

**APPENDIX 3 - PRELIMINARY CHESTNUT AVENUE
OUTFALL DESIGN**

TABLE OF CONTENTS

Overview

Vicinity Map & Pertinent Information

Hydrologic Analysis

Drainage Area and Tc Paths

Tc Evaluations

Drainage Area Soils Table

Drainage Area Soils Map

Soils, Land Use & Composite RCN Evaluations

Plan, Profiles

Existing Site Plan

Proposed Site Plan and Wetland Data Table

Typical Cross Sections

Arundel On The Bay BMP & Outfall Drainage Improvements – Overview

This Joint Permit Application is based on a design study being performed for Anne Arundel County, Maryland, for the project entitled "Arundel On The Bay" by Andrews, Miller & Associates, Inc. (AMA). Mr. Andrew C. Watcher is the Project Manager for Anne Arundel County for this project.

AMA's study involved background investigations, hydrologic analysis to determine the design flow rates, hydraulic analysis for the existing road-side ditches including existing culverts and a potential BMP facility consisting of a water quality open channel and stone check dam structures, and relevant cost estimates. Based on an evaluation of the results of these analyses, and environmental considerations, a specific BMP facility design was selected by Anne Arundel County and is hereby presented as the proposed alternative.

Background Investigations

The study involved background investigations, including drainage area determination and pertinent hydrologic evaluations, as well as on-site wetlands investigations, and on-site field surveys and mapping.

The drainage area of the outfall ditch at Chestnut Avenue draining into Fishing Creek was determined to be approximately 27.46 acres. The land use within the drainage area includes generally residential development, minor private and county roads.

The Anne Arundel County Topographic Map provides an overview of the drainage area and its predominant characteristics.

The background investigations included an on-site wetlands investigation by See Environmental Services, (SES), AMA's Environmental Consultant for this project. This investigation indicated 0.27 acres of nontidal wetlands including 115-ft of the outfall ditch at Chestnut Avenue and widening southwest towards Fishing Creek. It also indicated that the outfall ditch covers tidal wetlands to 22-ft from Fishing Creek, and would be regulated by the State and Corps. The area of the proposed wetlands is intended to cover 0.32 acres.

Hydrologic Analysis

A hydrologic analysis was performed for the drainage area draining into Fishing Creek via the outfall ditch on Chestnut Avenue. The data gathered and utilized in the hydrologic analysis included aerial photographs, Anne Arundel County digital topographic maps, as well as field inspections.

The drainage area was delineated into 4 subbasins based on the Anne Arundel County topographic maps. These are shown on the accompanying overlay of the drainage area and subbasin delineations with the aerial photograph of the area.

Tc (Time of Concentration) evaluations were carried out using the Anne Arundel County topographic map, and the available aerial photographs in accordance with the SCS TR-55 methodology. The specific points identified along the time of concentration flow paths for each subbasin are indicated on the accompanying map, and the details of the calculations are provided in the subsequent worksheets.

As depicted by the accompanying tabulation and soils map, the drainage area is C type soils according to SCS classification.

The RCN (Runoff Curve Number) evaluations were carried out using the soils, land use and zoning information in accordance with the SCS TR-55 methodology. Detailed data for these parameters for each subbasin are also furnished in the accompanying worksheets.

Based on these subbasin data generated, a spreadsheet was generated calculating the discharges at the outfall of the entire basin using the data gathered from Anne Arundel County DPW Design Manual.

The calculations revealed the following flow rates at Chestnut Avenue outfall:

Storm Frequency	1-Yr	2-Yr	10-Yr
Discharge	22.32 cfs	28.52 cfs	42.17 cfs

The overall investigations, calculations, and observations depicted that:

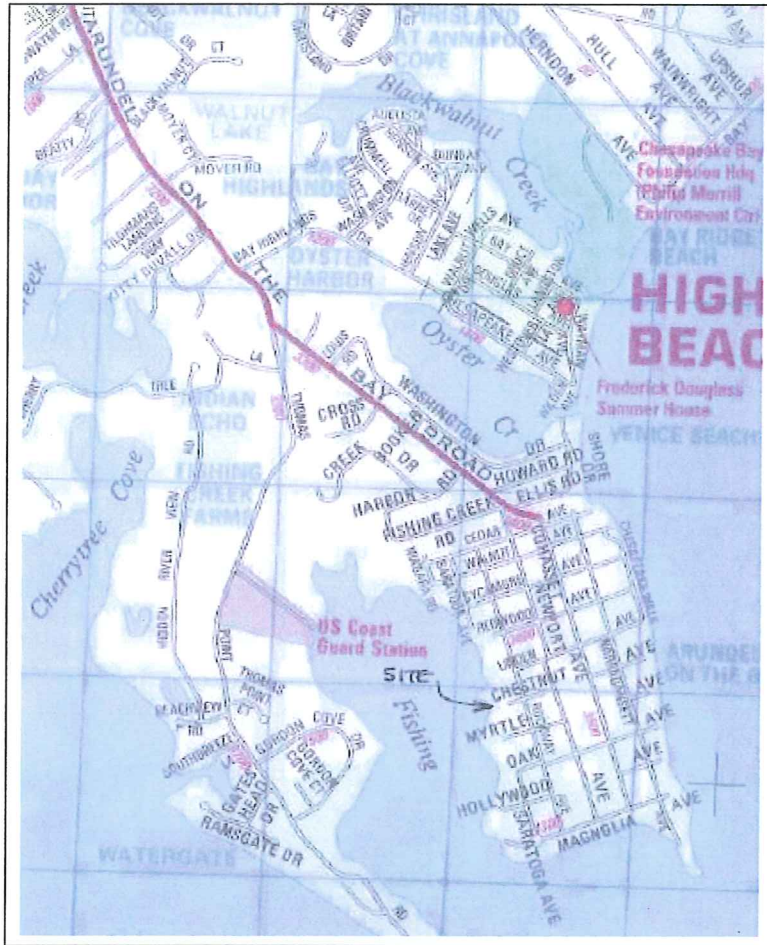
- ❑ Most of the road-side ditches are under-sized and they don't function well due to the inadequate culverts. Replacing the culverts as well as improving the road-side ditches would be the most effective solution for drainage under existing conditions.
- ❑ Due to the flooding at the outfall of the drainage system, it is intended to construct a 10-ft wide BMP open channel and stone check dams that would provide the required water quality volume.

In view of the information provided above and elaborated in detail in the subsequent attachments, the following summary may be offered.

The proposed Chestnut Avenue BMP Facility consists mainly of the conversion of an area adjacent to the tidal waters (Fishing Creek) occupied by an existing tidal ditch of limited length and sparse tidal wetlands into a formal BMP facility with the following elements:

- a 6-ft wide, meandering, maximum 1-ft deep, shallow stream channel through an overflow area of 25-ft average width, planted with marsh grasses and subject to daily inundation by tidal flow as well as storm runoff above the capacity of the meandering channel;
- a stone weir structure with outfall apron designed to attenuate the storm outflow by causing backup in the BMP facility area, while allowing daily tidal inundation of the same area through its sufficiently pervious structure;
- maximized utilization of a currently unmanaged public right-of-way as an enhanced water quality treatment facility and as an improved outfall for safely discharging at least the low-stage portions of the storm runoff generated over a fairly large drainage area of over 27.5 acres to the tidal waters of Fishing Creek;
- expansion of an area occupied by relatively sparse tidal vegetation into a tidal marsh with full-scale daily inundation by tidal water and by storm runoff to overflow from the shallow, meandering outfall channel.

In a sense, this is a very effective retrofit facility designed to provide improved water quality associated with the storm runoff from a significant portion of the Arundel on the Bay Community.



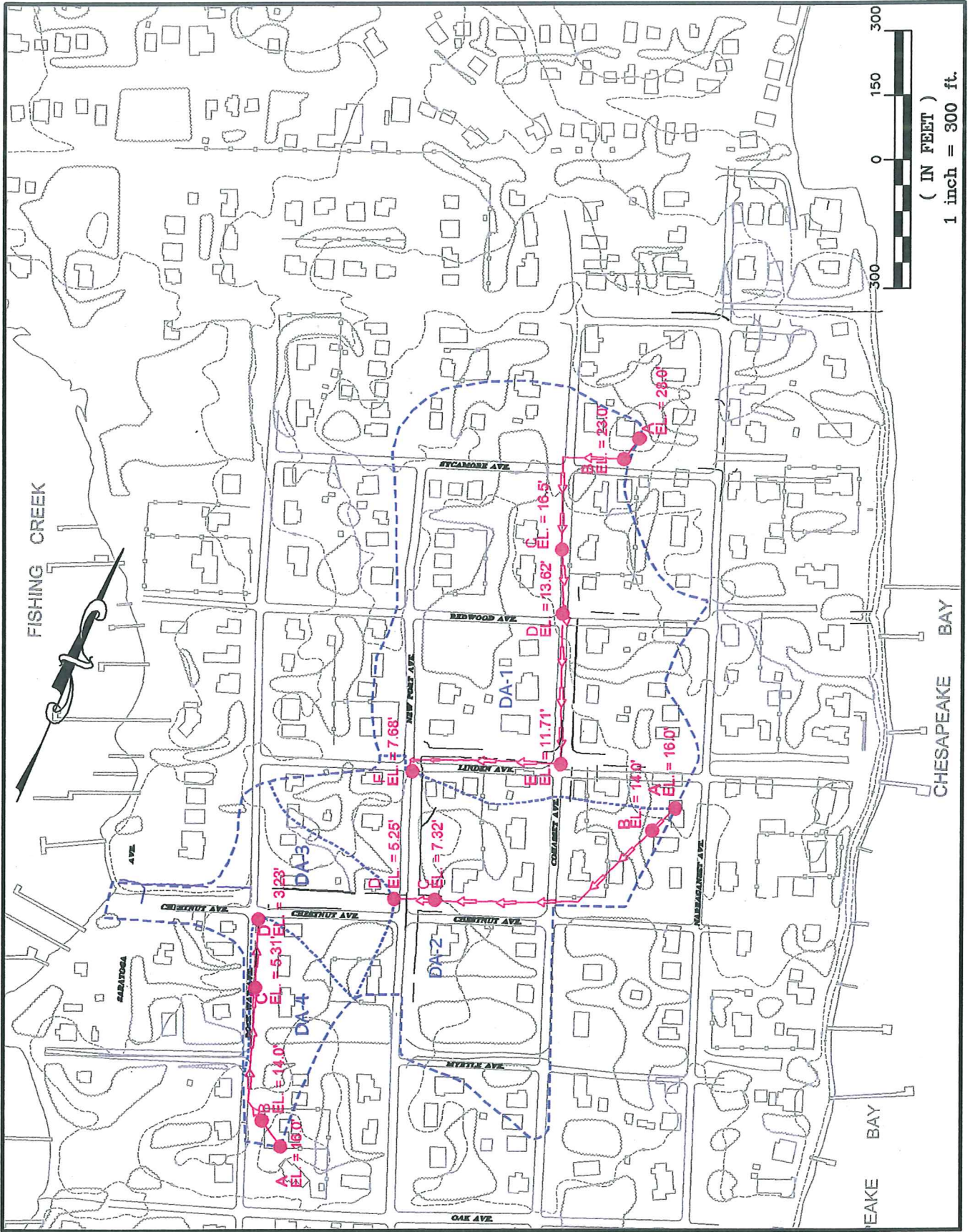
Vicinity Map [1" = 1 mile]

Pertinent Information

Name of Water Body:	Fishing Creek
Drains into:	Chesapeake Bay
Jurisdiction:	Annapolis, Anne Arundel Co., MD
Directions:	Follow MD Rte 50 East toward Annapolis, take exit #22 and follow Aris T Allen Blvd, Aris T Allen Blvd becomes Forest Drive, Forest Drive becomes Bay Ridge Road. Turn right onto Arundel On The Bay Road, turn right onto Cohasset Ave at the end, turn right onto Chestnut Ave and follow to the site.
Latitude / Longitude:	38° 54' 00" / 76° 25' 45" (approx.)

Adjacent Property Owners

Name(s):	Address:
Morris & Barbara Albert	7816 Lonesome Pine Ln , Bethesda MD 20817
Kenneth R & Dianne M Fontanesi	3460 Rockway Ave, Annapolis MD 21403-4852
Leon T & Pearl J Williams	3500 Rockway Ave, Annapolis MD 21403-4925



FISHING CREEK

(IN FEET)
1 inch = 300 ft.



CHESAPEAKE BAY

CHESAPEAKE BAY

OAK AVE

MYRTLE AVE

CORNWELL AVE

LUDLOW AVE

REDWOOD AVE

SPICANORE AVE

DA-1

DA-2

DA-3

DA-4

BARBARA

CORNWELL AVE

CORNWELL AVE

CORNWELL AVE

CORNWELL AVE

CORNWELL AVE

CORNWELL AVE

CORNWELL AVE

CORNWELL AVE

CORNWELL AVE

AVZ

AVZ

AVZ

AVZ

AVZ

AVZ

AVZ

AVZ

AVZ

EL = 3.23

EL = 5.25

EL = 5.31

EL = 14.0

EL = 16.0

EL = 7.32

EL = 11.71

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 16.0

EL = 14.0

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 11.71

EL = 7.32

EL = 5.25

EL = 3.23

EL = 14.0

EL = 16.0

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 16.0

EL = 14.0

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 11.71

EL = 7.32

EL = 5.25

EL = 3.23

EL = 14.0

EL = 16.0

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 16.0

EL = 14.0

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 11.71

EL = 7.32

EL = 5.25

EL = 3.23

EL = 14.0

EL = 16.0

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 16.0

EL = 14.0

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 11.71

EL = 7.32

EL = 5.25

EL = 3.23

EL = 14.0

EL = 16.0

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 16.0

EL = 14.0

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 11.71

EL = 7.32

EL = 5.25

EL = 3.23

EL = 14.0

EL = 16.0

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 16.0

EL = 14.0

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 11.71

EL = 7.32

EL = 5.25

EL = 3.23

EL = 14.0

EL = 16.0

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 16.0

EL = 14.0

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 11.71

EL = 7.32

EL = 5.25

EL = 3.23

EL = 14.0

EL = 16.0

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 16.0

EL = 14.0

EL = 13.62

EL = 16.5

EL = 23.0

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 28.6

EL = 11.71

EL = 7.32

EL = 5.25

EL = 3.23

EL = 14.0

Anne Arundel County's "Arundel On The Bay"
 Time of Concentration, Impervious Areas and Discharge Calculations for Chestnut Avenue Main Ditch

I (10-Yr) =	3.4	in/hr
Q (10-Yr) =	42.49	cfs
I (2-Yr) =	2.3	in/hr
Q (2-Yr) =	28.75	cfs
I (1-Yr) =	1.8	in/hr
Q (1-Yr) =	22.50	cfs

$Q = C * I * A$

Tc =	33.7 min
C =	0.46

[Ref for I values: AA Design Manual, DD-3]

Assumes new ditch along Scamore Ave & along Cohasset Ave from Sycamore Aveto Redwood Ave

SHEET FLOW		Re:AA Co DPW design manual DD/5						
Overland Flow Distance	75	ft						
Surface	Lawn							
Slope	0.040	EL=28 to EL=22 to roadside						
Overland Flow Time	10.0	min	(from AA Co DPW design manual DD/5)					
FLOW IN SWALE								
Flow Distance	0							
Elevation Drop	5.77							
Slope	0.000							
Avg. Velocity	3.65	fps	(from AA Co DPW design manual DD/6)					
Time	0.0	min	(from AA Co DPW design manual DD/6)					
FLOW IN CHANNEL (Roadside Ditches)		Sycamore	Cohasset	Cohasset	Linden	Newport	Chestnut	Chestnut
		High Point	Sycamore	Redwood	Cohasset	Linden	Newport	Chestnut
		to Cohasset	to Redwood	to Linden	to Newport	to Chestnut	to Rockway	to Outfall
Elevation drop	ft	1.5	4.0	3.0	2.0	3.0	3.0	2.0
Flow length, L	ft	160	350	350	350	310	360	200
Channel slope, s		0.0094	0.0114	0.0086	0.0057	0.0097	0.0083	0.0100
Bottom width, b	ft	0.5	0.5	1.0	1.0	1.5	2.5	2.5
Side Slopes		3	3	3	3	3	3	3
Flow depth, y	ft	0.5	0.8	1.0	1.0	1.0	1.5	2.0
Cross sectional flow area, a	sq-ft	1.00	2.06	4.00	4.00	4.50	10.50	17.00
Wetted perimeter, pw	ft	3.66	5.24	7.32	7.32	7.82	11.99	15.15
Hydraulic radius, r=a/pw	ft	0.27	0.39	0.55	0.55	0.58	0.88	1.12
Manning's roughness coeff., n		0.080	0.070	0.060	0.060	0.060	0.060	0.050
$V = 1.49 (r^{2/3}) (s^{1/2}) / n$	fps	0.76	1.22	1.54	1.25	1.69	2.08	3.22
$Tt = (L / V)$	min	3.51	4.78	3.80	4.65	3.06	2.89	1.04

DRAINAGE & IMPERVIOUS AREA DATA			
	[sq-ft]	[ac]	C
Roof		3.70	
Roads		2.90	
Other impervious Areas		0.50	
Total Impervious		7.10	0.90
Green		20.36	0.30
TOTAL		27.46	0.46

Total Ditch Tt [min] =	23.73
------------------------	-------

Anne Arundel County's "Arundel On The Bay"
 Time of Concentration, Impervious Areas and Discharge Calculations for Chestnut Ave and Newport Ave Intersection

I (10-Yr) =	3.4	in/hr
Q (10-Yr) =	11.57	cfs
I (2-Yr) =	2.3	in/hr
Q (2-Yr) =	7.83	cfs
I (1-Yr) =	1.8	in/hr
Q (1-Yr) =	6.13	cfs

$Q = C * I * A$

Tc =	15.5 min
C =	0.38

[Ref for I values: AA Design Manual, DD-3]

Assumes new ditch along Sycamore Ave & along Cohasset Ave from Sycamore Ave to Redwood Ave

SHEET FLOW		Re:AA Co DPW design manual DD/5	
Overland Flow Distance	75	ft	
Surface	Lawn		
Slope	0.026	EL=16 to EL=14 to roadside	
Overland Flow Time	11.5	min	(from AA Co DPW design manual DD/5)
FLOW IN SWALE			
Flow Distance	579		
Elevation Drop	6.68		
Slope	0.012		
Avg. Velocity	2.9	fps	(from AA Co DPW design manual DD/6)
Time	2.1	min	(from AA Co DPW design manual DD/6)
FLOW IN CHANNEL (Roadside Ditches)		Chestnut	
		High Point	
		to Newport	
Elevation drop	ft	2.1	
Flow length, L	ft	96	
Channel slope, s		0.0216	
Bottom width, b	ft	0.0	
Side Slopes		5	
Flow depth, y	ft	0.4	
Cross sectional flow area, a	sq-ft	0.61	
Wetted perimeter, pw	ft	3.57	
Hydraulic radius, r=a/pw	ft	0.17	
Manning's roughness coeff., n		0.080	
$V = 1.49 (r^{2/3}) (s^{1/2}) / n$	fps	0.84	
Tt = (L / V)	min	1.90	

DRAINAGE & IMPERVIOUS AREA DATA		
	[sq-ft]	[ac]
Roof		0.69
Roads		0.36
Other impervious Areas		0.15
Total Impervious		1.19
Green		7.77
TOTAL		8.96

Total Ditch Tt [min] =	1.90
------------------------	------

Anne Arundel County's "Arundel On The Bay"

Time of Concentration, Impervious Areas and Discharge Calculations from highest point on Sycamore Ave to Newport Ave and Linden Ave

I (10-Yr) =	3.4	in/hr
Q (10-Yr) =	21.54	cfs
I (2-Yr) =	2.3	in/hr
Q (2-Yr) =	14.57	cfs
I (1-Yr) =	1.8	in/hr
Q (1-Yr) =	11.41	cfs

$Q = C * I * A$

Tc =	29.5 min
C =	0.41

[Ref for I values: AA Design Manual, DD-3]

Assumes new ditch along Sycamore Ave & along Cohasset Ave from Sycamore Ave to Redwood Ave

SHEET FLOW		Re:AA Co DPW design manual DD/5		
Overland Flow Distance	75	ft		
Surface	Lawn			
Slope	0.067		EL=28 to EL=23 to roadside	
Overland Flow Time	9.5	min	(from AA Co DPW design manual DD/5)	
FLOW IN SWALE				
Flow Distance	360			
Elevation Drop	6.5			
Slope	0.018			
Avg. Velocity	3.5	fps	(from AA Co DPW design manual DD/6)	
Time	1.8	min	(from AA Co DPW design manual DD/6)	
FLOW IN CHANNEL (Roadside Ditches)				
		Cohasset+Redwood to Cohasset+Linden		
Elevation drop	ft	2.9	1.9	4.1
Flow length, L	ft	150	350	380
Channel slope, s		0.0192	0.0054	0.0107
Bottom width, b	ft	0.0	1.5	0.0
Side Slopes		3	2	3
Flow depth, y	ft	0.5	0.8	0.5
Cross sectional flow area, a	sq-ft	0.75	2.25	0.75
Wetted perimeter, pw	ft	3.16	4.85	3.16
Hydraulic radius, r=a/pw	ft	0.24	0.46	0.24
Manning's roughness coeff., n		0.080	0.080	0.080
V = 1.49 (r ^{2/3}) / n	fps	0.99	0.82	0.74
Tt = (L / V)	min	2.53	7.14	8.59

DRAINAGE & IMPERVIOUS AREA DATA			
	[sq-ft]	[ac]	C
Roof		1.52	
Roads		0.86	
Other impervious Areas		0.37	
Total Impervious		2.75	0.90
Green		12.87	0.30
TOTAL		15.62	0.41

Total Ditch Tt [min] =	18.26
------------------------	-------

Anne Arundel County's "Arundel On The Bay"
 Time of Concentration, Impervious Areas and Discharge Calculations for Rockway Ave

I (10-Yr) =	3.4	in/hr
Q (10-Yr) =	2.83	cfs
I (2-Yr) =	2.3	in/hr
Q (2-Yr) =	1.91	cfs
I (1-Yr) =	1.8	in/hr
Q (1-Yr) =	1.50	cfs

$Q = C * I * A$

Tc =	15.0 min
C =	0.41

[Ref for I values: AA Design Manual, DD-3]

Assumes new ditch along Sycamore Ave & along Cohasset Ave from Sycamore Ave to Redwood Ave

SHEET FLOW		Re:AA Co DPW design manual DD/5	
Overland Flow Distance	75	ft	
Surface	Lawn		
Slope	0.026	EL=16 to EL=14 to roadside	
Overland Flow Time	11.5	min	(from AA Co DPW design manual DD/5)
FLOW IN SWALE			
Flow Distance	320		
Elevation Drop	8.69		
Slope	0.027		
Avg. Velocity	3.95	fps	(from AA Co DPW design manual DD/6)
Time	1.4	min	(from AA Co DPW design manual DD/6)
FLOW IN CHANNEL (Roadside Ditches)			
Elevation drop	ft	2.1	
Flow length, L	ft	160	
Channel slope, s		0.0130	
Bottom width, b	ft	0.0	
Side Slopes		5	
Flow depth, y	ft	0.9	
Cross sectional flow area, a	sq-ft	4.05	
Wetted perimeter, pw	ft	9.18	
Hydraulic radius, r=a/pw	ft	0.44	
Manning's roughness coeff., n		0.080	
$V = 1.49 (r^{2/3}) (s^{1/2}) / n$	fps	1.23	
Tt = (L / V)	min	2.17	

DRAINAGE & IMPERVIOUS AREA DATA			
	[sq-ft]	[ac]	C
Roof		0.13	
Roads		0.24	
Other impervious Areas		0.01	
Total Impervious		0.38	0.90
Green		1.64	0.30
TOTAL		2.02	0.41

Total Ditch Tt [min] =	2.17
------------------------	------

Soils in the Drainage Area of drainage outfall at Chestnut Avenue

Soil Name	Designation	Hydrologic Group
<i>Tidal Marsh</i>	<i>Tm</i>	<i>C</i>
<i>Colemantown Sandy Loam</i>	<i>Ck</i>	<i>C/D</i>
<i>Monmouth Loamy Sand</i>	<i>MuA</i>	<i>C</i>
<i>Monmouth Loamy Sand</i>	<i>MuB2</i>	<i>C</i>
<i>Monmouth Urban Land Complex</i>	<i>MxB</i>	<i>C</i>

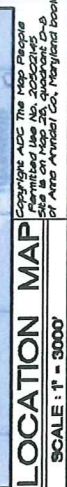
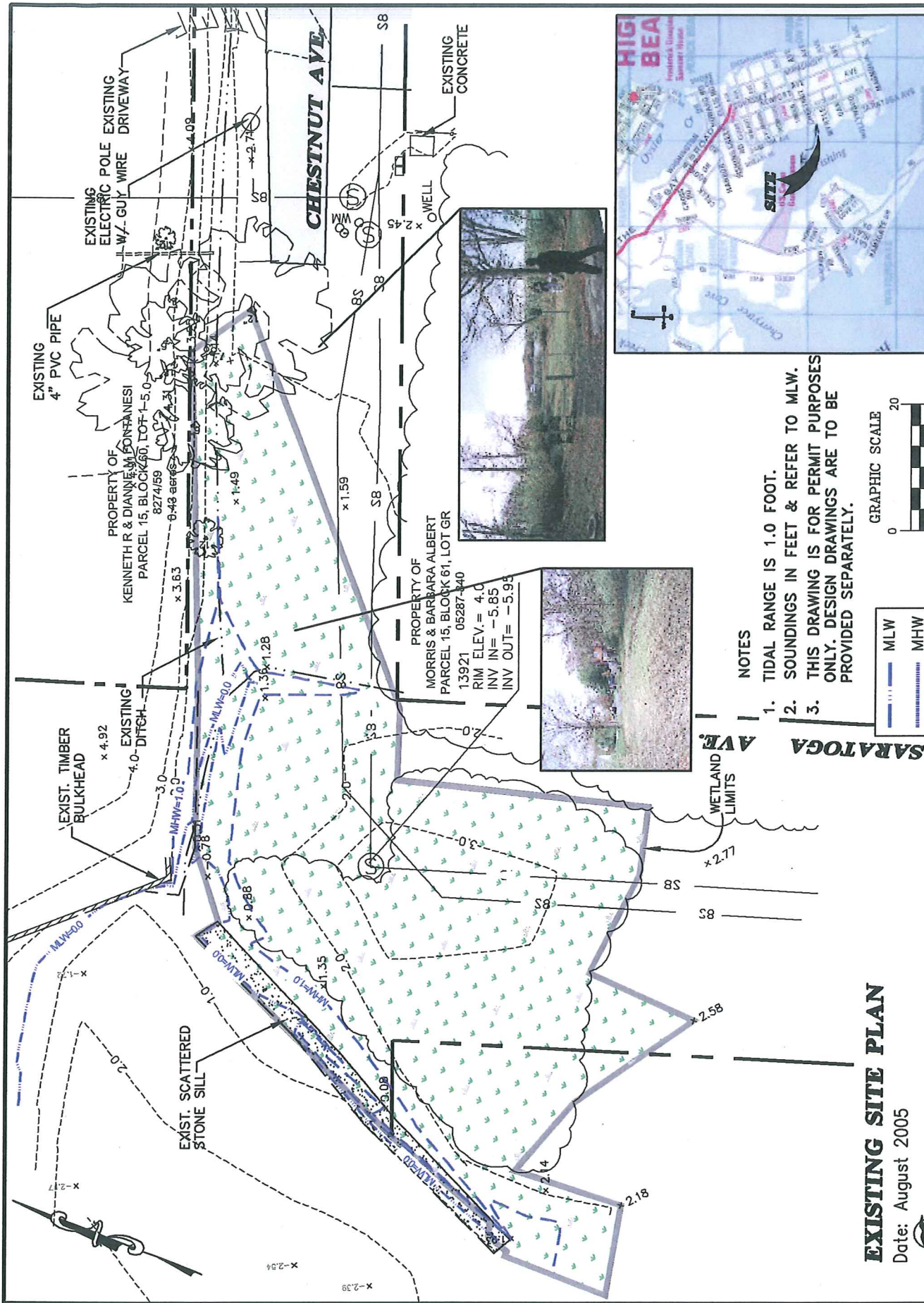
Subbasins Soils & Landuse	Woods		Field (SR+CR)		Brush (Parks & Sparse Trees)		Open Space (Lawns, Meadows)		Marsh, Wetland, Water		Subbasin Total (ac)	Weighted RCN
	ac	RCN	ac	RCN	ac	RCN	ac	RCN	ac	RCN		
Existing Subbasin DA-1												
Type A Soils	0.00	30	0.00	64	0.00	30	0.00	39	0.00	77	0.00	0.0
Type B Soils	0.00	55	0.00	75	0.00	48	0.00	61	0.00	86	0.00	0.0
Type C Soils	2.78	70	0.00	82	0.00	65	7.91	74	0.14	91	10.83	73.2
Type D Soils	0.00	77	0.00	85	0.00	73	0.00	78	0.00	94	0.00	77.0
Impervious Area [Type / (ac)]	Roof		Paved Roadway		Paved Parking		Sidewalks		Other Imperv.		Total	98.0
	1.22		1.52		0.30		0.00		0.00		3.04	
Subbasin DA-1 Area (Exist.) =	13.87 ac		Composite RCN for Existing Subbasin DA-1 = 79									

Subbasins Soils & Landuse	Woods		Field (SR+CR)		Brush (Parks & Sparse Trees)		Open Space (Lawns, Meadows)		Marsh, Wetland, Water		Subbasin Total (ac)	Weighted RCN
	ac	RCN	ac	RCN	ac	RCN	ac	RCN	ac	RCN		
Existing Subbasin DA-2												
Type A Soils	0.00	30	0.00	64	0.00	30	0.00	39	0.00	77	0.00	0.0
Type B Soils	0.00	55	0.00	75	0.00	48	0.00	61	0.00	86	0.00	0.0
Type C Soils	1.73	70	0.00	82	0.00	65	4.90	74	0.09	91	6.72	73.2
Type D Soils	0.00	77	0.00	85	0.00	73	0.00	78	0.00	94	0.00	0.0
Impervious Area [Type / (ac)]	Roof		Paved Roadway		Paved Parking		Sidewalks		Other Imperv.		Total	98.0
	0.76		0.94		0.19		0.00		0.00		1.88	
Subbasin DA-2 Area (Exist.) =	8.60 ac		Composite RCN for Existing Subbasin DA-2 = 79									

Subbasins Soils & Landuse	Woods		Field (SR+CR)		Brush (Parks & Sparse Trees)		Open Space (Lawns, Meadows)		Marsh, Wetland, Water		Subbasin Total (ac)	Weighted RCN
	ac	RCN	ac	RCN	ac	RCN	ac	RCN	ac	RCN		
Existing Subbasin DA-3												
Type A Soils	0.00	30	0.00	64	0.00	30	0.00	39	0.00	77	0.00	0.0
Type B Soils	0.00	55	0.00	75	0.00	48	0.00	61	0.00	86	0.00	0.0
Type C Soils	0.63	70	0.00	82	0.00	65	1.79	74	0.03	91	2.45	73.2
Type D Soils	0.00	77	0.00	85	0.00	73	0.00	78	0.00	94	0.00	0.0
Impervious Area [Type / (ac)]		Roof	Paved Roadway		Paved Parking		Sidewalks		Other Imperv.		Total	98.0
		0.27	0.34		0.07		0.00		0.00		0.68	
Subbasin DA-3 Area (Exist.) =	3.13 ac		Composite RCN for Existing Subbasin DA-3 = 79									

Subbasins Soils & Landuse	Woods		Field (SR+CR)		Brush (Parks & Sparse Trees)		Open Space (Lawns, Meadows)		Marsh, Wetland, Water		Subbasin Total (ac)	Weighted RCN
	ac	RCN	ac	RCN	ac	RCN	ac	RCN	ac	RCN		
Existing Subbasin DA-4												
Type A Soils	0.00	30	0.00	64	0.00	30	0.00	39	0.00	77	0.00	0.0
Type B Soils	0.00	55	0.00	75	0.00	48	0.00	61	0.00	86	0.00	0.0
Type C Soils	0.37	70	0.00	82	0.00	65	1.06	74	0.02	91	1.45	43.3
Type D Soils	0.00	77	0.00	85	0.00	73	0.00	78	0.00	94	0.00	77.0
Impervious Area [Type / (ac)]		Roof	Paved Roadway		Paved Parking		Sidewalks		Other Imperv.		Total	98.0
		0.16	0.20		0.04		0.00		0.00		0.41	
Subbasin DA-4 Area (Exist.) =	1.86 ac		Composite RCN for Existing Subbasin DA-4 = 79									

Subbasins Soils & Landuse	Woods		Field (SR+CR)		Brush (Parks & Sparse Trees)		Open Space (Lawns, Meadows)		Marsh, Wetland, Water		Subbasin Total (ac)	Weighted RCN
	ac	RCN	ac	RCN	ac	RCN	ac	RCN	ac	RCN		
Existing Subbasin 1+2+3+4												
Type A Soils	0.00	30	0.00	64	0.00	30	0.00	39	0.00	77	0.00	0.0
Type B Soils	0.00	55	0.00	75	0.00	48	0.00	61	0.00	86	0.00	0.0
Type C Soils	5.51	70	0.00	82	0.00	65	15.66	74	0.28	91	21.45	73.2
Type D Soils	0.01	77	0.00	85	0.00	73	0.00	78	0.00	94	0.01	77.0
Impervious Area [Type / (ac)]	Roof		Paved Roadway		Paved Parking		Sidewalks		Other Imperv.		Total	98.0
	2.41		3.00		0.60		0.00		0.00		6.00	
Subbasin Total Area (Exist.) = 27.46 ac											Composite RCN for Existing Subbasin Total = 79	



LOCATION MAP
SCALE: 1" = 500'



MLW
MHW

NOTES

1. TIDAL RANGE IS 1.0 FOOT.
2. SOUNDINGS IN FEET & REFER TO MLW.
3. THIS DRAWING IS FOR PERMIT PURPOSES ONLY. DESIGN DRAWINGS ARE TO BE PROVIDED SEPARATELY.

EXISTING SITE PLAN

Date: August 2005

CONSULTING ENGINEERS AND SURVEYORS

Andrews, Miller & Assoc., Inc.



Copyright ADC The Map People
This map is a reproduction of a map published by
ADC The Map People, a subsidiary of
ADC Environmental Co., Maryland



PROPERTY OF
MORRIS & BARBARA ALBERT
PARCEL 15, BLOCK 61, LOT GR
13921 05287-340
RIM ELEV. = 4.0
INV IN = -5.85
INV OUT = -5.95

PROPERTY OF
KENNETH R & DIANNE M. FONTANESI
PARCEL 15, BLOCK 60, LOT 1-5.0
8274/59
9.43 acres

CHESTNUT AVE.

SARATOGA AVE.

WETLAND LIMITS

EXISTING CONCRETE

EXISTING ELECTRIC POLE EXISTING W./ GUY WIRE DRIVEWAY

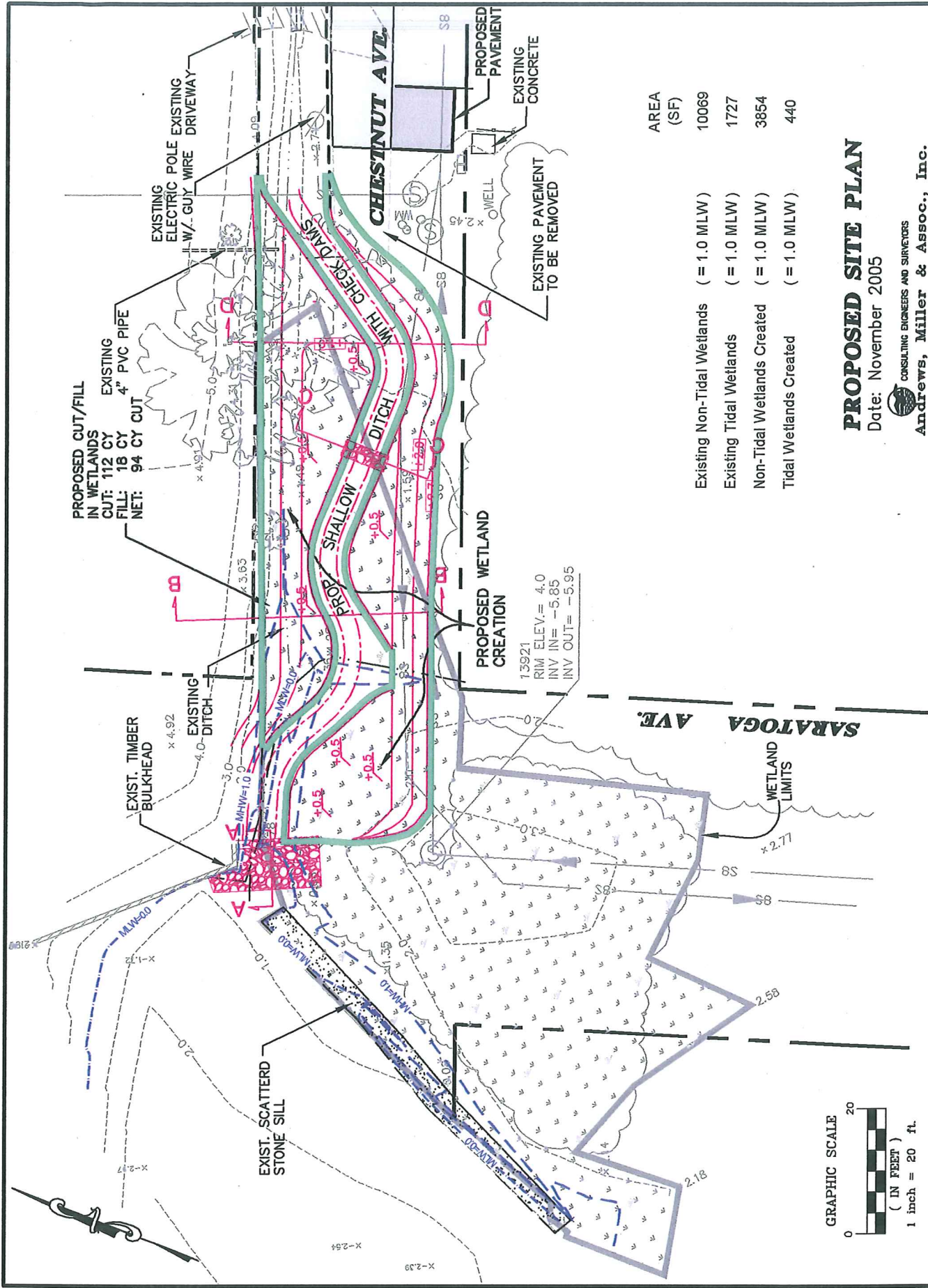
EXISTING 4" PVC PIPE

EXIST. TIMBER BULKHEAD

EXIST. DITCH

EXIST. SCATTERED STONE SILL

OWELL



PROPOSED CUT/FILL
IN WETLANDS
EXISTING CUT: 112 CY
FILL: 18 CY
NET: 94 CY CUT

EXISTING
ELECTRIC POLE
W/ GUY WIRE
EXISTING DRIVEWAY

EXIST. TIMBER
BULKHEAD
x 4.92
EXISTING
DITCH
x 4.0

EXIST. SCATTERED
STONE SILL

CHESTNUT AVL.

PROPOSED WETLAND
CREATION

13921
RIM ELEV. = 4.0
INV IN = -5.85
INV OUT = -5.95

SARATOGA AVE.

WETLAND
LIMITS

EXISTING PAVEMENT
TO BE REMOVED

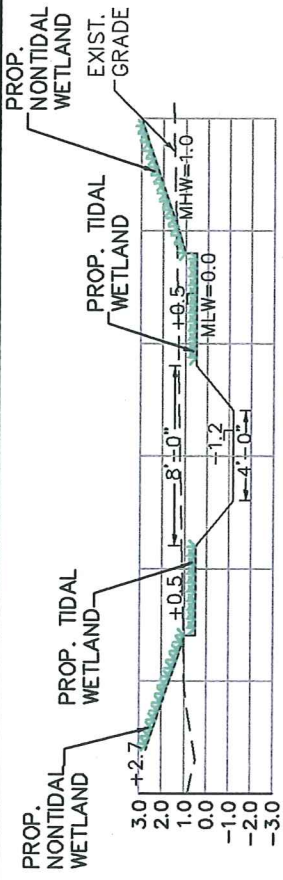
PROPOSED
PAVEMENT

EXISTING
CONCRETE

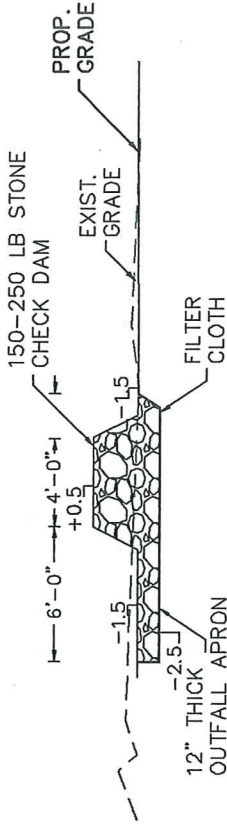
AREA (SF)	10069	1727	3854	440
Existing Non-Tidal Wetlands (= 1.0 MLW)				
Existing Tidal Wetlands (= 1.0 MLW)				
Non-Tidal Wetlands Created (= 1.0 MLW)				
Tidal Wetlands Created (= 1.0 MLW)				



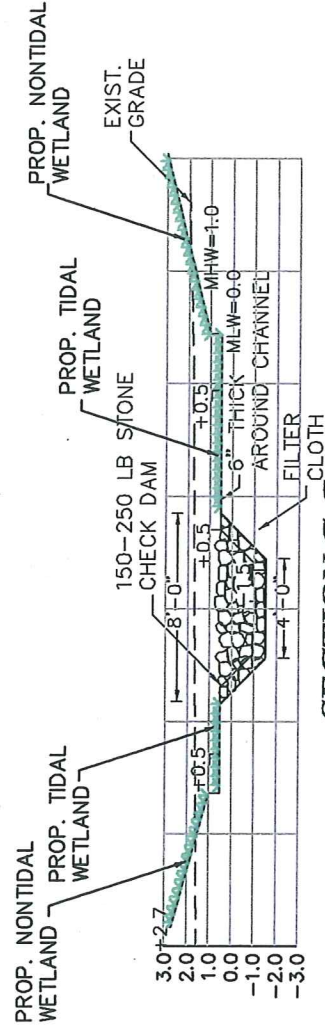
PROPOSED SITE PLAN
Date: November 2005
CONSULTING ENGINEERS AND SURVEYORS
Andrews, Miller & Assoc., Inc.



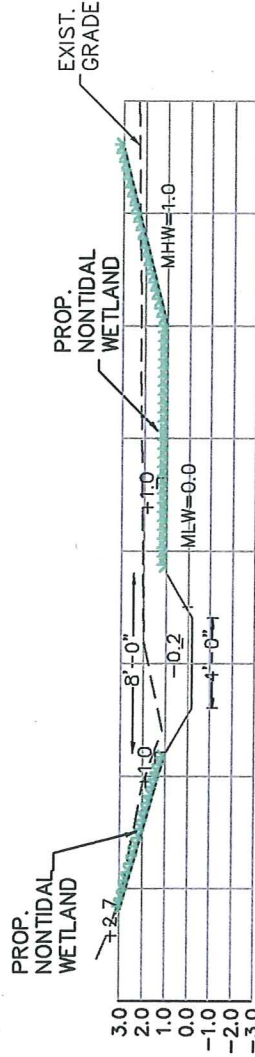
SECTION B-B



SECTION A-A



SECTION C-C



SECTION D-D

SCALE: 1" = 8'

TYPICAL SECTIONS

Date: August 2005

CONSULTING ENGINEERS AND SURVEYORS

Andrews, Miller & Assoc., Inc.