

ALABAMA STATE PORT AUTHORITY PIER D2 DOCK EXTENSION

DRAWING SCHEDULE:

3327-C0	-	COVER SHEET
3327-G1	-	GENERAL NOTES
3327-S1	-	EXISTING BULKHEAD PLAN
3327-S2	-	NEW BULKHEAD PHASE 1
3327-S3	-	NEW BULKHEAD PHASE 2
3327-S4	-	NEW BULKHEAD PHASE 3
3327-S4A	-	NEW BULKHEAD FINAL
3327-S5	-	DOCK/PILING PLAN
3327-S6	-	DOCK SECTIONS
3327-S7	-	FENDER PLAN/ELEVATION
3327-S8	-	FENDER SECTIONS & DETAILS



VICINITY MAP
N.T.S.

PRELIMINARY
NOT FOR CONSTRUCTION

REV.	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	08/15/17	TAS	TS

457 St. Michael St.
Mobile, AL 36602
Phone (251) 433-1611
Fax (251) 433-1411

**Cowles, Murphy, Glover
& ASSOCIATES**
A Full Service Engineering Firm
PERFORMANCE • RELIABILITY • EXPERIENCE

13 Thrash Rd.
LaGrange, GA 30241
Phone (706) 302-2831
Fax (251) 433-1411

PROJECT	ALABAMA STATE PORT AUTHORITY PIER D2 DOCK EXTENSION
	MOBILE, ALABAMA

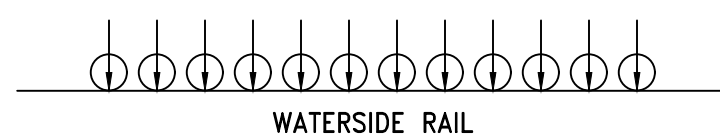
TITLE				
COVER SHEET				
SCALE	NOTED	DRAWN BY	DATE	SHEET
		TAS	08/15/17	— OF — 22x34
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER	REV.
3327	TS	08/15/17	3327-C0	A

GENERAL NOTES:

- NO PROVISION OF ANY REFERENCED STANDARD SPECIFICATION, MANUAL OR CODE (WHETHER OR NOT SPECIFICALLY INCORPORATED BY REFERENCE IN THE CONTRACT DOCUMENTS) SHALL BE EFFECTIVE TO CHANGE THE DUTIES AND RESPONSIBILITIES OF OWNER, CONTRACTOR, ENGINEER, SUPPLIER, OR ANY OF THEIR CONSULTANTS, AGENTS, OR EMPLOYEES FROM THOSE SET FORTH IN THE CONTRACT DOCUMENTS. NOR SHALL IT BE EFFECTIVE TO ASSIGN TO THE STRUCTURAL ENGINEER OF RECORD OR ANY OF THE THE STRUCTURAL ENGINEER OF RECORD'S CONSULTANTS, AGENTS, OR EMPLOYEES ANY DUTY OR AUTHORITY TO SUPERVISE OR DIRECT THE FURNISHING OR PERFORMANCE OF THE WORK OR ANY DUTY OR AUTHORITY TO UNDERTAKE RESPONSIBILITIES CONTRARY TO THE PROVISIONS OF THE CONTRACT DOCUMENTS.
- CONTRACT DOCUMENTS INCLUDE, BUT ARE NOT LIMITED TO, THE STRUCTURAL DOCUMENTS (DRAWINGS AND SPECIFICATIONS), BUT DO NOT INCLUDE SHOP DRAWINGS, VENDOR DRAWINGS, OR MATERIAL PREPARED AND SUBMITTED BY THE CONTRACTOR.
- REFERENCE TO STANDARD SPECIFICATIONS OF ANY TECHNICAL SOCIETY, ORGANIZATION, OR ASSOCIATION OR TO CODES OF LOCAL OR STATE AUTHORITIES, SHALL MEAN THE LATEST STANDARD, CODE, SPECIFICATION OR TENTATIVE SPECIFICATION ADOPTED AT THE DATE OF TAKING BIDS, UNLESS SPECIFICALLY STATED OTHERWISE.
- CONTRACT DOCUMENTS SHALL GOVERN IN THE EVENT OF A CONFLICT WITH THE CODE. WHERE A CONFLICT OCCURS WITHIN THE CONTRACT DOCUMENTS, THE STRICTEST REQUIREMENT SHALL GOVERN.
- MATERIAL, WORKMANSHIP, AND DESIGN SHALL CONFORM TO THE REFERENCED BUILDING CODE.
- CONTRACTOR SHALL COORDINATE THE STRUCTURAL DOCUMENTS WITH THE MECHANICAL, ELECTRICAL, PLUMBING AND CIVIL DOCUMENTS. ENGINEER SHALL BE ADVISED OF ANY DISCREPANCY OR OMISSION.
- CONTRACTOR SHALL OBTAIN AND COORDINATE EDGE OF SLAB DIMENSIONS, OPENING LOCATIONS AND DIMENSIONS, DEPRESSED SLAB LOCATIONS AND EXTENTS, SLAB SLOPES, CURB LOCATIONS, AND COLUMN LOCATIONS. ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY OR OMISSION.
- CONTRACTOR SHALL VERIFY EXISTING DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS BEFORE STARTING WORK, ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY.
- CONTRACTOR HAS SOLE RESPONSIBILITY FOR MEANS, METHODS, SAFETY, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION.
- THE STRUCTURE IS STABLE ONLY IN ITS COMPLETED FORM. TEMPORARY SUPPORTS REQUIRED FOR STABILITY DURING ALL INTERMEDIATE STAGES OF CONSTRUCTION SHALL BE DESIGNED, FURNISHED, AND INSTALLED BY THE CONTRACTOR. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTIBILITY ANALYSIS, AND ERECTION PROCEDURES, INCLUDING DESIGN AND ERECTION OF FALSEWORK, TEMPORARY BRACING, ETC.
- CONTRACTOR HAS SOLE RESPONSIBILITY TO COMPLY WITH ALL OSHA REGULATIONS.
- REPRODUCTION OF STRUCTURAL DRAWINGS FOR SHOP DRAWINGS IS NOT PERMITTED. ELECTRONIC DRAWING FILES WILL NOT BE PROVIDED TO THE CONTRACTOR.
- SUBMIT SHOP DRAWINGS WHICH ADEQUATELY DEPICT THE STRUCTURAL ELEMENTS AND CONNECTIONS SHOWN IN THE CONTRACT DOCUMENTS. REVIEW OF SHOP DRAWINGS SHALL BE FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS REGARDING ARRANGEMENT AND SIZES OF MEMBERS AND THE CONTRACTOR'S INTERPRETATION OF THE DESIGN LOADS AND CONTRACT DOCUMENT DETAILS. REVIEW OF SUBMITTALS OR SHOP DRAWINGS BY THE STRUCTURAL ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THE SOLE RESPONSIBILITY TO REVIEW AND CHECK ALL SUBMITTALS AND SHOP DRAWINGS BEFORE SUBMITTING TO THE STRUCTURAL ENGINEER. REVIEW OF SUBMITTALS OR SHOP DRAWINGS BY THE STRUCTURAL ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF FULL RESPONSIBILITY FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, AND DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS.
- WHERE A SECTION OR DETAIL IS SHOWN OR DETAILED FOR ONE CONDITION, IT SHALL APPLY TO ALL SIMILAR AND LIKE CONDITIONS. DETAILS LABELED "TYPICAL" ON THE DRAWINGS APPLY TO ALL SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR. THE CONTRACTOR SHALL CONSIDER ALL OF THE CONTRACT DOCUMENTS IN DETERMINING SIMILAR AND LIKE CONDITIONS.
- SIGNATURE AND REGISTRATION SEAL OF THE STRUCTURAL ENGINEER THAT MAY BE AFFIXED TO THESE DRAWINGS RELATES ONLY TO THE STRUCTURAL DESIGN OF THE PROJECT.

CODE/DESIGN CRITERIA:

- STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE **INTERNATIONAL BUILDING CODE, 2012** EDITION, WITH LATEST AMENDMENTS.
- GRAVITY LOADS
 - UNIFORM LOADS: 1000PSF
 - CONCENTRATED LOADS: A MAXIMUM OF 120 K DISTRIBUTED OVER A MINIMUM 2'x2' AREA AND SPACED A MINIMUM OF 9' APART
 - DESIGN LOADS: EQUIVALENT WHEEL LOAD = 22k/LF



CODE/DESIGN CRITERIA:

- SPECIAL INSPECTIONS
 - THE FOLLOWING TYPES OF WORK REQUIRE SPECIAL INSPECTION
 - FOUNDATION ANCHORS AND REINFORCING STEEL
 - STRUCTURAL STEEL
 - PIPING

CAST-IN-PLACE CONCRETE:

- CONCRETE WORK SHALL CONFORM TO ACI 318 AND CRSI STANDARDS.
- CONCRETE SHALL HAVE THE FOLLOWING MINIMUM SPECIFIED 28-DAY COMPRESSIVE STRENGTH: ALL CONCRETE SHALL MEET ALL OF THE FOLLOWING REQUIREMENTS SPECIFIED.

CLASS	MAX WATER PER BAG OF CEMENT	MIN. CEMENT PER CUBIC YARD	MIN COMPRESSIVE STR. IN 28 DAYS	SLUMP RANGE
A	5.5	6.5	4,000 PSI	2'-4'
AC	6.0	8.0	4,000 PSI	5'-7'

CLASS "A" CONCRETE SHALL BE USED FOR ALL WORK INCLUDED IN THIS CONTRACT, AND CLASS "AC" SHALL BE USED FOR PUMPING.

- DEFECTIVE AREAS IN CONCRETE INCLUDING, BUT NOT LIMITED TO, HONEY-COMBING, SPALLS, AND CRACKS WITH WIDTHS EXCEEDING 0.01 INCH SHALL BE REPAIRED. EXTENT OF DEFECTIVE AREA TO BE DETERMINED BY THE STRUCTURAL ENGINEER.
- CONSTRUCTION JOINT LOCATIONS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER. NO HORIZONTAL CONSTRUCTION JOINTS ARE PERMITTED EXCEPT THOSE SHOWN ON THE STRUCTURAL DRAWINGS.
- PROVIDE (1) SET OF CYLINDERS, (4) FROM EACH 50 CUBIC YARDS.

REINFORCEMENT:

- REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, PREFABRICATED, UNLESS NOTED OTHERWISE. NO FIELD BURNING ALLOWED.
- WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 AND HAVE MINIMUM SIDE AND END LAPS OF 12".
- SUBMIT SHOP DRAWINGS WHICH ADEQUATELY DEPICT THE REINFORCING BAR SIZES AND PLACEMENT. WRITTEN DESCRIPTION OF REINFORCEMENT WITHOUT ADEQUATE SECTIONS, ELEVATIONS AND DETAILS IS NOT ACCEPTABLE.
- PLACE REINFORCEMENT AS FOLLOWS, UNLESS NOTED OTHERWISE:

4.1 CAST-IN-PLACE (NON POST-TENSIONED) CONCRETE REINFORCEMENT COVER	
PERMANENTLY EXPOSED TO EARTH: CAST AGAINST THE EARTH	3" CLEAR
EXPOSED TO EARTH OR WEATHER: FOR BARS LARGER THAN A NO. 5 BAR NO. 5 BARS OR SMALLER	2" CLEAR 1-1/2" CLEAR

- REINFORCEMENT SHALL BE SPLICED ONLY AT LOCATIONS SHOWN OR NOTED IN THE STRUCTURAL DOCUMENTS, EXCEPT REINFORCEMENT MARKED "CONTINUOUS" CAN BE SPLICED AT LOCATIONS DETERMINED BY CONTRACTOR. SPLICES AT OTHER LOCATIONS SHALL BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER. REINFORCING STEEL SPLICES SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:

CONCRETE REINFORCEMENT:	CLASS B TENSION LAP 48 BAR DIAMETERS
MASONRY REINFORCEMENT:	
- ADHESIVE FOR REINFORCING DOWELS IN EXISTING CONCRETE SHALL BE EITHER THE HIT HY150 INJECTION ADHESIVE SUPPLIED BY HILTI FASTENING SYSTEMS, THE EPON SYSTEM CERAMIC 6 EPOXY ADHESIVE SUPPLIED BY ITW RAMSET/RED HEAD, POWER-FAST EPOXY INJECTION GEL SUPPLIED BY POWERS FASTENING, OR APPROVED EQUAL. MINIMUM EMBEDMENT LENGTH SHALL BE 24 BAR DIAMETERS, UNLESS NOTED OTHERWISE.
- REINFORCING STEEL SHALL BE FREE FROM GREASE, MUD, EXCESSIVE RUST OR OTHER COATINGS THAT WILL DESTROY OR REDUCE BOND STRENGTH. REINFORCING STEEL IN ALL FOOTINGS, WALLS, BOND BEAMS AND PILASTERS SHALL BE MADE WITH BENT BARS WITH A MINIMUM SPLICE LENGTH OF 48 BAR DIAMETERS. PROVIDE GALV. ANCHOR BOLTS SET IN CONCRETE FOR ANCHORING STEEL OR WOOD TO CONCRETE.

PRECAST/PRESTRESSED CONCRETE PILING:

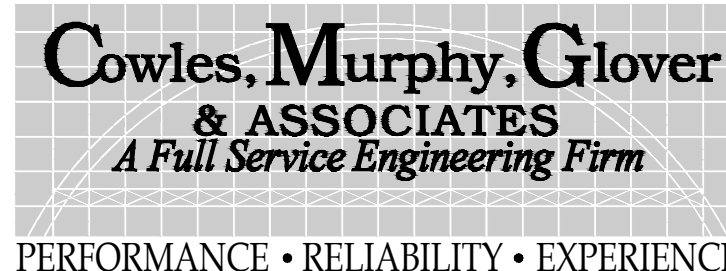
- PRESTRESSED PILES & PILE BUILD-UPS SHALL CONFORM TO THE REQUIREMENTS OF THE JOINT COMMITTEE OF AASHTO AND PCI FOR PRESTRESSED CONCRETE PILES UNLESS OTHERWISE NOTED OR SPECIFIED.
- CONCRETE FOR PRESTRESSED PILES & PILE BUILD-UPS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI IN 28 DAYS.
- PRESTRESSING REINFORCEMENT SHALL CONFORM TO ASTM A416.
- REINFORCING FOR PILE BUILD-UPS SHALL CONFORM TO ASTM A615 GRADE 60.
- ALL PILE RECORDS SHALL USE THE NUMBERING SYSTEM SHOWN ON PILE PLAN SHEETS.
- THE CONTRACTOR SHALL BASE HIS BID ON THE QUANTITIES AND LENGTHS AS SHOWN ON THE CONTRACT DRAWINGS. ALSO, IF FOR INSTALLATION REQUIREMENTS, IT IS REQUIRED TO UTILIZE LONGER THAN SPECIFIED PILE LENGTHS, THE CONTRACTOR SHALL ALLOW FOR THE ADDITIONAL LENGTHS IN HIS BID PACKAGE.
- PILES WILL BE MEASURED FOR PAYMENT ON THE BASIS OF LENGTHS ALONG THE AXIS OF THE PILE IN PLACE BELOW THE CUT-OFF ELEVATION. IF THE ENGINEER AUTHORIZED DRIVING TO STOP BEFORE A PILE REACHES THE SPECIFIED PENETRATION DEPTH, THE EXCESS CUT-OFF SHALL BE MEASURED FOR PAYMENT AS THE DIFFERENCE BETWEEN THE SPECIFIED LENGTH AND THE ACTUAL LENGTH OF PILE DRIVEN BELOW CUT-OFF. MEASUREMENTS SHALL BE TO THE NEAREST 1/10 FT.
- PILES SHALL BE DRIVEN ACCURATELY IN CORRECT LOCATIONS, TRUE TO LINE BOTH Laterally and Longitudinally, and to Vertical, Batter, and Skew Lines as Indicated on the Drawings. A Lateral Deviation from Correct Location at the Cut-off Elevation shall not exceed 2" without pulling. A variation in slope from that specified of not more than 1/4" per foot will be permitted. The correct position of piles as to location, plumbness, batter, and skew shall be maintained by the use of templates and jigs to support piles without damage; the details of which shall be submitted to the engineer for review prior to driving piles. In addition to driving templates, placing and maintaining piles within acceptable limits shall be the contractor's complete responsibility. Any pile out of position shall be pulled and redriven as directed at no additional cost to the owner.
- THE CONTRACTOR SHALL USE A HAMMER OF A SIZE AND TYPE SUITABLE FOR THE DRIVING CONDITIONS TO BE ENCOUNTERED BUT IN NO CASE SHALL THE RAM WEIGHT BE LESS THAN 3,000 LBS. OR HAVE A RATED ENERGY OF LESS THAN 24,000 FT. LBS. THE HAMMER SHALL BE OPERATED AT ALL TIMES AT THE PRESSURE AND SPEED RECOMMENDED BY THE MANUFACTURER. BOILER OR COMPRESSOR CAPACITY SHALL BE SUFFICIENT TO OPERATE THE HAMMER CONTINUOUSLY AT FULL RATED SPEED. PILES SHALL BE PROTECTED DURING DRIVING BY A CUSHION AND CAP OF APPROVED DESIGN. PILE DRIVERS SHALL HAVE FIRMLY SUPPORTED LEADS EXTENDING TO THE LOWEST POINT THE HAMMER MUST REACH TO DRIVE THE PILES TO CUT-OFF ELEVATION WITHOUT THE USE OF A FOLLOWER. EACH PILE SHALL BE DRIVEN CONTINUOUSLY AND WITHOUT VOLUNTARY INTERRUPTION UNTIL THE REQUIRED DEPTH OF PENETRATION RATE PER BLOW HAS BEEN ATTAINED. DEVIATION FROM THIS PROCEDURE WILL BE PERMITTED ONLY IN CASE THE DRIVING IS STOPPED BY CAUSES WHICH COULD NOT REASONABLY HAVE BEEN ANTICIPATED. A PILE WHICH CANNOT BE DRIVEN TO THE REQUIRED DEPTH BECAUSE OF AN UNDERGROUND OBSTRUCTION SHALL BE PULLED AND REDRIVEN IF THE OBSTRUCTION CAN BE REMOVED OR PENETRATED OR THE PILE SHALL BE CUT-OFF, WHICHEVER IS DIRECTED BY THE ENGINEER. A PILE WHICH HAS NOT REACHED THE REQUIRED PENETRATION RATE PER BLOW WHEN THE TIP HAS BEEN DRIVEN TO THE CUT-OFF ELEVATION SHALL BE SPLICED AS SPECIFIED AND DRIVEN TO A DEPTH SUFFICIENT TO DEVELOP THE REQUIRED PENETRATION RATE PER BLOW. A PILE WHICH HAS REACHED THE REQUIRED PENETRATION RATE PER BLOW AND THE TOP IS BELOW THE CUT-OFF ELEVATION SHALL BE SPLICED AND EXTENDED TO THE CUT-OFF ELEVATION. THE PENETRATION PER BLOW WHICH IS USED AS AN INDICATION OF THE BEARING CAPACITY OF THE PILE IS DEPENDENT UPON THE TYPE OF DRIVING EQUIPMENT USED AND OTHER FACTORS, AND IT WILL IN EVERY CASE BE DETERMINED BY THE ENGINEER. FOR WATER-BASED PILES, THE ENGINEER SHALL DETERMINE IF JETTING IS REQUIRED FOR PROPER INSTALLATION OF THE PILES. IF JETTING IS REQUIRED, THE JETTING EQUIPMENT SHALL BE OF A TYPE AND CAPACITY ACCEPTABLE TO THE ENGINEER. ALL JETTED PILES SHALL BE SEATED BY DRIVING NOT LESS THAN 15 FT. AFTER JETTING HAS BEEN STOPPED OR AS OTHERWISE DIRECTED BY THE ENGINEER. PILES WHICH HAVE UPLIFTED AFTER DRIVING SHALL BE REDRIVEN TO GRADE AFTER CONCLUSION OF OTHER DRIVING ACTIVITY IN THAT GENERAL AREA. UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER, NO PILE SHALL BE DRIVEN WITHIN 100 FT. OF CONCRETE LESS THAN 7 DAYS OLD.
- THE CONTRACTOR SHALL FURNISH ALL LOADING PLATFORMS AND APPLIED LOADS, REACTION FRAMES, AND HYDRAULIC JACKS FOR APPLYING TEST LOADS TO THE PILES, CALIBRATED HYDRAULIC GAGES FOR CONNECTION TO THE JACKS, CONTRACTOR QUALITY CONTROL MEASURING INSTRUMENTS AND ANY OTHER SPECIAL EQUIPMENT REQUIRED FOR DETERMINING THE REACTION OF THE TEST PILES; AS WELL AS ALL MATERIALS, LABOR, AND THE USE OF ANY CONSTRUCTION EQUIPMENT TO BE REGULARLY EMPLOYED ON THE JOB WHICH, IN THE OPINION OF THE ENGINEER, IS NECESSARY FOR THE SATISFACTORY PROSECUTION OF THE PILE TESTS AS HEREIN SPECIFIED. TEST LOADS SHALL BE APPLIED BY HYDRAULIC JACKS REACTING AGAINST A LOADED PLATFORM OR REACTION FRAME IN SUCH A MANNER AS TO INSURE CONCENTRIC LOADING AND TO PERMIT DEVELOPING AND HOLDING THE REQUIRED TEST LOADS FOR PERIODS OF TIME AS DIRECTED. THE CONTRACTOR SHALL SUBMIT HIS PROPOSED TEST METHODS TO THE ENGINEER NO LATER THAN SEVEN (7) DAYS PRIOR TO TESTING OF THE SELECTED PROBE PILING.
- A PILE LOAD TEST ~~WILL NOT BE REQUIRED FOR THIS PROJECT.~~ ~~FILE SHALL BE TESTED TO A MINIMUM 300% OF DESIGN (ALLOWABLE) CAPACITY.~~
- MINIMUM PILE EMBEDMENT SHALL BE TO THE TIP ELEVATION SHOWN ON THE CONSTRUCTION DRAWINGS. PILE CAPACITIES SHALL BE BASED ON THE ENGINEERING NEWS RECORD FORMULA, SHOWN BELOW. THE PILE HAMMER SHALL HAVE THE ENERGY TO DRIVE THE PILES TO THE MINIMUM ALLOWABLE CAPACITY.
- PILING SHALL BE DRIVEN TO THE ABOVE STATED LOADING REQUIREMENTS BASED ON BLOW COUNT AND THE FOLLOWING FORMULA:

$$DR = (2 * E) / (S + 0.1)$$

- DR = SAFE BEARING VALUE IN TONS
- S = AVERAGE PENETRATION PER BLOW IN INCHES (MINIMUM LAST 10-20 BLOWS)
- E = ENERGY PER BLOW OF HAMMER IN FOOT-TONS (PRODUCT OF W*H FOR SINGLE ACTING HAMMER)
- W = WEIGHT OF STRIKING PARTS OF HAMMER IN TONS
- H = HEIGHT OF FALL IN FEET

A	ISSUED FOR REVIEW	08/15/17	TAS	GDEC
REV.	DESCRIPTION	DATE	BY	CHK'D

457 St. Michael St.
Mobile, AL 36602
Phone (251) 433-1611
Fax (251) 433-1411



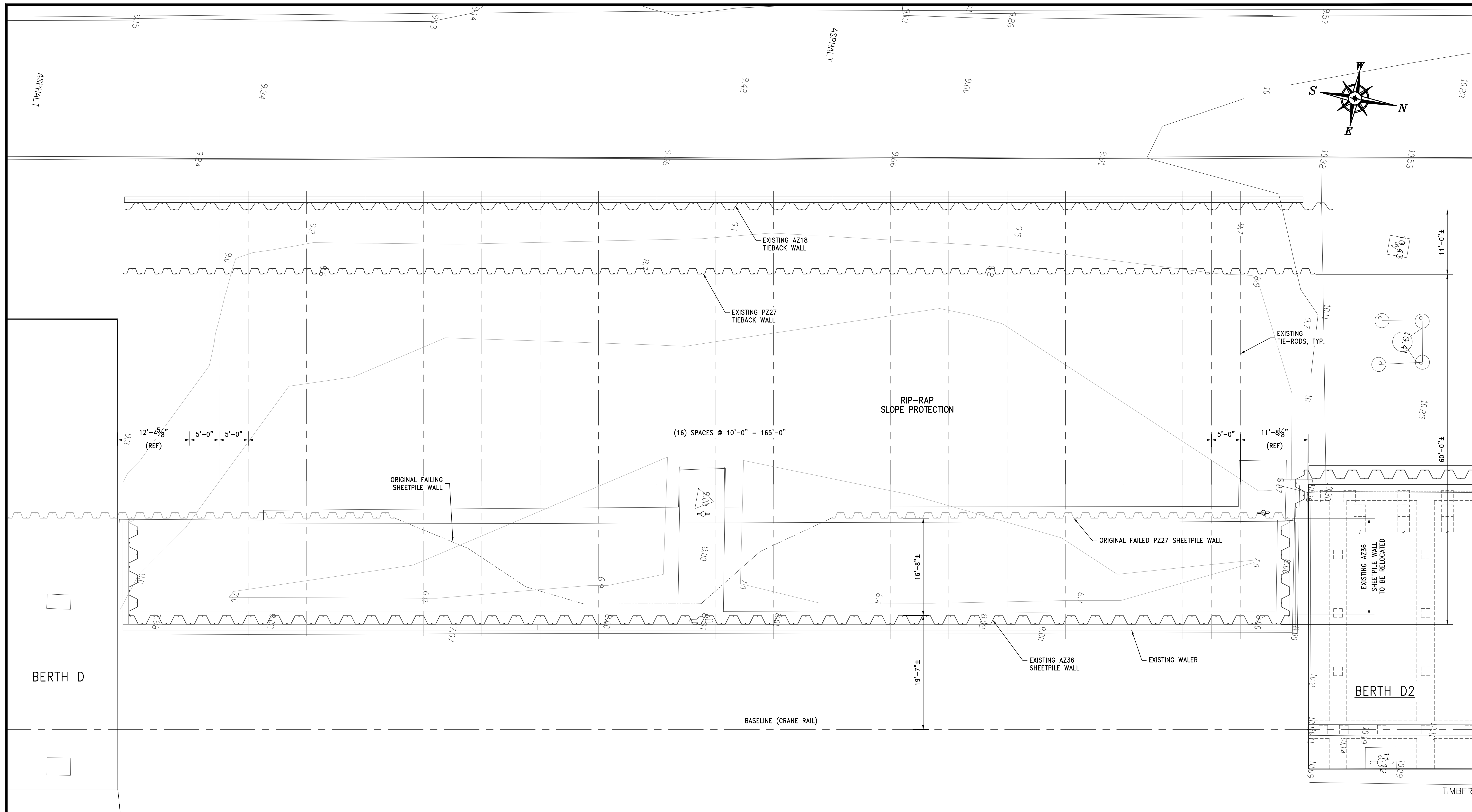
13 Thrash Rd.
LaGrange, GA 30241
Phone (706) 302-2831
Fax (251) 433-1411

PROJECT

**ALABAMA STATE PORT AUTHORITY
PIER D2 DOCK EXTENSION**

**MOBILE,
ALABAMA**

TITLE				
GENERAL NOTES				
SCALE	DRAWN BY	DATE	SHEET	REV.
AS NOTED	TS	09/12/17	— of — 22x34	A
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER	
3327	GDEC	09/12/17	3327-G1	



EXISTING BULKHEAD PLAN
SCALE: 1/8" = 1'-0"

REV.	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	08/14/17	TAS	TS

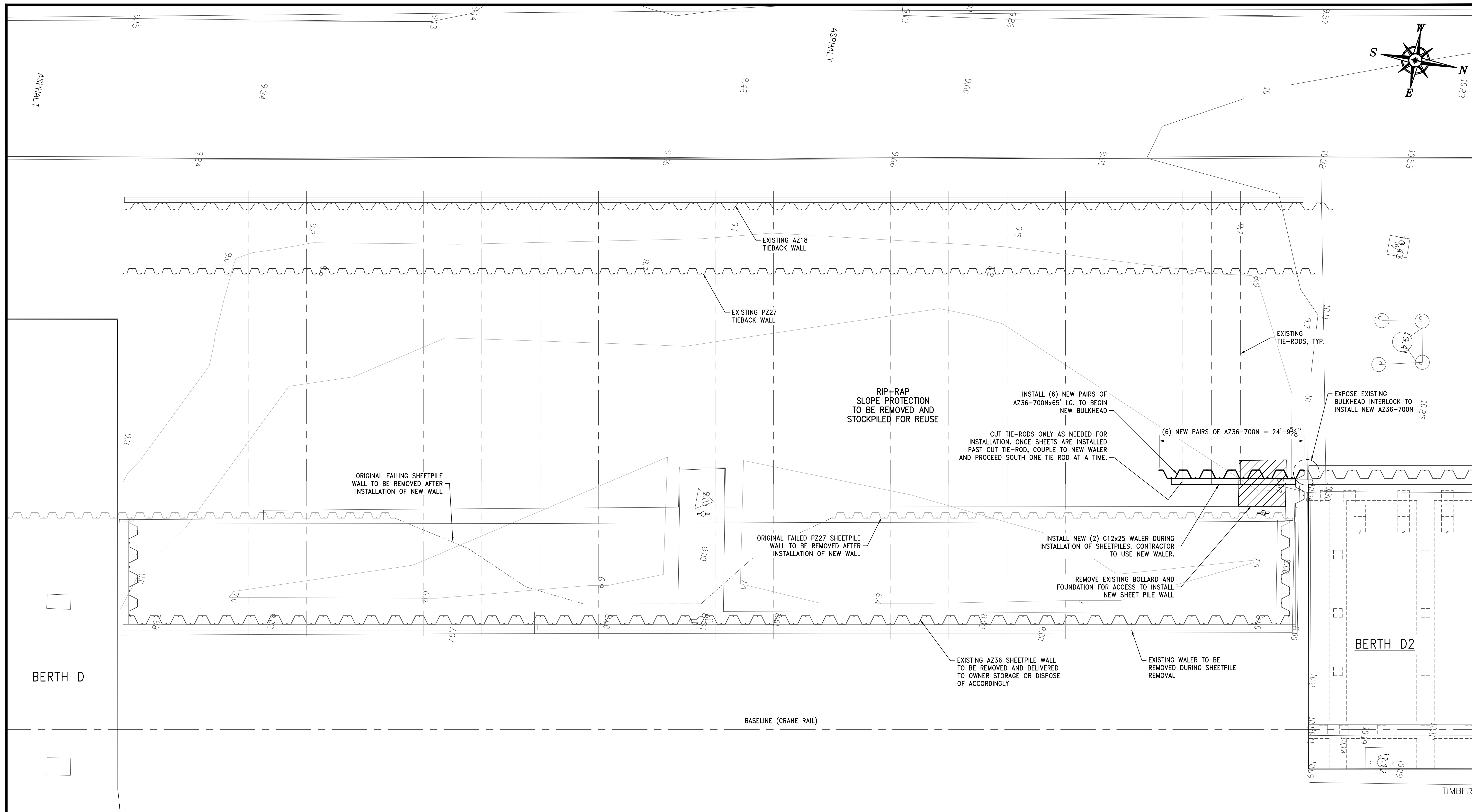
457 St. Michael St.
Mobile, AL 36602
Phone (251) 433-1611
Fax (251) 433-1411

**Cowles, Murphy, Glover
& ASSOCIATES**
A Full Service Engineering Firm
PERFORMANCE • RELIABILITY • EXPERIENCE

13 Thrash Rd.
LaGrange, GA 30241
Phone (706) 242-9202
Fax (706) 242-9202

PROJECT
**ALABAMA STATE PORT AUTHORITY
PIER D2 DOCK EXTENSION**
**MOBILE,
ALABAMA**

TITLE				
EXISTING BULKHEAD PLAN				
SCALE	NOTED	DRAWN BY	DATE	SHEET
		TAS	08/14/17	— OF — 22x34
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER	REV.
3327	TS	08/14/17	3327-S1	A



NEW BULKHEAD PLAN
SCALE: 1/8" = 1'-0"

REV.	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	08/14/17	TAS	TS

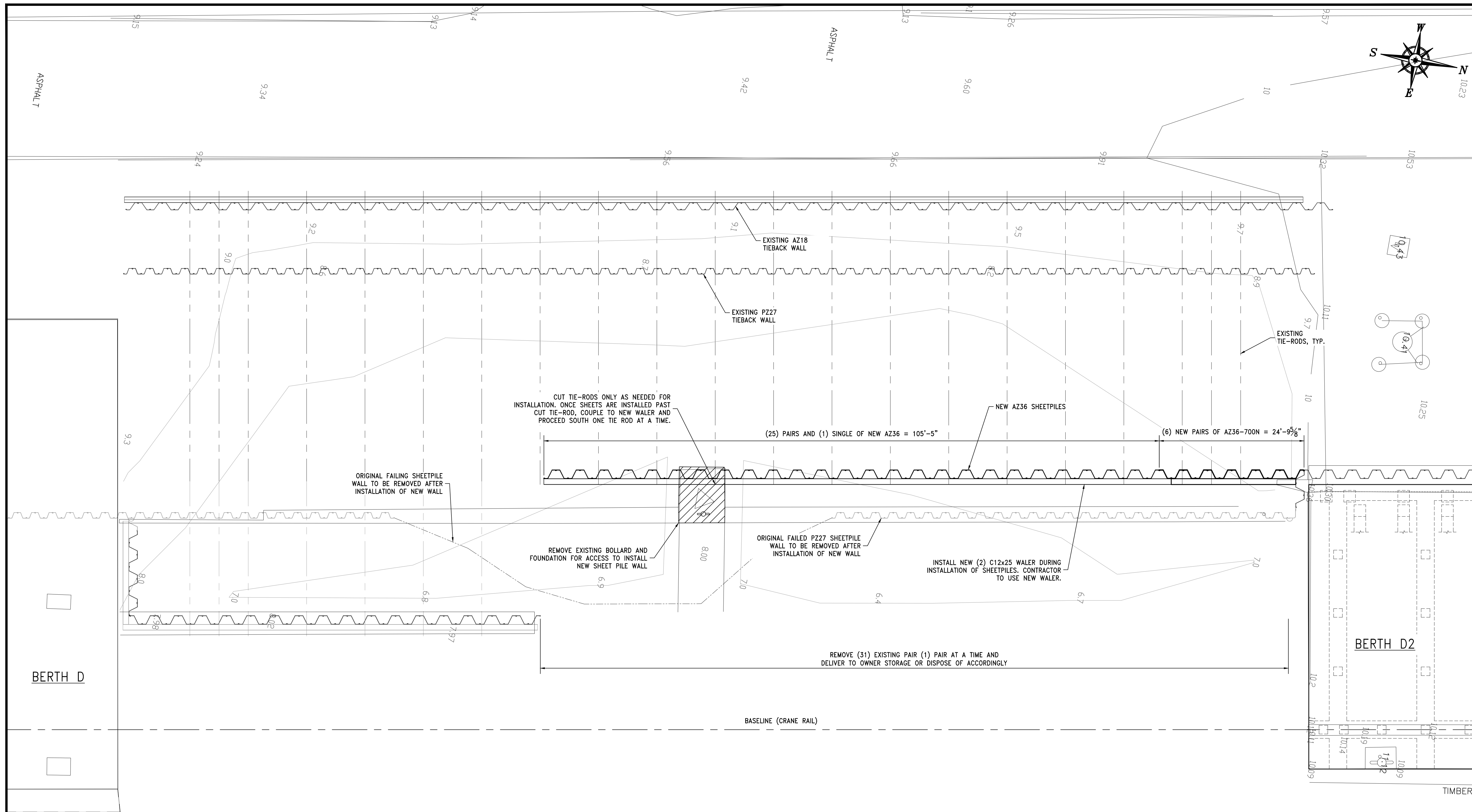
457 St. Michael St.
Mobile, AL 36602
Phone (251) 433-1611
Fax (251) 433-1411

Cowles, Murphy, Glover & ASSOCIATES
A Full Service Engineering Firm
PERFORMANCE • RELIABILITY • EXPERIENCE

13 Thrash Rd.
LaGrange, GA 30241
Phone (706) 242-9202
Fax (706) 242-9202

PROJECT **ALABAMA STATE PORT AUTHORITY
PIER D2 DOCK EXTENSION**
**MOBILE,
ALABAMA**

TITLE				
NEW BULKHEAD PHASE 1				
SCALE	NOTED	DRAWN BY	DATE	SHEET
		TAS	08/14/17	— of —
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER	REV.
3327	TS	08/14/17	3327-S2	A



NEW BULKHEAD PLAN
SCALE: 1/8" = 1'-0"

REV.	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	08/14/17	TAS	TS

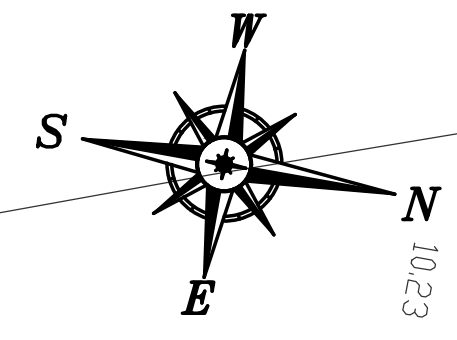
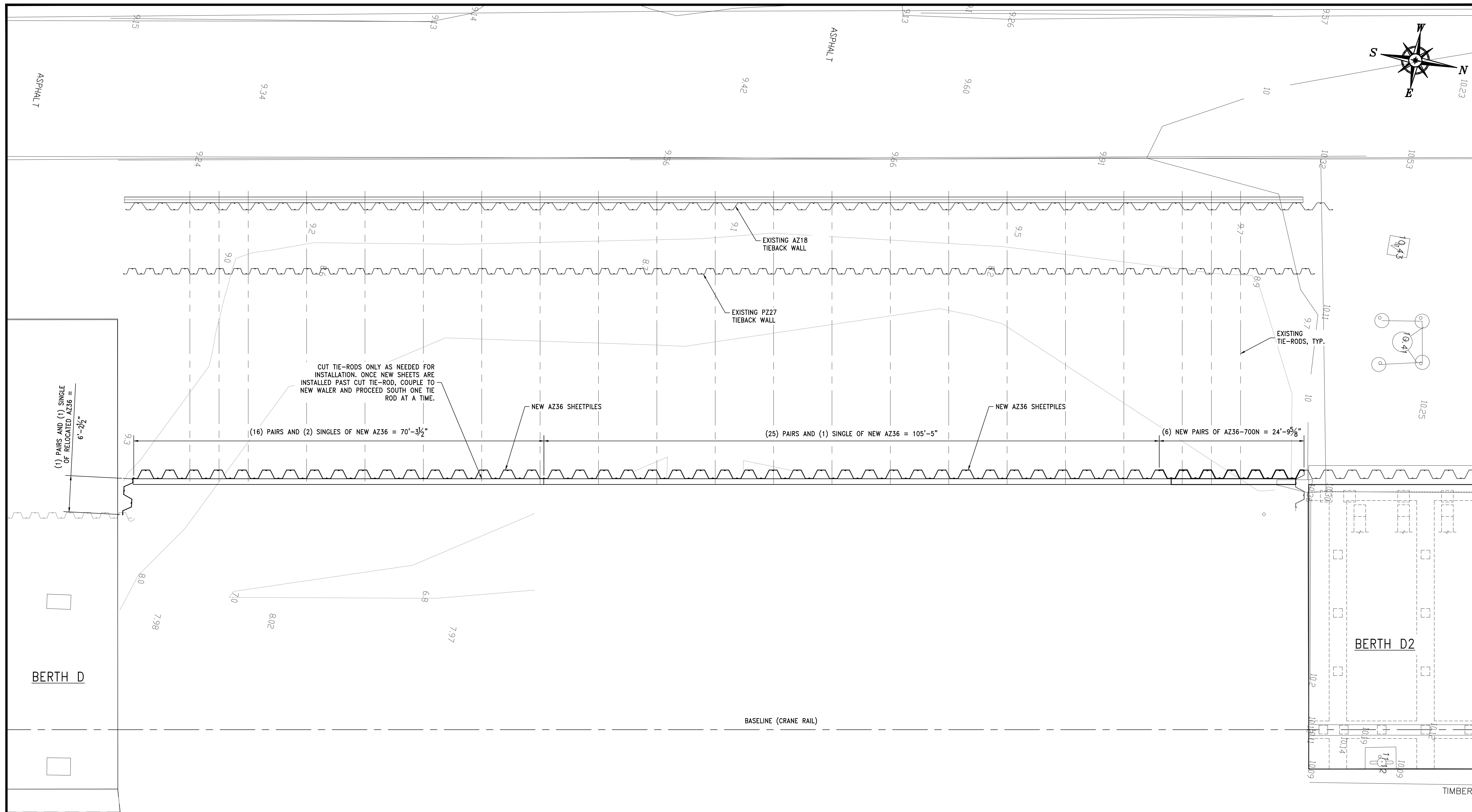
457 St. Michael St.
Mobile, AL 36602
Phone (251) 433-1611
Fax (251) 433-1411

Cowles, Murphy, Glover & ASSOCIATES
A Full Service Engineering Firm
PERFORMANCE • RELIABILITY • EXPERIENCE

13 Thrash Rd.
LaGrange, GA 30241
Phone (706) 242-9202
Fax (706) 242-9202

PROJECT: **ALABAMA STATE PORT AUTHORITY
PIER D2 DOCK EXTENSION**
**MOBILE,
ALABAMA**

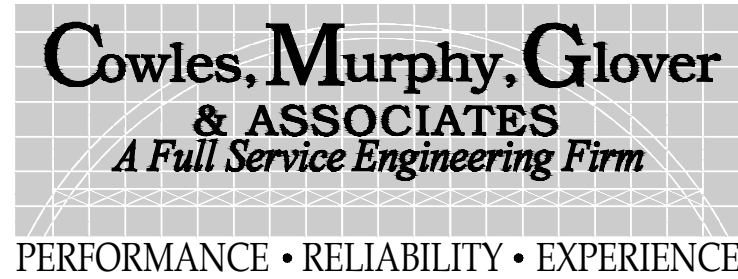
TITLE: NEW BULKHEAD PHASE 2				
SCALE: NOTED	DRAWN BY: TAS	DATE: 08/14/17	SHEET: <u> </u> OF <u> </u>	REV. A
JOB NO.: 3327	CHECKED BY: TS	DATE: 08/14/17	DRAWING NUMBER: 3327-S3	



NEW BULKHEAD FINAL ALIGNMENT
 SCALE: 1/8" = 1'-0"

REV.	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	08/14/17	TAS	TS

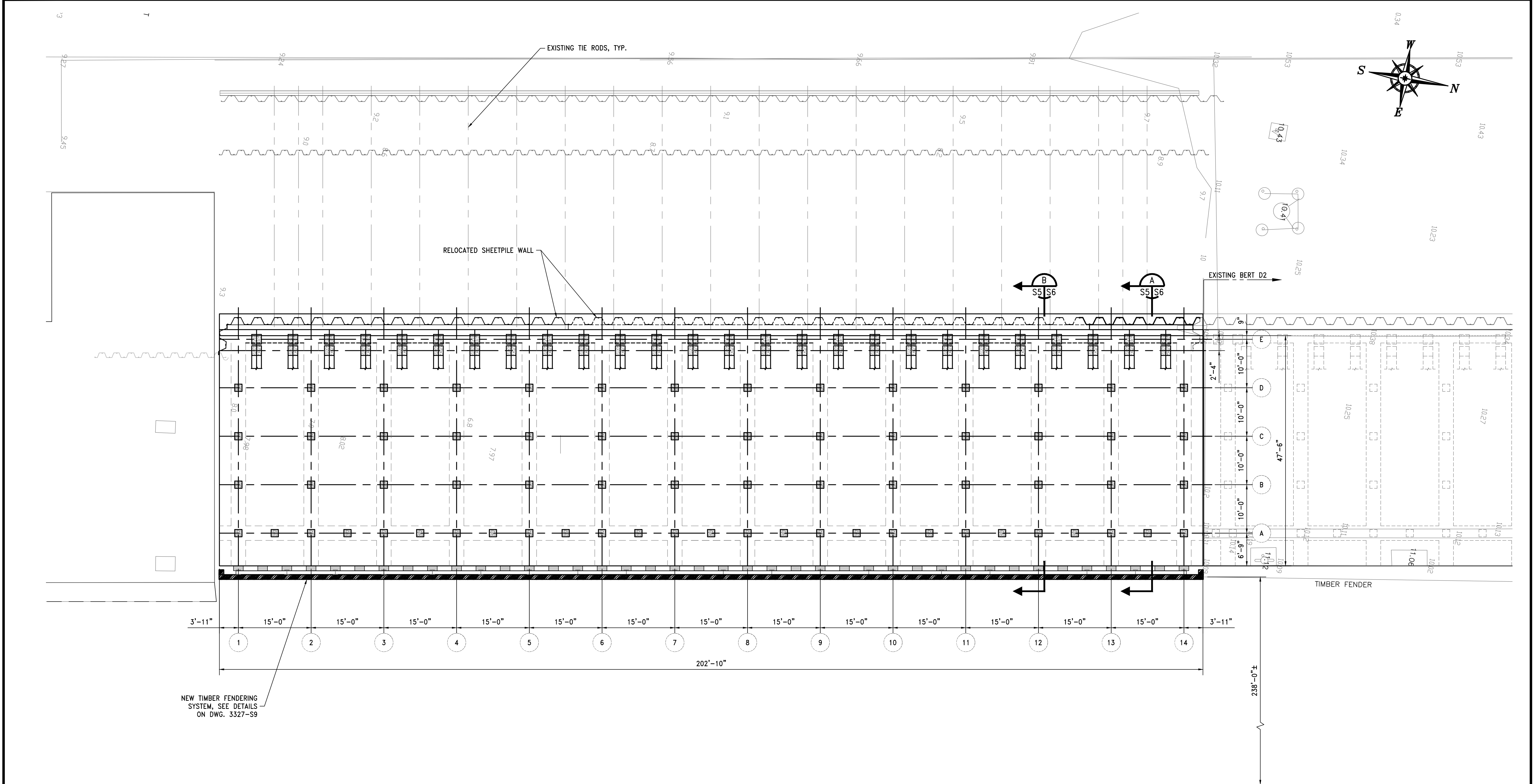
457 St. Michael St.
 Mobile, AL 36602
 Phone (251) 433-1611
 Fax (251) 433-1411



13 Thrash Rd.
 LaGrange, GA 30241
 Phone (706) 242-9202
 Fax (706) 242-9202

PROJECT
**ALABAMA STATE PORT AUTHORITY
 PIER D2 DOCK EXTENSION**
**MOBILE,
 ALABAMA**

TITLE				
NEW BULKHEAD FINAL ALIGNMENT				
SCALE	NOTED	DRAWN BY	DATE	SHEET
		TAS	08/14/17	1 of 22x34
JOB NO.	3327	CHECKED BY	DATE	DRAWING NUMBER
		TS	08/14/17	3327-S4A
				REV. A



DOCK/PILING PLAN
SCALE: 1" = 10'-0"

REV.	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	08/14/17	TAS	TS

457 St. Michael St.
Mobile, AL 36602
Phone (251) 433-1611
Fax (251) 433-1411

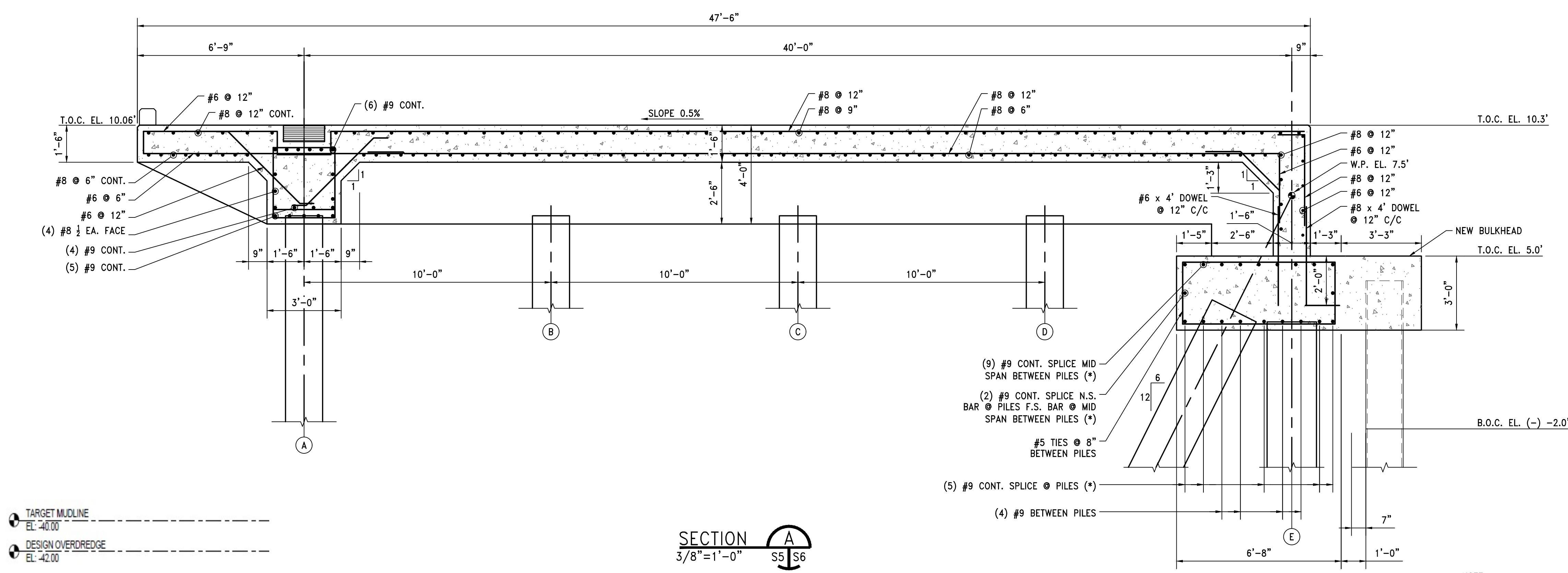
Cowles, Murphy, Glover & ASSOCIATES
A Full Service Engineering Firm
PERFORMANCE • RELIABILITY • EXPERIENCE

13 Thrash Rd.
LaGrange, GA 30241
Phone (706) 242-9202
Fax (706) 242-9202

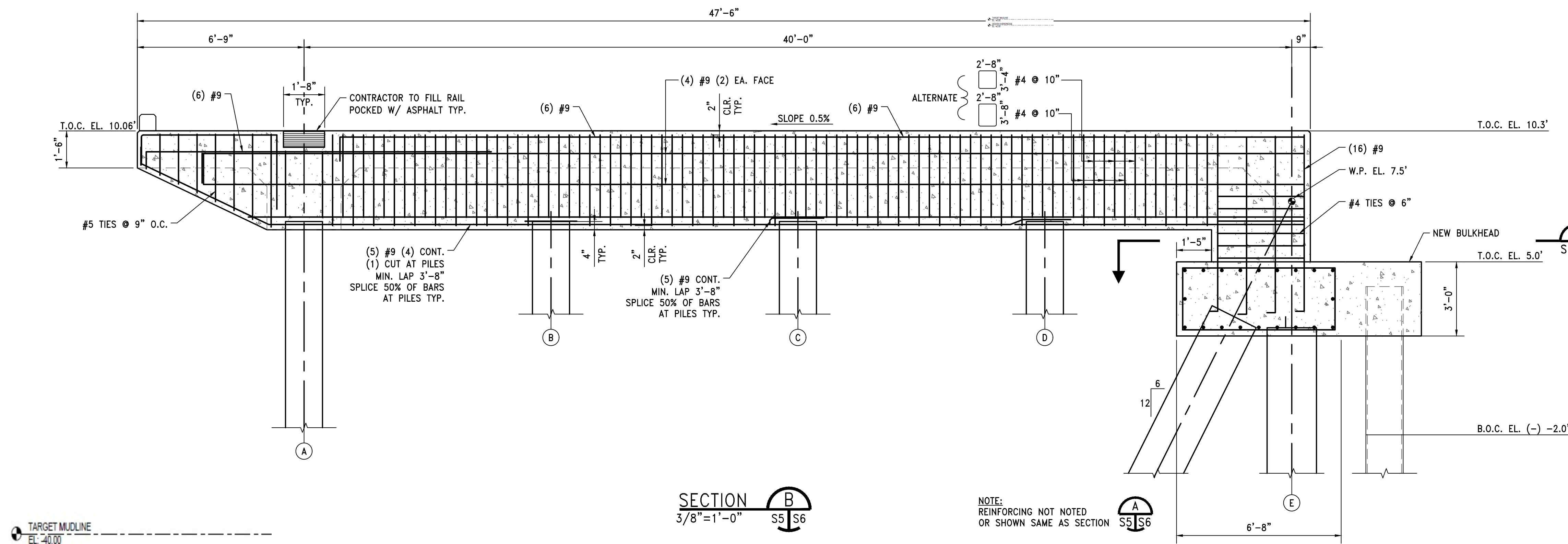
PROJECT: **ALABAMA STATE PORT AUTHORITY
PIER D2 DOCK EXTENSION**
**MOBILE,
ALABAMA**

TITLE: AREA PLAN				
SCALE: NOTED	DRAWN BY: TAS	DATE: 08/14/17	SHEET: <u> </u> OF <u> </u>	REV. A
JOB NO.: 3327	CHECKED BY: TS	DATE: 08/14/17	DRAWING NUMBER: 3327-S5	

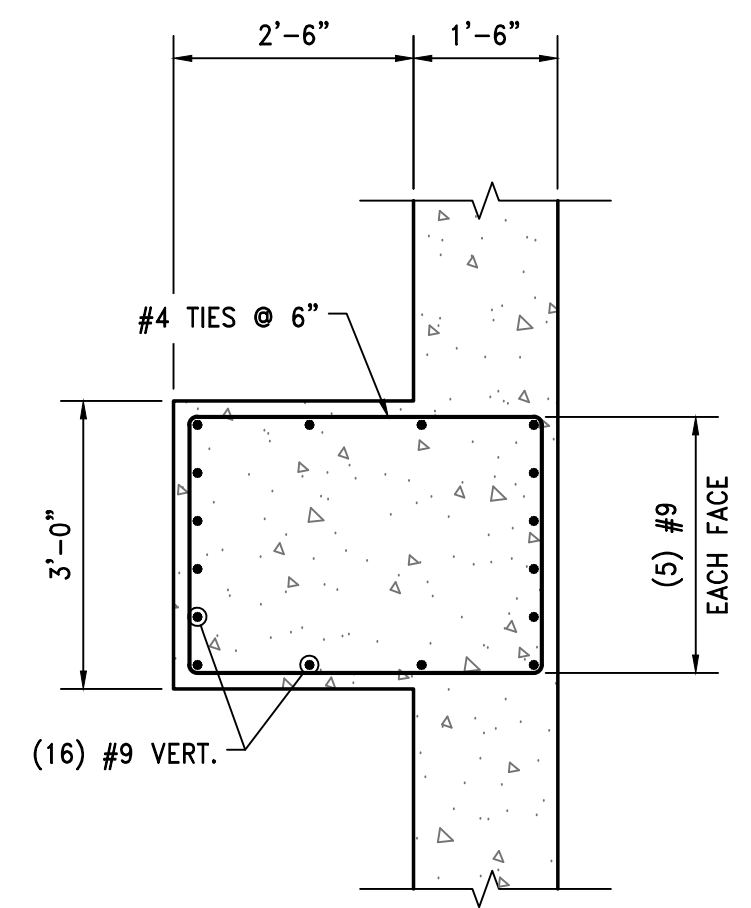
TARGET MUDLINE
EL. -40.00
DESIGN OVERLEDGE
EL. -42.00



SECTION A
3/8"=1'-0"
S5 S6



SECTION B
3/8"=1'-0"
S5 S6



SECTION C
1/2"=1'-0"
S6 S6

NOTE:
(*) SPLICE MAX. 50% OF BARS AT ANY ONE POINT. MIN. LAP = 3'-8"

NOTE:
CONTRACTOR SHALL VERIFY ALL REINFORCING TIE DIMENSIONS FOR PROPER FIT. NOTIFY ENGINEER IF CHANGES ARE REQUIRED FROM DIMENSIONS SHOWN ON THE DRAWINGS. TYP.

TARGET MUDLINE
EL. -40.00
DESIGN OVERLEDGE
EL. -42.00

REV.	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	08/14/17	TAS	TS

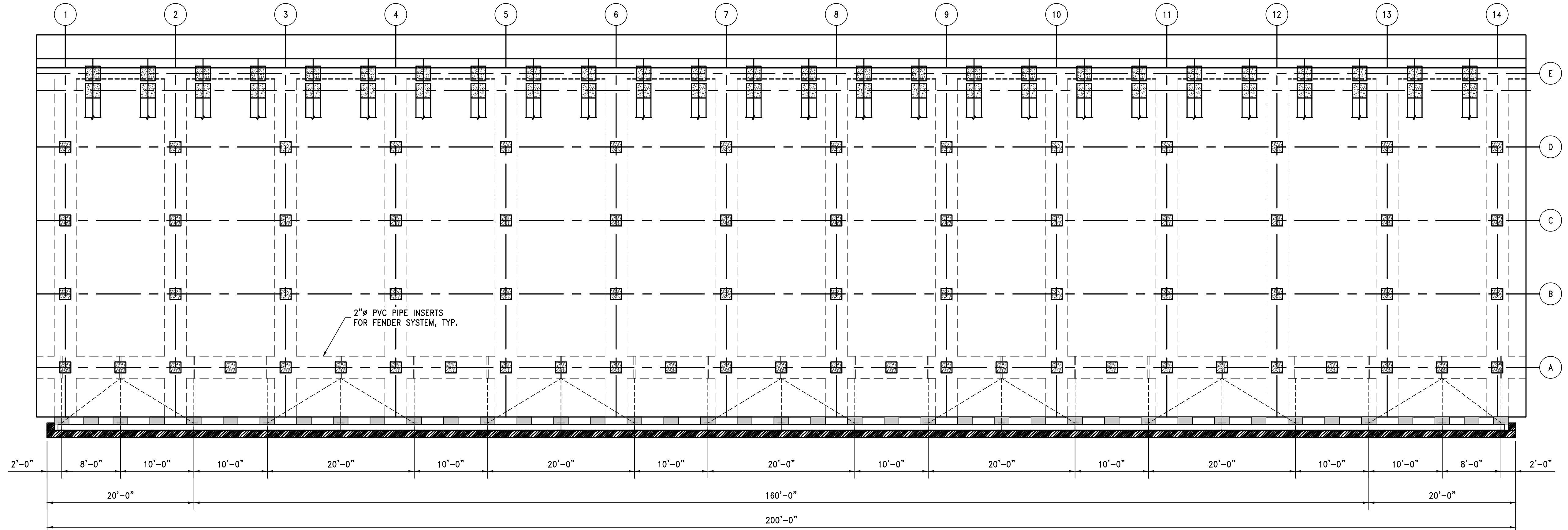
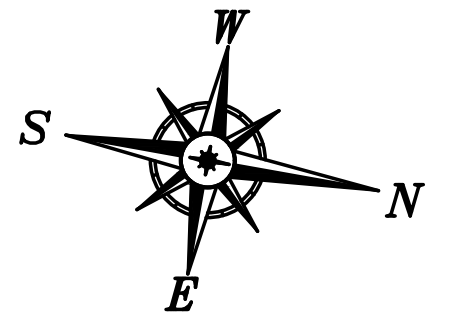
457 St. Michael St.
Mobile, AL 36602
Phone (251) 433-1611
Fax (251) 433-1411

Cowles, Murphy, Glover & ASSOCIATES
A Full Service Engineering Firm
PERFORMANCE • RELIABILITY • EXPERIENCE

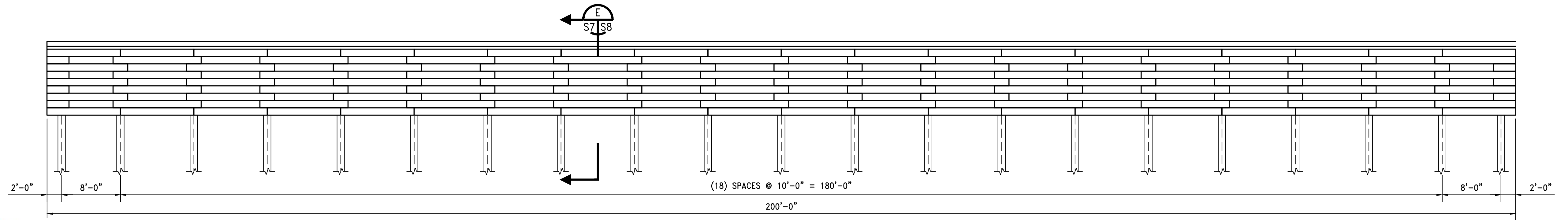
13 Thrash Rd.
LaGrange, GA 30241
Phone (706) 302-2831
Fax (251) 433-1411

PROJECT
**ALABAMA STATE PORT AUTHORITY
PIER D2 DOCK EXTENSION**
**MOBILE,
ALABAMA**

TITLE				
DOCK SECTIONS				
SCALE	DRAWN BY	DATE	SHEET	REV.
NOTED	TAS	08/14/17	— of —	A
JOB NO. 3327	CHECKED BY TS	DATE 08/14/17	DRAWING NUMBER 3327-S6	



FENDER PLAN
SCALE: 1/8" = 1'-0"



FENDER ELEVATION
SCALE: 1/8" = 1'-0"

TARGET MUDLINE
EL: -40.00
DESIGN OVERDREDGE
EL: -42.00

REV.	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	08/14/17	TAS	TS

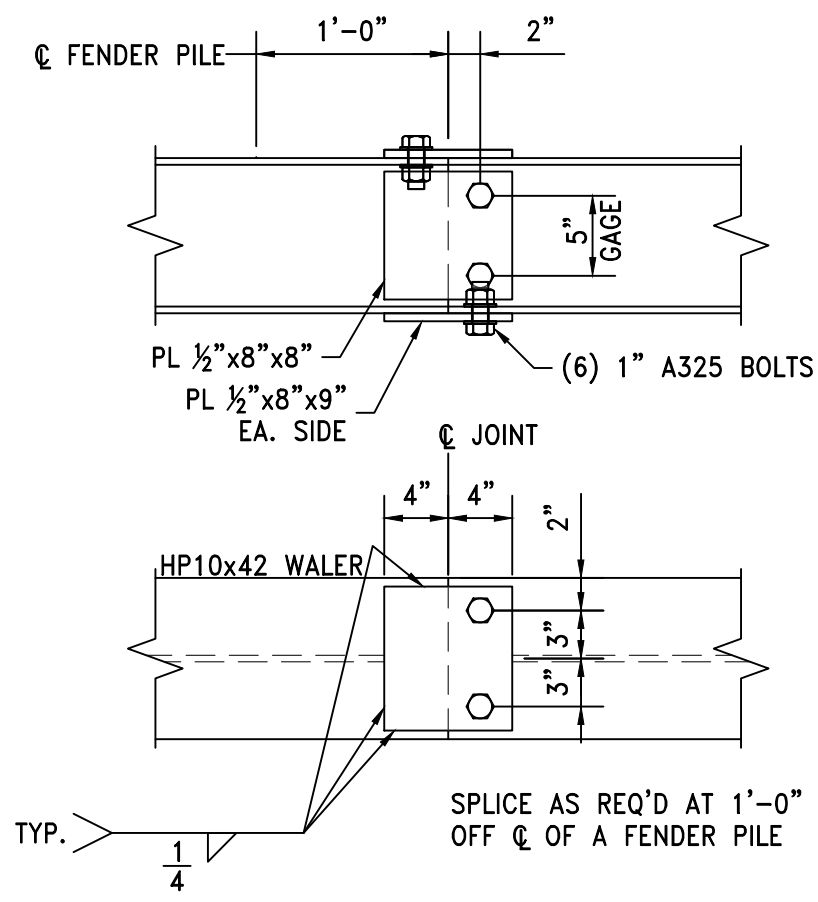
457 St. Michael St.
Mobile, AL 36602
Phone (251) 433-1611
Fax (251) 433-1411

Cowles, Murphy, Glover & ASSOCIATES
A Full Service Engineering Firm
PERFORMANCE • RELIABILITY • EXPERIENCE

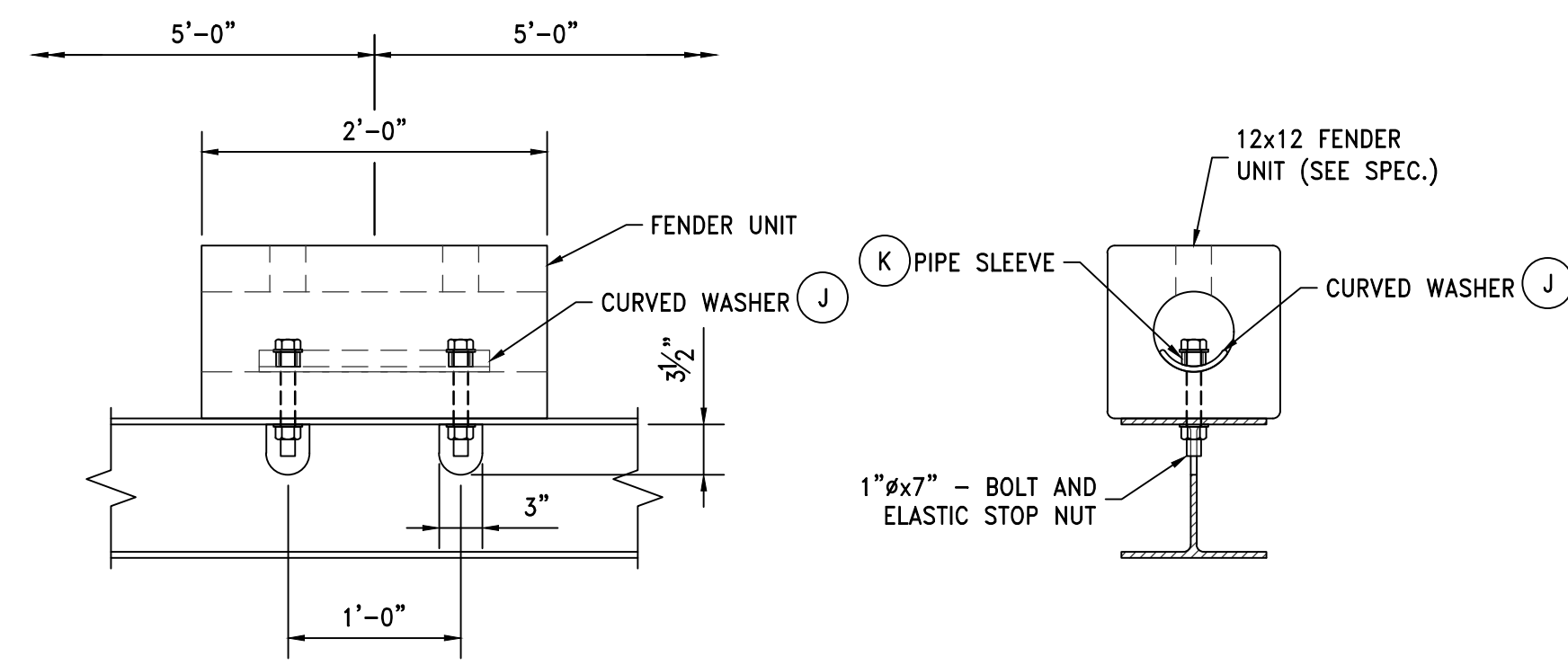
13 Thrash Rd.
LaGrange, GA 30241
Phone (706) 242-9202
Fax (706) 242-9202

PROJECT
**ALABAMA STATE PORT AUTHORITY
PIER D2 DOCK EXTENSION**
**MOBILE,
ALABAMA**

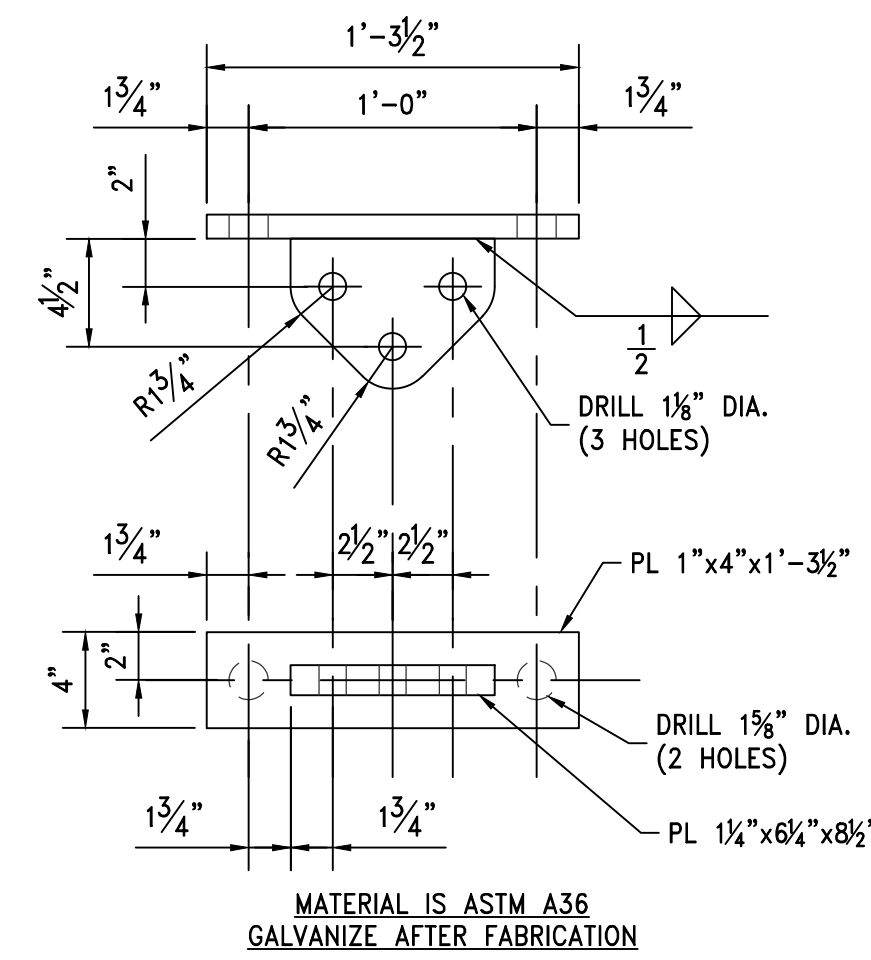
TITLE				
FENDER PLAN/ELEVATION				
SCALE	NOTED	DRAWN BY	DATE	SHEET
		TAS	08/14/17	— OF — 22x34
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER	REV.
3327	TS	08/14/17	3327-S7	A



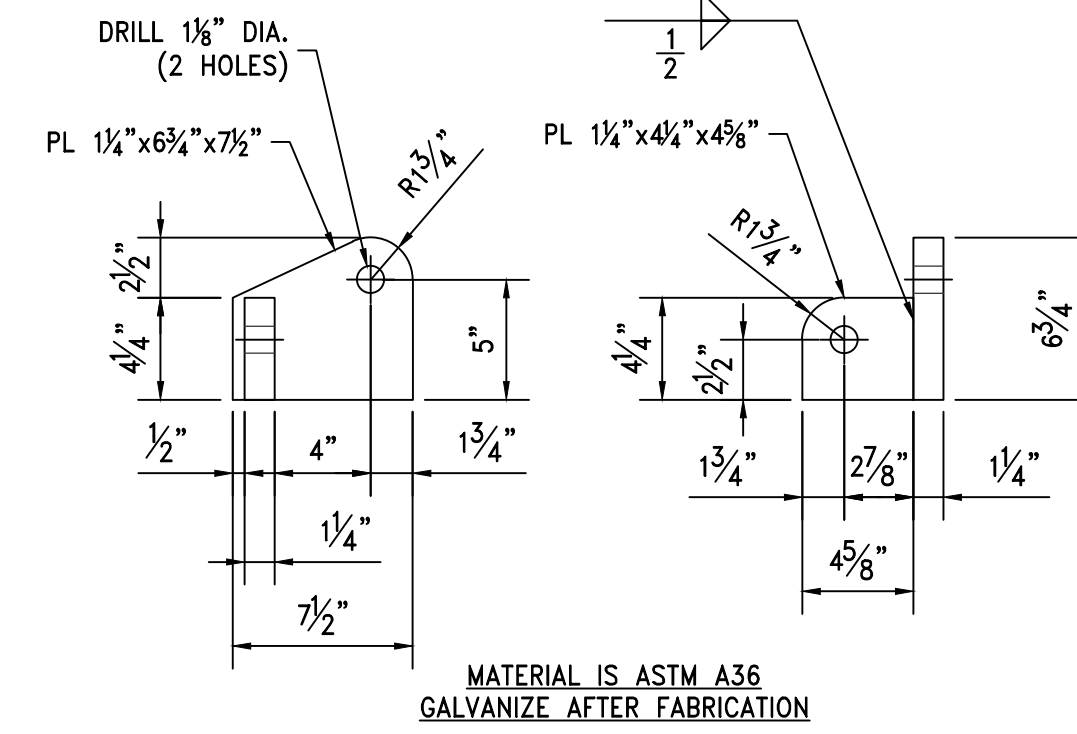
TYPICAL WALER SPLICE
SCALE: 1" = 1'-0"



RUBBER FENDER UNIT
SCALE: 1" = 1'-0"

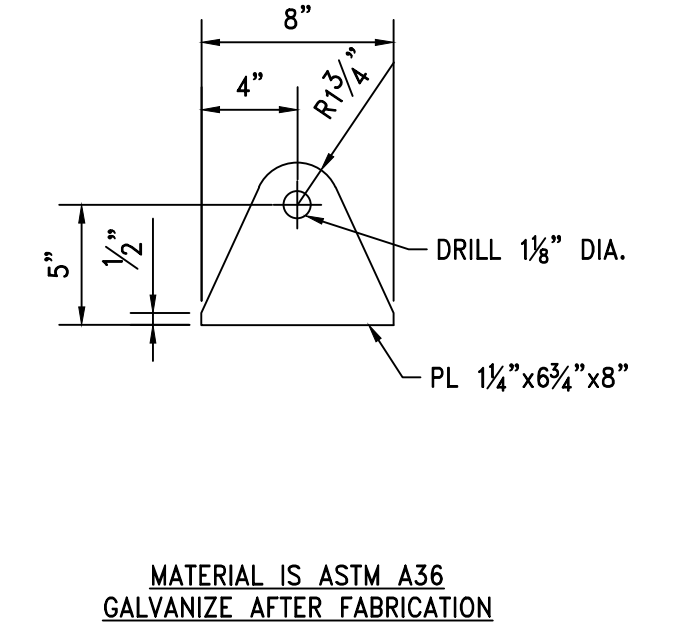


ANCHOR (D)
SCALE: 1/2" = 1'-0"

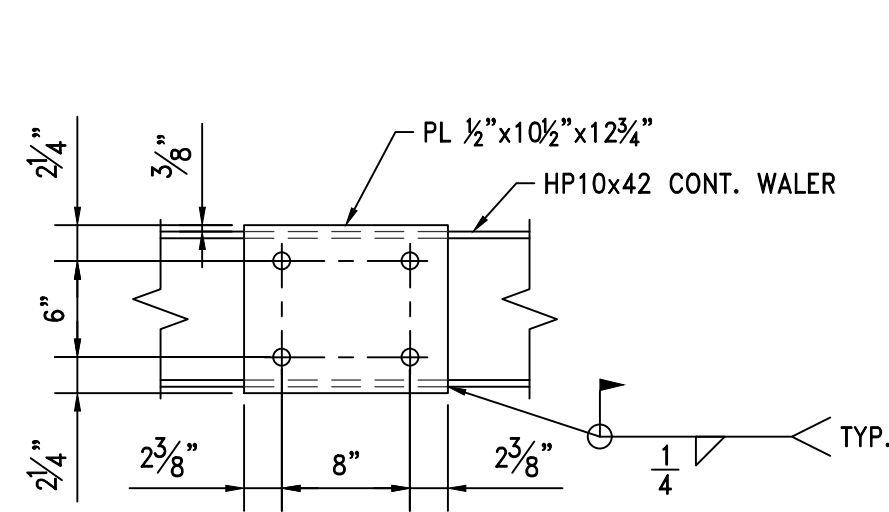


BRACKET (E) - SHOWN

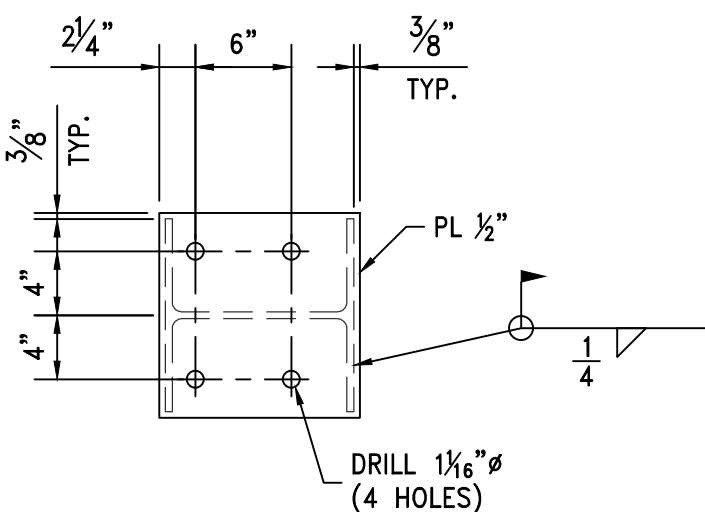
BRACKET (F) - OPP. HAND
SCALE: 1/2" = 1'-0"



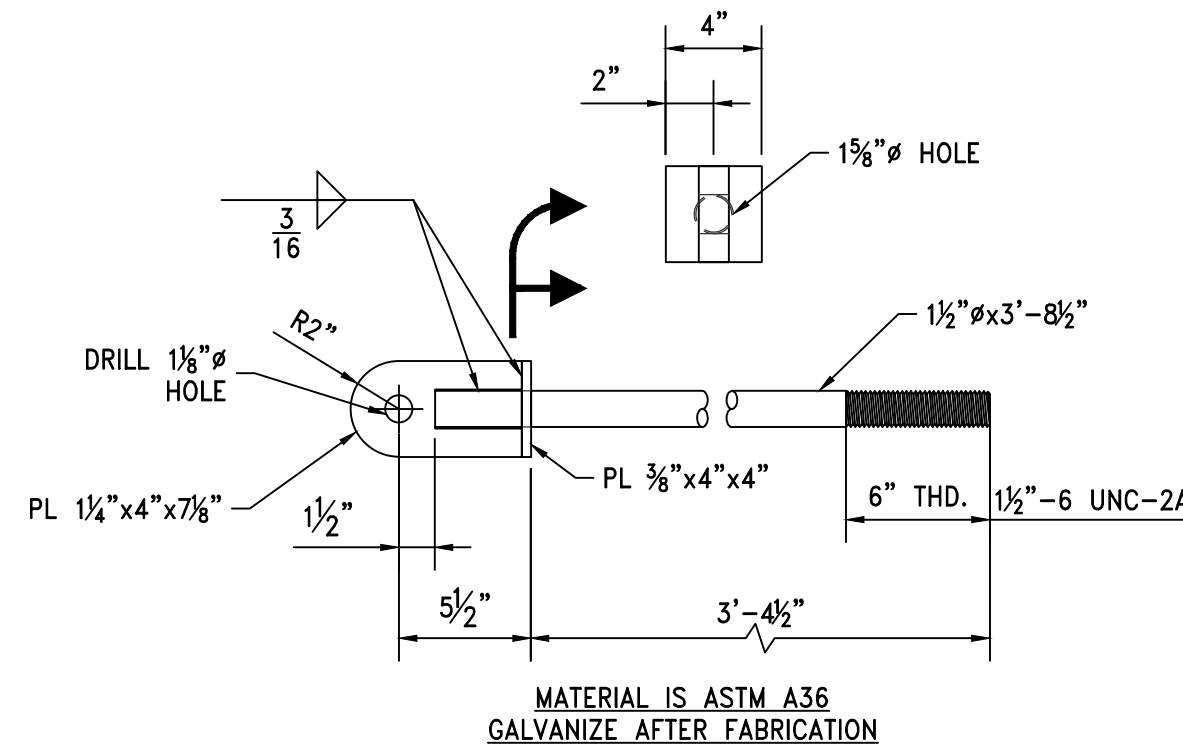
PAD EYE (G)
SCALE: 1/2" = 1'-0"



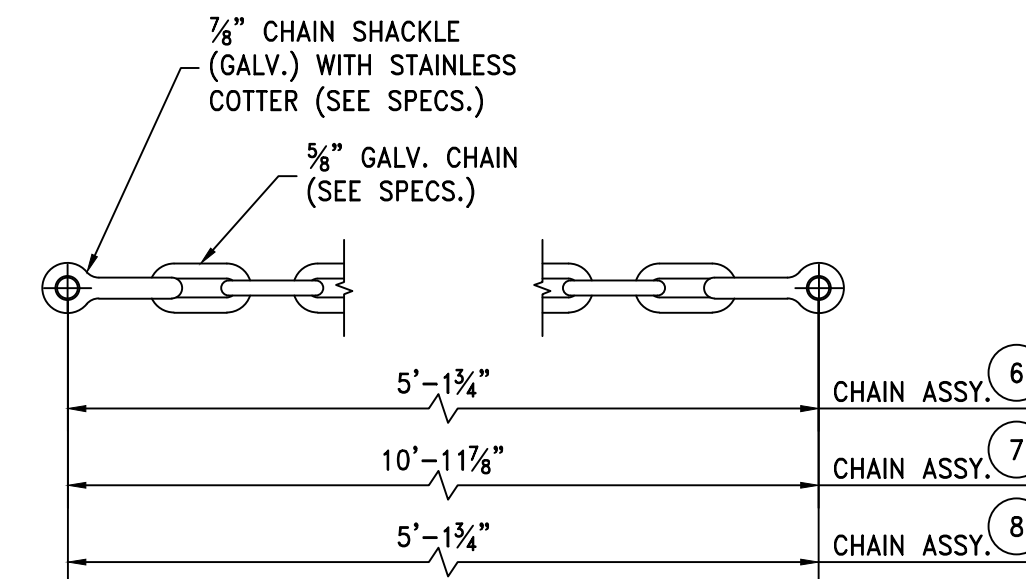
WALER TO PILE PLATE DETAIL
SCALE: 1" = 1'-0"



PILE PLATE DETAIL
SCALE: 1" = 1'-0"

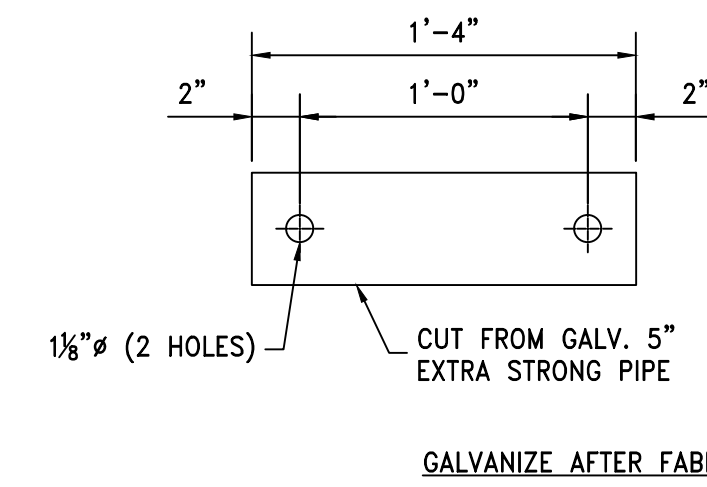


EYE BOLT (H)
SCALE: 1/2" = 1'-0"

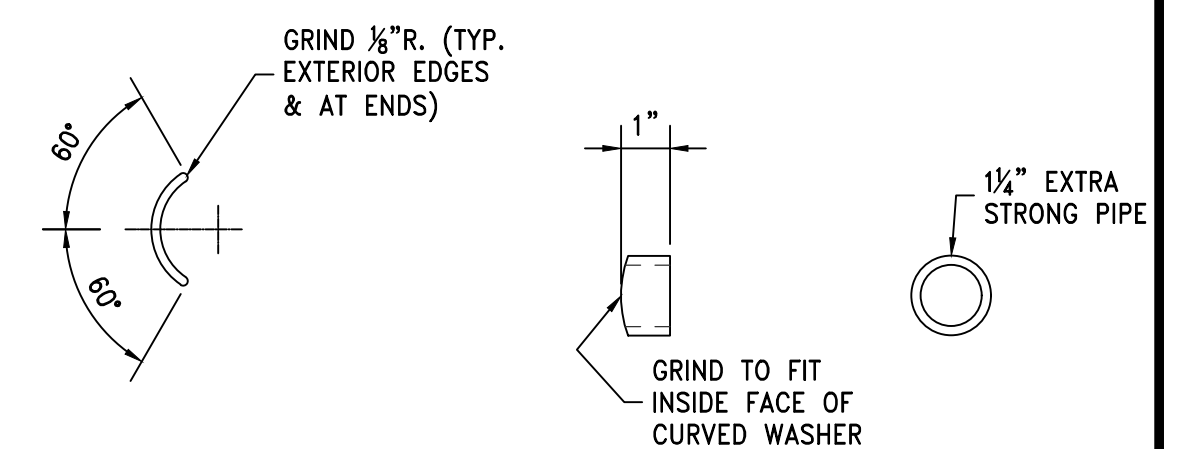


CHAIN ASSEMBLY (A)
CHAIN ASSEMBLY (B)
CHAIN ASSEMBLY (C)
SCALE: 1/2" = 1'-0"

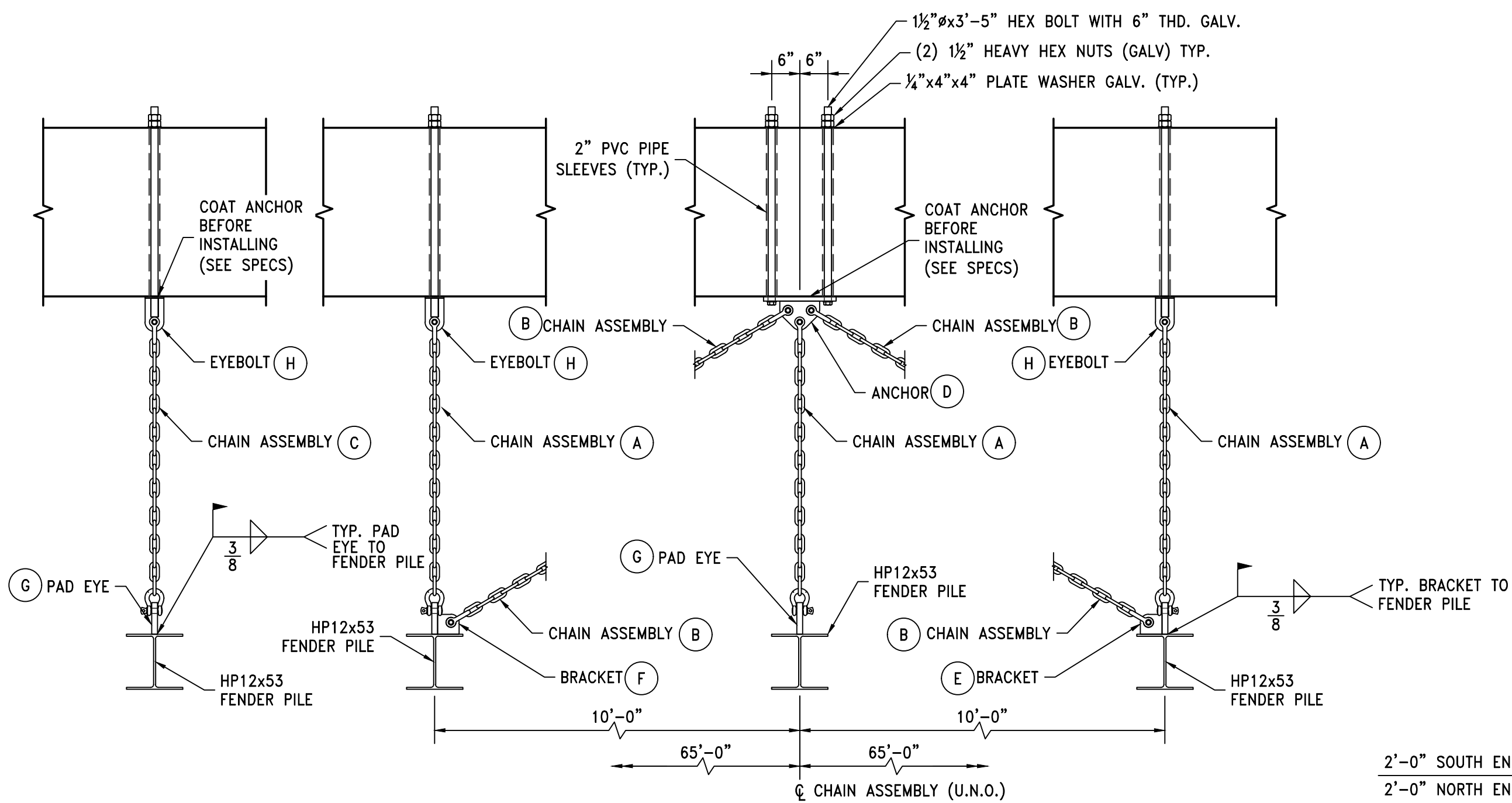
NOTE: CHAIN LENGTHS MUST BE VERIFIED TO FIT AS-BUILT INSTALLATION CONDITIONS. DO NOT PRECUT LENGTHS



CURVED WASHES (J)
SCALE: 1/2" = 1'-0"

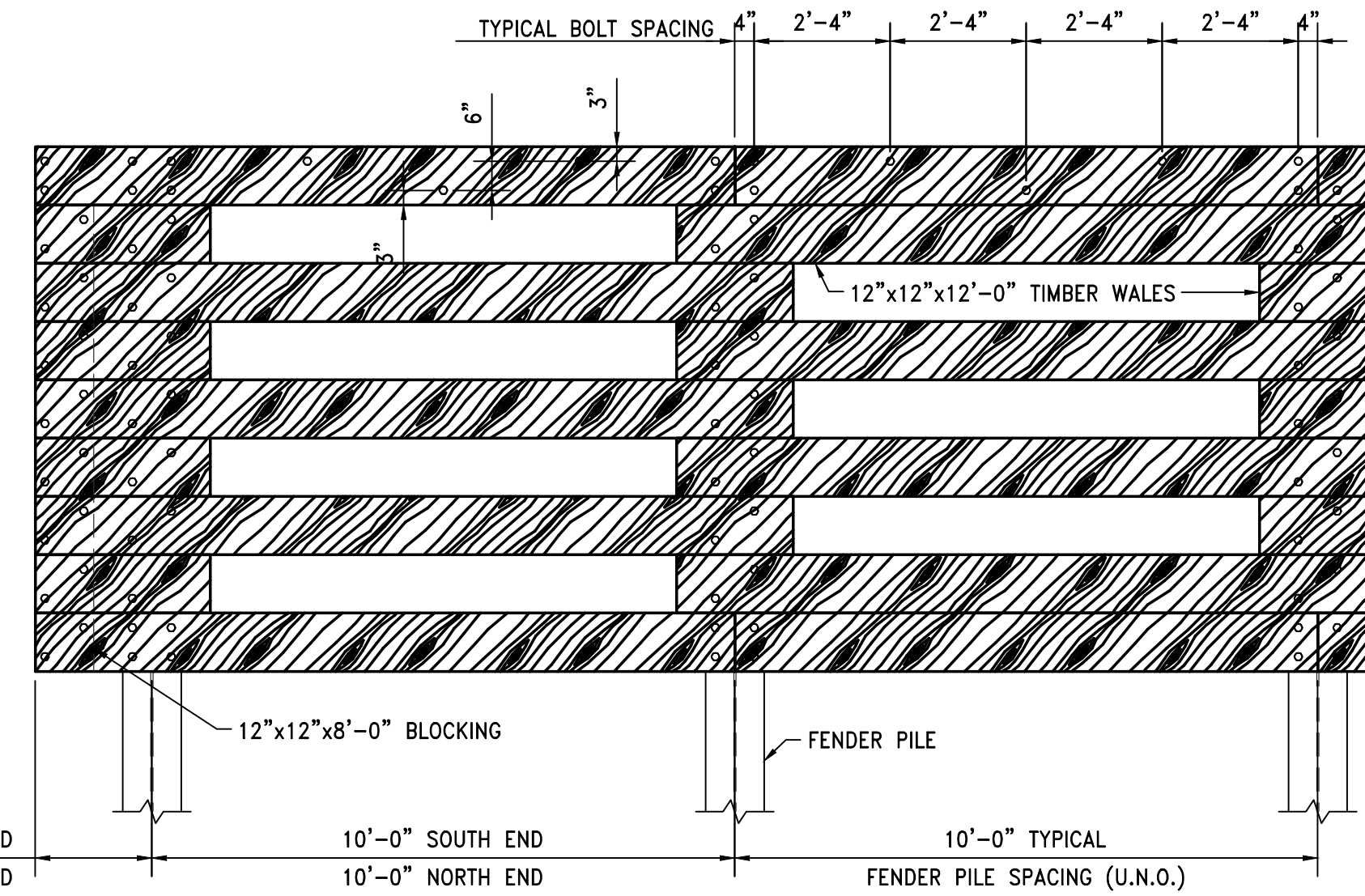


PIPE SLEEVE (K)
SCALE: 3" = 1'-0"

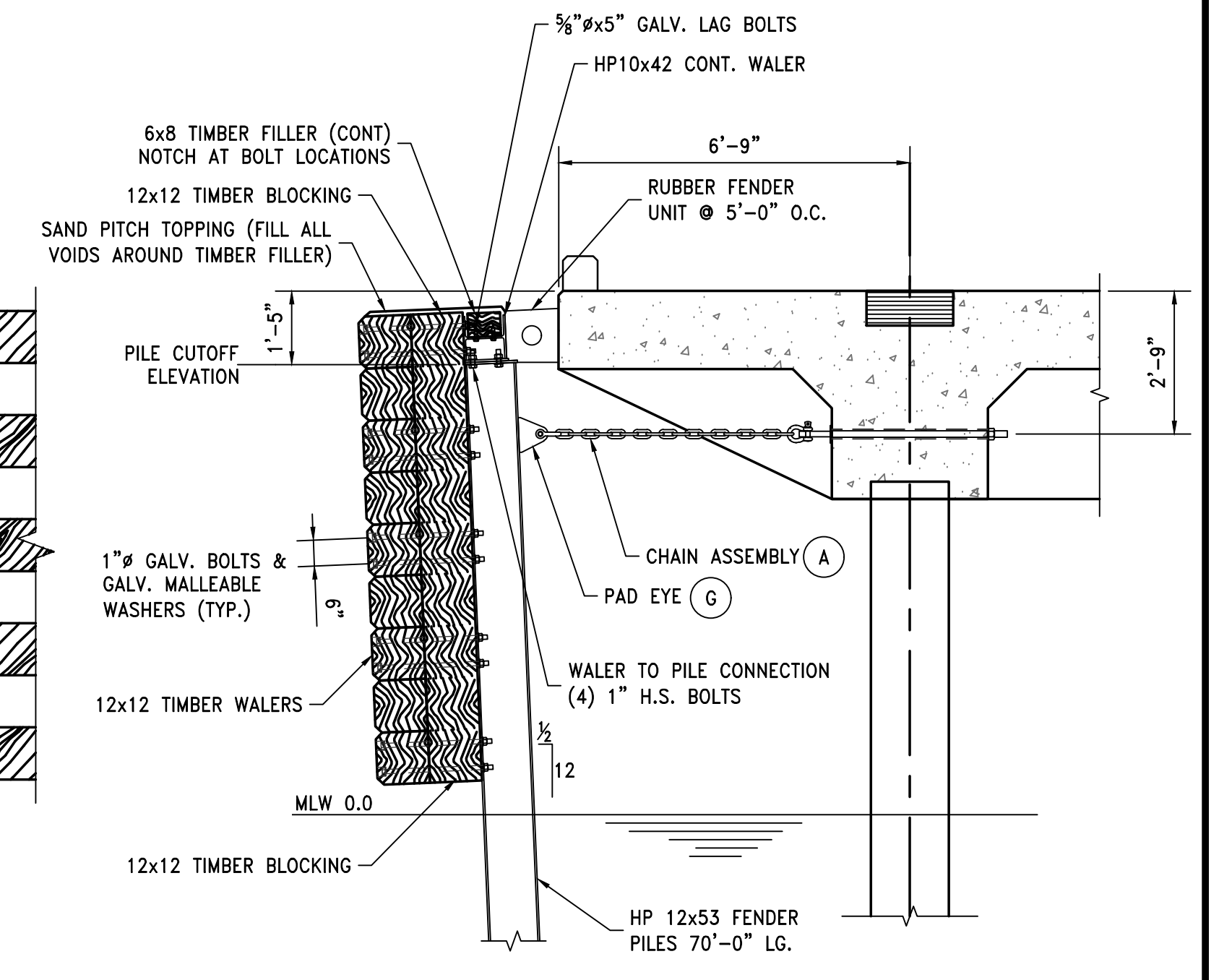


DETAIL 1
1/2" = 1'-0"

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



ELEVATION
SCALE: 3/8" = 1'-0"



SECTION E
3/8" = 1'-0"

REV.	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR REVIEW	08/14/17	TAS	TS

457 St. Michael St.
Mobile, AL 36602
Phone (251) 433-1611
Fax (251) 433-1411

Cowles, Murphy, Glover & ASSOCIATES
A Full Service Engineering Firm
PERFORMANCE • RELIABILITY • EXPERIENCE

13 Thrash Rd.
LaGrange, GA 30241
Phone (706) 242-9202
Fax (706) 242-9202

PROJECT **ALABAMA STATE PORT AUTHORITY
PIER D2 DOCK EXTENSION**
**MOBILE,
ALABAMA**

TITLE				
FENDER SECTIONS & DETAILS				
SCALE	NOTED	DRAWN BY	DATE	SHEET
		TAS	08/14/17	— OF — 22x34
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER	REV.
3327	TS	08/14/17	3327-S8	A