



U.S. Army Corps
of Engineers
Baltimore District

Public Notice

In Reply to Application Number
CENAB-OPR-MN (CLAUSON, JAMES & JANET / LIVING
SHORELINE) 2017-60607-M18

PN 18-44

Comment Period: JULY 9, 2018 to AUGUST 9, 2018

THE PURPOSE OF THIS PUBLIC NOTICE IS TO SOLICIT COMMENTS FROM THE PUBLIC REGARDING THE WORK DESCRIBED BELOW. NO DECISION HAS BEEN MADE AS TO WHETHER OR NOT A PERMIT WILL BE ISSUED AT THIS TIME.

This District has received an application for a Department of the Army permit pursuant to **Section 10 of the Rivers and Harbors Act of 1899 and/or Section 404 of the Clean Water Act (33. U.S.C. 1344)** as described below:

APPLICANT: James and Janet Clauson
301 & 303 Kyle Road
Crownsville, Maryland 21032

WATERWAY AND LOCATION: The proposed project is located in the Severn River at 301 & 303 Kyle Road, Crownsville Anne Arundel County, Maryland.

PROPOSED WORK: The proposed project is to construct a living shoreline using a series of low profile stone breakwaters to dissipate wave energy, stabilize the existing shoreline and adjacent steep slope, create and enhance estuarine habitats including tidal marsh, beach strand, and submerged aquatic vegetation habitat while also avoiding impacts to existing aquatic resources. In total, 911 linear feet of eroding shoreline will be stabilized with a living shoreline, 41,617 square feet of high and low marsh grasses will be planted and 3,560 square feet of invasive species will be removed. Where the shoreline is currently protected by existing revetment and bulkhead structures, these structures will be removed or reconfigured to provide additional ecological uplift. The proposed project structures will extend a maximum of 140 feet channelward from the approximate mean high water shoreline and will impact approximately 77,382 square feet of tidal waters. The purpose of the project is to provide stabilization to the existing shoreline and retrofit existing structural shoreline protection. All proposed work is shown on the enclosed plans dated May 18, 2018.

If you have any questions concerning this matter, please contact Mr. Richard Kibby at 410-962-0694 or richard.kibby@usace.army.mil.

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonable may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors, which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economic, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation,

shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, and consideration of property ownership and in general, the needs and welfare of the people.

The evaluation of the impacts of the work described above on the public interest will include application of the Clean Water Act 404(b)(1) Guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404 of the Clean Water Act.

The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments provided will become part of the public record for this action. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Written comments concerning the work described above related to the factors listed above or other pertinent factors must be received by the District Engineer, U.S. Army Corps of Engineers, Baltimore District, [Attn: Mr. Richard Kibby, CENAB-OPR-M], 2 Hopkins Plaza, Baltimore, MD 21201 or richard.kibby@usace.army.mil, within the comment period specified above.

ESSENTIAL FISH HABITAT: The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 04-267), requires all Federal agencies to consult with the National Marine Fisheries Service (NMFS) on all actions, or proposed actions, permitted, funded, or undertaken by the agency that may adversely effect Essential Fish Habitat (EFH).

The project site lies in or adjacent to EFH as described under MSFCMA for windowpane flounder (*Scopthalmus aquosus*) juvenile and adult; blue fish (*Pomatomus saltatrix*) juvenile and adult; summer flounder (*Paralichthys dentatus*) juvenile and adult; and egg, larvae, juvenile and adult stages of red drum (*Sciaenops ocellatus*), king mackerel (*Scomberomorus cavalla*), spanish mackerel (*Scomberomorus maculatus*), and cobia (*Rachycentron canadum*), all managed species under the MSFCMA.

The project has the potential to adversely affect EFH or the species of concern by loss of spawning, nursery, forage and/or shelter habitat as described under the MSFCMA for the species and life stages identified above. The Baltimore District has made a preliminary determination that site-specific impacts would not be substantial and an abbreviated consultation will be conducted with NMFS. This determination may be modified if additional information indicates otherwise and would change the preliminary determination.

WATER QUALITY CERTIFICATION: The applicant is required to obtain a water quality certification in accordance with Section 401 of the Clean Water Act from the Maryland Department of the Environment. Any written comments concerning the work described above which relate to water quality certification must be received by the Maryland Department of the

Environment, Tidal Wetlands Division, Montgomery Park Business Center, 1800 Washington Boulevard, Suite 430, Baltimore, Maryland 21230-1708 within the comment period as specified above to receive consideration. MDE has a statutory limit of one year from the date of this public notice to make its decision.

COASTAL ZONE MANAGEMENT PROGRAMS: The applicant has certified in this application that the proposed activity complies with and will be conducted in a manner consistent with the Maryland Coastal Zone Management (CZM) Program. By this public notice, we are requesting the State concurrence or objection to the applicant's consistency statement. Public comments relating to consistency must be received by the Maryland Department of the Environment, Tidal Wetlands Division, Montgomery Park Business Center, 1800 Washington Boulevard, Suite 430, Baltimore, Maryland 21230-1708 within the comment period specified above to receive consideration. MDE has a statutory limit of 6 months to concur or object to the applicant's consistency determination.

The applicant must obtain any State or local government permits which may be required.

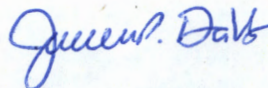
A preliminary review of this application indicates that the proposed work will not affect Federal listed threatened or endangered species or their critical habitat, pursuant to Section 7 of the Endangered Species Act, as amended. As the evaluation of this application continues, additional information may become available which could modify this preliminary determination.

Review of the latest published version of the National Register of Historic Places indicates that no registered properties listed as eligible for inclusion, therein, are located at the site of the proposed work. Currently unknown archeological, scientific, prehistoric, or historical data may be lost or destroyed by the work to be accomplished under the request permit.

Any person who has an interest which may be adversely affected by the issuance of this permit may request a public hearing. The request, which must be in writing, must be received by the District Engineer, U.S. Army Corps of Engineers, Baltimore District, [Attn: Mr. Richard Kibby, CENAB-OP-RMN], 2 Hopkins Plaza, Baltimore, Maryland 21201, within the comment period as specified above to receive consideration. Also it must clearly set forth the interest which may be adversely affected by this activity and the manner in which the interest may be adversely affected.

It is requested that you communicate this information concerning the proposed work to any persons know by you to be interested and not being known to this office, who did not receive a copy of this notice.

FOR THE DISTRICT ENGINEER:



Joseph P. DaVia
Chief, Maryland Section Northern



SEVERN RIVER

Ebb
FLOOD

PLAN
SCALE: 1"=250'

SHEET INDEX

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SHEET 1 OF 19

MAY 18TH, 2018

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE ♦ ECOLOGICAL RESTORATION

A DESIGN/BUILD Co.

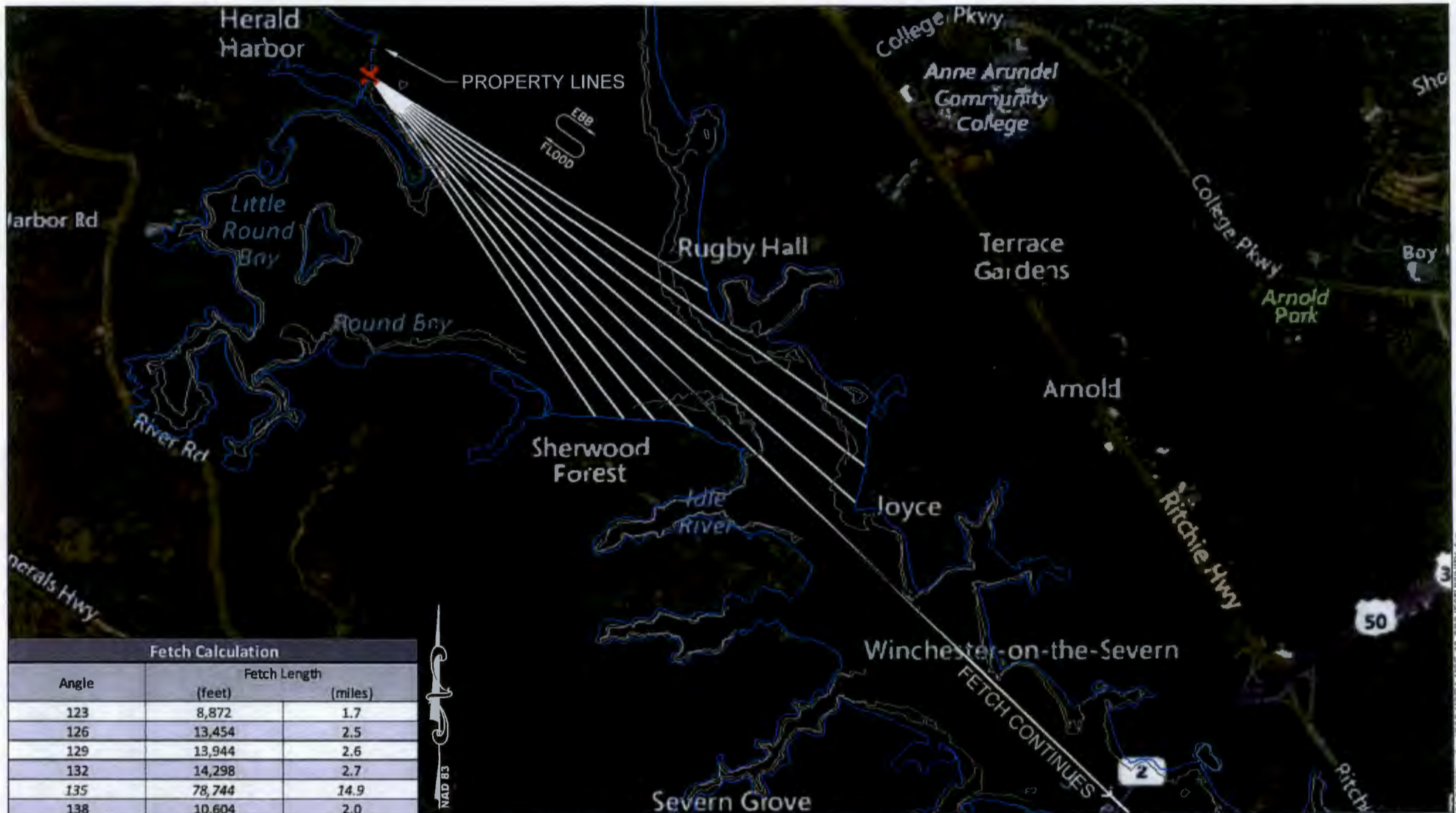


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tel. 410-849-3211 fax. 410-849-2198

VICINITY MAP AND AERIAL PHOTO

LIVING SHORELINE

AI# 105789 - AP # 17-WL-0367 - TRACKING # 201760607
 JAMES & JANET CLAUSON - 301 & 303 KYLE ROAD
 DIANE LAWRENCE - 300 KYLE ROAD
 CROWNSVILLE, MARYLAND, 21032
 MAP 5293 & 5294 , GRID K2 & A2 , PARCEL 0151
 2ND ELECTION DISTRICT, ANNE ARUNDEL COUNTY



Fetch Calculation

Angle	Fetch Length	
	(feet)	(miles)
123	8,872	1.7
126	13,454	2.5
129	13,944	2.6
132	14,298	2.7
135	78,744	14.9
138	10,604	2.0
141	9,947	1.9
144	9,507	1.8
147	9,106	1.7
Average	18,720	3.5

Note: The fetch is defined as the region in which the wind speed and direction are reasonably constant. In river settings, the fetch is limited by surrounding landforms. Under these circumstances, the USACE Shoreline Protection Manual recommends determining the fetch length by extending 9 radials from the point of interest at 3-degree intervals (centered on the maximum wind direction) until they intercept the opposite shoreline. The average of the 9 radial lengths represents the fetch length for a given wind direction. The angles shown above are based on north being equal to 0 and 360 degrees, east being equal to 90 degrees, and progressing so forth.

NAD 83

PLAN SCALE: 1"=3000'

SHEET 2 OF 19

MAY 18TH, 2018

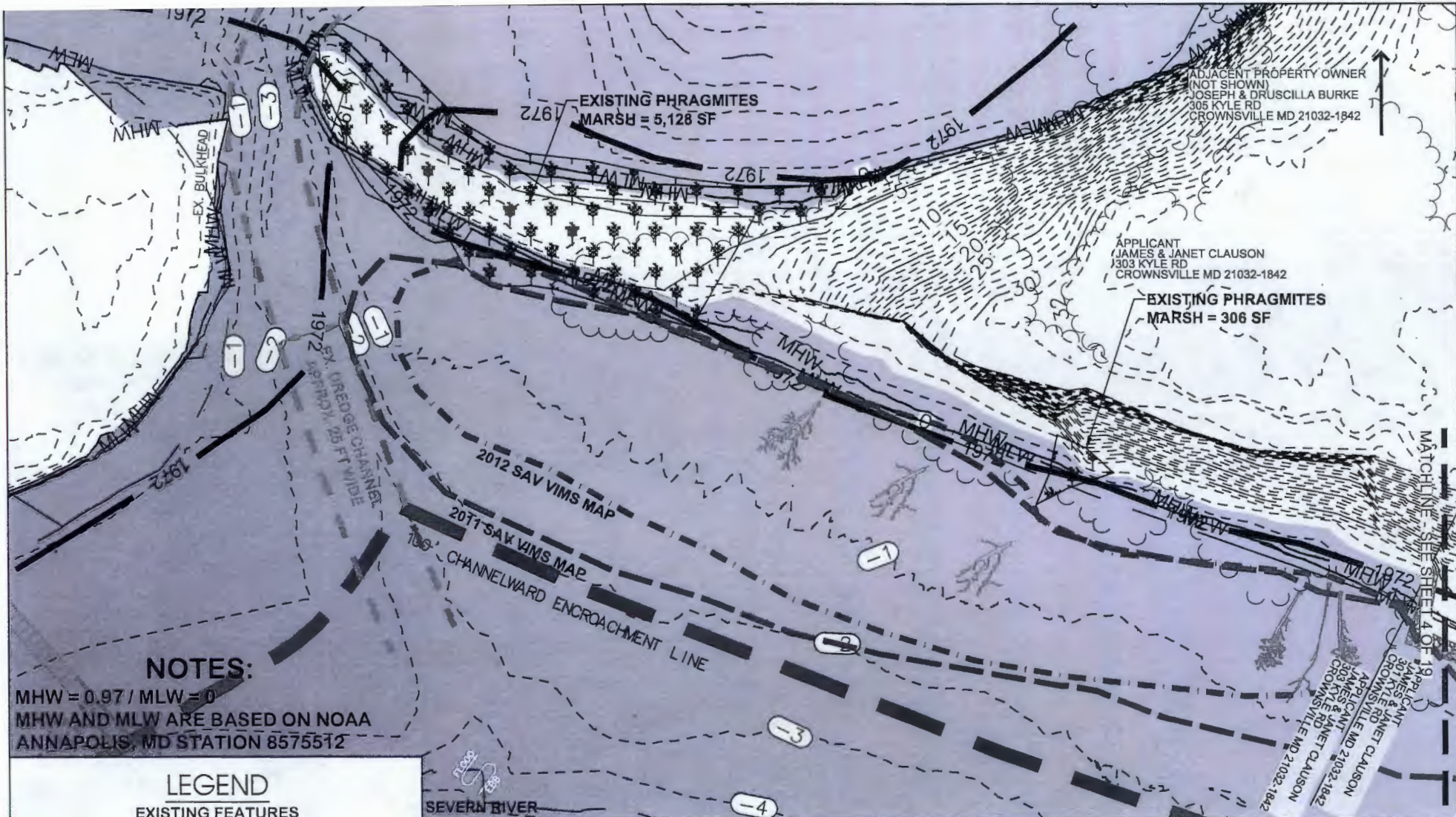
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PROJECT VICINITY CONDITIONS

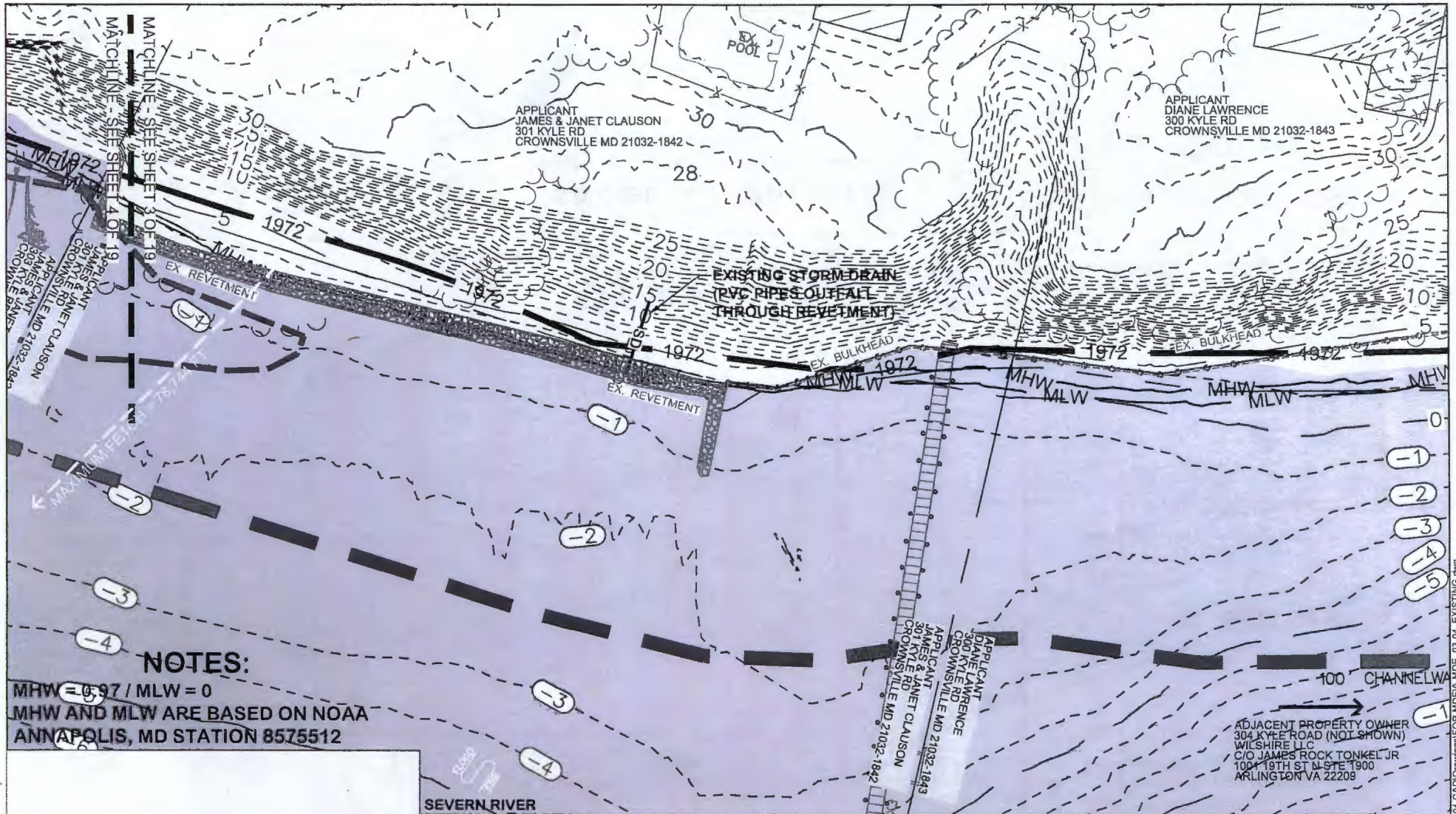
LIVING SHORELINE

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Cadd File: S:\006-Projects\Clauson Living Shoreline (Kyle Point)\04-CAD\Drawings\FOR NDEA-WDE_03-04_EXISTING.dwg



NOTES:

MHW = 0.97 / MLW = 0
 MHW AND MLW ARE BASED ON NOAA
 ANNAPOLIS, MD STATION 8575512

SEVERN RIVER

MAD 83 PLAN SCALE: 1"=50' SHEET 4 OF 19 MAY 18TH, 2018

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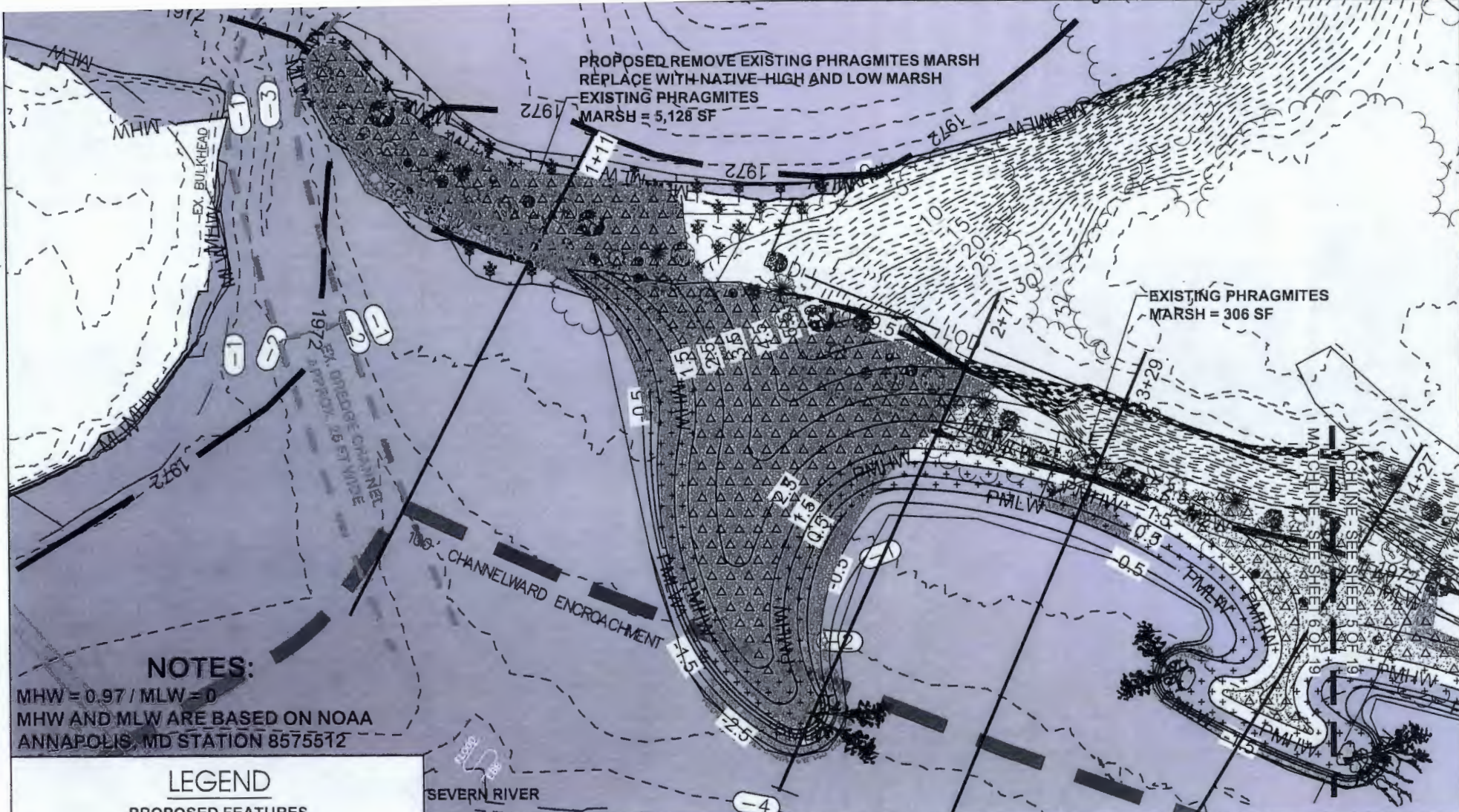
EXISTING CONDITIONS

LIVING SHORELINE

AI# 105789 - AP.# 17-WL-0367 - TRACKING # 201760607
 JAMES & JANET CLAUSON - 301 & 303 KYLE ROAD
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1972 JURISDICTIONAL BOUNDARY 1972

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NOTES:

MHW = 0.97 / MLW = 0
 MHW AND MLW ARE BASED ON NOAA ANNAPOLIS, MD STATION 8575512

LEGEND

PROPOSED FEATURES

- CONTOUR ——— 1 ———
- LIMIT OF DISTURBANCE ——— LOD ———
- MEAN HIGH WATER ——— PMHW ———
- MEAN LOW WATER ——— PMLW ———
- SPARTINA ALTERNIFLORA (LOW MARSH) + + + + +
- SPARTINA PATENS (HIGH MARSH) Δ Δ Δ Δ Δ
- SUBMERGED COBBLE [Symbol]
- BOULDERS [Symbol]
- COARSE WOODY DEBRIS [Symbol]

RAD 83



PLAN

SCALE: 1"=50'

SHEET 5 OF 19

MAY 18TH, 2018

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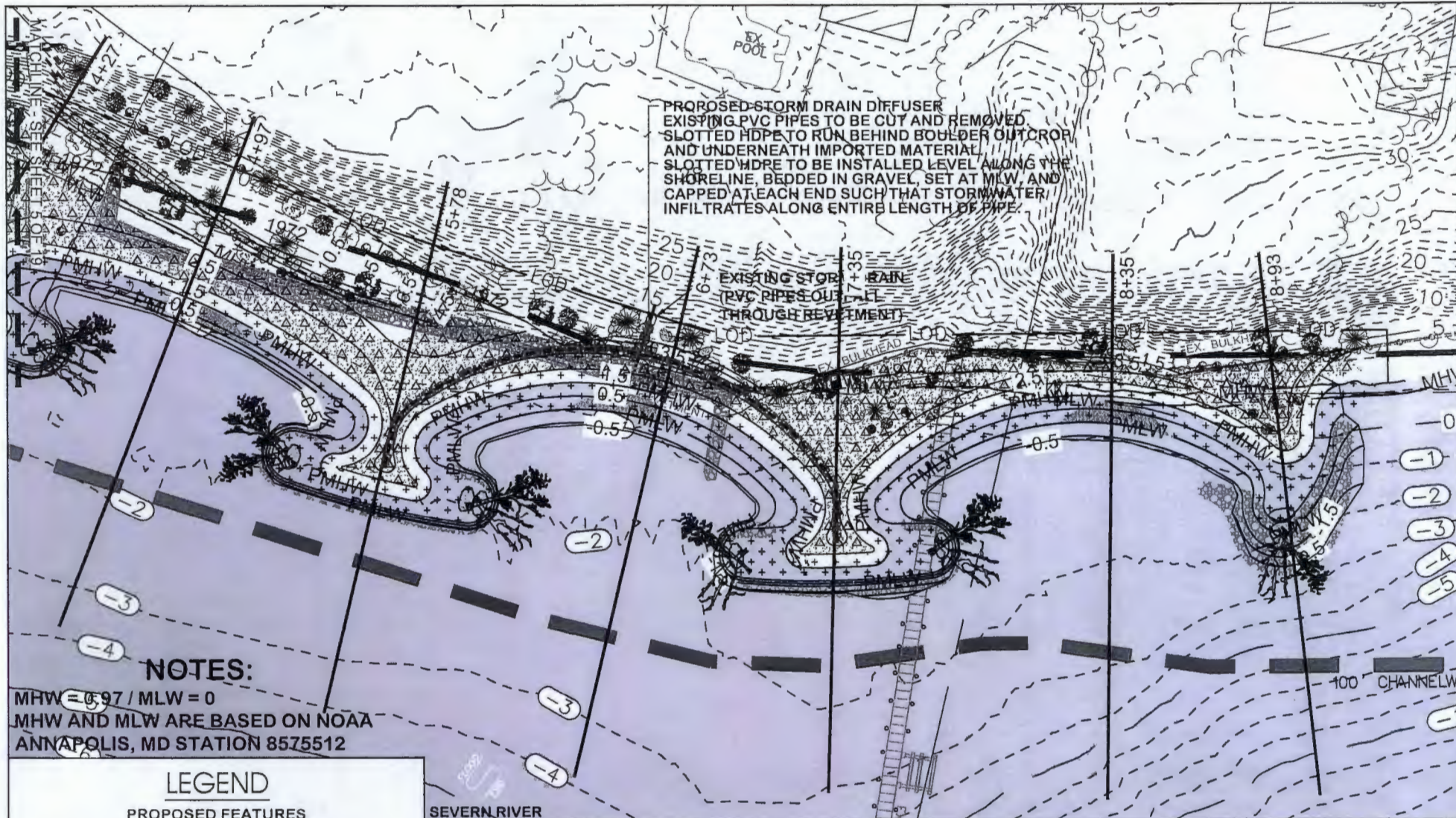
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PROPOSED CONDITIONS

LIVING SHORELINE



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LEGEND

PROPOSED FEATURES

- CONTOUR ——— 1 ———
- LIMIT OF DISTURBANCE ——— LOD ———
- MEAN HIGH WATER ——— PMHW ———
- MEAN LOW WATER ——— PMLW ———
- SPARTINA ALTERNIFLORA (LOW MARSH) + + + + +
- SPARTINA PATENS (HIGH MARSH) Δ Δ Δ Δ Δ
- SUBMERGED COBBLE ○ ○ ○ ○ ○
- BOULDERS 
- COARSE WOODY DEBRIS 

SEVERN RIVER



PLAN

SCALE: 1"=50'

SHEET 6 OF 19

MAY 18TH, 2018

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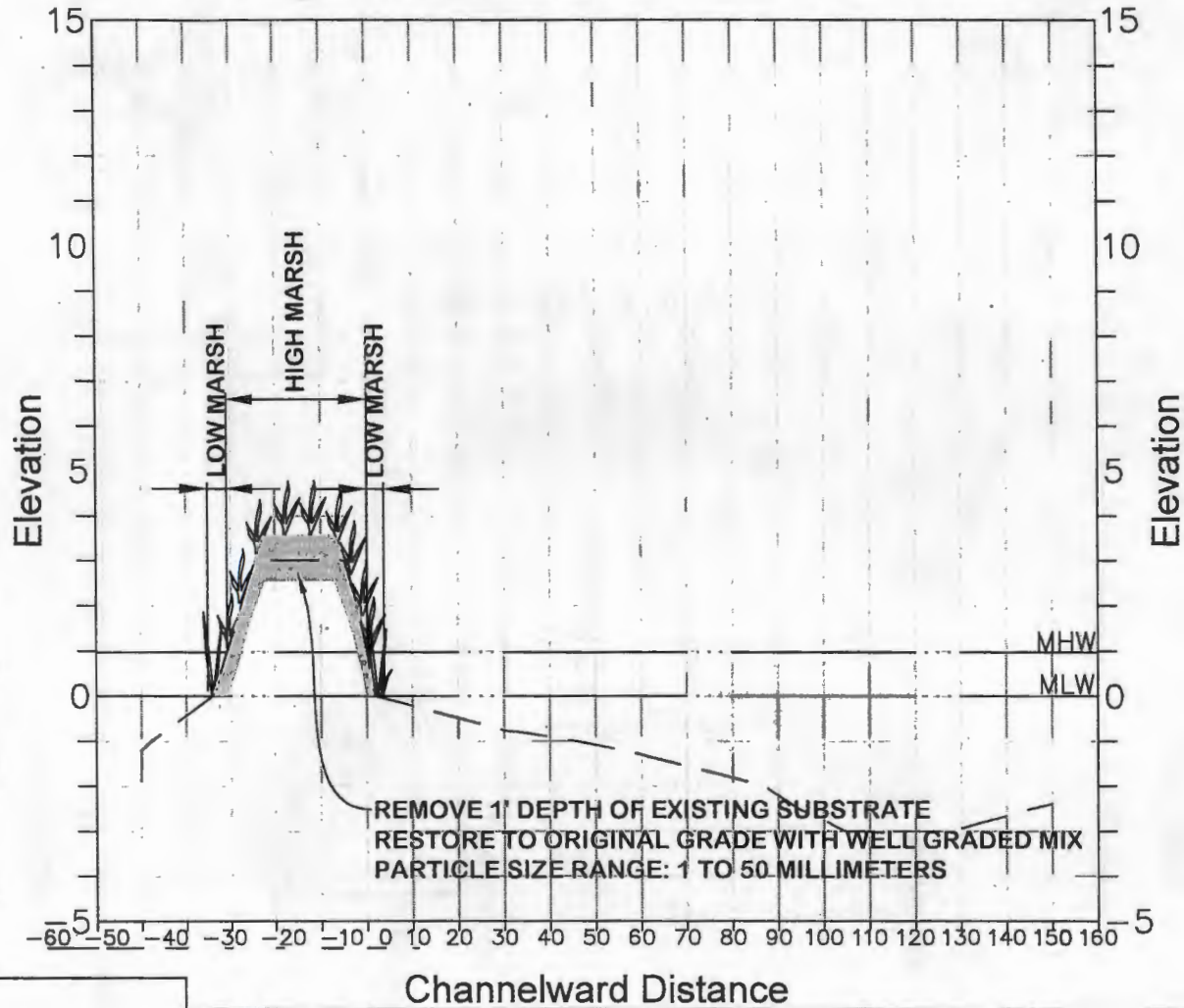
PROPOSED CONDITIONS

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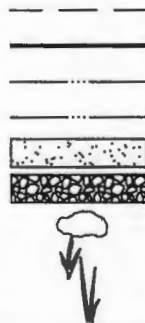
Phragmites Removal Section - 1+11



NOTE:
 THE CONTRACTOR SHALL ASSURE THAT ALL EXCAVATED MATERIAL FROM PHRAGMITES REMOVAL AREA SHALL BE BURIED AT AN APPROVED DISPOSAL SITE TO PREVENT THE SPREAD OF THIS SPECIES, OR THE PHRAGMITES SHALL BE TREATED WITH RODEO IN ACCORDANCE WITH STATE AND FEDERAL LAWS, FOR AT LEAST ONE GROWING SEASON PRIOR TO EXCAVATION. THE CONTRACTOR SHALL OBTAIN A TOXIC MATERIAL PERMIT FROM MDE PRIOR TO THE APPLICATION OF ANY HERBICIDE TO ERADICATE PHRAGMITES.

LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- MEAN HIGH WATER (MHW)
- MEAN LOW WATER (MLW)
- SAND/WOOD CHIP MIX
- SUBMERGED COBBLE
- BOULDER OUTCROP
- SPARTINA PATENS
- SPARTINA ALTERNIFLORA



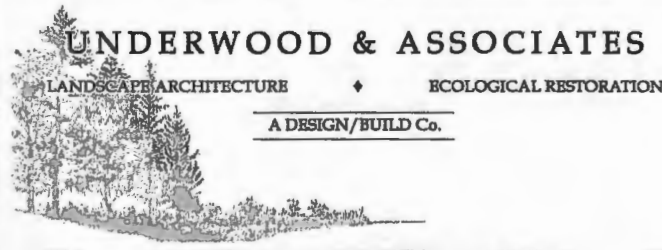
Channelward Distance

CROSS SECTIONS

SCALE: HORI. 1"=40', VERT. 1"=4'

SHEET 7 OF 19

MAY 18TH, 2018



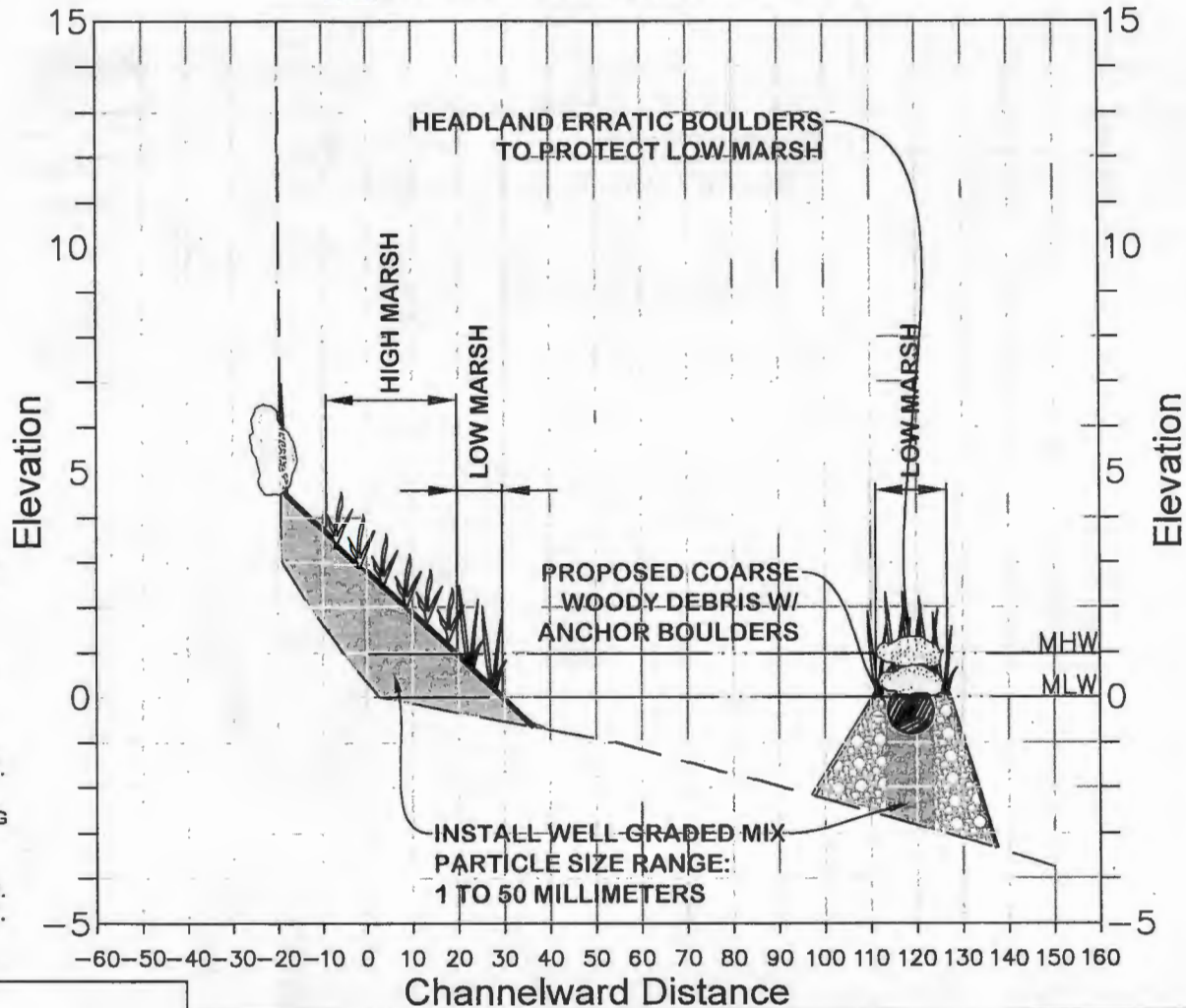
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PROJECT CROSS SECTION

LIVING SHORELINE

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 2ND ELECTION DISTRICT, ANNE ARUNDEL COUNTY

Tombolo Section - 2+71



NOTE:
 SUBMERGED COBBLE SHALL NOT EXTEND ABOVE MLW AND SHALL BE COVERED BY AND MIXED WITH SAND & WOODCHIPS.
 SAND & WOODCHIP MIX ABOVE SUBMERGED COBBLE SHALL BE CONTAINED ONLY BY PLANT ROOTS.

COARSE WOODY DEBRIS AND ANCHOR BOULDERS NOT TO SCALE. GRAPHICAL REPRESENTATION ONLY. REFER TO SHEET 17 & 18 FOR COARSE WOODY DEBRIS ANCHORING DETAILS.

BOULDER OUTCROPS NOT TO SCALE. GRAPHICAL REPRESENTATION ONLY. EXISTING ERODING CLIFF WILL NOT BE EXCAVATED, ONLY REINFORCED.

LEGEND

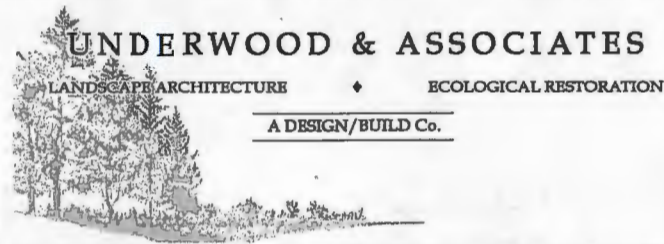
- EXISTING GRADE 
- PROPOSED GRADE 
- MEAN HIGH WATER (MHW) 
- MEAN LOW WATER (MLW) 
- SAND/WOOD CHIP MIX 
- SUBMERGED COBBLE 
- BOULDER OUTCROP 
- SPARTINA PATENS 
- SPARTINA ALTERNIFLORA 

CROSS SECTIONS

SCALE: HORI. 1"=40', VERT. 1"=4'

SHEET 8 OF 19

MAY 18TH, 2018



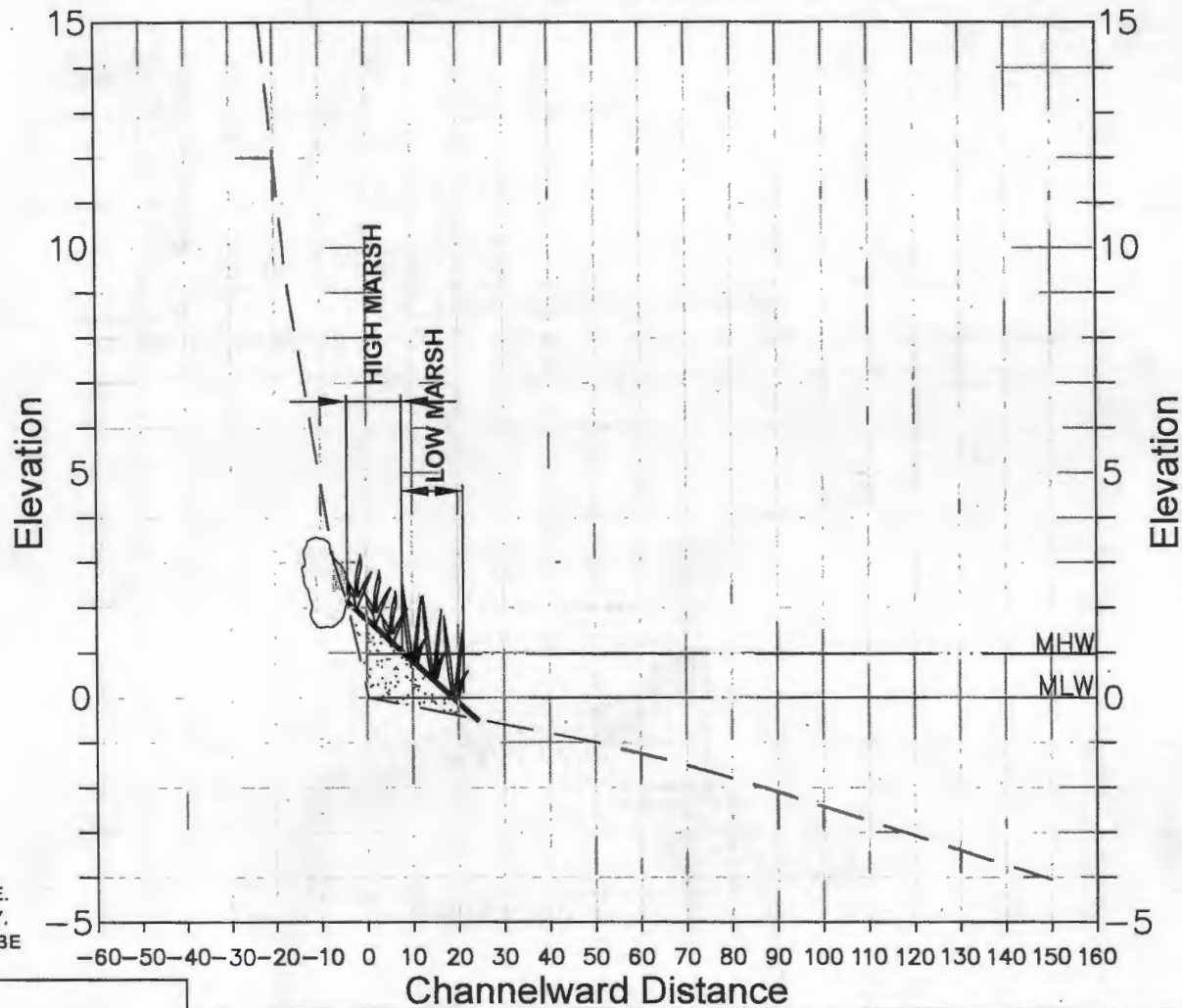
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PROJECT CROSS SECTION

LIVING SHORELINE

AI# 105789 - AP.# 17-WL-0367 - TRACKING # 201760607
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Beach Strand Section - 3+29



NOTE:
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LEGEND

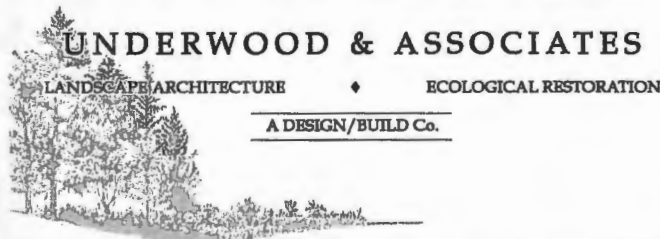
- EXISTING GRADE
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- SPARTINA ALTERNIFLORA

CROSS SECTIONS

SCALE: HORI. 1"=40', VERT. 1"=4'

SHEET 9 OF 19

MAY 18TH, 2018



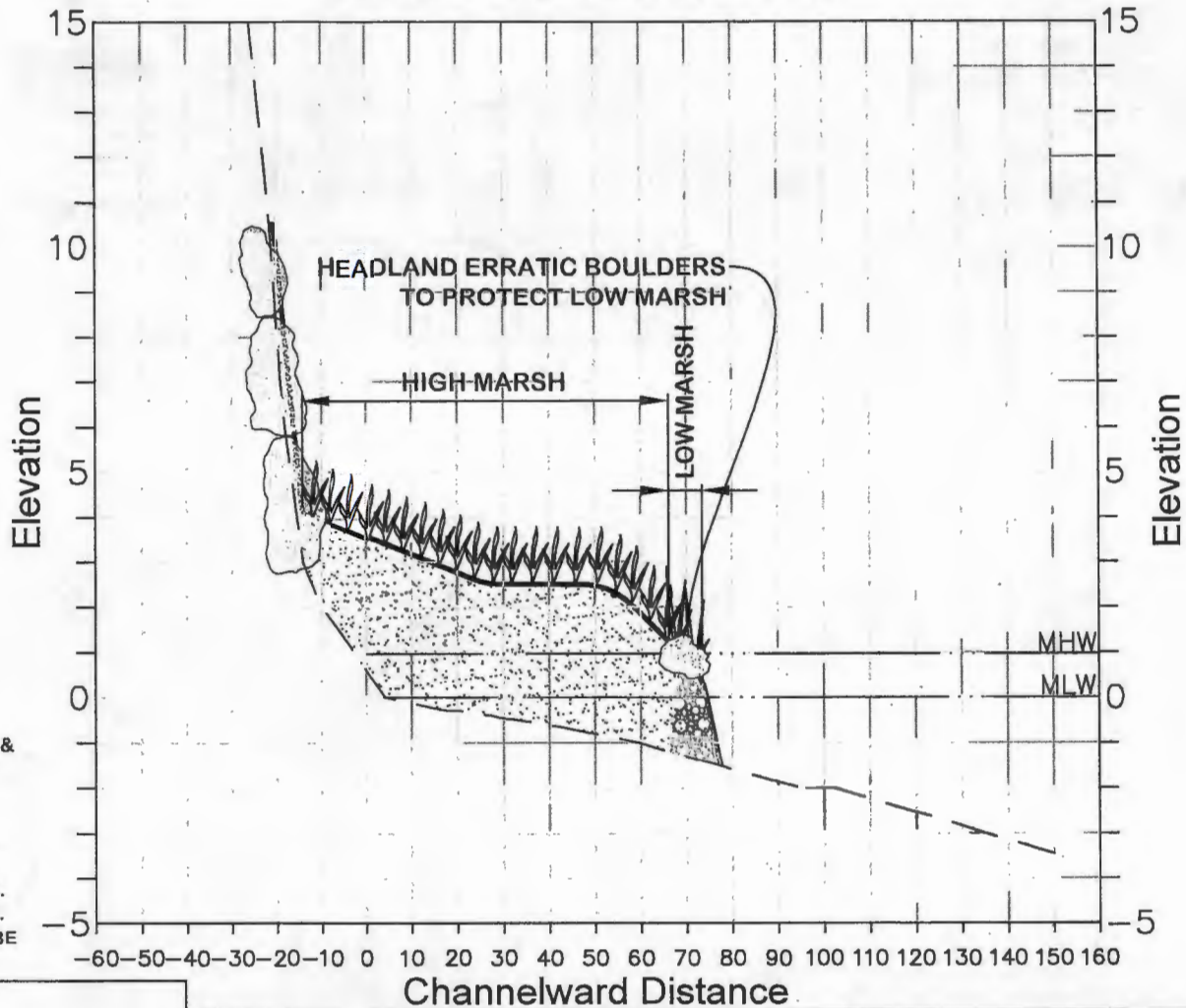
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PROJECT CROSS SECTION

LIVING SHORELINE




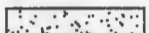


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Tombolo Section - 4+27



NOTE:
 SUBMERGED COBBLE SHALL NOT EXTEND ABOVE MLW AND SHALL BE COVERED BY AND MIXED WITH SAND & WOODCHIPS.
 SAND & WOODCHIP MIX ABOVE SUBMERGED COBBLE SHALL BE CONTAINED ONLY BY PLANT ROOTS.
 BOULDER OUTCROPS NOT TO SCALE. GRAPHICAL REPRESENTATION ONLY. EXISTING ERODING CLIFF WILL NOT BE EXCAVATED, ONLY REINFORCED.

LEGEND

- EXISTING GRADE 
- PROPOSED GRADE 
- MEAN HIGH WATER (MHW) 
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- SAND/WOOD CHIP MIX 
- SUBMERGED COBBLE 
- BOULDER OUTCROP 
- SPARTINA PATENS 
- SPARTINA ALTERNIFLORA 

CROSS SECTIONS

SCALE: HORI. 1"=40', VERT. 1"=4'

SHEET 10 OF 19

MAY 18TH, 2018

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE ♦ ECOLOGICAL RESTORATION

A DESIGN/BUILD Co.



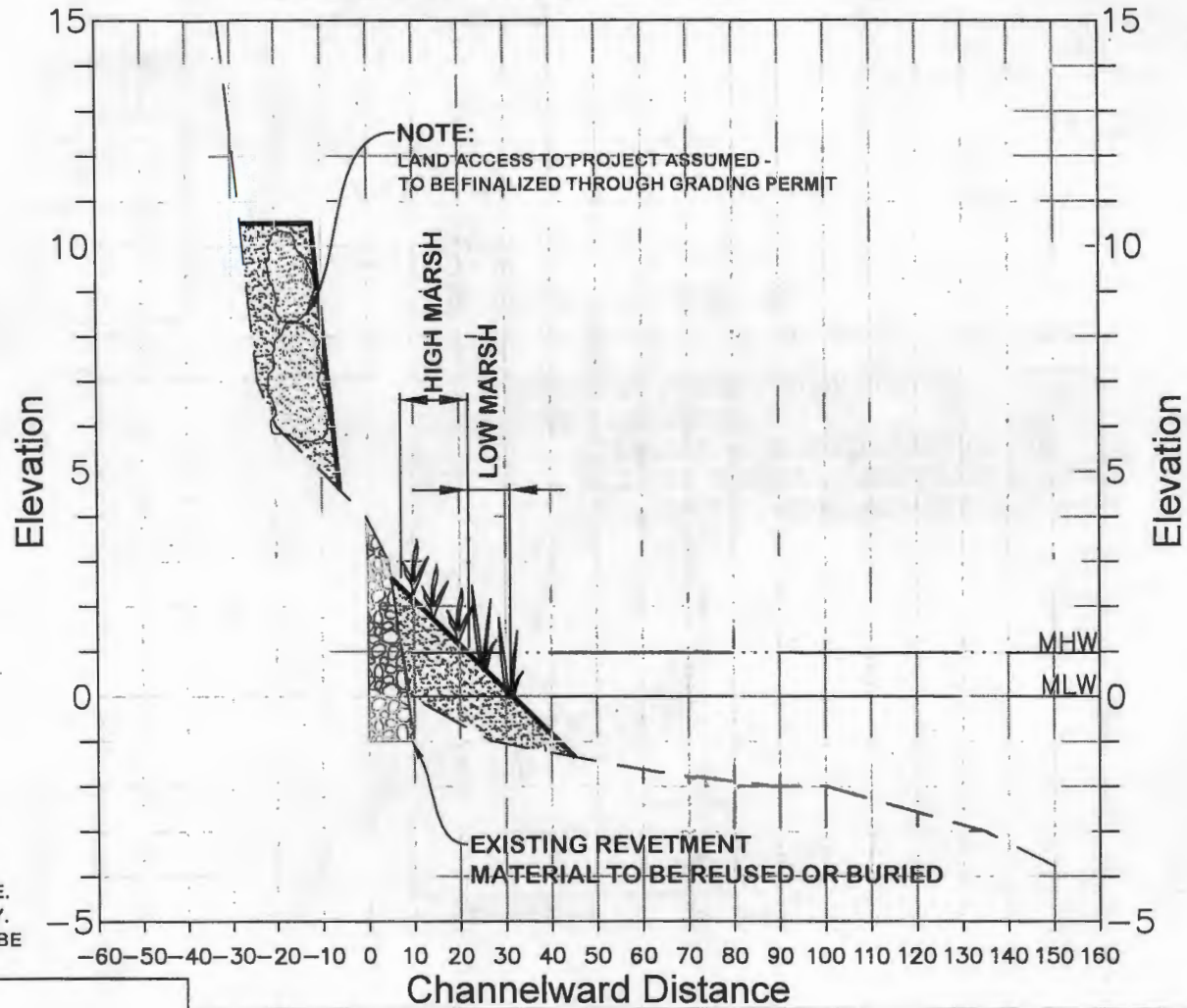
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PROJECT CROSS SECTION

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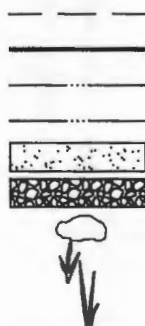
Beach Strand Section - 4+97



NOTE:
BOULDER OUTCROPS NOT TO SCALE.
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LEGEND

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- PROPOSED GRADE
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- SUBMERGED COBBLE
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- SPARTINA ALTERNIFLORA



CROSS SECTIONS

SCALE: HORI. 1"=40', VERT. 1"=4'

SHEET 11 OF 19

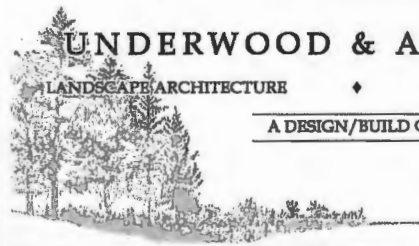
MAY 18TH, 2018

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE

ECOLOGICAL RESTORATION

A DESIGN/BUILD Co.



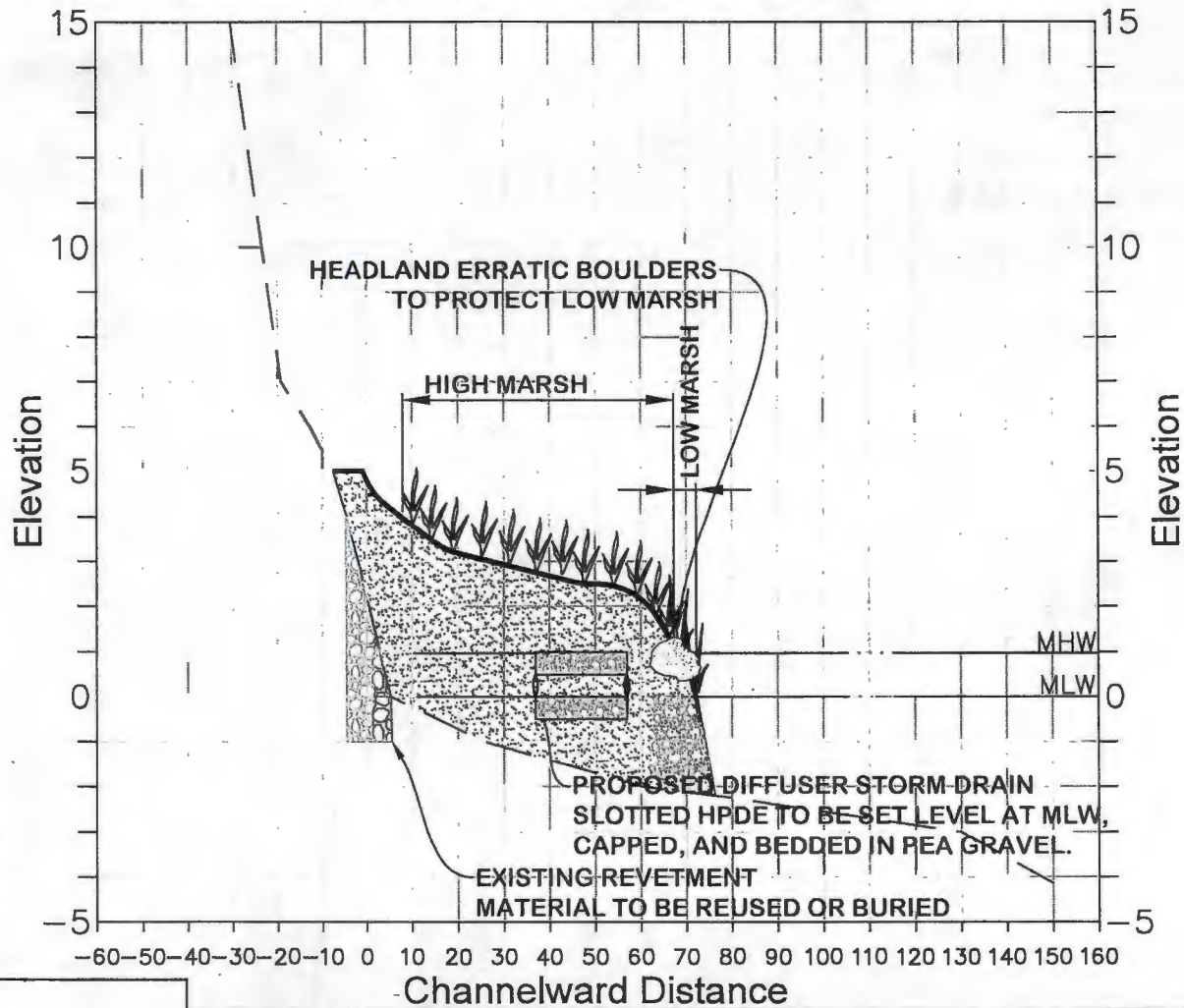
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PROJECT CROSS SECTION

LIVING SHORELINE

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Tombolo Section - 5+78



NOTE:
 SUBMERGED COBBLE SHALL NOT EXTEND ABOVE MLW AND SHALL BE COVERED BY AND MIXED WITH SAND & WOODCHIPS.
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- SPARTINA PATENS
- SPARTINA ALTERNIFLORA

CROSS SECTIONS

SCALE: HORI. 1"=40', VERT. 1"=4'

SHEET 12 OF 19

MAY 18TH, 2018

UNDERWOOD & ASSOCIATES

LANDSCAPE ARCHITECTURE ♦ ECOLOGICAL RESTORATION

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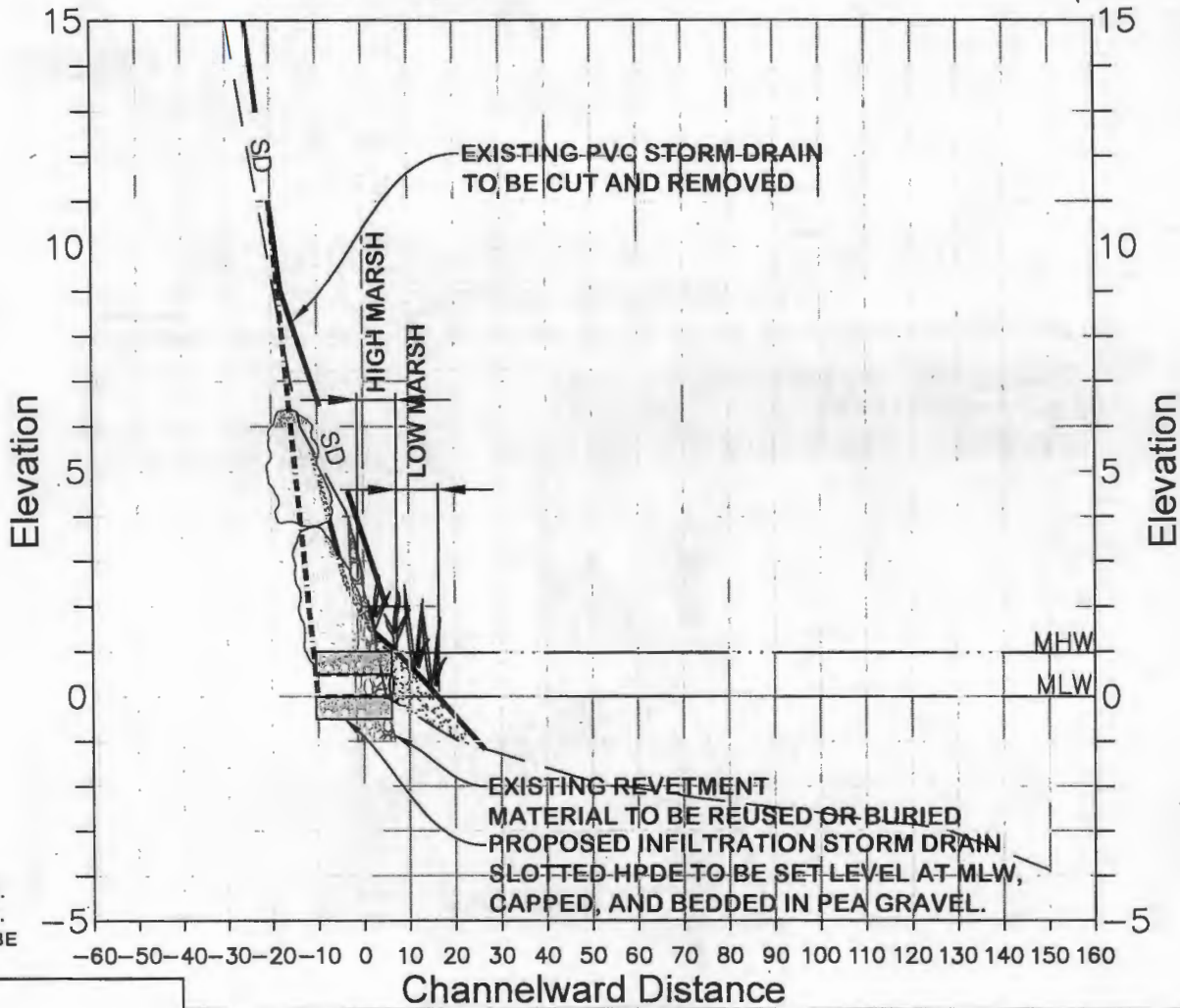
1763 EBLING TRAIL ♦ ANNAPOLIS, MD 21401
 tel. 410-849-3211 fax. 410-849-2136

PROJECT CROSS SECTION

LIVING SHORELINE

AI# 105789 - AP.# 17-WL-0367 - TRACKING # 201760607
 JAMES & JANET CLAUSON - 301 & 303 KYLE ROAD
 DIANE LAWRENCE - 300 KYLE ROAD
 CROWNSVILLE, MARYLAND, 21032
 MAP 5293 & 5294 , GRID K2 & A2 , PARCEL 0151
 2ND ELECTION DISTRICT, ANNE ARUNDEL COUNTY

Beach Strand Section - 6+73



NOTE:
BOULDER OUTCROPS NOT TO SCALE.
GRAPHICAL REPRESENTATION ONLY.
EXISTING ERODING CLIFF WILL NOT BE
EXCAVATED, ONLY REINFORCED.

LEGEND

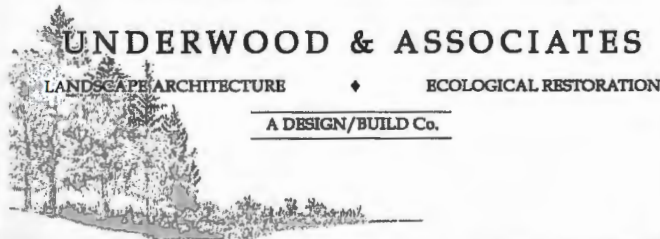
- EXISTING GRADE 
- PROPOSED GRADE 
- MEAN HIGH WATER (MHW) 
- MEAN LOW WATER (MLW) 
- SAND/WOOD CHIP MIX 
- SUBMERGED COBBLE 
- BOULDER OUTCROP 
- SPARTINA PATENS 
- SPARTINA ALTERNIFLORA 

CROSS SECTIONS

SCALE: HORI. 1"=40', VERT. 1"=4'

SHEET 13 OF 19

MAY 18TH, 2018



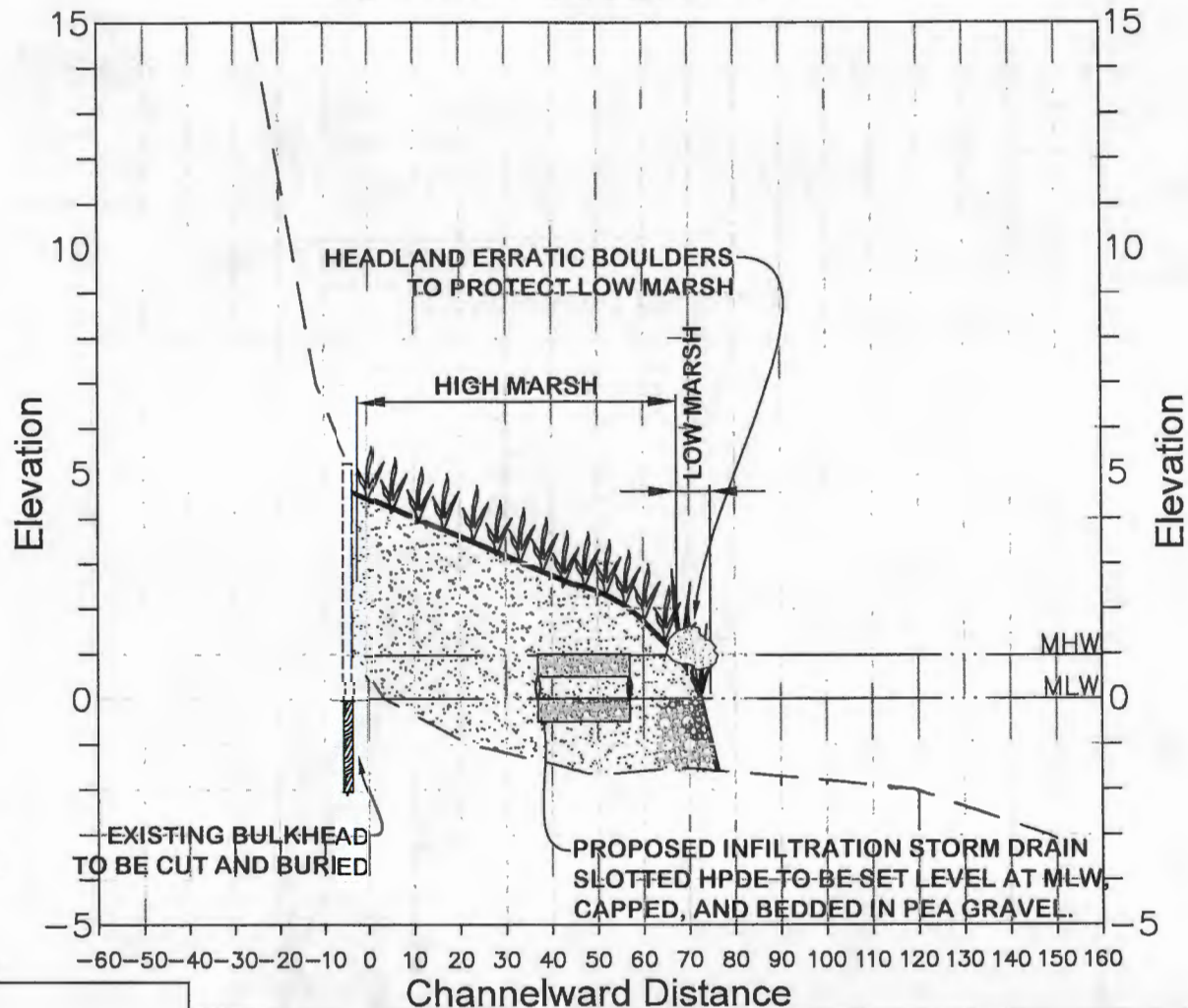
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PROJECT CROSS SECTION

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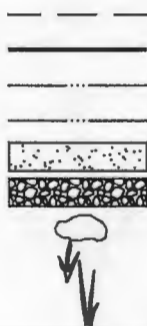
Tombolo Section - 7+35



NOTE:
 SUBMERGED COBBLE SHALL NOT EXTEND ABOVE MLW AND SHALL BE COVERED BY AND MIXED WITH SAND & WOODCHIPS.
 SAND & WOODCHIP MIX ABOVE SUBMERGED COBBLE SHALL BE CONTAINED ONLY BY PLANT ROOTS.

LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- MEAN HIGH WATER (MHW)
- MEAN LOW WATER (MLW)
- SAND/WOOD CHIP MIX
- SUBMERGED COBBLE
- BOULDER OUTCROP
- SPARTINA PATENS
- SPARTINA ALTERNIFLORA



CROSS SECTIONS

SCALE: HORI. 1"=40', VERT. 1"=4'

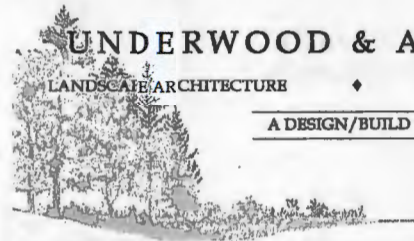
SHEET 14 OF 19

MAY 18TH, 2018

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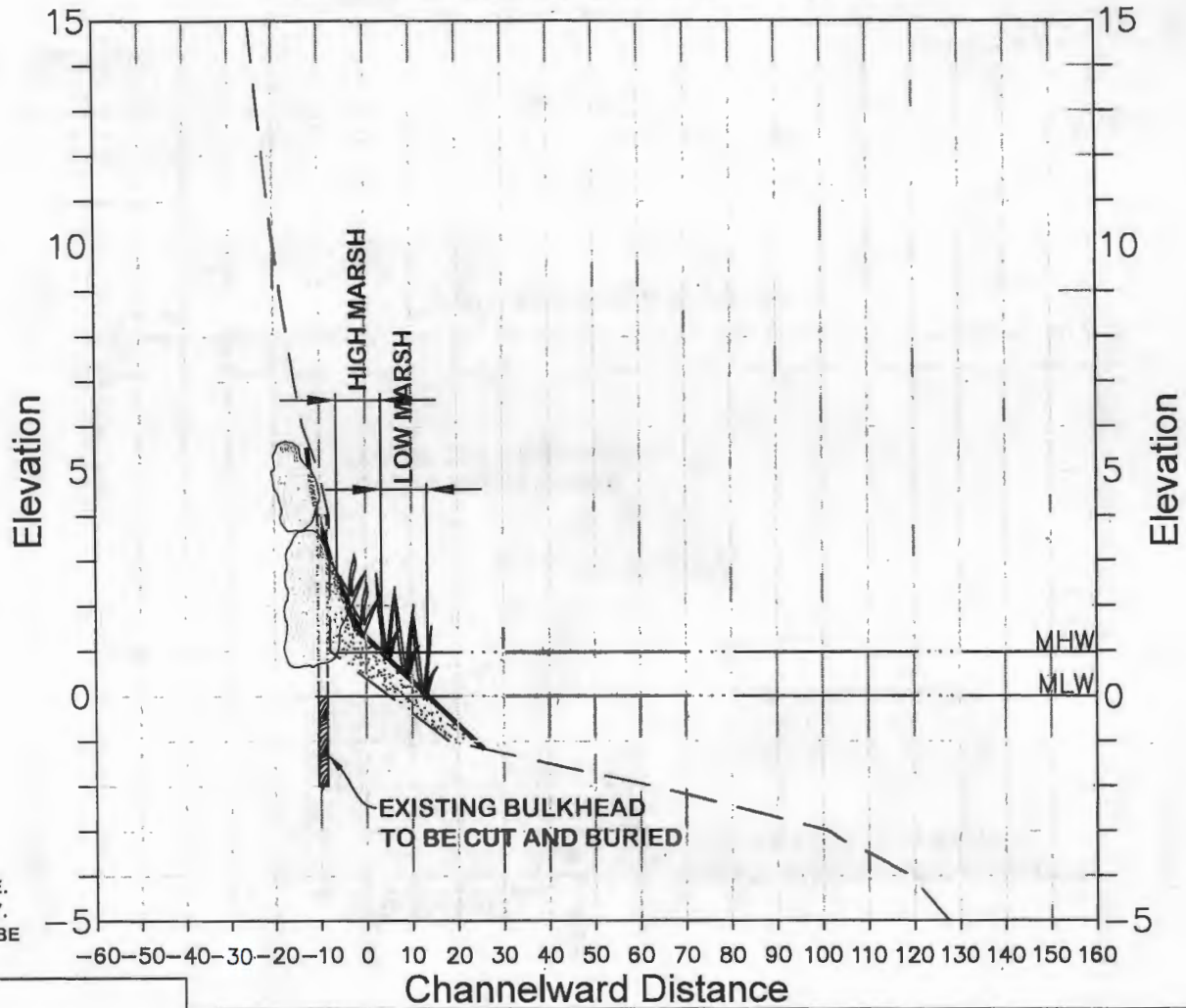
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PROJECT CROSS SECTION

LIVING SHORELINE

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Beach Strand Section - 8+35



NOTE:
BOULDER OUTCROPS NOT TO SCALE.
GRAPHICAL REPRESENTATION ONLY.
EXISTING ERODING CLIFF WILL NOT BE
EXCAVATED, ONLY REINFORCED.

LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- MEAN HIGH WATER (MHW)
- MEAN LOW WATER (MLW)
- SAND/WOOD CHIP MIX
- SUBMERGED COBBLE
- BOULDER OUTCROP
- SPARTINA PATENS
- SPARTINA ALTERNIFLORA

CROSS SECTIONS

SCALE: HORI. 1"=40', VERT. 1"=4'

SHEET 15 OF 19

MAY 18TH, 2018

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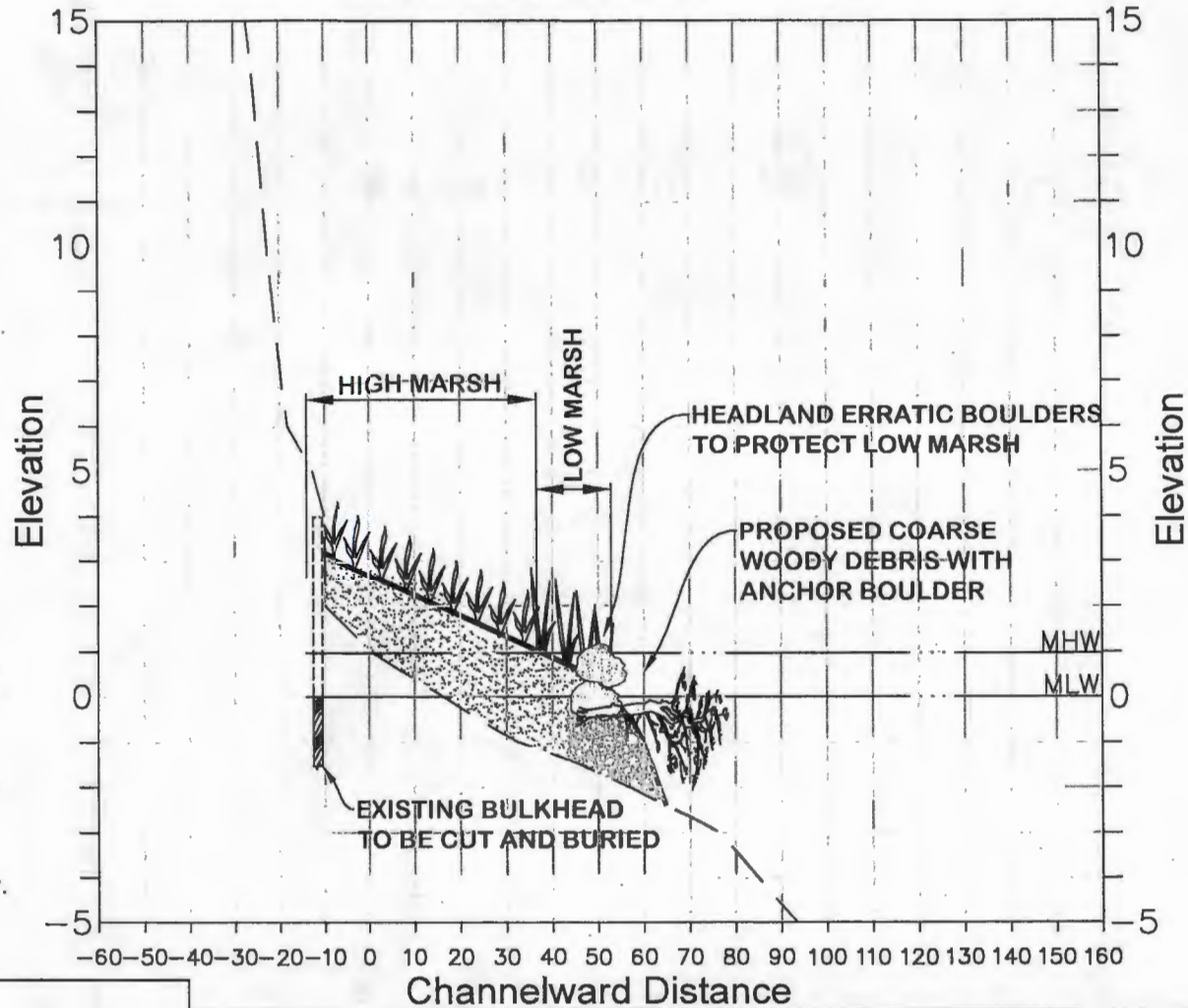
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PROJECT CROSS SECTION

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Tombolo Section - 8+93



NOTE:
 SUBMERGED COBBLE SHALL NOT EXTEND ABOVE MLW AND SHALL BE COVERED BY AND MIXED WITH SAND & WOODCHIPS.
 SAND & WOODCHIP MIX ABOVE SUBMERGED COBBLE SHALL BE CONTAINED ONLY BY PLANT ROOTS.

COARSE WOODY DEBRIS AND ANCHOR BOULDERS NOT TO SCALE. GRAPHICAL REPRESENTATION ONLY. REFER TO SHEET 17 & 18 FOR COARSE WOODY DEBRIS ANCHORING DETAILS.

LEGEND

- EXISTING GRADE 
- PROPOSED GRADE 
- MEAN HIGH WATER (MHW) 
- MEAN LOW WATER (MLW) 
- SAND/WOOD CHIP MIX 
- SUBMERGED COBBLE 
- BOULDER OUTCROP 
- SPARTINA PATENS 
- SPARTINA ALTERNIFLORA 

CROSS SECTIONS

SCALE: HORI. 1"=40', VERT. 1"=4'

SHEET 16 OF 19

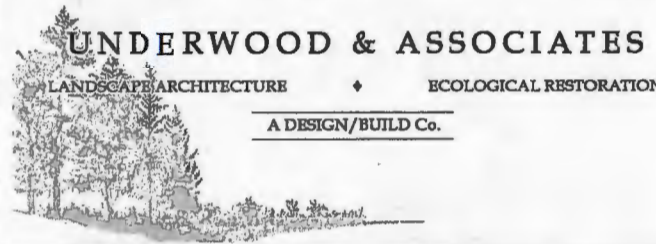
MAY 18TH, 2018

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LANDSCAPE ARCHITECTURE

ECOLOGICAL RESTORATION

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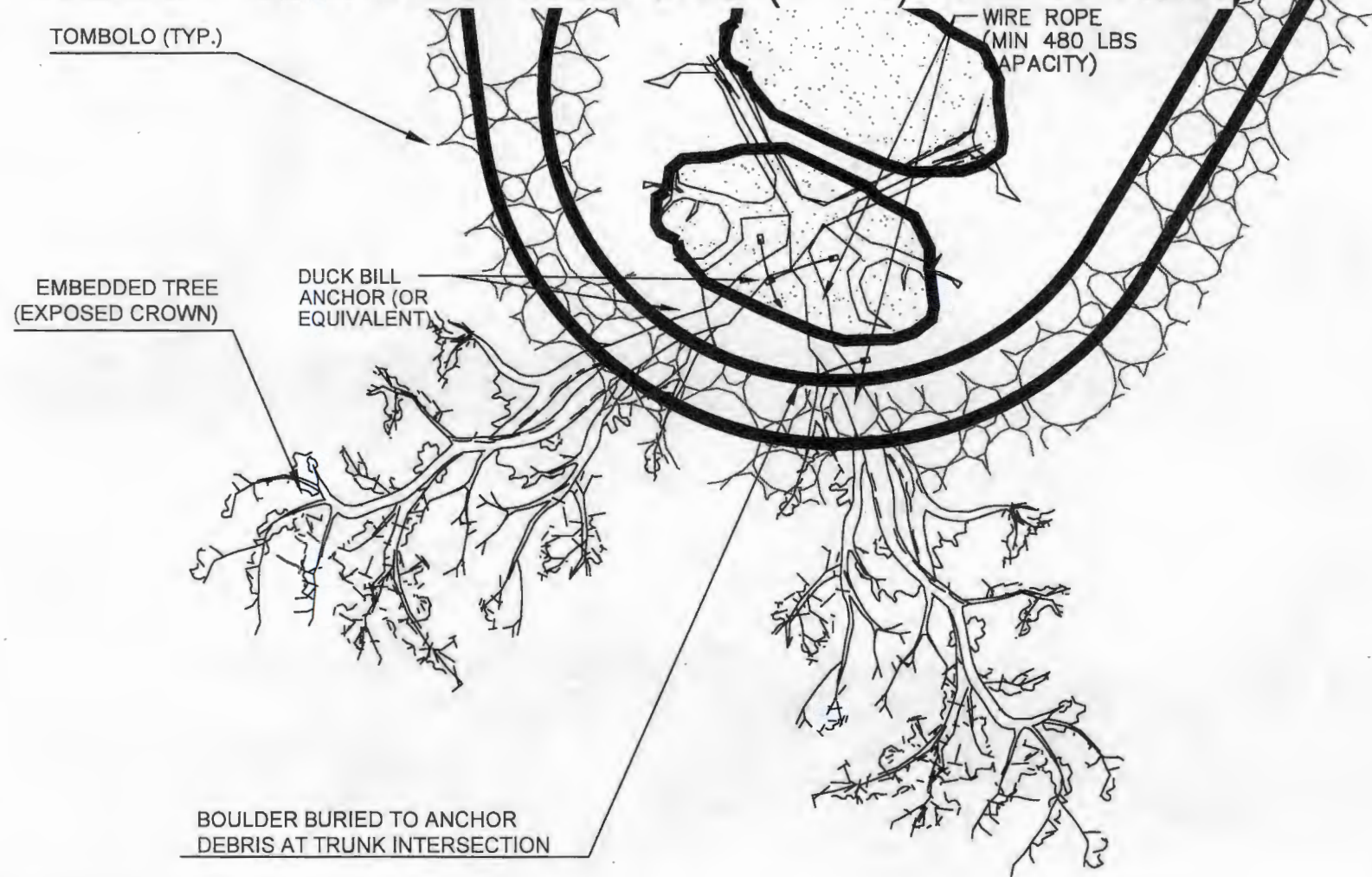
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PROJECT CROSS SECTION

LIVING SHORELINE

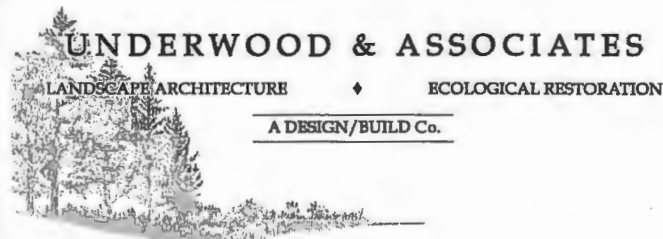
AI# 105789 - AP.# 17-WL-0367 - TRACKING # 201760607
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WOODY DEBRIS ANCHORING (TYP.) - PLAN VIEW



SHEET 17 OF 19

MAY 18TH, 2018



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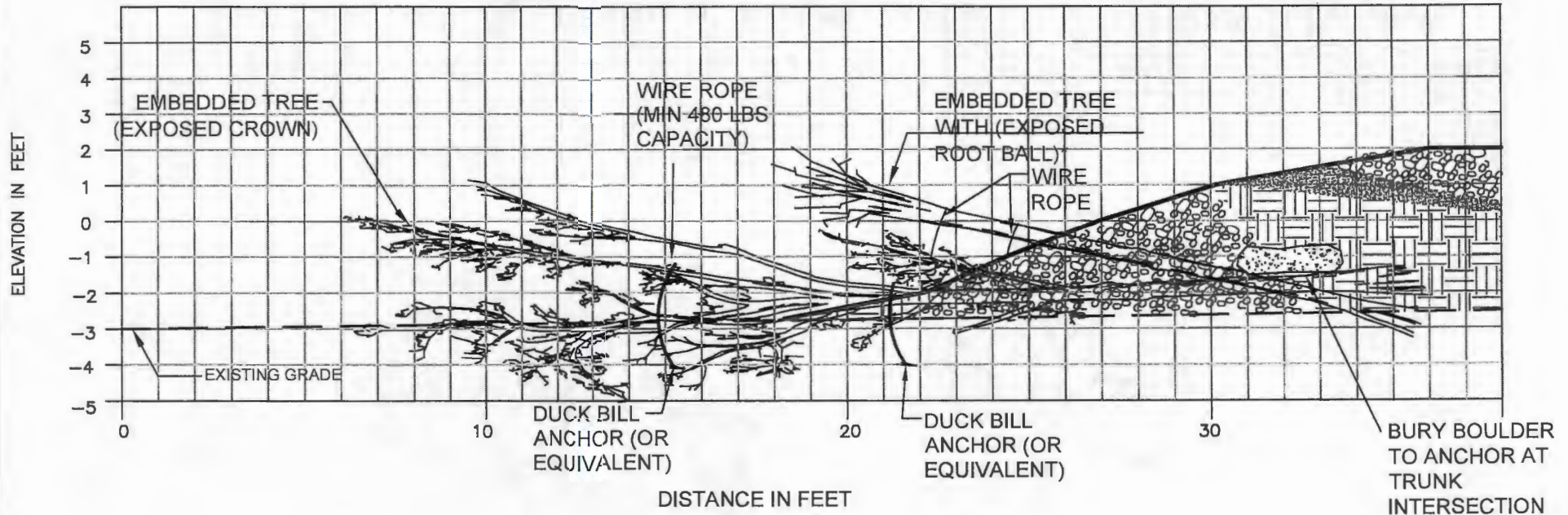
PROJECT DETAILS

LIVING SHORELINE

AI# 105789 - AP.# 17-WL-0367 - TRACKING # 201760607
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 2ND ELECTION DISTRICT, ANNE ARUNDEL COUNTY

Cadd File : S:\006-Projects\Clauson Living Shoreline (Kyle Point)\04-CADD\Drawings\FOR MDEA-MDE_17-18_DETAILS.dwg

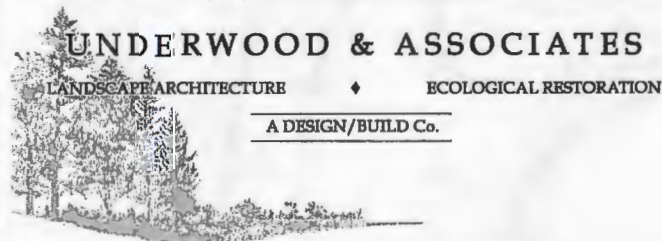
WOODY DEBRIS ANCHORING (TYP.) - PROFILE VIEW



*NOTE: THE EMBEDDED TREE WITH EXPOSED ROOT BALL IS SET AT THE EXISTING GRADE. THIS DETAIL SHOWS THE ROOT BALL SLIGHTLY ELEVATED IN ORDER TO DISPLAY BOTH TREES. SEE PLAN VIEW FOR ALIGNMENT.

SHEET 18 OF 19

MAY 18TH, 2018



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PROJECT DETAILS

LIVING SHORELINE

AI# 105789 - AP.# 17-WL-0367 - TRACKING # 201760607
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CROWNSVILLE, MARYLAND, 21032
MAP 5293 & 5294, GRID K2 & A2, PARCEL 0151
2ND ELECTION DISTRICT, ANNE ARUNDEL COUNTY

Clauson Living Shoreline - Project Data

Feature	Existing	Proposed	Difference
<i>Spartina Patens</i> - High Marsh (SF)	0	23,572	+23,572
<i>Spartina Alterniflora</i> - Low Marsh (SF)	0	19,751	+19,751
Total Tidal Wetlands (SF)	5,434	43,323	+37,889
Bulkhead (LF)	205	0	-205
Revetment (LF)	252	0	-252
Shoreline at MHW (LF)	911	1,367	+456
VIMS SAV Map Year	Permanent Impact* (SF)	Temporary Impact** (SF)	Cobble Fill Impact*** (SF)
2011	15,615.7	12,233.3	342.4
2012	12,552.7	9,582.2	132.2
2013	0	0	0
2014	0	0	0
2015	0	0	0
2016	0	0	0
2017	0	0	0

*Permanent impact - proposed clean sand, gravel, cobble, and boulder overlaps SAV VIMS maps

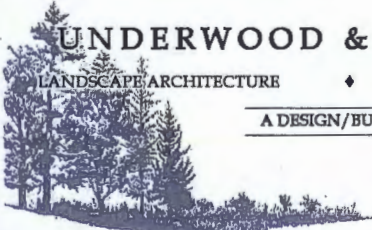
**Temporary impact - construction access and turbidity curtain overlap SAV VIMS maps

***Cobble fill impact - proposed submerged cobble overlaps SAV VIMS maps

Tidal Disturbance		
Total Limit of Disturbance (LOD)	111,703.0	SF
LOD upland of existing MHW	23,053.0	SF
LOD within existing MHW	88,650.0	SF
Material Volumes		
Total Fill	4,560.8	CY
Sand	3,648.7	CY
Gravel	364.9	CY
Cobble	456.1	CY
Boulders	91.2	CY
Native Tidal Marsh Creation		
Total Area	43,328.0	SF
High Marsh - <i>Spartina Patens</i>	23,577.0	SF
Low Marsh - <i>Spartina Alterniflora</i>	19,751.0	SF

SHEET 19 OF 19

MAY 18TH, 2018



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PROJECT DATA TABLES

LIVING SHORELINE

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