



Maryland
Department of
the Environment

Larry Hogan, Governor
Boyd K. Rutherford, Lt. Governor

Ben Grumbles, Secretary
Horacio Tablada, Deputy Secretary

July 1, 2019

Project No. 18-WL-1189
End of Comment Period August 1, 2019

To Whom It May Concern:

The Tidal Wetlands Division has received an application from your neighbor to perform work in tidal wetlands. Enclosed is a description of the proposed work and associated plans.

Your comments and those of other interested parties and resource agencies will be considered to determine whether to issue, modify or deny a permit for this application.

In order for your comments to be considered they need to be submitted prior to the end of the comment period as specified at the top of this letter. Please include the project number on any correspondence.

Please call the Tidal Wetlands Division for Matthew Wallach at 410-537-3527 if you have any questions or need additional information.

Sincerely

for Chantel Wing
Matthew Wallach
Tidal Wetlands Division

MW/cw

Maryland Department of the Environment
Water and Science Administration

Notice of Application for State Wetland Licenses, Private Wetland Permits
or Water Quality Certification and the Opportunity to Provide Written Comment
or Request an Informational Hearing

The Water and Science Administration is reviewing the following applications for State Wetland Licenses, Private Wetland Permits and/or Water Quality Certifications. The applications and related information are on file at the Administration. Arrangements may be made for inspection and copying of file materials. Interested parties may provide written comment on the application or request an informational hearing on any listed application. A request for a hearing must be in writing and provide the following information: 1) Name, Address, and Telephone Number of the person making the request; 2) The identity of any other person(s) the requestor is representing; and 3) the specific issues proposed to be considered at the hearing. Please refer to the case number (i.e., 00-WL-0000) which identifies each application. Address correspondence to: Tidal Wetlands Division, Water and Science Administration, 1800 Washington Boulevard Baltimore, Maryland, 21230. Telephone (410) 537-3837. Written comments or requests for a hearing must be received on or before August 1, 2019 .

Anne Arundel County

201862001/18-WL-1189; 201861994/18-WL-1181: CAPE SAINT CLAIRE IMPROVEMENT ASSOCIATION, 1223 River Bay Road, Annapolis, Maryland 21409, has applied to construct two shoreline restoration projects in Anne Arundel County. Site 1) is located in the tidal waters of the Magothy River directly Northwest of where the Little Magothy River meets the Magothy River. Site 1 consists of the construction of a 140-foot long by 40-foot wide headland breakwater within a maximum of 210 feet channelward of the mean high water line; a 50-foot long by 24-foot wide groin within a maximum of 50 feet channelward of the mean high water line; 160 linear feet of a low profile stone cobble bar and backfilled with 329 cubic yards of sand and planted with marsh vegetation within a maximum of 50 feet channelward of the mean high water line, and total of 6,078 square feet of marsh plantings. Site 2) is located in the tidal waters of Deep Creek channelward of Lake Claire and Lake Claire Drive. Site 2 consists of the construction of an 80-foot long batten board groin adjacent to an existing pier extending 80 feet channelward of the mean high water line; the emplacement of three oyster reef clusters consisting of twenty-five 24-inch structures and twenty 36-inch structures to be seeded and within a maximum of 225 feet channelward of the mean high water line; the emplacement of two inverted root wad clusters consisting of a total of 38 upside-down trees driven into the substrate; and 9 cubic yards of sand fill with 5,102 square feet of marsh plantings. The purposes of these projects are to protect the shore from erosion and to act as shoreline restoration projects. For more information contact Matt Wallach at matthew.wallach@maryland.gov or at 410-537-3527.

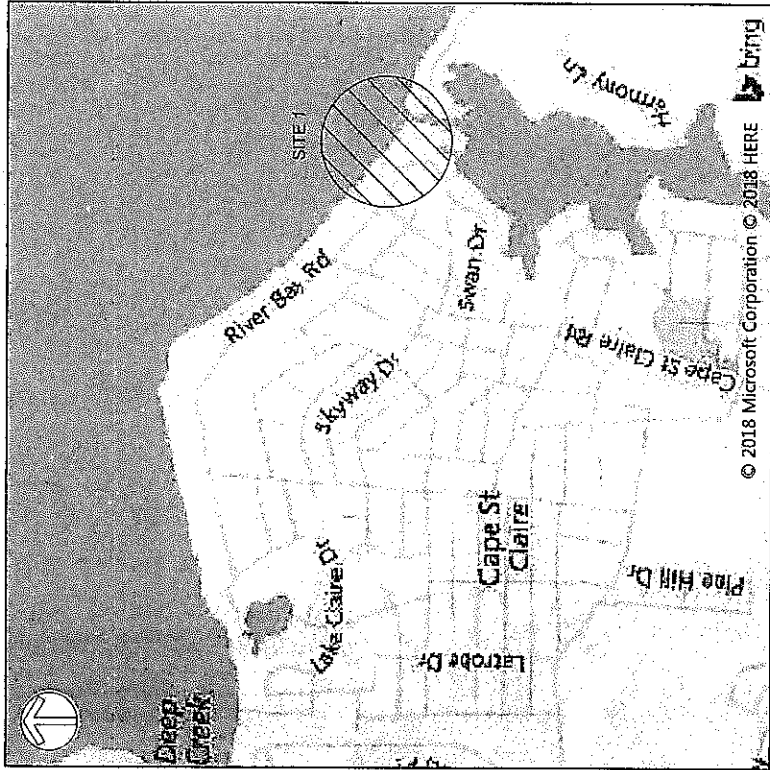
CAPE ST CLAIRE SHORELINE ENHANCEMENT - SITE 1

ANNE ARUNDEL COUNTY, MD

VICINITY MAP

SITE MAP

18-1181



© 2018 Microsoft Corporation © 2018 HERE

SCALE: 1" = 2000'

SHEET LIST TABLE

Sheet Number	Sheet Title
1	VICINITY MAP AND AERIAL PHOTO
2	SITE INDEX
3	EXISTING CONDITIONS
4	EXISTING CONDITIONS
5	PROPOSED CONDITIONS
6	PROPOSED CONDITIONS
7	IMPACT PLATES
8	IMPACT PLATES
9	CROSS SECTIONS
10	CROSS SECTIONS



© 2018 DigitalGlobe © CNES (2018) Distribution Airbus DS

SCALE: 1" = 500'

18-1181
165259
4-1-19

IMPACTS:

TOTAL OPEN WATER (BREAKWATER)	= 4,256 SF
TOTAL OPEN WATER (COBBLE BAR)	= 6,323 SF
TOTAL	= 10,579 SF
TOTAL FILL	= 494.0 CY

CAPE ST CLAIRE IMPROVEMENT ASSOCIATION
1223 RIVER BAY ROAD
ANNAPOLIS, MD 21403

DATE: 12/21/2018
ISSUES / REVISIONS: INITIAL SUBMITTAL
04/10/2019 PRE-FINAL SUBMITTAL

Biohabitats
The Stable Building, 2081 Clipping Park Road
Baltimore, MD 21214 • ph: 410-551-0156
Fax: 410-551-0168 • www.biohabitats.com
Restoring the Earth, one habitat at a time

SUSTAINABLE SCIENCE LLC
410 South Second St. Denton, MD 21629
ph: 410-924-4316
http://www.sustainable-science.com

CAPE ST. CLAIRE SHORELINE ENHANCEMENT SITE 1

TITLE: VICINITY MAP AND AERIAL PHOTO

PROJECT NO. 17023.01

SCALE: AS SHOWN

BY: AM, TB
CHECK: EM

DWG NO.: 1 OF 10

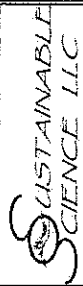
SITE 1 - MAIN BEACH

CAPE ST. CLAIRE IMPROVEMENT
ASSOCIATION
1223 RIVER BAY ROAD
ANNAPOLIS, MD 21409

DATE ISSUES / REVISIONS
12/21/2018 INITIAL SUBMITTAL
04/01/2019 PRE-FINAL SUBMITTAL



The Shackles Building, 2061 Clippert Park Road
Beltsville, MD 21111 / tel: 410-554-6196
fx: 410-554-0068 / www.biohabitats.com
Member, the Earth Science Institute University



410 South Second St. Denton, MD 21629
ph: 4109244316
http://www.sustainable-science.com

CAPE ST. CLAIRE
SHORELINE
ENHANCEMENT
SITE 1

TITLE SITE INDEX

PROJECT NO. 17023.01

SCALE: 1" = 300'

BY: AM, TB CHECK: EM

DWG. NO. 2 OF 10

N: 504100.0
E: 1473050.0

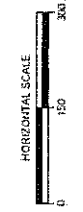
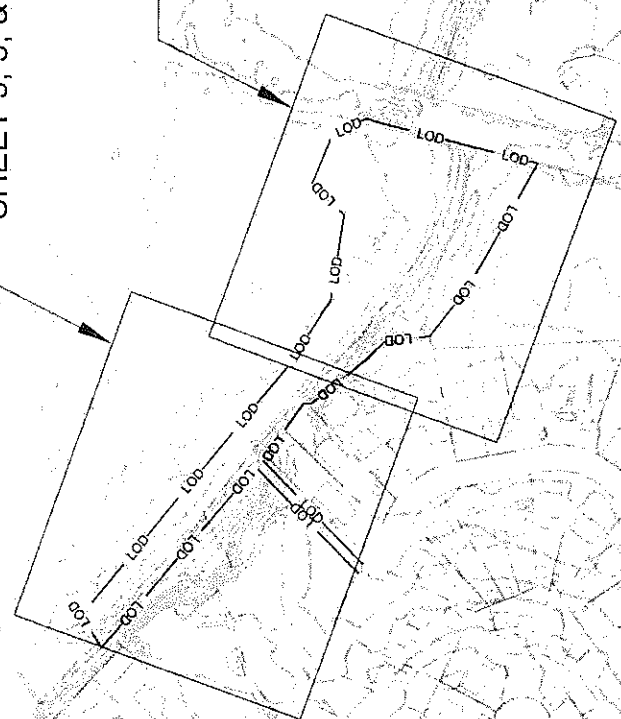
N: 502400.0
E: 1473050.0

N: 502400.0
E: 1475150.0

SHEET 3, 5, & 7

SHEET 4, 6, & 8

18 WL 1181
16 S 281
4 1 19



LITTLE MAGOTHY RIVER

CAPE ST. CLAIRE IMPROVEMENT ASSOCIATION
 1223 RIVER BAY ROAD
 ANNAPOLIS, MD 21409

DATE: 12/21/2018
 ISSUES / REVISIONS: INITIAL SUBMITTAL
 04/01/2019 PRE-FINAL SUBMITTAL

13-06-1131
 165289
 4-1-19

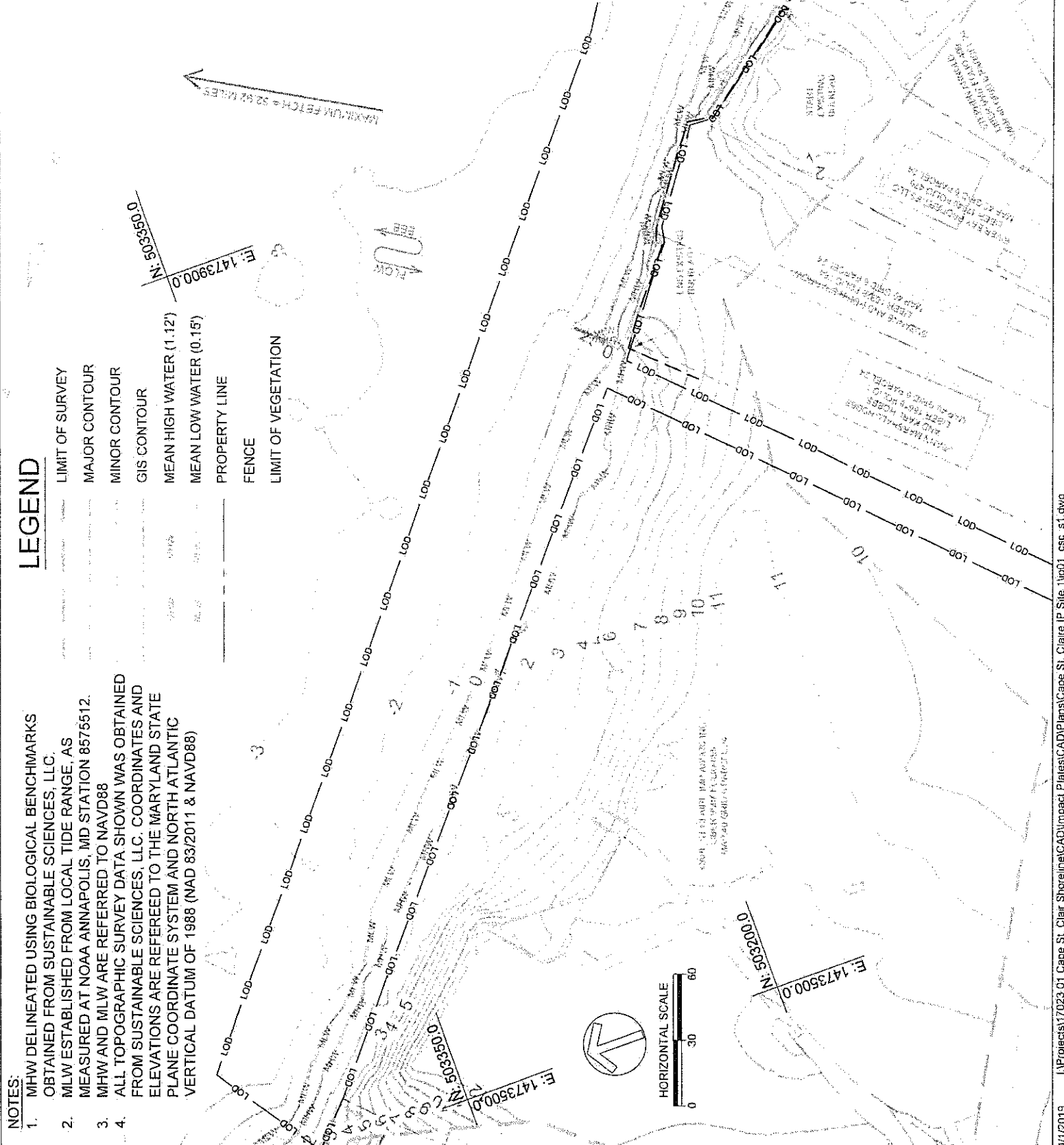
Biohabitats
 The Scales Building, 2981 Clippers Park Road
 Baltimore, MD 21211 / ph: 410-534-0156
 fx: 410-534-0108 / www.biohabitats.com
 Meticulous. The Earth is Our Mother. Ecologically. You are the Child.

SUSTAINABLE SCIENCE LLC
 410 South Second St. Denton, MD 21629
 ph: 410-924-4316
 http://www.sustainable-science.com

CAPE ST. CLAIRE SHORELINE ENHANCEMENT SITE 1

TITLE	EXISTING CONDITIONS
PROJECT NO.	17023.01
SCALE	1" = 60'
BY	CHECK
AM, TB	EM
DWG NO.	3 OF 10

MATCHLINE - SHEET 4



CAPE ST. CLAIRE IMPROVEMENT ASSOCIATION
 1223 RIVER BAY ROAD
 ANNAPOLIS, MD 21409

DATE: 12/21/2018
 ISSUES / REVISIONS: INITIAL SUBMITTAL
 04/01/2019 PRE-FINAL SUBMITTAL

18461181
 165289
 4.1.19

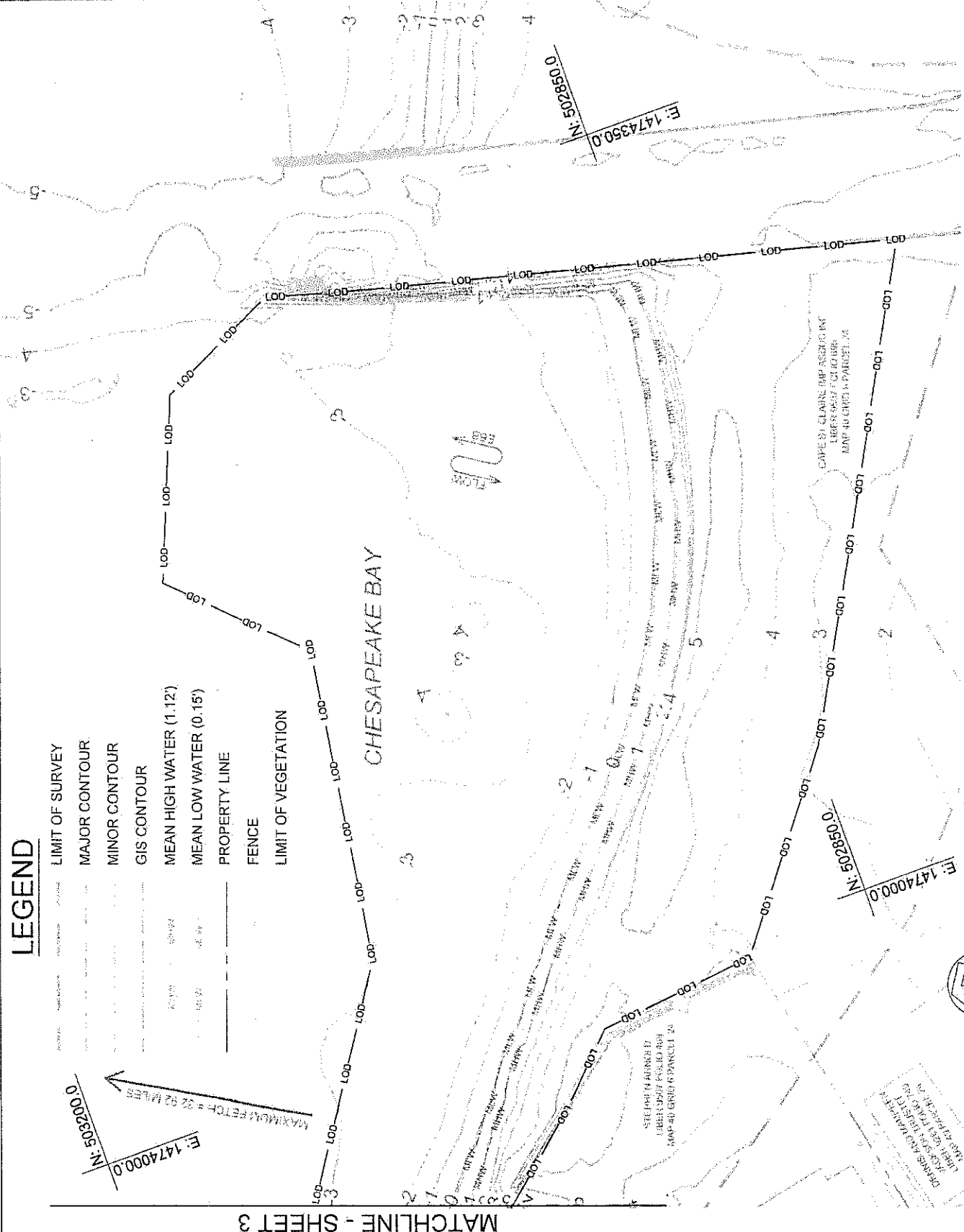
Biohabitats
 The Seches Building, 2081 Copper Back Road
 Baltimore, MD 21211 / ph: 410-551-0156
 fx: 410-554-0708 / www.biohabitats.com
 Restore the World's Ecological Diversity

SUSTAINABLE SCIENCE LLC
 419 South Second St, Denton, MD 21629
 ph: 4109244316
 http://www.sustainable-science.com

CAPE ST. CLAIRE SHORELINE ENHANCEMENT SITE 1

TITLE: EXISTING CONDITIONS
 PROJECT NO: 17023.01
 SCALE: 1" = 60'

BY: AM, TB
 CHECK: EM
 DWG. NO.: 4 OF 10



LEGEND

- LIMIT OF SURVEY
- MAJOR CONTOUR
- MINOR CONTOUR
- GIS CONTOUR
- MEAN HIGH WATER (1.12')
- MEAN LOW WATER (0.15')
- PROPERTY LINE
- FENCE
- LIMIT OF VEGETATION

NOTES:

- MHW DELINEATED USING BIOLOGICAL BENCHMARKS OBTAINED FROM SUSTAINABLE SCIENCES, LLC.
- MHW ESTABLISHED FROM LOCAL TIDE RANGE, AS MEASURED AT NOAA ANNAPOLIS, MD STATION 8575512.
- MHW AND MLW ARE REFERRED TO NAVD88
- ALL TOPOGRAPHIC SURVEY DATA SHOWN WAS OBTAINED FROM SUSTAINABLE SCIENCES, LLC. COORDINATES AND ELEVATIONS ARE REFERRED TO THE MARYLAND STATE PLANE COORDINATE SYSTEM AND NORTH ATLANTIC VERTICAL DATUM OF 1988 (NAD 83/2011 & NAVD88)

HORIZONTAL SCALE
 0 30 60

MAXIMUM FETCH = 32.92 MILES

DRINKS AND MATERIALS
 THESE ARE NOT TO BE USED FOR ANY PURPOSES OTHER THAN THE INTENDED PURPOSES OF THIS PROJECT.

STEEP BANKS
 THESE ARE NOT TO BE USED FOR ANY PURPOSES OTHER THAN THE INTENDED PURPOSES OF THIS PROJECT.

CAPE ST. CLAIRE DAM ASSEMBLY
 THESE ARE NOT TO BE USED FOR ANY PURPOSES OTHER THAN THE INTENDED PURPOSES OF THIS PROJECT.

CHESAPEAKE BAY

MATCHLINE - SHEET 3

CAPE ST CLAIRE IMPROVEMENT ASSOCIATION
 1223 RIVER BAY ROAD
 ANNAPOLIS, MD 21409

DATE: 12/21/2018
 ISSUES / REVISIONS: INITIAL SUBMITTAL
 04/01/2019 PRE-FINAL SUBMITTAL

13421131
 165231
 4.1.19

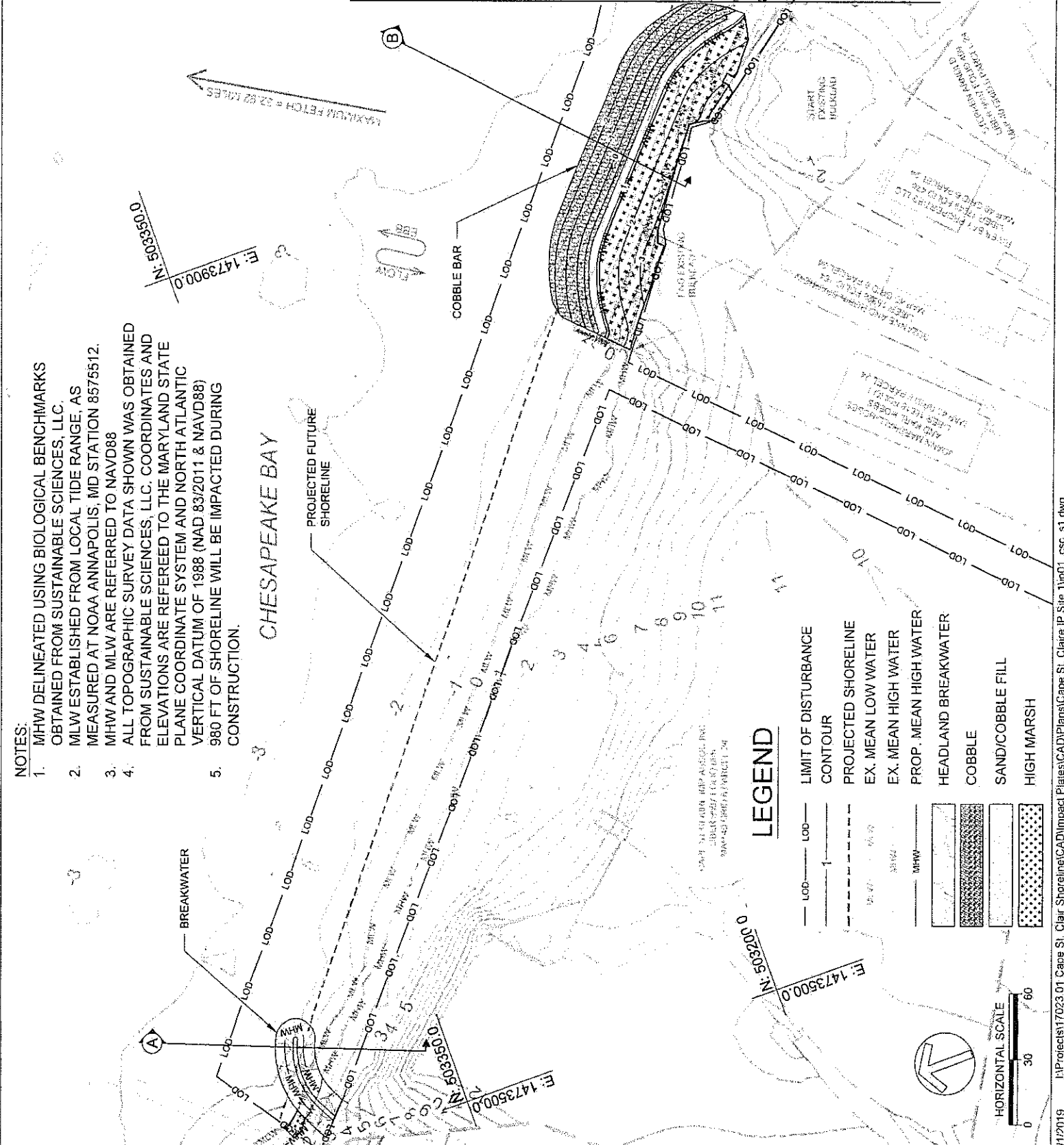
Biohabitats
 The Sea Star Building, 2084 Clipping Park Road
 Baltimore, MD 21211 / Tel: 410.551.8156
 Fax: 410.551.0168 / www.biohabitats.com
 Website: www.biohabitats.com

SUSTAINABLE SCIENCE LLC
 410 South Second St. Denton, MD 21629
 ph: 4109244316
 http://www.sustainable-science.com

CAPE ST. CLAIRE SHORELINE ENHANCEMENT SITE 1

TITLE	PROPOSED CONDITIONS
PROJECT NO.	17023.01
SCALE:	1" = 60'
BY:	AM, TB
CHECK:	EM
DWG. NO.	5 OF 10

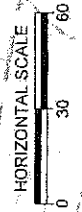
MATCHLINE - SHEET 6



- NOTES:**
- MHW DELINEATED USING BIOLOGICAL BENCHMARKS OBTAINED FROM SUSTAINABLE SCIENCES, LLC.
 - MLW ESTABLISHED FROM LOCAL TIDE RANGE, AS MEASURED AT NOAA ANNAPOLIS, MD STATION 8575512.
 - MHW AND MLW ARE REFERRED TO NAVD88
 - ALL TOPOGRAPHIC SURVEY DATA SHOWN WAS OBTAINED FROM SUSTAINABLE SCIENCES, LLC. COORDINATES AND ELEVATIONS ARE REFERRED TO THE MARYLAND STATE PLANE COORDINATE SYSTEM AND NORTH ATLANTIC VERTICAL DATUM OF 1988 (NAD 83/2011 & NAVD88)
 - 980 FT OF SHORELINE WILL BE IMPACTED DURING CONSTRUCTION.

LEGEND

- LOD — LIMIT OF DISTURBANCE
- 1 — CONTOUR
- - - PROJECTED SHORELINE
- EX. MEAN LOW WATER
- EX. MEAN HIGH WATER
- PROP. MEAN HIGH WATER
- HEADLAND BREAKWATER
- COBBLE
- SAND/COBBLE FILL
- HIGH MARSH



CAPE ST. CLAIRE IMPROVEMENT ASSOCIATION
 1223 RIVER BAY ROAD
 ANNAPOLIS, MD 21409

DATE ISSUES / REVISIONS
 12/21/2018 INITIAL SUBMITTAL
 04/01/2019 PRE-FINAL SUBMITTAL

180621181
 163294
 4-1-19

Biohabitats
 The Stable Building, 3081 Clipper Park Road
 Belton, MD 21117 / Ph: 410-554-0176
 Fx: 410-554-0168 / www.biohabitats.com
 Website: My Earth 20+ Years Sustainable Stormwater

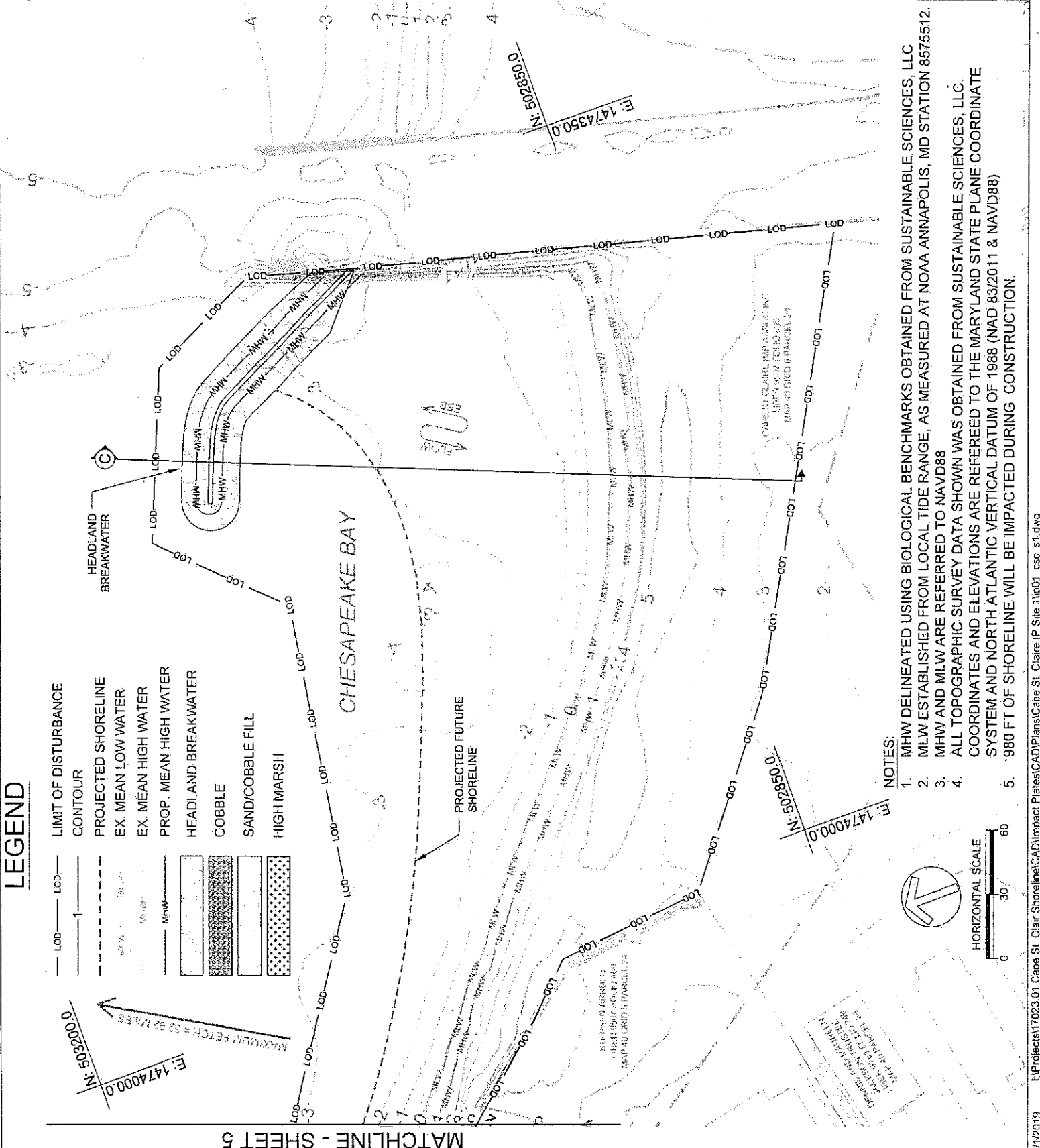
SUSTAINABLE SCIENCE LLC
 410 South Second St. Denton, MD 21629
 Ph: 410-924-4316
 http://www.sustainable-science.com

CAPE ST. CLAIRE SHORELINE ENHANCEMENT SITE 1

TITLE: PROPOSED CONDITIONS
 PROJECT NO.: 17023.01

SCALE: 1" = 60'

BY: AM, TB CHECK: EM
 DWG. NO.: 6 OF 10



LEGEND

- LOD — LIMIT OF DISTURBANCE
- 1 — CONTOUR
- - - - - PROJECTED SHORELINE
- EX. MEAN LOW WATER
- EX. MEAN HIGH WATER
- MHHW — PROP. MEAN HIGH WATER
- MHW — HEADLAND BREAKWATER
- COBBLE
- SAND/COBBLE FILL
- HIGH MARSH

NOTES:

1. MHW DELINEATED USING BIOLOGICAL BENCHMARKS OBTAINED FROM SUSTAINABLE SCIENCES, LLC.
2. MLW ESTABLISHED FROM LOCAL TIDE RANGE, AS MEASURED AT NOAA ANNAPOLIS, MD STATION 8575512.
3. MHW AND MLW ARE REFERRED TO NAVD88
4. ALL TOPOGRAPHIC SURVEY DATA SHOWN WAS OBTAINED FROM SUSTAINABLE SCIENCES, LLC. COORDINATES AND ELEVATIONS ARE REFERRED TO THE MARYLAND STATE PLANE COORDINATE SYSTEM AND NORTH ATLANTIC VERTICAL DATUM OF 1988 (NAD 83/2011 & NAVD88)
5. 980 FT OF SHORELINE WILL BE IMPACTED DURING CONSTRUCTION.

CAPE ST CLAIRE IMPROVEMENT ASSOCIATION
 1223 RIVER BAY ROAD
 ANNAPOLIS, MD 21409

DATE ISSUES / REVISIONS
 12/21/2018 INITIAL SUBMITTAL
 04/01/2019 PRE-FINAL SUBMITTAL

1806-1191
 16529
 4-1-19

Biohabitats
 The Stable Building, 2981 Clipping Park Road
 Habersham, MD 21041 / Tel: 410-531-0156
 Fax: 410-531-0168 / www.biohabitats.com

Team: St. Claire & River, Landings & Chesapeake

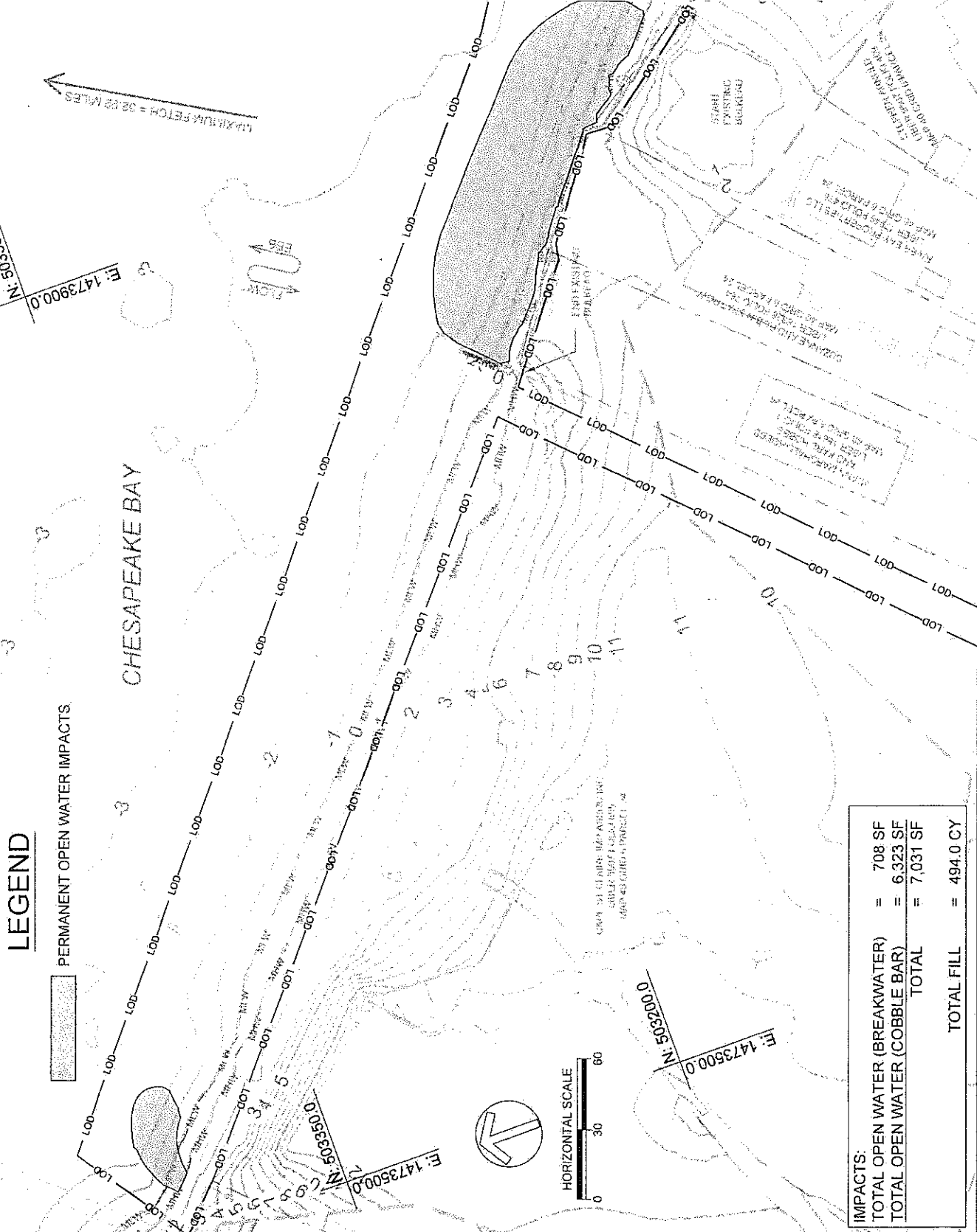
SUSTAINABLE SCIENCE LLC
 410 South Second St. Denton, MD 21629
 ph: 410-924-4316
 http://www.sustainable-science.com

CAPE ST. CLAIRE SHORELINE ENHANCEMENT SITE 1

TITLE:	IMPACT PLATES
PROJECT NO.:	17023.01
SCALE:	1" = 60'
BY:	AM, TB
CHECK:	EM
DWG. NO.:	7 OF 10

MATCHLINE - SHEET 8

- NOTES:**
1. MHW DELINEATED USING BIOLOGICAL BENCHMARKS OBTAINED FROM SUSTAINABLE SCIENCES, LLC.
 2. MLW ESTABLISHED FROM LOCAL TIDE RANGE, AS MEASURED AT NOAA ANNAPOLIS, MD STATION 8575512.
 3. MHW AND MLW ARE REFERRED TO NAVD88
 4. ALL TOPOGRAPHIC SURVEY DATA SHOWN WAS OBTAINED FROM SUSTAINABLE SCIENCES, LLC. COORDINATES AND ELEVATIONS ARE REFERRED TO THE MARYLAND STATE PLANE COORDINATE SYSTEM AND NORTH ATLANTIC VERTICAL DATUM OF 1988 (NAD 83/2011 & NAVD88)



IMPACTS:

TOTAL OPEN WATER (BREAKWATER)	= 708 SF
TOTAL OPEN WATER (COBBLE BAR)	= 6,323 SF
TOTAL	= 7,031 SF
TOTAL FILL	= 494.0 CY

CAPE ST CLAIRE IMPROVEMENT ASSOCIATION
 1223 RIVER BAY ROAD
 ANNAPOLIS, MD 21409

DATE ISSUES / REVISIONS
 12/21/2018 INITIAL SUBMITTAL
 04/01/2019 PRE-FINAL SUBMITTAL

18 WL 1181
~~13-0-1109~~
 163239
 4-1-15

Biohabitats
 For Stable Habitat: 2941 Clipse Park Road
 Baltimore, MD 21211 / ph: 410.531.0156
 fx: 410.531.0168 / www.biohabitats.com
 Register: csc - Environmental Science, Inc.

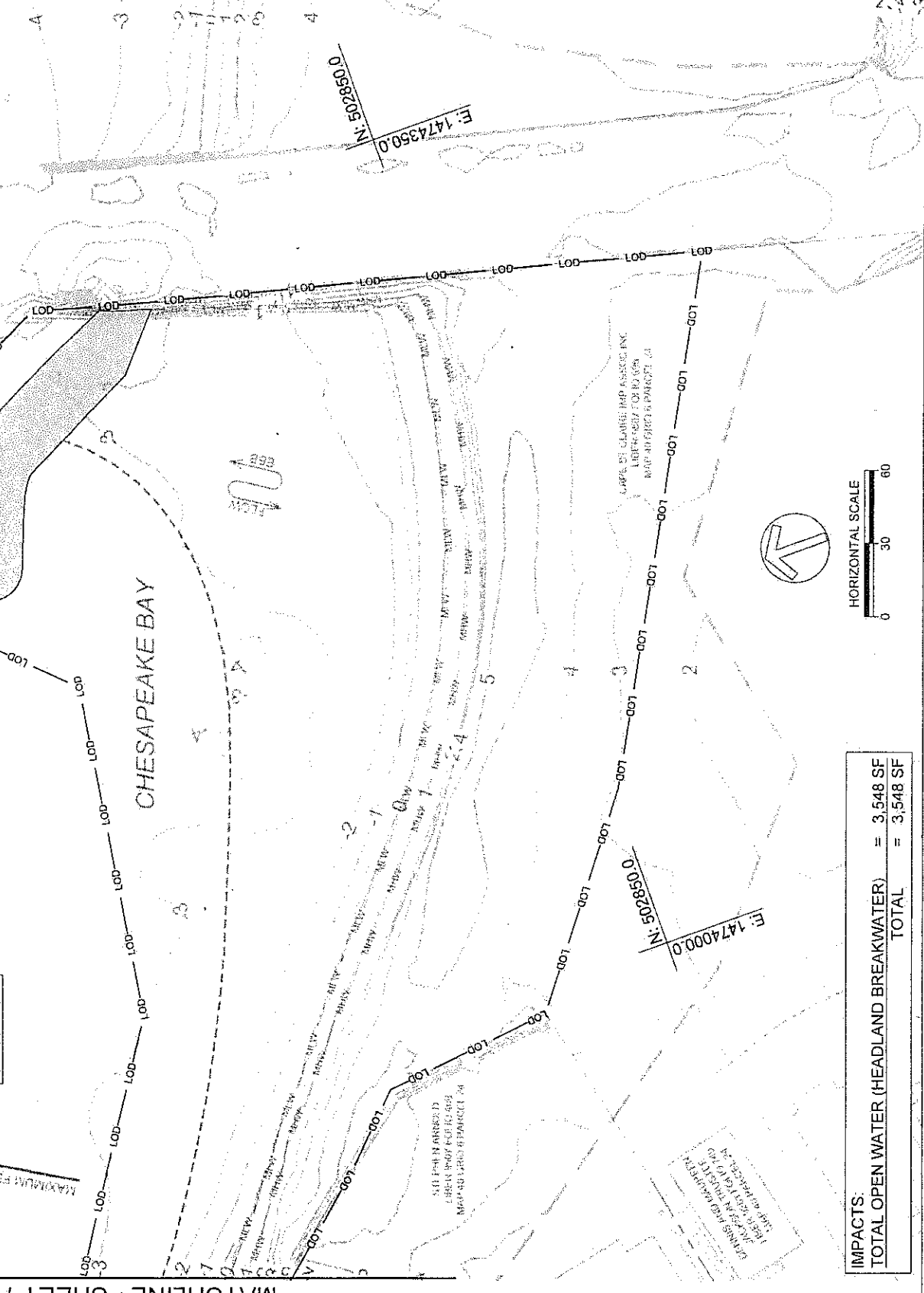
SUSTAINABLE SCIENCE LLC
 410 South Second St. Denton, MD 21629
 ph: 4109244316
 http://www.sustainable-science.com

CAPE ST. CLAIRE SHORELINE ENHANCEMENT SITE 1

TITLE: IMPACT PLATES
 PROJECT NO.: 17023.01
 SCALE: 1" = 60'
 BY: AM, TB
 CHECK: EM
 DWG. NO.: 8 OF 10

- NOTES:
1. MHW DELINEATED USING BIOLOGICAL BENCHMARKS OBTAINED FROM SUSTAINABLE SCIENCES, LLC.
 2. MLW ESTABLISHED FROM LOCAL TIDE RANGE, AS MEASURED AT NOAA ANNAPOLIS, MD STATION 8575512.
 3. MHW AND MLW ARE REFERRED TO NAVD88
 4. ALL TOPOGRAPHIC SURVEY DATA SHOWN WAS OBTAINED FROM SUSTAINABLE SCIENCES, LLC. COORDINATES AND ELEVATIONS ARE REFERRED TO THE MARYLAND STATE PLANE COORDINATE SYSTEM AND NORTH ATLANTIC VERTICAL DATUM OF 1988 (NAD 83/2011 & NAVD88)

LEGEND
 PERMANENT OPEN WATER IMPACTS



CAPE ST CLAIRE IMPROVEMENT ASSOCIATION
 1223 RIVER BAY ROAD
 ANNAPOLIS, MD 21409

DATE: 12/21/2018
 ISSUES / REVISIONS: INITIAL SUBMITTAL
 04/01/2019 PRE-FINAL SUBMITTAL

18 WL 1181
~~19 WL 1181~~
 163234
 4.1.15

Biohabitats
 The Stable Building, 2851 Clipper Bark Road
 Baltimore, MD 21211 / ph: 410.531.0156
 fax: 410.531.0108 / www.biohabitats.com
Revised to Match the better RockShield Material

SUSTAINABLE SCIENCE LLC
 410 South Second St. Denton, MD 21629
 ph: 410.924.4316
 http://www.sustainable-science.com

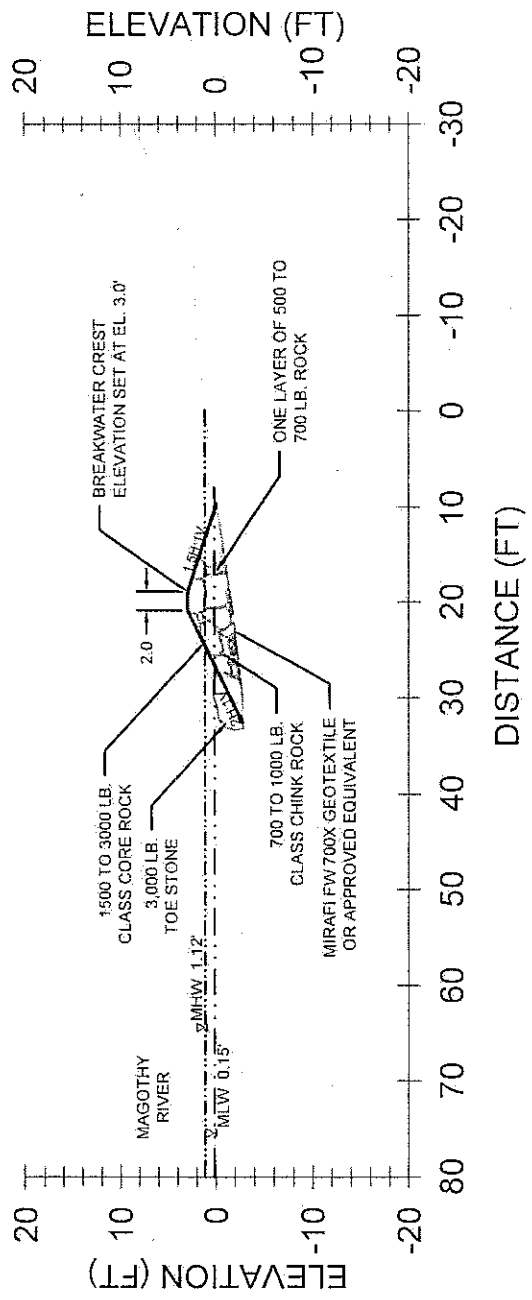
CAPE ST. CLAIRE SHORELINE ENHANCEMENT SITE 1

TITLE: CROSS SECTIONS
 PROJECT NO.: 17023.01

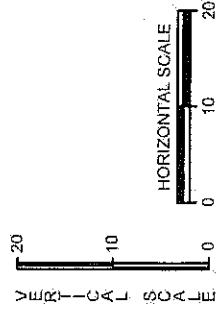
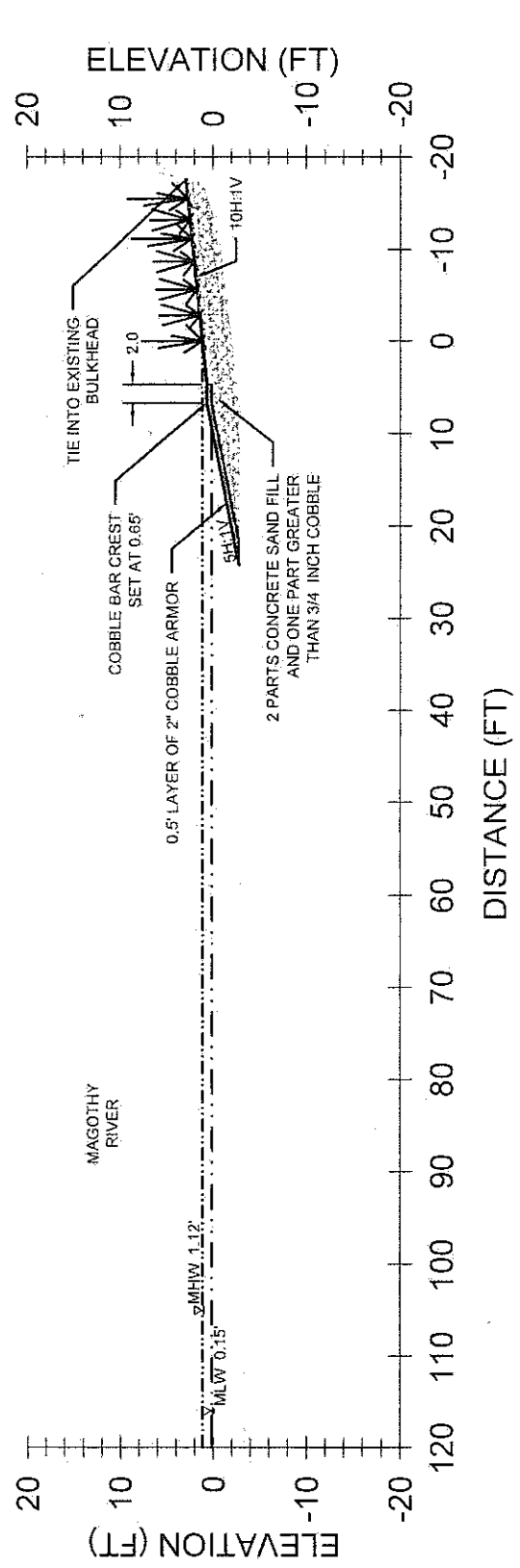
SCALE: AS SHOWN
 BY: AM, TB
 CHECK: EM

DWG. NO.: 9 OF 10

SECTION A - BREAKWATER



SECTION B - COBBLE BAR



CAPE ST CLAIRE IMPROVEMENT ASSOCIATION
 1223 RIVER BAY ROAD
 ANNAPOLIS, MD 21409

DATE: 12/21/2018
 ISSUES / REVISIONS: INITIAL SUBMITTAL
 04/01/2019 PRE-FINAL SUBMITTAL

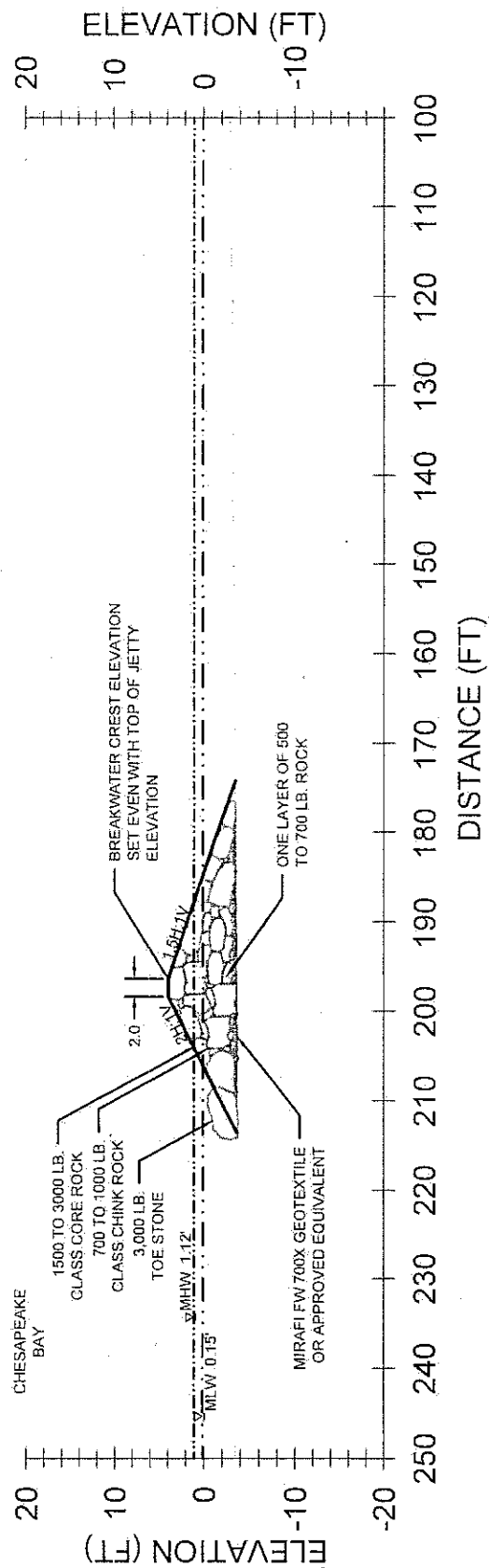
1844-1181
 163245
 4-1-19

Biohabitats
 The Shales Building, 2081 C Upper Park Road
 Baltimore, MD 21211 / ph: 410-551-1116
 fx: 410-551-1168 / www.biohabitats.com
 Knowers Park is a Registered Natural Area

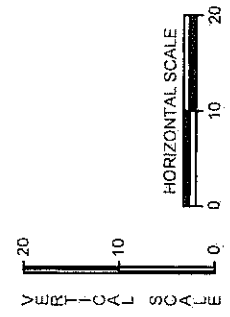
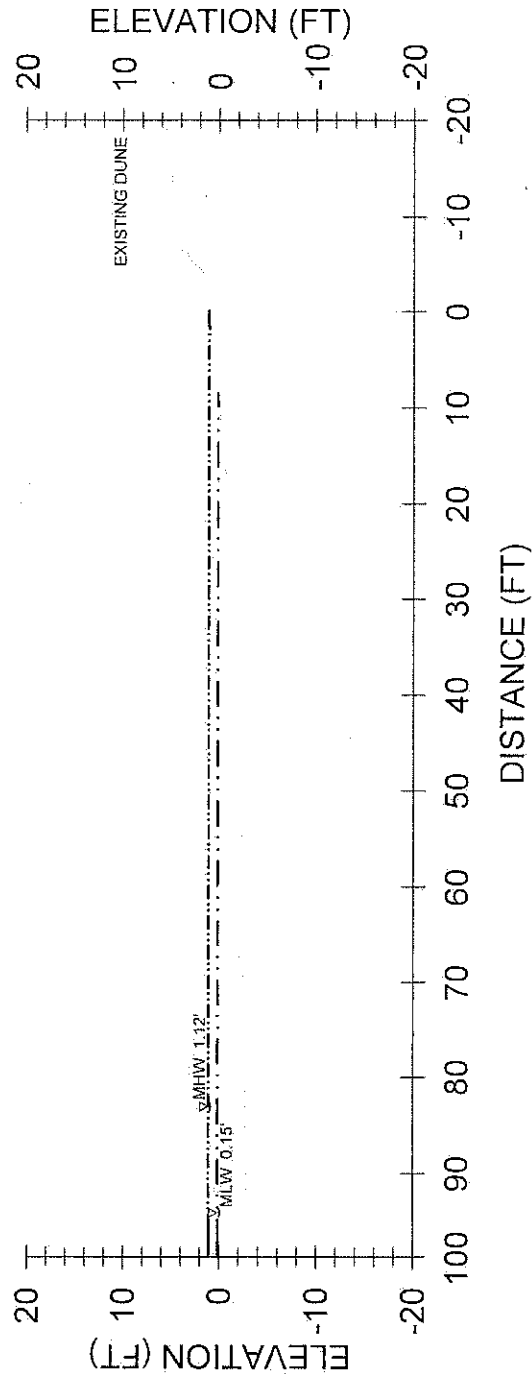
SUSTAINABLE SCIENCE LLC
 410 South Second St. Denton, MD 21629
 ph 410-924-4316
 http://www.sustainable-science.com

TITLE: CAPE ST. CLAIRE SHORELINE ENHANCEMENT SITE 1	
TITLE: CROSS SECTIONS	PROJECT NO.: 17023.01
SCALE: AS SHOWN	
BY: AM, TB	CHECK: EM
DWG. NO.: 10 OF 10	

SECTION C - HEADLAND BREAKWATER



SECTION C - HEADLAND BREAKWATER



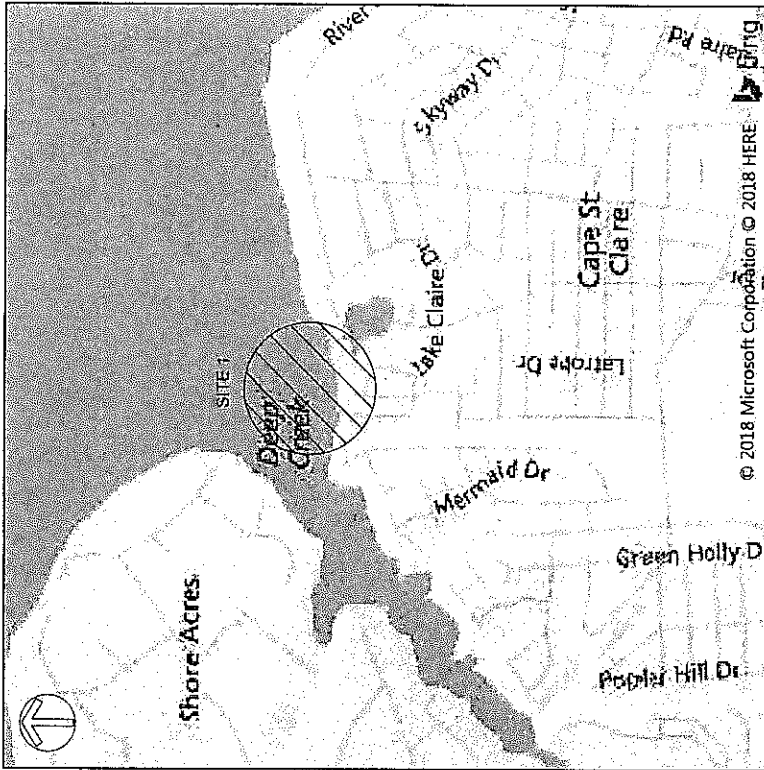
CAPE ST CLAIRE SHORELINE ENHANCEMENT - SITE 2

ANNE ARUNDEL COUNTY, MD

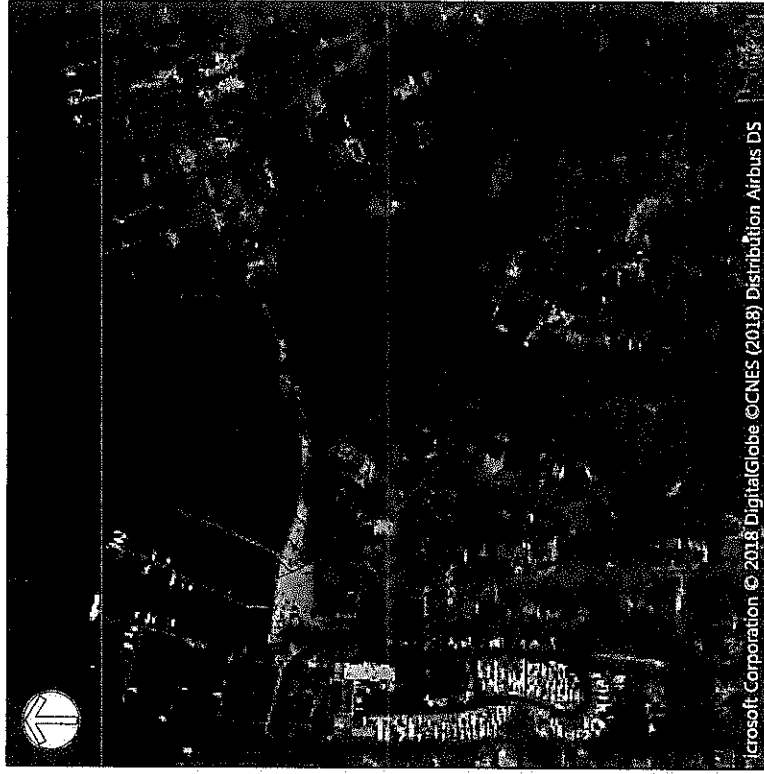
VICINITY MAP

SITE MAP

18-1189



SCALE: 1" = 2000'



SCALE: 1" = 500'

SHEET LIST TABLE

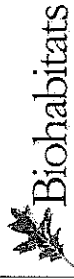
Sheet Number	Sheet Title
1	VICINITY MAP AND AERIAL PHOTO
2	SITE INDEX
3	EXISTING CONDITIONS
4	EXISTING CONDITIONS
5	PROPOSED CONDITIONS
6	PROPOSED CONDITIONS
7	IMPACT PLATES
8	IMPACT PLATES
9	DETAILS
10	DETAILS
11	DETAILS
12	CROSS SECTION

18 WC 1189
163239
4.1.19

PERMANENT IMPACTS:	
TIDAL OPEN WATER (LIVING SHORELINE)	= 1,990 SF
TIDAL OPEN WATER (GROIN)	= 12 SF
TIDAL OPEN WATER (INVERTED ROOT WAD)	= 461 SF
TIDAL OPEN WATER (FORMED OYSTER REEF STRUCTURES)	= 1,951 SF
TOTAL OPEN WATER (PERMANENT)	= 4,414 SF

CAPE ST CLAIRE COMMUNITY
IMPROVEMENT ASSOCIATION
1223 RIVER BAY ROAD
ANNAPOLIS, MD 21405

DATE ISSUES / REVISIONS
12/21/2018 INITIAL SUBMITTAL
04/01/2019 PRE-FINAL SUBMITTAL



The Sables Building, 2081 Clipper Park Road
Baltimore, MD 21217, ph: 410-531-0136
fx: 410-531-0168 / www.biohabitats.com
license: 0611497-C-1-Reg-00000000000000000000



410 South Second St. Denton, MD 21629
ph: 410-924-4316
http://www.sustainable-science.com

CAPE ST CLAIRE
SHORELINE
ENHANCEMENT
SITE 2

TITLE: VICINITY MAP AND
AERIAL PHOTO

PROJECT NO.: 17023.01

SCALE: AS SHOWN

BY: CHECK
AM, TB EM

DWG. NO.: 1 OF 12

SITE 2 - LAKE CLAIRE

CAPE ST. CLAIRE COMMUNITY
IMPROVEMENT ASSOCIATION
1223 RIVER BAY ROAD
ANNAPOLIS, MD. 21409

DATE ISSUES / REVISIONS
12/21/2018 INITIAL SUBMITTAL
04/01/2019 PRE-FINAL SUBMITTAL

N: 505500.0
E: 1469300.0

SHEET 3, 5, & 7 SHEET 4, 6, & 8

N: 505500.0
E: 1467500.0

N: 503950.0
E: 1467500.0

18 WL 1134
163289
4114

Biohabitats
The Stable Building, 2081 Clipping Park Road
Beltsville, MD 21111 / ph: 410-531-0156
fx: 410-251-0168 / www.biohabitats.com
Sustaining the Earth's Future, One Project at a Time

SUSTAINABLE SCIENCE LLC
410 South Second St, Denton, MD 21629
ph: 410-924-4316
http://www.sustainable-science.com

CAPE ST CLAIRE
SHORELINE
ENHANCEMENT
SITE 2

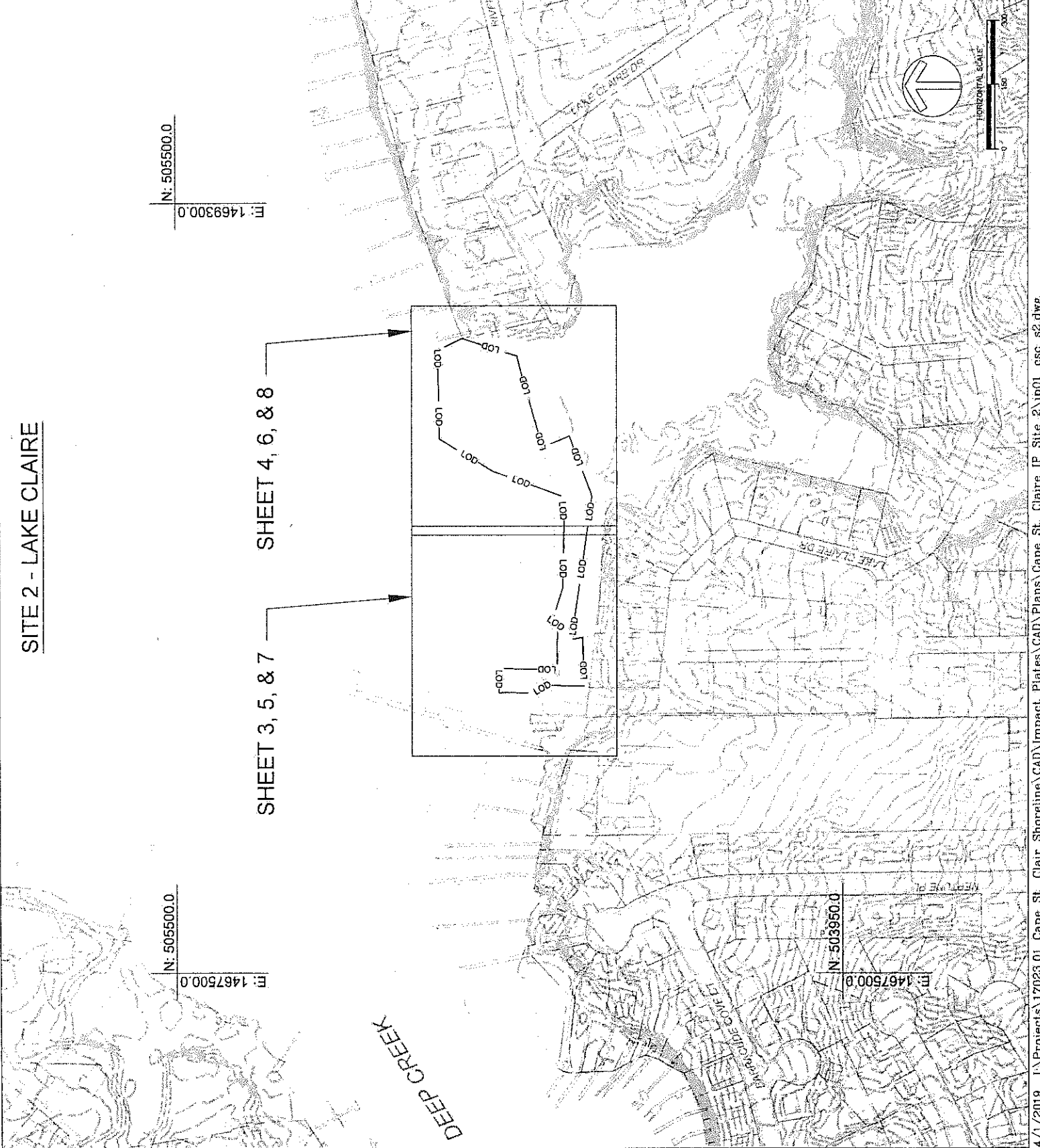
TITLE: SITE INDEX

PROJECT NO.: 17023.01

SCALE: 1" = 300'

BY: AM, TB CHECK: EM

DWG. NO.: 2 OF 12



CAPE ST CLAIRE COMMUNITY
IMPROVEMENT ASSOCIATION
1223 RIVER BAY ROAD
ANNAPOLIS, MD 21409

DATE ISSUES / REVISIONS
12/21/2018 INITIAL SUBMITTAL
04/01/2019 PRE-FINAL SUBMITTAL

18441189
163289
4119

Biohabitats
The Studio, Building 3081 Clippier Park Road
Baltimore, MD 21217 Tel: 410.541.0156
Fax: 410.541.0167 www.biohabitats.com
License: Professional Land Surveyor, Maryland

**SUSTAINABLE
SCIENCE LLC**
410 South Second St. Denton, MD 21629
ph: 410.924.4316
http://www.sustainable-science.com

CAPE ST CLAIRE
SHORELINE
ENHANCEMENT
SITE 2

TITLE: EXISTING
CONDITIONS

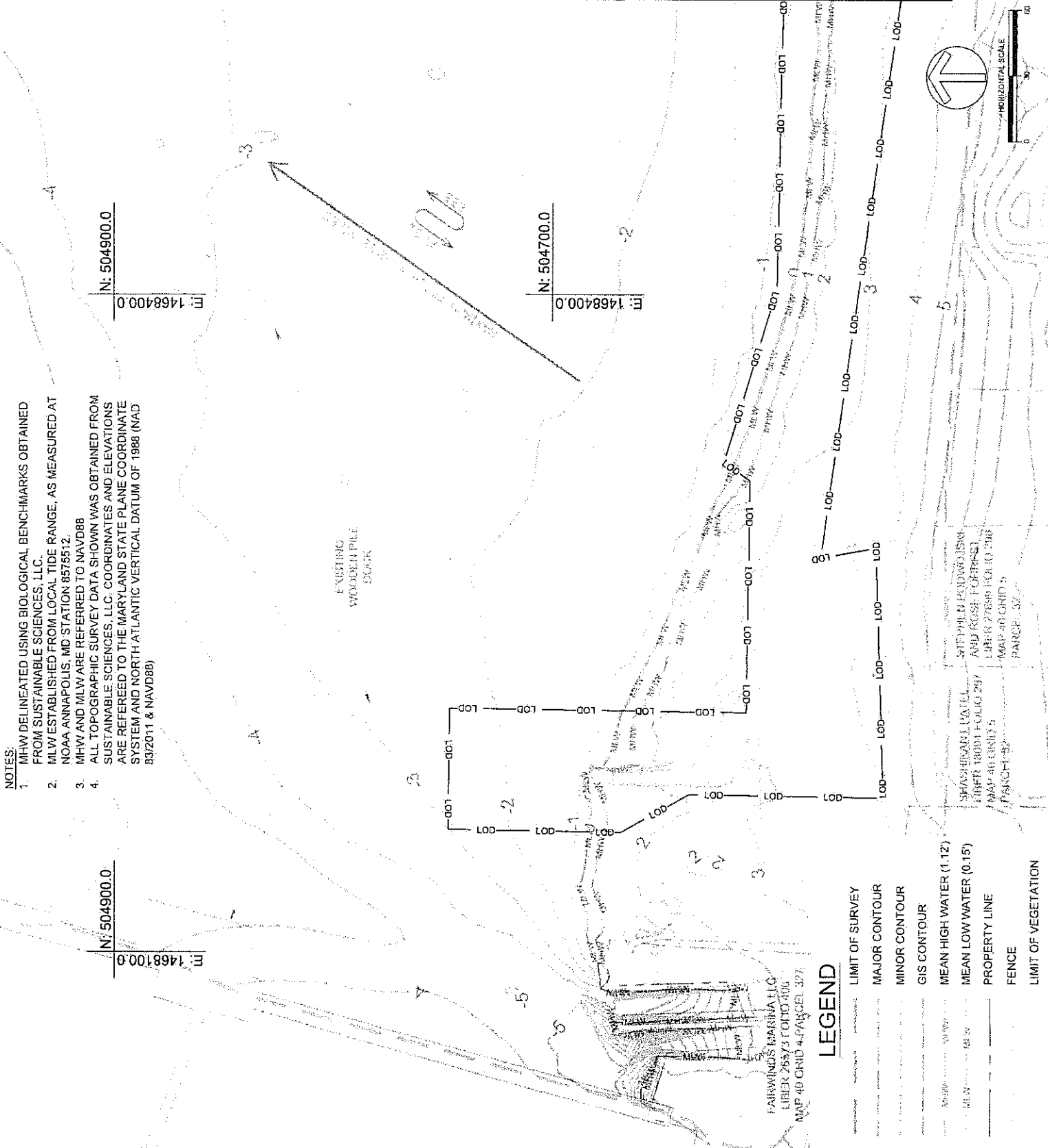
PROJECT NO.: 17023.01

SCALE: 1" = 60'

BY: CHECK
AM, TB EM

DWG. NO.: 3 OF 12

MATCHLINE - SHEET 4



- NOTES:
1. MHW DELINEATED USING BIOLOGICAL BENCHMARKS OBTAINED FROM SUSTAINABLE SCIENCES, LLC.
 2. MLW ESTABLISHED FROM LOCAL TIDE RANGE, AS MEASURED AT NOAA ANNAPOLIS, MD STATION 8575512.
 3. MHW AND MLW ARE REFERRED TO NAVD88
 4. ALL TOPOGRAPHIC SURVEY DATA SHOWN WAS OBTAINED FROM SUSTAINABLE SCIENCES, LLC. COORDINATES AND ELEVATIONS ARE REFERRED TO THE MARYLAND STATE PLANE COORDINATE SYSTEM AND NORTH ATLANTIC VERTICAL DATUM OF 1988 (NAD 83/2011 & NAVD88)

- LEGEND**
- LIMIT OF SURVEY
 - MAJOR CONTOUR
 - MINOR CONTOUR
 - GIS CONTOUR
 - MEAN HIGH WATER (1.12')
 - MEAN LOW WATER (0.15')
 - PROPERTY LINE
 - FENCE
 - LIMIT OF VEGETATION

CAPE ST CLAIRE COMMUNITY
IMPROVEMENT ASSOCIATION
1223 RIVER BAY ROAD
ANNAPOLIS, MD 21409

DATE ISSUES / REVISIONS
12/21/2018 INITIAL SUBMITTAL
04/01/2019 PRE-FINAL SUBMITTAL

1846 1189
163289
41119

Biohabitats
The Shackles Building, 2901 Clipse Park Road
Beltsville, MD 21031 / Tel: 410-531-9156
Fax: 410-251-0106 / www.biohabitats.com
Robert G. Burch, C. Baker, Esq., P.E., M.S., Ph.D.

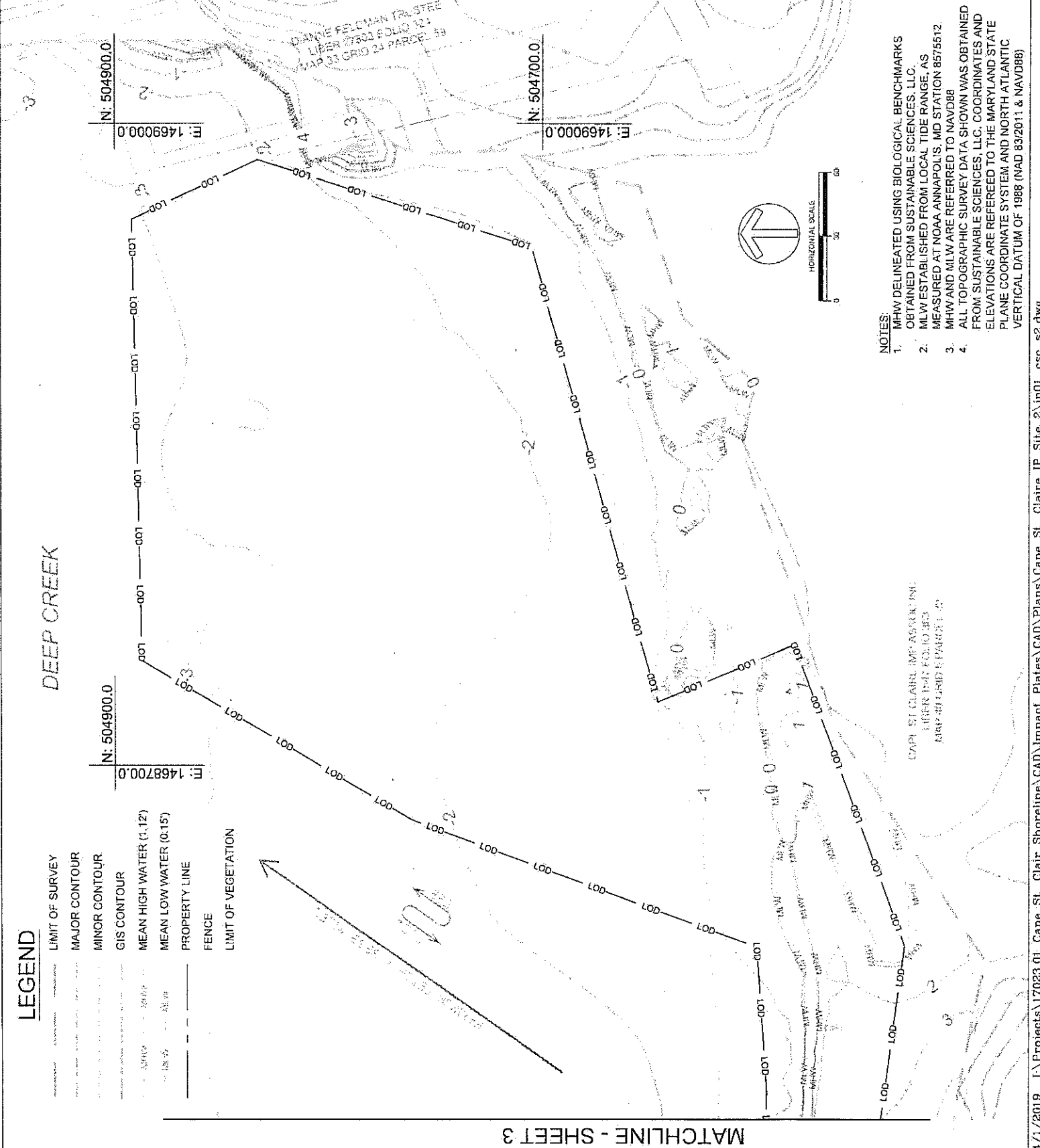
SUSTAINABLE SCIENCE LLC
410 South Second St., Denton, MD 21629
ph: 410-924-3116
http://www.sustainable-science.com

CAPE ST CLAIRE
SHORELINE
ENHANCEMENT
SITE 2

TITLE: EXISTING
CONDITIONS
PROJECT NO.: 17023.01

SCALE: 1" = 60'
BY: AM, TB
CHECK: EM


DWG. NO. 4 OF 12



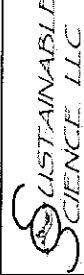
CAPE ST CLAIRE COMMUNITY
IMPROVEMENT ASSOCIATION
1223 RIVER BAY ROAD
ANNAPOLIS, MD 21409

DATE ISSUES / REVISIONS
12/21/2018 INITIAL SUBMITTAL
04/01/2019 PRE-FINAL SUBMITTAL

1842 (18)
16 S 2 50'
4-1-19



The Sackles Building 2801 Clipping Park Road
Beltsville, MD 21113 ph: 410-554-0156
A: 410-554-0168 / www.biohabitats.com
Member of Earth & Water Partners of Maryland



410 South Second St, Denton, MD 21629
ph: 410-924-4316
http://www.sustainable-science.com

CAPE ST CLAIRE
SHORELINE
ENHANCEMENT
SITE 2

TITLE PROPOSED
CONDITIONS
PROJECT NO.: 17023.01

SCALE:
1" = 60'

BY: AM, TB
CHECK: EM

DWG. NO.: 5 OF 12

MATCHLINE - SHEET 6

- NOTES:
- MHW DELINEATED USING BIOLOGICAL BENCHMARKS OBTAINED FROM SUSTAINABLE SCIENCES, LLC.
 - MLW ESTABLISHED FROM LOCAL TIDE RANGE, AS MEASURED AT NOAA ANNAPOLIS, MD STATION 8575512.
 - MHW AND MLW ARE REFERRED TO NAVD88
 - ALL TOPOGRAPHIC SURVEY DATA SHOWN WAS OBTAINED FROM SUSTAINABLE SCIENCES, LLC. COORDINATES AND ELEVATIONS ARE REFERRED TO THE MARYLAND STATE PLANE COORDINATE SYSTEM AND NORTH ATLANTIC VERTICAL DATUM OF 1988 (NAD 83/2011 & NAVD88)
 - INCLUDE QUANTITIES FOR IMPORTANT RIPRAP, COBBLES, SAND, ETC FOR STRUCTURES
 - 350 FT OF SHORELINE WILL BE IMPACTED DURING CONSTRUCTION.
 - 0.05 ACRES OF HIGH MARSH WITH 2 FT SPACING (TOTAL)
 - 0.05 ACRES OF LOW MARSH WITH 2 FT SPACING (TOTAL)
 - 0.02 ACRES OF DUNE HABITAT WITH 2 FT SPACING (TOTAL)

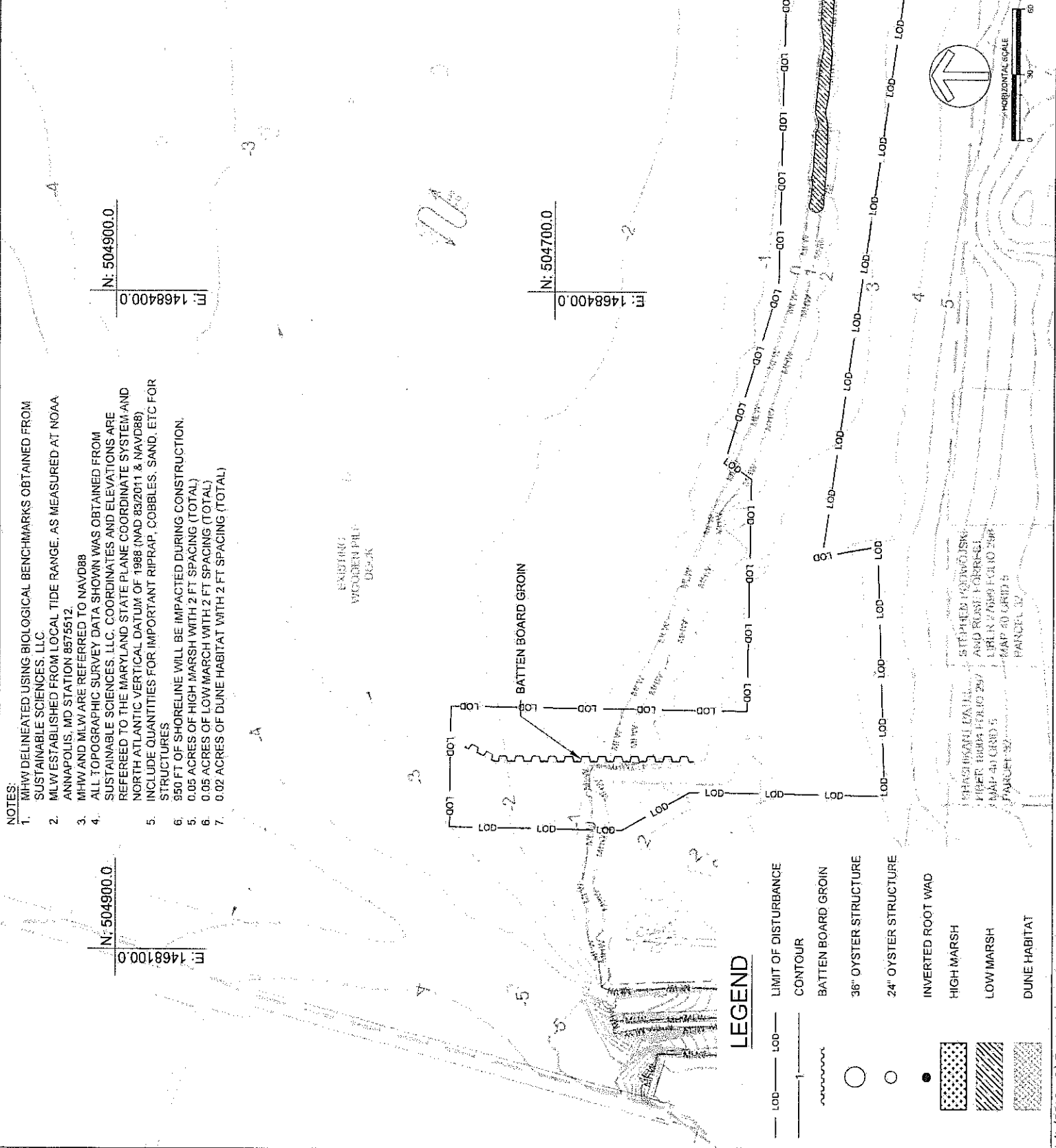
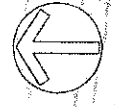
N: 504900.0
E: 1468400.0

N: 504900.0
E: 1468100.0

BATTEN BOARD GROIN

LEGEND

- LOD - LOD LIMIT OF DISTURBANCE
- CONTOUR
- BATTEN BOARD GROIN
- 36" OYSTER STRUCTURE
- 24" OYSTER STRUCTURE
- INVERTED ROOT WAD
- HIGH MARSH
- LOW MARSH
- DUNE HABITAT



CAPE ST CLAIRES COMMUNITY IMPROVEMENT ASSOCIATION
 1223 RIVER BAY ROAD
 ANNAPOLIS, MD 21409

DATE ISSUES / REVISIONS
 12/21/2019 INITIAL SUBMITTAL
 04/01/2019 PRE-FINAL SUBMITTAL

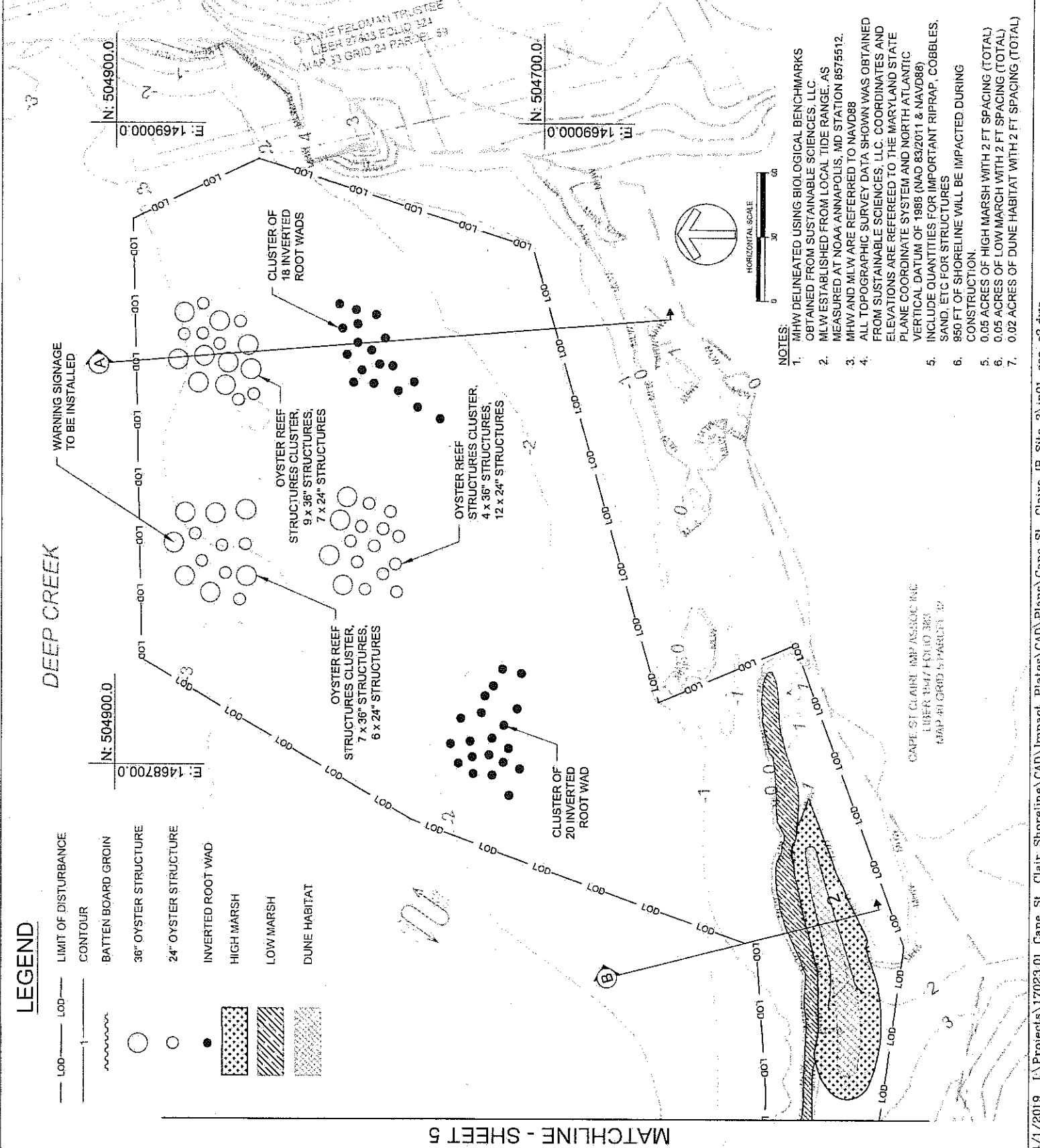
19 W 11 89
 163289
 4-1-19

Biohabitats
 The Seabird Building, 3081 Clipse Park Road
 Beltsville, MD 21741 / ph: 410-551-0156
 fx: 410-551-0168 / www.biohabitats.com
 Register As Earth & Water Scientist/Agenda

SUSTAINABLE SCIENCE LLC
 410 South Second St., Denton, MD 21629
 ph: 410-924-4316
 http://www.sustainable-science.com

CAPE ST CLAIRES SHORELINE ENHANCEMENT SITE 2

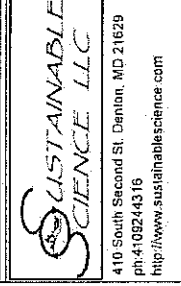
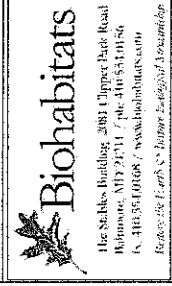
TITLE: PROPOSED CONDITIONS
 PROJECT NO.: 17023.01
 SCALE: 1" = 60'
 BY: AM, TB CHECK: EM
 DWG. NO.: 6 OF 12



CAPE ST CLAIRE COMMUNITY
IMPROVEMENT ASSOCIATION
1223 RIVER BAY ROAD
ANNAPOLIS, MD 21409

DATE: ISSUES / REVISIONS
12/21/2018 INITIAL SUBMITTAL
04/01/2019 PRE-FINAL SUBMITTAL

19421139
163287
4.114



CAPE ST CLAIRE
SHORELINE
ENHANCEMENT
SITE 2

TITLE
IMPACT PLATES

PROJECT NO.: 17023.01

SCALE: 1" = 60'

BY: CHECK
AM, TB EIM

DWG. NO. 7 OF 12

MATCHLINE - SHEET 8

PERMANENT IMPACTS:
TIDAL OPEN WATER (LIVING SHORELINE) = 505 SF
TIDAL OPEN WATER (GROIN) = 12 SF
TOTAL OPEN WATER (PERMANENT) = 517 SF

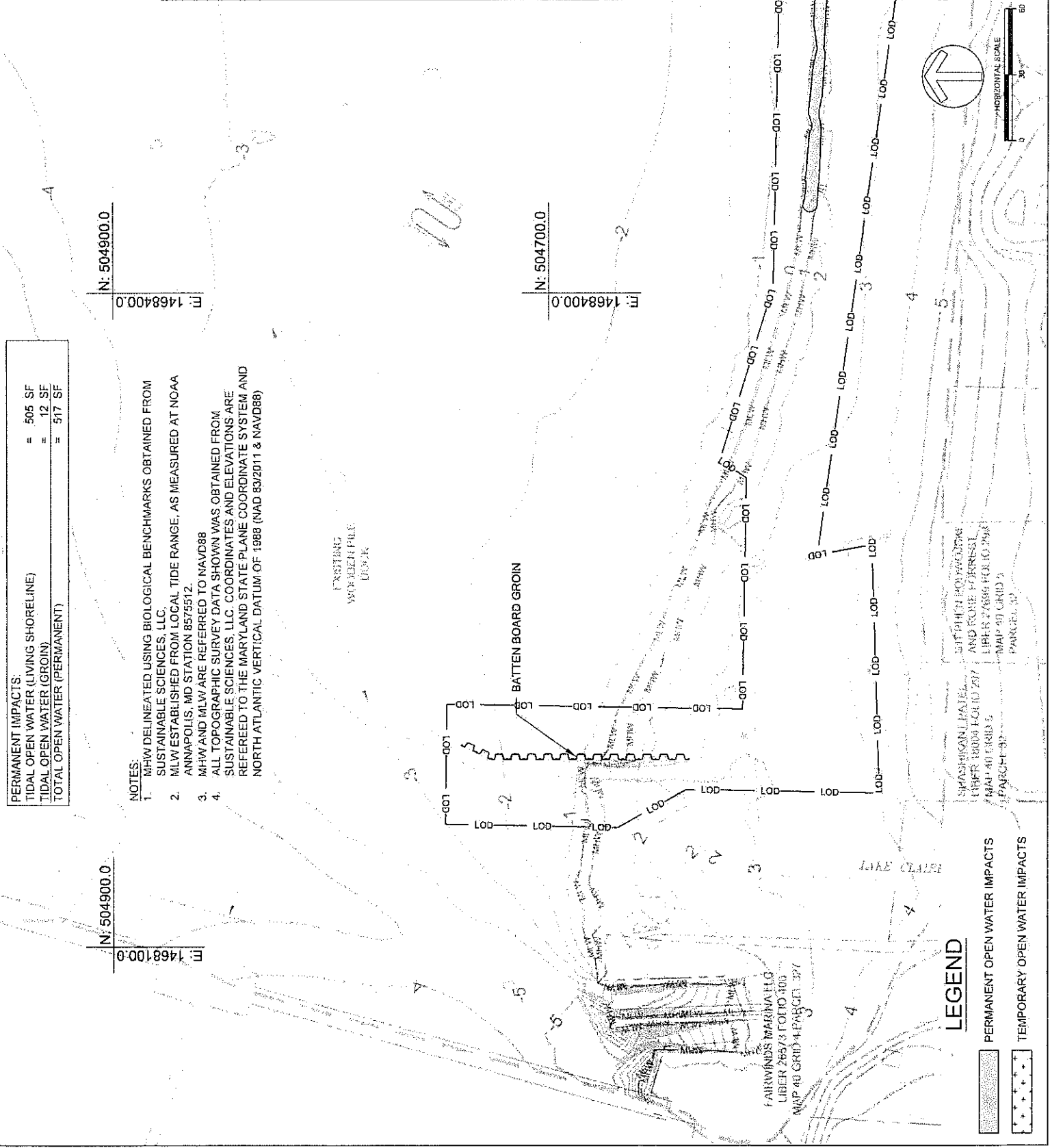
- NOTES:
- MHW DELINEATED USING BIOLOGICAL BENCHMARKS OBTAINED FROM SUSTAINABLE SCIENCES, LLC.
 - MLW ESTABLISHED FROM LOCAL TIDE RANGE, AS MEASURED AT NOAA ANNAPOLIS, MD STATION 8575512.
 - MHW AND MLW ARE REFERRED TO NAVD88
 - ALL TOPOGRAPHIC SURVEY DATA SHOWN WAS OBTAINED FROM SUSTAINABLE SCIENCES, LLC. COORDINATES AND ELEVATIONS ARE REFERRED TO THE MARYLAND STATE PLANE COORDINATE SYSTEM AND NORTH ATLANTIC VERTICAL DATUM OF 1988 (NAD 83/2011 & NAVD88)

N: 504900.0

E: 1468400.0

N: 504700.0

E: 1468400.0



LEGEND

- PERMANENT OPEN WATER IMPACTS
- TEMPORARY OPEN WATER IMPACTS

CAPE ST CLAIRE COMMUNITY IMPROVEMENT ASSOCIATION
1223 RIVER BAY ROAD
ANNAPOLIS, MD 21409

ISSUES / REVISIONS
DATE 12/21/2018 INITIAL SUBMITTAL
04/01/2019 PRE-FINAL SUBMITTAL

19441199
163281
4-1-19

Biohabitats
The Stables Building, 2981 Clippert Park Road
Baltimore, MD 21211 / ph: 410-551-0156
fx: 410-551-0168 / www.biohabitats.com
Reserve the Future. Sustain the World. Inspire the Imagination.

SUSTAINABLE SCIENCE LLC
410 South Second St. Denton, MD 21629
ph: 410-924-4316
http://www.sustainable-science.com

CAPE ST CLAIRE SHORELINE ENHANCEMENT SITE 2

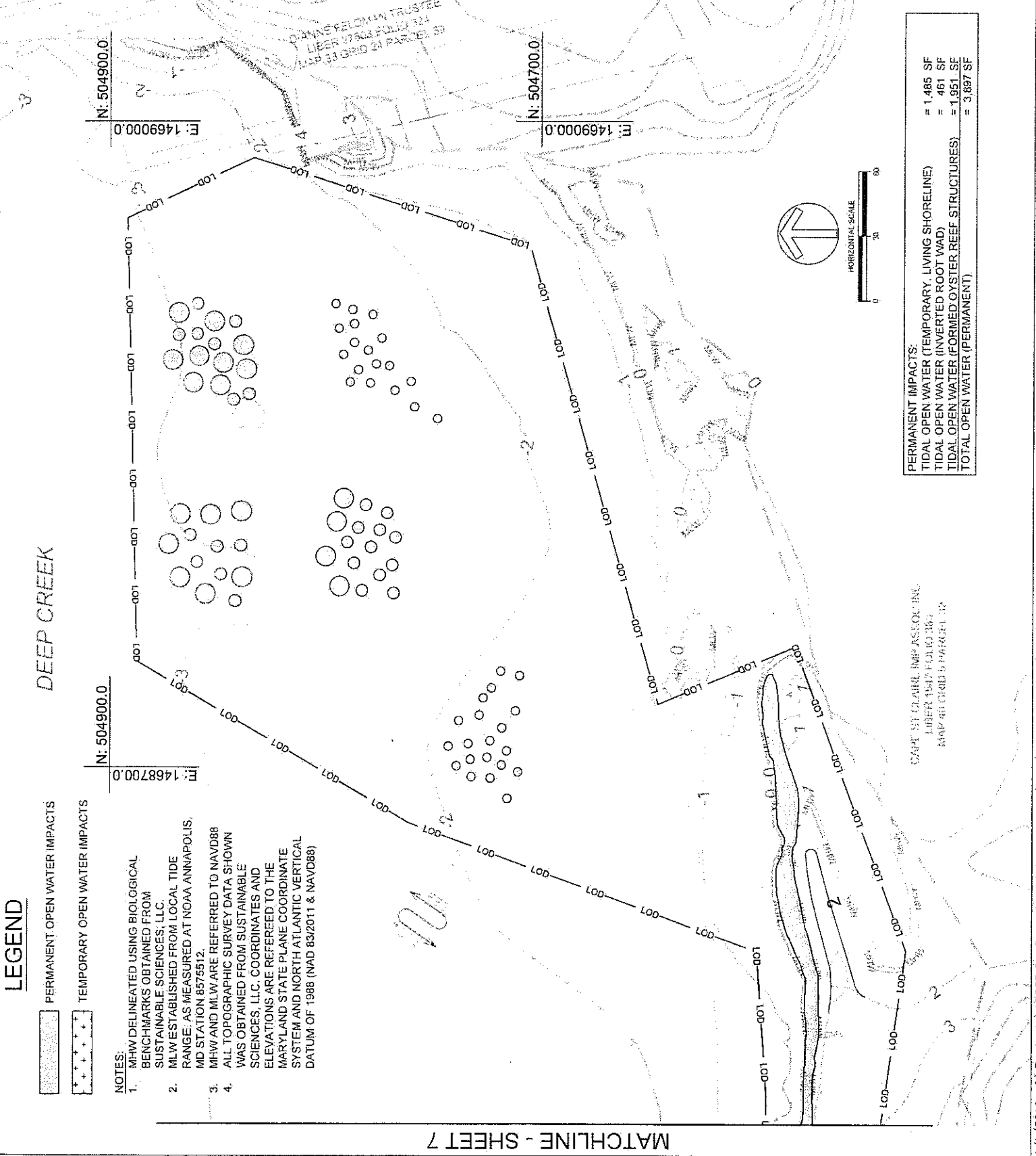
TITLE: IMPACT PLATES

PROJECT NO.: 17023.01

SCALE: 1" = 60'

BY: CHECK
AM, TB EM

DWG. NO.: 8 OF 12



LEGEND

- PERMANENT OPEN WATER IMPACTS
- TEMPORARY OPEN WATER IMPACTS

NOTES:
1. MHW DELINEATED USING BIOLOGGICAL BENCHMARKS OBTAINED FROM SUSTAINABLE SCIENCES, LLC.
2. MLW ESTABLISHED FROM LOCAL TIDE RANGE, AS MEASURED AT NOAA ANNAPOLIS, MD STATION 8575512.
3. MHW AND MLW ARE REFERRED TO NAVD88
4. ALL TOPOGRAPHIC SURVEY DATA SHOWN WAS OBTAINED FROM SUSTAINABLE SCIENCES, LLC. COORDINATES AND ELEVATIONS ARE REFERRED TO THE MARYLAND STATE PLANE COORDINATE SYSTEM AND NORTH ATLANTIC VERTICAL DATUM OF 1988 (NAD 83/2011 & NAVD88)

PERMANENT IMPACTS:	= 1,485 SF
TIDAL OPEN WATER (TEMPORARY, LIVING SHORELINE)	= 461 SF
TIDAL OPEN WATER (INVERTED ROOT WAD)	= 1,951 SF
TIDAL OPEN WATER (FORMED OYSTER REEF STRUCTURES)	= 3,897 SF
TOTAL OPEN WATER (PERMANENT)	

MATCHLINE - SHEET 7

CAPE ST CLAIRE COMMUNITY
IMPROVEMENT ASSOCIATION
1223 RIVER BAY ROAD
ANNAPOLIS, MD 21409

DATE: ISSUES / REVISIONS
12/21/2018 INITIAL SUBMITTAL
04/01/2019 PRE-FINAL SUBMITTAL

19. W.C. 118A
16. S.C. 8A
4-1-19

Biohabitats
The Staples Building, 2061 Clipping Park Road
Hydromare, MD 21031 / Tel: 410-531-6136
Fax: 410-531-0168 / www.biohabitats.com
Be sure to leave 6" between Piling & Vinyl Piling

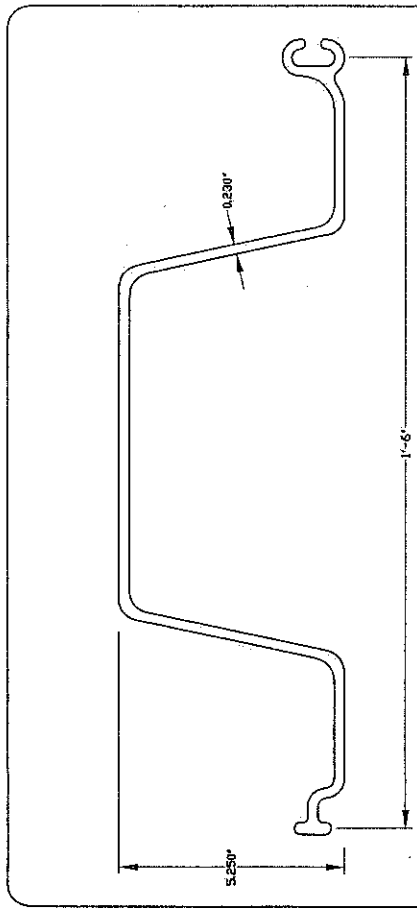
**SUSTAINABLE
SCIENCE LLC**
410 South Second St. Denton, MD 21629
PH: 410-924-4316
http://www.sustainable-science.com

CAPE ST CLAIRE
SHORELINE
ENHANCEMENT
SITE 2

TITLE: DETAILS
PROJECT NO.: 17023.01
SCALE: NTS

BY: AM, TB
CHECK: EM

DWG. NO.: 9 OF 12



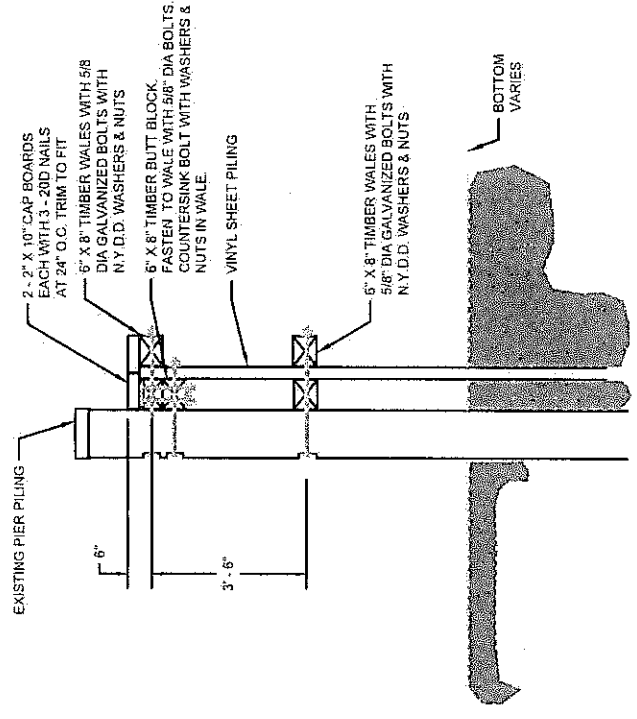
THIS DRAWING CONTAINS PROPRIETARY INFORMATION, WHICH IS THE PROPERTY OF EVERLAST SYNTHETIC PRODUCTS, LLC. ALL RIGHTS ARE RESERVED. NOT BE LOANED, REPRODUCED, OR MADE AVAILABLE TO THIRD PARTIES WITHOUT PRIOR WRITTEN PERMISSION FROM EVERLAST SYNTHETIC PRODUCTS, LLC.

Scale: 6" = 1'
Date: 12/11/06
Product: ESP 21 Vinyl Sheet Pile

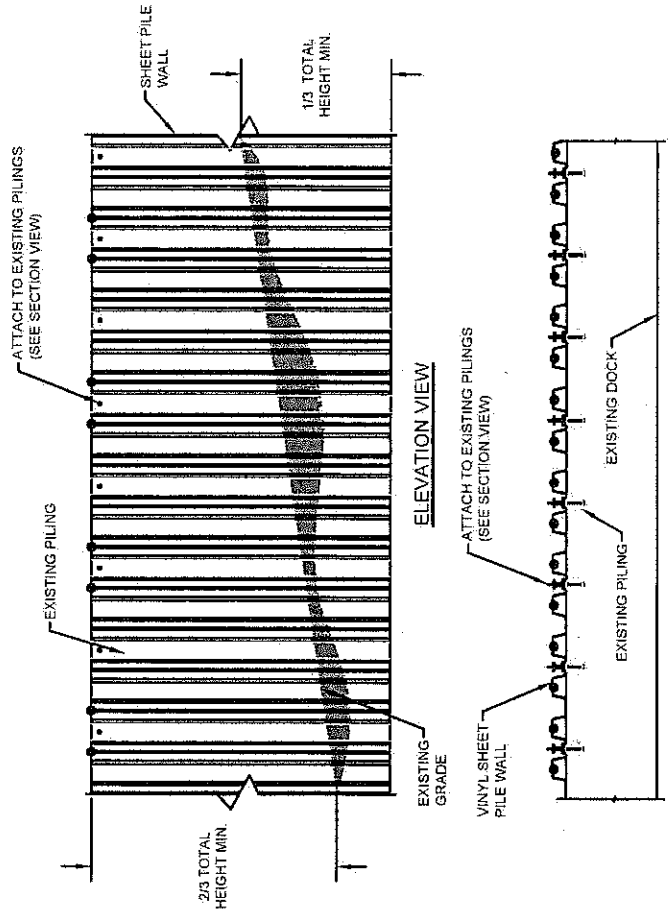
Everlast Synthetic Products, LLC
1000 Wyngate Pkwy, S-100
Woodstock, GA 30189
(678)388-7781

Sheet 1 of 2

Drawn only with seal, Signature, and Date



SECTION VIEW



ELEVATION VIEW

PLAN VIEW

VINYL SHEET PILE GROIN

NOT TO SCALE

CAPE ST CLAIRE COMMUNITY
IMPROVEMENT ASSOCIATION
1223 RIVER BAY ROAD
ANNAPOLIS, MD 21409

DATE ISSUES / REVISIONS
12/21/2018 INITIAL SUBMITTAL
04/01/2019 PRE-FINAL SUBMITTAL

18-04-189
165289
4-1-19

Biohabitats
The Shiloh Building, 3001 Clipping Park Road
Baltimore, MD 21217 / PH: 410-531-6151
RS: 141-531-0168 / www.biohabitats.com
Baltimore, Maryland

**SUSTAINABLE
SCIENCE LLC**

410 South Second St. Denton, MD 21629
PH: 410-924-4316
http://www.sustainable-science.com

CAPE ST CLAIRE
SHORELINE
ENHANCEMENT
SITE 2

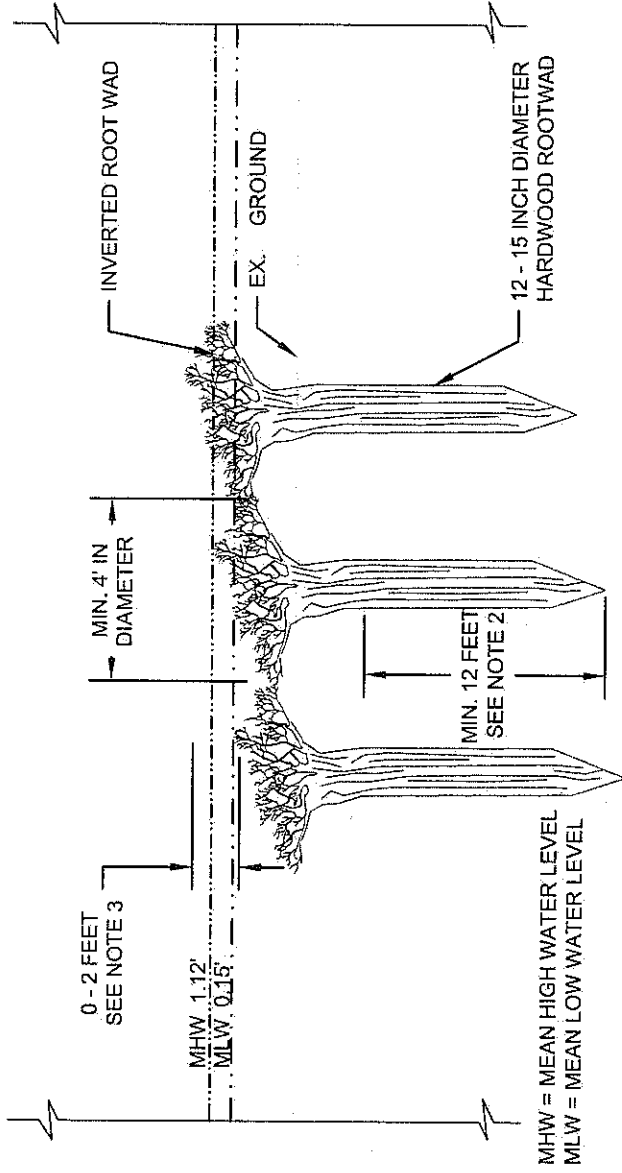
TITLE: DETAILS

PROJECT NO.: 17023.01

SCALE: NTS

BY: AM, TB
CHECK: EM

DWG. NO.: 10 OF 12



MHW = MEAN HIGH WATER LEVEL
MLW = MEAN LOW WATER LEVEL

NOTES:

1. INVERTED ROOT WADS TO BE A HARDWOOD SPECIES 12 TO 18 INCHES IN DIAMETER.
2. ROOT WADS SHALL BE JETTIED INTO EXISTING SUBSTRATE.
3. AS DIRECTED BY ENGINEER, VARIATIONS AT, ABOVE, AND BELOW MHW.
4. MIN. 8' SPACING O.C.
5. CONTRACTOR SHALL LEAVE LARGE ROOT INTACT, WASHED FREE OF ROCK AND SOIL.

**INVERTED ROOTWAD
SECTION**

NOT TO SCALE

CAPE ST CLAIRE COMMUNITY
IMPROVEMENT ASSOCIATION
1223 RIVER BAY ROAD
ANNAPOLIS, MD 21409

DATE ISSUES / REVISIONS
12/21/2018 INITIAL SUBMITTAL
04/01/2019 PRE-FINAL SUBMITTAL

1850-1189
165289
4-1-19

Biohabitats
The Shiloh Building, 2081 Clippert Park Road
Hoboken, MD 21217 ph: 410-551-0156
tx: 410-551-0168 www.biohabitats.com
Bioscience, Ecology, and Habitat Management

**SUSTAINABLE
SCIENCE LLC**
410 South Second St. Denton, MD 21629
ph: 410-924-4316
http://www.sustainable-science.com

CAPE ST CLAIRE
SHORELINE
ENHANCEMENT
SITE 2

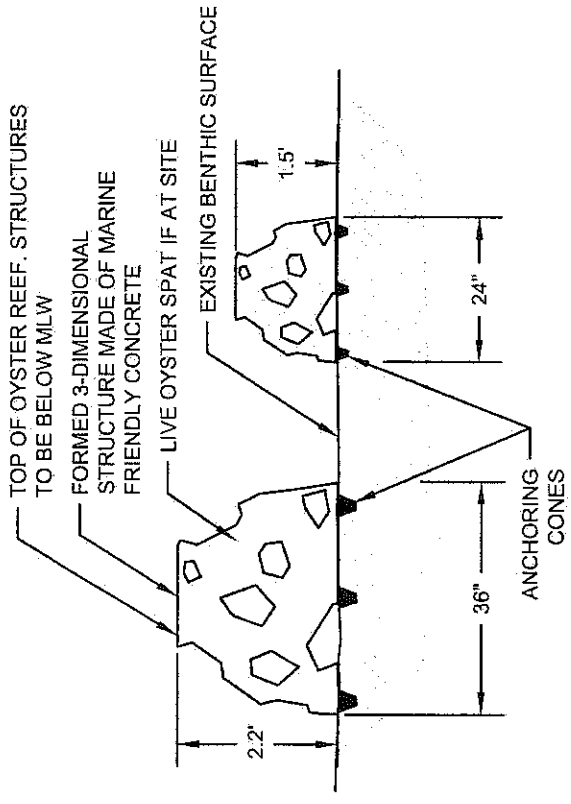
TITLE DETAILS

PROJECT NO.: 17023.01

SCALE NTS

BY AM, TB CHECK EM

DWG. NO.: 11 OF 12



- NOTES:
- OYSTER REEF STRUCTURES TO BE PROVIDED BY OWNER.
 - CONTRACTOR SHALL INSTALL OYSTER REEF STRUCTURES AS DIRECTED BY ENGINEER. TOTAL QUANTITY AND APPROXIMATE LOCATIONS SHOWN ON PLANS.
 - OYSTER SPAT SET TO BE COMPLETED BY OWNER PRIOR TO PROVIDING TO CONTRACTOR.

36" & 24" FORMED OYSTER REEF STRUCTURES
SECTION VIEW
NOT TO SCALE

CAPE ST CLAIRE COMMUNITY
IMPROVEMENT ASSOCIATION
1223 RIVER BAY ROAD
ANNAPOLIS, MD 21409

DATE: ISSUES / REVISIONS
12/21/2018 INITIAL SUBMITTAL
04/01/2019 PRE-FINAL SUBMITTAL

1846-1189
165289
4-1-19

Biohabitats
The Stables Building, 2661 S. Hipper Park Road
Baltimore, MD 21231 / ph: 410.551.0136
fx: 410.551.0168 / www.biohabitats.com
Project #s: 15466, 15467, 15468, 15469, 15470, 15471, 15472

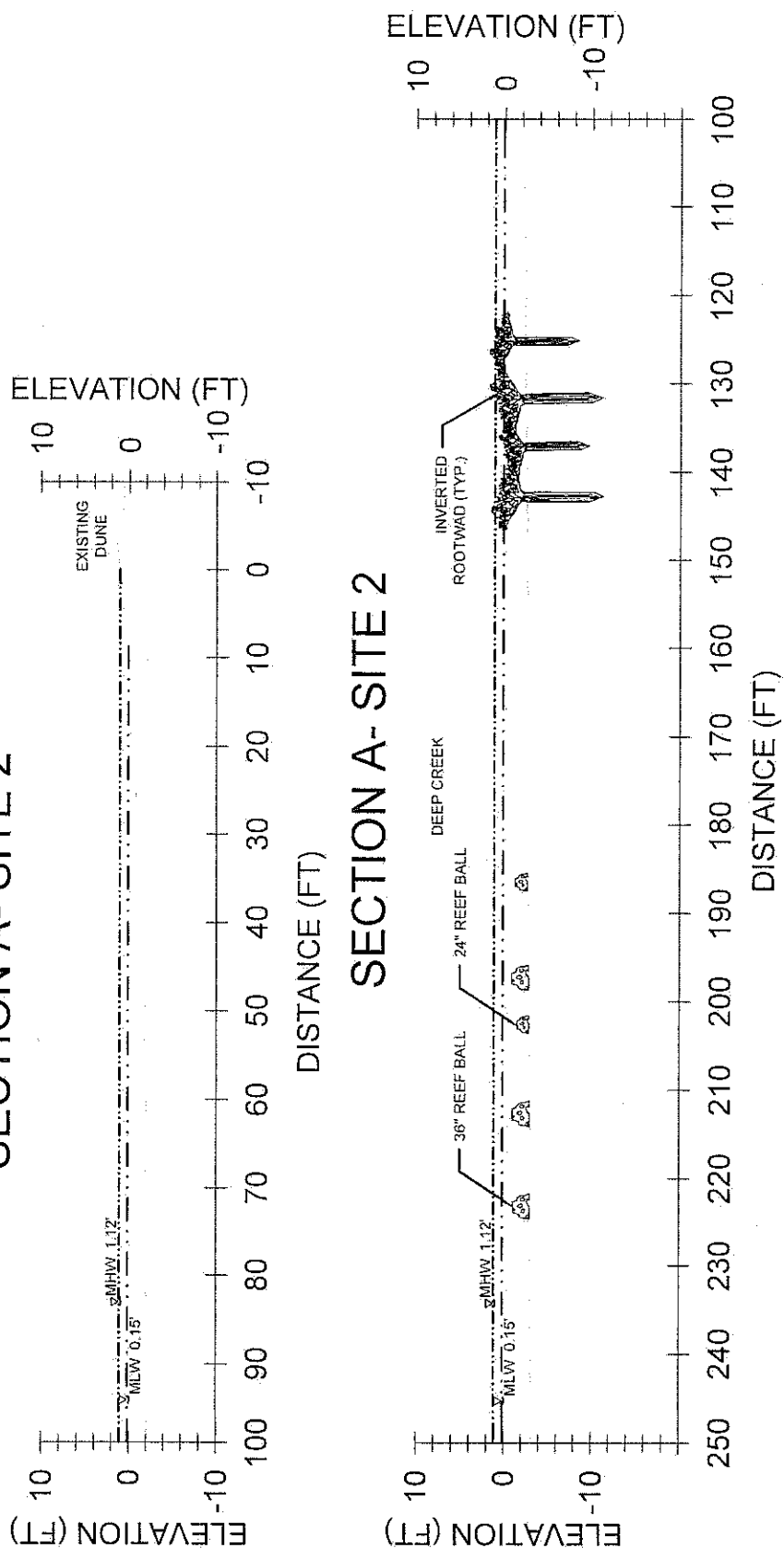
**SUSTAINABLE
SCIENCE LLC**
410 South Second St., Derflon, MD 21629
ph: 410.922.44316
http://www.sustainable-science.com

CAPE ST CLAIRE
SHORELINE
ENHANCEMENT
SITE 2

TITLE: CROSS SECTION
PROJECT NO.: 17023.01

SCALE: AS SHOWN
BY: AM, TB CHECK: EM
DWG. NO.: 12 OF 12

SECTION A- SITE 2



SECTION B- SITE 2

