

PAYSON PIER REPLACEMENT

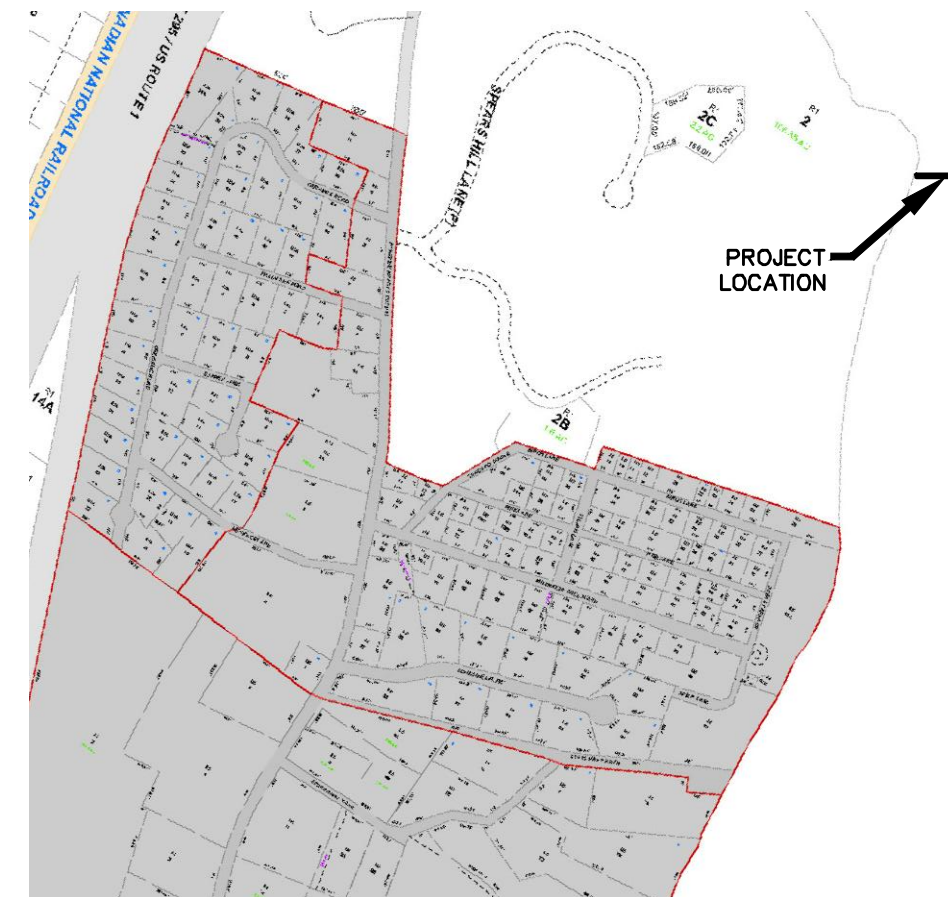
BROAD COVE RESERVE, CUMBERLAND, MAINE
PROJECT NO. 15-05



USGS LOCATION MAP

INDEX OF SHEETS

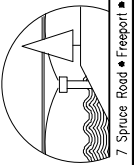
SHEET NO.	DESCRIPTION
G-1	COVERSHEET
G-2	NOTES & SCHEDULES
C-1	EXISTING PIER PLAN & ELEVATION
C-2	SITE PLAN
C-3	MOORING PLAN
S-1	PIER PLAN & ELEVATION
S-2	FLOAT LAYOUT PLAN
S-3	PILE LAYOUT & FRAMING PLANS
S-4	PIER SECTIONS & DETAILS
S-5	CRIB & ABUTMENT DETAILS
S-6	STRUCTURAL DETAILS
F-1	12X24 FLOAT
F-2	12X24 GANGWAY FLOAT



TAX MAP #R1

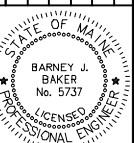
PROPERTY INFORMATION

OWNER: TOWN OF CUMBERLAND, MAINE
ADDRESS: 179 FORESIDE ROAD
CUMBERLAND, MAINE 04021
MAP/LOT: R1-02
ZONING: LOW DENSITY RESIDENTIAL (LDR); SHORELAND OVERLAY
SETBACKS: NO CHANGE



BAKER DESIGN CONSULTANTS
Civil, Marine, and Structural Engineering
Phone: 404.321-0724 • 207-846-9724 • info@bakerdesignconsultants.com

	B	PERMIT SET	1-21-16	BUB
	A	PRELIMINARY CONCEPT	9-10-15	BUB
NO.		SUBMISSION	DATE	INT.



DESIGNED BY:	DJB
DRAWN BY:	JJC
CHECKED BY:	BJB
SCALE:	AS SHOWN

COVER SHEET

PROJECT: BROAD COVE RESERVE
PAYSON PIER REPLACEMENT
CUMBERLAND, MAINE

DATE AUG 2015	
CONTRACT NO. 15-05	
SHEET NO. G-1	REV. B

1. THE CONTRACTOR SHALL BE GOVERNED BY THE CONSTRUCTION SAFETY RULES AS ADOPTED BY THE STATE BOARD OF CONSTRUCTION SAFETY, AUGUSTA, MAINE.
2. THE PROJECT IS SUBJECT TO THE SAFETY AND HEALTH REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AS PROMULGATED BY THE US DEPARTMENT OF LABOR.
3. ALL NON-PAVED AREAS DISTURBED DURING CONSTRUCTION SHALL BE LOAMED, SEEDED, FERTILIZED AND MULCHED UNLESS OTHERWISE DIRECTED BY THE TOWN OR THEIR REPRESENTATIVE.
4. THE CONTRACTOR SHALL COMPLY WITH FEDERAL, STATE AND LOCAL REGULATORY REQUIREMENTS.
5. TOPSOIL STRIPPED IN AREAS OF CONSTRUCTION THAT IS SUITABLE FOR REUSE AS LOAM SHALL BE STOCKPILED AT A LOCATION TO BE DESIGNATED BY THE TOWN. UNSUITABLE SOIL SHALL BE SEPARATED, REMOVED AND DISPOSED OF AT AN APPROVED DISPOSAL LOCATION OFFSITE.

1. NO DISRUPTION TO THE EXISTING UTILITIES ADJACENT THE PROJECT SITE SHALL BE ALLOWED DURING DEMOLITION OR CONSTRUCTION ACTIVITIES.
2. ANY TEMPORARY ELECTRIC SERVICE, IF REQUIRED DURING THE DURATION OF CONSTRUCTION, IS THE RESPONSIBILITY OF THE CONTRACTOR.
3. THE CONTRACTOR SHALL NOT MAKE ANY OPENING OR EXCAVATION WITHIN THE PROJECT AREA UNTIL CONTACT HAS BEEN MADE WITH "DIG SAFE" AND ALL UTILITIES TO LOCATE ANY EXISTING POWER, TELEPHONE, CABLE TV, WATER OR OTHER UNDERGROUND SERVICES.
4. THE UTILITY LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE AND ARE PROVIDED AS A GUIDE TO THE CONTRACTOR. NO GUARANTEE IS MADE THAT UTILITIES WILL BE ENCOUNTERED WHERE SHOWN OR THAT ALL UTILITIES ARE SHOWN. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS IN THE FIELD AND BE RESPONSIBLE FOR REPAIR OF UTILITIES DISTURBED DURING CONSTRUCTION.

1. DEMOLITION MATERIALS NOT SELECTED FOR RETAINIAGE BY THE OWNER TO BE DISPOSED OF AT AN APPROVED FACILITY. ANY TREATED LUMBER SHALL BE DISPOSED OF IN COMPLIANCE WITH MAINE DEP REQUIREMENTS.

1. ALL CONSTRUCTION ACTIVITIES TO BE UNDERTAKEN FROM BARGE NO DISTURBANCE TO UPLAND SITE BEYOND THAT REQUIRED FOR CONSTRUCTION OF NEW PIER ABUTMENT AND APPROACH RAMP SHALL BE ALLOWED.
2. THE CONTRACTOR SHALL WORK WITH THE TOWN TO DESIGNATE A LAYDOWN AREA ON SITE FOR PARKING AND MATERIAL DELIVERY.

1. APPLICATION OF TEMPORARY AND PERMANENT EROSION CONTROL MEASURES FOR THE PROJECT SHALL BE IN ACCORDANCE WITH PROCEDURES AND SPECIFICATIONS OF THE CURRENT MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION; BEST MANAGEMENT PRACTICES.
2. SILTATION FENCE SHALL BE INSTALLED BEFORE ANY EXCAVATION TAKES PLACE.
3. INSTALL EROSION CONTROL MESH ON ALL PROPOSED SLOPES 2:1 OR STEEPER, UNLESS SHOWN OR NOTED OTHERWISE.
4. ALL EROSION CONTROL MEASURES, SEEDING AND MULCHING SHALL BE INSPECTED WEEKLY, AFTER RAINSTORMS AND DURING RUNOFF EVENTS. ALL MEASURES SHALL BE REPAIRED OR REPLACED WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DAMAGE.
5. SEEDED AND MULCHED AREAS SHALL BE MAINTAINED UNTIL FINAL ACCEPTANCE OF THE WORK
6. TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED UPON COMPLETION OF GRADING OPERATIONS AND ESTABLISHMENT OF ACCEPTABLE GROUND COVER.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING EROSION CONTROL MEASURES DURING CONSTRUCTION.

1. BASE SURVEY, TOPOGRAPHY, SITE DATUM CONTROL, AND PROJECT BENCHMARKS ARE FROM A FIELD SURVEY WITH DOCUMENTING PLAN BY LITTLE RIVER LAND SURVEYING DATED 10/19/15.
2. ALL TOPOGRAPHIC INFORMATION PROVIDED IS REFERENCED TO NAVD88 VERTICAL DATUM UNLESS OTHERWISE NOTED.
3. BASE FLOOD/TIDAL INFORMATION TAKEN FROM MEDEP, FEMA, AND NOAA PUBLISHED DATA, REFER TO THE TABLE BELOW.

REFERENCE DOCUMENTS

1. BOUNDARY SURVEY "PLAN OF SPEARS HILL SUBDIVISION, 179 FORESIDE ROAD, CUMBERLAND, MAINE" BY TITCOMB ASSOCIATES, DATED AUGUST 28, 2014 AND REVISED THROUGH DECEMBER 11, 2014.
2. COPIES OF REGULATORY PERMITS ARE PROVIDED IN THE PROJECT MANUAL.
3. SUBSURFACE INFORMATION PROVIDED IN THESE PLANS IS BASED ON A SUBSURFACE INVESTIGATION CONSISTING OF 11 PILE PROBES DRIVEN TO REFUSAL. PROBE RESULTS ARE PROVIDED ON SHEET C-2.

1. DEMOLITION AND DISPOSAL OFFSITE OF EXISTING PIER STRUCTURE, INCLUDING REMOVAL OF CRIBS TO 2' BELOW EXISTING GROUND AND DISPOSAL OF CRIB BALLAST MATERIAL.
2. CONSTRUCTION OF NEW TIMBER PIER INCLUDING CONCRETE ABUTMENT, GRANITE CRIB, AND PILE SUPPORTED BENTS.
3. INSTALLATION OF SEASONAL GANGWAY, FLOATS, AND RESTRAINT SYSTEM.

1. PIER DESIGN LOADS
 - DEAD LOADS - SELF WEIGHT OF COMPONENTS & ATTACHMENTS
 - LIVE LOAD - 100 PSF
 - WAVE HEIGHT - 3 FT
 - DESIGN WIND SPEED - 100 MPH
2. ALL HANDRAIL AND POSTS SHALL BE CONSTRUCTED TO WITHSTAND A 200 LB LOAD APPLIED IN ANY DIRECTION OR 50 LB/FT APPLIED ALONG RAIL LENGTH.
3. GANGWAY
 - NOMINAL SIZE: 80'-0" X 4'-0"
 - MINIMUM CLEAR DISTANCE BETWEEN HANDRAILS: 3'-0"
 - GANGWAY SHALL BE CONSTRUCTED OF MARINE GRADE ALUMINUM
 - HANDRAILS, APRONS, AND TRANSITION PLATES SHALL MEET ADA AND OSHA ACCESSIBILITY REQUIREMENTS
 - GANGWAY SHALL BE DESIGNED TO SAFELY SUPPORT:
 - i. 50 PSF LIVE LOAD WITH SPAN360 DEFLECTION LIMIT
 - ii. 75 PSF LIVE LOAD WITH NO DEFLECTION LIMIT
 - GANGWAY SHALL BE PROVIDED WITH INTEGRAL WATER LINE WITH HOSE BIB CONNECTIONS TOP AND BOTTOM.
 - GANGWAY SHALL BE PROVIDED WITH DETACHABLE CHAIN ACROSS TOP TO DETER ACCESS WHEN RAISED AND STORED ON THE PIER.

STEEL PILES

1. STEEL PIPE PILES SHALL BE 12-3/4 INCH DIAMETER. MINIMUM 7/16 INCH THICK WALL. STEEL PIPE PILES IN ACCORDANCE WITH ASTM A252 GRADE 3.
2. ALL PILES SHALL BE SEAMLESS.
3. AN OPEN CUTTING SHOE IS REQUIRED.
4. STEEL PIPE PILES SHALL BE TREATED WITH FUSION BONDED EPOXY (COLOR BROWN) TO A DEPTH OF AT LEAST 10-FT BELOW GRADE. REPAIR ANY COATING DAMAGED IN THE FIELD.
5. THE CONTRACTOR SHALL TAKE STEPS TO PROTECT PILE COATING FROM DAMAGE DURING HANDLING AND DRIVING OPERATIONS.
6. ALL PILES SHALL BE FILLED WITH MDOT CLASS A CONCRETE AFTER INSTALLATION IS COMPLETE.

CAST-IN-PLACE CONCRETE

1. MIX DESIGN:
 - a. MDOT CLASS A: $F_c = 4,000$ PSI
2. MINIMUM COVER TO REINFORCEMENT = 3"
3. REINFORCING STEEL:
 - a. ASTM A615 GRADE 60: $F_y = 60,000$ PSI
4. COAT EXPOSED CONCRETE SURFACES WITH SIKAGARD 670W CLEAR OR EQUIV. PROTECTIVE COATING.

MISCELLANEOUS METALS AND FASTENERS

1. REFER TO FASTENER SCHEDULE.
2. ALL METAL ITEMS TO BE A36 STEEL, HOT-DIP GALVANIZED AFTER FABRICATION UNLESS OTHERWISE NOTED.
3. ALL FASTENERS SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL.
4. ALL BOLTS SHALL CONFORM TO ASTM A-307. MINIMUM SIZE SHALL BE 3/4" DIA. UNLESS OTHERWISE NOTED. ALL BOLTS TO BE HEAVY HEX UNLESS OTHERWISE NOTED.
5. ANCHOR BOLTS SHALL CONFORM TO ASTM F-1554 AND SHALL BE GRADE 36.

TIMBER STRUCTURAL MEMBERS

1. REFER TO TIMBER SCHEDULE.
2. ALL EXPOSED EDGES SHALL BE PLANED OR SANDED TO PROVIDE SMOOTH SURFACE FREE OF ROUGH EDGES OR DEFECTS.
3. ALL EXPOSED FASTENERS SHALL BE COUNTERSUNK ON WALKING SURFACE, AND PEDESTRIAN HANDRAIL.
4. ALL TIMBER JOISTS, BEAMS AND PILE CAPS TO BE 'CAPPED' WITH 1CE AND WATER SHIELD' BY GRACE CONSTRUCTION PRODUCTS, OR APPROVED EQUAL PRIOR TO PLACEMENT OF DECK.

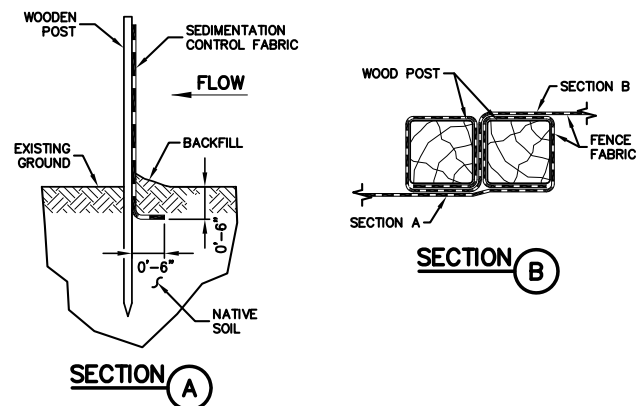
GLUE-LAMINATED TIMBER GIRDERS

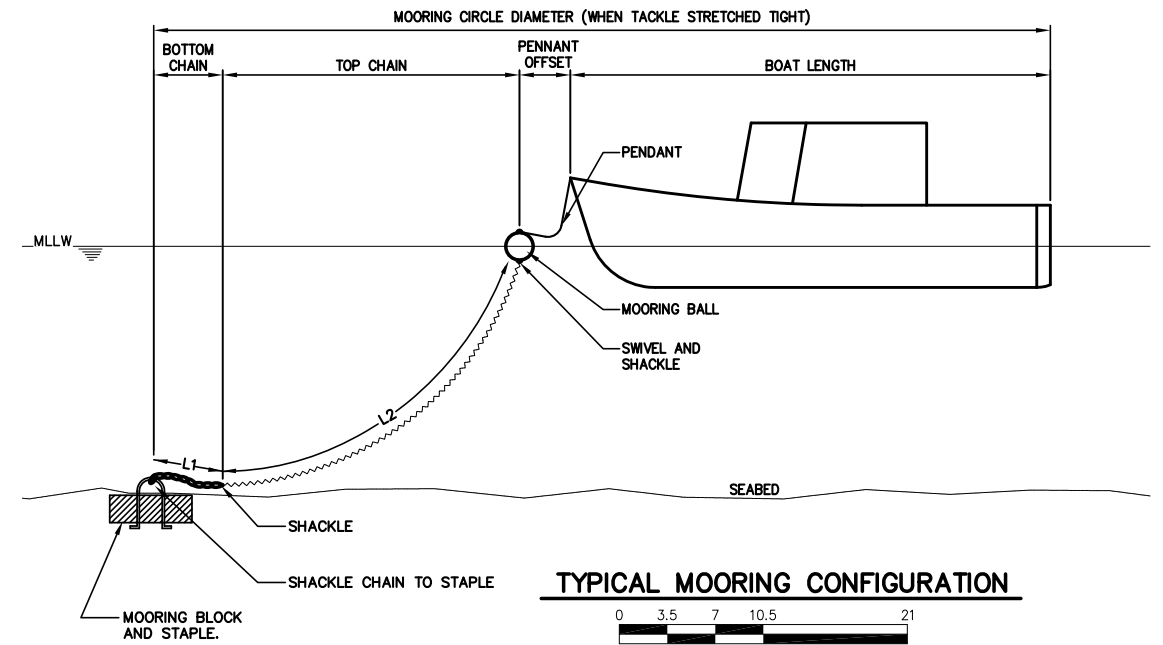
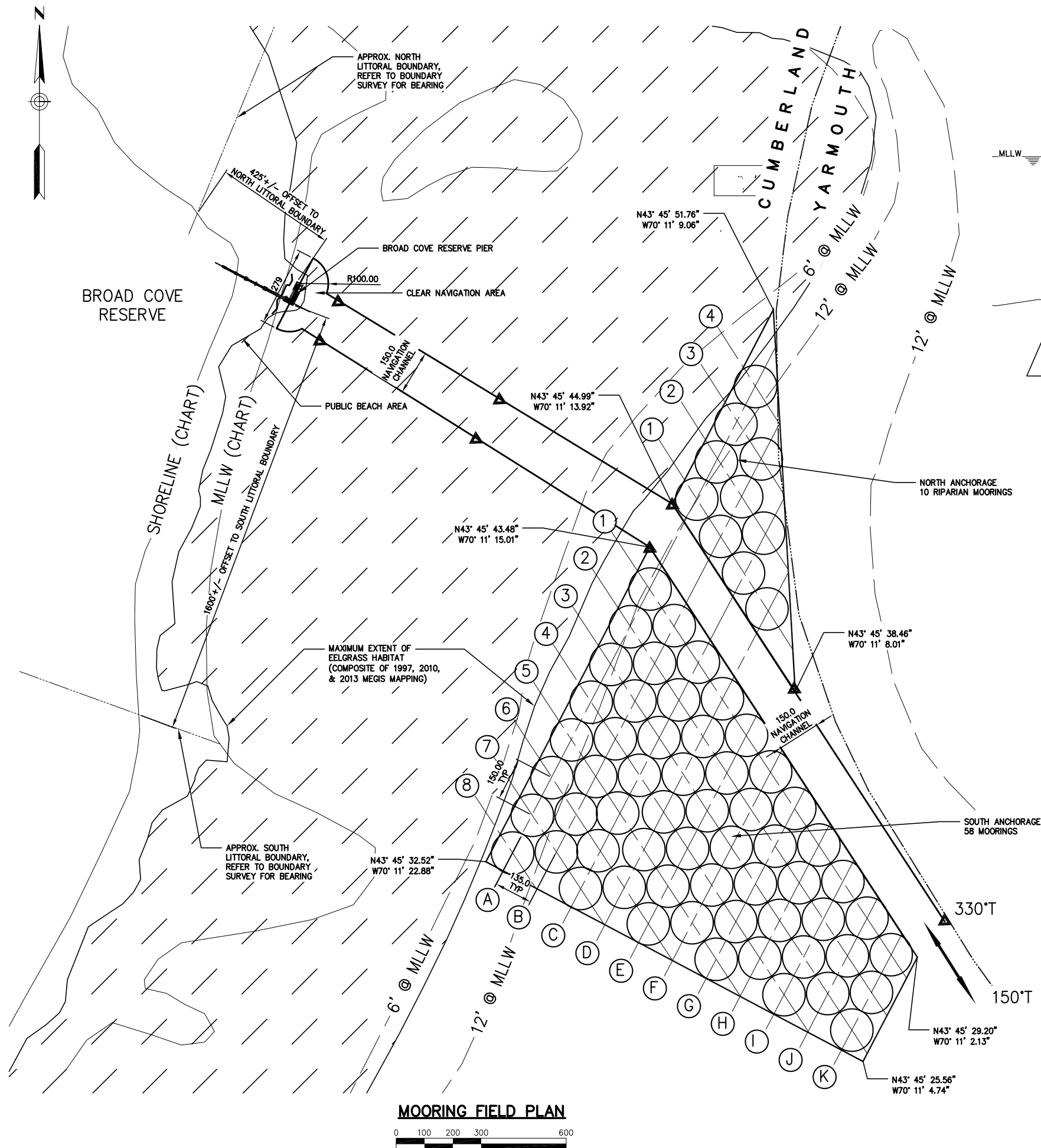
1. ALL EXPOSED SURFACES OF GLULAM MEMBERS SHALL BE TREATED BY THE MANUFACTURER WITH THOMPSON'S WATERSEAL WATERPROOFING WOOD PROTECTOR, OR EQUIVALENT.
2. ANY UNTREATED SURFACES EXPOSED BY CUTTING, DRILLING, SANDING, OR NOTCHING OF GLULAM MEMBERS IN THE FIELD SHALL BE TREATED WITH THOMPSON'S WATERSEAL WATERPROOFING WOOD PROTECTOR, OR EQUIVALENT.
3. CAMBER FOR ALL GLULAM GIRDERS SHALL BE BASED ON A RADIUS OF 2000-FT.

GRANITE CRIB

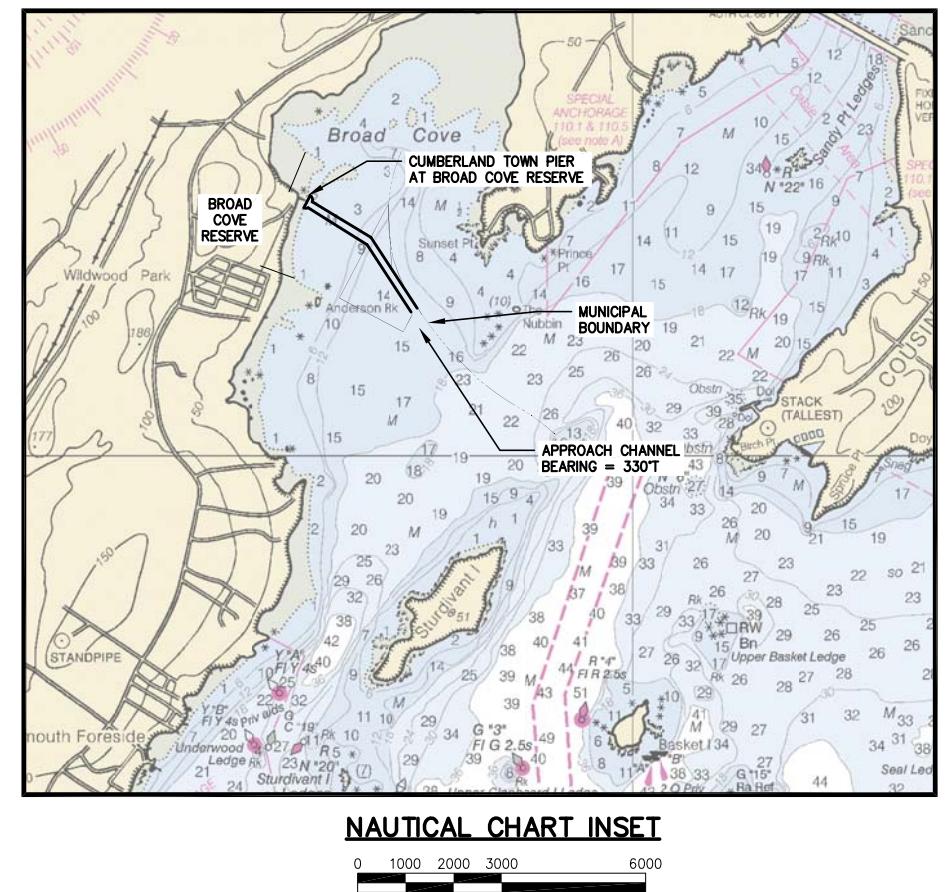
1. IMPORTED GRANITE SHALL BE UNIFORM IN COLOR AND APPEARANCE.
2. EACH COURSE OF GRANITE SHALL BE PINNED TO THE COURSE BELOW WITH 1-1/4 INCH STEEL RODS OR EPOXY COATED REBAR
3. STEEL RODS SHALL BE SET INTO LEDGE WITH AN APPROVED EPOXY GROUT. NO GROUT WILL BE REQUIRED IN GRANITE STACK BLOCKS.
4. ALL GRANITE BLOCKS SHALL BE PLACED LEVEL AND PARALLEL TO THE LINES AND GRADES SHOWN ON THE PLANS.

TYPICAL EROSION CONTROL DETAILS

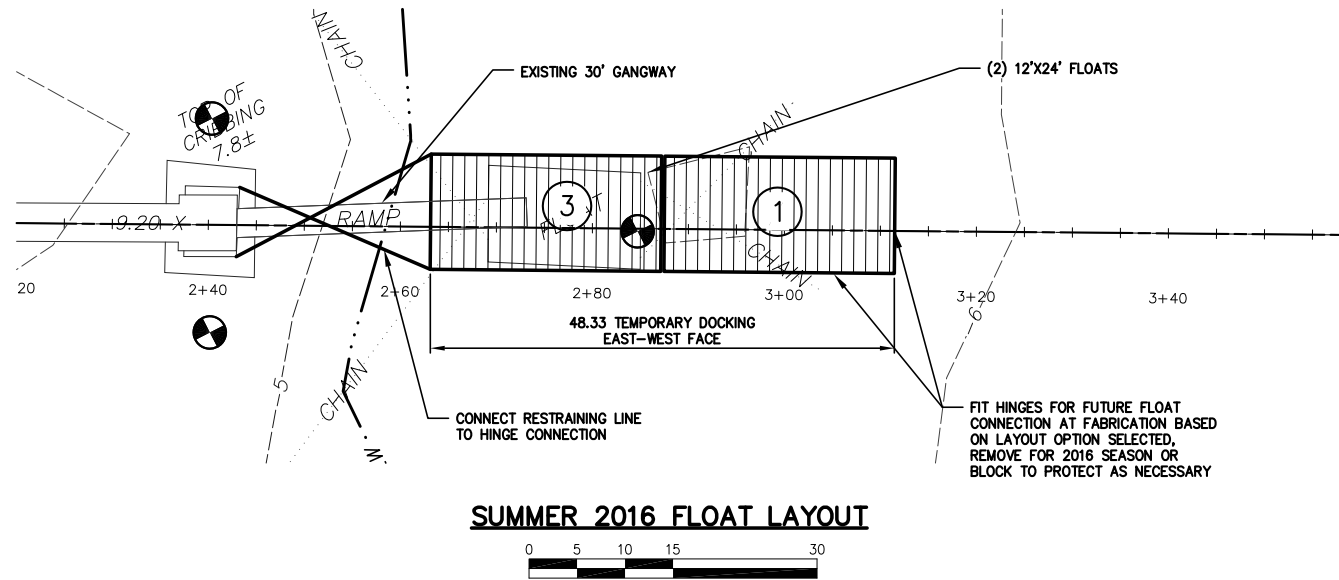
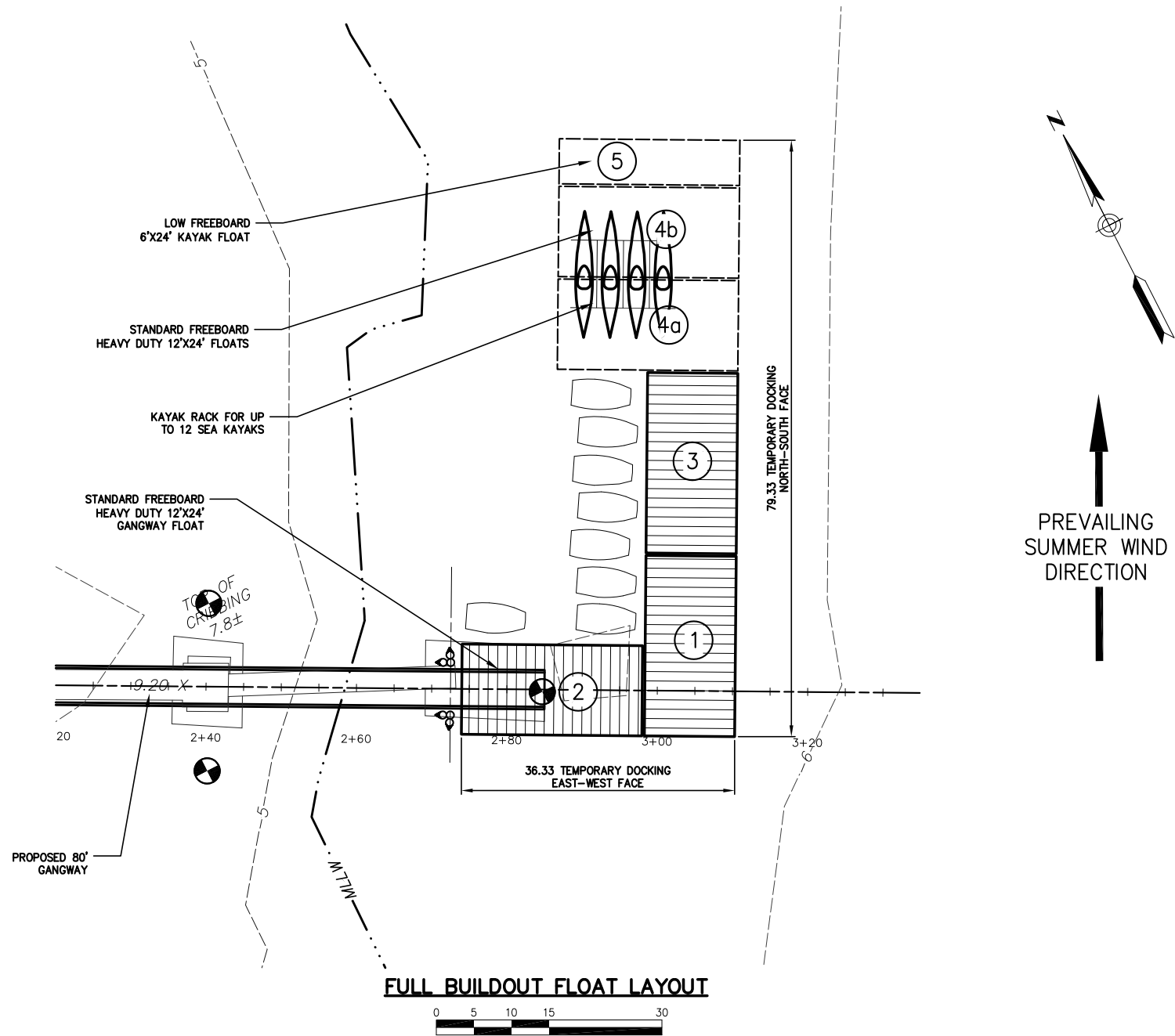




Mooring Plan Handbook Recommendations for no mooring interference								
Boat Length FT		Depth of Water FT		Bow Ht	"Mooring Plan Handbook" Recom.			
Range	Max	MLW	MHW	FT	Chain Length	Pennant Length	Mooring Circle Dia.	
ft	ft				(MHW x 2)	2.5x Bow Ht	MLW	MHW
10 to 20	20	6	14.8	3.0	29.6	7.5	111.7	105.0
		12	20.8	3.0	41.6	7.5	133.4	125.8
		18	26.8	3.0	53.6	7.5	154.7	146.6
		24	32.8	3.0	65.6	7.5	175.9	167.4
20 to 30	30	12	20.8	4.0	41.6	10.0	158.0	150.4
		18	26.8	4.0	53.6	10.0	179.3	171.2
		24	32.8	4.0	65.6	10.0	200.4	192.0
		30	38.8	4.0	77.6	10.0	221.5	212.7
30 to 40	40	12	20.8	5.0	41.6	12.5	182.6	175.0
		18	26.8	5.0	53.6	12.5	203.9	195.8
		24	32.8	5.0	65.6	12.5	225.0	216.5
		30	38.8	5.0	77.6	12.5	246.0	237.7



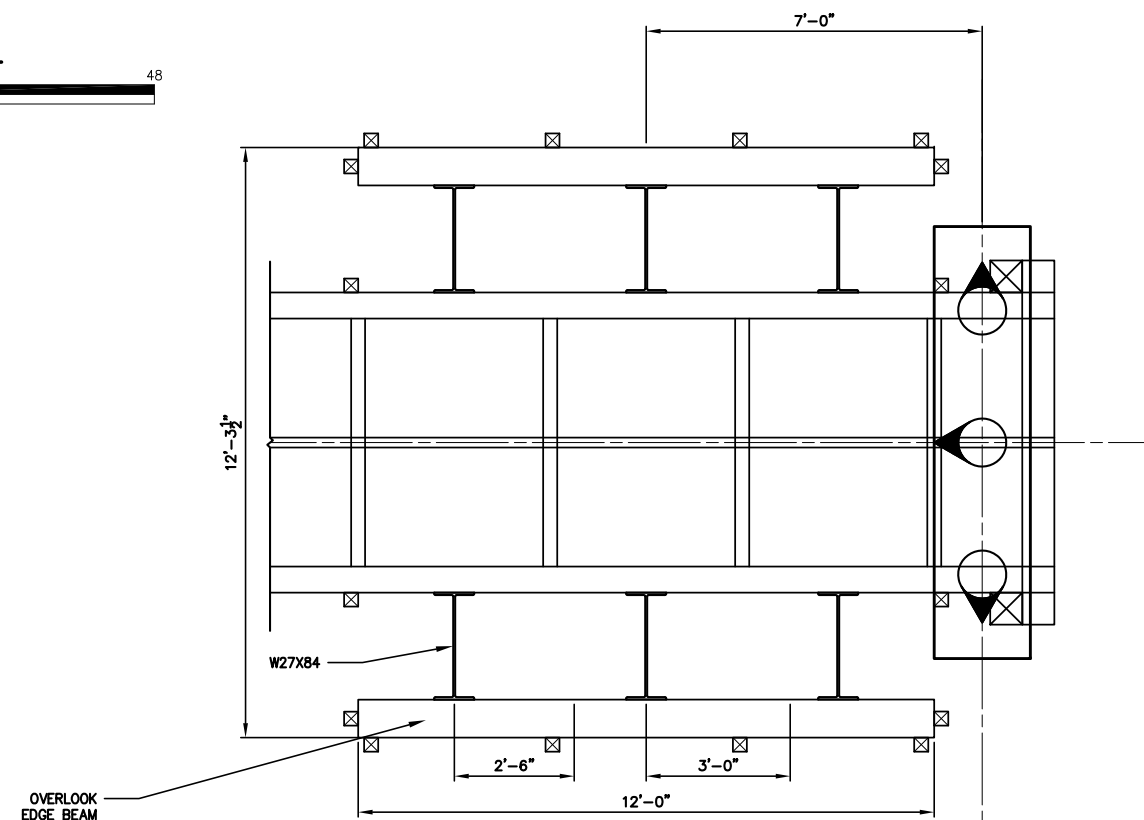
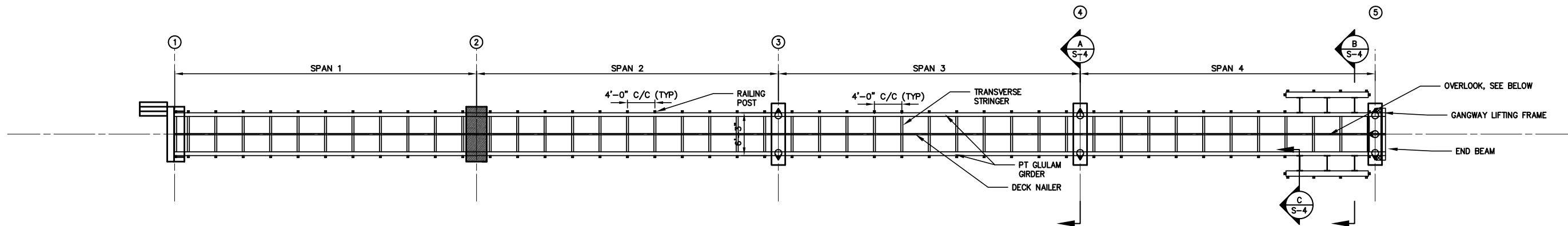
\\bdc-srv\projects\15\15-05 payson pier, cumberland\cad\15-05 payson pier condition survey civil3d.dwg 1/22/2016



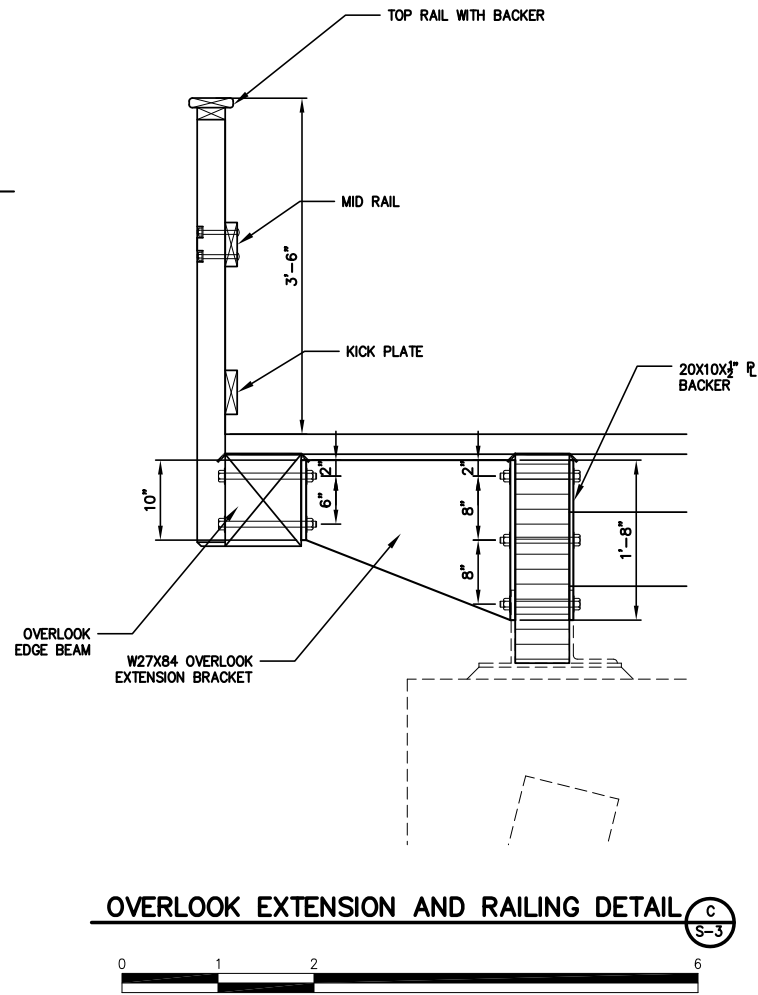
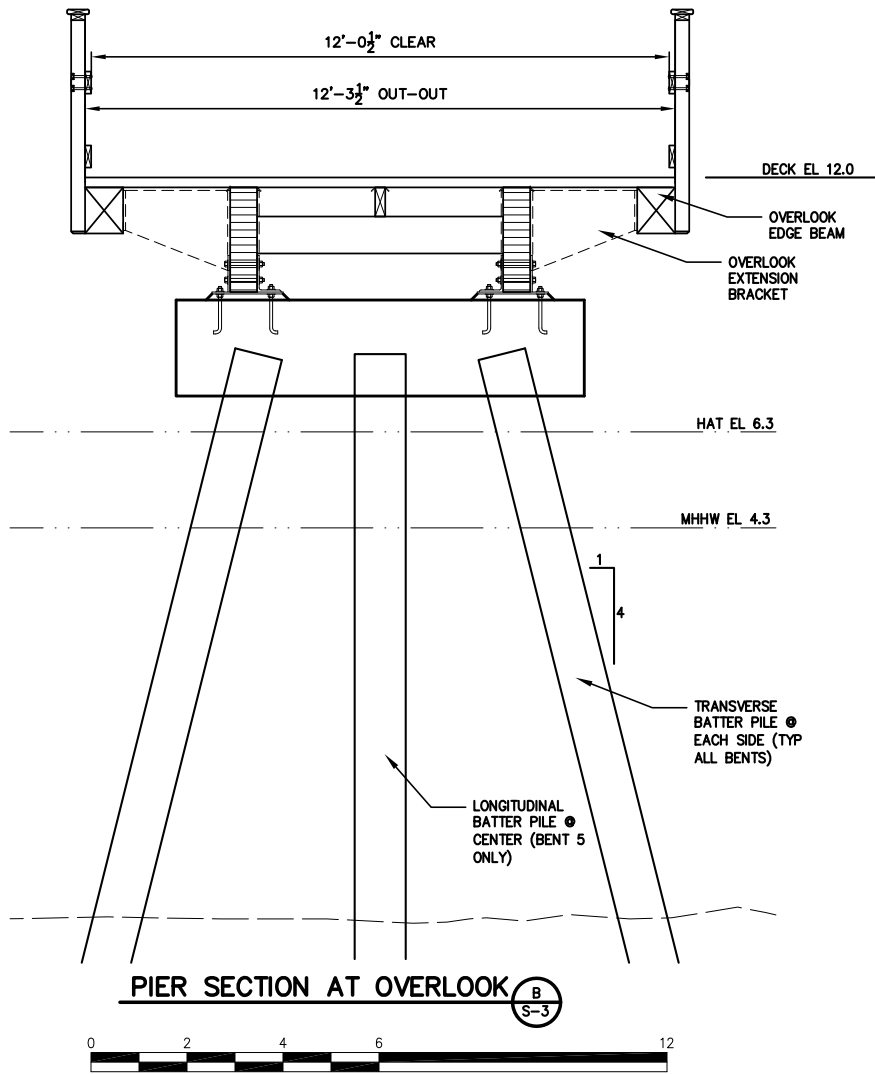
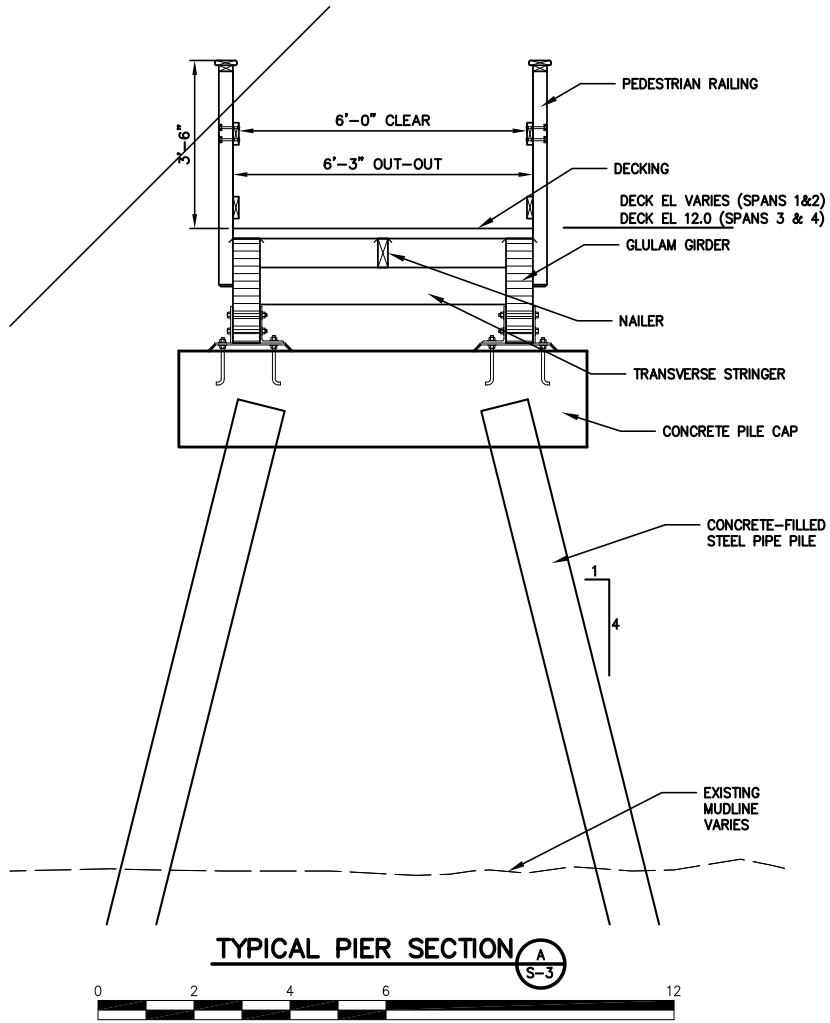
SHEET TITLE: FLOAT LAYOUT PLAN		DATE AUG 2015	
PROJECT: BROAD COVE RESERVE PAYSON PIER REPLACEMENT CUMBERLAND, MAINE		CONTRACT NO. 15-05	
SHEET NO. S-2		REV. B	
DESIGNED BY: DJB		CHECKED BY: BJB	
DRAWN BY: JJC		SCALE: AS SHOWN	
STATE OF MAINE BARNEY J. BAKER No. 5737 LICENSED PROFESSIONAL ENGINEER		PERMIT SET 1-21-16 BJB 9-10-15 BJB PRELIMINARY CONCEPT SUBMISSION	
BAKER DESIGN CONSULTANTS Civil, Marine, and Structural Engineering 7 Spruce Road • Freeport • Maine • 04032 • 207-846-9724 • info@bakerdesignconsultants.com		DATE 1-21-16 BJB 9-10-15 BJB SUBMISSION	

Plan view of the bridge structure showing the following components and dimensions:

- PIER ABUTMENT, SEE DETAIL SHEET S-5**: Located at station 1.
- GRANITE CRIB, SEE DETAIL SHEET S-4**: Located at station 2.
- PIERS**: Located at stations 3 and 4.
- PILE BENT, SEE TYPICAL PIER SECTION, SHEET S-4**: Located at station 5.
- Dimensions**:
 - 44'-0" between station 1 and 2.
 - 44'-0" between station 2 and 3.
 - 44'-0" between station 3 and 4.
 - 43'-0" between station 4 and 5.
- Labels**:
 - ①, ②, ③, ④, ⑤: Station markers.
 - PIER ALIGNMENT: Centerline of the bridge.
 - ARROWS INDICATE DIRECTION OF BATTER: Located between stations 3 and 4, with a dimension of 5'-6" between the centerline and the pile bent.



\\bdc-srv\projects\15\15-05 payson pier, Cumberland\cad\15-05 payson pier condition survey structural.dwg



NO.	DATE	INT.	BUB	BUB
1	1-21-16	BUB	BUB	BUB
2	9-10-15	BUB	BUB	BUB
3	PRELIMINARY CONCEPT	BUB	BUB	BUB
4	SUBMISSION	BUB	BUB	BUB



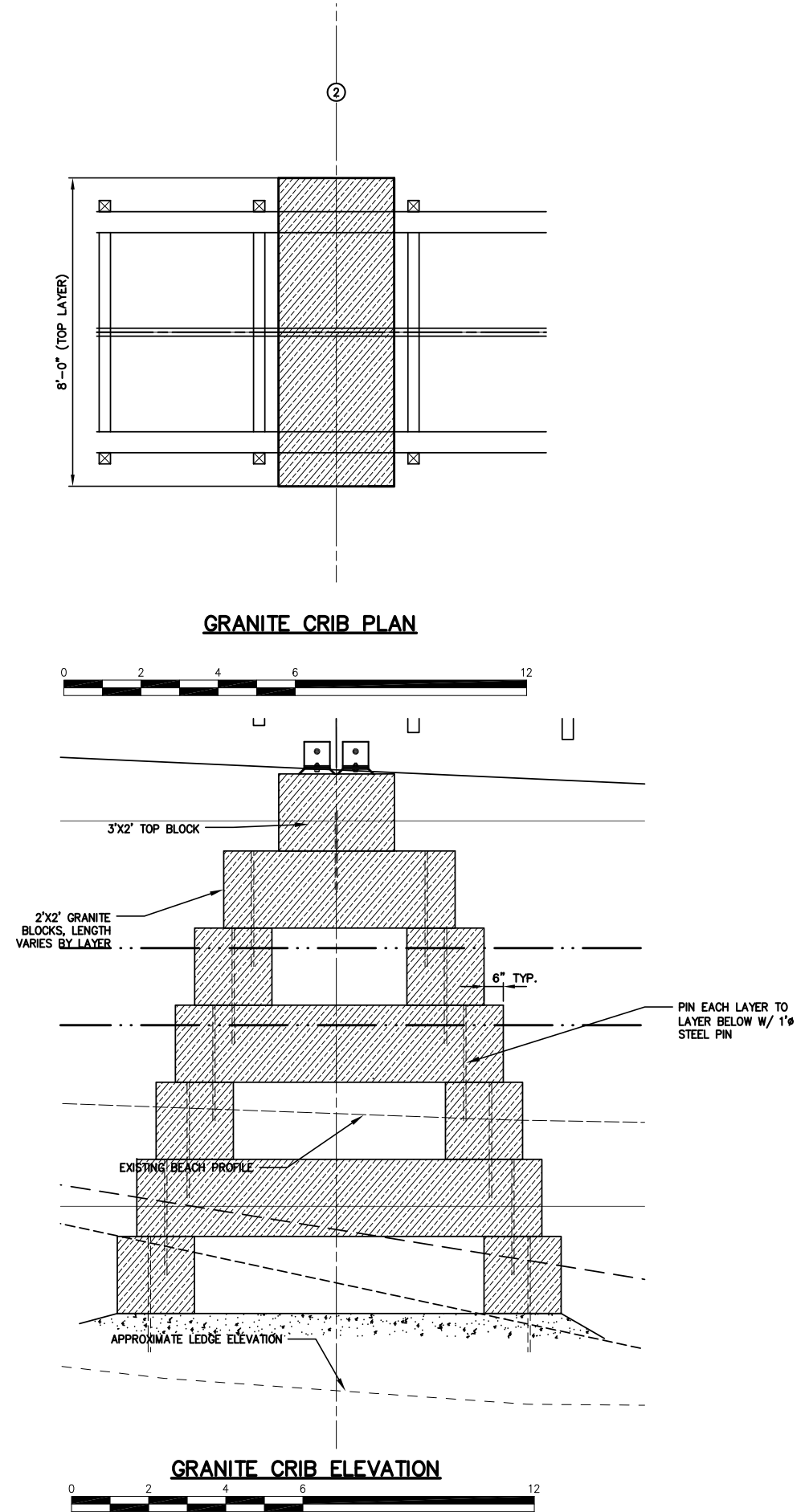
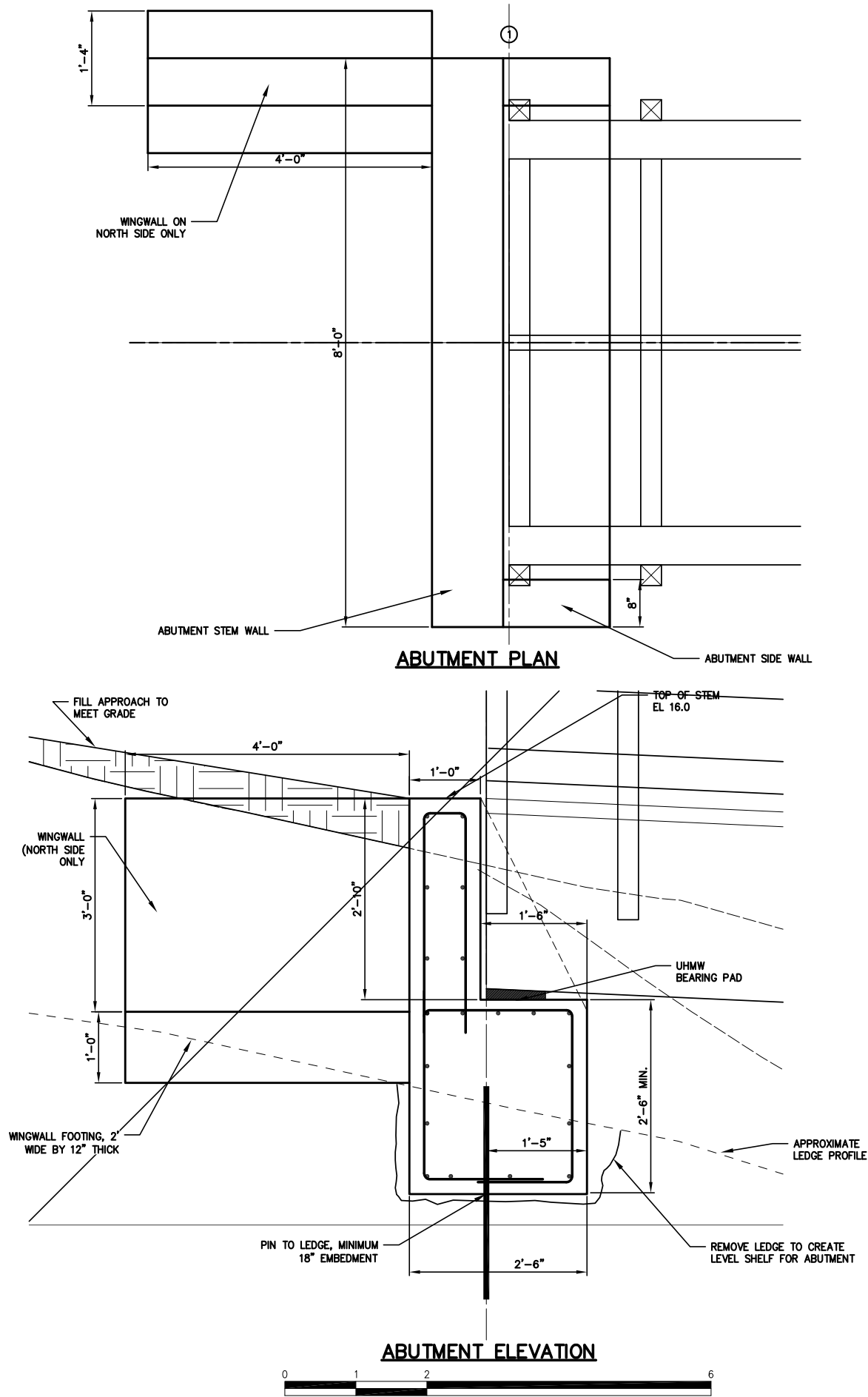
DESIGNED BY:	DJB
DRAWN BY:	JJC
CHECKED BY:	BUB
SCALE:	AS SHOWN

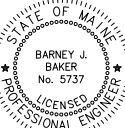
SHEET TITLE:	PIER SECTIONS AND DETAILS
PROJECT:	BROAD COVE RESERVE PAYSON PIER REPLACEMENT CUMBERLAND, MAINE

DATE	AUG 2015
CONTRACT NO.	15-05

SHEET NO.	REV.
S-4	A

\\bdc-srv\projects\15\15-05 payson pier, cumberland\cad\15-05 payson pier condition survey structural.dwg



BAKER DESIGN CONSULTANTS <i>Civil, Marine, and Structural Engineering</i>		DESIGNED BY: DJB		SHEET TITLE: CRIB & ABUTMENT DETAILS	
		DRAWN BY: JJC		PROJECT: TOWN OF CUMBERLAND PAYSON PIER REPLACEMENT	
		CHECKED BY: BJB		DATE: AUG 2015	
		SCALE: AS SHOWN		CONTRACT NO. 15-05	
		SUBMISSION NO. 9-10-15		SHEET NO. 3-5	
		DATE: 1-21-16		REV. B	
		BUB			
		INT.			

7 Spruce Road • Freeport • Maine • 04032 • 207-846-3724 • info@bakerdesignconsultants.com

The technical drawing consists of two views: an elevation view and a plan view.

Elevation View: Shows a vertical assembly. At the top is a **W10x30** beam. Below it are two **1/2" STIFFENER PLATES**. At the bottom is a **1/2" PLATE TAB** with a semi-circular bottom. The height of the stiffener plates is **4"**. A hole in the plate tab has a diameter of **Ø1 1/2"** and is positioned at an angle of **Ø5°** from the vertical centerline.

PLAN View: Shows the horizontal assembly. It includes two **1/2" STIFFENER PLATE**s and a **W10x30** beam. The total length of the assembly is **7'-0"**. The assembly is shown attached to a **BEAM / PILE**, indicated by the symbol $\odot$ BEAM / $\odot$ PILE.

LIFTING TAB

PILE

1/2" PLATE

8"

1"

1'-4"

5"

3 NO. 7/8" Ø BOLTS

1 1/2"

2 1/2"

2 1/2"

1 1/2"

1 1/2"

3"

W10x30

BEAM CONNECTION TO PILE – ELEVATION

0 1 2

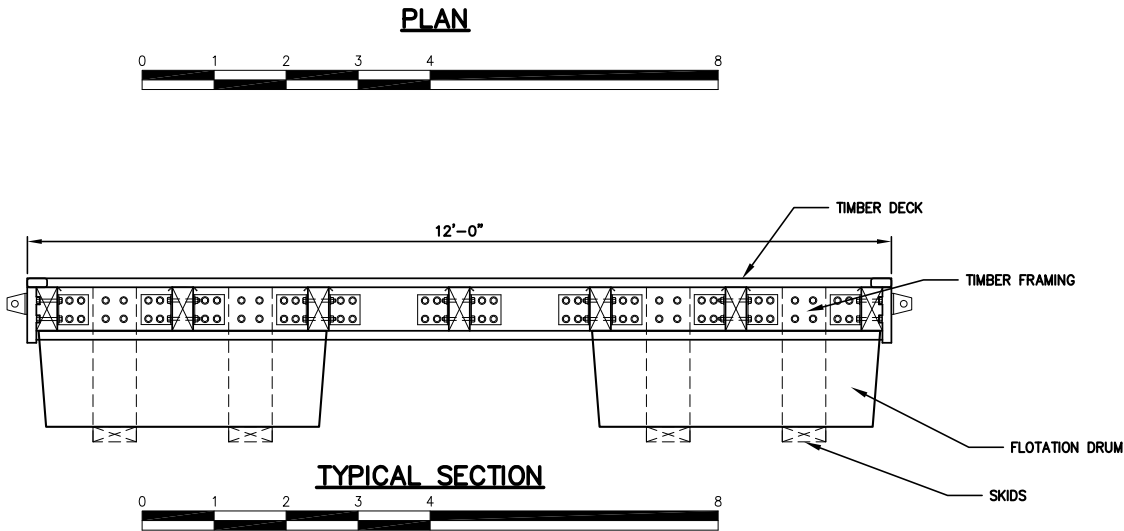


NOTE:

- DRUM LAYOUT, DEPTH, DEAD LOAD FREEBOARD, AND FLOAT LIVE LOAD CAPACITY TO BE CONFIRMED IN FINAL FLOAT DESIGN.

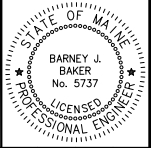
[illegible]

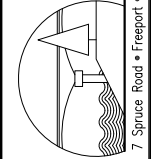
\\bdc-srv\projects\15\15-05 payson pier, Cumberland\cad\15-05 payson pier condition survey structural.dwg



NOTE:

- DRUM LAYOUT, DEPTH, DEAD LOAD FREEBOARD, AND FLOAT LIVE LOAD CAPACITY TO BE CONFIRMED IN FINAL FLOAT DESIGN.

SHEET TITLE: 12X24 GANGWAY FLOAT DETAILS		DESIGNED BY: DJB								
PROJECT: BROAD COVE RESERVE PAYSON PIER REPLACEMENT CUMBERLAND, MAINE		DRAWN BY: JJC		B	PERMIT SET					
		CHECKED BY: BUB		A	PRELIMINARY FLOAT DESIGN					
		SCALE: AS SHOWN		NO.	SUBMISSION	DATE	INT.			
DATE DEC 2015										
CONTRACT NO. 15-05										
SHEET NO. F-2		REV. B								



BAKER DESIGN CONSULTANTS
Civil, Marine, and Structural Engineering
7 Spruce Road • Freeport • Maine • 04032 • 207-846-9724 • info@bakerdesignconsultants.com