



ALABAMA PORT AUTHORITY PORT OF MOBILE

DUAL BARGE SHIFTER AND BARGE HAUL SYSTEM MARINE CONSTRUCTION

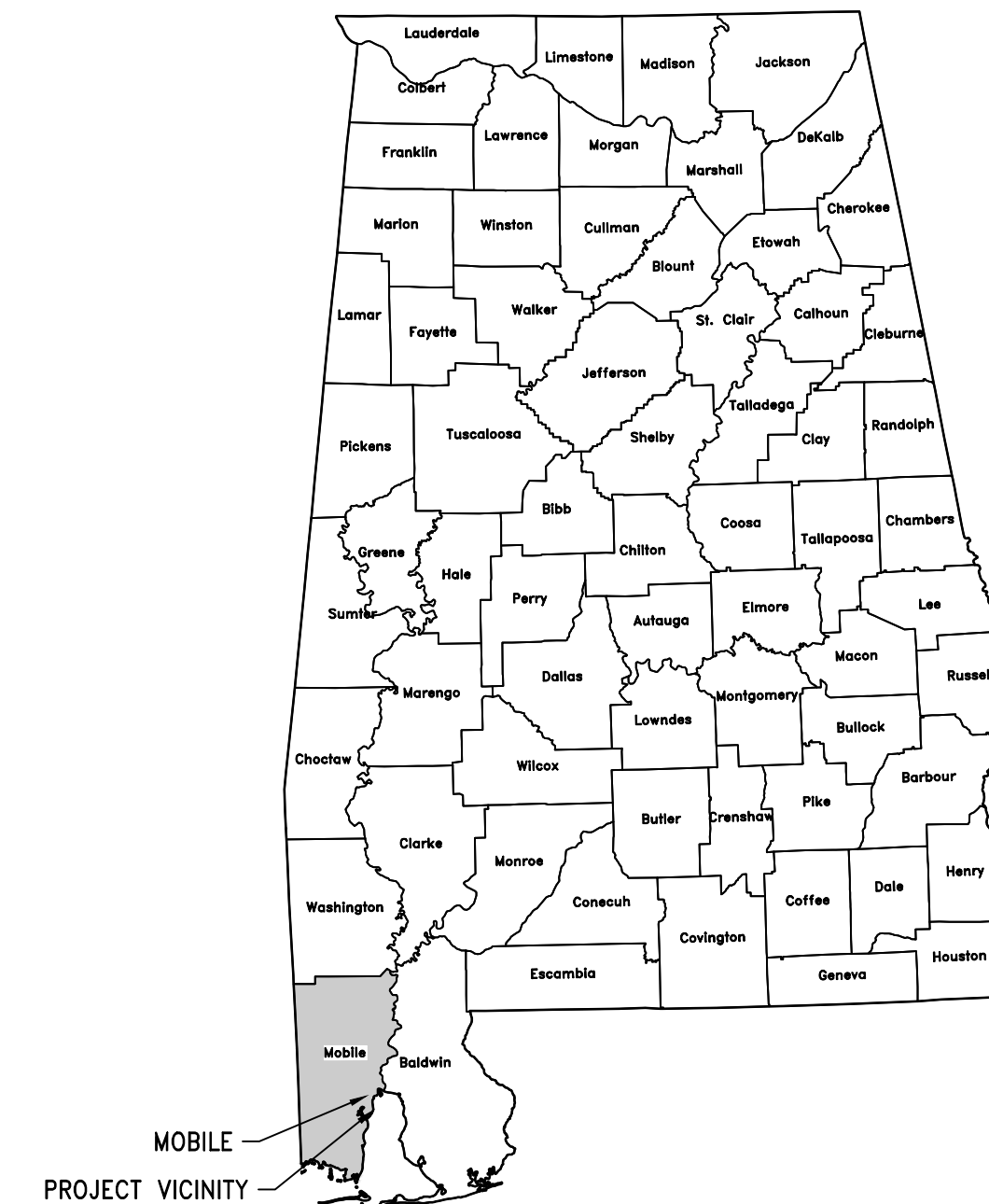
McDUFFIE COAL TERMINAL
MOBILE, ALABAMA
(10873-TASK 3 OCTOBER 2023)

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DRAWING SCHEDULE:

- 4224M-C0 - COVER SHEET
- 4224M-G1 - GENERAL NOTES
- 4224M-G2 - GENERAL NOTES
- 4224M-C1 - DUAL BARGE SHIFTER OVERALL EXISTING SITE PLAN
- 4224M-C2 - DUAL BARGE SHIFTER BU3 ENLARGED EXISTING SITE PLAN
- 4224M-C3 - DUAL BARGE SHIFTER BU1 ENLARGED EXISTING SITE PLAN
- 4224M-C4 - DUAL BARGE SHIFTER DEMOLITION PLAN
- 4224M-C5 - DUAL BARGE SHIFTER NEW OVERALL SITE PLAN
- 4224M-C6 - DUAL BARGE SHIFTER BU3 NEW ENLARGED SITE PLAN
- 4224M-C7 - DUAL BARGE SHIFTER BU1 NEW ENLARGED SITE PLAN
- 4224M-S1 - DUAL BARGE SHIFTER BU3 NEW ENLARGED DOCK PLAN
- 4224M-S2 - BU3 DOCK SECTION
- 4224M-S3 - DUAL BARGE SHIFTER BU1 NEW ENLARGED DOCK PLAN
- 4224M-S4 - BU1 DOCK SECTION
- 4224M-S8 - DOLPHIN "A" & "B" ELEVATION AND DETAILS
- 4224M-S9 - DOLPHIN "C" ELEVATION AND DETAILS
- 4224M-S15 - NEW BARGE BREASTING/SHEAVE SUPPORT STRUCTURE DETAILS & SECTIONS
- 4224M-S16 - PCPS PILE DETAILS
- 4224M-S17 - NEW BARGE BREASTING STRUCTURE PILE LAYOUT
- 4224M-S18 - LADDER PLACEMENT

APA BID ADDITIVE ALTERNATE DRAWINGS:

- MPR-1 - GARROW'S BEND MOORING PILE REPLACEMENT
- 1364-S1 - EXISTING 30"Ø MOORING PILE DETAILS
- EXISTING 42"Ø MOORING PILE DETAILS

REFERENCE DRAWINGS:

CMGA DRAWINGS:

- 4224-GA1 - DUAL BARGE SHIFTER SITE PLAN
- 4224-GA2 - DUAL BARGE SHIFTER GENERAL ARRANGEMENT
- 4224-GA3 - DUAL BARGE SHIFTER

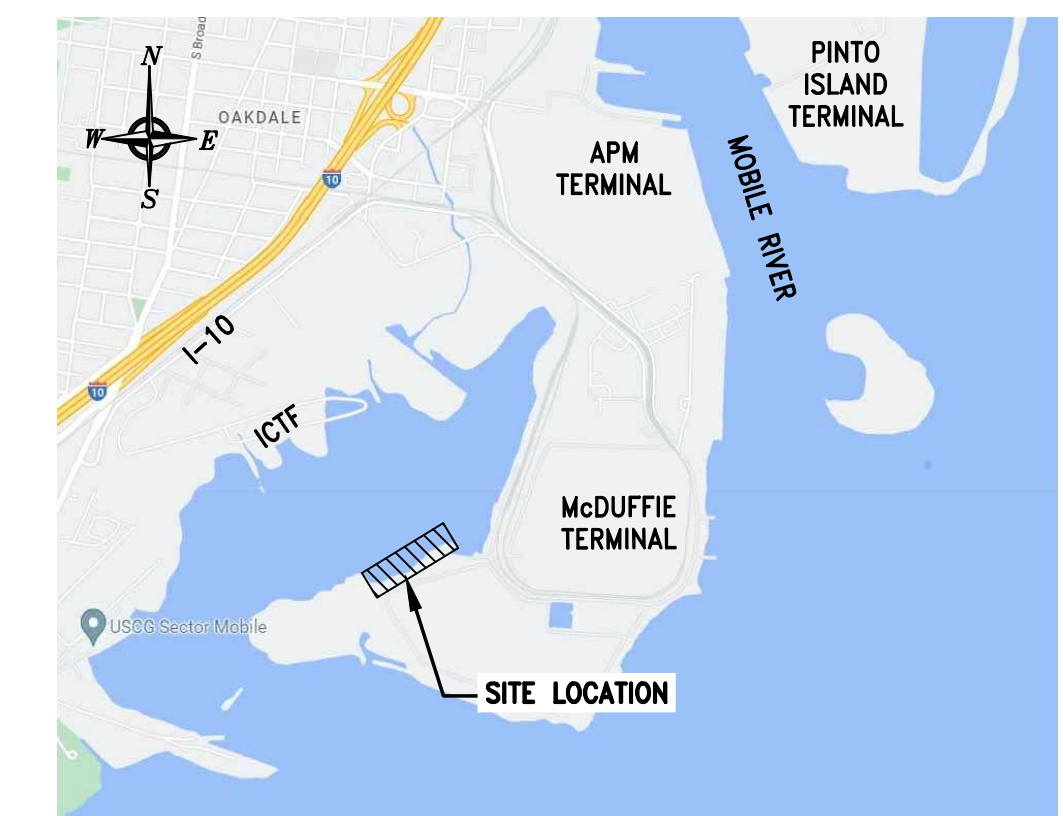
APA GEOTECHNICAL REFERENCE DRAWINGS:

- IDB-ASD SITE PLAN - DAVID VOLKERT (DVA)
- IDB-ASD BORING LOGS - DAVID VOLKERT (DVA)
- ASD BORING LOCATION - PLANT AREA 1972
- ASD SOIL PROFILE (DVA) 1973
- 397-C-1 - COFFER CELL

EXISTING BARGE UNLOADER DRAWINGS PROVIDED AS PDF

REW DRAWINGS PROJECT S03828

- SHEET #8001
- SHEET #8002
- SHEET #8010
- SHEET #8011
- SHEET #8021
- SHEET #8051
- SHEET #8052
- SHEET #8060
- SHEET #8061
- SHEET #8071
- SHEET #8090
- SHEET #8097
- SHEET #001
- SHEET #003



LOCATION MAP
N.T.S.

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REV.	DESCRIPTION	DATE	BY	CHK'D
B	ISSUED FOR BID	11/03/23	RCC	GDEC
A	ISSUED FOR REVIEW	10/05/23	RCC	GDEC

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457 St. Michael St., Mobile, AL 36602

Alabama (251) 433-1611

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PROJECT

DUAL BARGE SHIFTER AND
BARGE HAUL MARINE CONSTRUCTION

McDUFFIE COAL TERMINAL
MOBILE, ALABAMA

TITLE

COVER SHEET

SCALE	DRAWN BY	DATE	SHEET	REV.
AS NOTED	RCC	09/01/23	22x34	B
JOB NO.	CHECKED BY <td>DATE <td>DRAWING NUMBER</td> <td></td> </td>	DATE <td>DRAWING NUMBER</td> <td></td>	DRAWING NUMBER	
4224M	GDEC	09/01/23	4224M-C0	

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 OTHER 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 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 OIL COMPANIES INTERNATIONAL MARINE FORUM (OCIMF) MOORING EQUIPMENT GUIDELINES.
- VESSEL/BARGE : 1,500 DWT
- BERTHING SPEED 1 FT/S
- DESIGN ENERGY : 99 KNM

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
- ADHESIVE FOR REINFORCING DOWELS IN EXISTING CONCRETE SHALL BE EITHER THE HIT HY150 INJECTION ADHESIVE SUPPLIED BY HILTI FASTENING SYSTEMS, THE EPCON SYSTEM CERAMIC 6 EPOXY ADHESIVE SUPPLIED BY ITW RAMSEY/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:

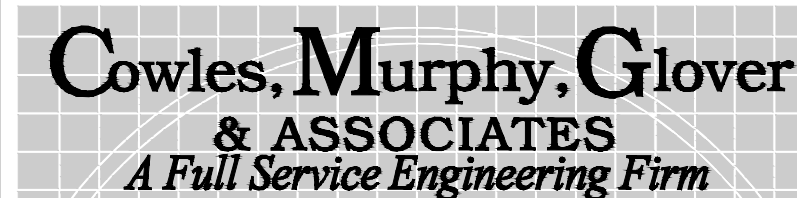
- PRESTRESSED PILES & PILE BUILD-UPS SHALL CONFORM TO THE REQUIREMENTS OF THE JOINT COMMITTEE OF AASHTO AND PCI FOR PRESTRESSED CONCRETE PILES UNLESS OTHERWISE NOTED OR SPECIFIED.
- CONCRETE FOR PRESTRESSED PILES & PILE BUILD-UPS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 6000 PSI IN 28 DAYS.
- PRESTRESSING 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 4,000 LBS. OR HAVE A RATED ENERGY OF LESS THAN 48,000 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 10 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. PILES SHALL BE DRIVEN TO A MINIMUM 200% OF DESIGN (ALLOWABLE) CAPACITY.
- CONTRACTORS SHALL BE REQUIRED TO DRIVE PILES TO THE ELEVATIONS SHOWN ON THE 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

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PERFORMANCE • RELIABILITY • EXPERIENCE

PROJECT

DUAL BARGE SHIFTER AND BARGE HAUL MARINE CONSTRUCTION

McDUFFIE COAL TERMINAL MOBILE, ALABAMA

TITLE				
GENERAL NOTES				
SCALE	DRAWN BY	DATE	SHEET	22x34 REV.
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STRUCTURAL STEEL GENERAL NOTES

REFERENCE SPECIFICATIONS

- STRUCTURAL STEEL WORK SHALL BE IN ACCORDANCE WITH AISC SPECIFICATIONS
- STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS - ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN" (1989) AND "CODE STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (1992).
- HIGH STRENGTH BOLTING SHALL BE IN ACCORDANCE WITH AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS OR A490 BOLTS" (1994).
- ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY STANDARD D1.1, LATEST EDITION.

MATERIALS

- STRUCTURAL STEEL "W", "WT" AND "S" SHAPES SHALL CONFORM TO ASTM A992, GRADE 50. ALL CHANNELS, ANGLES AND PLATES SHALL CONFORM TO ASTM A572 GRADE 50 UNLESS NOTED OTHERWISE.
- HIGH STRENGTH BOLTS, NUTS AND HARDENED WASHERS SHALL CONFORM TO ASTM A325, ASTM A563 DH, AND ASTM F436 RESPECTIVELY. MACHINE BOLTS AND NUTS SHALL CONFORM TO ASTM A307, AND PLAIN WASHERS SHALL CONFORM TO ANSI B18.22.1. BOLTS, NUTS AND WASHERS SHALL BE HOT DIP GALVANIZED.
- WELDING ELECTRODES USED FOR FIELD CONNECTIONS SHALL CONFORM TO AWS A5.1, CLASS E70XX UNLESS NOTED OTHERWISE ON THE DRAWINGS. WELDING ELECTRODES USED FOR SHOP CONNECTIONS SHALL CONFORM TO AWS A5.1 WITH A MINIMUM ELECTRODE TENSILE STRENGTH OF 70 KSI, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- ALL TIEBACK RODS SHALL BE GRADE 80 SKYLINE THREADBAR WITH A MINIMUM YIELD STRESS OF 80 KSI OR AS SHOWN ON THE DRAWINGS 3635-S1, S2 AND S4.
- UNLESS OTHERWISE NOTED, ALL WALERS, TIERODS, BOLTS, WASHERS, AND PLATES SHALL BE HOT DIPPED GALVANIZED.
- ALL PIPE PILES SHALL CONFORM TO ASTM A252 GRADE 3, WITH A MINIMUM YIELD STRESS OF 45 KSI.
- SELF-CLOSING SAFETY GATES SHALL BE COTERMAN SAFETY GATE AG2240ZC2 GALVANIZES / SAFETY YELLOW DOUTBLE BAR SAFETY GATES.

FABRICATION AND ERECTION

- NO TEMPORARY ERECTION BOLTS OTHER THAN HIGH STRENGTH BOLTS SHALL BE USED DURING ERECTION OF THE MEMBERS REQUIRING HIGH STRENGTH BOLTS.
- WHEN CONNECTIONS REQUIRE FIELD PREPARATION OF BOLT HOLES, THE HOLES SHALL BE DRILLED OR PUNCHED, AND THE DIAMETER OF THE BOLT HOLES SHALL BE 1/16 INCH GREATER THAN THE NOMINAL BOLT DIAMETER.
- FIELD CORRECTING OF FABRICATED STEEL BY GAS CUTTING SHALL NOT BE PERMITTED ON MAJOR STRUCTURAL FRAMING MEMBERS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
- ALL ANGLE AND STRUCTURAL TEE BRACING SHALL HAVE 1/16 INCH DRAW PER 10 FEET OF LENGTH. MAXIMUM DRAW SHALL BE 3/16 INCH AND NO DEDUCTION SHALL BE MADE FOR LENGTHS LESS THAN 10 FEET.
- FILLET WELD SIZES, IF NOT CALLED OUT ON THE DRAWINGS, SHALL BE 3/16 INCH MINIMUM UNLESS TABLE J2.4 OF AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS - ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN" REQUIRES A LARGER SIZE.
- SLIP CRITICAL HIGH STRENGTH BOLTED CONNECTIONS SHALL BE INSTALLED AND TIGHTENED THROUGH THE USE OF "TURN-OFF-THE-NUT" TIGHTENING AS PROVIDED IN THE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS. ALL NON-SLIP CRITICAL BOLTS MAY BE TIGHTENED TO A "SNUG-TIGHT" CONDITION AS DEFINED BY AISC.
- THE CONTRACTOR SHALL NOT CUT OR ALTER STRUCTURAL MEMBERS WITHOUT THE APPROVAL OF THE ENGINEER.
- ERECTOR SHALL PROVIDE ALL TEMPORARY SHORING AND BRACING NEEDED FOR STABILITY UNTIL STRUCTURE IS COMPLETE.
- PAINTED SURFACES THAT HAVE BEEN DAMAGED BY WELDING, CUTTING, BURNING, SHEARING OR OTHER DAMAGE INCURRED DURING TRANSIT OR ERECTION SHALL BE REPAIRED TO PROVIDE A FINISH IN ACCORDANCE WITH SPECIFICATIONS.

CONNECTIONS

- BOLTED CONNECTIONS FOR SECONDARY STRUCTURAL MEMBERS (PURLINS, GIRTS, STAIR FRAMING, STAIR BRACING, TOE PLATE, HANDRAIL, LADDERS, ETC) SHALL BE BOLTED WITH HIGH STRENGTH BOLTS CONFORMING TO ASTM A325, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- WHEN CONNECTION DETAILS ARE NOT SHOWN ON THE DRAWINGS, CONNECTIONS SHALL BE DESIGNED IN ACCORDANCE WITH AISC SPECIFICATIONS.
- HIGH STRENGTH BOLT SIZES SHALL BE 3/4 INCH DIAMETER (UNO) EXCEPT THAT TOE PLATES, HANDRAIL AND LADDERS SHALL BE BOLTED WITH 5/8 INCH DIAMETER BOLTS.
- FIELD CONNECTIONS SHALL BE MADE WITH GALVANIZED ASTM-325 HIGH STRENGTH BOLTS, BEARING TYPE CONNECTIONS WITH THREADS EXCLUDED FROM SHEAR PLANE. CONNECTIONS SHALL BE MADE WITH 3/4" DIA. BOLTS UNLESS OTHERWISE NOTED.
- ALL SHOP CONNECTIONS SHALL BE WELDED. BEAM CONNECTIONS SHALL USE TABLE III, CASE 1 WELD A, WITH TABLE II BOLTED CONNECTIONS. WELDING SHALL BE IN ACCORDANCE WITH AISC SPECIFICATIONS AND AWS D1.1 STRUCTURAL WELDING CODE USING E70XX ELECTRODES. ALL FIELD WELDS SHALL BE CLEANED AND COATED WITH COAL TAR EPOXY.
- MINIMUM NUMBER OF BOLTS IN CONNECTIONS NOT OTHERWISE DETAILED. DIAGONAL ANGLE BRACING - 3 OTHER BRACING - TO DEVELOP 50% OF MEMBER STRENGTH BEAMS (WF & CHANNEL) - MAXIMUM NO. MEMBER WILL ACCOMMODATE.
- ALL WELDED JOINTS SHALL BE WELDED CONTINUOUSLY. MINIMUM WELD SIZE SHALL BE 1/2" FILLET.
- UNLESS OTHERWISE SHOWN, GRATING SHALL BE MINIMUM 1 1/2"x3/8" BEARING BARS @ 1" CENTERS W/L SPACING, HOT DIPPED GALVANIZED BY McNICHOLS OR APPROVED EQUAL. GRATING CLIPS SHALL BE STAINLESS STEEL TO ACCOMMODATE THE SPACING AND SHALL BE SUPPLIED BY MFG. FLOOR PLATE, IF REQUIRED, SHALL BE MINIMUM 1/2" STIFFENED W/ANGLE IRON 3"x3"x1/4" @ MAXIMUM 2'-6" CENTERS.
- ALL STAIRS AND PLATFORMS SHALL HAVE HANDRAILS ON ALL SIDES EXCEPT AS NECESSARY FOR ACCESS AND AS OTHERWISE MAY BE NOTED.
- ALL ANCHOR BOLTS ARE TO BE GALVANIZED.

DETAILS

- HOLES FOR 3/4" BOLTS SHALL BE 1 3/16" DIA. AND FOR 7/8" BOLTS SHALL BE 1 5/16" DIA. UNLESS NOTED OTHERWISE.
- BRACING MEMBERS MEETING AT A POINT SHALL HAVE THEIR GRAVITY AXIS MEETING AT ONE POINT IF PRACTICABLE. IF NOT, PROVISIONS SHALL BE MADE FOR BENDING STRESSES DUE TO ECCENTRICITY.
- CLIP ANGLES AND GUSSET PLATES SHALL BE 3/8" THICK UNLESS NOTED OTHERWISE.
- COLUMN BASES AND SPLICED ENDS SHALL BE MILLED OR SAW CUT TO PROVIDE FULL BEARING.
- BRACING: ALL RECESSED DIMENSIONS (i.e. -6, -8 ETC.) ARE NOMINAL DIMENSIONS FOR MEMBER CLEARANCE ONLY. THE FABRICATOR AND DETAILER SHALL PROVIDE FOR CLEARANCE AT BOLTS, PLATES, AND ANY OTHER INTERFERENCE.

COATINGS

- CLEANING AND PAINTING: ALL STEEL SHALL BE GALVANIZED AS SPECIFIED. CARE SHALL BE TAKEN DURING THE GALVANIZATION PROCESS TO PREVENT DISTORTION AND WARPAGE OF ALL MEMBERS. ALL UNACCEPTABLE MEMBERS SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.
- ALL STEEL SURFACES TO BE HOT DIPPED GALVANIZED SHALL BE BLAST CLEANED TO NEAR-WHITE CONDITION IN ACCORDANCE WITH SSPC-SP 10-82.
- ALL STEEL SURFACES, EXCEPT MACHINED ITEMS, OR NOTED OTHERWISE, SHALL BE HOT DIP GALVANIZED. IF STEEL SURFACE REQUIRES PAINTING, USE THE PAINTING SYSTEM AS SPECIFIED BELOW:
PRIME COAT - SHOP APPLIED. PRIME WITH ONE COAT OF INORGANIC ZINC WITH 3 MIL. DFT. CARBO ZINC 11 AS MANUFACTURED BY CARBOLINE, OR AN APPROVED EQUAL.
INTERMEDIATE COAT - SHOP APPLIED. ONE COAT OF EPOXY PRIMER WITH 3 TO 5 MIL. DFT. CARBOLINE 893
TOP COAT - SHOP APPLIED. TOP COAT IS ONE (1) COAT OF HIGH BUILD VINYL WITH 4 MIL. DFT. POLYCLAD 134HS AS MANUFACTURED BY CARBOLINE, OR AN APPROVED EQUAL.

STEEL PILING:

- STEEL PILES SHALL BE THE SIZE SHOWN ON THE DRAWINGS AND SHALL CONFORM TO ASTM A252 GRADE 3 FOR PIPE PILING OR ASTM A572 GRADE 50 FOR H-PILING. SPLICE WELDS SHALL BE FULL PENETRATION BUTT WELDS TO FULLY DEVELOP THE PILE SECTION. ALL STEEL PIPE PILES SHALL BE COATED WITH 40 MILS OF POLYUREA FOR A MINIMUM OF 10' BELOW THE MUDLINE.
- 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 NEAREST 1/16 FT.
- CONTRACTOR SHALL BE PREPARED TO PRE-DRILL CHALK AS REQUIRED FOR PILE DRIVING AND INSTALLATION OF SHEETS. THE CONTRACTOR SHALL PROVIDE A DRILLING/DRIVING PLAN TO THE ENGINEER/GEOTECHNICAL ENGINEER FOR APPROVAL. OVER DRILLING OF CHALK WILL NOT BE ALLOWED. 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" WITH OUT PULLING. A VARIATION IN SLOPE FROM THAT SPECIFIED OF NOT MORE THAN 1/8" 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 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 4,000 LBS. OR HAVE A RATED ENERGY OF LESS THAN 48,000 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. A WRAP ANALYSIS SHALL BE PERFORMED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO MOBILIZATION.
- 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, WHICH EVER IS DIRECTED BY THE ENGINEER.

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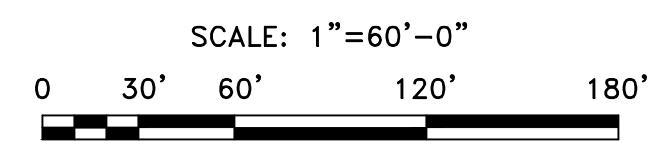
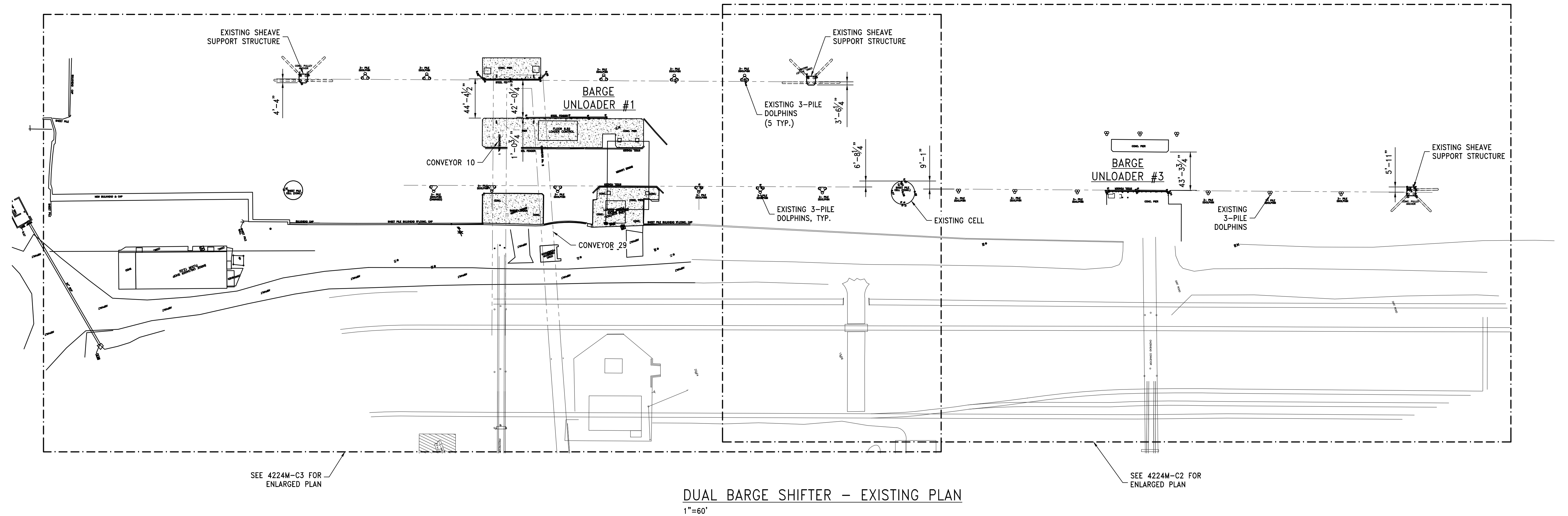
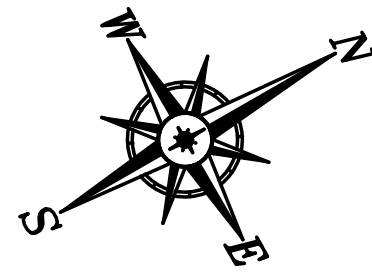
PROJECT

DUAL BARGE SHIFTER AND BARGE HAUL MARINE CONSTRUCTION

McDUFFIE COAL TERMINAL MOBILE, ALABAMA

TITLE				GENERAL NOTES			
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AS NOTED	RCC	09/01/23					B
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER				
4224M	GDEC	09/01/23	4224M-G2				

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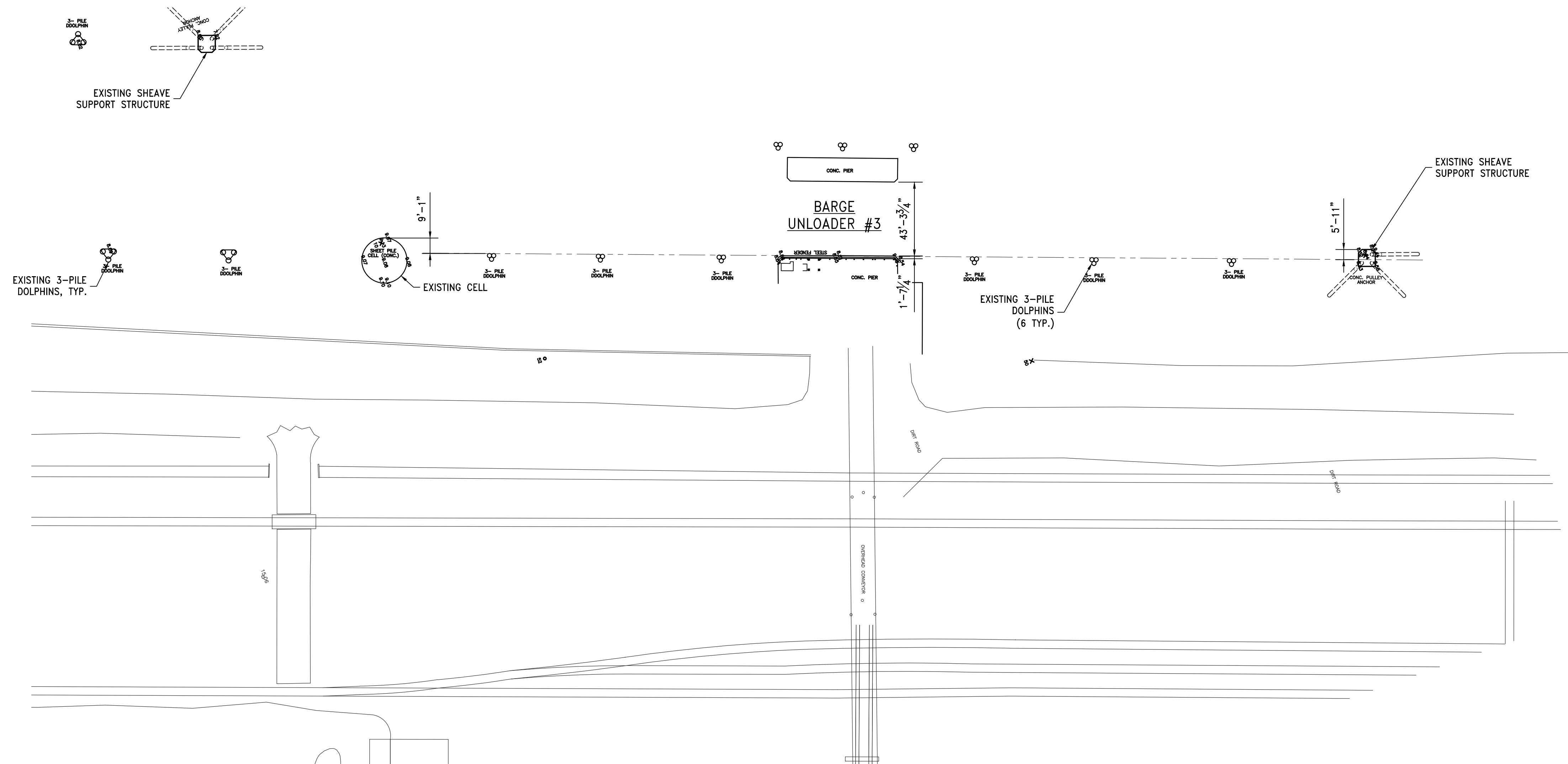
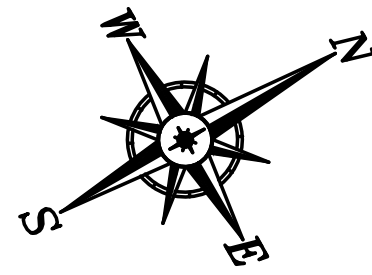
PROJECT

DUAL BARGE SHIFTER AND BARGE HAUL MARINE CONSTRUCTION

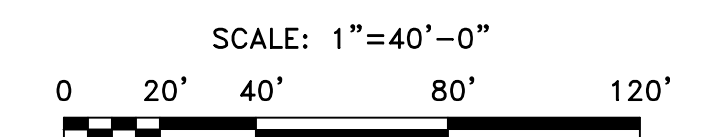
**McDUFFIE COAL TERMINAL
MOBILE, ALABAMA**

TITLE				
DUAL BARGE SHIFTER OVERALL EXISTING SITE PLAN				
SCALE	DRAWN BY	DATE	SHEET	22x34 REV.
AS NOTED	JDG	01/22/23	___ OF ___	B
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER	
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DUAL BARGE SHIFTER BU3 – EXISTING PLAN
1"=40'



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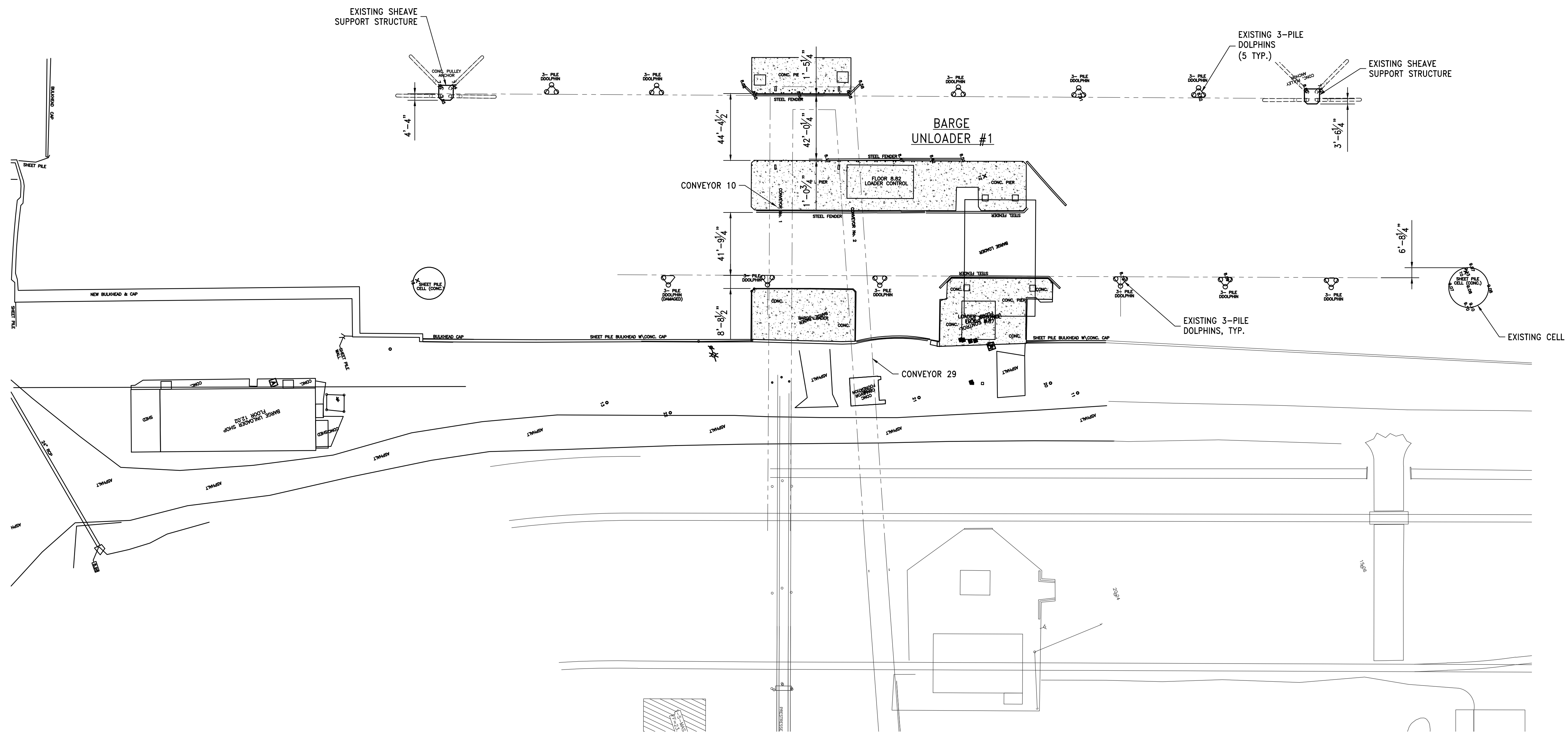
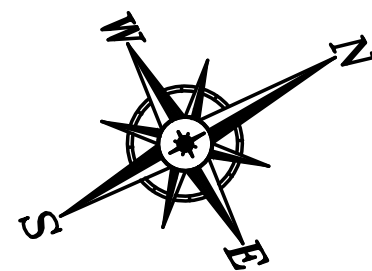
DUAL BARGE SHIFTER AND
BARGE HAUL MARINE CONSTRUCTION

McDUFFIE COAL TERMINAL
MOBILE, ALABAMA

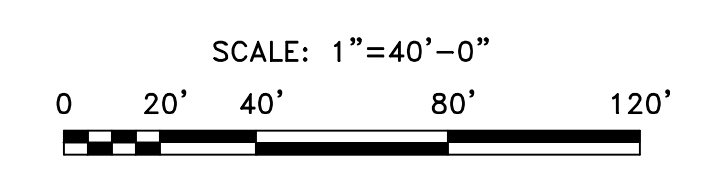
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DUAL BARGE SHIFTER BU3
ENLARGED EXISTING SITE PLAN

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DUAL BARGE SHIFTER BU1 – EXISTING PLAN
1"=40'



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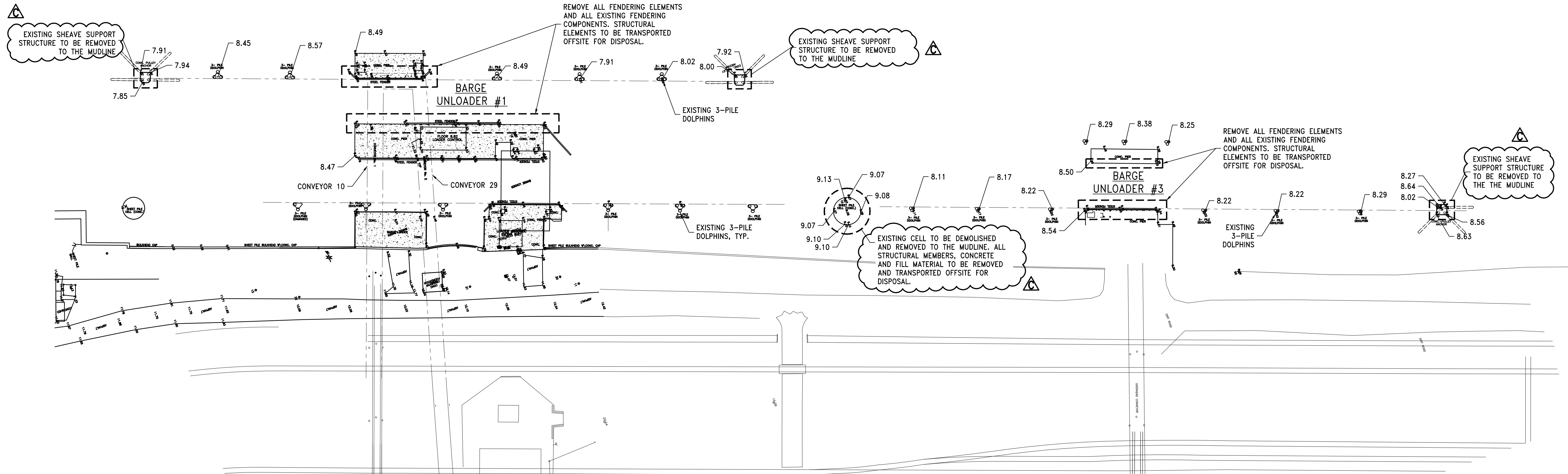
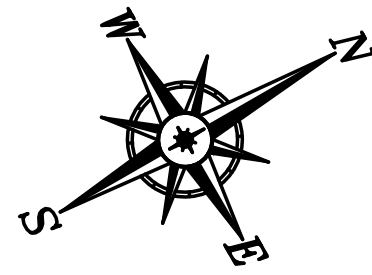
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McDUFFIE COAL TERMINAL MOBILE, ALABAMA

TITLE				
DUAL BARGE SHIFTER BU1 ENLARGED EXISTING SITE PLAN				
SCALE	DRAWN BY	DATE	SHEET	22x34 REV.
AS NOTED	JDG	01/22/23	— OF —	B
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DUAL BARGE SHIFTER – DEMOLITION PLAN

1"=50'

SEQUENCE NOTES:

ALL WORK SHALL BE PERFORMED ON BARGE UNLOADER #3 (BU3) IN PHASE I OF THE WORK. DEMOLITION WORK ASSOCIATED WITH BARGE UNLOADER #1 (BU1) SHALL NOT BEGIN UNTIL BU3 HAS BEEN COMPLETED, COMMISSIONED AND FULLY OPERATIONAL.

DEMOLITION PLAN

- ONE SHEET PILE CELL
- THREE CONCRETE CAP/SHEET PILE SHEAVE SUPPORT DOLPHINS
- STEEL PIPE FENDER SYSTEM WITHIN THE UNLOADER SLIP
- REMOVAL OF EXISTING CAMEL HAUL SYSTEMS, WINCHES, SHEAVES, CABLES POWER SUPPLIES, ETC.

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C	ADDENDUM 1	11/28/23	WBS	GDEC
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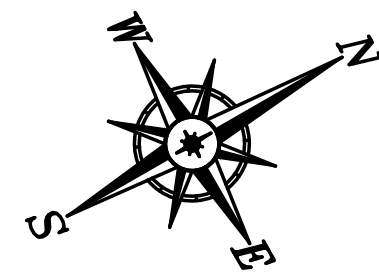
**DUAL BARGE SHIFTER AND
BARGE HAUL MARINE CONSTRUCTION**

**McDUFFIE COAL TERMINAL
MOBILE, ALABAMA**

TITLE

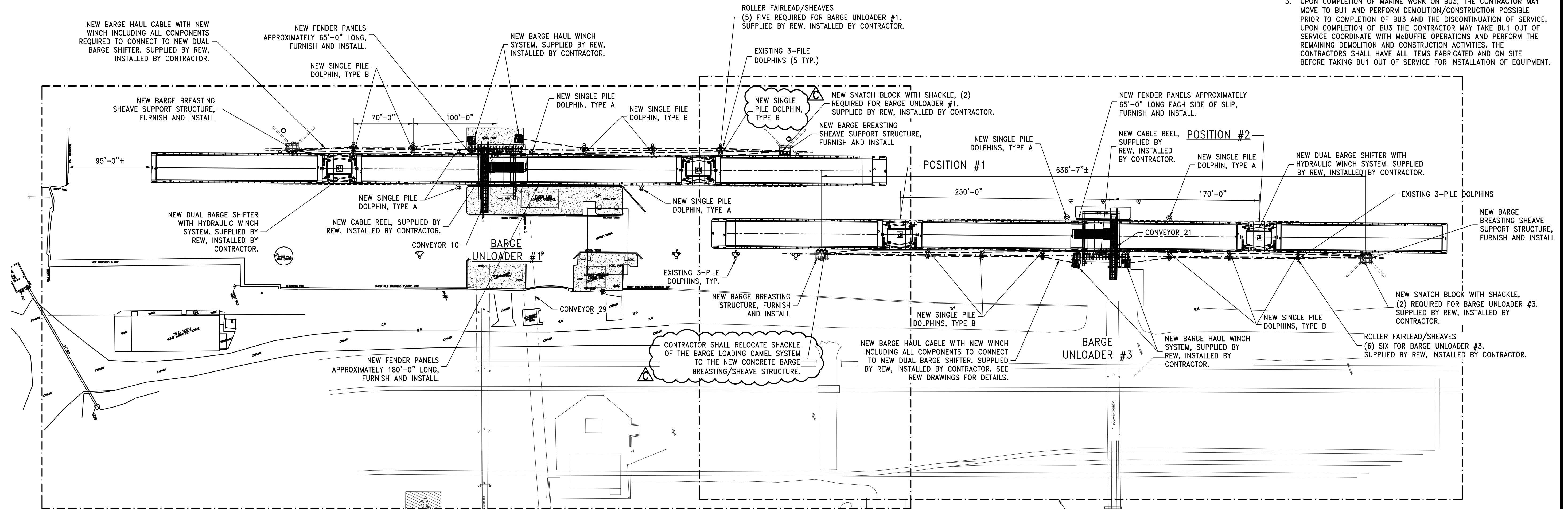
**DUAL BARGE SHIFTER
DEMOLITION PLAN**

SCALE	DRAWN BY	DATE	SHEET	REV.
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JOB NO. 4224M	CHECKED BY GDEC	DATE 3/17/23	DRAWING NUMBER 4224M-C4	



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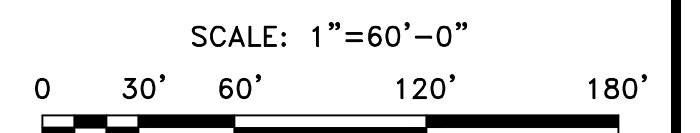
1. TYPE A SINGLE PILE DOLPHIN: 36"Ø x 100' LONG PIPE PILE WITH 8' LONG OCEAN GUARD MONOPILE DONUT FENDER. TYPE B SINGLE PILE DOLPHIN: 30"Ø x 100' LONG PIPE PILE WITH 8' LONG OCEAN GUARD MONOPILE DONUT FENDER.
2. BARGE UNLOADER 3 (BU3) SHALL BE THE FIRST UNLOADER REQUIRED. THE CONTRACTOR SHALL PERFORM ALL DEMOLITION/CONSTRUCTION POSSIBLE PRIOR TO TAKING THE UNLOADER OUT OF SERVICE. THE NEW DOLPHIN PILES SHALL BE INSTALLED PRIOR TO TAKING THE UNLOADER OUT OF SERVICE. THE CONTRACTOR SHALL FABRICATE AND REPAIR ALL FENDER EXTENSIONS AND EXISTING CONCRETE AREAS FOR INSTALLATIONS PRIOR TO TAKING THE UNLOADER OUT OF SERVICE. THE BARGE UNLOADER SHALL BE OUT OF SERVICE A MAXIMUM OF _____ WEEKS FOR COMPLETION OF MARINE CONSTRUCTION, INSTALLATION AND COMMISSIONING OF EQUIPMENT. DURING THE OUTAGE McDUFFIE PERSONNEL SHALL BE PERFORMING MAINTENANCE WORK, I.E. REPAIR CHAIN TENSIONER, ETC. ALL BARGE UNLADER 3 EQUIPMENT SHALL BE OPERATIONAL AND SHALL HAVE CONTINUOUSLY OPERATED FOR (2) 12 HOUR PERIODS PRIOR TO TAKING BARGE UNLOADER 1 (BU1) OUT OF SERVICE.
3. UPON COMPLETION OF MARINE WORK ON BU3, THE CONTRACTOR MAY MOVE TO BU1 AND PERFORM DEMOLITION/CONSTRUCTION POSSIBLE PRIOR TO COMPLETION OF BU3 AND THE DISCONTINUATION OF SERVICE. UPON COMPLETION OF BU3 THE CONTRACTOR MAY TAKE BU1 OUT OF SERVICE COORDINATE WITH McDUFFIE OPERATIONS AND PERFORM THE REMAINING DEMOLITION AND CONSTRUCTION ACTIVITIES. THE CONTRACTORS SHALL HAVE ALL ITEMS FABRICATED AND ON SITE BEFORE TAKING BU1 OUT OF SERVICE FOR INSTALLATION OF EQUIPMENT.



DUAL BARGE SHIFTER - PLAN
1"=60'

SEE 4224M-C7 FOR ENLARGED PLAN

SEE 4224M-C6 FOR ENLARGED PLAN



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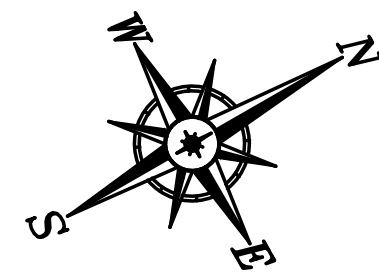
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PROJECT
DUAL BARGE SHIFTER AND BARGE HAUL MARINE CONSTRUCTION
McDUFFIE COAL TERMINAL MOBILE, ALABAMA

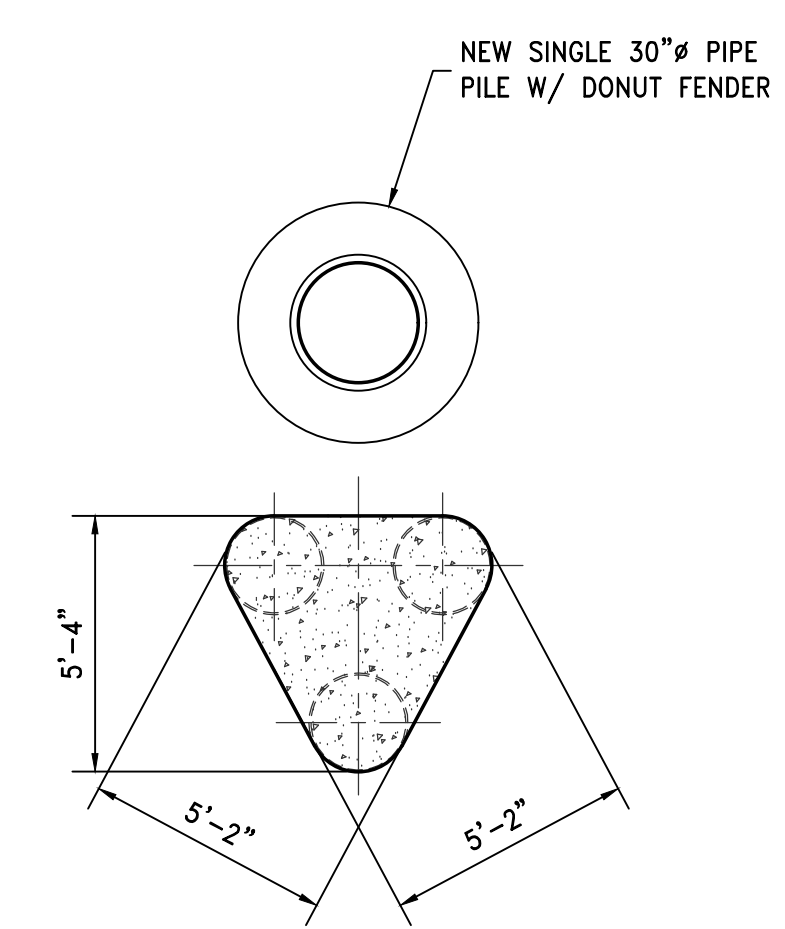
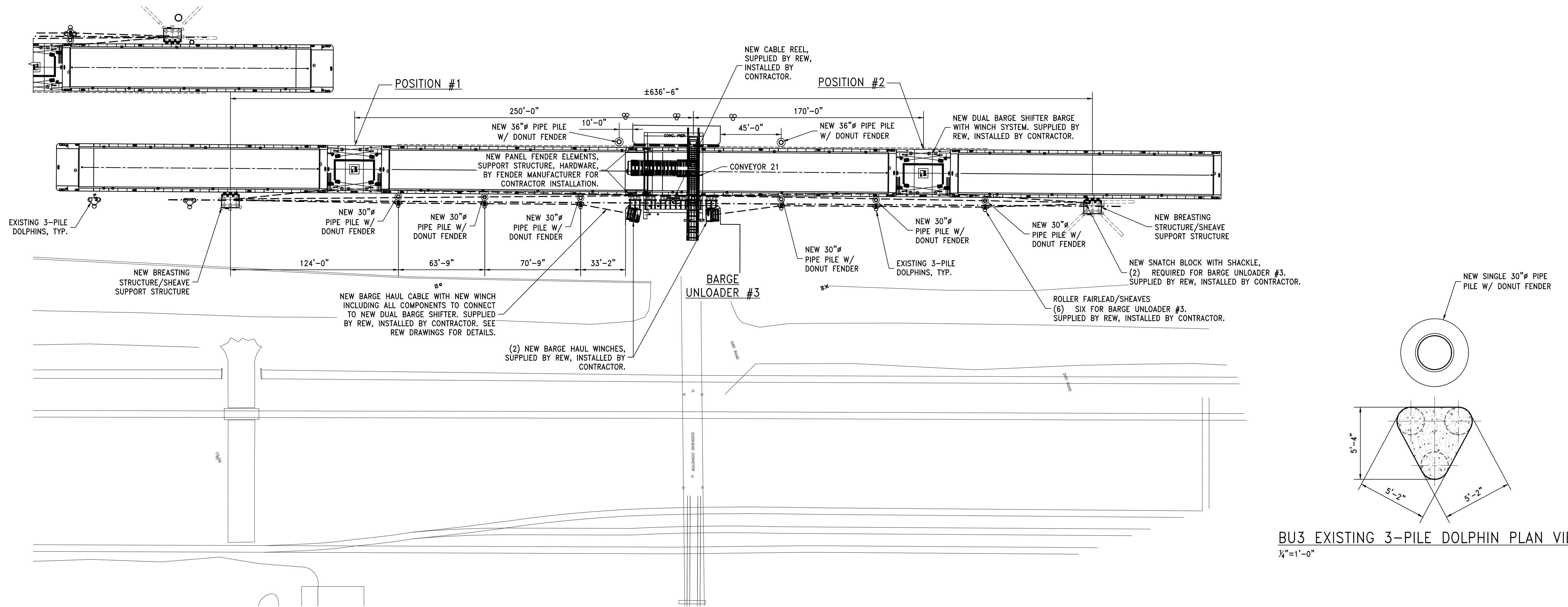
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SCALE AS NOTED	DRAWN BY JDG	DATE 01/22/23	SHEET — OF —	22x34 REV. C
JOB NO. 4224M	CHECKED BY GDEC	DATE 3/17/23	DRAWING NUMBER 4224M-C5	

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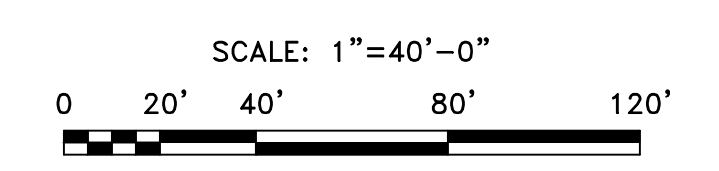
NOTES:

1. TYPE A SINGLE PILE DOLPHIN: 36"Ø x 100' LONG PIPE PILE WITH 8' LONG OCEAN GUARD MONOPILE DONUT FENDER.
2. BARGE UNLOADER 3 (BU3) SHALL BE THE FIRST UNLOADER MODIFIED. THE CONTRACTOR SHALL PERFORM ALL DEMOLITION/CONSTRUCTION POSSIBLE PRIOR TO TAKING THE UNLOADER OUT OF SERVICE. THE CONTRACTOR SHALL HAVE ALL MATERIALS ON HAND, ITEMS FABRICATED AND REPAIR EXISTING PERFORMED PRIOR TO TAKING THE UNLOADER OUT OF SERVICE. THE BARGE UNLOADER SHALL BE OUT OF SERVICE A MAXIMUM OF 16 WEEKS FOR COMPLETION OF MARINE CONSTRUCTION, INSTALLATION AND COMMISSIONING OF EQUIPMENT. DURING THE OUTAGE McDUFFIE PERSONNEL SHALL BE PERFORMING MAINTENANCE WORK, I.E. REPAIR CHAIN TENSIONER, ETC. ALL BARGE UNLOADER 3 EQUIPMENT SHALL BE OPERATIONAL AND SHALL HAVE CONTINUOUSLY OPERATED FOR (2) 24 HOUR PERIODS PRIOR TO TAKING BARGE UNLOADER 1 (BU1) OUT OF SERVICE.
3. UPON COMPLETION OF MARINE WORK ON BU3, THE CONTRACTOR MAY MOVE TO BU1 AND PERFORM DEMOLITION/CONSTRUCTION POSSIBLE PRIOR TO COMPLETION OF BU3 AND THE DISCONTINUATION OF SERVICE. UPON COMPLETION OF BU3 THE CONTRACTOR MAY TAKE BU1 OUT OF SERVICE COORDINATE WITH McDUFFIE OPERATIONS AND PERFORM THE REMAINING DEMOLITION AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL HAVE ALL ITEMS FABRICATED AND ON SITE BEFORE TAKING BU1 OUT OF SERVICE FOR INSTALLATION OF EQUIPMENT.



BU3 EXISTING 3-PILE DOLPHIN PLAN VIEW
 1/4"=1'-0"

DUAL BARGE SHIFTER BU3 - PLAN
 1"=40'



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PROJECT

DUAL BARGE SHIFTER AND BARGE HAUL MARINE CONSTRUCTION

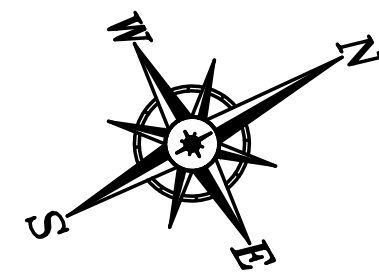
McDUFFIE COAL TERMINAL
MOBILE, ALABAMA

TITLE

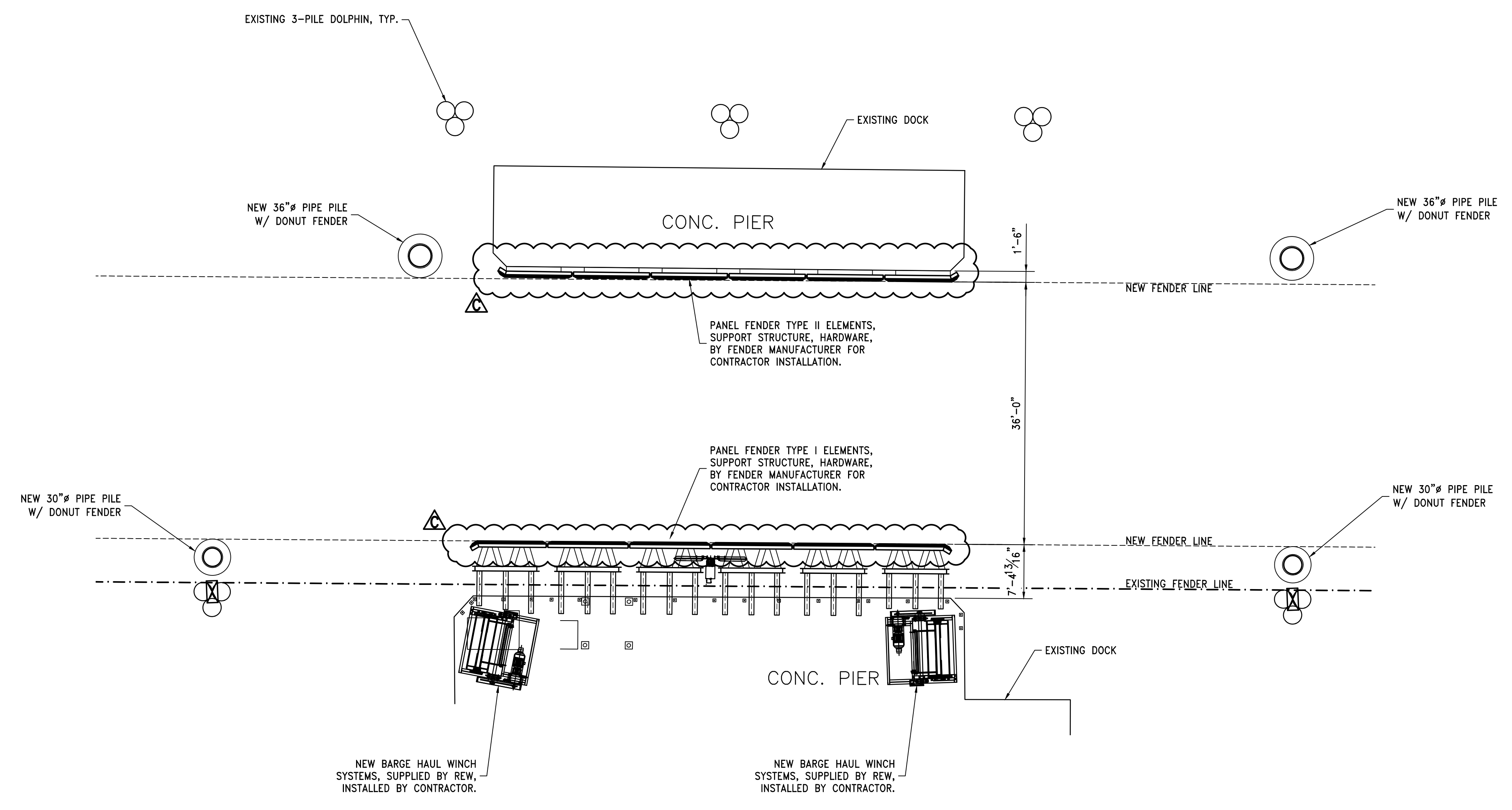
DUAL BARGE SHIFTER BU3
NEW ENLARGED SITE PLAN

SCALE	DRAWN BY	DATE	SHEET	22x34	REV.
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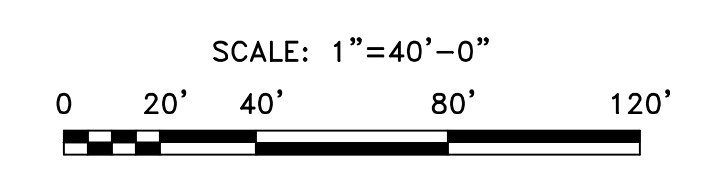
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NOTE:
 THE DESIGN OF THE FENDER ELEMENTS, FENDER PANELS, SUPPORT STRUCTURE AND MISCELLANEOUS APPURTENANCES AS REQUIRED TO PROVIDE A SYSTEM TO RESTRAIN THE BARGE DURING UNLOADING SHALL BE PROVIDED BY THE FENDER MANUFACTURER. THE DESIGN SHALL BE SUBMITTED FOR OWNER REVIEW AND APPROVAL PRIOR TO FABRICATION. A GENERIC LAYOUT AND DETAILS SHALL BE PROVIDED WITH THE BID.



DUAL BARGE SHIFTER BU3 – NEW ENLARGED SITE PLAN
 1"=10'



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REV.	DESCRIPTION	DATE	BY	CHK'D
C	ADDENDUM 1	11/28/23	WBS	GDEC
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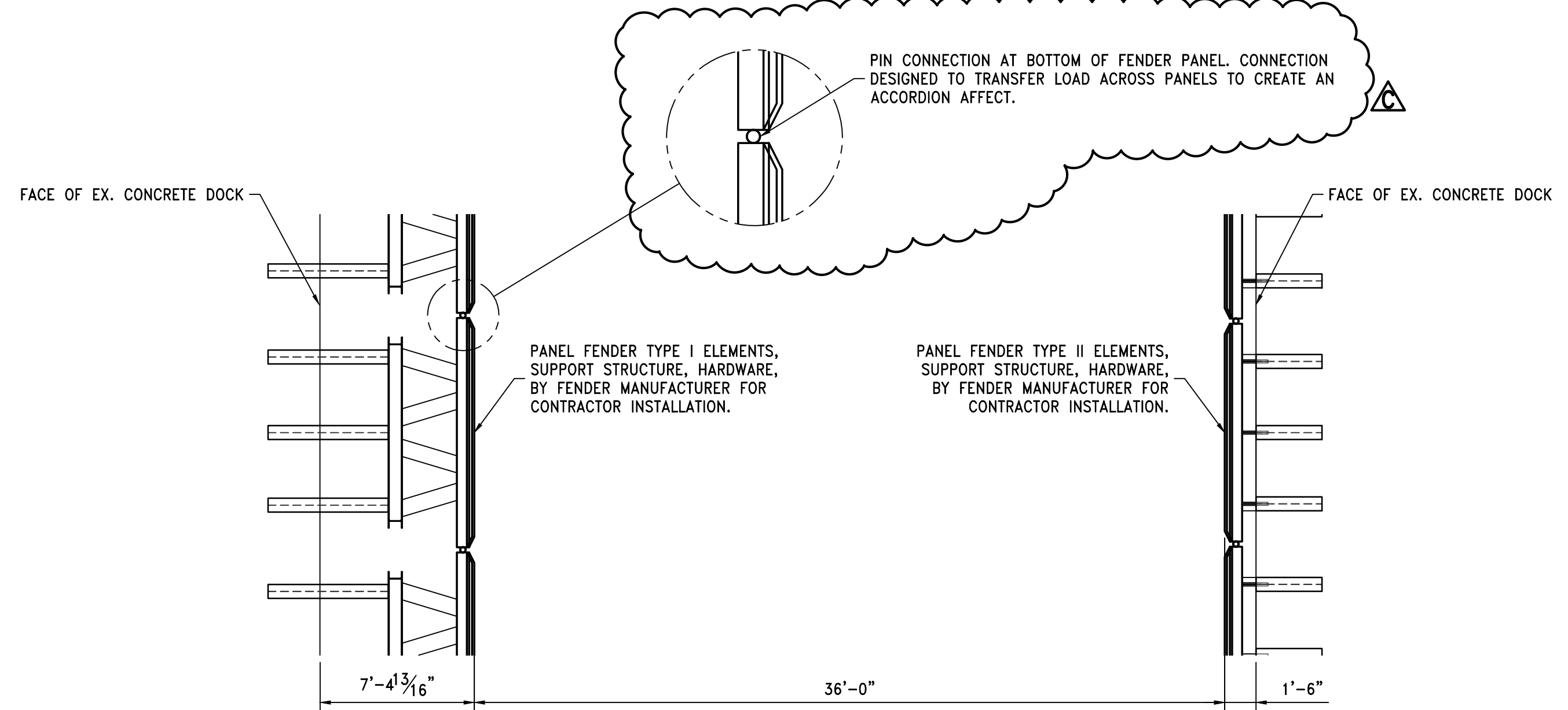
457 St. Michael St., Mobile, AL 36602
 Alabama (251) 433-1611
 11880 Cranston Dr. Ste 102, Arlington, TN 38002
 Tennessee (901) 290-5444

PROJECT
DUAL BARGE SHIFTER AND BARGE HAUL MARINE CONSTRUCTION
McDUFFIE COAL TERMINAL MOBILE, ALABAMA

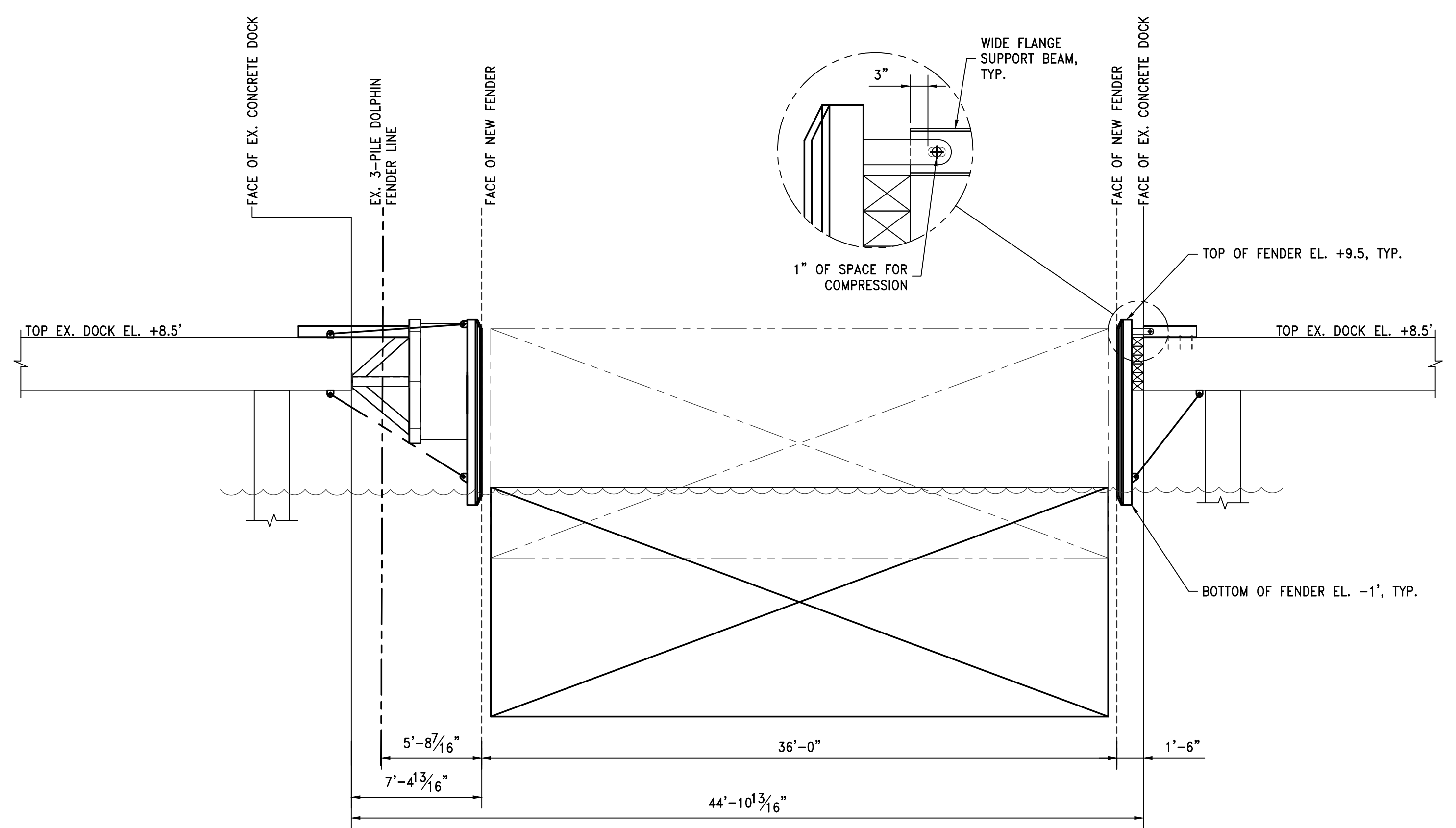
TITLE				
DUAL BARGE SHIFTER BU3 NEW ENLARGED DOCK PLAN				
SCALE	DRAWN BY	DATE	SHEET	22x34 REV.
AS NOTED	JDG	01/22/23	— OF —	C
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER	
4224M	GDEC	3/17/23	4224M-S1	

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BU3 PLAN AT DOCK
 $\frac{3}{16}'' = 1'-0''$



BU3 SECTION AT DOCK
 $\frac{3}{16}'' = 1'-0''$

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REV.	DESCRIPTION	DATE	BY	CHK'D

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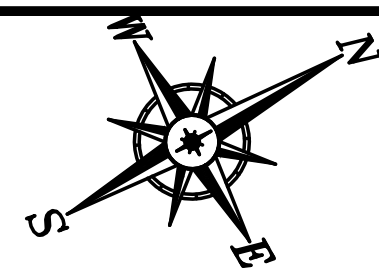
PROJECT

DUAL BARGE SHIFTER AND BARGE HAUL MARINE CONSTRUCTION

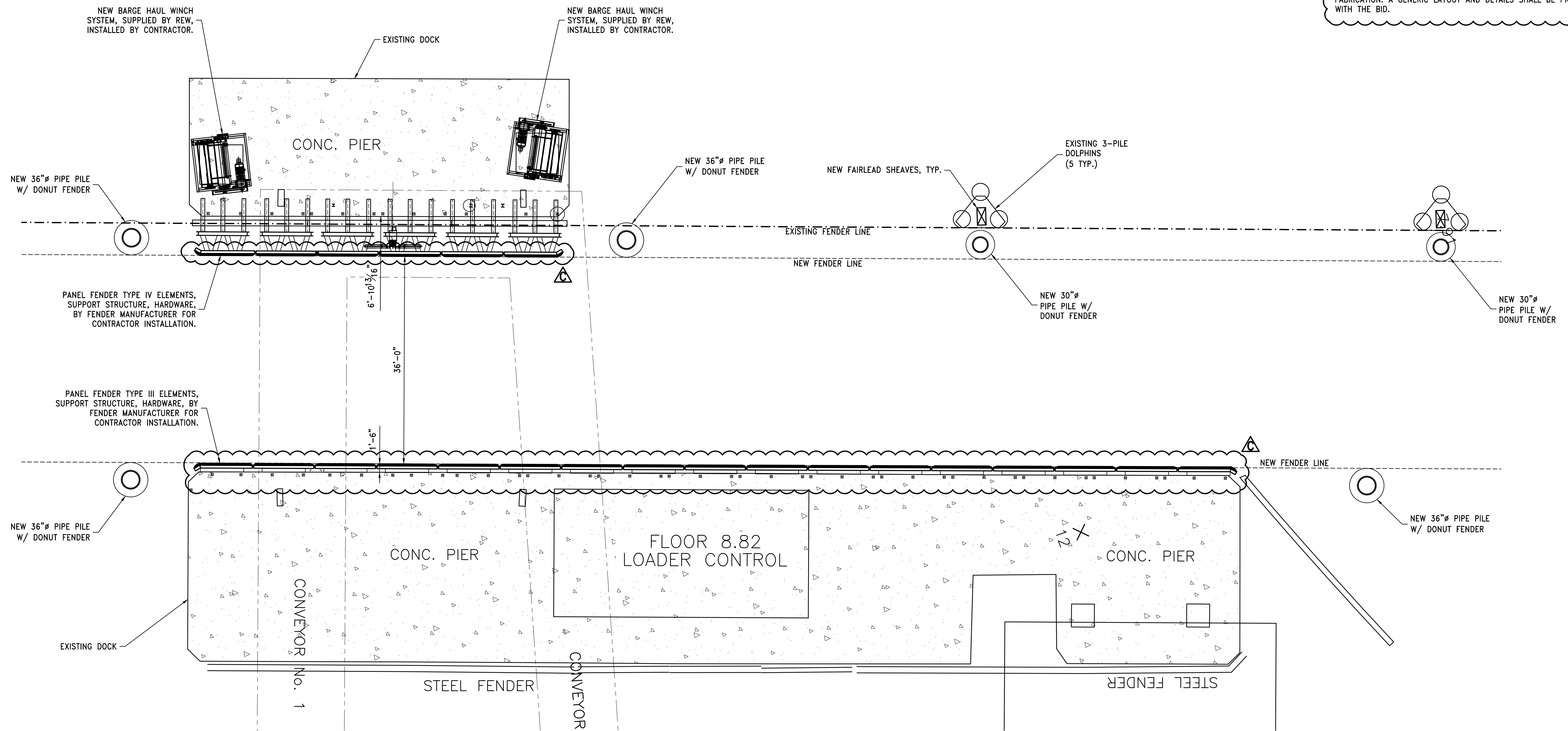
McDUFFIE COAL TERMINAL MOBILE, ALABAMA

TITLE				
BU3 DOCK SECTION				
SCALE	DRAWN BY	DATE	SHEET	22x34 REV.
AS NOTED	JWM	09/06/23	— OF —	C
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER	
4224M	GDEC	09/06/23	4224M-S2	

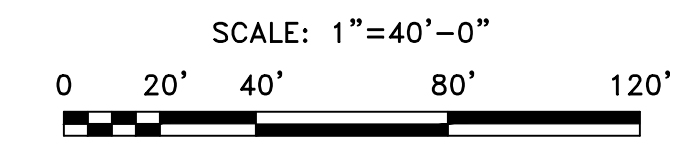
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DUAL BARGE SHIFTER BU1 – NEW ENLARGED SITE PLAN
 1"=10'



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DUAL BARGE SHIFTER AND BARGE HAUL MARINE CONSTRUCTION

McDUFFIE COAL TERMINAL MOBILE, ALABAMA

TITLE

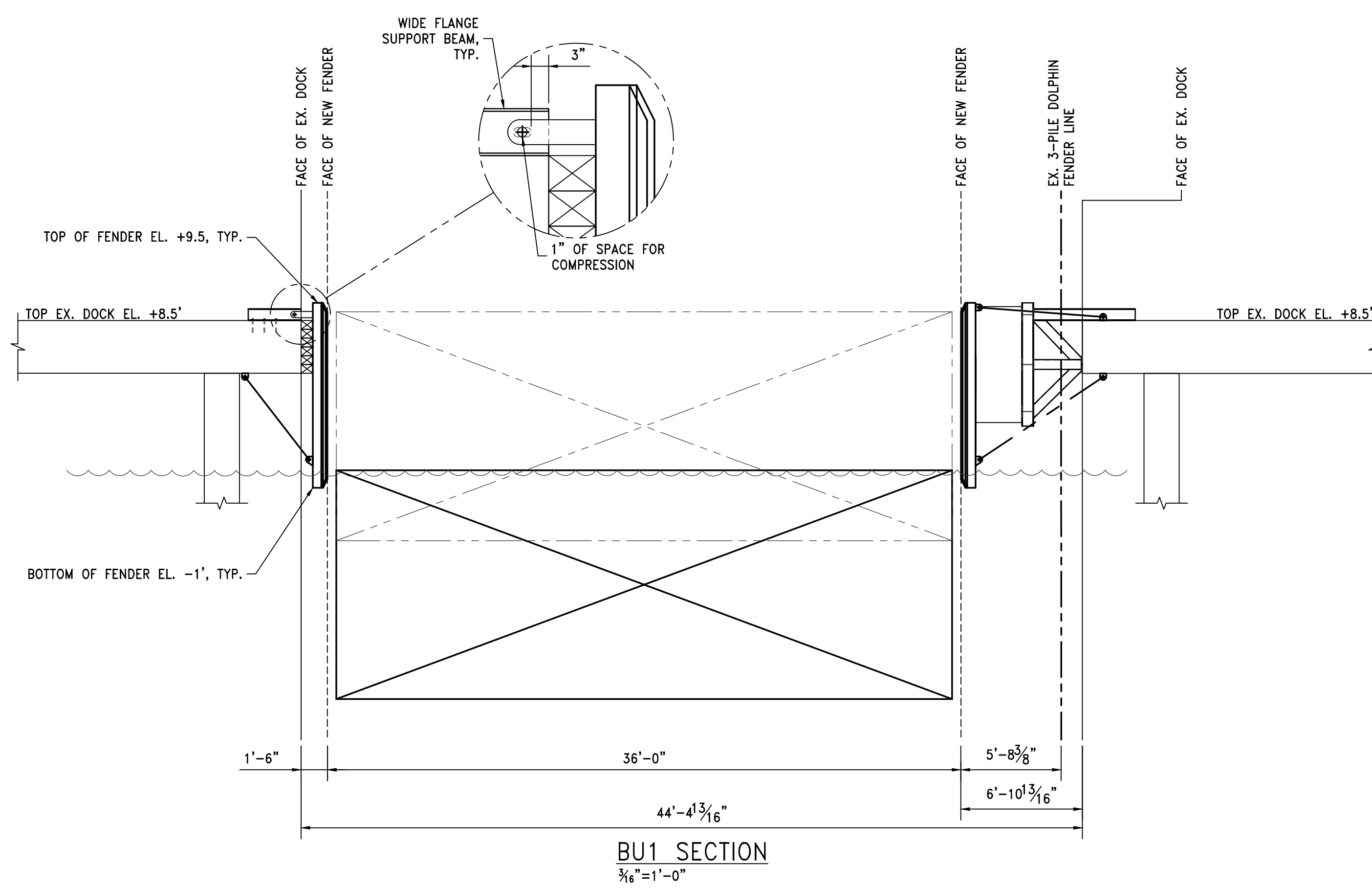
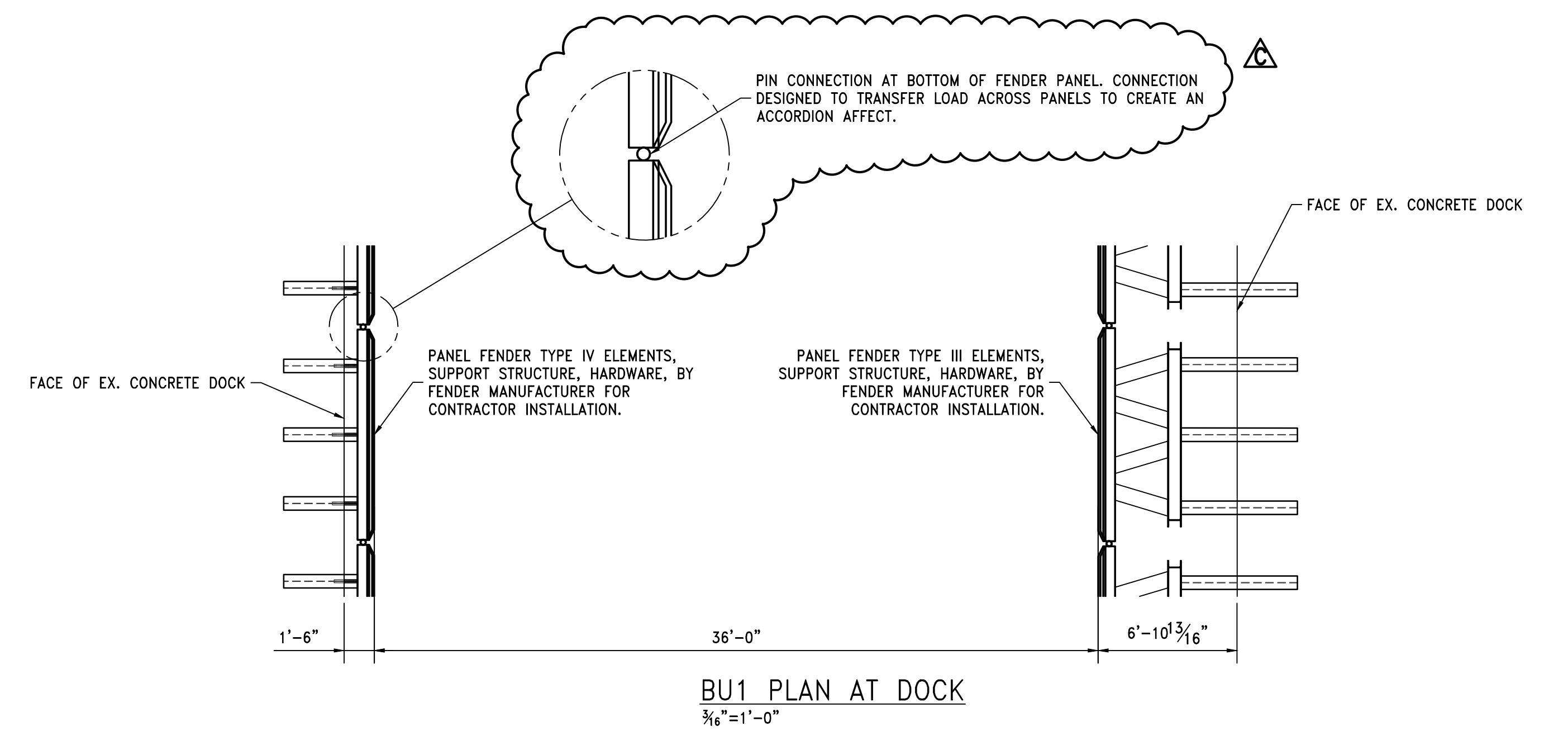
DUAL BARGE SHIFTER BU1 NEW ENLARGED DOCK PLAN

SHEET 22x34 OF 22x34

SCALE	DRAWN BY	DATE	REV.
AS NOTED	JDG	01/22/23	C
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER
4224M	GDEC	3/17/23	4224M-S3

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NOTE:
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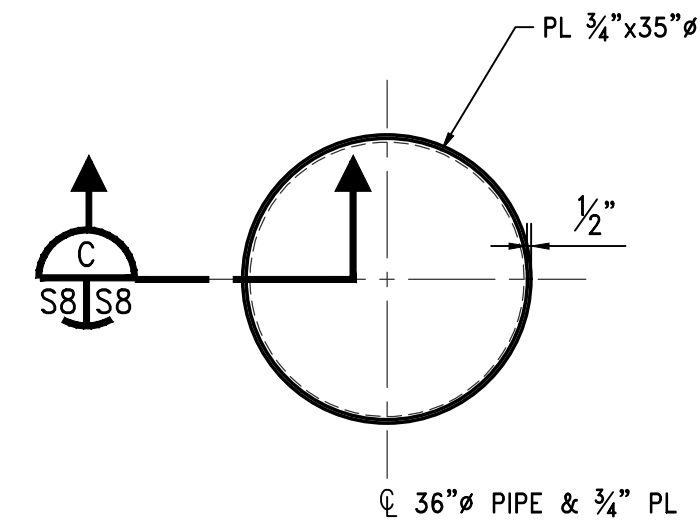
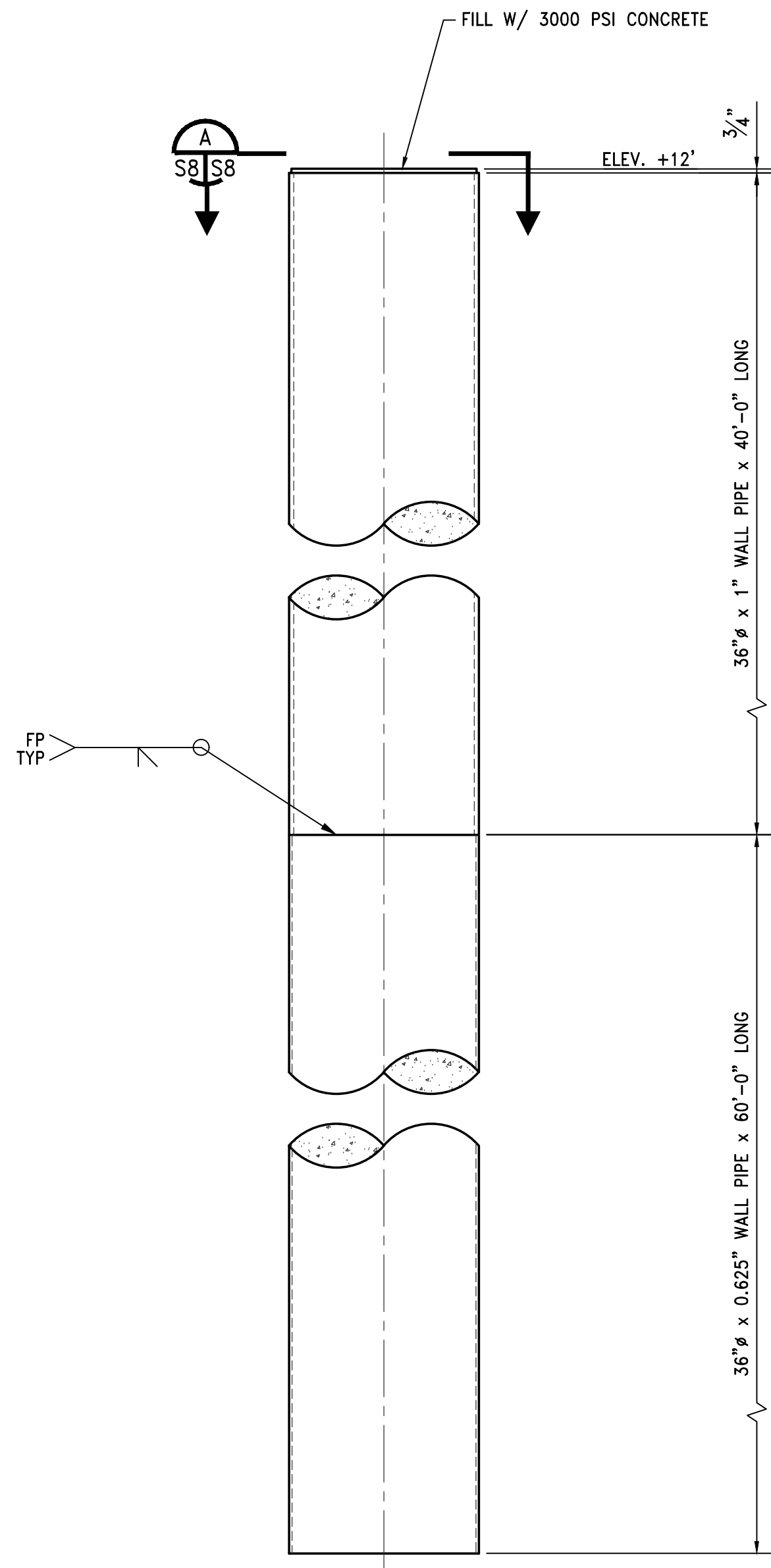
PROJECT

DUAL BARGE SHIFTER AND BARGE HAUL MARINE CONSTRUCTION

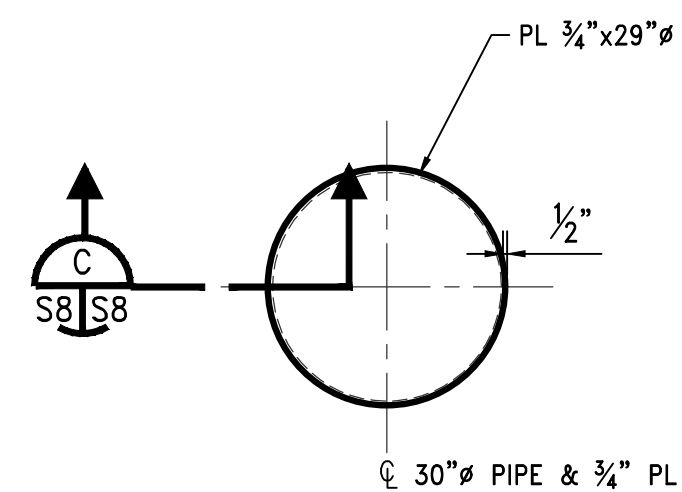
McDUFFIE COAL TERMINAL MOBILE, ALABAMA

TITLE				
BU1 DOCK SECTION				
SCALE	DRAWN BY	DATE	SHEET	22x34 REV.
AS NOTED	JWM	09/06/23	— OF —	C
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER	
4224M	GDEC	09/06/23	4224M-S4	

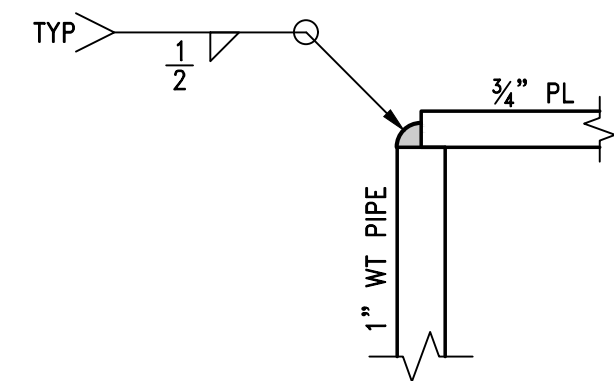
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SECTION A
1/2"=1'-0"



SECTION B
1/2"=1'-0"

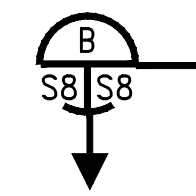
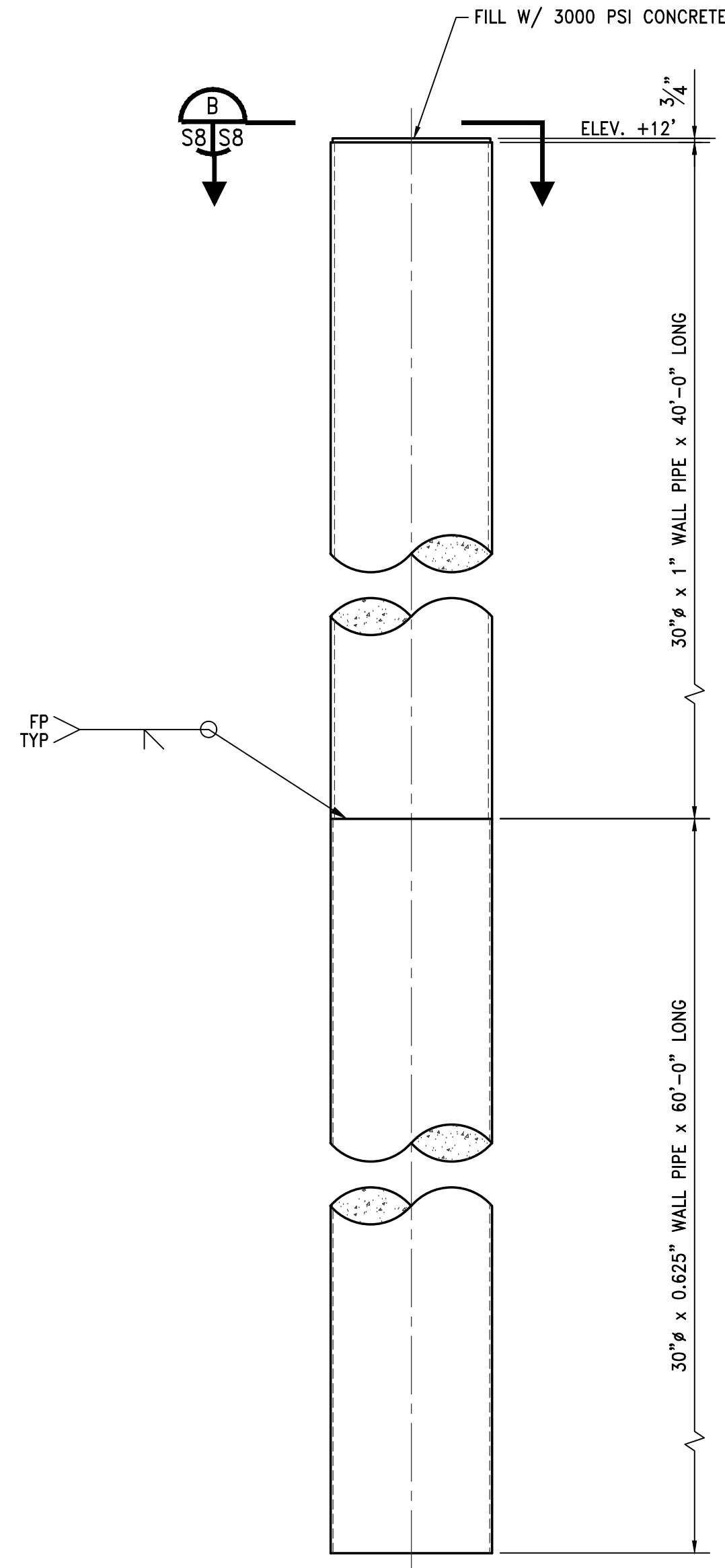


SECTION C
3"=1'-0"

DOLPHIN "A" (36"Ø)

1/2"=1'-0"

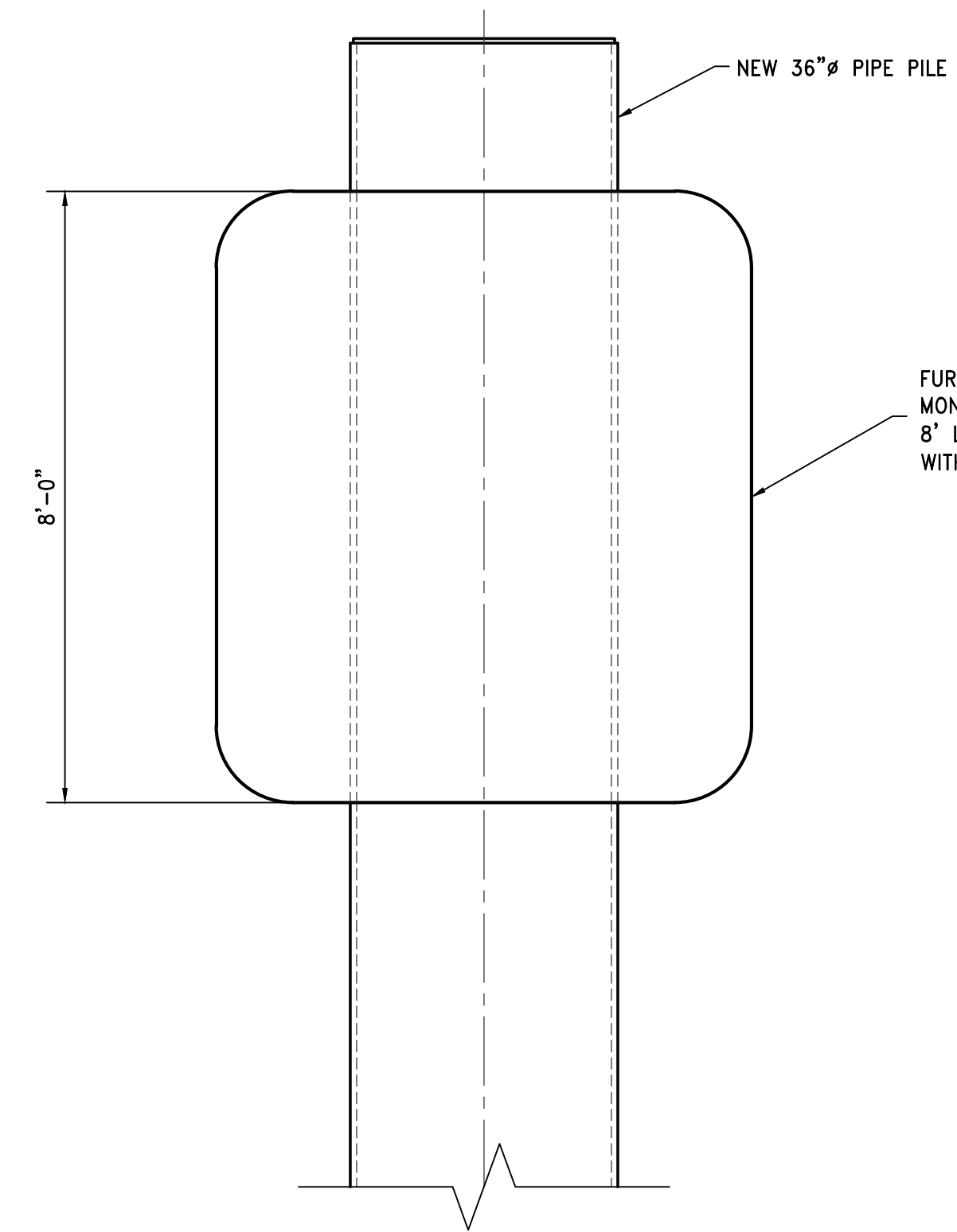
NOTE:
SINGLE PILE DOLPHINS WITH DONUT
FENDERS WILL "NOT" BE COATED.



DOLPHIN "B" (30"Ø)

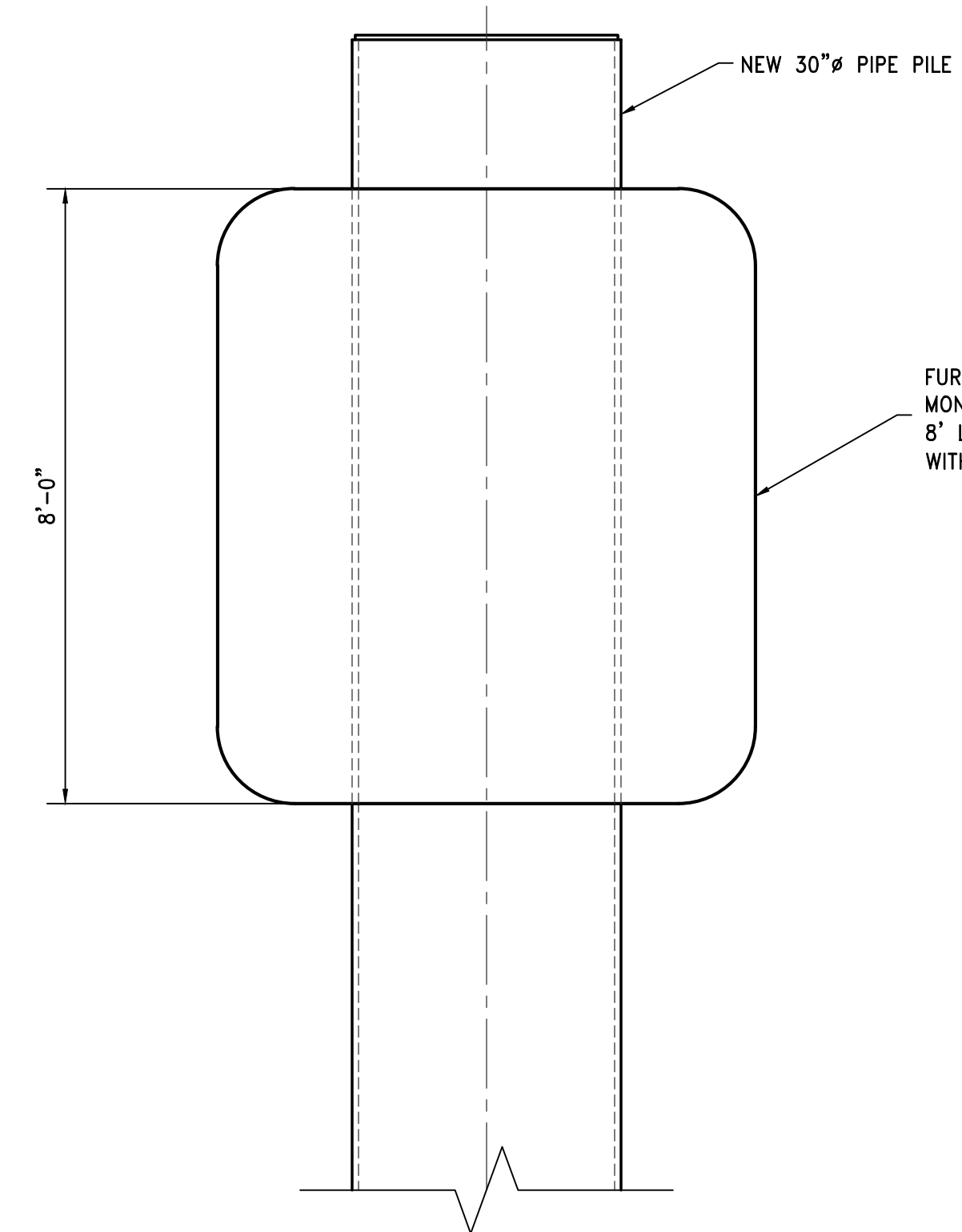
1/2"=1'-0"

NOTE:
SINGLE PILE DOLPHINS WITH DONUT
FENDERS WILL "NOT" BE COATED.



DONUT FENDER DETAIL - TYPE "A"

1/2"=1'-0"



DONUT FENDER DETAIL - TYPE "B"

1/2"=1'-0"

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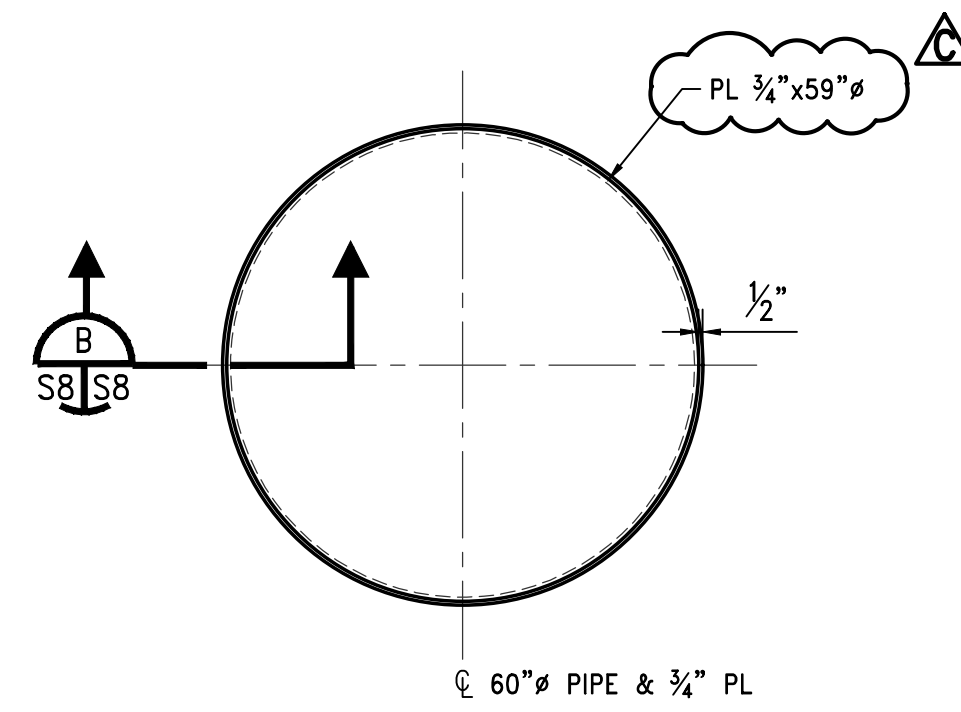
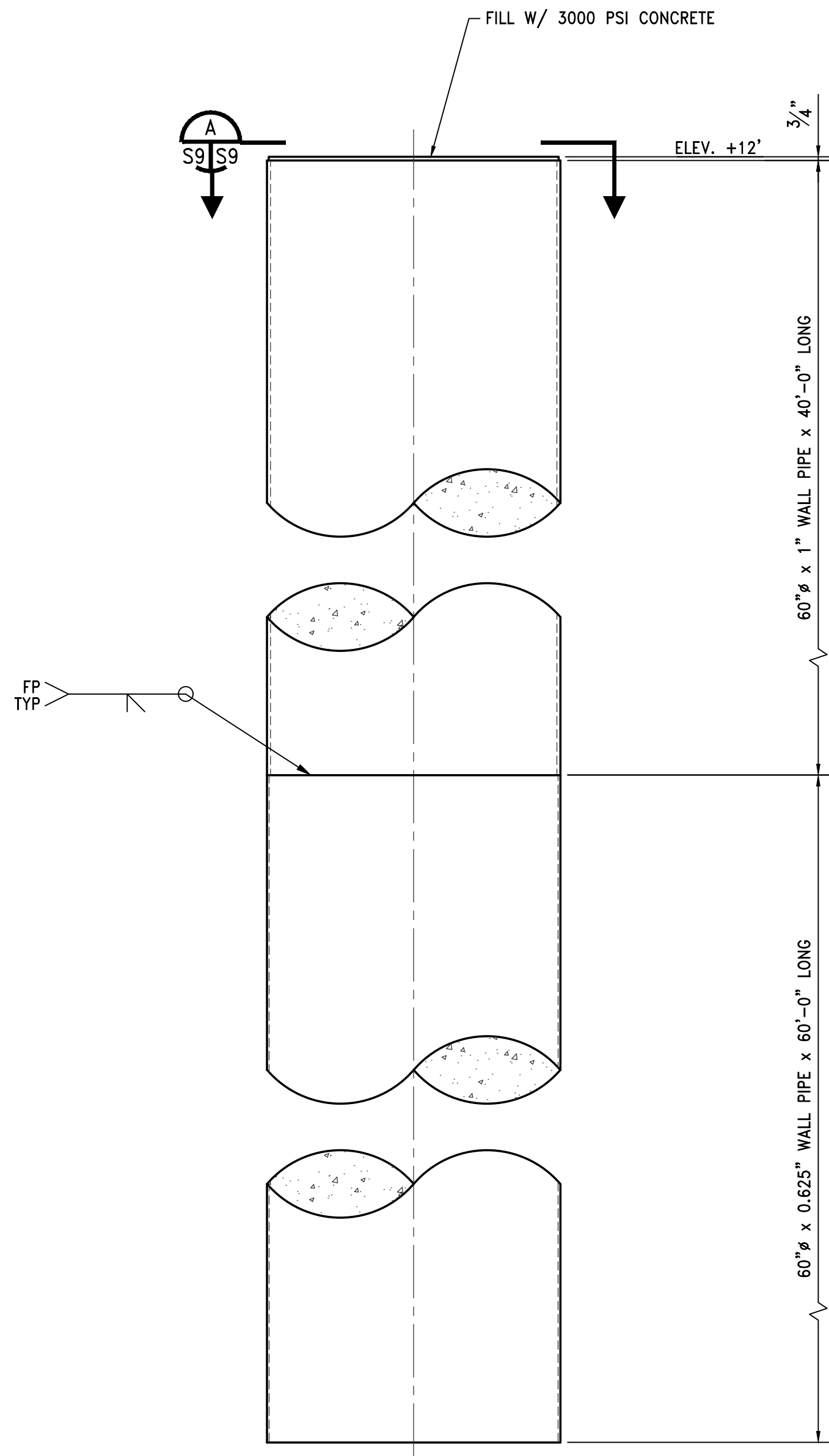
DUAL BARGE SHIFTER AND
BARGE HAUL MARINE CONSTRUCTION

McDUFFIE COAL TERMINAL
MOBILE, ALABAMA

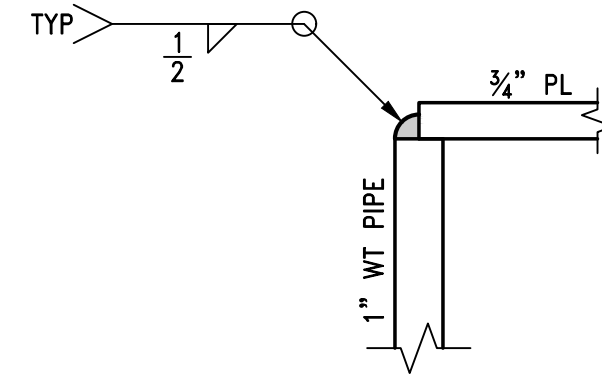
TITLE

DOLPHIN "A" & "B" ELEVATION AND DETAILS

SCALE	DRAWN BY	DATE	SHEET	REV.
AS NOTED	JWM	09/06/23	22x34	B
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER	
4224M	GDEC	09/06/23	4224M-S8	

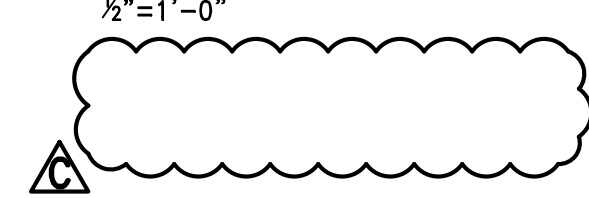


SECTION A
1/2" = 1'-0"



SECTION B
3" = 1'-0"

DOLPHIN "C" (60" ϕ)
1/2" = 1'-0"



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A	ISSUED FOR REVIEW	09/08/23	JWM	GDEC

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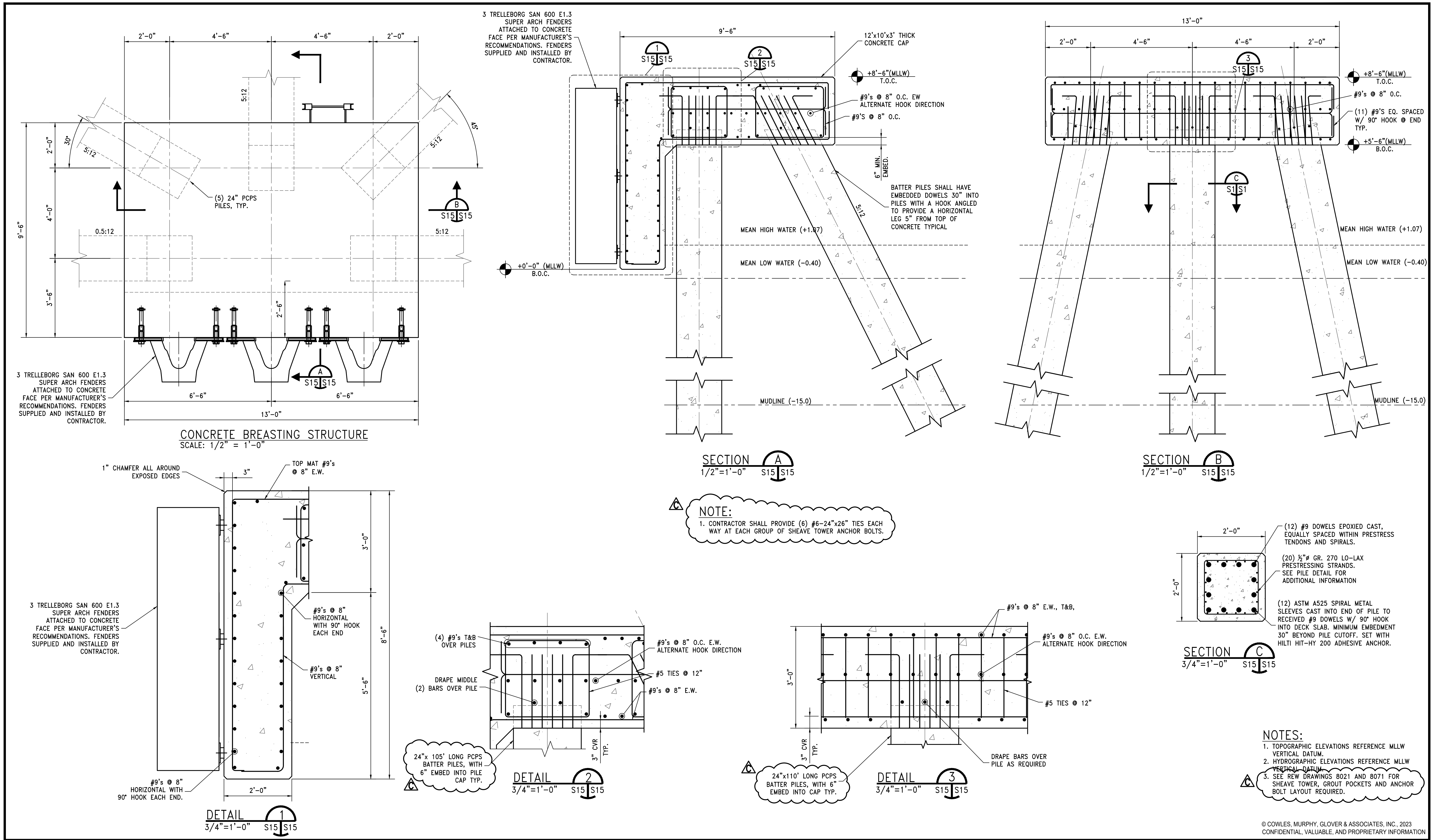
DUAL BARGE SHIFTER AND
BARGE HAUL MARINE CONSTRUCTION

McDUFFIE COAL TERMINAL
MOBILE, ALABAMA

TITLE

DOLPHIN "C" ELEVATION AND DETAILS

SCALE	DRAWN BY	DATE	SHEET	22x34 REV.
AS NOTED	JWM	09/06/23	— OF —	C
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER	
4224M	GDEC	09/06/23	4224M-S9	



NOTE:
 1. CONTRACTOR SHALL PROVIDE (6) #6-24"x26" TIES EACH WAY AT EACH GROUP OF SHEAVE TOWER ANCHOR BOLTS.

NOTES:
 1. TOPOGRAPHIC ELEVATIONS REFERENCE MLLW VERTICAL DATUM.
 2. HYDROGRAPHIC ELEVATIONS REFERENCE MLLW VERTICAL DATUM.
 3. SEE REV DRAWINGS 8021 AND 8071 FOR SHEAVE TOWER, GROUT POCKETS AND ANCHOR BOLT LAYOUT REQUIRED.

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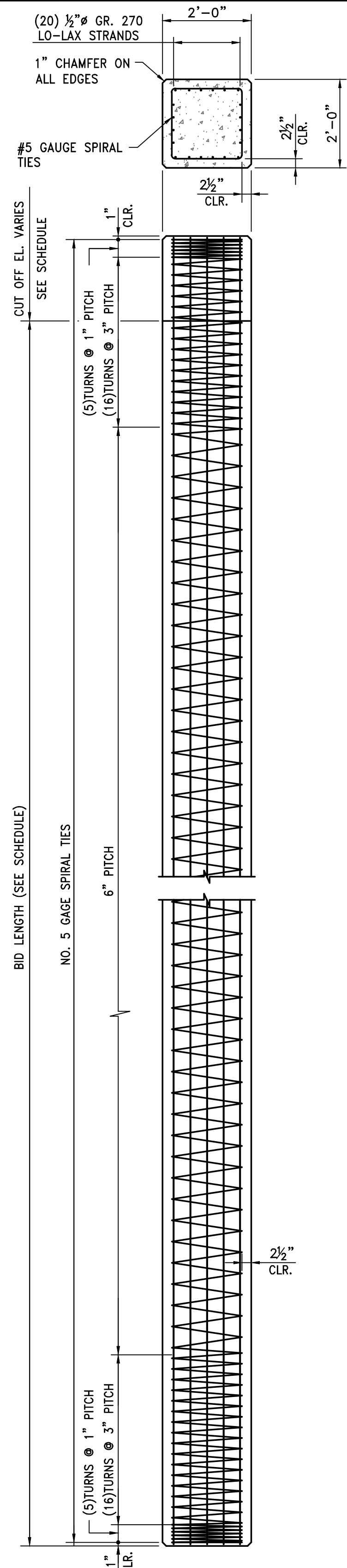
PROJECT

DUAL BARGE SHIFTER AND BARGE HAUL MARINE CONSTRUCTION

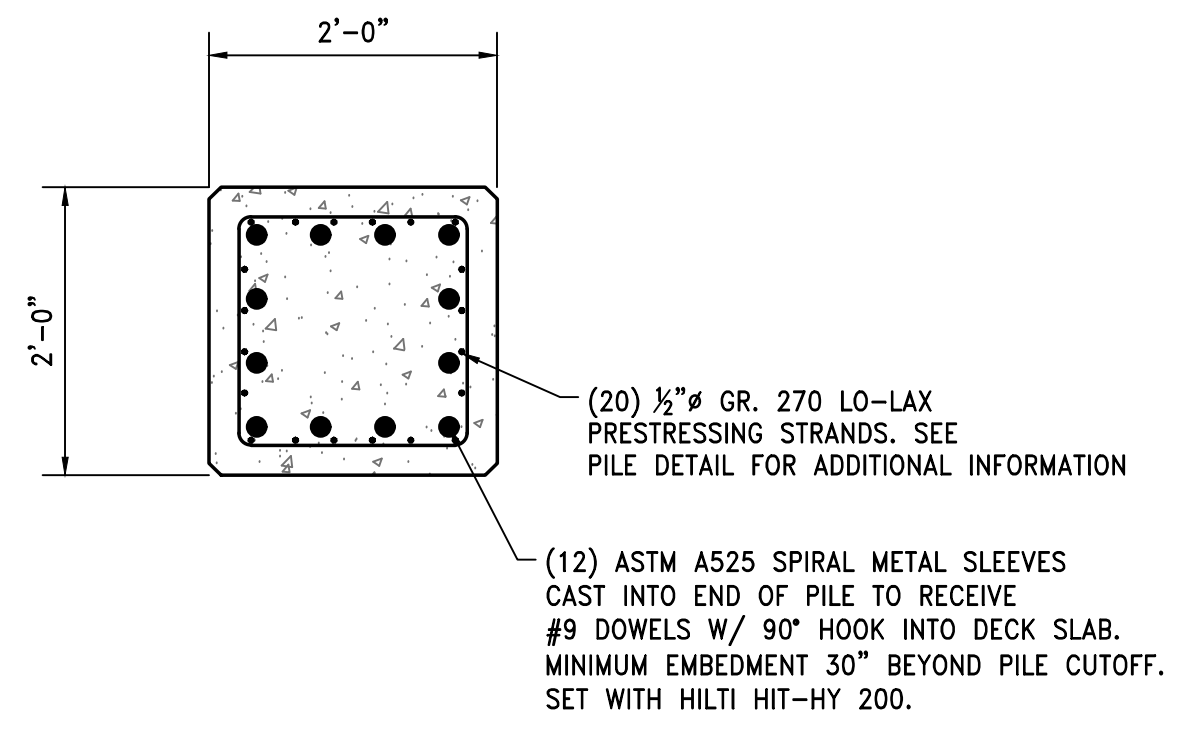
McDUFFIE COAL TERMINAL MOBILE, ALABAMA

TITLE				
NEW BARGE BREASTING/SHEAVE SUPPORT STRUCTURE DETAILS & SECTIONS				
SCALE	DRAWN BY	DATE	SHEET	22x34 REV.
AS NOTED	RCC	09/01/23	— OF —	C
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER	
4224M	GDEC	09/01/23	4224M-S15	

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24" PCPS CONCRETE PILE
SCALE: 1/2"=1'-0"



TYPICAL SLEEVE DETAIL
SCALE: 3/4"=1'-0"

PILE SCHEDULE			
24" PCPS CONCRETE PILE			
BATTER	TOP OF PILE ELEVATION	LENGTH (FEET)	NUMBER OF PILES
5:12	+5'-0"	110	16
0.5:12	+5'-0"	105	4

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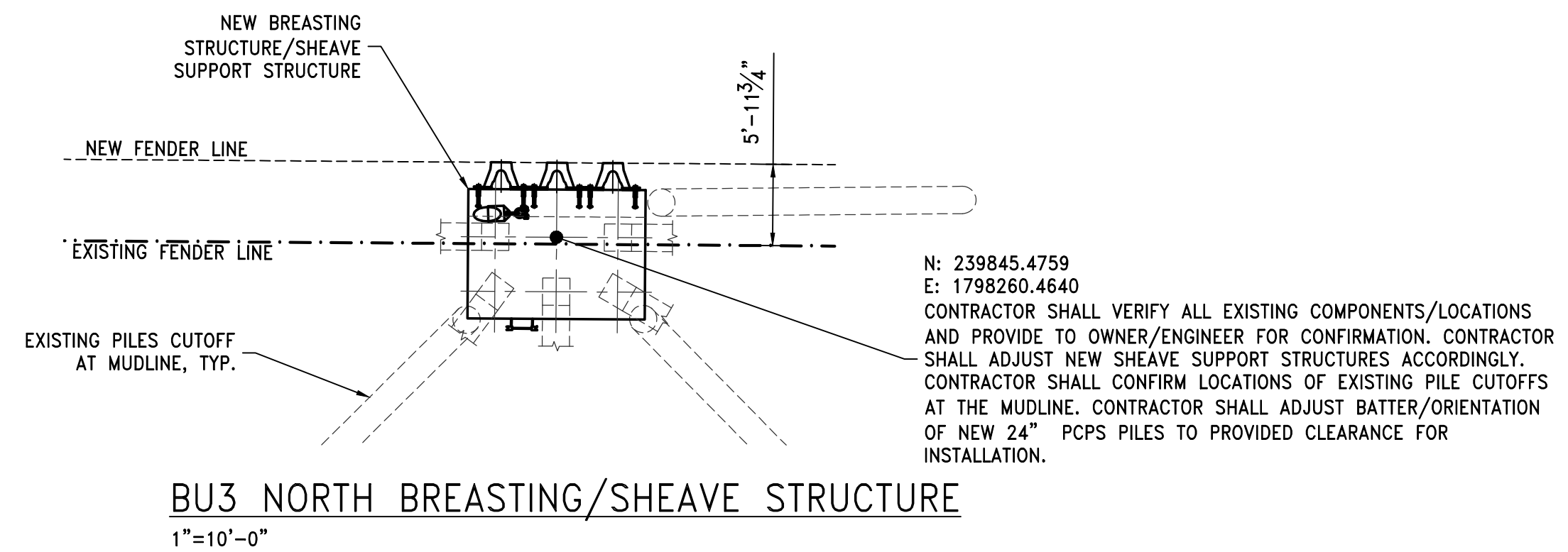
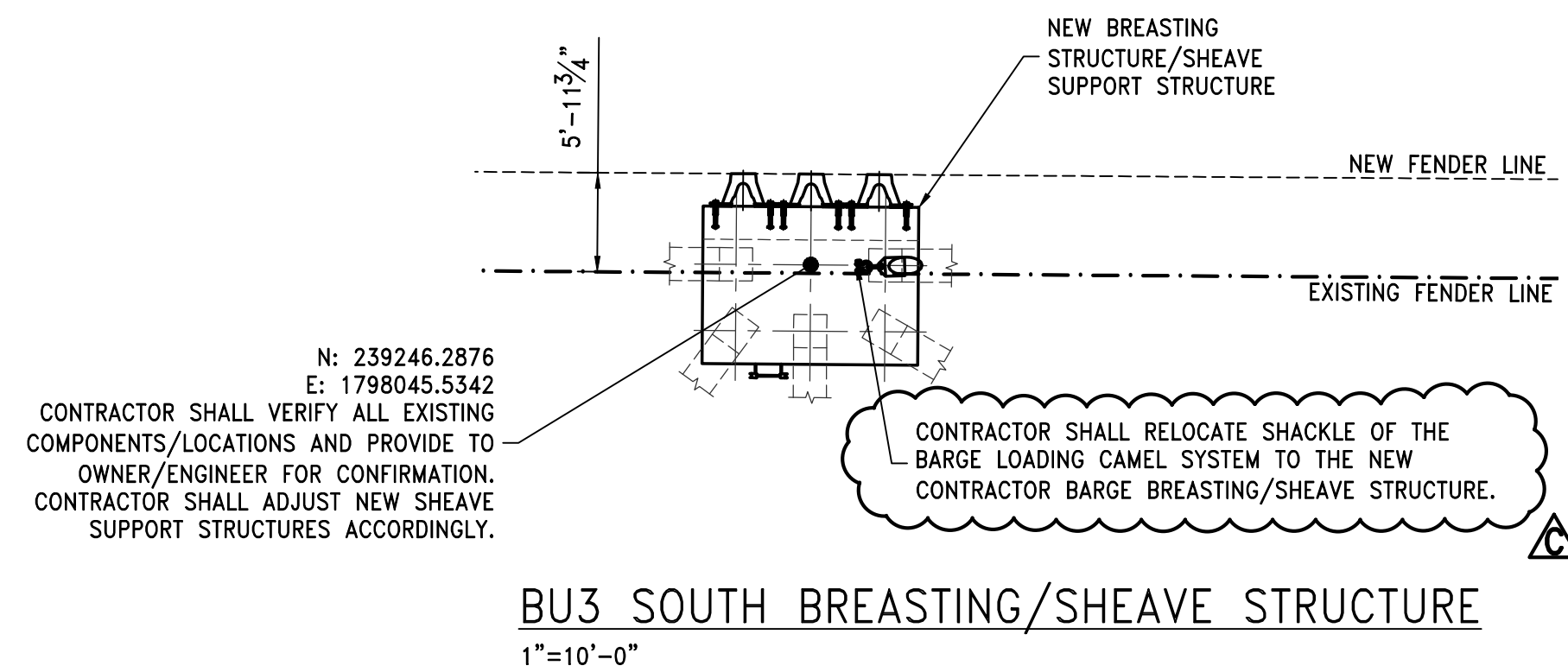
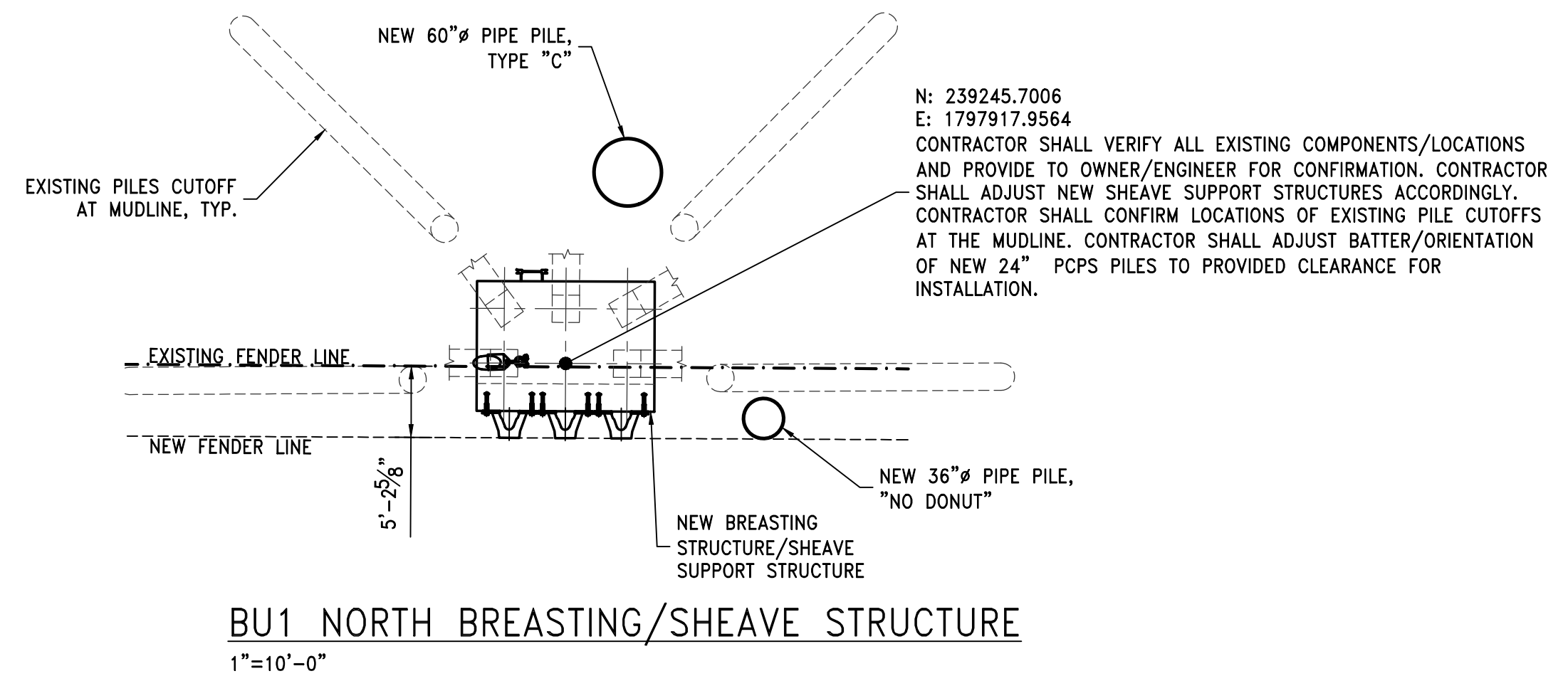
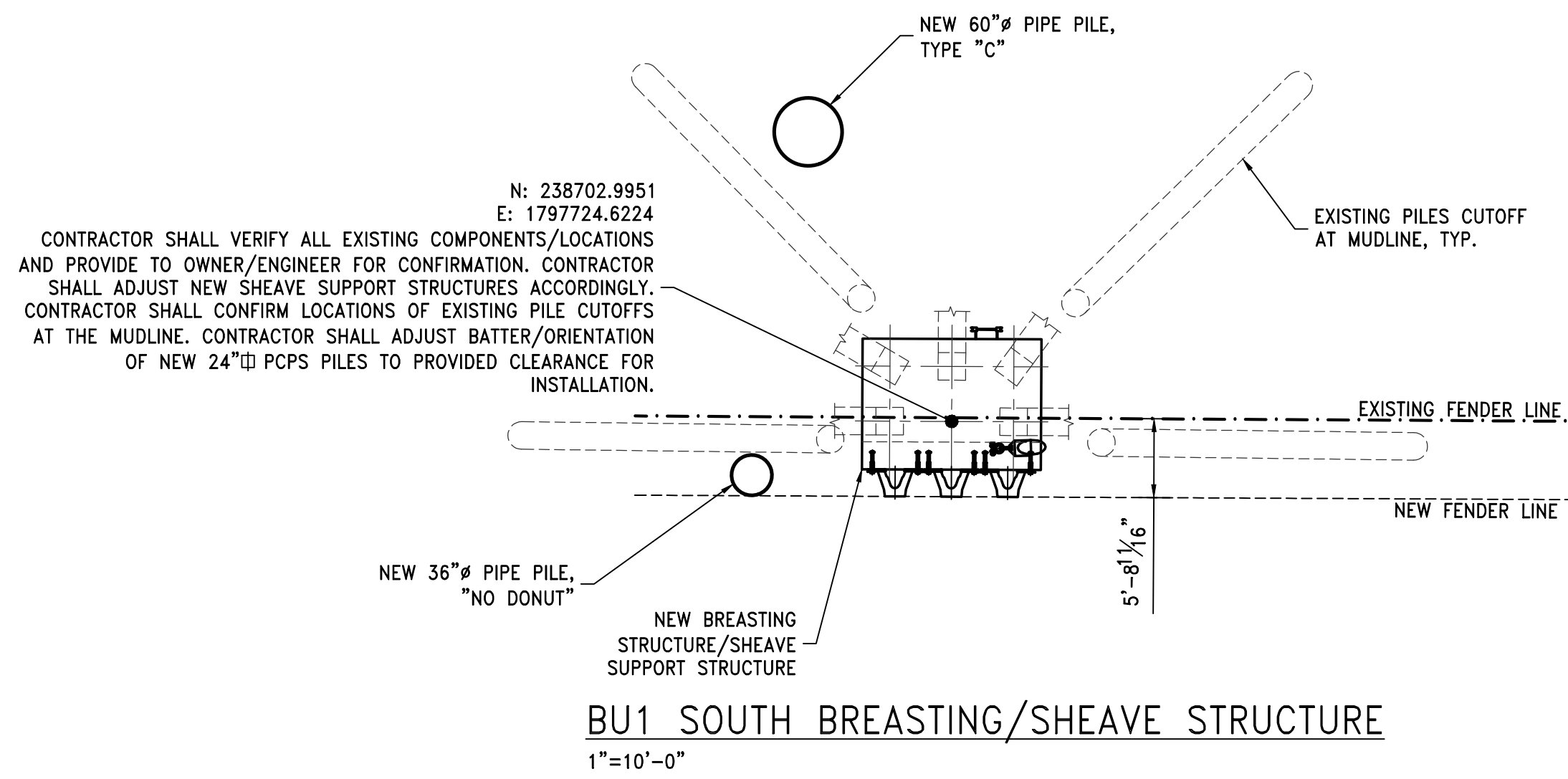
REV.	DESCRIPTION	DATE	BY	CHK'D
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A	ISSUED FOR REVIEW	09/08/23	RCC	GDEC

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PROJECT
DUAL BARGE SHIFTER AND BARGE HAUL MARINE CONSTRUCTION
McDUFFIE COAL TERMINAL MOBILE, ALABAMA

TITLE PCPS PILE DETAILS				
SCALE AS NOTED	DRAWN BY RCC	DATE 09/01/23	SHEET — OF —	22x34 REV. B
JOB NO. 4224M	CHECKED BY GDEC	DATE 09/01/23	DRAWING NUMBER 4224M-S16	



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PROJECT

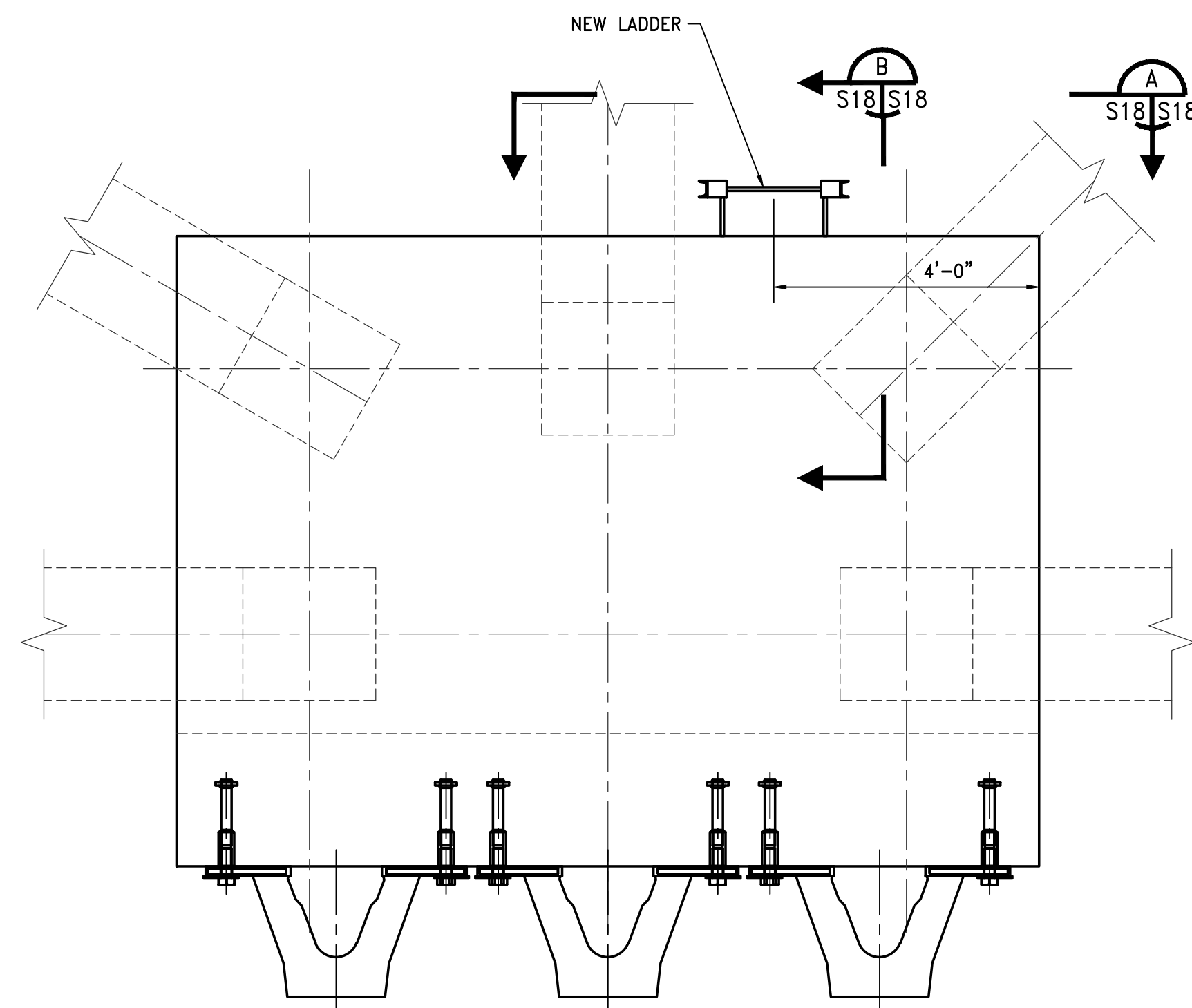
**DUAL BARGE SHIFTER AND
BARGE HAUL MARINE CONSTRUCTION**

**McDUFFIE COAL TERMINAL
MOBILE, ALABAMA**

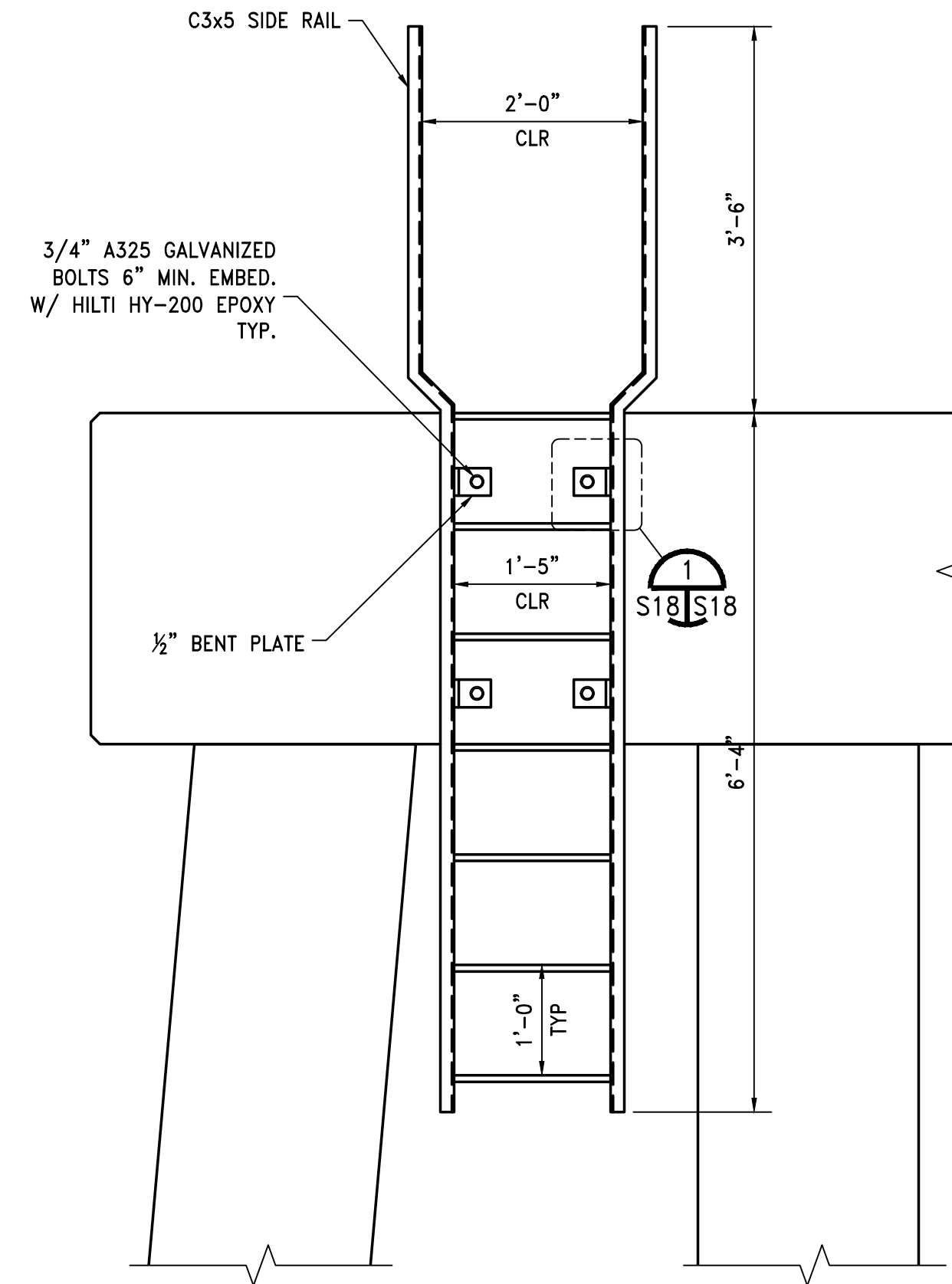
TITLE

**NEW BARGE BREASTING STRUCTURE
PILE LAYOUT**

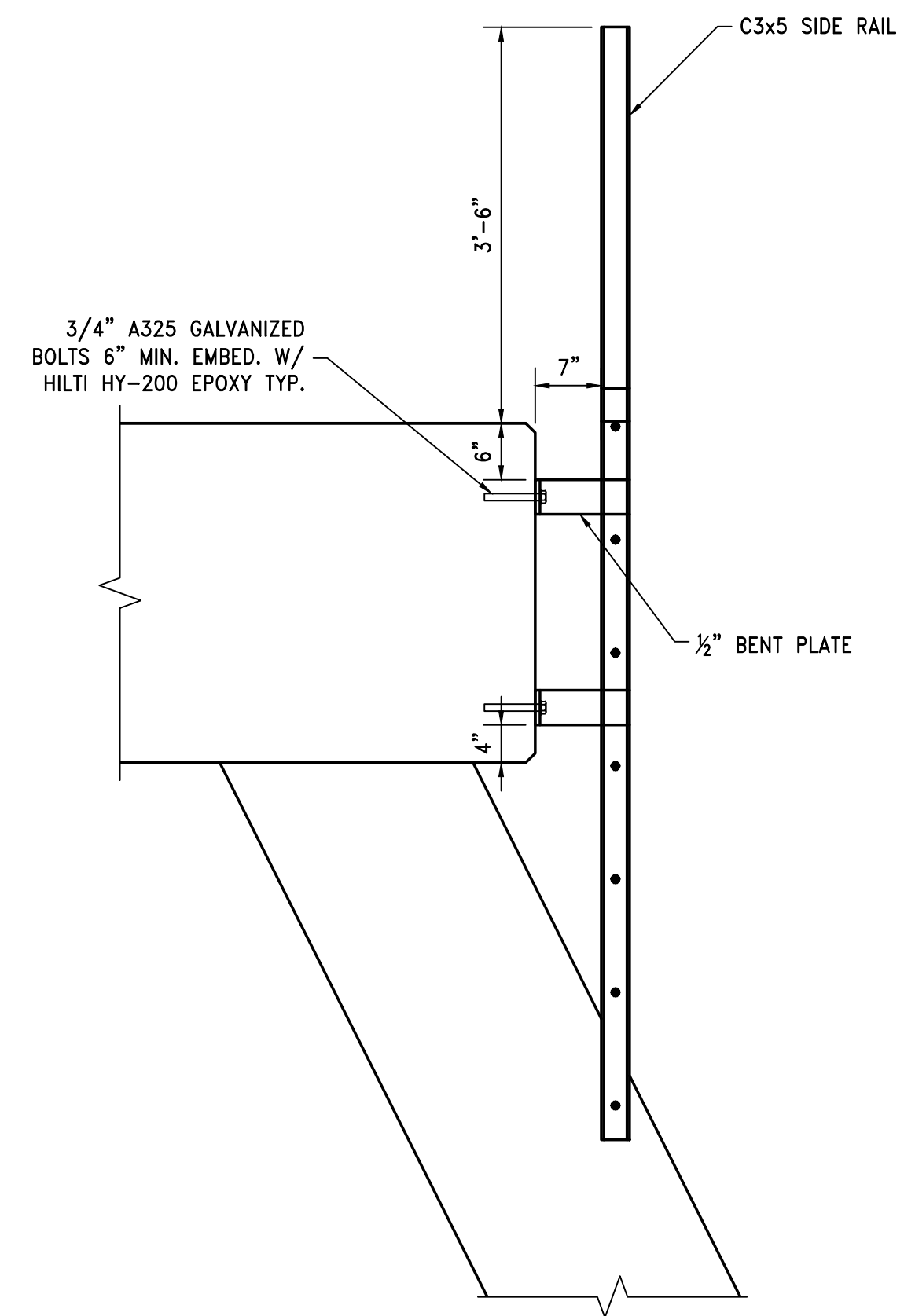
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AS NOTED	RCC	09/01/23	—	—	C
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER		
4224M	GDEC	09/01/23	4224M-S17		



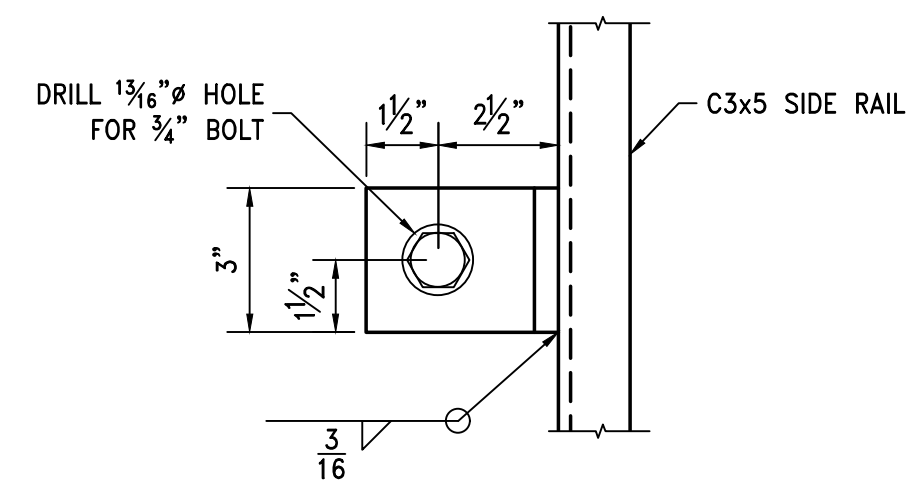
PLAN VIEW
1/2"=1'-0"



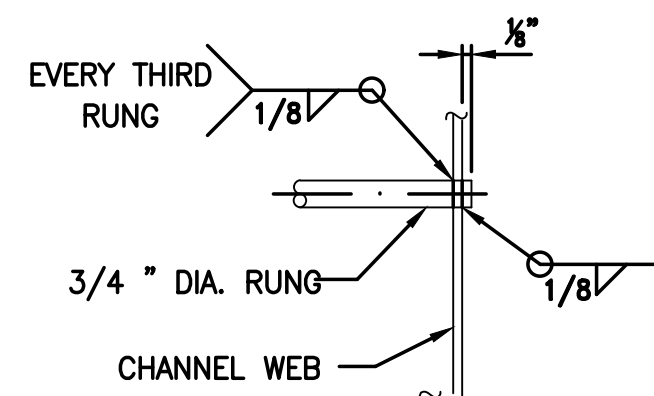
SECTION A
3/4"=1'-0" S18 | S18



SECTION B
3/4"=1'-0" S18 | S18



DETAIL 1
3"=1'-0" S4 | S4



RUNG DETAILS
N.T.S.

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PROJECT
DUAL BARGE SHIFTER AND BARGE HAUL MARINE CONSTRUCTION
McDUFFIE COAL TERMINAL MOBILE, ALABAMA

TITLE LADDER PLACEMENT				
SCALE AS NOTED	DRAWN BY RCC	DATE 09/01/23	SHEET — OF —	22x34 REV. B
JOB NO. 4224M	CHECKED BY GDEC	DATE 09/01/23	DRAWING NUMBER 4224M-S18	

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LEGEND


✦ NEW 42" DIA. PIPE PILE TO BE INSTALLED
(SEE 42" DIA. MOORING PIPE PILE DETAILS DRAWING)

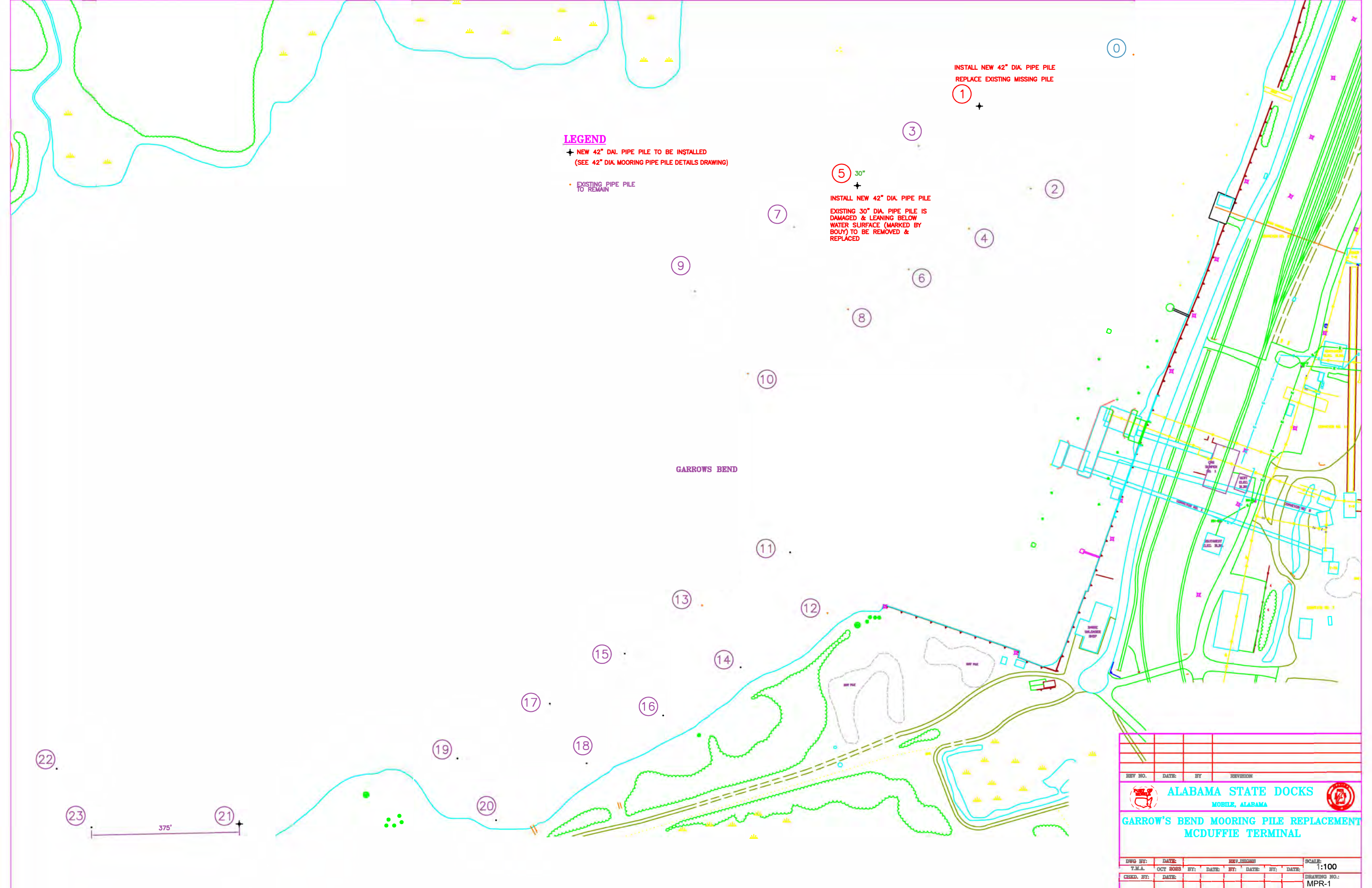
• EXISTING PIPE PILE TO REMAIN

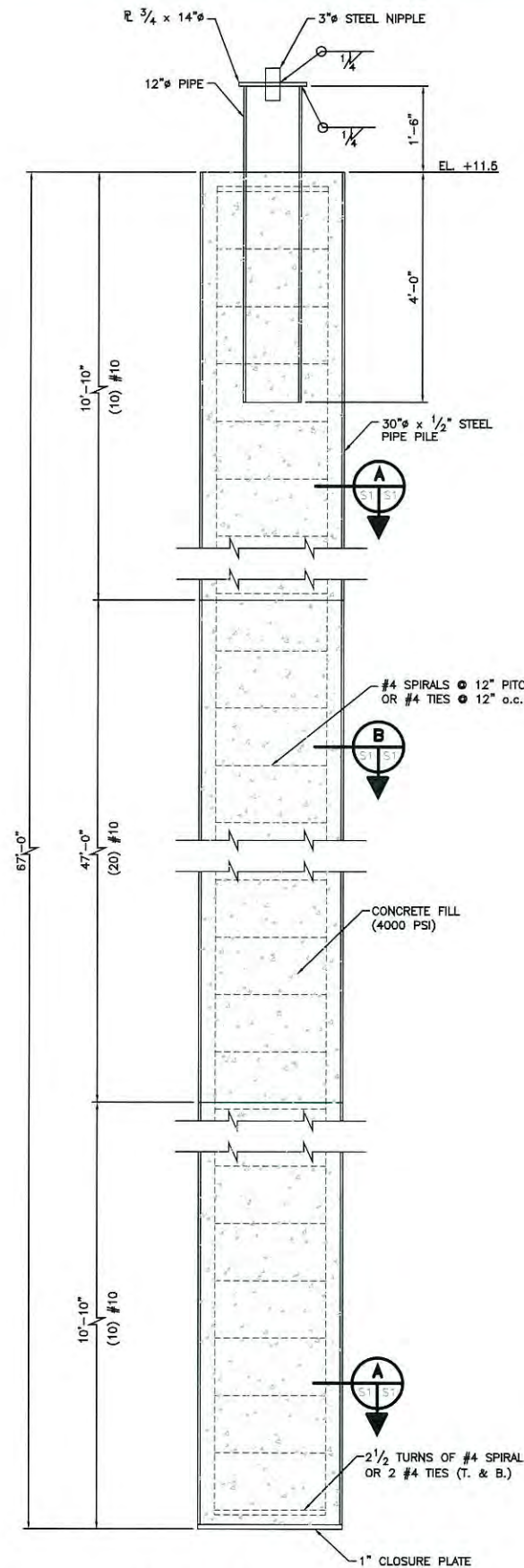
INSTALL NEW 42" DIA. PIPE PILE
REPLACE EXISTING MISSING PILE

INSTALL NEW 42" DIA. PIPE PILE
EXISTING 30" DIA. PIPE PILE IS
DAMAGED & LEANING BELOW
WATER SURFACE (MARKED BY
BOUY) TO BE REMOVED &
REPLACED

GARROWS BEND

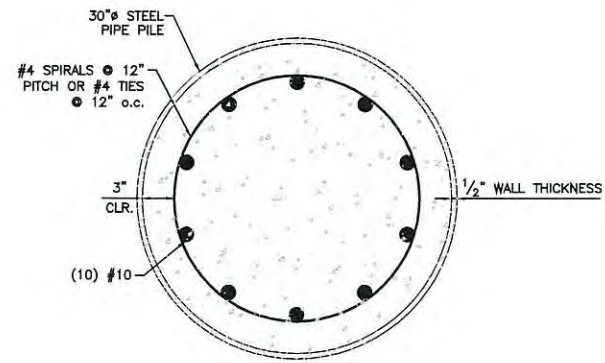
REV NO.	DATE	BY	REVISION
 ALABAMA STATE DOCKS MOBILE, ALABAMA			
GARROW'S BEND MOORING PILE REPLACEMENT MCDUFFIE TERMINAL			
DWG BY:	DATE:	REV. ISSUED:	SCALE:
T.M.A.	OCT 2023	BY: DATE:	1:100
CHEK. BY:	DATE:	BY: DATE:	DRAWING NO.:
			MPR-1



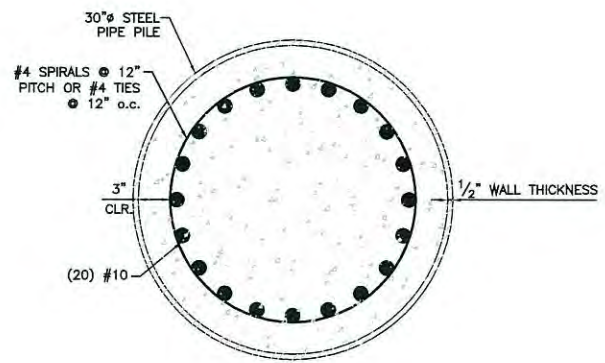


MOORING PIPE PILE DETAIL
 $\frac{3}{4}'' = 1'-0''$

NOTE:
 PIPE TO BE PAINTED IN ACCORDANCE WITH THE SPECIFICATIONS.



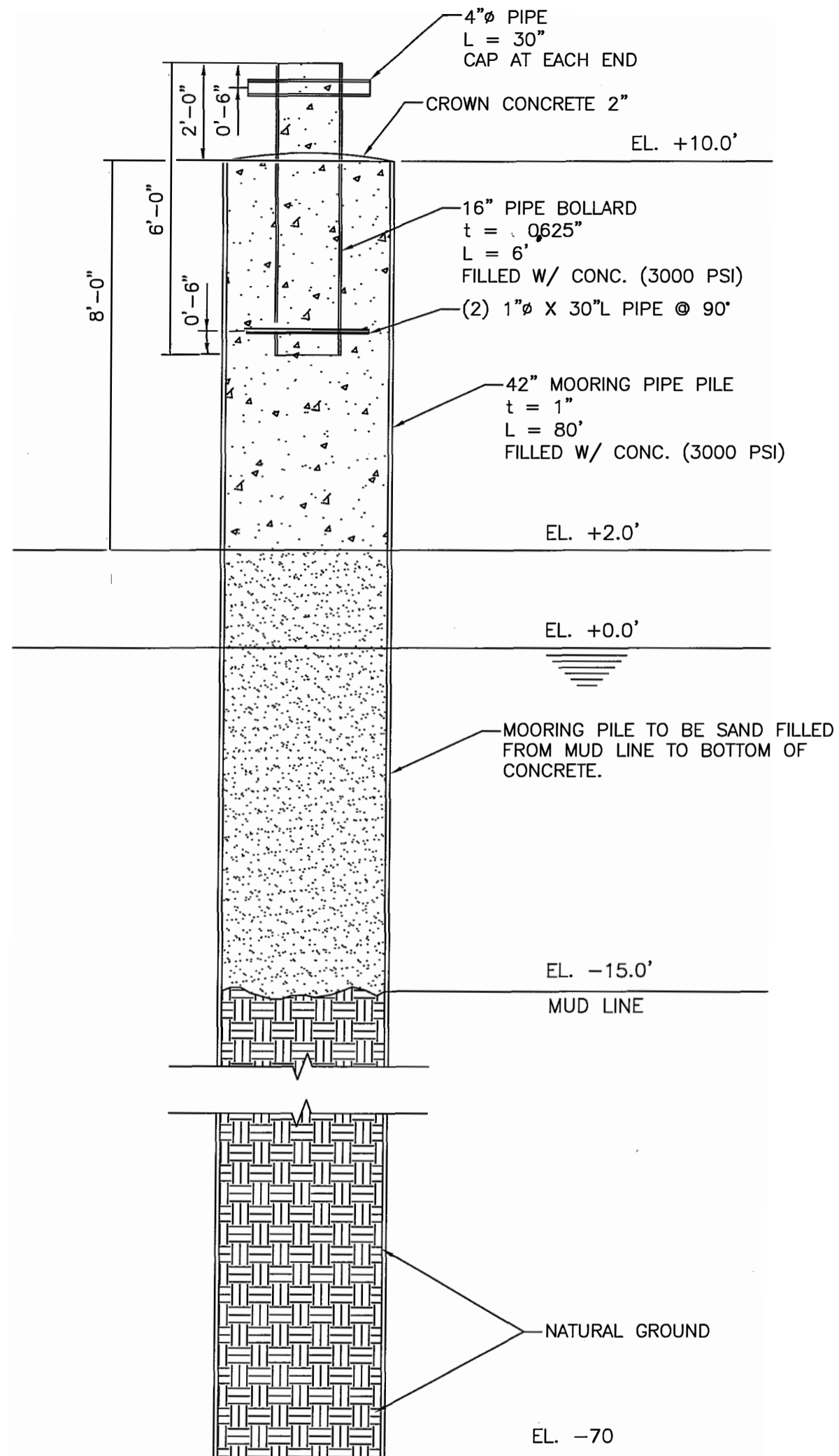
SECTION A-A
 $1 \frac{1}{2}'' = 1'-0''$



SECTION B-B
 $1 \frac{1}{2}'' = 1'-0''$

**EXISTING 30" DIA. MOORING PIPE PILE DETAILS
 (FOR REFERENCE ONLY)**

REV.	DATE	DESCRIPTION	BY
A	10/2000	ISSUED FOR BIDS	JJM
ALABAMA STATE DOCKS DEPARTMENT MOBILE ALABAMA			
GBB Gottlieb, Barnett & Bridges, LLC Consulting Engineers MOBILE, AL.		McDUFFIE TERMINALS BARGE FLEETING AND HAULING SYSTEM MODS MOORING PIPE DETAIL & SECTIONS	
Drawn By: DWH	Date: 10/2000		
Checked By: R.S.G.	Date: 10/2000		
Scale: $\frac{3}{4}'' = 1'-0''$	Job No. 1304	Drawing No. 51	REV. A

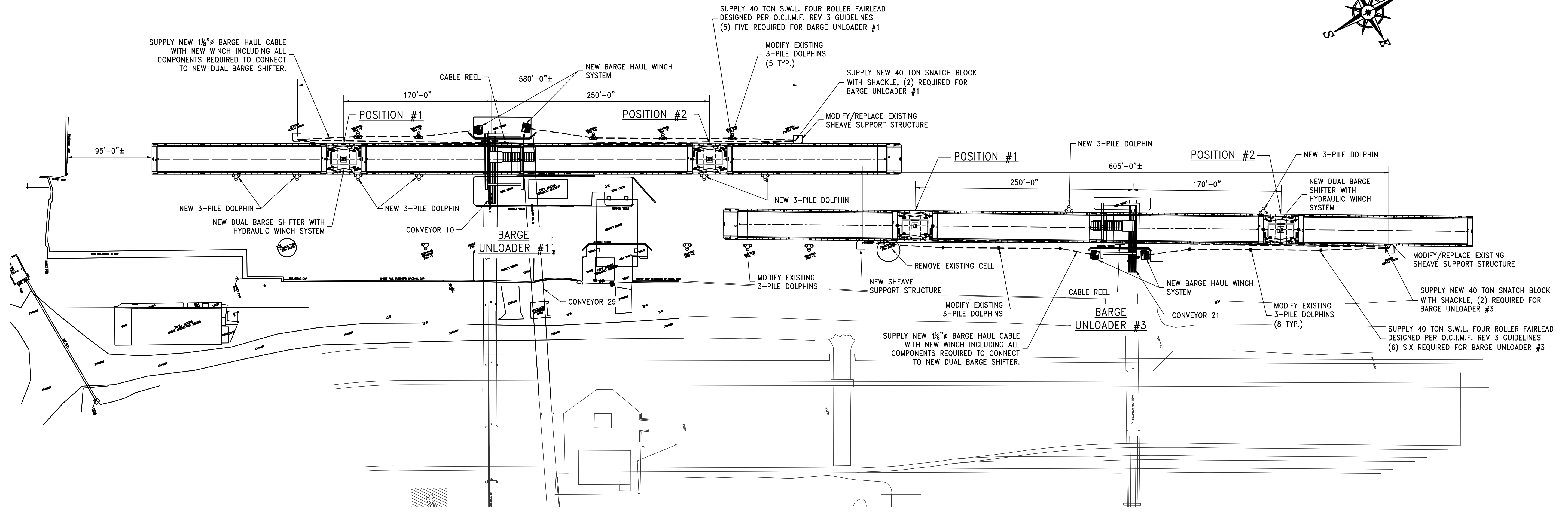
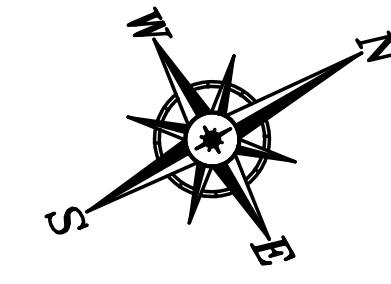


ELEVATION

42" DIA. MOORING PIPE PILE DETAIL

NTS (ELEVATIONS APPROXIMATE)

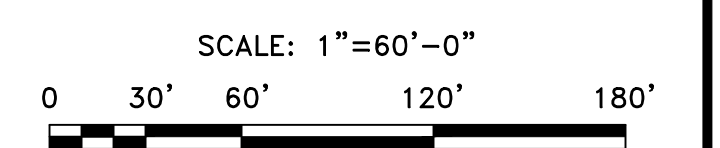
1. All new steel components shall be cleaned and coated with one coat of Sherwin Williams Macropoxy 646 Safety Yellow or approved equal. The top 25' of the new pipe pile shall be coated as specified. Surface preparation and coating application shall be performed as per paint manufacturer specifications.
2. Reference Dwg. MPR-1 for pipe pile installation locations.



DUAL BARGE SHIFTER - PLAN
1"=60'

REFERENCE

REFERENCE



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CONFIDENTIAL, VALUABLE, AND PROPRIETARY INFORMATION

REV.	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR BID	03/31/23	JDG	GDEC

Cowles, Murphy, Glover & ASSOCIATES
A Full Service Engineering Firm

457 St. Michael St., Mobile, AL 36602
13 Thrash Rd., LaGrange, GA 30241
11880 Cranston Dr. Ste 102, Arlington, TN 38002
Alabama (251) 433-1611
Georgia (706) 302-2831 Tennessee (901) 290-5444

PERFORMANCE • RELIABILITY • EXPERIENCE

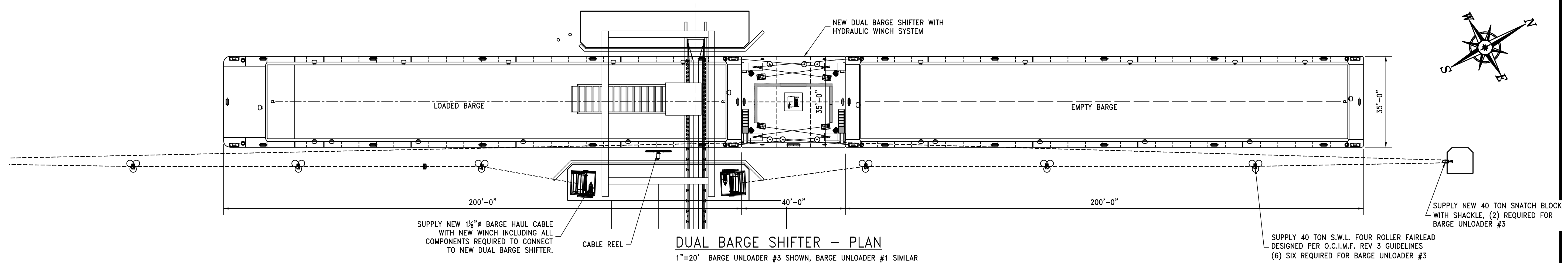
PROJECT

DUAL BARGE SHIFTER AND BARGE HAUL EQUIPMENT SUPPLY

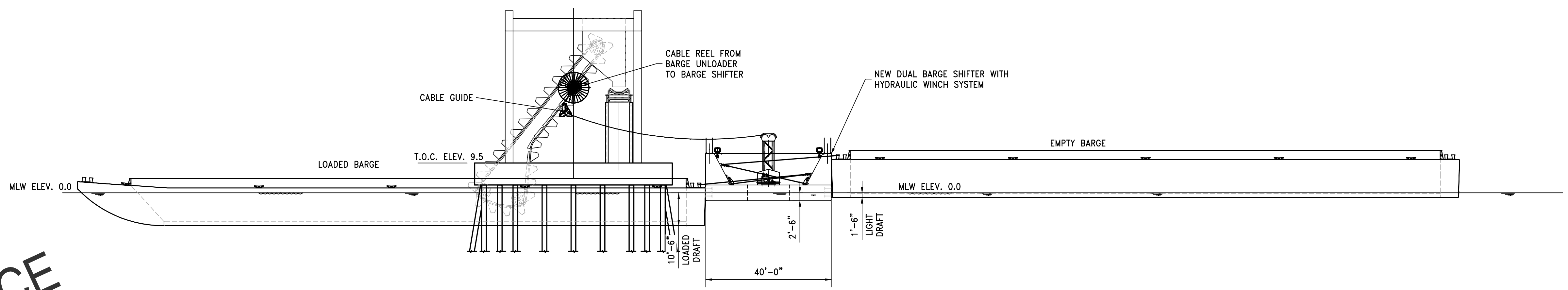
McDUFFIE COAL TERMINAL
MOBILE, ALABAMA

TITLE				
DUAL BARGE SHIFTER SITE PLAN				
SCALE	NOTED	DRAWN BY	DATE	SHEET
		JDG	1/22/23	22x34 REV. A
JOB NO.	4224-23	CHECKED BY	DATE	DRAWING NUMBER
		GDEC	3/17/23	4224-GA1

Z:\4-200-4299\4224-ASPA McDuffie Barge Haul\Design\4224-GA1.dwg, 9/8/2023 10:56:14 AM, DWG to PDF.pc3



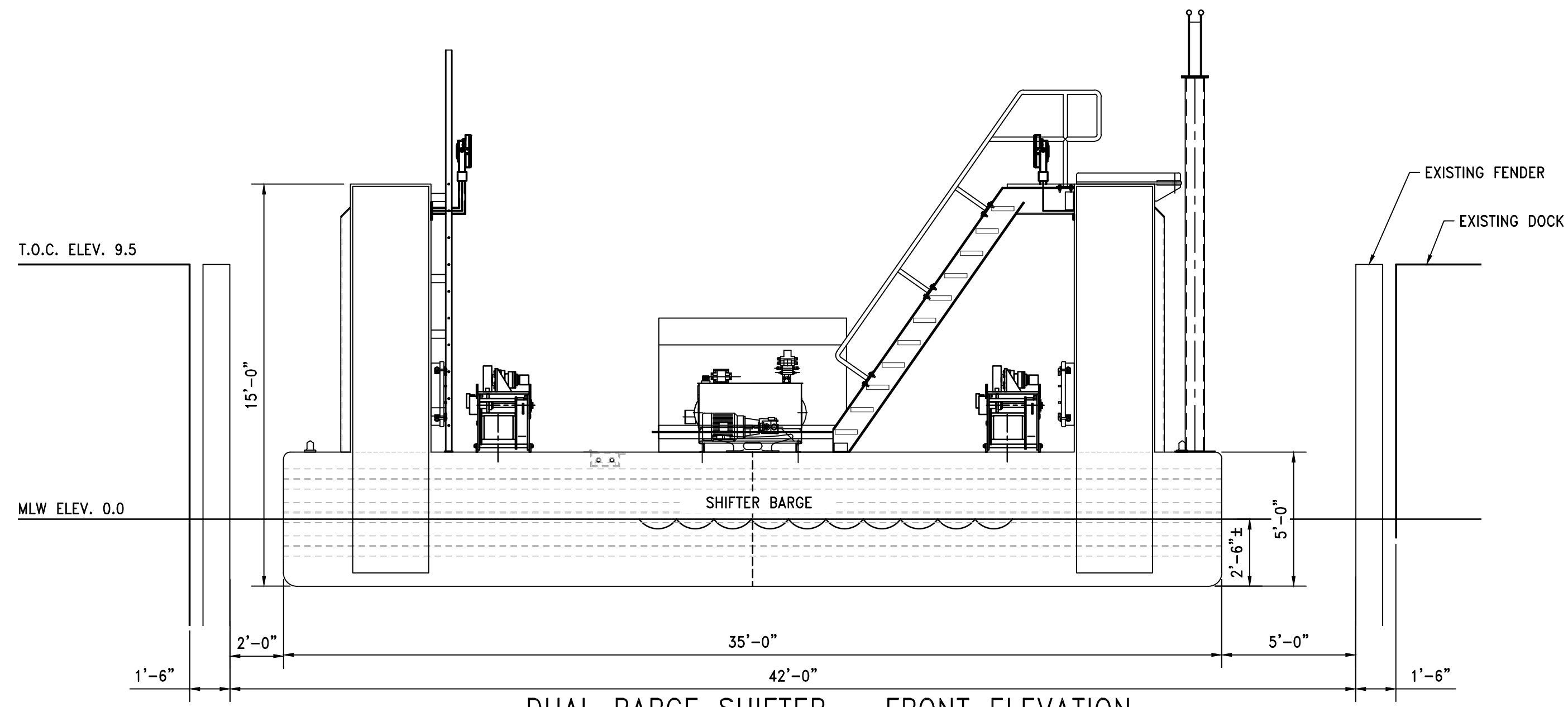
DUAL BARGE SHIFTER - PLAN
 1"=20' BARGE UNLOADER #3 SHOWN, BARGE UNLOADER #1 SIMILAR



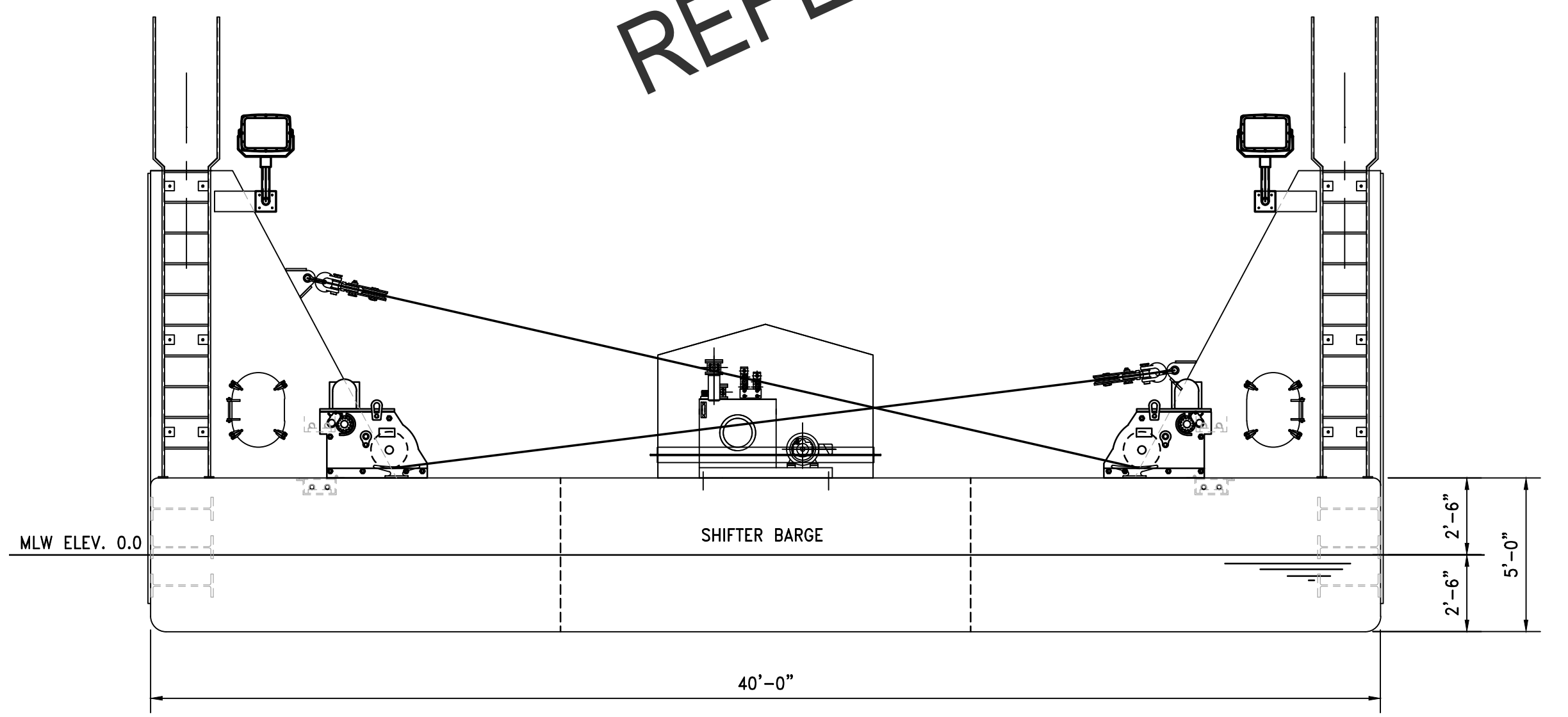
DUAL BARGE SHIFTER - ELEVATION
 1"=20' BARGE UNLOADER #3 SHOWN, BARGE UNLOADER #1 SIMILAR

REFERENCE

REFERENCE



DUAL BARGE SHIFTER - FRONT ELEVATION
 1/4"=1'-0"



DUAL BARGE SHIFTER - SIDE ELEVATION
 1/4"=1'-0"

REV.	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR BID	03/31/23	JDG	GDEC

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457 St. Michael St., Mobile, AL 36602
 13 Thrash Rd., LaGrange, GA 30241
 11880 Cranston Dr. Ste 102, Arlington, TN 38002
 Alabama (251) 433-1611
 Georgia (706) 302-2831 Tennessee (901) 290-5444

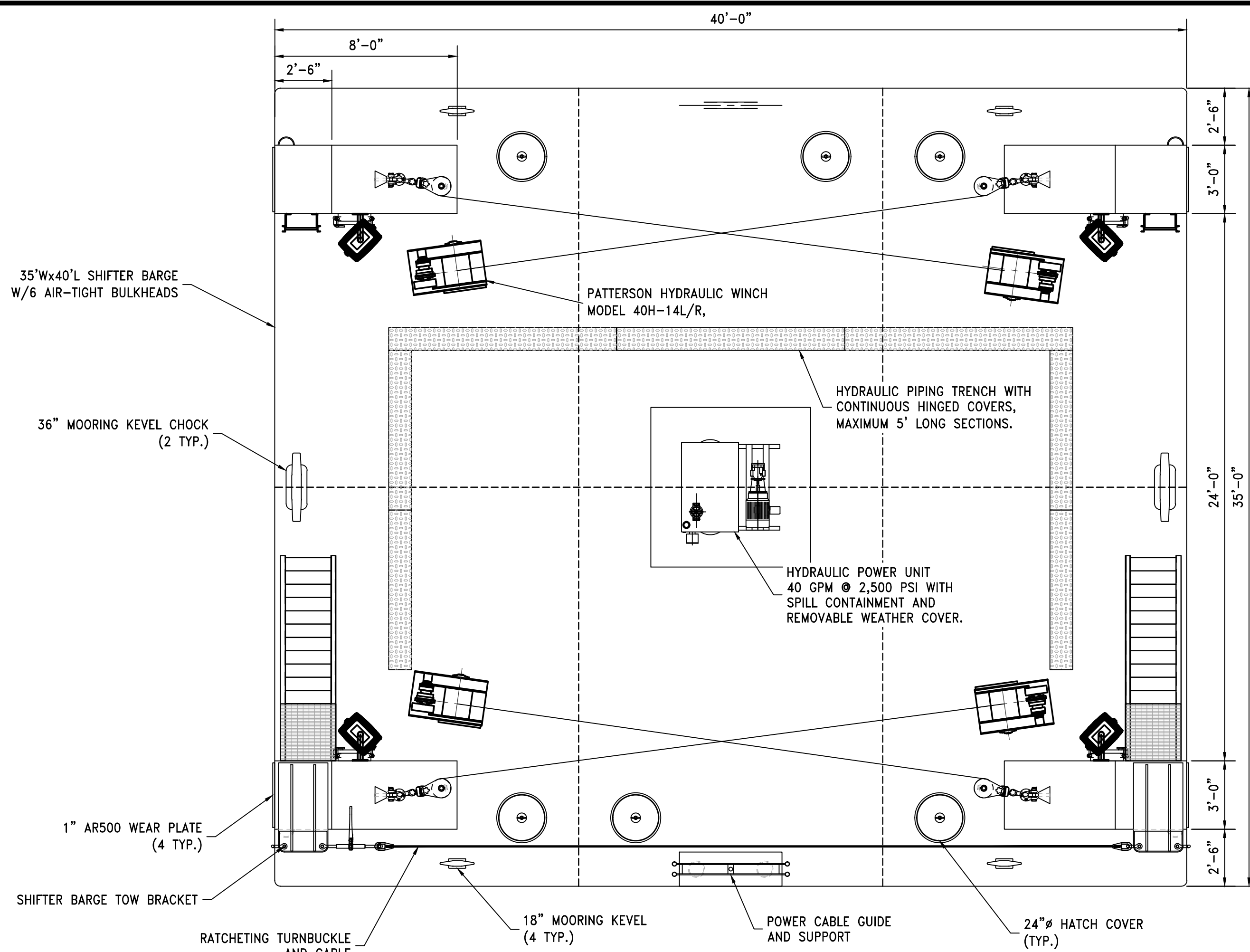
PROJECT
DUAL BARGE SHIFTER AND BARGE HAUL EQUIPMENT SUPPLY
McDUFFIE COAL TERMINAL
MOBILE, ALABAMA

TITLE DUAL BARGE SHIFTER				
SCALE NOTED	DRAWN BY JDG	DATE 1/22/23	SHEET - of -	22x34 REV. A
JOB NO. 4224-23	CHECKED BY GDEC	DATE 03/17/23	DRAWING NUMBER 4224-GA2	

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 CONFIDENTIAL, VALUABLE, AND PROPRIETARY INFORMATION

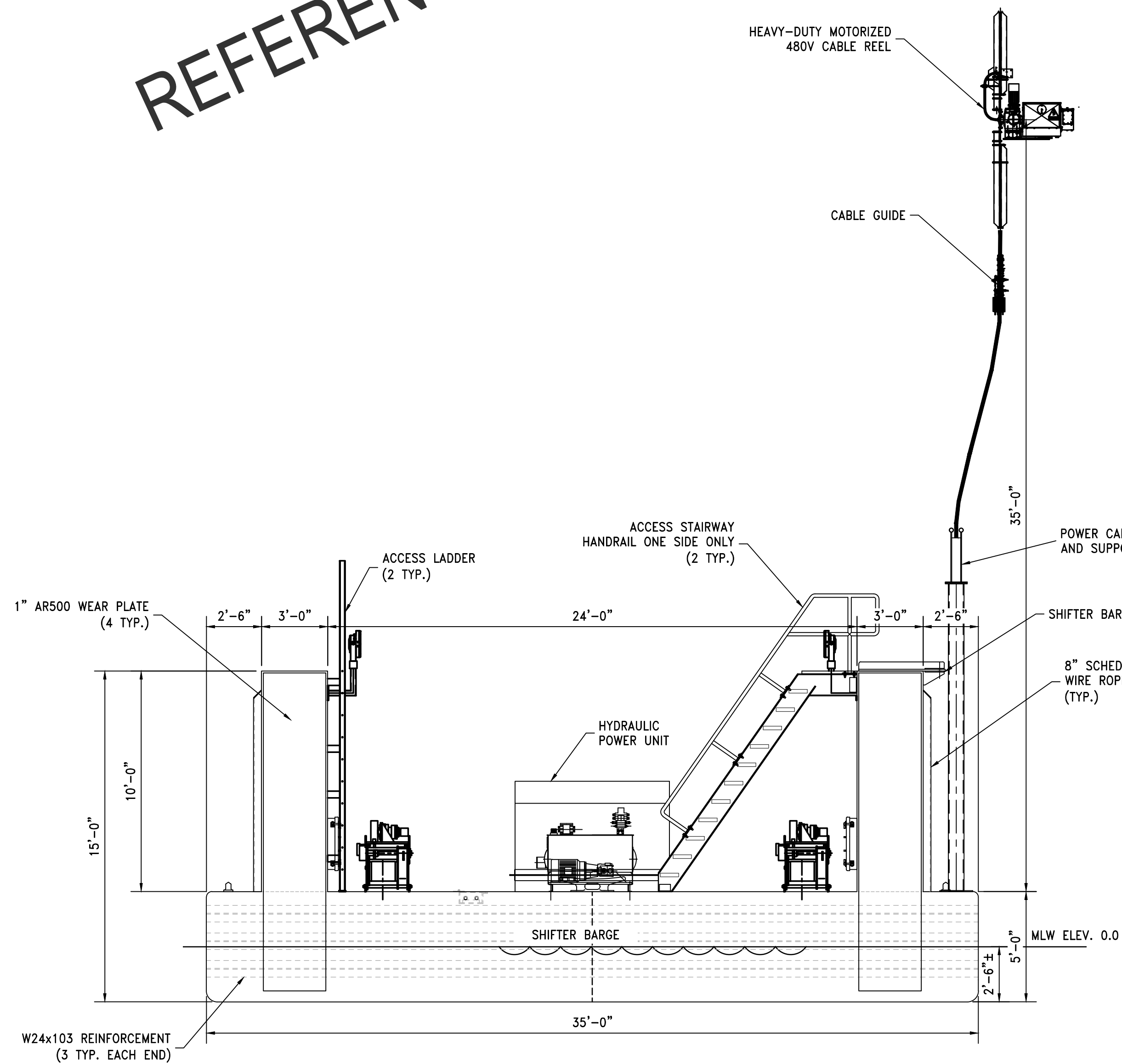
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REFERENCE

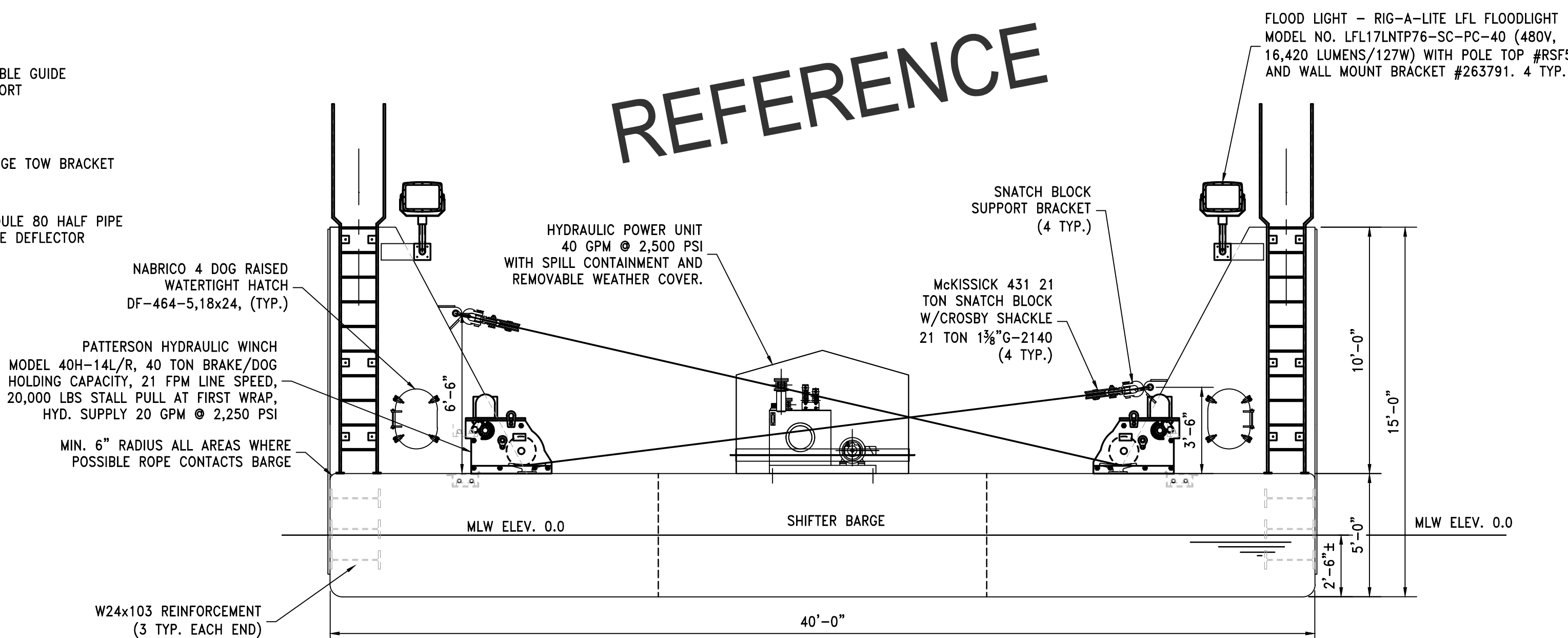


DUAL BARGE SHIFTER - PLAN
1/4" = 1'-0"

REFERENCE



DUAL BARGE SHIFTER - FRONT ELEVATION
1/4" = 1'-0"



DUAL BARGE SHIFTER - SIDE ELEVATION
1/4" = 1'-0"

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CONFIDENTIAL, VALUABLE, AND PROPRIETARY INFORMATION

REV.	DESCRIPTION	DATE	BY	CHK'D
A	ISSUED FOR BID	03/31/23	JDG	GDEC

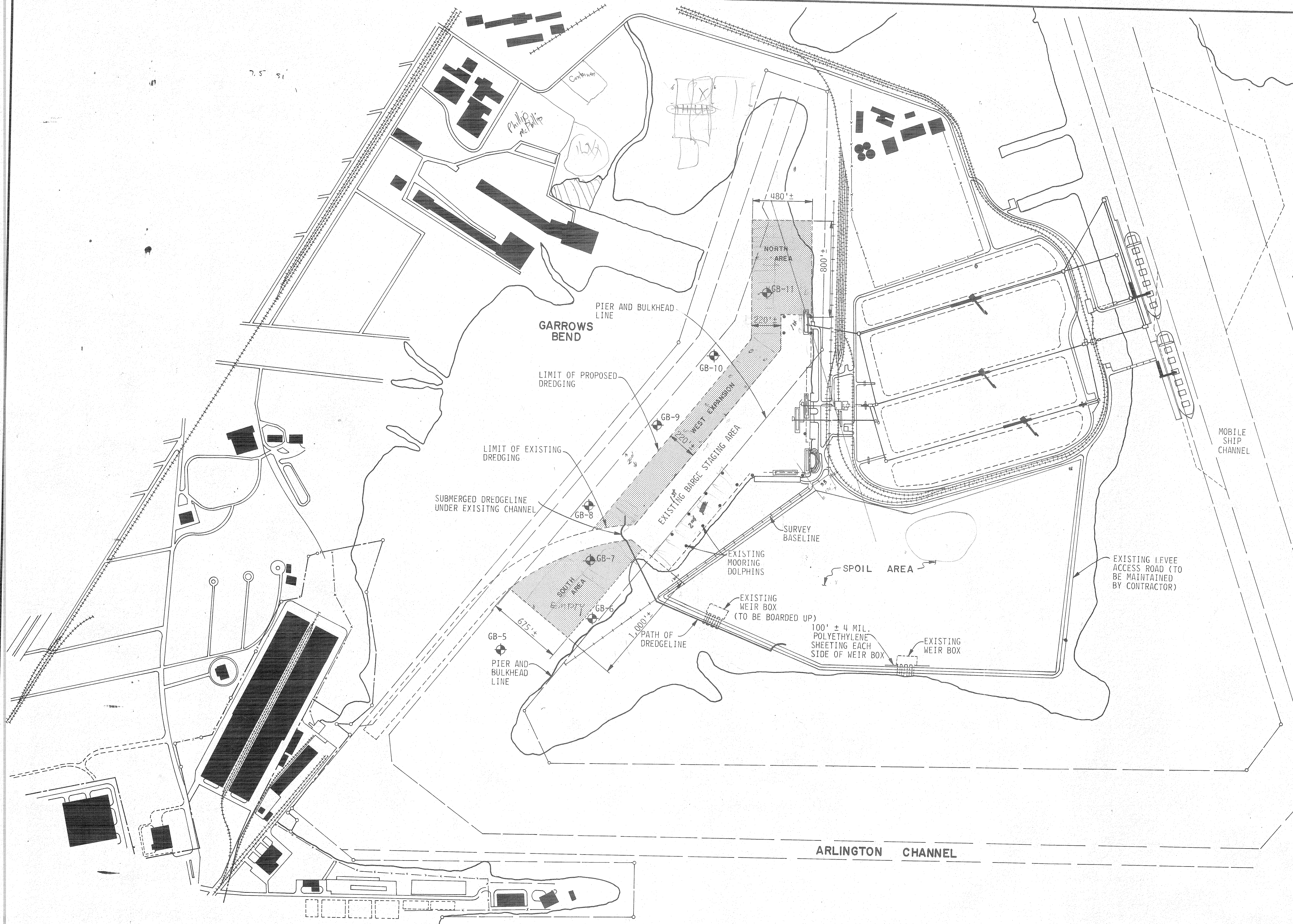
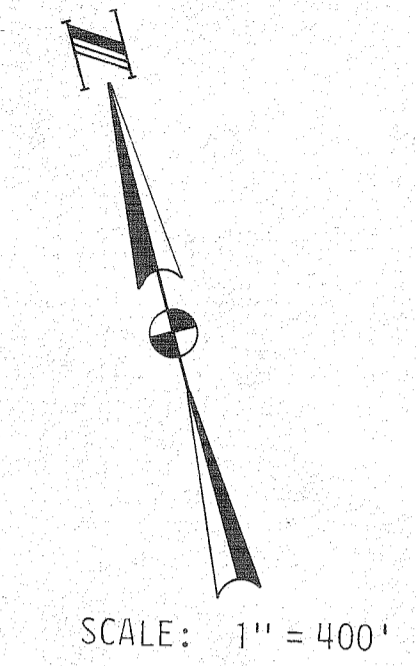
Cowles, Murphy, Glover & ASSOCIATES
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457 St. Michael St., Mobile, AL 36602
13 Thrash Rd., LaGrange, GA 30241
11880 Cranston Dr. Ste 102, Arlington, TN 38002
Alabama (251) 433-1611
Georgia (706) 302-2831 Tennessee (901) 290-5444

PROJECT
DUAL BARGE SHIFTER AND BARGE HAUL EQUIPMENT SUPPLY
McDUFFIE COAL TERMINAL
MOBILE, ALABAMA

TITLE				
DUAL BARGE SHIFTER				
SCALE	DRAWN BY	DATE	SHEET	REV.
NOTED	JDG	1/22/23	-	22x34
JOB NO.	CHECKED BY	DATE	DRAWING NUMBER	
4224-23	GDEC	03/17/23	4224-GA3	A

SPEC. NO.	SHEET NO.
467	1



THE INDUSTRIAL DEVELOPMENT BOARD OF THE CITY OF MOBILE, ALABAMA (ALABAMA STATE DOCKS DEPARTMENT PROJECT)

SITE PLAN

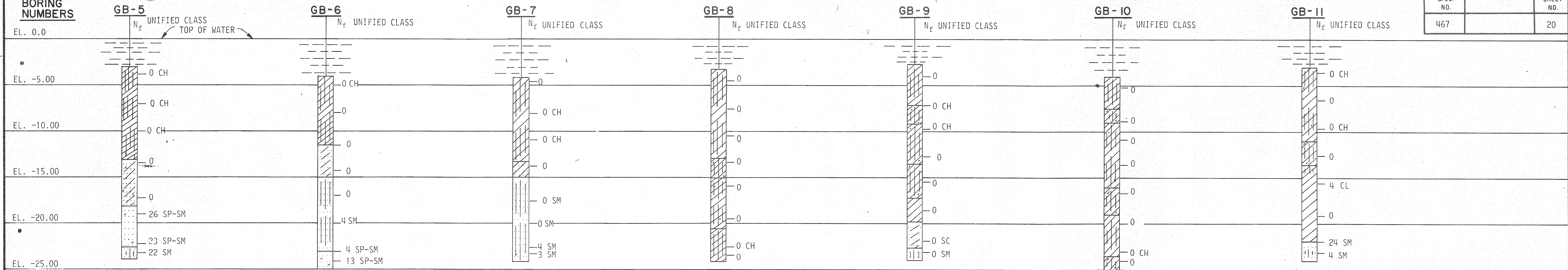
DAVID VOLKERT & ASSOCIATES CONSULTING ENGINEERS

DESIGNED	W.C.D.	DETAILED	S.L.R.	TRACED	S.L.R.
CHECKED		CHECKED		CHECKED	
DATE					

REVISIONS

BORING NUMBERS

SPEC. NO.		SHEET NO.
467		20



SOIL PROFILE

LEGEND

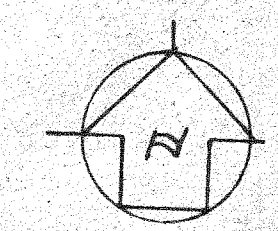
- CLAY N_F-STANDARD PENETRATION TEST
- SILT UNIFIED - UNIFIED SOIL CLASS CLASSIFICATION SYSTEM
- SAND
- GRAVEL
- WATER

THE INDUSTRIAL DEVELOPMENT BOARD OF THE CITY OF MOBILE, ALABAMA (ALABAMA STATE DOCKS DEPARTMENT PROJECT)

BORING LOGS

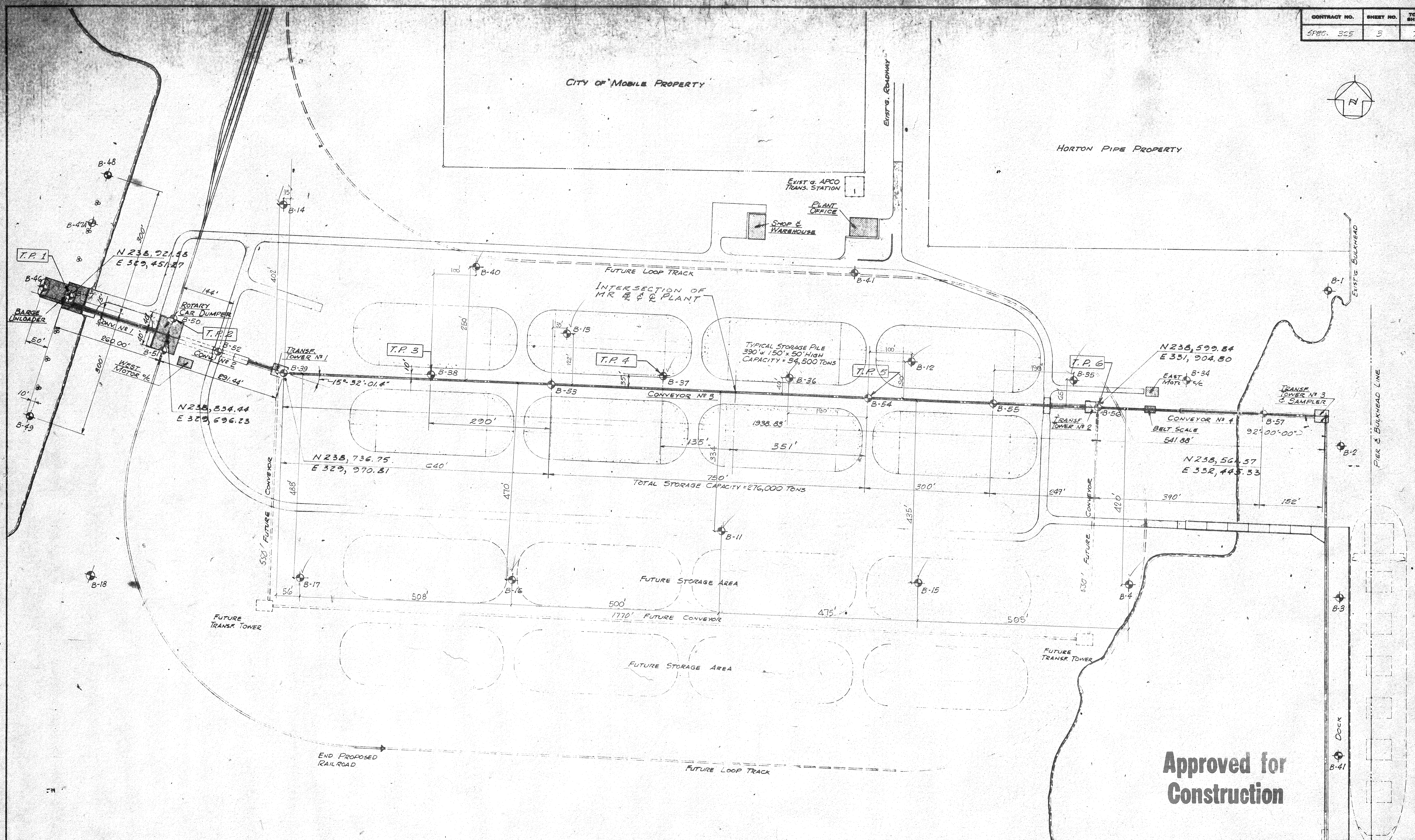
DAVID VOLKERT & ASSOCIATES CONSULTING ENGINEERS

DESIGNED	W.C.D.	DETAILED	S.L.R.	TRACED	S.L.R.
CHECKED		CHECKED		CHECKED	
REVISIONS		DATE			



CITY OF MOBILE PROPERTY

HORTON PIPE PROPERTY



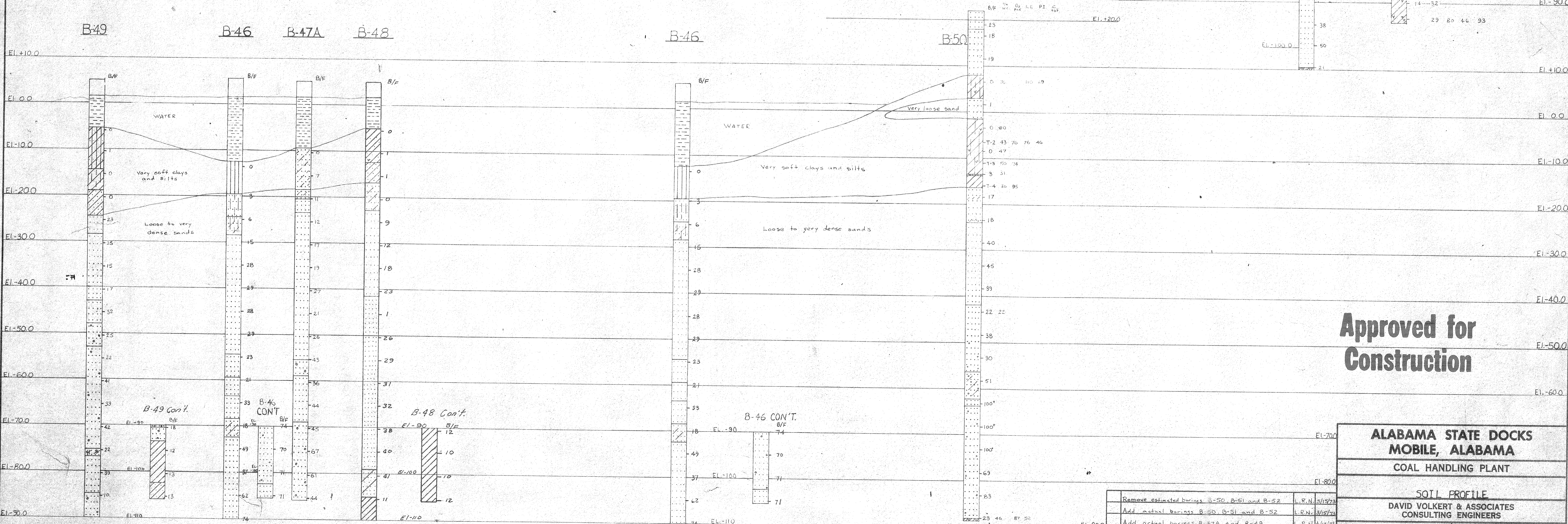
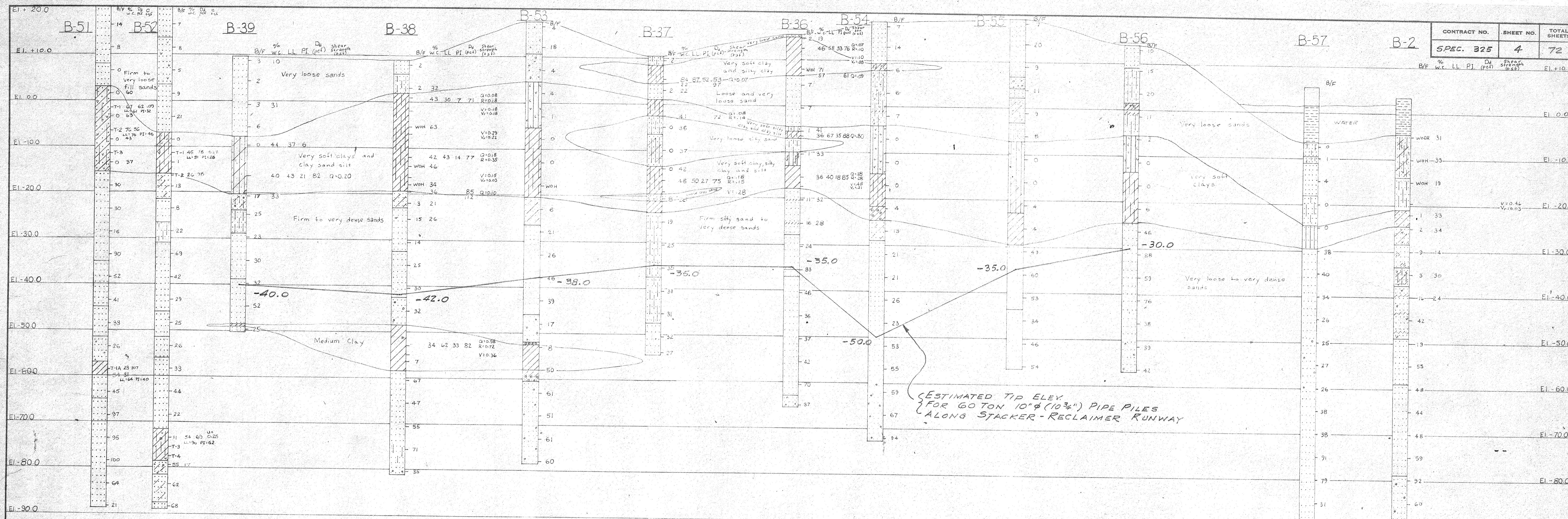
**Approved for
Construction**

PRELIMINARY
NOT FOR CONSTRUCTION
DAVID VOLKERT & ASSOCIATES
DATE: DEC 22 1972

ALABAMA STATE DOCKS MOBILE, ALABAMA	
COAL HANDLING PLANT	
BORING LOCATION - PLANT AREA	
DAVID VOLKERT & ASSOCIATES CONSULTING ENGINEERS	
MADE S.M.A. DATE 6-20-72	TRACED DATE
CHECKED J.R.H. DATE 6-20-72	SCALE 1" = 100'
DWG. NO. 1320-534	

NO.	REVISIONS	BY	DATE
1	ADDED TEST PILE LOCATE	JLH	6/24/72
2	REVISED LOOP TRACK & PILE LENGTHS	SMA	6/14/72

CONTRACT NO.	SHEET NO.	TOTAL SHEETS
SPEC. 325	4	72



Approved for Construction

**ALABAMA STATE DOCKS
MOBILE, ALABAMA
COAL HANDLING PLANT**

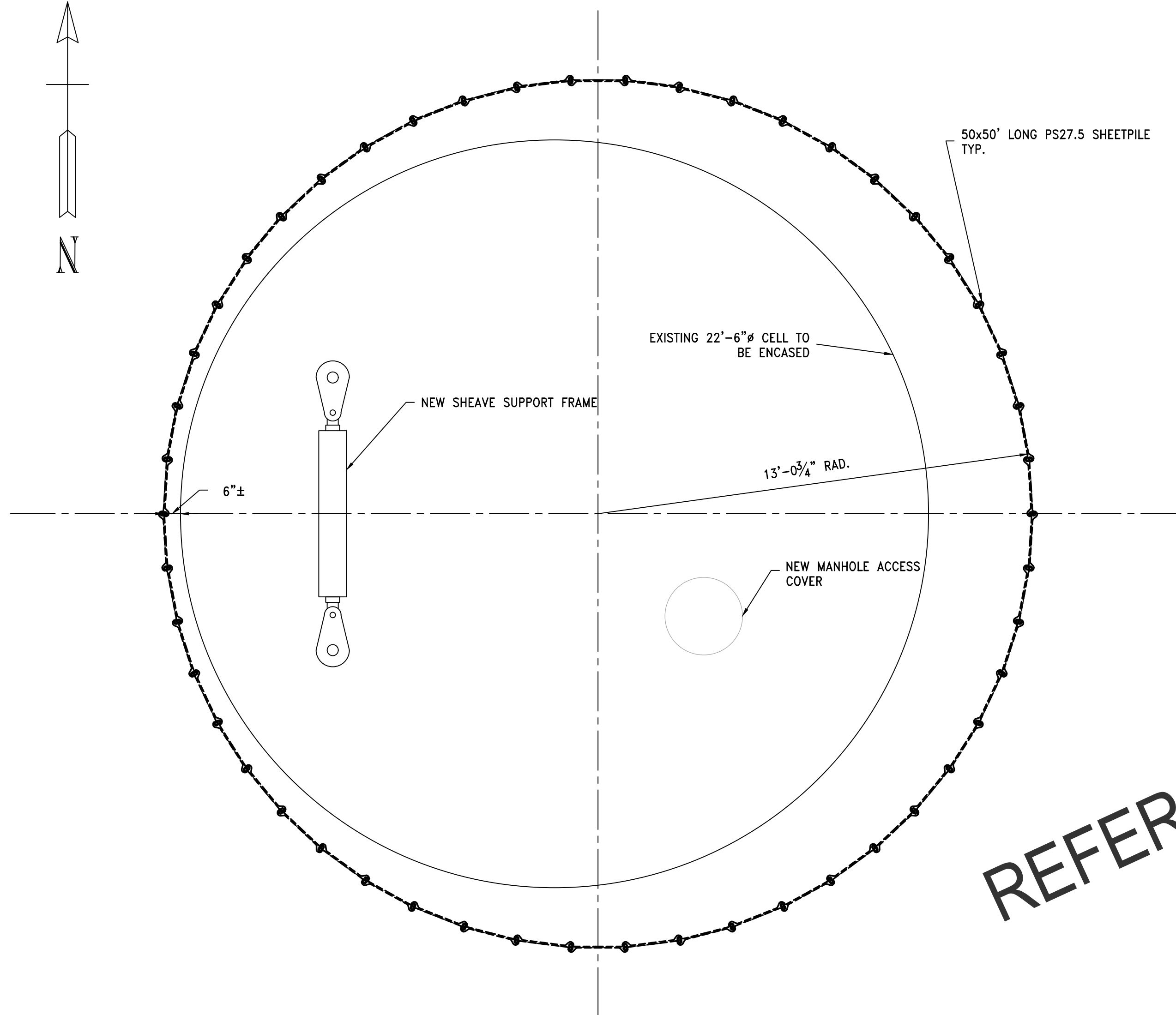
SOIL PROFILE
DAVID VOLKERT & ASSOCIATES
CONSULTING ENGINEERS

Remove estimated borings B-50, B-51 and B-52	L.R.N. 3/15/73
Add actual borings B-50, B-51 and B-52	L.R.N. 3/15/73
Add actual borings B-47A and B-49	L.R.N. 4/17/73
Add actual borings B-46 and B-57	L.R.N. 5/2/73
Add actual boring B-48	L.R.N. 5/2/73

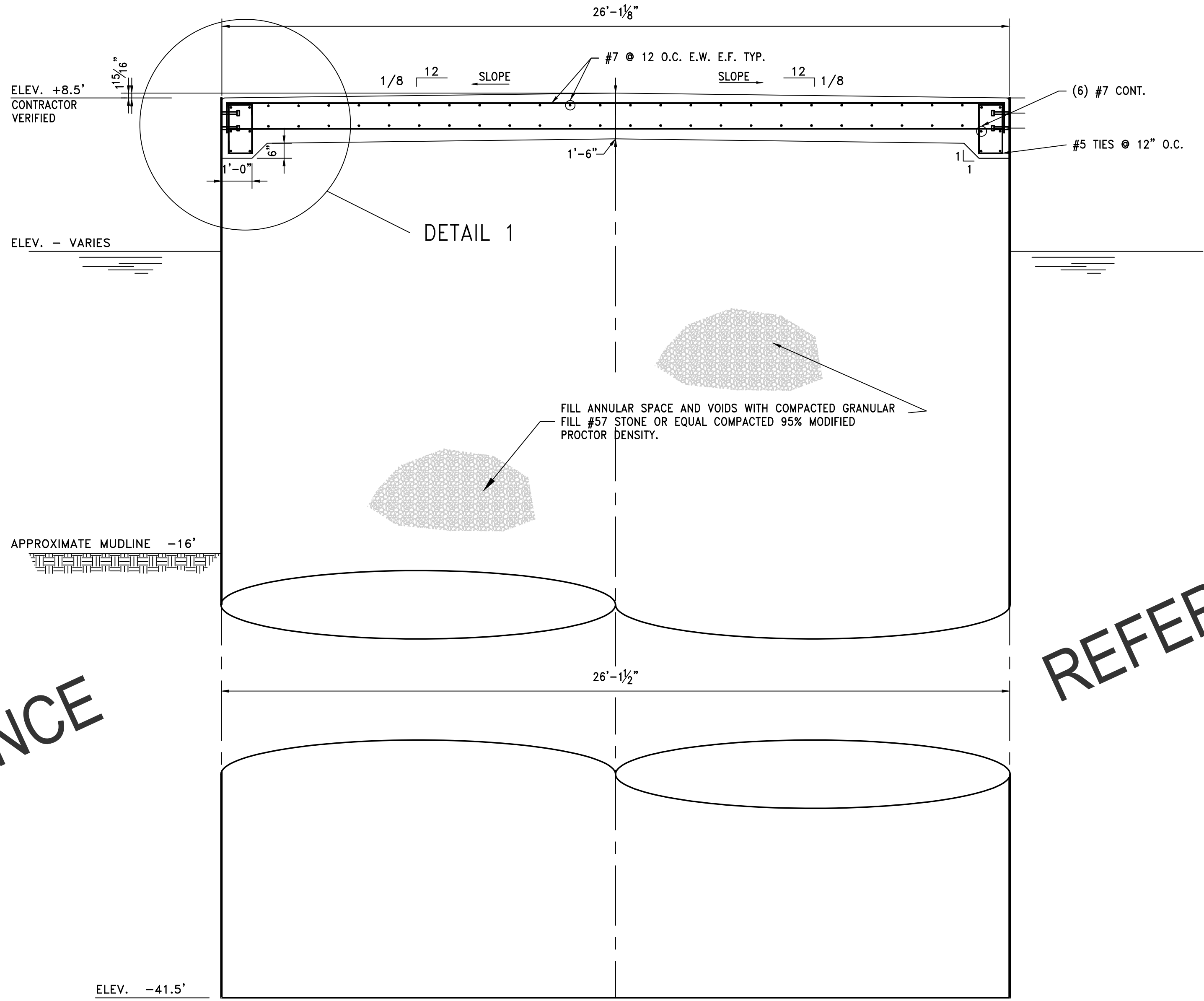
NO.	REVISIONS	BY	DATE

MADE L.R.N.	DATE 2-1-73	TRACED	DATE
CHECKED L.C.D.	DATE 4-22-73	SCALE	VERTICAL - 1" = 10'

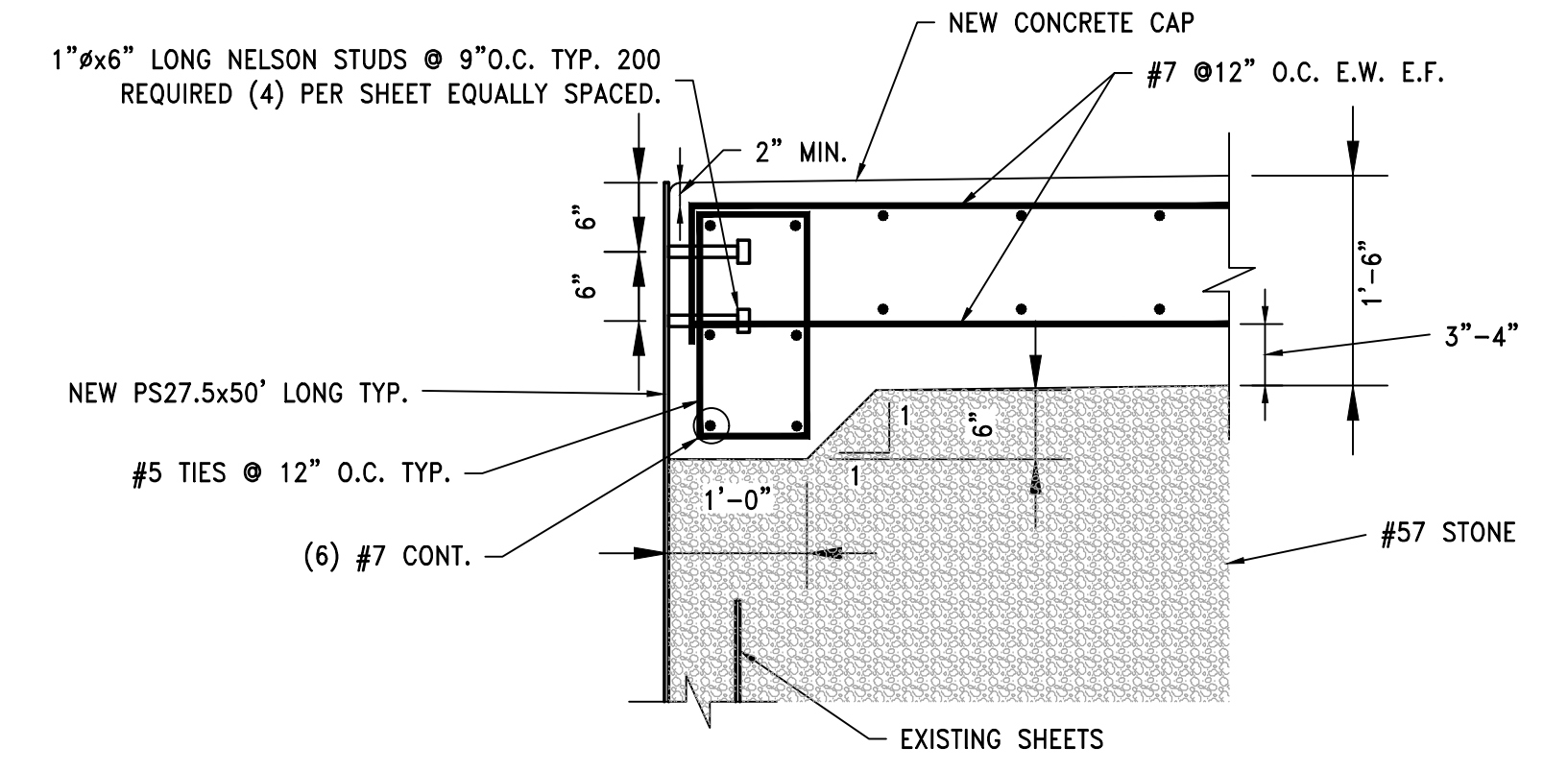
WESTER J. THOMPSON, JR., INC. DWG. NO. 1320 OF 140



PLAN
3/8"=1'-0"



SECTION
3/8"=1'-0"



DETAIL 1
3/4"=1'-0"

REFERENCE

REFERENCE

REFERENCE

GENERAL NOTES

- EXISTING 22'-6" SHEET PILE CELL REMOVE CABLE SHEAVES AND SHACKLES (SAVE FOR REINSTALLATION) SECURE BARGE HAUL CABLES.
- REMOVE EXISTING CONCRETE CAP.
- CUT AND REMOVE EXISTING SHEET PILE TOPS APPROXIMATELY 3'.
- INSTALL NEW 26'-1 1/8" SHEET PILE CELL AROUND EXISTING CELL.
- INSTALL WEST SIDE OF NEW CELL AS CLOSE AS PRACTICAL TO EXISTING CELL.
- FILL AND COMPACT WITH #57 STONE.
- INSTALL NELSON STUDS ON INSIDE OF NEW SHEETS.
- INSTALL REBAR, ANCHOR BOLTS, AND POUR NEW 4,000 PSI CONCRETE CAP. MIN. 6 1/2 SACK MIX.
- INSTALL NEW SHEAVE SUPPORT FRAME.
- REINSTALL SHEAVES AND CABLES.
- REINSTALL MAIL BOX.
- REINSTALL EXISTING GANGWAY.
- SHEET PILE SHALL PS27.5x50' LONG GRADE 50 OR EQUAL.
- SHEET PILE SHALL BE PAINTED WITH 20 MILS COOL TAR EPOXY 25' MIN. ON THE OUTSIDE AND 23' ON THE INSIDE.
- THE TOP 2' OF THE INSIDE SHALL BE UNCOATED FOR STUD INSTALLATION AND CONCRETE PLACEMENT.
- TOUCH UP COAL TAR EPOXY AFTER WELDING AND CONCRETE PLACEMENT.

REV.	DESCRIPTION	DATE	BY	CHK'D

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

Cowles, Murphy, Glover & ASSOCIATES
A Full Service Engineering Firm
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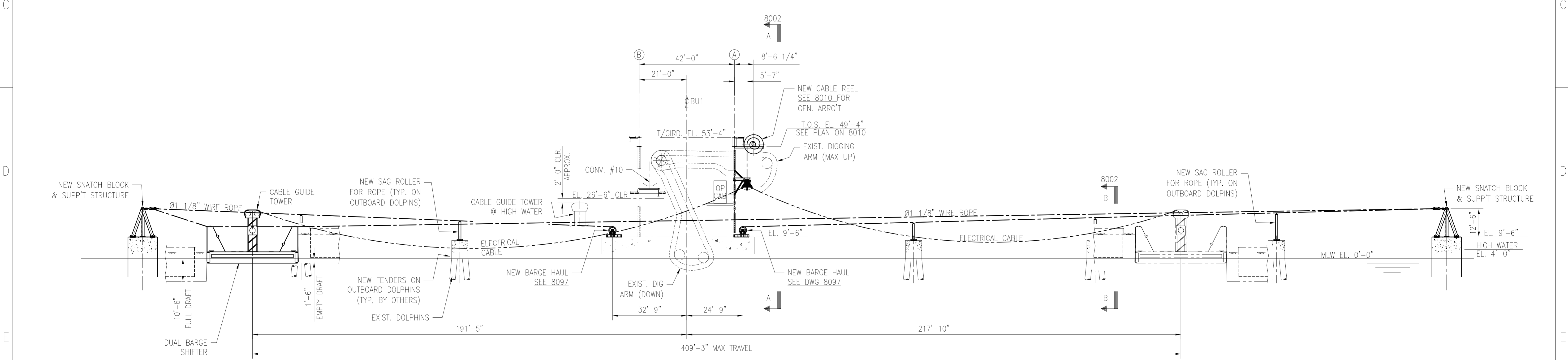
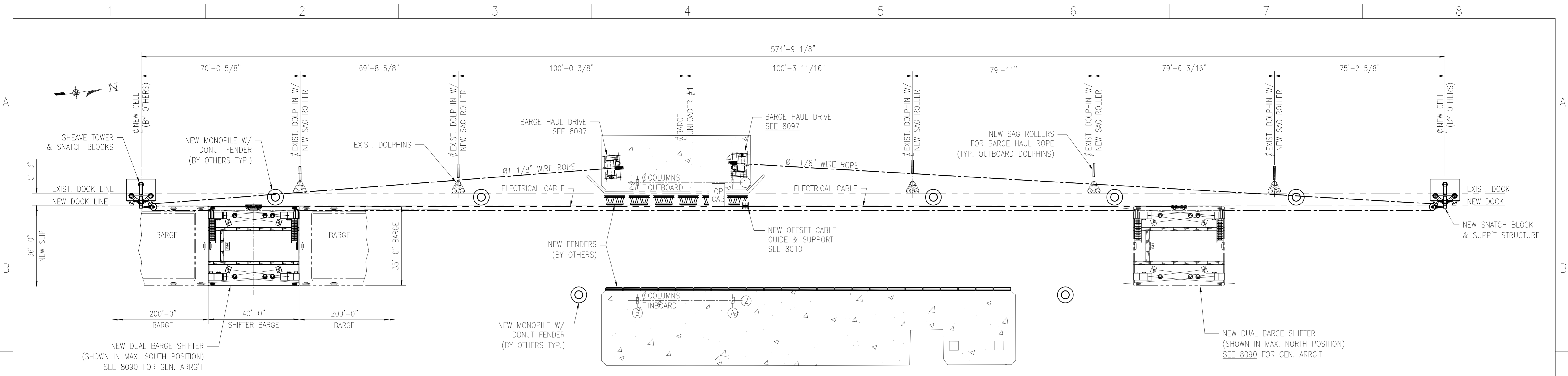
484 Stovall Rd.
LaGrange, GA 30241
Phone (706) 242-9202
Fax (706) 242-9202

PROJECT
ALABAMA STATE PORT AUTHORITY
COFFER CELL REPLACEMENT
McDUFFIE TERMINAL - MOBILE, ALABAMA

TITLE
COFFER CELL

SCALE 3/8"=1'-0"	DRAWN BY DJR	DATE 8/8/03	SHEET 1 OF --	REV. --
JOB NO. 397	CHECKED BY GDEC	DATE 8/8/03	DRAWING NUMBER C-1	

Z:\4200-4299\4224M-ASPA McDuffie Barge Haul\REF\ASD COFFER 2.dwg Nov 06, 2023 09:32



WORK THIS DRAWING WITH DWG 8002, 8010

Richmond Engineering Works
Pittsburgh, PA 15205

Rev.	Description	Date	Made	Chk'd	App'd
D	UPDATED FOR BID	11/02/23	DJT		
C	FOR BID ONLY	09/28/23	DJT		
B	REVISED W/ 36'-0" SLIP	09/19/23	DJT	KES	
A	PRELIMINARY FOR DESIGN REVIEW	08/11/23	DJT	KES	

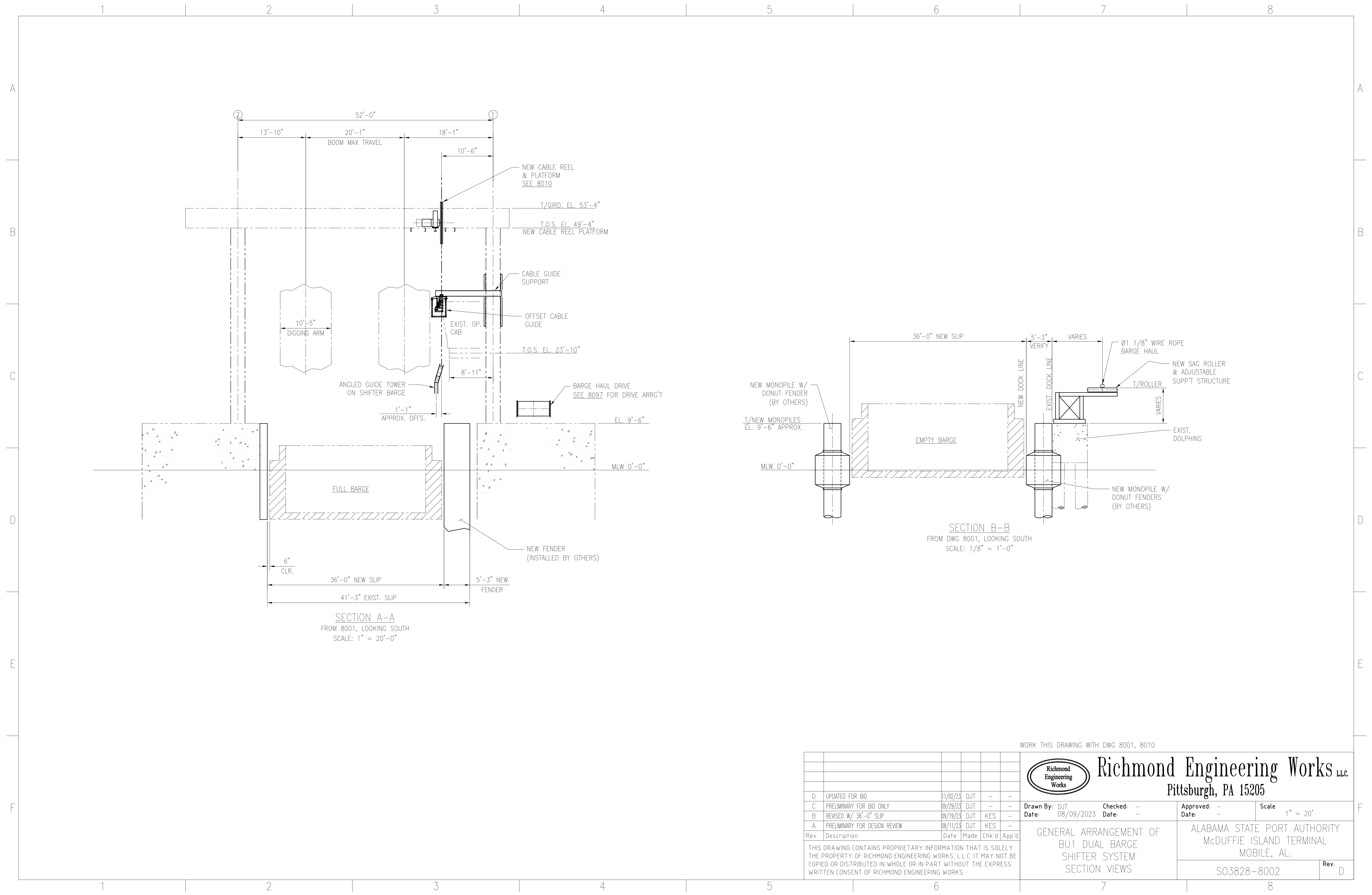
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Drawn By: DJT Checked: - Approved: - Scale: 1" = 20'
 Date: 08/09/2023 Date: - Date: -

GENERAL ARRANGEMENT OF BU1 DUAL BARGE SHIFTER SYSTEM

ALABAMA STATE PORT AUTHORITY
McDUFFIE ISLAND TERMINAL
MOBILE, AL.

S03828-8001 Rev. D

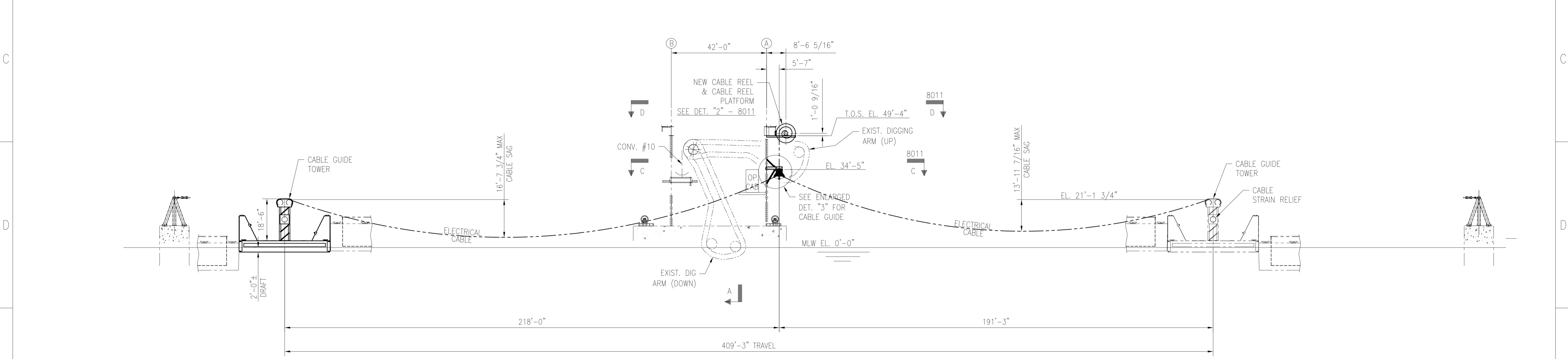
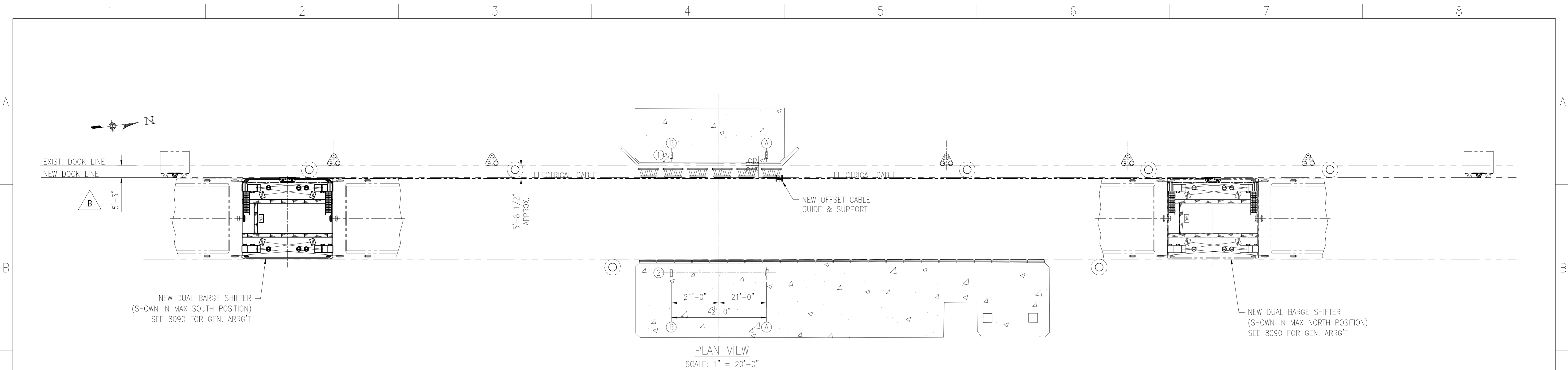


SECTION A-A
FROM 8001, LOOKING SOUTH
SCALE: 1" = 20'-0"

SECTION B-B
FROM DWG 8001, LOOKING SOUTH
SCALE: 1/8" = 1'-0"

WORK THIS DRAWING WITH DWG 8001, 8010

					Richmond Engineering Works LLC Pittsburgh, PA 15205	
D UPDATED FOR BID 11/02/23 DJT -- -- C PRELIMINARY FOR BID ONLY 09/29/23 DJT -- -- B REVISED W/ 36'-0" SLIP 09/19/23 DJT KES -- -- A PRELIMINARY FOR DESIGN REVIEW 08/11/23 DJT KES -- --			Drawn By: DJT Checked: -- Date: 08/09/2023 Date: --		Approved: -- Date: -- Scale 1" = 20'	
Rev. Description Date Made Chk'd App'd					GENERAL ARRANGEMENT OF BU1 DUAL BARGE SHIFTER SYSTEM SECTION VIEWS	
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WORK THIS DRAWING WITH DWG 8001, 8002, 8011

Richmond Engineering Works L.L.C.
Pittsburgh, PA 15205

Rev.	Description	Date	Made	Chk'd	App'd
D	UPDATED OFFSET CABLE GUIDE DETAILS	10/31/23	DJT	-	-
C	PRELIMINARY FOR BID ONLY	09/29/23	DJT	-	-
B	REVISED W/ 36'-0" SLIP	09/19/23	DJT	KES	-
A	PRELIMINARY FOR DESIGN REVIEW	08/11/23	DJT	KES	-

Drawn By: DJT	Checked: -	Approved: -	Scale: 1" = 20'
Date: 08/09/2023	Date: -	Date: -	

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GENERAL ARRANGEMENT OF BU1 CABLE REEL

ALABAMA STATE PORT AUTHORITY
McDUFFIE ISLAND TERMINAL
MOBILE, AL.

S03828-8010 Rev. D

A

B

C

D

E

F

A

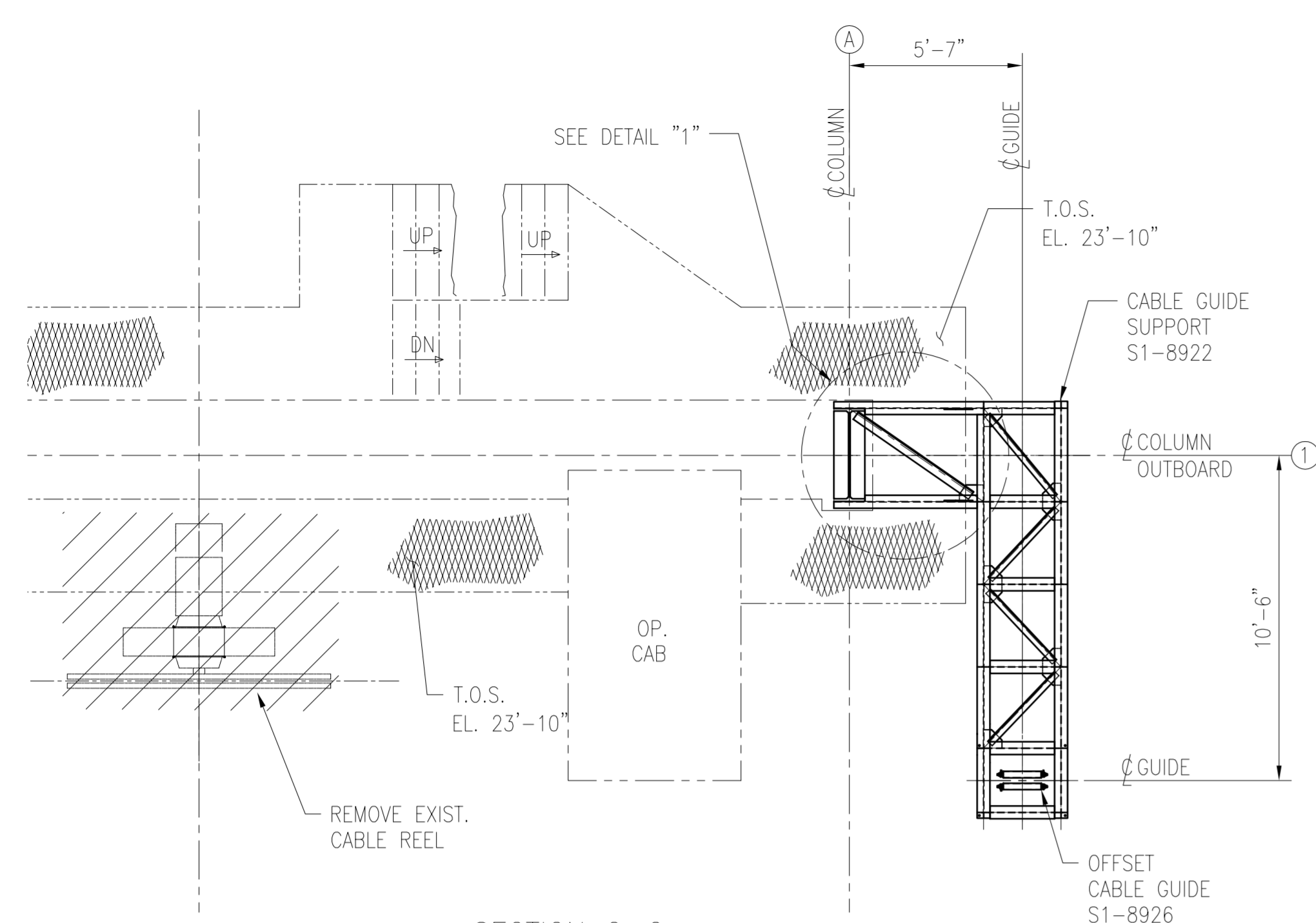
B

C

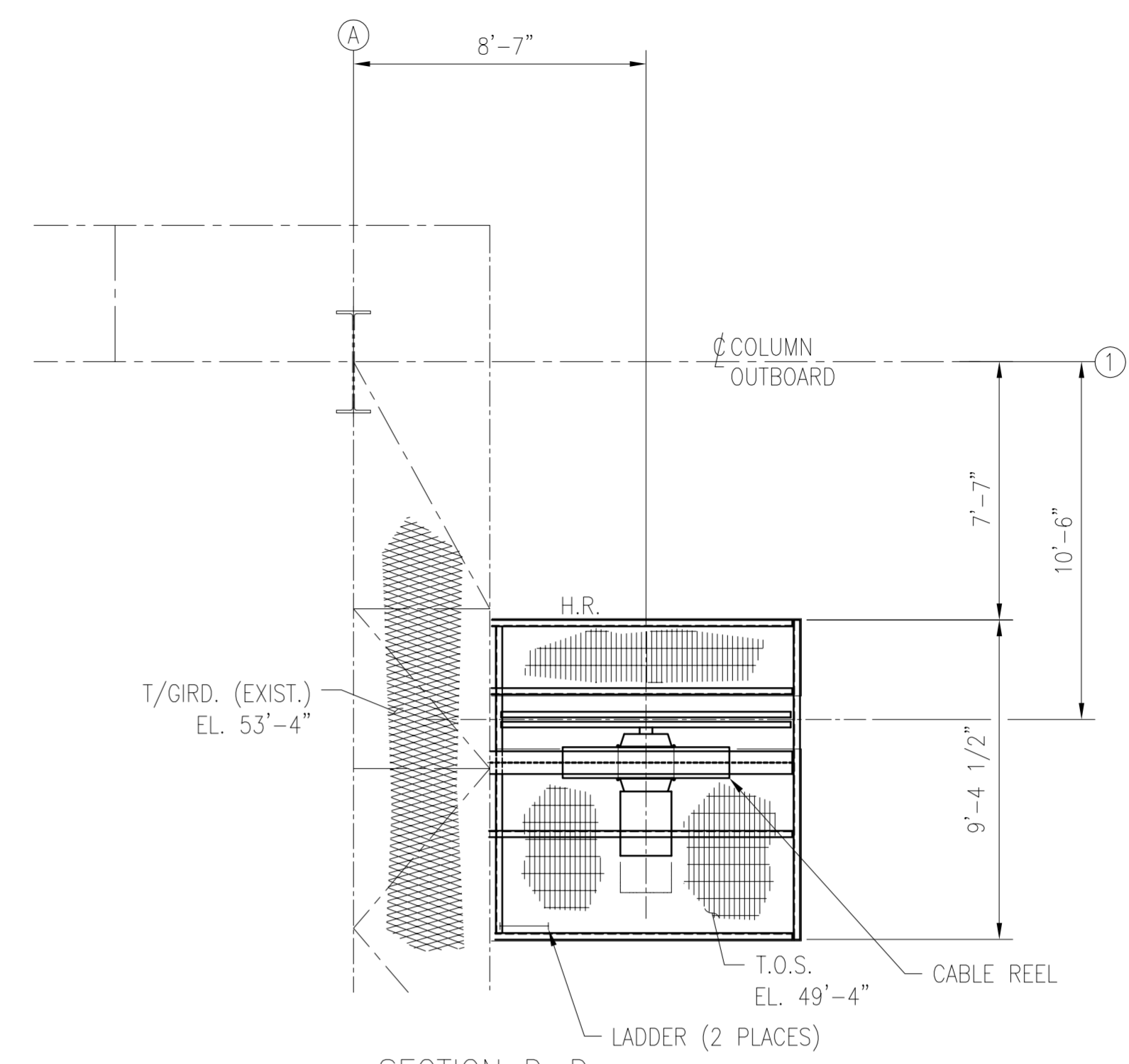
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E

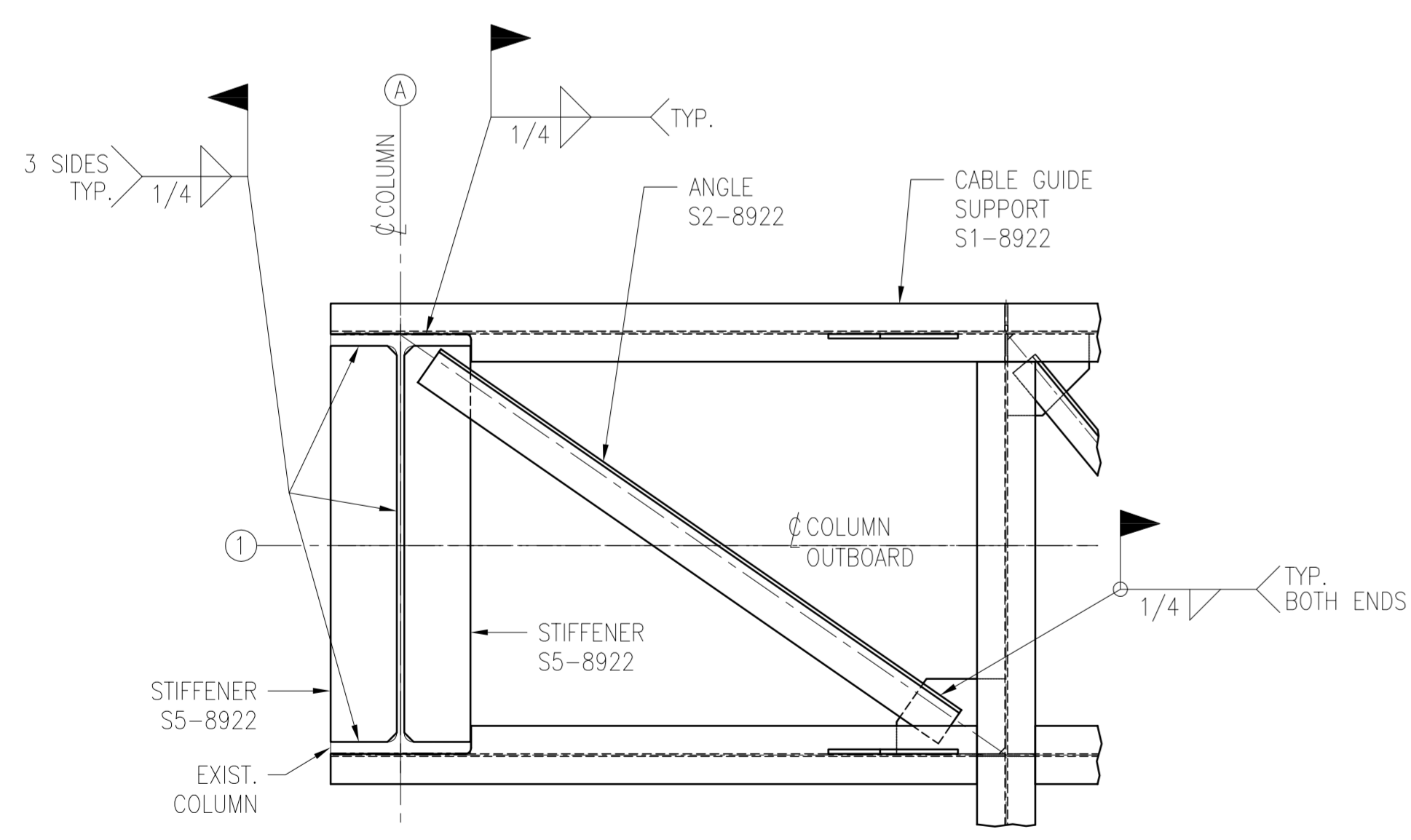
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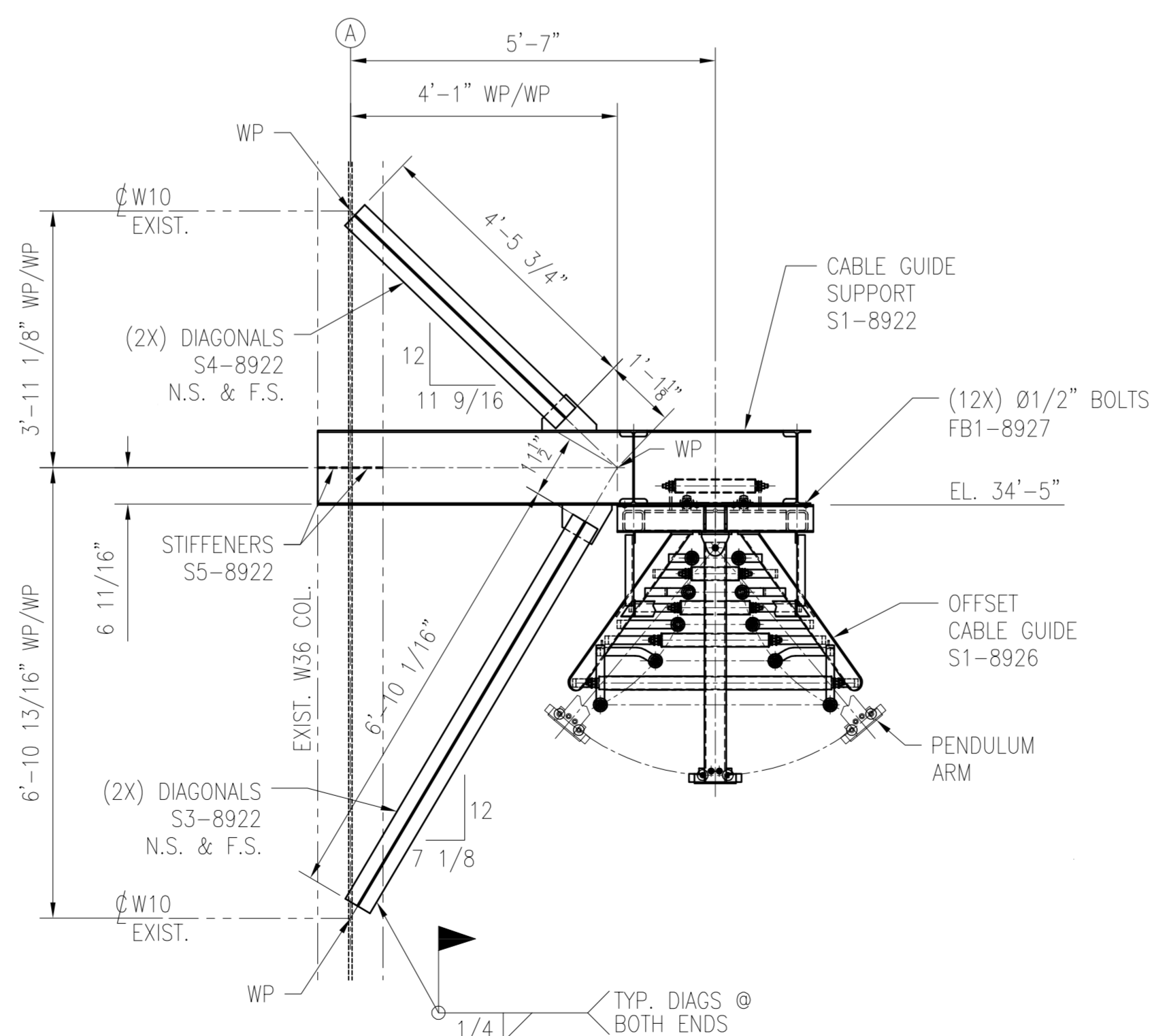
SECTION C-C
SCALE: 1/4" = 1'-0"
FROM DWG 8010



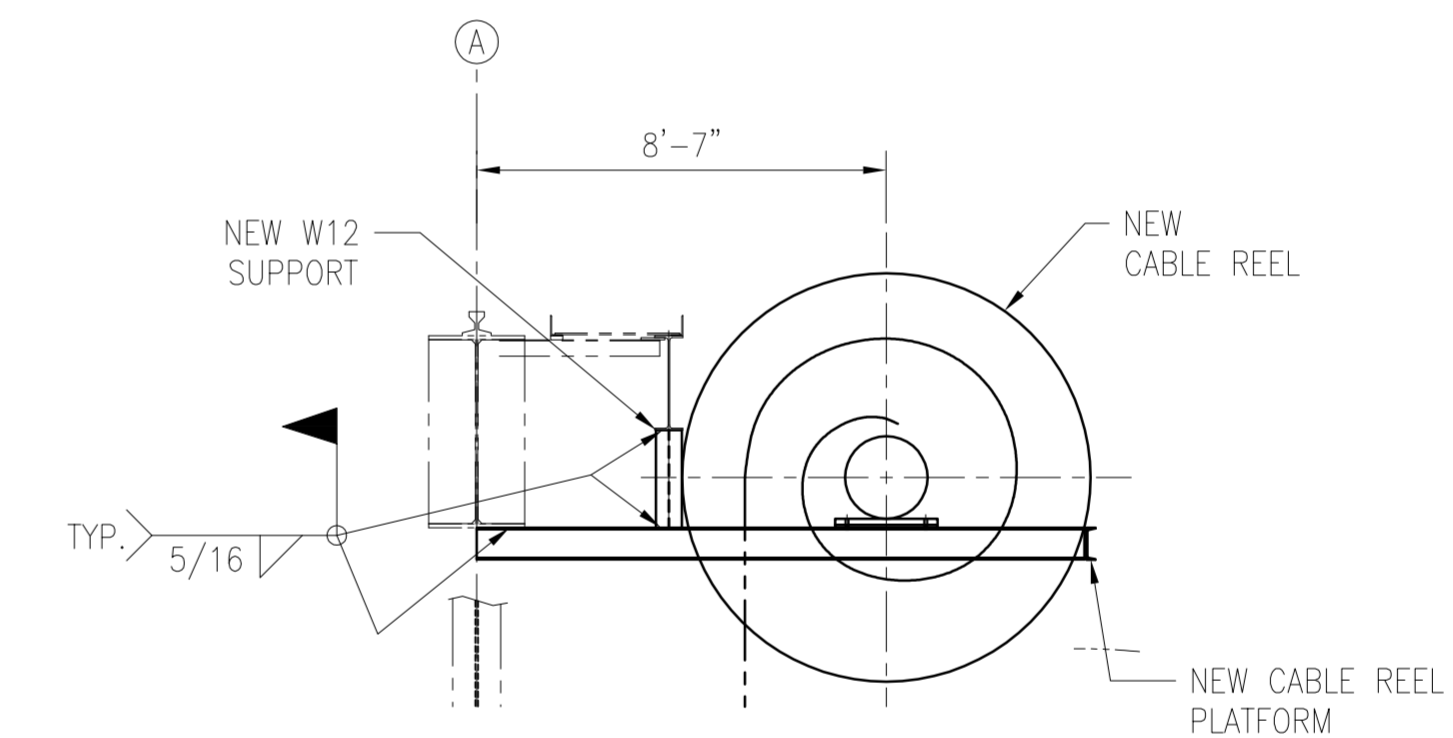
SECTION D-D
(NEW CABLE REEL PLATFORM)
SCALE: 1/4" = 1'-0"
FROM DWG 8010



ENLARGED DET. "1"
FIELD WELDS FOR
CABLE GUIDE SUPPORT
SCALE: 1" = 1'-0"



ENLARGED DET. "3"
CABLE GUIDE SUPPORT
SCALE: 1" = 1'-0"




ENLARGED DET. "2"
FIELD WELDS FOR
CABLE REEL PLATFORM
SCALE: 1/4" = 1'-0"
FROM DWG 8010

WORK THIS DRAWING WITH DWG 8010

Rev	Description	Date	Made	Chk'd	App'd
B	UPDATED FOR BID	11/02/23	DJT	-	-
A	PRELIMINARY FOR BID ONLY	09/29/23	DJT	-	-

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Richmond Engineering Works LLC
Pittsburgh, PA 15205

Drawn By: DJT
Date: 09/28/23

Checked: -
Date: -

Approved: -
Date: -

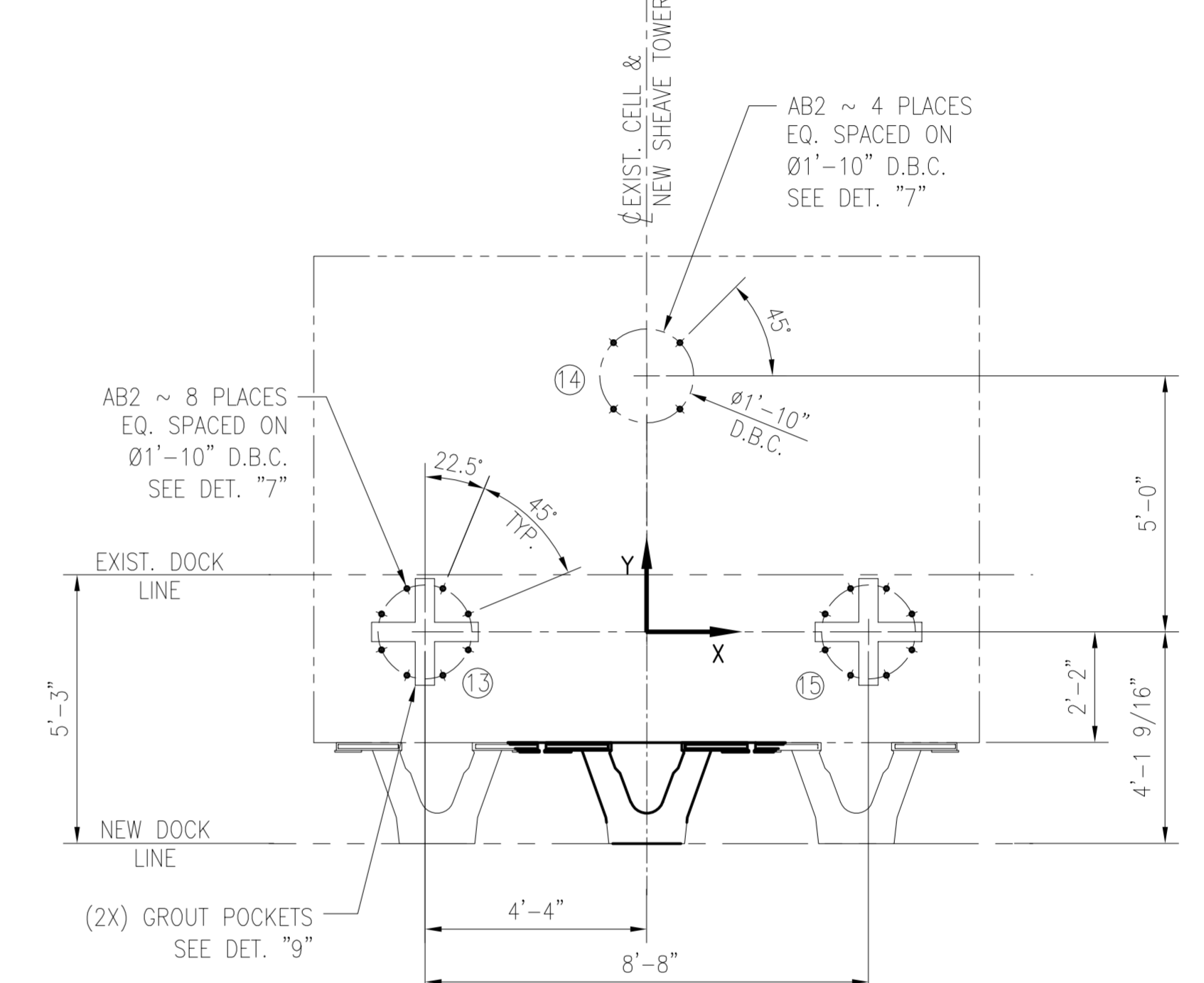
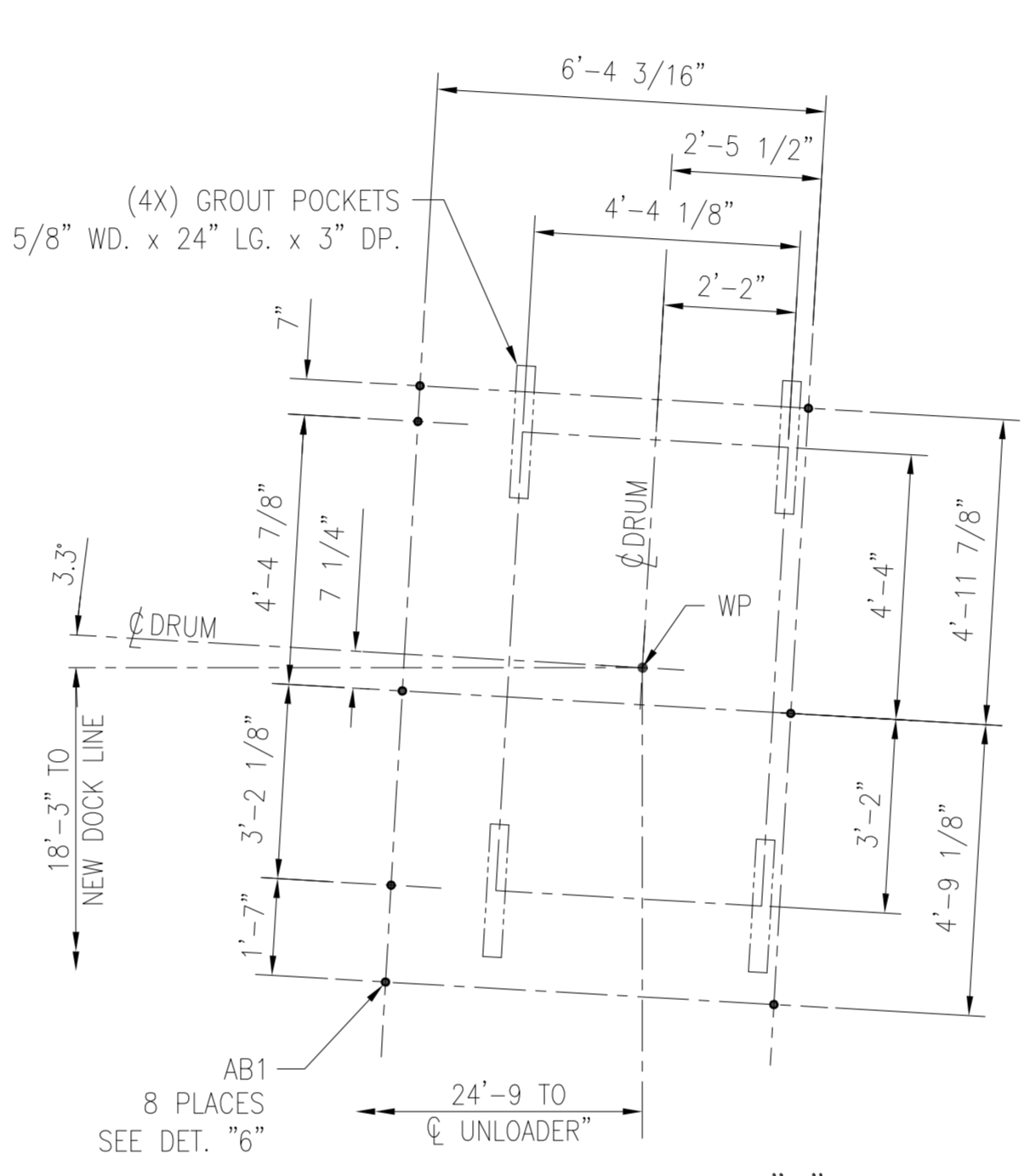
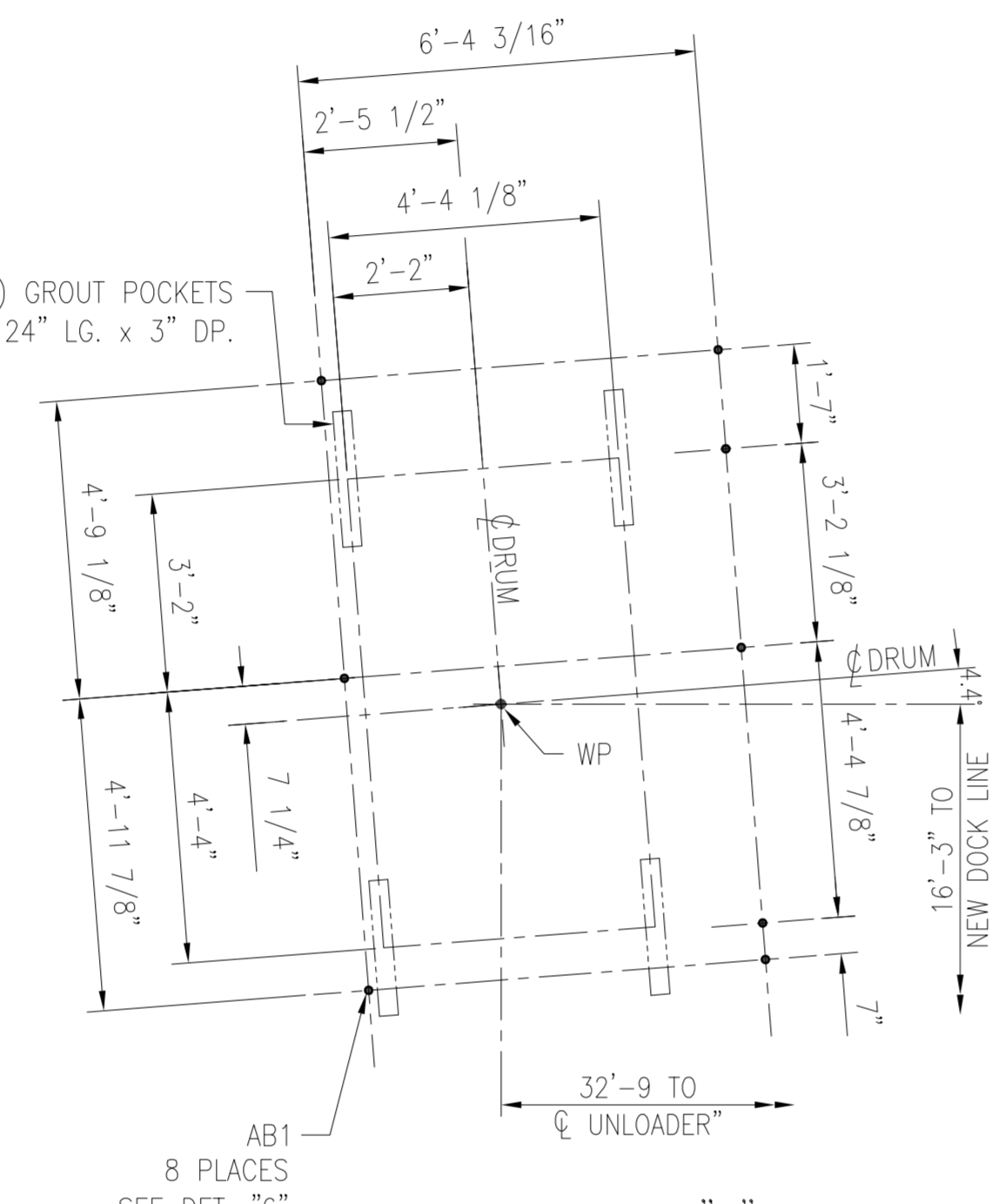
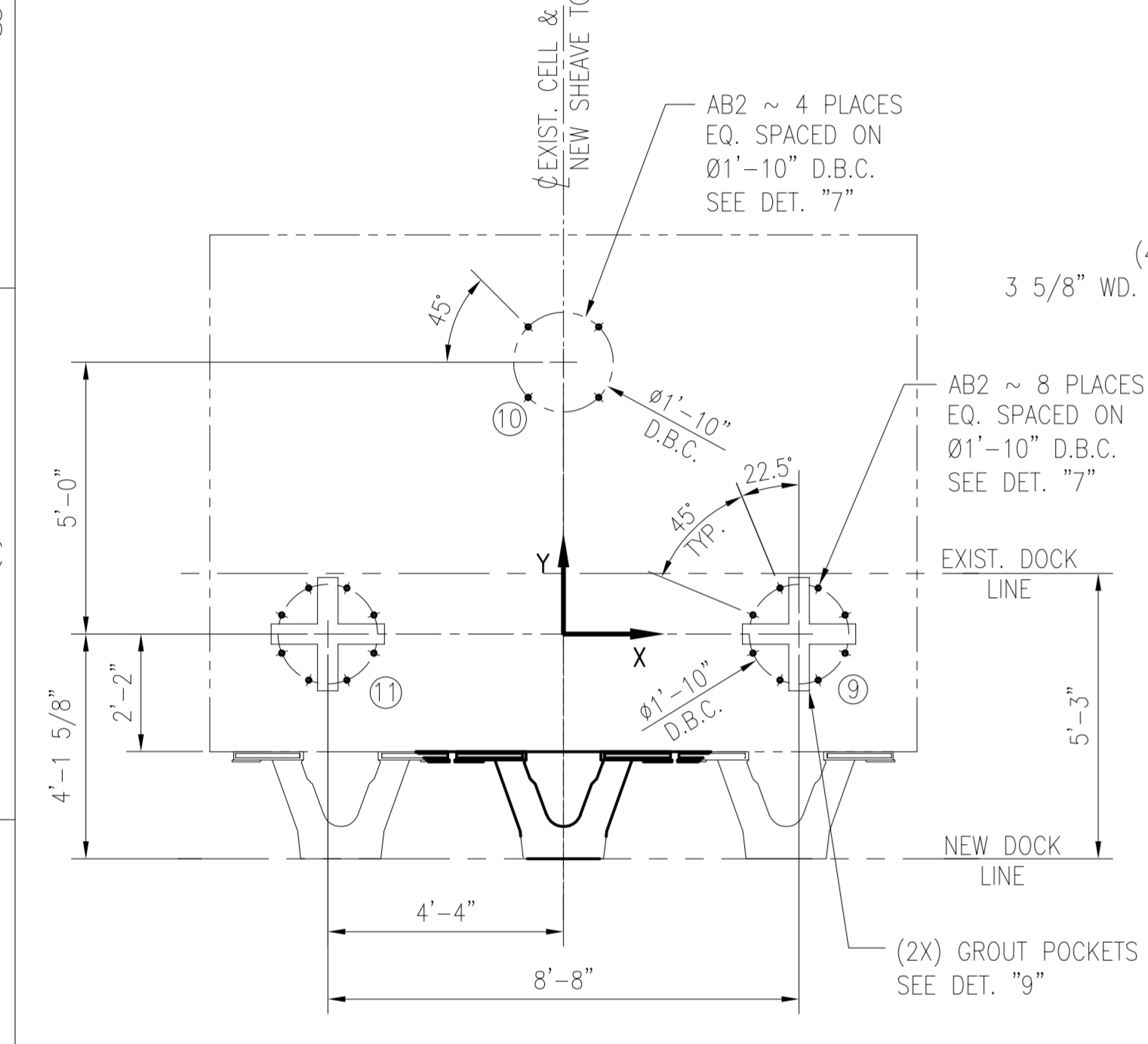
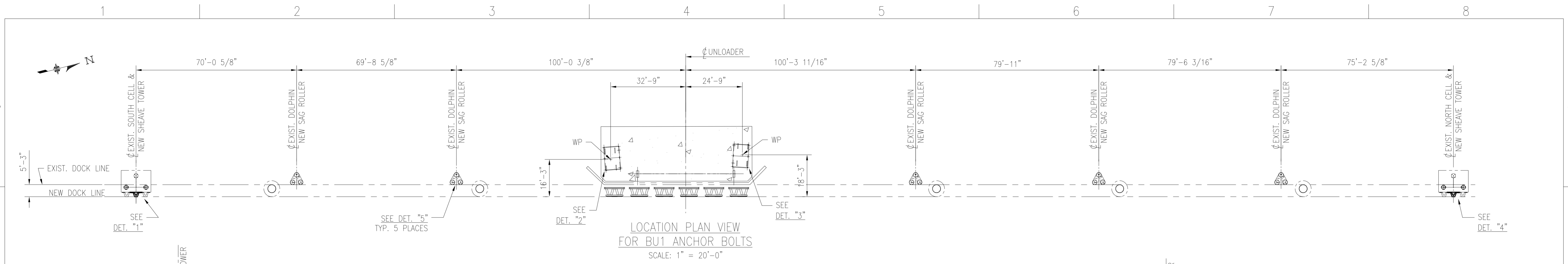
Scale: 1" = 20'

GENERAL ARRANGEMENT OF
BU1 CABLE REEL
SECTION VIEWS

ALABAMA STATE PORT AUTHORITY
McDUFFIE ISLAND TERMINAL
MOBILE, AL.

S03828-8011

Rev. B

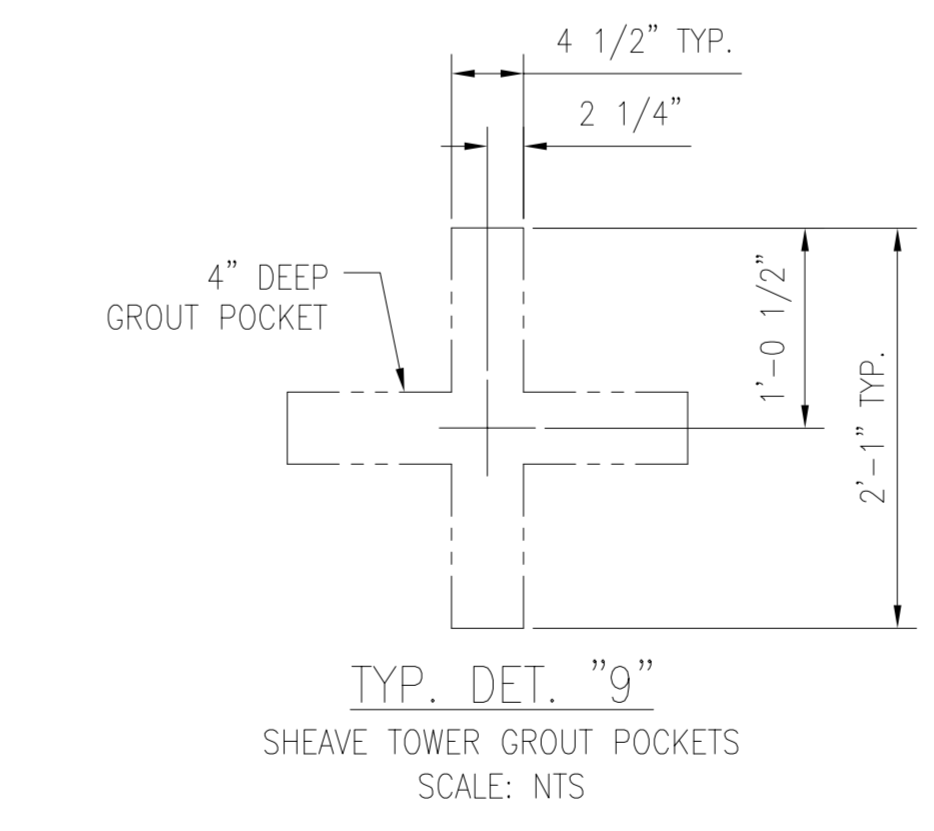
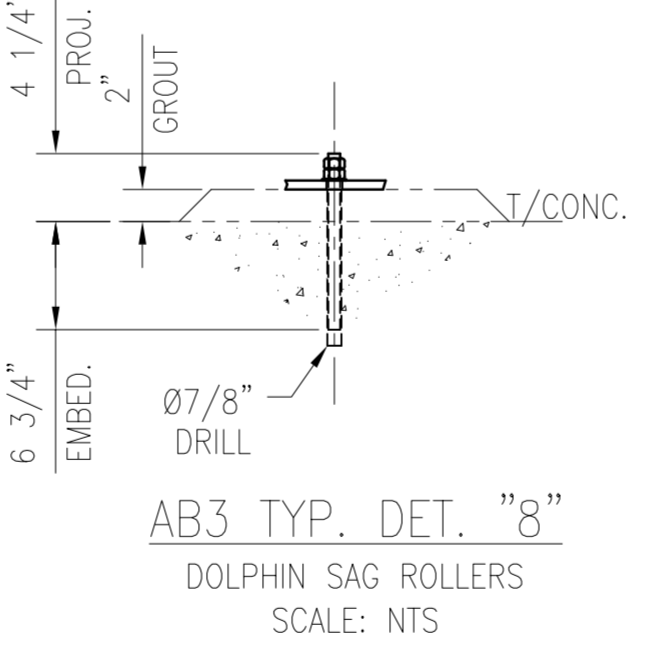
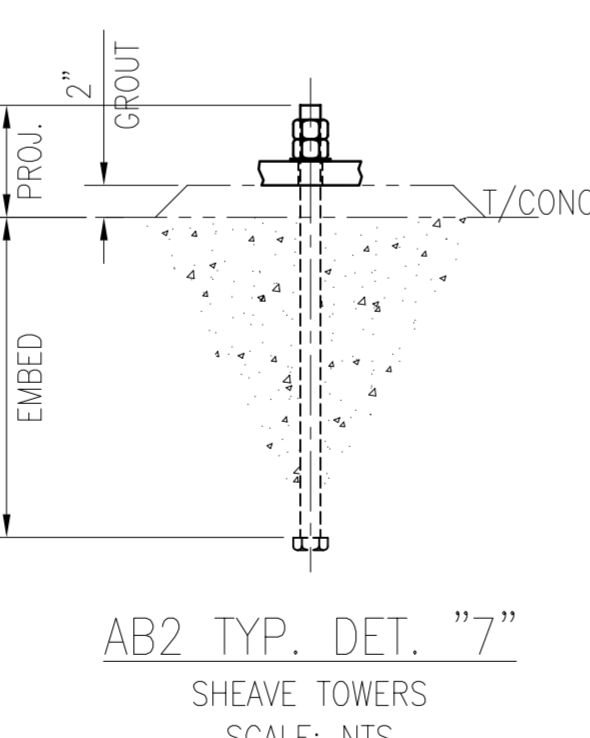
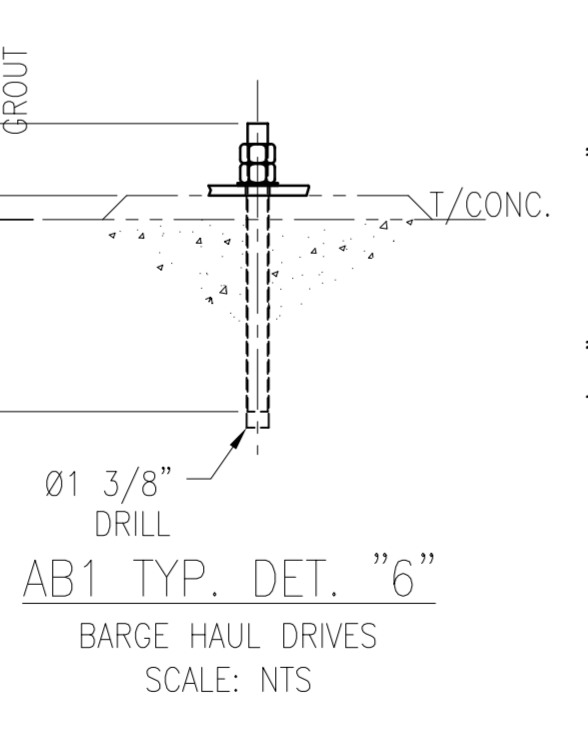
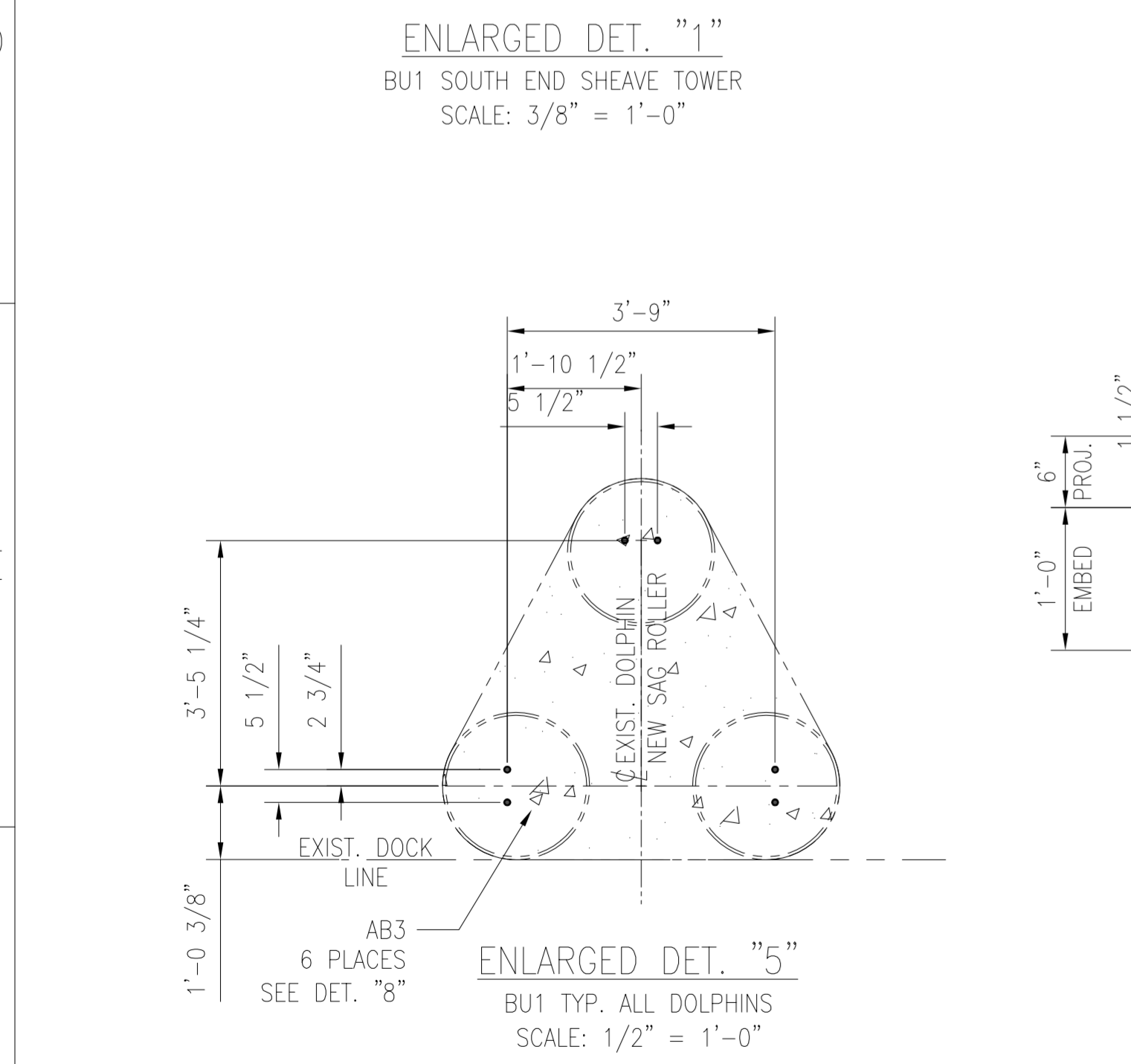


LOAD TABLE - DET. "1"

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⑩	0.0	-5.0	-9.0
⑪	37.0	-30.0	105.0

LOAD TABLE - DET. "4"

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⑮	-37.0	-30.0	105.0



ANCHOR BOLT REQUIREMENTS

MARK	NO.	REQ'D.	DIA.	EMBED.	PROJ.	LOCATION
AB1	16		1 1/4"	12"	6"	BARGE HAUL DRIVE BASES
AB2	40		1"	20"	7"	SHEAVE TOWER (NORTH & SOUTH CELLS)
AB3	30		3/4"	6 3/4"	4 1/4"	DOLPHIN SAG ROLLERS (TYP.)

DESCRIPTION:

AB1 (16) HILTI HAS SUPER THRD. RODL A193, B7 - Ø1 1/4" x 31 3/4" LG. W/ 1/2" PLATE WASHER, FLAT WASHER, & (2X) HEX NUTS. ADHESIVE - HIT RES00V3

AB2 (40) Ø1" x 27" LG. F1554 GRADE 55 HEADED BOLTS W/ FLAT WASHER & (2X) HEX NUTS

AB3 (30) HILTI HAS SUPER THRD. ROD A193, B7 - Ø3/4" x 11" LG. W/ FLAT WASHER & 2 HEX NUTS. ADHESIVE - HIT RES00V3

- NOTES:
- FORCES ARE APPLIED FORCES
 - POSITIVE "Z" VALUES ARE TENSION REACTIONS
 - UNITS ARE IN KIPS
 - ANCHOR LOCATIONS 11 & 15 REQUIRE TENSILE ANCHORAGE REINFORCEMENT TO SATISFY CONCRETE BREAKOUT STRENGTH IN TENSION.
 - ANCHOR LOCATIONS 9, 11, 13, & 15 REQUIRE SHEAR ANCHORAGE REINFORCEMENT TO SATISFY CONCRETE BREAKOUT STRENGTH OF ANCHORS IN SHEAR
 - ALL LOADS SHOWN ARE UNFACTORED

Rev.	Description	Date	Made	Chk'd	App'd
B	UPDATED FOR BID	11/01/23	DJT	-	-
A	PRELIMINARY FOR BID ONLY	09/29/23	DJT	-	-

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Richmond Engineering Works LLC
Pittsburgh, PA 15205

Richmond Engineering Works

Drawn By: DJT
Date: 09/15/23

Checked: -
Date: -

Approved: -
Date: -

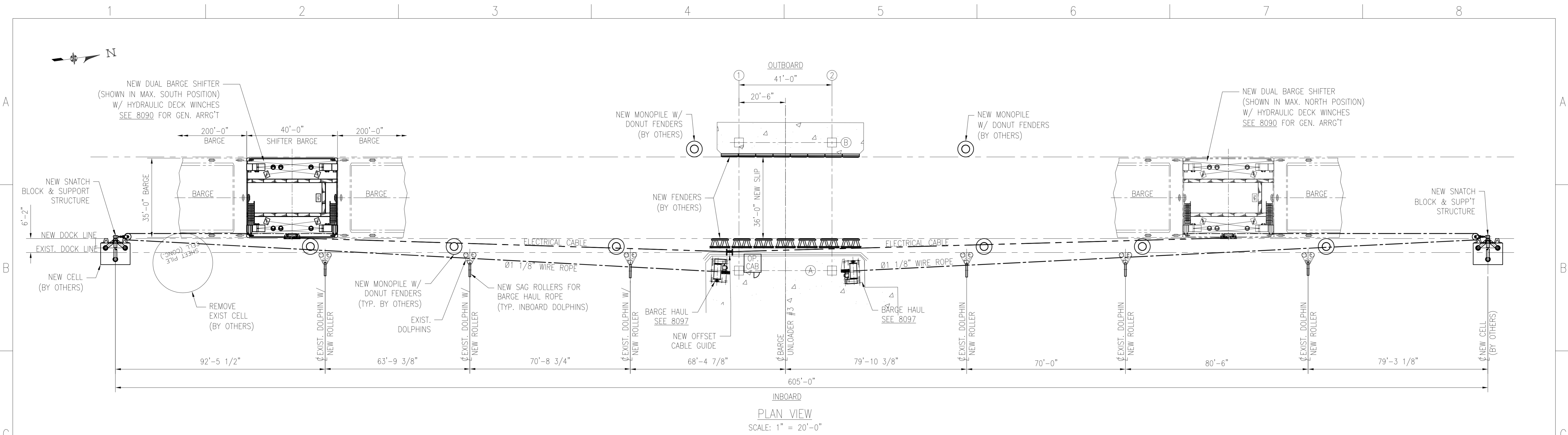
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GENERAL ARRANGEMENT OF DUAL BARGE SHIFTER SYSTEM
BU1 ANCHOR BOLT LOCATIONS & LOADS

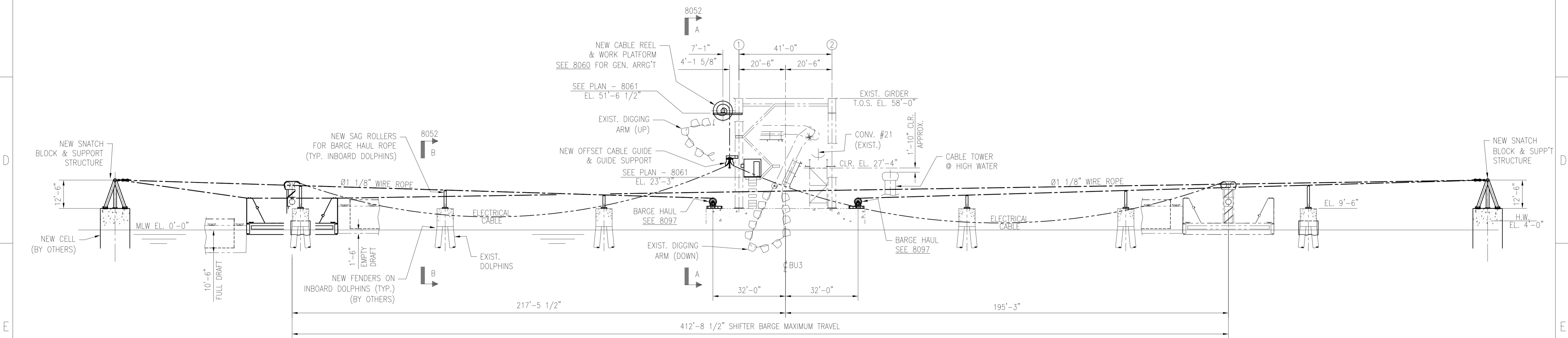
ALABAMA STATE PORT AUTHORITY
McDUFFIE ISLAND TERMINAL
MOBILE, AL.

S03828-8021

Rev. B



PLAN VIEW
SCALE: 1" = 20'-0"



GENERAL ARRANGEMENT OF BU3 BARGE SHIFTER SYSTEM
SCALE: 1" = 20'-0"

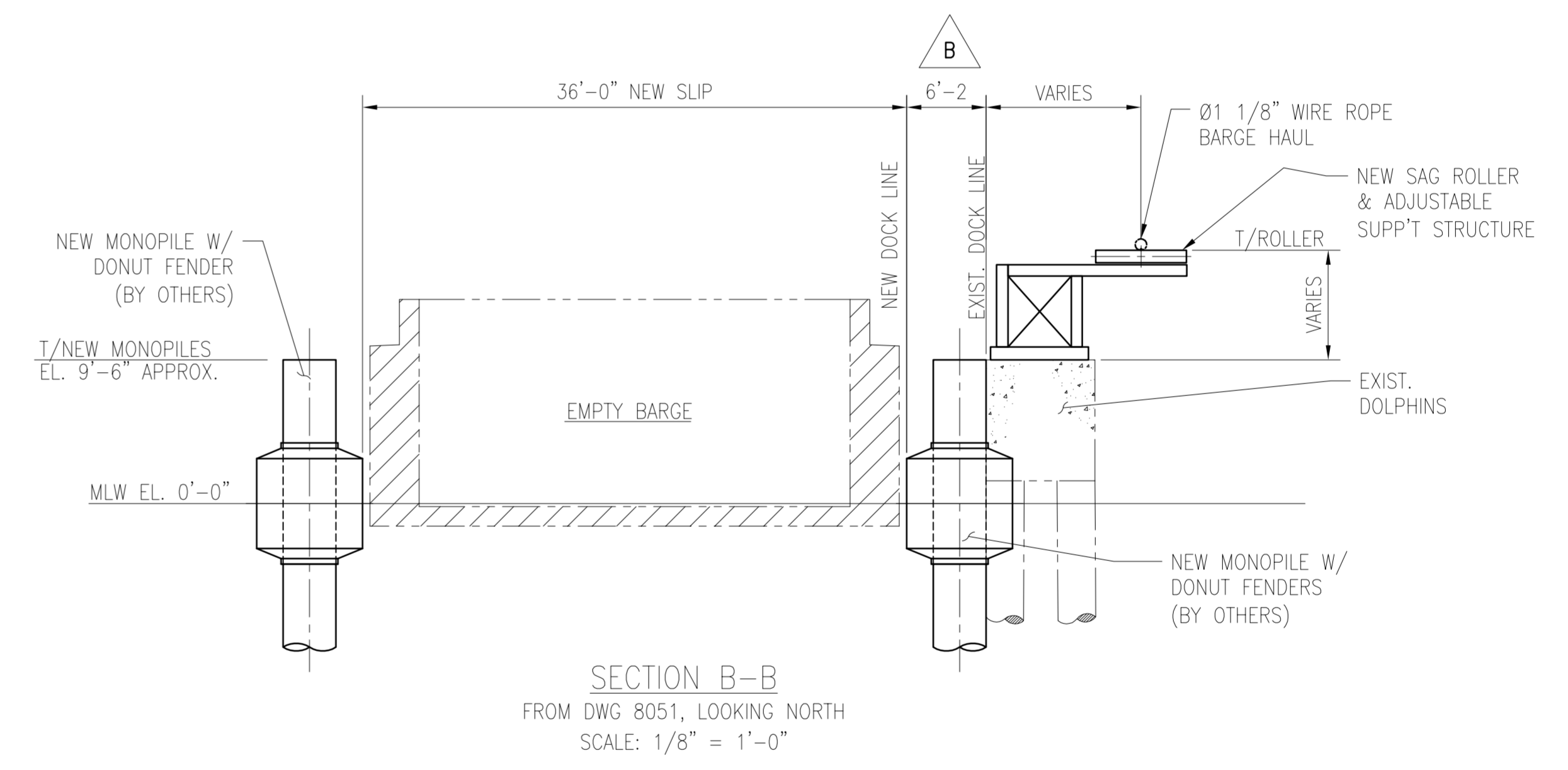
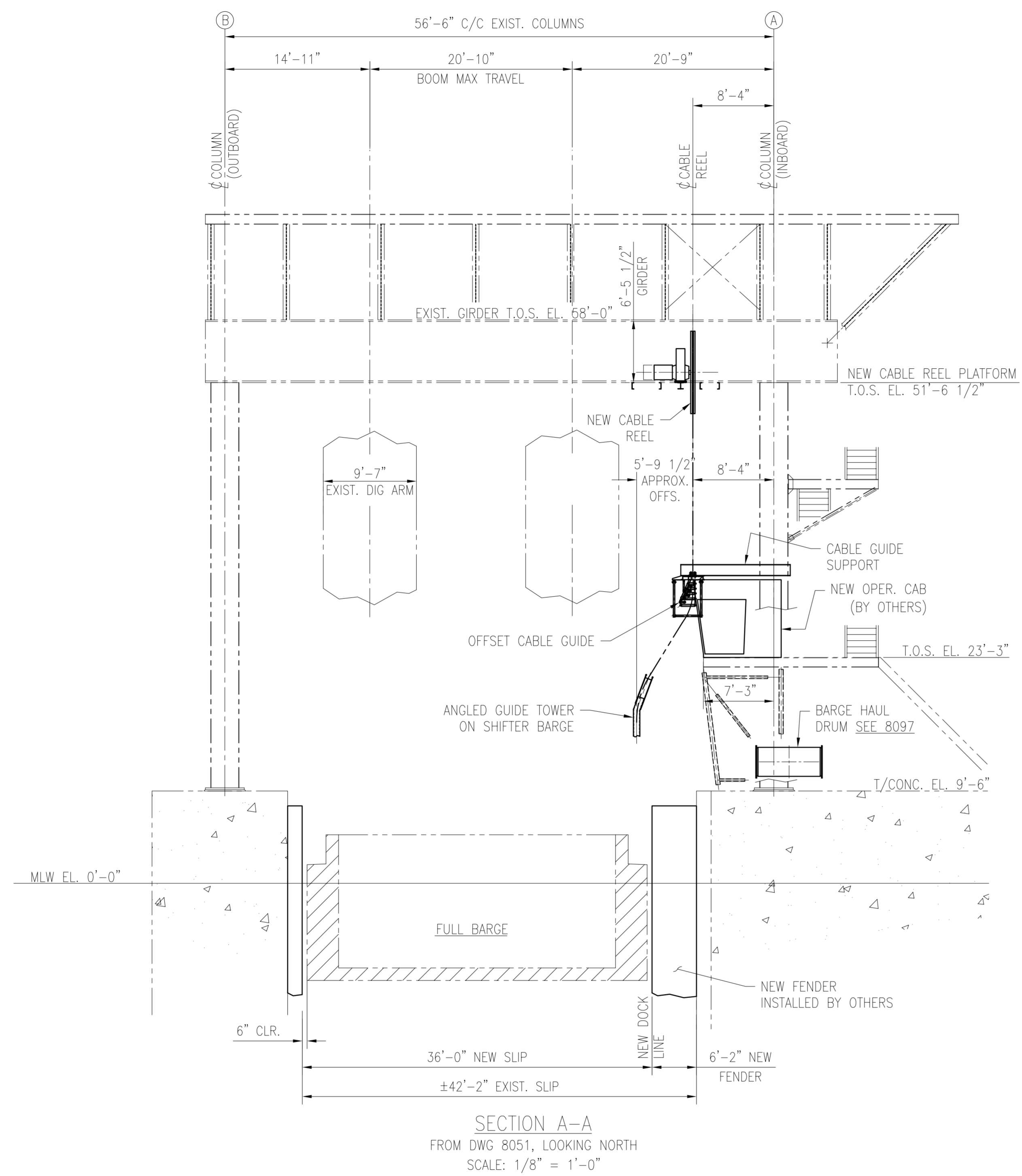
WORK THIS DRAWING WITH 8052, 8060

Richmond Engineering Works LLC
Pittsburgh, PA 15205

Rev.	Description	Date	Made	Chk'd	App'd
C	UPDATED FOR BID	11/03/23	DJT	-	-
B	PRELIMINARY FOR BID ONLY	09/29/23	DJT	-	-
A	PRELIMINARY FOR DESIGN REVIEW	08/11/23	DJT	KES	-

Drawn By: DJT	Checked: -	Approved: -	Scale: 1" = 20'
Date: 08/07/2023	Date: -	Date: -	
GENERAL ARRANGEMENT OF BU3 DUAL BARGE SHIFTER SYSTEM		ALABAMA STATE PORT AUTHORITY McDUFFIE ISLAND TERMINAL MOBILE, AL.	
		S03828-8051	Rev. C

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WORK THIS DRAWING WITH 8051, 8060

Richmond Engineering Works L.L.C.
Pittsburgh, PA 15205

Rev.	Description	Date	Made	Chk'd	App'd
C	UPDATED FOR BID	11/03/23	DJT	-	-
B	PRELIMINARY FOR BID ONLY	09/27/23	DJT	-	-
A	PRELIMINARY FOR DESIGN REVIEW	08/11/23	DJT	KES	-

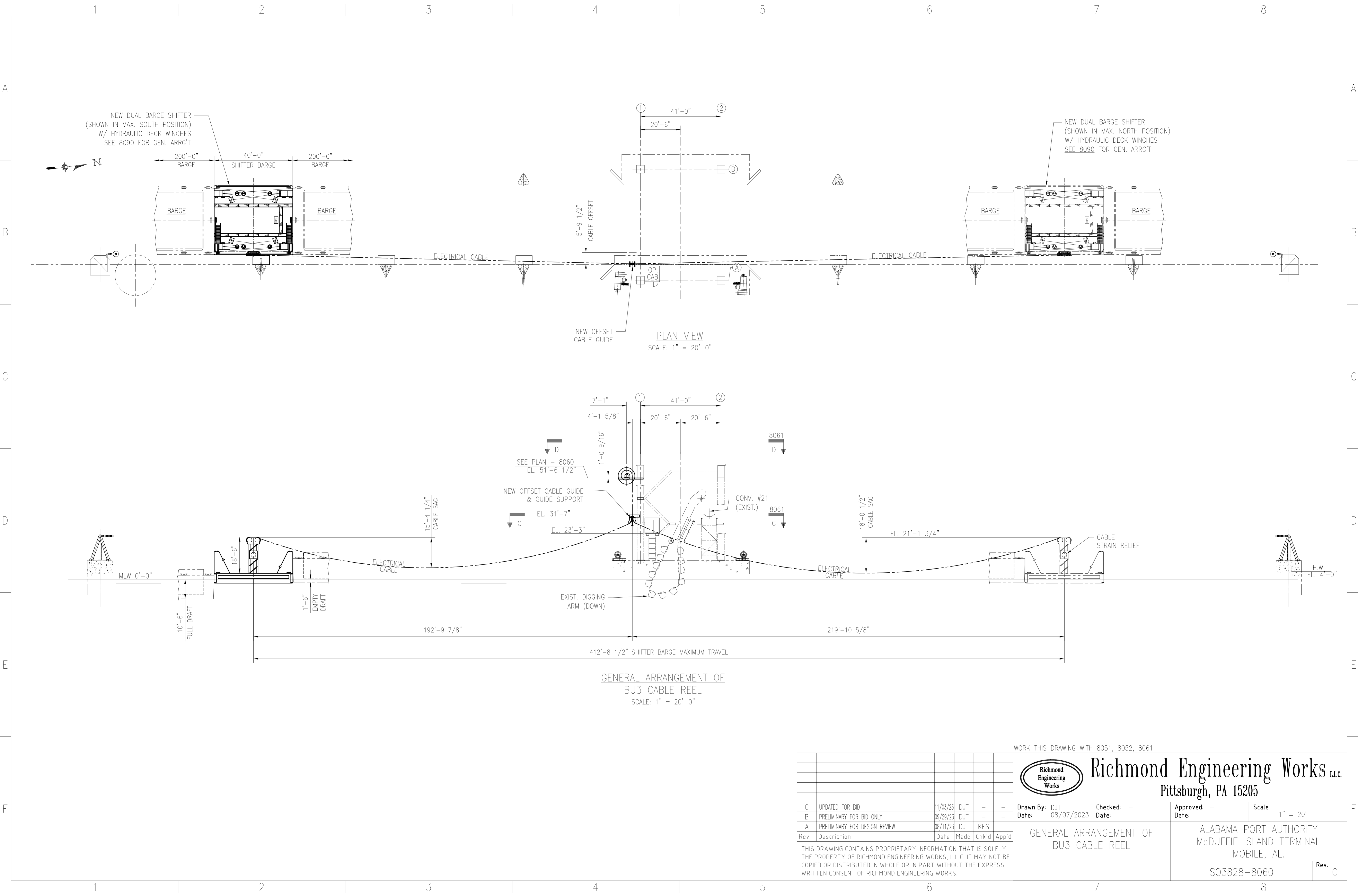
Drawn By: DJT Date: 08/07/2023
Checked: - Date: -
Approved: - Date: -
Scale: 1" = 20'

GENERAL ARRANGEMENT OF
BU3 DUAL BARGE
SHIFTER SYSTEM
SECTION VIEWS

ALABAMA STATE PORT AUTHORITY
McDUFFIE ISLAND TERMINAL
MOBILE, AL.

S03828-8052 Rev. C

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PLAN VIEW
SCALE: 1" = 20'-0"

GENERAL ARRANGEMENT OF
BU3 CABLE REEL
SCALE: 1" = 20'-0"

WORK THIS DRAWING WITH 8051, 8052, 8061


Richmond Engineering Works LLC.
 Pittsburgh, PA 15205

Rev.	Description	Date	Made	Chk'd	App'd
C	UPDATED FOR BID	11/03/23	DJT	-	-
B	PRELIMINARY FOR BID ONLY	09/29/23	DJT	-	-
A	PRELIMINARY FOR DESIGN REVIEW	08/11/23	DJT	KES	-

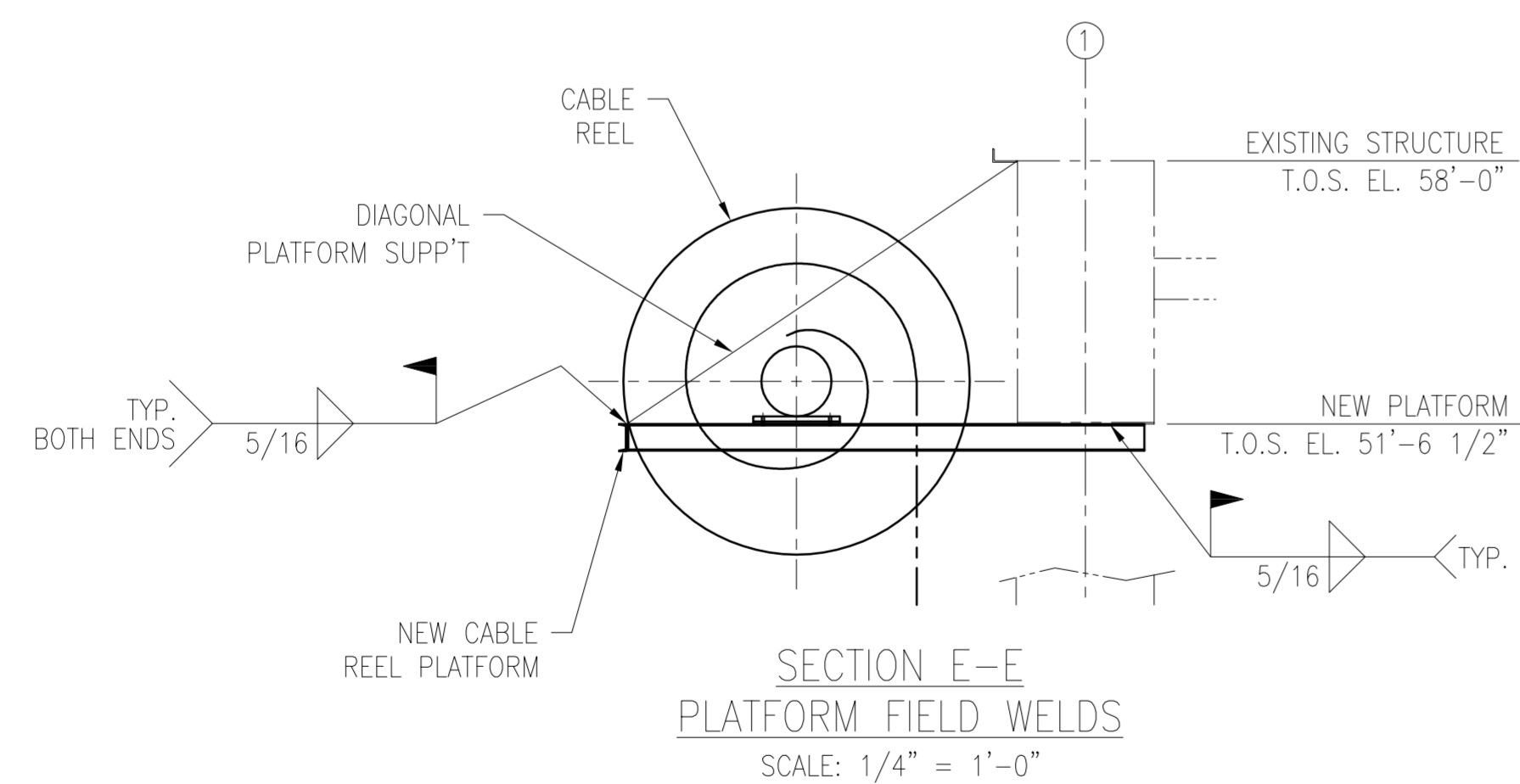
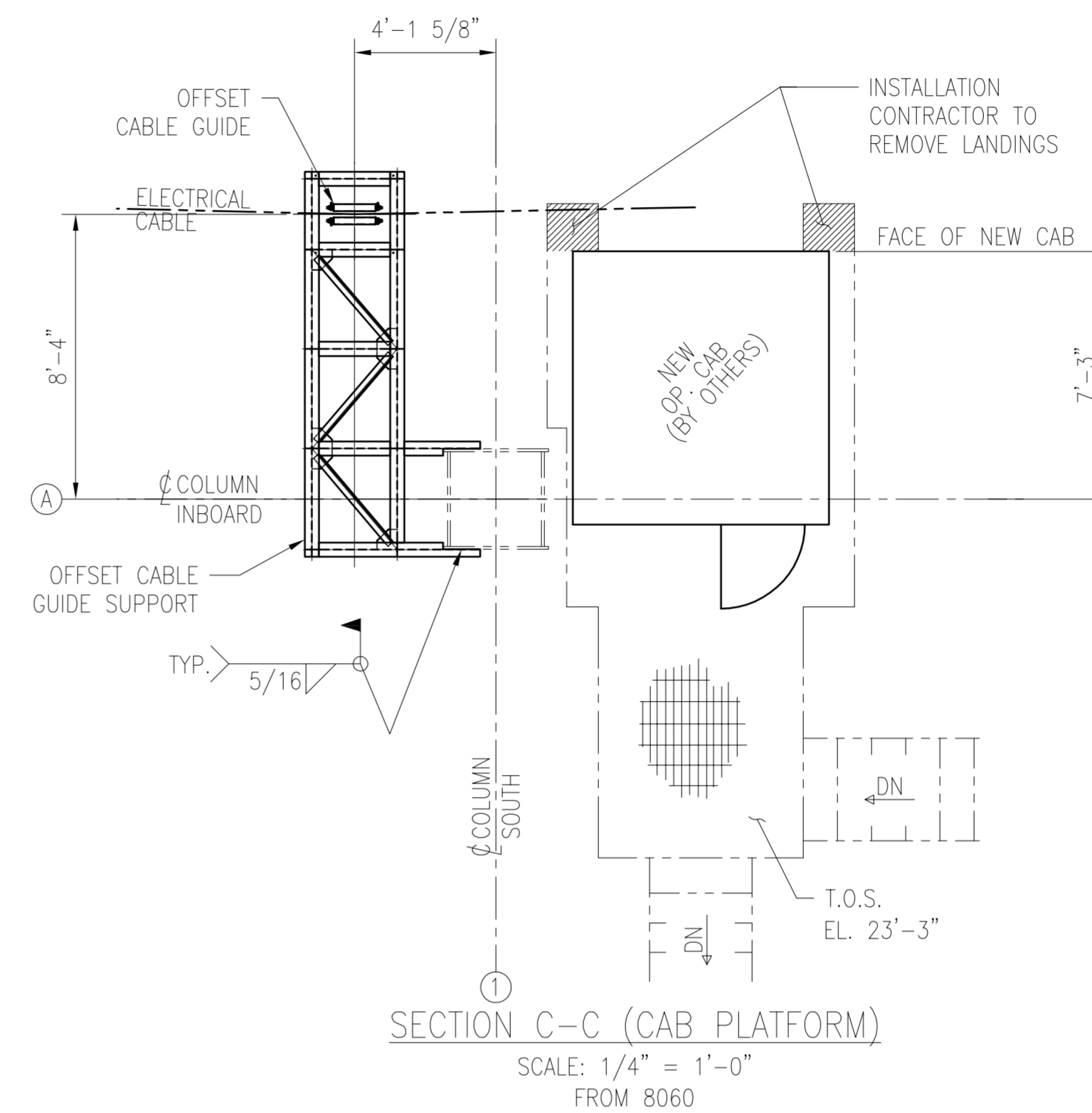
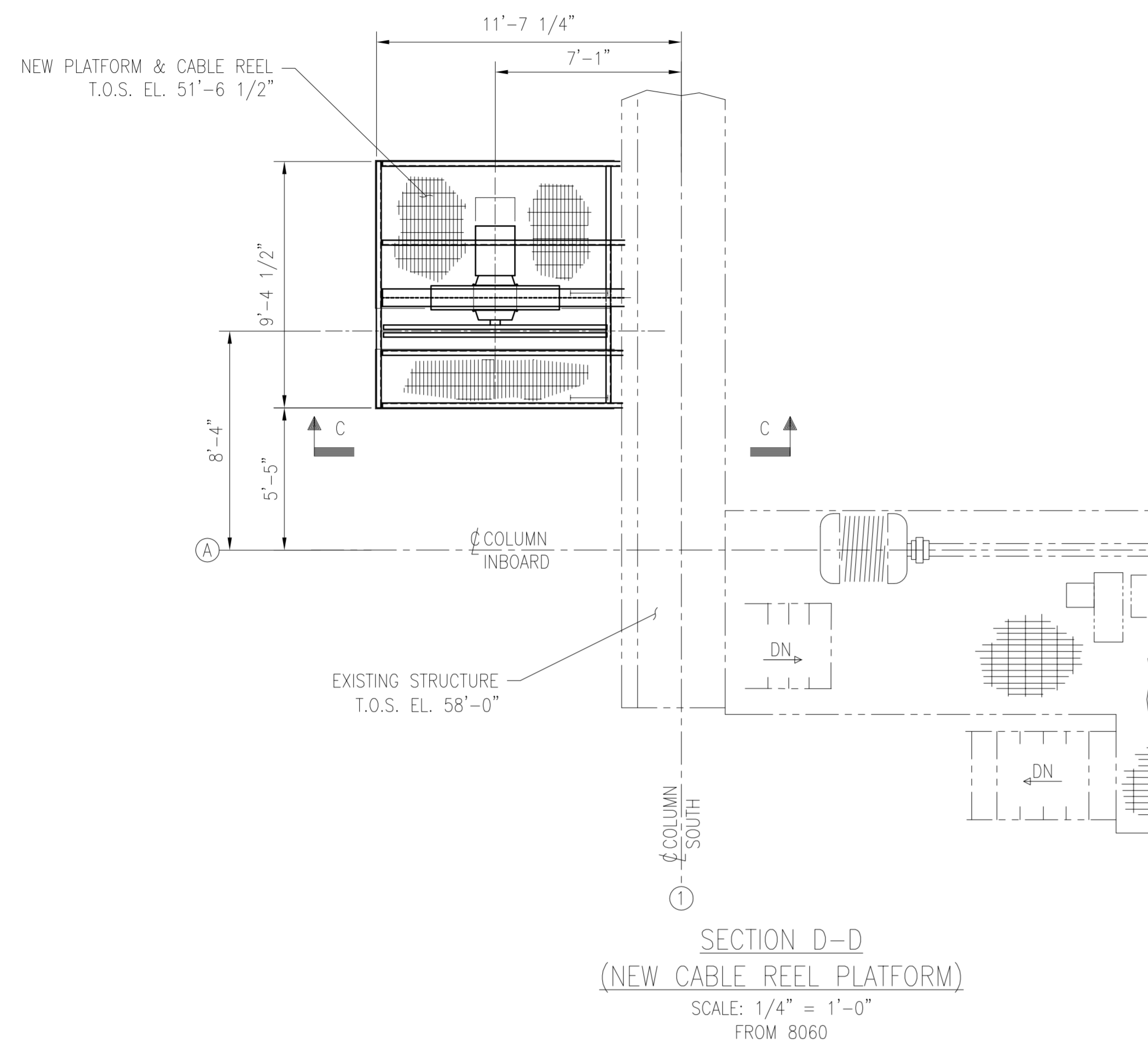
Drawn By: DJT	Checked: -	Approved: -	Scale: 1" = 20'
Date: 08/07/2023	Date: -	Date: -	

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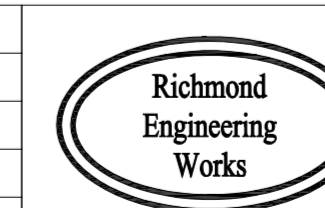
GENERAL ARRANGEMENT OF
BU3 CABLE REEL

ALABAMA PORT AUTHORITY
McDUFFIE ISLAND TERMINAL
MOBILE, AL.

S03828-8060 Rev. C



WORK THIS DRAWING WITH 8060



Richmond Engineering Works LLC.
Pittsburgh, PA 15205

Rev.	Description	Date	Made	Chk'd	App'd
B	UPDATED FOR BID	11/03/23	DJT	-	-
A	PRELIMINARY FOR BID ONLY	09/29/23	DJT	KES	-

Drawn By: DJT
Date: 09/29/23

Checked: -
Date: -

Approved: -
Date: -

Scale: 1/4" = 1'-0"

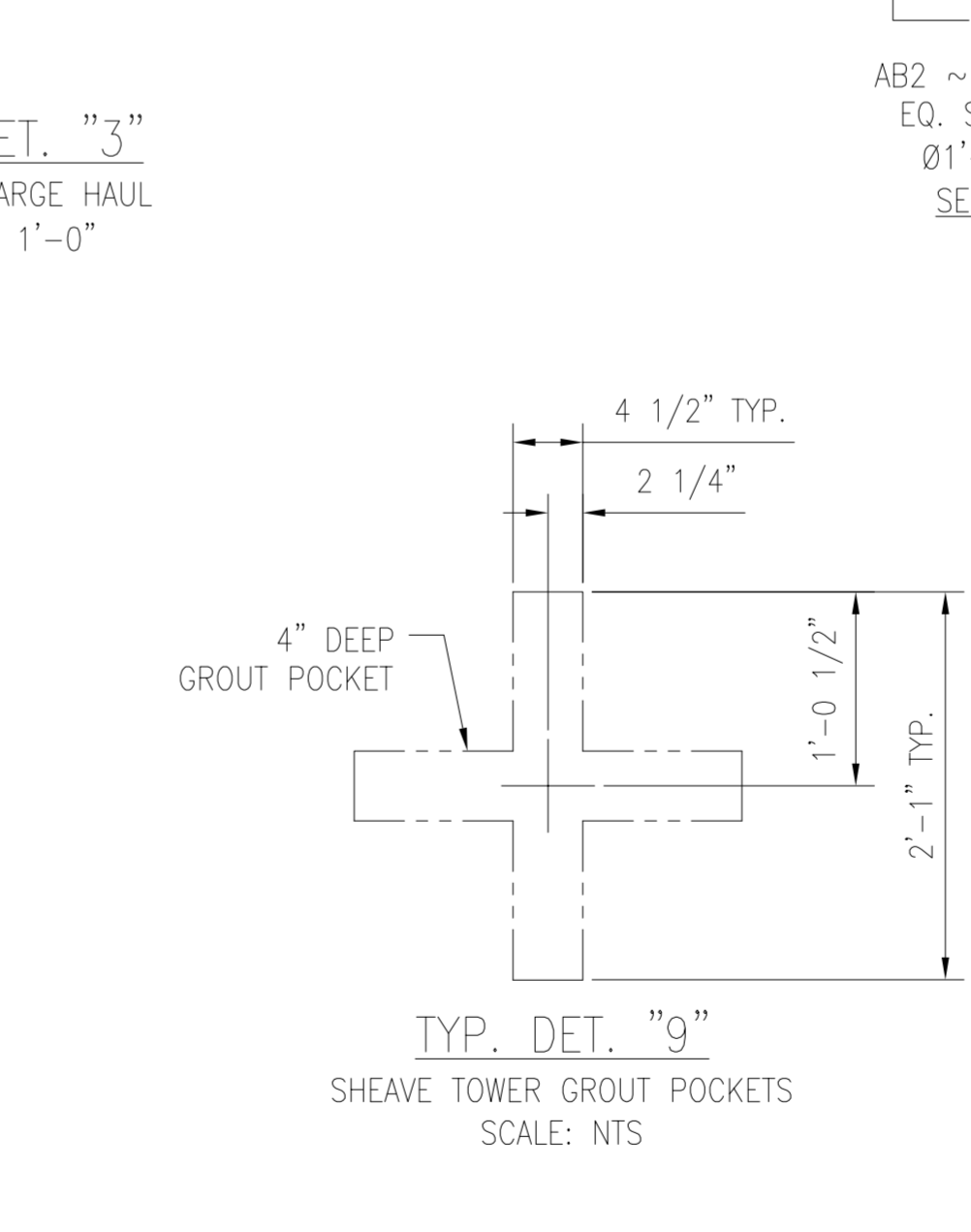
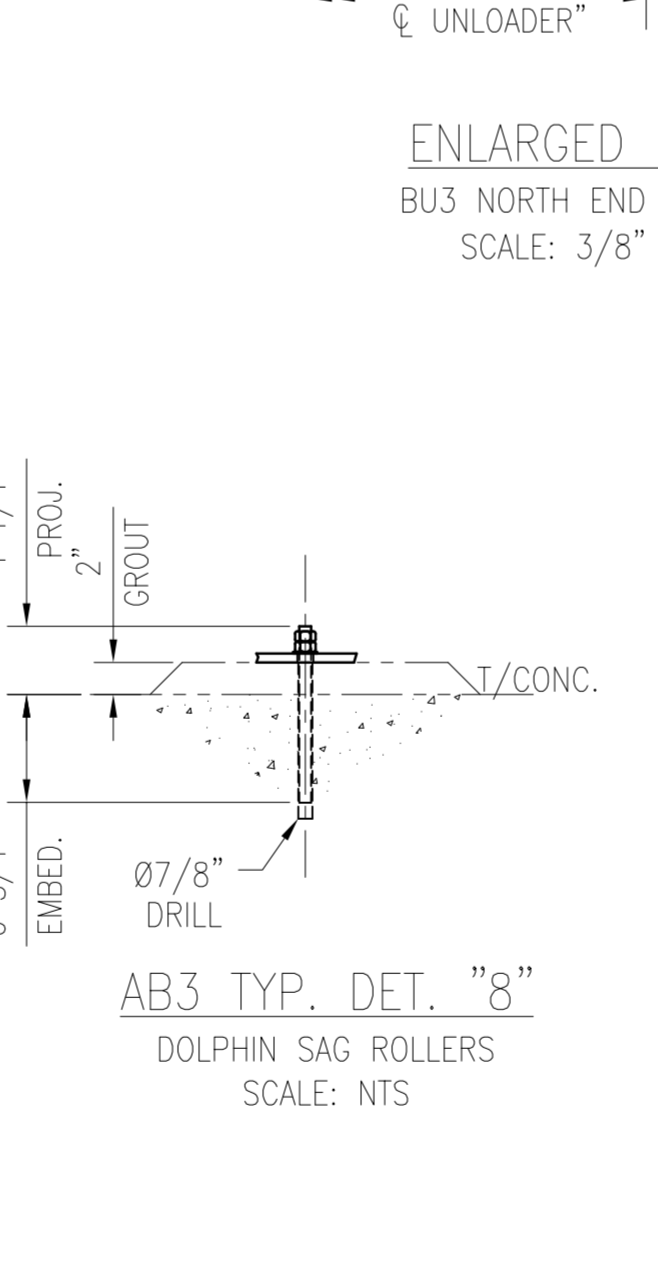
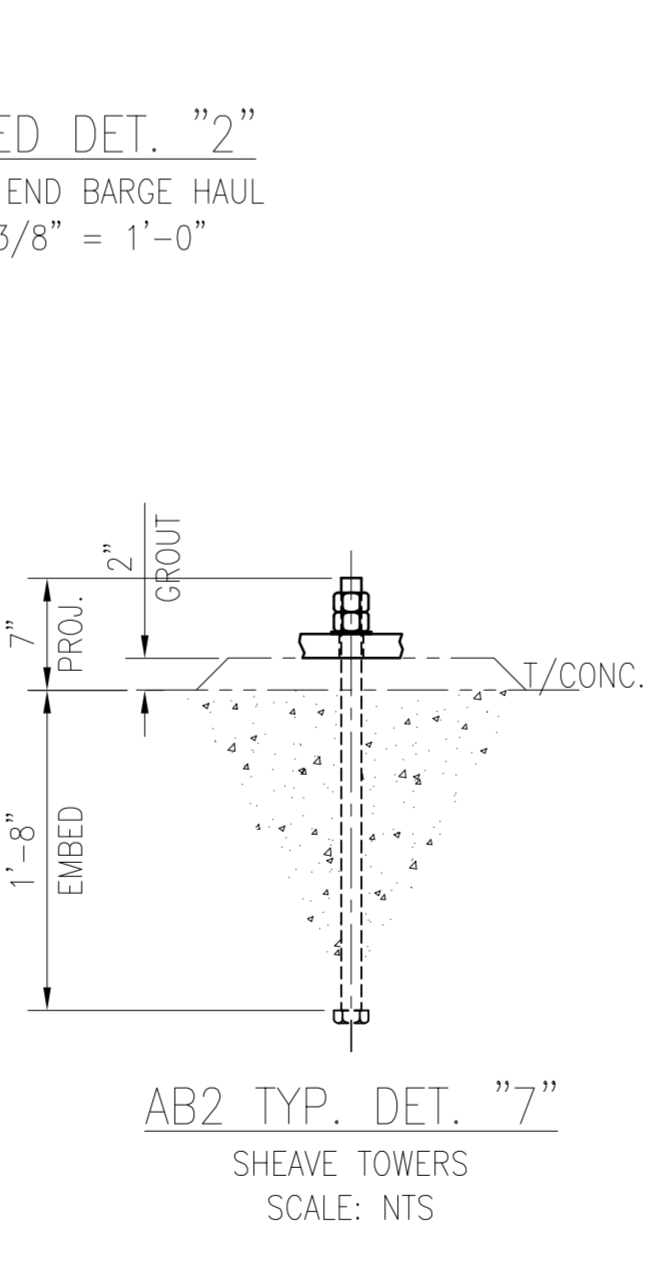
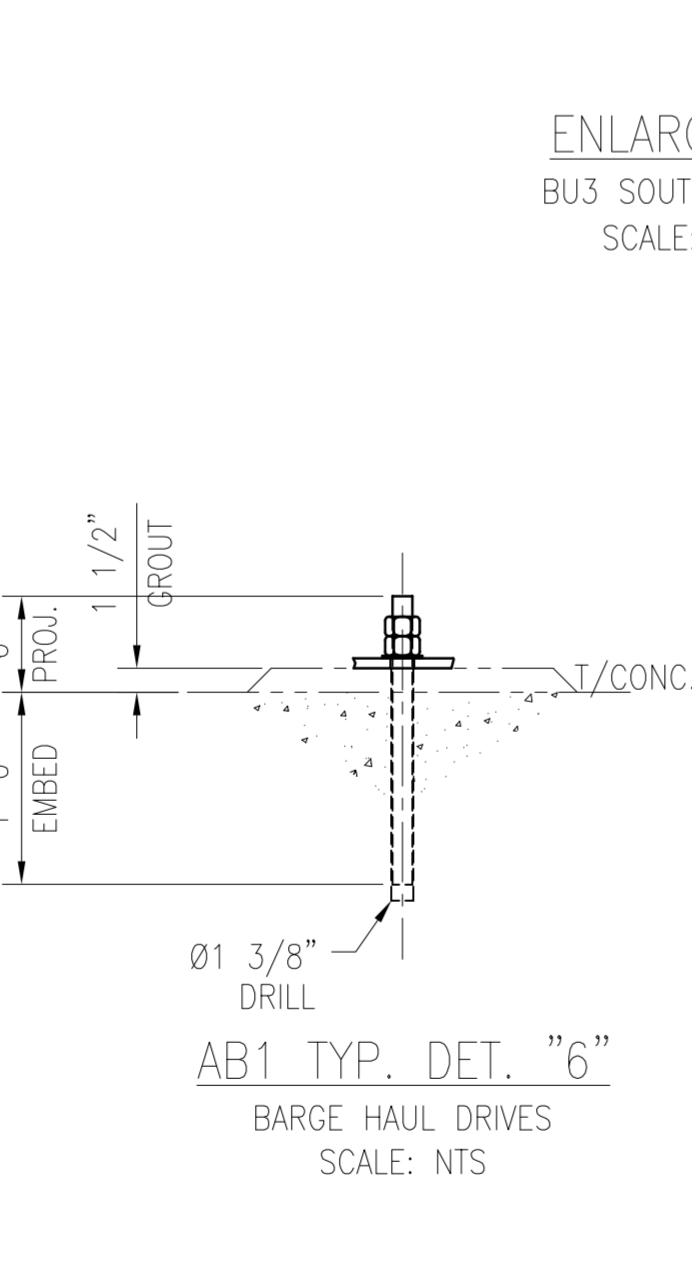
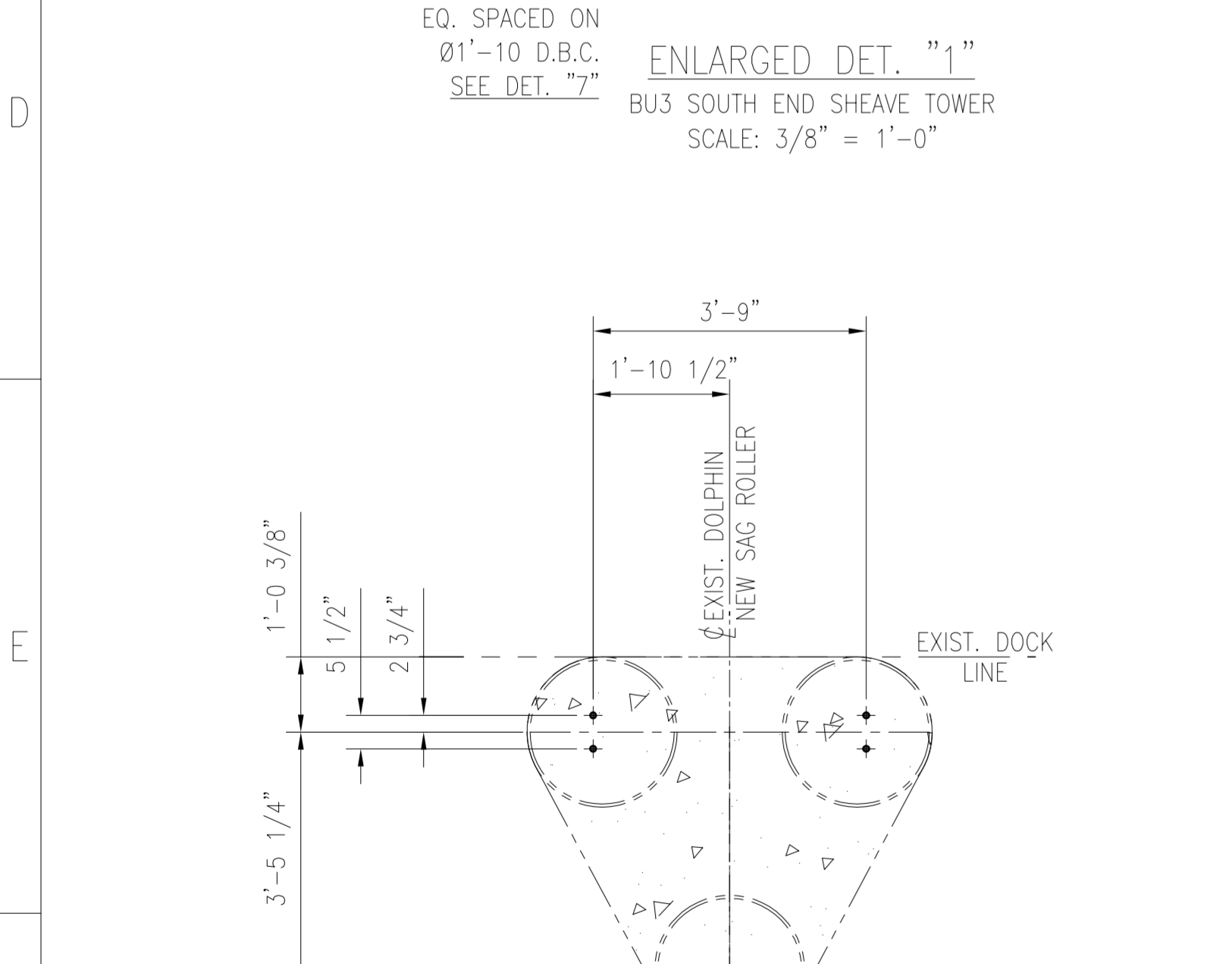
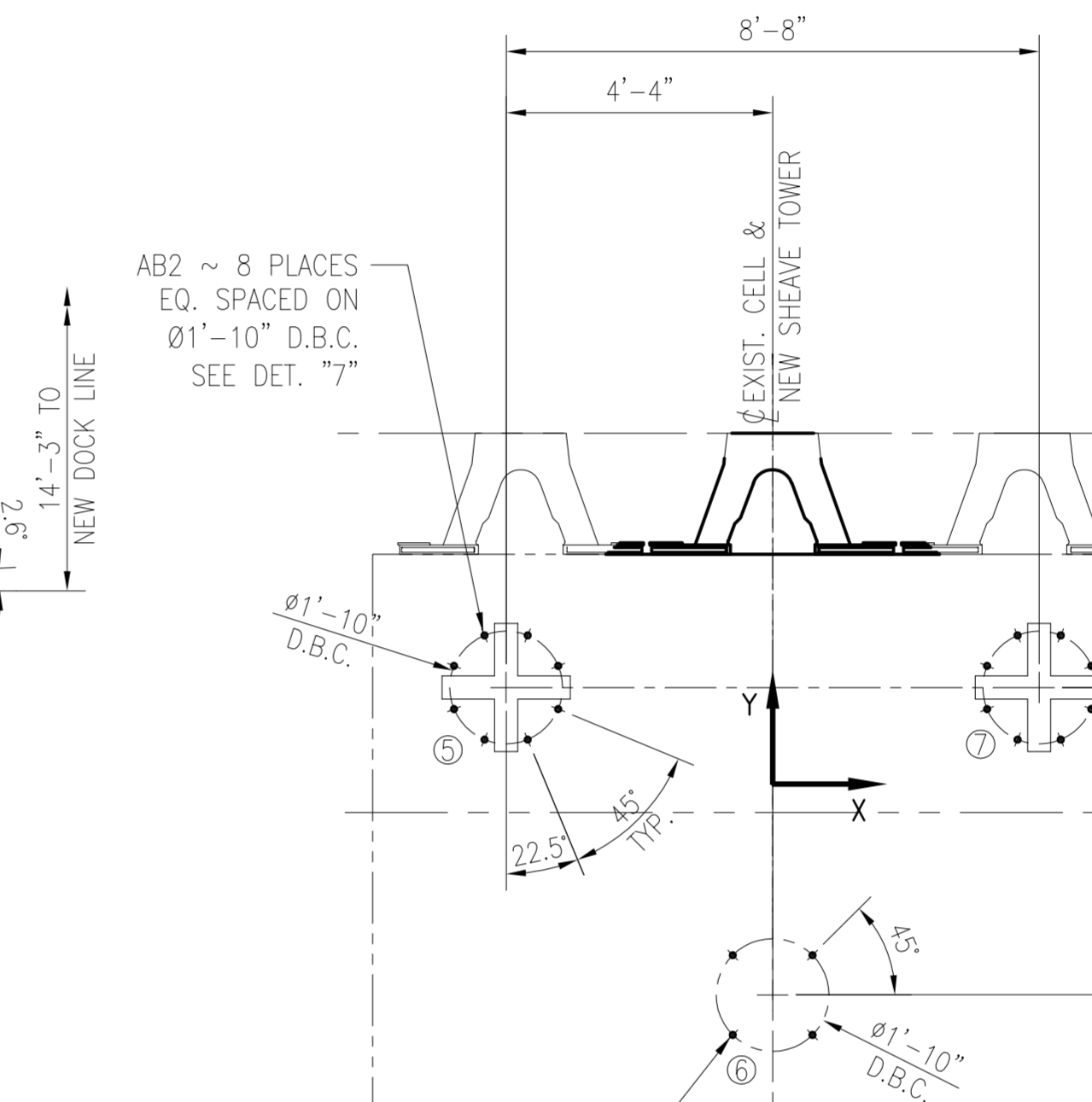
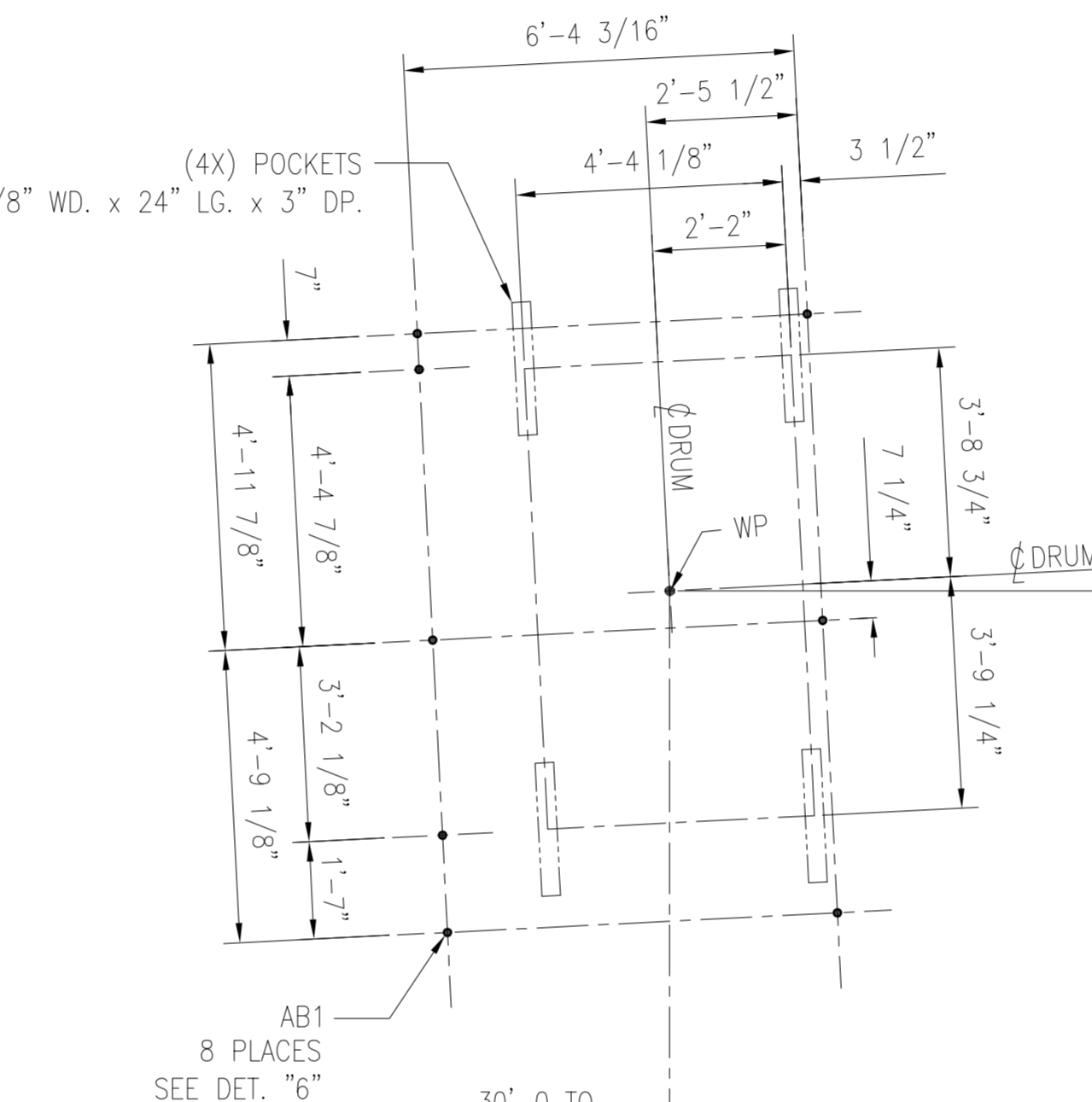
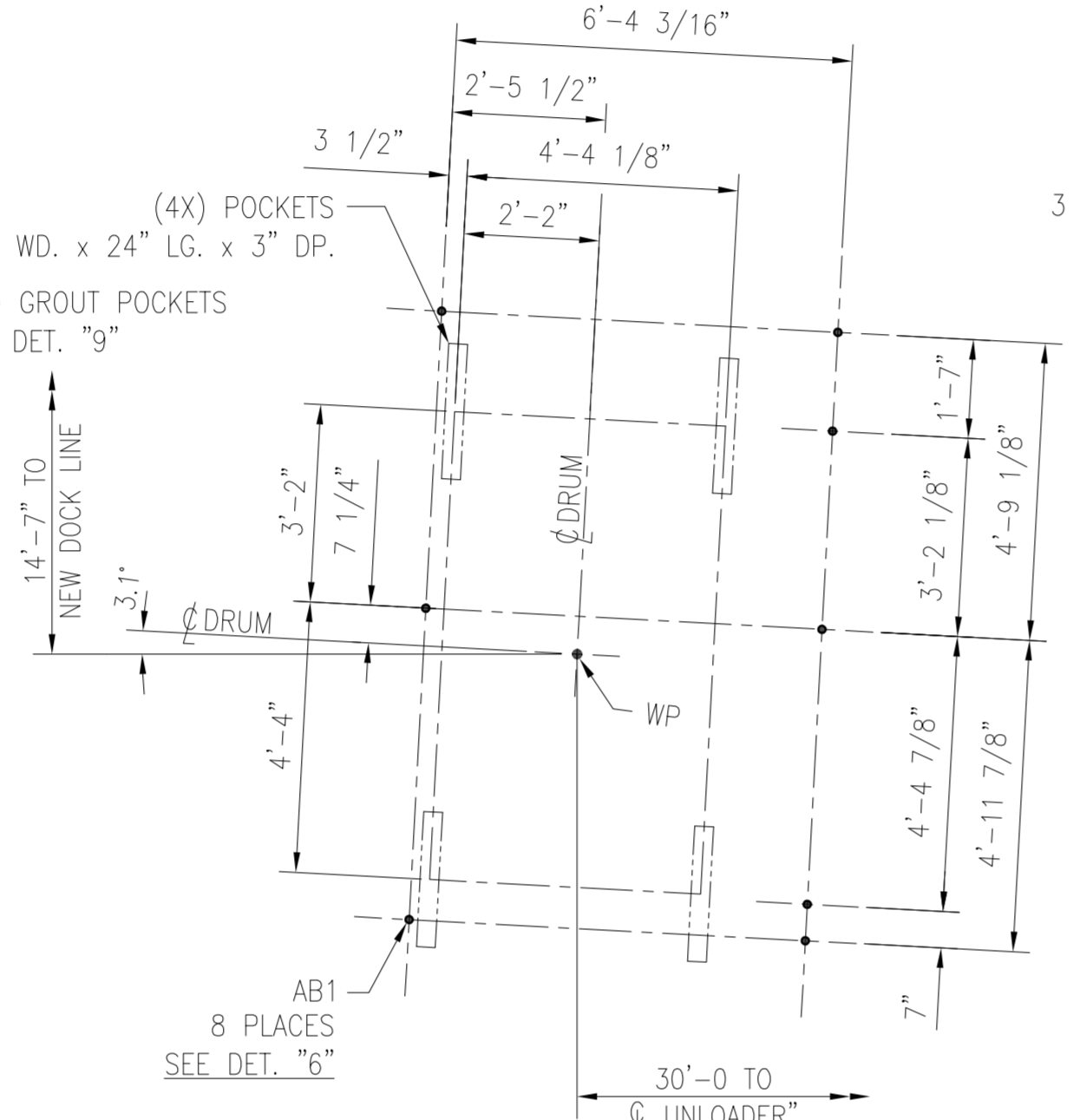
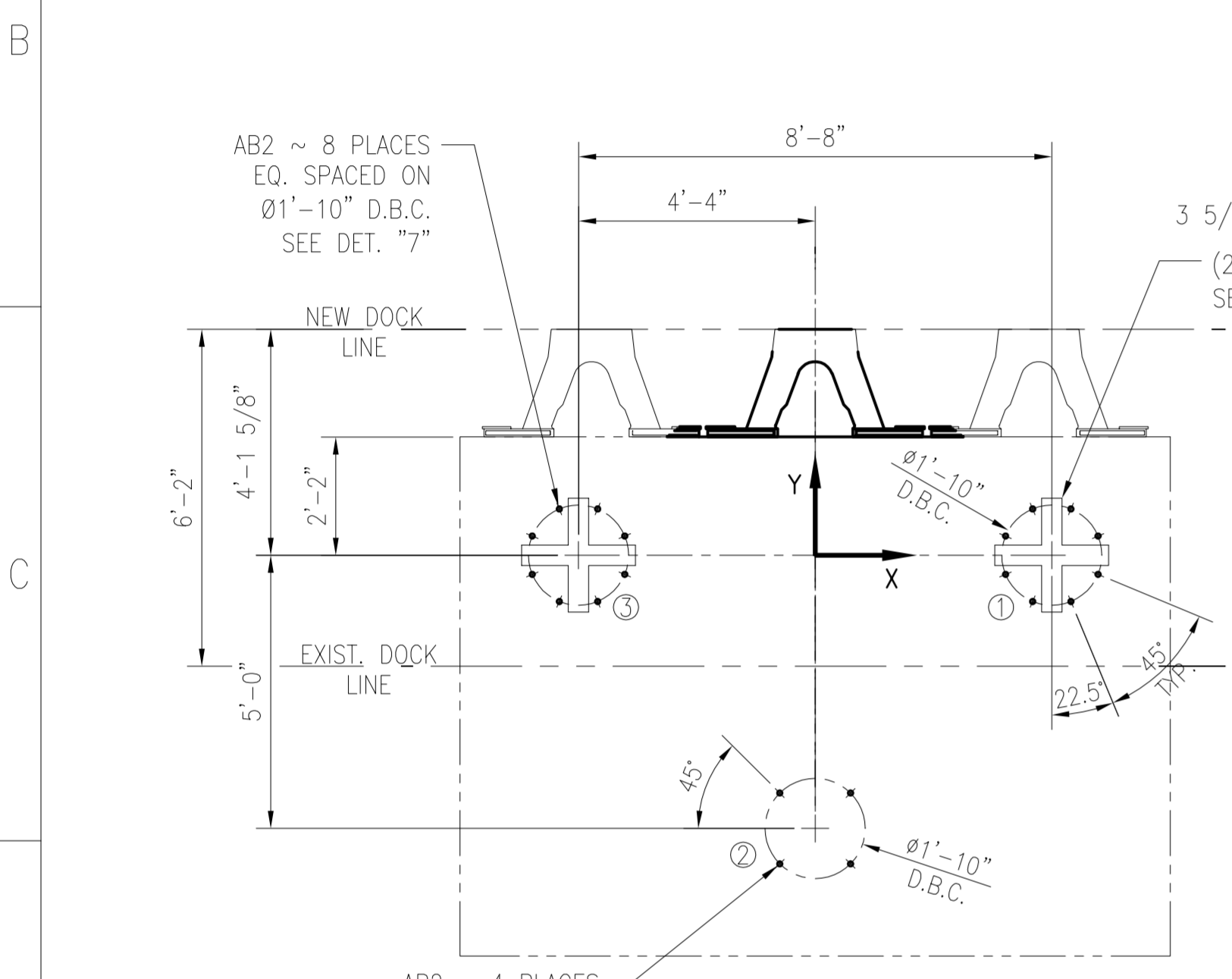
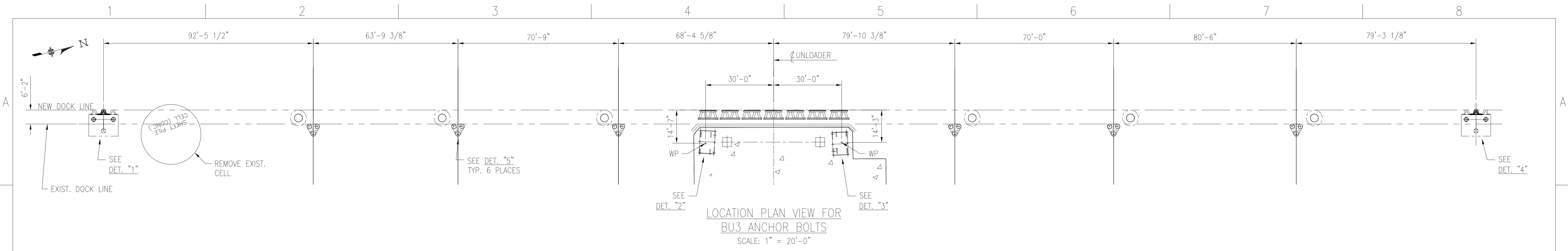
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GENERAL ARRANGEMENT OF
BU3 CABLE REEL
SECTION VIEWS

ALABAMA STATE PORT AUTHORITY
McDUFFIE ISLAND TERMINAL
MOBILE, AL.

S03828-8061

Rev. B



LOAD TABLE - DET. "1"

	X	Y	Z
①	43.0	-35.0	-120.0
②	0.0	5.0	-9.0
③	37.0	30.0	105.0

LOAD TABLE - DET. "4"

	X	Y	Z
⑤	-43.0	-35.0	-120.0
⑥	0.0	5.0	-9.0
⑦	-37.0	30.0	105.0

ANCHOR BOLT REQUIREMENTS

MARK	NO.	REQ'D.	DIA.	EMBED.	PROJ.	LOCATION
AB1	16		1 1/4"	12"	6"	BARGE HAUL DRIVE BASES
AB2	40		1"	20"	7"	SHEAVE TOWER (NORTH & SOUTH CELLS)
AB3	30		3/4"	6 3/4"	4 1/4"	DOLPHIN SAG ROLLERS (TYP.)

DESCRIPTION:

AB1 (16) HILTI HAS SUPER THRD. ROD A193, B7 - Ø1 1/4" x 31 3/4" LG. W/ 1/2" PLATE WASHER, FLAT WASHER, & (2X) HEX NUTS. ADHESIVE - HIT RES00V3

AB2 (40) Ø1" x 27" LG. F1554 GRADE 55 HEADED BOLTS W/ FLAT WASHER & (2X) HEX NUTS

AB3 (30) HILTI HAS SUPER THRD. ROD A193, B7 - Ø3/4" x 11" LG. W/ FLAT WASHER & 2 HEX NUTS. ADHESIVE - HIT RES00V3

- NOTES:
- FORCES ARE APPLIED FORCES
 - POSITIVE "Z" VALUES ARE TENSION REACTIONS
 - UNITS ARE IN KIPS
 - ANCHOR LOCATIONS ③ & ⑦ REQUIRE TENSILE ANCHORAGE REINFORCEMENT TO SATISFY CONCRETE BREAKOUT STRENGTH IN TENSION.
 - ANCHOR LOCATIONS 1, 3, ⑤, & ⑦ REQUIRE SHEAR ANCHORAGE REINFORCEMENT TO SATISFY CONCRETE BREAKOUT STRENGTH OF ANCHORS IN SHEAR
 - ALL LOADS SHOWN ARE UNFACTORED

Rev.	Description	Date	Made	Chk'd	App'd
C	CORRECTED NOTES	11/06/23	DJT	-	-
B	UPDATED FOR BID	11/02/23	DJT	-	-
A	FOR BID ONLY	09/29/23	DJT	-	-

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Richmond Engineering Works LLC
Pittsburgh, PA 15205

Richmond Engineering Works

Drawn By: DJT
Date: 09/15/23

Checked: -
Date: -

Approved: -
Date: -

Scale: 1'=1'

GENERAL ARRANGEMENT OF DUAL BARGE SHIFTER SYSTEM
BU3 ANCHOR BOLT LOCATIONS & LOADS

ALABAMA STATE PORT AUTHORITY
McDUFFIE ISLAND TERMINAL
MOBILE, AL.

S03828-8071

Rev. C

A

B

C

D

E

F

A

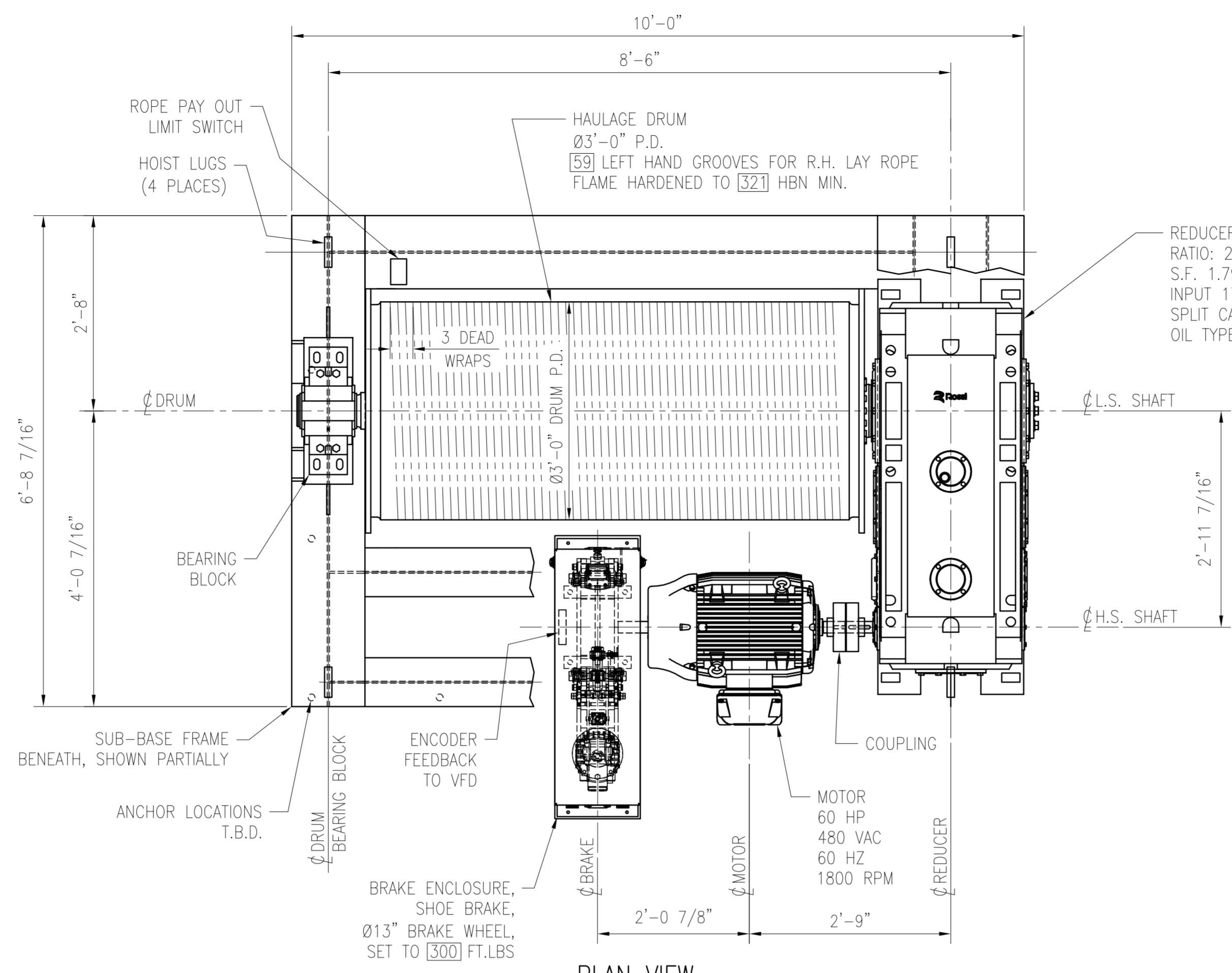
B

C

D

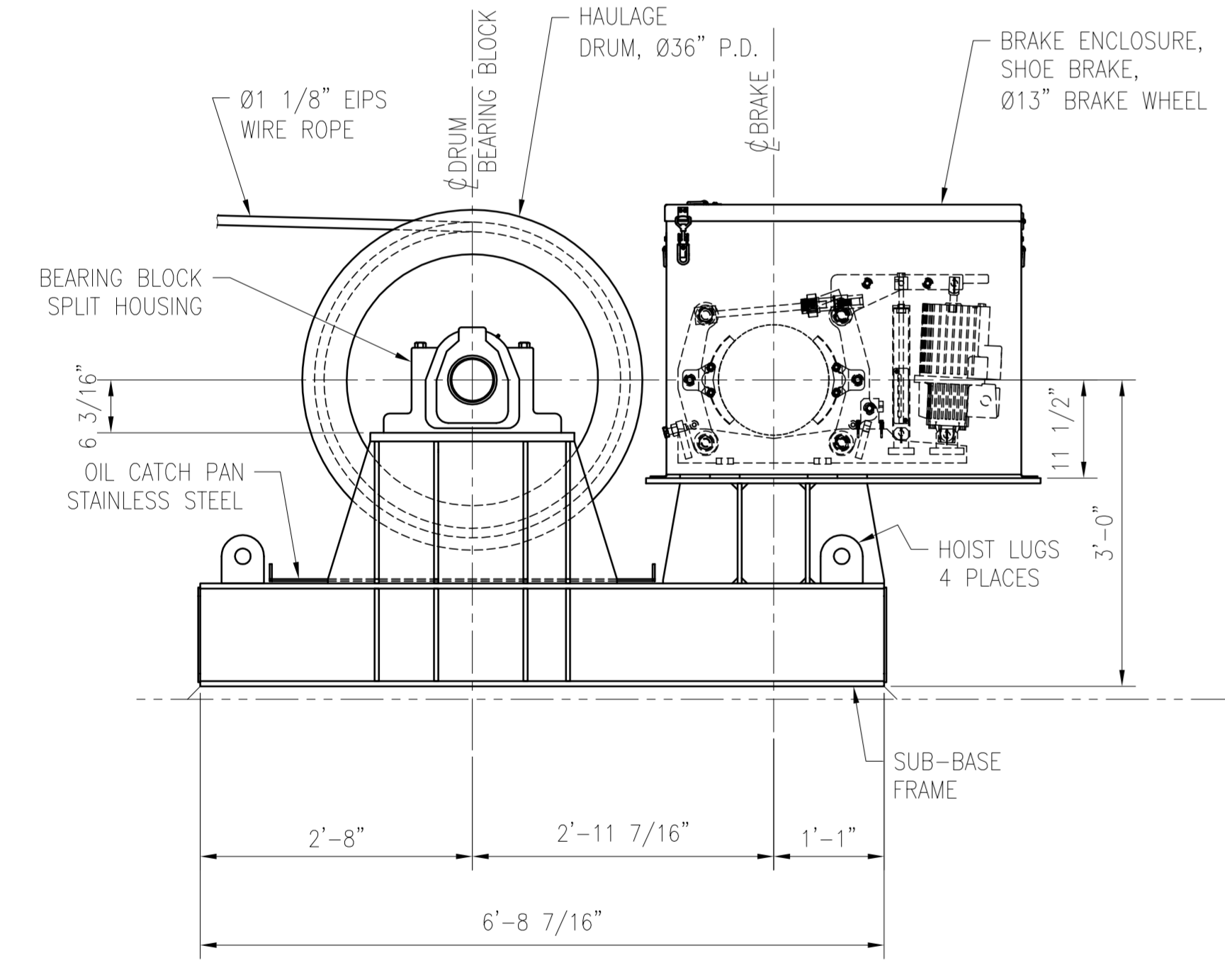
E

F

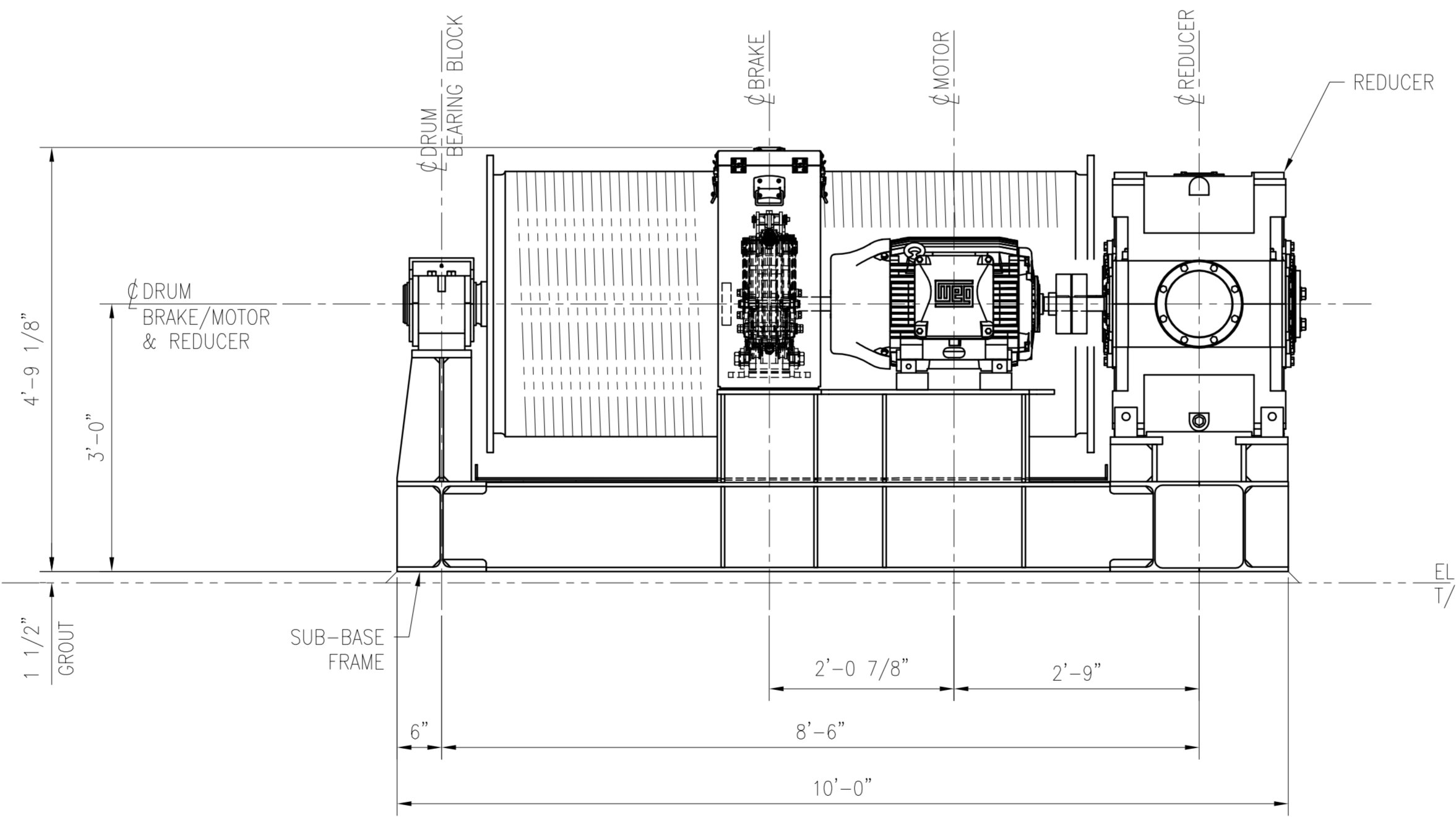


- NOTES:**
1. (4X) IDENTICAL HAULAGE DRIVES REQUIRED
 2. (2X) REQ'D FOR BU1, (2X) REQ'D FOR BU3
 3. APPROX. ASSEMBLY WEIGHT = 17,000 LBS

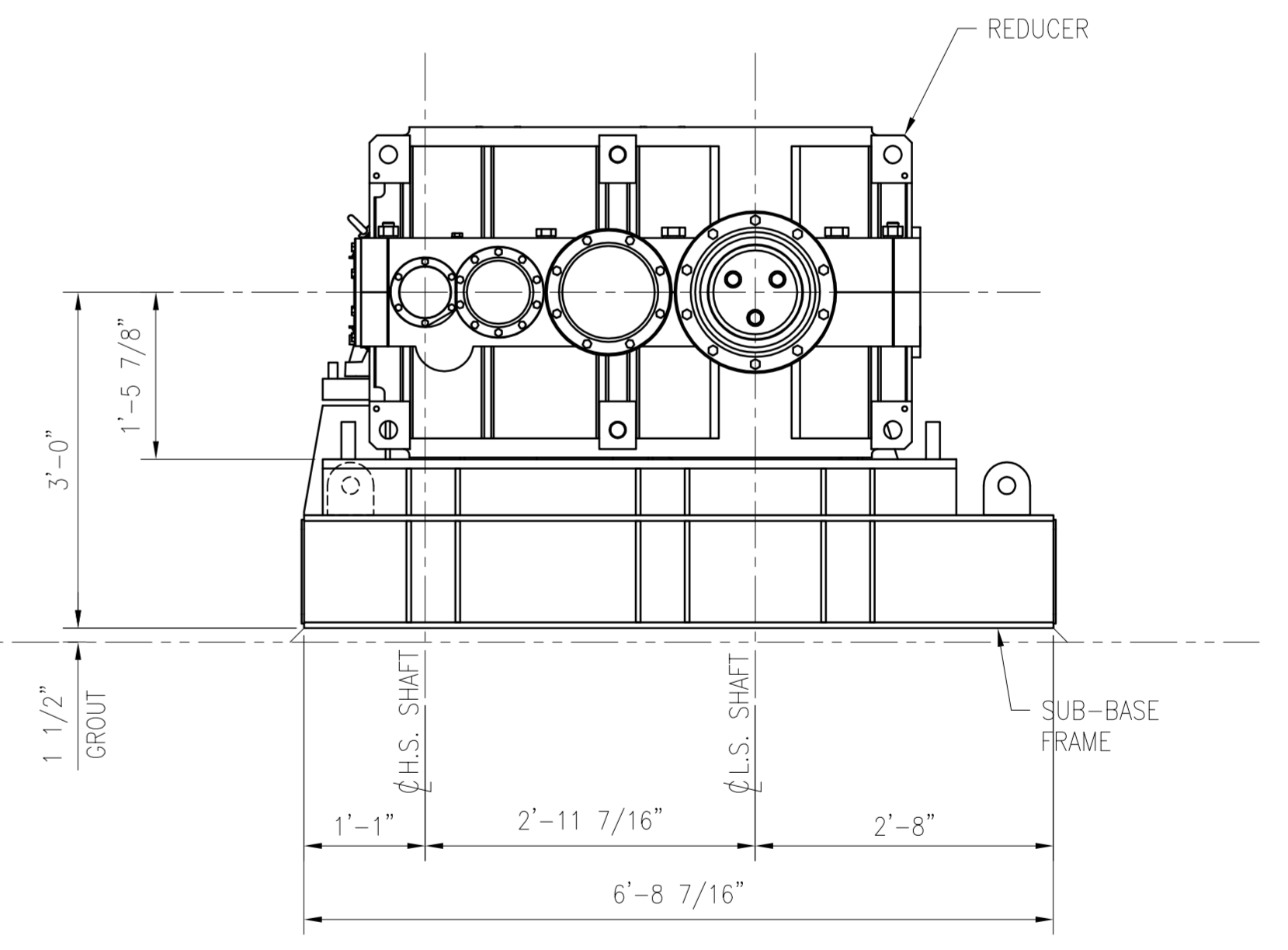
PLAN VIEW
SCALE: 3/4" = 1'-0"



END VIEW
SCALE: 3/4" = 1'-0"




GENERAL ARRANGEMENT OF BARGE HAULAGE DRIVE ASSEMBLY ELEVATION VIEW
SCALE: 3/4" = 1'-0"



END VIEW
SCALE: 3/4" = 1'-0"

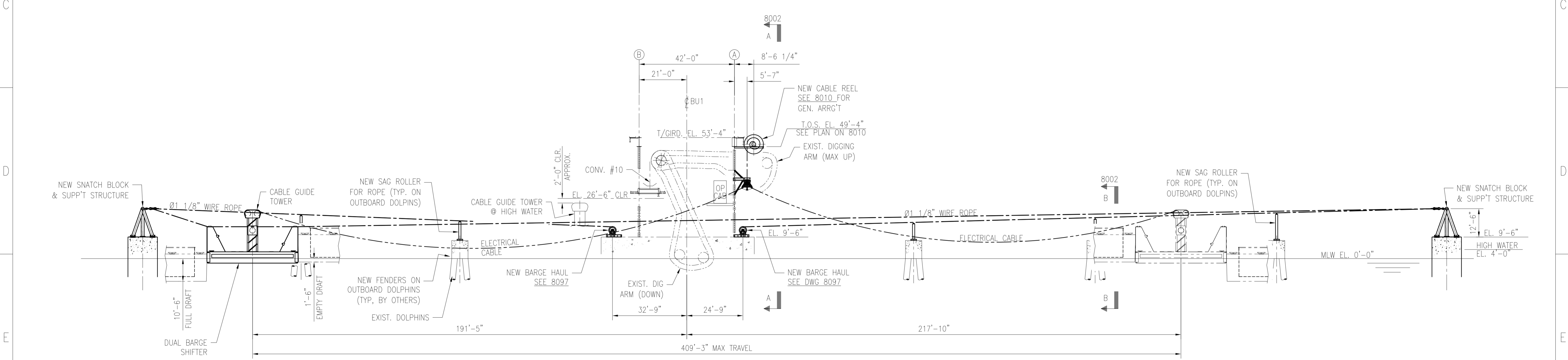
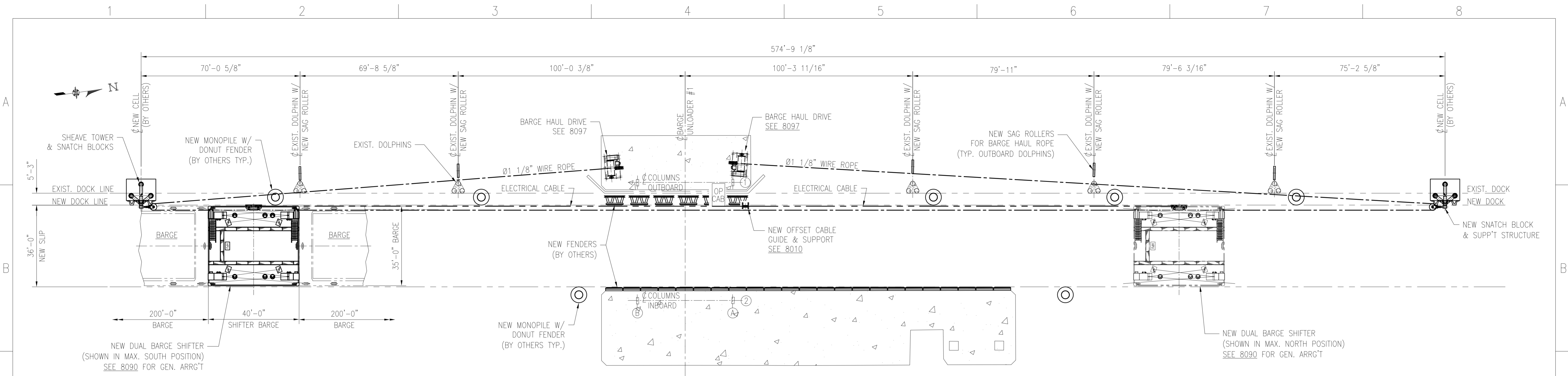
Rev	Description	Date	Made	Chk'd	App'd
A	PRELIMINARY FOR DESIGN REVIEW	08/14/23	DJT	KES	-

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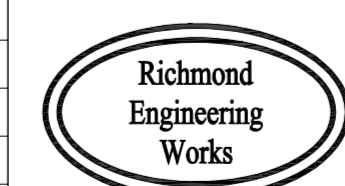


Richmond Engineering Works L.L.C.
Pittsburgh, PA 15205

Drawn By: DJT Date: 08/11/2023	Checked: - Date: -	Approved: - Date: -	Scale: 1" = 20'
GENERAL ARRANGEMENT OF BARGE HAULAGE DRIVE ASSEMBLY FOR BU1 & BU3		ALABAMA PORT AUTHORITY McDUFFIE ISLAND TERMINAL MOBILE, AL.	
		S03828-8097	Rev. A



WORK THIS DRAWING WITH DWG 8002, 8010

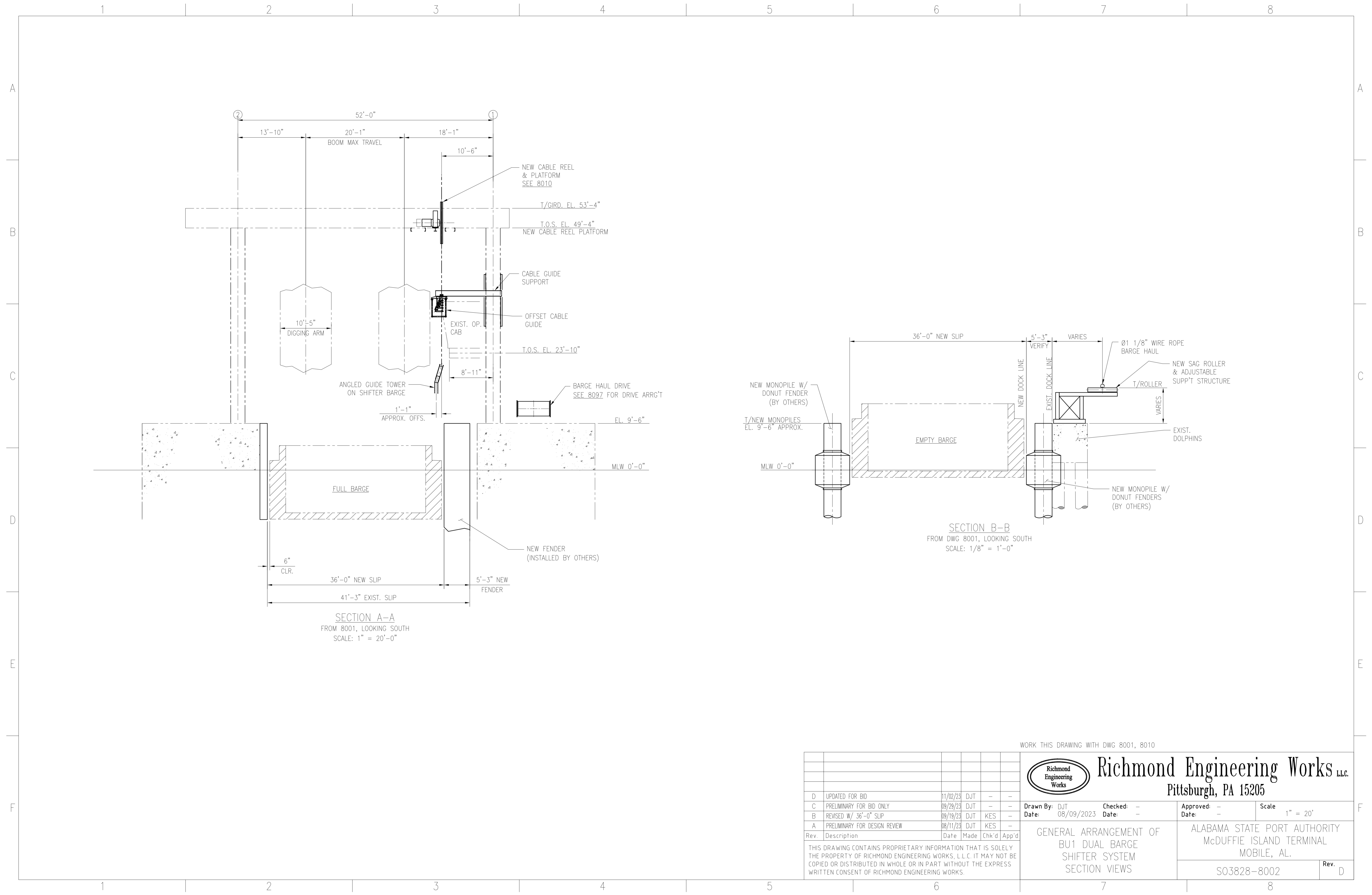


Richmond Engineering Works LLC.
Pittsburgh, PA 15205

Rev.	Description	Date	Made	Chk'd	App'd
D	UPDATED FOR BID	11/02/23	DJT		
C	FOR BID ONLY	09/28/23	DJT		
B	REVISED W/ 36'-0" SLIP	09/19/23	DJT	KES	
A	PRELIMINARY FOR DESIGN REVIEW	08/11/23	DJT	KES	

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Drawn By: DJT	Checked: -	Approved: -	Scale: 1" = 20'
Date: 08/09/2023	Date: -	Date: -	
GENERAL ARRANGEMENT OF BU1 DUAL BARGE SHIFTER SYSTEM		ALABAMA STATE PORT AUTHORITY McDUFFIE ISLAND TERMINAL MOBILE, AL.	
		S03828-8001	Rev. D

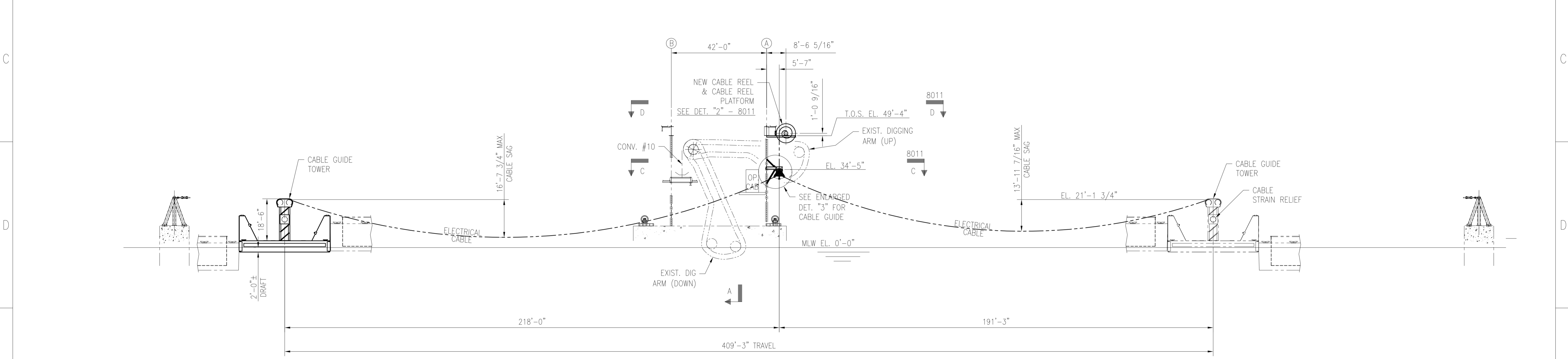
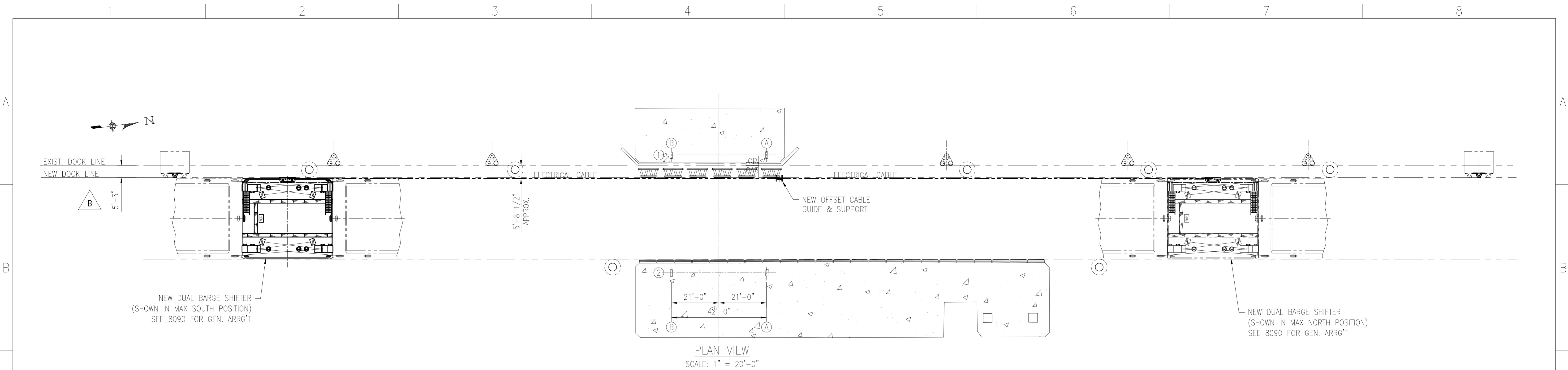


SECTION A-A
FROM 8001, LOOKING SOUTH
SCALE: 1" = 20'-0"

SECTION B-B
FROM DWG 8001, LOOKING SOUTH
SCALE: 1/8" = 1'-0"

WORK THIS DRAWING WITH DWG 8001, 8010

					Richmond Engineering Works LLC Pittsburgh, PA 15205				
D UPDATED FOR BID C PRELIMINARY FOR BID ONLY B REVISED W/ 36'-0" SLIP A PRELIMINARY FOR DESIGN REVIEW	11/02/23 09/29/23 09/19/23 08/11/23	DJT DJT DJT DJT	-- -- KES KES	-- -- -- --	Drawn By: DJT Date: 08/09/2023	Checked: -- Date: --	Approved: -- Date: --	Scale: 1" = 20' ALABAMA STATE PORT AUTHORITY McDUFFIE ISLAND TERMINAL MOBILE, AL. S03828-8002	Rev. D
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WORK THIS DRAWING WITH DWG 8001, 8002, 8011

Richmond Engineering Works
Pittsburgh, PA 15205

Rev.	Description	Date	Made	Chk'd	App'd
D	UPDATED OFFSET CABLE GUIDE DETAILS	10/31/23	DJT	-	-
C	PRELIMINARY FOR BID ONLY	09/29/23	DJT	-	-
B	REVISED W/ 36'-0" SLIP	09/19/23	DJT	KES	-
A	PRELIMINARY FOR DESIGN REVIEW	08/11/23	DJT	KES	-

Drawn By: DJT	Checked: -	Approved: -	Scale: 1" = 20'
Date: 08/09/2023	Date: -	Date: -	

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GENERAL ARRANGEMENT OF BU1 CABLE REEL

ALABAMA STATE PORT AUTHORITY
McDUFFIE ISLAND TERMINAL
MOBILE, AL.

S03828-8010 Rev. D

1 2 3 4 5 6 7 8

A

B

C

D

E

F

A

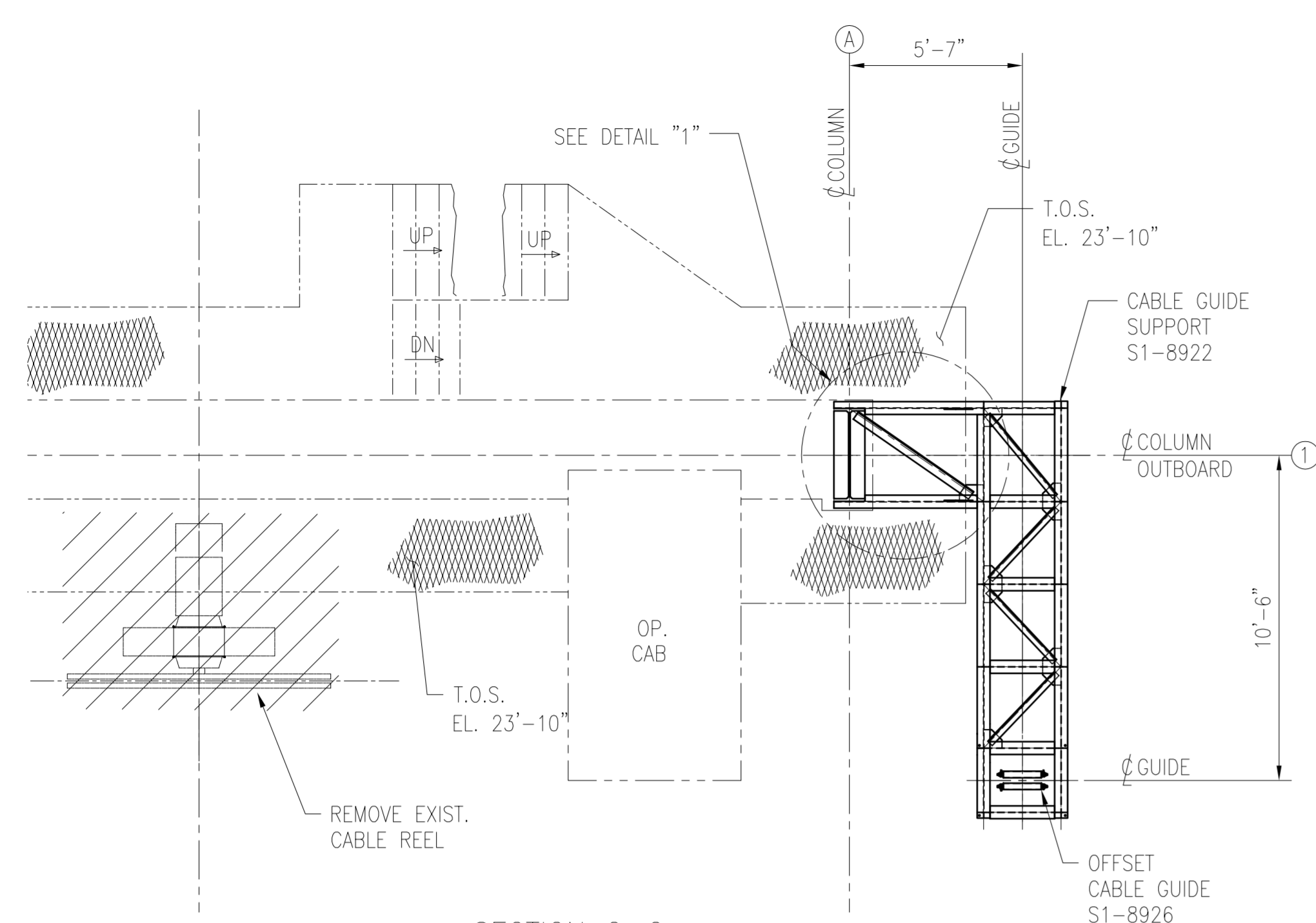
B

C

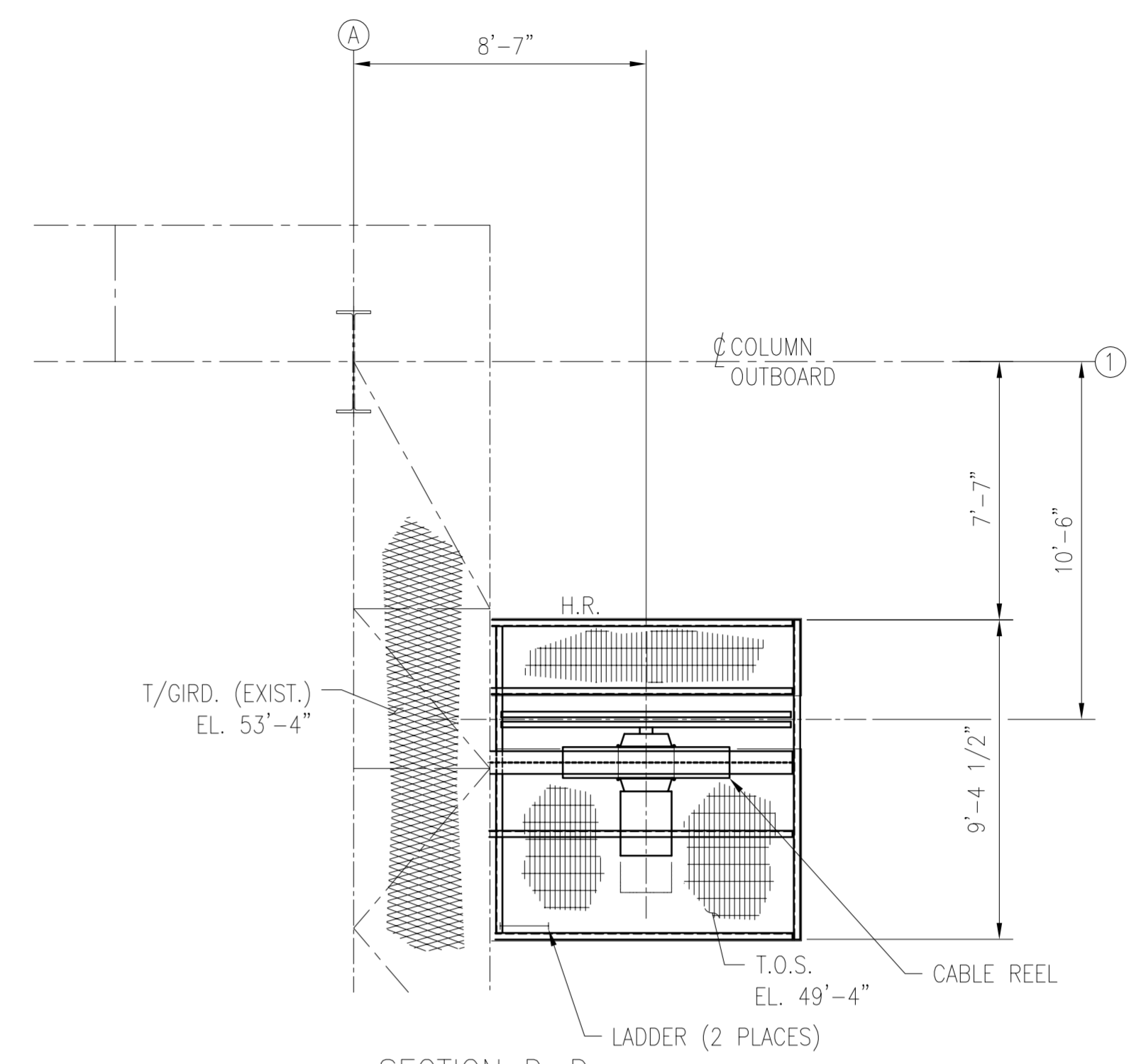
D

E

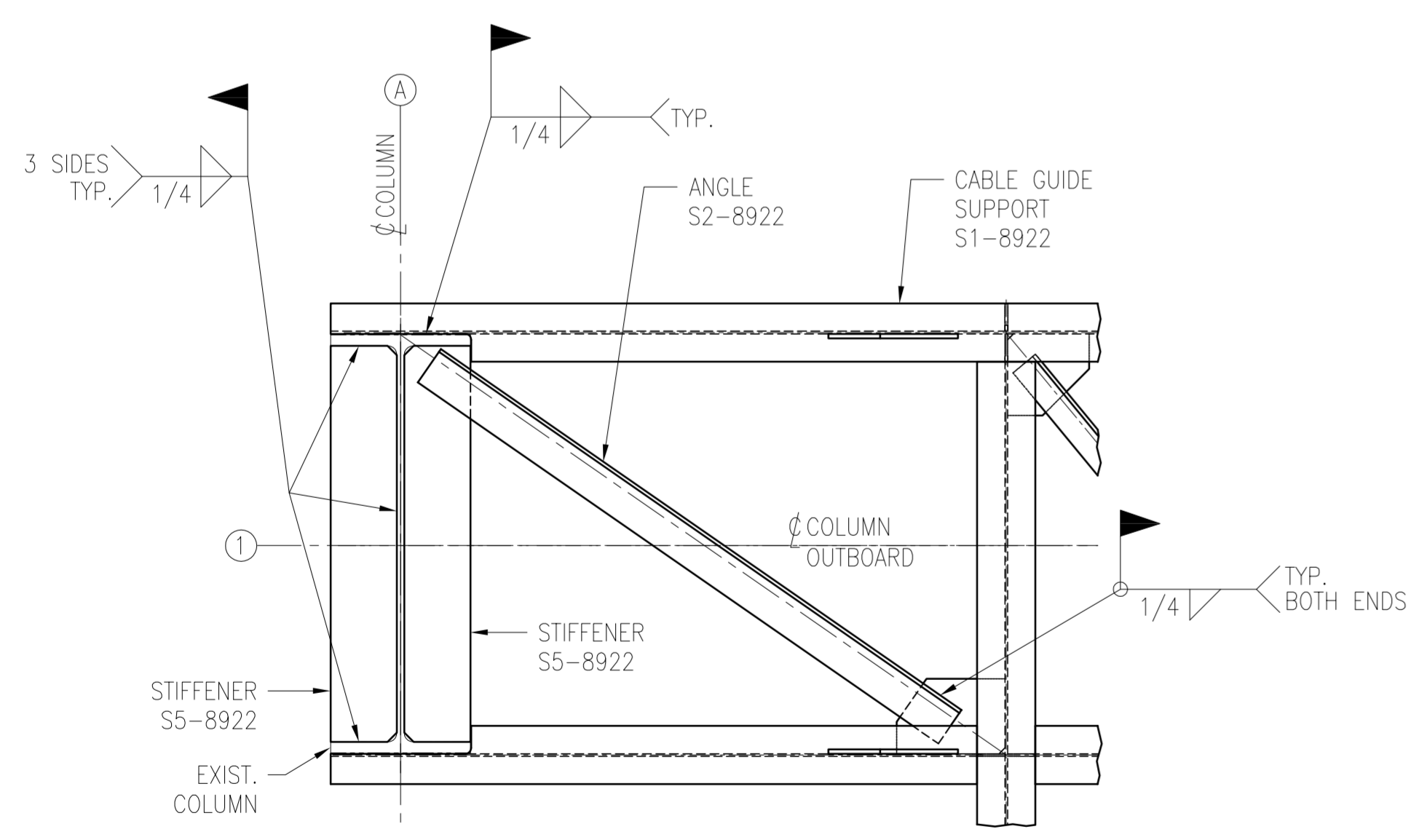
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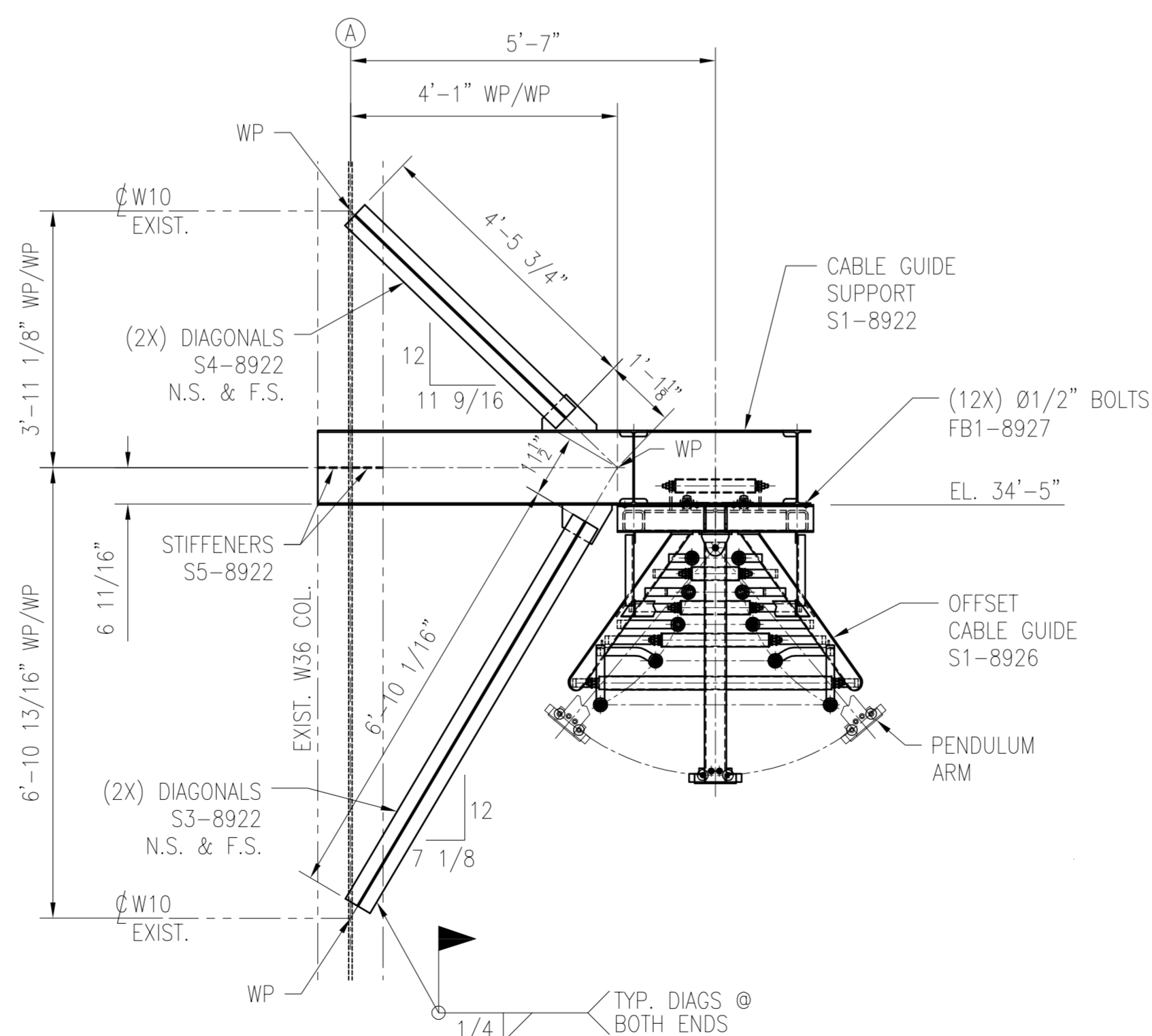
SECTION C-C
SCALE: 1/4" = 1'-0"
FROM DWG 8010



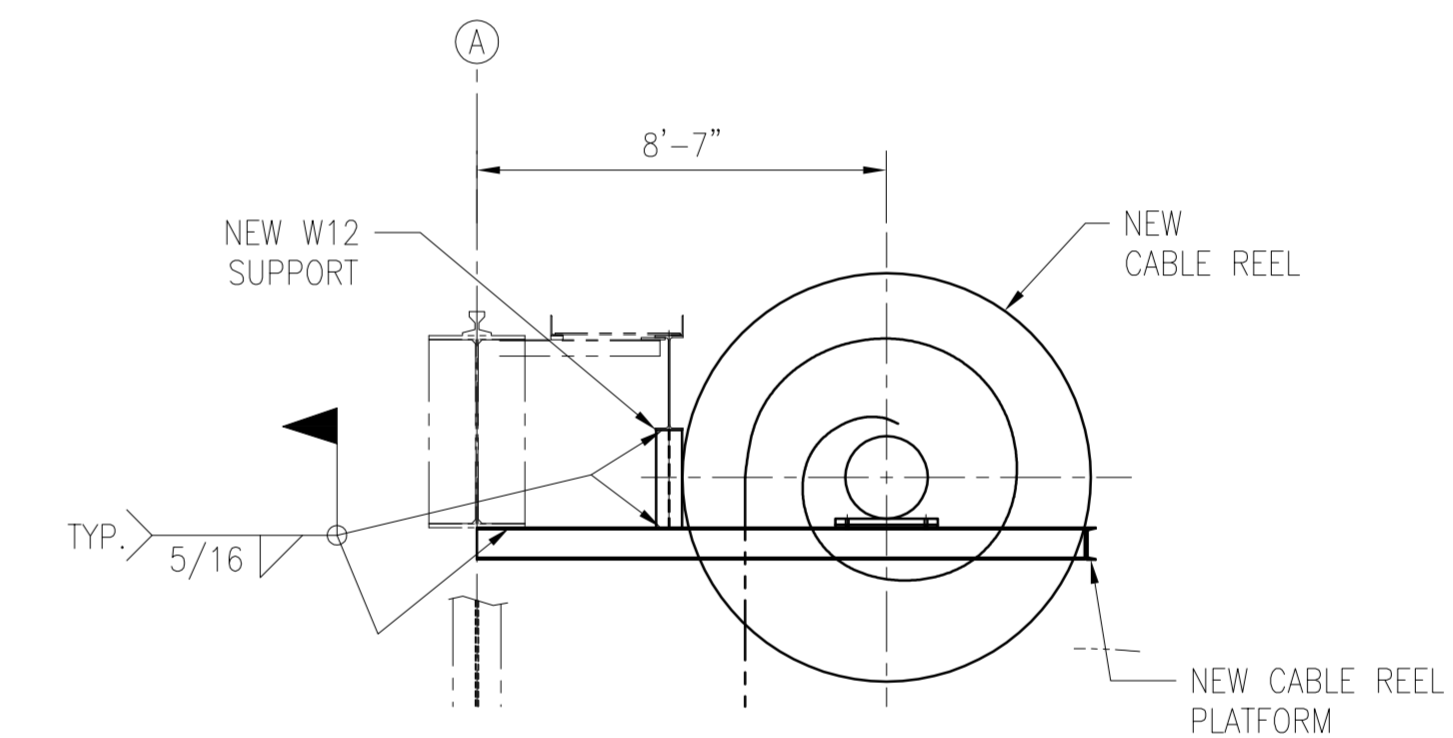
SECTION D-D
(NEW CABLE REEL PLATFORM)
SCALE: 1/4" = 1'-0"
FROM DWG 8010



ENLARGED DET. "1"
FIELD WELDS FOR
CABLE GUIDE SUPPORT
SCALE: 1" = 1'-0"



ENLARGED DET. "3"
CABLE GUIDE SUPPORT
SCALE: 1" = 1'-0"




ENLARGED DET. "2"
FIELD WELDS FOR
CABLE REEL PLATFORM
SCALE: 1/4" = 1'-0"
FROM DWG 8010

WORK THIS DRAWING WITH DWG 8010

Rev.	Description	Date	Made	Chk'd	App'd
B	UPDATED FOR BID	11/02/23	DJT	-	-
A	PRELIMINARY FOR BID ONLY	09/29/23	DJT	-	-

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Pittsburgh, PA 15205

Drawn By: DJT Checked: -
Date: 09/28/23 Date: -

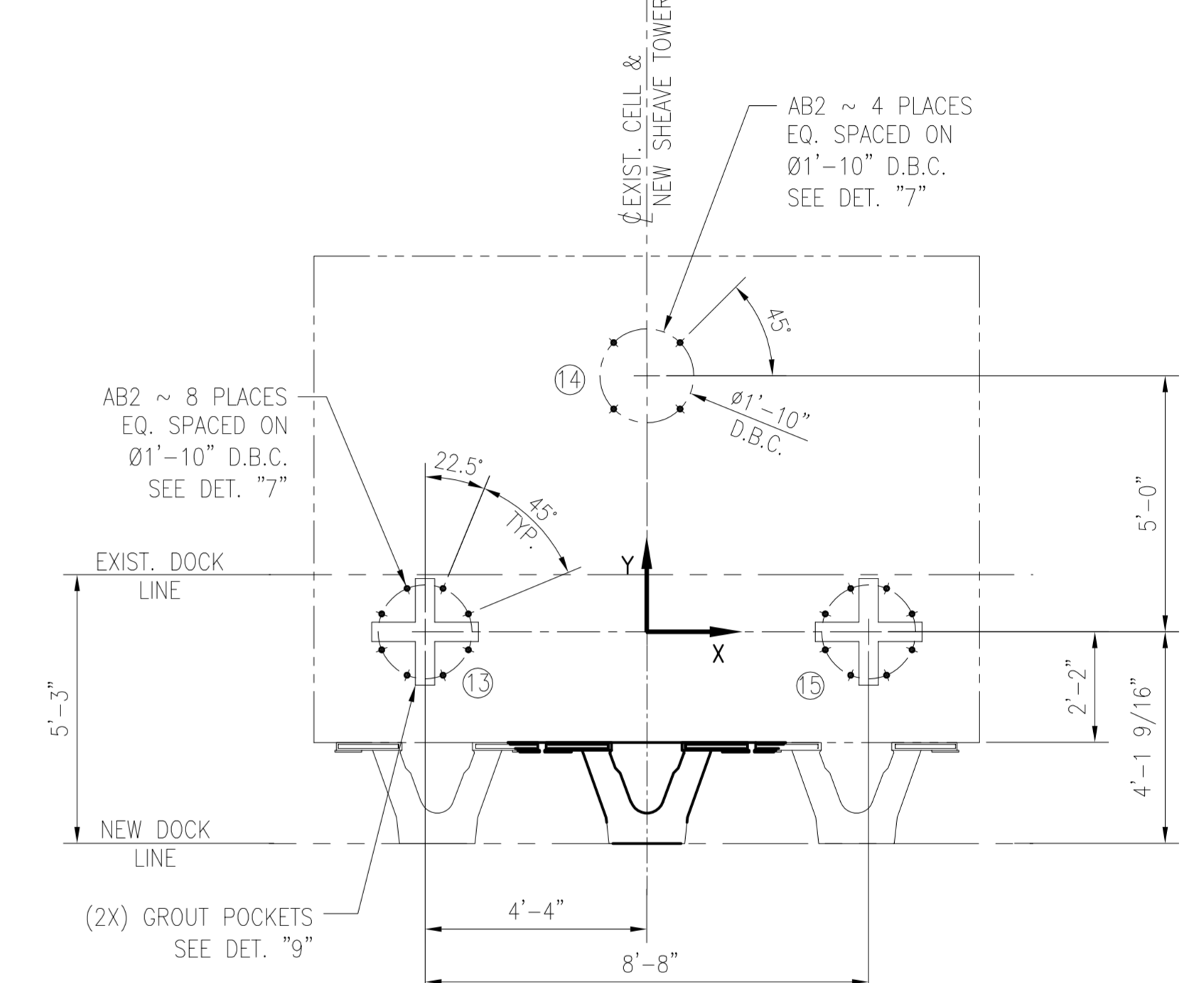
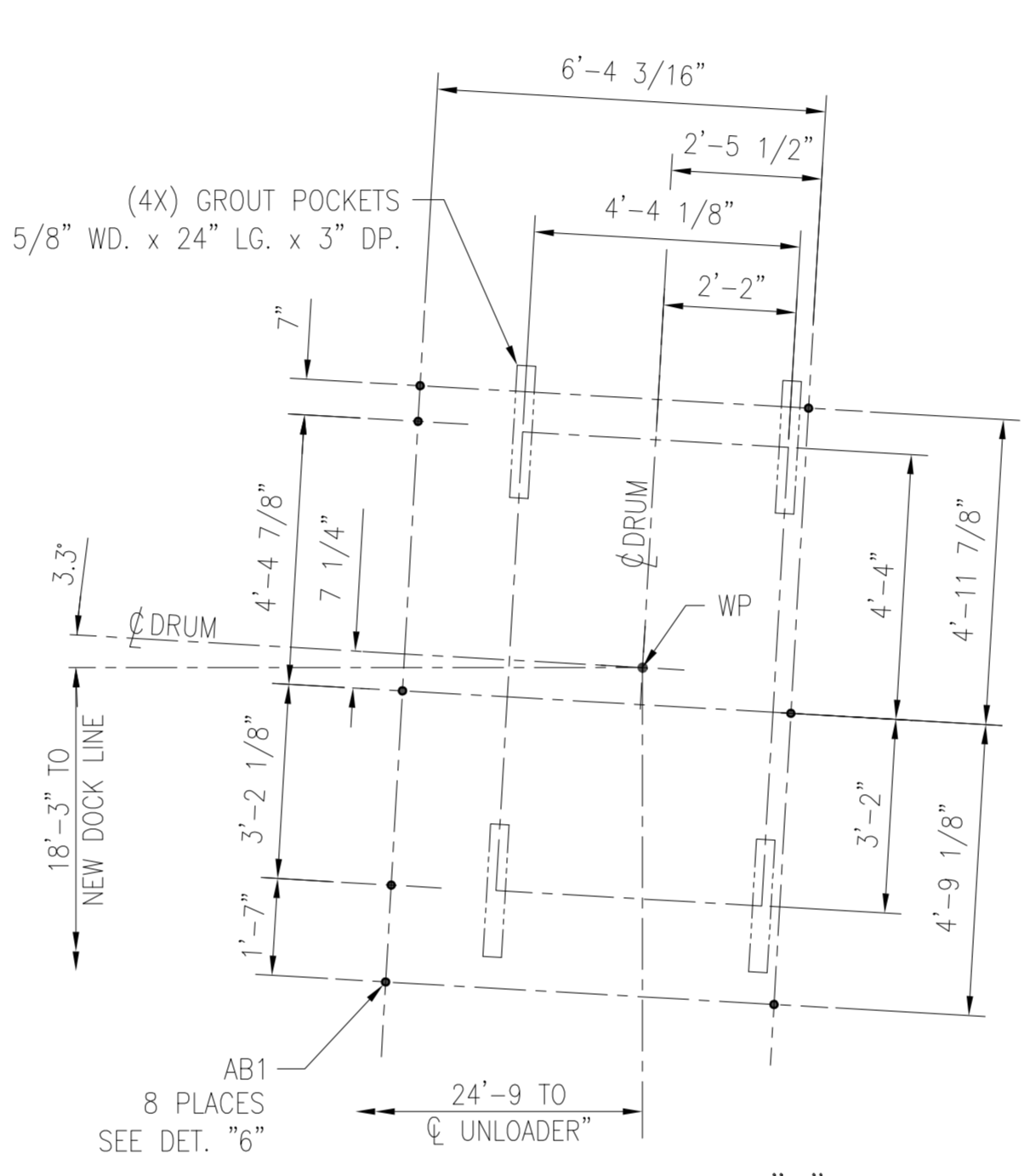
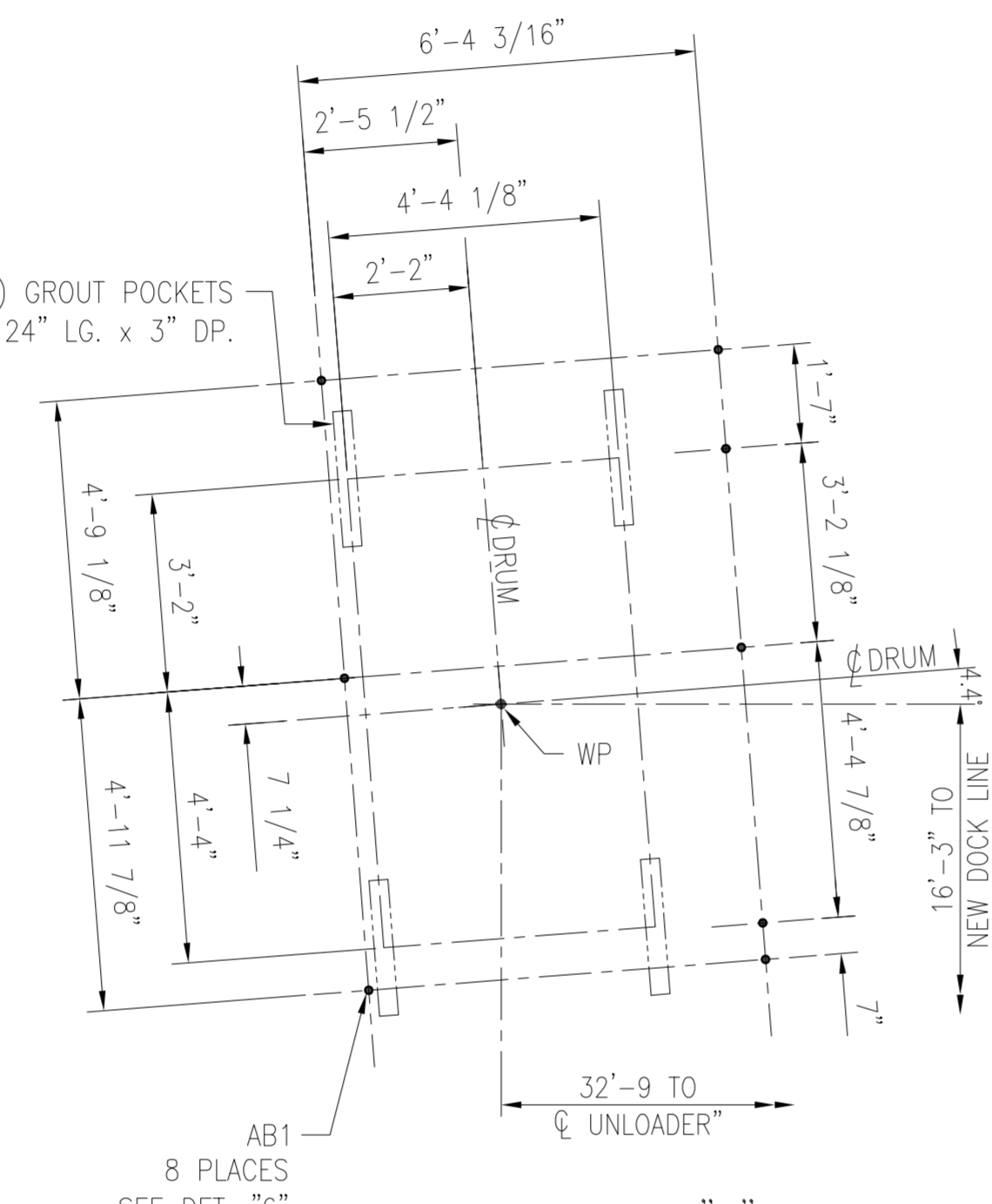
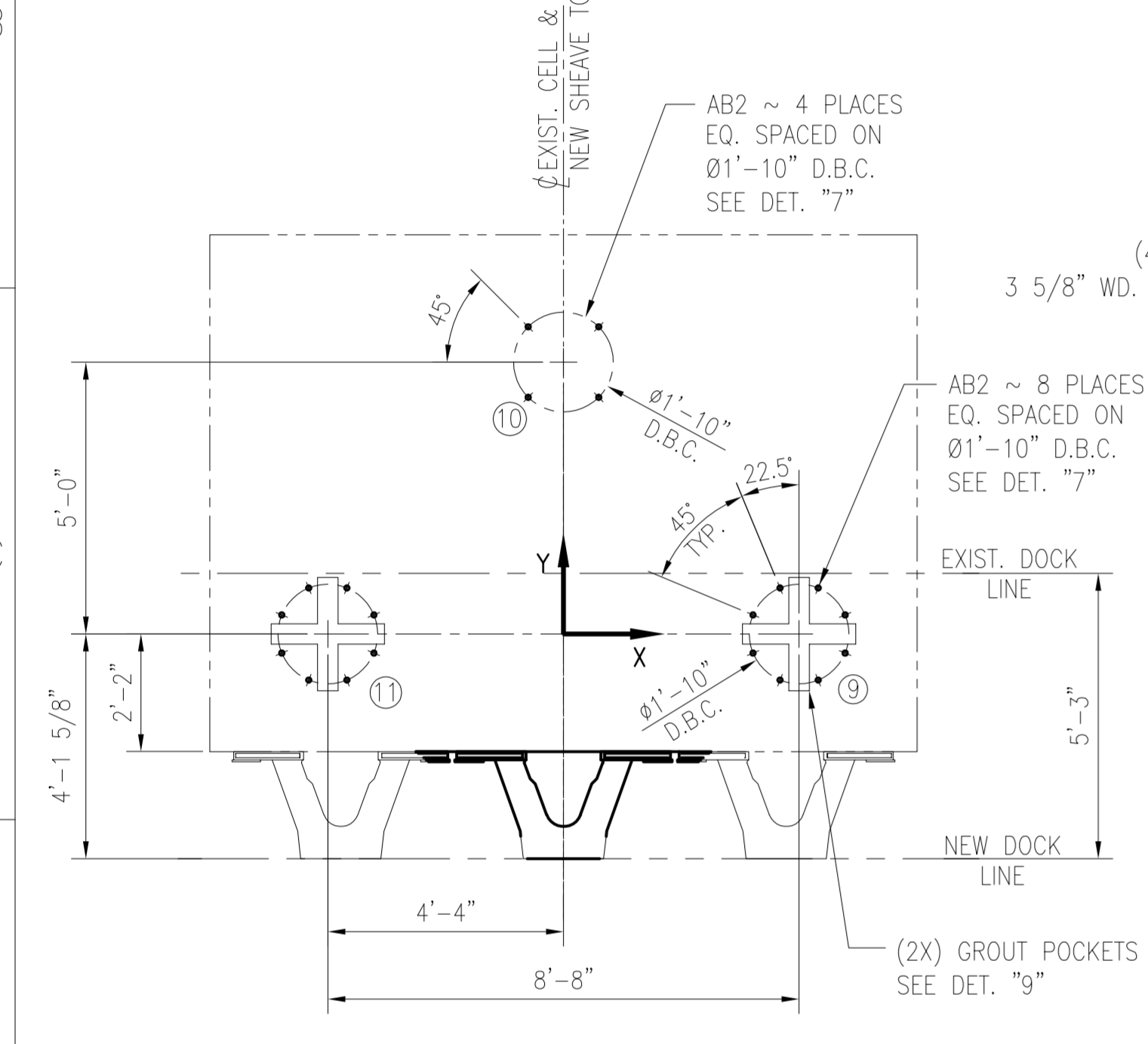
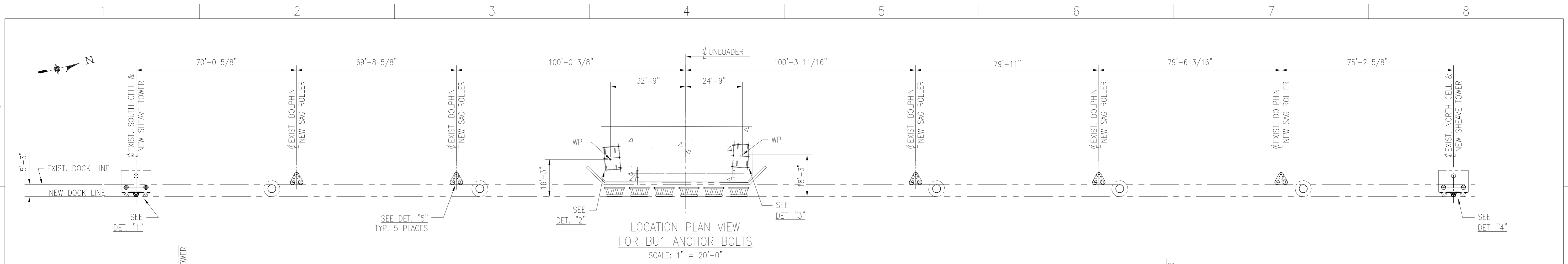
Approved: - Scale: 1" = 20'

GENERAL ARRANGEMENT OF
BU1 CABLE REEL
SECTION VIEWS

ALABAMA STATE PORT AUTHORITY
McDUFFIE ISLAND TERMINAL
MOBILE, AL.

S03828-8011 Rev. B

1 2 3 4 5 6 7 8

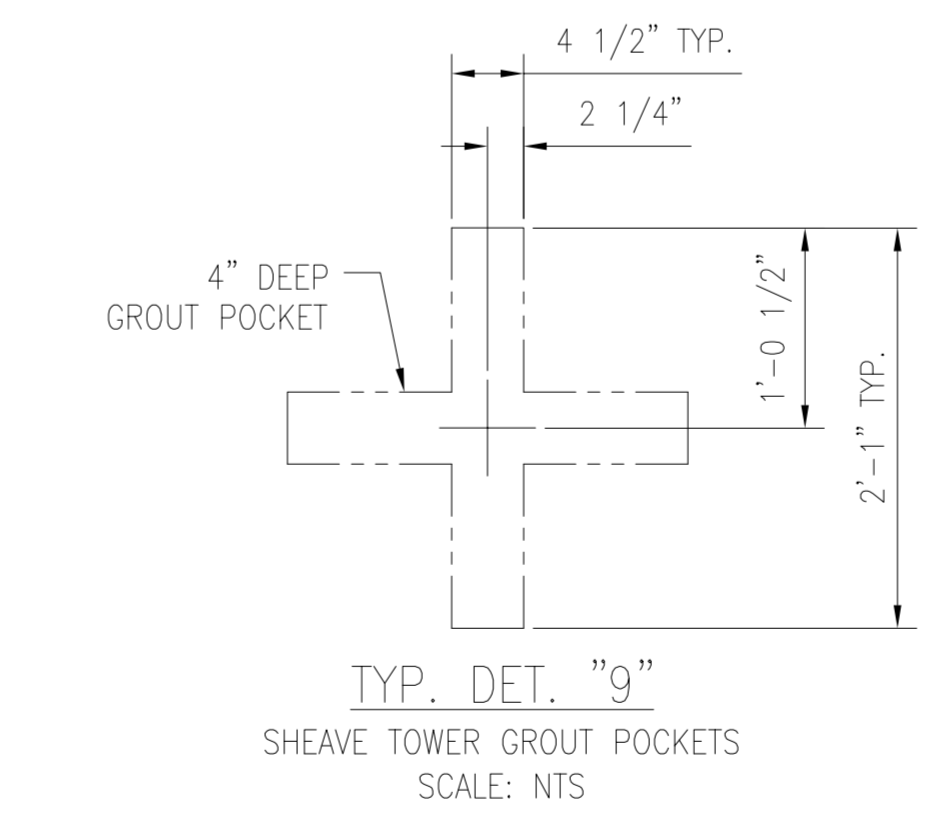
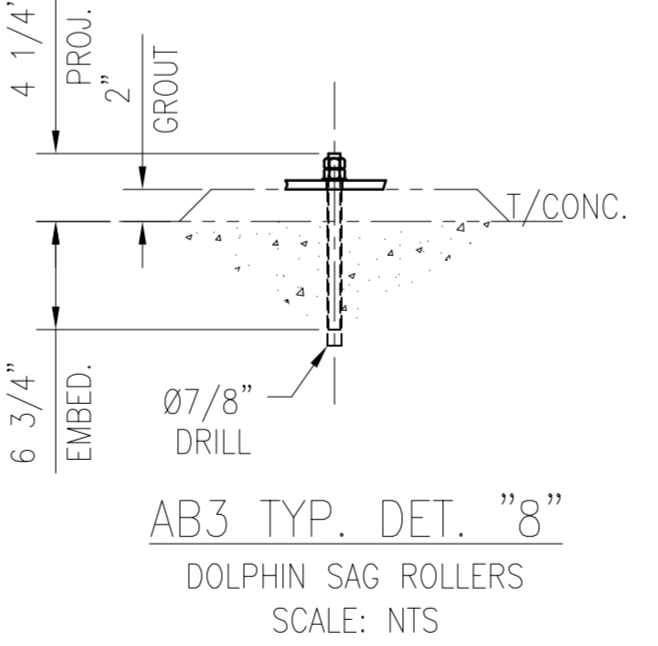
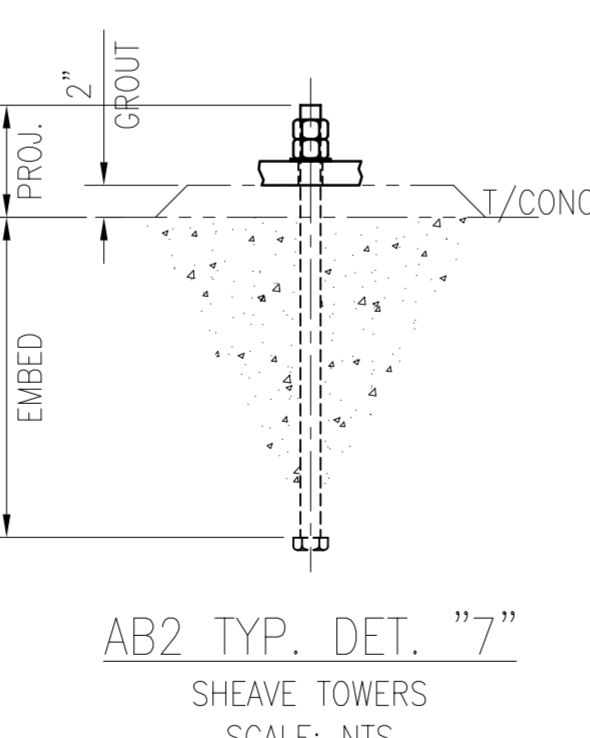
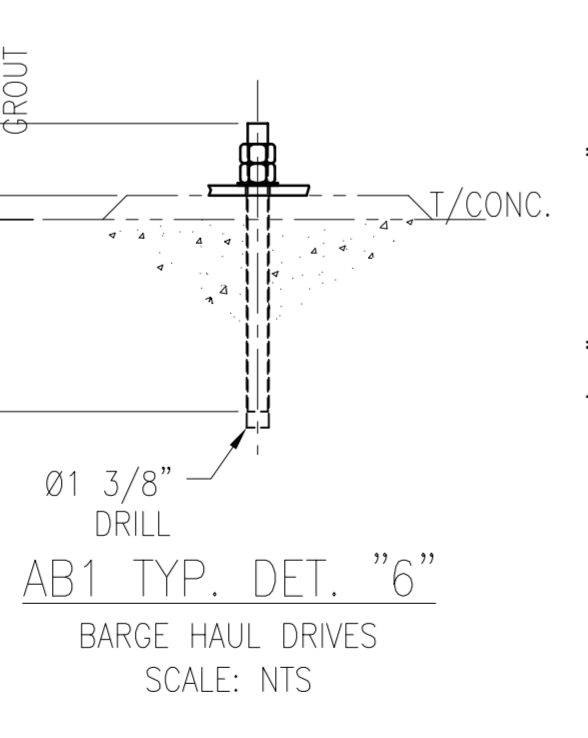
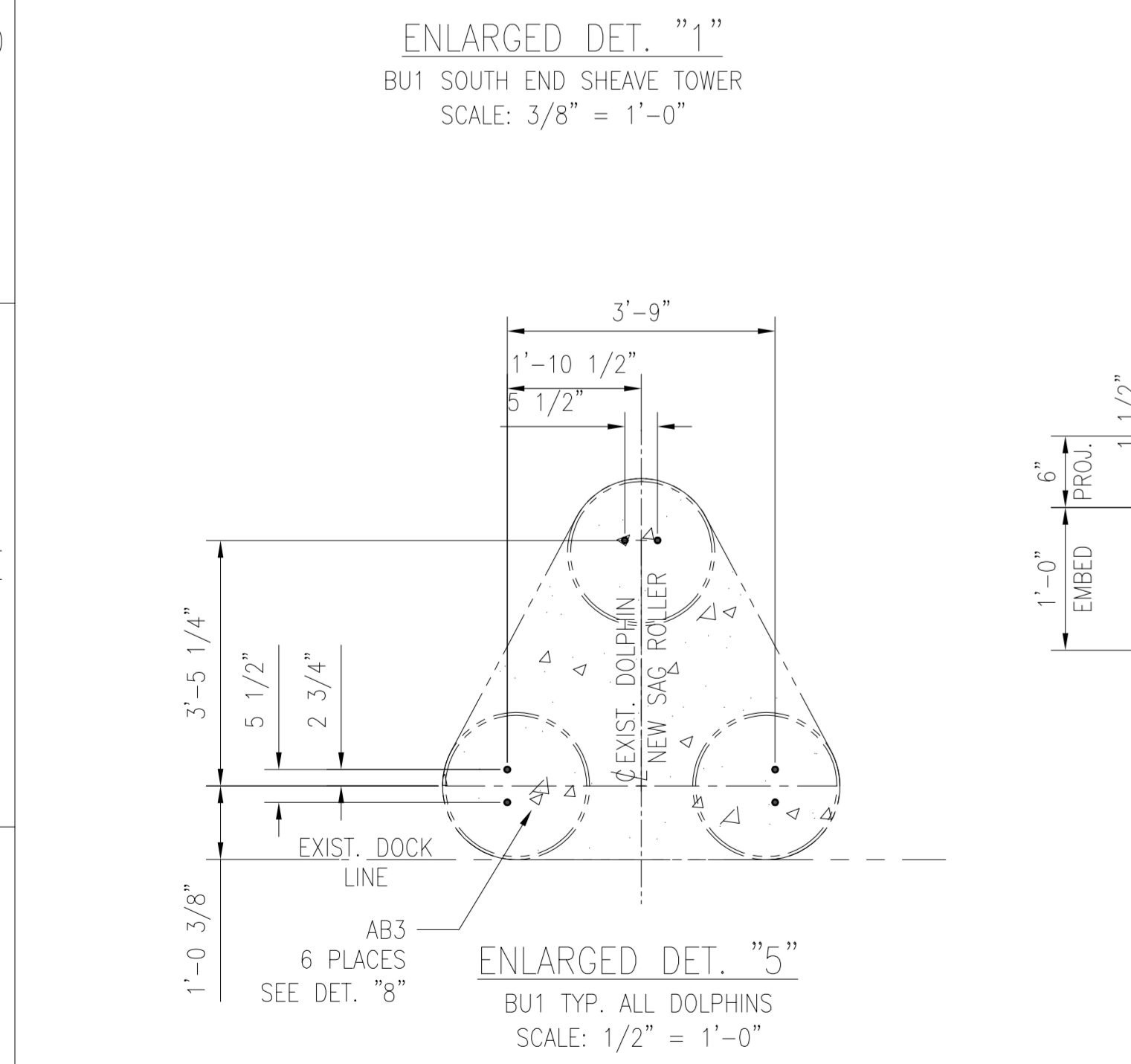


LOAD TABLE - DET. "1"

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⑪	37.0	-30.0	105.0

LOAD TABLE - DET. "4"

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ANCHOR BOLT REQUIREMENTS

MARK	NO.	REQ'D.	DIA.	EMBED.	PROJ.	LOCATION
AB1	16		1 1/4"	12"	6"	BARGE HAUL DRIVE BASES
AB2	40		1"	20"	7"	SHEAVE TOWER (NORTH & SOUTH CELLS)
AB3	30		3/4"	6 3/4"	4 1/4"	DOLPHIN SAG ROLLERS (TYP.)

DESCRIPTION:

AB1 (16) HILTI HAS SUPER THRD. RODL A193, B7 - Ø1 1/4" x 31 3/4" LG. W/ 1/2" PLATE WASHER, FLAT WASHER, & (2X) HEX NUTS. ADHESIVE - HIT RES00V3

AB2 (40) Ø1" x 27" LG. F1554 GRADE 55 HEADED BOLTS W/ FLAT WASHER & (2X) HEX NUTS

AB3 (30) HILTI HAS SUPER THRD. ROD A193, B7 - Ø3/4" x 11" LG. W/ FLAT WASHER & 2 HEX NUTS. ADHESIVE - HIT RES00V3

- NOTES:
- FORCES ARE APPLIED FORCES
 - POSITIVE "Z" VALUES ARE TENSION REACTIONS
 - UNITS ARE IN KIPS
 - ANCHOR LOCATIONS 11 & 15 REQUIRE TENSILE ANCHORAGE REINFORCEMENT TO SATISFY CONCRETE BREAKOUT STRENGTH IN TENSION.
 - ANCHOR LOCATIONS 9, 11, 13, & 15 REQUIRE SHEAR ANCHORAGE REINFORCEMENT TO SATISFY CONCRETE BREAKOUT STRENGTH OF ANCHORS IN SHEAR
 - ALL LOADS SHOWN ARE UNFACTORED

Rev.	Description	Date	Made	Chk'd	App'd
B	UPDATED FOR BID	11/01/23	DJT	-	-
A	PRELIMINARY FOR BID ONLY	09/29/23	DJT	-	-

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Pittsburgh, PA 15205

Richmond Engineering Works

Drawn By: DJT
Date: 09/15/23

Checked: -
Date: -

Approved: -
Date: -

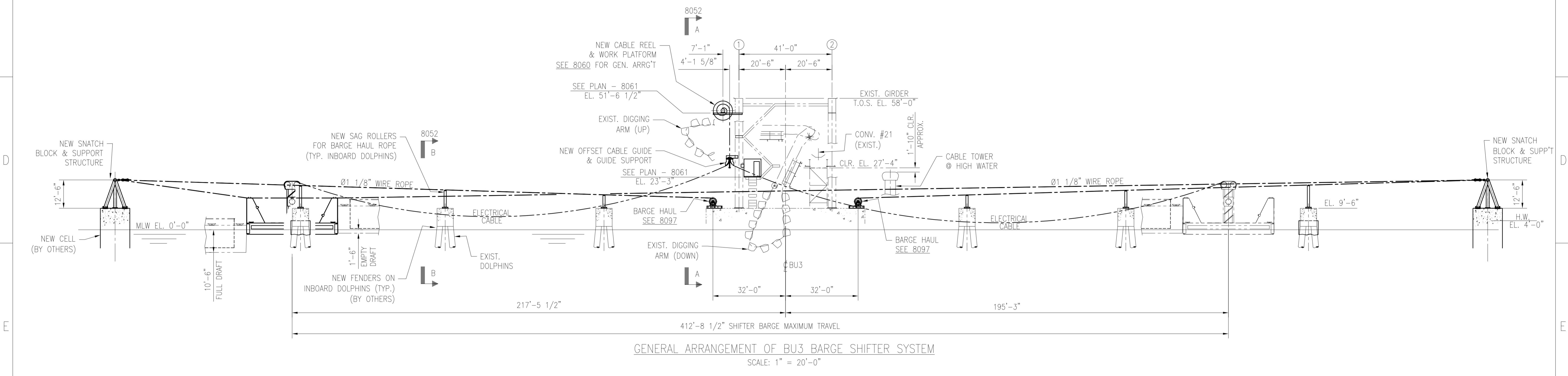
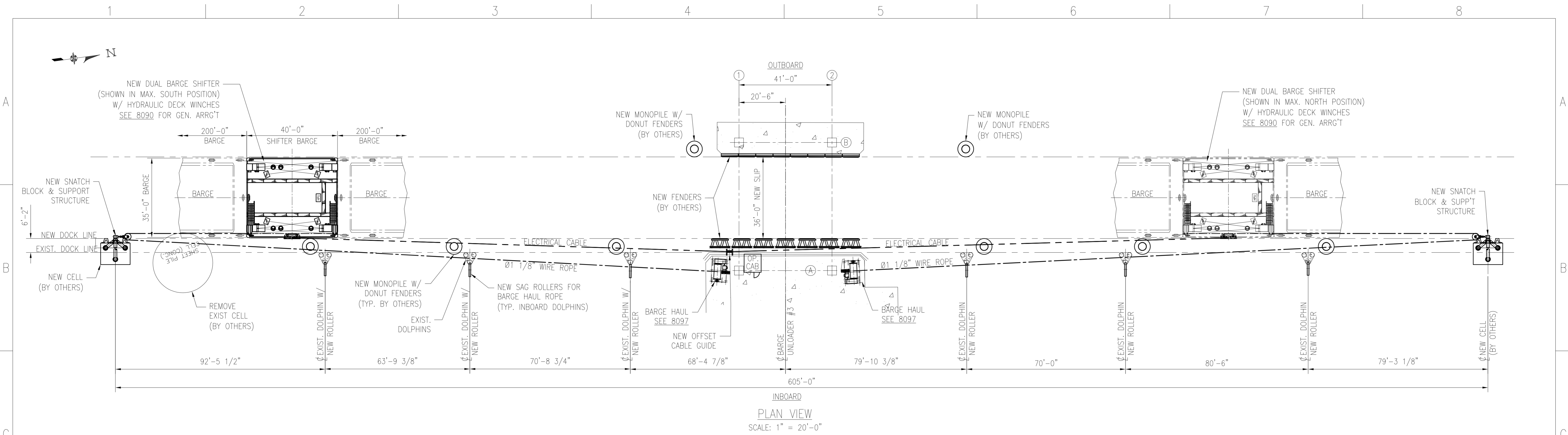
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GENERAL ARRANGEMENT OF DUAL BARGE SHIFTER SYSTEM
BU1 ANCHOR BOLT LOCATIONS & LOADS

ALABAMA STATE PORT AUTHORITY
McDUFFIE ISLAND TERMINAL
MOBILE, AL.

S03828-8021

Rev. B



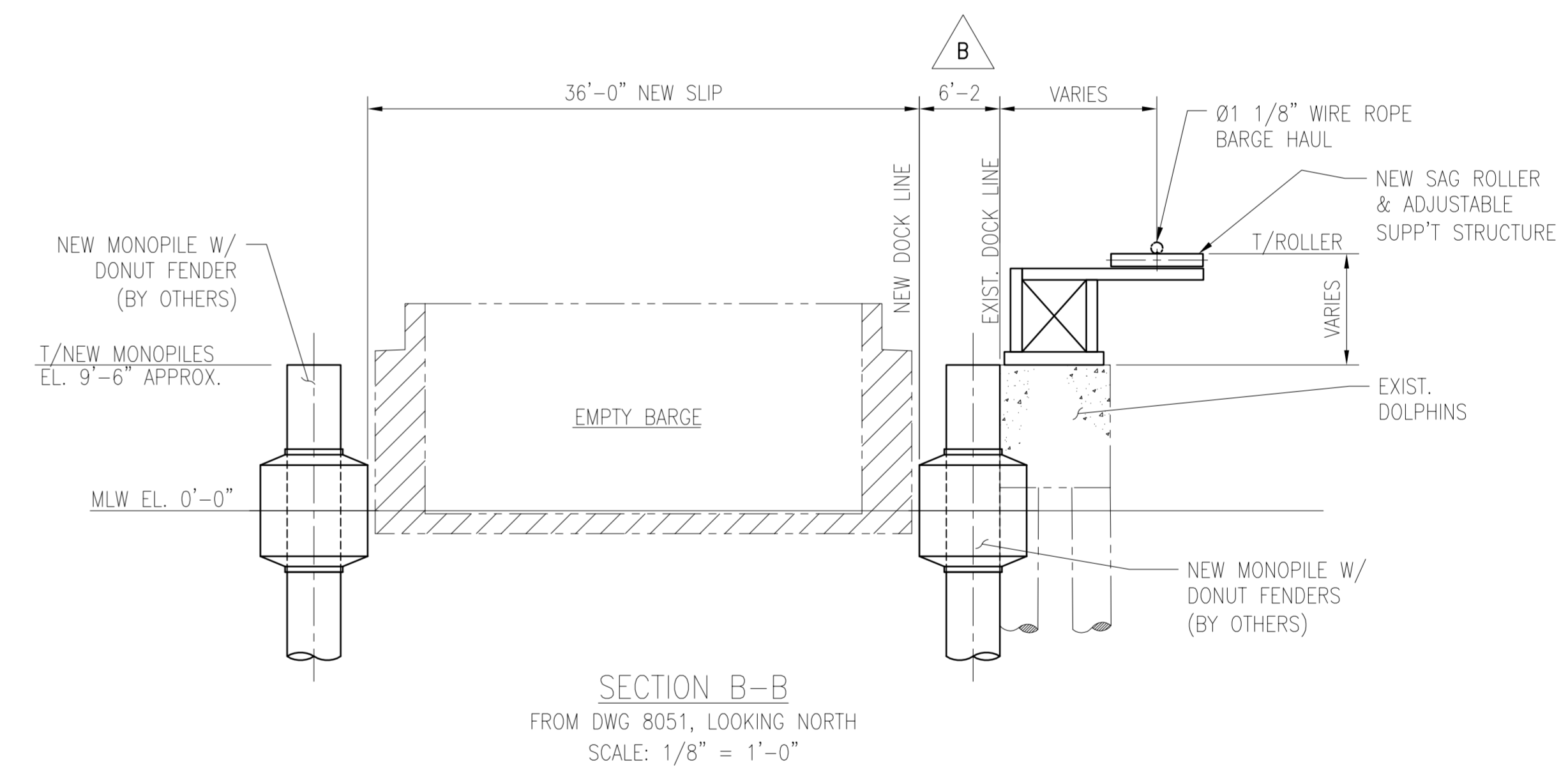
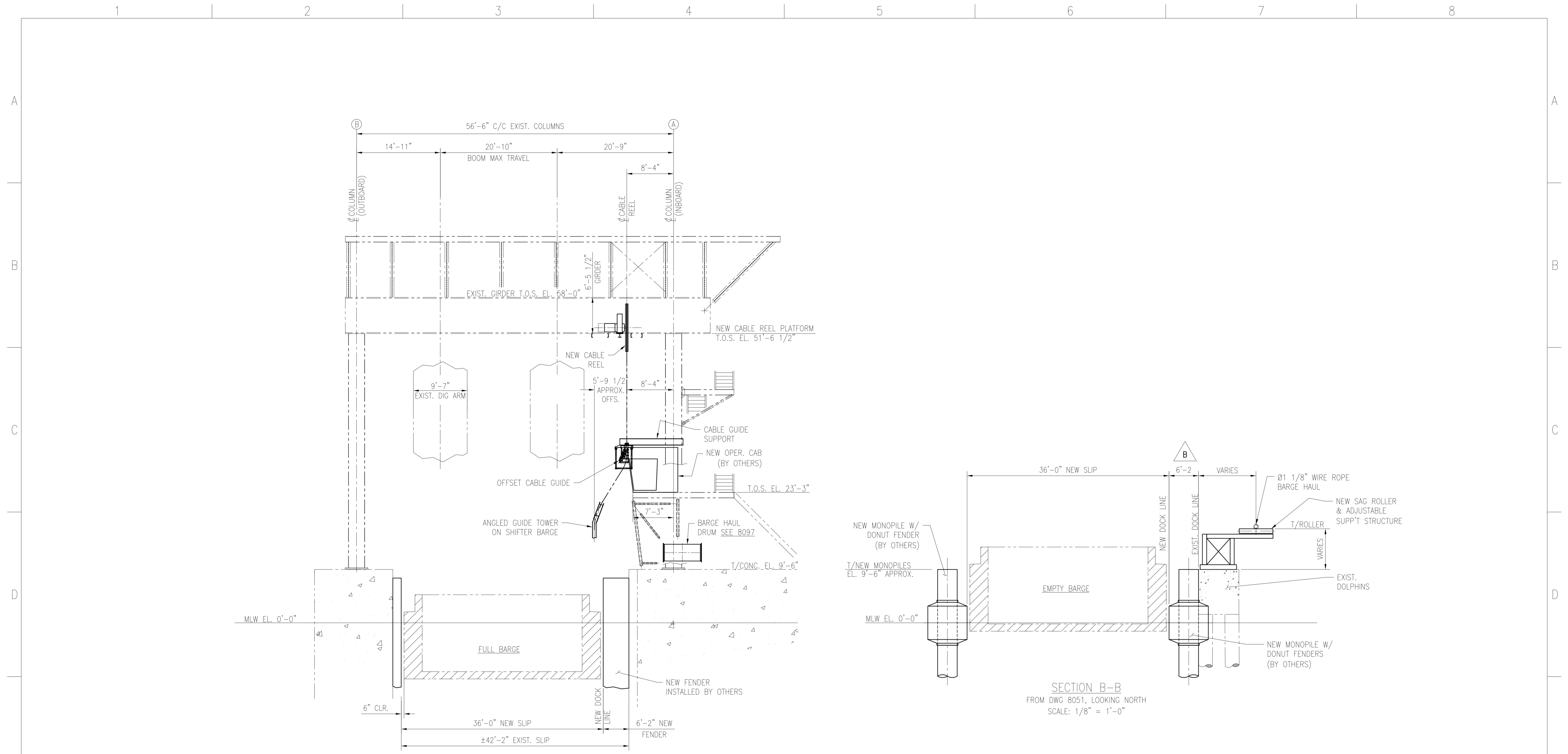
WORK THIS DRAWING WITH 8052, 8060

Richmond Engineering Works L.L.C.
Pittsburgh, PA 15205

Rev.	Description	Date	Made	Chk'd	App'd
C	UPDATED FOR BID	11/03/23	DJT	-	-
B	PRELIMINARY FOR BID ONLY	09/29/23	DJT	-	-
A	PRELIMINARY FOR DESIGN REVIEW	08/11/23	DJT	KES	-

Drawn By: DJT	Checked: -	Approved: -	Scale: 1" = 20'
Date: 08/07/2023	Date: -	Date: -	
GENERAL ARRANGEMENT OF BU3 DUAL BARGE SHIFTER SYSTEM		ALABAMA STATE PORT AUTHORITY McDUFFIE ISLAND TERMINAL MOBILE, AL.	
		S03828-8051	Rev. C

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WORK THIS DRAWING WITH 8051, 8060


Richmond Engineering Works LLC.
 Pittsburgh, PA 15205

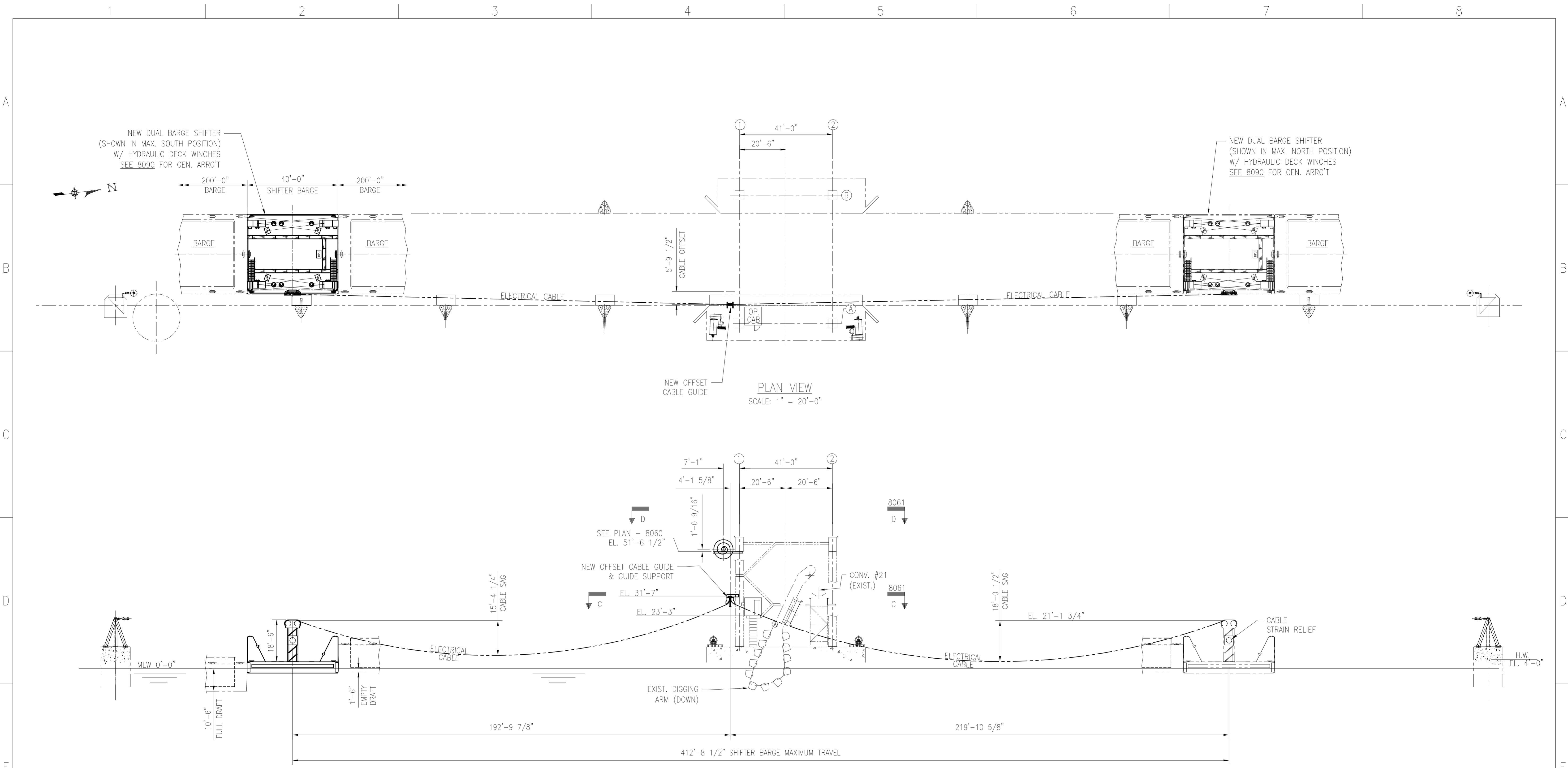
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B	PRELIMINARY FOR BID ONLY	09/27/23	DJT	-	-	Date: 08/07/2023	Date: -	Date: -	
A	PRELIMINARY FOR DESIGN REVIEW	08/11/23	DJT	KES	-				
Rev.	Description	Date	Made	Chk'd	App'd				

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GENERAL ARRANGEMENT OF
 BU3 DUAL BARGE
 SHIFTER SYSTEM
 SECTION VIEWS

ALABAMA STATE PORT AUTHORITY
 McDUFFIE ISLAND TERMINAL
 MOBILE, AL.

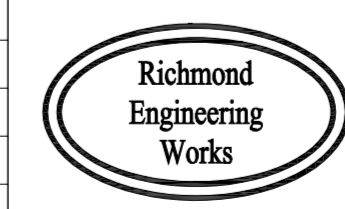
S03828-8052 Rev. C



PLAN VIEW
SCALE: 1" = 20'-0"

GENERAL ARRANGEMENT OF
BU3 CABLE REEL
SCALE: 1" = 20'-0"

WORK THIS DRAWING WITH 8051, 8052, 8061



Richmond Engineering Works LLC.
Pittsburgh, PA 15205

Rev.	Description	Date	Made	Chk'd	App'd
C	UPDATED FOR BID	11/03/23	DJT	-	-
B	PRELIMINARY FOR BID ONLY	09/29/23	DJT	-	-
A	PRELIMINARY FOR DESIGN REVIEW	08/11/23	DJT	KES	-

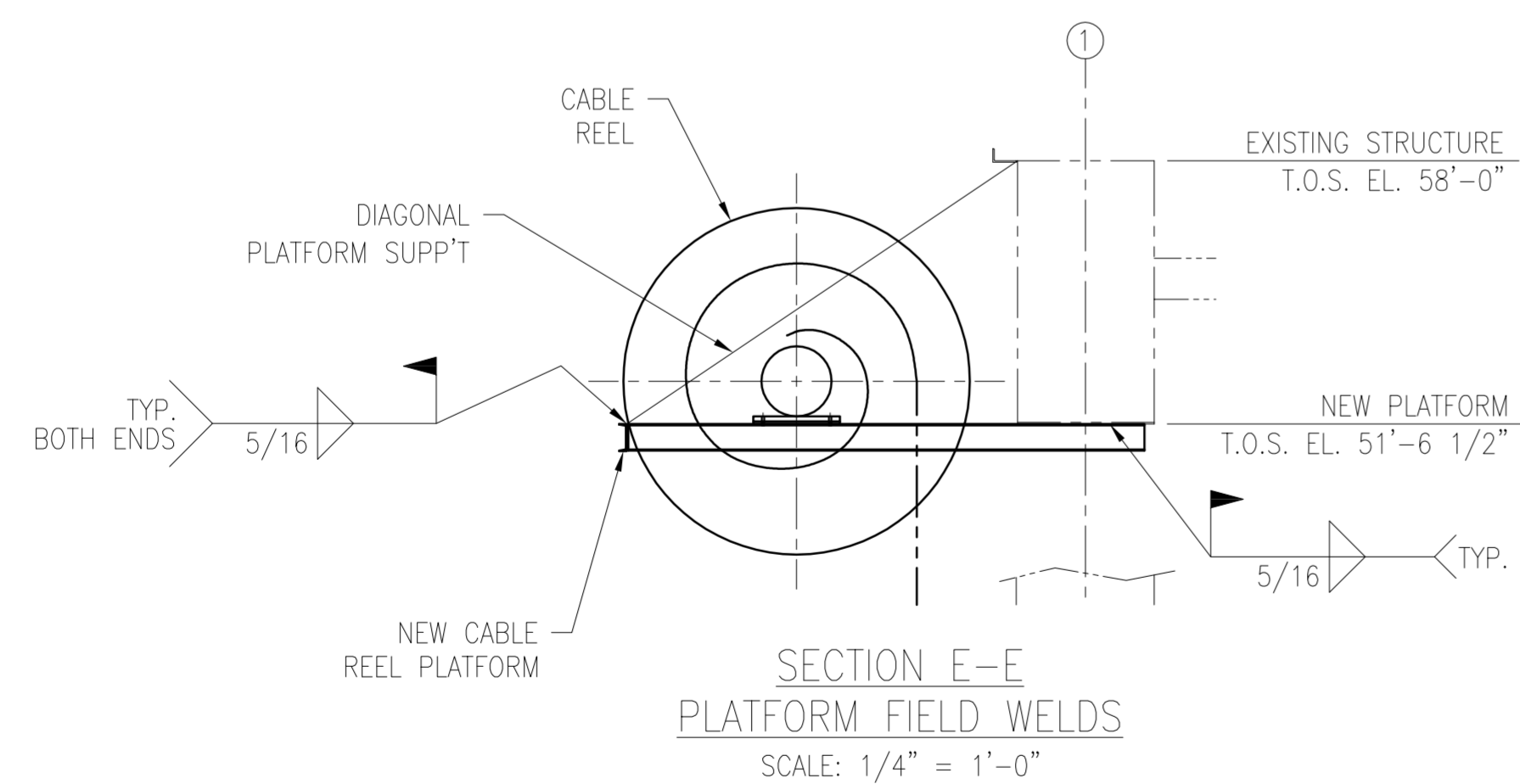
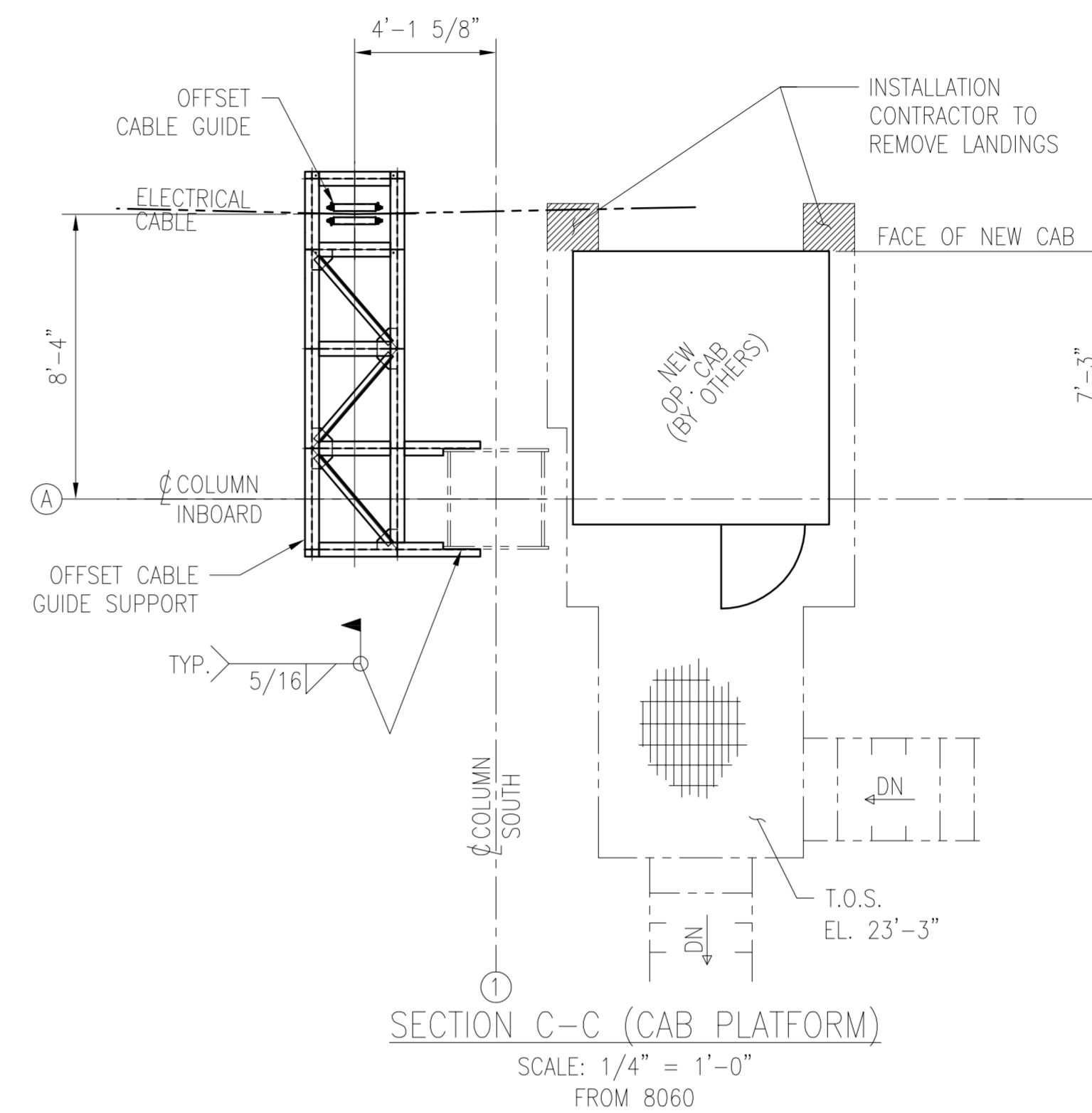
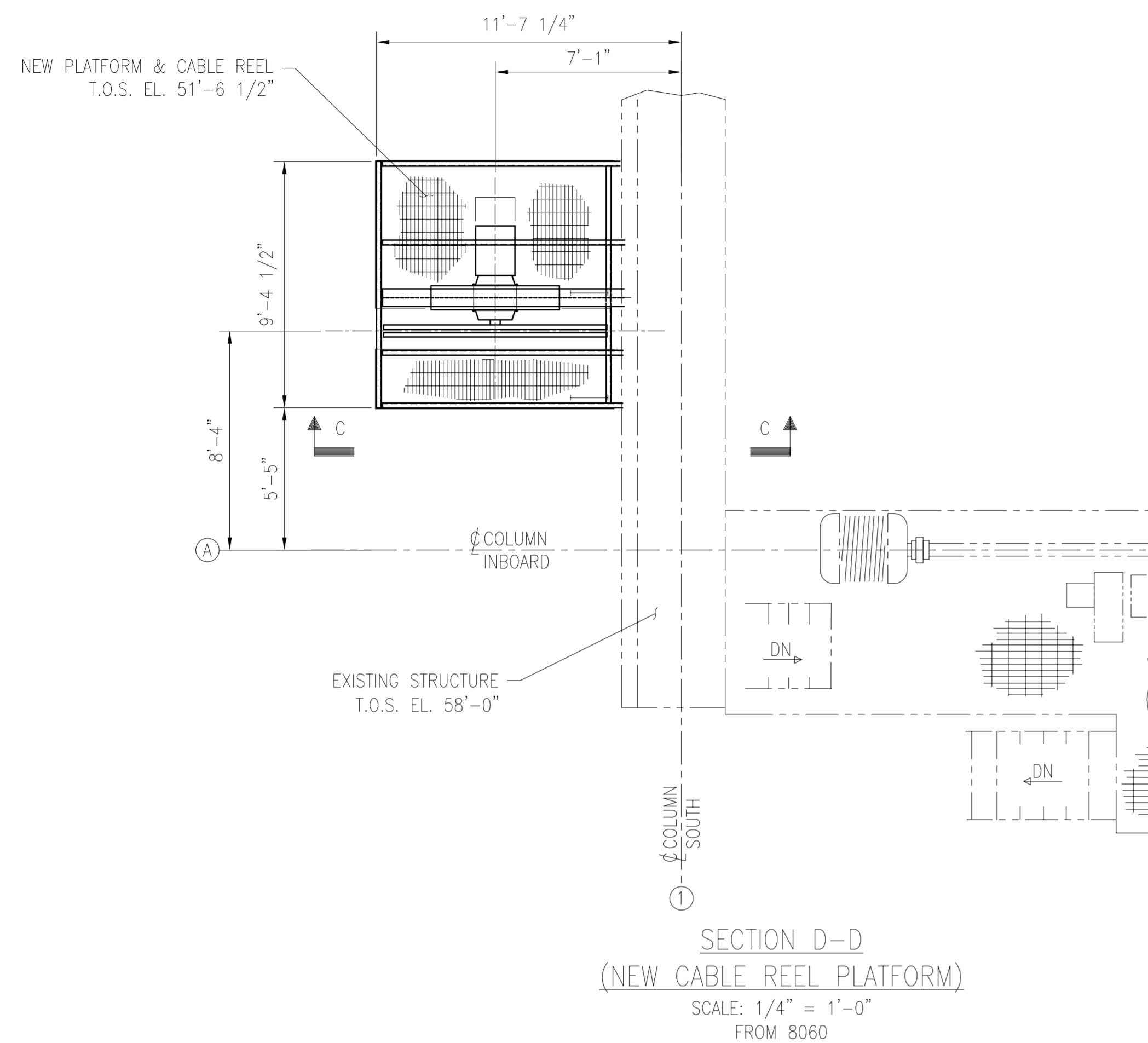
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Date: 08/07/2023	Date: -	Date: -	

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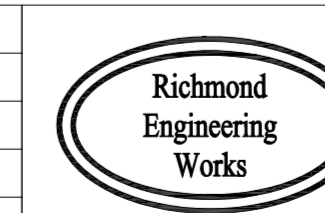
GENERAL ARRANGEMENT OF
BU3 CABLE REEL

ALABAMA PORT AUTHORITY
McDUFFIE ISLAND TERMINAL
MOBILE, AL.

S03828-8060 Rev. C



WORK THIS DRAWING WITH 8060

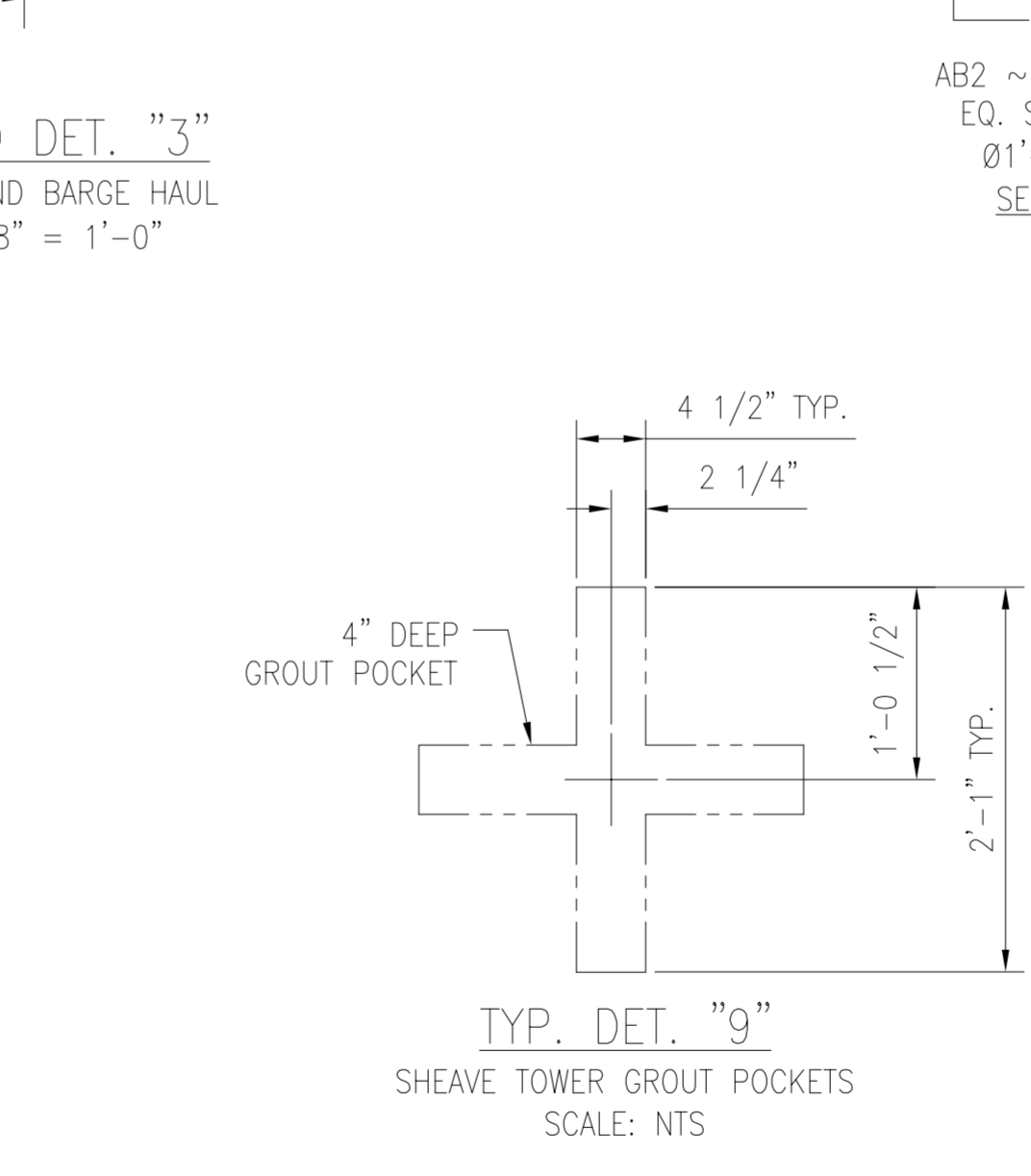
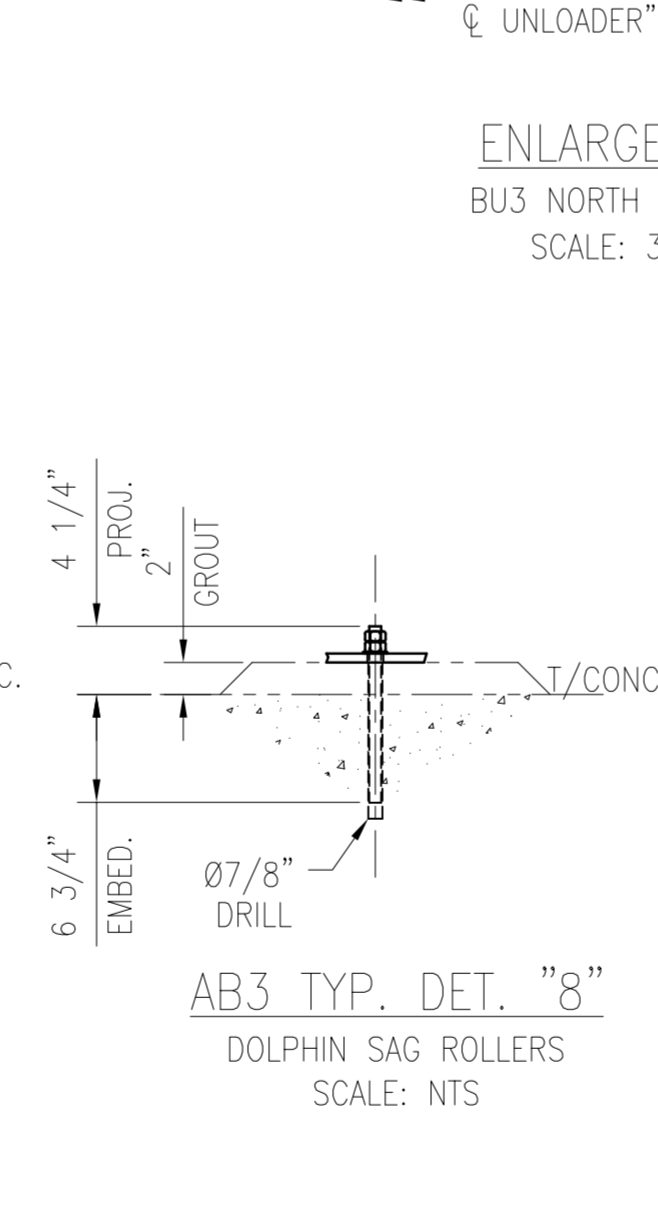
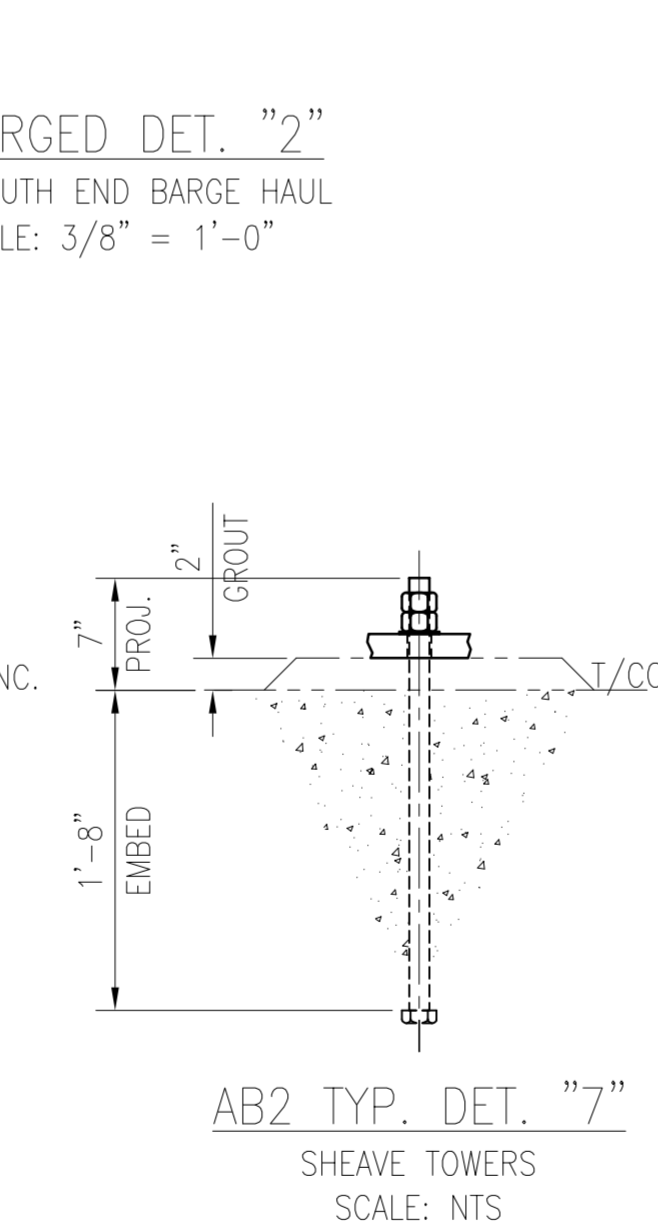
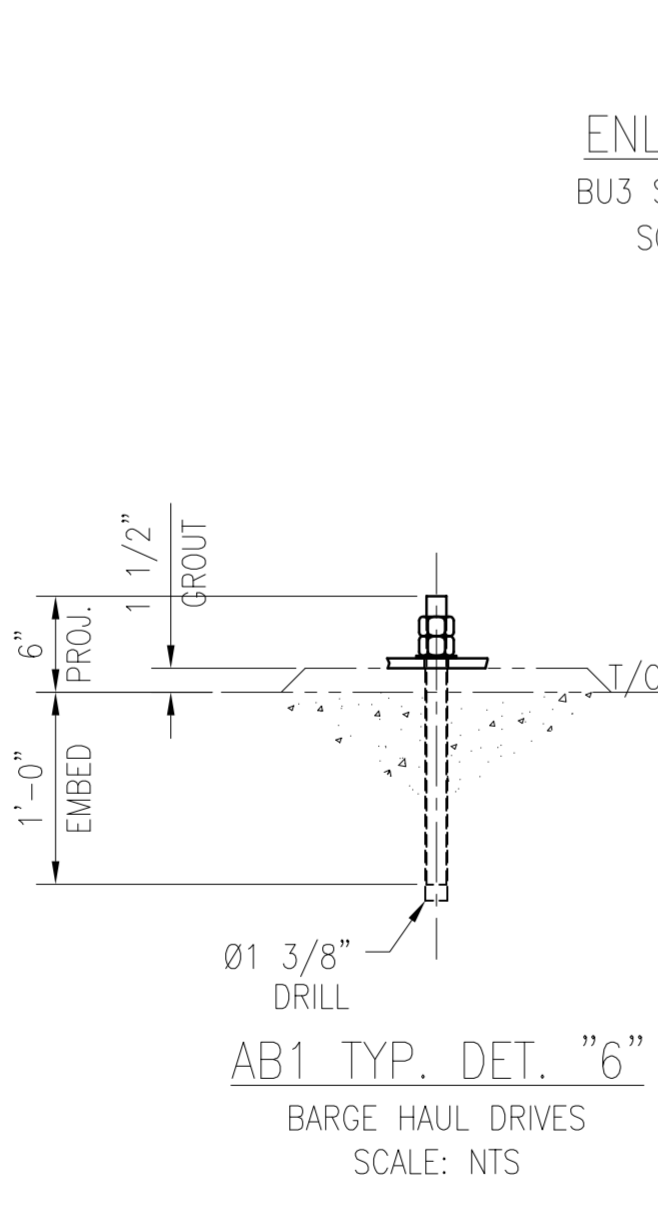
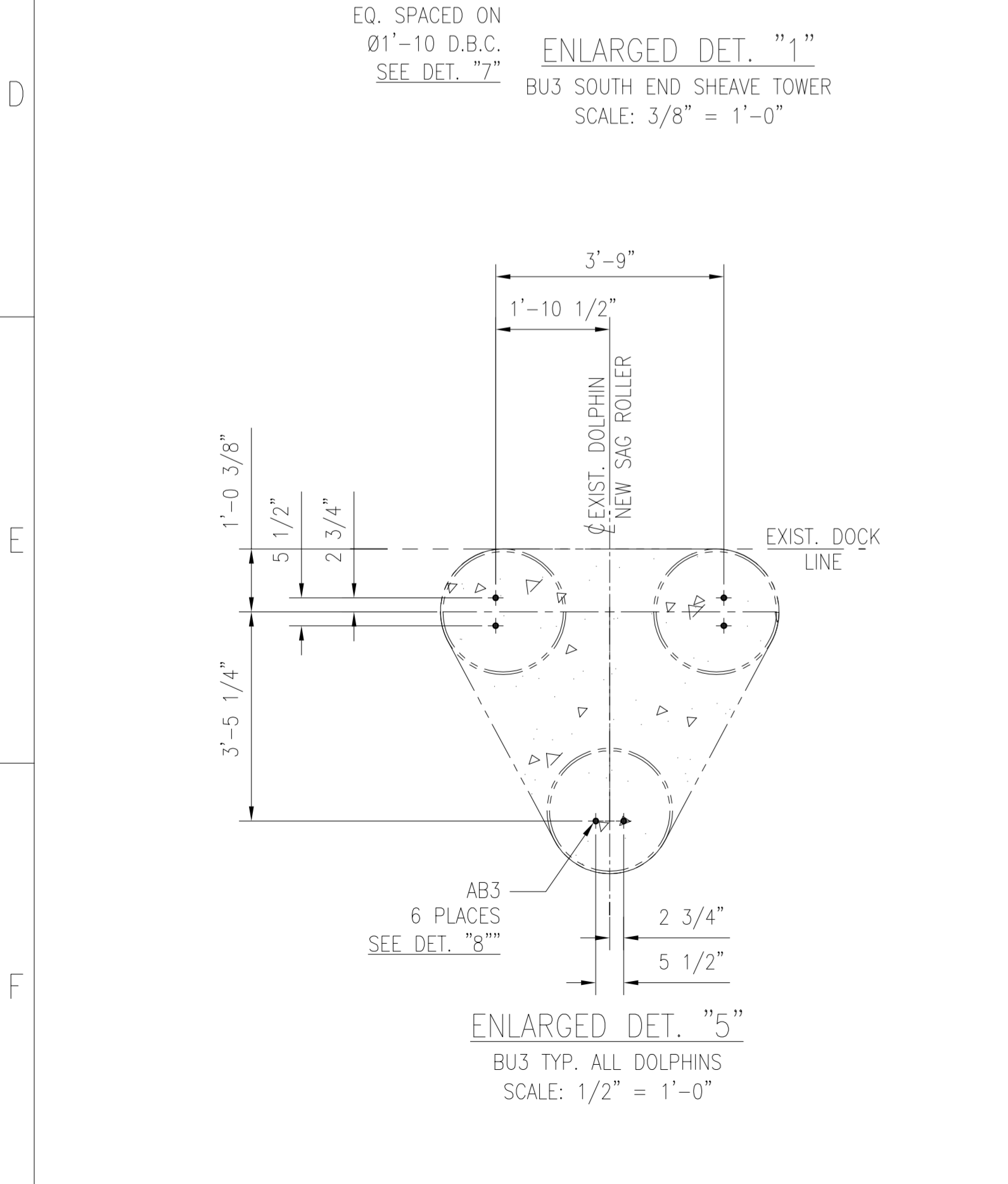
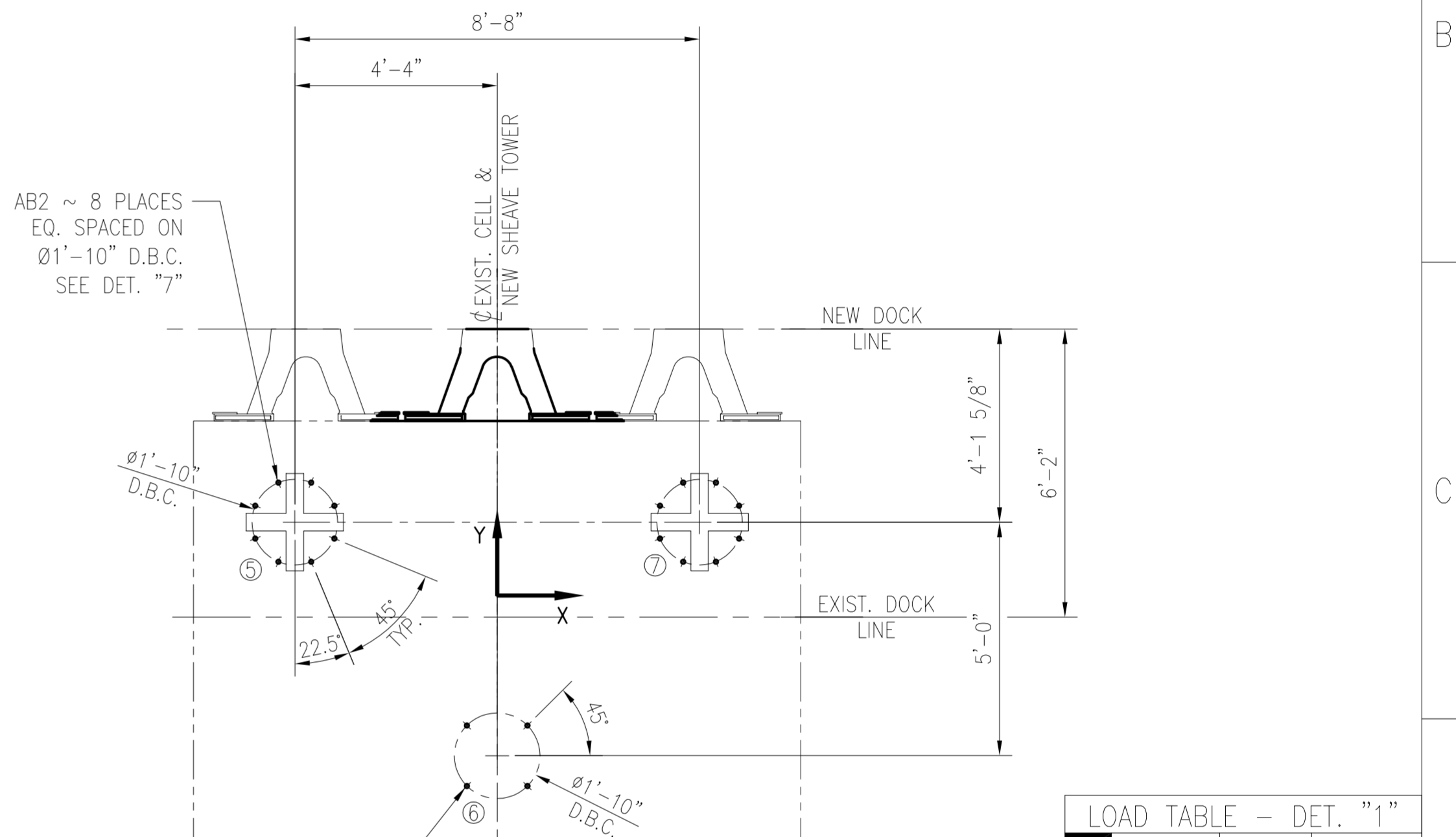
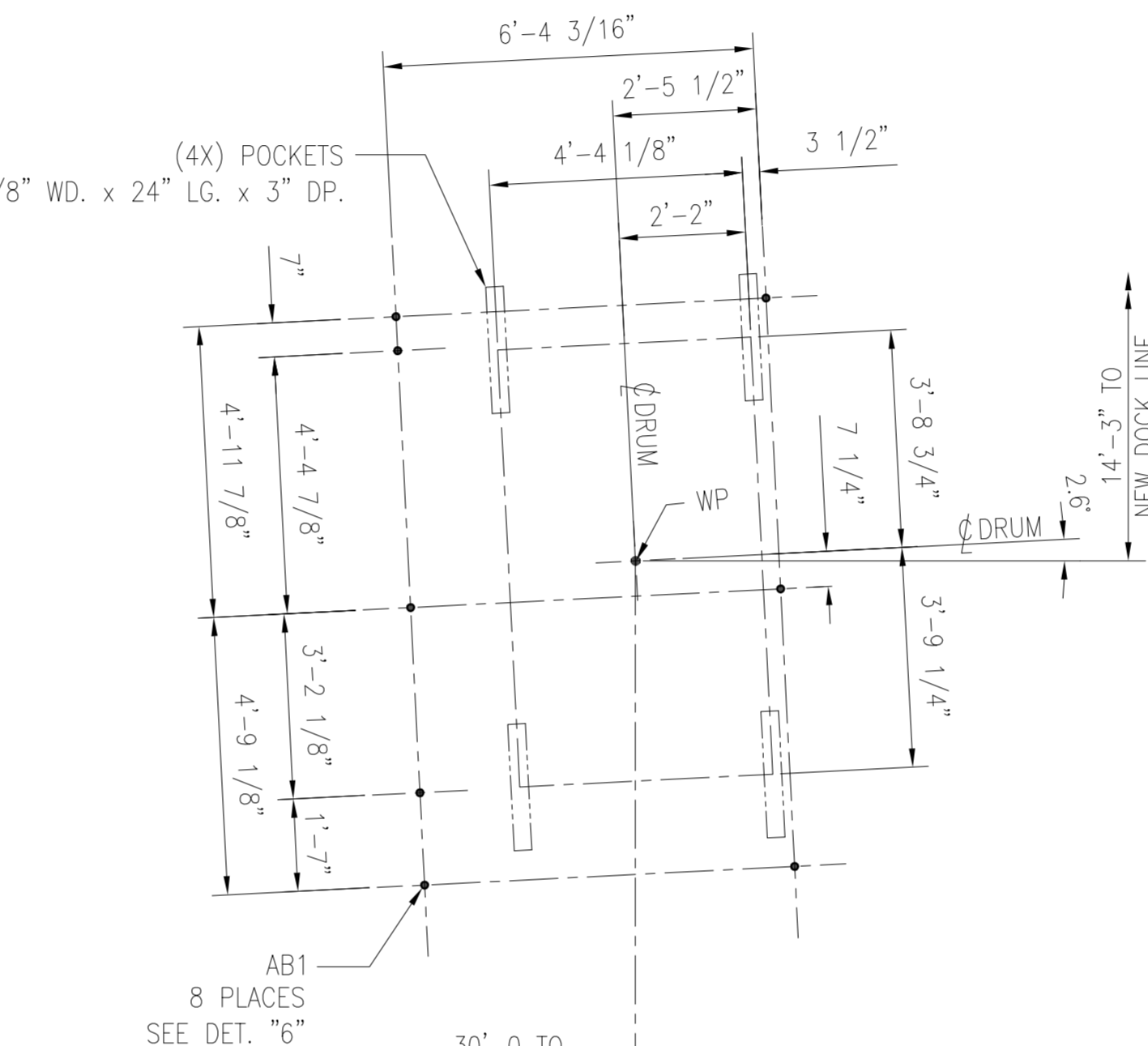
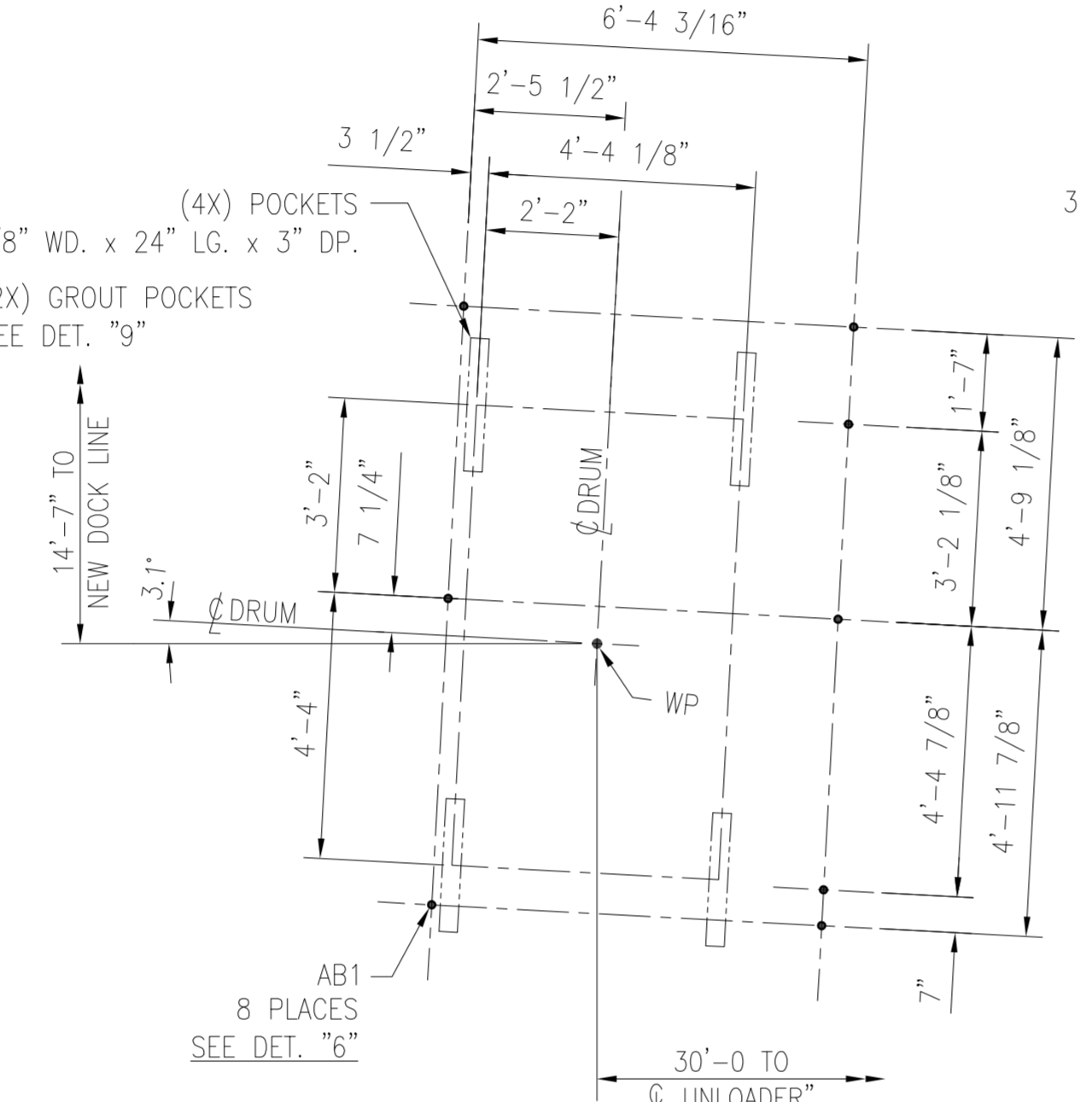
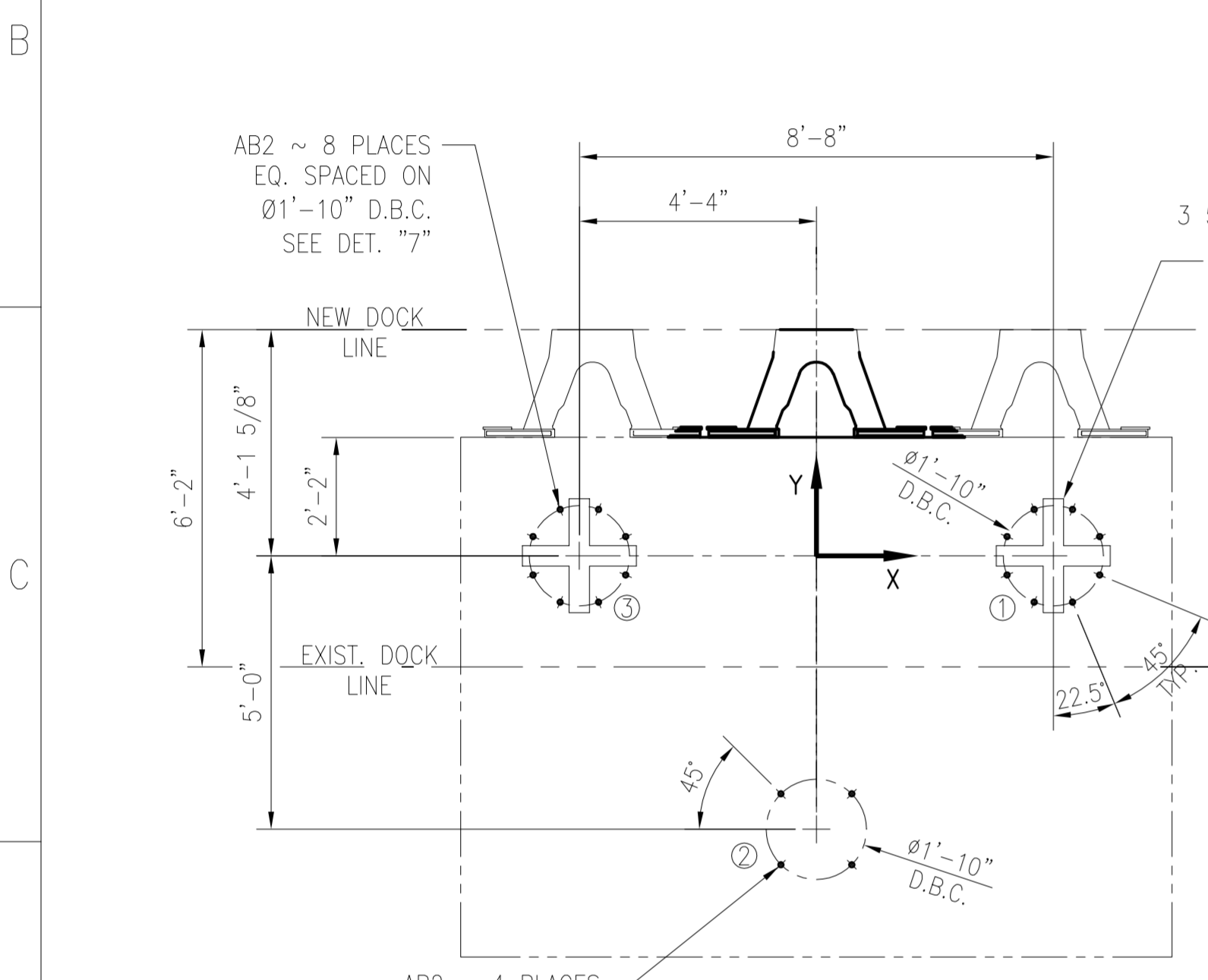
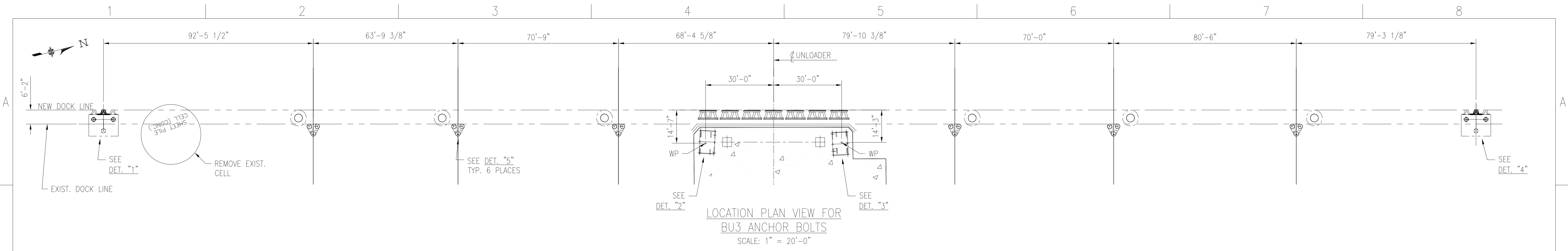


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Pittsburgh, PA 15205

Rev.	Description	Date	Made	Chk'd	App'd
B	UPDATED FOR BID	11/03/23	DJT	-	-
A	PRELIMINARY FOR BID ONLY	09/29/23	DJT	KES	-

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Drawn By: DJT Date: 09/29/23	Checked: - Date: -	Approved: - Date: -	Scale: 1/4" = 1'-0"
GENERAL ARRANGEMENT OF BU3 CABLE REEL SECTION VIEWS		ALABAMA STATE PORT AUTHORITY McDUFFIE ISLAND TERMINAL MOBILE, AL.	
		S03828-8061	Rev. B



LOAD TABLE - DET. "1"

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②	0.0	5.0	-9.0
③	37.0	30.0	105.0

LOAD TABLE - DET. "4"

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⑦	-37.0	30.0	105.0

ANCHOR BOLT REQUIREMENTS

MARK	NO.	REQ'D.	DIA.	EMBED.	PROJ.	LOCATION
AB1	16		1 1/4"	12"	6"	BARGE HAUL DRIVE BASES
AB2	40		1"	20"	7"	SHEAVE TOWER (NORTH & SOUTH CELLS)
AB3	30		3/4"	6 3/4"	4 1/4"	DOLPHIN SAG ROLLERS (TYP.)

DESCRIPTION:
 AB1 (16) HILTI HAS SUPER THRD. ROD A193, B7 - Ø1 1/4" x 31 3/4" LG. W/ 1/2" PLATE WASHER, FLAT WASHER, & (2X) HEX NUTS. ADHESIVE - HIT RES00V3
 AB2 (40) Ø1" x 27" LG. F1554 GRADE 55 HEADED BOLTS W/ FLAT WASHER & (2X) HEX NUTS
 AB3 (30) HILTI HAS SUPER THRD. ROD A193, B7 - Ø3/4" x 11" LG. W/ FLAT WASHER & 2 HEX NUTS. ADHESIVE - HIT RES00V3

- NOTES:
 1. FORCES ARE APPLIED FORCES
 2. POSITIVE "Z" VALUES ARE TENSION REACTIONS
 3. UNITS ARE IN KIPS
 4. ANCHOR LOCATIONS ③ & ⑦ REQUIRE TENSILE ANCHORAGE REINFORCEMENT TO SATISFY CONCRETE BREAKOUT STRENGTH IN TENSION.
 5. ANCHOR LOCATIONS 1, 3, ⑤, & ⑦ REQUIRE SHEAR ANCHORAGE REINFORCEMENT TO SATISFY CONCRETE BREAKOUT STRENGTH OF ANCHORS IN SHEAR
 6. ALL LOADS SHOWN ARE UNFACTORED

Rev.	Description	Date	Made	Chk'd	App'd
C	CORRECTED NOTES	11/06/23	DJT	-	-
B	UPDATED FOR BID	11/02/23	DJT	-	-
A	FOR BID ONLY	09/29/23	DJT	-	-

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Richmond Engineering Works LLC
 Pittsburgh, PA 15205

Richmond Engineering Works

Drawn By: DJT
 Date: 09/15/23

Checked: -
 Date: -

Approved: -
 Date: -

Scale: 1"=1'

GENERAL ARRANGEMENT OF DUAL BARGE SHIFTER SYSTEM
 BU3 ANCHOR BOLT LOCATIONS & LOADS

ALABAMA STATE PORT AUTHORITY
 McDUFFIE ISLAND TERMINAL
 MOBILE, AL.

S03828-8071

Rev. C

A

B

C

D

E

F

A

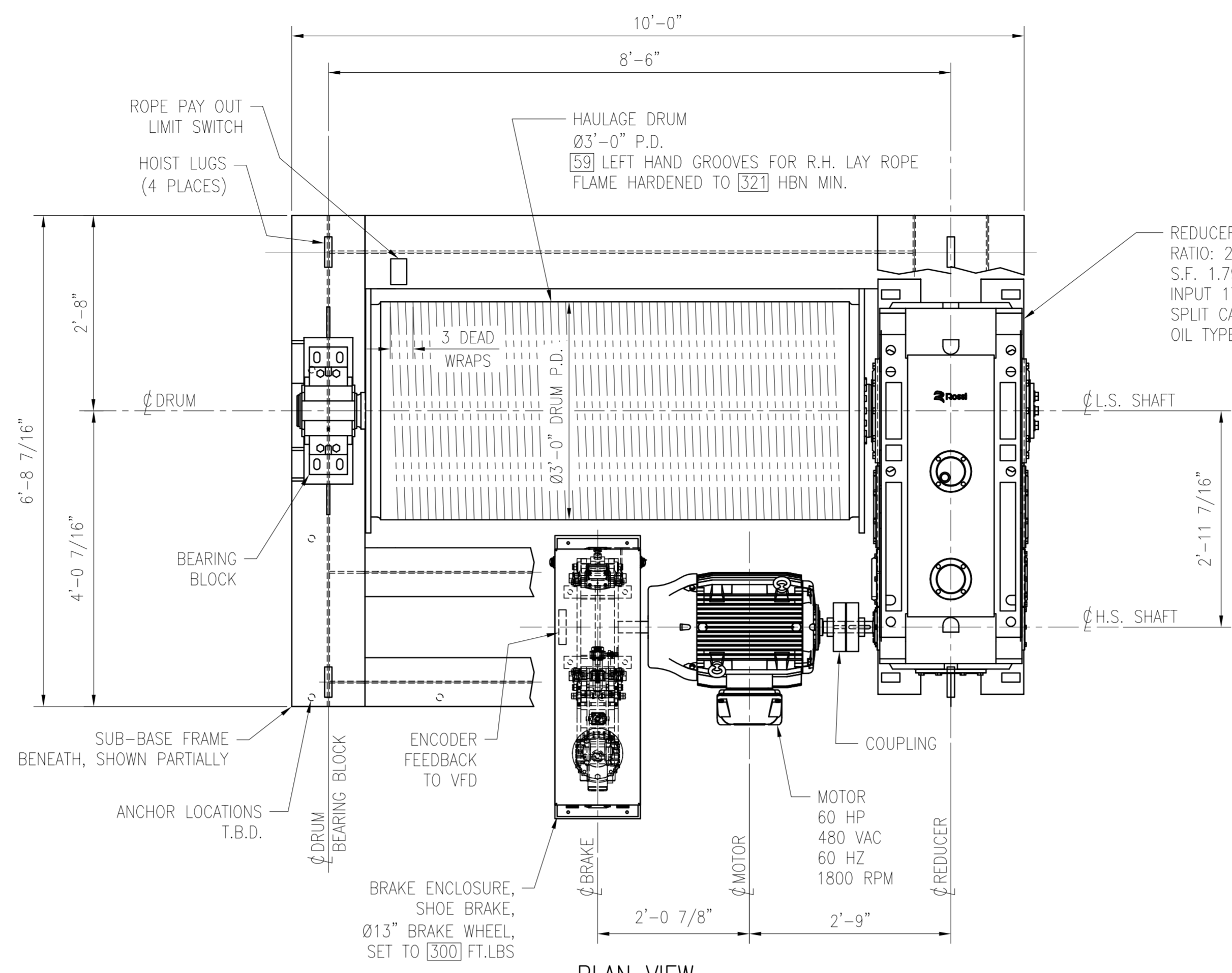
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C

D

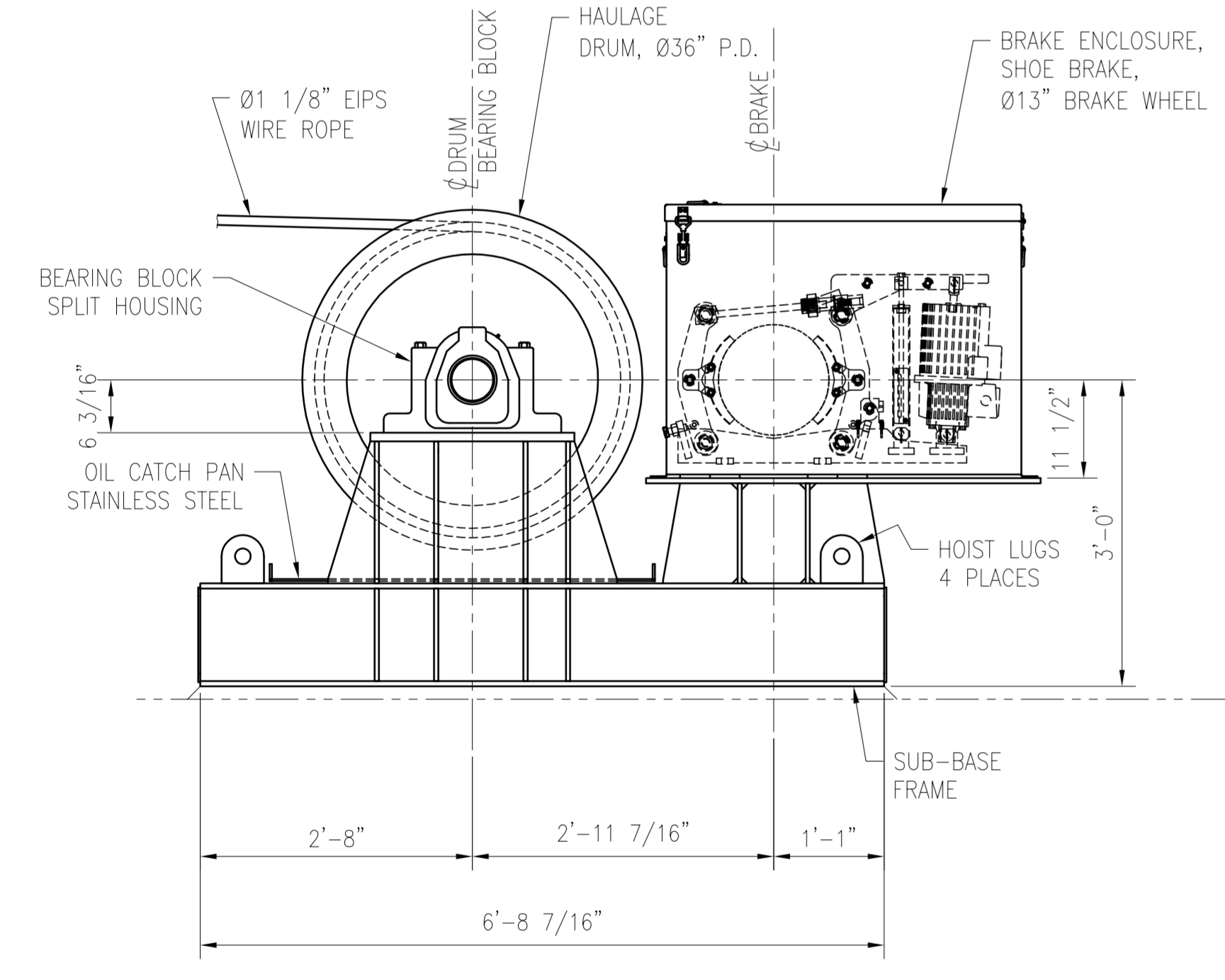
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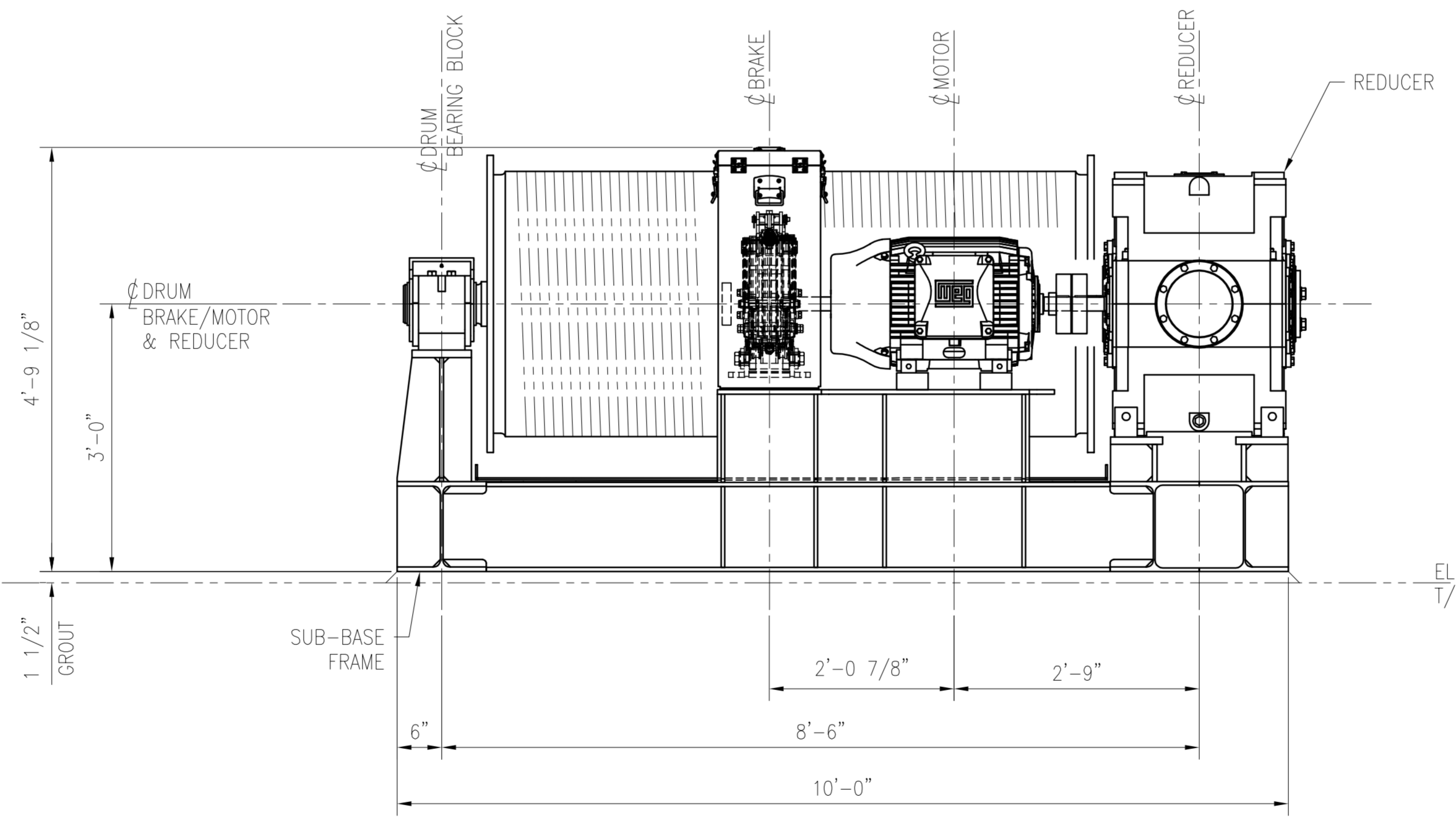


- NOTES:**
1. (4X) IDENTICAL HAULAGE DRIVES REQUIRED
 2. (2X) REQ'D FOR BU1, (2X) REQ'D FOR BU3
 3. APPROX. ASSEMBLY WEIGHT = 17,000 LBS

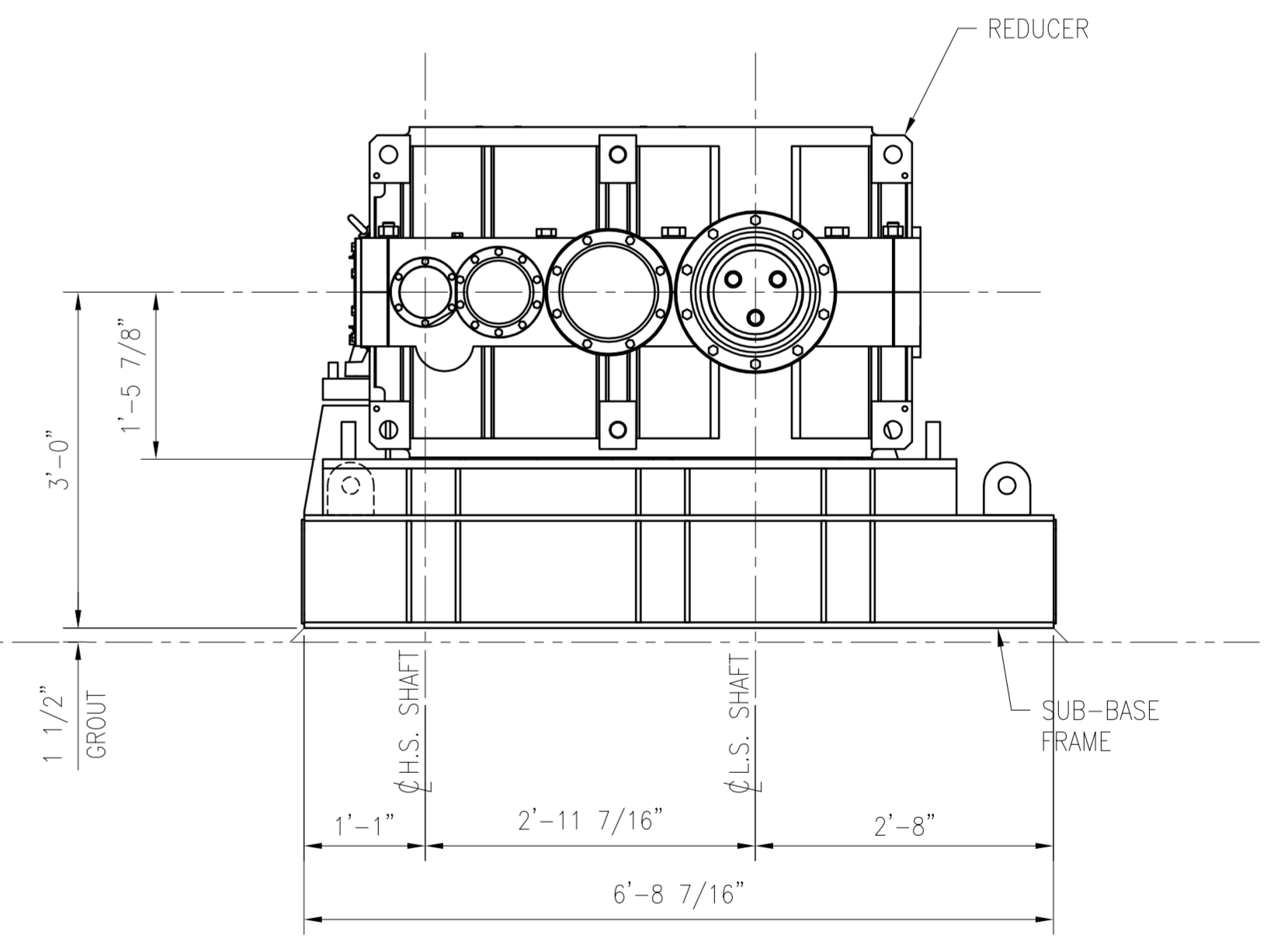
PLAN VIEW
SCALE: 3/4" = 1'-0"



END VIEW
SCALE: 3/4" = 1'-0"



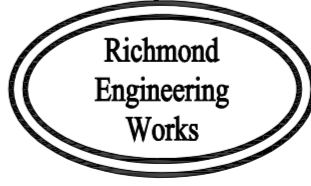
GENERAL ARRANGEMENT OF BARGE HAULAGE DRIVE ASSEMBLY ELEVATION VIEW
SCALE: 3/4" = 1'-0"



END VIEW
SCALE: 3/4" = 1'-0"

Rev.	Description	Date	Made	Chk'd	App'd
A	PRELIMINARY FOR DESIGN REVIEW	08/14/23	DJT	KES	-

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Pittsburgh, PA 15205

Drawn By: DJT	Checked: -	Approved: -	Scale: 1" = 20'
Date: 08/11/2023	Date: -	Date: -	

GENERAL ARRANGEMENT OF BARGE HAULAGE DRIVE ASSEMBLY FOR BU1 & BU3

ALABAMA PORT AUTHORITY
McDUFFIE ISLAND TERMINAL
MOBILE, AL.

S03828-8097

Rev. A