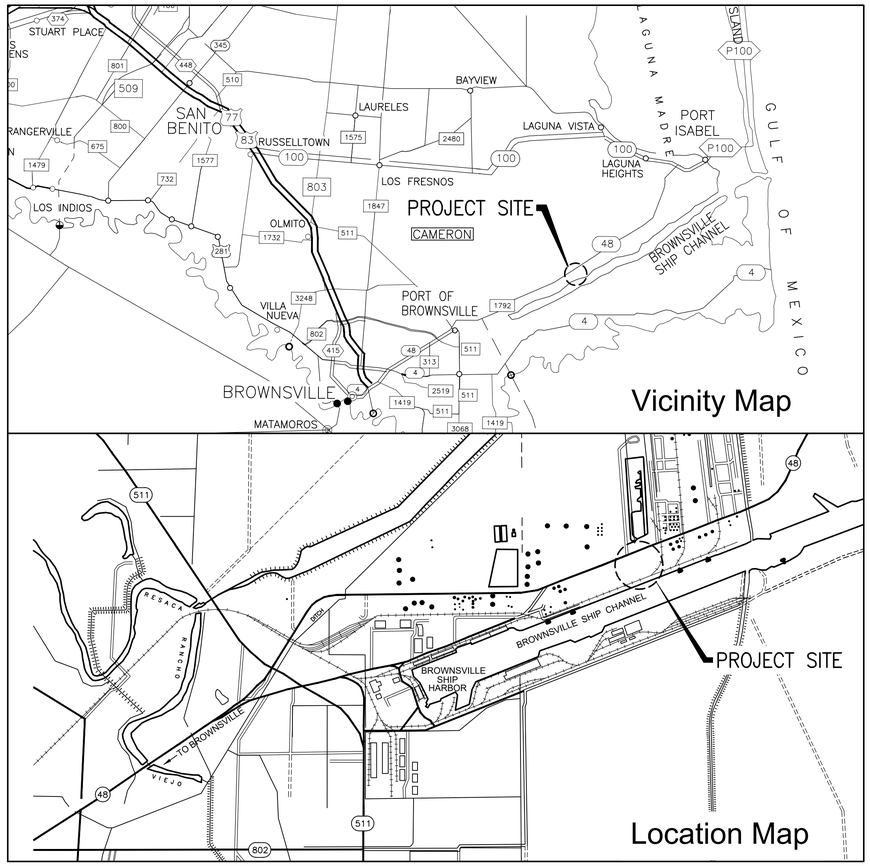
PORT OF BROWNSVILLE

the port that works



Contract Drawings For

Port of Brownsville

Oil Dock 6
Pipe Bridge Extension

Project No.
10219669

Brownsville, Texas
April 2020

STATE OF TEXAS
ARTHUR B. COLWELL
60292
REGISTERED PROFESSIONAL ENGINEER
4-20-20

INDEX OF DRAWINGS

GENERAL NOTES

GENERAL REQUIREMENTS

1. ALL ELEVATIONS SHOWN REFERENCE NAVD'88, NORTH AMERICAN VERTICAL DATUM OF 1988.
2. CONTRACTOR SHALL NOT COMMENCE ANY CONSTRUCTION OPERATION UNTIL THE CONTRACTOR HAS VERIFIED THAT CONSTRUCTION / ENVIRONMENTAL PERMITS FOR THIS PROJECT HAVE BEEN ACQUIRED.
3. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE STATE AND LOCAL CODES AND STANDARDS AND THE PROJECT DRAWINGS. SPECIFIC NOTES ON DETAIL DRAWINGS TAKE PRECEDENCE OVER PLAN AND ELEVATION DRAWINGS. STATE AND LOCAL CODES SHALL TAKE PRECEDENCE OVER NOTES ON DRAWINGS. CONTRACTOR SHALL NOTIFY OWNER AND ENGINEER IMMEDIATELY OF ANY CONFLICTS BETWEEN STATE AND LOCAL CODES AND PROJECT DRAWINGS PRIOR TO ANY CONSTRUCTION.
4. CONTRACTOR SHALL FIELD CHECK AND VERIFY ALL ELEVATIONS, COORDINATES, DIMENSIONS, EXISTING CONDITIONS, AND INFORMATION INDICATED ON THE CONTRACT DOCUMENTS PRIOR TO COMMENCEMENT OF SITE WORK. THE ENGINEER AND OWNER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES FOUND ON THE CONTRACT DOCUMENTS OR FOUND TO EXIST BETWEEN THE FIELD CONDITIONS AND THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL TAKE CORRECTIVE ACTION AS DIRECTED BY THE OWNER.
5. CONTRACTOR SHALL SUBMIT STORM WATER POLLUTION PREVENTION PLAN (SW3P) TO OWNER. CONSTRUCTION ACTIVITY MAY NOT COMMENCE UNIT SW3P IS APPROVED BY OWNER.
6. THE LOCATION AND DEPTH OF UTILITIES SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR BEFORE WORK COMMENCES. PRIOR TO BEGINNING ANY EXCAVATION WORK IN THE AREA OF EXISTING UTILITIES, THE CONTRACTOR SHALL CONTACT THE UTILITY OWNER FOR EXACT LOCATIONS AND DEPTHS TO PREVENT ANY DAMAGE OR INTERFERENCE WITH PRESENT FACILITIES.
7. THE TEXAS ONE CALL SYSTEM AND SOUTHWESTERN BELL SHALL BE NOTIFIED 48-HOURS PRIOR TO EXCAVATING. THIS ACTION HOWEVER, SHALL IN NO WAY BE INTERPRETED AS RELIEVING THE CONTRACTOR OF THE RESPONSIBILITY UNDER THE TERMS OF THE CONTRACT AS SET OUT IN THE PLANS. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY HIS OPERATIONS AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE UTILITY COMPANY INVOLVED.
8. CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL TRAFFIC CONTROL DEVICES DURING THE COURSE OF THE CONSTRUCTION PERIOD.
9. THIS PROJECT IS SUBJECT TO ENVIRONMENTAL PROTECTION AGENCY (EPA) NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) CONSTRUCTION STORM WATER DISCHARGE REGULATIONS AND REQUIREMENTS. THE CONTRACTOR SHALL EXECUTE A NOTICE OF INTENT AND IMPLEMENT THE POLLUTION PREVENTION PLAN PER USACE PERMIT. COMPLY WITH ALL REPORTING AND INSPECTION REQUIREMENTS SET FORTH IN THE NPDES REGULATION.
10. ALL EXISTING ROADWAYS AND OTHER FEATURES WHICH ARE DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
11. CONTRACTOR SHALL MAINTAIN ALL REGULATORY AND WARNING SIGNS DURING THE CONSTRUCTION PERIOD.
12. CONTRACTOR SHALL SUBMIT TO OWNER AND ALL MATERIAL CERTIFICATES PRIOR TO FABRICATION.
13. CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO AS TO NOT INTERFERE WITH, OR BE DETRIMENTAL TO VESSEL AND VEHICULAR TRAFFIC AND THE DAILY OPERATION OF THE OWNER DURING THE COURSE OF THE WORK. ALL EXISTING FEATURES OF THE PROJECT SITE WHICH ARE DAMAGED BY THE CONTRACTOR DURING HIS OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER
14. WORKER SAFETY IN EXCAVATIONS AND TRENCHES SHALL BE PROVIDED BY THE CONTRACTOR IN CONCORDANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS, 29 CFR 1926, SUBPART P - EXCAVATIONS, TRENCHING, AND SHORING. CONTRACTOR SHALL ALSO COMPLY WITH ALL APPLICABLE STATE AND LOCAL REQUIREMENTS. A COPY OF THE GEOTECHNICAL REPORT CAN BE OBTAINED FROM THE OWNER FOR USE BY THE CONTRACTOR IN THE DESIGN OF THE TRENCH SAFETY SYSTEM.
15. THE CONTRACTOR SHALL PERFORM CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH OSHA AND CONTRACT DOCUMENTS.
16. CONTRACTOR, SUBCONTRACTORS AND OTHER CONTRACTED ENTITIES SHALL SUCCESSFULLY COMPLETE ALL THE TRAINING COURSES AND REQUIREMENTS REQUIRED BY OWNER IN ORDER TO ACCESS THE PROJECT SITE AND CARRY OUT THE CONTRACTED WORK. CONTRACTOR SHALL POSSESS ALL THE REQUIRED IDENTIFICATION DOCUMENTS AND SHALL ACCESS THE PROJECT SITE THROUGH OWNER SECURITY CHECK POINT AND FOLLOW OWNER'S CHECK-IN/-OUT PROCEDURE ON A DAILY BASIS. THE IDENTIFICATION DOCUMENTS INCLUDE, AS A MINIMUM, VALID TRANSPORTATION WORKER IDENTIFICATION CREDENTIAL (TWIC®) CARD AND VALID DRIVER'S LICENSE.
17. CONTACT OWNER FOR TRAINING INFORMATION AND PARKING REQUIREMENTS:
    ARIEL CHAVEZ, PE/RPLS, DIRECTOR OF ENGINEERING SERVICES, PORT OF BROWNSVILLE,
    D: (956) 838-7002 **M:** (956) 592-3973 **F:** (956) 831-6153

HORIZONTAL AND VERTICAL CONTROL

1. TOPOGRAPHIC SURVEY PERFORMED BY MEJIA & ROSE, INC., DATED DECEMBER 05, 06, 30, 2019. THE CONTRACTOR SHALL VERIFY EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION.
2. COORDINATES SHOWN ARE STATE PLANE GRID, TEXAS SOUTH ZONE, NAD'83 IN U.S. FEET.
3. MONUMENTS USED FOR VERTICAL CONTROL IS AS FOLLOWS:
   NGS BENCHMARK "N1435"
4. TEMPORARY BENCH MARK (LOCATED NEAR OIL DOCK 3 AT THE END OF ANCHOR ROAD):
   "TVP1"
   N 1,352,451.00'
   E 16,512,501.48'
   EL. +6.72
5. DATUM CORRELATION TABLE:

MEAN HIGHER HIGH WATER (MHHW)	0' MHHW	=	1.62' MLT
MEAN HIGH WATER (MHW)	0' MHW	=	1.56' MLT
MEAN SEA LEVEL (MSL)	0' MSL	=	1.06' MLT
MEAN TIDE LEVEL (MTL)	0' MTL	=	0.99' MLT
MEAN LOW WATER (MLW)	0' MLW	=	0.42' MLT
MEAN LOWER LOW WATER (MLLW)	0' MLLW	=	0.26' MLT
NORTH AMERICAN VERTICAL DATUM 1988 (NAVD'88)	0' NAVD '88	=	1.21' MLT
NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD'29)	0' NGVD '29	=	0.89' MLT
CORPS OF ENGINEERS MEAN LOW TIDE (MLT)	0' MLT	=	0.00' MLT

WATER SURFACE RANGE BETWEEN MLLW AND MHHW REPRESENTS A NORMAL STATISTICAL WATER SURFACE RANGE. THE WATER SURFACE WILL ON OCCASION BE HIGHER OR LOWER THAN THIS RANGE

SOIL BORINGS

1. BORING LOGS B4 AND B5 SHOWN ON SHEET 03 ARE FROM GEOTECHNICAL REPORT TITLED:
   "GEOTECHNICAL EXPLORATION REPORT, BROWNSVILLE NAVIGATION DISTRICT (BND) OIL DOCK 6", REPORT NO. 286-155, AUGUST 18, 2009; PREPARED BY PROFESSIONAL SERVICES INDUSTRIES, INC. (PSI) HOUSTON TEXAS, SHAILEUDRA N. ENDLEY, PH.D., P.E.
2. SOIL INVESTIGATION DATA IS PROVIDED FOR THE INFORMATION AND CONVENIENCE OF THE CONTRACTOR. THE OWNER AND ENGINEER DISCLAIM ANY RESPONSIBILITY FOR THE ACCURACY, TRUE LOCATION AND EXTENT OF THE SOIL INVESTIGATION THAT HAS BEEN PREPARED BY OTHERS. THEY FURTHER DISCLAIM RESPONSIBILITY FOR INTERPRETATION OF THAT DATA BY THE CONTRACTOR, AS IN PROJECTING SOIL-BEARING VALUES, SOIL STABILITY, AND THE PRESENCE, LEVEL, AND EXTENT OF UNDERGROUND WATER, ETC. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SUBSURFACE AND GROUND WATER CONDITIONS PRIOR TO CONSTRUCTION.
3. SOIL INVESTIGATION REPORTS ARE NOT A PART OF THE CONTRACT DOCUMENTS. SOIL BORING LOGS ARE INCLUDED ON THIS SHEET FOR REFERENCE PURPOSES ONLY.
4. FOR GRAPHICAL LOCATIONS OF ALL BORINGS, REFER TO SHEET NO. 03.
5. A COPY OF THE ENTIRE SOIL INVESTIGATION REPORT IS AVAILABLE FOR REVIEW AT THE OWNER'S OFFICE.
6. SURFACE ELEVATIONS SHOWN ON BORING LOGS ARE APPROXIMATE. REFER TO SHEET 05 FOR SURVEY ELEVATIONS. CONTRACTOR SHALL CONDUCT HIS OWN SURVEYS FOR CURRENT ELEVATIONS.

SHOP DRAWINGS

1. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS SHOWN ON THE DRAWINGS, PRIOR TO PREPARATION OF SHOP DRAWINGS.
2. SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW AND APPROVED BY THE OWNER BEFORE PURCHASE OR START OF FABRICATION.
3. THE USE OF REPRODUCTIONS OF THESE CONTRACT DRAWINGS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR, OR MATERIAL SUPPLIER IN LIEU OF PREPARATION OF SHOP DRAWINGS IS PROHIBITED.

CONCRETE

1. BEFORE COMMENCING CONCRETE PLACEMENT, PERFORM THE FOLLOWING: SURFACES TO RECEIVE CONCRETE SHALL BE CLEAN AND FREE OF DELETERIOUS AND/OR ORGANIC MATERIALS, FROST, ICE AND MUD. FORMS SHALL BE IN PLACE, CLEANED, COATED AND ADEQUATELY SUPPORTED IN ACCORDANCE WITH THE APPROPRIATE SPECIFICATIONS."
2. ALL CONCRETE, EXCEPT AS NOTED, SHALL BE NORMAL WEIGHT CONCRETE AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5000PSI WHEN TESTED AT 28-DAYS. THE MAXIMUM WATER TO CEMENTITIOUS RATIO, BY WEIGHT SHALL BE 0.40.
3. ALL CONCRETE WORK SHALL COMPLY WITH THE PROVISIONS AND RECOMMENDATIONS OF THE LATEST EDITIONS ACI 301 AND ACI 318, UNLESS OTHERWISE SPECIFIED.
4. ALL EXPOSED CORNERS SHALL BE PROVIDED WITH MINIMUM ¾-INCH CHAMFER, UNLESS OTHERWISE NOTED.
5. SURFACES SHALL HAVE THE DESIGNATED FINISH:

SURFACE	FINISH
PILE CAPS	MEDIUM BROOM

6. CHANGES IN LOCATION, ADDITION OR OMISSION OF CONSTRUCTION JOINTS SHALL BE SUBJECT TO APPROVAL BY ENGINEER.
7. PRIOR TO CASTING CONCRETE AGAINST HARDENED CONCRETE SURFACE, ROUGHEN THE EXISTING SURFACE TO FULL AMPLITUDE OF APPROXIMATELY ¼-INCH. THOROUGHLY CLEAN THE HARDENED CONCRETE SURFACE OF ALL LOOSE MATERIALS, LAITANCE, DIRT, AND FOREIGN MATTER, AND SATURATE IT WITH WATER. THE CLEAN CONCRETE SURFACE SHOULD BE SATURATED, SURFACE DRY WITH NO FREE OR STANDING WATER AT THE TIME THE CONCRETE IS PLACED AGAINST IT.
8. ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING STEEL SHALL CONFORM TO THE LATEST EDITION OF ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, ACI 315
9. ALL LOADS (INCLUDING VEHICULAR AND BACKFILL) SHALL BE KEPT AWAY FROM NEW CONCRETE FOR A MINIMUM OF 7-DAYS. PILE DRIVING OPERATIONS SHALL NOT BE CLOSER THAN 100-FT TO CONCRETE ELEMENTS WHOSE AGE IS 7-DAYS OR LESS.

STEEL PIPE PILING

1. PIPE PILING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A252 GRADE 2 OR GRADE 3 MINIMUM. PIPE PILING SHALL BE DRIVEN TO A MINIMUM TIP ELEVATION AS INDICATED ON THE DRAWINGS.
2. ALL PIPE PILES SHALL BE SEAMLESS OR WELDED STRAIGHT SEAM. THE PIPE MATERIAL SHALL HAVE A MINIMUM 50-KSI YIELD STRENGTH.
   NOTE: SPIRAL WELDED PILES MAY BE PROVIDED UPON APPROVAL OF OWNER AND ENGINEER
3. DRIVING TOLERANCES:
   - MAXIMUM VARIATION FROM PLANNED PILE HEAD LOCATION SHALL BE 1½-INCH
   - MAXIMUM VARIATION FROM HORIZONTAL BATTER (ANGLE ON PLAN) SHALL BE 2-DEGREES
   - MAXIMUM VARIATION FROM PLUMB FOR VERTICAL PILING SHALL BE ½-INCH IN 10-FT
   - ALLOWABLE VARIATION FROM REQUIRED BATTER FOR BATTER PILING SHALL BE ¼-INCH PER FOOT
4. PILES SHALL BE DRIVEN USING TEMPLATES OR OTHER MEANS NECESSARY TO COMPLY WITH THE ABOVE TOLERANCES.
5. CONTRACTOR SHALL NOTIFY THE OWNER 24-HOURS PRIOR TO DRIVING THE FIRST PIPE PILE IN EACH STRUCTURE SO THAT THE OWNER MAY BE PRESENT DURING DRIVING.
6. ALL PILING SHALL BE DRIVEN OPEN ENDED, PILE DRIVING RECORDS OF ALL PILING SHALL BE KEPT BY THE CONTRACTOR AND COPIES OF ALL DRIVING RECORDS SHALL BE SENT TO THE OWNER. SOIL BORING LOGS ARE PROVIDED ON SHEET 4 AND PILE DRIVING RECORD FORM IS AVAILABLE FROM THE OWNER.
7. MINIMUM INSTALLED PILE LENGTH MAKES NO ALLOWANCE FOR TEMPLATES, CUT-OFFS, DRIVING WITH A STINGER OR OTHER FIELD VARIATIONS. CONTRACTOR SHALL INSURE THAT SUFFICIENT PILE LENGTH IS FABRICATED TO OBTAIN THE REQUIRED PILE PENETRATION.
8. ALL PILING SHALL BE DRIVEN TO THE MINIMUM PENETRATION SHOWN ON DETAIL 5 OF SHEET 09.
9. ULTIMATE PILE CAPACITY IS A MINIMUM OF 500KIPS (SKIN FRICTION ONLY) FOR A TIP ELEVATION OF -52'.
10. ALL PIPE BUTT WELDS SHALL BE COMPLETE PENETRATION, PRE-QUALIFIED WELDS AND SHALL BE 100% X-RAYED. COPIES OF RESULTS FROM SUCH EXAMINATION SHALL BE SENT TO THE OWNER. ALL DEFECTIVE WELDS SHALL BE CORRECTED AT EXPENSE OF CONTRACTOR.
11. ALL WELDS ON PIPE PILES SHALL MEET THE REQUIREMENTS OF STRUCTURAL WELDING CODE AWS D-1.1.

CONCRETE FILLED STEEL PIPE PILE

1. ALL PILING SHALL BE FILLED WITH CONCRETE TO THE LIMITS SHOWN ON SHEET 09. CONCRETE SHALL BE PLACED WITH THE AID OF A TREMIE. PILING DRIVEN OPEN-ENDED SHALL HAVE THE SOIL REMOVED FROM THEIR INTERIOR, DOWN TO THE LOCATION OF THE BOTTOM OF THE CONCRETE.
2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5000-PSI WHEN TESTED AT 28-DAYS.
3. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF ASTM A615:
   - #3 & SMALLER GR. 40
   - #4 & LARGER GR. 60

REINFORCING STEEL

1. ALL REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615 GRADE 60, UNLESS OTHERWISE NOTED.
2. ALL STIRRUPS SHALL BE ASTM A615 GRADE 60 WITH STANDARD 135-DEGREE HOOKS.
3. CLEAR COVER ON REINFORCING STEEL SHALL BE A MINIMUM OF 3-INCH, UNLESS OTHERWISE NOTED.
4. REINFORCING STEEL SHALL BE SUPPORTED USING ONLY PLASTIC CHAIRS OR BOLSTERS.
5. ALL REINFORCING BAR SCHEDULE DIMENSIONS GIVEN FOR REBAR ARE OUT TO OUT.
6. DETAILING OF REINFORCING STEEL SHALL CONFORM TO THE LATEST VERSION OF ACI 315 AND LATEST EDITION OF THE ACI DETAILING MANUAL, ACI SP-66.
7. EMBEDMENT AND SPLICE LENGTHS FOR REINFORCING STEEL SHALL COMPLY WITH THOSE SHOWN IN TABLE 1 AND TABLE 2.

TABLE 1 - MINIMUM SPLICE AND EMBEDMENT LENGTHS (INCHES)

CONCRETE STRENGTH = 5,000 PSI				
BAR SIZE NUMBER	MINIMUM EMBEDMENT LENGTH	TOP BARS EMBEDMENT LENGTH	MINIMUM SPLICE LENGTH	TOP BARS SPLICE LENGTH
3	13	17	17	22
4	17	22	22	29
5	22	28	28	36
6	26	33	33	43
7	37	49	49	63
8	43	55	55	72
9	48	63	63	81
10	54	70	70	91
11	60	78	78	101

   A. WHERE BARS ARE OF DIFFERENT SIZE, THE LAP LENGTH SHALL BE BASED ON SMALLER BAR, UNLESS NOTED OTHERWISE.
   B. THE CONTRACTOR SHALL DETERMINE ANY SPLICE LOCATIONS IN ADDITION TO THOSE SHOWN, SUBJECT TO SHOP DRAWING APPROVAL.
   C. TOP BARS ARE HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW DEVELOPMENT LENGTH OR SPLICE.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL BE FABRICATED IN ACCORDANCE WITH CURRENT AISC SPECIFICATIONS FOR STRUCTURAL STEEL FOR BUILDINGS.
2. STRUCTURAL STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING, UNLESS OTHERWISE STATED:
   - WIDE FLANGE SHAPES ASTM A992, GRADE 50
   - OTHER SHAPES, BARS AND PLATES ASTM A36, F_Y = 36-KSI
   - HEADED BOLTS ASTM A325
   - ANCHOR BOLTS ASTM A449
   - POST-INSTALLED ANCHOR BOLTS ASTM A193 B7
3. ALL WELDING SHALL CONFORM TO AMERICAN WELDING SOCIETY CODE, D1.1, LATEST EDITION, PROVIDE MINIMUM 1/4-INCH FILLET WELD AT ALL CONNECTIONS UNLESS SPECIFIED OTHERWISE. PROVIDE SEAL WELD AT STEEL CONTACT POINTS OF WELDED CONNECTIONS. ALL WELDING ELECTRODES SHALL BE E70XX
4. MINIMUM PLATE THICKNESS SHALL BE 1/2-INCH CONFORMING TO ASTM A36.
5. CONTRACTOR MAY BOLT UNITS TOGETHER TO ALIGN PRIOR TO WELDING.
6. ALL STRUCTURAL STEEL SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
7. FABRICATOR SHALL FURNISH ERECTION AND SHOP DETAIL DRAWINGS FOR OWNER'S APPROVAL.
8. ALL CONNECTIONS SHALL BE SHOP WELDED AND FIELD BOLTED, UNLESS OTHERWISE SPECIFIED.
9. ALL CONNECTION BOLTS SHALL BE ASTM A-325. ALL BOLTS SHALL BE SUPPLIED WITH FLAT WASHER, AND HEX NUT.
10. ALL CONNECTIONS SHALL DEVELOP FULL MEMBER STRENGTH IF FABRICATED DIFFERENTLY THAN SHOWN ON THE DRAWING.
11. ALL NUTS, BOLTS, AND PLATES SHALL BE HOT DIPPED GALVANIZED.
12. ALL GALVANIZING SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION FOR ZINC COATING (HOT DIP) PER ASTM A123, A153, A384 AND A386 LATEST REVISIONS. PROVIDE MINIMUM 2-OZ PER SQUARE FOOT UNLESS NOTED OTHERWISE. RETHREAD NUTS AFTER GALVANIZING IN ACCORDANCE WITH ASTM A563.
13. ALL DAMAGE OF GALVANIZED COATING SHALL BE TOUCHED UP WITH AN APPROVED COLD ZINC GALVANIZING COMPOUND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
14. FIELD TREAT DAMAGED GALVANIZED FINISH WITH (2) COATS OF HIGH ZINC DUST OXIDE PAINT. COLD GALVANIZED COMPOUNDS OR APPROVED EQUAL. IN ADDITION, ALL EXPOSED THREADED SURFACES SHALL BE CLEANED AND PAINTED WITH (2) COATS OF HIGH ZINC OXIDE PAINT AFTER INSTALLATION OF THE NUT.

WELDING

1. ALL WELDING SHALL BE MADE IN ACCORDANCE WITH THE STRUCTURAL WELDING CODE, AWS D-1.1.
2. WELDING PERSONNEL AND PROCEDURES ARE TO BE QUALIFIED PER AWS D-1.1., UNLESS SPECIFICALLY NOTED OTHERWISE. OTHERWISE DESIGN, FABRICATION AND ERECTION ARE TO BE GOVERNED BY THE LATEST REVISIONS OF:
   A. MANUAL OF STEEL CONSTRUCTION - LRFD 13TH/ EDITION
   B. AISC CODE OF STANDARD PRACTICE
   C. STRUCTURAL WELDING CODE, AWS D-1.1. OF THE AMERICAN WELDING SOCIETY
   D. SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325.

WELDING - CONT.

3. ALL WELDS SHALL BE WITH E70XX ELECTRODES IN ACCORDANCE WITH AWS D-1.1. USE HIGHER STRENGTH ELECTRODE IF REQUIRED BY AWS D1.1.
4. MINIMUM SIZE OF FILLET WELD SHALL BE 1/4-INCH, UNLESS NOTED OTHERWISE.
5. CONTRACTOR SHALL SUPPLY THE OWNER WITH A LIST OF QUALIFIED WELDERS AND THEIR CERTIFICATION LEVEL PRIOR TO FABRICATION.

SITE WORK/EARTHWORK

1. FENCING WHICH IS REMOVED TO FACILITATE CONSTRUCTION SHALL BE REPLACED TO ORIGINAL OR BETTER CONDITION TO THE SATISFACTION OF THE OWNER.
2. AREAS TO RECEIVE FILL SHALL BE EXCAVATED AND CLEARED TO REMOVE ALL VEGETATION.
3 ALL SUBGRADE AREAS SHALL BE COMPACTED TO 90% STANDARD PROCTOR DENSITY BEFORE CALICHE BASE IS PLACED. FILTER CLOTH -MIRAFI 140N OR APPROVED EQUAL.
4. COMPACT ALL BACKFILL TO 90% STANDARD PROCTOR IN LIFTS NOT TO EXCEED 9-INCH IN DEPTH.
5. SUB-BASE MATERIAL SHALL BE COMPACTED TO 95% STANDARD DENSITY TO A DEPTH OF 6-INCH.
6. THE AREA SURROUNDING THE CONCRETE FOUNDATION AREA SHALL BE GRADED IN SUCH A MANNER THAT RAINWATER DOES NOT POND AROUND THE AREA. RUNOFF SHALL BE DIVERTED AROUND THE FOUNDATION AREA BY MEANS OF PROPER GRADING.

FINAL GRADING

1. TRANSITIONS IN GRADES SHALL BE SMOOTH AND UNIFORM.
2. GRADING SHALL BE PERFORMED IN SUCH A MANNER THAT WATER IS NOT PONDED ON GROUND SURFACES.

DESIGN CRITERIA

1. DESIGN LIVE LOADS
   CONSTRUCTION PHASE LIVE LOAD (SURCHARGE) BEHIND BULKHEAD BEFORE THE INSTALLATION OF RELIEVING PLATFORM SHALL BE LIMITED TO A MAXIMUM OF 100-PSF. HEAVY CONSTRUCTION LOADS (I.E. CRANE LOADS, ETC.) SHALL NOT BE PERMITTED WITHIN 20-FT OF THE BULKHEAD. ALL DESIGN CRITERIA BELOW REPRESENTS POST CONSTRUCTION DESIGN CRITERIA.
2. PIPE RACK PIPING LOADS
   A. OPERATING DEAD LOAD - 40 PSF
   B. EMPTY DEAD LOAD - 24 PSF
3. ENVIRONMENTAL LOADS
   A. WIND LOAD
      I. BASIC WIND VELOCITY - 155 MPH
      II. IMPORTANCE FACTOR - III
      III. EXPOSURE FACTOR - C
      IV. DESIGN WIND PRESSURES FOR COMPONENTS AND CLADDING - 51.75 PSF
   B. SNOW LOADS ARE NOT CONSIDERED FOR THE PIPE RACK DESIGN
   C. SEISMIC LOADS ARE NOT CONSIDERED FOR THE PIPE RACK DESIGN

REFERENCE DATA

THE FOLLOWING CODES, REFERENCES, AND STANDARDS SHALL BE UTILIZED AS APPLICABLE UNLESS MODIFIED BY INDIVIDUAL SECTIONS IN THE DESIGN BASIS:

- AMERICAN CONCRETE INSTITUTE, *BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE* (ACI 318-11), 2011
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION, *STEEL CONSTRUCTION MANUAL, 14TH EDITION*, 2011
- ANSI/ASCE 7-10, STANDARD, *MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES*, 2010
- ANSI/AWS D1.1, *STRUCTURAL WELDING CODE - STEEL, LATEST EDITION*
- PROCESS INDUSTRY PRACTICES (PIP STC01015), *STRUCTURAL DESIGN CRITERIA*, (2007)

ISSUE	DATE	DESCRIPTION
0	04/20/20	ISSUE FOR CONSTRUCTION

PROJECT MANAGER	M. KRIEBER
DESIGNED BY	A. COLWELL
DRAWN BY	M. CANTU
CHECKED BY	D. GARZA
PROJECT NUMBER	10219669

STATE OF TEXAS — ARTHUR B. COLWELL — 60292 — REGISTERED PROFESSIONAL ENGINEER — 4-20-20

Texas P.E. Firm Registration No. F-754

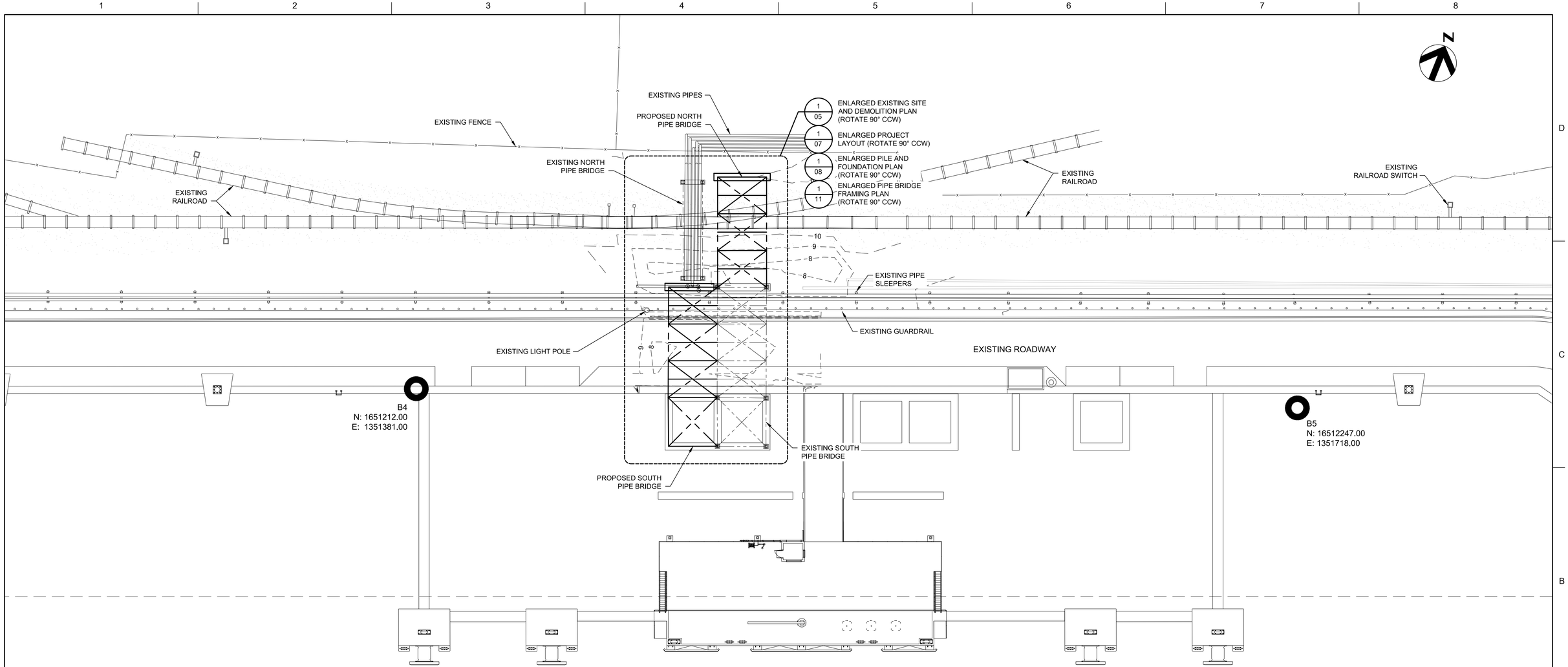
PORT OF BROWNSVILLE — the port that *works*

BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

GENERAL NOTES

0 1" 2"

FILENAME 00G-02.DWG
SCALE NONE
SHEET 02



1 -- PROJECT LAYOUT
1" = 20'

SOIL BORING LOCATION

Texas P.E. Firm
Registration No. F-754

ISSUE	DATE	DESCRIPTION
0	04/20/20	ISSUE FOR CONSTRUCTION

PROJECT MANAGER	M. KRIEBER
DESIGNED BY	A. COLWELL
DRAWN BY	M. CANTU
CHECKED BY	D. GARZA
PROJECT NUMBER	10219669

STATE OF TEXAS
ARTHUR B. COLWELL
60292
REGISTERED PROFESSIONAL ENGINEER
4-20-20

PORT OF BROWNSVILLE
the port that *works*
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

PROJECT LAYOUT

0 1" 2"

FILENAME 00C-01.DWG
SCALE 1" = 20'

SHEET 03

LOG OF BORING B-5
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6
BROWNSVILLE, TEXAS

TYPE OF BORING: WET ROTARY — PSI PROJECT NO: 286-155

COORDINATE (X OR N): N 16,512,239
COORDINATE (Y OR E): E 1,351,718
SURFACE ELEVATION: +8.8 feet
BORING LOCATION PLAN: SEE PLATE 1

DEPTH, FEET	SOIL	USC GROUP SYMBOL	DESCRIPTION	N-BLOWS/FOOT	% PASSING 200	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	MOISTURE CONTENT (%)	SHEAR STRENGTH (tons/ft²) ○HP ●UC ΔTV ▲UU	UNIT DRY WT. (lbs/ft³)
0			FILL, FIll: Gravel	24					4		
				17					8		
5		CL	LEAN CLAY (CL), FIRM TO VERY STIFF, YELLOWISH BROWN AND GRAY		97	39	18	21	21		
									28		87
10									36		
15					92				36		
			- with sand seams, 18 to 20 feet								
20									18		112
25									22		
			- with silty clay seams, 33 to 45 feet								
35									23		
40									24		98
45					100	31	15	16	25		97
50									27		

DEPTH OF BORING: ONE HUNDRED (100) FEET — INITIAL WATER LEVEL: APPROXIMATE AT EL. +1 FEET
DATE DRILLED: June 17, 2009 — FINAL WATER LEVEL:

psi Geotechnical Consulting Services, Houston, Texas

PLATE A-9A

LOG OF BORING B-4
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6
BROWNSVILLE, TEXAS

TYPE OF BORING: WET ROTARY — PSI PROJECT NO: 286-155

COORDINATE (X OR N): N 16,512,113
COORDINATE (Y OR E): E 1,351,381
SURFACE ELEVATION: +8.2 feet
BORING LOCATION PLAN: SEE PLATE 1

DEPTH, FEET	SOIL	USC GROUP SYMBOL	DESCRIPTION	N-BLOWS/FOOT	% PASSING 200	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	MOISTURE CONTENT (%)	SHEAR STRENGTH (tons/ft²) ○HP ●UC ΔTV ▲UU	UNIT DRY WT. (lbs/ft³)
0		CL	SANDY LEAN CLAY (CL), STIFF TO VERY STIFF, BROWN, YELLOWISH BROWN, AND GRAY - with organic material, 0 to 4 feet		65	42	14	28	20		
									24		
5									19		
		SM	SILTY SAND (SM), MEDIUM DENSE, GRAYISH BROWN	11	24				28		
10				1					31		
		CL	LEAN CLAY (CL), FIRM TO STIFF, YELLOWISH BROWN AND BROWN						36		85
15											
			- gray, with sand seams, 18 to 20 feet								
20									25		
25									21		105
			- with calcareous nodules, 28 to 30 feet								
30									19		
35					99	30	17	13	26		
40		CH	FAT CLAY (CH), VERY STIFF TO HARD, BROWN AND DARK YELLOWISH BROWN						19		106
45									20		
50					64	24	40	21			(2.99) 105

DEPTH OF BORING: ONE HUNDRED FIFTY (150) FEET — INITIAL WATER LEVEL: APPROXIMATE AT EL. +1 FEET
DATE DRILLED: June 18, 2009 — FINAL WATER LEVEL:

psi Geotechnical Consulting Services, Houston, Texas

PLATE A-8A

LOG OF BORING B-4 (CONT'D.)
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6
BROWNSVILLE, TEXAS

TYPE OF BORING: WET ROTARY — PSI PROJECT NO: 286-155

COORDINATE (X OR N): N 16,512,113
COORDINATE (Y OR E): E 1,351,381
SURFACE ELEVATION: +8.2 feet
BORING LOCATION PLAN: SEE PLATE 1

DEPTH, FEET	SOIL	USC GROUP SYMBOL	DESCRIPTION	N-BLOWS/FOOT	% PASSING 200	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	MOISTURE CONTENT (%)	SHEAR STRENGTH (tons/ft²) ○HP ●UC ΔTV ▲UU	UNIT DRY WT. (lbs/ft³)
100		CH	FAT CLAY (CH), VERY STIFF TO HARD, GRAY						30		(2.14) 93
110											
115		SM	SILTY SAND (SM), MEDIUM DENSE TO VERY DENSE, GRAY AND YELLOWISH BROWN						24		
120											
125											
130			- clay seams, 128 to 135 feet	28	16	26	10	16	19		
135											
140			- gray below 138 feet	51					20		
145											
150				62					20		

DEPTH OF BORING: ONE HUNDRED FIFTY (150) FEET — INITIAL WATER LEVEL: APPROXIMATE AT EL. +1 FEET
DATE DRILLED: June 18, 2009 — FINAL WATER LEVEL:

psi Geotechnical Consulting Services, Houston, Texas

PLATE A-8C

LOG OF BORING B-5 (CONT'D.)
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6
BROWNSVILLE, TEXAS

TYPE OF BORING: WET ROTARY — PSI PROJECT NO: 286-155

COORDINATE (X OR N): N 16,512,239
COORDINATE (Y OR E): E 1,351,718
SURFACE ELEVATION: +8.8 feet
BORING LOCATION PLAN: SEE PLATE 1

DEPTH, FEET	SOIL	USC GROUP SYMBOL	DESCRIPTION	N-BLOWS/FOOT	% PASSING 200	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	MOISTURE CONTENT (%)	SHEAR STRENGTH (tons/ft²) ○HP ●UC ΔTV ▲UU	UNIT DRY WT. (lbs/ft³)
55		CH	FAT CLAY (CH), STIFF TO VERY STIFF, BROWN AND YELLOWISH BROWN						22		
60					100				25		103
65									24		
70						58	25	33	25		
75									27		
80									30		
85									21		
90									25		
95					99				25		99
100									26		

DEPTH OF BORING: ONE HUNDRED (100) FEET — INITIAL WATER LEVEL: APPROXIMATE AT EL. +1 FEET
DATE DRILLED: June 17, 2009 — FINAL WATER LEVEL:

psi Geotechnical Consulting Services, Houston, Texas

PLATE A-9B

LOG OF BORING B-4 (CONT'D.)
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6
BROWNSVILLE, TEXAS

TYPE OF BORING: WET ROTARY — PSI PROJECT NO: 286-155

COORDINATE (X OR N): N 16,512,113
COORDINATE (Y OR E): E 1,351,381
SURFACE ELEVATION: +8.2 feet
BORING LOCATION PLAN: SEE PLATE 1

DEPTH, FEET	SOIL	USC GROUP SYMBOL	DESCRIPTION	N-BLOWS/FOOT	% PASSING 200	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	MOISTURE CONTENT (%)	SHEAR STRENGTH (tons/ft²) ○HP ●UC ΔTV ▲UU	UNIT DRY WT. (lbs/ft³)
55		CH	FAT CLAY (CH), VERY STIFF TO HARD, BROWN AND DARK YELLOWISH BROWN						22		
60									24		
65					100	52	24	28	24		
70									24		(2.76) 100
75			- thin sand layer near 75 feet						23		
80					20				28		
85			- sand lenses below 83 feet		98	61	24	37	25		97
90									26		
95									24		
100									20		

DEPTH OF BORING: ONE HUNDRED FIFTY (150) FEET — INITIAL WATER LEVEL: APPROXIMATE AT EL. +1 FEET
DATE DRILLED: June 18, 2009 — FINAL WATER LEVEL:

psi Geotechnical Consulting Services, Houston, Texas

PLATE A-8B

KEY TO TERMS AND SYMBOLS USED ON LOGS

SOIL TYPE

GRAVEL, SAND, SILT, LEAN CLAY, FAT CLAY, PEAT

SAMPLER TYPE

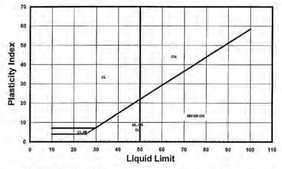
NO SAMPLE, AUGER SAMPLE, SHELBY TUBE, SPLIT SPOON

MODIFIERS

STONE, GRAVELY, SANDY, SILTY, CLAYEY, MISC. (SEE TEXT ON LOG)

NO RECOVERY, ROCK CORE, 2" SHELBY TUBE, TXDOT CONE

UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D 2487



CONSISTENCY OF COHESIVE SOILS

CONSISTENCY	SHEAR STRENGTH IN TONS/FT²
VERY SOFT	0 TO 0.125
SOFT	0.125 TO 0.25
FIRM	0.25 TO 0.5
STIFF	0.5 TO 1.0
VERY STIFF	1.0 TO 2.0
HARD	> 2.0 OR 2.0+

RELATIVE DENSITY - GRANULAR SOILS

CONSISTENCY	N-VALUE (BLOWS/FOOT)
VERY LOOSE	0 TO 4
LOOSE	5 TO 9
MEDIUM DENSE	10 TO 29
DENSE	30 TO 50
VERY DENSE	> 50 OR 50+

DEGREE OF PLASTICITY OF COHESIVE SOILS

DEGREE OF PLASTICITY	PLASTICITY INDEX	SWELL POTENTIAL
NONE OR SLIGHT	0 TO 4	NONE
LOW	4 TO 20	LOW
MEDIUM	20 TO 35	MEDIUM
HIGH	35 TO 45	HIGH
VERY HIGH	> 45	VERY HIGH

MOISTURE CONDITION COHESIVE SOILS

DESCRIPTION	CONDITION
Absence of moisture, dusty, dry to touch.	DRY
Damp but no visible water	MOIST
Visible free water	WET

CONSISTENCY OF COHESIVE SOILS AFTER TERZAGHI (1948)

CONSISTENCY	N-VALUE (BLOWS/FOOT)
VERY SOFT	< 2
SOFT	2 TO 4
FIRM	4 TO 8
STIFF	8 TO 15
VERY STIFF	15 TO 30
HARD	> 30

ABBREVIATIONS

HP - HAND PENETROMETER
TV - TORVANE
MV - MINIATURE VANE
UC - UNCONFINED COMPRESSION TEST
UU - UNCONSOLIDATED UNDRAINED TRIAXIAL
CU - CONSOLIDATED UNDRAINED

NOTE: PLOT INDICATES SHEAR STRENGTH AS OBTAINED BY ABOVE TESTS

▼ FINAL GROUND WATER LEVEL
▽ INITIAL GROUND WATER LEVEL

CLASSIFICATION OF GRANULAR SOILS

U.S. STANDARD SIEVE SIZE(S)

6"	3"	3/4"	4	10	40	200

BOULDERS	COBBLES	GRAVEL		SAND			SILT OR CLAY	CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE		
152	76.2	19.1	4.76	2.0	0.42	0.074		0.002

GRAIN SIZE IN MM

psi Geotechnical Consulting Services, Houston, Texas.

PLATE A-11

Texas P.E. Firm Registration No. F-754

ISSUE	DATE	DESCRIPTION
0	04/20/20	ISSUE FOR CONSTRUCTION

PROJECT MANAGER	M. KRIEBER
DESIGNED BY	A. COLWELL
DRAWN BY	M. CANTU
CHECKED BY	D. GARZA
PROJECT NUMBER	10219669

STATE OF TEXAS — ARTHUR B. COLWELL — 60292 — REGISTERED PROFESSIONAL ENGINEER — 4-20-20

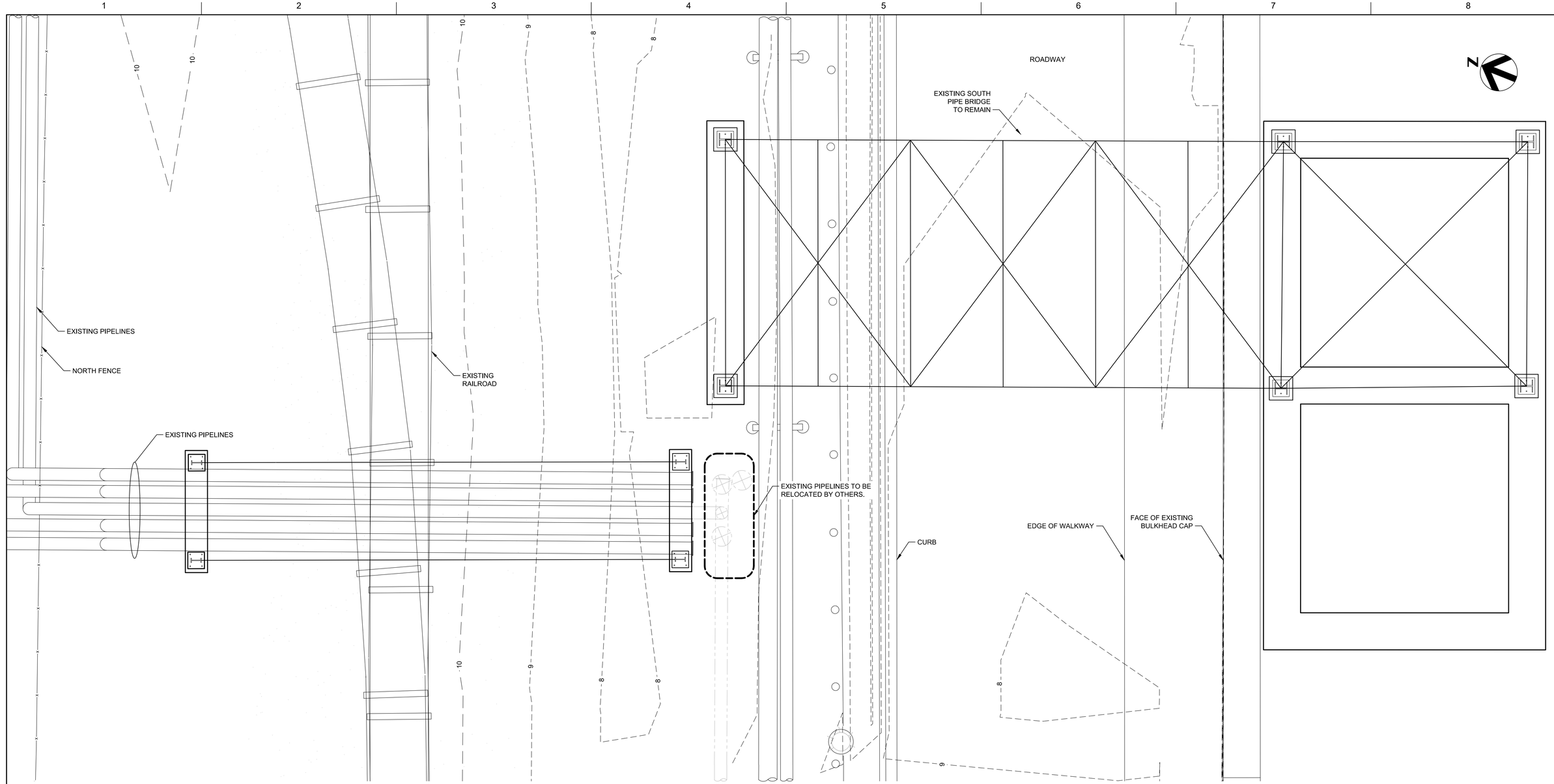
PORT OF BROWNSVILLE — the port that works

BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

BORING LOGS

0 1" 2"

FILENAME 00C-02.DWG
SCALE NONE
SHEET 04



1/03 DEMOLITION SITE PLAN

1/4" = 1'-0" (ROTATED 90° CCW FROM TRUE)

Texas P.E. Firm Registration No. F-754

ISSUE	DATE	DESCRIPTION
0	04/20/20	ISSUE FOR CONSTRUCTION

PROJECT MANAGER	M. KRIEBER
DESIGNED BY	A. COLWELL
DRAWN BY	M. CANTU
CHECKED BY	D. GARZA
PROJECT NUMBER	10219669

STATE OF TEXAS
ARTHUR B. COLWELL
60292
REGISTERED PROFESSIONAL ENGINEER
4-20-20

PORT OF BROWNSVILLE
the port that *works*

BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

ENLARGED EXISTING SITE AND DEMOLITION PLAN

0 1" 2"

FILENAME 00X-01.DWG
SCALE 1/4" = 1'-0"

SHEET 05

NOT USED

Texas P.E. Firm
Registration No. F-754

ISSUE	DATE	DESCRIPTION
0	04/20/20	ISSUE FOR CONSTRUCTION

PROJECT MANAGER	M. KRIEBER
DESIGNED BY	A. COLWELL
DRAWN BY	M. CANTU
CHECKED BY	D. GARZA
PROJECT NUMBER	10219669

STATE OF TEXAS
ARTHUR B. COLWELL
60292
REGISTERED PROFESSIONAL ENGINEER
4-20-20

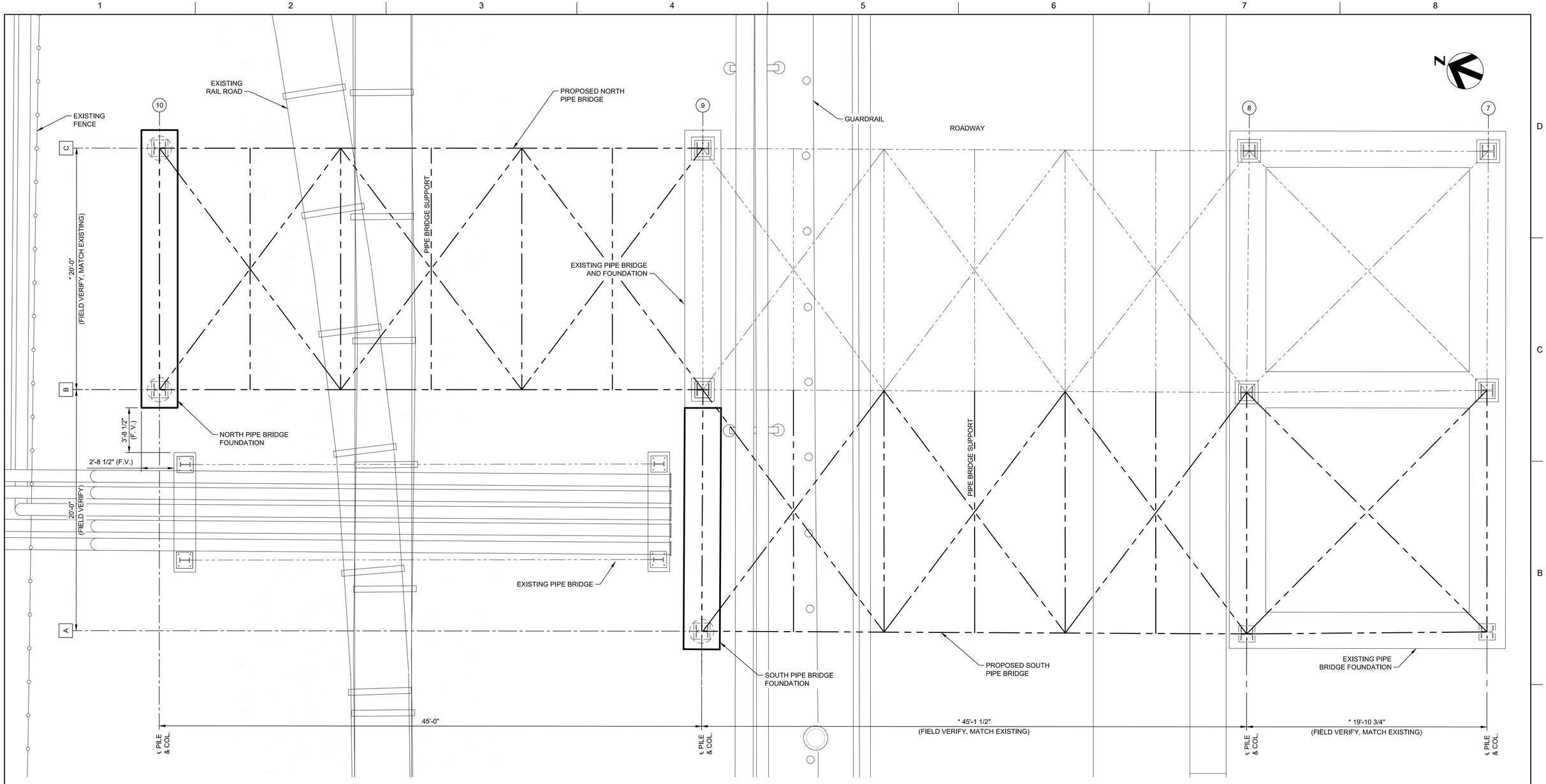
PORT OF BROWNSVILLE
the port that *works*
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

ENLARGED EXISTING SITE
AND DEMOLITION DETAILS

0 1" 2"

FILENAME	00X-02.DWG
SCALE	NONE

SHEET 06



1 / 03 ENLARGED PROJECT LAYOUT

1/4" = 1'-0" (VIEW ROTATED 90° CCW FROM TRUE)

NOTES:

* DIMENSION SHALL BE FIELD-VERIFIED AND ADJUSTED, IF NECESSARY, TO MATCH EXISTING IMPROVEMENTS.

Texas P.E. Firm Registration No. F-754

ISSUE	DATE	DESCRIPTION
0	04/20/20	ISSUE FOR CONSTRUCTION

PROJECT MANAGER	M. KRIEBER
DESIGNED BY	A. COLWELL
DRAWN BY	M. CANTU
CHECKED BY	D. GARZA
PROJECT NUMBER	10219669

STATE OF TEXAS
ARTHUR B. COLWELL
60292
REGISTERED PROFESSIONAL ENGINEER
4-20-20

PORT OF BROWNSVILLE
the port that *works*

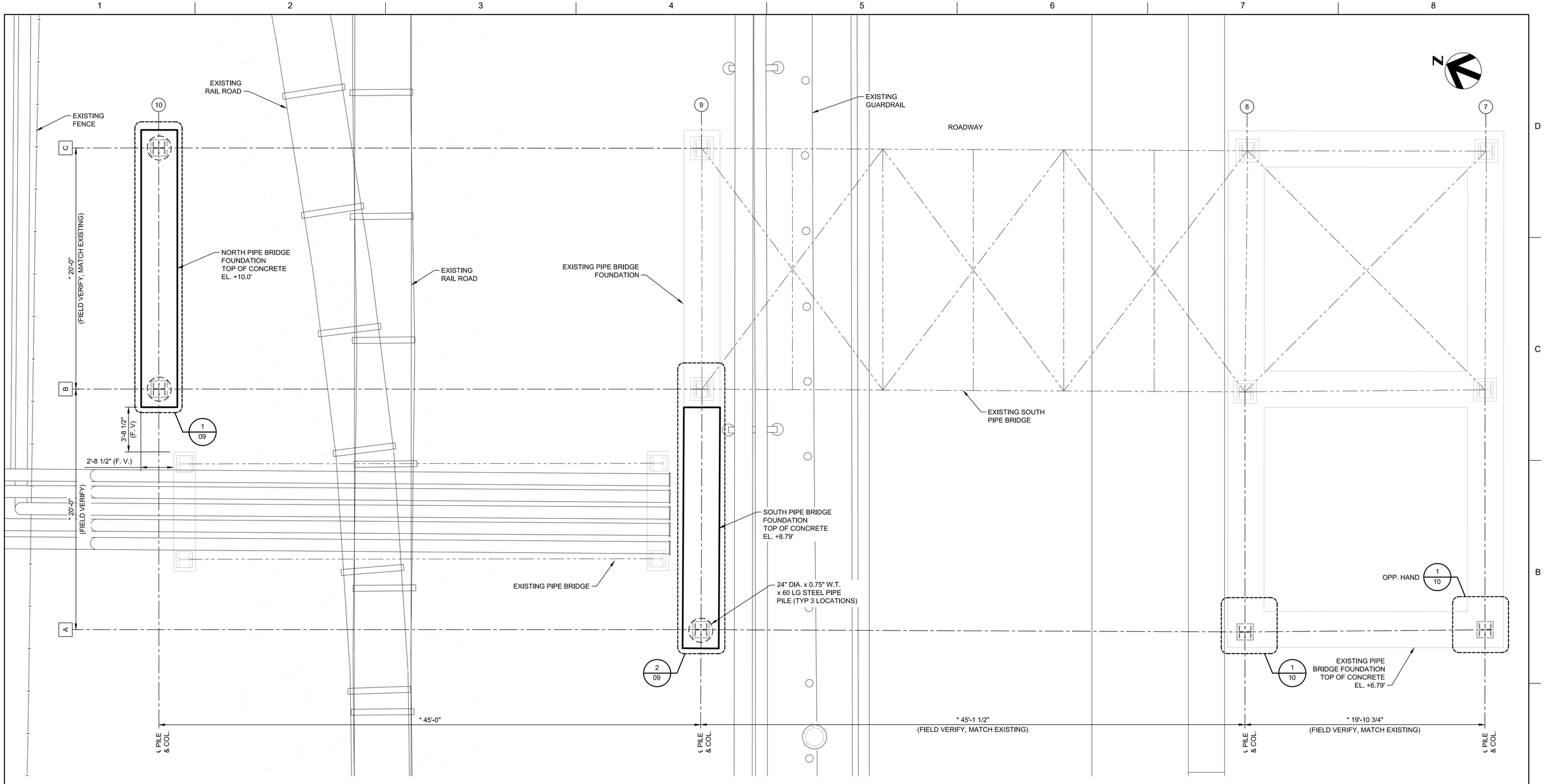
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

ENLARGED PROJECT LAYOUT

0 1" 2"

FILENAME 00S-01.DWG
SCALE 1/4" = 1'-0"

SHEET 07



PILE AND FOUNDATION PLAN

1/4" = 1'-0" (VIEW ROTATED 90° CCW FROM TRUE)

NOTES:

* DIMENSION SHALL BE FIELD-VERIFIED AND ADJUSTED, IF NECESSARY, TO MATCH EXISTING IMPROVEMENTS.

Texas P.E. Firm Registration No. F-754

ISSUE	DATE	DESCRIPTION
0	04/20/20	ISSUE FOR CONSTRUCTION

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STATE OF TEXAS — ARTHUR B. COLWELL — 60292 — REGISTERED PROFESSIONAL ENGINEER — 4-20-20

PORT OF BROWNSVILLE
the port that *works*

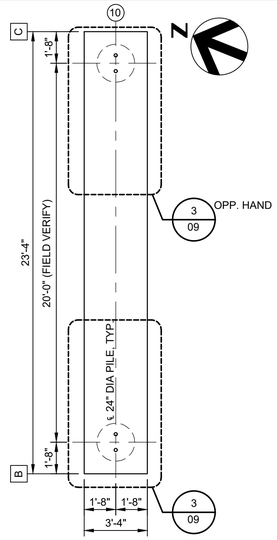
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

PILE AND FOUNDATION PLAN

0 1" 2"

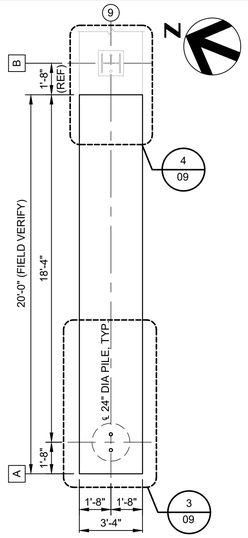
FILENAME 00S-02.DWG
SCALE 1/4" = 1'-0"

SHEET 08



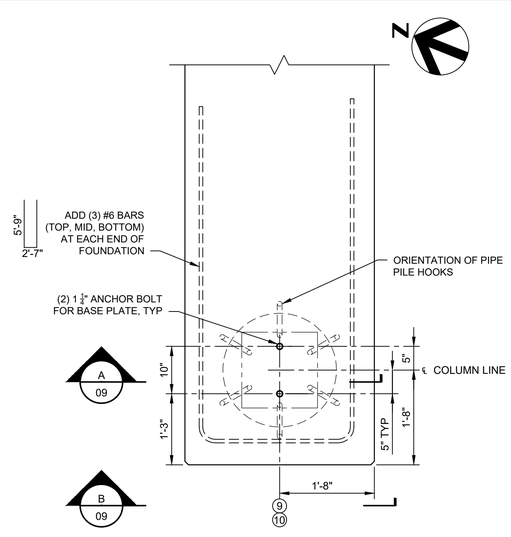
PLAN - NORTH
PIPE BRIDGE FOUNDATION

1 / 08 — 1/4" = 1'-0"



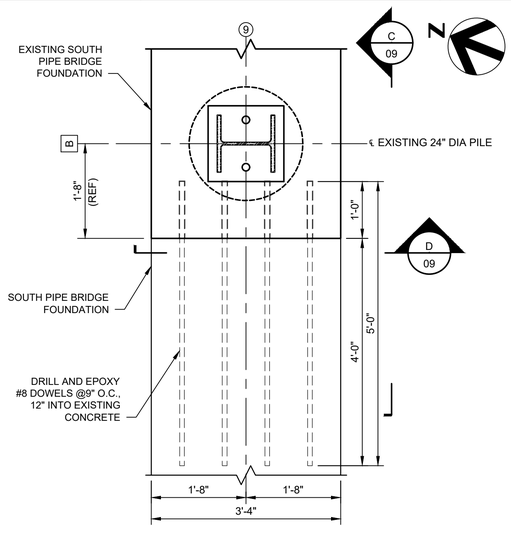
PLAN - SOUTH
PIPE BRIDGE FOUNDATION

2 / 08 — 1/4" = 1'-0"



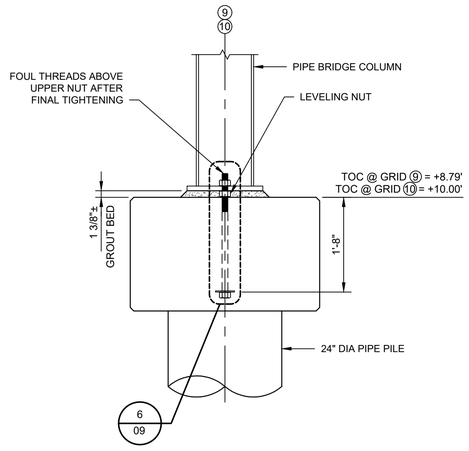
PARTIAL PLAN -
TYP PILE CAP FOUNDATION

3 / 09 — 3/4" = 1'-0"



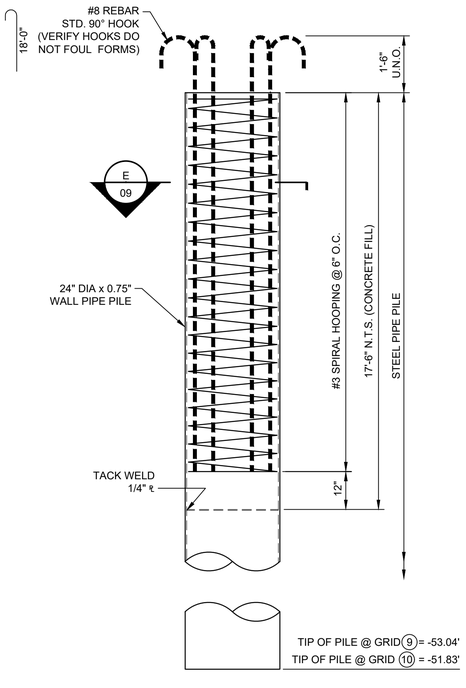
PARTIAL PLAN -
FOUNDATION ANCHOR

4 / 09 — 1/2" = 1'-0"



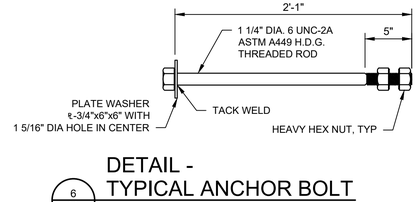
SECTION - TYPICAL COLUMN CONNECTION

B / 09 — 3/4" = 1'-0"



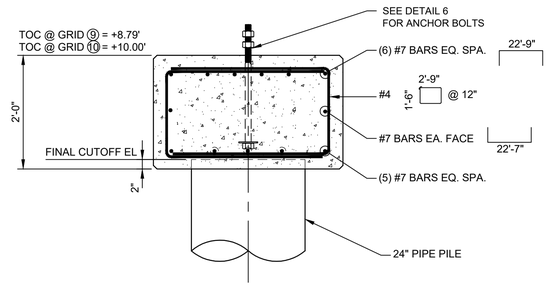
TYPICAL
PILE REINFORCING

5 / 09 — 1/2" = 1'-0"



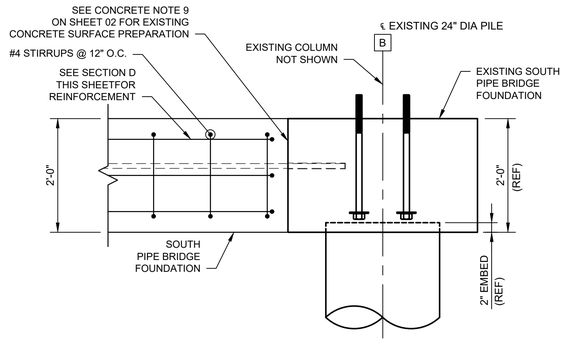
DETAIL -
TYPICAL ANCHOR BOLT

6 / 09 — 1 1/2"= 1'-0"



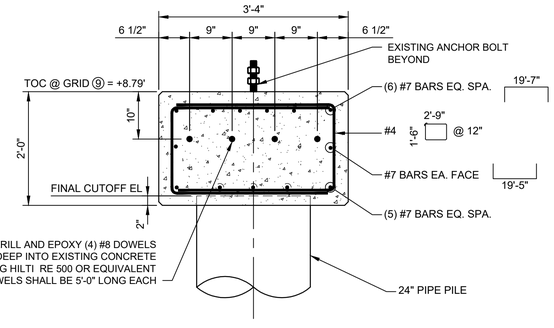
SECTION - FOUNDATION REINFORCING

A / 09 — 3/4" = 1'-0"



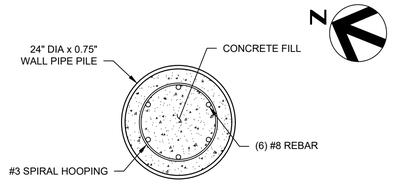
PARTIAL ELEVATION - FOUNDATION JOINT

C / 09 — 1/2" = 1'-0"



SECTION - FOUNDATION REINFORCING

D / 09 — 3/4" = 1'-0"



SECTION - PIPE PILE

E / 09 — 3/4" = 1'-0"

HDR
Texas P.E. Firm
Registration No. F-754

ISSUE	DATE	DESCRIPTION
0	04/20/20	ISSUE FOR CONSTRUCTION

PROJECT MANAGER	M. KRIEBER
DESIGNED BY	A. COLWELL
DRAWN BY	M. CANTU
CHECKED BY	D. GARZA
PROJECT NUMBER	10219669

STATE OF TEXAS
ARTHUR B. COLWELL
60292
REGISTERED
PROFESSIONAL ENGINEER
4-20-20

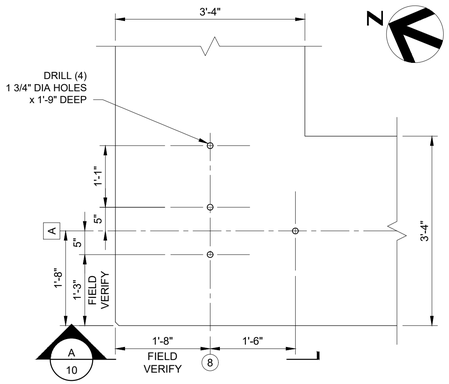
PORT OF BROWNSVILLE
the port that *works*
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

FOUNDATION DETAILS (1 OF 2)

0 1" 2"

FILENAME 00S-03.DWG
SCALE AS NOTED

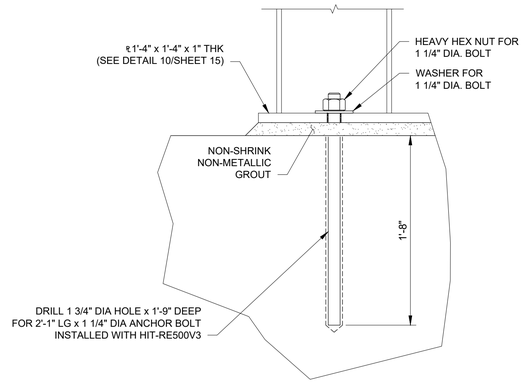
SHEET 09



PLAN DETAIL - POST-INSTALLED ANCHORS

1 / 08

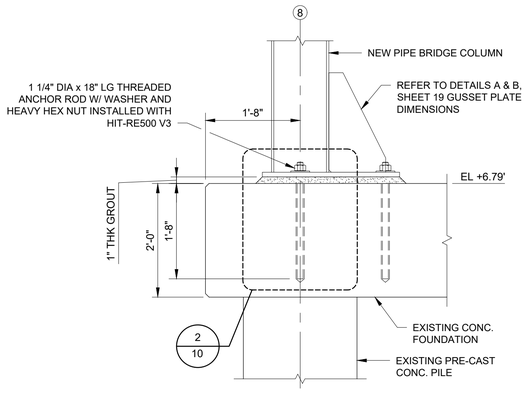
3/4" = 1'-0"



DETAIL - POST-INSTALLED ANCHOR RODS

2 / 10

1 1/2" = 1'-0"



SPECIFICATION NOTES:

1. ANCHOR ROD: ASTM A193, B7 (HDG)
2. WASHER: ASTM F436, TYPE 1
3. NUTS: 194, GRADE 2H HEAVY
4. GROUT: NON-SHRINK, NON-METALLIC

SECTION - POST INSTALLED ANCHORS

A / 10

3/4" = 1'-0"

Texas P.E. Firm
Registration No. F-754

ISSUE	DATE	DESCRIPTION
0	04/20/20	ISSUE FOR CONSTRUCTION

PROJECT MANAGER	M. KRIEBER
DESIGNED BY	A. COLWELL
DRAWN BY	M. CANTU
CHECKED BY	D. GARZA
PROJECT NUMBER	10219669

STATE OF TEXAS
ARTHUR B. COLWELL
60292
REGISTERED
PROFESSIONAL ENGINEER
4-20-20

PORT OF BROWNSVILLE
the port that *works*

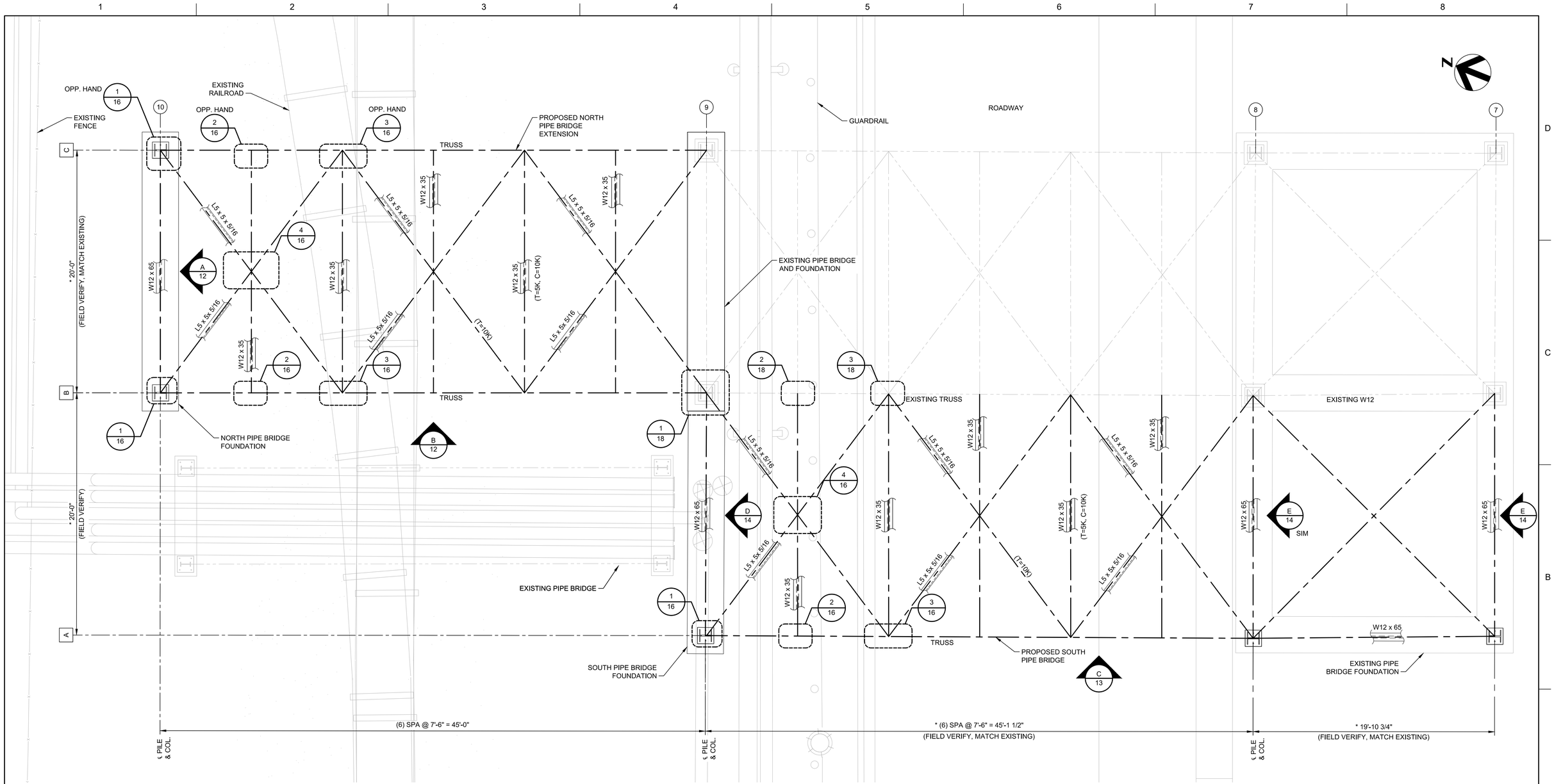
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

FOUNDATION DETAILS (2 OF 2)

0 1" 2"

FILENAME	00S-04.DWG
SCALE	AS NOTED

SHEET 10



1/03 PIPE BRIDGE FRAMING PLAN

1/4" = 1'-0"

(VIEW ROTATED 90° CCW FROM TRUE)
PLAN @ TOS EL. 40.96'
PLAN @ TOS EL. 36.29'

NOTES:

* DIMENSION SHALL BE FIELD-VERIFIED AND ADJUSTED, IF NECESSARY, TO MATCH EXISTING IMPROVEMENTS.

HDR
Texas P.E. Firm
Registration No. F-754

ISSUE	DATE	DESCRIPTION
0	04/20/20	ISSUE FOR CONSTRUCTION

PROJECT MANAGER	M. KRIEBER
DESIGNED BY	A. COLWELL
DRAWN BY	M. CANTU
CHECKED BY	D. GARZA
PROJECT NUMBER	10219669

STATE OF TEXAS
ARTHUR B. COLWELL
60292
REGISTERED PROFESSIONAL ENGINEER
4-20-20

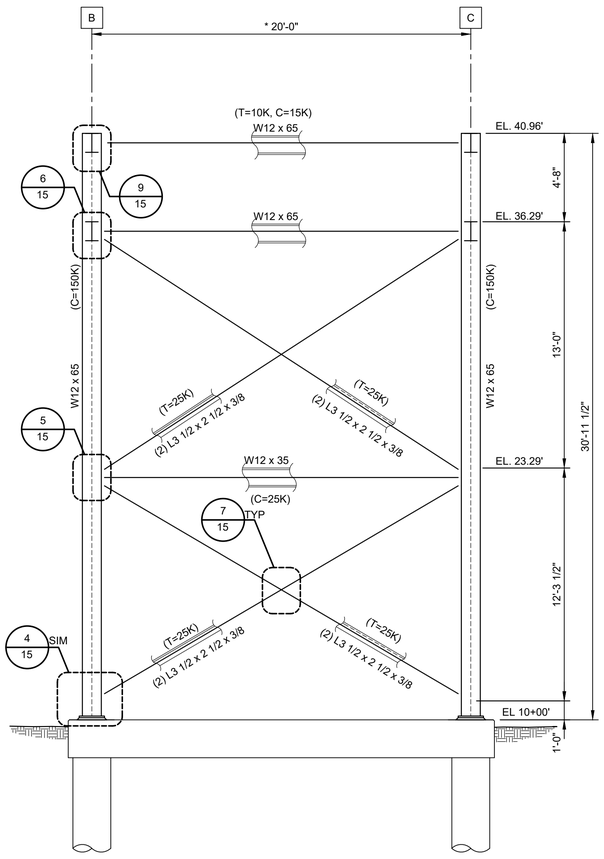
PORT OF BROWNSVILLE
the port that *works*
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

PIPE BRIDGE FRAMING PLAN

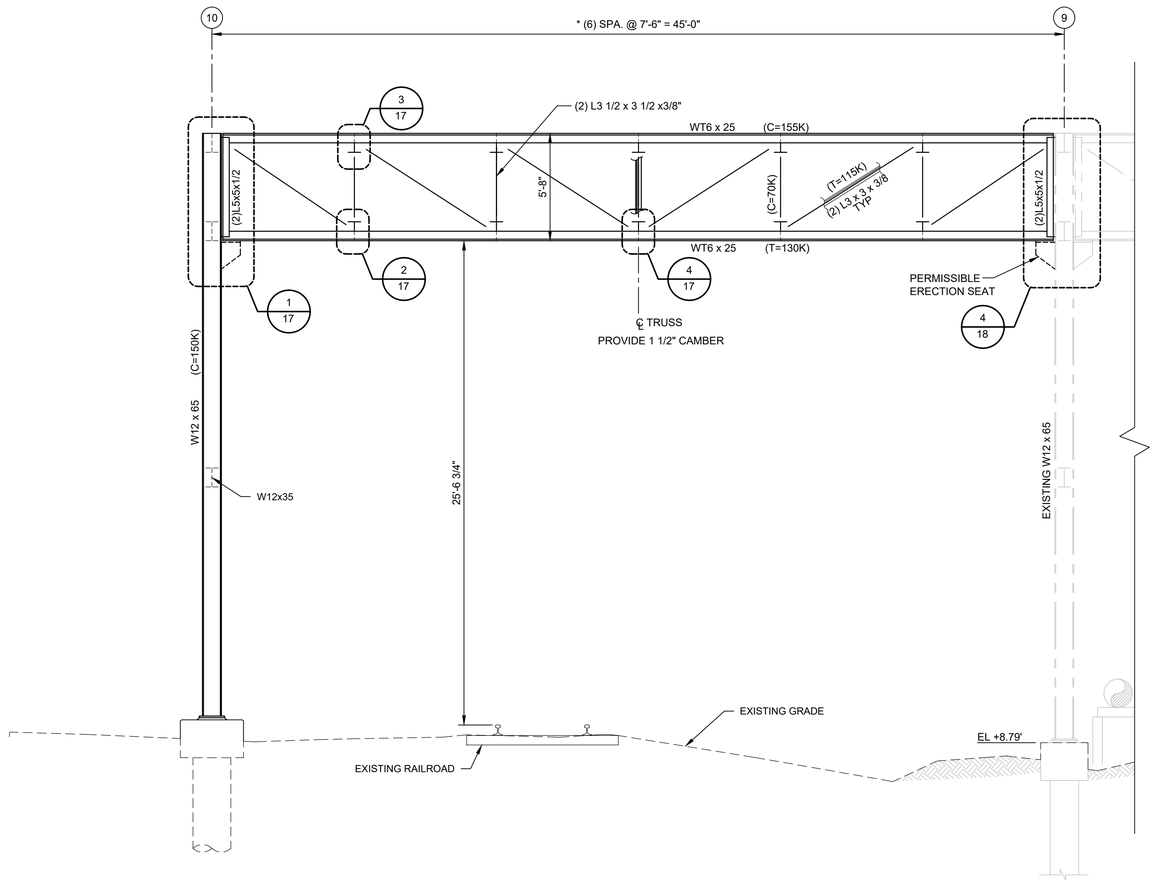
0 1" 2"

FILENAME 00S-05.DWG
SCALE 1/4" = 1'-0"

SHEET 11



A
11
ELEVATION -
NORTH PIPE BRIDGE @ GRID 10
1/4" = 1'-0"
(LOOKING NORTH)



B
11
ELEVATION -
NORTH PIPE BRIDGE @ GRID B & C
1/4" = 1'-0"

NOTES:

* DIMENSION SHALL BE FIELD-VERIFIED AND ADJUSTED, IF NECESSARY, TO MATCH EXISTING IMPROVEMENTS.

HDR
Texas P.E. Firm
Registration No. F-754

ISSUE	DATE	DESCRIPTION
0	04/20/20	ISSUE FOR CONSTRUCTION

PROJECT MANAGER	M. KRIEBER
DESIGNED BY	A. COLWELL
DRAWN BY	M. CANTU
CHECKED BY	D. GARZA
PROJECT NUMBER	10219669

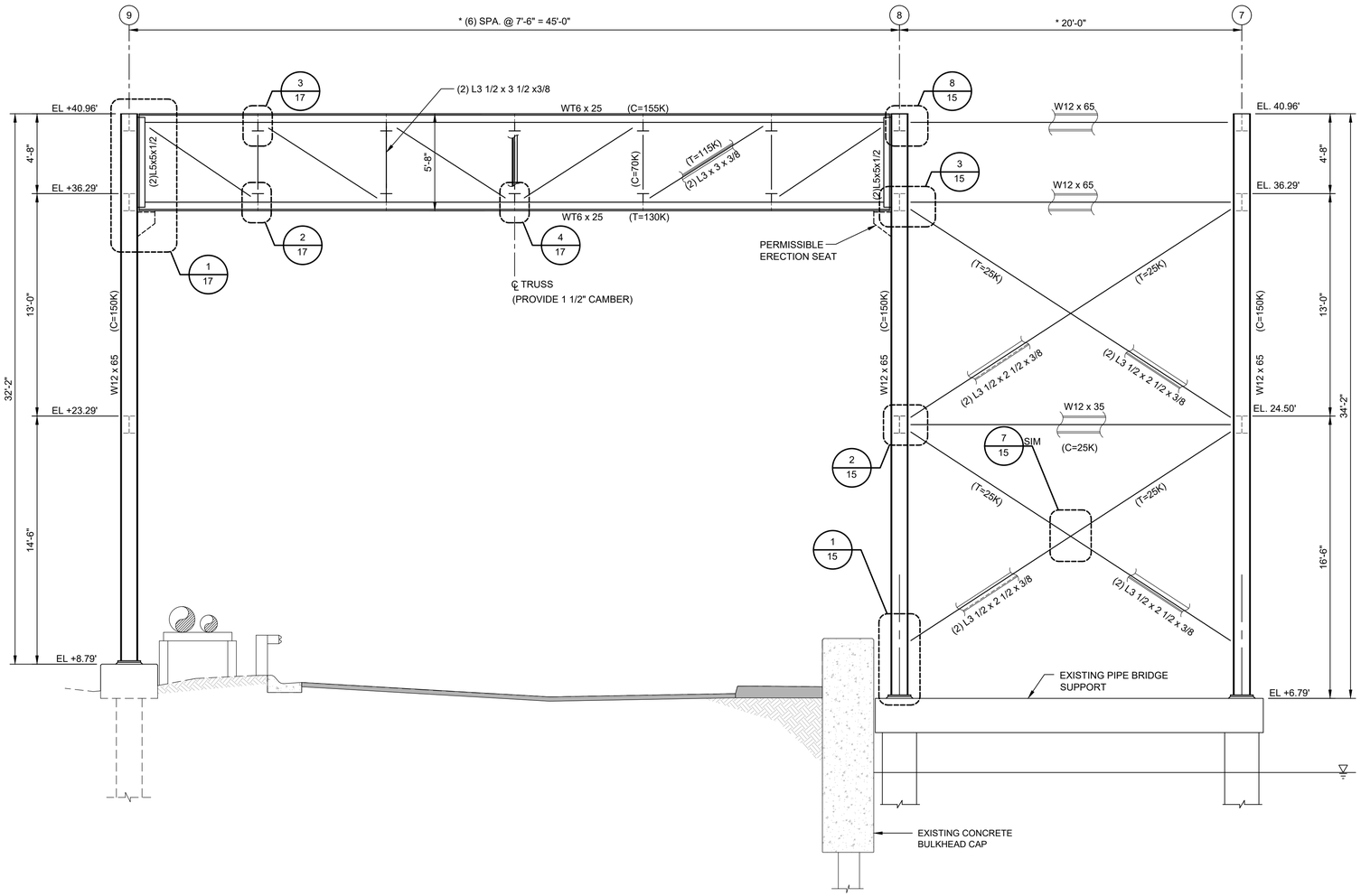
STATE OF TEXAS
ARTHUR B. COLWELL
60292
LICENSED PROFESSIONAL ENGINEER
4-20-20

PORT OF BROWNSVILLE
the port that *works*
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

NORTH PIPE BRIDGE ELEVATIONS

0 1" 2"

FILENAME	00S-06.DWG
SCALE	1/4" = 1'-0"
SHEET	12



C/13 ELEVATION - SOUTH PIPE BRIDGE @ GRID A

1/4" = 1'-0"

NOTES:

* DIMENSION SHALL BE FIELD-VERIFIED AND ADJUSTED, IF NECESSARY, TO MATCH EXISTING IMPROVEMENTS.

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STATE OF TEXAS — ARTHUR B. COLWELL — 60292 — REGISTERED PROFESSIONAL ENGINEER — 4-20-20

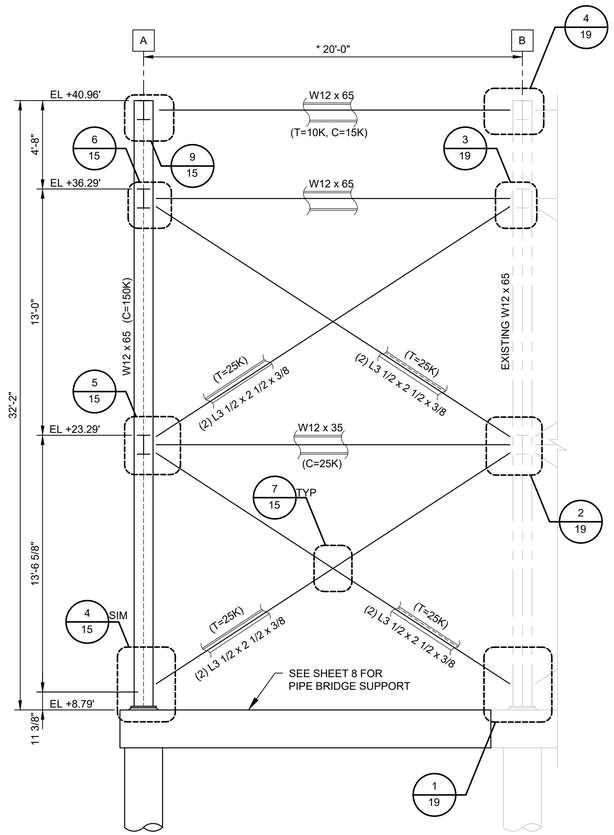
PORT OF BROWNSVILLE
the port that *works*
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

SOUTH PIPE BRIDGE ELEVATIONS (1 OF 2)

0 1" 2"

FILENAME 00S-07.DWG
SCALE 1/4" = 1'-0"

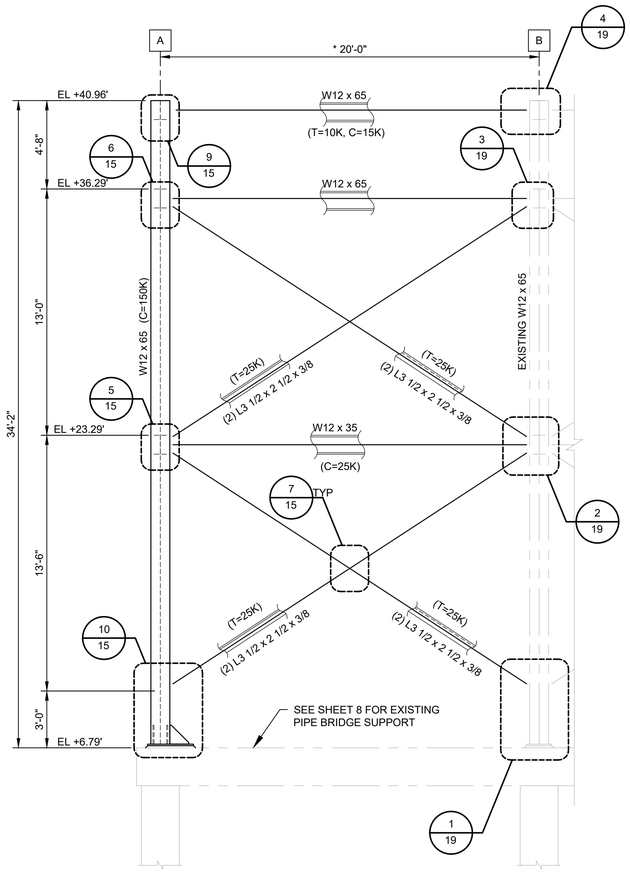
SHEET 13



D
11

ELEVATION -
SOUTH PIPE BRIDGE @ GRID 9

1/4" = 1'-0" (LOOKING NORTH)



E
11

ELEVATION
SOUTH PIPE BRIDGE @ GRID 7 & 8

1/4" = 1'-0" (LOOKING NORTH)

NOTE:

* DIMENSIONS GIVEN ARE FROM ℄ MEMBER OR SUPPORT SURFACE.DIMENSION SHALL BE FIELD-VERIFIED AND ADJUSTED, IF NECESSARY, TO MATCH EXISTING IMPROVEMENTS.

Texas P.E. Firm
Registration No. F-754

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STATE OF TEXAS
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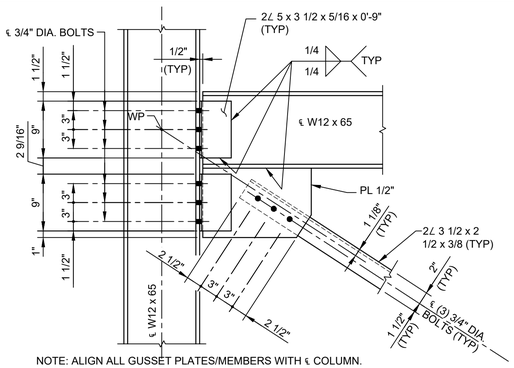
OIL DOCK NO. 6

SOUTH PIPE BRIDGE ELEVATIONS
(2 OF 2)

0 1" 2"

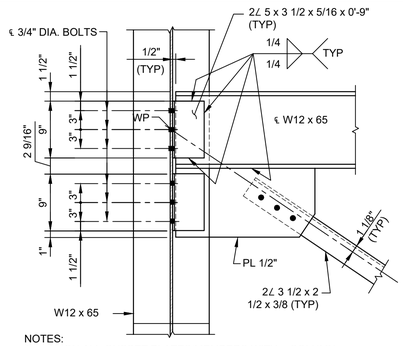
FILENAME 00S-08.DWG
SCALE 1/4" = 1'-0"

SHEET 14



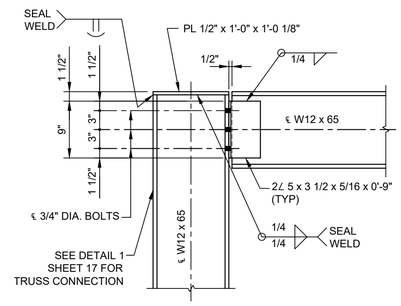
NOTE: ALIGN ALL GUSSET PLATES/MEMBERS WITH ℄ COLUMN.

3/13 DETAIL
1" = 1'-0"

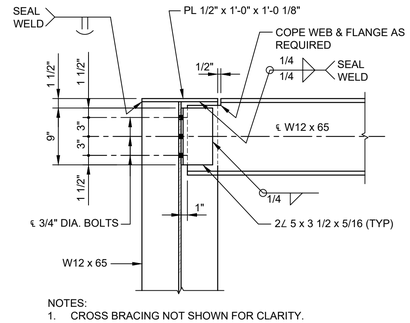


NOTES:
1. ALIGN ALL GUSSET PLATES/MEMBERS WITH ℄ COLUMN.
2. NEAR SIDE COL. FLANGE NOT SHOWN FOR CLARITY.
3. FOR DIAGONAL BRACE BOLT SPACING SEE DETAIL 3 THIS SHEET.

6/12 DETAIL
1" = 1'-0"

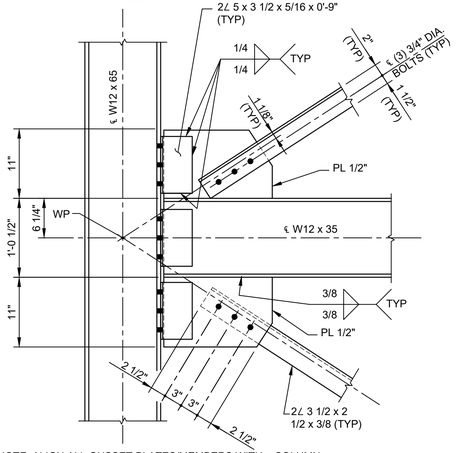


8/13 DETAIL
1" = 1'-0"



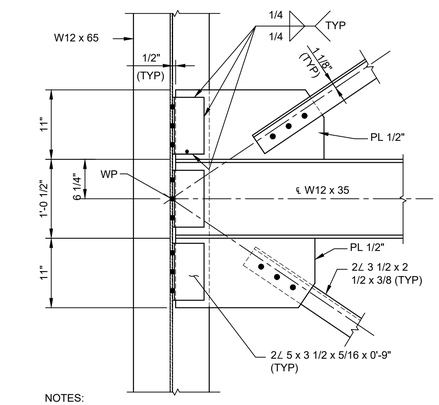
NOTES:
1. CROSS BRACING NOT SHOWN FOR CLARITY.
2. NEAR SIDE COL. FLANGE NOT SHOWN FOR CLARITY.

9/12 DETAIL
1" = 1'-0"



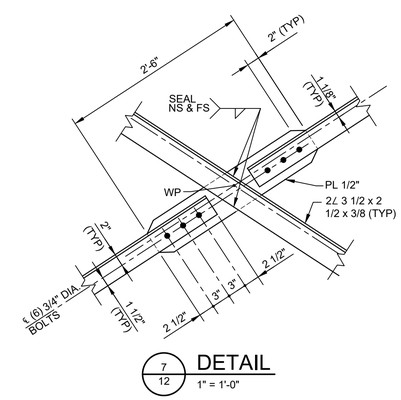
NOTE: ALIGN ALL GUSSET PLATES/MEMBERS WITH ℄ COLUMN.

2/13 DETAIL
1" = 1'-0"

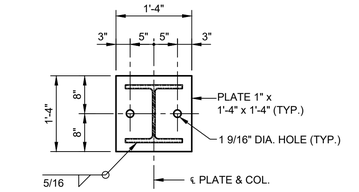


NOTES:
1. ALIGN ALL GUSSET PLATES/MEMBERS WITH ℄ COLUMN.
2. NEAR SIDE COL. FLANGE NOT SHOWN FOR CLARITY.
3. FOR DIAGONAL BRACE BOLT SPACING SEE DETAIL 2 THIS SHEET.

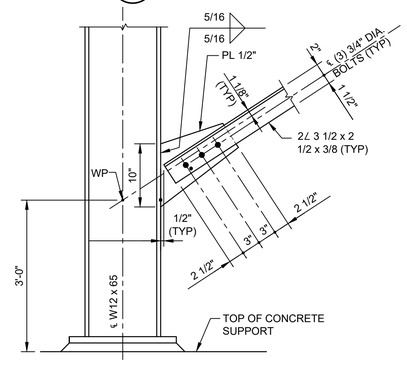
5/12 DETAIL
1" = 1'-0"



7/12 DETAIL
1" = 1'-0"

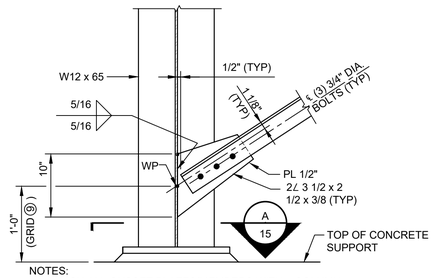


A/15 TYP DETAIL - BASEPLATE
3/4" = 1'-0"



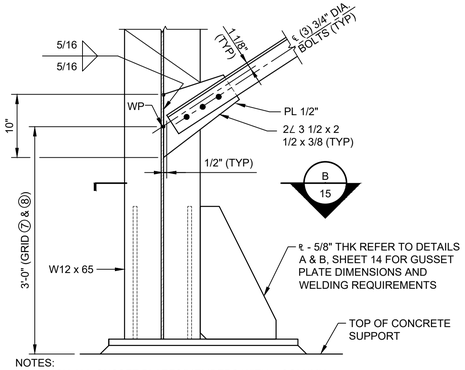
NOTE: ALIGN ALL GUSSET PLATES/MEMBERS WITH ℄ COLUMN.

1/13 DETAIL
1" = 1'-0"



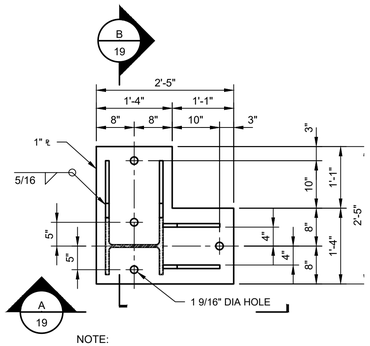
NOTES:
1. ALIGN ALL GUSSET PLATES/MEMBERS WITH ℄ COLUMN.
2. NEAR SIDE COL. FLANGE NOT SHOWN FOR CLARITY.
3. FOR BOLT SPACING SEE DETAIL 1 THIS SHEET.

4/12 DETAIL
1" = 1'-0"



NOTES:
1. ALIGN ALL GUSSET PLATES/MEMBERS WITH ℄ COLUMN.
2. NEAR SIDE COL. FLANGE NOT SHOWN FOR CLARITY.
3. FOR BOLT SPACING SEE DETAIL 1 THIS SHEET.

10/14 DETAIL
1" = 1'-0"



NOTE:
1. ANCHOR BOLT HOLE LOCATIONS TO BE VERIFIED AFTER PLACEMENT OF POST-INSTALLED ANCHORS.

B/15 DETAIL - BASEPLATE
3/4" = 1'-0" (COLUMNS A-7, & A-8)

Texas P.E. Firm
Registration No. F-754

ISSUE	DATE	DESCRIPTION
0	04/20/20	ISSUE FOR CONSTRUCTION

PROJECT MANAGER	M. KRIEBER
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DRAWN BY	M. CANTU
CHECKED BY	D. GARZA
PROJECT NUMBER	10219669

STATE OF TEXAS
ARTHUR B. COLWELL
60292
REGISTERED PROFESSIONAL ENGINEER
4-20-20

PORT OF BROWNSVILLE
the port that *works*

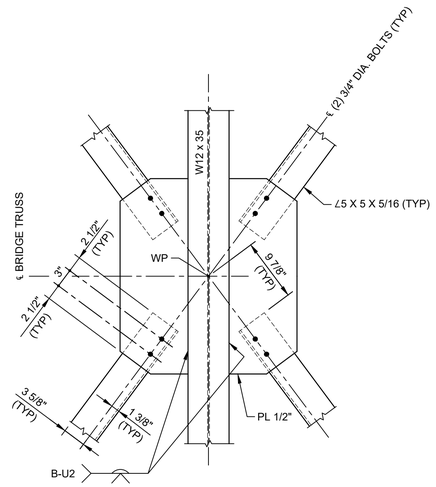
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

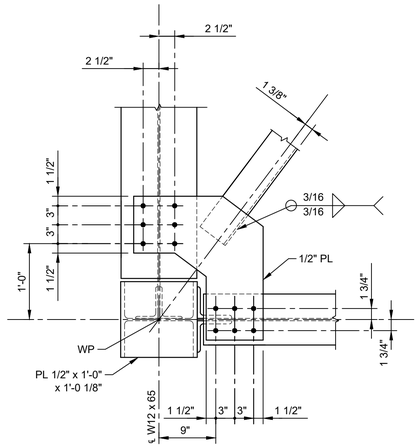
PIPE BRIDGE SECTIONS AND DETAILS (1 OF 5)

0 1" 2"

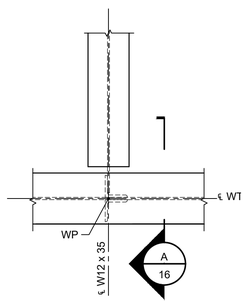
FILENAME 00S-09.DWG
SCALE AS NOTED

SHEET 15

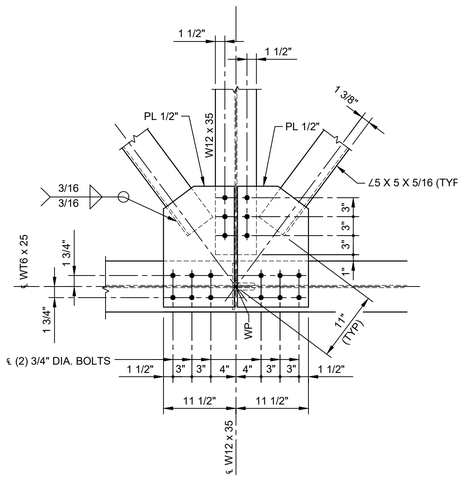




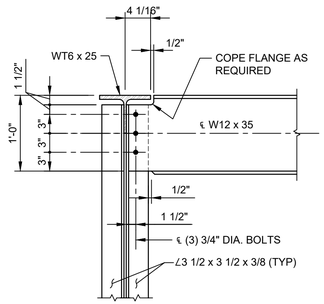
1 / 11 DETAIL
1" = 1'-0"



2 / 11 DETAIL
1" = 1'-0"



3 / 11 DETAIL
1" = 1'-0"



A / 16 SECTION
1" = 1'-0"

Texas P.E. Firm
Registration No. F-754

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0	04/20/20	ISSUE FOR CONSTRUCTION

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STATE OF TEXAS
ARTHUR B. COLWELL
60292
LICENSED PROFESSIONAL ENGINEER
4-20-20

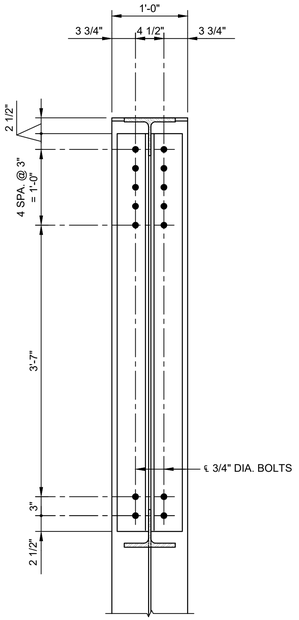
PORT OF BROWNSVILLE
the port that *works*

BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

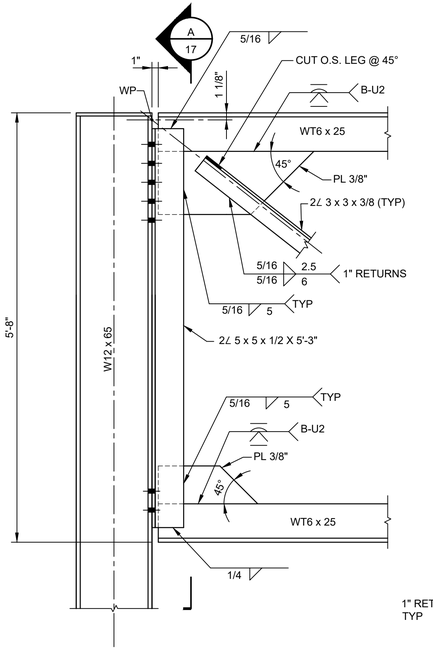
PIPE BRIDGE SECTIONS AND DETAILS (2 OF 5)

0 1" 2"

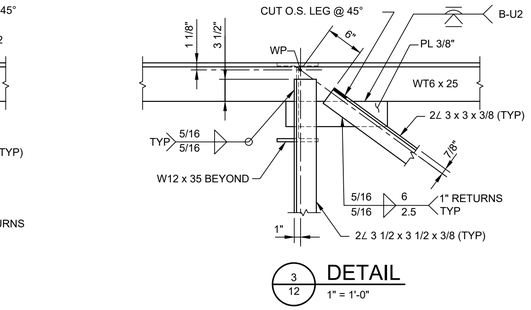
FILENAME	00S-10.DWG
SCALE	AS NOTED
SHEET	16



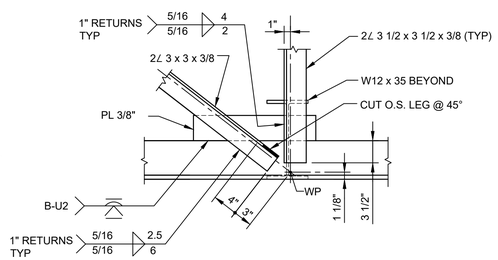
A/17 SECTION
1" = 1'-0"



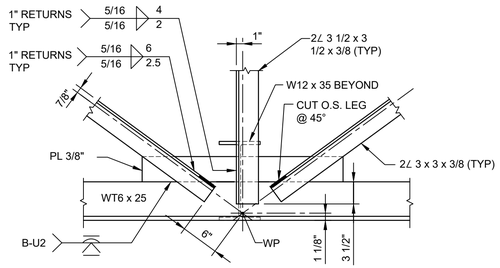
1/12 DETAIL
1" = 1'-0"



3/12 DETAIL
1" = 1'-0"



2/12 DETAIL
1" = 1'-0"



4/12 DETAIL
1" = 1'-0"

Texas P.E. Firm
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STATE OF TEXAS
ARTHUR B. COLWELL
60292
REGISTERED PROFESSIONAL ENGINEER
4-20-20

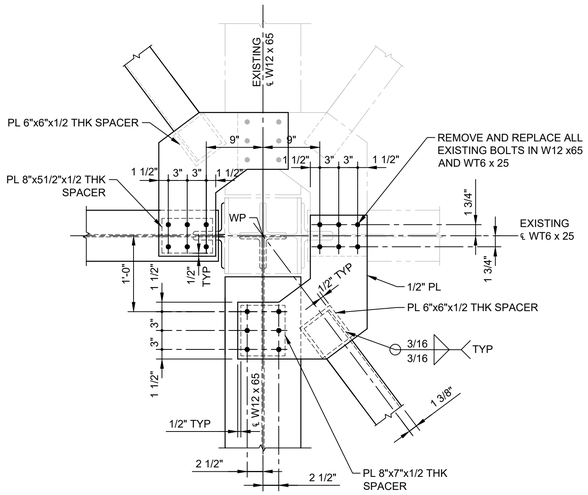
PORT OF BROWNSVILLE
the port that *works*
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

PIPE BRIDGE SECTIONS AND DETAILS
(3 OF 5)

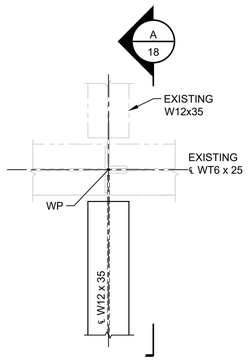
0 1" 2"

FILENAME 00S-11.DWG
SCALE AS NOTED

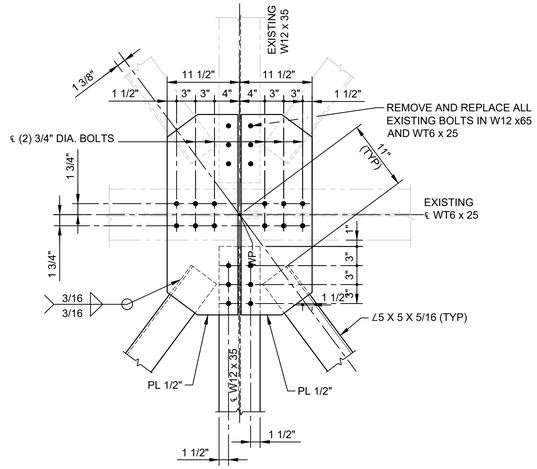
SHEET 17



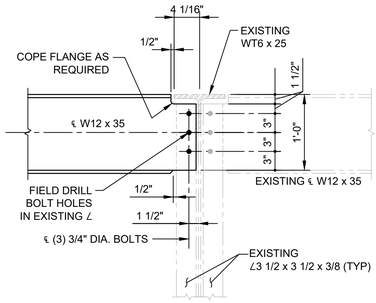
1 / 11 DETAIL
1" = 1'-0"



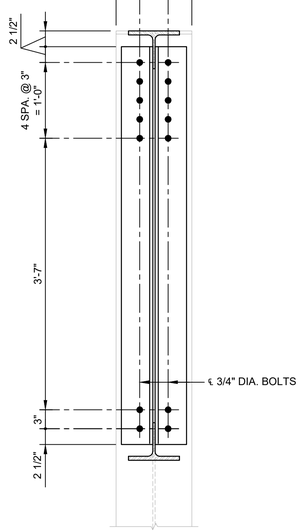
2 / 11 DETAIL
1" = 1'-0"



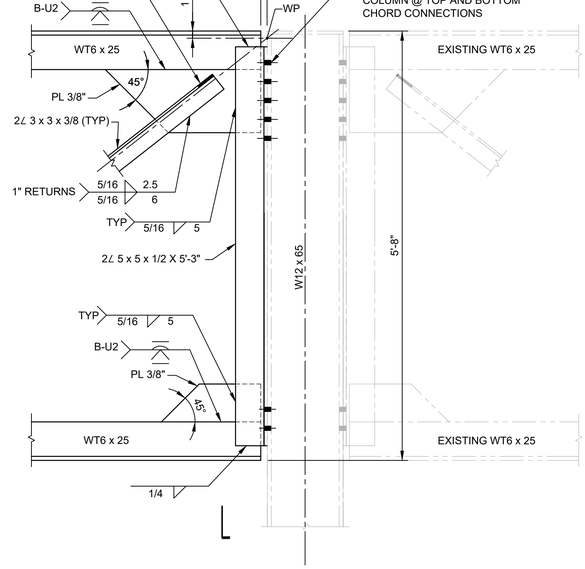
3 / 11 DETAIL
1" = 1'-0"



A / 18 SECTION
1" = 1'-0"



B / 18 SECTION
1" = 1'-0"



4 / 12 DETAIL
1" = 1'-0"

Texas P.E. Firm
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4-20-20

PORT OF BROWNSVILLE
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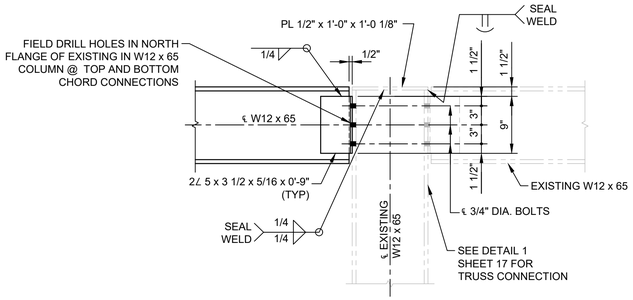
BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

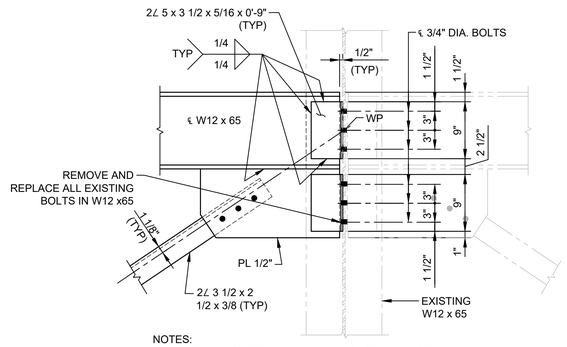
PIPE BRIDGE SECTIONS AND DETAILS (4 OF 5)

0 1" 2"

FILENAME	00S-12.DWG
SCALE	AS NOTED
SHEET	18

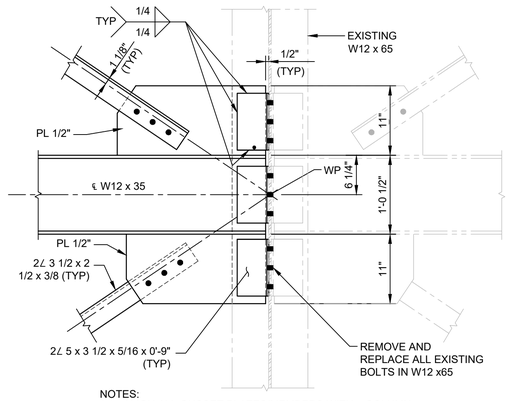


4/14 DETAIL
1" = 1'-0"



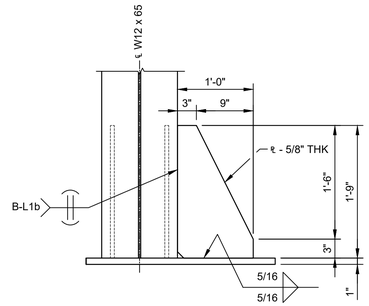
NOTES:
1. ALIGN ALL GUSSET PLATES/MEMBERS WITH ℄ COLUMN.
2. NEAR SIDE COL. FLANGE NOT SHOWN FOR CLARITY.
3. FOR DIAGONAL BRACE BOLT SPACING SEE DETAIL 3 THIS SHEET.

3/14 DETAIL
1" = 1'-0"

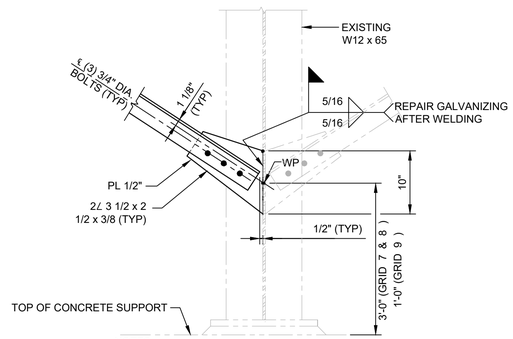


NOTES:
1. ALIGN ALL GUSSET PLATES/MEMBERS WITH ℄ COLUMN.
2. NEAR SIDE COL. FLANGE NOT SHOWN FOR CLARITY.
3. FOR DIAGONAL BRACE BOLT SPACING SEE DETAIL 2 THIS SHEET.

2/14 DETAIL
1" = 1'-0"

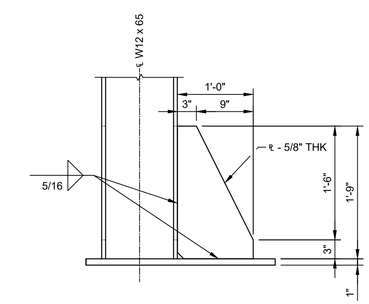


B/14 DETAIL
1" = 1'-0"



NOTES:
1. ALIGN ALL GUSSET PLATES/MEMBERS WITH ℄ COLUMN.
2. NEAR SIDE COL. FLANGE NOT SHOWN FOR CLARITY.
3. FOR BOLT SPACING SEE DETAIL 1 SHEET 15.

1/14 DETAIL
1" = 1'-0"



A/14 DETAIL
1" = 1'-0"

Texas P.E. Firm
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CHECKED BY	D. GARZA
PROJECT NUMBER	10219669

STATE OF TEXAS
ARTHUR B. COLWELL
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REGISTERED PROFESSIONAL ENGINEER
4/20/20

PORT OF BROWNSVILLE
the port that *works*

BROWNSVILLE NAVIGATION DISTRICT
OIL DOCK NO. 6

PIPE BRIDGE SECTIONS AND DETAILS
(5 OF 5)

0 1" 2"

FILENAME	00S-13.DWG
SCALE	AS NOTED
SHEET	19