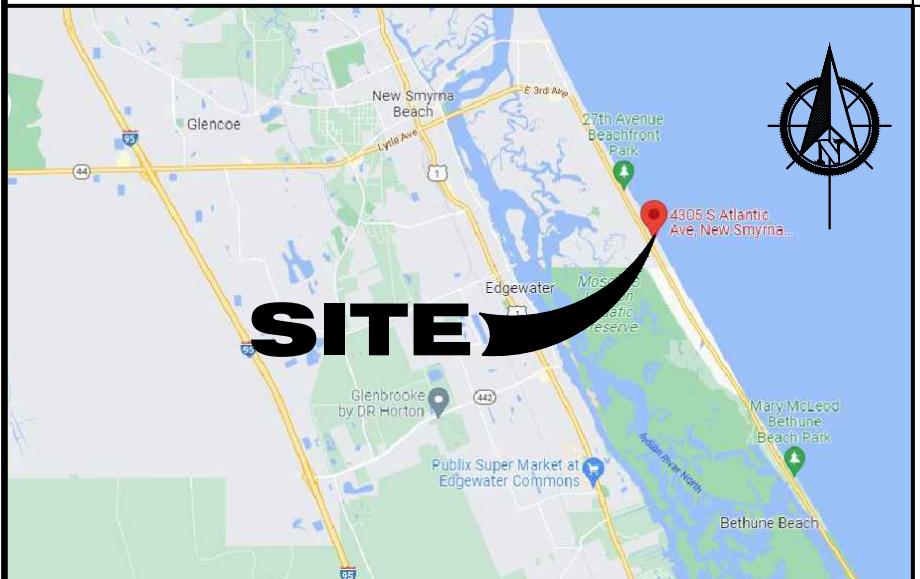


# STRUCTURAL PLANS FOR A NEW SEAWALL INSTALLATION AT: SEA DUNES SAND DOLLAR

4305 SOUTH ATLANTIC AVENUE  
NEW SMYRNA BEACH, FLORIDA 32169



LOCATION MAP



SYMBOLS LEGEND

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

## ABBREVIATIONS

ALUM	ALUMINUM
CCCL	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
DM	DIMENSION
EA	EACH
EC	EVERCOMP
ELEC	ELECTRICAL
ELEV/EL	ELEVATION
EQ	EQUAL
EOR	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
M.G.	MARINE GRADE
MFGR/MFR	MANUFACTURER
MHL	MEAN HIGH WATER LINE
MN	MINIMUM
NA	NOT APPLICABLE
NC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
PLYWD	PLYWOOD
PREFAB	PREFABRICATED
PSF	POUNDS PER SQUARE FOOT
PT	PAINT/PRESSURE TREATED/POST TENSION
REBAR	REINFORCING BAR
REF	REFERENCE
REINF	REINFORCE
REQ'D	REQUIRED
RO	ROUGH OPENING
SG	SHOREGUARD
SIM	SIMILAR
UC	ULTRA COMPOSITE
VF	VERIFY IN FIELD
YD	YARD

## PROJECT DIRECTORY

ENGINEER OF RECORD - FLORIDA LICENSE NO. 15113



**CRA** Charles R. Adams & Associates, Inc.  
STRUCTURAL ENGINEERS

414 Canal Street - New Smyrna Beach, FL 32168 - 386.426.5583  
C.A. 4180

## INDEX of DRAWINGS

	ASO	COVER
	ASO/SI.O	REPAIR PLAN
	SI.I	MATERIAL QUANTITIES, SITE PLAN, INSTALLATION DETAILS
	AS1.2	GRADING DETAIL
	S2.0	DAMAGE SURVEY PHOTOS
	AS3.0	REPAIR SECTION DETAIL
	S3.1	DETAILS AND SPECIFICATIONS
	AS4.0	GENERAL NOTES
	S5.0	BEACH APPROACH STAIR DETAILS
	S5.1	HANDRAIL DETAILS
	AS5.2	GUARDRAIL DETAILS
	AS6.0	SURVEY

## SCOPE OF WORK

COMMERCIAL - NEW EMERGENCY SEAWALL REPAIR

## PROJECT CODE DATA

7th EDITION FLORIDA BUILDING CODE	2020
FLORIDA ADMINISTRATIVE CODE 62B-33	2020
VOLUSIA COUNTY CODE OF ORDINANCES - PART I - CHAPTER 50 - ARTICLE III - DIVISION 9 - SECTION 50-351	2023
ASCE 7-16	2016
USACE COASTAL ENGINEERING MANUAL	2002
USACE DESIGN OF COASTAL REVETMENTS, SEAWALLS, AND BULKHEADS	1995
USACE SHORE PROTECTION MANUAL VOLUMES I & II	1984
USACE DESIGN OF SHEET PILE WALLS	1994
DOD HANDBOOK - SEAWALLS, BULKHEADS, AND QUAY WALLS	2006
ACI 318 / 19	2022

## DIGITAL SEAL

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. THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

## JURISDICTION

CITY OF NEW SMYRNA BEACH

## REVISION LOG

DATE DESCRIPTION

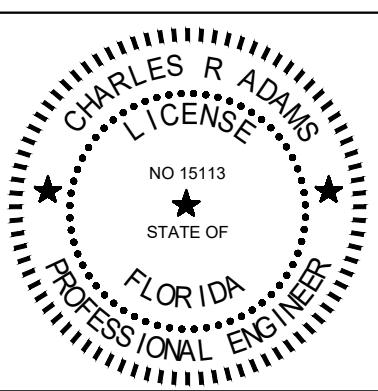
3/14/23 DEP COMMENTS

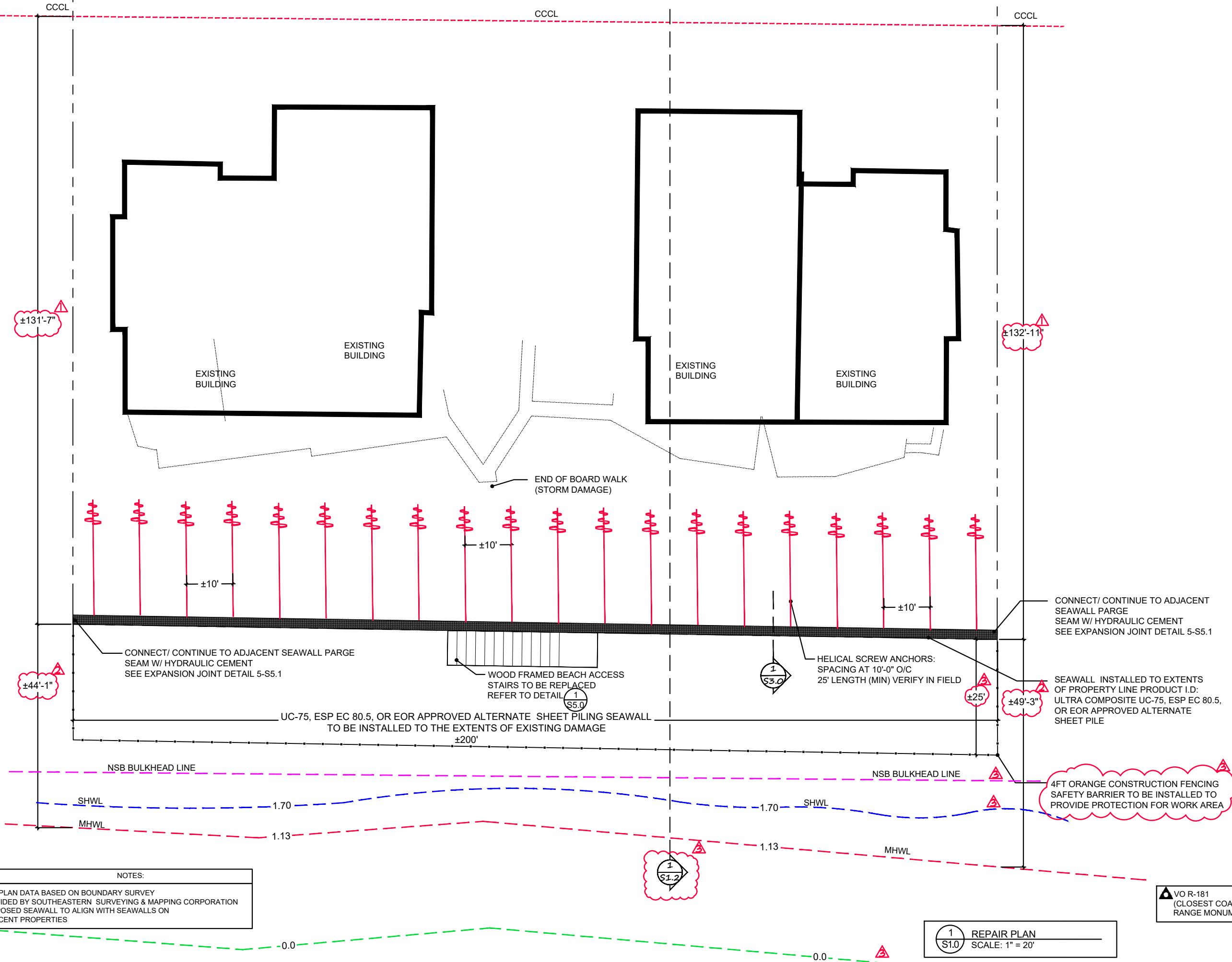
3/30/23 EOR REVISIONS

4/7/23 DEP COMMENTS

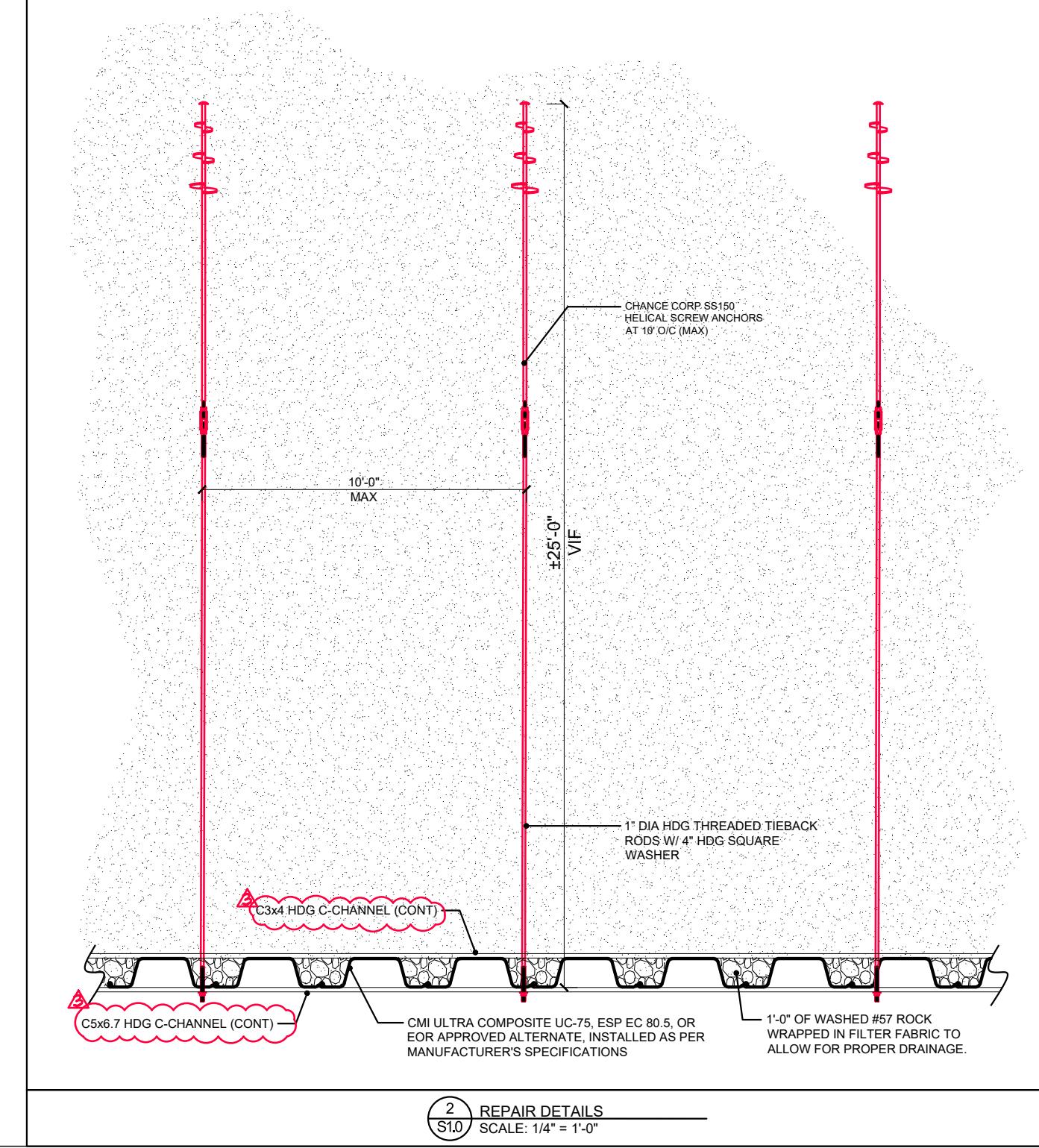
TO THE BEST OF MY KNOWLEDGE, THESE PLANS AND SPECIFICATIONS COMPLY WITH ALL APPLICABLE BUILDING CODES AND LAND DEVELOPMENT REGULATIONS.

I HEREBY CERTIFY THAT THE ENCLOSED DESIGN PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH FLORIDA ADMINISTRATIVE CODE RULE CHAPTER 62B-33.051.





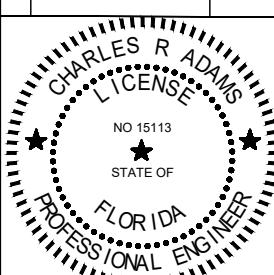
MATERIALS LIST				
UC-75, ESP EC 80.5 COMPOSITE SHEET PILING	20' TALL SHEET MAX	$\pm 200$ lf $\pm 4,000$ FT <sup>3</sup>	$\pm 0.05\%$ DISPLACEMENT	
CONCRETE CAP BEAM	26" x 24" x 200'	$\pm 866.7$ FT <sup>3</sup>	0% DISPLACEMENT	
MARINE GRADE WOOD POSTS	6" x 6" x 72" EMBEDDED	8 QTY	$\pm 9$ ft <sup>3</sup> DISPLACEMENT	
HELICAL SCREW ANCHOR	AS PER DETAIL	20 QTY	0% DISPLACEMENT	
BEACH COMPATIBLE SAND FILL	200' x 50' x 6'		$\pm 2,222$ YD <sup>3</sup> <span style="color:red;">▲</span>	
WASHED #57 ROCK	100' X 1' X 6'		$\pm 22$ YD <sup>3</sup> <span style="color:red;">▲</span>	



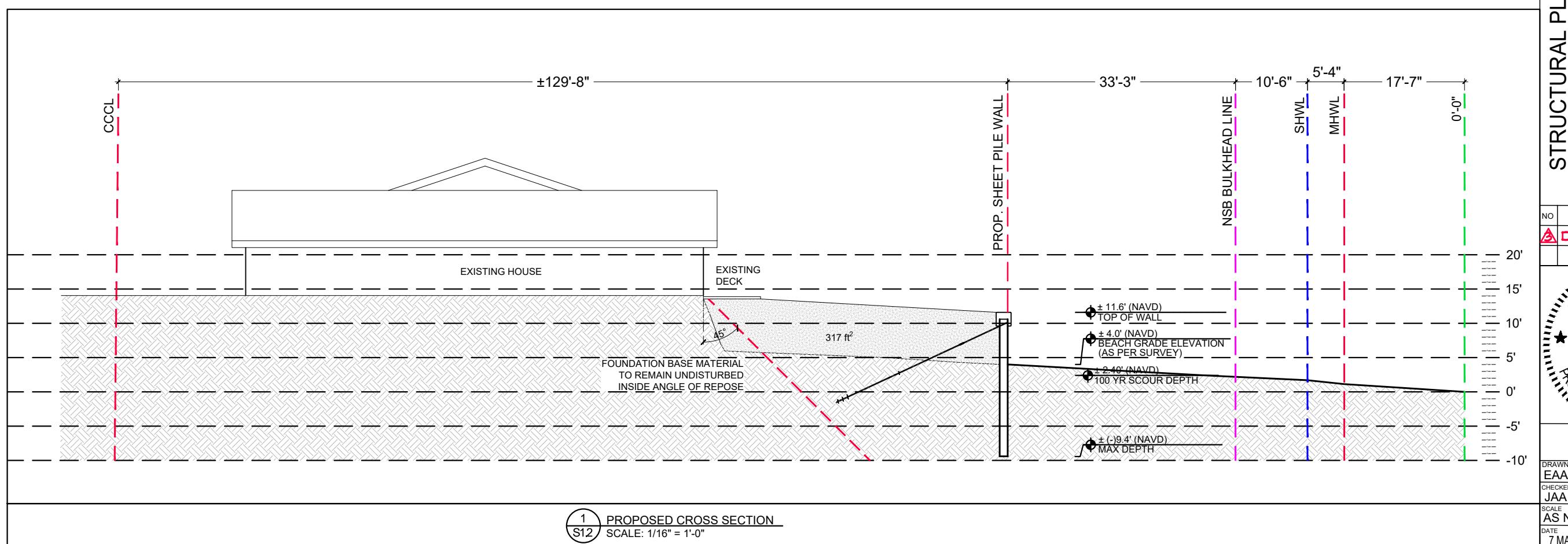
# SEADUNES SAND DOLLAR

4365 SOUTH ATLANTIC AVENUE  
NEW SMYRNA BEACH, FL 32169

  
**CRA** Charles R. Adams  
& Associates, Inc.  
STRUCTURAL ENGINEERS  
414 Canal Street - New Smyrna Beach, FL 32168 - 386-465-5533  
221206 - SEA DUNE SAND DOLLAR CD SET.DWG

NO	REMARKS	DATE
<span style="color:red;">▲</span> DEP COMMENTS	4/1/23	
		
MATERIAL QUANTITIES, SITE PLAN, INSTALLATION DETAILS		
DRAWN BY EAA	SHEET 3 OF 10	
CHECKED BY JAA		
SCALE AS NOTED		
DATE 7 MAR 2023		

**S1.1**



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**CRA** Charles R. Adams & Associates, Inc.  
STRUCTURAL ENGINEERS

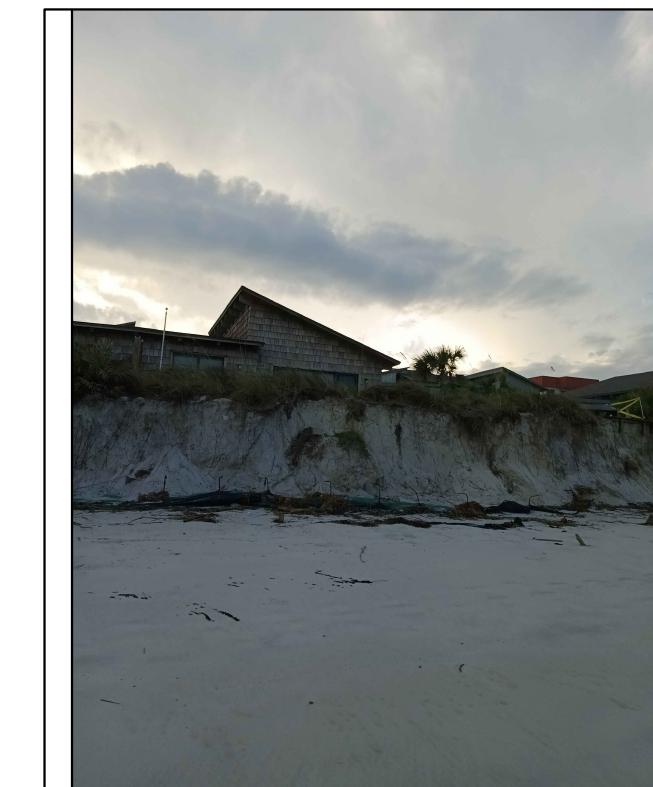
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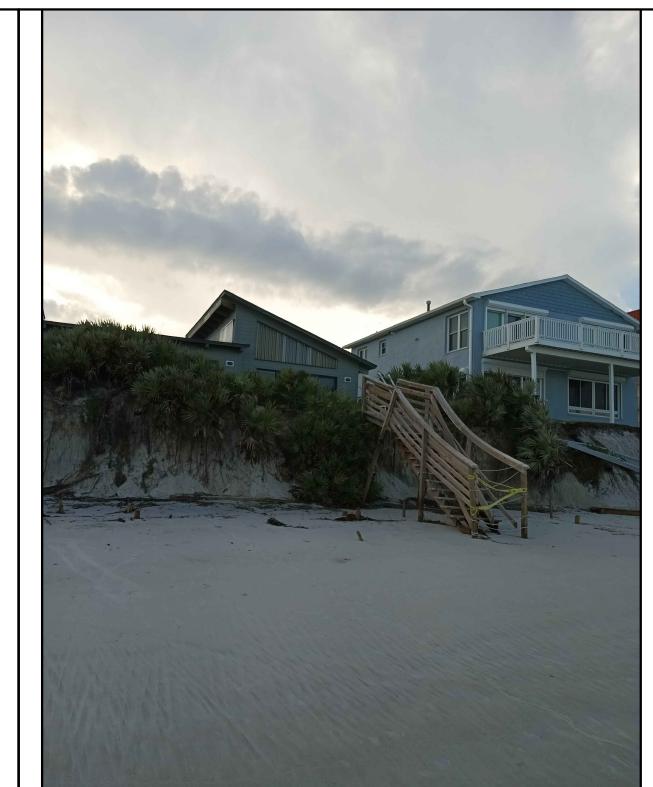
DAMAGE SURVEY PHOTOGRAPH - 1



DAMAGE SURVEY PHOTOGRAPH - 2



DAMAGE SURVEY PHOTOGRAPH - 3



DAMAGE SURVEY PHOTOGRAPH - 4

# SEADUNES SAND DOLLAR

4365 SOUTH ATLANTIC AVENUE  
NEW SMYRNA BEACH, FL 32169

NO	REMARKS	DATE

CHARLES R. ADAMS  
LICENSING NO. 15113  
STATE OF FLORIDA  
PROFESSIONAL ENGINEER

DAMAGE SURVEY PHOTOS

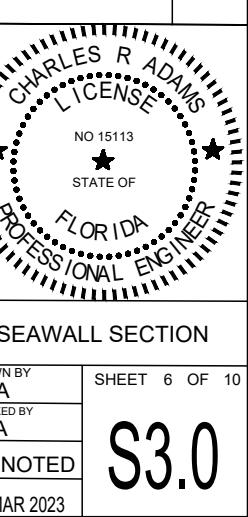
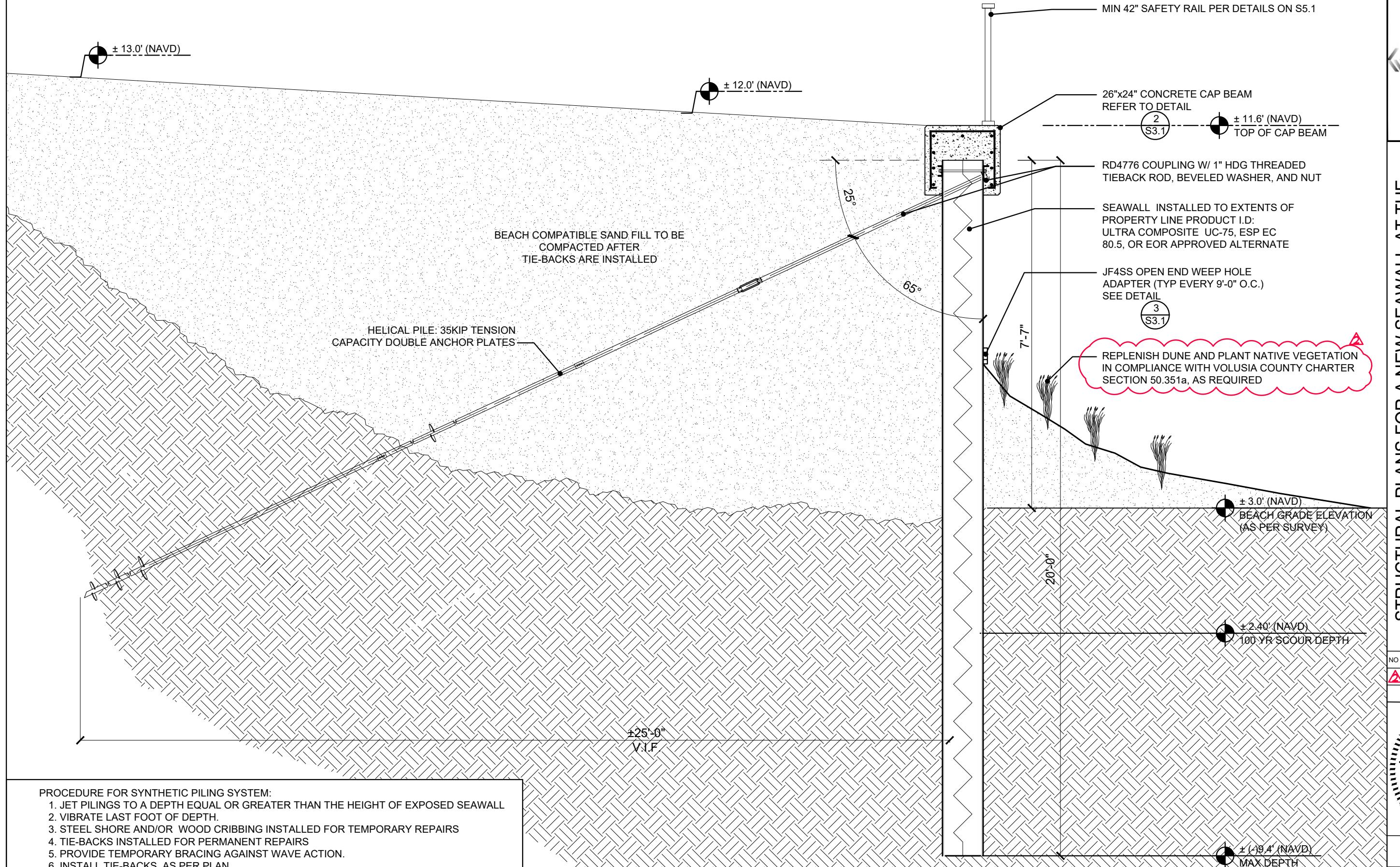
DRAWN BY EAA	SHEET 5 OF 10
CHECKED BY JAA	
SCALE AS NOTED	
DATE 7 MAR 2023	S2.0

**GRA**  
Charles R. Adams  
& Associates, Inc.  
STRUCTURAL ENGINEERS

221206 - SEA DUNE SAND DOLLAR CD SET.DWG

Charles R. Adams  
& Associates, Inc.  
STRUCTURAL ENGINEERS

221206 - SEA DUNE SAND DOLLAR CD SET.DWG



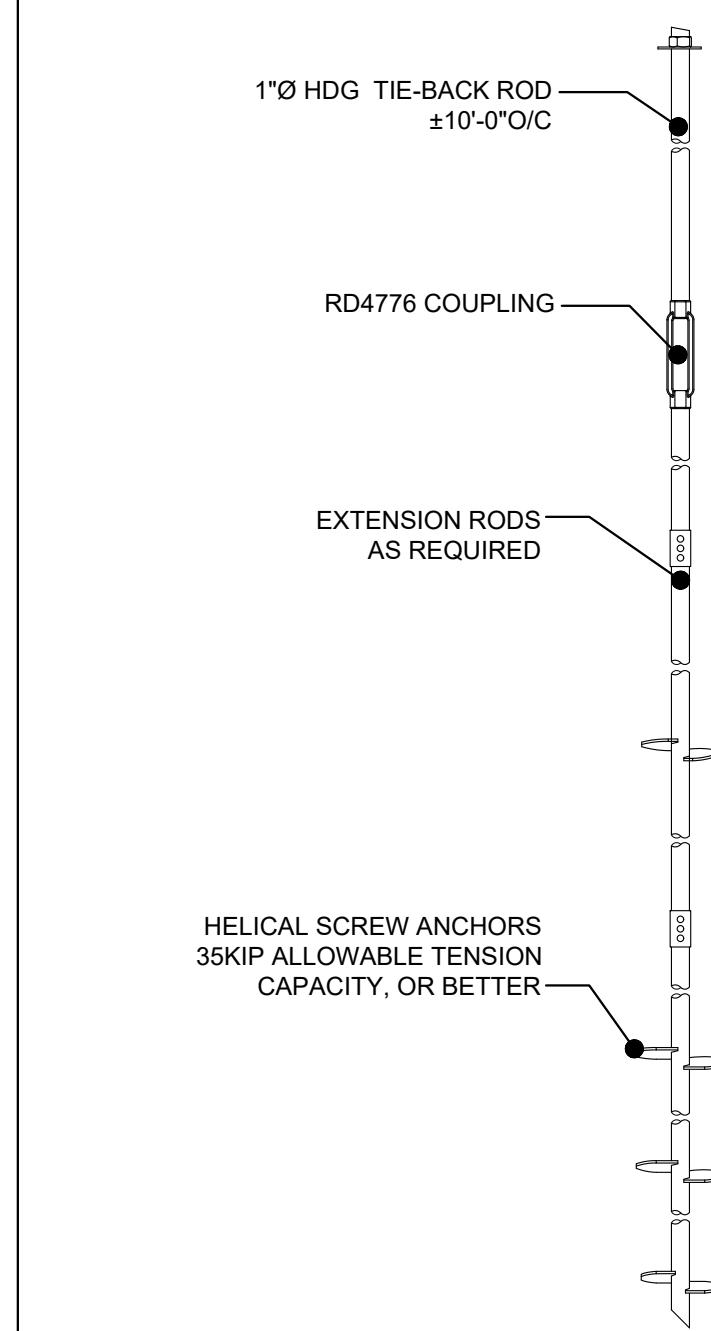
STRUCTURAL PLANS FOR A NEW SEAWALL AT THE  
SEADUNES SAND DOLLAR

4365 SOUTH ATLANTIC AVENUE  
NEW SMYRNA BEACH, FL 32169

NO REMARKS DATE  
△ EOR REVISIONS 3/30/23

CHARLES R. ADAMS  
LICENSURE NO. 15113  
STATE OF FLORIDA  
PROFESSIONAL ENGINEER

SEAWALL SECTION  
DRAWN BY EEA SHEET 6 OF 10  
CHECKED BY JAA  
SCALE AS NOTED  
DATE 7 MAR 2023  
S3.0

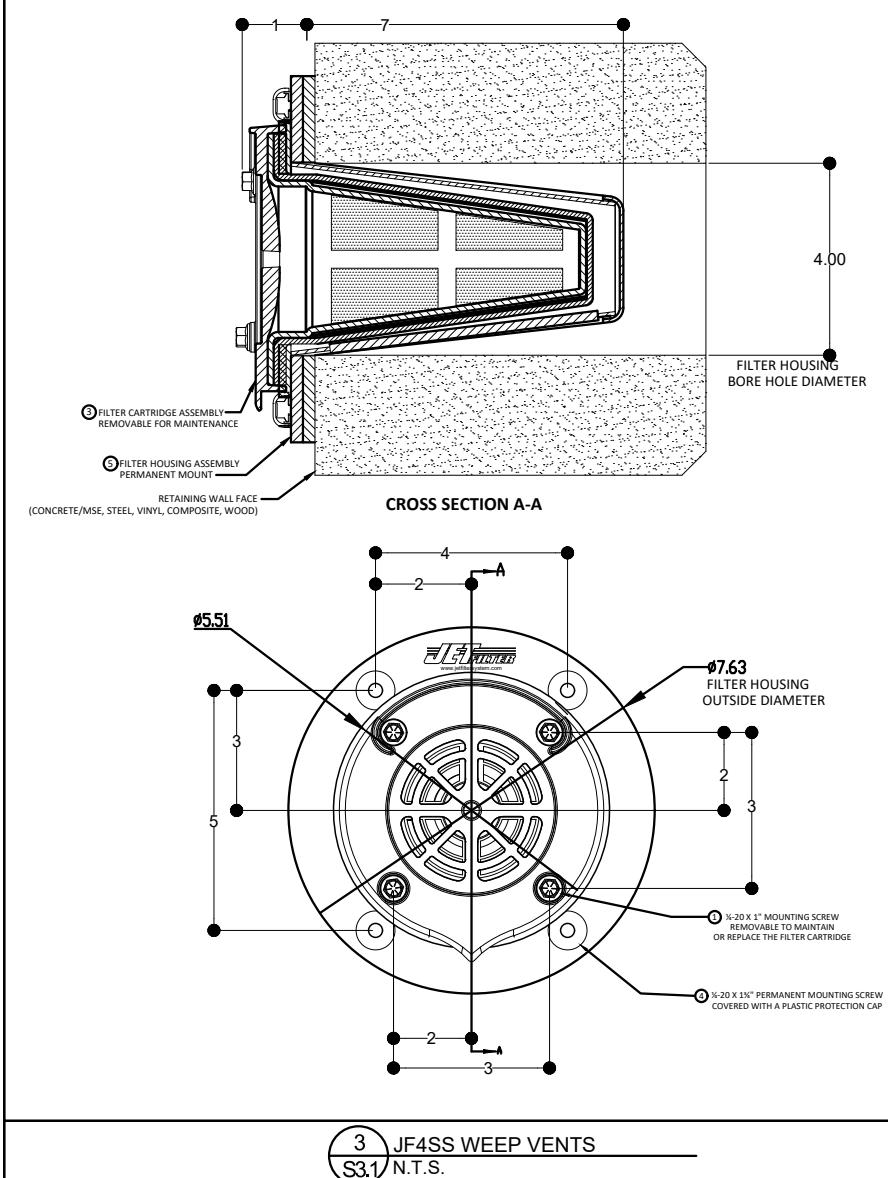


5 HELICAL PILE DETAIL  
S3.1 N.T.S.

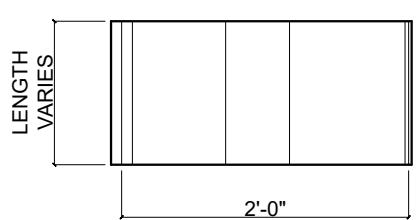
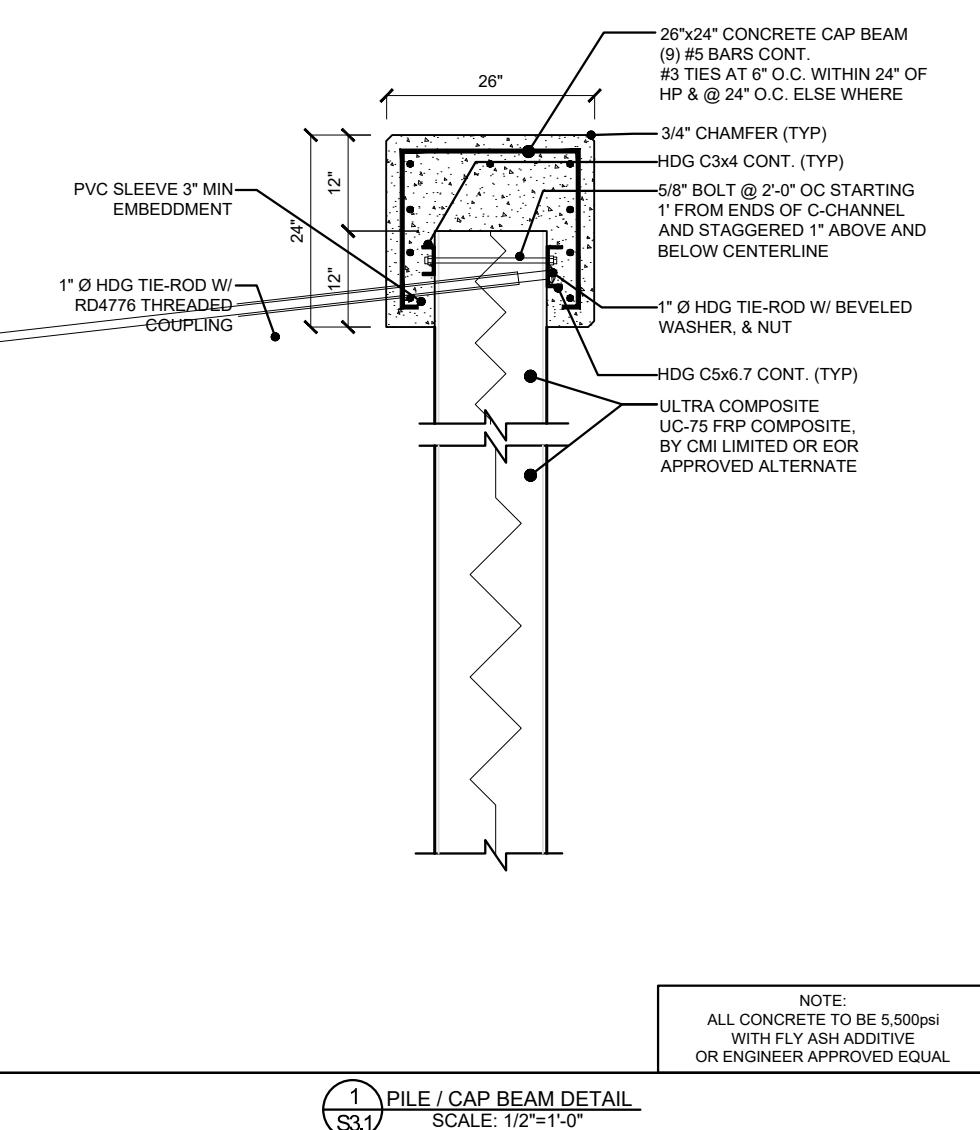
UC-75

ALLOWABLE MOMENT (M):	31,667 FT-LB/FT	140.85 KN-m/m
SECTION MODULUS (Z):	38.0 IN <sup>3</sup> /FT	2,043 cm <sup>3</sup> /m
MOMENT OF INERTIA (I):	266 IN <sup>4</sup> /FT	36,325 cm <sup>4</sup> /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	

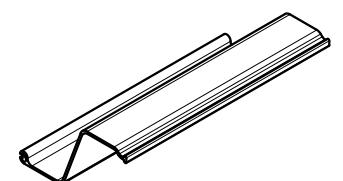
6 ULTRA COMPOSITE SHEET PILE  
S3.1 SPECIFICATIONS



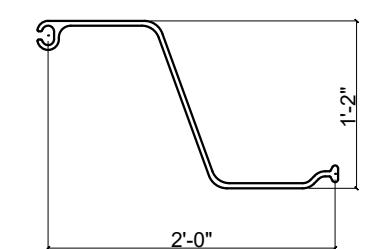
4 NOT USED  
S3.1 N.T.S.



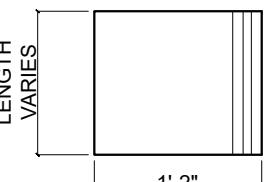
UC-75 PROFILE VIEW



UC-75 ISOMETRIC VIEW



UC-75 PLAN VIEW



UC-75 SECTION VIEW

2 ULTRA COMPOSITE PILE  
S3.1 N.T.S.

# SEADUNES SAND DOLLAR

4365 SOUTH ATLANTIC AVENUE  
NEW SMYRNA BEACH, FL 32169

NO	REMARKS	DATE

CHARLES R. ADAMS LICENSURE NO 15113 STATE OF FLORIDA PROFESSIONAL ENGINEER	DETAILS SPECIFICATIONS DRAWN BY EAA CHECKED BY JAA SCALE AS NOTED DATE 7 MAR 2023
SHEET 7 OF 10	S3.1

# 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 CMI LIMITED CORP UC-75, ESP EC 80.5, OR EOR APPROVED ALTERNATE.

### DRAINS:

- OPEN END WEEP HOLE FILTER WITH ADAPTER, INSTALLED IMMEDIATELY ABOVE SCOUR ELEV. @ SPECIFIED SPACING.
- THE JET FILTER ASSEMBLY HOUSING SHOULD NOT BE REMOVED ONCE INSTALLED.
- WEEPS (JF4SS) TO ALLOW FOR EXCESSIVE HYDROSTATIC PRESSURE, FROM STORM WATER BUILD UP, TO RELEASE FROM BEHIND SEA WALL.

### STEEL:

- ALL C-CHANNELS, TIE-RODS, AND STEEL FASTENERS 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 EQUAL.
- ALL TIEBACK ROD SHALL BE 60 KSI MINIMUM.

### CONCRETE:

- CONCRETE TO HAVE A 28-DAY COMPRESSIVE STRENGTH OF 5,500PSI.
- CONCRETE SHALL HAVE A MINIMUM 25% FLY ASH OR 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.

### BACKFILL:

- BACKFILL MATERIAL SHALL BE COMPATIBLE W/THE BEACH SAND & APPROVED BY THE DEP.
- 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.
- THE FILL MATERIAL MEETS THE SPECIFICATIONS/CRITERIA OF SUBSECTION 62B-33.005(7), F.A.C.

### ANCHORS:

- SHALL BE EOR APPROVED W/ SPECIFIED CAPACITY AND TIE BACK ROD DIAMETER.

### 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)	$\gamma = 115 \text{ PCF}$	$\gamma' = 57 \text{ PCF}$	$\phi = 32^\circ$	C=0 PSF
LAYER 2 (ELEV. +4.5 & BELOW) (DRIVEN CONDITIONS)	$\gamma = 125 \text{ PCF}$	$\gamma' = 62 \text{ PCF}$	$\phi = 40^\circ$	C=0 PSF
LAYER 1 (ELEV. +4.5 & BELOW) (JETTED CONDITIONS)	$\gamma = 120 \text{ PCF}$	$\gamma' = 60 \text{ PCF}$	$\phi = 34^\circ$	C=0 PSF
- 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 THE SE 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.

### SHEET PILE:

- CONTRACTOR SHOULD REVIEW SOIL BORINGS AND PLAN FOR DIFFICULT DRIVING CONDITIONS, JETTING AND TRENCHING IS ALLOWED FOR NEW SHEET PILE INSTALLATION. LAST 10% 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 1.5' ON SIDE OF EXPANSION JOINT.

### JET FILTER UNITS:

- CORE A TRUE DIAMETER HOLE IN THE SHEET PILLING/SEAWALL OR CONCRETE ABUTMENT ABOUT 4 INCHES BEHIND WALL EVERY 12 FEET 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:  
CONCRETE: PILOT HOLE BIT SIZE 3/16"  
STEEL SHEET PILING: PILOT HOLE BIT SIZE 7/32" OR 15/64"  
COMPOSITE / VINYL SHEET PILING: SELF-TAP
  - ATTACH WITH BI-FLEX SS ANCHORS (SUPPLIED) THROUGH THE ASSEMBLY HOUSING HOLES INTO THE SHEET PILLING/SEAWALL, CONCRETE ABUTMENT A 3/8" SOCKET.
- NOTE: 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 SECURING THE FILTER CARTRIDGE AND GENTLY PULL OUT.
- ONCE FILTER IS REMOVED CLEAN WITH A SOFT BRUSH 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:

- COMPLY WITH THE VOLUSIA COUNTY CHARTER, SECTION 50.351a.

**CRA**  
Charles R. Adams & Associates, Inc.  
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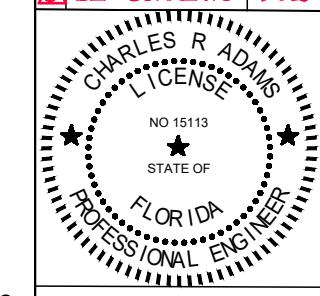
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221206 - SEA DUNE SAND DOLLAR CD SET.DWG

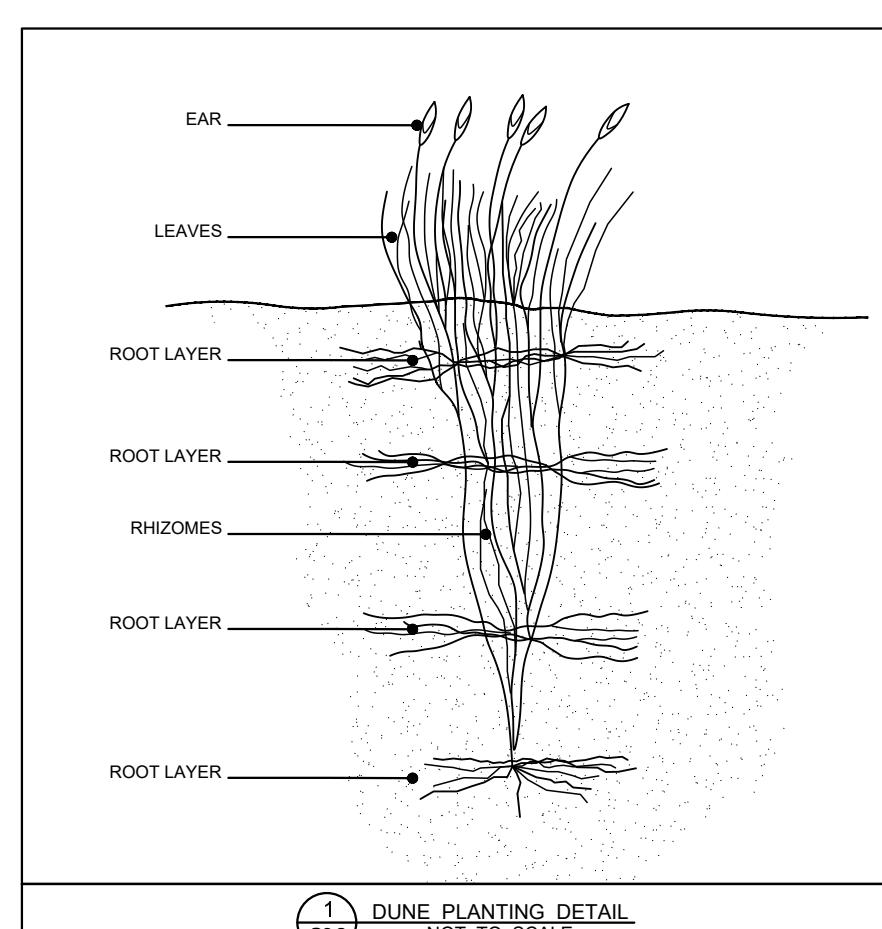
# SEADUNES SAND DOLLAR

4365 SOUTH ATLANTIC AVENUE  
NEW SMYRNA BEACH, FL 32169

NO	REMARKS	DATE
△	EOR REVISIONS	3/30/23
△	DEP COMMENTS	4/1/23



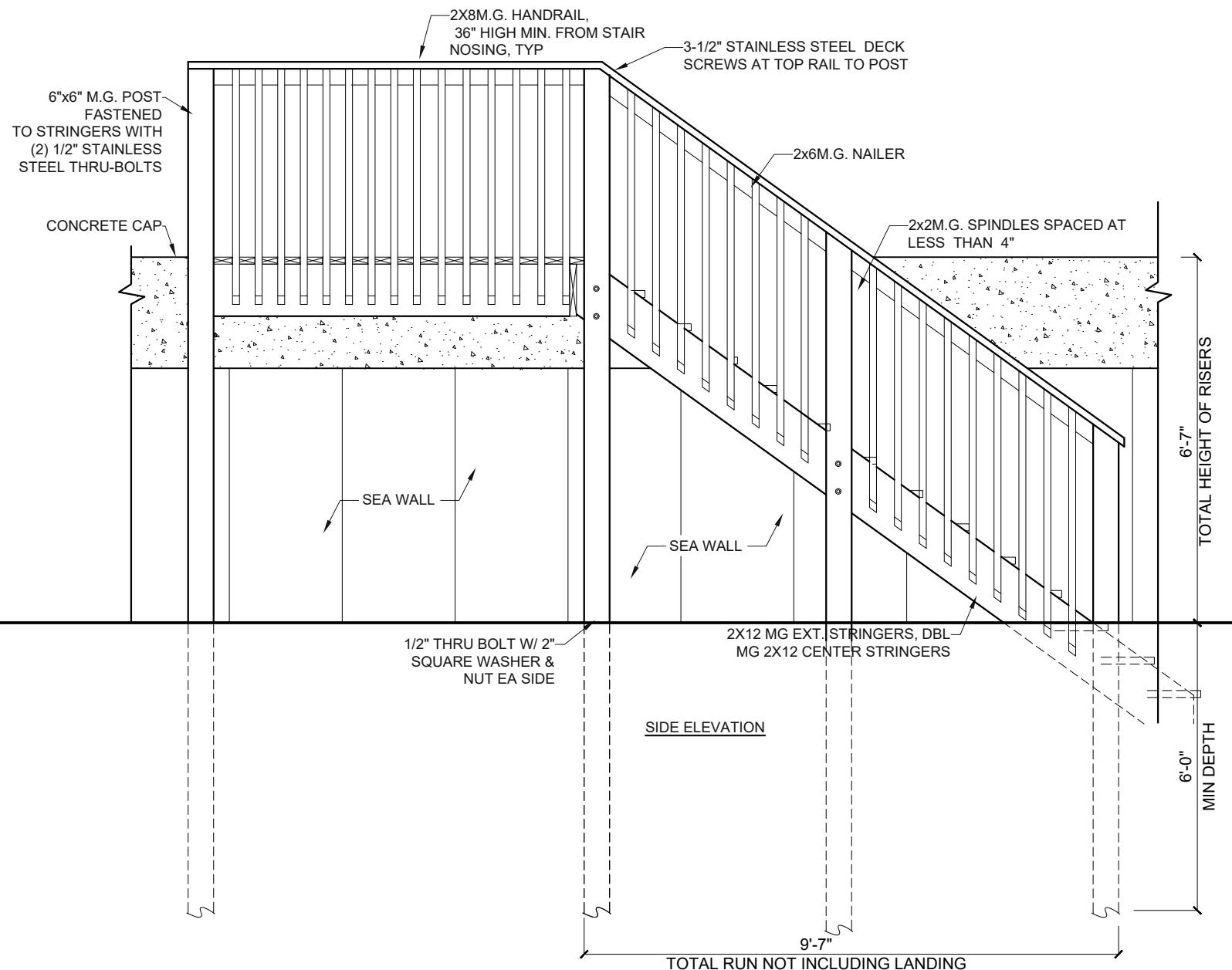
NOTES	
DRAWN BY EAA	SHEET 8 OF 10
CHECKED BY JAA	
SCALE AS NOTED	
DATE 7 MAR 2023	S4.0



# SEADUNES SAND DOLLAR

4365 SOUTH ATLANTIC AVENUE  
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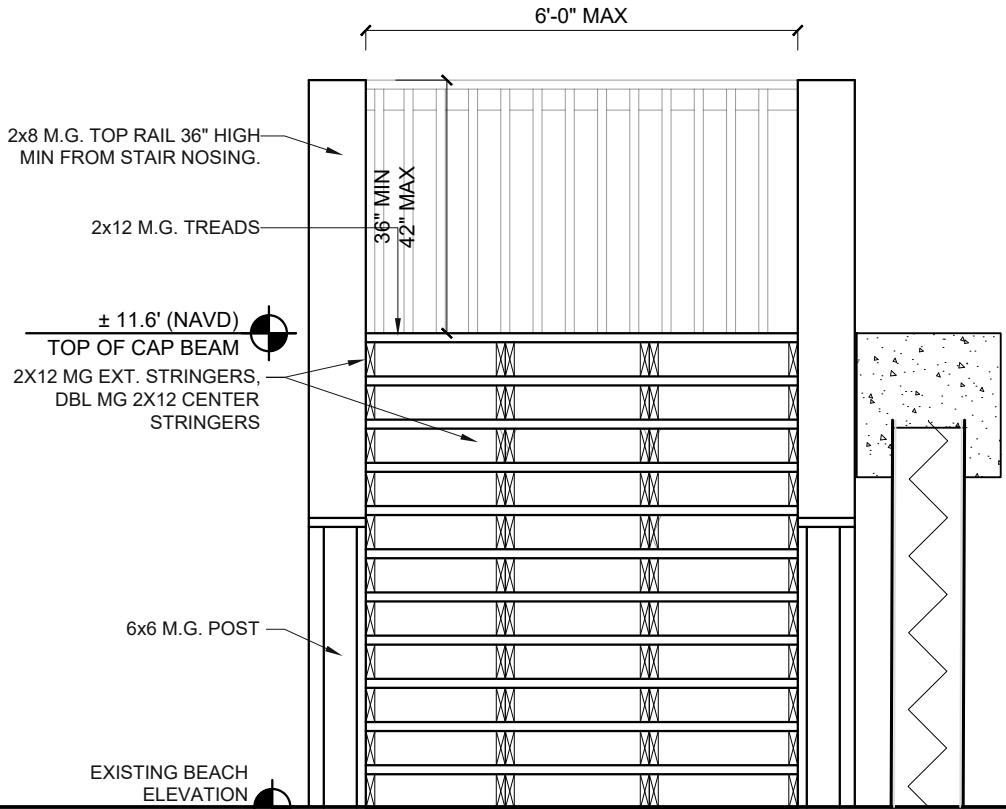
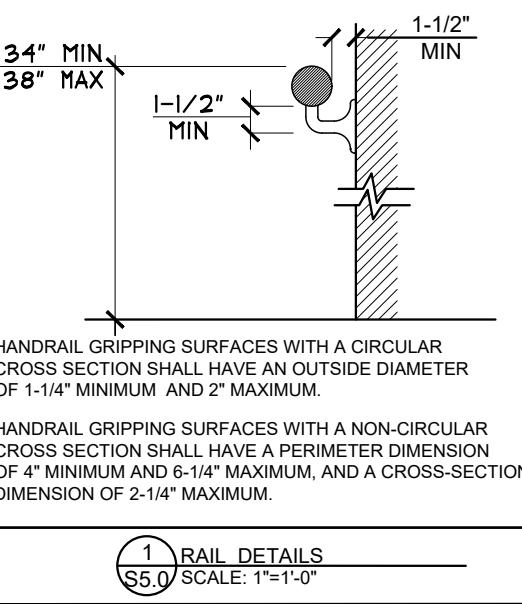
STRUCTURAL PLANS FOR A NEW SEAWALL AT THE



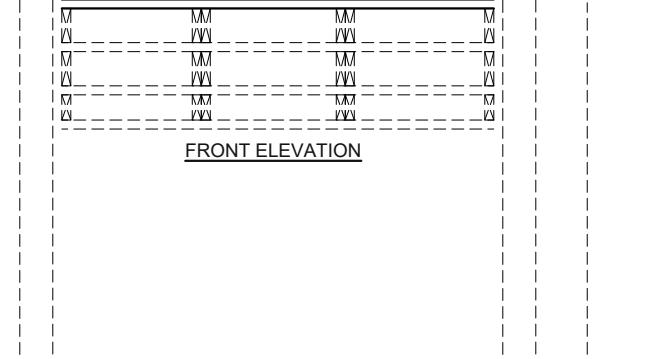
1 STAIR DETAILS  
S5.0 SCALE: 3/8"=1'-0"

- 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.

**STAIR DATA:**  
TOTAL RISE .....±79"  
TOTAL RISERS ..... 11  
RISER DISTANCE .....±7-3/16"  
TOTAL TREADS ..... 11 @ 11-1/4"  
LANDINGS ..... 0  
TOTAL RUN .....±115"



- 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



NO	REMARKS	DATE

CHARLES R. ADAMS  
LICENSE NO 15113  
STATE OF FLORIDA  
PROFESSIONAL ENGINEER

BEACH APPROACH STAIRS

DRAWN BY EAA	SHEET 9 OF 10
CHECKED BY JAA	
SCALE AS NOTED	
DATE 7 MAR 2023	

**S5.0**

New Smyrna Beach, FL 32168 - 386.426.5588

221206 - SEA DUNE SAND DOLLAR CD SET DWG



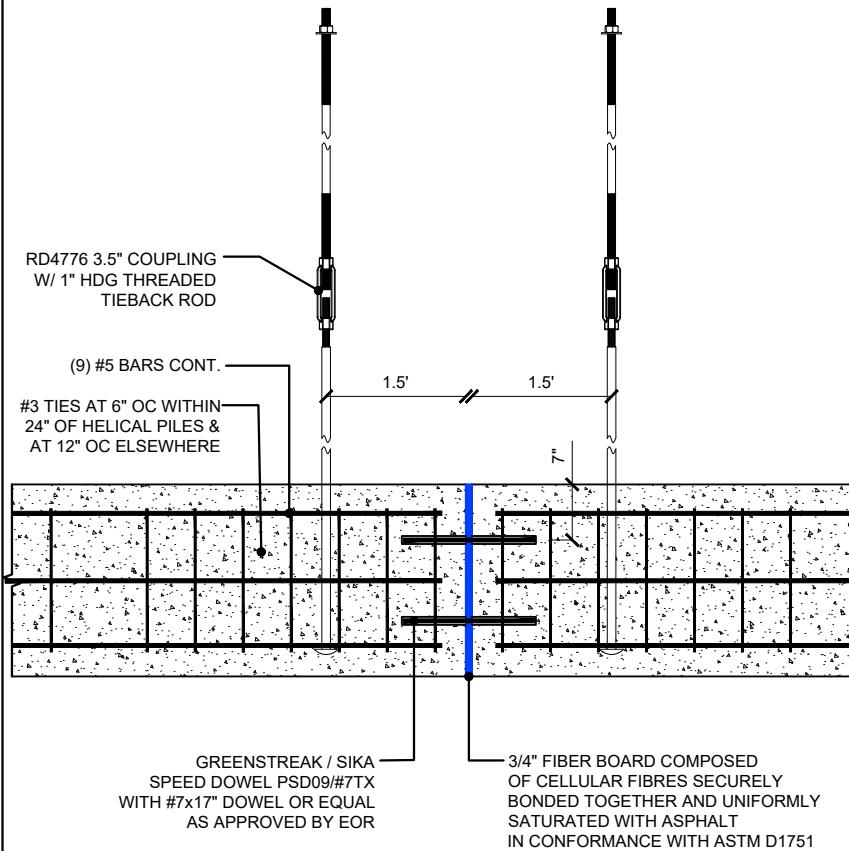
STRUCTURAL ENGINEERS

2006 - SEA DUNE SAND DOLLAR CD SEE

# SEADUNES SAND DOLLAR

4365 SOUTH ATLANTIC AVENUE  
NEW SMYRNA BEACH, FL 32169

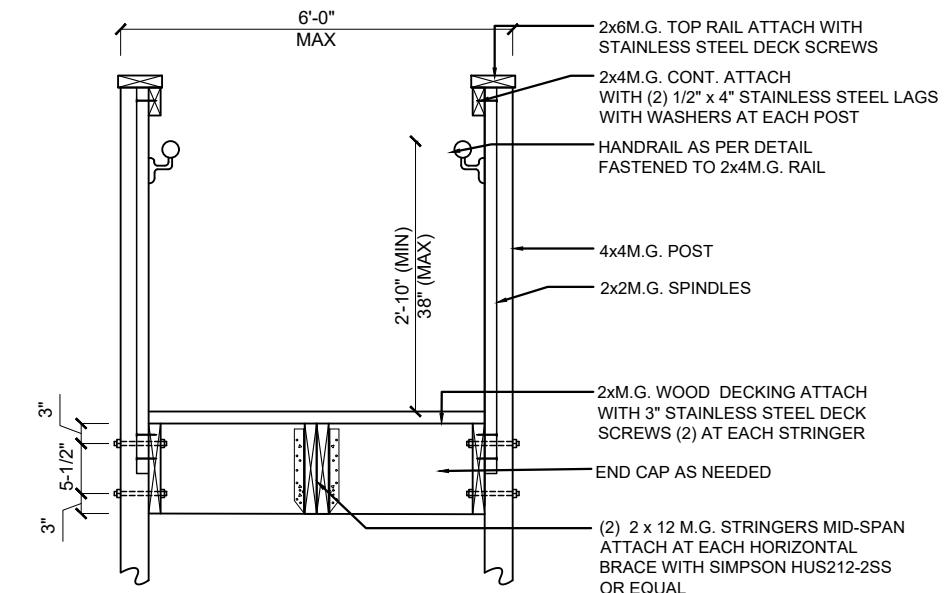
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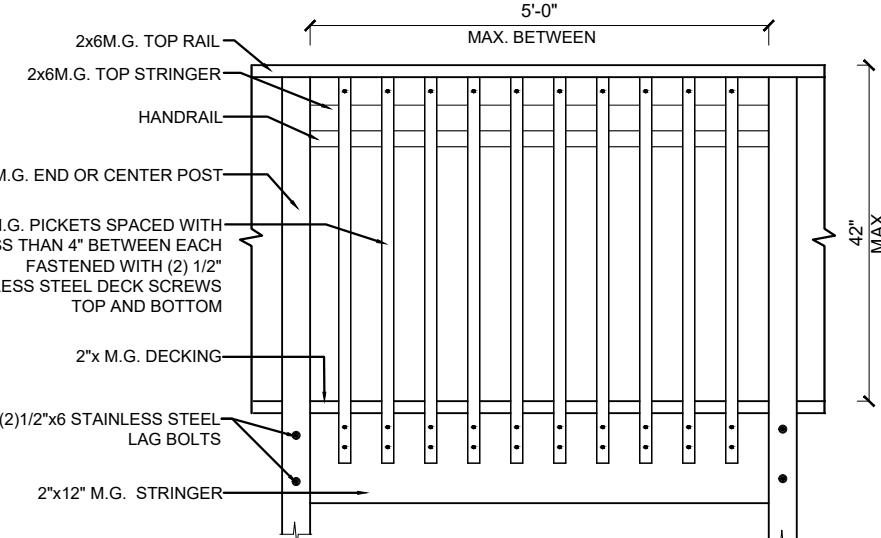
**5** EXPANSION JOINT DETAIL - PLAN VIE  
S5.1 SCALE: 1/2"=1'-0"

**GREENSTREAK SINA  
SPEED DOWEL PSD09/#7TX  
WITH #7x17" DOWEL OR EQUAL  
AS APPROVED BY EOR**

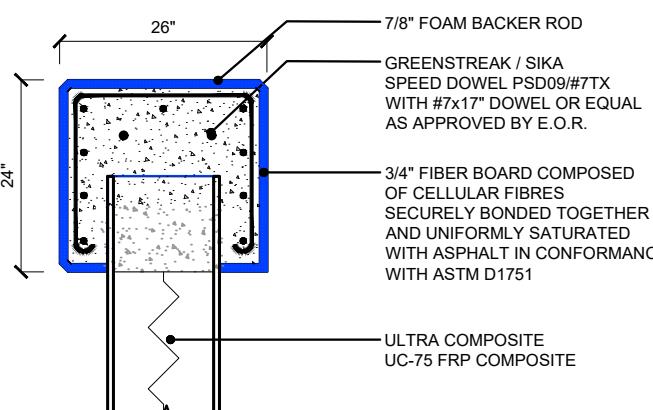
**3/4" FIBER BOARD COMPOSED  
OF CELLULAR FIBRES SECURELY  
BONDED TOGETHER AND UNIFORM  
SATURATED WITH ASPHALT  
IN CONFORMANCE WITH ASTM D173**



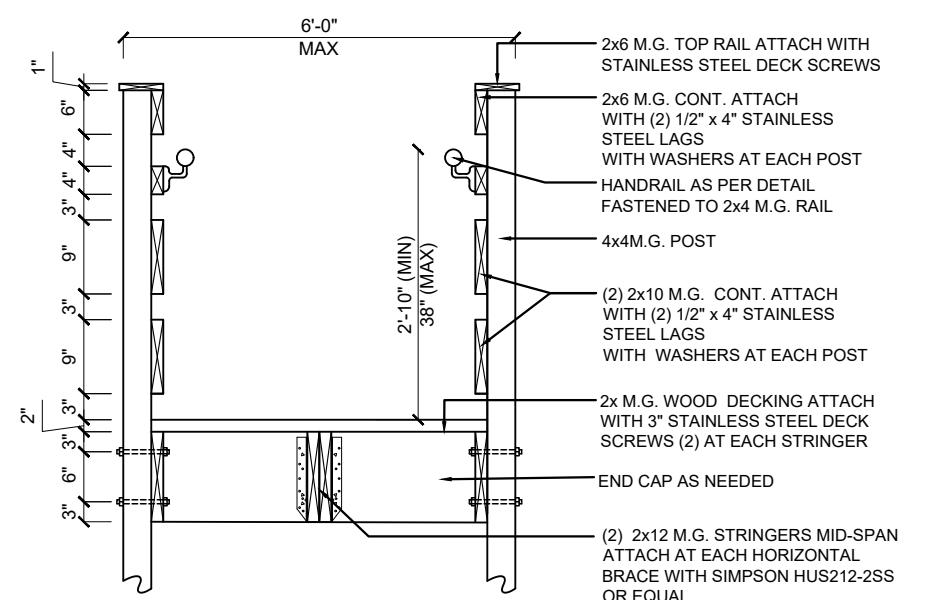
2 RAIL DETAILS - SPINDLES  
S5.1 N.T.S.



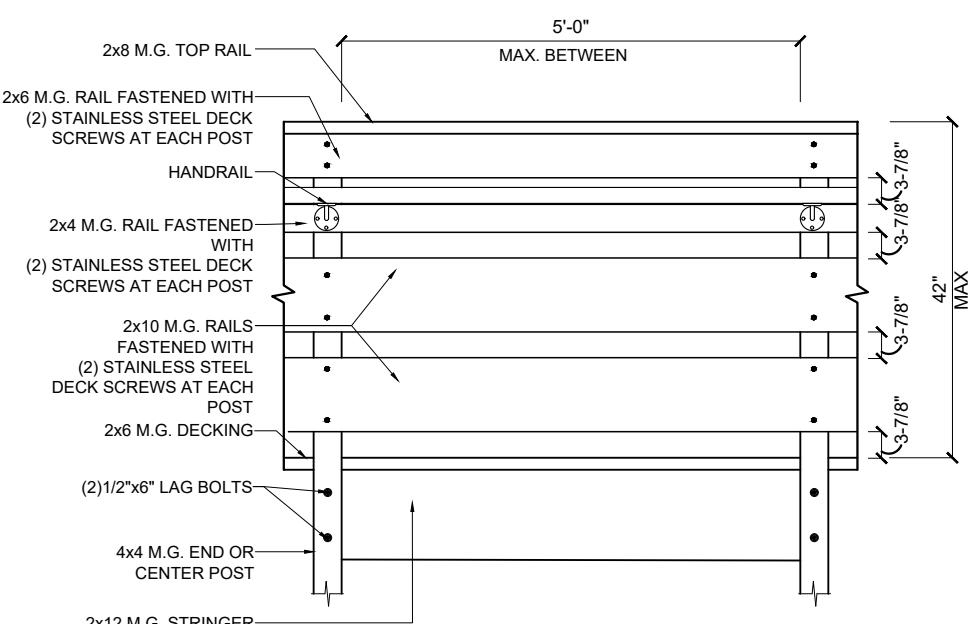
**1 RAIL DETAILS - SPINDLES**  
**S5.1 SCALE: 1/2"-1'-0"**



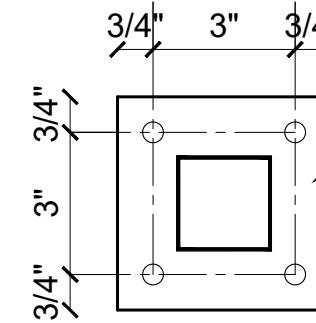
6 EXPANSION JOINT DETAIL - SECTION  
S5.1 SCALE: 1/2"=1'-0"



4 RAIL DETAILS - RAILS  
S5.1 N.T.S.

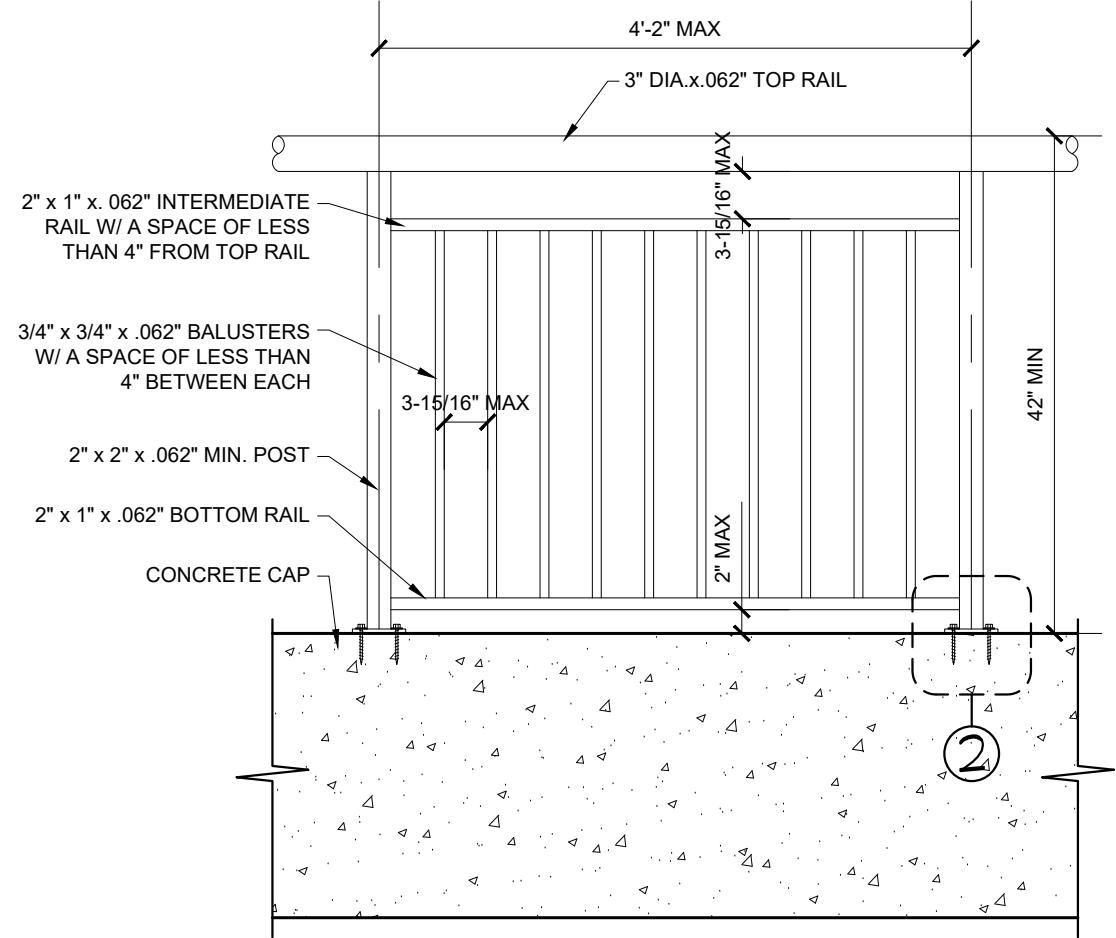


3 RAIL DETAILS - RAILS

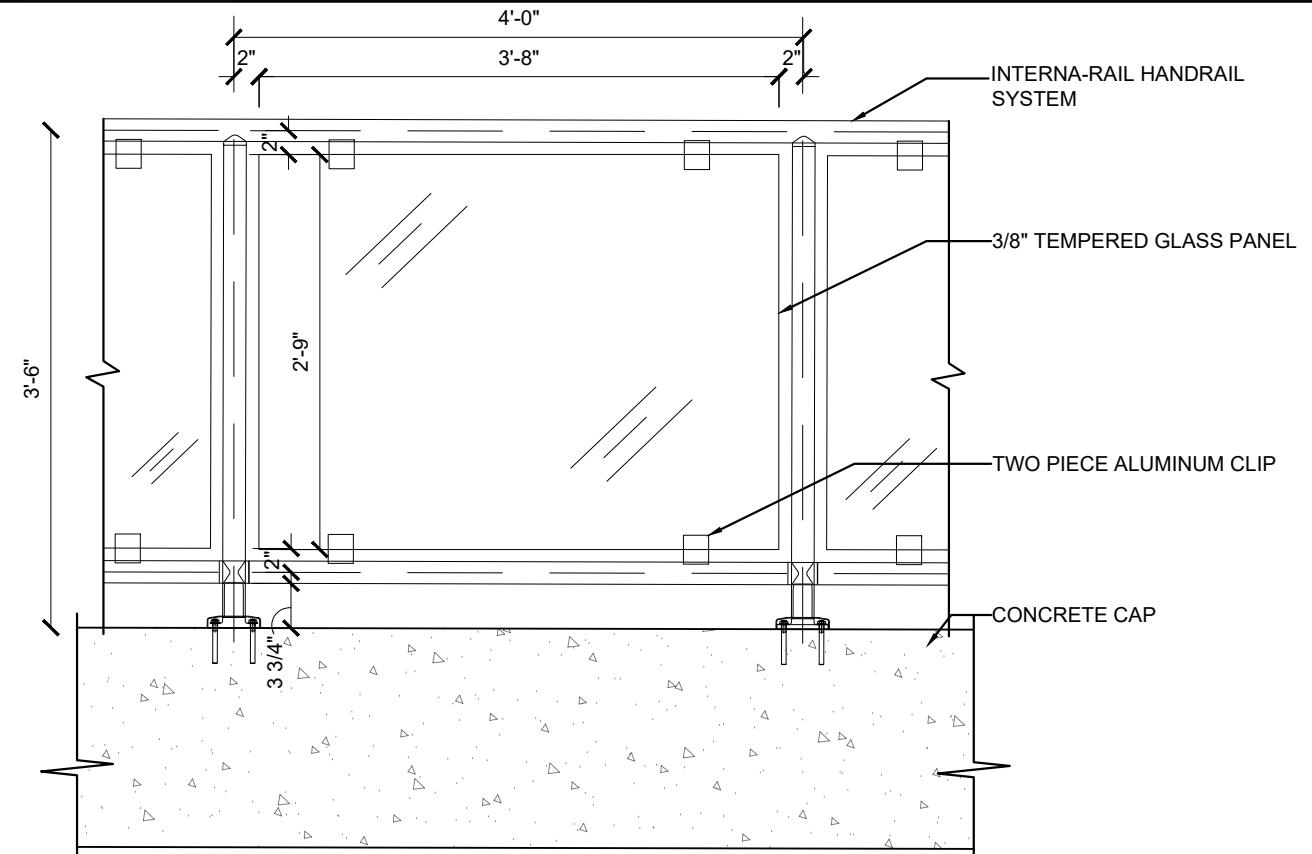


4-1/2" x 4-1/2" x 3/8" PLATE W/ (4) 7/16"  
Ø HOLES FOR (4) 3/8" SS THREADED  
RODS W/ 3-1/2" EMBEDMENT & HILTI  
HIT-HY 150 MAX ADHESIVE

(2) BASE PLATE DETAIL  
S5.2 SCALE: 3" = 1'-0"



(1) GUARDRAIL DETAILS - SPINDLES  
S5.2 SCALE: 3/4" = 1'-0"



(3) GUARDRAIL DETAILS - GLASS  
S5.2 SCALE: 3/4" = 1'-0"

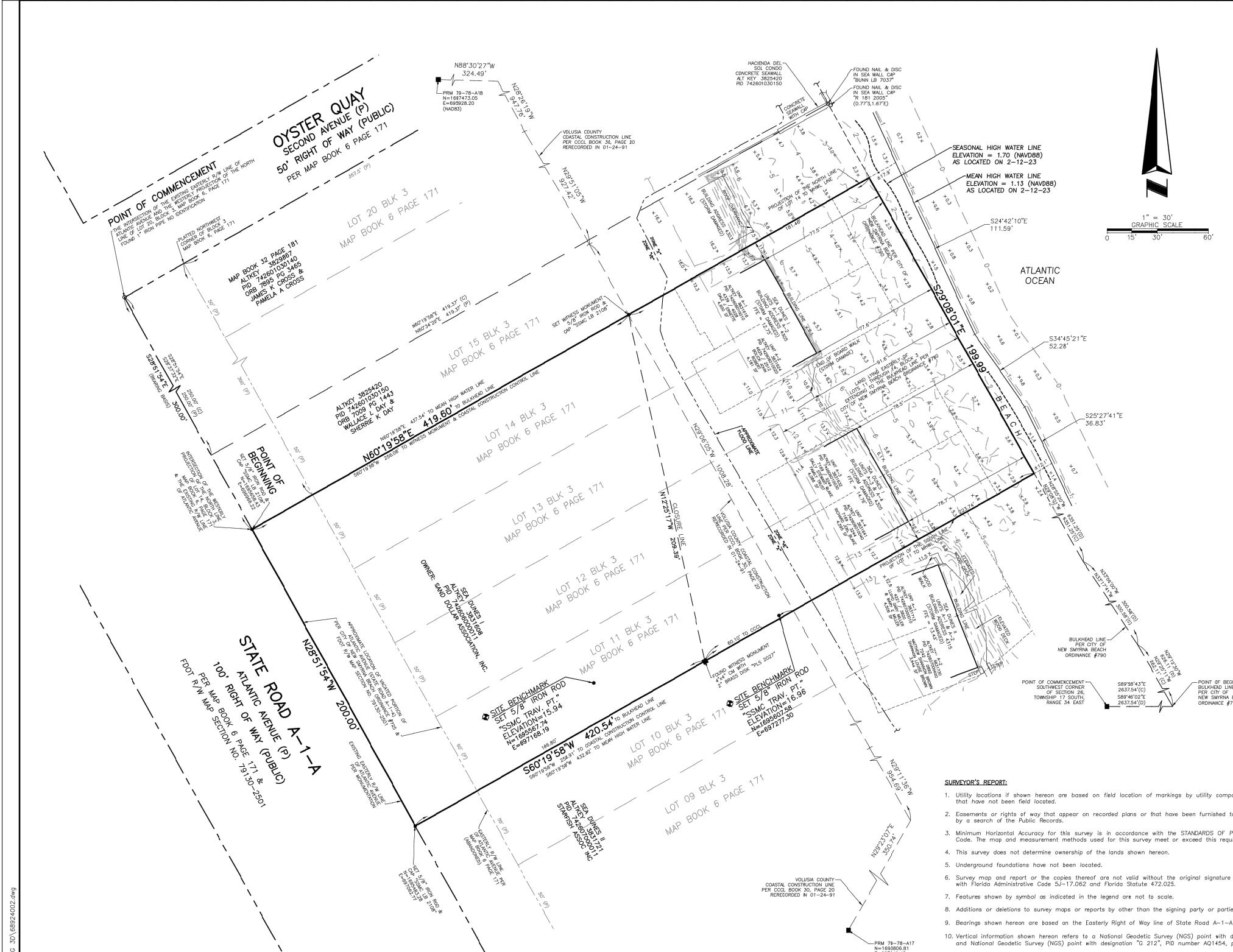
# SEADUNES SAND DOLLAR

4365 SOUTH ATLANTIC AVENUE  
NEW SMYRNA BEACH, FL 32169

**CRA** Charles R. Adams & Associates, Inc.  
STRUCTURAL ENGINEERS

414 Canal Street - New Smyrna Beach, FL 32168 - 366-465588  
221206 - SEADUNE SAND DOLLAR CD SET.DWG

NO	REMARKS	DATE
△	EOR REVISIONS 3/30/23	
GUARDRAIL DETAILS		
DRAWN BY EAA	SHEET 11 OF 10	S5.2
CHECKED BY JAA		
SCALE AS NOTED		
DATE 7 MAR 2023		



**DESCRIPTION:**

SEA DUNES UNIT 1, being Lots 11 through 14, Block 3, ATLANTIC HEIGHTS SUBDIVISION, according to the map or plat thereof, as recorded in Map Book 6, page 171, of the Public Records of Volusia County, Florida, together with a portion of Atlantic Avenue now existing and lying adjacent to and Westerly of the existing Westerly lot line of said Lots 11 through 14 (per City of New Smyrna Beach Ordinance #725, dated 1986) and Lanes lying Easterly of Lots 11 through 14, extending to the Bulkhead line (per City of New Smyrna Beach Ordinance #790), lying in Volusia County, Florida being more particularly described as follows:

COMMENCE at the intersection of the existing Easterly right of way line of Atlantic Avenue and the Westerly Projection of the North line of Lot 20, Block 3, ATLANTIC HEIGHTS SUBDIVISION, according to the map or plat thereof, as recorded in Map Book 6, page 171, of the Public Records of Volusia County, Florida; thence South 28°51'54" East, a distance of 300.00 feet along the existing Easterly right of way line of Atlantic Avenue to the intersection of the Westerly Projection of the North line of Lot 14, said intersection being the POINT OF BEGINNING; thence North 60°19'58" East, a distance of 419.60 feet along North line of Lot 14 and the projection thereof to the Bulkhead line per City of New Smyrna Beach Ordinance #790; thence South 29°08'01" East, a distance of 199.99 feet along said Bulkhead line to the Easterly Projection of South line of Lot 11; thence South 60°19'58" West, a distance of 420.54 feet along the South line of Lot 11 and the projection thereof to the easterly existing Westerly right of way line of Atlantic Avenue; thence North 28°51'54" West, a distance of 200.00 feet along said Easterly right of way to the POINT OF BEGINNING.

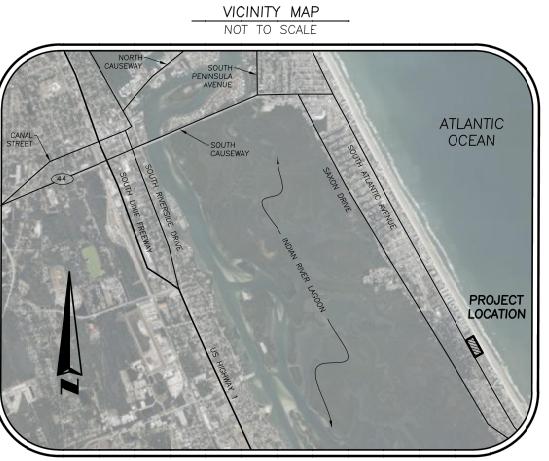
Containing 1.93 acres, more or less.

**SURVEYOR'S REPORT:**

- Utility locations if shown herein are based on field location of markings by utility company representatives, surface features and construction plans furnished to the surveyor. Additional sub-surface utilities may exist that have not been field located.
- Easements or rights of way that appear on recorded plans or that have been furnished to the surveyor by others have been incorporated into this drawing with appropriate notation. Other easements may be discovered by a search of the Public Records.
- Minimum Horizontal Accuracy for this survey is in accordance with the STANDARDS OF PRACTICE set forth by the Board of Professional Surveyors and Mappers in Chapter 5J-17 requirements of Florida Administration Code. The map and measurement methods used for this survey meet or exceed this requirement. The dimensions shown herein are in United States survey feet and decimals thereof.
- This survey does not determine ownership of the lands shown herein.
- Underground foundations have not been located.
- Survey map and report or the copies thereof are not valid without the original signature and seal or the electronic signature and seal of a Florida Licensed Surveyor and Mapper, and if shown herein is in compliance with Florida Administrative Code 5J-17.062 and Florida Statute 472.025.
- Features shown by symbol as indicated in the legend are not to scale.
- Additions or deletions to survey maps or reports by other than the signing party or parties is prohibited without written consent of the signing party or parties.
- Bearings shown herein are based on the Easterly Right of Way line of State Road A-1-A (Atlantic Avenue) as being South 28°51'54" East. Bearings and distances shown herein are measured unless otherwise noted.
- Vertical information shown herein refers to a National Geodetic Survey (NGS) point with designation "95 71 A13", PID number AK0498, published elevation of 19.11 feet North American Vertical Datum of 1988 (NAVD88) and National Geodetic Survey (NGS) point with designation "0 212", PID number AQ1454, published elevation of 4.86 feet North American Vertical Datum of 1988 (NAVD88).
- Horizontal features shown on the map refer to a National Geodetic Survey point with designation "95 71 A13", PID number AK0498 and is relative to North American Datum of 1983 (NAD83), 2011 adjustment, State Plane Coordinate System, Florida East Zone. Distances shown are GRID distances.
- Based on the Federal Emergency Management Agency, Flood Insurance Rate Map (FIRM), map number 125132 0705 J, map revised September 29, 2017 the above described property is within Zone "X" and Zone "VE". Base Flood Elevation 10 feet.
- This Survey was performed without benefit of an abstract, title search, title opinion or title commitment. A title search may reveal additional information affecting the parcel as shown.
- Improvements and Topographic features shown herein are limited to storm damaged oceanside areas per specific instructions of the client.
- Right of Way information shown herein was determined by found monumentation, recorded plats and information obtained on the Volusia County Property Appraisers web site. No Right of Way documentation was provided by client.
- The Mean High Water Line as shown is depicted at 1.13 feet North American Vertical Datum 1988. Contour Line as provided by request from M. Kevin Mears, PSM on March 28, 2023 from data obtained by Florida Department of Environmental Protection.
- Locations of the Mean High Water Line and Seasonal High Water Line were calculated with drone photogrammetry data interpolation and real time kinematics data from field date February 12, 2023.
- Volusia County Coastal Construction Line is depicted per "CCCL Book 30, Page 20, Rerecorded in 01-24-91" using "PRM 79-78-A17" and "PRM 79-78-A18" as shown.
- Bulkhead line is shown per City of New Smyrna Beach Ordinance #790 as described in New Smyrna Beach, Florida - Code of Ordinances Part II - Chapter 90 - Waterways.
- No evidence of existing Beach Dunes, Coastal Stands, Hammock Canopy, Wetlands, Exotics Plants, or any Natural Vegetation were observed in the field.
- The above described parcel contains 1.93 acres, more or less.

**NOTICE OF LIABILITY:**

This survey is certified to those individuals shown on the face thereof. Any other use, benefit or reliance by any other party is strictly prohibited and restricted. Surveyor is responsible only to those certified and hereby disclaims any other liability and hereby restricts the rights of any other individual or firm to use this survey, without express written consent of the surveyor.



**LEGEND & ABBREVIATIONS:**

-0-	WOOD FENCE	ALTKEY	= ALTERNATE KEY NUMBER
-Δ-	VINYL FENCE	ASSOC	= ASSOCIATION
■	CONCRETE MONUMENT	CCCL	= COASTAL CONSTRUCTION CONTROL LINE
○	IRON PIPE	FDEP	= FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
●	IRON ROD	FDOT	= FLORIDA DEPARTMENT OF TRANSPORTATION
○	NAIL W/DISC	FFE	= FINISH FLOOR ELEVATION
○	BENCH	PID	= PARCEL IDENTIFICATION NUMBER
○	CROSS CUT	CM	= CONCRETE MONUMENT
○	CLEAN OUT	ID	= IDENTIFICATION
(P)	ELECTRIC FIXTURE	(P)	= PLAT
(D)	FLAGPOLE	(D)	= DEED
BLK	IRON ROD	BLK	= BLOCK
ORB	OFFICIAL RECORDS BOOK	ORB	= OFFICIAL RECORDS BOOK
MB	MAP BOOK	MB	= MAP BOOK
PB	PLAT BOOK	PB	= PLAT BOOK
PG(S)	PAGE(S)	PG(S)	= PAGE(S)
NO.	NUMBER	NO.	= NUMBER
NAD83	NORTH AMERICAN DATUM	NAD83	= NORTH AMERICAN DATUM
NAVD88	NORTH AMERICAN VERTICAL DATUM 1988	NAVD88	= NORTH AMERICAN VERTICAL DATUM 1988
LB	LICENSED BUSINESS	LB	= LICENSED BUSINESS
MHWL	MEAN HIGH WATER LINE	MHWL	= MEAN HIGH WATER LINE
SF	SQUARE FEET	SF	= SQUARE FEET
PSM	PROFESSIONAL SURVEYOR AND MAPPER	PSM	= PROFESSIONAL SURVEYOR AND MAPPER
PRM	PERMANENT REFERENCE MONUMENT	PRM	= PERMANENT REFERENCE MONUMENT
R/W	RIGHT OF WAY	R/W	= RIGHT OF WAY
TRAV.PT.	TRAVERS POINT	TRAV.PT.	= TRAVERS POINT
SSMC	SOUTHEASTERN SURVEYING & MAPPING CORPORATION	SSMC	= SOUTHEASTERN SURVEYING & MAPPING CORPORATION

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# SEADUNES SAND DOLLAR

4365 SOUTH ATLANTIC AVENUE  
NEW SMYRNA BEACH, FL 32169

CERTIFIED TO:	
Florida Bridge & Transportation, Inc.	REMARKS
Project: 4305 South Atlantic Avenue New Smyrna Beach, Florida	DATE
Field Date: February 12, 2023	4/7/23
Drawn By: JMG	Revised per PSM comments
SHEET NUMBER: 1 OF 1	
NOT VALID WITHOUT SHEETS 1 THROUGH 1	
EOR REVISIONS 3/30/23	
EOP COMMENTS 4/1/23	
DRAWN BY: EAA	
CHECKED BY: JAA	
SCALE AS NOTED	
DATE 7 MAR 2023	
SURVEY	
DRAWING NUMBER: 68924002	
SHEET 11 OF 10	
S6.0	

