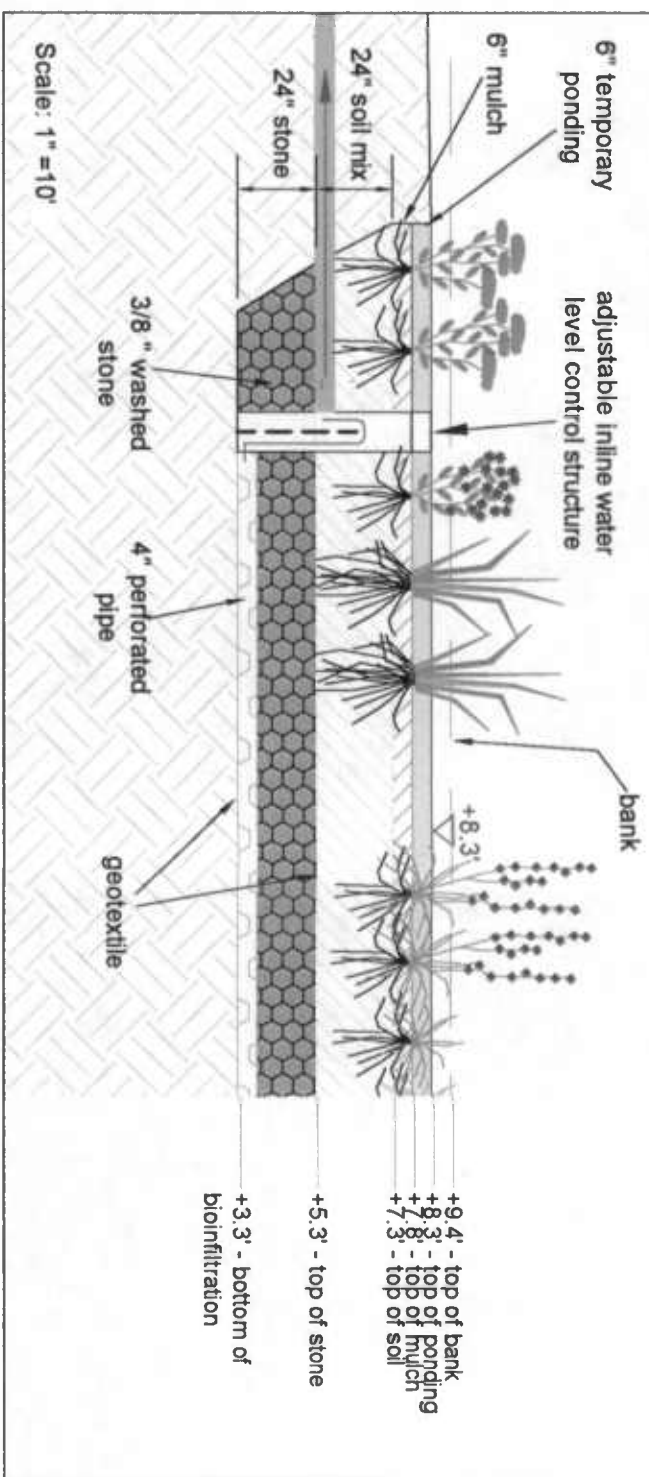
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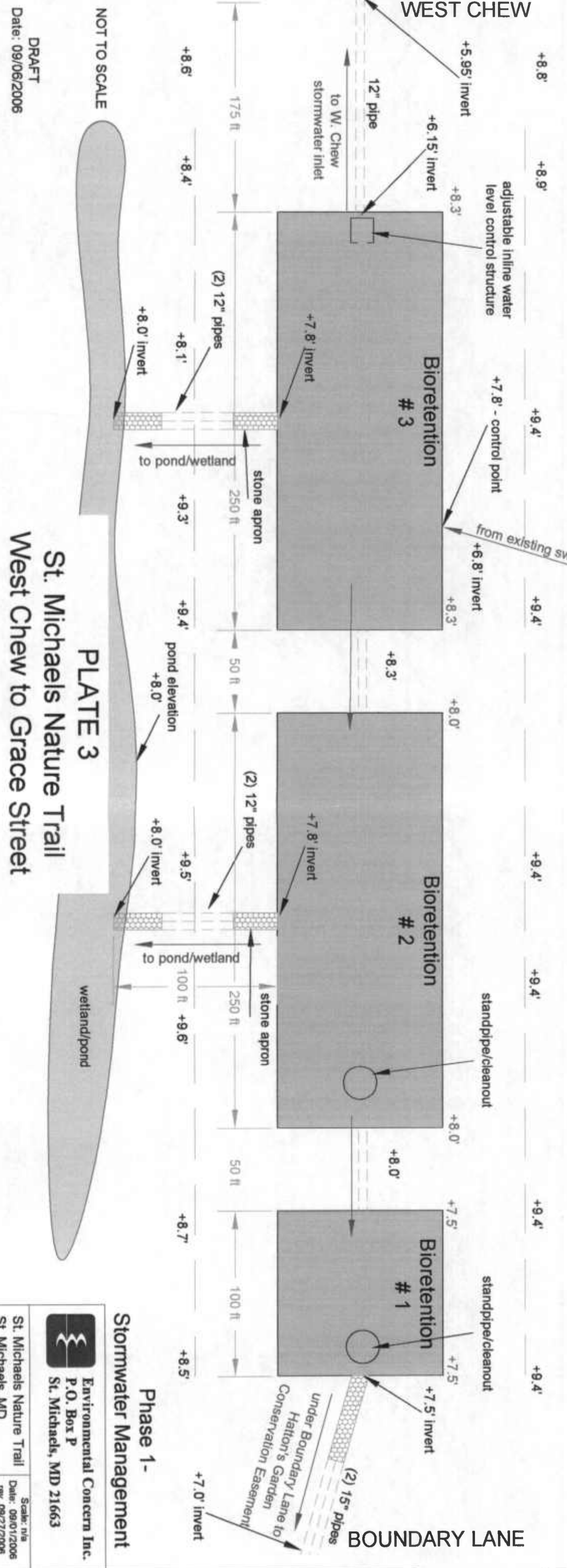
1 inch = 60 ft.  
 rev. 05/15/2006

TO WEST CHEW

Bioretention # 3



existing elevations: +x.x'  
 proposed elevations: +x.x'  
 flow direction: →



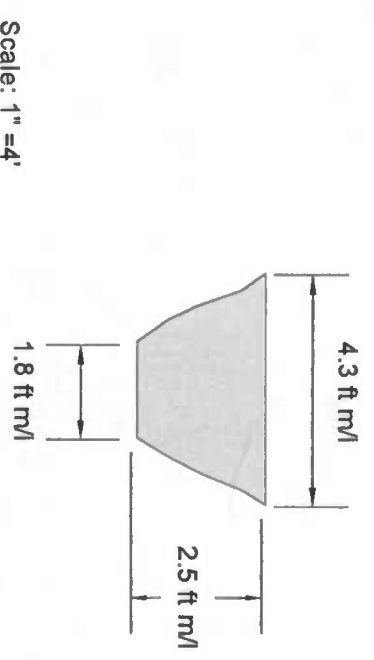
DRAFT  
 Date: 09/06/2006

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St. Michaels Nature Trail  
 St. Michaels, MD

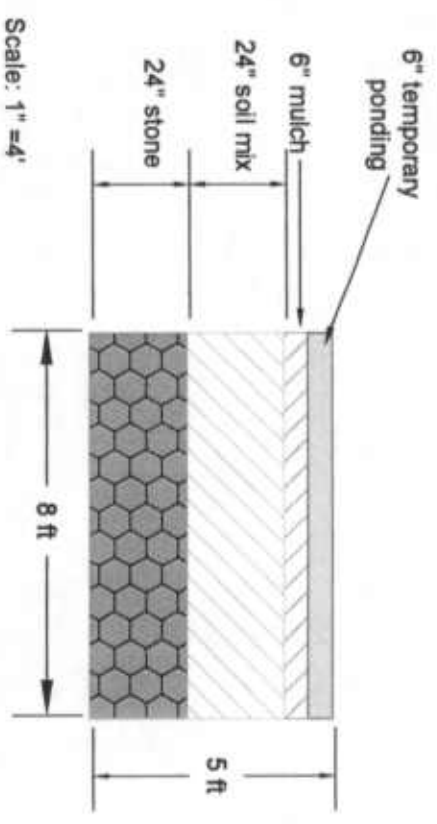
Scale: n/a  
 Date: 09/01/2006  
 rev. 09/27/2006

### Cross Section - Existing Swale



Cross Section Area = 7.6 sq. ft. m/l  
 Total Length = 700 ft.  
 Calculated Storage Capacity = 5,500 cu. ft. m/l

### Cross Section - Bioretention Facility

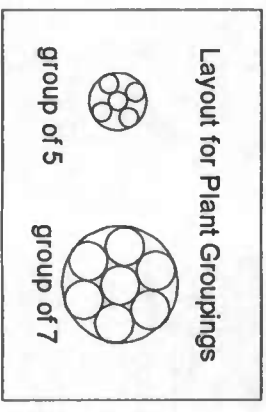
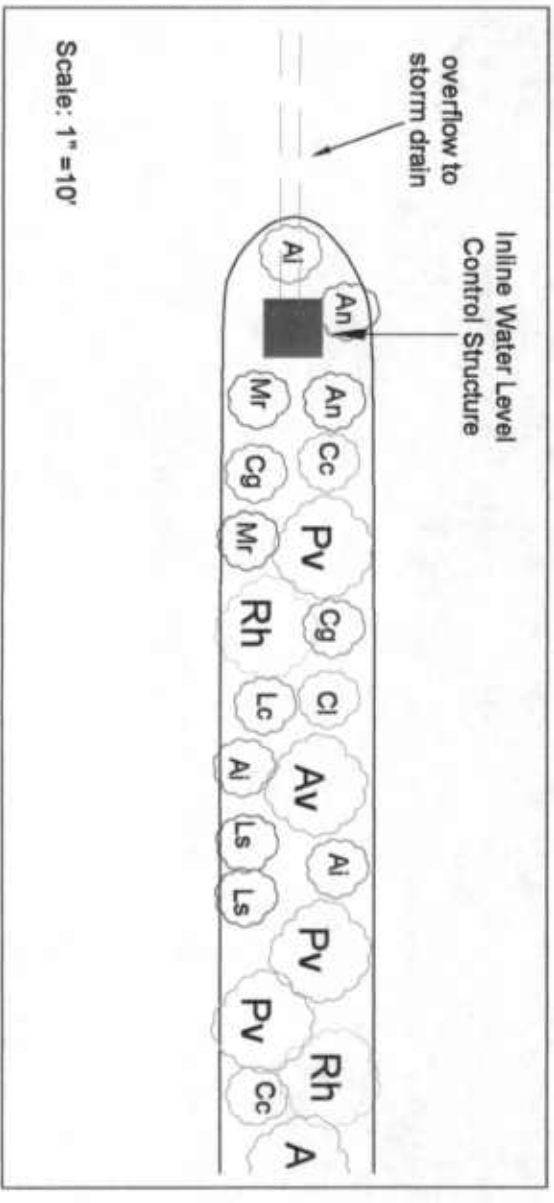


Cross Section Area = 40 sq. ft. m/l  
 Total Length = 700 ft. (600 ft bioretention)  
 Calculated Storage Capacity = 9,440 cu. ft. m/l

Porosity:  
 Stone = 40%  
 Soil Mix = 25%  
 Mulch = 25%

### Water Storage Capacity

### Detail



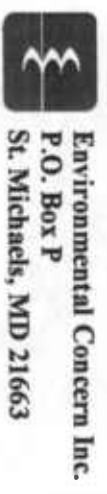
### Planting Plan

ID	Botanical Name	Common Name	1	2	3	Total Quantity
Av	<i>Andropogon virginicus</i>	Broomsedge	50	100	130	280
AI	<i>Asclepias incarnata</i>	Swamp Milkweed	20	40	60	120
An	<i>Aster novi-belgii</i>	New York Aster	20	40	60	120
Cc	<i>Carex crinita</i>	Fringed Sedge	45	90	100	235
Cl	<i>Carex lurida</i>	Lurid Sedge	45	90	100	235
Cg	<i>Chelone glabra</i>	Turtlehead	20	40	60	120
Lc	<i>Lobelia cardinalis</i>	Cardinal Flower	20	40	60	120
Ls	<i>Lobelia siphilitica</i>	Great Blue Lobelia	20	40	60	120
Mr	<i>Mimulus tingens</i>	Monkey Flower	20	40	60	120
Pv	<i>Panicum virgatum</i>	Switchgrass	50	100	100	250
Rh	<i>Rudbeckia hirta</i>	Black-eyed Susan	50	100	100	250
<b>TOTAL</b>			<b>360</b>	<b>720</b>	<b>890</b>	<b>1,970</b>

### PLATE 4

St. Michaels Nature Trail  
 West Chew to Grace Street

PHASE 1 -  
 Stormwater Management Plan



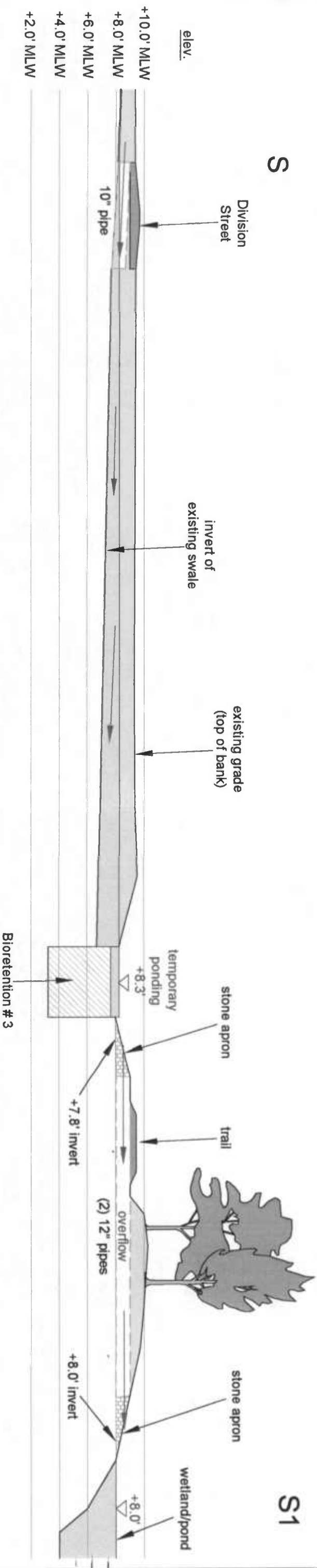
St. Michaels Nature Trail  
 St. Michaels, MD

Scale: 1" = 40'  
 Date: 09/01/2006  
 rev. 10/04/2006

EASTERLY

S

Swale to Wetland / Pond



WESTERLY

S1

W

Wetland / Pond

W1

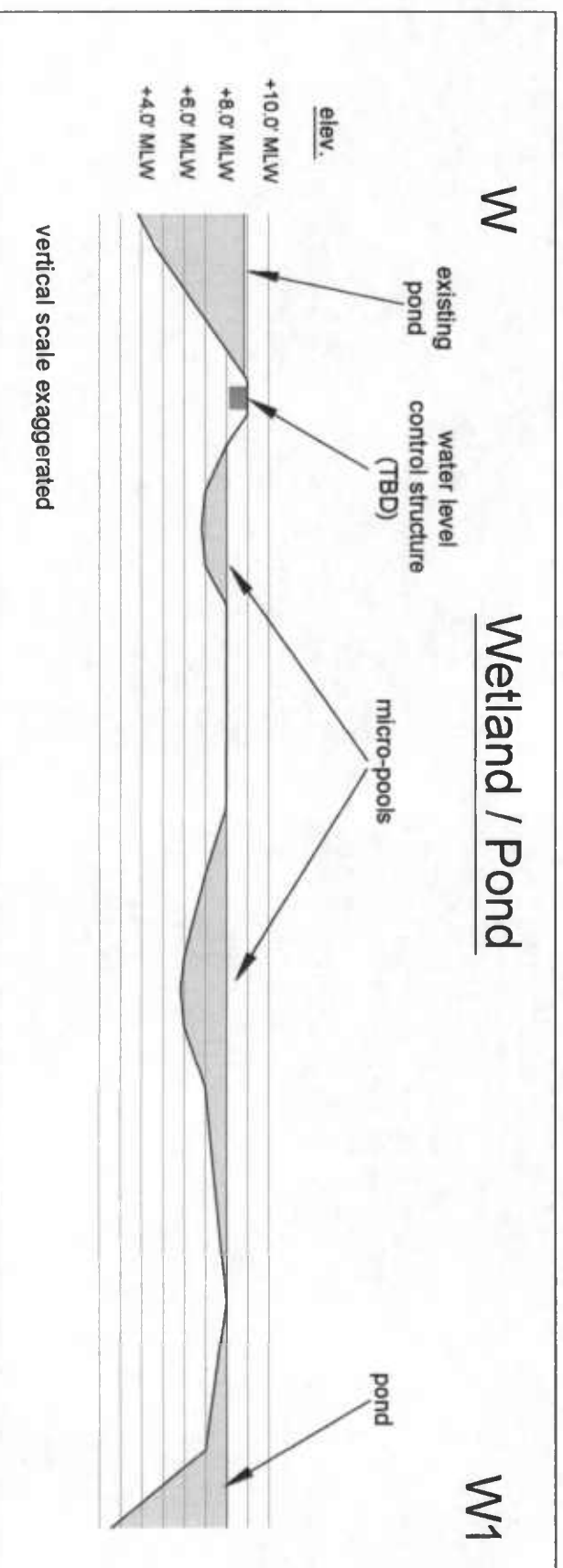


PLATE 5

St. Michaels Nature Trail  
West Chew to Grace Street

Phase 1-  
Stormwater Management



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St. Michaels Nature Trail  
St. Michaels, MD

Scale: n/a  
Date: 09/01/2006  
rev. 09/27/2006