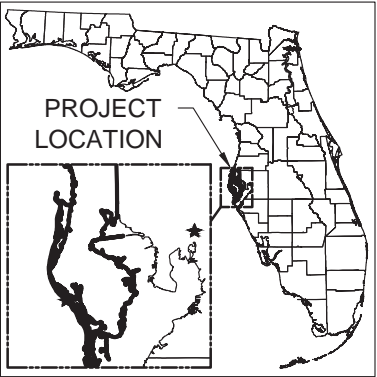


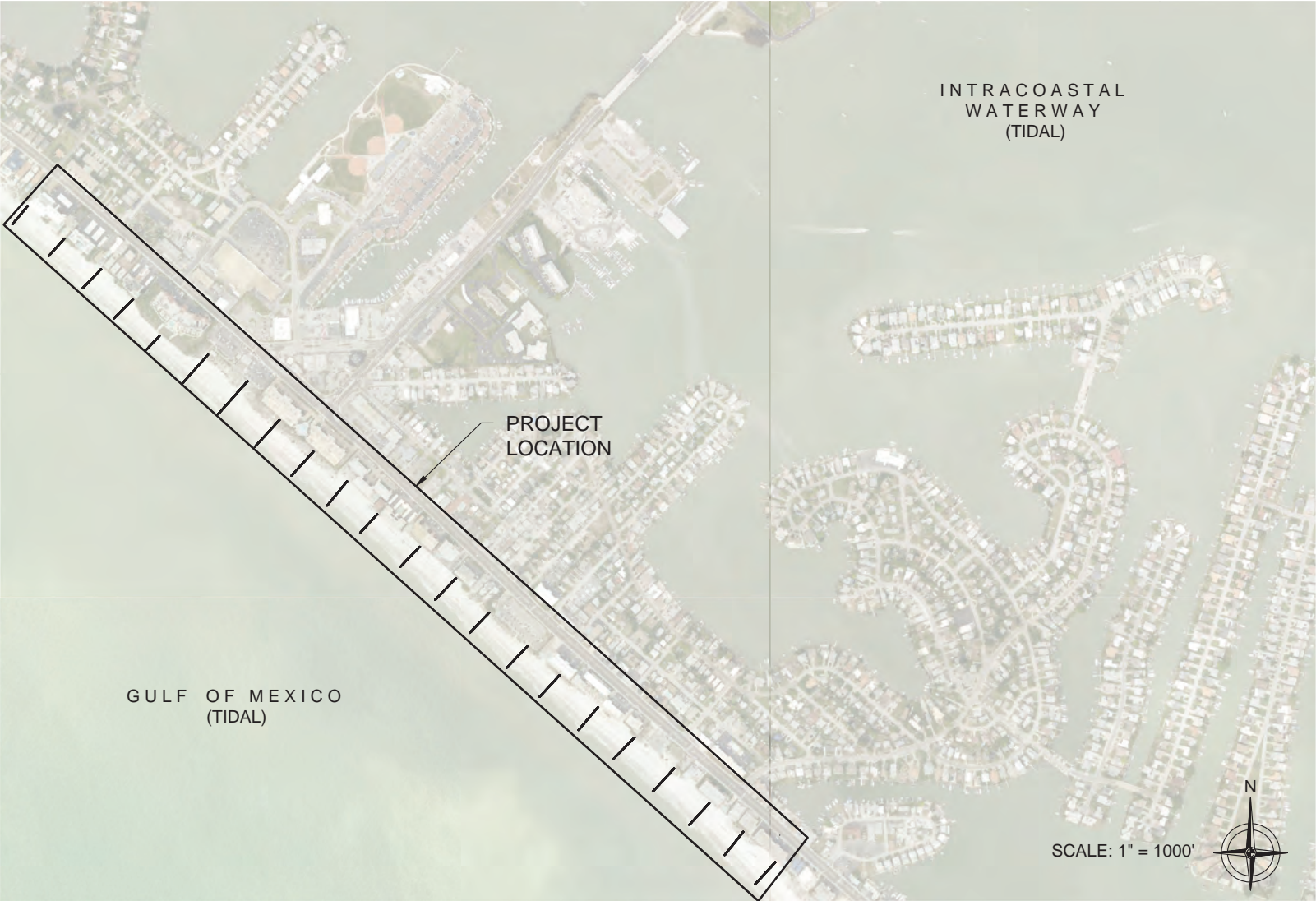
# MADEIRA BEACH GROINS

## CONSTRUCTION PLANS

MADEIRA BEACH, PINELLAS COUNTY, FLORIDA  
TOWNSHIP: 31 SOUTH, RANGE: 15 EAST, SECTION 09



PINELLAS COUNTY, FLORIDA



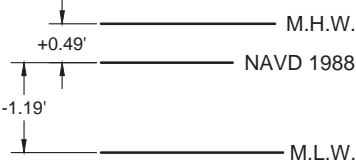
PROJECT LOCATION  
MADEIRA BEACH GROINS, MADEIRA BEACH, FLORIDA 33708

### NOTES:

- COORDINATES SHOWN ARE IN FEET BASED ON THE NORTH AMERICAN DATUM OF 1983, WEST ZONE (NAD83)
- ELEVATIONS SHOWN ARE IN FEET BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
- THE VERTICAL DATUMS ESTABLISHED BY DEP FOR THIS AREA ARE: MEAN HIGH WATER ELEVATION & MEAN LOW WATER ELEVATION AS DETAILED IN THE TIDE INFORMATION CHART.
- NOTE: THESE PERMIT DRAWINGS SHALL NOT BE CONSIDERED VALID FOR CONSTRUCTION PURPOSES UNLESS SIGNED AND SEALED BY:

JOSEPH T. FOSTER. P.E.  
FL LIC# 79708

### TIDE INFORMATION



RELATIONSHIP BETWEEN NAVD 1988,  
MEAN HIGH WATER, MEAN LOW WATER  
TIDAL DATUM (1983 - 2001 EPOCH)

NOTE:  
TIDE INFORMATION OBTAINED  
FROM TIDE STATION I.D.  
8726574, BOCA CIEGA BAY, FL

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		FOSTER CONSULTING FL PROFESSIONAL ENGINEER NO. 79708 DE LIC. # 24590 · NJ LIC. # 24GE05181200 · TX LIC. # 133648 FL CERTIFICATE OF AUTHORIZATION NO. 32050 WWW.JFOSTERCONSULTING.COM P: (727) 821-1949 P.O. BOX 7370, ST. PETERSBURG, FL 33734	REVISION	DESCRIPTION	REV. DATE	MADEIRA BEACH GROINS MADEIRA BEACH, FLORIDA	DATE: 11/8/22	FILENAME: ---	REV: ---
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## 1. GENERAL

- 1.A. THE WORK CONSISTS OF PROVIDING ALL CONSTRUCTION, LABOR, EQUIPMENT, MATERIAL & OPERATIONS IN CONNECTION WITH THE REPAIR OF THE BEACH GROINS & RELATED IMPROVEMENTS AS SHOWN ON THESE DRAWINGS.
- 1.B. 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.
- 1.C. 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 & 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 & STAGING AREAS SHALL BE KEPT NEAT, ORDERLY & IN A SAFE MANNER. ALL ACCESS & 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 & 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 & NATURAL FEATURES TO PRE-CONSTRUCTION CONDITIONS OR BETTER. UNLESS OTHERWISE NOTED IN CONTRACT.
- 1.D. UTILITIES ARE NOT SHOWN IN THE PLANS. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL PRESENT UTILITIES PRIOR TO CONSTRUCTION.
- 1.E. CONTRACTOR IS RESPONSIBLE FOR PROVIDING PROPER CLEARANCE & PROTECTION TO ALL OVERHEAD WIRES & OBSTRUCTIONS.
- 1.F. 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.
- 1.G. WHEN PUMPING CONCRETE, THE TRUCK CHUTE & PUMP WILL HAVE VISQUEEN OR SIMILAR PROTECTIVE MATERIAL ON THE ROADWAYS TO PREVENT SPILLAGE ONTO THE ASPHALT OR PAVERS.
- 1.H. ANY EXISTING UTILITIES (PEDESTALS, WATER) LADDER OR CLEAT FOUND ATTACHED TO THE EXISTING CAP OR DOCK THAT WILL BE IMPACTED BY THIS WORK SHALL BE REMOVED & REATTACHED TO THE NEW WORK. UNLESS OTHERWISE NOTED IN CONTRACT.
- 1.I. ANY EXISTING UTILITIES THAT ARE NOT BEING REMOVED, BUT ARE BEING IMPACTED, SHALL BE TEMPORARILY SUPPORTED & REATTACHED AS REQUIRED.
- 1.J. ANY DOCK PILES OR PORTIONS OF DOCK SHALL BE REMOVED & REINSTALLED AS REQUIRED.
- 1.K. ALL NEW STRUCTURAL WORK INCLUDING CONCRETE & REINFORCEMENT SHALL BE ACCURATELY FIELD MEASURED & DIMENSIONS VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS. CONTRACTOR SHALL BE PREPARED TO MAKE FIELD ADJUSTMENTS TO ACCURATELY FIT THE NEW WORK TO EXISTING CONDITIONS.
- 1.L. NO CONSTRUCTION SHALL COMMENCE UNTIL ALL REQUIRED PERMITS & APPROVALS HAVE BEEN SECURED.
- 1.M. 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. THESE DRAWINGS SHALL NOT BE SCALED. RELY ONLY ON SPECIFIED DIMENSIONS.
- 1.N. CONSTRUCTION WORK SHALL BE EXECUTED IN ACCORDANCE WITH ALL LOCAL, STATE, & NATIONAL BUILDING CODES & GOVERNING REGULATIONS, FDEP & USACE. CONTRACTOR SHALL ADHERE TO ALL CONDITIONS OF THE PERMITS & EXEMPTIONS.
- 1.O. REVIEW OF SUBMITTALS BY THE STRUCTURAL ENGINEER IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AS PRESENTED BY THE CONTRACTOR. NO DETAILED CHECK OF QUANTITIES OR DIMENSIONS WILL BE MADE.

## 2. LAYOUT & TESTING

- 2.A. ALL CONSTRUCTION STAKEOUTS SHALL BE PERFORMED BY & PAID FOR BY THE CONTRACTOR UNLESS OTHERWISE NOTED IN CONTRACT. ALL TESTING & INSPECTION FOR CONCRETE MATERIALS SHALL BE IN ACCORDANCE WITH FDOT SPECIFICATIONS.

### 3. DEMOLITION

- 3.A. CONTRACTOR SHALL VERIFY THE EXTENTS, LOCATION & QUANTITIES OF EXISTING ELEMENTS TO BE REMOVED.
- 3.B. ALL DEBRIS WITHIN THE LIMITS OF THE PROJECT SHALL BE HAULED OFF SITE BY THE CONTRACTOR & DISPOSED OF IN A PROPER LOCATION. NO ILLEGAL DUMPING'
- 3.C. CONTRACTOR SHALL NOT DAMAGE ANY STRUCTURAL COMPONENTS BEYOND THE DEMOLITION REQUIREMENTS DEPICTED IN THESE DRAWINGS. ANY DAMAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

#### 4. CONCRETE

- 4.A. FORMS FOR THIS WORK SHALL BE MADE OF EITHER WOOD OR METAL. THEY SHALL BE STRAIGHT & FREE OF WARP OR BENDS. THEY SHALL HAVE SUFFICIENT STRENGTH & RIGIDITY, WHEN STAKED, TO RESIST THE PRESSURE OF THE CONCRETE WITHOUT SPRINGING. IF WOODEN FORMS ARE USED, THEY SHALL BE OF ADEQUATE SECTION. WHEN READY FOR THE CONCRETE TO BE DEPOSITED, THEY SHALL NOT VARY FROM THE APPROVED LINE & GRADE, & SHALL BE KEPT SO UNTIL THE CONCRETE HAS SET.
- 4.B. JUST PRIOR TO PLACING THE CONCRETE, ANY WOODEN FORMS SHALL BE MOISTENED & ALL STEEL REINFORCING SHALL BE RINSED WITH FRESH WATER. THE CONCRETE SHALL BE PLACED IN THE FORMS & TAMPED IN PLACE SO THAT ALL HONEYCOMBS WILL BE ELIMINATED & SUFFICIENT MORTAR BROUGHT TO A SMOOTH EVEN FINISH BY MEANS OF A FLOAT.
- 4.C. CONTRACTOR SHALL BE PREPARED TO PLACE CONCRETE OF LOWER MEMBERS OF THE MARINE STRUCTURES IN SUBMERGED CONDITIONS UTILIZING TREMIE METHODS AT NO ADDITIONAL COST.
- 4.D. NO CONCRETE SHALL BE POURED DURING UNFAVORABLE WEATHER OR SEA CONDITIONS.
- 4.E. ALL STEEL SHALL HAVE A MINIMUM OF 3 INCHES CONCRETE COVER, UNLESS NOTED OTHERWISE. NO CHAIRS, TIES OR OTHER METAL SHALL PROTRUDE FROM SURFACE OF CONCRETE. TIES SHALL BE TUCKED INTO THE CAGE.
- 4.F. CAST-IN-PLACE CONCRETE SHALL BE A MINIMUM OF 5,000 P.S.I. (FILLER 5,000 P.S.I.) COMPRESSIVE STRENGTH AT 28 DAYS UNLESS NOTED OTHERWISE. WATER CEMENT RATIO SHALL BE LESS THAN OR EQUAL TO 0.4.
- 4.G. DURING OR AFTER THE CAP POURING, ANY LAITANCE RUNNING DOWN THE WATERSIDE OF THE SHEETS IS TO BE WASHED OFF. ALL CAP JACK BOLTS ARE TO BE PUSHED BACK THROUGH THE WALL OR OTHERWISE REMOVED, AND THE HOLES IN THE NEW SHEETS SEALED WITH TROWELABLE EPOXY SO NO RUST STAINS DISCOLOR THE SHEETS.
- 4.H. APPLY SIKA ARMATEC 110 BONDING AGENT, OR APPROVED EQUAL, AT CONSTRUCTION JOINTS PRIOR TO PLACEMENT OF NEW CONCRETE.
- 4.I. CONTRACTOR SHALL USE APPROPRIATE CONCRETE CURING METHODS PER ACI CODE.
- 4.J. THE SIDE FORMS ARE TO BE STRIPPED THE NEXT DAY & HONEYCOMB PATCHED. THE WATERSIDE FACE LIGHTLY RUBBED & CURING COMPOUND OR VISQUEEN APPLIED. BOTTOM FORMS ARE TO BE LEFT ON FOR 2 DAYS.

- 4.J. COMPONENTS NOT CONSTRUCTED ACCORDING TO THESE SPECIFICATIONS SHALL BE REMOVED & REPLACED PROPERLY AT THE EXPENSE OF THE CONTRACTOR.
- 4.K. CONCRETE FORMWORKERS & FINISHERS: THE CONTRACTOR SHALL SUPPLY A SUFFICIENT NUMBER OF EXPERIENCED CONCRETE FORMWORKERS & FINISHERS IN ORDER TO COMPLETE THE WORK. A CONCRETE FOREMAN WHO HAS A THOROUGH UNDERSTANDING OF THE PLANS, SPECIFICATIONS & REFERENCED SPECIFICATIONS SHALL SUPERVISE ALL FORMWORKERS & FINISHERS.
- 4.N. EXPANSION JOINTS WILL BE FORMED WITH 1/2" THICK EXPANSION JOINT MATERIAL, NOT PLYWOOD OR OTHER RIGID MATERIALS & BE OVER THE SHEET PILE INTERLOCKS OR CONCRETE SLAB JOINTS.

## 5. STEEL

- 5.A. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED BARS FREE FROM LOOSE RUST & SCALE.
- 5.B. STEEL SHALL BE PLACED AS SHOWN IN THE PLANS. ALL ACCESSORIES SHALL BE PLASTIC ONLY TO SUPPORT REINFORCING EXPOSED TO WEATHER. ALL REINFORCING STEEL SHALL BE ACCURATELY LOCATED & FIRMLY HELD IN PLACE BEFORE & DURING THE PLACING OF CONCRETE.
- 5.C. THE LOOSE ENDS OF THE REBAR TIES AND/OR TIE-WIRES ARE TO BE PUSHED INSIDE THE CAGE AFTER TYING.

## 6. ENVIRONMENTAL MANAGEMENT PLAN

- 6.A. ALL WORK WILL ADHERE TO PERFORMANCE REQUIREMENTS OF THE CLEAN WATER ACT, SECTION 404 PERMIT & SECTION 401 WATER QUALITY CERTIFICATION. NO IN-WATER WORK WILL BEGIN UNTIL AFTER ISSUANCE OF REGULATORY AUTHORIZATIONS.
- 6.B. THE CONSTRUCTION CONTRACTOR IS RESPONSIBLE FOR PREPARATION OF AN ENVIRONMENTAL PROTECTION PLAN. THE PLAN WILL IDENTIFY CONSTRUCTION ELEMENTS & RECOGNIZE SPILL SOURCES AT THE SITE. THE PLAN WILL OUTLINE BMP'S, RESPONSIVE ACTIONS IN THE EVENT OF A SPILL OR RELEASE, & NOTIFICATION & REPORTING PROCEDURES. THE PLAN WILL ALSO OUTLINE CONTRACTOR MANAGEMENT ELEMENTS SUCH AS PERSONNEL RESPONSIBILITIES, ACTION AREA SECURITY, SITE INSPECTIONS & TRAINING.
- 6.C. NO PETROLEUM PRODUCTS, LIME, CHEMICALS, OR OTHER TOXIC OR HARMFUL MATERIALS WILL BE ALLOWED TO ENTER SURFACE WATERS.
- 6.D. WASH WATER RESULTING FROM WASH-DOWN OF EQUIPMENT OR WORK AREAS WILL BE CONTAINED FOR PROPER DISPOSAL.
- 6.E. EQUIPMENT THAT ENTERS SURFACE WATERS WILL BE MAINTAINED TO PREVENT ANY VISIBLE SHEEN FROM PETROLEUM PRODUCTS.
- 6.F. NO OIL, FUELS, OR CHEMICALS WILL BE DISCHARGED TO SURFACE WATERS, OR ONTO LAND WHERE THERE IS A POTENTIAL FOR RE-ENTRY INTO SURFACE WATERS. FUEL HOSES, OIL DRUMS, OIL OR FUEL TRANSFER VALVES, FITTINGS, ETC. WILL BE CHECKED REGULARLY FOR LEAKS & WILL BE MAINTAINED & STORED PROPERLY TO PREVENT SPILLS.
- 6.G. NO CLEANING SOLVENTS OR CHEMICALS USED FOR TOOLS OR EQUIPMENT CLEANING WILL BE DISCHARGED TO GROUNDWATER OR SURFACE WATERS.
- 6.H. CONSTRUCTION MATERIALS WILL NOT BE STORED WHERE HIGH TIDES, WAVE ACTION, OR UPLAND RUNOFF COULD CAUSE MATERIALS TO ENTER SURFACE WATERS.
- 6.I. BARGE OPERATIONS WILL BE RESTRICTED TO TIDAL ELEVATIONS ADEQUATE TO PREVENT GROUNDING OF A BARGE.

## 7. TURBIDITY BARRIERS

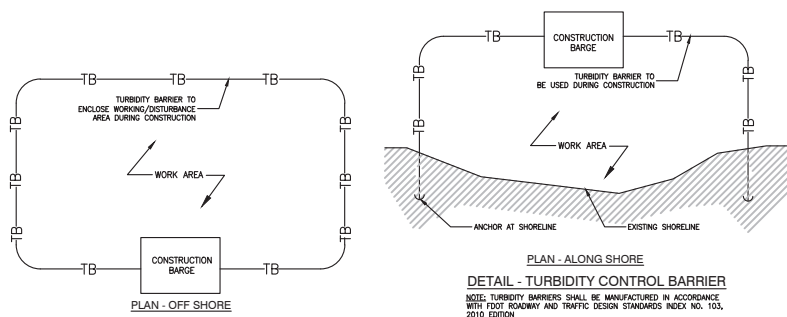
- 7.A. THE CONTRACTOR SHALL FURNISH, INSTALL & MAINTAIN TURBIDITY CONTROL BARRIERS AROUND THE WORK AREA AS NECESSARY. THE PURPOSE OF THE BARRIER IS TO AVOID ANY DEBRIS FROM GOING INTO THE MAIN WATERS. THE CONTRACTOR HAS THE OPTION TO ENCLOSE THE ENTIRE WATERSIDE OF THE SITE, WITHIN THE LIMITS OF DISTURBANCE, OR TO INSTALL & MOVE THE BARRIER IN STAGES. THE CONTRACTOR SHALL MAINTAIN SUCH BARRIERS AT ALL TIMES IN THE AREAS WHERE WORK IS IN PROGRESS UNLESS STRONG CURRENT PREVENTS THEIR DEPLOYMENT.
- 7.B. TURBIDITY BARRIERS TO BE MANUFACTURED IN ACCORDANCE WITH FDOT ROADWAY & TRAFFIC DESIGN STANDARDS INDEX NO. 103.
- 7.C. BARRIERS SHALL BE ANCHORED AT 100 FT INTERVALS MAX. PROVIDE A BUOY AT EACH ANCHOR LOCATION.

## 8. EROSION & SEDIMENT CONTROL

- 8.A. SILT FENCES TO BE MANUFACTURED & INSTALLED IN ACCORDANCE WITH FDOT ROADWAY & TRAFFIC DESIGN STANDARDS INDEX NO. 102 & FDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION SECTION 104.

## 9. TIDAL DATA

- 9.A. CONTRACTOR MAY NEED TO ADJUST WORK PLAN TO ACCOUNT FOR ACTUAL WATERLEVELS & CHANGING WATER LEVELS. THE SITE MAY BE SUBJECT TO VARIABLE WAVE & SURGE CONDITIONS & IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE TEMPORARY SUPPORT FOR MARINE STRUCTURES & SHORELINE DURING CONSTRUCTION. TIDAL DATA OBTAINED FROM CLOSEST NOAA STATION.



## TURBIDITY CURTAIN DETAIL



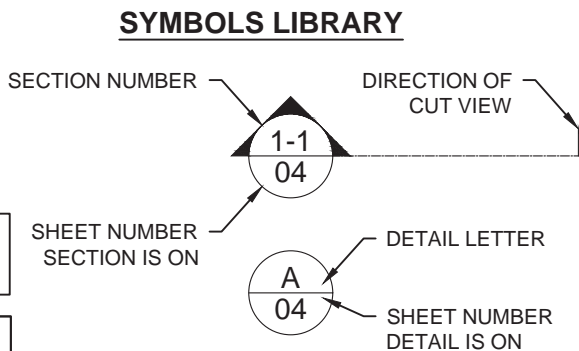
KNOW WHAT'S BELOW.  
ALWAYS CALL 811.  
CALL BEFORE YOU DIG.

IT'S FAST. IT'S FREE.  
IT'S THE LAW.

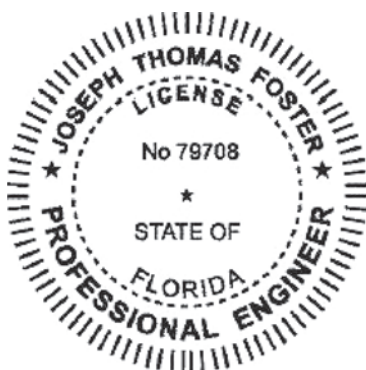
WWW.CALLSUNSHINE.COM

CONTRACTOR TO VERIFY THAT  
ELECTRICAL LINES ARE DEENERGIZED  
PRIOR TO ANY WORK

TURBIDITY CURTAINS TO BE USED IN  
ACTIVE CONSTRUCTION AREA DURING  
IN-WATER ACTIVITIES



**NOT VALID UNLESS SIGNED & SEALED**



**FOSTER CONSULTING**  
**FL PROFESSIONAL ENGINEER NO. 79708**  
 DE LIC. # 24590 · NJ LIC. # 24GE05181200 · TX LIC. # 133648

**FL CERTIFICATE OF AUTHORIZATION NO. 32050**  
**WWW.JFOSTERCONSULTING.COM**  
**P: (727) 821-1949**  
**P.O. BOX 7370, ST. PETERSBURG, FL 33734**

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**MADEIRA BEACH GROINS**  
**MADEIRA BEACH, FLORIDA**

## GENERAL NOTES

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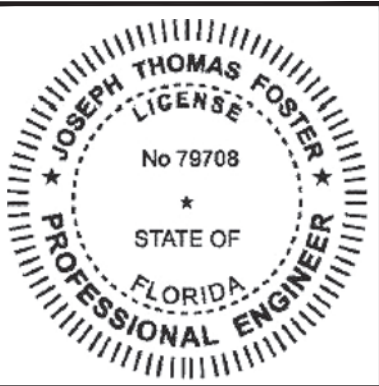
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GR-XX = PROJECT GROIN NUMBER



**SITE PLAN**

SCALE: 1" = 500'

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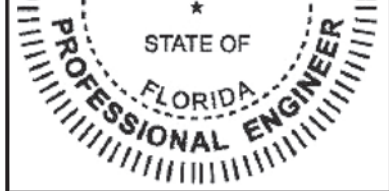
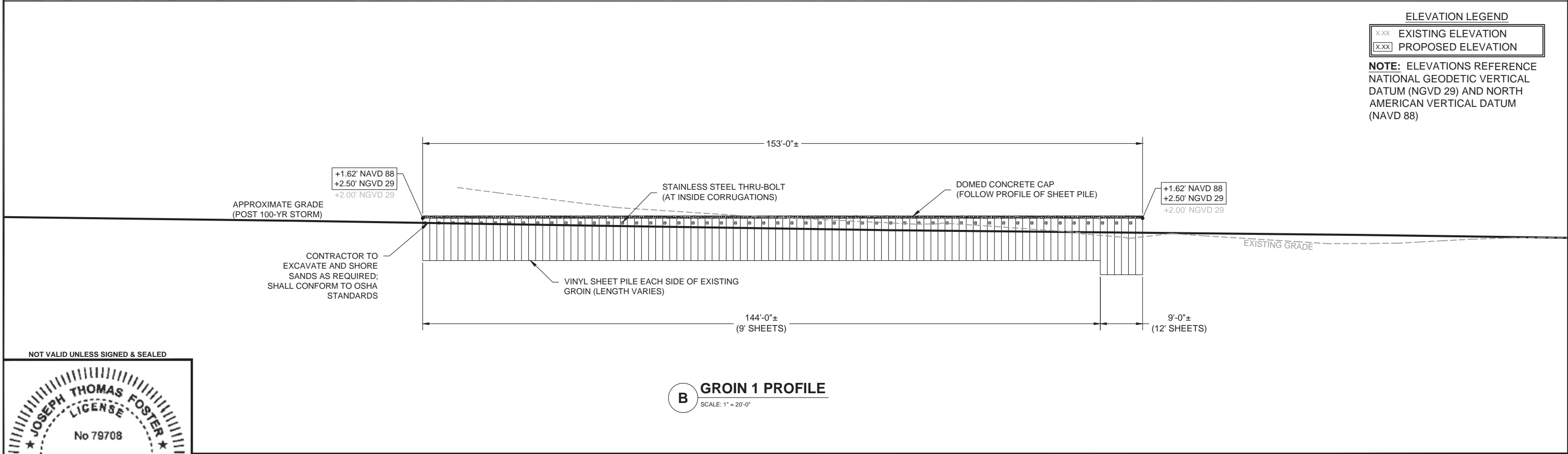
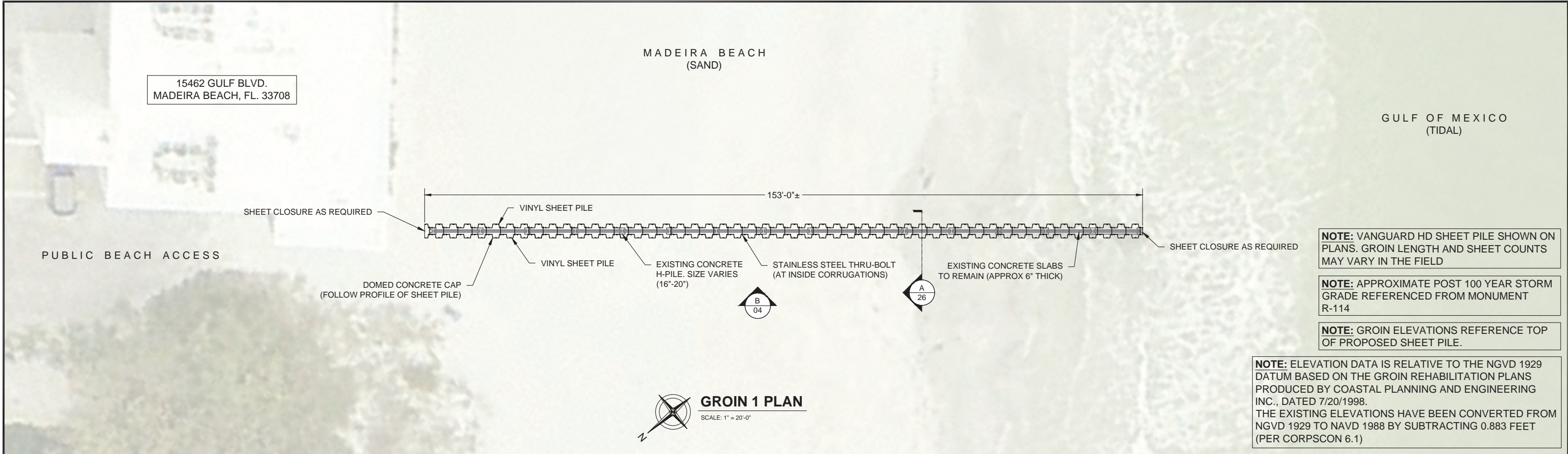
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**MADEIRA BEACH GROINS**  
**MADEIRA BEACH, FLORIDA**

**SITE PLAN**

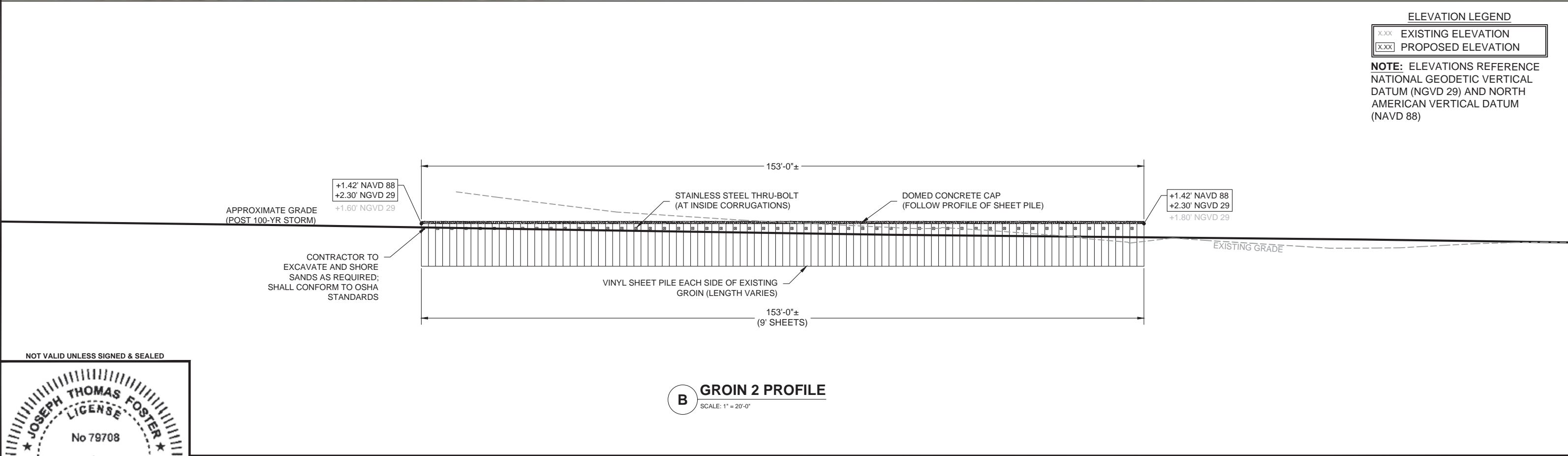
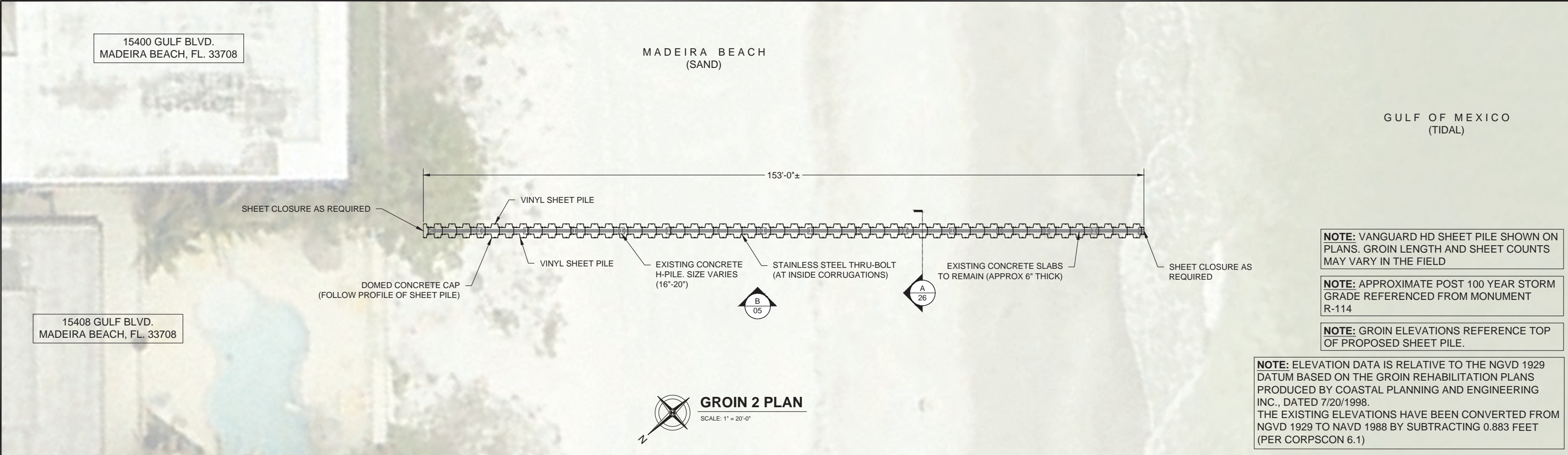
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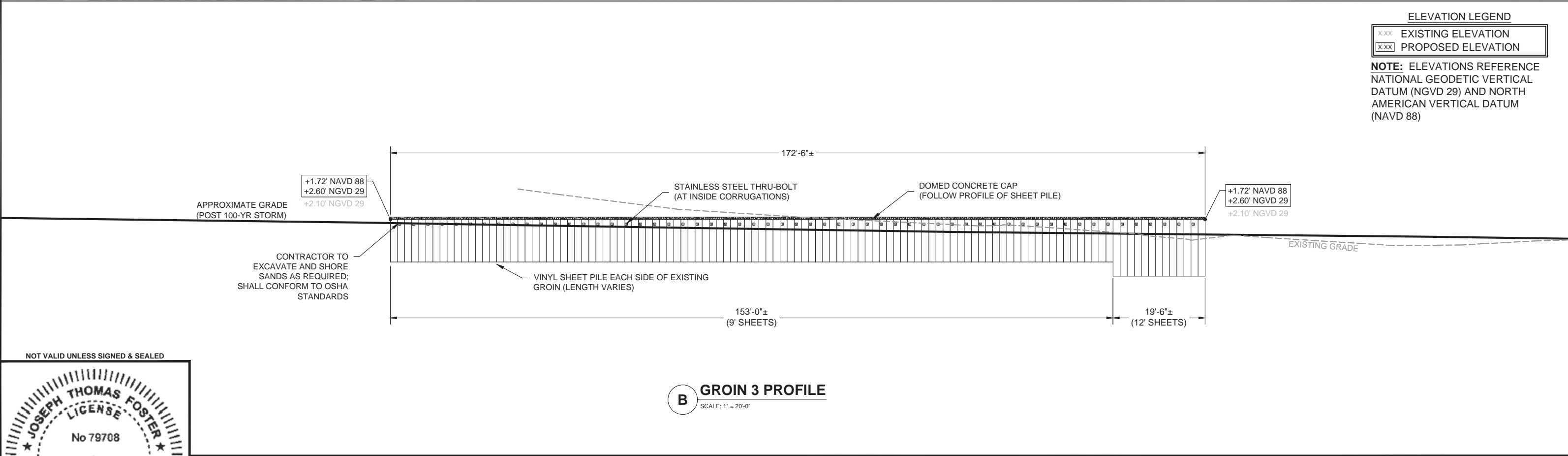
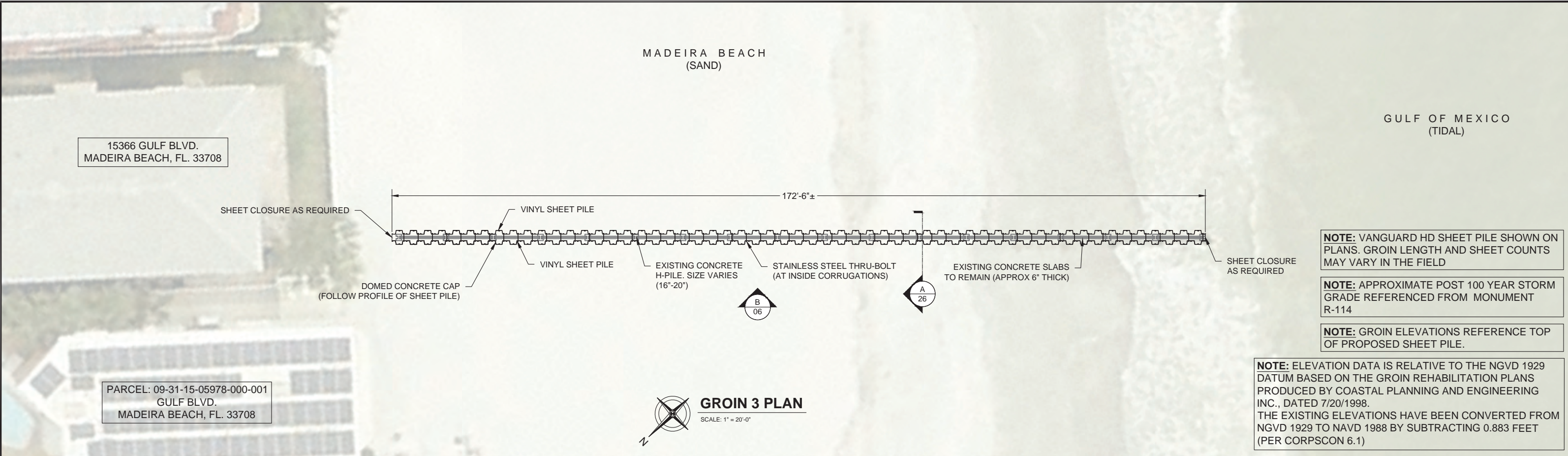
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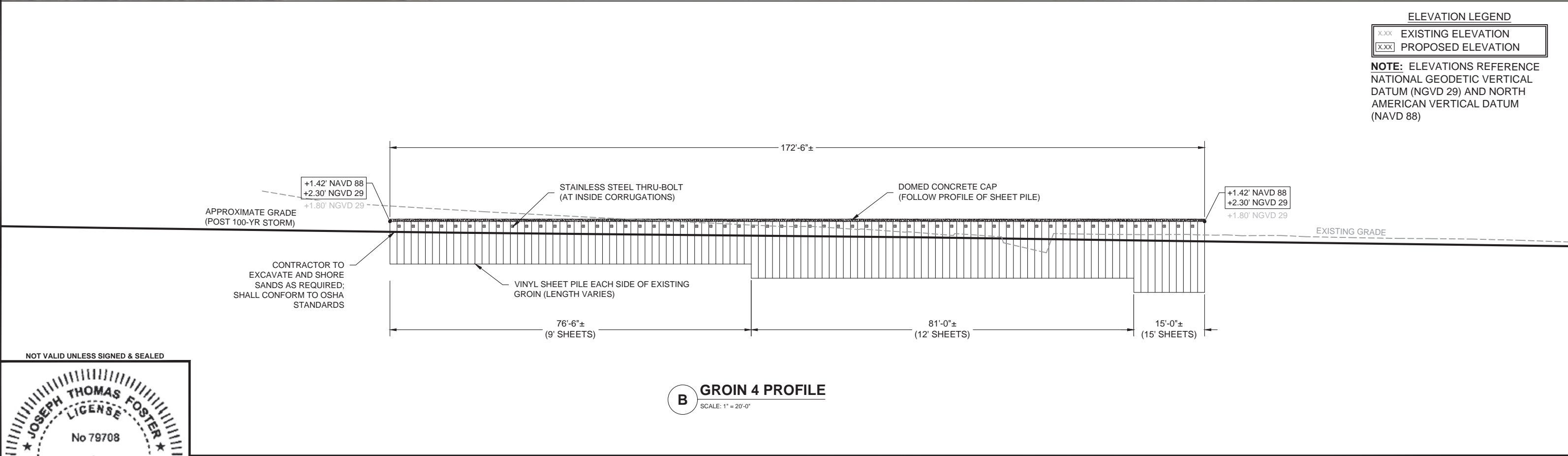
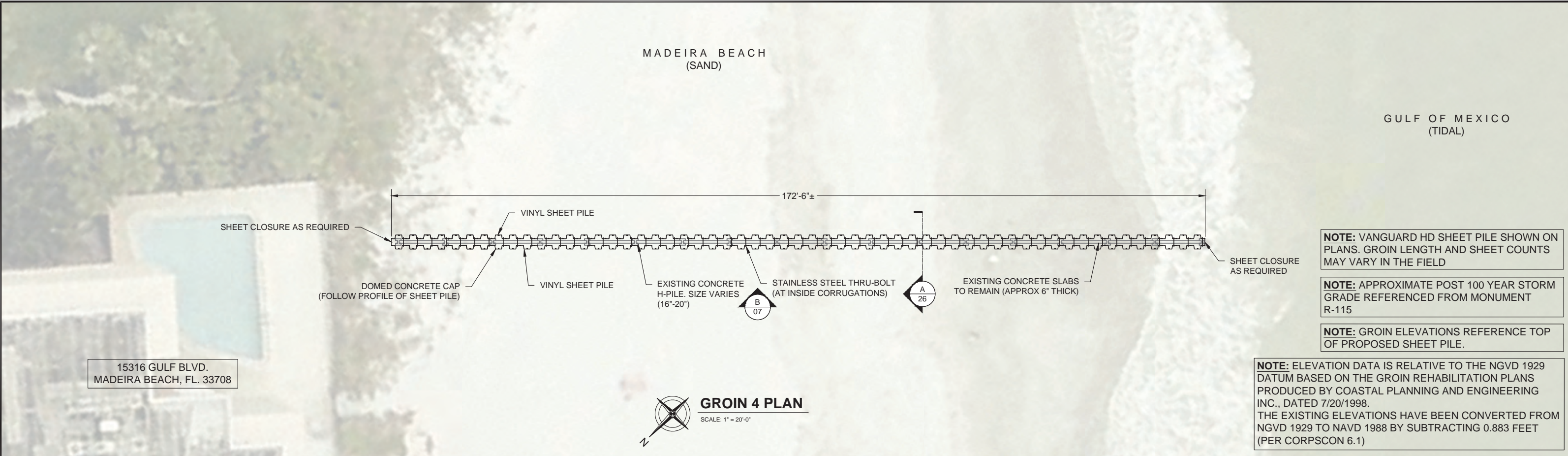
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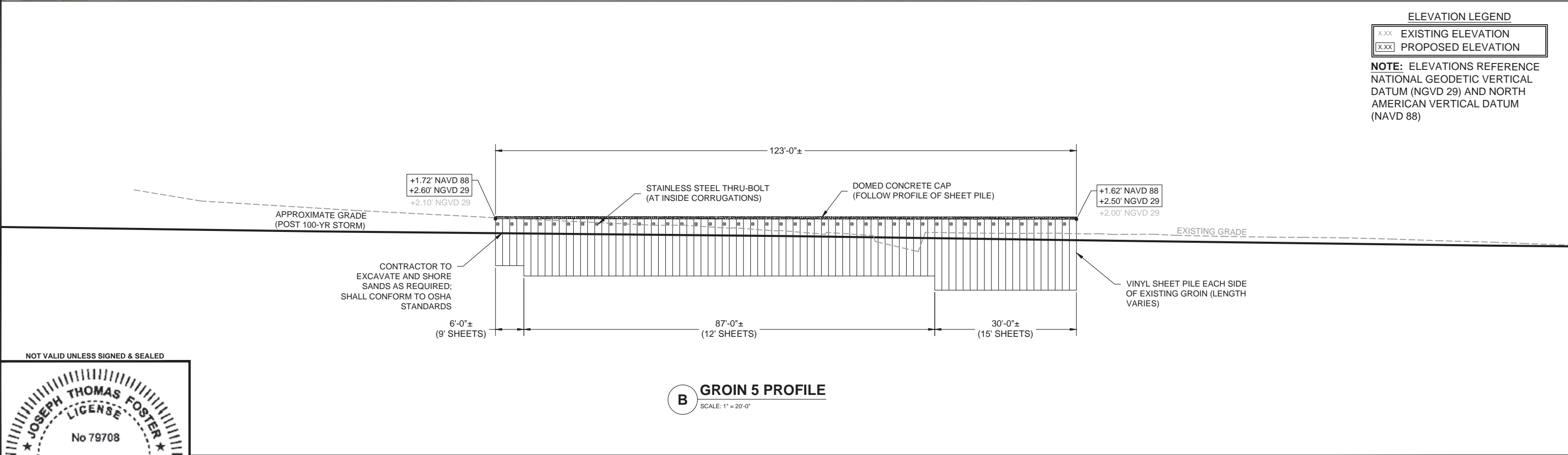
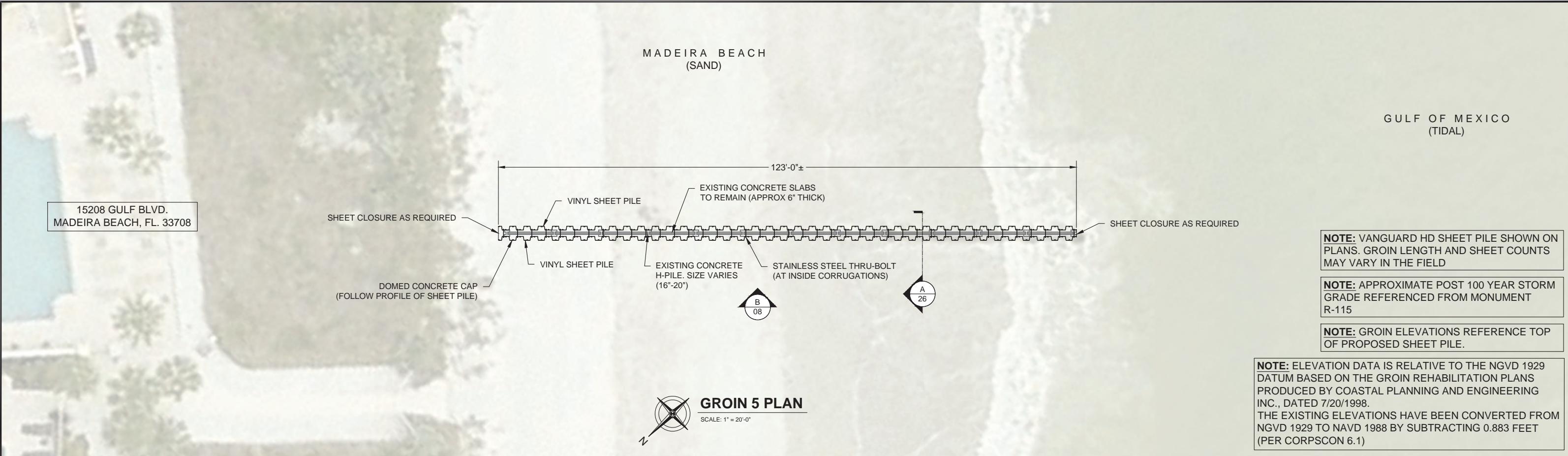
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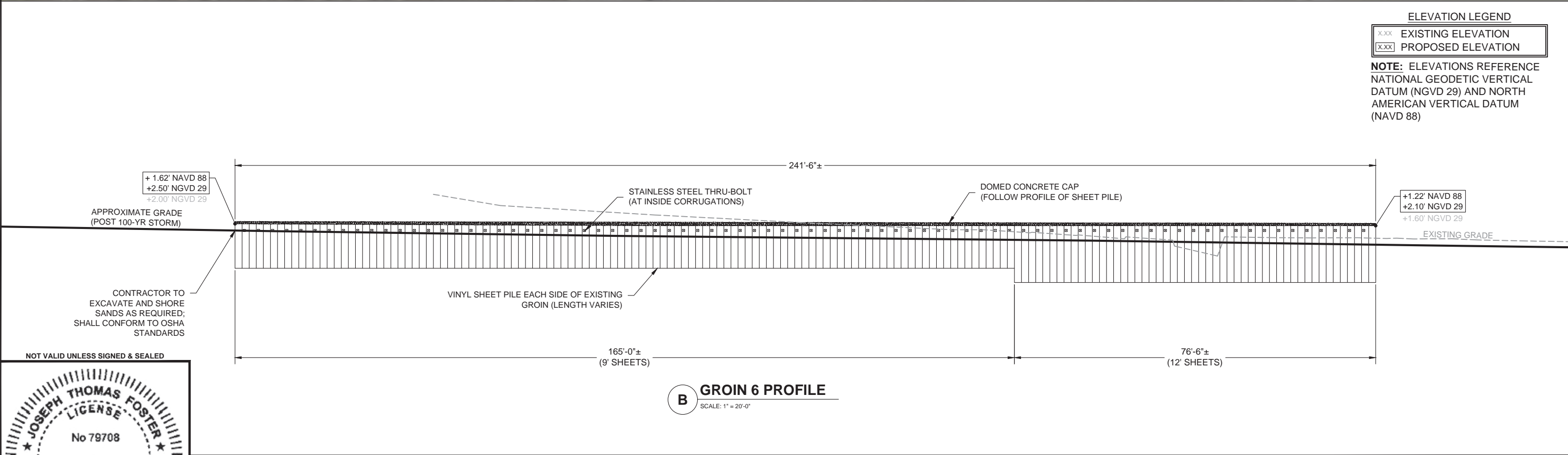
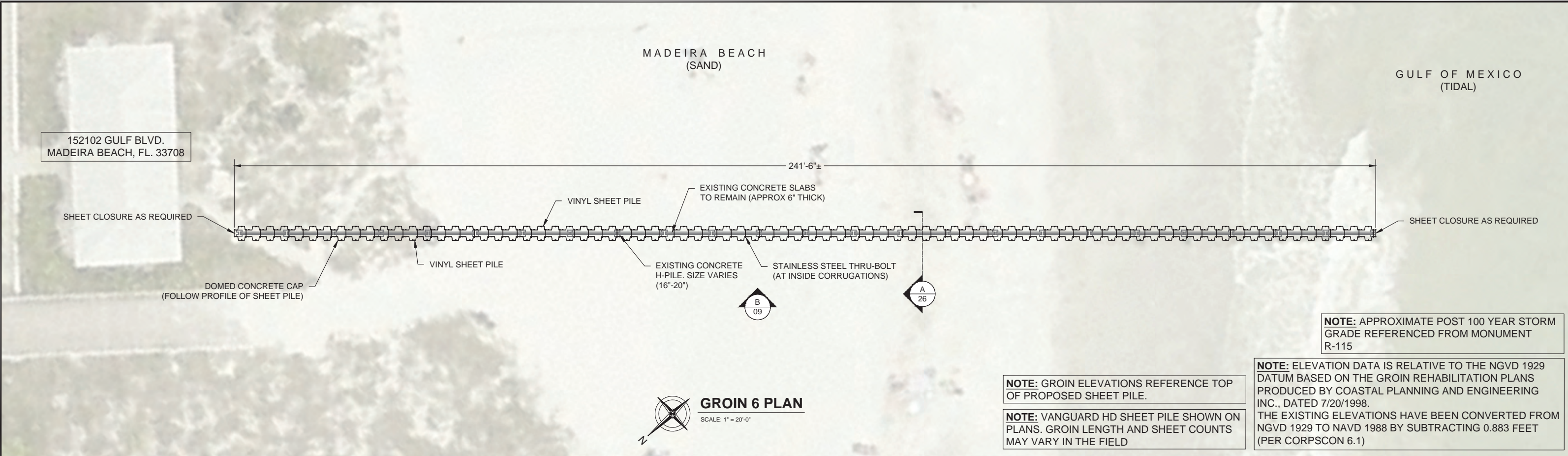
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**MADEIRA BEACH GROINS**  
**MADEIRA BEACH, FLORIDA**

**GROIN 5 DETAIL**

DATE: 11/8/22	FILENAME: ---	REV: ----
DRAWN BY: JDD/SIP/NSN	SHEET: 08 OF 26	
CHECKED BY: JTF	<b>08</b>	
SCALE: AS NOTED		





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JOSEPH THOMAS FOSTER

LICENSE

No 79708

STATE OF

FLORIDA

PROFESSIONAL ENGINEER

F

FOSTER

CONSULTING

FOSTER CONSULTING

FL PROFESSIONAL ENGINEER NO. 79708

DE LIC. # 24590 · NJ LIC. # 24GE05181200 · TX LIC. # 133648

FL CERTIFICATE OF AUTHORIZATION NO. 32050

WWW.JFOSTERCONSULTING.COM

P: (727) 821-1949

P.O. BOX 7370, ST. PETERSBURG, FL 33734

REVISION	DESCRIPTION	REV. DATE
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MADEIRA BEACH GROINS  
MADEIRA BEACH, FLORIDA

GROIN 6 DETAIL

DATE: 11/8/22

DRAWN BY: JDD/SIP/NSN

CHECKED BY: JTF

SCALE: AS NOTED

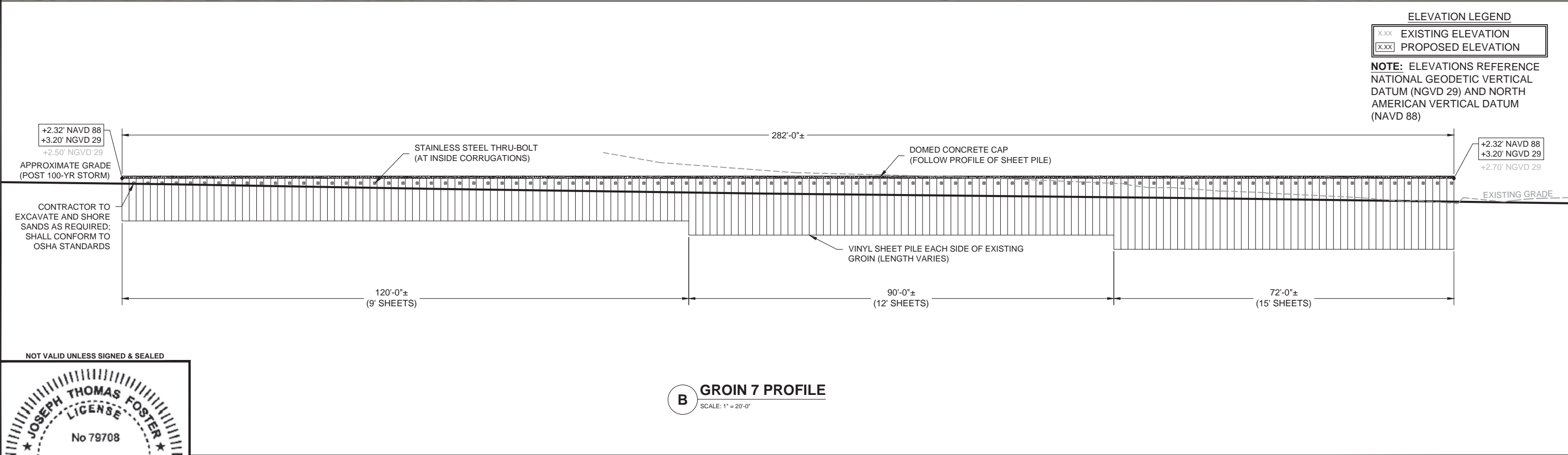
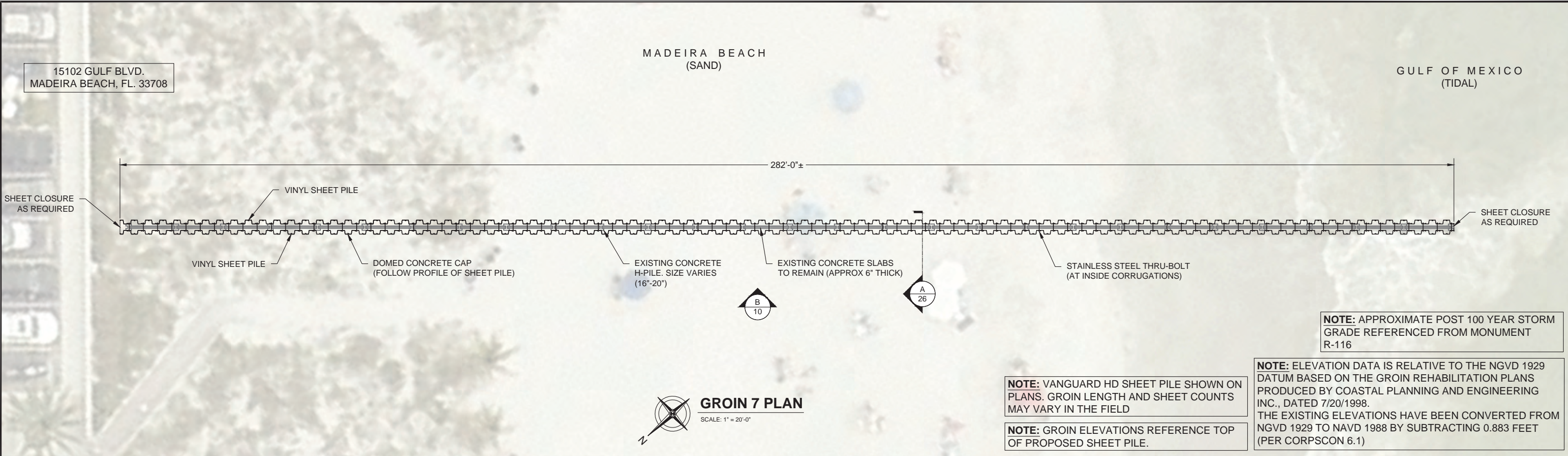
FILENAME: ---

REV: ---

SHEET: 09 OF 26

09



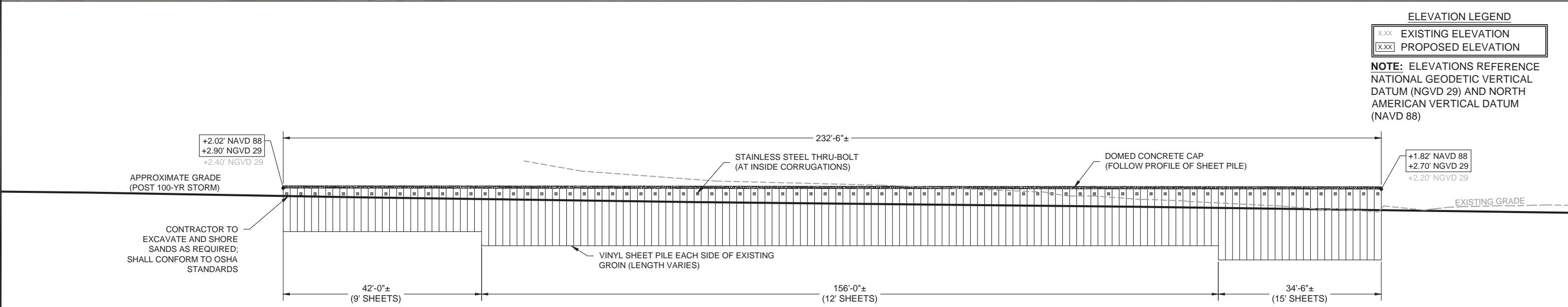
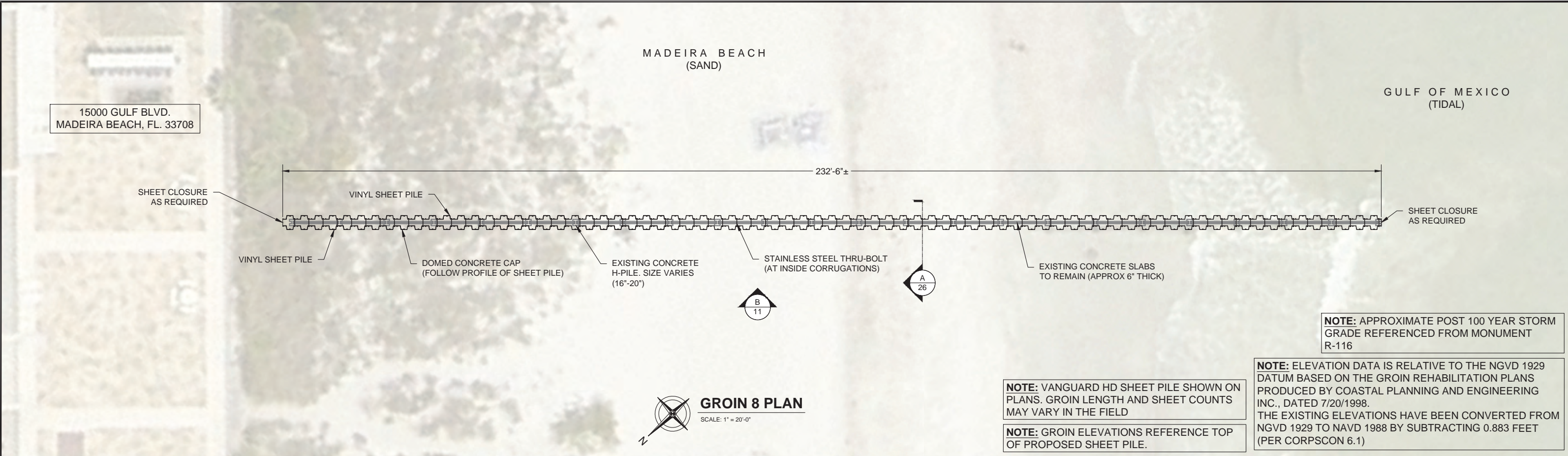


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FL CERTIFICATE OF AUTHORIZATION NO. 32050  
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P: (727) 821-1949  
P.O. BOX 7370, ST. PETERSBURG, FL 33734

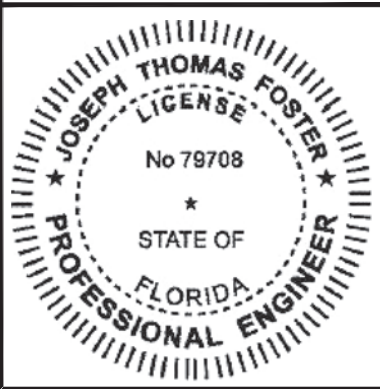
REVISION	DESCRIPTION	REV. DATE
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MADEIRA BEACH GROINS MADEIRA BEACH, FLORIDA	DATE: 11/8/22	FILENAME: ---	REV: ----
	DRAWN BY: JDD/SIP/NSN	SHEET: 10 OF 26	
GROIN 7 DETAIL	CHECKED BY: JTF	10	
	SCALE: AS NOTED		





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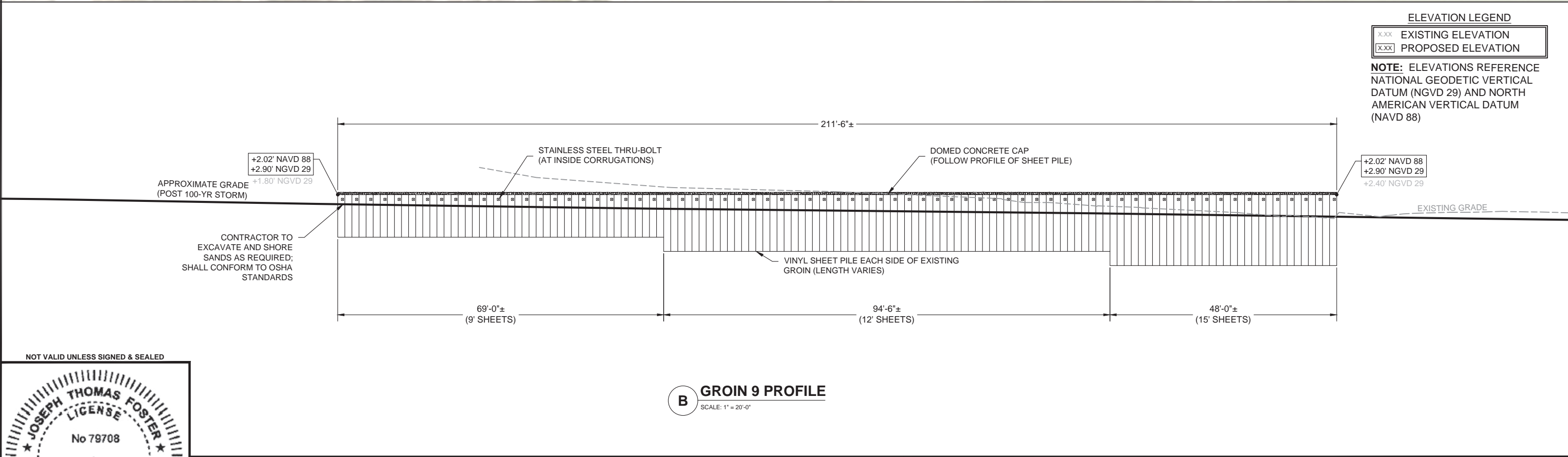
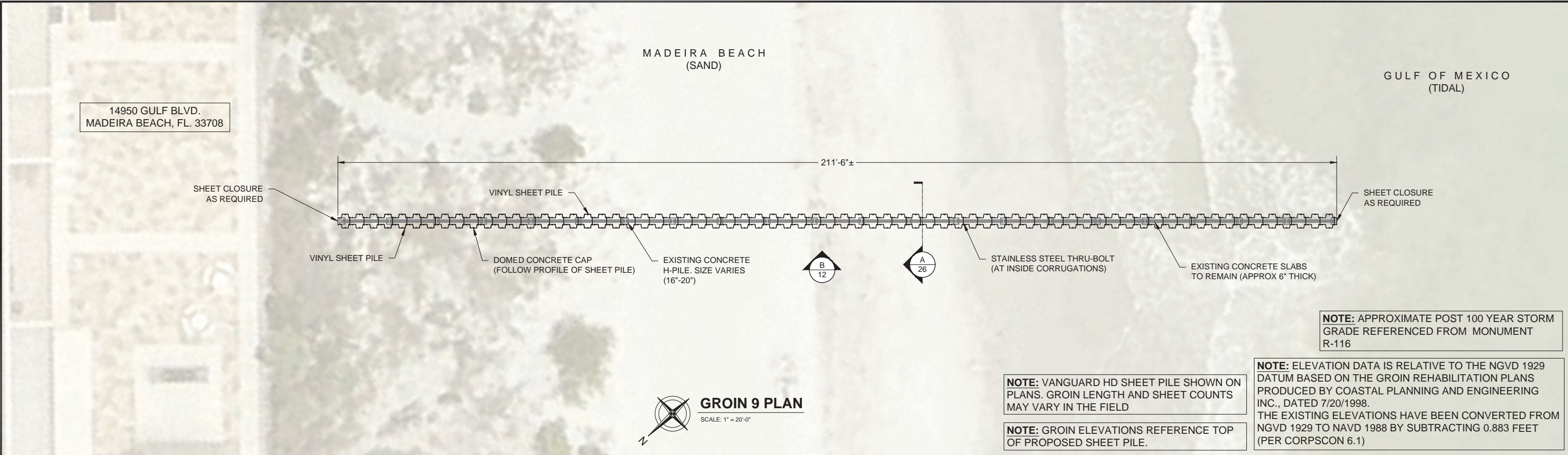
FOSTER CONSULTING	
FL PROFESSIONAL ENGINEER NO. 79708	
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FL CERTIFICATE OF AUTHORIZATION NO. 32050	
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REVISION	DESCRIPTION	REV. DATE
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MADEIRA BEACH GROINS MADEIRA BEACH, FLORIDA	
GROIN 8 DETAIL	

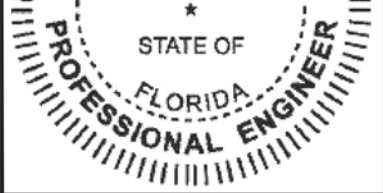
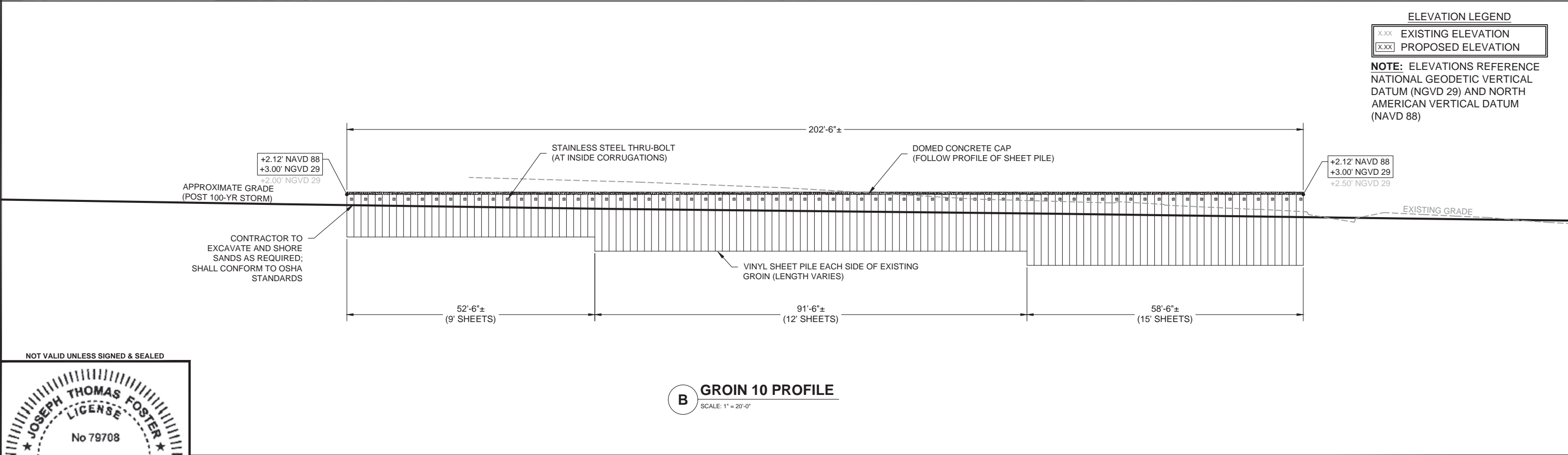
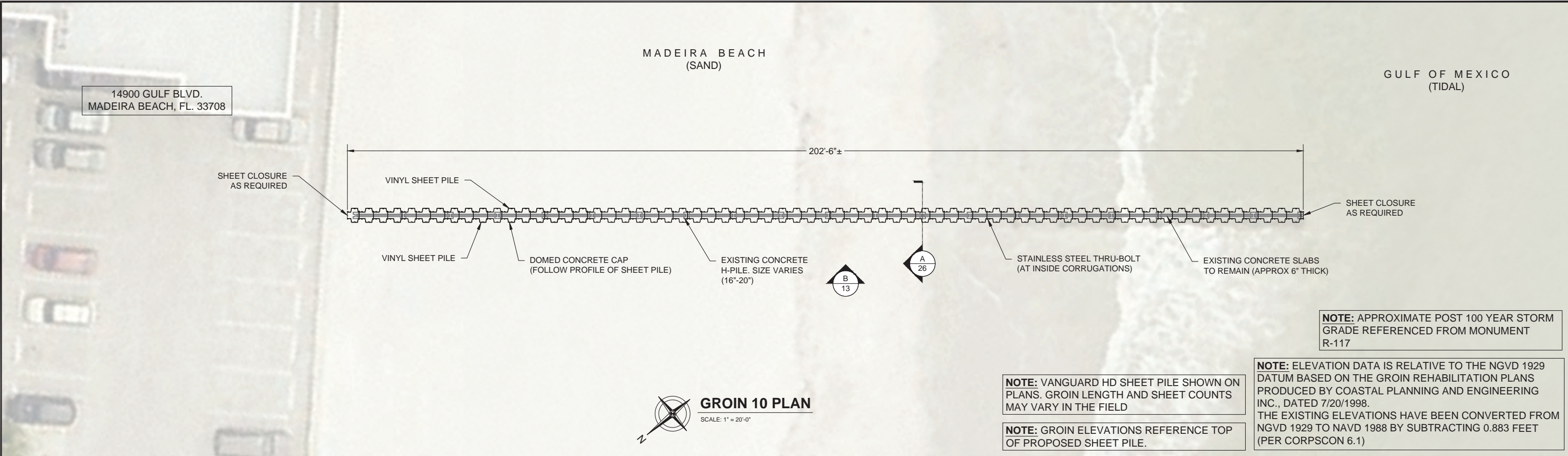
DATE: 11/8/22	FILENAME: ---	REV: ----
DRAWN BY: JDD/SIP	SHEET: 11 OF 26	
CHECKED BY: JTF	11	
SCALE: AS NOTED		






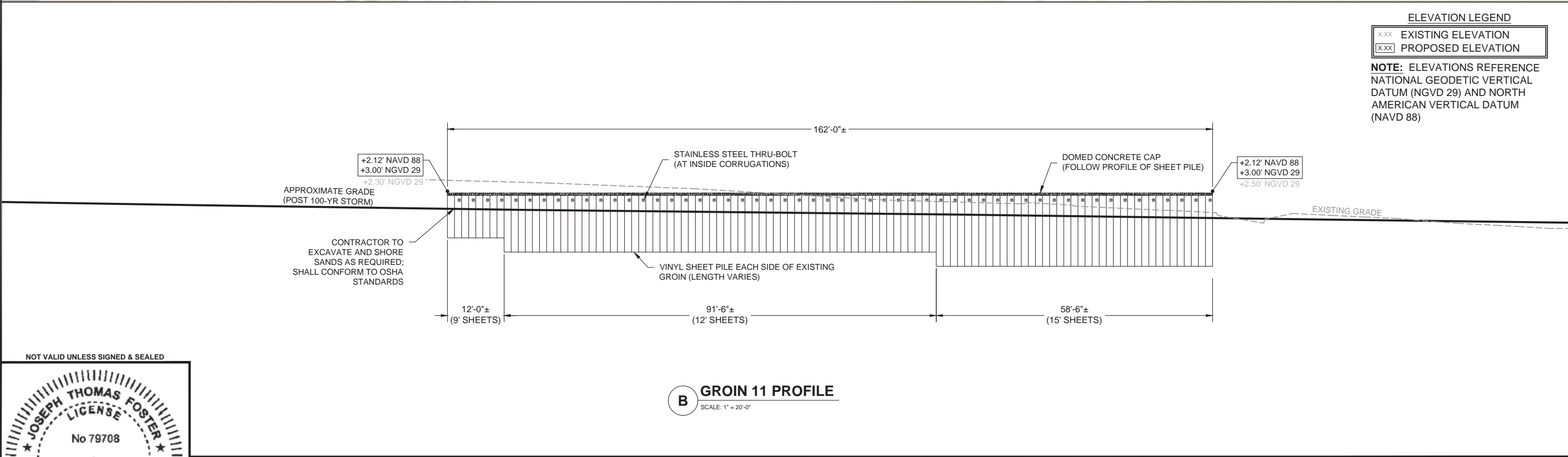
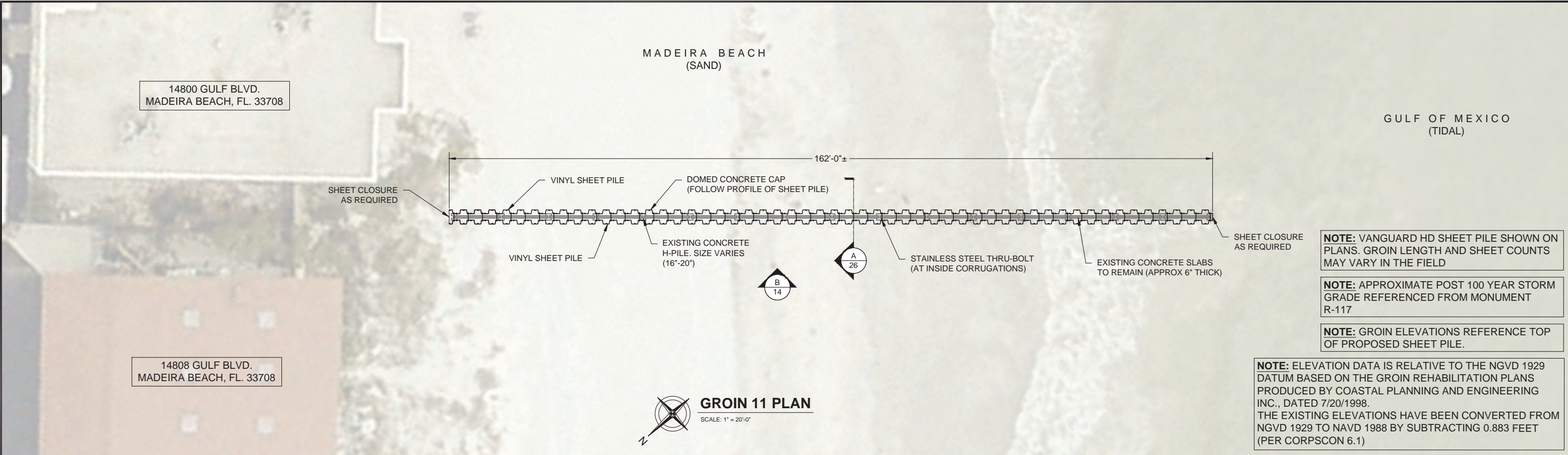
	FOSTER CONSULTING FL PROFESSIONAL ENGINEER NO. 79708 DE LIC. # 24590 · NJ LIC. # 24GE05181200 · TX LIC. # 133648 FL CERTIFICATE OF AUTHORIZATION NO. 32050 WWW.JFOSTERCONSULTING.COM P: (727) 821-1949 P.O. BOX 7370, ST. PETERSBURG, FL 33734	REVISION	DESCRIPTION	REV. DATE	MADEIRA BEACH GROINS MADEIRA BEACH, FLORIDA	DATE: 11/8/22	FILENAME: ---	REV: ----
		△	---	---		DRAWN BY: JDD/SIP	SHEET: 12 OF 26	
		△	---	---		GROIN 9 DETAIL	CHECKED BY: JTF	12
		△	---	---				
		△	---	---				
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						SCALE: AS NOTED		






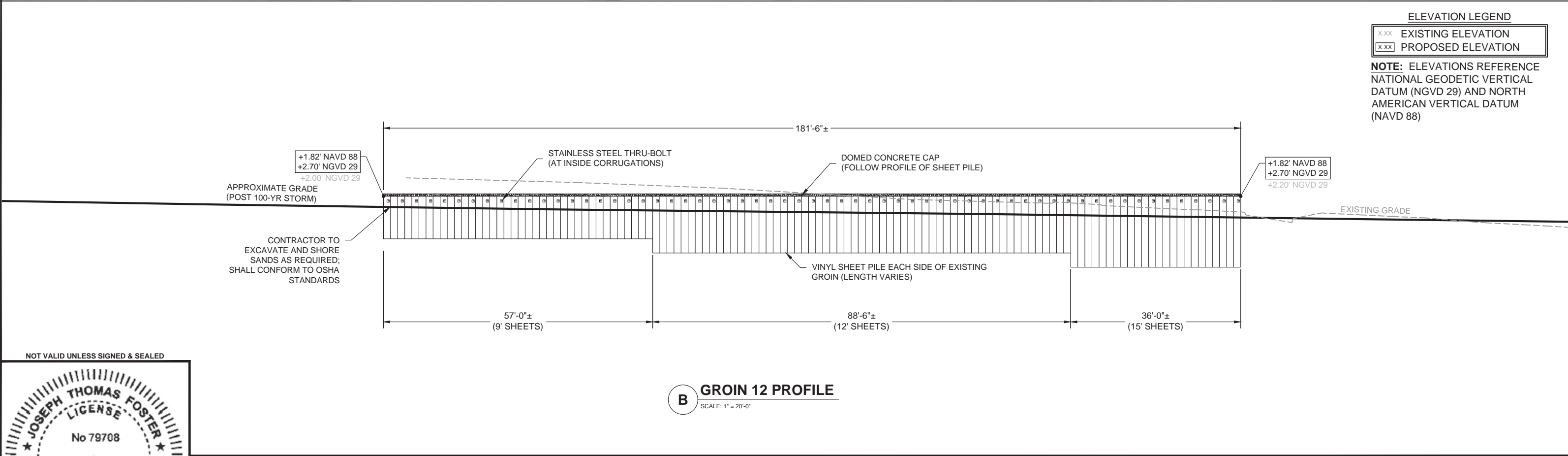
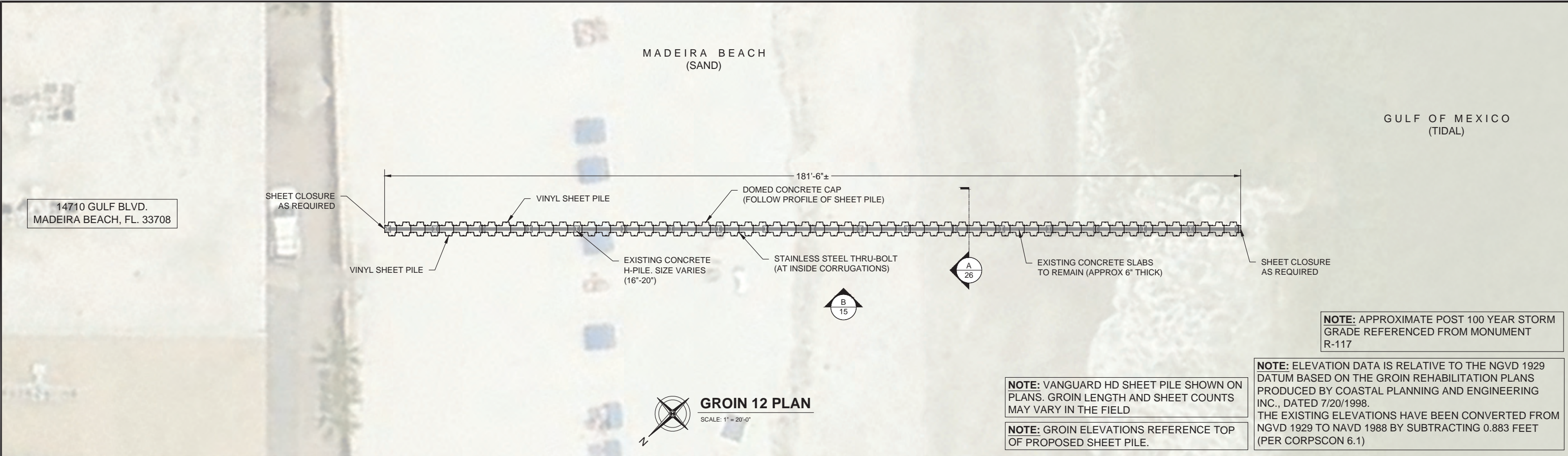
	FOSTER CONSULTING FL PROFESSIONAL ENGINEER NO. 79708 DE LIC. # 24590 · NJ LIC. # 24GE05181200 · TX LIC. # 133648	REVISION	DESCRIPTION	REV. DATE	MADEIRA BEACH GROINS MADEIRA BEACH, FLORIDA	DATE: 11/8/22	FILENAME: ---	REV: ----
		△	---	---		DRAWN BY: JDD/SIP	SHEET: 13 OF 26	
	FL CERTIFICATE OF AUTHORIZATION NO. 32050 WWW.JFOSTERCONSULTING.COM P: (727) 821-1949 P.O. BOX 7370, ST. PETERSBURG, FL 33734	△	---	---	GROIN 10 DETAIL	CHECKED BY: JTF	13	
		△	---	---		SCALE: AS NOTED		
		△	---	---				
		△	---	---				

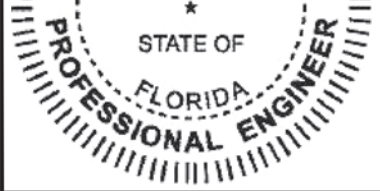








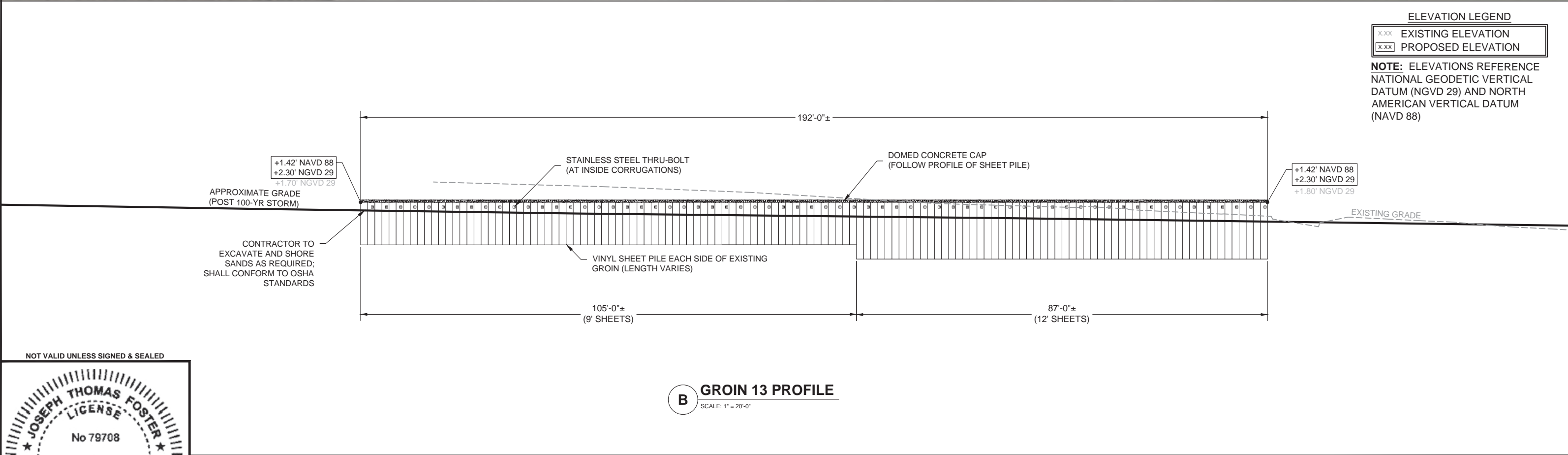
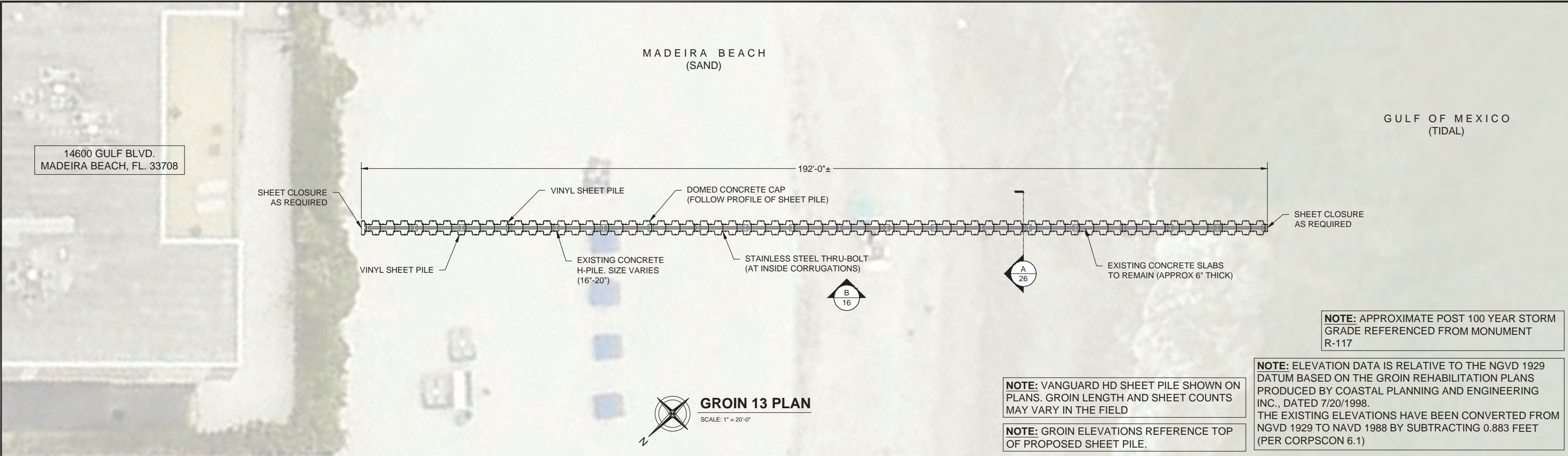
	FOSTER CONSULTING	REVISION	DESCRIPTION	REV. DATE	MADEIRA BEACH GROINS MADEIRA BEACH, FLORIDA	DATE: 11/8/22	FILENAME: ---	REV: ----
	FL PROFESSIONAL ENGINEER NO. 79708 DE LIC. # 24590 · NJ LIC. # 24GE05181200 · TX LIC. # 133648	△	---	---		DRAWN BY: JDD/SIP/NSN	SHEET: 14 OF 26	
	FL CERTIFICATE OF AUTHORIZATION NO. 32050	△	---	---	GROIN 11 DETAIL	CHECKED BY: JTF	14	
	WWW.JFOSTERCONSULTING.COM	△	---	---				
	P: (727) 821-1949	△	---	---				
	P.O. BOX 7370, ST. PETERSBURG, FL 33734	△	---	---				







		FOSTER CONSULTING FL PROFESSIONAL ENGINEER NO. 79708 DE LIC. # 24590 · NJ LIC. # 24GE05181200 · TX LIC. # 133648 FL CERTIFICATE OF AUTHORIZATION NO. 32050 WWW.JFOSTERCONSULTING.COM P: (727) 821-1949 P.O. BOX 7370, ST. PETERSBURG, FL 33734	REVISION	DESCRIPTION	REV. DATE	MADEIRA BEACH GROINS MADEIRA BEACH, FLORIDA	DATE: 11/8/22	FILENAME: ---	REV: ----		
				---	---		DRAWN BY: JDD/SIP/NSN	SHEET: 15 OF 26	15		
				---	---	CHECKED BY: JTF					
				---	---	SCALE: AS NOTED					
			GROIN 12 DETAIL								





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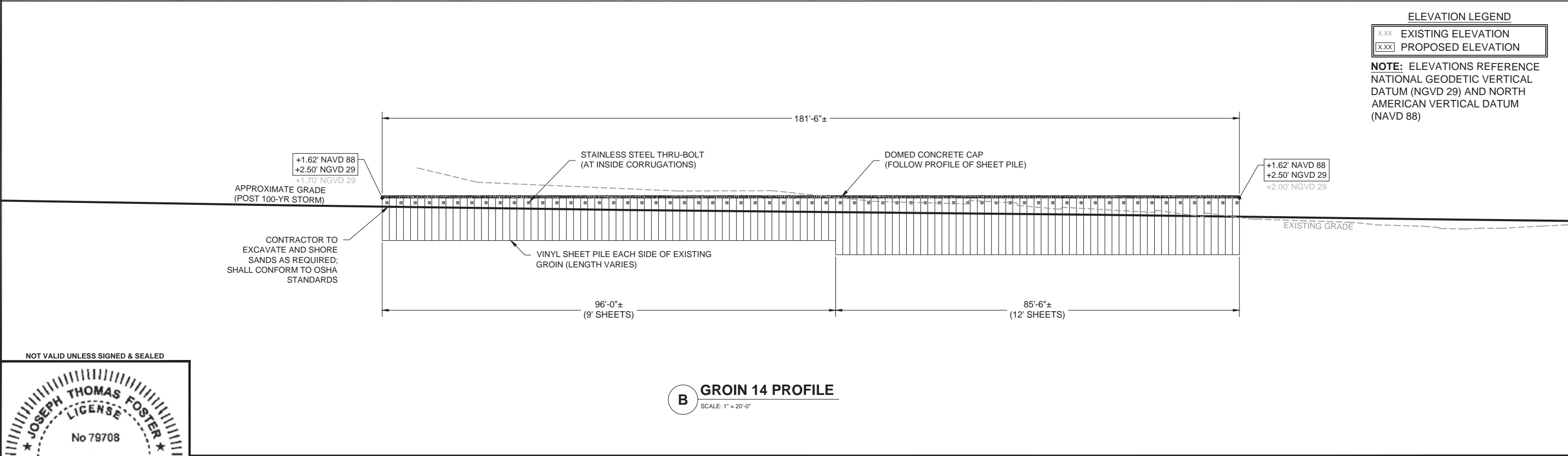
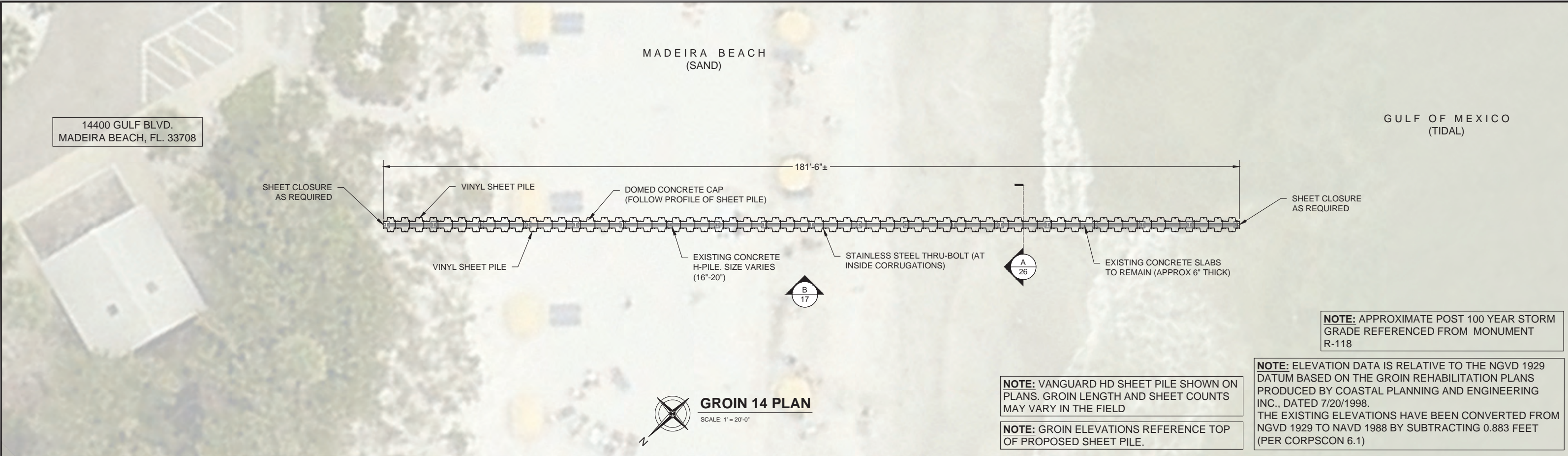
REVISION	DESCRIPTION	REV. DATE
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**MADEIRA BEACH GROINS**  
**MADEIRA BEACH, FLORIDA**

**GROIN 13 DETAIL**

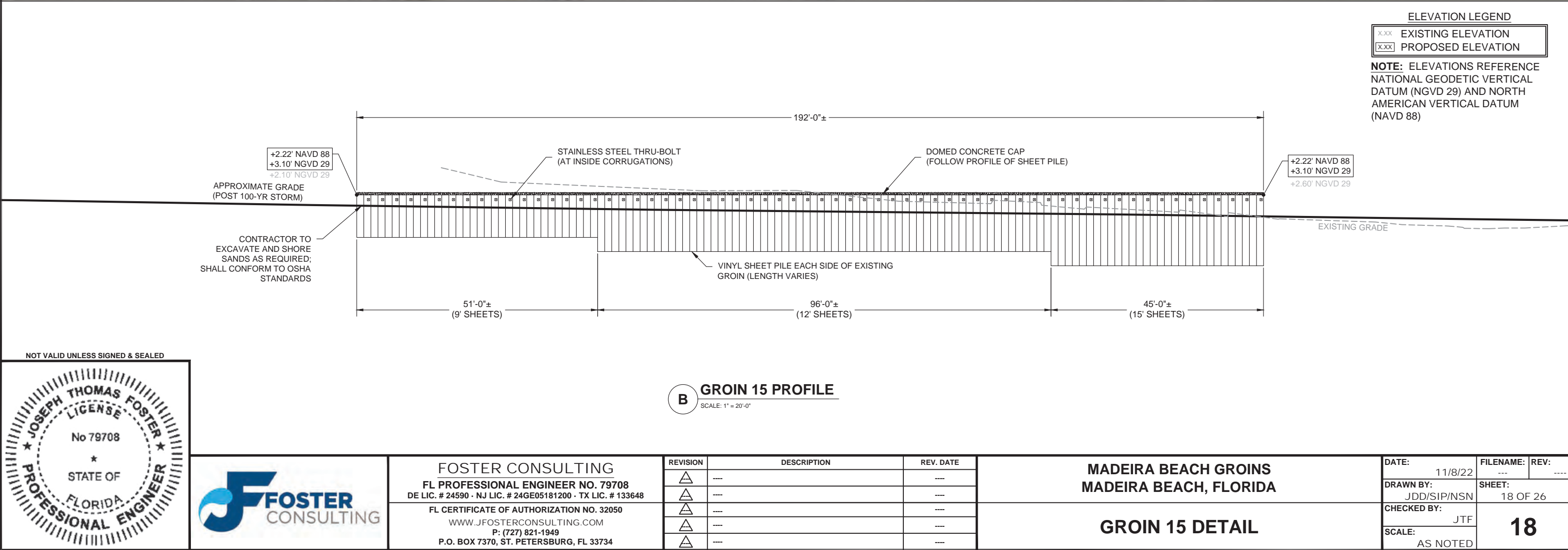
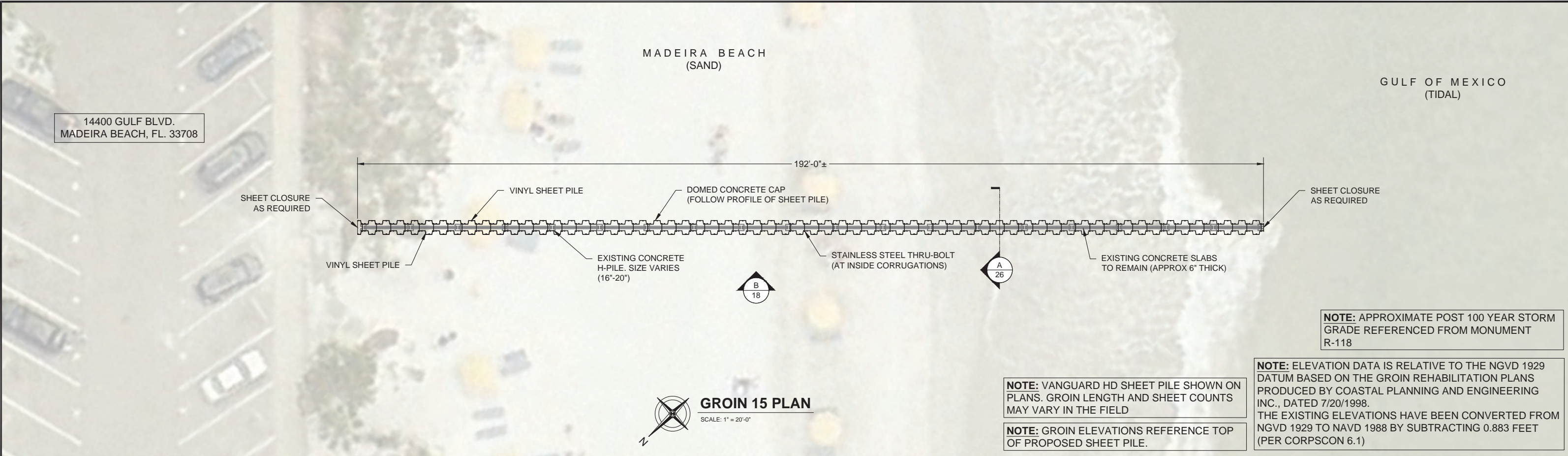
DATE: 11/8/22	FILENAME: ---	REV: ----
DRAWN BY: JDD/SIP/NSN	SHEET: 16 OF 26	
CHECKED BY: JTF	<b>16</b>	
SCALE: AS NOTED		



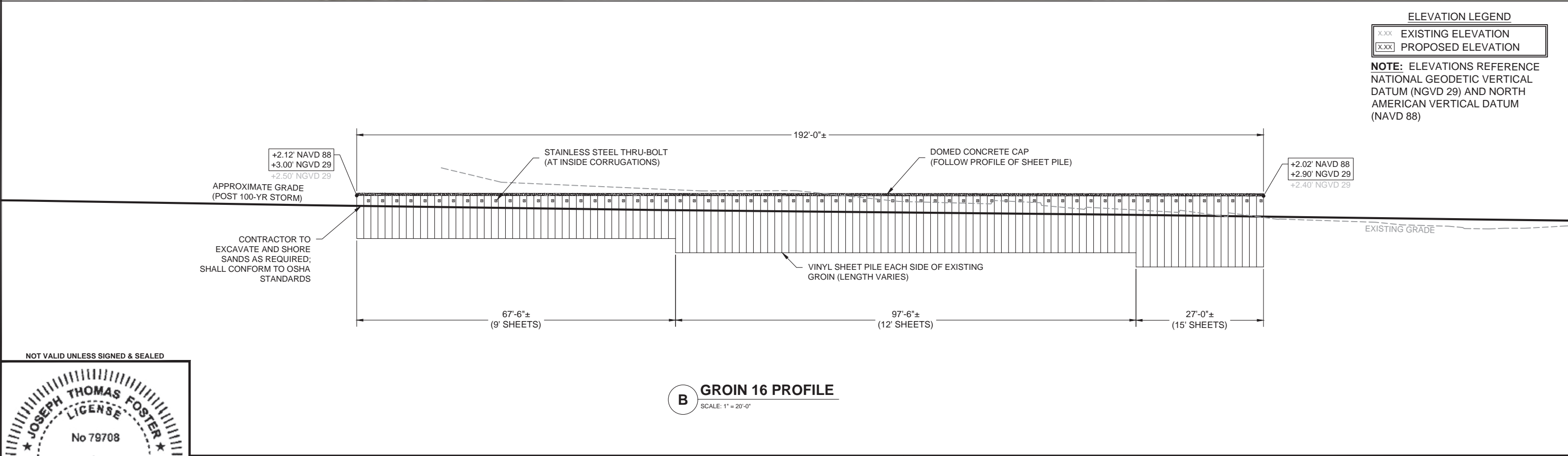
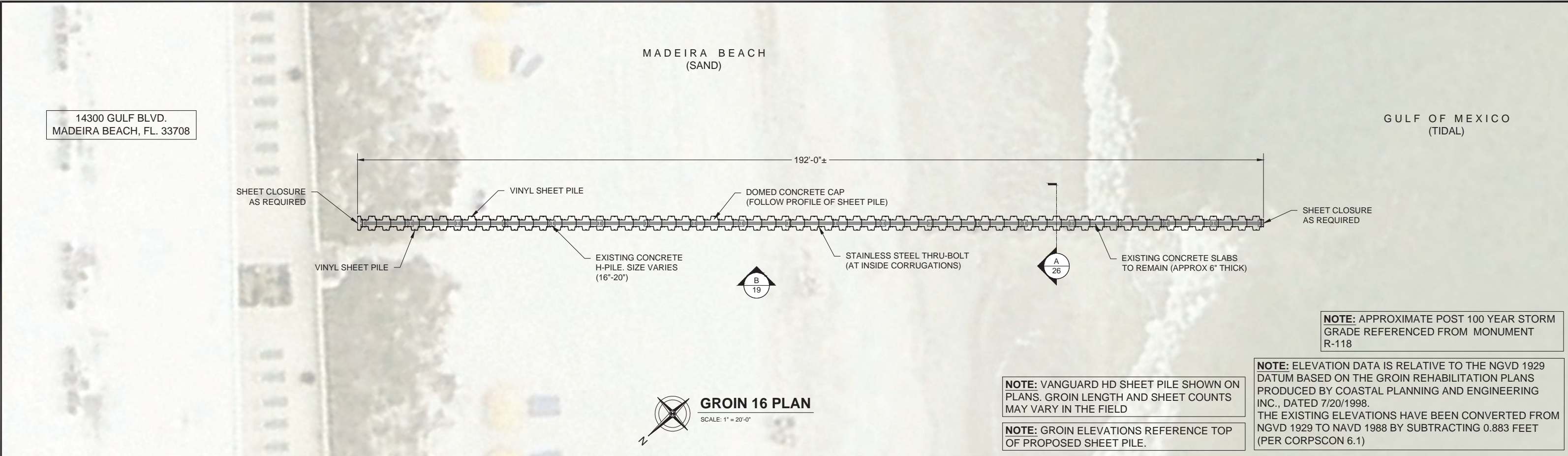



	FOSTER CONSULTING FL PROFESSIONAL ENGINEER NO. 79708 DE LIC. # 24590 · NJ LIC. # 24GE05181200 · TX LIC. # 133648 FL CERTIFICATE OF AUTHORIZATION NO. 32050 WWW.JFOSTERCONSULTING.COM P: (727) 821-1949 P.O. BOX 7370, ST. PETERSBURG, FL 33734	REVISION	DESCRIPTION	REV. DATE	MADEIRA BEACH GROINS MADEIRA BEACH, FLORIDA	DATE:	11/8/22	FILENAME:	---	REV:	----
		△	---	---		DRAWN BY:	JDD/SIP/NSN	SHEET:			17 OF 26
		△	---	---		GROIN 14 DETAIL	CHECKED BY:	JTF	SCALE:	AS NOTED	17
		△	---	---							
		△	---	---							
		△	---	---							









	FOSTER CONSULTING FL PROFESSIONAL ENGINEER NO. 79708 DE LIC. # 24590 · NJ LIC. # 24GE05181200 · TX LIC. # 133648  FL CERTIFICATE OF AUTHORIZATION NO. 32050 WWW.JFOSTERCONSULTING.COM P: (727) 821-1949 P.O. BOX 7370, ST. PETERSBURG, FL 33734	REVISION	DESCRIPTION	REV. DATE	MADEIRA BEACH GROINS MADEIRA BEACH, FLORIDA	DATE: 11/8/22	FILENAME: ---	REV: ----
		△	---	---		DRAWN BY: JDD/SIP/NSN	SHEET: 19 OF 26	
		△	---	---	GROIN 16 DETAIL	CHECKED BY: JTF	19	
		△	---	---		SCALE: AS NOTED		
		△	---	---				
		△	---	---				

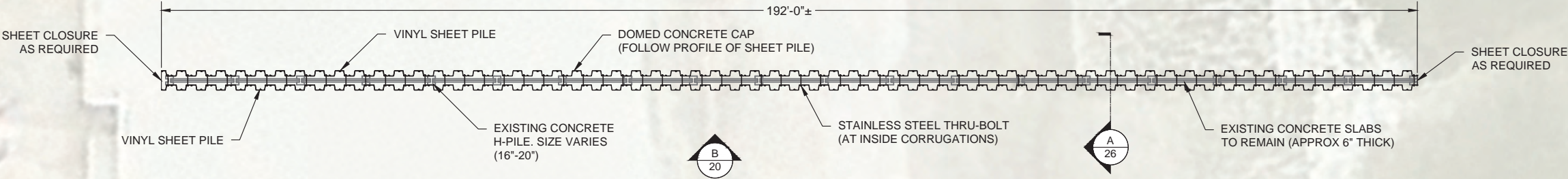


14200 GULF BLVD.  
MADEIRA BEACH, FL. 33708

14230 GULF BLVD.  
MADEIRA BEACH, FL. 33708

MADEIRA BEACH  
(SAND)

GULF OF MEXICO  
(TIDAL)



**GROIN 17 PLAN**

SCALE: 1" = 20'-0"

**NOTE:** VANGUARD HD SHEET PILE SHOWN ON PLANS. GROIN LENGTH AND SHEET COUNTS MAY VARY IN THE FIELD

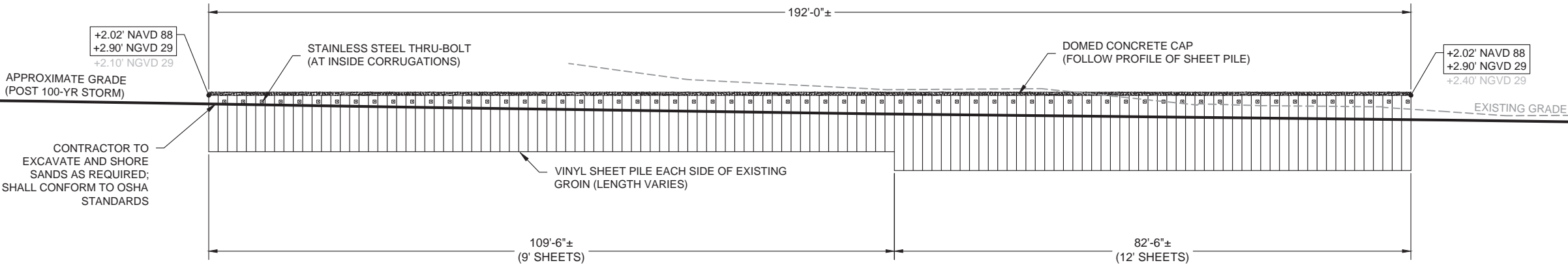
**NOTE:** GROIN ELEVATIONS REFERENCE TOP OF PROPOSED SHEET PILE.

**NOTE:** APPROXIMATE POST 100 YEAR STORM GRADE REFERENCED FROM MONUMENT R-119

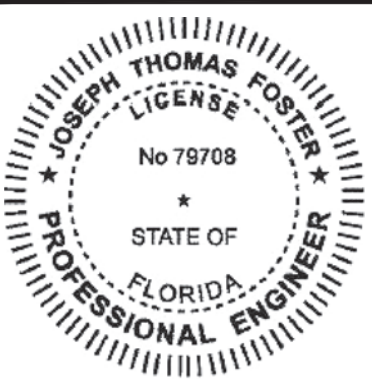
**NOTE:** ELEVATION DATA IS RELATIVE TO THE NGVD 1929 DATUM BASED ON THE GROIN REHABILITATION PLANS PRODUCED BY COASTAL PLANNING AND ENGINEERING INC., DATED 7/20/1998. THE EXISTING ELEVATIONS HAVE BEEN CONVERTED FROM NGVD 1929 TO NAVD 1988 BY SUBTRACTING 0.883 FEET (PER CORPSCON 6.1)

ELEVATION LEGEND	
X.XX	EXISTING ELEVATION
[X.XX]	PROPOSED ELEVATION

**NOTE:** ELEVATIONS REFERENCE NATIONAL GEODETIC VERTICAL DATUM (NGVD 29) AND NORTH AMERICAN VERTICAL DATUM (NAVD 88)



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P.O. BOX 7370, ST. PETERSBURG, FL 33734

**B**

**GROIN 17 PROFILE**

SCALE: 1" = 20'-0"

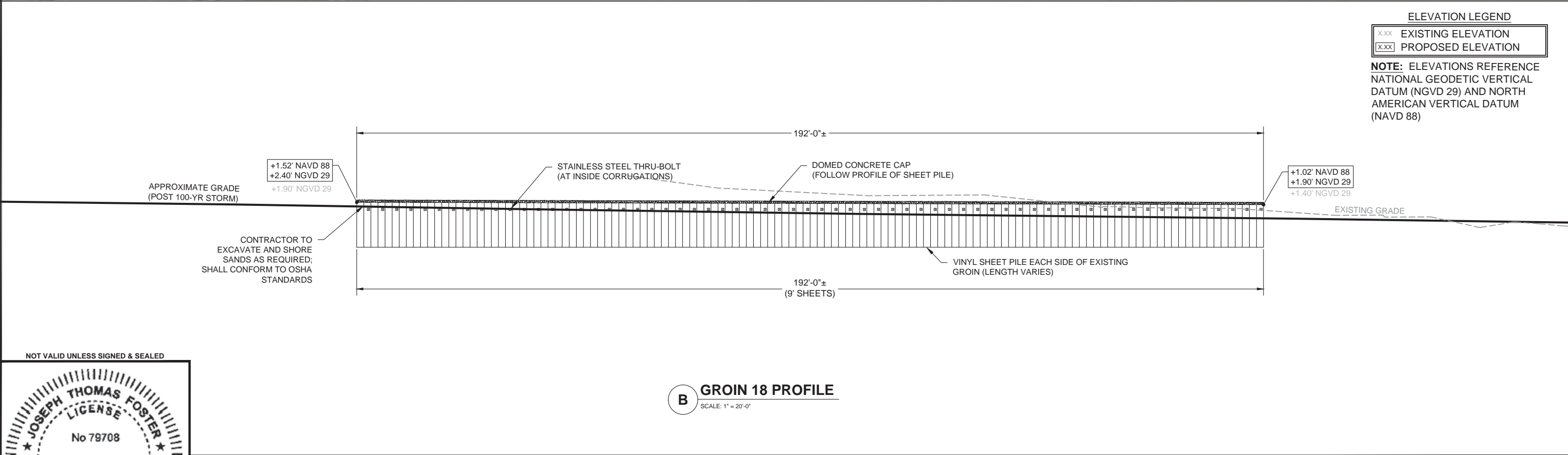
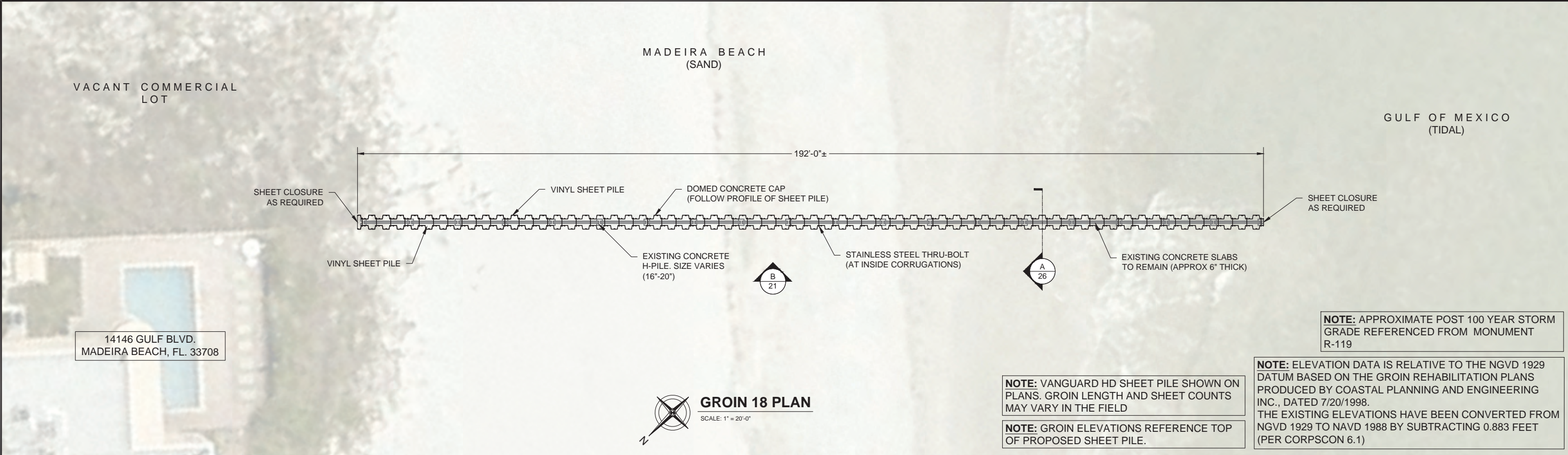
REVISION	DESCRIPTION	REV. DATE
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**MADEIRA BEACH GROINS  
MADEIRA BEACH, FLORIDA**

**GROIN 17 DETAIL**

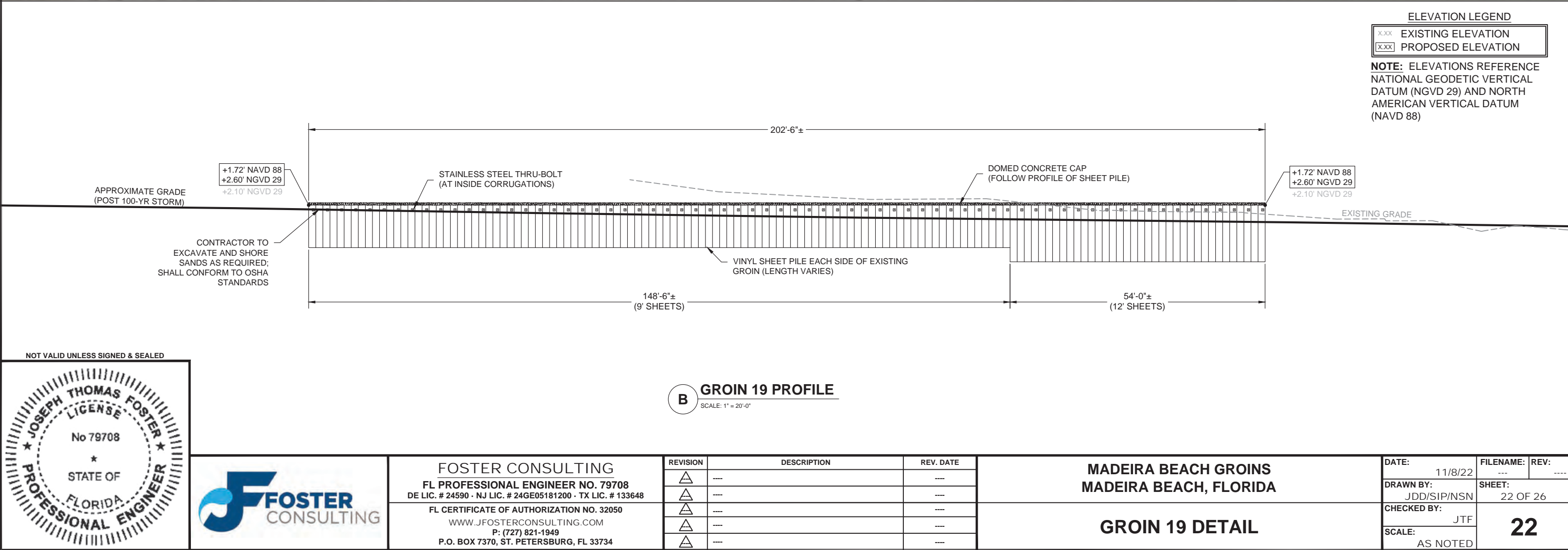
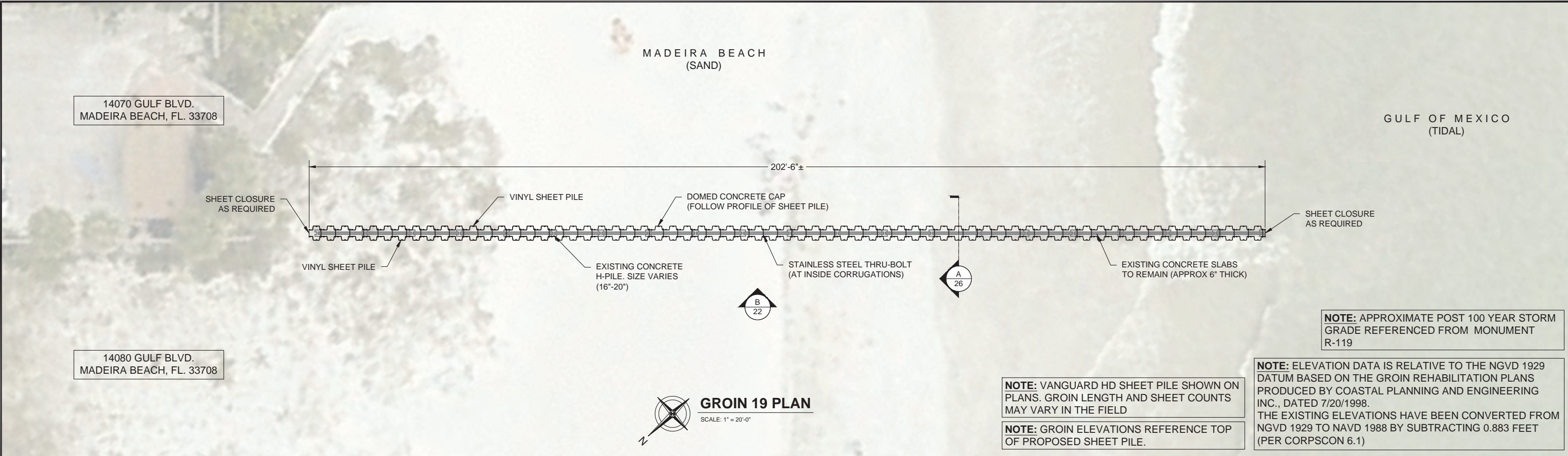
DATE: 11/8/22	FILENAME: ---	REV: ---
DRAWN BY: JDD/SIP/NSN	SHEET: 20 OF 26	
CHECKED BY: JTF	<b>20</b>	
SCALE: AS NOTED		



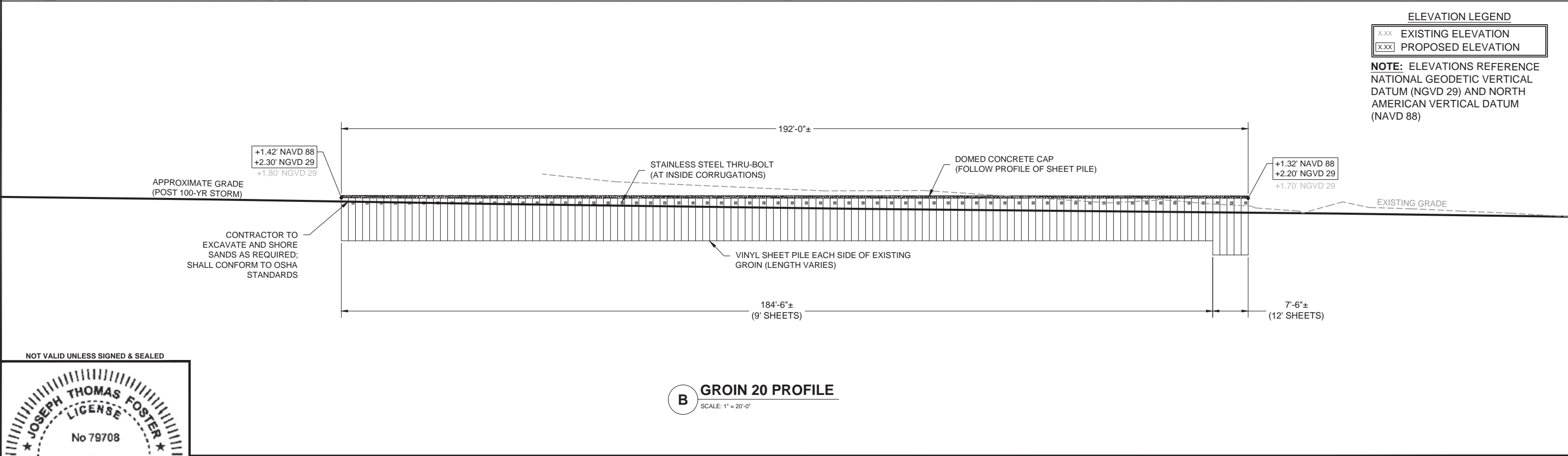
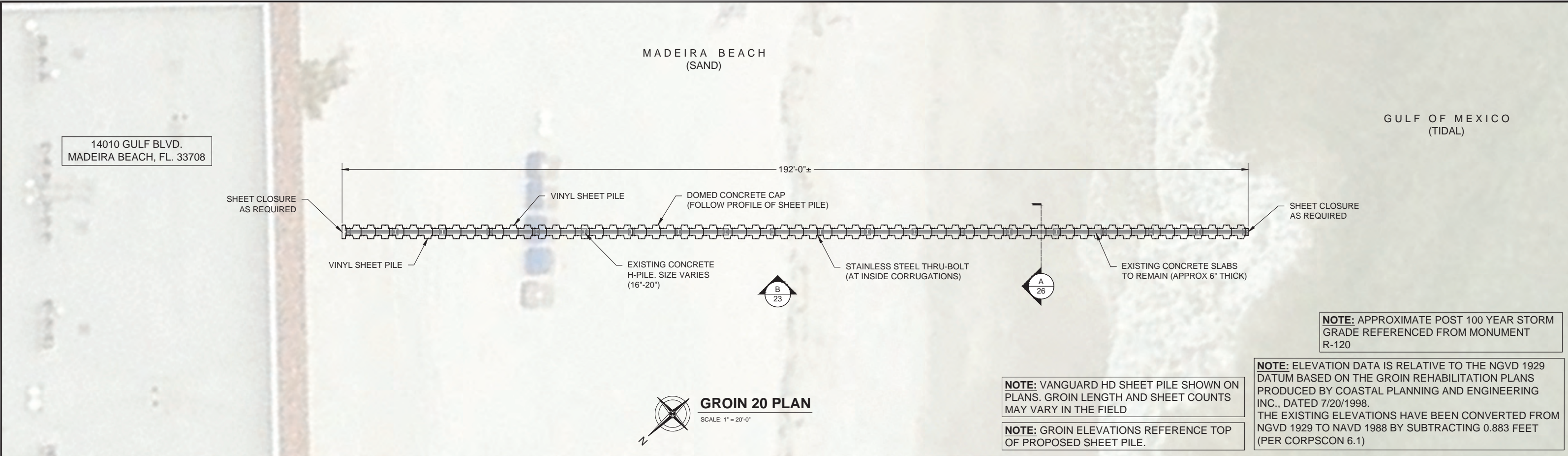



	FOSTER CONSULTING FL PROFESSIONAL ENGINEER NO. 79708 DE LIC. # 24590 · NJ LIC. # 24GE05181200 · TX LIC. # 133648 FL CERTIFICATE OF AUTHORIZATION NO. 32050 WWW.JFOSTERCONSULTING.COM P: (727) 821-1949 P.O. BOX 7370, ST. PETERSBURG, FL 33734	REVISION	DESCRIPTION	REV. DATE	MADEIRA BEACH GROINS MADEIRA BEACH, FLORIDA	DATE: 11/8/22	FILENAME: ---	REV: ----
		△	---	---		DRAWN BY: JDD/SIP/NSN	SHEET: 21 OF 26	
		△	---	---		CHECKED BY: JTF	21	
		△	---	---		SCALE: AS NOTED		



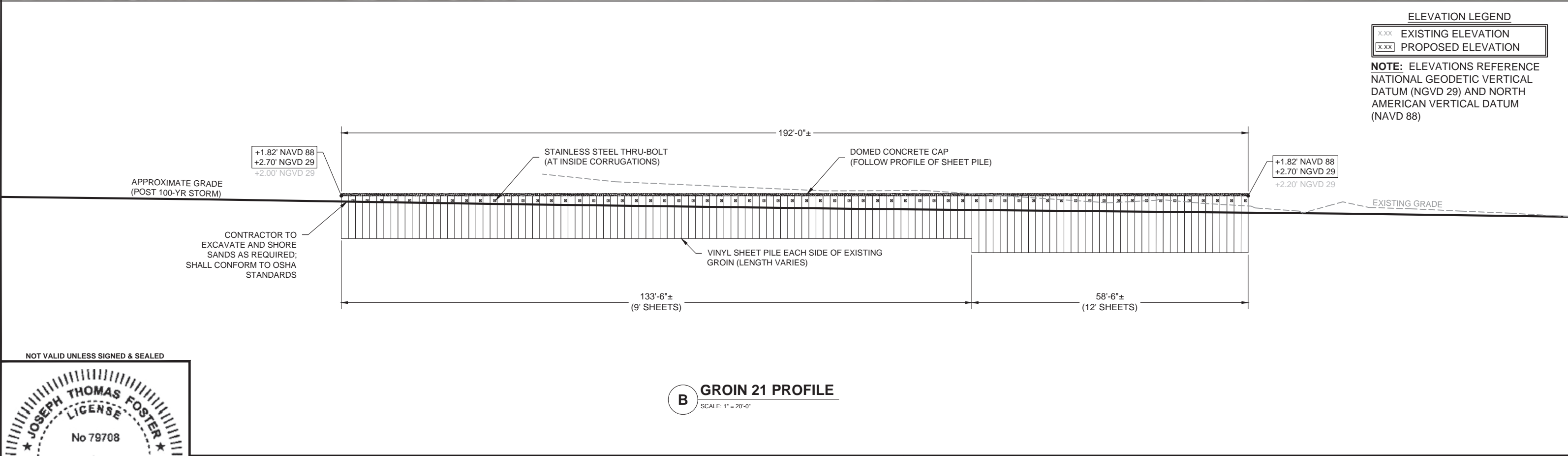
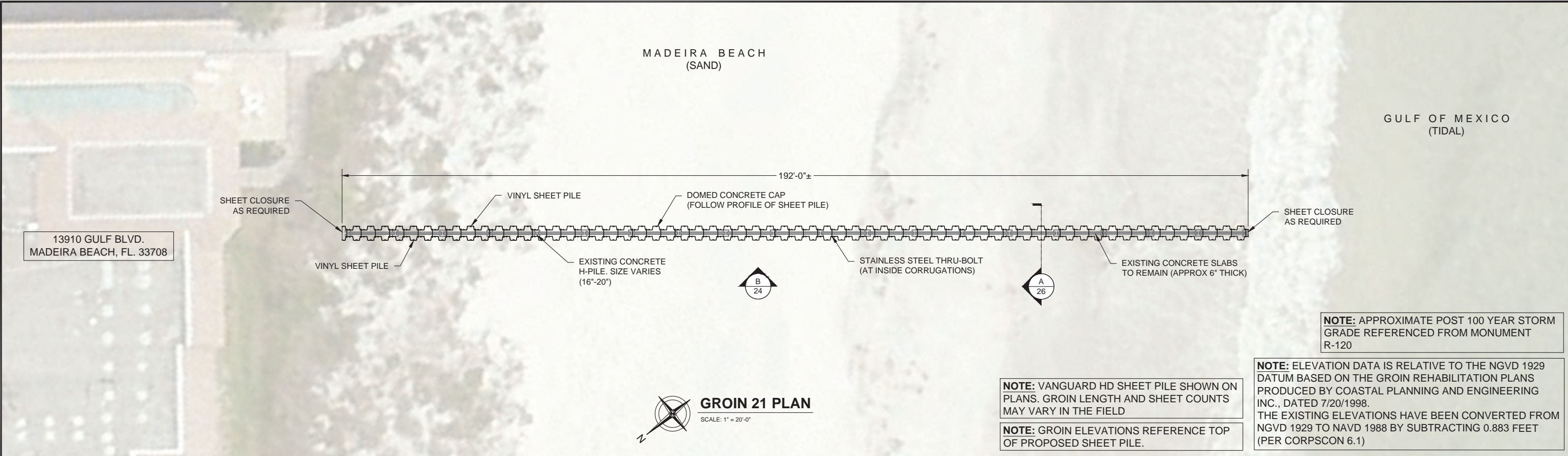







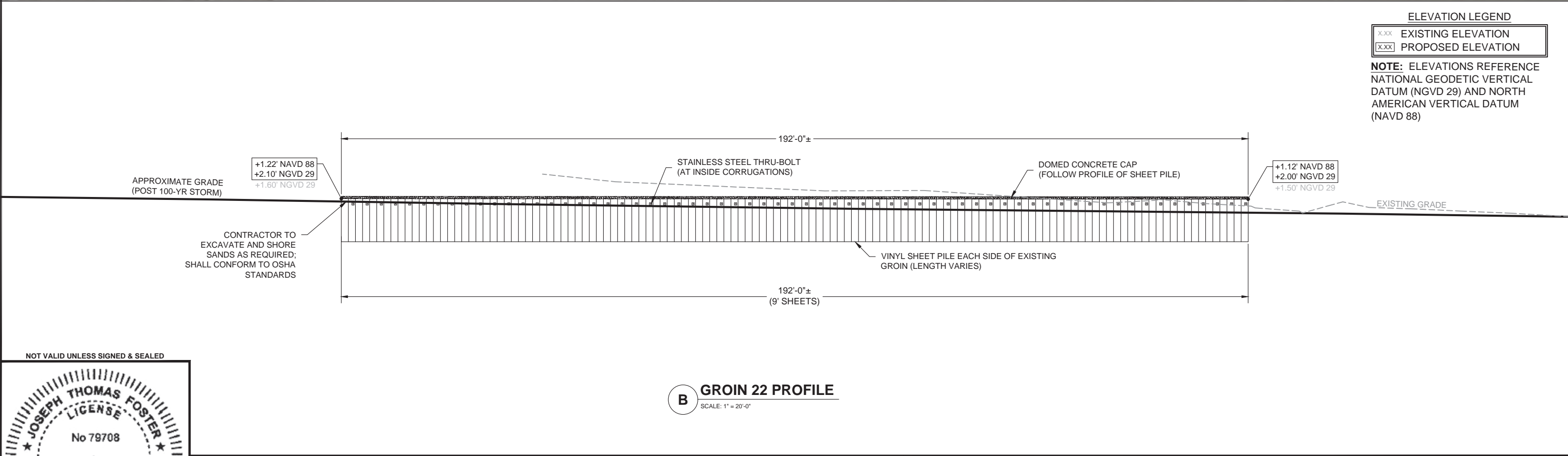
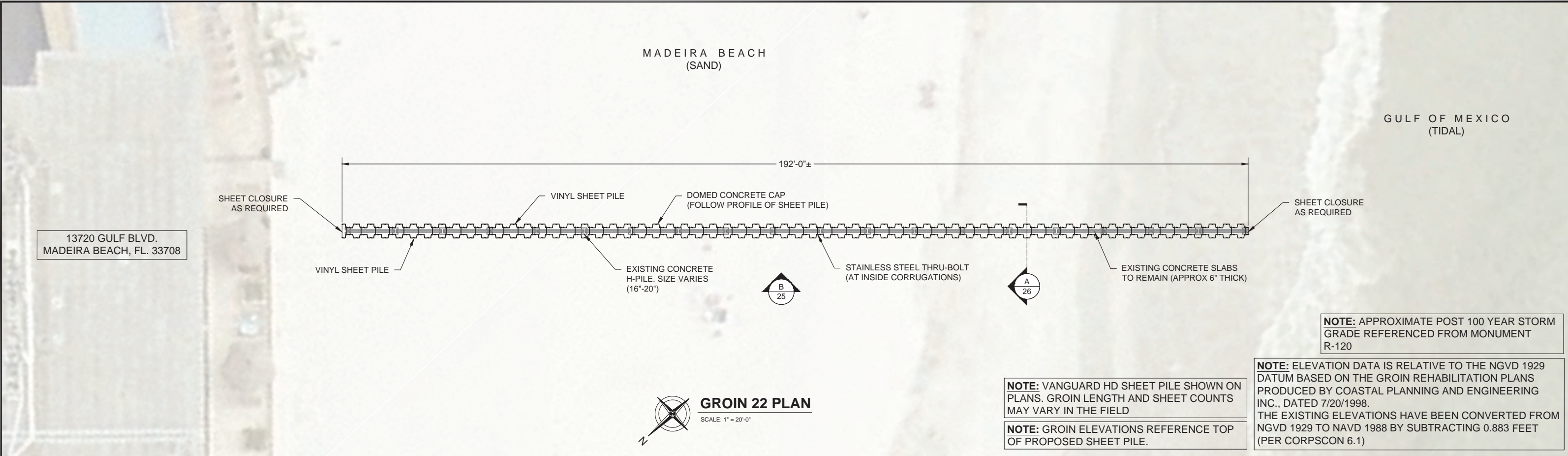
	FOSTER CONSULTING	REVISION	DESCRIPTION	REV. DATE	MADEIRA BEACH GROINS MADEIRA BEACH, FLORIDA	DATE: 11/8/22	FILENAME: ---	REV: ----
	FL PROFESSIONAL ENGINEER NO. 79708 DE LIC. # 24590 · NJ LIC. # 24GE05181200 · TX LIC. # 133648	△	---	---		DRAWN BY: JDD/SIP/NSN	SHEET: 23 OF 26	
	FL CERTIFICATE OF AUTHORIZATION NO. 32050 WWW.JFOSTERCONSULTING.COM	△	---	---	GROIN 20 DETAIL	CHECKED BY: JTF	23	
	P: (727) 821-1949	△	---	---		SCALE: AS NOTED		
	P.O. BOX 7370, ST. PETERSBURG, FL 33734	△	---	---				






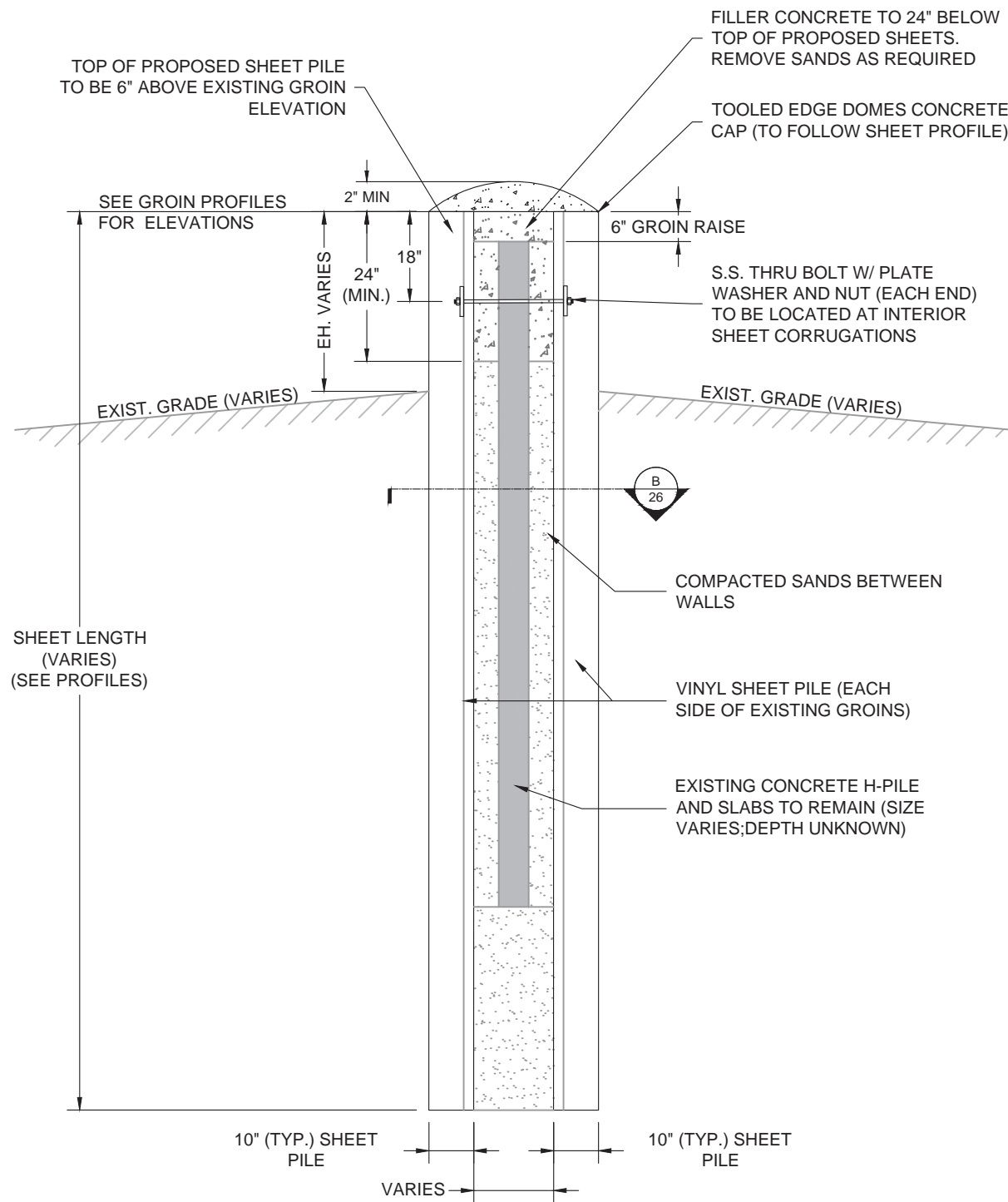
	FOSTER CONSULTING FL PROFESSIONAL ENGINEER NO. 79708 DE LIC. # 24590 · NJ LIC. # 24GE05181200 · TX LIC. # 133648  FL CERTIFICATE OF AUTHORIZATION NO. 32050 WWW.JFOSTERCONSULTING.COM P: (727) 821-1949 P.O. BOX 7370, ST. PETERSBURG, FL 33734	REVISION	DESCRIPTION	REV. DATE	MADEIRA BEACH GROINS MADEIRA BEACH, FLORIDA	DATE: 11/8/22	FILENAME: ---	REV: ----	
		△	---	---		DRAWN BY: JDD/SIP/NSN	SHEET: 24 OF 26		
		△	---	---		CHECKED BY: JTF	24		
		△	---	---		SCALE: AS NOTED			
		GROIN 21 DETAIL							



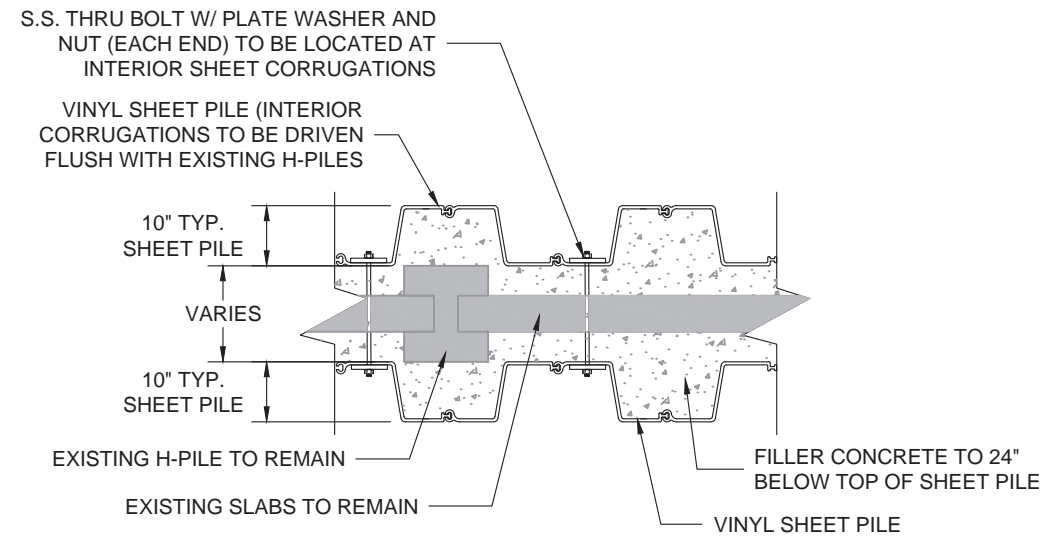


	FOSTER CONSULTING	REVISION	DESCRIPTION	REV. DATE	MADEIRA BEACH GROINS MADEIRA BEACH, FLORIDA	DATE: 11/8/22	FILENAME: ---	REV: ----
	FL PROFESSIONAL ENGINEER NO. 79708 DE LIC. # 24590 · NJ LIC. # 24GE05181200 · TX LIC. # 133648	△	---	---		DRAWN BY: JDD/SIP/NSN	SHEET: 25 OF 26	
	FL CERTIFICATE OF AUTHORIZATION NO. 32050 WWW.JFOSTERCONSULTING.COM	△	---	---	GROIN 22 DETAIL	CHECKED BY: JTF	25	
	P: (727) 821-1949	△	---	---				
	P.O. BOX 7370, ST. PETERSBURG, FL 33734	△	---	---		SCALE: AS NOTED		
		△	---	---				

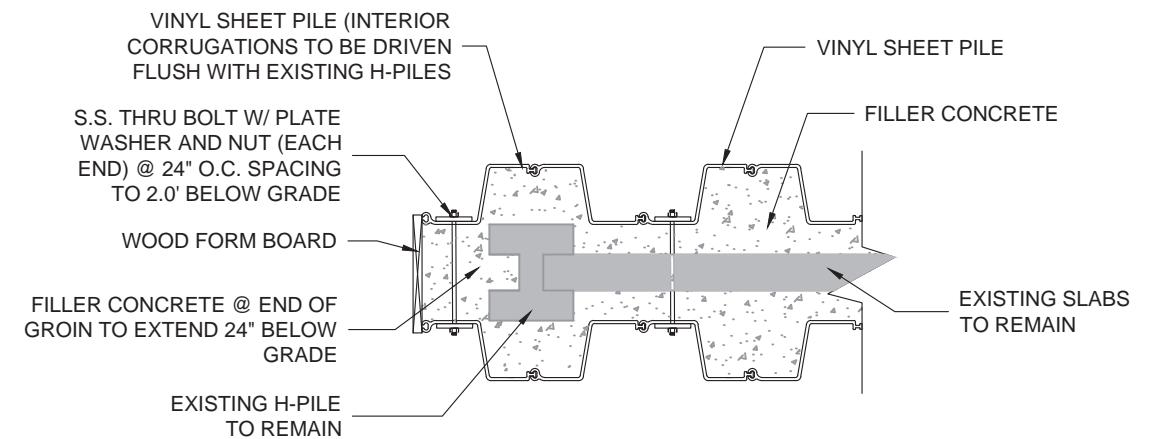




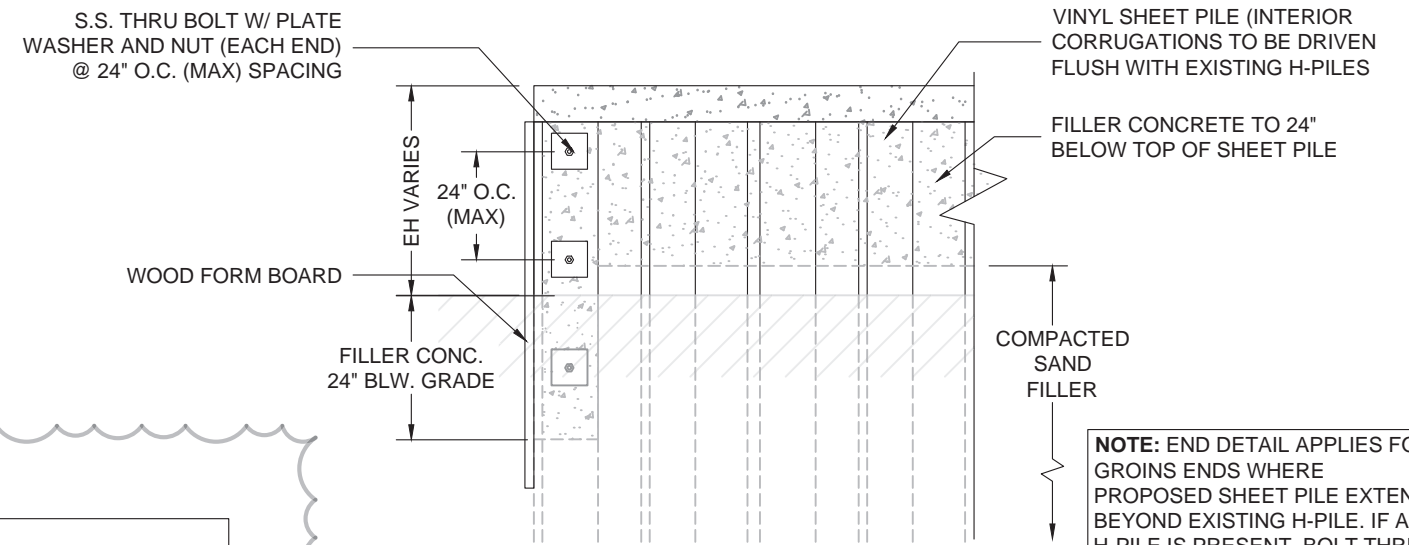
**A** **TYPICAL GROIN SECTION**  
SCALE: 3/8" = 1'-0"



**B** **TYPICAL GROIN PLAN DETAIL**  
SCALE: 3/8" = 1'-0"



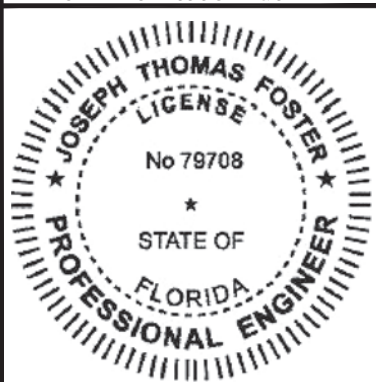
**TYPICAL GROIN END DETAIL (PLAN)**  
SCALE: 3/8" = 1'-0"



**TYPICAL GROIN END DETAIL (ELEVATION)**  
SCALE: 3/8" = 1'-0"

**NOTE:** END DETAIL APPLIES FOR GROINS ENDS WHERE PROPOSED SHEET PILE EXTENDS BEYOND EXISTING H-PILE. IF A H-PILE IS PRESENT, BOLT THRU EXISTING H-PILE (SEE DETAIL FOR SPECIFICATIONS)

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**CONSTRUCTION NOTES:**

1. CONCRETE - 5000 PSI (FILLER AND CAP) AT 28 DAYS. (CONCRETE FILLER TO BE POURED TO 2.0' BELOW TOP OF PROPOSED SHEET PILE)
2. SHEETS - VINYL SHEET PILE (VANGUARD HD) (SEE GROIN PROFILES FOR SHEET LENGTHS).
3. THRU BOLTS - 3/4" S.S. ALL THREAD W/ 4"x4" S.S. PLATE WASHERS AND NUT (EACH SIDE). 36" O.C +/- AT INTERIOR CORRUGATIONS OF BOTH SHEET PILES.
4. MEETS FBC 2020 - 7TH EDITION



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P.O. BOX 7370, ST. PETERSBURG, FL 33734

REVISION	DESCRIPTION	REV. DATE
△	GROIN END CLOSURE DETAIL	6/13/2023
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**MADEIRA BEACH GROINS**  
**MADEIRA BEACH, FLORIDA**

**SECTIONS**

DATE: 11/8/22	FILENAME: ---	REV: 1
DRAWN BY: JDD/SIP/NSN	SHEET: 26 OF 26	
CHECKED BY: JTF	<b>26</b>	
SCALE: AS NOTED		