U.S. Department of Homeland Security
Region IV
3003 Chamblee-Tucker Road – Hollins Building
Atlanta, Georgia 30341

FEMA

November 9, 2010

Ms. Laura A. Kammerer
Deputy State Historic Preservation Officer for Review and Compliance
Florida Division of Historical Resources
Bureau of Historic Preservation
R.A. Gray Building
500 South Bronough Street – Room 423
Tallahassee, FL 32399-0250

RE: Initiation of Section 106 Consultation for the Construction of a New Seawall along Avenida Menendez in St. Augustine, St. Johns County, Florida

Dear Ms. Kammerer:

The Federal Emergency Management Agency (FEMA) is formally initiating the consultation process under the United States Code of Federal Regulations (CFR) Title 36, Part 800, "Protection of Historic Properties," the regulations that implement Section 106 of the National Historic Preservation Act of 1966, as amended, for the construction of a new seawall along Avenida Menendez in St. Augustine, St. Johns County, Florida.

PROJECT DESCRIPTION (UNDERTAKING)

The City of St. Augustine, the county seat of St. Johns County, is located in the northeast corner of Florida on the Atlantic Coast (Attachments 1, 2, 3). St. Augustine has been repeatedly damaged by flooding and storm surge. The wind and wave action has undermined the existing Avenida Menendez Seawall, causing it to crack, break apart, and topple over in several areas. The City of St. Augustine has applied for a Flood Mitigation Assistance (FMA) Program grant for a project to reduce storm surge damage to the historic downtown area by constructing a new seawall just seaward (east) of the existing Avenida Menendez Seawall. Construction of a new seawall to a height of 7.7 feet will preserve the existing seawall and eliminate the destructive flooding of most events up to a Category 1 storm surge (Attachment 4).

The City of St. Augustine proposes to preserve the existing seawall and construct a new wall in front of the historic seawall to provide the businesses and residents in Historic Districts 1 and 2, as well as the Florida National Guard Headquarters, with Category 1 storm surge (7.4 feet above Mean Sea Level [MSL]) protection. The proposed project is the construction of a seawall 12 feet seaward of an existing eroding historic seawall. The proposed seawall would consist of two sections. The lower section would be concrete sheet pile, with a top elevation of 4.8 feet National Geodetic Vertical Datum (NGVD). The upper section would be cast-in-place concrete with a top elevation of 7.7 NGVD. The space between the old and new seawalls would be infilled with clean sand material and topped with a new 12-foot-wide promenade to encapsulate the historic wall for its preservation. A small segment of the historic seawall would be left exposed to

facilitate viewing by the public. The construction of the new seawall consists of installing approximately 1,200 linear feet of new concrete precast driven panel seawall with concrete piles driven to 22.0 or 27.0 feet below MSL, placing soil anchors to support the new wall, and installing other architectural, landscape, electrical, and utility appurtenances seaward of the existing historic seawall.

In addition, three stormwater treatment vaults would be constructed to treat stormwater at three outfalls along the proposed seawall. The proposed stormwater management system would consist of an exfiltration trench and three Vortechnics stormwater treatment vaults to improve the water quality at the discharge from existing hydrologic basins of the City of St. Augustine. The system would be installed along the new seawall promenade. The exfiltration trench would treat runoff from the proposed 1,200-foot long, 12-foot wide impervious promenade between the existing and proposed seawalls. The Vortechnics vaults would be connected to three existing outfalls (one vault per outfall) to provide stormwater treatment to approximately 18.3 acres in the City of St. Augustine. Each vault would be installed underneath the proposed promenade. The outfall pipes would be extended from each vault and through the new seawall to discharge to the Matanzas River.

Under the proposed action, construction of the new seawall would affect waters of the United States and require excavation to mitigate damage to existing wetlands. There would be permanent impacts on 0.010 acre of smooth cordgrass *(Spartina alterniflora)*, 0.051 acre of oyster beds, and 0.288 acre of tidal flats (mudflats) waterward of the historic Avenida Menendez Seawall. These impacts have been permitted by the U.S. Army Corps of Engineers (USACE) with permit number SAJ-2004-3490-MRE and would be mitigated by the creation of a minimum of 0.05 acre (2,178 square feet) of tidal marsh wetlands within the area noted on the project drawings (see Attachment 4). This area would be excavated as necessary to match the elevations of the adjacent marsh and planted with smooth cordgrass on, at minimum, 1.5-foot centers.

PREVIOUS SECTION 106 CONSULTATION

The City of St. Augustine has been coordinating with regulatory agencies and resource stakeholders, including the City's Historic Architectural Review Board (HARB) and the Florida Division of Historic Resources (SHPO), since 2002. During this time, the City sought funding sources for the proposed undertaking, including a Community Development Block Grant (CDBG) award from the U.S. Department of Housing and Urban Development (HUD). Although CDBG funding is no longer being sought for the proposed undertaking, FEMA is building on, to the extent appropriate, the City's efforts to coordinate with resource agencies in fulfilling its regulatory responsibilities (Attachment 5).

In letters of May 17, 2004 (addressed to Mr. Russell Price of the Florida Department of Environmental Protection) and September 2, 2004 (addressed to Mr. Mark Evans of USACE Jacksonville), the SHPO presented its opinion that "the old seawall along Avenida Menendez appears to meet the criteria for listing in the *National Register*" and "[t]he nature and/or location of the new seawall construction is such that it will have an adverse effect on the historic characteristics of the old Avenida Menendez Seawall that may qualify it for listing in the *National Register*."

A Florida Historic Structure Form, prepared by Taylor Engineering and dated March 3, 2005, recommends that the seawall be considered a potential contributing resource to a National Register District (presumed to be the St. Augustine Town Plan Historic District). The form appears to have an approval from the SHPO staff dated December 19, 2003.

Discussions continued between the City of St. Augustine, Dr. Steven Schropp of Taylor Engineering, and the SHPO regarding this project. In a letter dated March 9, 2005, to Mark Evans with USACE Jacksonville, the SHPO provided an opinion that the proposed project would have no adverse effect on the Avenida Menendez Seawall. The SHPO recommended that City Archaeologist, Carl Halbirt, be on site to monitor the construction activities. The SHPO letter did not comment on effects on the St. Augustine Town Plan Historic District or other above-ground historic properties within the Area of Potential Effects (APE).

In an unsigned letter dated March 10, 2005, from the SHPO to City Historian, Cecile-Marie Sastre, the SHPO provided the same recommendation regarding archaeological monitoring as in the March 9, 2005 letter. However, the SHPO revised or clarified its opinion by stating that "the proposed project will have no adverse effect on the archaeological resources associated with the Avenida Menendez Seawall project." In addition, the SHPO stated that design plans for the landscaping and streetscape were required for the SHPO to complete its review of the proposed project.

According to the FMA subapplication materials, the last correspondence received from the SHPO was on October 25, 2006. Addressed to Mr. Timothy Ish with Taylor Engineering, the letter referred to the proposed seawall project and a related project funded through HUD. The HUD project is no longer being funded. The SHPO again requested design plans for the landscaping and streetscape in order to find "ways to minimize and/or mitigate the adverse effects of the overall project" and complete their review of the project.

AREA OF POTENTIAL EFFECTS

In accordance with 36 CFR §800.4(a), FEMA has defined an APE consistent with the scale and nature of the undertaking (Attachment 6). The APE includes the area of potential ground-disturbing activity associated with the undertaking and accounts for potential indirect, visual effects along the major vistas of the Avenida Menendez, St. Francis Street, and Bridge Street, and across the open land on the east side of Marine Street, across from the National Guard property (St. Francis Barracks [SJ10A]) at the south end of the project area.

IDENTIFICATION OF HISTORIC PROPERTIES

As stipulated in 36 CFR §800.4(b), FEMA has made a reasonable and good faith effort to carry out identification of historic properties within the APE. Because of the widely acknowledged historic significance of the City of St. Augustine and the density of historic properties therein, built resources within the City have been well documented and no on-site survey was necessary. SHPO staff aided in the identification effort by providing existing National Register Inventory Nomination Forms and Florida Historic Structure Forms to FEMA's contractor, URS Group, Inc. (URS). URS conducted additional primary-source research at the National Archives and Records Administration (NARA) in College Park, Maryland, and online research was directed toward

obtaining maps and photographic documentation of the APE. Review of this information by URS Architectural Historians meeting the *Secretary of the Interior's Professional Qualification Standards* (36 CFR Part 61) resulted in the identification of twenty-seven historic properties within the APE (Attachments 7, 8). Of these, two properties, the St. Augustine Town Plan Historic District (SJ00010) and the Alvarez House (SJ00010G), are currently listed in the National Register of Historic Places (NRHP). One property, the Avenida Menendez Seawall (SJ04971), was formally determined eligible for listing in the NRHP in 2003-2005, as noted above. The remaining twenty-four properties are located in the St. Augustine Town Plan Historic District. These properties were evaluated and determined to be contributing resources to the Historic District, and therefore, were considered to be listed in the NRHP. Of these twenty-four properties, eight were also determined to be individually eligible for listing in the NRHP.

Comprehensive identification and evaluation of archaeological resources within the APE has not been conducted, but archaeological resources associated with the NRHP-eligible Avenida Menendez Seawall are known to be present in the project area. As part of the City's coordination with the SHPO on the project, a report was completed by City Historian Cecile-Marie Sastre, Ph.D., in January 2005. The report references an archaeological survey completed by City Archaeologist Carl Halbirt in January 2005 consisting of limited (two trench) archaeological testing on the seaward face of the current seawall. The testing identified "pavers," or a toe to the seawall, and the report recommends that this feature be avoided during the construction of the new seawall by moving it 12 feet from the existing wall. There is a high probability for the presence of additional archaeological historic properties within the direct APE.

ASSESSMENT OF EFFECTS

FEMA has applied the Criteria of Adverse Effect in accordance with 36 CFR §800.5, and has determined that the undertaking will have an adverse effect on historic properties. The undertaking consists of the burial of the Avenida Menendez Seawall and the construction of a new public promenade along the Matanzas River along the eastern edge of the St. Augustine Town Plan Historic District.

FEMA seeks SHPO written concurrence with its findings and determinations as presented above. Due to high public visibility, FEMA is requesting the favor of an expedited 15 day review. Please refer to the enclosed CD for the attachments.

I look forward to working with you during the Section 106 process. Should you have any questions, please contact me at (770) 220-5387 or FEMA-R4EHP@dhs.gov.

Sincerely,

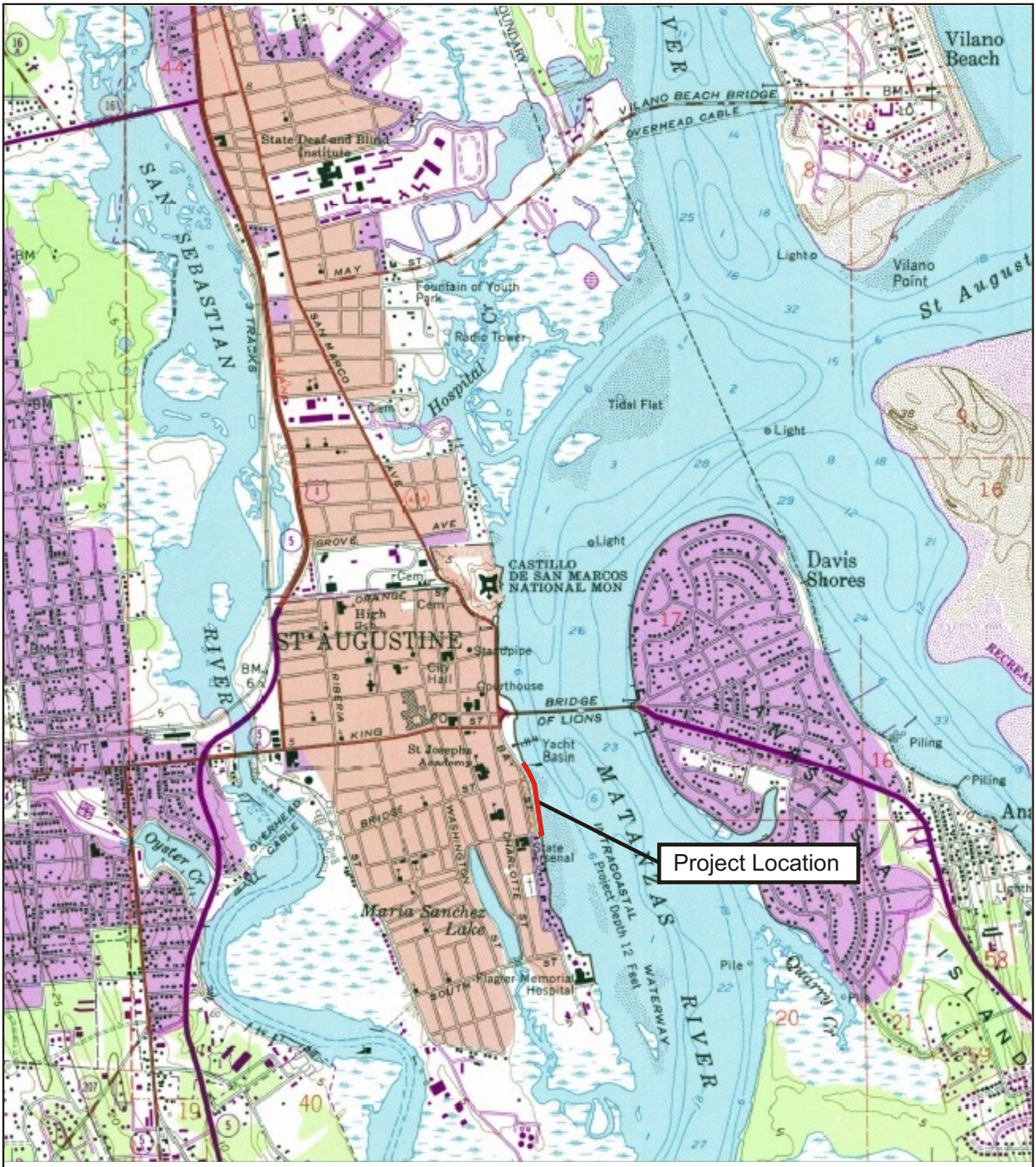
Stephanie L. Madson, Ph.D.
Deputy Regional Environmental Officer
FEMA Region IV

Copies:
Carl D. Halbirt, City Archaeologist, St. Augustine, FL
Cecile-Marie Sastre, City Historian, St. Augustine, FL
Christine Arato, Senior Historian/Acting National Historic Landmark Program Manager, Southeast Region, Atlanta, GA

Attachments (refer to the enclosed CD):
Attachment 1 – Project Location Topographic Map
Attachment 2 – Project Location Aerial Photograph
Attachment 3 – Project Location Photographs
Attachment 4 – Construction Drawings (Dated March 20, 2009)
Attachment 5 – Project Section 106 Coordination Chronology
Attachment 6 – Area of Potential Effects
Attachment 7 – Table of Historic Properties within the APE
Attachment 8 – Photographs of Historic Properties within the APE

Attachment 1

Project Location Topographic Map



1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

N

PROJECT	Avenida Menendez Seawall	Project Location Map
SCALE	1”=2000’	
SOURCE	USGS St. Augustine, FL (1992) 7.5 minute topographic Quadrangle	FEMA
		ATTACHMENT 1

Attachment 2

Project Location Aerial Photograph

PROJECT	Avenida Menendez Seawall
SCALE	1”=140’’
SOURCE	Google Earth Professional 2010

Aerial Photo of Project Location

FEMA

ATTACHMENT 2

Attachment 3

Project Location Photographs

Figure 1. Ca. 1880s Photograph of Historic Seawall Looking N along Avenida Menendez

Figure 2. Looking N along Avenida Menendez Seawall after Tropical Storm Fay in 2008

PROJECT	Avenida Menendez Seawall	**Project Location Photographs**	
SCALE	n/a	FEMA	
SOURCE	FEMA, Google Earth Professional 2010		**ATTACHMENT 3**

Figure 3. Looking N along Avenida Menendez Seawall after Tropical Storm Fay in 2008

Figure 4. Looking SE at South End of Avenida Menendez Seawall, 2009

PROJECT	Avenida Menendez Seawall	**Project Location Photographs**	
SCALE	n/a	FEMA	
SOURCE	FEMA, Google Earth Professional 2010		**ATTACHMENT 3**

Figure 5. Looking NE along Avenida Menendez Seawall, 2009

Figure 6. Looking SE along Avenida Menendez Seawall, 2009

PROJECT	Avenida Menendez Seawall	**Project Location Photographs**	
SCALE	n/a	FEMA	
SOURCE	Google Earth Professional 2010		**ATTACHMENT 3**

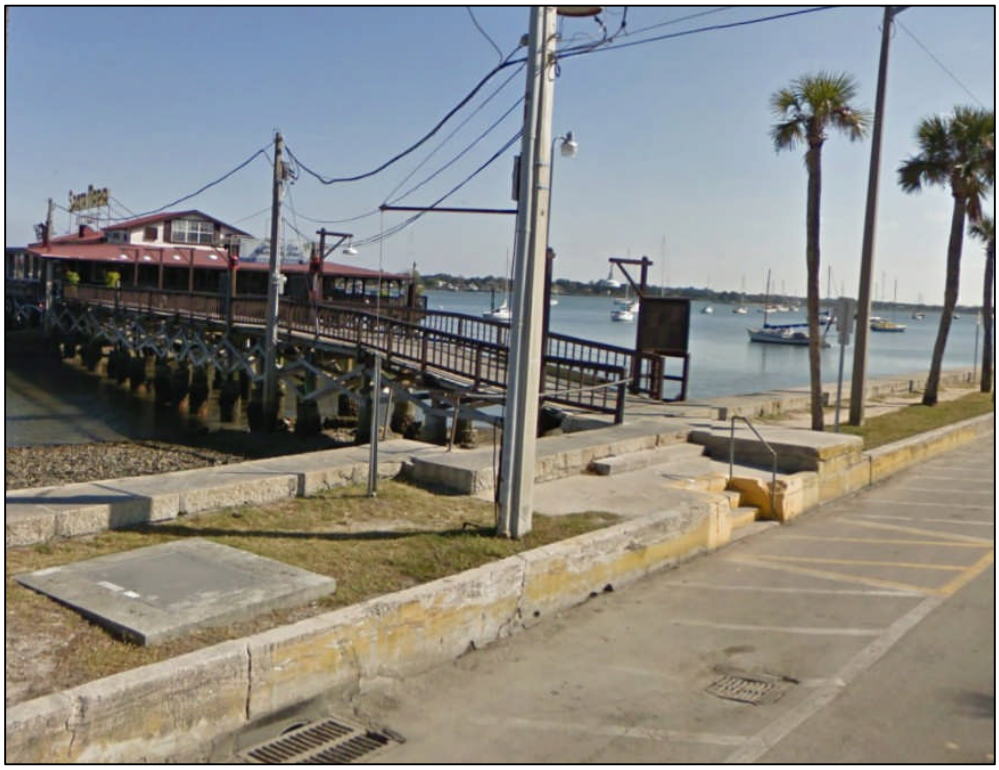


Figure 7. Looking SE at North End of Avenida Menendez Seawall, 2009

Figure 8. Looking SW across Avenida Menendez from North End of Project Area, 2009

PROJECT	Avenida Menendez Seawall	**Project Location Photographs**	
SCALE	n/a	FEMA	
SOURCE	Google Earth Professional 2010		**ATTACHMENT 3**

Figure 9. Looking SW across Avenida Menendez near North End of Project Area, 2009

Figure 10. Looking SW across Avenida Menendez near South End of Project Area, 2009

PROJECT	Avenida Menendez Seawall	**Project Location Photographs**	
SCALE	n/a	FEMA	
SOURCE	Google Earth Professional 2010		**ATTACHMENT 3**

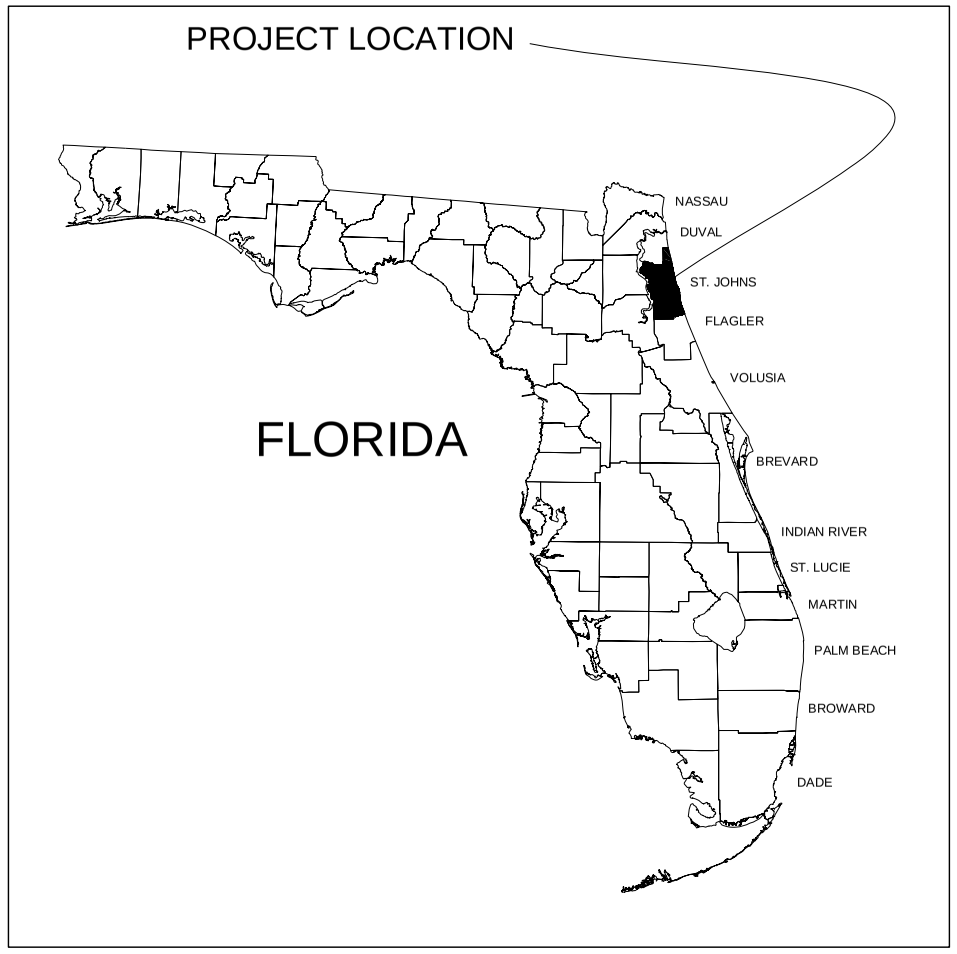
Attachment 4

Construction Drawings (Dated January 14, 2009)

AVENIDA MENENDEZ SEAWALL
ST. AUGUSTINE

PREPARED FOR

CITY OF ST. AUGUSTINE, FLORIDA



LOCATION MAP

N.T.S.

City of St. Augustine

VICINITY MAP

0 2,000' 4,000' 8,000'

GRAPHIC SCALE
FULLSIZE: 1" = 2,000'
REDUCED: 1" = 4,000'

REFERENCE:
USGS 7.5' QUADRANGLE MAP,
ST. AUGUSTINE, FLORIDA 1992

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1-800-432-4770

TAYLOR ENGINEERING INC.
10151 DEERWOOD PARK BLVD.
BLDG. 300, SUITE 300
JACKSONVILLE, FLORIDA 32256
CERTIFICATE OF AUTHORIZATION #: 4815

FINAL

PROJECT TITLE
AVENIDA MENENDEZ SEAWALL
ST. AUGUSTINE
ST. JOHNS COUNTY, FLORIDA

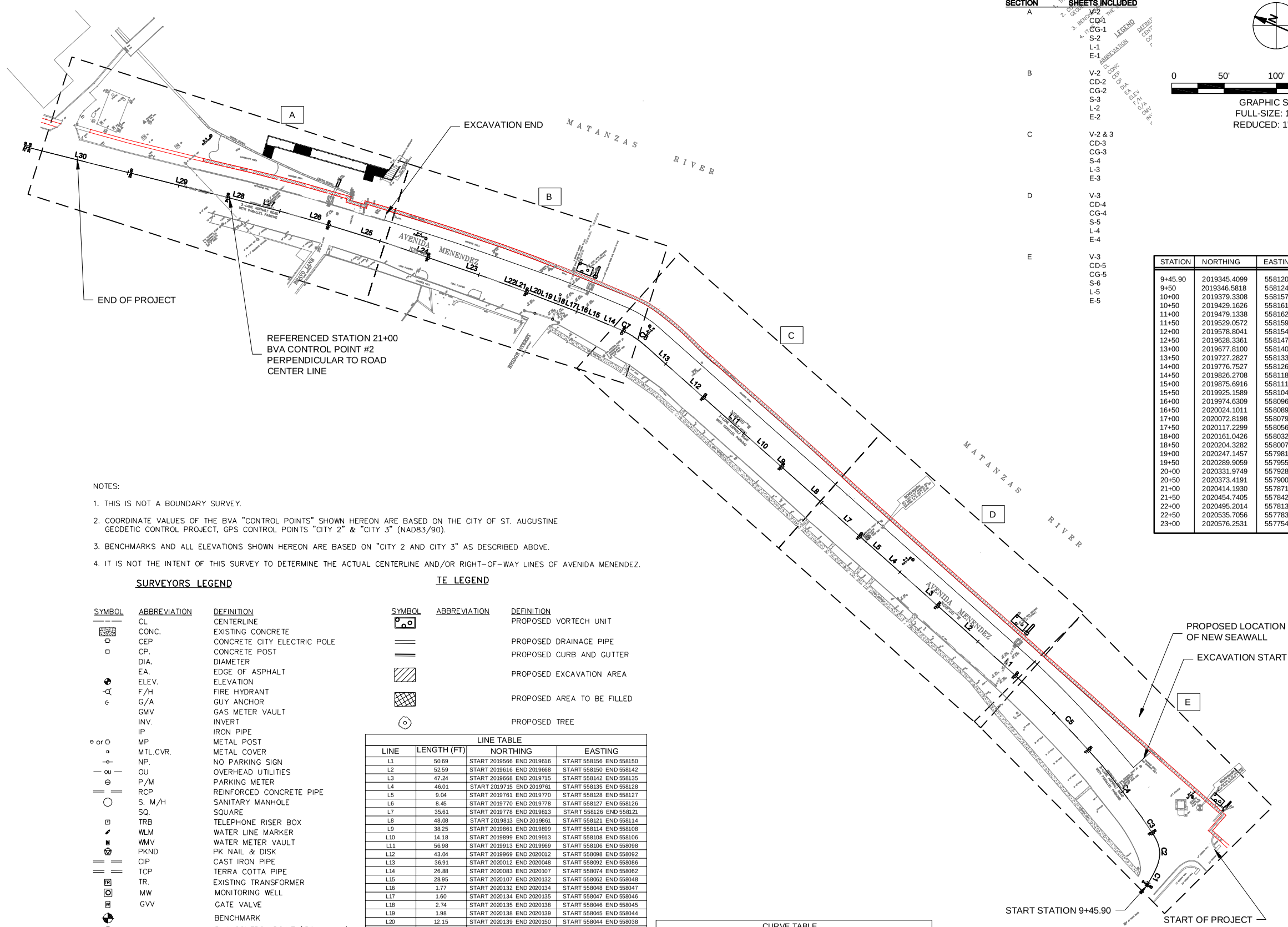
PROJECT NO	C2003-048
DATE	JANUARY 14, 2009

SEAL

MICHAEL P. WHELAN P.E.# 55496

T-1

SHEET 1 OF 62



SECTION	SHEETS INCLUDED
A	V-2 CD-1 CG-1 S-2 L-1 E-1
B	V-2 CD-2 CG-2 S-3 L-2 E-2
C	V-2 & 3 CD-3 CG-3 S-4 L-3 E-3
D	V-3 CD-4 CG-4 S-5 L-4 E-4
E	V-3 CD-5 CG-5 S-6 L-5 E-5

0 50' 100' 200'

GRAPHIC SCALE
FULL-SIZE: 1" = 50'
REDUCED: 1" = 100'

STATION	NORTHING	EASTING
9+45.90	2019345.4099	558120.9149
9+50	2019346.5818	558124.8436
10+00	2019379.3308	558157.8040
10+50	2019429.1626	558161.6424
11+00	2019479.1338	558162.2113
11+50	2019529.0572	558159.4950
12+00	2019578.8041	558154.5933
12+50	2019628.3361	558147.7730
13+00	2019677.8100	558140.5385
13+50	2019727.2827	558133.2961
14+00	2019776.7527	558126.0356
14+50	2019826.2708	558118.7671
15+00	2019875.6916	558111.5064
15+50	2019925.1589	558104.2273
16+00	2019974.6309	558096.9803
16+50	2020024.1011	558089.7207
17+00	2020072.8198	558079.4017
17+50	2020117.2299	558056.4539
18+00	2020161.0426	558032.3613
18+50	2020204.3282	558007.3426
19+00	2020247.1457	557981.5236
19+50	2020289.9059	557955.6179
20+00	2020331.9749	557928.5973
20+50	2020373.4191	557900.6309
21+00	2020414.1930	557871.6928
21+50	2020454.7405	557842.3457
22+00	2020495.2014	557813.0613
22+50	2020535.7056	557783.7456
23+00	2020576.2531	557754.3985

NOTES:

1. THIS IS NOT A BOUNDARY SURVEY.
2. COORDINATE VALUES OF THE BVA "CONTROL POINTS" SHOWN HEREON ARE BASED ON THE CITY OF ST. AUGUSTINE GEODETIC CONTROL PROJECT, GPS CONTROL POINTS "CITY 2" & "CITY 3" (NAD83/90).
3. BENCHMARKS AND ALL ELEVATIONS SHOWN HEREON ARE BASED ON "CITY 2 AND CITY 3" AS DESCRIBED ABOVE.
4. IT IS NOT THE INTENT OF THIS SURVEY TO DETERMINE THE ACTUAL CENTERLINE AND/OR RIGHT-OF-WAY LINES OF AVENIDA MENENDEZ.

SURVEYORS LEGEND

SYMBOL	ABBREVIATION	DEFINITION
	CL	CENTERLINE
	CONC.	EXISTING CONCRETE
	CEP	CONCRETE CITY ELECTRIC POLE
	CP.	CONCRETE POST
	DIA.	DIAMETER
	EA.	EDGE OF ASPHALT
	ELEV.	ELEVATION
	F/H	FIRE HYDRANT
	G/A	GUY ANCHOR
	GMV	GAS METER VAULT
	INV.	INVERT
	IP	IRON PIPE
	MP	METAL POST
	MTL.CVR.	METAL COVER
	NP.	NO PARKING SIGN
	OU	OVERHEAD UTILITIES
	P/M	PARKING METER
	RCP	REINFORCED CONCRETE PIPE
	S. M/H	SANITARY MANHOLE
	SQ.	SQUARE
	TRB	TELEPHONE RISER BOX
	WLM	WATER LINE MARKER
	WMV	WATER METER VAULT
	PKND	PK NAIL & DISK
	CIP	CAST IRON PIPE
	TCP	TERRA COTTA PIPE
	TR.	EXISTING TRANSFORMER
	MW	MONITORING WELL
	GVV	GATE VALVE
		BENCHMARK
		BVA CONTROL POINT (IRON ROAD)
		EXISTING UTILITY COVER
		TRAVERSE NAIL
	TVCB	EXISTING MEDIA BOX
		EXISTING TREE
		GRATE

TE LEGEND

SYMBOL	ABBREVIATION	DEFINITION
		PROPOSED VORTECH UNIT
		PROPOSED DRAINAGE PIPE
		PROPOSED CURB AND GUTTER
		PROPOSED EXCAVATION AREA
		PROPOSED AREA TO BE FILLED
		PROPOSED TREE

LINE TABLE			
LINE	LENGTH (FT)	NORTHING	EASTING
L1	50.69	START 2019566 END 2019616	START 558156 END 558150
L2	52.59	START 2019616 END 2019668	START 558150 END 558142
L3	47.24	START 2019668 END 2019715	START 558142 END 558135
L4	46.01	START 2019715 END 2019761	START 558135 END 558128
L5	9.04	START 2019761 END 2019770	START 558128 END 558127
L6	8.45	START 2019770 END 2019778	START 558127 END 558126
L7	35.61	START 2019778 END 2019813	START 558126 END 558121
L8	48.08	START 2019813 END 2019861	START 558121 END 558114
L9	38.25	START 2019861 END 2019899	START 558114 END 558108
L10	14.18	START 2019899 END 2019913	START 558108 END 558106
L11	56.98	START 2019913 END 2019969	START 558106 END 558098
L12	43.04	START 2019969 END 2020012	START 558098 END 558092
L13	36.91	START 2020012 END 2020048	START 558092 END 558086
L14	26.88	START 2020083 END 2020107	START 558074 END 558062
L15	28.95	START 2020107 END 2020132	START 558062 END 558048
L16	1.77	START 2020132 END 2020134	START 558048 END 558047
L17	1.60	START 2020134 END 2020135	START 558047 END 558046
L18	2.74	START 2020135 END 2020138	START 558046 END 558045
L19	1.98	START 2020138 END 2020139	START 558045 END 558044
L20	12.15	START 2020139 END 2020150	START 558044 END 558038
L21	17.21	START 2020150 END 2020165	START 558038 END 558030
L22	33.49	START 2020165 END 2020194	START 558030 END 558013
L23	44.09	START 2020194 END 2020232	START 558013 END 557991
L24	55.72	START 2020232 END 2020280	START 557991 END 557962
L25	56.83	START 2020280 END 2020328	START 557962 END 557931
L26	45.21	START 2020328 END 2020365	START 557931 END 557906
L27	47.09	START 2020365 END 2020404	START 557906 END 557879
L28	12.87	START 2020404 END 2020414	START 557879 END 557872
L29	100.00	START 2020414 END 2020495	START 557872 END 557813
L30	99.95	START 2020495 END 2020576	START 557813 END 557754

CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD	DELTA	BEARING	TANGENT
C1	100.02	23.63	23.58	13°32'14"	N67°47'49"E	11.87
C2	28.46	25.45	24.61	51°14'24"	N35°24'30"E	13.65
C3	230.01	23.29	23.28	5°48'08"	N06°53'14"E	11.66
C4	1393.97	63.20	63.19	2°35'51"	N02°41'15"E	31.60
C5	1386.30	105.67	105.65	4°22'03"	N03°29'57"W	52.86
C6	75.46	16.24	16.21	12°20'02"	N12°19'02"W	8.15
C7	114.92	21.00	20.97	10°28'05"	N23°43'05"W	10.53

NOTE: SEE ATTACHED ALIGNMENT STATION AND CURVE REPORT FOR MORE DETAILS

TAYLOR ENGINEERING INC.
9000 CYPRESS GREEN DRIVE, SUITE 200
JACKSONVILLE, FLORIDA 32256
CERTIFICATE OF AUTHORIZATION #:4815

SEAL

MICHAEL P. WHELAN P.E.# 55496

PROJECT TITLE

AVENIDA MENENDEZ SEAWALL
ST. AUGUSTINE, FL

NO	ZONE	REVISIONS / SUBMISSIONS	DATE

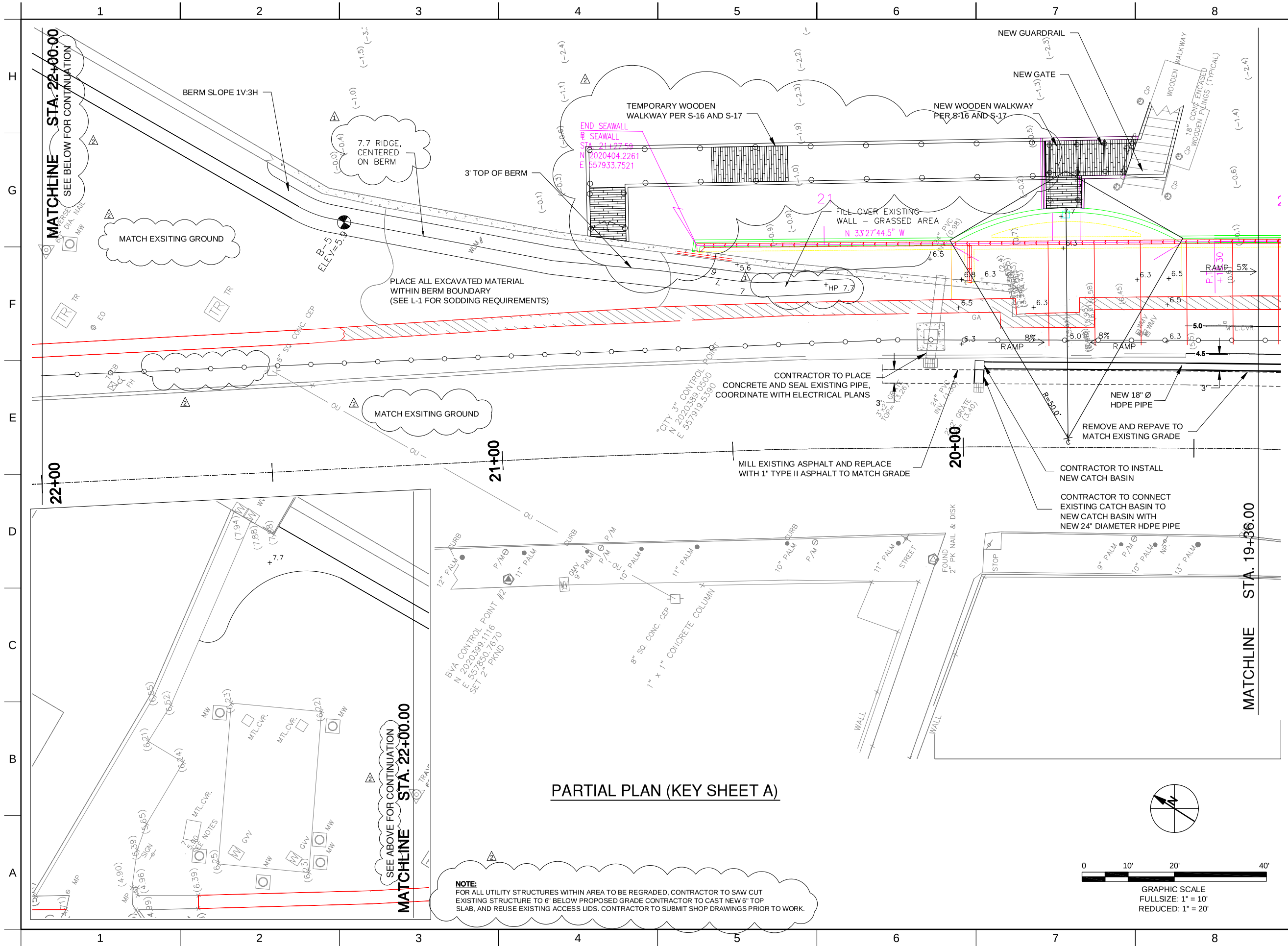
PROJECT NO	C2003-048
DATE	JANUARY 14, 2009
DESIGNED	MPW
DRAWN	AL
CHECKED	MPW
REVIEWED	MPW
SCALE	AS SHOWN

DRAWING TITLE

PROJECT KEY & LEGEND SHEET

K-1

SHEET 4 OF 62



PARTIAL PLAN (KEY SHEET A)

TAYLOR ENGINEERING INC.
9000 CYPRESS GREEN DRIVE, SUITE 200
JACKSONVILLE, FLORIDA 32256
CERTIFICATE OF AUTHORIZATION #: 4815

SEAL

MICHAEL P. WHELAN P.E.# 55496

PROJECT TITLE

AVENIDA MENENDEZ SEA WALL

ST. AUGUSTINE, FL

NO	ZONE	REVISIONS / SUBMISSIONS	DATE
1		REVISIONS SUBMITTED 11/16/07 - JCK	11/16/07
2		REVISIONS AS PART OF FINAL SUBMITTAL - JCK	TBD

PROJECT NO	C2003-048
DATE	JANUARY 14, 2009
DESIGNED	MPW
DRAWN	AL
CHECKED	MPW
REVIEWED	MPW
SCALE	AS SHOWN

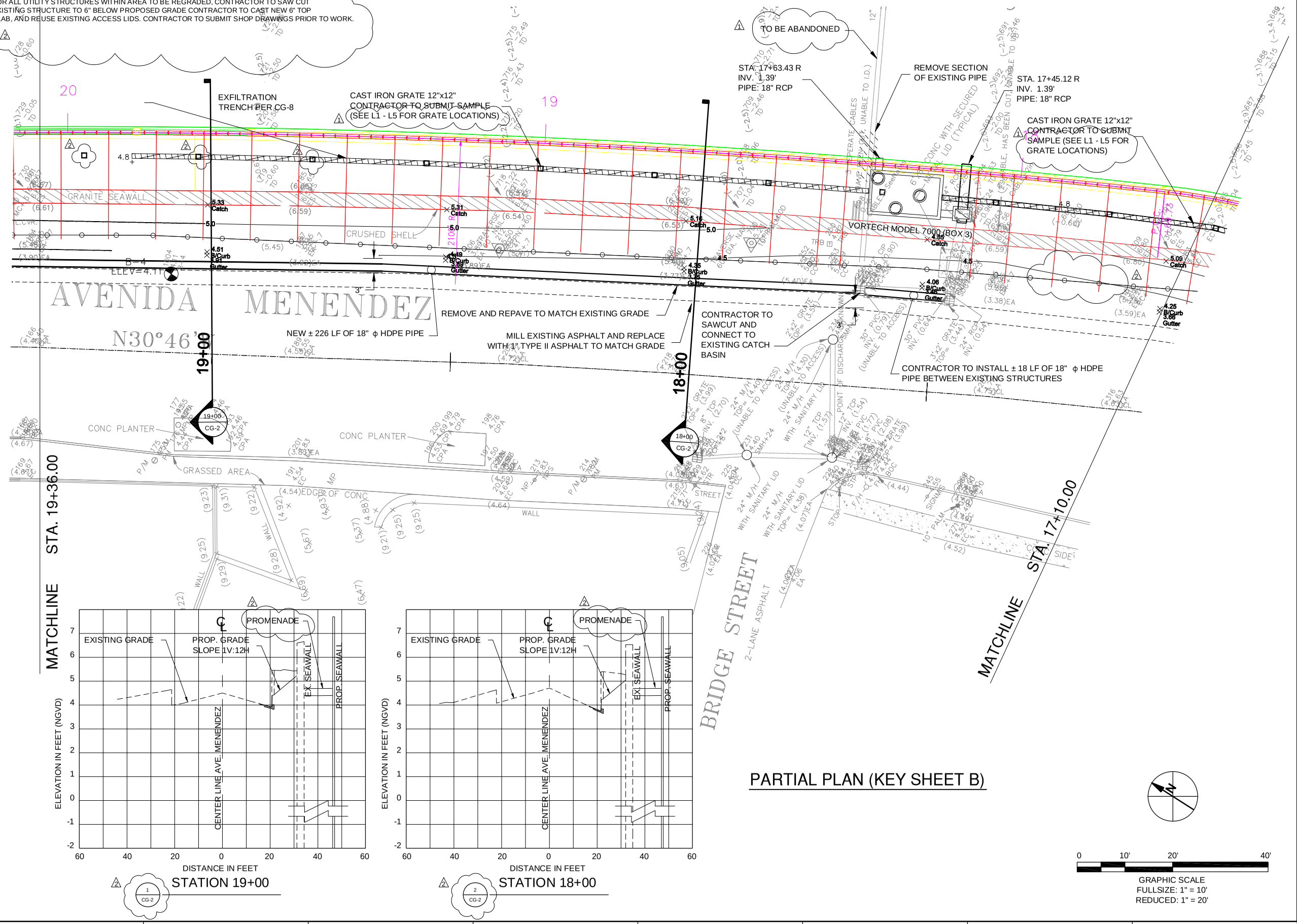
DRAWING TITLE

PAVING, GRADING AND DRAINAGE
1 OF 5

CG-1

SHEET 15 OF 62

NOTE:
FOR ALL UTILITY STRUCTURES WITHIN AREA TO BE REGRADED, CONTRACTOR TO SAW CUT EXISTING STRUCTURE TO 6" BELOW PROPOSED GRADE CONTRACTOR TO CAST NEW 6" TOP SLAB, AND REUSE EXISTING ACCESS LIDS. CONTRACTOR TO SUBMIT SHOP DRAWINGS PRIOR TO WORK.



PARTIAL PLAN (KEY SHEET B)

GRAPHIC SCALE
FULLSIZE: 1" = 10'
REDUCED: 1" = 20'

TAYLOR ENGINEERING INC.
9000 CYPRESS GREEN DRIVE, SUITE 200
JACKSONVILLE, FLORIDA 32256
CERTIFICATE OF AUTHORIZATION #: 4815

SEAL

MICHAEL P. WHELAN P.E.# 55496

PROJECT TITLE
AVENIDA MENENDEZ SEAWALL
ST. AUGUSTINE, FL

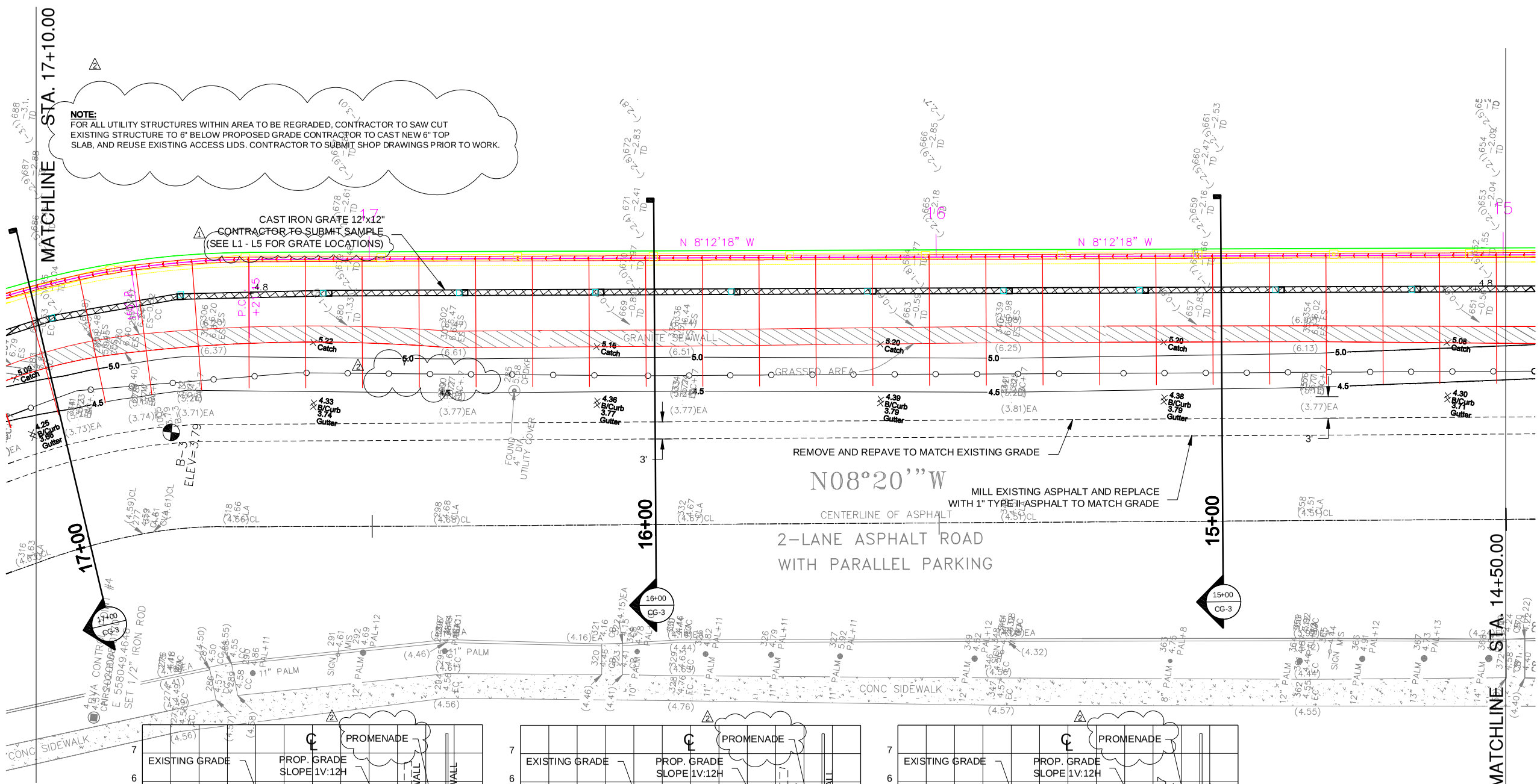
NO	ZONE	REVISIONS / SUBMISSIONS	DATE
1		REVISIONS SUBMITTED 11/16/07 - JCK	11/16/07
2		REVISIONS AS PART OF FINAL SUBMITTAL - JCK	TBD

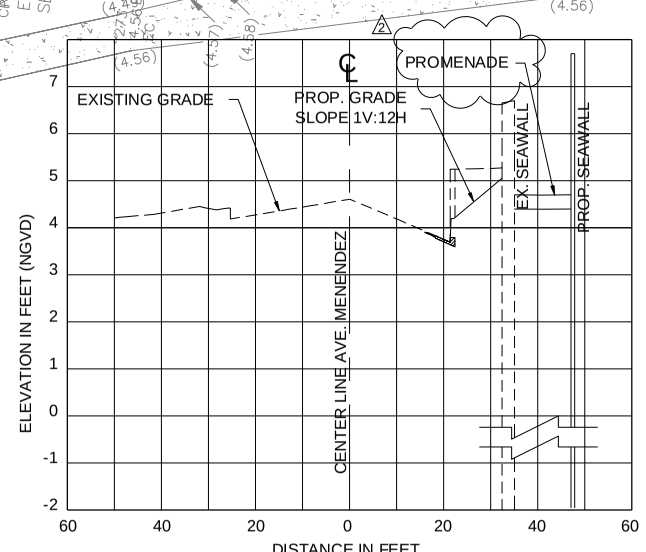
PROJECT NO	C2003-048
DATE	JANUARY 14, 2009
DESIGNED	MPW
DRAWN	AL
CHECKED	MPW
REVIEWED	MPW
SCALE	AS SHOWN

DRAWING TITLE
PAVING, GRADING AND DRAINAGE
2 OF 5

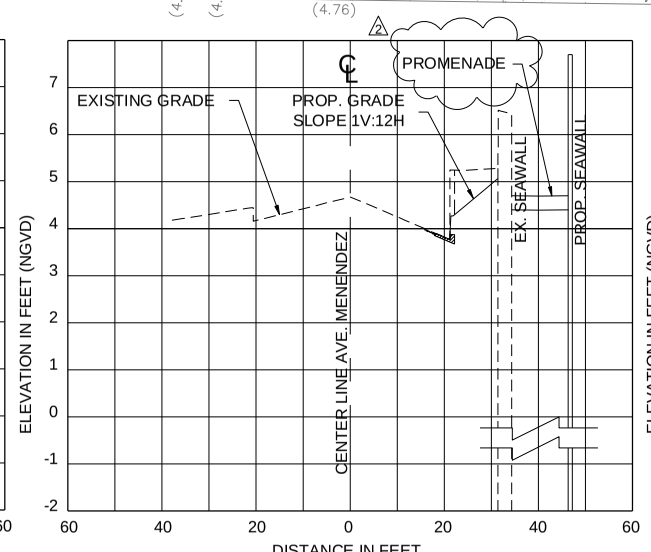
CG-2

SHEET 16 OF 62

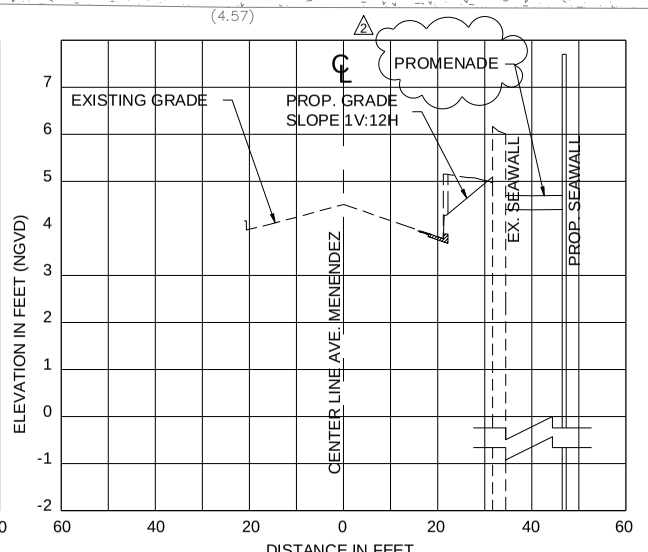




STATION 17+00



STATION 16+00



STATION 15+00

PARTIAL PLAN (KEY SHEET C)

GRAPHIC SCALE
FULLSIZE: 1" = 10'
REDUCED: 1" = 20'

TAYLOR ENGINEERING INC.
9000 CYPRESS GREEN DRIVE, SUITE 200
JACKSONVILLE, FLORIDA 32256
CERTIFICATE OF AUTHORIZATION #: 4815

SEAL

MICHAEL P. WHELAN P.E.# 55496

PROJECT TITLE

AVENIDA MENENDEZ
SEAWALL
ST. AUGUSTINE, FL

NO	ZONE	REVISIONS / SUBMISSIONS	DATE
1		REVISIONS SUBMITTED 11/16/07 - JCK	11/16/07
2		REVISIONS AS PART OF FINAL SUBMITTAL - JCK	TBD

PROJECT NO	C2003-048
DATE	JANUARY 14, 2009
DESIGNED	MPW
DRAWN	AL
CHECKED	MPW
REVIEWED	MPW
SCALE	AS SHOWN

DRAWING TITLE
PAVING, GRADING AND DRAINAGE
3 OF 5

CG-3

SHEET 17 OF 62

NOTE:
FOR ALL UTILITY STRUCTURES WITHIN AREA TO BE REGRADED, CONTRACTOR TO SAW CUT EXISTING STRUCTURE TO 6" BELOW PROPOSED GRADE CONTRACTOR TO CAST NEW 6" TOP SLAB, AND REUSE EXISTING ACCESS LIDS. CONTRACTOR TO SUBMIT SHOP DRAWINGS PRIOR TO WORK.

BENCHMARK:
SET X-CUT IN 0.7' BARRIER WALL
4.0' WEST & 8.0' SOUTH OF 8" CEP
ELEVATION AT X-CUT = (5.19)

CAST IRON GRATE 12"x12"
CONTRACTOR TO SUBMIT SAMPLE

NOTE: CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR LOWERING OF STORMWATER BOXES.

STA. 12+38.40 R
INV. 1.39'
PIPE: 18" RCP

STA. 12+21.15 R
INV. 1.39'
PIPE: 18" RCP

VORTECH MODEL 7000 (BOX 2)

REMOVE AND REPAVE TO MATCH EXISTING GRADE

MILL EXISTING ASPHALT AND REPLACE WITH 1" TYPE II ASPHALT TO MATCH GRADE

AVENIDA MENENDEZ
N08°20'"W

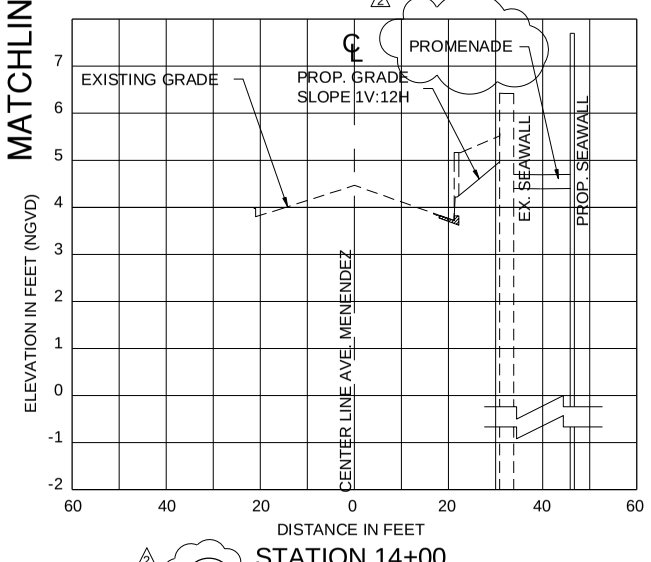
MATCHLINE STA. 14+50.00

MATCHLINE STA. 12+00.00

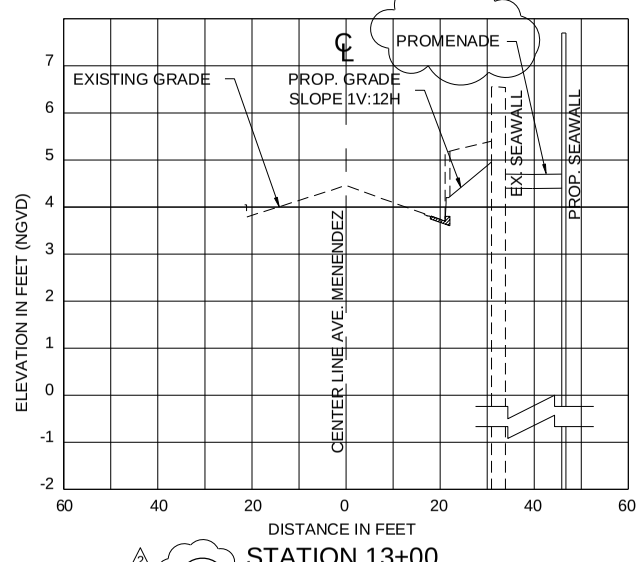
14+00 CG-4

13+00 CG-4

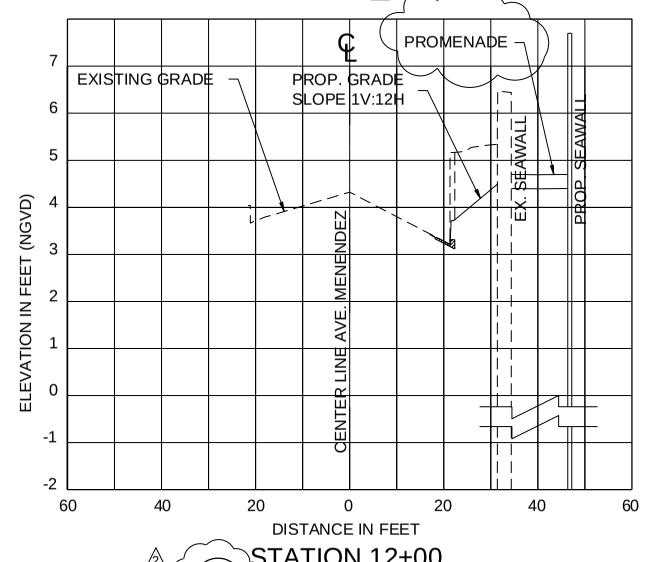
12+00 CG-4



STATION 14+00



STATION 13+00



STATION 12+00

PARTIAL PLAN (KEY SHEET D)

GRAPHIC SCALE
FULLSIZE: 1" = 10'
REDUCED: 1" = 20'

TAYLOR ENGINEERING INC.
9000 CYPRESS GREEN DRIVE, SUITE 200
JACKSONVILLE, FLORIDA 32256
CERTIFICATE OF AUTHORIZATION #:4815

SEAL

MICHAEL P. WHELAN P.E.# 55496

PROJECT TITLE
AVENIDA MENENDEZ SEAWALL
ST. AUGUSTINE, FL

NO	ZONE	REVISIONS / SUBMISSIONS	DATE
1		REVISIONS SUBMITTED 11/16/07 - JCK	11/16/07
2		REVISIONS AS PART OF FINAL SUBMITTAL - JCK	TBD

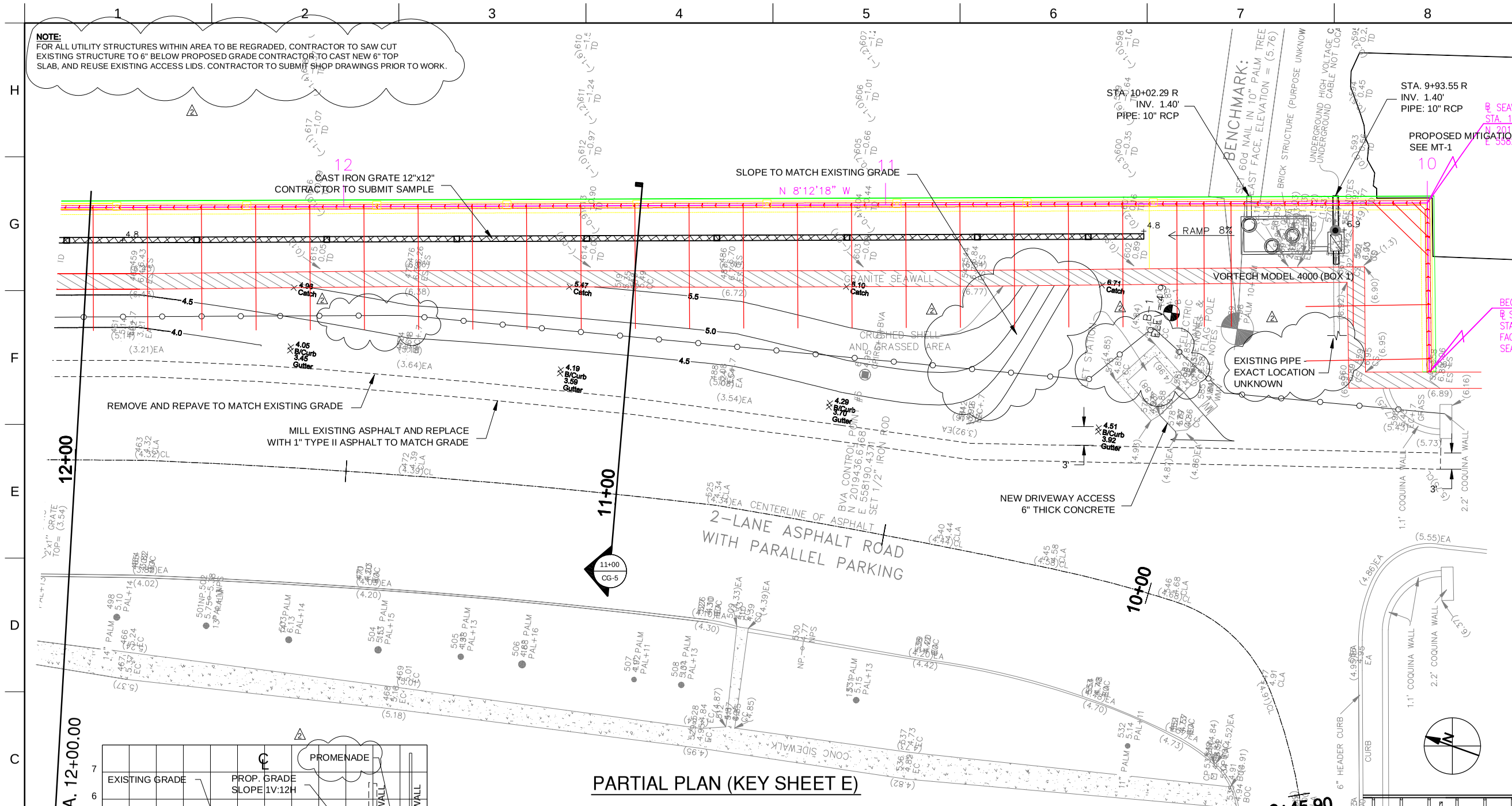
PROJECT NO	C2003-048
DATE	JANUARY 14, 2009
DESIGNED	MPW
DRAWN	AL
CHECKED	MPW
REVIEWED	MPW
SCALE	AS SHOWN

DRAWING TITLE
PAVING, GRADING AND DRAINAGE
4 OF 5

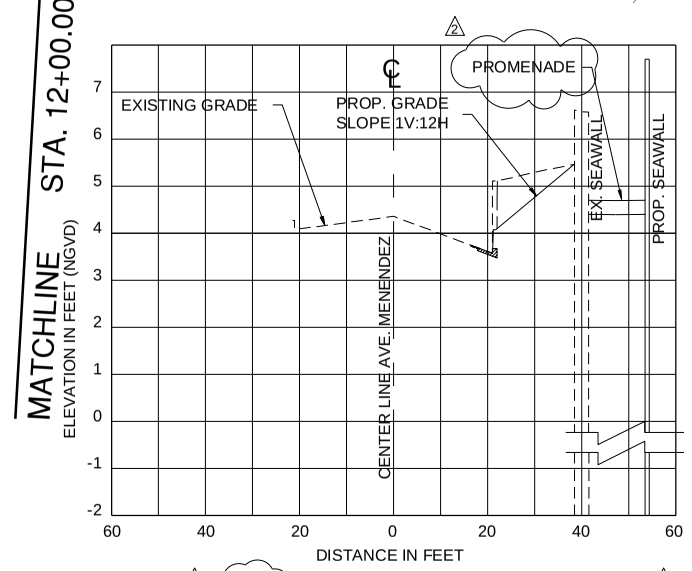
CG-4

SHEET 18 OF 62

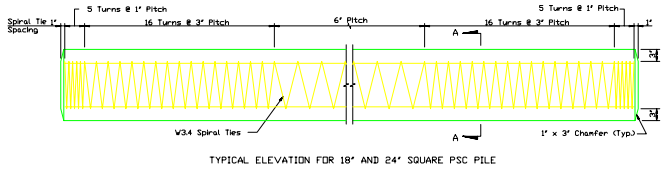
NOTE:
FOR ALL UTILITY STRUCTURES WITHIN AREA TO BE REGRADED, CONTRACTOR TO SAW CUT EXISTING STRUCTURE TO 6" BELOW PROPOSED GRADE CONTRACTOR TO CAST NEW 6" TOP SLAB, AND REUSE EXISTING ACCESS LIDS. CONTRACTOR TO SUBMIT SHOP DRAWINGS PRIOR TO WORK.



PARTIAL PLAN (KEY SHEET E)

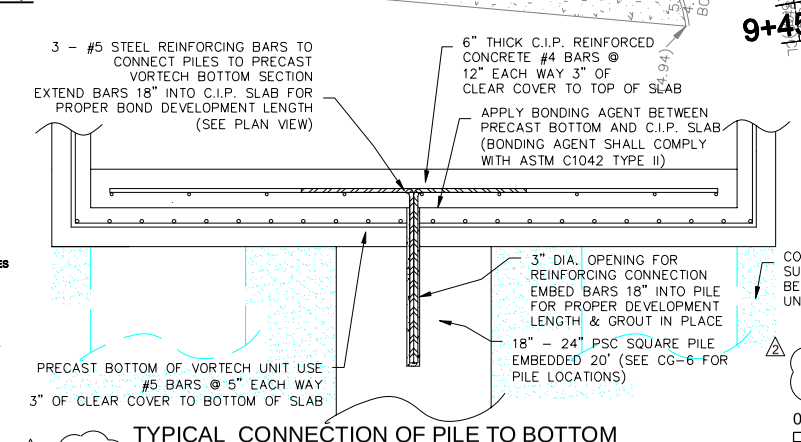


STATION 11+00

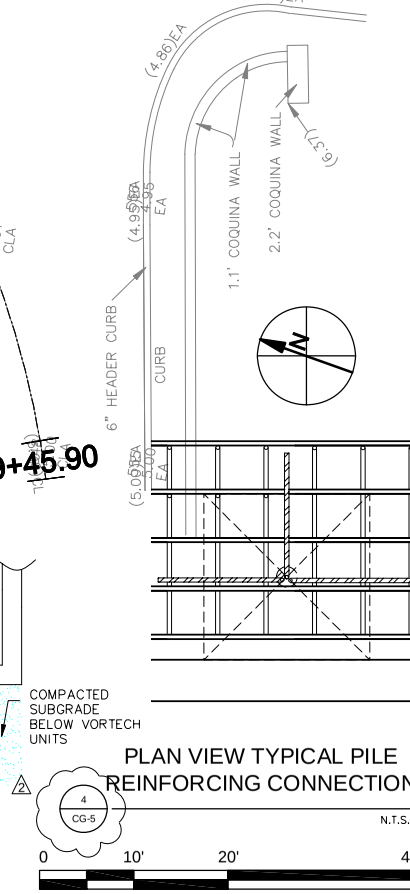


18" - 24" SQUARE PRESTRESSED CONCRETE PILES
MINIMUM FC = 8000 PSI @28 DAYS
MINIMUM EFFECTIVE PRESTRESS 1200 PSI
TYPE V CONCRETE
PRESTRESSING STEEL SHALL CONFORM TO ASTM A416
THE MINIMUM PROTECTIVE CONCRETE COVER FOR PRESTRESSED PILES SHALL BE NOT LESS THAN 2 1/2"
NOTE:
OTHER DETAILS AND SPECIFICATIONS OF MANUFACTURER SHALL BE IN ACCORDANCE WITH PCI PILE STANDARD 112-84

TYPICAL 18" - 24" PRESTRESSED CONCRETE PILES
N.T.S.



TYPICAL CONNECTION OF PILE TO BOTTOM OF PRECAST CONCRETE VORTECH UNIT
N.T.S.



PLAN VIEW TYPICAL PILE REINFORCING CONNECTION
N.T.S.

TAYLOR ENGINEERING INC.
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JACKSONVILLE, FLORIDA 32256
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MICHAEL P. WHELAN P.E.# 55496

PROJECT TITLE
AVENIDA MENENDEZ SEAWALL
ST. AUGUSTINE, FL

DATE	REVISIONS / SUBMISSIONS	ZONE	NO
11/16/07	REVISIONS SUBMITTED 11/16/07 - JCK		
TBD	REVISIONS AS PART OF FINAL SUBMITTAL - JCK		

PROJECT NO	C2003-048
DATE	JANUARY 14, 2009
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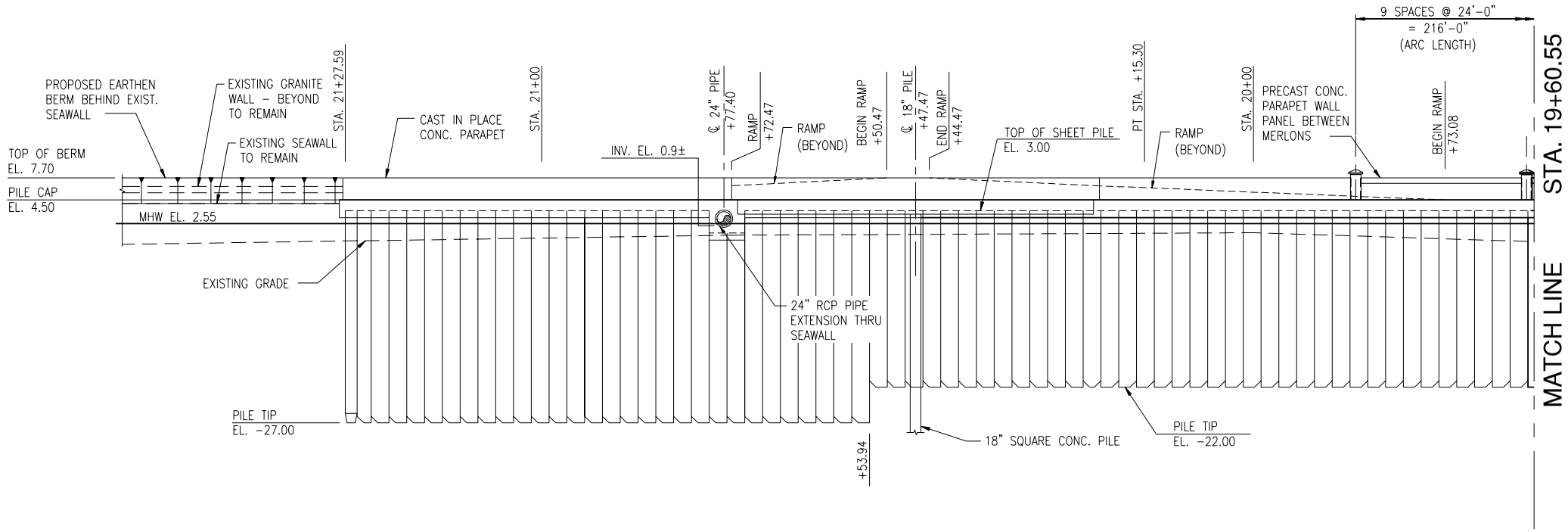
CHECKED	MPW
REVIEWED	MPW
SCALE	AS SHOWN

DRAWING TITLE
PAVING, GRADING AND DRAINAGE
5 OF 5

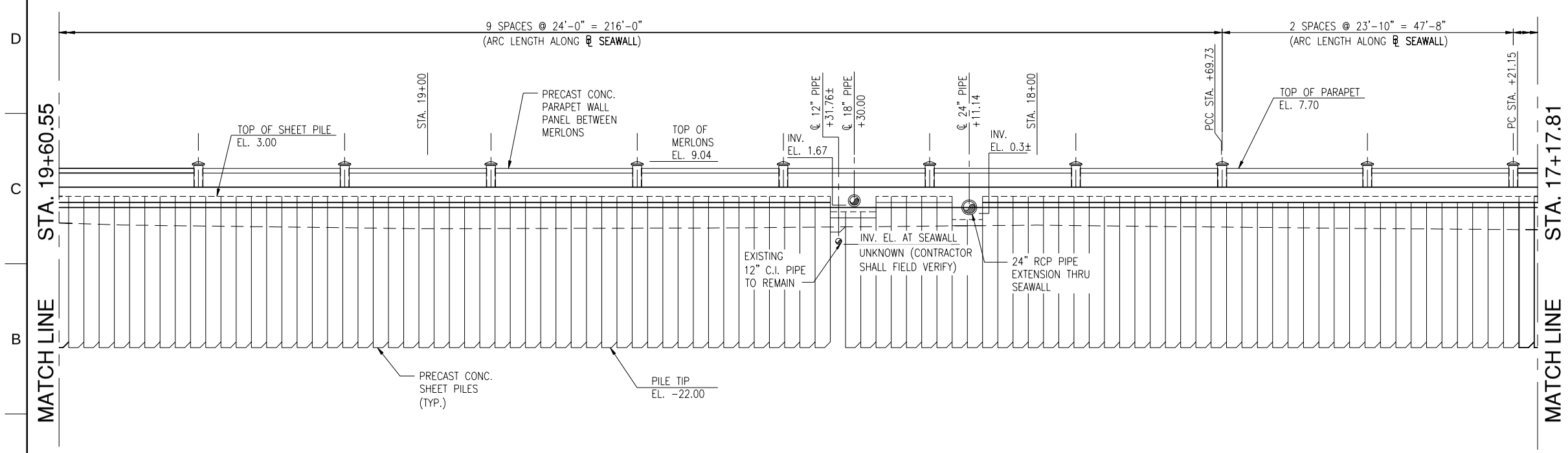
CG-5

SHEET 19 OF 62



PARTIAL WALL ELEVATION

SCALE: 1"=10'-0"



PARTIAL WALL ELEVATION

SCALE: 1"=10'-0"

NOTES:
1. WALL ELEVATIONS STATIONING IS ALONG ℄ SEAWALL.

TAYLOR ENGINEERING INC.
9000 CYPRESS GREEN DRIVE, SUITE 200
JACKSONVILLE, FLORIDA 32256
CERTIFICATE OF AUTHORIZATION #:4815

SEAL

EDUARDO J. MORALES P.E.# 9014

PROJECT TITLE

AVENIDA MENENDEZ SEAWALL
ST. AUGUSTINE, FL

Bergmann associates
8653 Baypine Rd. Suite 100
Jacksonville, FL. 32256
904.363.3133 / 904.363.3203 fax
Certificate of Authorization No. 5673

NO	ZONE	REVISIONS / SUBMISSIONS	DATE

PROJECT NO	C2003-048
DATE	JANUARY 14, 2009
DESIGNED	EJM
DRAWN	ODR
CHECKED	JCS
REVIEWED	EJM
SCALE	AS SHOWN

DRAWING TITLE

WALL ELEVATION
1 OF 3

S-7

SHEET 33 OF 62

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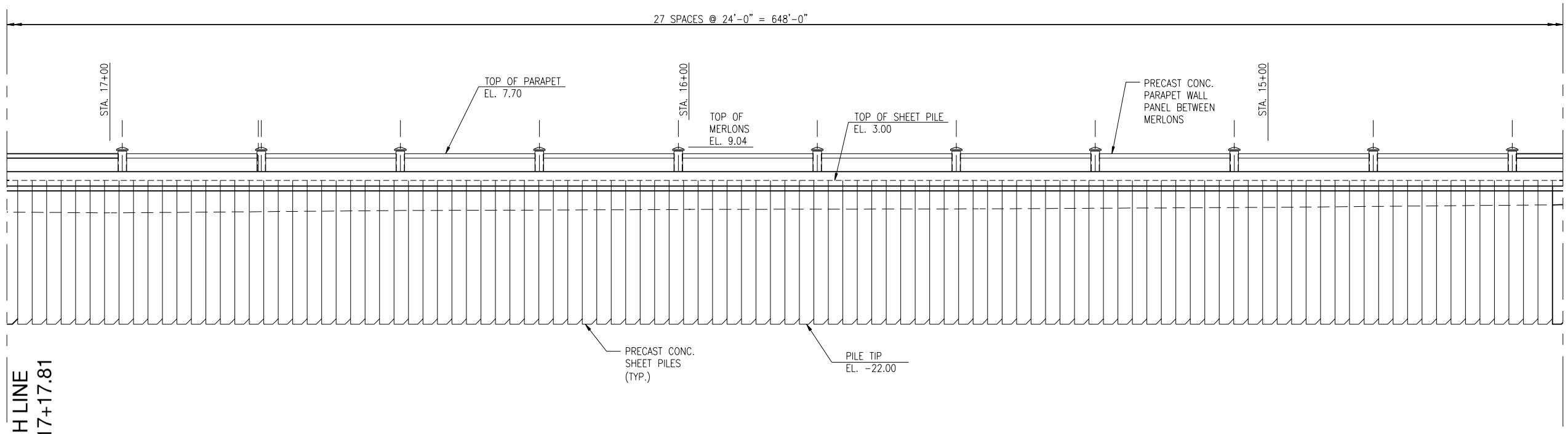
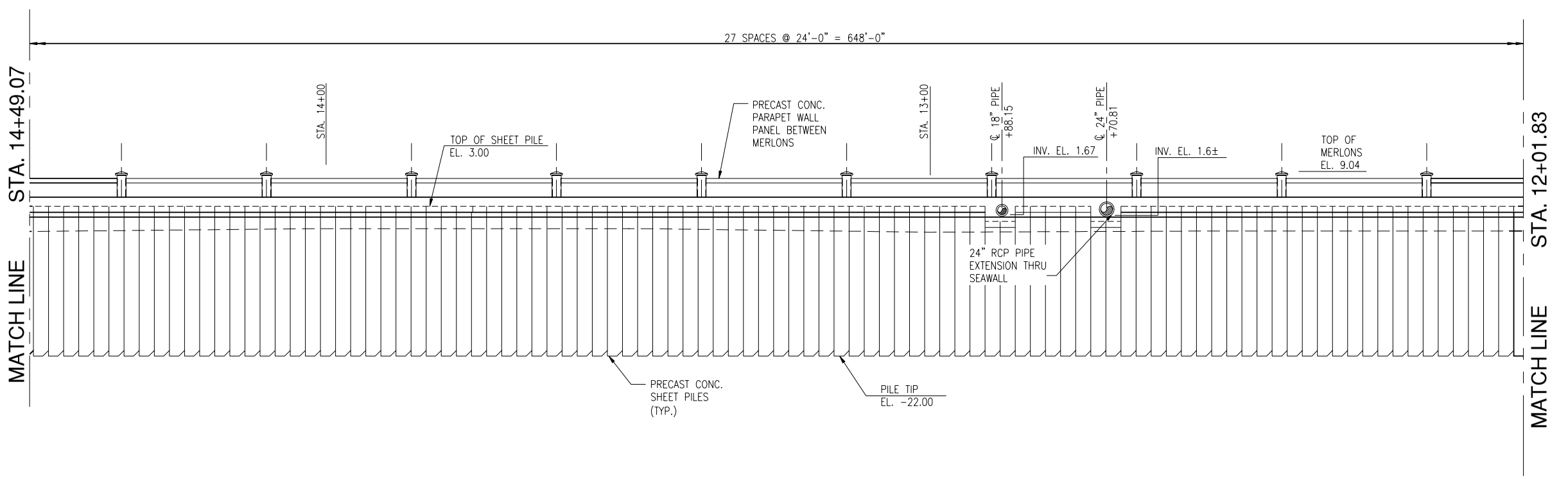


PARTIAL WALL ELEVATION

SCALE: 1"=10'-0"



NOTES:
1. WALL ELEVATIONS STATIONING IS ALONG ℄ SEAWALL.

PARTIAL WALL ELEVATION

SCALE: 1"=10'-0"

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REVIEWED	EJM
SCALE	AS SHOWN

DRAWING TITLE

WALL ELEVATION
2 OF 3

S-8

SHEET 34 OF 62

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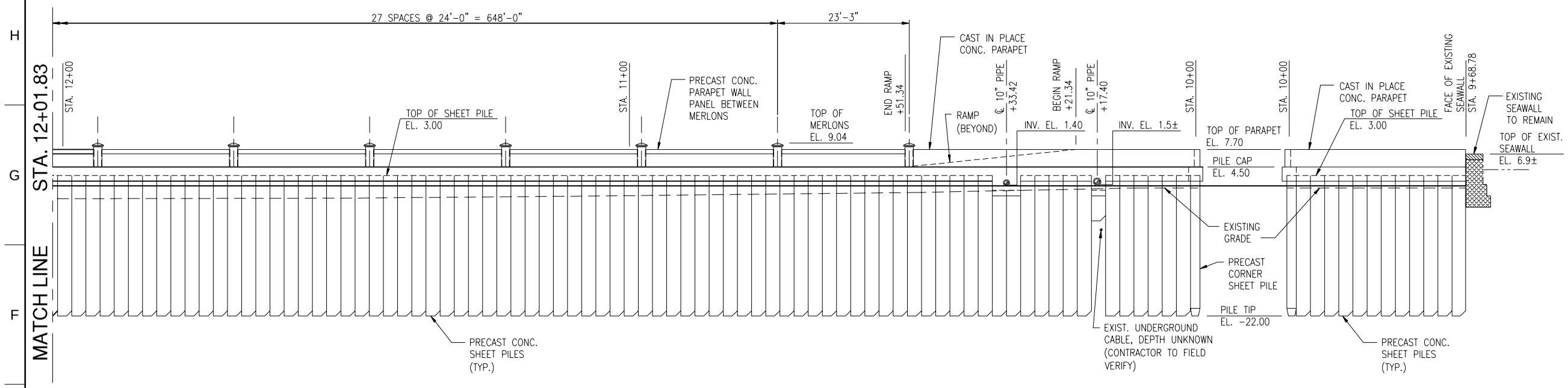

PARTIAL WALL ELEVATION

SCALE: 1"=10'-0"

NOTES:
1. WALL ELEVATIONS STATIONING IS ALONG ℄ SEAWALL.

TAYLOR ENGINEERING INC.
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DRAWING TITLE

WALL ELEVATION
3 OF 3

S-9

SHEET 35 OF 62

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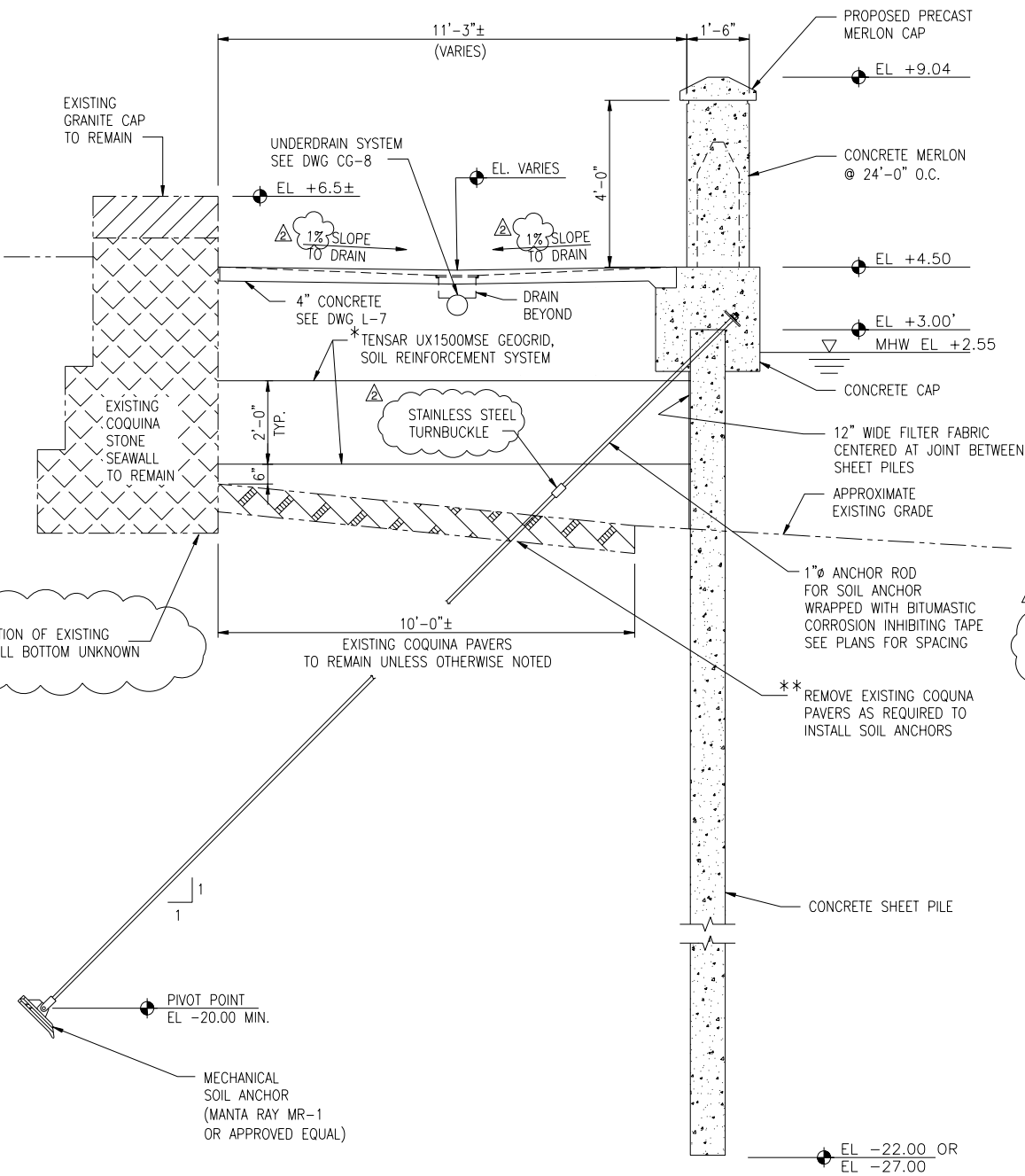
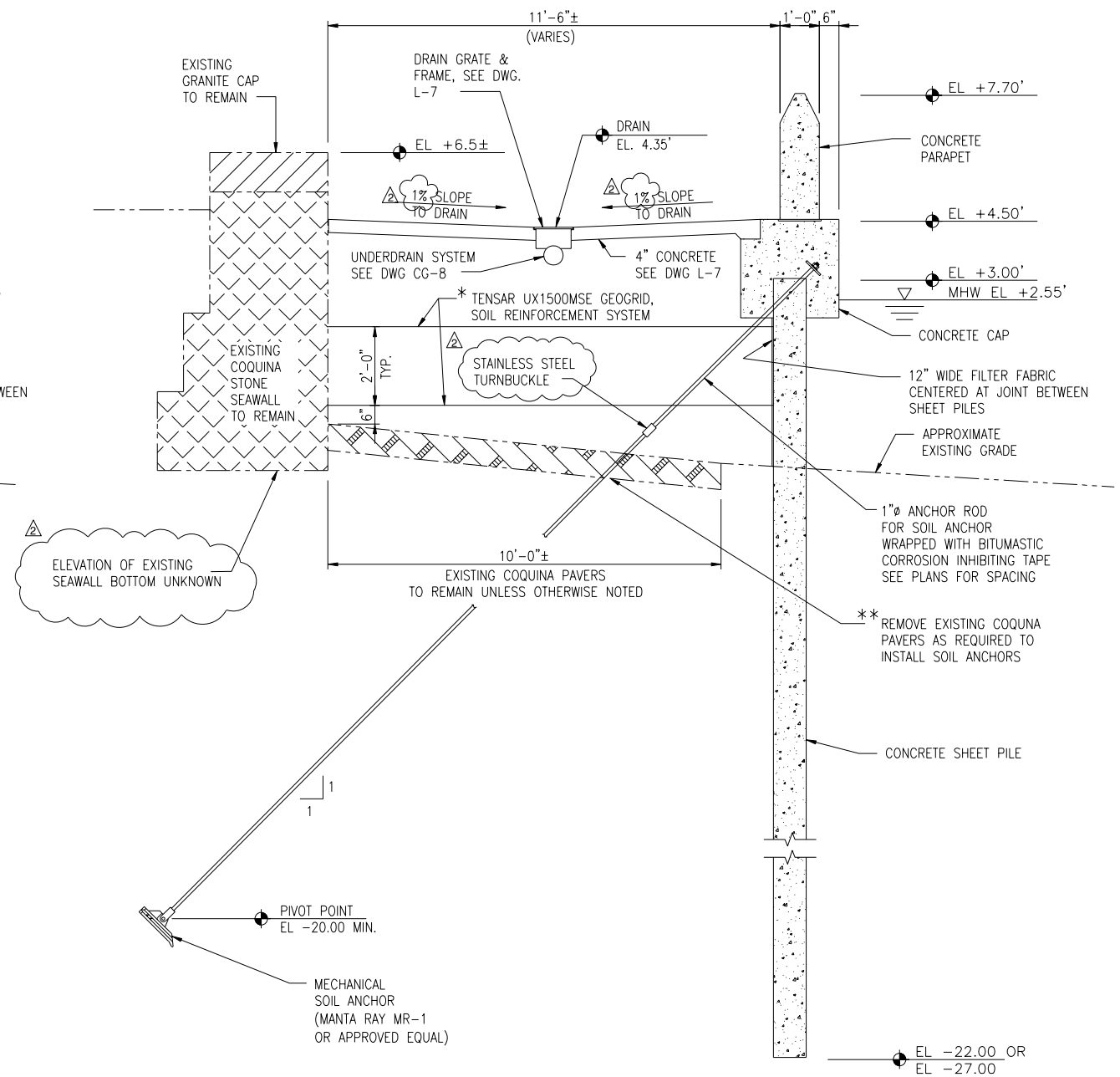


1 TYPICAL SECTION

SCALE: 1/2" = 1'-0"



2 TYPICAL SECTION

SCALE: 1/2" = 1'-0"

*INTERRUPT GEOGRID IN AREAS OF STORM WATER VAULTS.

**ALL EXISTING COQUINA PAVERS THAT ARE TO BE REMOVED SHALL BE REMOVED BY THE CONTRACTOR AND RETURNED TO THE CITY ARCHEOLOGIST.

TAYLOR ENGINEERING INC.
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SEAL

EDUARDO J. MORALES P.E.# 9014

PROJECT TITLE

AVENIDA MENENDEZ SEAWALL

ST. AUGUSTINE, FL

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Jacksonville, FL 32256
904.363.3133 / 904.363.3203 fax
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PROJECT NO	C2003-048
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DRAWN	ODR
CHECKED	JCS
REVIEWED	EJM
SCALE	AS SHOWN

DRAWING TITLE

TYPICAL SECTIONS

S-10

SHEET 36 OF 62

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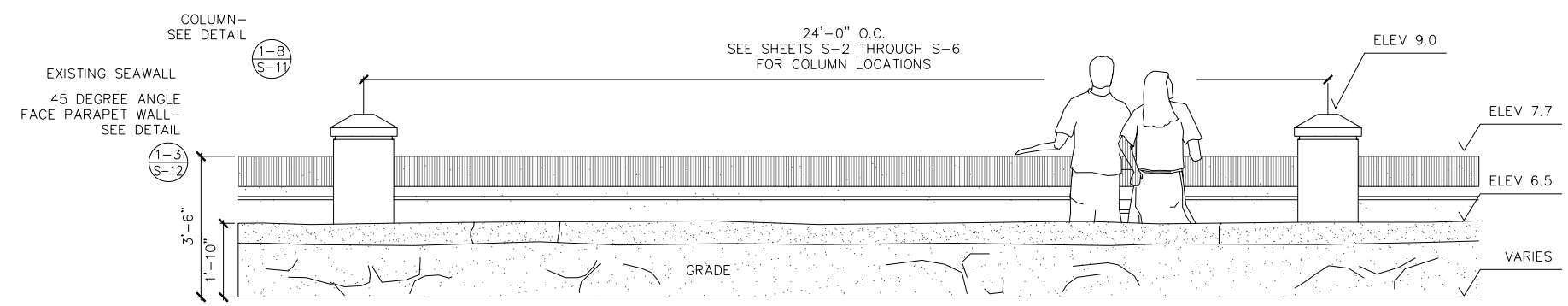
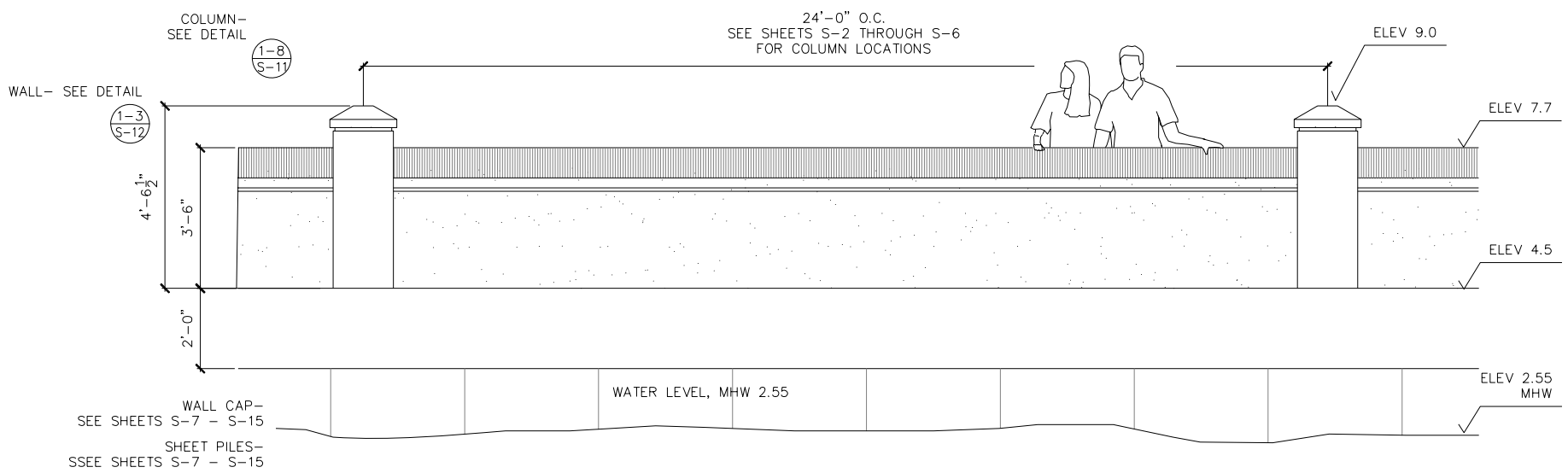
VIEW FROM ROADWAY

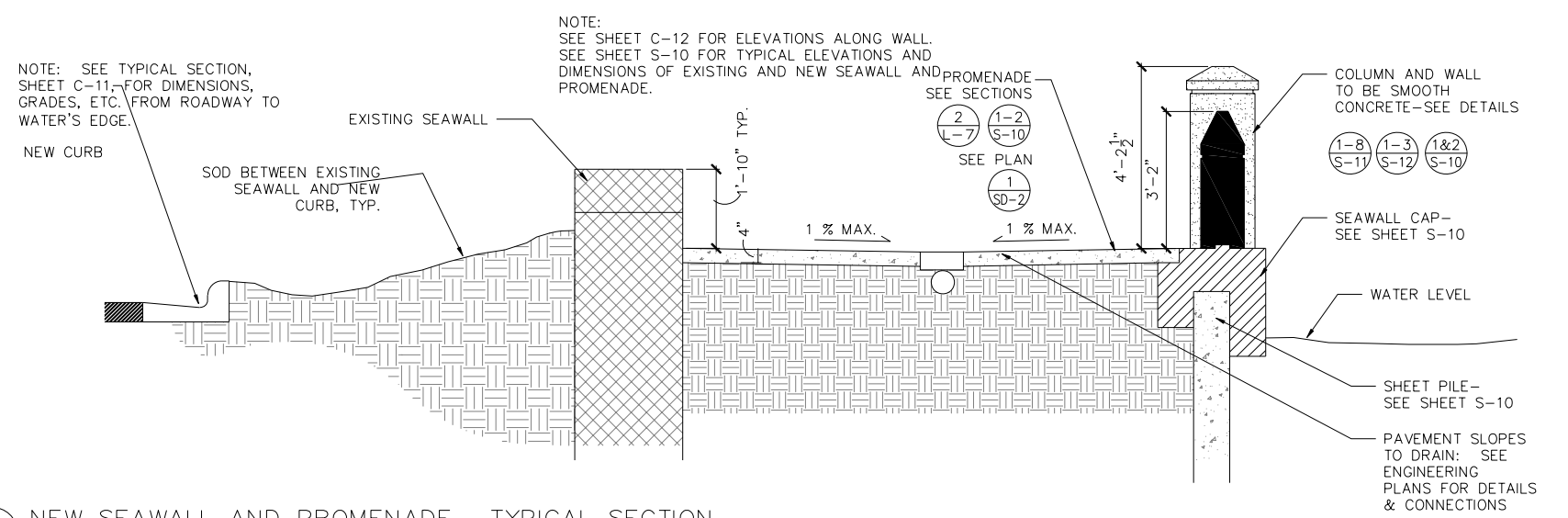


VIEW FROM WATER



1 / L–6 NEW SEAWALL– ELEVATIONS

FILE NAME: wall–elev–typ–nocable



2 / L–6 NEW SEAWALL AND PROMENADE– TYPICAL SECTION

FILE NAME: wall–sec2

BELLOMO ◦ HERBERT
LANDSCAPE ARCHITECTS
100 EAST PINE STREET
SUITE 204
ORLANDO, FLORIDA 32801
407.422.4845
FAX 407.422.0699

TAYLOR ENGINEERING INC.
9000 CYPRESS GREEN DRIVE, SUITE 200
JACKSONVILLE, FLORIDA 32256
CERTIFICATE OF AUTHORIZATION #:4815

SEAL

PROJECT TITLE

AVENIDA MENENDEZ
SEAWALL
ST. AUGUSTINE, FL

NO	ZONE	REVISIONS / SUBMISSIONS	DATE

PROJECT NO	C2003-048
DATE	JANUARY 14, 2009
DESIGNED	GH/ EM
DRAWN	EM
CHECKED	GH
REVIEWED	GH
SCALE	AS SHOWN

DRAWING TITLE

SITE DETAILS
L-6

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