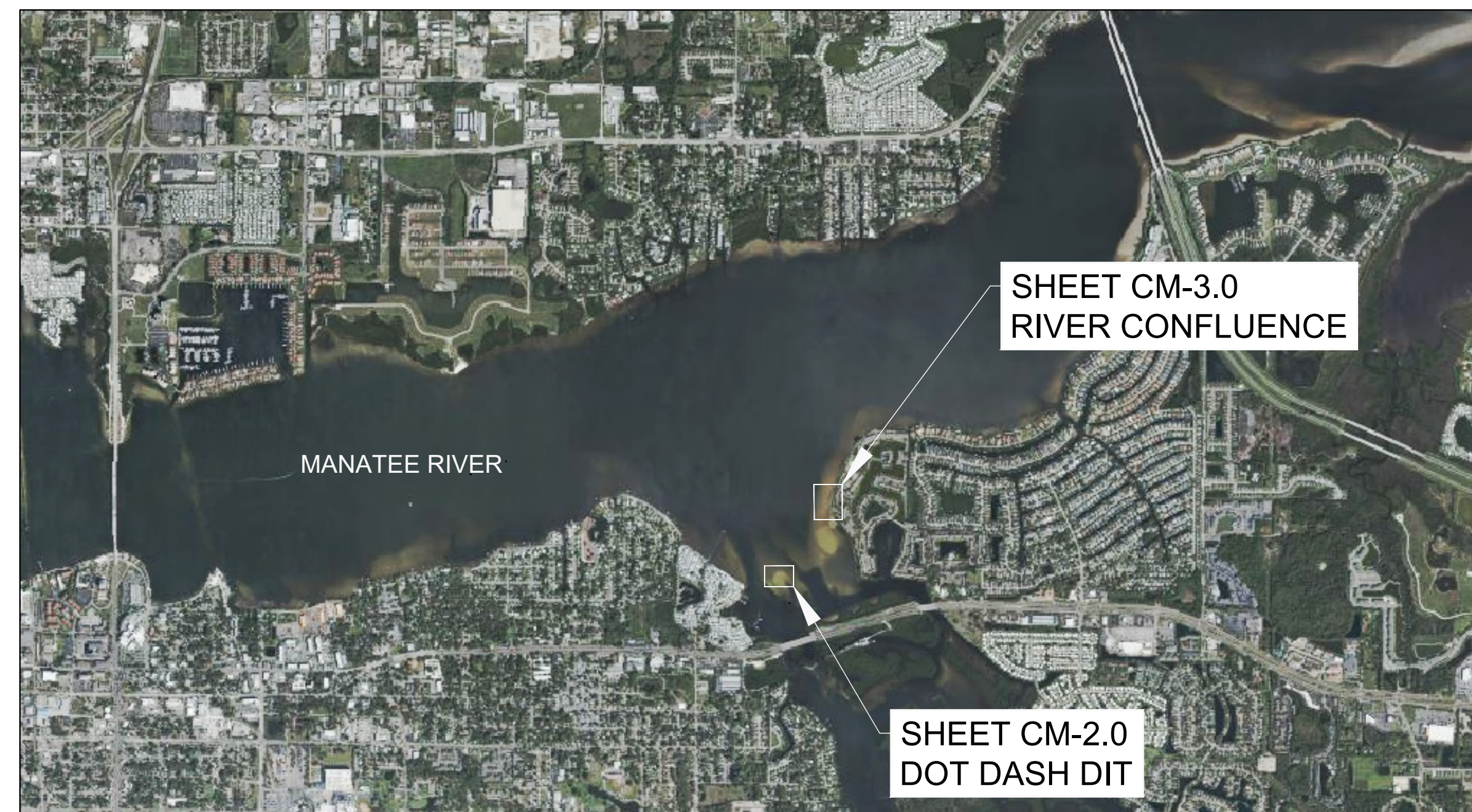
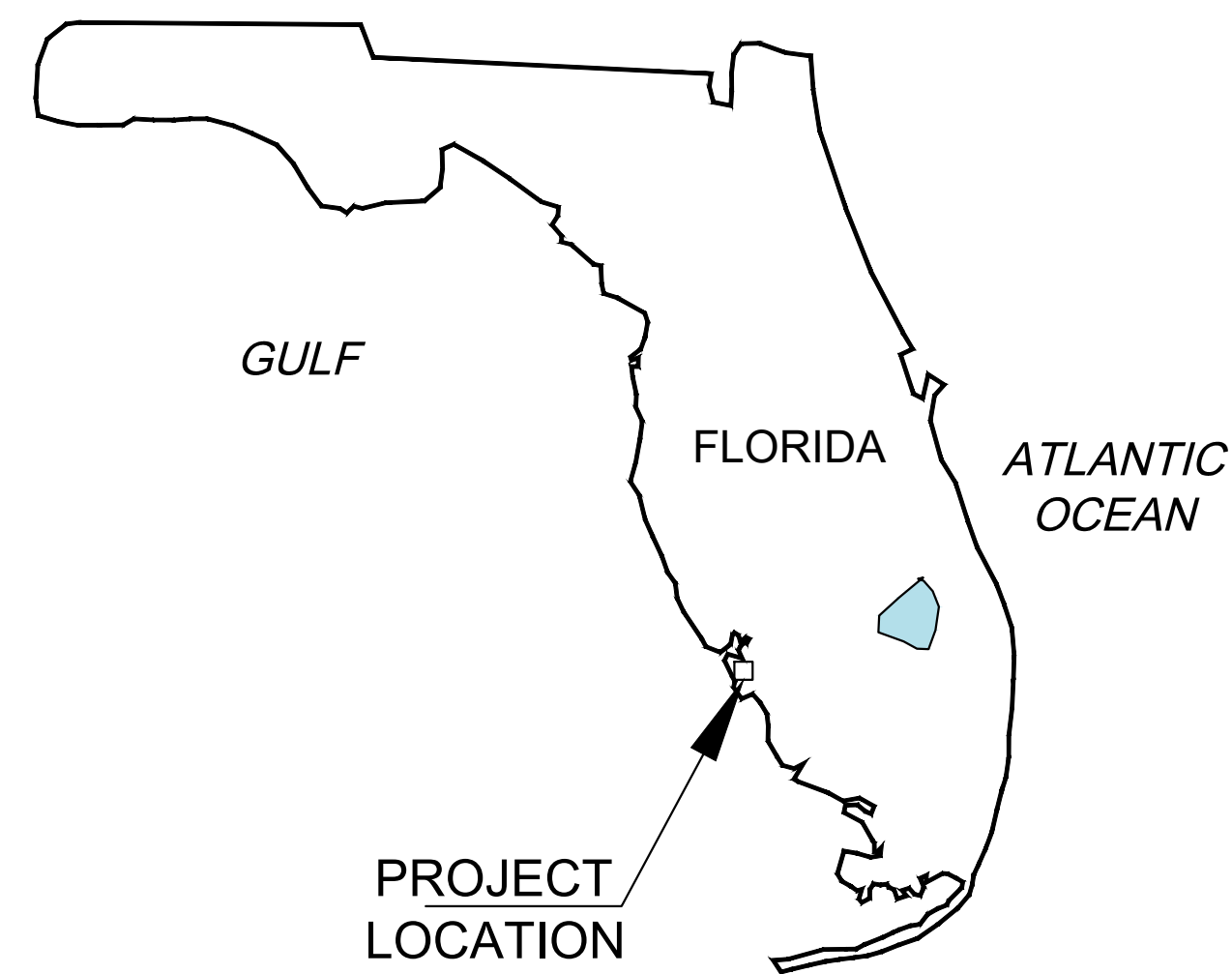


# MANATEE COUNTY OYSTER RESTORATION PROJECT

## MANATEE COUNTY, FLORIDA



SHEET INDEX	
SHEET NUMBER	TITLE
CM-0.0	COVER SHEET
CM-1.0	GENERAL NOTES
CM-1.1	SITE LOCATIONS
CM-1.2	POTENTIAL CONSTRUCTION STAGING AREAS
CM-1.3	GEOTECHNICAL BORING LOCATIONS
CM-2.0	PROPOSED SITE PLAN - DOT DASH DIT
CM-2.1	PROPOSED SITE PLAN - RIVER CONFLUENCE
CM-3.0	RIPRAP MODULE W/ SHELL VENEERDETAILS
CM-3.1	RIPRAP MODULE W/ DITCH STONE VENEER DETAILS
CM-3.2	RIPRAP ONLY MODULE DETAILS
CM-4.0	PILE DETAIL
CM-4.1	TURBIDITY CURTAIN DETAIL

OWNER:



MANATEE COUNTY ECOLOGICAL AND MARINE RESOURCES DIVISION  
5502 33RD AVE DR W,  
BRADENTON, FL 34209

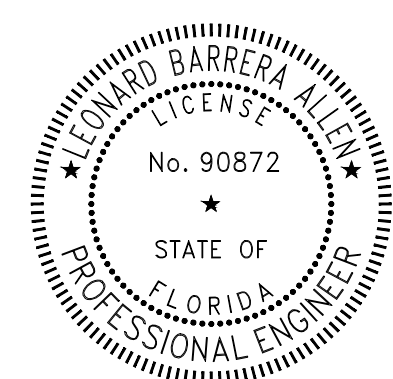
ENGINEER:



MIAMI | FORT LAUDERDALE | JUPITER  
SARASOTA | ST. PETERSBURG | TALLAHASSEE  
TEL: +1 305-741-6155 FAX: 305-974-1969  
WWW.CUMMINSCEDERBERG.COM

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REVIEWER	INITIALS	DATE
CAD REVIEW	SMJ	3/26/2026
ENGINEERING REVIEW		
ENVIRONMENTAL REVIEW		
SENIOR ENVIRONMENTAL REVIEW		
ENGINEER OF RECORD REVIEW		
QA/QC REVIEW		

CONSTRUCTION DRAWINGS  
03/26/2026

GENERAL

1. THE WORK CONSISTS OF PROVIDING ALL CONSTRUCTION, LABOR, EQUIPMENT, MATERIAL AND OPERATIONS IN CONNECTION WITH THE SHORELINE IMPROVEMENTS AS SHOWN ON THESE DRAWINGS.
2. ANY DISCREPANCIES IN THE PLANS WITH THE FIELD CONDITIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. CONSTRUCTION SHALL NOT CONTINUE UNTIL THE ENGINEER HAS ADDRESSED THE DISCREPANCIES.
3. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING STRUCTURES IN THE PROJECT VICINITY. ANY DAMAGE TO PRIVATE OR PUBLIC PROPERTY WITHIN THE PROJECT VICINITY, INCLUDING STAGING SITES, WORK, AND ACCESS AREAS SHALL BE REPAIRED PROMPTLY BY THE CONTRACTOR. ANY DAMAGE AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT NO COST TO THE OWNER. ALL ACCESS AND STAGING AREAS SHALL BE KEPT NEAT, ORDERLY, AND IN A SAFE MANNER. ALL ACCESS AND STAGING AREAS SHALL BE RESTORED TO THE PRE-CONSTRUCTION CONDITION UPON PROJECT COMPLETION AT THE COST OF THE CONTRACTOR. THE SITE SHALL BE RESTORED BY REMOVING AND FINISHING ALL EVIDENCE FOR CONSTRUCTION. IN THE EVENT INFRASTRUCTURE (SUCH AS WALKWAYS, SIDEWALKS, FENCES, VEGETATION, ETC.) IS TEMPORARILY REMOVED OR RELOCATED, OR THERE IS UNAUTHORIZED DAMAGE TO VEGETATION AND/OR FACILITIES BY THE CONTRACTOR, THE CONTRACTOR SHALL RESTORE ALL DAMAGE TO STRUCTURES AND NATURAL FEATURES TO PRE-CONSTRUCTION CONDITIONS OR BETTER.
4. UTILITIES ARE NOT SHOWN IN THE PLANS. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL PRESENT UTILITIES PRIOR TO CONSTRUCTION.
5. CONTRACTOR IS RESPONSIBLE FOR PROVIDING PROPER CLEARANCE AND PROTECTION TO ALL OVERHEAD WIRES AND OBSTRUCTIONS.
6. THE CONTRACTOR SHALL EXCLUDE THE PUBLIC FROM THE WORK AREAS IN THE IMMEDIATE VICINITY OF OPERATIONS. CONTRACTOR SHALL PROVIDE APPROPRIATE SAFETY MEASURES TO PROTECT THE PUBLIC.
7. CONTRACTOR SHALL BE PREPARED TO MAKE FIELD ADJUSTMENTS TO ACCURATELY FIT THE NEW WORK TO EXISTING CONDITIONS.
8. NO CONSTRUCTION SHALL COMMENCE UNTIL ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN SECURED AND THE CONTRACTOR HAS BEEN ISSUED NOTICE TO PROCEED.
9. ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN CHANGED IN SIZE BY REPRODUCTION. THIS SHOULD BE CONSIDERED WHEN OBTAINING SCALED DATA.
10. CONSTRUCTION WORK SHALL BE EXECUTED IN ACCORDANCE WITH ALL LOCAL, STATE, AND NATIONAL BUILDING CODES AND GOVERNING REGULATIONS INCLUDING THE FDEP, USACE, AND MANATEE COUNTY. CONTRACTOR SHALL ADHERE TO ALL CONDITIONS OF THE PERMITS AND EXEMPTIONS.
11. WORK SHALL BE CONDUCTED DURING DAYLIGHT HOURS.
12. THE CONTRACTOR SHALL PROVIDE PHOTOGRAPHS OR VIDEO OF THE WORK AREA PRIOR TO COMMENCING WORK TO DOCUMENT THE PRE-CONSTRUCTION CONDITIONS OF EXISTING INFRASTRUCTURE.

SURVEY

1. BATHYMETRIC SURVEY DATA BY SURVTECH SOLUTIONS COLLECTED ON JULY 24 AND 25, 2024.
2. ADDITIONAL BATHYMETRIC DATA AT DOT-DOT-SHOT COLLECTED BY GEODATA SERVICES, INC. DATED OCTOBER 3RD, 2019.
3. WATER DEPTH CONTOURS ARE IN FEET AND REFERENCED TO NAVD 88.
4. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.

GEOTECHNICAL DATA

5. GEOTECHNICAL REPORTS PROVIDED BY: TIERRA INC. GEOTECHNICAL ENGINEERING SERVICES, DETAILED IN REPORT TITLED "GEOTECHNICAL ENGINEERING SERVICES REPORT MANATEE RIVER OYSTER REEFS" DATED MARCH 26TH, 2025.

TIDAL DATA

1. CONTRACTOR MAY NEED TO ADJUST HIS WORK PLAN TO ACCOUNT FOR ACTUAL WATER LEVELS AND CHANGING WATER LEVELS. THE SITE MAY BE SUBJECT TO VARIABLE WAVE AND SURGE CONDITIONS AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE TEMPORARY SUPPORT FOR MARINE STRUCTURES AND SHORELINE DURING CONSTRUCTION.
2. TIDAL DATA OBTAINED FROM NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION STATION ID8726265, ELLENTON, MANATEE RIVER, FL.

ENVIRONMENTAL

1. CONTRACTOR SHALL COMPLY WITH ALL CONDITIONS OF THE ENVIRONMENTAL PERMITS FOR THE PROJECT.
2. EROSION CONTROL DEVICES SUCH AS TURBIDITY CURTAINS SHALL BE DEPLOYED TO MITIGATE RUNOFF INTO ADJACENT WATER BODIES. THE DEVICES SHALL NOT BE REMOVED UNTIL TURBIDITY LEVELS WITHIN THE CURTAIN MATCH LEVELS BEYOND THE CURTAIN.
3. CONSTRUCTION PERSONNEL SHALL OBSERVE ANY ESA-LISTED SPECIES OR MARINE MAMMALS. IF ANY INTERACTION OCCURS, THE INCIDENT WILL BE IMMEDIATELY REPORTED TO THE APPROPRIATE AGENCY. MECHANICAL EQUIPMENT SHALL CEASE IF A PROTECTED SPECIES IS OBSERVED WITHIN A 50-FOOT RADIUS OF CONSTRUCTION EQUIPMENT AND SHALL RESUME ONLY WHEN THE SPECIES HAS LEFT THE AREA OF ITS OWN VOLITION.
4. THE CONTRACTOR SHALL NOT STAGE EQUIPMENT IN A MANNER THAT WILL CAUSE DAMAGE TO ENVIRONMENTAL RESOURCES. STAGING EQUIPMENT SHALL AVOID THESE SENSITIVE AREAS. IF SUCH ACTIVITIES CANNOT BE DONE WITHOUT AFFECTING THESE SENSITIVE AREAS, THE ACTIVITIES SHALL CEASE, AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY (NO LATER THAN THE MORNING FOLLOWING THE NEXT WORKING DAY IF THE INCIDENT OCCURS AFTER NORMAL WORKING HOURS). ANY ACTUAL OR POTENTIAL INCIDENT INVOLVING DAMAGE TO, OR DISTURBANCE OF, ENVIRONMENTAL RESOURCES SHALL BE REPORTED.

ROCK

1. PROPOSED ROCK SOURCE(S) MUST BE APPROVED FOR USE BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF THE WORK. ONCE THE SOURCE(S) FOR ROCK ARE APPROVED, THE CONTRACTOR SHALL NOT USE MATERIAL FROM ANOTHER SOURCE WITHOUT REPEATING THE ACCEPTANCE AND TEST PROCEDURES TO QUALIFY THE OTHER SOURCE(S).
2. ALL ROCK SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING QUARRY CERTIFICATIONS AND PERFORMING QUALITY TESTS ON ALL ROCK.
3. BANK AND SHORE STONE
  - 3.1. BANK AND SHORE STONE SHALL BE SOUND, HARD, DURABLE RUBBLE, FREE OF OPEN OR INCIPENT CRACKS, SOFT SEAMS, OR OTHER STRUCTURAL DEFECTS, CONSISTING OF BROKEN STONE WITH A BULK SPECIFIC GRAVITY OF ATLEAST 2.20. ENSURE THAT STONES ARE ROUGH AND ANGULAR. USE BROKEN STONE MEETING THE FOLLOWING GRADATION AND THICKNESS REQUIREMENTS:

WEIGHT MAXIMUM POUNDS	WEIGHT 50% POUNDS	WEIGHT MINIMUM POUNDS
670	290	60
ENSURE THAT AT LEAST 97% OF THE MATERIAL BY WEIGHT IS SMALLER THAN WEIGHT MAXIMUM POUNDS]. ENSURE THAT AT LEAST 50% OF THE MATERIAL BY WEIGHT IS GREATER THAN WEIGHT 50% POUNDS]. ENSURE THAT AT LEAST 85% OF THE MATERIAL BY WEIGHT IS GREATER THAN WEIGHT MINIMUM POUNDS.		

- 3.2. BANK AND SHORE STONE SHALL MEET THE FOLLOWING PHYSICAL REQUIREMENTS:

ABSORPTION (FM 1-T 85)	MAXIMUM 5%
LOS ANGELES ABRASION (ASTM C535)	MAXIMUM LOSS 45%
SOUNDNESS (SODIUM SULPHATE) (AASHTO T 104)	MAXIMUM LOSS 12% (AFTER FIVE CYCLES)
FLAT AND ELONGATED PIECES	MATERIALS WITH LEAST DIMENSION LESS THAN ONE THIRD OF GREATEST DIMENSION NOT EXCEEDING 10% BY WEIGHT.
DIRT AND FINES	MATERIALS LESS THAN 1/2 INCH IN MAXIMUM DIMENSION ACCUMULATED FROM INTERLEGE LAYERS, BLASTING OR HANDLING OPERATIONS NOT EXCEEDING 5% BY WEIGHT.
DROP TEST (EM 1110-2-2302)	NO NEW CRACKS DEVELOPED, OR NO EXISTING CRACK WIDENED ADDITIONAL 0.1 INCH, OR FINAL LARGEST DIMENSION GREATER THAN OR EQUAL TO 90% ORIGINAL LARGEST DIMENSION OF DROPPED PIECE.

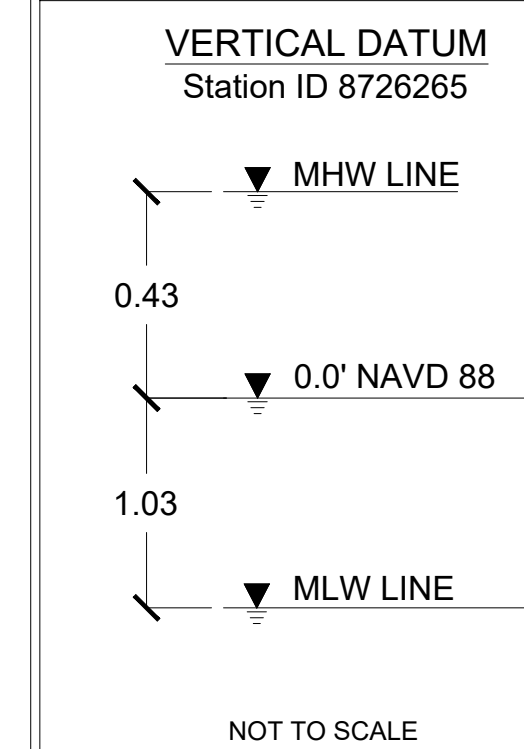
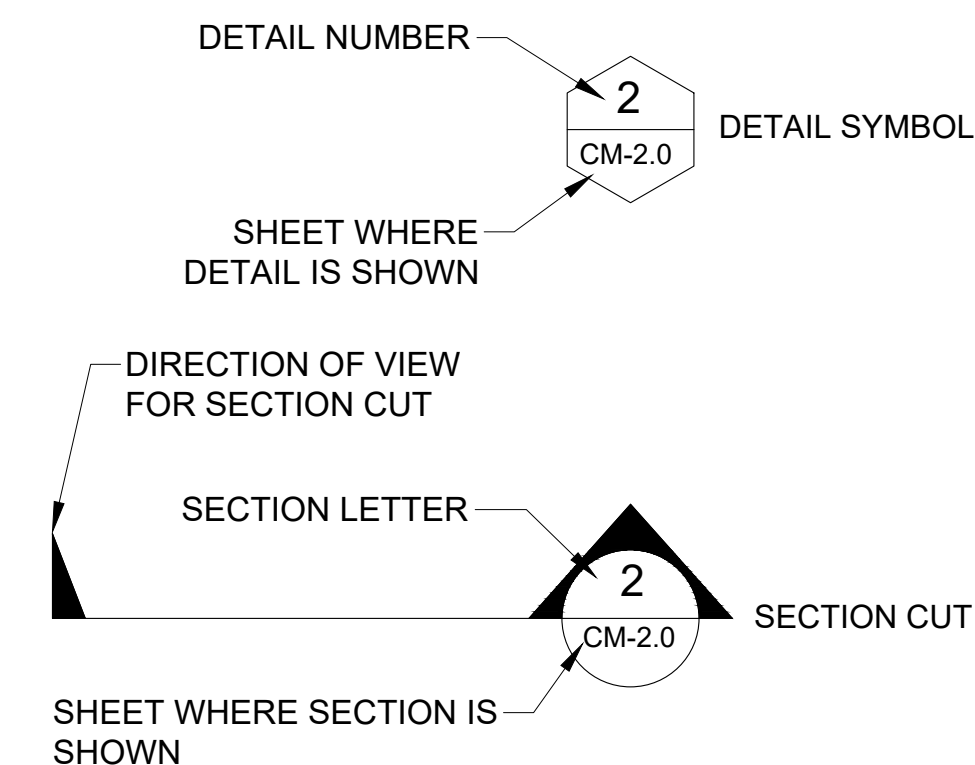
4. PLACE EACH TYPE OF RIPRAP IN THE LOCATIONS AND TO THE ELEVATIONS, THICKNESS AND DETAILS INDICATED ON THE DRAWINGS AND AS DIRECTED. USE METHODS TO ENSURE THAT THE FINER ONE-THIRD OF THE GRADATION IS EVENLY DISTRIBUTED THROUGHOUT THE LAYER AND OVER THE SURFACE BEING COVERED.
5. DO NOT DROP THE ROCK WHEN PLACING OVER GEOTEXTILE.
6. PLACE THE ROCK IN SUCH A MANNER AS TO CREATE FIRM BEDDING AND INTERLOCKING OF INDIVIDUAL PIECES TO OBTAIN A TIGHTLY PLACED STRUCTURE. THE FINISHED SURFACE SHALL BE DENSELY PLACED, WELL-KEYED AND UNIFORM. FILL VOIDS, REWORK, ROCKS NOT PROPERLY EMBEDDED, AND REMOVE PROTUBERANCES. REMOVE AND REPLACE THE PORTION OF ANY LAYER IN WHICH MATERIAL BECOMES SEGREGATED DURING SPREADING.
7. THE TONNAGE OF ARMOR STONE IN THE BID ASSUMES THAT THERE ARE NO VOIDS. UNLESS CHANGED BY THE ENGINEER, THE BID TONNAGE IS THE MAXIMUM PAY TONNAGE. THE CONTRACTOR SHALL MAKE HIS OWN ESTIMATE PRIOR TO MAKING HIS BID. THE BID TONNAGE ASSUMES 140 PCF STONE IS USED TO FILL THE TEMPLATE. IF A HIGHER UNIT WEIGHT STONE IS USED, IT IS POSSIBLE THAT THE FINAL CROSS SECTION MAY VARY FROM THAT SHOWN ON THE PLANS. REGARDLESS OF THE STONE DENSITY, THE RIPRAP SHALL NOT EXTEND BEYOND THE CROSS SECTION SHOWN ON THE PLANS.
8. ALL ROCK WILL BE SUBJECT TO ON-SITE RANDOM SAMPLING AND TESTING (INCLUDING RANDOM DROP TESTS). ROCK THAT DOES NOT CONFORM IN SPECIFIC GRAVITY, STRUCTURE AND OTHER CHARACTERISTIC REQUIREMENTS WILL BE REJECTED. THE PRESENCE OF UNSATISFACTORY ROCK OR OBJECTIONABLE FOREIGN MATERIAL IN ANY OF CONTRACTOR PROVIDED ROCK WILL BE DEEMED SUFFICIENT REASON FOR REJECTION OF THE ENTIRE LOAD OF ROCK. ANY SUCH LOAD OF ROCK SHALL BE IMMEDIATELY REMOVED FROM THE SITE AT THE CONTRACTOR'S EXPENSE.

SUBMITTALS

1. THE CONTRACTOR SHALL PREPARE AND SUBMIT THE FOLLOWING MINIMUM SUBMITTALS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF THE ASSOCIATED WORK. ADDITIONAL SUBMITTALS MAY BE REQUIRED AS NECESSARY TO DEMONSTRATE COMPLIANCE WITH THE CONTRACT DOCUMENTS.
  - 1.1. PRE-CONSTRUCTION SURVEY
  - 1.2. CONSTRUCTION SCHEDULE - DETAILED SCHEDULE IDENTIFYING MAJOR WORK ACTIVITIES, SEQUENCING, AND ANTICIPATED DURATIONS.
  - 1.3. ROCK / CORE STONE - MATERIAL SOURCE, GRADATION, AND REPRESENTATIVE SAMPLES FOR APPROVAL PRIOR TO DELIVERY TO THE SITE.
  - 1.4. OYSTER SHELL - MATERIAL SOURCE AND REPRESENTATIVE SAMPLES FOR APPROVAL PRIOR TO PLACEMENT.
  - 1.5. TURBIDITY MONITORING PLAN AS REQUIRED PER PERMIT

ABBREVIATIONS	
ACI	AMERICAN CONCRETE INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BMP	BEST MANAGEMENT PRACTICES
CONT	CONTINUOUS
CONT'D	CONTINUED
FDEP	FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION
KSI	KIPS PER SQUARE INCH
MHW	MEAN HIGH WATER
MIN	MINIMUM
MLW	MEAN LOW WATER
NAVD 88	NORTH AMERICAN VERTICAL DATUM
NGVD	NATIONAL GEODETIC VERTICAL DATUM
PERA	PERMITTING, ENVIRONMENT, AND REGULATORY AFFAIRS
PSI	POUNDS PER SQUARE INCH
TYP	TYPICAL
USACE	UNITED STATES ARMY CORPS OF ENGINEERS
W/C	WATER/CEMENT RATIO

SYMBOLS LEGEND



PROJECT:  
**MANATEE COUNTY OYSTER RESTORATION PROJECTS**  
 MANATEE COUNTY, FLORIDA

CLIENT:  
**MANATEE COUNTY ECOLOGICAL AND MARINE RESOURCES DIVISION**

5502 33RD AVE DR W,  
 BRADENTON, FL 34209

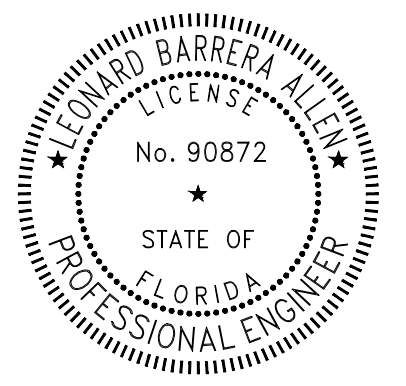
ENGINEER:  
**CUMMINS CEDERBERG**  
 COASTAL & MARINE ENGINEERING  
 201 ALHAMBRA CIRCLE, SUITE 601  
 CORAL GABLES, FL 33134  
 TEL: +1 305 741-6155 FAX: +1 305-974-1969  
 WWW.CUMMINSCEDERBERG.COM  
 COA # 29062



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SEAL:



NO.	DATE	ISSUE	CONSTRUCTION DRAWINGS SUBMISSION / REVISION
1	03/26/2026	ISSUE	

CC PROJECT NO:	123300.9
DRAWN	SMJ
CHECKED	RD
SCALE	AS SHOWN
SHEET TITLE	

GENERAL NOTES

**CM-1.0**



0 150 300  
GRAPHIC SCALE IN FT

PROJECT:  
**MANATEE COUNTY  
OYSTER  
RESTORATION  
PROJECTS**  
MANATEE COUNTY,  
FLORIDA

CLIENT:  
**MANATEE COUNTY  
ECOLOGICAL AND  
MARINE RESOURCES  
DIVISION**  
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BRADENTON, FL 34209

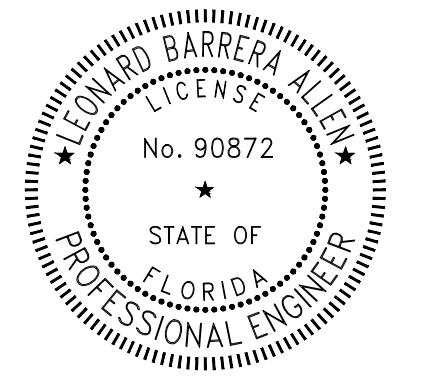
ENGINEER:  
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CC PROJECT NO: 123300.9  
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SCALE: AS SHOWN  
SHEET TITLE

SITE LOCATIONS

**CM-1.1**

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GRAPHIC SCALE IN FT

PROJECT:  
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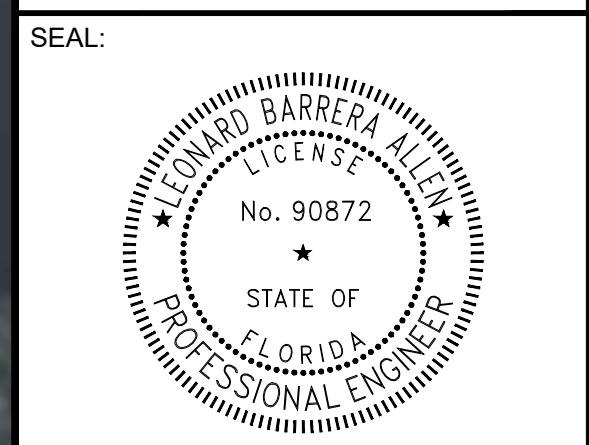
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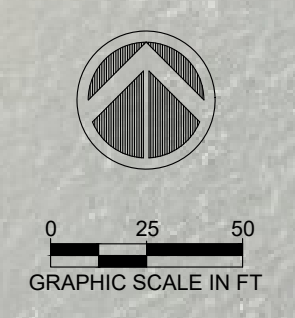
SHEET TITLE  
**POTENTIAL  
CONSTRUCTION  
STAGING AREAS**

**CM-1.2**

- NOTES:**
1. LOCATIONS SHOWN AS POTENTIAL STAGING OPTIONS ONLY. STAGING AREA(S) NOT LIMITED TO THESE LOCATIONS IF SELECTED CONTRACTOR HAS PREFERRED ALTERNATIVES.
  2. POTENTIAL STAGING AREAS CONTINGENT ON APPROPRIATE AUTHORIZATIONS. CONTRACTOR TO CONFIRM WITH MANATEE COUNTY PRIOR TO MOBILIZATION.
  3. NOTE THAT STATE ROUTE 64 BRIDGE HAS LOW CLEARANCE, ESPECIALLY AT HIGH TIDES. CONTRACTOR TO ENSURE THAT ALL EQUIPMENT WILL FIT UNDER THE BRIDGE, AS NEEDED.

J:\Projects\123300.9 Manatee County Oyster Imp - Design & Permitting\03 - Drawings\Construction\Working\2026-03-25\123300.9 Manatee County Oyster.dwg



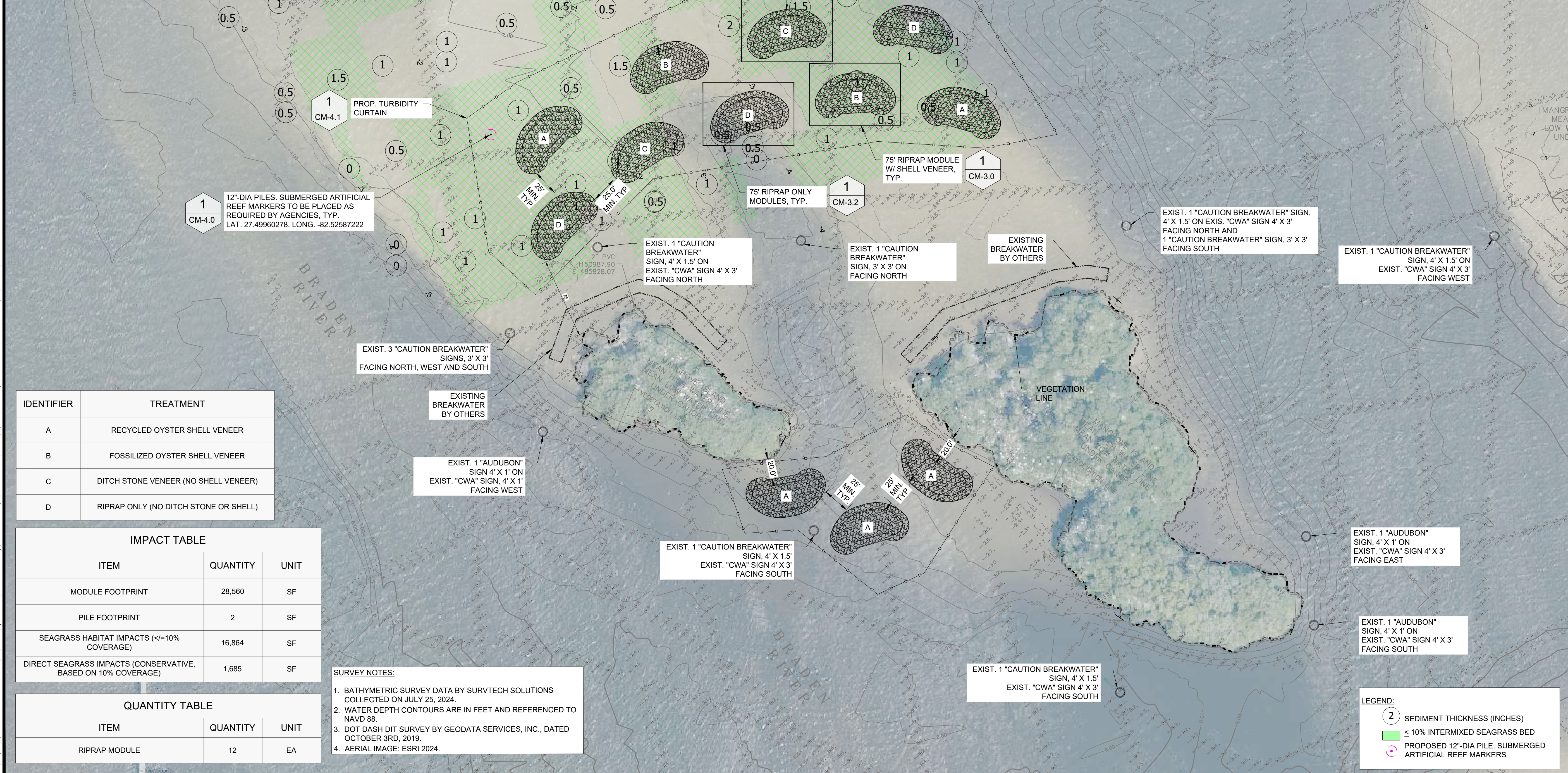


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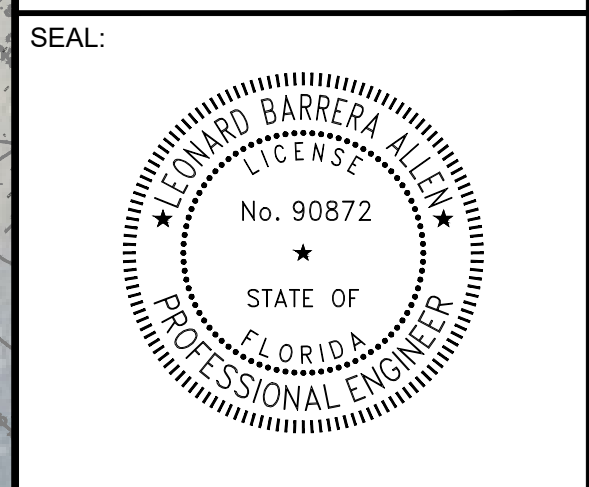
IDENTIFIER	TREATMENT
A	RECYCLED OYSTER SHELL VENEER
B	FOSSILIZED OYSTER SHELL VENEER
C	DITCH STONE VENEER (NO SHELL VENEER)
D	RIPRAP ONLY (NO DITCH STONE OR SHELL)

IMPACT TABLE		
ITEM	QUANTITY	UNIT
MODULE FOOTPRINT	28,560	SF
PILE FOOTPRINT	2	SF
SEAGRASS HABITAT IMPACTS (<=10% COVERAGE)	16,864	SF
DIRECT SEAGRASS IMPACTS (CONSERVATIVE, BASED ON 10% COVERAGE)	1,685	SF

QUANTITY TABLE		
ITEM	QUANTITY	UNIT
RIPRAP MODULE	12	EA

**SURVEY NOTES:**  
 1. BATHYMETRIC SURVEY DATA BY SURVTECH SOLUTIONS COLLECTED ON JULY 25, 2024.  
 2. WATER DEPTH CONTOURS ARE IN FEET AND REFERENCED TO NAVD 88.  
 3. DOT DASH DIT SURVEY BY GEODATA SERVICES, INC., DATED OCTOBER 3RD, 2019.  
 4. AERIAL IMAGE: ESRI 2024.

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DRAWN	SMJ
CHECKED	RD
SCALE	AS SHOWN

**PROPOSED SITE PLAN DOT DASH DIT**

**CM-2.0**

**LEGEND:**  
 ② SEDIMENT THICKNESS (INCHES)  
 ≤ 10% INTERMIXED SEAGRASS BED  
 PROPOSED 12"-DIA PILE, SUBMERGED ARTIFICIAL REEF MARKERS

J:\Projects\123300.9 Manatee County Oyster Imp - Design & Permitting\03 - Drawings\Construction Working\2026-03-25\123300.9 Manatee County Oyster.dwg



PROJECT LOCATION



1  
CM-4.0  
12"-DIA PILE - SUBMERGED ARTIFICIAL REEF MARKERS TO BE PLACED AS REQUIRED BY AGENCIES, TYP. LAT: 27.50441944, LONG. -82.52346667

75' RIPRAP MODULES W/ SHELL VENEER, TYP.  
1  
CM-3.0

1  
CM-3.1  
75' RIPRAP MODULES W/ DITCH STONE VENEER, TYP.

1  
CM-3.2  
75' RIPRAP ONLY MODULE, TYP.

1  
CM-4.1  
PROP. TURBIDITY CURTAIN

1  
CM-4.0  
12"-DIA PILE - SUBMERGED ARTIFICIAL REEF MARKERS TO BE PLACED AS REQUIRED BY AGENCIES, TYP. LAT: 27.50261944, LONG. -82.52347500

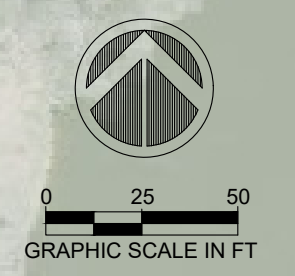
IDENTIFIER	TREATMENT
A	RECYCLED OYSTER SHELL VENEER
B	FOSSILIZED OYSTER SHELL VENEER
C	DITCH STONE VENEER (NO SHELL VENEER)
D	RIPRAP ONLY (NO DITCH STONE OR SHELL)

IMPACT TABLE		
ITEM	QUANTITY	UNIT
MODULE FOOTPRINT	26,180	SF
PILE FOOTPRINT	2	SF
SEAGRASS HABITAT IMPACTS (<=10% COVERAGE)	1,603	SF
DIRECT SEAGRASS IMPACTS (CONSERVATIVE, BASED ON 10% COVERAGE)	160	SF

QUANTITY TABLE		
ITEM	QUANTITY	UNIT
RIPRAP MODULE	11	EA

**SURVEY NOTES:**  
 1. BATHYMETRIC SURVEY DATA BY SURVTECH SOLUTIONS COLLECTED ON JULY 25, 2024.  
 2. WATER DEPTH CONTOURS ARE IN FEET AND REFERENCED TO NAVD 88.  
 3. AERIAL IMAGE: ESRI 2024.

**LEGEND:**  
 (2) SEDIMENT THICKNESS (INCHES)  
 ≤ 10% INTERMIXED SEAGRASS BED  
 PROPOSED 12"-DIA PILE - SUBMERGED ARTIFICIAL REEF MARKERS



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**CUMMINS CEDERBERG COASTAL & MARINE ENGINEERING**  
 201 ALHAMBRA CIRCLE, SUITE 601 CORAL GABLES, FL 33134  
 TEL: +1 305 741-6155 FAX: +1 305-974-1969  
 WWW.CUMMINSCEDERBERG.COM  
 COA # 29062



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NO.	DATE	ISSUE	CONSTRUCTION DRAWINGS SUBMISSION / REVISION
1	03/26/2026	ISSUE	

CC PROJECT NO: 123300.9  
 DRAWN: SMJ  
 CHECKED: RD  
 SCALE: AS SHOWN

SHEET TITLE  
**PROPOSED SITE PLAN RIVER CONFLUENCE**

**CM-2.1**

J:\Projects\123300.9 Manatee County Oyster Imp - Design & Permitting\03 - Drawings\Construction Working\2026-03-25\123300.9 Manatee County Oyster.dwg

PROJECT:  
**MANATEE COUNTY OYSTER RESTORATION PROJECTS**  
 MANATEE COUNTY, FLORIDA

CLIENT:  
**MANATEE COUNTY ECOLOGICAL AND MARINE RESOURCES DIVISION**

5502 33RD AVE DR W,  
 BRADENTON, FL 34209

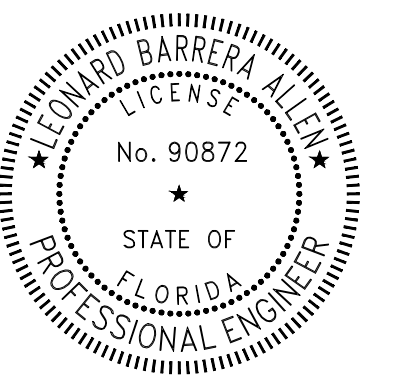
ENGINEER:  
**CUMMINS CEDERBERG**  
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 TEL: +1 305 741-6155 FAX: +1 305-974-1969  
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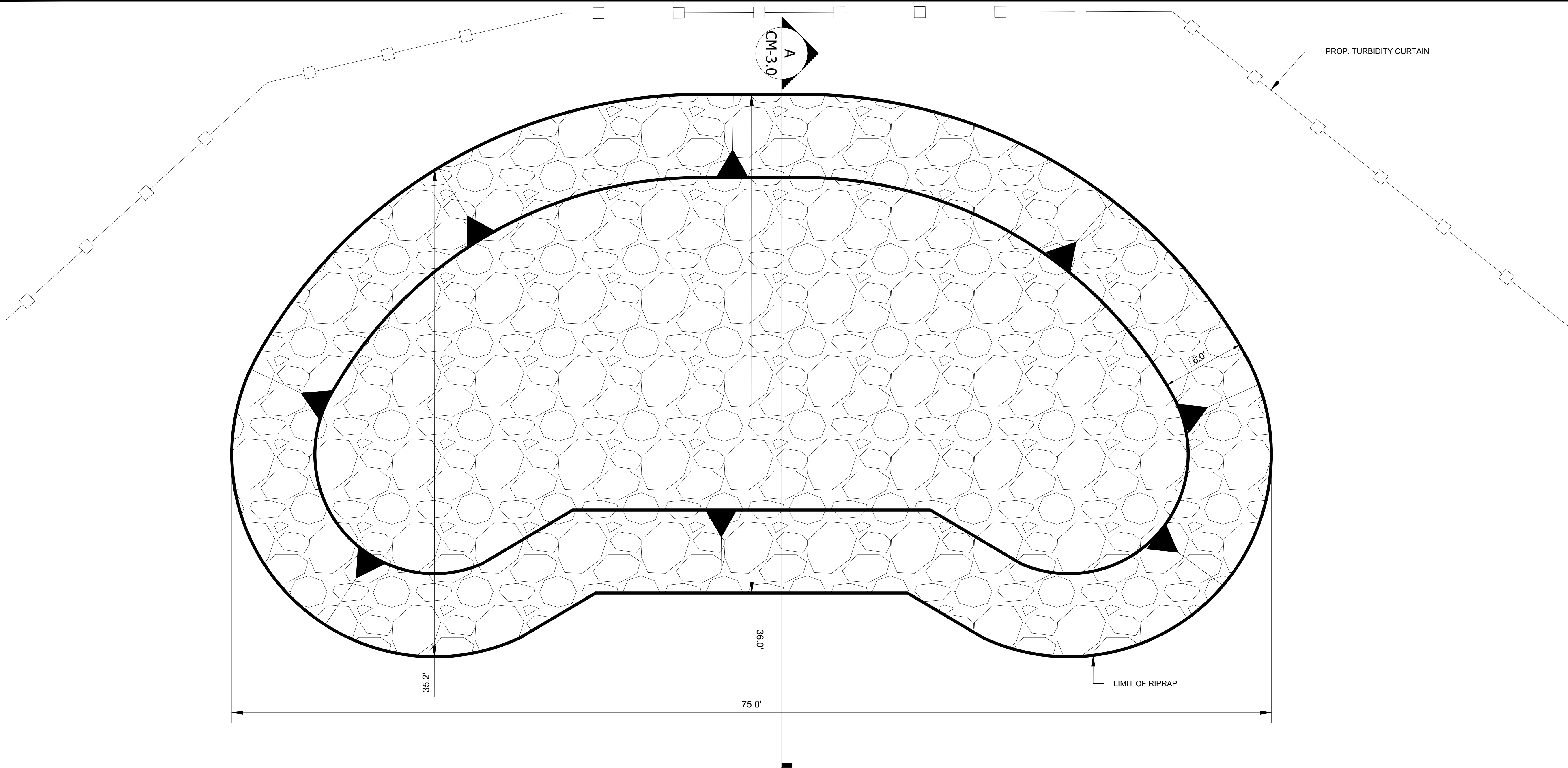


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CC PROJECT NO:	123300.9
DRAWN	SMJ
CHECKED	RD
SCALE	AS SHOWN

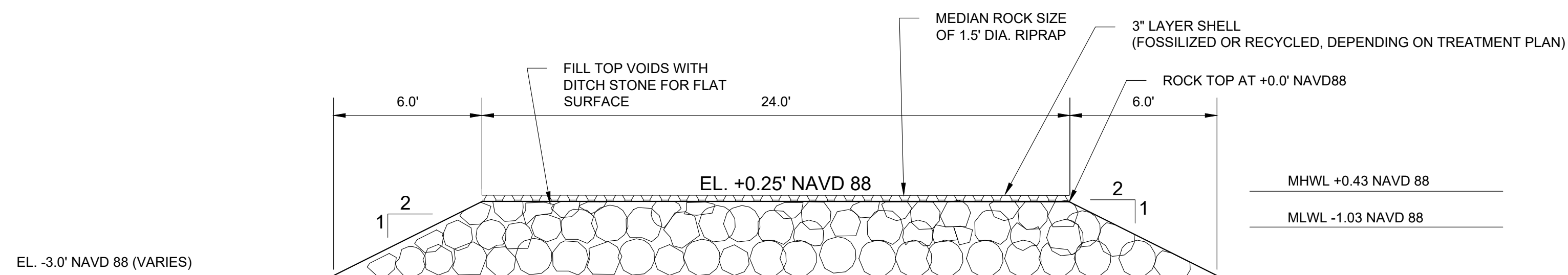
SHEET TITLE  
**RIPRAP MODULE W/  
 SHELL VENEER  
 DETAILS**

**CM-3.0**



**1** TYPICAL RIPRAP MODULE PLAN VIEW  
 (TREATMENTS A AND B)  
 SCALE 1 = 4'

QUANTITY TABLE (PER MODULE)		
ITEM	QUANTITY	UNIT
RIPRAP	160 / 2380	CY / SF
SHELL	13 / 1335	CY / SF
DITCH STONE FOR VOIDS	25	CY
TOTAL VOLUME BELOW MHWL	160	CY



**A** TYPICAL RIPRAP MODULE PROFILE VIEW  
 (TREATMENTS A AND B)  
 SCALE 1 = 4'

NOTE:  
 6" - 8" DIA. DITCH STONE TO BE PLACED BEFORE SHELL LAYER TO FILL VOIDS WITHIN RIPRAP PRIOR TO SHELL LAYER PLACEMENT

PROJECT:  
**MANATEE COUNTY OYSTER RESTORATION PROJECTS**  
 MANATEE COUNTY, FLORIDA

CLIENT:  
**MANATEE COUNTY ECOLOGICAL AND MARINE RESOURCES DIVISION**

5502 33RD AVE DR W,  
 BRADENTON, FL 34209

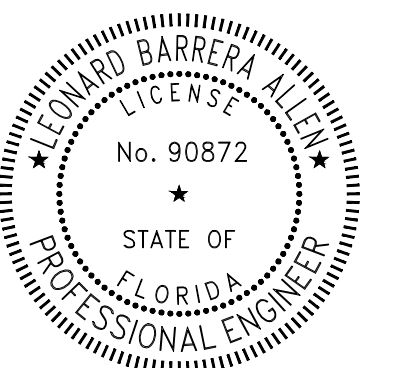
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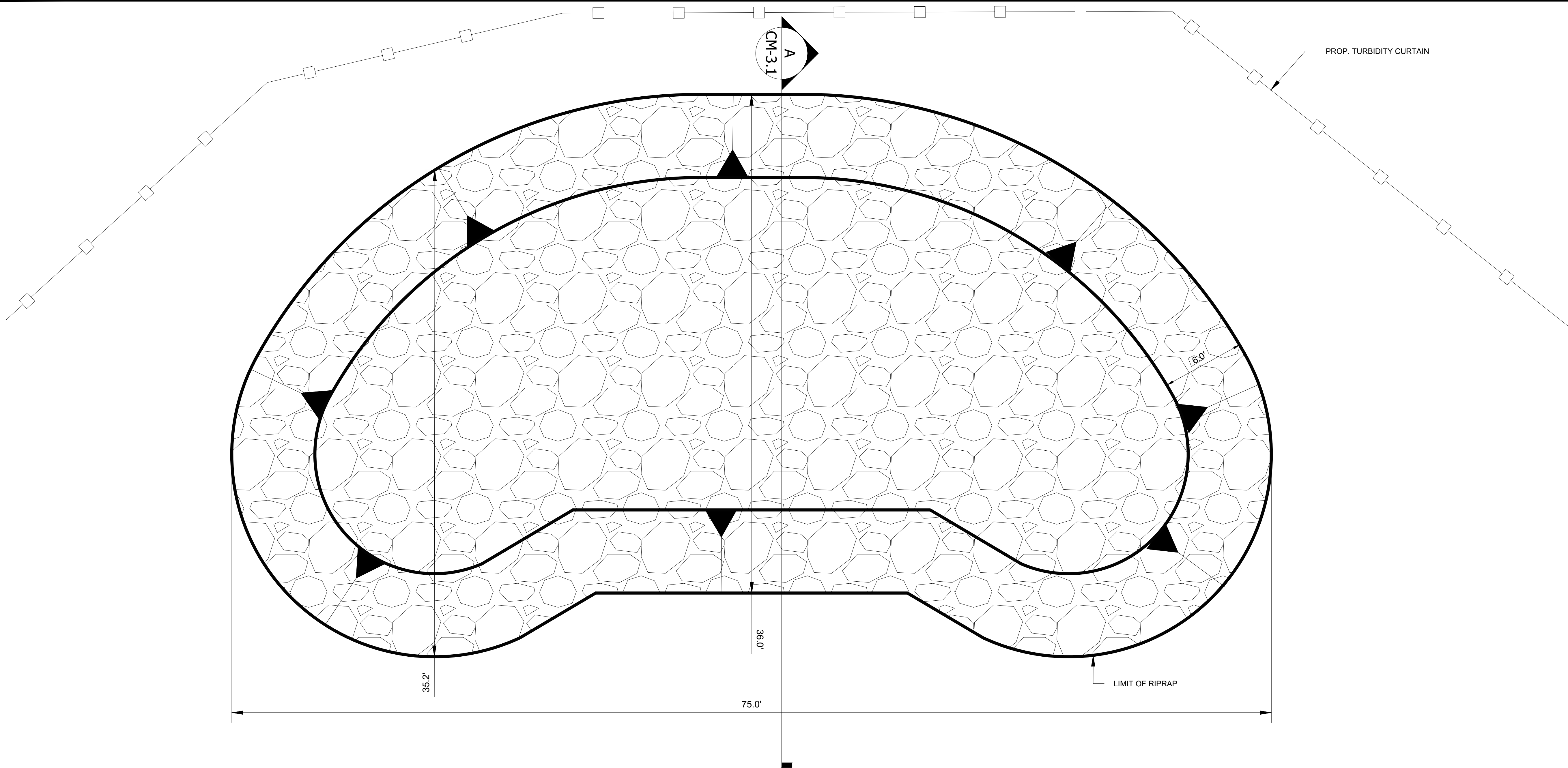


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 DRAWN: SMJ  
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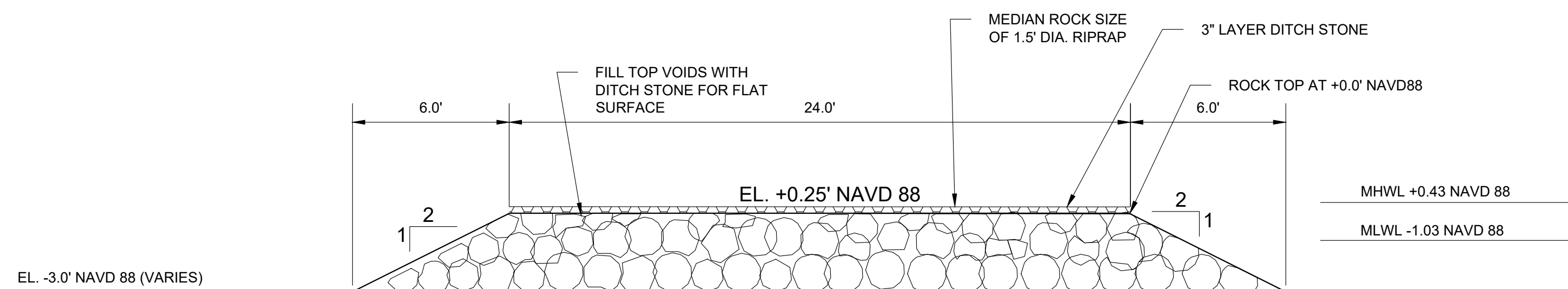
SHEET TITLE  
**RIPRAP MODULE W/  
 DITCH STONE VENEER  
 DETAILS**

**CM-3.1**



**1** TYPICAL RIPRAP MODULE PLAN VIEW  
 (TREATMENT C)  
 SCALE 1 = 4'

QUANTITY TABLE (PER MODULE)		
ITEM	QUANTITY	UNIT
RIPRAP	160 / 2380	CY / SF
DITCH STONE VENEER	13 / 1335	CY / SF
DITCH STONE FOR VOIDS	25	CY
TOTAL VOLUME BELOW MHWL	160	CY



**A** TYPICAL RIPRAP MODULE PROFILE VIEW  
 (TREATMENT C)  
 SCALE 1 = 4'

NOTE:  
 6" - 8" DIA. DITCH STONE TO BE PLACED BEFORE DITCH STONE VENEER TO FILL VOIDS WITHIN RIPRAP PRIOR TO SHELL LAYER PLACEMENT

PROJECT:  
**MANATEE COUNTY  
 OYSTER  
 RESTORATION  
 PROJECTS**  
 MANATEE COUNTY,  
 FLORIDA

CLIENT:  
**MANATEE COUNTY  
 ECOLOGICAL AND  
 MARINE RESOURCES  
 DIVISION**

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 BRADENTON, FL 34209

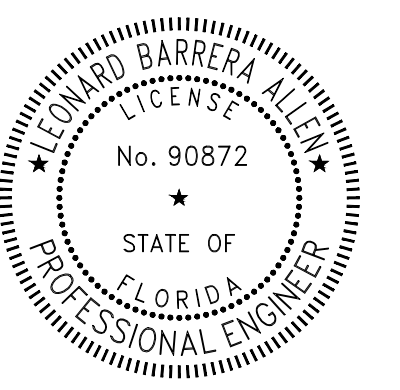
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 201 ALHAMBRA CIRCLE, SUITE 601  
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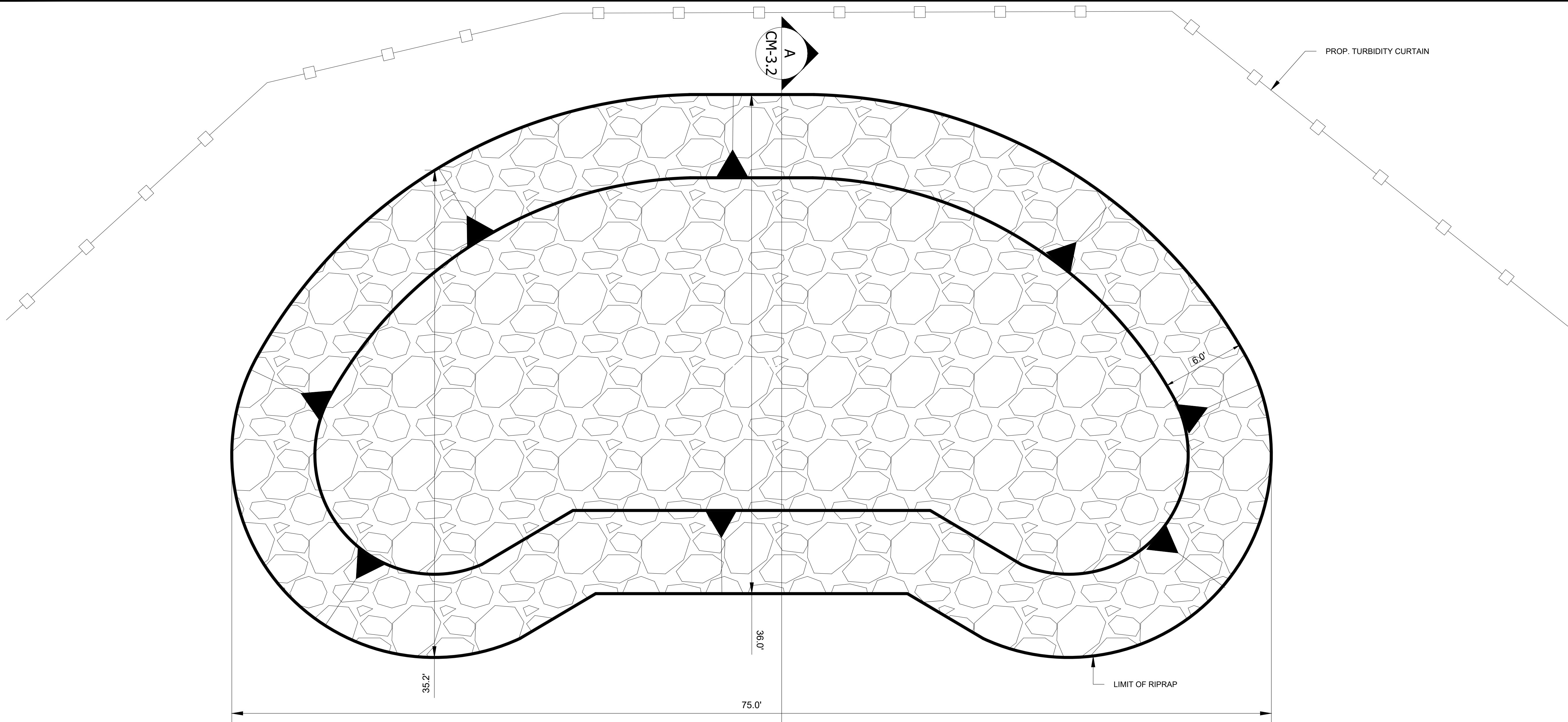


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SCALE	AS SHOWN

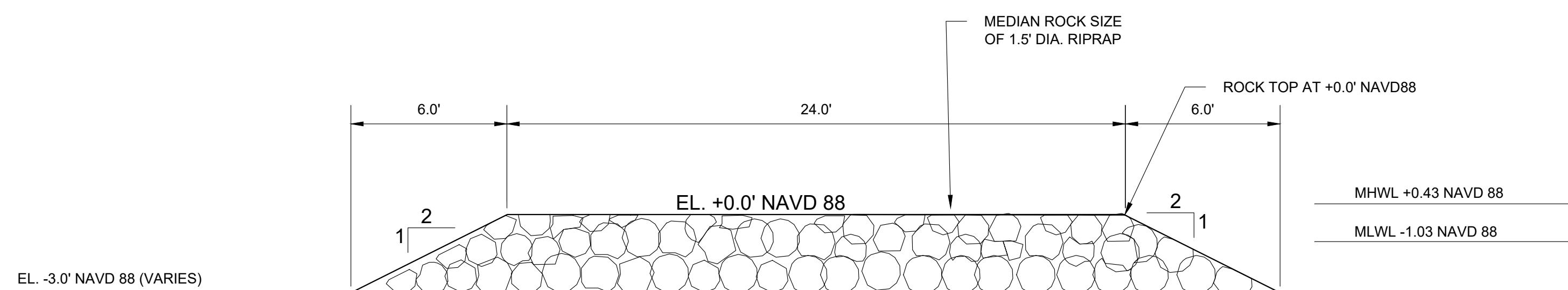
SHEET TITLE  
**RIPRAP ONLY MODULE  
 DETAILS**

**CM-3.2**



**1** TYPICAL RIPRAP MODULE PLAN VIEW  
 (TREATMENT D)  
 SCALE 1 = 4'

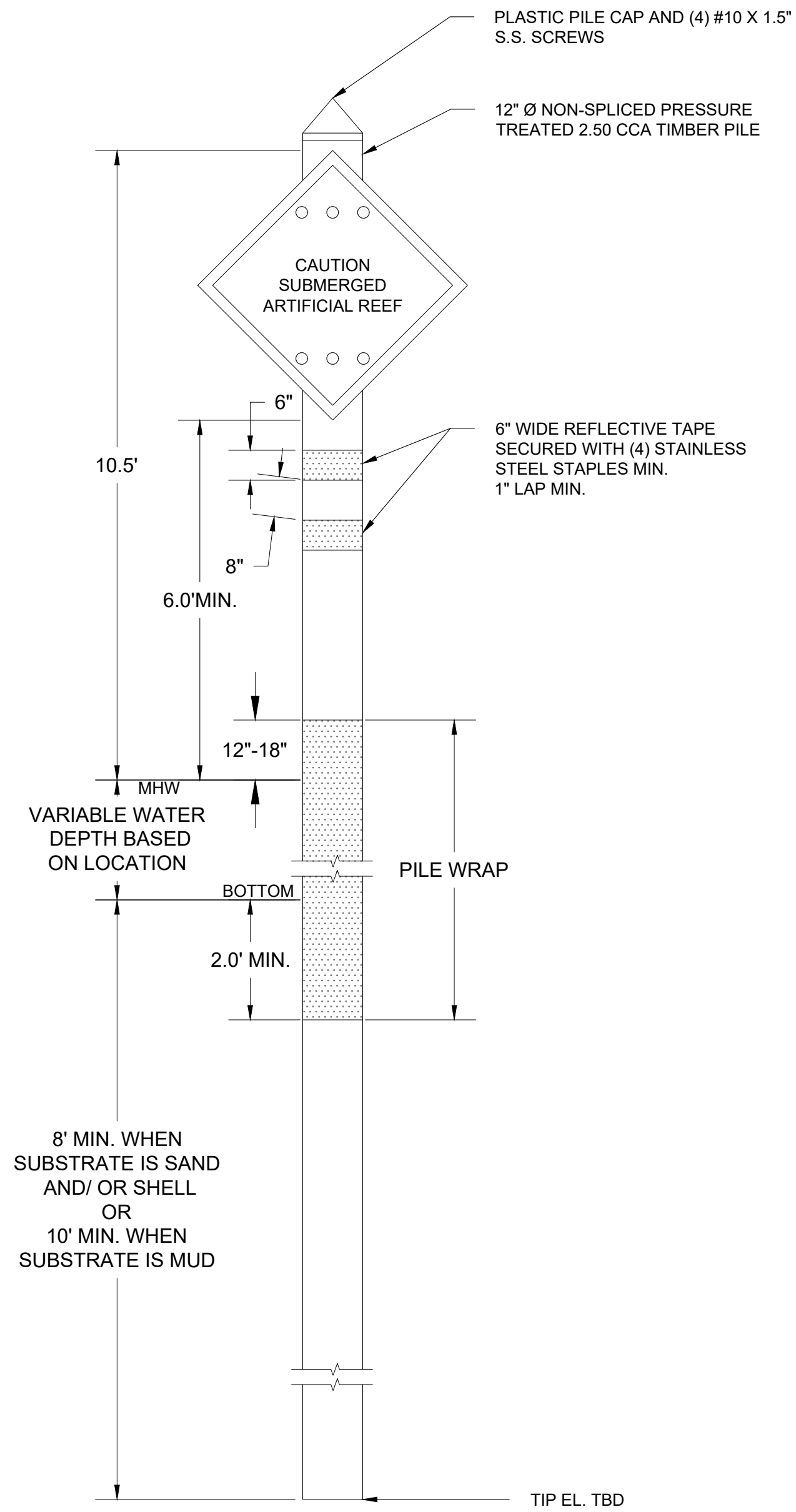
QUANTITY TABLE (PER MODULE)		
ITEM	QUANTITY	UNIT
RIPRAP	160 / 2380	CY / SF
TOTAL VOLUME BELOW MHWL	160	CY



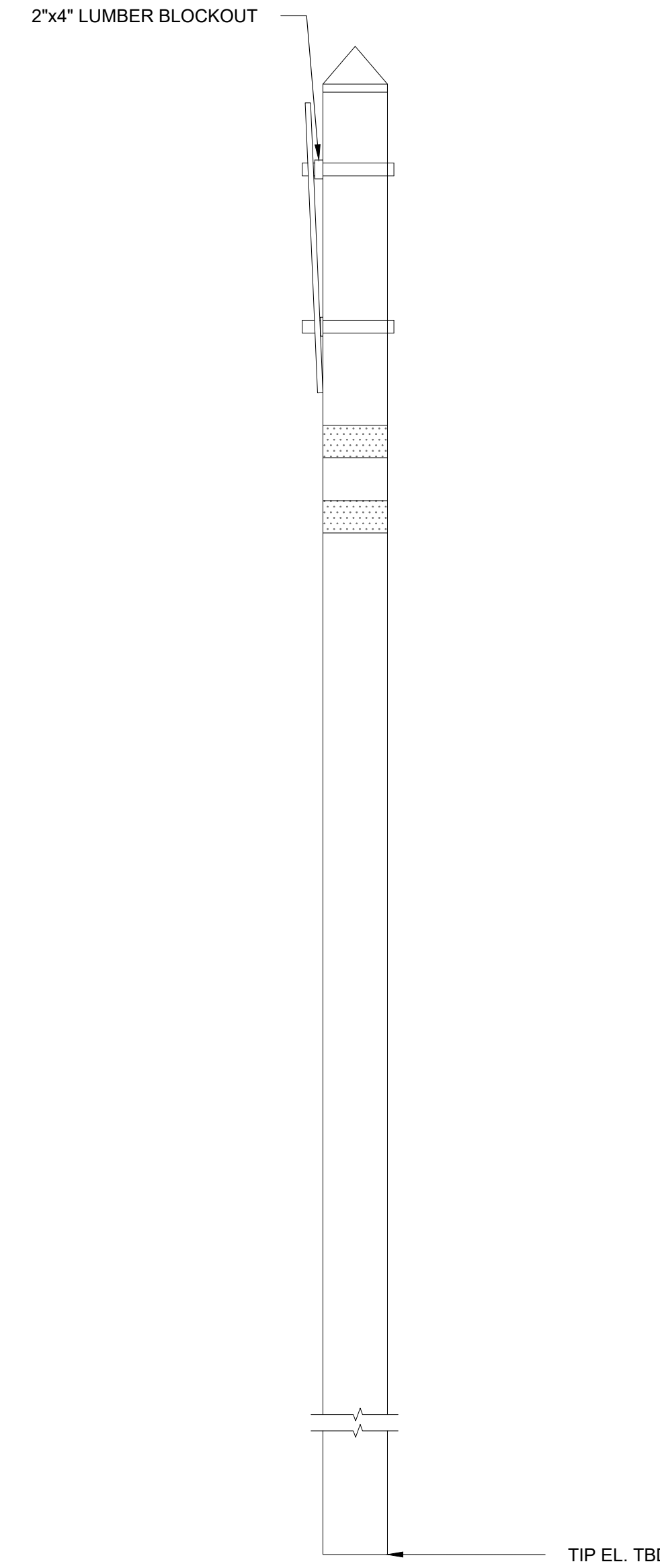
**A** TYPICAL RIPRAP MODULE PROFILE VIEW  
 (TREATMENT D)  
 SCALE 1 = 4'

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NO.	SIGN ID	LATTITUDE ° (N)	LONGITUDE ° (W)
1	A	27.50441944°	-82.52346667°
2	A	27.50261944°	-82.523475°
3	A	27.49960278°	-82.52587222°
4	A	27.49997778°	-82.52460833°



1 TYPICAL PILE DETAIL  
SCALE 1" = 2'



A TYPICAL PILE SECTION  
SCALE 1" = 2'

PROJECT:  
MANATEE COUNTY  
OYSTER  
RESTORATION  
PROJECTS  
MANATEE COUNTY,  
FLORIDA

CLIENT:  
MANATEE COUNTY  
ECOLOGICAL AND  
MARINE RESOURCES  
DIVISION

5502 33RD AVE DR W,  
BRADENTON, FL 34209

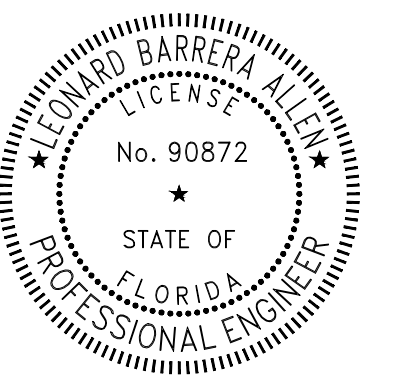
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CC PROJECT NO:	123300.9
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SCALE	AS SHOWN

SHEET TITLE  
PILE DETAIL

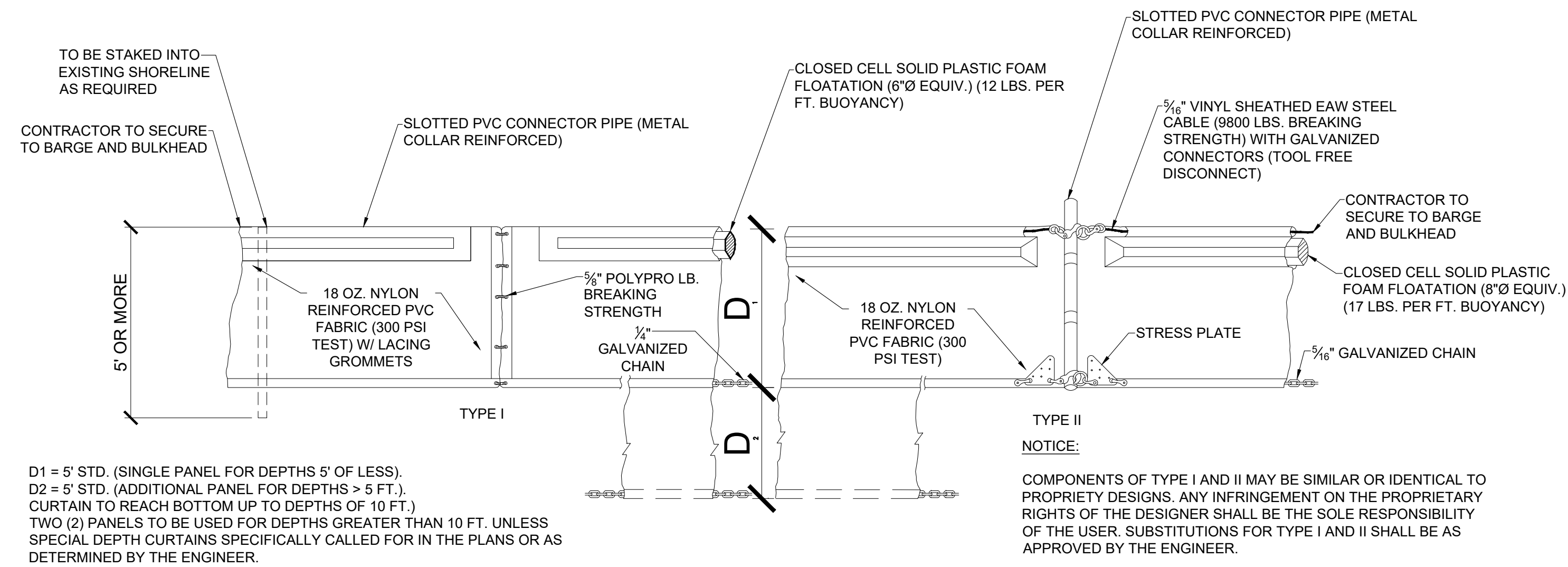
CM-4.0

PROJECT:  
**MANATEE COUNTY  
 OYSTER  
 RESTORATION  
 PROJECTS**  
 MANATEE COUNTY,  
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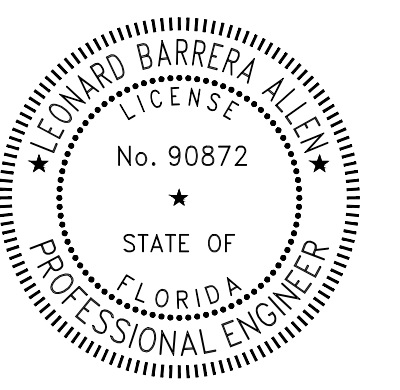
1 FLOATING TURBIDITY BARRIER  
 SCALE: N.T.S

NOTES:  
 CONTRACTOR MAY ELECT TO STAGE CONSTRUCTION.  
 TURBIDITY CURTAINS WILL BE INSTALLED AROUND  
 ALL ACTIVE CONSTRUCTION WORK.

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SHEET TITLE  
**TURBIDITY CURTAIN  
 DETAIL**

**CM-4.1**