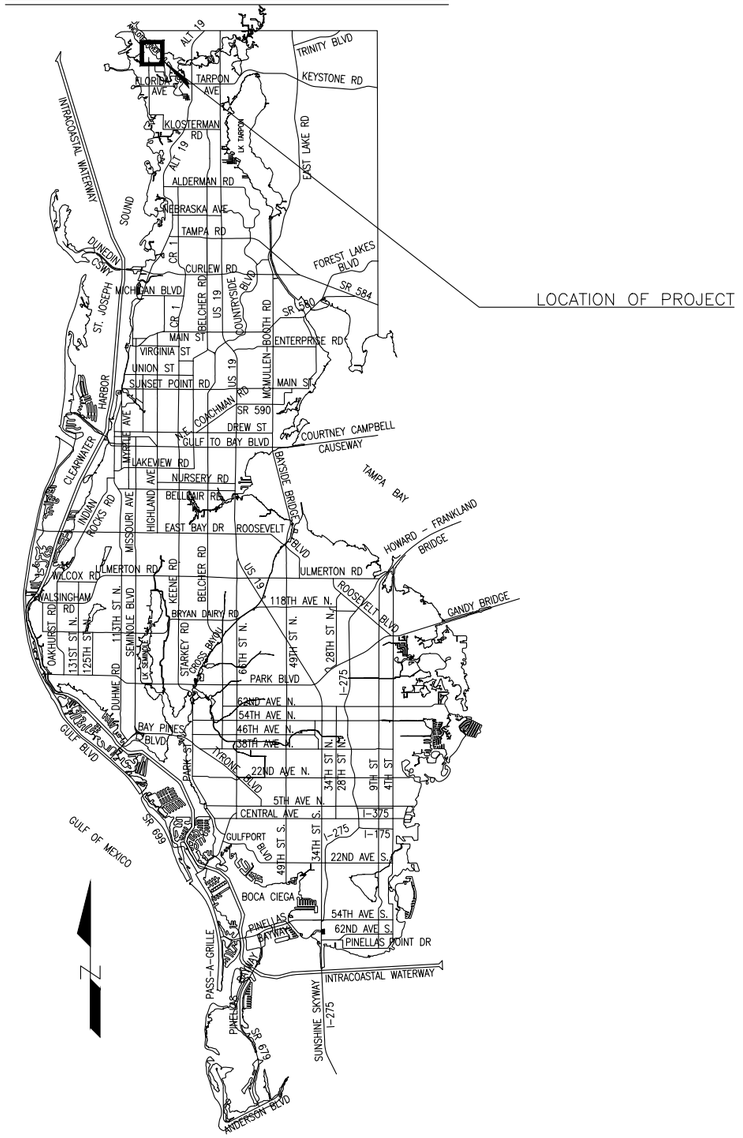
BECKETT BRIDGE REPLACEMENT
BRIDGE NO.154566

COUNTY PROJECT ID 001037A

STRUCTURES PLANS

PINELLAS COUNTY
LOCATION MAP



100% SUBMITTAL
06/25/2021

INDEX OF STRUCTURES PLANS

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G-1	KEY SHEET
G-5	INDEX OF BRIDGE SHEETS (1 OF 2)
G-6	INDEX OF BRIDGE SHEETS (2 OF 2)

PROJECT MANAGER: ANN VENABLES
(727)464-3640
PINELLAS COUNTY

CAPITAL IMPROVEMENTS DIVISION
PINELLAS COUNTY PUBLIC WORKS
14 SOUTH FORT HARRISON AVENUE
CLEARWATER, FLORIDA 33756
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PREPARED BY AND SHOP DRAWINGS SUBMITTED TO:

HARDESTY & HANOVER, LLC
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PHONE: (813)749-0823

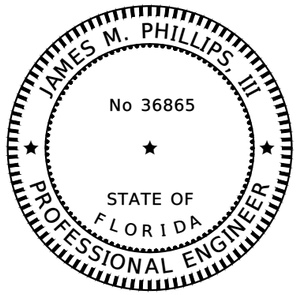
ENGINEER OF RECORD

JAMES M. PHILLIPS, III, P.E.
FLA. LIC. NO. 36865

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CERTIFICATE OF AUTHORIZATION: 29741
JAMES M. PHILLIPS, III, P.E. NO. 36865

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004. F.A.C.

INDEX OF STRUCTURES PLANS

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PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SIGNATURE SHEET (1 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G-2
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 2 OF 283

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REF. DWG. NO.	SHEET DESCRIPTION
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MARCO A. LARA
No 78414
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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REF. DWG. NO.	SHEET DESCRIPTION
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PROJECT: BECKETT BRIDGE REPLACEMENT

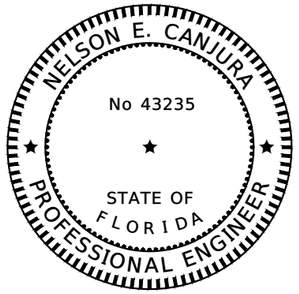
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5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G-3
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 3 OF 283

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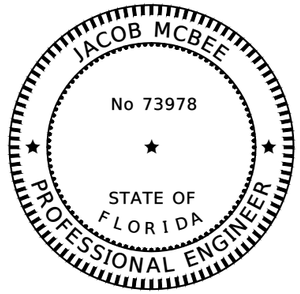
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5426 BAY CENTER DR., SUITE 400
TAMPA, FL 33609-3444
CERTIFICATION OF AUTHORIZATION 4213
NELSON E. CANJURA, III, P.E. NO. 43235

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REF. DWG. NO.	SHEET DESCRIPTION
G-4	SIGNATURE SHEET (3 OF 3)
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S-23	SUPERSTRUCTURE REINFORCING BAR LIST (3 OF 3)
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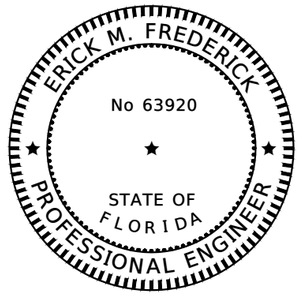
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INTERA INCORPORATED
9550 REGENCY SQUARE BLVD. SUITE 906
JACKSONVILLE, FL 32225
CERTIFICATION OF AUTHORIZATION: 9062
JACOB MCBEE, P.E. NO. 73978

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REF. DWG. NO.	SHEET DESCRIPTION
G-4	SIGNATURE SHEET (3 OF 3)
G-15	BRIDGE HYDRAULIC RECOMMENDATIONS



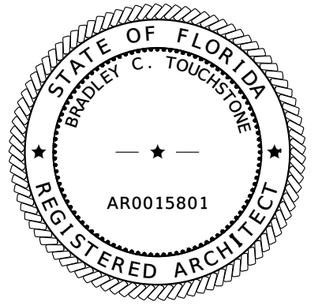
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TIERRA INC.
7351 TEMPLE TERRACE HIGHWAY
TAMPA, FLORIDA 33637
CERTIFICATION OF AUTHORIZATION: 6486
ERICK M. FREDERICK, P.E. NO. 63920

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REF. DWG. NO.	SHEET DESCRIPTION
G-4	SIGNATURE SHEET (3 OF 3)
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G-17	BORING LOCATION PLAN - REPORT OF CORE BORINGS
G-18	REPORT OF CORE BORINGS
G-19	REPORT OF CORE BORINGS
G-20	REPORT OF CORE BORINGS
G-21	REPORT OF CORE BORINGS
G-22	REPORT OF CORE BORINGS
G-23	REPORT OF CORE BORINGS
G-24	REPORT OF CORE BORINGS
G-25	REPORT OF CORE BORINGS



THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY:

REGISTERED ARCHITECT

ON THE DATE ADJACENT TO THE SEAL PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD. SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE #26000708
BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G1-16.005. F.A.C.

REF. DWG. NO.	SHEET DESCRIPTION
G-4	SIGNATURE SHEET (3 OF 3)
A-001	GENERAL NOTES, CODE INFORMATION AND SYMBOLS
A-101	BASCULE PIER - ROADWAY LEVEL PLAN
A-102	BASCULE PIER - MACHINERY LEVEL PLAN
A-103	BASCULE PIER - EAST ELEVATION
A-104	BASCULE PIER - SOUTH ELEVATION
A-105	BASCULE PIER - NORTH ELEVATION
A-106	BASCULE PIER - CANOPY ROOF PLAN
A-107	BASCULE PIER - CANOPY DETAILS
A-108	BASCULE PIER - WIRE MESH DETAILS
A-109	BASCULE PIER - WIRE MESH DETAILS
A-110	BASCULE PIER - PLAQUE DETAILS
A-111	BASCULE PIER - BIRD SPIKE DETAILS
A-112	BASCULE PIER - DOOR SCHEDULE DETAILS
A-113	MESH SYSTEM ELEVATIONS
A-114	MESH SYSTEM ELEVATIONS
A-115	MESH SYSTEM ELEVATIONS
A-116	MESH SYSTEM ELEVATIONS
A-117	MESH SYSTEM ELEVATIONS

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SIGNATURE SHEET (3 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G-4
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 4 OF 283

INDEX OF BRIDGE SHEETS

REF. DWG. NO.	SHEET DESCRIPTION
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G-6	INDEX OF BRIDGE SHEETS (2 OF 2)
G-7	SUMMARY OF QUANTITIES (1 OF 2)
G-8	SUMMARY OF QUANTITIES (2 OF 2)
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G-10	GENERAL NOTES (2 OF 3)
G-11	GENERAL NOTES (3 OF 3)
G-12	SURFACE FINISH DETAILS
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G-17	BORING LOCATION PLAN - REPORT OF CORE BORINGS
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G-19	REPORT OF CORE BORINGS
G-20	REPORT OF CORE BORINGS
G-21	REPORT OF CORE BORINGS
G-22	REPORT OF CORE BORINGS
G-23	REPORT OF CORE BORINGS
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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: INDEX OF BRIDGE SHEETS (1 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
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TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G-5
DATE: 6/25/2021
PROJECT NO. 001037A

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REF. DWG. NO.	SHEET DESCRIPTION
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W-4	RETAINING WALL ELEVATION (2 OF 2)
W-5	RETAINING WALL DETAILS (1 OF 2)
W-6	RETAINING WALL DETAILS (2 OF 2)
W-7	RETAINING WALLS REINFORCING BAR LIST

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415-001	BAR BENDING DETAILS (STEEL)
450-450	FLORIDA SLAB BEAM TYPICAL DETAILS AND NOTES
450-453	18" FLORIDA SLAB BEAM
458-110	EXPANSION JOINT SYSTEM - POURED JOINT WITH BACKER ROD
508-T01	TRAFFIC CONTROL DEVICES FOR MOVABLE SPAN BRIDGE SIGNALS
515-070	PIPE GUIDERAIL (ALUMINUM)
521-660	LIGHT POLE PEDESTAL - BRIDGE

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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: INDEX OF BRIDGE SHEETS (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
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ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G-6
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 6 OF 283

SUMMARY OF STRUCTURE QUANTITIES - BRIDGE 154566

SECTION	PAY ITEM NO.	PAY ITEM DESCRIPTION	LOCATION	UNIT	QUANTITY		TOTAL		DESIGN NOTES	CONSTRUCTION REMARKS
					P	F	P	F		
LUMP SUM ITEMS	108-2	MONITOR EXISTING STRUCTURES - VIBRATION MONITORING		LS	1		1			
	110-86	DELIVERY OF SALVAGEABLE MATERIAL TO COUNTY		LS	1		1			
	460-6-1	LADDERS & PLATFORMS, NEW CONSTRUCTION	BASCULE PIER	LS	1		1			
	465-1	MOVABLE BRIDGE - MECHANICAL EQUIPMENT		LS	1		1			
	465-20	MOVABLE BRIDGE - PREVENTABLE MAINTENANCE		LS	1		1			
	465-71-3	MOVABLE BRIDGE - FUNCTIONAL CHECKOUT (PHASE C)		LS	1		1			
	508-1-1	MOVABLE BRIDGE - ELECTRICAL EQUIPMENT		LS	1		1			
	512-1	MOVABLE BRIDGE - CONTROL HOUSE		LS	1		1			
	751-51	ARCHITECTUAL MARKERS		LS	1		1		HISTORICAL MONUMENTS	
DEMOLITION	110-3	REMOVAL OF EXISTING STRUCTURES	BASCULE SPAN	SF	1154		1154			
			APPROACH SPANS	SF	10020		10020			
FOUNDATION	400-95	COFFERDAM	BASCULE PIER	EA	1		1			
	455-35-9	STEEL PILING, 42" DIAMETER		LF	836		836			
	455-88-4	DRILLED SHAFT, 42" DIAMETER		LF	934		934			
	455-107-4	DRILLED SHAFT CASING, 42" DIAMETER		LF	421		421			
	455-111	PILOT HOLE - DRILLED SHAFT		LF	1642		1642			
	455-122-4	UNCLASSIFIED SHAFT EXCAVATION, 42" DIAMETER		LF	884		884			
	455-133-3	SHEET PILING STEEL, F&I PERMANENT	ABUTMENTS	SF	4322		4322			
	455-147	THERMAL INTEGRITY TESTING FOR DRILLED SHAFTS		EA	5		5			
	455-144-24	STEEL TEST PILING, 42" DIAMETER		LF	438		438			
SUBSTRUCTURE	400-3-20	CONCRETE CLASS III, SEAL	BASCULE PIER	CY	245.7		245.7			
	400-4-25	CONCRETE CLASS IV (MASS)	BASCULE PIER	CY	604.9		604.9			
	400-4-5	CONCRETE CLASS IV	APPROACH SPAN	CY	84.2		84.2			
		CONCRETE CLASS IV	BASCULE PIER	CY	106.6		106.6			
	404-2	PRECAST END BENT CAP	END BENTS	CY	73.8		73.8			
	404-3	PRECAST INTERMEDIATE BENT CAP	INT. BENTS	CY	131.9		131.9			
	404-4	PRECAST REST PIER CAP	REST PIER	CY	43.4		43.4			
	415-1-5	REINFORCING STEEL	APPROACH SPAN	LB	44063		44063			
			BASCULE PIER	LB	113165		113165			
			APPROACH SPAN CIP CAP	LB	22730		22730			
	471-1-2	FENDER SYSTEM, PLASTIC MARINE LUMBER (UNREINFORCED)		MB	15.9		15.9			

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN DJH
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUMMARY OF QUANTITIES (1 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G-7
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 7 OF 283

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SUMMARY OF STRUCTURE QUANTITIES - BRIDGE 154566

SECTION	PAY ITEM NO.	PAY ITEM DESCRIPTION	LOCATION	UNIT	QUANTITY		TOTAL		DESIGN NOTES	CONSTRUCTION REMARKS
					P	F	P	F		
APPROACH SLABS	400-2-10	CONCRETE CLASS II	APPROACH SLABS	CY	153.4		153.4			
	415-1-9	REINFORCING STEEL	APPROACH SLABS	LB	28935		28935			
	400-9-1	BRIDGE DECK GROOVING AND PLANING, DECK THICKNESS 8.5" OR GREATER	APPROACH SLABS	SY	212		212			
SUPERSTRUCTURE	400-4-4	CONCRETE CLASS IV, SUPERSTRUCTURE	APPROACH SPAN	CY	30.4		30.4			
	400-4-47	CONCRETE CLASS IV, (CIP TOPPING WITH SHRINKAGE REDUCING ADMIXTURE)	APPROACH SPANS	CY	609.5		609.5			
	400-7-1	BRIDGE DECK GROOVING	APPROACH SPAN	SY	1134		1134			
	400-148	PLAIN NEOPRENE BEARING PADS	APPROACH SPANS	CF	20.9		20.9			
	415-1-4	REINFORCING STEEL	APPROACH SPAN	LB	141227		141227			
	450-8-34	PRESTRESSED BEAM: FLORIDA SLAB BEAM, BEAM DEPTH 18", WIDTH 60"		LF	2758		2758			
	458-1-11	BRIDGE DECK EXPANSION JOINT, NEW CONSTRUCTION, F&I POURED JOINT WITH BACKER ROD		LF	149		149			
RAILING/ BARRIERS	460-71-2	METAL TRAFFIC RAILING BARRIER (STEEL POST & RAIL)	FIXED AND BASCULE SPANS	LF	744		744			
	515-1-2	PIPE HANDRAIL - GUIDERAIL, ALUMINUM	BASCULE PIER, GATE SUPPORTS	LF	488		488			
	521-5-15	CONCRETE TRAFFIC RAIL - BRIDGE (TEXAS RAILING TYPE C221)	APPROACH SLABS & ROADWAY APPROACHS	LF	390		390			
MOVABLE BRIDGE/ ARCHITECTURAL	400-4-104	CONCRETE CLASS IV (LT-WT)	BASCULE DECK	CY	67.6		67.6			
	400-4-6	CONCRETE CLASS IV	COUNTERWEIGHT	CY	31		31			
	400-7	BRIDGE DECK GROOVING, LESS THAN 8.5"	BASCULE SPAN	SY	198		198			
	415-1-4	REINFORCING STEEL	BASCULE SPAN	LB	23138		23138			
	460-2-50	STRUCTURAL STEEL (BASCULE LEAVES)	BASCULE SPAN	LS (LB)	1		1		SEE PAY ITEM NOTES	
	465-21	MOVABLE BRIDGE OPERATOR		DA	150		150			
	465-3-50	MOVABLE BRIDGE COUNTERWEIGHT, ADJUST	BASCULE SPAN	EA	1		1			
	465-3-11	MOVABLE BRIDGE COUNTERWEIGHT, F&I, FIBER GLASS POCKET COVER	BASCULE SPAN	EA	4		4			
	465-3-14	MOVABLE BRIDGE COUNTERWEIGHT, F&I, (BUMPER BLOCKS)	BASCULE SPAN	EA	2		2			
	465-3-17	MOVABLE BRIDGE COUNTERWEIGHT, F&I, (BALANCE BLOCKS)	BASCULE SPAN	EA	420		420			
	465-3-19	MOVABLE BRIDGE COUNTERWEIGHT, F&I, (STEEL BALLAST)	BASCULE SPAN	TN	103		103			
	504-1-10	ROADWAY FLOOR - STEEL (5" ARMORED)	BASCULE SPAN	SF	1693		1693			
	460-2-15	STRUCTURAL STEEL (MISCELLANEOUS)		LB	7759		7759		ARMORED JOINTS ON BASCULE PIERS AND APPROACH SPAN	
	512-71-1	MOVABLE BRIDGE PLUMBING SYSTEM, F&I		EA	1		1		NEW POTABLE WATER AND SANTARY SEWER LINSE ON BRIDGE	

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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUMMARY OF QUANTITIES (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G-8
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 8 OF 283

A. DESIGN SPECIFICATIONS
1. FDOT STRUCTURES MANUAL (JANUARY 2017 EDITION).
2. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LOAD AND RESISTANCE FACTOR (LRFD) BRIDGE DESIGN SPECIFICATIONS (7TH EDITION) WITH SUBSEQUENT 2015 & 2016 INTERIM REVISIONS.
3. AASHTO LRFD MOVABLE HIGHWAY BRIDGE DESIGN SPECIFICATIONS, 2ND EDITION (2007) WITH 2008, 2010, 2011, 2012, 2014 AND 2015 INTERIMS.

B. GOVERNING STANDARDS AND CONSTRUCTION SPECIFICATIONS
– FDOT FY 2021–22 STANDARD PLANS AND REVISED INDEX OF DRAWINGS, AS AMENDED HEREIN, AND JULY 2021 FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION , AS AMENDED BY CONTRACT DOCUMENTS.

C. PLAN DIMENSIONS
1. VERTICAL DATUM REFERENCED TO NAVD 88.
2. HORIZONTAL AND VERTICAL DIMENSIONS ARE MEASURED IN FEET AND @ 70° F UNO.

D. ENVIRONMENT

BRIDGE NUMBER	SUPERSTRUCTURE	SUBSTRUCTURE	
		CONCRETE	STEEL
154566	EXTREMELY AGGRESSIVE	EXTREMELY AGGRESSIVE (CHLORIDE= 30,000 PPM)	EXTREMELY AGGRESSIVE (CHLORIDE= 30,000 PPM)

E. DESIGN METHODOLOGY
– LOAD AND RESISTANCE FACTOR DESIGN (LRFD) METHOD USING STRENGTH, SERVICE, EXTREME EVENT AND FATIGUE LIMIT STATES
– OPERATIONAL IMPORTANCE FACTOR: 1.00

F. DESIGN LOADING
1. LIVE LOADS
– HL–93 WITH DYNAMIC LOAD ALLOWANCE

2. DEAD LOADS
– REINFORCED CONCRETE: 150 PCF
– COUNTERWEIGHT CONCRETE (PLAIN): 145 PCF
– REINFORCED LIGHTWEIGHT CONCRETE: 110 PCF
– STRUCTURAL STEEL: 490 PCF
– ALUMINUM: 175 PCF
– TEXAS TRAFFIC RAILING C221: 380 PLF
– TEXAS TRAFFIC RAILING T2P (STEEL ONLY): 61 PLF
– SACRIFICIAL THICKNESS INCLUDED IN THE DEAD LOAD OF THE DECK BUT OMITTED FROM THE SECTION PROPERTIES USED FOR DESIGN:
• APPROACH SPAN DECK= ½"
• BASCULE LEAF DECK= ¼"

3. WIND LOADS
– DESIGN WIND SPEED, V: 150 MPH
– VELOCITY PRESSURE EXPOSURE COEFFICIENT (KZ): 1.154 (STRENGTH III)

4. DESIGN TEMPERATURE

SUPERSTRUCTURE MATERIAL	TEMPERATURE RANGE (°F)			
	MEAN	HIGH	LOW	RANGE
CONCRETE ONLY	70	105	35	70
CONCRETE DECK ON STEEL GIRDER	70	110	30	80

5. CONSTRUCTION LOADS
– FINISHING MACHINE LOAD: 13 KIPS. FINISHING MACHINE WHEEL LOCATION BEYOND THE EDGE OF DECK OVERHANG: 6".
– CONSTRUCTION LIVE LOADS: 20 PSF EXTENDED OVER THE ENTIRE BRIDGE WIDTH AND 50–FT IN LONGITUDINAL LENGTH CENTERED ON THE FINISHING MACHINE.
– REMOVABLE DECK CANTILEVER TIMBER FORMS WITH OVERHANG BRACKETS: 15 PSF.
– LIVE LOAD AT OR NEAR THE OUTSIDE EDGE OF DECK DURING DECK CASTING: 75 PLF APPLIED AS A MOVING LOAD OVER A LENGTH OF 20 FEET.
– CONSTRUCTION INACTIVE DESIGN WIND SPEED: 90 MPH.
– CONSTRUCTION ACTIVE DESIGN WIND SPEED: 30 MPH

6. VESSEL COLLISION
– MINIMUM VESSEL COLLISION: 70 KIPS PER PIER OR BENT

G. CONCRETE NOTES
1. MATERIALS
A) CONCRETE PROPERTIES

CONCRETE CLASS	MIN. 28–DAY COMPRESSIVE STRENGTH (PSI)	ELEMENTS
II	3400	COUNTERWEIGHT
II	4500	APPROACH SLABS
III (SEAL)	3000	SEALS
IV	5500	BRIDGE DECK**, TRAFFIC RAILINGS, CIP AND PRECAST SUBSTRUCTURE, BASCULE PIER, PIER STRUTS
IV (MASS CONCRETE)	5500	BASCULE PIER FOOTING, BASCULE PIER MACHINERY PLATFORM
IV (DRILLED SHAFTS)	4000	PIPE PILES, DRILLED SHAFTS
VI *	8500	PRESTRESSED SLAB BEAM

* INCLUDE 4.5 LBS./CY CALCIUM NITRATE CORROSION INHIBITOR
** INCLUDE SHRINKAGE REDUCING ADMIXTURE PER SPECIFICATIONS SECTIONS 346 AND 924

B) SILICA FUME IS REQUIRED FOR ALL CONCRETE CLASS IV SUBSTRUCTURE ELEMENTS BELOW EL. +13.00.
C) REINFORCING STEEL SHALL BE GRADE 60 CARBON STEEL PER SPECIFICATIONS SECTION 931.
D) PRESTRESSING STRANDS SHALL BE LOW–RELAXATION STRANDS PER SPECIFICATIONS SECTION 933.
E) UNLESS NOTED OTHERWISE, CONCRETE COVER SHALL CONFORM TO THE FOLLOWING:

SUPERSTRUCTURE AND BASCULE PIER AT OR ABOVE DECK LEVEL:
= 2" FOR ALL INTERNAL & EXTERNAL SURFACES EXCEPT AS NOTED BELOW
= 2½" FOR TOP DECK SURFACES WITHIN ROADWAY LIMITS
= 3" FOR BASCULE PIER COLUMNS C1 & C3 AT AND ABOVE DECK LEVEL
SUBSTRUCTURE:
= 2" FOR TOP OF GIRDER PEDESTALS & TEMP. PRECAST INTERNAL SURFACES
= 3" FOR INTERNAL SURFACES, RETAINING WALLS
= 4" FOR OTHER EXTERNAL SURFACES NOT IN CONTACT WITH WATER
= 4½" FOR EXTERNAL SURFACES CAST AGAINST EARTH, SURFACES IN CONTACT WITH WATER
= 6" FOR DRILLED SHAFTS

F) REINFORCING STEEL SPACING SHOWN IS MAXIMUM, UNLESS NOTED OTHERWISE. CONCRETE COVER DIMENSIONS SHOWN IN THE STRUCTURES PLANS DO NOT INCLUDE PLACEMENT AND FABRICATION TOLERANCES UNLESS SHOWN AS "MINIMUM COVER". SEE SPECIFICATIONS SECTION 415 FOR ALLOWABLE TOLERANCES.
G) ALL DIMENSIONS PERTAINING TO LOCATION OF REINFORCING STEEL ARE TO CENTERLINE OF BAR EXCEPT WHERE CLEAR DIMENSION IS NOTED TO FACE OF CONCRETE.

2. SCREEDING DECK SLABS
– SCREED THE RIDING SURFACE OF THE BRIDGE DECK AND APPROACH SLABS TO ACHIEVE THE FINISH GRADE ELEVATIONS SHOWN IN THE PLANS. ACCOUNT FOR THE THEORETICAL DEFLECTIONS DUE TO SELF WEIGHT, DECK CASTING SEQUENCE, DECK FORMING SYSTEMS, CONSTRUCTION LOADS AND TEMPORARY SHORING, ETC. AS REQUIRED.

G. CONCRETE NOTES (CONTINUED)
3. DECK GROOVING
– BRIDGE DECK AND APPROACH SLABS SHALL BE GROOVED WITHIN THE LIMITS SPECIFIED IN THE PLANS AND PER SPECIFICATIONS SECTION 400.

4. STAY–IN–PLACE DECK FORMS
– STAY–IN–PLACE DECK FORMS ARE NOT PERMITTED IN THIS PROJECT.

5. CONSTRUCTION JOINTS
– CONSTRUCTION JOINTS WILL BE PERMITTED ONLY AT THE LOCATIONS INDICATED IN THE PLANS. ADDITIONAL CONSTRUCTION JOINTS OR ALTERATIONS TO THOSE SHOWN SHALL REQUIRE APPROVAL OF THE ENGINEER.

6. CONCRETE SURFACE FINISH
– CONCRETE SURFACE FINISHES SHALL BE AS DEFINED HEREIN:

CONCRETE SURFACE	SURFACE FINISH
CONCRETE EXTERNAL SURFACE	CLASS 5 APPLIED FINISH PER SURFACE FINISH DETAILS – SAE AMS–STD–595 NO. 36622
APPROACH SPAN ROADWAY SURFACE	CLASS 4 FINISH WITH PLANING AS LONG BRIDGE AND GROOVING
BASCULE SPAN ROADWAY SURFACE	CLASS 4 FINISH WITH PLANING AS SHORT BRIDGE AND GROOVING
SIDEWALK DECK TOP SURFACE	CLASS 4 FINISH WITH BROOM FINISH
BASCULE PIER DECK TOP SURFACE	CLASS 4 FINISH WITH BROOM FINISH OR EPOXY FLOORING PER PLANS
OTHER CONCRETE SURFACES (UNO)	GENERAL SURFACE FINISH

7. PRECAST CONCRETE
– SEE TSP SECTION T404 FOR ADDITIONAL REQUIREMENTS FOR PRECAST CONCRETE.

H. LIGHTWEIGHT CONCRETE (BASCULE LEAF)
1. MATERIALS
– EQUILIBRIUM UNIT WEIGHT (PLAIN): 100 PCF ±3 PCF.
– REPLACE COARSE AGGREGATE AND FINE AGGREGATE PER SPECIFICATIONS SECTIONS 901 AND 902, RESPECTIVELY, WITH A COMBINATION OF OF LIGHTWEIGHT COARSE AND FINE AGGREGATES MEETING THE REQUIREMENTS OF ASTM C330.
– USE ⅜" MAX. COARSE AGGREGATE SIZE.
– PERFORM ALL REQUIRED LIGHTWEIGHT AGGREGATE TESTS AND LIGHTWEIGHT CONCRETE TESTS AS SPECIFIED IN ASTM C330.
– MEET SPECIFIED MIN. SPLITTING TENSILE STRENGTH (f.ct) = 500 PSI

2. DESIGN CONTROL AND ACCEPTANCE CRITERIA
– SEE TSP SECTIONS T465 AND T505.

I. STRUCTURAL STEEL
1. MATERIALS
– ALL STRUCTURAL STEEL SHALL BE PER ASTM A709, GRADE 50 (UNO).
– ALL STRUCTURAL TUBING SHALL BE ASTM A500, GRADE B.

2. CHARPY V–NOTCH
– ALL MEMBERS SUBJECTED TO TENSILE STRESSES IDENTIFIED AS MAIN LOAD CARRYING MEMBERS SHALL BE TESTED PER SPECIFICATIONS SECTION 962.
– SPLICE PLATES SHALL BE TESTED TO THE SAME REQUIREMENTS AS THE COMPONENT TO WHICH THEY ARE CONNECTED.

3. THE FOLLOWING ARE DESIGNATED MAIN LOAD CARRYING MEMBERS: CRANK ARM GIRDERS, COUNTERWEIGHT GIRDERS, FLOORBEAMS, LONGITUDINAL BRACING, MAIN GIRDERS, TAIL PROP DIAPHRAGMS AND ASSOCIATED CONNECTION AND SPLICES.

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REV. NO.	DATE	DESCRIPTION	REV. BY

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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: GENERAL NOTES (1 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G–9
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 9 OF 283

I. STRUCTURAL STEEL (CONTINUED)

3. STEEL FABRICATION
   - ALL SHOP SPLICES IN FLANGES OR WEB PLATES SHALL BE MADE PRIOR TO WELDING FLANGE PLATES. ALL SPLICES SHALL BE INDICATED ON THE SHOP DRAWINGS.
   - SUBMIT SHOP ASSEMBLIES PER SPECIFICATIONS SECTION 460 AND TSP SECTION T465.
   - ALL ENDS OF GIRDERS, FLOORBEAMS, END DIAPHRAGMS, AND BEARING STIFFENERS SHALL BE VERTICAL AFTER DEAD LOAD IS APPLIED. ALL INTERMEDIATE STIFFENERS AND FIELD SPLICES SHALL BE NORMAL TO GRADE.

4. FRACTURE CRITICAL MEMBERS
   - SEE BASCULE SPAN PLANS FOR DESIGNATION OF FRACTURE CRITICAL MEMBERS.

5. STRUCTURAL STEEL WELDING
   - PERFORM NON-DESTRUCTIVE TESTING ON WELDS AS REQUIRED BY THE CURRENT AASHTO/AWS D1.5 BRIDGE WELDING CODE.
   - FIELD WELDING SHALL BE PER REQUIREMENTS OF AASHTO/AWS D1.5 FOR NON-ANCILLARY ITEMS. THE FOLLOWING MEMBERS ARE CLASSIFIED AS ANCILLARY MEMBERS IN ACCORDANCE WITH THE CURRENT EDITION OF THE AASHTO/AWS D1.5 BRIDGE WELDING CODE:
     - EXPANSION DAMS
     - DRAINAGE COMPONENTS
     - SHEET PILING
     - BEARINGS
   - FIELD WELDING TO ANY STRUCTURAL STEEL FOR THE PURPOSE OF ATTACHING ERECTION HARDWARE OR FOR ANCHORING CONDUITS/BOXES FOR BOX LIGHTING IS NOT PERMITTED. SUBMIT PROPOSED METHODS OF ATTACHMENT TO THE ENGINEER FOR APPROVAL.
   - REINFORCING STEEL WELDING DETAILS, PROCEDURES, AND TESTING METHODS SHALL CONFORM TO AWS D1.4: 2011.
   - FILLET WELDS 5/16" (U.N.O.)
   - GROOVE WELDS COMPLETE JOINT PENETRATION (CJP) (U.N.O.)
   - WELD ELECTRODES E70XX (U.N.O.)

6. FIELD CONNECTIONS
   - ALL STRUCTURAL STEEL CONNECTIONS SHALL BE MADE WITH 7/8" HIGH STRENGTH BOLTS PER ASTM F3125 GRADE A325, TYPE 1 AND MECHANICALLY GALVANIZED PER ASTM B695, CLASS 55, UNO.
   - ALL CONNECTIONS ARE DESIGNATED AS SLIP CRITICAL WITH A CLASS "A" SURFACE CONDITION.
   - UNLESS NOTED OTHERWISE, EXCLUDE ALL THREADS FROM THE SHEAR PLANE. BOLT HEADS SHALL BE ON THE EXTERIOR/EXPOSED FACE OF THE GIRDERS.
   - WHERE THE NUMBER OF BOLTS IN A CONNECTION IS NOT SPECIFIED, THE NUMBER SHOWN IN THE DRAWING IS THE NUMBER REQUIRED.
   - UNLESS NOTED OTHERWISE, ALL BOLT EDGE DISTANCES ARE DETAILED TO BE 1 3/4".

7. STRUCTURAL STEEL COATINGS
   - ALL STRUCTURAL STEEL SHALL RECEIVE A THERMAL SPRAY ALUMINUM PRIMER COATING, A POLYAMINE EPOXY SEALER INTERMEDIATE COATING AND AN ALIPHATIC POLYURETHANE FINISH COATING, UNO. SEE TSP SECTION T564 FOR METALIZING REQUIREMENTS.
   - BASCULE SPAN STRUCTURAL STEEL SHALL BE PER SAE AMS-STD-595 NO. 25184. SUBMIT COLORS TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING WORK.

8. STEEL TRAFFIC RAILING COATINGS
   - UNLESS NOTED OTHERWISE, STEEL POSTS, RAILS AND HARDWARE SHALL BE HOT-DIP GALVANIZED PER SPECIFICATIONS SECTION 962 AFTER FABRICATION.

9. LADDERS AND PLATFORMS
   - EXCEPT FOR BASCULE PIER ACCESS LADDERS, STRUCTURAL STEEL FOR LADDERS AND PLATFORMS SHALL BE PER ASTM A36 OR ASTM A992 AND SHALL BE HOT-DIP GALVANIZED PER SPECIFICATIONS SECTION 962.
   - WELDING SHALL CONFORM TO AWS D1.1.

10. ARMORED JOINTS
   - ALL ARMORED JOINT STEEL SHALL BE HOT-DIP GALVANIZED AND BOLTS GALVANIZED PER SPECIFICATIONS SECTION 962.
   - PROVIDE 3/4" DIA. SAE GRADE 8 HEX HEAD, ZINC PLATED CAP SCREW IN COUNTERBORED HOLE WITH HOT-DIP GALVANIZED GRADE 8 LOCK WASHER. INSTALL WITH APPROVED THREADLOCK COMPOUND.
   - PROVIDE 1/4" (MAX.) BEVEL GAP BETWEEN ADJACENT PLATES. AT THE RAISED SIDEWALK, FOLLOW THE SIDEWALK CURB DOWN TO THE INTERSECTION WITH THE ROADWAY JOINT ASSEMBLY.
   - SEAL JOINTS BETWEEN STEEL AND CONCRETE WITH A TYPE D LOW MODULUS SEALANT SILICONE SEALER PER SPECIFICATIONS SECTION 932.

11. SHEAR CONNECTORS
   - ALL SHEAR CONNECTORS, ALSO KNOWN AS SHEAR STUDS, SHALL BE 7/8" DIA. x 6" LONG PER SPECIFICATIONS SECTION 502, UNLESS NOTED OTHERWISE.

J. ANCHOR BOLTS
   - ELEMENTS SUBJECT TO HEAVY LOADS AND/OR CYCLIC LOADS (INCLUDING TRAFFIC SIGNAL STRUCTURES, LIGHT POLES AND TRAFFIC RAILING) ANCHORED WITH HIGH-STRENGTH ANCHOR BOLTS PER ASTM A193 GRADE B7 OR B8M AS SPECIFIED.
   - MACHINERY BASES ANCHORED WITH PRELOADED UNDERCUT ANCHORS PER ASTM A193 GRADE B8M.
   - ANCILLARY STRUCTURES (INCLUDING ACCESS STAIRS, PLATFORMS AND OTHER LIGHTLY LOADED ELEMENTS NOT SUBJECT TO CYCLIC LOADS) ANCHORED WITH HOT-DIP GALVANIZED ANCHORS PER ASTM A307 OR ASTM F1554 OR STAINLESS STEEL ANCHORS PER ASTM A276 TYPE 316 AS SPECIFIED.
   - HIGH-STRENGTH HSHV EPOXY ADHESIVE IN COMPLIANCE WITH SPECIFICATIONS SECTION 937 IS PERMITTED FOR HORIZONTAL APPLICATIONS NOT SUBJECT TO SUSTAINED TENSION.

K. STRUCTURAL ALUMINUM
   - ALUMINUM WELDING DETAILS, PROCEDURES, AND TESTING METHODS SHALL CONFORM TO AWS D1.2: 2014.

L. STAINLESS STEEL
   - STAINLESS STEEL SHALL BE ASTM A276 TYPE 316, (UNO).
   - STAINLESS STEEL WELDING DETAILS, PROCEDURES, AND TESTING METHODS SHALL CONFORM TO AWS D1.6: 2007.

M. CONSTRUCTION STAGING AND WORK AREAS
   - THERE ARE NO DESIGNATED CONSTRUCTION STAGING AREAS AT THE JOB SITE EXCEPT FOR THE LIMITED AREA WITHIN THE RIGHT-OF-WAY ON THE EXISTING BRIDGE AND ROADWAY.
   - OBTAIN PERMITS FOR ANY TEMPORARY WORK PLATFORMS TO BE CONSTRUCTED IN THE WATER, LIMIT IMPACTS TO THE FOOT PRINT OF THE PROPOSED REPLACEMENT BRIDGE.

N. CONSTRUCTION AFFECTING PUBLIC SAFETY
   - CONSTRUCTION AFFECTING PUBLIC SAFETY SHALL COMPLY WITH SPECIFICATIONS SECTION 5 INCLUDING BUT NOT LIMITED TO TEMPORARY CRITICAL WORKS AND TEMPORARY BRIDGE SHORING.

O. UTILITIES
1. LOCATION OF UTILITIES SHOWN IN THE STRUCTURES PLANS ARE AT APPROXIMATE LOCATIONS. PRIOR TO EXCAVATION, PILE DRIVING OR COMMENCING ANY WORK, NOTIFY ALL INVOLVED UTILITY COMPANIES AND VERIFY THE LOCATION OF ALL UTILITIES. ASSURE UTILITIES ARE MAINTAINED AND PROTECTED AGAINST DAMAGE DURING CONSTRUCTION. SEE THE UTILITY ADJUSTMENT SHEETS IN THE ROADWAY PLANS FOR LOCATION VERIFICATION AND DISPOSITION OF EXISTING UTILITIES.

2. BRIDGE PLUMBING:
   - FOR BRIDGE PLUMBING GENERAL NOTES AND DETAILS, SEE TH DRAWINGS.
   - REFER TO TSP SECTION T512 FOR ADDITIONAL REQUIREMENTS.

P. PHASING OF WORK
   - WORK PHASING AND PROGRESSION OF THE WORK SHALL CONFORM TO DESIGN STANDARDS INDEX 600, THE TRAFFIC CONTROL PLANS, AND THE NOTES AND DETAILS ON THE CONSTRUCTION DRAWINGS.

Q. VIBRATION MONITORING AND PROTECTION OF EXISTING STRUCTURES
1. VIBRATION MONITORING SHALL BE PER SPECIFICATIONS SECTION 108.

2. PROTECTION OF EXISTING STRUCTURES SHALL BE PER SPECIFICATIONS. PERFORM PRE & POST-CONDITION SURVEYS AT THE FOLLOWING ADDRESSES:
   - 408 RIVERSIDE DRIVE
   - 350 NORTH SPRING BOULEVARD
   - 2 VENETIAN COURT
   - 6 VENETIAN COURT

R. BRIDGE PIER PROTECTION SYSTEM
1. PLASTIC LUMBER AND STRUCTURAL COMPOSITE LUMBER
   - PROVIDE ONLY PLASTIC LUMBER (THERMOPLASTIC STRUCTURAL SHAPES) AND STRUCTURAL COMPOSITE LUMBER (REINFORCED THERMOPLASTIC STRUCTURAL SHAPES) PER SPECIFICATION SECTION 973.

2. ANCHORAGE DEVICES
   - PROVIDE S.S. BOLTS PER ASTM F593 TYPE 316, S.S. SCREWS PER ASTM F593 TYPE 305 & S.S. THREADED BARS PER ASTM A193 GRADE B8M.
   - PROVIDE NUTS AND WASHERS COMPATIBLE WITH THE BOLT AND SCREW REQUIREMENTS.
   - INSTALL PLASTIC LUMBER DECKING PER MANUFACTURER'S RECOMMENDATIONS AND USING S.S. #10 x 3" (MINIMUM) DECK SCREWS.

S. CONTAMINATION NOTES
   - REFER TO THE CONTAMINATION PLAN NOTES IN THE REMOVAL OF EXISTING STRUCTURES PLANS AND CONTAMINATION REPORTS.

T. NAVIGABLE WATERWAY
   - AT NO TIME DURING CONSTRUCTION WILL THE WATERWAY BE CLOSED TO NAVIGATION WITHOUT PRIOR NOTIFICATION AND APPROVAL OF PINELLAS COUNTY AND THE UNITED STATES COAST GUARD (USCG).
   - ALL CONSTRUCTION EQUIPMENT MUST BE MARKED IN ACCORDANCE WITH THE U.S. COAST GUARD "NAVIGATION RULES" AND BE REMOVED FROM THE CHANNEL WHEN NOT ENGAGED IN CONSTRUCTION ACTIVITIES.
   - SUBMIT A COPY OF THE CONTRACTOR'S PLAN, SCHEDULE, AND SEQUENCE OF OPERATIONS TO THE USCG AND THE ENGINEER FOR APPROVAL 90 DAYS PRIOR TO STARTING. ANY WORK THAT WOULD POTENTIALLY REDUCE THE HORIZONTAL AND/OR VERTICAL CLEARANCE OF THE WATERWAYS SHALL BE INCLUDED WITH THE PLAN.
   - IMMEDIATELY NOTIFY THE COAST GUARD MARINE SAFETY OFFICE, ST. PETERSBURG SECTOR COMMANDER, TO SCHEDULE THE PLACEMENT OF BARGES OR FLOATING EQUIPMENT IN THE WATERWAY AND ANY CHANNEL CLOSURES REQUIRED FOR THIS CONSTRUCTION. FLOATING BARRIERS AND EQUIPMENT NEED TO BE USED WITH CAUTION.

USCG SECTOR ST. PETERSBURG
600 8TH AVE, S.E.
ST. PETERSBURG, FL 33701
(727) 824-7534

U. TURBIDITY CONTROL
   - CONTROL TURBIDITY IN ACCORDANCE WITH ALL REQUIRED PERMITS DURING DEMOLITION OF THE EXISTING BRIDGE AND CONSTRUCTION OF THE REPLACEMENT BRIDGE. USE SPECIAL DEPTH CURTAINS FOR FLOATING TURBIDITY BARRIERS WHERE WATER DEPTHS EXCEED 10 FEET AT NO ADDITIONAL COST TO THE COUNTY.

V. BRIDGE NAME AND NUMBER
   - PLACE THE FOLLOWING BRIDGE NAME AND NUMBER ON THE TRAFFIC RAILINGS (TYPE C221) IN ACCORDANCE WITH THE TRAFFIC RAILING DETAILS.

154566 BECKETT BRIDGE

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: GENERAL NOTES (2 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G-10
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 10 OF 283

W. ABBREVIATIONS

- SEE FDOT STANDARD PLAN INDEX ABBREV FOR STANDARD ABBREVIATIONS.
- ADDITIONAL ABBREVIATIONS AS DEFINED HEREIN ARE USED THROUGHOUT THE PLANS:

BFBW=	BACK FACE OF BACKWALL
CJ=	CONSTRUCTION JOINT
CVN=	CHARPY V-NOTCH TEST
E=	EXPANSION BEARING
EB=	END BENT
EJ=	DECK EXPANSION JOINT
EF=	EACH FACE
ES=	EACH SIDE
F=	FIXED BEARING
FCM=	FRACTURE CRITICAL MEMBER
FF=	FAR FACE
FFAS=	FRONT FACE OF APPROACH SLAB
FFBW=	FRONT FACE OF BACKWALL
FFRW=	FRONT FACE OF RETAINING WALL
FGL=	FINISH GRADE LINE
MHC=	MINIMUM HORIZONTAL CLEARANCE
MVC=	MINIMUM VERTICAL CLEARANCE
NF=	NEAR FACE
OJ=	OPEN JOINT
PMVC=	POINT OF MINIMUM VERTICAL CLEARANCE
RJ=	REAR JOINT
SSB=	SIMPLE SPAN BEAMS
TCW=	TEMPORARY CRITICAL WALL
T&B=	TOP & BOTTOM
TJ=	TOE JOINT
TR=	TRAFFIC RAILING
UNO=	UNLESS NOTED OTHERWISE
VC=	VERTICAL CURVE, VERTICAL CLEARANCE
TSP=	TECHNICAL SPECIAL PROVISION

V. PAY ITEM NOTES

1. FOR BRIDGE AND RETAINING WALL PAY ITEMS, SEE SUMMARY OF STRUCTURE QUANTITIES.
2. PAY ITEM 400-4-5, CONCRETE CLASS IV, INCLUDES THE PIER STRUT CONCRETE.
3. PAY ITEM 460-6-1, LADDERS & PLATFORMS, NEW CONSTRUCTION, INCLUDES ALL BASCULE PIER ACCESS HATCH ASSEMBLES AND LADDERS.
4. PAY ITEM 465-3-14, MOVABLE BRIDGE COUNTERWEIGHT, F&I, BUMPER BLOCKS, INCLUDES BUMPER BLOCKS AND ASSOCIATED HARDWARE.
5. PAY ITEM 460-2-50, INCLUDES AN ESTIMATED 170,660 LBS. OF STRUCTURAL STEEL (BASCULE LEAF). STRUCTURAL STEEL OF THE PORTIONS OF THE ARMORED JOINTS THAT ARE LOCATED ON THE BASCULE LEAF ARE INCLUDED IN THIS PAY ITEM.
6. PAY ITEM 465-3-19, "MOVABLE BRIDGE COUNTERWEIGHT, F&I, STEEL BALLAST", INCLUDES VERIFICATION OF PIECE WEIGHTS OF STEEL BALLAST.
7. PAY ITEM 471-2, "FENDER SYSTEM, PLASTIC MARINE LUMBER (UNREINFORCED)", INCLUDES THE PIER PROTECTION SYSTEM AND ALL ASSOCIATED ATTACHMENT, SPLICES AND HARDWARE.
8. PAY ITEM 512-1, "MOVABLE BRIDGE - CONTROL HOUSE", INCLUDES RESINOUS FLOORING, THE BIRD SCREENS, SAFETY RAILINGS WITH WOVEN WIRE, CANOPY METAL ROOF SYSTEM, INCLUDING TIE RODS AND ANCHORAGES, AND STAINLESS STEEL MESH ENCLOSURES AND SAFETY RAILING WITH WOVEN WIRE MESH IN THE BASCULE PIER, OPERATION AREA, AND OVERLOOK AREA.
9. PAY ITEM 515-1-2, "PIPE HANDRAIL - GUIDERAIL, ALUMINUM", INCLUDES SAFETY RAILINGS IN THE BASCULE PIER AND TRAFFIC AND RESISTANCE GATE PLATFORMS.
10. PAY ITEM 512-71-1, "MOVABLE BRIDGE PLUMBING SYSTEM, FURNISH AND INSTALL", INCLUDES BRIDGE PLUMBING SYSTEM FOR POTABLE WATER AND SANITARY SEWER LINES WHICH RUN FROM SERVICE CONNECTION POINT OFF OF WEST BRIDGE ROADWAY APPROACH TO BASCULE PIER 3. PAYMENT INCLUDES COST FOR ALL PLUMBING CONDUITS, COUPLINGS, EXPANSION DEVICES, UTILITY HANGER ATTACHMENTS, STAINLESS STEEL WASHING STATION, PUMPS, VALVES, ASSOCIATED DEVICES AND PERMIT FEES.
11. PAY ITEM 455-11 INCLUDES SPT TESTS AT PIER 4 AND PIER 5.
12. NO SEPARATE PAYMENT WILL BE MADE FOR EXCAVATION FOR STRUCTURES.
13. EXCAVATION OF MATERIAL WITHIN STEEL PIPE PILES AND CONSTRUCTION OF REINFORCED CONCRETE ABOVE THE MINIMUM TIP ELEVATION, INCLUDING CONCRETE AND REINFORCING STEEL WILL BE PAID FOR IN THE UNIT PRICE FOR STEEL PIPE PILES, PAY ITEMS 455-35-9 AND 455-144-24.
14. PAY ITEM 460-2-15, STRUCTURAL STEEL (MISC.) INCLUDES THE PORTIONS OF THE ARMORED JOINTS LOCATED ON THE BASCULE PIER AND REST PIER AS WELL AS THE ARMORED JOINT NEOPRENE SEALS.
15. PAY ITEM 465-1 INCLUDES THE NEOPRENE PADS LOCATED UNDER THE LIVE LOAD SHOE SOLE PLATES.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

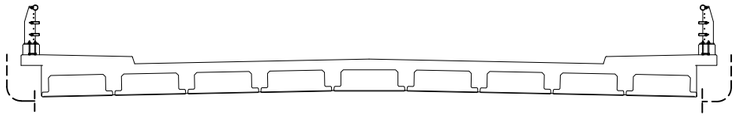
DESCRIPTION: GENERAL NOTES (3 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

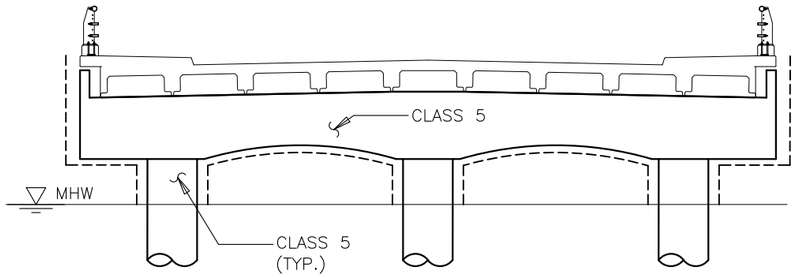
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G-11
DATE: 6/25/2021
PROJECT NO. 001037A

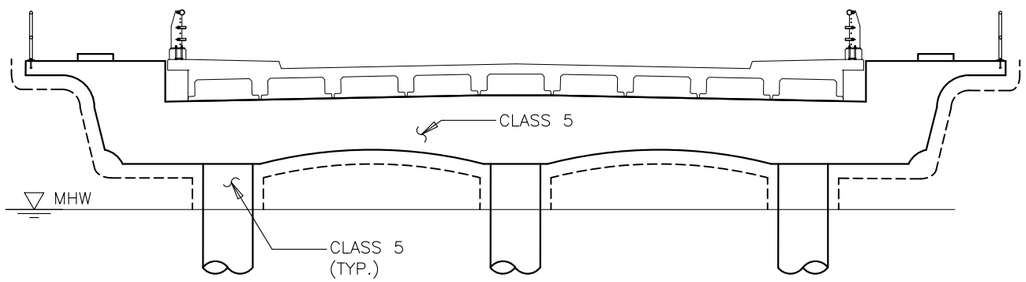
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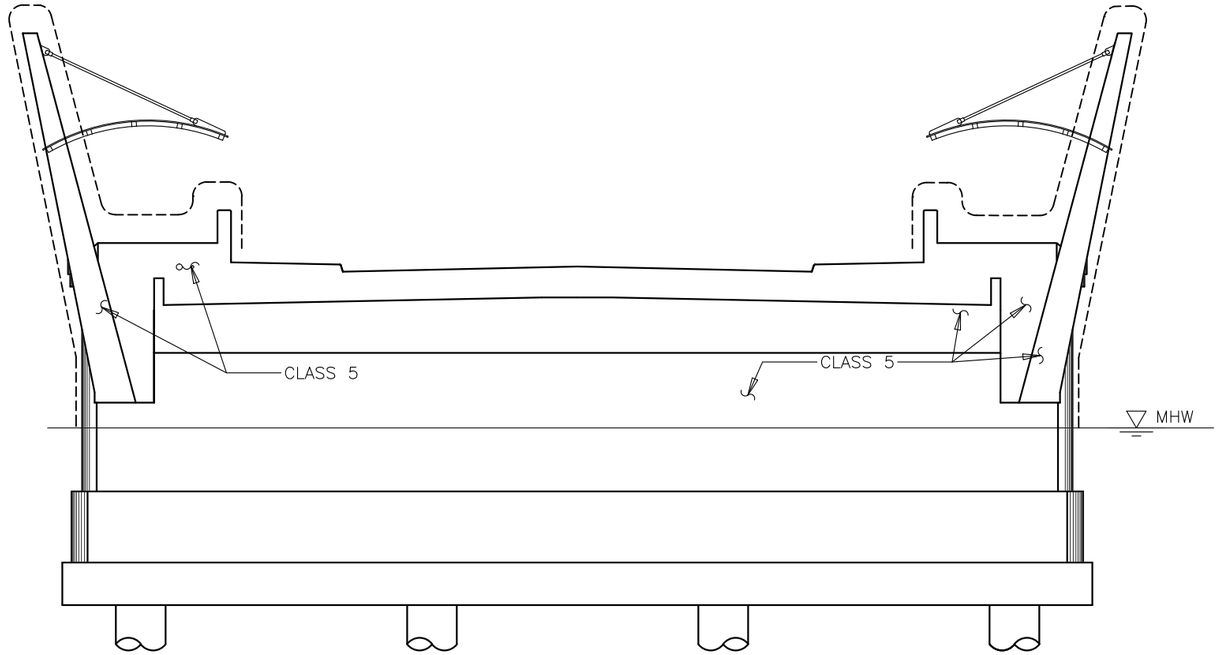
TYPICAL SECTION



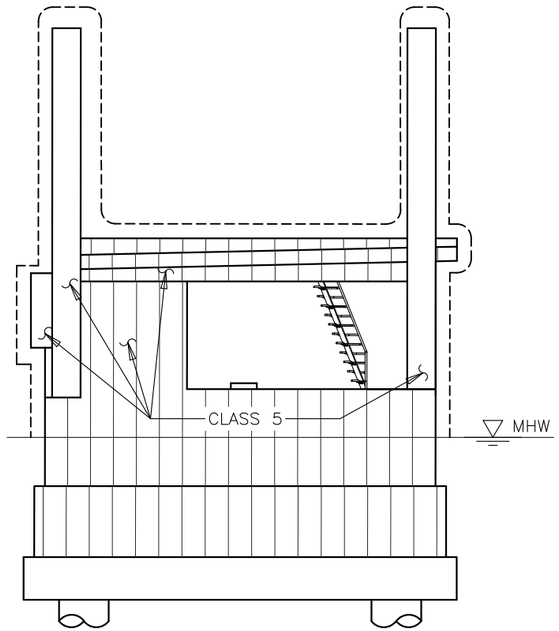
TYPICAL END BENT



TYPICAL INTERMEDIATE PIER
(REST PIER SIMILAR)



BASCULE PIER ELEVATION
(ARCHITECTURAL FASCIA ENCLOSURE NOT SHOWN)



BASCULE PIER ELEVATION
(ARCHITECTURAL FASCIA ENCLOSURE NOT SHOWN)

CONCRETE SURFACE FINISH NOTES:

1. APPLY CLASS 5 SURFACE FINISH, FEDERAL COLOR GRAY NUMBER 36622 TO THE FOLLOWING CONCRETE SURFACES IN ADDITION TO THE SURFACES SHOWN ON THIS SHEET:
   - EXPOSED VERTICAL AND HORIZONTAL SURFACES OF ABUTMENTS, INTERMEDIATE AND REST PIERS AND BASCULE PIER.
   - APPROACH SUPERSTRUCTURE EDGE BEAMS, DECK OVERHANG AND RAIL CURB; GATE AND SIGNAL PLATFORM FASCIA, EDGES AND UNDERSIDE; LIGHTING PLASTER EDGES AND UNDERSIDE.
   - APPROACH SLAB RAILINGS FASCIA, TOP AND INSIDE FACE.
   - ALL OTHER AREAS AS INDICATED IN THE ARCHITECTURAL PLANS.
2. SUBMIT PAINT MANUFACTURE'S DATA SHEETS AND THREE SETS OF SAMPLES TO THE ENGINEER FOR APPROVAL.
3. PROVIDE FIELD SAMPLES OF THE SELECTED COLOR BY APPLYING TO CONCRETE SURFACES OF THE SAME MATERIAL AS TO BE FINISHED. APPLY A MINIMUM OF 25 SQUARE FEET OF EACH COLOR IN AN AREA THAT RECEIVES DIRECT SUNLIGHT OR IN AN AREA DIRECTED BY THE ENGINEER.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SURFACE FINISH DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G-12
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 12 OF 283

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HORIZONTAL CURVE C2
PI STA.=1136+54.03
Δ=04°06'03" (LT)
D=03°25'03"
T=60.02
L=120.0
R=1676.58
PC STA.=1135+94.00
PT STA.=1137+14.00
e=0.02

℄ BASCULE PIER 3 STA. 1137+25.75
℄ REST PIER 4 STA. 1137+74.00
℄ INTER. PIER 5 STA. 1138+34.00
℄ INTER. PIER 6 STA. 1138+94.00
℄ LIGHT POLE STA. 1137+85.00
℄ LIGHT POLE STA. 1139+24.00
℄ PIER REAR WALL STA. 1137+13.25
℄ INTER. PIER 2 STA. 1136+54.00

PROPOSED SOVEREIGN SUBMERGED LANDS EASEMENT
EXIST. SOVEREIGN SUBMERGED LANDS EASEMENT
RETAINING WALL 1
TEMP. CONST. EASEMENT
WETLAND LIMIT
EXIST. RW LINE
1'-0" TR (TYPE C221)
PLATFORM (TYP.)
SCENIC OVERLOOK
EBB
FLOOD
FORCE MAIN (TO BE ABANDONED)
WHITCOMB BAYOU
6'-6" SHLDR.
6'-6" SWK.
1'-3½" TRAF. RAILING
8" VCP
TEMP. CONST. EASEMENT
B-3
EXIST. RW LINE
APPR. SLAB
8" PVC
P
OH UTILITY
S89°19'12"E
24'-8" RW
46'-0"
48'-0" (OUT-TO-OUT)
90°0'0" TYP. UNO
℄ CONSTRUCTION
2~10'-0" LANES
48'-7" OUT-TO-OUT
24'-8" RW
16'-9" RW
39'-6" OUT-TO-OUT
37'-6"
23'-3" RW
8" PVC
S84°55'16"E
30'-0" APPR. SLAB
2" PVC
18" RCP
PC
89°23'51" T.C.
92°3'2" T.C.
CURVE C2
1136
1137
PT
1138
1139
48'-7"
59'-7" OUT-TO-OUT
BRIDGE NO. 154566
S89°01'20"E
BB-1
BB-2
BB-3
BB-4
BB-5
BB-6
B-1
B-2
DESIGNATED TENDER PARKING
OPERATION AREA
SUBMARINE CABLE
WATER MAIN (TO BE ABANDONED)
OH UTILITY
BEGIN APPR. SLAB STA. 1135+64.00
BEGIN BRIDGE/ ℄ ABUTMENT 1 STA. 1135+94.00
℄ LIGHT POLE STA. 1136+24.00
EXIST. SEAWALL
30'-0" MAIN CHANNEL
54'-0" AUX. CHANNEL
6'-6" SHLDR.
6'-6" MAINT WALKWAY
1'-3½" TRAF. RAILING
℄ MAIN CHANNEL STA. 1137+56.25
℄ AUX. CHANNEL STA. 1138+04.00
PROPOSED SOVEREIGN SUBMERGED LANDS EASEMENT
END BRIDGE/ ℄ ABUTMENT 7 STA. 1139+54.00
WETLAND LIMIT
EXIST. SEAWALL
1'-0" TR (TYPE C221)
18" RCP
RETAINING WALL 2
EXIST. RW LINE
TEMP. CONST. EASEMENT

LEGEND
- NAVIGATION LIGHT
- DENOTES SOIL BORING (TIERRA 2017)
- DENOTES SOIL BORING (WILLIAMS 1994)
- DENOTES SOIL BORING (PSI 1991)
- * END APPR. SLAB STA. 1139+84.00
- ** UNLIMITED VERTICAL CLEARANCE AT MAIN CHANNEL IN THE OPEN POSITION
- *** SUBMARINE CABLE

PLAN
(EXISTING BRIDGE NOT SHOWN)

BEGIN BRIDGE ℄ ABUTMENT 1
℄ INTER. PIER 2
℄ PIER REAR WALL
℄ REST PIER 4
℄ INTER. PIER 5
℄ INTER. PIER 6
END BRIDGE ℄ ABUTMENT 7

360'-0" (OVERALL BRIDGE LENGTH)
119'-3" (CONTINUOUS DECK WITH SIMPLE SPAN FSBs)
60'-9" (BASCULE SPAN 3)
180'-0" (CONTINUOUS DECK WITH SIMPLE SPAN FSBs)

30'-0" APPR. SLAB | 60'-0" SPAN 1 | 59'-3" SPAN 2 | 21'-9" | 39'-0" ℄ ROLL TO TIP | 60'-0" SPAN 4 | 60'-0" SPAN 5 | 60'-0" SPAN 6 | 30'-0" APPR. SLAB

EJ | 7'-9" | RJ | TJ | EJ

℄ MAIN CHANNEL
℄ AUX. CHANNEL
70°00'00" OPENING ANGLE
WARNING GATE
SIGNAL (TYP.)
RESISTANCE BARRIER
TRAFFIC RAILING (TYPE T2P) (TYP.)
LIGHT POLE (TYP.)
TRAFFIC RAILING (TYPE C221) (TYP.)
100 YR. FLOOD EL.+10.00
PLATFORM (TYP.)
MLW EL. -1.33
MHW EL. +0.85
BRIDGE NO.154566
18" RCP
DRAINAGE OUTFALL HEADWALL
RETAINING WALL 1
5'-8" MVC
11'-0" MVC
30'-0" ** MAIN CHANNEL
54'-0" AUX. CHANNEL
42" DIA. PIPE PILE
APPROX. GROUND LINE
42" DIA. DRILLED SHAFT (TYP.) (UNO)
RETAINING WALL 2

20 | 10 | 0 | −10 | −20

ELEVATION

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: GENERAL PLAN & ELEVATION (1 OF 2)

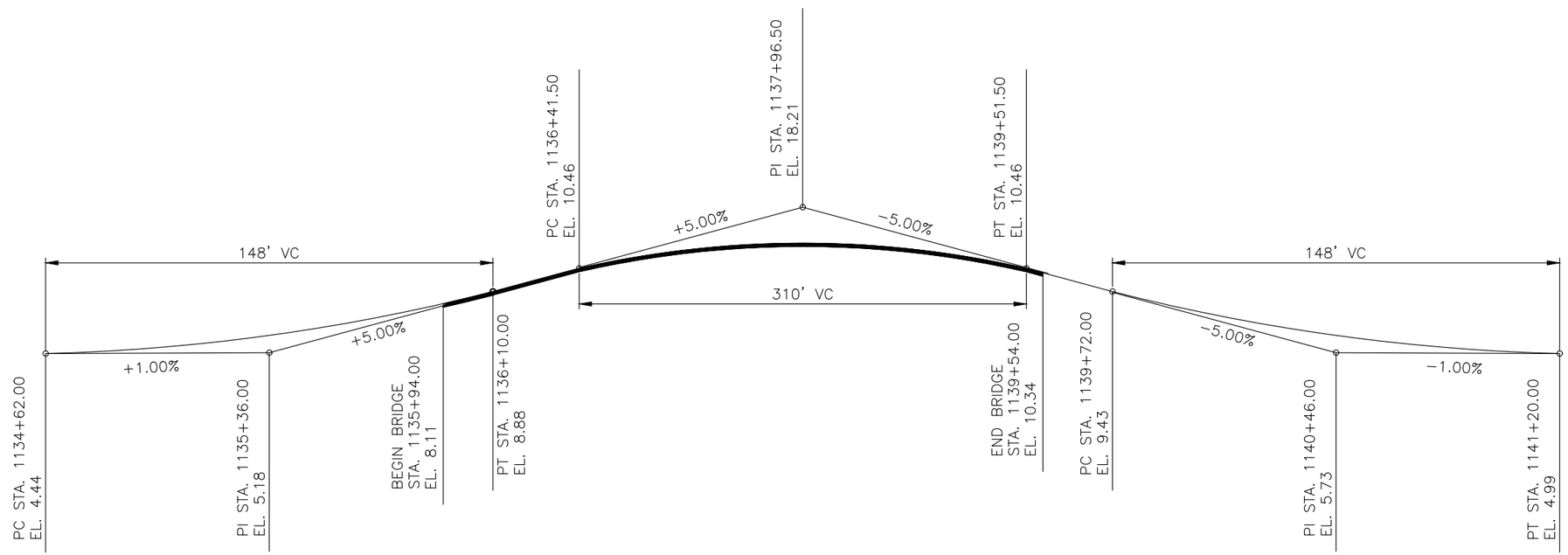
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G-13
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 13 OF 283

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ADT (2016)= 5900
ADT (2021)= 6200
T= 2.9% (24 HOUR)
DESIGN SPEED= 30 MPH

VERTICAL PROFILE
(ALONG ℄ CONSTRUCTION)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: GENERAL PLAN & ELEVATION (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

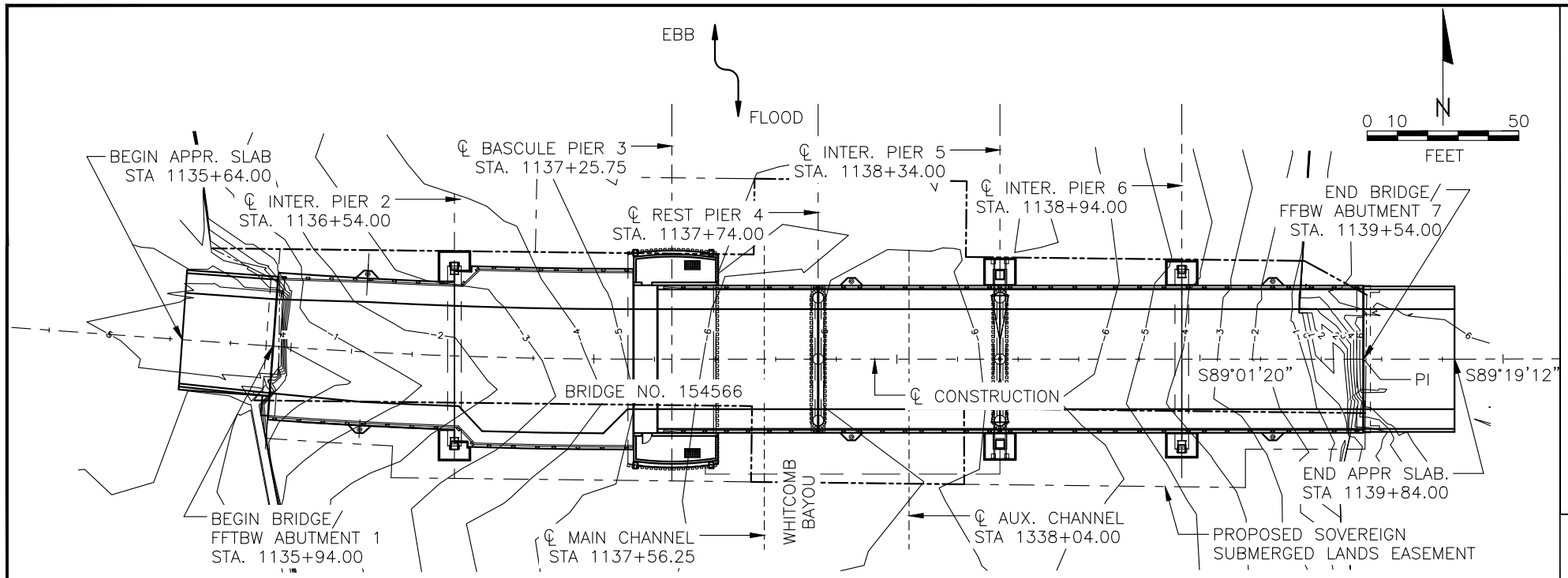
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
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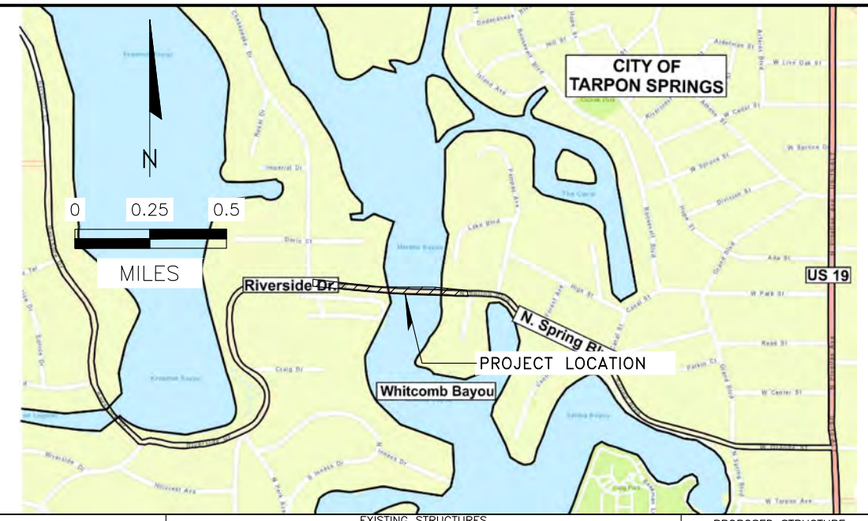
REF. DWG. NO. G-14
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 14 OF 283

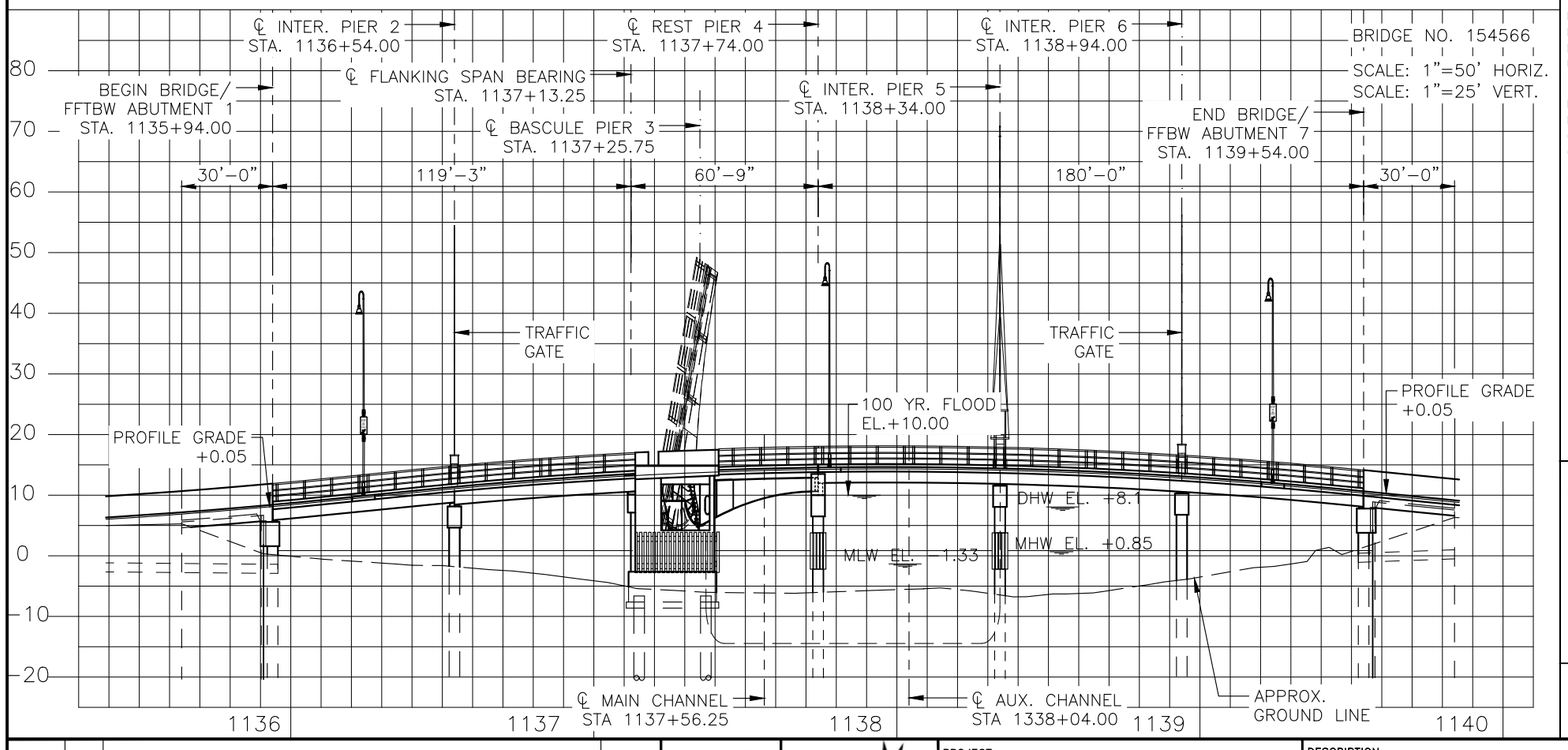
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(REFERENCE)	EXISTING STRUCTURES (1)	(2)	(3)	(4)	PROPOSED STRUCTURE
FOUNDATION	STEEL	N/A	N/A	N/A	CONCRETE
OVERALL LENGTH	358.4'	N/A	N/A	N/A	360'
SPAN LENGTH	41.9' (MAX)	N/A	N/A	N/A	4 @60', 1@58.25', BASCULE @61.75'
TYPE CONSTRUCTION	STEEL/CONCRETE	N/A	N/A	N/A	STEEL/CONCRETE
AREA OF OPENING @ D.F.	UNKNOWN	N/A	N/A	N/A	3,670 SF
BRIDGE WIDTH	28'	N/A	N/A	N/A	49', 1 @60'
ELEV. LOW MEMBER	UNKNOWN	N/A	N/A	N/A	5.3' NAVD

HYDRAULIC DESIGN DATA

NOTE:
THE HYDRAULIC DATA IS SHOWN FOR INFORMATIONAL PURPOSES ONLY TO INDICATE THE FLOOD DISCHARGES AND WATER SURFACE ELEVATIONS WHICH MAY BE ANTICIPATED IN ANY GIVEN YEAR. THIS DATA WAS GENERATED USING HIGHLY VARIABLE FACTORS DETERMINED BY A STUDY OF THE WATERSHED. MANY JUDGEMENTS AND ASSUMPTIONS ARE REQUIRED TO ESTABLISH THESE FACTORS. THE RESULTANT HYDRAULIC DATA IS SENSITIVE TO CHANGES, PARTICULARLY ANTECEDENT CONDITIONS, URBANIZATION, CHANNELIZATION AND LAND USE. USERS OF THIS DATA ARE CAUTIONED AGAINST THE ASSUMPTION OF PRECISION WHICH CANNOT BE OBTAINED.

TERMS:
DESIGN FLOOD: UTILIZED TO ASSURE A DESIRED LEVEL OF HYDRAULIC PERFORMANCE.
BASE FLOOD: HAS A 1% CHANCE OF BEING EXCEEDED IN ANY GIVEN YEAR (100 YEAR FREQUENCY)
OVERTOPPING FLOOD: CAUSES FLOW OVER THE HIGHWAY, OVER A WATERSHED DIVIDE, OR THRU EMERGENCY RELIEF STRUCTURES.
GREATEST FLOOD: THE MOST SEVERE THAT CAN BE PREDICTED WHERE OVERTOPPING IS NOT PRACTICABLE.

WATER SURFACE ELEVATIONS: N.H.W. (NON-TIDAL) N/A; M.H.W. (TIDAL) +0.85 FT-NAVD; CONTROL (NON-TIDAL) N/A; M.L.W. (TIDAL) -1.33 FT-NAVD

FLOOD DATA:	MAX. EVENT OF RECORD	DESIGN FLOOD	BASE FLOOD	☐ OVERTOPPING OR ☒ GREATEST FLOOD
STAGE ELEV. NAVD88 (FT)	UNKNOWN	+8.1[1]	+10.0[1]	+13.9[1]
DISCHARGE (CFS)	UNKNOWN	6,037	6,780	10,357
AVERAGE VELOCITY (FT/S)	UNKNOWN	1.7	1.8	2.0
EXCEEDANCE PROB. (%)	UNKNOWN	2	1	0.2
FREQUENCY (YR)	UNKNOWN	50	100	500

SCOUR PREDICTIONS FOR PROPOSED STRUCTURE DESCRIBED ABOVE:

PIER INFORMATION NUMBERS	SIZE AND TYPE	LONG TERM SCOUR ELEV[2]	TOTAL SCOUR ELEVATION WORST CASE < 100 YR. FREQ. (YR.) 100	WORST CASE < 500 YR. FREQ. (YR.) 500
2	42-IN DRILLED SHAFT	-11.6	-11.6	-15.2
3	42-IN DRILLED SHAFT	-21.3	-21.3	-23.0
4	42-IN PIPE PILE	-12.7	-12.7	-16.2
5	42-IN PIPE PILE	-12.7	-12.7	-16.2
6	42-IN DRILLED SHAFT	-11.6	-11.6	-15.0

HYDRAULIC RECOMMENDATIONS

1. BEGIN BRIDGE STATION: 1135+94 — END BRIDGE STATION 1139+54 — SKEW ANGLE 0 DEG
2. CLEARANCE PROVIDED: NAV: HORIZ. 30.0' VERT. BASCULE ABOVE EL. 0.85' — DRIFT: HORIZ. 30.0' VERT. N/A[3] ABOVE EL. +8.1'
3. MINIMUM CLEARANCE: NAV: HORIZ. 10' VERT. 6' ABOVE EL. 0.85' — DRIFT: HORIZ. 10' VERT. 2' ABOVE EL. +8.1'
4. ABUTMENTS:

	BEGIN BRIDGE	END BRIDGE
RUBBLE GRADE:	BANK AND SHORE	BANK AND SHORE
SLOPE:	2:1 (H:V)	2:1 (H:V)
BURIED OR NON-BURIED HORIZ. TOE:	TERMINATES AT WALL. WALL DESIGNED FOR SCOUR	TERMINATES AT WALL. WALL DESIGNED FOR SCOUR
TOE HORIZ. DISTANCE:	10' MIN.	10' MIN.
LIMIT OF PROTECTION:	1135+79	1139+69

5. DECK DRAINAGE: SPREAD COLLECTED AT ENDS OF BRIDGE AND CONVEYED TO CLOSED SYSTEM

REMARKS:
1. PROVIDED STAGES DO NO INCLUDE SEA-LEVEL RISE. SEE BHR FOR STAGES WITH SEA-LEVEL RISE INCLUDED.
2. LONG-TERM SCOUR IS 100-YEAR SCOUR AS DAILY FLOWS DO NOT INITIATE LIVE-BED SCOUR
3. ROADWAY APPROACH PROFILE ELEVATIONS DO NOT ALLOW VERTICAL CLEARANCE MEETING FDOT DEBRIS CLEARANCE CRITERIA. THE UPSTREAM WATERSHED IS NOT HEAVILY FORESTED, AND DEBRIS ACCUMULATIONS IS UNLIKELY AT THIS STRUCTURE.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

DESIGNED AC
DRAWN AC
CHECKED JM

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BRIDGE HYDRAULICS RECOMMENDATIONS

INTERA INCORPORATED
9550 REGENCY SQUARE BLVD.
SUITE 906
JACKSONVILLE, FL 32225

APPROVED BY:

ENGINEER OF RECORD
JACOB MCBEE, PE
FLA. LIC. NO. 73978

REF. DWG. NO. G-15
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 15 OF 283

USDA SOIL SURVEY MAP



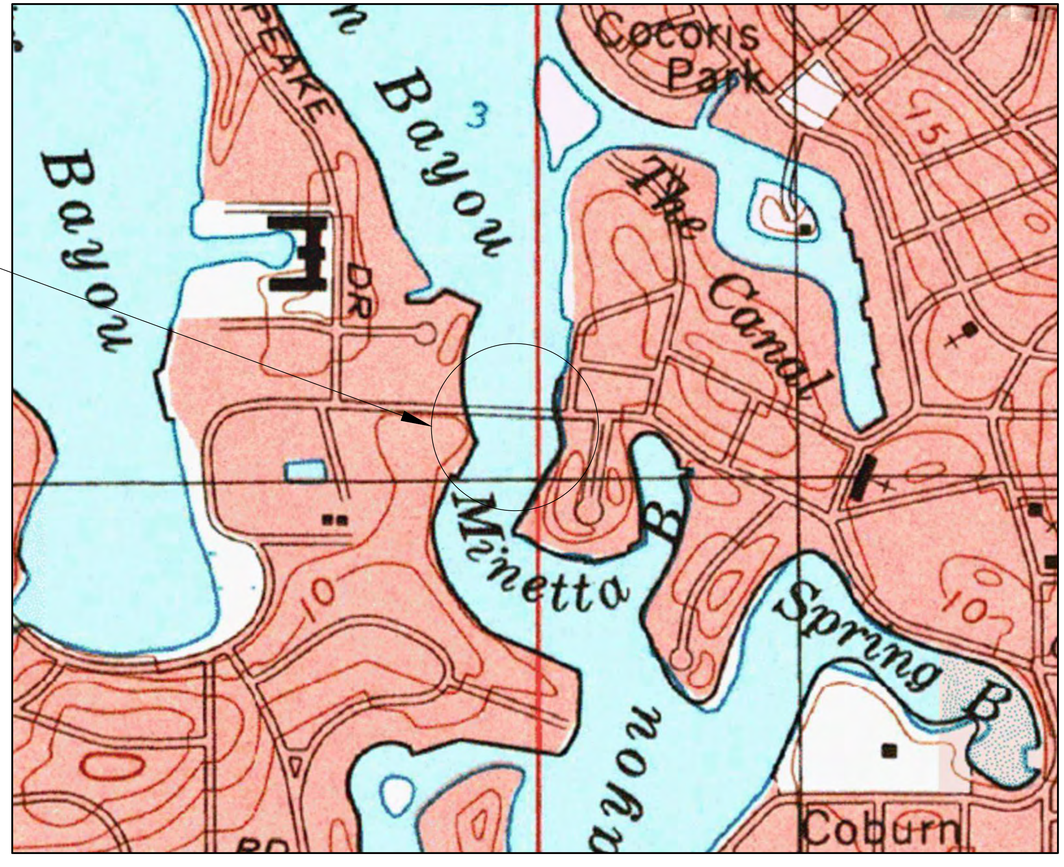
APPROXIMATE PROJECT LOCATION

0 300'

PLAN SCALE

REFERENCE: USDA SOIL SURVEY OF PINELLAS COUNTY, FLORIDA

USGS QUADRANGLE MAP



REFERENCE: "TARPON SPRINGS, FLORIDA" USGS QUADRANGLE MAP

TOWNSHIP: 27 S
RANGE: 15 E
SECTION: 11 & 12

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED SW
DRAWN SW
CHECKED KW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE

DESCRIPTION: USDA SOIL SURVEY MAP & USGS QUADRANGLE MAP

TIERRA
7351 Temple Terrace Highway
Tampa, Florida 33637
Phone: 813-989-1354 Fax: 813-989-1355
FL Cert. No.: 6486

APPROVED BY:

ERICK M. FREDERICK, P.E.
FLA. REG. NO 63920

DATE

REF. DWG. NO. G-16

DATE: MAY 2021

PROJECT NO. 001037A

SHEET: 16 OF 283



NOTES:

1. BASE MAP PROVIDED BY HARDESTY & HANOVER, LLC THE BORING LOCATIONS PERFORMED BY TIERRA WERE
2. ESTIMATED USING GPS COORDINATES OBTAINED BY TIERRA IN THE FIELD AND SHOULD THEREFORE BE CONSIDERED APPROXIMATE.

BORING LOCATION PLAN

0 20'

PLAN SCALE

LEGEND

- APPROXIMATE LOCATION OF SPT BORING
- APPROXIMATE LOCATION OF BORING PERFORMED BY OTHERS

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED SW
DRAWN SW
CHECKED KW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE

DESCRIPTION: BORING LOCATION PLAN
REPORT OF CORE BORINGS

TIERRA
7351 Temple Terrace Highway
Tampa, Florida 33637
Phone: 813-989-1354 Fax: 813-989-1355
FL Cert. No.: 6486

APPROVED BY:

ERICK M. FREDERICK, P.E.
FLA. REG. NO 63920

DATE

REF. DWG. NO. G-17

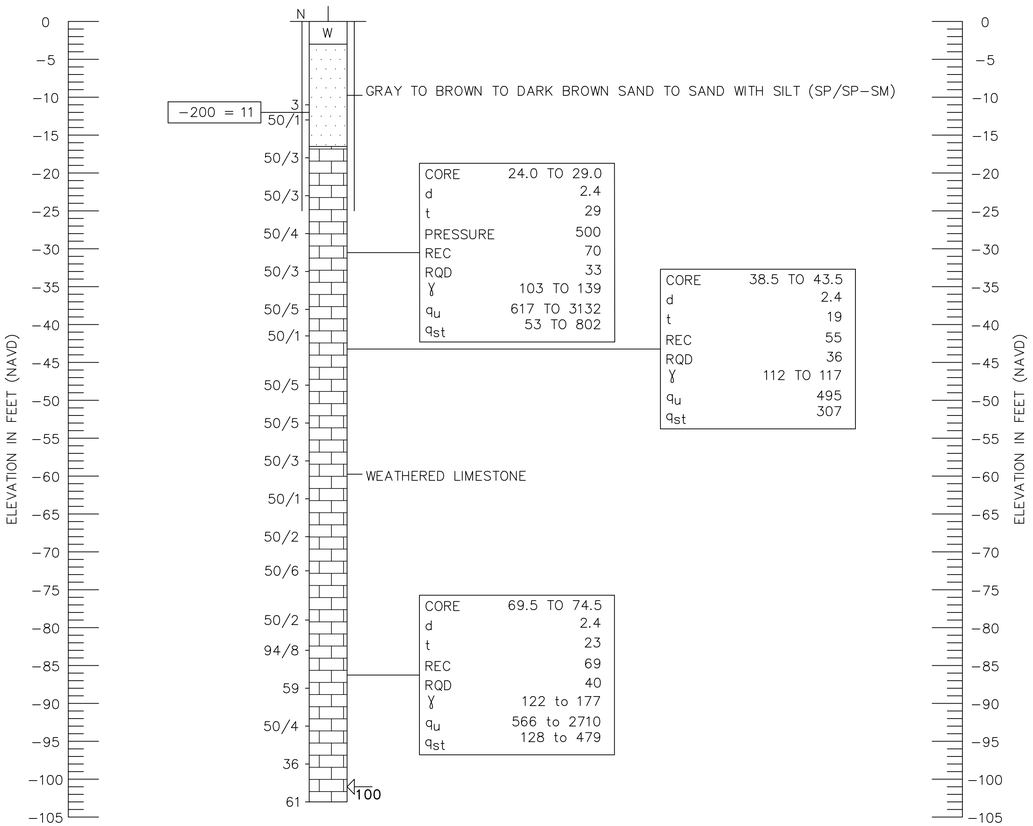
DATE: MAY 2021

PROJECT NO. 001037A

SHEET: 17 OF 283

SOIL PROFILES

BOR #	BB-1
STATION	1137+10
OFFSET	13' RT.
ELEV.	0.0
DATE	2/1/2017
DRILLER	J. ERICKSON
HAMMER	SAFETY
RIG	D-25 BARGE



RECOMMENDED ENVIRONMENTAL CLASSIFICATION:
SUBSTRUCTURE CONCRETE: EXTREMELY AGGRESSIVE
(WATER CHLORIDES = 30,000 PPM)
SUBSTRUCTURE STEEL: EXTREMELY AGGRESSIVE
(WATER CHLORIDES = 30,000 PPM)
SUPERSTRUCTURE: EXTREMELY AGGRESSIVE

WATER TEST RESULTS:

RESISTIVITY	29 TO 30 OHM-CM
CHLORIDES	30,000 PPM
SULFATES	3,800 PPM
pH	8.0 TO 8.1

SOIL TEST RESULTS:

RESISTIVITY	160 TO 170 OHM-CM
CHLORIDES	7,200 TO 18,000 PPM
SULFATES	840 TO 960 PPM
pH	8.7 TO 8.8

NOTES:

1. THE BORING LOCATIONS WERE ESTIMATED USING GPS COORDINATES OBTAINED BY TIERRA IN THE FIELD AND LATER CONVERTED TO STATION AND OFFSET USING DESIGN FILES PROVIDED BY HARDESTY & HANOVER. THE BORING LOCATIONS SHOULD THEREFORE BE CONSIDERED APPROXIMATE.
2. BASED ON A REVIEW OF THE "POTENTIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER,WEST-CENTRAL FLORIDA" MAPS PUBLISHED BY THE USGS, THE POTENTIOMETRIC SURFACE ELEVATION OF THE UPPER FLORIDAN AQUIFER AT THE BRIDGE LOCATION IS ON THE ORDER OF APPROXIMATELY + 0 TO +10 FEET, NGVD 29. THE CONTRACTOR SHOULD BE PREPARED TO CONTROL A POTENTIOMETRIC LEVEL UP TO +10 FEET, NGVD 29 AT NO ADDITIONAL COST TO THE COUNTY.

	SAFETY HAMMER	AUTOMATIC HAMMER
GRANULAR MATERIALS-RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4	LESS THAN 3
LOOSE	4 to 10	3 to 8
MEDIUM DENSE	10 to 30	8 to 24
DENSE	30 to 50	24 to 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2	LESS THAN 1
SOFT	2 to 4	1 to 3
FIRM	4 to 8	3 to 6
STIFF	8 to 15	6 to 12
VERY STIFF	15 to 30	12 to 24
HARD	GREATER THAN 30	GREATER THAN 24

LEGEND

1 GRAY TO BROWN TO DARK BROWN SAND TO SAND WITH SILT (SP/SP-SM)

2 GRAY TO BROWN SILTY SAND TO SILTY-CLAYEY SAND, OCCASIONALLY WITH WEATHERED LIMESTONE FRAGMENTS (SM/SM-SC)

3 BROWN CLAYEY SAND, OCCASIONALLY WITH WEATHERED LIMESTONE FRAGMENTS (SC)

4 PALE GRAY TO GRAY CALCAREOUS CLAY WITH WEATHERED LIMESTONE FRAGMENTS (CL/CH)

5 WEATHERED LIMESTONE

6 DARK BROWN ORGANIC SAND WITH SILT TO ORGANIC SILTY SAND (SP-SM/SM)

W – WATER

N	SPT N-VALUE IN BLOWS/FOOT FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED)
SP	UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2488) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW
NAVD	NORTH AMERICAN VERTICAL DATUM OF 1988
50/4	NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
WR	FELL UNDER WEIGHT OF ROD
100	LOSS OF CIRCULATION OF DRILLING FLUID (100%)
100	REGAINED CIRCULATION OF DRILLING FLUID (100%)
||	CASING
-200	PERCENT PASSING #200 SIEVE
NMC	NATURAL MOISTURE CONTENT (%)
OC	ORGANIC CONTENT (%)
LL	LIQUID LIMIT (%)
PI	PLASTICITY INDEX (%)
NP	NON PLASTIC
CORE	CORE DEPTH IS REFERENCED TO FEET BELOW THE GROUND SURFACE (MUDLINE) AT THE TIME OF BORING COMPLETION
d	CORE BARRELL DIAMETER (INCHES)
t	ROCK CORE TIME (MINUTES)
PRESSURE	DOWN PRESSURE APPLIED DURING CORE RUN (PSI)
REC	PERCENT RECOVERY (%)
RQD	ROCK QUALITY DESIGNATION (%)
γ	TOTAL UNIT WEIGHT (PCF)
q_u	UNCONFINED COMPRESSION STRENGTH (PSI)
q_{st}	SPLITTING TENSILE STRENGTH (PSI)

REF. DWG. NO. G-18

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED SW
DRAWN SW
CHECKED KW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE

DESCRIPTION: REPORT OF CORE BORINGS

TIERRA
7351 Temple Terrace Highway
Tampa, Florida 33637
Phone: 813-989-1354 Fax: 813-989-1355
FL Cert. No.: 6486

APPROVED BY:

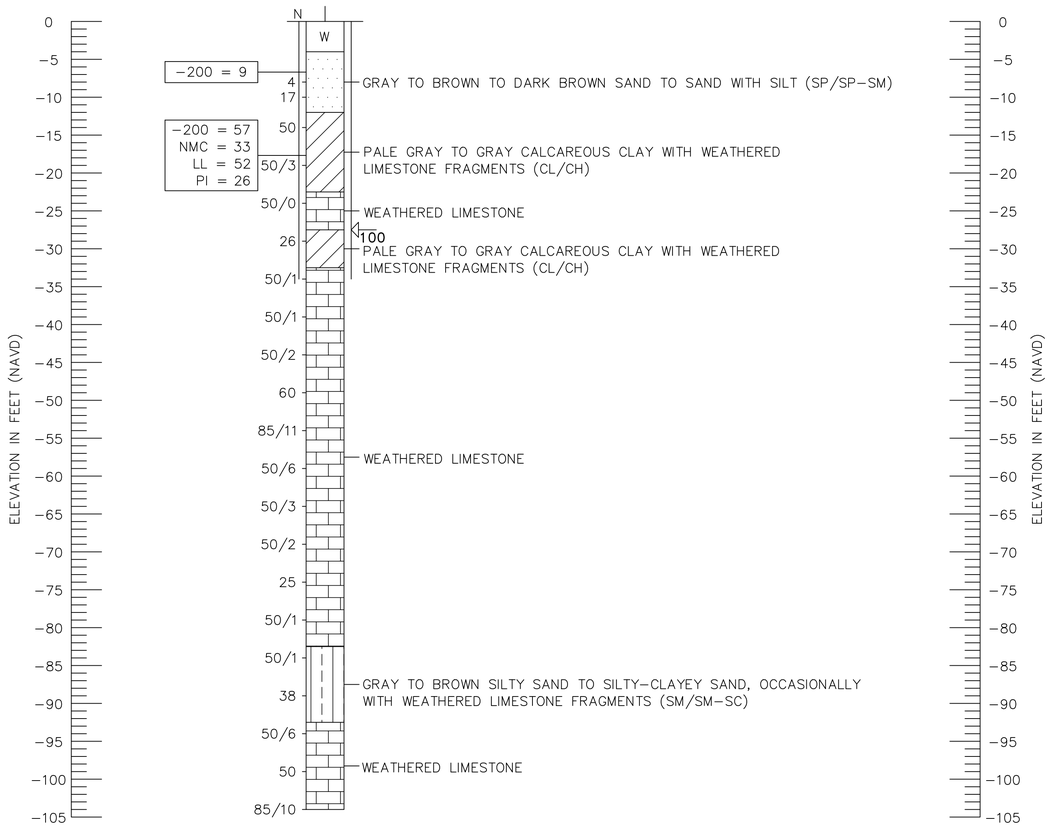
ERICK M. FREDERICK, P.E.
FLA. REG. NO 63920

DATE

DATE: MAY 2021
PROJECT NO. 001037A
SHEET: 18 OF 283

SOIL PROFILES

BOR #	BB-2
STATION	1136+98
OFFSET	22' LT.
ELEV.	0.0
DATE	1/10/2017
DRILLER	J. ERICKSON
HAMMER	SAFETY
RIG	D-25 BARGE



RECOMMENDED ENVIRONMENTAL CLASSIFICATION:
SUBSTRUCTURE CONCRETE: EXTREMELY AGGRESSIVE
(WATER CHLORIDES = 30,000 PPM)
SUBSTRUCTURE STEEL: EXTREMELY AGGRESSIVE
(WATER CHLORIDES = 30,000 PPM)
SUPERSTRUCTURE: EXTREMELY AGGRESSIVE

WATER TEST RESULTS:

RESISTIVITY	29 TO 30 OHM-CM
CHLORIDES	30,000 PPM
SULFATES	3,800 PPM
pH	8.0 TO 8.1

SOIL TEST RESULTS:

RESISTIVITY	160 TO 170 OHM-CM
CHLORIDES	7,200 TO 18,000 PPM
SULFATES	840 TO 960 PPM
pH	8.7 TO 8.8

NOTES:

1. THE BORING LOCATIONS WERE ESTIMATED USING GPS COORDINATES OBTAINED BY TIERRA IN THE FIELD AND LATER CONVERTED TO STATION AND OFFSET USING DESIGN FILES PROVIDED BY HARDESTY & HANOVER. THE BORING LOCATIONS SHOULD THEREFORE BE CONSIDERED APPROXIMATE.
2. BASED ON A REVIEW OF THE "POTENTIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER,WEST-CENTRAL FLORIDA" MAPS PUBLISHED BY THE USGS, THE POTENTIOMETRIC SURFACE ELEVATION OF THE UPPER FLORIDAN AQUIFER AT THE BRIDGE LOCATION IS ON THE ORDER OF APPROXIMATELY + 0 TO +10 FEET, NGVD 29. THE CONTRACTOR SHOULD BE PREPARED TO CONTROL A POTENTIOMETRIC LEVEL UP TO +10 FEET, NGVD 29 AT NO ADDITIONAL COST TO THE COUNTY.

	SAFETY HAMMER	AUTOMATIC HAMMER
GRANULAR MATERIALS-RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4	LESS THAN 3
LOOSE	4 to 10	3 to 8
MEDIUM DENSE	10 to 30	8 to 24
DENSE	30 to 50	24 to 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2	LESS THAN 1
SOFT	2 to 4	1 to 3
FIRM	4 to 8	3 to 6
STIFF	8 to 15	6 to 12
VERY STIFF	15 to 30	12 to 24
HARD	GREATER THAN 30	GREATER THAN 24

LEGEND

1. GRAY TO BROWN TO DARK BROWN SAND TO SAND WITH SILT (SP/SP-SM)
2. GRAY TO BROWN SILTY SAND TO SILTY-CLAYEY SAND, OCCASIONALLY WITH WEATHERED LIMESTONE FRAGMENTS (SM/SM-SC)
3. BROWN CLAYEY SAND, OCCASIONALLY WITH WEATHERED LIMESTONE FRAGMENTS (SC)
4. PALE GRAY TO GRAY CALCAREOUS CLAY WITH WEATHERED LIMESTONE FRAGMENTS (CL/CH)
5. WEATHERED LIMESTONE
6. DARK BROWN ORGANIC SAND WITH SILT TO ORGANIC SILTY SAND (SP-SM/SM)

W - WATER

N	SPT N-VALUE IN BLOWS/FOOT FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED)
SP	UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2488) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW
NAVD	NORTH AMERICAN VERTICAL DATUM OF 1988
50/4	NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
WR	FELL UNDER WEIGHT OF ROD
100	LOSS OF CIRCULATION OF DRILLING FLUID (100%)
100	REGAINED CIRCULATION OF DRILLING FLUID (100%)
	CASING
-200	PERCENT PASSING #200 SIEVE
NMC	NATURAL MOISTURE CONTENT (%)
OC	ORGANIC CONTENT (%)
LL	LIQUID LIMIT (%)
PI	PLASTICITY INDEX (%)
NP	NON PLASTIC
CORE	CORE DEPTH IS REFERENCED TO FEET BELOW THE GROUND SURFACE (MUDLINE) AT THE TIME OF BORING COMPLETION
d	CORE BARRELL DIAMETER (INCHES)
t	ROCK CORE TIME (MINUTES)
PRESSURE	DOWN PRESSURE APPLIED DURING CORE RUN (PSI)
REC	PERCENT RECOVERY (%)
RQD	ROCK QUALITY DESIGNATION (%)
γ	TOTAL UNIT WEIGHT (PCF)
q_u	UNCONFINED COMPRESSION STRENGTH (PSI)
q_{st}	SPLITTING TENSILE STRENGTH (PSI)

REF. DWG. NO. G-19

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED SW
DRAWN SW
CHECKED KW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE

DESCRIPTION: REPORT OF CORE BORINGS

TIERRA
7351 Temple Terrace Highway
Tampa, Florida 33637
Phone: 813-989-1354 Fax: 813-989-1355
FL Cert. No.: 6486

APPROVED BY:

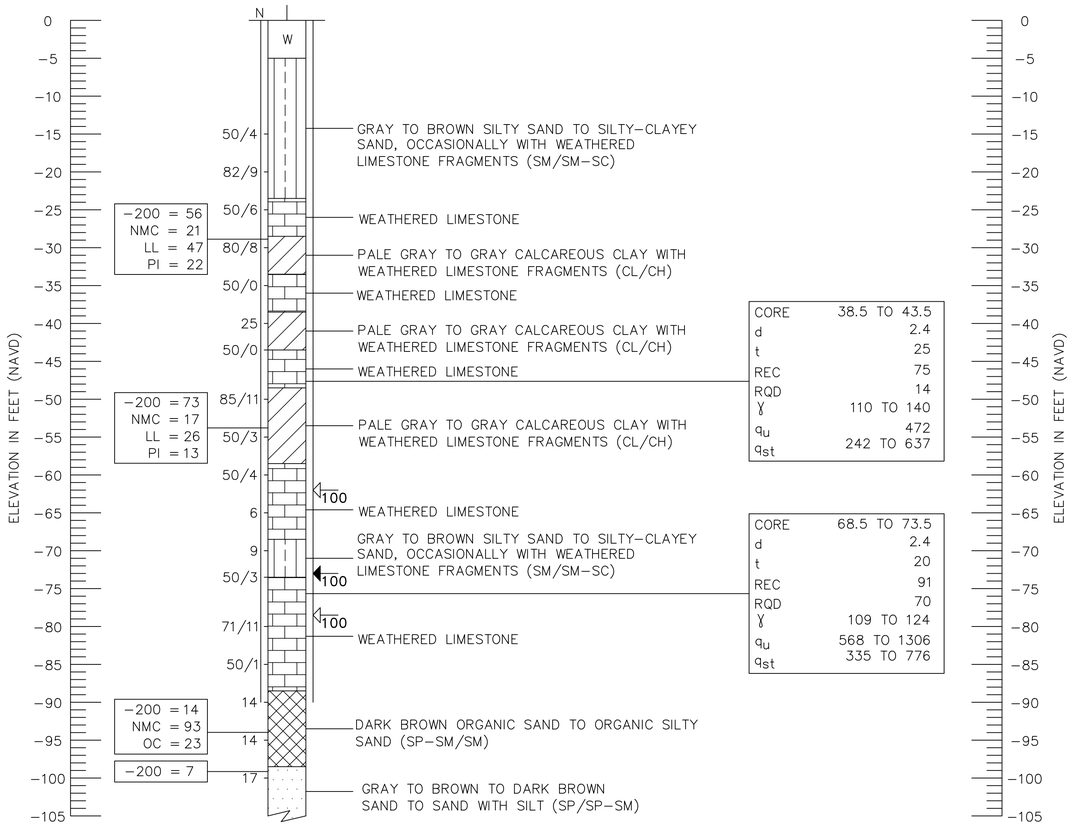
ERICK M. FREDERICK, P.E.
FLA. REG. NO 63920

DATE

DATE: MAY 2021
PROJECT NO. 001037A
SHEET: 19 OF 283

SOIL PROFILES

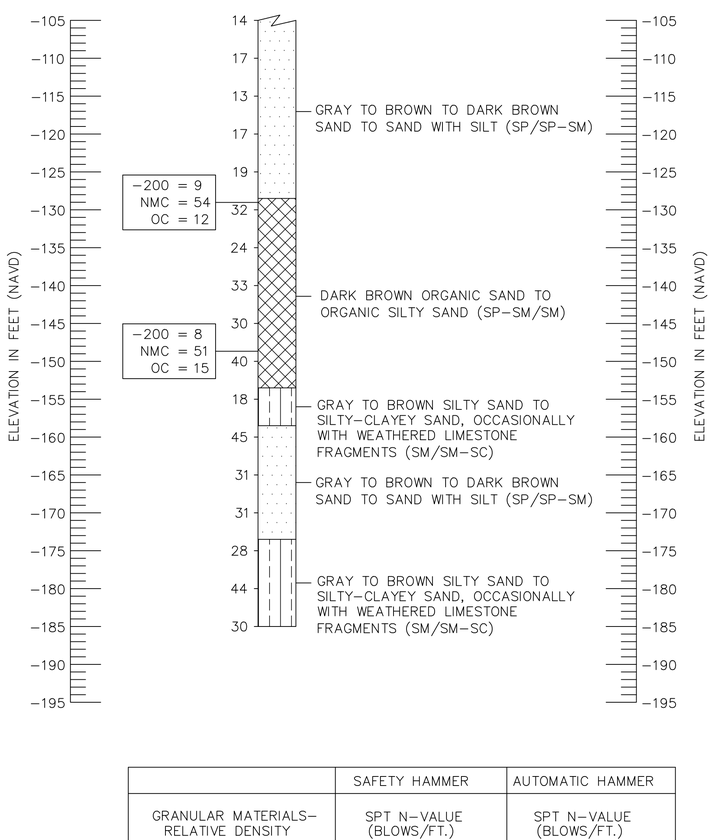
BOR # BB-3
STATION 1137+56
OFFSET 15' RT.
ELEV. 0.0
DATE 2/6/2017
DRILLER J. ERICKSON
HAMMER SAFETY
RIG D-25 BARGE



CORE	38.5 TO 43.5
d	2.4
t	25
REC	75
RQD	14
γ	110 TO 140
q_u	472
q_{st}	242 TO 637

CORE	68.5 TO 73.5
d	2.4
t	20
REC	91
RQD	70
γ	109 TO 124
q_u	568 TO 1306
q_{st}	335 TO 776

BB-3
CONTINUED



	SAFETY HAMMER	AUTOMATIC HAMMER
GRANULAR MATERIALS-RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4	LESS THAN 3
LOOSE	4 to 10	3 to 8
MEDIUM DENSE	10 to 30	8 to 24
DENSE	30 to 50	24 to 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2	LESS THAN 1
SOFT	2 to 4	1 to 3
FIRM	4 to 8	3 to 6
STIFF	8 to 15	6 to 12
VERY STIFF	15 to 30	12 to 24
HARD	GREATER THAN 30	GREATER THAN 24

LEGEND

1 GRAY TO BROWN TO DARK BROWN SAND TO SAND WITH SILT (SP/SP-SM)

2 GRAY TO BROWN SILTY SAND TO SILTY-CLAYEY SAND, OCCASIONALLY WITH WEATHERED LIMESTONE FRAGMENTS (SM/SM-SC)

3 BROWN CLAYEY SAND, OCCASIONALLY WITH WEATHERED LIMESTONE FRAGMENTS (SC)

4 PALE GRAY TO GRAY CALCAREOUS CLAY WITH WEATHERED LIMESTONE FRAGMENTS (CL/CH)

5 WEATHERED LIMESTONE

6 DARK BROWN ORGANIC SAND WITH SILT TO ORGANIC SILTY SAND (SP-SM/SM)

W - WATER

N	SPT N-VALUE IN BLOWS/FOOT FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED)
SP	UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2488) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW
NAVD	NORTH AMERICAN VERTICAL DATUM OF 1988
50/4	NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
WR	FELL UNDER WEIGHT OF ROD
100	LOSS OF CIRCULATION OF DRILLING FLUID (100%)
100	REGAINED CIRCULATION OF DRILLING FLUID (100%)
	CASING
-200	PERCENT PASSING #200 SIEVE
NMC	NATURAL MOISTURE CONTENT (%)
OC	ORGANIC CONTENT (%)
LL	LIQUID LIMIT (%)
PI	PLASTICITY INDEX (%)
NP	NON PLASTIC
CORE	CORE DEPTH IS REFERENCED TO FEET BELOW THE GROUND SURFACE (MUDLIINE) AT THE TIME OF BORING COMPLETION
d	CORE BARRELL DIAMETER (INCHES)
t	ROCK CORE TIME (MINUTES)
PRESSURE	DOWN PRESSURE APPLIED DURING CORE RUN (PSI)
REC	PERCENT RECOVERY (%)
RQD	ROCK QUALITY DESIGNATION (%)
γ	TOTAL UNIT WEIGHT (PCF)
q_u	UNCONFINED COMPRESSION STRENGTH (PSI)
q_{st}	SPLITTING TENSILE STRENGTH (PSI)

RECOMMENDED ENVIRONMENTAL CLASSIFICATION:
SUBSTRUCTURE CONCRETE: EXTREMELY AGGRESSIVE
(WATER CHLORIDES = 30,000 PPM)
SUBSTRUCTURE STEEL: EXTREMELY AGGRESSIVE
(WATER CHLORIDES = 30,000 PPM)
SUPERSTRUCTURE: EXTREMELY AGGRESSIVE

WATER TEST RESULTS:
RESISTIVITY 29 TO 30 OHM-CM
CHLORIDES 30,000 PPM
SULFATES 3,800 PPM
pH 8.0 TO 8.1

SOIL TEST RESULTS:
RESISTIVITY 160 TO 170 OHM-CM
CHLORIDES 7,200 TO 18,000 PPM
SULFATES 840 TO 960 PPM
pH 8.7 TO 8.8

NOTES:

1. THE BORING LOCATIONS WERE ESTIMATED USING GPS COORDINATES OBTAINED BY TIERRA IN THE FIELD AND LATER CONVERTED TO STATION AND OFFSET USING DESIGN FILES PROVIDED BY HARDESTY & HANOVER. THE BORING LOCATIONS SHOULD THEREFORE BE CONSIDERED APPROXIMATE.
2. BASED ON A REVIEW OF THE "POTENTIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER,WEST-CENTRAL FLORIDA" MAPS PUBLISHED BY THE USGS, THE POTENTIOMETRIC SURFACE ELEVATION OF THE UPPER FLORIDAN AQUIFER AT THE BRIDGE LOCATION IS ON THE ORDER OF APPROXIMATELY + 0 TO +10 FEET, NGVD 29. THE CONTRACTOR SHOULD BE PREPARED TO CONTROL A POTENTIOMETRIC LEVEL UP TO +10 FEET, NGVD 29 AT NO ADDITIONAL COST TO THE COUNTY.

REF. DWG. NO. G-20

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED SW
DRAWN SW
CHECKED KW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE

DESCRIPTION: REPORT OF CORE BORINGS

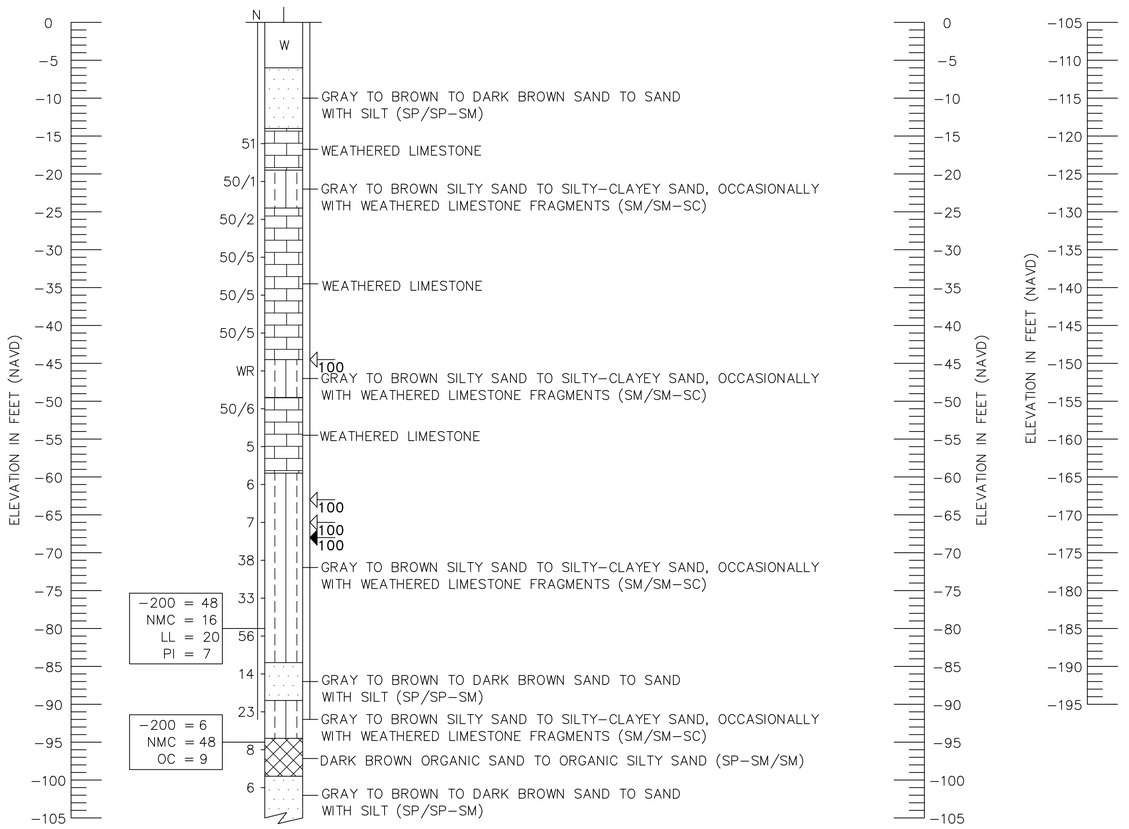
TIERRA
7351 Temple Terrace Highway
Tampa, Florida 33637
Phone: 813-989-1354 Fax: 813-989-1355
FL Cert. No.: 6486

APPROVED BY:
ERICK M. FREDERICK, P.E.
FLA. REG. NO 63920
DATE

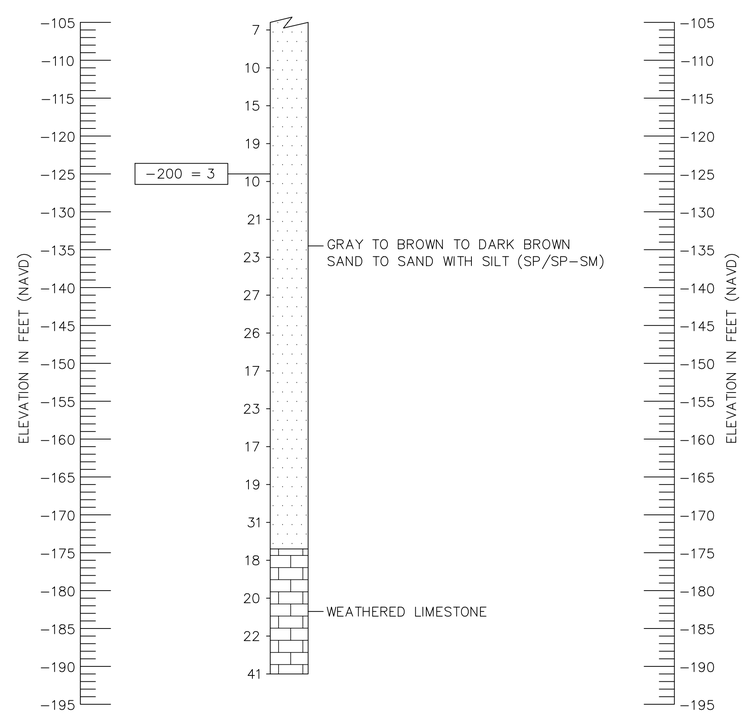
DATE: MAY 2021
PROJECT NO. 001037A
SHEET: 20 OF 283

SOIL PROFILES

BOR # BB-4
STATION 1138+20
OFFSET 28' LT.
ELEV. 0.0
DATE 1/12/2017
DRILLER J. ERICKSON
HAMMER SAFETY
RIG D-25 BARGE



BB-4
CONTINUED



RECOMMENDED ENVIRONMENTAL CLASSIFICATION:
SUBSTRUCTURE CONCRETE: EXTREMELY AGGRESSIVE
(WATER CHLORIDES = 30,000 PPM)
SUBSTRUCTURE STEEL: EXTREMELY AGGRESSIVE
(WATER CHLORIDES = 30,000 PPM)
SUPERSTRUCTURE: EXTREMELY AGGRESSIVE

WATER TEST RESULTS:

RESISTIVITY	29 TO 30 OHM-CM
CHLORIDES	30,000 PPM
SULFATES	3,800 PPM
pH	8.0 TO 8.1

SOIL TEST RESULTS:

RESISTIVITY	160 TO 170 OHM-CM
CHLORIDES	7,200 TO 18,000 PPM
SULFATES	840 TO 960 PPM
pH	8.7 TO 8.8

NOTES:

1. THE BORING LOCATIONS WERE ESTIMATED USING GPS COORDINATES OBTAINED BY TIERRA IN THE FIELD AND LATER CONVERTED TO STATION AND OFFSET USING DESIGN FILES PROVIDED BY HARDESTY & HANOVER. THE BORING LOCATIONS SHOULD THEREFORE BE CONSIDERED APPROXIMATE.
2. BASED ON A REVIEW OF THE "POTENTIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER,WEST-CENTRAL FLORIDA" MAPS PUBLISHED BY THE USGS, THE POTENTIOMETRIC SURFACE ELEVATION OF THE UPPER FLORIDAN AQUIFER AT THE BRIDGE LOCATION IS ON THE ORDER OF APPROXIMATELY + 0 TO +10 FEET, NGVD 29. THE CONTRACTOR SHOULD BE PREPARED TO CONTROL A POTENTIOMETRIC LEVEL UP TO +10 FEET, NGVD 29 AT NO ADDITIONAL COST TO THE COUNTY.

	SAFETY HAMMER	AUTOMATIC HAMMER
GRANULAR MATERIALS-RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4	LESS THAN 3
LOOSE	4 to 10	3 to 8
MEDIUM DENSE	10 to 30	8 to 24
DENSE	30 to 50	24 to 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2	LESS THAN 1
SOFT	2 to 4	1 to 3
FIRM	4 to 8	3 to 6
STIFF	8 to 15	6 to 12
VERY STIFF	15 to 30	12 to 24
HARD	GREATER THAN 30	GREATER THAN 24

LEGEND

1 GRAY TO BROWN TO DARK BROWN SAND TO SAND WITH SILT (SP/SP-SM)

2 GRAY TO BROWN SILTY SAND TO SILTY-CLAYEY SAND, OCCASIONALLY WITH WEATHERED LIMESTONE FRAGMENTS (SM/SM-SC)

3 BROWN CLAYEY SAND, OCCASIONALLY WITH WEATHERED LIMESTONE FRAGMENTS (SC)

4 PALE GRAY TO GRAY CALCAREOUS CLAY WITH WEATHERED LIMESTONE FRAGMENTS (CL/CH)

5 WEATHERED LIMESTONE

6 DARK BROWN ORGANIC SAND WITH SILT TO ORGANIC SILTY SAND (SP-SM/SM)

W – WATER

N	SPT N-VALUE IN BLOWS/FOOT FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED)
SP	UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2488) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW
NAVD	NORTH AMERICAN VERTICAL DATUM OF 1988
50/4	NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
WR	FELL UNDER WEIGHT OF ROD
100	LOSS OF CIRCULATION OF DRILLING FLUID (100%)
100	REGAINED CIRCULATION OF DRILLING FLUID (100%)
	CASING
-200	PERCENT PASSING #200 SIEVE
NMC	NATURAL MOISTURE CONTENT (%)
OC	ORGANIC CONTENT (%)
LL	LIQUID LIMIT (%)
PI	PLASTICITY INDEX (%)
NP	NON PLASTIC
CORE	CORE DEPTH IS REFERENCED TO FEET BELOW THE GROUND SURFACE (MUDLIINE) AT THE TIME OF BORING COMPLETION
d	CORE BARRELL DIAMETER (INCHES)
t	ROCK CORE TIME (MINUTES)
PRESSURE	DOWN PRESSURE APPLIED DURING CORE RUN (PSI)
REC	PERCENT RECOVERY (%)
RQD	ROCK QUALITY DESIGNATION (%)
γ	TOTAL UNIT WEIGHT (PCF)
q_u	UNCONFINED COMPRESSION STRENGTH (PSI)
q_{st}	SPLITTING TENSILE STRENGTH (PSI)

REF. DWG. NO. G-21

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED SW
DRAWN SW
CHECKED KW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE

DESCRIPTION: REPORT OF CORE BORINGS

TIERRA
7351 Temple Terrace Highway
Tampa, Florida 33637
Phone: 813-989-1354 Fax: 813-989-1355
FL Cert. No.: 6486

APPROVED BY:

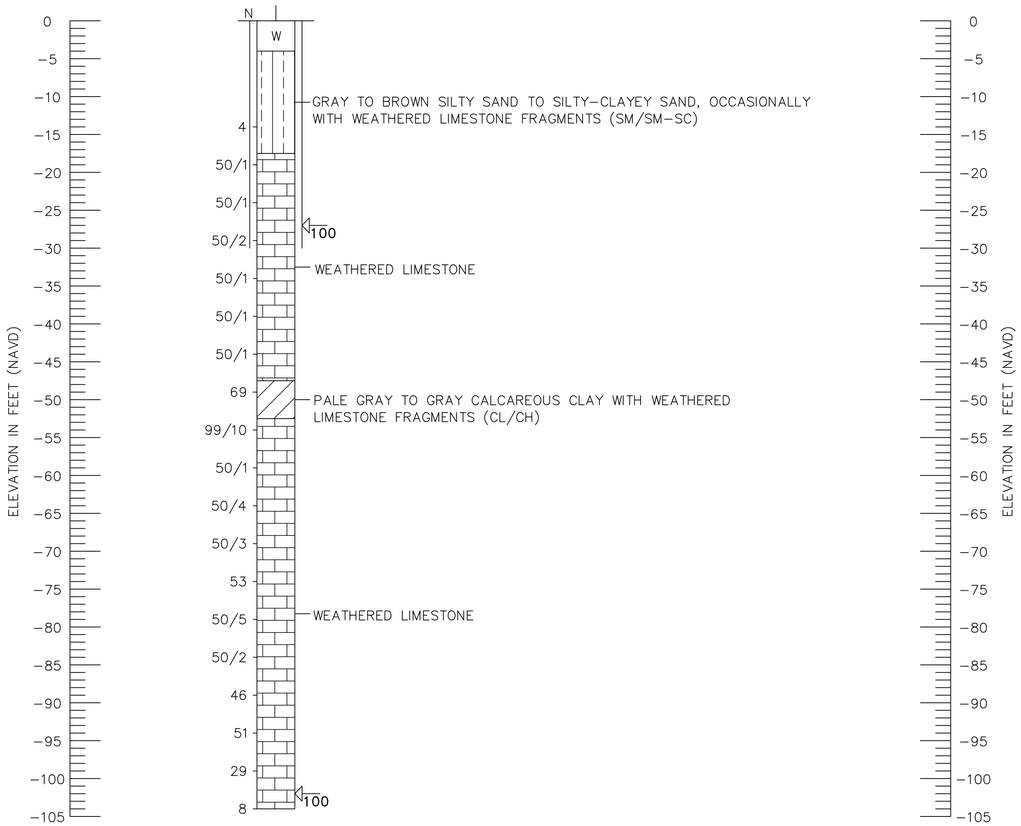
ERICK M. FREDERICK, P.E.
FLA. REG. NO 63920

DATE

DATE: MAY 2021
PROJECT NO. 001037A
SHEET: 21 OF 283

SOIL PROFILES

BOR # BB-5
STATION 1138+93
OFFSET 19' LT.
ELEV. 0.0
DATE 1/25/2017
DRILLER J. ERICKSON
HAMMER SAFETY
RIG D-25 BARGE



RECOMMENDED ENVIRONMENTAL CLASSIFICATION:
SUBSTRUCTURE CONCRETE: EXTREMELY AGGRESSIVE
(WATER CHLORIDES = 30,000 PPM)
SUBSTRUCTURE STEEL: EXTREMELY AGGRESSIVE
(WATER CHLORIDES = 30,000 PPM)
SUPERSTRUCTURE: EXTREMELY AGGRESSIVE

WATER TEST RESULTS:

RESISTIVITY	29 TO 30 OHM-CM
CHLORIDES	30,000 PPM
SULFATES	3,800 PPM
pH	8.0 TO 8.1

SOIL TEST RESULTS:

RESISTIVITY	160 TO 170 OHM-CM
CHLORIDES	7,200 TO 18,000 PPM
SULFATES	840 TO 960 PPM
pH	8.7 TO 8.8

NOTES:

1. THE BORING LOCATIONS WERE ESTIMATED USING GPS COORDINATES OBTAINED BY TIERRA IN THE FIELD AND LATER CONVERTED TO STATION AND OFFSET USING DESIGN FILES PROVIDED BY HARDESTY & HANOVER. THE BORING LOCATIONS SHOULD THEREFORE BE CONSIDERED APPROXIMATE.
2. BASED ON A REVIEW OF THE "POTENTIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER,WEST-CENTRAL FLORIDA" MAPS PUBLISHED BY THE USGS, THE POTENTIOMETRIC SURFACE ELEVATION OF THE UPPER FLORIDAN AQUIFER AT THE BRIDGE LOCATION IS ON THE ORDER OF APPROXIMATELY + 0 TO +10 FEET, NGVD 29. THE CONTRACTOR SHOULD BE PREPARED TO CONTROL A POTENTIOMETRIC LEVEL UP TO +10 FEET, NGVD 29 AT NO ADDITIONAL COST TO THE COUNTY.

	SAFETY HAMMER	AUTOMATIC HAMMER
GRANULAR MATERIALS-RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4	LESS THAN 3
LOOSE	4 to 10	3 to 8
MEDIUM DENSE	10 to 30	8 to 24
DENSE	30 to 50	24 to 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2	LESS THAN 1
SOFT	2 to 4	1 to 3
FIRM	4 to 8	3 to 6
STIFF	8 to 15	6 to 12
VERY STIFF	15 to 30	12 to 24
HARD	GREATER THAN 30	GREATER THAN 24

LEGEND

1 GRAY TO BROWN TO DARK BROWN SAND TO SAND WITH SILT (SP/SP-SM)
2 GRAY TO BROWN SILTY SAND TO SILTY-CLAYEY SAND, OCCASIONALLY WITH WEATHERED LIMESTONE FRAGMENTS (SM/SM-SC)
3 BROWN CLAYEY SAND, OCCASIONALLY WITH WEATHERED LIMESTONE FRAGMENTS (SC)
4 PALE GRAY TO GRAY CALCAREOUS CLAY WITH WEATHERED LIMESTONE FRAGMENTS (CL/CH)
5 WEATHERED LIMESTONE
6 DARK BROWN ORGANIC SAND WITH SILT TO ORGANIC SILTY SAND (SP-SM/SM)

W - WATER

N	SPT N-VALUE IN BLOWS/FOOT FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED)
SP	UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2488) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW
NAVD	NORTH AMERICAN VERTICAL DATUM OF 1988
50/4	NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
WR	FELL UNDER WEIGHT OF ROD
100	LOSS OF CIRCULATION OF DRILLING FLUID (100%)
100	REGAINED CIRCULATION OF DRILLING FLUID (100%)
	CASING
-200	PERCENT PASSING #200 SIEVE
NMC	NATURAL MOISTURE CONTENT (%)
OC	ORGANIC CONTENT (%)
LL	LIQUID LIMIT (%)
PI	PLASTICITY INDEX (%)
NP	NON PLASTIC
CORE	CORE DEPTH IS REFERENCED TO FEET BELOW THE GROUND SURFACE (MUDLIINE) AT THE TIME OF BORING COMPLETION
d	CORE BARRELL DIAMETER (INCHES)
t	ROCK CORE TIME (MINUTES)
PRESSURE	DOWN PRESSURE APPLIED DURING CORE RUN (PSI)
REC	PERCENT RECOVERY (%)
RQD	ROCK QUALITY DESIGNATION (%)
γ	TOTAL UNIT WEIGHT (PCF)
q_u	UNCONFINED COMPRESSION STRENGTH (PSI)
q_{st}	SPLITTING TENSILE STRENGTH (PSI)

REF. DWG. NO. G-22

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED SW
DRAWN SW
CHECKED KW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE

DESCRIPTION: REPORT OF CORE BORINGS

TIERRA
7351 Temple Terrace Highway
Tampa, Florida 33637
Phone: 813-989-1354 Fax: 813-989-1355
FL Cert. No.: 6486

APPROVED BY:

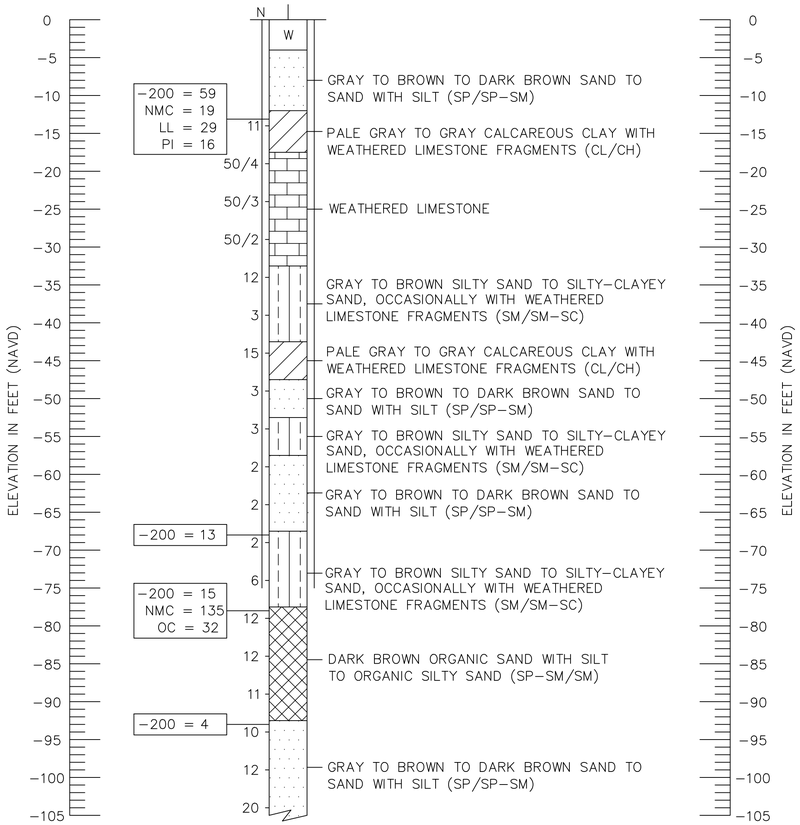
ERICK M. FREDERICK, P.E.
FLA. REG. NO 63920

DATE

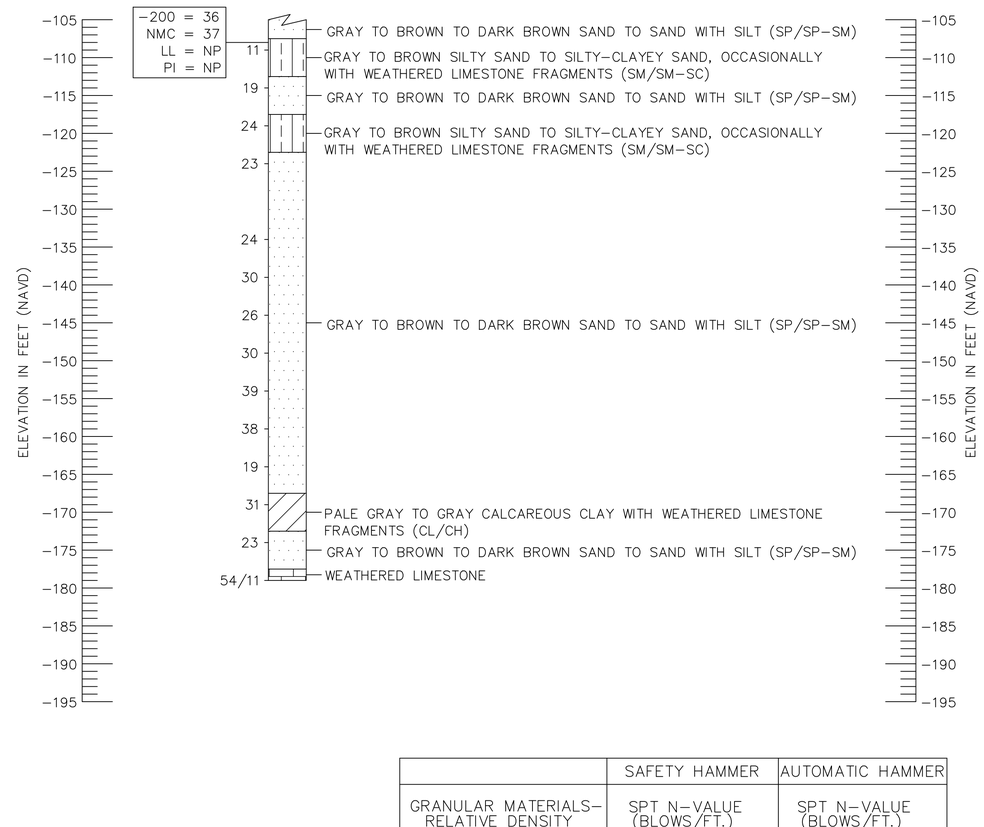
DATE: MAY 2021
PROJECT NO. 001037A
SHEET: 22 OF 283

SOIL PROFILES

BOR # BB-6
STATION 1138+64
OFFSET 17' RT.
ELEV. 0.0
DATE 2/14/2017
DRILLER J. ERICKSON
HAMMER SAFETY
RIG D-25 BARGE



BB-6
CONTINUED



RECOMMENDED ENVIRONMENTAL CLASSIFICATION:
SUBSTRUCTURE CONCRETE: EXTREMELY AGGRESSIVE
(WATER CHLORIDES = 30,000 PPM)
SUBSTRUCTURE STEEL: EXTREMELY AGGRESSIVE
(WATER CHLORIDES = 30,000 PPM)
SUPERSTRUCTURE: EXTREMELY AGGRESSIVE

WATER TEST RESULTS:
RESISTIVITY 29 TO 30 OHM-CM
CHLORIDES 30,000 PPM
SULFATES 3,800 PPM
pH 8.0 TO 8.1

SOIL TEST RESULTS:
RESISTIVITY 160 TO 170 OHM-CM
CHLORIDES 7,200 TO 18,000 PPM
SULFATES 840 TO 960 PPM
pH 8.7 TO 8.8

NOTES:

1. THE BORING LOCATIONS WERE ESTIMATED USING GPS COORDINATES OBTAINED BY TIERRA IN THE FIELD AND LATER CONVERTED TO STATION AND OFFSET USING DESIGN FILES PROVIDED BY HARDESTY & HANOVER. THE BORING LOCATIONS SHOULD THEREFORE BE CONSIDERED APPROXIMATE.
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	SAFETY HAMMER	AUTOMATIC HAMMER
GRANULAR MATERIALS- RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
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SOFT	2 to 4	1 to 3
FIRM	4 to 8	3 to 6
STIFF	8 to 15	6 to 12
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HARD	GREATER THAN 30	GREATER THAN 24

LEGEND

1 GRAY TO BROWN TO DARK BROWN SAND TO SAND WITH SILT (SP/SP-SM)
2 GRAY TO BROWN SILTY SAND TO SILTY-CLAYEY SAND, OCCASIONALLY WITH WEATHERED LIMESTONE FRAGMENTS (SM/SM-SC)
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6 DARK BROWN ORGANIC SAND WITH SILT TO ORGANIC SILTY SAND (SP-SM/SM)

W - WATER
N SPT N-VALUE IN BLOWS/FOOT FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED)
SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2488) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW
NAVD NORTH AMERICAN VERTICAL DATUM OF 1988
50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
WR FELL UNDER WEIGHT OF ROD
100 LOSS OF CIRCULATION OF DRILLING FLUID (100%)
100 REGAINED CIRCULATION OF DRILLING FLUID (100%)
CASING
-200 PERCENT PASSING #200 SIEVE
NMC NATURAL MOISTURE CONTENT (%)
OC ORGANIC CONTENT (%)
LL LIQUID LIMIT (%)
PI PLASTICITY INDEX (%)
NP NON PLASTIC
CORE CORE DEPTH IS REFERENCED TO FEET BELOW THE GROUND SURFACE (MUDLIINE) AT THE TIME OF BORING COMPLETION
d CORE BARRELL DIAMETER (INCHES)
t ROCK CORE TIME (MINUTES)
PRESSURE DOWN PRESSURE APPLIED DURING CORE RUN (PSI)
REC PERCENT RECOVERY (%)
RQD ROCK QUALITY DESIGNATION (%)
γ TOTAL UNIT WEIGHT (PCF)
q_u UNCONFINED COMPRESSION STRENGTH (PSI)
q_{st} SPLITTING TENSILE STRENGTH (PSI)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED SW
DRAWN SW
CHECKED KW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE

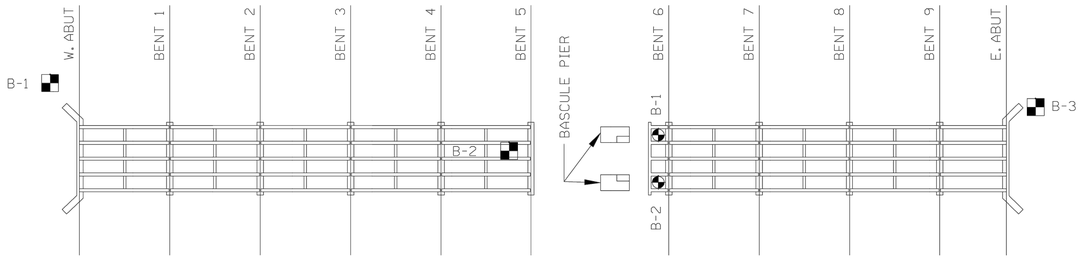
DESCRIPTION: REPORT OF CORE BORINGS

TIERRA
7351 Temple Terrace Highway
Tampa, Florida 33637
Phone: 813-989-1354 Fax: 813-989-1355
FL Cert. No.: 6486

APPROVED BY:
ERICK M. FREDERICK, P.E.
FLA. REG. NO 63920
DATE

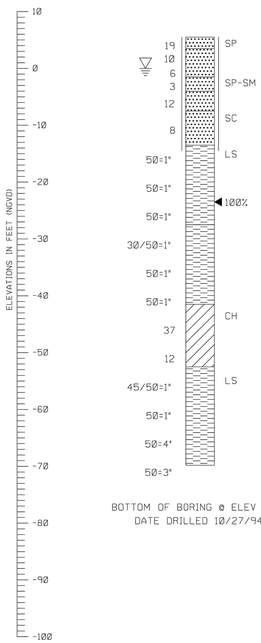
REF. DWG. NO. G-23
DATE: MAY 2021
PROJECT NO. 001037A
SHEET: 23 OF 283

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.
	FLA			



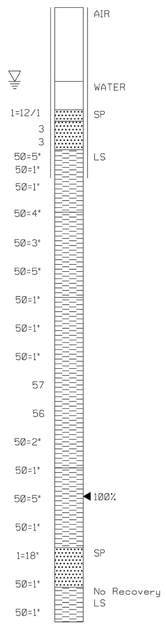
PLAN

B-1



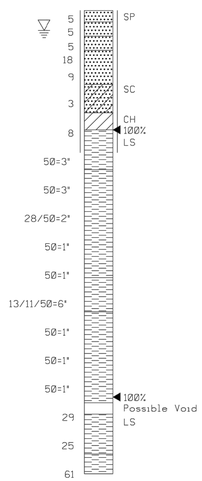
BOTTOM OF BORING @ ELEV 69.8'
DATE DRILLED 10/27/94

B-2



BOTTOM OF BORING @ ELEV 95.1'
DATE DRILLED 10/22/94

B-3



BOTTOM OF BORING @ ELEV 78.0'
DATE DRILLED 10/20/94



LEGEND

= SP, SP-SM and SP-SC, Sands and slightly clayey sands

= CH, Inorganic clays of low plasticity

= SC, Clayey sands and very sandy clays

= LS, Limestone

GENERAL NOTES

DRILL AND PENETRATION TESTING WERE PERFORMED IN ACCORDANCE WITH ASTM D 1586. NUMBER TO LEFT OF BORING INDICATES BLOWS OF 1 3/8" I.D., 2" O.D. SPLIT-SPOON FOR 12" OF PENETRATION (UNLESS OTHERWISE NOTED) WITH A 140 LB. HAMMER DROPPED 30 INCHES.

THE BORING LOGS SHOWN REPRESENT SUBSURFACE CONDITIONS WITHIN THE BOREHOLE AT THE TIME OF DRILLING. NO WARRANTY AS TO THE SUBSURFACE CONDITION, STRATA DEPTH OR SOIL CONSISTENCY BETWEEN OR OUTSIDE BORING LOCATIONS IS EXPRESSED OR IMPLIED BY THIS DRAWING.

ELEVATIONS SHOWN ARE APPROXIMATED BY WATER LEVEL AND WATER TABLE MEASURED AT TIME AND DATE BORINGS WERE COMPLETED.

REFER TO FINAL REPORT FOR ADDITIONAL BORING INFORMATION.

CREW CHIEF: SPOON
DRILLER: PATTERSON
DRILL RIG TYPE: FAILING 250

LEGEND

= Water Table @ end of drilling

= Casing used

= Shelby Tube

100% = Percent Loss of Circulation

ENVIRONMENTAL CLASSIFICATION

SUBSTRUCTURE: CORROSIVE (EXTREMELY AGGRESSIVE)
SUBSTRUCTURE: CORROSIVE (EXTREMELY AGGRESSIVE)

Granular Materials- Relative Density	SPT (Blows/Ft)
Very Loose	Less than 4
Loose	4 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	Greater than 50

Silts and Clays- Consistency	SPT (Blows/Ft)
Very Soft	Less than 2
Soft	2 - 4
Firm	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	Greater than 30

C394348 BRDG1

REVISIONS					
Date	By	Description	Date	By	Description

	Names	Dates
Drawn by	TEJ	11/9/94
Checked by	LDS	11/9/94
Designed by	LDS	11/9/94
Checked by	KDB	11/9/94
Approved by	K. D. BENNETT	

ENGINEER OF RECORD:
WILLIAMS EARTH SCIENCES, INC.
10600 ENDEAVOUR WAY
LARGO, FLORIDA 34647

LOGO: WILLIAMS EARTH SCIENCES, INC.
CORPORATE OFFICE: 10600 Endeavour Way, Largo, FL 34647
Largo (813) 541-3444 FAX: (813) 541-1518
Jacksonville (904) 262-8852 FAX: (904) 262-8864
Panama City (904) 747-1475 FAX: (904) 763-2454

SEAL:

FLORIDA DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN OFFICE

ROAD NO.	COUNTY	PROJECT NO.
SR936	PINELLAS	

SHEET TITLE: REPORT OF CORE BORINGS
Drawing No.

PROJECT NAME: BECKETT BRIDGE REPLACEMENT
Index No.

NOTE:

BORING AND LABORATORY TESTING DATA PROVIDED ON THIS SHEET WAS PERFORMED BY WILLIAMS EARTH SCIENCES, INC. TIERRA, INC. HAS UTILIZED THE DATA IN OUR DESIGN IN ACCORDANCE WITH FLORIDA ADMINISTRATIVE CODE CHAPTER 61G15.

REF. DWG. NO. G-24

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED SW
DRAWN SW
CHECKED KW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE

DESCRIPTION: REPORT OF CORE BORINGS

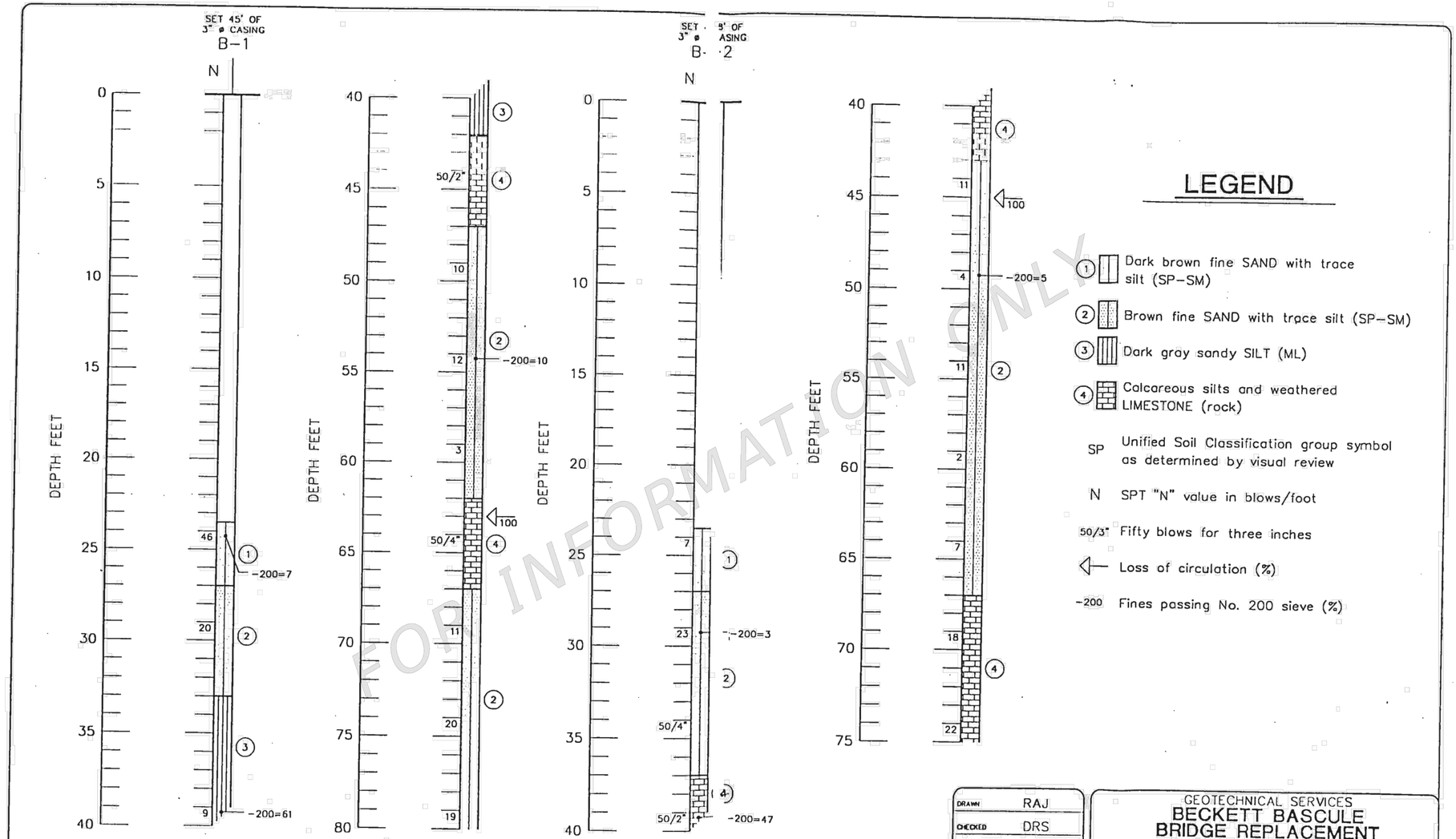
TIERRA
7351 Temple Terrace Highway
Tampa, Florida 33637
Phone: 813-989-1354 Fax: 813-989-1355
FL Cert. No.: 6486

APPROVED BY:

ERICK M. FREDERICK, P.E.
FLA. REG. NO 63920

DATE

DATE: MAY 2021
PROJECT NO. 001037A
SHEET: 24 OF 283



SOIL PROFILES

VERTICAL SCALE: 1"=5'

DRAWN	RAJ
CHECKED	DRS
APPROVED	HVJ
SCALE	NOTED

GEOTECHNICAL SERVICES
BECKETT BASCULE
BRIDGE REPLACEMENT
PINELLAS COUNTY, FLORIDA

Jammal & Associates, Inc.
A Division of Professional Service Industries, Inc.

DATE	PROJ. NO.	SHEET
DEC 93	775-35264	SHEET 2

NOTE:

BORING AND LABORATORY TESTING DATA PROVIDED ON THIS SHEET WAS PERFORMED BY PSI, INC.
TIERRA, INC. HAS UTILIZED THE DATA IN OUR DESIGN IN ACCORDANCE WITH FLORIDA ADMINISTRATIVE CODE CHAPTER 61G15.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED SW
DRAWN SW
CHECKED KW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE

DESCRIPTION: REPORT OF CORE BORINGS

TIERRA
7351 Temple Terrace Highway
Tampa, Florida 33637
Phone: 813-989-1354 Fax: 813-989-1355
FL Cert. No.: 6486

APPROVED BY:

ERICK M. FREDERICK, P.E.
FLA. REG. NO 63920

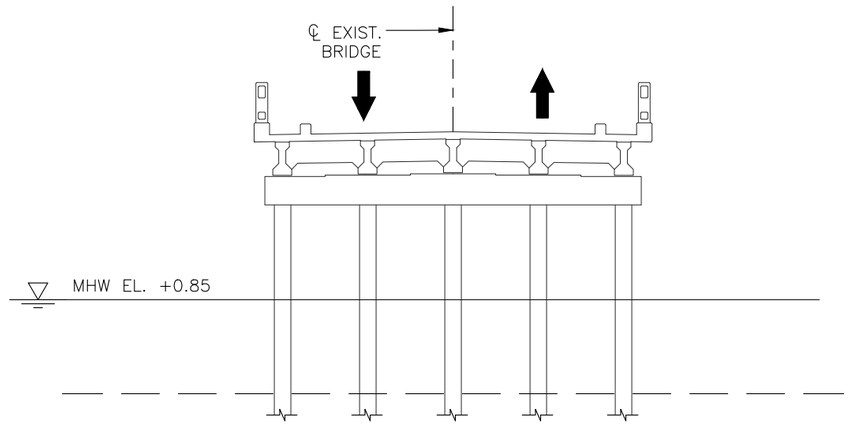
DATE

REF. DWG. NO. G-25
DATE: MAY 2021
PROJECT NO. 001037A
SHEET: 25 OF 283

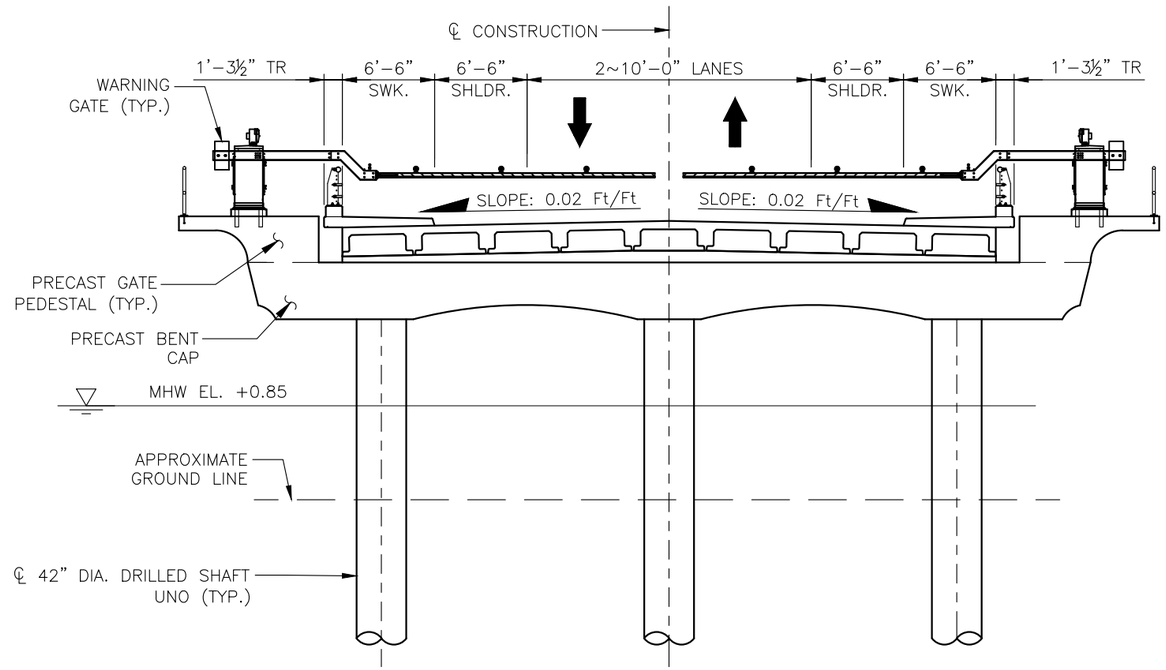
SUGGESTED CONSTRUCTION SEQUENCE NOTES:

A. COORDINATE THIS SHEET WITH REMOVAL OF EXISTING STRUCTURES SHEET
B. OFF-SITE CONSTRUCTION
   1. PREFABRICATE, ASSEMBLE, AND ROLL-TEST BASCULE LEAF INCLUDING TRACKS AND TREADS, AND COUNTERWEIGHT BOX
   2. PREFABRICATE, ASSEMBLE AND TEST OPERATING MACHINERY
   3. PREFABRICATE, ASSEMBLE, AND TEST MOTOR CONTROL CENTER AND CONTROL SYSTEM
   4. PREFABRICATE PRECAST CONCRETE COMPONENTS INCLUDING END BENT AND INTERMEDIATE BENT CAPS

C. ON-SITE CONSTRUCTION
   1. INSTALL TRAFFIC DETOUR. SEE GENERAL NOTES FOR VESSEL TRAFFIC CLOSURE REQUIREMENTS
   2. BASCULE SPAN CONSTRUCTION
      a. REMOVE EXISTING BRIDGE BASCULE SPAN AND CONTROL HOUSE
      b. CONSTRUCT BASCULE PIER FOUNDATIONS
      c. CONSTRUCT BASCULE PIER COFFERDAM AND SEAL
      d. CONSTRUCT REMAINING CIP BASCULE PIER FOOTING. COORDINATE AND PLACE TRACK GIRDERS PRIOR TO POURING CONCRETE
      e. PLACE THE OPERATING MACHINERY ON THE BASCULE PIER MACHINERY LEVEL
      f. FLOAT-IN THE FULLY ASSEMBLED BASCULE LEAF, ALIGN CURVED TREADS AND FLAT TRACKS, ANCHOR FLAT TRACKS. CONSTRUCT CONCRETE COUNTERWEIGHT, EXODERMIC DECK AND TRAFFIC RAILS ON BASCULE SPAN
      g. ALIGN OPERATING MACHINERY, AND ATTACH TO BASCULE LEAF CRANK ARM GIRDERS
      h. INSTALL ELECTRICAL POWER AND CONTROL SYSTEM. PROVIDE TEMPORARY GENERATOR POWER UNTIL THE FINAL ELECTRICAL SERVICE IS FUNCTIONAL
      i. BALANCE BASCULE SPAN
      j. INSTALL AND ADJUST TAIL PROP MACHINERY AND LIVE LOAD BEARINGS
      k. INSTALL BRIDGE PIER PROTECTION SYSTEMS
      l. CONSTRUCT THE REMAINING BASCULE PIER CONCRETE ELEMENTS
      m. TEST AND MAKE BASCULE LEAF OPERABLE
      n. AFTER CONSTRUCTING APPROACH SPAN 4, INSTALL THE SPAN LOCK MACHINERY
      o. PERFORM FUNCTIONAL CHECKOUT
   3. APPROACH SPANS CONSTRUCTION
      a. IN CONJUNCTION WITH EXISTING BASCULE SPAN DEMOLITION, REMOVE EXISTING APPROACH SPANS, SUPERSTRUCTURE, SUBSTRUCTURE, AND FOUNDATIONS
      b. CONSTRUCT APPROACH SPANS FOUNDATIONS, SUBSTRUCTURE AND SUPERSTRUCTURE
      c. COORDINATE REST PIER 4 AND SPAN 4 CONSTRUCTION WITH BASCULE LEAF FLOAT-IN AND BASCULE SPAN CONSTRUCTION
      d. CONSTRUCT REMAINING APPROACH SPANS AND SHEET PILING FOR RETAINING WALLS
      e. CONSTRUCT APPROACH SLABS
      f. INSTALL APPROACH SPAN TRAFFIC RAILINGS, GATES AND SIGNALS
      g. CONSTRUCT THE APPROACH ROADWAY
   4. OPEN ROADWAY AND BRIDGE TO TRAFFIC



EXISTING SECTION



PROPOSED SECTION
(INTERMEDIATE PIER 2 SHOWN, OTHER PIERS SIMILAR)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: CONSTRUCTION NOTES

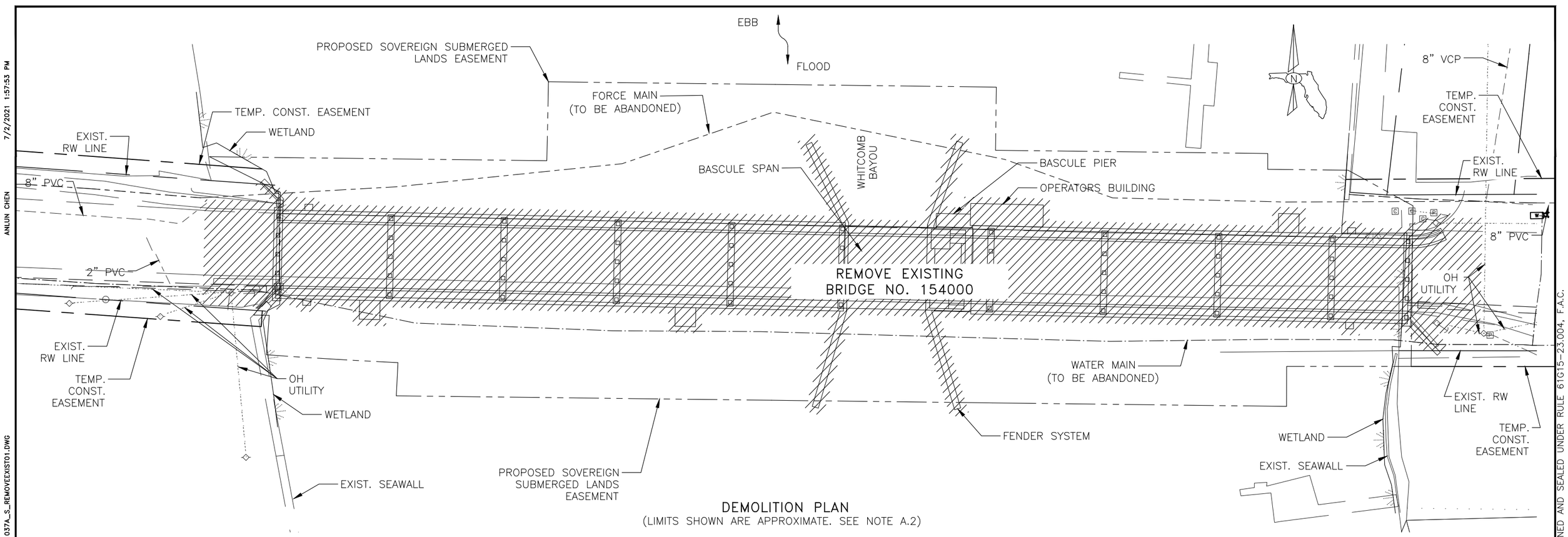
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G-26
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 26 OF 283

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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DEMOLITION PLAN

(LIMITS SHOWN ARE APPROXIMATE. SEE NOTE A.2)

A. DEMOLITION NOTES
1. REMOVE EXISTING STRUCTURES PER SPECIFICATIONS SECTION 110–6.
2. REMOVE ALL EXISTING STRUCTURES AND ANY TEMPORARY STRUCTURES IN ENTIRETY EXCEPT PILES FOR THE EXISTING BRIDGE INTERMEDIATE BENTS NOT CONFLICTING WITH NEW FOUNDATIONS AND SUBSTRUCTURES, AND PROPOSED UTILITIES WHICH MAY BE CUT–OFF 2' MIN. BELOW THE EXISTING GROUND SURFACE.
3. USE OF EXPLOSIVES WILL NOT BE PERMITTED.
4. SEE GENERAL NOTES FOR TURBIDITY CONTROL REQUIREMENTS DURING REMOVAL OF EXISTING STRUCTURES.
5. SALVAGE THE FOLLOWING EQUIPMENT FROM THE EXISTING BRIDGE AND DELIVER TO PINELLAS COUNTY:
   - TRAFFIC GATES
   - NAVIGATION LIGHTS & AIDS
6. SALVAGE THE FOLLOWING ITEMS AND INCORPORATE INTO THE NEW BRIDGE AS DESCRIBED ON THE CONTRACT PLANS
   - RACK AND PINION, SECTIONS OF BASCULE STEEL AND MACHINERY ELEMENTS (SEE HISTORICAL MONUMENT DRAWINGS FOR DETAILS)
   - PINELLAS COUNTY BOARD OF COUNTY COMMISSIONERS PLAQUE

B. DEBRIS CONTAINMENT NOTES
IMPLEMENT THE FOLLOWING MINIMUM PRECAUTIONS TO COMPLY WITH PROJECT PERMITS AND ENSURE THAT NO DEMOLITION DEBRIS OR CONSTRUCTION MATERIALS ENTER WHITCOMB BAYOU AND ADJOINING WATERWAYS:
1. PREPARE AND SUBMIT A DEBRIS CONTAINMENT SYSTEM (DCS) PLAN TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING DEMOLITION OR CONSTRUCTION WORK. THE DCS SHALL INCLUDE THE FOLLOWING MINIMUM MEANS TO PROHIBIT DEBRIS FROM ENTERING THE WATER.
   A) BARGES AND/OR FLOATING WORK PLATFORMS OR PLATFORMS SUPPORTED FROM THE EXISTING BRIDGE OR REPLACEMENT BRIDGE.
   B) PLATFORMS SHALL BE OF SUBSTANTIAL CONSTRUCTION ADEQUATE TO SUPPORT ANTICIPATED LOADING FROM ACCUMULATED DEBRIS, EQUIPMENT AND PERSONNEL.
   C) PLATFORM SHALL INCLUDE A COMBINATION OF FENCING, NETTING, SHIELDING, FILTER FABRIC, ETC. AS REQUIRED TO CONTAIN LARGE AND SMALL DEBRIS.
2. THE DCS SHALL BE CAPABLE OF CONTAINING ALL DEMOLITION DEBRIS AND CONSTRUCTION MATERIALS DURING CONSTRUCTION OPERATION OVER WATER INCLUDING REMOVAL, COLLECTION, STORAGE, TRANSPORTATION, HANDLING AND PLACEMENT ACTIVITIES OVER WATER.
3. SEE GENERAL NOTES FOR NAVIGABLE WATERWAY REQUIREMENTS.

C. DEBRIS DISPOSAL NOTES
1. OWNERSHIP AND DISPOSAL OF REMOVED MATERIALS PER SPECIFICATIONS SECTION 110–9.
2. IF WASTE IS CHARACTERIZED AS HAZARDOUS, OBTAIN AN EPA/FDEP HAZARDOUS WASTE IDENTIFICATION NUMBER, (EPA/FDEP ID NUMBER) PRIOR TO TRANSPORTATION AND DISPOSAL OF ANY HAZARDOUS WASTE. SUBMIT A COPY OF ALL COMPLETED HAZARDOUS WASTE MANIFESTS TO THE ENGINEER.
3. EXISTING BASCULE PIER TIMBER PILES, FENDER SYSTEM TIMBER PILES AND WALES CONTAIN WOOD PRESERVATIVES THAT ARE CONSIDERED HAZARDOUS MATERIAL. REFER TO CONTAMINATION REPORT FOR OTHER HAZARDOUS MATERIALS.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: REMOVAL OF EXISTING STRUCTURES

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

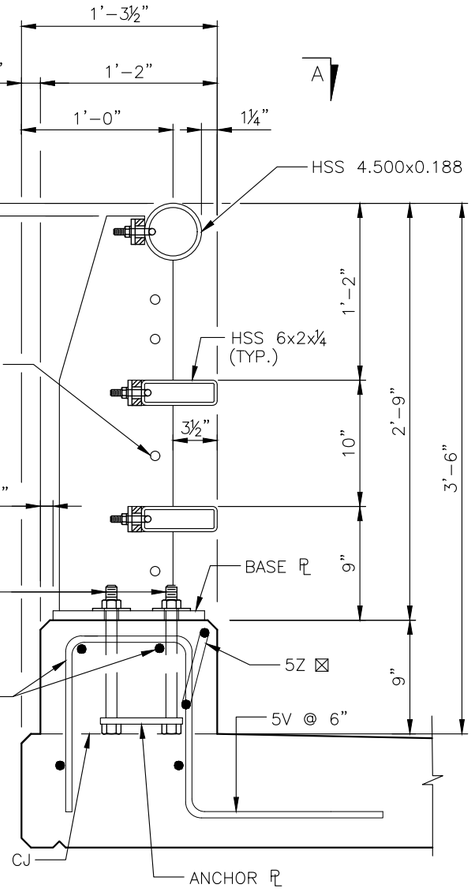
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G–27
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 27 OF 283

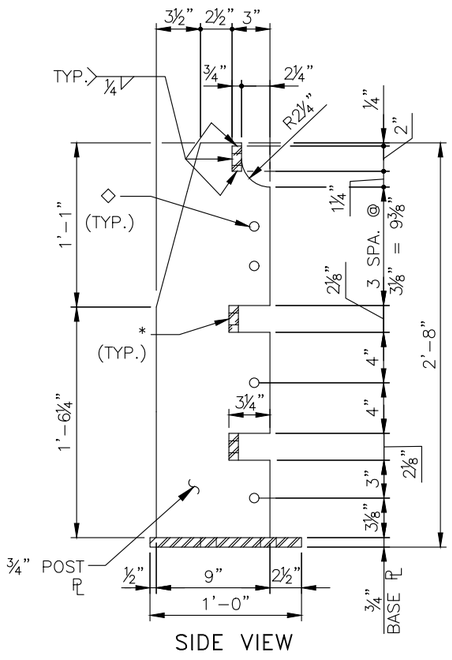
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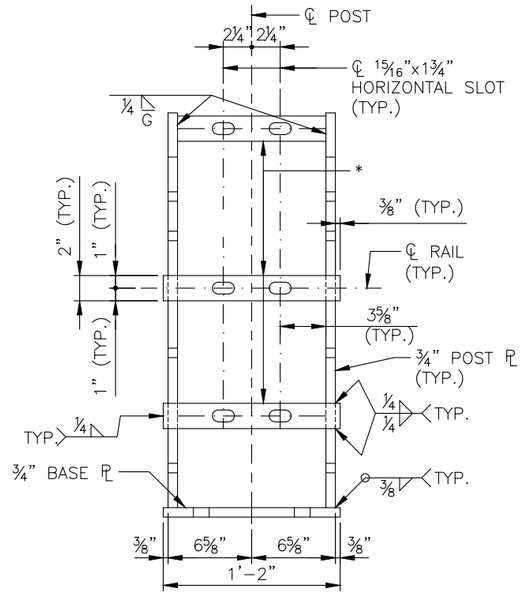
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TRAFFIC RAILING TYPICAL SECTION AT POST



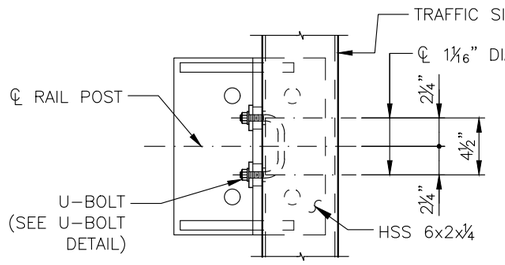
SIDE VIEW



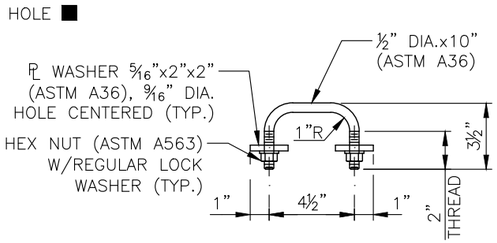
FRONT VIEW
(SHOWING TRAFFIC SIDE OF POST)

NOTES:
1. SEE GENERAL NOTES FOR ALL STRUCTURAL STEEL NOT DEFINED HEREIN.
2. THIS RAILING HAS BEEN EVALUATED TO MEET MASH TL-4 CRITERIA. FOR ADDITIONAL INFORMATION SEE TEXAS DOT BRIDGE STANDARD T2P.
3. SEE SUPERSTRUCTURE AND BASCULE SPAN PLANS FOR RAIL POST LOCATION AND SPACING. COORDINATE THIS SHEET WITH SPAN LOCK HOUSING DETAILS.
4. ROUND OR CHAMFER EXPOSED EDGES OF HSS RAIL AND HSS RAIL POSTS TO APPROXIMATELY 1⁄16" BY GRINDING.
5. PROVIDE A HEAVY HEX ANCHOR BOLT PER ASTM F3125 GR A325 WITH HEAVY HEX NUT AND HARDENED STEEL WASHER.
6. PROVIDE BACKER ROD ON BOTH CURB FACES AND ACROSS TOP OF RAIL CURB. SEAL WITH A TYPE D SILICONE SEALANT PER SPECIFICATION SECTION 932.
7. SUBMIT SHOP DRAWINGS SHOWING PANEL LENGTHS, RAIL POST SPACING, AND ANCHOR BOLT SETTING TO THE ENGINEER FOR APPROVAL.
8. FIELD CUT BARS 5R IN CONFLICT WITH JUNCTION BOX LOCATIONS AND LAP WITH BARS 5Z2. SEE DETAIL FOR MIN. LAP LENGTH

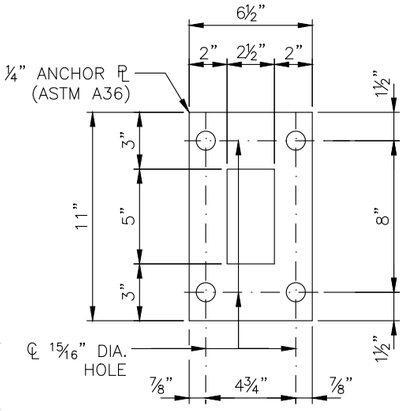
LEGEND:
- * BARS ¾"X2" (ASTM A36)
- ** LAP BARS 5Z2 W/ BARS 5R (1'-3" MIN.)
- ☒ ADJUST BARS 5Z AS NECESSARY TO AVOID BARS 5V.
- ◇ COORDINATE HOLE DIAMETER IN POST PLATE WITH CABLE RECEIVER DETAILS.
- ■ CENTER HOLES VERTICALLY IN HSS



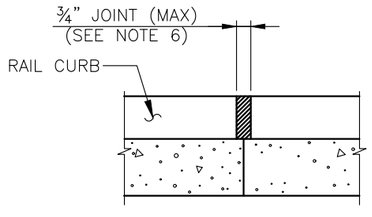
VIEW A-A
(SHOWING CONN. FOR POST AND HSS 6X2X¼, CONN. FOR POST AND HSS 4.500X0.188 SIMILAR)



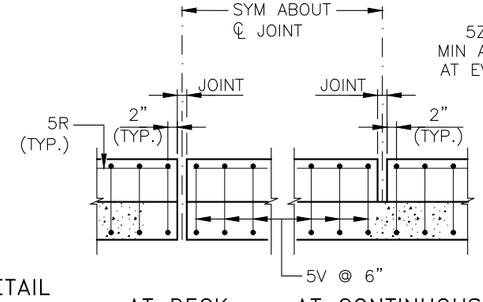
U-BOLT DETAIL
(SHOWING U-BOLT FOR POST AND HSS)



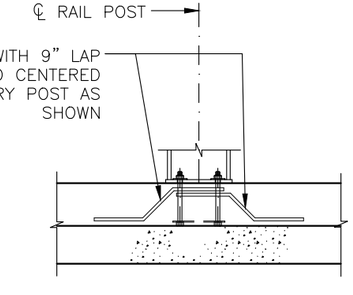
ANCHOR BOLT ASSEMBLY DETAILS



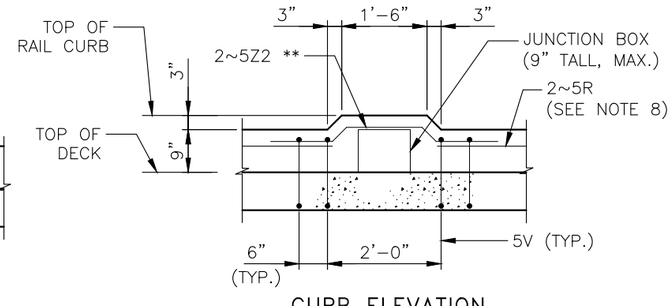
INTERMEDIATE CURB JOINT DETAIL
(PROVIDE AT ALL INTERMEDIATE BENTS WITHOUT SLAB EXPANSION JOINTS. LOCATION INDEPENDENT OF HSS RAIL SPLICES.)



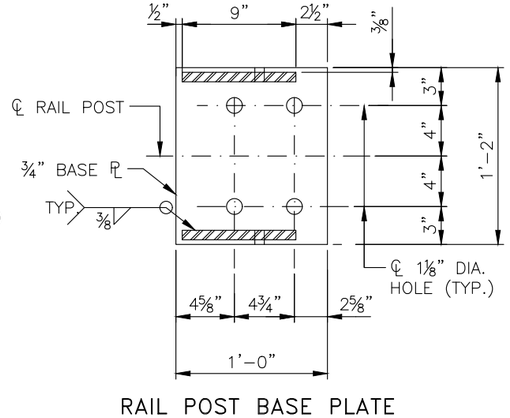
AT DECK EXPANSION JOINTS AT CONTINUOUS DECK



AT POST
(CURB REINFORCEMENT NOT SHOWN)



CURB ELEVATION
(AT JUNCTION BOX)



RAIL POST BASE PLATE

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: TRAFFIC RAILING TYPE T2P DETAILS (1 OF 2)

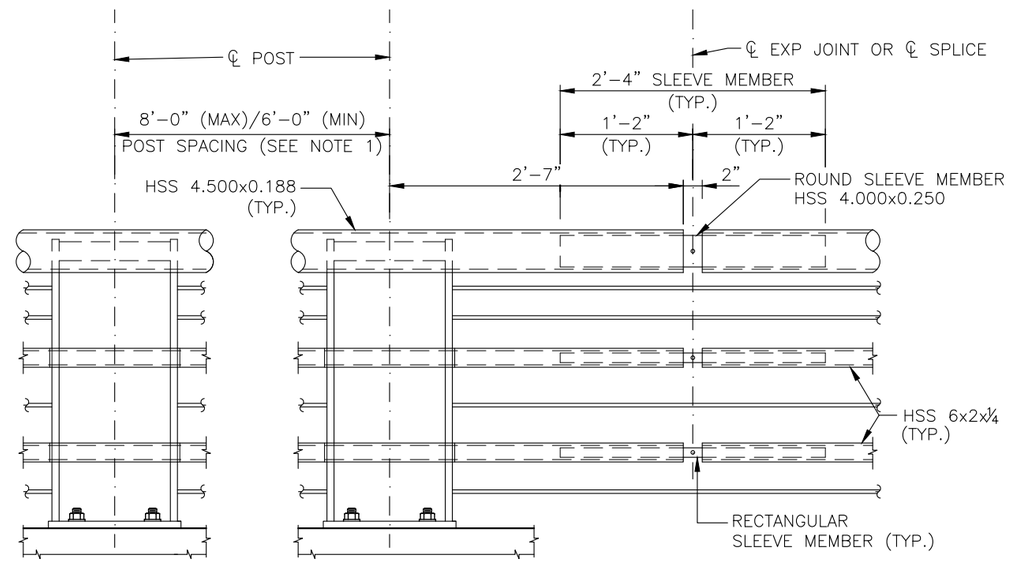
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

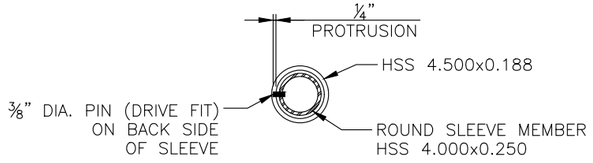
REF. DWG. NO. G-28
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 28 OF 283

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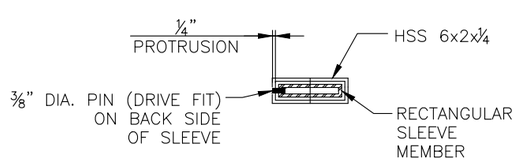
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EXPANSION JOINT OR SPLICE

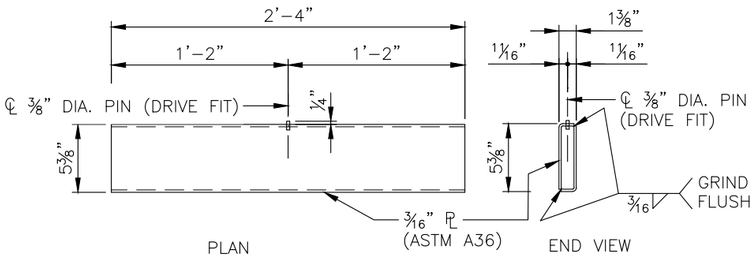


ROUND SLEEVE MEMBER



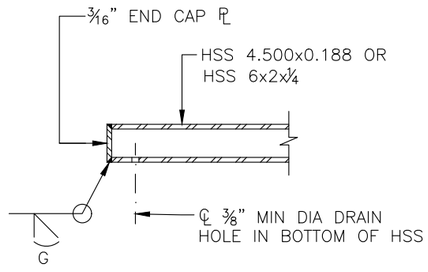
RECTANGULAR SLEEVE MEMBER

SECTION THRU SLEEVE MEMBERS
(SECTIONS SHOWN AT ℄ EXP. JOINT OR ℄ SPLICE)

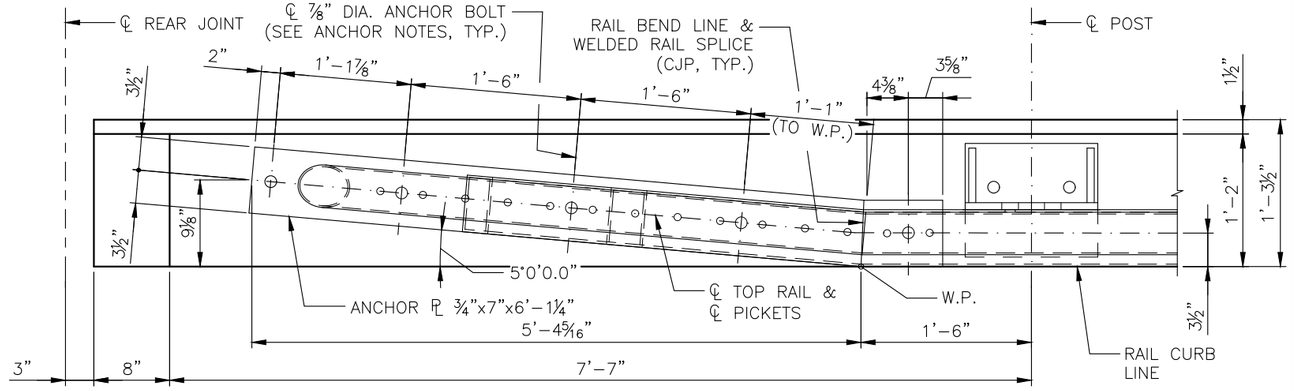


RECTANGULAR SLEEVE MEMBER

NOTES:
1. PROVIDE AT LEAST TWO POST BUT NO MORE THAN FOUR PER RAIL SECTION (UNO).



RAILING END CAP DETAIL



VIEW X–X

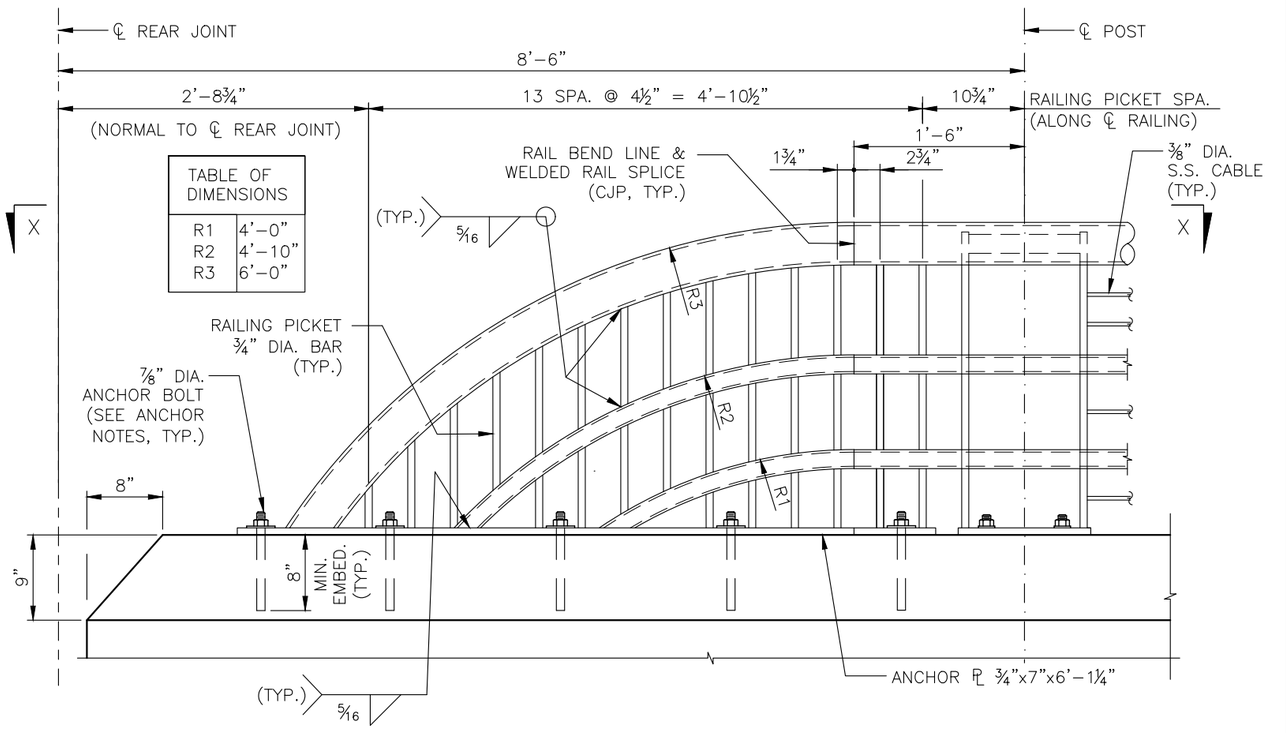


TABLE OF DIMENSIONS	
R1	4'–0"
R2	4'–10"
R3	6'–0"

RAILING TERMINATION ELEVATION – BASCULE SPAN

ANCHOR NOTES:
1. PROVIDE OVERSIZED BOLT HOLES IN STEEL ANCHOR PL.
2. PROVIDE POST–INSTALLED, ADHESIVE–BONDED, STEEL ANCHOR BOLTS AT THE LOCATIONS SHOWN.
3. INSTALL DOWEL BARS PER SPECIFICATION 416 AND MANUFACTURER'S RECOMMENDATIONS FOR HOLE DIAMETER AND CLEANING TECHNIQUE.
4. PROVIDE A TYPE HV ADHESIVE PER SPECIFICATIONS SECTION 937 TO THE ENGINEER FOR APPROVAL.

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DESIGNED JPN
DRAWN LER
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

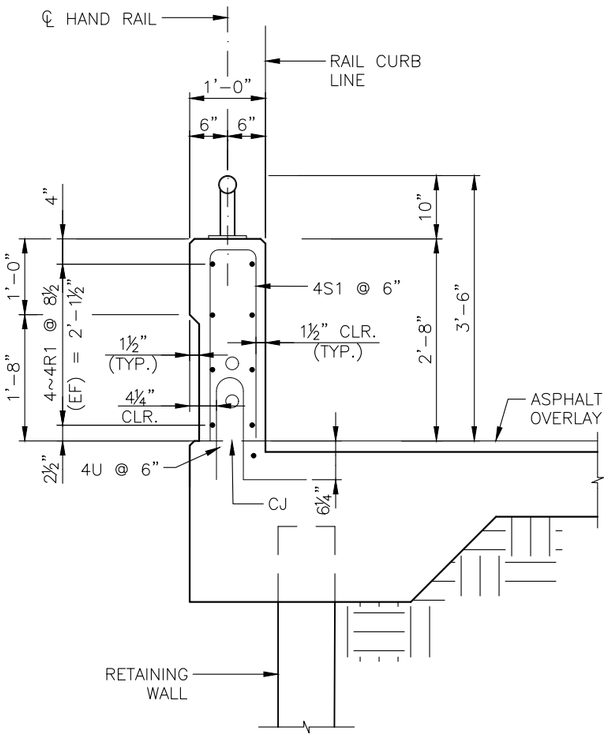
DESCRIPTION: TRAFFIC RAILING TYPE T2P DETAILS (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

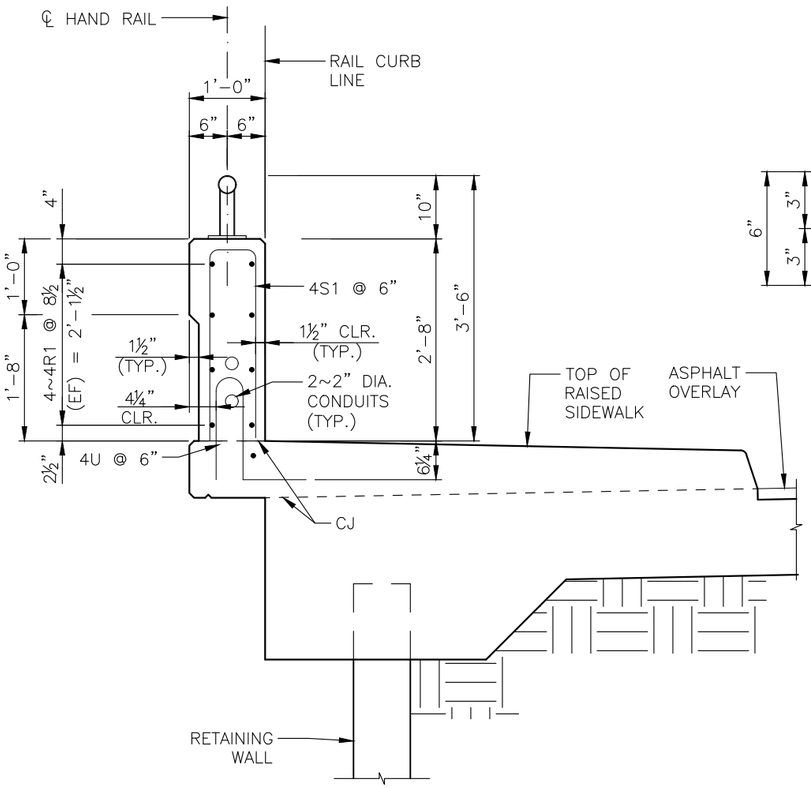
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G–29
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 29 OF 283

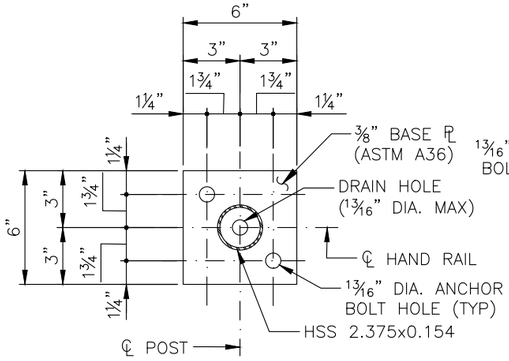
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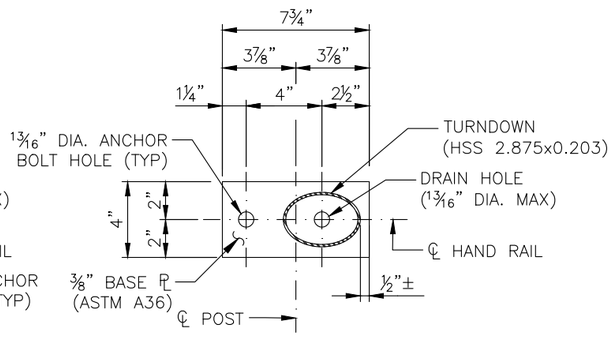
SECTION THRU RAILING AT APPROACH SLAB
WITHOUT RAISED SIDEWALK



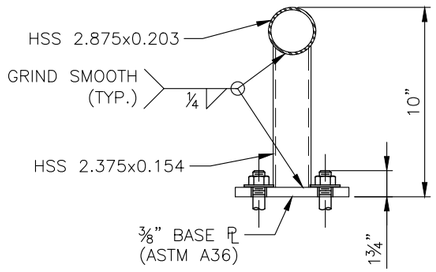
SECTION THRU RAILING AT APPROACH SLAB
WITH RAISED SIDEWALK



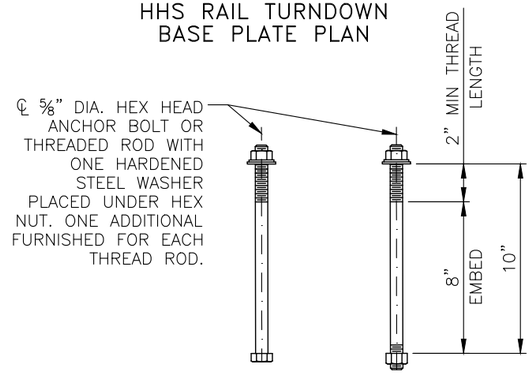
POST BASE PLATE PLAN



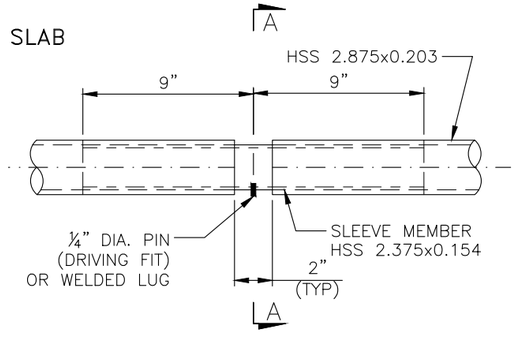
HHS RAIL TURNDOWN
BASE PLATE PLAN



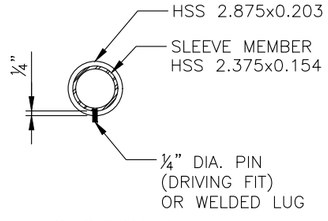
HSS RAIL TRANSVERSE SECTION



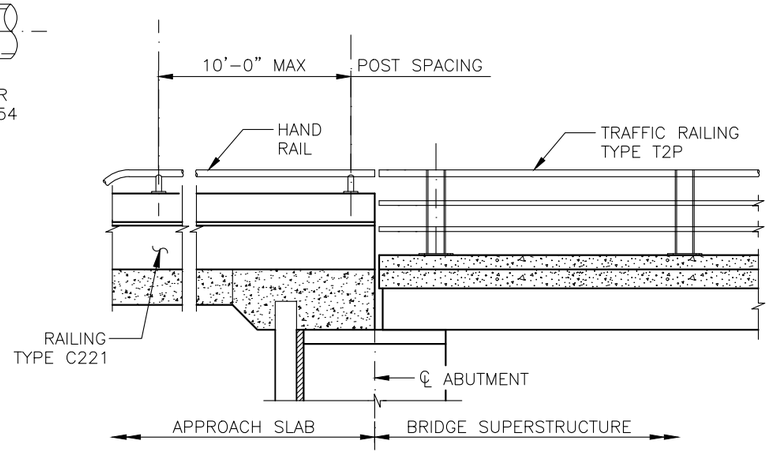
CAST–IN–PLACE ANCHOR BOLT



PIPE SPLICE DETAILS
(AT SPLICE OR EXP. JOINT)



SECTION A–A



OUTBOARD ELEVATION OF RAILING
(LOOKING TOWARDS THE BRIDGE)

NOTES:

1. SEE GENERAL NOTES FOR ALL MATERIALS NOT DEFINED HEREIN
2. THIS RAILING HAS BEEN EVALUATED TO MEET MASH TL–3 CRITERIA. FOR ADDITIONAL INFORMATION, SEE TEXAS DOT BRIDGE STANDARD C221.
3. SUBMIT SHOP DRAWINGS SHOWING PANEL LENGTHS, RAIL POST SPACING, AND ANCHOR BOLT SETTING TO THE ENGINEER FOR APPROVAL.
4. SEE SPECIFICATIONS SECTION 521 FOR CONCRETE BARRIER REQUIREMENTS
5. RAILING MUST BE PLUMB UNLESS OTHERWISE APPROVED BY THE ENGINEER. USE TYPE Q EPOXY PER SPECIFICATIONS SECTION 926 UNDER POST BASE PLATES FOR GAPS LARGER THAN 1⁄16".
6. HSS RAIL SECTIONS MUST NOT INCLUDE LESS THAN TWO POSTS, AND NO MORE THAN FOUR.
7. ROUND OR CHAMFER EXPOSED EDGES OF HSS RAIL AND HSS RAIL POSTS TO APPROXIMATELY 1⁄16" BY GRINDING.
8. CAST–IN–PLACE ANCHOR BOLTS ARE THE PREFERRED OPTION. ONLY BY APPROVAL OF THE ENGINEER, PROVIDE A POST–INSTALLED ⅝" DIA. FULLY THREADED ANCHOR BOLTS WITH ONE HEX NUT AND ONE HARDENED STEEL WASHER AT EACH BOLT AND EMBED USING A TYPE HV ADHESIVE PER SPECIFICATIONS SECTION 937. PROVIDE AN ANCHORAGE SYSTEM ABLE TO ACHIEVE AN ULTIMATE TENSILE RESISTANCE OF 8.4 KIPS PER BOLT. INSTALL ANCHOR BOLT PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS SECTION 416. SUBMIT TO THE ENGINEER ALL ASSOCIATED DOCUMENTS FOR APPROVAL PRIOR TO INSTALLATION.
9. BRIDGE NAME AND NUMBER: THE NAME AND BRIDGE NUMBER TO BE PLACED ON THE TRAFFIC RAILING SHALL BE SEEN ON THE DRIVER'S RIGHT WHEN APPROACHING THE BRIDGE. THE DATE IS TO BE PLACED ON THE DRIVER'S LEFT WHEN APPROACHING THE BRIDGE. THE DATE SHALL BE THE YEAR THE BRIDGE IS CONSTRUCTED. ALTERNATIVE LETTERS AND FIGURES 3" IN HEIGHT, AS APPROVED BY THE ENGINEER, MAY BE USED, IN LIEU OF LETTERS AND FIGURES FORMED BY ⅜" V–GROOVES. V–GROOVES SHALL BE FORMED BY PREFORMED LETTER AND FIGURES.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT:
BECKETT BRIDGE REPLACEMENT

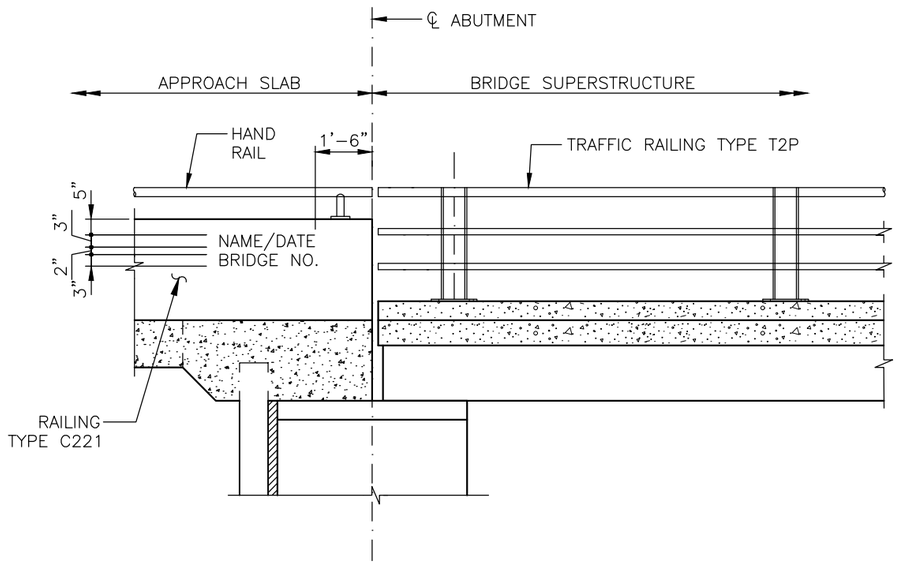
DESCRIPTION:
TRAFFIC RAILING TYPE C221 DETAILS (1 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

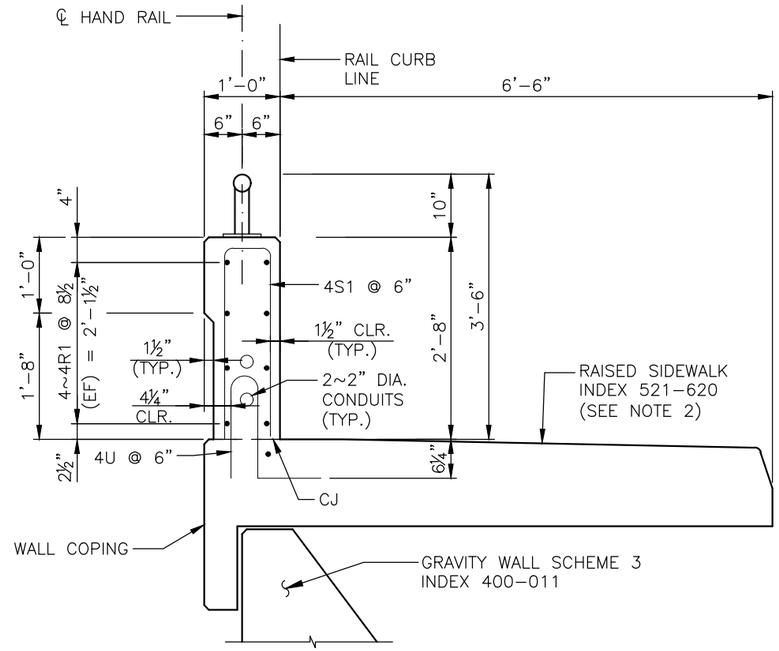
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G–30
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 30 OF 283

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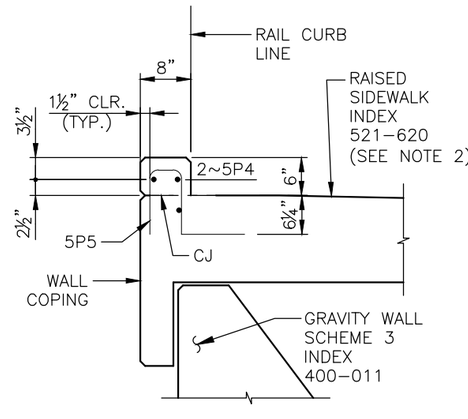
INBOARD ELEVATION OF RAILING
(SEE NOTE 9 ON DWG. G–30)



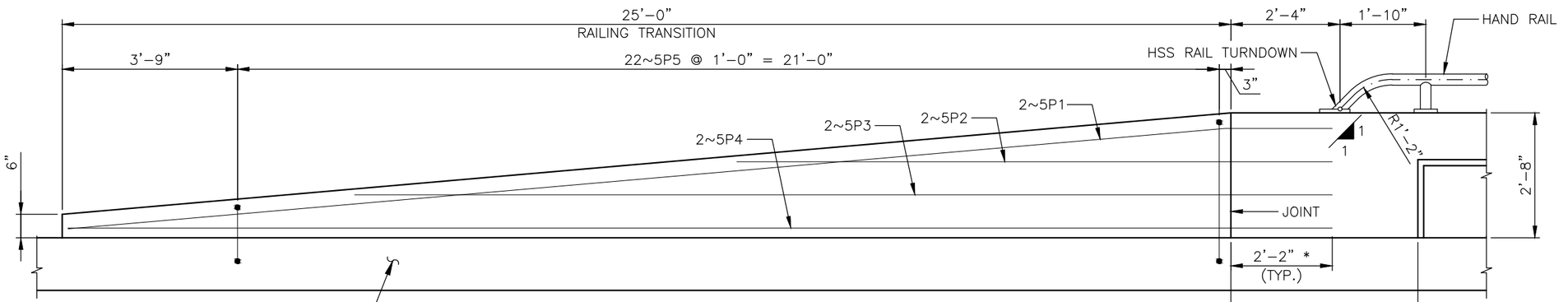
TYPICAL SECTION THRU RAILING AT RAISED SIDEWALK

NOTES:

1. PLACE ¾" V–GROOVE IN TRAFFIC RAILING PARAPET AT 10'–0" MAX. SPACING ALONG LENGTH OF RAILING.
2. COORDINATE TRAFFIC RAILING REINFORCING STEEL WITH REINFORCING STEEL IN RAISED SIDEWALK AND WALL COPING (NOT SHOWN).

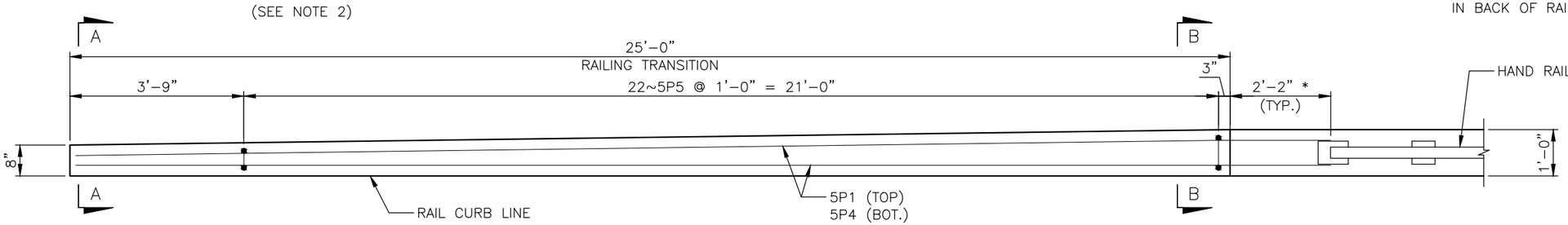


SECTION A–A

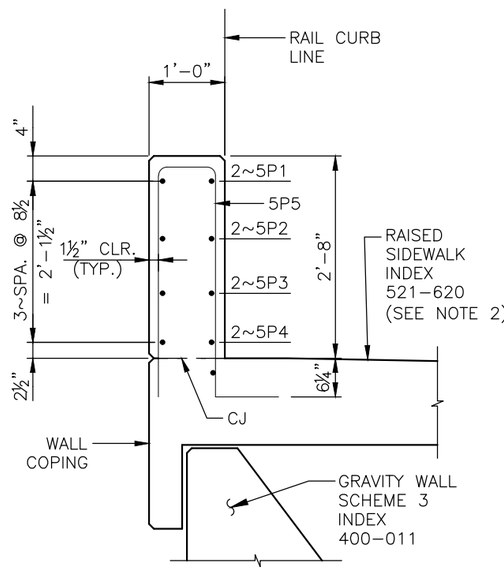


ELEVATION

* LAP W/ BARS 4R1



PLAN
(HSS RAIL TURNDOWN AND RAIL TRANSITION DETAIL) **



SECTION B–B

** TRAFFIC RAILING TRANSITIONS LOCATED AT EACH RAILING END. COORDINATE WITH ROADWAY PLANS.

REV. NO.	DATE	DESCRIPTION	REV. BY

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DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

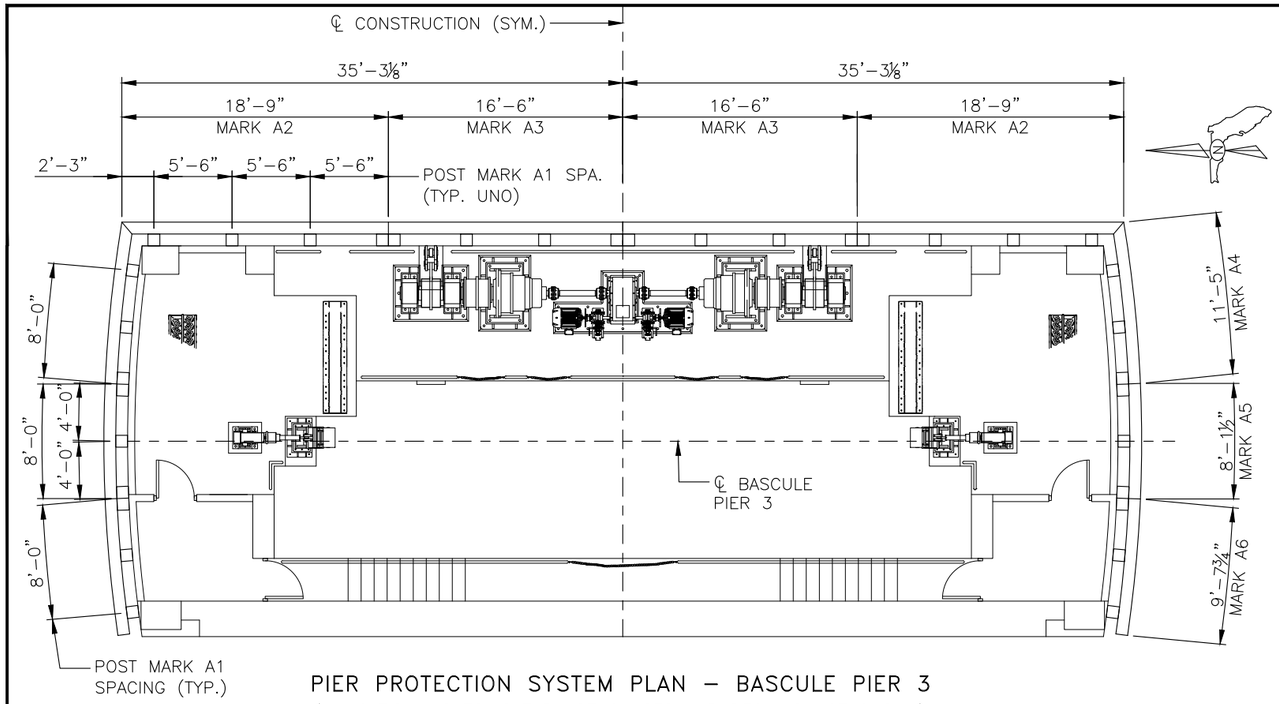
DESCRIPTION: TRAFFIC RAILING TYPE C221 DETAILS (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

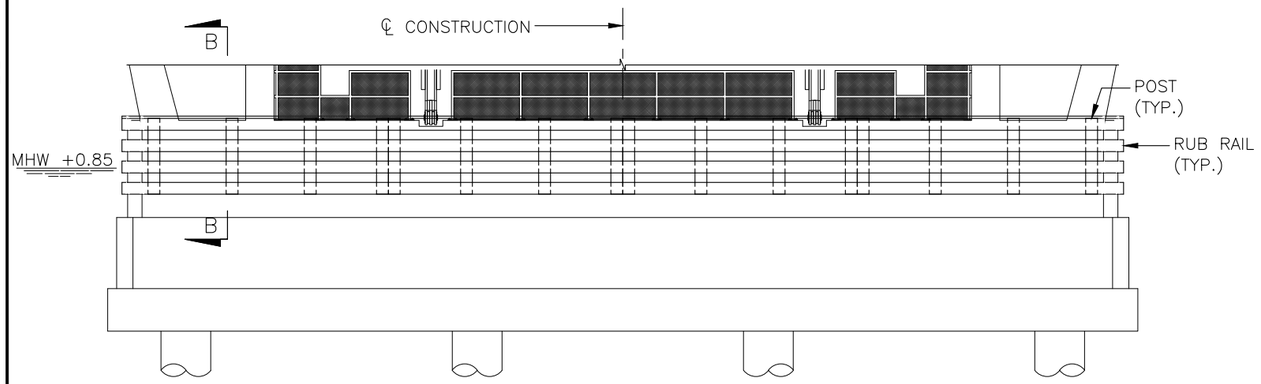
REF. DWG. NO. G–31
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 31 OF 283

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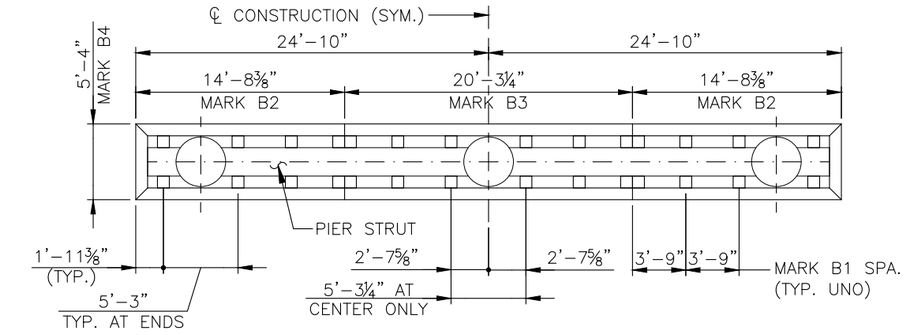
PIER PROTECTION SYSTEM PLAN – BASCULE PIER 3

(NAVIGATION LIGHTS, CLEARANCE GAUGES AND DECKING NOT SHOWN)



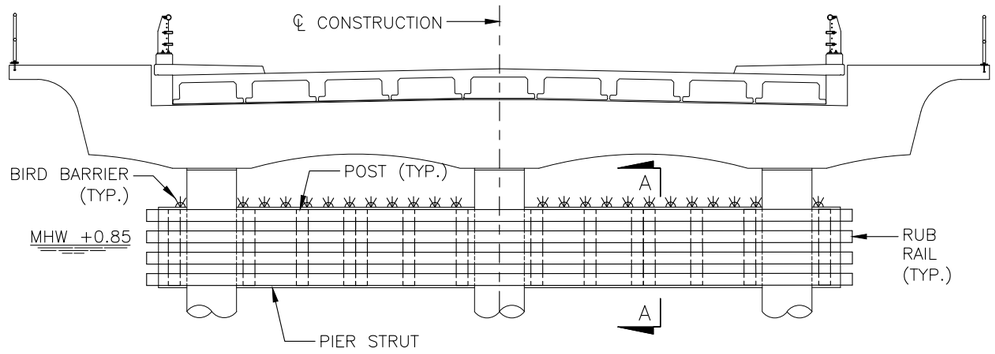
PIER PROTECTION SYSTEM ELEVATION – BASCULE PIER 3

(NAVIGATION LIGHTS AND CLEARANCE GAUGES NOT SHOWN)



PIER PROTECTION SYSTEM PLAN – REST PIER 4 & INT. PIER 5

(NAVIGATION LIGHTS AND CLEARANCE GAUGES NOT SHOWN)



PIER PROTECTION SYSTEM ELEVATION – REST PIER 4 & INT. PIER 5

(NAVIGATION LIGHTS AND CLEARANCE GAUGES NOT SHOWN)

BRIDGE PROTECTION SYSTEM NOTES

A. SEE GENERAL NOTES FOR BRIDGE PROTECTION SYSTEM SPECIFICATIONS NOT DEFINED HEREIN.
B. CLEARANCE GAUGE AND LIGHT
   1. FURNISH AND INSTALL CLEARANCE GAUGE AND CLEARANCE GAUGE LIGHT PER SPECIFICATIONS SECTION 510 AND ELECTRICAL PLANS.
   2. COORDINATE THE WIDTH AND NUMERAL HEIGHT WITH THE USCG VISIBILITY DISTANCE REQUIREMENTS.
C. NAVIGATIONAL LIGHTS
   1. PROVIDE AND INSTALL NAVIGATIONAL LIGHTS PER SPECIFICATIONS SECTION 510, INDEX 21220 AND ELECTRICAL PLANS.
   2. PROVIDE AND MAINTAIN TEMPORARY NAVIGATION LIGHTS DURING CONSTRUCTION UNTIL PERMANENT NAVIGATIONAL LIGHTS ARE OPERATIONAL.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN AC
CHECKED JPN

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BRIDGE PIER PROTECTION SYSTEM

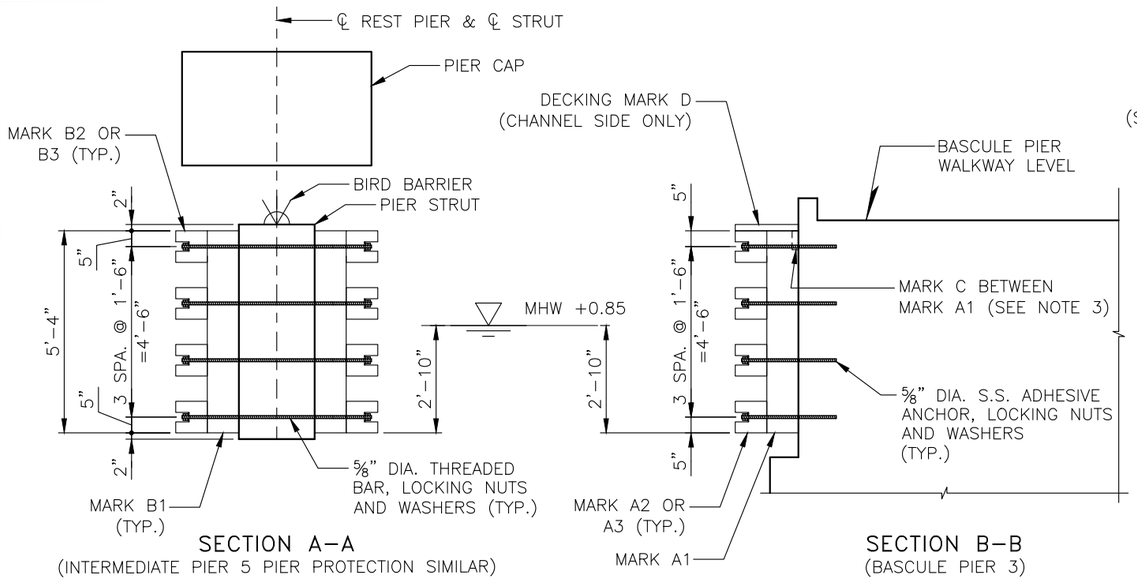
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G–32
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 32 OF 283

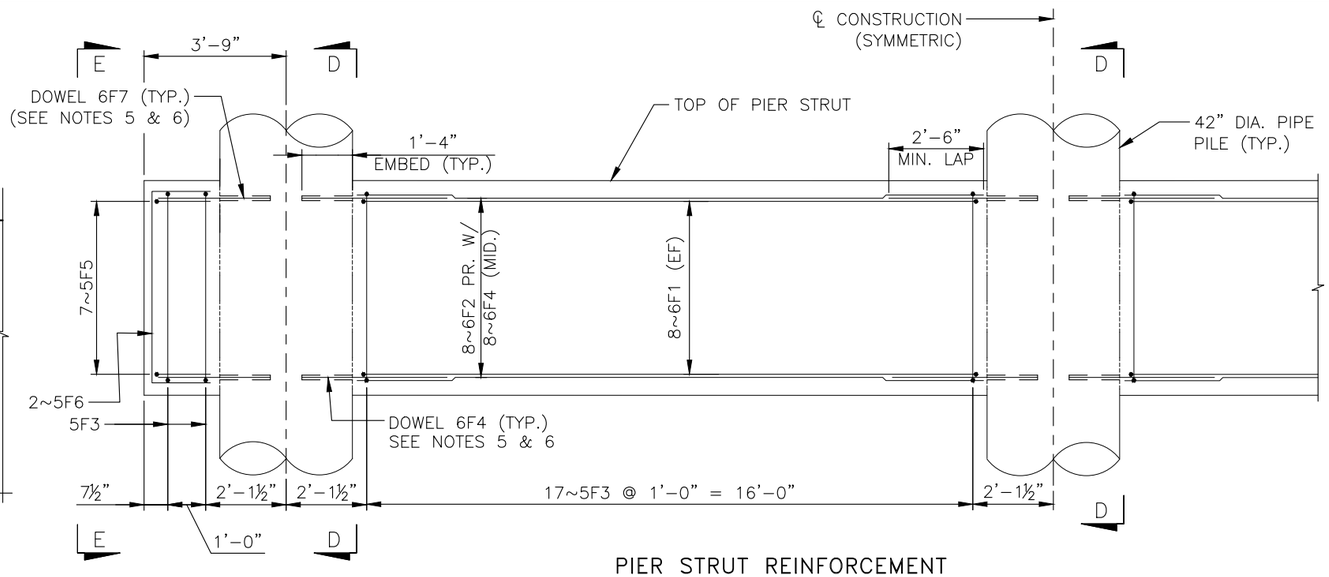
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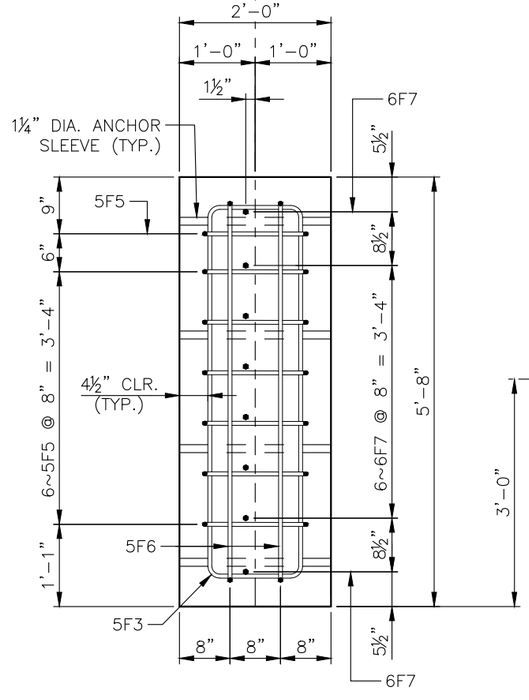


SECTION A–A
(INTERMEDIATE PIER 5 PIER PROTECTION SIMILAR)

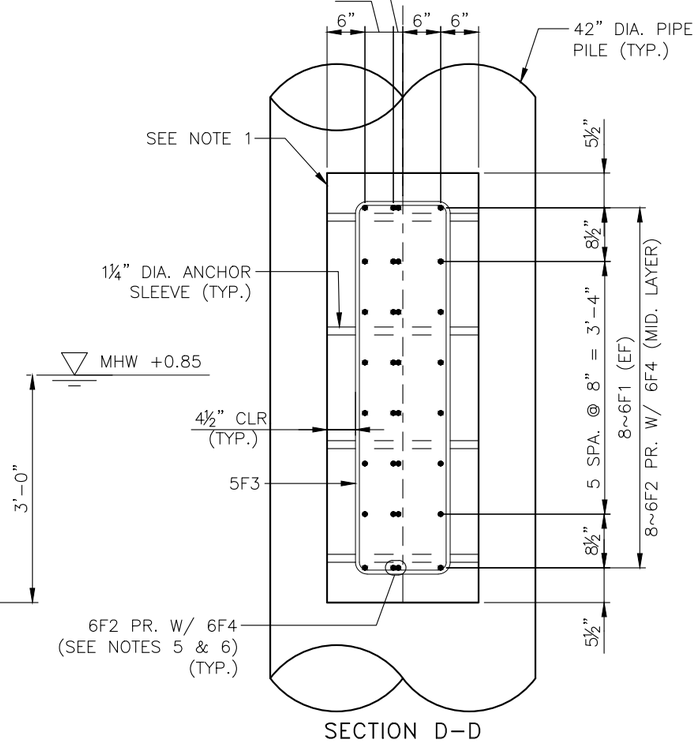
SECTION B–B
(BASCULE PIER 3)



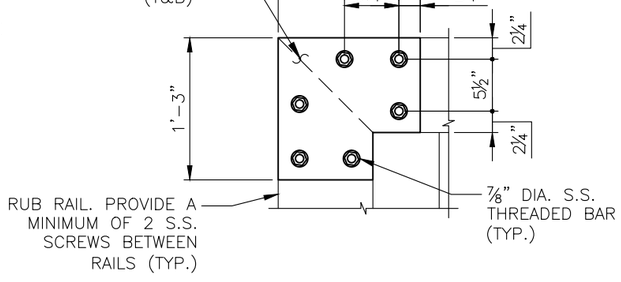
PIER STRUT REINFORCEMENT
(PIER PROTECTION NOT SHOWN)



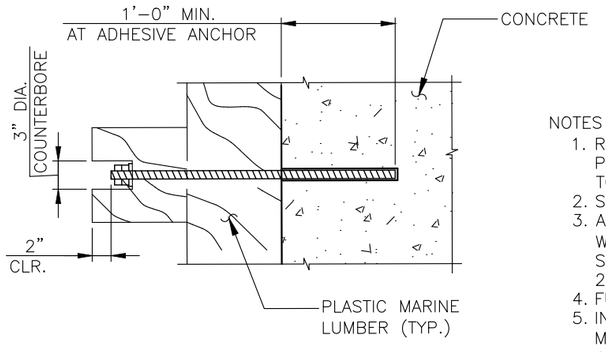
VIEW E–E
(PIER PROTECTION NOT SHOWN)



SECTION D–D
(PIER PROTECTION NOT SHOWN)



CORNER CONNECTION PLATE
(INTERMEDIATE PIER SHOWN, OTHER LOCATIONS SIMILAR)



ADHESIVE ANCHORAGE DETAIL
(BASCULE PIER 3)

PLASTIC LUMBER BILL OF MATERIALS

LOCATION	MARK	SIZE (NOMINAL)	LENGTH	NO. REQ.	MB (TOTAL)
BASCULE PIER 3	A1	10"x10"	5'–4"	34	1.5
	A2	10"x10"	18'–9"	8	1.3
	A3	10"x10"	16'–6"	8	1.1
	A4	10"x10"	11'–5"	8	0.8
	A5	10"x10"	8'–1½"	8	0.6
	A6	10"x10"	9'–7¾"	8	0.6
REST PIER 4 AND INT. PIER 5	B1	10"x10"	5'–4"	56	2.5
	B2	10"x10"	14'–8½"	32	3.9
	B3	10"x10"	20'–3¼"	16	2.7
	B4	10"x10"	5'–4"	16	0.7
BASCULE PIER 3	C	2"x6"	4'–8"	12	0.1
	D	2"x12"	1'–8"	71	0.2

NOTES
1. ROUGHEN CONCRETE SURFACE TO OF PIPE PILE A ¼" AMPLITUDE. PROVIDE A TYPE A EPOXY PER SPECIFICATION SECTION 926 AND PRIOR TO POURING THE PIER STRUT CONCRETE.
2. SUBMIT ROUGHENING PROCEDURE TO THE ENGINEER FOR APPROVAL.
3. ANCHOR LUMBER TO THE CHANNEL SIDE FACE OF THE BASCULE PIER WITH ⅝" DIA. S.S. ANCHORAGE WITH A MINIMUM EMBEDMENT OF 6" AND SPACED AT NO MORE THAN 2–FT ON CENTER AND WITH A MINIMUM OF 2 ANCHORS PER SEGMENT.
4. FURNISH CONNECTION PLATES PER ASTM A240 TYPE 316.
5. INSTALL DOWEL BARS PER SPECIFICATIONS SECTION 416 AND MANUFACTURER'S RECOMMENDATIONS FOR HOLE DIAMETER AND HOLE CLEANING TECHNIQUE.
6. PROVIDE A TYPE HV ADHESIVE PER SPECIFICATIONS SECTION 937 AND SUBMIT TO THE ENGINEER FOR APPROVAL.

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DESIGNED AC
DRAWN AC
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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BRIDGE PIER PROTECTION DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G–33
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 33 OF 283

MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	Ø
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION REST PIER 4 AND INT. PIER 5 PIER STRUT NO. REQUIRED = 2																																	
6	F1	19– 2		32	11			16– 2			1– 6			1– 6																			
6	F2	16– 2		16	1			16– 2																									
5	F3	12–11		38	4	4	4	4–9½			1– 2																							
6	F4	4– 0		32	1			4– 0																									
5	F5	4– 3		14	11			1– 3			1– 6			1– 6																			
5	F6	7–11		4	11			4–11			1– 6			1– 6																			
6	F7	2–11		16	1			2–11																									

END OF LIST

NOTE: FOR STANDARD BAR BENDING DETAILS, SEE FDOT STANDARD PLAN INDEX. NO. 415–001.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN AC
CHECKED JPN

Pinellas County PUBLIC WORKS

PROJECT:
BECKETT BRIDGE
REPLACEMENT

DESCRIPTION:
GENERAL SHEETS
REINFORCING BAR LIST

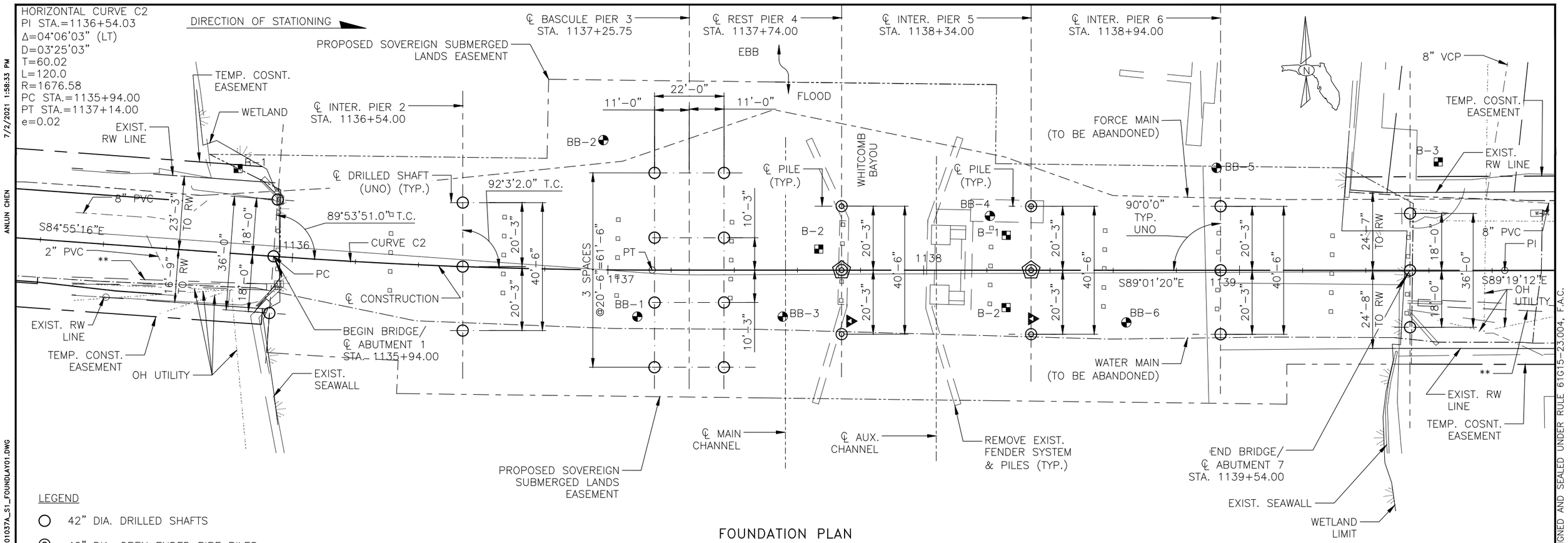
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. G–34
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 34 OF 283

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FOUNDATION PLAN

LEGEND

- ○ 42" DIA. DRILLED SHAFTS
- ◎ 42" DIA. OPEN ENDED PIPE PILES
- ⬠ 42" DIA. OPEN ENDED TEST PIPE PILES
- ▫ EXISTING PILES TO BE REMOVED
- ◒ DENOTES SOIL BORING (TIERRA 2017)
- ◪ DENOTES SOIL BORING (WILLIAMS 1994)
- ◪ DENOTES SOIL BORING (PSI 1991)
- ▶ DENOTES ADDITIONAL SPT TEST
- ** PROPOSED DRAINAGE PIPE

NOTES:
1. SEE DEMOLITION PLAN NOTES FOR DISPOSITION OF EXISTING BRIDGE ELEMENTS.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: FOUNDATION LAYOUT

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B-1
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 35 OF 283

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DRILLED SHAFT DATA TABLE													TABLE DATE: 11/15/2017	
INSTALLATION CRITERIA						DESIGN CRITERIA							TESTING	TOP OF DRILLED SHAFT ELEV. (FT.)
PIER OR ABUTMENT NO.	SHAFT SIZE (IN.)	(1) TIP ELEV. (FT)	(2) MIN. TIP ELEV. (FT.)	MIN. ROCK SOCKET LENGTH (FT.)	MIN. TOP OF ROCK SOCKET ELEV. (FT.)	FACTORED DESIGN LOAD (TONS)	FACTORED DESIGN UPLIFT LOAD (TONS)	DOWN DRAG (TONS)	LONG TERM SCOUR ELEV. (FT.)	100-YEAR SCOUR ELEV. (FT.)	ø COMPRESSION	ø UPLIFT	CONSIDERED NONREDUNDANT	
1	42	−40	−25	24	−16	282	N/A	0	N/A	N/A	0.60	0.50	NO	0.9
2	42	−49	−35	21	−34	439	N/A	0	−11.6	−11.6	0.60	0.50	NO	3.8
BASCULE PIER 3	42	−54	−36	21	−34	552	N/A	0	−21.3	−21.3	0.60	0.50	NO	−7.4
6	42	−45	−32	26	−19	418	N/A	0	−11.6	−11.6	0.60	0.50	NO	5.6
7	42	−38	−28	20	−18	285	N/A	0	N/A	N/A	0.60	0.50	NO	3.2

ESTIMATED PERMANENT CASING TABLE PER SHAFT ***			
LOCATION	SHAFT DIAMETER (IN.)	EST. TOP CASING ELEVATION	EST. BOTTOM CASING ELEVATION
ABUTMENT 1	42	−6.2	−16.0
INT. PIER 2	42	−6.2	−34.0
BASCULE PIER 3	42	−6.2	−34.0
INT. PIER 6	42	−6.2	−19.0
ABUTMENT 7	42	−6.2	−22.0
*** DOES NOT INCLUDE CASING TO BE CUT-OFF PER NOTES			

$$\frac{\text{FACTORED DESIGN LOAD + NET SCOUR RESISTANCE + DOWN DRAG}}{\text{ø}} \leq \text{NOMINAL BEARING RESISTANCE (Rn)}$$

NOMINAL UPLIFT RESISTANCE – THE ULTIMATE SIDE FRICTION CAPACITY THAT MUST BE OBTAINED BELOW THE 100 YEAR SCOUR ELEVATION TO RESIST PULLOUT OF THE PILE (SPECIFIED ONLY WHEN DESIGN REQUIRES UPLIFT CAPACITY).

TOTAL SCOUR RESISTANCE – AN ESTIMATE OF THE ULTIMATE STATIC SIDE FRICTION RESISTANCE PROVIDED BY THE SCOURABLE SOIL.

NET SCOUR RESISTANCE – AN ESTIMATE OF THE ULTIMATE STATIC SIDE FRICTION RESISTANCE PROVIDED BY THE SOIL FROM THE REQUIRED PREFORMED OR JETTING ELEVATION TO THE SCOUR ELEVATION.

100-YEAR SCOUR ELEVATION – ESTIMATED ELEVATION OF SCOUR DUE TO THE 100 YEAR STORM EVENT.

LONG TERM SCOUR ELEVATION – ESTIMATED ELEVATION OF SCOUR USED IN DESIGN FOR EXTREME EVENT LOADING.

DRILLED SHAFT NOTES:

1. THE TIP ELEVATION IS THE HIGHEST ELEVATION THE SHAFT TIP SHALL BE CONSTRUCTED UNLESS OTHER GEOTECHNICAL TEST DATA OBTAINED DURING PILOT HOLES ALLOWS THE GEOTECHNICAL FOUNDATION DESIGN ENGINEER OF RECORD (GFDEOR) TO AUTHORIZE A DIFFERENT TIP ELEVATION.
2. MINIMUM TIP ELEVATION IS REQUIRED FOR LATERAL STABILITY.
3. PILOT HOLE BORINGS WITH STANDARD PENETRATION TEST (SPT) BORINGS ARE REQUIRED AT ALL DRILLED SHAFT LOCATIONS. THE PILOT HOLES SHALL BE LOCATED WITHIN EACH FOOTPRINT OF SHAFT. PERFORM THE SPT BORINGS IN ACCORDANCE WITH ASTM 1586 EXCEPT AS NOTED HEREIN. PERFORM SPT SAMPLING AND TESTING AT 2.5 FEET INTERVALS TO A MINIMUM DEPTH OF FIVE (5) TIMES THE SHAFT DIAMETER BELOW THE TIP ELEVATION SHOWN IN THE DRILLED SHAFT DATA TABLE OR AS DIRECTED BY THE GFDEOR. PRIOR TO TERMINATING EACH OF THE PILOT HOLES, THE TERMINATION DEPTH OF THE PILOT HOLE MUST BE COORDINATED WITH THE GFDEOR. SUBSEQUENT TO THE PILOT HOLE BORINGS BEING COMPLETED, PRODUCTION DRILLED SHAFT TIPS WILL BE BE CALCULATED. DRILLED SHAFT TIPS MAY BE REVISED FROM WHAT IS SHOWN IN THE PLANS. IT SHOULD BE NOTED THAT, BASED ON THE RESULTS OF THE PILOT HOLE BORINGS, THE OWNER MAY ELECT TO MODIFY THE FOUNDATION TYPE FROM 42-INCH DRILLED SHAFTS TO 42-INCH STEEL PIPE PILES IN THE EVENT THAT THE SUBSURFACE CONDITIONS DISCLOSED BY THE PILOT HOLE BORINGS INDICATE THAT STEEL PIPE PILE INSTALLATION IS DESIRED IN LIEU OF DRILLED SHAFT INSTALLATION.
4. ONE (1) METHOD SHAFT (TEST HOLE) SHALL BE CONSTRUCTED FOR THE PROJECT. THE METHOD SHAFT SHALL BE EXCAVATED TO THE DEEPEST PRODUCTION SHAFT TIP ELEVATION AND BE CONSTRUCTED TO THE LOWEST TOP OF DRILLED SHAFT ELEVATION PRESENTED IN THE DRILLED SHAFT DATA TABLE. THE METHOD SHAFT SHALL BE LOCATED NO LESS THAN FIVE (5) SHAFT DIAMETERS FROM THE NEAREST PERMANENT SHAFT AT A LOCATION SELECTED BY THE CONTRACTOR AND APPROVED BY THE GFDEOR. THE METHOD SHAFT SHALL BE PERFORMED AND ACCEPTED (INCLUDING ACCEPTABLE CSL TEST RESULTS) PRIOR TO INSTALLATION OF ANY PRODUCTION SHAFTS FOR BRIDGE FOUNDATIONS ON THIS PROJECT. THE METHOD SHAFT SHALL BE CONSTRUCTED AS INDICATED BY THE PROJECT SPECIFICATIONS.
5. ACCESS TUBES FOR THERMAL INTEGRITY TESTING SHALL BE INSTALLED IN ALL PRODUCTION SHAFTS AND THE TEST HOLE/METHOD SHAFT IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. TITDS TESTING SHALL BE PERFORMED ACCORDING TO PROJECT SPECIFICATIONS ON ALL SHAFTS SELECTED BY THE ENGINEER AND ON THE METHOD SHAFT. TITDS TESTING ON REDUNDANT DRILLED SHAFTS WILL BE COMPLETED AS SELECTED BY THE ENGINEER AND WILL BE COMPLETED ON ANY SHAFT SUSPECTED OF CONTAINING DEFECTS. AT A MINIMUM, CSL TESTING SHALL BE COMPLETED ON THE METHOD SHAFT AND AT LEAST 20 PERCENT OF THE PRODUCTION SHAFTS OR MORE IN THE EVENT THAT CONSTRUCTION RECORDS INDICATE THE POTENTIAL FOR CONSTRUCTION DEFECTS.
6. SHAFT INSPECTION DEVICE (SID) EQUIPMENT OR AN APPROVED ALTERNATIVE DOWN-HOLE CAMERA SHALL BE USED TO INSPECT THE BOTTOM OF ALL BRIDGE FOUNDATION SHAFTS AND THE TEST HOLE/METHOD SHAFT TO VERIFY SHAFT BOTTOM CLEANLINESS AT THE TIME OF CONCRETING.
7. EXCAVATION OF A SHAFT WITHIN SIX (6) SHAFT DIAMETERS OF A RECENTLY POURED SHAFT SHALL NOT COMMENCE WITHIN 12 HOURS FOLLOWING THE COMPLETION OF THE CONCRETE PLACEMENT OF THAT ADJACENT SHAFT. IF SHAFTS OF DIFFERENT SIZES ARE TO BE CONSTRUCTED ADJACENT TO EACH OTHER, THE SIX (6) SHAFT DIAMETER SPACING SHALL BE BASED ON THE LARGER OF THE TWO SHAFT DIAMETERS.
8. IF LOOSE OR SOFT SOIL/ROCK CONDITIONS ARE ENCOUNTERED ONE FOOT ABOVE THE PROPOSED SHAFT TIP ELEVATION DURING THE SHAFT EXCAVATION, THE CONTRACTOR SHALL STOP THE SHAFT EXCAVATION AND NOTIFY THE GFDEOR IMMEDIATELY FOR FURTHER DIRECTION.
9. DURING INSTALLATION OF DRILLED SHAFTS, HARD LIMESTONE WILL BE ENCOUNTERED. THE CONTRACTOR SHALL ANTICIPATE THAT SPECIAL TOOLS AND EQUIPMENT MAY BE REQUIRED TO PENETRATE THESE SOILS AND INSTALL THE SHAFTS TO THE REQUIRED TIP ELEVATION.
10. BASED ON A REVIEW OF THE "POTENTIOMETRIC SURFACE OF THE UPPER FLORIDIAN AQUIFER IN WEST CENTRAL FLORIDA" MAPS PUBLISHED BY THE USGS, THE POTENTIOMETRIC SURFACE ELEVATION OF THE UPPER FLORIDIAN AQUIFER AT THE BRIDGE SITE IS APPROXIMATELY +10 FEET, NGVD 29. THE CONTRACTOR'S EQUIPMENT AND CONSTRUCTION METHODS SHALL BE PREPARED TO HANDLE ARTESIAN POTENTIOMETRIC LEVELS UP TO ELEVATION +10 FEET, NGVD 29 AT NO ADDITIONAL COST TO THE OWNER.
11. DUE TO THE LOOSE/SOFT SOIL CONDITIONS PRESENT WITHIN THE BORINGS, THE CONTRACTOR SHALL ANTICIPATE THAT CONCRETE VOLUME OVERRUNS MAY OCCUR DURING THE SHAFT INSTALLATION PROCESS.
12. PERMANENT CASING SHALL BE INSTALLED AS SHOWN IN THE PLANS AND DRILLED SHAFT DATA TABLE. OSCILLATING OR NON-VIBRATORY METHODS OF CASING INSTALLATION SHALL BE EMPLOYED AT ABUTMENT 1 AND ABUTMENT 7. FINAL CASING TIP ELEVATIONS WILL BE ESTABLISHED ONCE PILOT HOLE BORINGS ARE COMPLETE.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN AC
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: DRILLED SHAFT DATA TABLE & NOTES

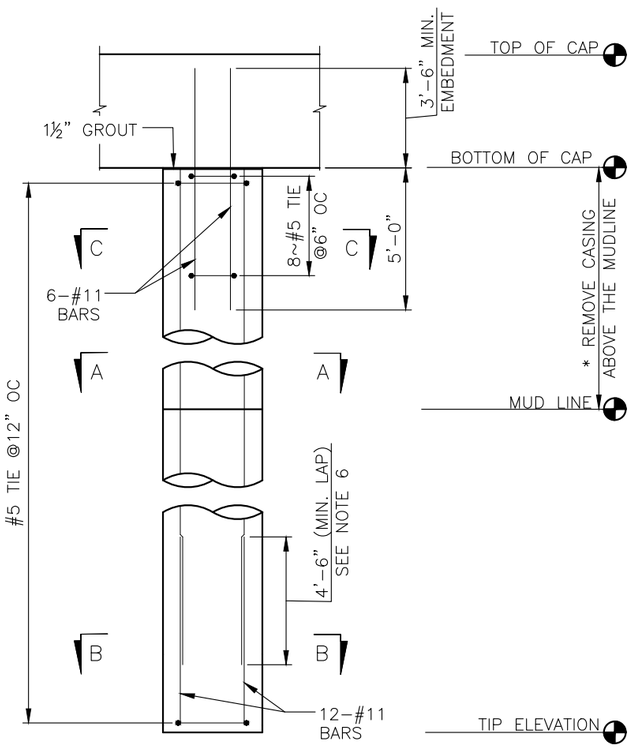
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B-2
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 36 OF 283

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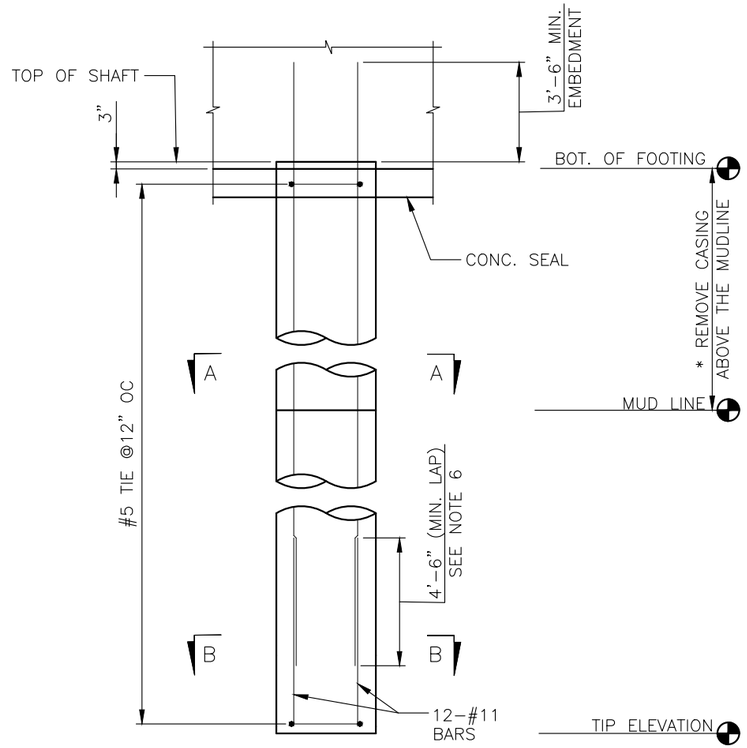
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DRILLED SHAFT DETAIL –
ABUTMENTS 1 & 7, INT. PIERS 2 & 6

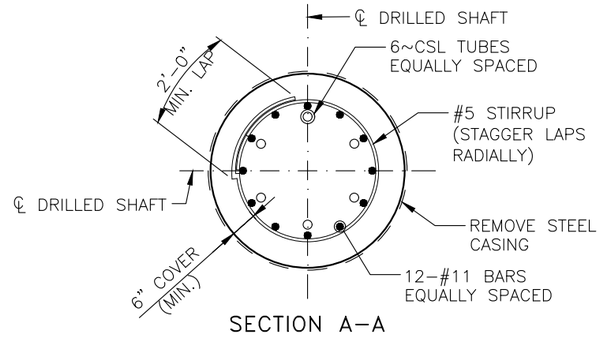
(CSL TUBES NOT SHOWN)

* REMOVE CASING ABOVE THE MUDLINE WITHOUT CAUSING DAMAGE TO THE CONCRETE CORE. IF CONCRETE SURFACE IS DAMAGED, SUBMIT A REPAIR PROCEDURE TO THE ENGINEER FOR APPROVAL.

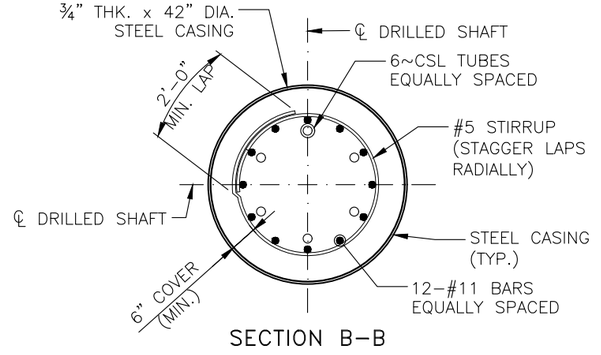


DRILLED SHAFT DETAIL –
BASCULE PIER 3

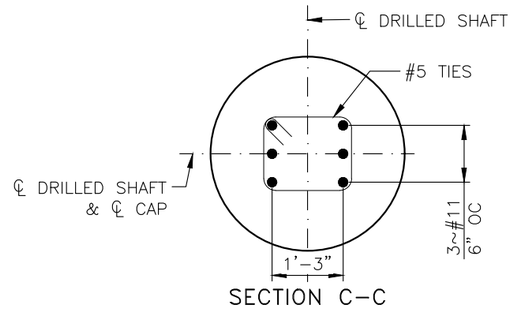
(CSL TUBES NOT SHOWN)



SECTION A–A



SECTION B–B



SECTION C–C

NOTES:
1. FOR DRILLED SHAFT DATA TABLE & NOTES, SEE DWG. NO. B-2.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN JPN
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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: DRILLED SHAFT DETAILS

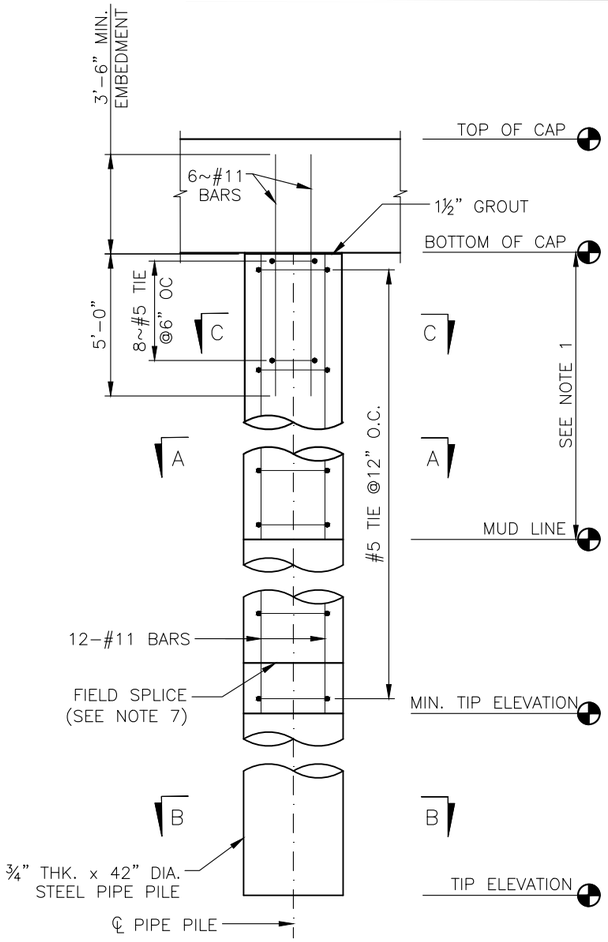
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

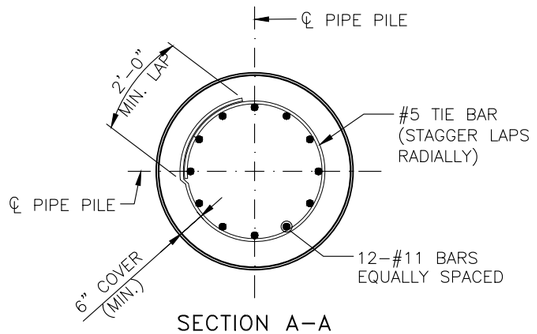
REF. DWG. NO. B-3
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 37 OF 283

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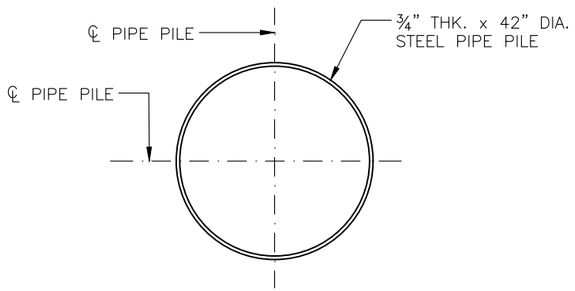
PILE DATA TABLE												TABLE DATE 11/15/2017							
INSTALLATION CRITERIA								DESIGN CRITERIA									PILE CUT-OFF ELEV.		
PIER OR ABUTMENTENT NO.	PILE SIZE (IN.)	NOMINAL BEARING RESISTANCE (TONS)	NOMINAL UPLIFT RESISTANCE (TONS)	MIN. TIP ELEV. (FT.)	TEST PILE LENGTH (FT.)	REQUIRED JET ELEV. (FT.)	REQUIRED PREFORM ELEV. (FT.)	FACTORED DESIGN LOAD (TONS)	FACTORED DESIGN UPLIFT LOAD (TONS)	DOWN DRAG (TONS)	TOTAL SCOUR RESISTANCE (TONS)	NET SCOUR RESISTANCE (TONS)	100-YEAR SCOUR ELEV. (FT.)	LONG TERM SCOUR ELEVATION (FT.)	ø COMPRESSION	ø UPLIFT	PILE 1	PILE 2	PILE 3
4	42	364.0	N/A	-35.0	195	N/A	-85	273.0	N/A	N/A	5	N/A	-12.7	N/A	0.75	N/A	5.7	5.7	5.7
5	42	552.0	N/A	-36.0	230	N/A	-51	414.0	N/A	N/A	5	N/A	-12.7	N/A	0.75	N/A	7.0	7.0	7.0



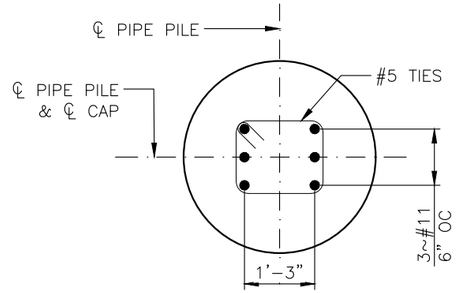
TYPICAL PILE DETAIL



SECTION A-A



SECTION B-B



SECTION C-C

$$\frac{\text{FACTORED DESIGN LOAD} + \text{NET SCOUR RESISTANCE} + \text{DOWN DRAG}}{\phi} \leq \text{NOMINAL BEARING RESISTANCE (Rn)}$$

NOMINAL UPLIFT RESISTANCE – THE ULTIMATE SIDE FRICTION CAPACITY THAT MUST BE OBTAINED BELOW THE 100 YEAR SCOUR ELEVATION TO RESIST PULLOUT OF THE PILE (SPECIFIED ONLY WHEN DESIGN REQUIRES UPLIFT CAPACITY).

TOTAL SCOUR RESISTANCE – AN ESTIMATE OF THE ULTIMATE STATIC SIDE FRICTION RESISTANCE PROVIDED BY THE SCOURABLE SOIL.

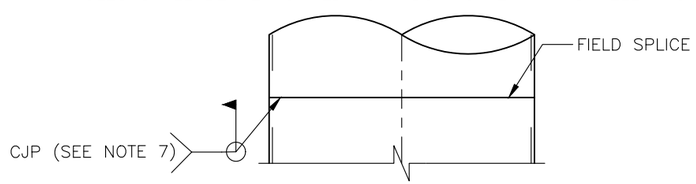
NET SCOUR RESISTANCE – AN ESTIMATE OF THE ULTIMATE STATIC SIDE FRICTION RESISTANCE PROVIDED BY THE SOIL FROM THE REQUIRED PREFORMED OR JETTING ELEVATION TO THE SCOUR ELEVATION.

100-YEAR SCOUR ELEVATION – ESTIMATED ELEVATION OF SCOUR DUE TO THE 100 YEAR STORM EVENT.

LONG TERM SCOUR ELEVATION – ESTIMATED ELEVATION OF SCOUR USED IN DESIGN FOR EXTREME EVENT LOADING.

PILE INSTALLATION NOTES

1. ALL PILES ARE 42 INCH DIAMETER, 0.75 INCH THICK, UNCOATED STEEL PIPE PILES. SEE PROJECT SPECIFICATIONS FOR STEEL PIPE PILE MATERIAL REQUIREMENTS. PROVIDE A REINFORCED CAST-IN-PLACE CONCRETE CORE AND EXTEND TO THE MINIMUM TIP ELEVATION. REMOVE PIPE PILE ABOVE THE MUDLINE WITHOUT CAUSING DAMAGE TO THE CONCRETE CORE. IF CONCRETE SURFACE IS DAMAGED, SUBMIT A REPAIR PROCEDURE TO THE ENGINEER FOR APPROVAL.
2. ALL PILES SHALL BE DYNAMICALLY MONITORED IN ACCORDANCE WITH SPECIFICATIONS SECTION 455. ADDITIONAL INSTRUMENTATION FOR THE 42 INCH DIAMETER PILE WILL BE REQUIRED, 8 CHANNELS OF INSTRUMENTATION SHALL BE USED DURING PILE DRIVING ANALYZER (PDA) TESTING.
3. PILES SHALL BE DRIVEN AT LOCATIONS SHOWN ON THE FOUNDATION LAYOUT SHEET OR AS DIRECTED BY THE ENGINEER.
4. WHEN A REQUIRED JETTING OR PREFORM ELEVATION IS NOT SHOWN IN THE TABLE, DO NOT JET OR PREFORM PILE LOCATIONS WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER. DO NOT ADVANCE JETS OR PREFORMED PILE HOLES DEEPER THAN THE JETTING OR PREFORMED ELEVATIONS SHOWN ON THE TABLE WITHOUT PRIOR APPROVAL OF THE ENGINEER. IF ACTUAL JETTING OR PREFORMING ELEVATIONS DIFFER FROM THOSE SHOWN ON THE TABLE, THE ENGINEER SHALL DETERMINE THE REQUIRED DRIVING RESISTANCE.
5. MINIMUM TIP ELEVATION IS REQUIRED FOR LATERAL STABILITY.
6. THE CONTRACTOR SHALL ANTICIPATE ENCOUNTERING VARIABLE SUBSURFACE CONDITIONS DURING PILE DRIVING WHICH WILL REQUIRE PILE SPLICES AT THE PILE LOCATIONS.
7. PIPE PILE FIELD SPLICE LOCATIONS AND PROCEDURES PER SPECIFICATIONS SECTION 455-8.3. CONTRACTOR MAY PROPOSE AN ALTERNATIVE SPLICE METHOD AS RECOMMENDED BY THE PIPE PILE MANUFACTURER. ANY SPLICE SHALL BE ABLE TO FULLY TRANSFER ALL FORCES AND MOMENTS ACROSS THE CONNECTION. SUBMIT PROPOSED SPLICE METHOD TO THE ENGINEER FOR APPROVAL.
8. PERFORM ONE PILOT HOLE EACH AT PIER 4 AND AT PIER 5 AT THE LOCATION SHOWN IN THE PLANS. THE PILOT HOLES SHALL BE PERFORMED TO A BORING TERMINATION ELEVATION -210 FEET (NAVD 88)



FIELD SPLICE DETAIL

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN AC
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: PIPE PILE DATA TABLE & DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

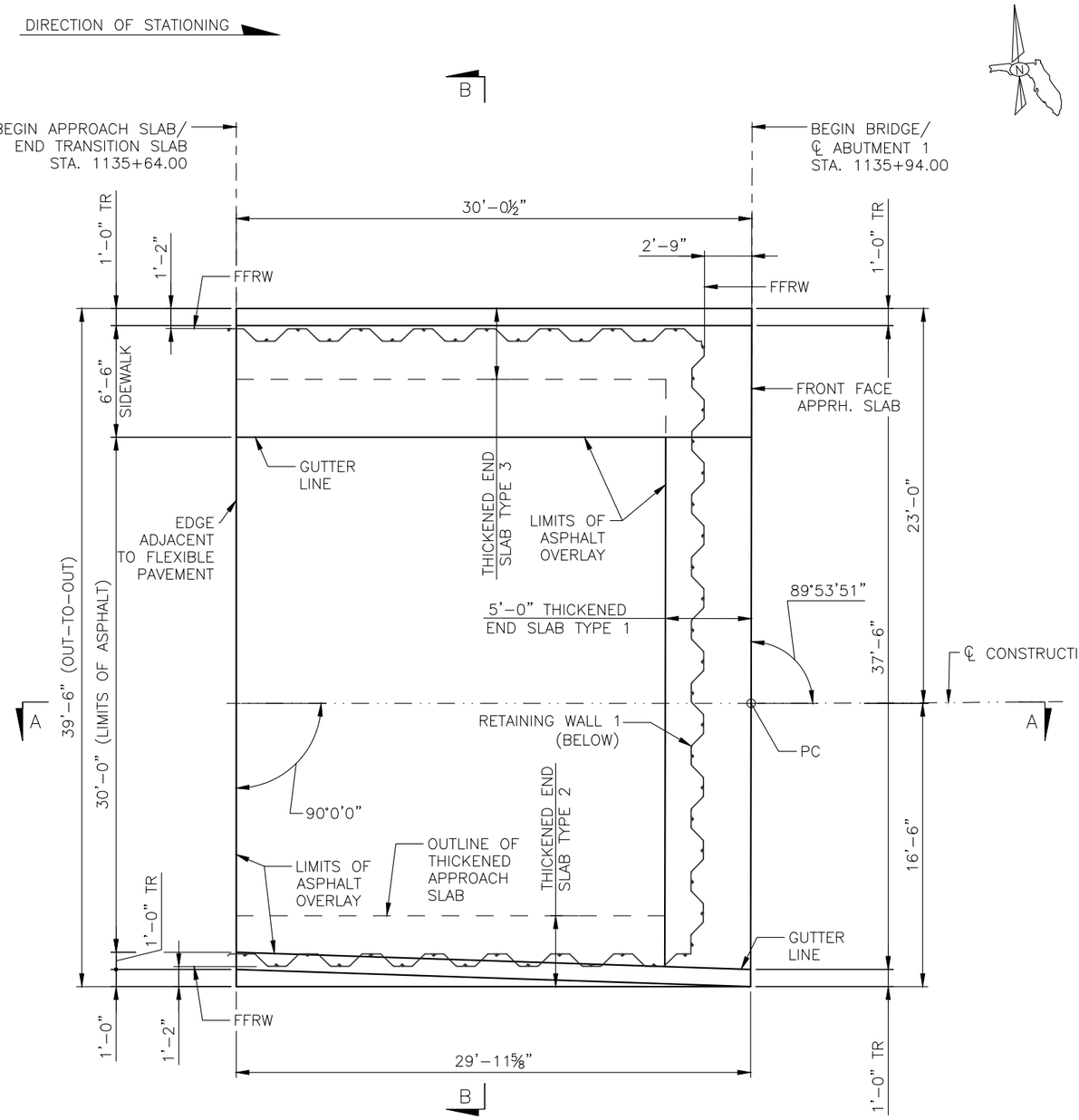
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B-4
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 38 OF 283

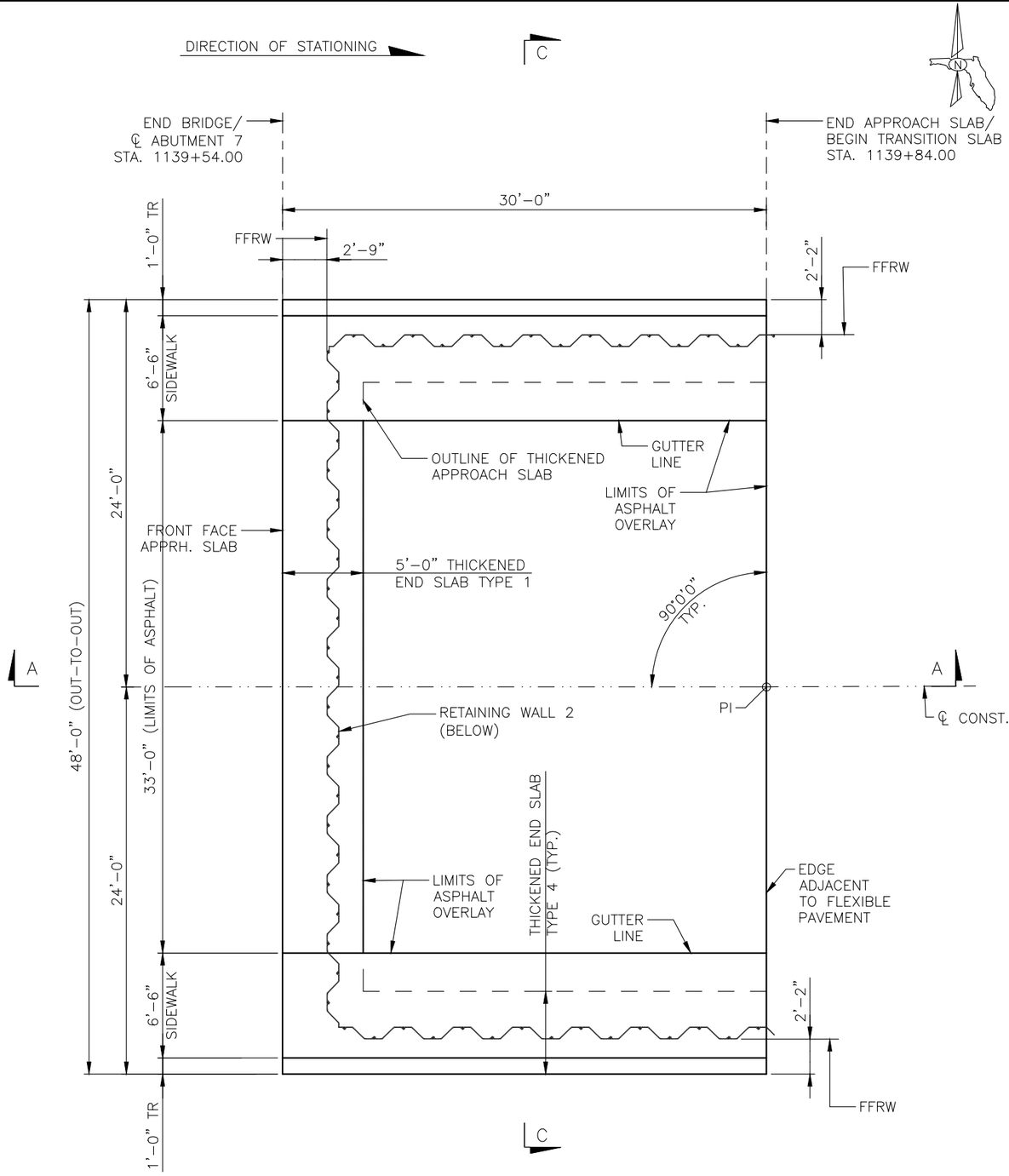
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WEST APPROACH SLAB PLAN



EAST APPROACH SLAB PLAN

NOTES:
1. SEE DWG. NO. B–7 FOR SECTIONS A–A, B–B & C–C.
2. COORDINATE THIS SHEET WITH RETAINING WALL DRAWINGS AND APPROACH ROADWAY PLANS.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

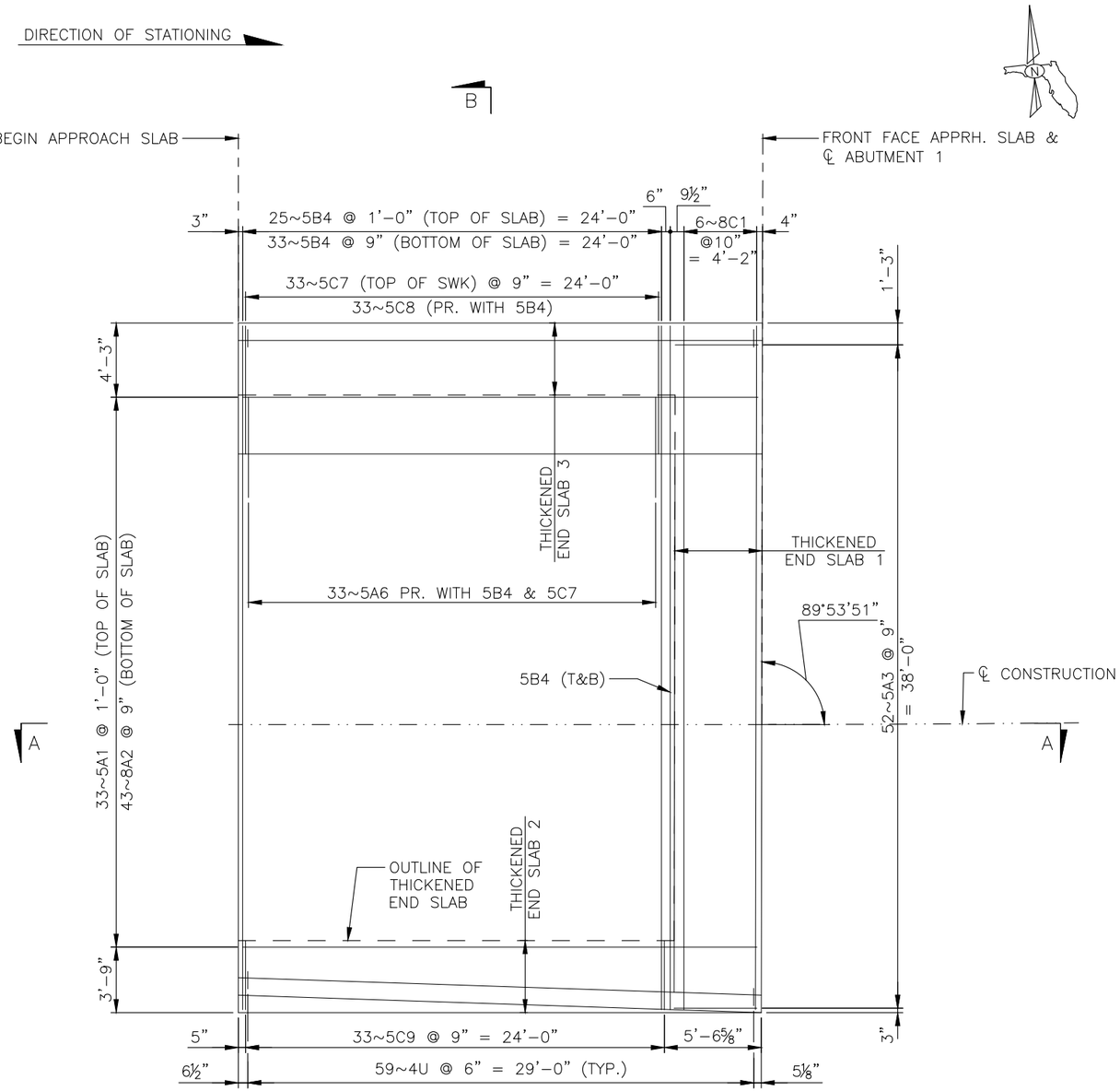
DESCRIPTION: APPROACH SLAB PLAN

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

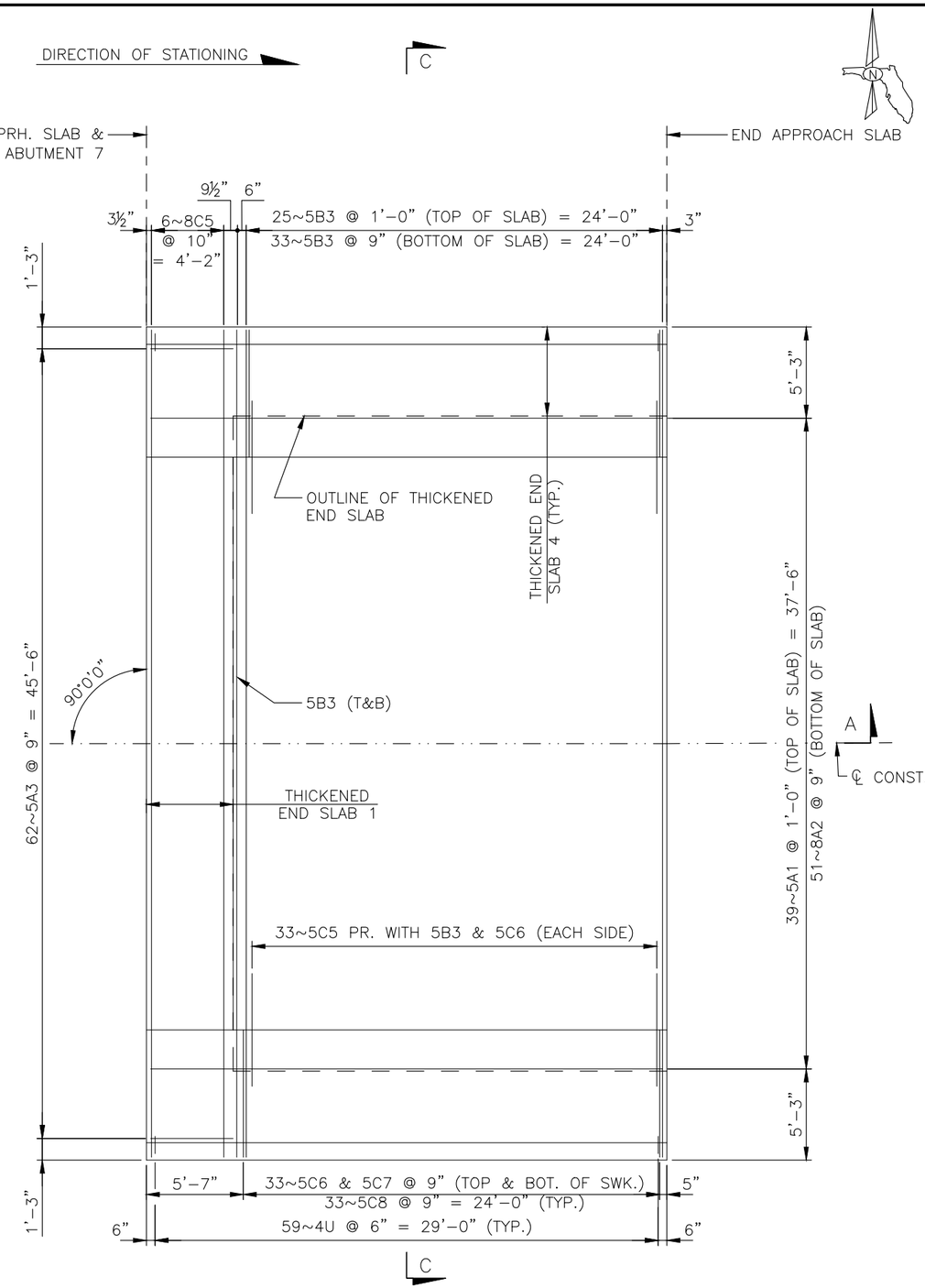
REF. DWG. NO. B–5
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 39 OF 283

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WEST APPROACH SLAB REINFORCEMENT PLAN

NOTES
1. SEE DWG. NO. B–7 FOR SECTIONS A–A, B–B & C–C.
2. SEE DWG. NO. G–29 FOR TRAFFIC RAILING REINFORCING DETAILS.



EAST APPROACH SLAB REINFORCEMENT PLAN

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: APPROACH SLAB DETAILS (1 OF 3)

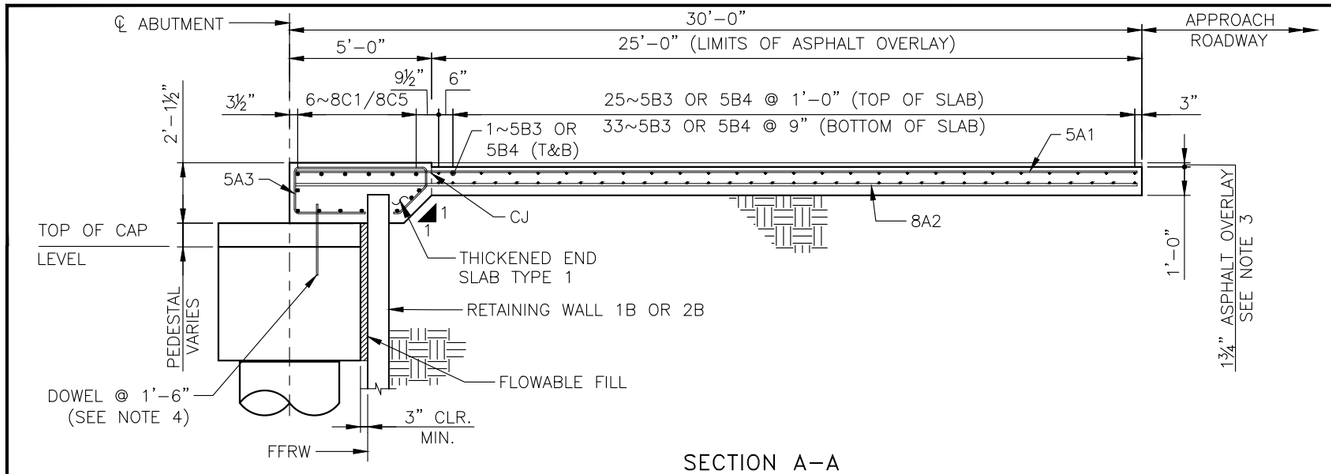
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

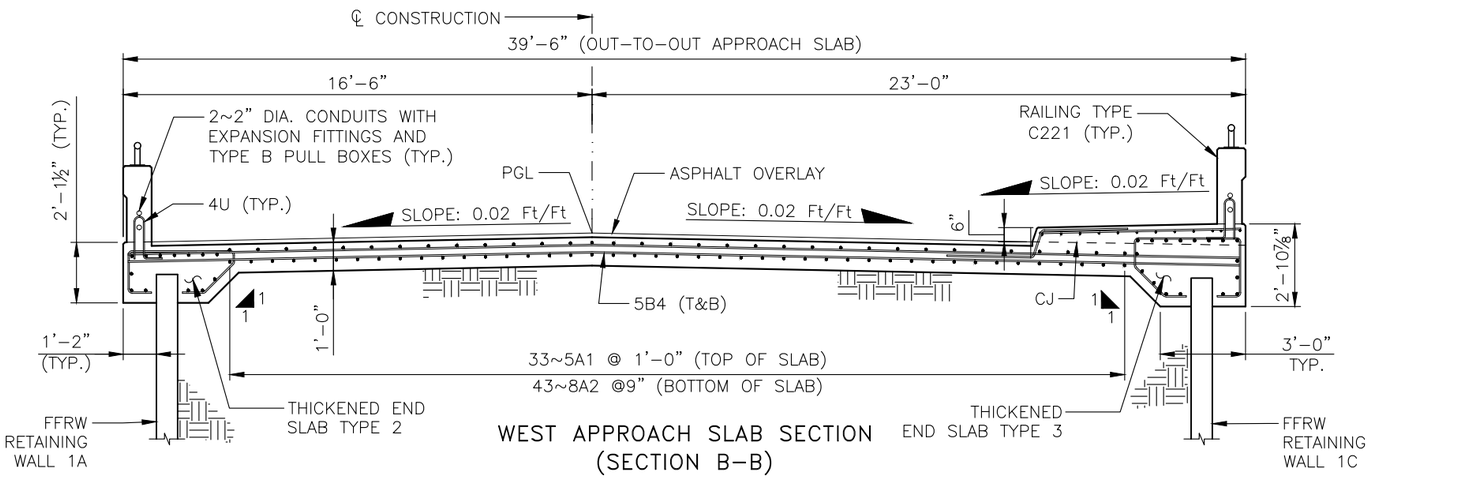
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DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 40 OF 283

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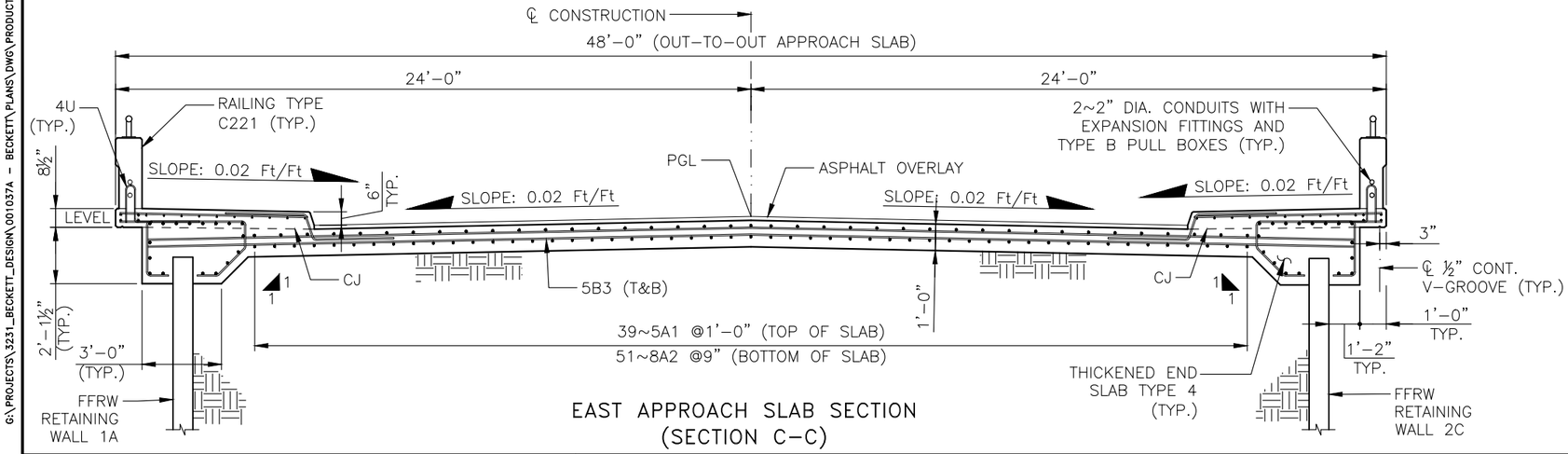
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SECTION A–A



WEST APPROACH SLAB SECTION
(SECTION B–B)



EAST APPROACH SLAB SECTION
(SECTION C–C)

NOTES:

1. SEE DWG. NO. B–4 FOR LOCATION OF SECTIONS A–A, B–B & C–C.
2. COORDINATE THIS SHEET WITH RETAINING WALL DRAWINGS AND APPROACH ROADWAY PLANS.
3. CONTINUE THE ROADWAY ASPHALT PAVEMENT OVER THE APPROACH SLAB AND MATCH THE PAVEMENT TYPE USED ON THE ROADWAY. SEE ROADWAY PLANS FOR ASPHALT OVERLAY AND OPTIONAL BASE DETAILS, AND QUANTITIES.
4. COORDINATE DOWEL BARS SIZE AND SPACING WITH ABUTMENT 1 AND 7 PLANS.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: APPROACH SLAB DETAILS (2 OF 3)

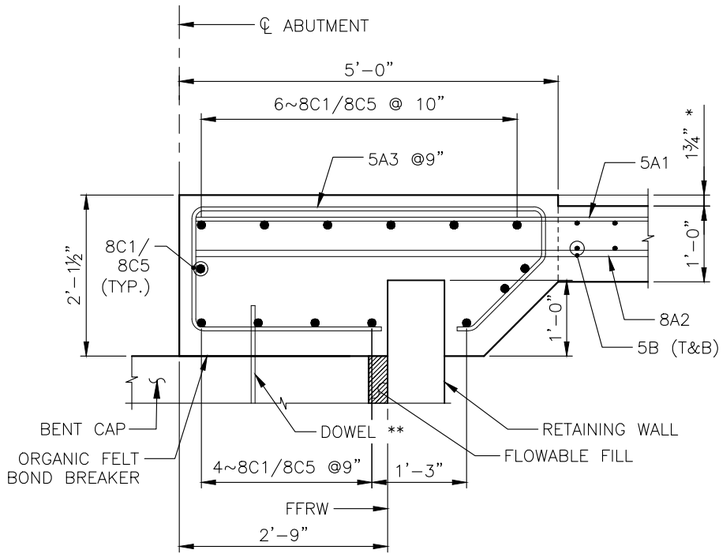
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

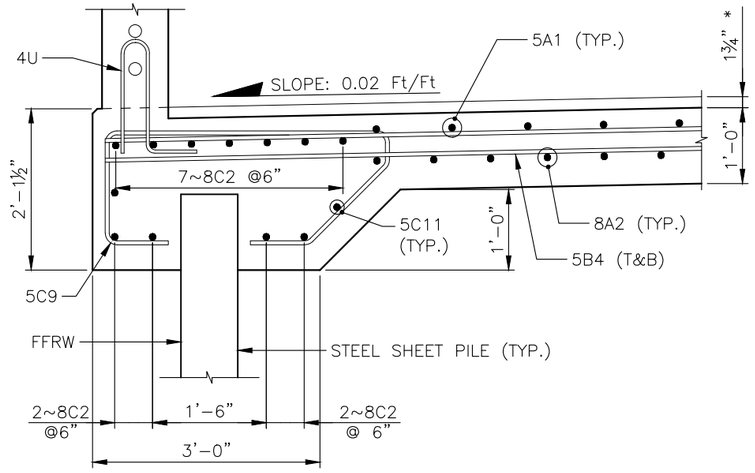
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DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 41 OF 283

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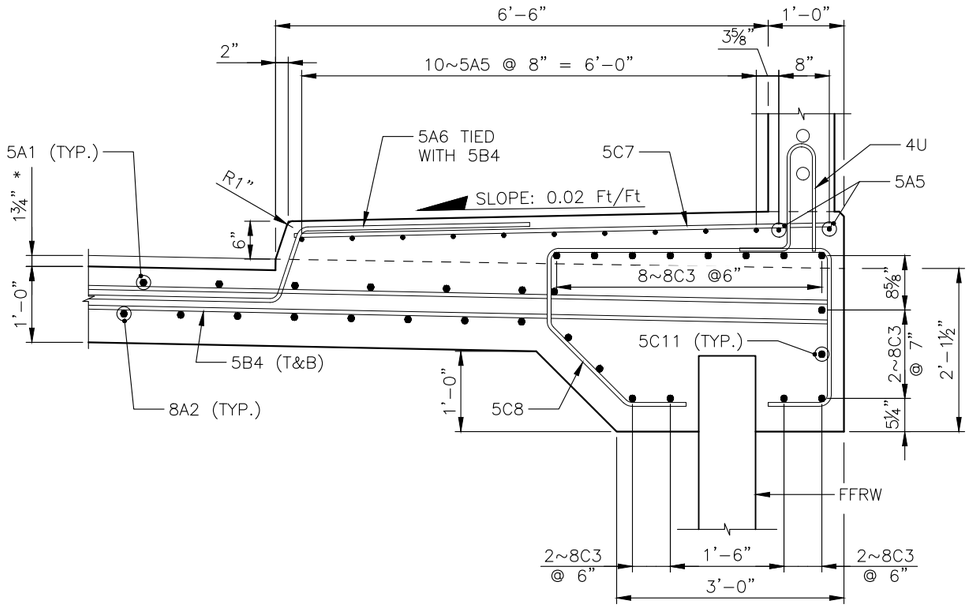
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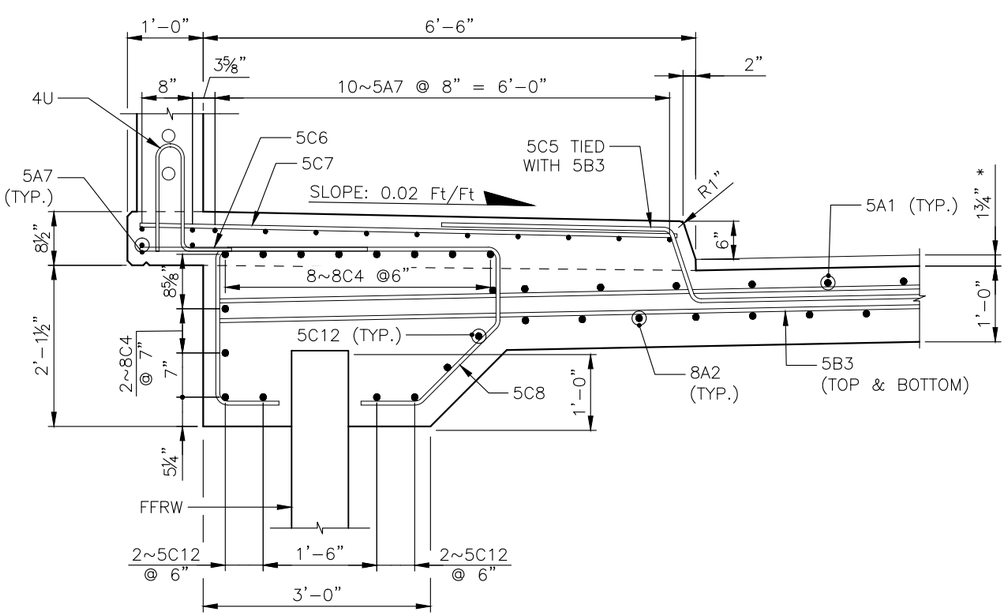
THICKENED END SLAB TYPE 1



THICKENED EDGE SLAB TYPE 2



THICKENED EDGE SLAB TYPE 3



THICKENED END SLAB TYPE 4

LEGEND:

* ASPHALT OVERLAY
** COORDINATE DOWEL BAR SIZE AND SPACING WITH ABUTMENT 1 AND 7 PLANS.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN AC
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PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: APPROACH SLAB DETAILS (3 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

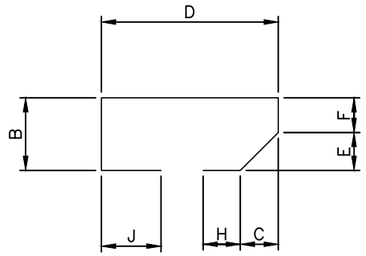
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B-8
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 42 OF XXX

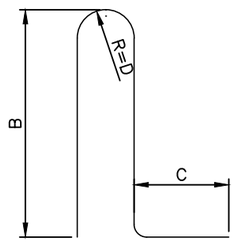
MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	Ø
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION WEST APPROACH SLAB																																NO. REQUIRED = 1	
5	A1	29–	7	33	1			29–	7																								
8	A2	29–	7	43	1			29–	7																								
5	A3	11–	0	52	45			1–	7		1–	0		4–	8		1–	0		0–	7		0–	3		2–	6						
5	A5	29–	7	12	1			29–	7																								
5	A6	7–	0	33	20			3–	0		0–	4		0–	2		0–11			3–	0												
5	B4	39–	2	60	1			39–	2																								
8	C1	39–	2	14	1			39–	2																								
8	C2	29–	7	13	1			29–	7																								
8	C3	29–	7	17	1			29–	7																								
5	C7	7–	0	33	1			7–	0																								
5	C8	9–	9	33	45			2–	1		1–	0		3–	8		1–	0		1–	1		0–	9		0–	9						
5	C9	2–	2	33	45			1–	5		1–	0		3–	8		1–	0		0–	5		0–	9		0–	9						
4	U	3–	8	33	46			1–	6		0–	8		0–	3																		
LOCATION EAST APPROACH SLAB																																NO. REQUIRED = 1	
5	A1	29–	7	39	1			29–	7																								
8	A2	29–	7	51	1			29–	7																								
5	A3	11–	0	62	45			1–	7		1–	0		4–	8		1–	0		0–	7		0–	3		2–	4						
5	A6	7–	0	66	20			3–	0		0–	4		0–	2		0–11			3–	0												
5	A7	29–	7	28	1			29–	7																								
5	B3	45–	8	60	1			45–	8																								
8	C4	29–	7	34	1			29–	7																								
8	C5	45–	8	14	1			45–	8																								
5	C6	3–	0	66	1			3–	0																								
5	C7	7–	0	66	1			7–	0																								
5	C8	9–	9	66	46			2–	1		1–	0		3–	8		1–	0		1–	1		0–	9		0–	9						
4	U	3–	8	33	46			1–	6		0–	8		0–	3																		

END OF LIST

NOTE:
FOR STANDARD BAR BENDING DETAILS, REFER TO FDOT INDEX NO. 21300.



TYPE 45



TYPE 46

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

G:\PROJECTS\3231_BECKETT_DESIGN\001037A - BECKETT\PLANS\DWG\PRODUCTION\STRUCT\SUPER\001037A_S3_APPROACHSLAB05.DWG ANLUN CHEN 7/2/2021 1:59:11 PM

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN QPO
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT:
BECKETT BRIDGE REPLACEMENT

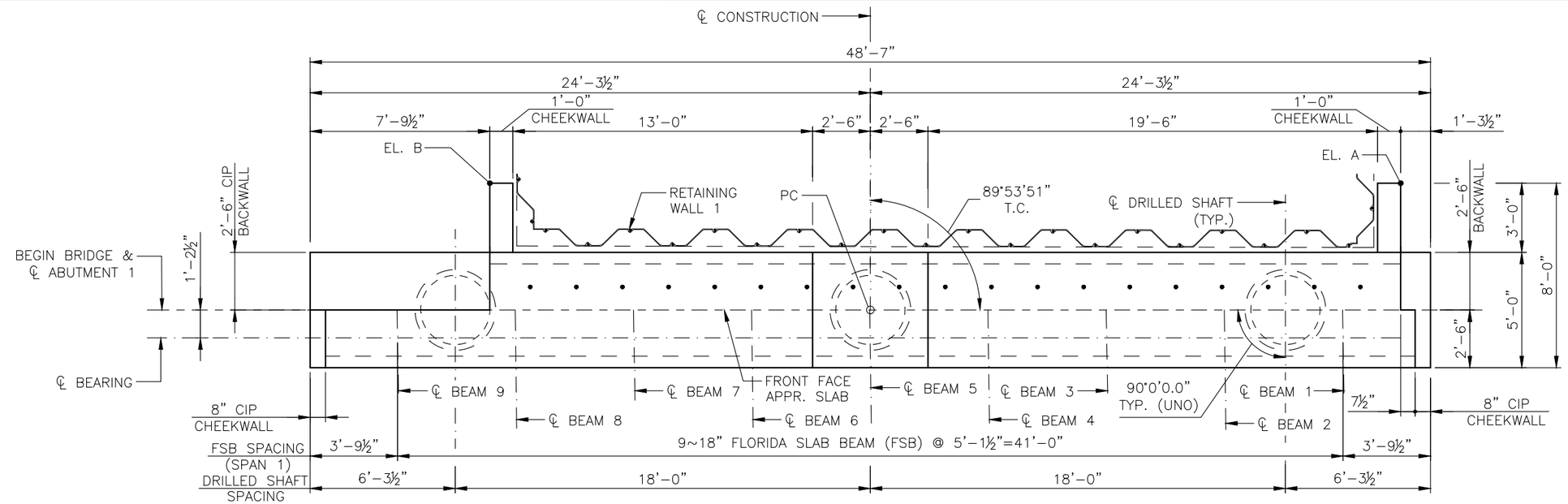
DESCRIPTION:
APPROACH SLAB REINFORCING BAR LIST

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

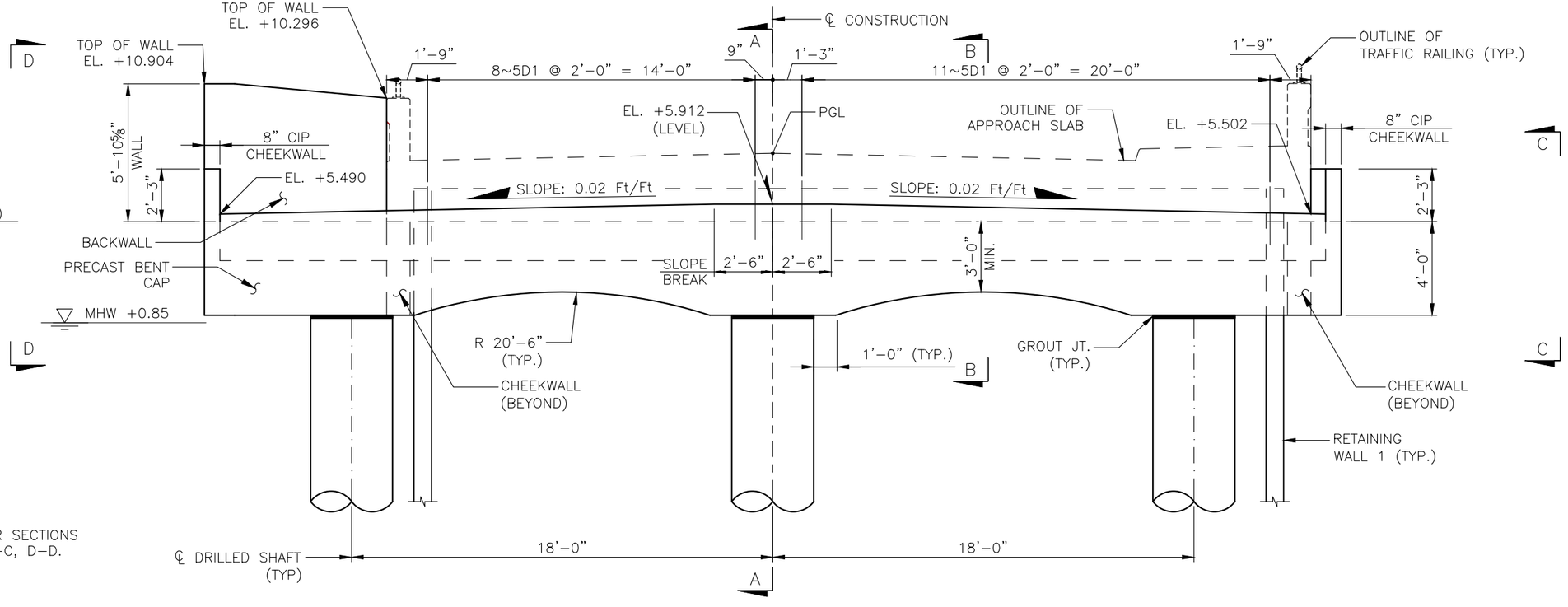
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B-9
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 43 OF 283

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7/2/2021 1:59:17 PM
ANLUN CHEN



PLAN



ELEVATION

NOTES:
1. SEE DWG. NO. B-12 FOR SECTIONS A-A, B-B AND VIEWS C-C, D-D.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN QPO
CHECKED JPN

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: ABUTMENT 1 PLAN & ELEVATION

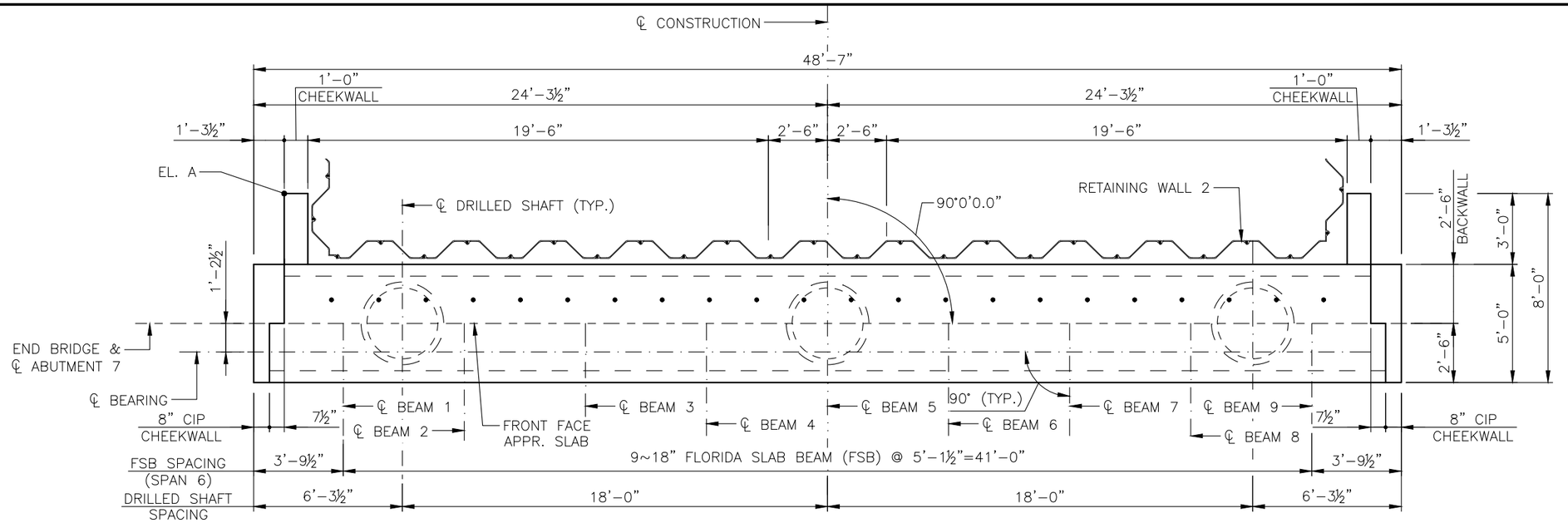
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

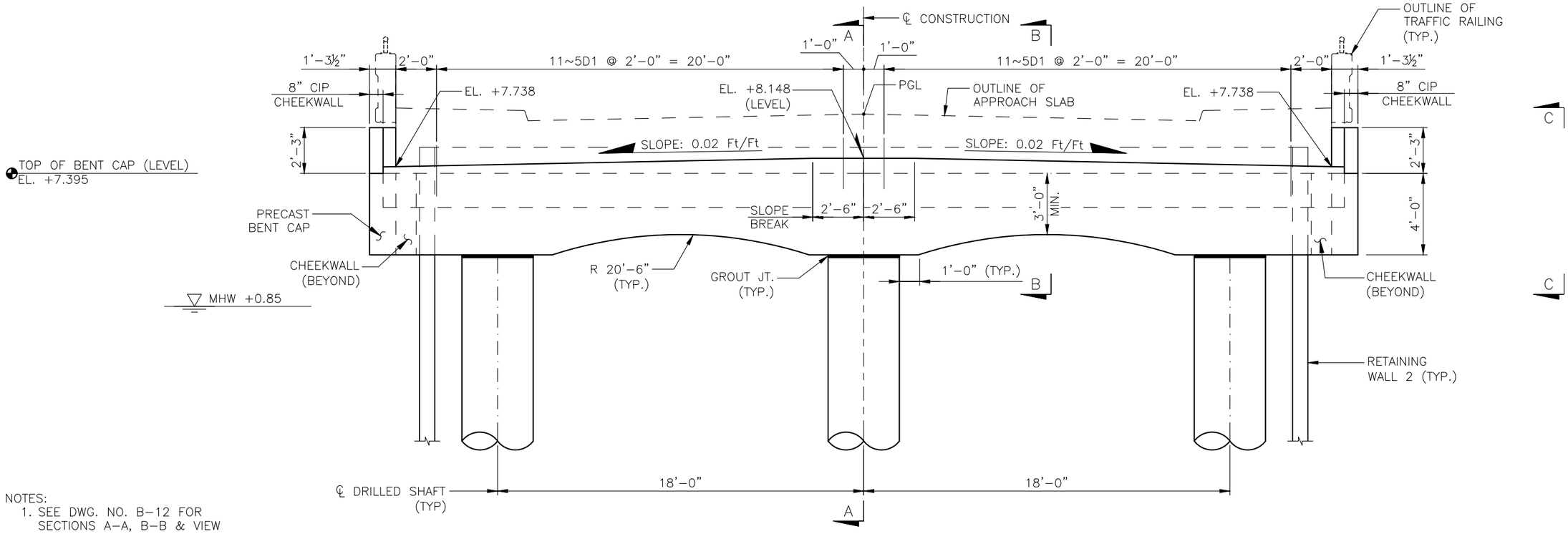
REF. DWG. NO. B-10
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 44 OF 283

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7/2/2021 1:59:22 PM
ANLUN CHEN

DIRECTION OF STATIONING



PLAN



ELEVATION

NOTES:
1. SEE DWG. NO. B-12 FOR SECTIONS A-A, B-B & VIEW C-C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

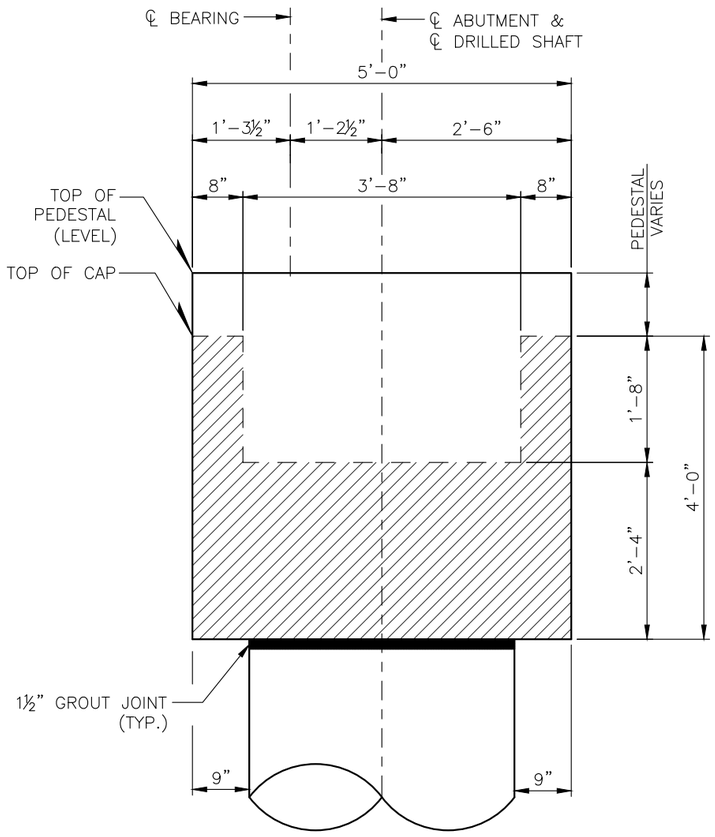
DESCRIPTION: ABUTMENT 7 PLAN & ELEVATION

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

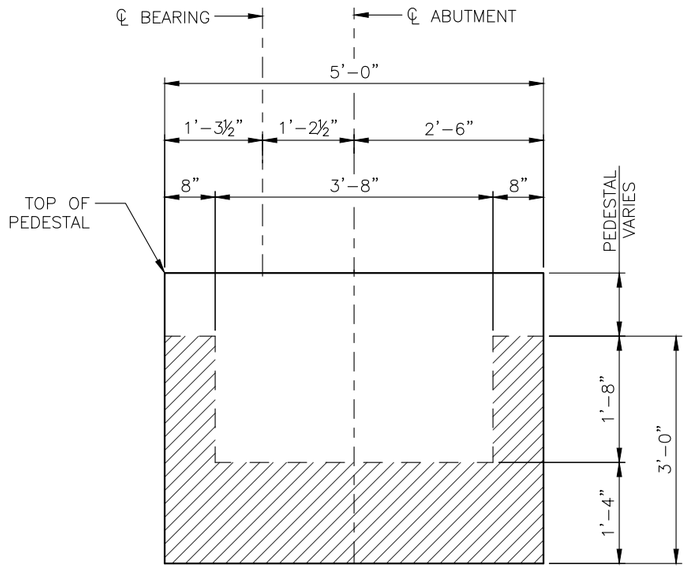
REF. DWG. NO. B-11
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 45 OF 283

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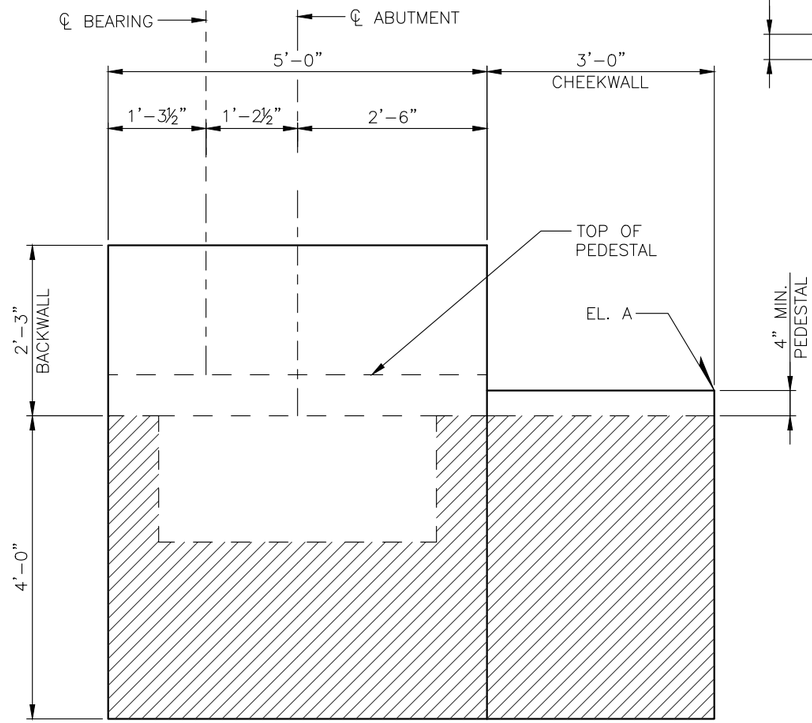
SECTION A-A

(ABUTMENT 1 SHOWN, ABUTMENT 7 SIMILAR)



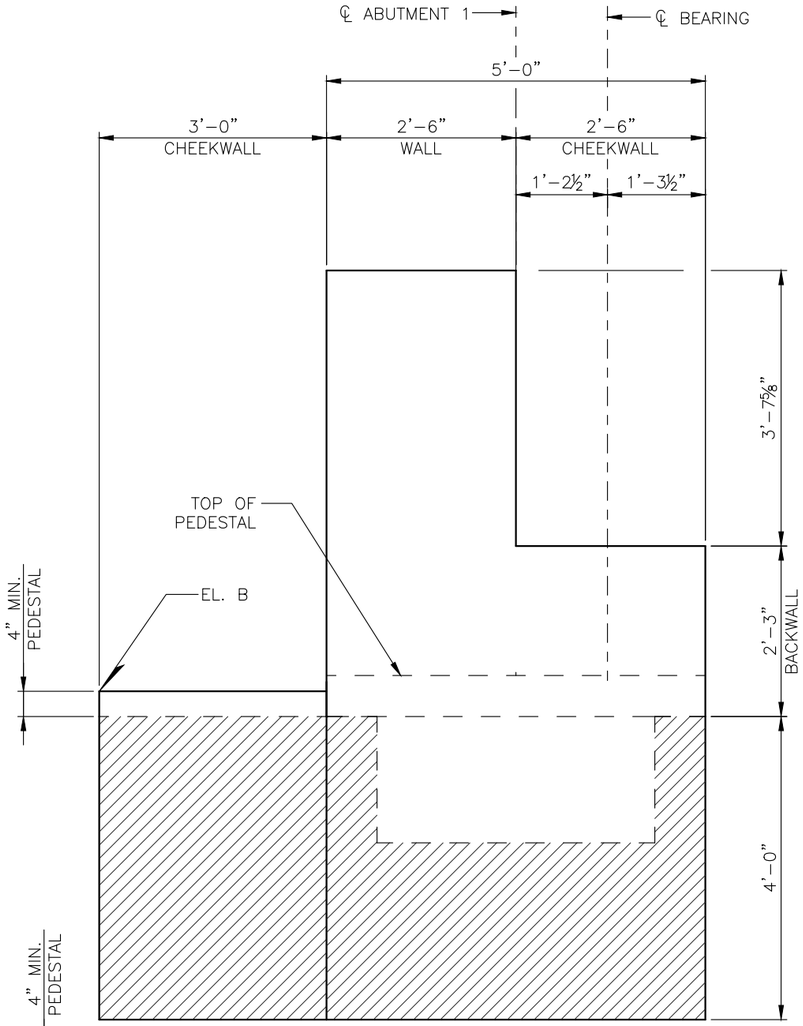
SECTION B-B

(ABUTMENT 1 SHOWN, ABUTMENT 7 SIMILAR)



VIEW C-C

(ABUTMENT 1 SHOWN, ABUTMENT 7 SIMILAR)



VIEW D-D

ELEVATIONS	ABUTMENT 1	ABUTMENT 7
A	+5.332	+7.525
B	+5.462	N/A

NOTES:
1. SEE DWG. NOS. B-10 AND B-11 FOR LOCATIONS OF SECTIONS A-A, B-B AND VIEWS C-C, D-D.

LEGEND

PRECAST BENT CAP

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: ABUTMENT DETAILS (1 OF 5)

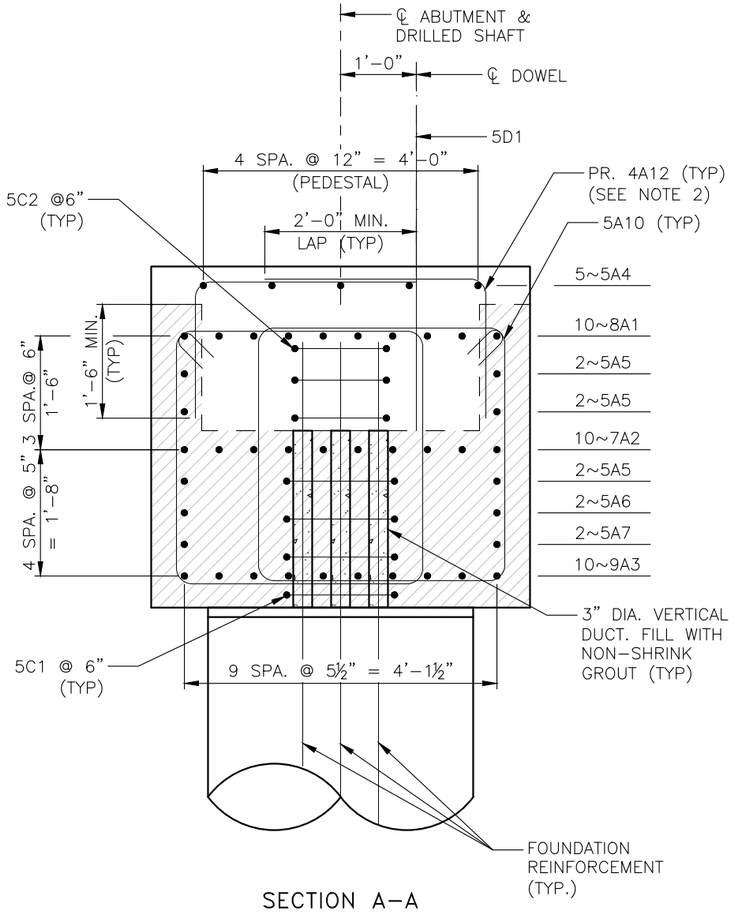
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

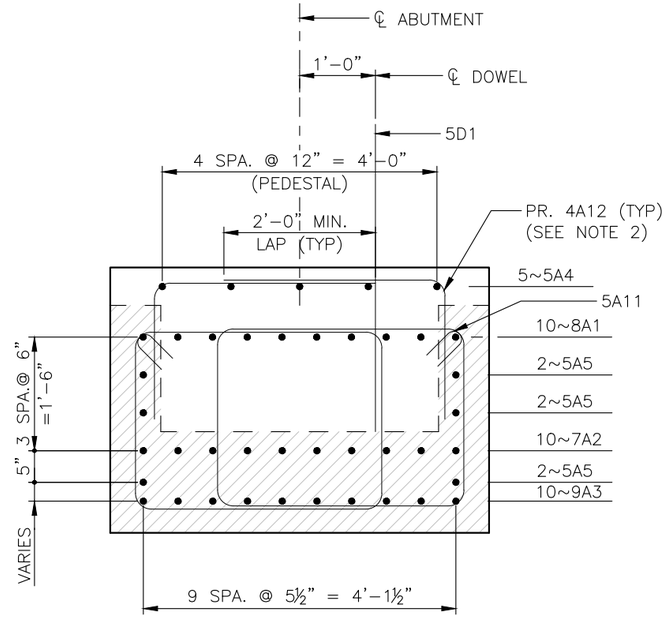
REF. DWG. NO. B-12
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 46 OF 283

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

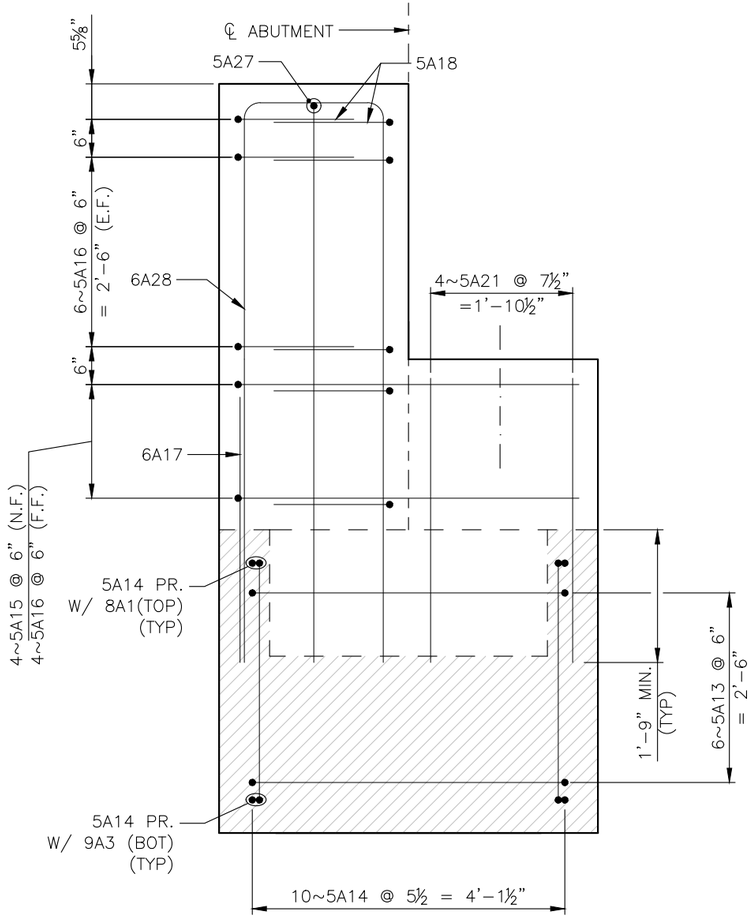
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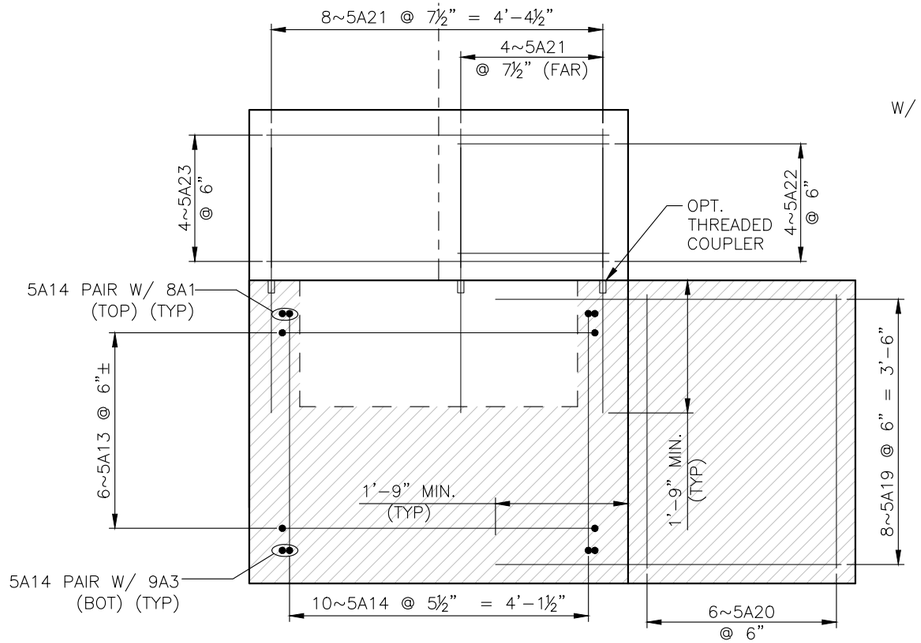
SECTION A-A
(DRILLED SHAFT REINFORCEMENT
NOT SHOWN, UNO)



SECTION B-B



VIEW D-D



VIEW C-C

NOTES
1. SEE DWG. NOS. B-10 & B-11 FOR LOCATIONS OF SECTIONS A-A, B-B AND VIEWS C-C, D-D.
2. FIELD-BEND BARS 4A12 AS SHOWN.

LEGEND

PRECAST BENT CAP

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED HF
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: ABUTMENT DETAILS (2 OF 5)

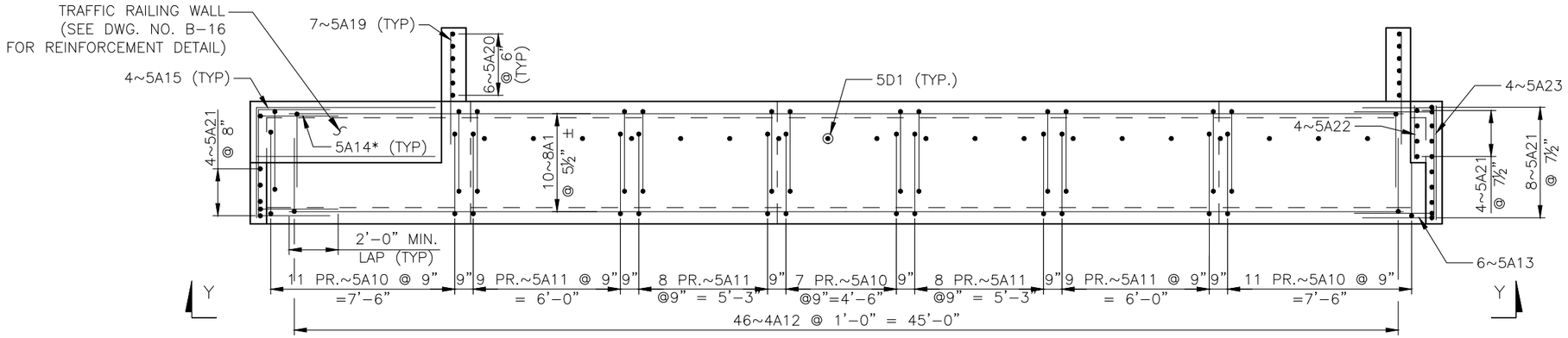
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

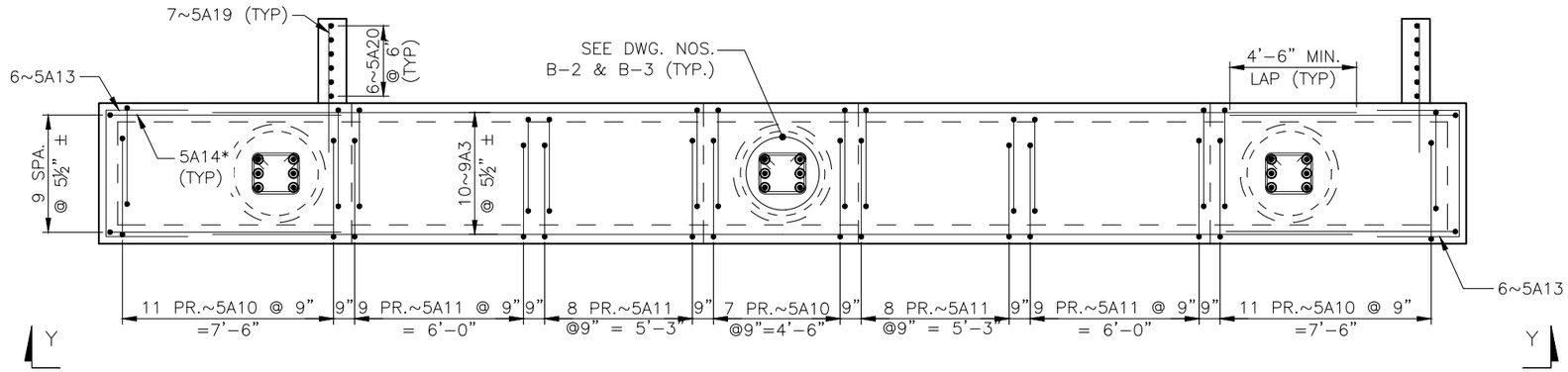
REF. DWG. NO. B-13
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 47 OF 283

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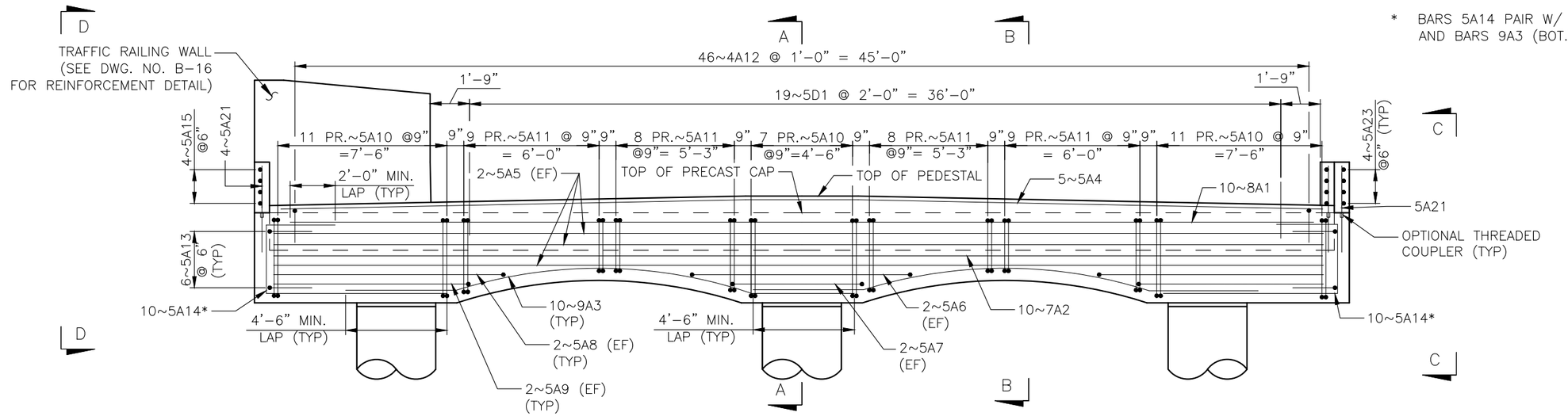


ABUTMENT 1 REINFORCEMENT TOP PLAN



ABUTMENT 1 REINFORCEMENT BOTTOM PLAN

* BARS 5A14 PAIR W/ BARS 8A1 (TOP) AND BARS 9A3 (BOT.)



VIEW Y-Y

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED HF
DRAWN HF
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: ABUTMENT DETAILS (3 OF 5)

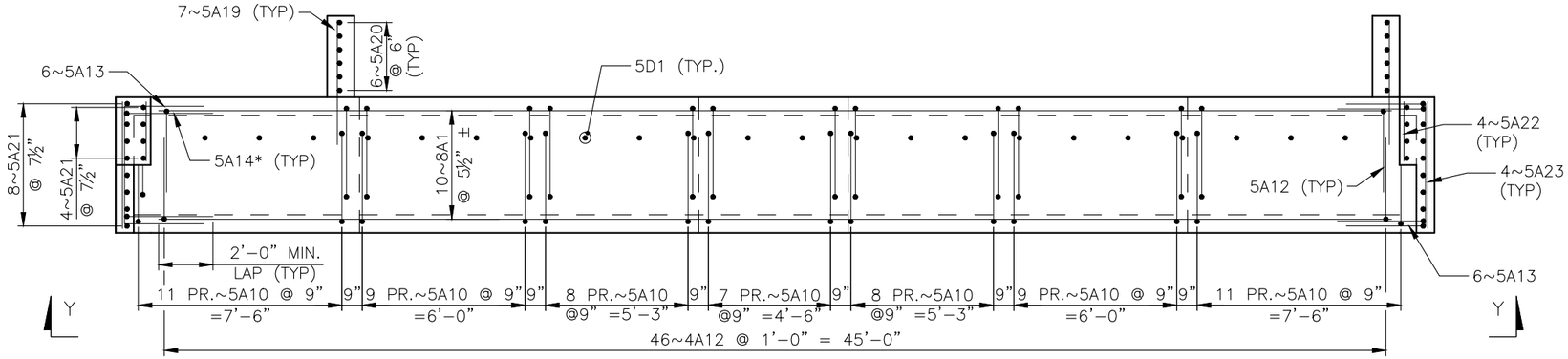
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

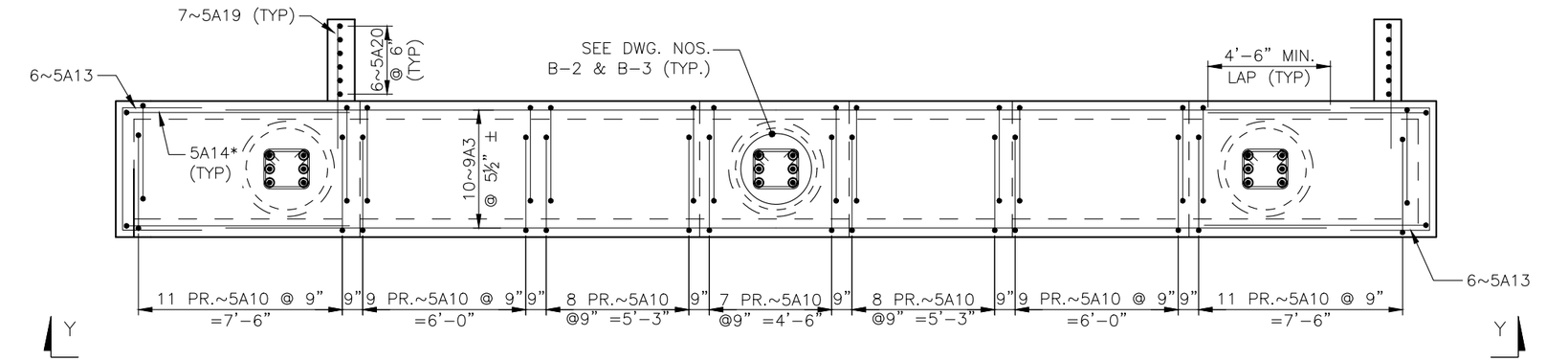
REF. DWG. NO. B-14
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 48 OF 283

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THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

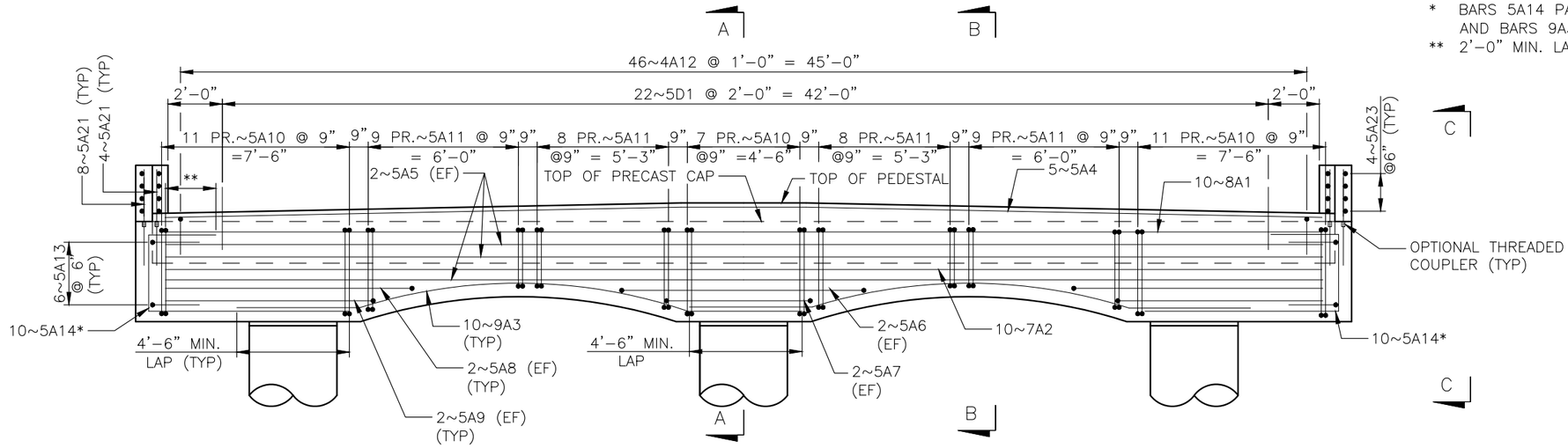
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ABUTMENT 7 REINFORCEMENT TOP PLAN



ABUTMENT 7 REINFORCEMENT BOTTOM PLAN



VIEW Y-Y

* BARS 5A14 PAIR W/ BARS 8A1 (TOP) AND BARS 9A3 (BOT.)
** 2'-0" MIN. LAP (TYP.)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED HF
DRAWN HF
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

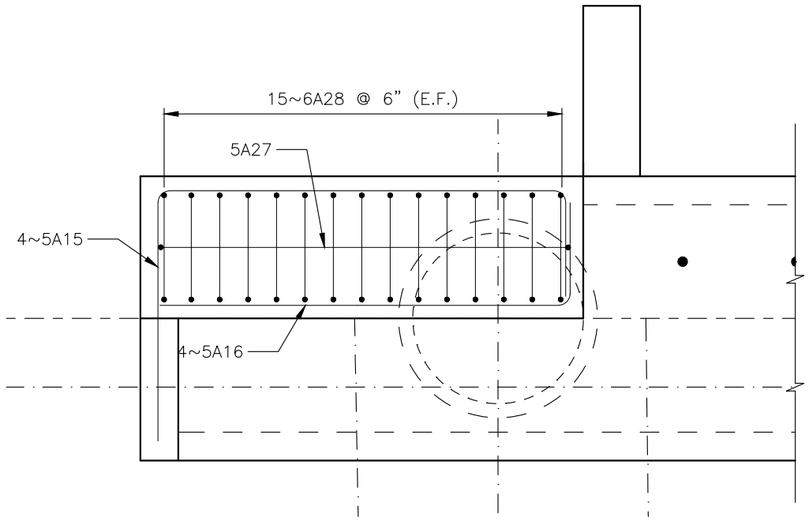
DESCRIPTION: ABUTMENT DETAILS (4 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

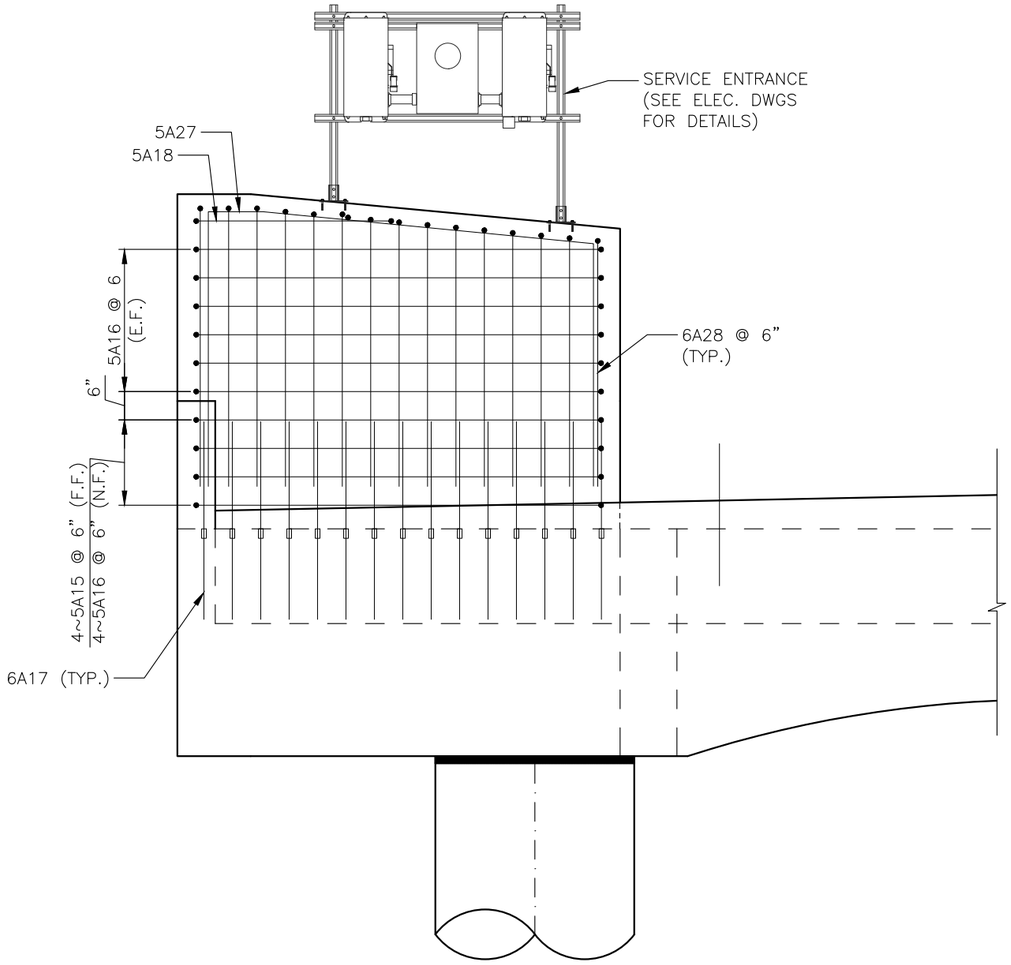
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B-15
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 49 OF 283

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ABUTMENT 1 DETAIL
PLAN



ABUTMENT 1 DETAIL
ELEVATION

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT:
BECKETT BRIDGE
REPLACEMENT

DESCRIPTION:
ABUTMENT DETAILS
(5 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO.
B-16

DATE:
6/25/2021

PROJECT NO.
001037A

SHEET:
50 OF 283

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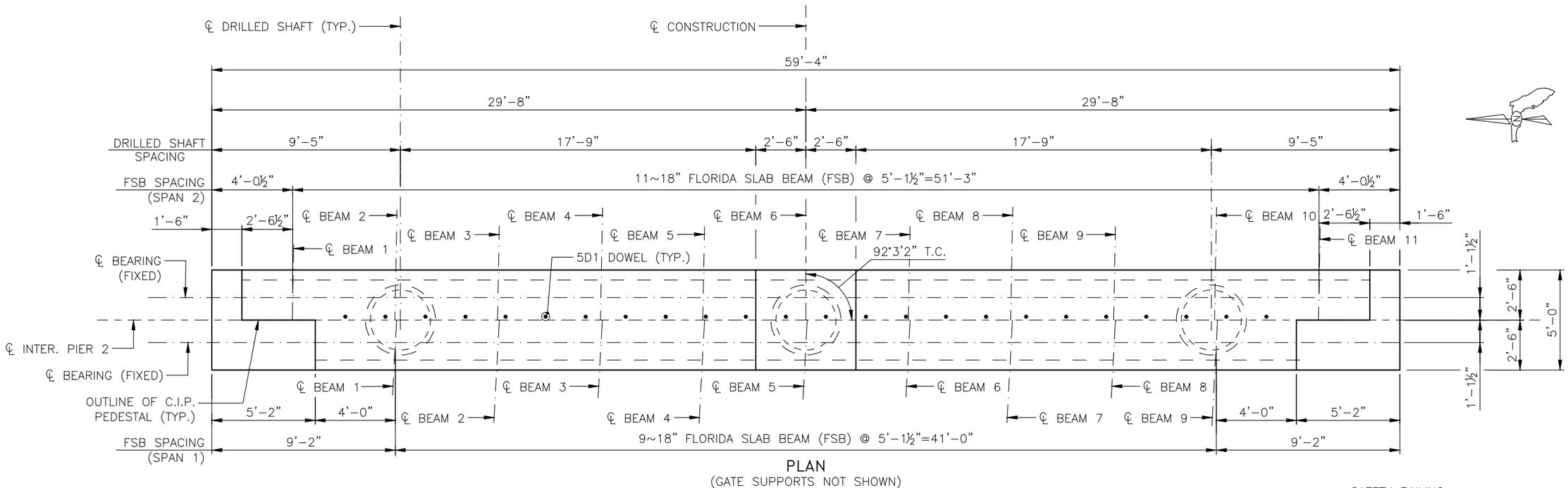
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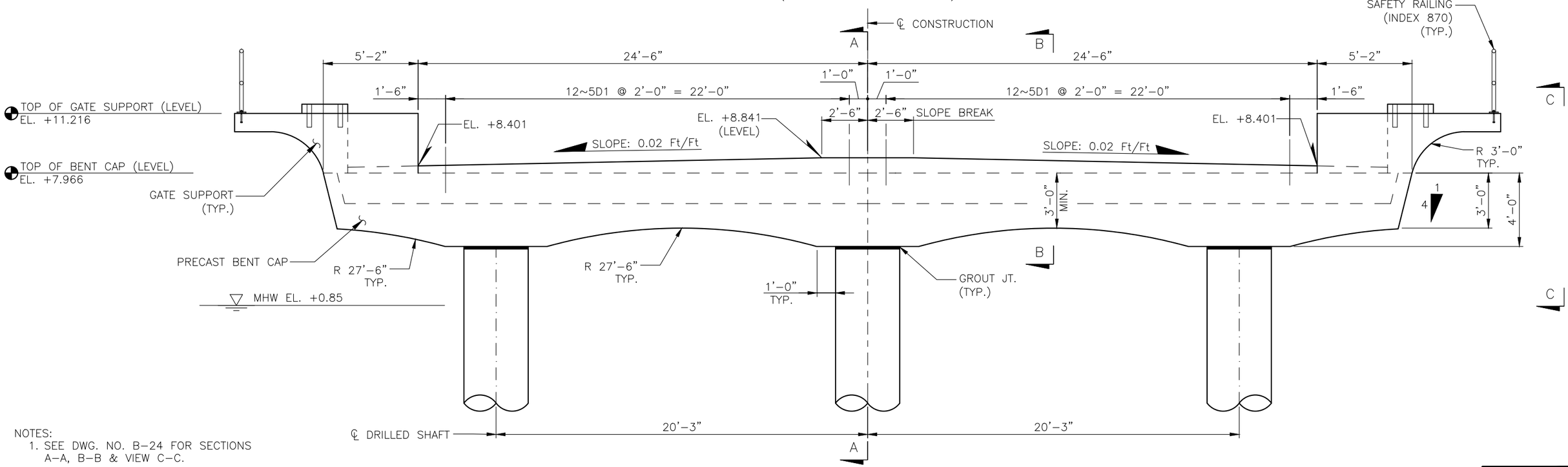
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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ANLUN CHEN 7/2/2021 1:59:51 PM

DIRECTION OF STATIONING



PLAN
(GATE SUPPORTS NOT SHOWN)



NOTES:
1. SEE DWG. NO. B-24 FOR SECTIONS A-A, B-B & VIEW C-C.

ELEVATION

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

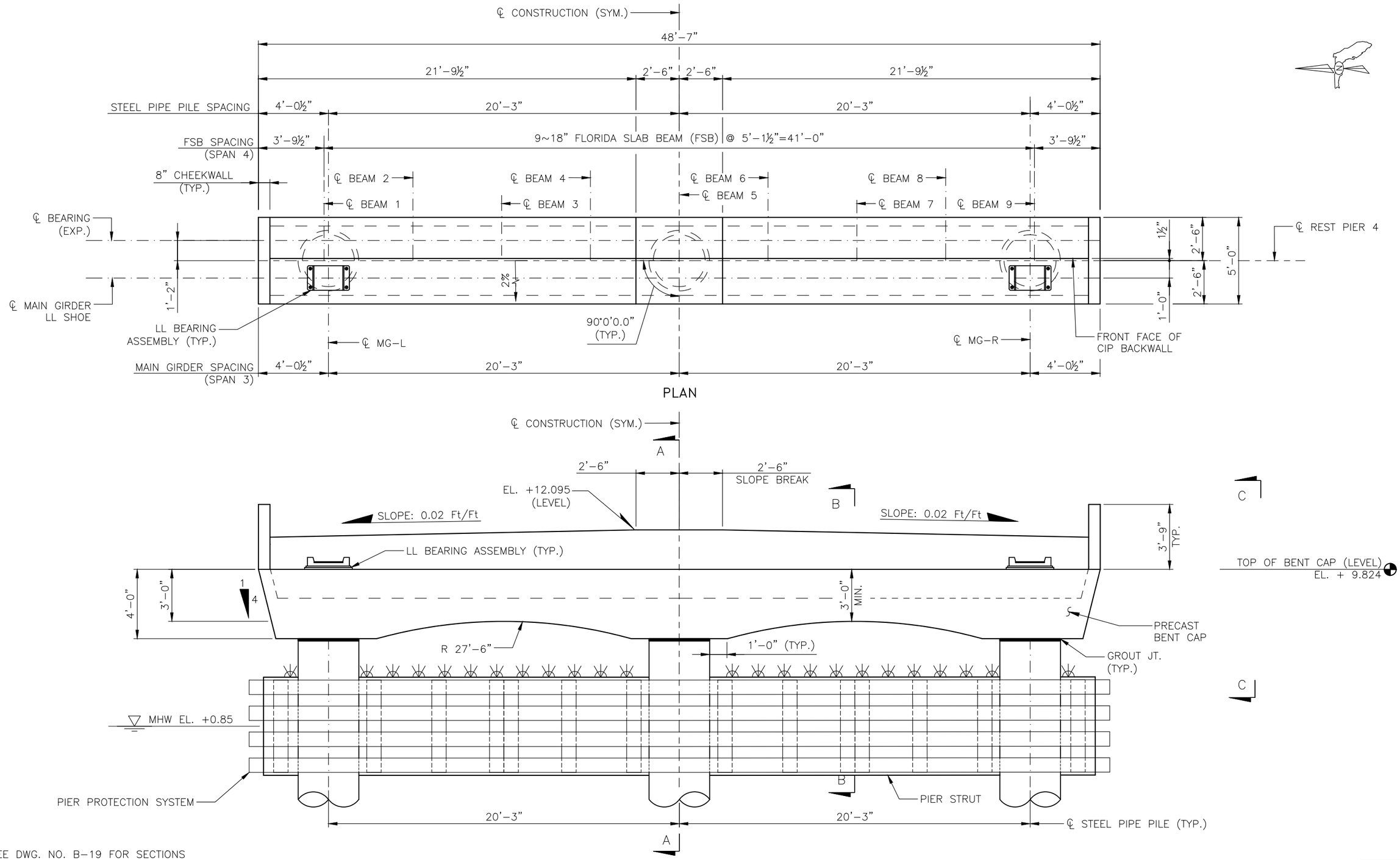
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: INTERMEDIATE PIER 2 PLAN AND ELEVATION

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B-17
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 51 OF 283



NOTES:
1. SEE DWG. NO. B–19 FOR SECTIONS A–A, B–B & VIEW C–C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

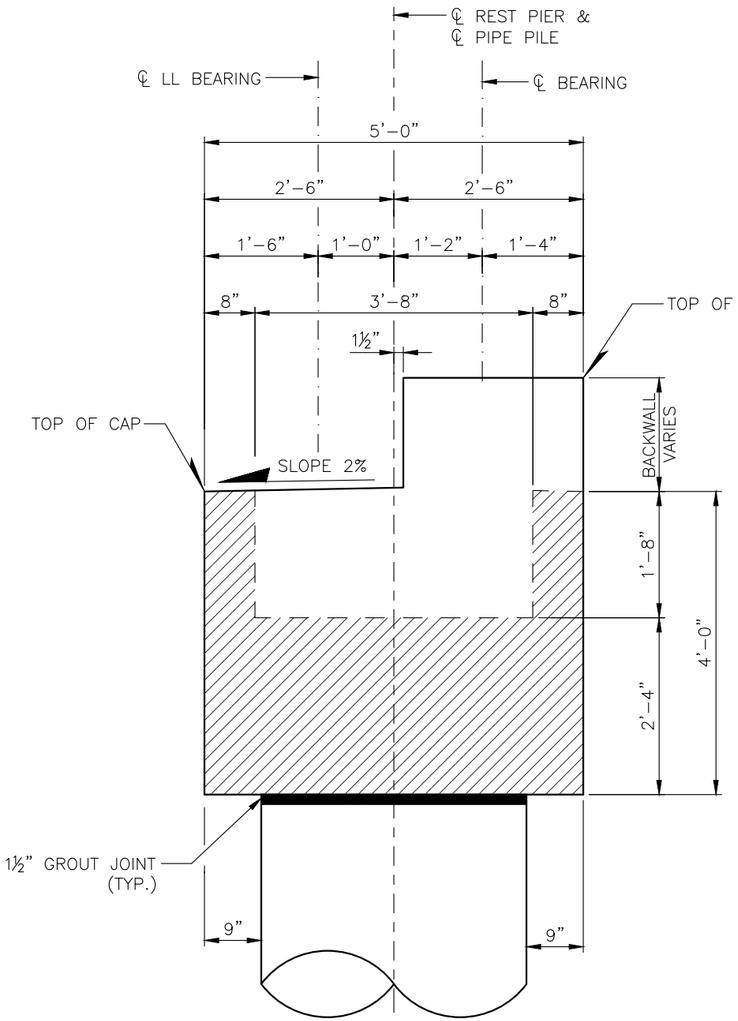
DESCRIPTION: REST PIER 4 PLAN & ELEVATION

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

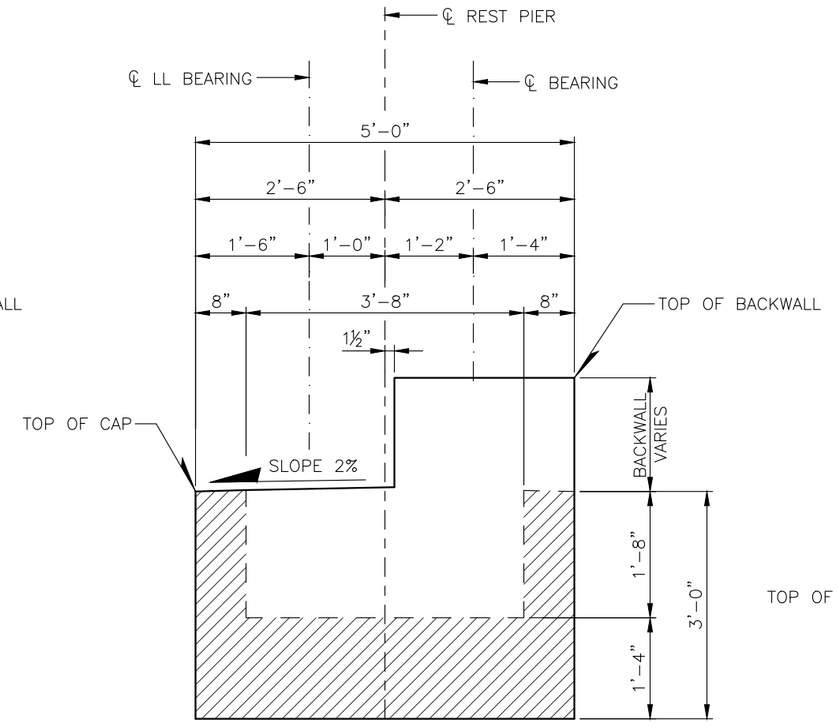
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B–18
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 52 OF 283

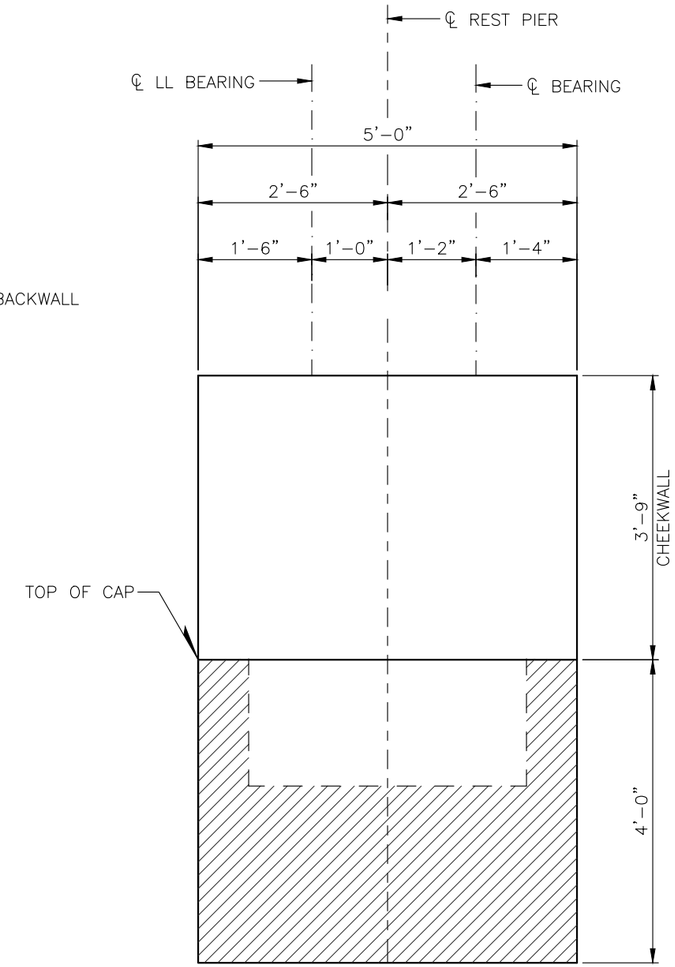
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SECTION A–A



SECTION B–B



VIEW C–C

NOTES
1. SEE DWG. NO. B–18 FOR SECTIONS A–A, B–B & VIEW C–C.

LEGEND

PRECAST BENT CAP

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED HF
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: REST PIER 4 PRECAST DETAILS (1 OF 3)

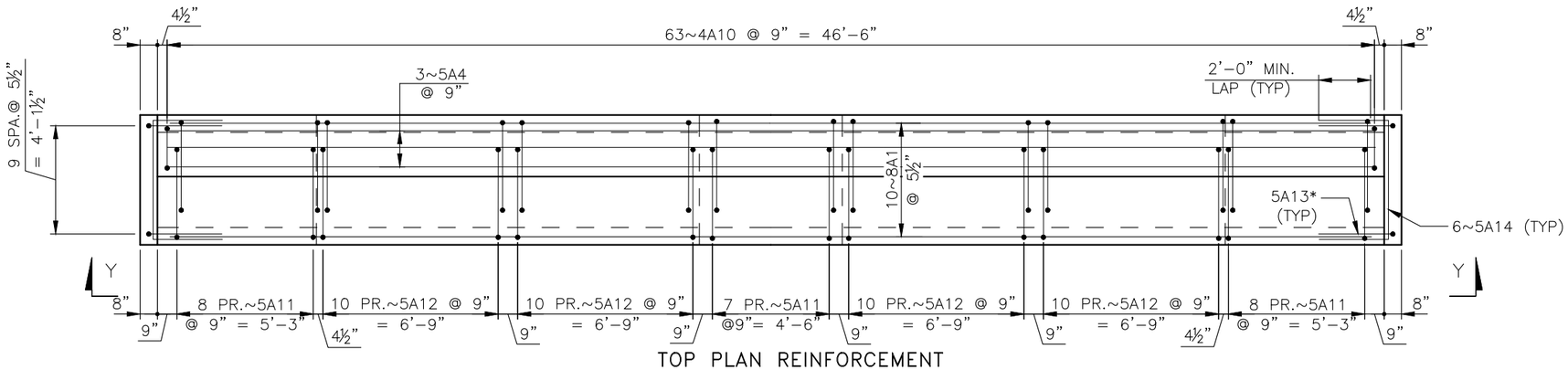
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

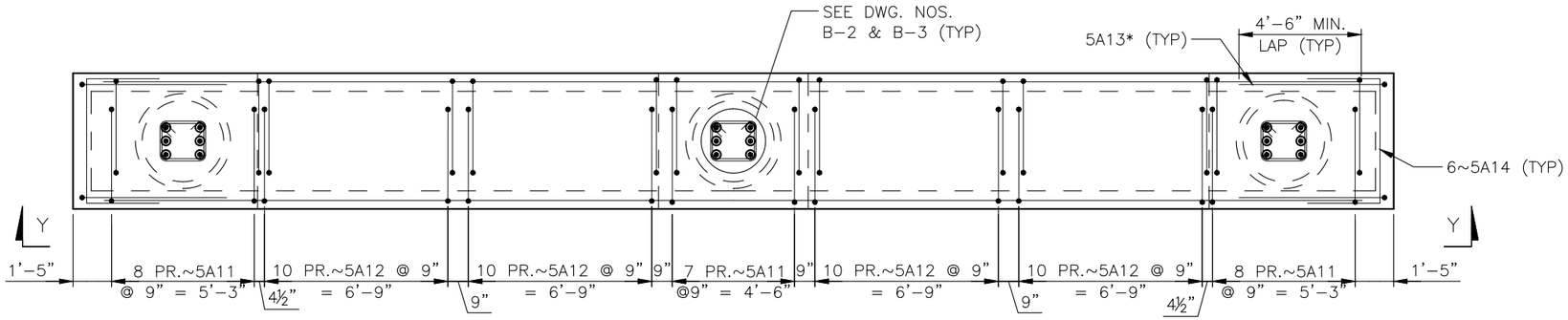
REF. DWG. NO. B–19
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 53 OF 283

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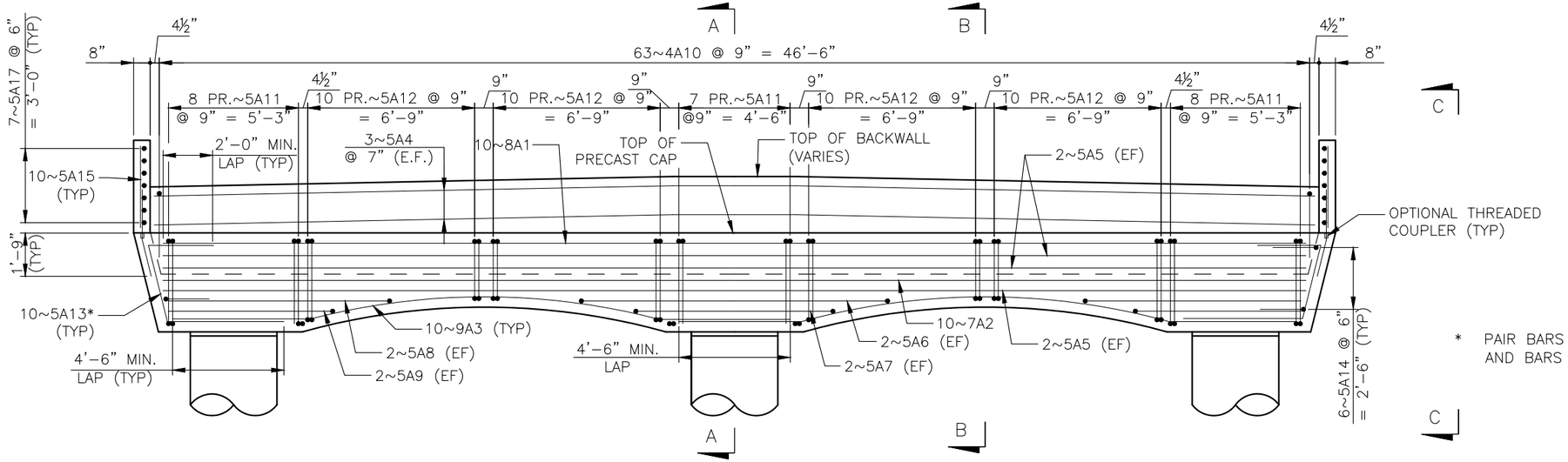
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TOP PLAN REINFORCEMENT



BOTTOM PLAN REINFORCEMENT



VIEW Y-Y

* PAIR BARS 5A13 WITH BARS 8A1 (TOP) AND BARS 9A3 (BOT.)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED HF
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: REST PIER 4 PRECAST DETAILS (2 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

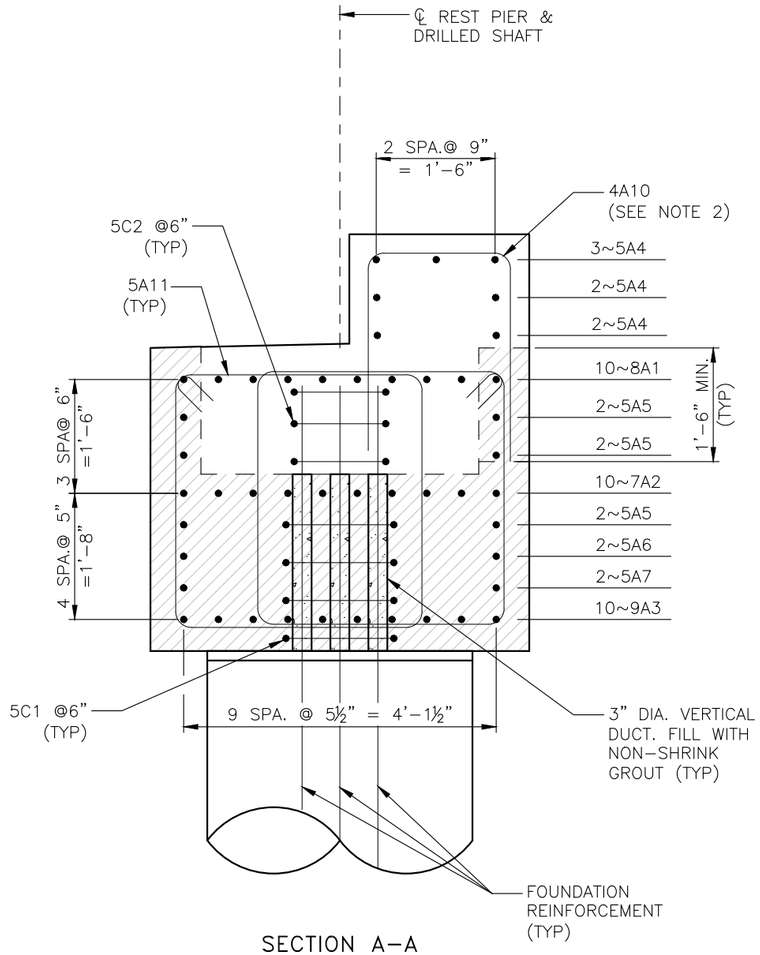
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B-20
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 54 OF 283

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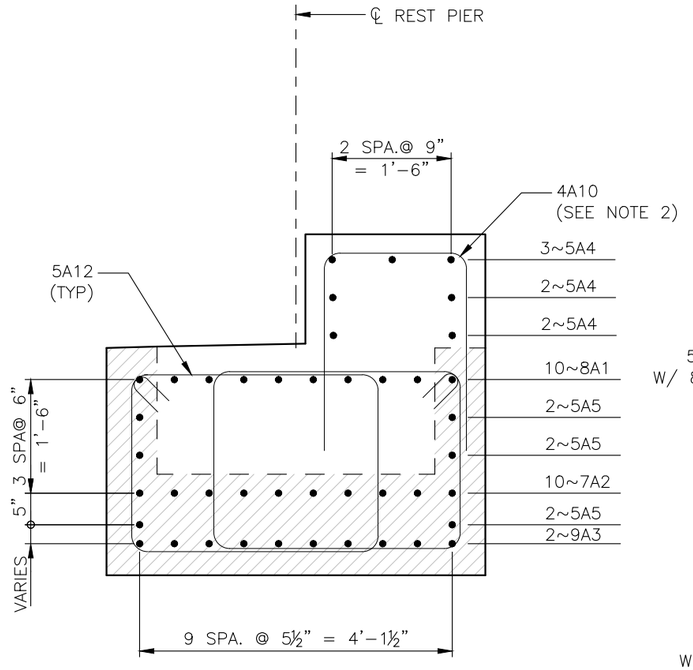
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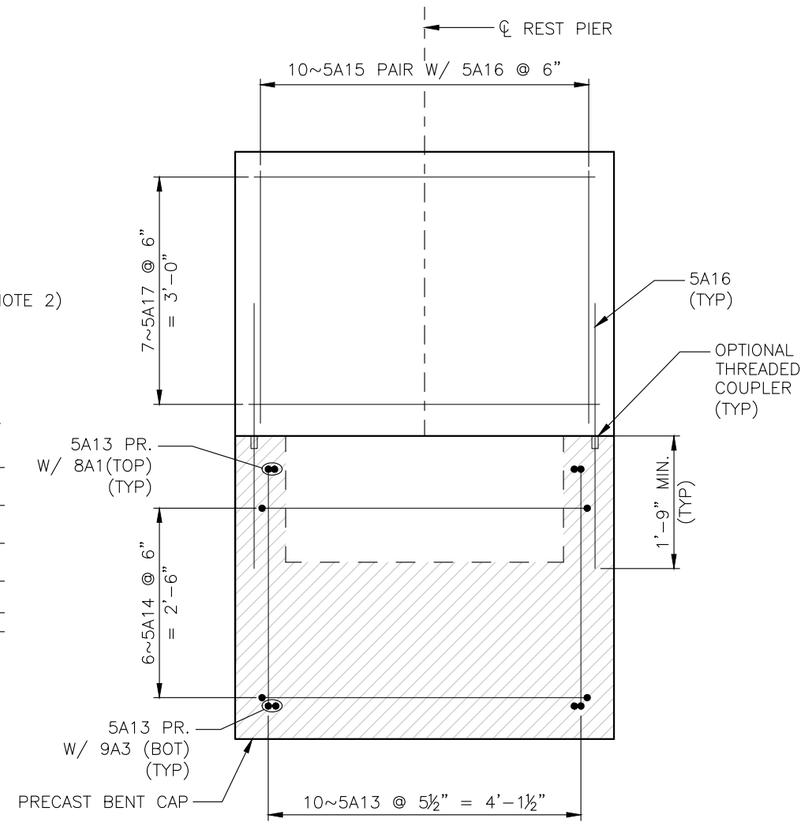


SECTION A–A

(DRILLED SHAFT REINFORCEMENT
NOT SHOWN, UNO)



SECTION B–B



VIEW C–C

NOTES
1. SEE DWG. NO. B–18 FOR LOCATIONS OF SECTION A–A, B–B & VIEW C–C.
2. FIELD–BEND BARS 4A10 AS SHOWN.

LEGEND

PRECAST BENT CAP

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED HF
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: REST PIER 4 PRECAST DETAILS (3 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B–21
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 55 OF 283

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DIRECTION OF STATIONING

℄ STEEL PIPE PILE (TYP.) — ℄ CONSTRUCTION

59'–4"

27'–2" | 2'–6" | 2'–6" | 27'–2" — STEEL PIPE PILE SPACING

9'–5" | 20'–3" | 20'–3" | 9'–5"

FSB SPACING (SPAN 4 & 5): 9'–2" | 9~18" FLORIDA SLAB BEAM (FSB) @ 5'–1½"=41'–0" | 9'–2"

5'–2" | 4'–0" | 4'–0" | 5'–2"

℄ BEAM 1 | ℄ BEAM 2 | ℄ BEAM 3 | ℄ BEAM 4 | ℄ BEAM 5 | ℄ BEAM 6 | ℄ BEAM 7 | ℄ BEAM 8 | ℄ BEAM 9

℄ BEARING (FIXED)

℄ INTER. PIER 5

℄ BEARING (FIXED)

5D1 DOWEL (TYP.)

90°0'0.0" (TYP.)

1'–1½" | 2'–6" | 2'–6" | 5'–0"

℄ BEAM 1 | ℄ BEAM 2 | ℄ BEAM 3 | ℄ BEAM 4 | ℄ BEAM 5 | ℄ BEAM 6 | ℄ BEAM 7 | ℄ BEAM 8 | ℄ BEAM 9

PLAN
(GATE SUPPORT NOT SHOWN)

GATE SUPPORT (TYP.)

℄ CONSTRUCTION — A — B

SAFETY RAILING (INDEX 870) (TYP.)

5'–2" | 24'–6" | 24'–6" | 5'–2"

1'–6" | 12~5D1 @ 2'–0" = 22'–0" | 1'–0" | 1'–0" | 12~5D1 @ 2'–0" = 22'–0" | 1'–6"

TOP OF GATE SUPPORT (LEVEL) EL. + 14.344

TOP OF BENT CAP (LEVEL) EL. + 11.094

SLOPE BREAK 2'–6" 2'–6"

EL. +11.928 (LEVEL)

SLOPE: 0.02 Ft/Ft — SLOPE: 0.02 Ft/Ft

C

R 3'–0" (TYP.)

3'–0" MIN.

1 : 4

3'–0" | 4'–0"

B

PRECAST BENT CAP

R 27'–6" (TYP.)

1'–0" TYP.

GROUT JT. (TYP.)

R 27'–6" (TYP.)

C

MHW EL. +0.85

PIER PROTECTION SYSTEM

PIER STRUT

20'–3" | 20'–3"

℄ STEEL PIPE PILE (TYP.)

A

ELEVATION

NOTES
1. SEE DWG. NO. B–24 FOR SECTIONS A–A, B–B & VIEW C–C.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED HF
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

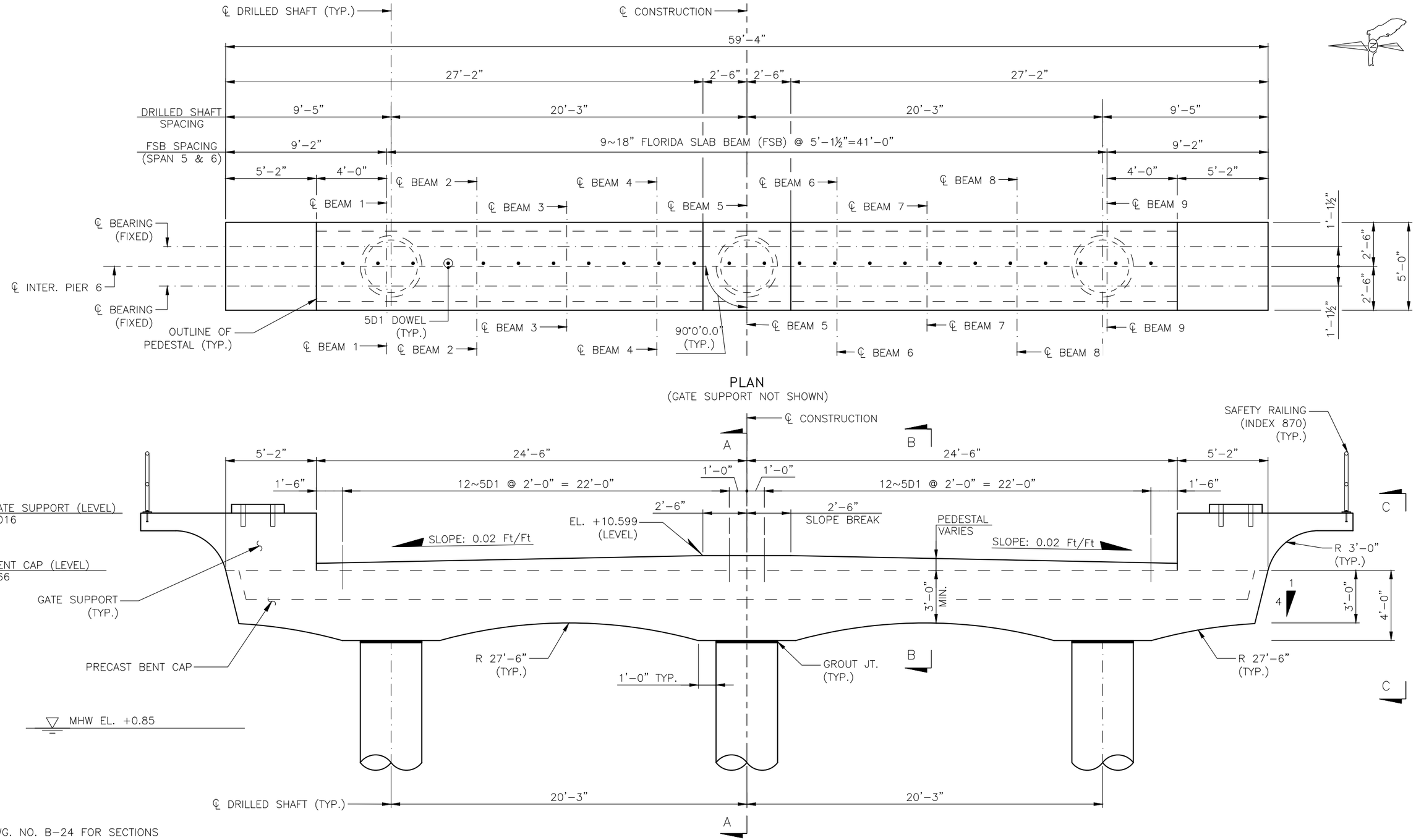
DESCRIPTION: INTERMEDIATE PIER 5 PLAN & ELEVATION

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B–22
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 56 OF 283

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ANLUN CHEN



NOTES:
1. SEE DWG. NO. B-24 FOR SECTIONS A-A, B-B & VIEW C-C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED HF
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: INTERMEDIATE PIER 6 PLAN & ELEVATION

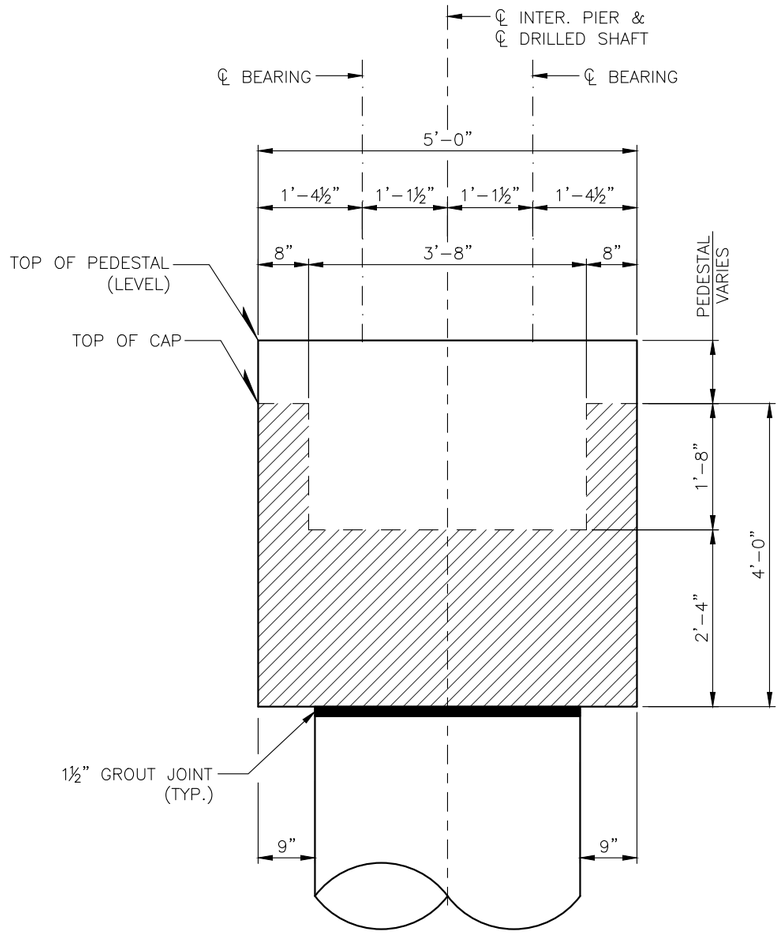
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B-23
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 57 OF 283

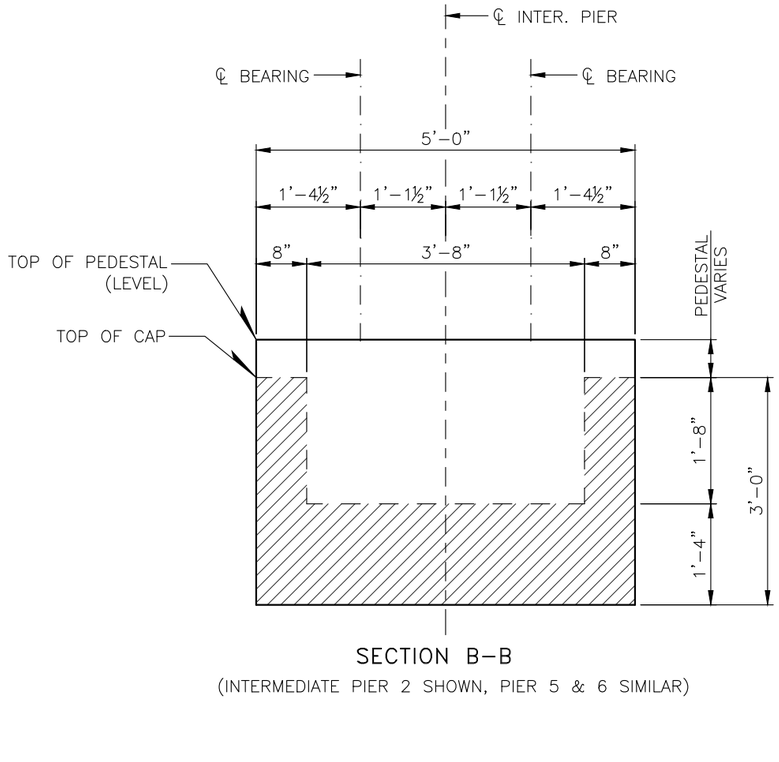
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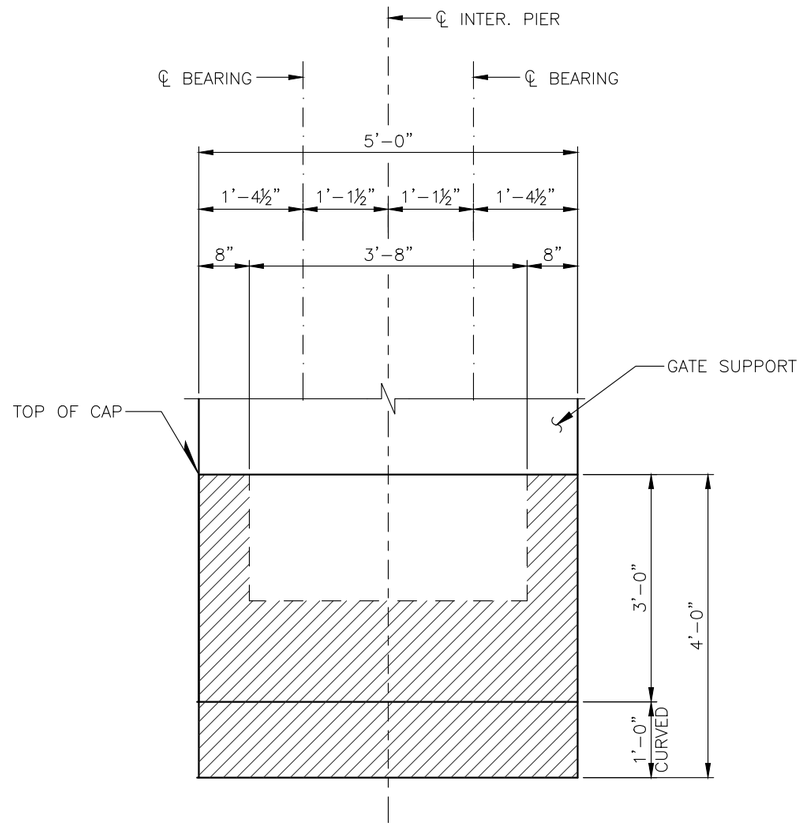
SECTION A–A

(INTERMEDIATE PIER 2 SHOWN, PIER 5 & 6 SIMILAR)



SECTION B–B

(INTERMEDIATE PIER 2 SHOWN, PIER 5 & 6 SIMILAR)



VIEW C–C

(INTERMEDIATE PIER 2 SHOWN, PIER 5 & 6 SIMILAR)

LEGEND

PRECAST BENT CAP

NOTES
1. SEE DWG. NOS. B–17, B–22 & B–23 FOR LOCATIONS OF SECTION A–A, B–B & VIEW C–C.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED HF
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

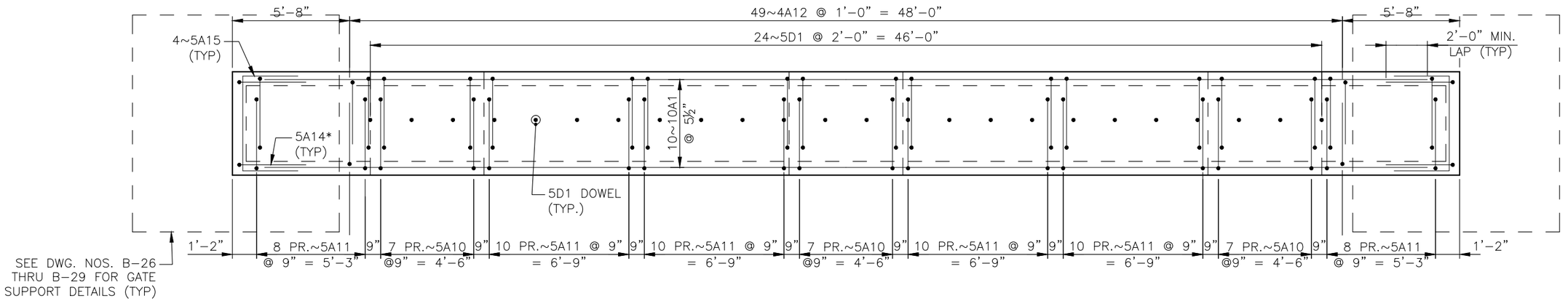
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: INTERMEDIATE PIER PRECAST DETAILS (1 OF 3)

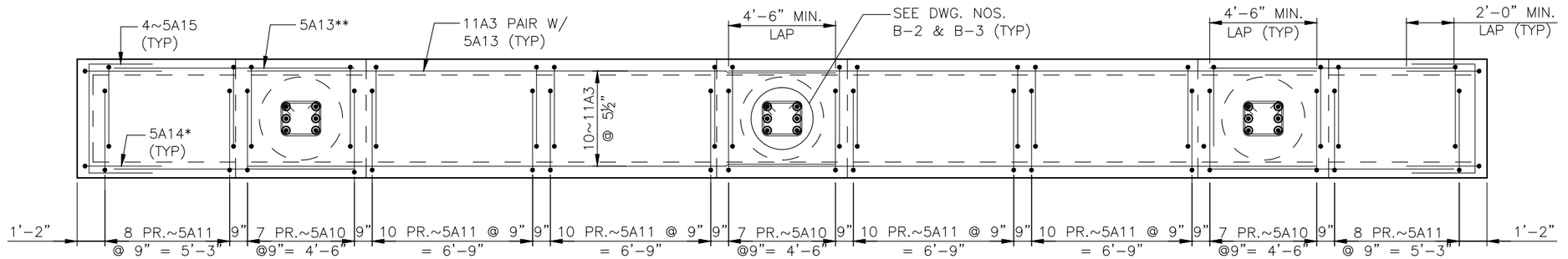
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

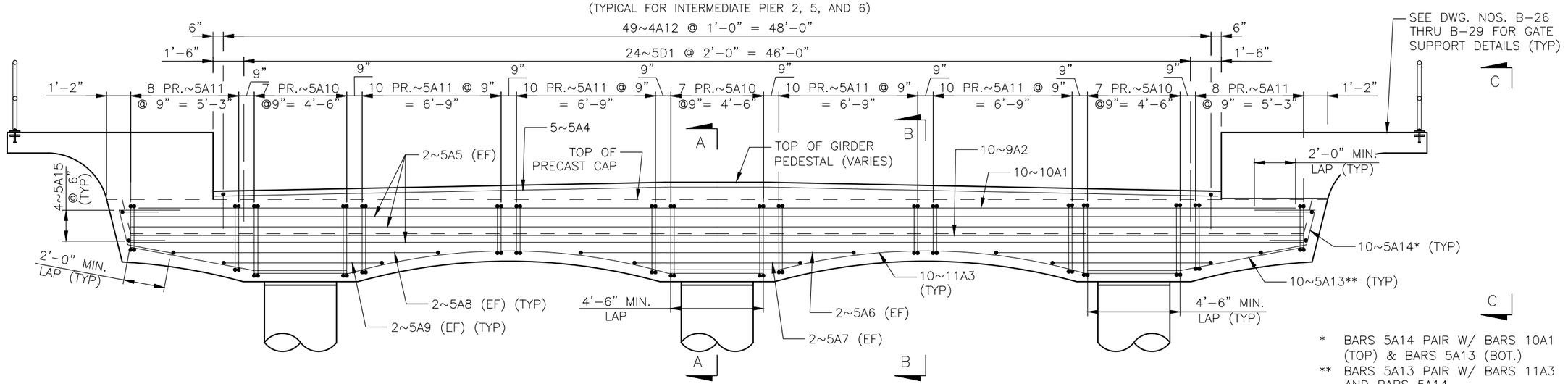
REF. DWG. NO. B–24
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 58 OF 283



REINFORCEMENT TOP PLAN
(TYPICAL FOR INTERMEDIATE PIER 2, 5, AND 6)



REINFORCEMENT BOTTOM PLAN
(TYPICAL FOR INTERMEDIATE PIER 2, 5, AND 6)



* BARS 5A14 PAIR W/ BARS 10A1 (TOP) & BARS 5A13 (BOT.)
** BARS 5A13 PAIR W/ BARS 11A3 AND BARS 5A14

TYPICAL FACE REINFORCEMENT

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED HF
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: INTERMEDIATE PIER PRECAST DETAILS (2 OF 3)

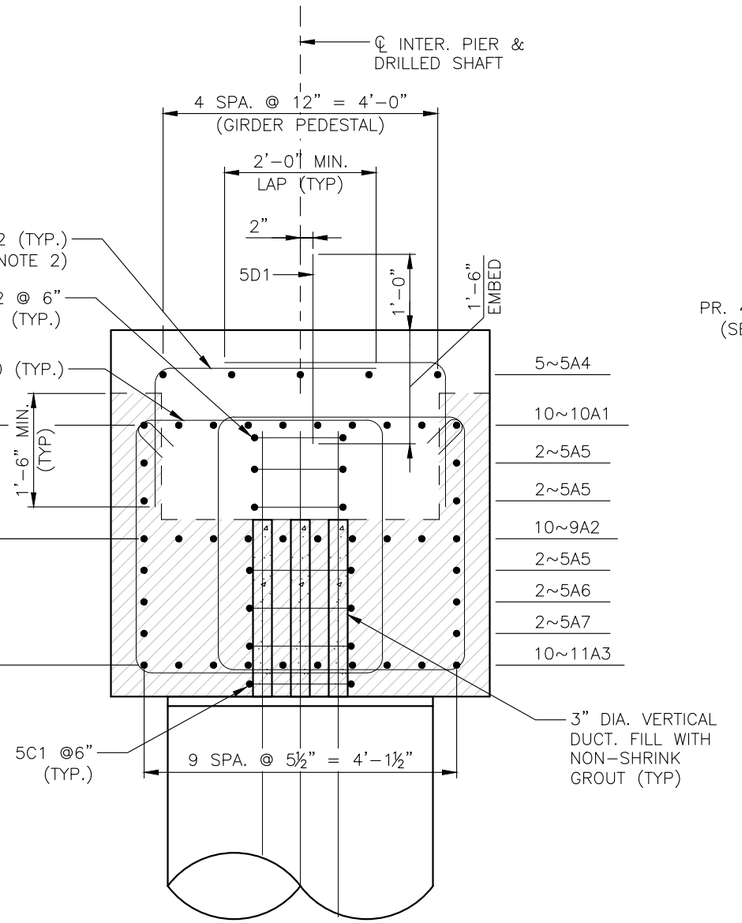
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

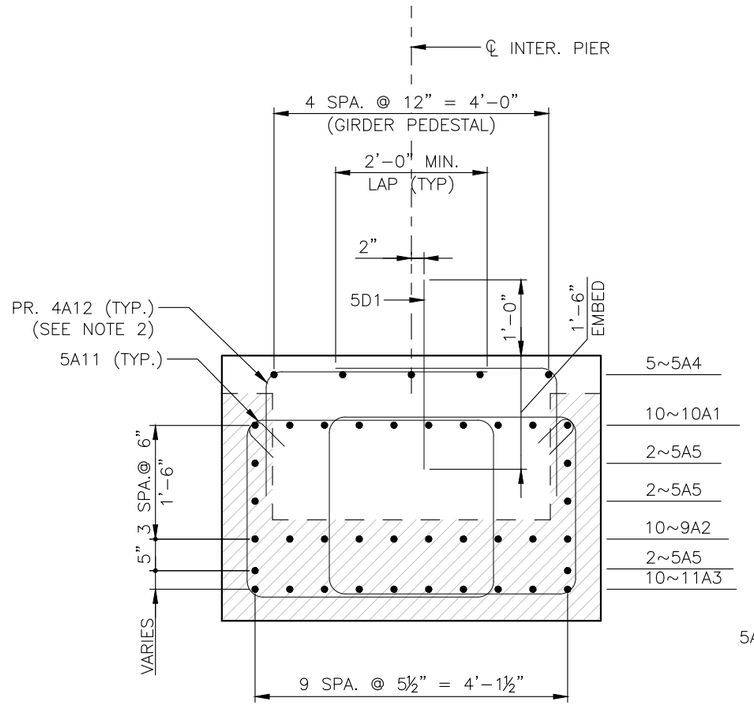
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DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 59 OF 283

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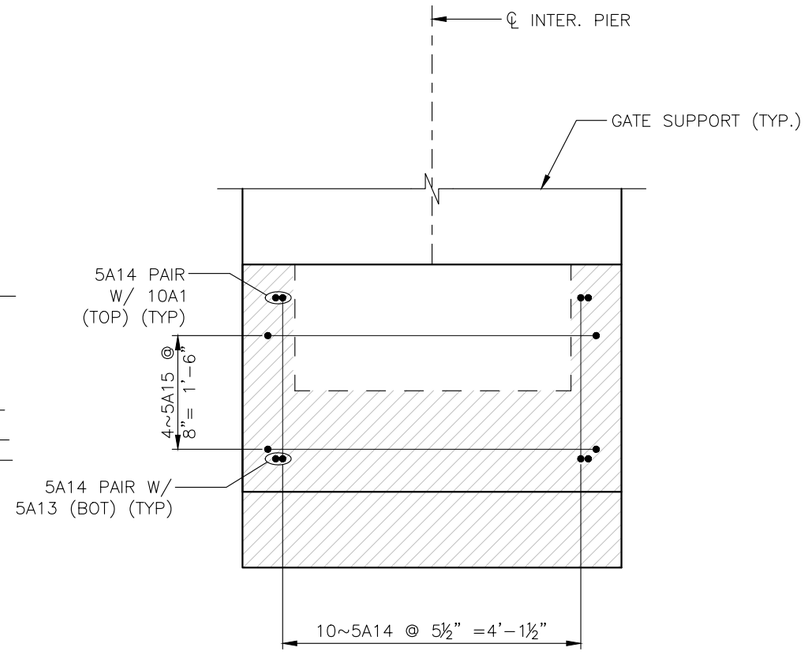
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SECTION A-A



SECTION B-B



VIEW C-C

NOTES
1. SEE DWG. NOS. B-17, B-22 & B-23 FOR LOCATIONS OF SECTION A-A, B-B & VIEW C-C.
2. FIELD-BEND BARS 4A12 AS SHOWN.

LEGEND

PRECAST BENT CAP

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED HF
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: INTERMEDIATE PIER PRECAST DETAILS (3 OF 3)

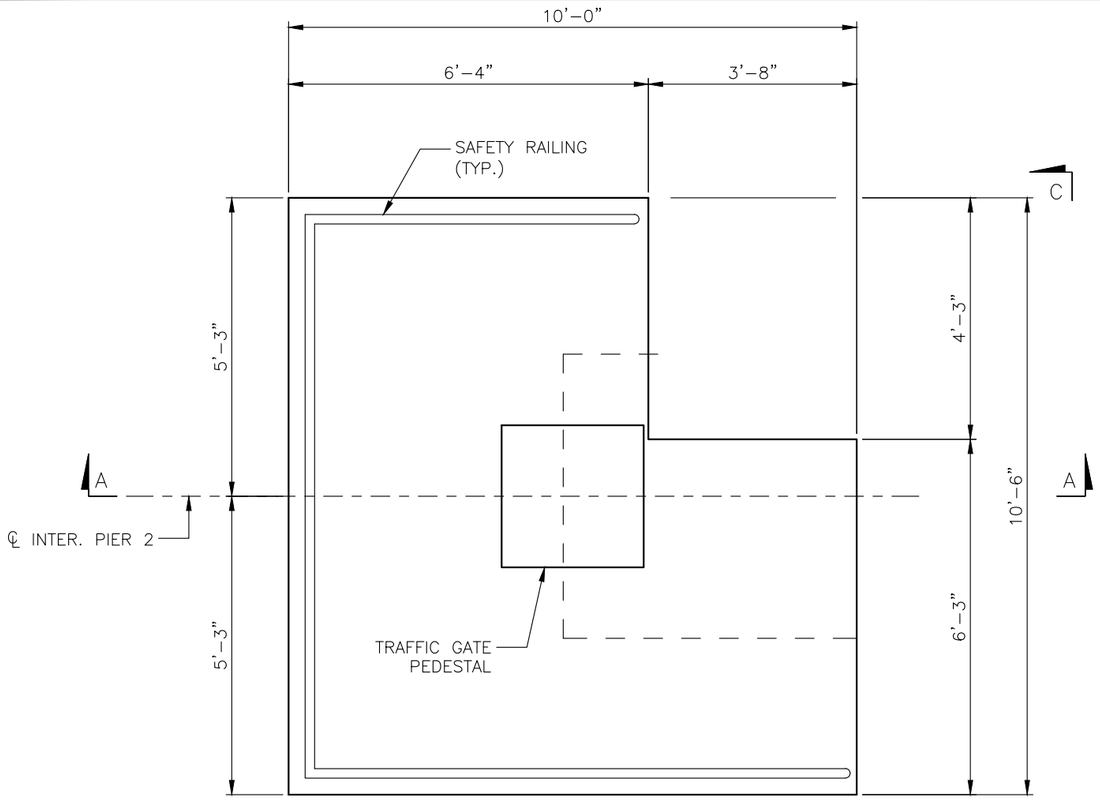
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

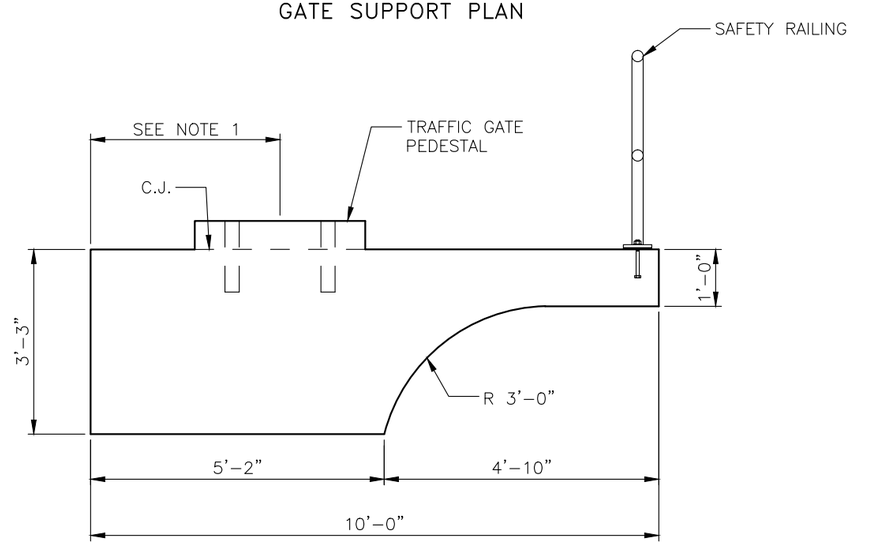
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DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 60 OF 283

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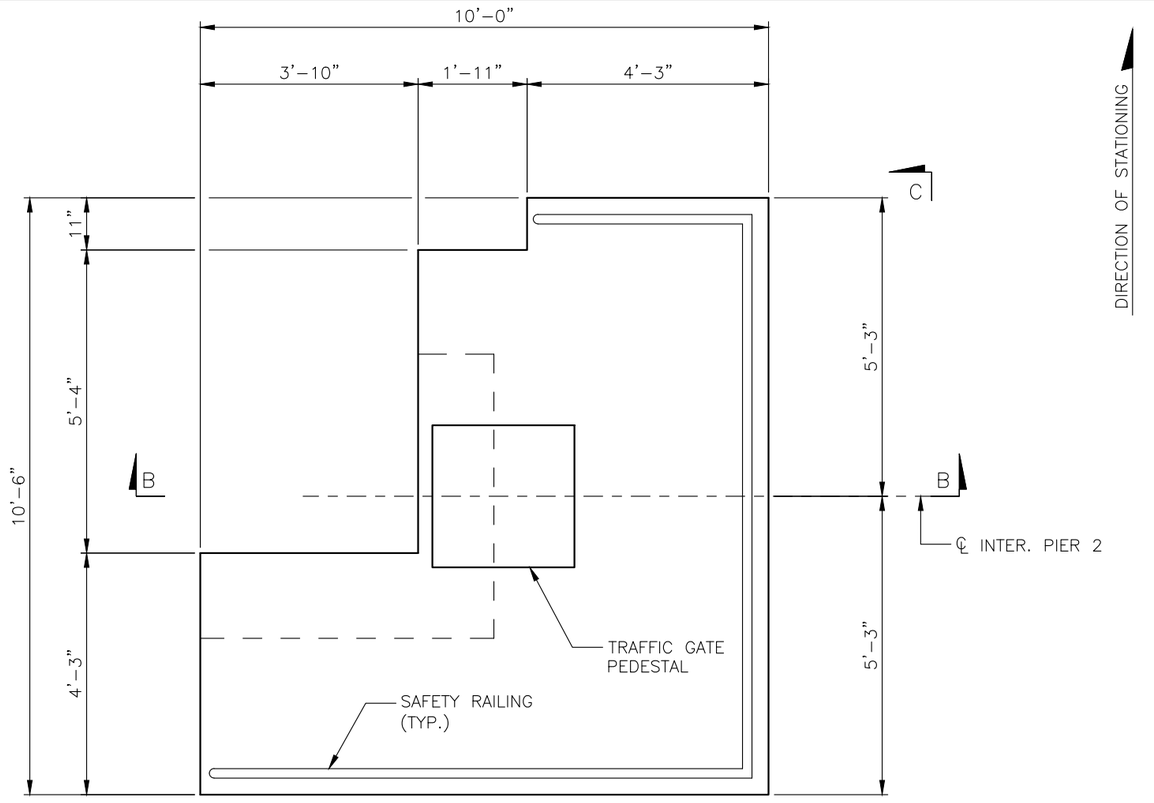
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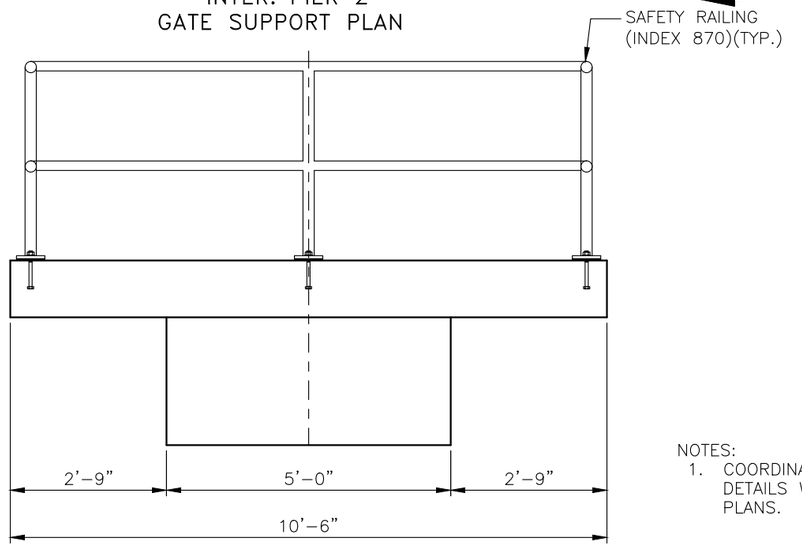
INTER. PIER 2
GATE SUPPORT PLAN



SECTION B–B
(SECTION A–A OPPOSITE HAND)



INTER. PIER 2
GATE SUPPORT PLAN



VIEW C–C

NOTES:
1. COORDINATE PEDESTAL DETAILS WITH ELECTRICAL PLANS.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN HF
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT:
BECKETT BRIDGE
REPLACEMENT

DESCRIPTION:
INTERMEDIATE PIER
DETAILS (1 OF 4)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

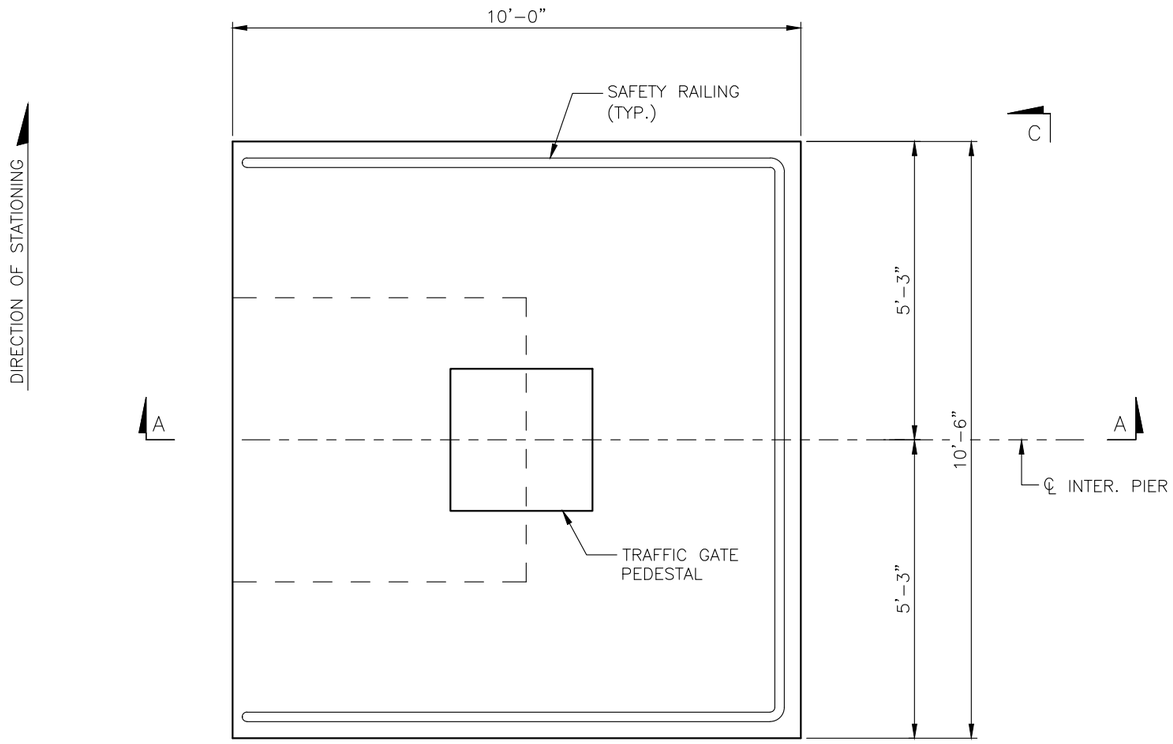
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B–27
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 61 OF 283

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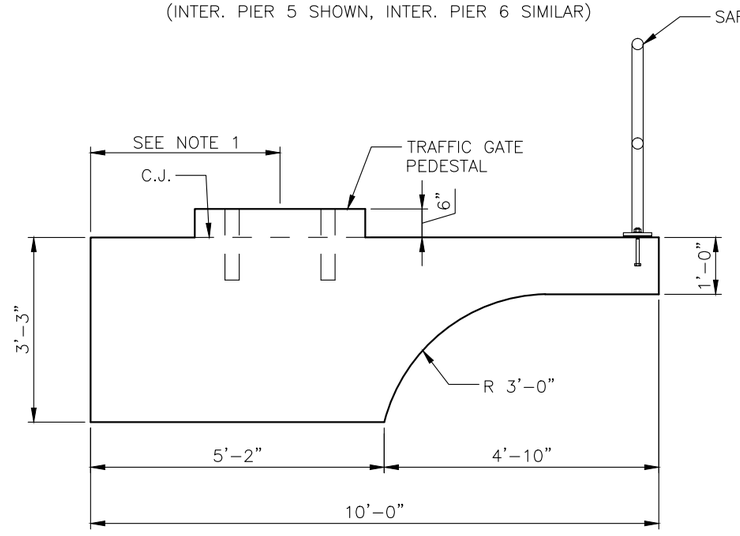
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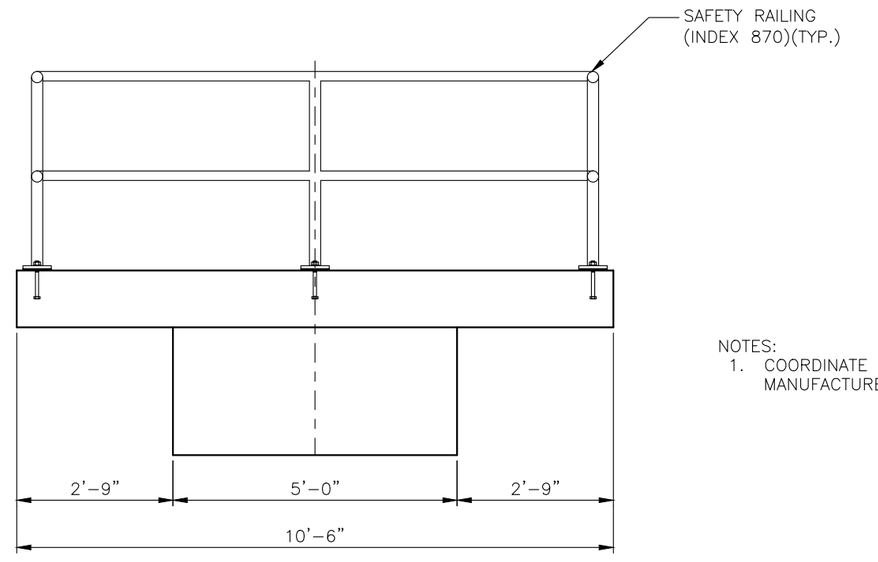


TYPICAL GATE SUPPORT PLAN

(INTER. PIER 5 SHOWN, INTER. PIER 6 SIMILAR)



SECTION A-A



VIEW C-C

NOTES:
1. COORDINATE DIMENSIONS WITH MANUFACTURER.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN HF
CHECKED JMP

Pinellas County PUBLIC WORKS

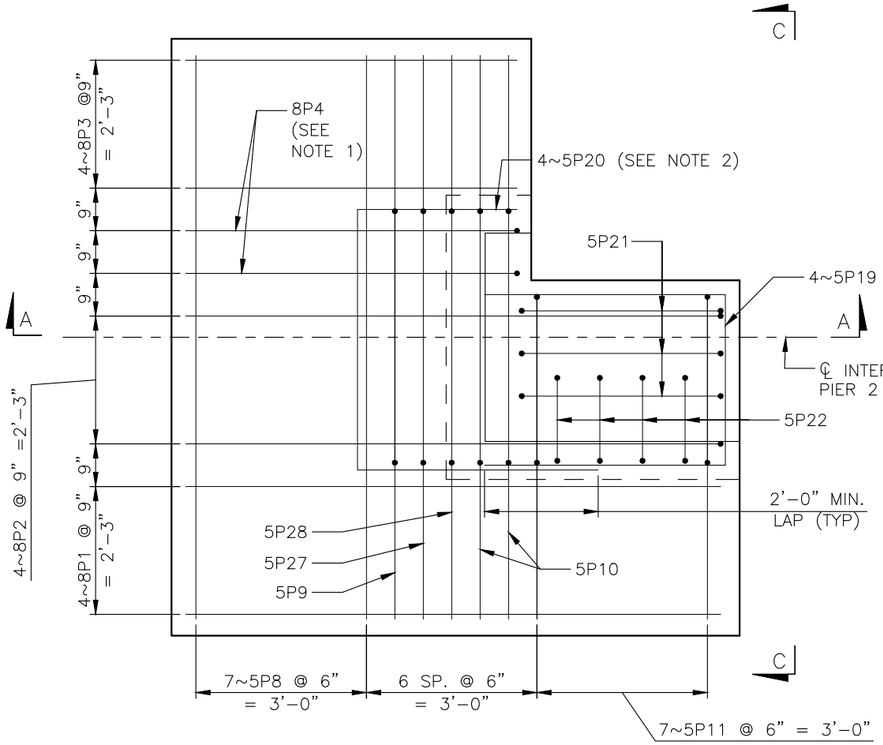
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: INTERMEDIATE PIER DETAILS (2 OF 4)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

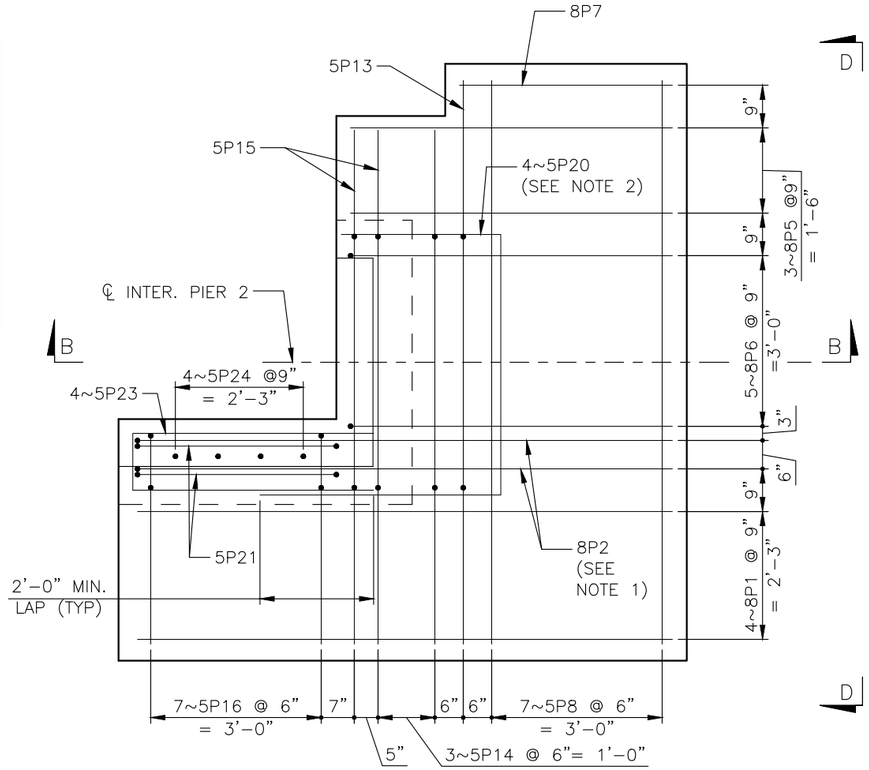
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B-28
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 62 OF 283



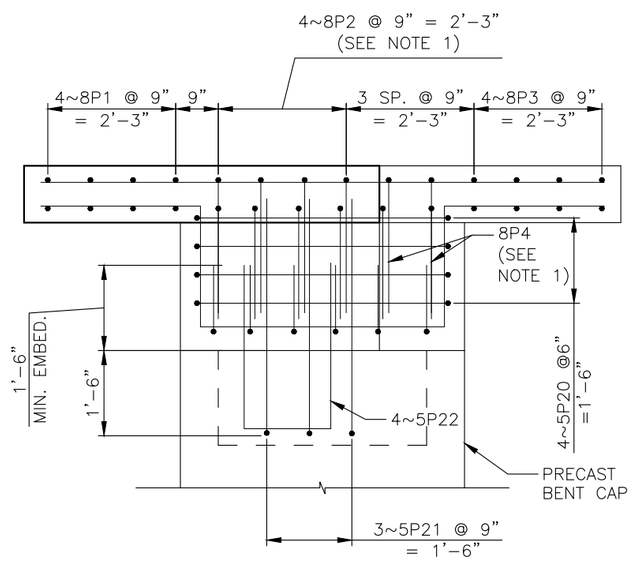
INT. PIER 2 LT. GATE SUPPORT REINFORCEMENT PLAN

DIRECTION OF STATIONING

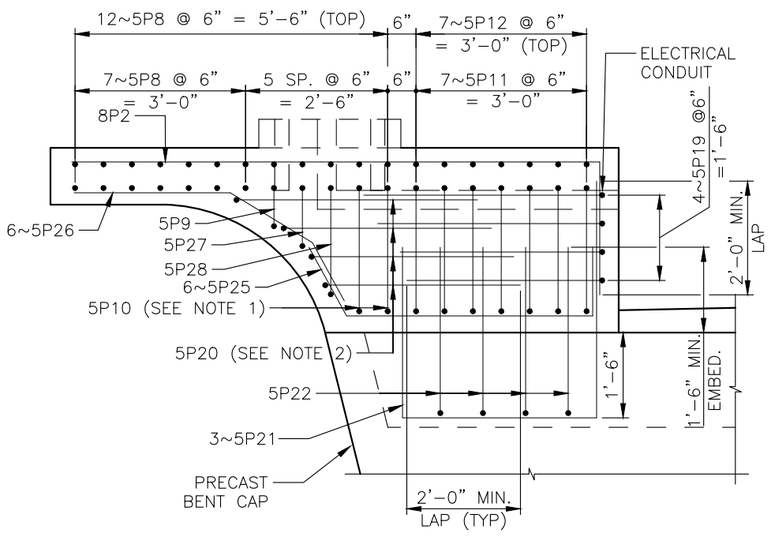


INT. PIER 2 RT. GATE SUPPORT REINFORCEMENT PLAN

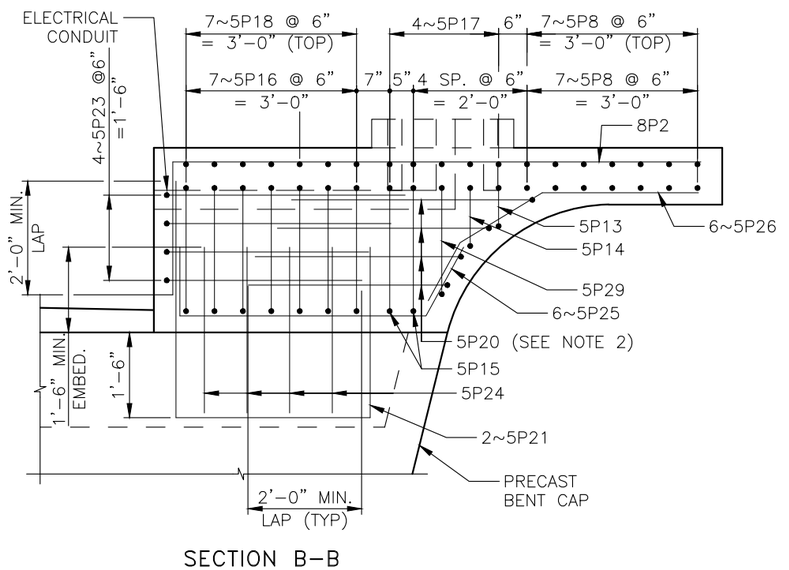
NOTES:
1. FIELD BEND OR CUT BARS IF NECESSARY.
2. BARS 5P20 PAIR W/ BARS 5P19.



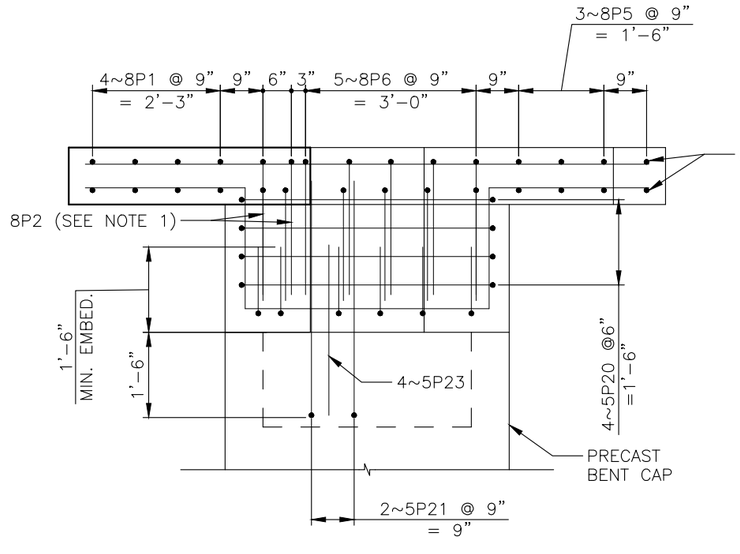
VIEW C–C



SECTION A–A



SECTION B–B



VIEW D–D

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN HF
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: INTERMEDIATE PIER DETAILS (3 OF 4)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

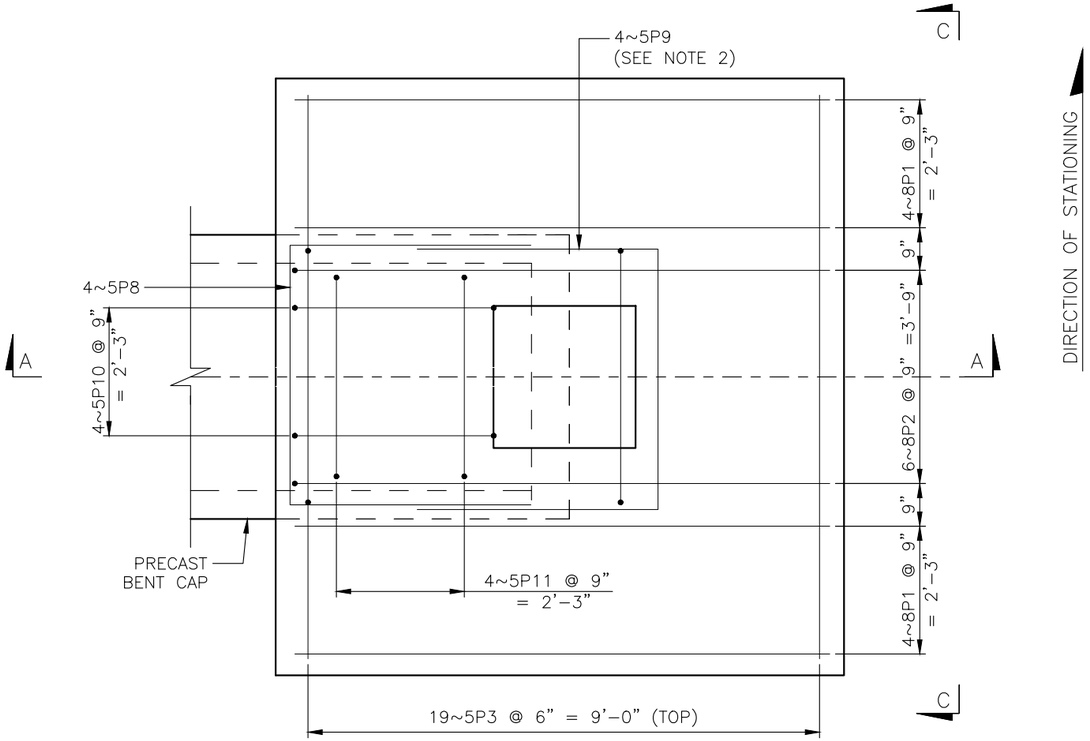
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B–29
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 63 OF 283

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ANLUN CHEN
7/2/2021 2:00:51 PM

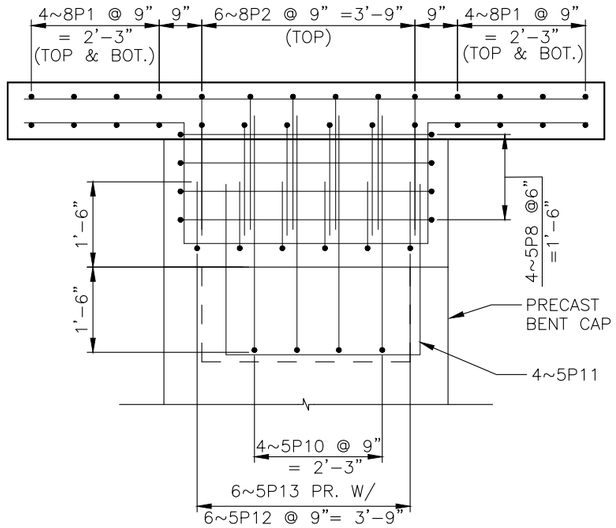
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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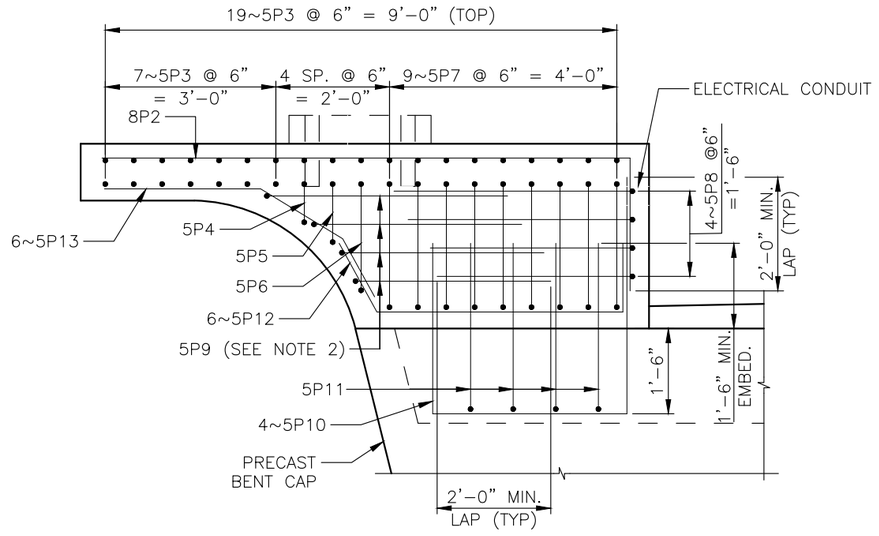


SUPPORT GATE REINFORCEMENT PLAN
(TYPICAL FOR INT. PIER 5 & 6)

DIRECTION OF STATIONING



VIEW C-C



SECTION A-A

NOTES:
1. FIELD BEND OR CUT BARS IF NECESSARY.
2. BARS 5P9 PAIR W/ BARS 5P8.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN HF
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: INTERMEDIATE PIER DETAILS (4 OF 4)

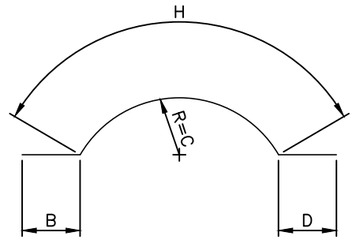
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B-30
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 64 OF 283

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

MARK		LENGTH	NO	TYP	STY		B	C	D	E	F	H	J	K	N	Ø
SIZE	DES	FT IN	BARS	BAR	A	G	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	NO	ANG
LOCATION INT. PIERS 2, 5, & 6 – PRECAST CAP											NO. REQUIRED = 3					
10	A1	56– 3	2	1			56– 3									
9	A2	57– 0	10	1			57– 0									
11	A3	26– 3	20	44			5– 3	28– 0	5– 3			15– 9				
5	A5	57– 0	6	1			57– 0									
5	A6	19– 3	2	11			13– 3	3– 0	3– 0							
5	A7	14– 1	2	11			8– 1	3– 0	3– 0							
5	A8	18–11	4	11			12–11	3– 0	3– 0							
5	A9	13– 9	4	11			7– 9	3– 0	3– 0							
5	A10	14– 3	42	4	5	5	3– 5	3– 3								
5A11 BILLED EIGHT TIMES OUTSIDE BAR LIST. 10 PR.~5A11 FOR EA. ONE–HALF OF ARCH.											(NO. REQUIRED = 8, WITHIN EA. PRECAST CAP)					
5	A11	VARY	10	4	5	5	3– 0	3– 3								
		12–11	0	4	5	5	2– 6	3– 3								
5A11 BILLED FOUR TIMES OUTSIDE BAR LIST. 8 PR.~5A11 BEYOND EXT. DRILLED SHAFTS.											(NO. REQUIRED = 4, WITHIN EA. PRECAST CAP)					
5	A11	VARY	8	4	5	5	3– 0	3– 3								
		12–11	0	4	5	5	2– 6	3– 3								
4	A12	4–10	98	10			3– 2	1– 8								
5	A13	6– 1	20	1			6– 1									
5	A14	6–11	20	15			1– 9	3– 0	2– 2						76	115
5	A15	9– 8	8	11			4– 4	2– 8	2– 8							
5	C1	7– 5	12	4	5	5	1– 6	1– 9								
LOCATION INT. PIER 2 – CIP CAP											NO. REQUIRED = 1					
10	A1	56– 3	8	1			56– 3									
5	A4	48– 8	5	1			48– 8									
5	C2	6– 5	9	4	5	5	1– 3	1– 6								
5	P21	10– 7	5	11			3– 5	3– 0	4– 2							
5	P22	8– 6	4	11			2– 6	3– 0	3– 0							
5	P24	3– 0	4	1			3– 0									
5	D1	2– 6	24	1			2– 6									
LOCATION INT. PIERS 5 & 6 – CIP CAP											NO. REQUIRED = 2					
10	A1	56– 3	8	1			56– 3									
5	A4	48– 8	5	1			48– 8									
5	C2	6– 5	9	4	5	5	1– 3	1– 6								
5	P10	10– 7	16	11			3– 5	3– 0	4– 2							
5	P11	9– 5	16	11			3– 5	3– 0	3– 0							
5	D1	2– 6	24	1			2– 6									



TYPE 44

NOTE:
FOR STANDARD BAR BENDING DETAILS, REFER TO FDOT INDEX 415–001.

END OF LIST

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ANJUN CHEN
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15–23.004, F.A.C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN QPO
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUBSTRUCTURE REINFORCING BAR LIST (1 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B–31
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 65 OF XXX

MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	Ø
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION PIER 2 GATE SUPPORTS (LT. & RT.) NO. REQUIRED = 1																																	
8	P1	9	4	16	1			9	4																								
8	P2	11	11	6	10			9	4		2	7																					
8	P3	5	8	8	1			5	8																								
8	P4	8	3	2	10			5	8		2	7																					
8	P5	5	6	6	1			5	6																								
8	P6	8	1	5	10			5	6		2	7																					
8	P7	3	7	2	1			3	7																								
5	P8	9	10	34	1			9	10																								
5	P9	11	4	1	6			0	9		2	10		4	2		2	10															
5	P10	14	2	2	6			2	2		2	10		4	2		2	10															
5	P11	11	6	7	26			4	4		2	2		2	2		2	10															
5	P12	5	7	8	1			5	7																								
5	P13	10	5	1	6			0	9		2	10		4	2		1	11															
5	P14	11	1	1	6			1	1		2	10		4	2		1	11															
5	P15	13	3	2	6			2	2		2	10		4	2		1	11															
5	P16	7	10	7	26			0	8		2	2		2	2		2	10															
5	P17	8	11	4	1			8	11																								
5	P18	3	7	7	1			3	7																								
5	P19	11	4	4	11			2	10		4	3		4	3																		
5	P20	11	5	8	11			4	4		2	10		4	3																		
5	P23	9	4	4	11			0	10		4	3		4	3																		
5	P25	7	1	12	13			4	4		1	6		1	3																	119	90
5	P26	5	8	12	13			1	9		2	9		1	2																	149	150
5	P27	11	1	1	6			1	1		2	10		4	2		1	11															
5	P28	13	8	1	6			1	11		2	10		4	2		2	10															
5	P29	12	8	1	6			1	11		2	10		4	2		1	10															
LOCATION PIERS 5 & 6 GATE SUPPORT NO. REQUIRED = 4																																	
8	P1	9	4	16	1			9	4																								
8	P2	11	11	12	10			9	4		2	7																					
5	P3	9	10	26	1			9	10																								
5	P4	11	4	1	6			0	9		2	10		4	2		2	10															
5	P5	12	0	1	6			1	1		2	10		4	2		2	10															
5	P6	13	8	1	6			1	11		2	10		4	2		2	10															
5	P7	14	2	9	6			2	2		2	10		4	2		2	10															
5	P8	13	2	8	11			4	8		4	3		4	3																		
5	P9	13	2	8	11			4	8		4	3		4	3																		
5	P12	7	1	12	13			4	4		1	6		1	3																	119	90
5	P13	5	8	12	13			1	9		2	9		1	2																	149	150

NOTE:
FOR STANDARD BAR BENDING DETAILS,
REFER TO FDOT INDEX 415-001.

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ANJUN CHEN
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN QPO
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUBSTRUCTURE REINFORCING BAR LIST (2 OF 5)

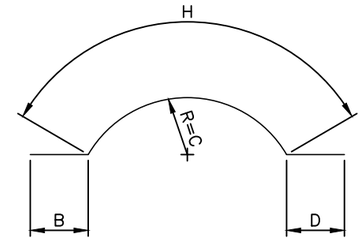
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B-32
DATE: 6/25/2021
PROJECT NO. 001037A

MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	Ø
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION REST PIER 4 – PRECAST CAP																				NO. REQUIRED = 1													
8	A1	46– 2		2	1			46– 2																									
7	A2	46– 2		10	1			46– 2																									
9	A3	26– 3		20	44			5– 3			28– 0			5– 3									15– 9										
5	A5	46– 2		6	1			46– 2																									
5	A6	19– 3		2	11			13– 3			3– 0			3– 0																			
5	A7	14– 1		2	11			8– 1			3– 0			3– 0																			
5	A8	12– 0		4	10			9– 0			3– 0																						
5	A9	9– 8		4	10			6– 8			3– 0																						
4	A10	8–10		63	11			1– 8			3– 7			3– 7																			
5	A11	14– 3		46	4	5	5	3– 5			3– 3																						
5A12 BILLED EIGHT TIMES OUTSIDE BAR LIST FOR QUANTITIES. 10 PR.~5A12 FOR EA. ONE–HALF OF ARCH. (NO. REQUIRED = 8, WITHIN REST PIER 4)																																	
5	A12	VARY		10	4	5	5	3– 0			3– 3																						
		12–11		0	4	5	5	2– 6			3– 3																						
5	A13	10– 9		20	15			3– 3			2– 9			4– 9																		77	103
5	A14	9– 7		12	11			4– 3			2– 8			2– 8																			
5	A15	3– 1		20	1			3– 1																									
5	A16	3– 9		20	12			2– 0			1– 9																						166
5	A17	4– 4		14	1			4– 4																									
5	C1	7– 5		12	4	5	5	1– 6			1– 9																						
LOCATION REST PIER 4 – CAP																				NO. REQUIRED = 1													
8	A1	46– 2		8	1			46– 2																									
5	A4	46– 9		7	1			46– 9																									
5	C2	6– 5		12	4	5	5	1– 3			1– 6																						

END OF LIST



TYPE 44

NOTE:
FOR STANDARD BAR BENDING DETAILS,
REFER TO FDOT INDEX 415–001.

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7/2/2021 2:01:11 PM
ANLJUN CHEN
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15–23.004, F.A.C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN QPO
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUBSTRUCTURE REINFORCING BAR LIST (3 OF 5)

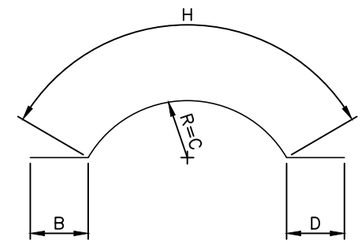
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B–33
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 67 OF 283

MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	Ø
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION ABUTMENT 1 – PRECAST CAP NO. REQUIRED = 1																																	
8	A1	47– 6		2	1			47– 6																									
7	A2	47– 6		10	1			47– 6																									
9	A3	23–10		20	1			23–10																									
5	A5	47– 6		6	1			47– 6																									
5	A6	15– 9		2	11			9– 9			3– 0			3– 0																			
5	A7	11– 9		2	11			5– 9			3– 0			3– 0																			
5	A8	13– 4		4	10			10– 4			3– 0																						
5	A9	11–10		4	10			8–10			3– 0																						
5	A10	14– 1		58	4	5	5	3– 4			3– 3																						
5A11 BILLED FOUR TIMES OUTSIDE BAR LIST FOR QUANTITIES. 9 PR.~5A11 FOR EA. ONE–HALF OF ARCH. (NO. REQUIRED = 4, WITHIN ABUTMENT 1)																																	
5	A11	VARY		9	4	5	5	3– 2			3– 3																						
		12–11		0	4	5	5	2– 4			3– 3																						
5A11 BILLED FOUR TIMES OUTSIDE BAR LIST FOR QUANTITIES. 8 PR.~5A11 FOR EA. ONE–HALF OF ARCH. (NO. REQUIRED = 4, WITHIN ABUTMENT 1)																																	
5	A11	VARY		8	4	5	5	3– 2			3– 3																						
		12–11		0	4	5	5	2– 4			3– 3																						
4	A12	4– 8		92	10			3– 0			1– 8																						
5	A13	9– 7		12	11			4– 3			2– 8			2– 8																			
6	A17	3– 6		15	1			3– 6																									
5	A19	4– 2		14	1			4– 2																									
5	A20	3– 4		12	1			3– 4																									
5	A21	3– 6		16	1			3– 6																									
5	C1	7– 5		12	4	5	5	1– 6			1– 9																						
LOCATION ABUTMENT 1 – CIP CAP NO. REQUIRED = 1																																	
8	A1	47– 6		8	1			47– 6																									
5	A4	46– 3		5	1			46– 3																									
5	A24	1– 8		26	1			1– 8																									
5	C2	6– 5		9	4	5	5	1– 3			1– 6																						
5	D1	2– 6		19	1			2– 6																									
LOCATION ABUTMENT 1 – BACKWALL AND CHEEKWALL NO. REQUIRED = 1																																	
5	A15	13– 3		4	11			7– 1			4– 4			1–10																			
5	A16	10– 9		14	11			7– 1			1–10			1–10																			
5	A18	7– 2		2	11			3– 6			1–10			1–10																			
5	A22	1–10		4	1			1–10																									
5	A23	4– 4		4	1			4– 4																									
5	A27	21– 1		1	22			0– 7			7– 0			6– 1			0–11			7– 0													

END OF LIST



TYPE 44

NOTE:
FOR STANDARD BAR BENDING DETAILS, REFER TO FDOT INDEX 415–001.

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G:\PROJECTS\3231_BECKETT_DESIGN\001037A – BECKETT\PLANS\DWG\PRODUCTION\STRUCT\SUB\001037A_S2_REBARLIST04.DWG 7/2/2021 2:01:16 PM ANLJN CHEN

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN QPO
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUBSTRUCTURE REINFORCING BAR LIST (4 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. B–34
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 68 OF 283

MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	Ø
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION ABUTMENT 7 – PRECAST CAP																				NO. REQUIRED = 1													
8	A1	47– 6		2	1			47– 6																									
7	A2	47– 6		10	1			47– 6																									
9	A3	23–10		20	1			23–10																									
5	A5	47– 6		6	1			47– 6																									
5	A6	15– 9		2	11			9– 9			3– 0			3– 0																			
5	A7	11– 9		2	11			5– 9			3– 0			3– 0																			
5	A8	13– 4		4	10			10– 4			3– 0																						
5	A9	11– 0		4	10			8– 0			3– 0																						
5	A10	14– 1		58	4	5	5	3– 4			3– 3																						
5A11 BILLED FOUR TIMES OUTSIDE BAR LIST FOR QUANTITIES. 9 PR.~5A11 FOR EA. ONE–HALF OF ARCH. (NO. REQUIRED = 4, WITHIN ABUTMENT 7)																																	
5	A11	VARY		9	4	5	5	3– 2			3– 3																						
		13– 9		0	4	5	5	3– 2			3– 3																						
5A11 BILLED FOUR TIMES OUTSIDE BAR LIST FOR QUANTITIES. 8 PR.~5A11 FOR EA. ONE–HALF OF ARCH. (NO. REQUIRED = 4, WITHIN ABUTMENT 7)																																	
5	A11	VARY		8	4	5	5	3– 2			3– 3																						
		12–11		0	4	5	5	2– 4			3– 3																						
4	A12	4– 8		92	10			3– 0			1– 8																						
5	A13	9– 7		12	11			4– 3			2– 8			2– 8																			
5	A14	14– 0		20	11			3– 2			3– 0			7–10																			
5	A19	4– 2		14	1			4– 2																									
5	A20	3– 4		12	1			3– 4																									
5	A21	3– 6		24	1			3– 6																									
5	C1	7– 5		12	4	5	5	1– 6			1– 9																						
LOCATION ABUTMENT 7 – CIP CAP																				NO. REQUIRED = 1													
8	A1	47– 6		8	1			47– 6																									
5	A4	46– 3		5	1			46– 3																									
5	A24	1– 8		30	1			1– 8																									
5	C2	6– 5		9	4	5	5	1– 3			1– 6																						
5	D1	2– 6		22	1			2– 6																									
LOCATION ABUTMENT 7 – CHEEKWALL																				NO. REQUIRED = 2													
5	A22	1–10		4	1			1–10																									
5	A23	4– 4		4	1			4– 4																									

END OF LIST

NOTE:
FOR STANDARD BAR BENDING DETAILS,
REFER TO FDOT INDEX 415–001.

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7/2/2021 2:01:21 PM
ANLJN CHEN

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN QPO
CHECKED JMP

Pinellas County PUBLIC WORKS

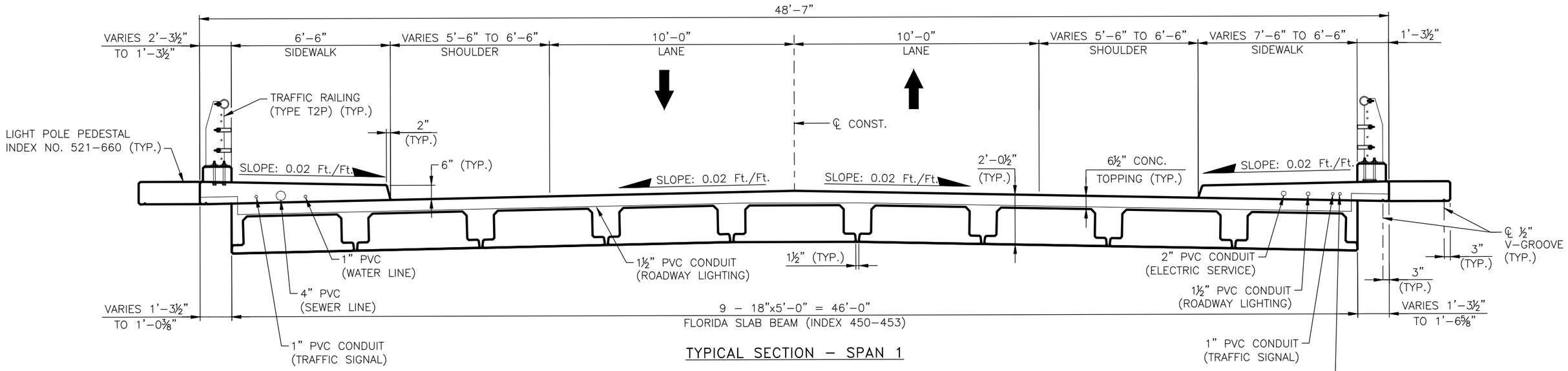
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUBSTRUCTURE REINFORCING BAR LIST (5 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

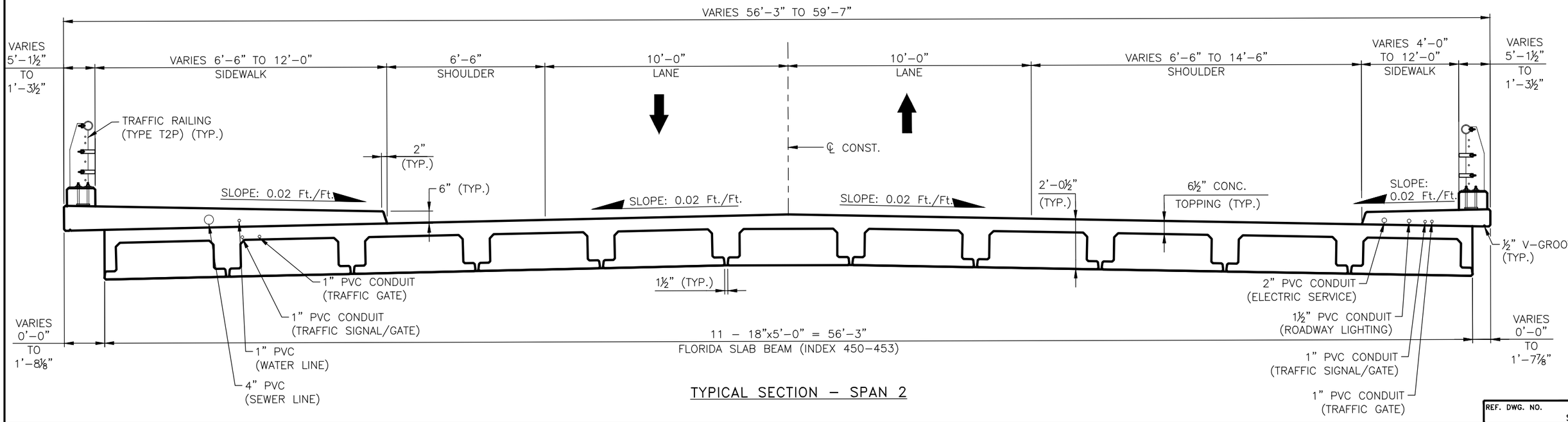
REF. DWG. NO. B–35
DATE: 6/25/2021
PROJECT NO. 001037A



TYPICAL SECTION – SPAN 1

NOTES:

1. FOR TRAFFIC RAILING DETAILS, SEE TRAFFIC RAILING TYPE T2P DETAILS SHEETS.
2. FOR ADDITIONAL LIGHT POLE PEDESTAL DETAILS, SEE DWG. NO. S–11.
3. FOR UTILITY NOTES AND DETAILS, SEE GENERAL NOTES SHEETS AND ELECTRICAL PLAN SHEETS.



TYPICAL SECTION – SPAN 2

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: TYPICAL SECTION THROUGH BRIDGE DECK (1 OF 2)

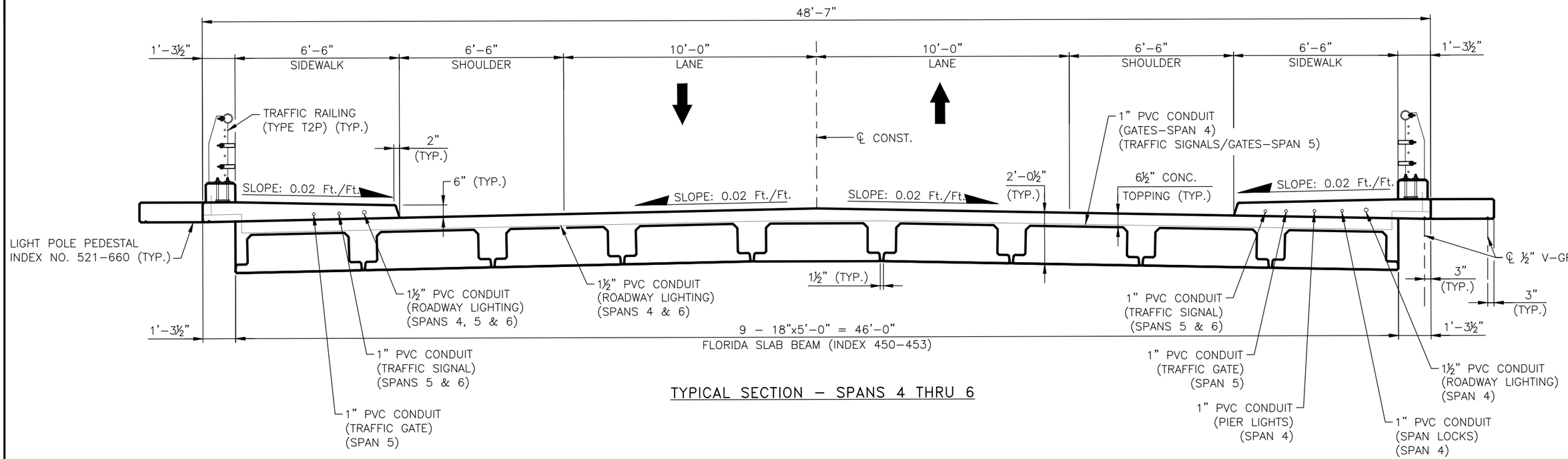
HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S–1
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 70 OF 283

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THORPE, JEFFREY
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TYPICAL SECTION – SPANS 4 THRU 6

NOTE:

FOR NOTES, SEE DWG. NO. S–1

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

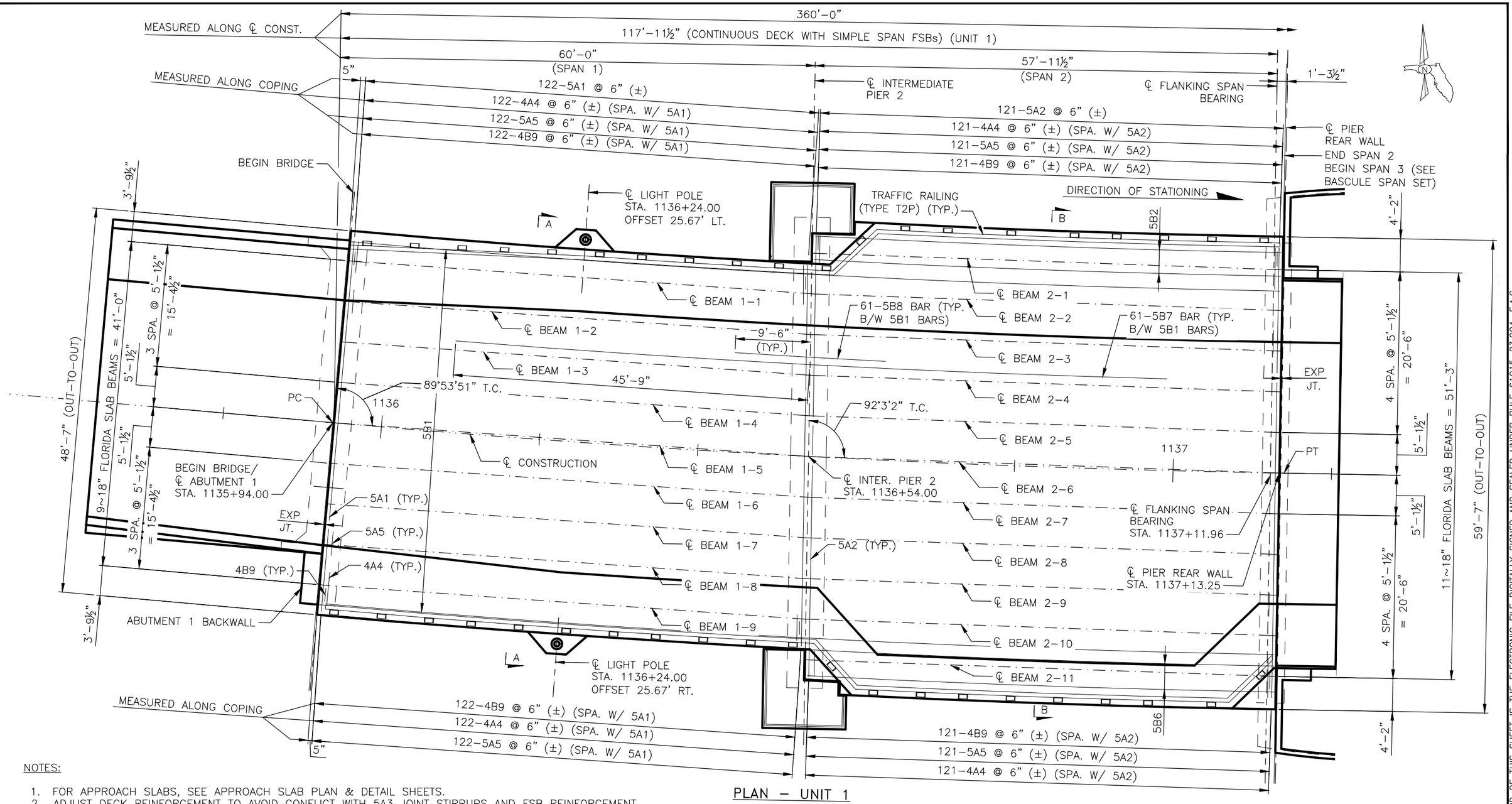
DESCRIPTION: TYPICAL SECTION THROUGH BRIDGE DECK (2 OF 2)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S–2
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 71 OF 283

THORPE, JEFFREY 5/13/2021 1:44:23 PM



NOTES:

1. FOR APPROACH SLABS, SEE APPROACH SLAB PLAN & DETAIL SHEETS.
2. ADJUST DECK REINFORCEMENT TO AVOID CONFLICT WITH 5A3 JOINT STIRRUPS AND FSB REINFORCEMENT.
3. FOR REINFORCING BAR LIST, SEE DWG. NO. S-21 THRU S-23.
4. FOR ARMORED JOINT DETAILS, SEE APPROACH SPAN ARMORED JOINT LAYOUT AND DETAILS SHEETS.
5. FOR TRAFFIC RAILING AND PULL BOX DETAILS, SEE TRAFFIC RAILING TYPE T2P DETAILS SHEETS.
6. FOR LIGHT POLE PEDESTAL DETAILS, SEE INDEX NO. 521-660, AND DWG. NO. S-11.
7. FOR SUPERSTRUCTURE SECTIONS AND DETAILS, SEE DWG. NO. S-6 THRU S-12.
8. MINIMUM LAP: NO. 5 BARS = 1'-8".
9. FOR BEAM LENGTHS, SEE DWG. NO. S-20.
10. ALL DIMENSIONS ARE MEASURED ALONG COPING UNLESS NOTED OTHERWISE.
11. FOR UNIT 1 SIDEWALK REINFORCEMENT DETAILS AND TRAFFIC RAILING POST SPACING, SEE DWG. NO. S-12.

PLAN – UNIT 1
(SPANS 1 AND 2)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUPERSTRUCTURE PLAN (1 OF 3)

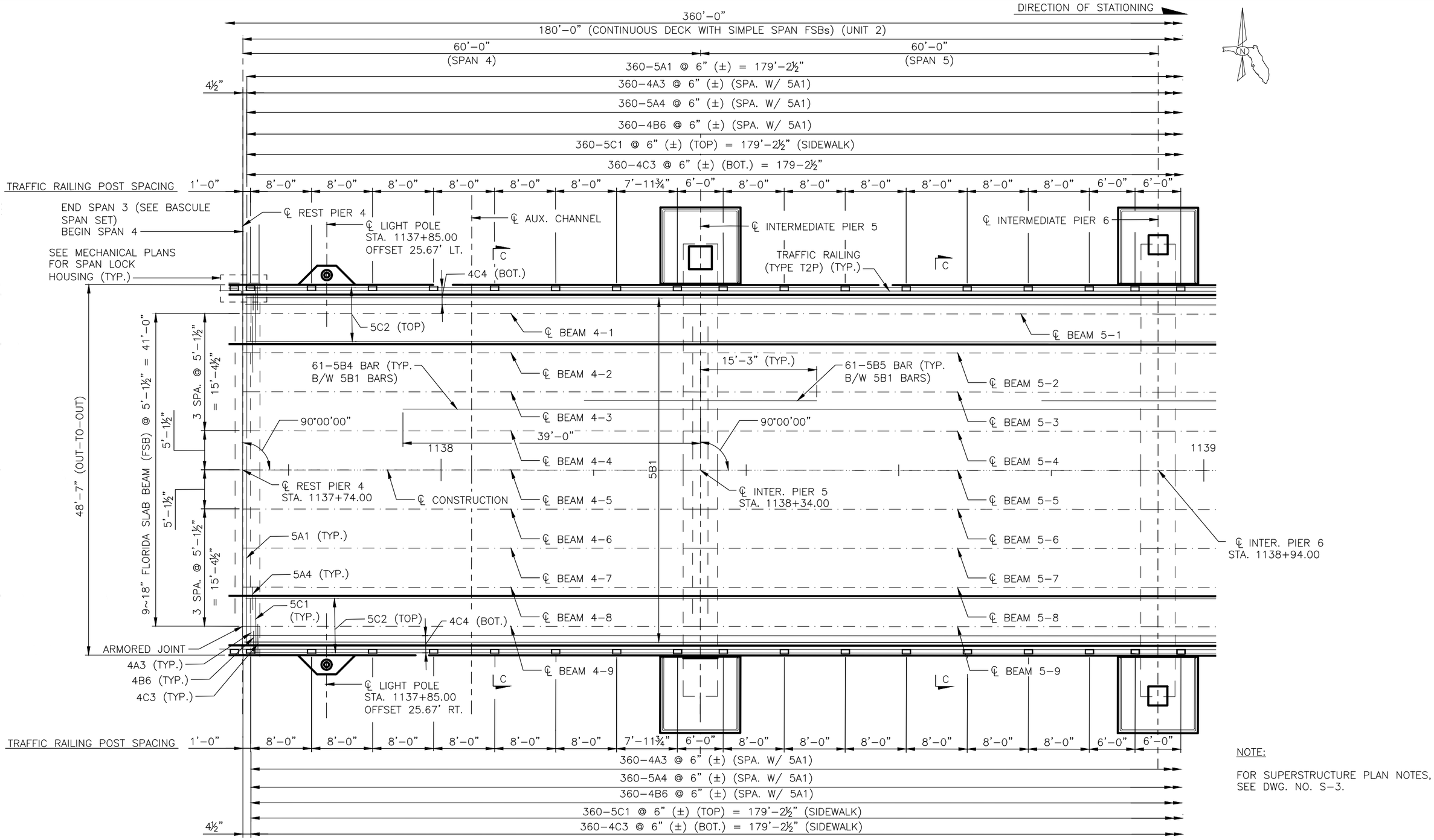
HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-3
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 72 OF 283

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THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

ELMIR, KHAWLA 5/17/2021 3:36:48 PM



PLAN – UNIT 2
(SPANS 4 AND 5)

NOTE:

FOR SUPERSTRUCTURE PLAN NOTES, SEE DWG. NO. S-3.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUPERSTRUCTURE PLAN (2 OF 3)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

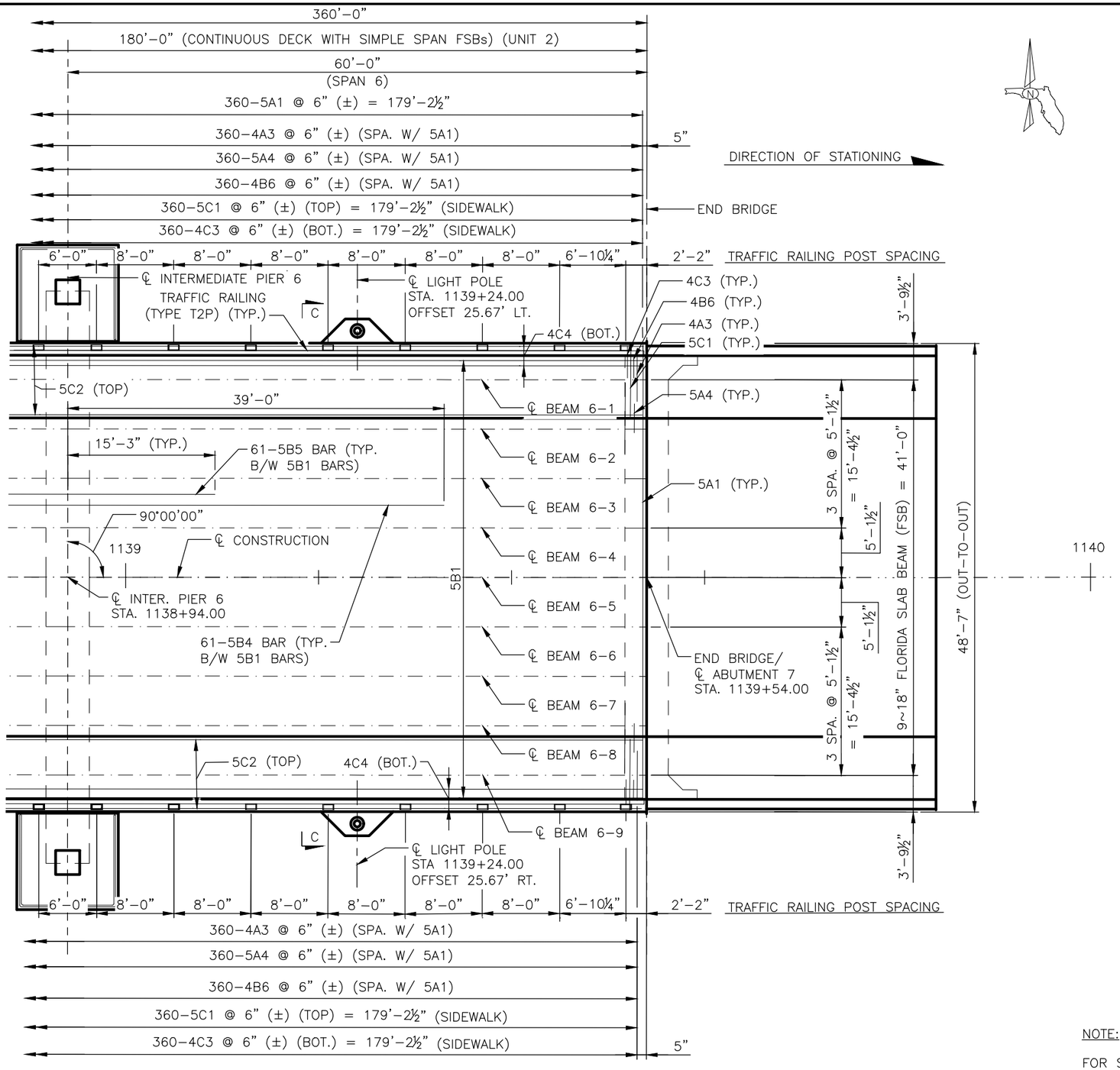
ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-4
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 73 OF 283

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ELMIR, KHAWLA 5/12/2021 10:11:47 AM



PLAN – UNIT 2
(SPAN 6)

NOTE:

FOR SUPERSTRUCTURE PLAN NOTES, SEE DWG. NO. S–3.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

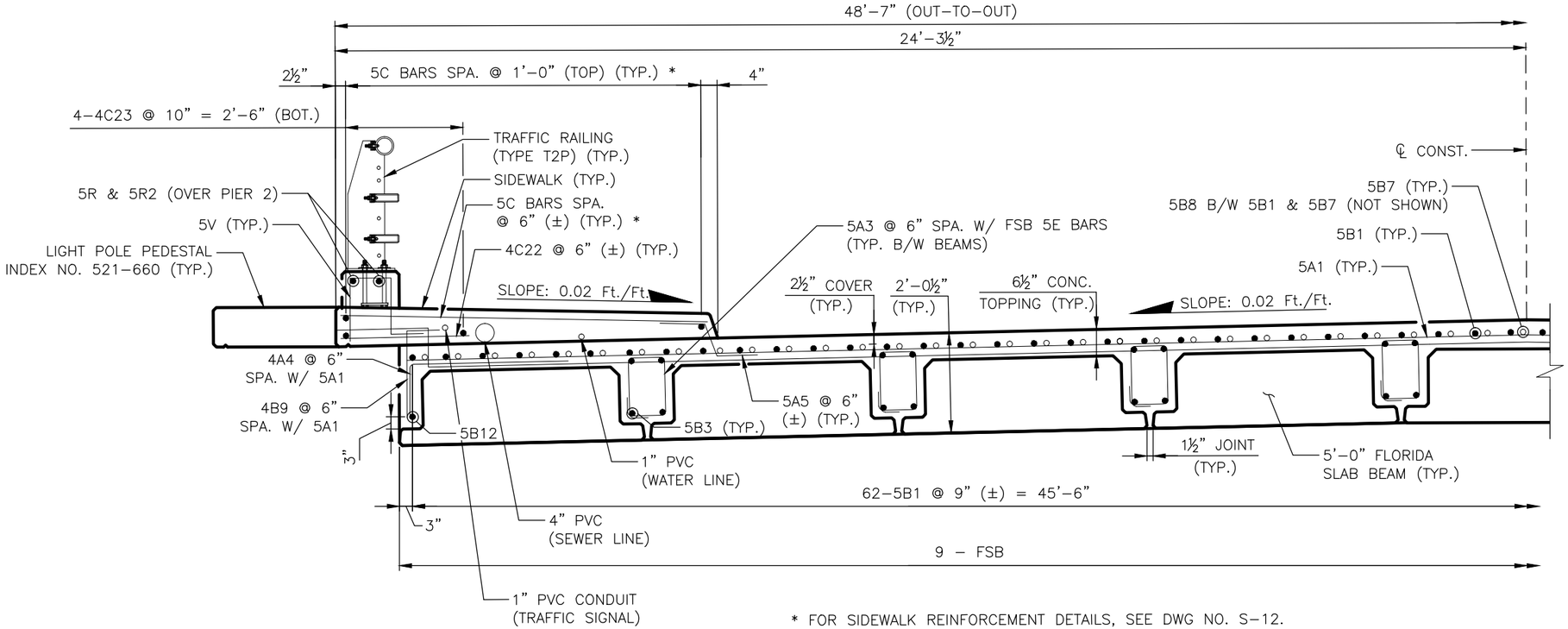
DESCRIPTION: SUPERSTRUCTURE PLAN (3 OF 3)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S–5
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 74 OF 283

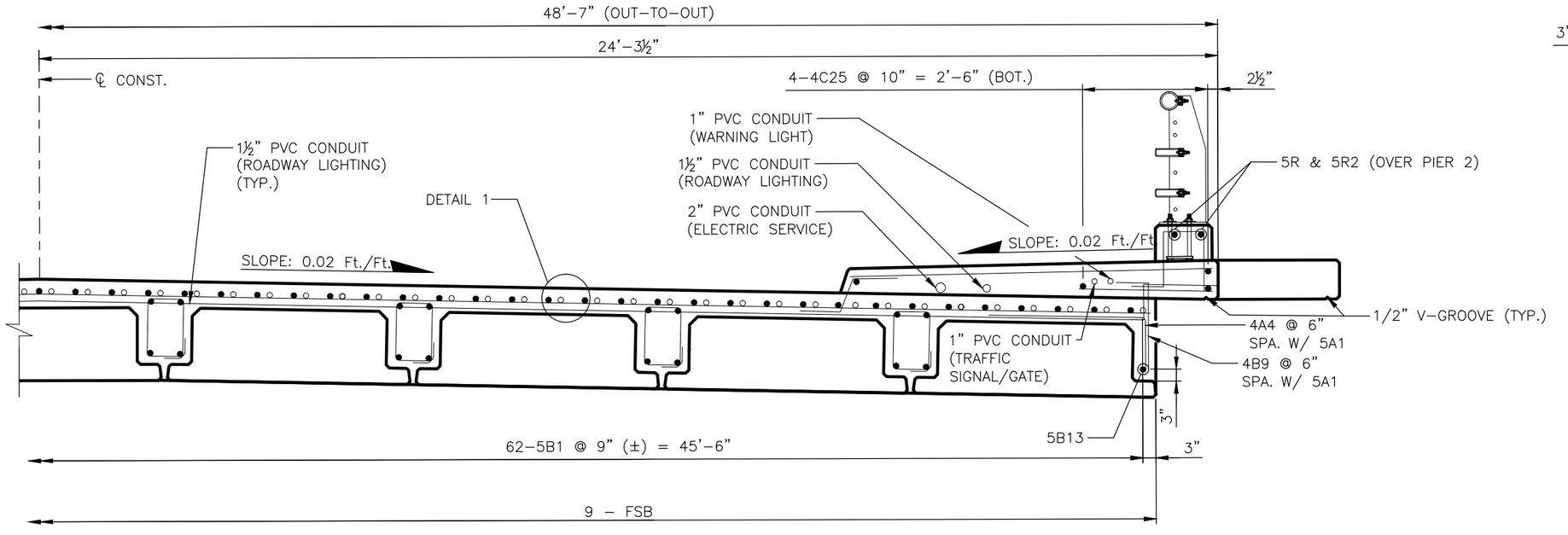
THORPE, JEFFREY 5/13/2021 1:49:17 PM

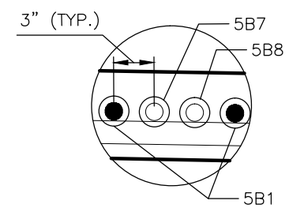


* FOR SIDEWALK REINFORCEMENT DETAILS, SEE DWG NO. S-12.

NOTES:

1. BARS 5R, 5R2, 5R3, 5V, 5V2, 5Z AND 5Z2 ARE INCIDENTAL TO TRAFFIC RAILING BARRIER, SEE TRAFFIC RAILING TYPE T2P SHEETS.
2. FOR REINFORCING BAR LIST, SEE DWG. NO. S-21 THRU S-23.
3. FOR TRANSVERSE REINFORCEMENT DETAILS, SEE DWG. NO. S-3 THRU S-5.
4. ADJUST LONGITUDINAL DECK JOINT REINFORCING BARS 5B3 (UNIT 1), 5B2 (UNIT 2) AND ADJUST LONGITUDINAL SIDEWALK CONDUITS TO AVOID CONFLICT WITH TRANSVERSE 1 1/2" ROADWAY LIGHTING CONDUIT LOCATED WITHIN SPANS 1, 4 AND 6.
5. PLACE LONGITUDINAL CONDUITS WITHIN THE SIDEWALK A MINIMUM OF 1'-0" FROM EXTERIOR BEAM COPING.
6. FOR ADDITIONAL LIGHT POLE PEDESTAL DETAILS, SEE DWG NO. S-11.





DETAIL 1
(SHOWN OVER PIER)

SUPERSTRUCTURE SECTION A-A - UNIT 1 - SPAN 1

(REINFORCEMENT WITHIN FSB NOT SHOWN FOR CLARITY)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUPERSTRUCTURE SECTION - 1 (SPAN 1)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

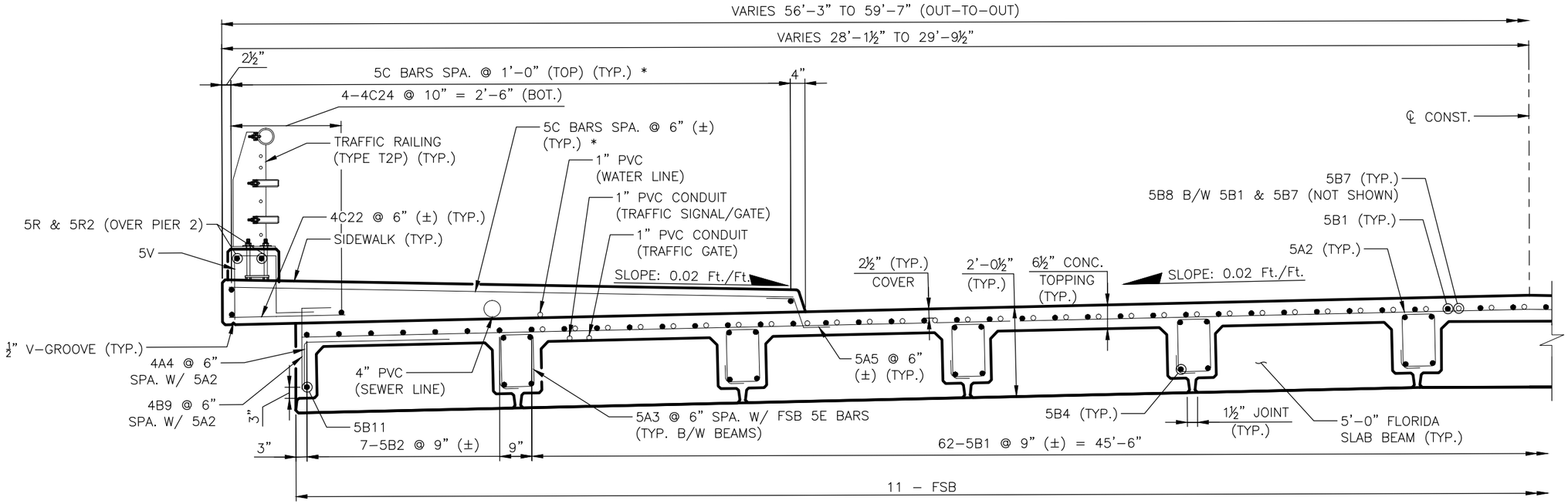
ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-6
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 75 OF 283

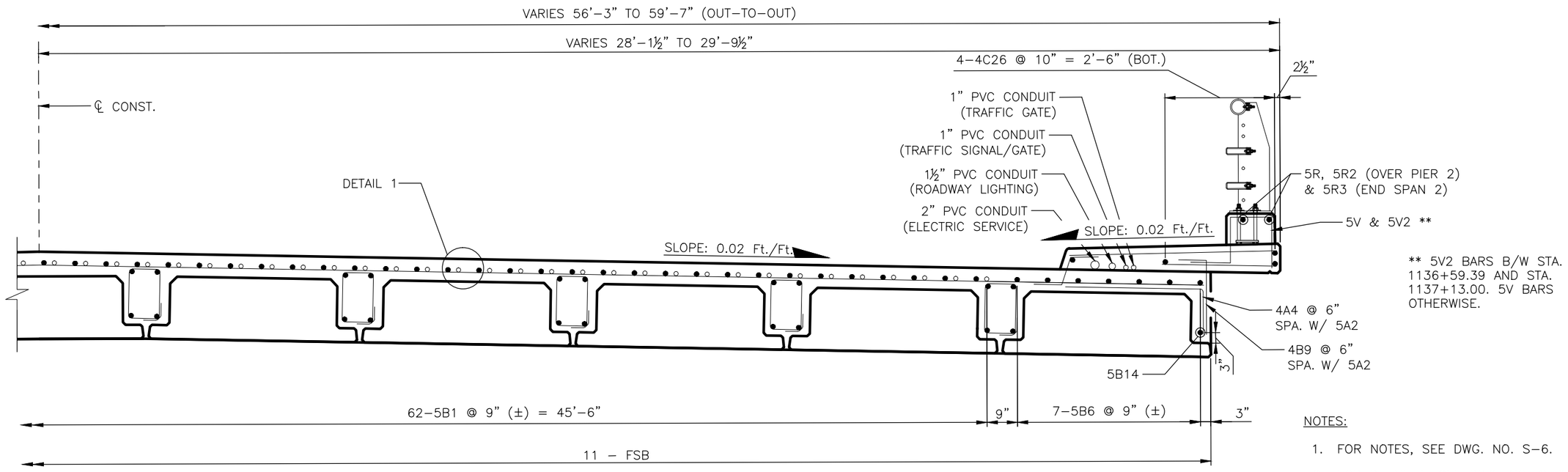
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THORPE, JEFFREY 5/13/2021 1:50:08 PM



* FOR SIDEWALK REINFORCEMENT DETAILS, SEE DWG. NO. S-12.



** 5V2 BARS B/W STA. 1136+59.39 AND STA. 1137+13.00. 5V BARS OTHERWISE.

NOTES:

1. FOR NOTES, SEE DWG. NO. S-6.
2. FOR DETAIL 1, SEE DWG. NO. S-6.

SUPERSTRUCTURE SECTION B-B - UNIT 1 - SPAN 2

(REINFORCEMENT WITHIN FSB NOT SHOWN FOR CLARITY)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUPERSTRUCTURE SECTION - 2 (SPAN 2)

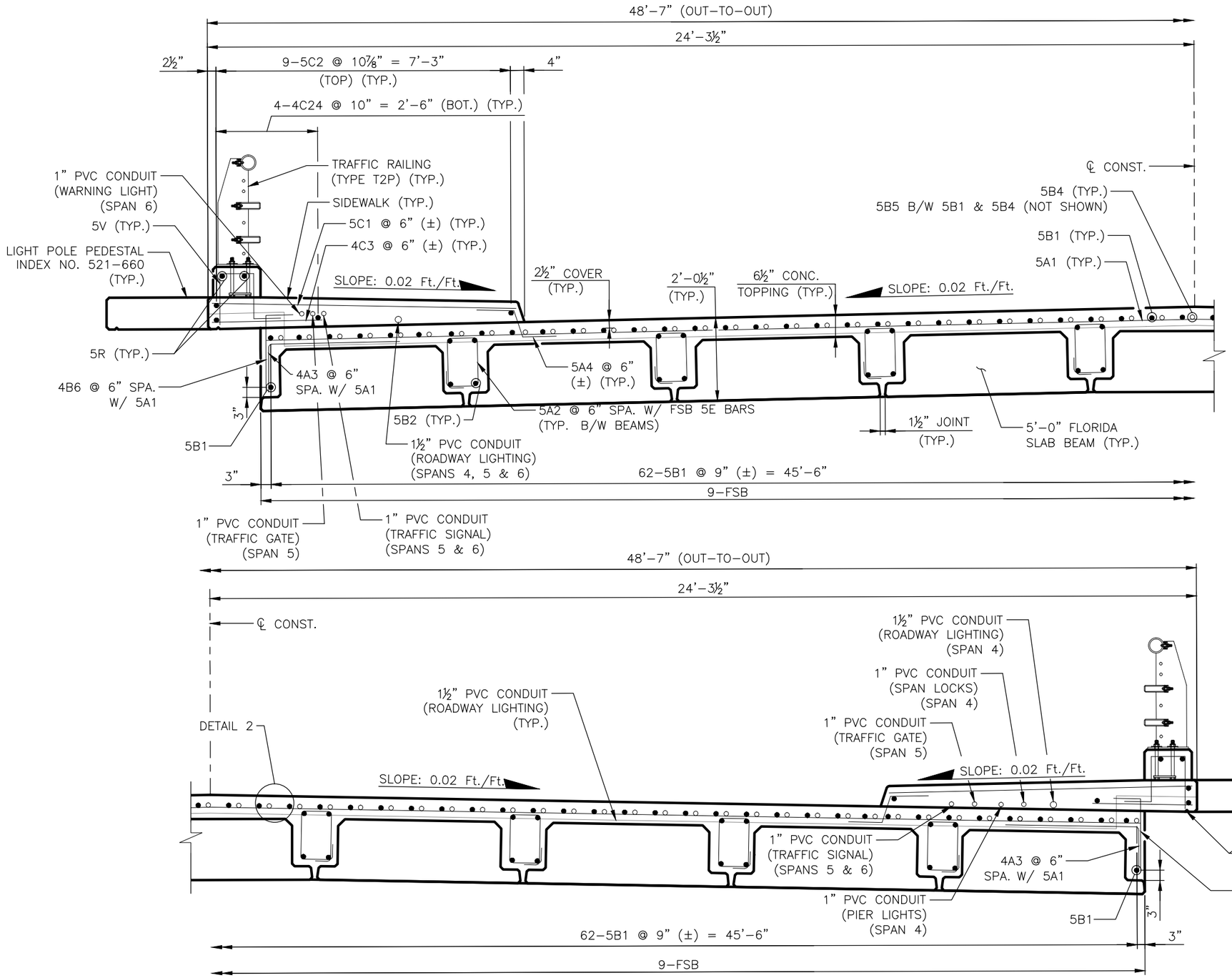
HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

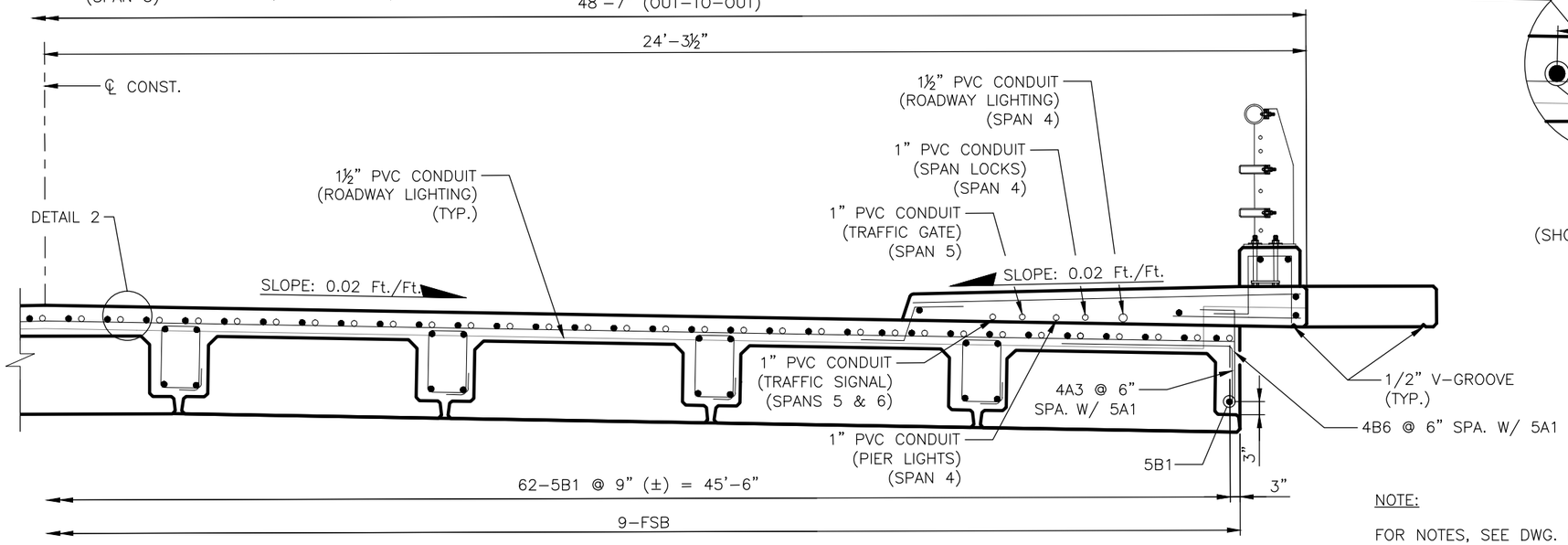
ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

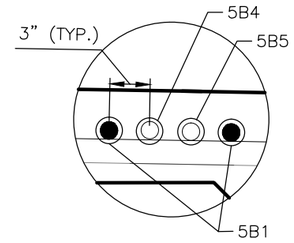
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DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 76 OF 283

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THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

ELMIR, KHAWLA 5/12/2021 8:40:33 PM







DETAIL 2
(SHOWN OVER PIER)

NOTE:

FOR NOTES, SEE DWG. NO. S-6.

SUPERSTRUCTURE SECTION C-C – UNIT 2 – SPANS 4 THRU 6

(REINFORCEMENT WITHIN FSB NOT SHOWN FOR CLARITY)

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THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
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Pinellas County PUBLIC WORKS

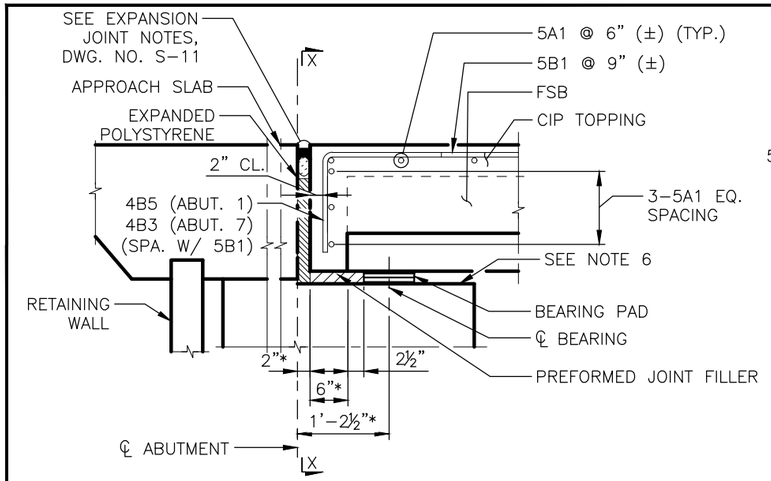
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUPERSTRUCTURE SECTION – 3 (SPANS 4, 5 & 6)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

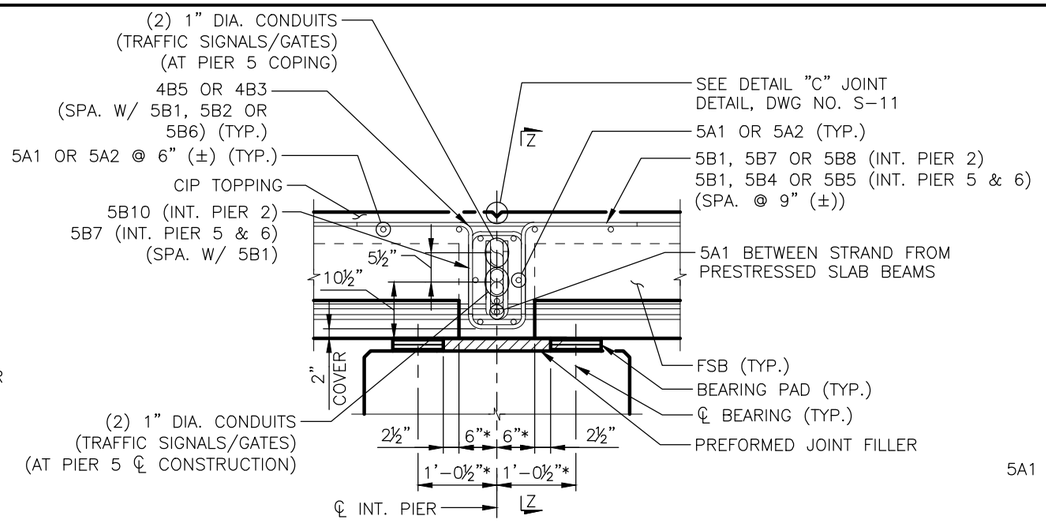
ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-8
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 77 OF 283



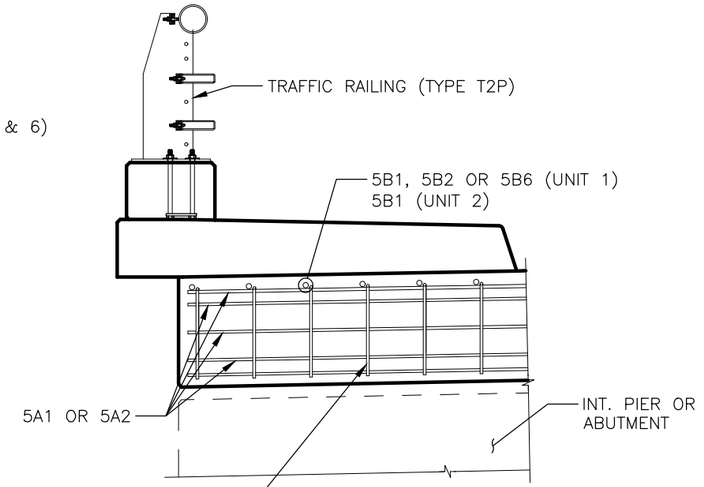
SECTION THRU ABUTMENT

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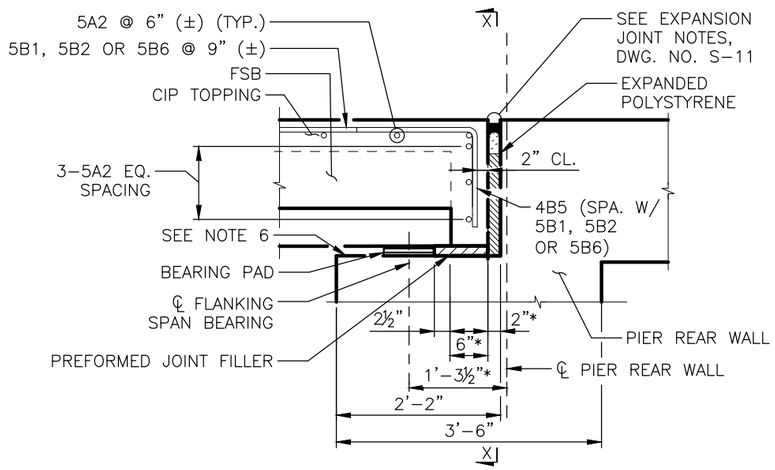


SECTION THRU INTERMEDIATE PIER

(REINFORCEMENT WITHIN FSB NOT SHOWN FOR CLARITY)
(SECTION AT ℄ CONSTRUCTION SHOWN, SIMILAR AT COPING)



SECTION X-X



SECTION THRU BASCULE PIER 3 REAR WALL

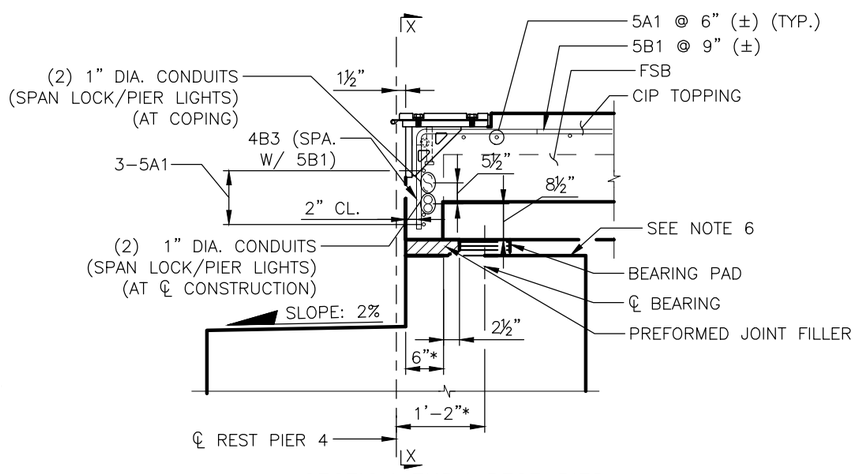
(REINFORCEMENT WITHIN FSB NOT SHOWN FOR CLARITY)

NOTES:

1. FOR SIDEWALK REINFORCEMENT DETAILS, SEE DWG. NO. S-4, S-5 and S-12.
2. FOR REINFORCING BAR LIST, SEE DWG. NO. S-21 THRU S-23.
3. FOR EXTENDED PRESTRESSING STRAND DETAILS, SEE DWG. NO. S-20.
4. ADJUST DIAPHRAGM REINFORCEMENT TO AVOID CONFLICT WITH EXTENDED PRESTRESSING STRANDS.
5. C.I.P. TOPPING: THOROUGHLY SATURATE THE TOP SURFACE OF THE FSBs WITH WATER IN ACCORDANCE WITH SPECIFICATION 400 FOR 12 HOURS IMMEDIATELY PRIOR TO PLACING THE C.I.P. TOPPING. REMOVE STANDING WATER PRIOR TO PLACING THE C.I.P. TOPPING. CURE THE C.I.P. TOPPING IN ACCORDANCE WITH SPECIFICATION SECTION 400 FOR BRIDGE DECKS.
6. SLOPE TOP OF PEDESTAL WITH LONGITUDINAL BRIDGE GRADE.

INTERIOR PIER NOTES:

1. FIELD BEND STRANDS FROM PRESTRESSED SLAB BEAMS DURING SLAB ERECTION, AS NEEDED, TO AVOID CONFLICTS WITH OTHER EXTENDED STRANDS.
2. FOR ANCHOR DOWEL DETAILS, SEE INTERMEDIATE PIER PLAN & ELEVATION SHEETS.



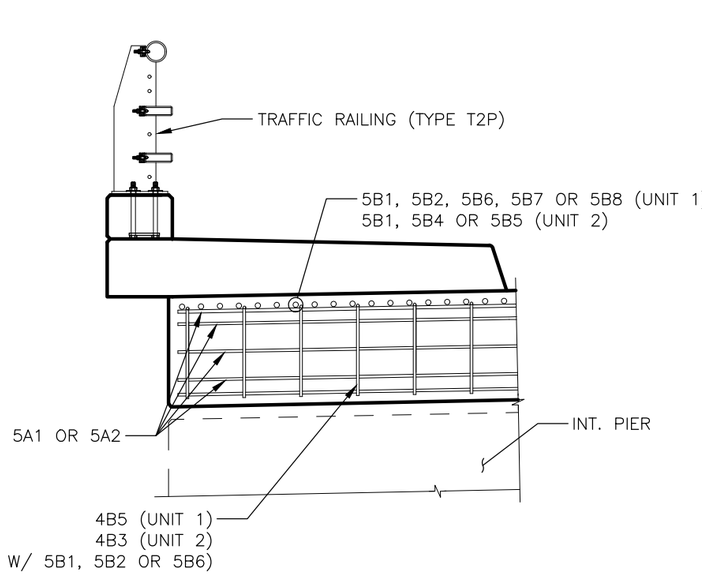
SECTION THRU REST PIER 4

(REINFORCEMENT WITHIN FSB NOT SHOWN FOR CLARITY)
(SECTION AT ℄ CONSTRUCTION SHOWN, SIMILAR AT COPING)

PIER REST 4 NOTES:

1. ADJUST DECK REINFORCEMENT TO AVOID CONFLICTS WITH ARMORED JOINT ASSEMBLY.
2. FOR ARMORED JOINT DETAILS, SEE APPROACH SPAN ARMORED JOINT LAYOUT AND DETAILS SHEETS.

* MEASURED PERPENDICULAR TO BEAM ENDS AT BOTTOM OF SLAB, VARIES AT TOP OF SLAB DEPENDING ON LONGITUDINAL BRIDGE GRADE.



SECTION Z-Z

(PROJECTING FSB STRANDS NOT SHOWN FOR CLARITY)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUPERSTRUCTURE DETAILS (1 OF 4)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

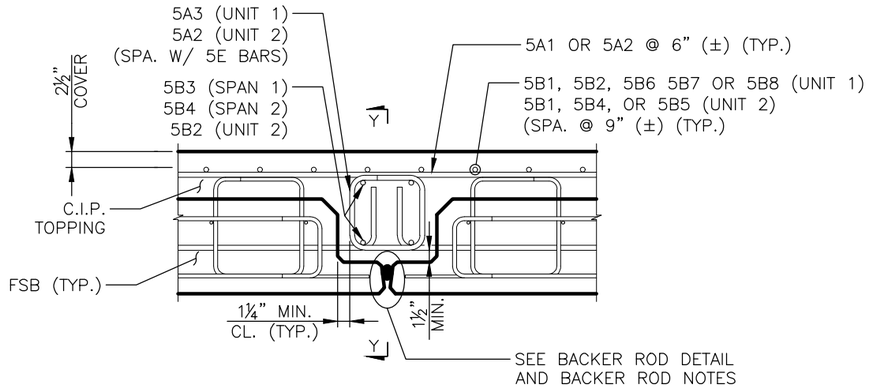
ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-9
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 78 OF 283

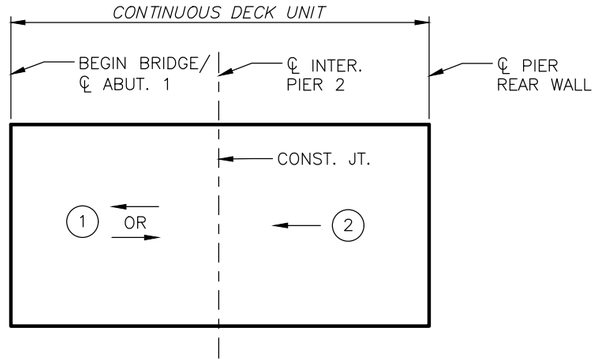
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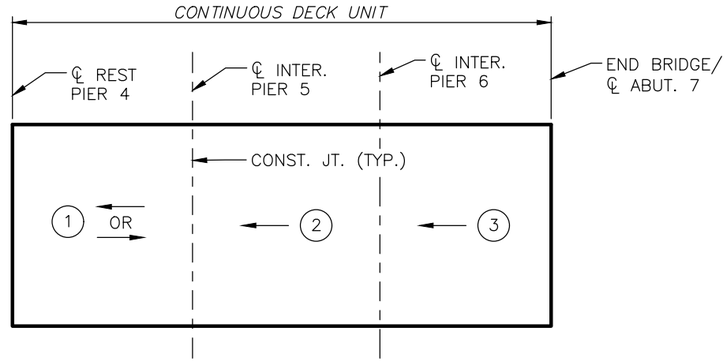
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DETAIL AT POCKETS



SUPERSTRUCTURE – UNIT 1



SUPERSTRUCTURE – UNIT 2

DECK CASTING SEQUENCE – MULTIPLE POURS

LEGEND:

(N) = POUR NUMBER

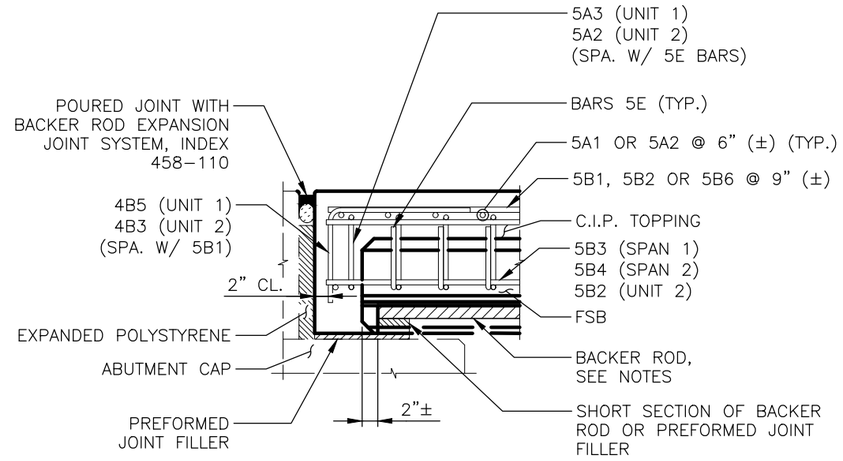
→ = DIRECTION OF POUR

DECK CASTING SEQUENCE:

1. A REVISED DECK CONCRETE PLACEMENT SCHEDULE MAY BE SUBMITTED FOR APPROVAL. SUBMIT STRUCTURAL ANALYSIS AND ITS EFFECT ON THE CAMBER DIAGRAM.
2. A MINIMUM OF 72 HOURS IS REQUIRED BETWEEN ADJACENT POURS IN A GIVEN CONTINUOUS DECK UNIT.
3. THE CONTRACTOR SHALL ADJUST THE SET–TIME OF THE CONCRETE MIX WITH RETARDANTS AS NECESSARY TO ASSURE COMPLETE PLACEMENT OF ALL DECK CONCRETE BEFORE INITIAL SET BEGINS IN THE PLASTIC CONCRETE.

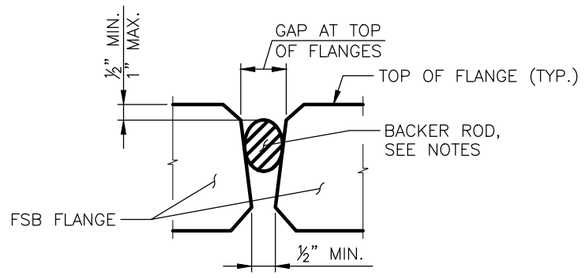
DECK CASTING NOTE:

FOR JOINT DETAILS AT INTERMEDIATE SUPPORTS, SEE SUPERSTRUCTURE DETAILS (3 OF 4) SHEET.



SECTION Y–Y ALONG ℄ POCKET AT SPAN ENDS

(SECTION AT BEGIN/END BRIDGE SHOWN)



BACKER ROD DETAIL

BACKER ROD NOTES:

1. USE A BACKER ROD TO FORM THE BOTTOM OF THE CAST IN PLACE TOPPING AT THE GAP BETWEEN ADJACENT FSBs. USE A BACKER ROD MEETING THE REQUIREMENTS OF ASTM C1330 OR ASTM D5249, TYPES 1 OR 3, WITH A MINIMUM UNCOMPRESSED DIAMETER 50% LARGER THAN THE FIELD VERIFIED MAXIMUM WIDTH OF THE GAP BETWEEN ADJACENT FSBs. MEASURE GAP AT THE TOP OF THE FLANGES AS SHOWN IN THE BACKER ROD DETAIL.
2. INSTALL THE BACKER ROD FROM THE TOP DOWN TO THE POSITION SHOWN IN THE BACKER ROD DETAIL.
3. SECURE THE BACKER ROD TO PREVENT DISPLACEMENT DURING TOPPING CONCRETE PLACEMENT AND TO BE MORTAR TIGHT USING A COMPATIBLE CONSTRUCTION ADHESIVE.
4. THE BACKER ROD MAY REMAIN IN PLACE AFTER TOPPING CONCRETE PLACEMENT.

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REV. NO.	DATE	DESCRIPTION	REV. BY

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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

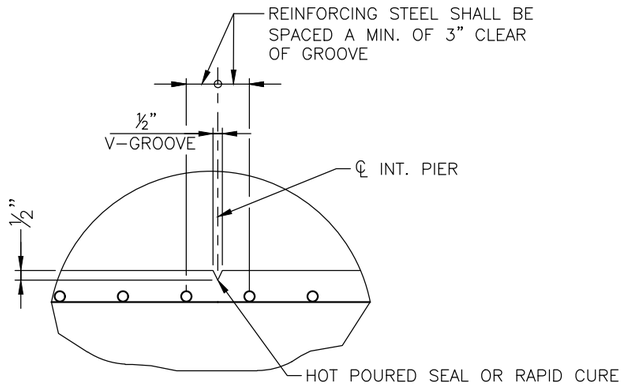
DESCRIPTION: SUPERSTRUCTURE DETAILS (2 OF 4)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S–10
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 79 OF 283

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DETAIL C

NOTES:

1. COST OF CONSTRUCTION DETAIL C SHALL BE INCLUDED IN THE DECK CONCRETE. THE CONTRACTOR SHALL CONSTRUCT A TOOLED GROOVE PLACED PRIOR TO THE CONCRETE OBTAINING INITIAL SET.

2. RAPID CURE SILICONE (TYPE D JOINT MATERIAL) MAY BE USED IN LIEU OF HOT POURED SEAL IN GROOVE. GROOVE SHALL BE CLEAN AND FREE OF GREASE AND DEBRIS BEFORE FILLING THE GROOVE.

POURED EXPANSION JOINT DATA TABLE INDEX 458-110			
LOCATION	DIM. "A" @ 70°F	TOTAL DESIGN MOVEMENT	DIM. "A" ADJUSTMENT PER 10°F
ABUTMENT 1	2"	⅝"	0"
PIER REAR WALL	2"	⅝"	0"
ABUTMENT 7	2"	⅝"	0"

NOTE:
Dim. "A" adjustment per 10°F shown is measured perpendicular to ℄ Expansion Joint. Work this table with Standard Plans Index 458-110.

EXPANSION JOINT NOTES:

1. ALL BRIDGE EXPANSION JOINTS TO BE POURED JOINT WITH BACKER ROD. ALL JOINTS TO BE FABRICATED AND INSTALLED PER INDEX NO. 458-110.

2. PAYMENT FOR POURED JOINT AND BACKER ROD SHALL BE INCLUDED IN PAY ITEM NO. 458-1-11.

3. THE ASSUMED NORMAL MEAN TEMPERATURE SHALL BE 70°F.

4. EXPANSION JOINTS TO BE INSTALLED AFTER DECK PROFILING IS COMPLETED FOR THE BRIDGE.

5. FOR REST PIER 4 JOINT DETAILS, SEE APPROACH SPAN ARMORED JOINT DETAILS.

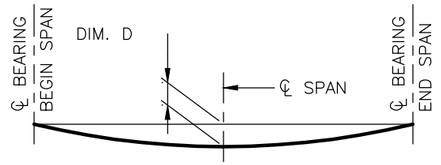
COVER PLATE NOTES:

1. SLIP RESISTANT STEEL COVER PLATES (1'-3" WIDE) ARE REQUIRED AT BRIDGE EXPANSION JOINTS FOR THE FULL WIDTH OF EACH SIDEWALK AND SHALL BE INSTALLED AND FURNISHED IN ACCORDANCE WITH SPECIFICATION SECTION 458 AND INDEX 458-110.

2. PAYMENT FOR FURNISHING & INSTALLATION OF COVER PLATES SHALL BE INCLUDED IN PAY ITEM NO. 485-1-11.

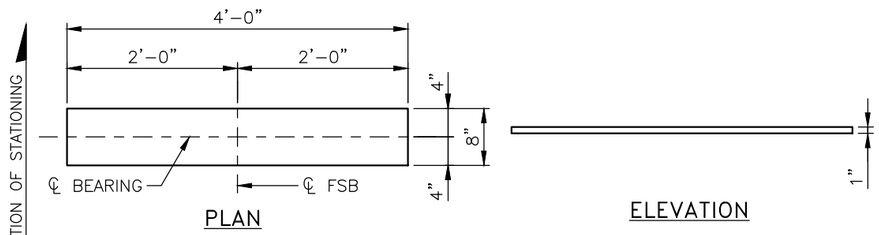
CAMBER NOTE:

THE VALUES GIVEN IN THE TABLE ARE BASED ON THEORETICAL BEAM CAMBERS. THE CONTRACTOR SHALL MONITOR BEAM CAMBERS FOR THE PURPOSE OF PREDICTING CAMBER VALUES AT THE TIME OF THE TOPPING CASTING. IF THE PREDICTED CAMBERS BASED ON FIELD MEASUREMENTS DIFFER MORE THAN ± ½" FROM THE THEORETICAL "NET BEAM CAMBER @ 120 DAYS" SHOWN IN THE TABLE, PROPOSE MODIFIED DIMENSIONS AS REQUIRED AND SUBMIT TO THE ENGINEER FOR APPROVAL A MINIMUM OF 21 DAYS PRIOR TO CASTING TOPPING CONCRETE.



DEAD LOAD DEFLECTION DIAGRAM

CAMBER AND DEFLECTION DATA TABLE FOR FLORIDA SLAB BEAMS			Table Date 01-01-16
LOCATION		NET BEAM CAMBER (PRESTRESS - DEAD LOAD OF BEAM) @ 120 DAYS (IN.)	DIM. D DEAD LOAD DEFLECTION DUE TO TOPPING CASTING @ 120 DAYS (IN.)
SPAN NO.	BEAM NO.		
1	1-9	1⅝	1
2	1-11	1⅝	1
4, 5, & 6	1-9	1⅝	1⅛



PLAN

ELEVATION

BEARING PAD DETAIL

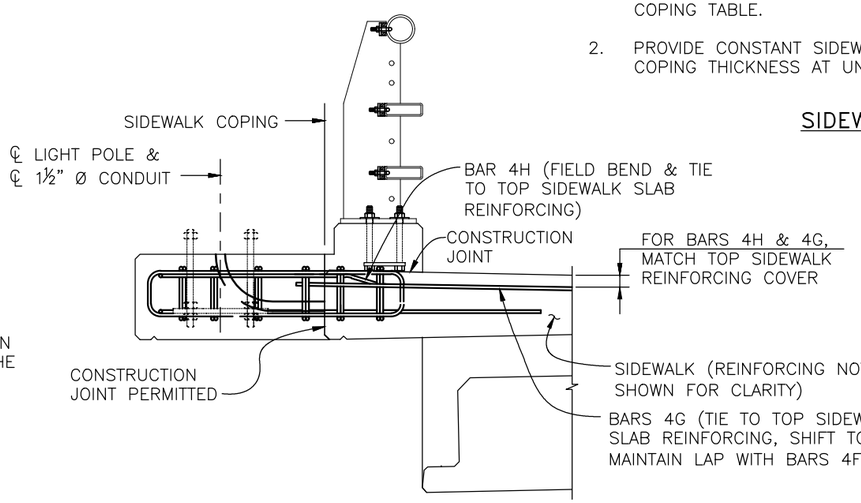
BEARING PAD NOTE:

PROVIDE PLAIN NEOPRENE BEARING PADS WITH A SHEAR MODULUS G=110PSI AND IN ACCORDANCE WITH SPECIFICATIONS 932.

LIGHT POLE PEDESTAL NOTES:

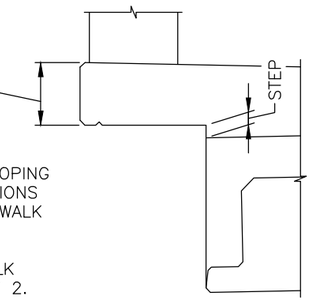
1. CONSTRUCT LIGHT POLE PEDESTALS IN ACCORDANCE WITH OPTION 1 OF INDEX 521-660.

2. ROUGHEN HORIZONTAL CONSTRUCTION JOINT SURFACE FOR EXTENTS OF THE LIGHT POLE PEDESTAL TO ENSURE ADHESION BETWEEN POURS.



LIGHT POLE PEDESTAL
(TRAFFIC RAILING CURB REINF. NOT SHOWN FOR CLARITY)

SIDEWALK COPING TABLE			
STATION	LOCATION	THICKNESS (IN.)	STEP (IN.)
SPAN 1			
1135+94.17	NORTH	9.08	0.24
1136+24.00	NORTH	9.08	0.06
1136+53.12	NORTH	9.08	0.00
1135+94.17	SOUTH	9.01	0.55
1136+24.00	SOUTH	9.01	0.00
1136+54.85	SOUTH	9.01	0.07
SPAN 2			
1136+52.89	NORTH	10.31	0.00
1136+56.00	NORTH	10.32	0.00
1136+58.40	NORTH	10.91	0.00
1136+58.33	NORTH	10.90	0.00
1136+61.43	NORTH	10.90	0.82
1137+13.00	NORTH	10.90	0.73
1136+54.85	SOUTH	10.31	0.00
1136+55.97	SOUTH	10.30	0.00
1136+59.33	SOUTH	9.44	0.00
1136+59.39	SOUTH	7.76	1.65
1136+63.85	SOUTH	7.76	0.00
1137+03.27	SOUTH	7.76	0.00
1137+11.16	SOUTH	7.76	2.97
1137+13.00	SOUTH	7.76	2.55



SIDEWALK COPING NOTES:

1. LINEARLY VARY SIDEWALK COPING THICKNESS BETWEEN LOCATIONS IDENTIFIED WITHIN THE SIDEWALK COPING TABLE.

2. PROVIDE CONSTANT SIDEWALK COPING THICKNESS AT UNIT 2.

SIDEWALK COPING DETAIL

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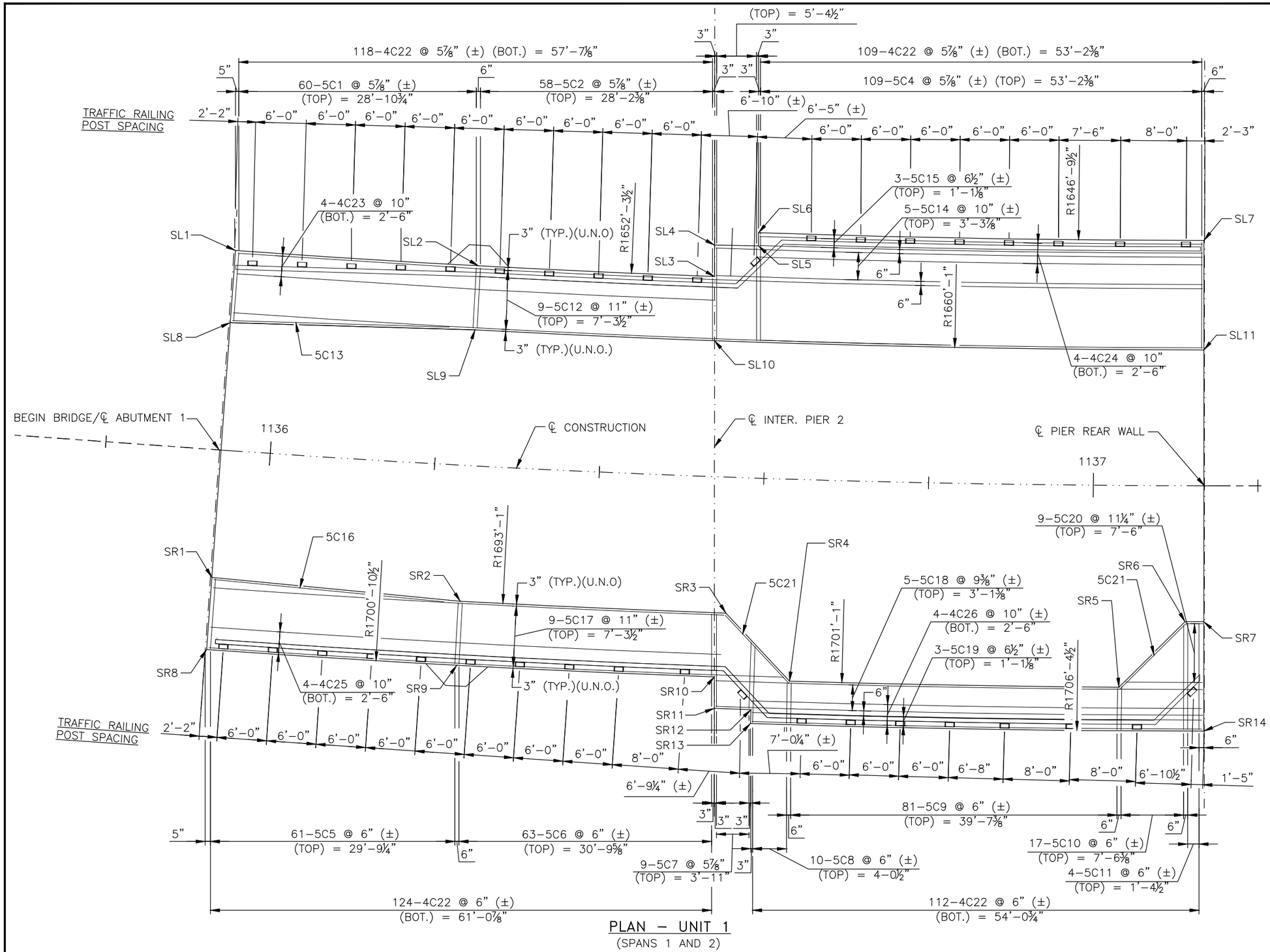
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUPERSTRUCTURE DETAILS (3 OF 4)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-11
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 80 OF 283



PLAN – UNIT 1
(SPANS 1 AND 2)

LOCATION	STATIONING	OFFSET (ft)
SL1	1135+94.17	24.29
SL2	1136+24.00	24.29
SL3	1136+53.11	24.29
SL4	1136+52.89	28.11
SL5	1136+58.40	28.20
SL6	1136+58.33	29.79
SL7	1137+13.00	29.79
SL8	1135+94.17	15.50
SL9	1136+24.00	16.50
SL10	1136+53.40	16.50
SL11	1137+13.00	16.50
SR1	1135+94.17	15.50
SR2	1136+24.00	16.50
SR3	1136+55.97	16.50
SR4	1136+63.85	24.50
SR5	1137+03.27	24.50
SR6	1137+11.16	16.50
SR7	1137+13.00	16.50
SR8	1135+94.17	24.29
SR9	1136+24.00	24.29
SR10	1136+54.85	24.29
SR11	1136+54.99	28.11
SR12	1136+59.33	28.04
SR13	1136+59.39	29.79
SR14	1137+13.00	29.79

NOTE:

ALL DIMENSIONS MEASURED ALONG COPING UNLESS NOTED OTHERWISE.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUPERSTRUCTURE DETAILS (4 OF 4)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

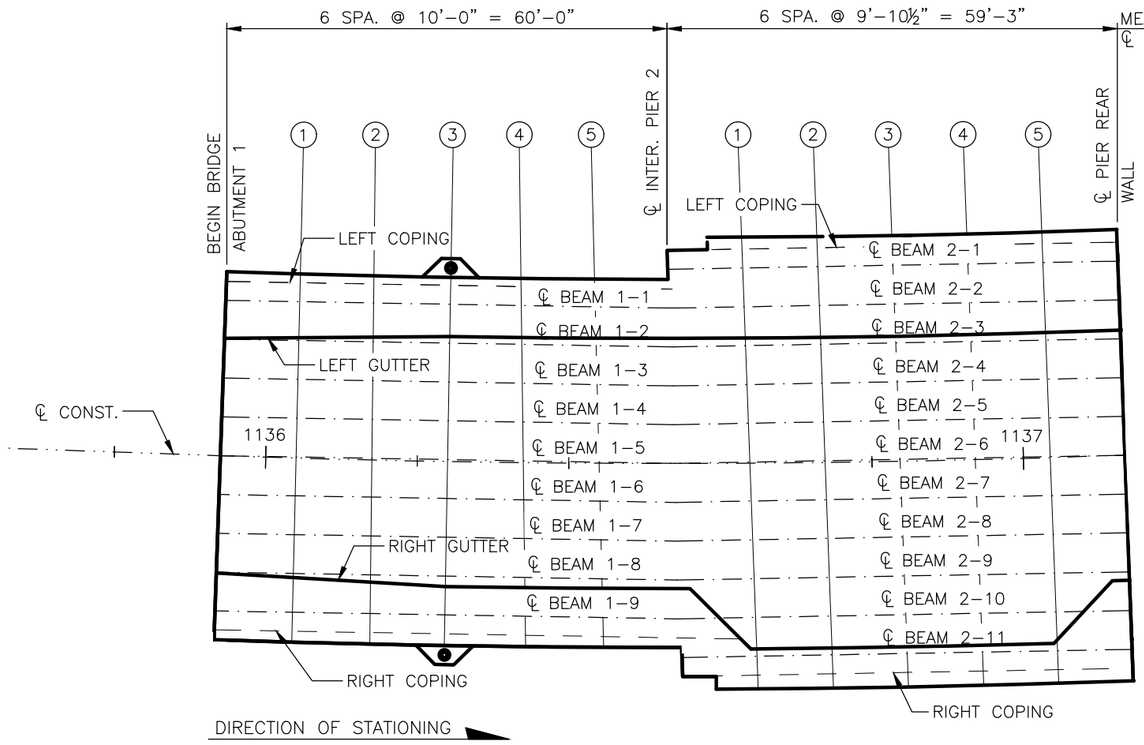
ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-12
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 81 OF 283

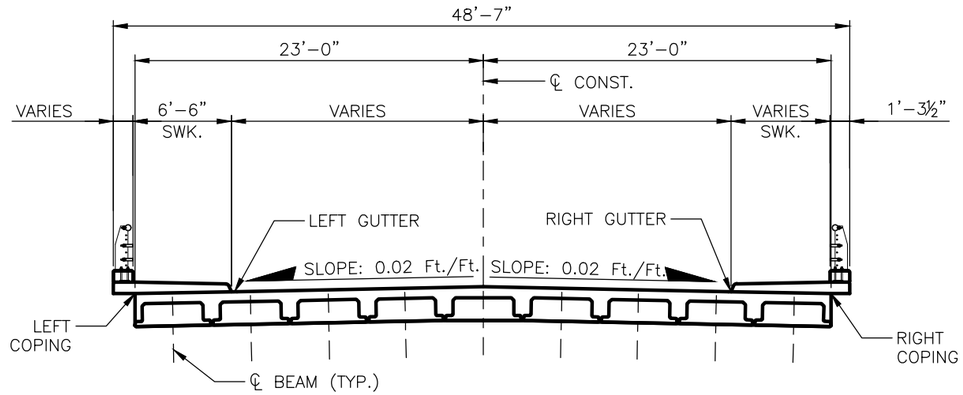
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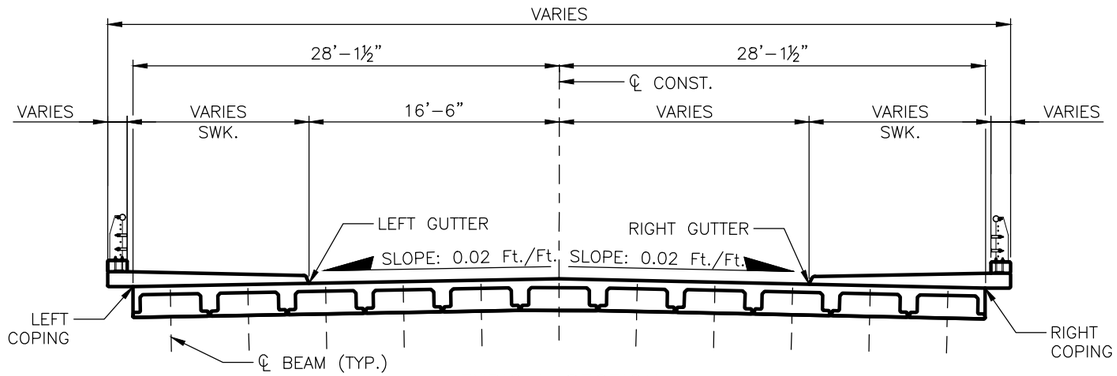
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PLAN – UNIT 1
(SPANS 1 AND 2)
(GUARDRAIL NOT SHOWN FOR CLARITY)



TYPICAL SECTION
(SPAN 1)



TYPICAL SECTION
(SPAN 2)

NOTES:

1. FOR FINISH GRADE ELEVATION, SEE DWG. NO. S–17.
2. ALL ELEVATIONS ARE TO TOP OF FINISHED GRADE SURFACE.

REV. NO.	DATE	DESCRIPTION	REV. BY

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CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: FINISH GRADE ELEVATIONS (1 OF 5)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

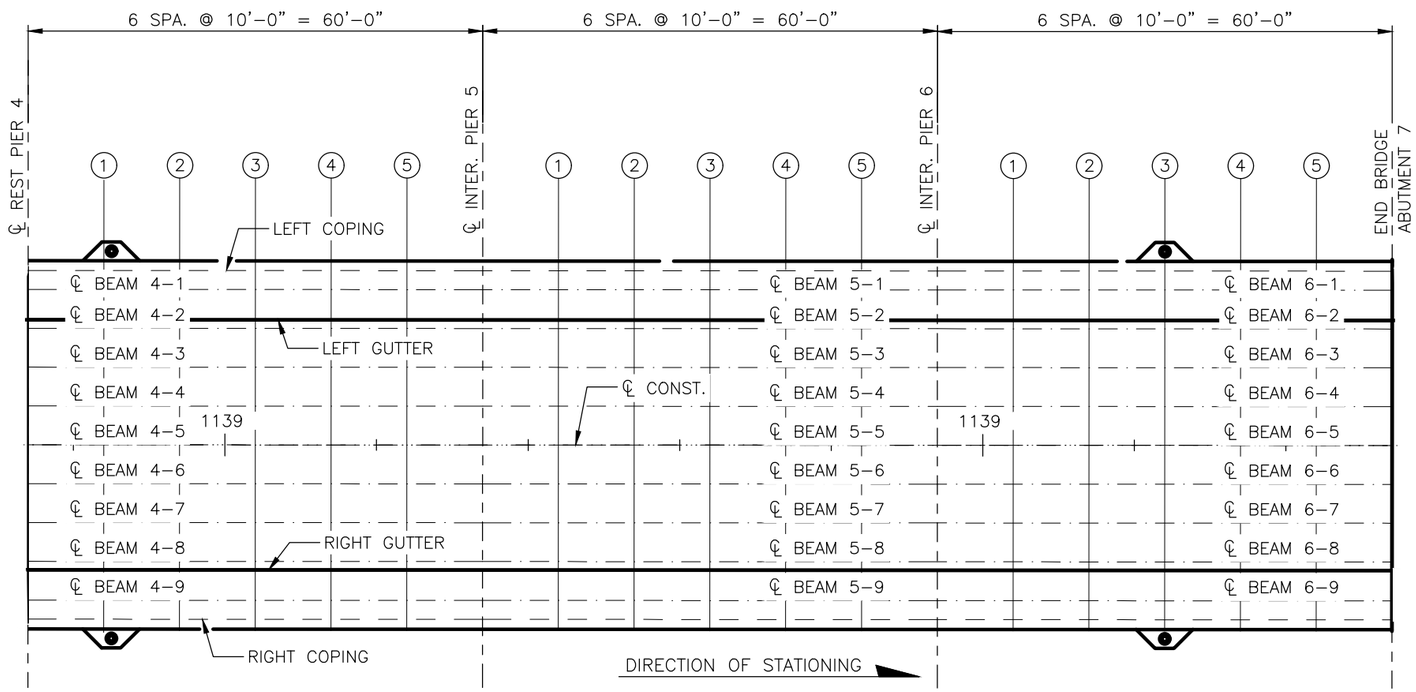
ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S–13
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 82 OF 283

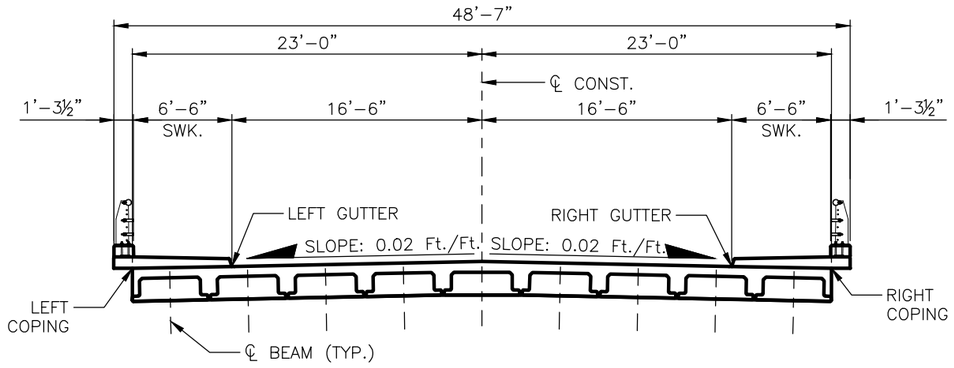
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PLAN – UNIT 2
(SPANS 4, 5 AND 6)
(GUARDRAIL NOT SHOWN FOR CLARITY)



TYPICAL SECTION
(SPANS 4, 5 AND 6)

NOTE:

FOR NOTES, SEE DWG. NO. S-13.

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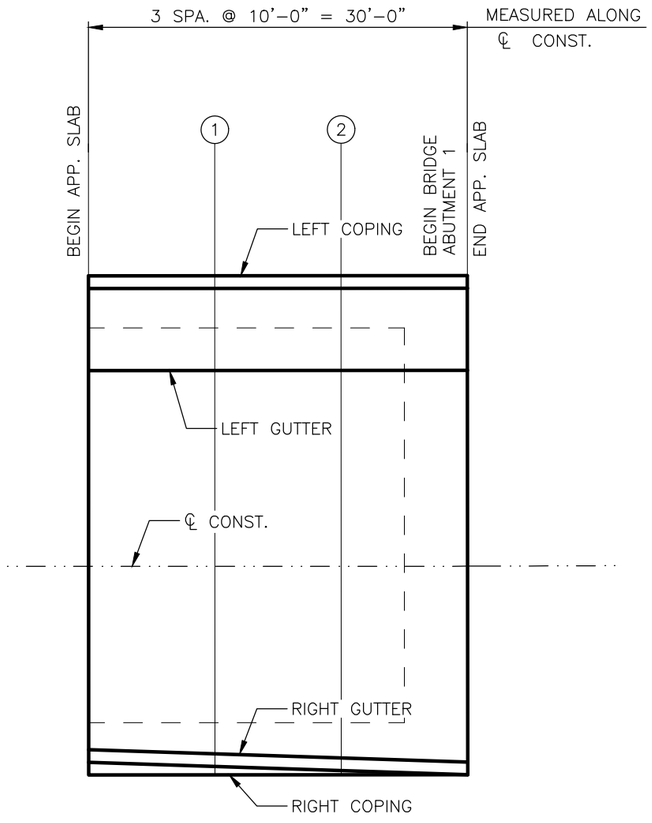
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: FINISH GRADE ELEVATIONS (2 OF 5)

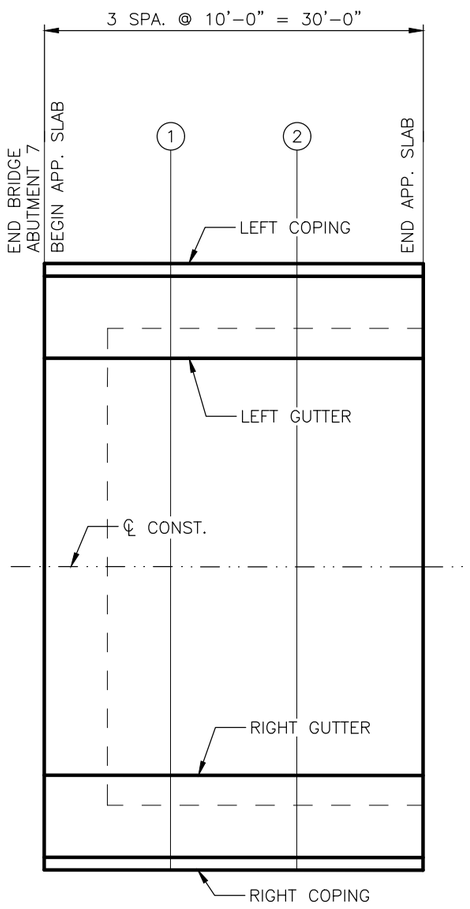
HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-14
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 83 OF 283

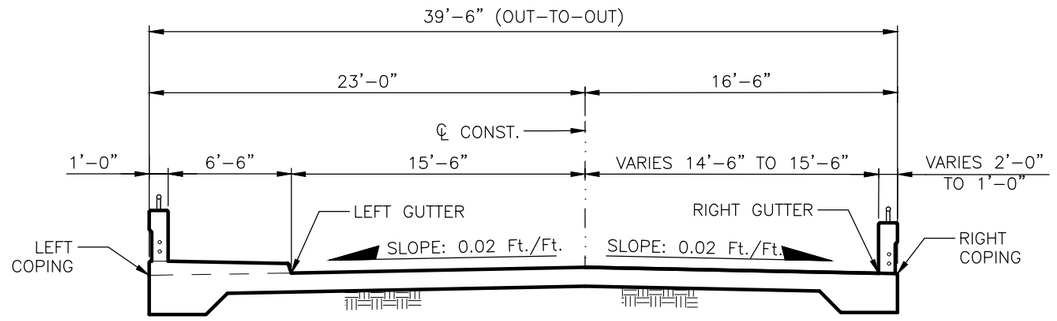


PLAN
(APPROACH SLAB 1)
(WEST)

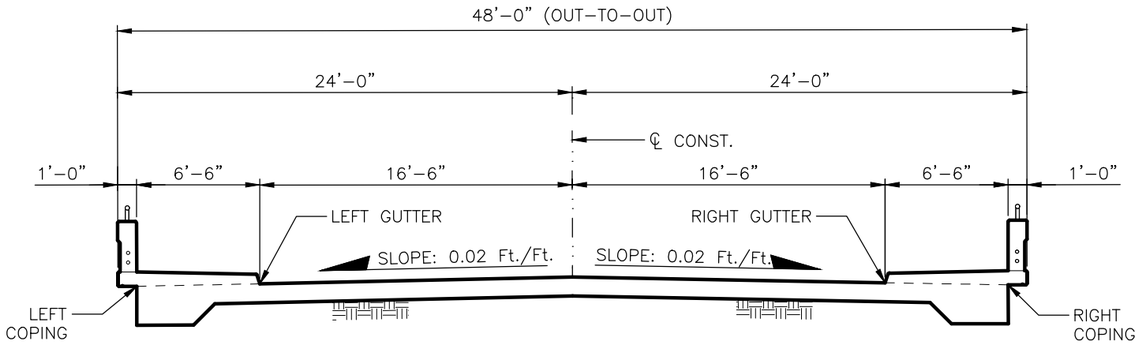


DIRECTION OF STATIONING

PLAN
(APPROACH SLAB 2)
(EAST)



TYPICAL SECTION
(APPROACH SLAB 1)



TYPICAL SECTION
(APPROACH SLAB 2)

NOTE:

FOR NOTES, SEE DWG. NO. S-13.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: FINISH GRADE ELEVATIONS (3 OF 5)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-15
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 84 OF 283

ELMIR, KHAWLA 5/11/2021 11:19:23 AM

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ELMIR, KHAWLA 5/12/2021 11:46:27 AM

FINISH GRADE ELEVATIONS (SPAN 1)							
LOCATION	BEGIN BRIDGE	1	2	3	4	5	℄ INTER. PIER 2
LEFT COPING	7.660	8.127	8.620	9.120	9.620	10.121	10.599
℄ BEAM 1	7.710	8.177	8.671	9.170	9.671	10.172	10.625
LEFT GUTTER	7.810	8.272	8.760	9.255	9.755	10.254	10.702
℄ BEAM 2	7.812	8.279	8.773	9.272	9.773	10.274	10.727
℄ BEAM 3	7.915	8.382	8.875	9.375	9.875	10.376	10.838
℄ BEAM 4	8.017	8.484	8.978	9.477	9.978	10.478	10.949
℄ BEAM 5	8.120	8.587	9.080	9.580	10.080	10.581	11.060
℄ CONST.	8.120	8.590	9.085	9.585	10.085	10.584	11.060
℄ BEAM 6	8.017	8.490	8.987	9.488	9.987	10.484	10.965
℄ BEAM 7	7.915	8.388	8.885	9.385	9.885	10.382	10.871
℄ BEAM 8	7.812	8.285	8.782	9.283	9.782	10.279	10.777
RIGHT GUTTER	7.810	8.274	8.763	9.255	9.755	10.254	10.757
℄ BEAM 9	7.710	8.183	8.680	9.181	9.680	10.177	10.675
RIGHT COPING	7.660	8.133	8.630	9.131	9.630	10.127	10.599

FINISH GRADE ELEVATIONS (SPAN 2)							
LOCATION	℄ INTER. PIER 2	1	2	3	4	5	℄ PIER REAR WALL
LEFT COPING	10.497	10.933	11.338	11.712	12.057	12.057	12.655
℄ BEAM 1	10.522	10.983	11.388	11.762	12.107	12.421	12.704
℄ BEAM 2	10.625	11.086	11.491	11.865	12.209	12.523	12.807
LEFT GUTTER	10.702	11.168	11.575	11.950	12.294	12.606	12.886
℄ BEAM 3	10.727	11.188	11.593	11.967	12.312	12.626	12.909
℄ BEAM 4	10.838	11.290	11.695	12.070	12.414	12.729	13.012
℄ BEAM 5	10.949	11.393	11.798	12.172	12.517	12.831	13.114
℄ BEAM 6	11.060	11.495	11.900	12.275	12.619	12.933	13.217
℄ CONST.	11.060	11.498	11.905	12.280	12.624	12.936	13.217
℄ BEAM 7	10.965	11.398	11.806	12.182	12.526	12.836	13.114
℄ BEAM 8	10.871	11.296	11.704	12.080	12.423	12.734	13.011
℄ BEAM 9	10.777	11.193	11.601	11.977	12.320	12.631	12.909
RIGHT GUTTER	10.757	11.011	11.415	11.790	12.134	12.446	12.887
℄ BEAM 10	10.675	11.091	11.499	11.875	12.217	12.528	12.807
℄ BEAM 11	10.572	10.988	11.396	11.772	12.115	12.426	12.704
RIGHT COPING	10.497	10.938	11.347	11.723	12.066	12.376	12.655

NOTE:

FOR LOCATION OF ELEVATIONS, SEE DWG. NO. S-13.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: FINISH GRADE ELEVATIONS (4 OF 5)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-16
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 85 OF 283

FINISH GRADE ELEVATIONS (SPANS 4, 5 & 6)																		
LOCATION	℄ REST PIER 4	1	2	3	4	5	℄ INTER. PIER 5	1	2	3	4	5	℄ INTER. PIER 6	1	2	3	4	5	END BRIDGE
LEFT COPING	13.793	13.850	13.874	13.866	13.825	13.753	13.648	13.511	13.342	13.140	12.906	12.640	12.342	12.011	11.648	11.253	10.825	10.366	9.875
℄ BEAM 1	13.843	13.900	13.924	13.916	13.876	13.804	13.699	13.562	13.393	13.191	12.957	12.691	12.393	12.063	11.700	11.305	10.878	10.418	9.927
LEFT GUTTER	13.923	13.980	14.004	13.996	13.955	13.883	13.778	13.640	13.471	13.269	13.035	12.769	12.470	12.140	11.777	11.381	10.954	10.494	10.003
℄ BEAM 2	13.945	14.002	14.026	14.018	13.978	13.906	13.801	13.664	13.495	13.293	13.059	12.793	12.495	12.165	11.802	11.407	10.980	10.520	10.029
℄ BEAM 3	14.048	14.105	14.129	14.121	14.081	14.008	13.903	13.766	13.597	13.395	13.162	12.896	12.597	12.267	11.904	11.509	11.082	10.622	10.131
℄ BEAM 4	14.151	14.207	14.231	14.223	14.183	14.110	14.006	13.869	13.699	13.498	13.264	12.998	12.699	12.369	12.006	11.611	11.183	10.724	10.233
℄ BEAM 5	14.253	14.310	14.334	14.326	14.285	14.213	14.108	13.971	13.802	13.600	13.366	13.100	12.802	12.471	12.108	11.713	11.285	10.826	10.335
℄ CONST.	14.253	14.310	14.334	14.326	14.285	14.213	14.108	13.971	13.802	13.600	13.366	13.100	12.802	12.471	12.108	11.713	11.285	10.826	10.335
℄ BEAM 6	14.151	14.207	14.231	14.223	14.183	14.110	14.006	13.869	13.699	13.498	13.264	12.998	12.699	12.369	12.006	11.611	11.183	10.724	10.233
℄ BEAM 7	14.048	14.105	14.129	14.121	14.081	14.008	13.903	13.766	13.597	13.395	13.162	12.896	12.597	12.267	11.904	11.509	11.082	10.622	10.131
℄ BEAM 8	13.945	14.002	14.026	14.018	13.978	13.906	13.801	13.664	13.495	13.293	13.059	12.793	12.495	12.165	11.802	11.407	10.980	10.520	10.029
RIGHT GUTTER	13.923	13.980	14.004	13.996	13.956	13.883	13.779	13.642	13.472	13.271	13.037	12.771	12.473	12.142	11.779	11.384	10.957	10.498	10.007
℄ BEAM 9	13.843	13.900	13.924	13.916	13.876	13.804	13.699	13.562	13.393	13.191	12.957	12.691	12.393	12.063	11.700	11.305	10.878	10.418	9.927
RIGHT COPING	13.793	13.850	13.874	13.866	13.825	13.753	13.648	13.511	13.342	13.140	12.906	12.640	12.342	12.011	11.648	11.253	10.825	10.366	9.875

FINISH GRADE ELEVATIONS (APPROACH SLAB 1)				
LOCATION	BEGIN APPROACH SLAB 1	1	2	BEGIN BRIDGE
LEFT COPING	6.411	6.800	7.216	7.659
LEFT GUTTER	6.561	6.950	7.366	7.809
℄ CONST.	6.871	7.260	7.676	8.119
RIGHT GUTTER	6.581	6.963	7.373	7.809
RIGHT COPING	6.541	6.930	7.346	7.789

FINISH GRADE ELEVATIONS (APPROACH SLAB 2)				
LOCATION	END BRIDGE	1	2	END APPROACH SLAB 2
LEFT COPING	9.875	9.375	8.875	8.394
LEFT GUTTER	10.005	9.505	9.005	8.524
℄ CONST.	10.335	9.835	9.335	8.854
RIGHT GUTTER	10.005	9.505	9.005	8.524
RIGHT COPING	9.875	9.375	8.875	8.394

NOTE:

FOR LOCATION OF ELEVATIONS, SEE DWG. NO. S–14 AND S–15.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: FINISH GRADE ELEVATIONS (5 OF 5)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

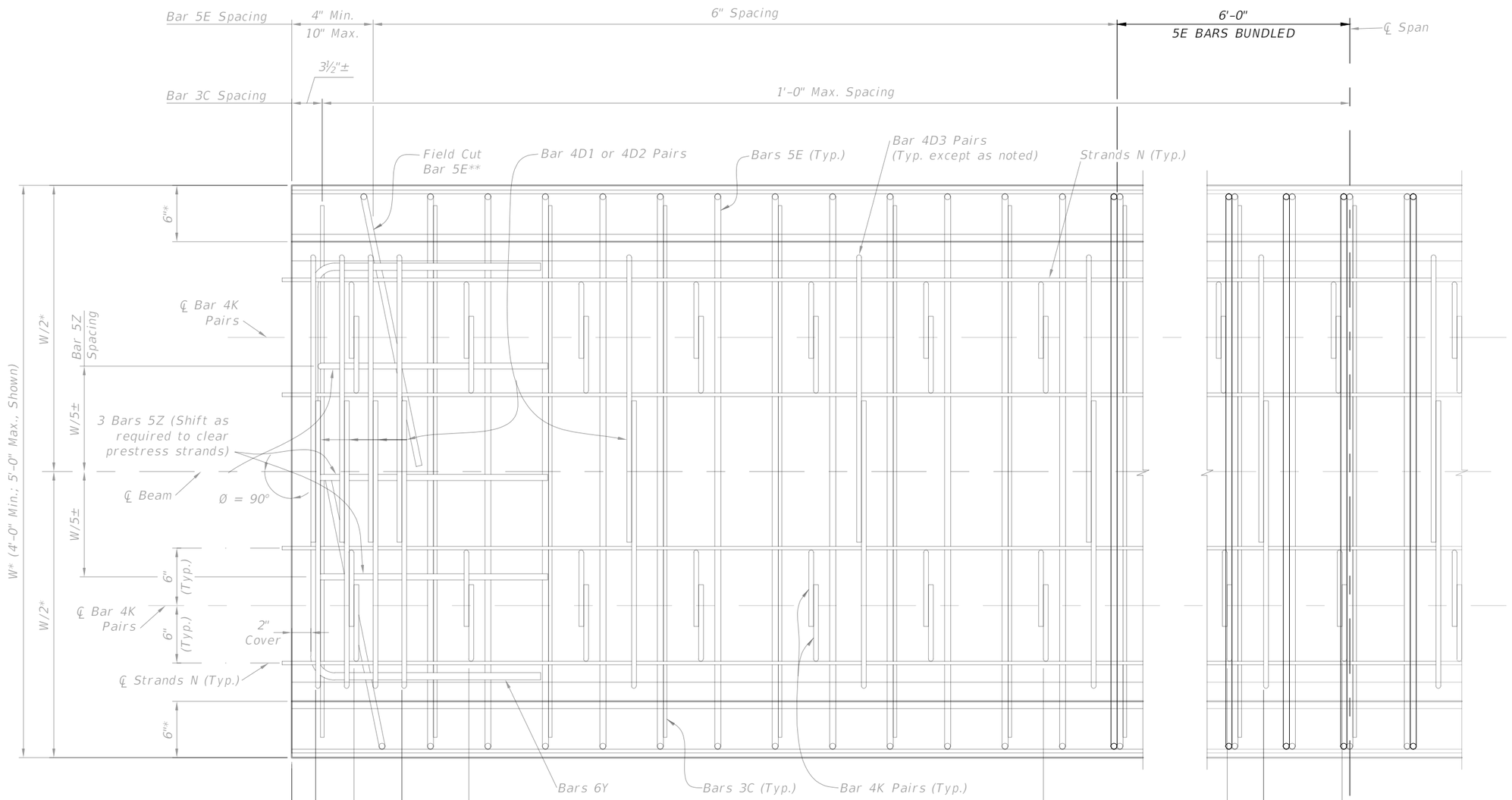
ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S–17
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 86 OF 283

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ELMIR, KHAWLA



* Measured to Working Points.
** At Beam ends, use number of field cut and rotated Bars 5E as required to clear Bar 4D Pairs and Bar 4K Pairs.
*** Shift Bar 4K Pairs longitudinally as required to clear Bar 4D Pairs and Bars 3C and 5E.

CROSS REFERENCE:
For Dimensions V1, V2 & W and number of spaces S1 & S2, see Florida Slab Beam – Table of Variables in Structures Plans.

See Indexes 450-451, 450-452 and 450-453 for Bars 5E Details.

PARTIAL PLAN VIEW Ø = 90°
(END 1 SHOWN, END 2 SIMILAR)
(INTERIOR BEAM SHOWN, EXTERIOR BEAM SIMILAR, SEE BARS 5E DETAILS)

NOTE:
For all grayed out information and linework, see index no. 450-450.
Non-grayed out information and linework are changes to index no. 450-450.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: MODIFICATIONS TO INDEX 450-450 (1 OF 2)

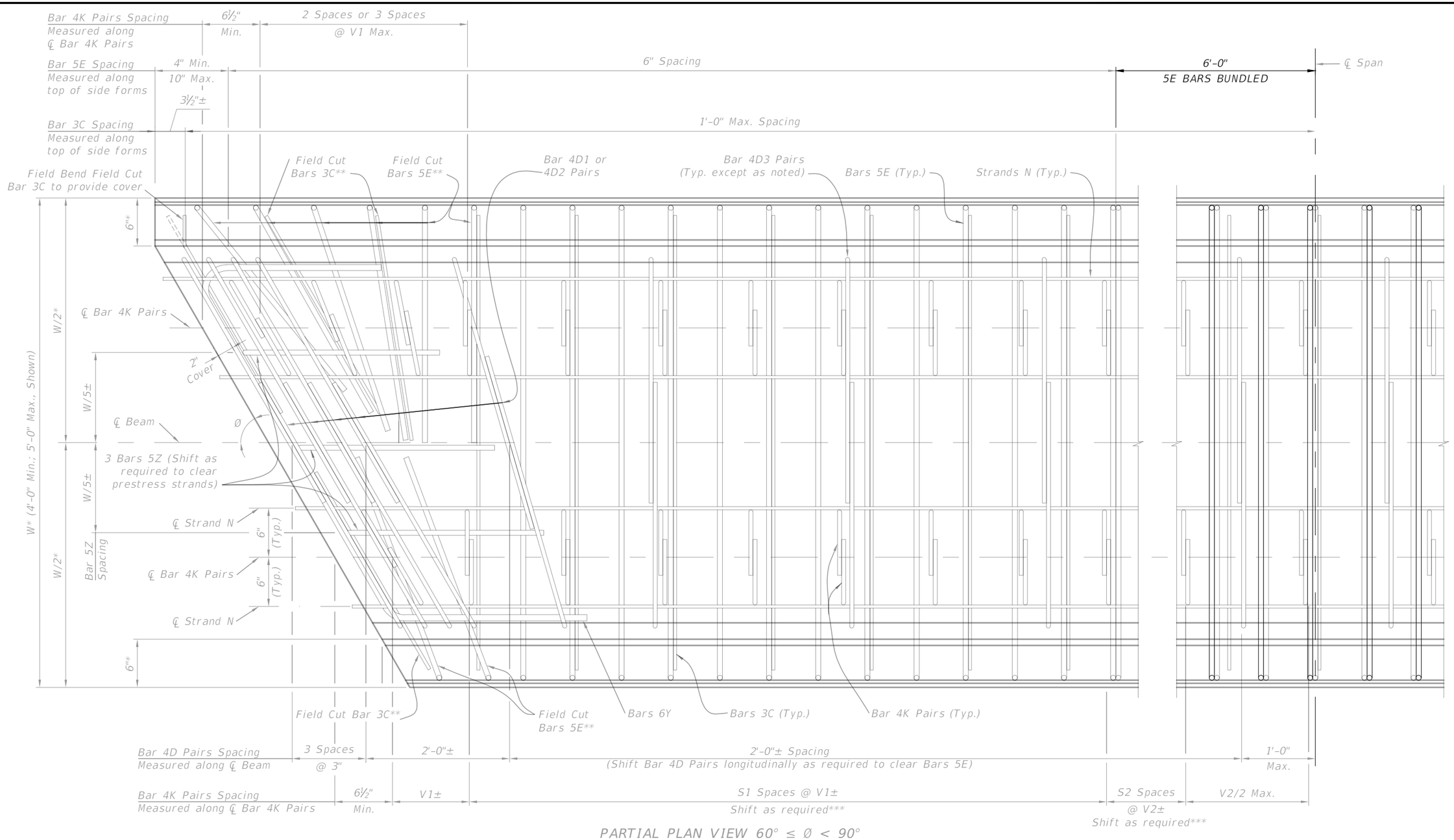
HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-18
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 87 OF 283

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PARTIAL PLAN VIEW $60° \le Ø < 90°$
(END 1 SHOWN, END 2 SIMILAR)
(INTERIOR BEAM SHOWN, EXTERIOR BEAM SIMILAR, SEE BARS 5E DETAILS)

* Measured to Working Points.
** At Beam ends, use number of field cut and rotated Bars 3C and 5E as required to clear Bar 4D Pairs and Bar 4K Pairs.
*** Shift Bar 4K Pairs longitudinally as required to clear Bar 4D Pairs and Bars 3C and 5E.

NOTE:
For all grayed out information and linework, see Index No. 450-450.
Non-grayed out information and linework are changes to index No. 450-450.

CROSS REFERENCE:
For Dimensions V1, V2 & W, Angle Ø and number of spaces S1 & S2, see Florida Slab Beam - Table of Variables in Structures Plans.

See Indexes 450-451, 450-452 and 450-453 for Bars 5E Details.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: MODIFICATIONS TO INDEX 450-450 (2 OF 2)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-19
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 88 OF 283

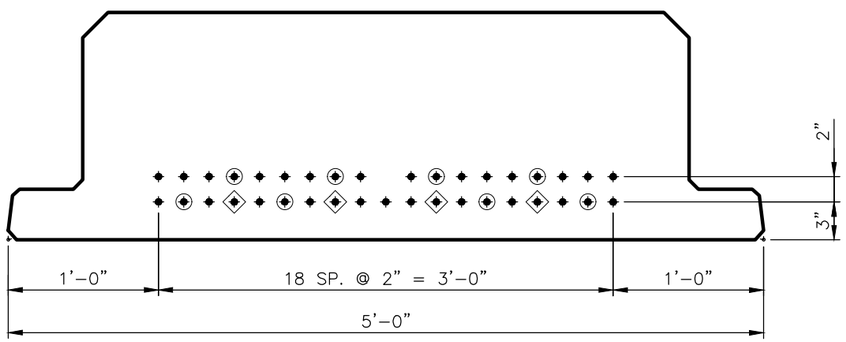
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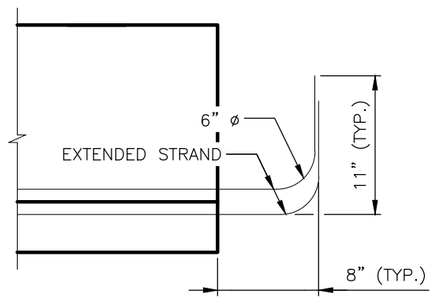
FLORIDA SLAB BEAM - TABLE OF VARIABLES

Table Date 01-01-16

LOCATION		BEAM TYPE	CONCRETE PROPERTIES			STND. PTRN. TYPE	PLAN VIEW CASE		ANGLE Φ		BEAM DIMENSIONS *			REINFORCING STEEL																
														3C		4D1	4D2	4D3		5E1		5E2		6Y1	6Y2	4K	NO. OF BAR SPACES		BAR SPACING*	
SPAN NO.	BEAM NO.		CLASS	STRENGTHS (psi)			END 1	END 2	END 1	END 2	DIM W	DIM L	DIM R **	NO.	DIM C	DIM D	DIM D	NO.	DIM D	NO.	DIM E	NO.	DIM E	DIM Y	DIM Y	NO.	S1	S2	V1	V2
				28 DAY	Release																									
1	1	FSB 18X60	VI	8500	6000	1	1	2	90	87	5'-0"	58'-3"	5/8"	59	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	--	--	140	4'-8 1/2"	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
1	2	FSB 18X60	VI	8500	6000	1	1	2	90	87	5'-0"	58'-7 1/2"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	140	4'-10"	--	--	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
1	3	FSB 18X60	VI	8500	6000	1	1	2	90	87	5'-0"	59'-0"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	141	4'-10"	--	--	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
1	4	FSB 18X60	VI	8500	6000	1	1	2	90	87	5'-0"	59'-4 1/2"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	142	4'-10"	--	--	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
1	5	FSB 18X60	VI	8500	6000	1	1	2	90	87	5'-0"	59'-9"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	143	4'-10"	--	--	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
1	6	FSB 18X60	VI	8500	6000	1	1	2	90	87	5'-0"	60'-1 1/2"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	143	4'-10"	--	--	3'-7 1/2"	3'-7 1/2"	252	1	29	1'-0"	1'-0"
1	7	FSB 18X60	VI	8500	6000	1	1	2	90	87	5'-0"	60'-5 1/2"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	144	4'-10"	--	--	3'-7 1/2"	3'-7 1/2"	252	1	29	1'-0"	1'-0"
1	8	FSB 18X60	VI	8500	6000	1	1	2	90	87	5'-0"	60'-10"	5/8"	63	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	145	4'-10"	--	--	3'-7 1/2"	3'-7 1/2"	252	1	29	1'-0"	1'-0"
1	9	FSB 18X60	VI	8500	6000	1	1	2	90	87	5'-0"	61'-2 1/2"	5/8"	63	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	--	--	146	4'-8 1/2"	3'-7 1/2"	3'-7 1/2"	252	1	29	1'-0"	1'-0"
2	1	FSB 18X60	VI	8500	6000	1	1	1	90	90	5'-0"	58'-8 1/2"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	--	--	141	4'-8 1/2"	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
2	2-10	FSB 18X60	VI	8500	6000	1	1	1	90	90	5'-0"	58'-8 1/2"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	141	4'-10"	--	--	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
2	11	FSB 18X60	VI	8500	6000	1	1	1	90	90	5'-0"	58'-8 1/2"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	--	--	141	4'-8 1/2"	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
4	1	FSB 18X60	VI	8500	6000	1	1	1	90	90	5'-0"	59'-6 1/2"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	--	--	143	4'-8 1/2"	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
4	2-8	FSB 18X60	VI	8500	6000	1	1	1	90	90	5'-0"	59'-6 1/2"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	143	4'-10"	--	--	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
4	9	FSB 18X60	VI	8500	6000	1	1	1	90	90	5'-0"	59'-6 1/2"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	--	--	143	4'-8 1/2"	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
5	1	FSB 18X60	VI	8500	6000	1	1	1	90	90	5'-0"	59'-8"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	--	--	143	4'-8 1/2"	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
5	2-8	FSB 18X60	VI	8500	6000	1	1	1	90	90	5'-0"	59'-8"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	143	4'-10"	--	--	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
5	9	FSB 18X60	VI	8500	6000	1	1	1	90	90	5'-0"	59'-8"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	--	--	143	4'-8 1/2"	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
6	1	FSB 18X60	VI	8500	6000	1	1	1	90	90	5'-0"	59'-6 1/2"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	--	--	143	4'-8 1/2"	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
6	2-8	FSB 18X60	VI	8500	6000	1	1	1	90	90	5'-0"	59'-6 1/2"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	143	4'-10"	--	--	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"
6	9	FSB 18X60	VI	8500	6000	1	1	1	90	90	5'-0"	59'-6 1/2"	5/8"	61	4'-7 1/2"	2'-6"	2'-6"	58	2'-6"	--	--	143	4'-8 1/2"	3'-7 1/2"	3'-7 1/2"	244	1	28	1'-0"	1'-0"



TYPE ① 37 STRANDS



STRAND EXTENSION DETAIL
(OTHER REINFORCEMENT NOT SHOWN FOR CLARITY)

STRAND DESCRIPTION: USE 0.6" DIAMETER, GRADE 270, LOW RELAXATION CARBON STEEL STRANDS STRESSED AT 43.9 KIPS EACH. AREA PER STRAND EQUALS 0.217 SQ. IN.

STRAND PATTERNS

NOTES:

1. WORK THIS SHEET WITH STANDARD INDEXES 450–450 & 450–453.
2. ON BEAMS WITH SKEWED ENDS THE DEBONDED LENGTH SHALL BE MEASURED ALONG THE DEBONDED STRAND.
3. EXTENDED STRANDS ONLY APPLY TO BEAM ENDS LOCATED AT INTERIOR PIERS.

STRAND DEBONDING LEGEND

- ● – FULLY BONDED STRANDS.
- ⦿ – EXTENDED STRANDS. (SEE NOTE 3)
- ◈ – STRANDS DEBONDED 4'–0" FROM END OF BEAM.

DIMENSION NOTES

* ALL LONGITUDINAL BEAM DIMENSIONS SHOWN ON THIS SHEET WITH A SINGLE ASTERISK (*) ARE MEASURED ALONG THE TOP OF BEAM AT THE CENTERLINE OF SLAB BEAM.

** DIMENSION "R" IS CALCULATED AT MID–HEIGHT OF BEAM.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: FSB TABLE OF BEAM VARIABLES

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S–20
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 89 OF 283

MARK		LENGTH	NO	TYP	STY		B	C	D	E	F	H	J	K	N	Ø
SIZE	DES	FT IN	BARS	BAR	A	G	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	FT IN FR	NO	ANG
SUPERSTRUCTURE (UNIT 1)										(NO. REQUIRED = 1)						
5	A1	45- 8	130	12			22- 10	22- 10								2
5	A2	55- 10	127	12			27- 11	27- 11								2
5	A3	5- 2	2132	4	4	4	1- 3	0- 10								
4	A4	2- 8	486	10			1- 6	1- 2								
5	A5	3- 3	486	20			1- 3	0- 3	0- 0	0- 8	1- 3					
5	B1	VARIES	1					VARIES								
		120- 3	SET	2			1- 8	116- 11							2	
		TO	OF					TO								
		123- 6	62	2			-	120- 2							2	
5	B2	VARIES	1				VARIES									
		57- 9	SET	1			57- 9									
		TO	OF				TO									
		57- 11	7	1			57- 11									
5	B3	VARIES	8				VARIES									
		58- 10	SET	1			58- 10									
		TO	OF				TO									
		60- 1	4	1			60- 1									
5	B4	58- 10	40	1			58- 10									
4	B5	3- 0	276	10			1- 6	1- 6								
5	B6	VARIES	1				VARIES									
		59- 6	SET	1			59- 6									
		TO	OF				TO									
		59- 8	7	1			59- 8									
5	B7	93- 2	61	2			1- 8	91- 6							1	
5	B8	19- 0	61	1			19- 0									
4	B9	2- 9	486	10			2- 1	0- 8								
5	B10	5- 8	62	4	4	4	1- 8	0- 8								
5	B11	57- 9	1	1			57- 9									
5	B12	58- 8	1	1			58- 8									
5	B13	60- 3	1	1			60- 3									
5	B14	59- 8	1	1			59- 8									

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THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUPERSTRUCTURE REINFORCING BAR LIST (1 OF 3)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-21
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 90 OF 283

	MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	Ø
	SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
	SUPERSTRUCTURE (UNIT 1) (CONT.)																	(NO. REQUIRED = 1)																
	5	C1	VARIES		1				VARIES																									
			7- 4		SET	1			7- 4																									
			TO		OF				TO																									
			8- 4		60	1			8- 4																									
	5	C2	7- 4		58	1			7- 4																									
	5	C3	11- 2		12	1			11- 2																									
	5	C4	12- 10		109	1			12- 10																									
	5	C5	VARIES		1				VARIES																									
			7- 4		SET	1			7- 4																									
			TO		OF				TO																									
			8- 4		60	1			8- 4																									
	5	C6	7- 4		63	1			7- 4																									
	5	C7	VARIES		1				VARIES																									
			6- 7		SET	1			6- 7																									
			TO		OF				TO																									
			11- 2		9	1			11- 2																									
	5	C8	VARIES		1				VARIES																									
			4- 10		SET	1			4- 10																									
			TO		OF				TO																									
			9- 5		10				9- 5																									
	5	C9	4- 10		81	1			4- 10																									
	5	C10	VARIES		1				VARIES																									
			4- 10		SET	1			4- 10																									
			TO		OF				TO																									
			12- 10		17	1			12- 10																									
	5	C11	12- 10		4	1			12- 10																									
	5	C12	VARIES		1							VARIES																						
			120- 1		SET	2			1- 8			116- 9																					2	
			TO		OF							TO																						
			120- 7		9	2			-			117- 3																					2	
	5	C13	29- 2		1	1			29- 2																									
	5	C14	58- 6		5	1			58- 6																									
	5	C15	53- 3		3	1			53- 3																									
	5	C16	29- 9		1	1			29- 9																									
	5	C17	VARIES		1							VARIES																						
			64- 1		SET	2			2- 0			62- 1																					1	
			TO		OF							TO																						
			72- 4		9	2			-			70- 4																					1	
	5	C18	58- 6		5	1			58- 6																									
	5	C19	54- 2		3	1			54- 2																									
	5	C20	VARIES		1				VARIES																									
			1- 5		SET	1			1- 5																									
			TO		OF				TO																									
			9- 5		9	1			9- 5																									
	5	C21	10- 11		2	1			10- 11																									
	4	C22	2- 9		463	1			2- 9																									
	4	C23	57- 7		4	1			57- 7																									
	4	C24	52- 8		4	1			52- 8																									
	4	C25	62- 4		4	2			1- 4			61- 0																					1	
	4	C26	53- 5		4	1			53- 5																									
	5	V	4- 0		378	26			0- 10			1- 1			1- 1			1- 0																
	5	V2	3- 8		114	26			0- 10			0- 11			0- 11			1- 0																
	5	R	64- 3		8	2			1- 8			62- 7																					1	
*	5	R2	6- 11		8	12			4- 9			2- 2																						45
*	5	R3	9- 8		2	12			7- 6			2- 2																						45
	5	Z	2- 9		76	28			1- 0			1- 0			0- 6			0- 6																
	5	Z2	6- 1		18	42			0- 3			2- 0			1- 4			2- 0			0- 0			5- 10										

* FIELD BEND/ADJUST TO PROVIDE PROPER LAP SPLICE TO 5R BARS.

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DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUPERSTRUCTURE REINFORCING BAR LIST (2 OF 3)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-22
DATE: 5/17/2021
PROJECT NO. 001037A

MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	Ø
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
SUPERSTRUCTURE (UNIT 2) (NO. REQUIRED = 1)																																	
5	A1	45- 8		382	12			22- 10			22- 10																						2
5	A2	5- 2		2840	4	4	4	1- 3			0- 10																						
4	A3	2- 8		720	10			1- 6			1- 2																						
5	A4	3- 3		720	20			1- 3			0- 3			0- 0			0- 8			1- 3													
5	B1	184- 6		64	2			1- 8			179- 6																					3	
5	B2	59- 4		96	1			59- 4																									
4	B3	3- 0		372	10			1- 6			1- 6																						
5	B4	141- 4		61	2			1- 8			138- 0																					2	
5	B5	30- 6		122	1			30- 6																									
4	B6	2- 9		720	10			2- 1			0- 8																						
5	B7	5- 8		128	4	4	4	1- 8			0- 8																						
5	C1	7- 4		720	1			7- 4																									
5	C2	184- 6		18	2			1- 8			179- 6																					3	
4	C3	2- 3		720	1			2- 3																									
4	C4	184- 6		8	2			1- 8			179- 6																					3	
5	V	4- 0		720	26			0- 10			1- 1			1- 1			1- 0																
5	R	61- 4		12	2			1- 8			59- 8																					1	
5	Z	2- 9		96	28			1- 0			1- 0			0- 6			0- 6																
5	Z2	6- 1		30	42			0- 3			2- 0			1- 4			2- 0			0- 0			5- 10										

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUPERSTRUCTURE REINFORCING BAR LIST (3 OF 3)

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-23
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 92 OF 283

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Load Rating Summary Details for Prestressed Concrete Bridges (Flat Slab and Deck/Girder)

Table Date 07-01-15

Table 1 - LFR

Level	Vehicle	Weight (tons)	Load Factors		Moment (Strength) or Stress (Service)					Shear (Strength)					
			LL	DL	Distribution Factor (DF)	Rating Factor	Tons	Location	Dimension	Distribution Factor (DF)	Rating Factor	Tons	Location	Dimension	Comments: Interior/exterior beam DF method if other than Standard Spec. Other appropriate comments
Inventory (Strength)	HS-20	36.0	2.17	1.30											
Inventory (Service)	HS-20	36.0	1.0	1.0						N/A	N/A	N/A	N/A	N/A	
Operating (Strength)	HS-20	36.0	1.30	1.30											

Load Rating Summary Details for Prestressed Concrete Bridges (Flat Slab and Deck/Girder)

Table Date 07-01-15

Table 2 - LRFR

Level	Limit State	Vehicle	Weight (tons)	Load Factors			Moment (Strength) or Stress (Service)					Shear (Strength)					
				LL	DC	DW	Distribution Factor (DF)	Rating Factor	Tons	Location	Dimension	Distribution Factor (DF)	Rating Factor	Tons	Location	Dimension	Comments: Interior/exterior beam DF method if other than LRFD. Other appropriate comments
Design Load Rating	Strength I (Inv)	HL-93	N/A	1.75	1.25	1.50	0.40	1.68	N/A	A	27'-9"	0.73	4.75	N/A	D	1'-8"	M: SPANS 4, 5 & 6 (EXTERIOR) S: SPAN 1 (EXTERIOR)
	Strength I (Op)	HL-93	N/A	1.35	1.25	1.50	0.40	2.18	N/A	A	27'-9"	0.73	6.16	N/A	D	1'-8"	M: SPANS 4, 5 & 6 (EXTERIOR) S: SPAN 1 (EXTERIOR)
	Service III (Inv)	HL-93	N/A	0.80	1.00	1.00	0.40	1.29	N/A	B	28'-4"	N/A	N/A	N/A	N/A	N/A	SPANS 4, 5 & 6 (EXTERIOR)
	Service III (Op)	HL-93	N/A	0.80	1.00	1.00	0.40	1.79	N/A	B	28'-4"	N/A	N/A	N/A	N/A	N/A	SPANS 4, 5 & 6 (EXTERIOR)
Permit Load Rating	Strength II	FL120	60.0	1.35	1.25	1.50	0.40	1.65	99.0	C	26'-7"	0.73	4.50	270.0	D	1'-8"	M: SPANS 4, 5 & 6 (EXTERIOR) S: SPAN 1 (EXTERIOR)

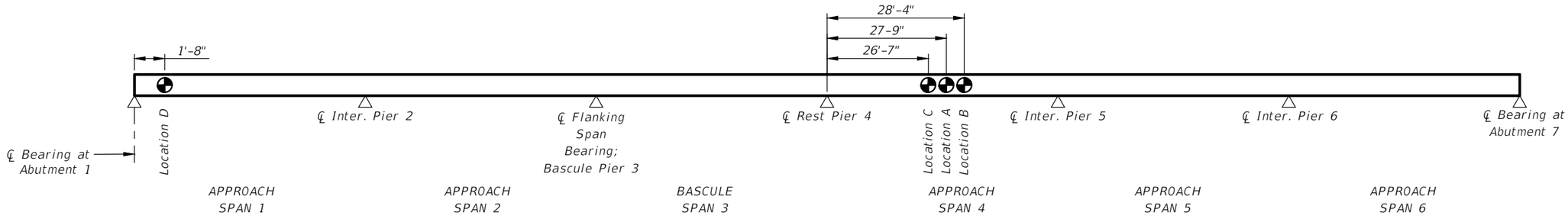
General Notes:

1. This table is based on the requirements established in the January 2017 "Structures Manual".
2. This load rating sheet is applicable to span numbers 1, 2, 4, 5 and 6. For bascule span 3 load rating, see BL dwg. Set.

Table 2 Notes [Notes Date 07-01-15]:

1. Permit capacity is determined by using the permit vehicle in all lanes.
2. Service III Design Inventory tensile stress limits = $3\sqrt{f'c}$. Service III design operating and legal tensile stress limit = $7.5\sqrt{f'c}$.
3. Has the AASHTO LRFD Specifications Article 5.8.3.5 longitudinal reinforcement been satisfied? ☒ Yes ☐ No

Software used: FDOT Prestressed Beam V5.1



RATING LOCATIONS

Abbreviations:

Inv - Inventory

Op - Operating

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED CMH
DRAWN ZOF
CHECKED NEC

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

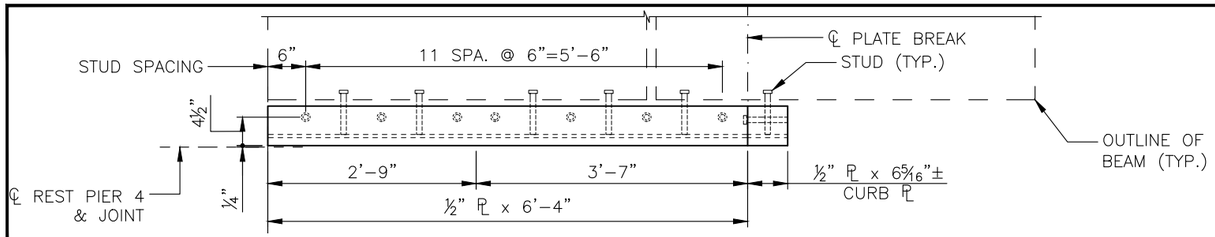
DESCRIPTION: APPROACH SPAN LOAD RATING

HDR ENGINEERING, INC.
4830 W. KENNEDY BLVD.
SUITE 400
TAMPA, FL 33609

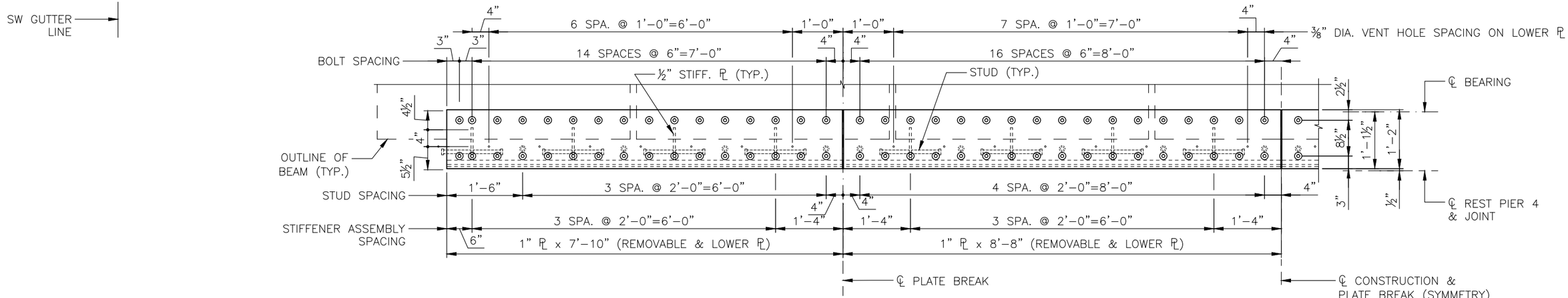
ENGINEER OF RECORD
NELSON E. CANJURA, PE
FLA. LIC. NO. 43235

REF. DWG. NO. S-24
DATE: 5/17/2021
PROJECT NO. 001037A
SHEET: 93 OF 283

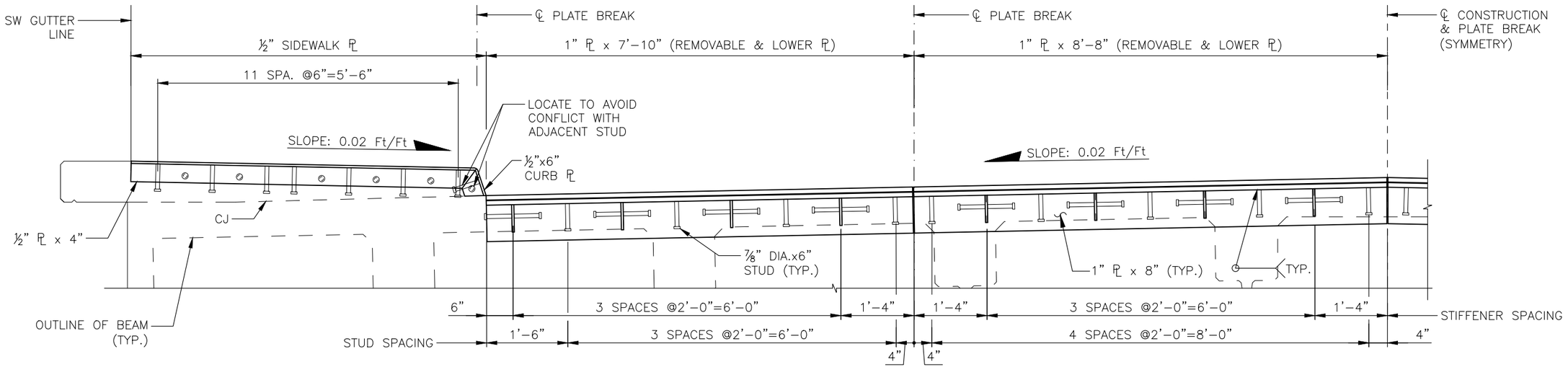
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SIDEWALK ARMORED REAR JOINT DEVELOPED PLAN



ROADWAY ARMORED TOE JOINT HALF PLAN



ARMORED ROADWAY TOE JOINT ELEVATION AT REST PIER 4

LEGEND

- ⛭ SHEAR STUD
- ◎ SCREW
- • VENT HOLE

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

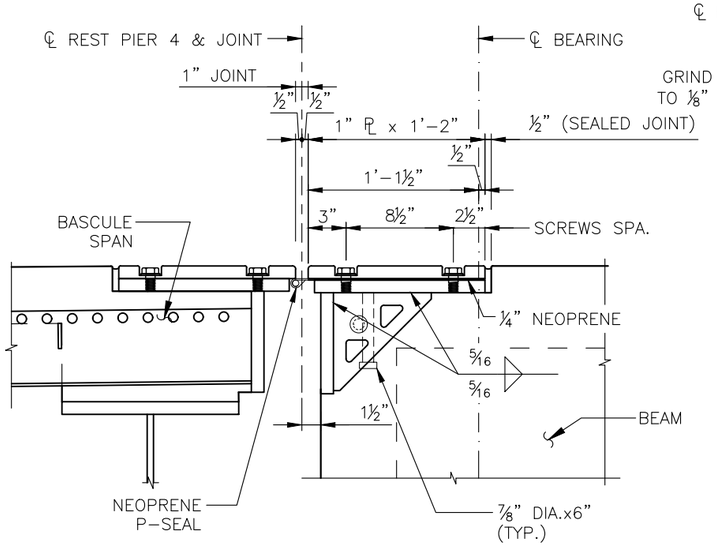
DESCRIPTION: APPROACH SPAN ARMORED JOINT LAYOUT

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

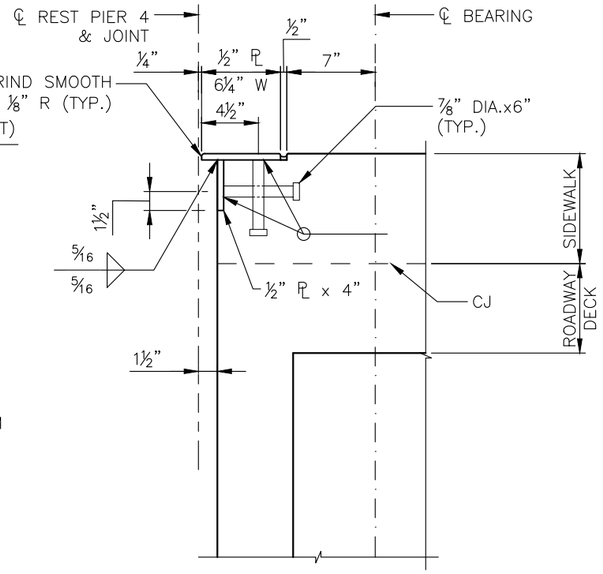
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. S-25
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 94 OF 283

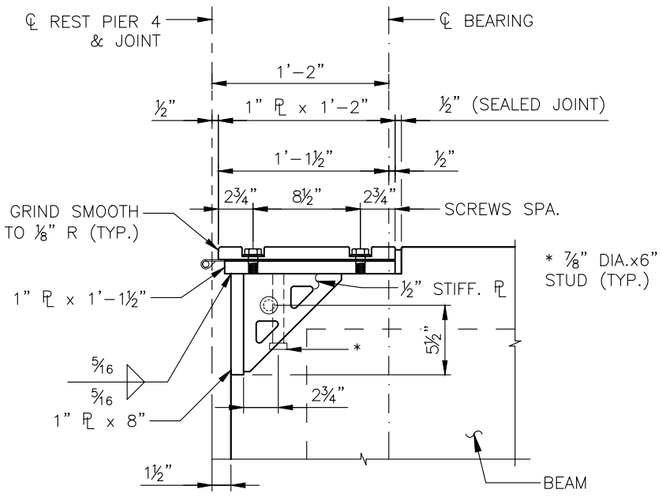
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ANLUN CHEN
G:\PROJECTS\3231_BECKETT_DESIGN\001037A - BECKETT\PLANS\DWG\PRODUCTION\STRUCT\SUPER\001037A_S3_ARMJOINTLAY01.DWG
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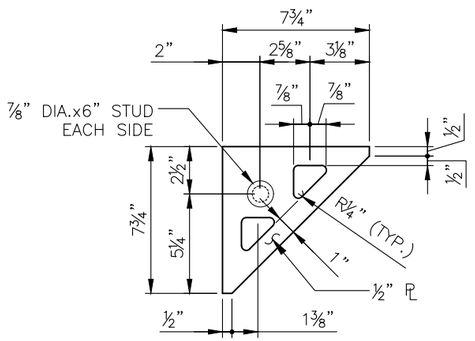
TYPICAL ROADWAY ARMORED TOE JOINT



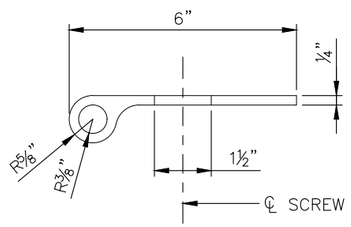
TYPICAL SIDEWALK ARMORED TOE JOINT AT REST PIER 4



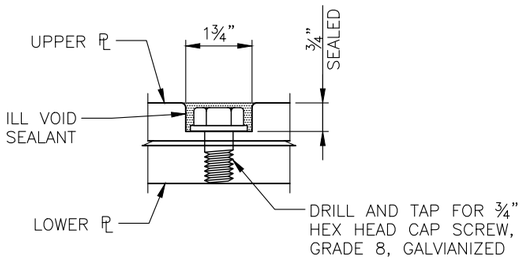
TYPICAL ROADWAY ARMORED TOE JOINT DETAILS AT REST PIER 4



STIFFENER PLATE DETAIL



P-SEAL
(GRADE 60 DUROMETER NEOPRENE)



COUNTERBORE DETAIL

NOTES:

1. DRILL AND TAP HOLES IN LOWER PLATE AFTER ALIGNING THE JOINT UPPER PLATE IN THE FIELD.
2. SEE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.
3. INSTALL CAP SCREWS WITH AN APPROVED THREAD LOCKING COMPOUND. TENSION CAP SCREW TO 70% OF YIELD STRENGTH, SEE TSP T468 FOR TORQUE REQUIREMENTS.
4. SEALANT TO BE TYPE D SILICONE.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: APPROACH SPAN ARMORED JOINT DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

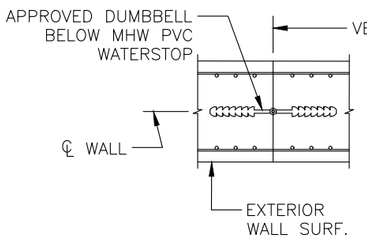
REF. DWG. NO. S-26
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 95 OF 283

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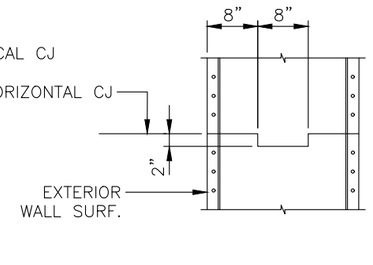
A. COORDINATION & SHOP DRAWING SUBMITTALS
1. SUBMIT SHOP DRAWINGS FOR ITEMS CAST INTO THE BASCULE PIER AS SPECIFIED IN TSP SECTIONS T465 AND T508, AND SHOWN ON PLANS.
2. SUBMIT SHOP DRAWINGS FOR SUMP PUMPS, SUMP PUMP GRATES, STAIRS, LADDERS, HATCHES, RAILINGS, DOORS, FINISH MATERIALS AND PLUMBING.
3. COORDINATE ALL BASCULE PIER WORK WITH ALL ELECTRICAL AND MECHANICAL ITEMS REQUIRING ANCHORAGE OR PENETRATION THROUGH TO THE BASCULE PIER, ELECTRICAL DEVICES AND CONDUIT, LOUVERS MACHINERY, DECK JOINTS, STAIRS, GENERAL AND ROADWAY LIGHTING, SECURITY AND SAFETY GATES.
4. CONDUIT AND PIPING SLEEVES:
   – PROVIDE SCHEDULE 80 PVC SLEEVES THROUGH BASCULE PIER WALLS FOR ELECTRICAL CONDUITS AND PLUMBING PIPES. INSTALL PVC SLEEVES PRIOR TO PLACING CIP CONCRETE. DO NOT CORE WALLS AFTER CONCRETE IS PLACED UNLESS APPROVED BY THE ENGINEER.
   – NO PENETRATIONS SHALL BE MADE THROUGH THE OUTER WALLS BELOW EL. 4.600 (UNO). NO PENETRATIONS SHALL BE MADE THROUGH PIER DECK SUPPORT COLUMNS (UNO).
5. SEE DWG. NOS. G–12 FOR SURFACE FINISH DETAILS. SEE ARCHITECTURAL PLANS FOR ADDITIONAL BASCULE PIER DETAILS.

B. CONCRETE NOTES
1. BASCULE PIER PRECAST
   – BASCULE PIER PRECAST ELEMENTS ARE A SUGGESTED CONSTRUCTION TECHNIQUE. THE CONTRACTOR MAY PROPOSE DIFFERENT TECHNIQUES THAT MEET THE CONTRACT REQUIREMENTS. SUBMIT TO THE ENGINEER PRIOR TO CONSTRUCTION ANY PROPOSED ALTERNATIVE FOR REVIEW.
   – SEE TSP SECTION T404 FOR PRECAST ELEMENT REQUIREMENTS.
   – SUBMIT SIGNED AND SEALED BY FLORIDA P.E. SHOP DRAWINGS OF PROPOSED LIFTING PROCEDURE AND DEVICES.

2. CONSTRUCTION JOINTS
   – PROVIDE CONTINUOUS WATERSTOPS AT APPROVED VERTICAL CONSTRUCTION JOINTS IN EXTERIOR WALLS BELOW MHW PER "VERTICAL CJ DETAIL".
   – PROVIDE KEY AT APPROVED HORIZONTAL CONSTRUCTION JOINTS IN EXTERIOR WALLS BELOW MHW.



VERTICAL CJ DETAIL



HORIZONTAL CJ DETAIL

B. CONCRETE NOTES (CONTINUED)
3. CONCRETE SURFACE FINISH
   – FINISH CONCRETE FLOORS AND ADJACENT WALLS TO HEIGHT OF 3'–0" ABOVE FLOOR IDENTIFIED AS REQUIRING AN EPOXY FLOORING WITH A CHEMICAL RESISTANT, ANTI–SKID, EPOXY RESIN FLOORING COATING. EPOXY FLOORING SHALL HAVE "EXCELLENT" (30 DAY EXPOSURE) CHEMICAL RESISTANCE TO GASOLINE, MINERAL SPIRITS, GREASE, AND SALT WATER, MINIMUM, AND "GOOD" RESISTANCE TO OTHER GENERAL SOLVENTS AND CHEMICALS. SUBMIT EPOXY COATING TO THE ENGINEER FOR APPROVAL.
   – PAY FOR EPOXY FLOORING UNDER PAY ITEM 512–1.

4. ANCHOR BOLTS
   – SET ANCHOR BOLT TEMPLATES PRIOR TO PLACING CONCRETE AND VERIFY THAT REINFORCING STEEL WILL NOT CONFLICT WITH CIP OR POST–DRILLED ANCHOR BOLTS FOR DRIVE MACHINERY.
   – ADJUST REINFORCING BARS TO PROVIDE A MINIMUM OF 1¾" CLEARANCE FROM THE EDGE OF DRILLED HOLES OR CIP ANCHORS, AND MAINTAIN REQUIRED CLEAR COVER.

C. DRAINAGE & PLUMBING
1. PROVIDE DRAINAGE AND PLUMBING AS SHOWN ON THE PLANS AND TSP SECTION T512. REFER TO DWG. NOS. TH–2 THRU TH–5.
2. FLOOR DRAINAGE
   – PROVIDE A MINIMUM SLOPE OF 1% ON BASCULE PIER FLOORS AND WALKWAYS TO DRAIN TOWARDS THE PIT. SLOPE BASCULE PIER AREAS WITH NO DIRECT ACCESS TO A CORNER AND DRAIN TO THE COUNTERWEIGHT PIT THROUGH A FLOOR DRAIN. PROVIDE 4" DIAMETER FLOOR DRAINS WITH SCHEDULE 40 PVC PIPE DRAIN SPOUTS WHERE FLOOR DRAINS ARE REQUIRED.
   – ALL DRAINAGE SHALL BE PIPED TO CLEAR EQUIPMENT BELOW.

3. SUMP PUMP
   – ROUTE SUMP PUMP DISCHARGE LINE AS SHOWN ON THE PLANS.
   – FURNISH AND INSTALL A REMOVABLE PULTRUDED FIBER GLASS GRATE WITH A MAXIMUM OPENING OF ⅜"; A LOW PROFILE, POLYPROPYLENE MARINE HATCH, AND SUPPORTING CONCRETE GALVANIZED EMBEDMENT ANGLES

D. BASCULE PIER ACCESS AND RAILINGS
1. SAFETY RAILINGS WITH WOVEN WIRE MESH PANELS, AND STAINLESS STEEL MESH ENCLOSURE
   – REFER TO ARCHITECTURAL PLANS FOR DETAILS.
   – SEE TSP T512 FOR DESIGN REQUIREMENTS.

2. PIPE GUIDERAILS
   – PROVIDE ALUMINUM PIPE GUIDERAILS PER FDOT STANDARD PLANS INDEX 515–70 IN LOCATIONS SPECIFIED UNLESS NOTED OTHERWISE.
   – HOT–DIP GALVANIZE RAILING KICK PLATES.
   – UNLESS NOTED OTHERWISE, PAINT SAFETY RAILINGS AND KICK PLATES USING A SAFETY YELLOW, THREE–COAT FLUOROPOLYMER FINISH.

3. ACCESS HATCHES
   – SEE TSP T512 FOR ACCESS HATCH REQUIREMENTS.

4. ACCESS LADDERS
   – SEE TSP T512 FOR ACCESS LADDER REQUIREMENTS.

E. BUMPER BLOCKS
   – FABRICATE BUMPER BLOCKS WITH A SINGLE 8"x20"x20" PLASTIC MARINE LUMBER WITH COUNTERBORED HOLES FOR BOLTING TO THE BASCULE PIER BUMPER BLOCK PEDESTAL WITH S.S. ADHESIVE ANCHORS.
   – USE NON–SHRINK GROUT BETWEEN THE BLOCK AND PEDESTAL FOR ADJUSTMENTS AND ALIGNMENT.

F. BIRD SCREENS
1. CLOSE OPENINGS BETWEEN THE BASCULE LEAF IN THE CLOSED POSITION AND BASCULE PIER AND OPENINGS BETWEEN BASCULE PIER AND FLANKING SPAN TO THE MAXIMUM EXTENT PRACTICAL.
2. OPENINGS SHALL BE CLOSED TO A MAXIMUM OPENING SIZE OF 1" WITH BIRD SCREENS CONSISTING OF S.S. ANGLES AND/ OR FRAMES WITH EXPANDED S.S. METAL MESH SECURED TO THE BASCULE PIER WITH S.S. ADHESIVE ANCHORS OR TO THE SAFETY RAILINGS WITH S.S. MESH CLIPS.
3. LOCATE BIRD SCREENS AT THE INTERIOR FACE OF WALLS AND NOT READILY VISIBLE FROM OUTSIDE THE PIERS.
4. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.

G. INTERPRETIVE PLAQUE AT SCENIC OVERLOOK
   – REFER TO ARCHITECTURAL PLANS FOR DETAILS.

H. CANOPY METAL ROOF SYSTEM AT SCENIC OVERLOOK AND OPERATION AREA
   – REFER TO DWG. NO. TH–1 AND ARCHITECTURAL PLANS FOR DETAILS.
   – SEE TSP T512 FOR DESIGN REQUIREMENTS.

LEGEND

[M] DENOTES MASS CONCRETE

[R] DENOTES RESINOUS FLOORING REQUIRED

(DXX) DOOR NUMBER

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DRAWN DJH
CHECKED JMP/CG

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

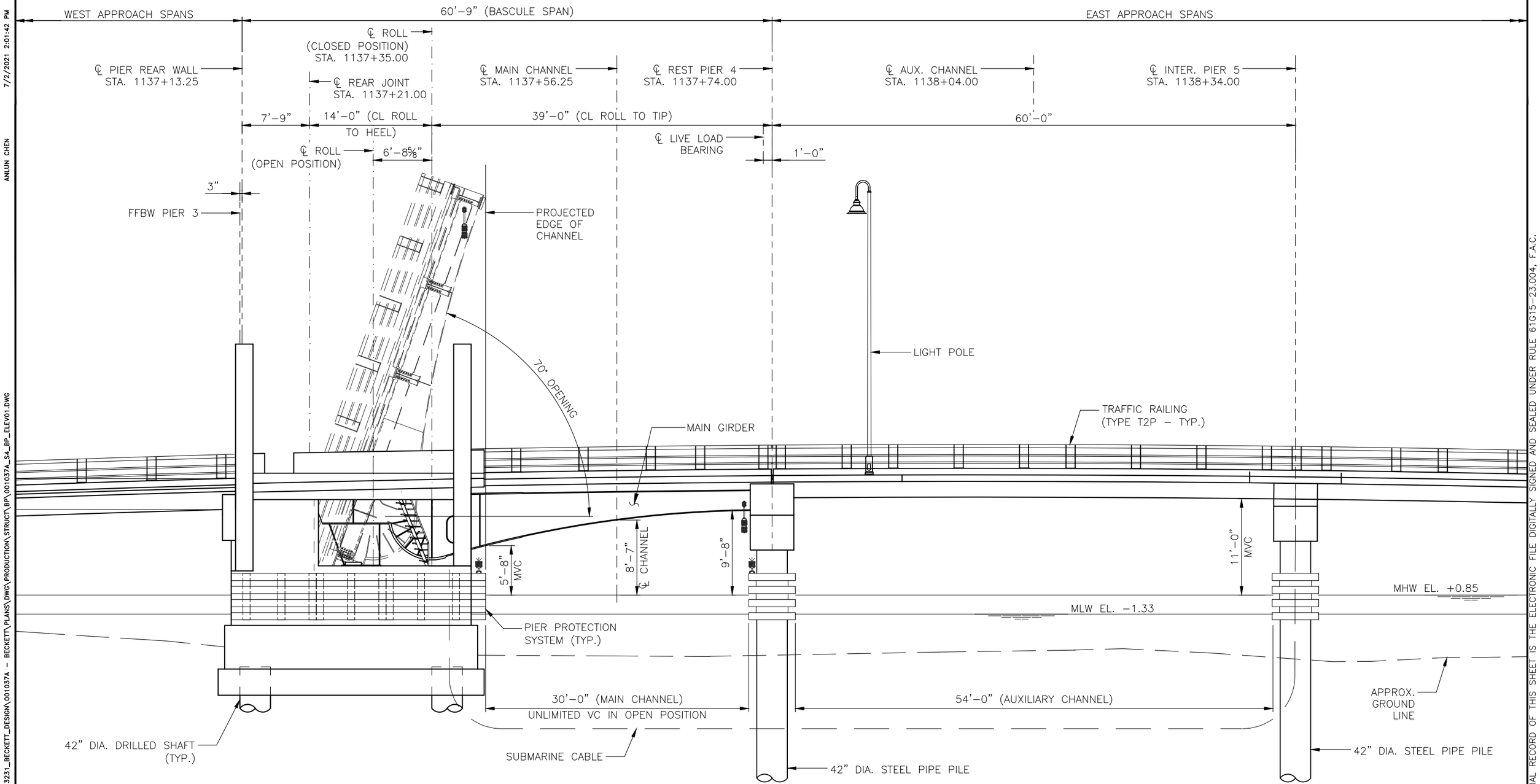
DESCRIPTION: BASCULE PIER 3 NOTES

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–1
DATE: 06/25/2021
PROJECT NO. 001037A

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BASCULE SPAN ELEVATION

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PROJECT: BECKETT BRIDGE REPLACEMENT

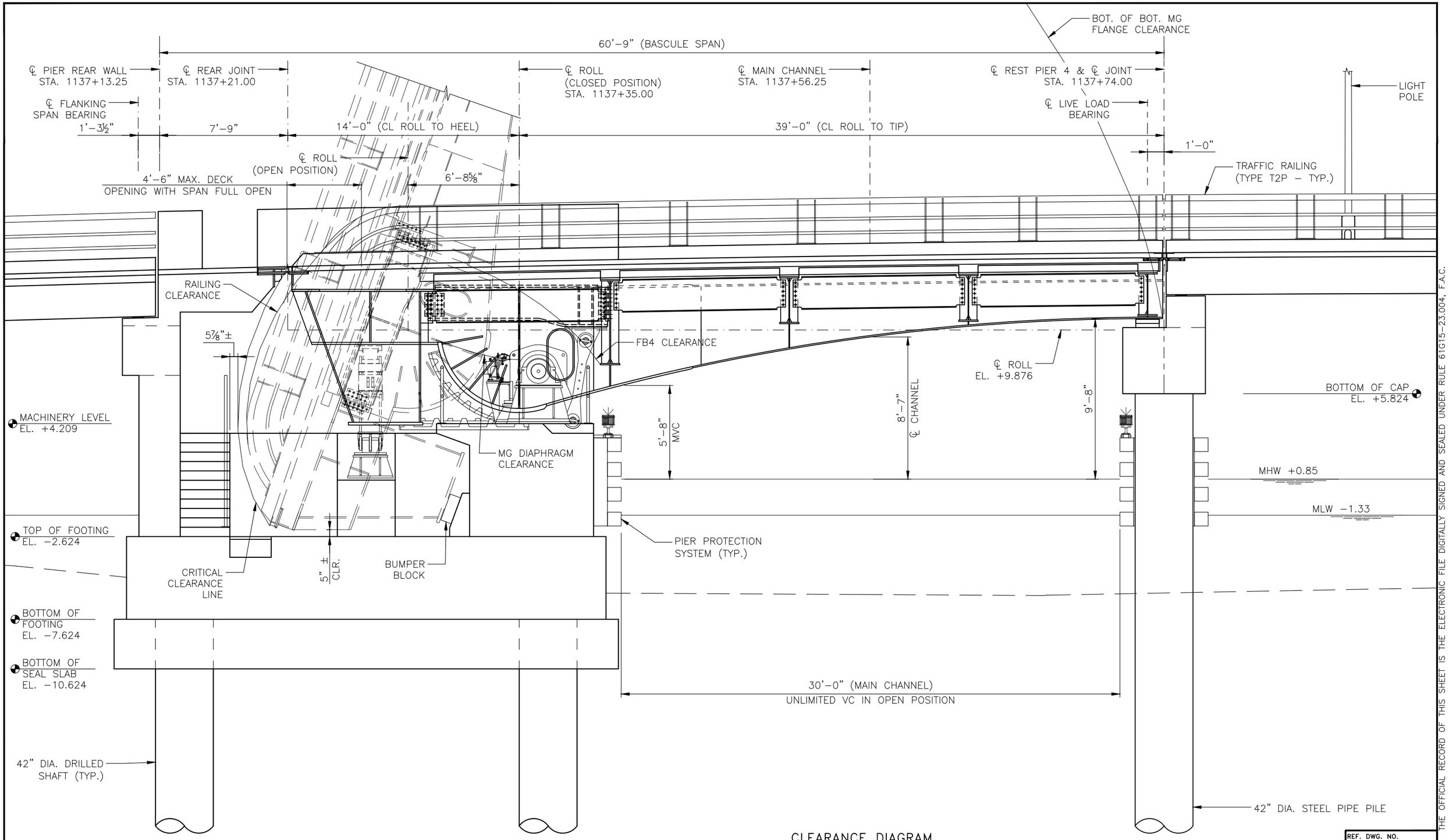
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HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP-2
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 97 OF 283

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CLEARANCE DIAGRAM

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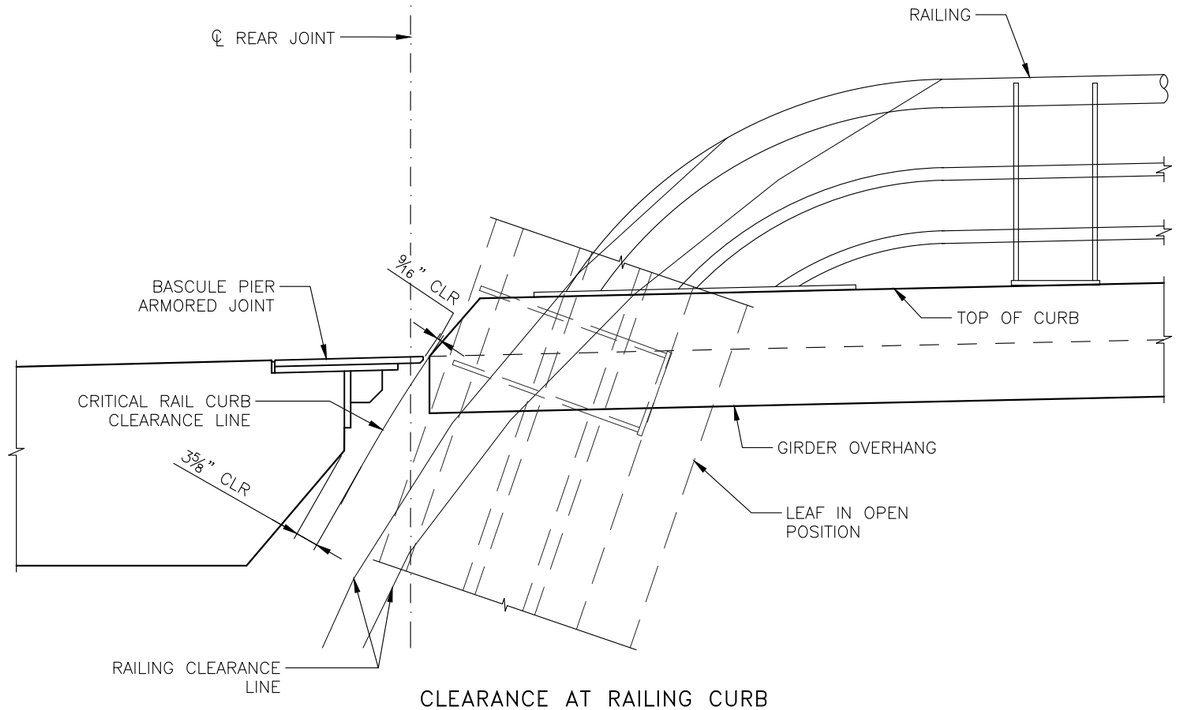
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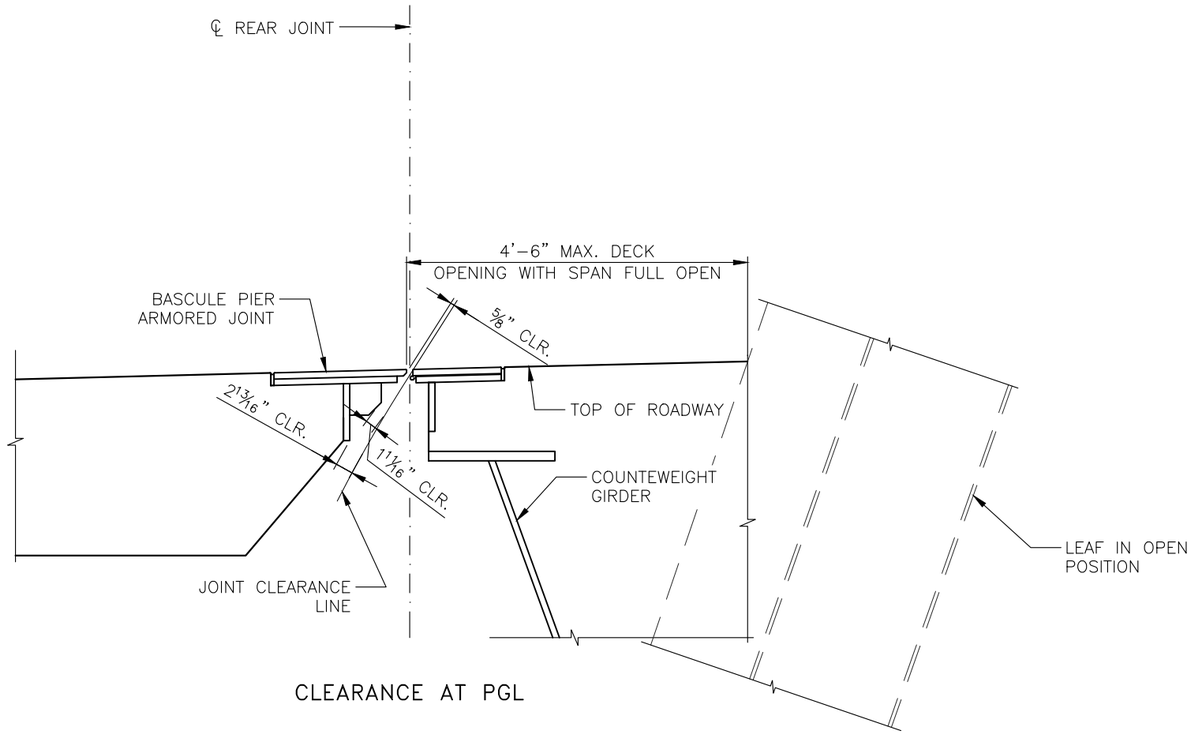
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

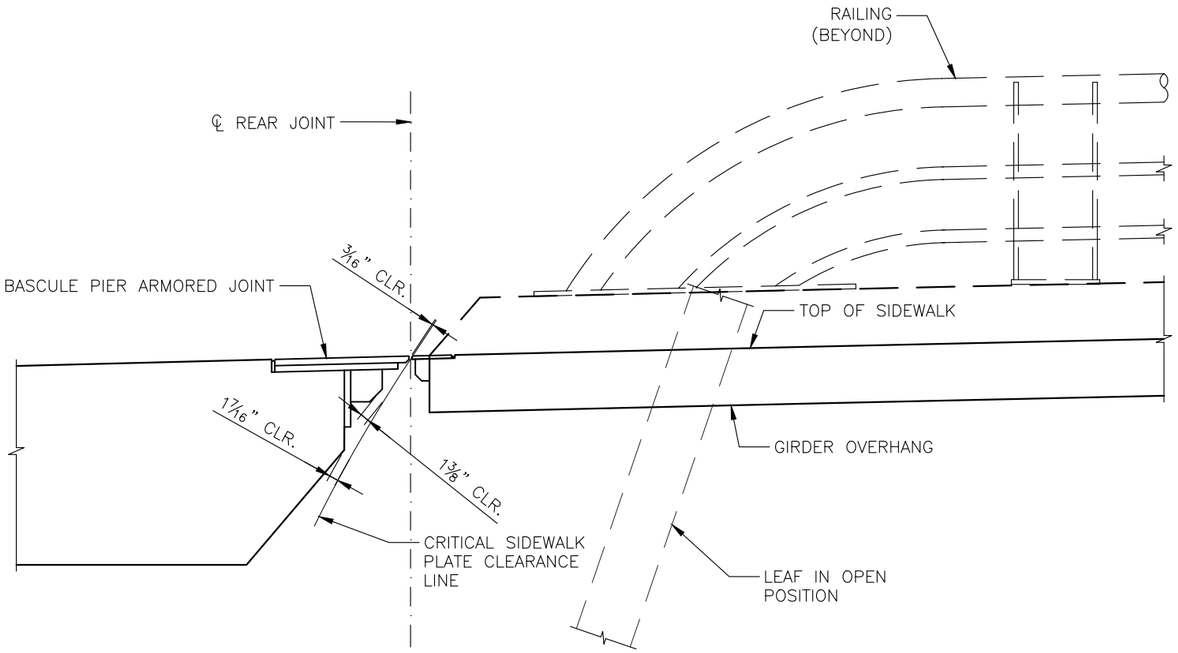
REF. DWG. NO. BP–3
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 98 OF 283



CLEARANCE AT RAILING CURB



CLEARANCE AT PGL



CLEARANCE AT SIDEWALK

REV. NO.	DATE	DESCRIPTION	REV. BY

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CHECKED JMP/CG

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PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 CLEARANCE DIAGRAM (2 OF 2)

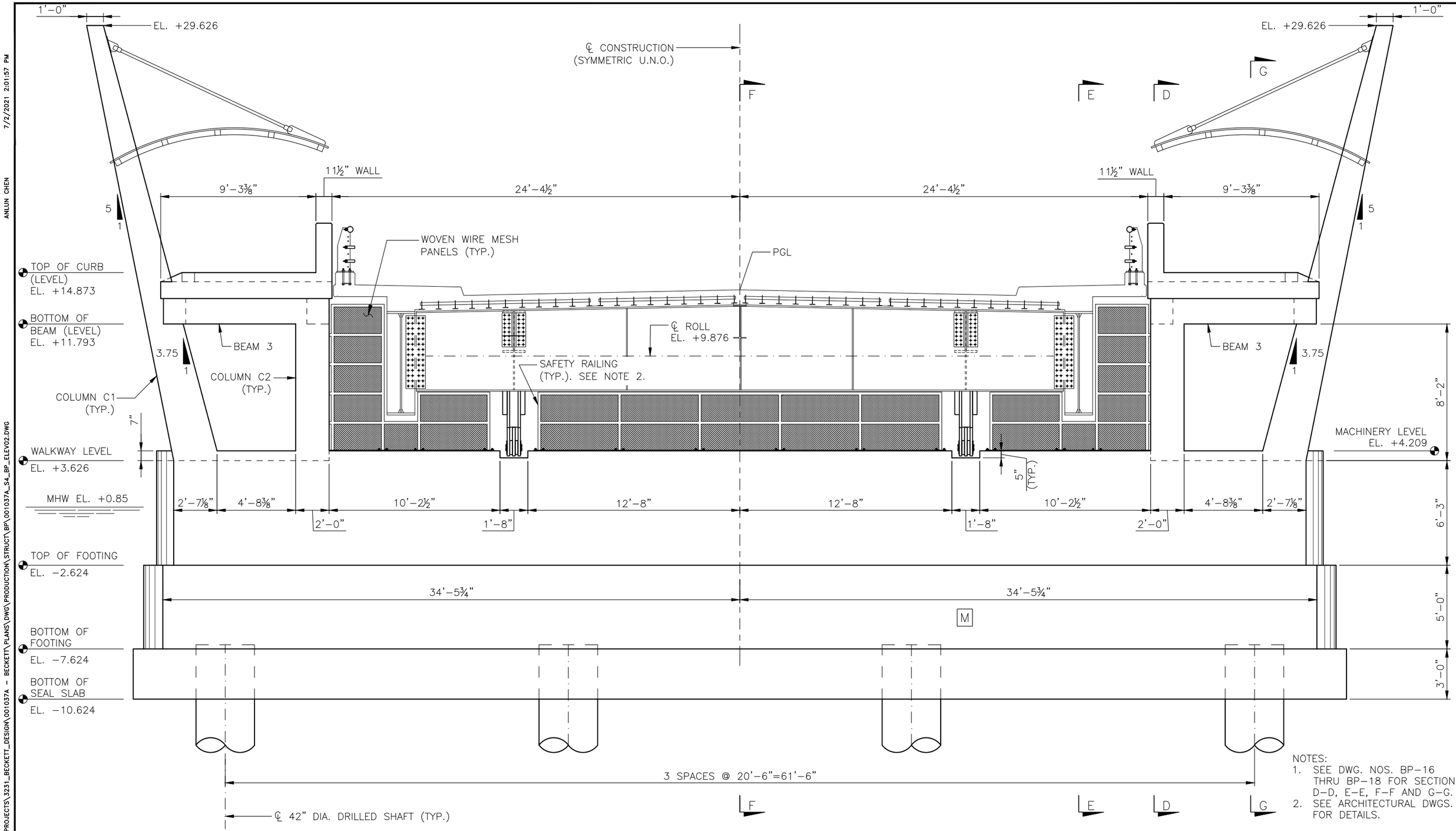
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–4
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 99 OF 283

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NOTES:
1. SEE DWG. NOS. BP-16 THRU BP-18 FOR SECTIONS D-D, E-E, F-F AND G-G.
2. SEE ARCHITECTURAL DWGS. FOR DETAILS.

EAST ELEVATION
(ARCHITECTURAL FASCIA ENCLOSURE AND PIER PROTECTION NOT SHOWN)

REV. NO.	DATE	DESCRIPTION	REV. BY

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PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 EAST ELEVATION

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

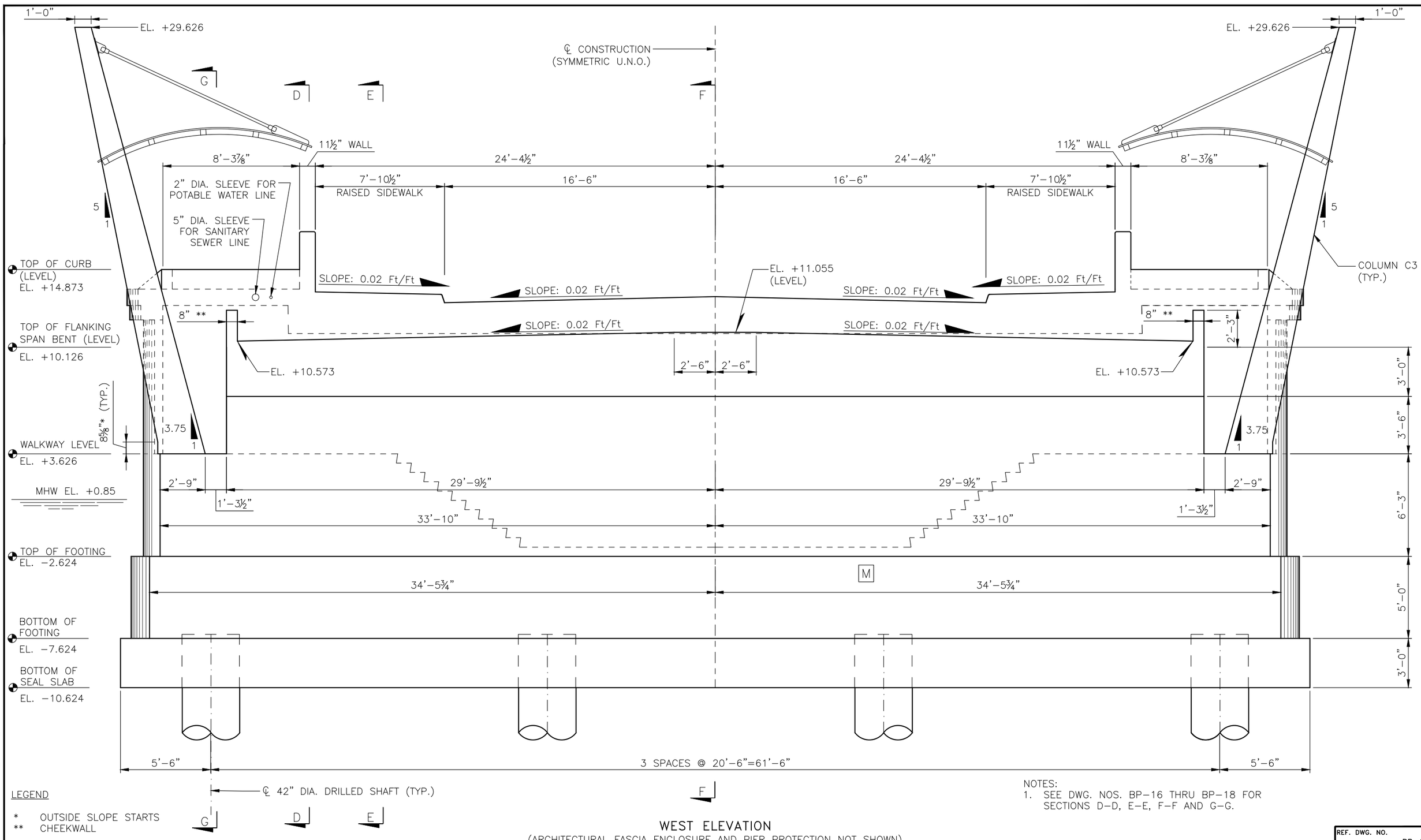
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP-5
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 100 OF 283

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LEGEND

* OUTSIDE SLOPE STARTS
** CHEEKWALL

NOTES:
1. SEE DWG. NOS. BP-16 THRU BP-18 FOR SECTIONS D-D, E-E, F-F AND G-G.

WEST ELEVATION

(ARCHITECTURAL FASCIA ENCLOSURE AND PIER PROTECTION NOT SHOWN)

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PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 WEST ELEVATION

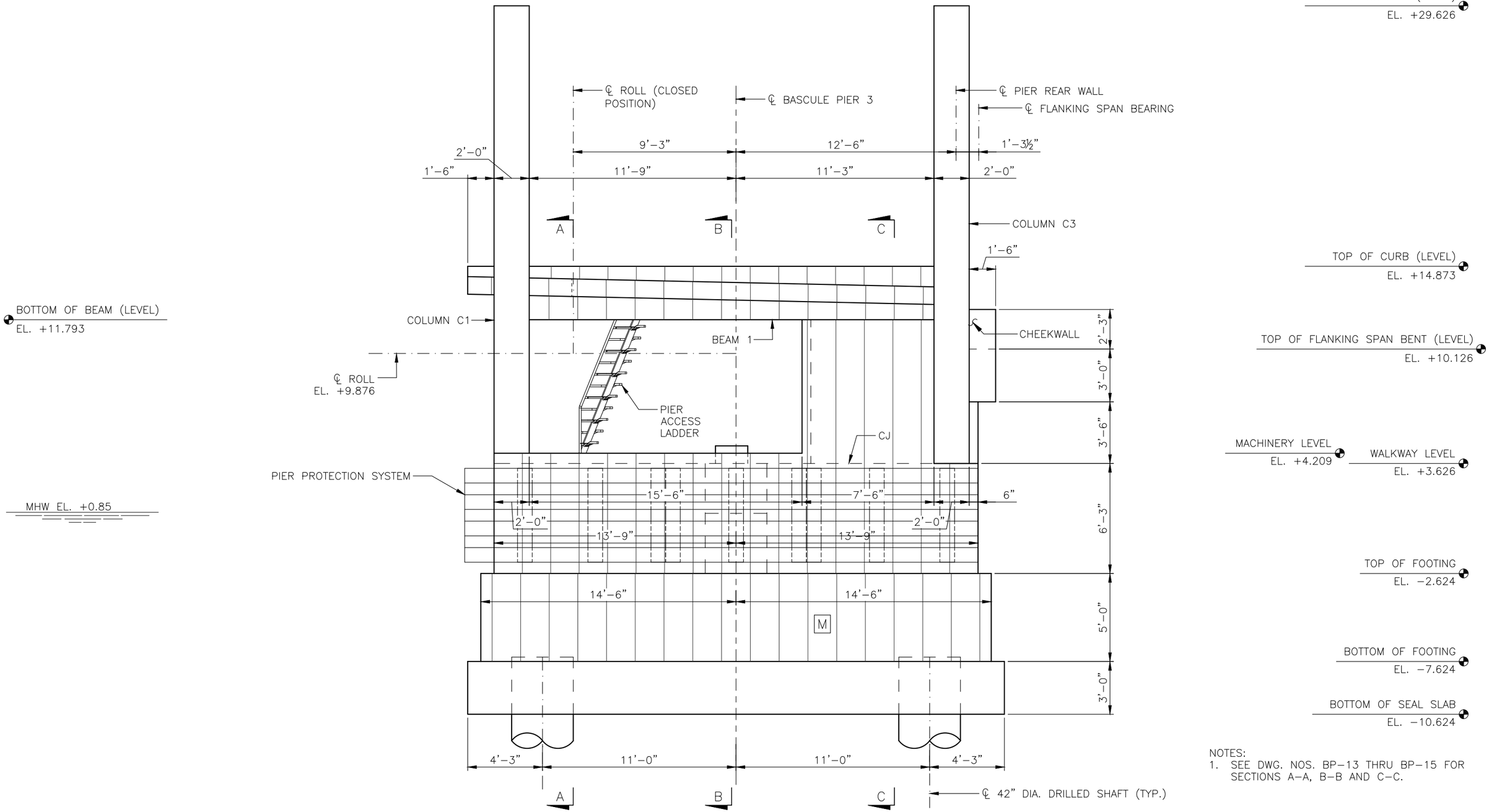
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP-6
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 101 OF 283

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NORTH ELEVATION
(ARCHITECTURAL FASCIA ENCLOSURE AND PIER PROTECTION NOT SHOWN)

NOTES:
1. SEE DWG. NOS. BP–13 THRU BP–15 FOR SECTIONS A–A, B–B AND C–C.

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DRAWN LER
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Pinellas County PUBLIC WORKS

PROJECT:
BECKETT BRIDGE REPLACEMENT

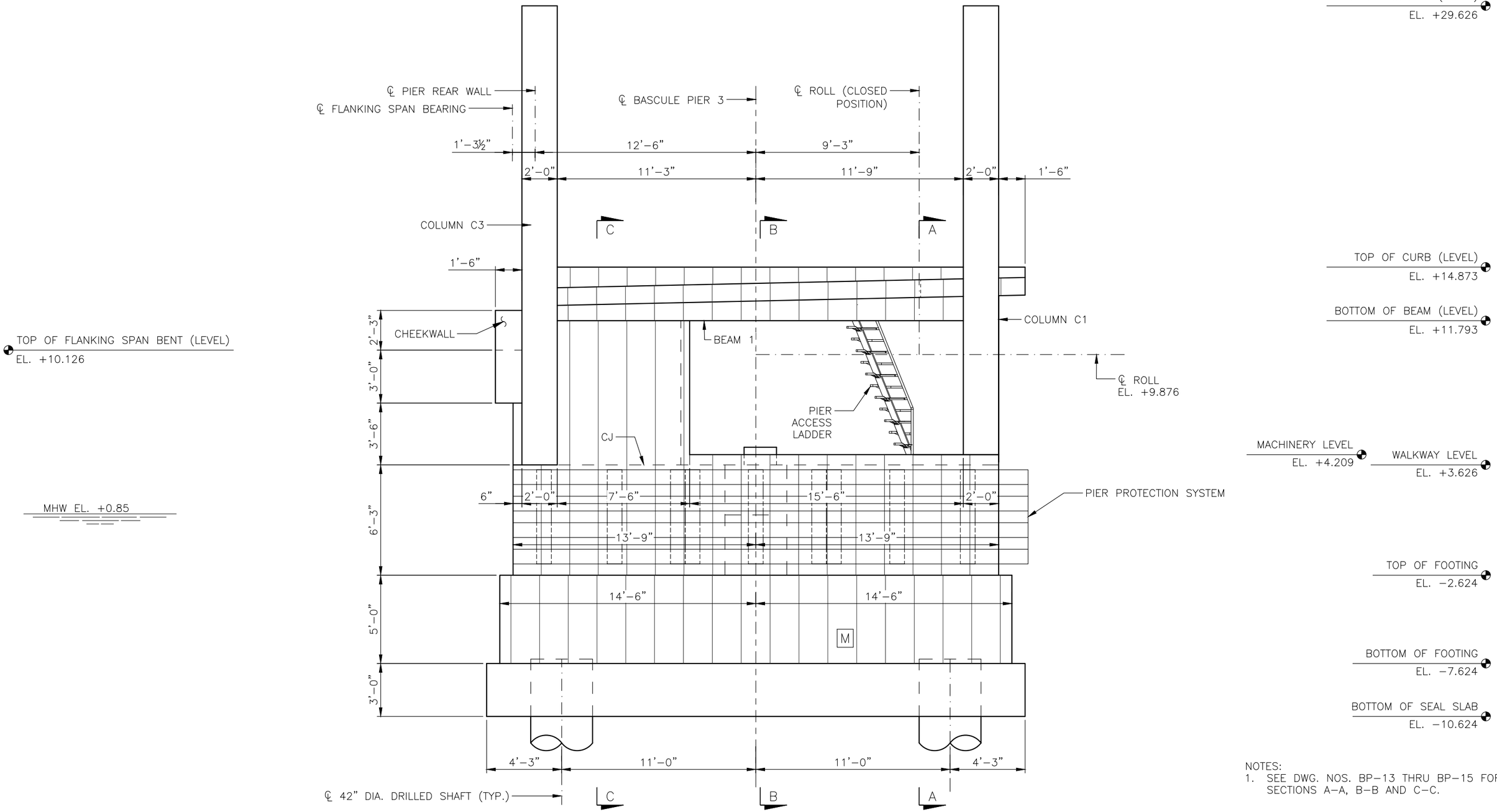
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BASCULE PIER 3 NORTH ELEVATION

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–7
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 102 OF 283

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NOTES:
1. SEE DWG. NOS. BP–13 THRU BP–15 FOR SECTIONS A–A, B–B AND C–C.

SOUTH ELEVATION
(ARCHITECTURAL FASCIA ENCLOSURE AND PIER PROTECTION NOT SHOWN)

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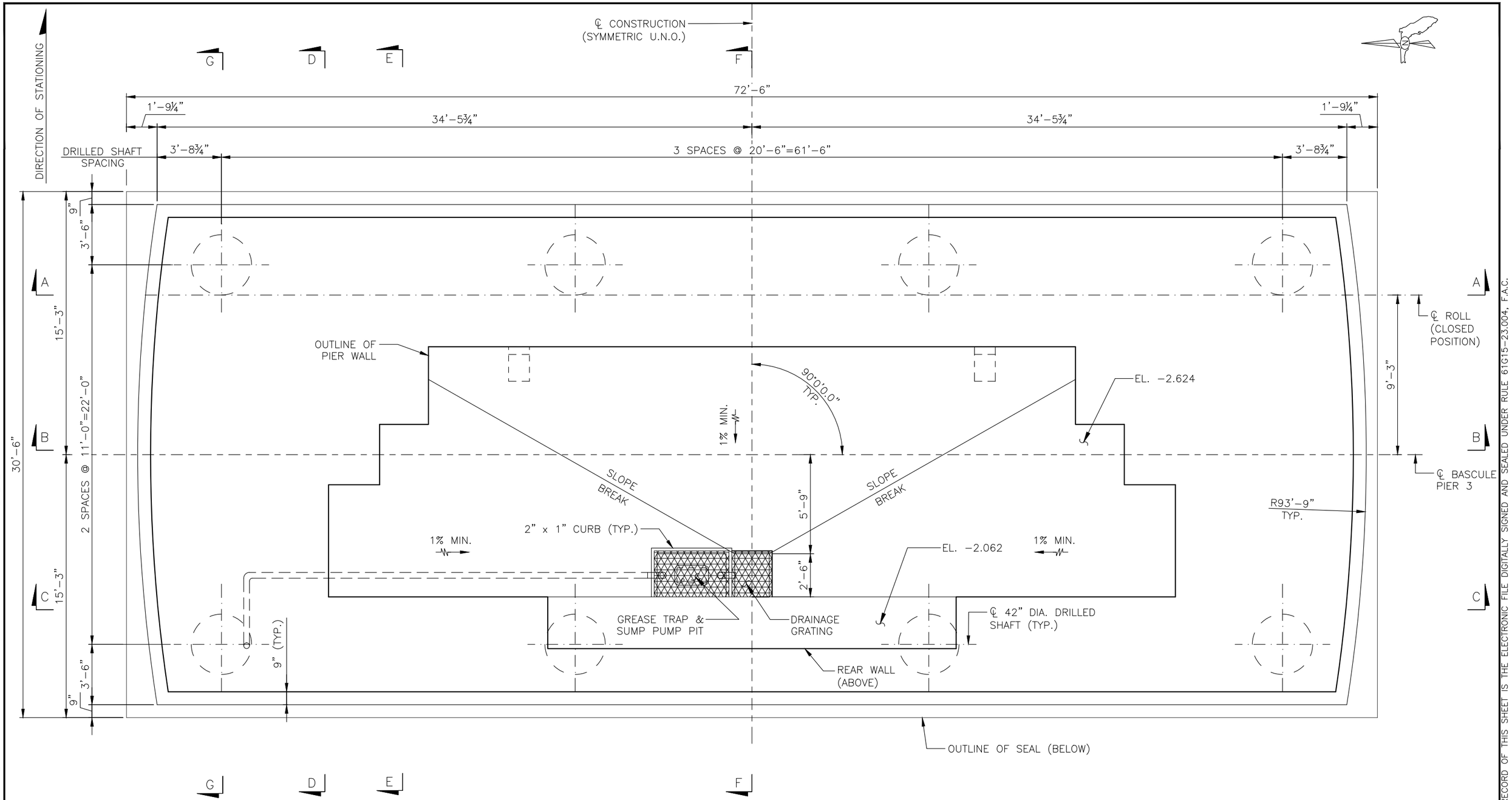
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 SOUTH ELEVATION

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–8
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 103 OF 283



NOTES:
1. SEE DWG. NOS. BP-13 THRU BP-18 FOR SECTIONS A-A, B-B, C-C, D-D, E-E, F-F AND G-G.

TOP OF FOOTING LEVEL
(PIER PROTECTION SYSTEM NOT SHOWN)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED LER
DRAWN LER
CHECKED JMP/CG

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 FOOTING LEVEL PLAN

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

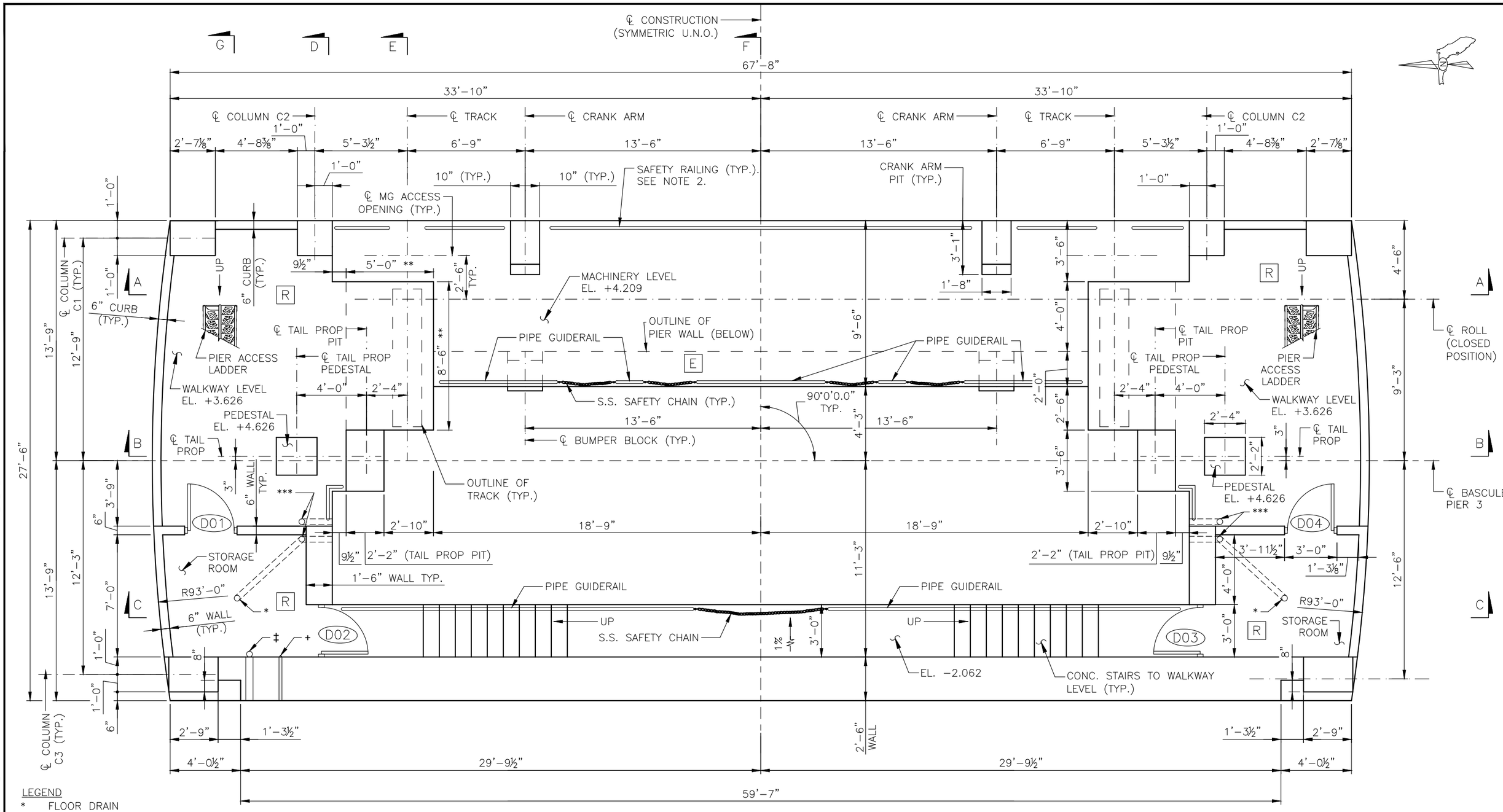
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP-9
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 104 OF 283

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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LEGEND

* FLOOR DRAIN
** LIMITS OF TRACK GIRDER BLOCKOUT (TYP.)
*** DRAIN PIPE DOWN TO PIT (TYP.)
\+ POTABLE WATER LINE FROM BRIDGE END
‡ SANITARY SEWER LINE TO BRIDGE END

NOTES:
1. SEE DWG. NOS. BP–13 THRU BP–18 FOR SECTIONS A–A, B–B, C–C, D–D, E–E, F–F AND G–G.
2. SEE ARCHITECTURAL DWGS. FOR DOOR SCHEDULE AND DETAILS.

MACHINERY LEVEL

(PIER PROTECTION SYSTEM, MACHINERY AND WOVEN WIRE MESH ENCLOSURES NOT SHOWN)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN LER
CHECKED JMP/CG

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 MACHINERY LEVEL PLAN

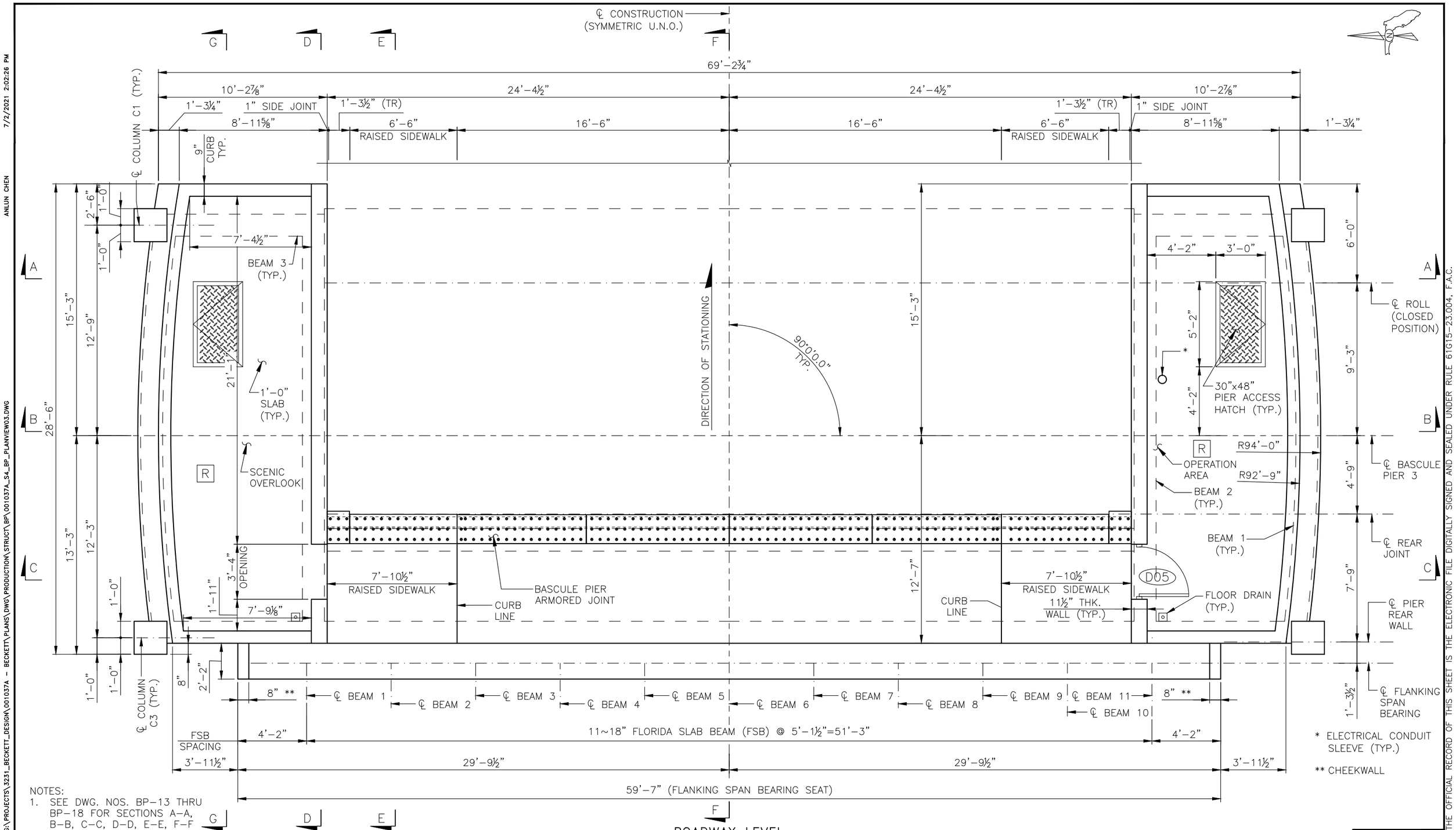
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–10
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 105 OF 283

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NOTES:
1. SEE DWG. NOS. BP-13 THRU BP-18 FOR SECTIONS A-A, B-B, C-C, D-D, E-E, F-F AND G-G.

ROADWAY LEVEL
(FLANKING SPAN DECK, SAFETY RAILINGS AND WOVEN WIRE MESH ENCLOSURES NOT SHOWN)

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED LER
DRAWN LER
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Pinellas County PUBLIC WORKS

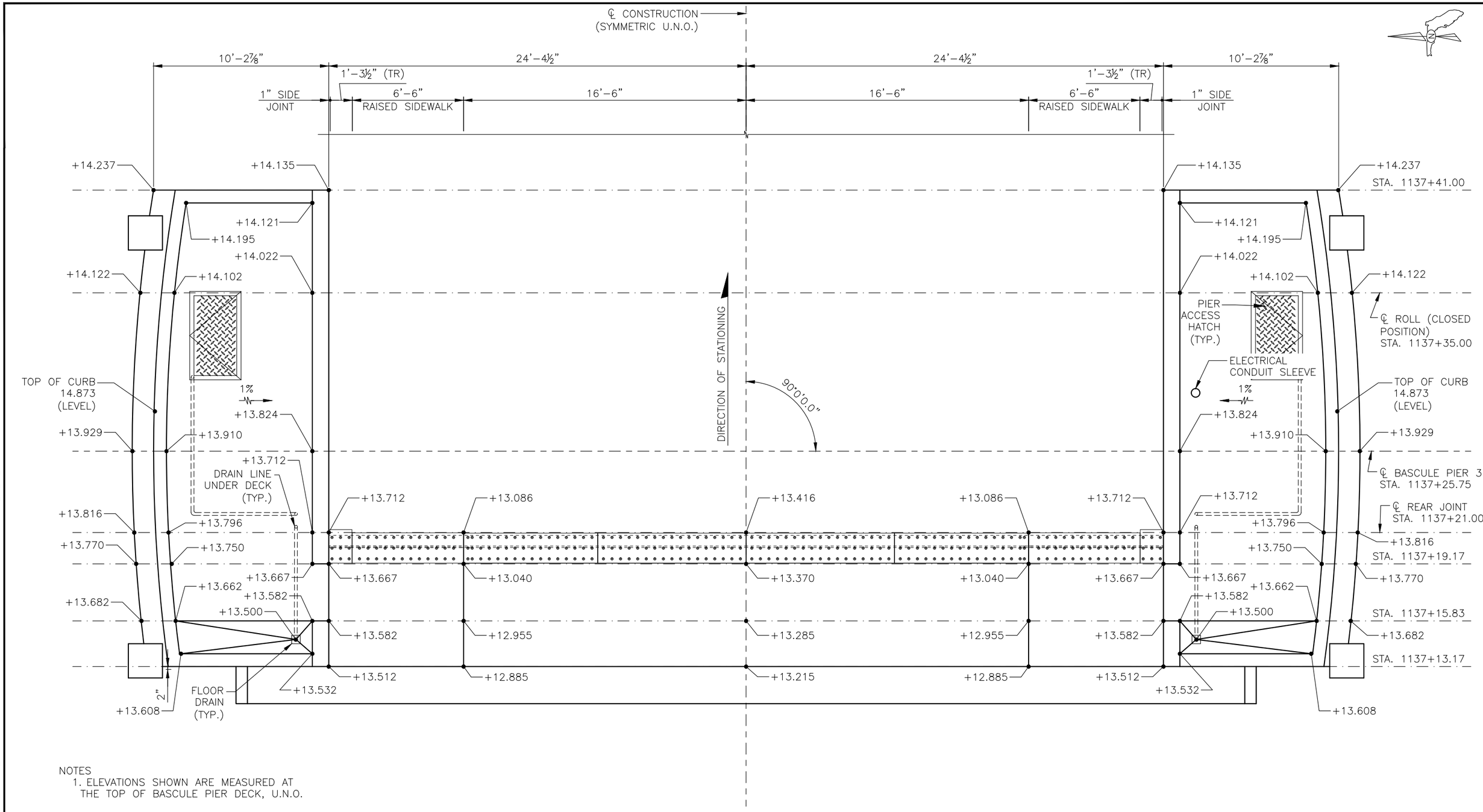
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 ROADWAY LEVEL PLAN

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP-11
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 106 OF 283



NOTES
1. ELEVATIONS SHOWN ARE MEASURED AT THE TOP OF BASCULE PIER DECK, U.N.O.

BASCULE PIER DECK FINISH GRADE ELEVATIONS
(SAFETY RAILINGS AND WOVEN WIRE MESH ENCLOSURES NOT SHOWN)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED LER
DRAWN LER
CHECKED CG

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

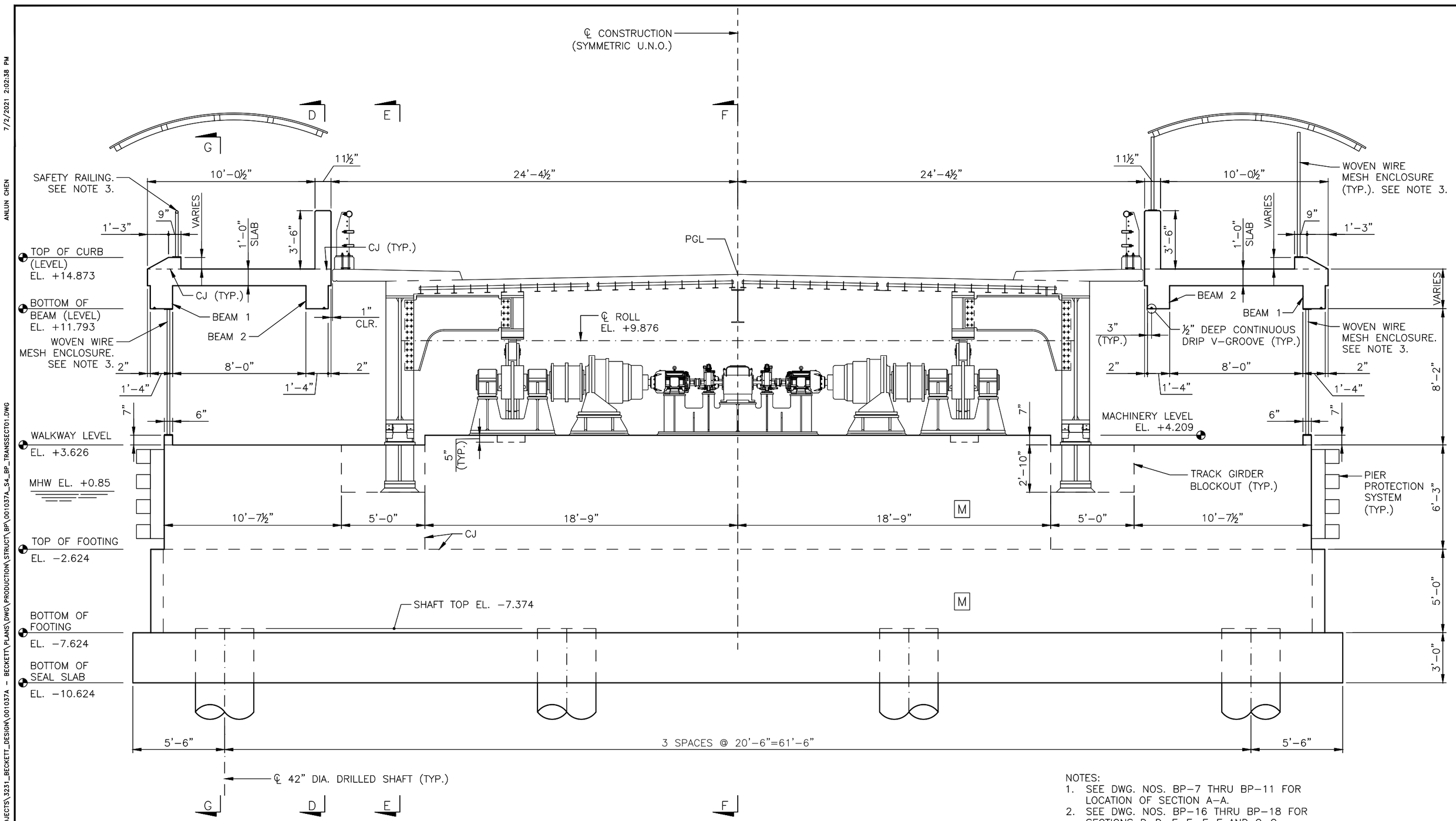
DESCRIPTION: BASCULE PIER 3 FINISH GRADE ELEVATIONS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–12
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 107 OF 283

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TRANSVERSE SECTION AT ℄ ROLL
(SECTION A–A)

NOTES:
1. SEE DWG. NOS. BP–7 THRU BP–11 FOR LOCATION OF SECTION A–A.
2. SEE DWG. NOS. BP–16 THRU BP–18 FOR SECTIONS D–D, E–E, F–F AND G–G.
3. SEE ARCHITECTURAL DWGS. FOR DETAILS.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED LER
DRAWN LER
CHECKED JMP/CG

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 TRANSVERSE SECTION (1 OF 3)

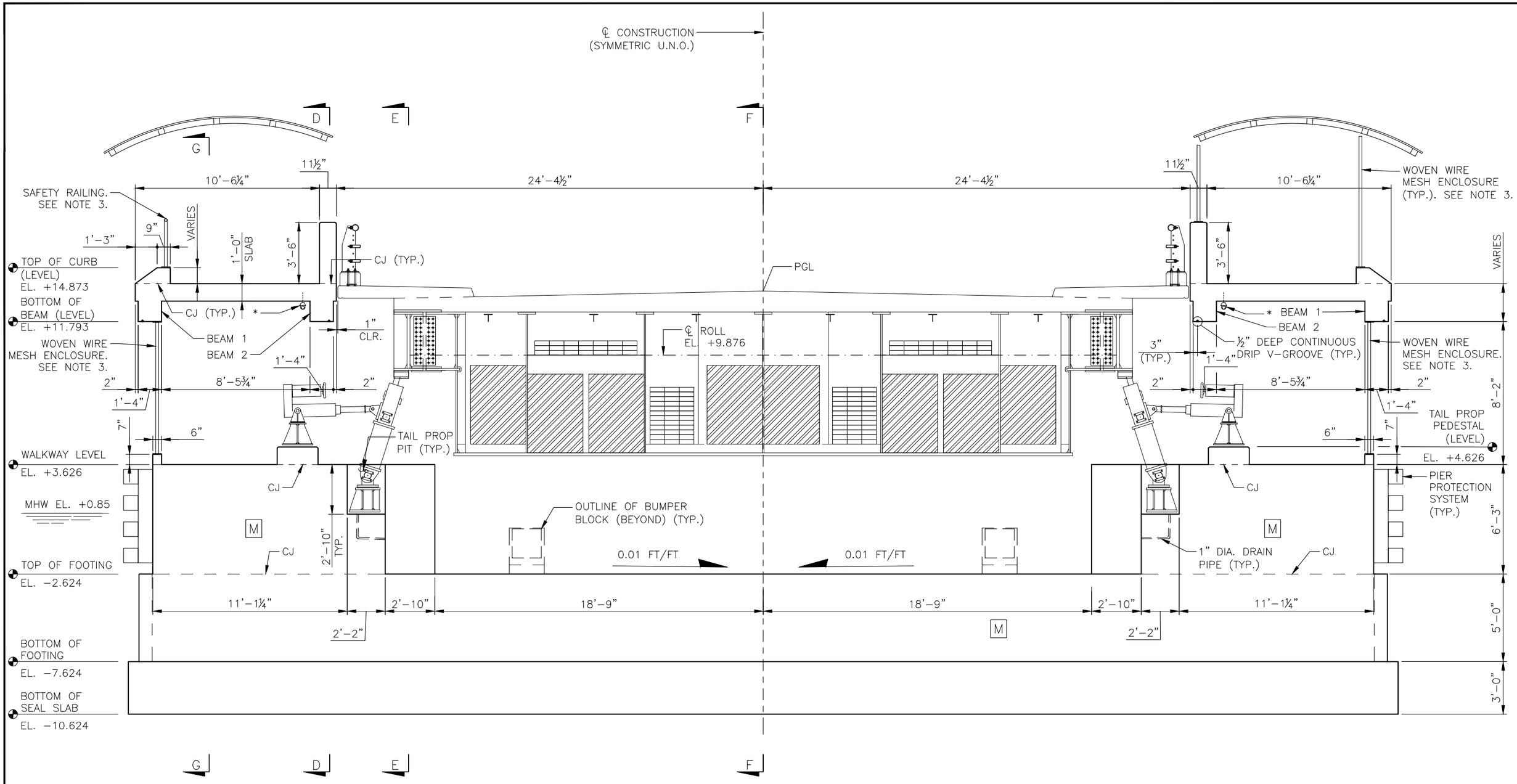
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–13
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 108 OF 283

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LEGEND

* DRAINAGE LINE

NOTES:
1. SEE DWG. NOS. BP–7 THRU BP–11 FOR LOCATION OF SECTION B–B.
2. SEE DWG. NOS. BP–16 THRU BP–18 FOR SECTIONS D–D, E–E, F–F AND G–G.
3. SEE ARCHITECTURAL DWGS. FOR DETAILS.

TRANSVERSE SECTION AT ℄ TAIL PROP (SECTION B–B)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED LER
DRAWN LER
CHECKED JMP/CG

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

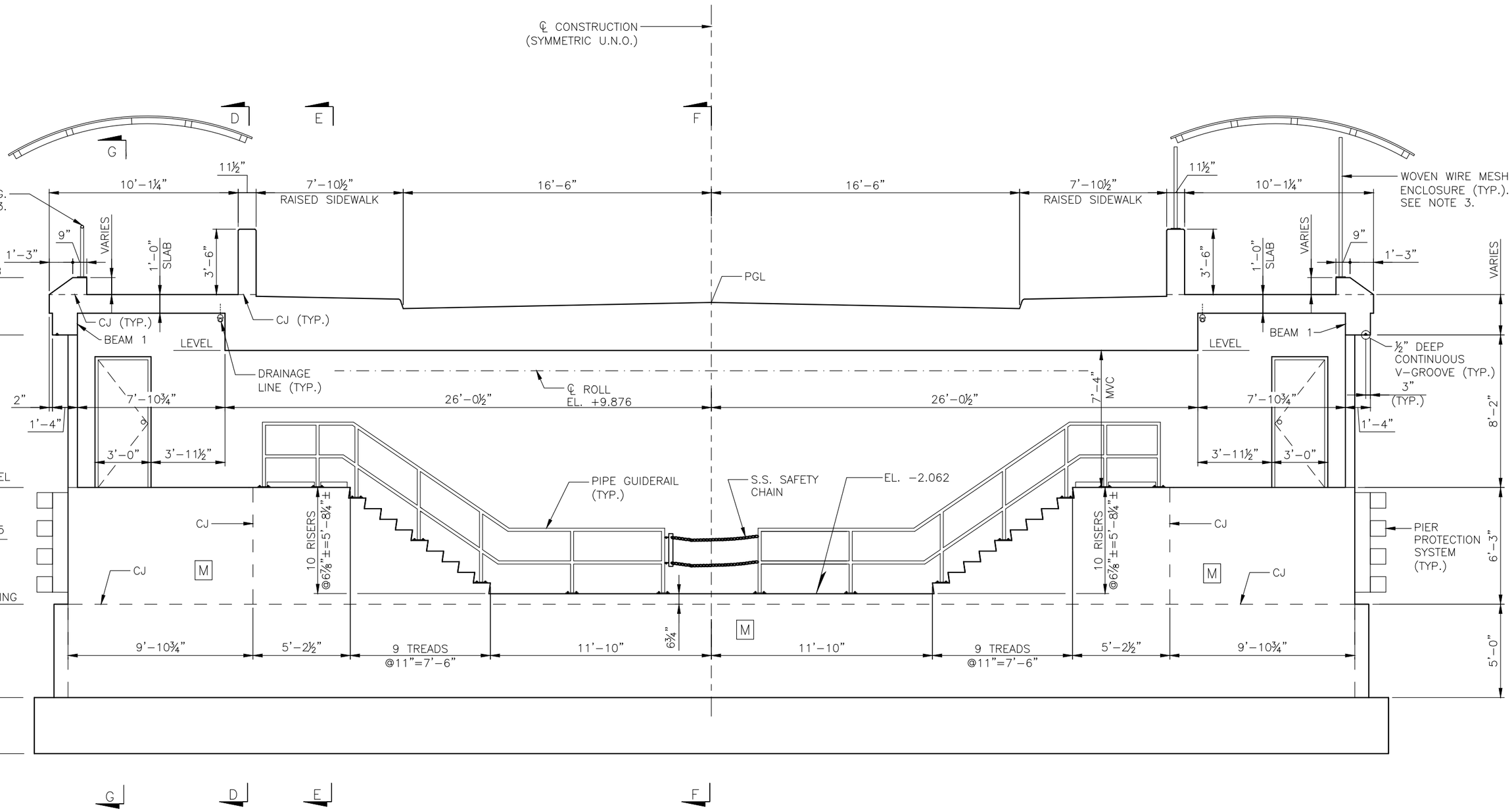
DESCRIPTION: BASCULE PIER 3 TRANSVERSE SECTION (2 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–14
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 109 OF 283

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TRANSVERSE SECTION C–C

NOTES:
1. SEE DWG. NOS. BP–7 THRU BP–11 FOR LOCATION OF SECTION C–C.
2. SEE DWG. NOS. BP–16 THRU BP–18 FOR SECTIONS D–D, E–E, F–F AND G–G.
3. SEE ARCHITECTURAL DWGS. FOR DETAILS.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED LER
DRAWN LER
CHECKED JMP/CG

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 TRANSVERSE SECTION (3 OF 3)

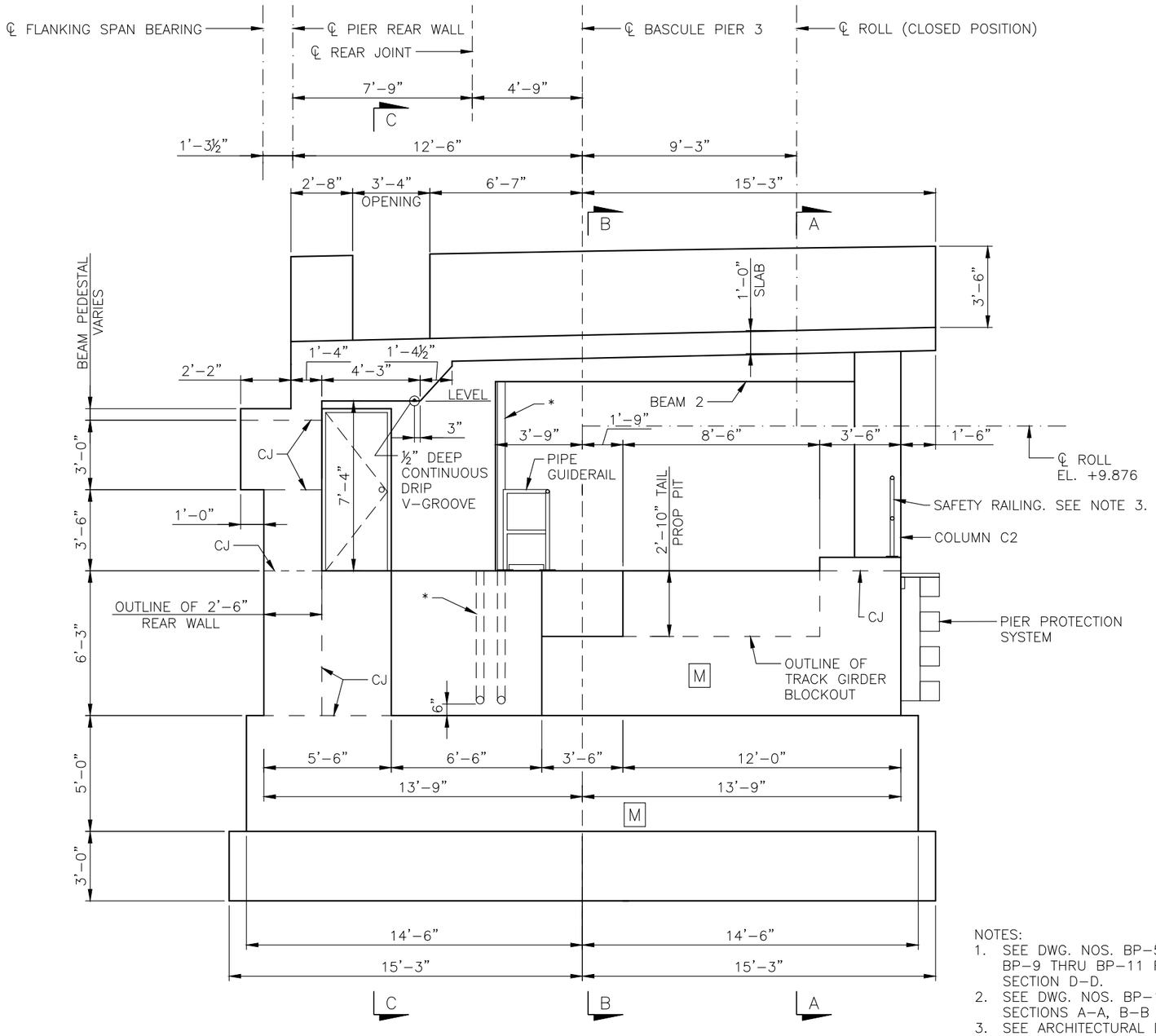
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–15
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 110 OF 283

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TOP OF FLANKING SPAN BENT (LEVEL)
EL. +10.126

MHW EL. +0.85

BOTTOM OF BEAM (LEVEL)
EL. +11.793

℄ ROLL
EL. +9.876

MACHINERY LEVEL
EL. +4.209

WALKWAY LEVEL
EL. +3.626

TOP OF FOOTING
EL. –2.624

BOTTOM OF FOOTING
EL. –7.624

BOTTOM OF SEAL SLAB
EL. –10.624

LEGEND

* DRAIN LINE

NOTES:
1. SEE DWG. NOS. BP–5 THRU BP–6 & BP–9 THRU BP–11 FOR LOCATION OF SECTION D–D.
2. SEE DWG. NOS. BP–13 THRU BP–15 FOR SECTIONS A–A, B–B AND C–C.
3. SEE ARCHITECTURAL DWGS. FOR DETAILS.

LONGITUDINAL SECTION D–D

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED LER
DRAWN LER
CHECKED JMP/CG

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 LONGITUDINAL SECTION (1 OF 3)

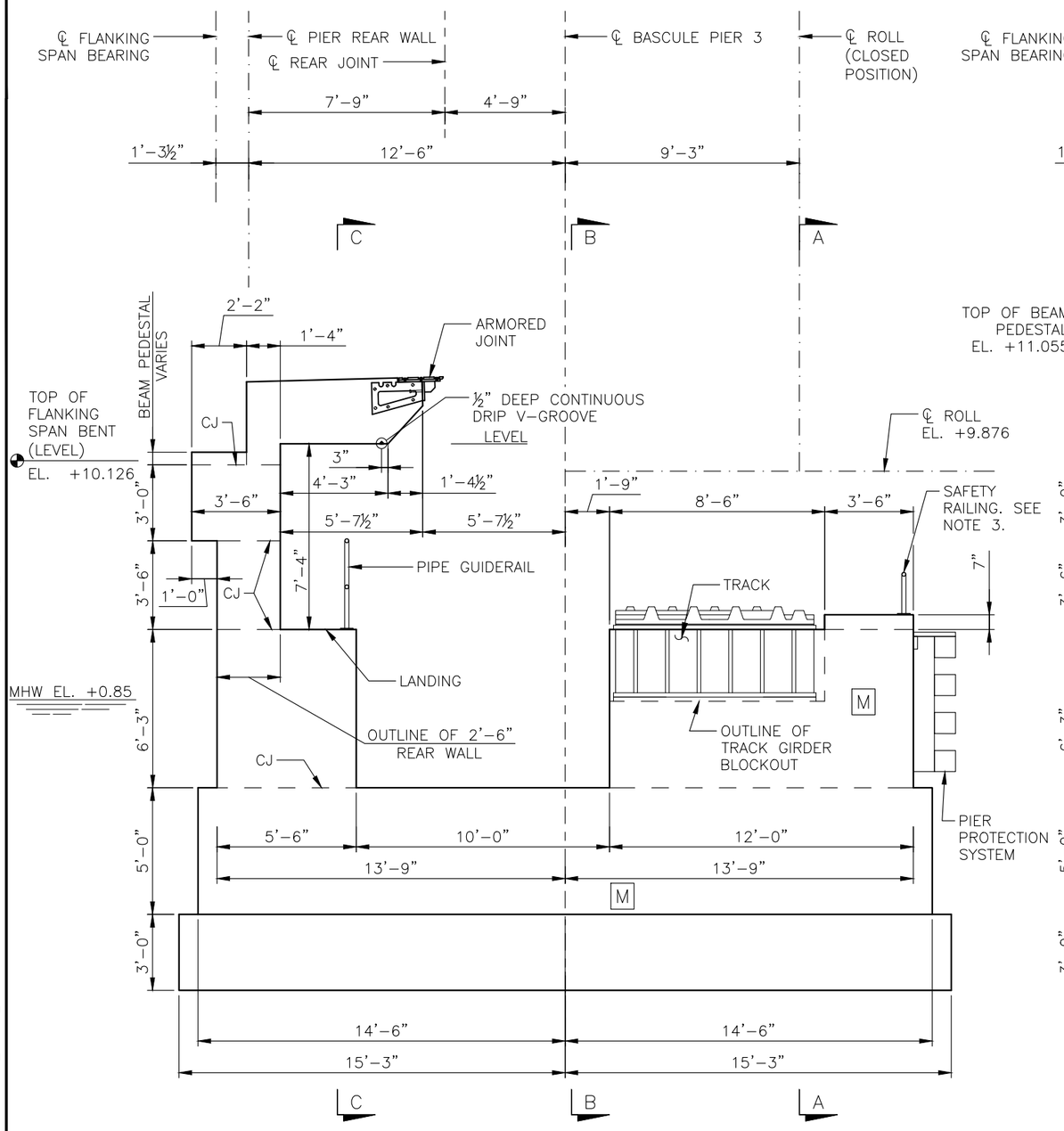
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

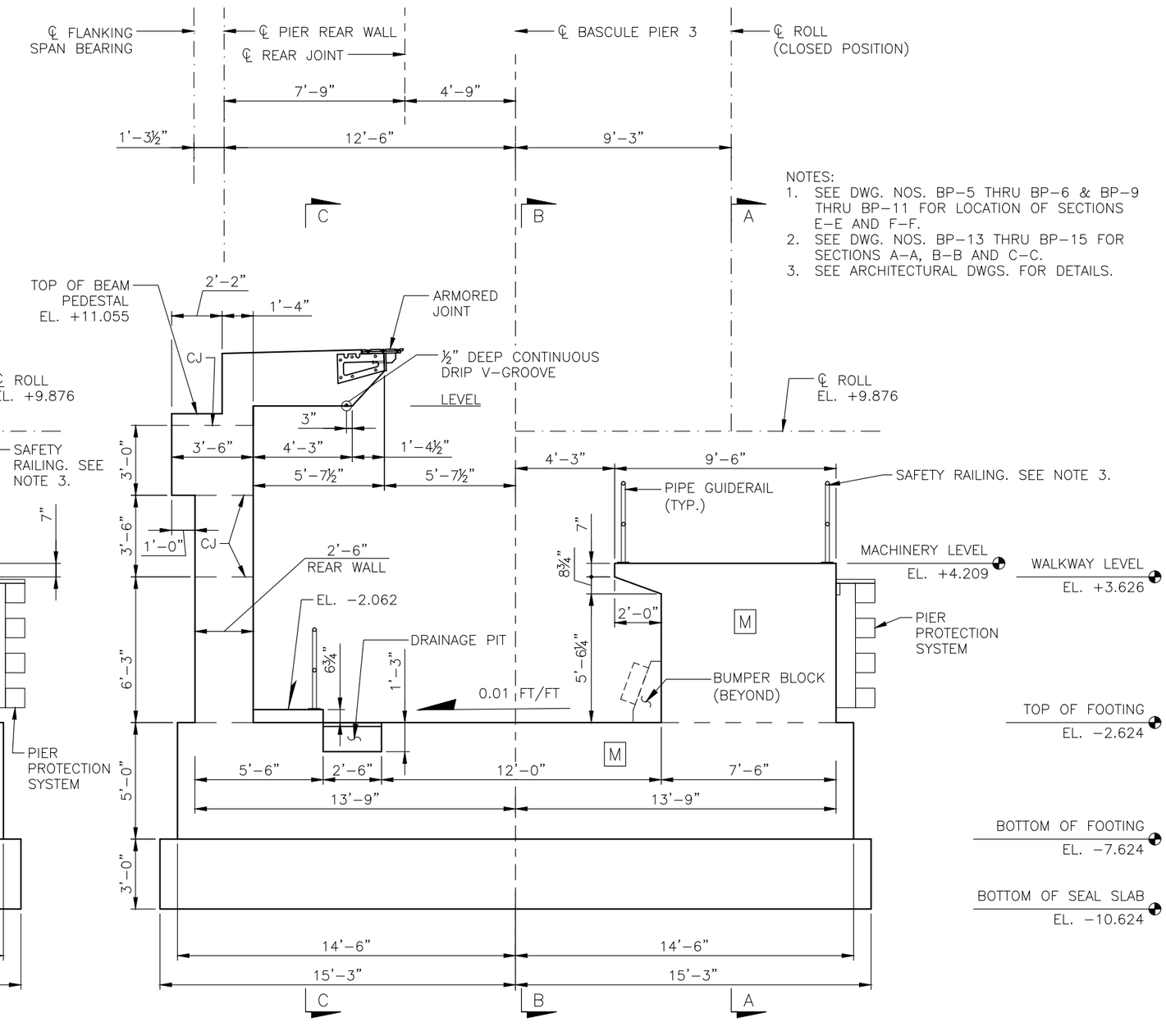
REF. DWG. NO. BP–16
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 111 OF 283

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15–23.004, F.A.C.

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LONGITUDINAL SECTION E–E



LONGITUDINAL SECTION F–F

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED LER
DRAWN LER
CHECKED JMP/CG

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

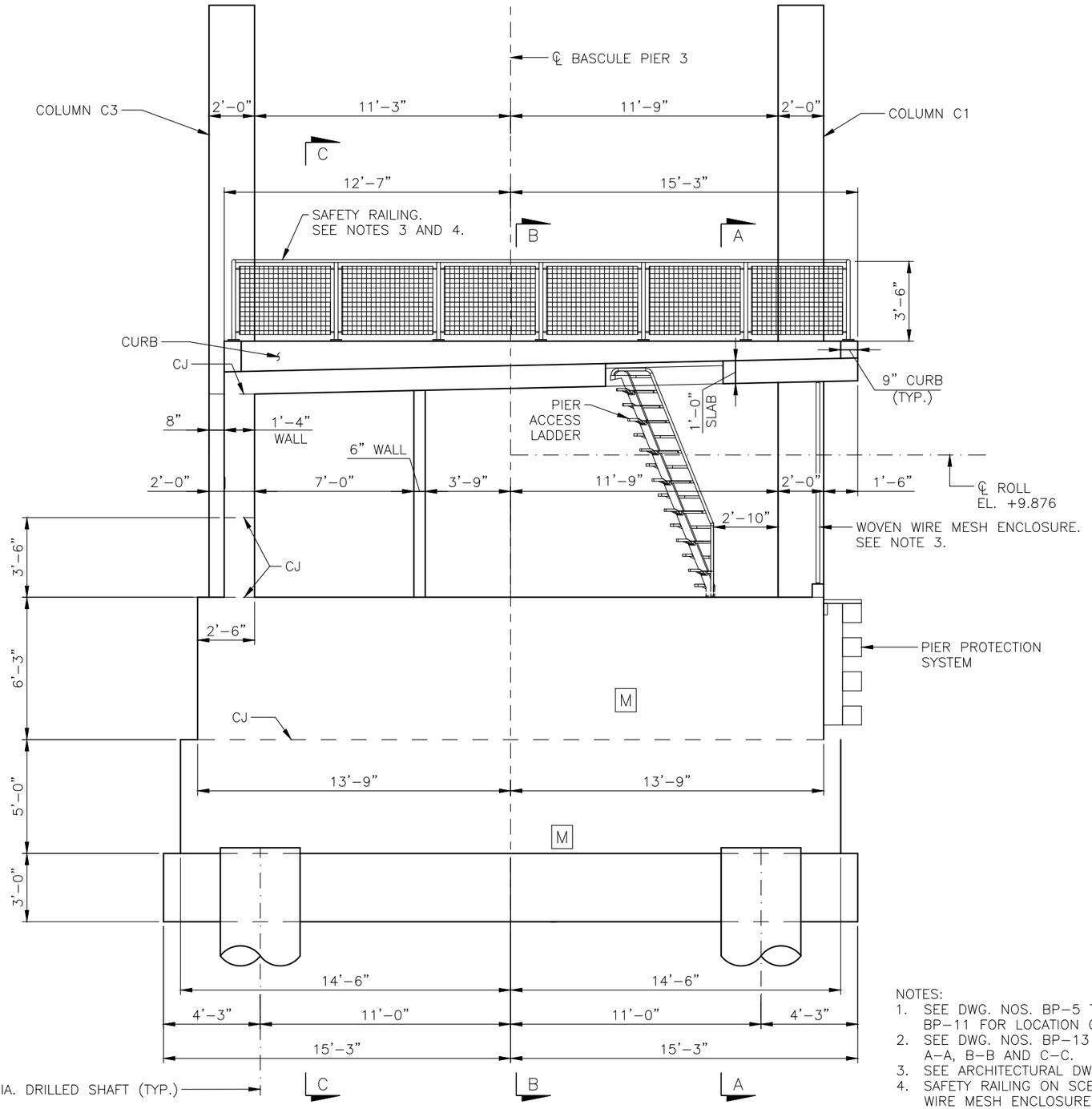
DESCRIPTION: BASCULE PIER 3 LONGITUDINAL SECTION (2 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–17
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 112 OF 283

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15–23.004, F.A.C.



LONGITUDINAL SECTION G–G

NOTES:
1. SEE DWG. NOS. BP–5 THRU BP–6 & BP–9 THRU BP–11 FOR LOCATION OF SECTION G–G.
2. SEE DWG. NOS. BP–13 THRU BP–15 FOR SECTIONS A–A, B–B AND C–C.
3. SEE ARCHITECTURAL DWGS. FOR DETAILS.
4. SAFETY RAILING ON SCENIC OVERLOOK SHOWN. WOVEN WIRE MESH ENCLOSURE ON OPERATION AREA SIMILAR.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED LER
DRAWN LER
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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 LONGITUDINAL SECTION (3 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

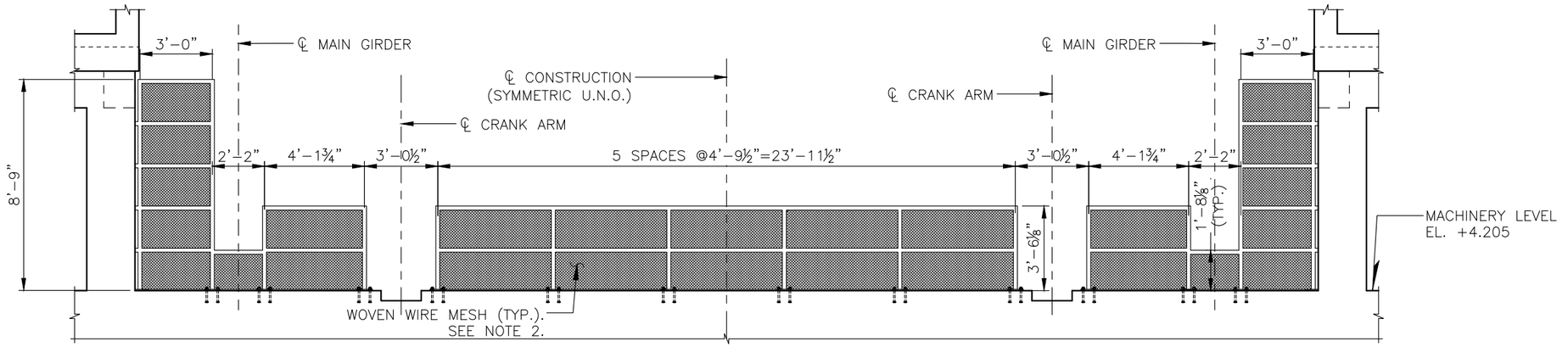
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–18
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 113 OF 283

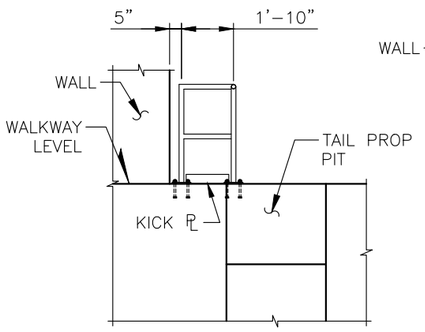
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15–23.004, F.A.C.

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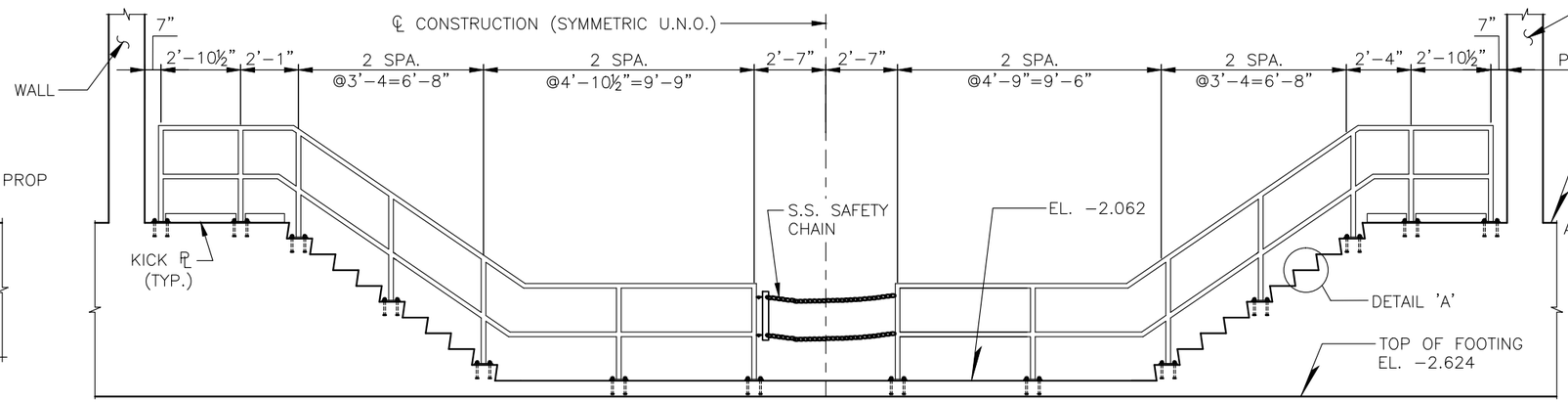


SAFETY RAILING AT MACHINERY LEVEL (EAST FACE)

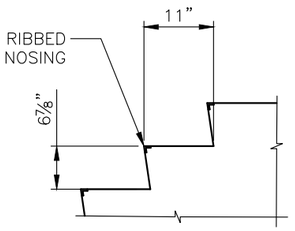


PIPE GUIDERAIL AT WALKWAY LEVEL (TAIL PROP)

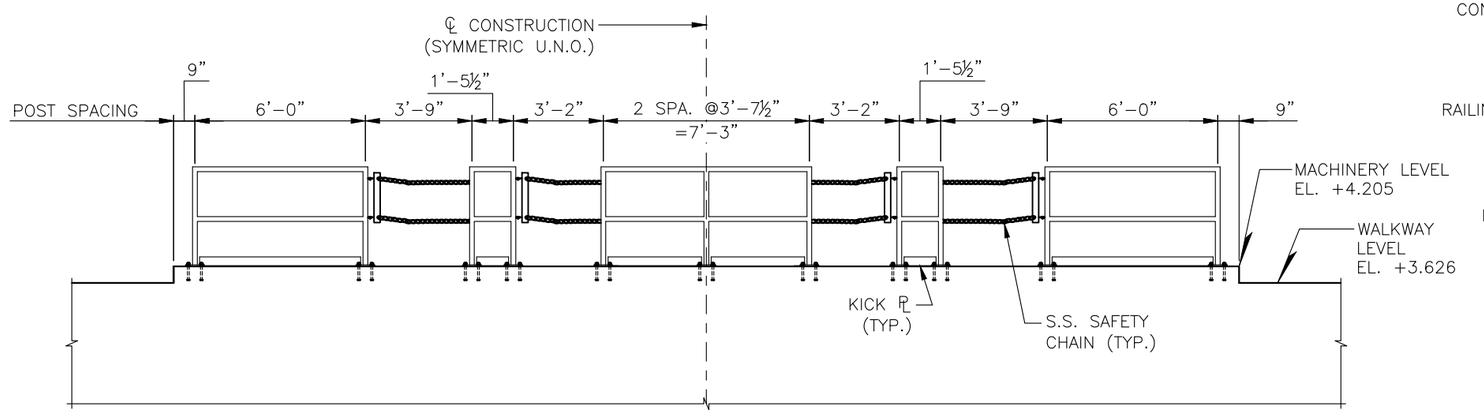
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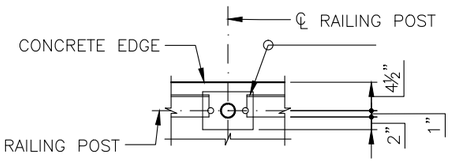
PIPE GUIDERAIL AT REAR PIER WALL



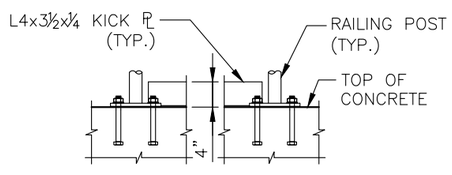
DETAIL 'A'



PIPE GUIDERAIL AT MACHINERY LEVEL (COUNTERWEIGHT SIDE)



PIPE GUIDERAIL BASE PLATE



PIPE GUIDERAIL KICK PLATE

NOTES:
1. PROVIDE A CONCRETE EXPANSION ANCHORS AT KICK-PLATES EVERY 2 FT. BUT NO LESS THAN 1 PER PANEL.
2. SEE ARCHITECTURAL DWGS. FOR DETAILS.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED LER
DRAWN LER
CHECKED CG

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

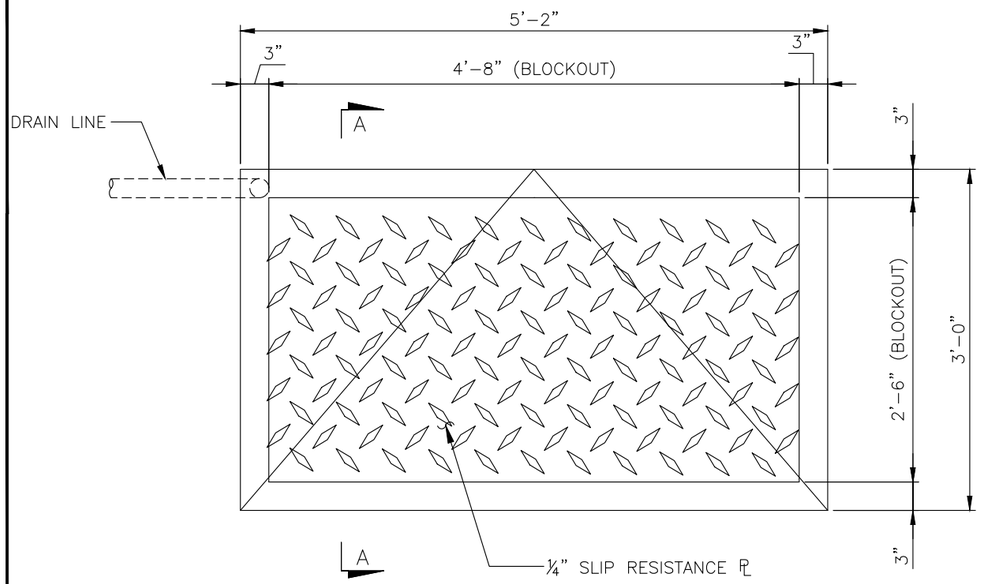
DESCRIPTION: BASCULE PIER 3 RAILING DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

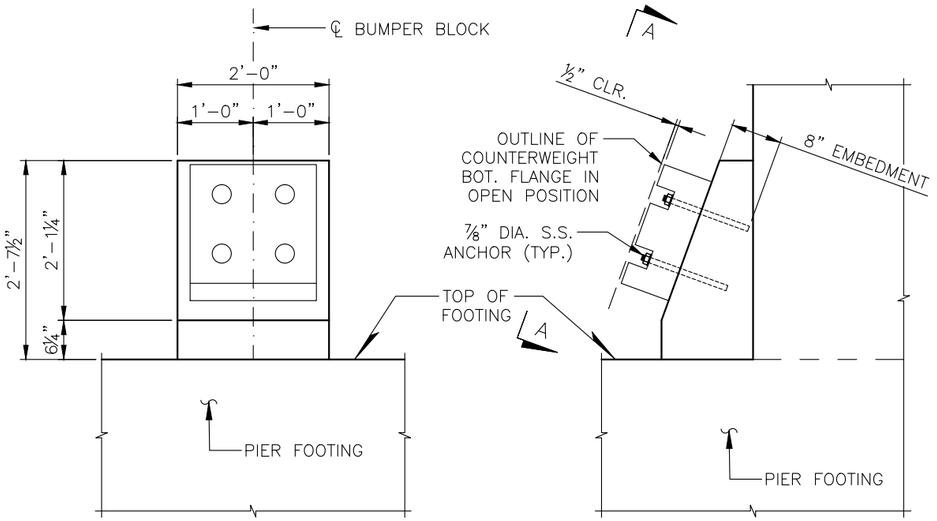
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP-19
DATE: 06/25/2021
PROJECT NO. 001037A

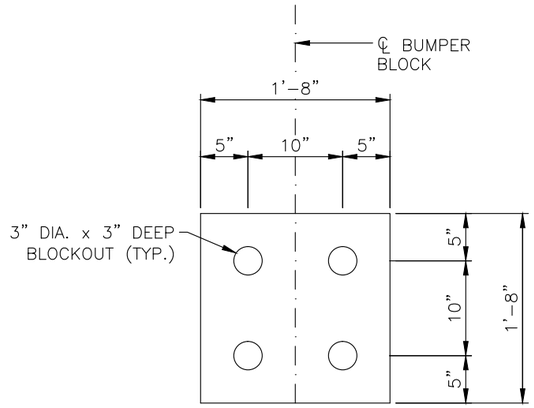
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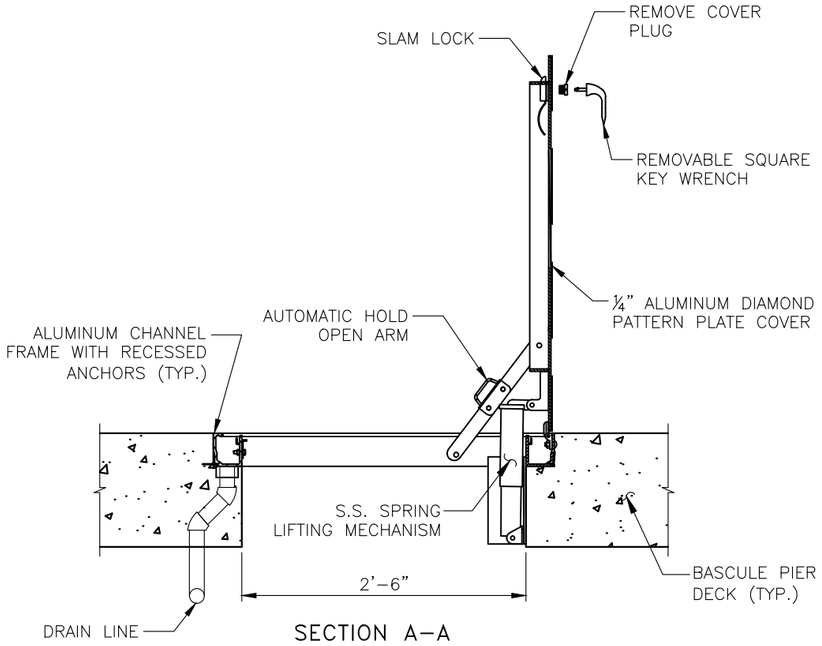
ACCESS HATCH PLAN



BASCULE PIER BUMPER BLOCK

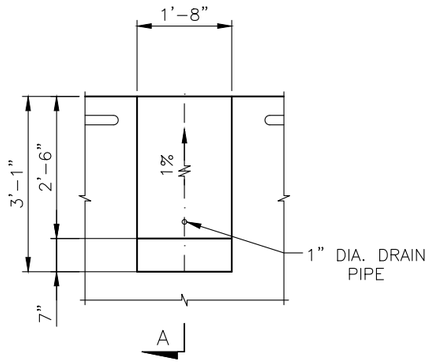


VIEW A–A

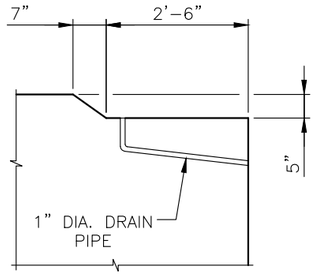


SECTION A–A

A



CRANK ARM PIT PLAN



SECTION A–A

NOTES:
1. SEE TSP T512 FOR BASCULE PIER ACCESS HATCH REQUIREMENTS. PROVIDE A FALL THROUGH PREVENTION SYSTEM INCLUDING A S.S. SAFETY CHAIN.
2. DESIGN LOADING: 300 PSF.
3. COORDINATE BASCULE PIER ACCESS HATCH WITH THE ACCESS LADDER.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED LER
DRAWN LER
CHECKED CG

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

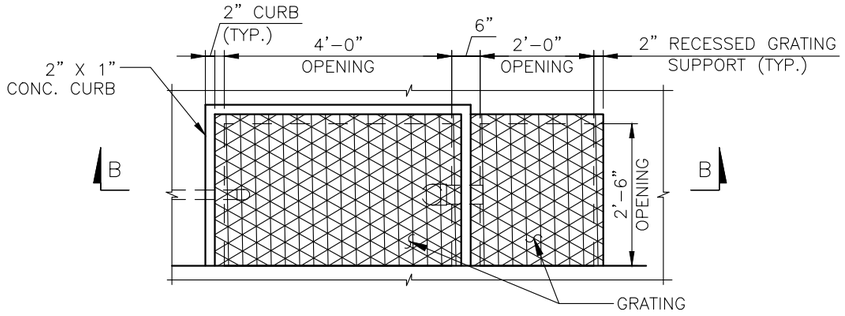
DESCRIPTION: BASCULE PIER 3 DETAILS (1 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

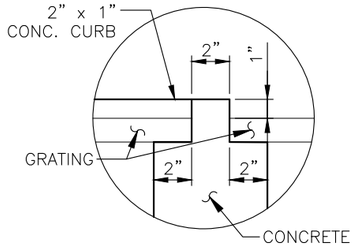
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–20
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 115 OF 283

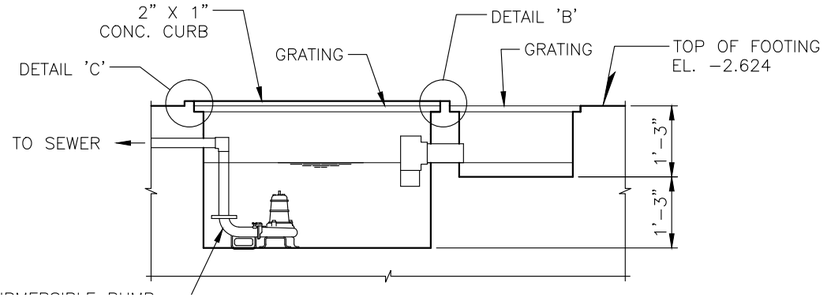
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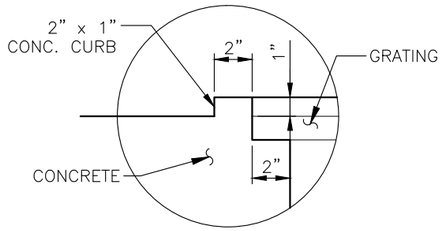


GREASE TRAP PLAN



DETAIL 'B'





DETAIL 'C'

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED LER
DRAWN LER
CHECKED CG

Pinellas County PUBLIC WORKS

PROJECT:
BECKETT BRIDGE
REPLACEMENT

DESCRIPTION:
BASCULE PIER 3
DETAILS (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

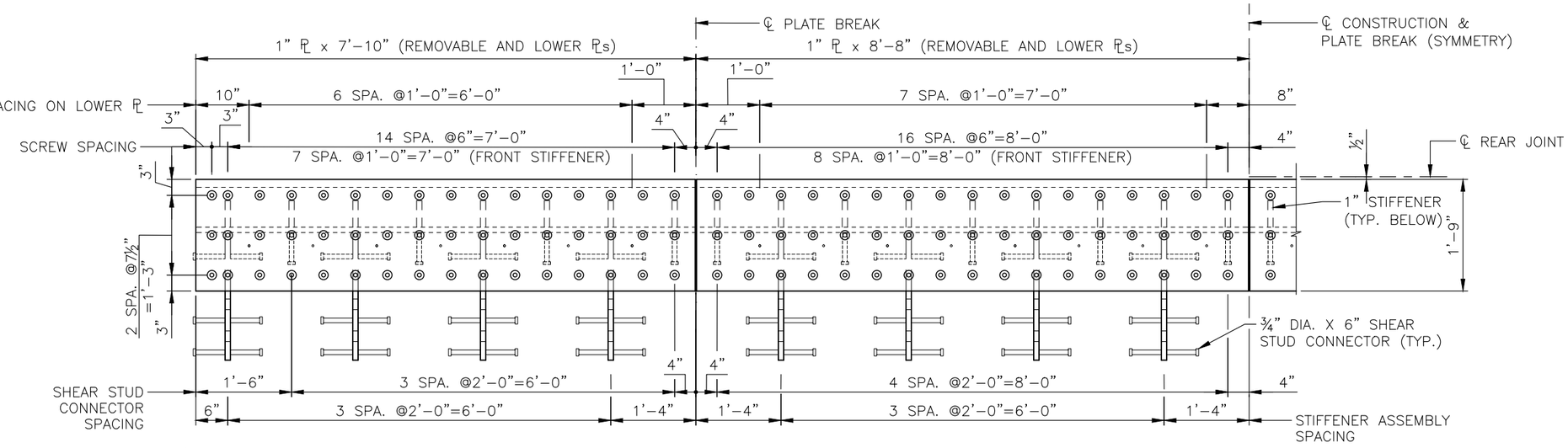
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP-21
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 116 OF 283

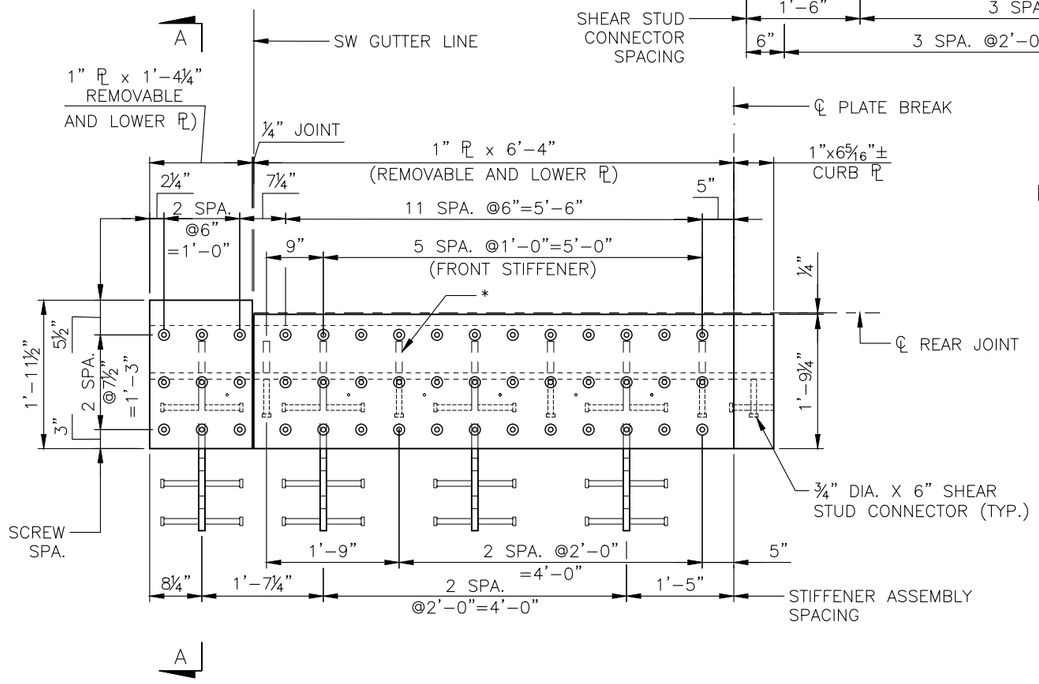
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LEGEND

- ✲ ¾" DIA. X 6" SHEAR STUD CONNECTOR
- ◎ COUNTEBORED ¾" DIA. SCREW
- • VENT HOLE



ROADWAY ARMORED REAR JOINT ASSEMBLY – HALF PLAN



SIDEWALK ARMORED REAR JOINT DEVELOPED PLAN

NOTES:
1. SEE DWG NO. BP-23 FOR SECTIONS.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED LER
DRAWN LER
CHECKED CG

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

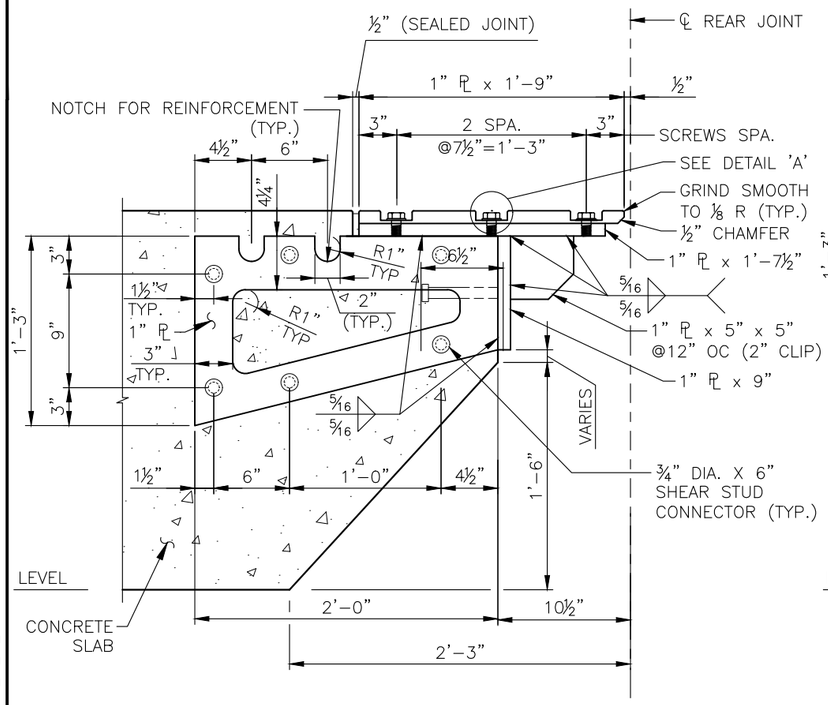
DESCRIPTION: BASCULE PIER 3 ARMORED JOINT ASSEMBLIES (1 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

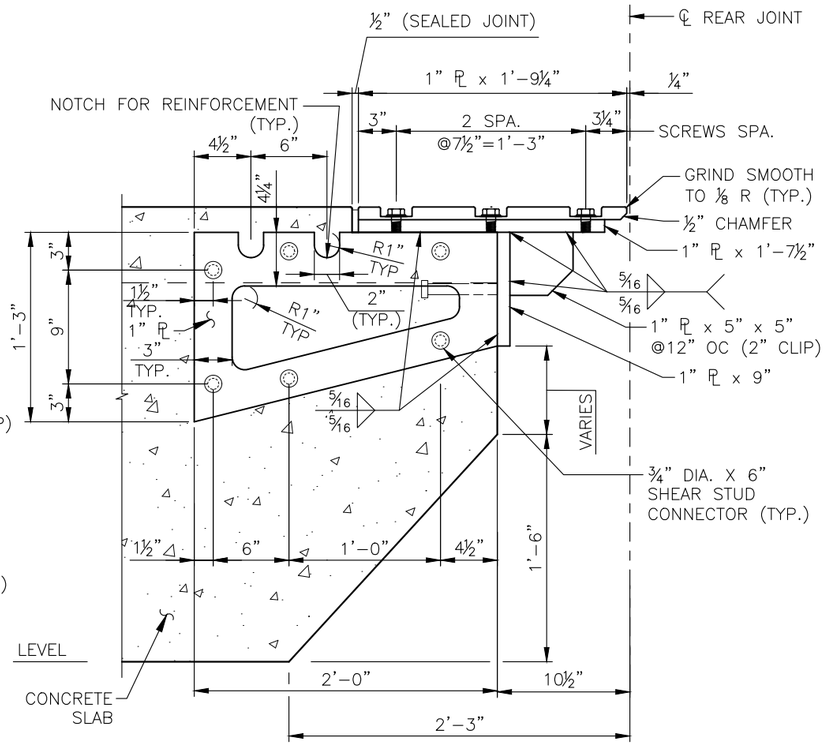
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP-22
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 117 OF 283

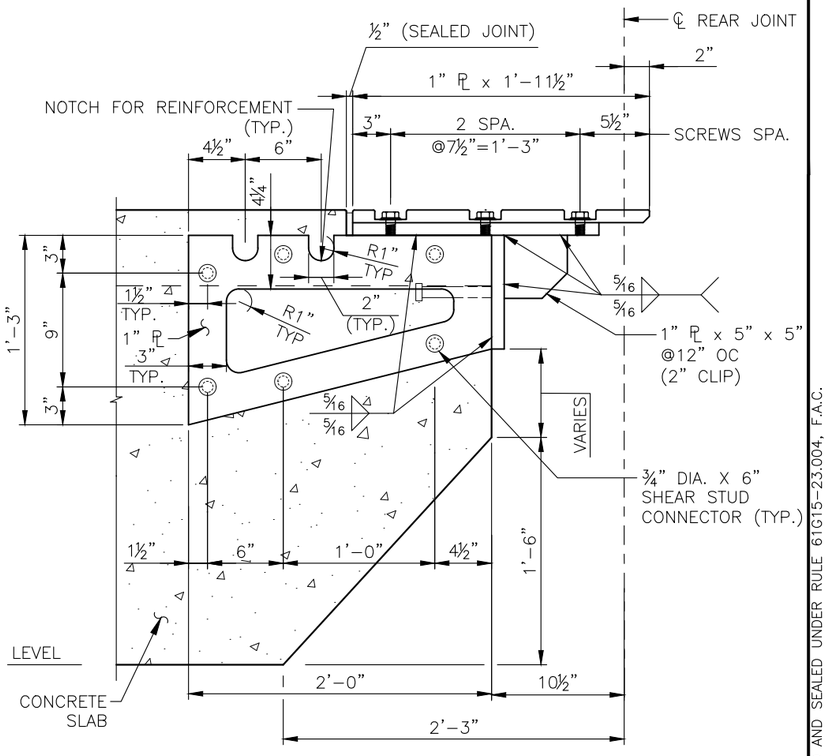
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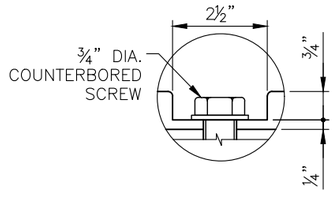
TYPICAL ROADWAY ARMORED REAR JOINT



TYPICAL SIDEWALK ARMORED REAR JOINT



SECTION A–A
(SECTION AT RAILING CURB)



DETAIL 'A'

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED LER
DRAWN LER
CHECKED CG

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

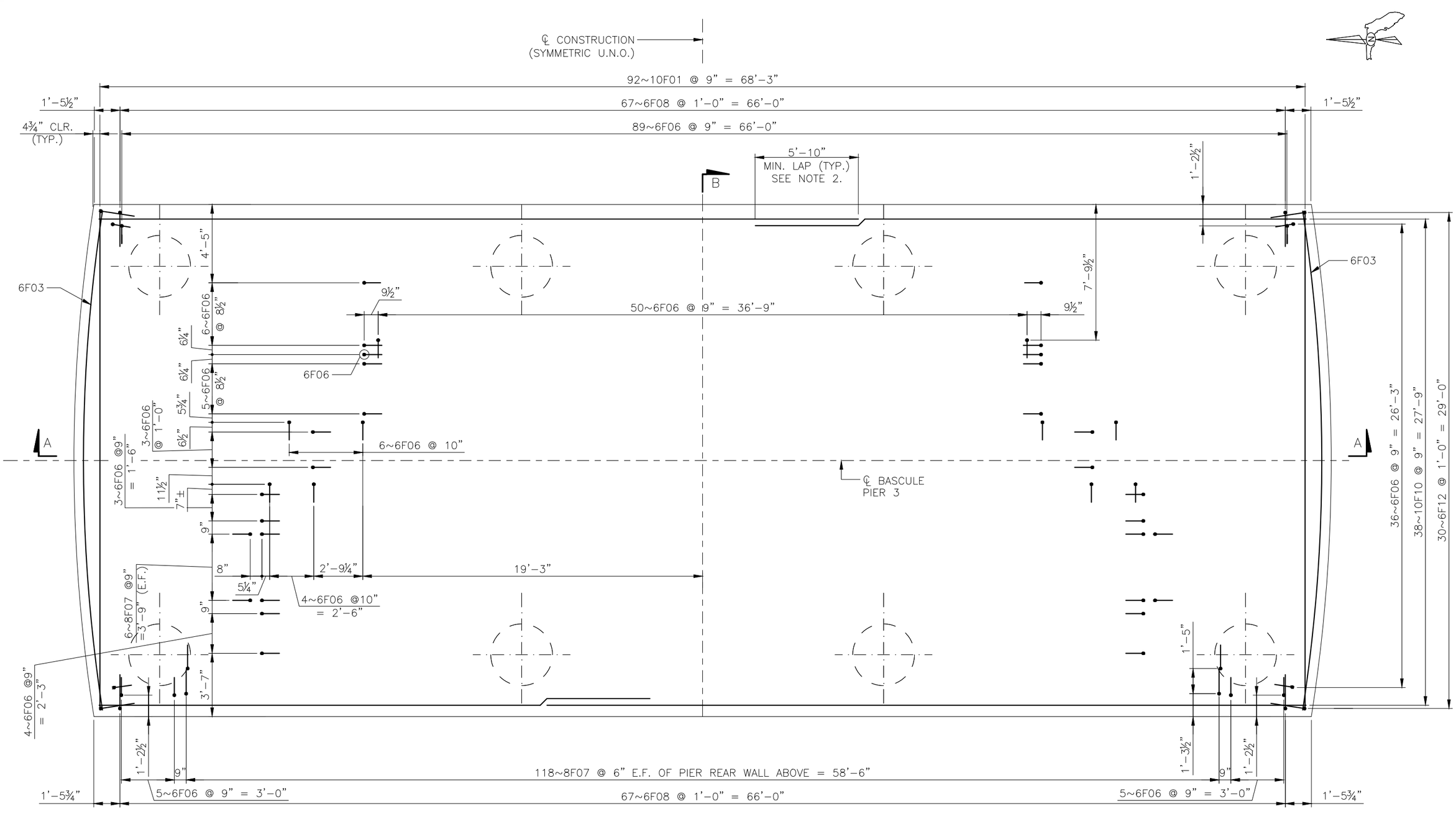
DESCRIPTION: BASCULE PIER 3 ARMORED JOINT ASSEMBLIES (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–23
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 118 OF 283

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NOTES:
1. SEE DWG. NO. BP-32 FOR SECTIONS A-A AND B-B.
2. ALTERNATE LAP SPLICE PLACEMENT FOR BARS 10F10.

B

FOOTING LEVEL – BOTTOM

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN TB
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING FOOTING LEVEL PLAN (1 OF 2)

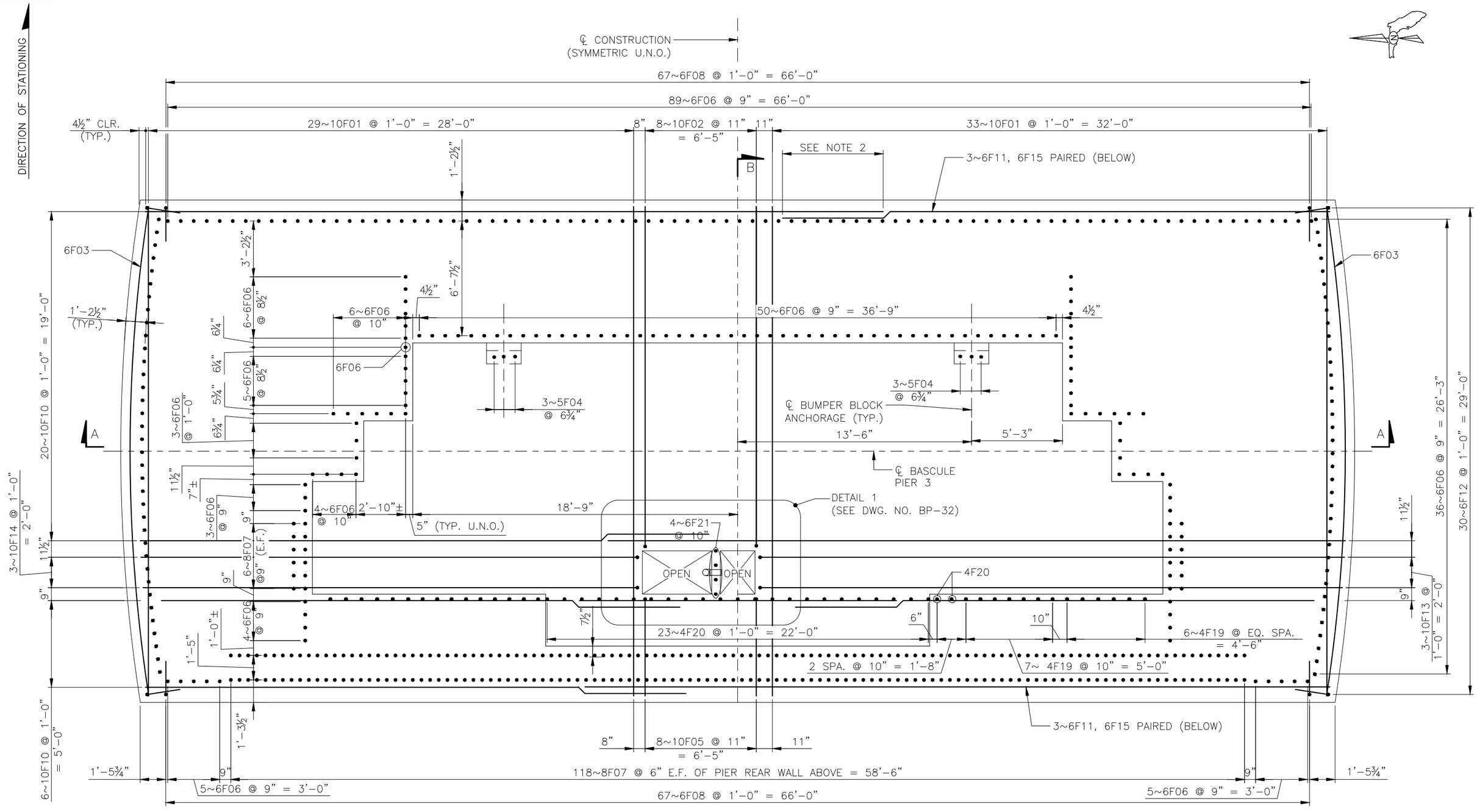
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP-24
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 119 OF 283

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NOTES:
1. SEE DWG. NO. BP-32 FOR SECTIONS A-A AND B-B.
2. MINIMUM LAP SPLICE LENGTH: BARS 10F10: 5'-10"; BARS 6F11 WITH 6F15: 3'-6". ALTERNATE LAP SPLICE PLACEMENT FOR BARS 10F10 AND 6F11/6F15 PAIRS.

B

FOOTING LEVEL - TOP

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN TB
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING FOOTING LEVEL PLAN (2 OF 2)

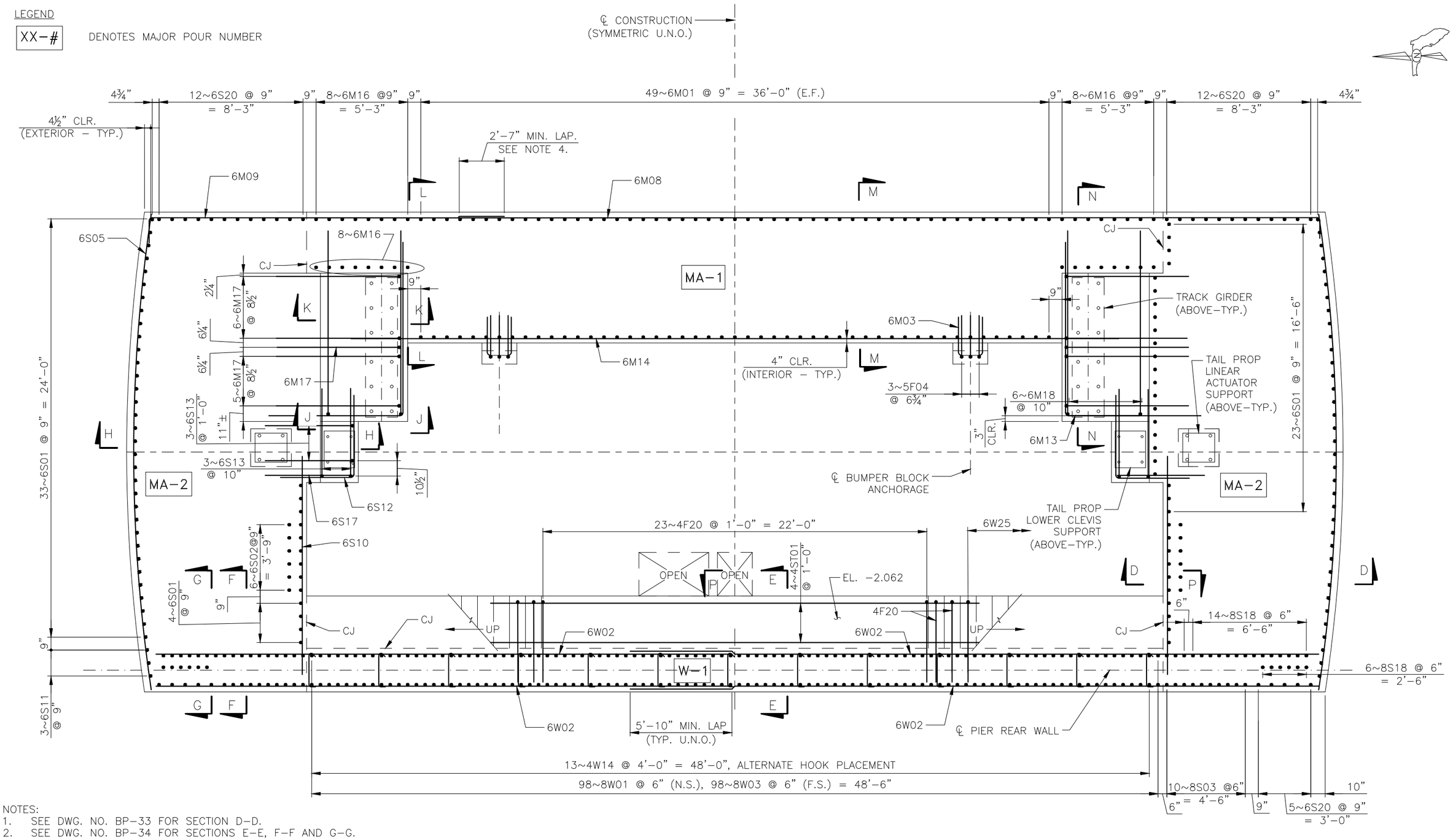
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP-25
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 120 OF 283

LEGEND

XX–# DENOTES MAJOR POUR NUMBER



NOTES:
1. SEE DWG. NO. BP–33 FOR SECTION D–D.
2. SEE DWG. NO. BP–34 FOR SECTIONS E–E, F–F AND G–G.
3. SEE DWG. NO. BP–35 FOR SECTIONS H–H, J–J. K–K, L–L, M–M AND N–N.
4. SEE DWG. NO. BP–37 FOR SECTIONS P–P AND Y–Y.
5. ALTERNATE LAP SPLICE LOCATIONS FOR BARS 8M08, 8M09 AND 6W02.

MACHINERY LEVEL – BOTTOM
(PIER PROTECTION SYSTEM NOT SHOWN)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING MACHINERY LEVEL PLAN (1 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–26
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 121 OF 283

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LEGEND

XX–# DENOTES MAJOR POUR NUMBER

* PAIR WITH BAR 6S01.

℄ COLUMN C2. SEE DWG. NO. BP–33 FOR REINFORCEMENT.

℄ CONSTRUCTION (SYMMETRIC U.N.O.)

℄ COLUMN C1/C3. SEE DWG. NO. BP–33 FOR REINFORCEMENT.

12~6S20 @ 9" = 8'–3"

8~6M16 @9" = 5'–3"

49~6M01 @ 9" = 36'–0" (E.F.)

5~6M04 @ 9"

4~6M06 @ 9"

4~6M07 @ 9"

5~4S08 @ 1–0" = 4'–0"

4S14

℄ COLUMN C1

9S60 (TYP.)

8S70 (TYP.)

MA–1

5~6M30

2" CLR. (CURB–TYP.)

6S21

TRACK GIRDER (TYP.)

3~6M02 @ 7"

3~4T02 @ 1'–0"

MA–2

MA–2

4S09

6S31

*23~6S01 @9" = 16'–6"

9" 5~6M15 @ 9" = 3'–0"

10~4T01 @ 9"

7" 3~6S47 @ 6"

3~6S48 @ 6"

2'–7" MIN. LAP (TYP.)

33~6S01 @ 9" = 24'–0"

6~6S04 @9" = 3'–9"

3~6M12 @ 9"

49~4M11 @ 9" = 36'–0"

16~4S08 @ 1'–0" = 15'–0" (CURB)

TAIL PROP LOWER CLEVIS SUPPORT (TYP.)

4" CLR. (INTERIOR – TYP.)

TAIL PROP LINEAR ACTUATOR SUPPORT (TYP.)

℄ TAIL PROP PEDESTAL

5~5S07 @ 10"

9"

5S07

*4~6S01 @ 9"

*6~6S02 @ 9"

4~4W24 @9" = 4'–6"

4~4ST03 @10" (TYP. EA. STEP)

4~4ST05 @10"

*4~6S40 @9" = 2'–3"

6~8S06 @ 9" (E.F.)

4ST04

℄ WALL W–1

10~5S07 @ 9" (WALL) = 6'–9"

5W11

CJ

DOWN

6W06

6" 14~8S18 @ 6" = 6'–6" (E.F.)

4" CJ

9S60 (TYP.)

W–1

℄ PIER REAR WALL

4W14 (ABOVE)

6W06

4W14 (ABOVE)

6W28 (ABOVE)

℄ COLUMN C3

13~4W14 @ 4'–0" = 48'–0", ALTERNATE HOOK PLACEMENT

98~8W01 @ 6" = 48'–6"

98~8W03 @ 6" = 48'–6"

4'–0" 1'–6" 6" 10~8S03 @6" = 4'–6" 6"

4'–0" 1'–0" 6~8S18 @ 6" = 2'–6" 10~8S03 @6" = 4'–6" 6"

NOTES:
1. SEE DWG. NO. BP–33 FOR SECTION D–D.
2. SEE DWG. NO. BP–34 FOR SECTIONS E–E, F–F AND G–G.
3. SEE DWG. NO. BP–35 FOR SECTIONS H–H, J–J, K–K, L–L, M–M AND N–N.
4. SEE DWG. NO. BP–36 FOR SECTION R–R.
5. SEE DWG. NO. BP–37 FOR SECTIONS P–P, U–U, V–V, W–W AND Y–Y.

MACHINERY LEVEL – TOP
(PIER PROTECTION SYSTEM NOT SHOWN)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING MACHINERY LEVEL PLAN (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–27
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 122 OF 283

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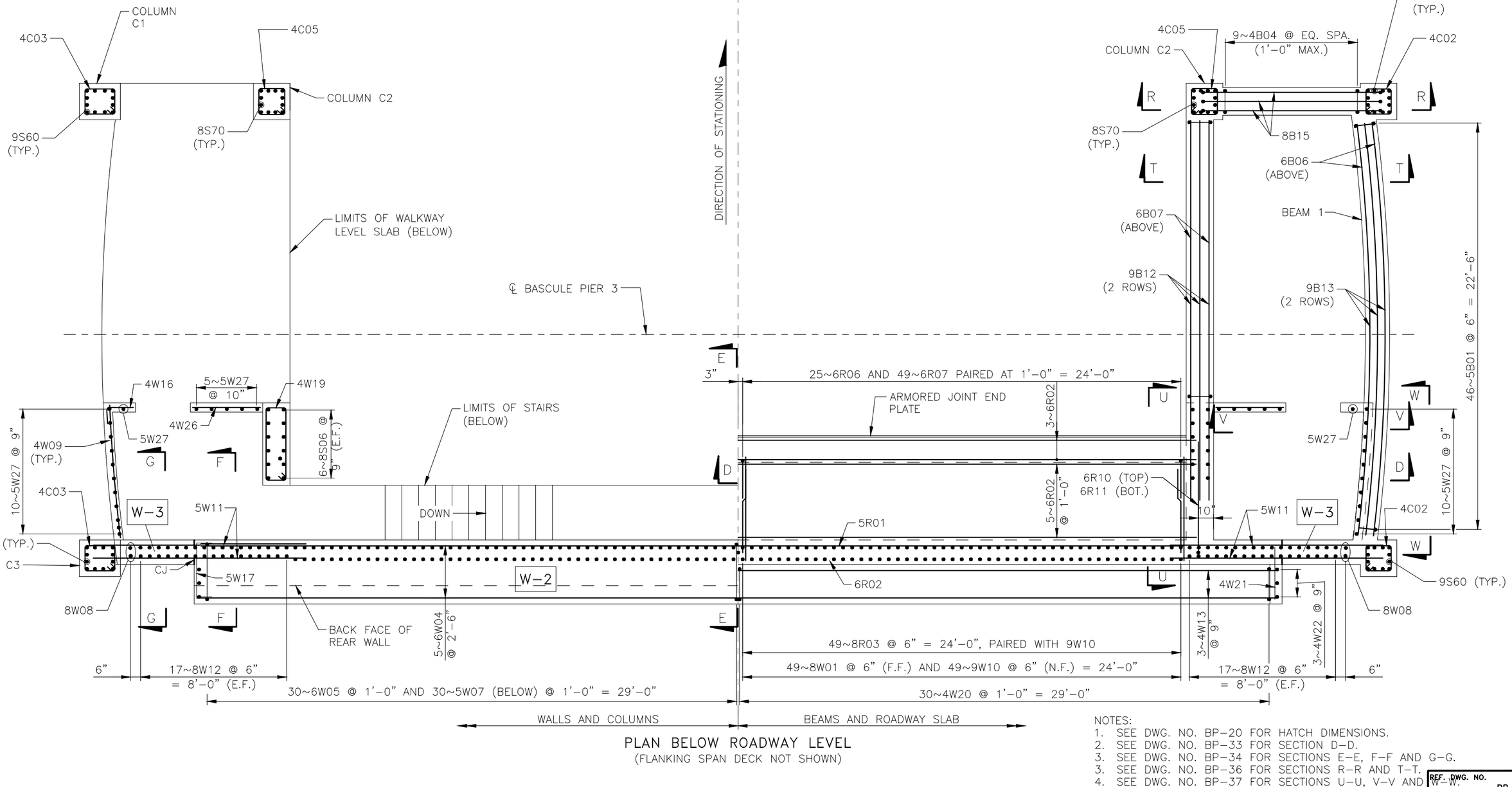
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LEGEND

XX–# DENOTES MAJOR POUR NUMBER

℄ CONSTRUCTION (SYMMETRIC U.N.O.)

DIRECTION OF STATIONING



PLAN BELOW ROADWAY LEVEL
(FLANKING SPAN DECK NOT SHOWN)

NOTES:
1. SEE DWG. NO. BP–20 FOR HATCH DIMENSIONS.
2. SEE DWG. NO. BP–33 FOR SECTION D–D.
3. SEE DWG. NO. BP–34 FOR SECTIONS E–E, F–F AND G–G.
3. SEE DWG. NO. BP–36 FOR SECTIONS R–R AND T–T.
4. SEE DWG. NO. BP–37 FOR SECTIONS U–U, V–V AND W–W.

REF. DWG. NO. BP–28

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING BELOW ROADWAY LEVEL PLAN

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

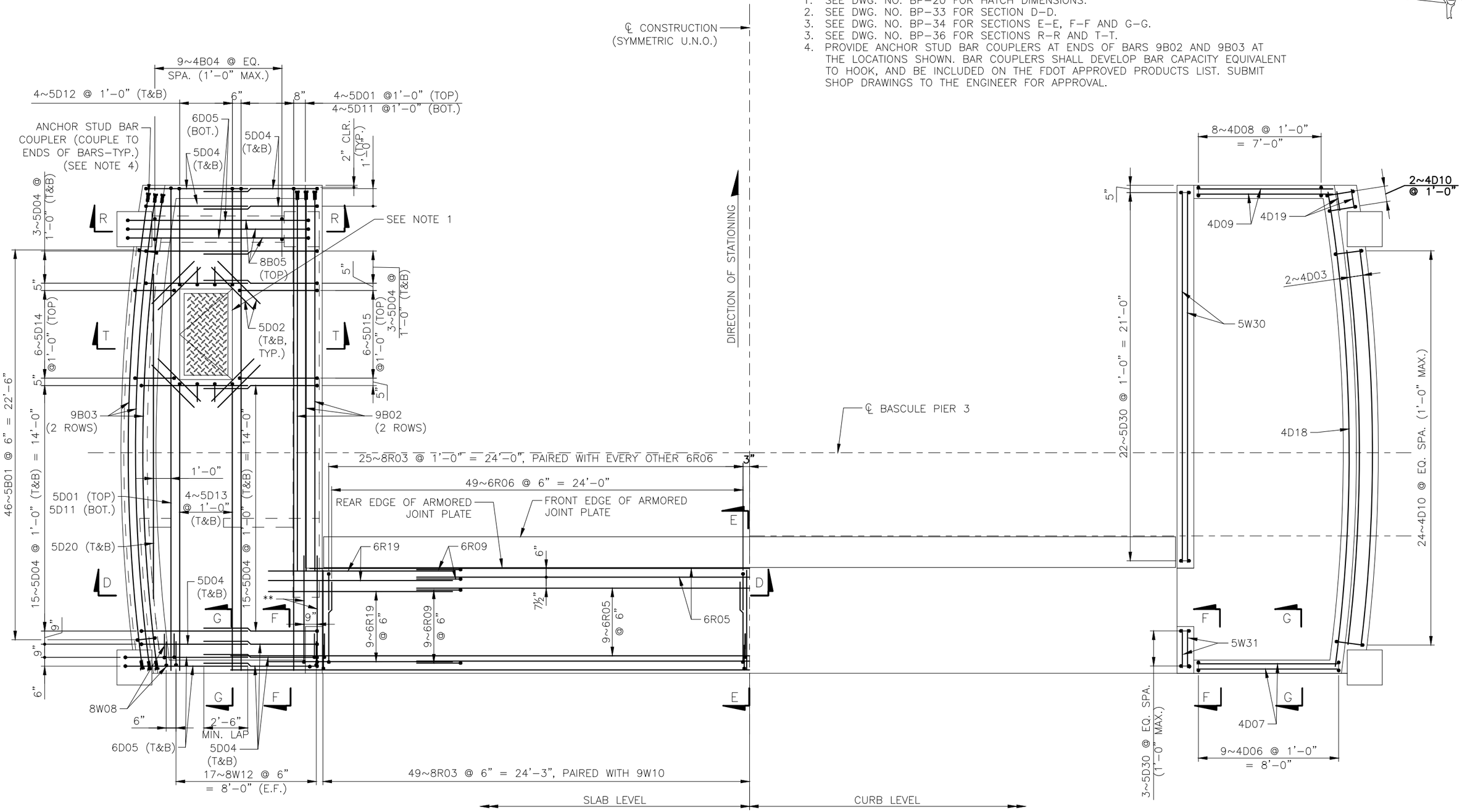
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 123 OF 283

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15–23.004, F.A.C.

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NOTES:
1. SEE DWG. NO. BP-20 FOR HATCH DIMENSIONS.
2. SEE DWG. NO. BP-33 FOR SECTION D-D.
3. SEE DWG. NO. BP-34 FOR SECTIONS E-E, F-F AND G-G.
3. SEE DWG. NO. BP-36 FOR SECTIONS R-R AND T-T.
4. PROVIDE ANCHOR STUD BAR COUPLERS AT ENDS OF BARS 9B02 AND 9B03 AT THE LOCATIONS SHOWN. BAR COUPLERS SHALL DEVELOP BAR CAPACITY EQUIVALENT TO HOOK, AND BE INCLUDED ON THE FDOT APPROVED PRODUCTS LIST. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.



ROADWAY LEVEL
(FLANKING SPAN DECK NOT SHOWN)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING ROADWAY LEVEL PLAN

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

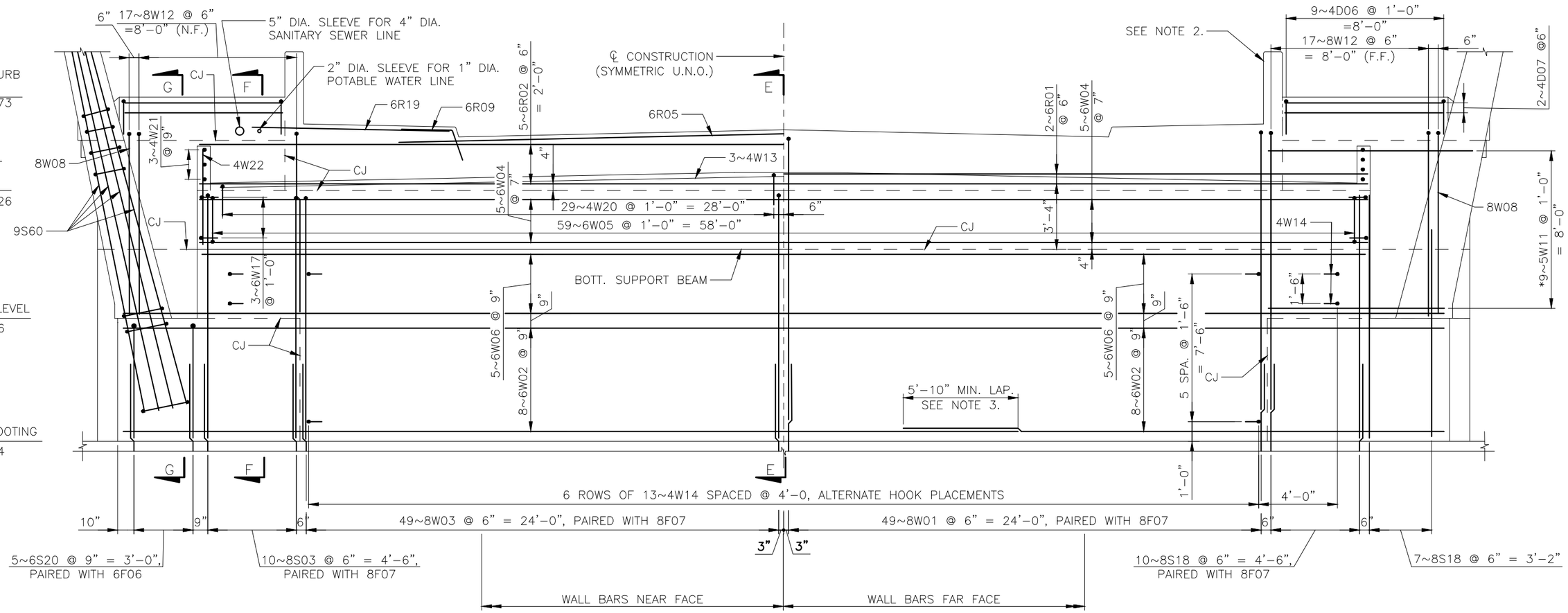
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP-29
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 124 OF 283

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7/2/2021 2:04:02 PM
ANLUN CHEN



WEST ELEVATION REINFORCEMENT (ABOVE FOOTING)

(ARCHITECTURAL FASCIA ENCLOSURE AND PIER PROTECTION NOT SHOWN)

NOTES:
1. SEE DWG. NO. BP-34 FOR SECTIONS E-E, F-F AND G-G.
2. SEE DWG. NO. BP-36 FOR PARAPET WALL REINFORCEMENT.
3. ALTERNATE LAP PLACEMENT.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING WEST ELEVATION

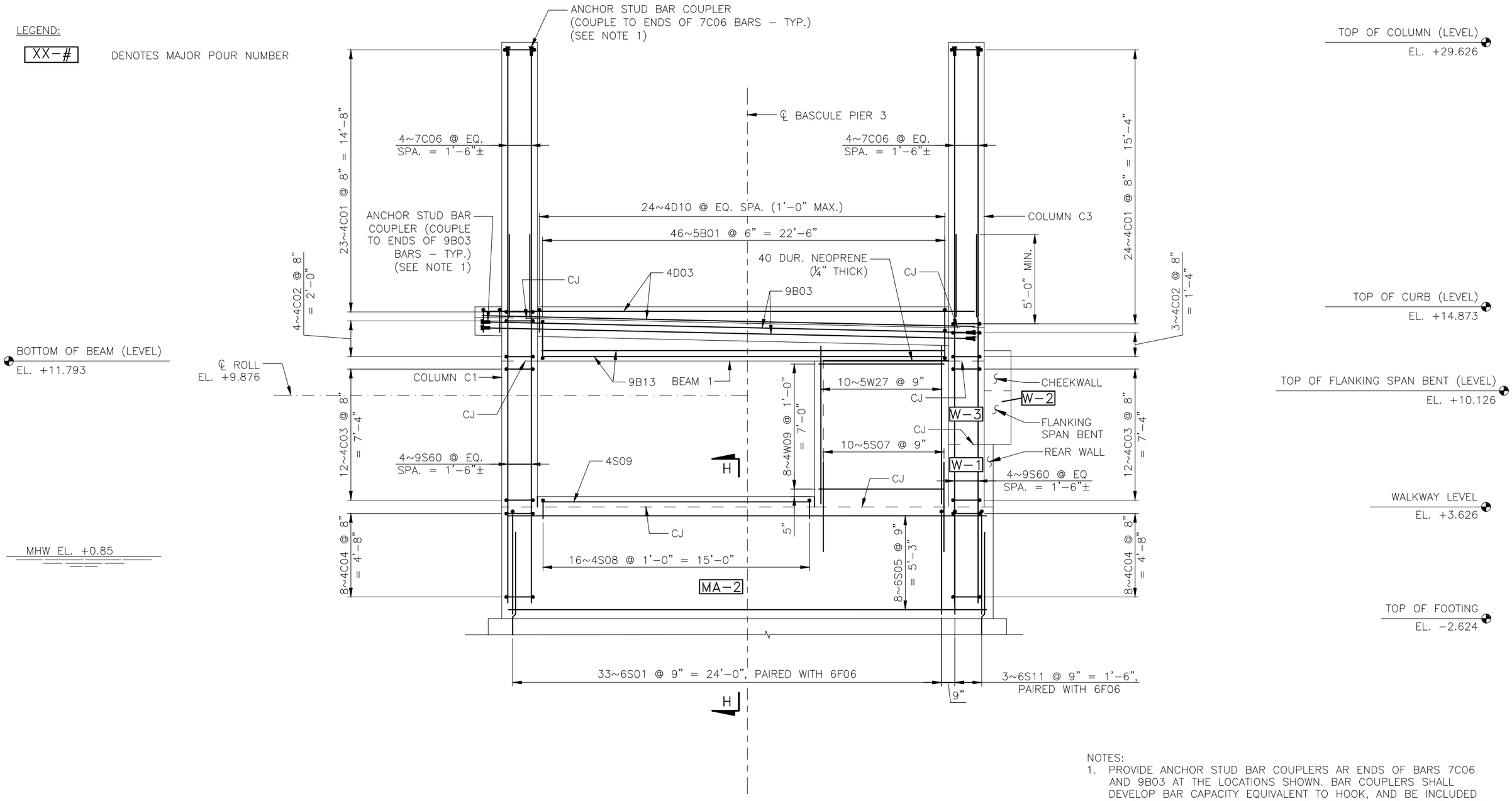
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP-30
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 125 OF 283

LEGEND:

XX–# DENOTES MAJOR POUR NUMBER



NORTH ELEVATION REINFORCEMENT (ABOVE FOOTING)

(NORTH ELEVATION SHOWN, SOUTH ELEVATION SIMILAR)
(ARCHITECTURAL FASCIA ENCLOSURE AND PIER PROTECTION NOT SHOWN)
(REAR WALL REINFORCEMENT NOT SHOWN)

NOTES:
1. PROVIDE ANCHOR STUD BAR COUPLERS AR ENDS OF BARS 7C06 AND 9B03 AT THE LOCATIONS SHOWN. BAR COUPLERS SHALL DEVELOP BAR CAPACITY EQUIVALENT TO HOOK, AND BE INCLUDED ON THE FDOT APPROVED PRODUCTS LIST. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.
2. SEE DWG. NO. BP–35 FOR SECTION H–H.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN TB/QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING NORTH ELEVATION

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

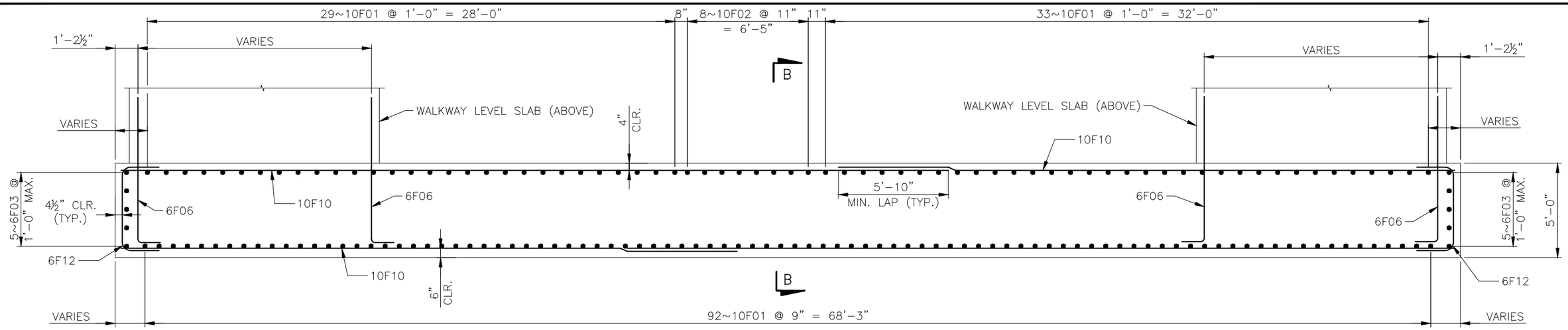
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–31
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 126 OF 283

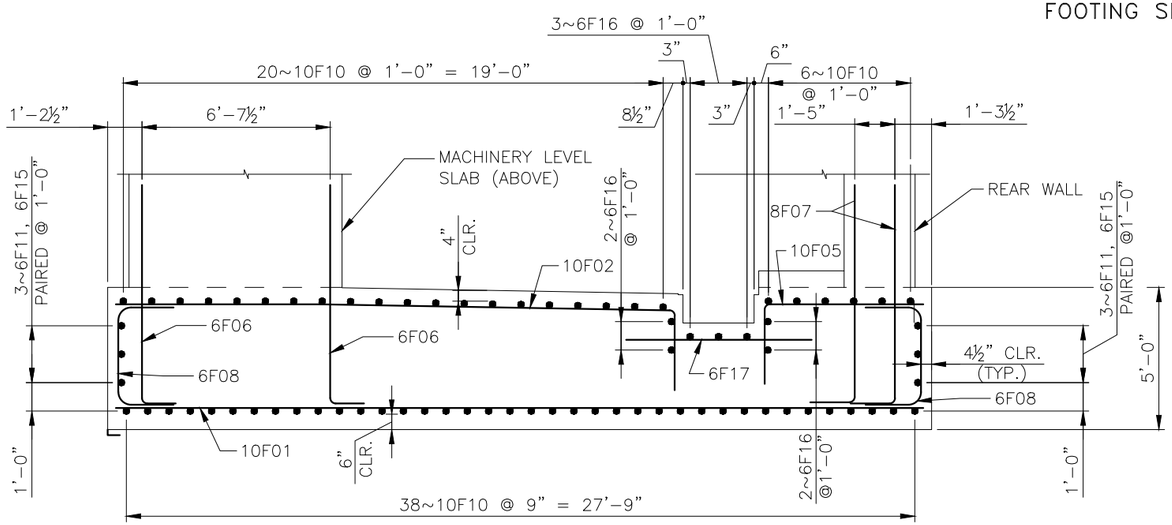
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15–23.004, F.A.C.

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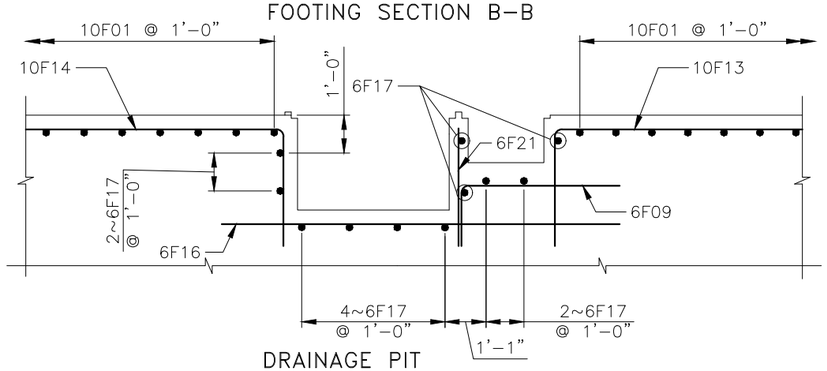
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THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



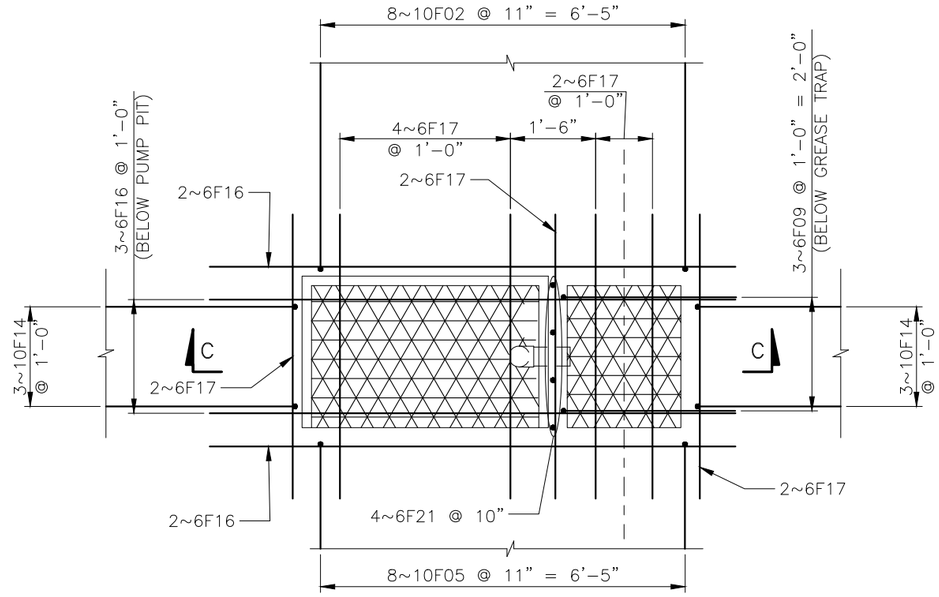
FOOTING SECTION A–A



FOOTING SECTION B–B



DRAINAGE PIT SECTION C–C



DETAIL 1

NOTES:
1. SEE DWG. NOS. BP–24 AND BP–25 FOR LOCATIONS OF SECTIONS A–A, B–B AND DETAIL 1.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN TB
CHECKED RW

Pinellas County PUBLIC WORKS

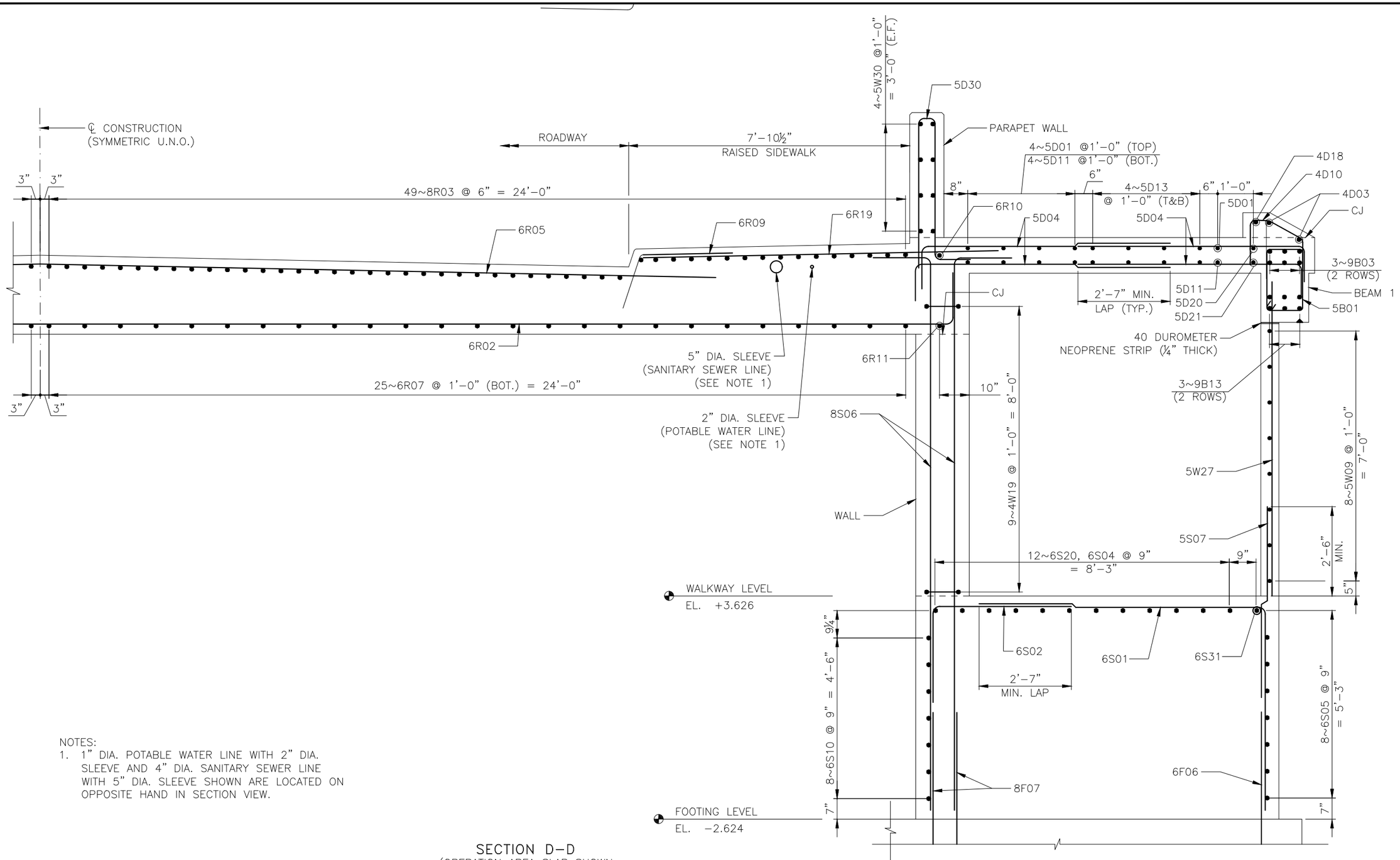
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING FOOTING SECTIONS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–32
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 127 OF 283



NOTES:
1. 1" DIA. POTABLE WATER LINE WITH 2" DIA. SLEEVE AND 4" DIA. SANITARY SEWER LINE WITH 5" DIA. SLEEVE SHOWN ARE LOCATED ON OPPOSITE HAND IN SECTION VIEW.

SECTION D–D
(OPERATION AREA SLAB SHOWN,
SCENIC OVERLOOK SLAB SIMILAR)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING DETAILS (1 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

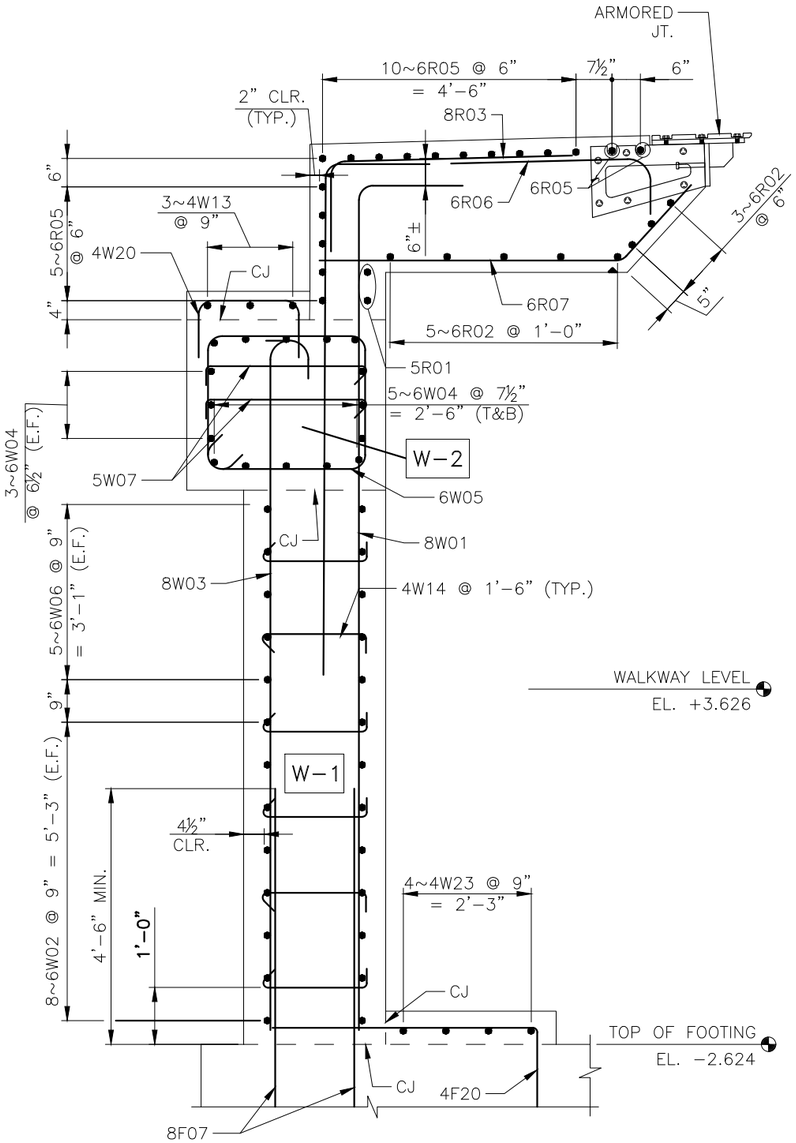
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–33
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 128 OF 283

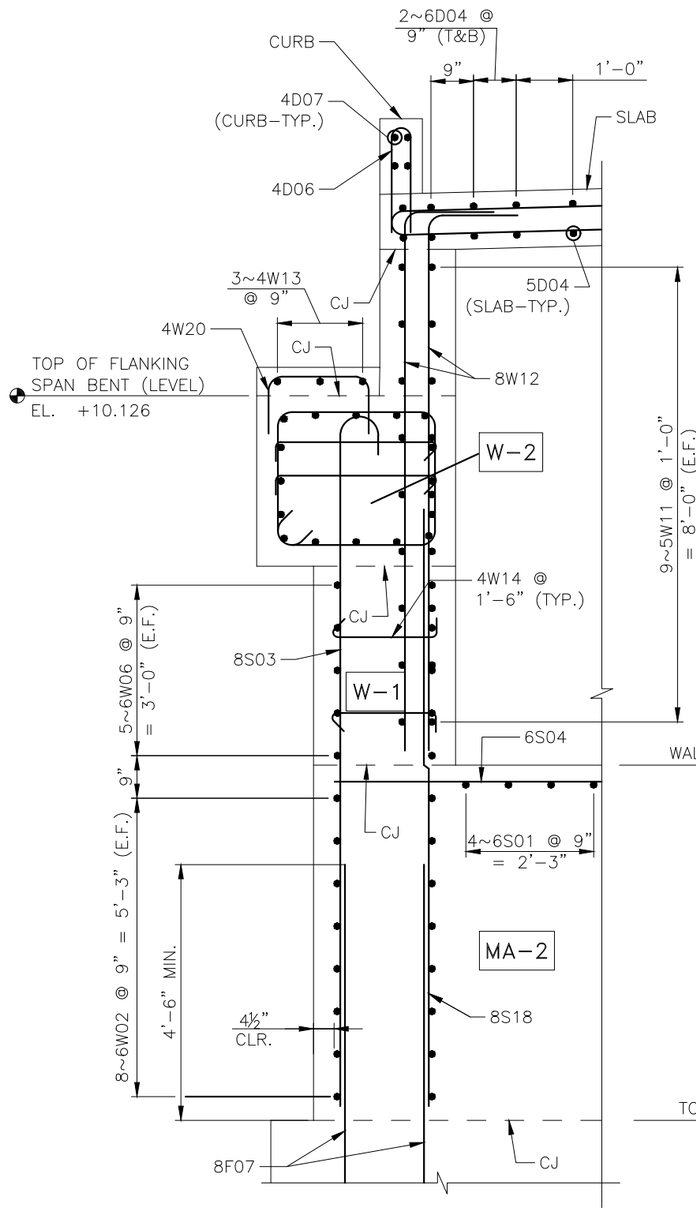
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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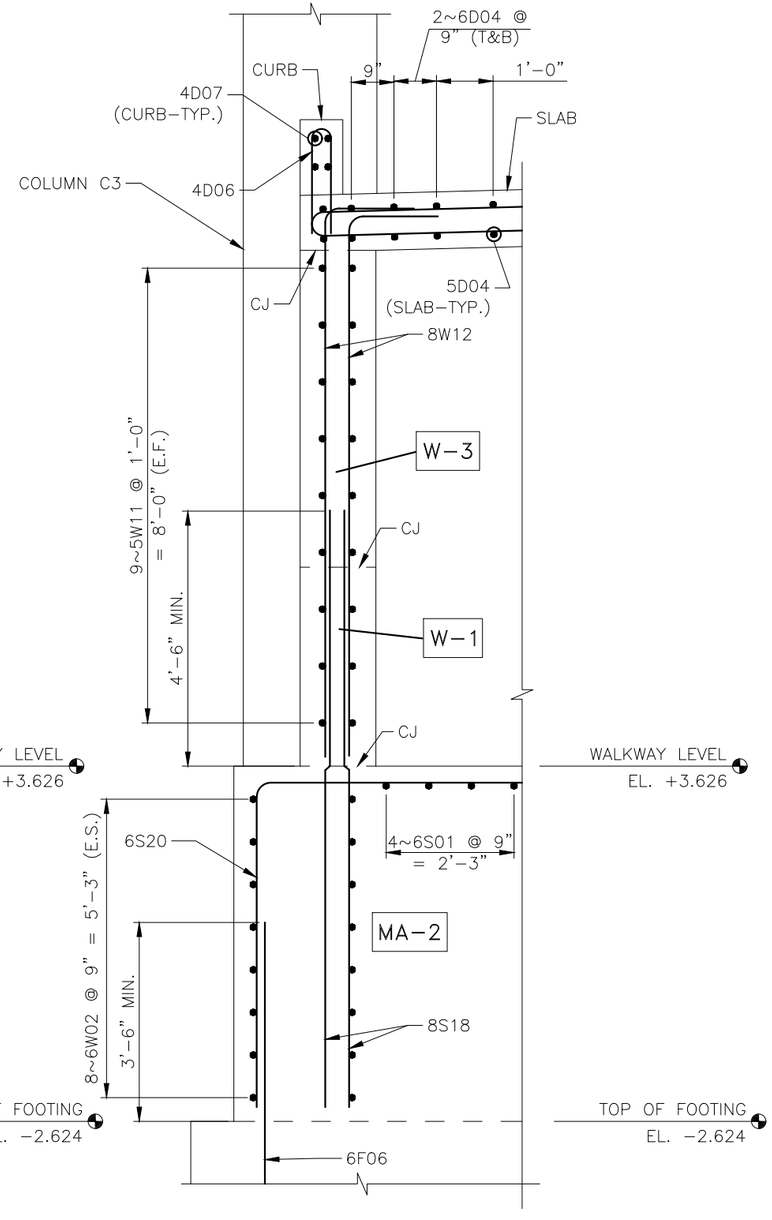
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SECTION E-E



SECTION F-F



SECTION G-G

LEGEND

XX-# DENOTES MAJOR POUR NUMBER

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

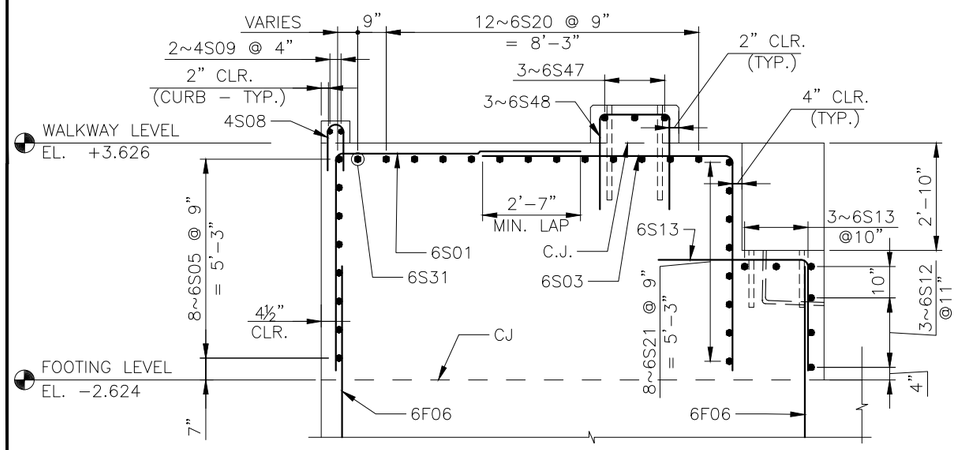
DESCRIPTION: BASCULE PIER 3 REINFORCING DETAILS (2 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

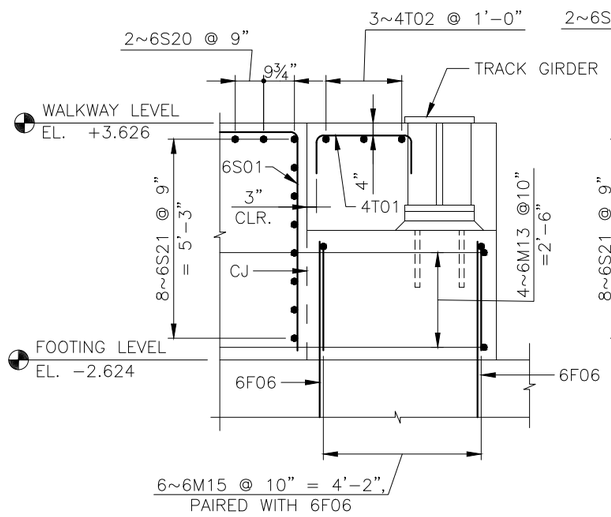
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP-34
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 129 OF 283

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

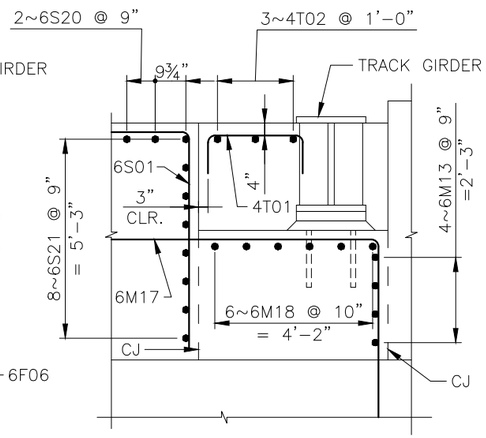


SECTION H-H



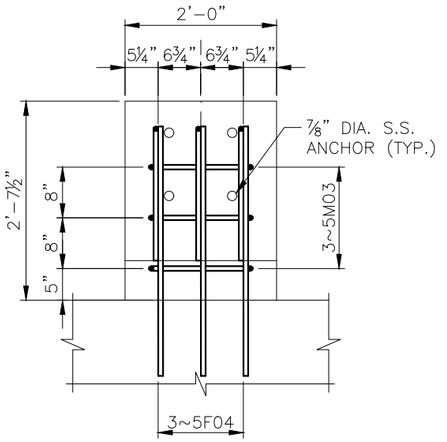
SECTION J-J

(NORTH TRACK GIRDER FACING EAST SHOWN,
SOUTH TRACK GIRDER FACING EAST OPPOSITE HAND)

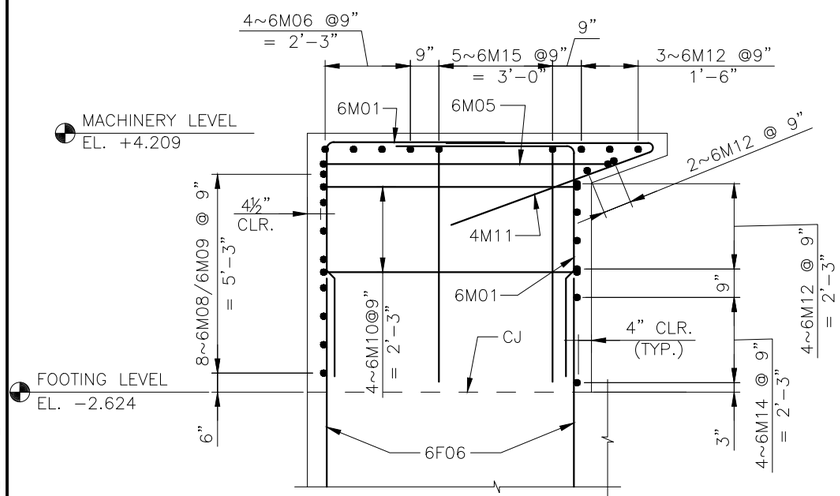


SECTION K-K

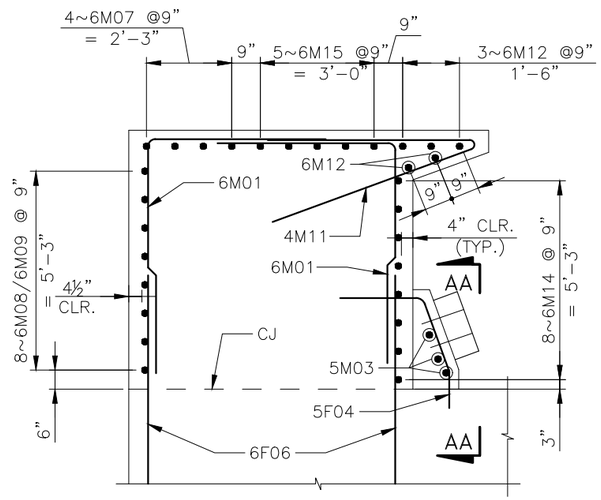
(NORTH TRACK GIRDER FACING EAST SHOWN,
SOUTH TRACK GIRDER FACING EAST OPPOSITE HAND)



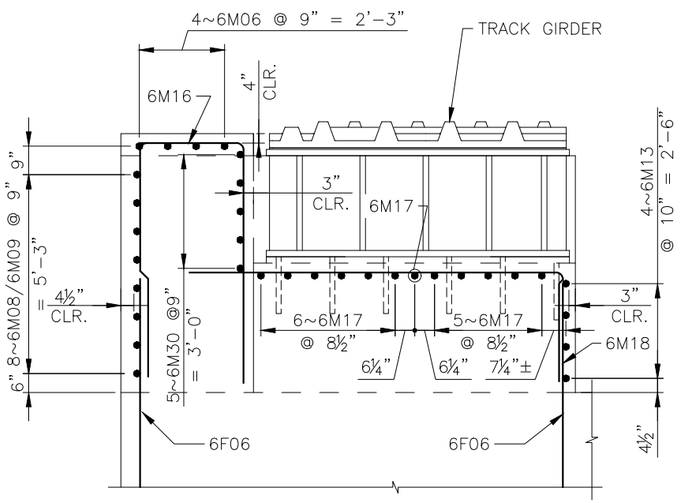
BUMPER BLOCK
VIEW AA-AA



SECTION L-L



SECTION M-M



SECTION N-N

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT:
BECKETT BRIDGE
REPLACEMENT

DESCRIPTION:
BASCULE PIER 3
REINFORCING DETAILS
(3 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO.
BP-35

DATE:
06/25/2021

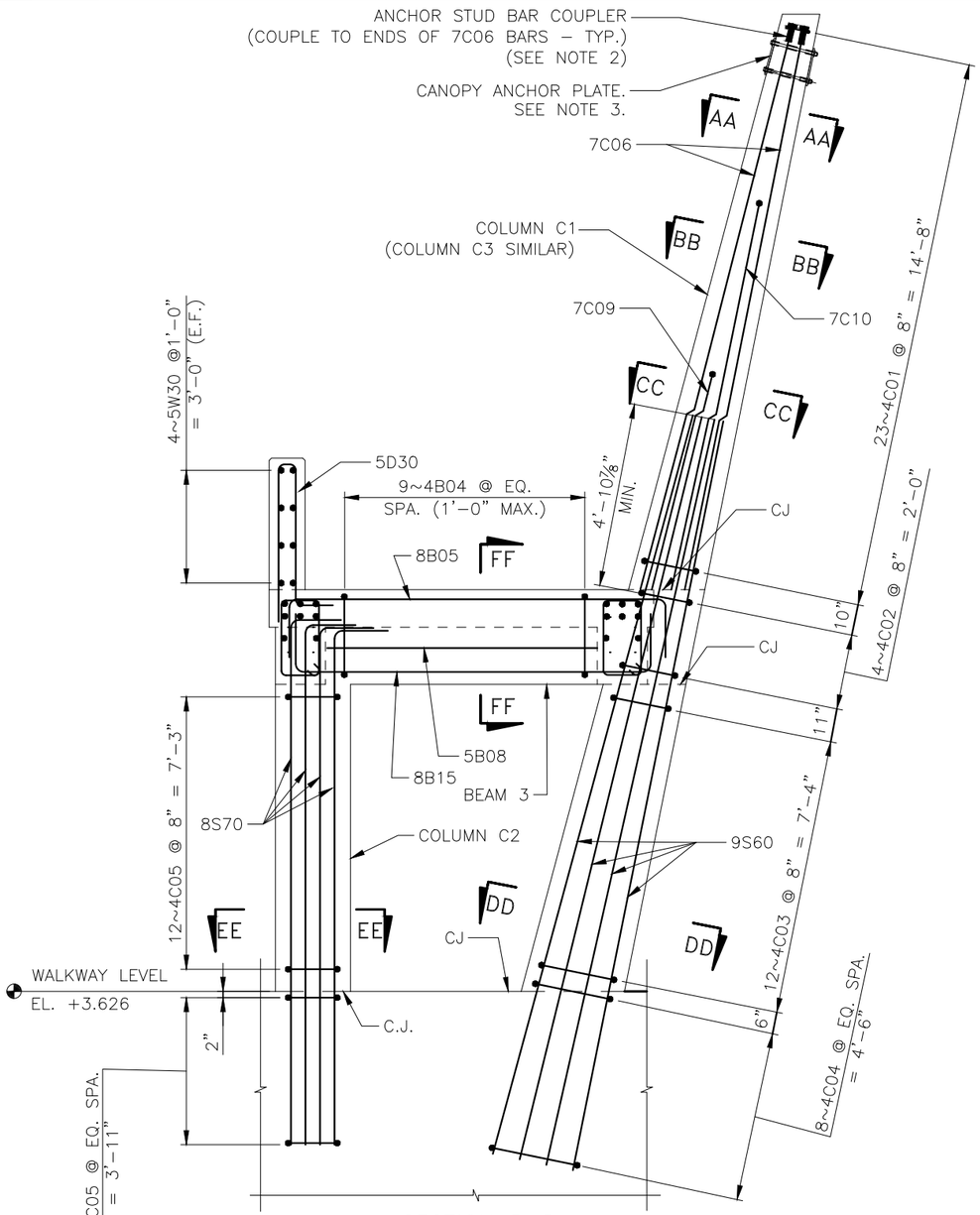
PROJECT NO.
001037A

SHEET:
130 OF 283

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

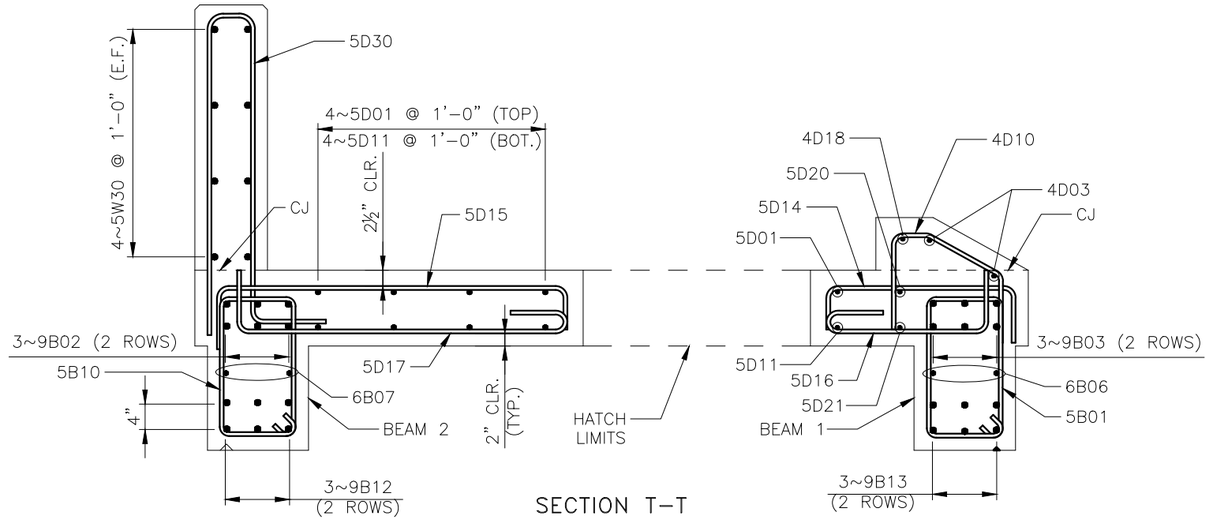
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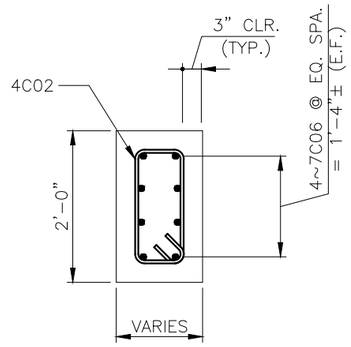


SECTION R–R
(MACHINERY LEVEL BARS AND SLAB BARS NOT SHOWN)

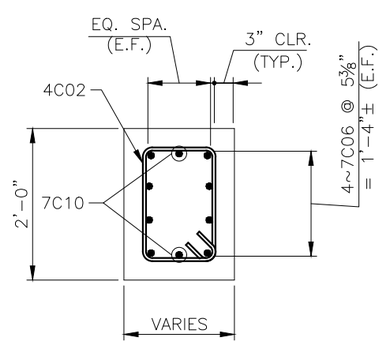
NOTES:
1. PROVIDE ANCHOR STUD BAR COUPLERS AT ENDS OF BARS 7C06 AT THE LOCATIONS SHOWN. BAR COUPLERS SHALL DEVELOP BAR CAPACITY EQUIVALENT TO HOOK, AND BE INCLUDED ON THE FDOT APPROVED PRODUCTS LIST. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.
2. SEE TH SHEETS FOR CANOPY TIE ROD ANCHORAGE DETAILS.



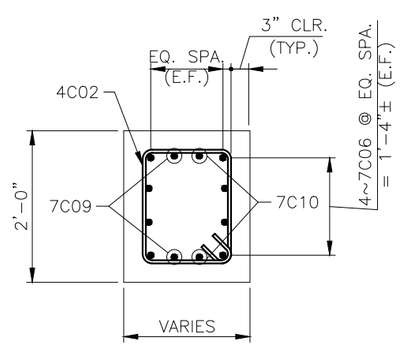
SECTION T–T



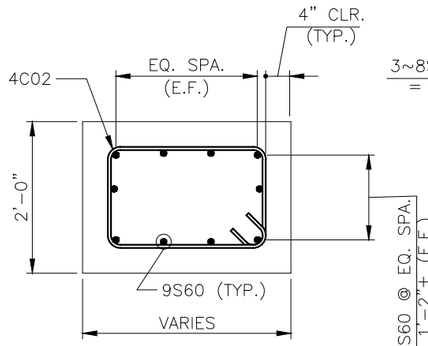
COLUMN C1/C3
SECTION AA–AA



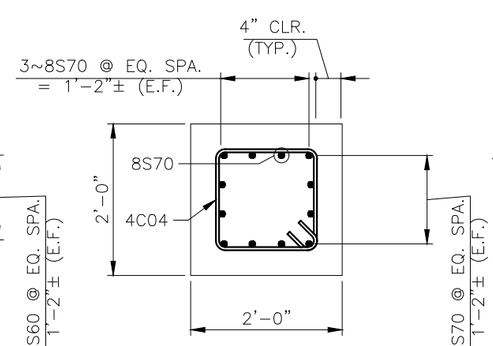
COLUMN C1/C3
SECTION BB–BB



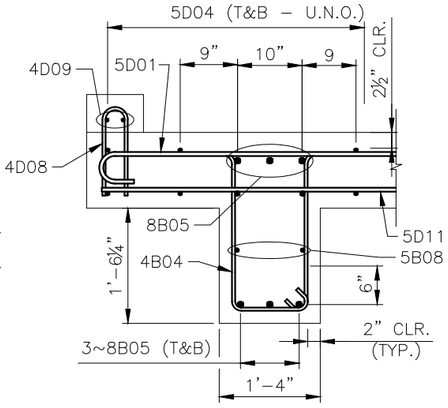
COLUMN C1/C3
SECTION CC–CC



COLUMN C1/C3
SECTION DD–DD



COLUMN C2
SECTION EE–EE



BEAM 3
SECTION FF–FF

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

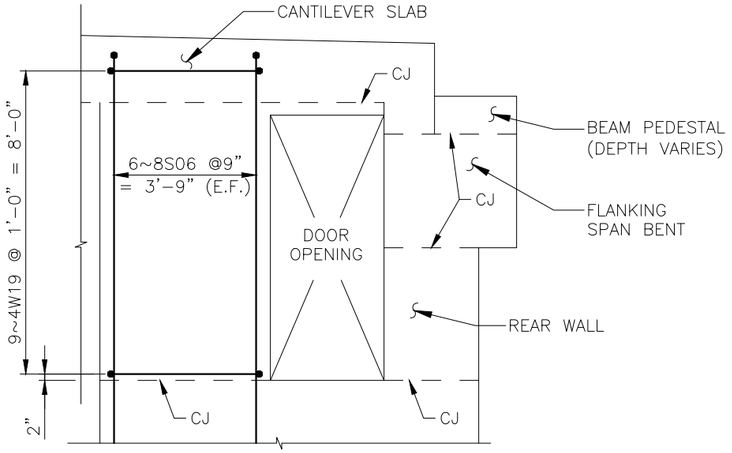
DESCRIPTION: BASCULE PIER 3 REINFORCING DETAILS (4 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

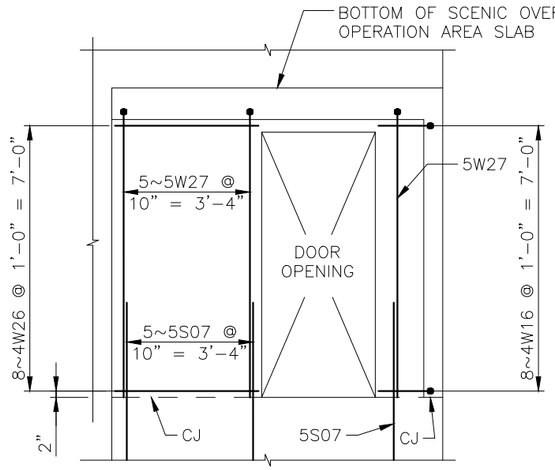
REF. DWG. NO. BP–36
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 131 OF 283

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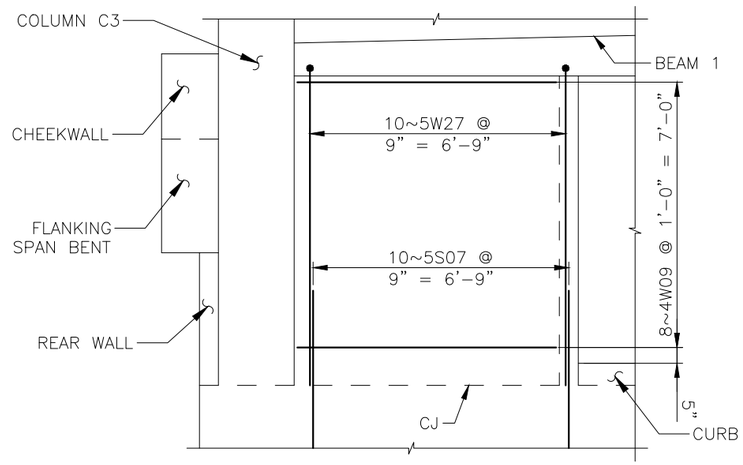
SECTION U–U

(NORTH STORAGE ROOM SOUTH WALL REINFORCING SHOWN,
SOUTH STORAGE ROOM NORTH WALL REINFORCING OPPOSITE HAND)



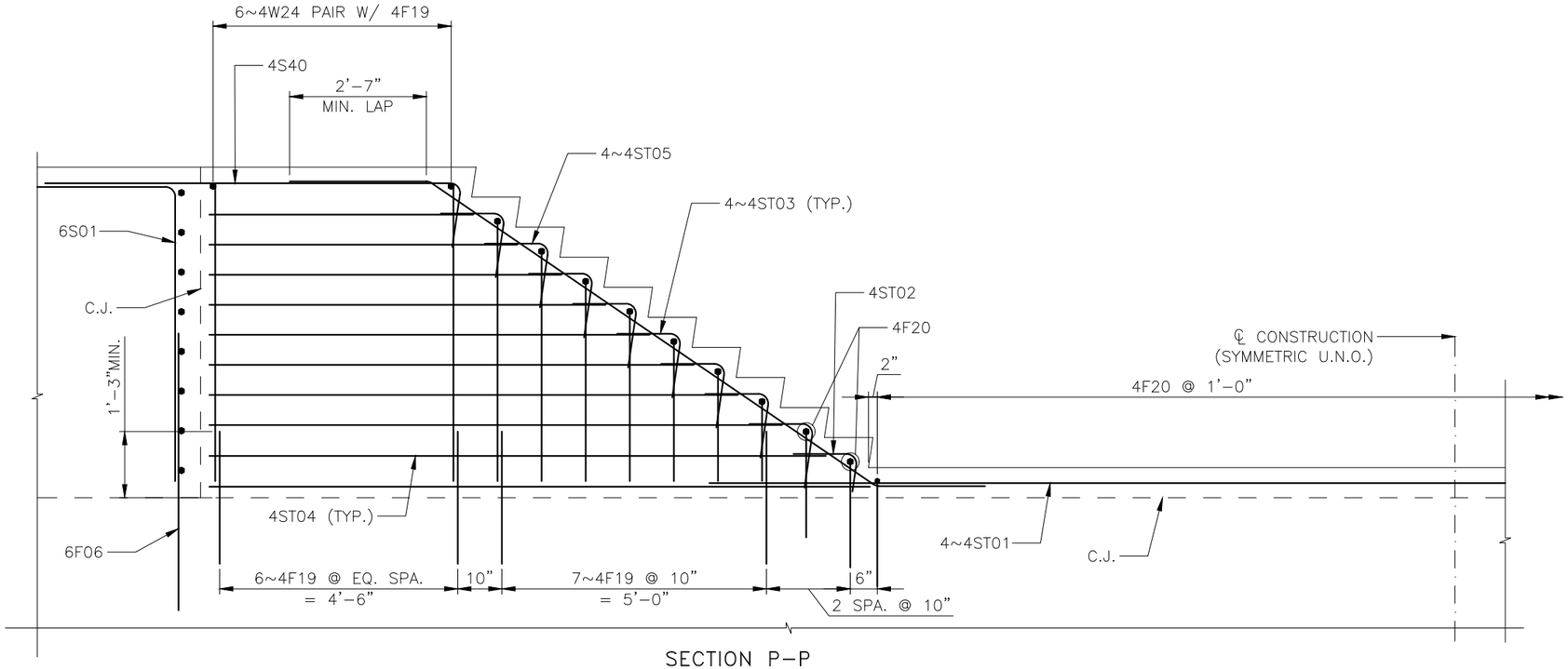
SECTION V–V

(NORTH STORAGE ROOM EAST WALL REINFORCING SHOWN,
SOUTH STORAGE ROOM EAST WALL REINFORCING OPPOSITE HAND)



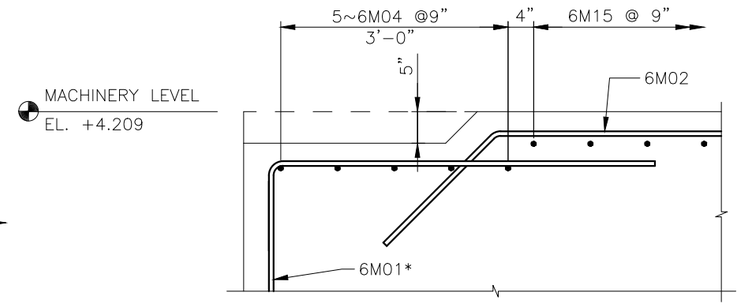
SECTION W–W

(NORTH STORAGE ROOM NORTH WALL REINFORCING SHOWN,
SOUTH STORAGE ROOM SOUTH WALL REINFORCING OPPOSITE HAND)



SECTION P–P

(SOUTH SIDE STAIRCASE SHOWN,
NORTH SIDE STAIRCASE OPPOSITE HAND)



SECTION Y–Y

(NORTH SIDE CRANK ARM RECESS SHOWN,
SOUTH SIDE CRANK ARM RECESS SIMILAR)

* FIELD CUT 6M01 BAR AS NEEDED TO FIT BELOW CRANK ARM RECESS.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING DETAILS (5 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP-37
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 132 OF 283

MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	Ø
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION FOOTING																				NO. REQUIRED = 1													
10	F01	28	3	154	1			28	3																								
10	F02	22	6	8	10			19	6		3	0																					
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6	F09	4	8	4	10			2	0		2	8																					
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6	F12	8	3	60	11			4	3		2	0		2	0																		
10	F13	36	3	3	10			33	3		3	0																					
10	F14	28	7	3	10			25	7		3	0																					
6	F15	26	0	6	10			23	6		2	6																					
6	F16	10	6	7	1			10	6																								
6	F17	6	6	11	1			6	6																								
4	F19	6	0	24	1			2	6																								
4	F20	6	7	27	10			2	6		2	0																					
6	F21	4	0	4	1			4	0																								
LOCATION MACHINERY LEVEL – POUR MA–1																				NO. REQUIRED = 1													
6	M01	10	9	98	10			4	6		6	3																					
6	M02	7	9	6	12			5	9		2	0																					45
5	M03	5	2	6	11			1	2		2	0		2	0																		
6	M04	5	8	10	1			5	8																								
5	M05	10	0	2	10			7	6		2	6																					
6	M06	18	3	8	11			9	6		6	3		2	6																		
6	M07	31	4	4	11			26	4		2	6		2	6																		
6	M08	41	6	8	10			40	0		1	6																					
6	M09	31	6	8	10			30	0		1	6																					
6	M10	9	3	10	10			6	9		2	6																					
4	M11	10	0	49	14			5	0		5	0																					20
6	M12	36	10	10	1			36	10																								
6	M13	17	3	8	10			9	9		7	6																					
6	M14	44	0	4	1			44	0																								
6	M15	48	2	5	11			36	10		5	8		5	8																		
6	M16	15	5	16	11			2	11		6	3		6	3																		
6	M17	10	10	12	10			8	0		2	10																					
6	M18	13	4	6	10			10	6		2	10																					
6	M30	5	6	10	17	3		4	6																								

NOTE:
FOR STANDARD BAR BENDING DETAILS, REFER TO FDOT INDEX NO. 415–001.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING BAR LIST (1 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–38
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 133 OF 283

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15–23.004, F.A.C.

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ANLUN CHEN
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MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	Ø
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION TRACK GIRDER SLAB																				NO. REQUIRED = 2													
4	T01	4	6	10	11			2	6		1	0		1	0																		
4	T02	10	0	10	11			8	0		1	0		1	0																		
LOCATION REAR WALL – POURS W-1 & W-2																				NO. REQUIRED = 1													
8	W01	16	4	98	17	3		15	0																								
6	W02	70	5	16	41			40	0		30	5														3	6						
8	W03	13	2	98	17	1		12	3																								
6	W04	58	11	16	1			58	11																								
6	W05	11	6	59	4	5	5	2	5		2	8																					
6	W06	58	11	10	1			58	11																								
5	W07	3	8	118	18	4	5	2	8																								
8	W08	8	7	4	17	3		7	3																								
9	W10	10	7	104	17	3		9	0																								
5	W11	VARY		9	1			9	6																								
		8	3	0	1			6	11																								
5	W11	VARY		9	1			9	6																								
		8	3	0	1			6	11																								
8	W12	10	8	56	17	3		9	4																								
4	W13	61	5	3	2			2	6		58	11																					
4	W14	2	6	86	18	4	5	1	9																								
5	W17	4	6	4	18	3	3	2	10																								
4	W20	5	7	58	11			1	7		2	0		2	0																		
4	W21	1	9	6	1			1	9																								
4	W22	5	0	6	1			5	0																								
4	W24	9	8	6	10			4	0		5	8																					
4	W25	VARY		7	10			4	0		5	2																					
		7	1	0	10			4	0		1	0																					
4	W25	VARY		7	10			4	0		5	2																					
		7	1	0	10			4	0		1	0																					
6	W28	4	9	10	11			1	9		1	6		1	6																		
LOCATION PARTITION WALLS																				NO. REQUIRED = 2													
4	W09	8	2	8	3			8	2		92	7																					
4	W16	2	5	8	12			1	1		1	4																					87
4	W19	10	5	9	4	5	5	3	10		1	0																					
4	W26	4	5	8	1			4	5																								
5	W27	9	6	16	1			9	6																								
LOCATION ROADWAY LEVEL PARAPET WALL																				NO. REQUIRED = 2													
5	W30	21	4	8	1			21	4																								
5	W31	1	5	8	1			1	5																								

NOTE:
FOR STANDARD BAR BENDING DETAILS, REFER TO FDOT INDEX NO. 415–001.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

G:\PROJECTS\3231_BECKETT_DESIGN\001037A - BECKETT\PLANS\DWG\PRODUCTION\STRUCT\BP\001037A_S4_BP_REBARLIST02.DWG ANLUN CHEN 7/2/2021 2:04:46 PM

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING BAR LIST (2 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–39
DATE: 06/25/2021
PROJECT NO. 001037A

MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	Ø
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION WALKWAY LEVEL – POUR MA–2 NO. REQUIRED = 2																																	
6	S01	12– 2		60	10			6– 6			5– 8																						
6	S02	9– 3		6	10			6– 9			2– 6																						
8	S03	13– 2		10	17	1		12– 3																									
6	S04	15– 0		6	1			15– 0																									
6	S05	27– 7		8	3			27– 7			92– 7																						
8	S06	16– 4		16	17	3		15– 0																									
5	S07	5– 0		16	1			5– 0																									
4	S08	3– 7		20	23			1– 6			0– 2			1– 6																			
4	S09	15– 2		2	3			15– 2			92– 7																						
6	S10	12– 0		8	1			12– 0																									
6	S11	7– 8		3	10			2– 0			5– 8																						
6	S12	10– 0		3	10			5– 0			5– 0																						
6	S13	7–10		6	10			5– 0			2–10																						
4	S14	4– 2		2	1			4– 2																									
6	S17	5– 8		1	17	1		5– 0																									
6	S20	20– 8		24	10			15– 0			5– 8																						
6	S21	11– 5		8	1			11– 5																									
6	S31	21– 5		1	1			21– 5																									
4	S40	8– 9		4	14			7– 5			1– 4																						82
6	S47	6–10		3	11			1–10			2– 6			2– 6																			
6	S48	7– 0		3	11			2– 0			2– 6			2– 6																			
9	S60	22– 0		24	1			22– 0																									
8	S70	14– 4		12	17	3		13– 0																									
4	C04	VARY		8	4	5	5	1– 4			2– 5																						
		7–11		0	4	5	5	1– 4			2– 1																						
4	C04	VARY		8	4	5	5	1– 4			2– 5																						
		7–11		0	4	5	5	1– 4			2– 1																						
4	C05	6– 1		7	4	5	5	1– 4			1– 4																						
LOCATION STAIRS & BOTTOM WALKWAY NO. REQUIRED = 2																																	
4	ST01	28– 0		2	1			28– 0																									
4	ST02	2– 3		4	14			1– 3			1– 0																						82
4	ST03	2– 6		32	14			1– 3			1– 3																						82
4	ST04	VARY		10	1			12– 0																									
		8– 8		0	1			5– 3																									
4	ST05	13–11		4	28			2– 0			2– 0			8– 2			5– 6																

NOTE:
FOR STANDARD BAR BENDING DETAILS, REFER TO FDOT INDEX NO. 415–001.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15–23.004, F.A.C.

G:\PROJECTS\3231_BECKETT_DESIGN\001037A – BECKETT\PLANS\DWG\PRODUCTION\STRUCT\BP\001037A_S4_BP_REBARLIST03.DWG 7/2/2021 2:04:51 PM ANLUN CHEN

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING BAR LIST (3 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–40
DATE: ____
PROJECT NO. 001037A
SHEET: 135 OF 283

MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	Ø
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION ROADWAY CANTILEVER SLAB																				NO. REQUIRED = 1													
5	R01	59– 6		2	1			59– 6																									
6	R02	53– 8		13	18	3	3	51– 8																									
8	R03	7– 0		98	17	3		5– 8																									
6	R05	40– 0		12	1			40– 0																									
6	R06	7– 0		50	10			6– 0			1– 0																						
6	R07	6–10		50	12			5– 2			1– 8																						47
6	R09	5– 6		24	12			4– 0			1– 6																						70
8	R10	4– 7		2	17	3		3– 3																									
8	R11	3– 3		2	1			3– 3																									
6	R19	11– 0		24	1			11– 0																									
LOCATION SCENIC OVERLOOK / OPERATION AREA DECKS																				NO. REQUIRED = 2													
5	D01	28– 1		5	17	1		27– 6																									
5	D02	2– 0		16	1			2– 0																									
4	D03	22– 9		2	3			22– 9			93– 1																						
5	D04	7–10		100	17	3		7– 0																									
6	D05	9– 0		6	17	3		8– 0																									
4	D06	3–11		9	23			1– 8			0– 2			1– 8																			
4	D07	8– 0		4	1			8– 0																									
4	D08	2– 7		8	23			1– 0			0– 2			1– 0																			
4	D09	7– 6		2	1			7– 6																									
4	D10	VARY		26	22			0– 7			1– 7			1– 0			0– 7			1–10													
		4– 7		0	22			0– 7			1– 0			1– 0			0– 7			1– 3													
5	D11	27– 6		5	1			27– 6																									
5	D12	6– 8		18	18	1	1	5– 6																									
5	D13	16–11		8	10			16– 4			0– 7																						
5	D14	3– 5		6	11			2– 3			0– 7			0– 7																			
5	D15	5–10		6	11			4– 8			0– 7			0– 7																			
5	D16	3– 8		6	18	1	3	2– 3																									
5	D17	5–11		6	18	1	3	4– 6																									
4	D18	27– 2		1	3			27– 2			92– 3																						
4	D19	1– 1		2	1			1– 1																									
5	D20	18– 6		2	1			18– 6																									
5	D30	9– 7		25	26			0– 7			4– 1			4– 1			0–10																
4	C02	7–11		8	4	5	5	2– 1			1– 6																						

NOTE:
FOR STANDARD BAR BENDING DETAILS,
REFER TO FDOT INDEX NO. 415–001.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15–23.004, F.A.C.

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ANLUN CHEN
7/2/2021 2:04:56 PM

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING BAR LIST (4 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–41
DATE: 06/25/2021
PROJECT NO. 001037A

	MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	Ø
	SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
	LOCATION COLUMN C1																				NO. REQUIRED = 2													
	4	C01	VARY		23	4	5	5	1	–	6	1	–	6																				
			5	– 9	0	4	5	5	1	–	6	0	–	6																				
	4	C03	VARY		12	4	5	5	1	–	6	2	–	1																				
			7	– 5	0	4	5	5	1	–	6	1	–	7																				
*	7	C06	15	– 4	8	1			15	–	4																							
	7	C09	6	– 6	2	17	1		5	–	8																							
	7	C10	11	– 7	2	17	1		10	–	9																							
	LOCATION COLUMN C3																				NO. REQUIRED = 2													
	4	C01	VARY		24	4	5	5	1	–	6	1	–	6																				
			5	– 9	0	4	5	5	1	–	6	0	–	6																				
	4	C03	VARY		12	4	5	5	1	–	6	2	–	1																				
			7	– 5	0	4	5	5	1	–	6	1	–	7																				
*	7	C06	15	– 4	8	1			15	–	4																							
	7	C09	6	– 6	2	17	1		5	–	8																							
	7	C10	11	– 7	2	17	1		10	–	9																							
	4	C05	6	– 9	12	4	5	5	1	–	6	1	–	6																				
	LOCATION ALL DECK BEAMS ON ONE SIDE OF PIER																				NO. REQUIRED = 2													
	5	B01	VARY		46	4	5	5	1	–	11	1	–	0																				
			6	– 3	0	4	5	5	1	–	5	1	–	0																				
*	9	B02	22	– 0	6	1			22	–	0																							
*	9	B03	27	– 0	6	3			27	–	0	93	–	1																				
	4	B04	7	– 2	9	6			2	–	1	1	–	0	1	–	0	1	–	0														
	8	B05	12	–11	3	18	3	3	10	–	3																							
	6	B06	22	– 6	2	3			22	–	6	93	–	1																				
	6	B07	18	– 6	2	1			18	–	6																							
	5	B08	9	– 0	8	1			9	–	0																							
	5	B10	VARY		31	4	5	5	1	–11		1	–	0																				
			6	– 5	0	4	5	5	1	–	7	1	–	0																				
	9	B12	18	– 6	6	1			18	–	6																							
	9	B13	22	– 6	6	3			22	–	6	93	–	1																				
	8	B15	12	– 7	3	18	3	3	9	–11																								

END OF LIST

NOTE:
FOR STANDARD BAR BENDING DETAILS,
REFER TO FDOT INDEX NO. 415–001.

* PROVIDE ANCHOR STUD BAR COUPLERS AT ENDS.
BARS 9B02 – SINGLE END
BARS 9B03 – BOTH ENDS

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15–23.004, F.A.C.

7/2/2021 2:05:02 PM
ANLUN CHEN
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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED QPO
DRAWN QPO
CHECKED RW

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER 3 REINFORCING BAR LIST (5 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BP–42
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 137 OF 283

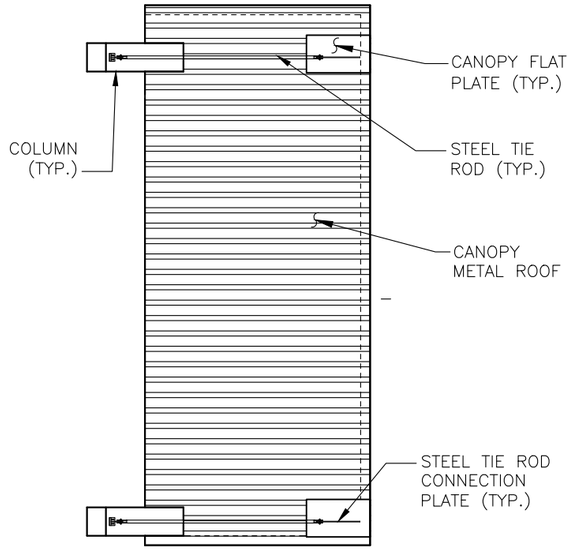
CANOPY NOTES:

A. BUILDING CODES:
   1. FLORIDA BUILDING CODE, 2017 EDITION WITH APPROVED SUPPLEMENTS.
   2. ASCE 7–10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.
   3. ACI 318–14 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
   4. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) STEEL CONSTRUCTION MANUAL, FOURTEENTH EDITION.

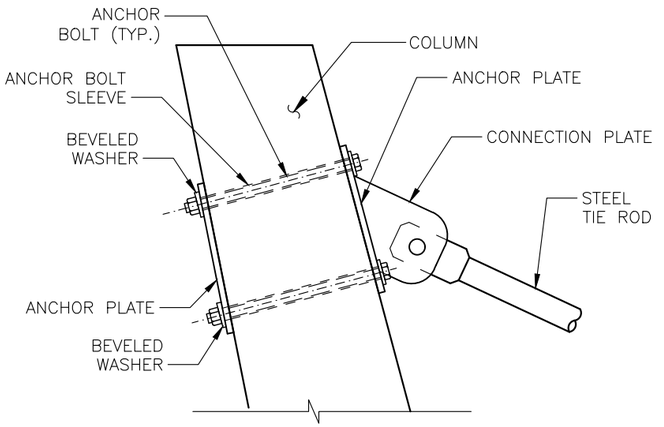
B. DESIGN CRITERIA:
   1. DESIGN METHOD: LRFD
   2. DEAD LOADS:
      ROOFING 8 PSF
      MISC 3 PSF
   3. LIVE LOADS:
      ROOF 5 PSF
   4. WIND LOADS:
      DESIGN WIND SPEED (3–SECOND GUST):
      WIND VELOCITY (V.ult) = 150 MPH
      WIND VELOCITY (V.asd) = 116 MPH
      RISK CATEGORY: II
      EXPOSURE CATEGORY: B
      ENCLOSURE CLASSIFICATION: OPEN BUILDING, FLAT ROOF
      INTERNAL PRESSURE COEFFICIENTS (GCpi) = 0.00
      ROOF PRESSURE = +35 PSF, –32 PSF

C. CONSTRUCTION MATERIALS:
   1. SEE TSP SECTION T512 FOR ALL MATERIAL INFORMATION.

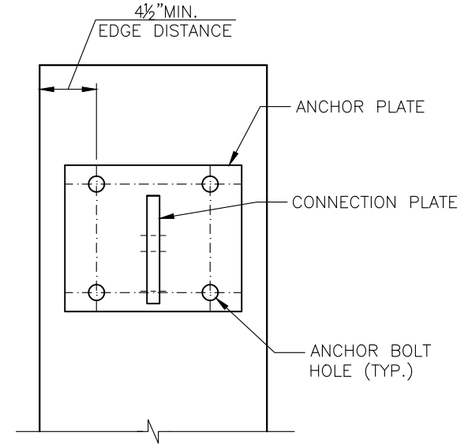
D. PLANS:
   1. SEE ARCHITECTURAL PLANS FOR ADDITIONAL DETAILS OF ROOF CANOPY SYSTEM AND CONNECTIONS.



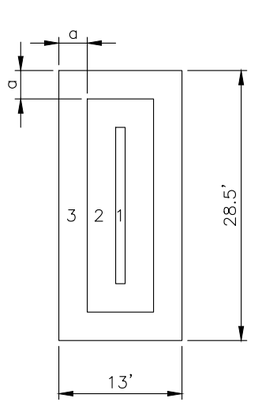
CANOPY ROOF PLAN
(OPERATION AREA CANOPY SHOWN, SCENIC OVERLOOK CANOPY SIMILAR)
(BASCULE PIER BELOW NOT SHOWN FOR CLARITY)



DETAIL "A"

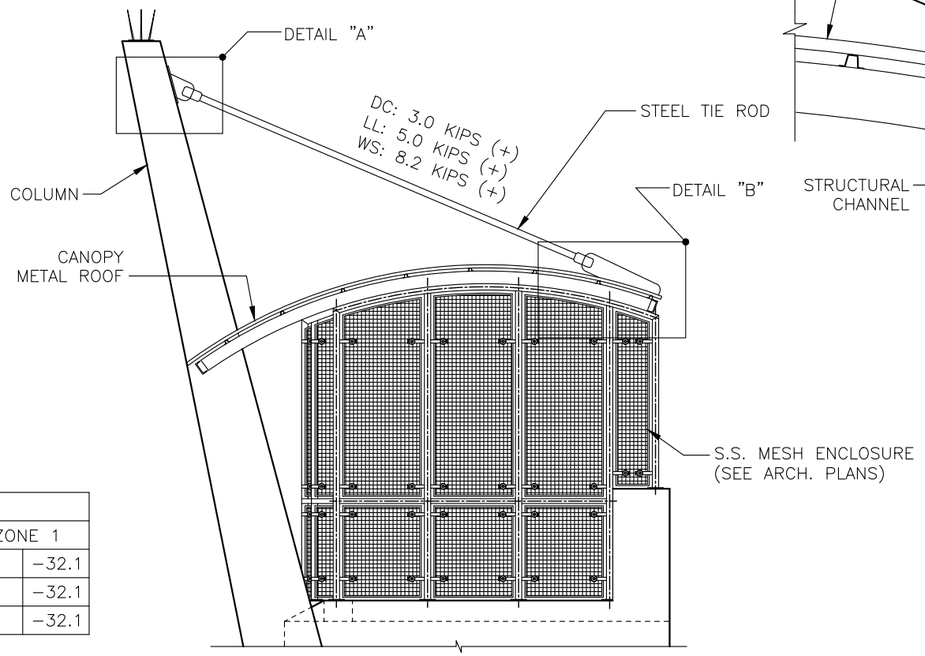


DETAIL "A" ELEVATION
(STEEL TIE ROD AND ANCHOR BOLTS NOT SHOWN)

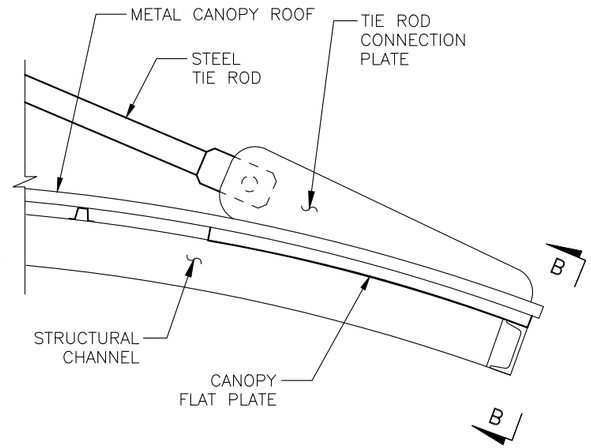


ROOF PRESSURE

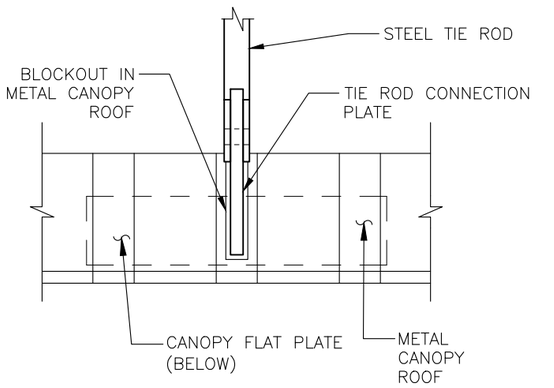
EFFECTIVE WIND AREA	CLEAR WIND FLOW					
	ZONE 3		ZONE 2		ZONE 1	
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$>a^2,\ \leq 4a^2$	52.5	–49.5	52.5	–49.5	35	–32.1
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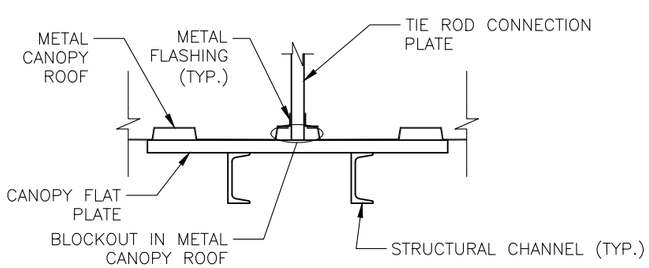
CANOPY ELEVATION
(OPERATION AREA CANOPY SHOWN, SCENIC OVERLOOK CANOPY SIMILAR)



DETAIL "B"
(WOVEN WIRE MESH ENCLOSURE NOT SHOWN)



DETAIL "B" ELEVATION
(ANCHOR BOLTS NOT SHOWN)



SECTION B–B

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: OPERATION AND OVERLOOK AREAS NOTES

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

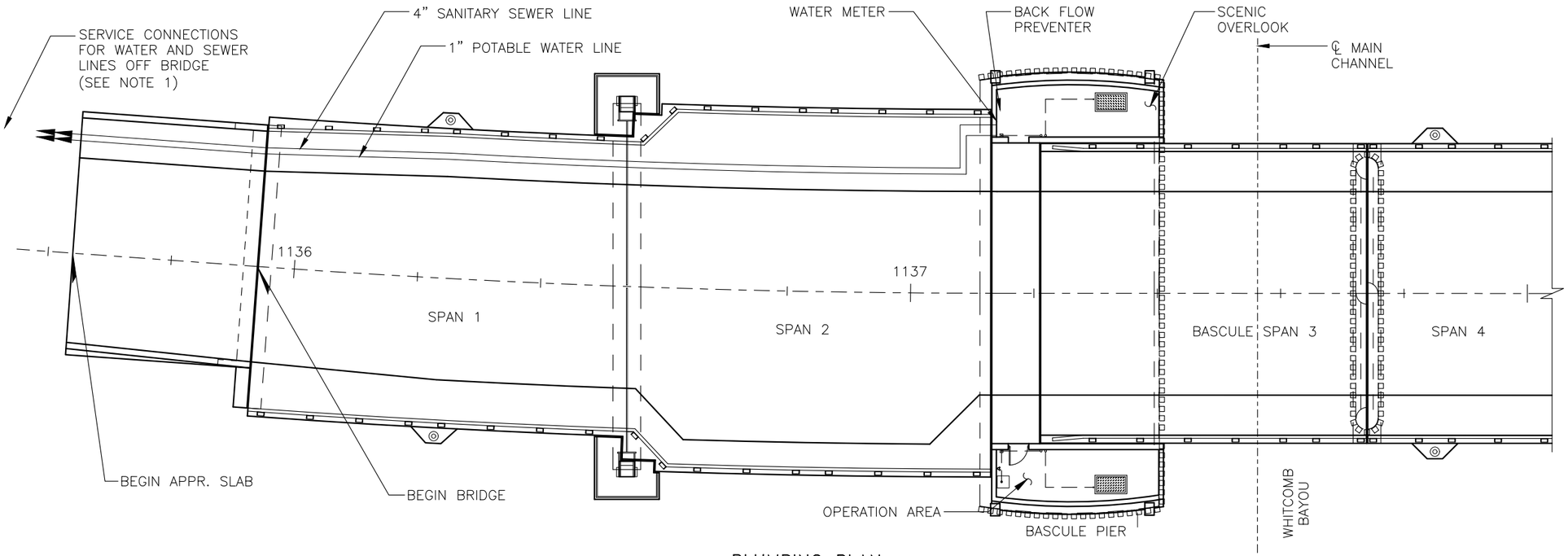
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. TH–1
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 138 OF 283

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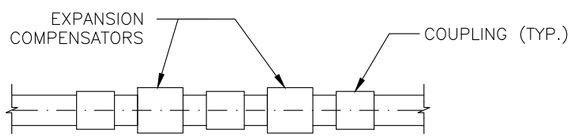
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ANLUN CHEN



PLUMBING PLAN

BRIDGE PLUMBING GENERAL NOTES:

1. COORDINATE WITH THE CITY OF TARPON SPRINGS AND PINELLAS COUNTY FOR ALL PERMITS AND TRANSACTIONS REQUIRED TO PROVIDE POTABLE WATER AND SANITARY SEWER SERVICE CONNECTIONS TO THE BRIDGE.
2. SEE TSP SECTION T512 FOR THE BRIDGE PLUMBING REQUIREMENTS.
3. SANITARY SEWER PIPE SHALL HAVE MINIMUM CONTINUOUS SLOPE ⅛" PER FOOT FOR GRAVITY FEED INTO CITY SYSTEM.
4. PROVIDE A SANITARY SEWER LINE CLEANOUT AT A MAXIMUM 100 FT. SPACING. INCLUDE A 5" DIA. SCH. 80 PVC RISER SLEEVE EMBEDDED IN THE APPROACH SPAN SUPERSTRUCTURE CONCRETE. COORDINATE THE LOCATION OF THE SLEEVE TO AVOID DECK JOINTS AND MINIMIZE INTERFERENCE WITH SUPERSTRUCTURE REINFORCING STEEL. PROVIDE A 4" DIA. SCH. 80 RISER PIPE TO BE CONNECTED TO THE CLEANOUT FITTING. CAP THE TOP OF THE RISER SLEEVE WITH A FLUSH CLEANOUT PLUG LEVEL WITH THE TOP OF SIDEWALK.
5. FOR SPACING OF PLUMBING EXPANSION COMPENSATORS REFER TO MANUFACTURER'S RECOMMENDATIONS (PROVIDE STANDARD PRODUCT). SANITARY COMPENSATORS SHALL BE OF NON-CLOGGING DESIGN. QUANTITY OF EXPANSION COMPENSATORS SHALL BE SUFFICIENT TO PROVIDE EXPANSION AND COMPRESSION OF LINES DURING STANDARD YEAR MAX./MIN. TEMPERATURE CHANGES.
6. PROVIDE PLUMBING EXPANSION JOINTS FOR SANITARY SEWER LINE AND POTABLE WATER LINE AT BASCULE PIER AND AT BEGIN BRIDGE.
7. COORDINATE BRIDGE PLUMBING DETAILS WITH ALL OTHER RELATED DISCIPLINES, INCLUDING STRUCTURAL, MECHANICAL, AND ELECTRICAL PLANS.



PLUMBING EXPANSION JOINT

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

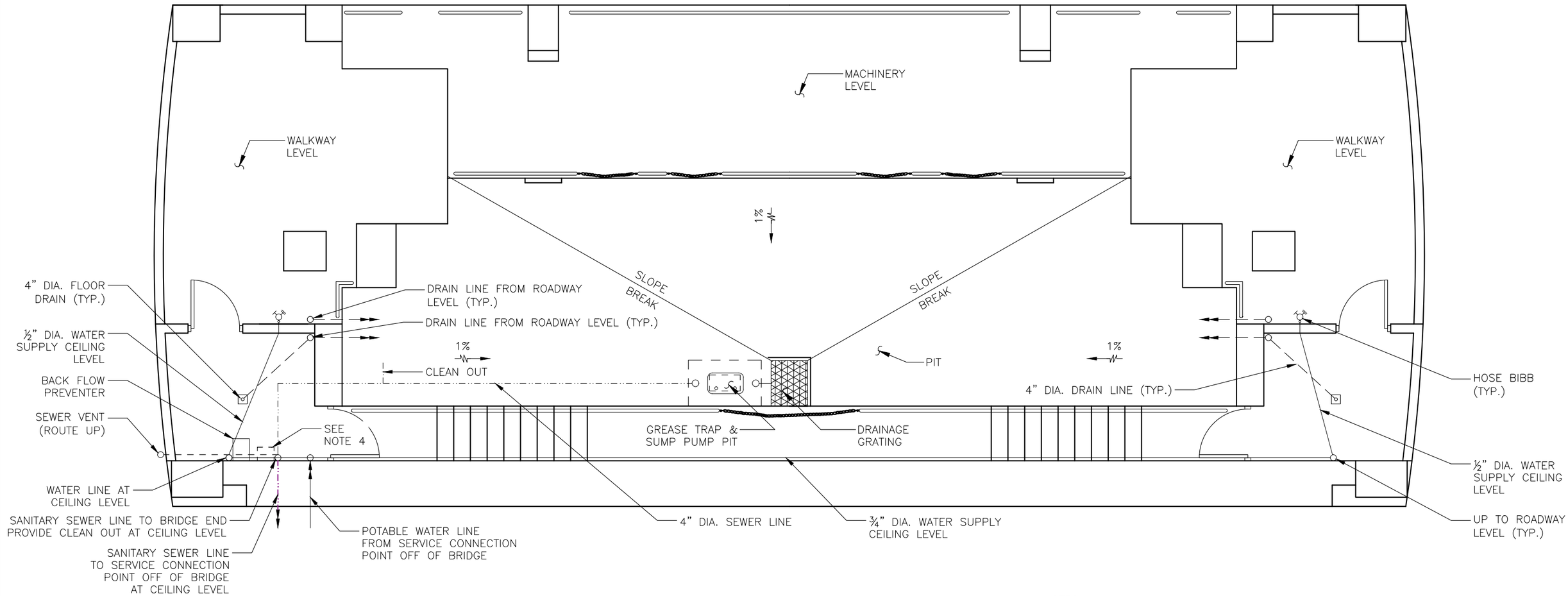
DESCRIPTION: BRIDGE PLUMBING PLAN

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. TH-2
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 139 OF 283

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PIPING LEGEND	
————	WATER SUPPLY
—·—·—·—	SEWER DRAIN
— — — —	DRAIN LINE

MACHINERY LEVEL PLUMBING PLAN

(MACHINERY NOT SHOWN)

NOTES:
1. PROVIDE SHUT OFF VALVES AT EACH WATER SUPPLY PLUMBING FIXTURE.
2. MAXIMUM HANGER SPACING IS 4' IN THE HORIZONTAL DIRECTION AND 10' IN THE VERTICAL DIRECTION.
3. FILL ANNULUS OF PLUMBING WORK INCLUDING CHASE THROUGH FLOOR PENETRATION WITH CAULKING.
4. COORDINATE WATER METER LOCATION WITH UTILITY.
5. ALL HOSE BIBBS SHALL INCLUDE INTEGRAL VACUUM BREAKER.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED VR
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

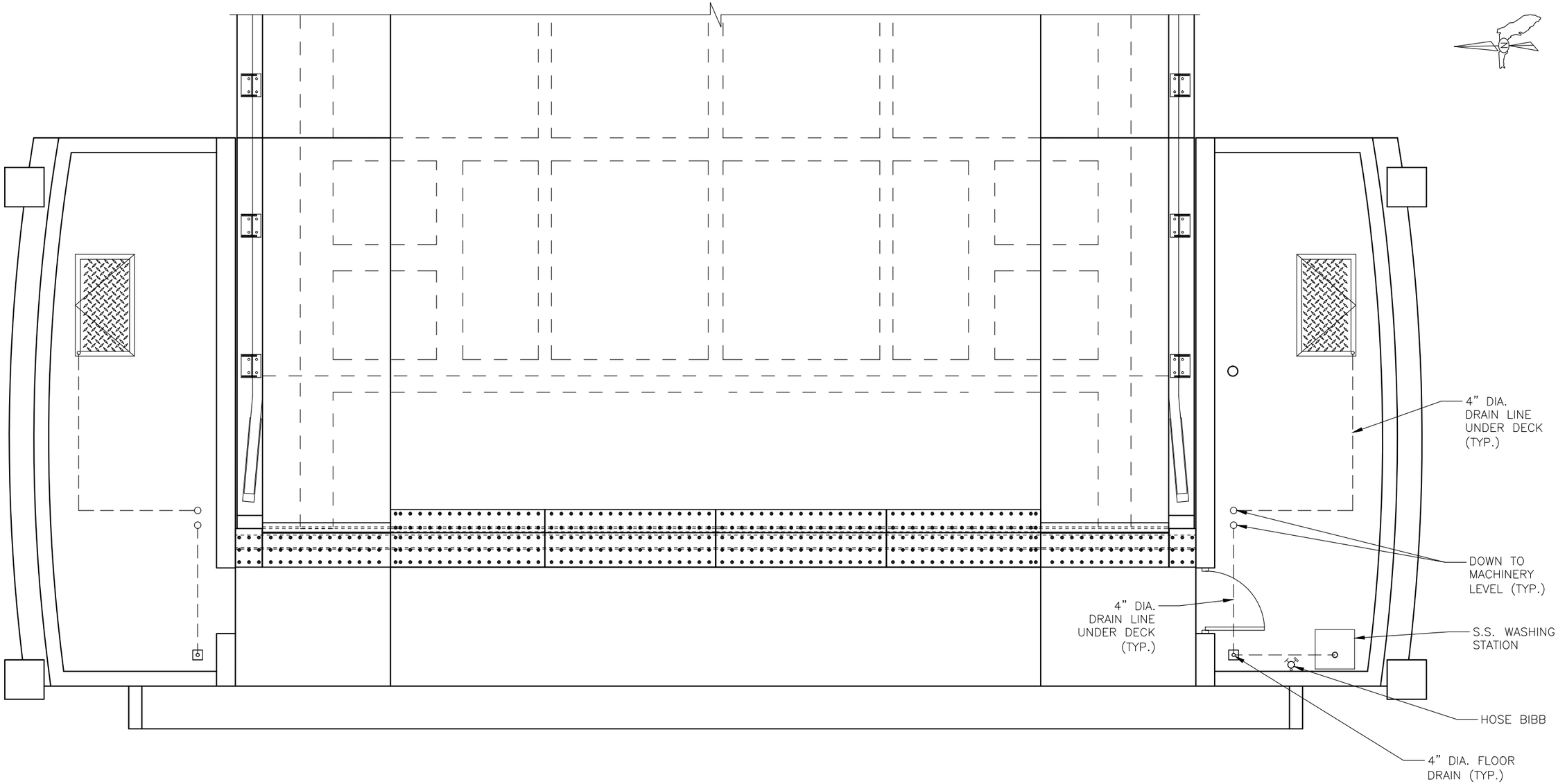
DESCRIPTION: BASCULE PIER PLUMBING PLAN (1 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. TH-3
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 140 OF 283

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ROADWAY LEVEL PLUMBING PLAN

PIPING LEGEND	
———	WATER SUPPLY
—·—·—·—	SEWER DRAIN
— — — —	DRAIN LINE

WASHING STATION NOTES:

1. MINIMUM BOWL DIMENSIONS: 24"x24"x12" DEEP
2. MINIMUM BACKSPLASH: 8" HIGH
3. FAUCET: SINGLE, STAINLESS STEEL
4. WATER SUPPLY: COLD WATER ONLY
5. MATERIAL: MINIMUM OF 16 GAUGE TYPE 400 SERIES STAINLESS STEEL WITH POLISHED SATIN FINISH.
6. CONSTRUCTION: WELDED CONSTRUCTION, EXPOSED WELDS POLISHED TO MATCH ADJACENT SURFACES
7. LEGS: STAINLESS STEEL OR GALVANIZED STEEL WITH ADJUSTABLE FEET FOR LEVELING.

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DESIGNED VR
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

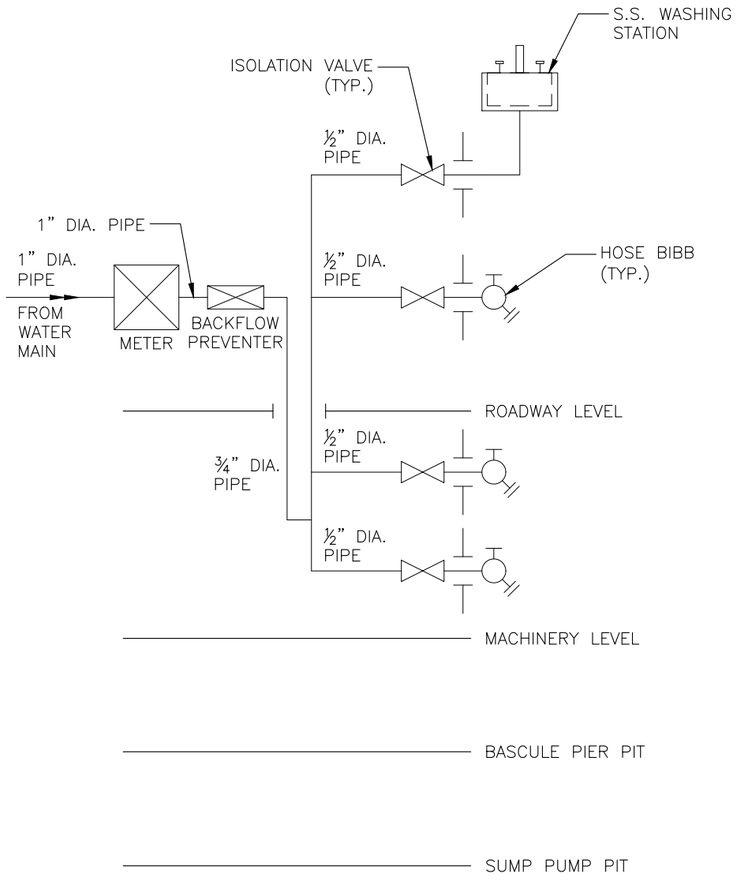
DESCRIPTION: BASCULE PIER PLUMBING PLAN (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

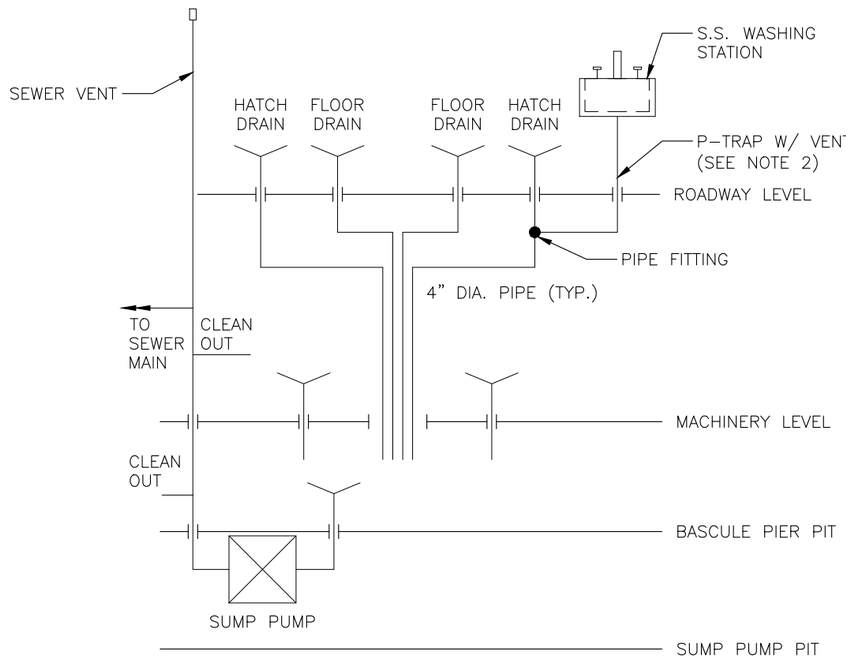
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. TH-4
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 141 OF 283

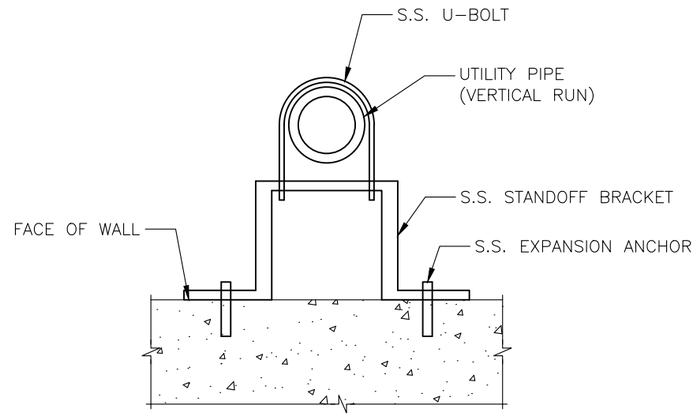
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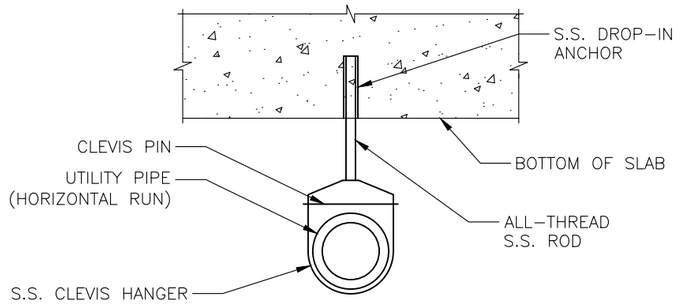
RISER DIAGRAM – POTABLE WATER DISTRIBUTION



RISER DIAGRAM – SANITARY SEWER



TYPICAL PIPE STAND DETAIL*



TYPICAL PIPE HANGER DETAIL*

LEGEND
* REFER TO TSP SECTION T512 FOR PIPE STAND AND PIPE HANGER SPACING.

NOTES:
1. PROVIDE TYPE 316 STAINLESS STEEL FOR ALL PIPE SUPPORTS AND HARDWARE.
2. P-TRAP VENT SHALL TERMINATE AT MINIMUM ABOVE SINK RIM FLOOD ELEVATION.

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REV. NO.	DATE	DESCRIPTION	REV. BY

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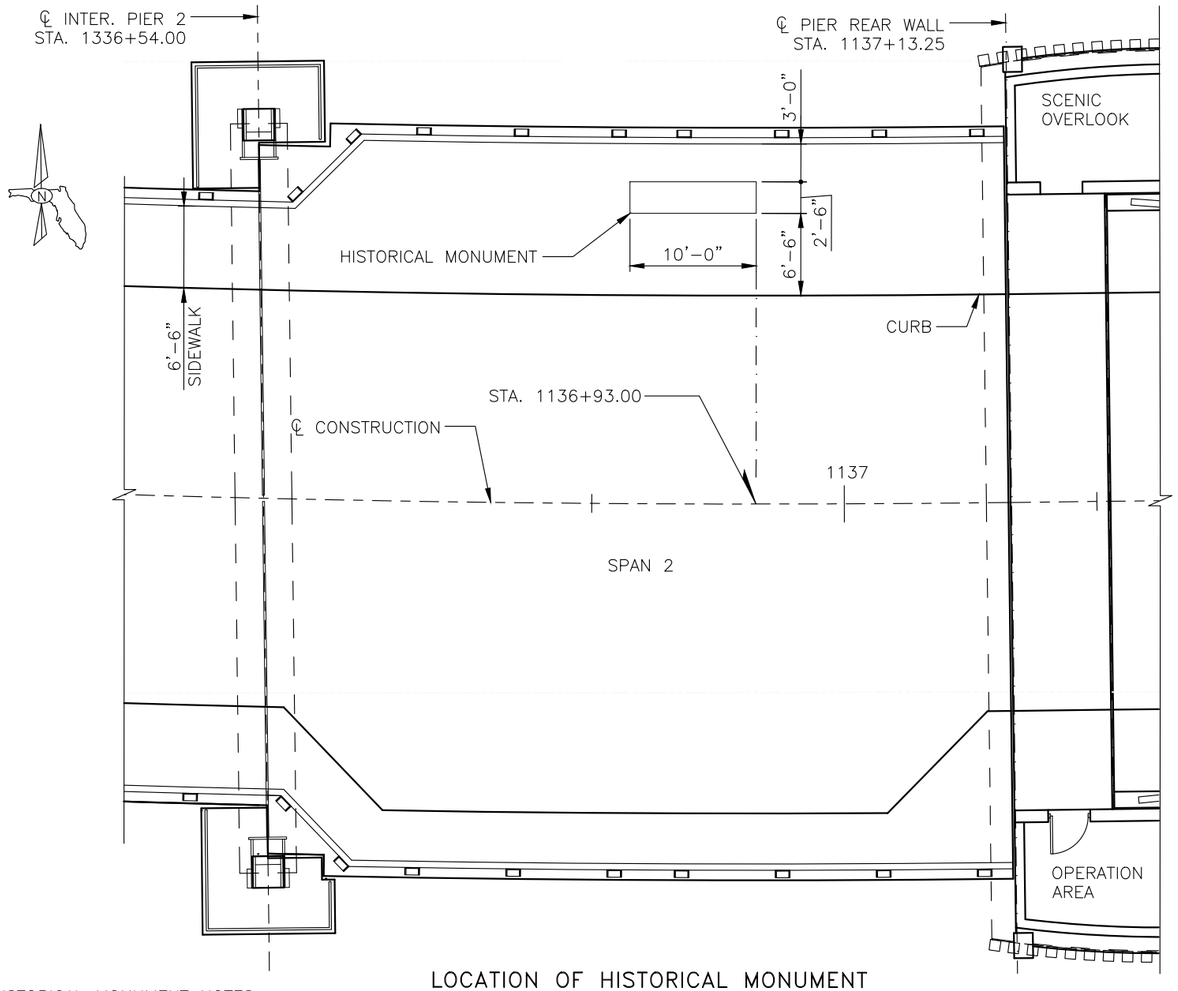
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER PLUMBING DETAILS AND SCHEMATIC

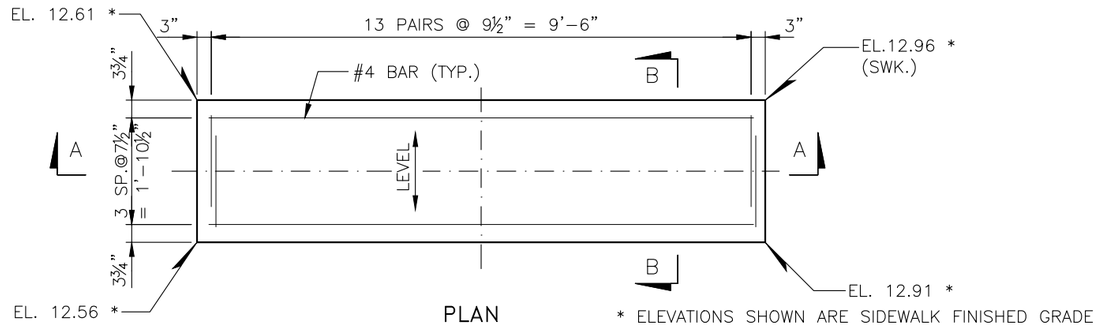
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. TH-5
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 142 OF 283

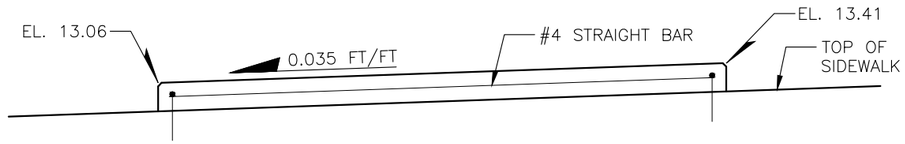


LOCATION OF HISTORICAL MONUMENT

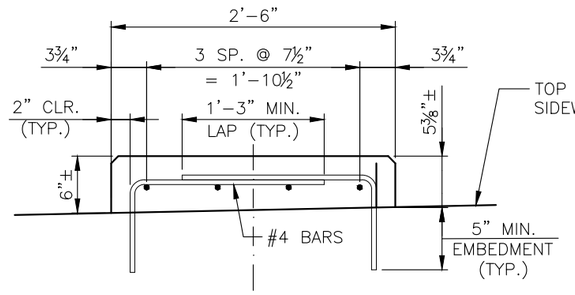


PLAN

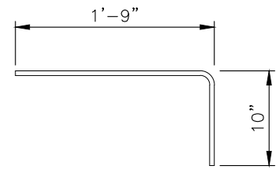
* ELEVATIONS SHOWN ARE SIDEWALK FINISHED GRADE



SECTION A-A



SECTION B-B



BAR DETAIL

HISTORICAL MONUMENT NOTES:

1. SALVAGE MACHINERY COMPONENTS (INCLUDING RACKS (2), ALL OPEN GEARS AND SHAFTING), FLAT TRACKS (2) AND SECTIONS OF EXISTING BASCULE GIRDERS (2) WITH CURVED TREADS FOR USE IN CONSTRUCTING THE HISTORICAL MARKER. SALVAGE A MINIMUM OF 6 INCHES OF THE GIRDERS BEYOND THE LIMITS SHOWN TO ALLOW FOR FINAL DETAILING.
2. DIMENSIONS AND DETAILS SHOWN ARE APPROXIMATE. FINAL DIMENSIONS ARE TO BE DETERMINED BY THE ENGINEER FOLLOWING SALVAGE OPERATIONS AND ASSESSMENT OF THE SALVAGED MATERIALS.
3. FOLLOWING DIRECTION FROM THE ENGINEER PREPARE AND SUBMIT SHOP DRAWINGS FOR THE HISTORICAL MARKER FABRICATION AND PLAQUE FOR REVIEW BY THE ENGINEER.
4. CUT EXISTING STEEL TO BE INCORPORATED INTO THE MARKER TO THE FINAL DIMENSIONS AS DIRECTED BY THE ENGINEER. GRIND AS NECESSARY TO PRODUCE CLEAN STRAIT EDGES WITH A MINIMJM ⅛" RADIUS ON ALL EXPOSED EDGES AND CORNERS. FINISH SURFACES WITH A GRINDING PAD TO REMOVE ALL BURRS.
5. CUT PINION SHAFTS TO SHORTEN BY 8 INCHES AND MACHINE TO FIT WITH PINION BORE.
6. FLAT TRACK PLATES ARE PARTIALLY EMBEDDED IN CONCRETE AND MAY BE ANCHORED TO A STEEL GRILLAGE. CUT EXISTING FASTENERS AND REMOVE FLAT TRACKS IN ONE PIECE INCLUDING ANY FLANGES OR TABS CURRENTLY EMBEDDED.
7. SURFACES OF SALVAGED ELEMENTS HAVE DETERIORATED OVER TIME. SURFACES ARE TO REMAIN IN THEIR CURRENT STATE AND ARE NOT TO BE RESTORED EXCEPT AS REQUIRED TO REMOVE SURFACE CORROSION AND PREPARE FOR COATINGS.
8. CONNECT SALVAGED MATERIALS WITH ¼" FILLET WELDS AS DIRECTED BY THE ENGINEER. FILLET WELDS WILL CONNECT THE PINION AND GEAR TO THE SHAFT, THE SHAFT TO THE BEARING HUB, THE CURVED TREADS TO THE FLAT TRACK AND THE PINIONS TO THE RACK. WELD PER AWS D1.1.
9. STEEL SURFACES SHALL RECEIVE A THERMAL SPRAY ALUMINUM PRIME COAT, A POLYAMINE EPOXY SEALER INTERMEDIATE COAT AND AN ALIPHATIC POLYURETHANE FINISH COAT. SEE TSP SECTION T564. COLORS SHALL BE AS NOTED BELOW. SUBMIT COLOR SAMPLES TO THE ENGINEER FOR REVIEW.

ELEMENT	COLOR	FEDERAL COLOR STANDARD
BASCULE GIRDERS	BLUE	15450
CURVED TREAD PLATES	BLUE	15450
FLATE TRACK	GRAY	16375
BULL GEARS	ORANGE	12510
PINION GEARS	ORANGE	12510
SHAFTS	ORANGE	12510
RACK	GRAY	16375

HISTORICAL MONUMENT NOTES (CONT.):

10. CONSTRUCT REINFORCED CONCRETE PAD TO SUPPORT HISTORICAL MONUMENT AS SHOWN IN THE PLANS. FINISH TOP OF PEDESTAL LEVEL IN THE TRANSVERSE DIRECTION. FINISH TOP AND SIDES OF PAD TO A CLASS 1 SURFACE FINISH. CONSTRUCT WITH CLASS IV CONCRETE, 5,500 PSI MINIMUM 28 DAY COMPRESSIVE STRENGTH.
11. THE DIMENSIONS AND CONDITION OF THE EMBEDDED PORTIONS OF THE FLAT TRACKS IS UNKNOWN. AFTER SALVAGE THE ENGINEER WILL PROVIDE DIRECTON ON HOW TO ANCHOR THE FLAT TRACK TO THE TOP OF THE CONCRETE PAD.
12. FOR THE PURPOSES OF BIDDING, ASSUME A ½" CEMENTITIOUS GROUT LEVELING PAD WILL REQUIRED UNDER THE FULL EXTEND OF THE FLAT TRACK. ASSUME THE TRACK WILL BE ANCHORED TO THE PAD/DECK WITH EIGHT ⅝" DIA. ASTM A193 GRADE B8 STAINLESS STEEL ANCHORS SET IN HSHV EPOXY WITH 8" EMBEDMENT.
13. PLAQUE TEXT WILL BE DETERMINED BY THE COUNTY. PLAQUE TO BE OF CAST BRONZE MATERIAL A MINIMUM OF ⅜" AT BORDERS AND ¼" IN RAISED TEXT AND INCLUDE TEXT AND IMAGES. PROVIDE A BRONZE ALLOY SUITABLE FOR AN OUTDOOR ENVIRONMENT WITH AIRBORNE SODIUM CHLORIDE. BORDER STYLE: DOUBLE LINE; BACK OF PLAQUE: STANDARD CASTING RETURN; RAISED SURFACES: BRUSHED SATIN BRONZE (GOLD); RECESSED SURFACES: PAINTED (DARK BROWN). CONNECT THE PLAQUE TO THE GIRDER WEB WITH FOUR ¼" DIA. TAMPER RESISTANT, PAN OR ROUND HEAD, BRASS MACHINE SCREWS.
14. ALL LABOR AND MATERIALS ASSOCIATED WITH FABRICATING AND INSTALLING THE HISTORICAL MONUMENT, INCLUDING THE CONCRETE PAD, REINFORCING STEEL, FABRICATION OF REPURPOSED SALVAGED MATERIAL, PLAQUE, HARDWARE AND SHOP DRAWINGS SHALL BE PAID FOR UNDER ITEM 751-51 ARCHITECTURAL MARKER.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN AC
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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: HISTORICAL MONUMENT (1 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

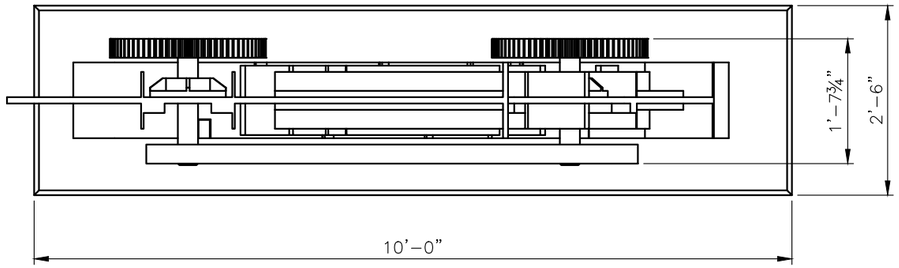
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. TH-6
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 143 OF 283

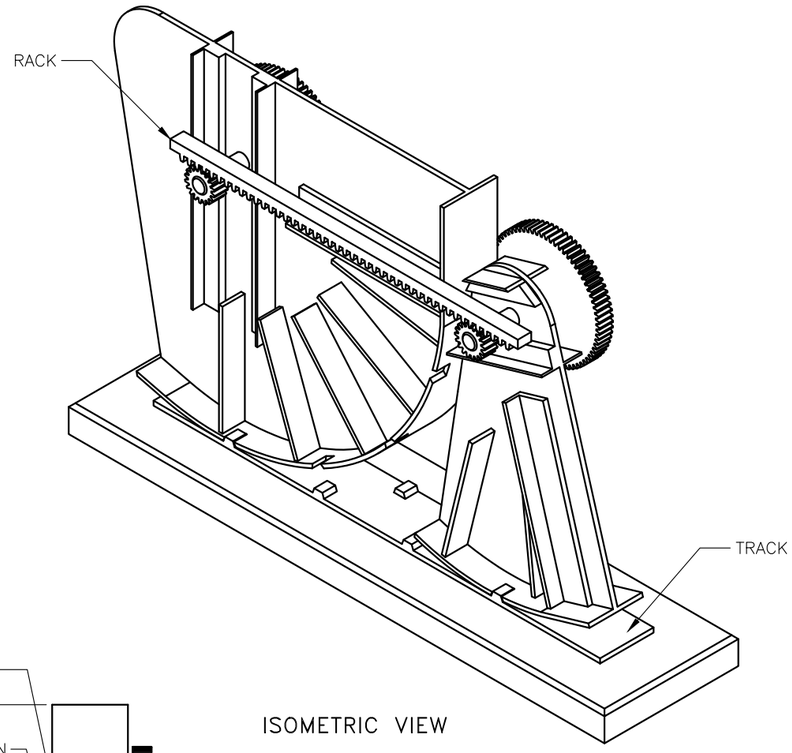
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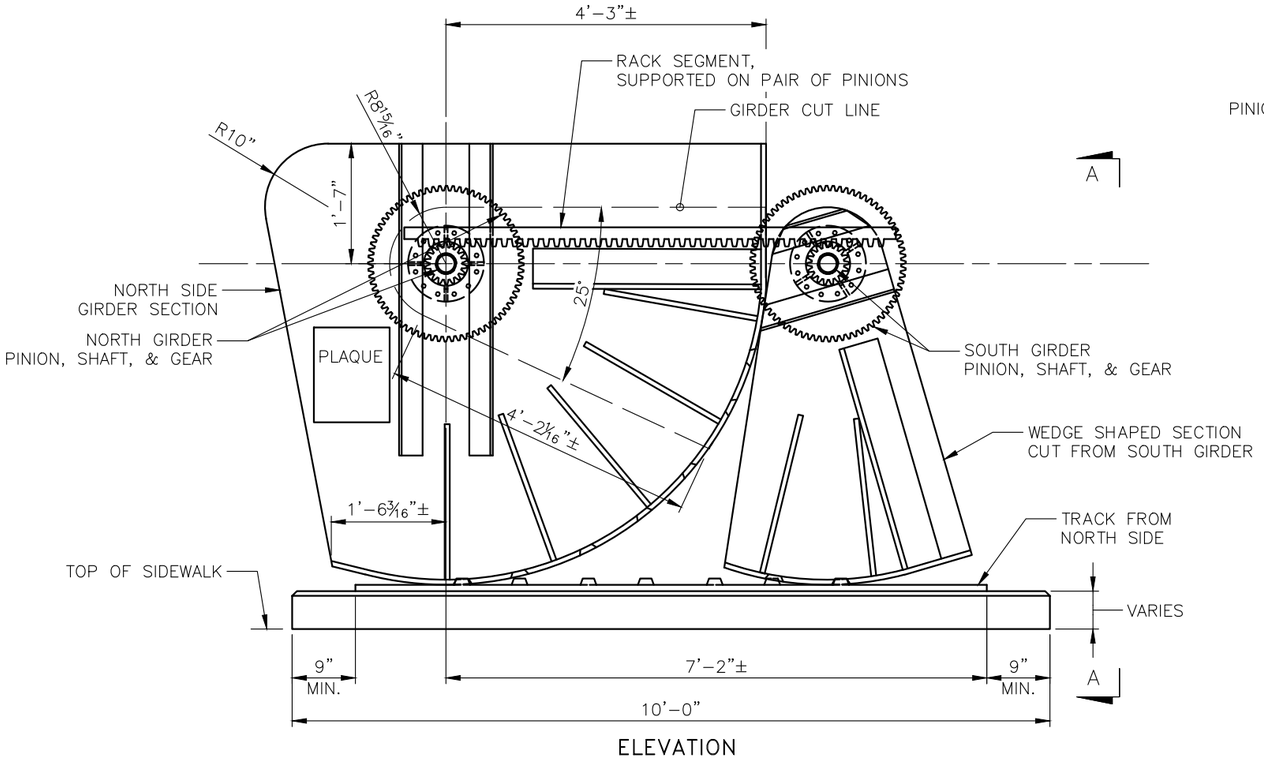
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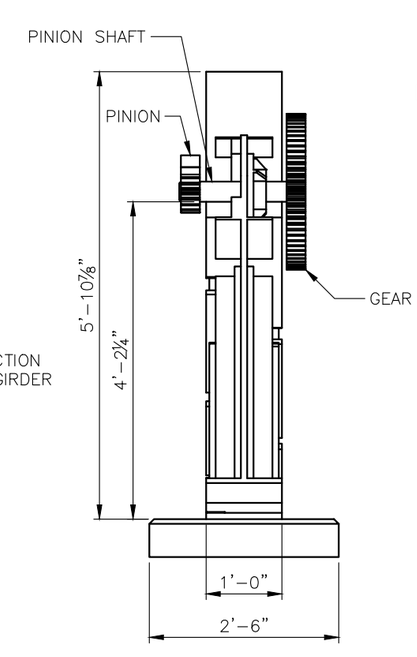
PLAN



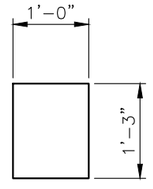
ISOMETRIC VIEW



ELEVATION



VIEW A–A



PLAQUE DETAIL

NOTES:

1. SEE DWG. TH-6 FOR HISTORICAL MONUMENT NOTES.

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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: HISTORICAL MONUMENT (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

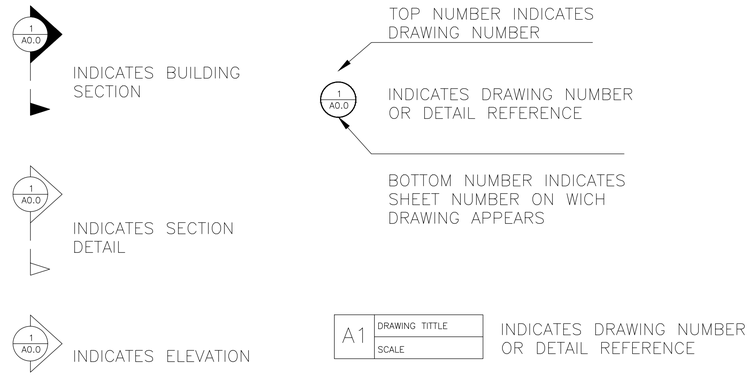
REF. DWG. NO. TH-7
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 144 OF 283

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GENERAL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND SEQUENCING ALL WORK.
2. THE CONTRACTOR SHALL BE RESTRICTED TO AREAS SPECIFIED BY OWNER FOR ON SITE STORAGE OF CONSTRUCTION MATERIALS. ALL WORK PERFORMED SHALL COMPLY WITH APPLIABLE OSHA/EPA REGULATIONS, CURRENT BUILDING CODES, AND GENERALLY ACCEPTED PROFISSIONAL CRAFTSMANSIP.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ERECTING AND MAINTAINING ALL REASONABLE SAFEGUARDS TO PROTECT THE GENERAL HEALTH SAFETY AND WELFARE OF THE GENERAL PUBLIC. THIS SHALL INCLUDE POSTING DANGER SIGNS, AND OTHER WARNING SIGNS AGAINST POTENTIAL HAZARDS, AS WELL AS ENFORCING SAFETY REGULATIONS.
4. CONTRACTOR SHALL MAINTAIN A CLEAN WORK PREMISE AT ALL TIMES AND SHALL CLEAN DEBRIS FROM CONSTRUCTION SITE DAILY.
5. ALL NEW WORK TO BE IN ACCORDANCE WITH THE LATEST BUILDING CODES AS DESCRIBED ON THE COVER.
6. THE CONTRACTOR SHALL MAKE AVAILABLE TO THE BUILDING INSPECTOR ANY DOCUMENTATION NECESSARY TO VERIFY THAT ALL PRODUCTS REQUIRING APPROVAL PER FS 553.842 ARE IN COMPLIANCE.
7. COORDINATE ARCHITECTURAL PLANS WITH PLANS SHEETS FOR ALL OTHER DISCIPLINES, INCLUDING STRUCTURAL, MECHANICAL, AND ELECTRICAL.
8. REFER TO DWG. NO. TH-1 FOR ADDITIONAL DETAILS OF ROOF CANOPY SYSTEM AND ASSUMED STRUCTURAL DESIGN LOADS.
9. REFER TO ELECTRICAL PLANS FOR LIGHTING FIXTURE LOCATIONS.
10. REFER TO TSP T512 FOR ADDITIONAL REQUIREMENTS, INCLUDING SHOP DRAWING SUBMITALS.

DRAWING SYMBOLS:



CODE INFORMATION:

ALL NEW WORK TO BE IN ACCORDANCE WITH THE LATEST BUILDING CODES ADOPTED BY THE BUILDING AUTHORITIES HAVING JURISDICTION. WHERE CONFLICTS OCCUR BETWEEN CODES OR BETWEEN CONSTRUCTION DOCUMENTS AND CODES, THE MOST RESTRICTIVE REQUIREMENTS SHALL GOVERN.

FLORIDA BUILDING ZONE, 7TH EDITION (2020)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CSI
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: GENERAL NOTES, CODE INFORMATION AND SYMBOLS

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

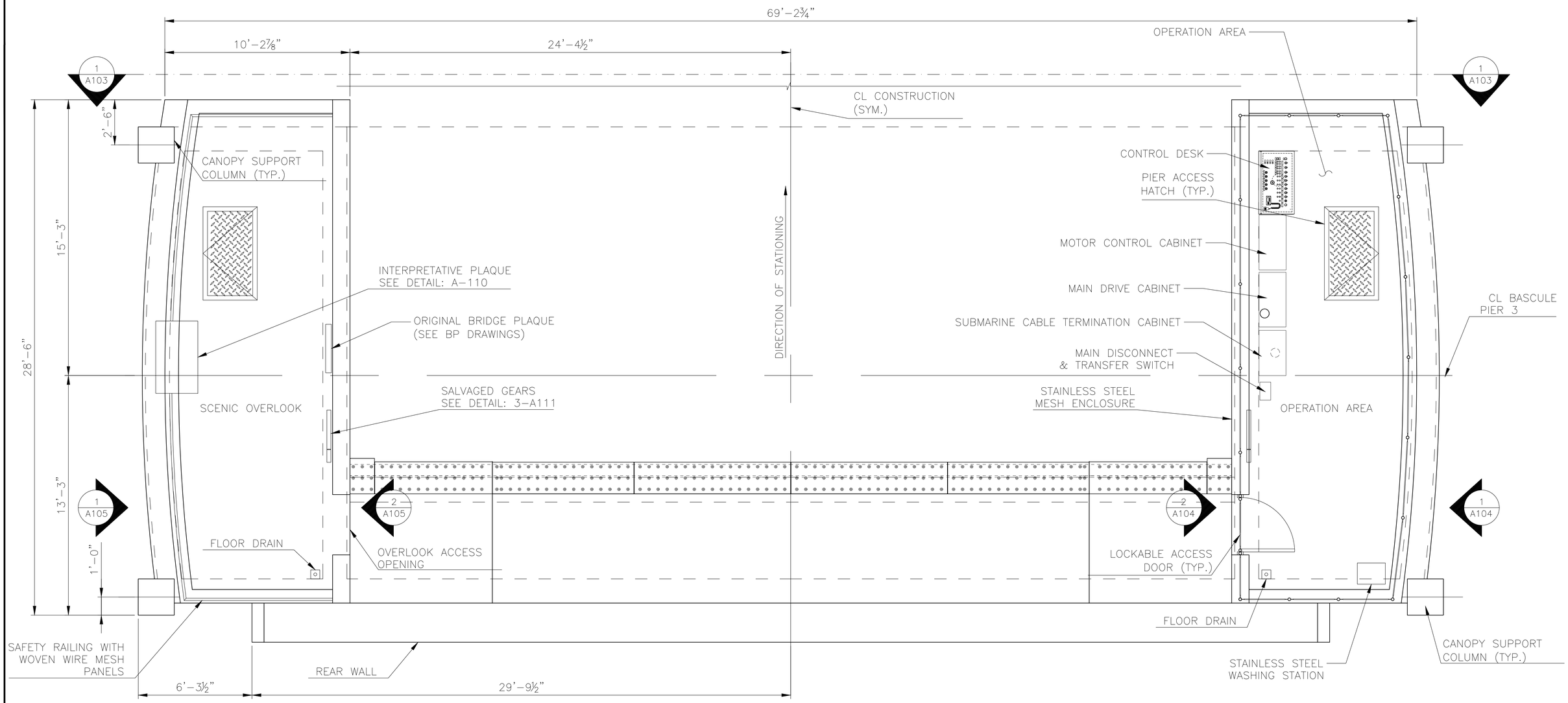
APPROVED BY:

BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801

DATE

REF. DWG. NO. A-001
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: 145 OF 283

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1 / A-101 PLAN AT ROADWAY LEVEL
SCALE: 3/16"=1'-0"

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CS
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER-ROADWAY LEVEL PLAN

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

APPROVED BY:

BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801

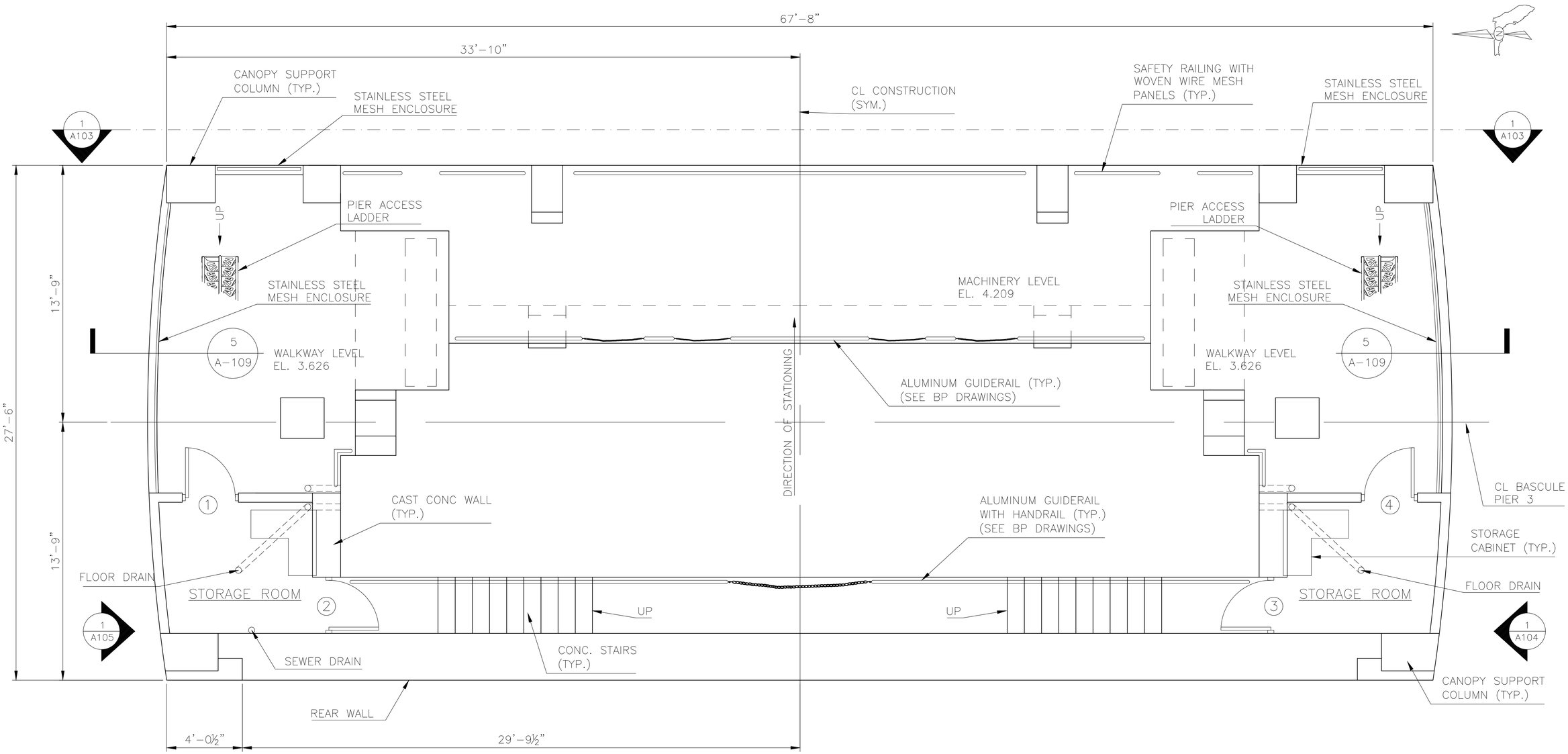
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REF. DWG. NO. A-101
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: 146 OF 283

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1 A-102 PLAN AT MACHINERY LEVEL
SCALE: 3/16"=1'-0"

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CS
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER – MACHINERY LEVEL PLAN

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

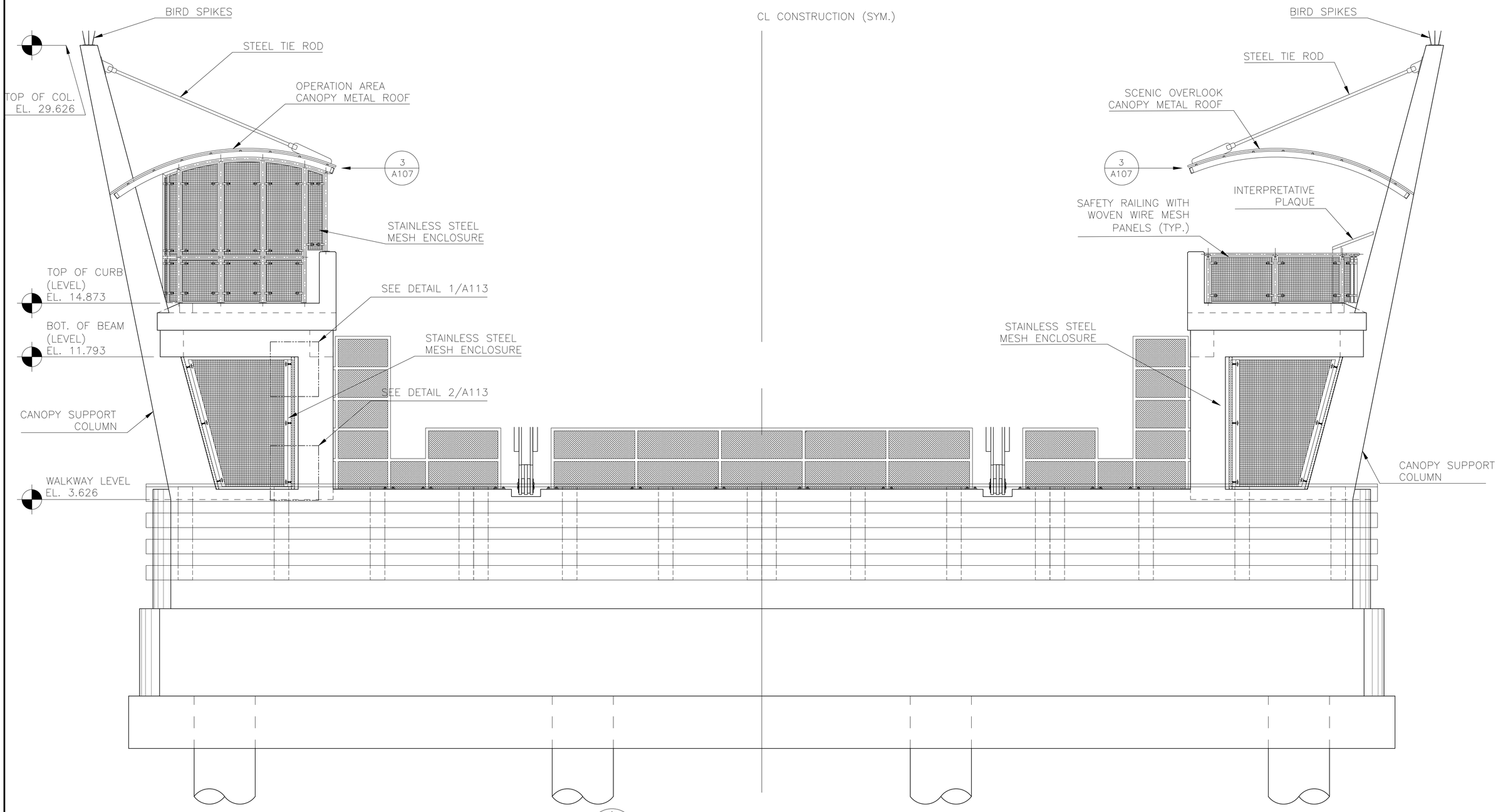
APPROVED BY:

BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801

DATE

REF. DWG. NO. A-102
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: **147 OF 283**

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1 A-103

EAST ELEVATION

SCALE: 3/16"=1'-0"

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CS
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER– EAST ELEVATION

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

APPROVED BY:

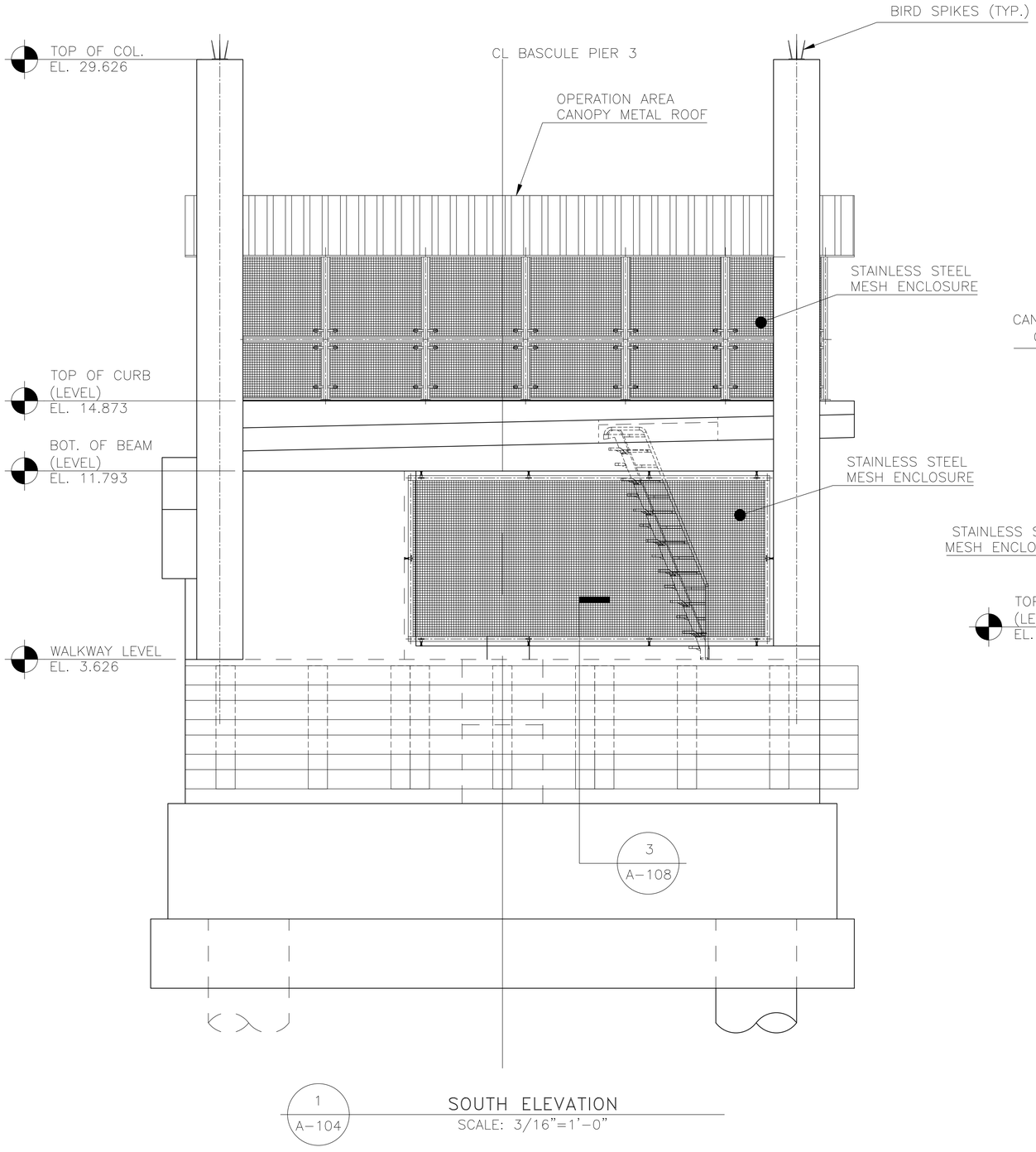
BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801

DATE

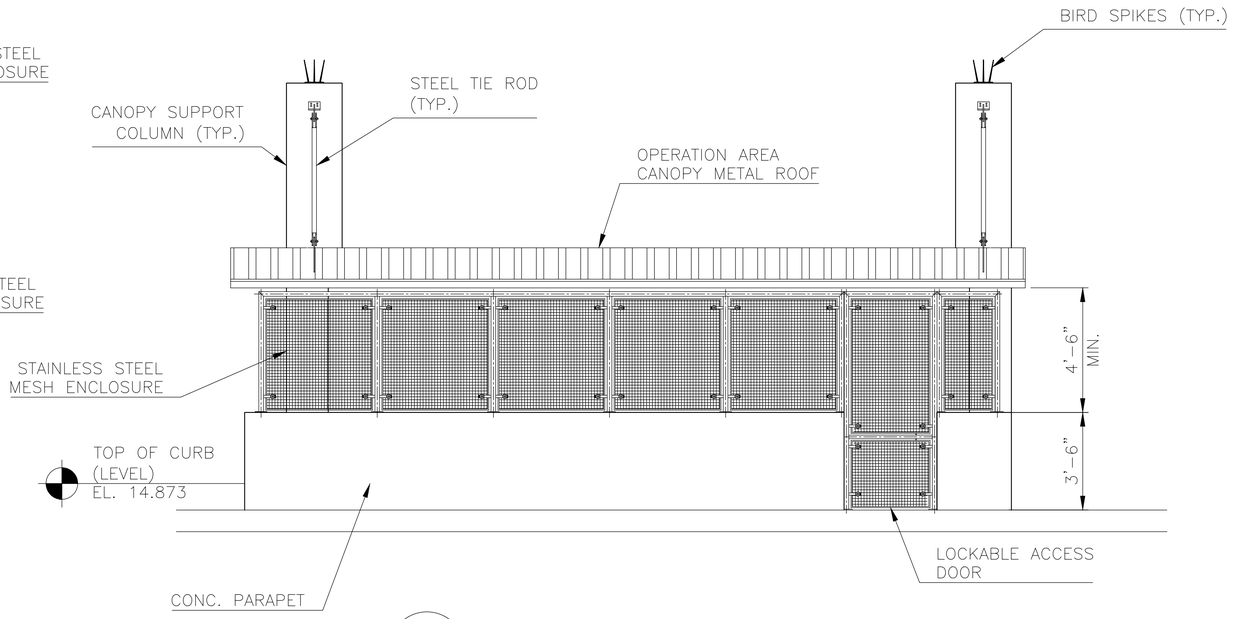
REF. DWG. NO. A-103
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: **148 OF 283**

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1 / A-104 SOUTH ELEVATION
SCALE: 3/16"=1'-0"



1 / A-104 OPERATION AREA EXTERIOR ELEVATION
SCALE: 3/16"=1'-0"

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DESIGNED BCT
DRAWN CS
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER-SOUTH ELEVATION

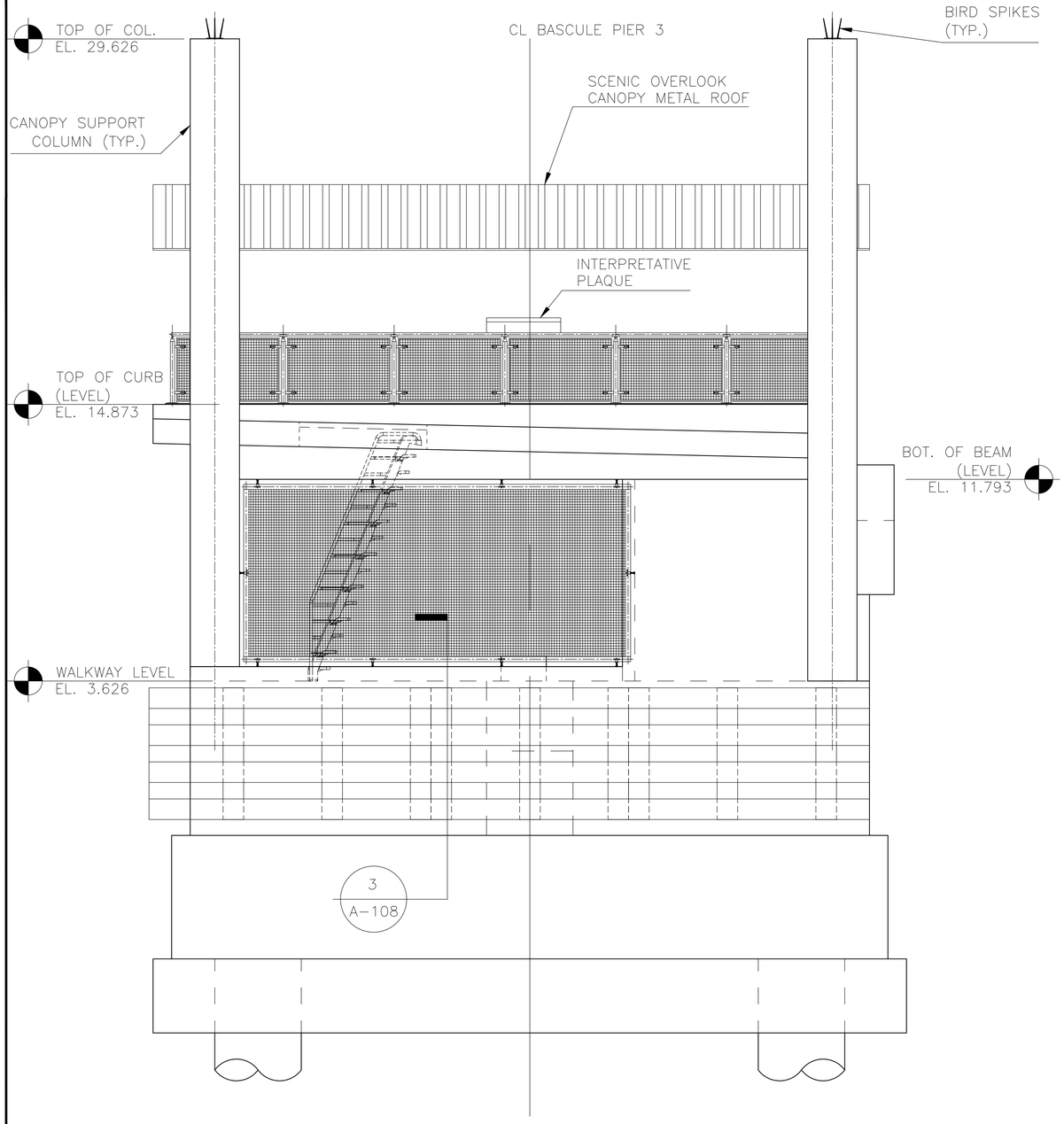
TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

APPROVED BY:

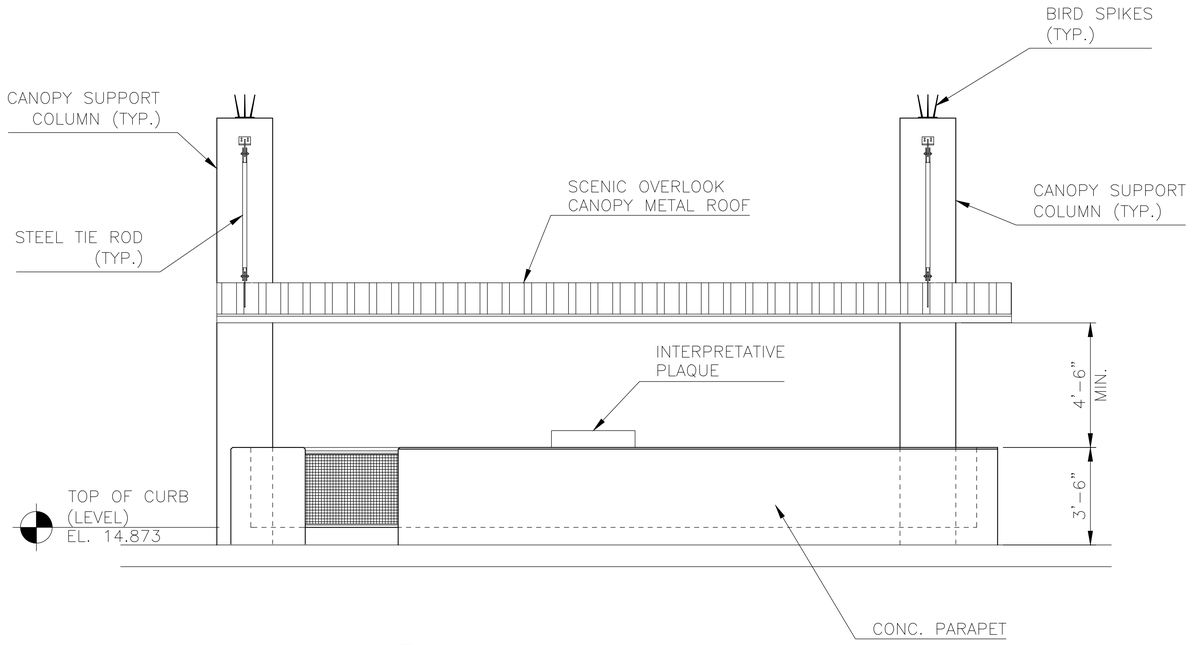
BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801

DATE

REF. DWG. NO. A-104
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: **149 OF 283**



1 / A-105 NORTH ELEVATION
SCALE: 3/16"=1'-0"



1 / A-105 SCENIC OVERLOOK EXTERIOR ELEVATION
SCALE: 3/16"=1'-0"

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CS
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER – NORTH ELEVATION

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

APPROVED BY:

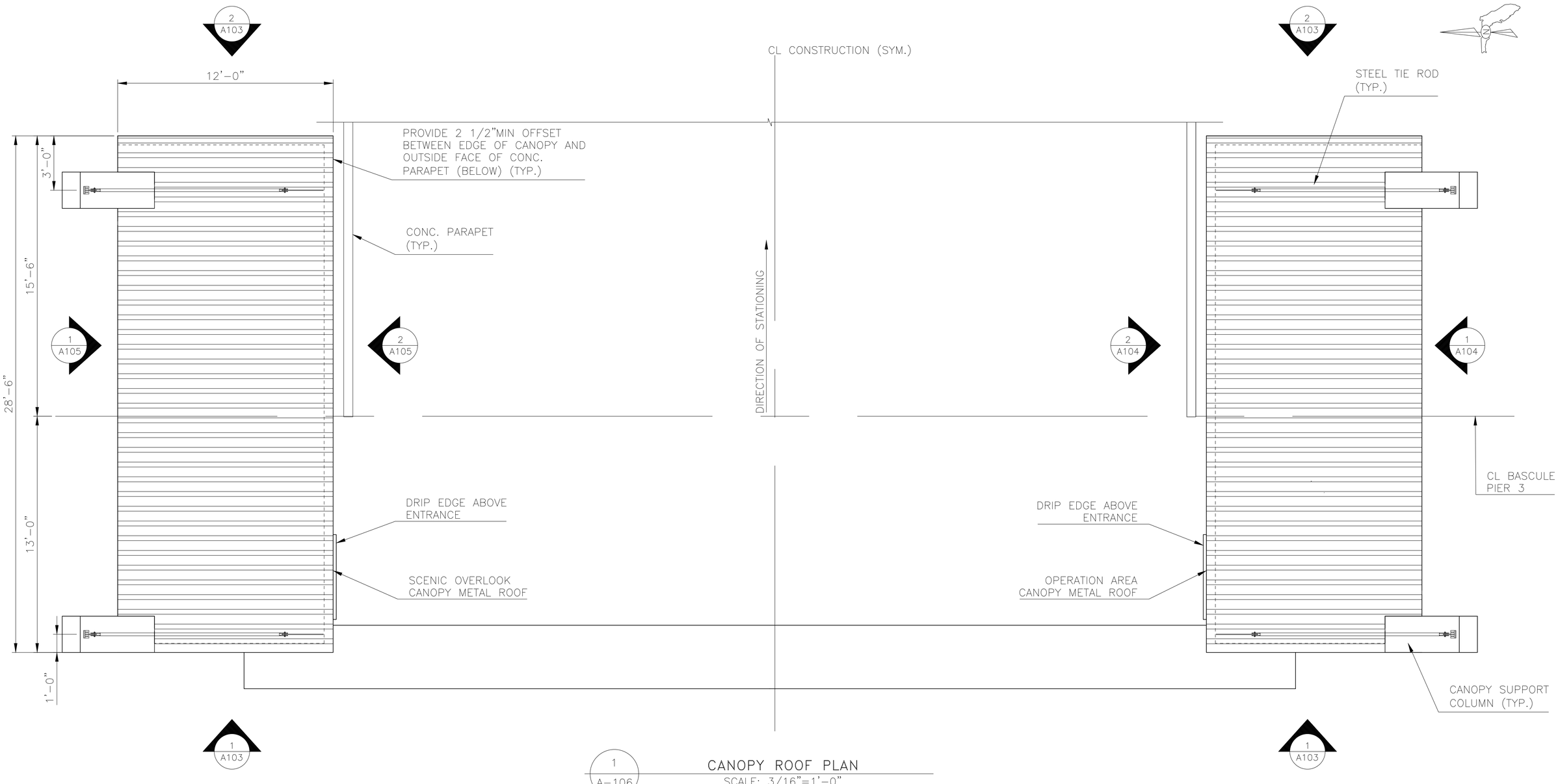
BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801

DATE

REF. DWG. NO. A-105
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: **150 OF 283**

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1 A-106 CANOPY ROOF PLAN

SCALE: 3/16"=1'-0"

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CSI
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER-CANOPY ROOF PLAN

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

APPROVED BY:

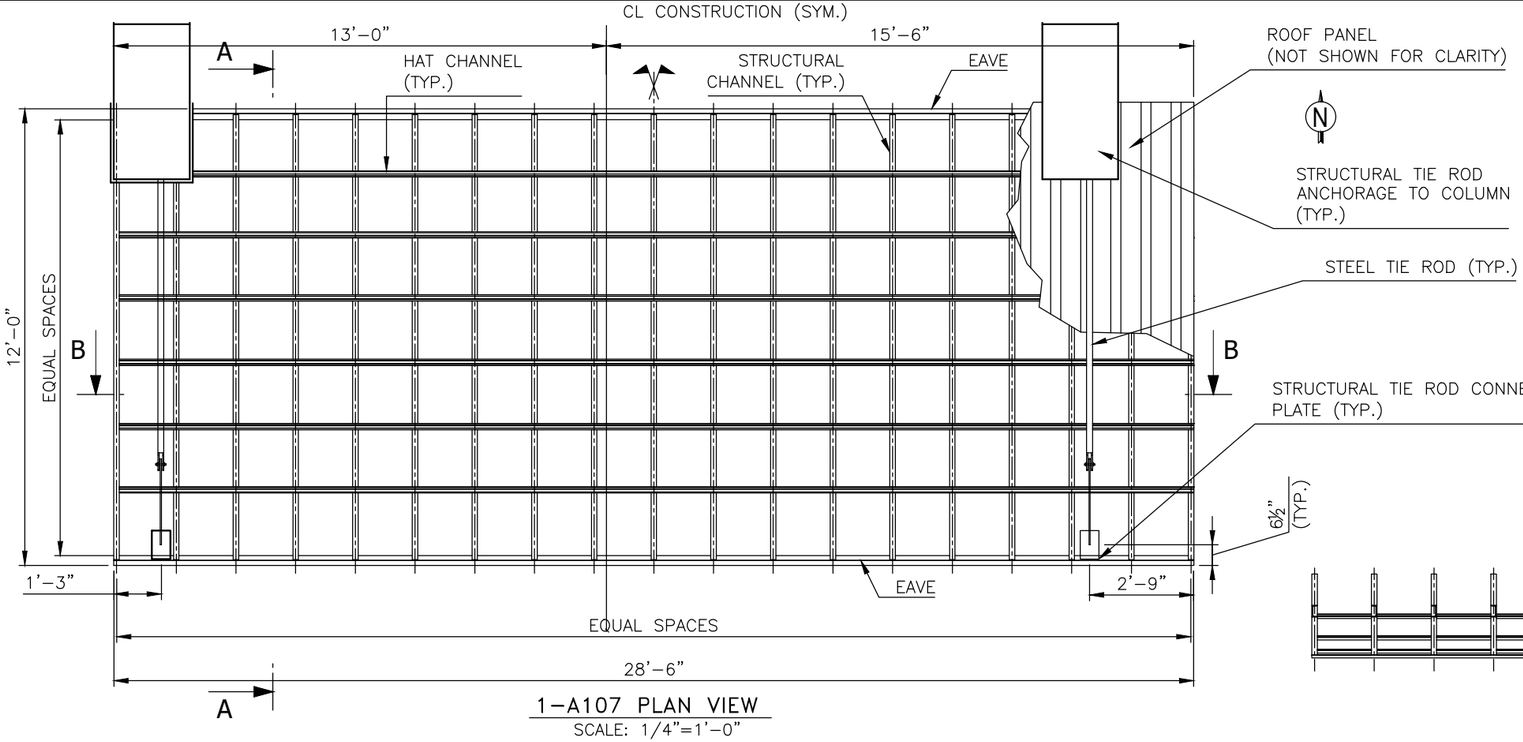
BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801

DATE

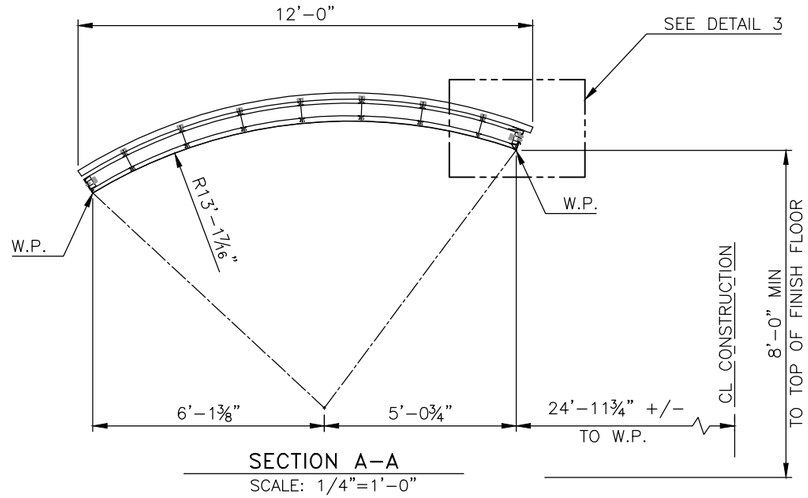
REF. DWG. NO. A-106
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: 151 OF 283

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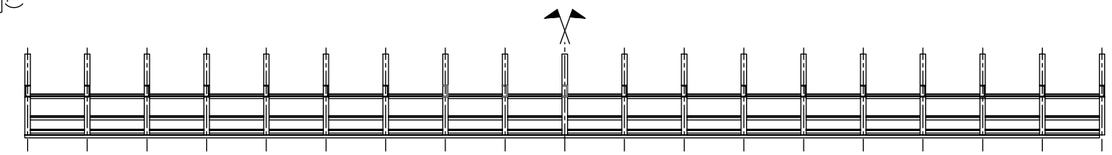
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1-A107 PLAN VIEW
SCALE: 1/4"=1'-0"

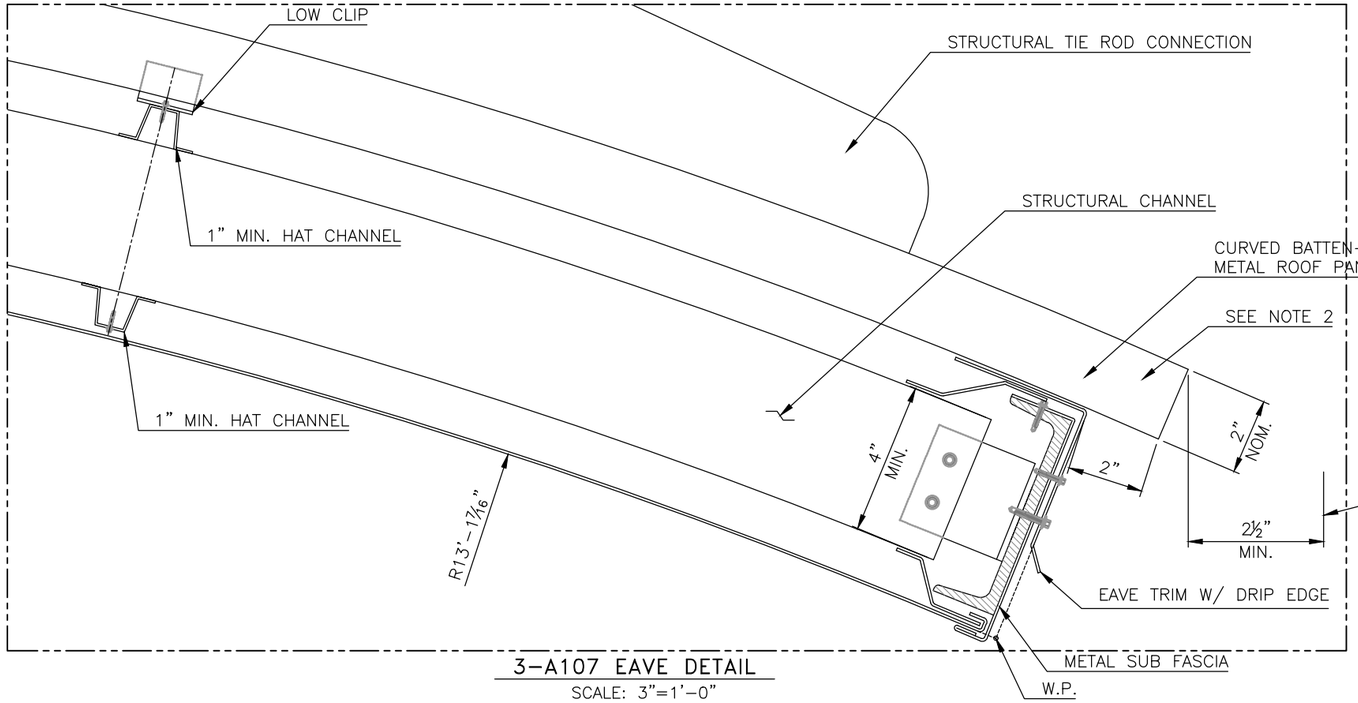


SECTION A-A
SCALE: 1/4"=1'-0"



2-A107 SECTION B-B
SCALE: 1/4"=1'-0"

NOTE: NORTH ROOF SHOWN SOUTH ROOF SIMILAR.



3-A107 EAVE DETAIL
SCALE: 3"=1'-0"

NOTES:

1. SEE TSP SECTION T512 FOR CANOPY REQUIREMENTS.
2. SEE DWG. TH-1 FOR ADDITIONAL CANOPY DETAILS AND ASSUMED STRUCTURAL DESIGN LOADS.
3. IN ORDER TO AVOID CONFLICT WITH THE BASCULE LEAF MOVEMENT, DO NOT EXTEND WALL BEYOND FACE OF WALL BELOW

LEGEND:

** PROVIDE SPECIFIED PRODUCT OR APPROVED EQUAL

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CSI
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER-CANOPY DETAILS

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

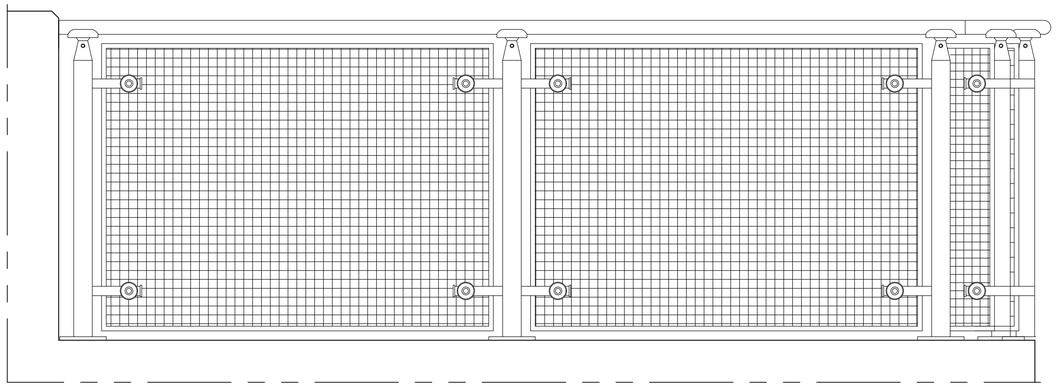
APPROVED BY:
BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801
DATE

REF. DWG. NO. A-107
DATE 04/26/2019
PROJECT NO. 001037A
SHEET:

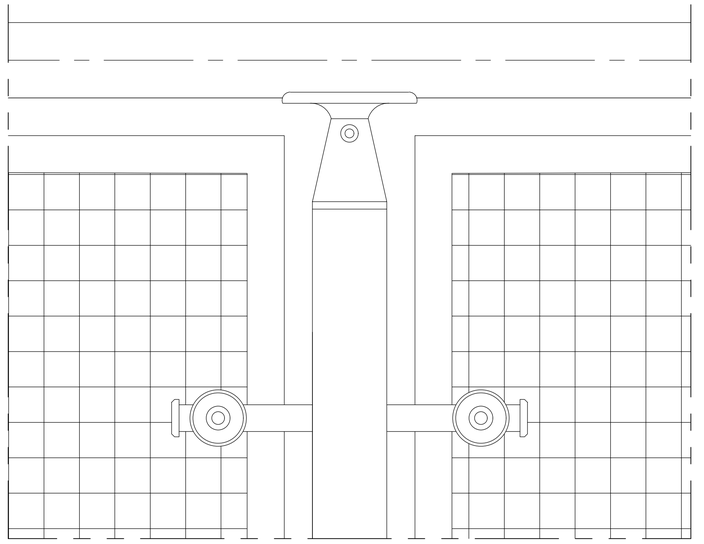
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7/2/2021 1:58:24 PM
ANLUN CHEN
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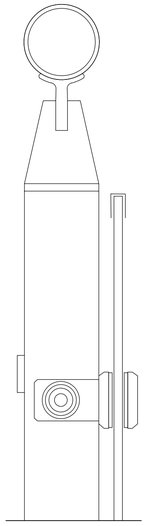
VIVA – CUBE WIRE MESH



1–A108 DETAIL
SCALE: 3/4"=1'–0"



2–A108 ELEVATION VIEW
SCALE: 3"=1'–0"



2–A108 SIDE VIEW
SCALE: 3"=1'–0"

NOTES:

1. SEE TSP SECTION T512 FOR RAILING REQUIREMENTS.
2. VIVA CUBERAILING SHOWN AS BASIS OF DESIGN.

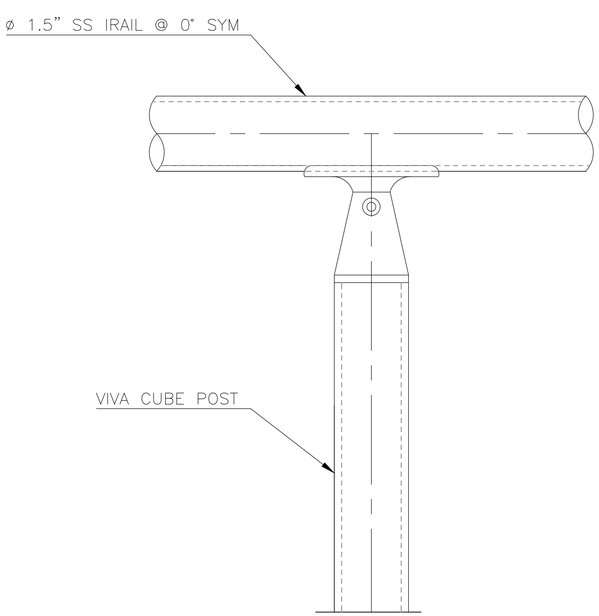
LEGEND:

** PROVIDE SPECIFIED PRODUCT OR APPROVED EQUAL

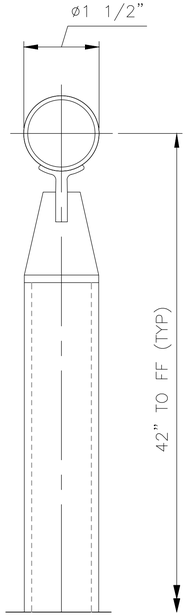


3–A108 CUBE WIRE MESH DETAIL

FF FINISHED FLOOR



4–A108 ELEVATION VIEW
SCALE: 3"=1'–0"



4–A108 SIDE VIEW
SCALE: 3"=1'–0"

IRAIL 0° OPTION @ LEVEL

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CSI
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER–WIRE MESH DETAILS

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

APPROVED BY:

BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801

DATE

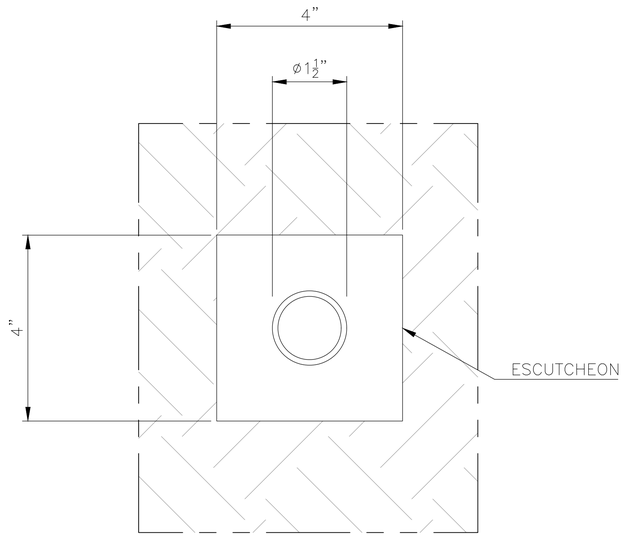
REF. DWG. NO. A–108
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: 153 OF 283

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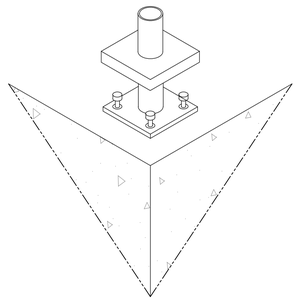
TOP MOUNTING DETAIL

CONNECTION DESIGN BASED ON "4000 PSI" CONCRETE @ INTERIOR W/ 4'-0" MAX POST SPACING AND MINIMUM ANCHOR TO EDGE DISTANCE AS SHOWN



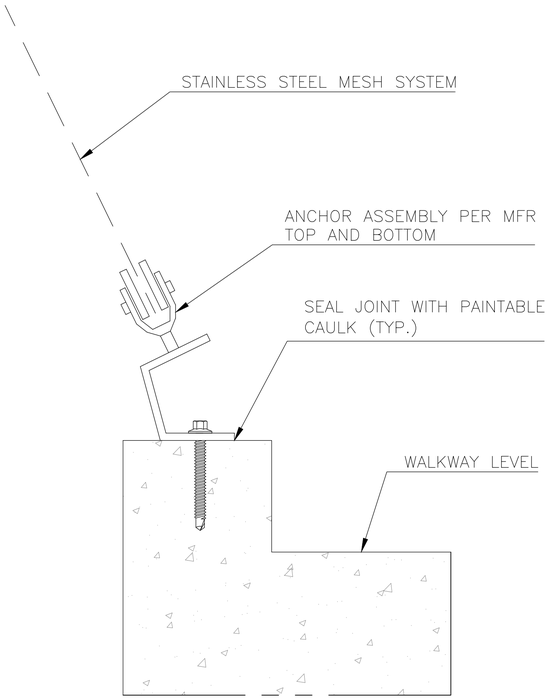
1-A109 SECTION A-A

SCALE: 3"=1'-0"



2-A109 ISOMETRIC VIEW

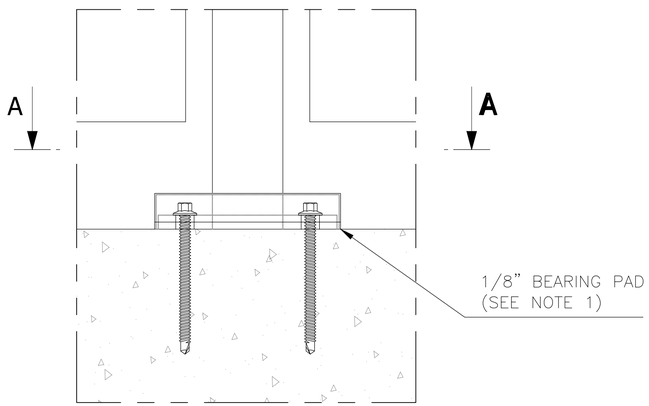
SCALE: 3"=1'-0"



5-A109 MESH CONNECTION DETAIL

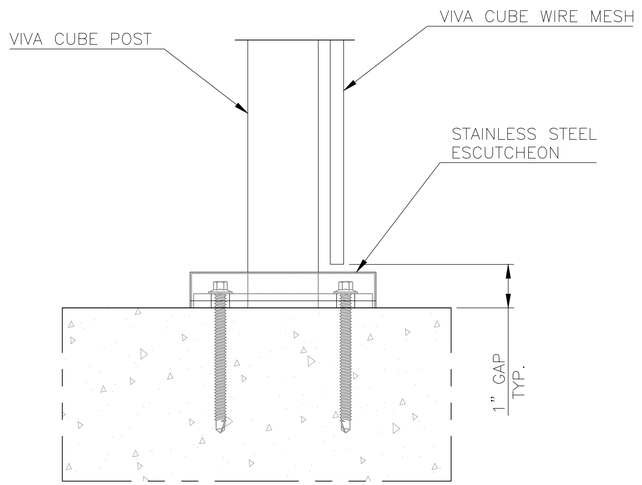
SCALE: 3"=1'-0"

(HORIZONTAL SURFACE CONNECTION SHOWN, VERTICAL SURFACES SIMILAR)



3-A109 DETAIL

SCALE: 3"=1'-0"



4-A109 DETAIL

SCALE: 3"=1'-0"

@ CONCRETE W/ ANCHOR

NOTES:

1. PROVIDE 1/8" PLAIN, FABRIC REINFORCED OR FABRIC LAMINATED BEARING PADS PER SPECIFICATIONS SECTION 932.
2. SEE TSP SECTION T512 FOR MESH SYSTEM REQUIREMENTS.

LEGEND:

** PROVIDE SPECIFIED PRODUCT OR APPROVED EQUAL

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CSI
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER- WIRE MESH DETAILS

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

APPROVED BY:

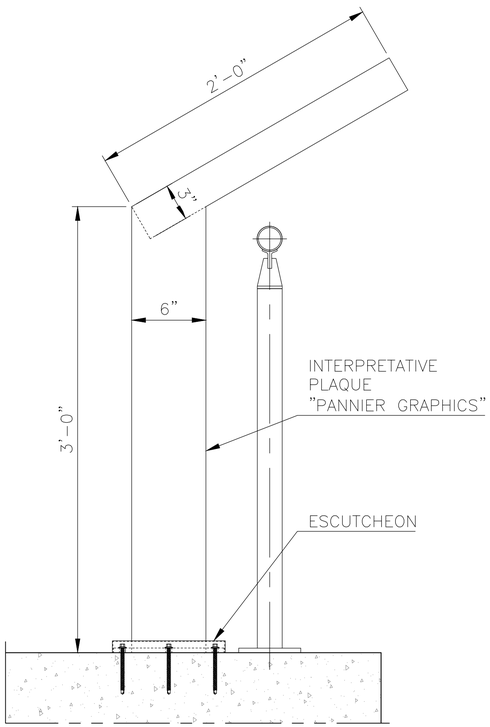
BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801

DATE

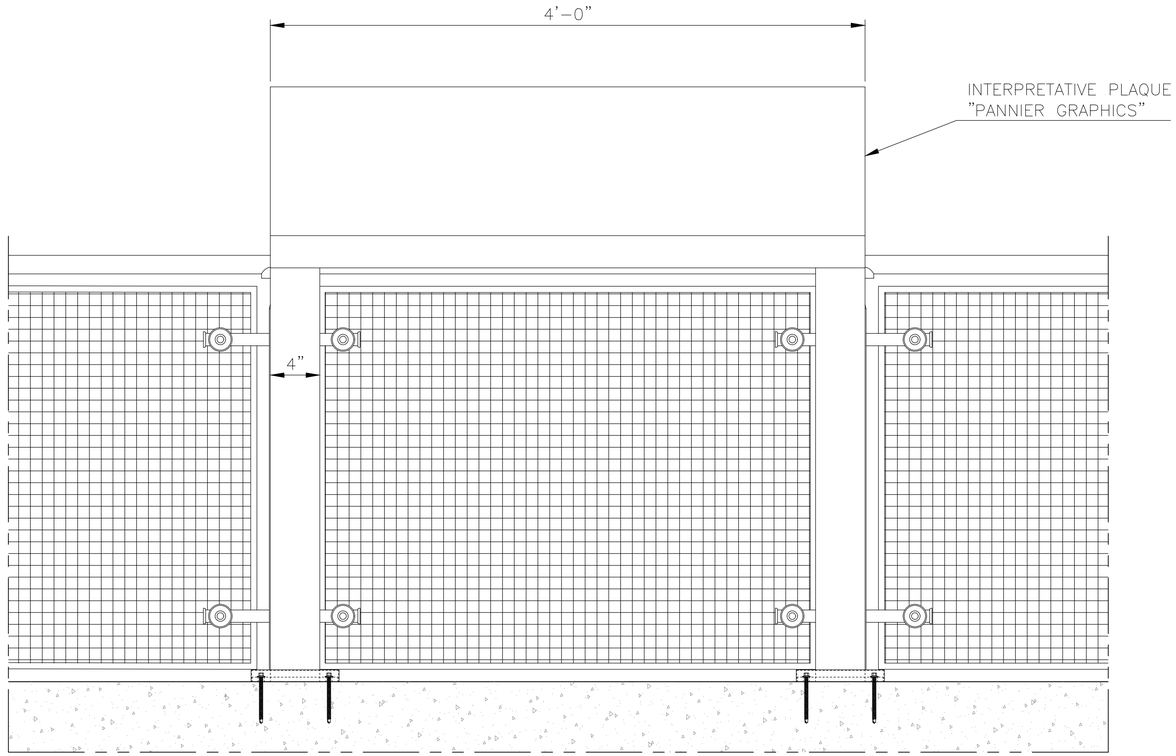
REF. DWG. NO. A-109
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: 154 OF 283

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1-A110 DETAIL
SCALE: 1"=1'-0"



2-A110 DETAIL
SCALE: 1"=1'-0"

INTERPRETATIVE PLAQUE "PANNIER GRAPHICS"

LEGEND:

** PROVIDE SPECIFIED PRODUCT OR APPROVED EQUAL

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CSI
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER- PLAQUE DETAILS

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

APPROVED BY:

BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801

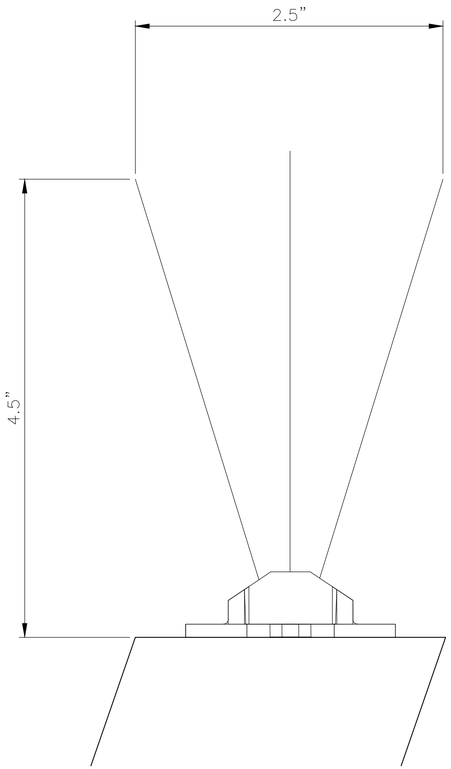
DATE

REF. DWG. NO. A-110
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: **155 OF 283**

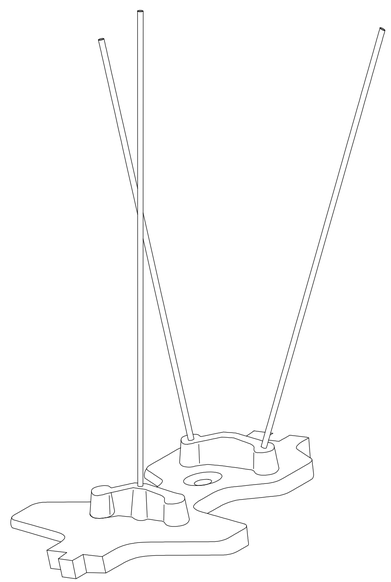
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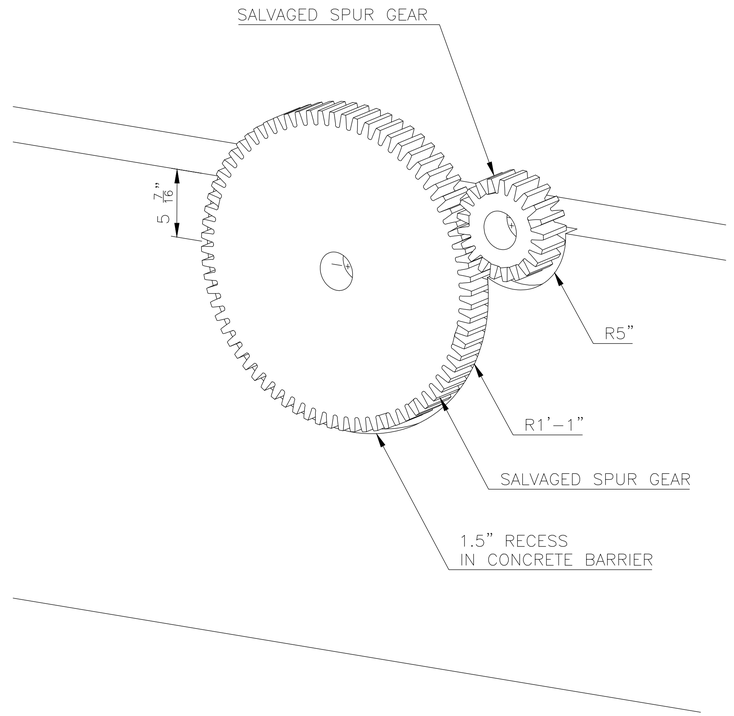
BIRD SPIKE "BIRD BARRIER"



1–A111 DETAIL
SCALE: NTS



2–A111 ISOMETRIC VIEW
SCALE: NTS



3–A111 ISOMETRIC VIEW
SCALE: NTS

MANUFACTURER NOTES:
ROD MATERIAL: 302 STAINLESS STEEL
BASE MATERIAL: ULTRA–VIOLET STABILIZED POLYCARBONATE.
WIDTH: 2" (5.0 CM).
HEIGHT: 4.5" (11.5 CM).
LENGTH: 36" (30.5 CM) PER PIECE.

LEGEND:

** PROVIDE SPECIFIED PRODUCT OR APPROVED EQUAL

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CSI
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER–BIRD SPIKE DETAILS

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

APPROVED BY:

BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801

DATE

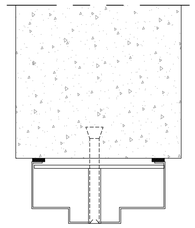
REF. DWG. NO. A–111
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: 156 OF 283

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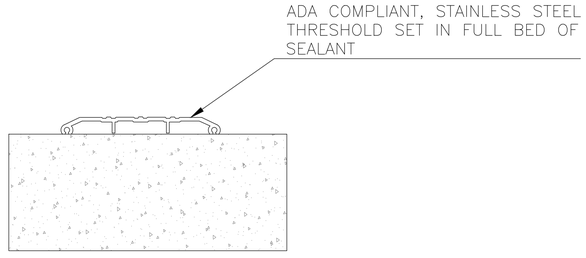
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DOOR SCHEDULE

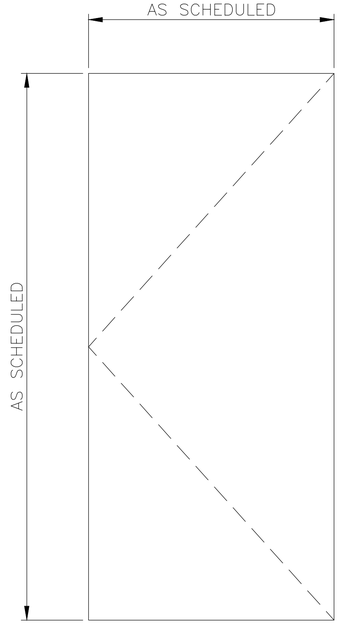
ID	DOOR PANEL						DOOR FRAME			HARDWARE	COMMENTS
	TYPE	WIDTH	HEIGHT	THICKNESS	MATERIAL	FINISH	TYPE	MATERIAL	FINISH		
01	A	2'-8"	7'-0"	1 3/4"	FRP	GEL	A	FRP	GEL	1	
02	A	2'-8"	7'-0"	1 3/4"	FRP	GEL	A	FRP	GEL	1	
03	A	2'-8"	7'-0"	1 3/4"	FRP	GEL	A	FRP	GEL	1	
04	A	2'-8"	7'-0"	1 3/4"	FRP	GEL	A	FRP	GEL	1	
05	B	3'-0"	7'-9"		STEEL MESH	SS		SS	SS	2	BY RAILING MFR.



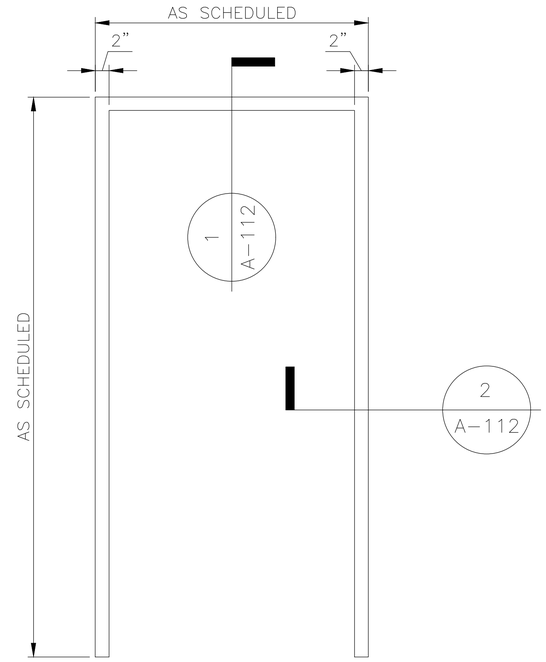
1-A112 DETAIL
DOOR HEAD/JAMB DETAIL
SCALE: NTS



2-A112 DETAIL
DOOR SILL DETAIL
SCALE: NTS



3-A112 DETAIL
DOOR PANEL TYPE A
SCALE: NTS



4-A112 DETAIL
DOOR FRAME TYPE A
SCALE: NTS

HARDWARE SET 1

3 HINGES
LAYER TYPE, NON LOCKING LATCHSET WITH INTERIOR THUMBTURN AND EXTERIOR KEY
DEADBOLT
ENTRANCE LOCKSET
WEATHER STRIPPING
THRESHOLD
KICKPLATE
FLOOR OR WALL MOUNTED DOOR STOP

HARDWARE SET 2

(BY RAILING MFR.)
3 HINGES
DEADBOLT
ENTRANCE LOCKSET

BASIC SPECIFICATIONS:

ALL HARDWARE TO BE STAINLESS STEEL
PROVIDE HARDWARE IN COMPLIANCE WITH THE BUILDERS HARDWARE MANUFACTURER'S ASSOCIATION (BHMA).

NOTES:
1. COORDINATE DIMENSIONS OF OPERATION AREA STAINLESS STEEL MESH ENCLOSURE WITH ROOF CANOPY SYSTEM FABRICATOR AND SHOP DRAWINGS.

ABBREVIATIONS:

FRP = FIBERGLASS REINFORCED PLASTIC W/ POLYURETHANE CORE CONSTRUCTION BETWEEN THE FRP FACE PANELS
GEL = FACTORY APPLIED 15 MIL (MIN.) THICK GEL COLOR COAT

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CSI
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER-DOOR SCHEDULE DETAILS

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

APPROVED BY:

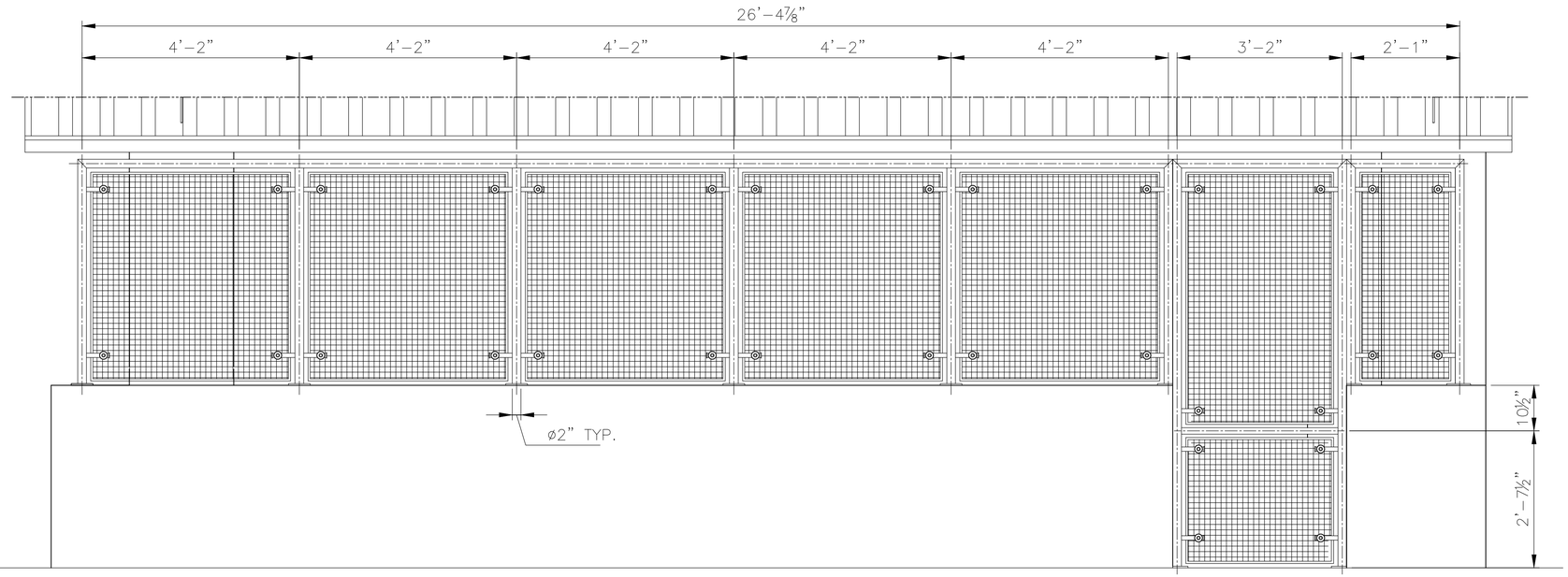
BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801

DATE

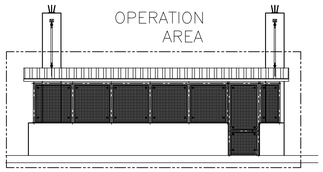
REF. DWG. NO. A-112
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: **157 OF 283**

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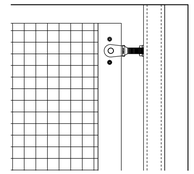
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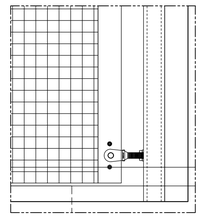
2 / A-113 OPERATION AREA – ELEVATION VIEW
SCALE: 3/8"=1'-0"



KEY PLAN
SCALE: 1/16"=1'-0"



DETAIL 1–A103
SCALE: 3"=1'-0"



DETAIL 2–A103
SCALE: 3"=1'-0"

NOTES:
1. COORDINATE DIMENSIONS OF OPERATION AREA STAINLESS STEEL MESH ENCLOSURE WITH ROOF CANOPY SYSTEM FABRICATOR AND SHOP DRAWINGS.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CSI
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: MESH SYSTEM ELEVATIONS

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

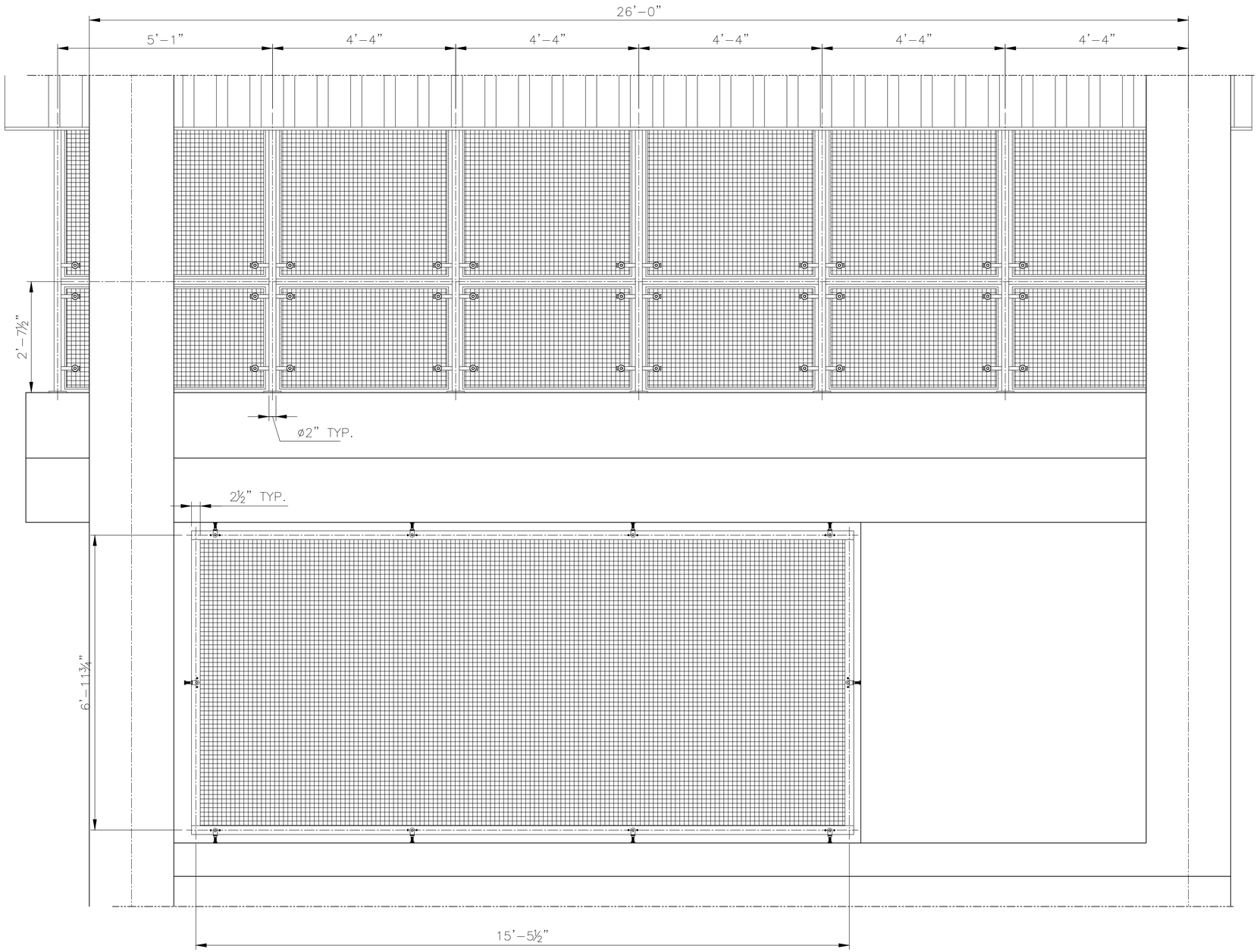
APPROVED BY:

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FL LICENSE NO. AR0015801

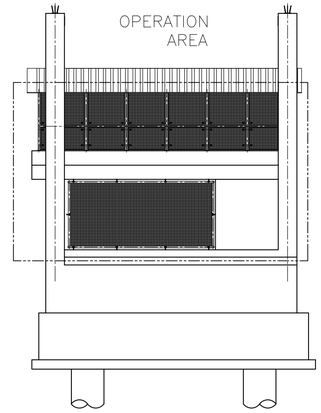
DATE

REF. DWG. NO. A-113
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: 158 OF 283

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1 / A-114 NORTH ELEVATION
SCALE: 3/8"=1'-0"



KEY PLAN
SCALE: 1/16"=1'-0"

NOTES:
1. COORDINATE DIMENSIONS OF OPERATION AREA STAINLESS STEEL MESH ENCLOSURE WITH ROOF CANOPY SYSTEM FABRICATOR AND SHOP DRAWINGS.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CSI
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: MESH SYSTEM ELEVATIONS

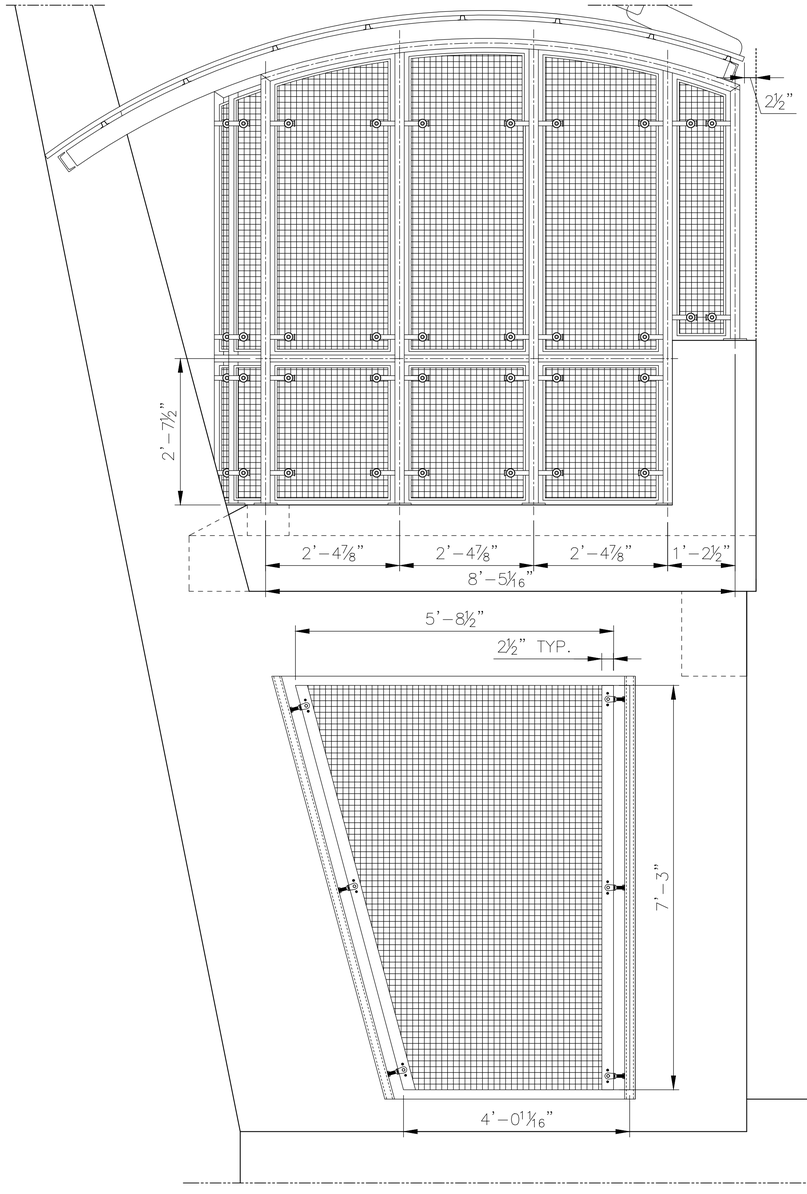
TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

APPROVED BY:
BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801
DATE

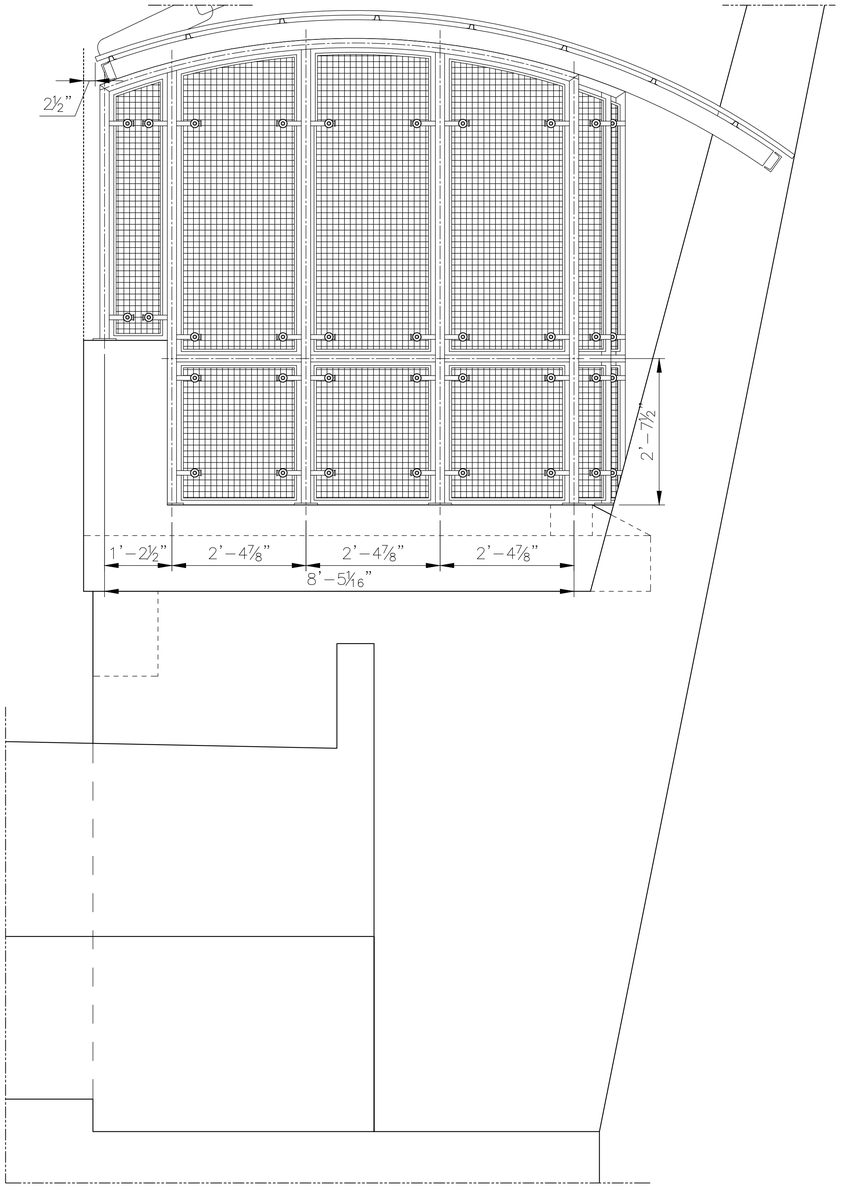
REF. DWG. NO. A-114
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: 159 OF 283

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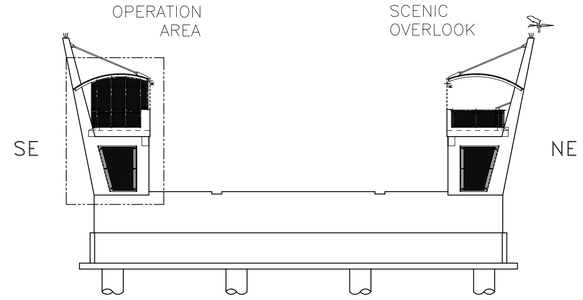
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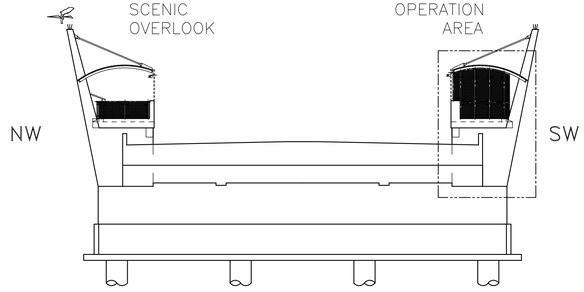
2 A-115 SE ELEVATION
SCALE: 3/8"=1'-0"



1 A-115 SW ELEVATION
SCALE: 3/8"=1'-0"



EAST ELEVATION KEY PLAN
SCALE: NTS



WEST ELEVATION KEY PLAN
SCALE: NTS

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CSI
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: MESH SYSTEM ELEVATIONS

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

APPROVED BY:

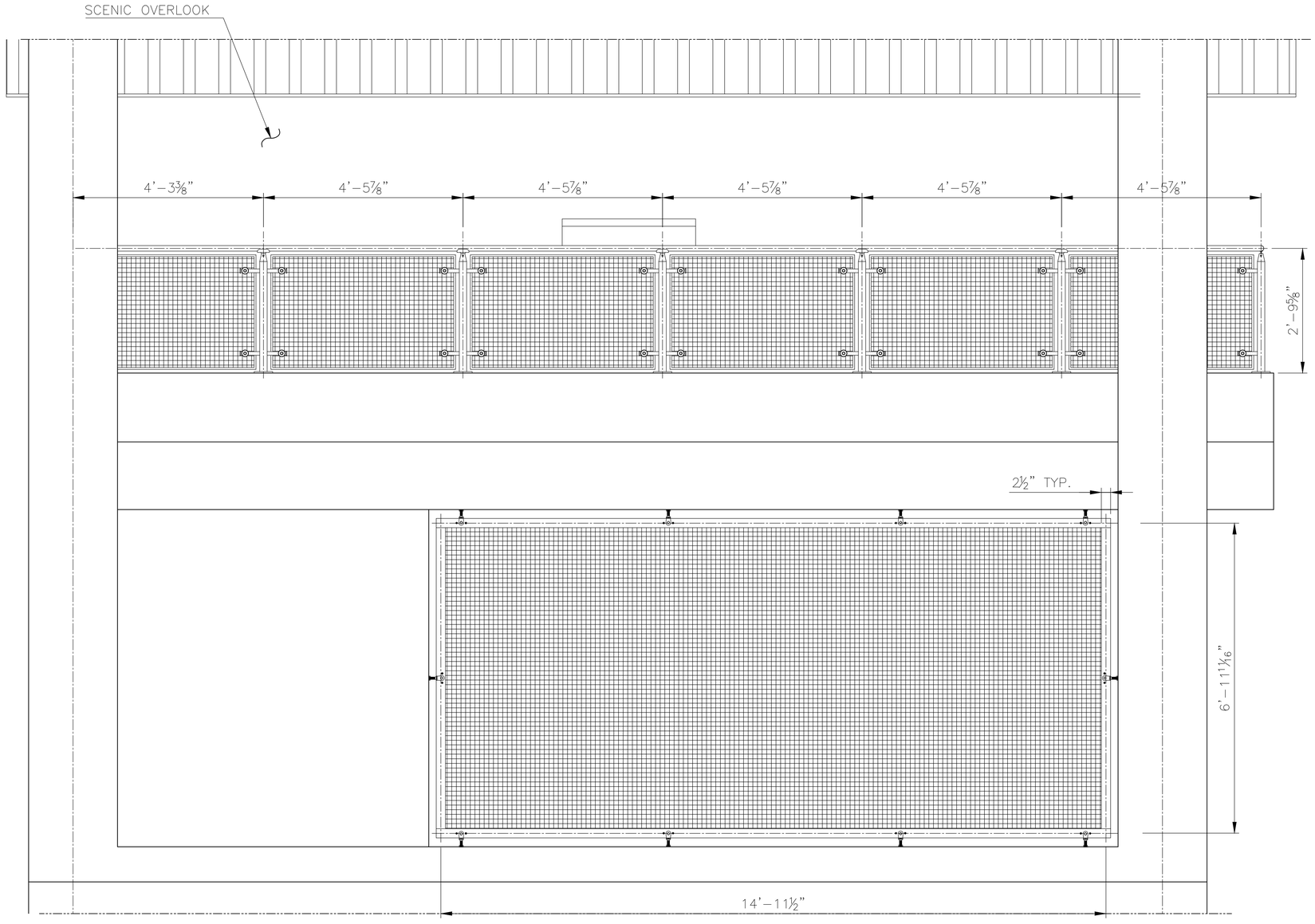
BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801

DATE

REF. DWG. NO. A-115
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: **160 OF 283**

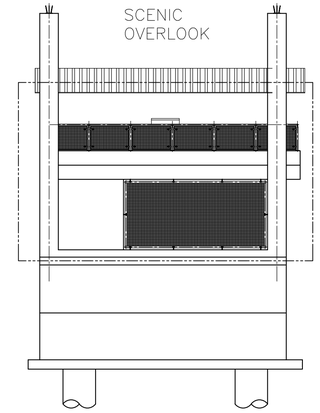
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1
A-116

REAR ELEVATION
SCALE: 3/8"=1'-0"



KEY PLAN
SCALE: 1/16"=1'-0"

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED BCT
DRAWN CSI
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT:
BECKETT BRIDGE
REPLACEMENT

DESCRIPTION:
MESH SYSTEM
ELEVATIONS

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

APPROVED BY:

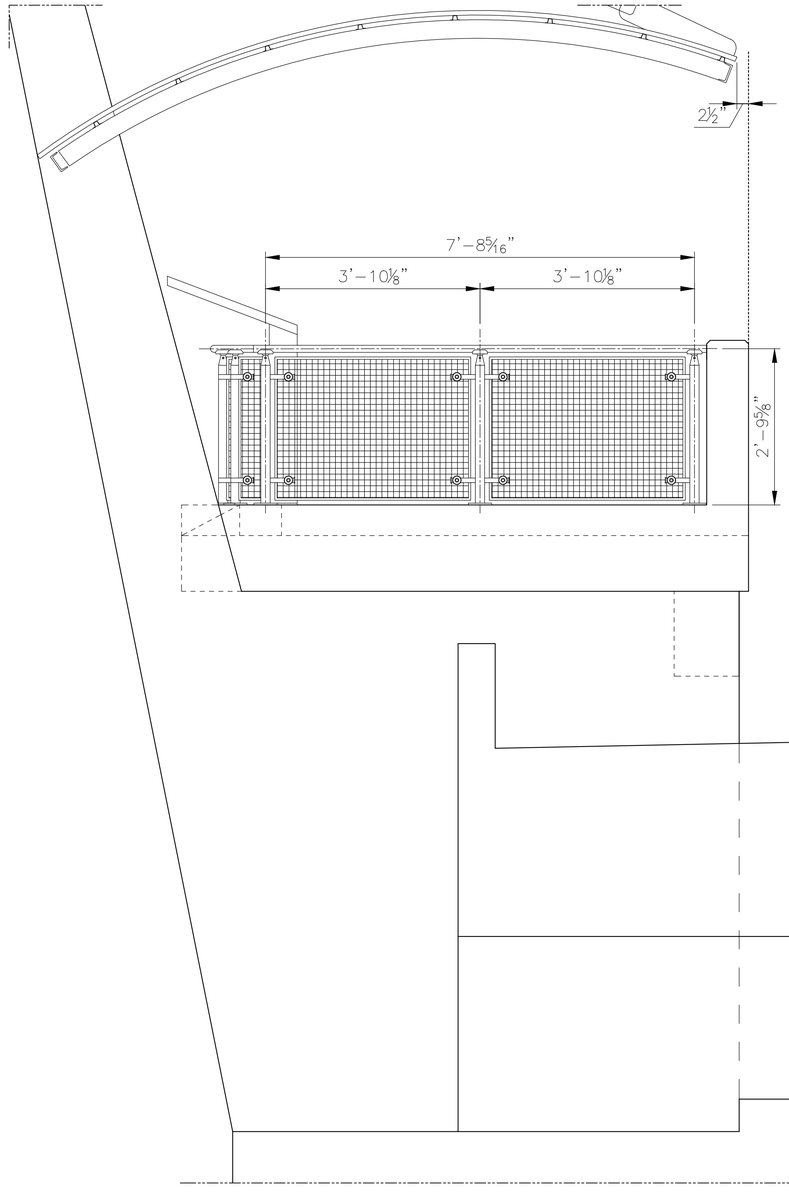
BRADLEY C. TOUCHSTONE, AIA
FL LICENSE NO. AR0015801

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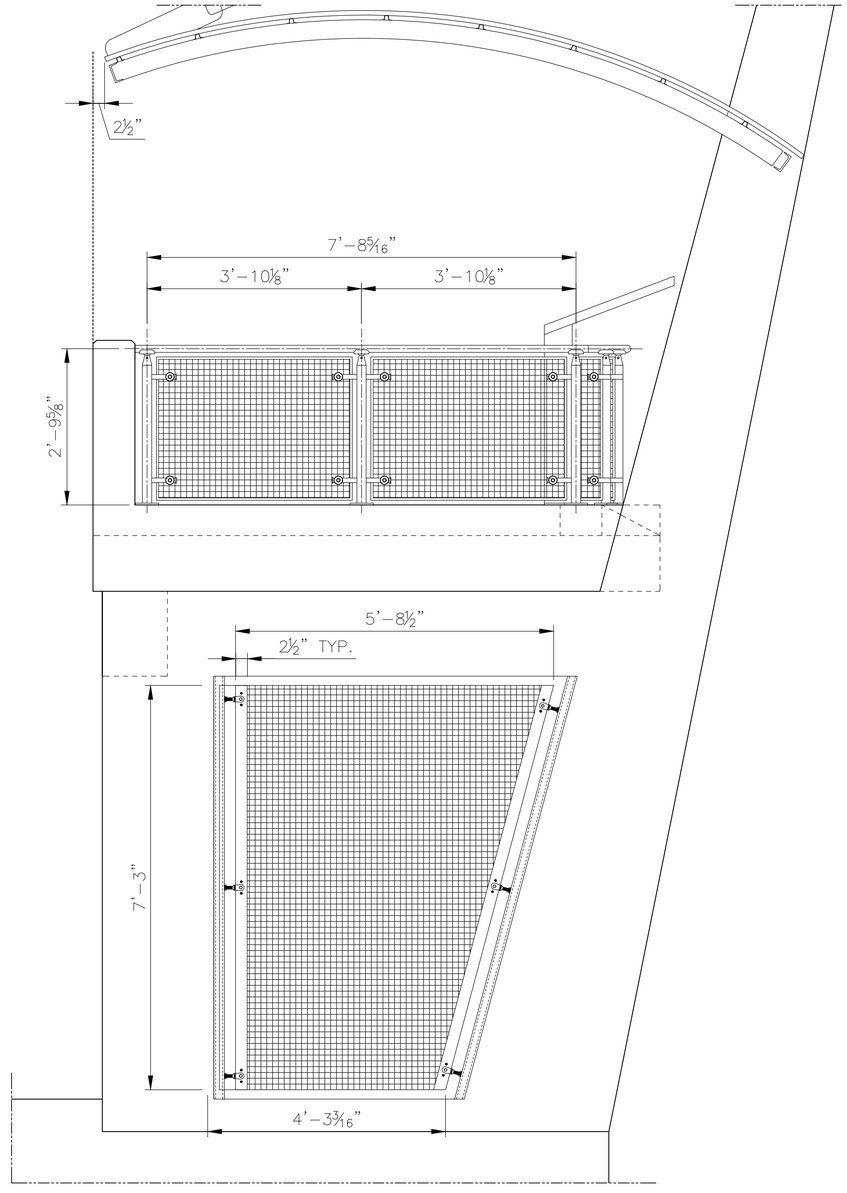
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DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: **161 OF 283**

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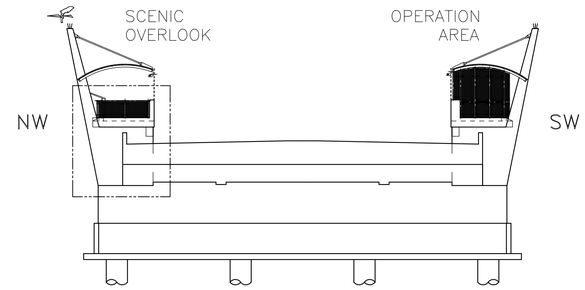
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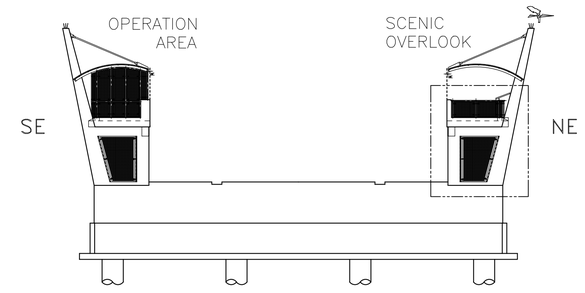
1 A-117 NW ELEVATION
SCALE: 3/8"=1'-0"



2 A-117 NE ELEVATION
SCALE: 3/8"=1'-0"



WEST ELEVATION KEY PLAN
SCALE: NTS



EAST ELEVATION KEY PLAN
SCALE: NTS

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DESIGNED BCT
DRAWN CSI
CHECKED BCT

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: MESH SYSTEM ELEVATIONS

TOUCHSTONE ARCHITECTURE
755 GRAND BLVD.
SUITE B105-291
MIRAMAR BEACH, FL 32459
FL LICENSE # 26000708

APPROVED BY:

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FL LICENSE NO. AR0015801

DATE

REF. DWG. NO. A-117
DATE: 04/26/2019
PROJECT NO. 001037A
SHEET: **162 OF 283**

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I. DESIGN

A. GENERAL

1. SEE GENERAL NOTES FOR DESIGN SPECIFICATIONS NOT DEFINED HEREIN.

B. DESIGN METHODOLOGY

- REDUNDANCY FACTOR:
  - MAIN GIRDERS ONLY: 1.20
  - ALL OTHER MEMBERS: 1.00

C. DESIGN LOADING:

1. DEAD LOADS (FOR STRUCTURAL DESIGN AND BALANCE CALCULATIONS)
   - COUNTERWEIGHT CONCRETE: 145 PCF
   - EXODERMIC DECK/STEEL GRID DECK PANELS (EXCLUDING CONCRETE): 16.54 PSF
   - NAVIGATIONAL LIGHTS: 225 LB/UNIT
   - FUTURE WEARING SURFACE: NO ALLOWANCE PROVIDED

2. LIVE LOADS
   - DOUBLE DYNAMIC LOAD ALLOWANCE APPLIED TO FLOORBEAM 1.
   - DISTRIBUTION OF LIVE LOADS TO MAIN GIRDERS FOR STRENGTH AND SERVICE LIMIT STATES (DF): 1.65 LANES (INCLUDES 0.85 MULTIPLE PRESENCE FACTOR)

3. WIND LOADS
   - BASCULE SPAN NORMALLY LEFT IN THE CLOSED POSITION
   - OPEN POSITION: 60% DESIGN WIND PRESSURE

4. DESIGN TEMPERATURE

SUPERSTRUCTURE MATERIAL	TEMPERATURE RANGE (°F)			
	MEAN	HIGH	LOW	RANGE
STEEL ONLY	70	120	30	90

5. FATIGUE LOADING
   - ADDT (2041) = 7500
   - T (PERCENTAGE OF TRUCKS) = 2.9%
   - DISTRIBUTION OF LIVE LOAD TO MAIN GIRDERS (DF): 1.13 (SINGLE LANE)

D. DESIGN ASSUMPTIONS:

1. SECTION PROPERTIES:
   - ALL STEEL SECTIONS PROVIDED WITH SHEAR CONNECTORS ARE CONSIDERED COMPOSITE WITH THE EXODERMIC DECK OR FULL DEPTH CONCRETE DECK.
   - ELASTIC STRESSES AND DEFLECTIONS ARE CALCULATED FOLLOWING THE AASHTO SEQUENCE OF LOADING.

2. MATERIALS
   - CONCRETE PROPERTIES

CONCRETE CLASS	MIN. 28-DAY COMPRESSIVE STRENGTH (PSI)	E_C (KSI)	ELEMENTS
IV (LIGHTWEIGHT)	5500	2322	EXODERMIC DECK, FULL DEPTH SLAB, HAUNCHES, RAILING CURBS
II	3400	3778	COUNTERWEIGHT BALLAST

3. MEMBER CONNECTIONS TO MAIN GIRDERS
   - FLOORBEAM: PINNED
   - COUNTERWEIGHT GIRDERS: FULL MOMENT

E. CONSTRUCTION

1. ASSUME FULL RESPONSIBILITY FOR OPERATION AND MAINTENANCE OF THE MOVABLE BRIDGE THROUGHOUT THE DURATION OF CONSTRUCTION. SEE TSP SECTION T465 FOR ADDITIONAL REQUIREMENTS.

2. SPAN BALANCE
   - SEE TSP SECTION T465 FOR SPAN BALANCE REQUIREMENTS.

3. BASCULE LEAF FABRICATION, ERECTION AND ALIGNMENTS
   - SEE TSP SECTION T465 FOR REQUIREMENTS.

4. EXODERMIC DECK
   - SEE TSP SECTION T505 FOR EXODEMIC DECK REQUIREMENTS.

5. UNFACTORED LIVE LOAD SHOE REACTIONS

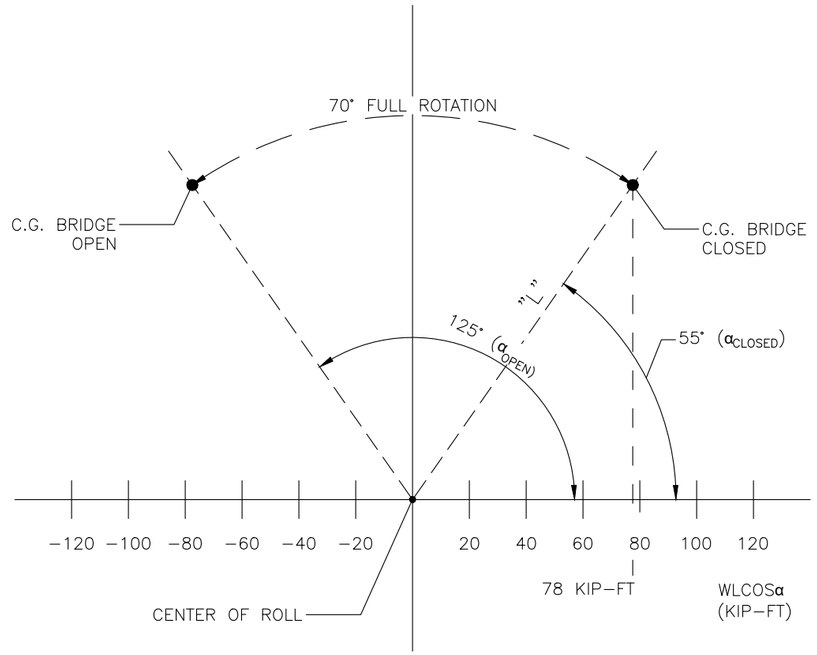
MAX LL SHOE REACTION PER MAIN GIRDER SUMMARY (KIP)	
DEAD[1]	1.0
LIVE + DYNAMIC LOAD ALLOWANCE[2]	140.0
DYNAMIC LOAD ALLOWANCE[2]	30.0

(1) BASED ON DESIGN IMBALANCED REACTION
(2) BASED ON HL-93 LIVE LOADING WITH 3 LANES LOADED AT 0.85 MULTILANE PRESENCE FACTOR

6. UNFACTORED ROLL REACTIONS

REACTION AT ℄ ROLL PER MAIN GIRDER SUMMARY (KIP)				
LOADS	SPAN FULLY CLOSED (0°)		SPAN FULLY OPEN (70°)	
	HORIZ.	VERT.	HORIZ.	VERT.
DEAD[1]	0	510	0	510
MIN. LIVE + DYNAMIC LOAD ALLOWANCE[2]	23	−2.0	N/A	N/A
DYNAMIC LOAD ALLOWANCE[2]	N/A	−0.50	N/A	N/A
MAX. LIVE + DYNAMIC LOAD ALLOWANCE[2]	23	215	N/A	N/A
DYNAMIC LOAD ALLOWANCE[2]	N/A	44	N/A	N/A
WIND[3]	0	0	37	−108
NOTE: REACTIONS ARE MAXIMUM DOWNWARD (+) OR MINIMUM UPLIFT (−)				

(1) INCLUDES 20% DEAD DYNAMIC LOAD ALLOWANCE (DAD)
(2) BASED ON HL-93 LIVE LOADING WITH 3 LANES LOADED AT 0.85 MULTILANE PRESENCE FACTOR
(3) WIND ON SUPERSTRUCTURE ONLY APPLIED IN LONGITUDINAL DIRECTION: 150 MPH BASE WIND SPEED ON PROJECTED AREA WITH BASCULE LEAF FULLY RAISED AND IN CONTACT WITH THE BUMPER BLOCKS.



DESIGN BALANCE DIAGRAM

- SEE TSP SECTION T465 FOR SPAN BALANCE REQUIREMENTS
- LEGEND
  - W = LEAF WEIGHT
  - L = DISTANCE CENTER OF ROLL TO C.G.
  - α = ANGLE BETWEEN L AND HORIZONTAL

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PROJECT: BECKETT BRIDGE REPLACEMENT

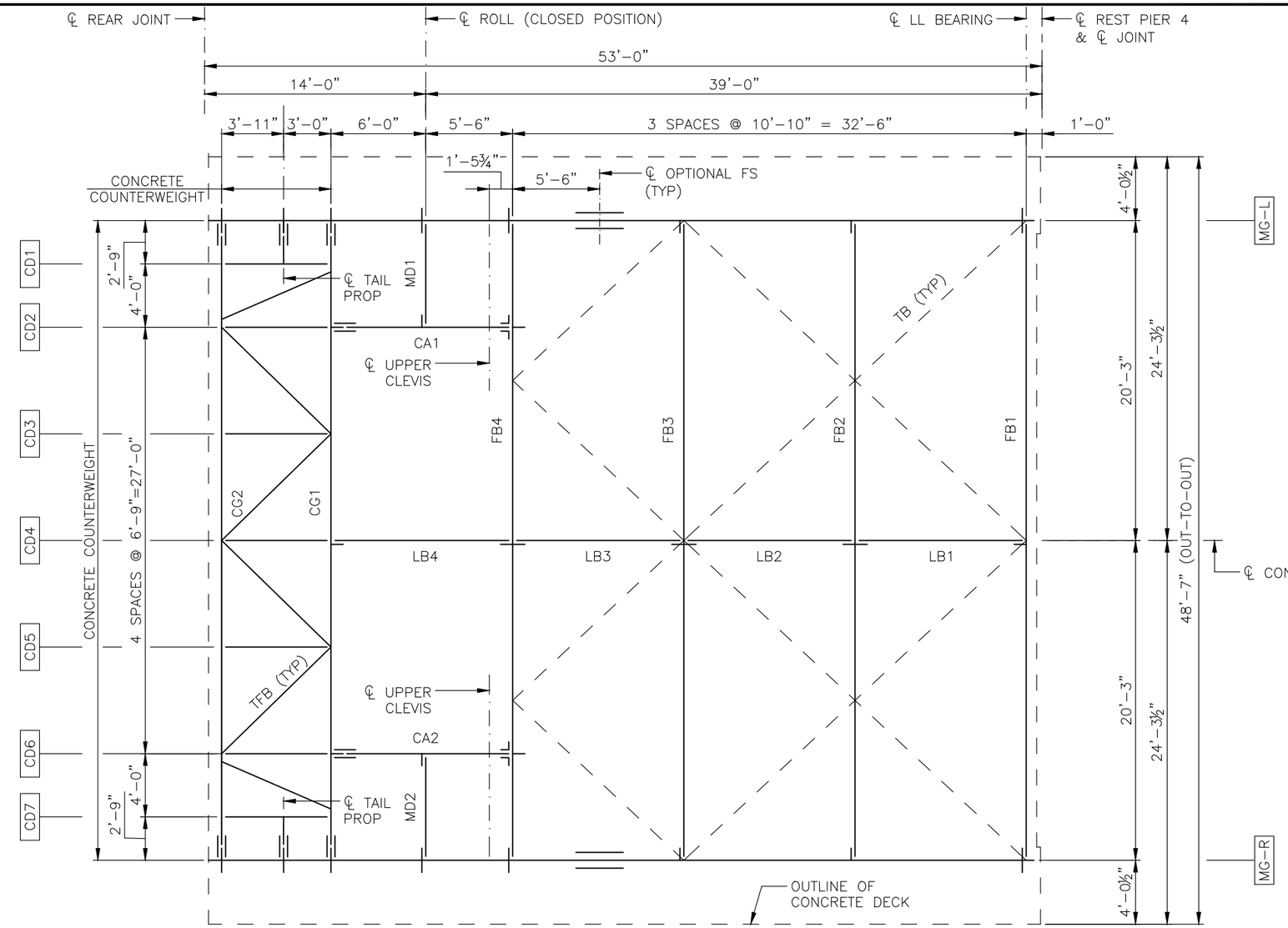
DESCRIPTION: BASCULE SPAN NOTES

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5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL-1
DATE: 06/25/2021
PROJECT NO. 001037A

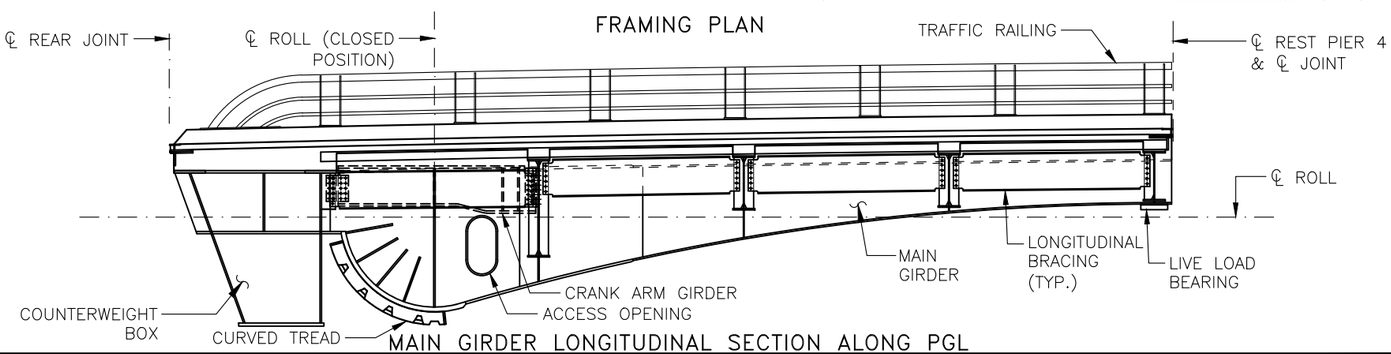
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FRAMING PLAN

LEGEND

CA	CRANK ARM GIRDER
CD	COUNTERWEIGHT DIAPHRAGM
CG	COUNTERWEIGHT GIRDER
FB	FLOORBEAM
FS	FIELD SPLICE
LB	LONGITUDINAL BRACING (W24X68)
LLB	LIVE LOAD BEARING
MG	MAIN GIRDER
MD	MAIN GIRDER DIAPHRAGM
TB	TEMPORARY LATERAL BRACING
TFB	TOP FLANGE BRACING (WT5x11)
TP	TAIL PROP



MAIN GIRDER LONGITUDINAL SECTION ALONG PGL

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PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN FRAMING PLAN

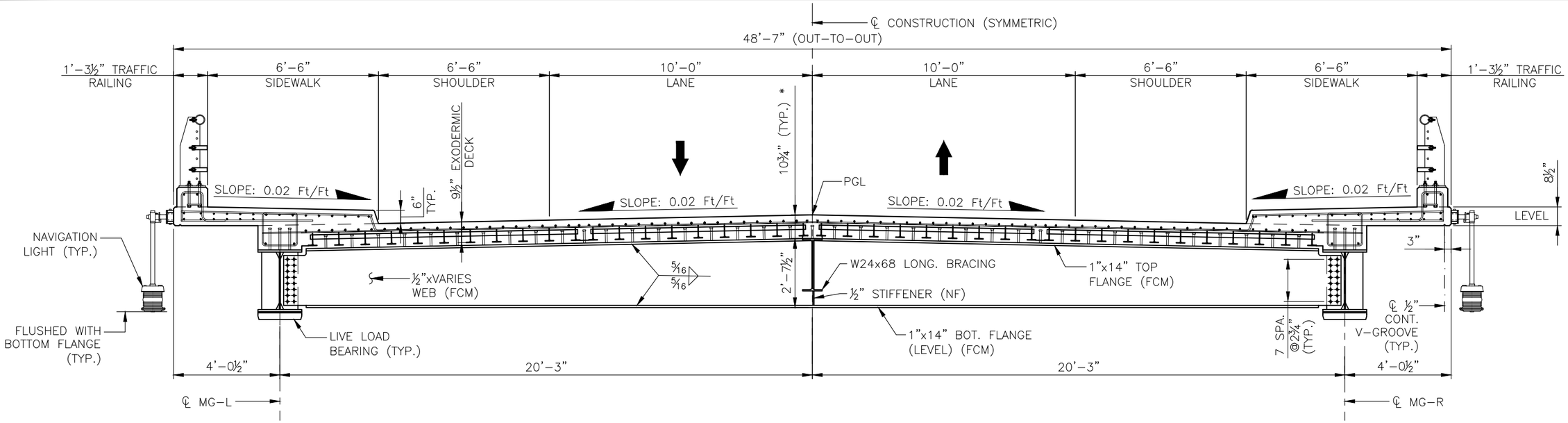
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TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

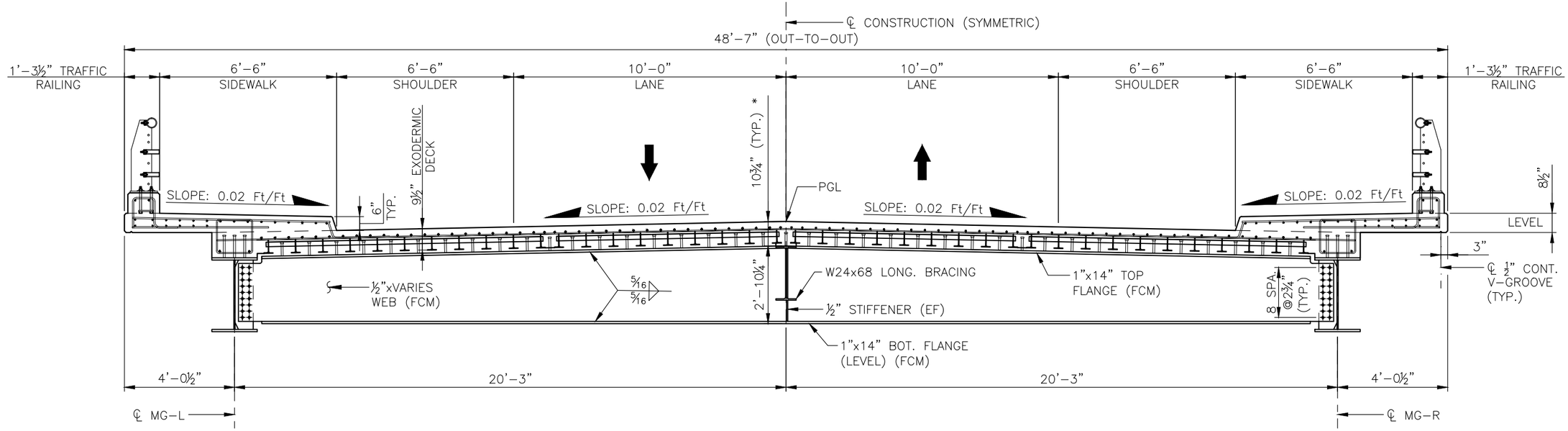
REF. DWG. NO. BL-2
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 164 OF 283

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SECTION AT FLOORBEAM FB1
(LOOKING TOWARD LEAF TIP)



NOTES:
1. SEE ELECTRICAL PLANS FOR NAVIGATION LIGHT DETAILS.

SECTION AT FLOORBEAM FB2
(LOOKING TOWARD LEAF TIP)

* TOP OF FLANGE TO TOP OF DECK AT PGL

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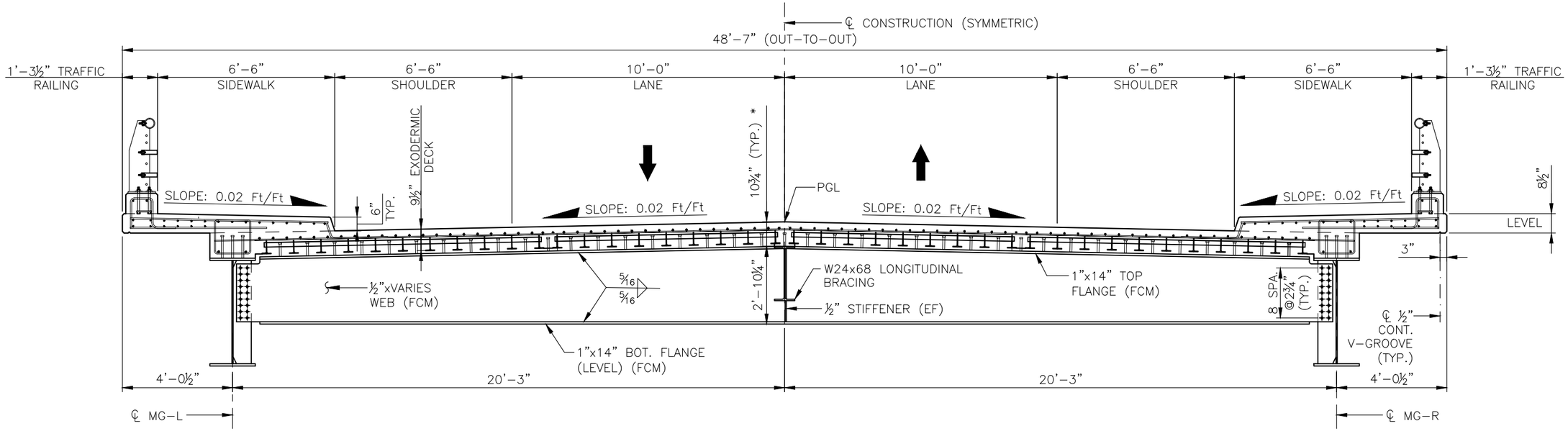
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN TRANSVERSE SECTION (1 OF 4)

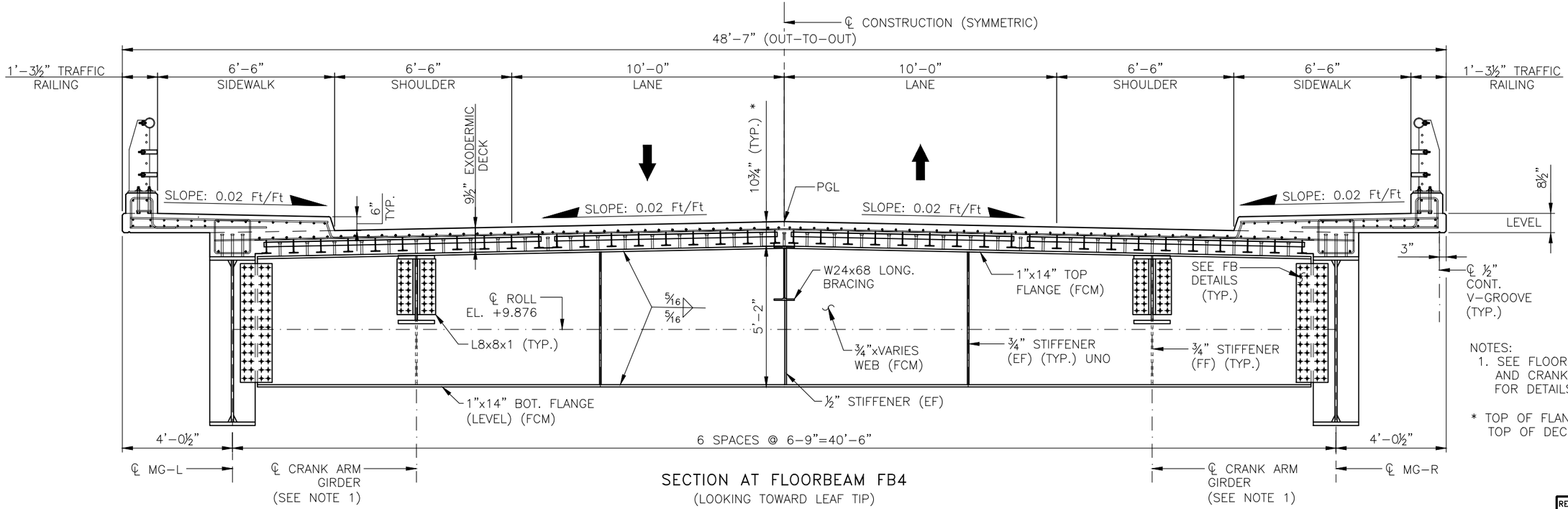
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REF. DWG. NO. BL-3
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 165 OF 283



SECTION AT FLOORBEAM FB3
(LOOKING TOWARD LEAF TIP)



SECTION AT FLOORBEAM FB4
(LOOKING TOWARD LEAF TIP)

NOTES:
1. SEE FLOORBEAM DETAILS AND CRANK ARM GIRDER FOR DETAILS.

* TOP OF FLANGE TO TOP OF DECK AT PGL

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PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN TRANSVERSE SECTION (2 OF 4)

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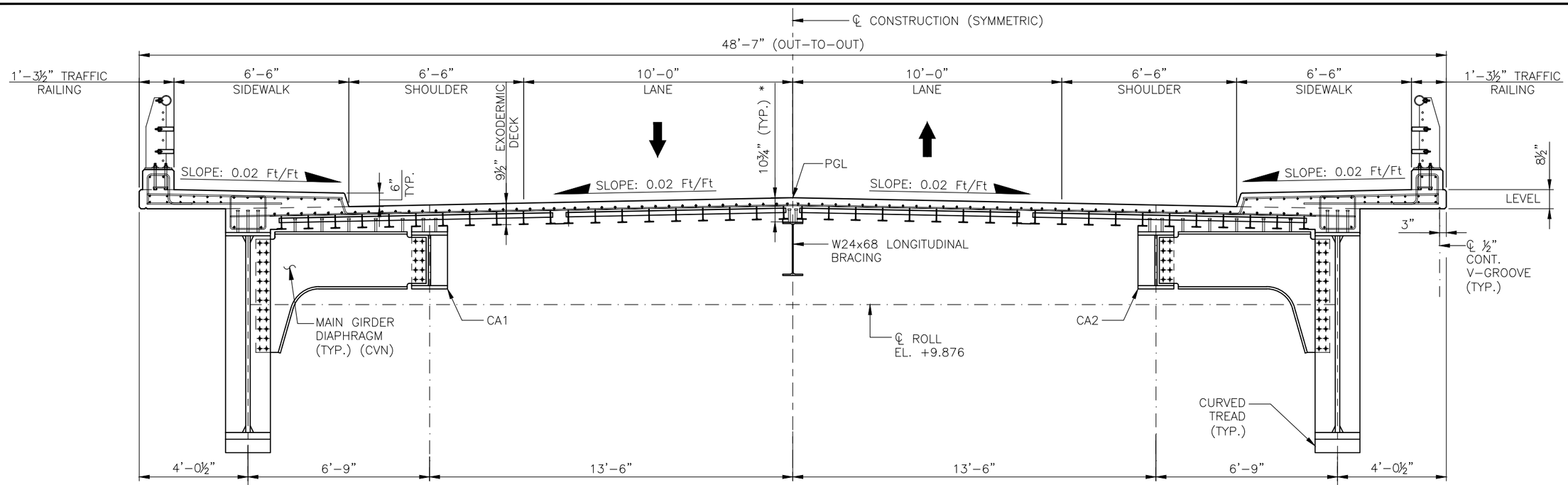
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FLA. LIC. NO. 36865

REF. DWG. NO. BL–4
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 166 OF 283

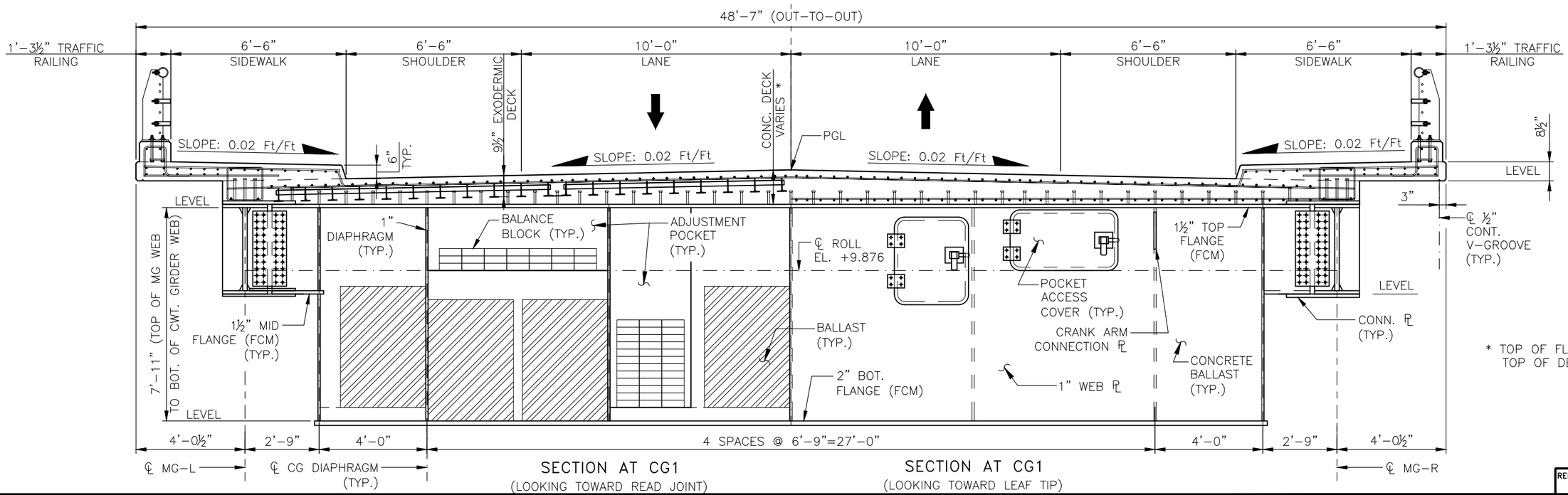
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SECTION AT CL ROLL
(LOOKING TOWARD LEAF TIP)



SECTION AT CG1
(LOOKING TOWARD READ JOINT)

SECTION AT CG1
(LOOKING TOWARD LEAF TIP)

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PROJECT:
BECKETT BRIDGE REPLACEMENT

DESCRIPTION:
BASCULE SPAN TRANSVERSE SECTION (3 OF 4)

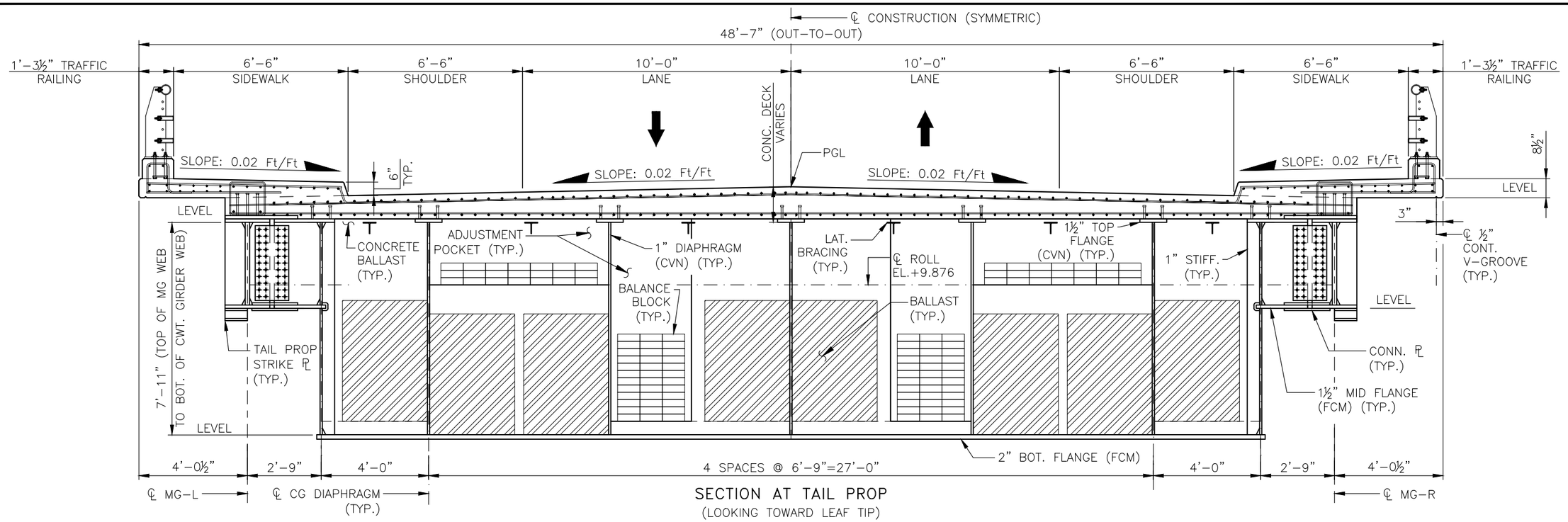
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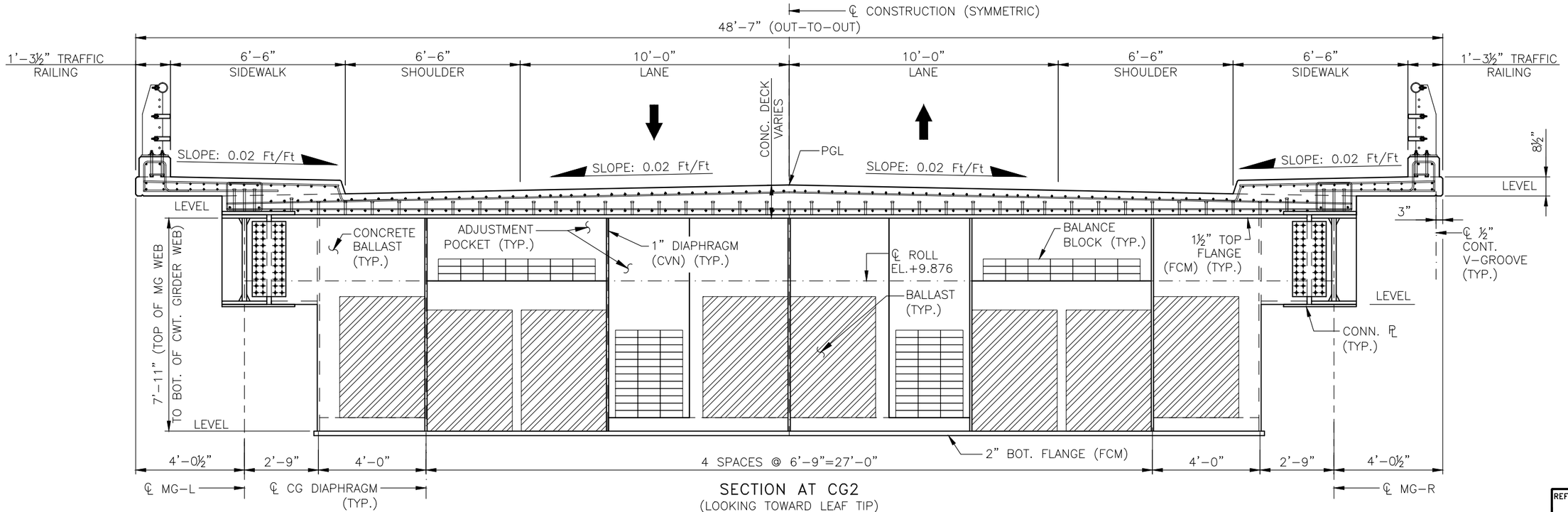
REF. DWG. NO. BL-5
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 167 OF 283

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SECTION AT TAIL PROP
(LOOKING TOWARD LEAF TIP)



SECTION AT CG2
(LOOKING TOWARD LEAF TIP)

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PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN TRANSVERSE SECTION (4 OF 4)

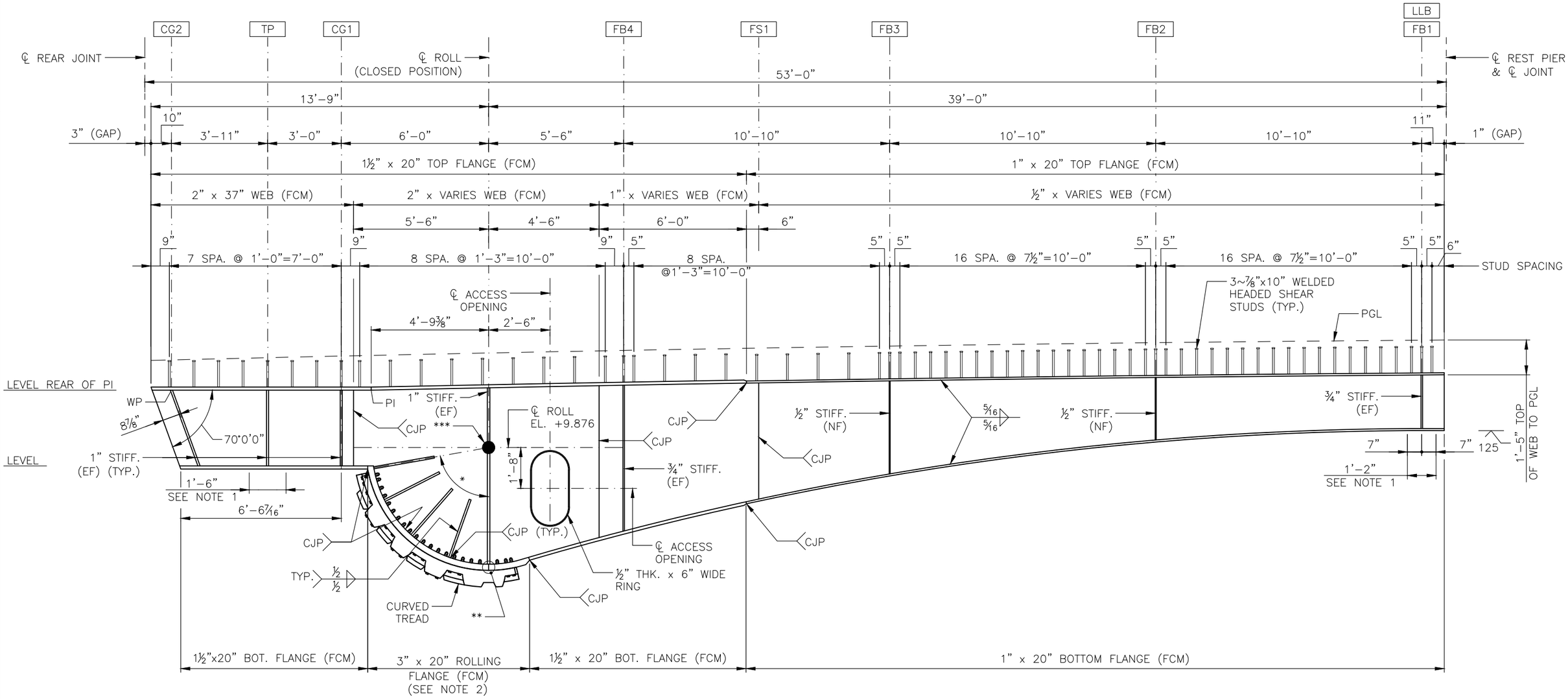
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REF. DWG. NO. BL-6
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SHEET: 168 OF 283

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LEGEND

* 4~1"x2'–6" RADIAL STIFFENER @ EQUAL SPA= 80°0'0.0"
** SCRIBE 1/32" V–GROOVE ON BOTH SIDES OF BOTTOM FLANGE AT BEGIN ROLL POSITION
*** SPAN POSITION PLATE

NOTES
1. MILL THE BOTTOM OF THE BOTTOM FLANGE WITHIN THE LIMITS OF THE LIVE LOAD BEARING AND TAIL PROP STRIKE PLATE FLAT AND LEVEL IN THE TRANSVERSE DIRECTION.
2. FINISHED FLANGE TO BE NO LESS THAN 3" THICK. PROVIDE INITIAL PLATE THICKNESS OF NO LESS THAN 3¼" PRIOR TO MACHINING.

MAIN GIRDER ELEVATION

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PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN MAIN GIRDER ELEVATION

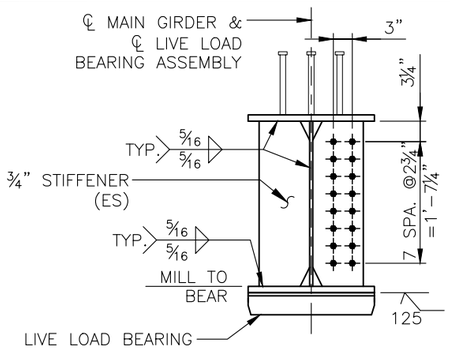
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5110 EISENHOWER BLVD.
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TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

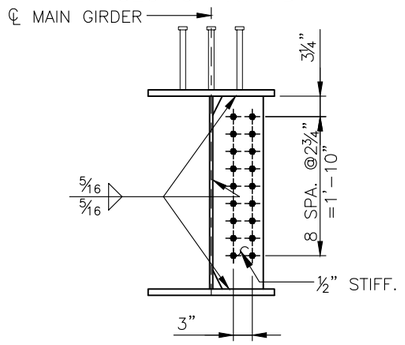
REF. DWG. NO. BL–7
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 169 OF 283

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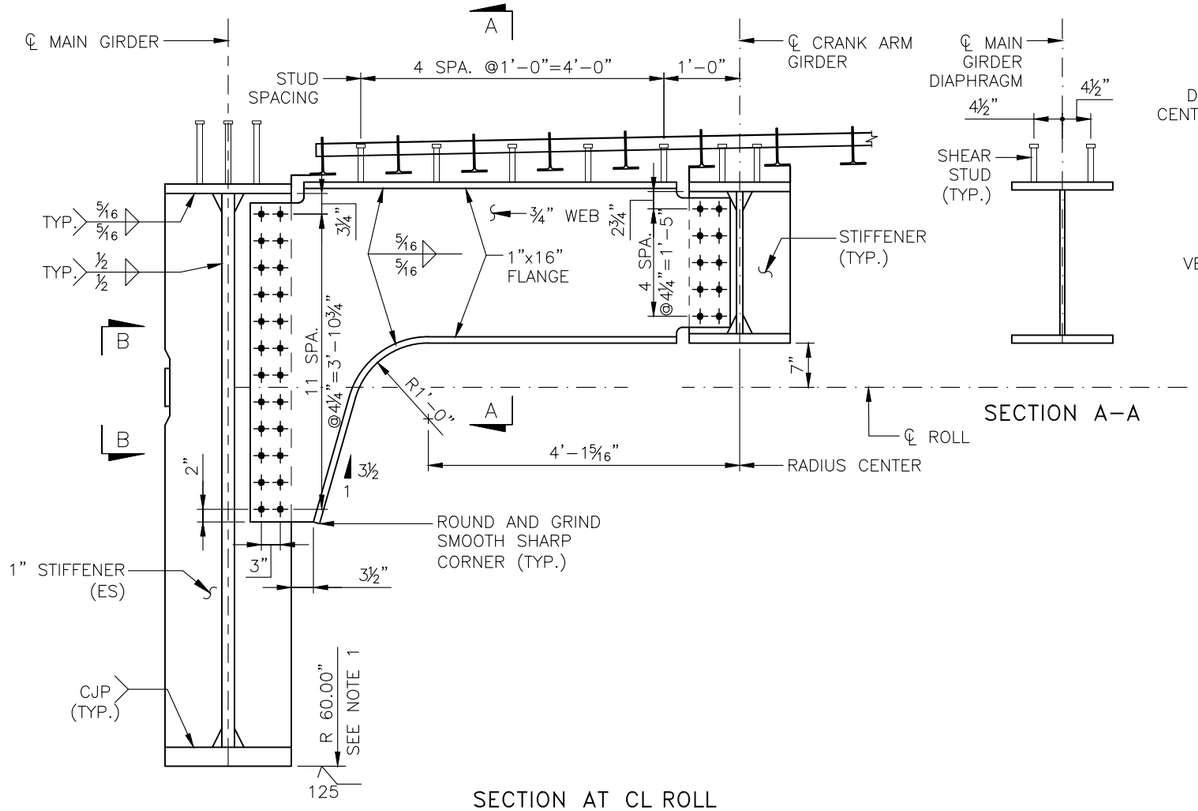
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SECTION AT FB1

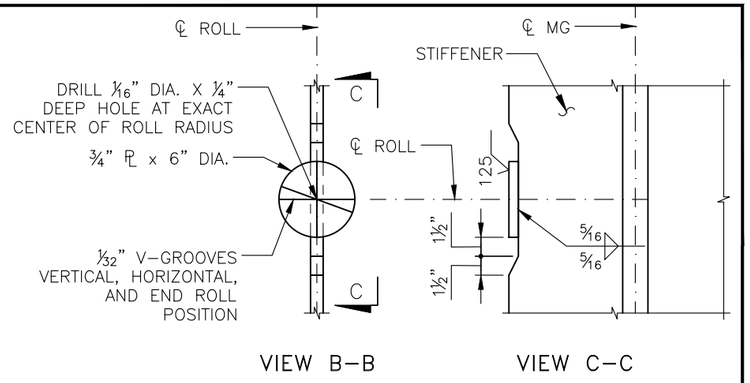


SECTION AT FB2/FB3



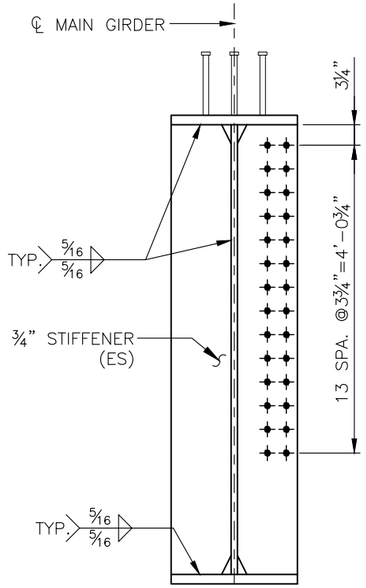
SECTION AT CL ROLL

SECTION A–A

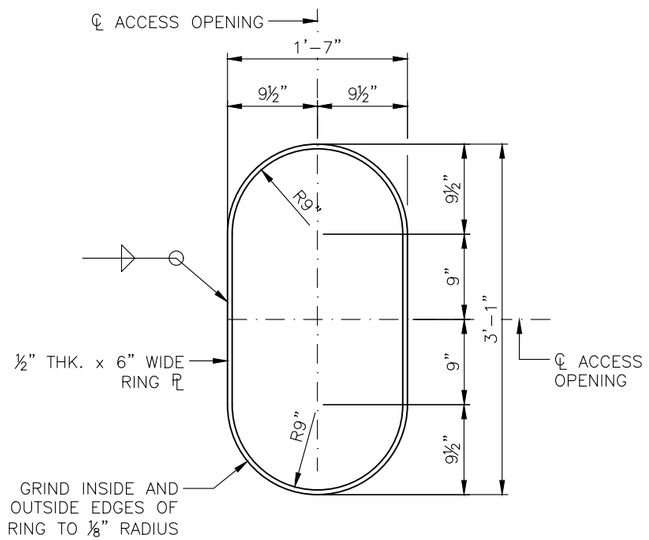


VIEW B–B VIEW C–C

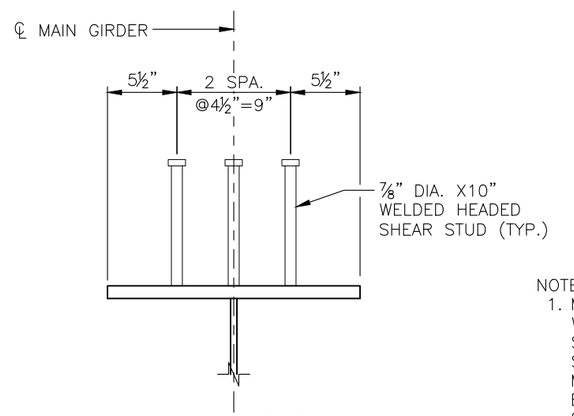
SPAN POSITION PLATE



SECTION AT FB4
(FLOORBEAM CONNECTION NOT SHOWN)



ACCESS OPENING DETAIL



MAIN GIRDER
STUD PLACEMENT

NOTES
1. MACHINE THE BOTTOM FLANGE OF THE MAIN GIRDER WITHIN THE LIMITS OF THE TREAD CONTACT AREA TO THE SPECIFIED RADIUS AND SURFACE FINISH. MACHINE SURFACE PERPENDICULAR TO THE CENTERLINE OF THE MAIN GIRDER AND PARALLEL TO THE CENTER OF ROLL. BLAST FAYING SURFACE TO CLASS B SURFACE CONDITION. SEE DWG. NOS. M–13 & M–14 FOR TREAD DETAILS.
2. SEE TSP SECTION 465 AND TSP SECTION 468 FOR GIRDER MACHINING AND ALIGNMENT REQUIREMENTS.

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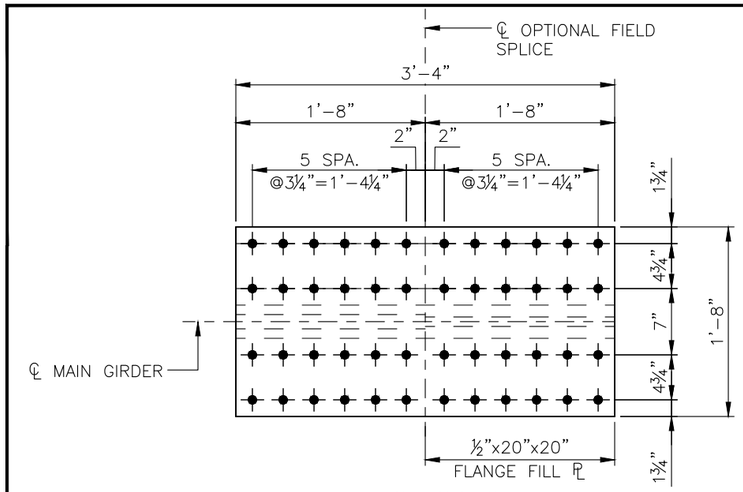
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN MAIN GIRDER SECTIONS AND DETAILS (1 OF 2)

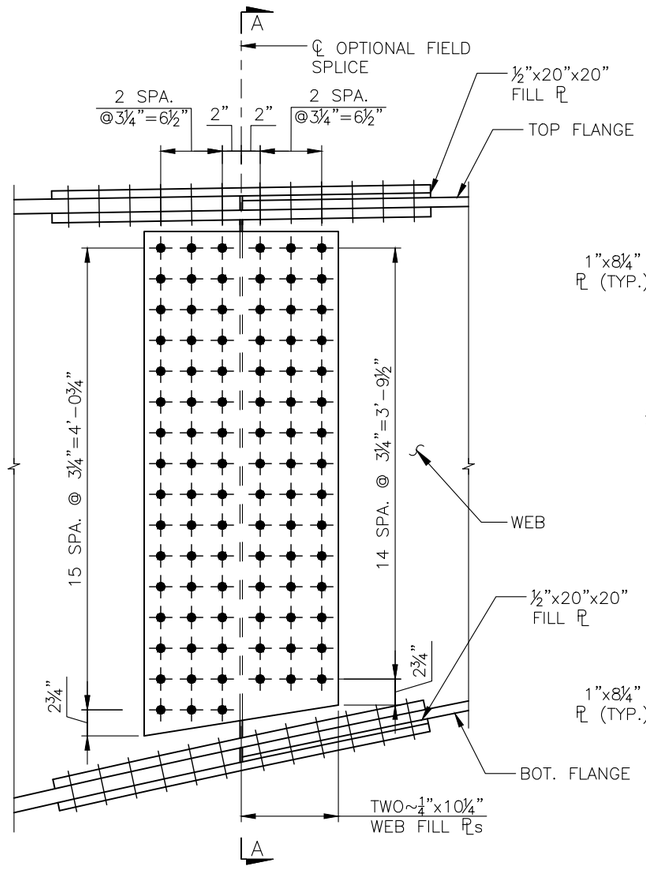
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5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

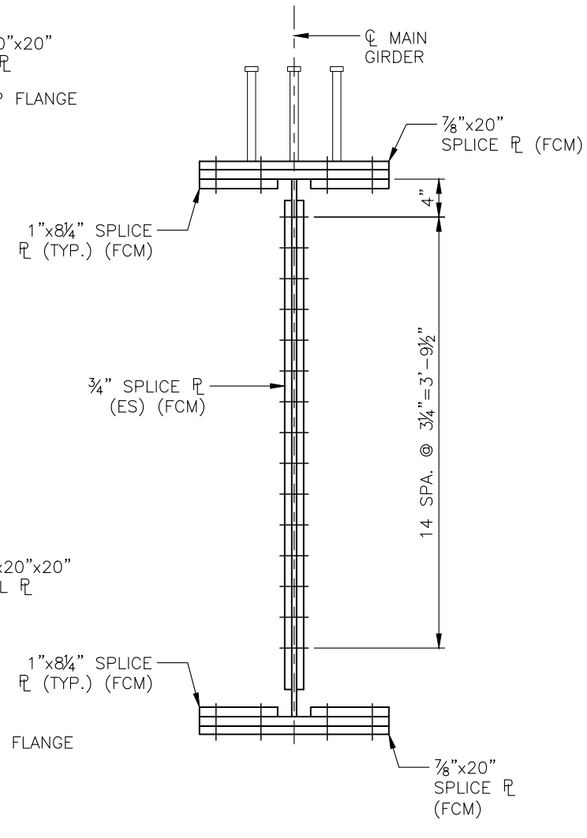
REF. DWG. NO. BL-8
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 170 OF 283



FLANGE SPLICE
(TOP & BOTTOM, SEE NOTE 1)



MAIN GIRDER FIELD SPLICE



SECTION A–A

NOTES
1. COORDINATE BOLT SPACING FOR TOP FLANGE FIELD SPLICE WITH SHEAR CONNECTION SPACING.

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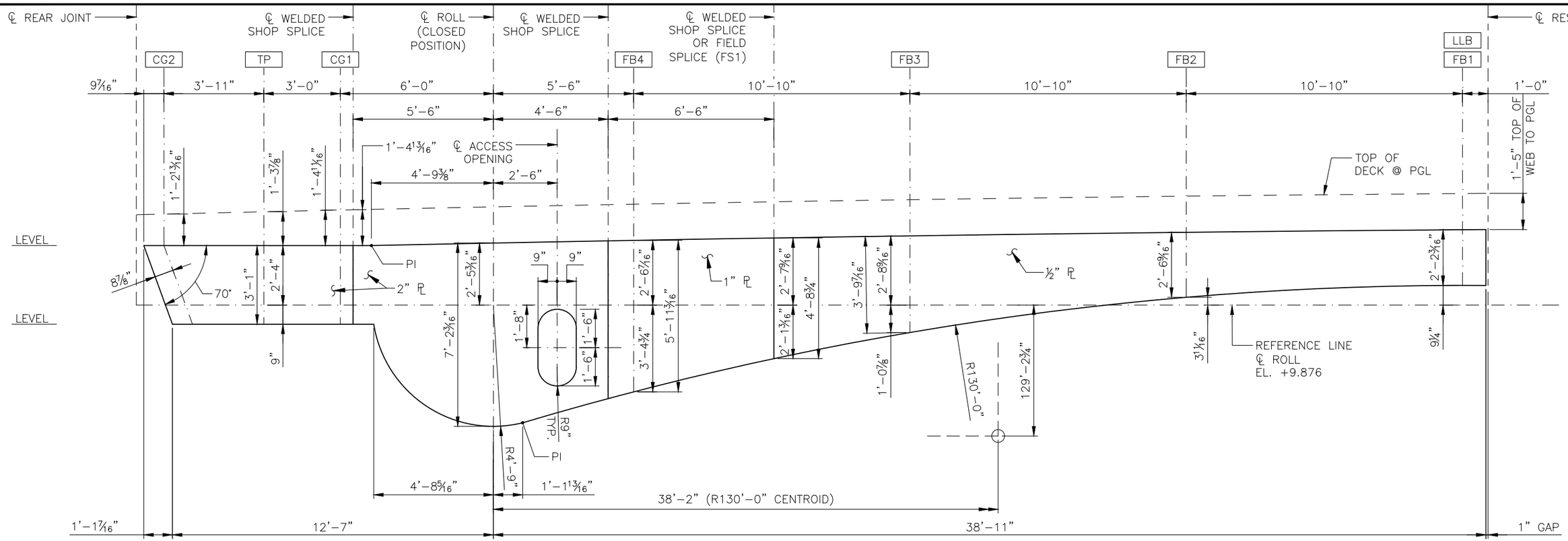
DESCRIPTION: BASCULE SPAN MAIN GIRDER SECTIONS AND DETAILS (2 OF 2)

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5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
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FLA. LIC. NO. 36865

REF. DWG. NO. BL-9
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 171 OF 283

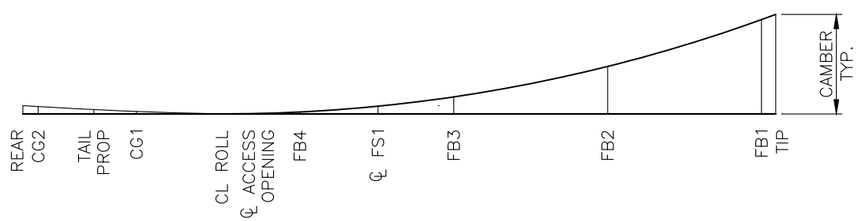
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MAIN GIRDER WEB ELEVATION

THEORETICAL MAIN GIRDER CAMBER DATA (INCHES)												
	REAR	CG2	TAIL PROP	CG1	℄ ROLL	℄ ACCESS OPENING	FB4	℄ FS1	FB3	FB2	FB1	TIP
STEEL DL	0.050	0.040	0.020	0.010	0.000	0.000	0.000	0.010	0.039	0.129	0.263	0.280
CONCRETE DL	0.020	0.020	0.010	0.000	0.000	0.000	0.000	0.021	0.069	0.228	0.444	0.470
COMPOSITE DL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.010	0.050	0.101	0.110
TOTAL DL	0.070	0.060	0.030	0.010	0.000	0.000	0.000	0.041	0.118	0.407	0.808	0.860

NOTES
1. UPWARD CAMBER IS POSITIVE. DOWN DEFLECTION IS POSITIVE.



MAIN GIRDER CAMBER DIAGRAM

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN MAIN GIRDER WEB GEOMETRY AND CAMBER DETAILS

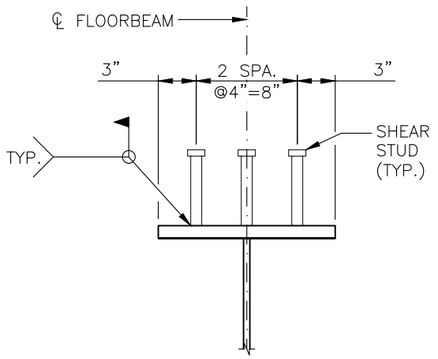
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

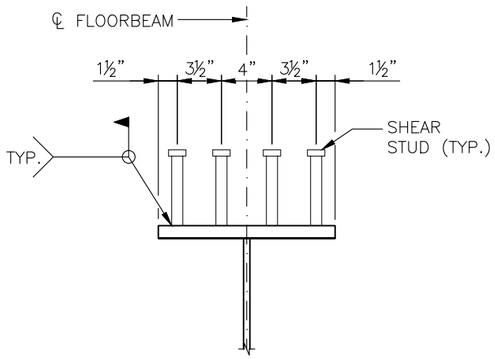
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DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 172 OF 283

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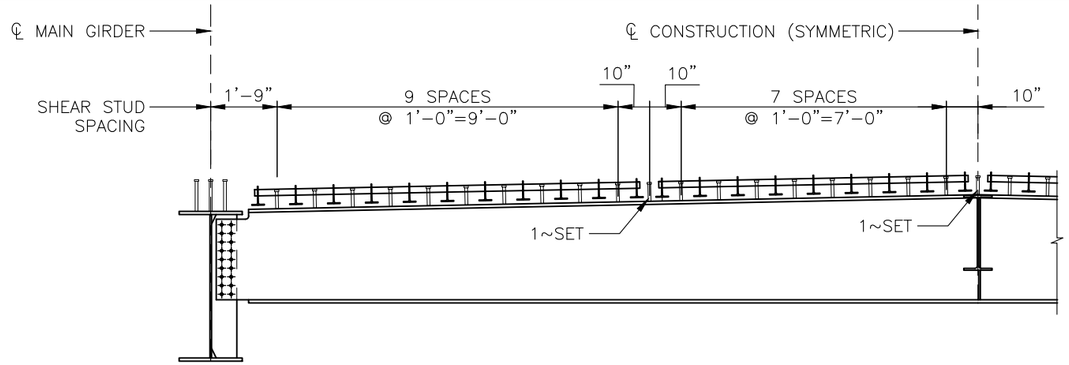


FLOORBEAM FB1

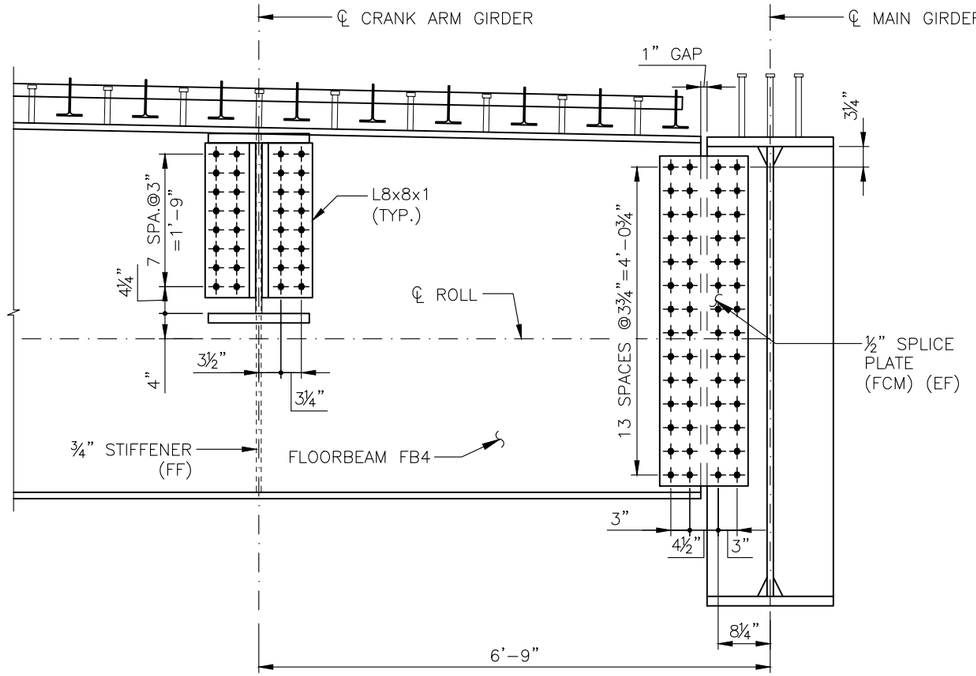


FLOORBEAM FB2 THRU FB4

TYPICAL STUD DETAIL



TYPICAL FLOORBEAM STUD PLACEMENT



CONNECTIONS AT FLOORBEAM FB4
(PARTIAL ELEVATION)

NOTES:
1. SEE CRANK ARM GIRDER SHEETS FOR ADDITIONAL CONNECTIONS AND DETAILS.

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PROJECT: BECKETT BRIDGE REPLACEMENT

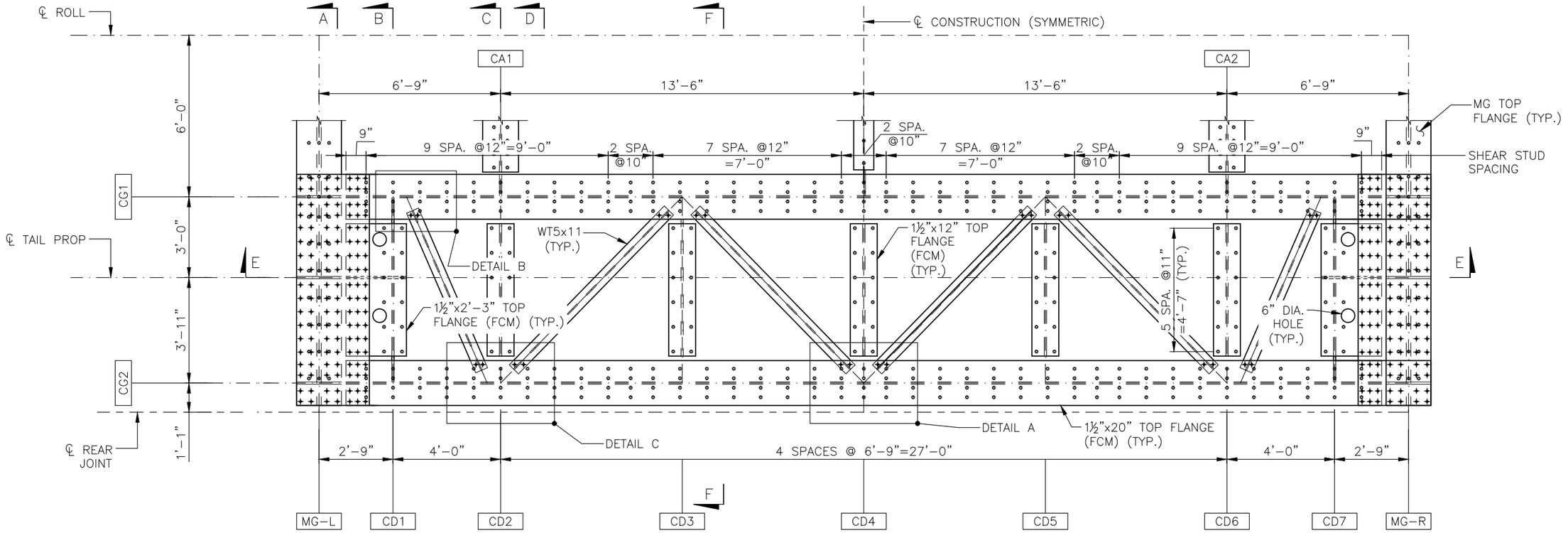
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HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

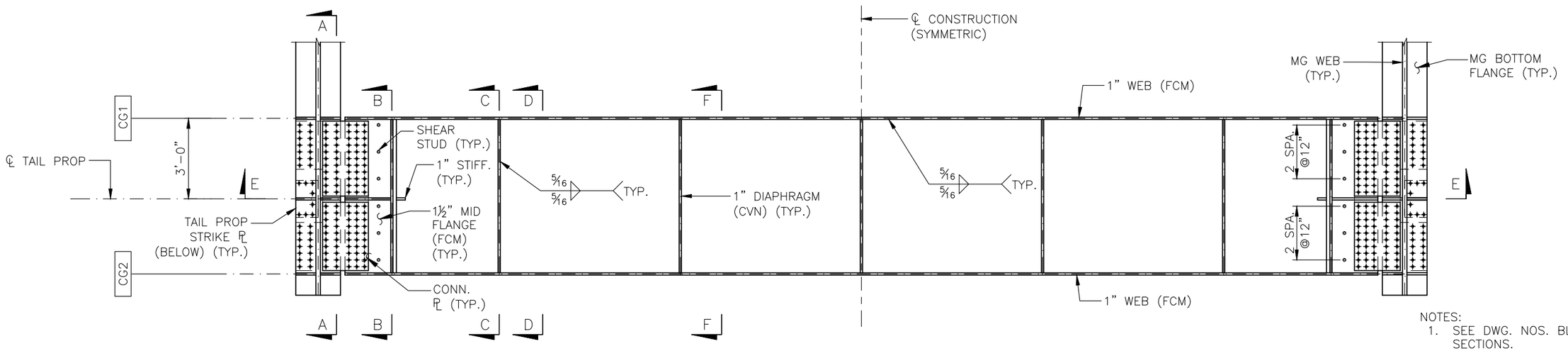
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL-11
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 173 OF 283

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COUNTERWEIGHT TOP FLANGE PLAN



COUNTERWEIGHT MID-FLANGE PLAN
(BALANCE BLOCKS AND BALLAST NOT SHOWN)

NOTES:
1. SEE DWG. NOS. BL-14 & BL-15 FOR SECTIONS.
2. SEE DWG. NOS. BL-16 & BL-17 FOR DETAILS.

LEGEND
+ – BOLT
∘ – SHEAR STUD

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DESIGNED JPN
DRAWN AC
CHECKED JMP

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PROJECT: BECKETT BRIDGE REPLACEMENT

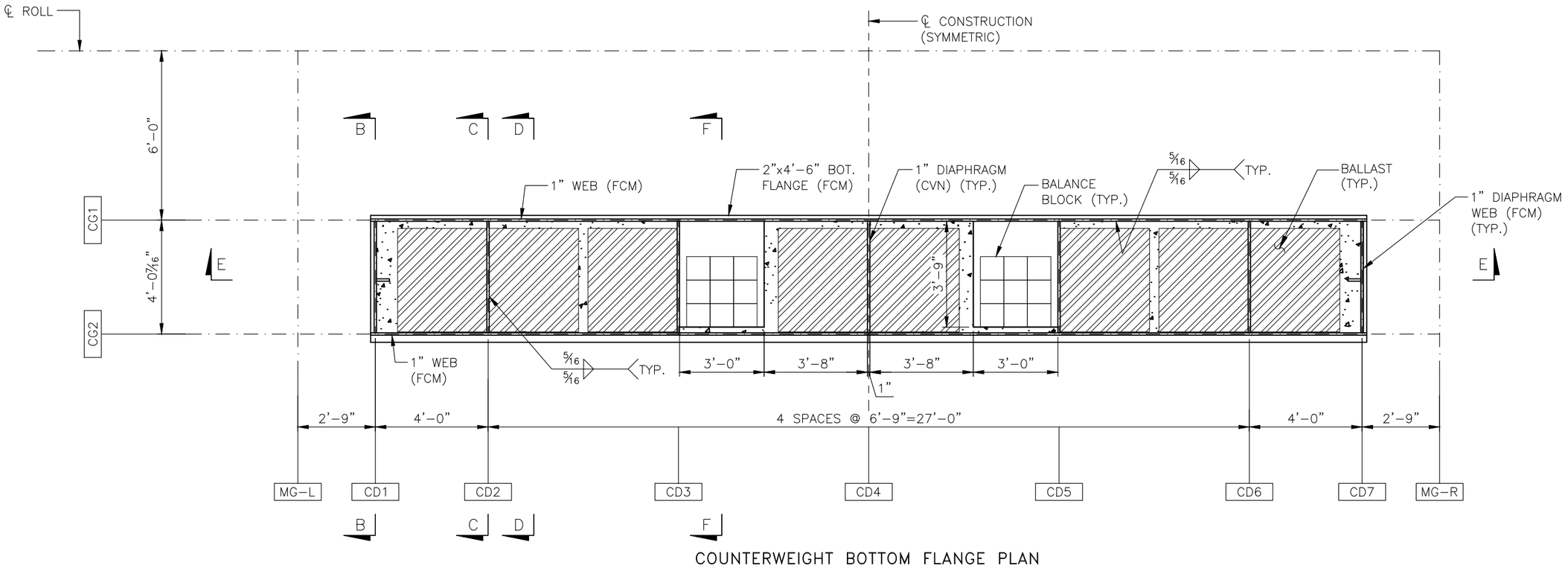
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5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL-12
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 174 OF 283

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COUNTERWEIGHT BOTTOM FLANGE PLAN

NOTES:
1. SEE DWG. NOS. BL-14 & BL-15 FOR SECTIONS.
2. SEE DWG. NOS. BL-16 & BL-17 FOR DETAILS.
3. BALANCE BLOCK POSITIONS AND NUMBERS SHOWN ARE APPROXIMATE. SEE TSP SECTION T465 FOR BALANCING REQUIREMENTS.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

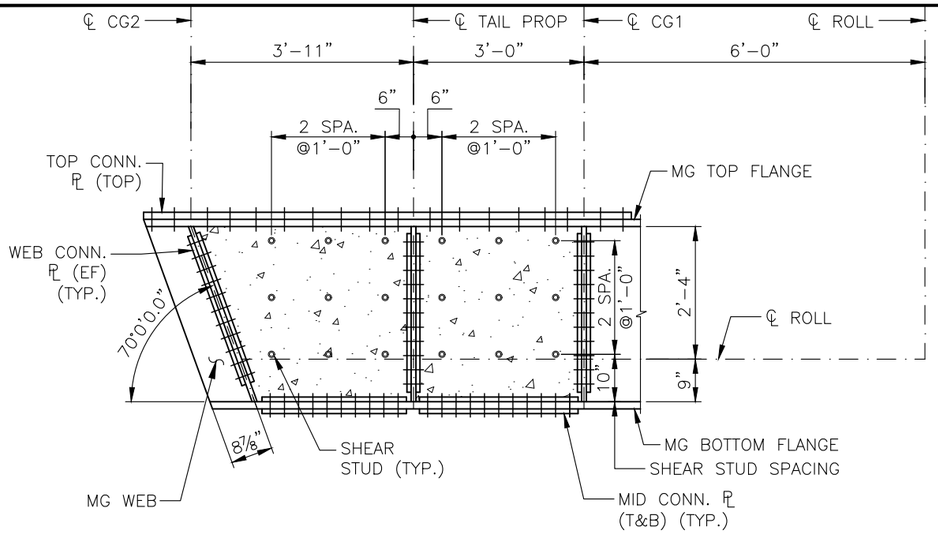
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HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

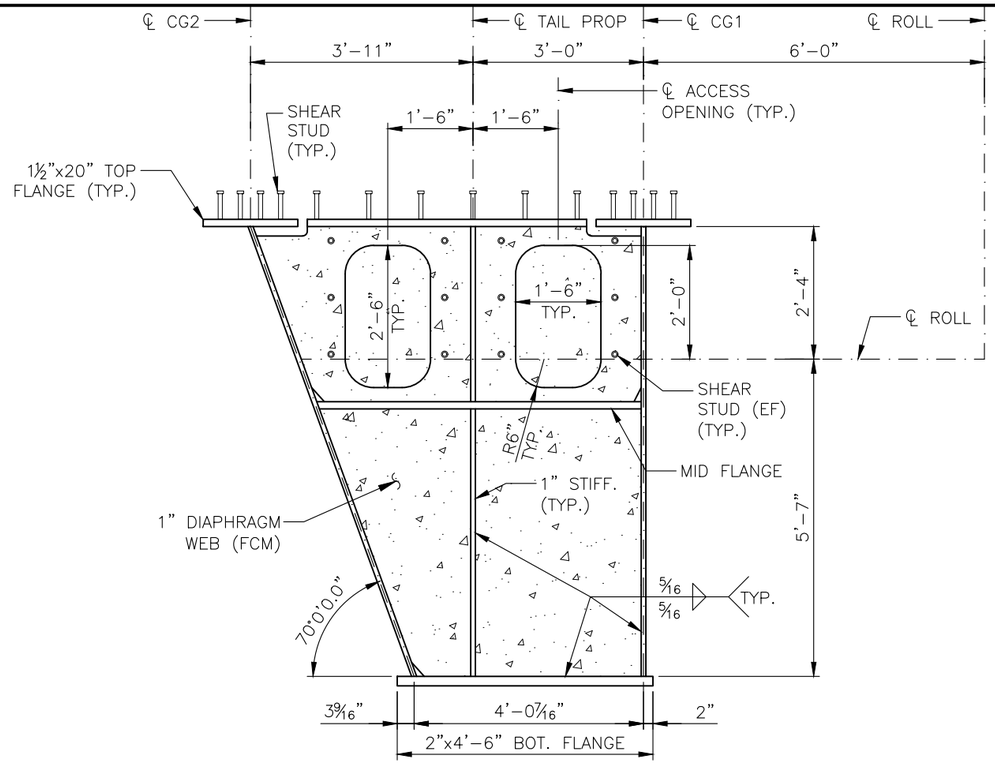
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL-13
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 175 OF 283

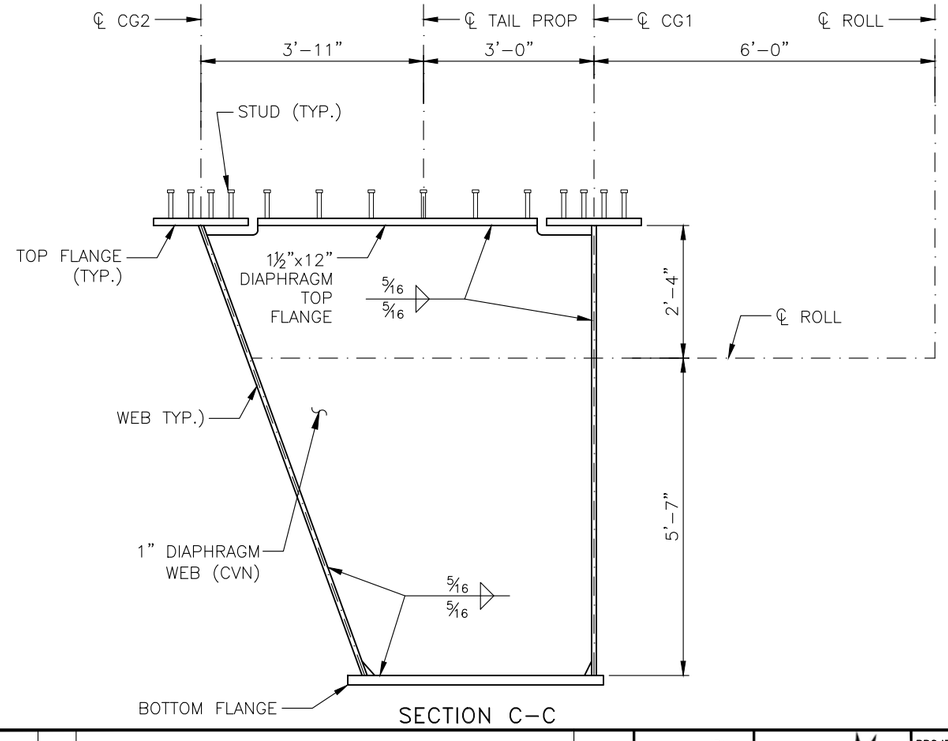
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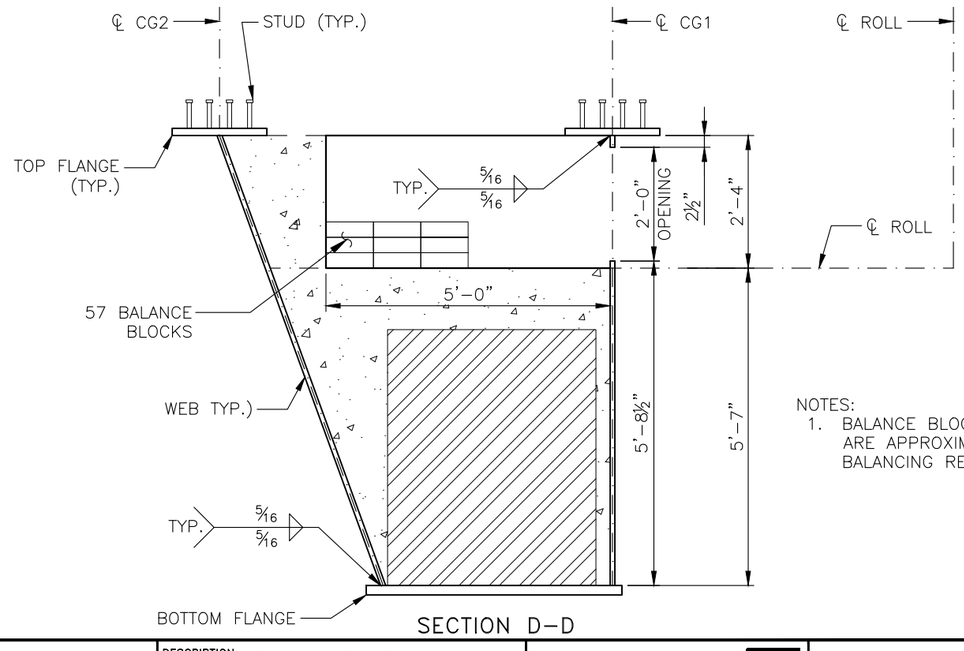
SECTION A–A



SECTION B–B



SECTION C–C



SECTION D–D

NOTES:
1. BALANCE BLOCK POSITIONS AND NUMBERS SHOWN ARE APPROXIMATE. SEE TSP SECTION T465 FOR BALANCING REQUIREMENTS.

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DESIGNED JPN
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PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN COUNTERWEIGHT SECTIONS (1 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

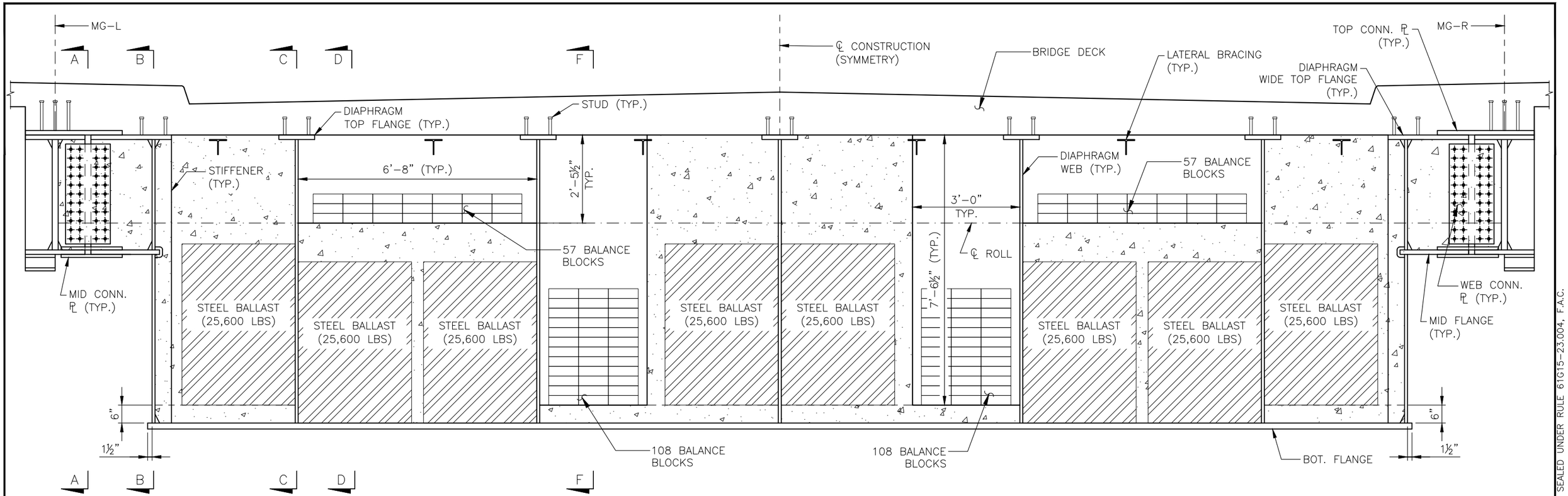
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL–14
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 176 OF 283

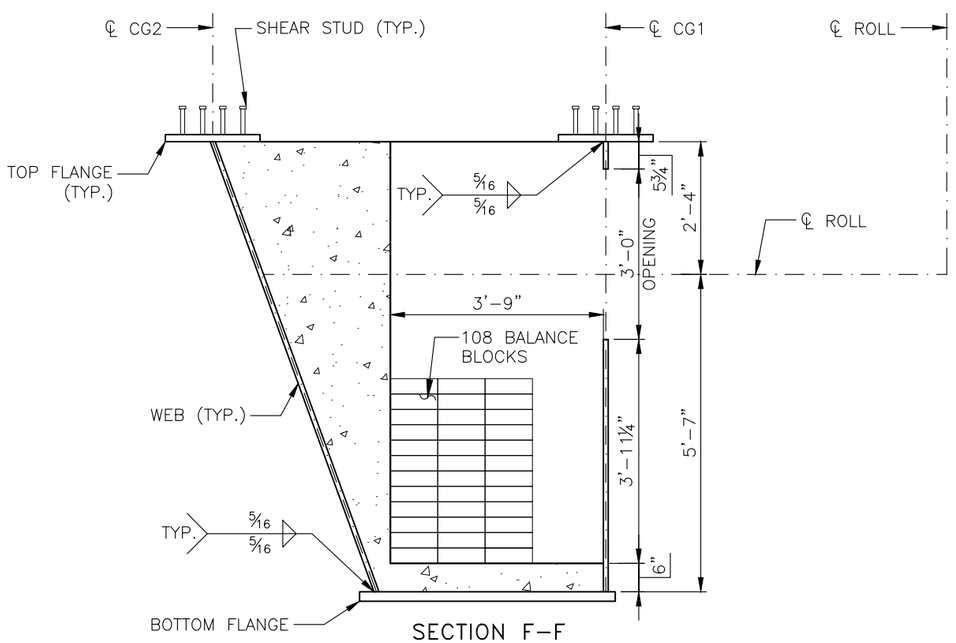
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SECTION E-E



SECTION F-F

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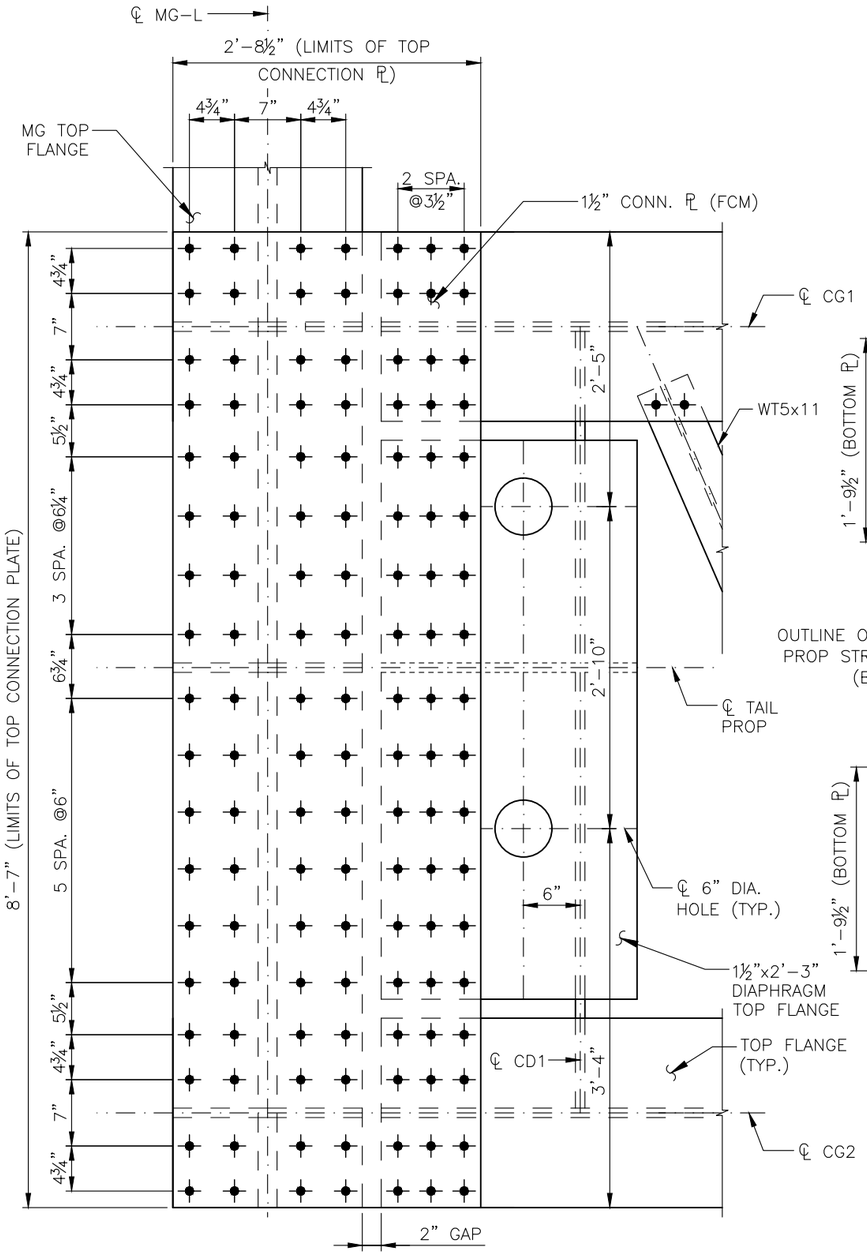
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DESCRIPTION: BASCULE SPAN COUNTERWEIGHT SECTIONS (2 OF 2)

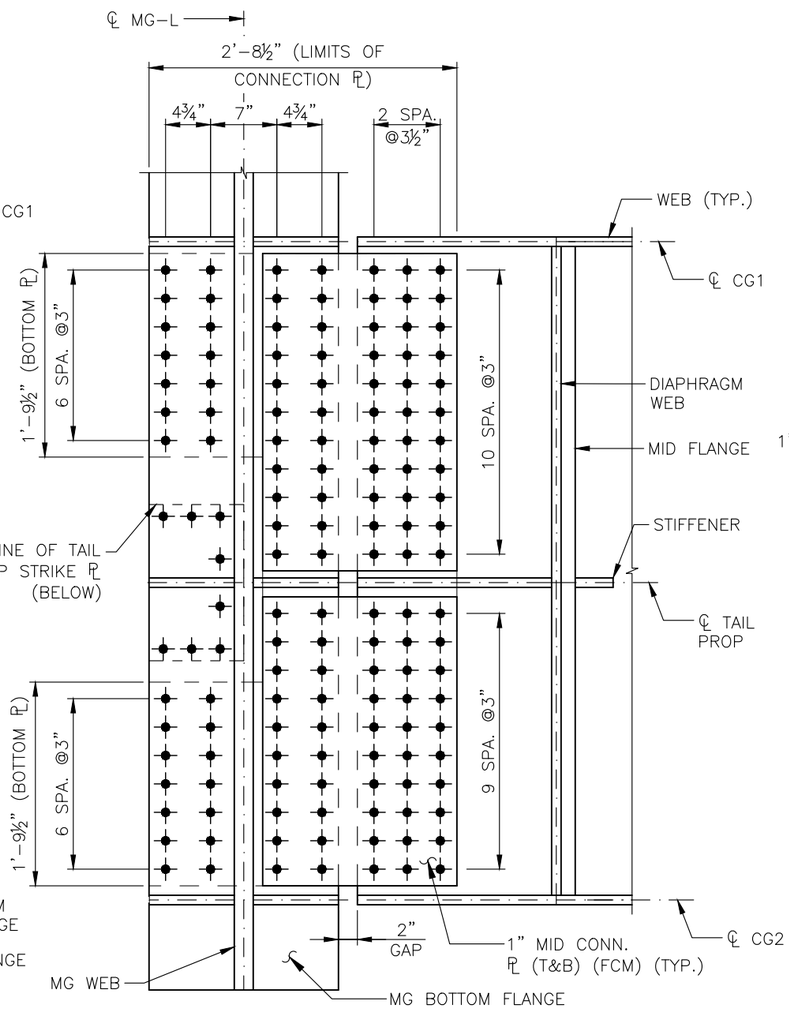
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL-15
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 177 OF 283

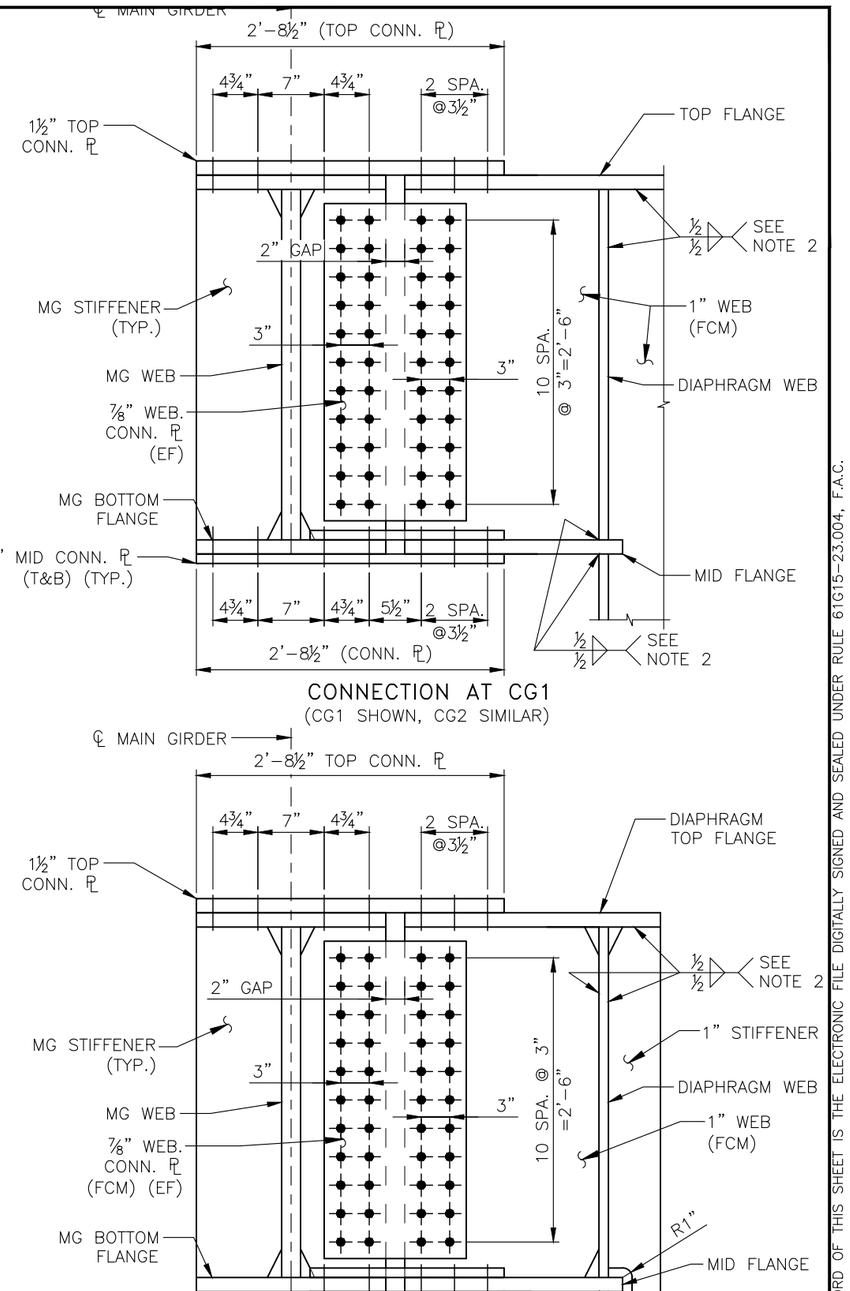


COUNTERWEIGHT TOP FLANGE CONNECTION
(MG–L SHOWN, MG–R SIMILAR)

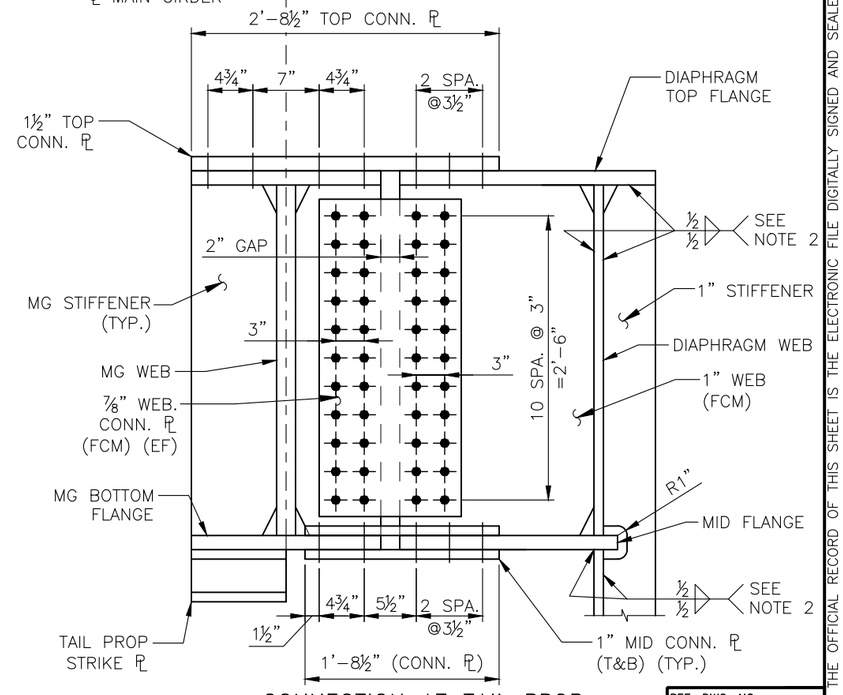


COUNTERWEIGHT MID FLANGE CONNECTION
(MG–L SHOWN, MG–R SIMILAR)

NOTES:
1. CONNECT INTERSECTING FLANGE, DIAPHRAGM AND STIFFENER PLATES WITH 5⁄16" FILLET WELDS BOTH SIDES UNLESS OTHERWISE NOTED.
2. WELD TYPICAL AT DIAPHRAGMS CD1 AND CD7.



CONNECTION AT CG1
(CG1 SHOWN, CG2 SIMILAR)



CONNECTION AT TAIL PROP

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PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN COUNTERWEIGHT BOX DETAILS (1 OF 2)

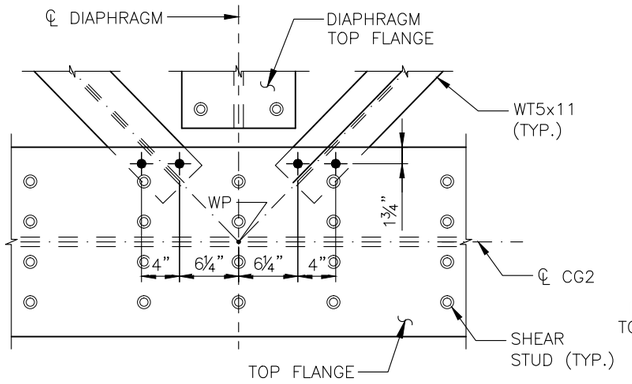
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5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

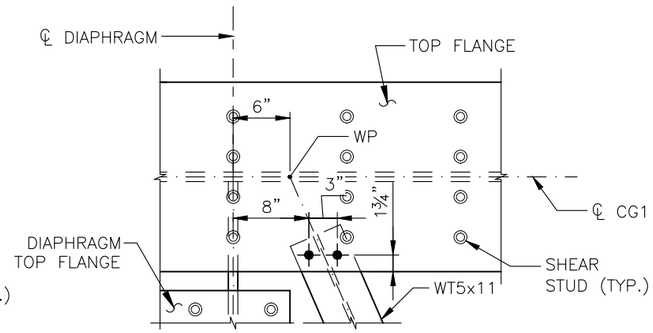
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DATE: 06/25/2021
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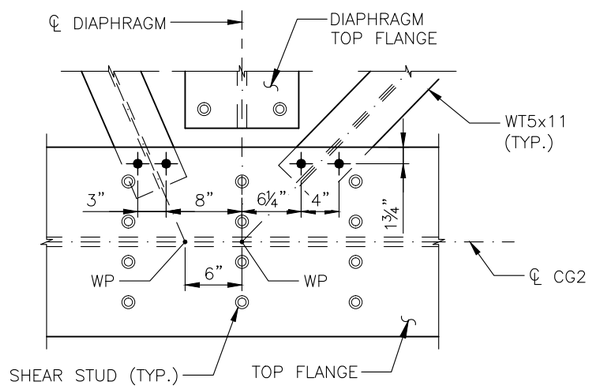
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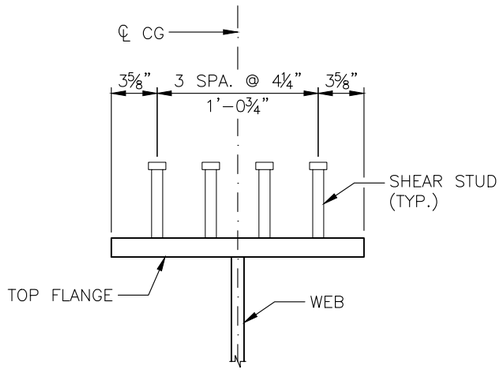
DETAIL A – TOP FLANGE LATERAL BRACING CONNECTION
(CG2 SHOWN, CG1 SIMILAR)



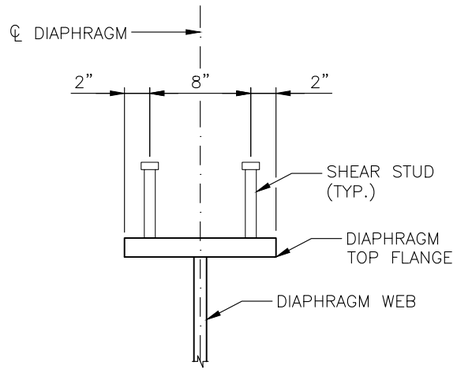
DETAIL B – TOP FLANGE LATERAL BRACING CONNECTION



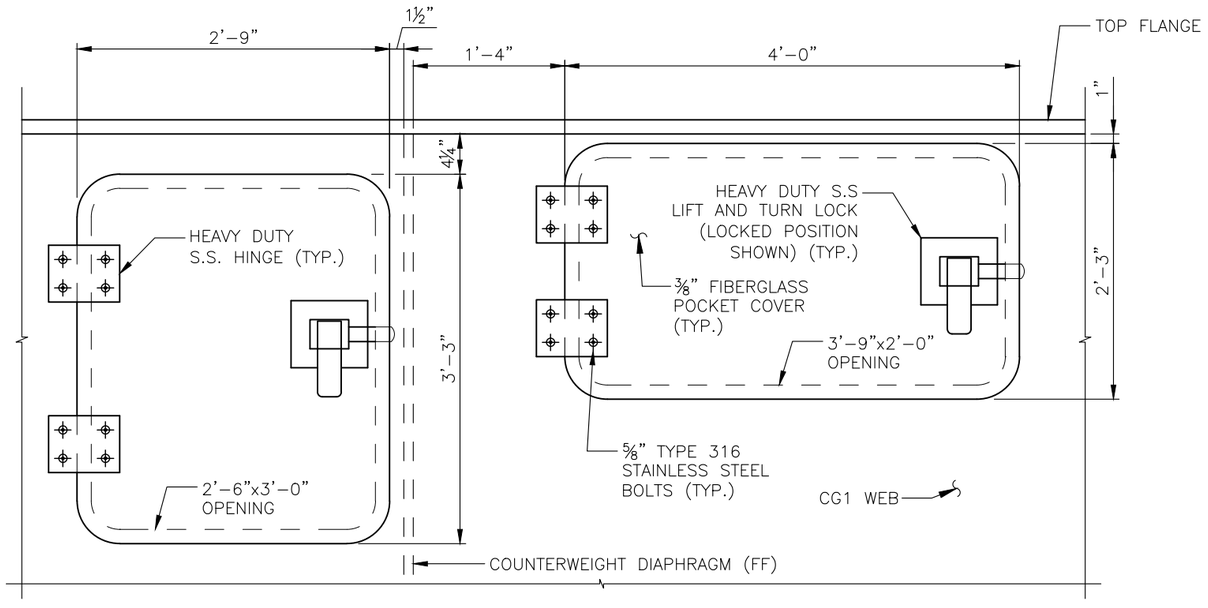
DETAIL C – TOP FLANGE LATERAL BRACING CONNECTION



TYPICAL SHEAR STUD DETAIL AT COUNTERWEIGHT GIRDERS
(CG1 SHOWN, CG2 SIMILAR)



TYPICAL SHEAR STUD DETAIL AT COUNTERWEIGHT DIAPHRAGMS



ADJUSMENT POCKET ACCESS HATCH
(LOOKING TOWARDS REAR JOINT)

NOTES:
1. REINFORCE FIBERGLASS COVER AT CONNECTION TO HINGES AND LOCKS WITH MINIMUM ⅜" BACKING PLATE.
2. PROVIDE DOUBLE NUTS AND WASHERS FOR STAINLESS STEEL BOLTS. ASSEMBLE WITH ANTI–SEIZE THREAD LOCKING COMPOUND OR PROVIDE SELF LOCKING NUTS WITH NYLON INSERTS.

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PROJECT: BECKETT BRIDGE REPLACEMENT

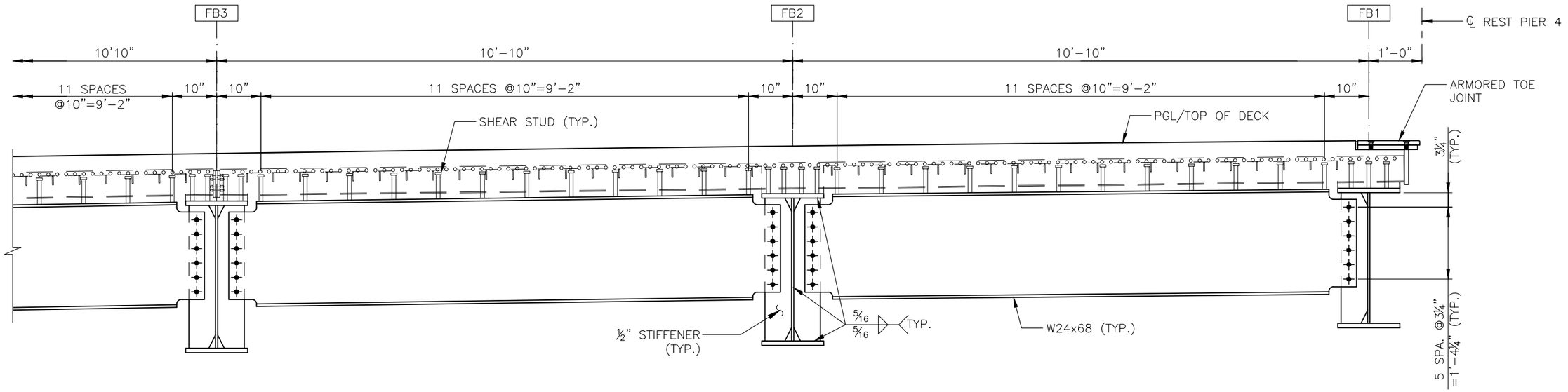
DESCRIPTION: BASCULE SPAN COUNTERWEIGHT BOX DETAILS (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

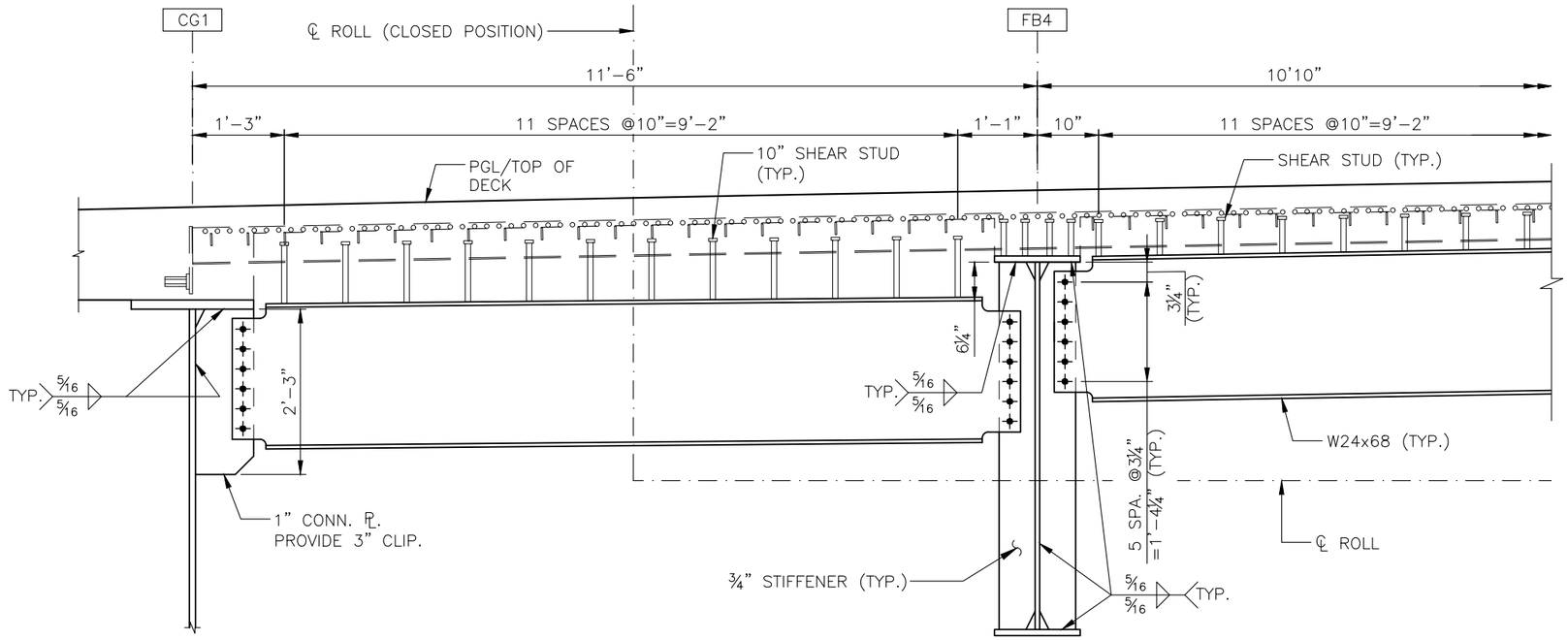
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

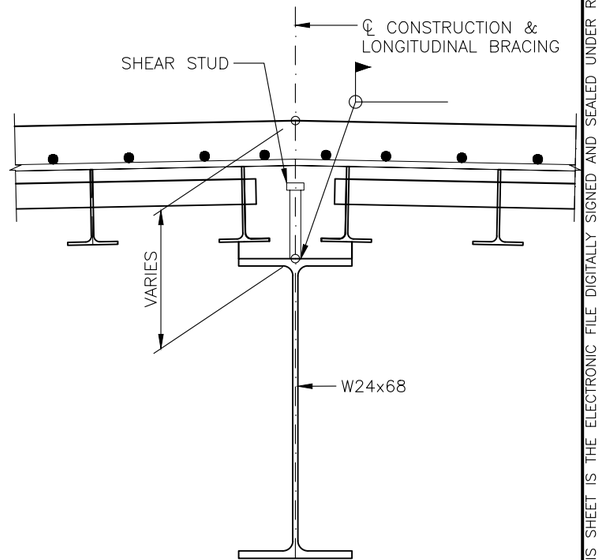
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DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 179 OF 283

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LONGITUDINAL BRACING DETAIL





LONGITUDINAL BRACING TYPICAL SECTION

LONGITUDINAL BRACING DETAIL

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CHECKED JMP

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PROJECT: BECKETT BRIDGE REPLACEMENT

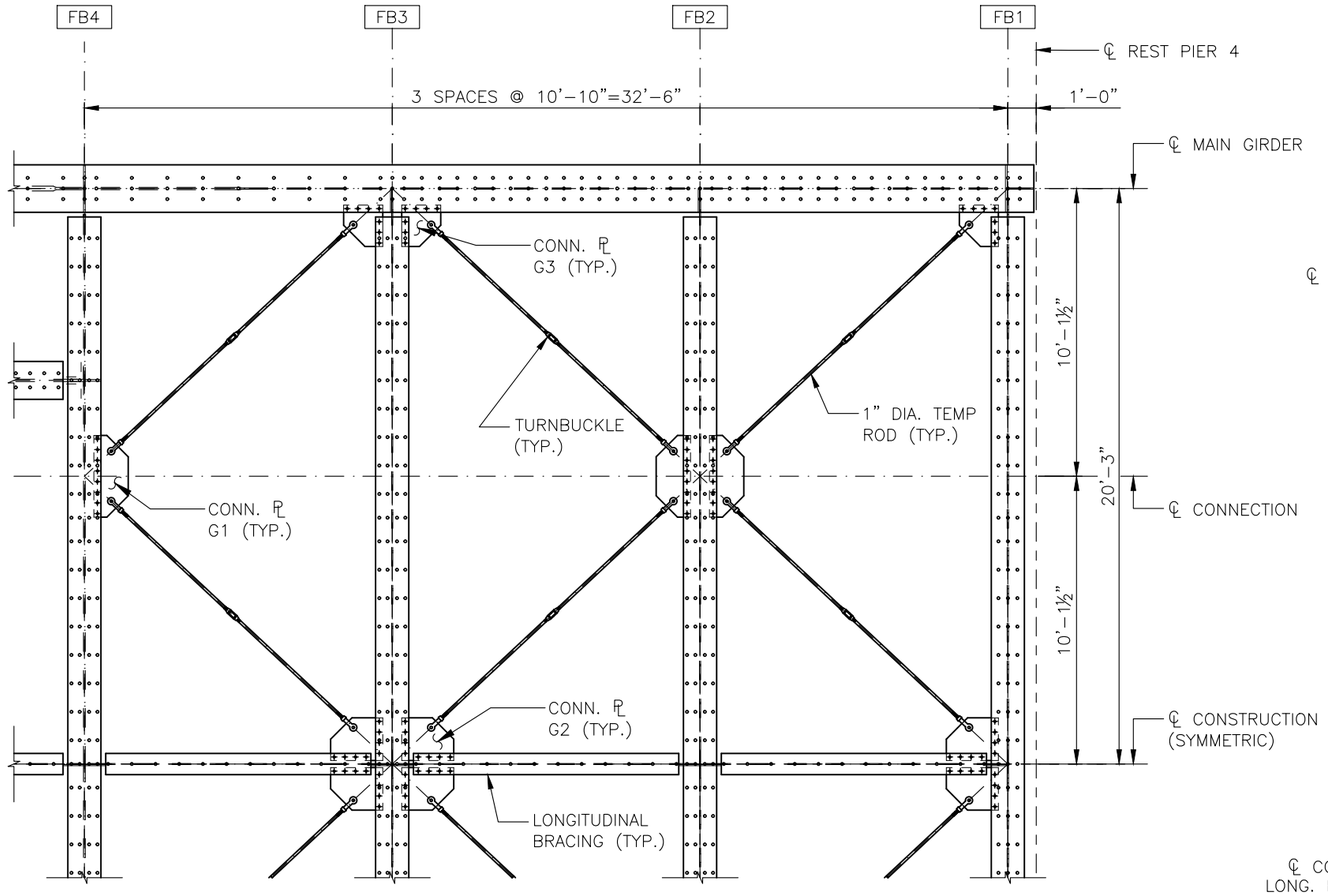
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HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

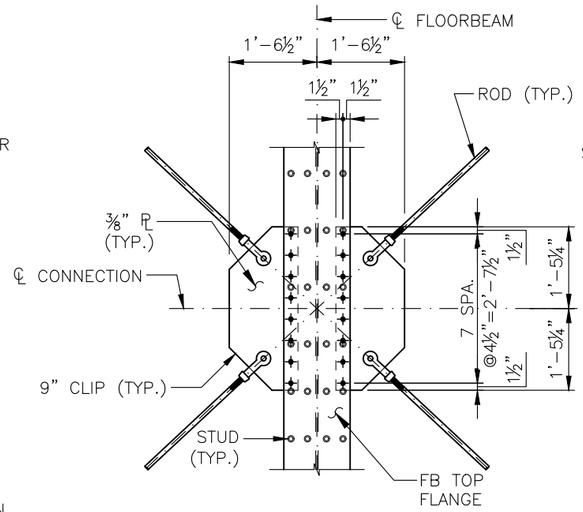
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL–18
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 180 OF 283

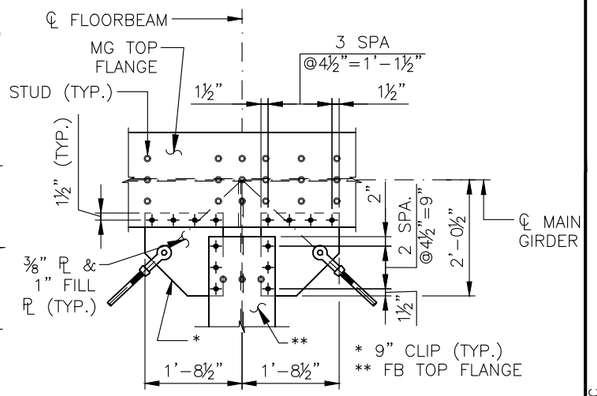
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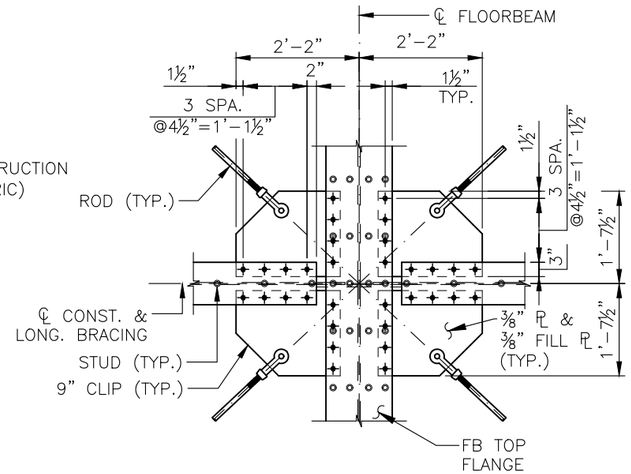
HALF TEMPORARY TOP FLANGE LATERAL BRACING PLAN



CONNECTION PLATE G1



CONNECTION PLATE G3



CONNECTION PLATE G2

NOTES:

1. APPLY PRIME COAT OF RED PAINT TO CONNECTION PLATES TO DELINEATE COMPONENTS TO BE REMOVED.
2. INSTALL TEMPORARY BRACING DURING BASCULE LEAF STEEL ERECTION, AND MAINTAIN IN PLACE UNTIL CONCRETE FOR EXODERMIC DECK IS PLACED AND CURED.
3. INSTALL DOUBLE NUTS AT TURNBUCKLES AND CLEVISES TO PROVIDE POSITIVE LOCK AFTER ADJUSTMENT AND ALIGNMENT.
4. PROVIDE REQUIRED BOLT THREAD LENGTH FOR CONDITIONS WITH PLATES IN PLACE AND REMOVED. PLACE NUTS BELOW CONNECTION PLATE TO ALLOW FOR PLATE REMOVAL. TIGHTEN NUTS USING "TURN–OF–NUT METHOD" PER SPECIFICATIONS.
5. REMOVE ALL TEMPORARY BRACING COMPONENTS. FILL ALL BOLT HOLES WITH H.S. BOLTS. DO NOT REUSE TEMPORARY BOLTS.
6. PROVIDE AT MINIMUM THE FOLLOWING ELEMENTS:
   - A. ROD
     - ASTM A36 RODS
     - LRFD STRENGTH= 10 KIP
   - B. CLEVISES
     - NUMBER 3
     - GRIP= ¾"
   - C. CLEVIS PINS
     - ASTM A106 GRADE 1016 TO 1030
     - 1" DIA. PIN WITH 1¼" DIA. x ¼" HEAD
     - ¼" DIA. COTTER PIN
7. FIELD ADJUST SHEAR STUDS NEAR CONNECTION BOLTS AS NEEDED.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN TEMPORARY BRACING DETAILS

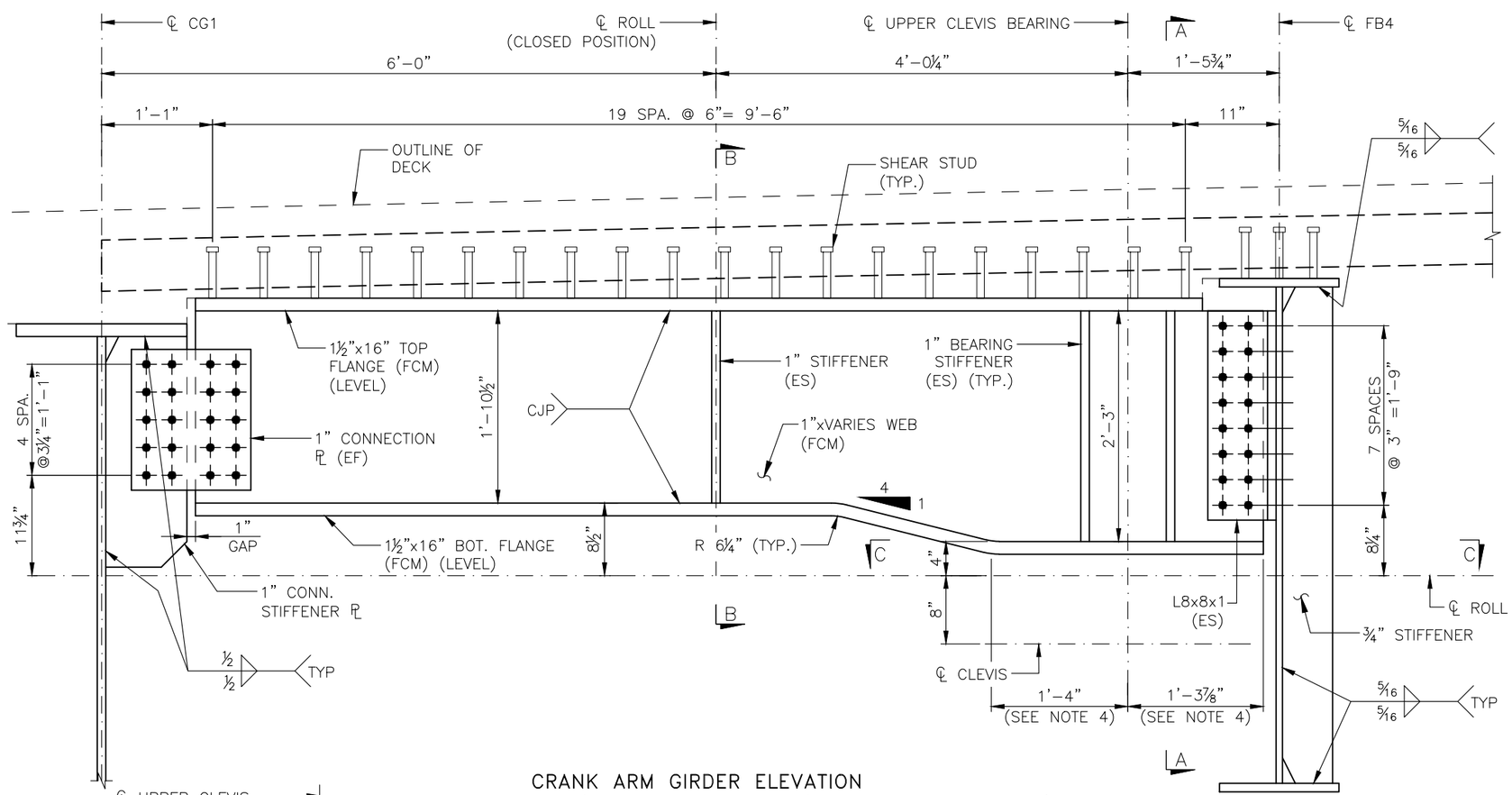
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

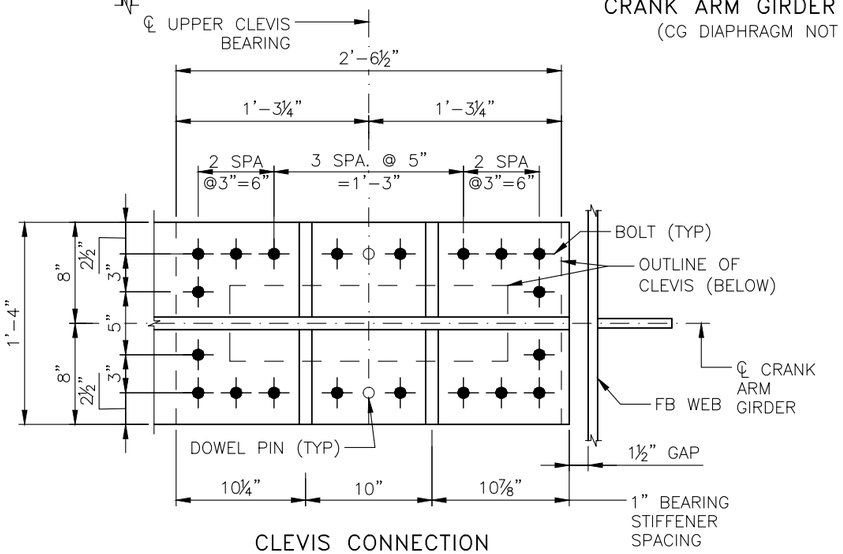
REF. DWG. NO. BL–19
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 181 OF 283

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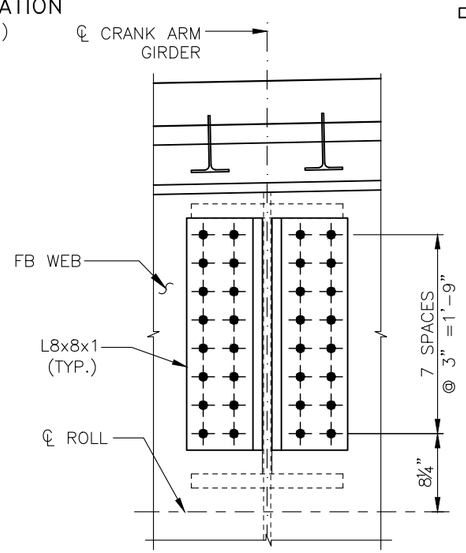
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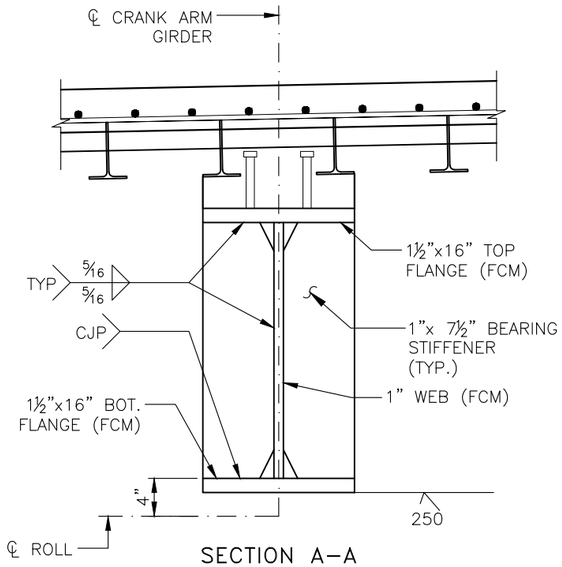
CRANK ARM GIRDER ELEVATION
(CG DIAPHRAGM NOT SHOWN)



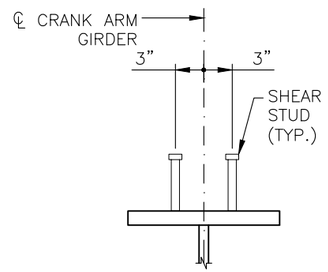
CLEVIS CONNECTION
(SECTION C–C)



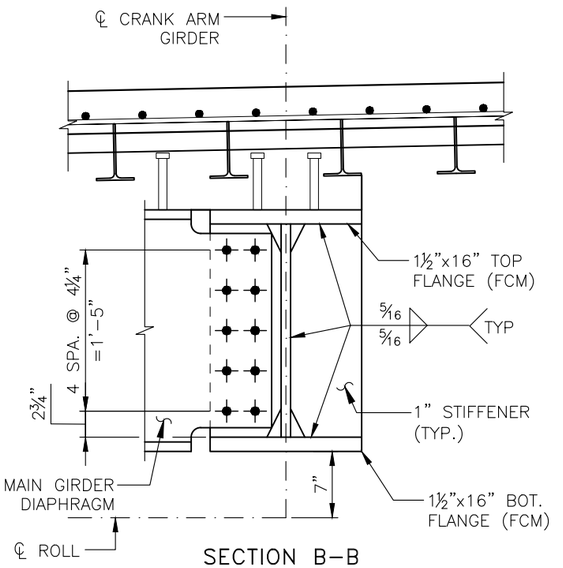
CONNECTION AT FB4



SECTION A–A



SHEAR STUD DETAIL



SECTION B–B

NOTES
1. SEE DWG. NO. BL–2 FOR LOCATION OF CRANK ARM GIRDER.
2. FIELD DRILL BOLTS OF CRANK ARM CONNECTION AT FB–4 AND CLEVIS CONNECTION.
3. INSTALL BOLTS OF CRANK ARM CONNECTION AT FB–4 WITH THE BOLT HEAD ON THE NEAR SIDE OF THE FLOORBEAM.
4. MILL BOTTOM OF BOTTOM FLANGE FLAT AND LEVEL. BLAST CLEAN FAYING SURFACES OF BOTTOM FLANGE, SHIM PLATES AND TOP OF LINK ARM UPPER CLEVIS AFTER MACHINING TO MINIMUM ANCHOR PROFILE FOR A CLASS B SURFACE. SEE DWG. M–8 FOR CLEVIS DETAILS.

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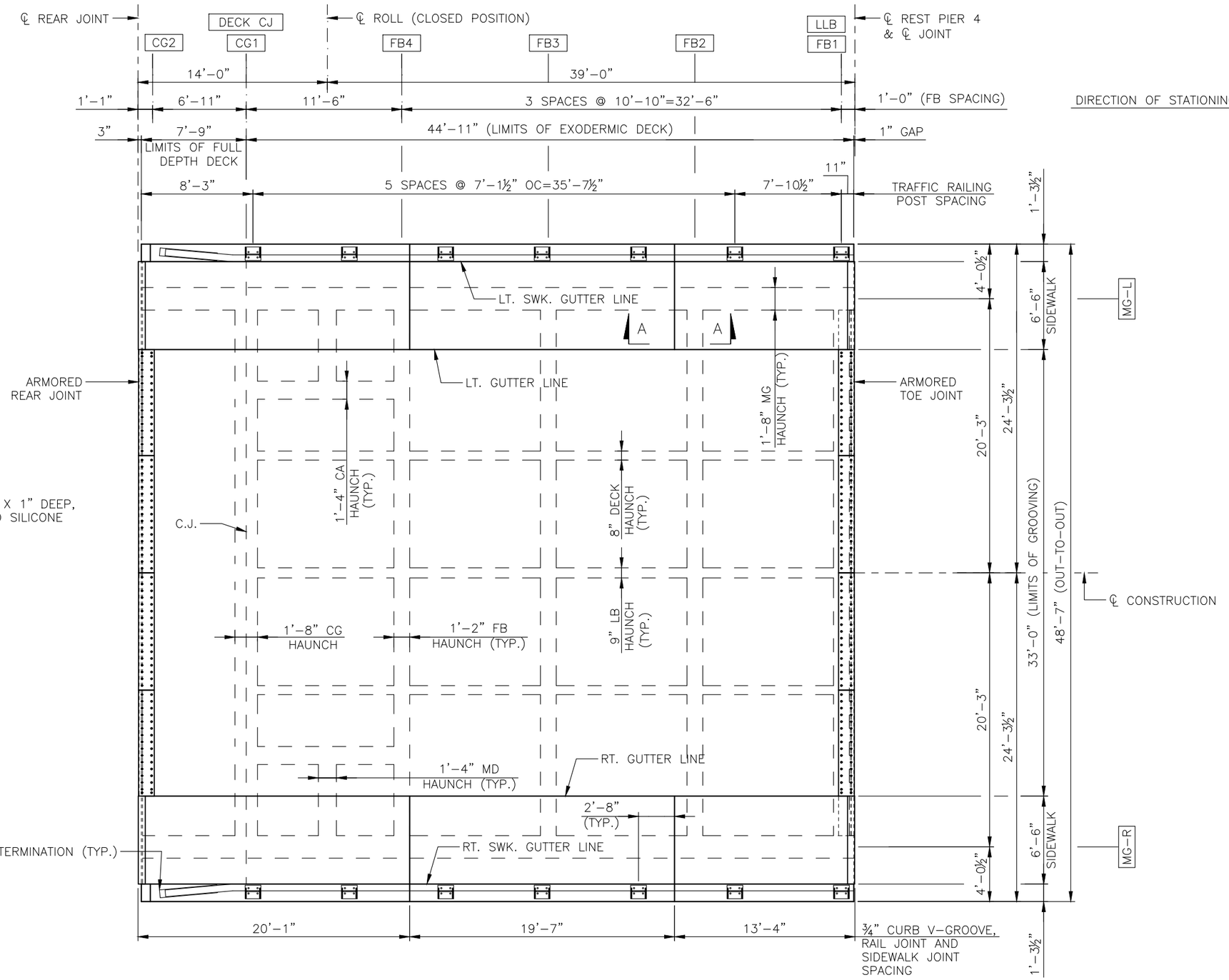
PROJECT: BECKETT BRIDGE REPLACEMENT

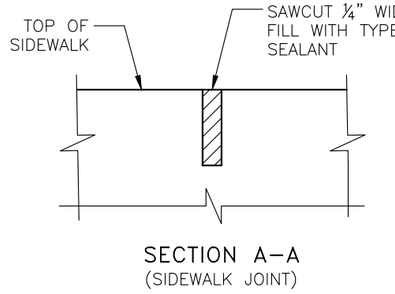
DESCRIPTION: BASCULE SPAN CRANK ARM GIRDER DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL–20
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 182 OF 283





SECTION A–A
(SIDEWALK JOINT)

DECK PLAN LAYOUT

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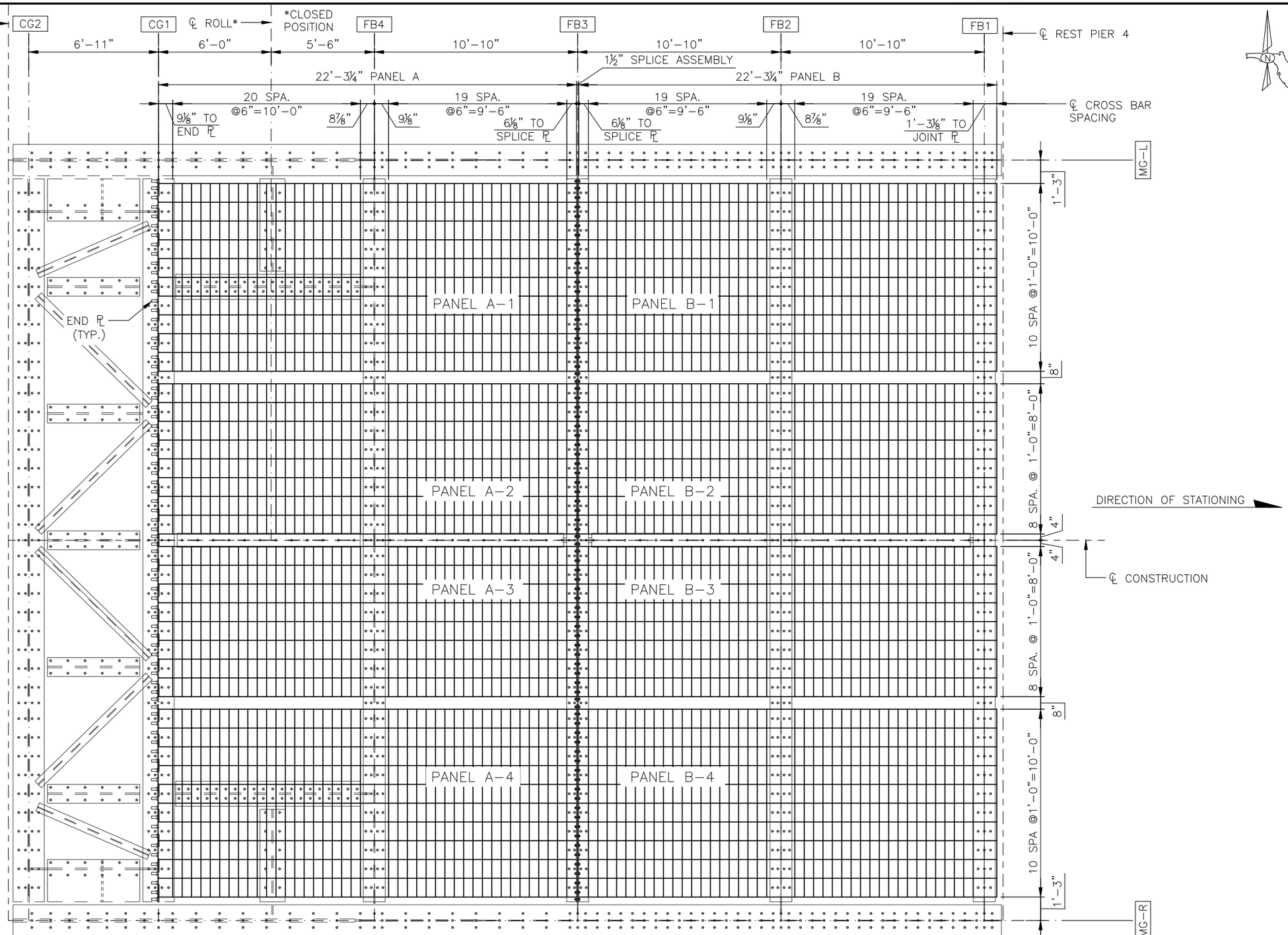
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN DECK PLAN (1 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL–21
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 183 OF 283



EXODERMIC DECK STEEL GRID PANEL LAYOUT

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PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN DECK PLAN (2 OF 2)

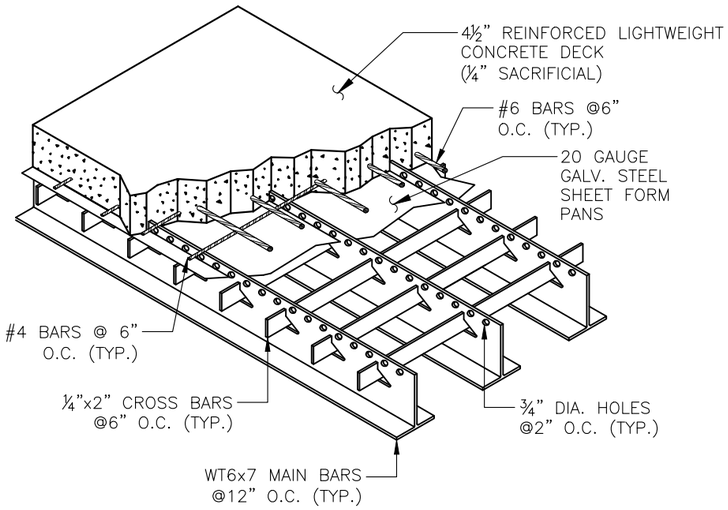
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

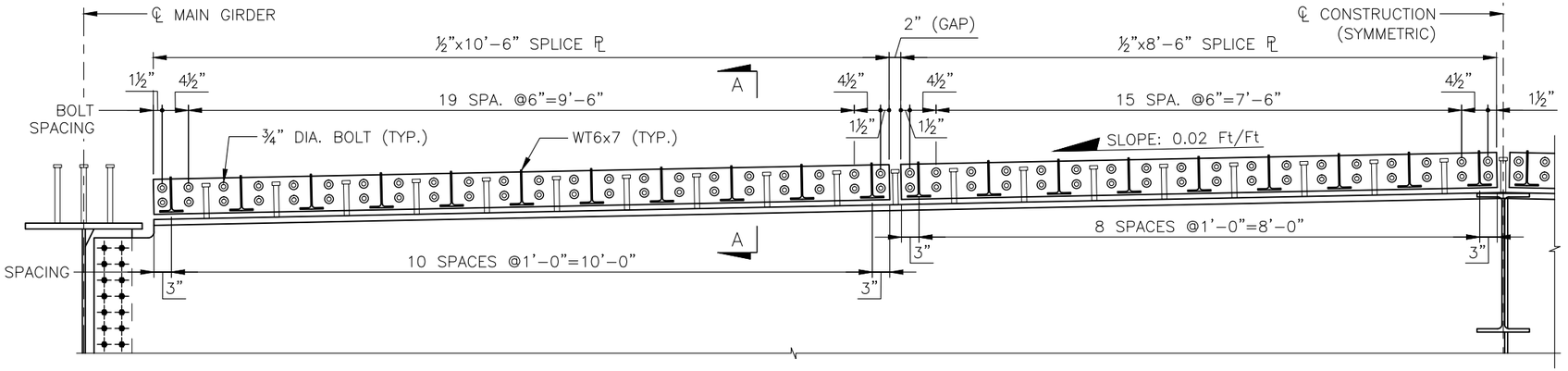
REF. DWG. NO. BL-22
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 184 OF 283

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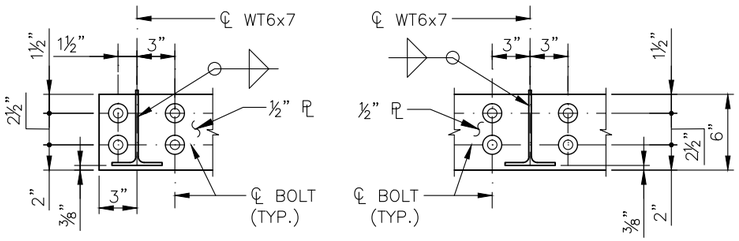
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EXODERMIC DECK ISOMETRIC

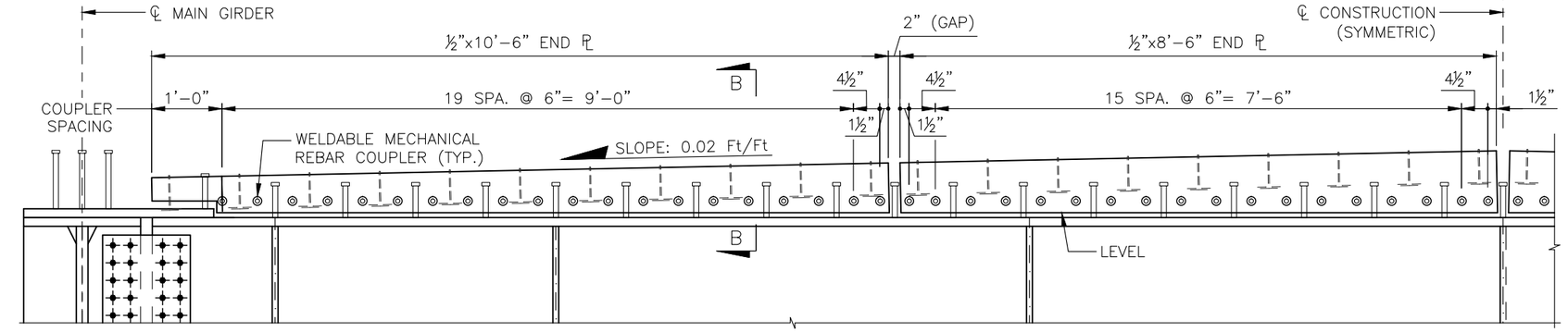


SPLICE PLATE AT FLOORBEAM FB3 ELEVATION

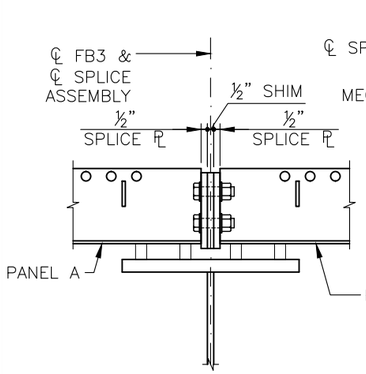


BOLT SPACING AT SPLICE PLATE END

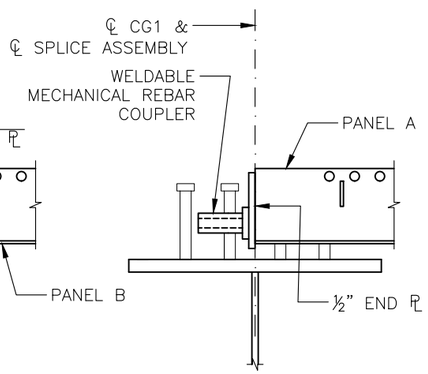
TYPICAL BOLT SPACING



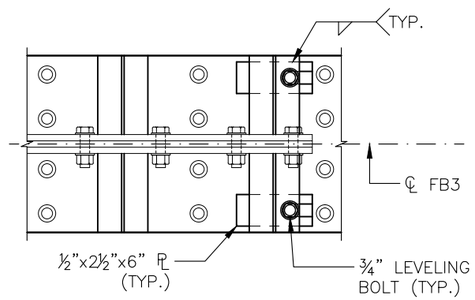
END PLATE AT COUNTERWEIGHT GIRDER CG1 ELEVATION



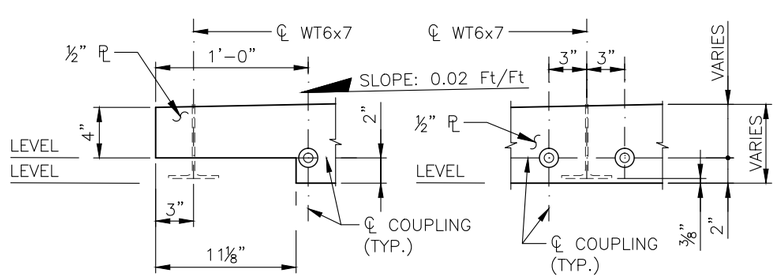
SECTION A–A



SECTION B–B



PLAN AT LEVELING BOLT
(FB3 SHOWN, OTHER FB SIMILAR)



COUPLING SPACING AT END PLATE

TYPICAL COUPLING SPACING

NOTES:
1. FABRICATE STEEL GRID PANELS AND JOINT ASSEMBLIES FROM ASTM A588 OR ASTM A709 GRADE 50 STEEL AND GALVANIZE PER SPECIFICATIONS SECTION 962.
2. FABRICATION TOLERANCES SHALL BE IN ACCORDANCE WITH BRIDGE GRID FLOORING MANUFACTURERS ASSOCIATION (BGFMA).
3. SEE GENERAL NOTES FOR LIGHTWEIGHT CONCRETE REQUIREMENTS.
4. PROVIDE AS TEMPORARY GRID PANEL SUPPORT A MINIMUM OF TWO LEVELING ASSEMBLIES PER PANEL AT EACH FLOORBEAM AND AT LONGITUDINAL BRACING.

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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

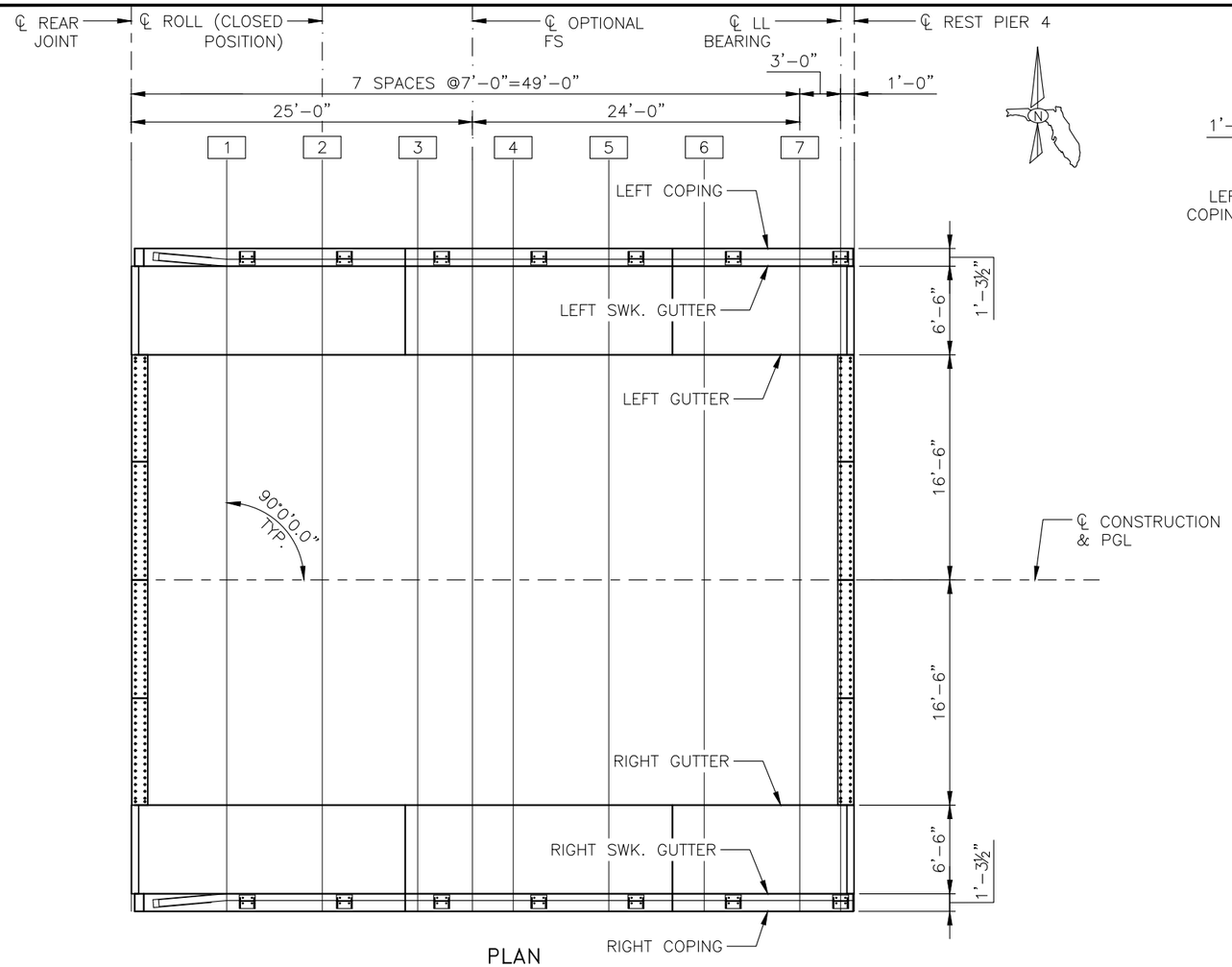
DESCRIPTION: BASCULE SPAN DECK PANEL DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

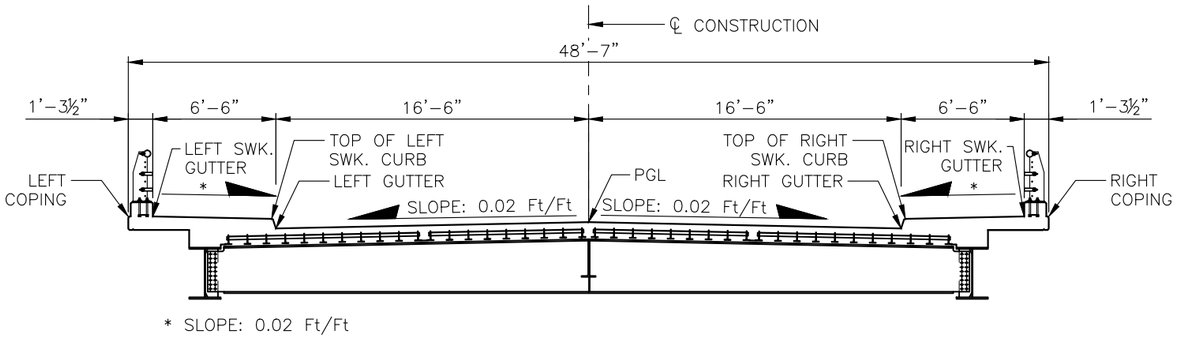
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL-23
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 185 OF 283

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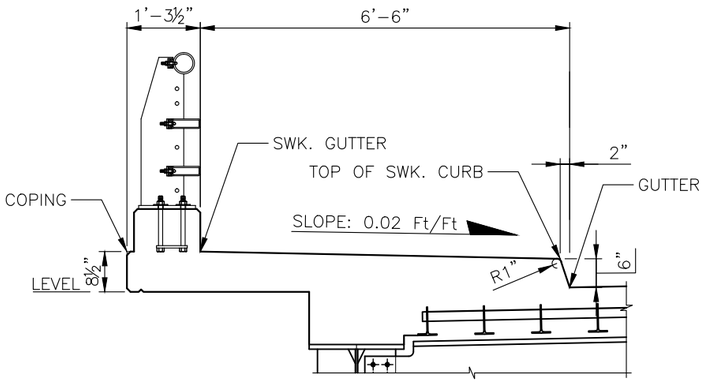


PLAN



* SLOPE: 0.02 Ft/Ft

BASCULE SPAN TYPICAL SECTION



TYPICAL SIDEWALK GEOMETRY

BASCULE SPAN FINISH GRADE ELEVATIONS

LOCATION	CL REAR JOINT	INTERMEDIATE PT. 1	INTERMEDIATE PT. 2 (CL ROLL)	INTERMEDIATE PT. 3	CL OPTIONAL FIELD SPLICE	INTERMEDIATE PT. 4	INTERMEDIATE PT. 5	INTERMEDIATE PT. 6	INTERMEDIATE PT. 7	CL LL BEARING	℄ REST PIER 4
LEFT COPING	13.712	13.875	14.022	14.153	14.220	14.268	14.367	14.451	14.518	14.543	14.550
LEFT SIDEWALK GUTTER	13.712	13.875	14.022	14.153	14.220	14.268	14.367	14.451	14.518	14.543	14.550
TOP OF LEFT SIDEWALK CURB	13.586	13.748	13.895	14.026	14.094	14.141	14.240	14.324	14.392	14.416	14.423
LEFT GUTTER	13.086	13.248	13.395	13.526	13.594	13.641	13.740	13.824	13.892	13.916	13.923
PGL	13.416	13.578	13.725	13.856	13.924	13.971	14.070	14.154	14.222	14.246	14.253
RIGHT GUTTER	13.086	13.248	13.395	13.526	13.594	13.641	13.740	13.824	13.892	13.916	13.923
TOP OF RIGHT SIDEWALK CURB	13.586	13.748	13.895	14.026	14.094	14.141	14.240	14.324	14.392	14.416	14.423
RIGHT SIDEWALK GUTTER	13.712	13.875	14.022	14.153	14.220	14.268	14.367	14.451	14.518	14.543	14.550
RIGHT COPING	13.712	13.875	14.022	14.153	14.220	14.268	14.367	14.451	14.518	14.543	14.550

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PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN FINISH GRADE ELEVATIONS

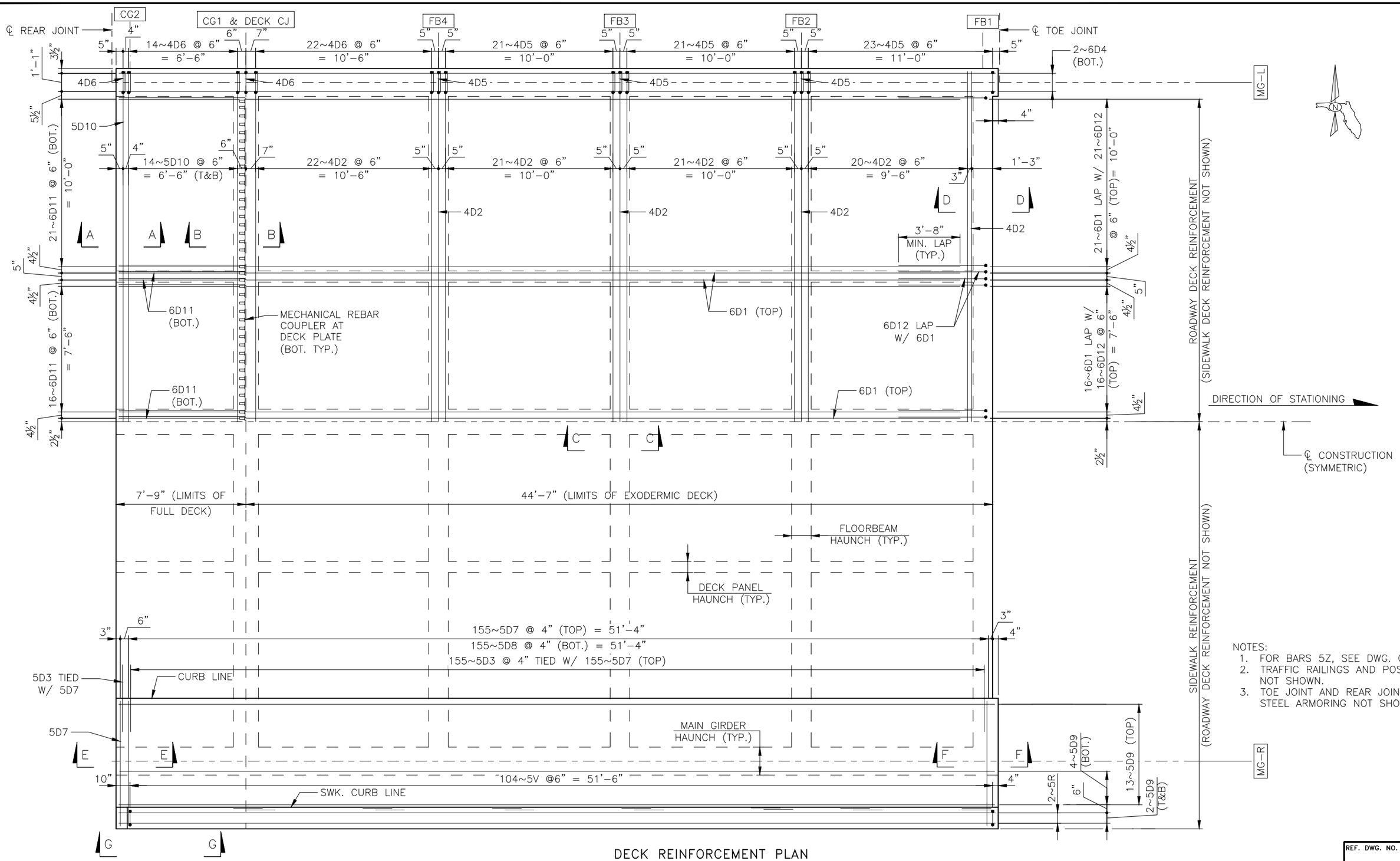
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL-24
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 186 OF 283

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DECK REINFORCEMENT PLAN

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN DECK REINFORCING PLAN

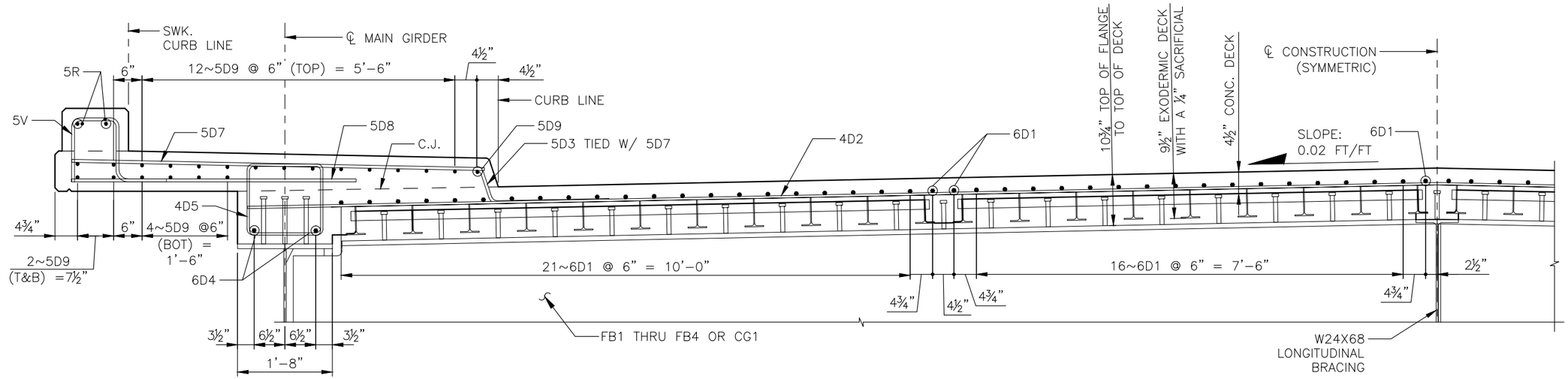
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

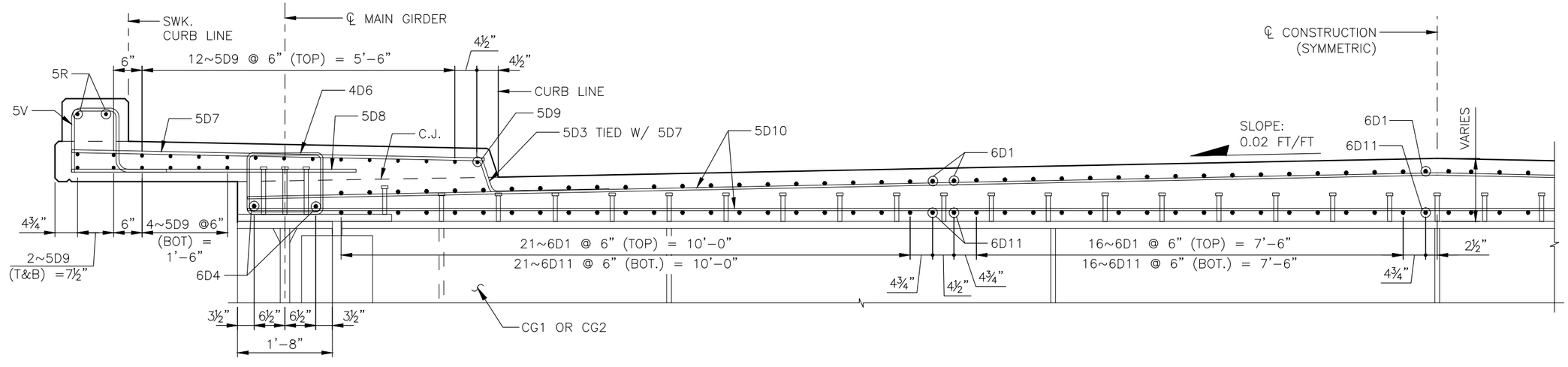
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DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 187 OF 283

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NOTES:
1. TRAFFIC RAILING, POSTS, AND ANCHORS NOT SHOWN.
2. BARS 5Z NOT SHOWN.



HALF SECTION THRU LEAF BETWEEN TOE JOINT AND CG1



HALF SECTION THRU LEAF BETWEEN CG1 AND REAR JOINT

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

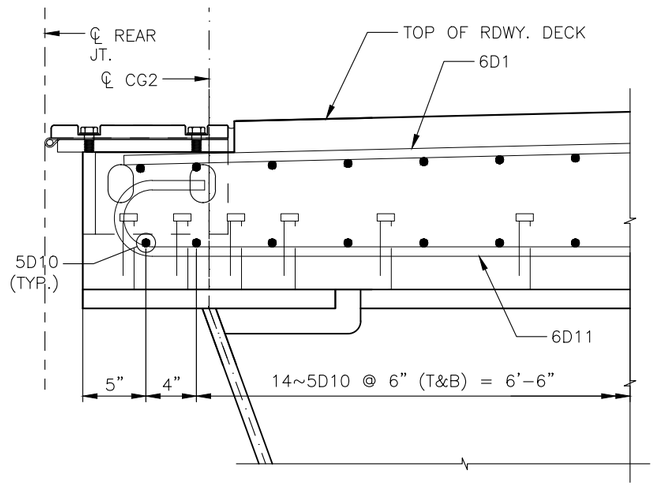
DESCRIPTION: BASCULE SPAN SECTIONS AND DETAILS (1 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

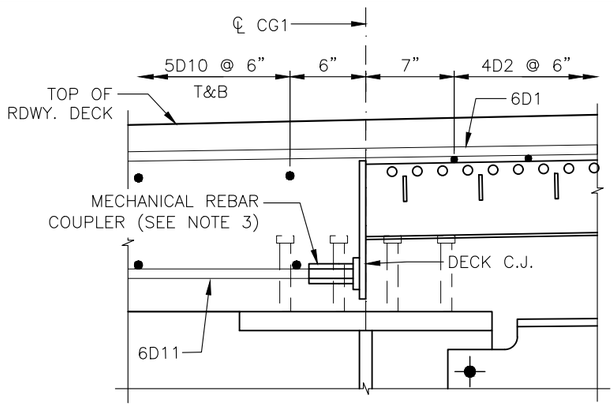
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL-26
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 188 OF 283

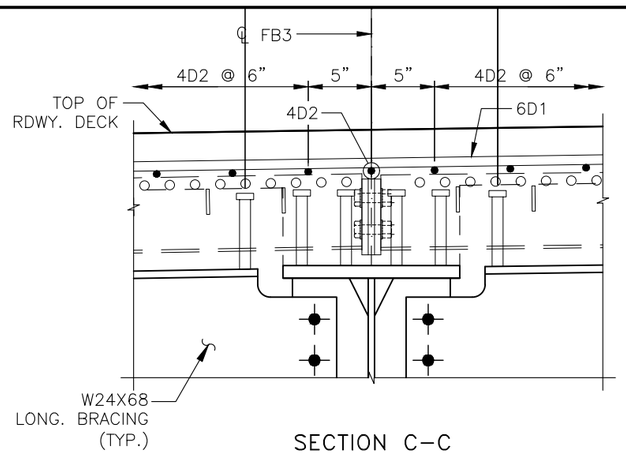
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THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



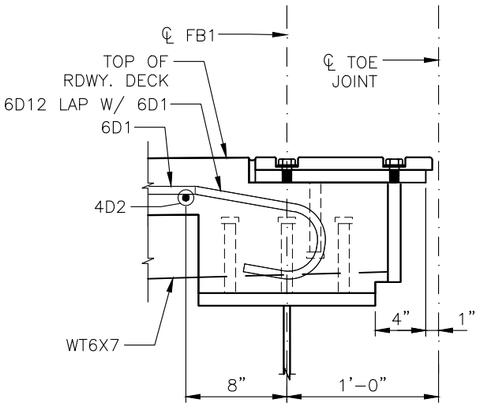
SECTION A–A



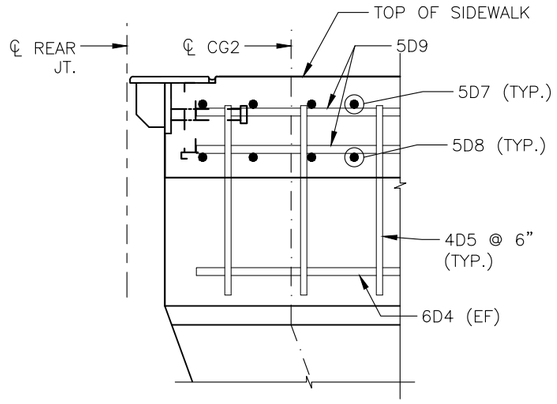
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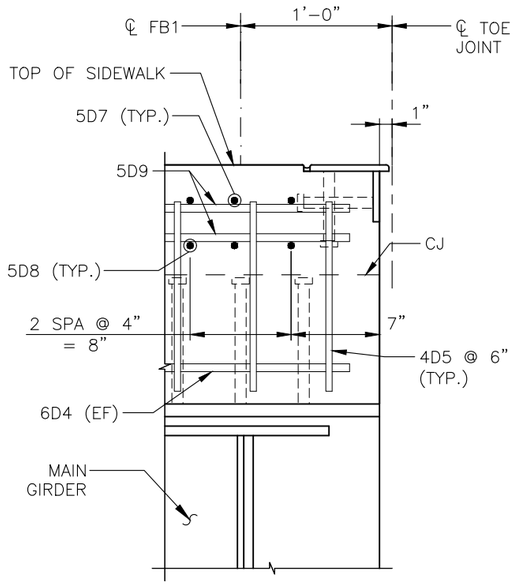
SECTION C–C
(FB3 SHOWN, FB2 AND FB4 SIMILAR)



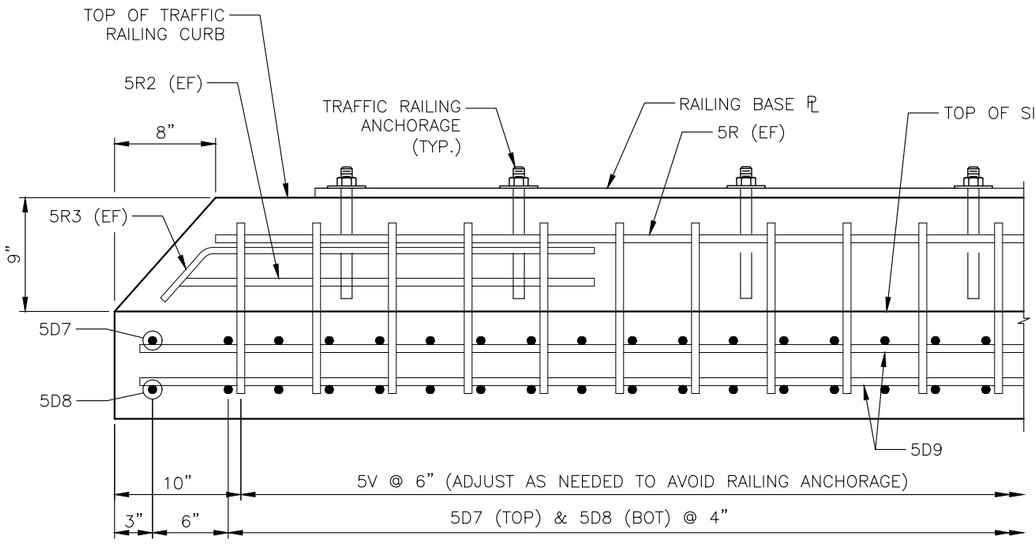
SECTION D–D



SECTION E–E



SECTION F–F



VIEW G–G
(TRAFFIC RAILING TERMINATION NOT SHOWN, SEE NOTE 2)

NOTES:
1. FOR LOCATION OF SECTIONS A–A THRU F–F, AND ELEVATION E–E, SEE DWG. NO. BL–25.
2. FOR TRAFFIC RAILING TERMINATION AND ANCHORAGE DETAILS, SEE DWG. NO. G–29.
3. PROVIDE MECHANICAL REBAR COUPLERS AT THE LOCATIONS SHOWN ON THE PLANS. ALL COUPLERS SHALL HAVE INTERNAL THREADS AND BE WELDED TO EXODERMIC DECK TRANSVERSE END PLATE. COUPLERS SHALL BE LISTED ON THE FDOT APPROVED PRODUCTS LIST, AND BE APPROVED BY THE ENGINEER.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN SECTIONS AND DETAILS (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

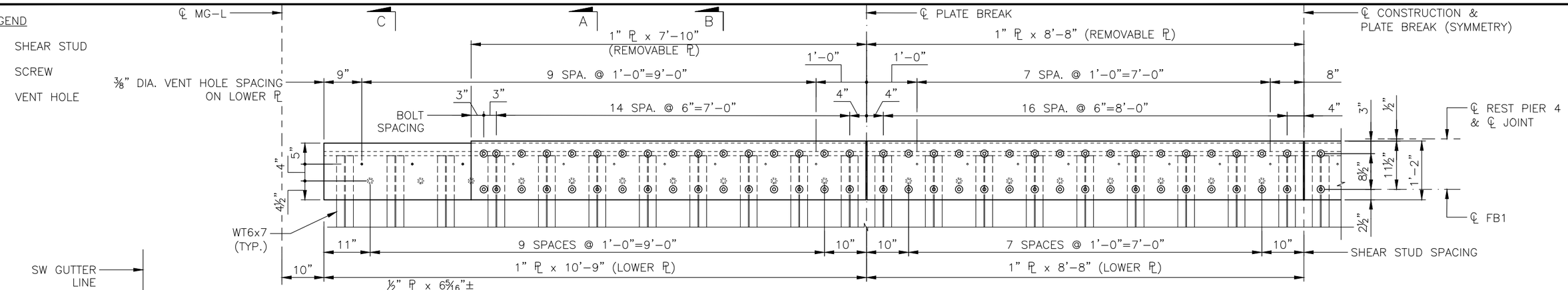
REF. DWG. NO. BL–27
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 189 OF 283

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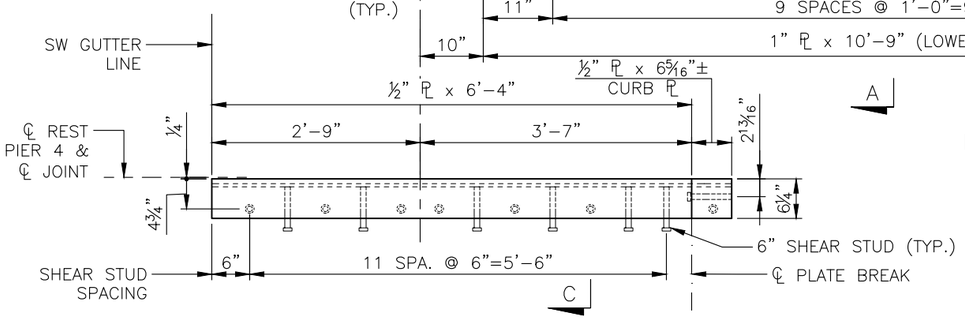
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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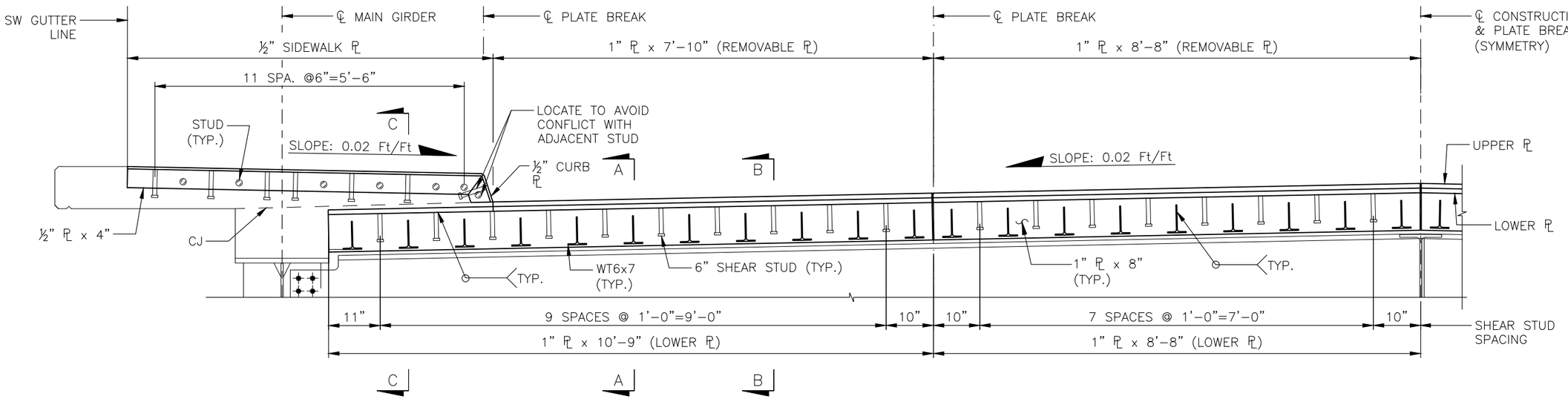
LEGEND
- SHEAR STUD
- SCREW
- VENT HOLE



ROADWAY ARMORED TOE JOINT HALF PLAN



SIDEWALK ARMORED TOE JOINT DEVELOPED PLAN



ARMORED TOE JOINT ELEVATION AT FLOORBEAM FB1

NOTES
1. SEE DWG. NO. BL-30 FOR SECTIONS A-A, B-B & C-C.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

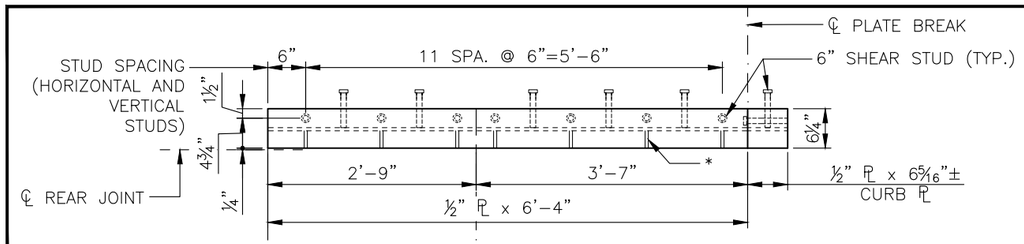
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN ARMORED JOINT LAYOUT (1 OF 2)

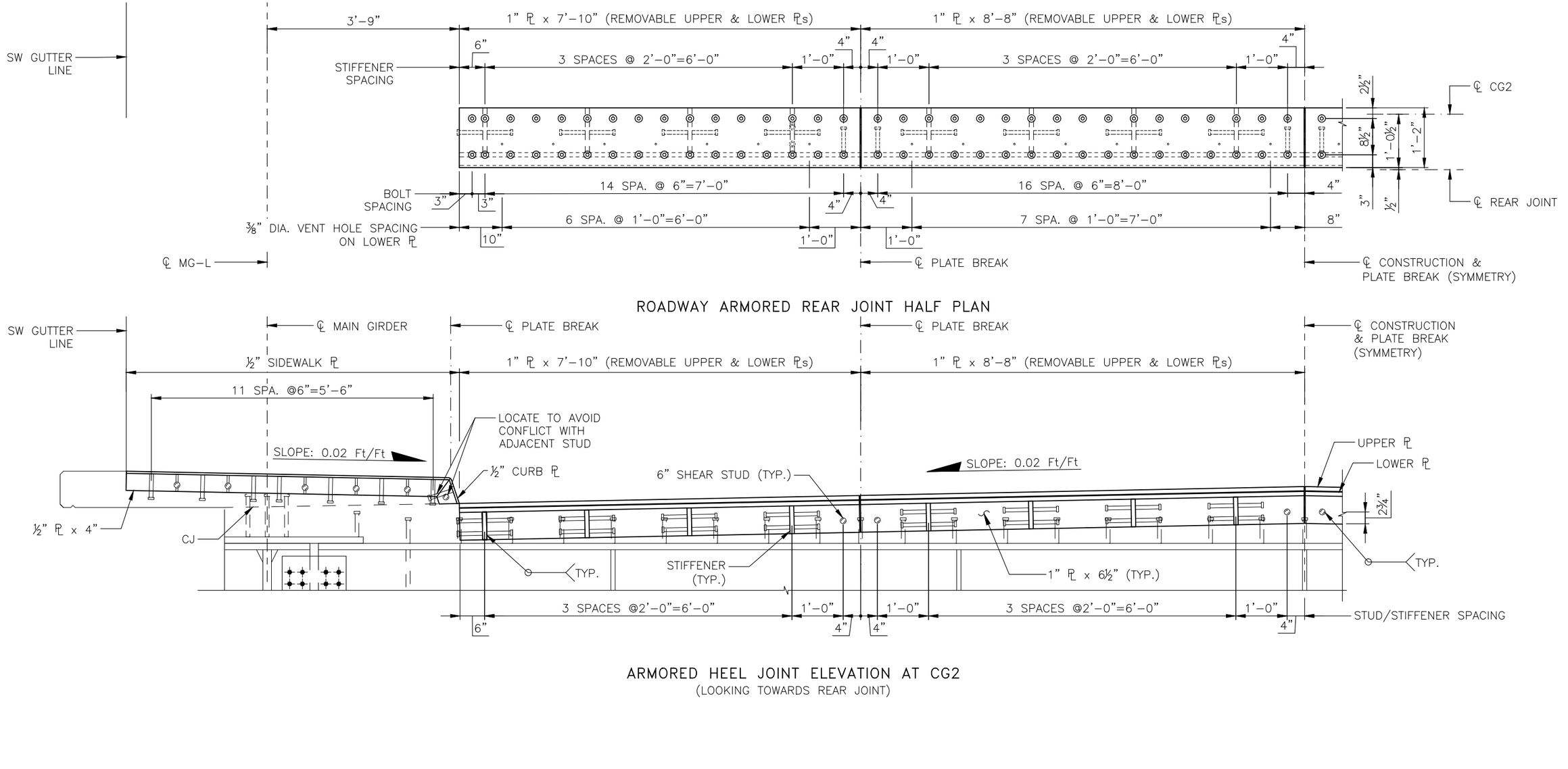
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL-28
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 190 OF 283



SIDEWALK ARMORED REAR JOINT DEVELOPED PLAN



ROADWAY ARMORED REAR JOINT HALF PLAN

ARMORED HEEL JOINT ELEVATION AT CG2
(LOOKING TOWARDS REAR JOINT)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN ARMORED JOINT LAYOUT (2 OF 2)

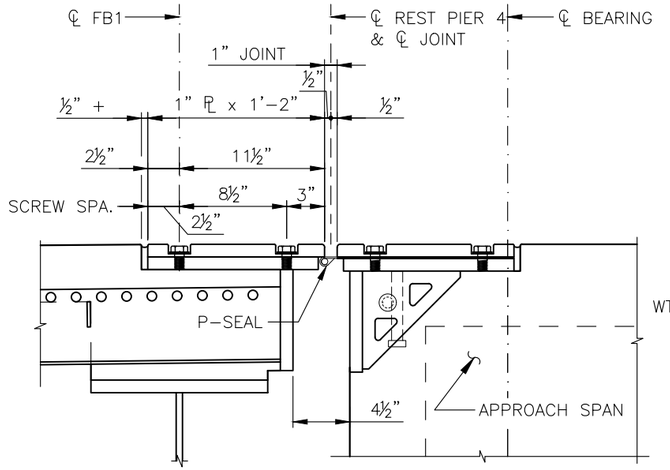
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

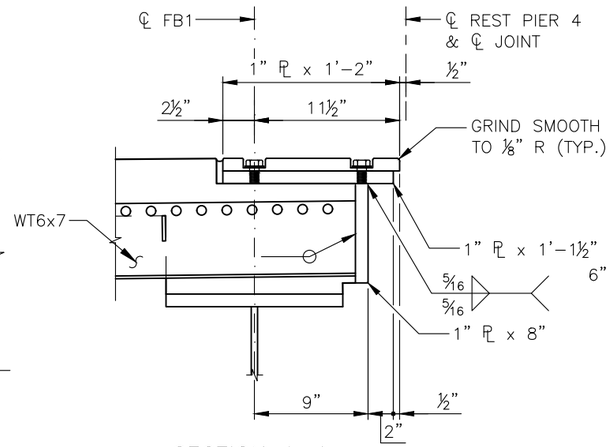
REF. DWG. NO. BL-29
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 191 OF 283

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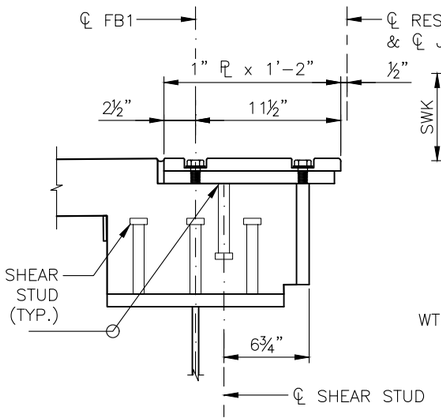
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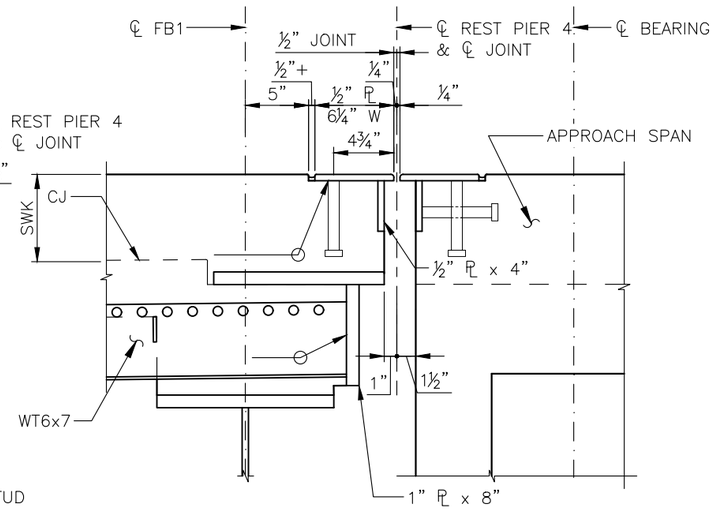
TYPICAL ROADWAY ARMORED TOE JOINT



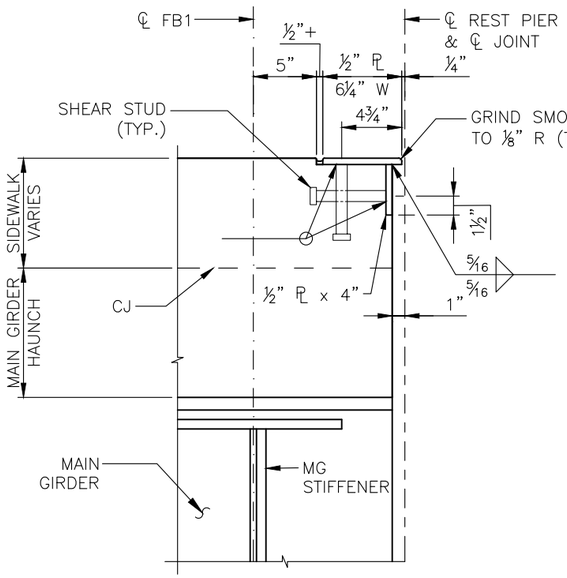
SECTION A–A



SECTION B–B

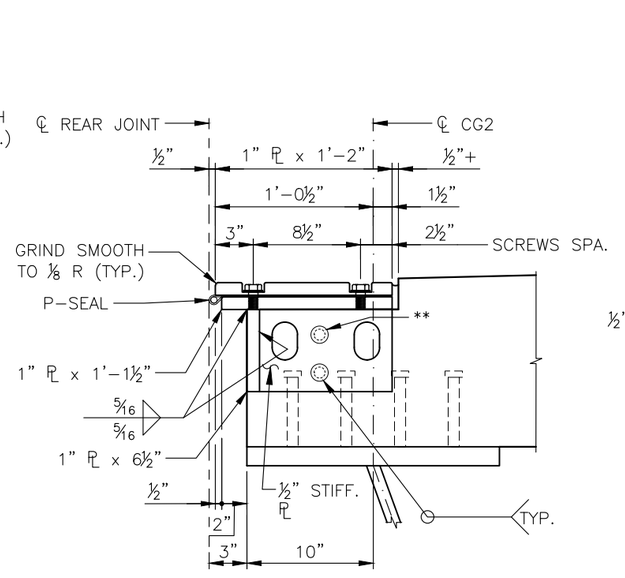


SECTION C–C

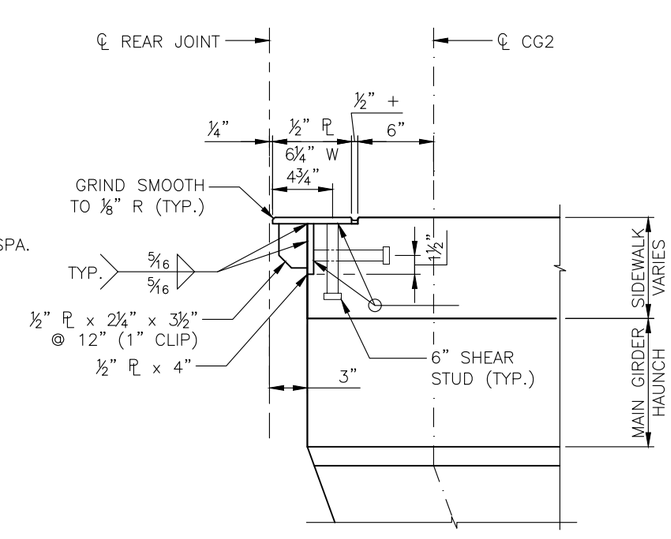


TYPICAL SIDEWALK ARMORED TOE JOINT

(SECTION AT MG SHOWN, OTHER SIDEWALK LOCATION SIMILAR)



TYPICAL ROADWAY ARMORED REAR JOINT

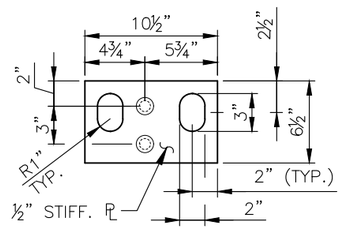


TYPICAL SIDEWALK ARMORED REAR JOINT

(SECTION AT MG SHOWN, OTHER SIDEWALK LOCATION SIMILAR)

LEGEND

** ⅞" DIA. x 6" STUD (EF)
\+ SEALED JOINT



STIFFENER PLATE

NOTES

1. SEE APPROACH SPAN ARMORED JOINT DETAILS FOR SCREW AND P–SEAL DETAILS.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN ARMORED JOINT DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL–30
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 192 OF 283

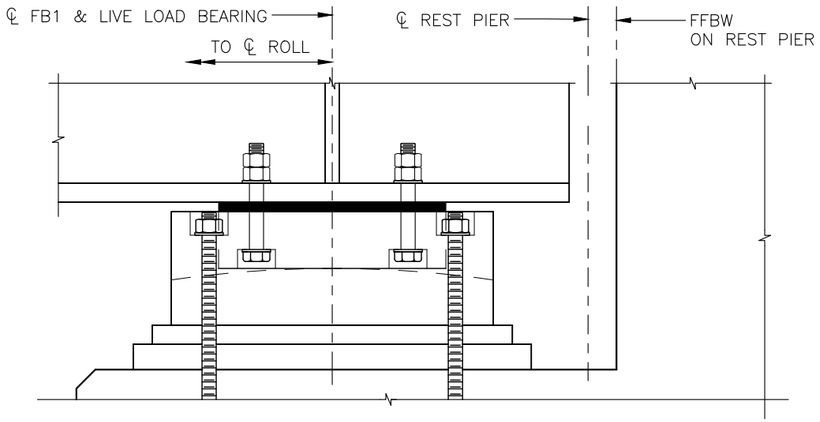
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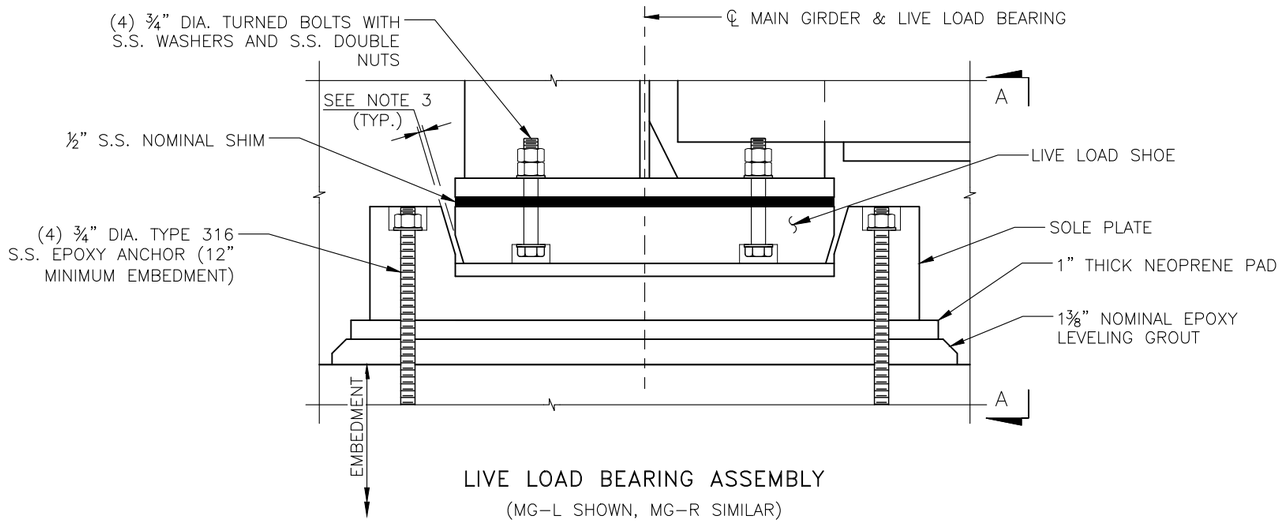
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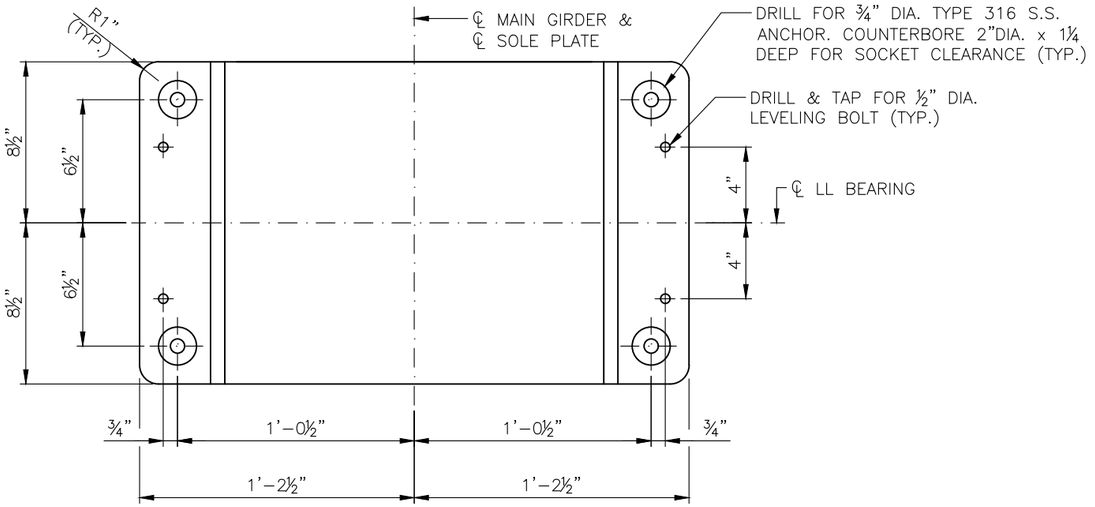
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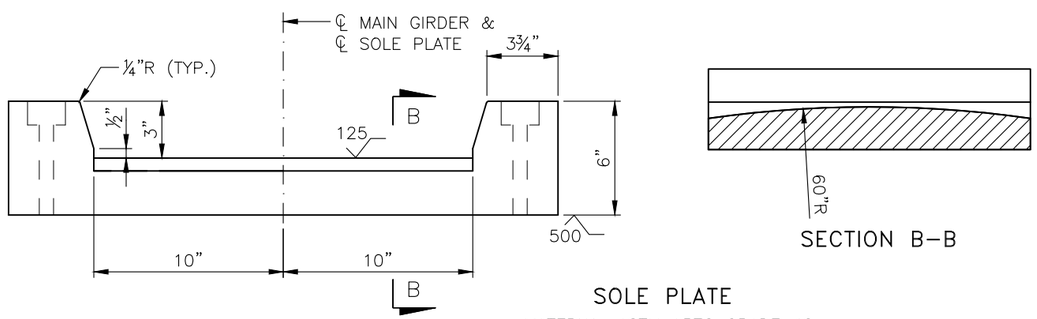
VIEW A–A
(FLOOR BEAM NOT SHOWN FOR CLARITY)



LIVE LOAD BEARING ASSEMBLY
(MG–L SHOWN, MG–R SIMILAR)



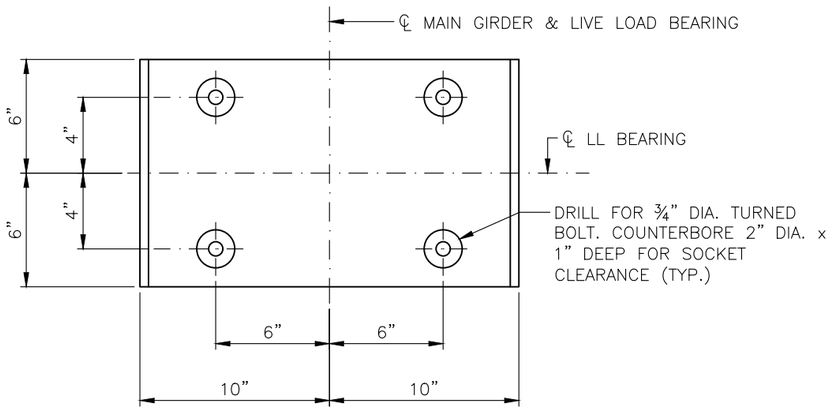
SOLE PLATE PLAN



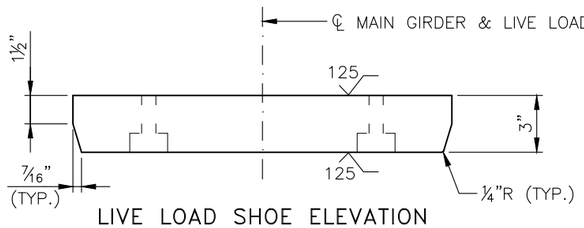
SOLE PLATE ELEVATION

SECTION B–B

SOLE PLATE
MATERIAL: ASTM A572 GRADE 42
(2 REQ'D)



LIVE LOAD SHOE PLAN



LIVE LOAD SHOE ELEVATION

LIVE LOAD SHOE
MATERIAL: ASTM A572 GRADE 42
(2 REQ'D)

NOTES:
1. FULL CONTACT IS DEFINED AS BEARING ALONG A MINIMUM OF 90% OF THE WIDTH OF THE LIVE LOAD BEARING.
2. AFTER ASSEMBLY, FILL THE BORE HOLES IN THE SOLE PLATE WITH SILICONE.
3. AT ASSEMBLY THE GAP BETWEEN THE SOLE PLATE AND LIVE LOAD SHOE SHALL BE ¼" – 5/16" AT THE LOCATION SHOWN.
4. NEOPRENE PAD PROPERTIES
   – SHEAR MODULUS: 150 PSI @73 °F
   – DUROMETER: 60 (GRADE 3)

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN LIVE LOAD BEARING ASSEMBLY

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

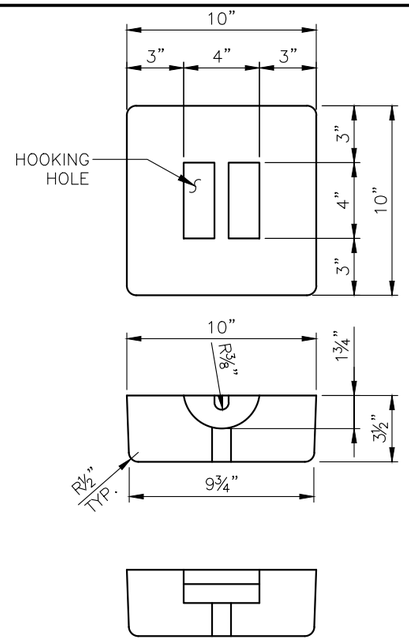
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL–31
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 193 OF 283

BASCULE SPAN DESIGN BALANCE

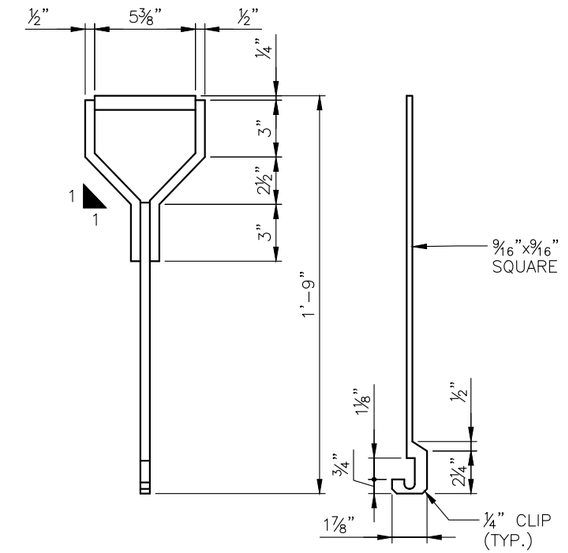
COMPONENT		WEIGHT (KIP)	MOMENT ABOUT CL ROLL (KIP–FT)	
			HORIZONTAL, MX	VERTICAL, MY
FORWARD	CONCRETE DECK	139.2	2642.1	527.5
	STRUCTURAL STEEL	68.7	1023.3	55.4
	EXODERMIC DECK	22.9	443.9	75.2
	ARMORED JOINTS	4.2	162.8	16.9
	BRIDGE RAILINGS	4.6	92.9	29.8
	MACHINERY & ELEC. EQUIPMENT	1.5	55.1	7.5
	FORWARD TOTAL =	241.2	4420.1	712.3
REAR	CONCRETE DECK	61.7	−469.9	207.7
	STRUCTURAL STEEL	98.7	−754.8	−122.4
	EXODERMIC DECK	3.6	−10.7	10.4
	ARMORED JOINTS	3.8	−51.4	12.4
	BRIDGE RAILINGS	6.1	−33.4	37.1
	MACHINERY	0.4	−3.5	−0.5
	STEEL BALLAST	204.8	−1655.6	−618.7
	CONCRETE BALLAST	120.4	−1137.6	−67.4
	STEEL BLOCKS	25.4 *	−221.2	−54.0
	REAR TOTAL =	524.8	−4338.1	−595.6
BALANCE	TOTAL	766.0	82.0	116.7

* 330 BLOCKS (ESTIMATE TO BALANCE), SEE NOTE 7



CAST IRON BALANCE BLOCK

THEORETICAL WEIGHT: 77 LBS APPROX.

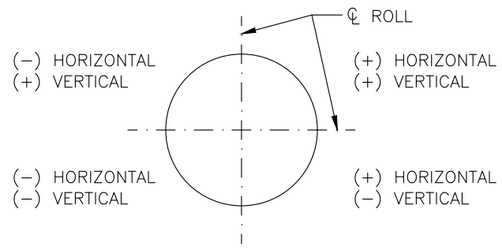


COUNTERWEIGHT BLOCK HANDLE

(4 REQUIRED)
STORE ALL HANDLES ON BASCULE PIER STORAGE ROOM

NOTES:

1. THE THEORETICAL BALANCE VALUES SHOWN IN THE TABLE ARE FOR THE BASCULE SPAN IN THE CLOSED POSITION WITH SPAN LOCKS WITHDRAWN AND PER THE SCHEMATIC MOMENT SIGN CONVENTION SHOWN ON THIS SHEET.
2. PREPARE AND SUBMIT DETAILED BASCULE LEAF CONSTRUCTION BALANCE PROCEDURE PER TSP SECTION T465. THE CONTRACTOR IS ALERTED THAT COUNTERWEIGHT LOADING MAY REQUIRE INSTALLING AND REMOVING STEEL BALLAST AND BALANCE BLOCKS AS REQUIRED DURING CONSTRUCTION. PROVIDE INTERNAL STABILITY TO STEEL BALLAST DURING CONSTRUCTION AND BEFORE CONCRETE PLACEMENT FOR PROPER SLAB ENCAPSULATION.
3. FULLY SHORE THE COUNTERWEIGHT BOX DURING PLACEMENT OF COUNTERWEIGHT CONCRETE AND STEEL BALLAST.
4. THE LOCATIONS AND QUANTITIES OF BALANCE MATERIAL SHOWN ON THESE PLANS ARE APPROXIMATE. DETERMINE AND DOCUMENT THE EXACT QUANTITY, LOCATION AND SIZE OF BALANCE MATERIAL PER TSP SECTION T465.
5. ALL STEEL FOR THE STEEL BALLAST SHALL BE ASTM A36 OR APPROVED COMMERCIAL GRADE STEEL.
6. ALL COST FOR THE STEEL BALLAST INCLUDING POSITIONING AND REPOSITIONING IS TO BE INCLUDED UNDER PAY ITEM 465–3–19.
7. PROVIDE 90 ADDITIONAL BALANCE BLOCKS FOR FIELD ADJUSTMENTS. PAY FOR THE BALANCE BLOCKS INCLUDING POSITIONING AND REPOSITIONING UNDER PAY ITEM 465–3–17.
8. COUNTERWEIGHT BLOCK HANDLE MATERIAL: ASTM A36 STEEL. PAINT PER SPECIFICATIONS FOR MACHINERY.



SCHEMATIC MOMENT SIGN CONVENTION

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN BALANCE PLAN

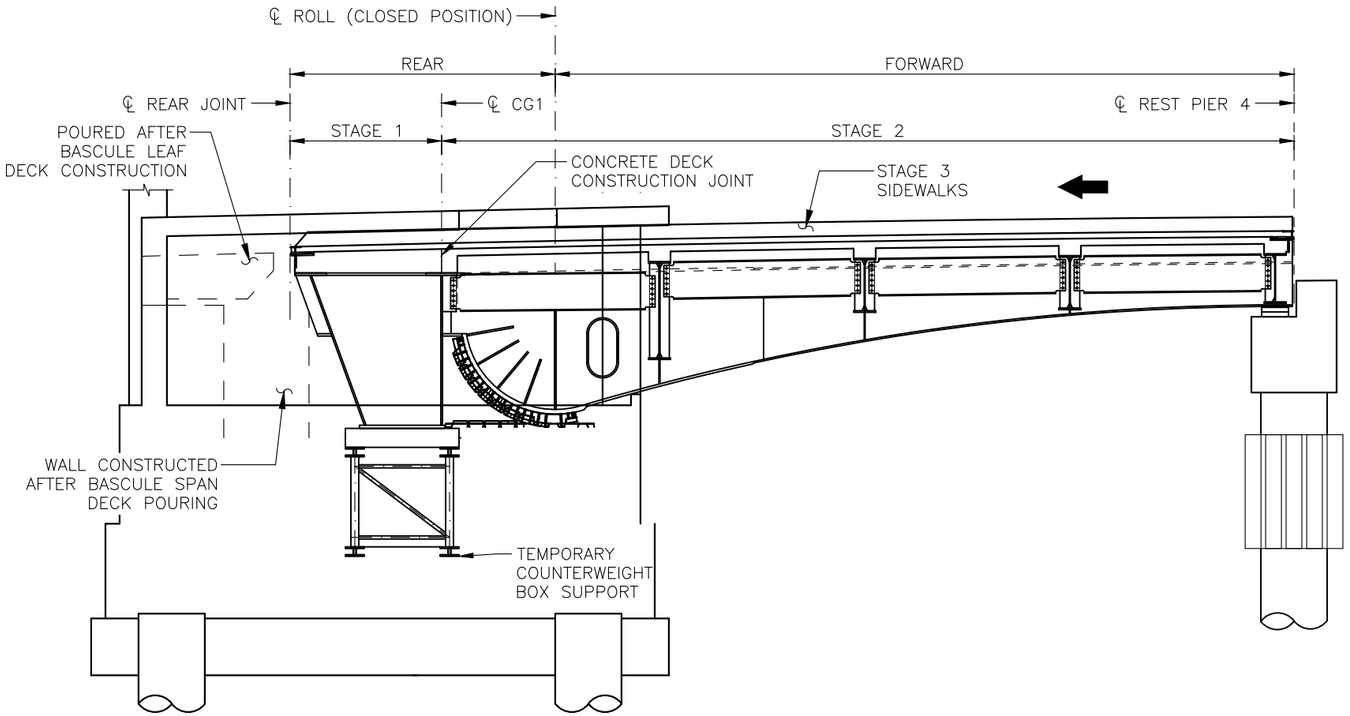
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

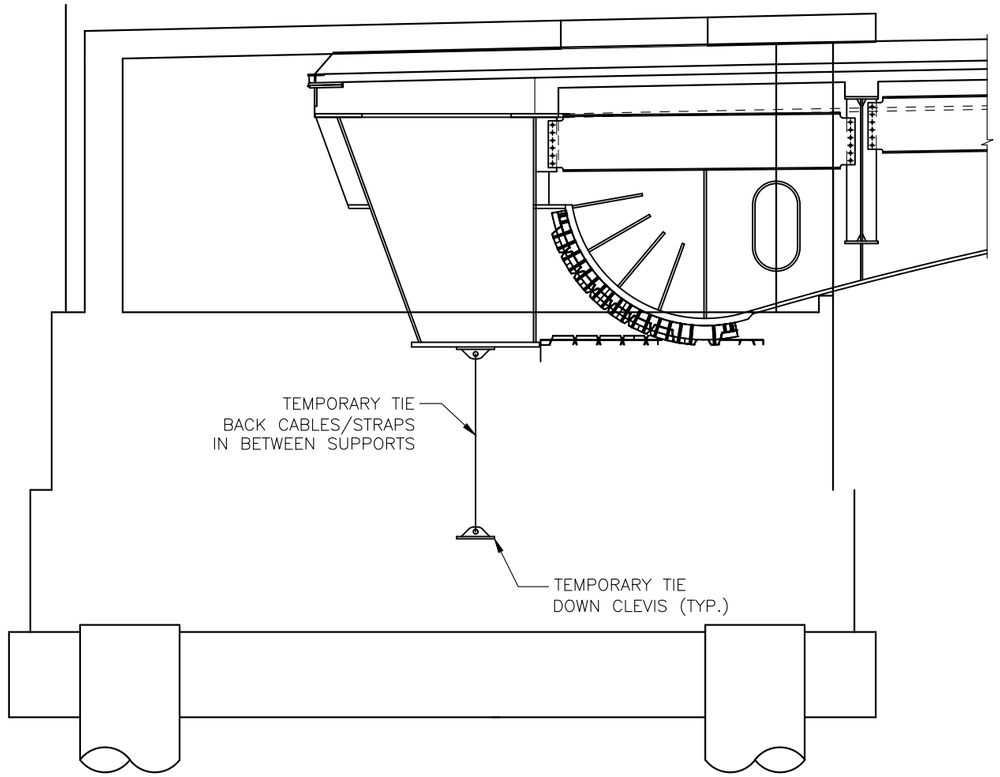
REF. DWG. NO. BL–32
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 194 OF 283

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COUNTERWEIGHT SUPPORT SCHEMATIC



COUNTERWEIGHT SUPPORT TIE BACK SCHEMATIC

NOTES
1. SEE TSP SECTION T465 FOR ADDITIONAL DECK SEQUENCE AND COUNTERWEIGHT SUPPORT REQUIREMENTS.
2. ADEQUATELY SUPPORT AND BRACE THE BASCULE SPAN DURING DECK POURING.
3. THE SUPPORT SYSTEM SHOWN ON THIS SHEET IS SCHEMATIC ONLY. DEVELOP A DETAILED SCHEME, INCLUDING DESIGN OF SUPPORTING MEMBERS AND SIGNED AND SEALED BY A SPECIALTY ENGINEER. SUBMIT PROPOSED SCHEME TO THE ENGINEER FOR APPROVAL. THE SUPPORT SYSTEM MUST PROVIDE REDUNDANCY SUCH THAT IF ONE SUPPORT IS REMOVED OR FAILS, THE REMAINING SUPPORT IS ADEQUATE TO HOLD THE MAXIMUM LOAD.
4. REMOVE ALL TEMPORARY ANCHORAGE AND CUT–OFF OR REMOVE TEMPORARY ANCHOR BOLTS A MINIMUM OF 2 INCHES BELOW FINISHED CONCRETE SURFACE. PATCH HOLES WITH A TYPE F EPOXY PER SPECIFICATIONS SECTION 926.

SUGGESTED POURING SEQUENCE
1. SUPPORT THE COUNTERWEIGHT BOX ON FALSEWORK PRIOR TO PLACING STEEL BALLAST AND POURING COUNTERWEIGHT CONCRETE. SET BASCULE LEAF STEEL AT THE CAMBERED ELEVATION, LESS STEEL CAMBER. PROVIDE TEMPORARY BLOCKING AT THE LIVE LOAD SHOE. SECURE COUNTERWEIGHT AGAINST POTENTIAL UPLIFT AS REQUIRED.
2. SET EXODERMIC DECK "PANELS A" IN POSITION OR PROVIDE A BLOCKOUT AT THE DECK CONSTRUCTION JOINT AT CG–1. POUR STAGE 1 CONCRETE TO COMPLETE THE DECK OVER THE COUNTERWEIGHT.
3. REMOVE TEMPORARY LIVE LOAD SHOE BLOCKING TO CREATE A MINIMUM 1" GAP. CONFIRM STEEL PROFILE MATCHES ANTICIPATED CAMBER PRIOR TO DECK AND RAILINGS.
4. PLACE REMAINING EXODERMIC DECK PANELS AND REINFORCEMENT.
5. POUR STAGE 2 DECK STARTING FROM THE TIP OF THE LEAF AND WORKING BACK TO THE CONSTRUCTION JOINT AT CG–1.
6. POUR STAGE 3 DECK (SIDEWALKS).
7. INSTALL BRIDGE RAILINGS.
8. FALSEWORK AND UPLIFT RESTRAINTS MAY BE REMOVED AFTER DECK AND SIDEWALK CONCRETE REACHES 3,000 PSI COMPRESSIVE STRENGTH.

LEGEND

➡ – DIRECTION OF POUR

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JPN
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN DECK POURING SEQUENCE

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL–33
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 195 OF 283

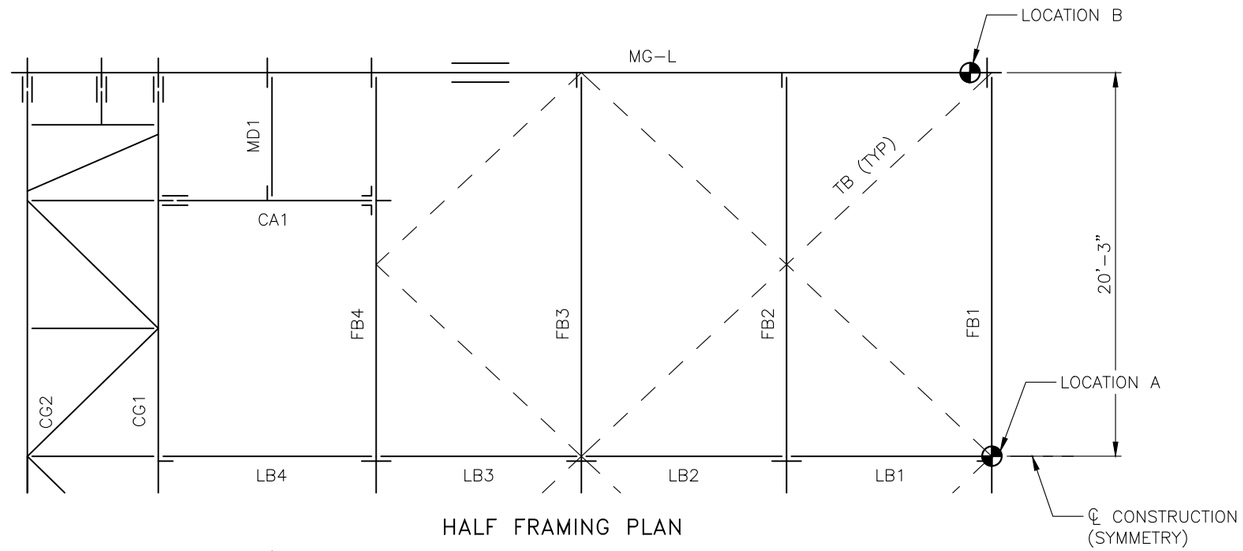
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LOAD RATING SUMMARY DETAILS FOR STEEL GIRDER BRIDGES – MAIN GIRDERS

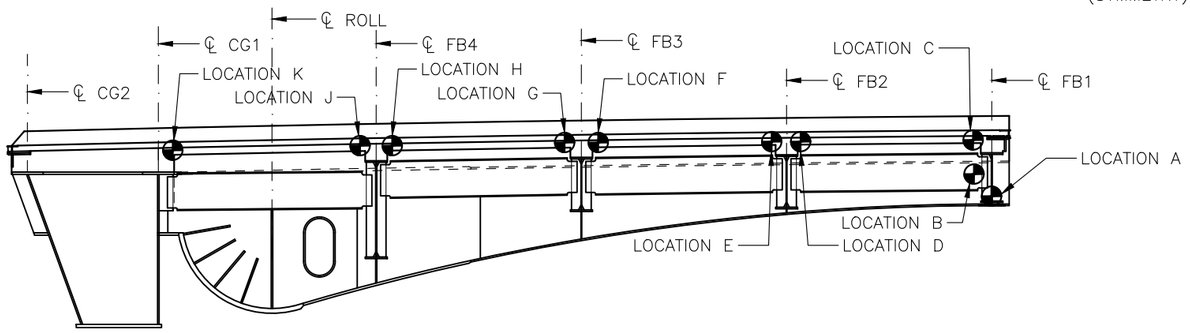
TABLE DATE 01-01-11

TABLE 2 – LRFR

LEVEL	LIMIT STATE	VEHICLE	WEIGHT (TONS)	LOAD FACTORS			MOMENT (STRENGTH) OR STRESS (SERVICE)					SHEAR (STRENGTH)					COMMENTS
				LL	DC	DW	DISTRIBUTION FACTOR (DF)	RATING FACTOR	TONS	LOCATION	DIMENSION	DISTRIBUTION FACTOR (DF)	RATING FACTOR	TONS	LOCATION	DIMENSION	
DESIGN LOAD RATING	STRENGTH I (INV)	HL-93	N/A	1.75	1.25	1.50	1.00	1.83	N/A	A	20'-3"	1.65	1.56	N/A	B	0'-0"	
	STRENGTH I (OP)	HL-93	N/A	1.35	1.25	1.50	1.00	2.20	N/A	C THRU. H, J, K	0'-0"	1.65	2.02	N/A	B	0'-0"	
	SERVICE II (INV)	HL-93	N/A	1.30	1.00	1.00	1.00	1.87	N/A	A	20'-3"	N/A	N/A	N/A	N/A	N/A	
	SERVICE II (OP)	HL-93	N/A	1.00	1.00	1.00	1.00	2.44	N/A	A	20'-3"	N/A	N/A	N/A	N/A	N/A	
PERMIT LOAD RATING	STRENGTH II	FL120	60.0	1.35	1.25	1.50	1.00	1.80	108.0	A	20'-3"	1.65	1.87	112.3	B	0'-0"	
	SERVICE II	FL120	60.0	0.90	1.00	1.00	1.00	1.71	102.6	C THRU. H, J, K	0'-0"	N/A	N/A	N/A	N/A	N/A	



HALF FRAMING PLAN



MAIN GIRDER ELEVATION

NOTES:
1. THIS TABLE IS BASED ON THE REQUIREMENTS ESTABLISHED IN THE JANUARY 2017 STRUCTURES MANUAL.
2. MATHCAD V15.0

LEGEND

CA	CRANK ARM GIRDER
CD	COUNTERWEIGHT DIAPHRAGM
CG	COUNTERWEIGHT GIRDER
FB	FLOORBEAM
FS	FIELD SPLICE
LB	LONGITUDINAL BRACING (W24X68)
LLB	LIVE LOAD BEARING
MG	MAIN GIRDER
MD	MAIN GIRDER DIAPHRAGM
TB	TEMPORARY LATERAL BRACING
TFB	TOP FLANGE BRACING (WT5x11)
TP	TAIL PROP

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN AC
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN LOAD RATING

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL-34
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 196 OF 283

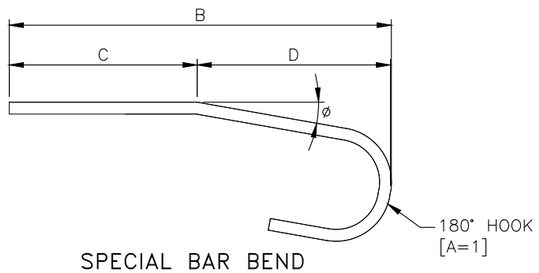
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MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	Ø
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION BASCULE SPAN EXODERMIC DECK																				NO. REQUIRED = 1													
6	D1	52	6	80	17	1		51	6																								
4	D2	41	8	88	1			41	8																								
5	D3	4	7	312	28			2	0		2	0		0	2		0	6															
6	D4	52	6	4	1			52	6																								
4	D5	5	11	136	4	4	4	1	2		1	4																					
4	D6	5	5	76	4	4	4	1	0		1	4																					
5	D10	41	8	30	1			41	8																								
6	D11	7	6	80	33	6		7	6		*																						
6	D12	6	3	80	44	1		5	0		4	0		1	0																		10
LOCATION BASCULE SPAN SIDEWALK DECK																				NO. REQUIRED = 2													
5	D7	7	3	156	1			7	3																								
5	D8	5	0	156	1			5	0																								
5	D9	52	6	21	1			52	6																								
5	V	4	1	104	26			0	10		1	1		1	1		1	0															
5	R	52	6	2	1			52	6																								
5	R2	2	9	2	1			2	9																								
5	R3	3	0	2	12			2	7		0	5																					45
5	Z	2	9	14	28			1	0		1	0		0	6		0	6															

END OF LIST

* BAR 6D11 HAS THREADED END. THREAD LENGTH PER MANUFACTURER.



SPECIAL BAR BEND
TYPE 44

NOTES: FOR STANDARD BAR BENDING DETAILS, SEE FDOT STANDARD INDEX. NO. 415-001.

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DESIGNED AC
DRAWN AC
CHECKED JPN

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE SPAN REINFORCING BAR LIST

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. BL-35
DATE: 06/25/2021
PROJECT NO. 001037A

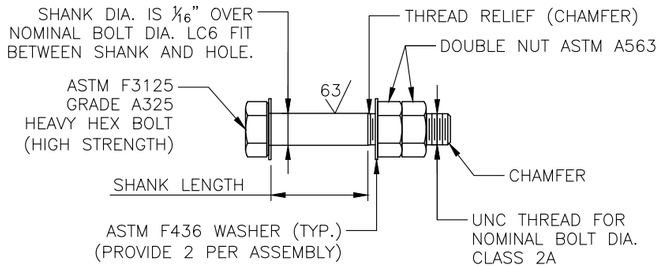
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GENERAL MACHINERY NOTES

1. FURNISH AND INSTALL MACHINERY PER THE AASHTO LRFD MOVABLE HIGHWAY BRIDGE DESIGN SPECIFICATIONS 2ND EDITION AND ALL SUBSEQUENT INTERIMS, UNLESS OTHERWISE SHOWN ON THE PLANS, OR PROVIDED FOR IN THE SPECIFICATIONS. REFER TO TSP SECTIONS T465 AND T468 FOR ADDITIONAL MACHINERY REQUIREMENTS.

2. PROVIDE SHIMS FOR LEVELING AND ALIGNING ALL MACHINERY COMPONENTS. PROVIDE SHIMS OF ½" NOMINAL THICKNESS, UNLESS NOTED OTHERWISE, WITH ADJUSTMENT VARIATIONS AS DESCRIBED IN THE SPECIFICATIONS.

3. TURNED BOLTS: SHANK LENGTH TO BE ¼" LESS THAN GRIP THICKNESS OF CONNECTION LESS ½ THE NOMINAL SHIM THICKNESS. REFER TO TSP SECTION T468 FOR BOLT TENSIONING REQUIREMENTS.



4. MACHINERY DIMENSIONS SHOWN ON DRAWINGS ARE DIMENSIONS AFTER MACHINING. UNLESS OTHERWISE INDICATED OR REQUIRED FOR THE PROPER ASSEMBLY OF PARTS, DIMENSIONAL TOLERANCES FOR MACHINERY IN GENERAL SHALL BE AS FOLLOWS:

SURFACE STRAIGHTNESS:	— 0.010"
FLATNESS:	▱ 0.010"
PARALLELISM:	// 0.005" -
PERPENDICULARITY (PER LINEAR FOOT):	⊥ 0.005" -
ANGULARITY (PER LINEAR FOOT):	∠ 0.02" -
POSITION (FEATURES WITHIN A COMPONENT):	⌖ 0.02" -
CONCENTRICITY:	◎ 0.005" -
CIRCULAR RUNOUT:	↗ 0.005" -
REFERENCE DIMENSION: (CERTIFIED DIMENSION OF SUPPLIED COMPONENT TO BE USED TO DETERMINE EXACT DIMENSION)	X.XX"

- DETAILS SHOWN HEREIN WITH REFERENCE DIMENSIONS DEPEND ON MANUFACTURED ITEMS AND ARE TO BE SIZED BASED ON THE ACTUAL MANUFACTURED ITEMS PURCHASED BY THE CONTRACTOR.

- UNLESS NOTED OTHERWISE, DIMENSIONS BETWEEN MACHINED SURFACES HAVE A TOLERANCE OF +/− 0.010 INCH.

5. BLEND SMOOTH ALL TRANSITIONS OF SURFACES OF MACHINERY PARTS. MACHINE ALL SURFACES OF FORGINGS TO THE DIMENSIONS SHOWN IN THE CONTRACT DOCUMENTS. MACHINE ALL MATING SURFACES OF MACHINERY PARTS AND SUPPORTS.

6. MACHINE ALL SURFACES OF BRONZE CASTINGS TO THE DIMENSIONS SHOWN IN THE PLANS.

7. DETAIL AND MACHINE THE EDGES AND CORNERS OF ALL MACHINERY PARTS WITH SUITABLE FILLETS AND CHAMFERS. THE MINIMUM RADIUS OR CHAMFER SHALL BE ⅛" IF THE PART THICKNESS IS LESS THAN 1" AND ¼" IF THE PART THICKNESS IS EQUAL TO OR GREATER THAN 1", UNLESS NOTED OTHERWISE. IN THE CASE OF MATING PARTS, ALLOWANCE SHALL BE MADE FOR THE PROPER FIT AND ASSEMBLY. SHOW SUCH DETAILS ON SHOP DRAWINGS.

8. ALL CORNERS AND EDGES OF CASTINGS SHALL HAVE SUITABLE FILLETS AND RADII. IN GENERAL, THE FILLET OR RADII SHALL BE A MINIMUM OF ½" FOR SECTIONS EQUAL OR GREATER THAN 2" AND ¼" FOR SECTIONS LESS THAN 2". CASTINGS SHALL BE PROVIDED WITH A SPOT FACE FOR VERTICAL MOUNTING BOLTS AND A BOSS FOR HORIZONTAL MOUNTING BOLTS. BOSSES SHALL HAVE A HEIGHT OF ¼" AND HAVE A MINIMUM DIAMETER OF THE NOMINAL WASHER DIAMETER PLUS ½". SPOT FACES SHALL BE 1/16" DEEP AND HAVE A MINIMUM DIAMETER OF THE NOMINAL WASHER DIAMETER PLUS ½".

9. UNLESS OTHERWISE INDICATED FITS AND FINISHES FOR MACHINERY SHALL BE IN ACCORDANCE WITH ANSI B46.1 AND ANSI B4.1 AS FOLLOWS:

SURFACE	FINISH	FIT
MACHINERY BASE ON STEEL	125	–
MACHINERY BASE ON MASONRY (CONCRETE)	500	–
MACHINERY SUPPORTS	125	–
MACHINERY PARTS IN FIXED CONTACT	125	–
SHAFT JOURNAL	8	RC6
JOURNAL BUSHINGS	16	RC6
HUBS ON SHAFTS (TO 2" BORE)	32	FN2
HUBS ON SHAFTS (OVER 2" BORE)	63	FN2
SPLIT BUSHINGS IN BASE	125	LC1
SOLID BUSHING IN BASE (TO ¼" WALL)	63	FN1
SOLID BUSHING IN BASE (OVER ¼" WALL)	63	FN2
SLIDING AND THRUST BEARINGS	32	RC6

THE ABOVE FITS FOR CYLINDRICAL PARTS ALSO APPLY TO THE MAJOR DIMENSIONS OF NON−CYLINDRICAL PARTS.

10. CALCULATION OF POWER REQUIREMENT WAS BASED ON IMPOSED LOADS ON THE LEAF FROM WIND, FRICTION (STATIC OR DYNAMIC), LEAF INERTIA (DURING LEAF ACCELERATION), AND LEAF IMBALANCE. THE MACHINERY IS DESIGNED TO ACCELERATE THE SPAN TO FULL SPEED IN A MINIMUM OF 5 SECONDS, RUN AT CONSTANT SPEED, DECELERATE THE SPAN FOR A MINIMUM OF 5 SECONDS, AND CREEP TO ITS FINAL POSITION. THE SPAN OPERATING TIME IS APPROXIMATELY 67 SECONDS FOR WIND LOADS UP TO 10 PSF ON ANY VERTICAL PROJECTION OF THE OPEN SPAN.

SPAN LOCK MACHINERY NOTES:

1. THE SPAN LOCKS ARE DESIGNED TO PREVENT INADVERTENT ROTATION OF THE BASCULE LEAF BY THE DRIVE MACHINERY. THE MAXIMUM OPERATING TIME TO ENGAGE OR WITHDRAW LOCK BAR IS 10 SECONDS.

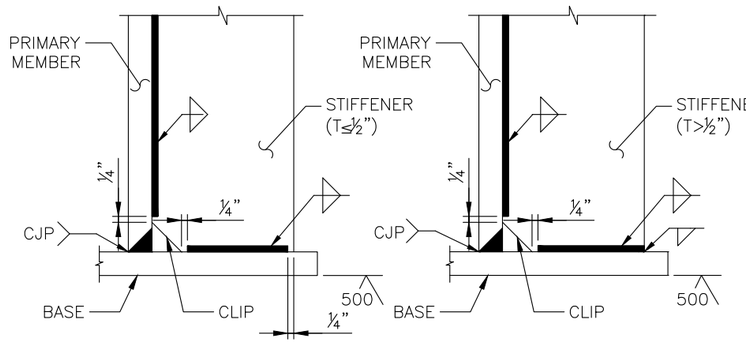
2. H.S. TURNED BOLTS THROUGHOUT ARE ⅝" DIA. UNLESS OTHERWISE STATED.

TAIL PROP NOTES:

THE TAIL PROPS ARE DESIGNED TO PREVENT THE LEAVES FROM ROTATING DUE TO LIVE LOAD. THE MAXIMUM OPERATING TIME TO ENGAGE OR WITHDRAW EACH TAIL PROP IS 10 SECONDS.

MACHINERY WELDMENT NOTES:

1. CLIP STIFFENERS AS NECESSARY TO AVOID OVERLAP OF WELDS OR CLEAR FILLET WELDS BY A MINIMUM OF ¼".
2. WHERE CJP IS NOT REQUIRED, MILL ALL VERTICAL PLATES TO BEAR ON HORIZONTAL PLATES PRIOR TO WELDING.
3. WHERE MACHINING IS REQUIRED, STRESS RELIEVE ALL WELDMENTS AFTER WELDING AND BEFORE FINAL MACHINING. SURFACE WELDS MAY BE PERFORMED AFTER STRESS RELIEF AND FINAL MACHINING.
4. BREAK ALL SHARP EDGES.
5. UNLESS SURFACE IS DESIGNATED TO BE GALVANIZED, BLAST CLEAN BOTTOM SURFACE TO "NEAR WHITE" CONDITION AND ANCHOR PROFILE PER PAINTING SPECIFICATIONS. DO NOT PAINT BOTTOM SURFACE. APPLY CORROSION INHIBITOR TO PROTECT SURFACE DURING SHIPPING AND STORAGE. REMOVE ALL CORROSION INHIBITOR PRIOR TO INSTALLATION AND GROUTING.



TYPICAL MACHINERY WELDMENT DETAILS

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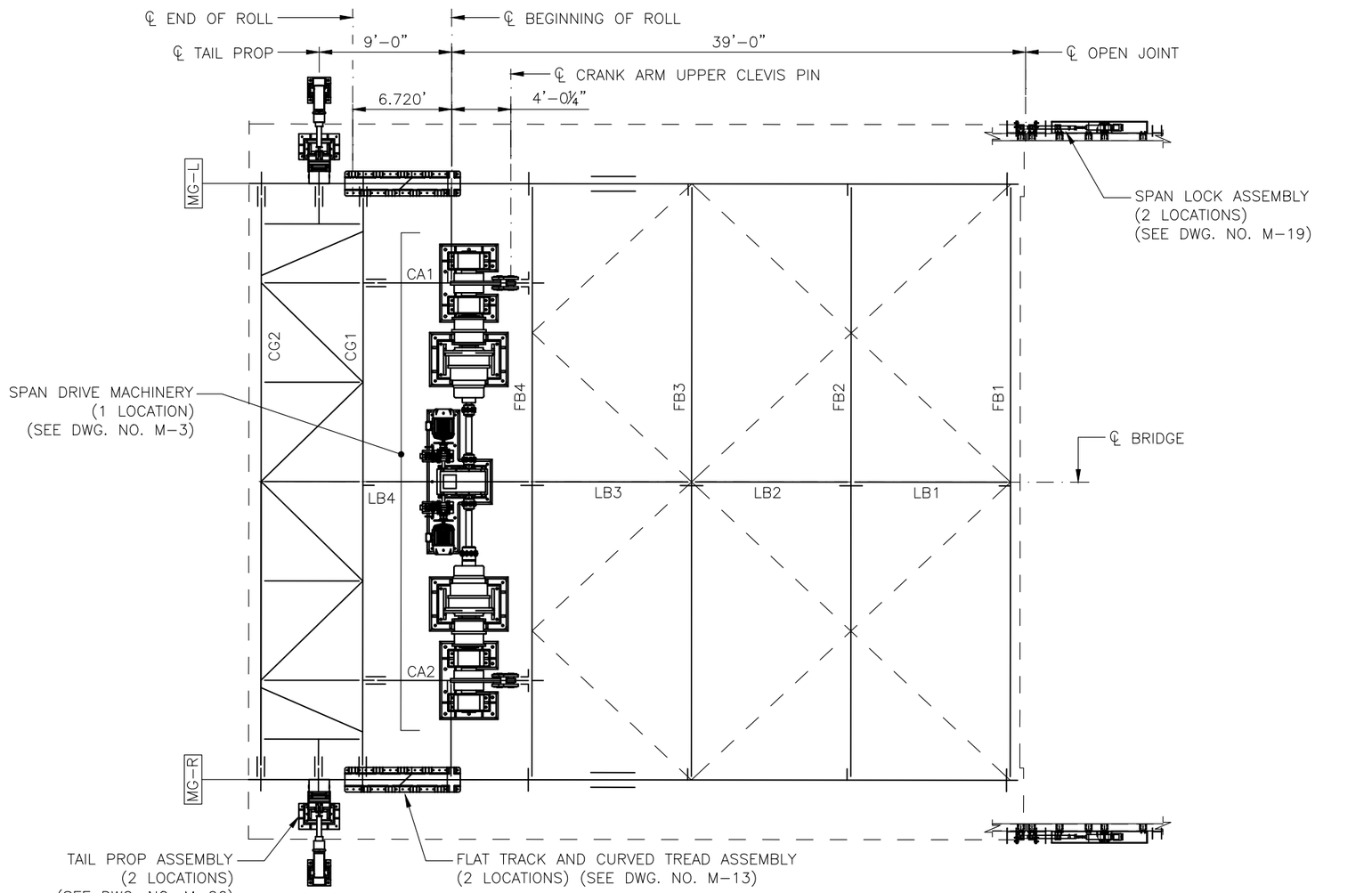
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DESCRIPTION: MACHINERY NOTES

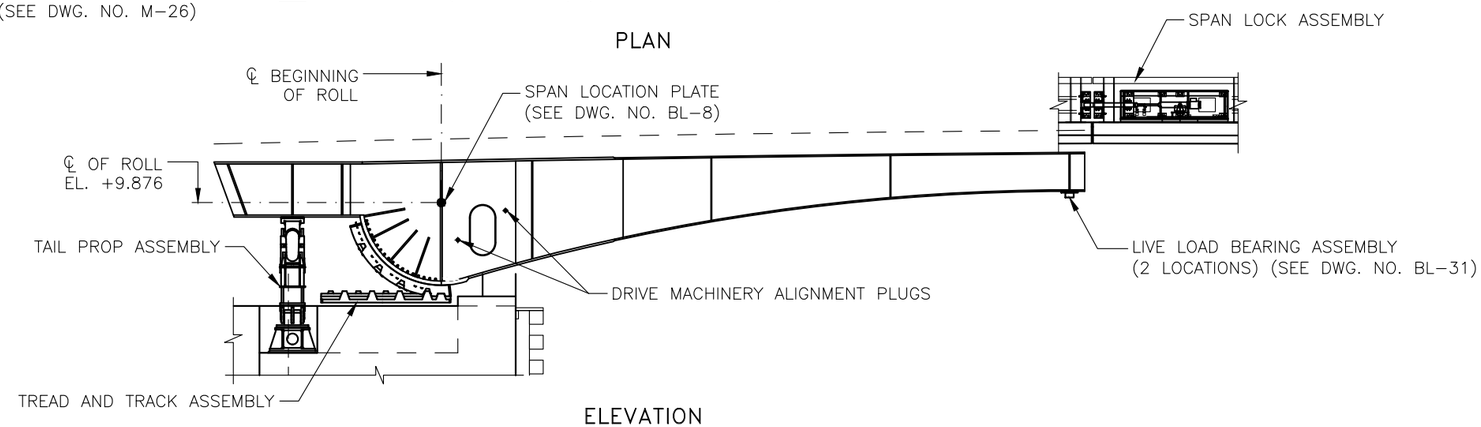
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M−1
DATE: 6/25/2021
PROJECT NO. 001037A



PLAN



ELEVATION

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED RA
DRAWN JJK
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Pinellas County PUBLIC WORKS

PROJECT:
BECKETT BRIDGE
REPLACEMENT

DESCRIPTION:
BASCULE SPAN
MACHINERY LAYOUT

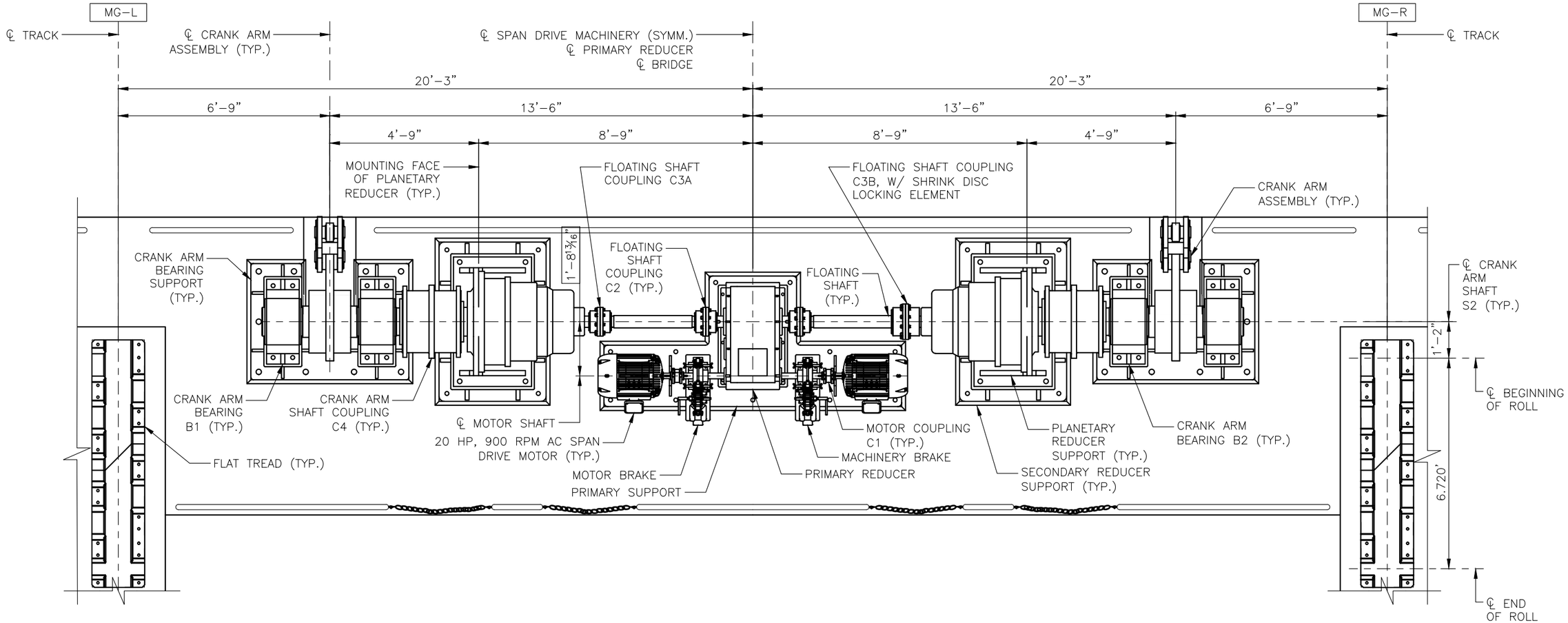
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5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M-2
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 199 OF 283

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ANJUN CHEN



SPAN DRIVE MACHINERY PLAN

NOTES:

1. FOR LIST OF DRIVE MACHINERY COMPONENTS, SEE TABLES ON DWG. NO. M-6.
2. FOR DESCRIPTION OF DRIVE MACHINERY GEARING, BEARINGS, AND COUPLINGS, SEE TABLES ON DWG. NO. M-6.
3. DETAIL, FURNISH, AND INSTALL MACHINERY GUARDS FOR ALL COUPLINGS EXCEPT COUPLING C4
4. COUPLINGS C1, C2, AND C3 GUARDS NOT SHOWN FOR CLARITY.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SPAN DRIVE MACHINERY PLAN

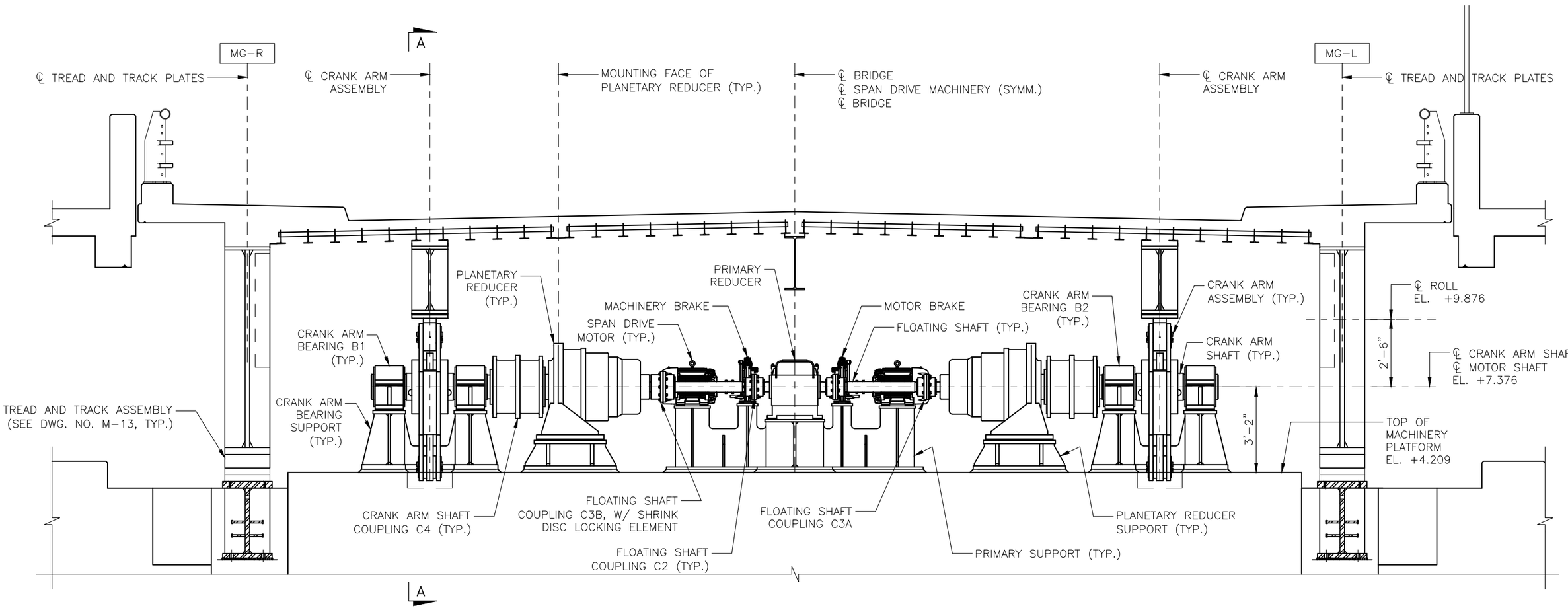
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M-3
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 200 OF 283

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SPAN DRIVE MACHINERY ELEVATION

SHOWN LOOKING WEST
(TOWARDS COUNTERWEIGHT)

NOTES:

1. REFER TO DWG. NO. M–5 FOR SECTION A–A.
2. REFER TO DWG. NO. M–3 FOR RELATED NOTES.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

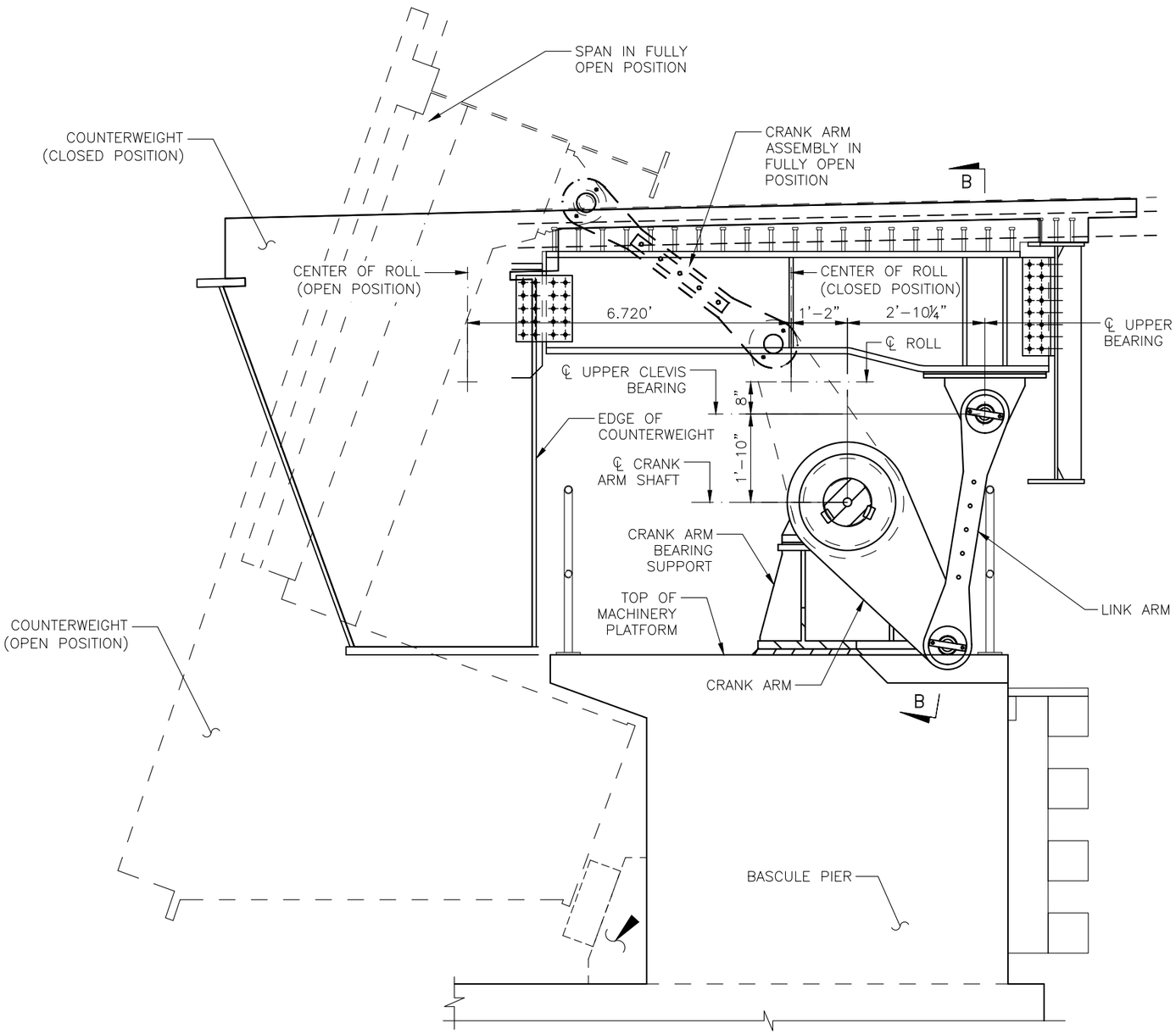
DESCRIPTION: SPAN DRIVE MACHINERY ELEVATION

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

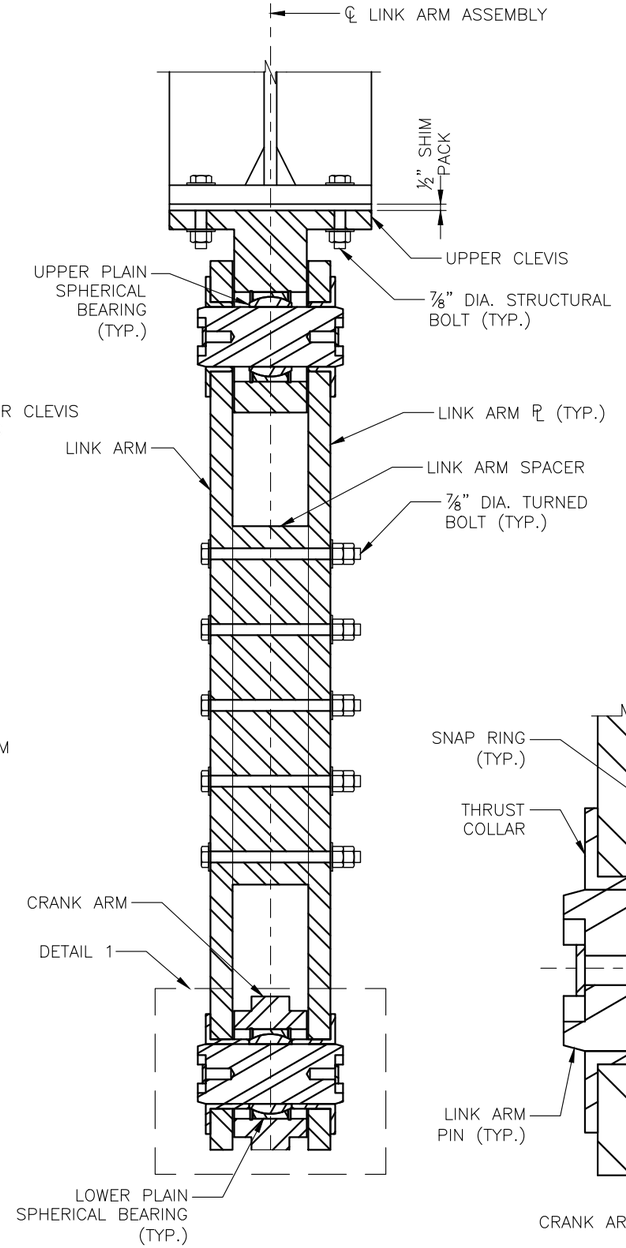
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M–4
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 201 OF 283

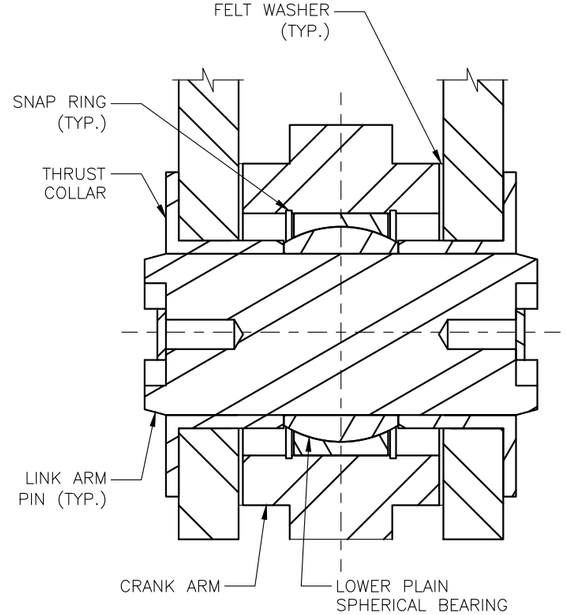
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SECTION A–A
CRANK ARM ASSEMBLY
SECTION TAKEN FROM DWG. NO. M–4



SECTION B–B



DETAIL 1

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DESIGNED MG/RW
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SPAN DRIVE MACHINERY SECTIONS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M–5
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 202 OF 283

TABLE OF SPAN DRIVE MACHINERY MATERIALS		
PART	MATERIAL	DESIGNATION
MACHINERY SUPPORTS	STRUCTURAL STEEL PLATE	ASTM A709 GRADE 50
CRANK ARM SHAFT BEARING BOLTS	ALLOY STEEL	ASTM A193 GRADE B7
ANCHOR BOLTS	ALLOY STEEL	ASTM A193 GRADE B7

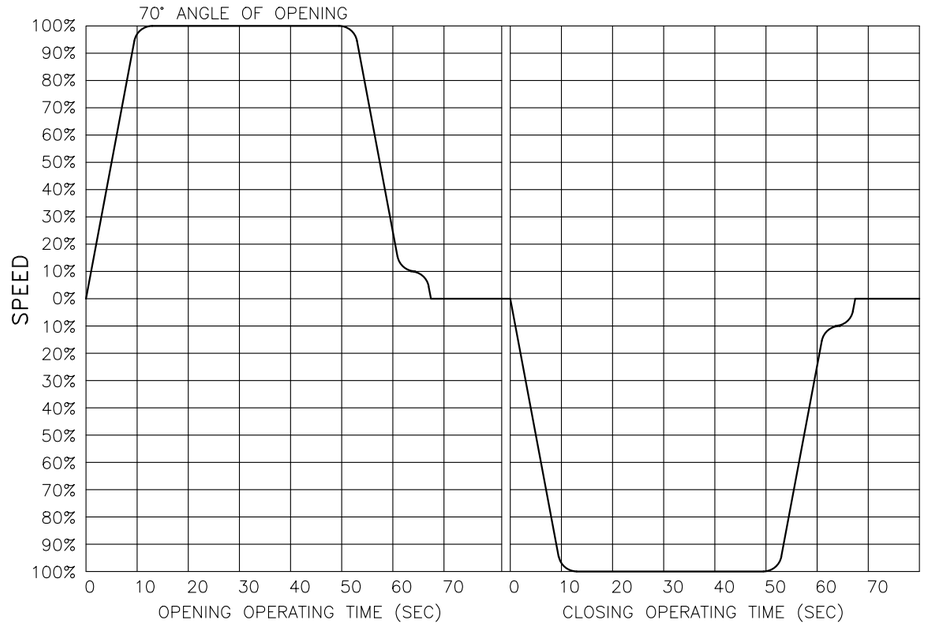
TABLE OF SPAN DRIVE MACHINERY GEARING			
MARK	RATIO	QNTY.	DESCRIPTION
PRIMARY REDUCER	40.0:1	1	CUSTOM – TRIPLE REDUCTION PARALLEL SHAFT REDUCER TO TRANSMIT 20 HP AT 870 RPM INPUT. MINIMUM OUTPUT TORQUE RATING WITHOUT SERVICE FACTOR: 2,920 FT LB PER SHAFT. THROUGH HARDENED GEARING. SEE TSP SECTION T468 FOR ADDITIONAL REQUIREMENTS
PLANETARY REDUCER	38.25:1	2	CUSTOM – PLANETARY REDUCER TO TRANSMIT 12 HP AT 21.75 RPM INPUT. MINIMUM OUTPUT TORQUE RATING WITHOUT SERVICE FACTOR: 111,610 FT LB. CASE HARDENED GEARING. SEE TSP SECTION T468 FOR ADDITIONAL REQUIREMENTS

TABLE OF CRANK ARM SHAFT BEARINGS							
MARK	QNTY.	LOCATION	TYPE	JOURNAL (IN)	*DYNAMIC RATING (KIPS)	*STATIC RATING (KIPS)	DESCRIPTION
B1	2	CRANK ARM SHAFT	PLAIN SLEEVE BEARING	11	26	104	BRONZE PLAIN SLEEVE BUSHINGS, HEAVY DUTY CAST STEEL HOUSING
B2	2	CRANK ARM SHAFT	PLAIN SLEEVE BEARING	11	26	104	BRONZE PLAIN SLEEVE BUSHINGS, HEAVY DUTY CAST STEEL HOUSING

* RADIAL CAPACITY RATING SHOWN ARE FROM COMPONENTS SELECTED FOR DESIGN CONFIGURATION.

TABLE OF SPAN DRIVE MACHINERY COUPLINGS										
MARK	QNTY.	*MINIMUM TORQUE RATING (IN–KIPS)	TYPE	KEYS PER SHAFT	DRIVING HALF			DRIVEN HALF		
					NOMINAL BORE (IN)	KEY (INXIN)	R=RIGID F=FLEX		KEY (INXIN)	NOMINAL BORE (IN)
C1	2	2.2	STEEL GRID	1	*	*	F	F	*	*
C2**	2	53	SINGLE ENGAGEMENT GEAR	2	*	*	R	F	1"X1"	4¼"
C3A**	1	53	SINGLE ENGAGEMENT GEAR	2	4¼"	1"X1"	F	R	*	*
C3B**	1	53	SINGLE ENGAGEMENT GEAR	2	***	NA	F	R	*	*
C4	2	2010	DOUBLE ENGAGEMENT GEAR	2	*	*	F	F	2½"X1¾"	10½"

* SIZE TO MATCH SHAFTS OF SPECIFIED COMPONENTS. SHAFT SIZE MAY CONTROL COUPLING SIZE. COUPLING RATINGS INCLUDE 1.5 SERVICE FACTOR.
** FLEXIBLE HUBS ON FLOATING SHAFTS.
*** SIZE TO MATCH SHRINK DISC LOCKING ELEMENT.



SPAN DRIVE MACHINERY OPERATING CURVE
NORMAL OPERATION

TABLE OF MOTOR AND MACHINERY BRAKE RATINGS AND SETTINGS			
BRAKE DESIGNATION	BRAKE WHEEL DIAMETER	AISE–NEMA TORQUE RATING (FT–LB)	TORQUE SETTING (FT–LB)
MOTOR BRAKE	8"	100	90
MACHINERY BRAKE	8"	100	90

TABLE OF REQUIRED MOTOR TORQUES			
STARTING TORQUE, Ts	116 FT–LB	CONSTANT VELOCITY TORQUE, Tcv	103 FT–LB
ACCELERATION TORQUE, Ta (ALSO DYNAMIC BRAKING TORQUE)	109 FT–KIP	NEVER TO EXCEED TORQUE	138 FT–LB

NOTES:
1. MINIMUM TORQUE RATINGS ARE BASED ON A $^{60}/_{40}$ SPLIT OF TORQUE AT THE PRIMARY REDUCER.

REV. NO.	DATE	DESCRIPTION	REV. BY

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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SPAN DRIVE MACHINERY TABLES

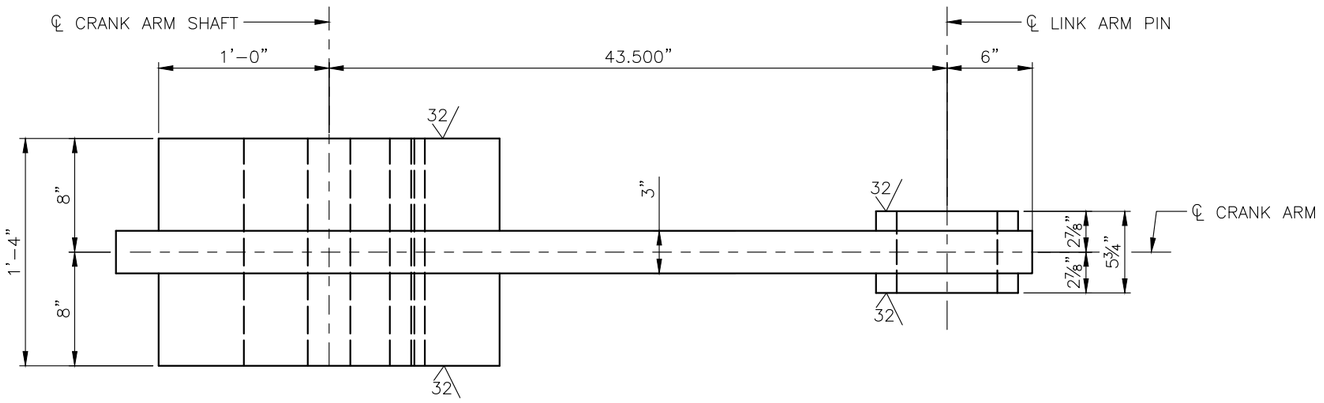
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

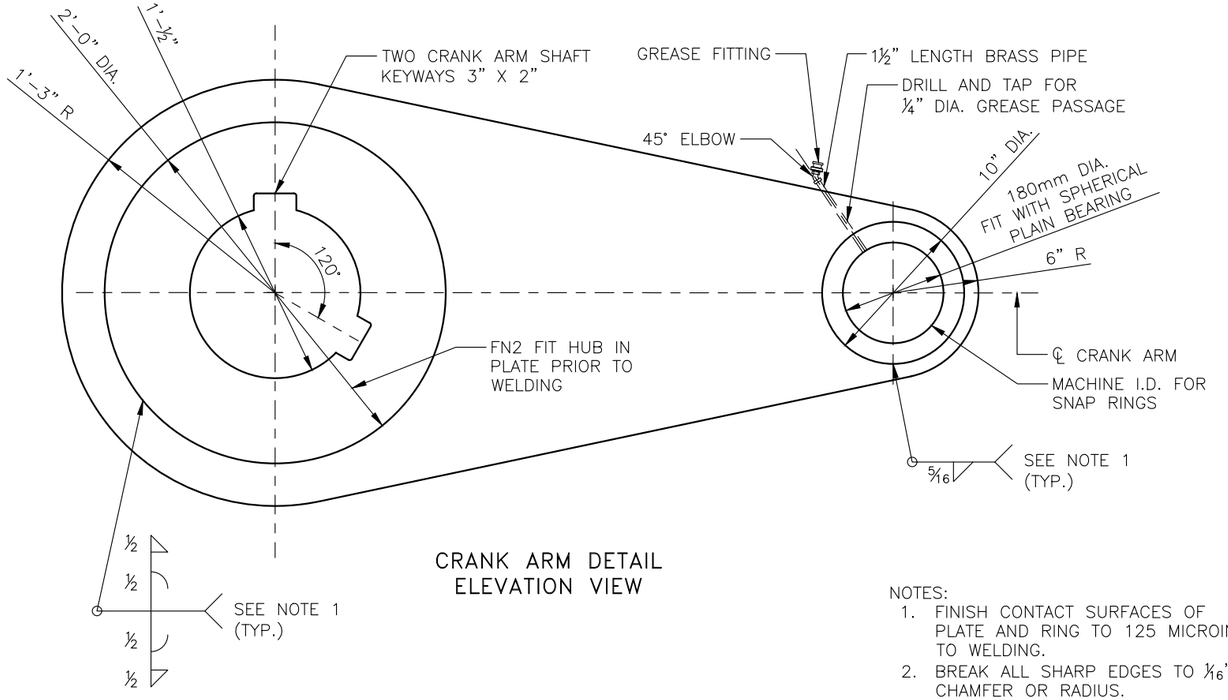
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PROJECT NO. 001037A
SHEET: 203 OF 283

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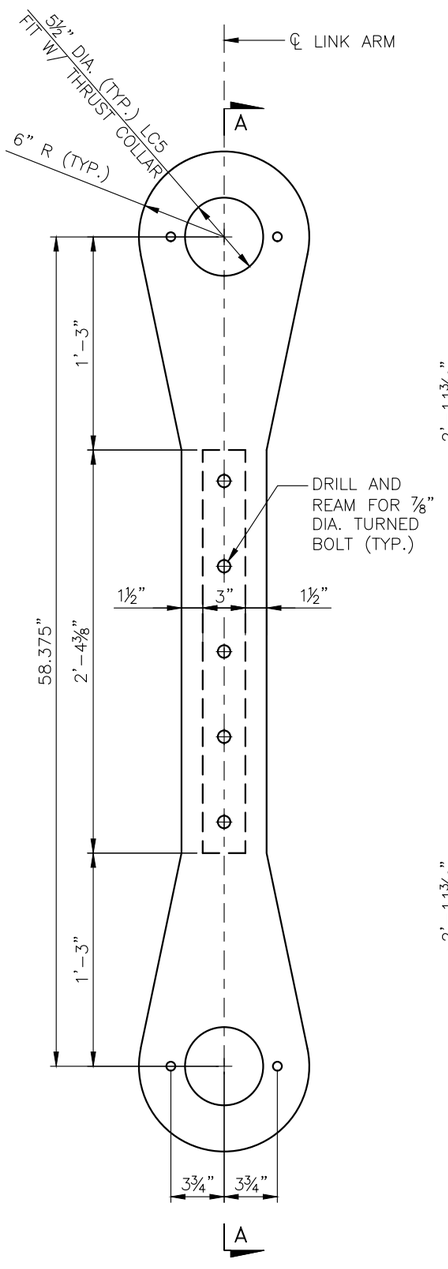


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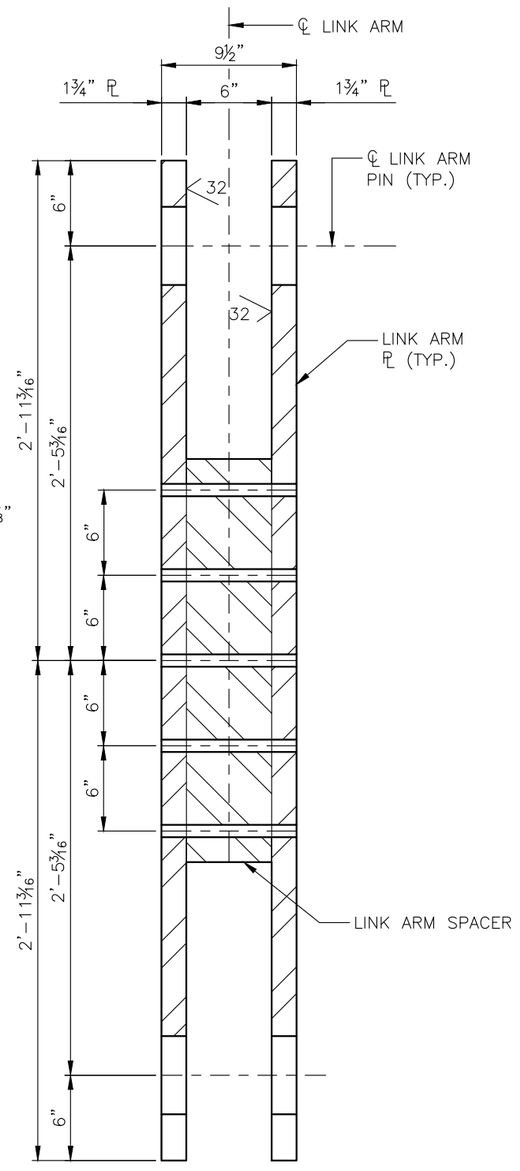


CRANK ARM DETAIL
ELEVATION VIEW

NOTES:
1. FINISH CONTACT SURFACES OF PLATE AND RING TO 125 MICROINCH PRIOR TO WELDING.
2. BREAK ALL SHARP EDGES TO 1/16" CHAMFER OR RADIUS.



LINK ARM DETAIL



SECTION A–A
LINK ARM ELEVATION

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PROJECT: BECKETT BRIDGE REPLACEMENT

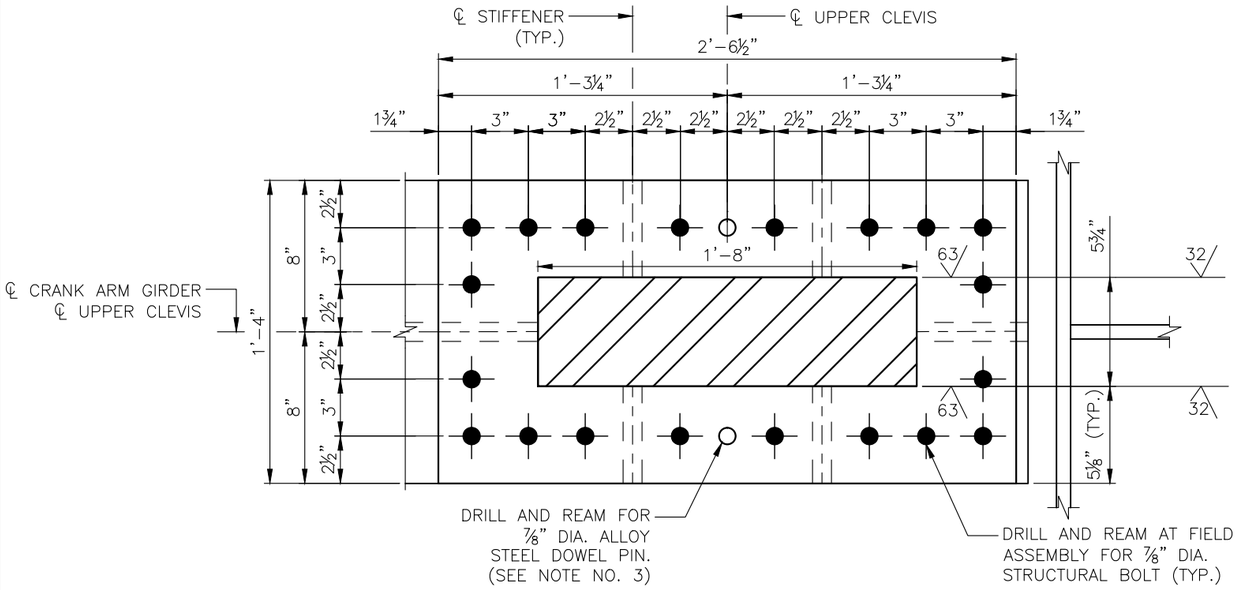
DESCRIPTION: CRANK ARM ASSEMBLY DETAILS (1 OF 3)

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5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

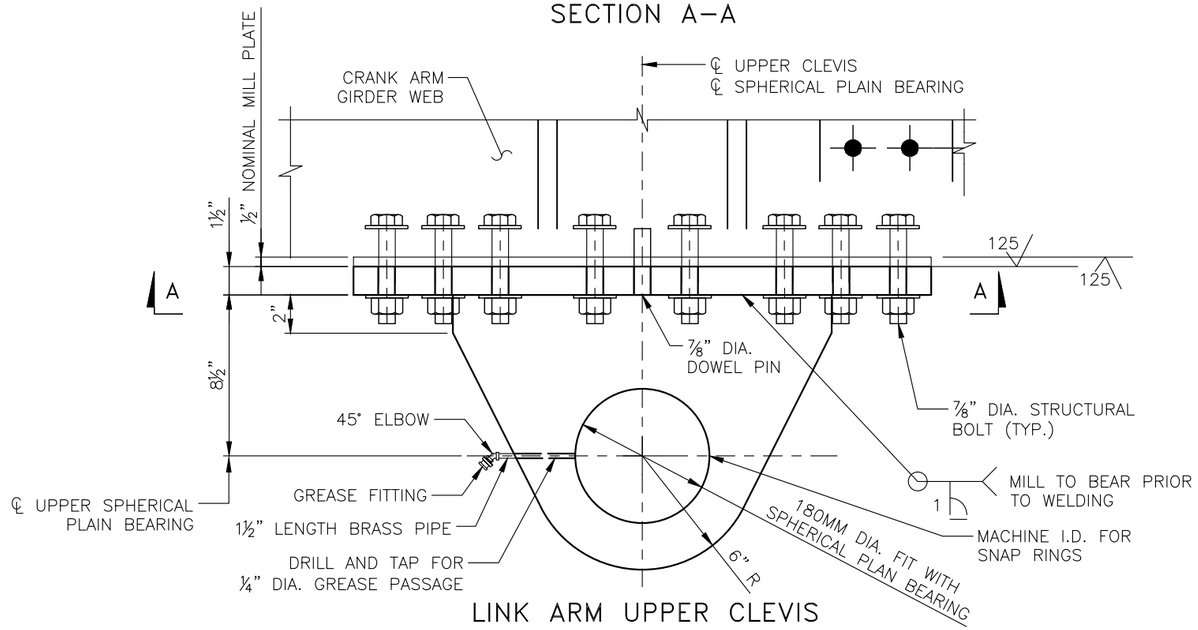
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M-7
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SHEET: 204 OF 283

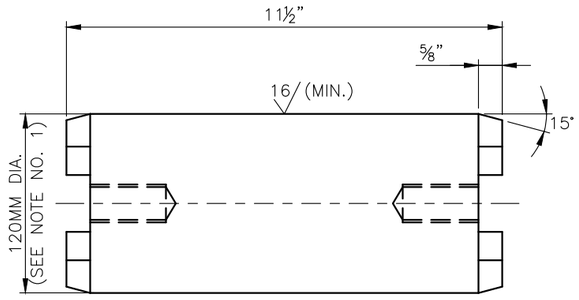
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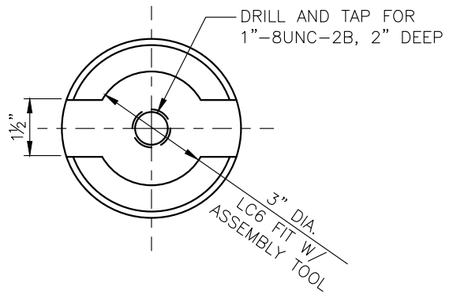
SECTION A–A

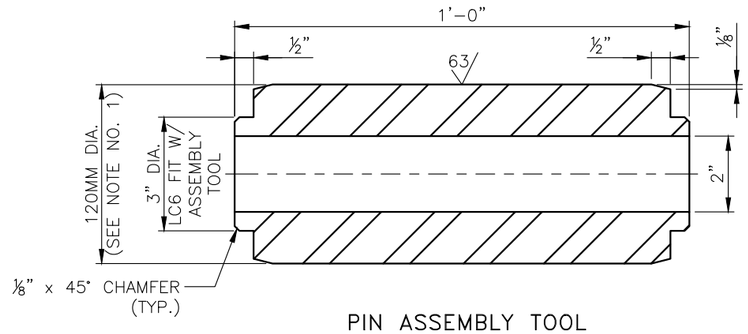


LINK ARM UPPER CLEVIS

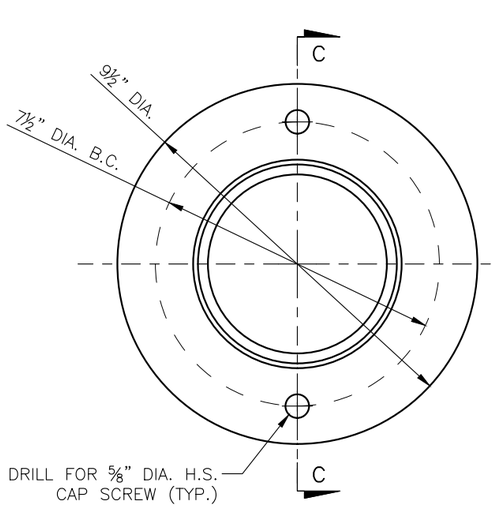


LINK ARM PIN

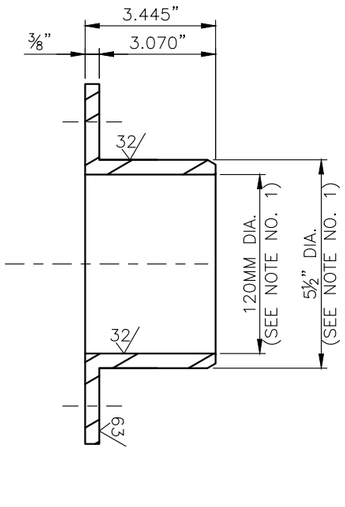




PIN ASSEMBLY TOOL



THRUST COLLAR



SECTION C–C

NOTES:

1. PROVIDE THE FOLLOWING FITS AT THE FOLLOWING LOCATIONS:
   1.1. FIT BETWEEN THE LINK ARM PIN AND THE SPHERICAL PLAIN BEARING SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.
   1.2. FN2 FIT BETWEEN THE LINK ARM PIN AND THE THRUST COLLAR.
   1.3. LC9 FIT BETWEEN THE PIN ASSEMBLY TOOL AND THE THRUST COLLAR.
   1.4. LC5 FIT BETWEEN THE THRUST COLLAR AND THE LINK ARM.
2. LINK ARM PIN FINISH SHALL BE PER THE BEARING MANUFACTURER'S RECOMMENDATIONS.
3. DOWEL PINS AND CORRESPONDING HOLE FITS TO MEET ANSI B18.8.2 FOR STANDARD HARDENED GROUND MACHINE DOWEL PINS.
4. MACHINE PLATE TO POSITION CLEVIS PER TSP T465 AND T468.
5. BLAST PLATE AND FAYING SURFACES OF GIRDER FLANGE AND CLEVIS TO CLASS B SURFACE CONDITION.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

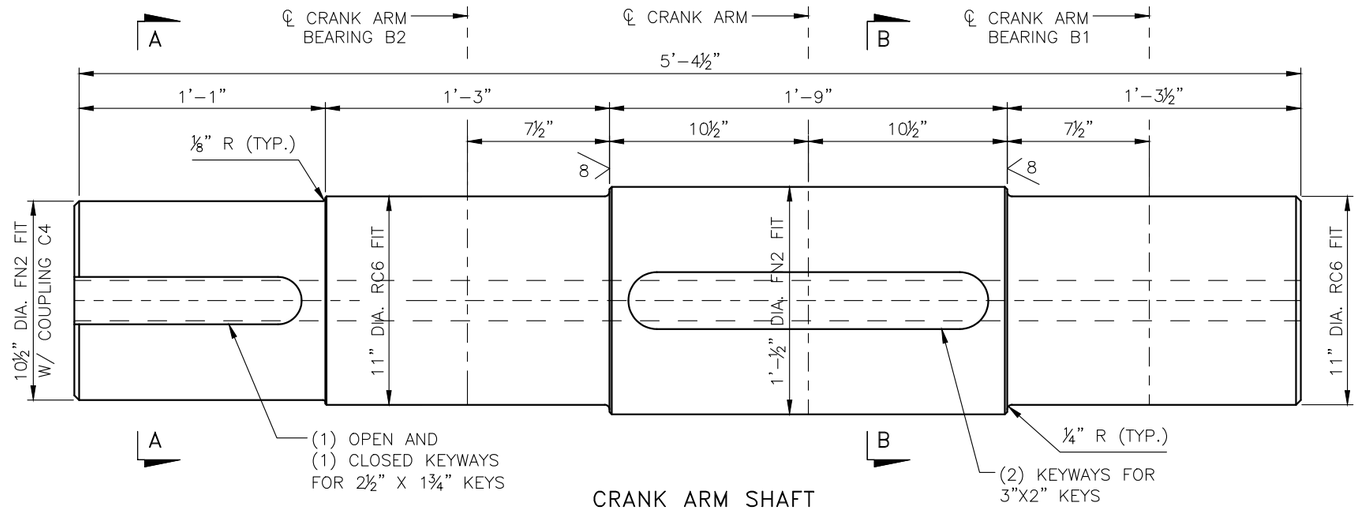
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HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

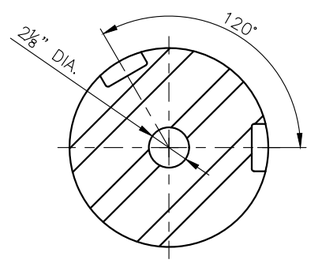
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M-8
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 205 OF 283

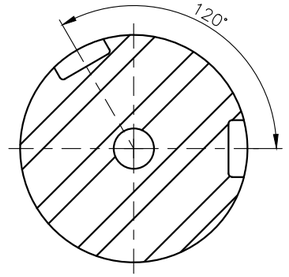
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CRANK ARM SHAFT

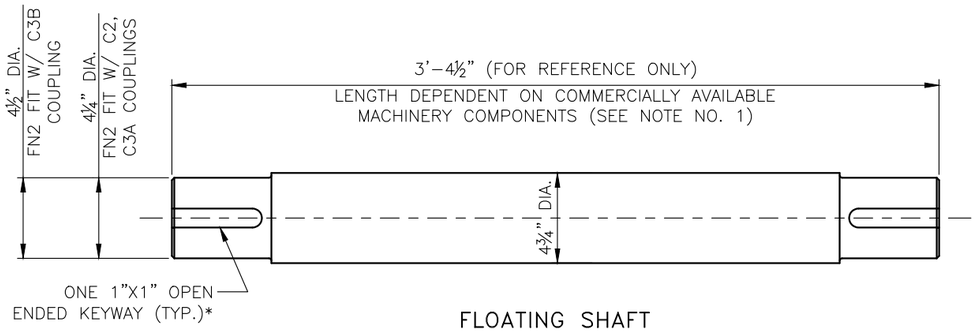


SECTION A–A

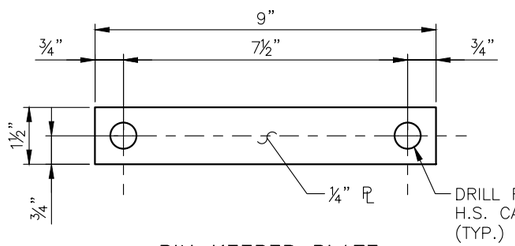


SECTION B–B

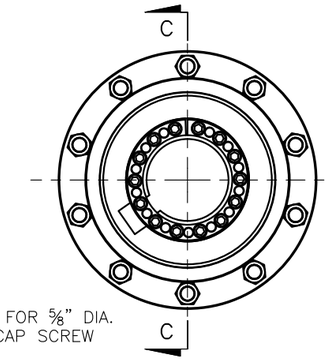
* SEE NOTE 3.



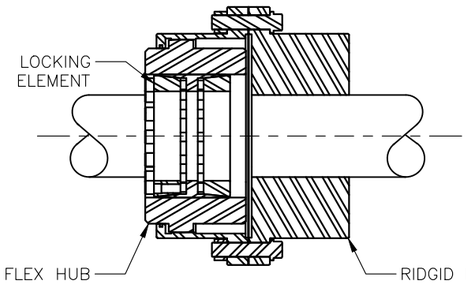
FLOATING SHAFT



PIN KEEPER PLATE



SHRINK DISC LOCKING ELEMENT



SECTION C–C

TABLE OF CRANK ARM ASSEMBLY MATERIALS			
PART	QNTY	MATERIAL	DESIGNATION
CRANK ARM	2	CARBON STEEL FORGING	ASTM A668 CLASS D
LINK ARM PLATE	4	STRUCTURAL STEEL PLATE	ASTM A709 GRADE 50
LINK ARM SPACER	2	STRUCTURAL STEEL PLATE	ASTM A709 GRADE 50
LINK ARM PIN	4	ALLOY STEEL FORGING	ASTM A668 CLASS K
PIN ASSEMBLY TOOL	1	ALLOY STEEL FORGING	ASTM A668 CLASS H
LINK ARM PIN KEEPER PLATE	8	STRUCTURAL STEEL PLATE	ASTM A709 GRADE 50
THRUST COLLAR	8	ALLOY STEEL	ASTM A322 GR. 4340, ANNEALED
LINK ARM UPPER CLEVIS	2	ALLOY STEEL FORGING	ASTM A668 CLASS H
CRANK ARM SHAFT	2	ALLOY STEEL FORGING	ASTM A668 CLASS K
FLOATING SHAFT	2	ALLOY STEEL FORGING	ASTM A668 CLASS J
FELT WASHERS	8	FELT	COMMERCIAL
SNAP RINGS	8	ALLOY STEEL	COMMERCIAL

TABLE OF LINK ARM BEARINGS					
LOCATION	QUANTITY	TYPE	JOURNAL	MINIMUM DYNAMIC RATING (KIPS)	MINIMUM STATIC RATING (KIPS)
UPPER	2	PLAIN SPHERICAL BEARING	120mm	60	176
LOWER	2	PLAIN SPHERICAL BEARING	120mm	60	176

NOTES:

1. VERIFY FLOATING SHAFT LENGTH DIMENSION WITH PRIMARY AND PLANETARY REDUCER LIMITS.
2. SHAFT CHAMFERS AND RADII SHALL HAVE A 63 MICROINCH FINISH.
3. AT COUPLING C3B, FINISH SHAFT PER SHRINK DISC LOCKING ELEMENT MANUFACTURER'S REQUIREMENTS.

REV. NO.	DATE	DESCRIPTION	REV. BY

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PROJECT: BECKETT BRIDGE REPLACEMENT

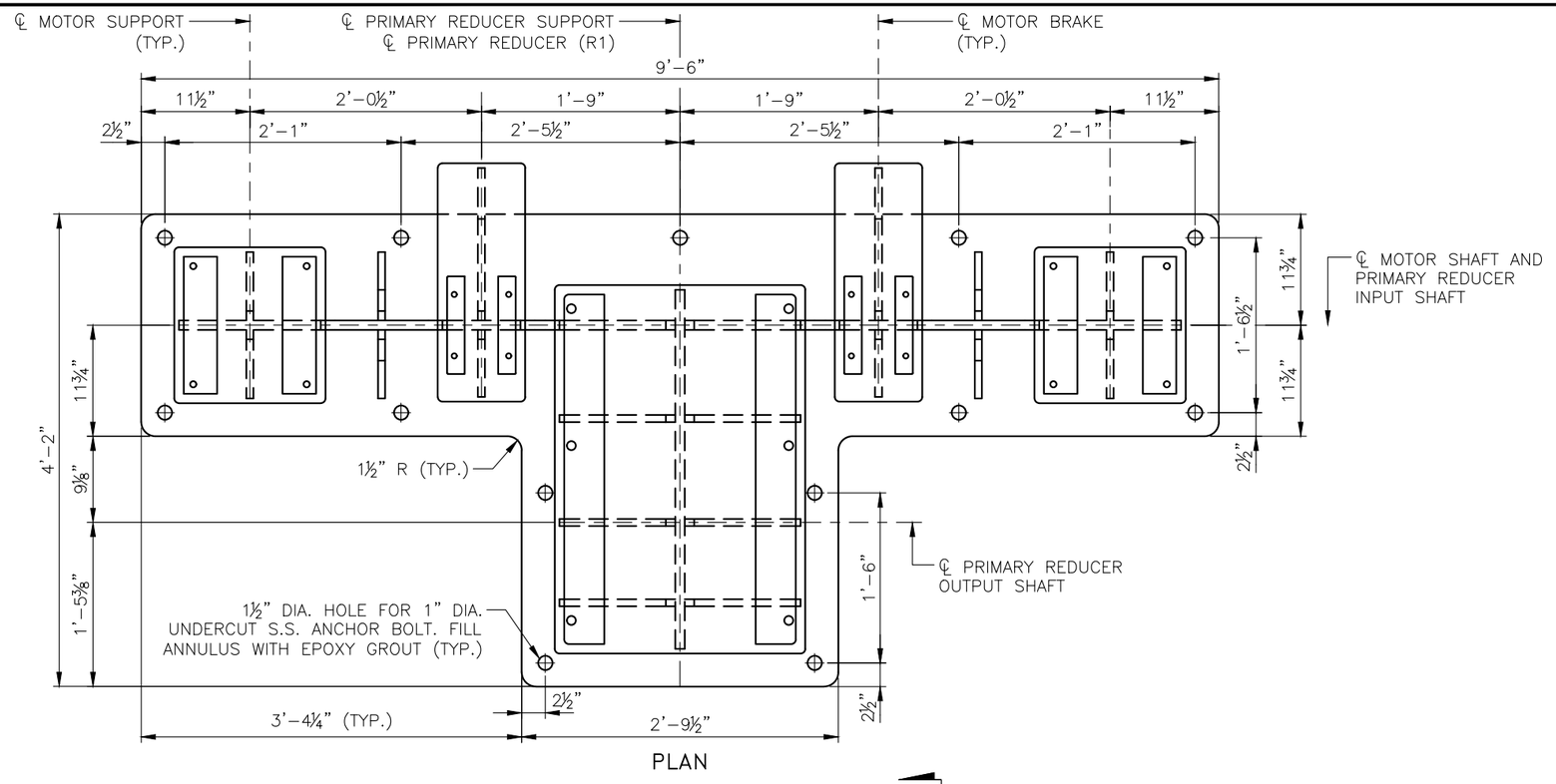
DESCRIPTION: CRANK ARM ASSEMBLY DETAILS (3 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M–9
DATE: 6/25/2021
PROJECT NO. 001037A
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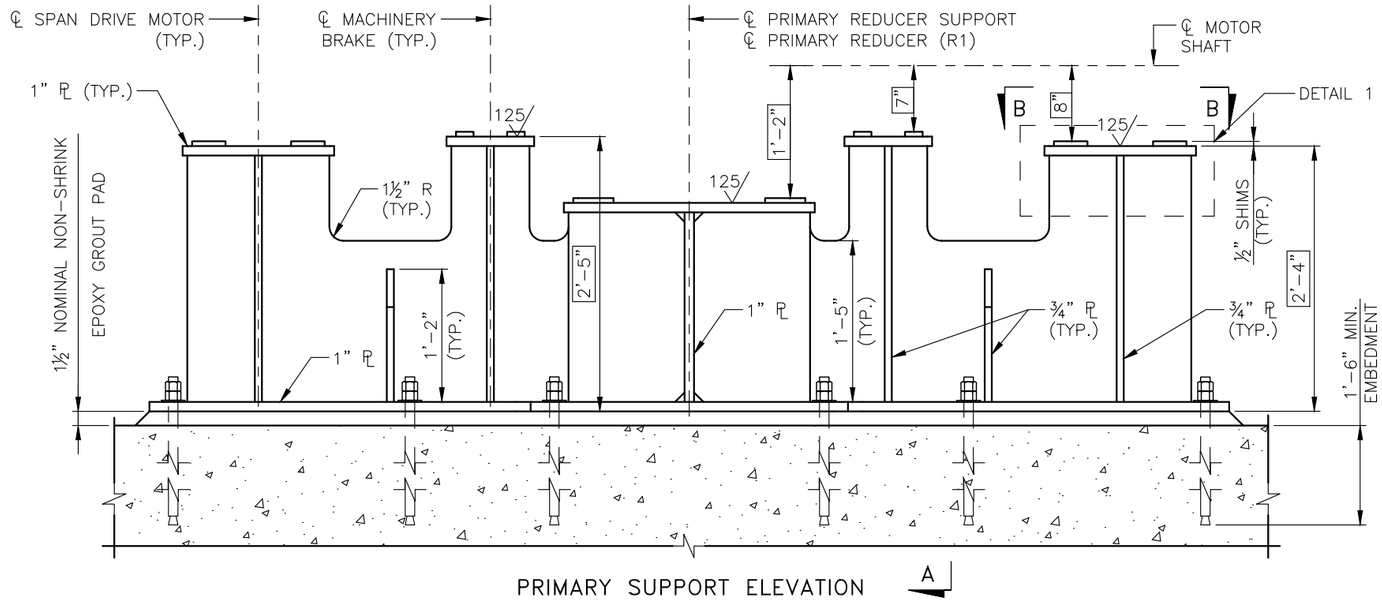
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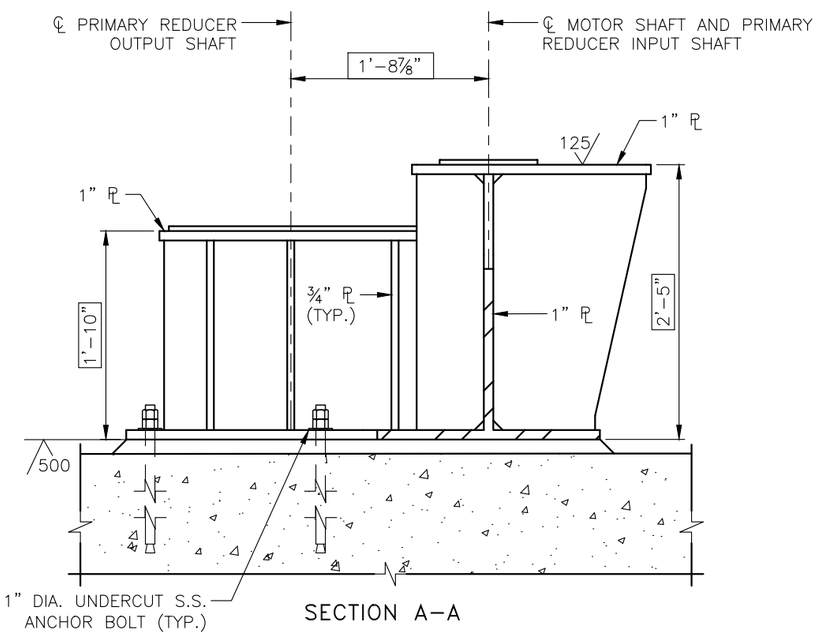
PLAN

NOTES:

1. MACHINERY SUPPORTS SHALL BE STEEL PLATE WELDMENTS FABRICATED WITH 5/16" CONTINUOUS FILLET WELDS. WELD IN ACCORDANCE WITH TSP SECTION T468.
2. PLAN VIEW PROFILE DIMENSIONS GIVEN ARE FOR REFERENCE ONLY. COORDINATE SIZE OF SUPPORT PLATES WITH SPECIFIED REDUCER UNITS, COUPLING GUARDS, MOTORS, AND BRAKES.
3. MACHINERY SUPPORT PLATE ELEVATIONS ARE TO BE BASED ON SPECIFIED REDUCER UNITS, COUPLING GUARDS, MOTORS, AND BRAKES. ALLOW FOR NOMINAL ½" SHIM THICKNESSES. COORDINATE SHIM PACK DIMENSIONS WITH SPECIFIED COMPONENTS.
4. OVERSIZE MACHINERY SUPPORT BASE PLATES BY 1" MINIMUM ALL AROUND THE BASE OF ALL MACHINERY UNLESS OTHERWISE SPECIFIED.
5. PROVIDE VENT HOLES IN BASE PLATE FOR NON–SHRINK EPOXY GROUT PAD VENTILATION.
6. REFER TO DWG. NO. M–3 FOR DETAILS OF MACHINERY.
7. REFER TO DWG. NO. M–11 FOR VIEW B–B.
8. PAINT WELDMENTS PER TSP SECTION T468 REQUIREMENTS FOR MACHINERY.
9. SIZE AND DETAIL COUPLING GUARD SUPPORT PLATE FOR COUPLING GUARD PER TSP SECTION T468.
10. REFER TO THE TSP SECTION T468 FOR ANCHOR BOLT REQUIREMENTS.



PRIMARY SUPPORT ELEVATION



SECTION A–A

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SPAN DRIVE MACHINERY SUPPORT DETAILS (1 OF 3)

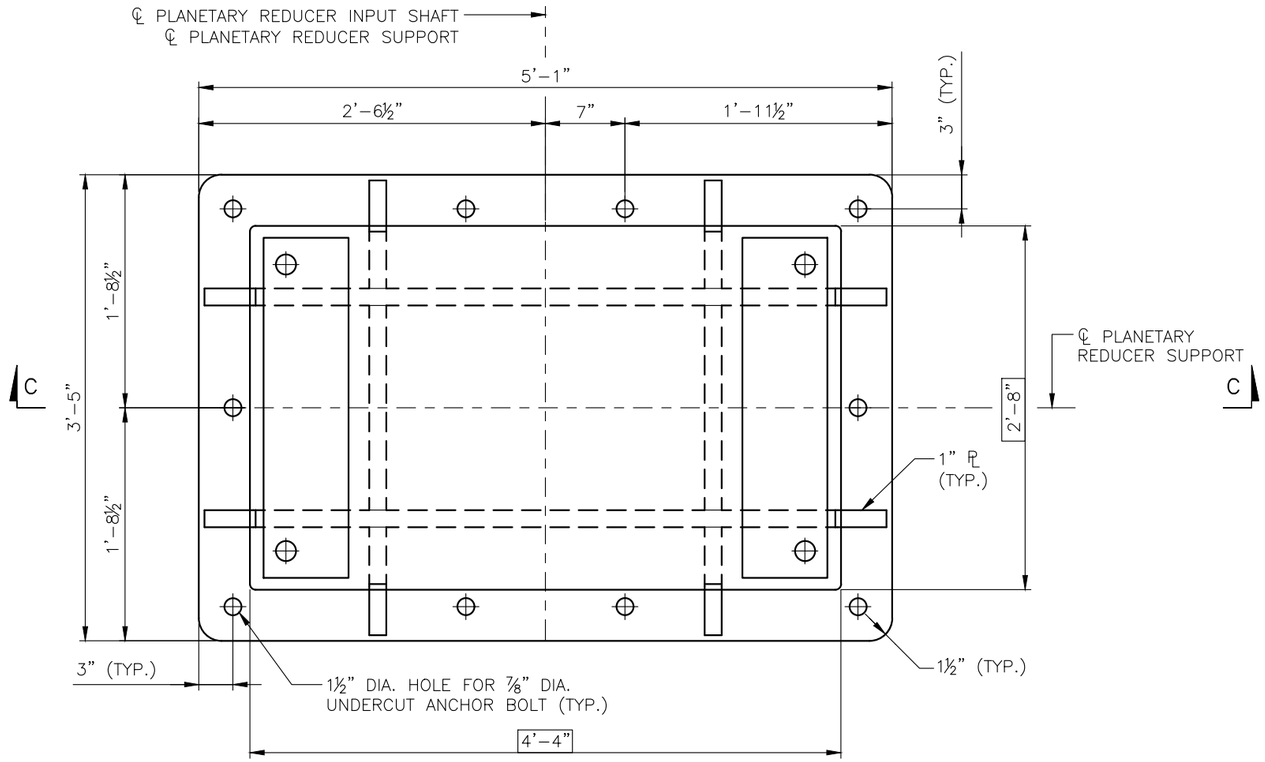
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

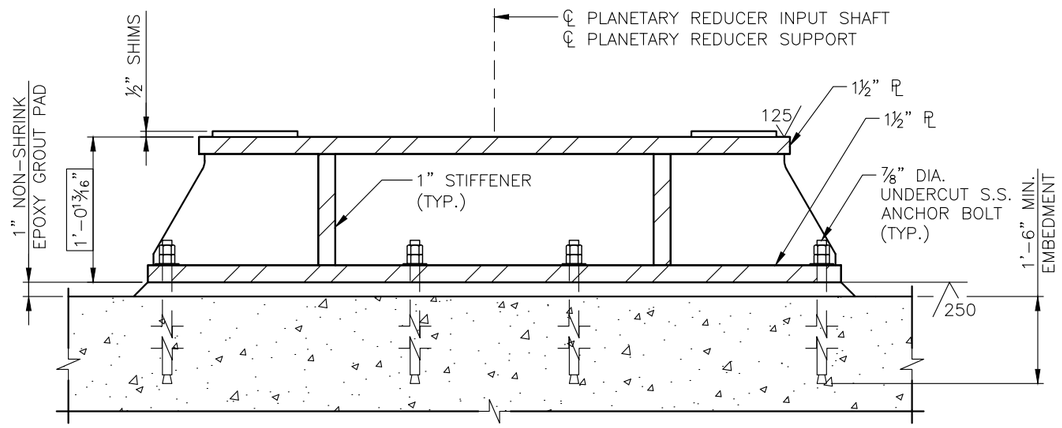
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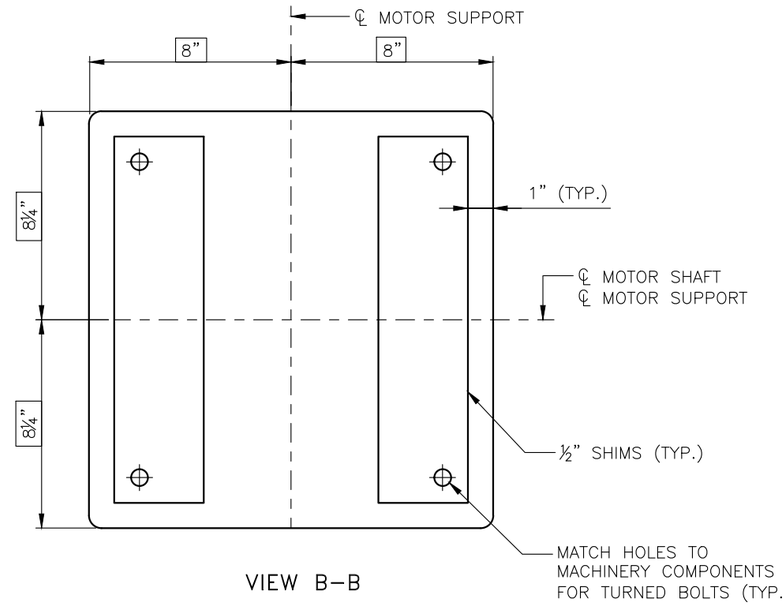
PLANETARY REDUCER SUPPORT PLAN



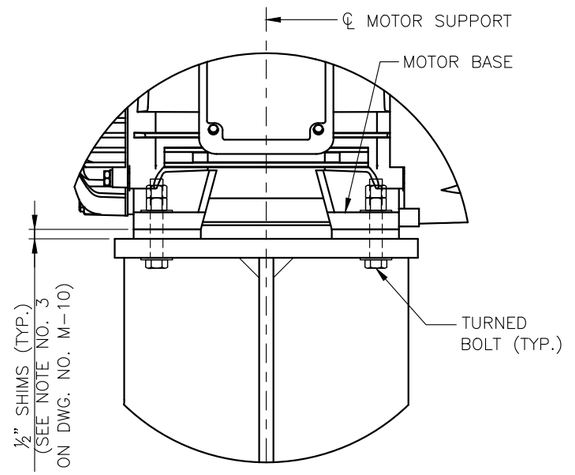
VIEW C-C

NOTES:

1. REFER TO DWG. NO. M-10 FOR RELATED NOTES.
2. REFER TO DWG. NO. M-3 FOR DETAIL OF MACHINERY.
3. REFER TO DWG. NO. M-10 FOR LOCATION OF VIEW B-B AND DETAIL 1.
4. SIZE AND DETAIL COUPLING GUARD SUPPORT PLATE FOR COUPLING GUARD PER TSP SECTION T468.



VIEW B-B



DETAIL 1

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DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

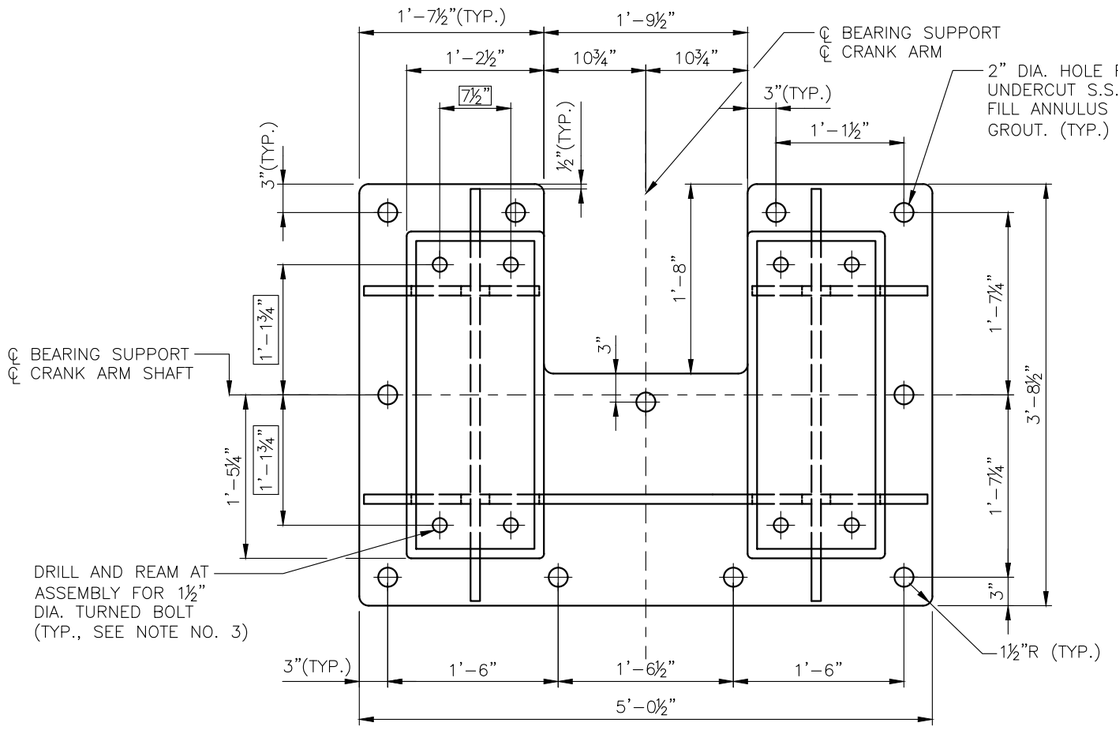
DESCRIPTION: SPAN DRIVE MACHINERY SUPPORT DETAILS (2 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

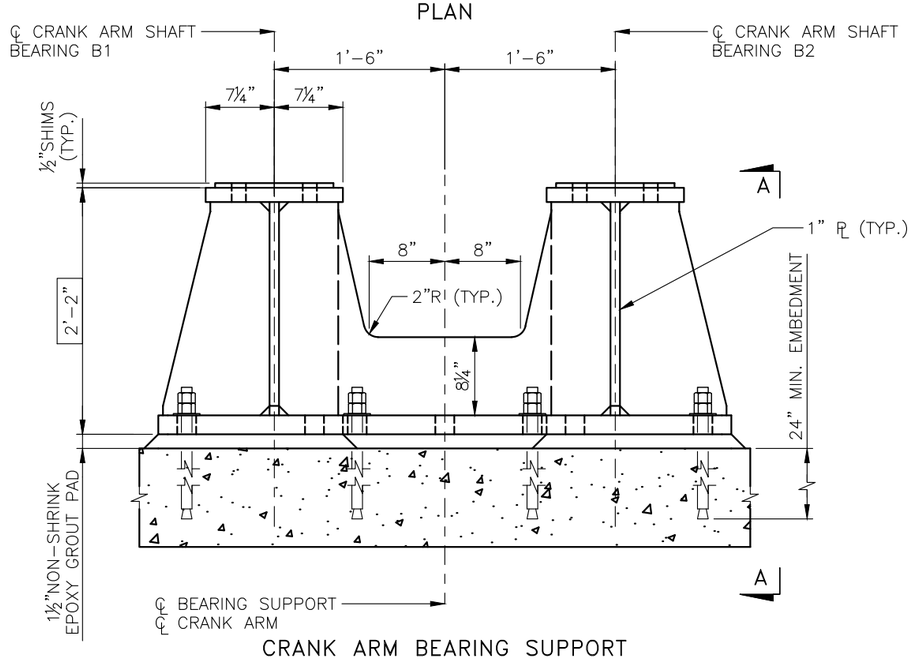
REF. DWG. NO. M-11
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 208 OF 283

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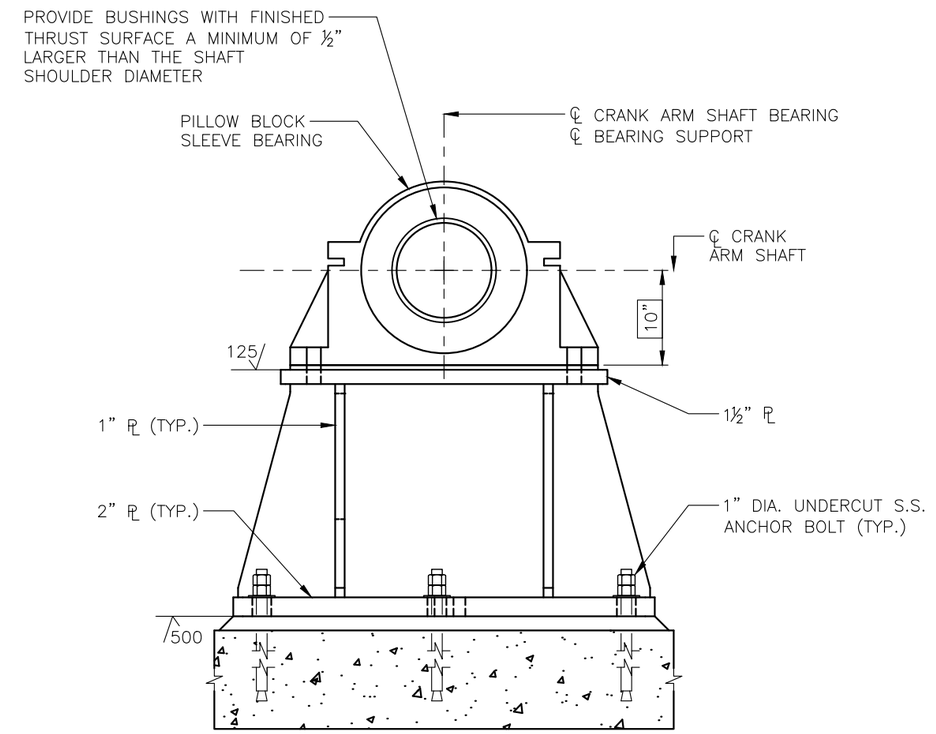


PLAN

NOTES:
1. REFER TO DWG. NO. M-10 FOR RELATED NOTES
2. REFER TO DWG NO. M-3 FOR DETAIL OF MACHINERY ON MACHINERY LEVEL.
3. MATCH HOLES TO MACHINERY COMPONENTS FOR TURNED BOLTS.



CRANK ARM BEARING SUPPORT ELEVATION



VIEW A-A

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
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CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SPAN DRIVE MACHINERY SUPPORT DETAILS (3 OF 3)

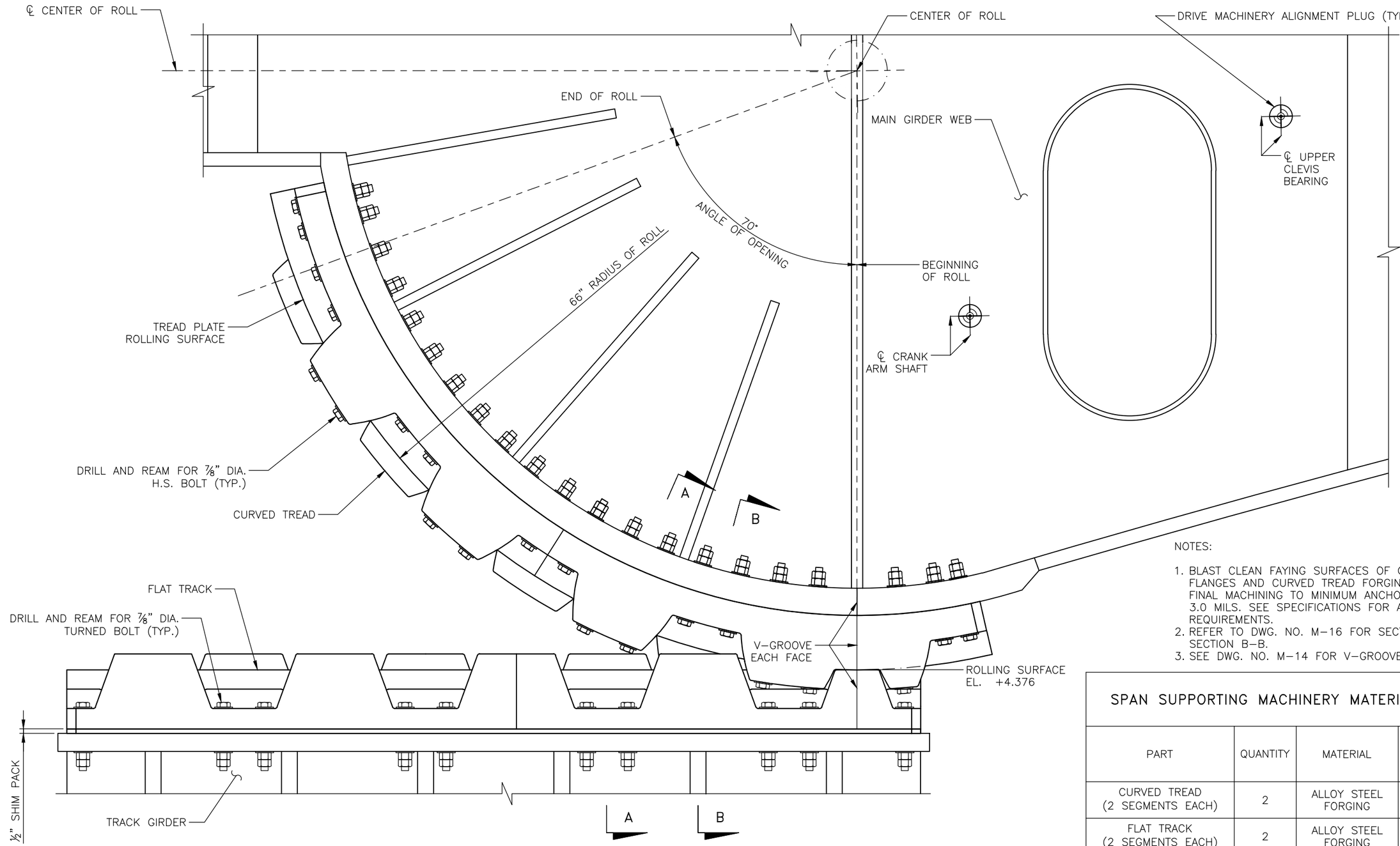
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M-12
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 209 OF 283

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FLAT TRACK AND CURVED TREAD ASSEMBLY
(2 ASSEMBLIES REQUIRED)

NOTES:

1. BLAST CLEAN FAYING SURFACES OF GIRDER FLANGES AND CURVED TREAD FORGINGS AFTER FINAL MACHINING TO MINIMUM ANCHOR PROFILE OF 3.0 MILS. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. REFER TO DWG. NO. M-16 FOR SECTION A-A AND SECTION B-B.
3. SEE DWG. NO. M-14 FOR V-GROOVE NOTES.

SPAN SUPPORTING MACHINERY MATERIAL LIST

PART	QUANTITY	MATERIAL	DESIGNATION
CURVED TREAD (2 SEGMENTS EACH)	2	ALLOY STEEL FORGING	ASTM A668 CL J
FLAT TRACK (2 SEGMENTS EACH)	2	ALLOY STEEL FORGING	ASTM A668 CL J

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

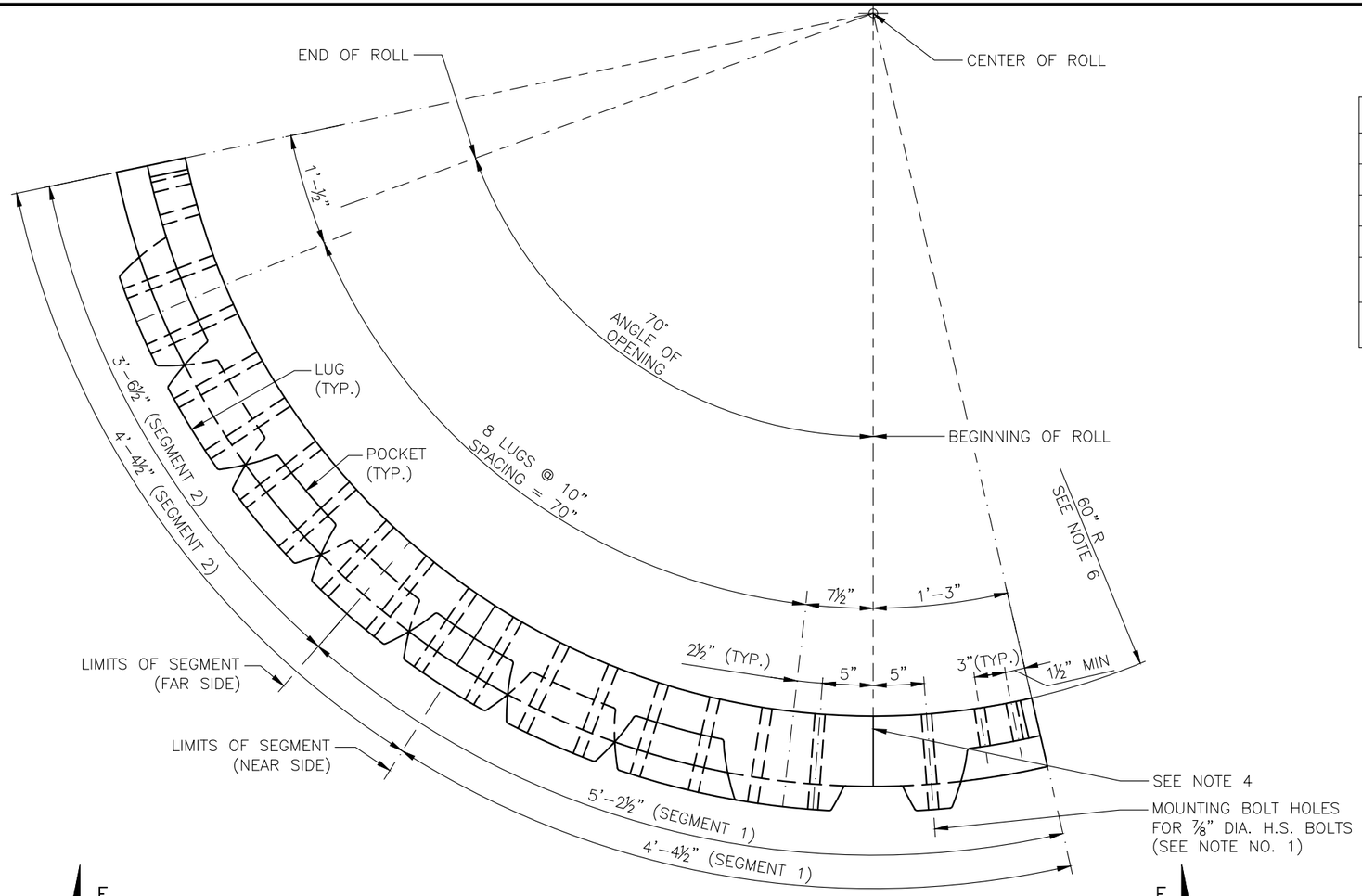
DESCRIPTION: FLAT TRACK AND CURVED TREAD ASSEMBLY

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

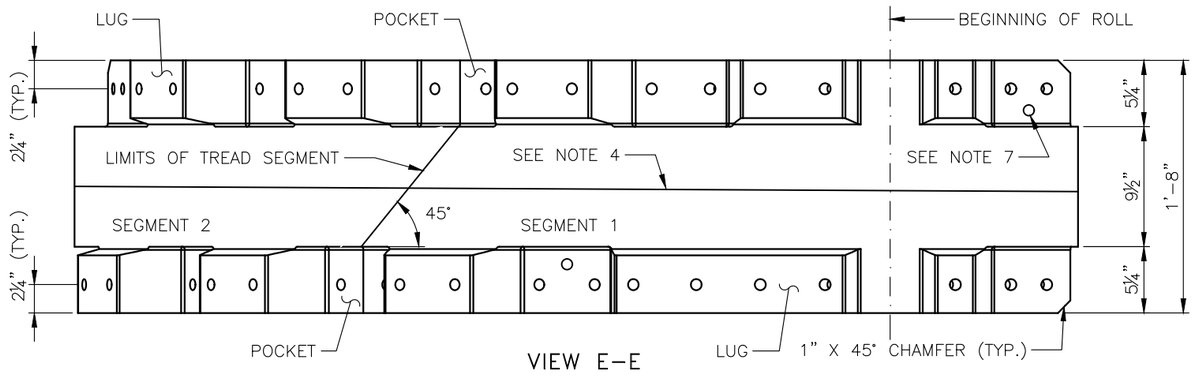
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M-13
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 210 OF 283

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ELEVATION
CURVED TREAD



VIEW E–E

TREAD POCKET PROFILE DATA	
CIRCULAR PITCH	8.5"
PITCH DIA.	132.0"
ADDENDUM	2.165"
DEDENDUM	2.706"
MIN. AGMA TOOTH QUALITY	A10
TREAD POCKET FORM: 20° INVOLUTE STUB TOOTH PROFILE	

NOTES:

1. AT ALL MOUNTING BOLTS THROUGH CURVED TREAD LUGS, DRILL ⅞" DIA. CLEARANCE HOLE AND REAM TO $^{29}/_{32}$" FOR ⅞" DIA. H.S. BOLTS AT ALIGNMENT WITH BASCULE LEAF STEEL ASSEMBLY.
2. DIMENSIONS SHOWN SHALL BE DIMENSIONS AFTER FINISHING.
3. ALL ARC LENGTH DIMENSIONS ARE TAKEN FROM THE RADIUS OF ROLL.
4. SCRIBE $^{1}/_{32}$" V–GROOVE ON THE CENTERLINE OF TREAD AND TRACK ROLLING CONTACT SURFACE AND BOTH SIDES OF DREAD AND TRACK AT BEGIN ROLL POSITION.
5. FINISH ALL EDGES AND CORNERS TO $^{1}/_{16}$" RADIUS, UNLESS NOTED OTHERWISE.
6. NOMINAL DIMENSION SHOWN. FINISH INSIDE RADIUS OF THREAD PLATES TO 59.985".
7. AT ALIGNMENT, PRIOR TO DRILLING HOLES FOR BOLTS, INSTALL TWO ½" DIA. HARDENED, GROUND DOWEL PINS PER SEGMENT. INSTALL DOWEL PINS TO FN2 FIT.

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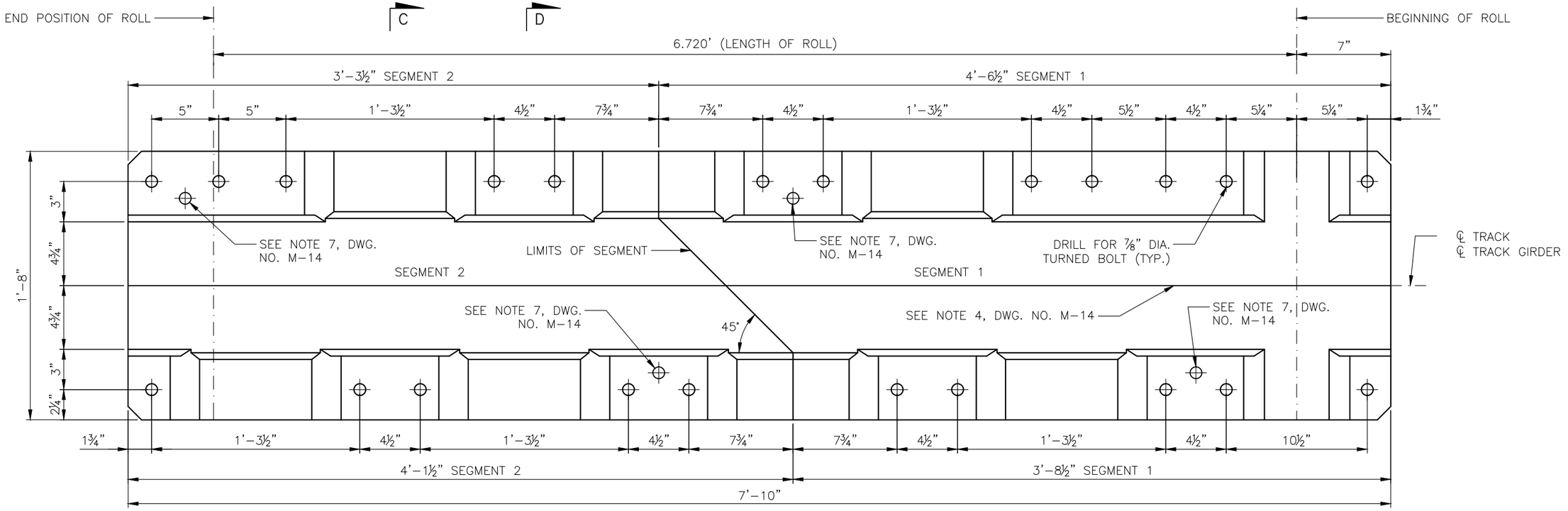
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DESCRIPTION: CURVED TREAD DETAILS

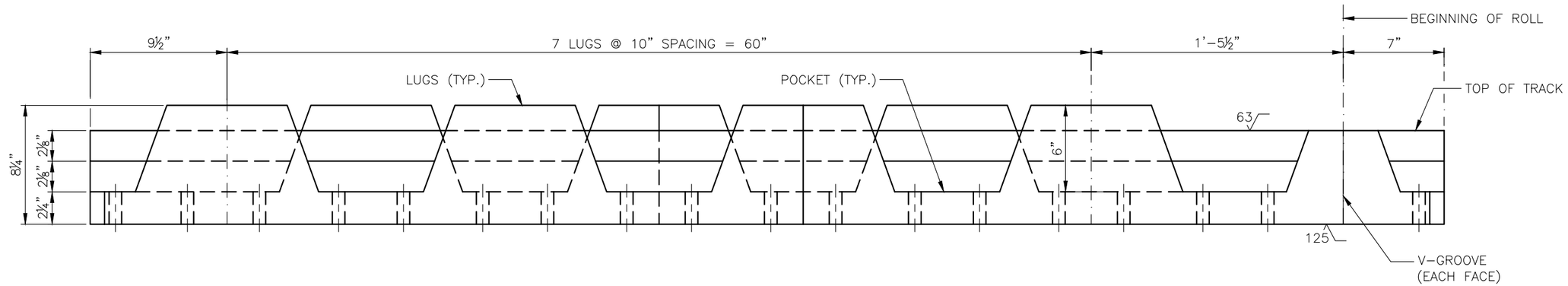
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M-14
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 211 OF 283



PLAN



ELEVATION
FLAT TRACK

(2 ASSEMBLIES REQUIRED)

NOTES:

1. SEE DWG. NO. M-17 FOR SECTION C-C AND SECTION D-D.
2. SEE DWG. NO. M-14 FOR V-GROOVE NOTES.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: FLAT TRACK DETAILS

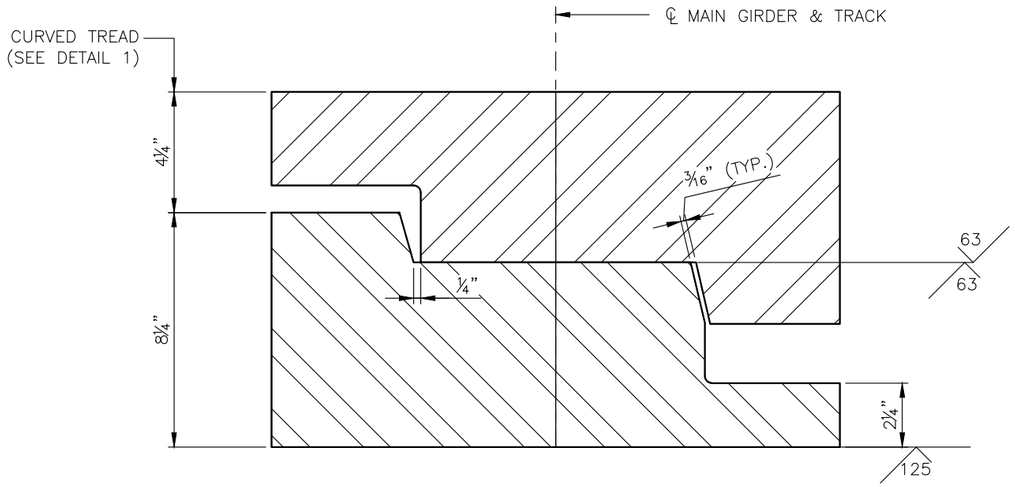
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

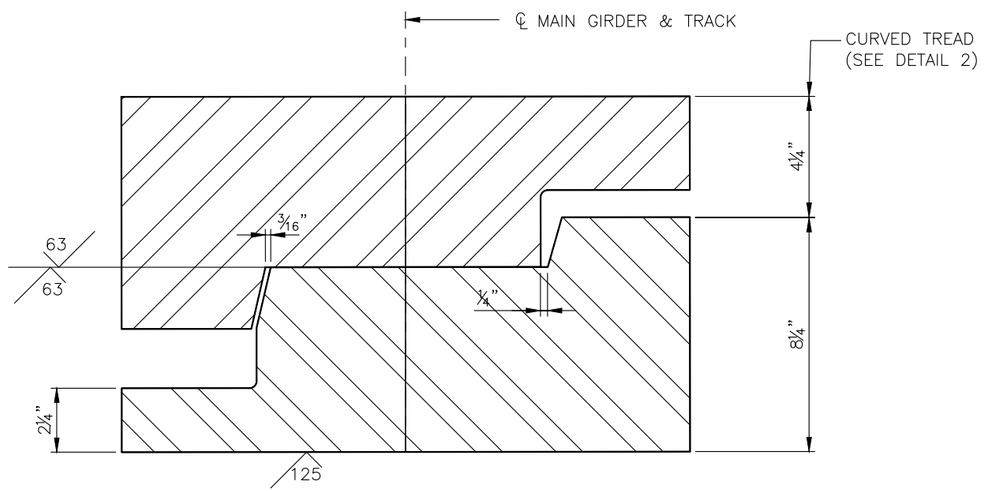
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DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 212 OF 283

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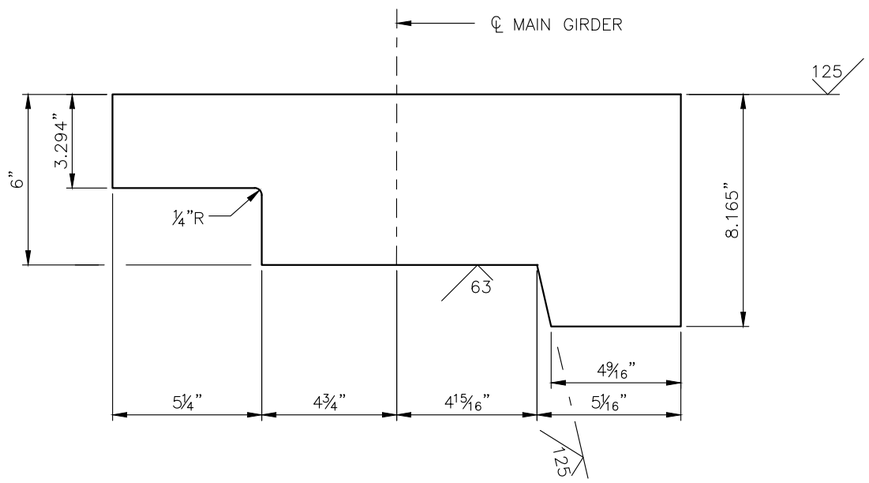


SECTION A–A

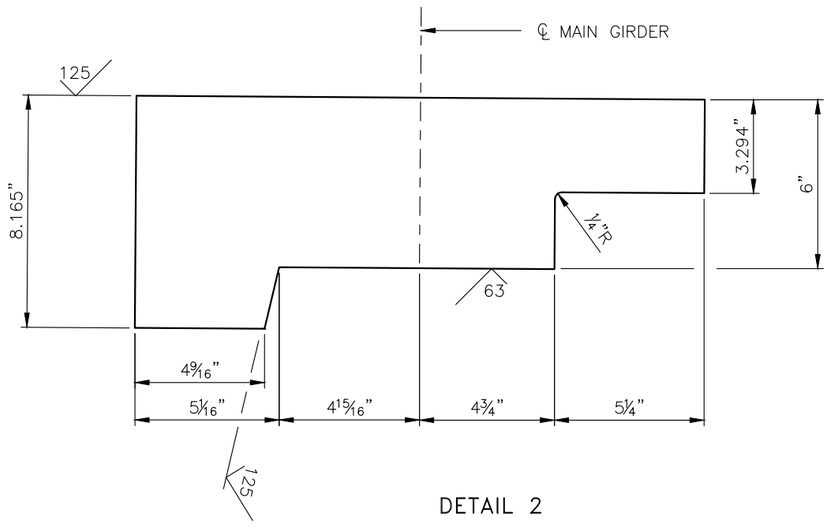


SECTION B–B

TYPICAL SECTION OF CURVED TREADS
(TRACK MATING SECTIONS TAKEN FROM DWG. NO. M–13)



DETAIL 1



DETAIL 2

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT:
BECKETT BRIDGE REPLACEMENT

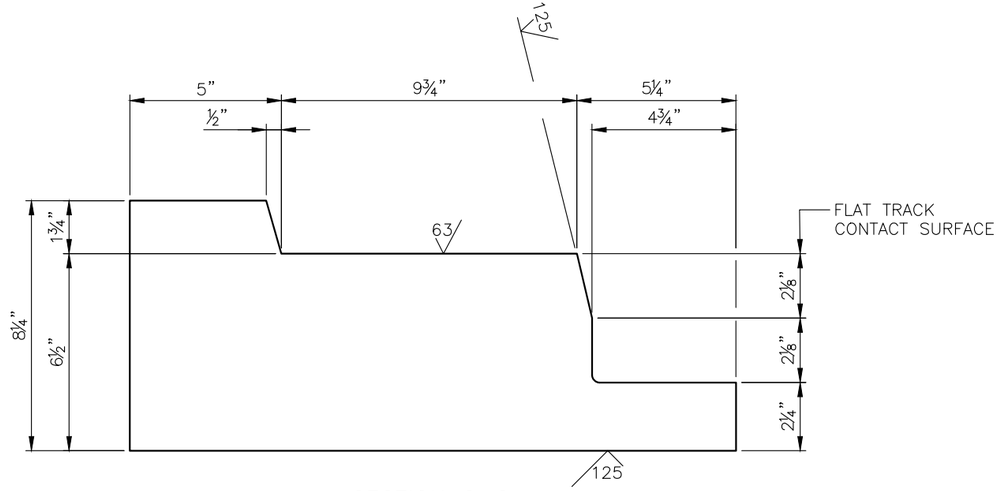
DESCRIPTION:
TREAD AND TRACK DETAILS (1 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

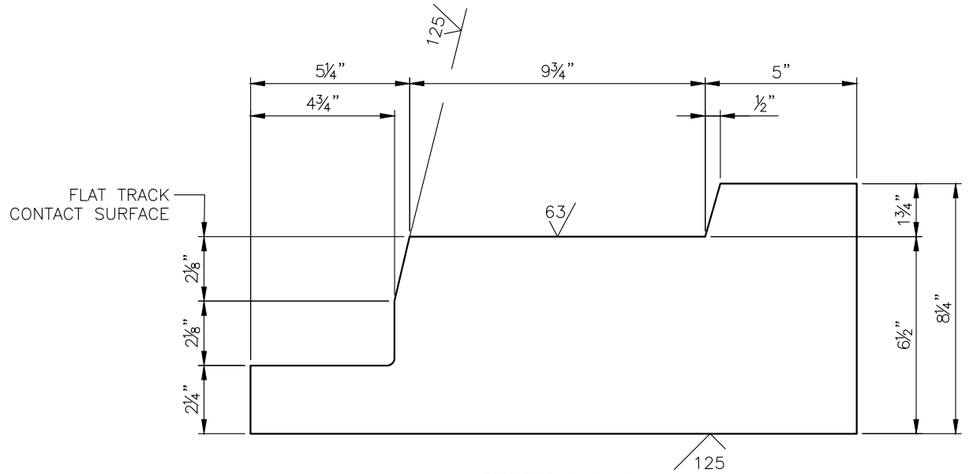
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M–16
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 213 OF 283

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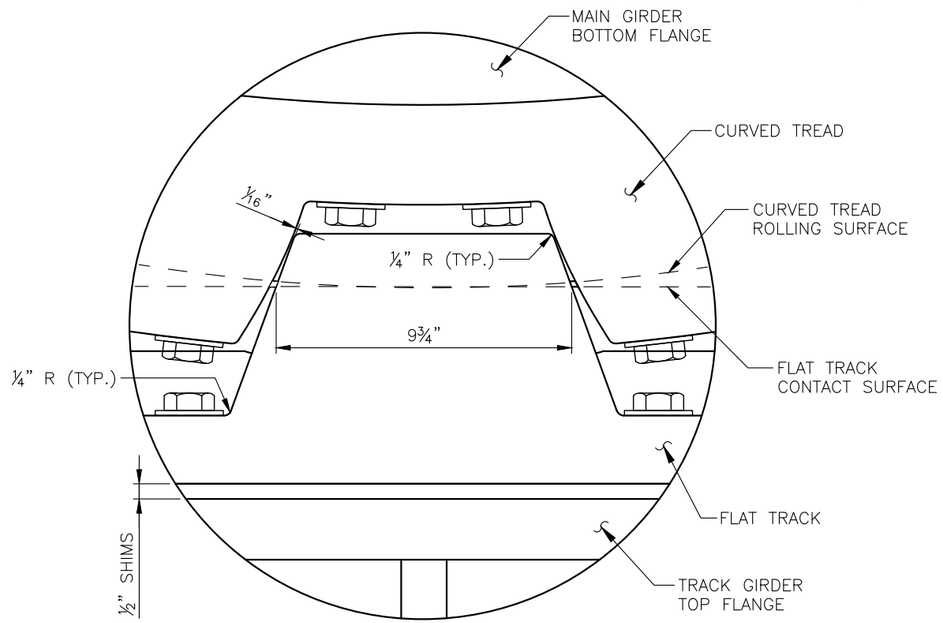
SECTION C–C



SECTION D–D

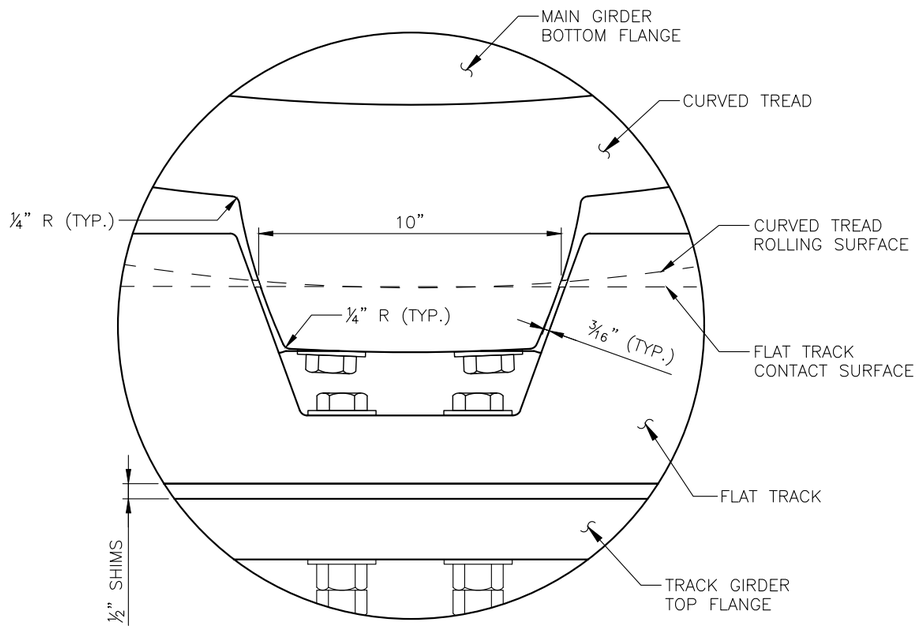
TYPICAL SECTIONS OF FLAT TRACK

(SECTIONS TAKEN FROM DWG. NO. M–15)



TRACK LUG ENGAGEMENT DETAIL

NOTE: SURFACE FINISH OF 125 MICRO INCH
ON ALL CONTACT SURFACES



TREAD LUG ENGAGEMENT DETAIL

NOTE: SURFACE FINISH OF 125 MICRO INCH
ON ALL CONTACT SURFACES

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

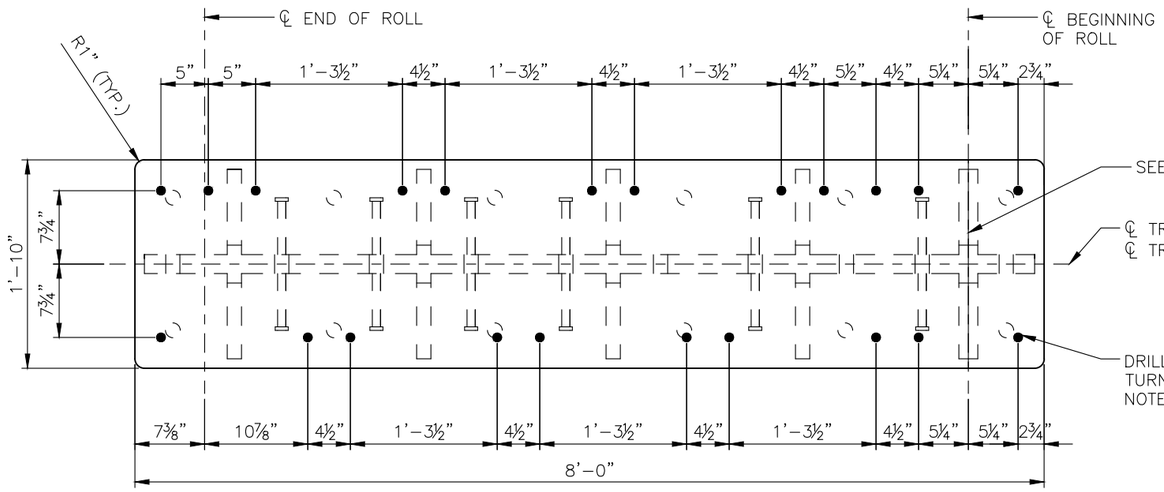
DESCRIPTION: TREAD AND TRACK DETAILS (2 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

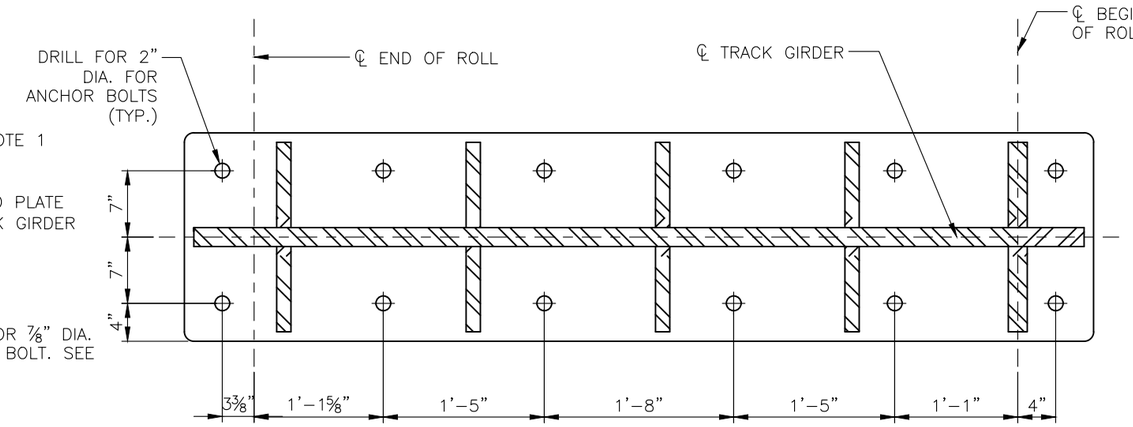
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M–17
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 214 OF 283

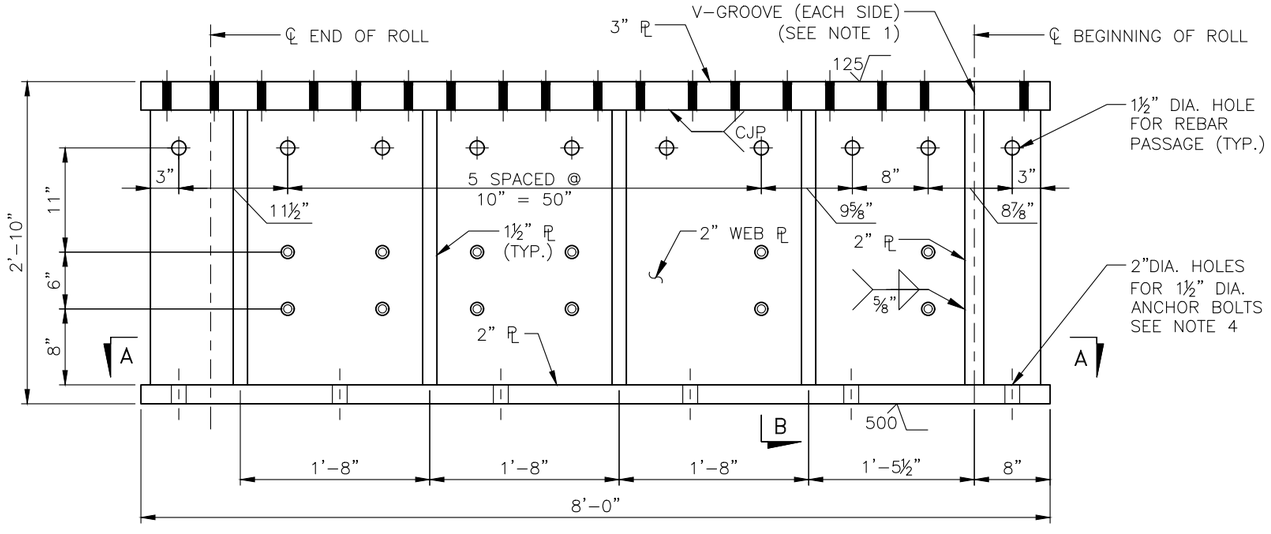
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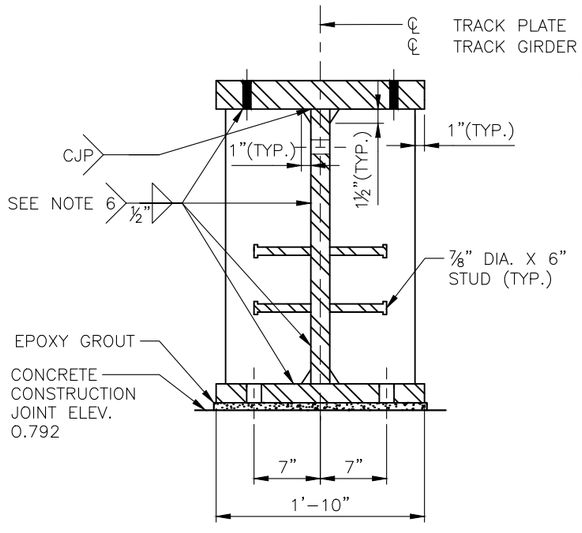
TRACK GIRDER
PLAN VIEW



SECTION A-A



TRACK GIRDER
ELEVATION



SECTION B-B

NOTES:

1. MACHINE 1/32" DEEP V-NOTCH CENTERLINE AT FIRST POSITION OF ROLL ON BOTH SIDES AND ACROSS THE TOP OF THE SUPPORT WELDMENT.
2. PROVIDE (6) ⅞" DIA. LEVELING SCREWS WITH UNF THREADS FOR BASE ℄ FIELD ADJUSTMENT AND LEVELING. DRILL ⅜" DIA. VENT HOLES FOR EPOXY LEVELING GROUT.
3. MACHINE TOP FLANGE WITH FLATNESS OF 0.001" PER FOOT, 0.010" OVERALL.
4. PROVIDE 1½" DIA. ASTM A193, GRADE B7 ANCHOR BOLTS, SET IN HSHV EPOXY. MIN. EMBEDMENT = 30". SET ANCHOR BOLT LAYOUT USING A TEMPLATE WITH CENTERLINE OF TREAD PLATE AND BEGIN AND END POSITIONS OF ROLL SCRIBED ON IT.
5. FIELD DRILL AND REAM FROM SOLID FOR TURNED BOLTS AFTER ALIGNMENT USING TRACK AS TEMPLATE.
6. MILL TO BEAR PRIOR TO WELDING.
7. PRIOR TO GROUTING, INSTALL TRACK SUCH THAT THE TOP SURFACE IS LEVEL WITHIN .002" PER FOOT IN ALL DIRECTIONS. THE FOUR CORNERS AT TWO ENDS OF TRACK SHALL BE LEVEL WITHIN .015".
8. ADJUST/COORDINATE REBAR LOCATION TO ACCOMMODATE ANCHOR BOLT SPACING. USE A TEMPLATE WHEN SETTING REBAR TO CONFIRM ADEQUATE CLEARANCE FOR ANCHOR BOLTS.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

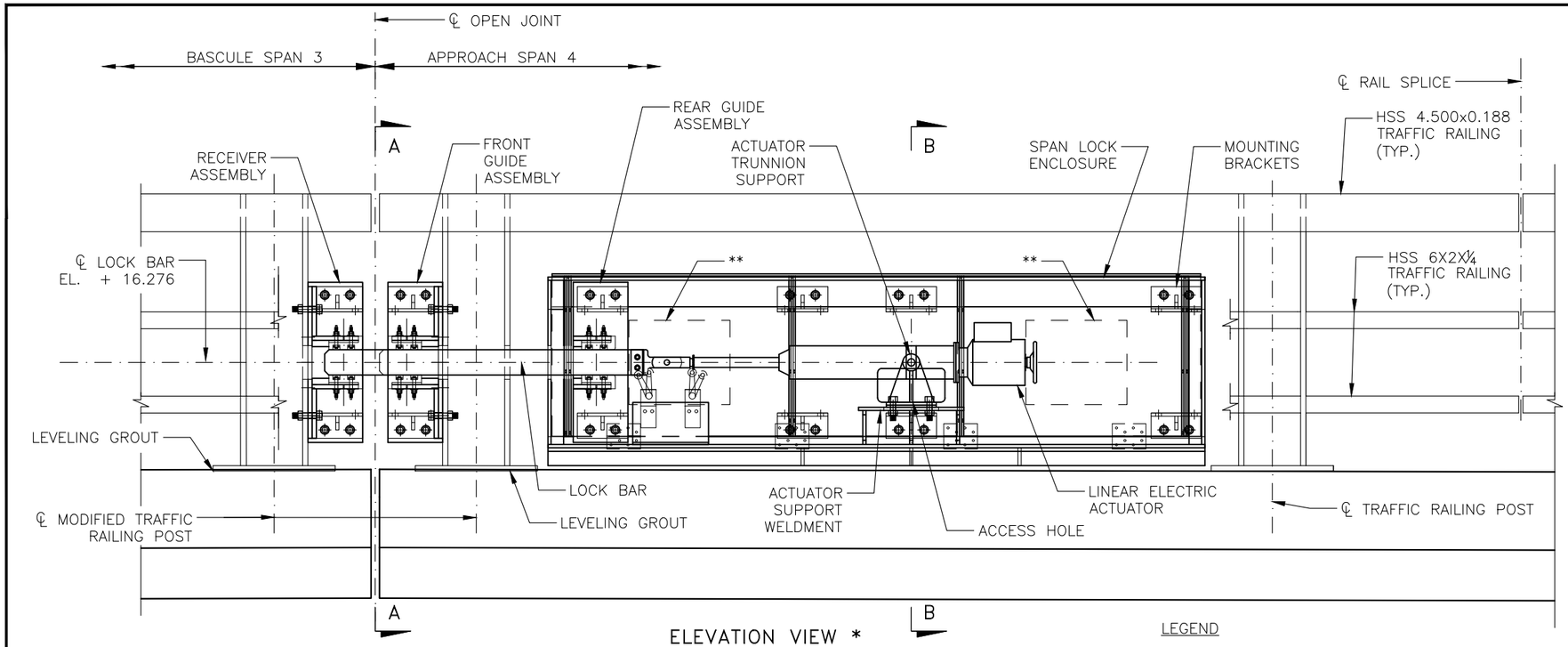
DESCRIPTION: TREAD AND TRACK DETAILS (3 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

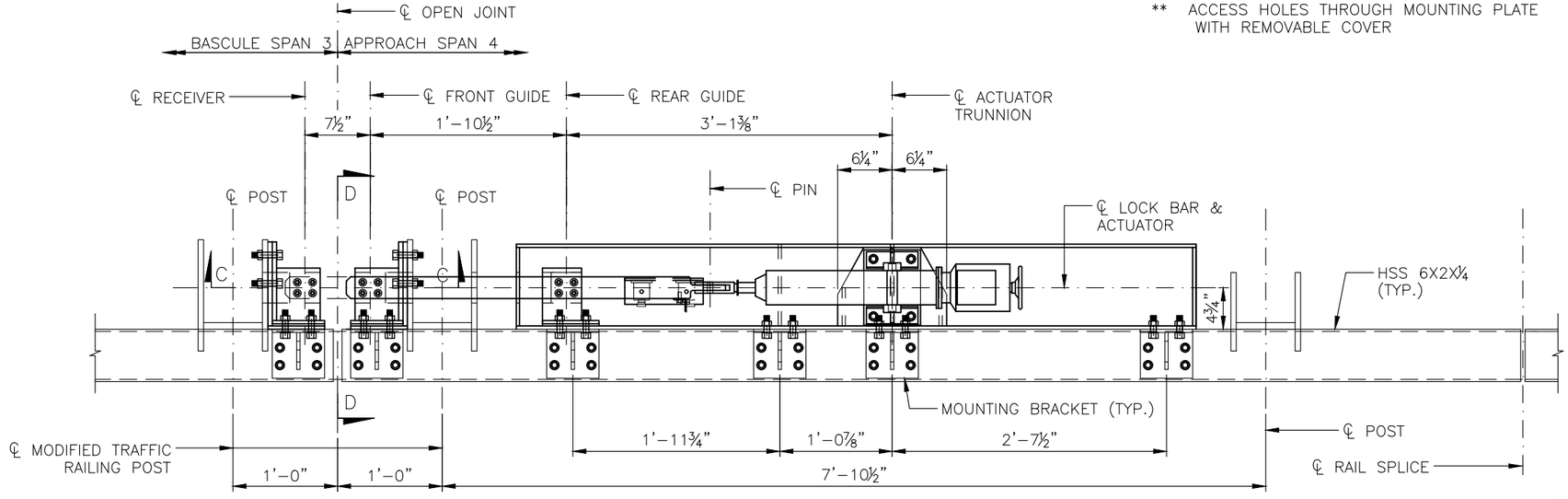
REF. DWG. NO. M-18
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 215 OF 283

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ELEVATION VIEW *

(LOCK BAR SHOWN DRIVEN)



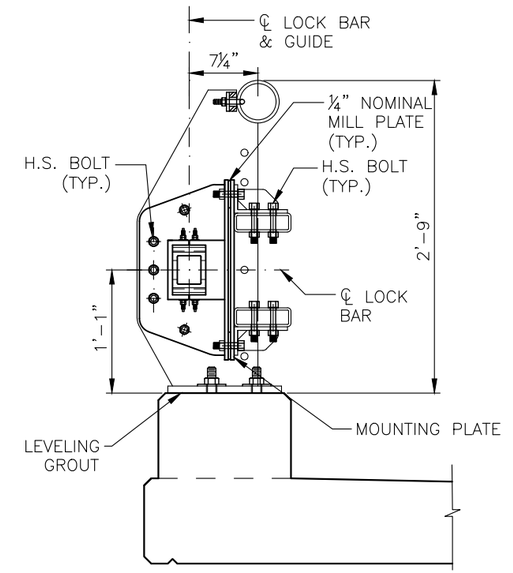
PLAN VIEW INSIDE ENCLOSURE

(LOCK BAR SHOWN RETRACTED)

LEGEND

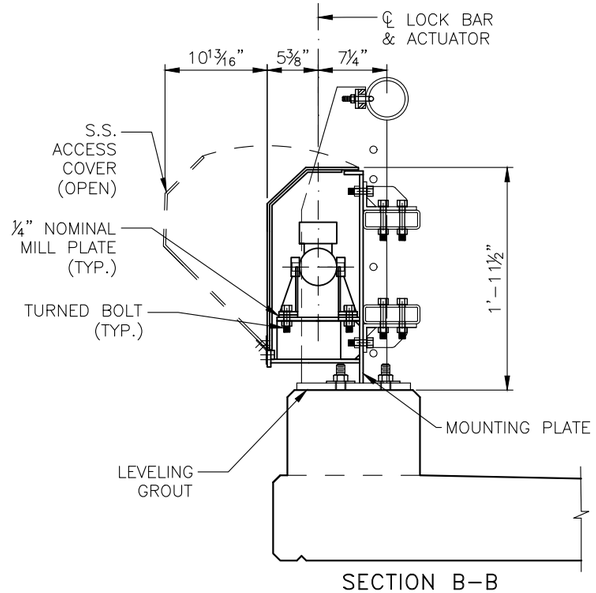
* MOUNTING PLATE NOT SHOWN

** ACCESS HOLES THROUGH MOUNTING PLATE WITH REMOVABLE COVER



SECTION A–A

TRAFFIC RAILING ASSEMBLY



SECTION B–B

TRAFFIC RAILING ASSEMBLY

NOTES:

1. COORDINATE WITH TRAFFIC RAILING DETAILS IN STRUCTURAL PLANS. REFER TO DWG. M–20 FOR SECTION C–C AND VIEW D–D.
2. LEVEL THE FIRST RAILING PANELS ON BOTH SIDES OF OPEN JOINT. PROVIDE LEVELING GROUT AS REQUIRED.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JJK
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SPAN LOCK ASSEMBLY

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

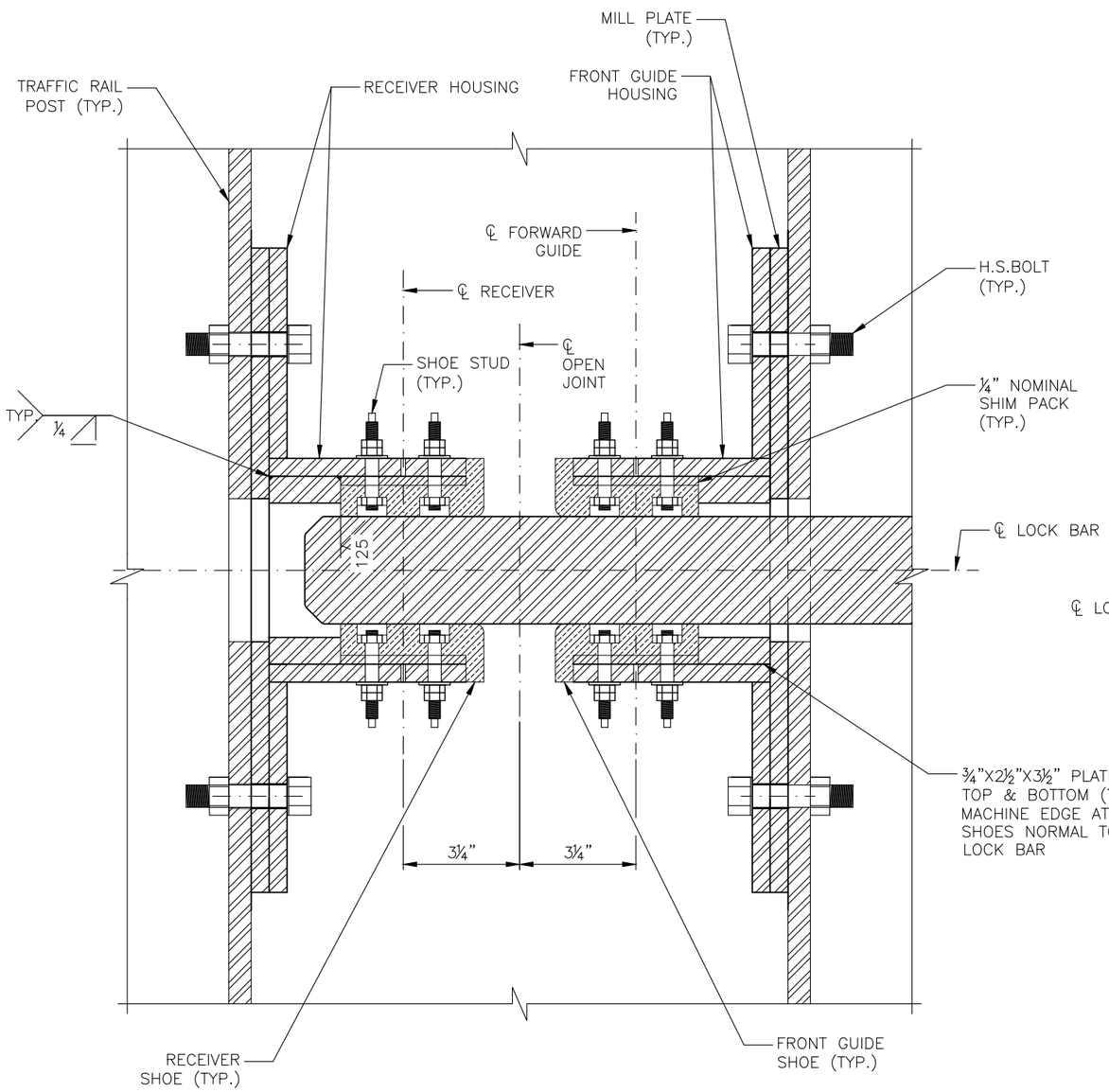
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M–19
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 216 OF 283

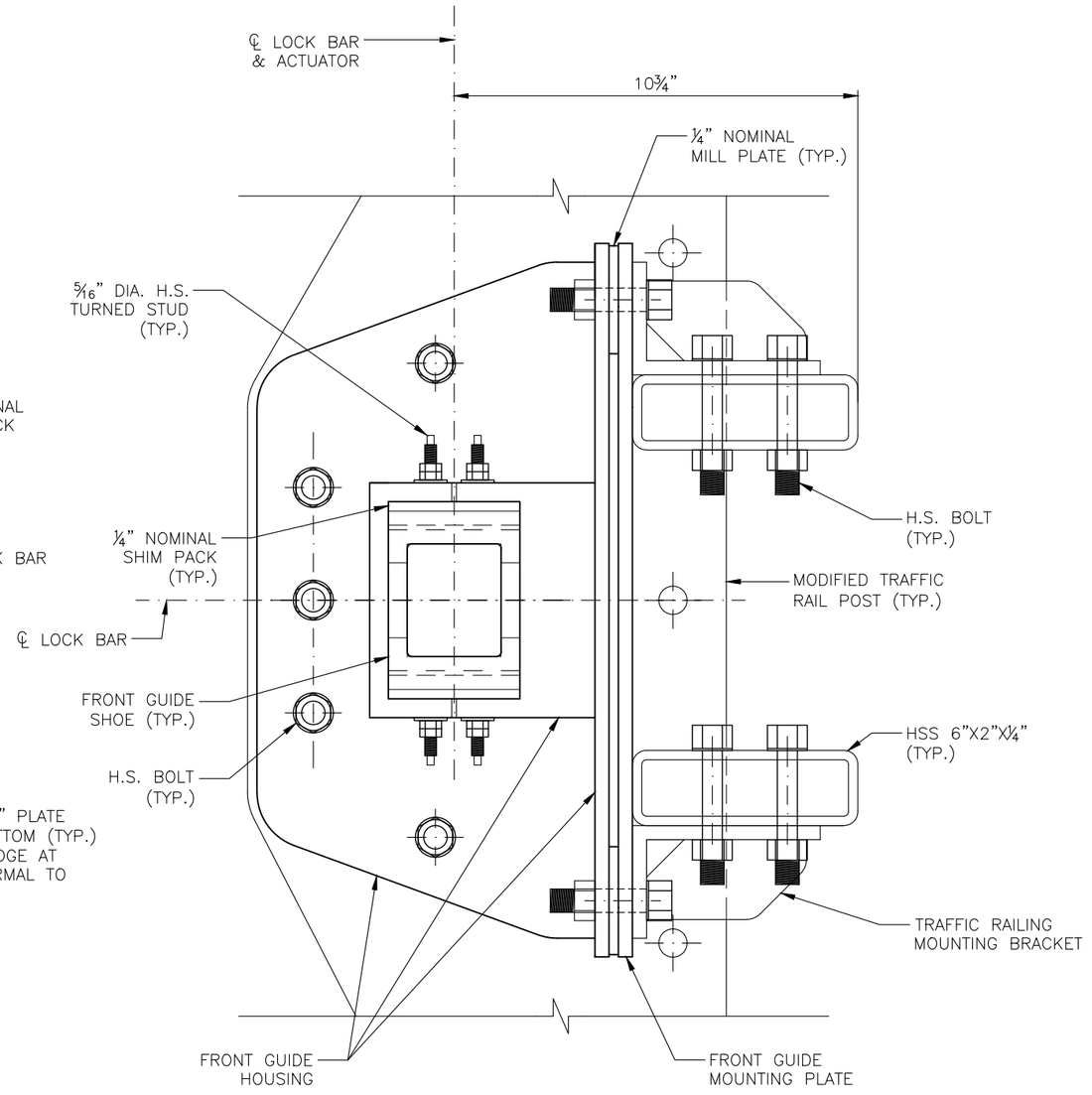
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SECTION C–C



VIEW D–D
(FRONT GUIDE ASSEMBLY SHOWN, RECEIVER SIMILAR)

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JJK
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

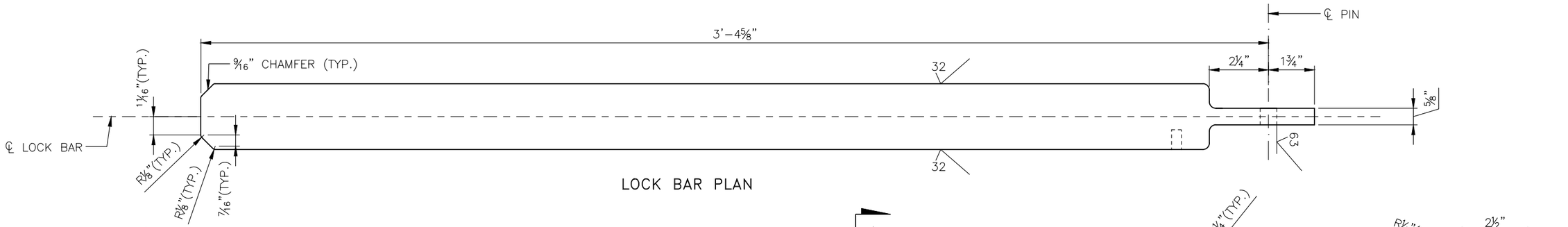
DESCRIPTION: SPAN LOCK GUIDE ASSEMBLY

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

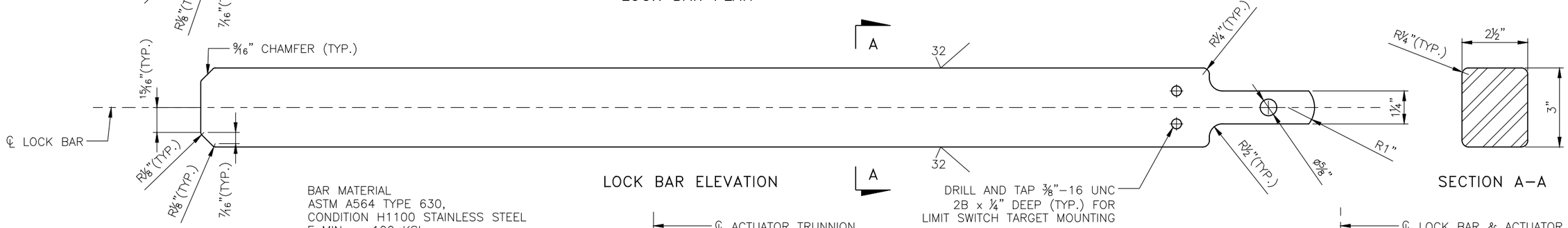
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M–20
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 217 OF 283

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ANJUN CHEN



LOCK BAR PLAN

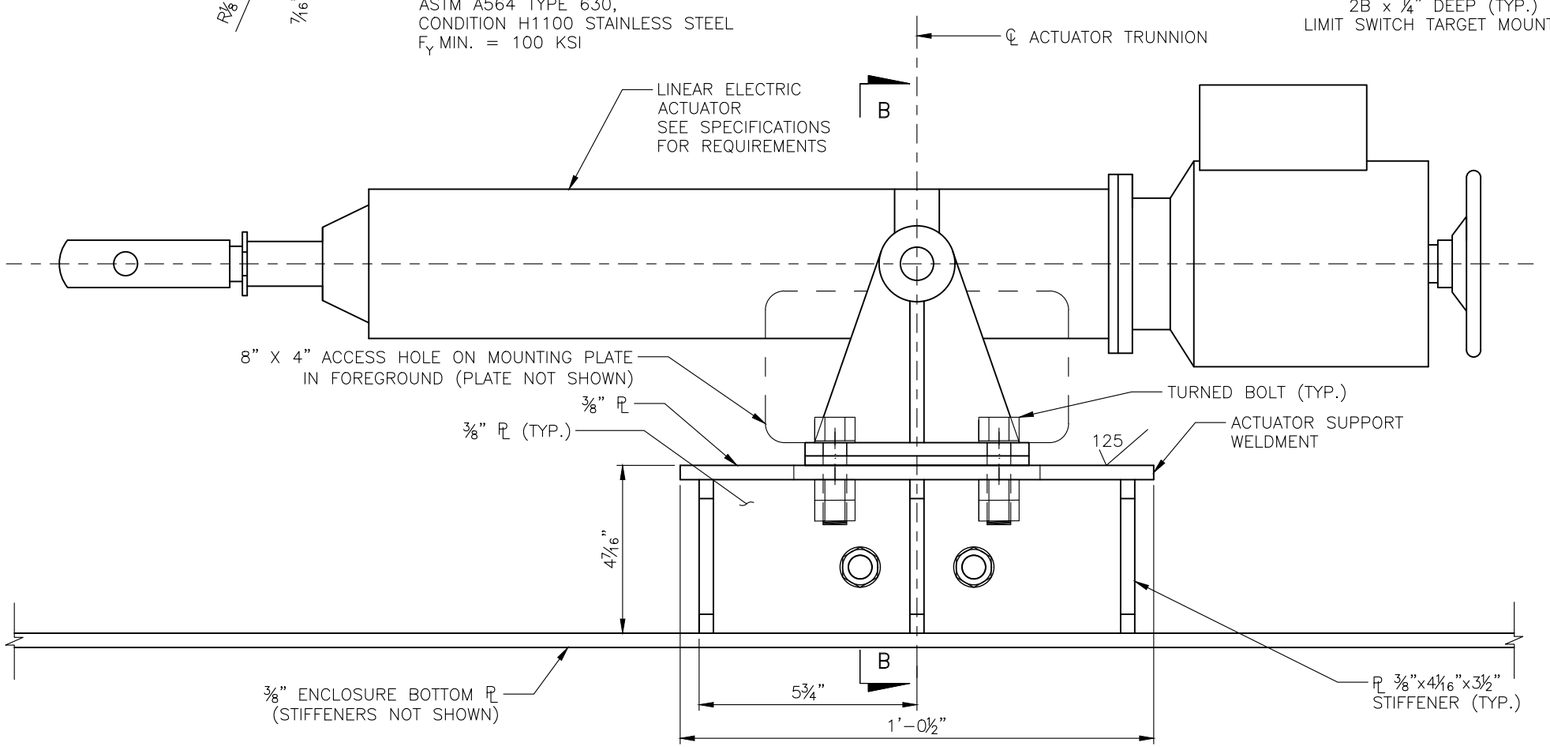


LOCK BAR ELEVATION

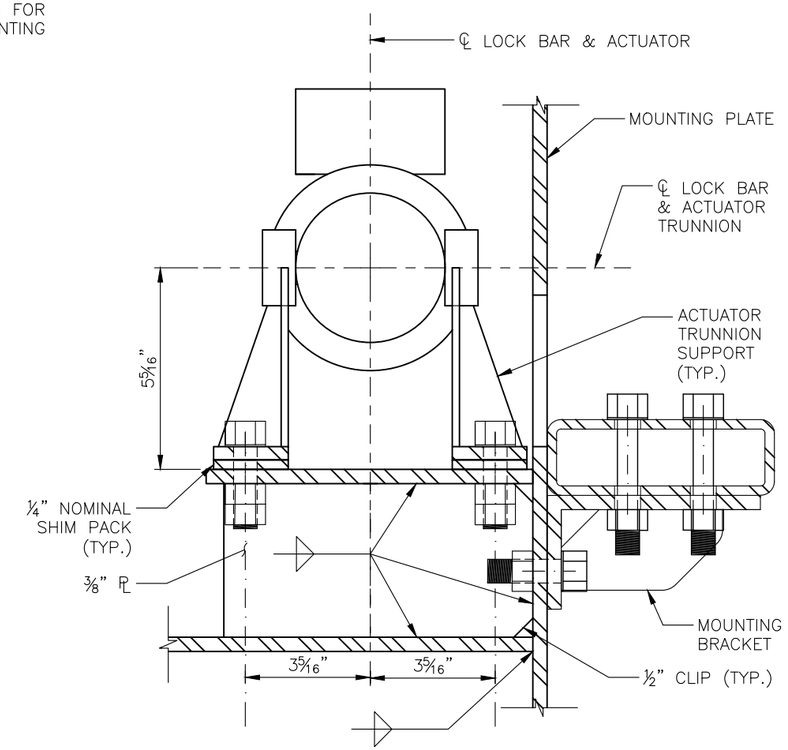
SECTION A–A

BAR MATERIAL
ASTM A564 TYPE 630,
CONDITION H1100 STAINLESS STEEL
F_Y MIN. = 100 KSI

DRILL AND TAP ⅜"–16 UNC
2B x ¼" DEEP (TYP.) FOR
LIMIT SWITCH TARGET MOUNTING



ACTUATOR TRUNNION SUPPORT AND SUPPORT WELDMENT



SECTION B–B

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JJK
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SPAN LOCK DETAILS (1 OF 5)

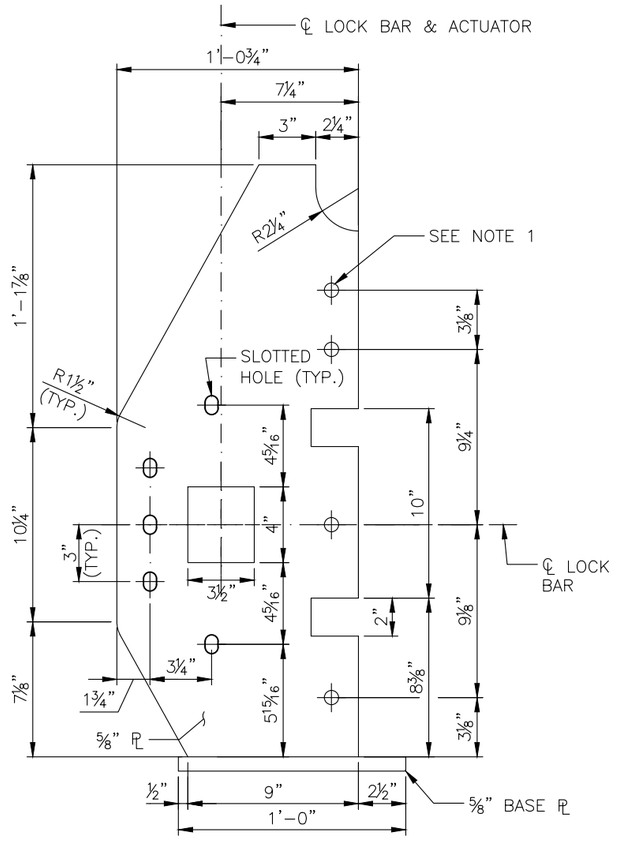
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

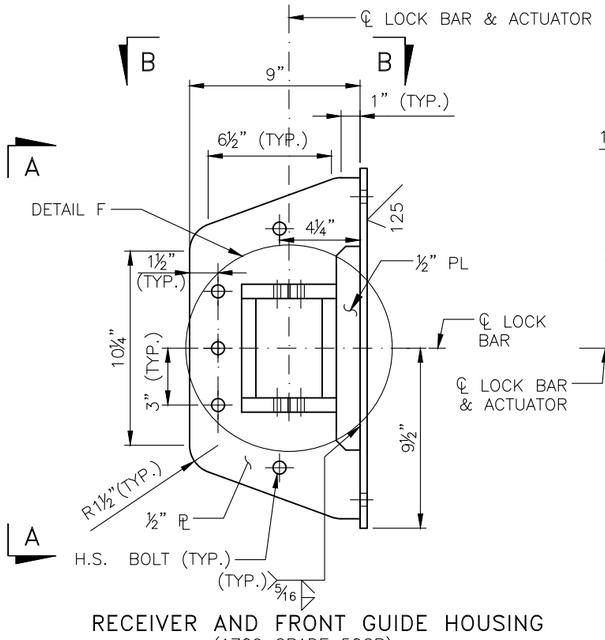
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DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 218 OF 283

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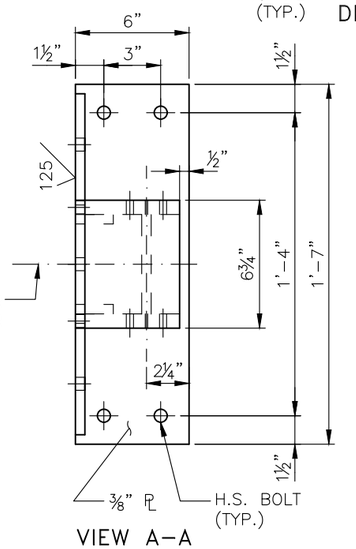
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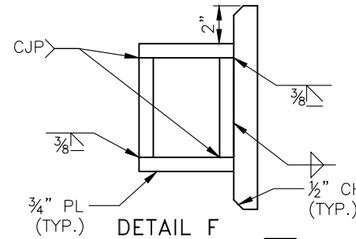
MODIFIED TRAFFIC RAIL POST



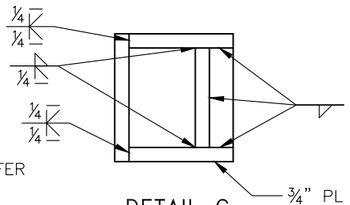
RECEIVER AND FRONT GUIDE HOUSING
(A709 GRADE 50CR)



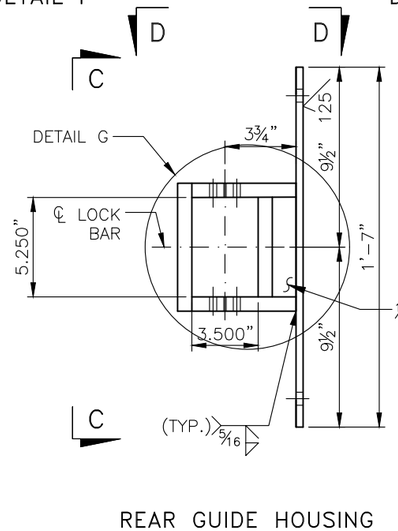
VIEW A–A



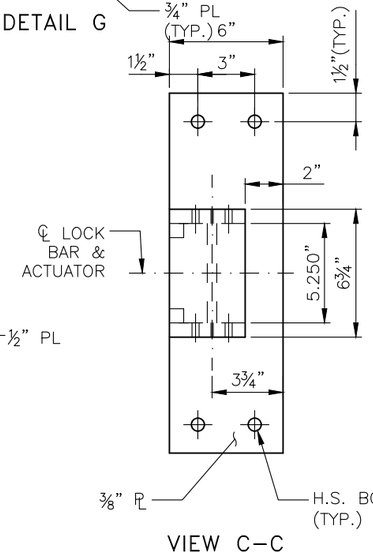
DETAIL F



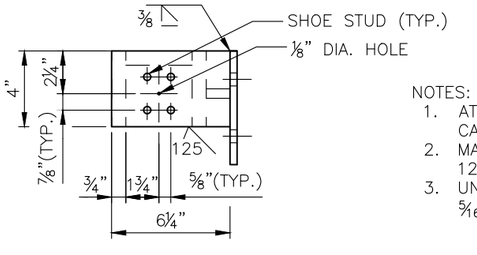
DETAIL G



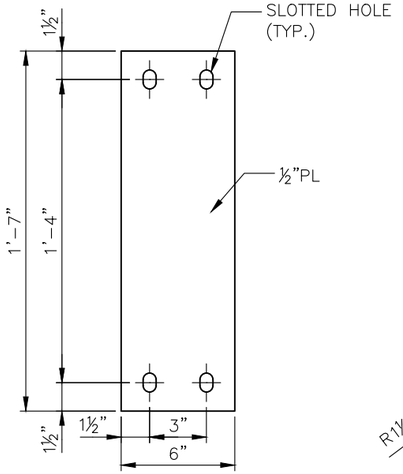
REAR GUIDE HOUSING
(A709 GRADE 50CR)



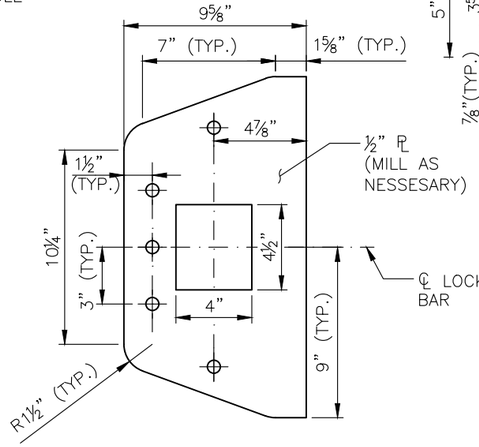
VIEW C–C



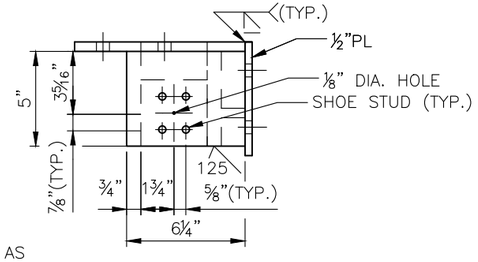
NOTES:
1. AT THE RECEIVER ONLY, PROVIDE ANCHORAGE FOR THE S.S. CABLES. SEE STRUCTURAL PLANS.
2. MACHINE HOUSING SURFACES IN CONTACT WITH SHOES TO 125 SURFACE FINISH AND LC1 FIT WITH SHOES.
3. UNLESS OTHERWISE NOTED, CONNECT STEEL PLATES WITH 5⁄16" FILLET WELDS.



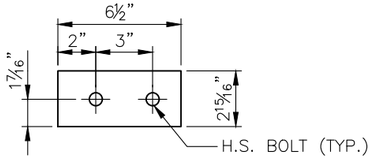
RECEIVER AND FRONT GUIDE MOUNTING PLATE



RECEIVER AND FRONT GUIDE MILL PLATE

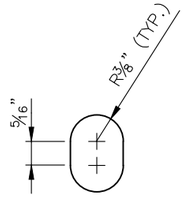


VIEW B–B

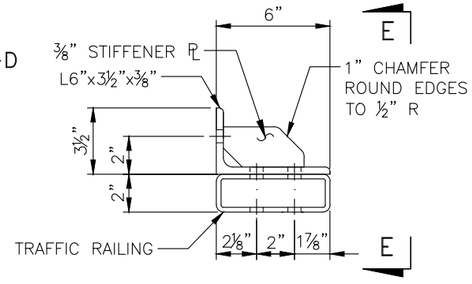


RECEIVER AND GUIDE SHIMS

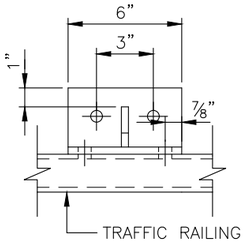
VIEW D–D



SLOTTED HOLE DETAIL



TRAFFIC RAIL MOUNTING BRACKET
(TOP MOUNTING BRACKET SHOWN,



VIEW E–E

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JJK
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

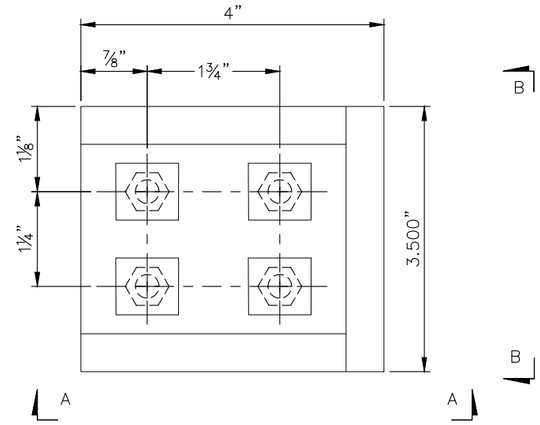
DESCRIPTION: SPAN LOCK DETAILS (2 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

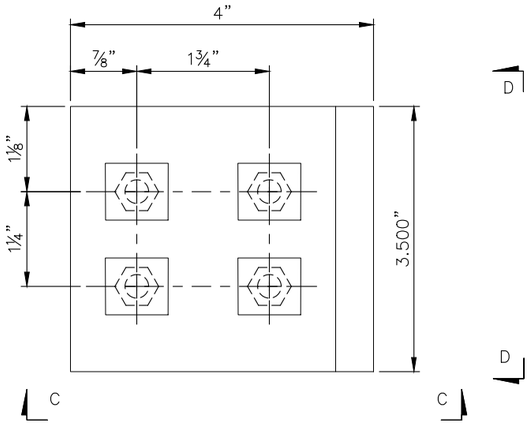
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M-22
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 219 OF 283

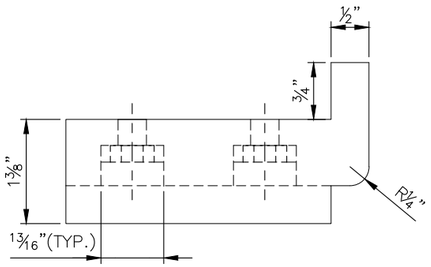
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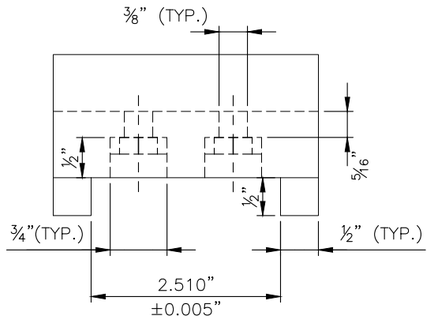
FRONT AND REAR GUIDE SHOE
(ULTRACOMP MATERIAL)



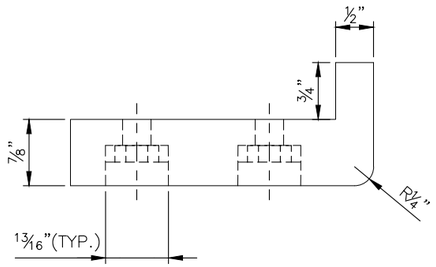
RECEIVER SHOE
(ULTRACOMP MATERIAL)



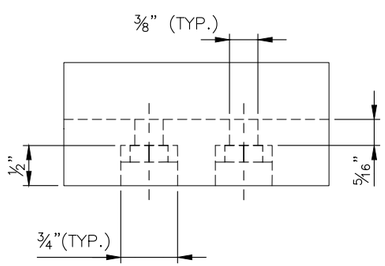
VIEW A–A



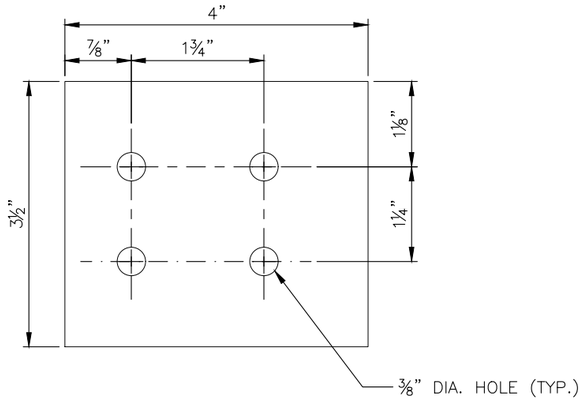
VIEW B–B



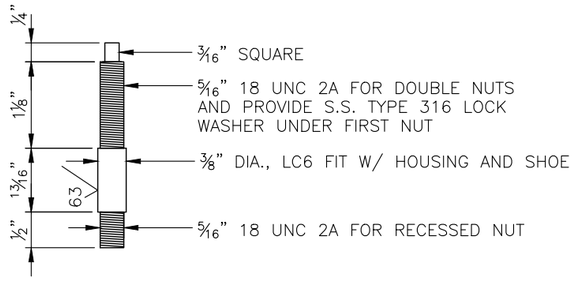
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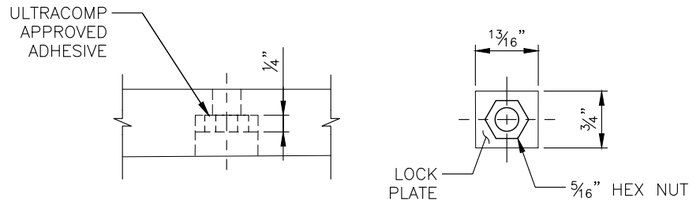
VIEW D–D



SHOE SHIM



SHOE STUD TYPE 1 DETAIL



RECESSED NUT AND
LOCK PLATE DETAIL

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

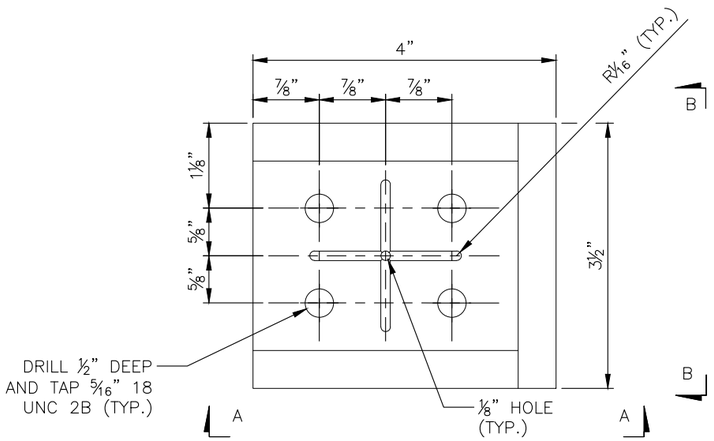
PROJECT:
BECKETT BRIDGE
REPLACEMENT

DESCRIPTION:
SPAN LOCK DETAILS
(3 OF 5)

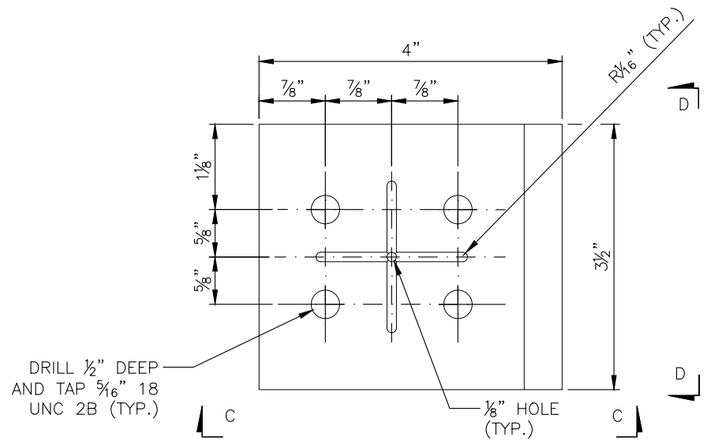
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

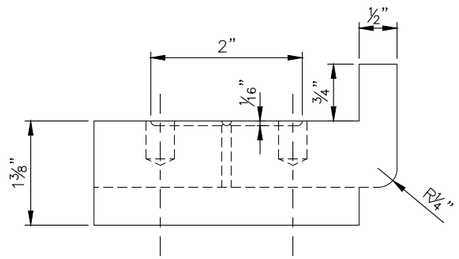
REF. DWG. NO.
M–23
DATE:
6/25/2021
PROJECT NO.
001037A
SHEET:
220 OF 283



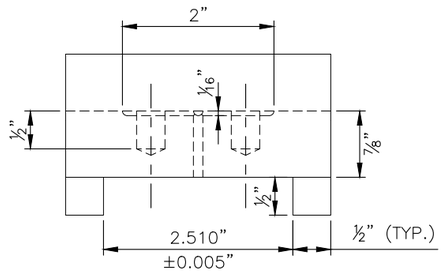
FRONT AND REAR GUIDE SHOE
(ASTM B22 ALLOY 905)



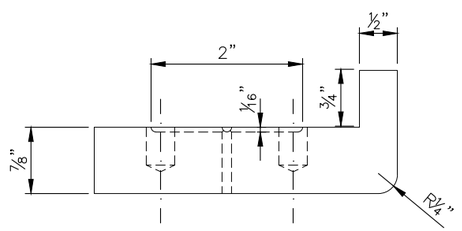
RECEIVER SHOE
(ASTM B22 ALLOY 905)



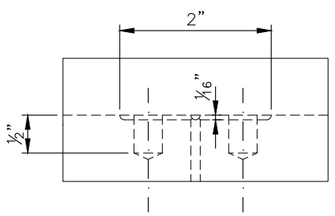
VIEW A–A



VIEW B–B



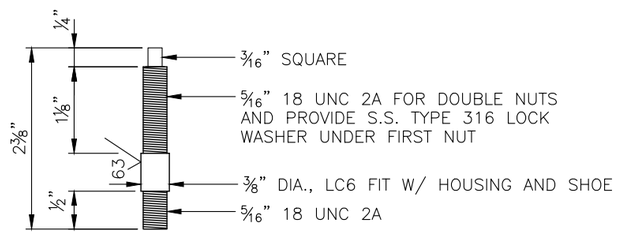
VIEW C–C



VIEW D–D

TABLE OF SPAN LOCK ASSEMBLY MATERIALS			
PART	QNTY	MATERIAL	DESIGNATION
LOCK BAR	2	FORGED STAINLESS STEEL	ASTM A564 TYPE 630
ACTUATOR SUPPORT	2	STRUCTURAL STEEL PLATE	ASTM A709 GRADE 50
MODIFIED TRAFFIC RAIL POST	4	STRUCTURAL STEEL PLATE	ASTM A709 GRADE 50
RECEIVER AND FRONT GUIDE HOUSING	4	STAINLESS STEEL	ASTM A709 GRADE 50CR
REAR GUIDE HOUSING	2	STAINLESS STEEL	ASTM A709 GRADE 50CR
RECEIVER AND FRONT GUIDE MOUNTING PLATE	4	STRUCTURAL STEEL PLATE	ASTM A709 GRADE 50
RECEIVER AND FRONT GUIDE MILL PLATE	4	STRUCTURAL STEEL PLATE	ASTM A709 GRADE 50
RECEIVER AND GUIDE SHIMS	12	STAINLESS STEEL	ASTM A276 GRADE 316
TRAFFIC RAILING MOUNTING BRACKET	24	STRUCTURAL STEEL PLATE	ASTM A709 GRADE 50
FRONT AND REAR GUIDE SHOE	8	BRONZE	ASTM B22 GRADE 913
RECEIVER SHOE	4	BRONZE	ASTM B22 ALLOY 905
FRONT AND REAR GUIDE SHOE	8	COMPOSITE	***
RECEIVER SHOE	4	COMPOSITE	***
SHOE SHIM	12	STAINLESS STEEL	ASTM A276 ALLOY 905
SHOE STUD TYPE 1	48	H.S. BOLT STEEL	ASTM A325
RECESSED NUT AND LOCK PLATE	48	STAINLESS STEEL	ASTM A276 TYPE 316
ACCESS DOOR & ENCLOSURE	2	STAINLESS STEEL	ASTM A276 TYPE 316
HINGES	8	STAINLESS STEEL	ASTM A276 TYPE 316

*** SEE TSP 468 FOR MATERIAL SEPCIFICATIONS



SHOE STUD TYPE 2 DETAIL

NOTES:
1. MACHINE SHOES TO 125 FINISH ALL OVER EXCEPT MACHINE CONTACT SURFACE WITH LOCK BAR TO 32 FINISH.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SPAN LOCK DETAILS (4 OF 5)

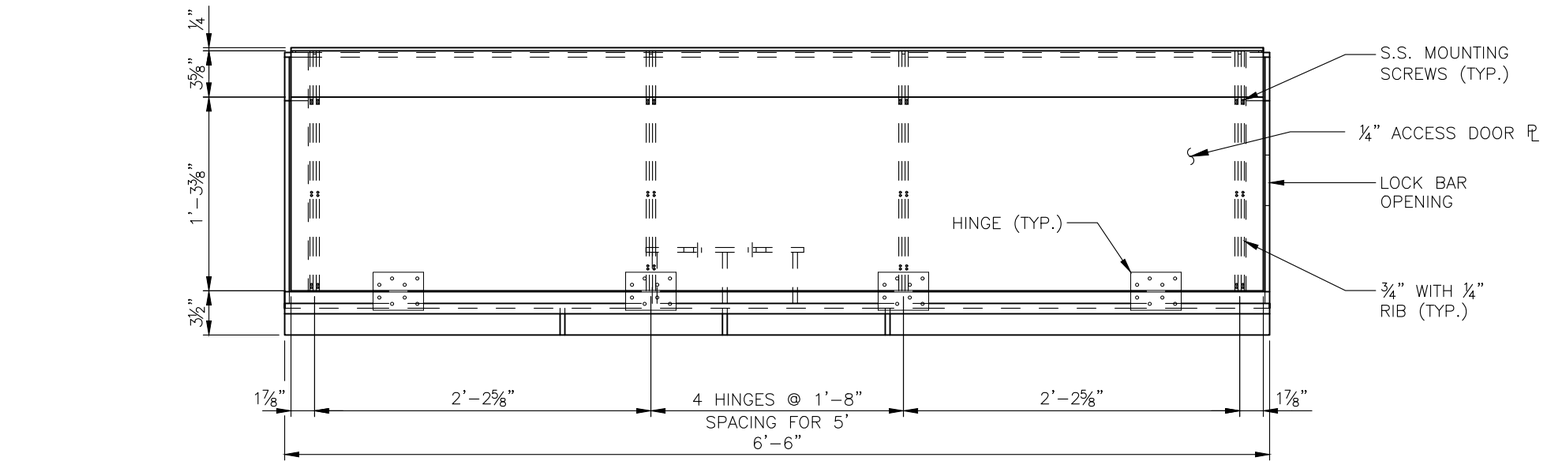
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

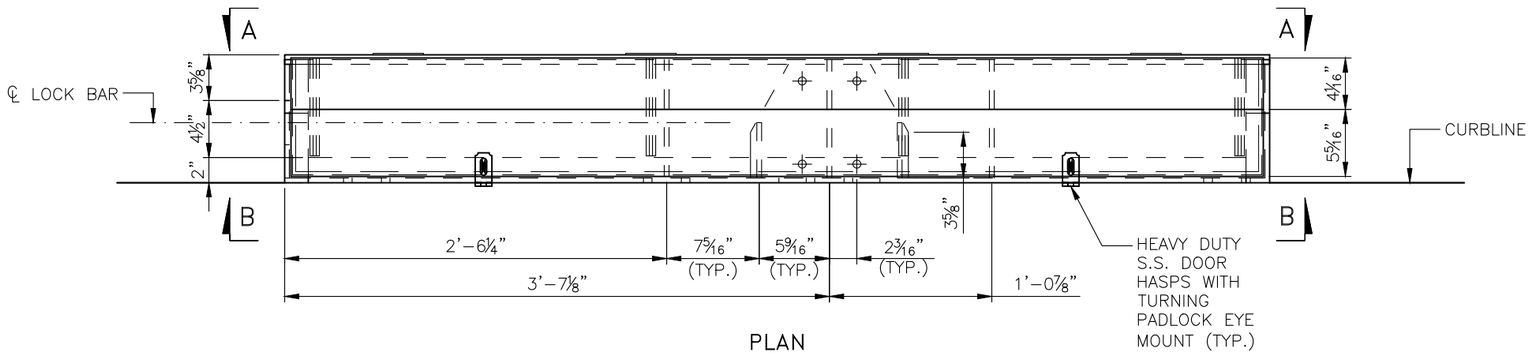
REF. DWG. NO. M–24
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 221 OF 283

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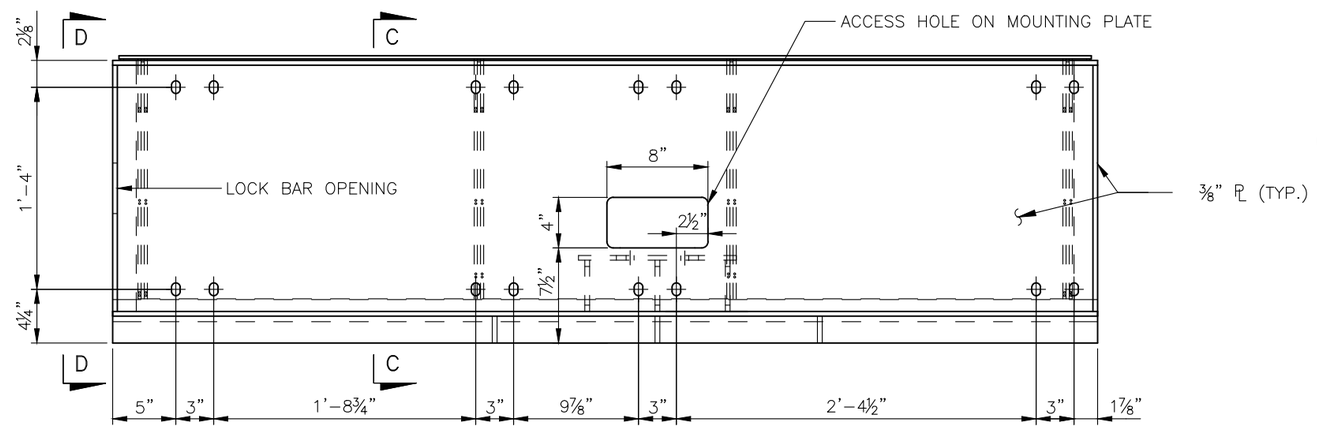
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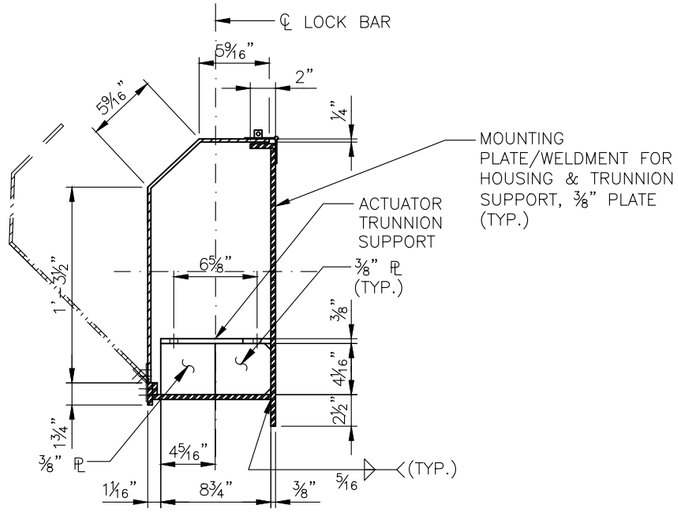
ELEVATION A-A



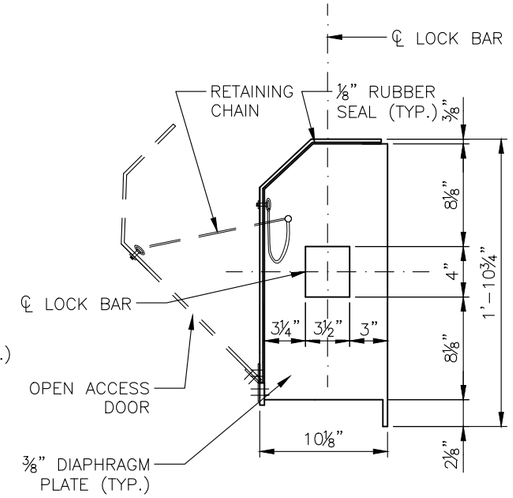
PLAN



ELEVATION B-B



HOUSING
SECTION C-C



HOUSING
VIEW D-D

NOTES:
1. REFER TO DWG. NO. M-21 FOR ACTUATOR TRUNNION SUPPORT DETAILS.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JJK
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SPAN LOCK DETAILS (5 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

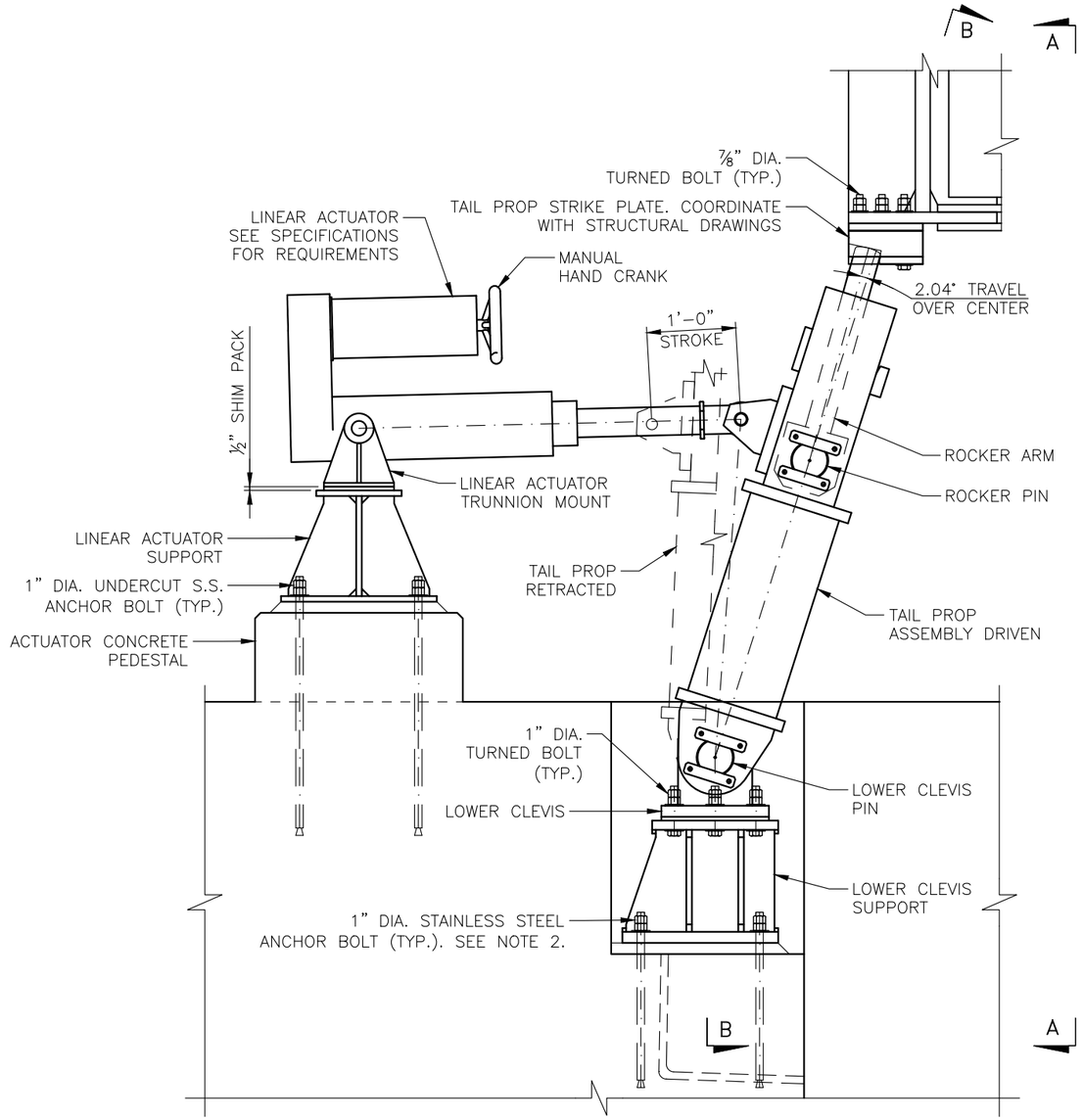
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M-25
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 222 OF 283

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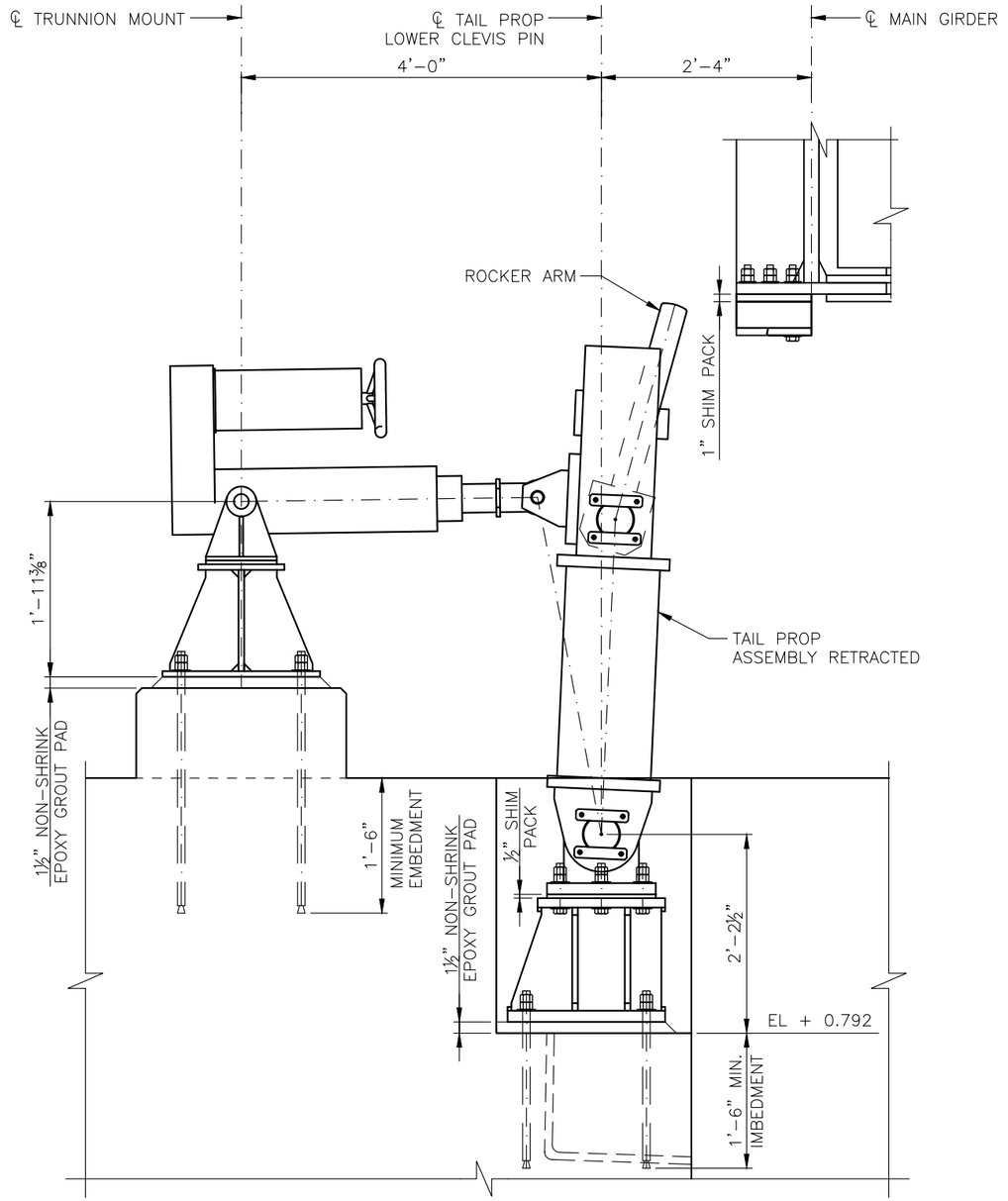
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NOTES:
1. REFER TO DWG. NO. M-27 FOR SECTION A-A AND SECTION B-B.
2. PROVIDE ASTM A193 GRADE 304 B8 CLASS 2 ANCHOR BOLTS WITH ASTM A194 GRADE 8M NUTS. SET ANCHOR BOLTS IN HSHV EPOXY.

TAIL PROP ASSEMBLY ELEVATION
(SHOWN DRIVEN)



TAIL PROP ASSEMBLY ELEVATION
(SHOWN RETRACTED)

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

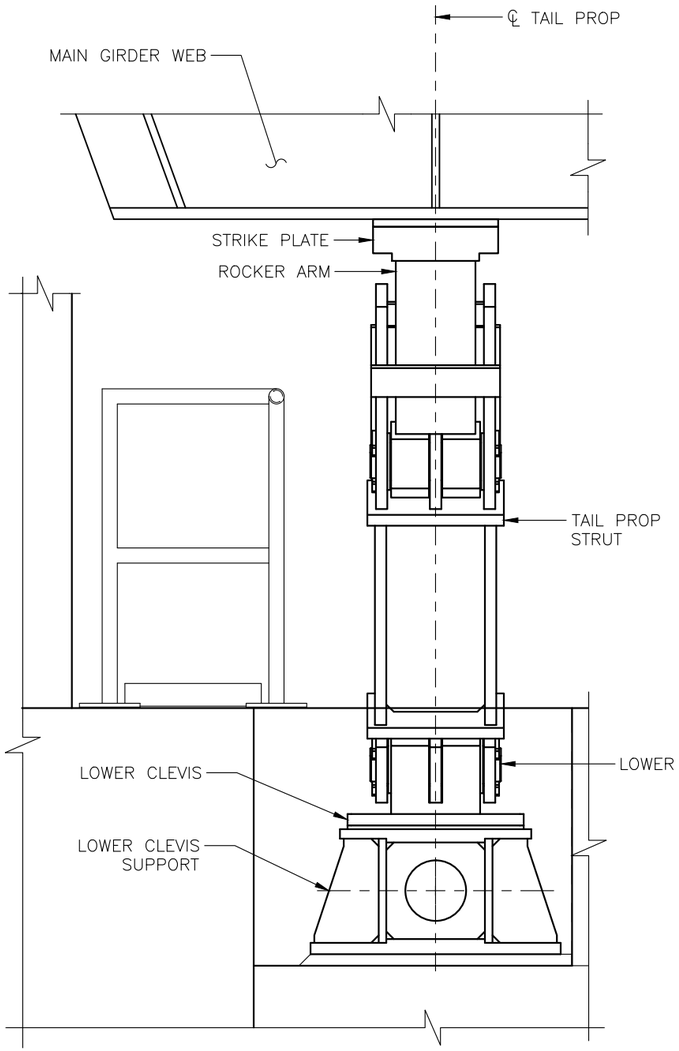
DESCRIPTION: TAIL PROP ASSEMBLY (1 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

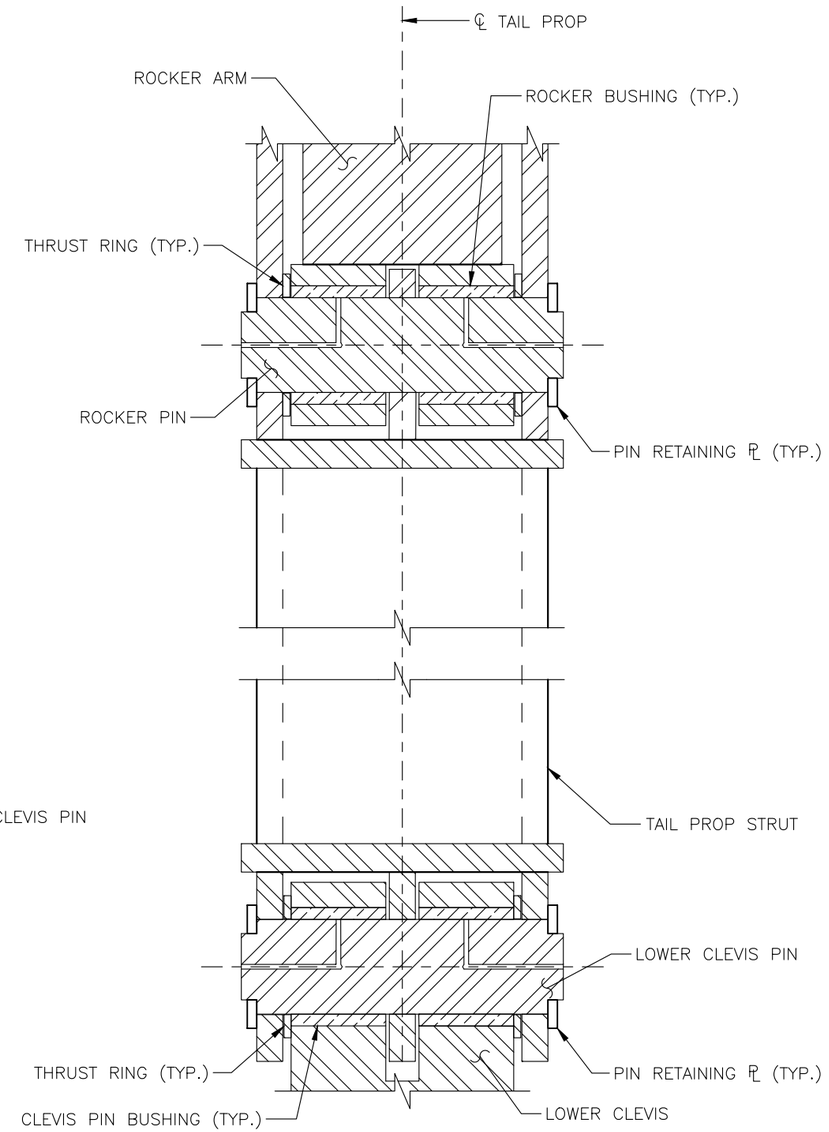
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M-26
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 223 OF 283

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VIEW A–A
(SEE NOTE NO. 1)



SECTION B–B
(SEE NOTE NO. 1)

NOTES:
1. REFER TO DWG. NO. M–26 FOR LOCATION OF VIEW A–A AND SECTION B–B.
2. PRIOR TO INSTALLATION OF THE TAIL PROP ASSEMBLY THE BASCULE LEAF MUST BE ERECTED, ALIGNED, AND BALANCED.
3. REFER TO TSP SECTION T468 FOR ALIGNMENT TOLERANCES.
4. DO NOT SHIM PLATE TO BEAR ON ROCKER ARM OR FULLY DRIVE ROCKER ARM INTO STRIKE PLATE UNTIL THE TAIL PROP SUPPORT WELDMENT HAS BEEN FULLY SUPPORTED AND UNDERCUT ANCHORS TENSIONED.
5. SHIM STRIKE PLATE, AT ASSEMBLY, TO PROVIDE 0.020" UPLIFT OF THE MAIN GIRDER AT STRIKE PLATE WITH THE ASSEMBLY FULLY DRIVEN 2.04" TRAVEL OVER CENTER.
6. POSITION CLEVIS PIN GREASE HOLES TOWARDS THE TOP OF THE PIN.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

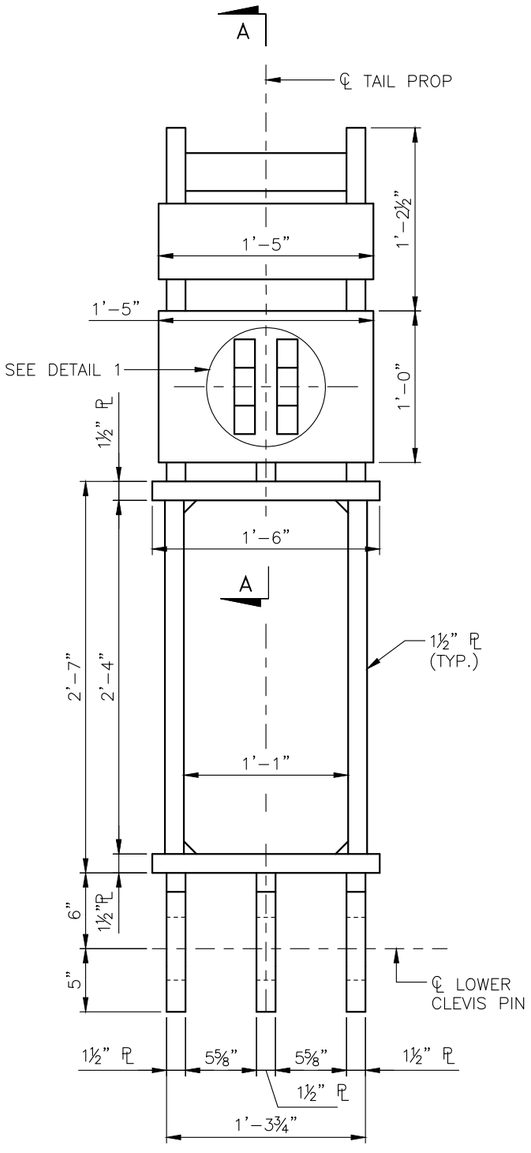
DESCRIPTION: TAIL PROP ASSEMBLY (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

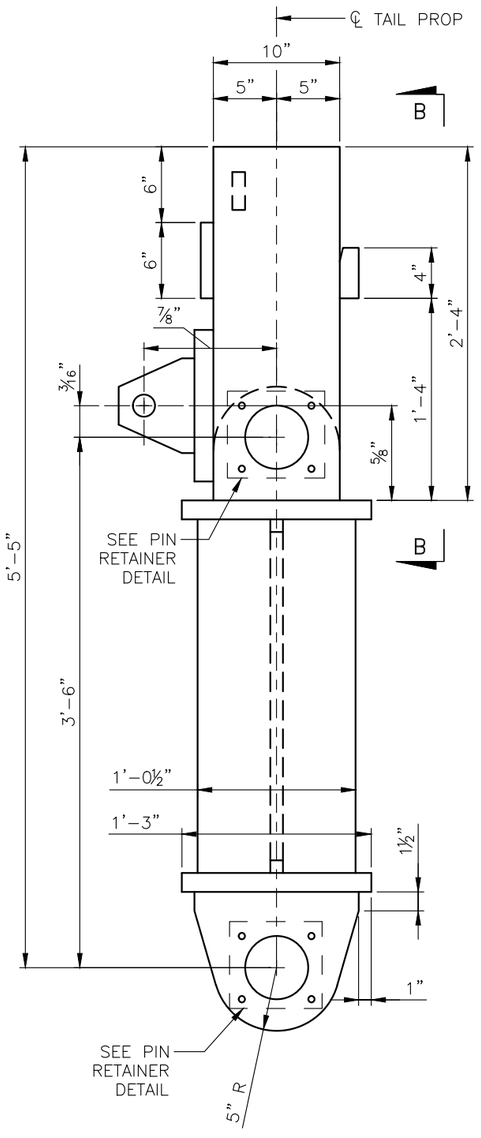
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

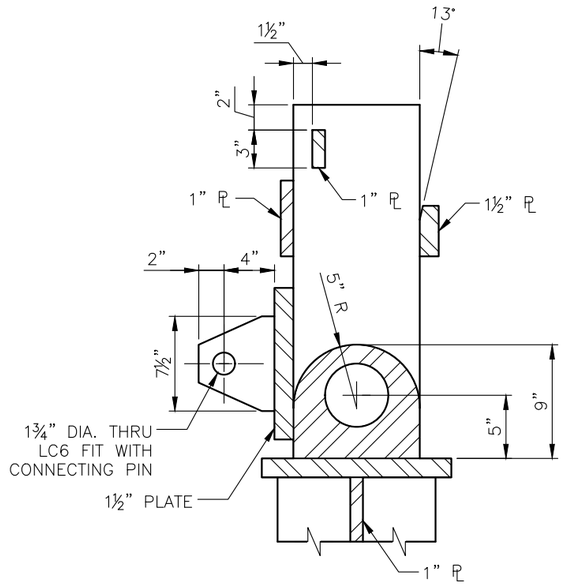
REF. DWG. NO. M–27
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 224 OF 283

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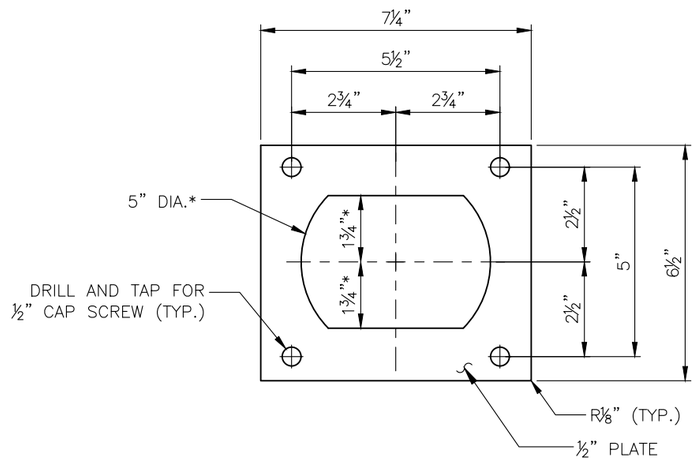


TAIL PROP

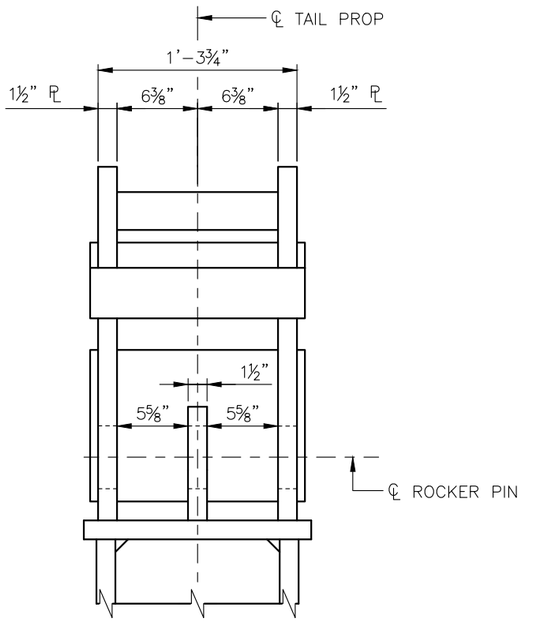




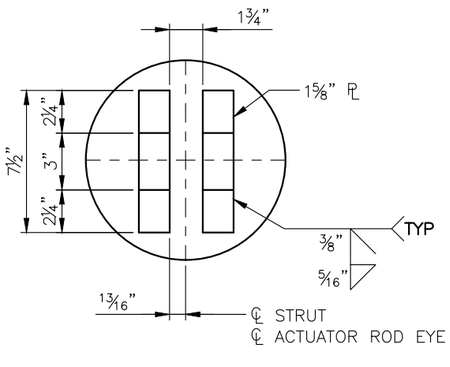
SECTION A–A



PIN RETAINER DETAIL
(BOTH OUTBOARD FACES)
*LC6 FIT WITH PIN



VIEW B–B



DETAIL 1

TAIL PROP

NOTE:

1. ALL PLATES CONNECTED BY 5⁄16" FILLET WELDS EACH SIDE UNLESS OTHERWISE NOTED.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: TAIL PROP DETAILS (1 OF 5)

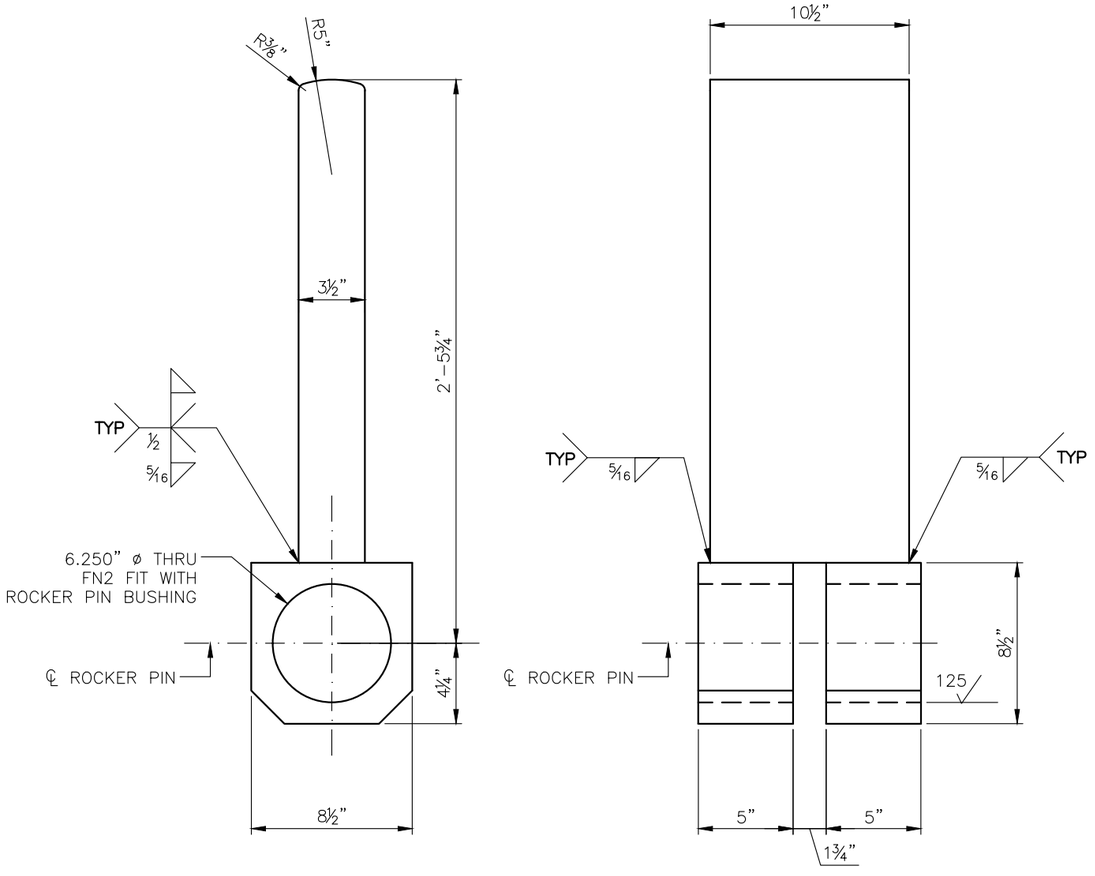
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

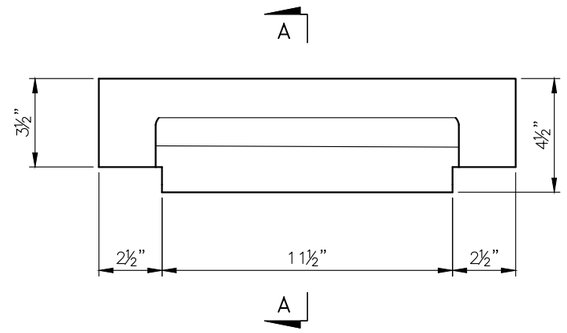
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DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 225 OF 283

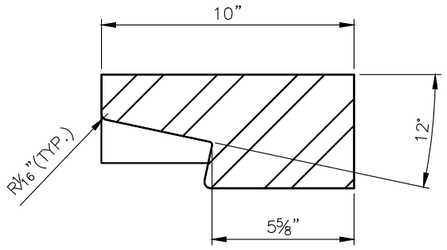
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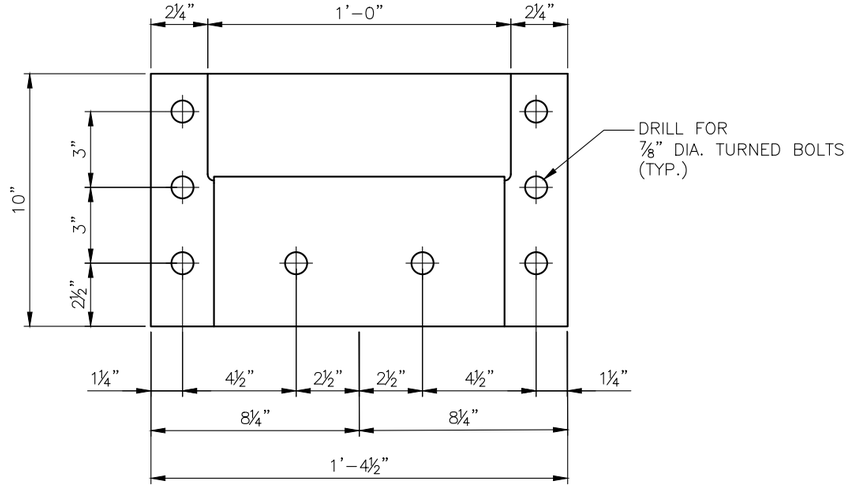


ROCKER ARM





SECTION A–A



STRIKE PLATE

(FINISH 125 MICROINCH ALL OVER)

NOTES:

1. ROCKER ARM STOP SHALL BE WELDED FLUSH WITH ROCKER ARM WHEN STRUT IS POSITIONED 2.04° OVER CENTER. DO NOT WELD ON ROCKER ARM SIDE OF THE STOP.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: TAIL PROP DETAILS (2 OF 5)

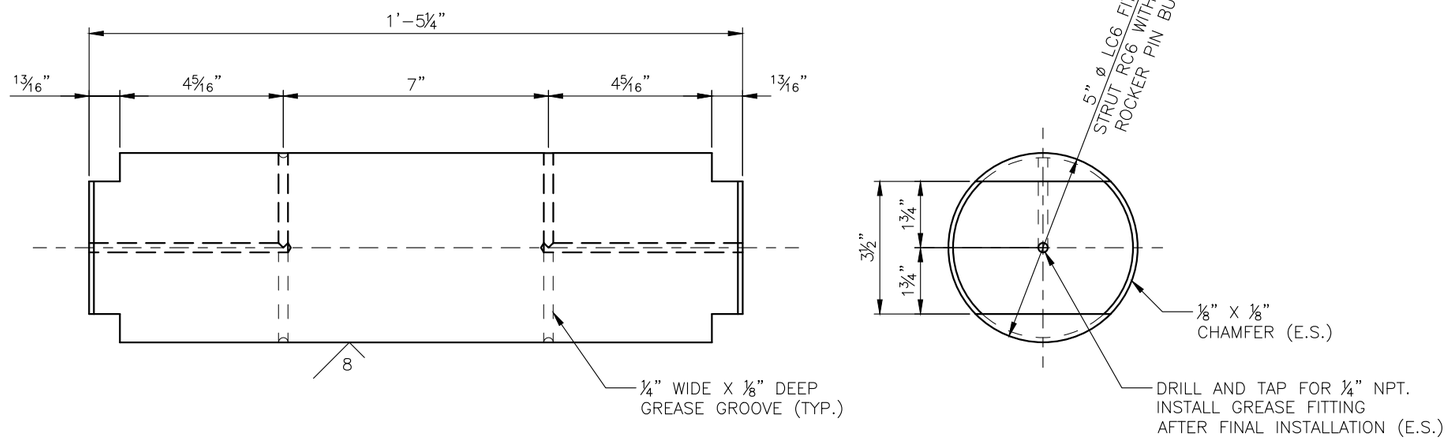
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

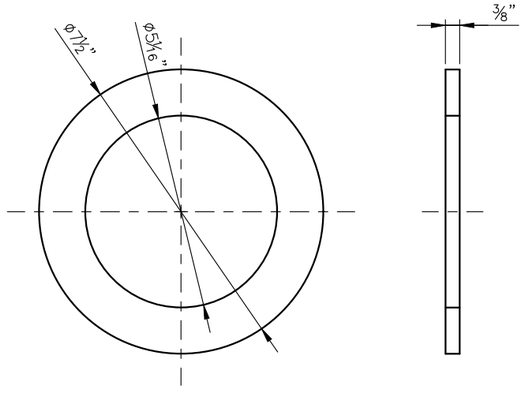
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DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 226 OF 283

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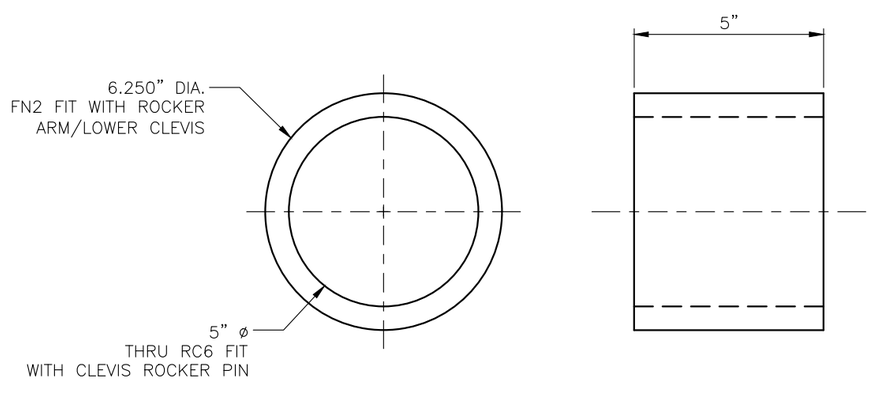
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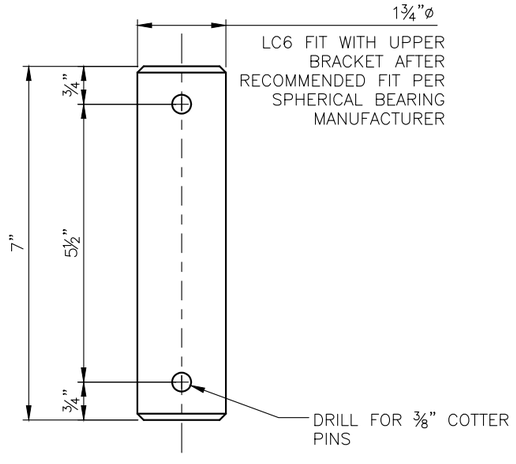
CLEVIS AND ROCKER PIN



THRUST RING



CLEVIS AND ROCKER
PIN BUSHING



ACTUATOR CONNECTING PIN

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

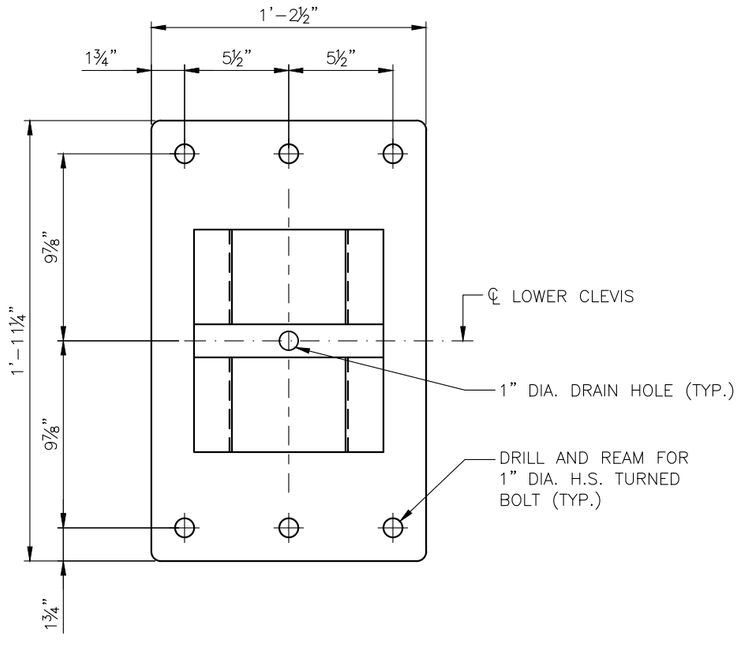
PROJECT: BECKETT BRIDGE REPLACEMENT

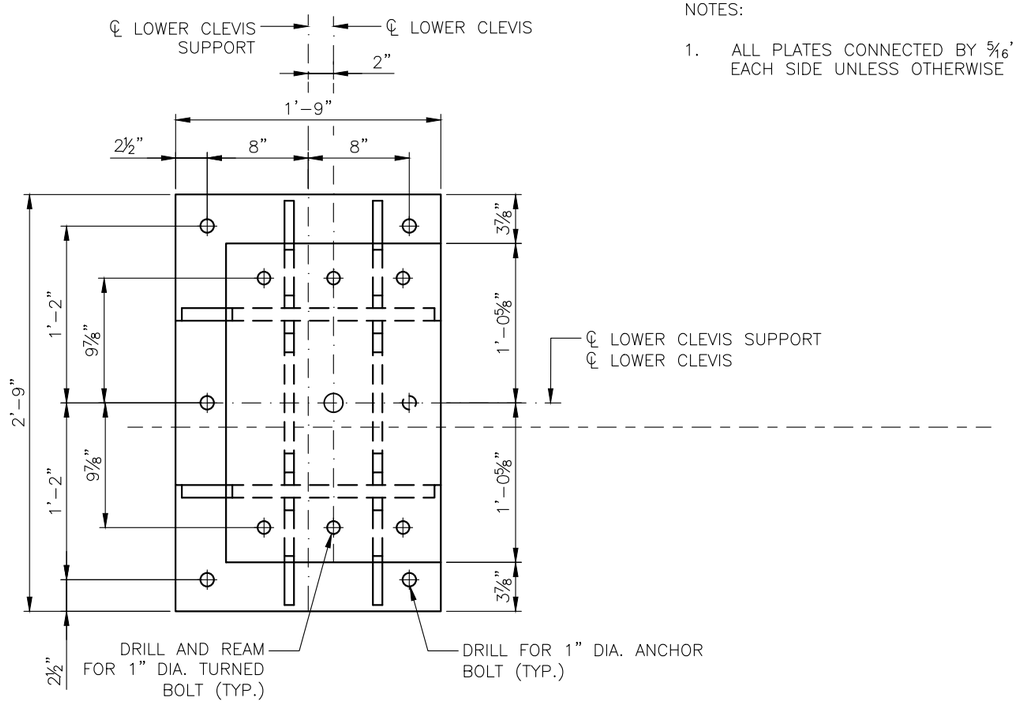
DESCRIPTION: TAIL PROP DETAILS (3 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

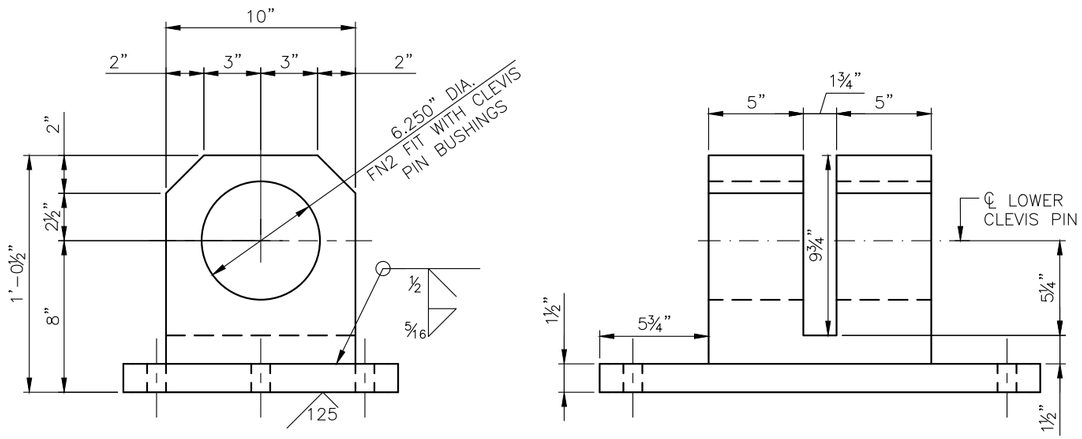
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SHEET: 227 OF 283



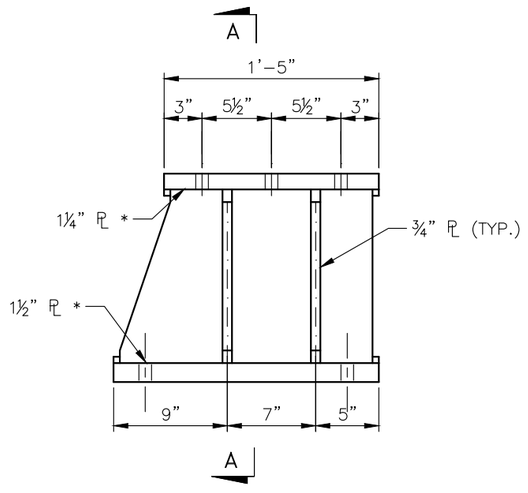


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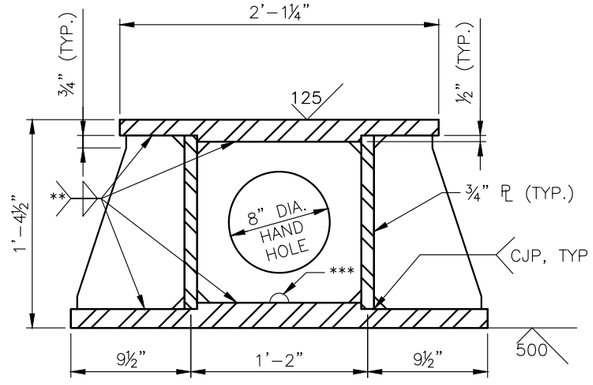
1. ALL PLATES CONNECTED BY 5⁄16" FILLET WELDS EACH SIDE UNLESS OTHERWISE NOTED.



LOWER CLEVIS



LOWER CLEVIS SUPPORT



SECTION A–A

* MIN. FINISHED THICKNESS AFTER MACHINING

** MILL TO BEAR PRIOR TO WELDING

*** ¾" RADIUS DRAIN HOLE

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: TAIL PROP DETAILS (4 OF 5)

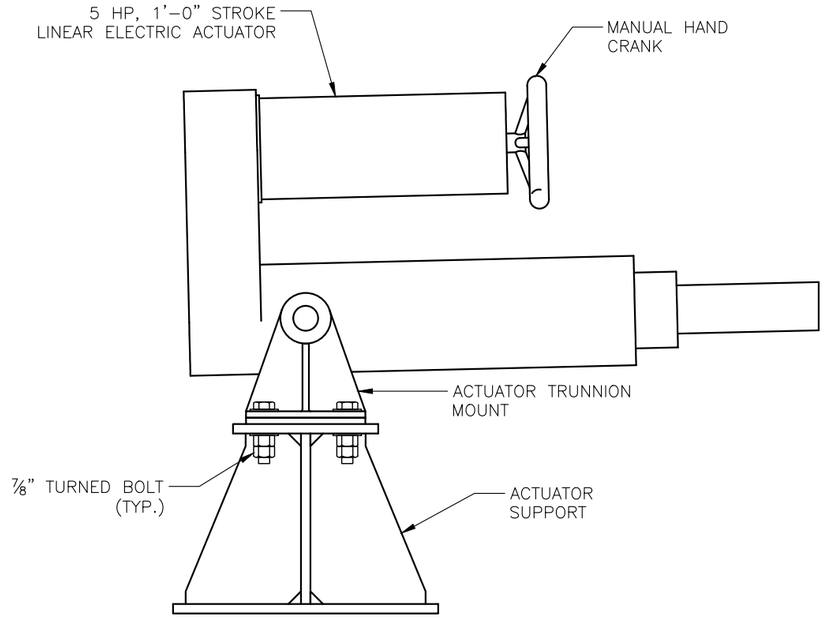
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

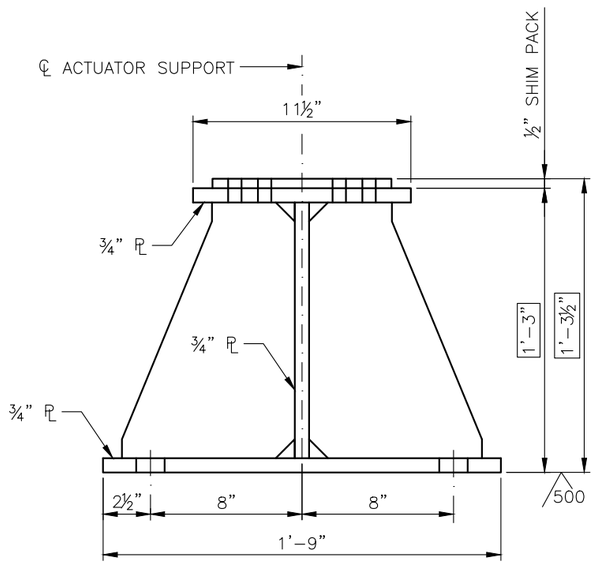
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SHEET: 228 OF 283

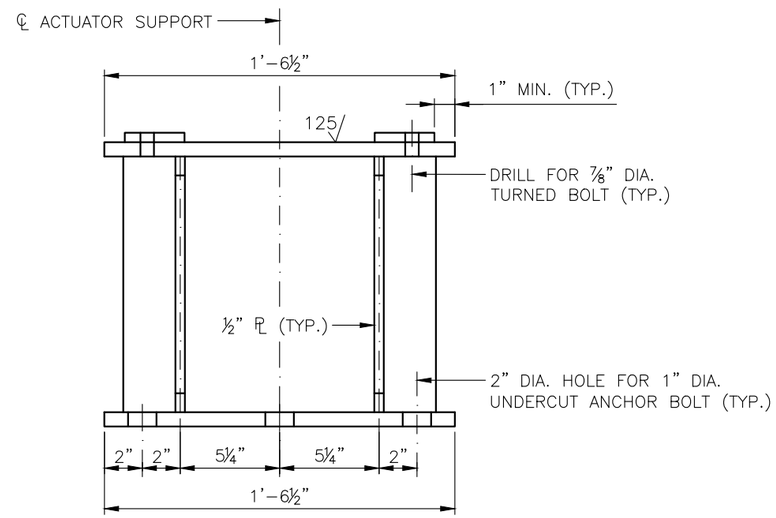
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ACTUATOR ASSEMBLY DETAIL
(SEE SPECIFICATIONS FOR REQUIREMENTS)





ACTUATOR SUPPORT

TABLE OF TAIL PROP ASSEMBLY MATERIALS			
PART	QNTY	MATERIAL	DESIGNATION
STRUT	2	STRUCTURAL STEEL PLATE	ASTM A709 GRADE 50
ROCKER ARM	2	STRUCTURAL STEEL PLATE	ASTM A709 GRADE 50
STRIKE PLATE	2	ALLOY STEEL FORGING	ASTM A668 CLASS G
CLEVIS AND ROCKER PIN	4	ALLOY STEEL FORGING	ASTM A668 CLASS J
CLEVIS AND ROCKER PIN BUSHING	8	BRONZE CASTING	ASTM B22 ALLOY 905
THRUST RING	8	BRONZE CASTING	ASTM B22 ALLOY 905
PIN RETAINING PLATE	8	STRUCTURAL STEEL PLATE	ASTM A709 GRADE 50
ACTUATOR PIN	2	ALLOY STEEL FORGING	ASTM A668 CLASS L
ACTUATOR SUPPORT	2	STRUCTURAL STEEL PLATE	ASTM A709 GRADE 50
LOWER CLEVIS	2	ALLOY STEEL FORGING	ASTM A668 CLASS H
LOWER CLEVIS SUPPORT	2	STRUCTURAL STEEL PLATE	ASTM A709 GRADE 50

NOTES:

1. ALL PLATES CONNECTED BY 5⁄16" FILLET WELDS ALL AROUND UNLESS OTHERWISE NOTED.
2. REFER TO TSP SECTION T468 FOR TAIL PROP ACTUATOR REQUIREMENTS.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MG
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

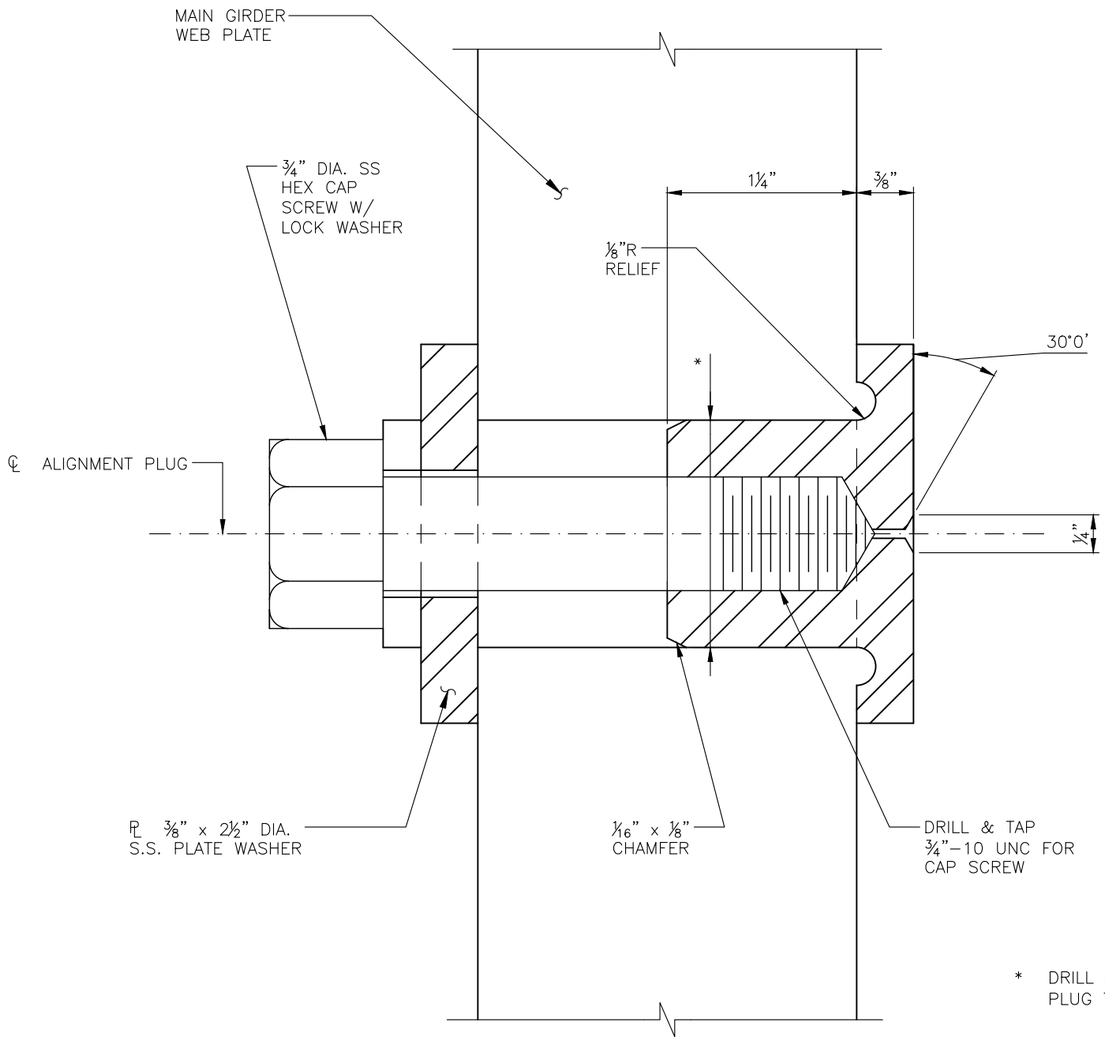
DESCRIPTION: TAIL PROP DETAILS (5 OF 5)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

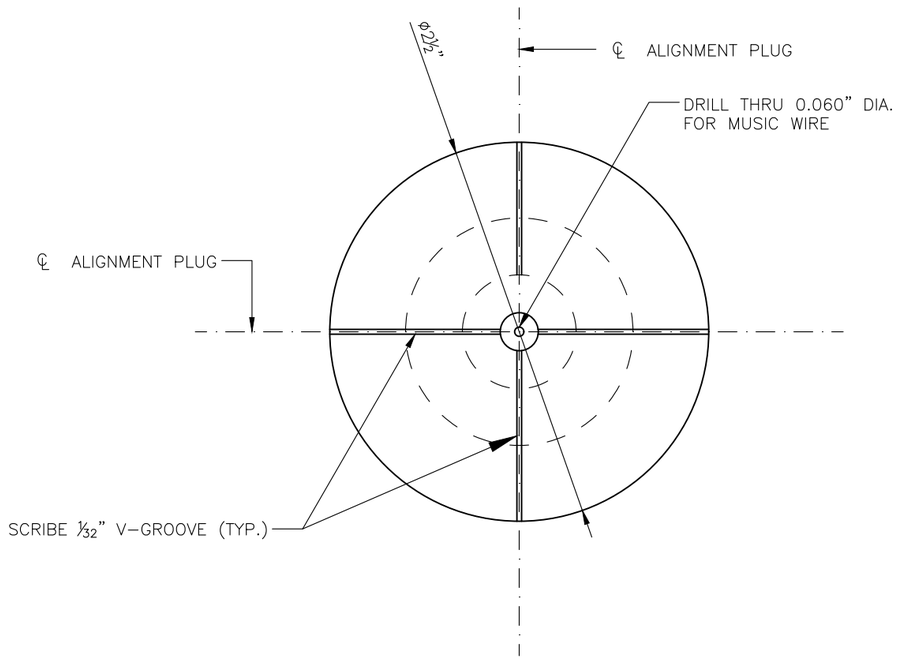
REF. DWG. NO. M–32
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 229 OF 283

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ALIGNMENT PLUG
(ASTM A276 GRADE 316 STAINLESS STEEL)

* DRILL & BORE WEB & MACHINE PLUG TO FIT 1½" DIA. W/ FN1 FIT.



NOTES:

1. USE WITH 0.030" MUSIC WIRE.
2. INSTALL CAP SCREW AFTER REMOVAL OF ALIGNMENT WIRE. COAT THREADS WITH ANTI–SEIZE COMPOUND PRIOR TO ASSEMBLY.
3. INSTALL AND LOCATE THE DRIVE MACHINERY ALIGNMENT PLUG AFTER ALL DEAD LOAD DEFORMATIONS HAVE OCCURRED.
4. SEE DWG. NO. M–13 FOR ALIGNMENT PLUG LOCATION.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED JJK
DRAWN JJK
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: DRIVE MACHINERY ALIGNMENT PLUG

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. M–33
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 230 OF 283

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ELECTRICAL SCOPE OF WORK NOTES

WORK INCLUDES THE FURNISHING AND INSTALLATION OF THE ENTIRE ELECTRICAL SYSTEM FOR THE MOVABLE BRIDGE.

1. ELECTRICAL POWER SERVICE

   A. FURNISH AND INSTALL A COMPLETE ELECTRICAL SERVICE, 200A, 240V/120V, THREE-PHASE (DELTA) FOUR WIRE SYSTEM WITH GROUND. THE NEW SERVICE SHALL ORIGINATE AT THE METER ON THE PROPOSED RACK, AS SHOWN IN THE PLANS AND TERMINATE AT THE MAIN DISCONNECT/TRANSFER SWITCH ON THE BASCULE PIER.

   B. PROVIDE A FUSED DISCONNECT SWITCH, METER SOCKET AT THE SERVICE ENTRANCE RACK AND GENERATOR RECEPTACLE AND TRANSFER SWITCH ON THE PIER. FINAL CONFIGURATION SHALL BE PER THE LATEST UTILITY REQUIREMENTS.

   C. COORDINATE NEW ELECTRICAL SERVICE WITH THE FOLLOWING ORGANIZATIONS:
      DUKE ENERGY
      MS. MEGAN VONSTETINA
      2501 25TH. ST.N.
      ST. PETERSBURG, FL 33713
      (727)893-9394

2. ELECTRICAL POWER SYSTEM

   A. ROUTE ELECTRICAL SERVICE AS SHOWN IN THE PLANS. ROUTE SERVICE CONDUCTORS IN CONDUIT FROM THE METER AND MAIN DISCONNECT SWITCH, EMBEDDED SCH. 80 PVC IN SIDEWALK OF THE SW APPROACH TO THE MANUAL TRANSFER SWITCH (MTS).

   B. FURNISH AND INSTALL A MAIN CONTROL PANEL (CP-M) AND CIRCUIT BREAKER PANEL. THE MOTOR CONTROL PANEL SHALL INCLUDE A SERVICE ENTRANCE RATED MAIN CIRCUIT BREAKER AND ELECTRICAL DISTRIBUTION DEVICES FOR SPECIFIC MOTOR CONTROL. THE MOTOR CONTROL SHALL CONTAIN AS A MINIMUM: CIRCUIT BREAKERS OR FUSES. MOTOR STARTERS WITH THREE-PHASE OVERLOAD RELAYS, TERMINAL BLOCKS FOR INTERFACE WIRING, PILOTS LIGHTS, AND CONTROL SWITCHES.

   C. THE CIRCUIT BREAKERS FOR LIGHTING AND RECEPTACLES SHALL ALSO BE LOCATED IN THE MOTOR CONTROL PANEL. GENERAL LIGHTING AND RECEPTACLE LOADS ARE FED FROM THE LIGHTING PANEL (LP).

3. ELECTRICAL CONTROL SYSTEM

   A. PROVIDE AND INSTALL A WEATHERPROOF OPERATOR CONTROL DESK WITH INTERNAL RELAY CONTROL PANEL. RELAY LOGIC CONTROL SYSTEM SHALL BE THE PRIMARY MEANS OF CONTROL, SAFETY INTERLOCKS, AND PERMISSIVES.

   B. INPUT TO THE BRIDGE CONTROL SYSTEM SHALL INCLUDE, BUT NOT BE LIMITED TO: VARIABLE SPEED DRIVE STATUS, TRAFFIC SIGNALS, GATES STATUS, BRAKES AND DRIVE, SPAN LOCKS STATUS, TAIL PROPS STATUS, ETC.

   C. PERFORM SHOP TESTING OF CONTROL DESK, MAIN PANEL (CP-M) AND MOTOR DRIVE PANEL (CP-D) VSD INTERFACE AT THE MANUFACTURER'S FACILITY. PERFORM TESTING IN ACCORDANCE WITH THE SPECIFICATIONS. TESTING SHALL BE APPROVED BY THE ENGINEER PRIOR TO SHIPPING TO SITE.

4. WARNING GATES, RESISTANCE BARRIER GATES, AND SIGNALS

   A. PROVIDE POLE MOUNTED TRAFFIC SIGNALS.

   B. FURNISH AND INSTALL NEW WARNING GATES (FOUR TOTAL) AT LOCATIONS SHOWN IN THE PLANS.

   C. FURNISH AND INSTALL RESISTANCE BARRIER GATES AT LOCATIONS SHOWN ON THE PLANS.

5. SPAN DRIVE SYSTEM

   A. FURNISH AND INSTALL A MOTOR DRIVE PANEL (CP-D) INCLUDING TWO VARIABLE SPEED [MOTOR] DRIVES, CONTROL RELAYS AND EXTERNAL BRAKING RESISTORS.

   B. PROVIDE TWO "INVERTER-DUTY" AC INDUCTION MOTORS.

   C. PROVIDE VARIABLE SPEED DRIVE (VSD, TOTAL OF TWO) OF FLUX VECTOR, MICROPROCESSOR-CONTROLLED TYPE UTILIZING DYNAMIC BRAKING. EACH MOTOR DRIVE SHALL BE ABLE TO PRODUCE FULL LOAD TORQUE AT ANY SPEED.

   D. HOUSE THE MOTOR DRIVES, BRAKE MOTOR CONTROLS AND RELATED COMPONENTS IN AN ENCLOSURE THAT IS COMPATIBLE WITH THE MAIN CONTROL PANEL (CP-M).

   E. THE SPAN DRIVES SHALL PROVIDE OVERLOAD PROTECTION FOR THE MOTORS WITH SHORT-CIRCUIT PROTECTION PROVIDED BY THE FUSED INPUT.

   F. INTERFACE THE VARIABLE SPEED DRIVES (VSD) TO THE MOTOR BRAKES.

   G. PERFORM SHOP TESTING OF THE MOTOR/DRIVE AT THE MANUFACTURER'S FACILITY AND DEMONSTRATE FULL COMPLIANCE WITH THE POWER REQUIREMENTS.

6. SUBMARINE CABLES

   A. FURNISH AND INSTALL SUBMARINE CABLE AND NEMA 4X 316 S.S. TERMINAL CABINETS.

   B. SLEEVE AND SEAL PENETRATIONS.

   C. CUT, TRENCH, INSTALL CABLES, AND BACKFILL PER APPROVED PERMIT REQUIREMENTS.

7. LIMIT SWITCHES

   A. FURNISH AND INSTALL ROTARY CAM LIMIT SWITCHES FOR NEARLY CLOSED, NEARLY OPEN, AND FULLY OPEN POSITIONS. FURNISH AND INSTALL LEVER OPERATED LIMIT SWITCHES FOR BRAKES SET, BRAKES RELEASED AND MANUALLY RELEASED, SPAN LOCK POSITION, TAIL PROPS PULLED, AND TAIL PROPS DRIVEN. FURNISH AND INSTALL HEAVY DUTY INDUSTRIAL PLUNGER LIMIT SWITCHES FOR SPAN FULLY CLOSED.

8. NAVIGATIONAL AIDS

   A. FURNISH AND INSTALL SPAN MOUNTED LED CLEARANCE LIGHTS, FENDER MOUNTED LED PIER LIGHTS, AND FENDER MOUNTED LED CLEARANCE GAGE LIGHTS.

   B. PROVIDE A VHF RADIO THAT INCLUDES A 30 WATT PA AND HORN OUTPUT FUNCTION.

9. LIGHTING

   A. PROVIDE LIGHTING EQUIPMENT AS INDICATED IN THE PLANS.

   B. FURNISH AND INSTALL COLOR CHANGING RGBW FIXTURES CONNECTED TO A DMX CONTROLLER. INSTALL RGBW LED RECESSED AND IN-GROUND FIXTURES AT LOCATIONS SHOWN ON THE PLANS.

   C. LIGHTING FOR THE BRIDGE TO INCLUDE ROADWAY LIGHTING. SEE THE ROADWAY LIGHTING SECTION OF THE PLANS FOR SPECIFIC INFORMATION ON THE COMPOSITION OF THE PLANS AND INSTALLATION OF THE ROADWAY LIGHTING ELEMENTS.

10. DEMOLITION

   A. REMOVE AND PROPERLY DISPOSE OF ALL EXISTING ELECTRICAL EQUIPMENT, DEVICES, WIRING, EXPOSED CONDUIT, ETC. COORDINATE, IF NECCESSARY, ANY SELECTIVE EQUIPMENT REMOVAL (AND REPLACEMENT) WITH OTHER CONSTRUCTION ACTIVITIES.

ELECTRICAL GENERAL NOTES:

1. CONFORM TO ALL AASHTO, NEC, UL, IEEE AND NEMA CODES STANDARDS AND PRACTICES.

2. ELECTRICAL DEVICES AND EQUIPMENT ARE SHOWN SYMBOLICALLY ON THE PLANS. THE USE OF SYMBOLS AND NOTATIONS (OR THE OMISSION THEREOF) DO NOT RELIEVE THE CONTRACTOR FROM FURNISHING A COMPLETE AND FULLY FUNCTIONAL FIELD LOCATE DEVICES AND EQUIPMENT TO FACILITATE ACCESSIBILITY WITH RESPECT TO OPERATION AND MAINTENANCE CONDITIONS.

3. PROVIDE 316 STAINLESS STEEL FOR ALL MOUNTING HARDWARE AND FABRICATED SUPPORTING FRAMEWORKS. ALL EXTERIOR BOXES SHALL BE 316 S.S. NEMA 4X TYPE. ALL EXTERIOR MOTORS, BRAKES, ETC. SHALL BE TOTALLY ENCLOSED AND WATERPROOF. WHERE SPECIFIED, MATERIALS SHALL NOT BE SUBSTITUTED UNLESS REQUESTED IN WRITING AND APPROVED BY THE ENGINEER. UNAPPROVED MATERIALS WILL BE REMOVED AND APPROVED MATERIALS INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

4. MINIMUM CONDUIT SIZE IS ¾ INCH. ALL WIRES SHALL BE THHW, THW, OR XHHW-2 UNLESS OTHERWISE NOTED. MINIMUM WIRE SIZE IS #12 AWG FOR CONTROL AND #10 AWG FOR POWER.

5. PROVIDE INSTALLATION OF A COMPLETE, INTEGRATED, GROUNDING AND BONDING SYSTEM FOR ALL NEW EQUIPMENT AND DEVICES PER NEC (ART. 250).

6. PROVIDE AND MAINTAIN A COMPLETE FUNCTIONAL CHANNEL NAVIGATION LIGHTING SYSTEM DURING ENTIRE CONSTRUCTION PERIOD.

POWER REQUIREMENTS:

1. TORQUE AND SPEED REQUIREMENTS: EACH DRIVE/MOTOR COMBINATION SHALL BE CAPABLE OF PROVIDING THE FOLLOWING OUTPUT POWER. (FULL LOAD MOTOR SPEED – 870RPM).

Tcv – RUNNING	121 FT-LBF (3 MIN SHOP TEST)
Tcv – DYNAMIC BRAKING	113 FT-LBF (3 MIN SHOP TEST)
Ts – STARTING	148 FT-LBF (1 MIN SHOP TEST)
Ts – DYNAMIC BRAKING	91 FT-LBF (1 MIN SHOP TEST)

2. THE MOTOR/DRIVE SHALL BE CAPABLE OF PROVIDING A MINIMUM TORQUE OF PROVIDING 152 FT-LBF AT ZERO SHAFT SPEED FOR A PERIOD OF NOT LESS THAN ONE MINUTE.

3. THE MAXIMUM "NEVER TO EXCEED" TORQUE SHALL BE 182 FT-LBF. TORQUE LIMITS SHALL BE SET ON THE USD TO LIMIT THE MOTOR TORQUE TO THIS VALUE AT ALL SPEEDS.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: ELECTRICAL GENERAL NOTES

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-1
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 231 OF 283

ONE–LINE DIAGRAM

CB
#A
2P
CIRCUIT BREAKER
MCP= MOTOR CIRCUIT PROTECTOR
AF = AMP FRAME RATING
AT = AMP TRIP RATING
2P = TWO POLE
# = AT, 3 POLE UNLESS NOTED

#
MOTOR CONTACTOR,
NON REVERSING, FVNR
= NEMA SIZE
(UNLESS NOTED)

F R
#
MOTOR CONTACTOR,
REVERSING, FVR
= NEMA SIZE
(UNLESS NOTED)

OVERLOAD RELAY

(#)
INDUCTION MOTOR
= HORSEPOWER

F
#
DISCONNECT SWITCH,
FUSED
= FUSE SIZE

(#)
DISCONNECT SWITCH,
NON–FUSED
= SWITCH RATING

L
N
E
TRANSFER SWITCH
N = Normal
E = Emergency
L = Load

GENERATOR RECEPTACLE
3 Phase Unless Noted

MOTOR DRIVE

VSD
VSD = VARIABLE SPEED DRIVE
(VECTOR CONTROLLED)

FUSE

X
TRANSFORMER,
VOLTAGE, OR PT

TRANSFORMER,
CURRENT, CT

AS
SWITCH SELECTOR
AS = AMMETER SW.
VS = VOLT METER SW.

(V)
V = VOLTMETER
A = AMMETER
W = WATTMETER
27 = UV RELAY

DEVICES

A–C–a
LIGHTING FIXTURE, FLUORESCENT
OR LED
A = TYPE (SEE SCHEDULE)
C = CIRCUIT NO.
a = SWITCH ID.

SPEAKER, HORN

LP
PANEL BOARD
(MINI POWER ZONE)

WP–C–G
DUPLEX RECEPTACLE (120VAC, 20A)
WP = WEATHER PROOF
C = CIRCUIT NO.
G = GFI

S_c
TOGGLE SWITCH (125VAC, 20A)
SPST UNLESS NOTED BELOW
3 = 3 WAY
C = SWITCH ID.

JB
BOX, CABINET
JB = JUNCTION BOX (TERMINALS)
PB = PULL BOX (NO TERMINALS)
TC = TERMINATION CABINET

EMBEDDED JUNCTION BOX

NAVIGATION LIGHT
PL = PIER LIGHT
CL = CLEARANCE TIP LIGHT, (LEAF TIP)
GL = GUAGE SIGN LIGHT

TRAFFIC SIGNALS
MUTCD COMPLIANT DEVICES

LS
LIMIT SWITCH

SCHEMATIC DIAGRAM

(R)
INDICATING LIGHT
R = RED
G = GREEN
Y = YELLOW
A = AMBER
B = BLUE
W = WHITE

(M)
COIL
M = MOTOR CONTACTOR
MF = MOTOR FORWARD
MR = MOTOR REVERSE
AR = ALTERNATING RELAY
C = CONTACTOR
CR = CONTROL RELAY
TR = TIMER RELAY
PE = PHOTO CELL RELAY
L = LATCHED
U = UNLATCHED

(#)
CONDUIT NUMBER

STROBE LIGHT

GONG
GONG

RELAY CONTACTS
N.O. = NORMALLY OPEN
N.C. = NORMALLY CLOSED

SWITCHES

SELECTOR SWITCH
SPRING RETURN TO
CENTER

SELECTOR SWITCH
MAINTAINED POSITION

PUSH BUTTON, MOMENTARY
NORMALLY CLOSED

NORMALLY OPEN

PUSH BUTTON, MAINTAINED
PULL TO CLOSE
PUSH TO OPEN

(K)
SELECTOR SWITCH, KEY OPERATED

TIMER RELAY CONTACTS
TIME ON ENERGIZATION
N.O., TIME DELAY CLOSE
N.C., TIME DELAY OPEN

TIMER RELAY CONTACTS
TIME ON DE–ENERGIZATION
N.O.–INST. CLOSE, TIME DELAY OPEN
N.C.– INST. OPEN, TIME DELAY CLOSE

LIMIT SWITCHES
N.C. NORMALLY CLOSED

N.C. HELD OPEN

N.O. NORMALLY OPEN

N.O. HELD CLOSED

TEMPERATURE SWITCH
N.C. OPEN ON RISING TEMP

INSTRUMENT WIRE
SHIELDED PAIR

TWISTED SHIELDED PAIR

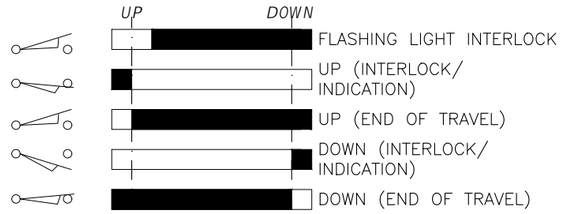
WITH OVERALL SHIELD
DRAIN WIRE

FIELD WIRING

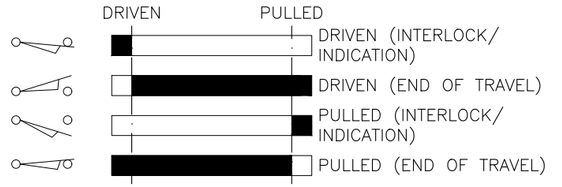
TERMINAL LEGEND

C CONTROL DESK
M MOTOR CONTROL CABINET
MD MOTOR DRIVE CABINET
D FLEXIBLE DROOP CABLE TO LEAF
DA VARIABLE SPEED DRIVE A
DB VARIABLE SPEED DRIVE B
G TRAFFIC WARNING GATE
L SPAN LOCK
S SUBMARINE CABLE, INCLUDING
BOTH TERMINATION CABINETS
T TRAFFIC SIGNAL
TP TAIL PROP
F FIELD DEVICE
R RESISTANCE GATE

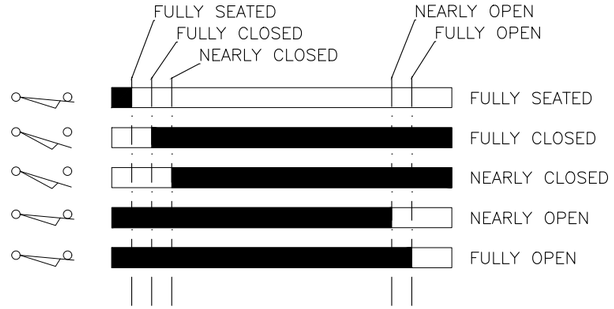
LIMIT SWITCH DEVELOPMENT



TYPICAL TRAFFIC GATE AND RESISTANCE GATE
(ROTARY CAM)



TYPICAL SPAN LOCK AND TAIL PROP
(DISCRETE LIMIT SWITCHES)



TYPICAL SPAN POSITION
LIMIT SWITCH DEVELOPMENT
(DISCRETE LIMIT SWITCHES)



BRAKE LIMIT SWITCHES
(DISCRETE LIMIT SWITCHES)

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT:
BECKETT BRIDGE
REPLACEMENT

DESCRIPTION:
ELECTRICAL LEGEND

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E–2
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 232 OF 283

COMPONENTS	
ABBREVIATION	DESCRIPTION
ALT	ALTERNATING RELAY
AUX	AUXILIARY CONTACT
BP	BYPASS
CB	CIRCUIT BREAKER
CL	CLEARANCE LIGHT
CR	CONTROL RELAY
CT	CURRENT TRANSFORMER
DS	DISCONNECT SWITCH
DSS	DOOR SAFTEY SWITCH (LIMIT SWITCH)
ESTOP	EMERGENCY STOP
IL	INDICATOR LIGHT
LS	LIMIT SWITCH
M	MOTOR OR MOTOR STARTER COIL
MCC	MOTOR CONTROL CABINET
MCP	MOTOR CIRCUIT PROTECTOR
MTS	MANUAL TRANSFER SWITCH
OL	OVERLOAD RELAY
PB	PUSHBUTTON
PC	PHOTO CELL
PFR	PHASE FAILURE RELAY
PL	PIER LIGHT
R	RESISTOR
SC	SUBMARINE CABLE
SCTC	SUBMARINE CABLE TERMINATION CABINET
SS	SURGE SUPPRESSOR (TVSS)
TS	TEMPERATURE SWITCH
TR	TIMING RELAY
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
UVR	UNDERVOLTAGE RELAY
X	TRANSFORMER

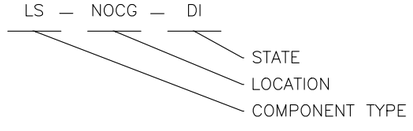
LOCATION	
ABBREVIATION	DESCRIPTION
DMA	DRIVE MOTOR A
DMB	DRIVE MOTOR B
FOCG	FAR ON COMING GATE (TRAFFIC)
FOGG	FAR OFF GOING GATE (TRAFFIC)
MDA	MOTOR DRIVE A
MDB	MOTOR DRIVE B
MAB	MACHINERY BRAKE
MOB	MOTOR BRAKE
NOCG	NEAR ON COMING GATE (TRAFFIC)
NOGG	NEAR OFF GOING GATE (TRAFFIC)
RG1	RESISTANCE GATE 1
RG2	RESISTANCE GATE 2
SL	SPAN LOCK
TL	TRAFFIC LIGHT
TP	TAIL PROPS
TPA	TAIL PROP A
TPB	TAIL PROP B

MISCELLANEOUS	
ABBREVIATION	DESCRIPTION
A	AMPERES
AM	AMMETER
CKT	CIRCUIT (No.)
CTR	CONTROL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
H/O/A	HAND/OFF/AUTO
kAIC	KILO-AMPERE-INTERRUPTING CAPACITY
kcmil	KILO-CIRCULAR MILS
kVA	KILO-VOLT AMPS
kW	KILOWATTS
mA	MILLIAMPS
mm	MILLIMETER
N	NEUTRAL
PGRS	PVC COATED GALV. RIGID STEEL CONDUIT
RDWY	ROADWAY
SCH.	PIPE SCHEDULE
TYP.	TYPICAL
V	VOLTS
W	WATTS

STATE	
ABBREVIATION	DESCRIPTION
U	UP
B	BACK
C	CLOSE
CI	CLOSED INTERLOCK
CP	CLOSE PERMISSIVE
D	DOWN
DR	DRIVEN/DRIVE
DI	DOWN/DRIVEN INTERLOCK
DP	DRIVE PERMISSIVE
F	FRONT
FC	FULLY CLOSED
FCI	FULLY CLOSED INTERLOCK
FO	FULLY OPEN
FOI	FULLY OPENED INTERLOCK
G	GREEN
GP	GREEN PERMISSIVE
HC	HAND CRANK
LP	LOWER PERMISSIVE
MR	MANUAL RELEASE
NC	NEARLY CLOSED
NO	NEARLY OPEN
O	OPEN
OI	OPEN INTERLOCK
OOT	OPEN OVERTRAVEL
OP	OPEN PERMISSIVE
P	PULLED/PULL
PI	PULLED INTERLOCK
PP	PULL PERMISSIVE
R	RED
RI	RELEASED INTERLOCK
RP	RAISE PERMISSIVE
SI	SET INTERLOCK
UI	UP INTERLOCK
Y	YELLOW

NOTE:
TAG NAMES ARE CONSTRUCTED USING
THE TABLES ABOVE.
COMPONENT-LOCATION-STATE

EXAMPLE:



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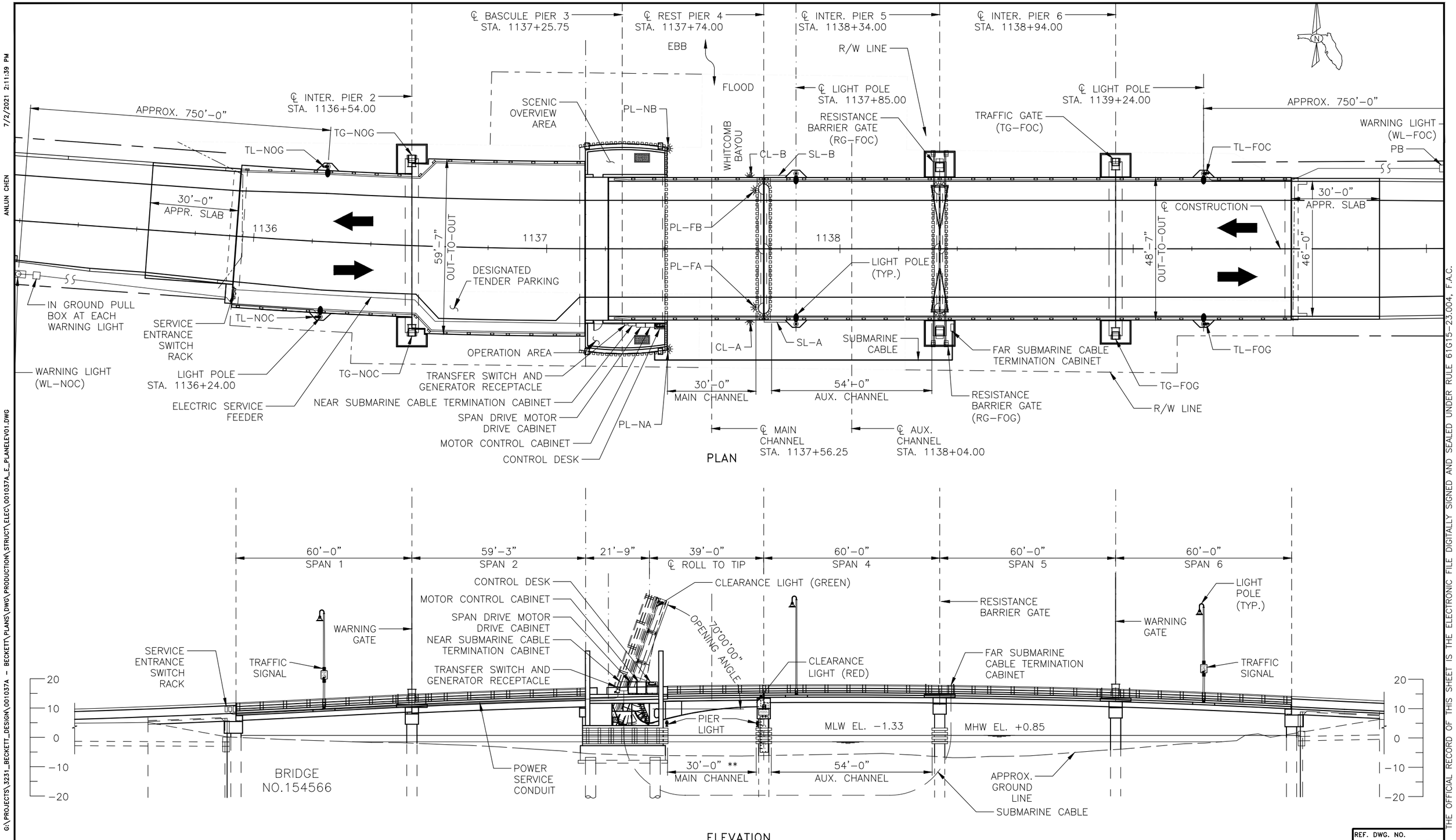
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: ELECTRICAL ABBREVIATIONS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-3
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 233 OF 283



REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: ELECTRICAL PLAN AND ELEVATION

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

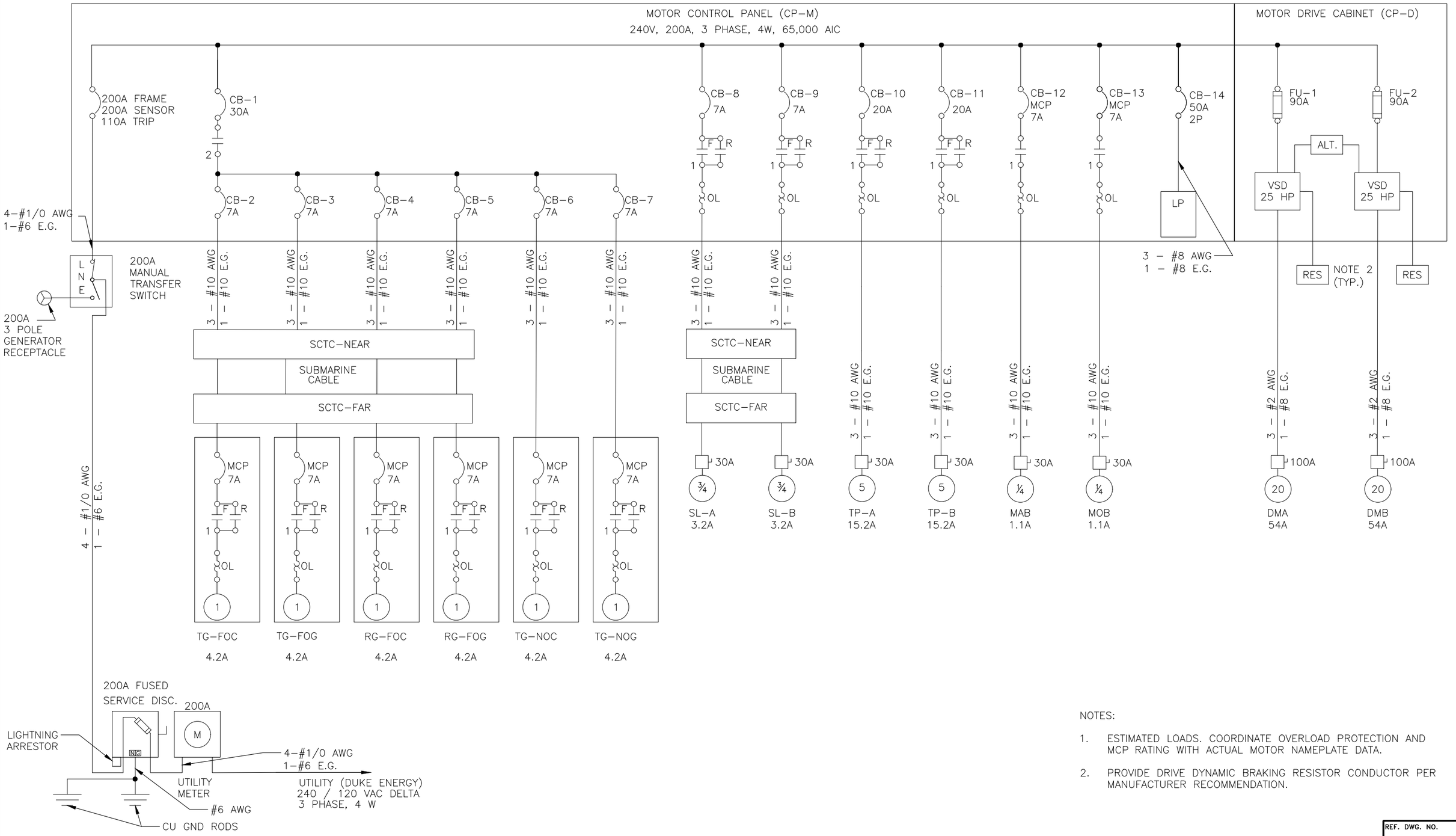
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E–4
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 234 OF 283

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NOTES:

1. ESTIMATED LOADS. COORDINATE OVERLOAD PROTECTION AND MCP RATING WITH ACTUAL MOTOR NAMEPLATE DATA.
2. PROVIDE DRIVE DYNAMIC BRAKING RESISTOR CONDUCTOR PER MANUFACTURER RECOMMENDATION.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: ONE LINE DIAGRAM

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-5
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 235 OF 283

VOLTAGE: 240/120V, 1PH, 3W										MFGR:			MIN A.I.C: 22KAIC
RATING: 50 A			PANEL: LP							CAT#:			
FEEDER:										TYPE:			
CKT	AMPS	POLE	DESCRIPTION	VOLTAMPS		L1	L2	VOLTAMPS		DESCRIPTION	POLE	AMPS	CKT
1	20	1	CONTROL POWER	1800		X		100		VHF RADIO POWER	1	20	2
3	20	1	TRAFFIC SIGNALS AND GONGS		450		X		1150	NAV LIGHTS	1	20	4
5	20	1	PIER LIGHTS	1000		X		300		ROADWAY LIGHTING	2	20	6
7	20	1	RECEPTACLES		1450		X		300				8
9	20	1	F. TG & RG RECEPT.	550		X		400		N. TRAFFIC GATE RECEPT.	1	20	10
11	20	1	F. TG & RG LIGHTS & GONG		500		X		300	N. TRAFFIC GATE LIGHTS & GONG	1	20	12
13	20	1	SUMP PUMP	1000		X		–		SPARE	1	20	14
15	20	1	SPARE		–		X		–	SPARE	1	20	16
			TOTALS	4350	2400	S/N		800	1750	TOTALS			

BUS A 5150 VA
BUS B 4150 VA
TOTAL 9300 VA

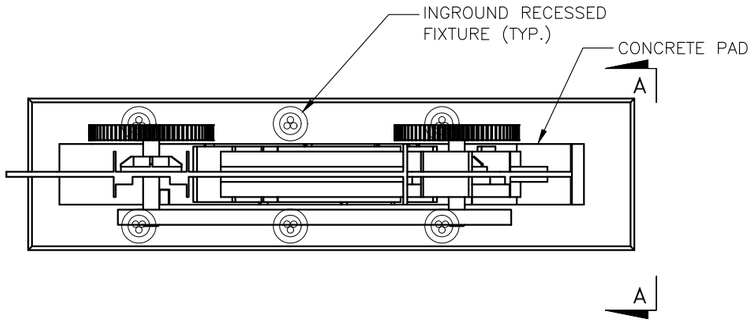
9.30 KVA CONNECTED

38.8 LINE AMPS @ 240V

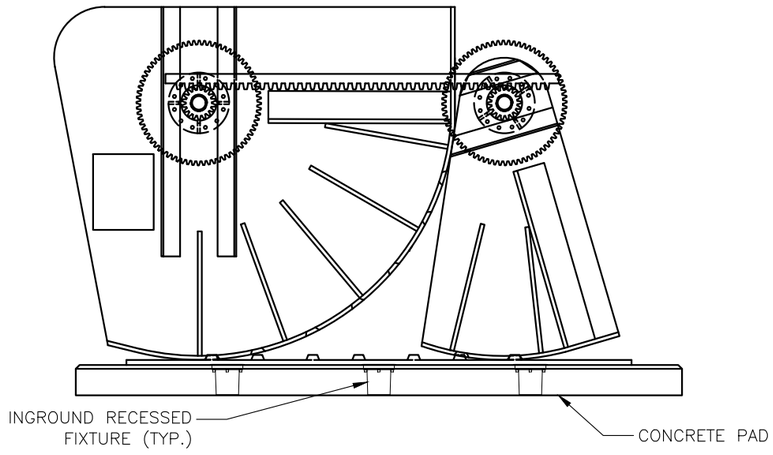
LIGHTING PANEL (LP)

LIGHTING FIXTURE SCHEDULE

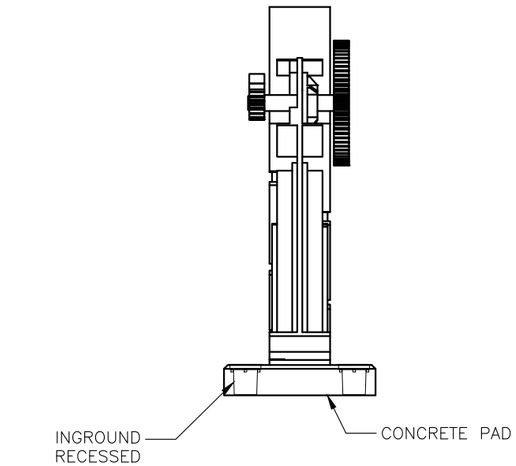
TYPE	DESCRIPTION	WATTS	MOUNTING
A1/A2	Industrial enclosed, linear LED ,watertight, gasketed, acrylic lens, stainless steel latches, 120V, 4 ft.	49W LED	A1–Ceiling Mtg. A2–Wall Mtg.
B	Floodlight, LED, watertight, tempered glass lens, 120V.	42W LED	Wall/Pole Mount
C	Wall mount, vapor tight, corrosion resistant fixture with junction box, polycarbonate globe and guard, brass screw shell lamp–holder. 120V, 15W LED	15W LED	Wall mount
D	Ceiling mount, vapor tight, corrosion resistant fixture with junction box, polycarbonate globe and guard, brass screw shell lampholder. 120V, 15W LED.	15W LED	Ceiling mount
E	Emergency light with battery pack (90 min.), self–contained, fully automatic, 120V.	2–3W LED	Wall mount
EX	LED Exit Sign, Lighted, NEMA 3R, 120V 12" X 12", Battery Backup.	10W Red LED	Wall mount Ceiling mount
F	Marine Duty Floodlight, LED, stainless steel housing, tempered glass lens, watertight, gasketed, stainless steel hardware, 120V.	50W LED	Wall mount with adjust. tilt/swivel
G	4" Recessed, 120V RGBW LED, 15W, DMX controlled, can–type fixture.	15W LED RGBW	Recessed in ceiling
H	DMX Controlled 15W LED Wallwash, in ground recessed 120V RGBW Lighting Fixture with 481 Lumens and IP67 rating.	15W LED RGBW	Inground



MONUMENT ILLUMINATION PLAN



MONUMENT ILLUMINATION ELEVATION



SECTION A–A

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: LIGHTING PANEL SCHEDULE

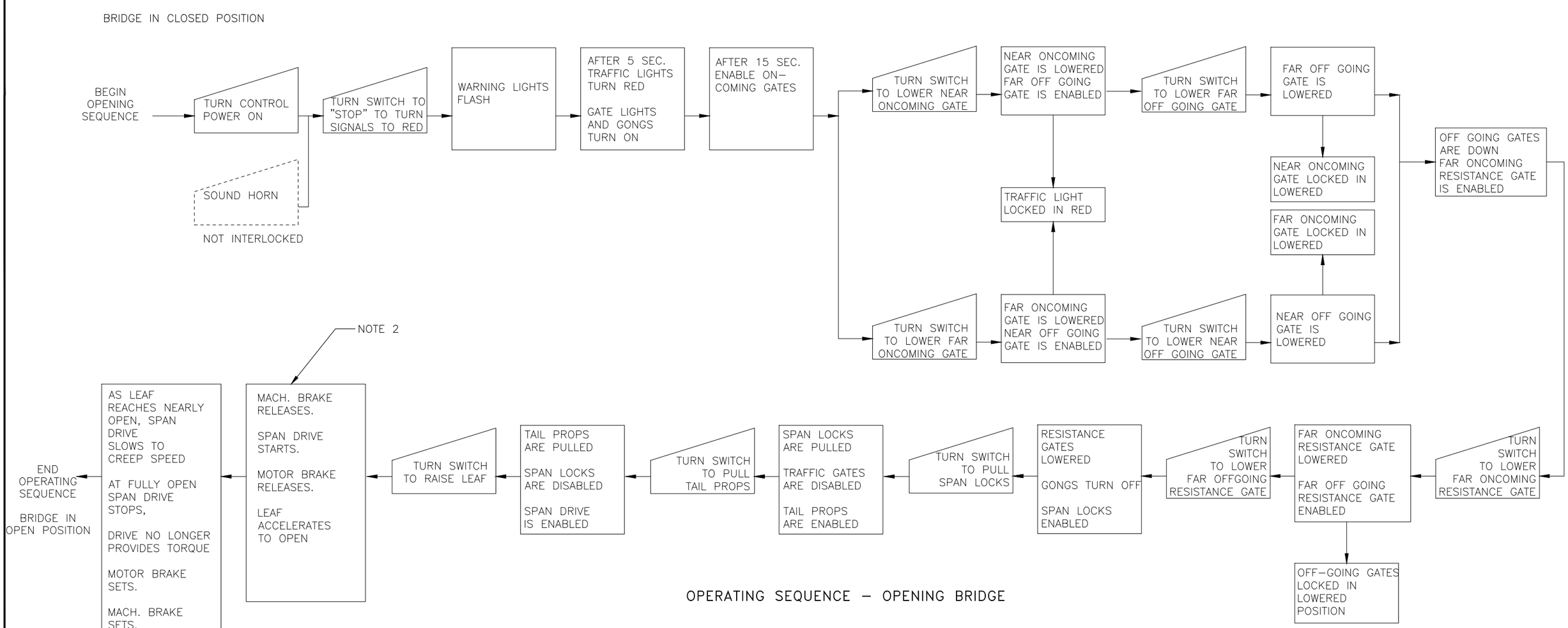
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E–6
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 236 OF 283

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OPERATING SEQUENCE – OPENING BRIDGE

DIAGRAM LEGEND:

- OPERATOR ACTION
- CONTROL PROCESS
- OPTIONAL OPERATOR ACTION

NOTES:

1. TWO SETS OF DRIVE/MOTOR FOR LEAF. DRIVE CONTROL IS SET TO AUTOMATICALLY ALTERNATE AT EACH OPENING. ONLY ONE DRIVE/MOTOR REQUIRED TO OPEN AND CLOSE SPAN.
2. MACHINERY BRAKE (MAB) RELEASES FIRST. WHEN MACHINERY BRAKE RELEASED LIMIT SWITCH CLOSES, DRIVE STARTS. WHEN DRIVE PROVIDES TORQUE, MOTOR BRAKE (MOB) IS RELEASED.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BRIDGE OPENING OPERATION SEQUENCE

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-7
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 237 OF 283

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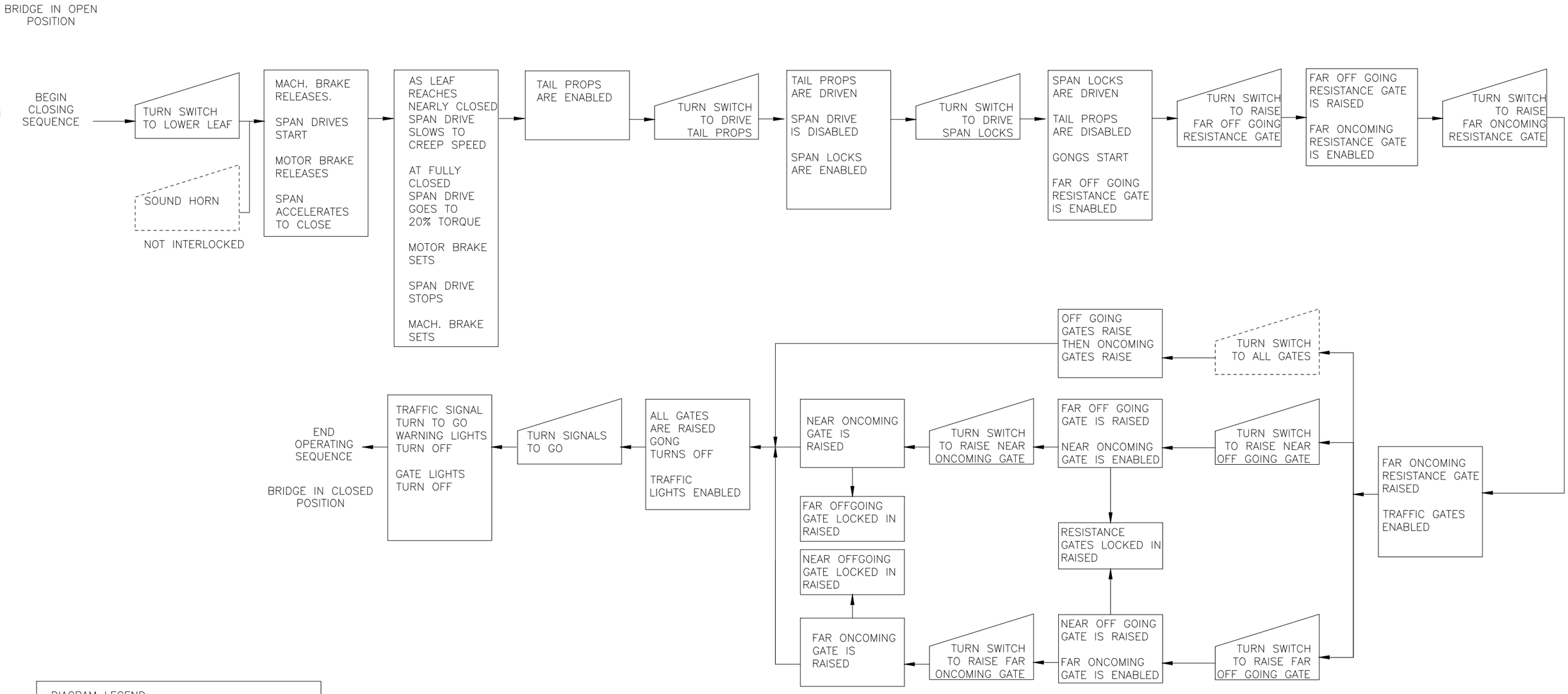


DIAGRAM LEGEND:

- OPERATOR ACTION
- CONTROL PROCESS
- OPTIONAL OPERATOR ACTION

OPERATING SEQUENCE – CLOSING BRIDGE

NOTES:

1. TWO SETS OF DRIVE/MOTOR FOR LEAF. DRIVE CONTROL IS SET TO AUTOMATICALLY ALTERNATE AT EACH OPENING. ONLY ONE DRIVE/MOTOR REQUIRED TO OPEN AND CLOSE SPAN.
2. MACHINERY BRAKE (MAB) RELEASES FIRST. WHEN MACHINERY BRAKE RELEASED LIMIT SWITCH CLOSES, DRIVE STARTS. WHEN DRIVE PROVIDES TORQUE, MOTOR BRAKE (MOB) IS RELEASED.
3. ALL GATES INITIATES A GROUP RAISE OF ALL TRAFFIC GATES AFTER RESISTANCE GATE IS RAISED. GATES RAISE IN SEQUENCE.

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REV. NO.	DATE	DESCRIPTION	REV. BY

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CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BRIDGE CLOSING OPERATION SEQUENCE

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

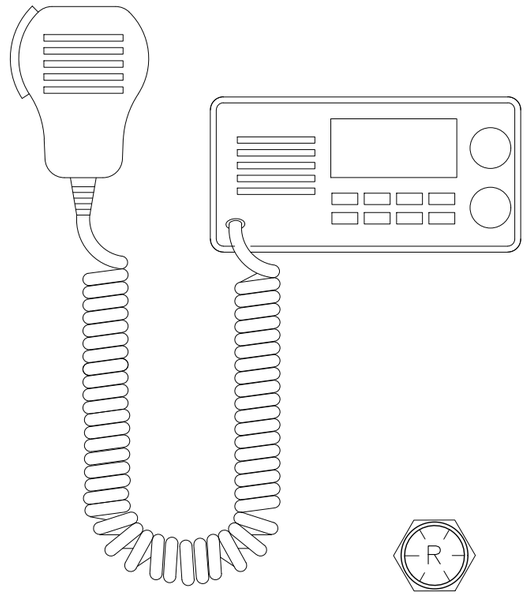
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-8
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 238 OF 283

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3'-10"

ROADWAY SIDE



TRAFFIC GATE BYPASS RAISE LOWER

RESIST. GATE BYPASS RAISE LOWER

SPANLOCK BYPASS DRIVE PULL

TAIL PROP BYPASS DRIVE PULL

BRIDGE SEATED BYPASS OFF BYP

NAV. LIGHTS OFF AUTO ON

FLOOD LIGHT OFF ON

EMERGENCY R STOP

W FULL OPEN

W NEARLY OPEN

W NEARLY CLOSED

G FULL CLOSED

SL-A

SL-B

TP-A

TP-B

MACH BRAKE

MOTOR BRAKE

DRIVE TROUBLE R PUSH TO RESET

HORN

CONTROL POWER OFF ON

TRAFFIC LTS ALL GO GATES STOP *

NEAR ONCOMING GATE RAISE LOWER

FAR ONCOMING GATE RAISE LOWER

NEAR OFF GOING GATE RAISE LOWER

FAR OFF GOING GATE RAISE LOWER

FAR ONCOMING RESISTANCE GATE RAISE LOWER

FAR OFF GOING RESISTANCE GATE RAISE LOWER

SPANLOCK DRIVE PULL

TAIL PROPS DRIVE PULL

SPAN LOWER RAISE

LEAF STOP

CHANNEL SIDE

* OPEN ALL GATES

NOTES:
1. "ALL GATES" GROUP RAISES ALL TRAFFIC GATES IN SEQUENCE, ENABLED AFTER FAR OFF GOING RESISTANCE GATE IS RAISED.

CONTROL DESK LAYOUT

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DRAWN JMC
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Pinellas County PUBLIC WORKS

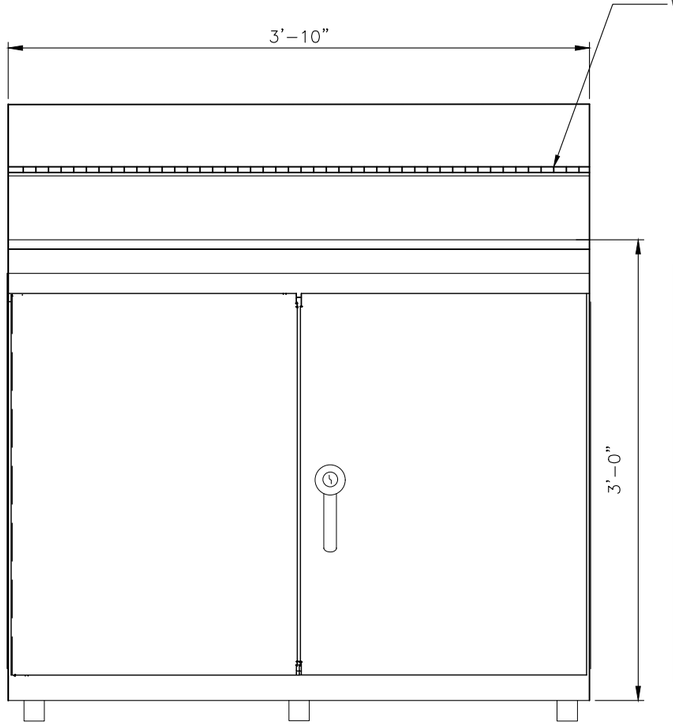
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: CONTROL DESK LAYOUT

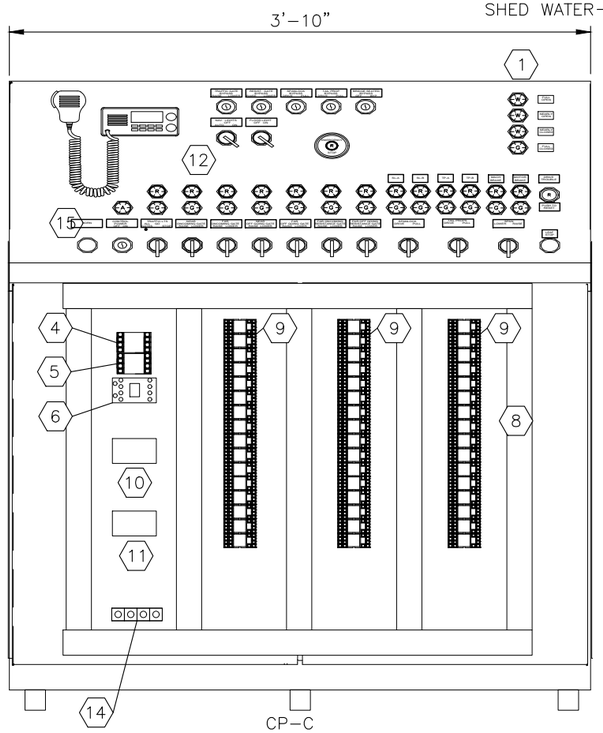
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-9
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 239 OF 283

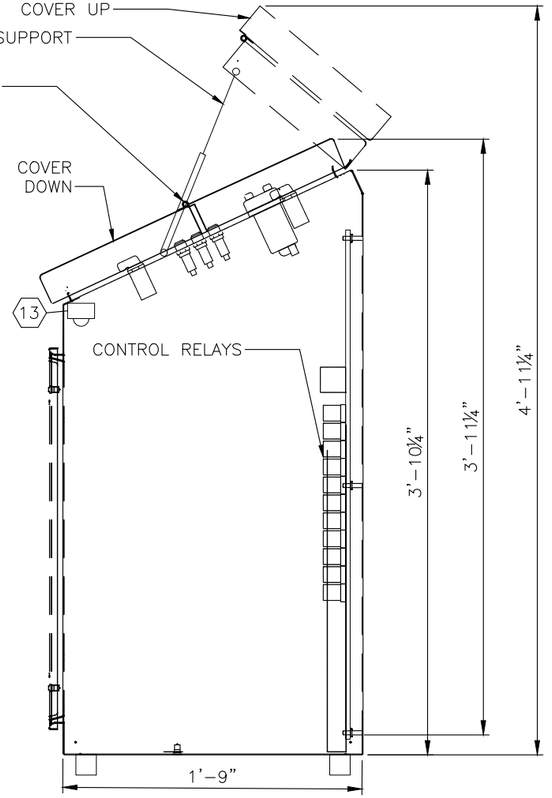


FRONT VIEW



CONTROL DESK

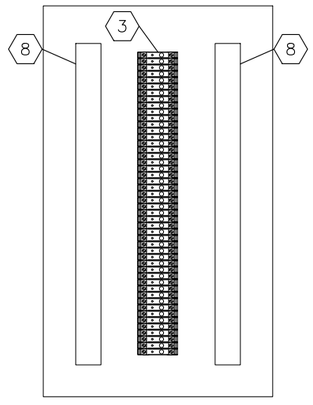
COVER AND DOORS REMOVED



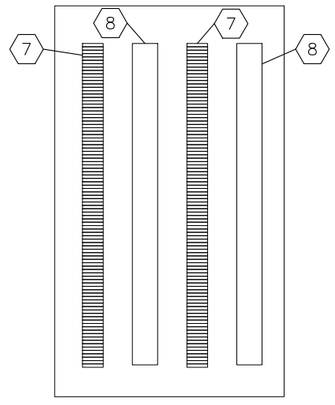
SIDE VIEW

MAJOR COMPONENTS MATERIALS LIST

1	CONTROL CONSOLE: 48"x46"x21" WITH 24" SLOPING TOP AND LOCKABLE COVER. NEMA 3R 316 STAINLESS STEEL
2	NOT USED
3	CIRCUIT BREAKER: 1P, 600V, RATING AS SHOWN ON SCHEMATIC DIAGRAM, DIN RAIL MOUNT
4	TIME DELAY ON CONTROL RELAY: 120V COIL, 4P, 10A CONTACTS, INSTANT AND DELAY CONTACTS
5	LATCHING CONTROL RELAY:120V COIL LATCH AND UNLATCH COILS, 4P, 10A CONTACTS
6	CONTACTOR: 240V, 3P, 70A, 120V COIL
7	TERMINAL BLOCKS: 600V, 10A, RATING
8	WIRE DUCT: 2" X2" SLOTTED, POLYCARBONATE WITH SNAP ON COVER
9	CONTROL RELAYS: 4PDT, 120V COIL, 7 AMP CONTACT, GENERAL PURPOSE PLUG-IN RELAY W/LED INDICATION, & TRACK MOUNTED SOCKET
10	POWER SUPPLY: 120VAC-24VDC, 5A
11	POWER SUPPLY: 120-12VDC 10A FOR MARINE RADIO
12	MARINE VHF RADIO WITH HAILING FEATURE AND ANTENNA
13	LED LIGHT FIXTURE: 24 INCH, 20 WATT LAMP, WITH 120V DRIVER.
14	GROUND LUG
15	INDICATING LIGHTS, PUSHBUTTONS, AND SELECTOR SWITCHES ALL 30.5 MM FAMILY OF A SINGLE MANUFACTURER



LEFT SUBPANEL



RIGHT SUBPANEL

NOTES:

1. DIMENSIONS ARE NOMINAL. SUBMIT DIMENSIONED SHOP DRAWINGS FOR APPROVAL.
2. IDENTIFY ANCHORAGE TYPE AND MATERIALS.
3. REFER TO SCHEMATICS FOR TIME DELAY SETTINGS.
4. REFER TO SCHEMATICS AND TECHNICAL SPECIAL PROVISIONS (TSP) FOR SWITCH CONTACT CONFIGURATIONS AND INDICATOR LIGHTS.

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REV. NO.	DATE	DESCRIPTION	REV. BY

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Pinellas County PUBLIC WORKS

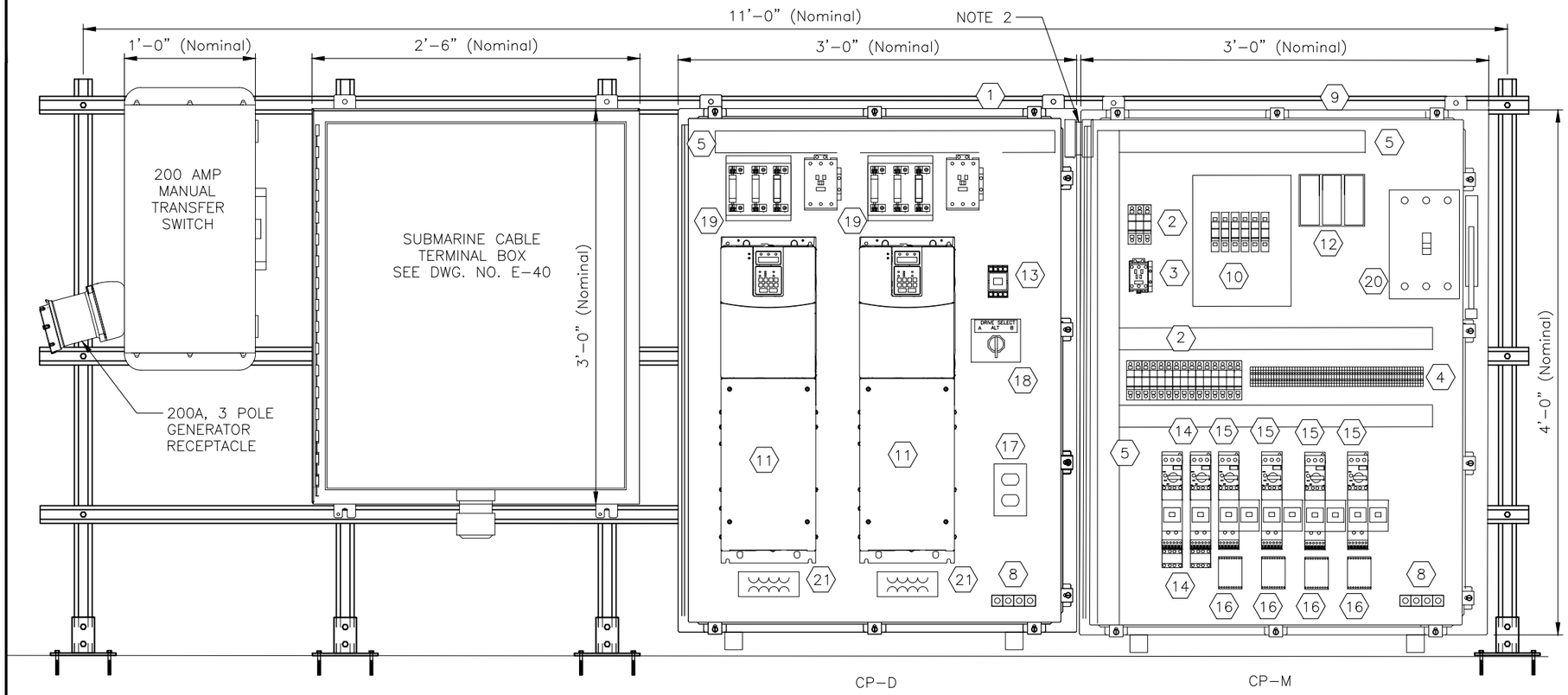
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: CONTROL DESK DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-10
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 240 OF 283



MOTOR CONTROL PANELS
(DOORS REMOVED)

MAJOR COMPONENTS MATERIALS LIST	
1	MOTOR CONTROL PANEL ENCLOSURE: 48"x36"x12" NEMA 4X 316 SS,
2	CIRCUIT BREAKER: 3P, 600V, RATING AS SHOWN ON SCHEMATIC DIAGRAM, DIN RAIL MOUNT
3	CONTACTOR: 240V, 3P, 70A, 120V COIL
4	TERMINAL BLOCKS: 600V, 10A, RATING
5	WIRE DUCT: 2" X2" SLOTTED, POLYCARBONATE WITH SNAP ON COVER
6	CONTROL RELAYS: 4PDT, 120V COIL, 7 AMP CONTACT, GENERAL PURPOSE PLUG–IN RELAY W/LED INDICATION, & TRACK MOUNTED SOCKET
7	LED LIGHT FIXTURE: 24 INCH, 20 WATT LAMP, WITH 120V DRIVER.
8	GROUND BUS
9	MOTOR DRIVE CABINET ENCLOSURE: 48"x36"x12" NEMA 4X 316 SS, WITH CIRCUIT BREAKER OPERATOR
10	16 CIRCUIT PANEL BOARD IN NEMA 1 ENCLOSURE
11	VECTOR CONTROLLED VARIABLE SPEED DRIVE, 25 HP, 240 V 3 PH. IN NEMA 1 ENCLOSURE
12	POWER DISTRIBUTION TERMINAL BLOCK
13	ALTERNATING RELAY
14	IEC COMBINATION MCP AND FVNR STARTER
15	IEC COMBINATION MCP AND FVR STARTER
16	POWER MONITOR RELAY (SUPPLIED WITH ACTUATOR)
17	GFCI RECEPTACLE
18	30.5 MM SELECTOR SWITCH
19	FUSE HOLDER FOR CLASS I, 600V, 90A FUSE
20	CIRCUIT BREAKER: 200 AF/110 AT SERVICE ENTRANCE RATED
21	LINE REACTOR

NOTES:

1. DIMENSIONS ARE NOMINAL. SUBMIT DIMENSIONED SHOP DRAWINGS FOR APPROVAL.
2. COUPLE PANELS TOGETHER WITH 3" NIPPLES. MOTOR CONTROL PANEL ENCLOSURES MAY BE SINGLE TWO DOOR PANEL.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: MAIN PANEL DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E–11
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 241 OF 283

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120 VAC–CKT 1

H1 C 100

100 CB100 20A

SS–CNTRL POWER OFF (K) ON

101 — 101 — IL–CP (A) — CONTROL POWER ON

PB–EMERGENCY STOP

102 — 102 — IL–ESTOP (R) — EMERGENCY STOP ON — LIGHTED BUTTON

103 — 103

104 — TR110 — 103

101 104

105

SS–SIGNALS STOP GO

106 — XOO — 106 — LR106 (L) — TRAFFIC LIGHTS LATCH ON, RED 108,221,241

107A — AGU CR122 — U

107 — OOX — TGUBY CR204

LR106

108 — LR109 (U)

109 — 4 POLE RELAY LATCH ON,RED 111,143,223,243

110 — TR110 (TR) 15 SEC. — CONTROL ENABLE 104

111

108 — SLD CR130 — 112 — AGD CR123 — 112A — C112 (C) — GONG 230, 250

TR113

112

SLD CR130 — 113 — TR113 (TR) 2 MIN. — GONG SLD RESET TIMER 112

113

101 104

CONTINUED ABOVE RIGHT

CONTINUED BELOW LEFT

101 104 — N1

120 — SLD CR130 — 120 — RGU CR515 — 120A — TRAFFIC GATES CONT'D DWGS. E–14 & E–15

121 — SLDBY CR210 — 120 — RGUBY CR206

122 — TGFOCU CR405 — TGFOGU CR415 — TGNOCU CR305 — TGNOGU CR315 — 122 — 122A — 122B — 122C — CR122 (CR) — ALL GATES UP (AGU) 107

123 — TGFOCD CR406 — TGFOGD CR416 — TGNOCD CR306 — TGNOGD CR316 — 123 — 123A — 123B — 123C — CR123 (CR) — ALL GATES DOWN (AGD) 112,207,513

124 — SLP CR131 — 124 — RGD CR524 — 124A — TAIL PROPS CONT'D DWG. E–18

125 — SLPBY CR211 — RGDBY CR207

126 — TPAD CR707 — TPBD CR717 — 126 — 126A — CR126 (CR) — TAIL PROPS DRIVEN (TPD) 128,210

127 — TPAP CR708 — TPBP CR718 — 127 — 127A — CR127 (CR) — TAIL PROPS PULLED (TPP) 132,

SPAN BYPASS (BSBY)

128 — FC CR808 — 128 — TPD CR126 — 128A — SPAN LOCKS CONT'D DWG. E–17

129 — SS–BSBY OFF (K) BYP — OX — TPDBY CR208

130 — SLAD CR617 — SLBD CR627 — 130 — 130A — CR130 (CR)

131 — SLAP CR618 — SLBP CR628 — 131 — 131A — CR131 (CR)

132 — TPP CR127 — 132 — SPAN DRIVES CONT'D DWG. E–20

TPPBY CR209

133

101 104

CONTINUED DWG. NO. E–13

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DRAWN JMC
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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

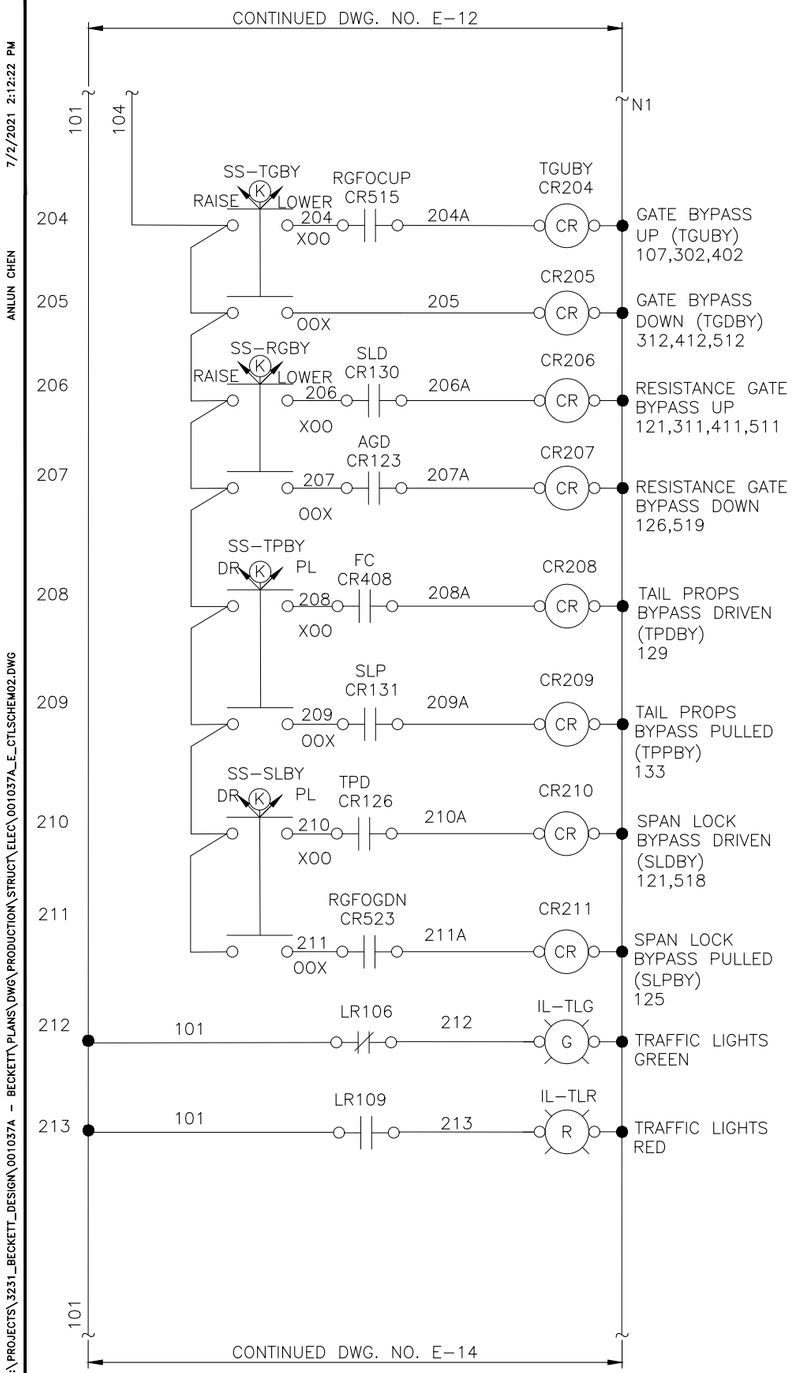
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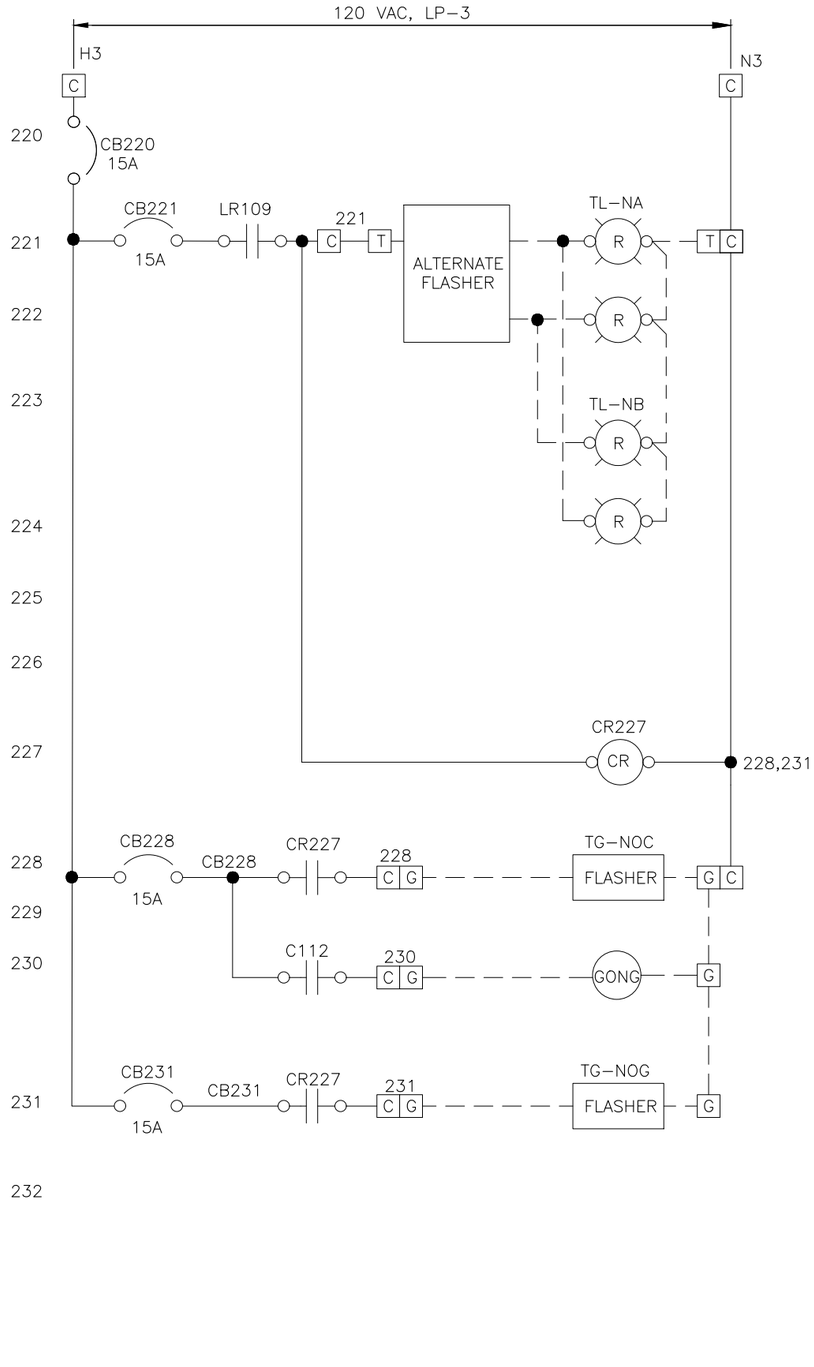
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

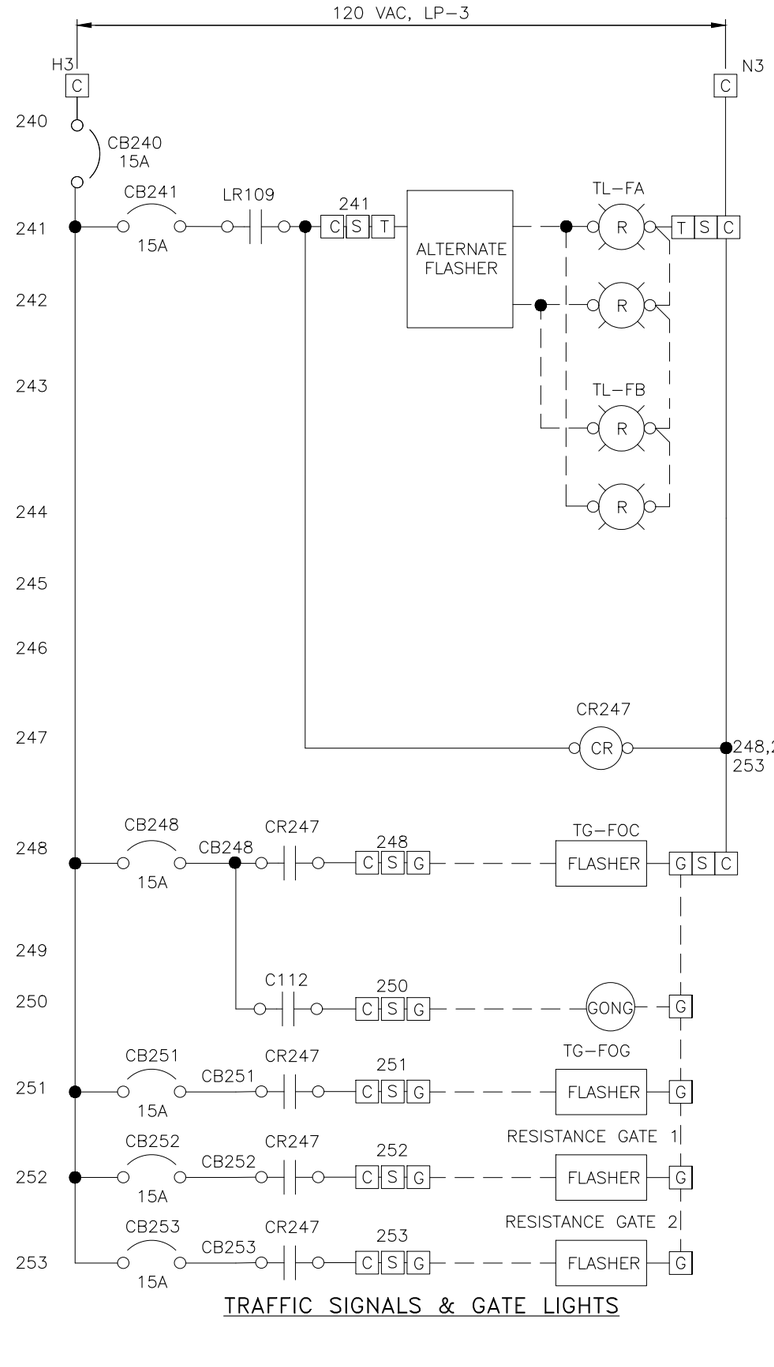
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E–12
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 242 OF 283

BYPASS CONTROLS







TRAFFIC SIGNALS & GATE LIGHTS

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: CONTROL SCHEMATIC (2 OF 12)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-13
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 243 OF 283

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CONTINUED FROM NO DWG. E-13

CONTINUED LINE 120 DWG. NO. E-12

NEAR-SIDE TRAFFIC GATES

300 301 302 303 304 305 306 311 312 313 314 315 316

101 104 120A

CB301 5A — CB301 — CR415 — 301 — TGUBY CR204

SS-TGNOC: RAISE, LOWER — XOO, XXO, OOX

302 — MF — 301A — 303A

LS-NOCGU — 301C — LS-NOCDSF — 301D — LS-NOCDSR — 301E — LS-NOCHC — 301F — MR — MF — OL — N1 — TG-NOC — 302,303

LS-NOCGD — 303C — 303D — 303E — 303F — MF — MR — 301

CB305 5A — CB305 — LS-NOCGUI — 305 — CR305 — 122

IL-NOCGU: G

LS-NOCGDI — 306 — CR306 — 123,413

IL-NOCGD: R

CB311 5A — RGFOGU CR522 — 311 — RGUBY CR206 — TGDBY CR205 — CR406 — 313

SS-TGNOG: RAISE, LOWER — XOO, XXO, OOX

312 — MF — 311A — 313A

LS-NOGGU — 311C — LS-NOGDSF — 311D — LS-NOGDSR — 311E — LS-NOGHC — 311F — MR — MF — OL — N1 — TG-NOG — 312,313

LS-NOGGD — 313C — 313D — 313E — 313F — MF — MR — 311

CB315 5A — CB315 — LS-NOGGUI — 315 — CR315 — 122,401

IL-NOGGU: G

LS-NOGGDI — 316 — CR316 — 123

IL-NOGGD: R

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: CONTROL SCHEMATIC (3 OF 12)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-14
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 244 OF 283

FAR-SIDE TRAFFIC GATES

CONTINUED LINE 120 DWG. NO. E-12

400 101 120A

401 CB401 5A — CB401 CR315 — 401 C — SS-TGFOC RAISE LOWER — XOO C 401A S G — XXO C S G 402 MF — TGUBY CR204

402

403 CB401 C — XOO C S G 403A — OOX

LS-FOCGU 401C — LS-FOCDSF 401D — LS-FOCDSR 401E — LS-FOCHC 401F — MR — MF — OL — G S M C TG-FOC 402,403

LS-FOCGD 403C — 403D — 403E — 403F — MF — MR — 401

404

405 CB405 5A — CB405 C S G — LS-FOCGUI 405 G S C — IL-FOCGU G — CR405 CR — 122

406 LS-FOCGDI 406 G S C — IL-FOCGD R — CR406 CR — 123,313

411 CB411 5A — RGFOGU CR522 — 411 C — SS-TGFOG RAISE LOWER — XOO C 411A S G — XXO C S G 412 MF — RGUBY CR206

412

413 CR306 — 413 C — OOX C S G 413A

LS-FOGGU 411C — LS-FOGDSF 411D — LS-FOGDSR 411E — LS-FOGHC 411F — MR — MF — OL — N1 G S M C TG-FOG 412,413

LS-FOGGD 413C — 413D — 413E — 413F — MF — MR — 411

414

415 CB415 5A — CB415 C S G — LS-FOGGUI 415 G S C — IL-FOGGU G — CR415 CR — 122,301

416 LS-FOGGDI 416 G S C — IL-FOGGD R — CR416 CR — 123

N1

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

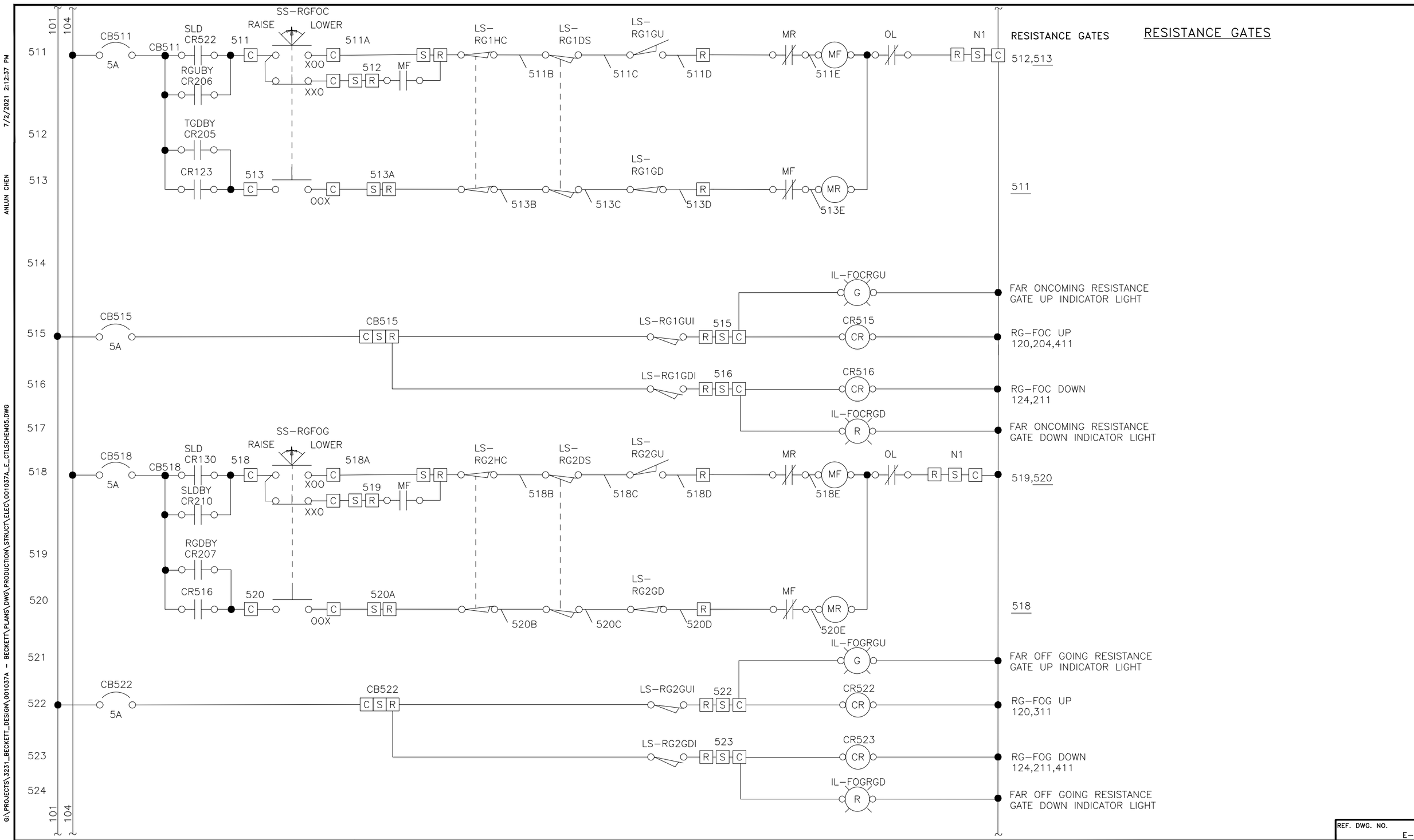
DESCRIPTION: CONTROL SCHEMATIC (4 OF 12)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-15
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 245 OF 283

RESISTANCE GATES



REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT:
BECKETT BRIDGE REPLACEMENT

DESCRIPTION:
CONTROL SCHEMATIC
(5 OF 12)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E–16
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 246 OF 283

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CONTINUED LINE 128 DWG. NO. E-12

SPAN LOCKS

SPAN LOCK A

SPAN LOCK B

SS-LOCK
DRIVE PULL

CB611 5A
CB617 5A
CB621 5A
CB627 5A

611B 612 613 614B 615 616 617 618 619 620 621B 622 623 624B 625 626 627 628 629

LS-SLAHC LS-SLAD LS-SLADI LS-SLAPI LS-SLBHC LS-SLBD LS-SLBDI LS-SLBPI LS-SLAP LS-SLBP

611C 614C 621C 624C

611D 614D 621D 624D 617 618 627 628

MR MF OL PMR

IL-SLAD IL-SLBD IL-SLAP IL-SLBP

CR617 CR618 CR627 CR628

612,614
611,615
621,625
622,624
130
131
130,138,611
131

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: CONTROL SCHEMATIC (6 OF 12)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-17
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 247 OF 283

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CONTINUED LINE 124A DWG. NO. E-12

TAIL PROPS

700 101 104 124A

N1 M C

SS-PROPS DRIVE PULL

701 CB701 5A — CB701 — C — XOO — 701B C — T — LS-TPAHC — LS-TPAD 701C — T — 701D M — MR — MF — OL — PMR — TAIL PROP A 702,704

702 — 702 C M MF M — XXO

703

704 — 704B C — T — LS-TPAP 704C — T — 704D M — MF — MR — 701,705

705 — 705 C M MR M — OXX

706

707 CB707 5A — CB707 — CB707 C — T — LS-TPADI — T — 707 C — IL-TPAD G — CR707 CR — 126

708 — LS-TPAPI — T — 708 C — CR708 CR — 127

709 — IL-TPAP R

710

711 CB711 5A — CB711 — XOO — 711B C — T — LS-TPBHC — LS-TPBD 711C — T — 711D M — MR — MF — OL — PMR — TAIL PROP B 712,714

712 — 712 C M MF M — XOO

713

714 — 714B C — T — LS-TPBP 714C — T — 714D M — MF — MR — 711,715

715 — 715 1 M MR M — OXX

716

717 CB717 5A — CB717 — CB717 C — T — LS-TPBDI — T — 717 C — IL-TPBD G — CR717 CR — 126

718 — LS-TPBPI — T — 718 C — CR718 CR — 127

IL-TPBP R

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

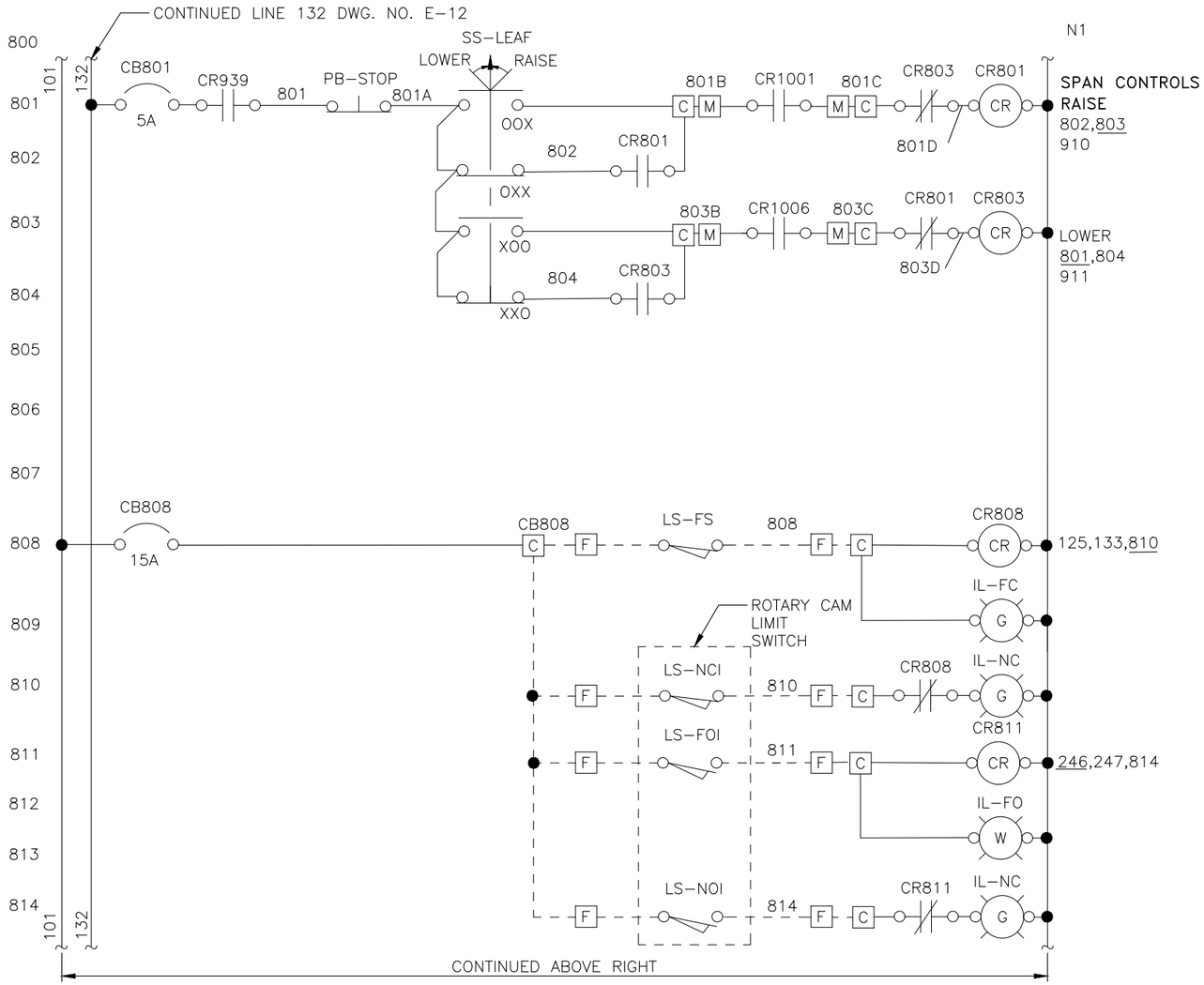
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: CONTROL SCHEMATIC (7 OF 12)

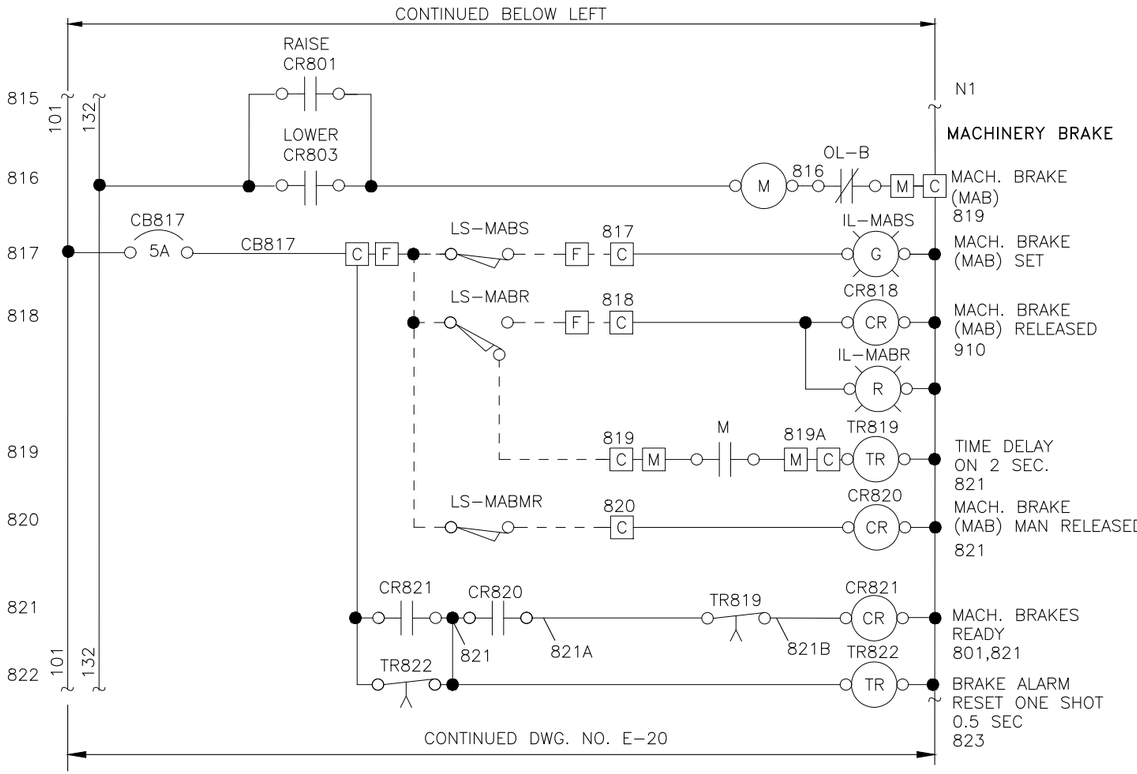
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-18
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 248 OF 283



SPAN CONTROLS



MACHINERY BRAKE CONTROLS

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: CONTROL SCHEMATIC (8 OF 12)

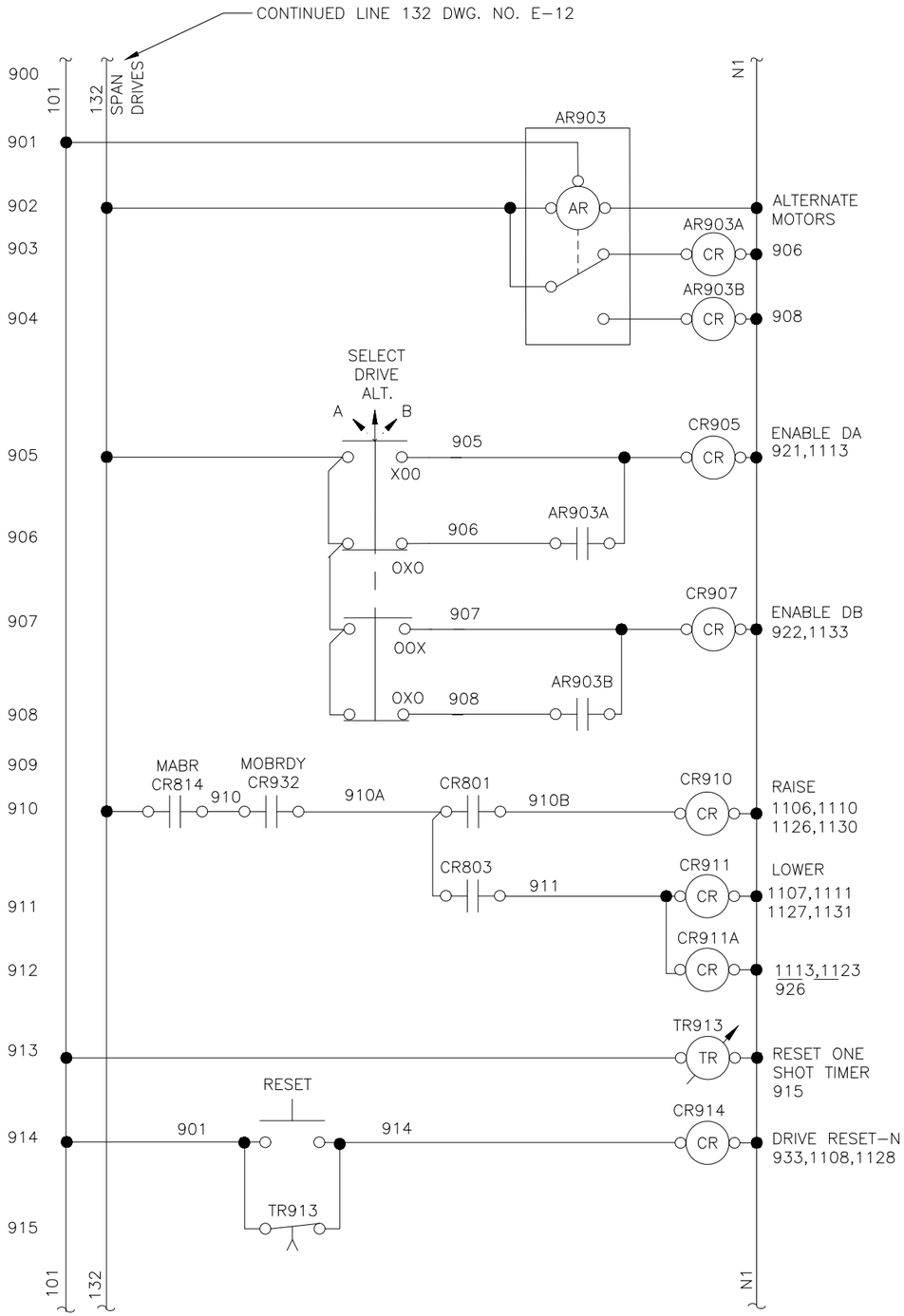
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

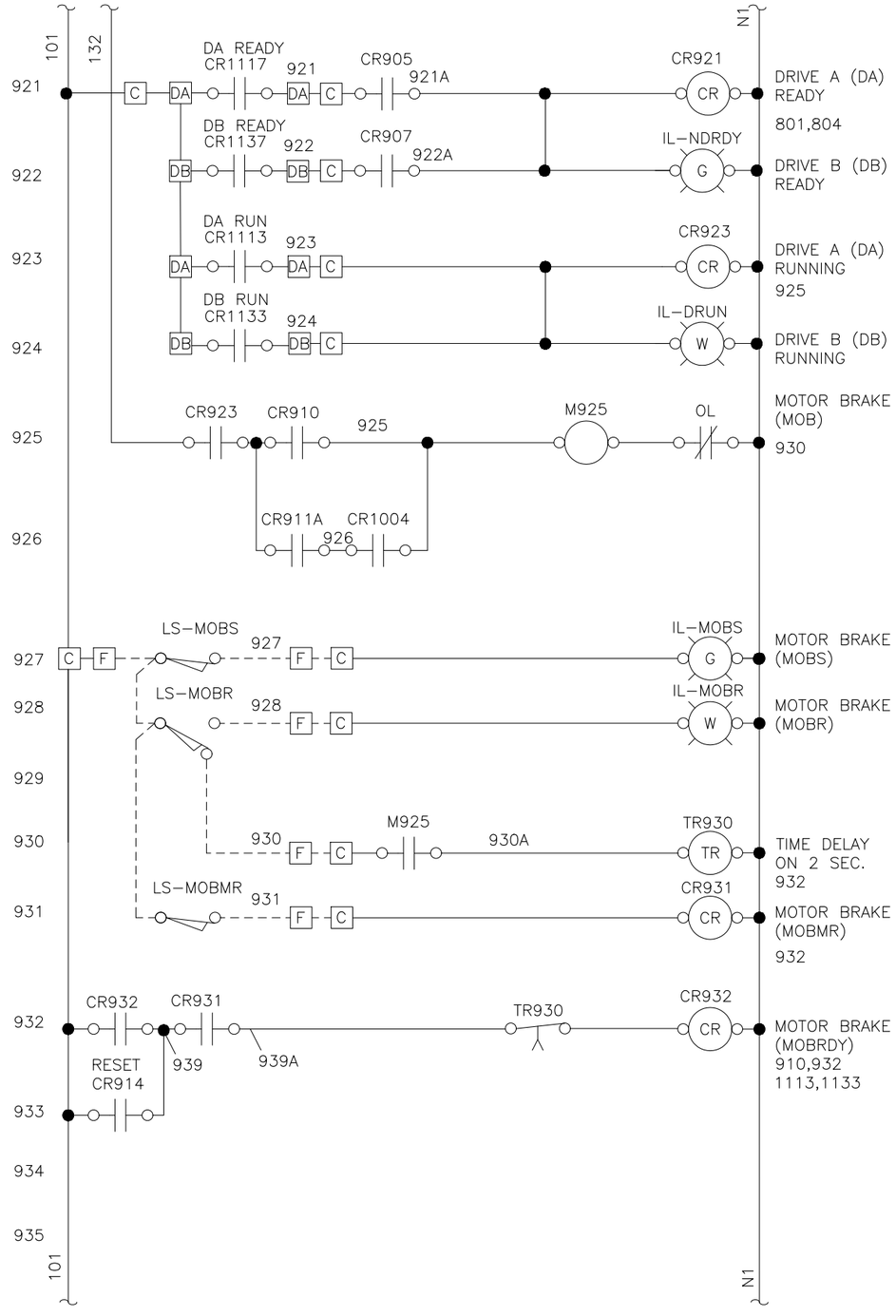
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-19
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 249 OF 283

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CONTINUED LINE 132 DWG. NO. E-12





DRIVE CONTROL RELAYS

MOTOR BRAKE CONTROLS

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: CONTROL SCHEMATIC (9 OF 12)

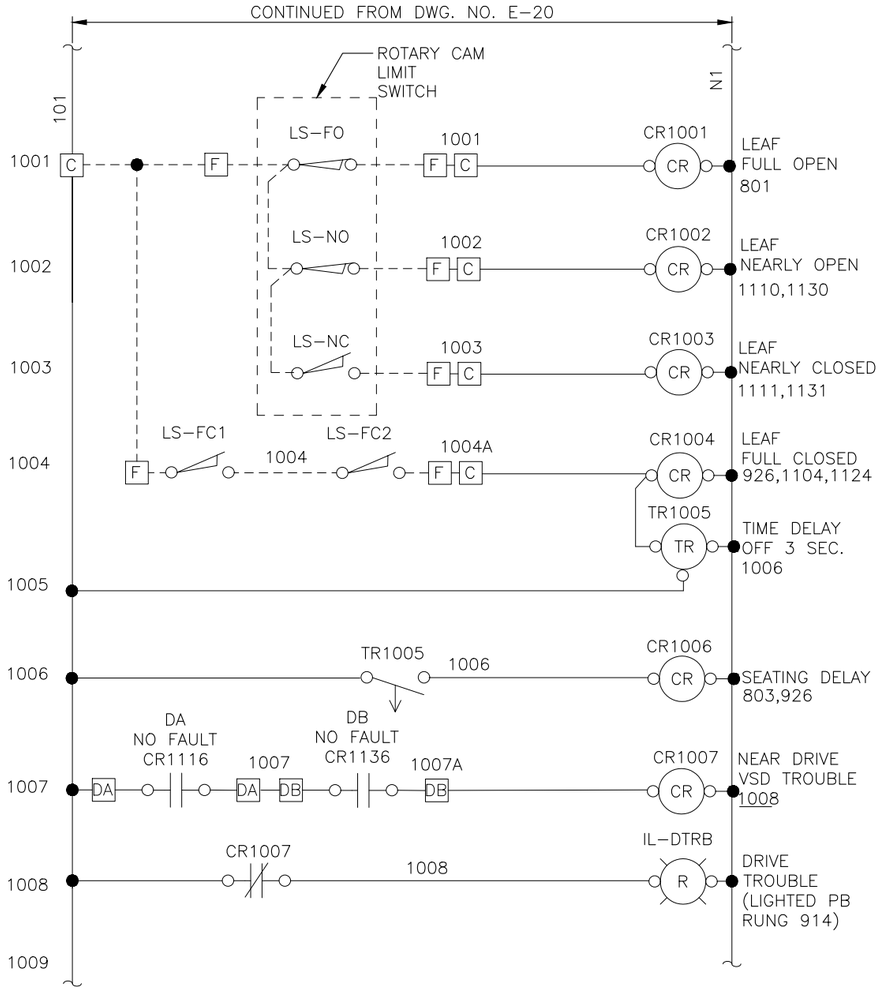
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-20
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 250 OF 283

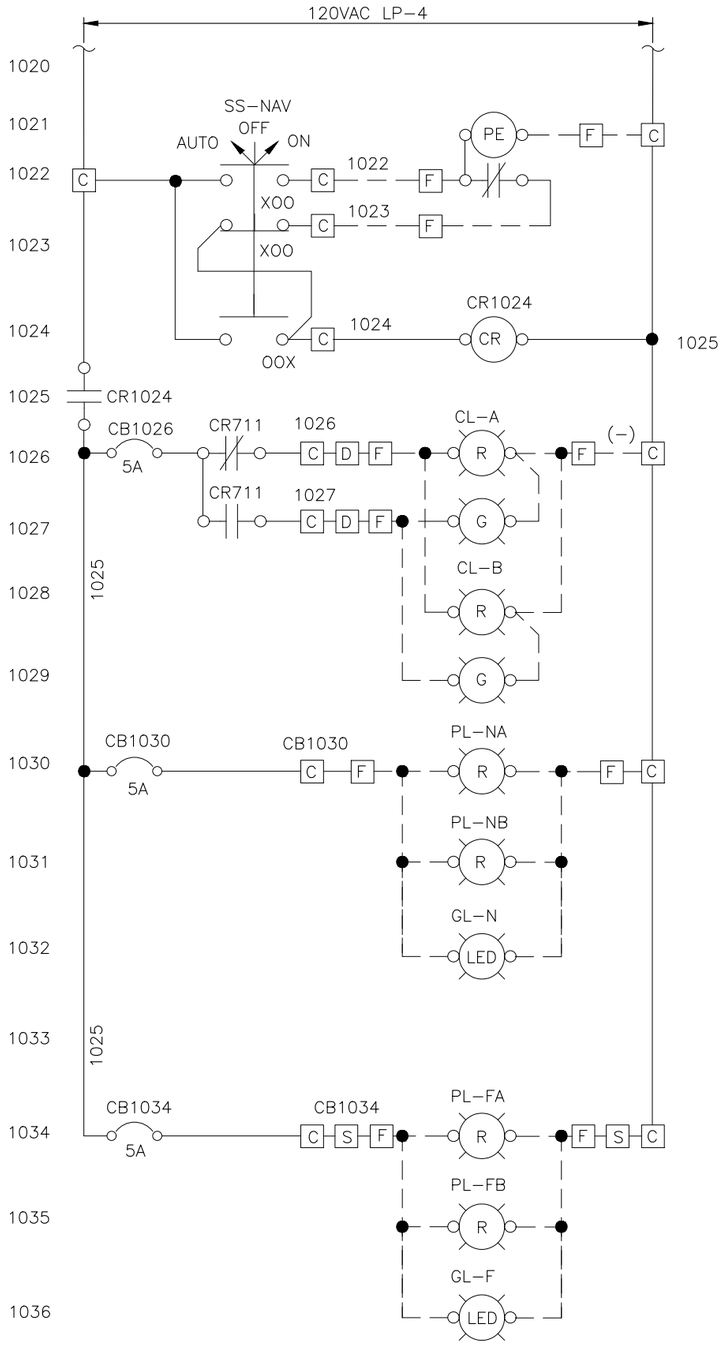
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CONTINUED FROM DWG. NO. E-20



DRIVE CONTROL RELAYS

120VAC LP-4



NAVIGATIONAL LIGHTS

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

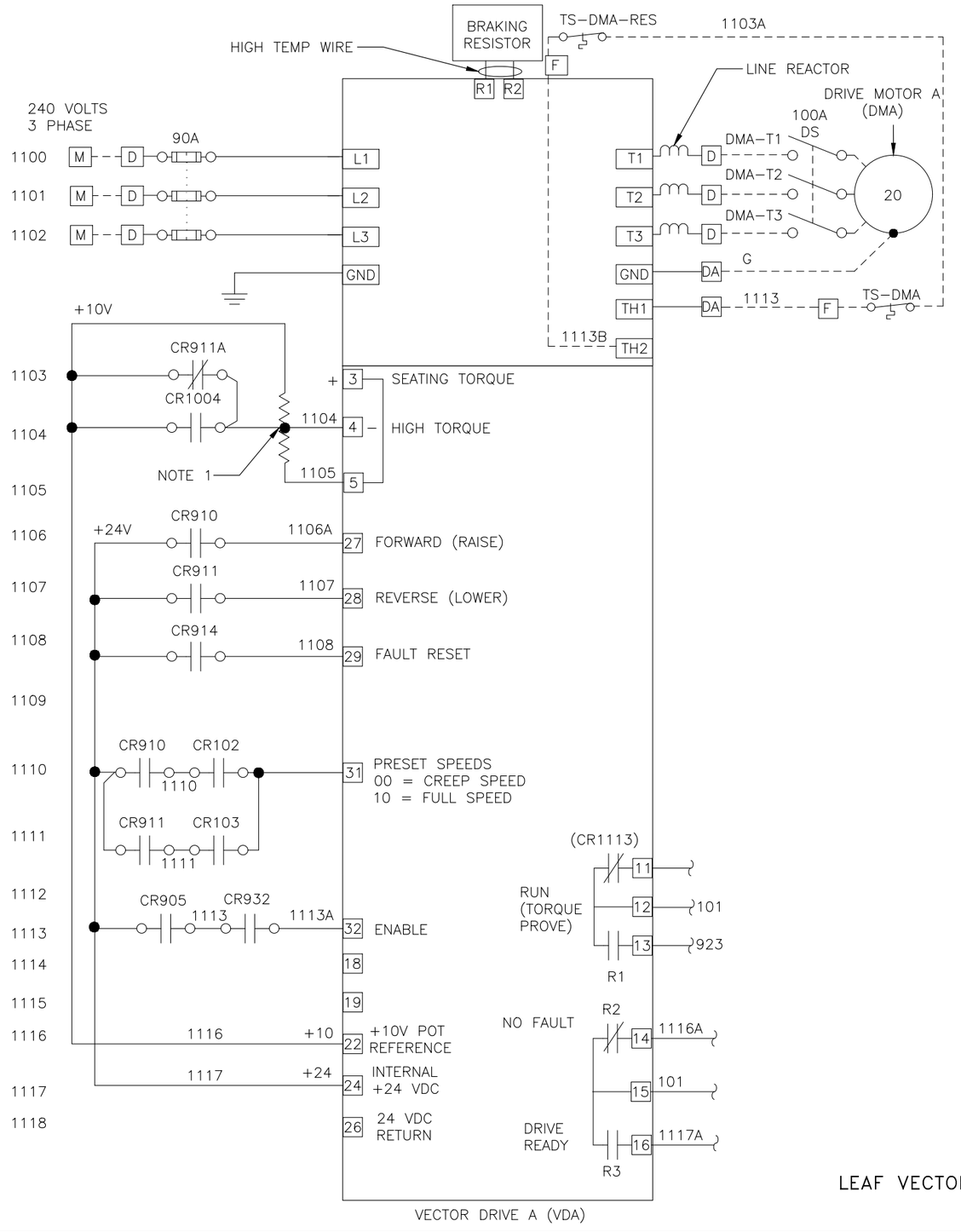
PROJECT: BECKETT BRIDGE REPLACEMENT

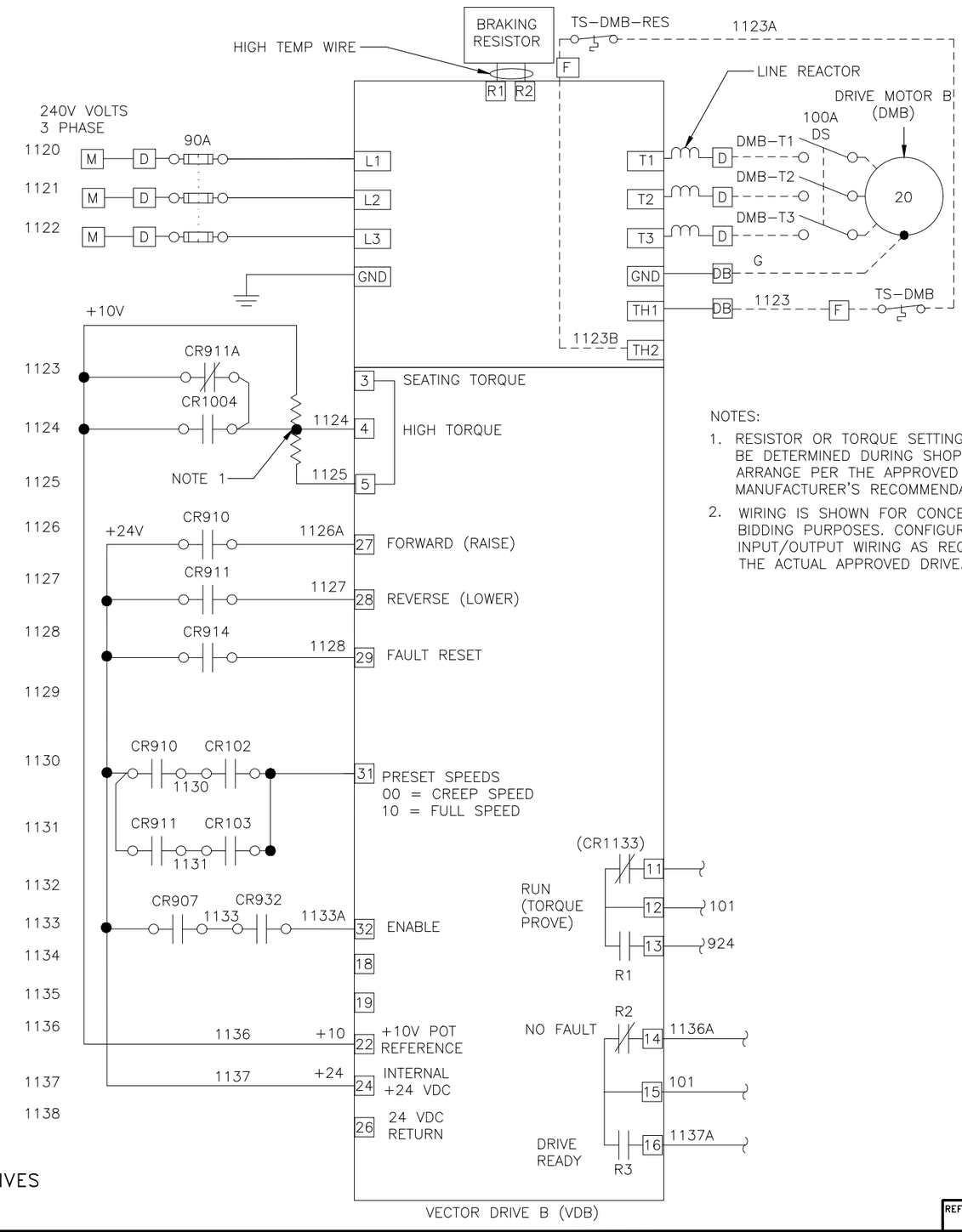
DESCRIPTION: CONTROL SCHEMATIC (10 OF 12)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-21
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 251 OF 283





NOTES:

1. RESISTOR OR TORQUE SETTING SHALL BE DETERMINED DURING SHOP TESTING. ARRANGE PER THE APPROVED DRIVE MANUFACTURER'S RECOMMENDATIONS,
2. WIRING IS SHOWN FOR CONCEPT AND BIDDING PURPOSES. CONFIGURE THE FINAL INPUT/OUTPUT WIRING AS REQUIRED FOR THE ACTUAL APPROVED DRIVE.

LEAF VECTOR DRIVES

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: CONTROL SCHEMATIC (11 OF 12)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

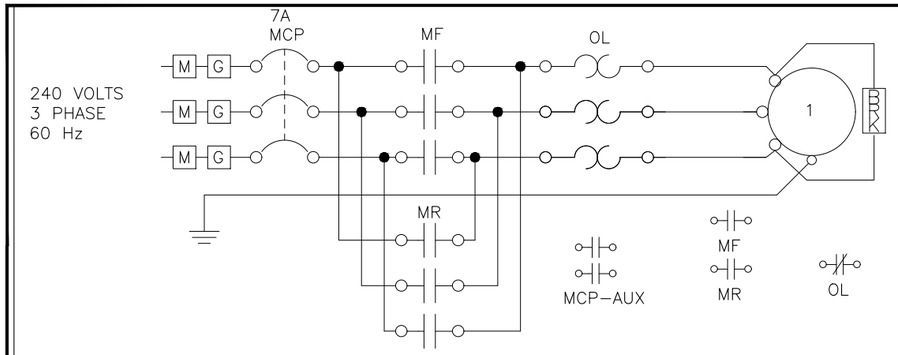
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-22
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 252 OF 283

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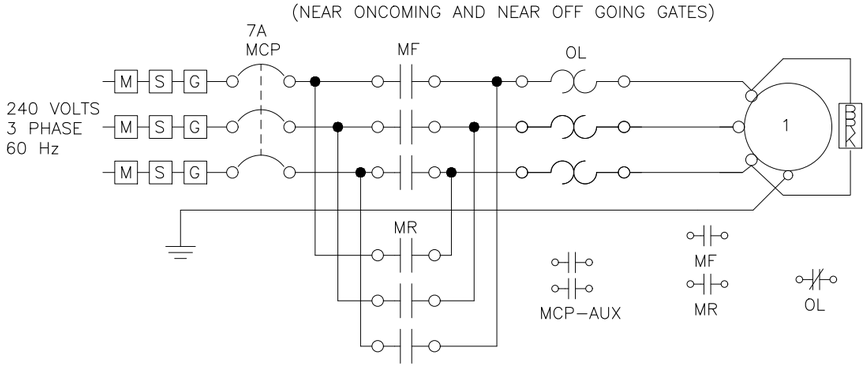
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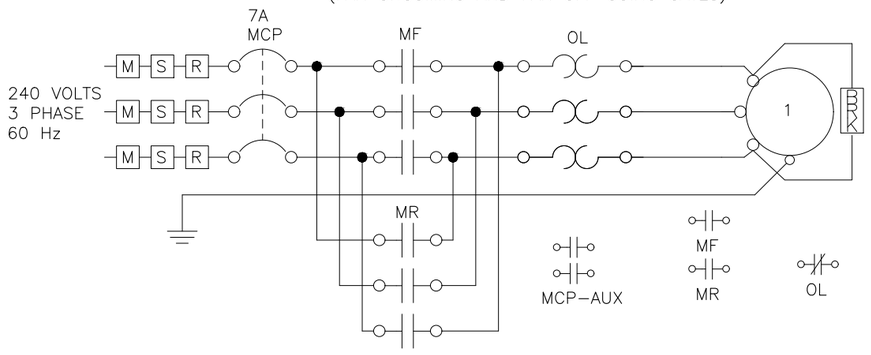
REVERSING STARTER CONNECTIONS

(NEAR ONCOMING AND NEAR OFF GOING GATES)



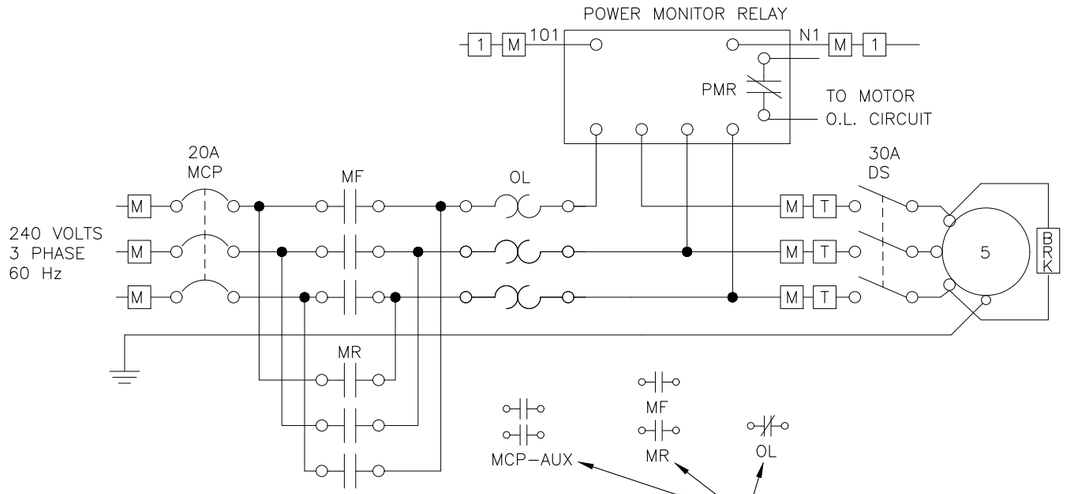
REVERSING STARTER CONNECTIONS

(FAR ONCOMING AND FAR OFF GOING GATES)



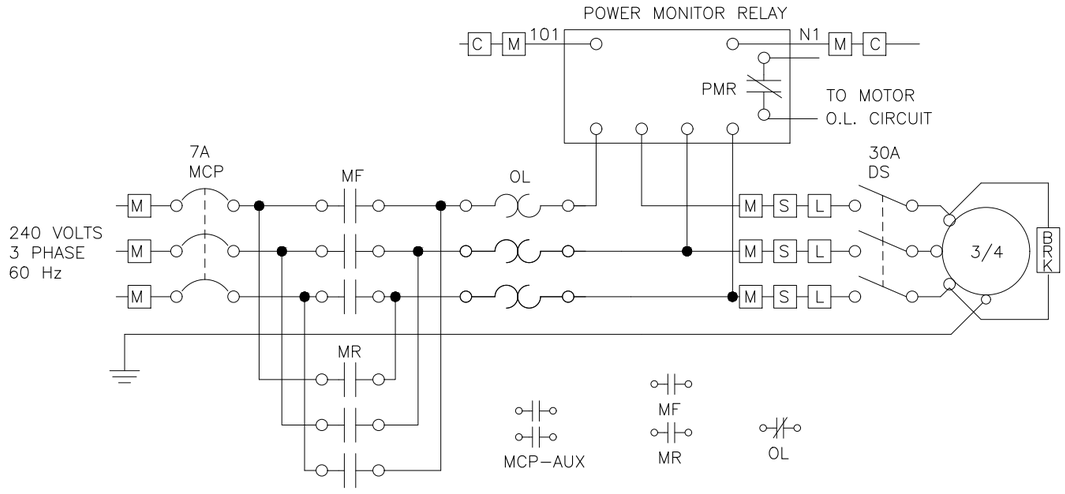
REVERSING STARTER CONNECTIONS

(RESISTANCE BARRIER GATE)



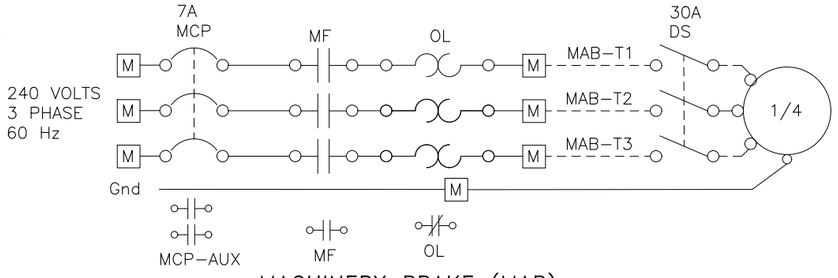
REVERSING STARTER CONNECTIONS

(TYPICAL FOR BOTH TAIL PROPS)

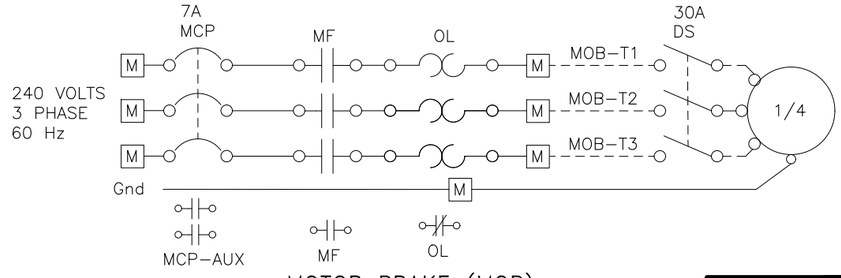


REVERSING STARTER CONNECTIONS

(TYPICAL FOR BOTH SPAN LOCKS)



MACHINERY BRAKE (MAB)



MOTOR BRAKE (MOB)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: CONTROL SCHEMATIC (12 OF 12)

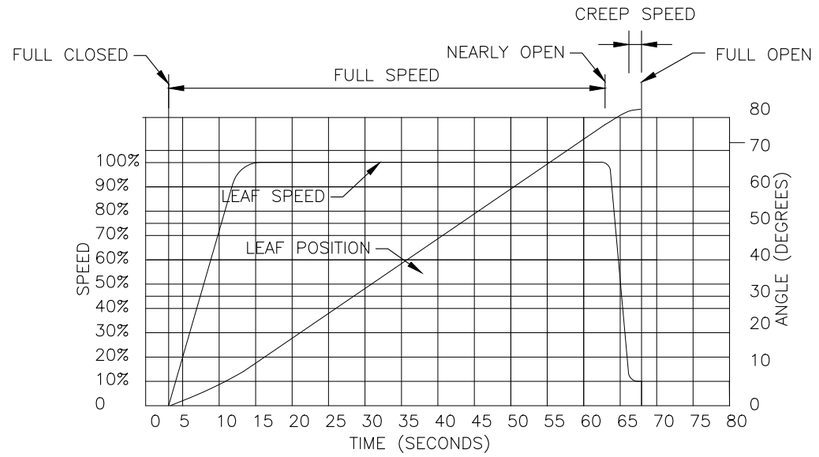
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

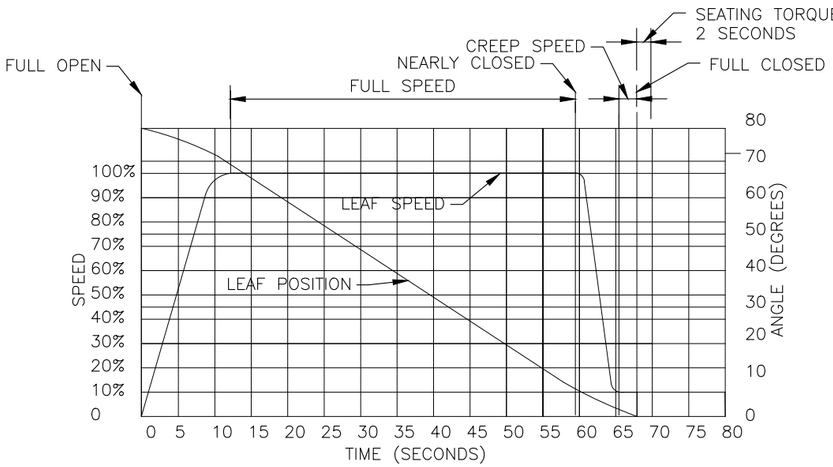
REF. DWG. NO. E-23
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 253 OF 283

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

MOTOR DRIVE SPEED PROFILES



OPENING SEQUENCE



CLOSING SEQUENCE

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

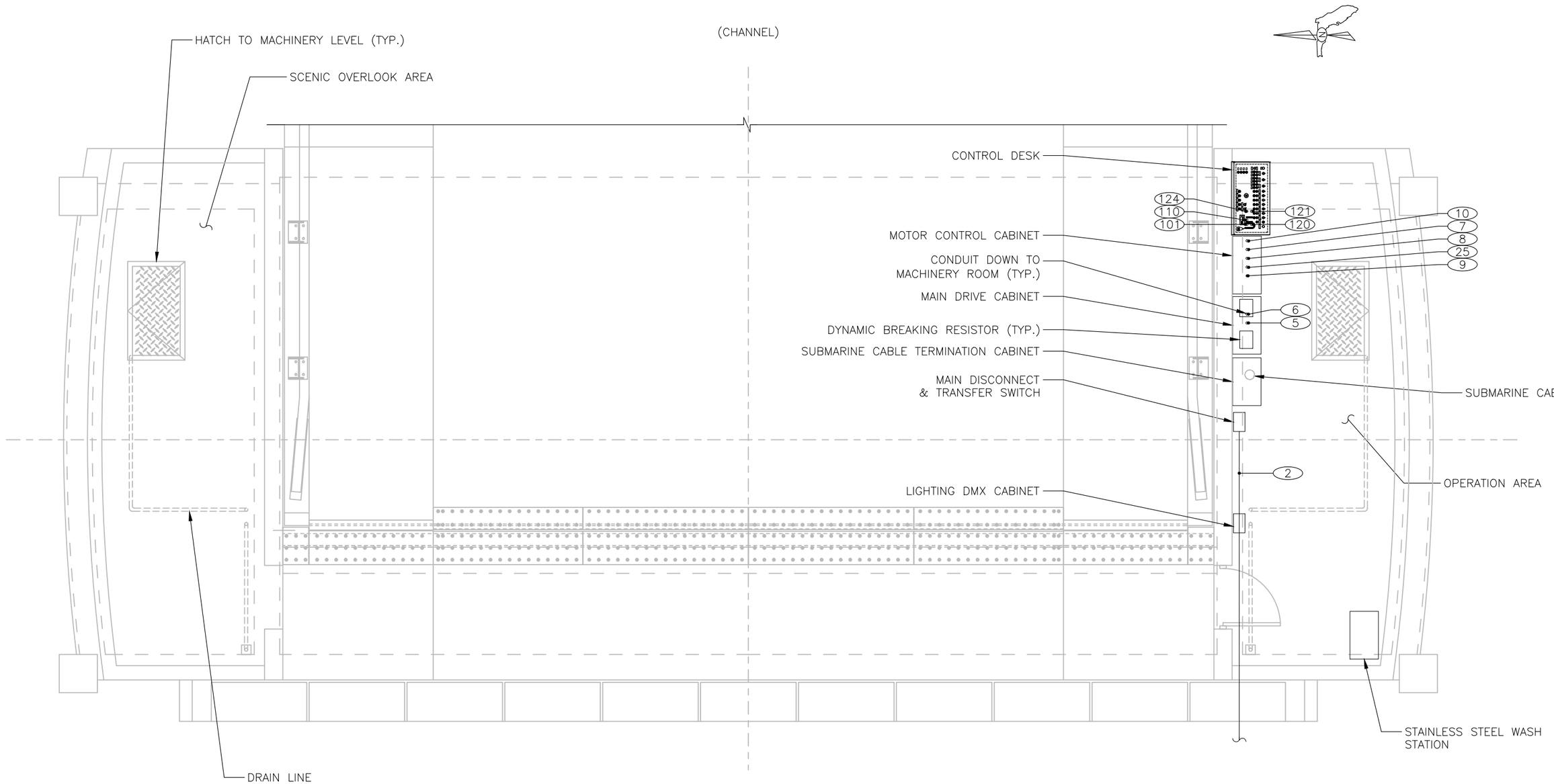
DESCRIPTION: LEAF POSITION VS. SPEED CURVES

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-24
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 254 OF 283

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

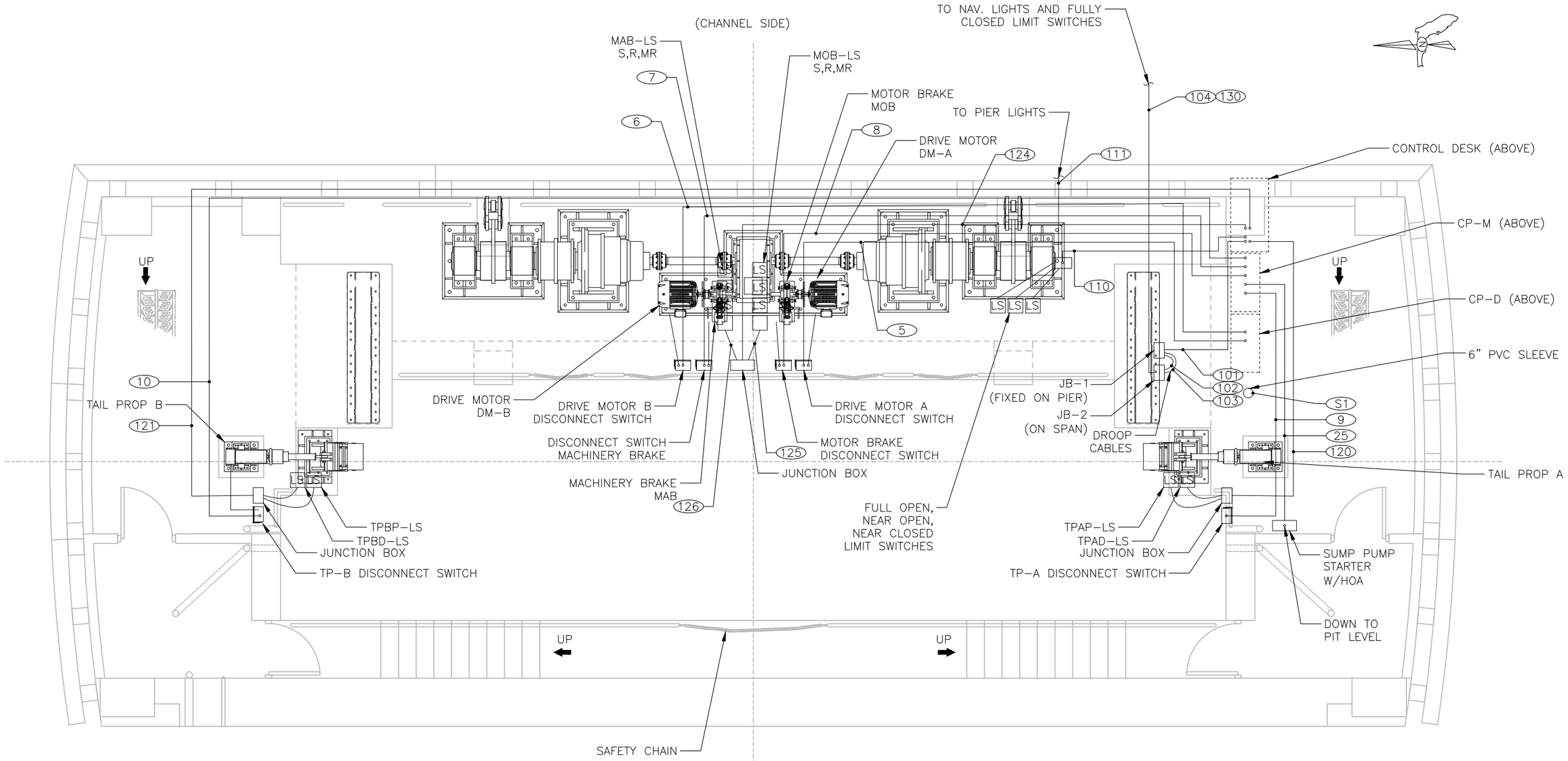
DESCRIPTION: BASCULE PIER ELECTRICAL PLAN (1 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-25
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 255 OF 283

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NOTE:

1. COORDINATE EMBEDDED CONDUIT WITH ANCHOR BOLTS AND REBAR.

MACHINERY LEVEL

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

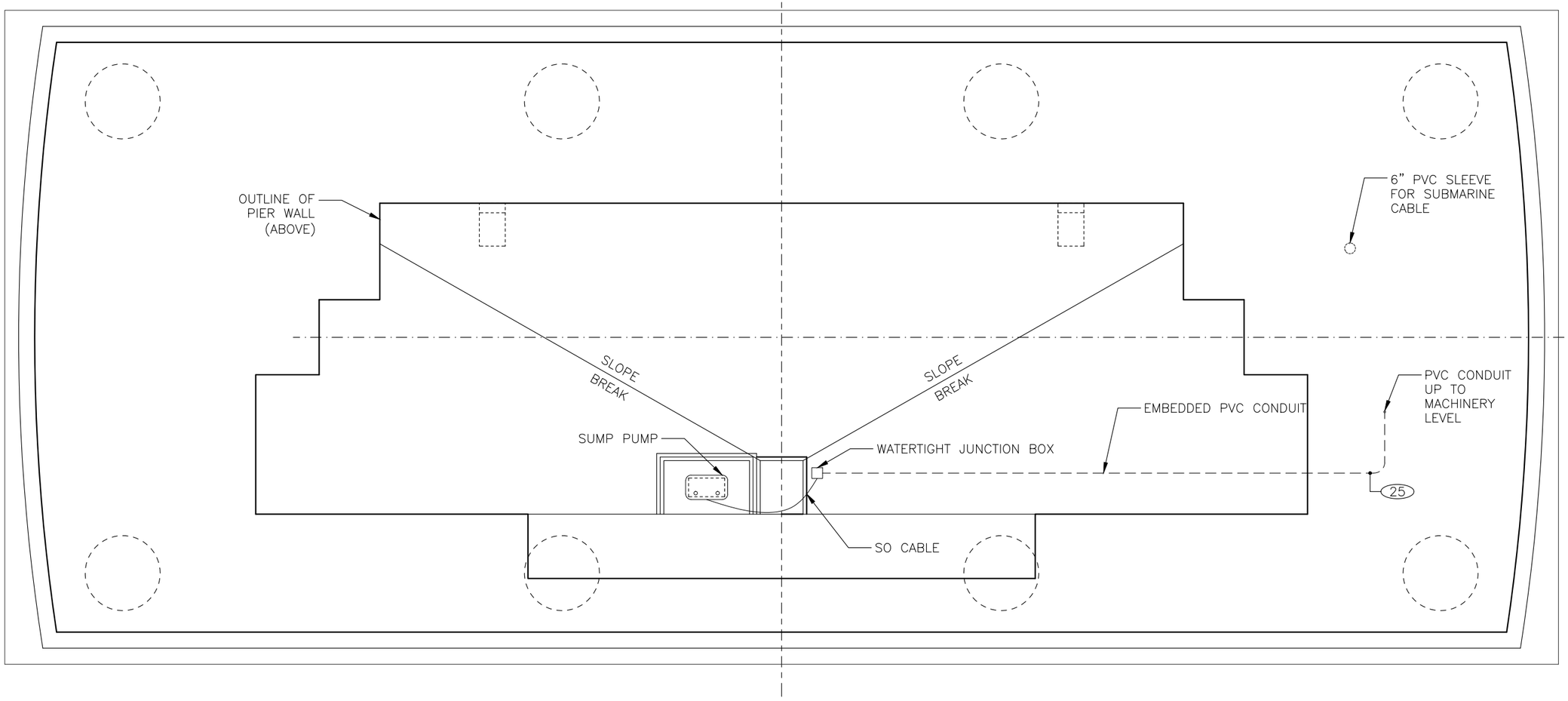
DESCRIPTION: BASCULE PIER ELECTRICAL PLAN (2 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E–26
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 256 OF 283

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NOTES:

1. COORDINATE EMBEDDED CONDUIT WITH ANCHOR BOLTS AND REBAR.

PIT LEVEL

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

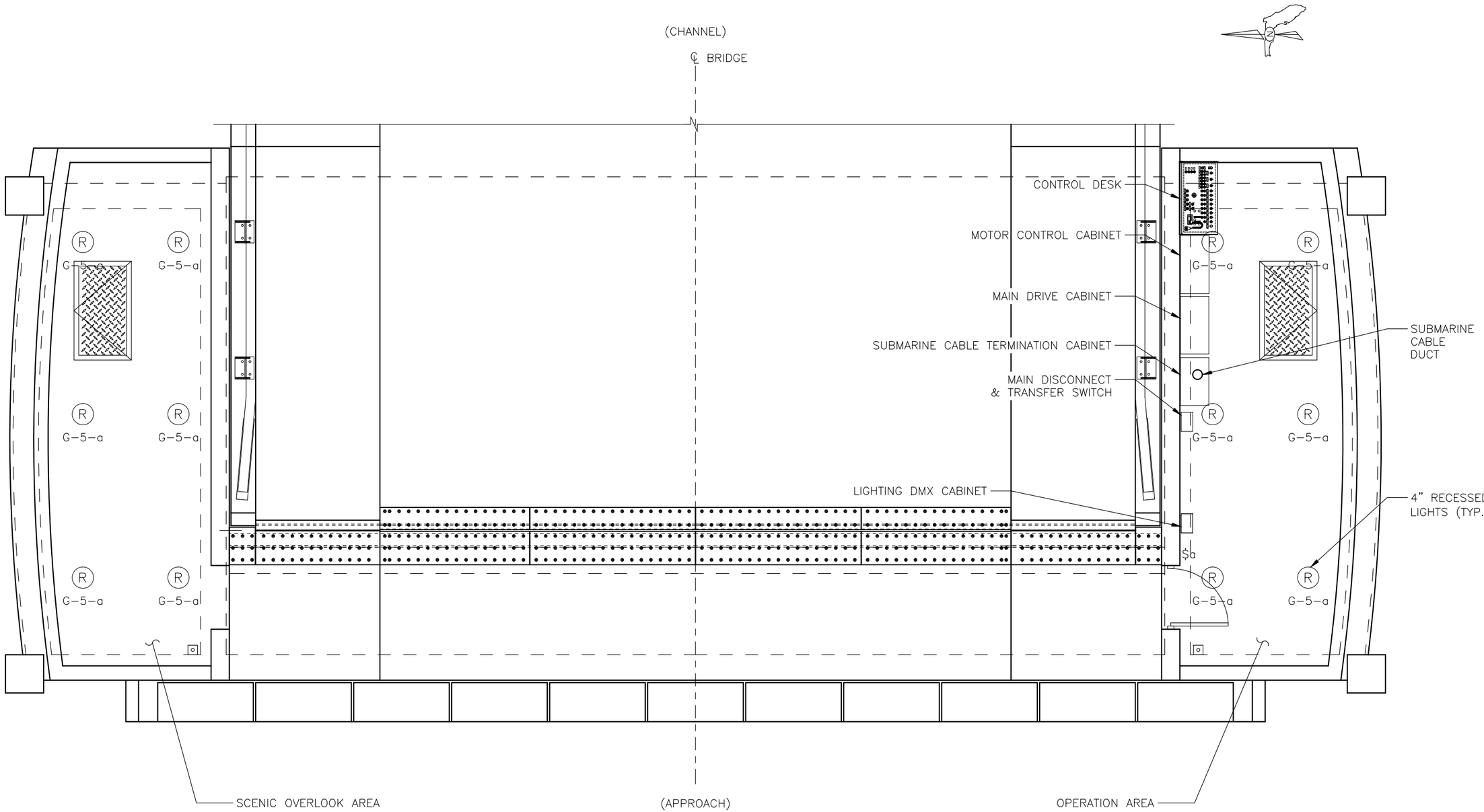
DESCRIPTION: BASCULE PIER ELECTRICAL PLAN (3 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-27
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 257 OF 283

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ROADWAY LEVEL

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

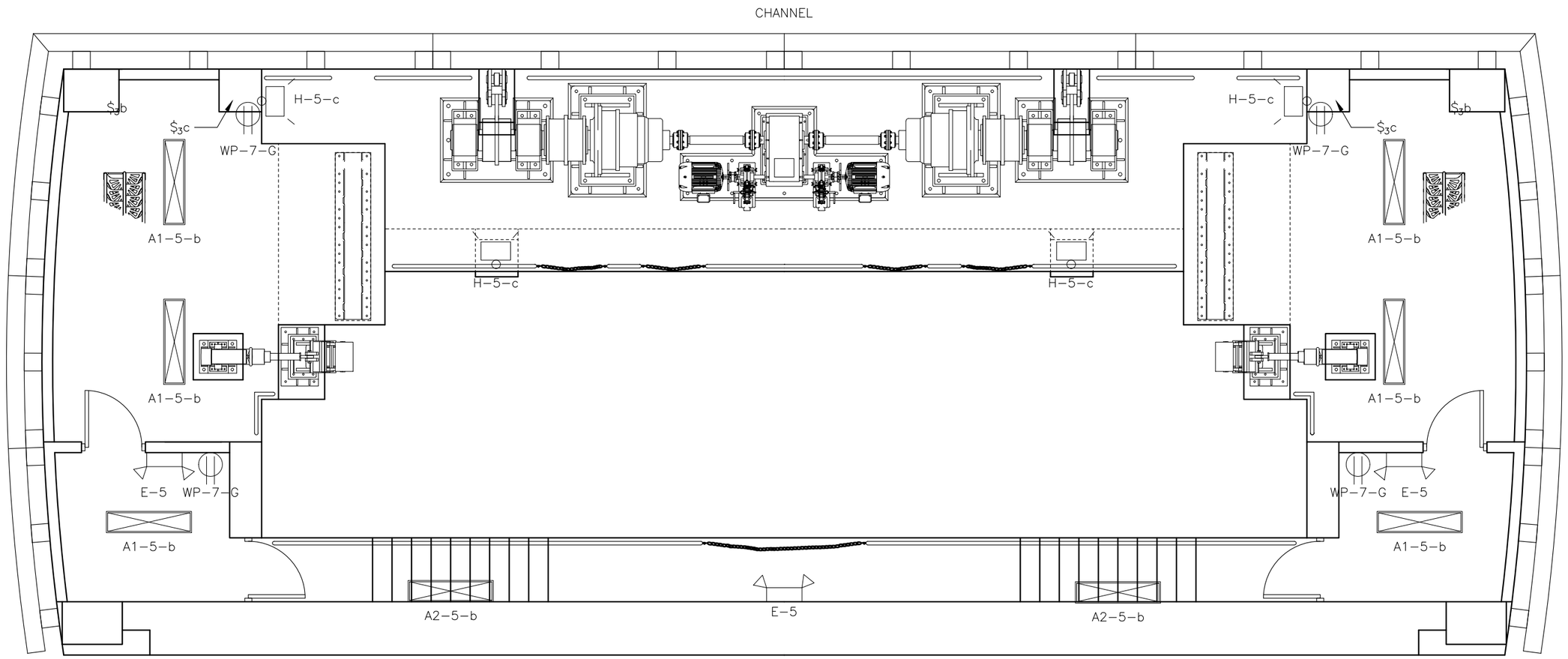
DESCRIPTION: BASCULE PIER LIGHTING PLAN (1 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-28
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 258 OF 283

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MACHINERY LEVEL

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: BASCULE PIER LIGHTING PLAN (2 OF 3)

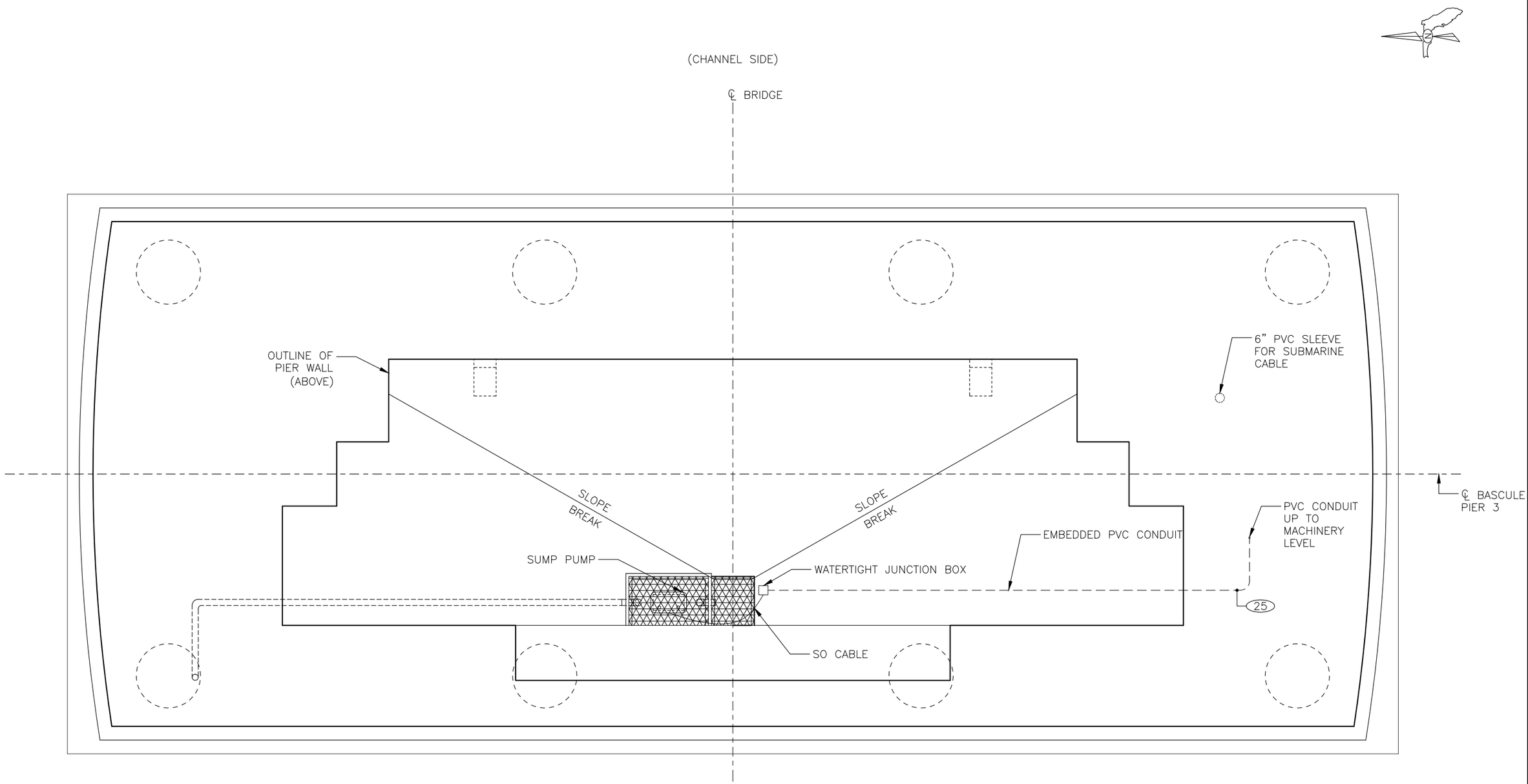
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-29
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 259 OF 283

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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PIT LEVEL

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

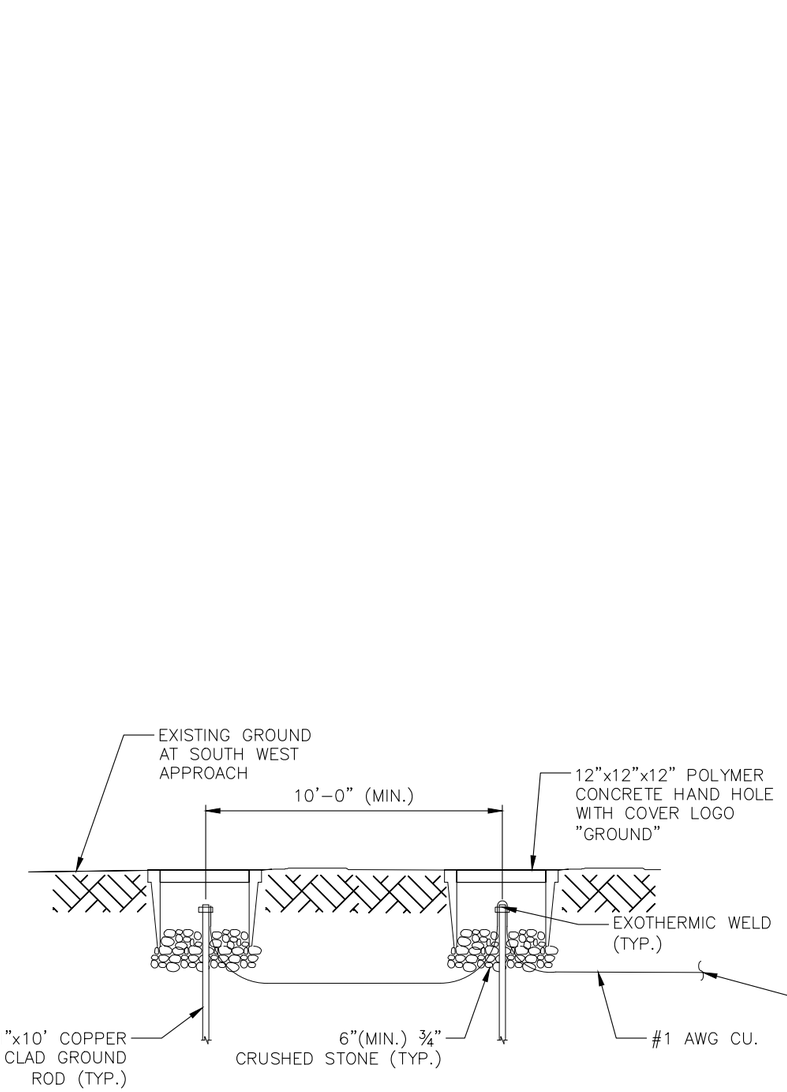
DESCRIPTION: BASCULE PIER LIGHTING PLAN (3 OF 3)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

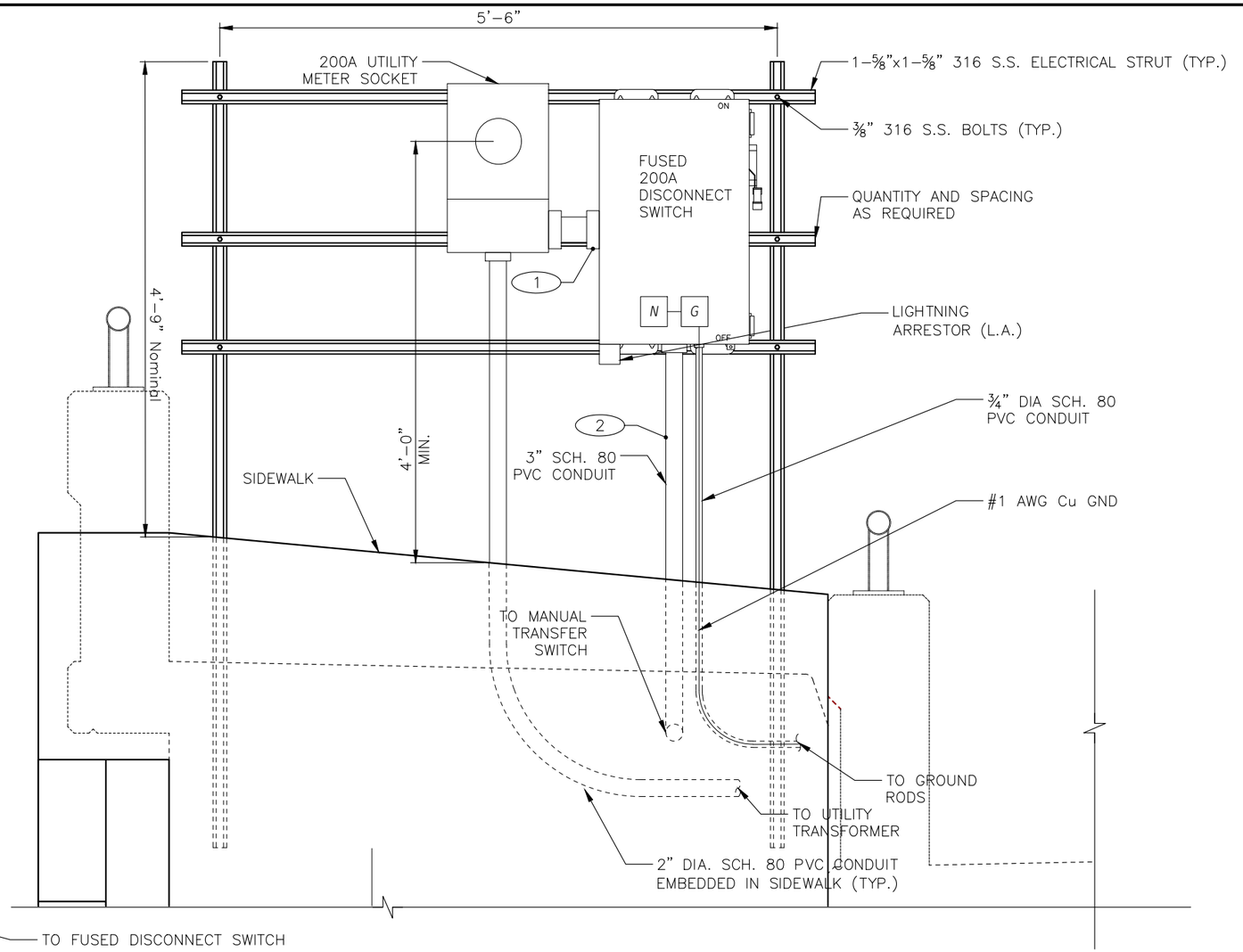
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-30
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 260 OF 283

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SERVICE GROUND ROD DETAIL
NOT TO SCALE
QTY: 1



SERVICE ENTRANCE RACK DETAIL
NOT TO SCALE
QTY: 1

NOTES:

1. SUGGESTED ARRANGEMENT, CONFORM TO LOCAL UTILITY REQUIREMENTS.
2. FRAMEWORK, ANCHORAGES, FOUNDATION SHOWN FOR BIDDING PURPOSES. SUBMIT ALL ELEMENTS WITH CALCULATIONS FOR REVIEW AND APPROVAL.
3. VERIFY SERVICE ENTRANCE REQUIREMENTS WITH DUKE ENERGY PRIOR TO FABRICATION.
4. PROVIDE NEMA 4X 316 S.S. DISCONNECT SWITCH. USE INSULATED WASHERS, ETC. IF NEEDED.
5. USE QTY./LENGTH AS NEEDED TO SATISFY NEC REQUIREMENTS (2 RODS MINIMUM).
6. PROVIDE NEUTRAL TO GROUND BOND IN FUSED MAIN SERVICE ENTRANCE DISCONNECT SWITCH.

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

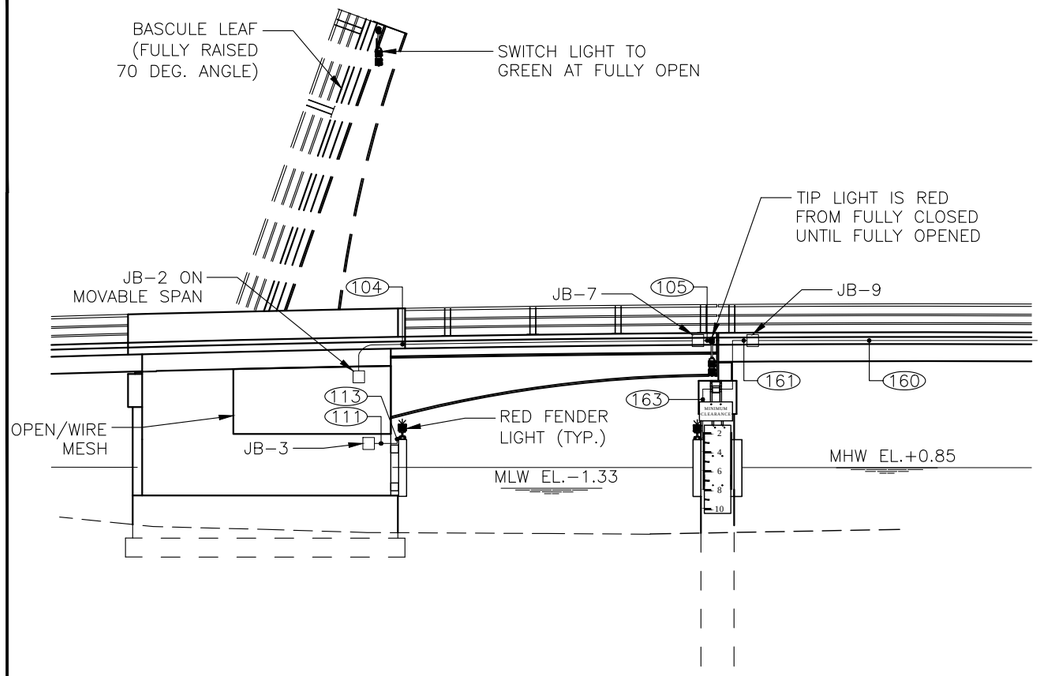
DESCRIPTION: SERVICE ENTRANCE DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

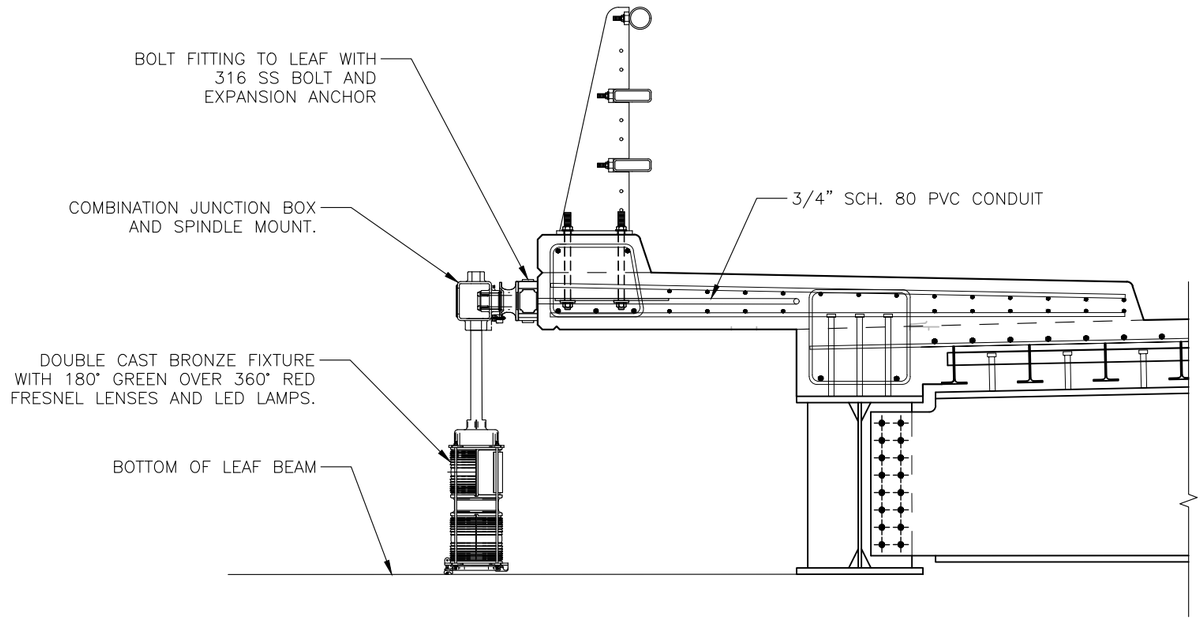
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E–31
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 261 OF 283

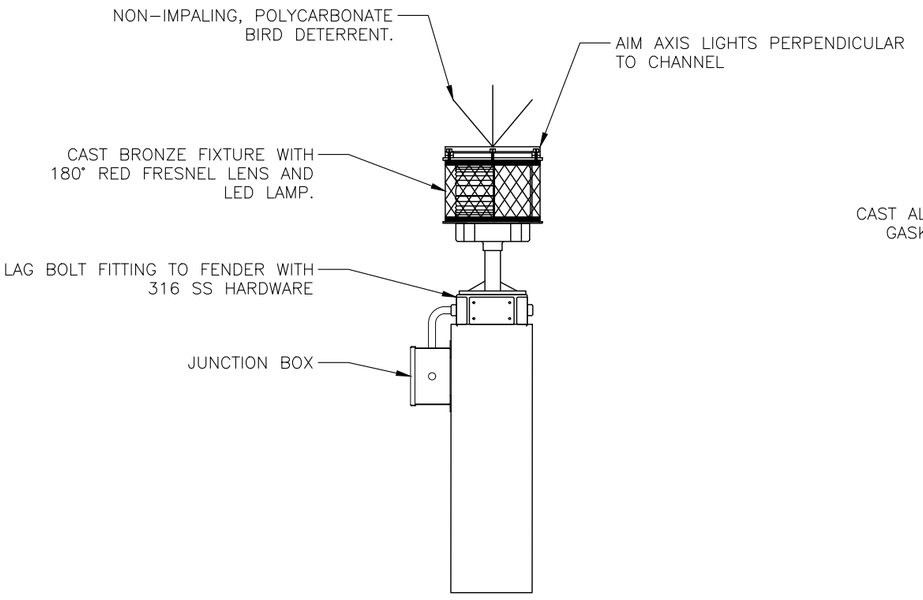
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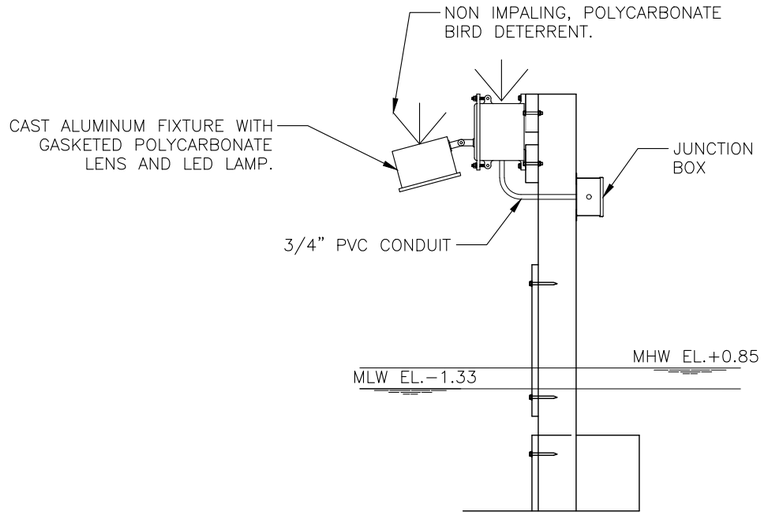
BASCULE BRIDGE SOUTH ELEVATION



RED/GREEN TIP LIGHT DETAIL



RED FENDER LIGHT DETAIL
(4 REQUIRED)



CLEARANCE GAUGE LIGHT DETAIL
(2 REQUIRED)

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

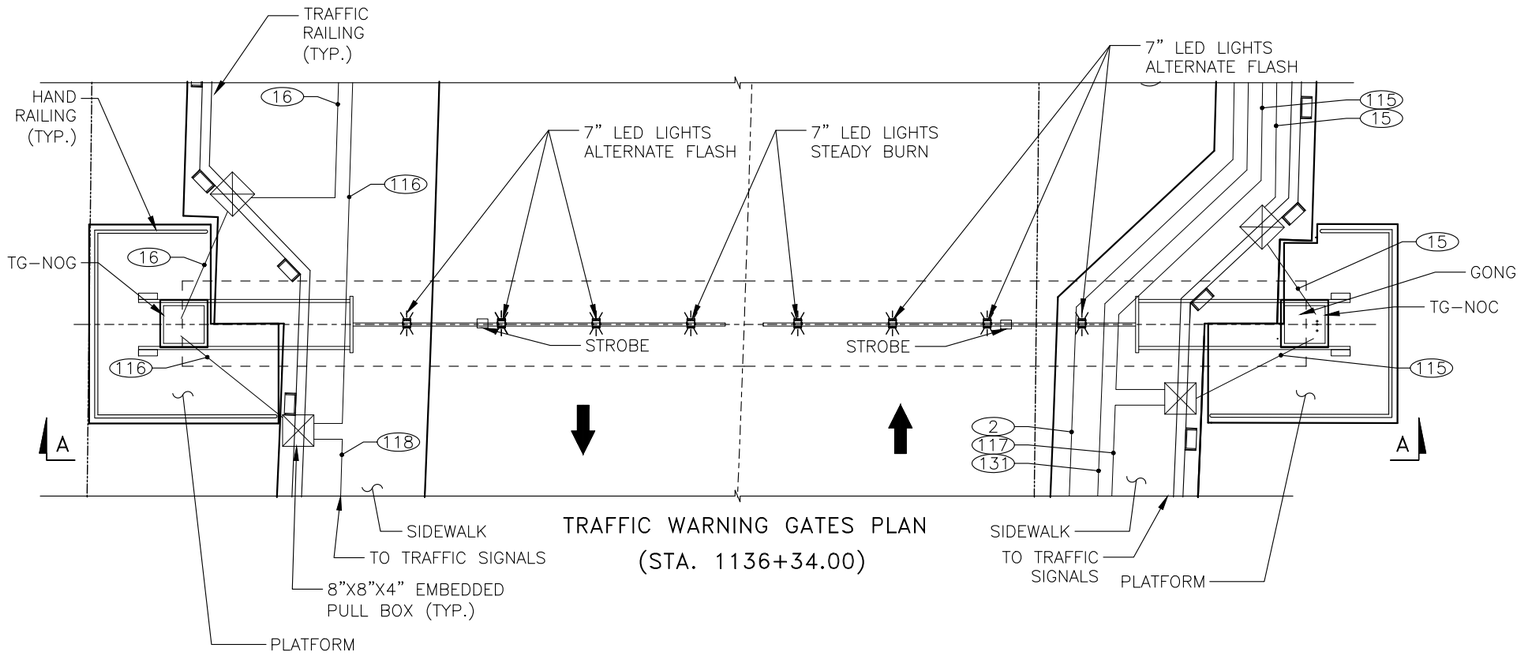
DESCRIPTION: NAVIGATIONAL LIGHTING DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-32
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 262 OF 283

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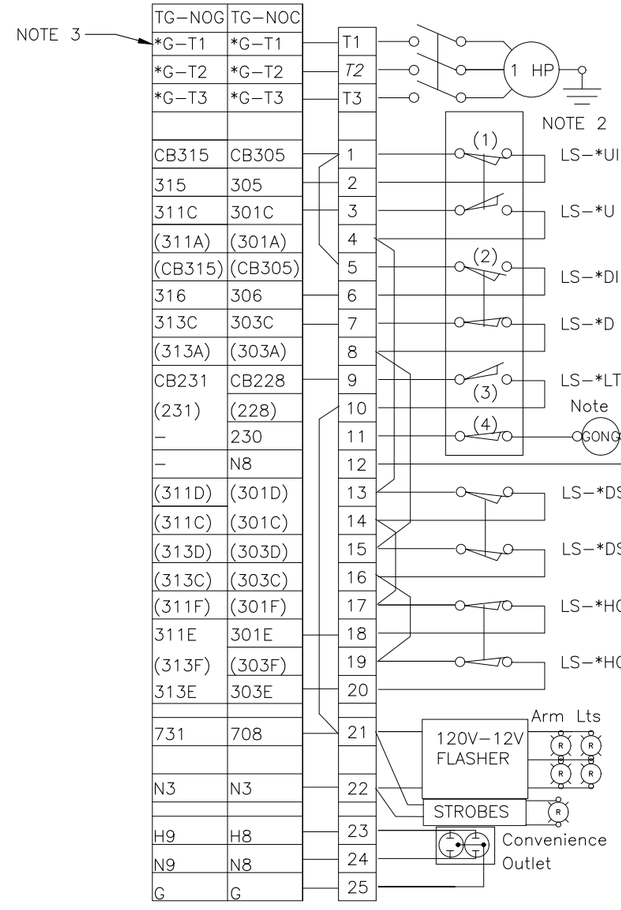


TRAFFIC WARNING GATES PLAN
(STA. 1136+34.00)

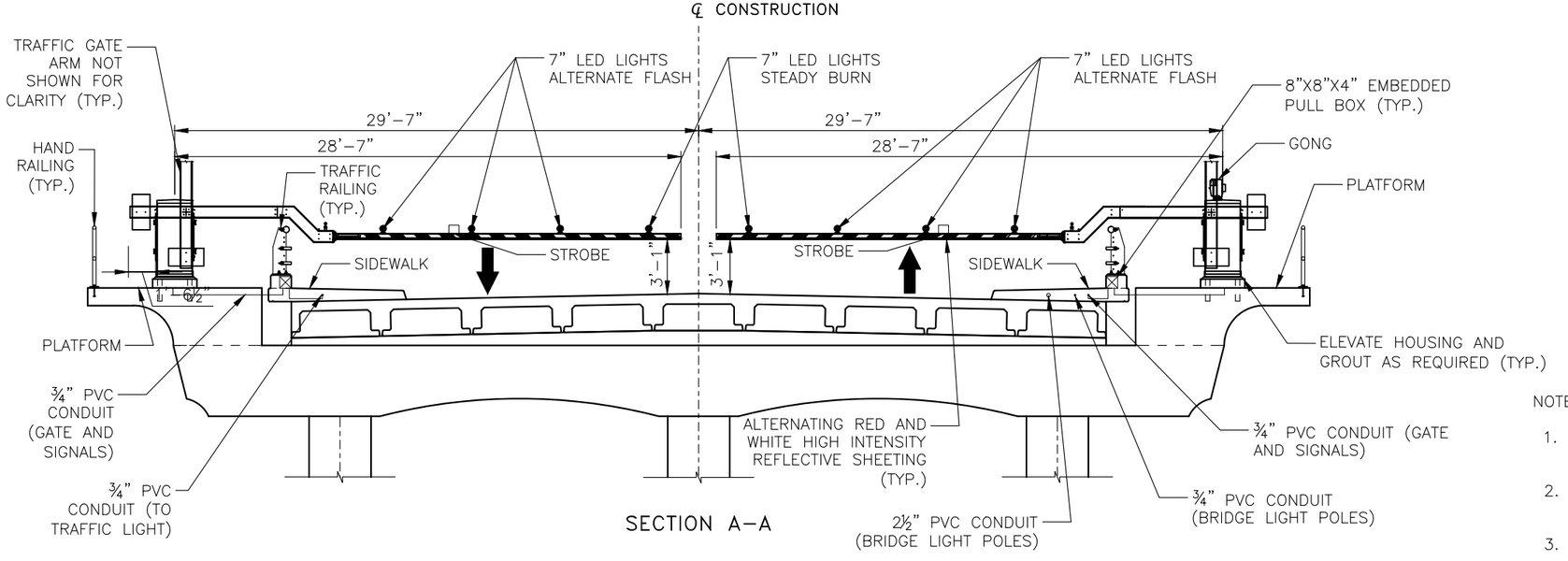
Wire Numbers by Gate Name
See Sheet E–14.

NOTE 3

TG–NOG	TG–NOC	
*G–T1	*G–T1	T1
*G–T2	*G–T2	T2
*G–T3	*G–T3	T3
CB315	CB305	1
315	305	2
311C	301C	3
(311A)	(301A)	4
(CB315)	(CB305)	5
316	306	6
313C	303C	7
(313A)	(303A)	8
CB231	CB228	9
(231)	(228)	10
–	230	11
–	N8	12
(311D)	(301D)	13
(311C)	(301C)	14
(313D)	(303D)	15
(313C)	(303C)	16
(311F)	(301F)	17
311E	301E	18
(313F)	(303F)	19
313E	303E	20
731	708	21
N3	N3	22
H9	H8	23
N9	N8	24
G	G	25



WIRING DIAGRAM



SECTION A–A

NOTES:

1. GONG TURNS ON WITH TRAFFIC LIGHTS AND TURNS OFF WHEN GATE IS LOWERED.
2. ROTARY LIMIT SWITCH WITH DPDT SWITCH BLOCKS. SEE DRAWINGS E–14 AND E–15 FOR SWITCH DEVELOPMENTS.
3. *–SIGNIFIES GATE NAME.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

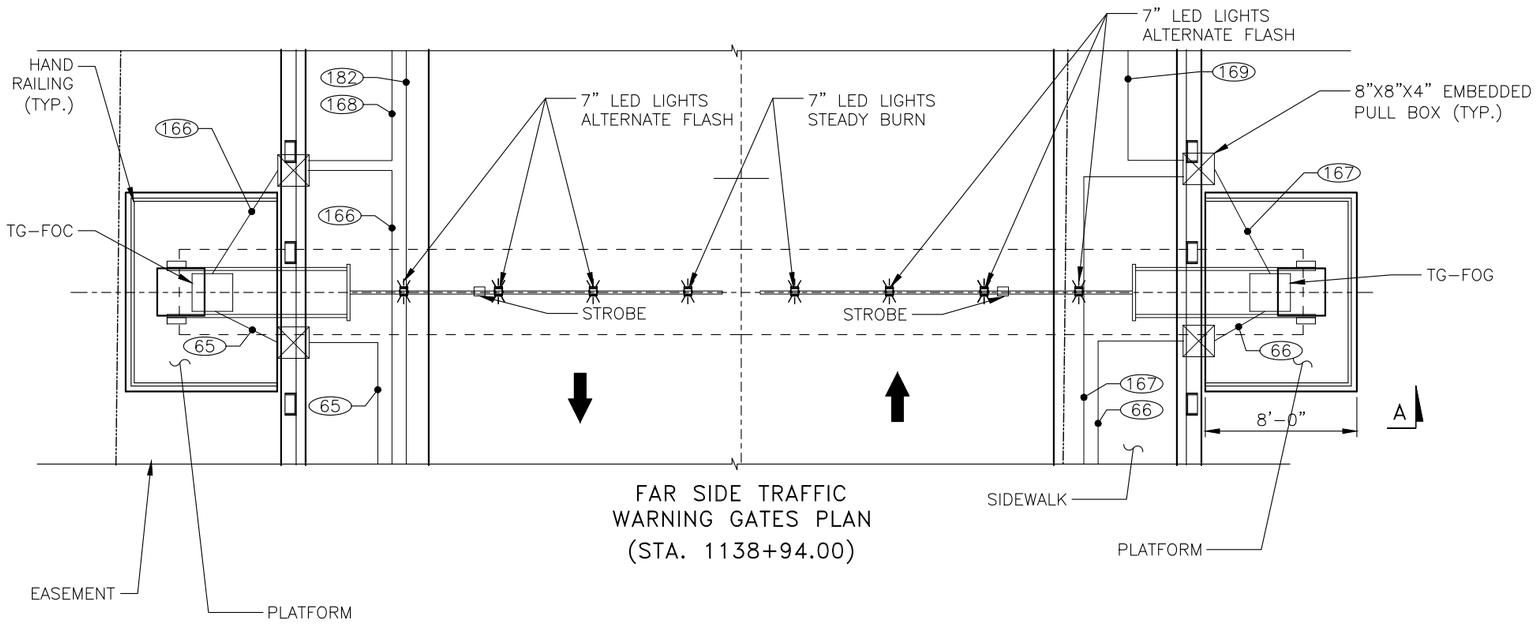
DESCRIPTION: NEAR SIDE TRAFFIC GATE DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

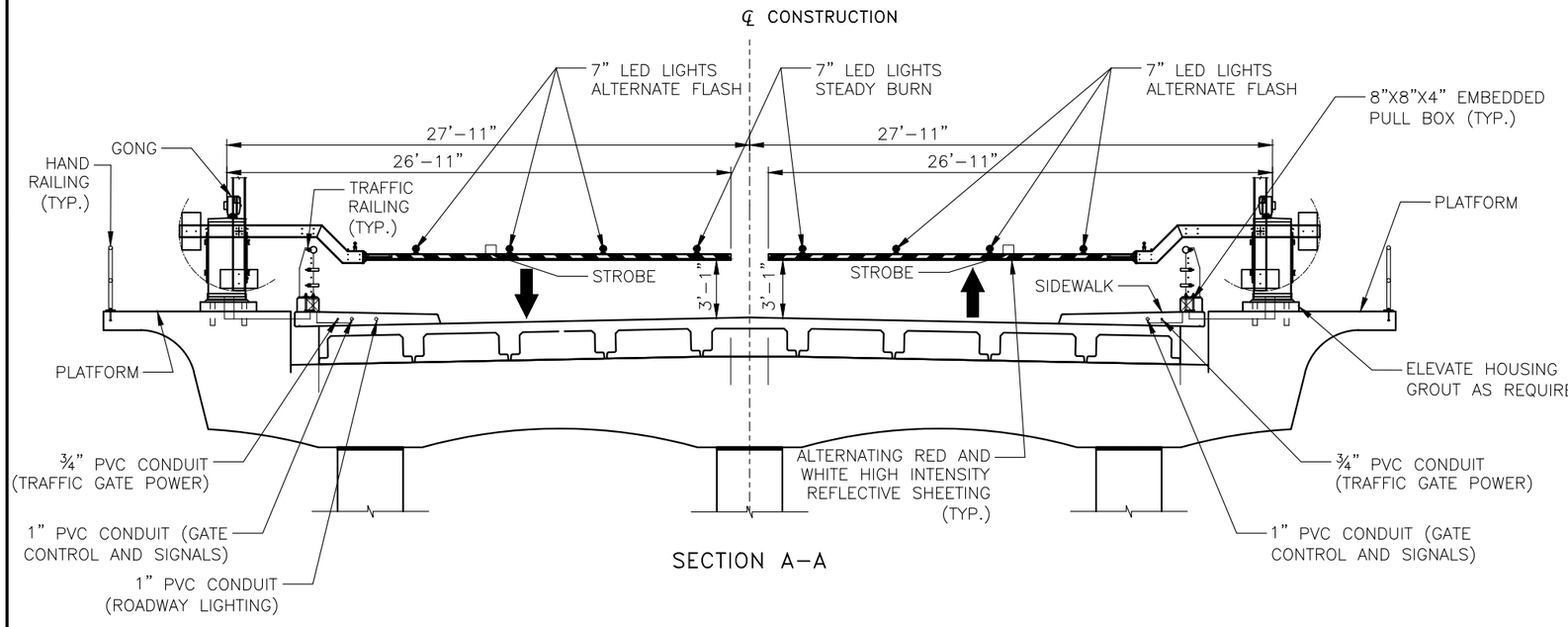
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E–33
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 263 OF 283

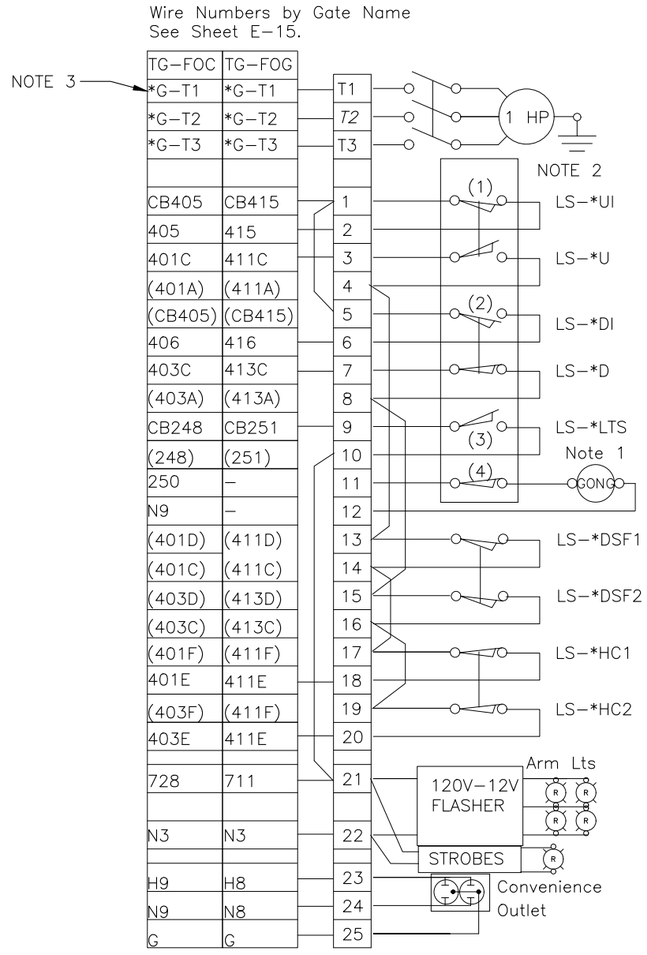
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FAR SIDE TRAFFIC
WARNING GATES PLAN
(STA. 1138+94.00)



SECTION A–A



WIRING DIAGRAM

NOTES:

1. GONG TURNS ON WITH TRAFFIC LIGHTS AND TURNS OFF WHEN GATE IS LOWERED.
2. ROTARY LIMIT SWITCH WITH DPDT SWITCH BLOCKS. SEE DRAWINGS E–14 AND E–15 FOR SWITCH DEVELOPMENTS.
3. *–SIGNIFIES GATE NAME.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: FAR SIDE TRAFFIC GATE DETAILS

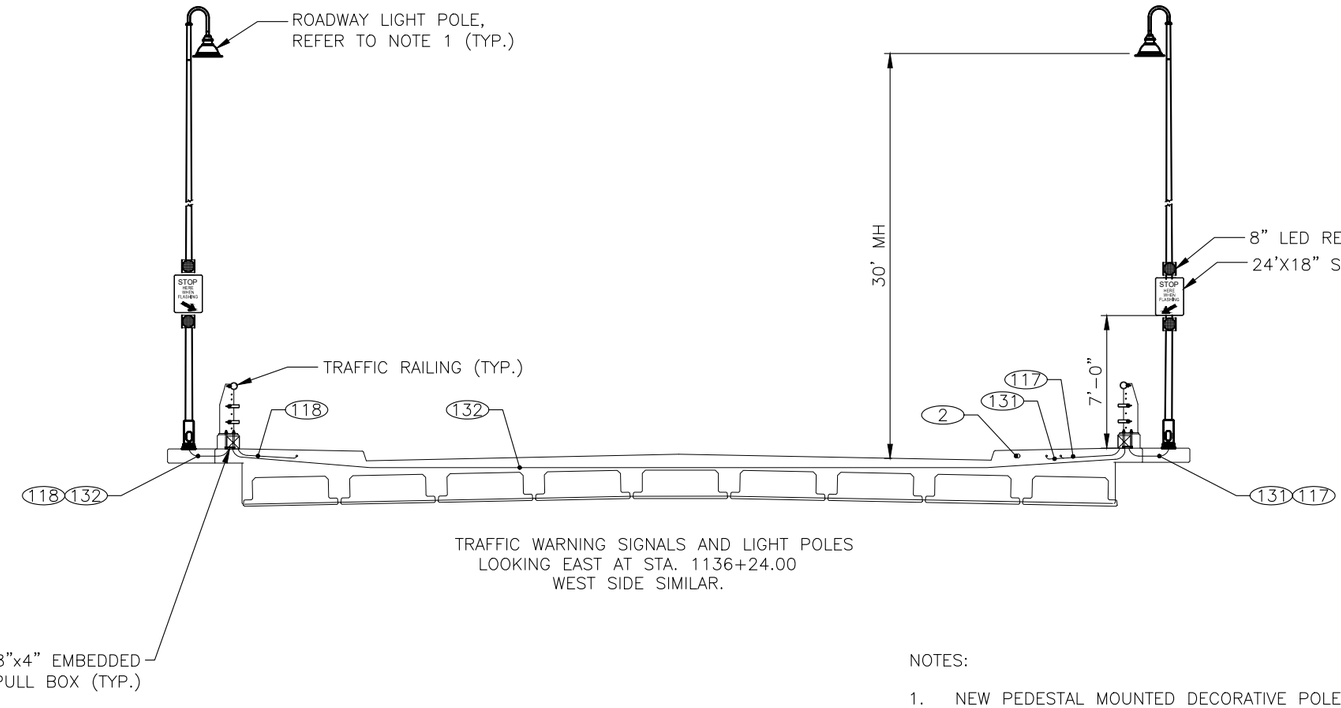
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E–34
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 264 OF 283

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TRAFFIC WARNING SIGNALS AND LIGHT POLES
LOOKING EAST AT STA. 1136+24.00
WEST SIDE SIMILAR.

NOTES:

1. NEW PEDESTAL MOUNTED DECORATIVE POLE AND ARM WITH LED LUMINAIRE, 80W, 240V, 4000°K, 8417 LUMENS, TYPE III DISTRIBUTION, 30 FT MOUNTING HEIGHT. PHOTOMETRIC DISTRIBUTION EQUAL TO PHILIP LUMEC DOMUS CATALOG NUMBER DMS5X-80W48LED4K-T-LE3F OR APPROVED EQUAL. FURNISH AND INSTALL COMPLETE LIGHT POLE ASSEMBLY, INCLUDING POLE CABLE DISTRIBUTION SYSTEM, JUNCTION BOX, GROUNDING, ANCHOR BOLTS, VIBRATION DAMPERS, AND ANY ASSOCIATED HARDWARE REQUIRED FOR COMPLETE INSTALLATION. REFER TO FDOT STANDARD PLANS INDEX 521-660.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

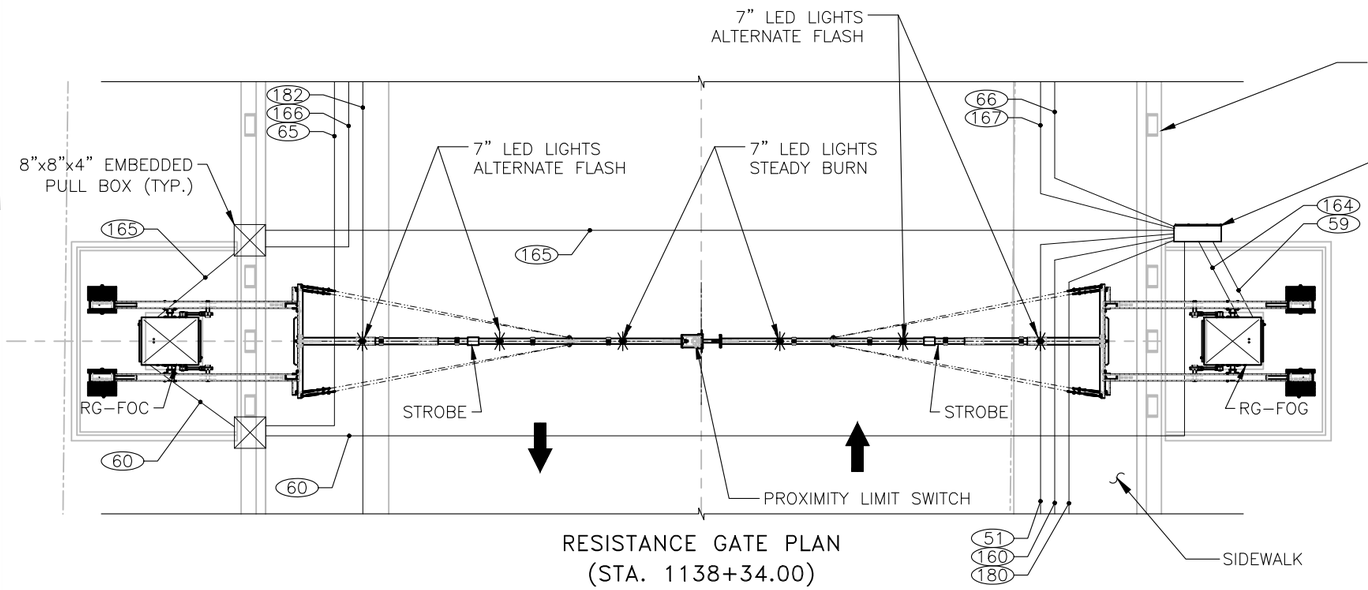
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: TRAFFIC SIGNAL DETAILS

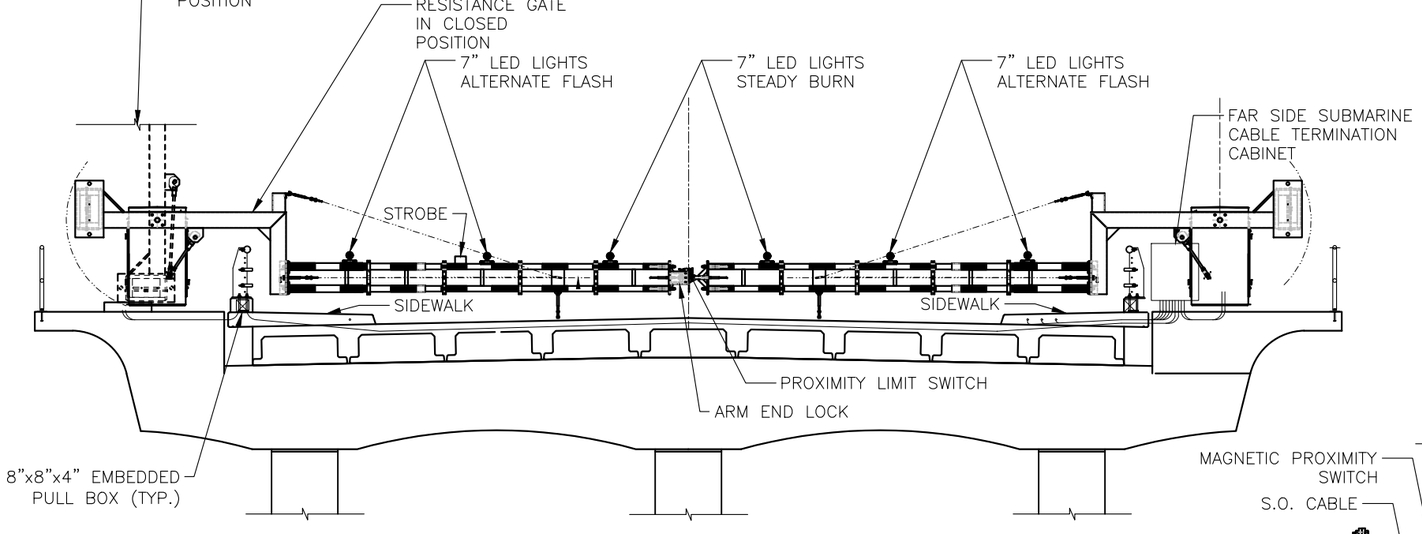
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-35
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 265 OF 283



RESISTANCE GATE PLAN
(STA. 1138+34.00)



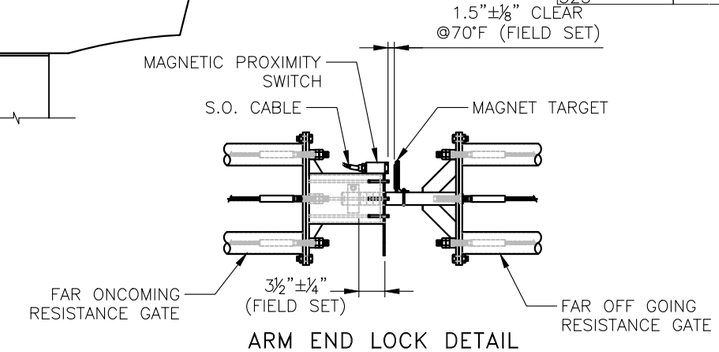
RESISTANCE GATE ELEVATION

Wire Numbers by Gate Name
See Sheets E-16.

RG-FOG	RG-FOC		
*RG-FOG-T1	*RG-FOC-T1	T1	
*RG-FOG-T2	*RG-FOC-T2	T2	
*RG-FOG-T3	*RG-FOC-T3	T3	
CB522	CB515	1	LS-*UI
522	515	2	LS-*U
518D	511D	3	
518C	(511C)	4	
	CB515	5	LS-*DI
	516	6	
520D	513D	7	LS-*D
(520C)	(513C)	8	
		9	NOT USED
		10	
		11	NOT USED
		12	
(518C)	(511C)	13	LS-*DSF1
(518B)	(511B)	14	
(520C)	(513C)	15	LS-*DSF2
(520B)	(513B)	16	
(518B)	(511B)	17	LS-*HC1
518A	511A	18	
(520B)	(513B)	19	LS-*HC2
520A	513A	20	
		21	Arm Lts
253	252		120V-12V FLASHER
		22	STROBES
N3	N3		
		23	Convenience Outlet
H9	H9	24	
N9	N9	25	
G	G	26	LS-BGDI NOTE 1
		27	
523			

(1) (2) (3) (4)

WIRING DIAGRAM



ARM END LOCK DETAIL

NOTES:

1. BARRIER GATE DOWN LIMIT SWITCH LOCATED ON TIP OF FAR OFF GOING GATE ARM ONLY TO SENSE MAGNET TARGET ON FAR ONCOMING GATE ARM.
2. ROTARY LIMIT SWITCH WITH DPDT SWITCH BLOCKS. SEE SHEET E-16 FOR SWITCH DEVELOPMENT.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: RESISTANCE GATE DETAILS

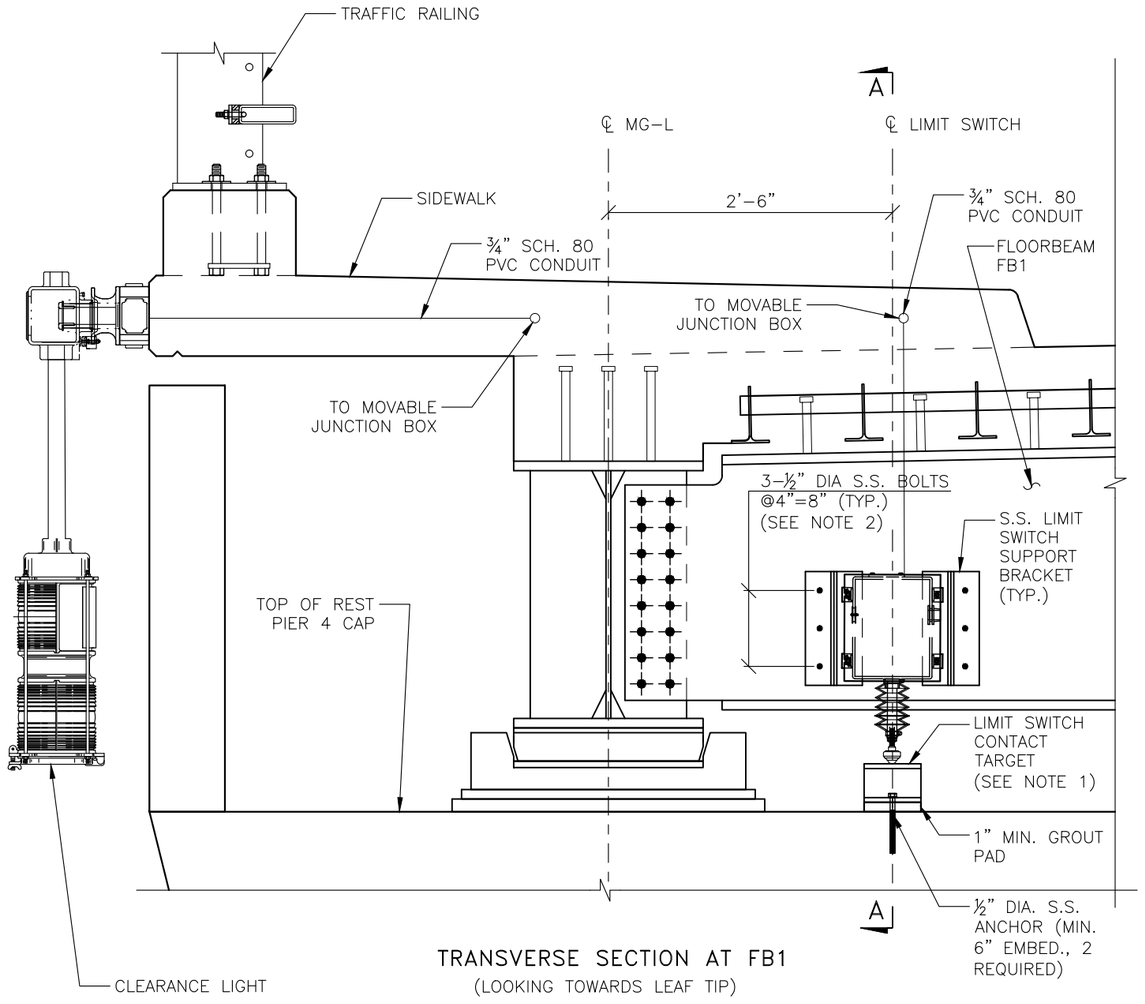
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

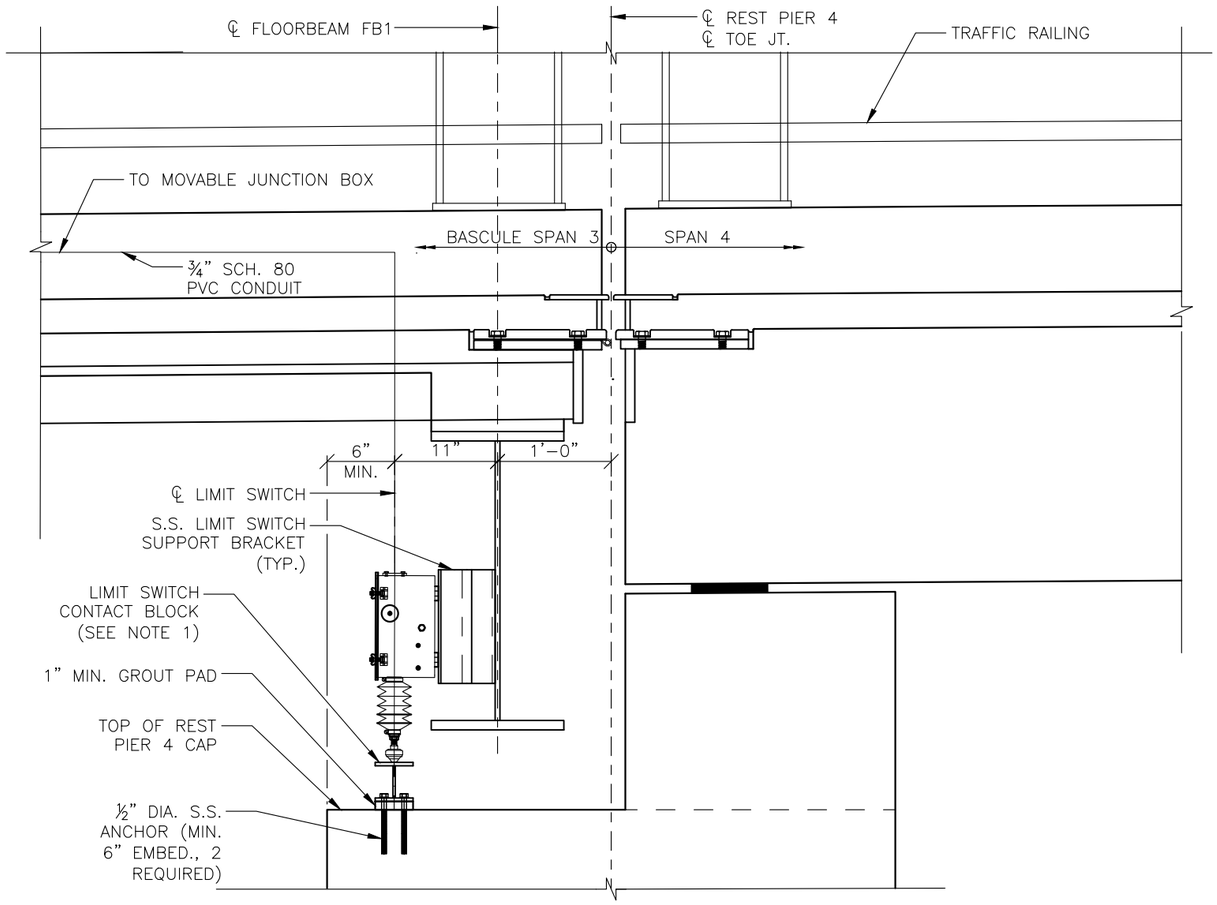
REF. DWG. NO. E-36
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 266 OF 283

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TRANSVERSE SECTION AT FB1
(LOOKING TOWARDS LEAF TIP)



SECTION A-A

LIMIT SWITCH GENERAL NOTES:

1. LOCATE LIMIT SWITCH VERTICALLY TO PROVIDE FIRM CONTACT OF LIMIT SWITCH PLUNGER WITH CONTACT TARGET, AND IN A LOCATION THAT IS WITHIN LIMIT SWITCH MANUFACTURER'S ALLOWABLE TOLERANCES.
2. FIELD DRILL ⅝" DIA. HOLES FOR LIMIT SWITCH SUPPORT BRACKET BOLTS THRU FLOORBEAM FB1 WEB.
3. PROVIDE ONE LIMIT SWITCH ON RIGHT AND LEFT SIDES OF BASCULE LEAF. LEFT SIDE IS SHOWN, RIGHT SIDE SIMILAR.
4. PROVIDE TYPE 316 STAINLESS STEEL FOR LIMIT SWITCH SUPPORT BRACKETS AND CONTACT BLOCKS.
5. PROVIDE TYPE 316 STAINLESS STEEL BOLTS, ANCHOR BOLTS, NUTS, AND WASHERS.
6. DRILL AND DOWEL ANCHOR BOLTS USING AN APPROVED EPOXY ADHESIVE IN ACCORDANCE WITH SPECIFICATIONS SECTION 416 AND 937. DRILL HOLES FOR ANCHOR BOLTS TO CLEAR REINFORCING STEEL IN REST PIER CAP AND PROVIDE 1" MIN. CLEARANCE ROM EDGES OF DRILLED HOLES TO REBAR.
7. PROVIDE NON-SHRINK GROUT IN ACCORDANCE WITH SPECIFICATIONS SECTION 934 AND PROVIDE A PRODUCT LISTED ON THE FDOT APPROVED PRODUCT LIST.
8. SUBMIT SHOP DRAWINGS OF LIMIT SWITCH AND ALL SUPPORT COMPONENTS INCLUDING SUPPORT BRACKET ASSEMBLIES, SUPPORT BLOCK ASSEMBLIES, AND SUPPORT BLOCK ANCHORAGES.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: LIMIT SWITCH DETAILS

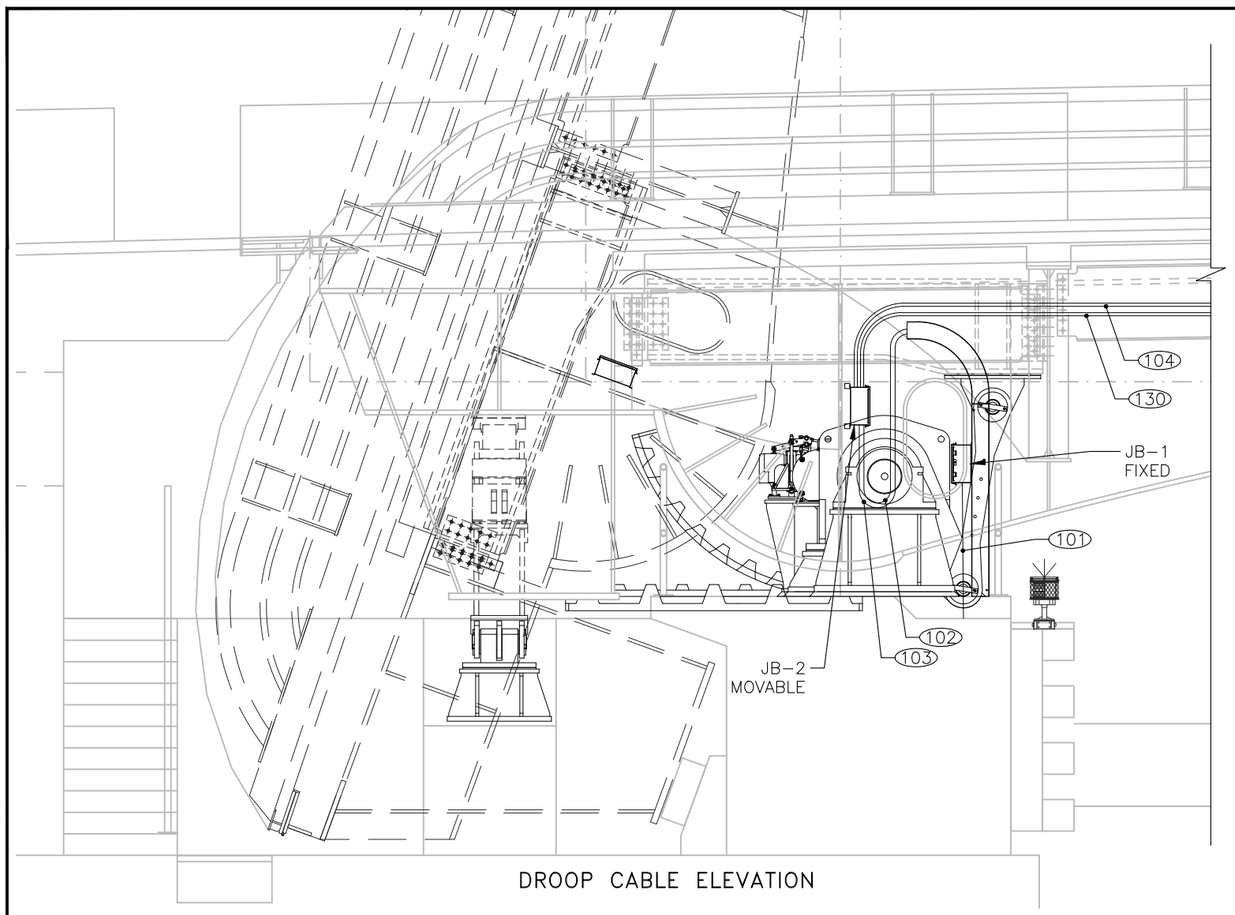
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

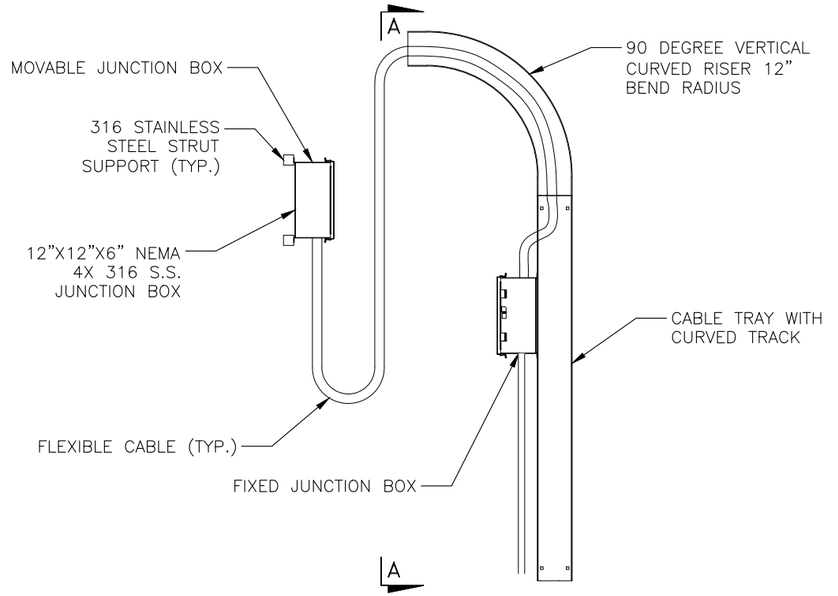
REF. DWG. NO. E-37
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 267 OF 283

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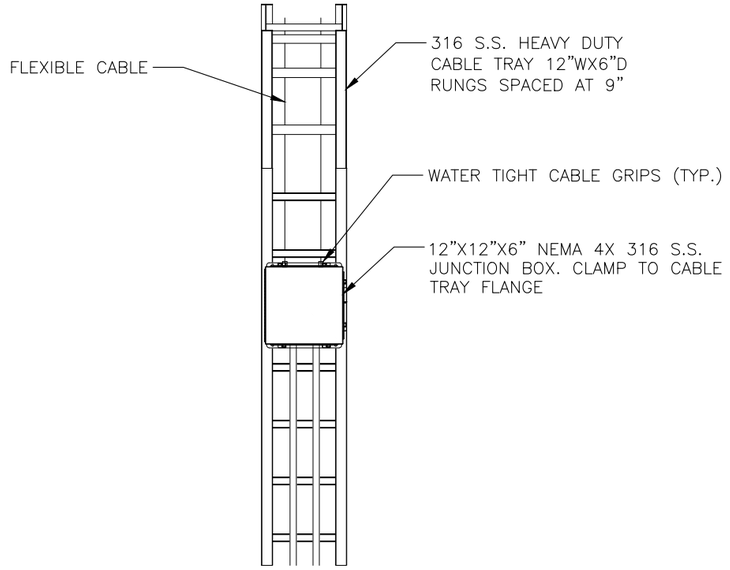
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DROOP CABLE ELEVATION



DROOP CABLE DETAIL



SECTION A–A

NOTES:

1. DO NOT WELD TO GIRDER OR STRUCTURAL STEEL.
2. SUBMIT SHOP DRAWINGS FOR JUNCTION BOX MOUNTING AND GIRDER PENETRATIONS.
3. SEE CONDUIT AND CABLE SCHEDULE FOR FLEXIBLE CABLE SIZES.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: DROOP CABLE DETAIL

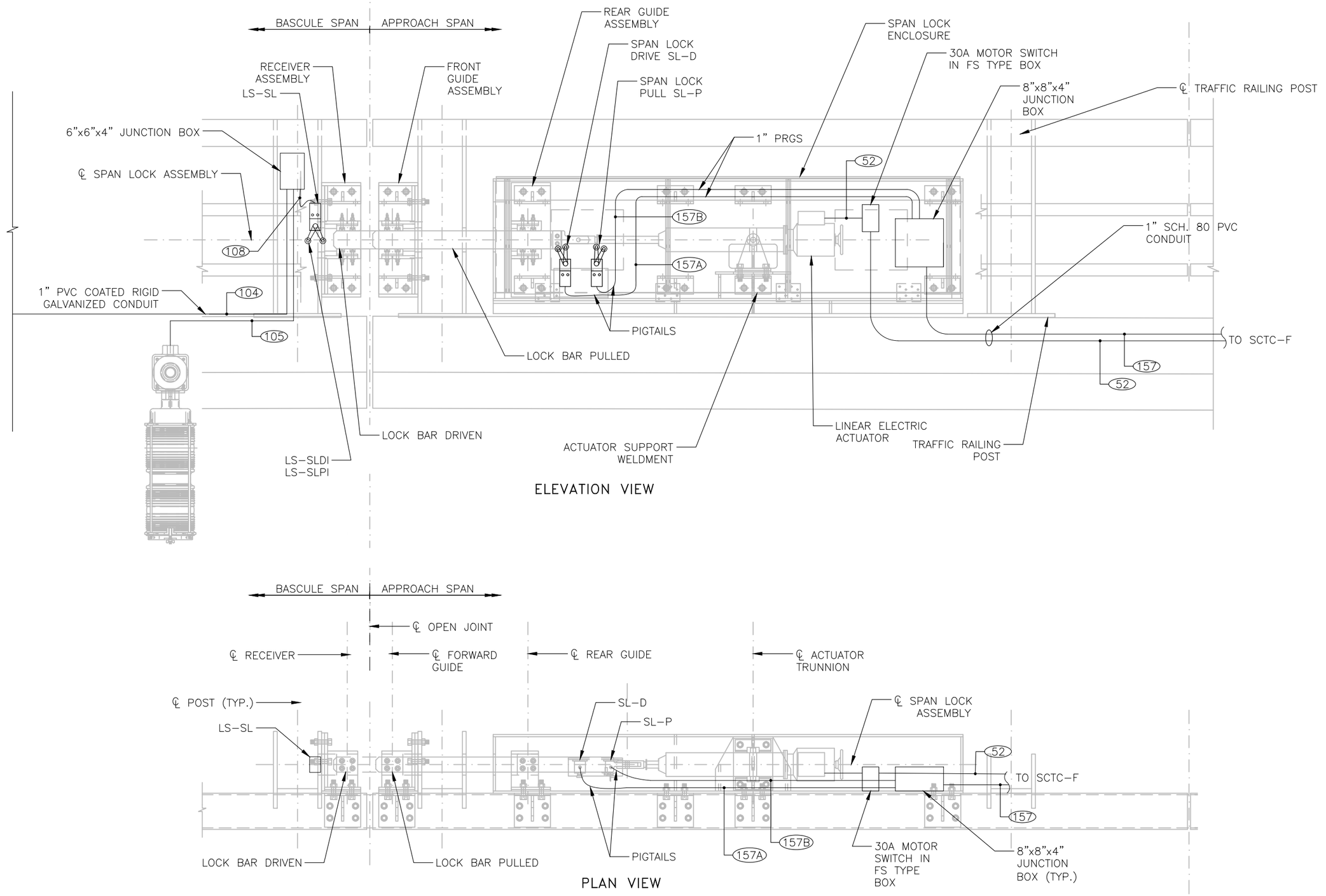
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E–38
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 268 OF 283

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ELEVATION VIEW

PLAN VIEW

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DESIGNED MAL
DRAWN JMC
CHECKED APB

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PROJECT: BECKETT BRIDGE REPLACEMENT

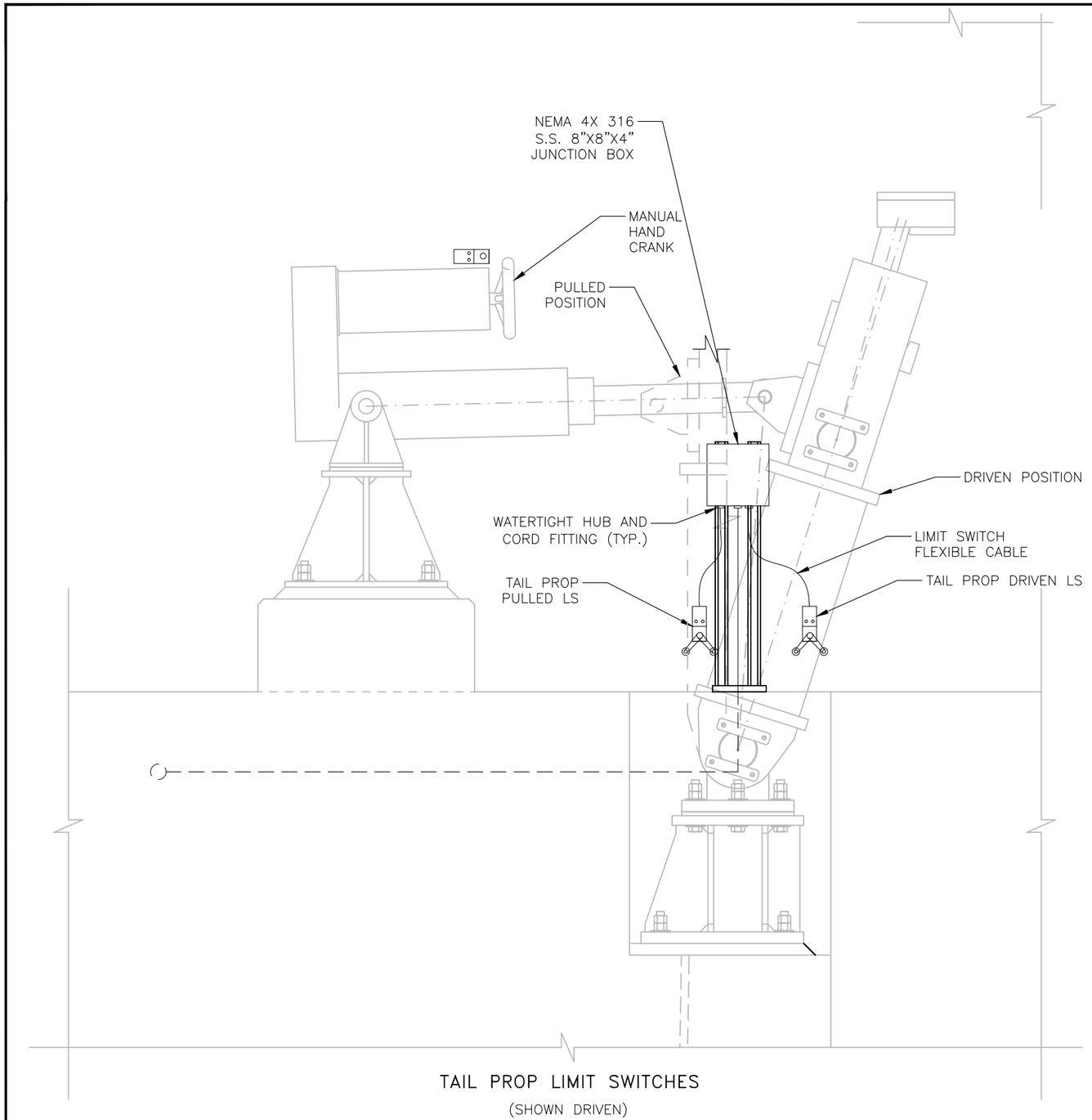
DESCRIPTION: SPAN LOCK ELECTRICAL DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

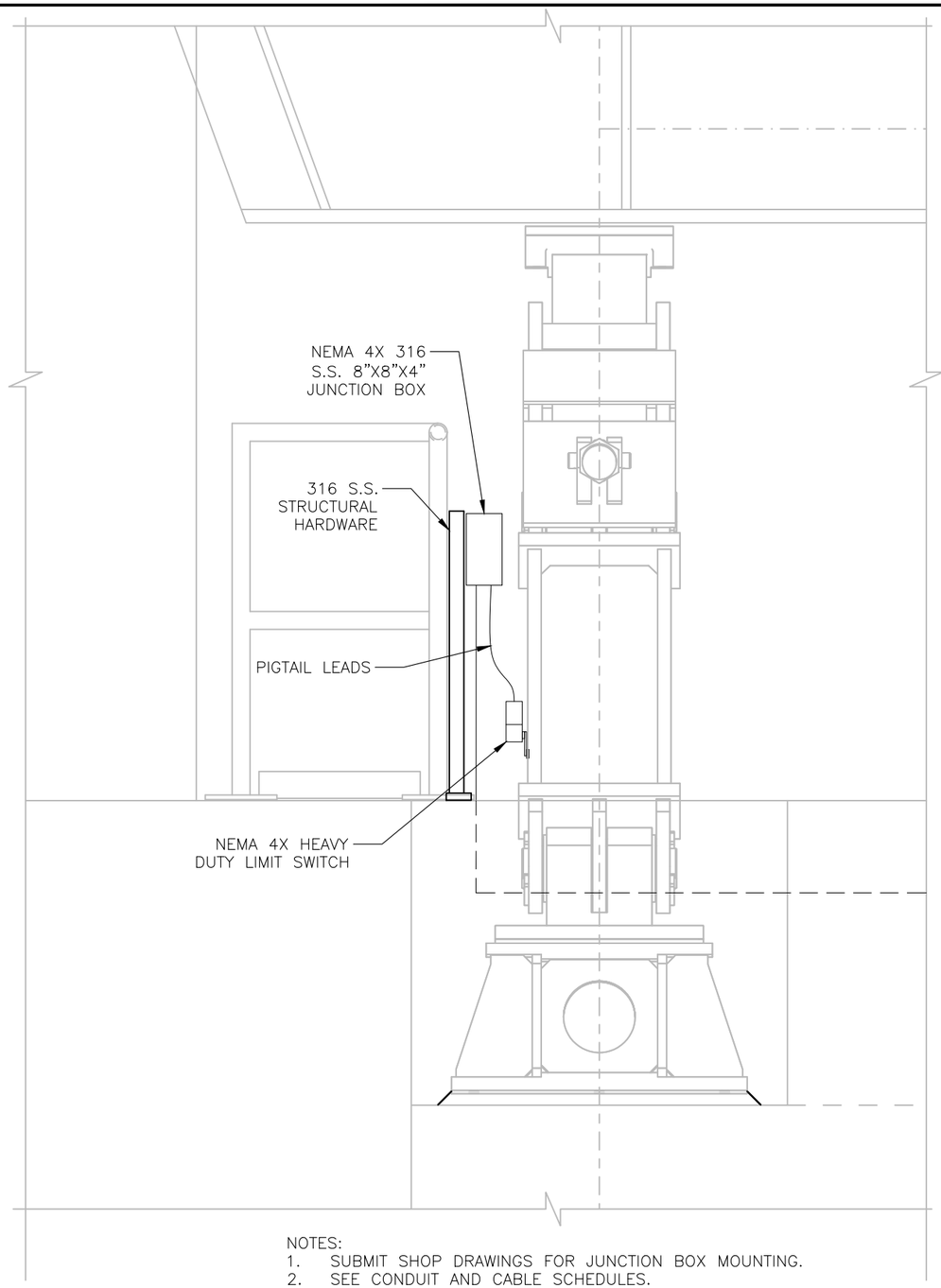
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E–39
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 269 OF 283

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TAIL PROP LIMIT SWITCHES
(SHOWN DRIVEN)



NOTES:
1. SUBMIT SHOP DRAWINGS FOR JUNCTION BOX MOUNTING.
2. SEE CONDUIT AND CABLE SCHEDULES.
3. FIELD LOCATE TARGET PLATE.

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Pinellas County PUBLIC WORKS

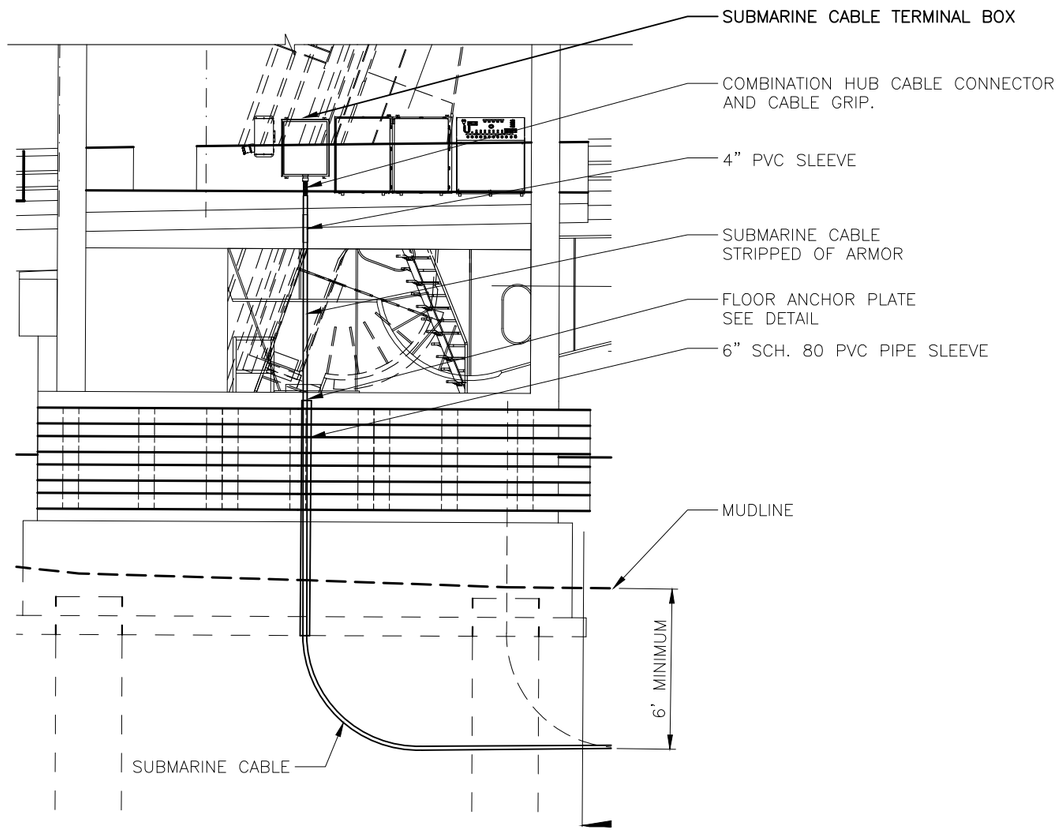
PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: TAIL PROP LIMIT SWITCH DETAILS

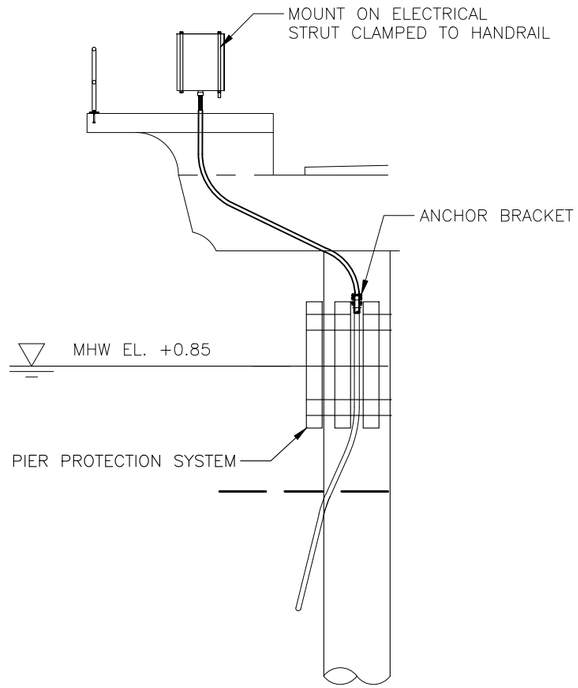
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

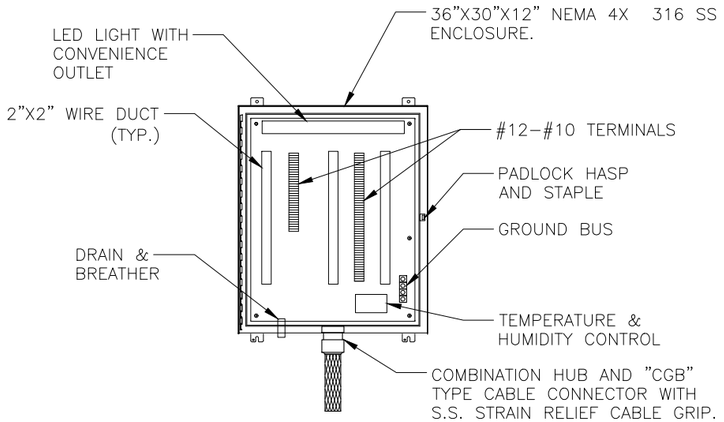
REF. DWG. NO. E-40
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 270 OF 283



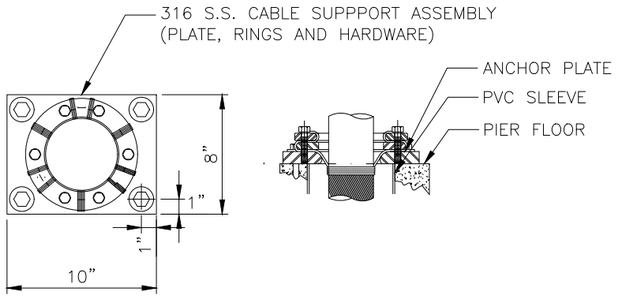
BASCULE PIER SOUTH VIEW



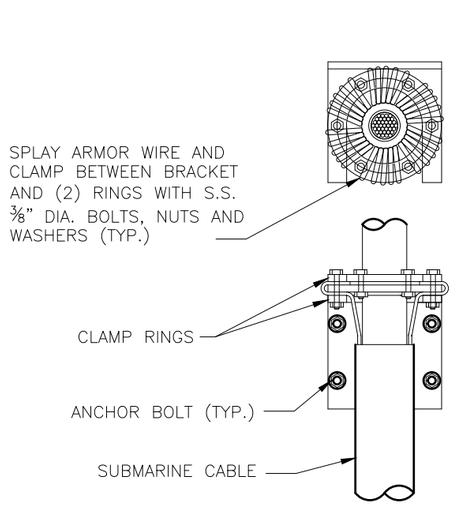
PIER 5 EAST VIEW



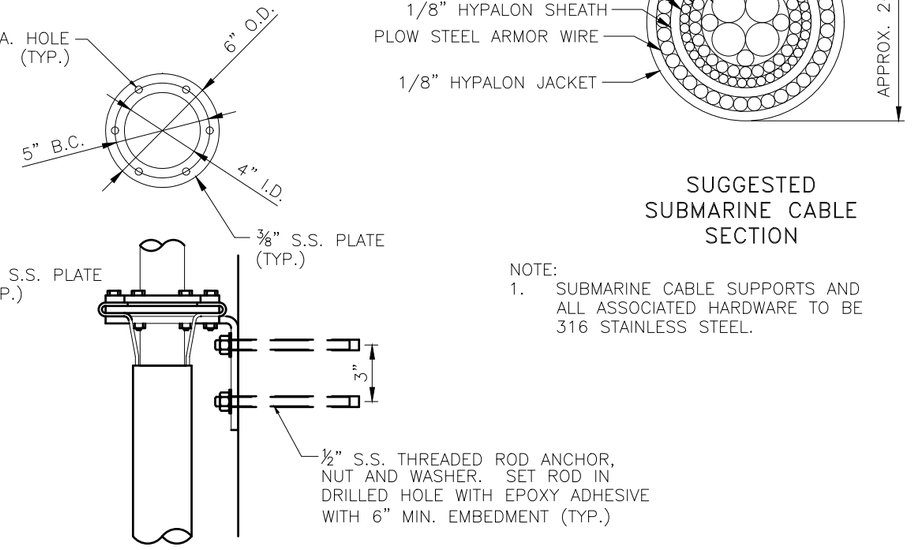
SUBMARINE CABLE TERMINAL BOX
(2 REQUIRED)

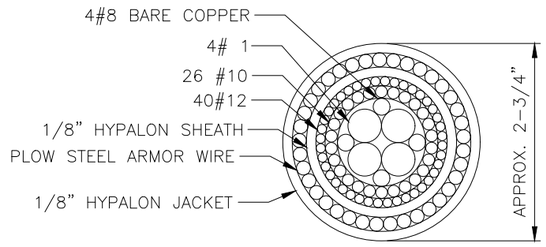


FLOOR ANCHOR PLATE
(1 REQUIRED) N.T.S.



ANCHOR BRACKET DETAIL
(1 REQUIRED) N.T.S.





SUGGESTED SUBMARINE CABLE SECTION

NOTE:
1. SUBMARINE CABLE SUPPORTS AND ALL ASSOCIATED HARDWARE TO BE 316 STAINLESS STEEL.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: SUBMARINE CABLE DETAILS

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-41
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 271 OF 283

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EBB

FLOOD

R/W LINE

℄ LIGHT POLE
STA. 1137+85.00

TG–NOG

SCENIC
OVERVIEW
AREA

PL–NB

WHITCOMB
BAYOU

RESISTANCE
BARRIER GATE
(RG–FOC)

TRAFFIC GATE
(TG–FOC)

APPROX. 750'–0"

APPROX. 750'–0"

TL–FOC

WARNING LIGHT
(WL–FOC)

PB

TL–NOG

CL–B

SL–B

℄ CONSTRUCTION

PL–FB

PL–FA

1136

1137

1138

DESIGNATED
TENDER PARKING

LIGHT POLE
(TYP.)

SERVICE
ENTRANCE
SWITCH
RACK

CL–A

SL–A

SUBMARINE CABLE
TERMINATION CABINET

TL–FOG

EMBEDDED PULL BOX
(TYP.)

TL–NOC

OPERATION AREA

TG–NOC

TRANSFER SWITCH AND
GENERATOR RECEPTACLE

SUBMARINE CABLE TERMINATION CABINET

SPAN DRIVE MOTOR
DRIVE CABINET

SUBMARINE
CABLE

TG–FOG

RESISTANCE
BARRIER GATE
(RG–FOG)

R/W LINE

℄ MAIN
CHANNEL
STA. 1137+56.25

℄ AUX.
CHANNEL
STA. 1138+04.00

ELECTRIC SERVICE
FEEDER

WARNING LIGHT
(WL–NOC)

MOTOR CONTROL CABINET

CONTROL DESK

PL–NA

PLAN

LEGEND

- 240V POWER CONDUIT
- 240V ROADWAY LIGHTING CONDUIT
- 240V ELECTRICAL SERVICE CONDUIT
- 120V CONTROL CONDUITS

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REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: CONDUIT LAYOUT

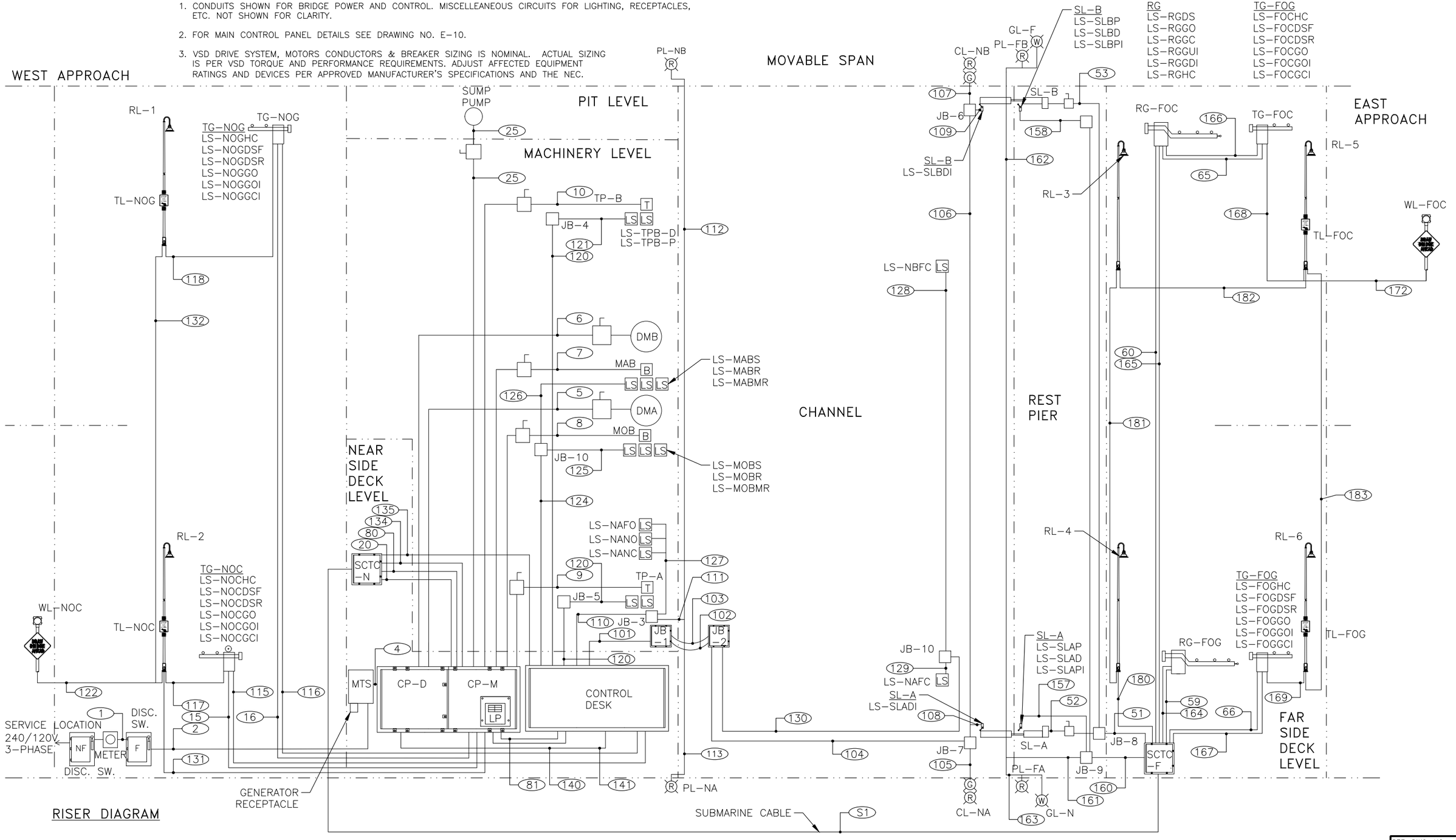
HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
MARCO A. LARA
FLA. LIC. NO. 78414

REF. DWG. NO. E–42
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 272 OF 283

NOTES:

1. CONDUITS SHOWN FOR BRIDGE POWER AND CONTROL. MISCELLEANEOUS CIRCUITS FOR LIGHTING, RECEPTACLES, ETC. NOT SHOWN FOR CLARITY.
2. FOR MAIN CONTROL PANEL DETAILS SEE DRAWING NO. E-10.
3. VSD DRIVE SYSTEM, MOTORS CONDUCTORS & BREAKER SIZING IS NOMINAL. ACTUAL SIZING IS PER VSD TORQUE AND PERFORMANCE REQUIREMENTS. ADJUST AFFECTED EQUIPMENT RATINGS AND DEVICES PER APPROVED MANUFACTURER'S SPECIFICATIONS AND THE NEC.



RISER DIAGRAM

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED MAL
DRAWN JMC
CHECKED APB

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: RISER DIAGRAM

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
MARCO A. LARA
FLA. LIC. NO. 78414

REF. DWG. NO. E-43
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 273 OF 283

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CONDUIT					CONDUCTORS			
NO.	SIZE	FROM	TO	VOLTS	NO.	SIZE	TYPE	WIRE #
1	2½"	UTILITY METER	FUSED DISCONNECT SW.	240	5	#1/0	RHW-2	L1, L2, L3, N, GND
2	2½"	FUSED DISCONNECT SW.	MTS	240	5	#1/0	RHW-2	L1, L2, L3, N, GND
3	2½"	GENERATOR REC.	MTS	240	5	#1/0	RHW-2	E1, E2, E3, N, GND
4	2½"	MTS	CP-D	240	5	#1/0	RHW-2	L1, L2, L3, N, GND
5	1½"	CP-D	DMA	240	3	#2	XHHW-2	DMA-T1,T2,T3, 1 @ #8 GND
6	1½"	CP-D	DMB	240	3	#2	XHHW-2	DMB-T1,T2,T3, 1 @ #8 GND
7	¾"	CP-M	MAB	240	4	#10	XHHW-2	MAB-T1,T2,T3, GND
8	¾"	CP-M	MOB	240	4	#10	XHHW-2	MOB-T1,T2,T3, GND
9	¾"	CP-M	TP-A	240	4	#10	XHHW-2	TP-A-T1,T2,T3, GND
10	¾"	CP-M	TP-B	240	4	#10	XHHW-2	TP-A-T1,T2,T3, GND
11								RESERVED
12								RESERVED
13								RESERVED
14								RESERVED
15	¾"	CP-M	TG-NOC	240	4	#10	XHHW-2	TG-NOC-T1,T2,T3, GND
16	¾"	CP-M	TG-NOG	240	4	#10	XHHW-2	TG-NOG-T1,T2,T3, GND
17								RESERVED
18								RESERVED
19								RESERVED
20	1"	CP-M	SCTC-N	240	16	#10	XHHW-2	SL-A-T1,T2,T3, SL-B-T1,T2,T3, TG-FOC-T1,T2,T3, TG-FOG-T1,T2,T3, RG-T1,T2,T3, GND
21								
22								RESERVED
23								RESERVED
24								RESERVED
25	¾"	LP	SUMP PUMP	240	3	#10	XHHW-2	13H, 13N, G
26								RESERVED
27								RESERVED
28								RESERVED
29								RESERVED
30								RESERVED
31								RESERVED
32								RESERVED
33								RESERVED
34								RESERVED
35								RESERVED
36								RESERVED
37								RESERVED
38								RESERVED
39								RESERVED
40								RESERVED
41								RESERVED
42								RESERVED
43								RESERVED
44								RESERVED
45								RESERVED
46								RESERVED
47								RESERVED
48								RESERVED
49								RESERVED
50								RESERVED

CONDUIT					CONDUCTORS			
NO.	SIZE	FROM	TO	VOLTS	NO.	SIZE	TYPE	WIRE #
51	¾"	SCTC-F	JB-8	240	7	#10	XHHW-2	SL-A-T1,T2,T3, SL-B-T1,T2,T3, GND
52	¾"	JB-8	SL-A	240	4	#10	XHHW-2	SL-A-T1,T2,T3, GND
53	¾"	JB-8	SL-B	240	4	#10	XHHW-2	SL-B-T1,T2,T3, GND
54								RESERVED
55								RESERVED
56								RESERVED
57								RESERVED
58								RESERVED
59	¾"	SCTC-F	RG-FOG	240	4	#10	XHHW-2	RG-FOG-T1,T2,T3, G
60	¾"	RG-FOG	RG-FOC	240	7	#10	XHHW-2	RG-FOC-T1,T2,T3, TG-FOC-T1,T2,T3, G
61								RESERVED
62								RESERVED
63								RESERVED
64								RESERVED
65	¾"	CP-M	TG-FOC	240	4	#10	XHHW-2	TG-FOC-T1,T2,T3, GND
66	¾"	CP-M	TG-FOG	240	4	#10	XHHW-2	TG-FOG-T1,T2,T3, GND
67								RESERVED
68								RESERVED
69								RESERVED
70								RESERVED
71								RESERVED
72								RESERVED
73								RESERVED
74								RESERVED
75								RESERVED
76								RESERVED
77								RESERVED
78								RESERVED
79								RESERVED
80	¾"	LP	SCTC-N	120	3	#10	XHHW-2	H6,H8,G
81	¾"	LP	CTRL DESK	120	3	#10	XHHW-2	H1,N1,G
82								RESERVED
83								RESERVED
84								RESERVED
85								RESERVED
86								RESERVED
87								RESERVED
88								RESERVED
89								RESERVED
90								RESERVED
91								RESERVED
92								RESERVED
93								RESERVED
94								RESERVED
95								RESERVED
96								RESERVED
97								RESERVED
98								RESERVED
99								RESERVED
100								RESERVED

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REV. NO.	DATE	DESCRIPTION	REV. BY

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DRAWN JMC
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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: CONDUIT AND CONDUCTOR SCHEDULE (1 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-44
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 274 OF 283

CONDUIT					CONDUCTORS			
NO.	SIZE	FROM	TO	VOLTS	NO.	SIZE	TYPE	WIRE #
101	1½"	CTRL DESK	JB–1	120	24	#12	XHHW–2	CB617,617,CB627,627,1026,1027, UPS–NAV–N1,G
102	DROOP	JB–1	JB–2	120	12	#12	XHHW–2	CB617,617,CB627,627,1026,1027, UPS–NAV–N1,G
103	DROOP	JB–1	JB–2	120	12	#12	XHHW–2	RESERVED
104	¾"	JB–2	JB–7	120	9	#12	XHHW–2	CB617,617,CB627,627,1026,1027, UPS–NAV–N1,G
105	¾"	JB–7	CL–NA	120	3	#12	XHHW–2	1026,1027,UPS–NAV–N1,G
106	¾"	JB–7	JB–6	120	5	#12	XHHW–2	CB627,627,1026,1027,UPS–NAV–N1,G
107	¾"	JB–6	CL–NB	120	3	#12	XHHW–2	1026,1027,UPS–NAV–N1,G
108	¾"	JB–7	LS–SLADI	120	3	#12	XHHW–2	CB617,617,G
109	¾"	JB–6	LS–SLBDI	120	3	#12	XHHW–2	CB627,627,G
110	¾"	CP–M	JB–3	120	6	#12	XHHW–2	101,CB808,808,810,811,814,1001,1002, 1003,1004A,CB1030,UPS–NAV–N1,G
111	¾"	JB–3	T(#111/#112/#113)	120	5	#12	XHHW–2	CB1030,UPS–NAV–N1,G
112	¾"	T(#111/#112/#113)	PL–NB	120	3	#12	XHHW–2	CB1030,UPS–NAV–N1,G
113	¾"	T(#111/#112/#113)	PL–NA	120	3	#12	XHHW–2	CB1030,UPS–NAV–N1,G
114								RESERVED
115	1"	CTRL DESK	TG–NOC	120	11	#12	XHHW–2	221,228,230,301A,302,CB305,305,306, N1,N3,G
116	1"	CTRL DESK	TG–NOG	120	11	#12	XHHW–2	221,231,331A,312,CB315,315,316,N1, N3,G
117	¾"	TG–NOC	TL–NOC	120	3	#12	XHHW–2	221,N3,G
118	¾"	TG–NOG	TL–NOG	120	3	#12	XHHW–2	221,N3,G
119								RESERVED
120	¾"	CTRL DESK	LS–TPA–(D/P)	120	3	#12	XHHW–2	701B,701D,704B,704D,CB707,707,708,G
121	¾"	CTRL DESK	LS–TPB–(D/P)	120	3	#12	XHHW–2	711B,711D,714B,714D,CB717,717,718,G
122	¾"	TL–NOC	WL–NOC	120	3	#12	XHHW–2	–
123								RESERVED
124	¾"	CTRL DESK	JB–10	120	13	#12	XHHW–2	CB817,817,818,819,820,101,927,928, 930,931,G
125	¾"	JB–10	LS–MOB–(S/R/MR)	120	7	#12	XHHW–2	101,927,928,930,931,G
126	¾"	JB–10	LS–MAB–(S/R/MR)	120	7	#12	XHHW–2	CB817,817,818,819,820,G
127	¾"	JB–3	LS–NA(FO/NO/NC)	120	7	#12	XHHW–2	101,CB808,808,810,811,814,1001,1002, 1003,G
128	¾"	JB–10	LS–NBFC	120	3	#12	XHHW–2	1004,1004A,G
129	¾"	JB–10	LS–NAFC	120	3	#12	XHHW–2	101,1004A,G
130	¾"	JB–2	JB–1	120	4	#12	XHHW–2	101,1004,1004A,G
131	¾"	CP–M	RL–2	120	3	#10	XHHW–2	H6,H8,G
132	¾"	RL–2	RL–1	120	3	#10	XHHW–2	H6,H8,G
133								
134	2"	CP–M	SCTC–N	120	5	#12	XHHW–2	611D,614D,621D,624D,G
135	2"	CTRL DESK	SCTC–N	120	35	#12	XHHW–2	241,248,250,251,252,401A,402,CB405, 405,406,411A,412,413A,CB415,415,416, 511A,512,513A,CB515,515,516,611B, 614B,CB617,618,621B,624B,CB627,628, CB1034.UPS–NAV–N1,N1,N3,G
140	1"	CP–M	CTRL DESK	120	27	#12	XHHW–2	611B,612,614B,615,621B,622,624V,625, 701B,701D,702,704B,704D,705,711B, 711D,712,714B,714D,715,801B,801C, 803B,803C,819A,N1,G
141	1"	CP–D	CTRL DESK	120	6	#12	XHHW–2	101,921,922,923,924,G

CONDUIT					CONDUCTORS			
NO.	SIZE	FROM	TO	VOLTS	NO.	SIZE	TYPE	WIRE #
151								RESERVED
152								RESERVED
153								RESERVED
154								RESERVED
155								RESERVED
156								RESERVED
157	¾"	JB–9	LS–SLA(P/D/PI)	120	7	#12	XHHW–2	611B,611D,614B,614D,CB617,618,G
158	¾"	JB–9	LS–SLB(P/D/PI)	120	7	#12	XHHW–2	621B,621D,624B,624D,CB627,628,G
159								RESERVED
160	1"	SCTC–F	JB–9	120	15	#12	XHHW–2	611B,611D,614B,CB617,618,614D,621B, 621D,624B,624D,CB627,628,CB1304, UPS–NAV–N1,G
161	1"	JB–9	T(#161,#162,#163)	120	3	#12	XHHW–2	CB1034,UPS–NAV–N1,G
162	¾"	T(#161,#162,#163)	PL–FB & GL–F	120	3	#12	XHHW–2	CB1034,UPS–NAV–N1,G
163	¾"	T(#161,#162,#163)	PL–FA & GL–N	120	3	#12	XHHW–2	CB1034,UPS–NAV–N1,G
164	1"	SCTC–F	RG–FOG	120	19	#12	XHHW–2	241,248,250,252,401A,402,403A,CB405, 405,406,511A,512,513A,CB515,515,516, N1,N3,G
165	1"	RG–FOG	RG–FOC	120	19	#12	XHHW–2	241,248,250,252,401A,402,403A,CB405, 405,406,511A,512,513A,CB515,515,516, N1,N3,G
166	1"	RG–FOC	TG–FOC	120	11	#12	XHHW–2	241,248,250,401A,402,CB405,405,406, N1,N3,G
167	1"	SCTC–F	TG–FOG	120	11	#12	XHHW–2	241,251,411A,412,413A,CB415,415,416, N1,N3,G
168	¾"	TG–FOC	TL–FOC	120	3	#12	XHHW–2	241,N3,G
169	¾"	TG–FOG	TL–FOG	120	3	#12	XHHW–2	241,N3,G
170								RESERVED
171								RESERVED
172	¾"	TL–FOC	WL–FOC	120	3	#12	XHHW–2	–
173								RESERVED
174								RESERVED
175								RESERVED
176								RESERVED
177								RESERVED
178								RESERVED
179								RESERVED
180	¾"	SCTC–F	RL–4	120	3	#10	XHHW–2	H6,H8,G
181	¾"	RL–4	RL–3	120	3	#10	XHHW–2	H6,H8,G
182	¾"	RL–3	RL–5	120	3	#10	XHHW–2	H6,H8,G
183	¾"	RL–4	RL–6	120	3	#10	XHHW–2	H6,H8,G
184								RESERVED
185								RESERVED
186								RESERVED
187								RESERVED
188								RESERVED
189								RESERVED
190								RESERVED
191								RESERVED
192								RESERVED

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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

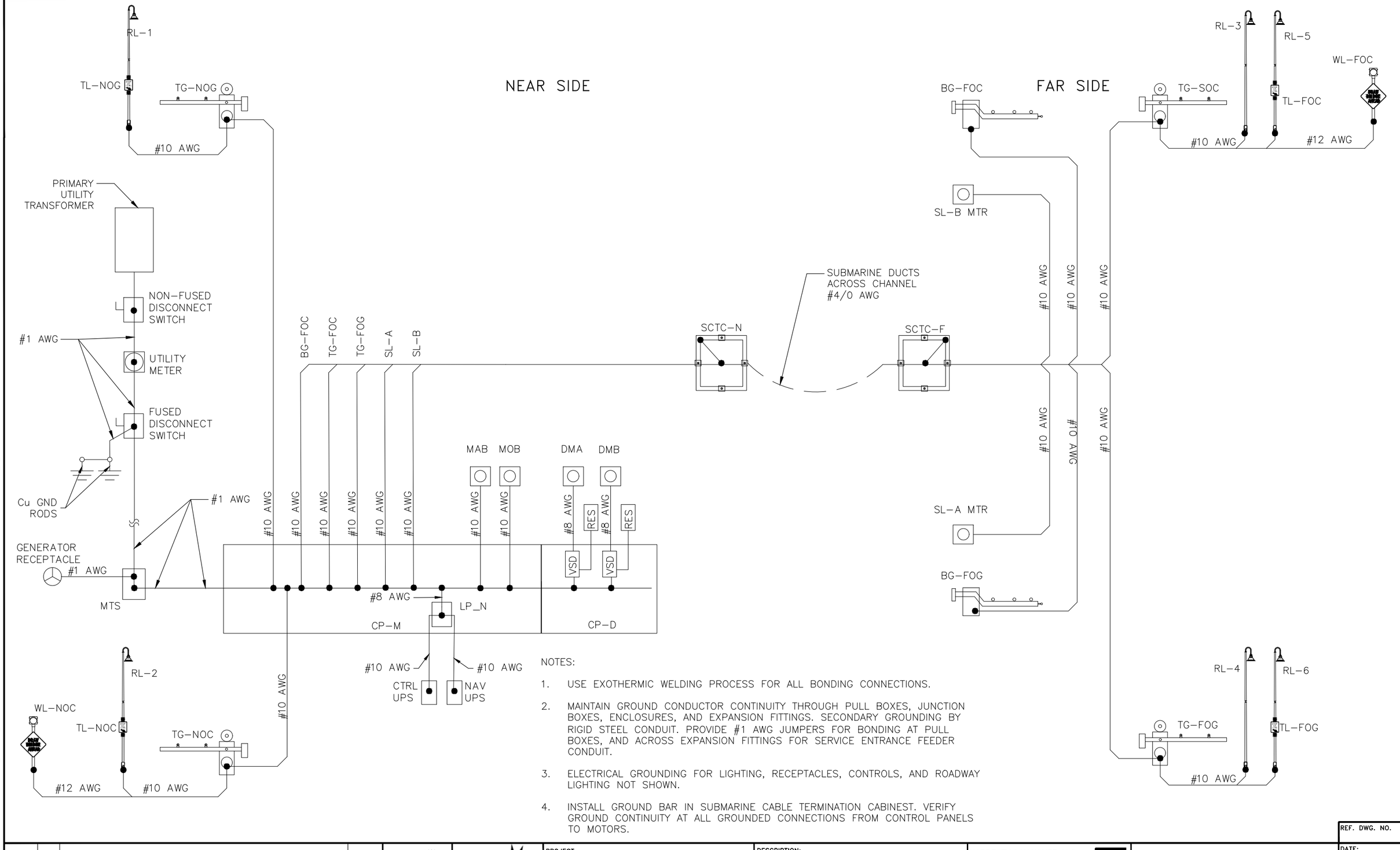
DESCRIPTION: CONDUIT AND CONDUCTOR SCHEDULE (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E–45
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 275 OF 283

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NOTES:

1. USE EXOTHERMIC WELDING PROCESS FOR ALL BONDING CONNECTIONS.
2. MAINTAIN GROUND CONDUCTOR CONTINUITY THROUGH PULL BOXES, JUNCTION BOXES, ENCLOSURES, AND EXPANSION FITTINGS. SECONDARY GROUNDING BY RIGID STEEL CONDUIT. PROVIDE #1 AWG JUMPERS FOR BONDING AT PULL BOXES, AND ACROSS EXPANSION FITTINGS FOR SERVICE ENTRANCE FEEDER CONDUIT.
3. ELECTRICAL GROUNDING FOR LIGHTING, RECEPTACLES, CONTROLS, AND ROADWAY LIGHTING NOT SHOWN.
4. INSTALL GROUND BAR IN SUBMARINE CABLE TERMINATION CABINEST. VERIFY GROUND CONTINUITY AT ALL GROUNDED CONNECTIONS FROM CONTROL PANELS TO MOTORS.

REV. NO.	DATE	DESCRIPTION	REV. BY

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PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: GROUNDING RISER DIAGRAM

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. E-46
DATE: 6/25/2021
PROJECT NO. 001037A
SHEET: 276 OF 283

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NOTES

1. WALL STATIONING SHOWN THROUGHOUT THE WALL PLANS ARE MEASURED TO THE FRONT FACE OF THE WALL IN ITS FINAL CONDITION. ELEVATION ARE SHOWN TO THE TOP OF COPING AND TOP OF WALL. ENSURE WALL FINAL POSITION BY ACCOUNTING FOR SHORT AND LONG TERM DEFLECTIONS PRIOR TO INSTALLATION.
2. LOCATE AND VERIFY THE LOCATIONS OF THE ADJACENT STRUCTURES, SUBSTRUCTURES, FOUNDATIONS, BULKHEADS AND ANY OTHER MISCELLANEOUS STRUCTURES PRIOR TO INSTALLING THE WALLS SYSTEM.
3. SEE GENERAL NOTES FOR INSTRUCTIONS ON LOCATING EXISTING UTILITIES AND VIBRATION MONITORING REQUIREMENTS.
4. WALL DEFLECTIONS WILL CAUSE DISTRESS OF ADJACENT PAVEMENT DURING CONSTRUCTION. MAINTAIN PAVEMENT CONDITIONS BEHIND THE WALLS DURING CONSTRUCTION. INCLUDE THE COST OF MAINTAINING ADJACENT PAVEMENT IN THE COST OF THE RETAINING WALLS.
5. THE DESIGN PARAMETERS INDICATED ON THIS SHEET WERE USED IN THE WALL ANALYSIS. IF THE CONTRACTOR PLANS OPERATIONS EXCEED THE DESIGN PARAMETERS, THE CONTRACTOR'S SPECIALTY ENGINEER WILL REDESIGN THE WALL TO RESIST CONSTRUCTION LOADS AT A MAXIMUM DEFLECTION OF 3 INCHES.
6. ENVIRONMENTAL CLASSIFICATION IS EXTREMELY AGGRESSIVE.
7. COAT EXPOSED SURFACE OF STEEL SHEET PILES TO 5 FEET BELOW THE FRONT OF WALL SOIL ELEVATION AS SHOWN ON THE TABLE, WITH WITH COAL TAR–EPOXY. SEE SPECIFICATIONS SECTION 560 FOR COATING OF PERMANENT SHEET PILE REQUIREMENTS.
8. COORDINATE ALL WALL DETAILS WITH APPROACH SLAB AND ABUTMENT DETAILS.

STEEL SHEET PILE WALL DATA TABLE ***

CONSTRUCTION INFORMATION								DESIGN PARAMETERS				
WALL LOCATION				MIN. SECTION MODULUS * (IN^3/FT)		MINIMUM REQUIRED MOMENT OF INTERTIA (IN^4/FT)	MINIMUM WALL TIP ELEVATION (FT)	WALL TOP ELEVATION (FT)	SOIL ELEVATION		WATER ELEVATION		DESIGN LIVE LOAD**** (PSF)
WALL	STATION BEGIN	STATION END	OFFSET (FT)	A–328 (KSI) F_Y=39 KSI	A–572 (KSI) F_Y=50 KSI				FRONT OF WALL** (FT)	BACK OF WALL (FT)	FRONT OF WALL (FT)	BACK OF WALL (FT)	
WALL 1A	1135+63.50	1135+91.22	SEE PLANS	20.41	15.92	135.0	SEE PLANS	SEE PLANS	–2.047	5.583	–1.33	0.85	513
WALL 1B	1135+91.22	1135+91.29	SEE PLANS	20.41	15.92	135.0	SEE PLANS	SEE PLANS	–2.047	5.583	–1.33	0.85	513
WALL 1C	1135+91.29	1135+63.50	SEE PLANS	20.41	15.92	135.0	SEE PLANS	SEE PLANS	–2.047	5.583	–1.33	0.85	513
WALL 2A	1139+84.50	1139+56.75	SEE PLANS	15.94	12.44	90.0	SEE PLANS	SEE PLANS	–0.053	7.667	–1.33	0.85	511
WALL 2B	1139+56.75	1139+56.75	SEE PLANS	15.94	12.44	90.0	SEE PLANS	SEE PLANS	–0.053	7.667	–1.33	0.85	511
WALL 2C	1139+56.75	1139+84.50	SEE PLANS	15.94	12.44	90.0	SEE PLANS	SEE PLANS	–0.053	7.667	–1.33	0.85	511

* MINIMUM SECTION MODULUS IS BASED ON HOT ROLLED SECTIONS. FOR COLD ROLLED SECTIONS, INCREASE MINIMUM SECTION MODULUS BY 20%.
** MINIMUM OF DESIGN GROUND SURFACE OR DESIGN SCOUR DEPTH.
*** DESIGN PARAMETERS ARE BASED ON A 75–YEAR DESIGN SERVICE LIFE AND AFTER THE REDUCTION OF THE LONG–TERM 0.135" SACRIFICIAL THICKNESS.
**** UNFACTORED DESIGN LIVE LOAD.

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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

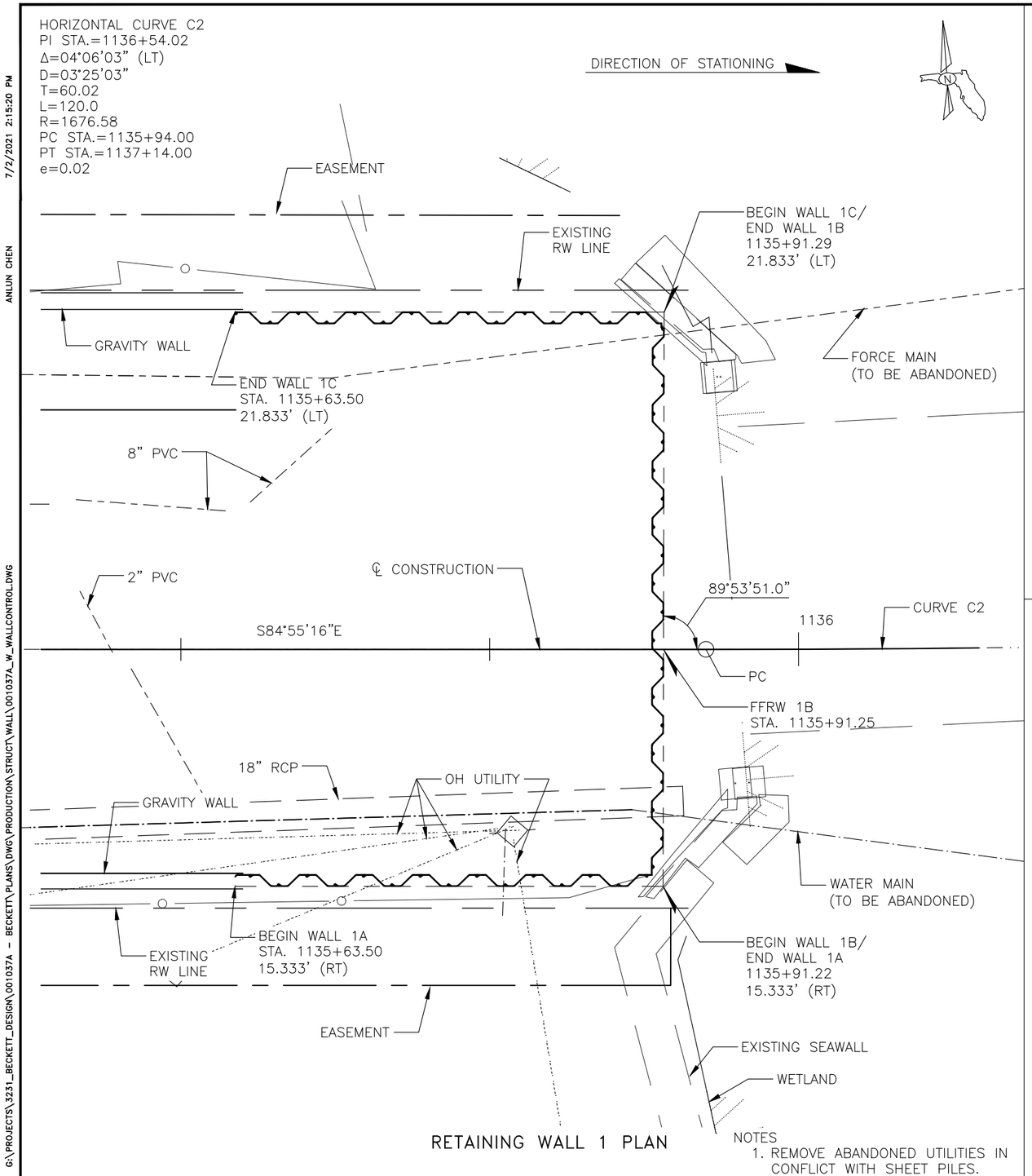
DESCRIPTION: RETAINING WALL DATA TABLES

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

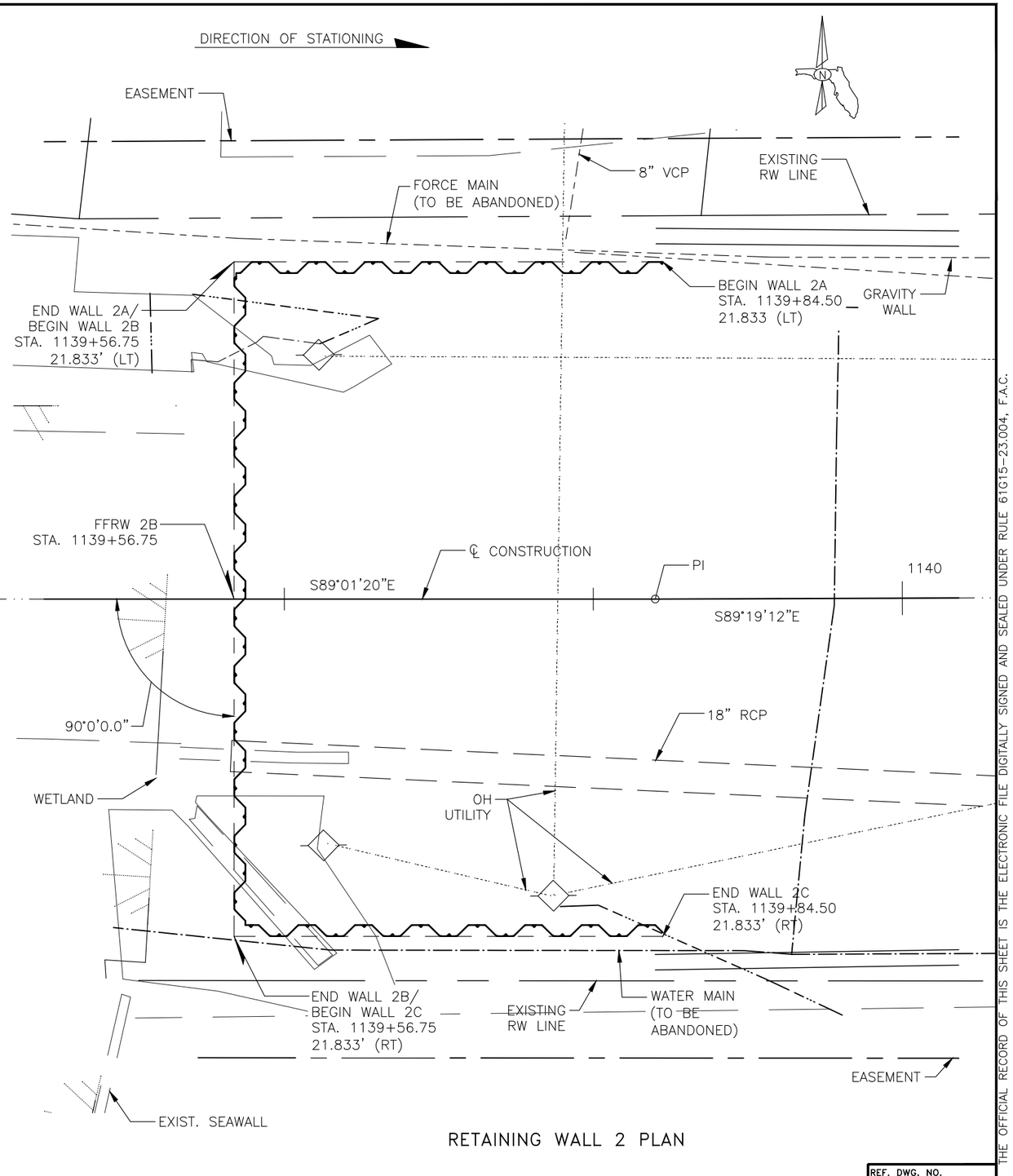
REF. DWG. NO. W–1
DATE: 08/22/2017
PROJECT NO. 001037A
SHEET: XXX OF XXX

HORIZONTAL CURVE C2
PI STA.=1136+54.02
Δ=04°06'03" (LT)
D=03°25'03"
T=60.02
L=120.0
R=1676.58
PC STA.=1135+94.00
PT STA.=1137+14.00
e=0.02



RETAINING WALL 1 PLAN

NOTES
1. REMOVE ABANDONED UTILITIES IN CONFLICT WITH SHEET PILES.



RETAINING WALL 2 PLAN

REV. NO.	DATE	DESCRIPTION	REV. BY

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Pinellas County PUBLIC WORKS

PROJECT:
BECKETT BRIDGE REPLACEMENT

DESCRIPTION:
RETAINING WALL CONTROL DRAWING

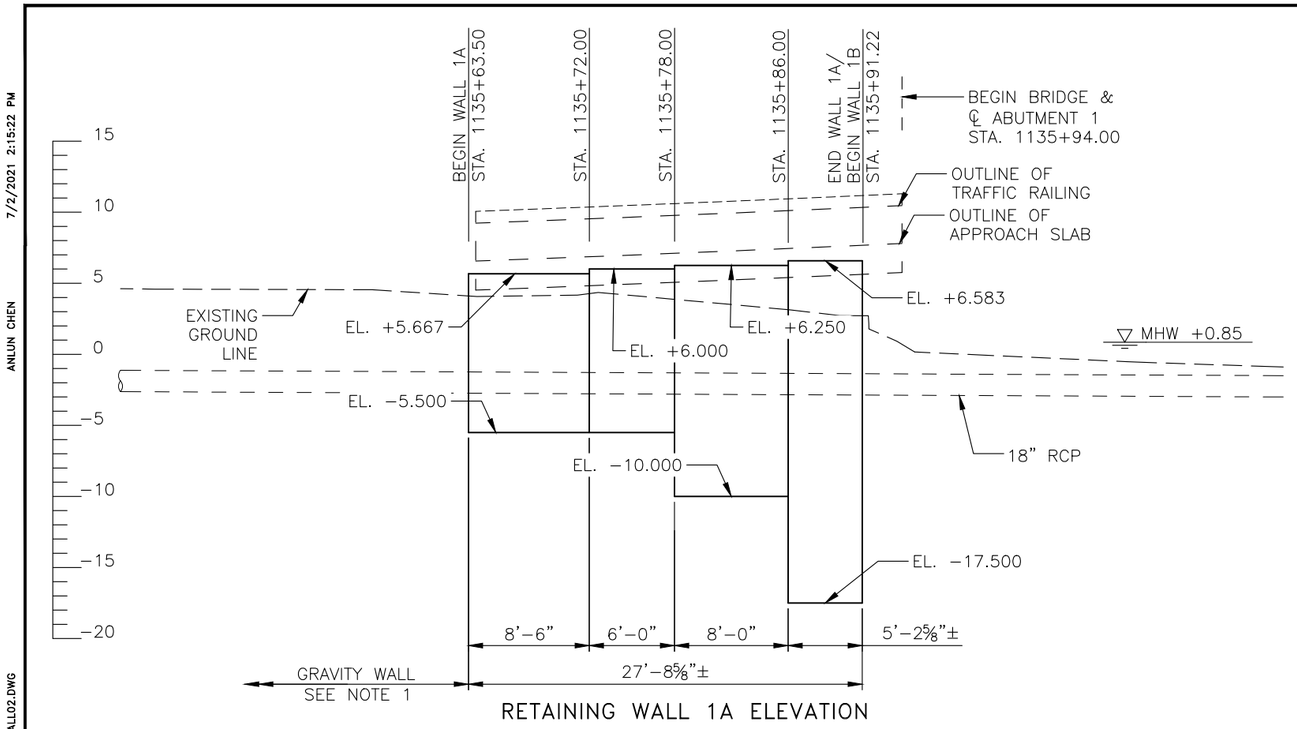
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5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

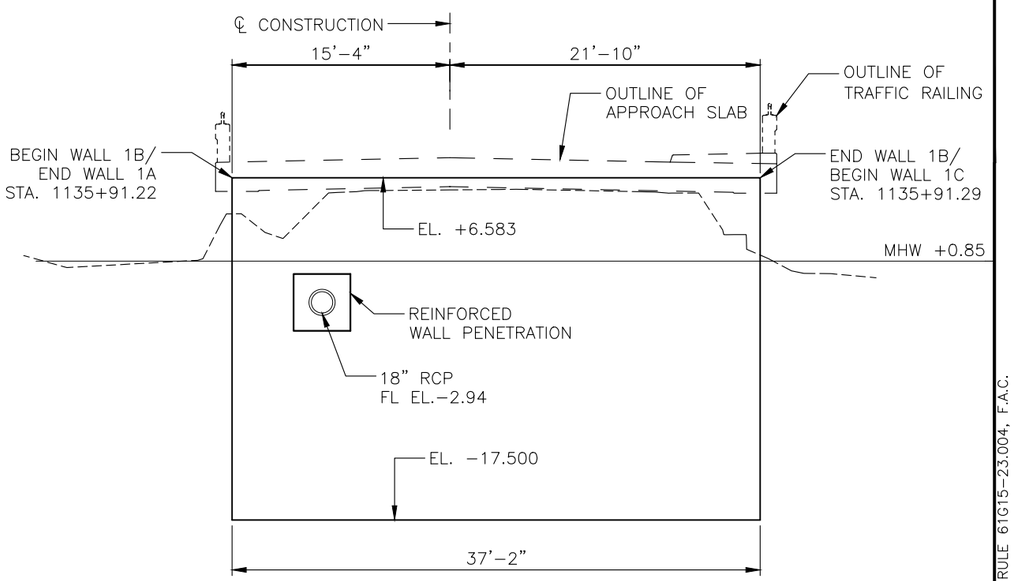
REF. DWG. NO. W-2
DATE: 08/22/2017
PROJECT NO. 001037A
SHEET: XXX OF XXX

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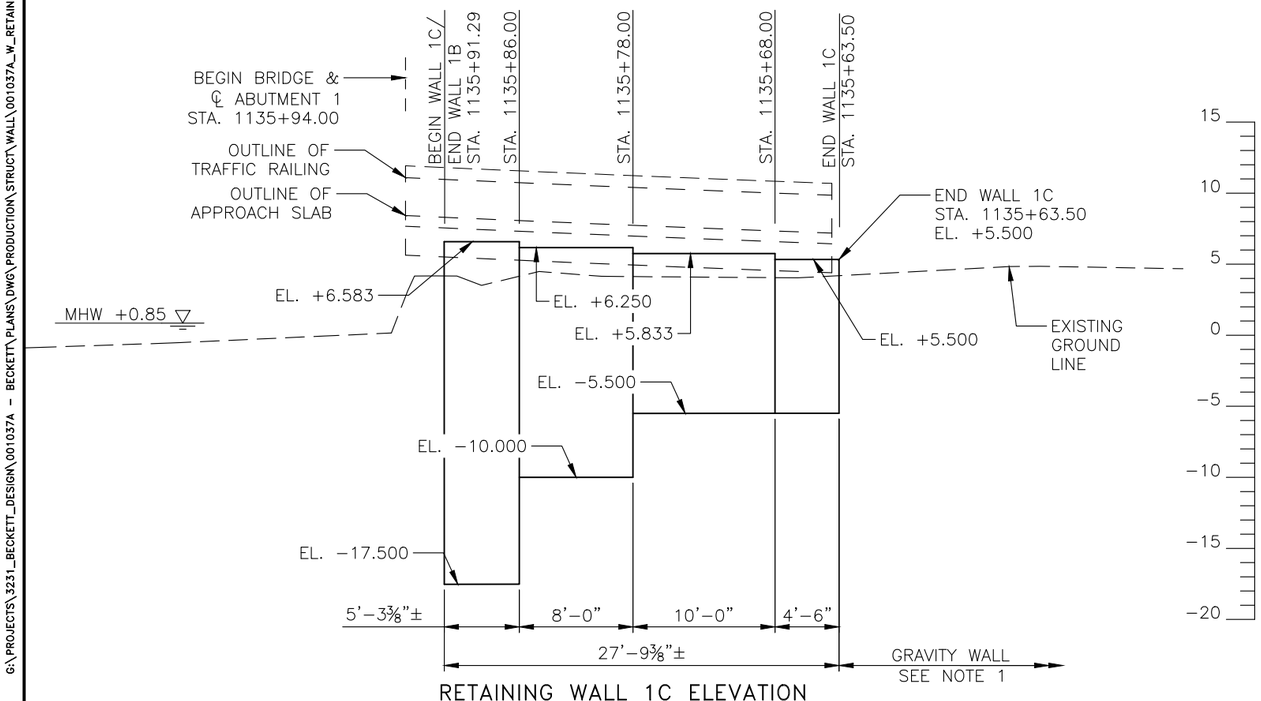
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RETAINING WALL 1A ELEVATION



RETAINING WALL 1B ELEVATION



RETAINING WALL 1C ELEVATION

NOTES
1. SEE ROADWAY PLANS FOR GRAVITY WALL GEOMETRY. SEE WALL DETAILS FOR GRAVITY WALL TO SHEET PILE WALL TRANSITION DETAIL.

REV. NO.	DATE	DESCRIPTION	REV. BY

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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: RETAINING WALL ELEVATION (1 OF 2)

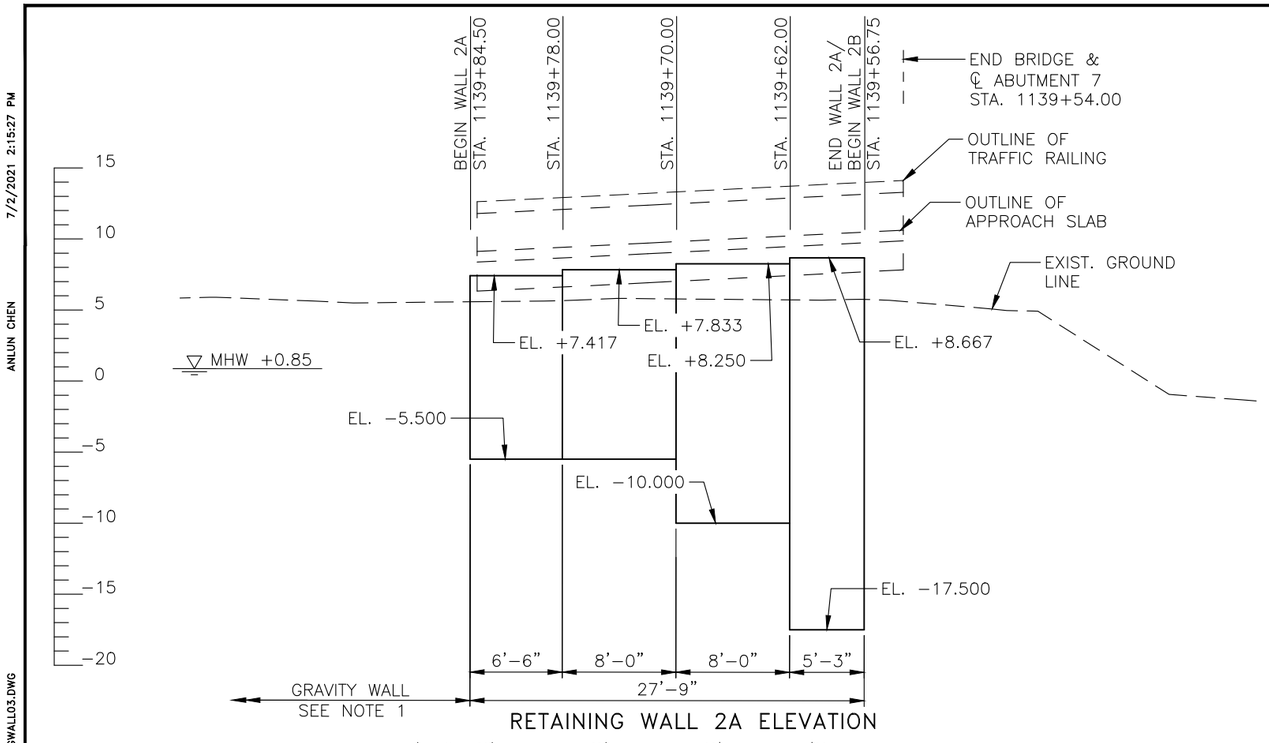
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SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

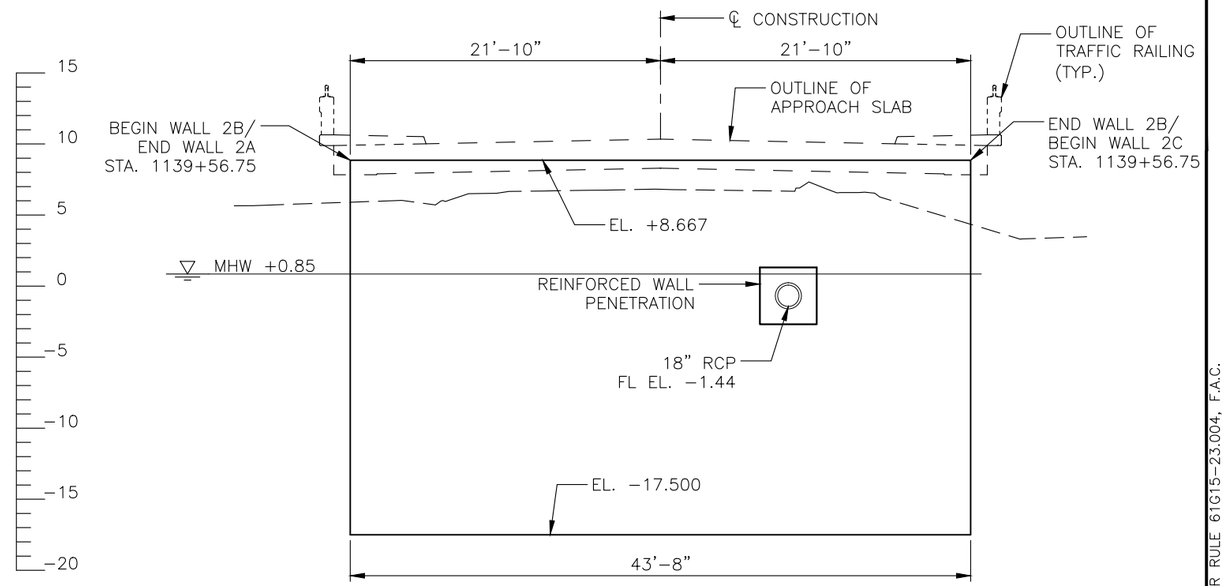
REF. DWG. NO. W-3
DATE: 08/22/2017
PROJECT NO. 001037A
SHEET: XXX OF XXX

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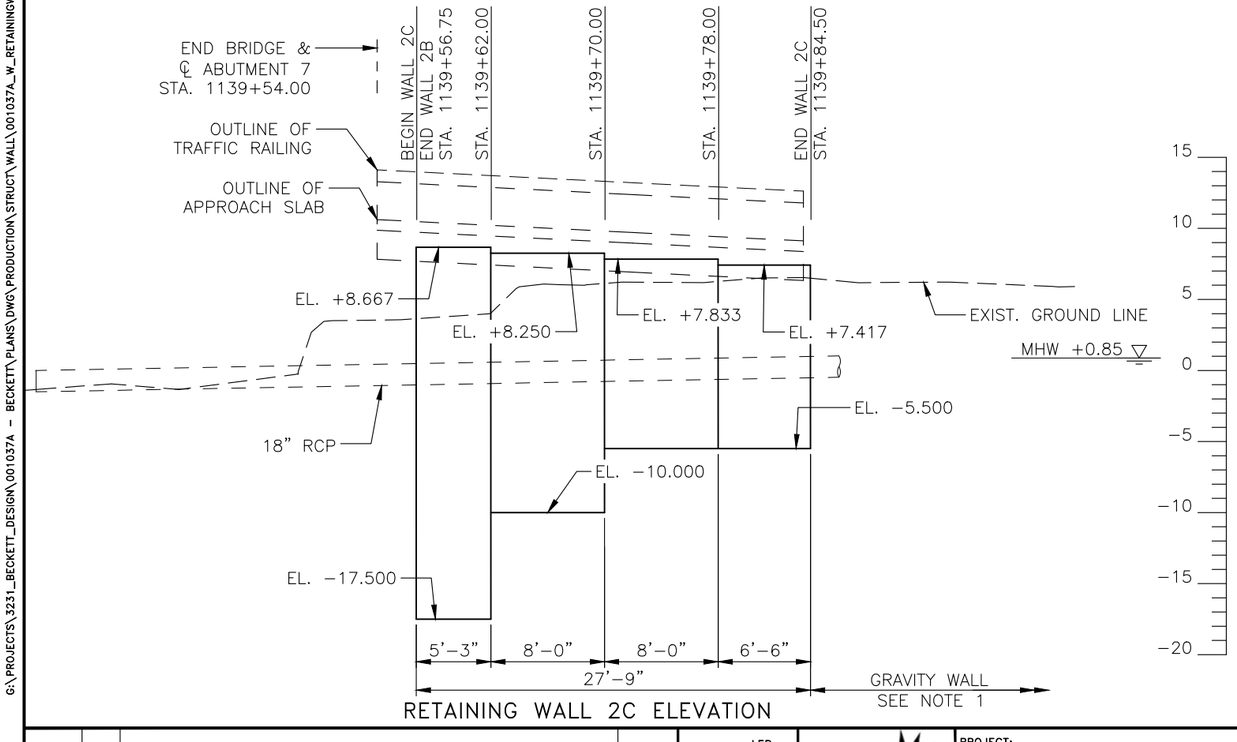
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RETAINING WALL 2A ELEVATION



RETAINING WALL 2B ELEVATION



RETAINING WALL 2C ELEVATION

NOTES
1. SEE ROADWAY PLANS FOR GRAVITY WALL GEOMETRY. SEE WALL DETAILS FOR GRAVITY WALL TO SHEET PILE WALL TRANSITION DETAIL.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED LER
DRAWN LER
CHECKED JMP

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: RETAINING WALL ELEVATION (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

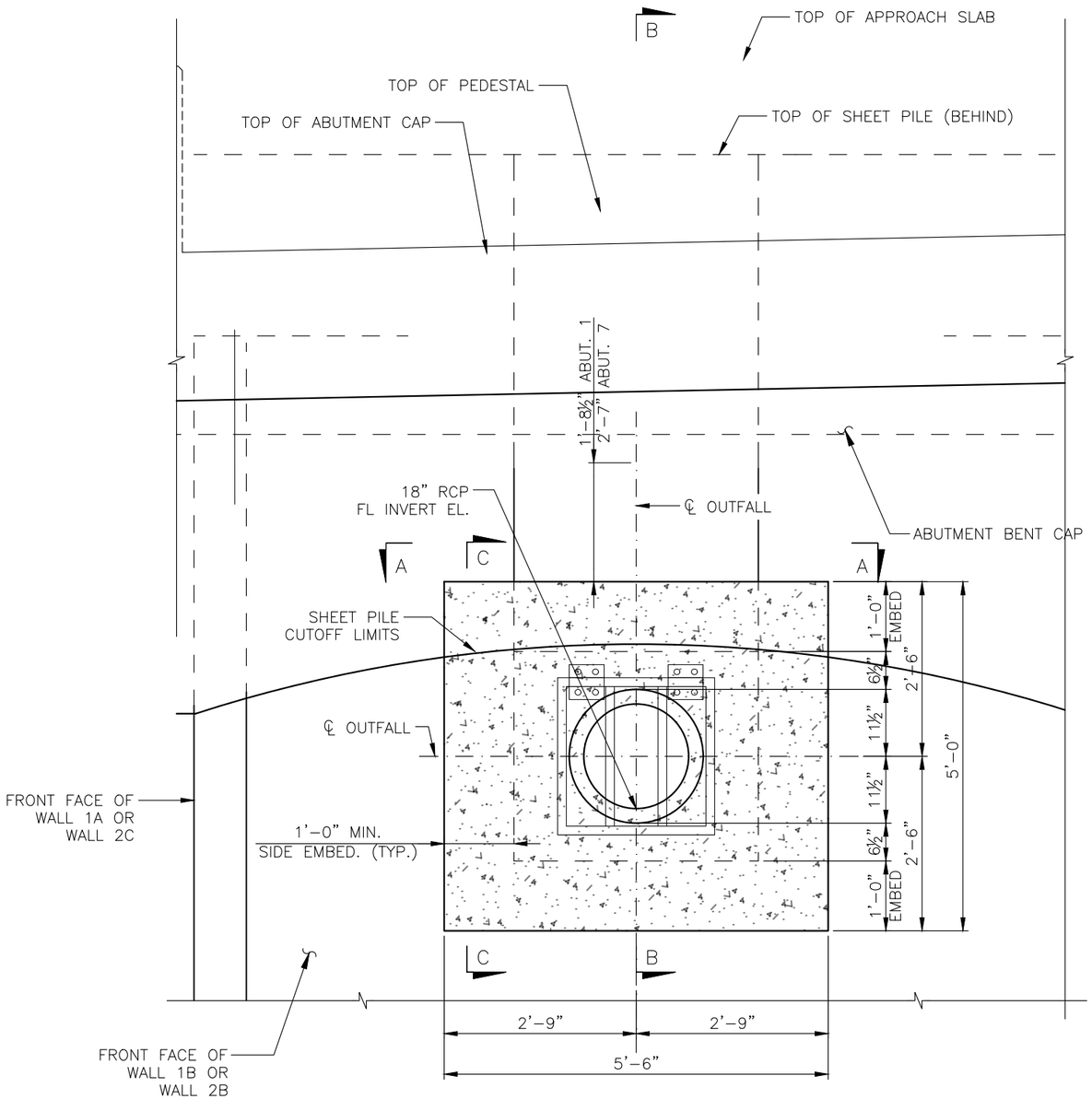
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. W−4
DATE: 08/22/2017
PROJECT NO. 001037A
SHEET: XXX OF XXX

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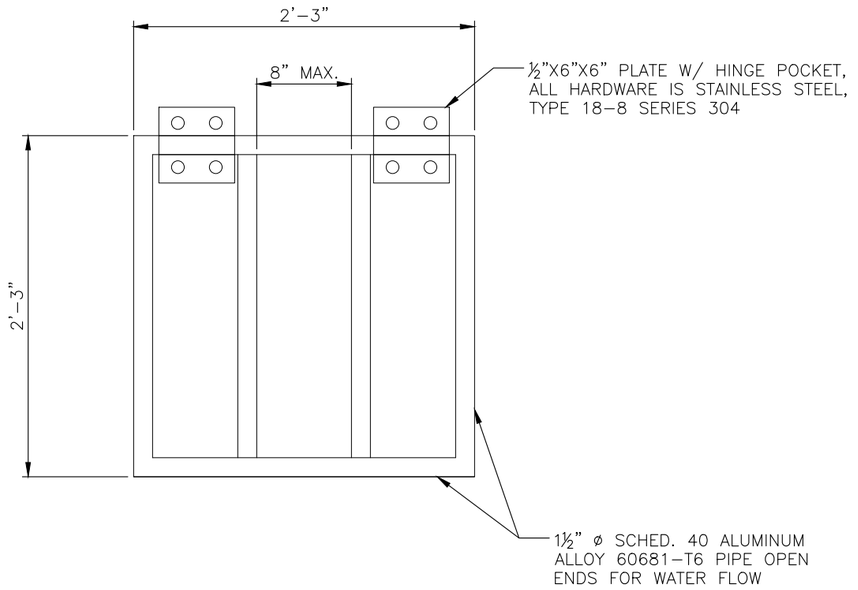
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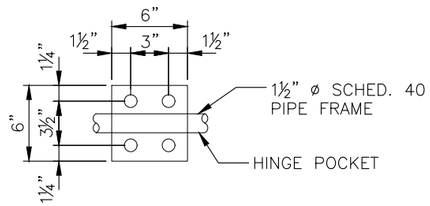


OUTFALL PENETRATION – RETAINING WALL TYPICAL ELEVATION

18" CONCRETE PIPE DATA			
WALL	STATION	OFFSET	INVERT ELEV.
WALL 1B	1135+92.00	9.77 RT.	−2.94
WALL 2B	1139+56.00	10.10 RT.	−1.44



MANATEE EXCLUSION DEVICE DETAIL



HINGE POCKET DETAIL

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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

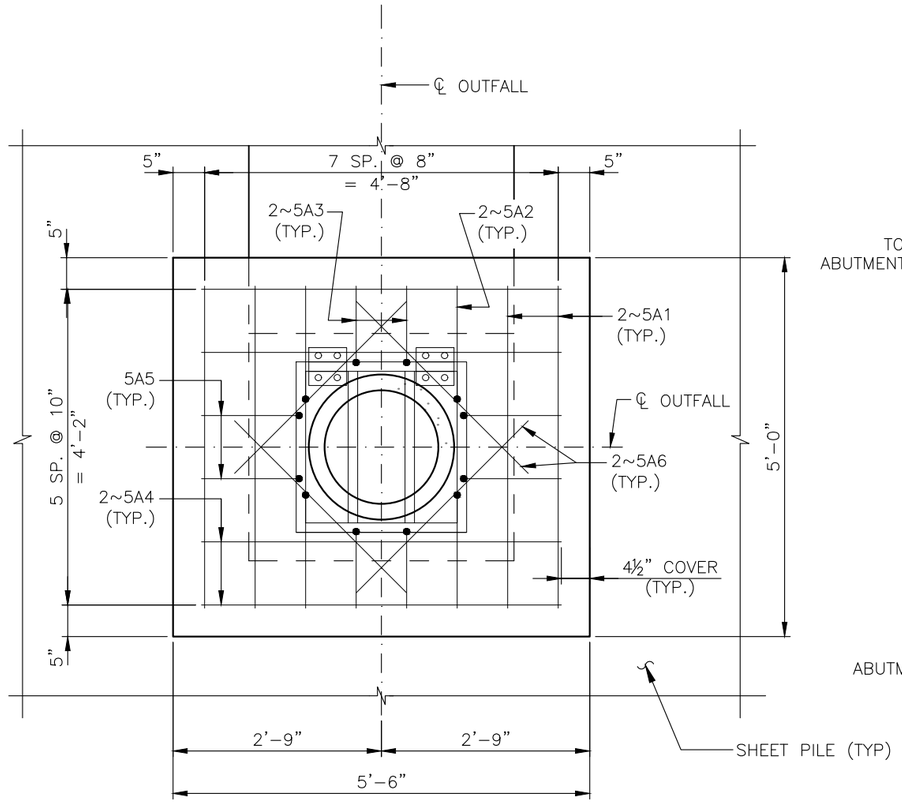
DESCRIPTION: RETAINING WALL DETAILS (1 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

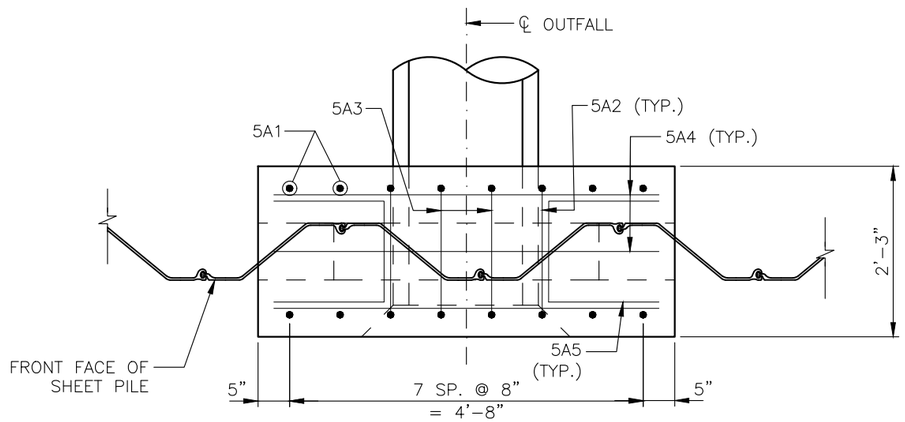
ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. W-5
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 281 OF 283

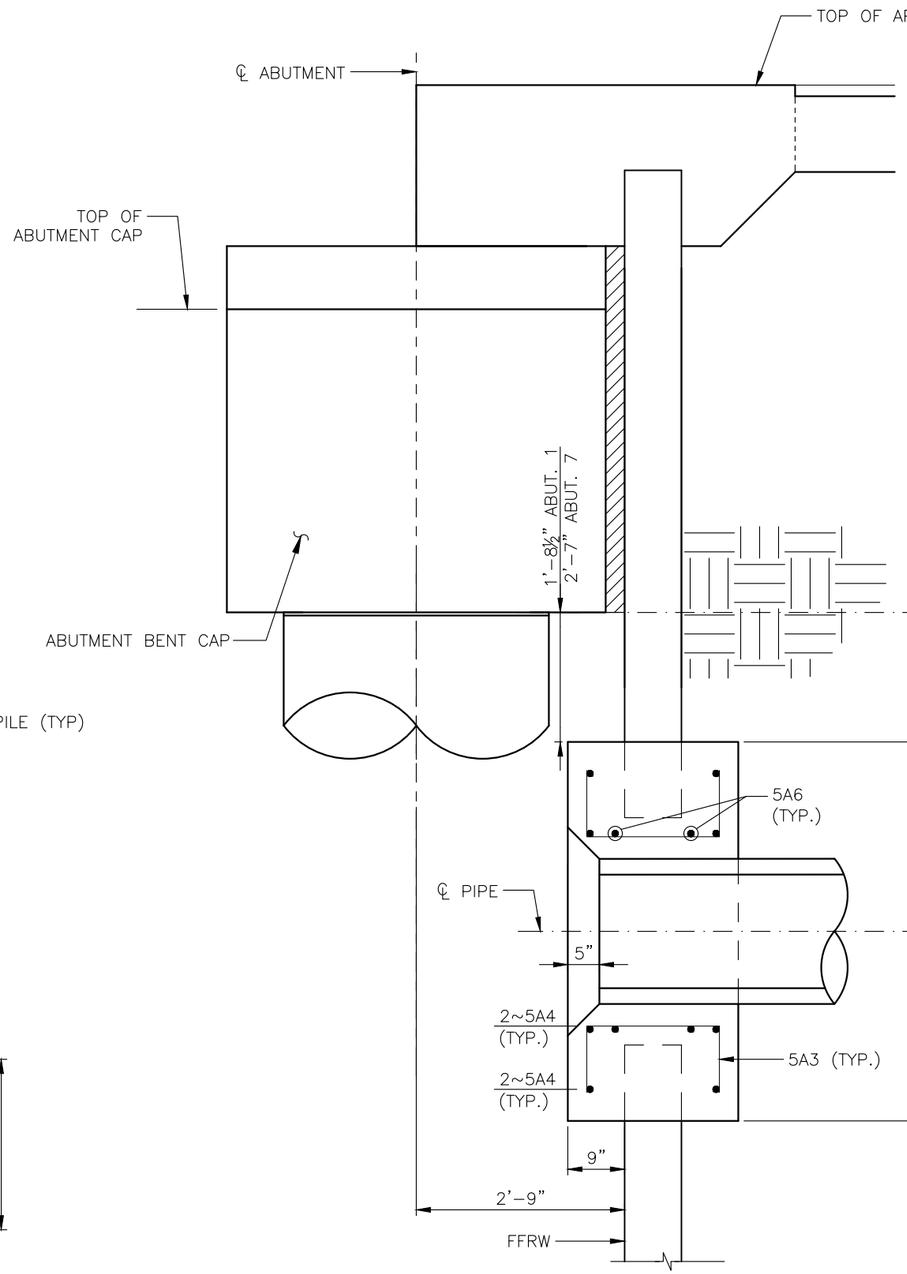
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OUTFALL PENETRATION REINFORCEMENT ELEVATION

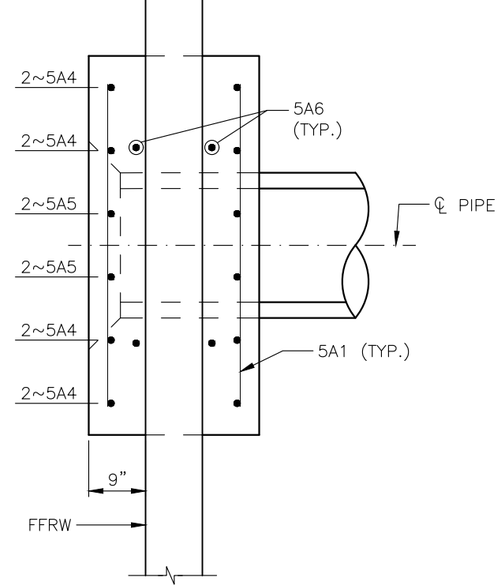


SECTION A-A



SECTION B-B

NOTES:
1. FOR DRAINAGE DETAILS, SEE DRAINAGE PLANS.
2. FOR LOCATIONS OF SECTIONS A-A, B-B, AND C-C, SEE DWG. NO. W-6.



SECTION C-C

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Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: RETAINING WALL DETAILS (2 OF 2)

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. W-6
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 282 OF 283

MARK		LENGTH		NO	TYP	STY		B			C			D			E			F			H			J			K			N	Ø
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION DRAINAGE OUTFALL HEADWALL NO. REQUIRED = 2																																	
5	A1	4	3	8	1			4	3																								
5	A2	4	6	8	11			1	6		1	6		1	6																		
5	A3	3	6	8	11			1	6		1	0		1	0																		
5	A4	4	9	8	1			4	9																								
5	A5	4	2	4	11			1	6		1	4		1	4																		
5	A6	3	2	8	1			3	2																								

END OF LIST

NOTES: FOR STANDARD BAR BENDING DETAILS, SEE FDOT STANDARD INDEX. NO. 415-001.

REV. NO.	DATE	DESCRIPTION	REV. BY

DESIGNED AC
DRAWN AC
CHECKED JPN

Pinellas County PUBLIC WORKS

PROJECT: BECKETT BRIDGE REPLACEMENT

DESCRIPTION: RETAINING WALL REINFORCING BAR LIST

HARDESTY & HANOVER, LLC.
5110 EISENHOWER BLVD.
SUITE 310
TAMPA, FL 33634
CERTIFICATION OF AUTHORIZATION # 29741

ENGINEER OF RECORD
JAMES M. PHILLIPS, III, PE
FLA. LIC. NO. 36865

REF. DWG. NO. W-7
DATE: 06/25/2021
PROJECT NO. 001037A
SHEET: 283 OF 283

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ABBREVIATIONS

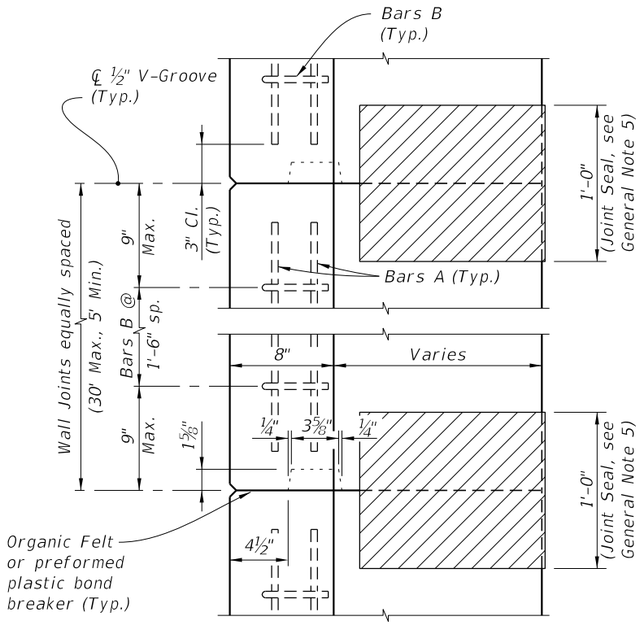
FY 2021-22 STANDARD PLANS

Abbreviation	Meaning
A	
AASHTO	American Association Of State Highway And Transportation Officials
AC	Alternating Current
Accel.	Acceleration
ACI	American Concrete Institute
ADA	Americans With Disabilities Act
ADT	Average Daily Traffic
AFAD	Automated Flagger Assistance Device
AISC	American Institute Of Steel Construction
AISI	American Iron and Steel Institute
Alt.	Alternate
Alum.	Aluminum
ANSI	American National Standards Institute
AOS	Apparent Opening Size
APL	Approved Products List
App.	Approach
Approx.	Approximate
ARTBA	American Road & Transportation Builders Association
Asph.	Asphalt
Assem.	Assembly
ASTM	American Society For Testing And Materials
ATPB	Asphalt Treated Permeable Base
Auxil.	Auxiliary
AWG	American Wire Gauge
AWS	American Welding Society
B	
Bot.	Bottom
Brkwy.	Breakaway
b/w	Between
C	
CC, C to C	Center to Center
C & G	Curb And Gutter
C.C.	Crash Cushion
CCTV	Closed-Circuit Television
CFR	Code of Federal Regulations
CFRP	Carbon Fiber Reinforced Polymer
cfs, CFS	Cubic Feet Per Second
CIP, C.I.P. or C-I-P	Cast In Place
CJP	Complete Joint Penetration
Ckt.	Circuit
℄	Center Line
Cl.	Clearance
CMP	Corrugated Metal Pipe
Con.	Connection
Conc.	Concrete
Const.	Construct or Construction
Cont.	Continuation or Continuous
Corr.	Corrugated
Cov.	Cover
CP	Concrete Pipe
CSIP	Cost Savings Initiative Proposal
CSL	Cross-hole Sonic Logging
CTPB	Cement Treated Permeable Base
Ctr., Ctrs.	Center
Cu. Ft.	Cubic Feet
Cu. Yd., CY,	Cubic Yard
D	
D	Depth, Distance or Diameter
Dia. or Ø	Diameter
Dbl.	Double
Decel.	Deceleration
Deg.	Degree
Dim.	Dimension
Dist.	Distance
DMM	Domestic Mail Manual
DPI	Ditch Point Intersection
Dt	Ditch
DTOE	District Traffic Operations Engineer
E	
e	Superelevation Rate
E.P. or EOP	Edge Of Pavement
EA or Ea.	Each
EIA	Electronic Industries Alliance
El. or Elev.	Elevation
Embed.	Embedment
EPDM	Ethylene Propylene Diene Monomer
Eq.	Equation or Equal
Equip.	Equipment
etc.	Et Cetera (And So Forth)
ETP	Electronic Tough Pitch
Ex.	Example
Exist.	Existing
Exp.	Expansion
Ext.	Extension
F	
FAC	Florida Administrative Code
FC	Friction Course
Fdn.	Foundation
F.L. or ℄	Flow Line
Fl.	Florida
FDEP	Florida Department Of Environmental Protection
FDOT	Florida Department Of Transportation
FHWA	Federal Highway Administration
FIB	Florida-I Beam
F.S.	Florida Statutes
FS	Far Side
FSB	Florida Slab Beam
Ft.	Foot or Feet
FTP	Florida Traffic Plans
G	
G	Shear Modulus
g	Gram
Ga.	Gauge or Gage
Galv.	Galvanized
GFI	Ground Fault Interrupter
GFRP	Glass Fiber Reinforced Polymer
Grd.	Ground
H	
Hd.	Head
H.S., HS	High Strength
HDPE	High Density Polyethylene
Horiz.	Horizontal
HP	Horsepower or H-Pile
HSHV	High Strength Horizontal Vertical
I	
ID, I.D.	Inside Diameter or Identification
in.	Inch(es)
Inc.	Incorporated
Int.	Interior
Inv.	Invert
ITS	Intelligent Transportation Systems
J	
JCT	Junction
Jt.	Joint
K	
k	kip
kip	1000 Pounds
ksi	Kips Per Square Inch
kVA	Kilovolt Ampere
L	
L	Length
LA	Limited Access
lb or lbs.	Pound(s)
lb/sy	Pounds Per Square Yard
lbf	Pound force
LBR	Lime rock Bearing Ratio
LF	Linear Foot (Feet)
Lgth.	Length
Long.	Longitudinally or Longitudinal
LRFD	Load Resistance Factor Design
LRS	Low-Relaxation Strand
LS	Lump Sum
LSD	Lump Sum per Day
Lt.	Left

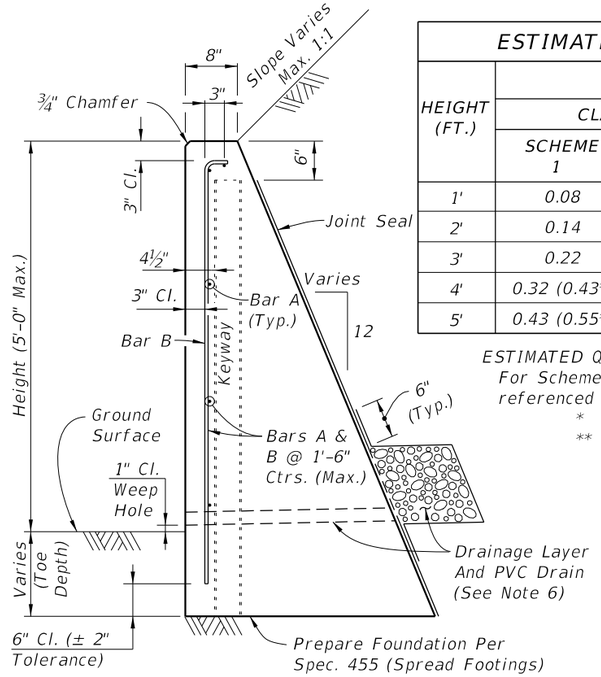
ABBREVIATIONS

FY 2021-22 STANDARD PLANS

Abbreviation	Meaning
M	
m	Meter
m²	Meter Square
Mach.	Machine
MAS	Motorist Awareness System
MASH	Manual for Assessing Safety Hardware (AASHTO)
Max.	Maximum
MES	Mitered End Section
M.H.	Manhole or Mounting Height
MHW	Mean High Water
Mid.	Middle
Mil or Mils	One-Thousandth Of An Inch
Min.	Minimum or Minute
Misc.	Miscellaneous
MLW	Mean Low Water
mm	Millimeter
Mod.	Modification
MOT	Maintenance Of Traffic
MPH or mph	Miles Per Hour
MUTCD	Manual On Uniform Traffic Control Devices
N	
N	Standard Penetration Number
NA or N/A	Not Available or Not Applicable
NC	Normal Crown
NCHRP	National Cooperative Highway Research Program
NDCBU	Neighborhood Delivery And Collection Box Unit
NEMA	National Electrical Manufacturers Association
NHW	Normal High Water
No.	Number
Nom.	Nominal
NPS	Nominal Pipe Size
NPT	National Pipe Thread
NS or N.S.	Near Side
NS	Non-Structural
NTS	Not To Scale
O	
O.C.	On Center
O to O or O.O.	Out to Out
O.B.G.	Optional Base Group
OD or O.D.	Outside Diameter
Oz.	Ounce
P	
Pavt.	Pavement
PBR	Pedestrian/Bicycle Railing
PC	Point Of Curvature
PCC	Plain Cement Concrete
pcf	Pounds per Cubic Foot
PCMS	Portable Changeable Message Sign
P.E. or PE	Professional Engineer
Pen.	Penetration
PPB	Pier Protection Barrier
PPP	Polypropylene pipe
Prest.	Prestressed
PRS	Portable Regulatory Sign
psf	Pounds Per Square Foot
PSI or psi	Pounds Per Square Inch
PT	Point of Tangency or Pressure Treated
PTFE	Polytetrafluoroethylene
PVC	Polyvinyl Chloride
Q	
Q	Flow Volume
Qty.	Quantity
R	
R or Rad.	Radius
Rt.	Right
R/W	Right Of Way
RC	Reverse Crown
RCP	Reinforced Concrete Pipe
Rd.	Road or Round
Rdwy.	Roadway
Rect.	Reticuline or Rectangular
Ref.	Reference
Reinf.	Reinforced or Reinforcement
Req. or Reqd.	Required
RGS	Rigid Galvanized Steel
RPM	Raised Pavement Markers
R/R or RR	Railroad
RSDU	Radar Speed Display Unit
RU	Rack Unit
RX	Receive
S	
S or s	Speed, Spacing or Second
Sch.	Schedule
SHBR	Special Height Bicycle Railing
Shldr.	Shoulder
SHW	Seasonal High Water
SIP	Stay In Place
SP	Superpave
Spa., Spcg. or Sp.	Space(ing)(s)
Spec.	Specification
sq	Square
Sq. Ft., SF, sf or S.F.	Square Foot
sq. in.	Square Inch
Sq. Yd., SY or S.Y.	Square Yard
SR	State Road
FSB	Florida Slab Beam
SS	Stainless Steel
St. or ST.	Street
Sta.	Station
Std.	Standard
Stg.	Strong
Stl.	Steel
SW	Skewed Angle
Swk.	Sidewalk
SYM	Symmetrical
T	
T or t	Thickness, Tangent Distance or Time
Tan	Tangent
T&G	Tongue and Groove
TCP	Traffic Control Plan(s)
TCZ	Traffic Control Zone
Temp.	Temperature or Temporary
Theo.	Theoretical
THW or THWN	Insulation (Flame Retardant, Moisture And Heat Resistant Thermoplastic)
TMA	Truck/Trailer Mounted Attenuator
TN	Ton
Trans.	Transition or Transverse
TTC	Temporary Traffic Control
TVSS	Transient Voltage Surge Suppression
TX	Transmit
Typ.	Typical
U	
UL	Underwriters Laboratories
UPS	Uninterruptible Power Supply
USPS	United States Postal Service
Util.	Utilities
UV	Ultraviolet
V	
Veh.	Vehicle
Vert.	Vertical
VPD or Vpd.	Vehicles Per Day
W	
W	Width or Wide
WT	Weight
WWM	Welded Wire Mesh
WWR	Welded Wire Reinforcing
Y	
Yd.	Yard
Yr.	Year



KEYWAY & WALL JOINT DETAIL
(TOP VIEW)



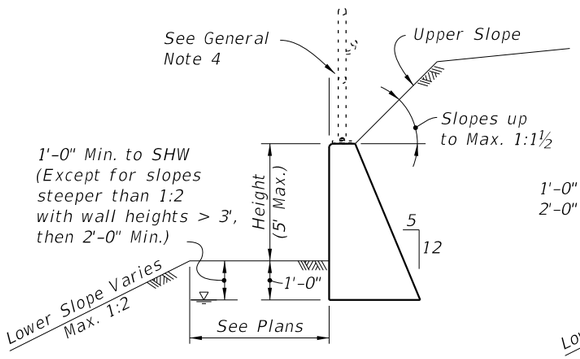
TYPICAL SECTION
C-I-P CONCRETE GRAVITY WALL

ESTIMATED QUANTITIES FOR C-I-P WALL					
HEIGHT (FT.)	PER LINEAR FOOT OF WALL				WEEP HOLES & DRAIN REQD.
	CLASS NS CONCRETE (CY)			REINF. STEEL (LB.)	
	SCHEME 1	SCHEME 2	SCHEME 3**		
1'	0.08	0.11 (0.20*)	0.03	3 (4*)	No
2'	0.14	0.20 (0.32*)	0.09	4 (5*)	No
3'	0.22	0.32 (0.47*)	0.29	5 (6*)	Yes
4'	0.32 (0.43*)	0.47 (0.65*)	0.43	6 (7*)	Yes
5'	0.43 (0.55*)	0.65 (0.85*)	0.60	7 (8*)	Yes

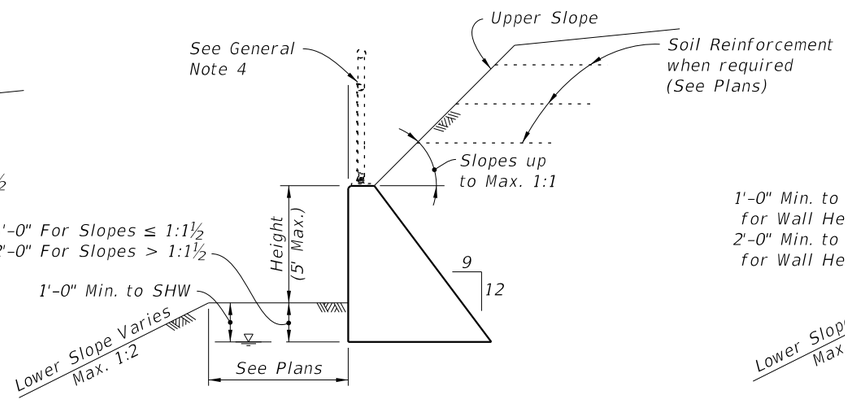
ESTIMATED QUANTITIES NOTES:
For Scheme 3 Junction Slab and Traffic Railing see the referenced Index for estimated quantities.
* Quantity for 2'-0" Toe Depth.
** Quantity for Scheme 3 assumes 1'-3" thick coping above Gravity Wall.

GENERAL NOTES

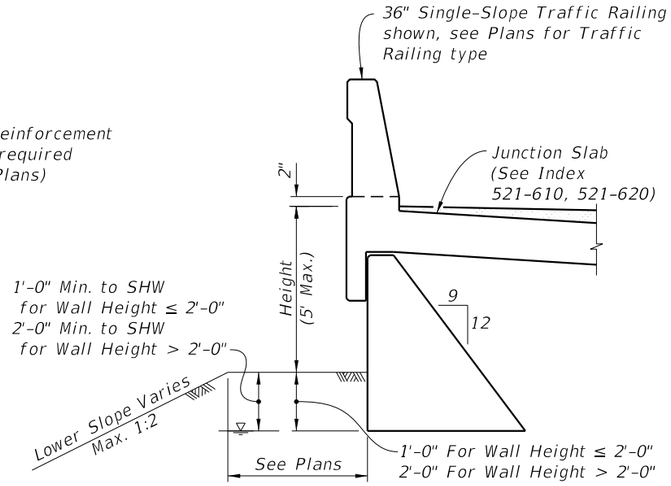
1. C-I-P Gravity Walls constructed as extensions of reinforced concrete retaining walls, except walls of proprietary designs, shall have the same face texture and finish as the reinforced concrete retaining wall.
2. Concrete for Gravity Wall shall be Class NS per Section 347. Concrete for Scheme 3 Junction Slab and Traffic Railing shall be Class II per Section 346, unless otherwise specified in the plans.
3. Reinforcing steel shall meet the requirements of Specification Section 931 (Grade 40 or 60). Smooth or Deformed Welded Wire Reinforcement (WWR) may be substituted on an equal area basis. Do not increase bar/wire spacing for Grade 60 reinforcing steel or WWR.
4. When required, for adjunct guiderail, see Index 515-070 or 515-080 as appropriate. For adjunct Type B fence see Index 550-002.
5. Joint Seal: Organic Felt bond breaker in accordance with Specification Section 400 or Type D-5 geotextile fabric in accordance with Specification Section 985. Mop all contact surfaces of concrete and Organic Felt or geotextile fabric with cut-back asphalt. Stop Organic Felt or geotextile fabric 6" below top of wall.
6. Provide a continuous 1'x1' clean gravel or crushed rock drain for wall heights 3 ft. and higher. Wrap drainage layer as shown, with Type D-3 geotextile fabric in accordance with Specification Section 985. Provide 8"x8" galvanized mesh with ¼" openings, at the inside end of the PVC Drain Pipe. Provide 2" Ø PVC Drain Pipe (Sch. 40) at 10 ft. max. spacing (when Drainage Layer is required). Locate outermost edge of Drain Pipe a minimum of 2'-0" from wall joints.
7. Cost of reinforcing steel, face texture, finish, joint seal, drain pipes, drainage layer, galvanized mesh and geotextile fabric to be included in the Contract Unit Price for Concrete Class NS, Gravity Wall. Cost of concrete for Junction Slab in Scheme 3, to be included in Contract Unit Price for Concrete Traffic Railing Barrier With Junction Slab. Adjunct railings or fences to be paid for separately.



SCHEME 1
(No Traffic Loading Effects & Upper Slopes ≤ 1:1½)



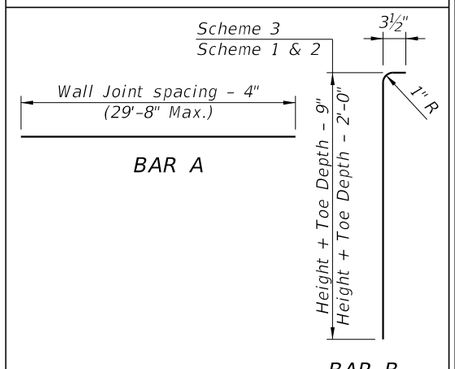
SCHEME 2
(With Traffic Loading or Upper Slopes > 1:1½)



SCHEME 3
(With Traffic Railing)

BILL OF REINFORCING STEEL		
MARK	SIZE	LENGTH
A	4	As Reqd.
B	4	As Reqd.

BAR BENDING DIAGRAM



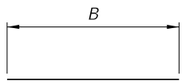
BAR A

BAR B

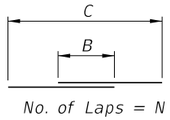
NOTES:
1. All bar dimensions are out to out.
2. Lap splices for Bars A must be a minimum of 1'-10".

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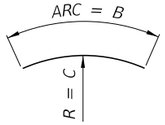
LAST REVISION	REVISION	DESCRIPTION:			
11/01/17			FDOT FY 2021-22 STANDARD PLANS	GRAVITY WALL	INDEX 400-011 / SHEET 1 of 1



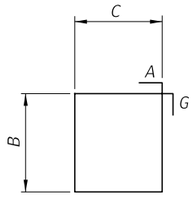
TYPE 1



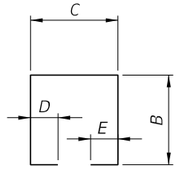
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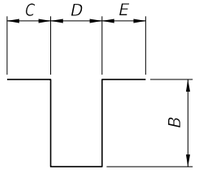
TYPE 3



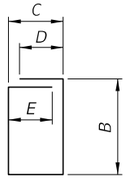
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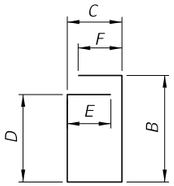
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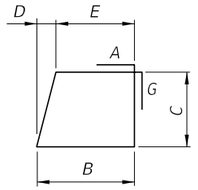
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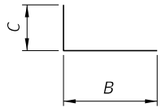
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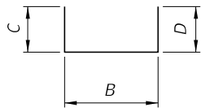
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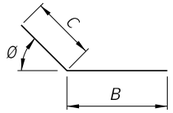
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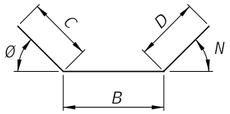
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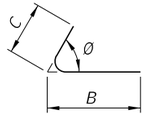
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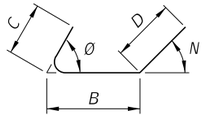
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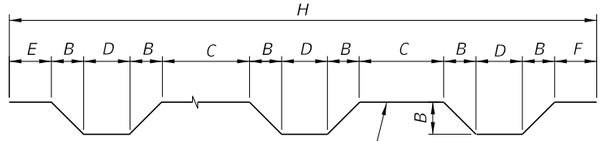
TYPE 13



TYPE 14

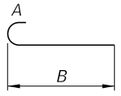


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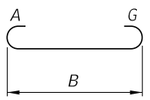


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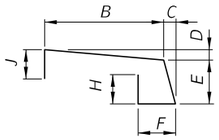
Number of Beams or Walls = N
Number of D's = N-1
Number of B's = 2N-2
Number of C's = N-2
45° Typical



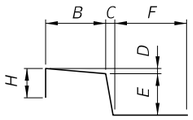
TYPE 17



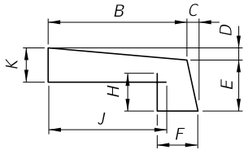
TYPE 18



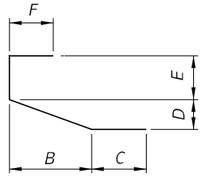
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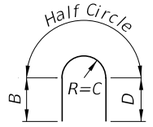
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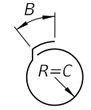
TYPE 21



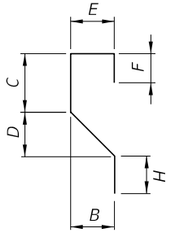
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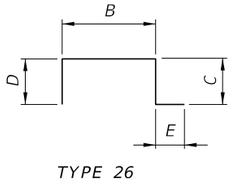
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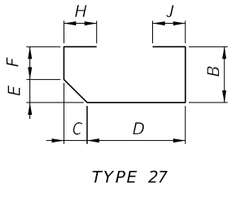
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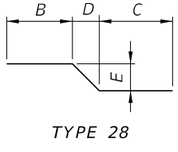
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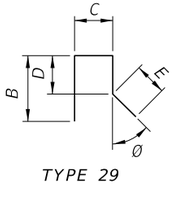
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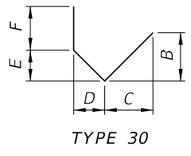
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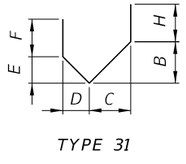
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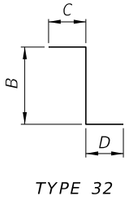
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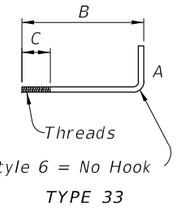
TYPE 30



TYPE 31

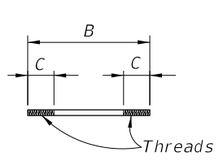


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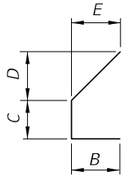


Style 6 = No Hook

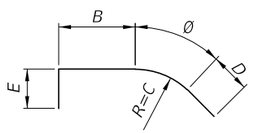
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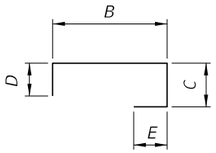
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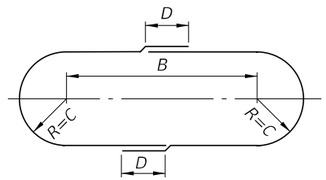
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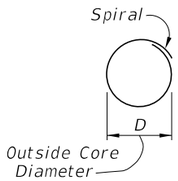
TYPE 36



TYPE 37



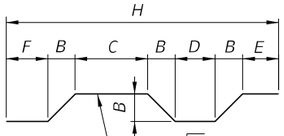
TYPE 38



TYPE 39

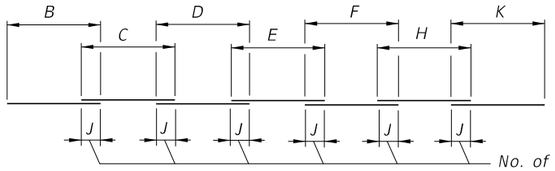
C = Pitch
B = Overall Height
N = Total number of closed turns at Top and Bottom of columns

Splices may be accomplished by lapping 1.5 turns. Cost of Channel Spacers and Splices shall be included in the Contract Unit Price for Reinf. Steel (Substructure)

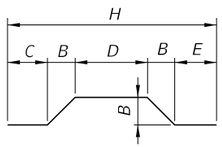


Number of Beams or Walls = N
Number of D's = N-1
Number of B's = 2N-1
Number of C's = N-1
45° Typical

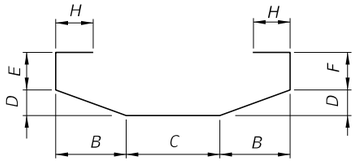
TYPE 40



TYPE 41

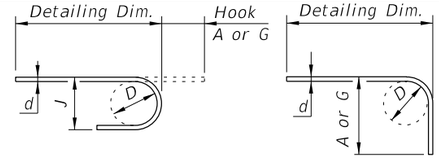


TYPE 42



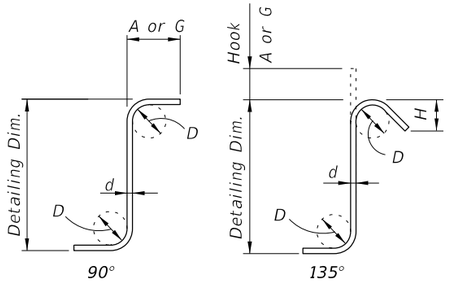
TYPE 43

HOOK DETAILS



180° 90°

BAR SIZE	D	180° HOOKS A OR G	180° HOOKS J	90° HOOKS A OR G
#3	2¼"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3¾"	7"	5"	10"
#6	4½"	8"	6"	1'-0"
#7	5¼"	10"	7"	1'-2"
#8	6"	11"	8"	1'-4"
#9	9½"	1'-3"	11¾"	1'-7"
#10	10¾"	1'-5"	1'-1¼"	1'-10"
#11	12"	1'-7"	1'-2¾"	2'-0"
#14	18¼"	2'-3"	1'-9¾"	2'-7"
#18	24"	3'-0"	2'-4½"	3'-5"
STYLE		1		3



90° 135°

STIRRUPS (TIES SIMILAR)

STIRRUP & TIE HOOK DIMENSIONS

BAR SIZE	D	90° HOOKS A or G	135° HOOKS A or G	135° HOOKS H *
#3	1½"	4"	4"	2½"
#4	2"	4½"	4½"	3"
#5	2½"	6"	5½"	3¾"
#6	4½"	1'-0"	8"	4½"
#7	5¼"	1'-2"	9"	5¼"
#8	6"	1'-4"	10½"	6"
STYLE		4	5	

STYLE 6 = NO HOOK

* Dimension is approximate.

Hook Styles Detailed on this sheet are for Illustration Only.

Actual Hook Style for any particular bar will be shown under A or G Heading on REINFORCING BAR LIST sheet(s) in Structures Plans.

All Dimensions are out-to-out.

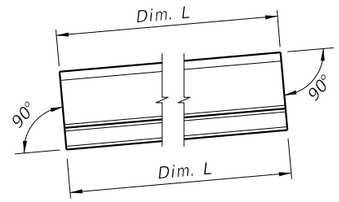
NOTE: For Bar Dimensions See REINFORCING BAR LIST Sheet(s) in Structures Plans.

10/8/2020 10:40:39 AM

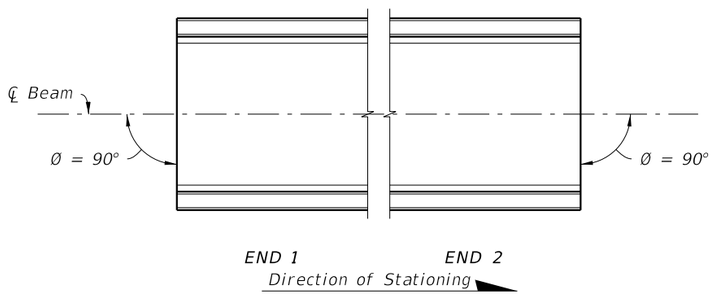
LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/20			FDOT FY 2021-22 STANDARD PLANS	BAR BENDING DETAILS (STEEL)	415-001	1 of 1

FABRICATION NOTES

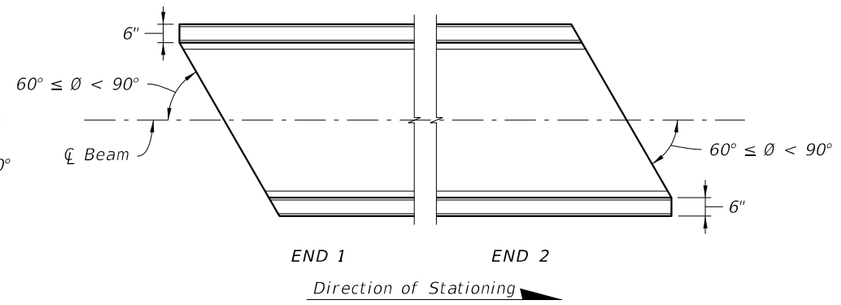
1. The abbreviated FSB designation for depth and width is FSB "depth" x "width", e.g. FSB 12 x 48.
2. All bar dimensions are out-to-out.
3. Strands N shall be ASTM A416, Grade 250 or 270, 3/8" Ø or larger strands, stressed to 10,000 lbs. each.
4. Unless otherwise noted, the minimum concrete cover for reinforcing steel shall be 2".
5. For referenced Dimensions, Angles and Case Numbers, see Florida Slab Beam – Table of Variables in Structures Plans.
6. Bars 4D1 & 6Y1 correspond to END 1, and 4D2 & 6Y2 correspond to END 2.
7. Bars 5E1 correspond to interior FSBs, and 5E2 correspond to exterior FSBs.
8. Rake the top surface of the Slab Beams transversely to provide a roughened surface with 1/4" amplitude.
9. Embedment of Safety Line Anchorage Devices are permitted to accommodate full protection systems. See shop drawings for details and spacings.



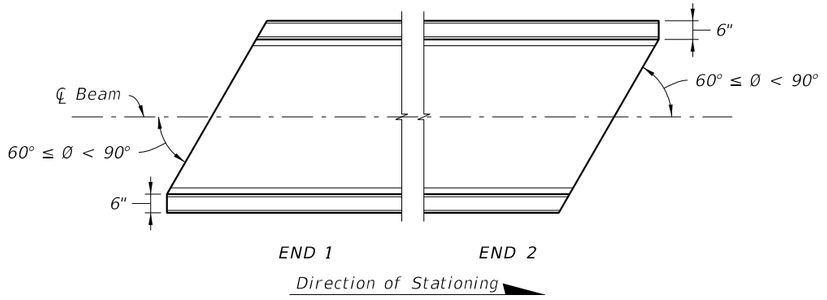
SCHEMATIC SIDE ELEVATION OF BEAM
(Beam on a Positive Grade shown; Beam on a Negative Grade or Horizontal Grade similar.)



CASE 1



CASE 2

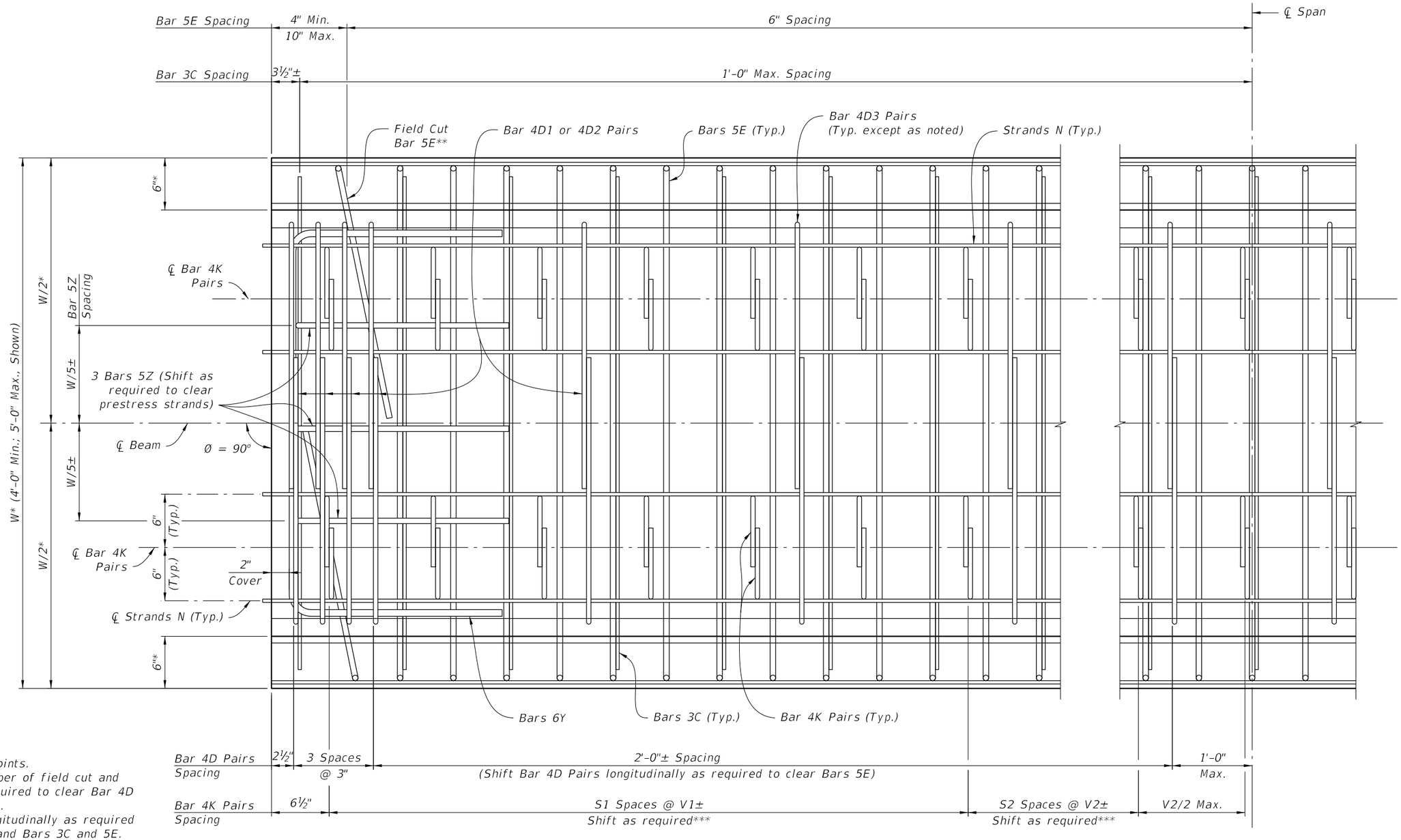


CASE 3

SCHEMATIC PLAN VIEWS AT BEAM ENDS

10:33:17 AM
10/8/2020

LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	FLORIDA SLAB BEAM TYPICAL DETAILS AND NOTES	INDEX	SHEET
11/01/20						450-450	1 of 3



* Measured to Working Points.

** At Beam ends, use number of field cut and rotated Bars 5E as required to clear Bar 4D Pairs and Bar 4K Pairs.

*** Shift Bar 4K Pairs longitudinally as required to clear Bar 4D Pairs and Bars 3C and 5E.

CROSS REFERENCE:

For Dimensions V1, V2 & W and number of spaces S1 & S2, see Florida Slab Beam – Table of Variables in Structures Plans.

See Indexes 450-451, 450-452 and 450-453 for Bars 5E Details.

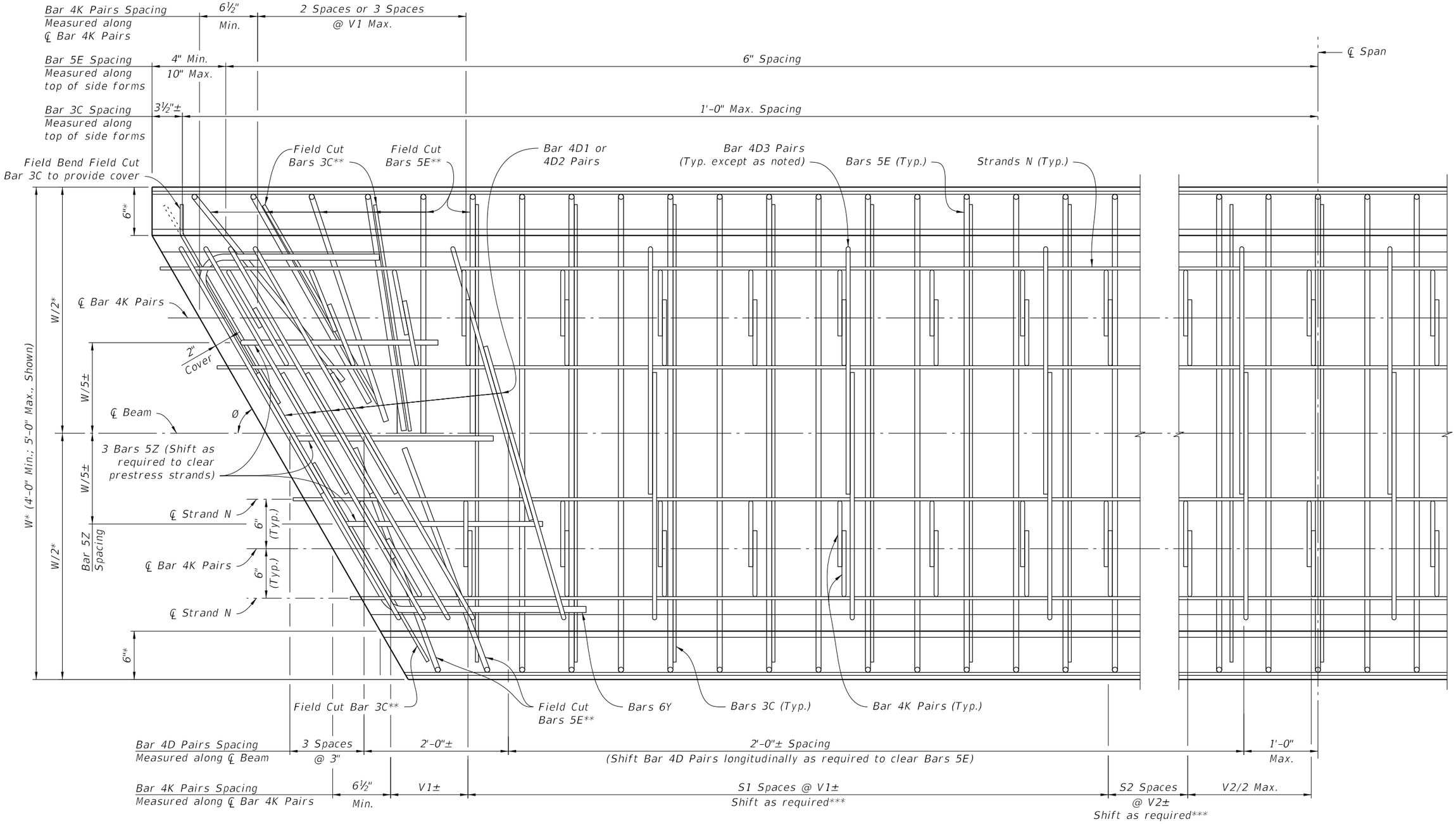
PARTIAL PLAN VIEW Ø = 90°

(END 1 SHOWN, END 2 SIMILAR)

(INTERIOR BEAM SHOWN, EXTERIOR BEAM SIMILAR, SEE BARS 5E DETAILS)

10/8/2020 10:33:19 AM

LAST REVISION	REVISION	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	FLORIDA SLAB BEAM TYPICAL DETAILS AND NOTES	INDEX	SHEET
11/01/20					450-450	2 of 3



PARTIAL PLAN VIEW 60° ≤ Ø < 90°
(END 1 SHOWN, END 2 SIMILAR)
(INTERIOR BEAM SHOWN, EXTERIOR BEAM SIMILAR, SEE BARS 5E DETAILS)

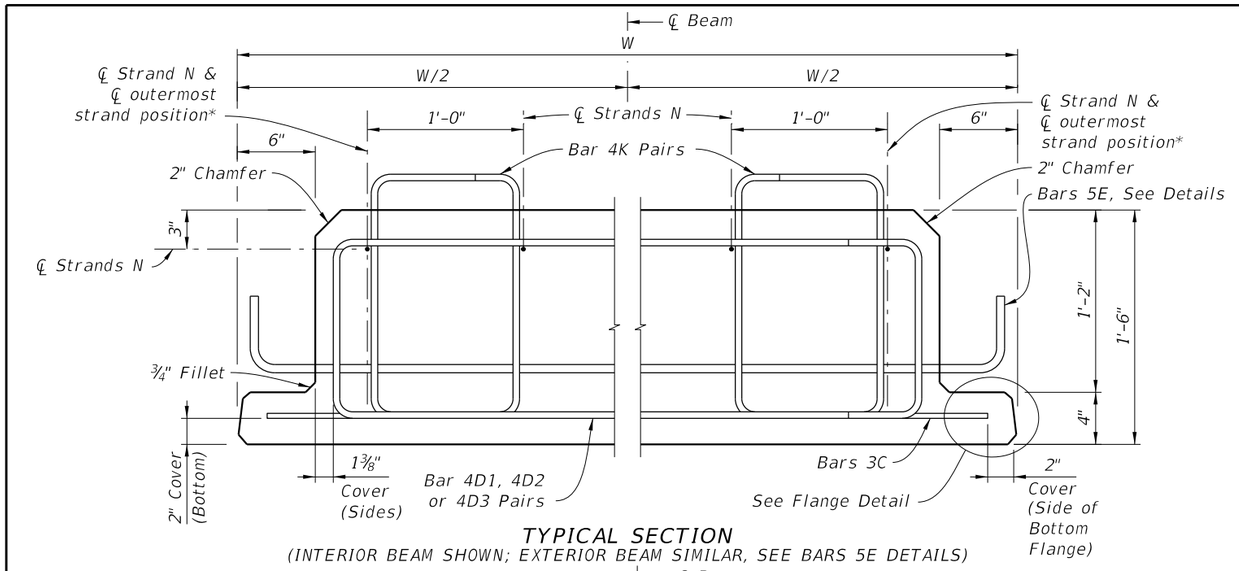
* Measured to Working Points.
** At Beam ends, use number of field cut and rotated Bars 3C and 5E as required to clear Bar 4D Pairs and Bar 4K Pairs.
*** Shift Bar 4K Pairs longitudinally as required to clear Bar 4D Pairs and Bars 3C and 5E.

CROSS REFERENCE:
For Dimensions V1, V2 & W, Angle Ø and number of spaces S1 & S2, see Florida Slab Beam – Table of Variables in Structures Plans.

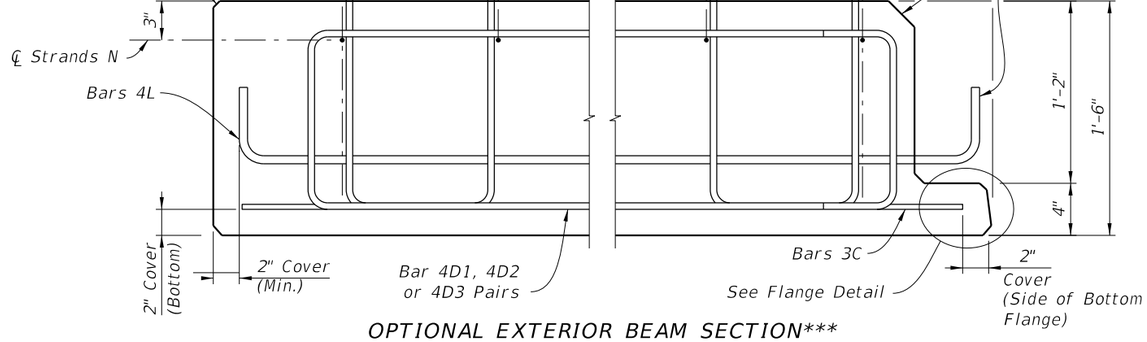
See Indexes 450-451, 450-452 and 450-453 for Bars 5E Details.

10/8/2020 10:33:20 AM

LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/20			FY 2021-22 STANDARD PLANS	FLORIDA SLAB BEAM TYPICAL DETAILS AND NOTES	450-450	3 of 3



TYPICAL SECTION
(INTERIOR BEAM SHOWN; EXTERIOR BEAM SIMILAR, SEE BARS 5E DETAILS)

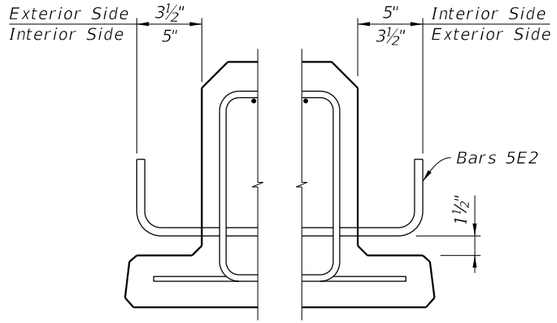


OPTIONAL EXTERIOR BEAM SECTION***

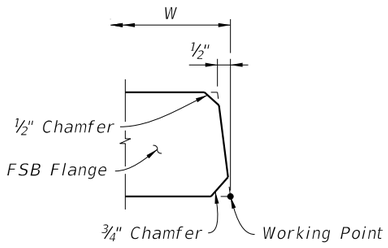
NOTES:
Work this Index with Index 450-450 and Florida Slab Beams – Table of Variables in Structures Plans.
For Dimensions C, D, E, L, R, W & Y and Angle Ø, see Florida Slab Beam – Table of Variables in Structures Plans.
For referenced notes, see Index 450-450, Sheet 1.

* For ℄ of outermost strand positions, see corresponding Strand Pattern on Florida Slab Beams – Table of Variables in Structures Plans.

** At the Contractor's option, the Detail as shown for Interior Beams may be used for Exterior Beams and the Bars 5E field bent on the exterior side of the Beam to provide the specified cover to the coping line.

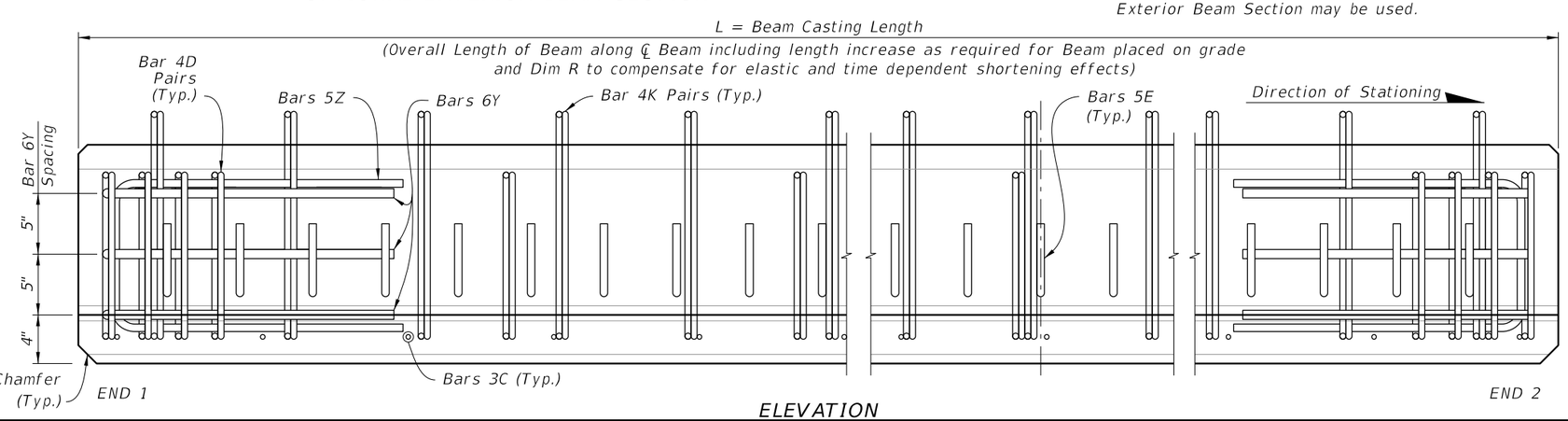


EXTERIOR BEAMS**



FLANGE DETAIL
(TYPICAL BOTH SIDES OF FSB)

*** At the Contractor's option, the Optional Exterior Beam Section may be used.

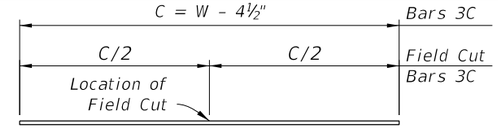


ELEVATION

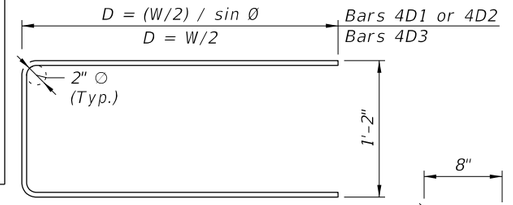
BILL OF REINFORCING STEEL
FOR ONE BEAM ONLY

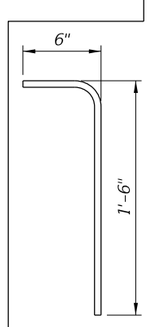
MARK	SIZE	NOTE NUMBERS	NUMBER REQUIRED	LENGTH (NOTE 1)
C	3		See Table	Varies
D1	4	6	10 (End 1)	Varies
D2	4	6	10 (End 2)	Varies
D3	4		See Table	Varies
E1	5	7	See Table	Varies
E2	5	7	See Table	Varies
K	4		See Table	2'-11"
N	See Note 3	3	4	Varies
Y1	6	6	3 (End 1)	Varies
Y2	6	6	3 (End 2)	Varies
Z	5		6	5'-0½"

BENDING DIAGRAMS (See Note 1)

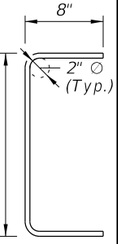


BARS 3C

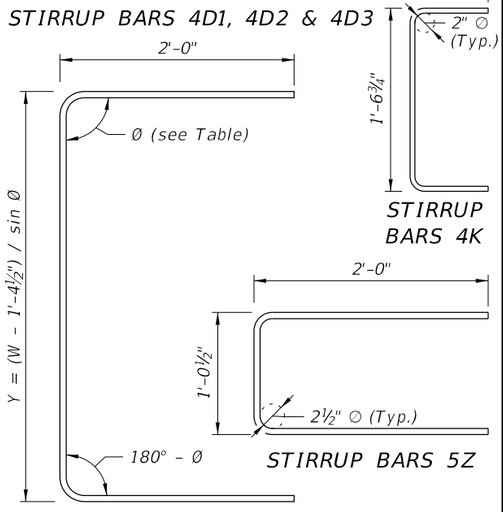




BARS 4L



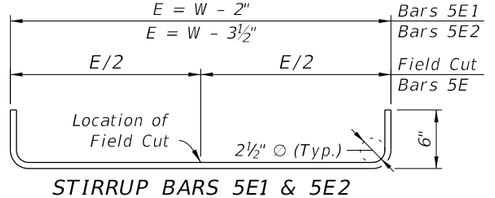
STIRRUP BARS 4D1, 4D2 & 4D3



BARS 6Y1 & 6Y2

STIRRUP BARS 4K

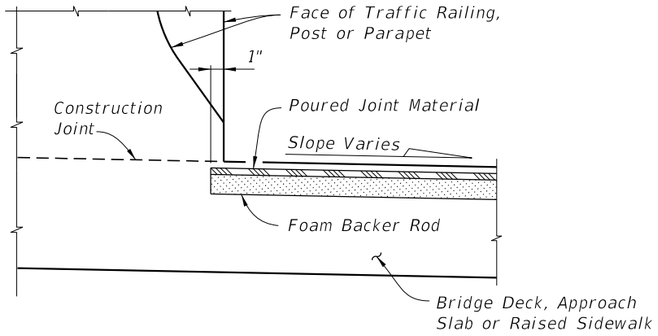
STIRRUP BARS 5Z



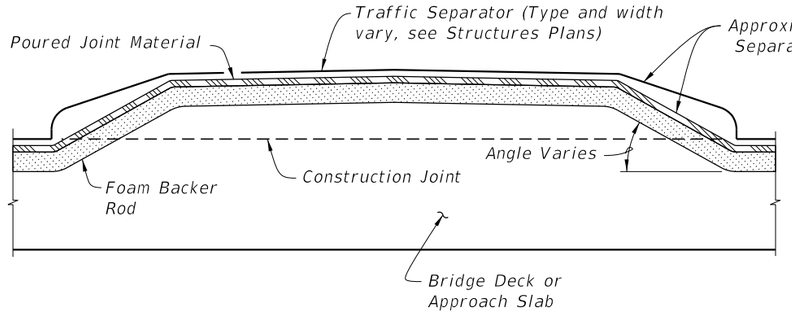
STIRRUP BARS 5E1 & 5E2

LAST REVISION	REVISION	DESCRIPTION:			
11/01/20			FY 2021-22 STANDARD PLANS	18" FLORIDA SLAB BEAM	INDEX 450-453 / SHEET 1 of 1

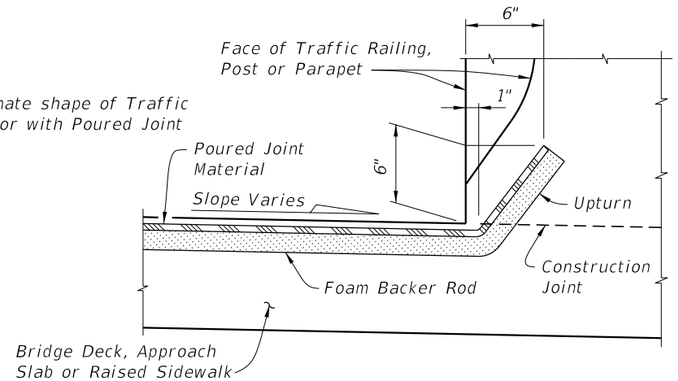
10/8/2020 10:32:17 AM



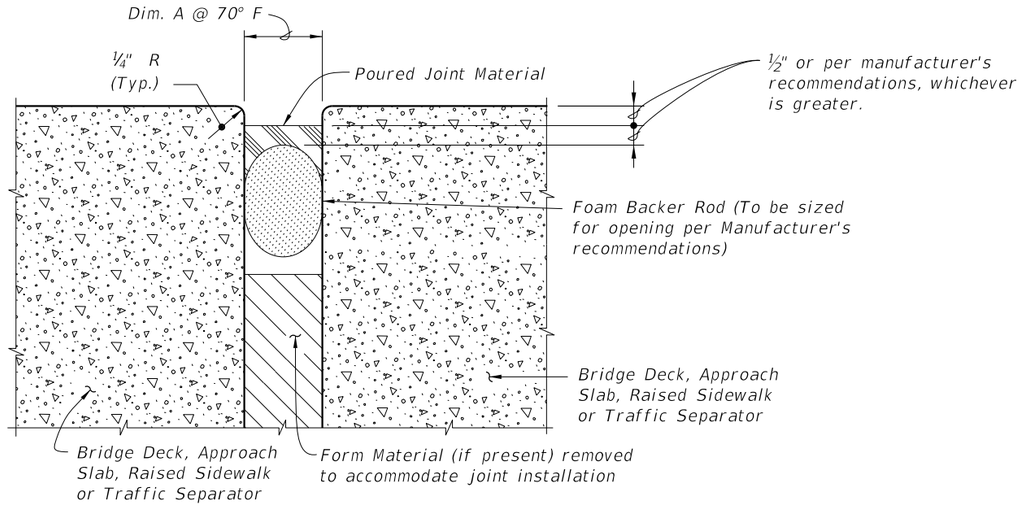
PARTIAL SECTION ALONG ℄ JOINT
JOINT TREATMENT AT HIGH SIDE OF
DECK WITH SLOPES 1% OR GREATER



PARTIAL SECTION ALONG ℄ JOINT,
JOINT TREATMENT AT TRAFFIC SEPARATOR



PARTIAL SECTION ALONG ℄ JOINT
JOINT TREATMENT AT LOW SIDE OF DECK OR
HIGH SIDE OF DECK WITH SLOPES < 1%



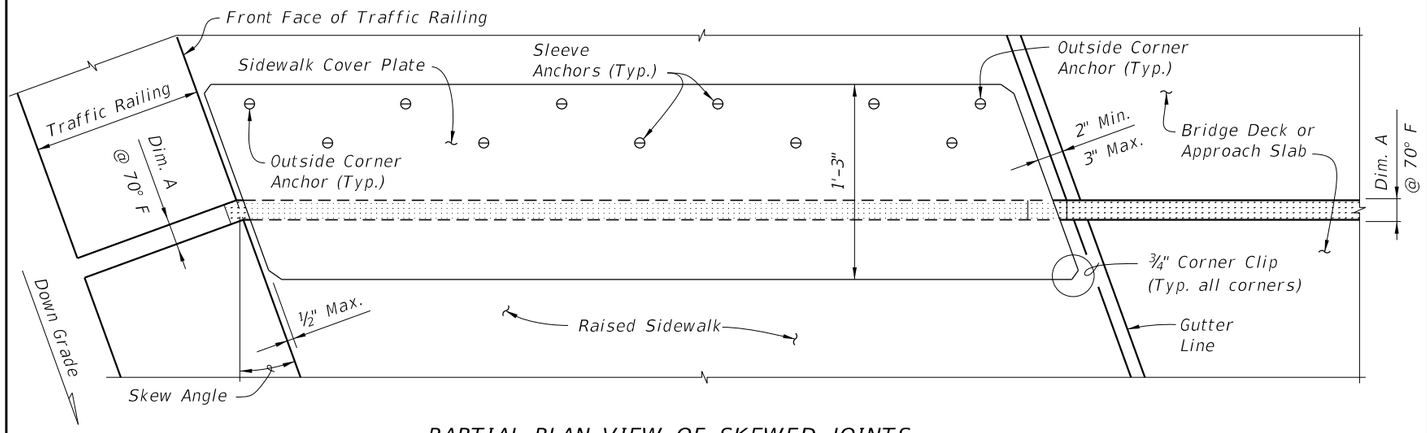
TYPICAL SECTION THRU JOINT

GENERAL NOTES:

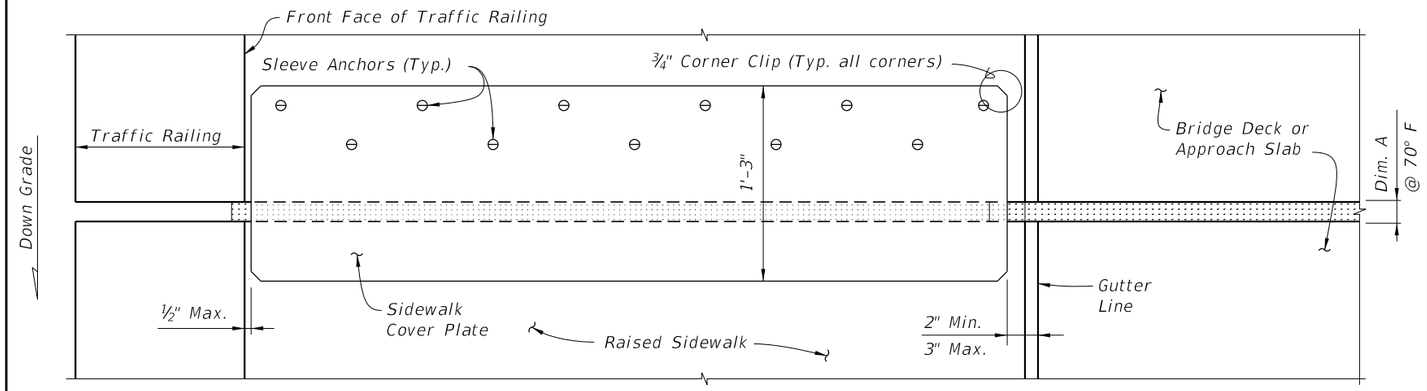
1. Furnish and install Poured Joint With Backer Rod Expansion Joint Systems in accordance with Specification Sections 458 and 932 using Type D silicone sealant material.
2. Refer to the Structures Plans, Poured Expansion Joint Data Table for Dim. A @ 70° F.

10/8/2020 10:23:12 AM

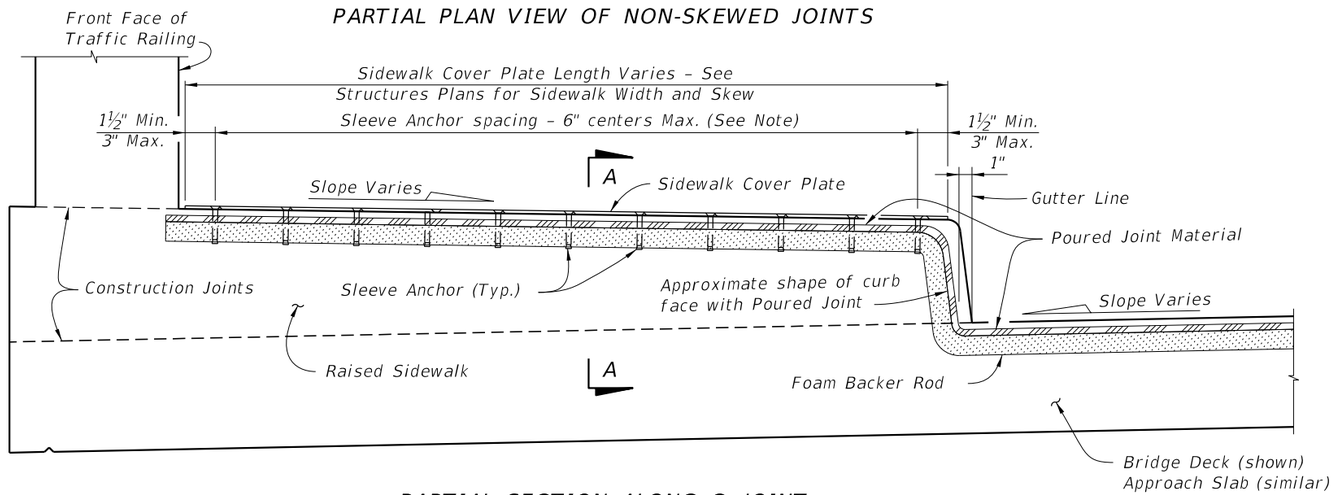
LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	EXPANSION JOINT SYSTEM - POURED JOINT WITH BACKER ROD	INDEX	SHEET
07/01/14						458-110	1 of 2



PARTIAL PLAN VIEW OF SKEWED JOINTS

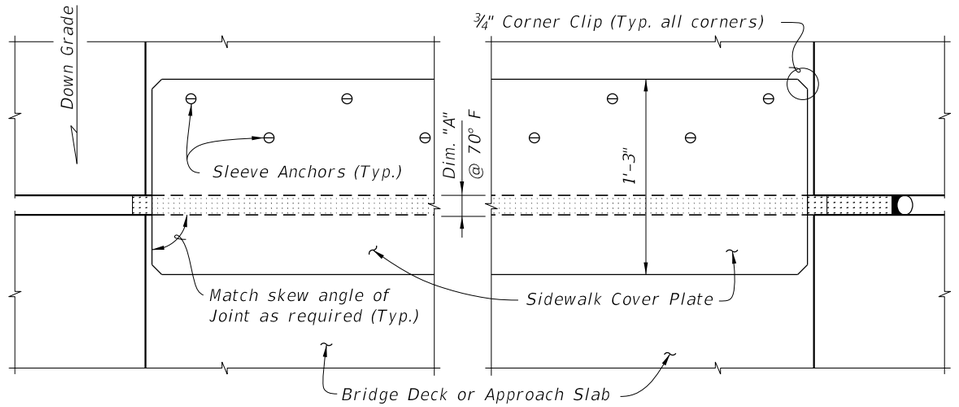


PARTIAL PLAN VIEW OF NON-SKEWED JOINTS

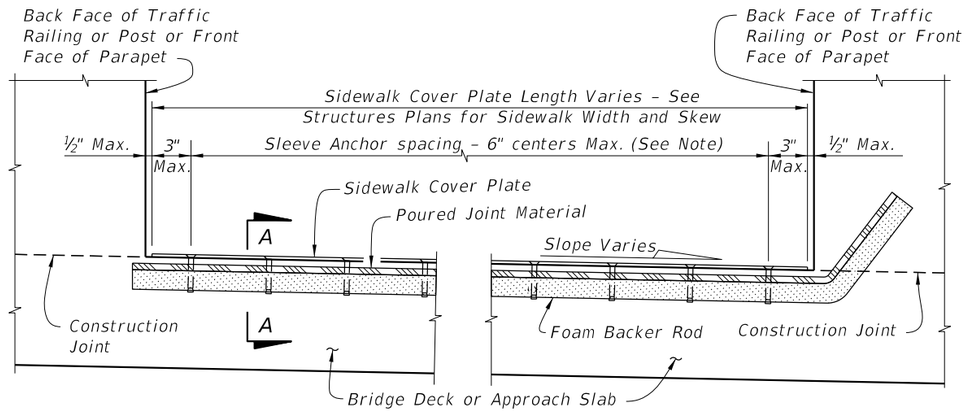


PARTIAL SECTION ALONG ℄ JOINT

RAISED SIDEWALK DETAIL

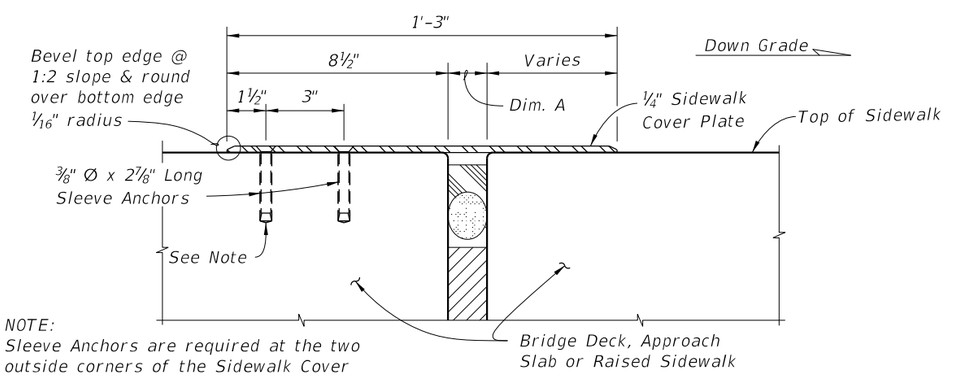


PARTIAL PLAN VIEW



PARTIAL SECTION ALONG ℄ JOINT

FLUSH SIDEWALK DETAIL



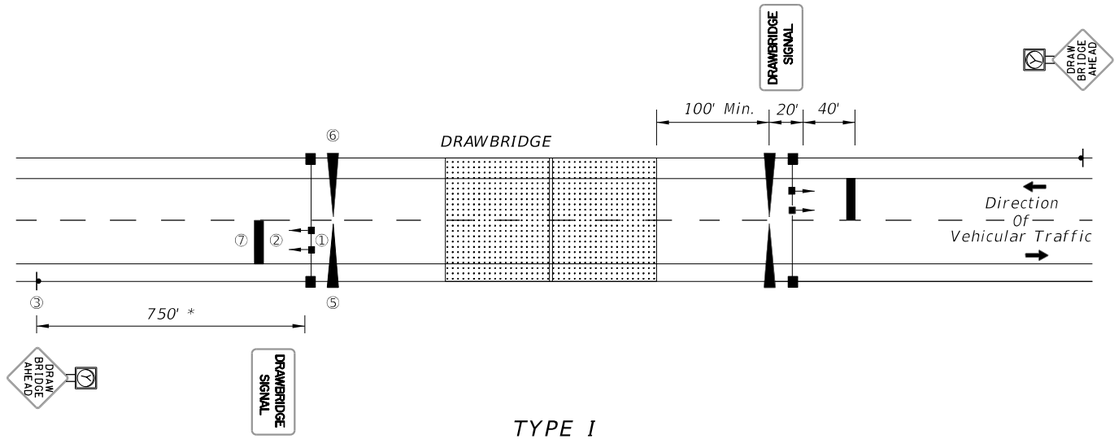
NOTE:
Sleeve Anchors are required at the two outside corners of the Sidewalk Cover Plate. Space Sleeve Anchors uniformly between the corner anchors.

SECTION A-A

10/8/2020 10:23:15 AM

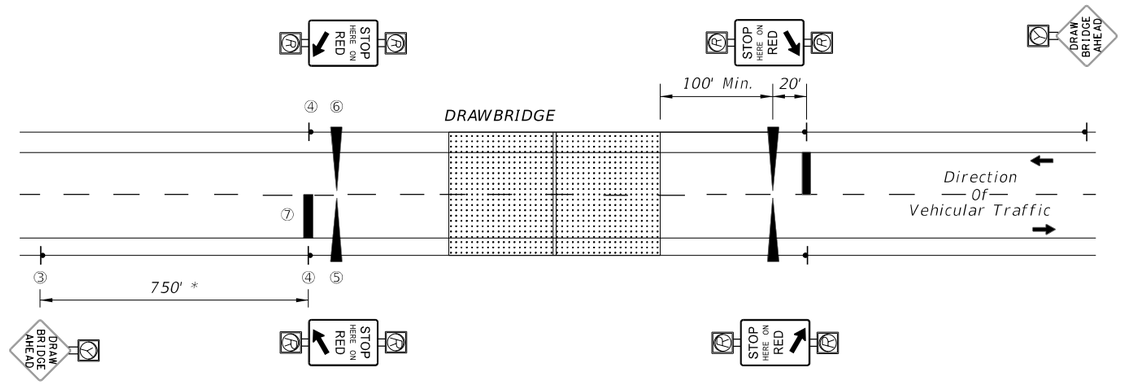
LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
07/01/13			FY 2021-22 STANDARD PLANS	EXPANSION JOINT SYSTEM - POURED JOINT WITH BACKER ROD	458-110	2 of 2

TYPICAL BRIDGE MOUNTS



TYPE I

TO BE USED WHERE BRIDGE OPERATORS ARE FULL TIME OR A DAILY BASIS.



TYPE II

TO BE USED WHERE TYPE I IS NOT APPLICABLE (USUALLY WHEN THE BRIDGE OPERATOR IS "ON CALL").

LEGEND:

① TRAFFIC SIGNALS } Mast Arm Mounted (Off Bridge)
② DRAWBRIDGE SIGN } Monotube Support Mounted (On Bridge)
③ DRAWBRIDGE AHEAD SIGN WITH YELLOW FLASHING BEACON } Ground Mounted
④ STOP HERE ON RED SIGN WITH RED FLASHING BEACONS } Ground Mounted
⑤ ENTRANCE GATE
⑥ EXIT GATE
⑦ 24" THERMOPLASTIC STOP BAR



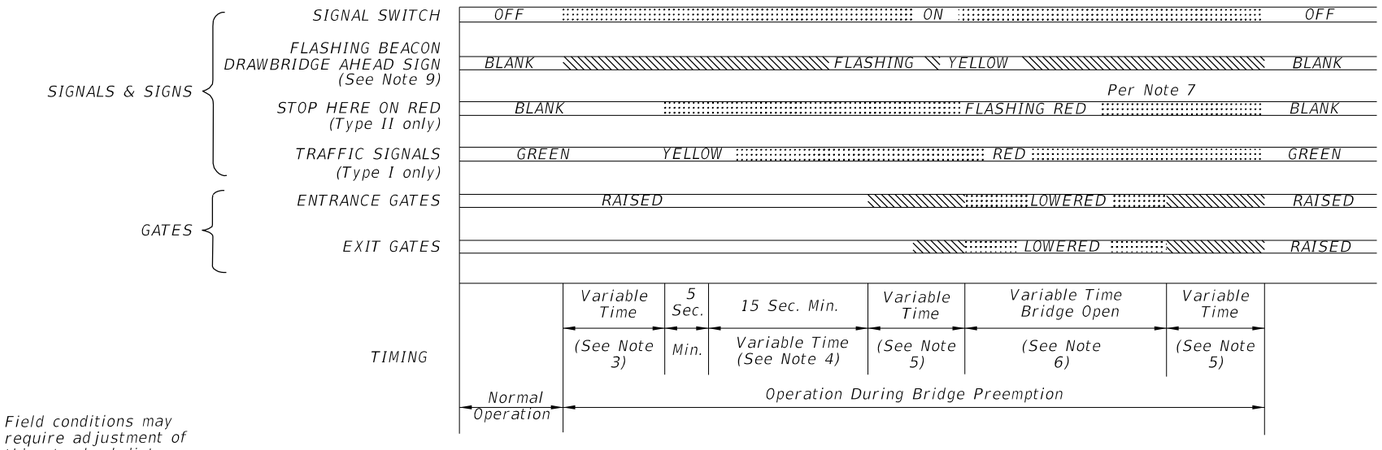
W8-5
SLIPPERY WHEN WET SIGN
See Note 11

NOTES:

1. A bypass switch shall be installed to override each timing interval in case of a malfunction.
2. "STOP HERE ON RED" is omitted in Type I operation and "TRAFFIC SIGNALS" are omitted in Type II operation.
3. The time between beginning of flashing yellow on "Drawbridge Ahead" sign and the clearance of traffic signal to red, or beginning of flashing red should not be less than the travel time of a passenger car, from the sign location to the stop line, traveling at the 85 percentile approach speed.
4. Beginning of operation of drawbridge gates shall not be less than 15 seconds after steady red or 20 seconds after flashing red (Actual time may be determined by the bridge tender.)
5. Time of gate lowering and raising is dependent upon gate type.
6. Time of bridge opening is determined by the bridge tender.
7. Each gate shall be operated by a separate switch.
8. On each approach (Type II), all four red signals shall be on the same two circuit flashers, with the two top signals on one circuit, and the two bottom signals on the alternately flashing circuit.
9. A Drawbridge Ahead sign is required for both types of signal operation, However a flashing beacon shall be added to the sign when physical conditions prevent a driver traveling at the 85% approach speed from having continuous view of at least one signal indication for approximately 10 seconds.
10. Requirements on gate installation are contained in Section 4I of the "Manual on Uniform Traffic Control Devices".
11. "In accordance with Traffic Engineering Manual (Topic Number 750-000-005) Section 2.1, SLIPPERY WHEN WET SIGNS shall be placed in advance of all MOVABLE and NONMOVABLE STEEL DECK BRIDGES."

* Field conditions may require adjustment of this standard distance.

SEQUENCE CHART



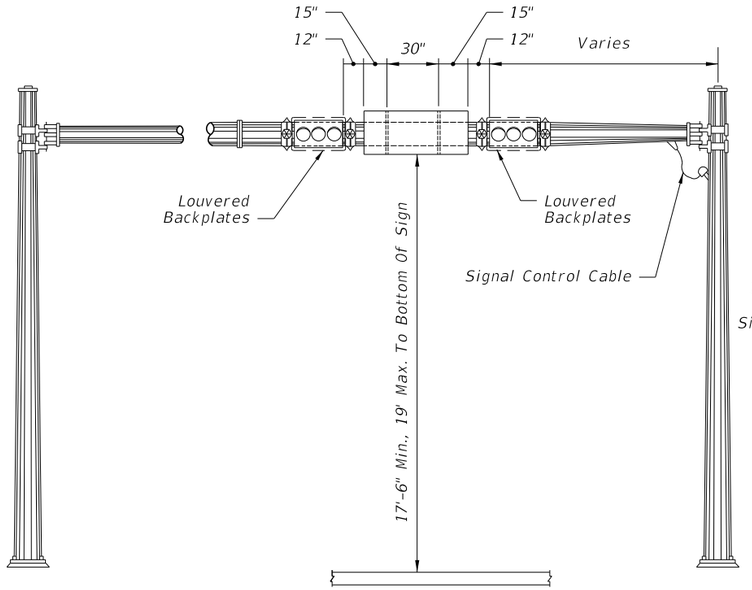


FIGURE - A

MONOTUBE SUPPORT MOUNTING

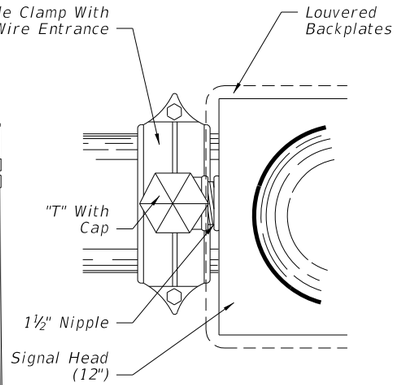


FIGURE - C

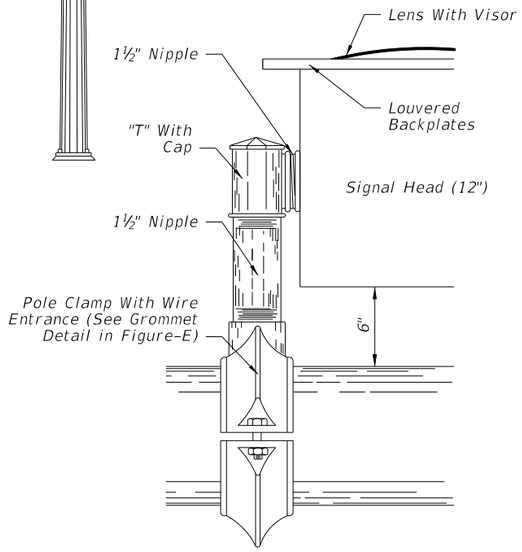


FIGURE - D

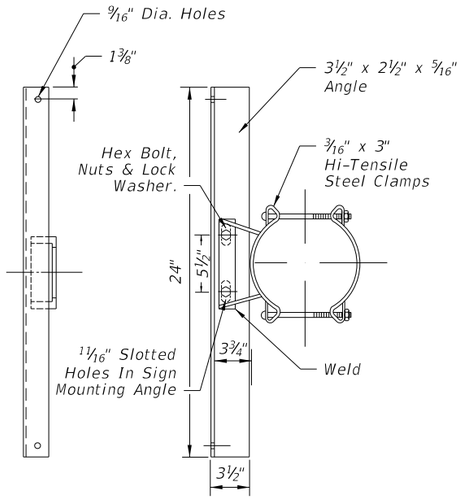


FIGURE - B

SIGN PANEL MOUNTING ASSEMBLY

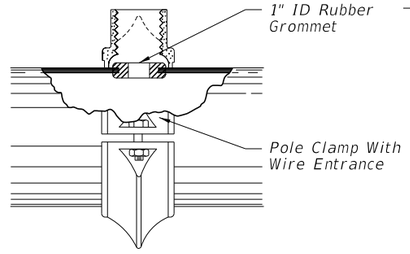


FIGURE - E

SIGNAL HEAD MOUNTING ASSEMBLY

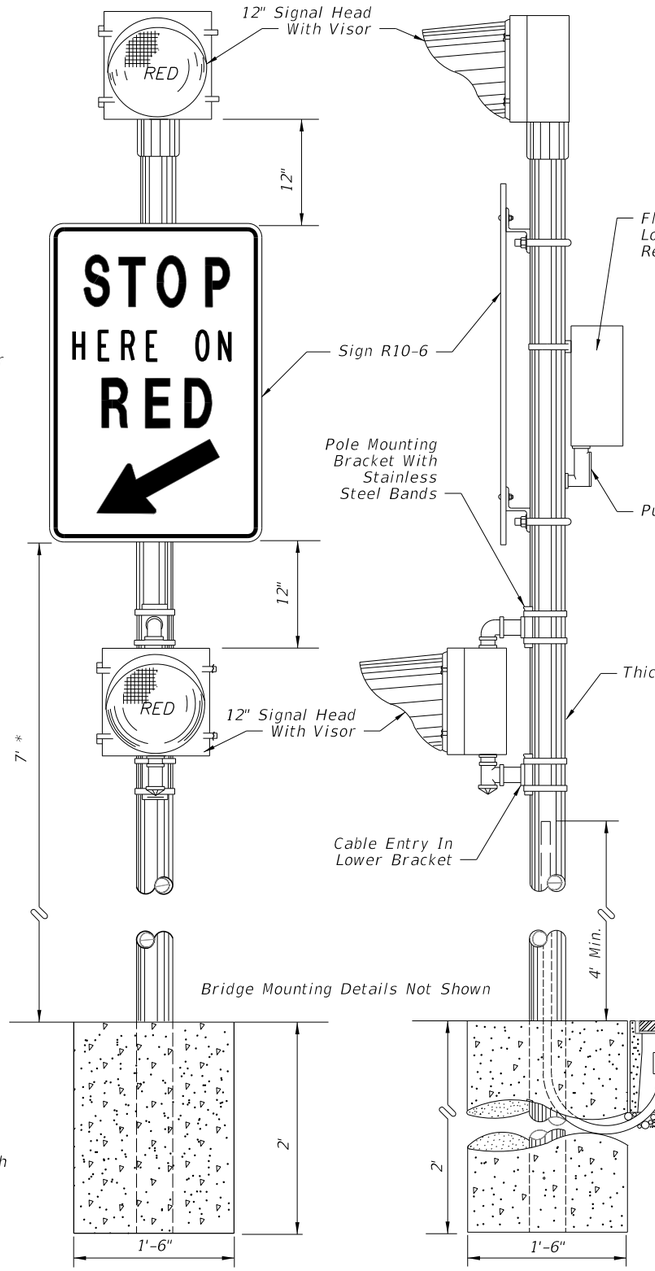


FIGURE - F

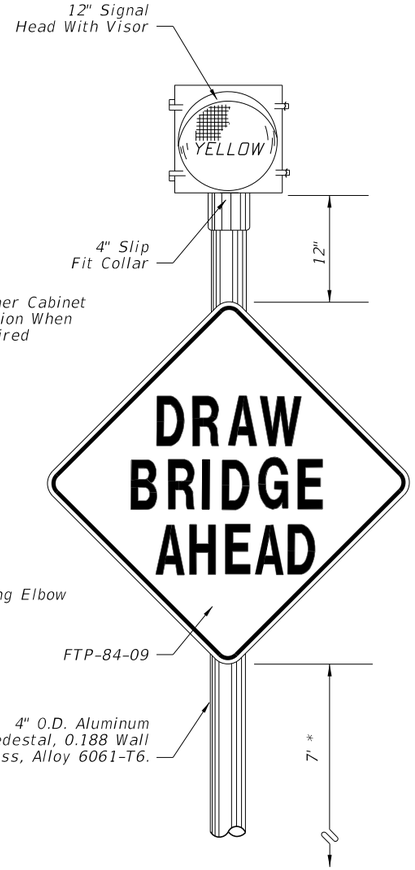
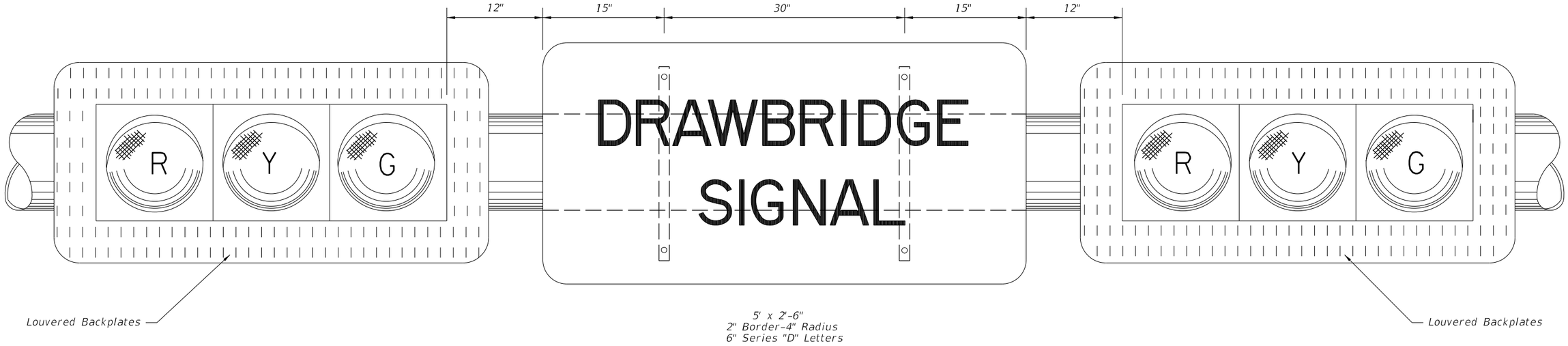


FIGURE - G

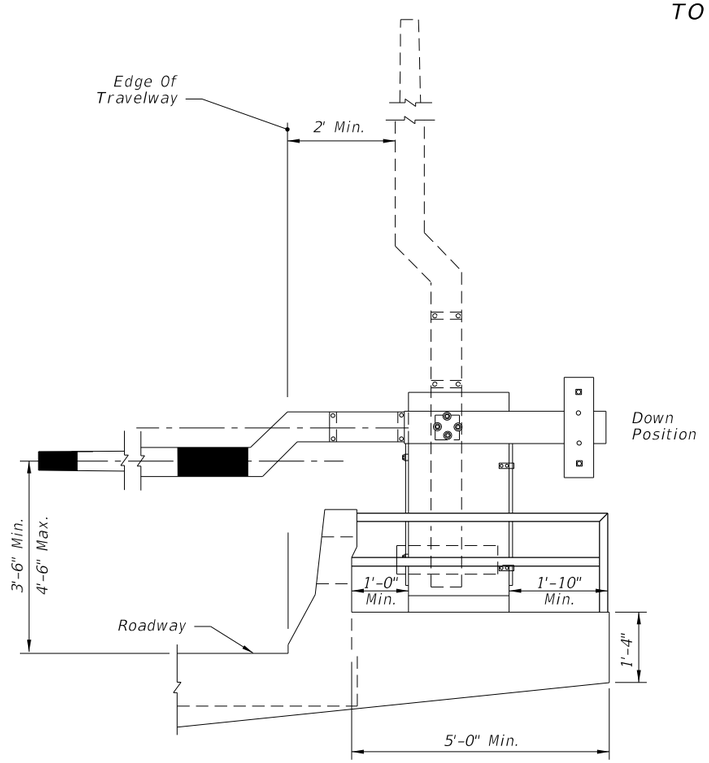
* Measured from the bottom of the sign to the near edge of the pavement. Horizontal distance between edge of the pavement and inside edge of sign will vary with condition at job site.

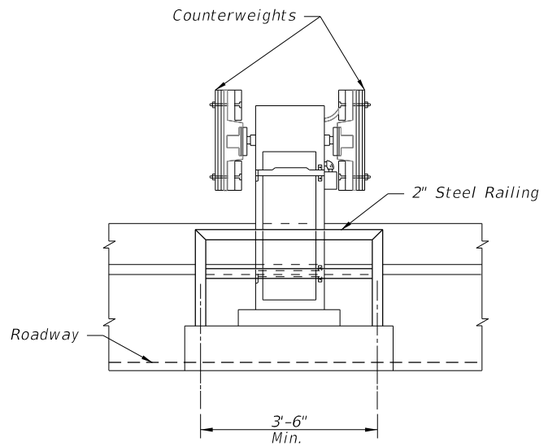
10/12/2020 7:28:10 AM

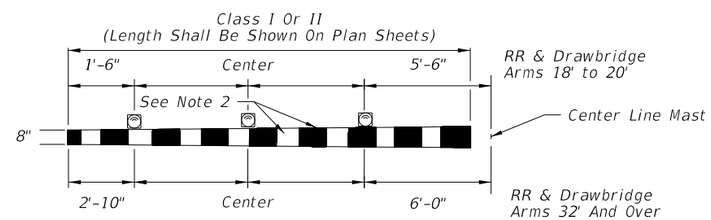
LAST REVISION	REVISION	DESCRIPTION:				
11/01/17			FDOT	FY 2021-22 STANDARD PLANS	TRAFFIC CONTROL DEVICES FOR MOVABLE SPAN BRIDGE SIGNALS	INDEX 508-T01 / SHEET 2 of 3



BLACK OPAQUE LEGEND AND BORDER ON REFLECTORIZED YELLOW BACKGROUND TO BE USED WITH TYPE I OPERATION, AS SHOWN ON PREVIOUS SHEET MONOTUBE SUPPORT MOUNTING







NOTES:

1. 12 volt flashing red lights shall be mounted on gate arm and shall operate in the flashing mode only when gate arm is in the lower position or in the process of being lowered. The number of lights shall vary accordingly to length of the gate arm.
2. Alternating 16" pattern of fully reflectorized red and white stripes.

GATE & ARM DETAIL

TYPICAL LAMP PLACEMENT

10/12/2020 7:28:13 AM

LAST REVISION	REVISION	DESCRIPTION:				
11/01/17			FDOT FY 2021-22 STANDARD PLANS	TRAFFIC CONTROL DEVICES FOR MOVABLE SPAN BRIDGE SIGNALS	INDEX 508-T01	SHEET 3 of 3

NOTES:

1. Shop Drawings are required.

2. Work with Specification 515.

3. Materials:

   A. Pan Head Set Screws: Aluminum Alloy 2024-74 or 7075-T73 or Stainless Steel (SS) Type 316 or 18-8 Alloy.

   B. Base Plates and Cap Plates: ASTM B209, Alloy 6061-T6

   C. Structural Pipe Tube and Bars: ASTM B221 or ASTM B429, Alloy 6061-T6

   D. End Rails 90° bends and corner bends with a maximum 4 foot spacing: Alloy 6063-T5 is permitted.

RAILING MEMBER DIMENSIONS TABLE			
MEMBER	DESIGNATION	OUTSIDE DIMENSION	WALL THICKNESS
Posts	2" NPS (Sch. 40)	2.375"	0.154"
Rails	2" NPS (Sch. 40)	2.375"	0.154"
Rail Joint/Splice Sleeves	1½" NPS (Sch. 40)	1.900"	0.145"
Handrails Joint/Splice Sleeves	1" NPS (Sch. 40) 1.50 ODx0.125 Wall	1.315" 1.500"	0.133" 0.125"
Handrails	1½" NPS (Sch. 40)	1.900"	0.145"
Handrail Support Bar	1" Ø Round Bar	1.000"	N/A

   E. Galvanized Steel Fasteners:
      a. Hex Head Bolts: ASTM A 307 Type 1 or ASTM F1554 Grade 36
      b. Adhesive Anchors: ASTM F1554 Grade 36 fully threaded rods
      c. Hex Nuts: ASTM A563
      d. Flat Washers: ASTM F436

   F. Aluminum Shims: ASTM B209, Alloy 6061

   G. Bearing Pads: Plain, Fabric Reinforced, or Fabric Laminated meeting requirements of Specifications 515 & 932.

4. Fabrication:

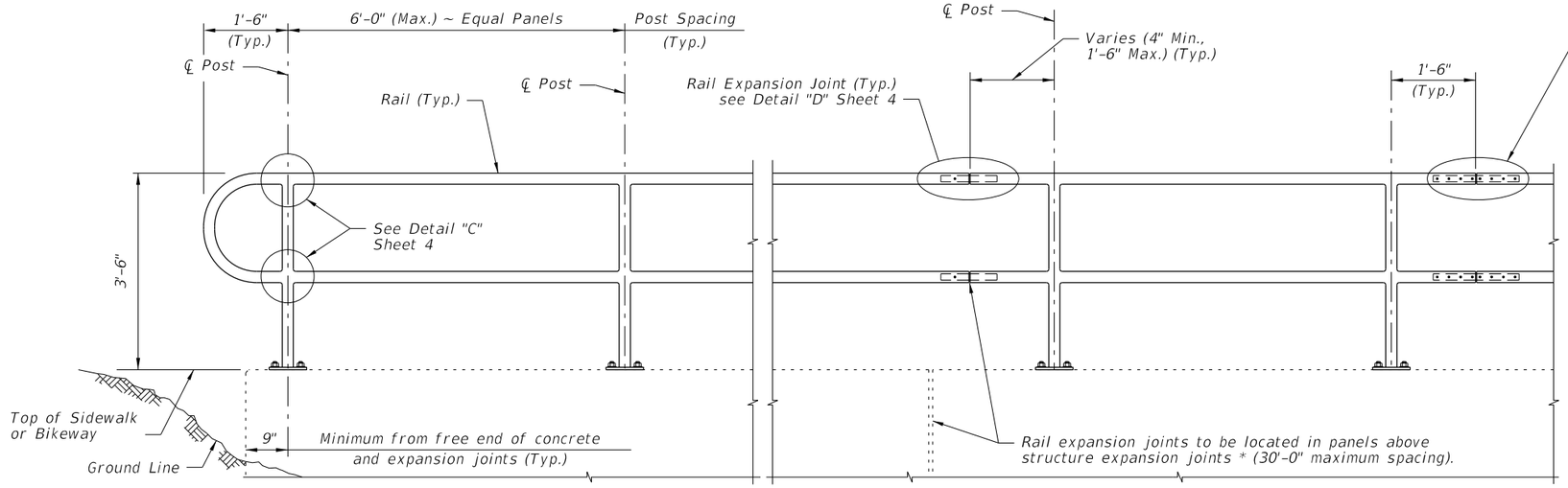
   A. Place expansion joints at a maximum of 30'-0"spacing
   B. Field splices are similar to the expansion joint detail and may be approved by the Engineer to facilitate handling; but top rail must be continuous across a minimum of two posts.
   C. Continuity field splice (Detail "E"); only use to make the railing continuous for unforeseen field adjustments
   D. Corners and changes in tangential longitudinal alignment may be made continuous with a 9" bend radius or terminated at adjoining sections with a standard end hoop when handrails are not required.
   E. For curved longitudinal alignments, shop bend top and bottom rails and handrails to match the alignment radius.
   F. For changes in tangential longitudinal alignment greater than 45°, position posts a maximum of 2'-0" each side of the corner, not at the corner apex.

5. Handrails are required and must be continuous at landings for:

   A. Grades Steeper than 5%
   B. Three or more steps

6. Cutting of reinforcing steel is permitted for post installed anchor bolts.

10/12/2020 7:30:51 AM



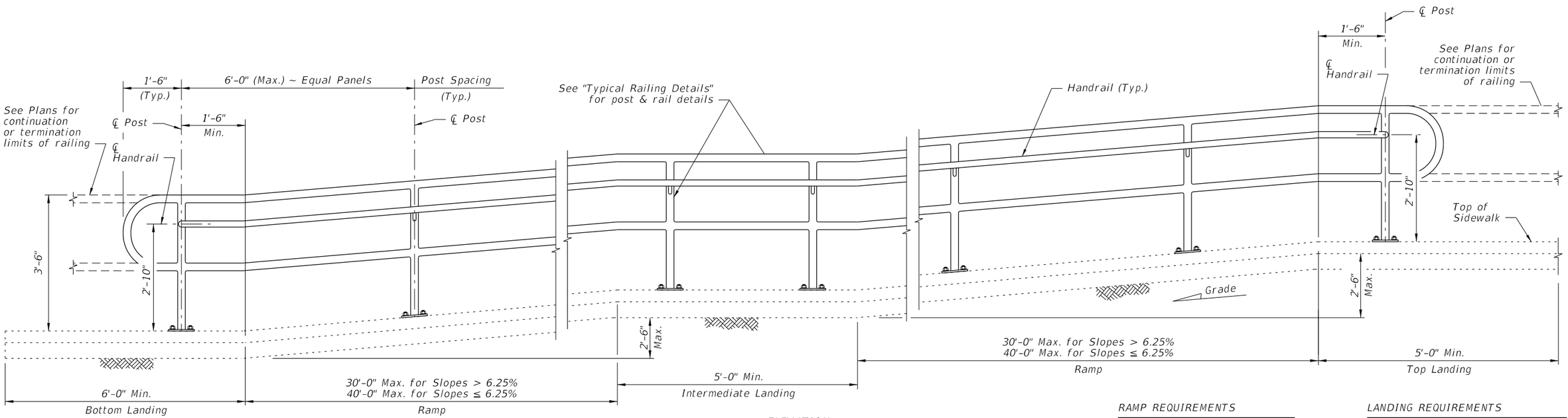
ELEVATION

NOTES:
NPS = Nominal Pipe Size

STRUCTURES EXPANSION JOINTS NOTE:
* Keyed construction joints in Index 400-011 Gravity Wall are not considered to be expansion joints.

CROSS REFERENCE:
For Details "C", "D" and "E", see Sheet 4.

TYPICAL RAILING DETAILS & RAILINGS ON GRADES 0% TO 5%



ELEVATION
(Showing Inside Face of Railing)

RAMP REQUIREMENTS

For slopes greater than 5%:
Max. ramp slope = 8.33%
Max. ramp cross-slope = 2.0%

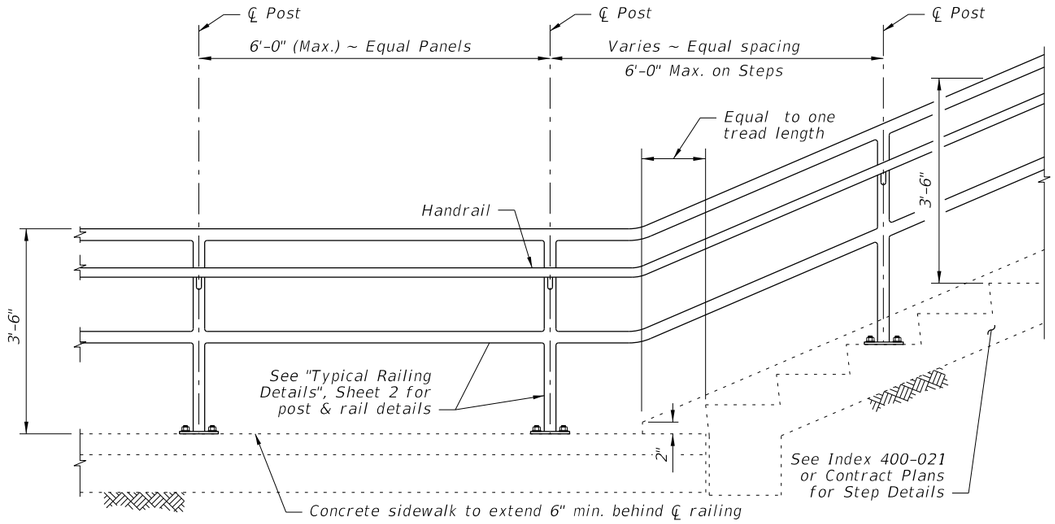
LANDING REQUIREMENTS

Max. landing slope = 2%
Max. landing cross-slope = 2%

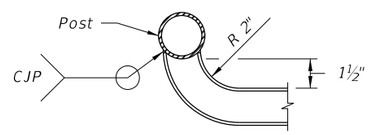
RAILINGS ON GRADES STEEPER THAN 5% TO 8.33%

10/12/2020 7:30:53 AM

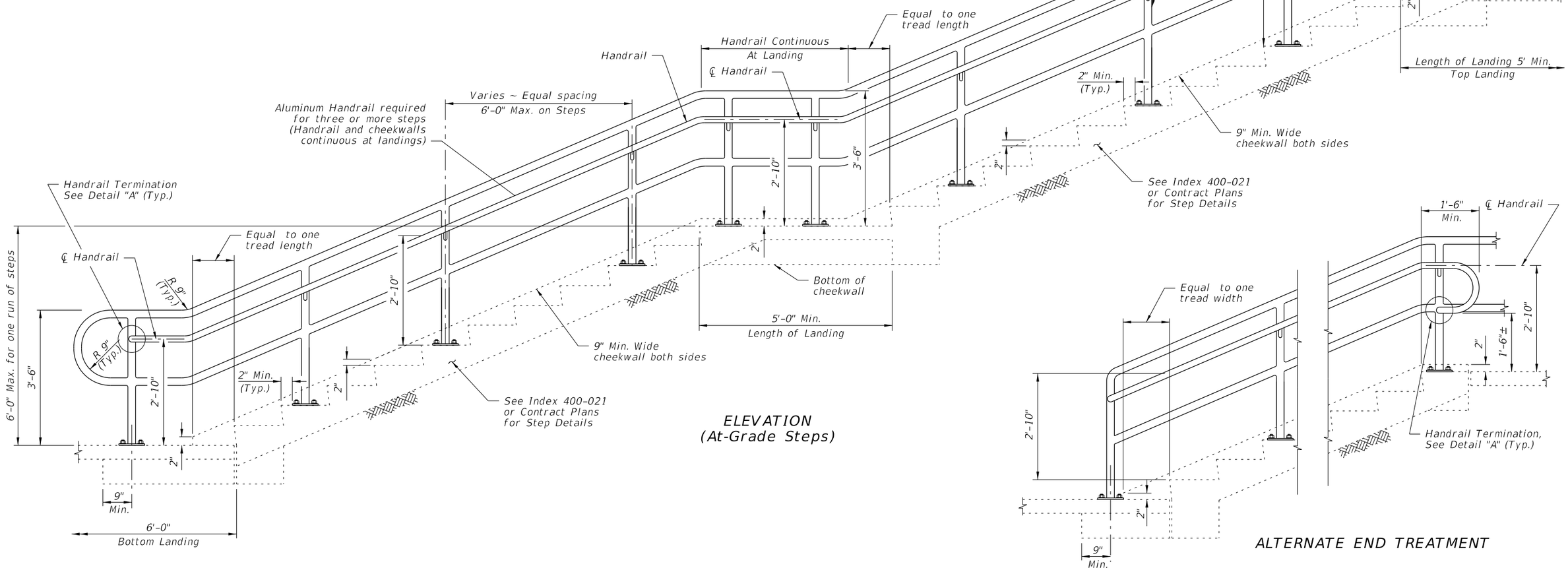
LAST REVISION	REVISION	DESCRIPTION:	FY 2021-22 STANDARD PLANS	PIPE GUIDERAIL (ALUMINUM)	INDEX	SHEET
11/01/17					515-070	2 of 5



RAILING CONTINUATION BEYOND STEPS
(Bottom shown, Top similar)



DETAIL "A" - PLAN VIEW
HANDRAIL TERMINATION



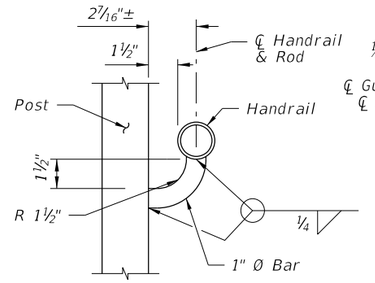
ELEVATION
(At-Grade Steps)

ALTERNATE END TREATMENT

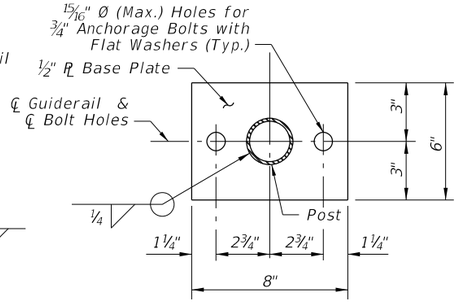
GUIDERAIL ON STEPS & STAIRS

LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/17			FY 2021-22 STANDARD PLANS	PIPE GUIDERAIL (ALUMINUM)	515-070	3 of 5

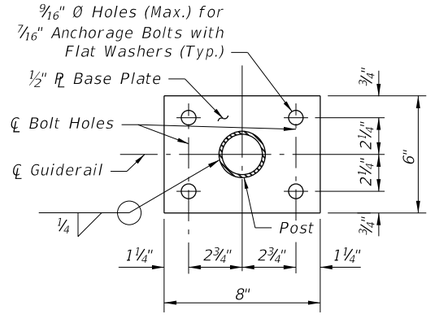
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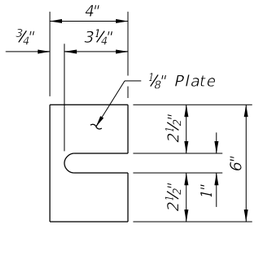
SECTION B-B
(Handrail Connection)



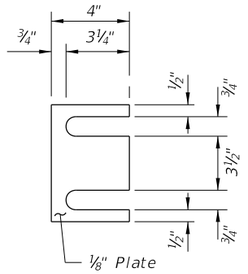
SECTION C-C
BASE PLATE DETAIL
(2~Bolt Anchorage)



SECTION C-C
BASE PLATE DETAIL
(4~Bolt Anchorage)



SHIM PLATE DETAIL
(2~Bolt Anchorage)



SHIM PLATE DETAIL
(4~Bolt Anchorage)

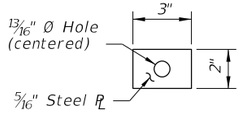
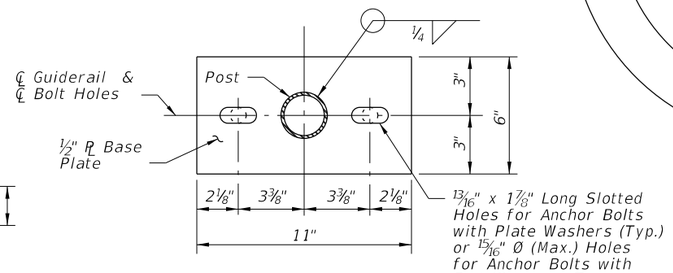
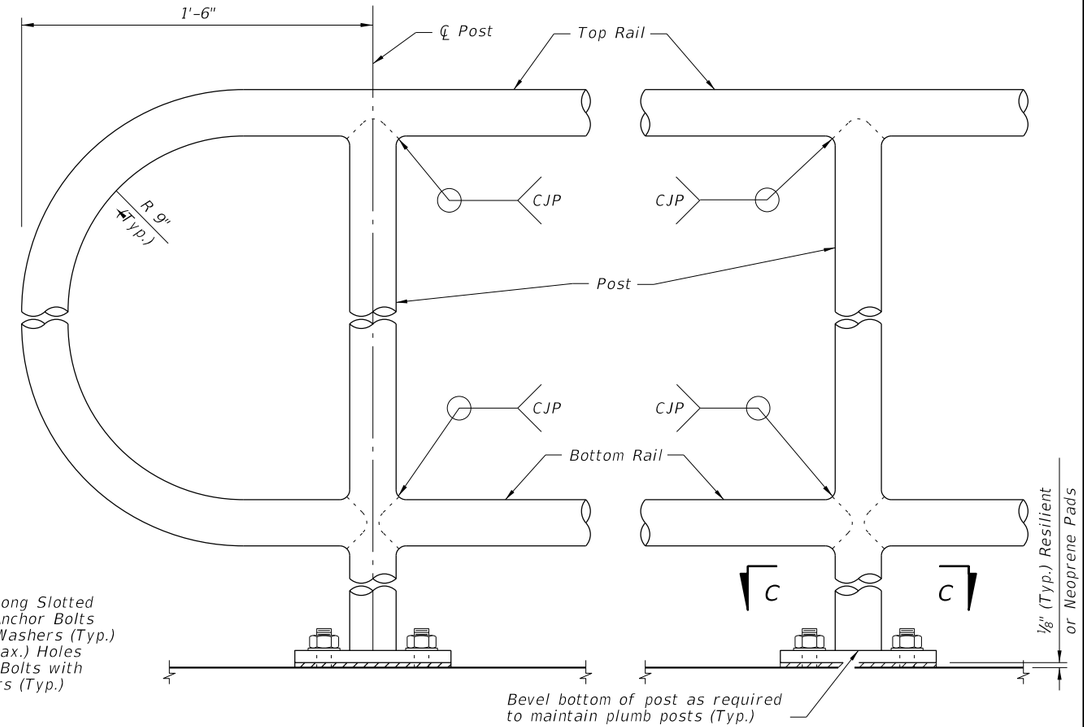


PLATE WASHER
DETAIL



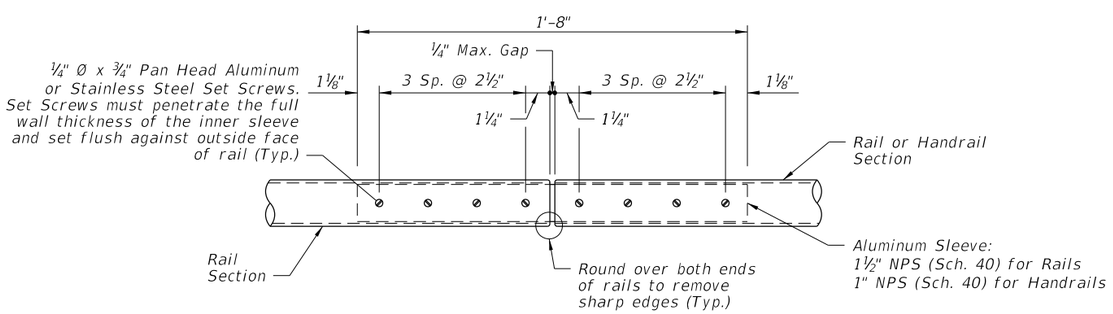
ALTERNATE BASE
PLATE DETAIL
(Recommended for Steep Slopes)



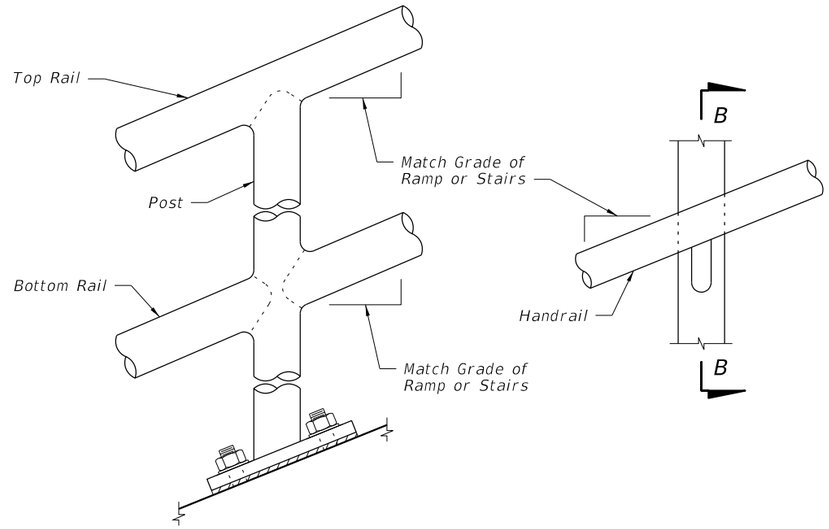
DETAIL "C" - RAIL CONNECTIONS
(Handrail and 4~Bolt Anchorage Not Shown)

DETAIL "D" - EXPANSION JOINT
(FIELD SPLICE SLIP JOINT SIMILAR)

* At the Contractor's option, embedded length may be 4" when a 3/4" Ø plug weld is substituted for the 1/4" Ø set screw.



DETAIL "E" - CONTINUITY
FIELD SPLICE

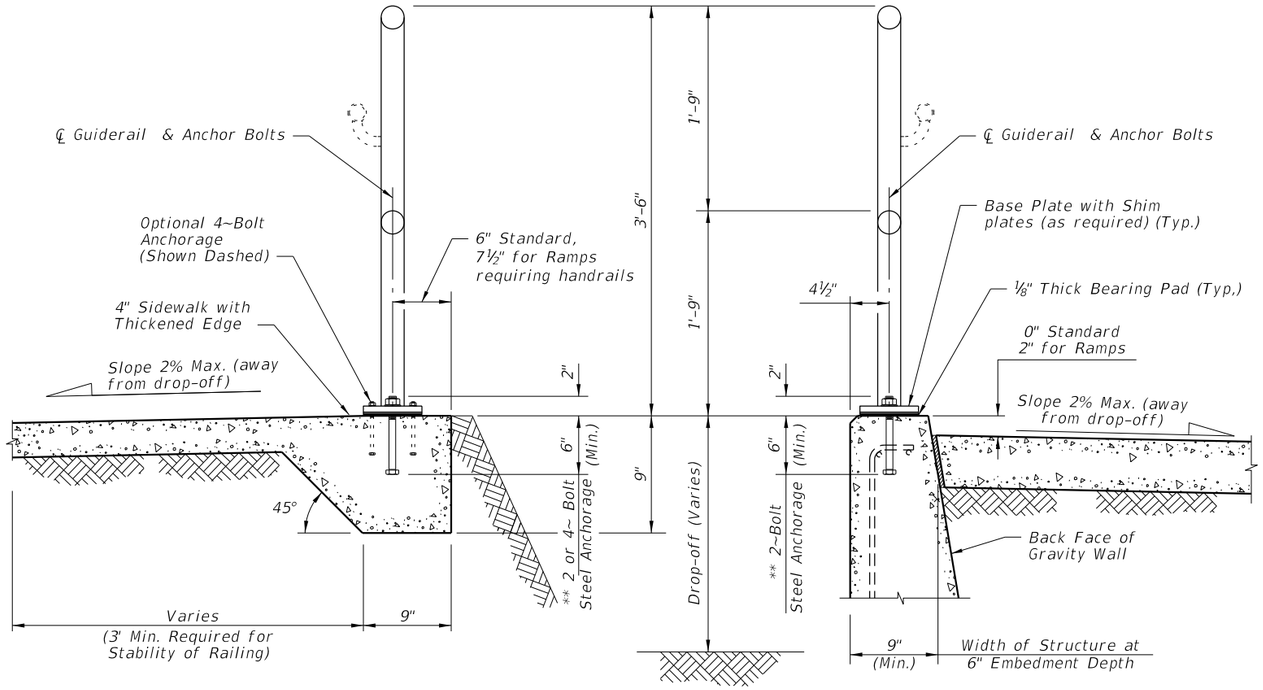


DETAIL "B" - RAIL AND HANDRAIL
(Showing Sloped Condition for Ramps with 2~Bolt Anchorage)

CROSS REFERENCE:
For locations of Details "C", "D" and "E", see Sheet 2.

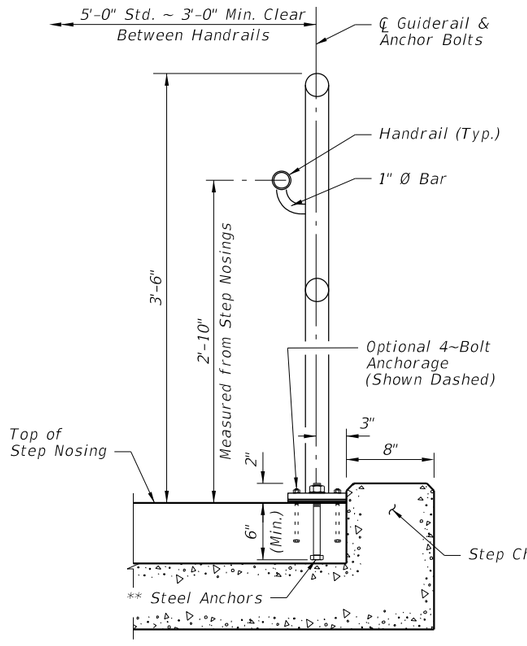
10/12/2020 7:30:57 AM

LAST REVISION	REVISION	DESCRIPTION:				
11/01/17			FDOT FY 2021-22 STANDARD PLANS	PIPE GUIDERAIL (ALUMINUM)	INDEX 515-070	SHEET 4 of 5

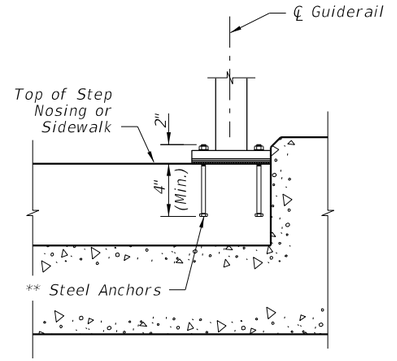


TYPICAL SECTION ON CONCRETE SIDEWALK

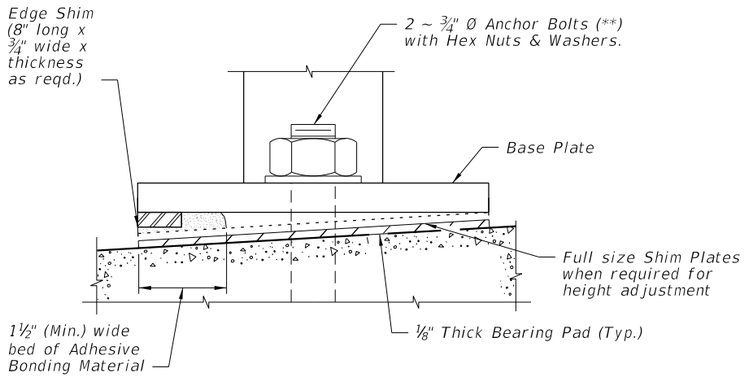
TYPICAL SECTION ON GRAVITY WALL
(Other Retaining Walls Similar)



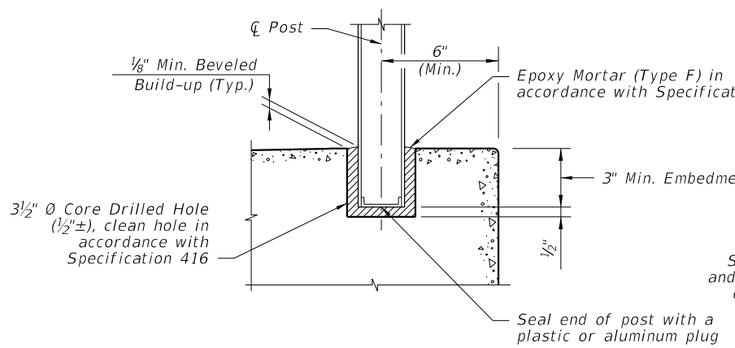
TYPICAL SECTION ON
STEPS & STAIRS



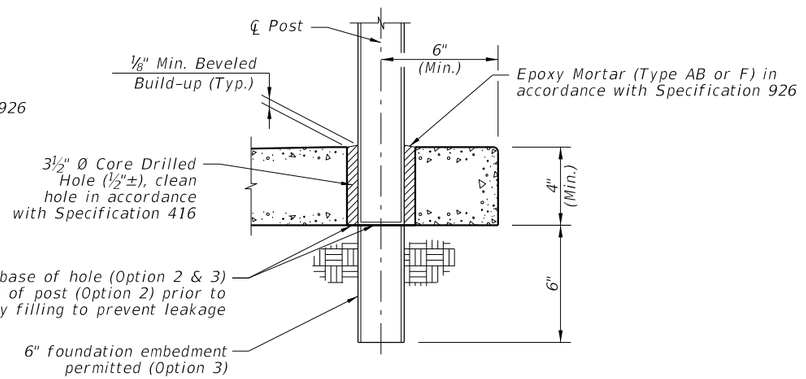
4~BOLT ANCHORAGE DETAIL



DETAIL "F" (OPTIONAL SHIMMING DETAIL
FOR CROSS SLOPE CORRECTION)
(Used in lieu of Beveled Shim Plates)



SIDEWALK ANCHORAGE DETAIL
OPTION 1



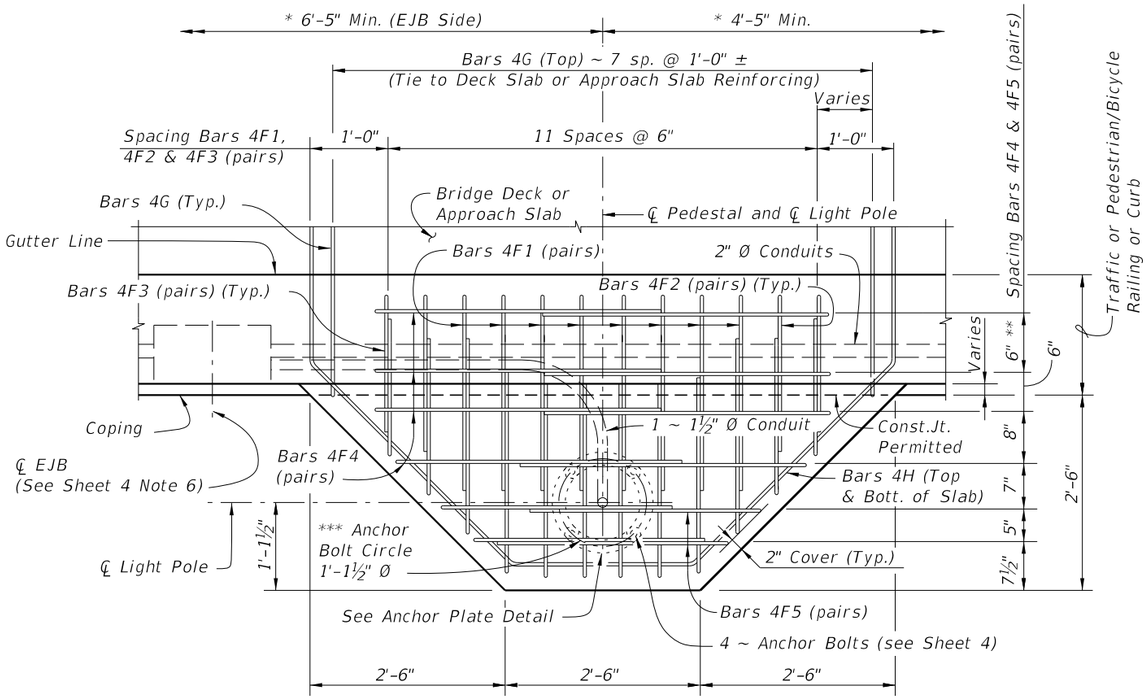
SIDEWALK ANCHORAGE DETAIL
OPTION 2 & 3

NOTES:
** 2 ~ ¾" Ø x 8" or 4 ~ 7/16" Ø x 6" Steel Anchors: Galvanized Steel Bolts (As Shown) (C-I-P); Galvanized U-Bolts Permitted (C-I-P); Galvanized Adhesive Anchors Permitted

*** The minimum embedment for Adhesive Anchors is 6" for 2~Bolt Anchorage or 4" for 4~Bolt Anchorage.

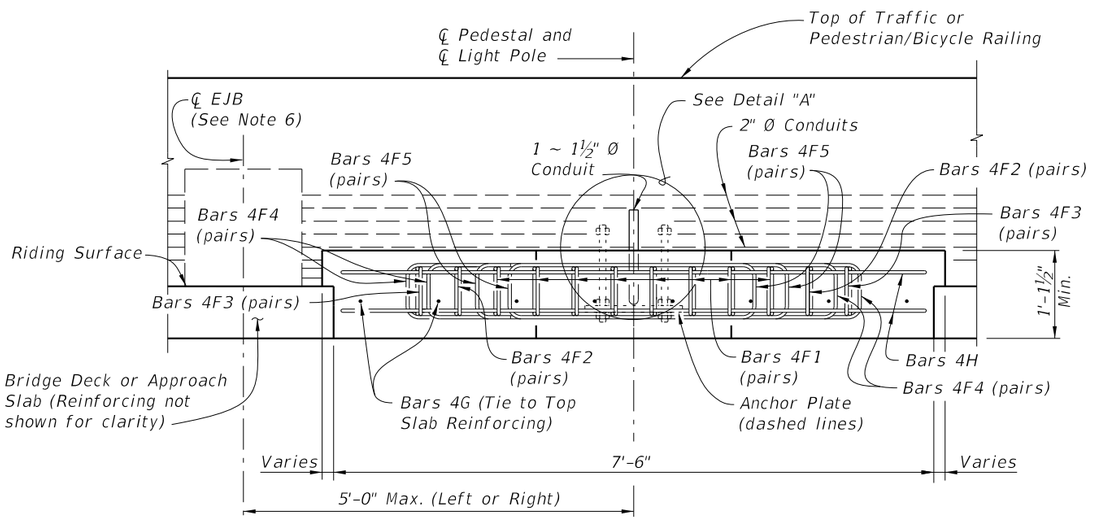
10/12/2020 7:30:59 AM

LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/20			FDOT FY 2021-22 STANDARD PLANS	PIPE GUIDERAIL (ALUMINUM)	515-070	5 of 5

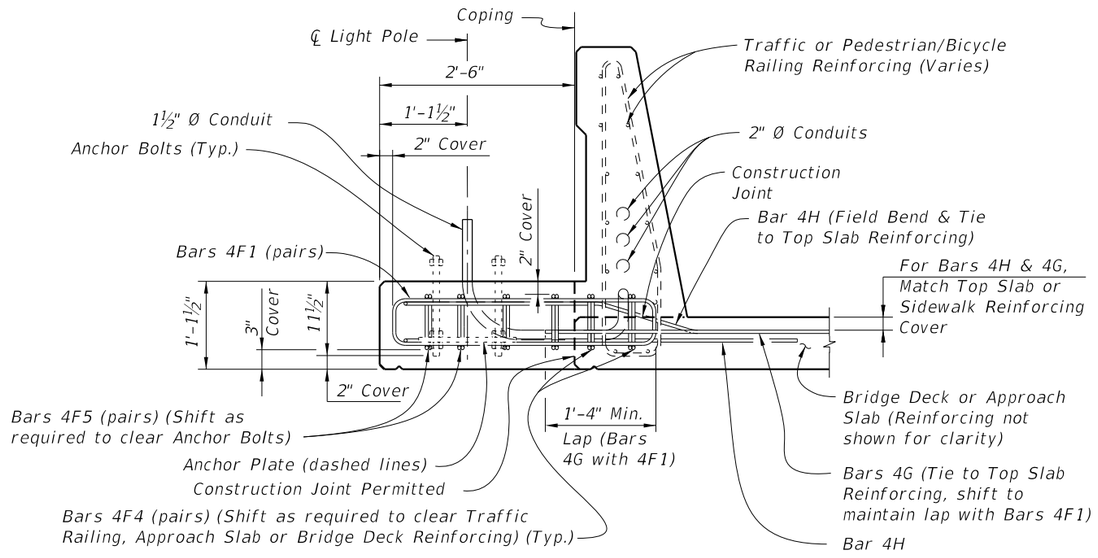


* Slip Forming Method of Construction requires the Engineer's approval within the limits shown.
** For Index 521-820 – Pedestrian/Bicycle Railing and concrete curb, this dimension is 3½". For raised sidewalks, this dimension is 1'-0" Max.
*** Anchor Bolt pattern orientation shall be as shown.

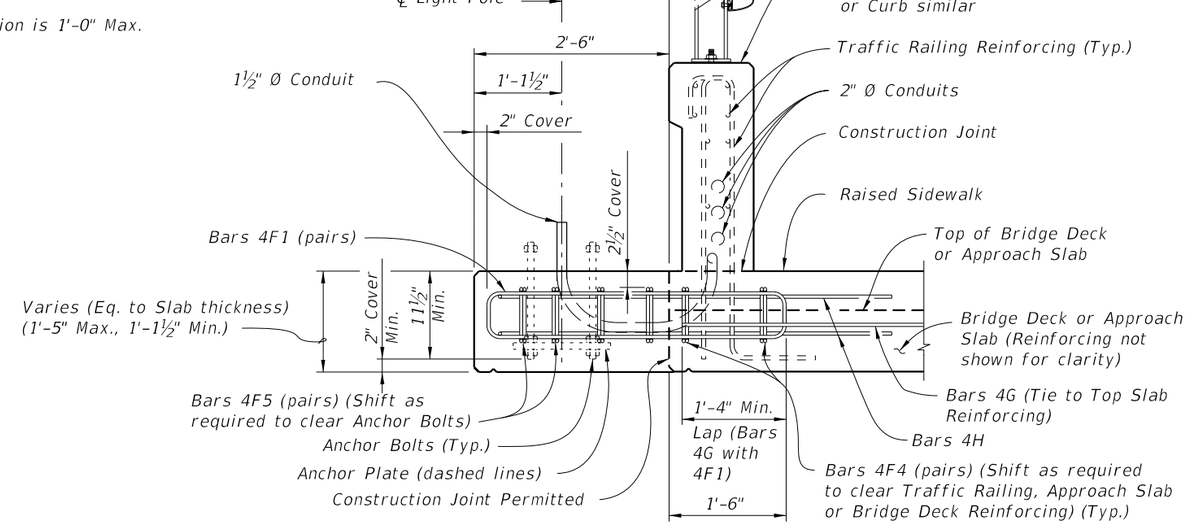
PLAN VIEW



ELEVATION VIEW
(Without Raised Sidewalk shown, with Raised Sidewalk similar)



OPTION 1
TYPICAL SECTION AT LIGHT POLE PEDESTAL



TYPICAL SECTION AT LIGHT POLE PEDESTAL
WITH RAISED SIDEWALK

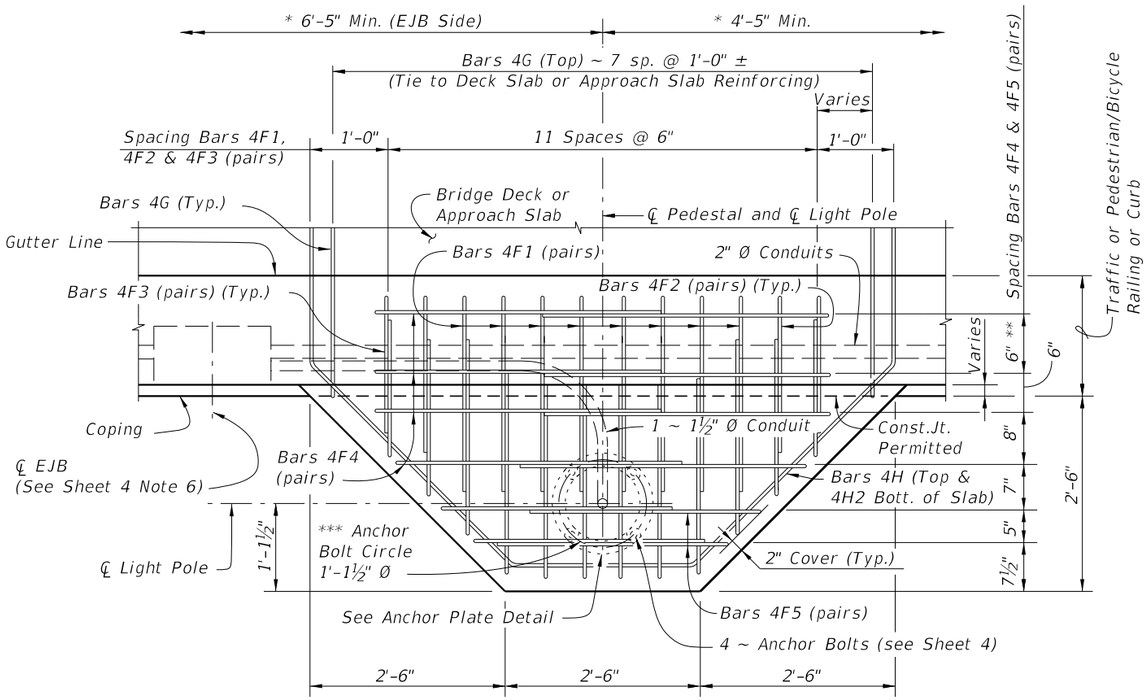
CROSS REFERENCE:
For Detail "A", Anchor Plate Detail and Light Pole Pedestal Notes, see Sheet 4.

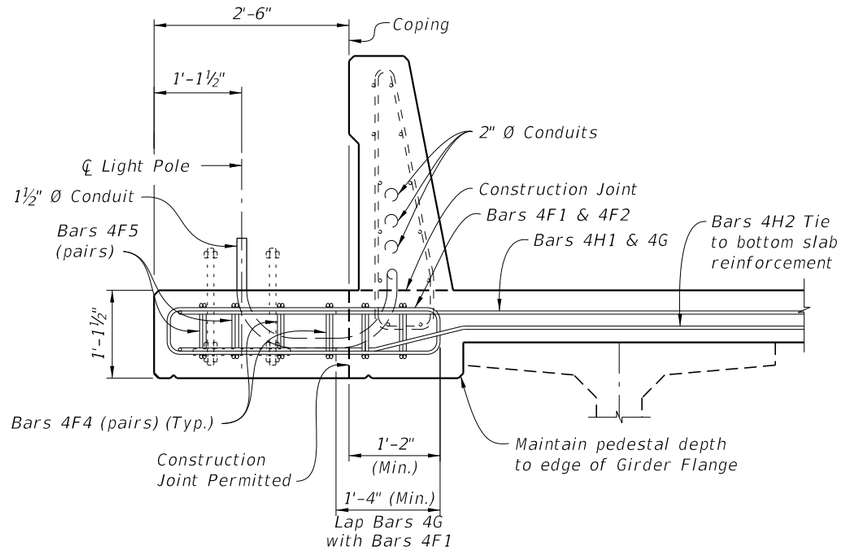
NOTE: Anchor Bolt, Nuts, Washers and Anchor Plate are dashed for clarity.

LIGHT POLE PEDESTAL FOR APPROACH SLAB OR BRIDGE DECK THICKNESS LESS THAN 1'-5½" AT COPING

10/8/2020 9:51:58 AM

LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/19			FY 2021-22 STANDARD PLANS	LIGHT POLE PEDESTAL - BRIDGE	521-660	1 of 4

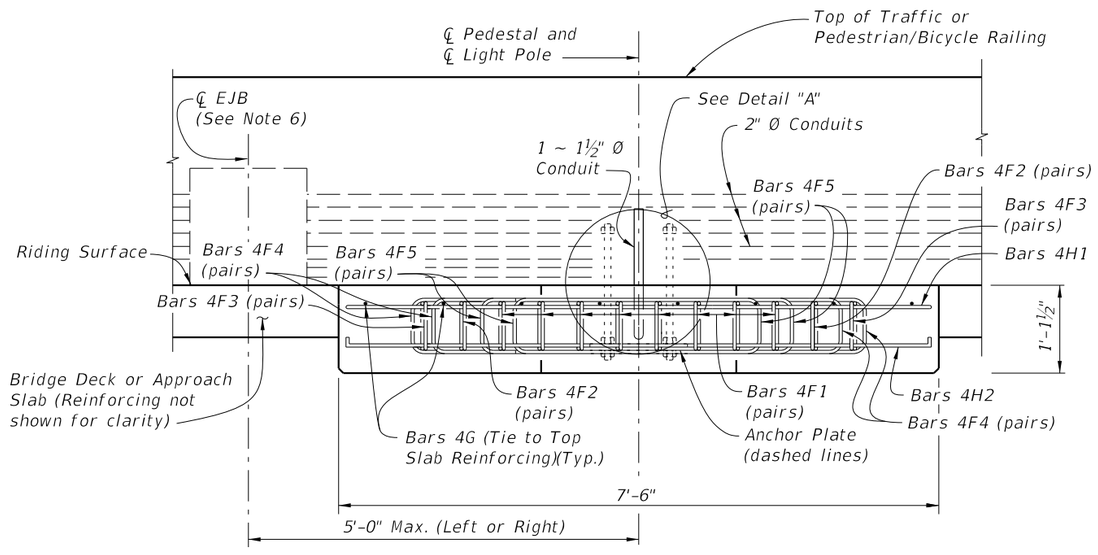




OPTION 2 - TYPICAL SECTION AT LIGHT POLE PEDESTAL (Approach Slab Similar)

* Slip Forming Method of Construction requires the Engineer's approval within the limits shown.
** For Index 521-820 – Pedestrian/Bicycle Railing and concrete curb, this dimension is 3½". For raised sidewalks, this dimension is 1'-0" Max.
*** Anchor Bolt pattern orientation shall be as shown.

PLAN VIEW



OPTION 2 - ELEVATION VIEW

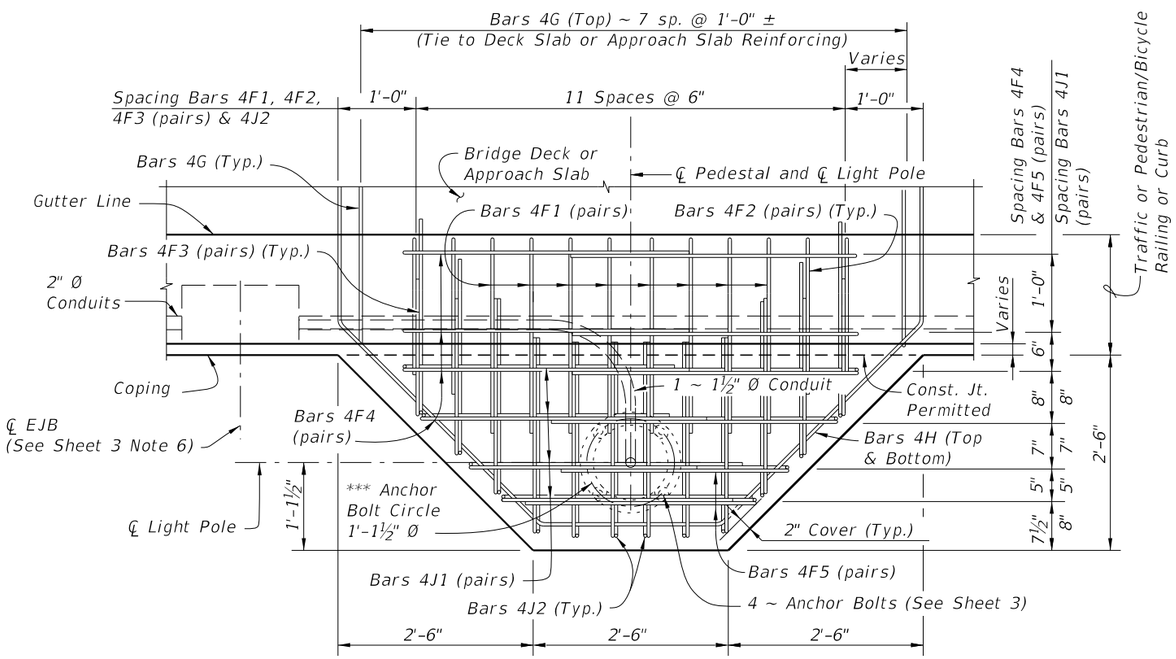
CROSS REFERENCE:
For Detail "A", Anchor Plate Detail and Light Pole Pedestal Notes, see Sheet 4.

NOTE: Anchor Bolt, Nuts, Washers and Anchor Plate are dashed for clarity.

LIGHT POLE PEDESTAL FOR APPROACH SLAB OR BRIDGE DECK LESS THAN 1'-5½" AT COPING OPTION 2

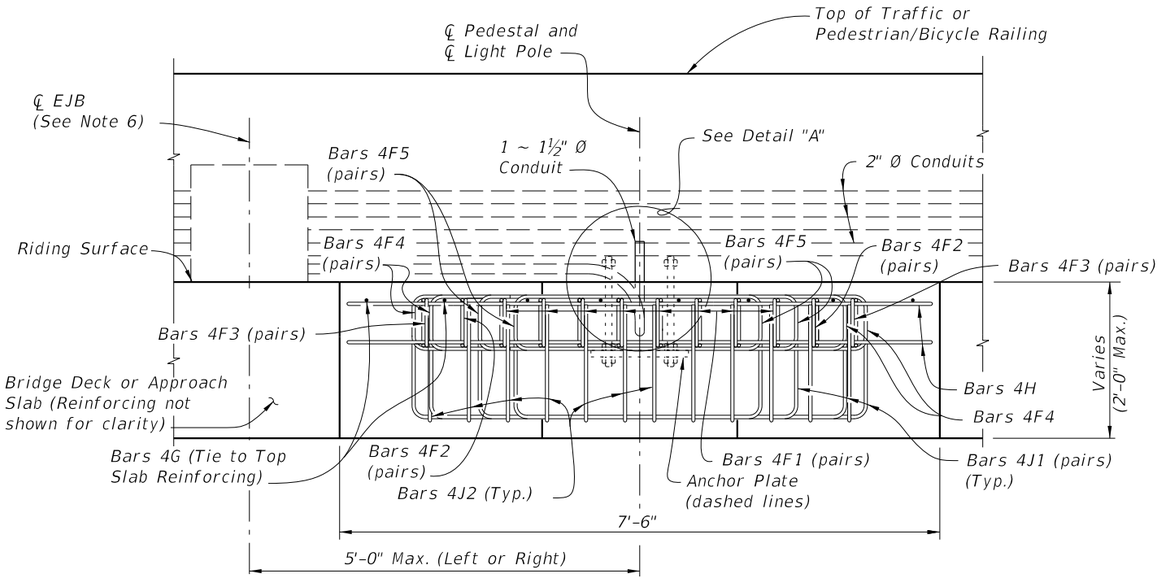
10/8/2020 9:52:00 AM

LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/18			FY 2021-22 STANDARD PLANS	LIGHT POLE PEDESTAL - BRIDGE	521-660	2 of 4

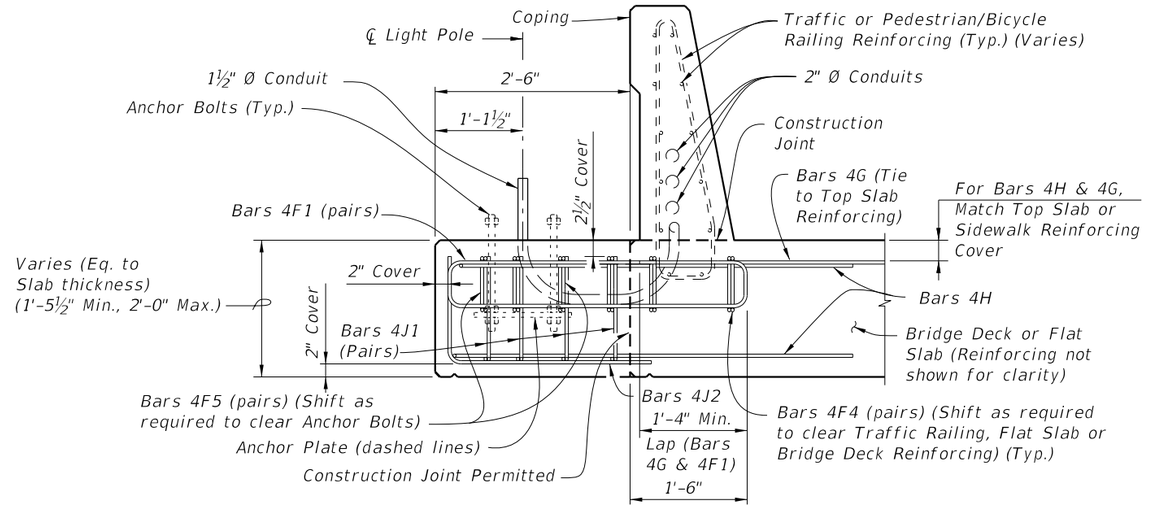


*** Anchor Bolt pattern orientation shall be as shown.

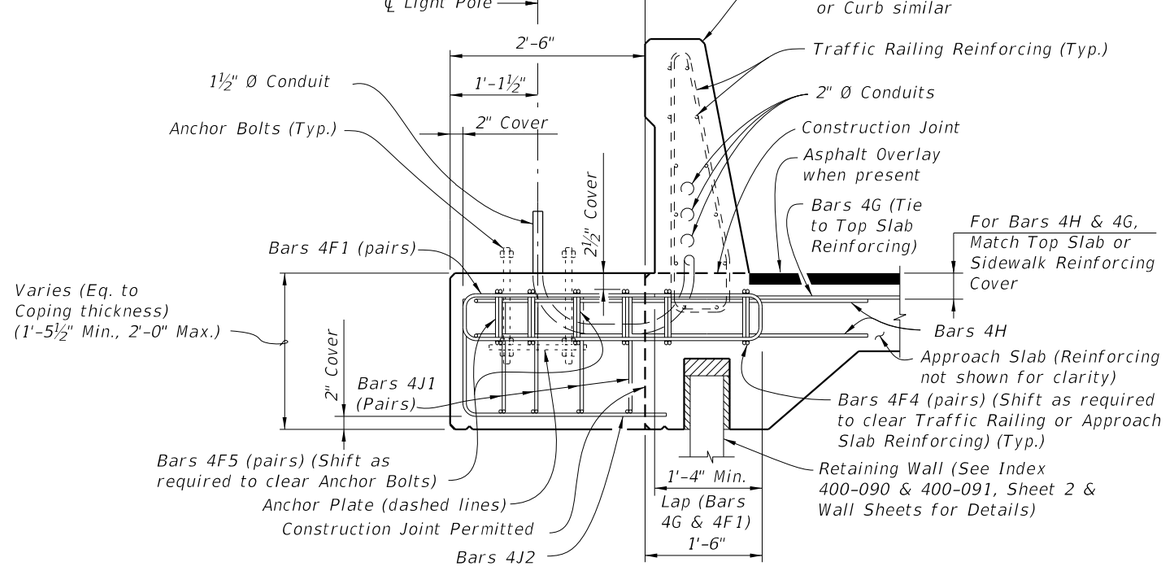
PLAN VIEW



ELEVATION VIEW



TYPICAL SECTION AT LIGHT POLE PEDESTAL



TYPICAL SECTION AT LIGHT POLE PEDESTAL FOR APPROACH SLAB ON RETAINING WALL

CROSS REFERENCE:
For Detail "A", Anchor Plate Detail and Light Pole Pedestal Notes, see Sheet 4.

NOTE: Anchor Bolt, Nuts, Washers and Anchor Plate are dashed for clarity.

LIGHT POLE PEDESTAL FOR APPROACH SLAB OR BRIDGE DECK THICKNESS AT COPING 1'-5½" OR GREATER

10/8/2020 9:52:02 AM

LAST REVISION	REVISION	DESCRIPTION:			INDEX	SHEET
11/01/19			FY 2021-22 STANDARD PLANS	LIGHT POLE PEDESTAL - BRIDGE	521-660	3 of 4

CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS

REINFORCING STEEL NOTES:

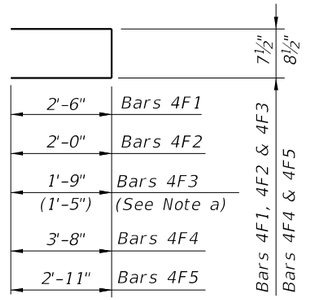
a. When Pedestal is attached to Pedestrian/Bicycle Railing – Index 521-820 or an 8" wide concrete curb and the Bridge Deck or Approach Slab thickness is less than 1'-1½", Bars 4F3 shall have leg length and bar length shown in parentheses.

b. The number of bars shown in parentheses is for Bars 4F4 when Pedestal is attached to Pedestrian/Bicycle Railing – Index 521-820 or an 8" wide concrete curb, and the Bridge Deck or Approach Slab thickness is less than 1'-1½".

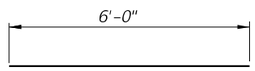
c. Lap Splices for Bars 4F1, 4F2 & 4F3 shall be a minimum of 1'-4". Lap Splices for Bars 4F4 & 4F5 shall be minimum of 1'-8".

d. Bars 4J1 and 4J2 are not required when Pedestal thickness is less than 1'-5½". Field trim height of bars to maintain cover when Pedestal thickness is less than 2'-0". Field trim length of Bars 4J2 on Retaining Wall Coping to maintain cover.

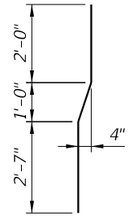
e. All bar dimensions in the bending diagrams are out to out.



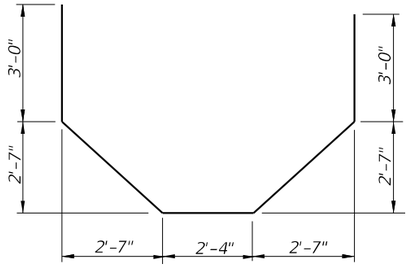
BARS 4F1, 4F2, 4F3, 4F4 & 4F5



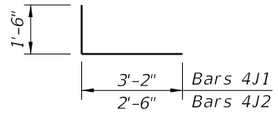
BAR 4G



ELEVATION
BOTTOM BARS 4H2
(For Option 2)



BAR 4H1 & 4H2 (Plan View)

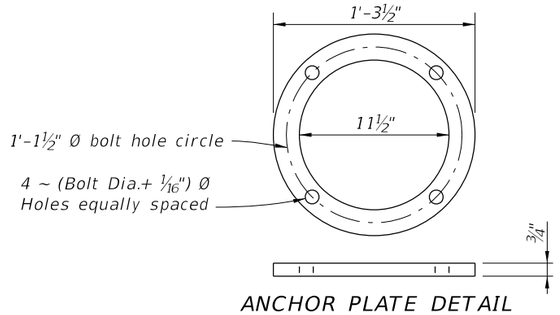


BARS 4J1 & 4J2

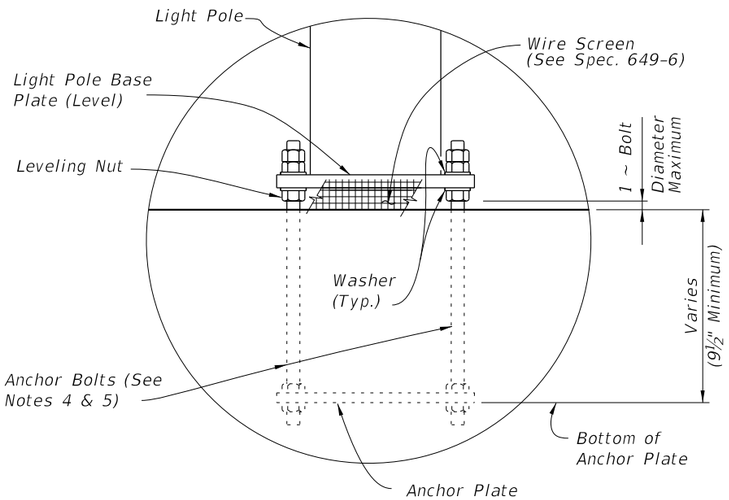
BILL OF REINFORCING STEEL

MARK	SIZE	NO. REQD.	LENGTH	NOTES
F1	4	16	5'-8"	c
F2	4	4	4'-8"	c
F3	4	4	4'-2" (3'-6")	a, c
F4	4	8 (6)	8'-3"	b, c
F5	4	4	6'-7"	c
G	4	8	6'-0"	–
H	4	2	15'-8"	–
J1	4	8	4'-8"	d
J2	4	12	4'-0"	d

( ) See Reinforcing Steel Note a & b.



ANCHOR PLATE DETAIL



DETAIL "A"

CROSS REFERENCE:
For location of Detail "A" see Sheets 1,2 and 3.

LIGHT POLE PEDESTAL NOTES

1. Concrete and Reinforcing Steel required for the construction of the Pedestal shall meet the same requirements as the Traffic Railing or Pedestrian/Bicycle Railing the Pedestal is attached to.

2. Light Pole Pedestal may be used with the following:
   Index 521-422 – Traffic Railing (42" Vertical Shape),
   Index 521-423 – Traffic Railing (32" Vertical Shape),
   Index 521-427 – Traffic Railing (36" Single-Slope),
   Index 521-428 – Traffic Railing (42" Single-Slope),
   Index 521-820 – Pedestrian/Bicycle Railing,
   Index 515-021 – Pedestrian/Bicycle Bullet Railing for Traffic Railing or
   Index 515-509 – Traffic Railing /Noise Wall – Bridge.

3. Unless otherwise noted, Traffic Railing (36" Single-Slope) is shown in all Views and Sections. The Pedestal details for other Traffic Railings or Pedestrian/Bicycle Railing are similar.

4. ANCHOR BOLTS:
   Anchor Bolt design is based on the standard Roadway Aluminum Light Pole configurations shown on Index 715-002.

   Anchor Bolt Diameter: See Table 1
   Anchor Bolts: ASTM F1554 Grade 55.
   Nuts: ASTM A563 Grade A, Heavy-Hex.
   Washers: ASTM F436 Type 1.
   Anchor Plate: ASTM A709 (Grade 36) or ASTM A36.
   Coating: Galvanize all Nuts, Bolts Washers, in accordance with ASTM F2329. Galvanize plates in accordance with ASTM A123.

   The Contractor is responsible for ensuring the anchor bolt configuration is compatible with the light pole base plate. Submit modifications of the anchor bolt design to the Engineer for approval.

5. Install Anchor Bolts plumb.

6. For Conduit, Embedded Junction Boxes (EJB), Expansion/Deflection Fitting and adjacent Reinforcing Steel Details, see Utility Conduit Detail Sheets.

7. PAYMENT: The cost of Wire Screen, Anchor Bolts, Nuts, Washers and Anchor Plates shall be included in the Bid Price for Light Poles. The cost of all Labor, Concrete and Reinforcing Steel required for the Construction of the Pedestals, and Miscellaneous Hardware required for the completion of the Electrical System, shall be included in the Bid Price for the Traffic Railing or Pedestrian/Bicycle Railing the Pedestal is attached to.

TABLE 1 - DESIGN LIMITATIONS FOR ANCHOR BOLTS (1" Dia.)

WIND SPEED (MPH)	ARM LENGTH (Ft.)	BRIDGE DECK HEIGHT (Ft.)* DESIGN MOUNTING HEIGHT 40 Ft.	45 Ft.	50 Ft.
130	≤ 15	75	75	75
150	≤ 15	75	75	75
170	8 & 10	75	75	45**
170	12 & 15	75	75	25**

* Above natural ground or MLW.

** Use 1¼" diameter Anchor Bolt for Bridge Deck Height greater than shown, in Table 1, up to 75'.

ESTIMATED LIGHT POLE PEDESTAL QUANTITIES PER LIGHT POLE PEDESTAL

ITEM	UNIT	QUANTITY
Concrete Per Pedestal Thickness	CY/In.	0.040
Reinforcing Steel	LB	195 (182)

(The Reinforcing Steel quantity shown in parenthesis is for a Pedestal attached to Pedestrian/Bicycle Railing – Index 521-820 with Bridge Deck or Approach Slab thinner than 1'-1½". Add 59 Lbs. for Bars 4J1 & 4J2 when Pedestal Thickness is 1'-5½" or greater)

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LAST REVISION	REVISION	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	LIGHT POLE PEDESTAL - BRIDGE	INDEX	SHEET
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