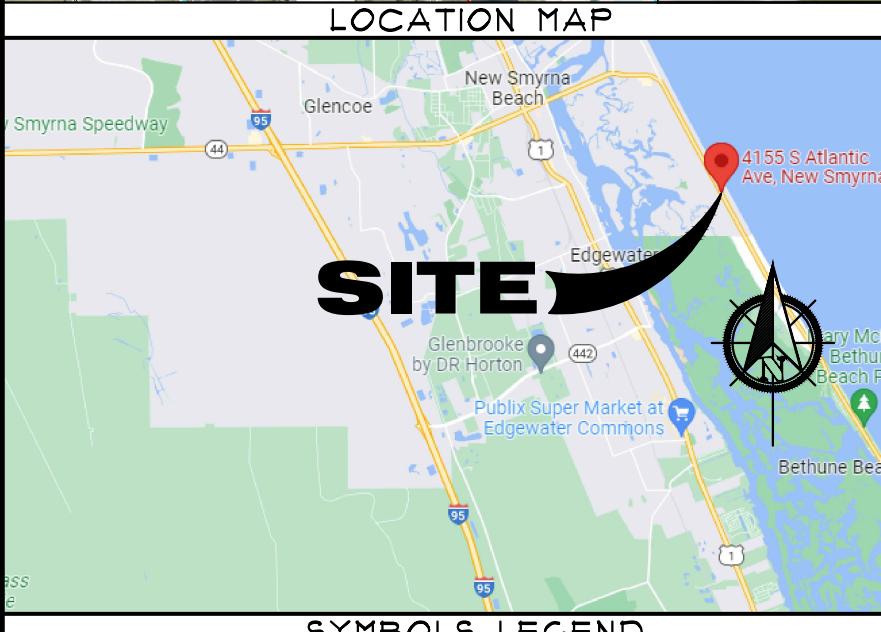


STRUCTURAL PLANS FOR EMERGENCY SEAWALL REPAIR AT: SEACOAST GARDENS I

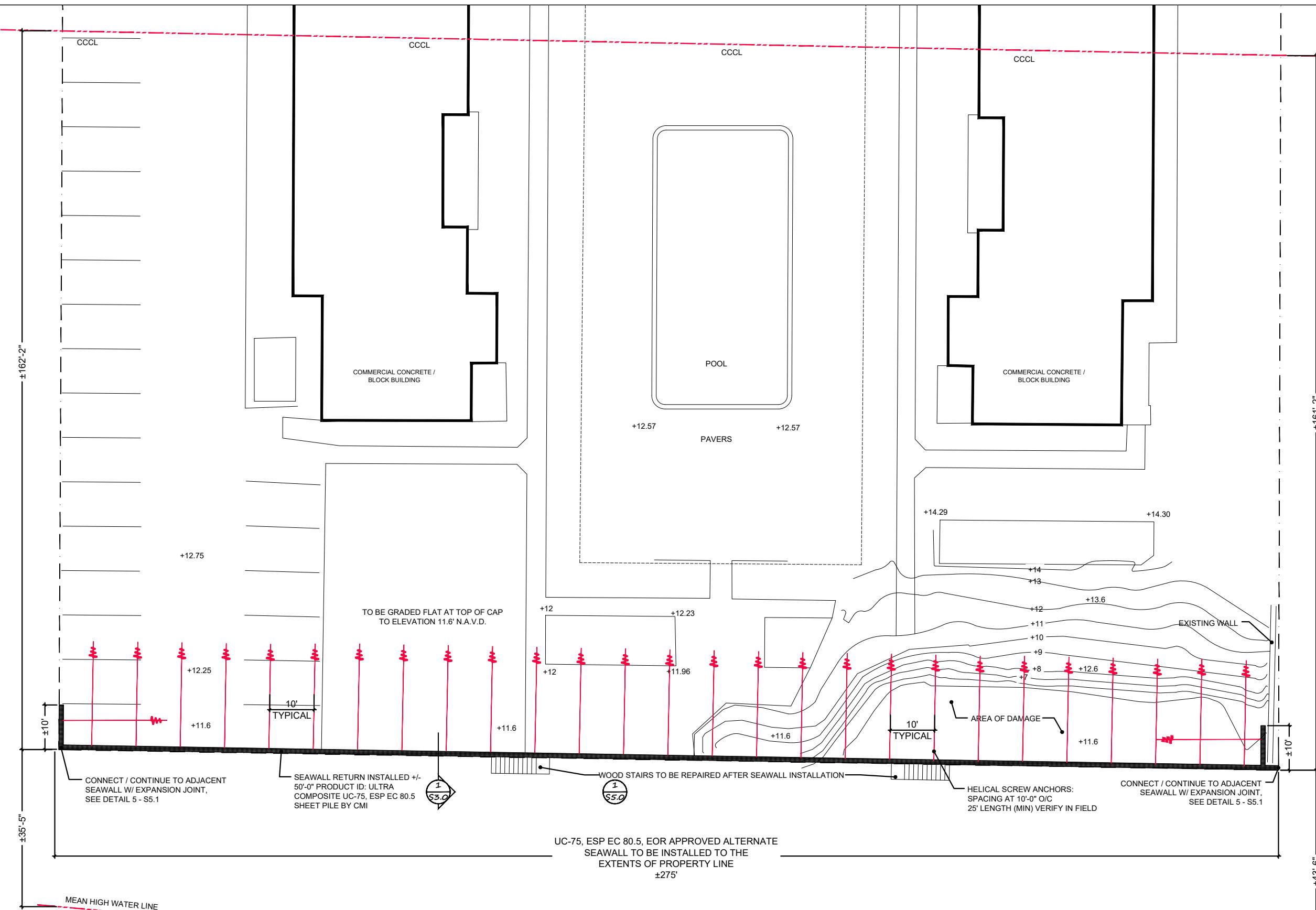
4155 SOUTH ATLANTIC AVENUE
NEW SMYRNA BEACH, FLORIDA 32169



ELEVATION	ELEVATION HT
SECTION	DOOR NUMBER
DETAIL	WINDOW NUMBER
KEY NOTE	REVISION NUMBER
WALL TYPE	ROOM NAME

ABBREVIATIONS		
ALUM	ALUMINUM	
COCL	COASTAL CONSTRUCTION CONTROL LINE	
CMU	CONCRETE MASONRY UNIT	
CM	CRANE MATERIALS INTERNATIONAL	
COL	COLUMN	
CONC	CONCRETE	
CONT	CONTINUOUS	
C/L	CENTER LINE	
DBL	DOUBLE	
DIA	DIAMETER	
DIM	DIMENSION	
EA	EACH	
EC	EVERCOMP	
ELEC	ELECTRICAL	
ELEV/EL	ELEVATION	
EQ	EQUAL	
FOR	ENGINEER OF RECORD	
ESP	EVERLAST SYNTHETIC PRODUCTS	
EXIST	EXISTING	
FFE	FINISHED FLOOR ELEVATION	
FRP	FIBER-REINFORCED POLYMER	
FT	FEET	
GALV	GALVANIZED	
GBFS	GRANULATED BLAST FURNACE SLAG	
HDG	HOT DIPPED GALVANIZED	
HP	HELICAL PILE	
INFO	INFORMATION	
KSI	KIPS PER SQUARE INCH	
MAX	MAXIMUM	
MG	MARINE GRADE	
MFGR/MFR	MANUFACTURER	
MHWL	MEAN HIGH WATER LINE	
MIN	MINIMUM	
NA	NOT APPLICABLE	
NC	NOT IN CONTRACT	
NOM	NOMINAL	
NTS	NOT TO SCALE	
OC	ON CENTER	
PLYUD	PLYWOOD	
PREFAB	PREFABRICATED	
PSF	POUNDS PER SQUARE FOOT	
PT	PAINT/PRESSURE TREATED/POST TENSION	
REBAR	REINFORCING BAR	
REF	REFENCE	
REINF	REINFORCE	
REQ'D	REQUIRED	
RO	ROUGH OPENING	
SG	SHOREGUARD	
SIM	SIMILAR	
UC	ULTRA COMPOSITE	
VIF	VERIFY IN FIELD	
YD	YARD	

PROJECT DIRECTORY		INDEX of DRAWINGS																
ENGINEER OF RECORD		 CRA Charles R. Adams & Associates, Inc. STRUCTURAL ENGINEERS 414 Canal Street - New Smyrna Beach, FL 32168 - 386.426.5583 C.A. 4180																
△SO COVER SI.O MATERIAL QUANTITIES, SITE PLAN, INSTALLATION DETAILS S2.O DAMAGE SURVEY PHOTOS △S3.O REPAIR SECTION DETAIL S3.1 DETAILS AND SPECIFICATIONS S3.2 DETAILS AND SPECIFICATIONS △S4.O GENERAL NOTES S5.O BEACH APPROACH STAIR DETAILS S5.1 DETAILS S6.O SURVEY																		
WIND LOAD DATA BASIC WIND SPEED: 140 CATEGORY II ENCLOSURE BUILDING D WIND EXPOSURE WIND PRESSURE FOR COMPONENTS & CLADDING: (ASD) ZONE: PRESSURE (psf): <table border="1"> <tr> <td>ZONE 1</td><td>+23.19</td><td>-42.39</td></tr> <tr> <td>ZONE 2</td><td>+23.19</td><td>-69.64</td></tr> <tr> <td>ZONE 3</td><td>+23.19</td><td>-54.00</td></tr> <tr> <td>ZONE 4</td><td>+32.91</td><td>-35.71</td></tr> <tr> <td>ZONE 5</td><td>+32.91</td><td>-43.48</td></tr> </table>		ZONE 1	+23.19	-42.39	ZONE 2	+23.19	-69.64	ZONE 3	+23.19	-54.00	ZONE 4	+32.91	-35.71	ZONE 5	+32.91	-43.48	SCOPE OF WORK COMMERCIAL - EMERGENCY SEAWALL REPAIR	
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ZONE 3	+23.19	-54.00																
ZONE 4	+32.91	-35.71																
ZONE 5	+32.91	-43.48																
PROJECT CODE DATA FLORIDA BUILDING CODE - 7th EDITION 2020 NATIONAL ELECTRICAL CODE 2017 UNIFORM PLUMBING CODE 2021 FL. FIRE PREVENTION CODE 2020 NFPA 101 LIFE SAFETY CODE 2018 NFPA-1 UNIFORM FIRE CODE 2018 ACCESSIBILITY CODE 2020 ENERGY CODE 2020 ACI 318 / 19 2019 ASCE 7-16 2016																		
JURISDICTION CITY OF NEW SMYRNA BEACH		REVISION LOG DATE 3/30/23 DESCRIPTION DEP COMMENTS																
STATEMENT OF COMPLIANCE TO THE BEST OF OUR KNOWLEDGE, THESE PLANS AND SPECIFICATIONS COMPLY WITH ALL APPLICABLE BUILDING AND FIRE SAFETY CODES. I HEREBY CERTIFY THAT PLANS AND SPECIFICATIONS ARE IN COMPLIANCE w/ FAC 62B-33.051 (FLORIDA ADMINISTRATIVE CODE).																		
 CHARLES R ADAMS PROFESSIONAL ENGINEER <small>This item has been digitally signed and sealed by Charles R. Adams on the date indicated here. Printed copies of this document, are not considered signed and sealed and the signature must be verified on any electronic copies.</small>		FLORIDA LICENSE NO. 15113																



SEACOAST GARDENS

STRUCTURAL PLANS FOR AN EMERGENCY SEAWALL REPLACEMENT AT

4155 SOUTH ATLANTIC AVENUE
NEW SMYRNA BEACH, FLORIDA 32169



UHA & Associates, Inc.
STRUCTURAL ENGINEERS

144 Central Street - New Smyrna Beach, FL 32168 - 386.428.5588

NO	REMARKS	DATE

CHARLES R ADAMS
PROFESSIONAL ENGINEER

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MATERIAL QUANTITIES, SITE PLAN, INSTALLATION DETAILS

WN BY
AA
WER BY

S1 0

ST.0

NOTE:
SEAWALL TO BE INSTALLED AS SEAWARD AS
NECESSARY TO AVOID SUBTERRANEAN DEBRIS FROM
OLD SEAWALL (NOT TO EXCEED 18")

N

- A. SITE PLAN DATA BASED ON BOUNDARY SURVEY PROVIDED BY MARK DOWST & ASSOCIATES
- B. PROPOSED SEAWALL TO ALIGN WITH SEAWALLS OF ADJACENT PROPERTIES



MATERIALS LIST			
UC-75, ESP EC 80.5 COMP. SHEET PILE	20' TALL MAXIMUM	± 295 lf	$\pm 5,900$ ft ²
CONCRETE CAP BEAM	24" x 26" x 295'	$\pm 1,278$ ft ³	0% DISPLACEMENT
MARINE GRADE WOOD POSTS	6" x 6" x 72" EMBEDDED	16 QTY	± 24 ft ³ DISPLACEMENT
HELICAL SCREW ANCHORS	AS PER DETAIL	29 QTY	0% DISPLACEMENT
BEACH COMPATIBLE SAND FILL	4,436 ft ² x 8'		$\pm 1,314$ YD ³
WASHED #57 ROCK	24 WEEPS @ 1YD EA		± 24 YD ³

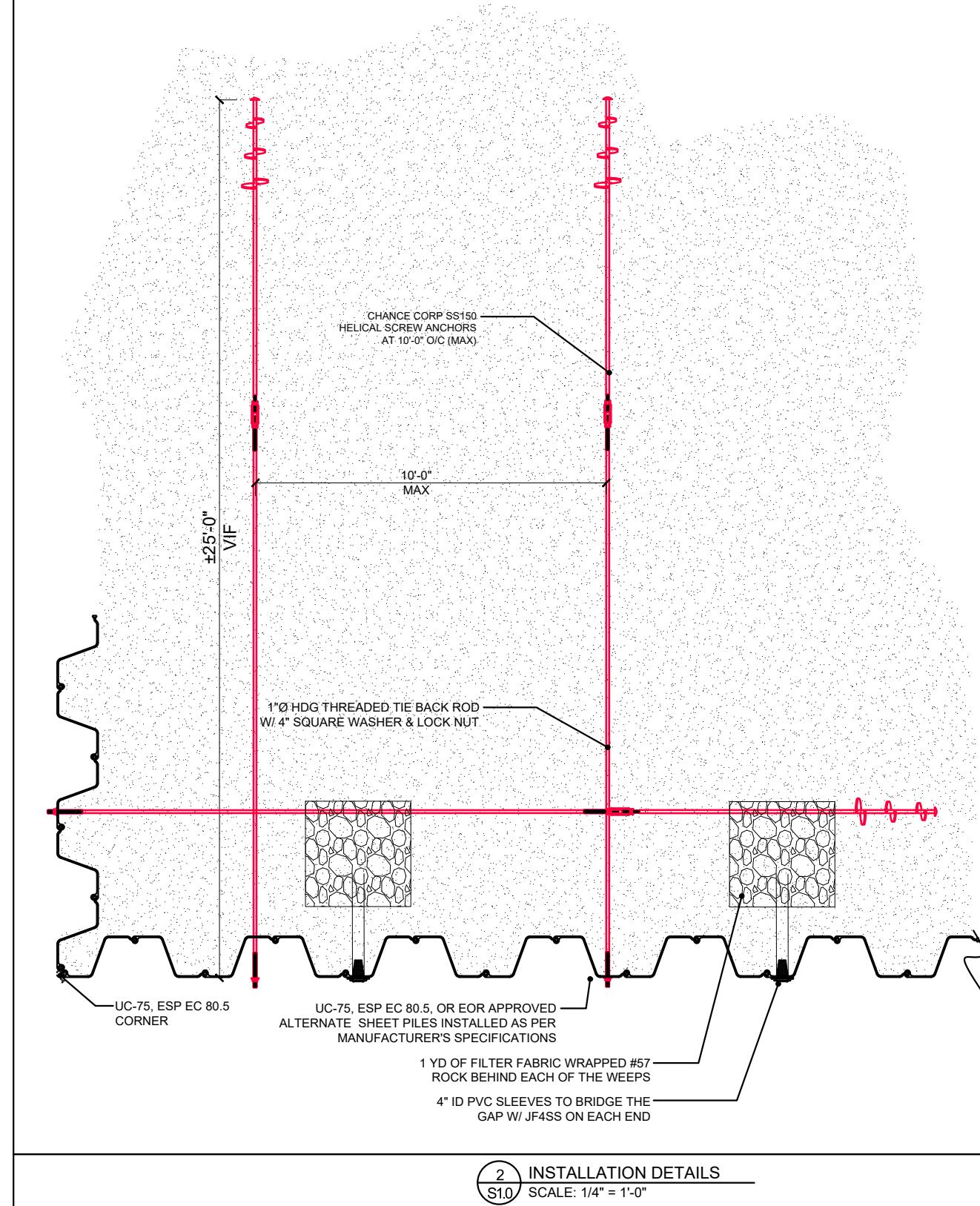
NOTE:
SEAWALL LOCATION AS PER EFO FOR SUBTROPICAL STORM NICOLE – OGC 22-2816 C.1.A.2.E.: (e) ANY FILL THAT IS DEPOSITED TO RESTORE A FORMER SHORELINE, AND ANY RIPRAP THAT IS USED TO STABILIZE A SHORELINE, MUST NOT BE PLACED ANY FATHER WATERWARD THAN THE TOE OF SLOPE OF THE SHORELINE THAT LEGALLY EXISTED IMMEDIATELY PRIOR TO THE STORM. IF THE PRE-STORM SHORELINE WAS STABILIZED WITH A FUNCTIONING SEAWALL OR RIPRAP, THE SEAWALL OR RIPRAP MAY BE RESTORED AT ITS FORMER LOCATION OR WITHIN 18 INCHES WATERWARD OF THE LOCATION WHERE THE SEAWALL OR RIPRAP LEGALLY EXISTED IMMEDIATELY PRIOR TO THE STORM, AS MEASURED FROM THE FACE OF THE EXISTING SEAWALL SLAB TO THE FACE OF RESTORED SEAWALL SLAB OR FROM THE FRONT SLOPE OF THE EXISTING RIPRAP TO THE FRONT SLOPE OF THE RESTORED RIPRAP.



SEACOAST GARDENS I

4155 SOUTH ATLANTIC AVENUE
NEW SMYRNA BEACH, FLORIDA 32169

STRUCTURAL PLANS FOR AN EMERGENCY SEAWALL REPLACEMENT AT



NO	REMARKS	DATE
CHARLES R ADAMS PROFESSIONAL ENGINEER		



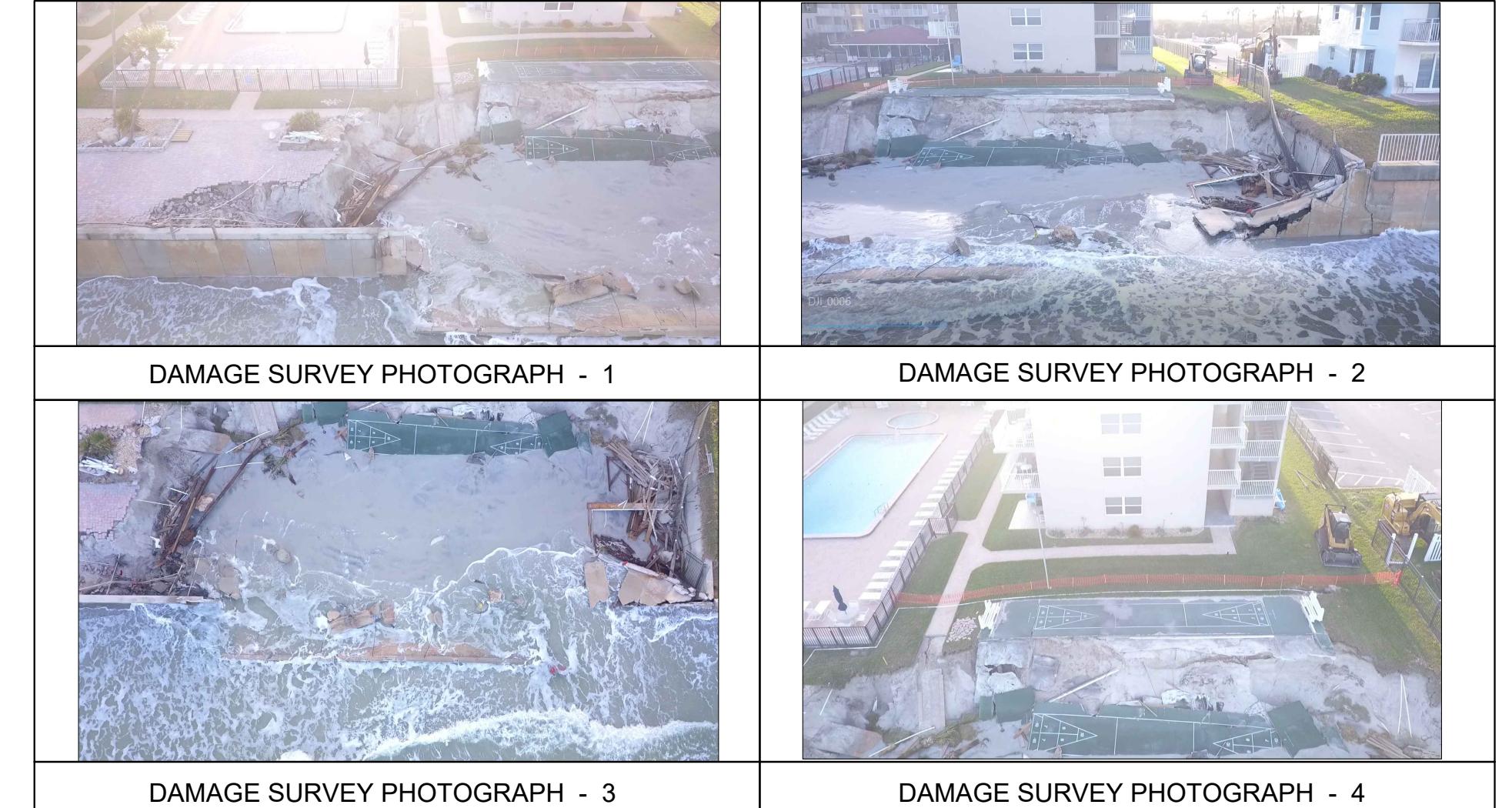
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FL LICENSE NO. 15113

MATERIAL QUANTITIES,
INSTALLATION DETAILS

DRAWN BY EAA	SHEET 3 OF 10
CHECKED BY JAA	
SCALE AS NOTED	
DATE 20 FEB 2023	

S1.1



SEACOAST GARDENS I

4155 SOUTH ATLANTIC AVENUE
NEW SMYRNA BEACH, FLORIDA 32169

STRUCTURAL PLANS FOR AN EMERGENCY SEAWALL REPLACEMENT AT



CHARLES R. ADAMS
& ASSOCIATES, INC.

STRUCTURAL ENGINEERS

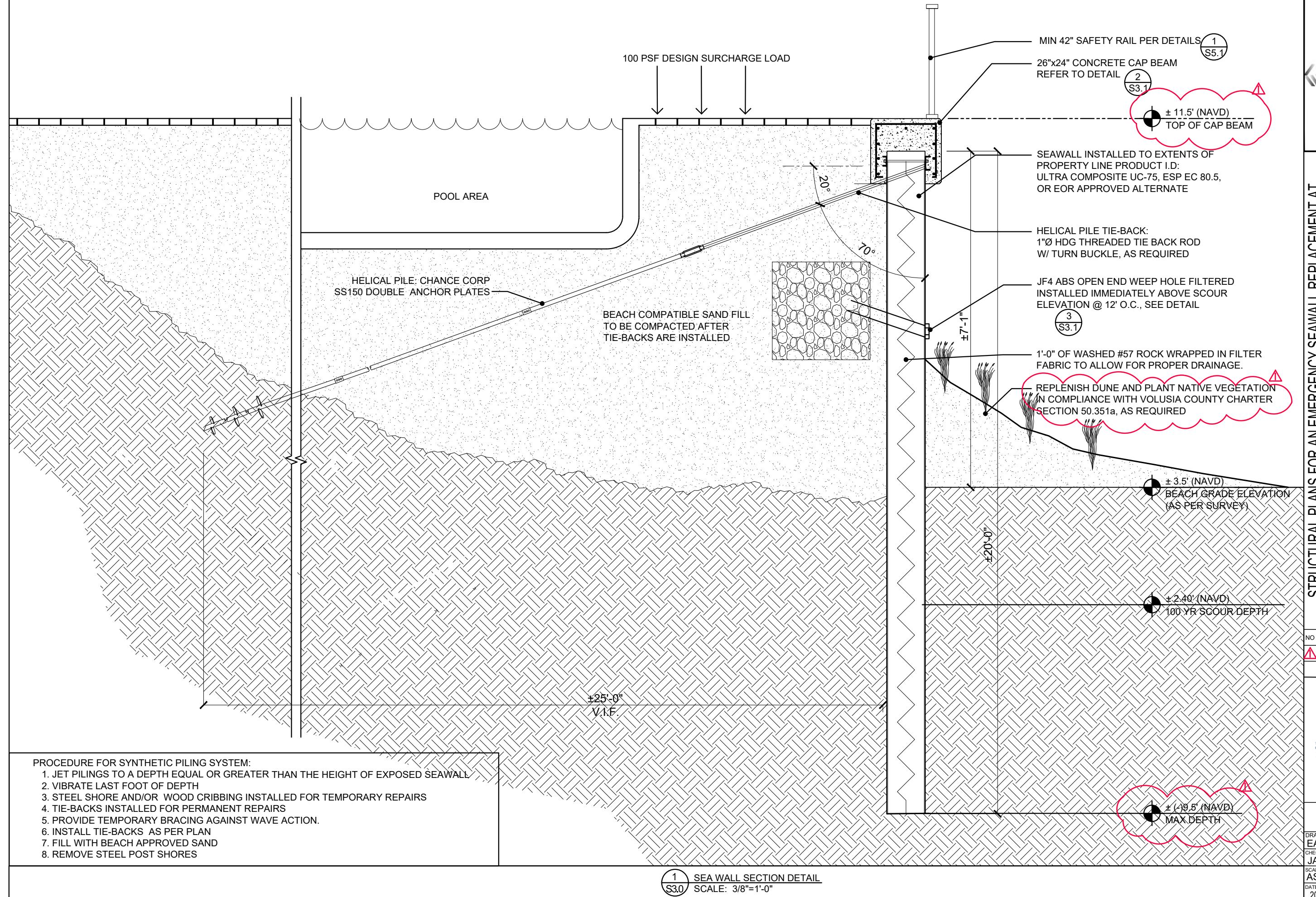
414 Canal Street • New Smyrna Beach, FL 32168 • 386.476.5533
221125 - SEACOAST GARDENS - 4155 S ATLANTIC AVE.DWG

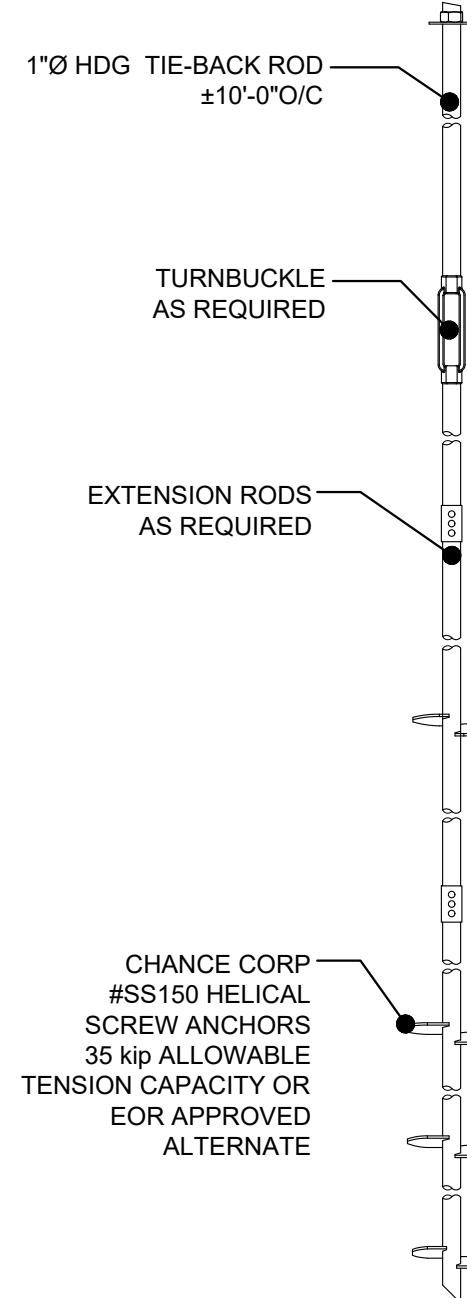
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FL LICENSE NO. 15113
DAMAGE SURVEY
PHOTOS

DRAWN BY EAA	SHEET 4 OF 10
CHECKED BY JAA	
SCALE AS NOTED	
DATE 20 FEB 2023	S2.0



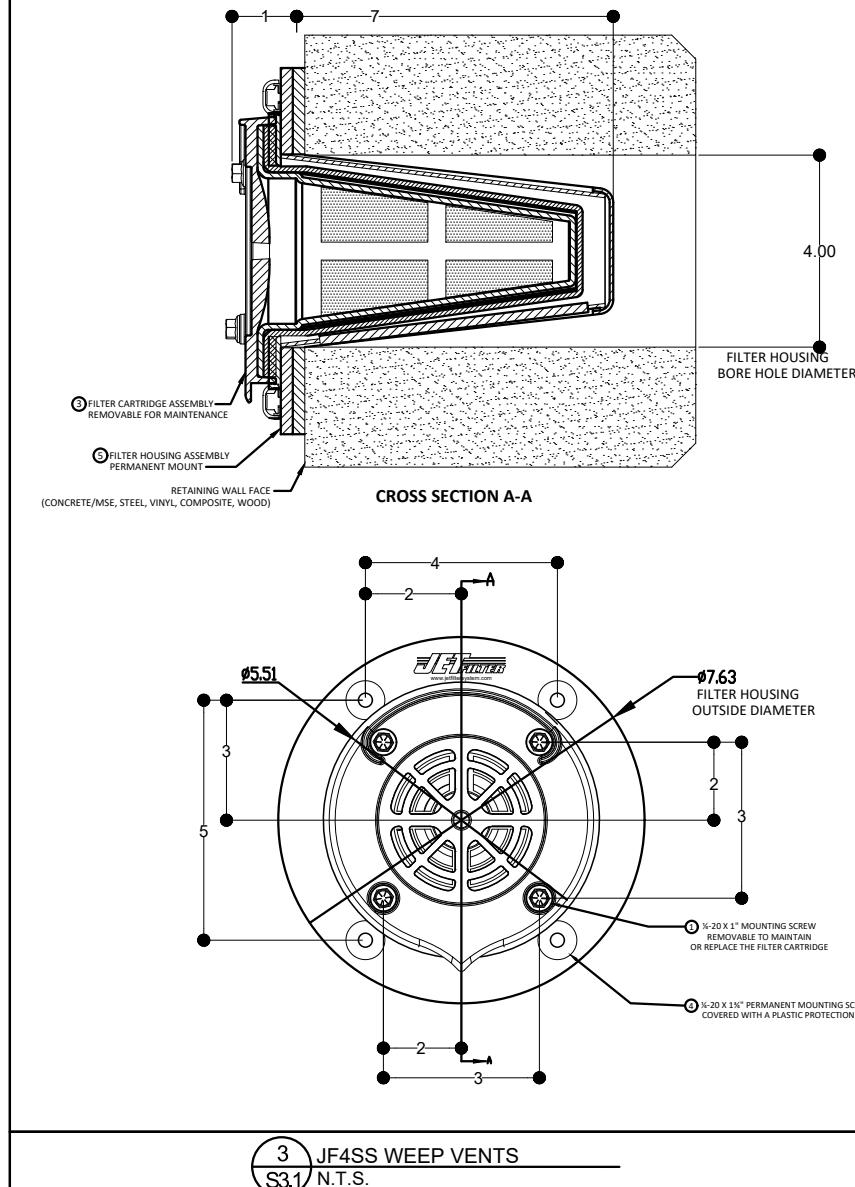


5 HELICAL PILE DETAIL
S3.1 N.T.S.

ESP EC 80.5

ALLOWABLE MOMENT (M):	31,667 FT-LB/FT	140.85 KN-m/m
SECTION MODULUS (Z):	38.0 IN ³ /FT	2,043 cm ³ /m
MOMENT OF INERTIA (I):	266 IN ⁴ /FT	36,325 cm ⁴ /m
THICKNESS (t):	0.400/0.430 IN	10.2/10.9 mm
SECTION DEPTH:	14 IN	356 mm
SECTION WIDTH:	24 IN	610 mm
MATERIAL:	STRUCTURAL FRP COMPOSITE	
STANDARD COLORS:	CHARCOAL	
PROFILE/PATENTED FEATURES:	Z PROFILE	

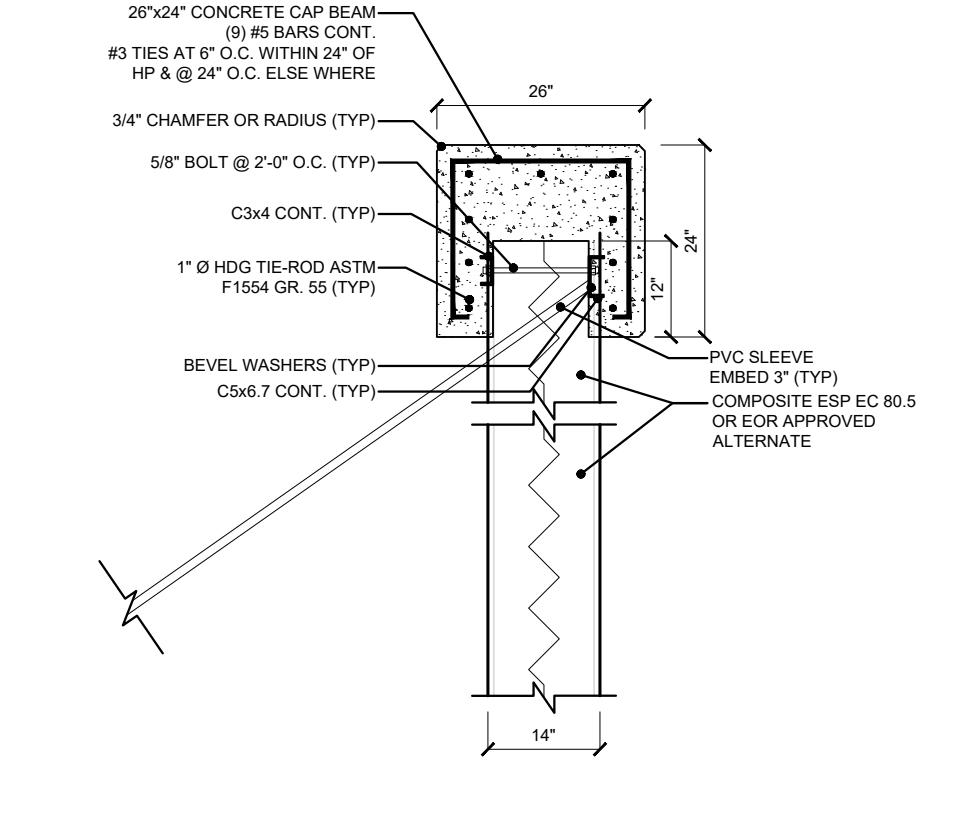
6 ULTRA COMPOSITE PILE
S3.1 SPECIFICATIONS



ESP EC 80.5 ISOMETRIC VIEW

4 CORNER SPECIFICATIONS
S3.1 N.T.S.

2 ULTRA COMPOSITE SHEET PILE
S3.1 SCALE: 3/4"=1'-0"



NOTE: ALL CONCRETE TO BE 5,500psi WITH FLY ASH ADDITIVE OR ENGINEER APPROVED EQUAL

26"x24" CONCRETE CAP BEAM
(9) #5 BARS CONT.
#3 TIES AT 6" O.C. WITHIN 24" OF HP & @ 24" O.C. ELSE WHERE

3/4" CHAMFER OR RADIUS (TYP)

5/8" BOLT @ 2'-0" O.C. (TYP)

C3x4 CONT. (TYP)

1" Ø HDG TIE-Rod ASTM F1554 GR. 55 (TYP)

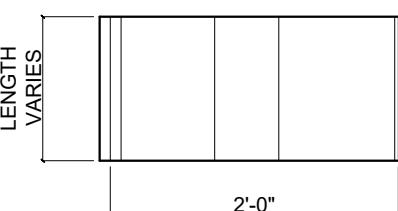
PVC SLEEVE EMBED 3" (TYP)

BEVEL WASHERS (TYP)

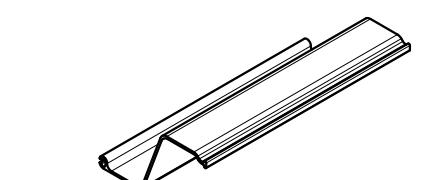
C5x6.7 CONT. (TYP)

COMPOSITE ESP EC 80.5 OR EOR APPROVED ALTERNATE

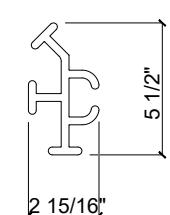
1 PILE / CAP BEAM DETAIL
S3.1 SCALE: 1/2"=1'-0"



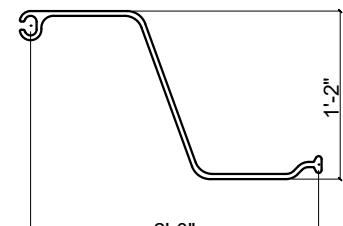
ESP EC 80.5 PROFILE VIEW



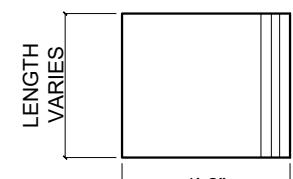
ESP EC 80.5 ISOMETRIC VIEW



ESP EC 80.5 PLAN VIEW



ESP EC 80.5 PLAN VIEW



ESP EC 80.5 SECTION VIEW

SEACOAST GARDENS I

4155 SOUTH ATLANTIC AVENUE
NEW SMYRNA BEACH, FLORIDA 32169

STRUCTURAL PLANS FOR AN EMERGENCY SEAWALL REPLACEMENT AT

Charles R. Adams & Associates, Inc.
STRUCTURAL ENGINEERS
414 Canal Street - New Smyrna Beach, FL 32168 - 386.426.5583

CHARLES R ADAMS
PROFESSIONAL ENGINEER

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DETAILS
SPECIFICATIONS

DRAWN BY
EAA
CHECKED BY
JAA
SCALE
AS NOTED
DATE
20 FEB 2023

GENERAL DESIGN AND CONSTRUCTION NOTES

MATERIAL

GENERAL DESIGN:

- ALL MATERIALS SHALL BE AS NOTED UNLESS LOCAL CODES PROVIDE A STRICTER GUIDELINE I.E. GREATER STRENGTH DURABILITY, ETC. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND AND COMPLY WITH THESE CODES.

SHEET PILE:

- SHEET PILE MATERIAL SHALL BE SUPERLOC, ULTRA COMPOSITE, BY CMI LIMITED CORP, OR EVERCOMP BY ESP, FRP COMPOSITE (AS SPECIFIED), OR EOR APPROVED ALTERNATE

STEEL:

- ALL STEEL CHANNELS, STEEL FASTENERS, AND TIE-RODS SHALL BE HOT DIP GALVANIZED PER ASTM A-153 WITH 2 OUNCES OF ZINC PER SQUARE FOOT.
- ALL REINFORCING BAR SHALL BE GRADE FRP, OR EOR APPROVED ALTERNATE

CONCRETE:

- CONCRETE TO HAVE A 28-DAY COMPRESSIVE STRENGTH OF 5,500PSI.
- CONCRETE SHALL HAVE 25% FLY ASH OF GBFS ADDED TO THE MIXTURE.
- CONCRETE MIX TO HAVE A MAX W/C RATIO OF 0.4.
- CONCRETE TO BE VIBRATED TO MINIMIZE AIR VOIDS.

JET FILTERS

- THE JET FILTER ASSEMBLY HOUSING SHOULD NOT BE REMOVED ONCE INSTALLED.
- WEEPS (JF3SS) TO ALLOW FOR EXCESSIVE HYDROSTATIC PRESSURE, FROM STORM WATER BUILD UP, TO RELEASE FROM BEHIND SEA WALL.

BACKFILL:

- BACKFILL MATERIAL SHALL BE COMPATIBLE W/THE BEACH SAND & APPROVED BY THE FDEP.
- BACKFILL SHALL BE INSTALLED IN ±12" LIFTS AND COMPAKTED TO 95% PROCTOR.
- IN GENERAL, BEACH-COMPATIBLE FILL MATERIAL WILL BE PREDOMINANTLY QUARTZ SAND OF A MEAN GRAIN SIZE DIAMETER BETWEEN 0.20MM AND 0.45MM, WITH A MOIST MUNSELL COLOR VALUE/CHROMA OF 7/1 OR LIGHTER AND A SIMILAR QUANTITY OF SHELL AS THE EXISTING BEACH.

ANCHORS:

- SHALL MEET OR EXCEED THE MINIMUM CAPACITY (AS SPECIFIED), OR EOR APPROVED ALTERNATE, W/ 1Ø HDG TIE-ROD.

WOOD

- ALL LUMBER SHALL BE MARINE GRADE, OR EOR APPROVED ALTERNATE
- ALL LUMBER FASTENERS SHALL BE 316 STAINLESS STEEL, OR EOR APPROVED ALTERNATE

DESIGN:

- DESIGN IS BASED ON SOIL PROPERTIES AS NOTED:

LAYER 1 (ELEV. +15.0 TO -4.5)			
=115 PCF	'=57 PCF	=32°	C=0 PSF
γ LAYER 2 (ELEV. -4.5 & BELOW) (DRIVEN CONDITIONS)			
=125 PCF	'=62 PCF	=40°	C=0 PSF
γ LAYER 1 (ELEV. -4.5 & BELOW) (JETTED CONDITIONS)			
=120 PCF	'=60 PCF	=34°	C=0 PSF
γ			
- IF ACTUAL SOIL OR SITE CONDITIONS DIFFER FROM THAT NOTED IN DRAWINGS, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR A POSSIBLE REDESIGN.
- DESIGN DOES NOT CONSIDER GLOBAL (SLOPE) STABILITY. AT MINIMUM, GEOTECHNICAL ENGINEER SHALL CONFIRM THAT GLOBAL STABILITY IS NOT AN ISSUE. OTHERWISE, OWNER ASSUMES RISK FOR GLOBAL STABILITY.
- DESIGN DOES NOT ACCOUNT FOR PRESENCE OF UNDERGROUND SPRINGS, WELLS, OR EXCESSIVE WATER FROM SITE RUNOFF. IF THESE CONDITIONS EXIST THE ENGINEERS SHALL BE NOTIFIED.

INSTALLATION

GENERAL INSTALLATION:

- PRIOR TO INSTALLATION, CONTRACTOR SHALL EXAMINE/PROBE ALONG THE ALIGNMENT OF THE SHEET PILE (APPROX. EVERY 5') TO DETERMINE THE POTENTIAL OF ANY SOIL VARIATION OR OBSTRUCTIONS.
- INSTALLATION TO BE CONDUCTED ACCORDING TO ALL APPLICABLE OSHA AND LOCAL CODES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND AND COMPLY WITH THESE CODES.
- PRIOR TO INSTALLATION CONTRACTOR SHALL EXAMINE SHEET PILE FOR ANY MANUFACTURING DEFECTS, OR DAMAGE DURING SHIPPING, ANY DEFECTIVE OR DAMAGED SHEET PILE SHALL BE DISCARDED AND REPLACED WITH NEW DEFECT & DAMAGE FREE MATERIAL. THIS SHALL BE THE RESPONSIBILITY OF THE SUPPLIER OR CONTRACTOR, AND NOT THE CLIENT OR EOR.
- PER OGC 22-2816 C.1.A.2.E. - SEAWALL MAY BE INSTALLED IMMEDIATELY SEAWARD OF PREVIOUS WALL, TO AVOID ANY SUBTERRANEAN OBSTACLES.

SHEET PILE:

- CONTRACTOR SHOULD REVIEW SOIL BORINGS AND PLAN FOR DIFFICULT DRIVING CONDITIONS, JETTING AND TRENCHING IS ALLOWED FOR NEW SHEET PILE INSTALLATION. LAST 1' OF SHEET PILE DRIVE TO BE VIBRATED.
- SHEET PILE SHALL PENETRATE TO DEPTH SHOWN IN THE PLANS.
- AFTER DRIVING SHEET PILE, SAW PILING OFF AT A TRUE PLANE INDICATED ON THE PLANS. FINAL ELEVATIONS ARE TO BE WITHIN ONE (1) INCH OF ESTABLISHED ELEVATION.
- RETURN WALLS TO BE PROVIDED AT ENDS OF ALL BULKHEADS TO PROVIDE FLANKING PROTECTION.

CONCRETE CAP:

- REFER TO ACI FOR PROPER CURING REQUIREMENTS.
- EXPANSION JOINTS ARE TO BE LOCATED AT NO GREATER THAN 50' INTERVALS
- ANCHOR RODS TO BE PROVIDED 1' ON EACH SIDE OF EXPANSION JOINT.

JET FILTER UNITS:

- CORE A TRUE SIZE OF FILTER DIAMETER HOLE IN THE SHEET PILLING/SEAWALL OR CONCRETE ABUTMENT ABOUT 4 INCHES BEHIND WALL EVERY 9'-0" ON CENTER, SLIGHTLY ABOVE MEAN WATER LINE IN COASTAL AREAS OR LOWEST ELEVATION. IF POSSIBLE CORE FURTHER INTO THE GROUND AND PACK FLOWABLE MATERIAL BEHIND WALL SUCH AS #57 STONE THEN SAND.
- INSERT THE JET FILTER ASSEMBLY INTO DRILLED HOLE ON WALL.
- PRE-DRILL THE MOUNTING HOLES BY USING:
 COMPOSITE SHEET PILING: HOLE BIT SIZE 3/16"
 STEEL SHEET PILING: PILOT HOLE BIT SIZE 7/32" OR 15/64"
 VINYL SHEET PILING: SELF-TAP
- ATTACH WITH BI-FLEX SS ANCHORS (SUPPLIED) THROUGH THE ASSEMBLY HOUSING HOLES INTO THE SHEET PILLING/SEAWALL, CONCRETE USE A 3/8" SOCKET.
- BE SURE TO EPOXY/SEAL AROUND THE HOUSING IF ANY POSSIBLE OPENING TO THE CORE.

MAINTENANCE:

- TO REMOVE OR REPLACE THE FILTER CARTRIDGE SIMPLY UNSCREW THE (4) SCREWS HOLDING THE JET FILTER IN PLACE ON THE SEAWARD FACE OF THE WALL.
- ONCE FILTER IS REMOVED CLEAN WITH A SOFT BRUSH WITH WATER RINSE OR REPLACE, IN REVERSE ORDER.

MONITORING:

- SHEET PILE INSTALLATION SHALL BE SUPERVISED BY A THIRD PARTY MONITORING COMPANY LIKE UES, OR EOR APPROVED ALTERNATE, IN ORDER TO VERIFY EMBEDMENT DEPTH.
- VIBRATION MONITORING SERVICES SHALL BE PROVIDED BY UES, OR EOR APPROVED ALTERNATE, TO VERIFY THAT FDOT VIBRATION LIMITS ARE NOT EXCEEDED.
- TORQUE LOGS FOR HELICAL PILE INSTALLATION SHALL BE SUBMITTED TO THE EOR FOR REVIEW AND APPROVAL PRIOR TO CONTINUING WITH SEAWALL INSTALLATION.

LANDSCAPE:

- REPLENISH DUNE & PLANT NATIVE PLANTINGS IN COMPLIANCE WITH THE VOLUSIA COUNTY CHARTER, SECTION 50-351a & ASSOCIATED PLANTING GUIDELINES.



Charles R. Adams & Associates, Inc.
STRUCTURAL ENGINEERS

414 Canal Street • New Smyrna Beach, FL 32168 • 306-426-5533

4155 SOUTH ATLANTIC AVENUE
NEW MYRNA BEACH, FLORIDA 32169

SEACOAST GARDENS |

STRUCTURAL PLANS FOR AN EMERGENCY SEAWALL REPLACEMENT AT

NO	REMARKS	DATE
△ DEP COMMENTS	3/30/23	

CHARLES R ADAMS
PROFESSIONAL ENGINEER

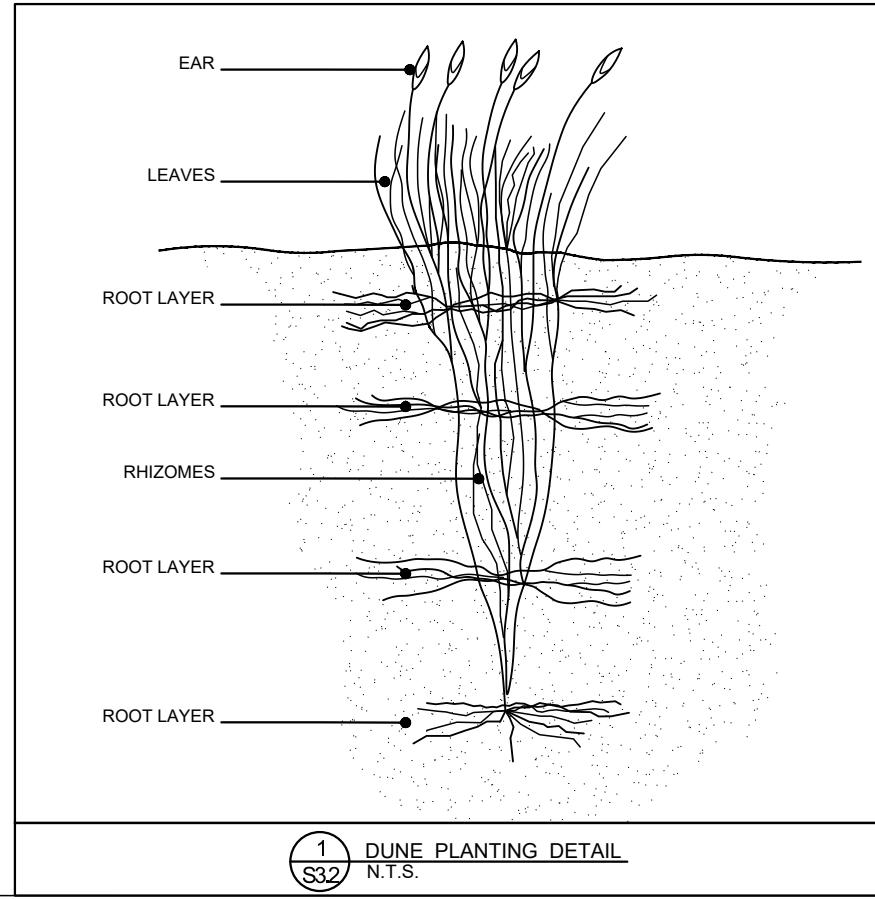
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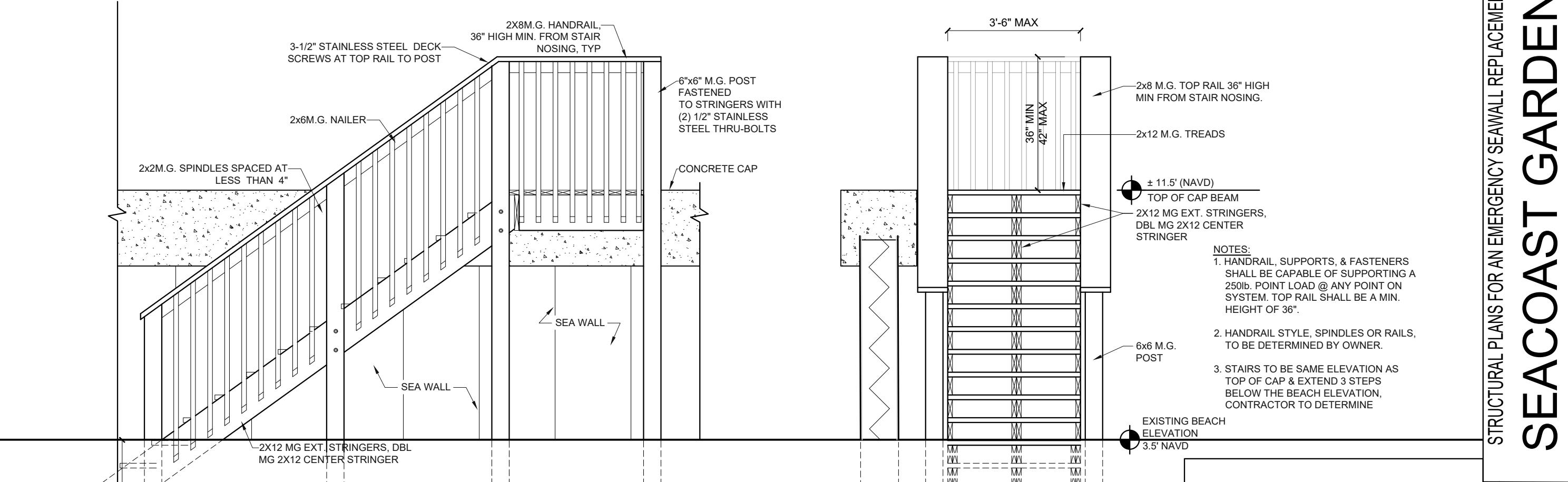
SEAL
FL LICENSE NO. 15113

NOTES

DRAWN BY EAA	SHEET 8 OF 10
CHECKED BY JAA	
SCALE AS NOTED	
DATE 20 FEB 2023	

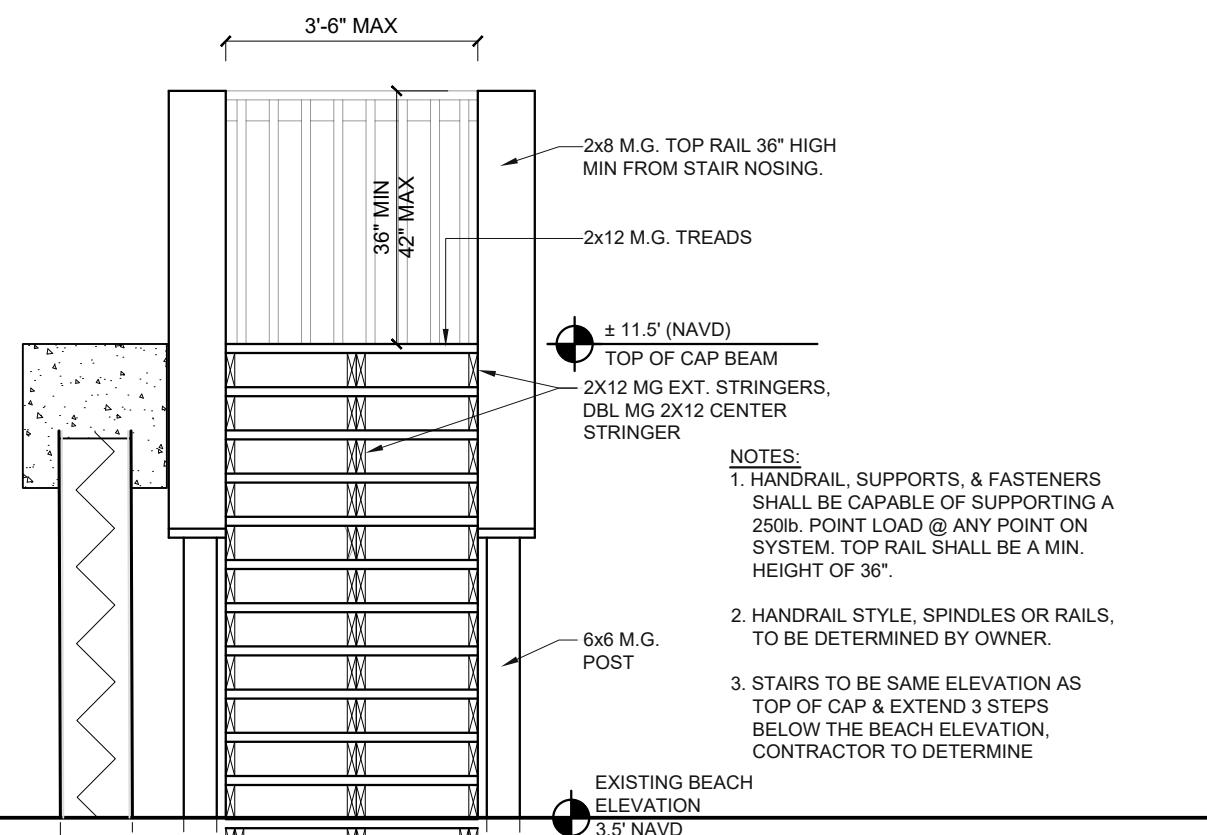
S4.0



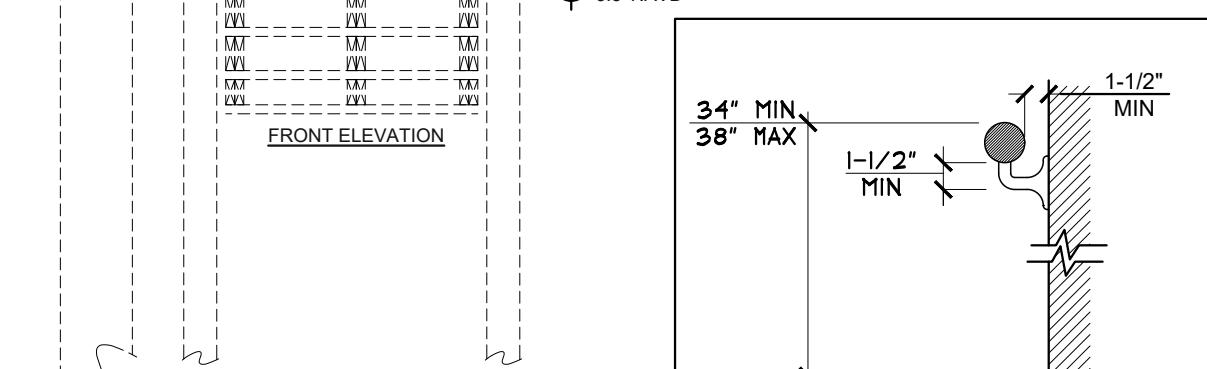


2 STAIR DETAILS
S5.0 SCALE: 3/8"=1'-0"

SECOND STAIR TO BE A
MIRRORED VERSION OF
STAIRS SHOWN



- NOTES:
1. HANDRAIL, SUPPORTS, & FASTENERS SHALL BE CAPABLE OF SUPPORTING A 250lb. POINT LOAD @ ANY POINT ON SYSTEM. TOP RAIL SHALL BE A MIN. HEIGHT OF 36".
 2. HANDRAIL STYLE, SPINDLES OR RAILS, TO BE DETERMINED BY OWNER.
 3. STAIRS TO BE SAME ELEVATION AS TOP OF CAP & EXTEND 3 STEPS BELOW THE BEACH ELEVATION, CONTRACTOR TO DETERMINE



HANDRAIL GRIPPING SURFACES WITH A CIRCULAR CROSS SECTION SHALL HAVE AN OUTSIDE DIAMETER OF 1-1/4" MINIMUM AND 2" MAXIMUM.
HANDRAIL GRIPPING SURFACES WITH A NON-CIRCULAR CROSS SECTION SHALL HAVE A PERIMETER DIMENSION OF 4" MINIMUM AND 6-1/4" MAXIMUM, AND A CROSS-SECTION DIMENSION OF 2-1/4" MAXIMUM.

SEACOAST GARDENS |

STRUCTURAL PLANS FOR AN EMERGENCY SEAWALL REPLACEMENT AT

4155 SOUTH ATLANTIC AVENUE
NEW SMYRNA BEACH, FLORIDA 32169

CRA
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& Associates, Inc.
STRUCTURAL ENGINEERS

414 Canal Street - New Smyrna Beach, FL 32168 • 306.476.5583

221125 - SEACOAST GARDENS

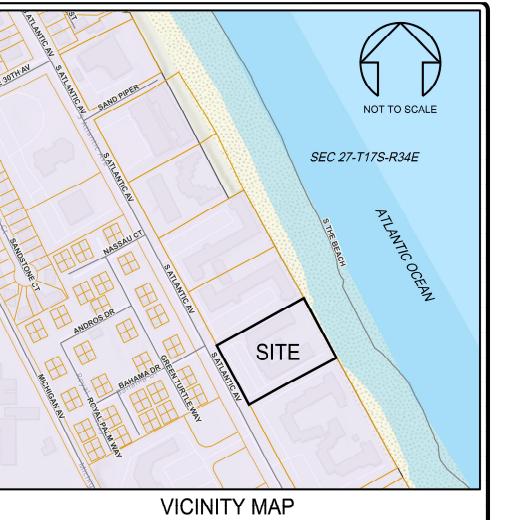
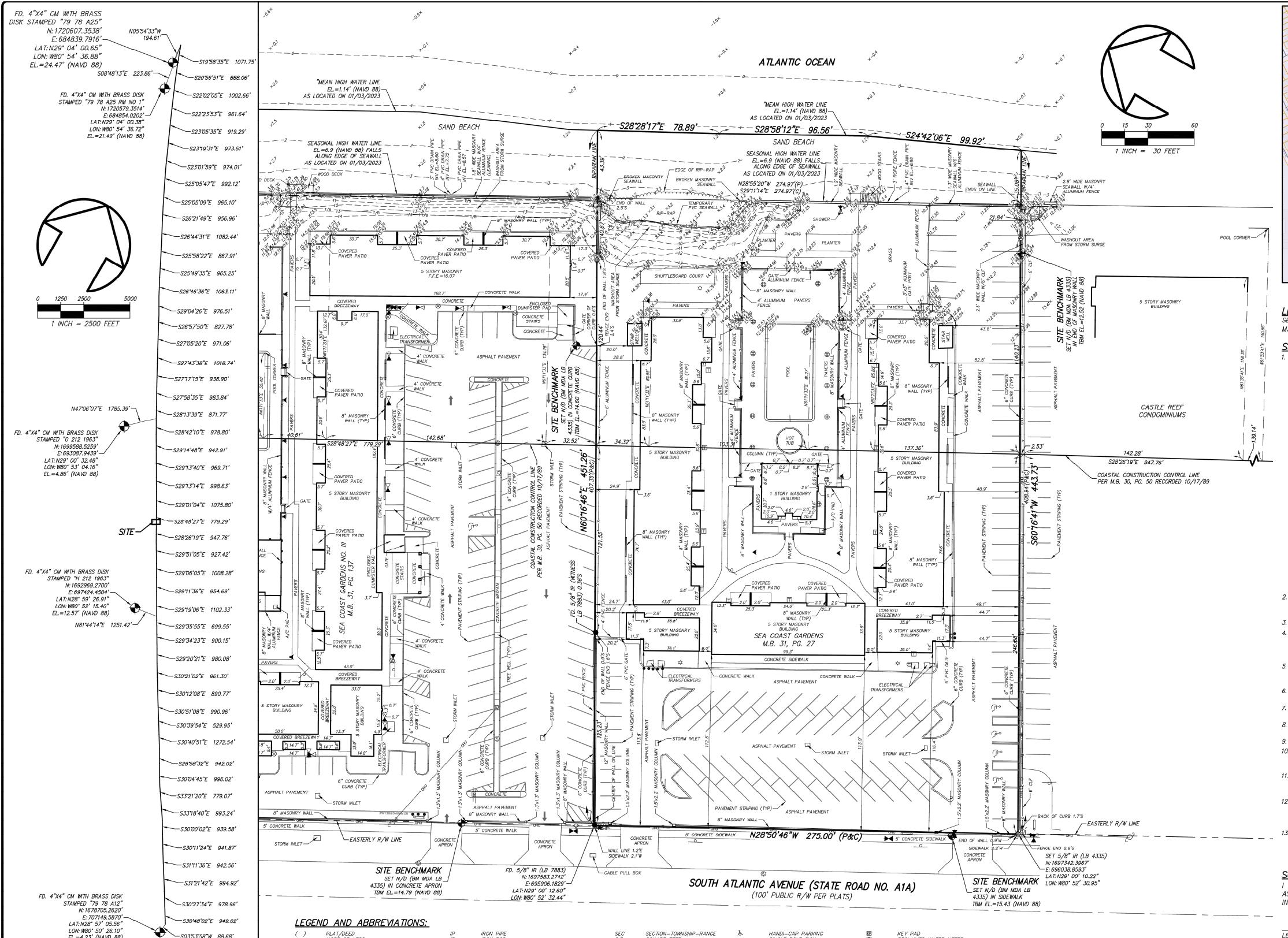
221125 - SEACOAST GARDENS

This item has been signed and sealed by Charles R. Adams on the date indicated here. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

SEAL
FL LICENSE NO. 15113
BEACH APPROACH
STAIRS

DRAWN BY
EAA
CHECKED BY
JAA
SCALE
AS NOTED
DATE
20 FEB 2023

S5.0



LEGAL DESCRIPTION:
SEA COAST GARDENS, ACCORDING TO THE MAP OR PLAT THEREOF, AS RECORDED IN MAP BOOK 31, PAGE 27, OF THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA.

SURVEY NOTES:

1. HORIZONTAL DATA SHOWN HERON IS BASED ON THE FLORIDA STATE PLANE COORDINATE SYSTEM, EAST ZONE, NORTH AMERICAN DATUM OF 1983, 2007 ADJUSTMENT AND IS IN FEET AND DECIMALS THEREOF.

A. BASE STATION USED:

NETL_RTM ON THE L-NET GLOBAL NAVIGATION SATELLITE SYSTEM

HORIZONTAL ACCURACY - 0.05'

VERTICAL ORDER - 10"

N:1740022.2710; E:656060.1183; LAT:N29°07'13.03"; LON:W81°00'01.20"

B. MONUMENTS LOCATED:

CCL MONUMENT & NGS CONTROL MONUMENT STAMPED "79 78 A12"

VERTICAL ORDER - 2ND CLASS I

ELEVATION = 4.23 (NAVD 1988)

N:1741573.0118; E:670881.9203; LAT:N29°07'28.30"; LON:W80°57'14.08"

CCL MONUMENT & NGS CONTROL MONUMENT STAMPED "79 78 A25"

VERTICAL ORDER - 2ND CLASS II

ELEVATION = 24.47 (NAVD 1988)

N:1741573.0118; E:670881.9203; LAT:N29°07'28.30"; LON:W80°57'14.08"

NGS VERTICAL CONTROL MONUMENT STAMPED "G 212 1963"

VERTICAL ORDER - 1ST CLASS II

ELEVATION = 4.86 (NAVD 1988)

N:1699588.5259; E:693087.9439; LAT:N29°07'32.48"; LON:W80°53'04.16"

C. NO NEW GPS BASE STATIONS WERE ESTABLISHED FOR THIS SURVEY.

D. GPS EQUIPMENT USED: SOKKIA GRX 2 BASE AND RTK ROVER.

2. BEARINGS SHOWN HERON ARE BASED ON THE FLORIDA STATE PLANE GRID COORDINATE SYSTEM, EAST ZONE, NORTH AMERICAN DATUM OF 1983 (NAVD 88), WITH A BEARING OF N28°50'46"W ALONG THE EASTERLY RIGHT-OF-WAY LINE OF SOUTH ATLANTIC AVENUE.

3. DISTANCES SHOWN HERON ARE IN FEET AND DECIMALS THEREOF.

4. THE PROPERTY DESCRIBED HERON LIES WITHIN ZONES ("X" (AREAS OF MINIMAL FLOOD HAZARD) AND "VE" (WITH BFT OR DEPTH) AS SCALED FROM FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAP (FIRM) NO. 12127C0563J AND 12127C0544J, VOLUSIA COUNTY, FLORIDA, EFFECTIVE DATE OF 09/29/2017.

5. UNDERGROUND FOUNDATIONS AND UTILITIES WERE NOT LOCATED AS PART OF THIS SURVEY; THOSE SHOWN HERON WERE OBTAINED FROM ABOVE GROUND EVIDENCE AND/OR STRUCTURE DETAILS.

6. LANDS SHOWN HERON WERE NOT ABSTRACTED FOR RIGHTS-OF-WAY, EASEMENTS, OWNERSHIP, ADJACENTS OR OTHER INSTRUMENTS OF RECORD BY THIS FIRM.

7. THERE MAY BE ADDITIONAL MATTERS AFFECTING THIS PROPERTY THAT EXIST IN THE PUBLIC RECORDS OF VOLUSIA COUNTY, FLORIDA.

8. NORTH-SOUTH AND EAST-WEST TIES TO FOUND MONUMENTATION AND IMPROVEMENTS ARE BASED ON CARDINAL DIRECTION.

9. WETLAND AREAS, IF ANY, WERE NOT ADDRESSED AS A PART OF THIS SURVEY.

10. THE ACCURACY OF THE SURVEY MEASUREMENTS USED FOR THIS SURVEY MEETS OR EXCEEDS THE EXPECTED USE OF THE PROPERTY DESCRIBED HERON (COMMERCIAL) 1 FOOT IN 10,000 FEET.

11. ELEVATIONS SHOWN HERON ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), AS DERIVED FROM BENCHMARK DESIGNATION G 212, DESCRIBED AS DISK IN CONCRETE MONUMENT STAMPED "G 212 1963", HAVING AN ELEVATION OF 4.86, NAVD 88.

12. THE MEAN HIGH WATER ELEVATION OF 1.14 FEET, NAVD 88, 1983-2001 TIDAL EPOCH, WAS EXTENDED FROM TIDE INTERPOLATION POINT 101077 AS SHOWN IN THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF SURVEY AND MAPPING, TIDAL WATER SURVEY PROCEDURAL APPROVAL DATED 12/09/2022.

13. THIS TITLE WATER SURVEY COMPLIES WITH CHAPTER 177, PART II, FLORIDA STATUTES.

SURVEYOR'S CERTIFICATE:
I HEREBY CERTIFY THIS SURVEY MEETS THE APPLICABLE "STANDARDS OF PRACTICE" AS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN CHAPTER 5J-17.050-.052, PURSUANT TO SECTION 472.027, FLORIDA STATUTES.

Digitally signed by Lee H Dowst
Lee H Dowst, P.L.S. No. 6860
www.madeng.com

THIS SURVEY IS NOT VALID WITHOUT THE ORIGINAL SIGNATURE AND SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

MARK DOWST & ASSOCIATES, INC.					
ENGINEERS PLANNERS SURVEYORS #4335*					
536 NORTH HALIFAX AVENUE, SUITE 100, DAYTONA BEACH, FLORIDA 32118 PH: 386-258-7999					
TIDAL WATER SURVEY					
DRAWN BY: LAT. DATE: 01/31/23 CHECKED BY: LHD SCALE: 1" = 30' FILE NAME: 1645_smyrna_bdgwg					
CREW: SCJB,JY FIELD DATE: 01/23/23 F.B./PG: 246,61-34 SHEET 1 OF 1					

CHARLES R ADAMS
PROFESSIONAL ENGINEER

Digitally signed by Charles R Adams
Lee H Dowst, P.L.S. No. 6860
www.madeng.com
This item has been digitally signed and sealed by Charles R Adams on the date indicated here. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

SEAL
FL LICENSE NO. 15113
SURVEY

DRAWN BY: EEA
CHECKED BY: JAA
SCALE AS NOTED
DATE 20 FEB 2023
SHEET 10 OF 10
S6.0

Charles R. Adams & Associates, Inc.
STRUCTURAL ENGINEERS

414 Canal Street - New Smyrna Beach, FL 32169 - 306.476.5582