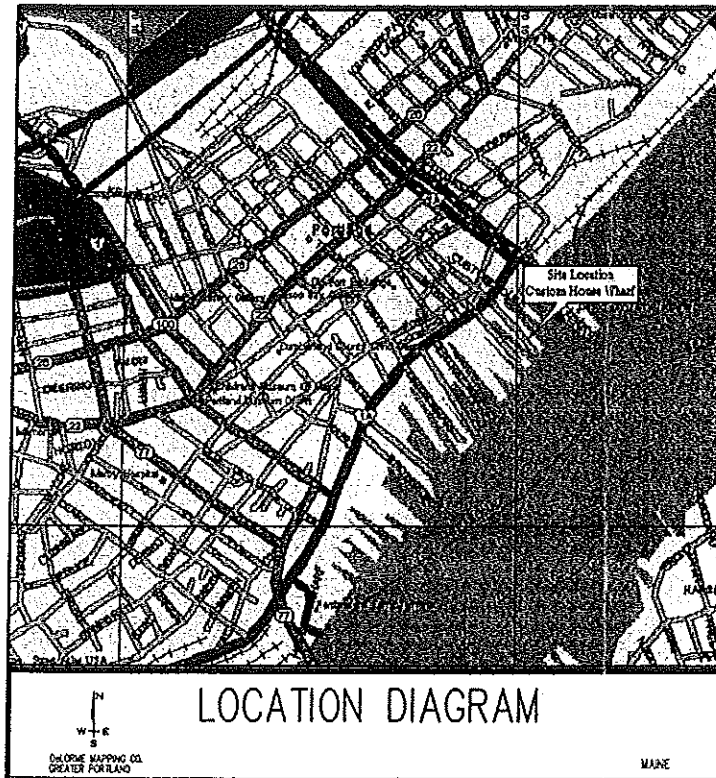


CUSTOM HOUSE WHARF PORTLAND, MAINE

MARINE USE FACILITY



LIST OF DRAWINGS

1. PILE AND PILE CAP PLAN
2. PILE CAP A
3. PILE CAP B
4. PILE CAP C
5. PILE CAP D & E
6. PILE CAP 22
7. PILE CAP 1
8. PILE CAP DETAILS
9. PRECAST DECK PLANKS
10. CAST-IN-PLACE DECK
11. FENDER & CLEAT DETAILS
12. FENDER & LADDER DETAILS



TEC ASSOCIATES

46 SAWYER STREET

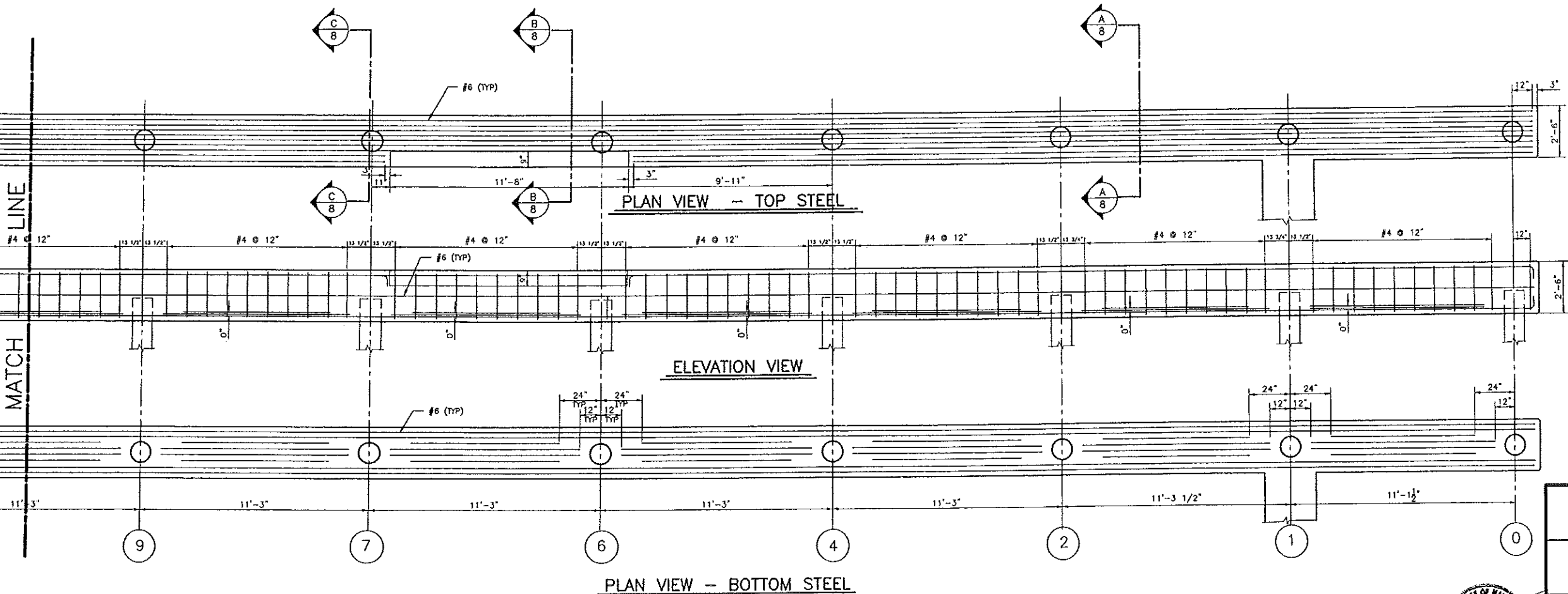
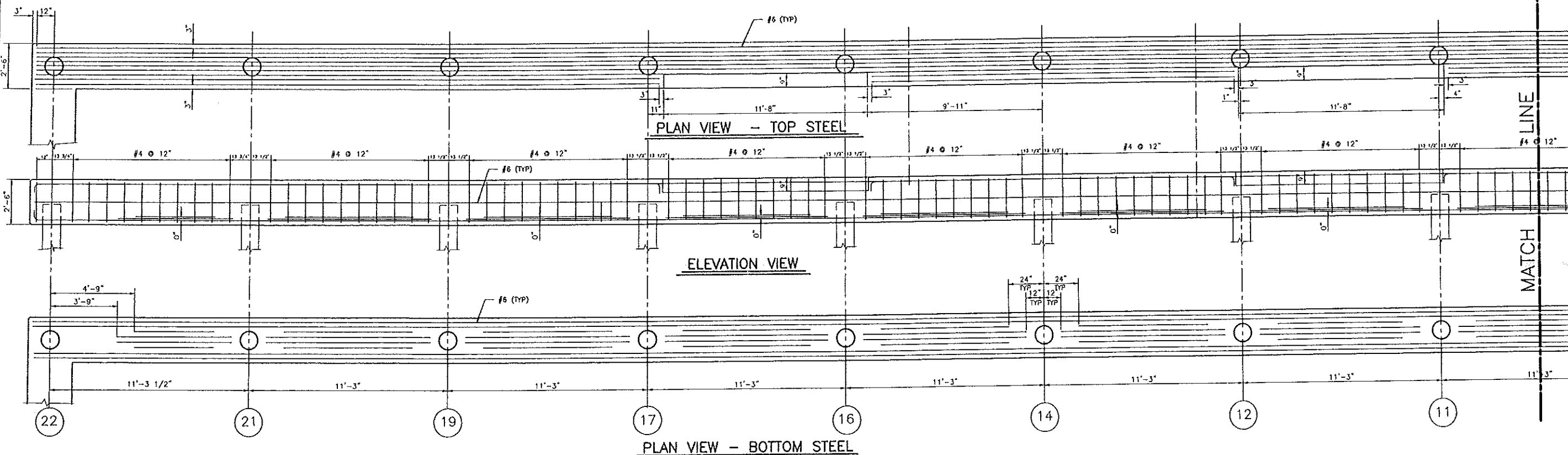
SOUTH PORTLAND, MAINE

CONSULTING
ENGINEERS

04106



TEC ASSOCIATES CONSULTING ENGINEERS 46 SAWYER STREET SOUTH PORTLAND, MAINE 04106			
SCALE	N.T.S.	DATE	5/26/98
JOB NUMBER	9814-1	DRAWN BY	JDL
REV. NO.		CHECKED BY	
		DATE	COVER

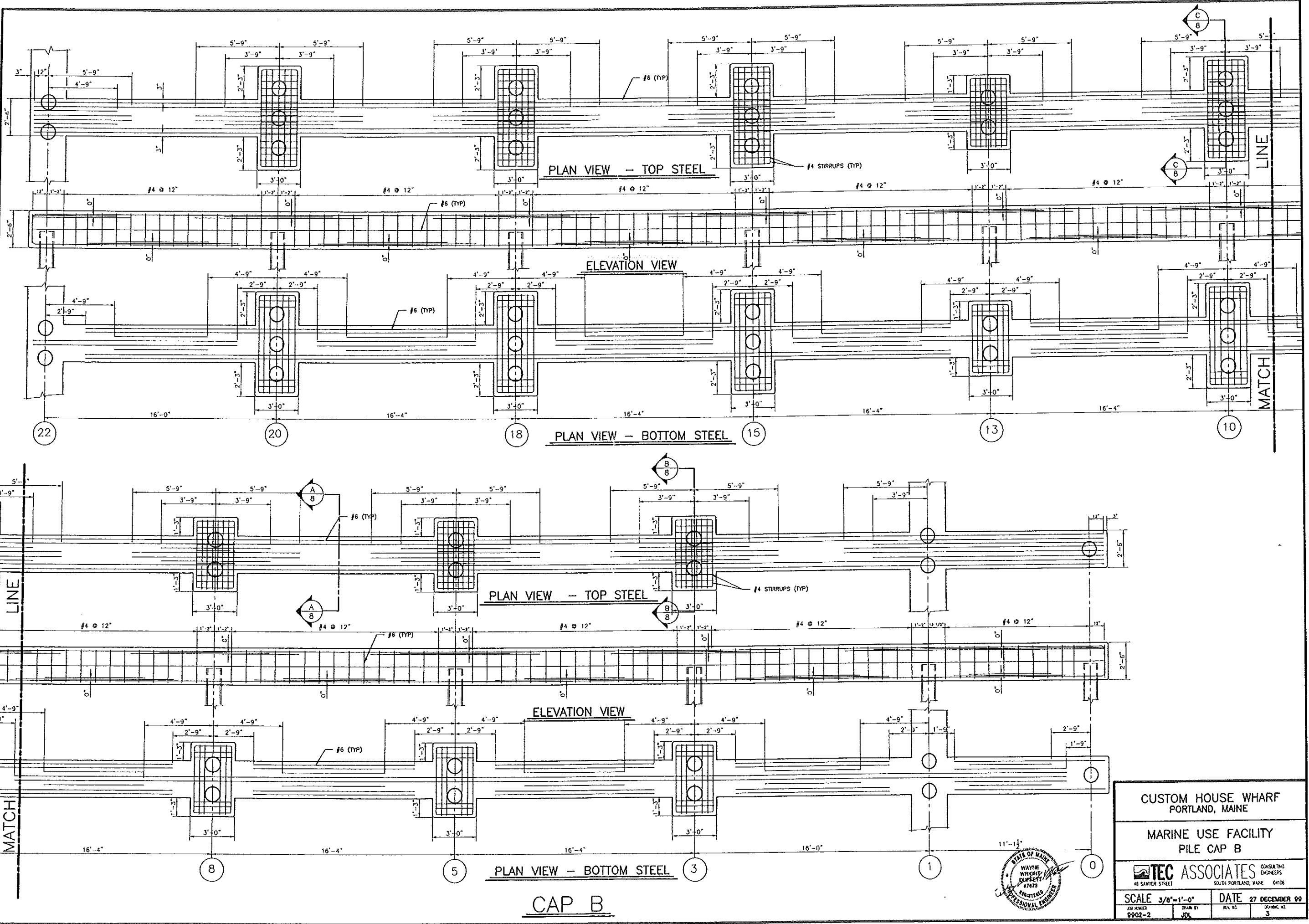


CAP A

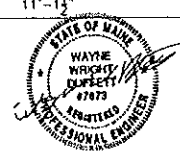
CUSTOM HOUSE WHARF PORTLAND, MAINE	
MARINE USE FACILITY PILE CAP A	
TEC ASSOCIATES 45 SAWYER STREET SOUTH PORTLAND, MAINE 04106	CONSULTING ENGINEERS
SCALE 3/8"=1'-0"	DATE 27 DECEMBER 99
JOB NO. 9902-2	DRW. BY JOK
REC. NO.	DRWING NO. 2



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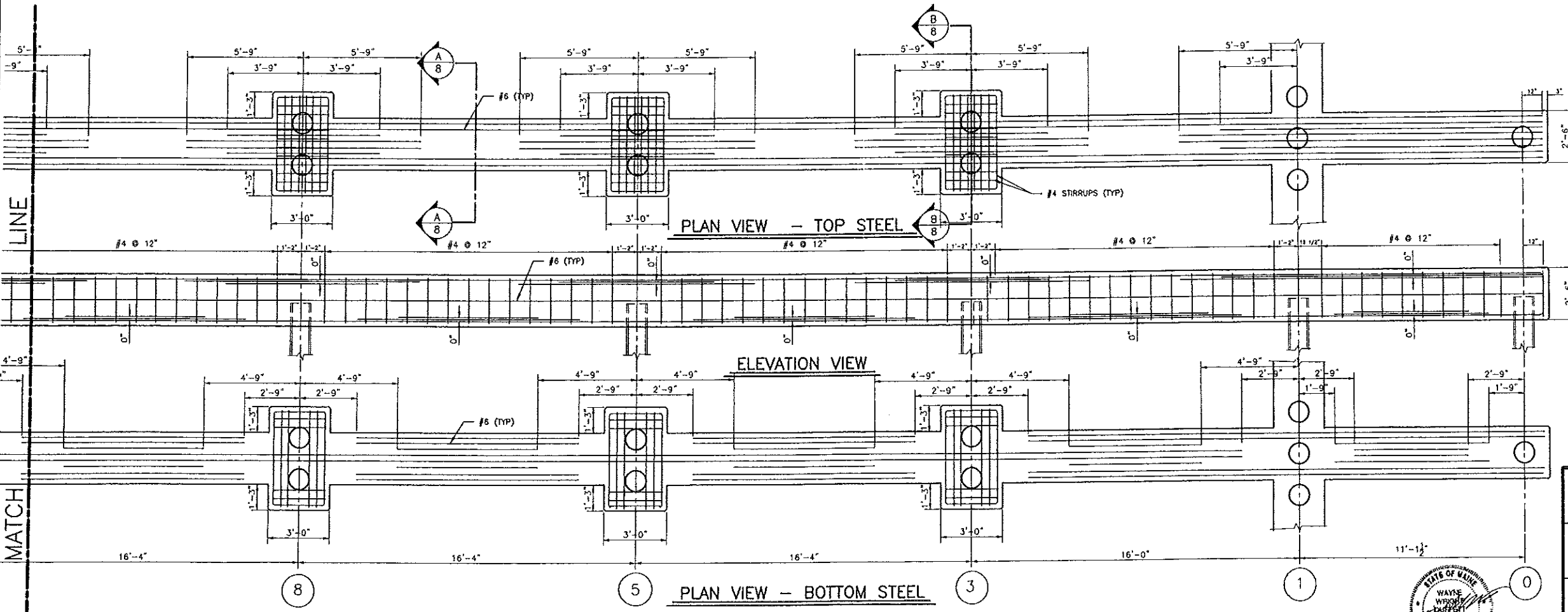
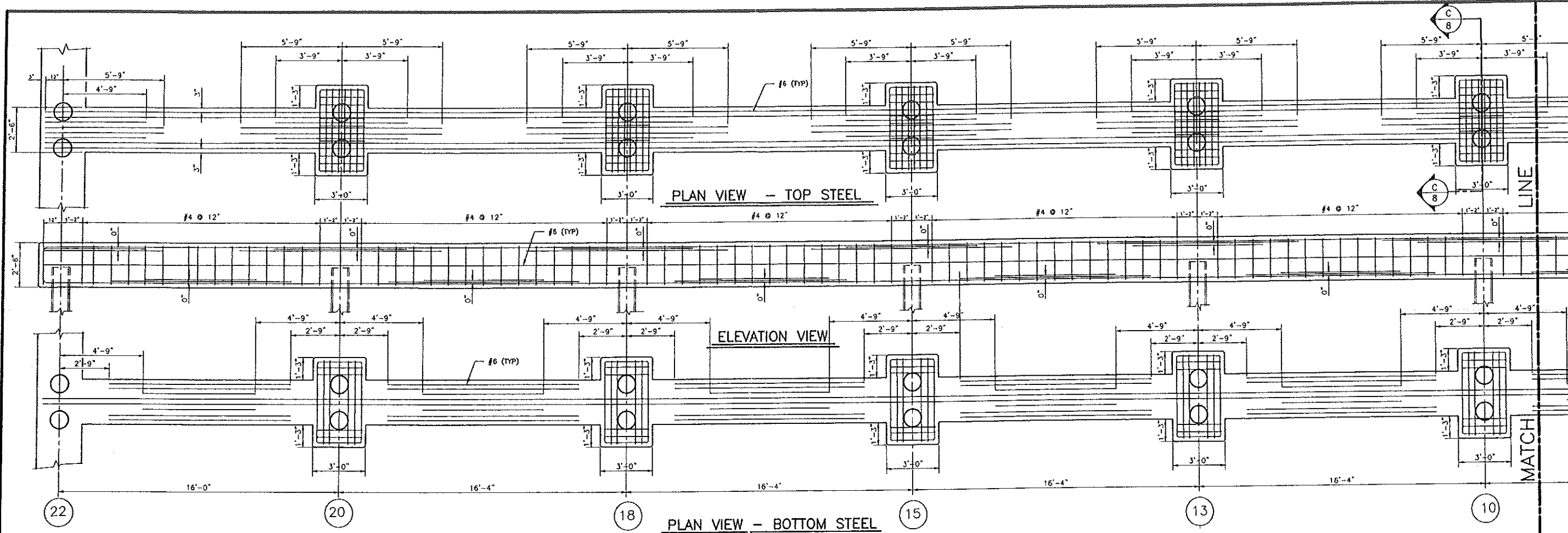


CAP B

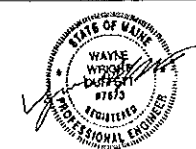


CUSTOM HOUSE WHARF PORTLAND, MAINE	
MARINE USE FACILITY PILE CAP B	
TEC ASSOCIATES CONSULTING ENGINEERS 45 SAWYER STREET SOUTH PORTLAND, MAINE 04106	
SCALE 3/8"=1'-0"	DATE 27 DECEMBER 09
DESIGNED BY JDL	DRAWN BY JDL
PROJECT NO. 8902-2	DATE 27 DECEMBER 09

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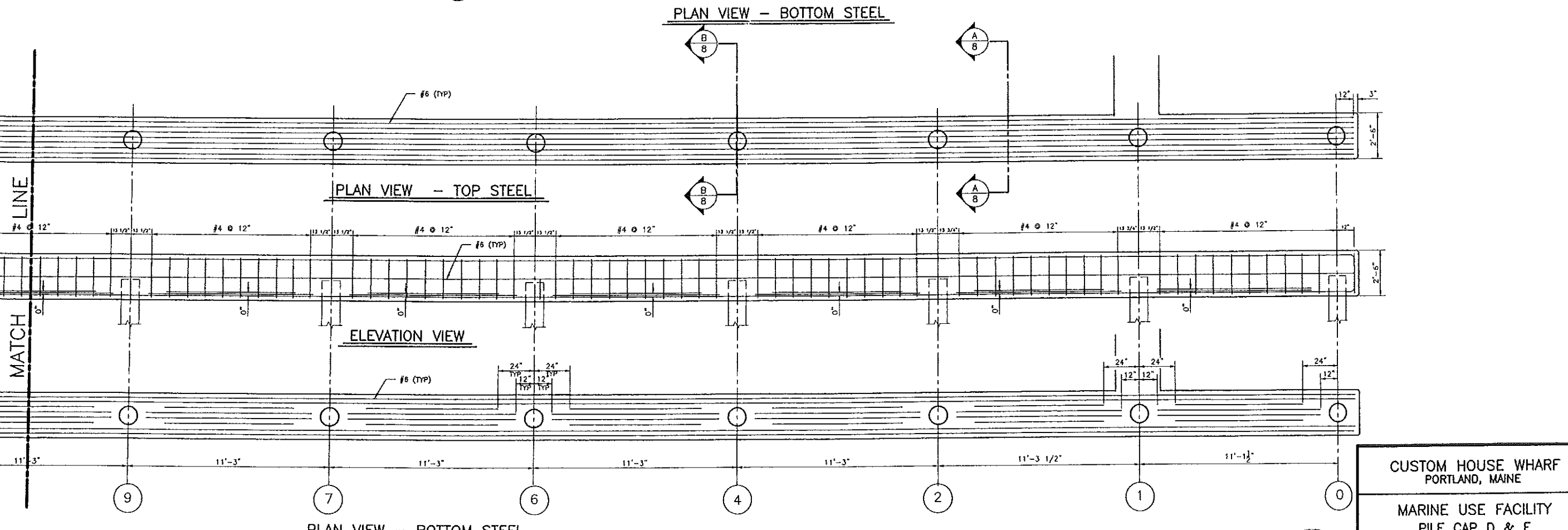
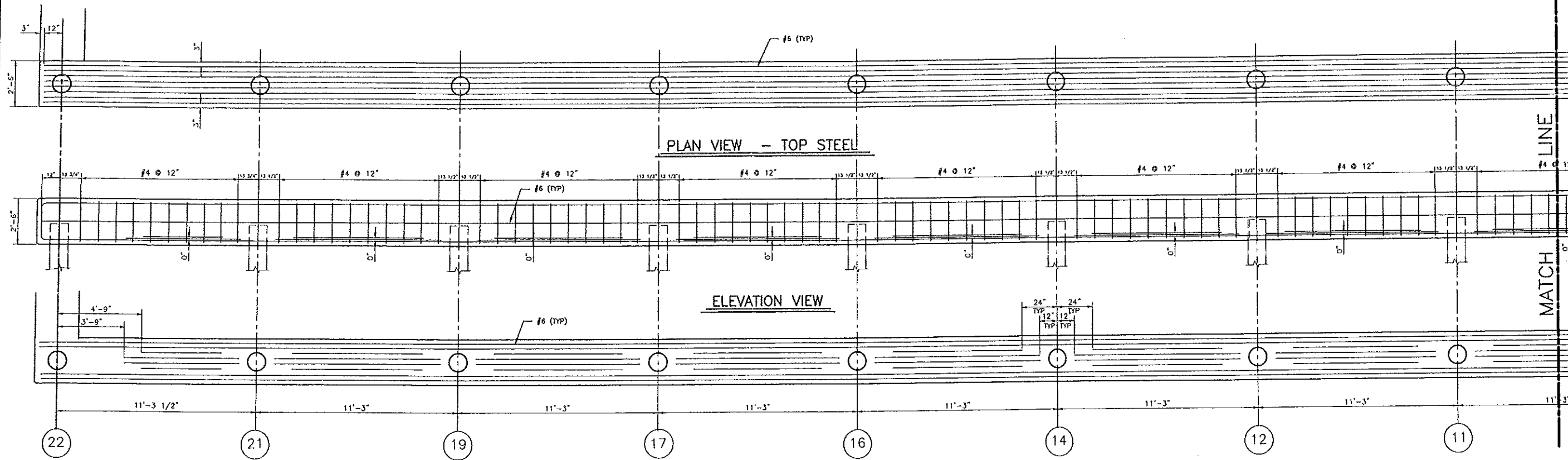


CAP C




CUSTOM HOUSE WHARF PORTLAND, MAINE	
MARINE USE FACILITY PILE CAP C	
TEC ASSOCIATES CONSULTING ENGINEERS 45 SAWYER STREET SOUTH PORTLAND, MAINE 04106	
SCALE 3/8"=1'-0"	DATE 27 DECEMBER 99
28 REVISIONS 9902-2	304-8811 JCL

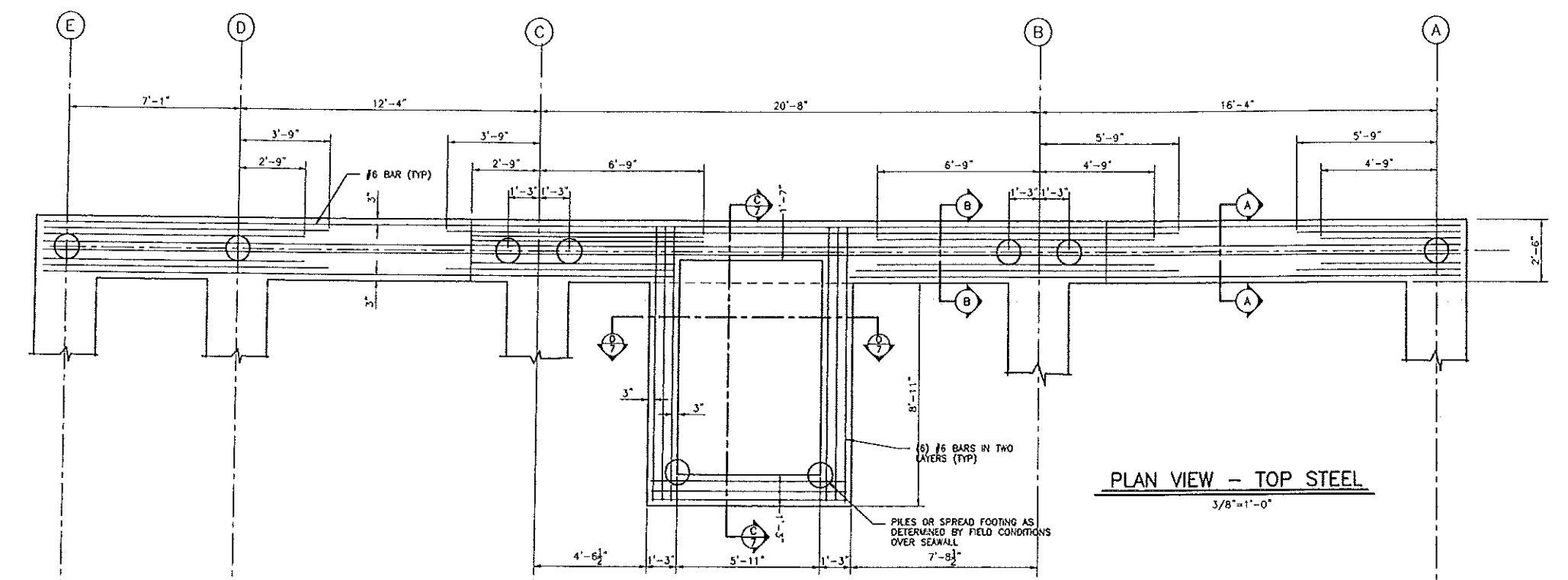
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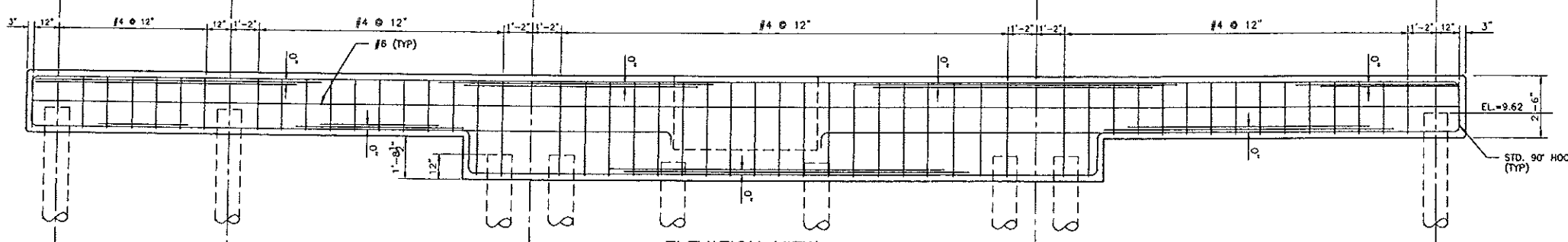
CAP D & E

CUSTOM HOUSE WHARF PORTLAND, MAINE	
MARINE USE FACILITY PILE CAP D & E	
 TEC ASSOCIATES CONSULTING ENGINEERS 48 SAWYER STREET SOUTH PORTLAND, MAINE 04106	
SCALE 3/8"=1'-0"	DATE 27 DECEMBER 99
DESIGNED BY JOK	DRAWN BY JOK
PROJECT NO. 9902-2	SHEET NO. 5

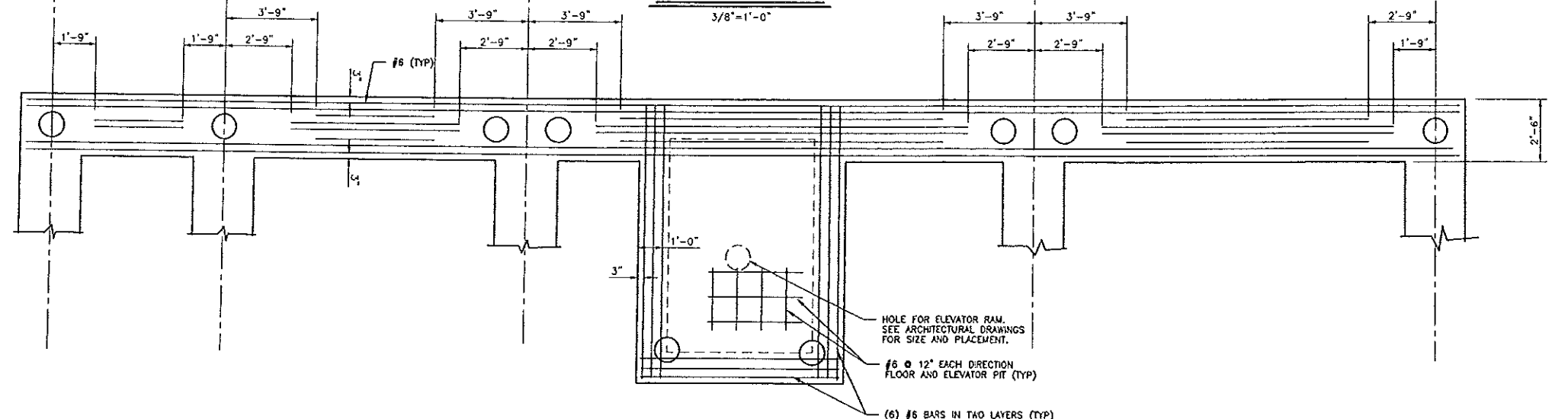




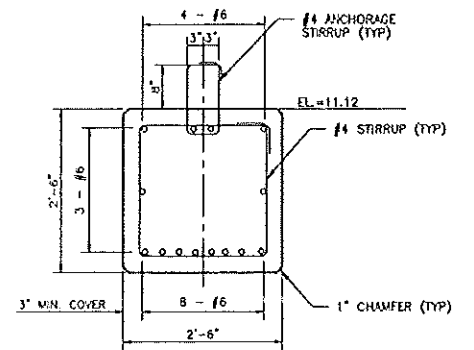
PLAN VIEW - TOP STEEL
3/8"=1'-0"



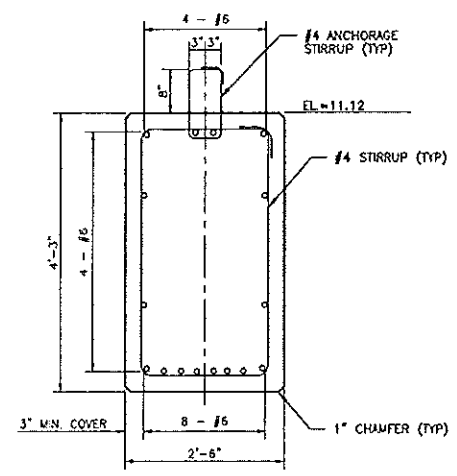
ELEVATION VIEW
3/8"=1'-0"



PLAN VIEW - BOTTOM STEEL
3/8"=1'-0"



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



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

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CUSTOM HOUSE WHARF
PORTLAND, MAINE

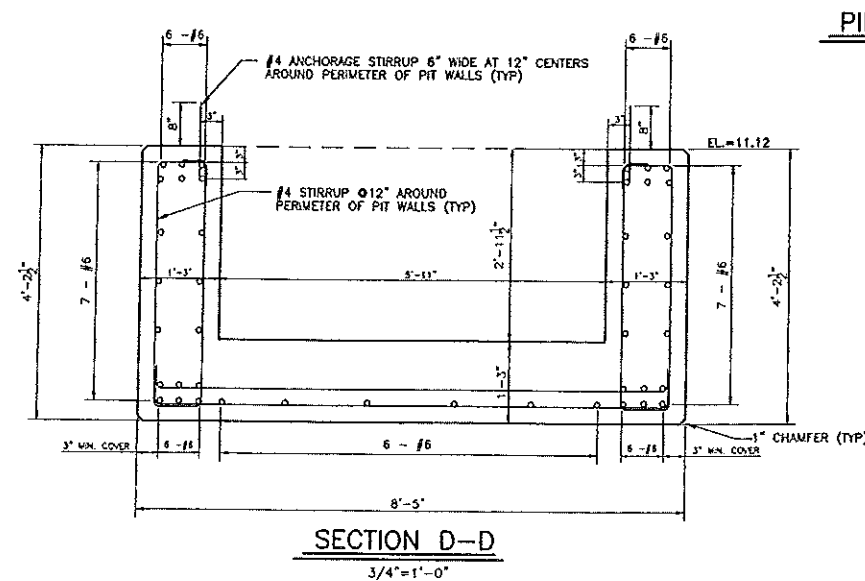
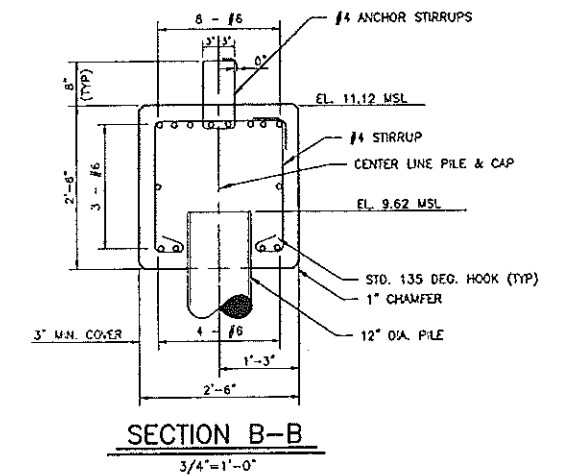
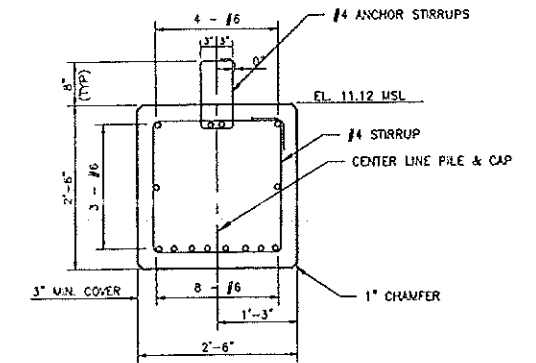
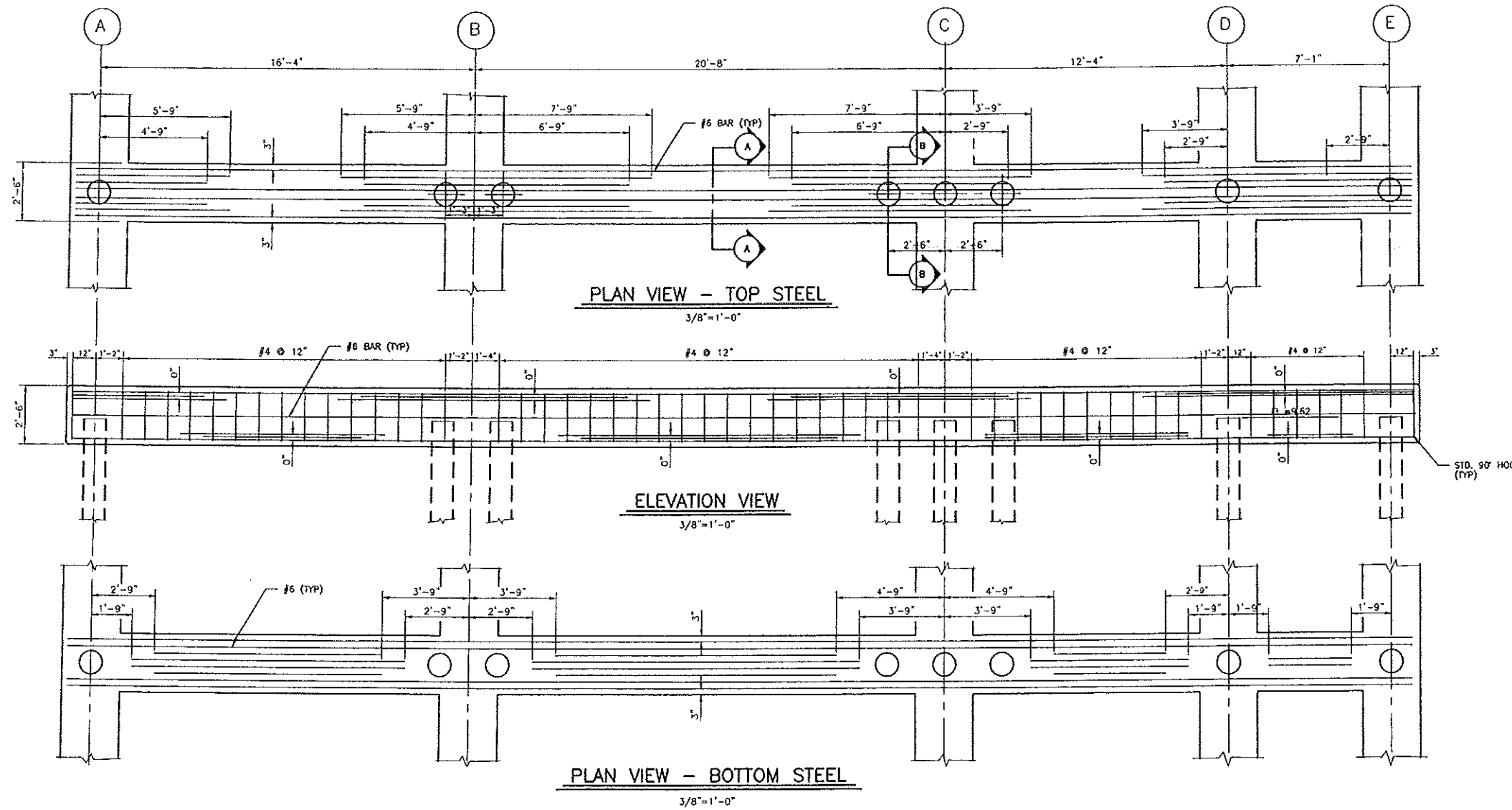
MARINE USE FACILITY
PILE CAP 22

TEC ASSOCIATES CONSULTING ENGINEERS
45 SAWYER STREET SOUTH PORTLAND, MAINE 04106

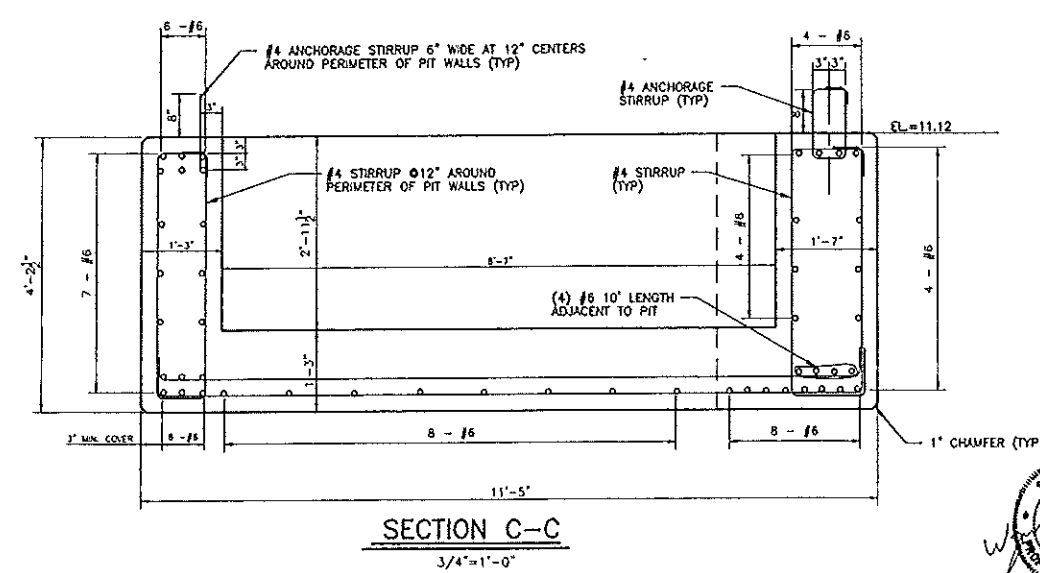
SCALE AS NOTED DATE 27 DECEMBER 99

20 14002 21th ST 211002 01
6902-2 JOL 6





PILE CAP 1



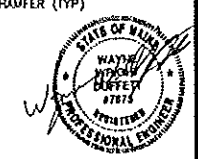
CUSTOM HOUSE WHARF
PORTLAND, MAINE

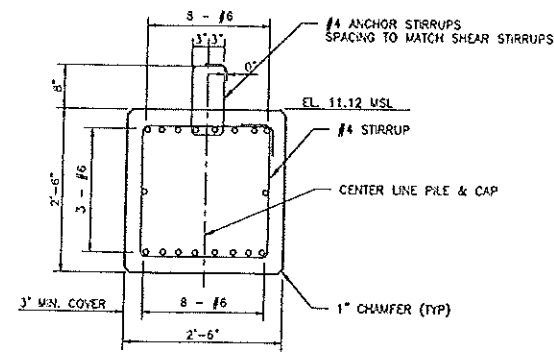
MARINE USE FACILITY
PILE CAP 1

TEC ASSOCIATES CONSULTING ENGINEERS
45 SAWYER STREET SOUTH PORTLAND, MAINE 04106

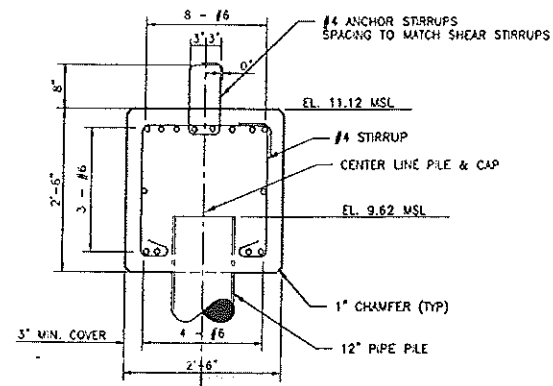
SCALE AS NOTED DATE 27 DECEMBER 99

JOB NUMBER 9902-2 DRAWN BY JDL REV NO 7

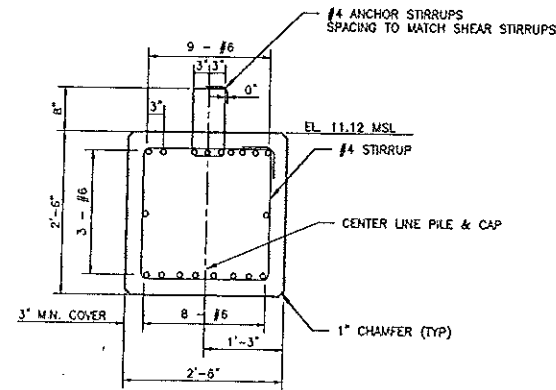




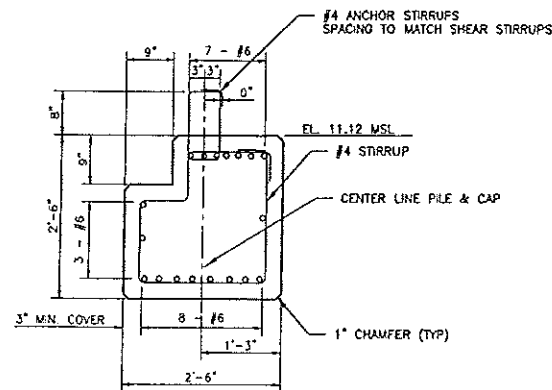
CAP D & E SECTION A-A
3/4"=1'-0"



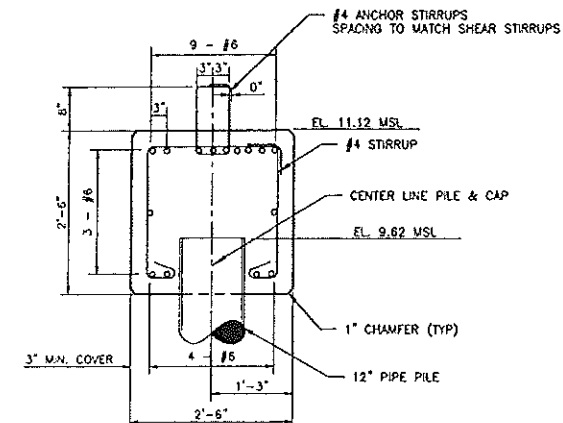
CAP D & E SECTION B-B
3/4"=1'-0"



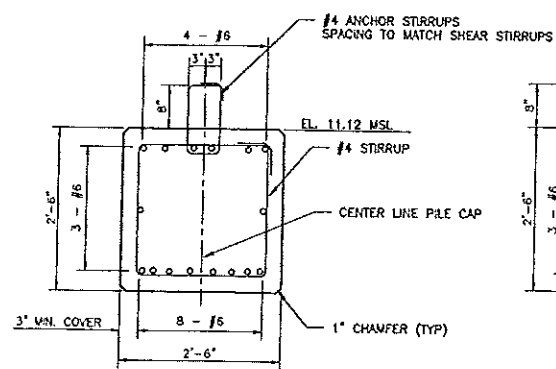
CAP A SECTION A-A
3/4"=1'-0"



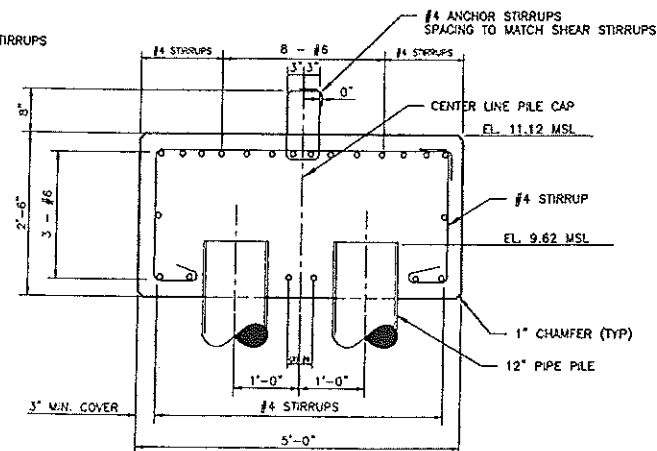
CAP A SECTION B-B
3/4"=1'-0"



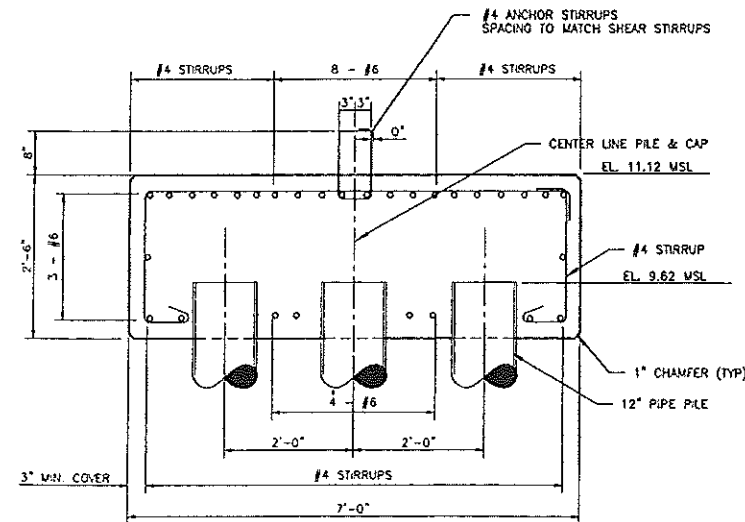
CAP A SECTION C-C
3/4"=1'-0"



CAP B&C SECTION A-A
3/4"=1'-0"



CAP B&C SECTION B-B
3/4"=1'-0"

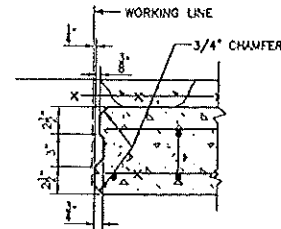


CAP B SECTION C-C
3/4"=1'-0"

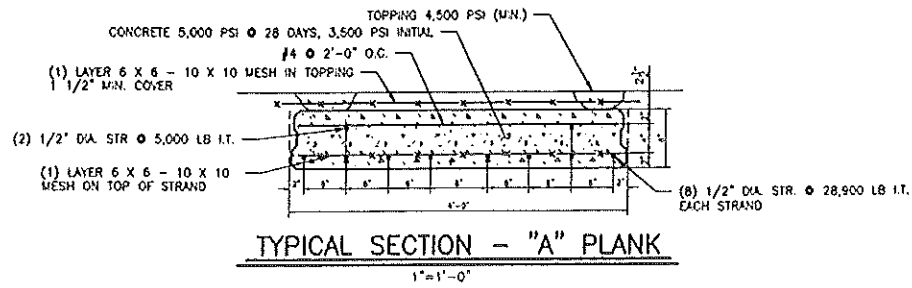
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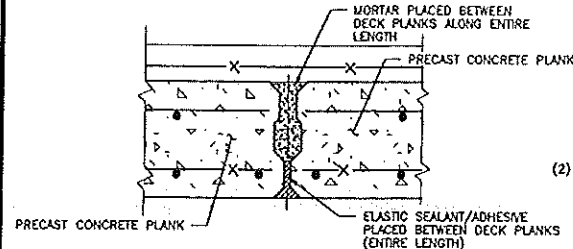
CUSTOM HOUSE WHARF PORTLAND, MAINE			
MARINE USE FACILITY PILE CAP DETAILS			
TEC ASSOCIATES CONSULTING ENGINEERS 45 SALTER STREET SOUTH PORTLAND, MAINE 04106		DATE 27 DECEMBER 00	
SCALE AS NOTED	DRWING NO. 9902-2	REV. NO.	DRWING NO. 8



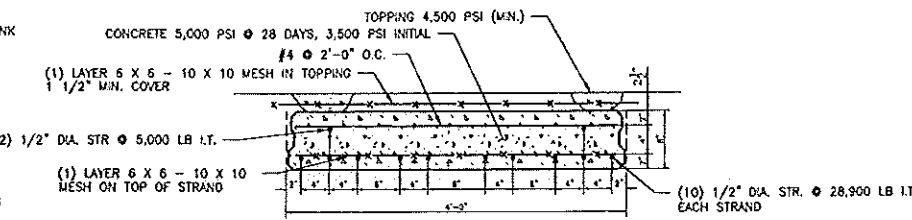
SHEAR KEY DETAIL



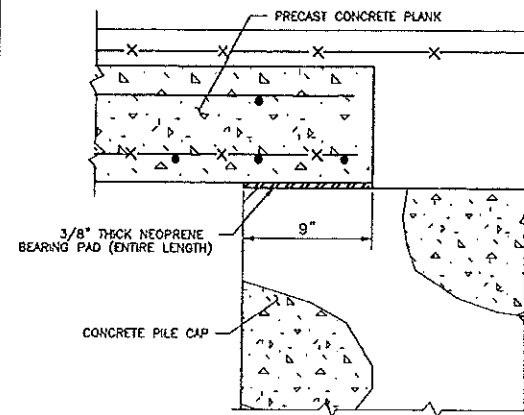
TYPICAL SECTION - "A" PLANK



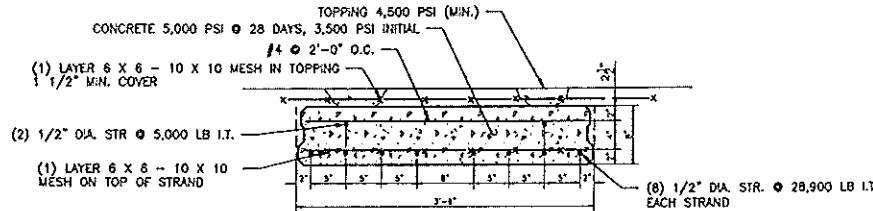
DECK PLANK ASSEMBLY DETAIL



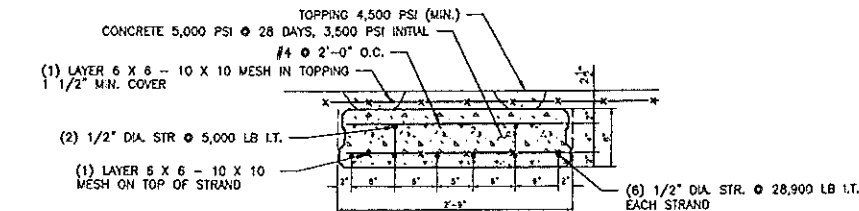
TYPICAL SECTION - "B" PLANK



BEARING PAD DETAIL



TYPICAL SECTION - "C" PLANK



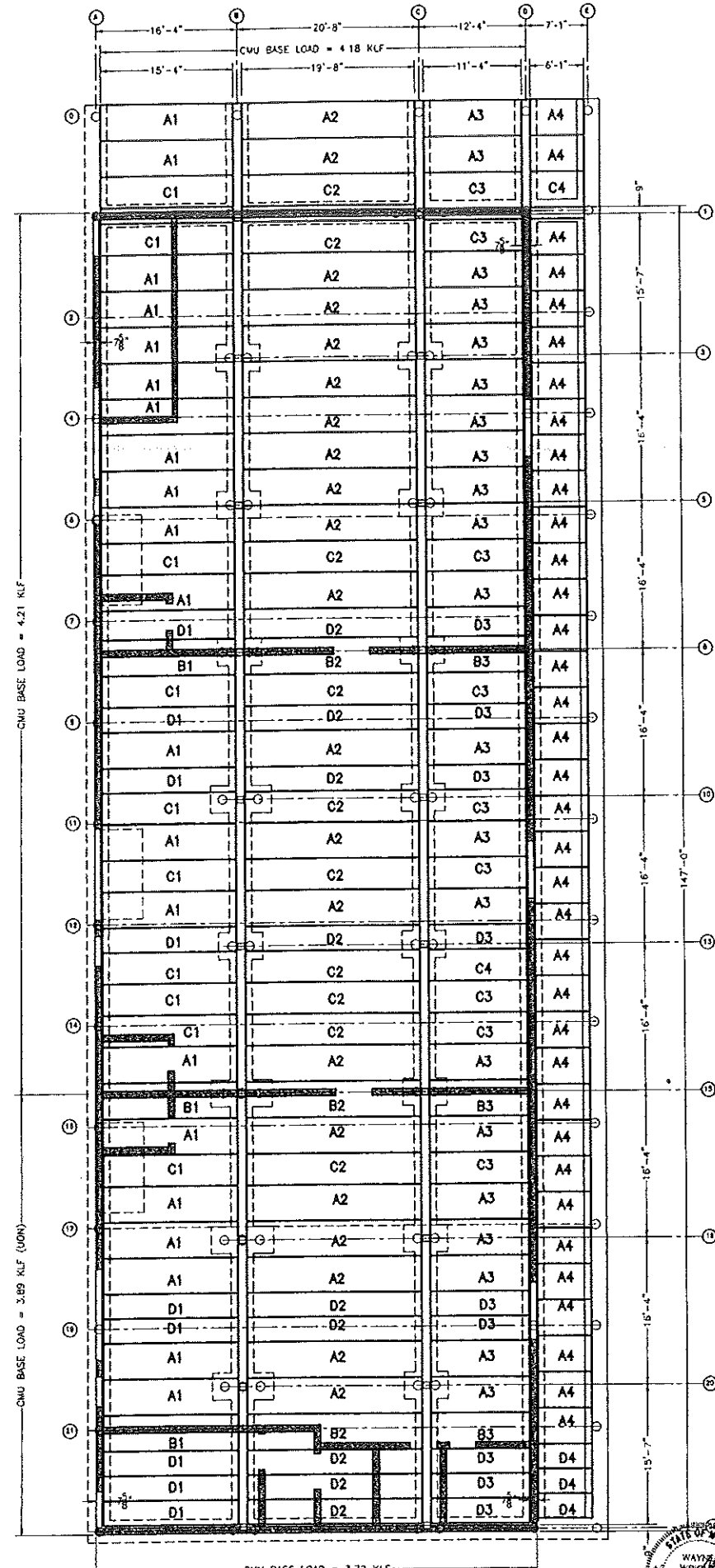
TYPICAL SECTION - "D" PLANK

NOTES

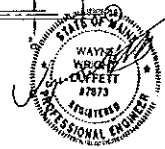
1. CONCRETE COMPRESSIVE STRENGTH OF PRECAST DECK PLANKS WILL BE 5,000 PSI @ 28 DAYS (MIN.) AND 3,500 PSI INITIAL.
2. PRESTRESSING STEEL WILL BE LOW RELAXATION WITH AN ULTIMATE STRENGTH OF 270,000 PSI, WITH INITIAL PULL OF 28.9 KIPS/EACH BOTTOM STRAND AND 5 KIPS/ EACH TOP STRAND.
3. PLANK WIDTHS ILLUSTRATED ARE "WORKING WIDTHS". CONTRACTOR SHALL DETERMINE ACTUAL DIMENSIONS TO ACCOMMODATE SHEAR KEY AND INSTALLATION.
4. ALL PLANKS TO HAVE A SHEAR KEY ALONG BOTH EDGES.
5. TOPPING SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI.

DECK PLANK SCHEDULE

SYMBOL	DIMENSIONS				QTY.
	W	X	L	D	
A1	4'-0"	15'-4"	8"	21	
A2	4'-0"	19'-8"	8"	21	
A3	4'-0"	11'-4"	8"	21	
A4	4'-0"	6'-1"	8"	36	
B1	4'-0"	15'-4"	8"	3	
B2	4'-0"	19'-8"	8"	3	
B3	4'-0"	11'-4"	8"	3	
C1	3'-6"	15'-4"	8"	10	
C2	3'-6"	19'-8"	8"	10	
C3	3'-6"	11'-4"	8"	10	
C4	3'-6"	6'-1"	8"	1	
D1	2'-9"	15'-4"	8"	9	
D2	2'-9"	19'-8"	8"	9	
D3	2'-9"	11'-4"	8"	9	
D4	2'-9"	6'-1"	8"	3	



DECK PLANK LAYOUT
1/8"=1'-0"

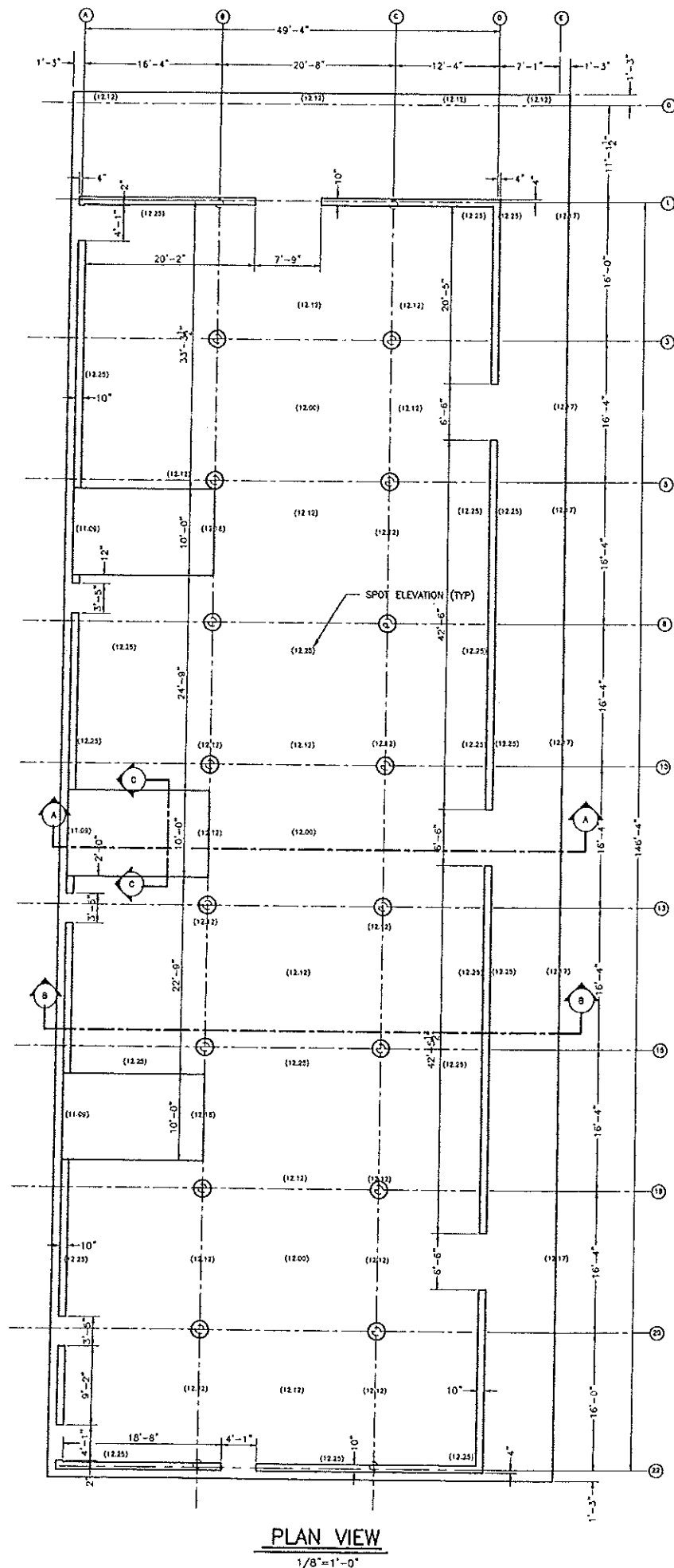


CUSTOM HOUSE WHARF
PORTLAND, MAINE

MARINE USE FACILITY
PRECAST DECK PLANKS

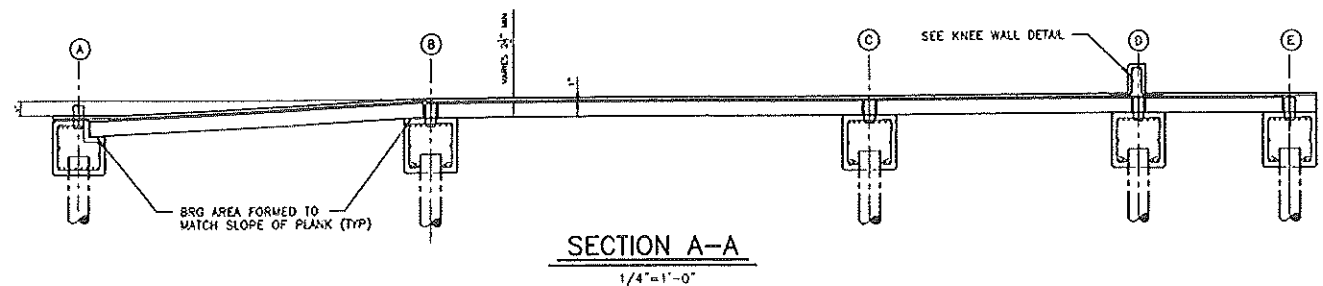
TEC ASSOCIATES CONSULTING ENGINEERS
16 SUMNER STREET SOUTH PORTLAND, MAINE 04106

SCALE 1/8"=1'-0" DATE 27 DECEMBER 99
JOB NUMBER 9902-2 DRAWN BY JCL REV. NO. 9

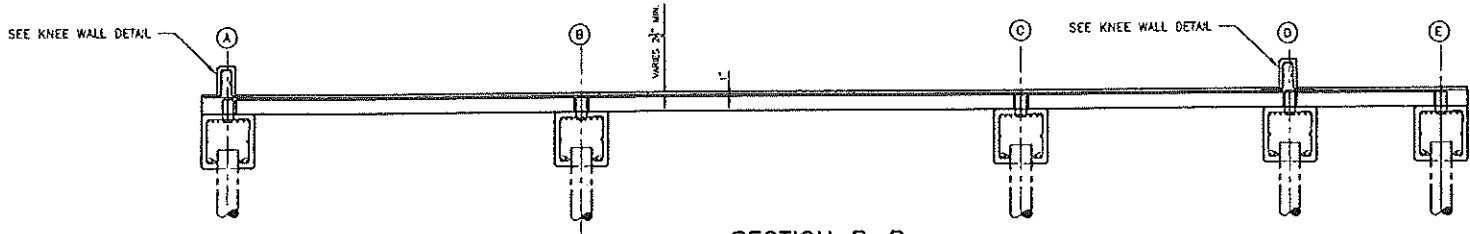


PLAN VIEW
1/8"=1'-0"

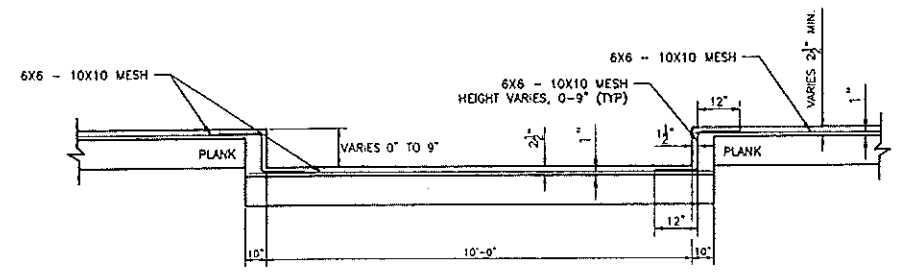
NOTE
 1. FINISHED FLOOR ELEVATIONS SUBJECT TO FINAL PLACEMENT OF INTERIOR PARTITION WALLS. CONSULT WITH OWNER PRIOR TO PLACING FLOOR. ELEVATIONS ARE BASED ON MEAN SEA LEVEL (MSL).
 2. SEE SHEET #11 FOR CAST-IN-PLACE CURB DETAILS.



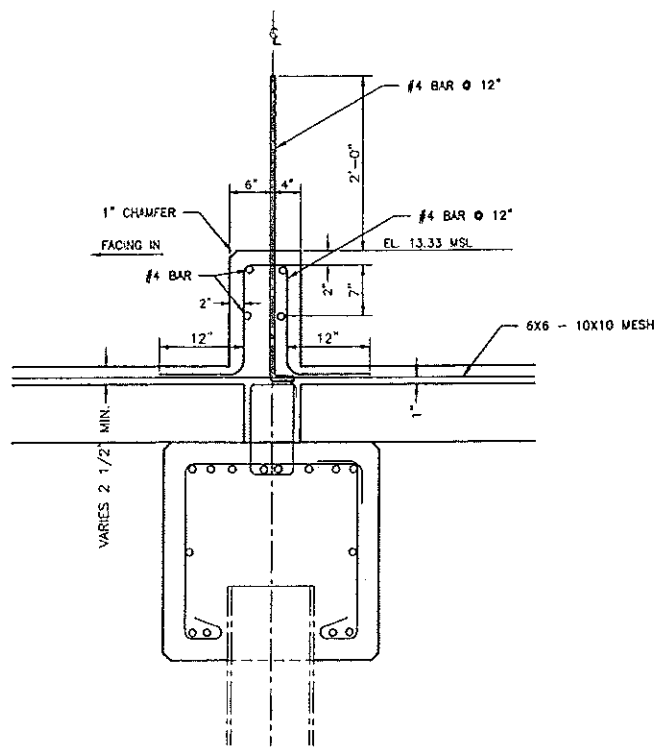
SECTION A-A
1/4"=1'-0"



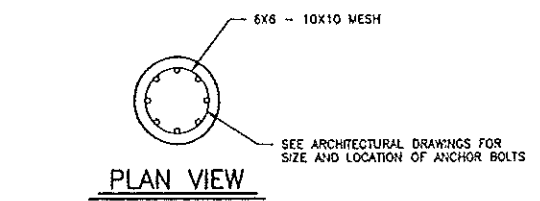
SECTION B-B
1/4"=1'-0"



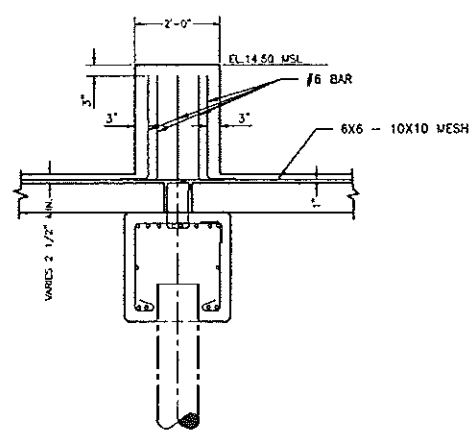
SECTION C-C
1/2"=1'-0"



KNEE WALL DETAIL
1"=1'-0"



PLAN VIEW

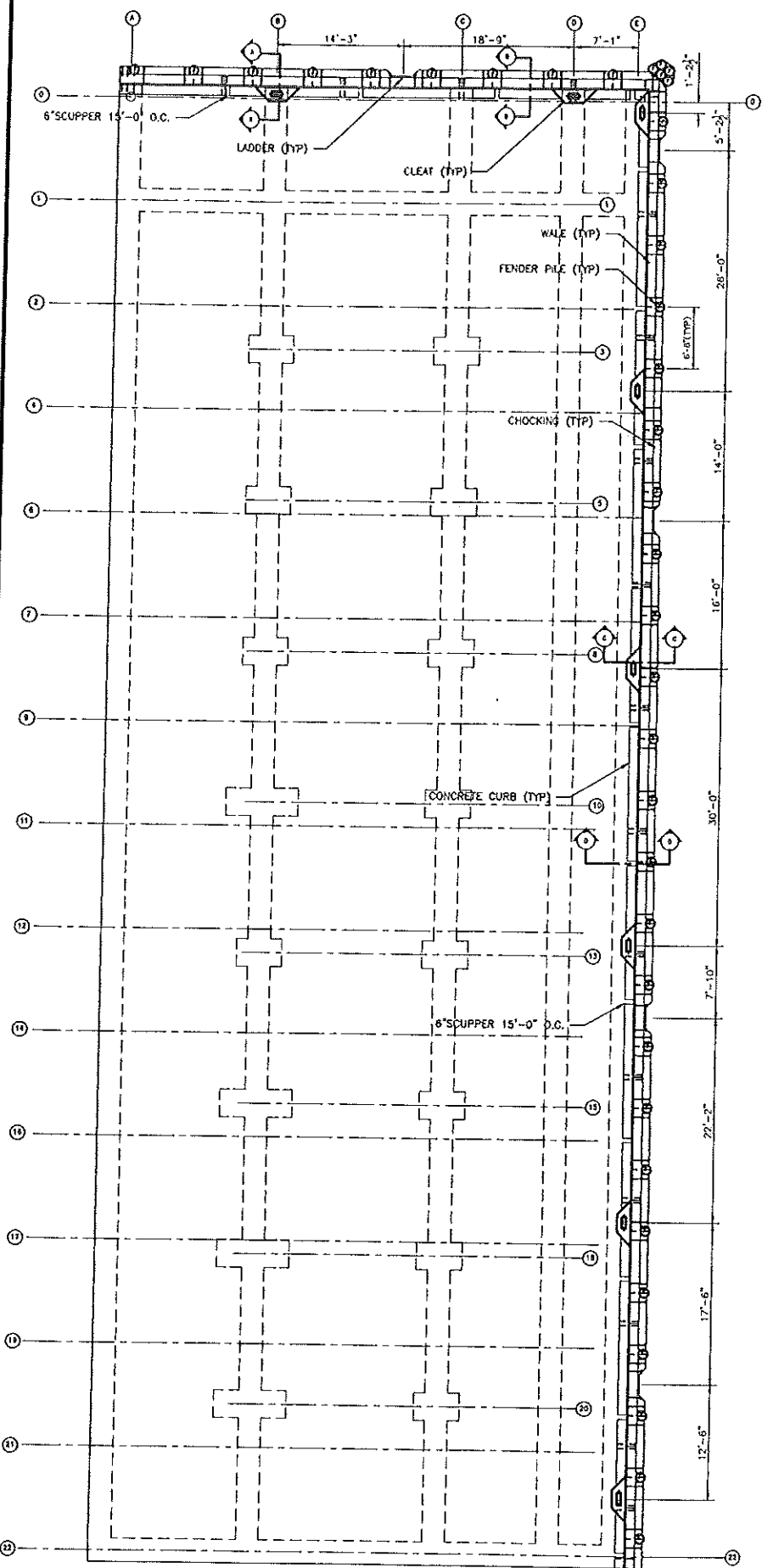


ELEVATION VIEW

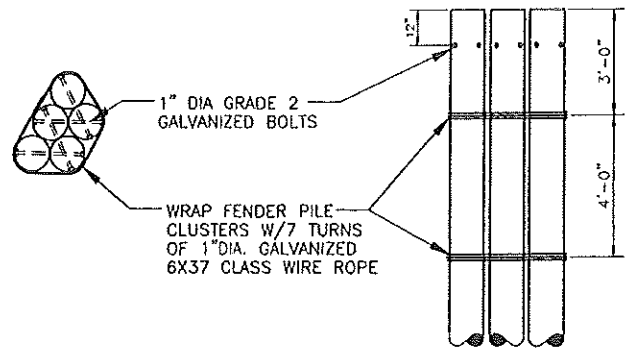
COLUMN PEDESTAL
1/2"=1'-0"

CUSTOM HOUSE WHARF PORTLAND, MAINE			
MARINE USE FACILITY CAST IN PLACE DECK			
TEC ASSOCIATES CONSULTING ENGINEERS 45 SANDY STREET SOUTH PORTLAND, MAINE 04106		SCALE AS NOTED DATE 27 DECEMBER 99	
J.B. HANSEN	DRW BY J.O.	REV NO.	DRWG NO. 10
9902-2			

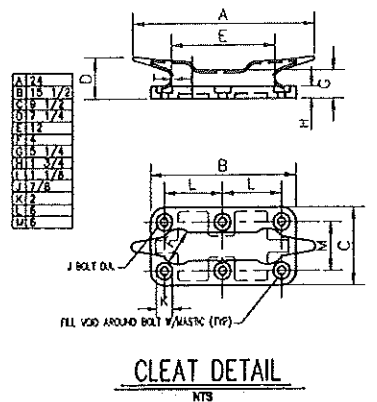




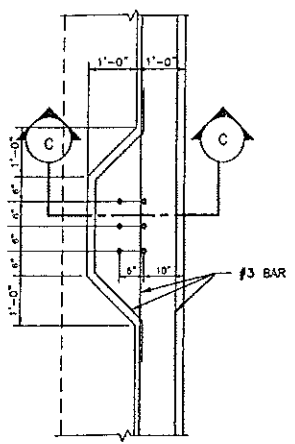
NOTE
FINAL LOCATION OF LADDERS
SUBJECT TO REVIEW BY GANER.



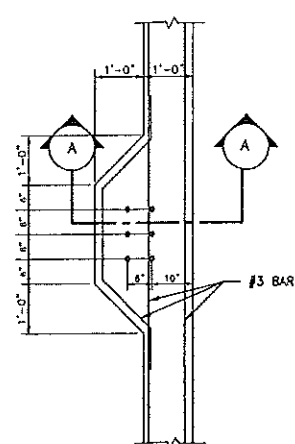
TYPICAL CORNER FENDER PILE CLUSTER
NTS



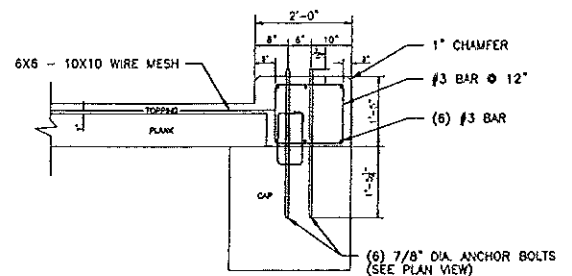
CLEAT DETAIL
NTS



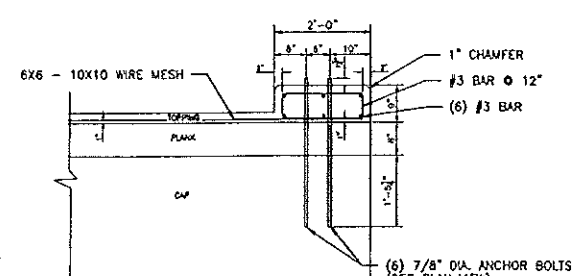
PLAN VIEW



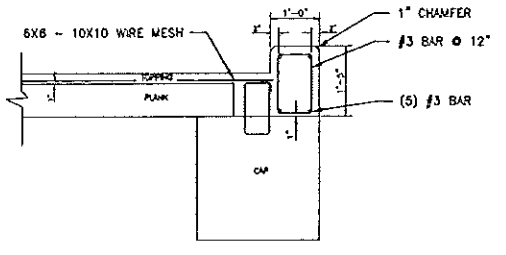
PLAN VIEW



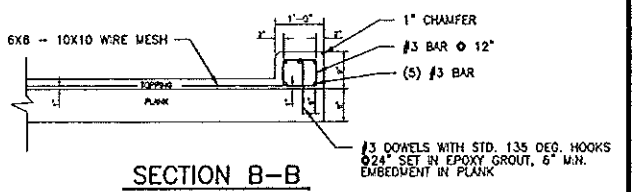
SECTION C-C
NTS



SECTION A-A
NTS



SECTION D-D
NTS



SECTION B-B
NTS

CUSTOM HOUSE WHARF
PORTLAND, MAINE

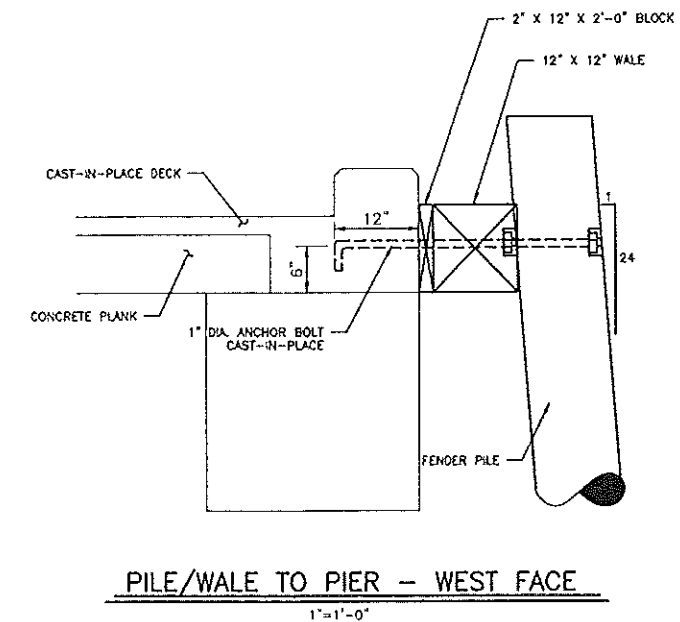
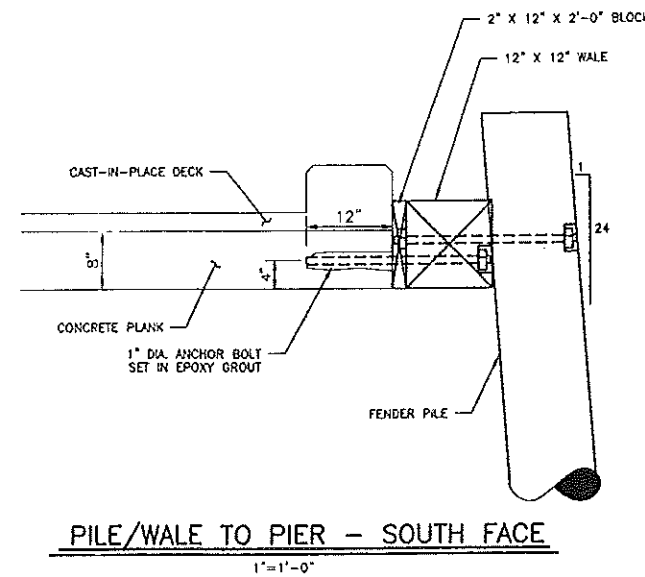
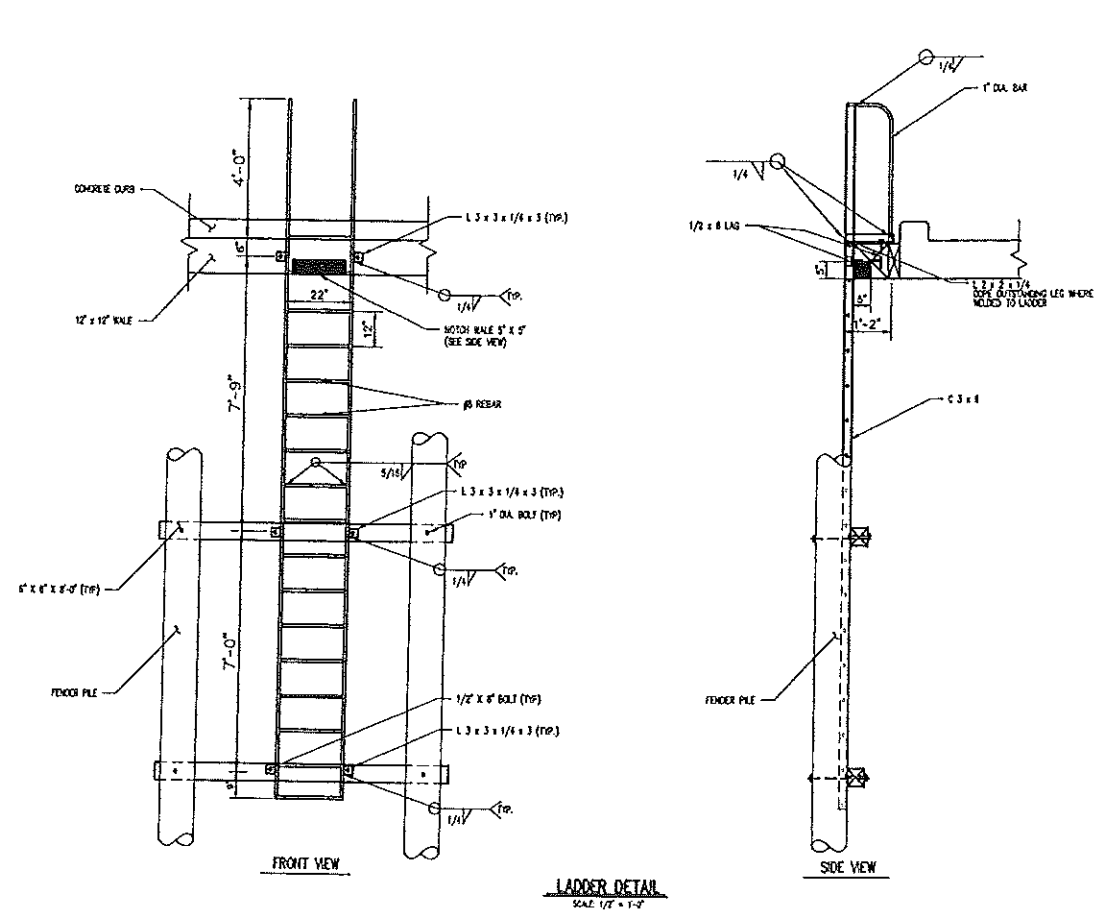
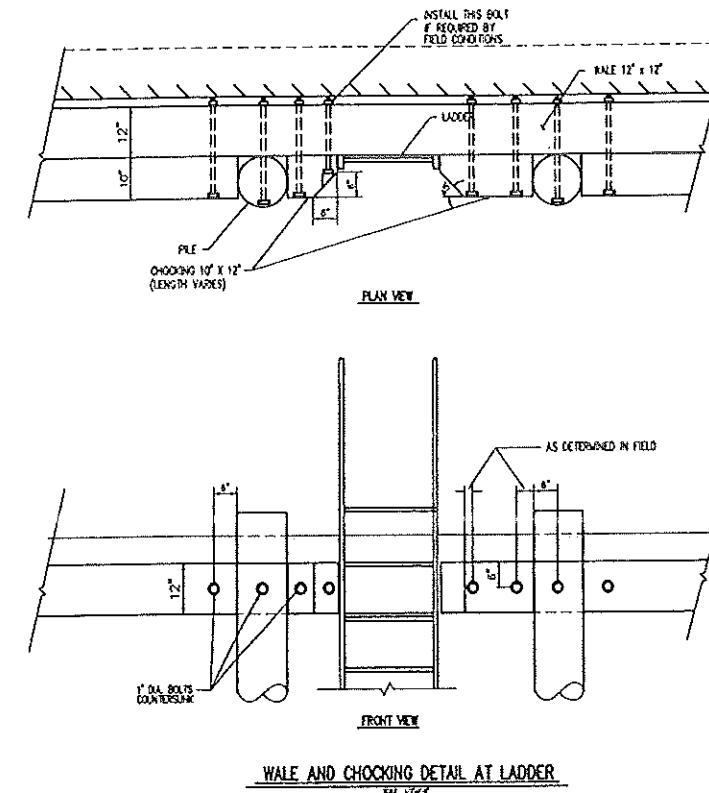
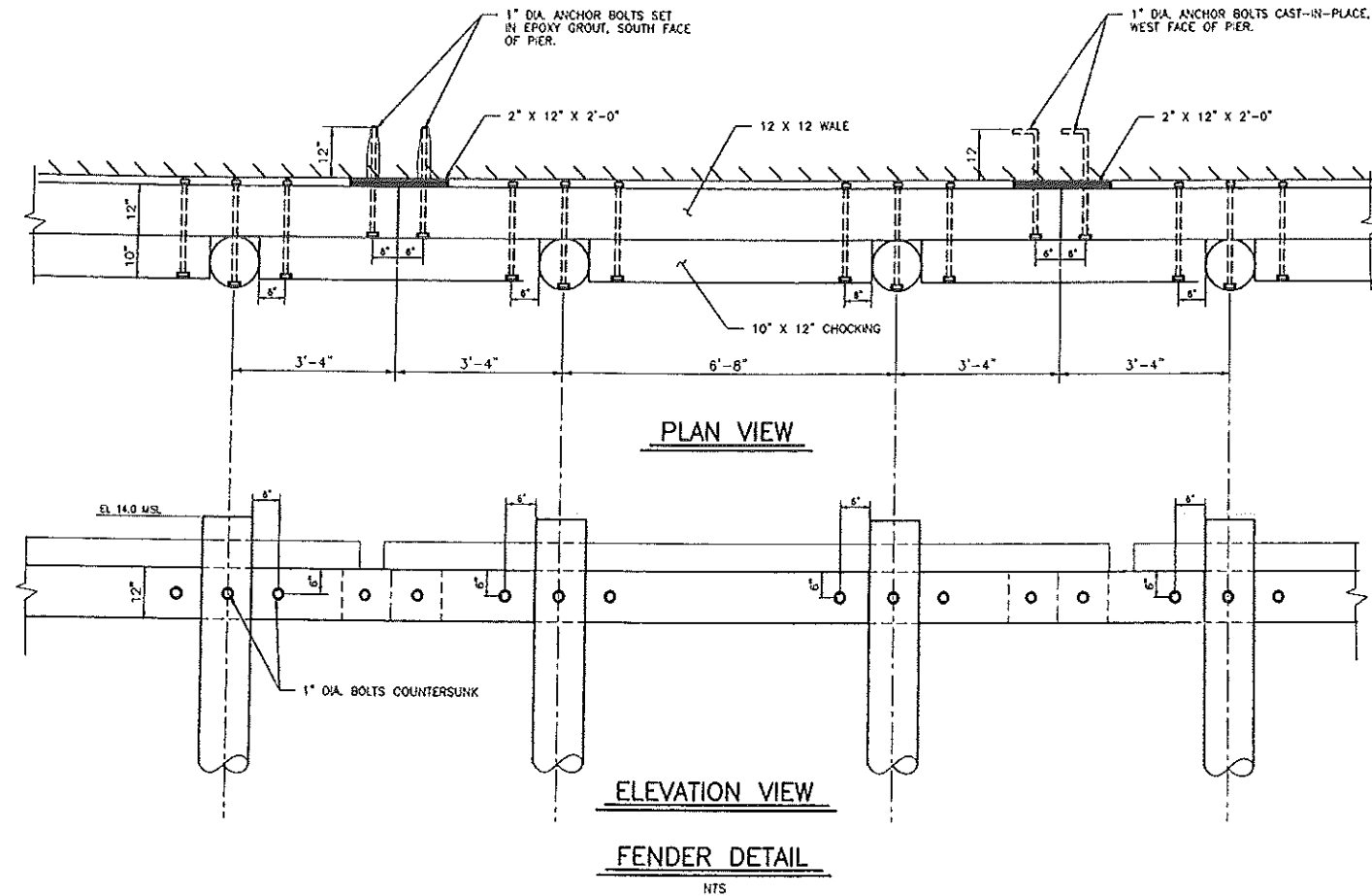
MARINE USE FACILITY
FENDER & CLEAT DETAILS

TEC ASSOCIATES CONSULTING ENGINEERS
46 SAWYER STREET SOUTH PORTLAND, MAINE 04106

SCALE AS NOTED DATE 27 DECEMBER 99

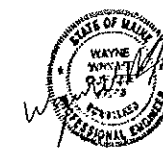
DR BY JOL DRAWING NO 11





NOTE

ALL LADDERS SHALL BE GIVEN TWO COATS OF A RUST INHIBITIVE YELLOW PAINT. SURFACE PREPARATION SHALL BE COMMERCIAL BLAST PER SSPC - SP6.



CUSTOM HOUSE WHARF PORTLAND, MAINE			
MARINE USE FACILITY FENDER & LADDER DETAILS			
TEC ASSOCIATES		CONSULTING ENGINEERS	
45 SAWYER STREET		SOUTH PORTLAND, MAINE 04106	
SCALE AS NOTED	DATE 27 DECEMBER 99	REV. NO.	21619C.12
20 MAR 99	25 MAR 99	REV. NO.	12
0902-2	JUL		

GENERAL NOTES:

- The notes on the drawings are not intended to replace specifications. See specifications for requirements in addition to general notes.
- Structural drawings shall be used in conjunction with job specifications and architectural, mechanical, electrical, plumbing, and site drawings. Consult these drawings for locations and dimensions of openings, chases, inserts, registers, sleeves, depressions, and other details not shown on structural drawings.
- All dimensions and conditions must be verified in the field. Any discrepancies shall be brought to the attention of the engineer before proceeding with the affected part of the work.
- Do not scale plans.
- Sections and details shown on any structural drawings shall be considered typical for similar conditions.
- All proprietary products shall be installed in accordance with the manufacturer's written instructions.
- The structure is designed to be self supporting and stable after the Building is complete. It is the contractor's sole responsibility to determine erection procedures and sequencing to ensure the safety of the building and its components during erection. This includes the addition of necessary shoring, sheeting temporary bracing, guys or tie downs. Such material shall remain the property of the contractor after completion of the project.
- All applicable federal, state, and municipal regulations shall be followed, including the federal department of labor occupational safety and health act.

DESIGN LOADS:

- Building code: BOCA Basic Building Code (1999)
- Design Live Loads: (Ground snow load = 70 PSF)
 - Roof: 42 PSF + Drift
 - Office areas: 50 PSF
 - Corridors: 100 PSF
 - Common areas: 100 PSF
 - Stairs & exit ways: 100 PSF
- Design wind loads are based on exposure C using 90 mph basic wind speed.
- Seismic design utilizes the following criteria:
 - a. Building framing system: Load bearing masonry walls & shear walls.
 - b. Analysis procedure: Equivalent Lateral Force Procedure.
 - c. Seismic hazard exposure group: "I"
 - d. Seismic performance category: "C"
 - e. Soil profile type: "SI"
 - f. Peak velocity-related acceleration (Av): "0.10"
 - g. Peak acceleration (Aa): "0.10"
 - h. Response modification factor (R): "4 1/2"
 - i. Deflection amplification factor (Cd): "4"

CAST-IN-PLACE CONCRETE SLAB NOTES:

- All concrete work shall conform to ACI 318-Latest Edition.
- Concrete strength at 28 days shall be:
 - a. 3000 PSI for all elevated slabs.
- All concrete shall be air entrained per the specifications.
- Concrete shall not be placed in water or on frozen ground.
- Provide PVC sleeves where pipes pass through concrete walls or slabs.
- Reinforcing bars shall conform to ASTM A615 Grade 60 deformed bars, and shall be detailed, fabricated and erected in accordance with ACI 318-Latest Edition.
- Welded wire fabric shall be provided in flat slabs.
- Fiber reinforced concrete shall conform to ASTM C-1116.
- Complete shop drawings and schedules of all reinforcing steel shall be prepared by the contractor and submitted to the engineer for review prior to commencement of that portion of work. All accessories must be shown on the shop drawings. Submit (6) blue line prints and (1) reproducible (septa) to the Architect.
- Splices of reinforcing bars shall be in accordance with ACI 318. Splices of WWF shall be 6" minimum.
- Concrete finishes: See specifications and Architectural drawings for additional information.
- Anchor bolts shall conform to ASTM A307 unless noted otherwise on plan. Anchor bolts at all bracing locations shall conform to ASTM A36.

MASONRY NOTES:

- All hollow load bearing concrete masonry units shall be ASTM C90 grade N, type I standard weight standard blocks including stretchers & corner blocks unless otherwise noted.
- All load bearing concrete masonry units shall conform to ASTM C90 grade N, type I standard weight standard blocks including stretchers & corner blocks.
- Masonry prism strength (f'm) shall be 1,500 psi.
- Mortar shall conform to ASTM Specification C270, Type N or S.
- Concrete masonry units shall be laid in running bond.
- Wall penetrations shall be coordinated with the Architect and Owners vendors/designers and shall be field located.
- Provide joint reinforcing per drawings & specifications in all concrete masonry unit construction.
- All masonry reinforcement shall be spliced 48 bar diameters.
- Reinforcing bars shall conform to ASTM A615 grade 60 deformed bars and shall be detailed, fabricated and placed in accordance with ACI 318-Latest Edition.
- Masonry walls which support structural members shall have cells grouted solid full height under bearing with 2-#6 minimum vertical reinforcing bar in each cell unless otherwise noted in plan.
- Bond beams shall be filled with grout capable of achieving 3,000 psi compressive strength at 28 days. Reinforcing shall be supported prior to placing concrete to provide a minimum 1/2" clearance around all bars.
- Cells of masonry units containing vertical reinforcing shall be filled with grout unless otherwise noted. Maximum grout lift without cleanouts and inspection shall be 4'-0". Support all vertical bars in units as shown on the drawings.
- Provide masonry lintels for all masonry openings unless steel lintel is indicated. Refer to lintel schedule for lintel sizes. All lintels used in exterior masonry walls shall be hot dipped galvanized.

STRUCTURAL STEEL NOTES:

- Structural steel fabrication, erection, and connection design shall conform to AISC "Specification for the design, fabrication, and erection of structural steel"-Latest edition.
- Structural steel:
 - a. Structural steel shall conform to ASTM A-36.
 - b. Structural tubing shall conform to ASTM A-500 GR.B.
 - c. Structural pipe shall conform to ASTM A-53, TYPE E or S.
- Design connections for the reactions shown on the drawings or the maximum end reaction that can be produced by a laterally supported uniformly loaded beam for each given beam size and span.
- Field connections shall be bolted using 3/4" # ASTM A325 High strength bolts except where field welding is indicated on the drawings.
- All welding shall conform to AWS D1.1-Latest edition. Welding electrodes shall be E70XX.

METAL DECK NOTES:

- Steel floor deck shall be as indicated on plan by Nucor or approved alternate. Steel deck units shall conform with the latest edition of the "Design Manual for floor and roof decks" by the steel institute. Steel floor deck shall be galvanized in accordance with ASTM A525 G60 coating.
- Fasten metal deck to all steel supports with 5/8" # puddle welds at 12" o.c. unless otherwise indicated on plan. Provide welding washers on all deck units 24 gage and lighter.
- All welding shall conform to AWS D1.1 or D1.3 - Latest edition. Welding electrodes shall be E70XX.

OPEN WEB STEEL JOIST NOTES:

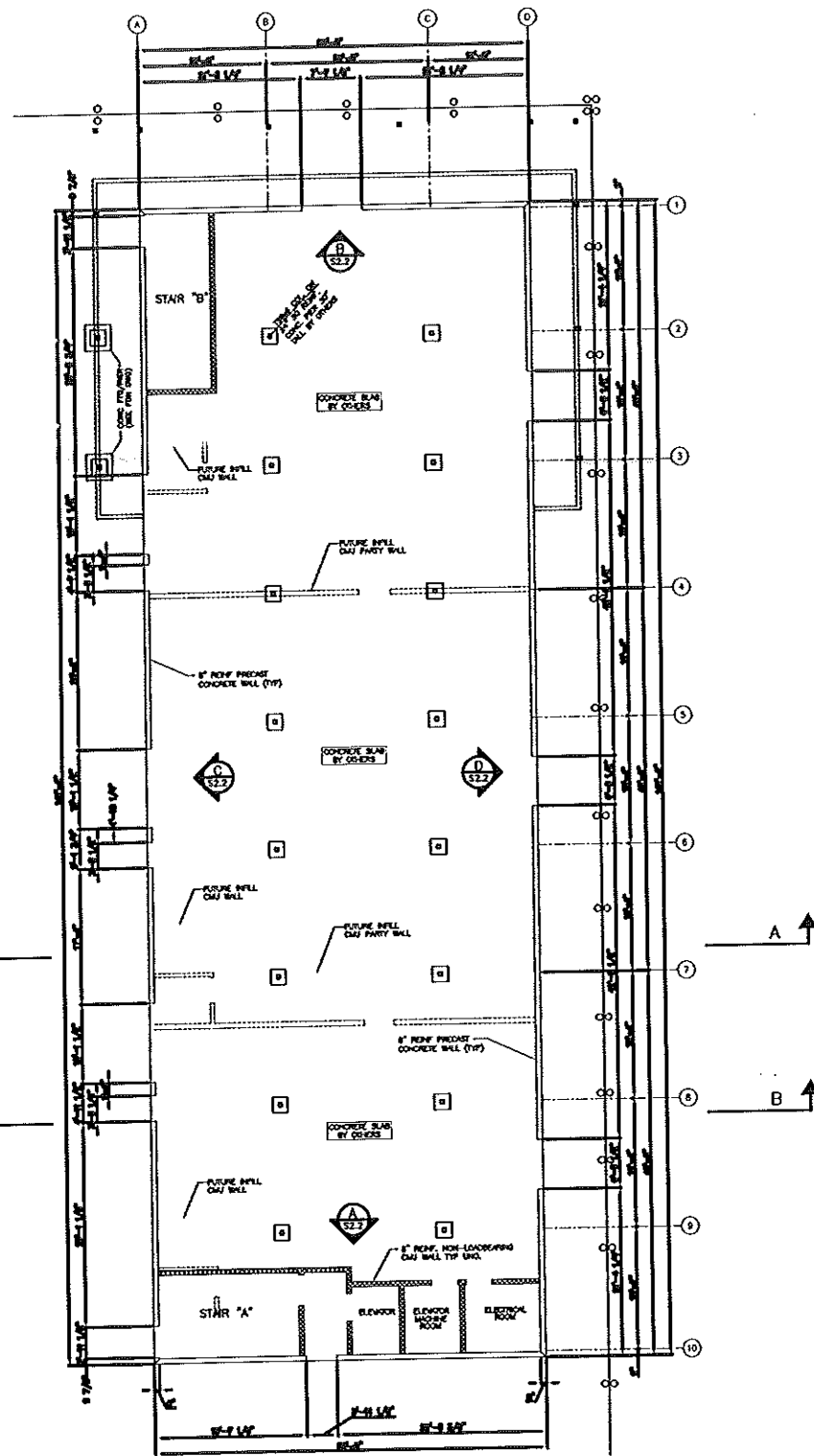
- Open web steel joists shall conform to steel institute "Standard Specification for steel joist and joist girders".
- All bridging and bridging anchors shall be completely installed before construction loads are placed on the joists. Bridging shall support the top chord against lateral movement during the construction period and shall hold the joist in approximate location as shown on the plans. Bridging shall be as called out on the plans.
- Items attached to steel joists shall be attached to panel points of joists only, or an additional web member shall be added to the joist at the location of the concentrated load. The joist manufacturer shall be responsible for supplying the proper additional web member size.
- Loads shall not be placed on the joists unless the joist has been designed to support the load.
- Steel joists shall be shop primed per specifications.
- All welding shall conform to AWS D1.1-Latest edition. Welding electrodes shall be E70XX.

TIMBER TRUSS FRAMING:

- Materials: Stress graded lumber, metal plate connectors. Minimum grade No. 2 U.S.N. Southern Pine, kiln dried, 15% maximum M.C., or approved alternate.
- Applicable specifications:
 - a. National Design Specification for stress graded lumber and its fastening (NDS).
 - b. Design specifications for light metal plate connected wood trusses TPI - Latest Edition.
- Bracing: The truss manufacturer shall specify all bracing required both for temporary construction loading and for permanent lateral support compression members.
- Submittals:
 - a. Submit design calculations, shop drawings and erection procedures on office with the seal of a professional structural engineer registered in the state of Maine.
 - b. Shop drawings shall show stress grade and size of members, size and location of plate connectors, size and location of bracing and shall be approved by the truss designer.
- All fabricated trusses shall be inspected at the fabrication plant and approved trusses shall receive the TPI mark of approval in accordance with the truss plate institute in-plant inspection license agreement.
- Connector plates shall be galvanized.
- Timber trusses shall be designed in accordance with BOCA and ASCE 7-Latest Edition.
- Provide permanent bottom chord bracing in accordance with the truss plate institute TPI-Latest edition.
- Trusses shall be designed for all potential load combinations of the loads (snow) and wind loads including unbalanced snow loads, drift loads and wind loads in accordance with BOCA 1999.

TIMBER FRAMING:

- All timber framing shall be in accordance with the AITC timber construction manual or the national design specifications (NDS) -Latest edition.
- Individual timber framing members shall be visually graded, minimum grade #2 Spruce-Pine-Fir (SPF), kiln dried to 19% maximum moisture content.
- Pressure treated lumber shall be used where wood is in contact with ground, concrete or masonry. Timber shall be southern yellow pine treated with coa to 0.4 #/CF in accordance with AWP A C-18.
- Standard metal connectors shall be used at all timber to timber connections or as noted on the design drawings. This shall include but not be limited to roof rafter to top plate, beam to beam, beam to column, joist/ truss to beam and column to concrete piers etc.
- Provide Simpson H3 hurricane anchors where timber framing and/or trusses bear on structural steel beams.
- Nothing not specified shall conform with BOCA 1999.



FOUNDATION LOADING/
PRECAST WALL LAYOUT PLAN
WF-7-F

**L & L STRUCTURAL
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DESIGNED BY: MFL	DATE: 7/26/01	DESCRIPTION: RELEASED FOR BIDDING ONLY
CHECKED BY: JHL		
SCALE: 1/8" = 1'-0"		
DATE: JULY 26, 2001		
PROJECT NO: 01.17.05.2007		
PROJECT # 21007		

**MARINE USE FACILITY
CUSTOMER HOUSE WHARF
PORTLAND WATERFRONT, MAINE**

GENERAL NOTES

SO.1

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