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CONSULTING ENGINEERS  
MECHANICAL • ELECTRICAL • CIVIL  
1690 WEST BROADWAY  
VANCOUVER 9, B.C.

D.W.T. JOB NO 4306-03

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project title / titre du projet

MARINE STRUCTURES  
INSTITUTE OF OCEAN SCIENCES  
PATRICIA BAY B.C.

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PARTIAL SITE PLAN (EAST)

designed by E.CROWDIS R.F. DAVIS / conçu par

date AUG. 14, 1974

drawn by E.CROWDIS / dessiné par

date

reviewed by R.F. DAVIS / examiné par

date / approved by R.F. DAVIS / approuvé par

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Tender / Soumission

D.P.W. Project Manager / Administrateur de projets M.T.P.

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M-1

*R.F. DAVIS*



SPECIFICATION NOTES

1. GENERAL

- 1 VISIT THE SITE AND VERIFY ALL EXISTING CONDITIONS PRIOR TO SUBMITTING BIDS. REPORT ANY DISCREPANCIES TO THE CONSULTANT.
2 PAY FOR ALL PERMITS, APPLICABLE LICENCES AND SUBMIT DRAWINGS TO THE AUTHORITY HAVING JURISDICTION.
3 GUARANTEE ALL WORK FOR A PERIOD OF TWELVE MONTHS FROM THE DATE OF COMPLETION.
4 VERIFY AND INFORM THE CONSULTANT OF ANY CONFLICTS IN ACCESSIBILITY AND ROUTING OF DUCTWORK AND PIPING BEFORE PROCEEDING WITH THE WORK.
5 INSTALL WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE 1942 B. C. BUILDING CODE, THE 1942 B. C. PLUMBING CODE, LOCAL, PROVINCIAL AND FEDERAL REGULATIONS. ALL WORK SHALL BE TESTED TO COMPLY WITH THE REQUIREMENTS OF ALL RELATED CODES.
6 UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND APPARATUS REQUIRED FOR THE WORK SHALL BE NEW OF FIRST CLASS QUALITY, SHALL BE FURNISHED, DELIVERED, ERIGED, CONNECTED, AND FINISHED IN EVERY DETAIL, AND SHALL BE SELECTED AND ARRANGED SO AS TO FIT PROPERLY INTO THE BUILDING SPACE. WHERE NO SPECIFIC QUALITY OF MATERIAL IS GIVEN, A FIRST CLASS STANDARD ARTICLE AS APPROVED BY THE CONSULTANT SHALL BE FURNISHED.
7 PROVIDE AND INSTALL ALL NECESSARY ACCESS PANELS FOR THE MECHANICAL SYSTEM AND EQUIPMENT.
8 CONTRACTOR SHALL PROVIDE APPROVED FIRE DAMPERS AND FIRE STOP DONUTS WHERE DUCTS OR COMBUSTIBLE PIPES PASS THROUGH FIRE RATED WALLS OR FLOORS.
9 KEEP A SET OF PRINTS ON SITE TO RECORD THE "AS-BUILT" CONDITION. DELIVER THE MARKED-UP "AS-BUILT" PRINT TO THE CONSULTANT UPON COMPLETION OF THE WORK FOR INCLUSION WITH THE MAINTENANCE MANUALS.
10 PROVIDE THREE COPIES OF THE MAINTENANCE MANUALS FOR ALL EQUIPMENT INSTALLED. INCLUDE SPECIFICATIONS FOR EQUIPMENT, MAINTENANCE INFORMATION, SOURCE OF SUPPLY AND TESTED RESULTS OF WATER, AIR, TEMPERATURE, PRESSURES, MOTOR LOADS, BELT DRIVE ALIGNMENTS AND PUMP PERFORMANCE. INCLUDE THE BALANCE REPORT AND AS-BUILT DRAWINGS.
11 INSPECTIONS SHALL BE CARRIED OUT BY THE CONSULTANT PRIOR TO BACKFILLING AND CONCEALMENT IN WALLS OF ALL MECHANICAL AND PLUMBING COMPONENTS. CONTRACTOR TO CALL FOR THE INSPECTION MINIMUM OF 48 HOURS IN ADVANCE. FAILURE TO CALL FOR INSPECTION MAY JEOPARDIZE THE ISSUANCE OF THE LETTERS OF ASSURANCE.
12 CONTRACTOR SHALL PROVIDE ALL NECESSARY WIRING INFORMATION TO THE ELECTRICAL CONTRACTOR TO ENSURE PROPER CONNECTION OF THE MECHANICAL EQUIPMENT.
13 ALL MECHANICAL EQUIPMENT SUSPENDED FROM THE BUILDING STRUCTURE SHALL BE SUITABLY SUPPORTED AND ISOLATED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. EQUIPMENT SHALL BE SEISMIC RESTRAINED TO MEET THE SEISMIC SECTION OF THE BC BUILDING CODE.
14 SUPPLY THREE 20 LBS NATIONAL FIRE EQUIPMENT # ABC-206, ULG LISTED DRY CHEMICAL FIRE EXTINGUISHERS WITH IO-A, 80-B-C, RATING. EXTINGUISHER CABINETS TO BE KNIGHT #CE-450-1 SEMI-RECESSED.
INSTALL FIRE EXTINGUISHERS WHERE DIRECTED BY THE LOCAL FIRE DEPARTMENT REPRESENTATIVES.

2. INSULATION

- 1 ACOUSTIC DUCT INSULATION IS UL APPROVED 3.0 LB/CU FT DENSITY GLASS FIBRE SEMI RIGID TYPE WITH BLACK COATED MAT ON AIR STREAM SURFACE. INSULATION IS 1" THICK.
2 EXTERNAL DUCT INSULATION IS 1" THICK UL LISTED 1.0 LB/CU FT FLEXIBLE GLASS FIBRE INSULATION WITH FOIL FACED LAMINATED VAPOUR BARRIER.
3 EXTERNALLY INSULATE THE LAST FIVE FEET OF ALL EXHAUST AIR DUCTWORK.
4 INSULATE ALL HOT AND COLD DOMESTIC PIPING WITH 5 LB/CU FT MOLDED SECTIONAL GLASS FIBRE COMPLETE WITH VINYL COATED FOIL-KRAFT LAMINATED VAPOUR BARRIER JACKET. COLD PIPE INSULATION IS 1/2" THICK, HOT PIPE INSULATION SHALL BE 1" THICK, EXCEPT FOR RUNOUTS TO FIXTURES WHICH SHALL BE 1/2" THICK.
5 INSULATION TO COMPLY WITH CGSB S1 GP 9, 10 & 11 AND BE INSTALLED IN ACCORDANCE WITH BCGA STANDARDS

3. DUCTWORK

- 1 CONSTRUCT DUCTWORK OF GALVANIZED STEEL. CONSTRUCT AND INSTALL DUCTWORK IN ACCORDANCE WITH SHACMA STANDARDS.
2 SEAL ALL DUCTWORK WITH MULTIPURPOSE WATER BASE HIGH VELOCITY DUCT SEALER.
3 ROUND ELBOWS SHALL BE FIVE PIECE SLIP JOINT, 15 CENTERLINE RADIUS.

4. BALANCE THE SUPPLY AIR SYSTEM INCLUDING DIFFUSERS AND GRILLES TO WITHIN +/-0% OF LISTED VOLUMES.

4. DRAINAGE PIPE AND FITTINGS WITHIN BUILDING

- 1 SANITARY AND STORM PIPING BELOW SLAB AND TO 3' 0" OUTSIDE BUILDING BELOW GRADE.
CLASS 4000 MECHANICAL JOINT CAST IRON SOIL PIPE AND FITTINGS TO CSA B 10-1971.
ABS DRY AND PVC DRY PIPE AND FITTINGS CONFORMING TO CSA B 181.1 M90 AND CSA B181.2 M40.
2 SANITARY AND STORM PIPING ABOVE GRADE.
CLASS 4000 MECHANICAL JOINT CAST IRON SOIL PIPE AND FITTINGS TO CSA B 10-1971.
ABS DRY AND PVC DRY PIPE AND FITTINGS CONFORMING TO CSA B181.1 M90 WITHIN WALLS ONLY.
DRY COPPER DRAINAGE PIPE WITH CAST BRASS AND/OR WROUGHT COPPER DRAINAGE FITTINGS.
3 SUPPORT ALL PIPING BELOW SLABS ON GRADE ON A BED OF WELL TAMPED SAND, EXTENDING FROM 6" BELOW PIPE BARREL TO 12" ABOVE BARREL. ENSURE THAT PIPE IS SUPPORTED ALONG PIPE BARREL AND NOT ON JOINTS OR COUPLINGS.

4. DOMESTIC WATER PIPING WITHIN BUILDING

- 1 PIPING 3" DIAMETER AND SMALLER TYPE 'L' CERTIFIED HARD DRAWN COPPER TUBING WITH CAST BRASS AND /OR WROUGHT COPPER STREAMLINE FITTINGS. PROVIDE WING BACK ELLS FOR ALL CONNECTIONS TO FIXTURES.
2 PIPING 3" DIAMETER AND SMALLER UNDERGROUND, TYPE 'K' SOFT COPPER TUBE WITH CAST BRASS AND /OR WROUGHT COPPER STREAMLINE FITTINGS. ENCASE LINE IN POLYETHYLENE PIPING SYSTEM.
3 BEFORE TRENCHING FOR UTILITIES THE CONTRACTOR SHALL UNCOVER ALL BURIED UTILITIES AND VERIFY THEIR LOCATIONS AND ELEVATIONS AND ASSURE THAT THE NEW WORK WILL NOT CONFLICT WITH THE EXISTING. ADVISE THE CONSULTANT OF ANY CONFLICT AND OBTAIN WRITTEN INSTRUCTIONS FOR ANY NECESSARY LOCATION OR ELEVATION ADJUSTMENTS. NO ADDITIONAL PAYMENT SHALL BE MADE FOR SUCH ADJUSTMENTS UNLESS THE SCOPE OF WORK CHANGES.
5 PIPE OUTSIDE BUILDING
1 WATER PIPE SHALL BE DUCTILE IRON CLASS 51 CONFORMING TO ANNA C151 AND C111 WITH PERFORMED RUBBER GASKETS.
2 SANITARY SEWER PIPE SHALL BE PVC CONFORMING TO ASTM D3034 DR35 WITH RUBBER RING GASKETS.
3 STORM WATER DRAIN PIPE SHALL BE PVC AS SPECIFIED FOR SANITARY SEWERS OR CONCRETE PIPE. UP TO 12" DIAMETER CONCRETE PIPE SHALL BE NON-REINFORCED CONFORMING TO ASTM C14 AND OVER 12 INCH DIAMETER CONCRETE PIPE SHALL BE REINFORCED CONFORMING TO ASTM C16. DO NOT RE-USE EXISTING PIPE.

6. PROVIDE WARNING TAPE AS PER LOCAL AUTHORITY FOR EACH UNDERGROUND SERVICE. TAPE IS TO BE BURIED IN THE TRENCH APPROXIMATELY 12" BELOW THE SURFACE.

7. PROVIDE CONCRETE THRUST BLOCKING AT ALL WATER PIPE TEES, CROSSSES AND BENDS AND ALL OTHER POINTS OF THRUST TO PREVENT PIPE MOVEMENT. THRUST BLOCK BEARING AREAS ARE SIZED BASED ON A TEST PRESSURE OF 150 PSI AND A MINIMUM SOIL BEARING PRESSURE OF 1500 POUNDS PER SQUARE FOOT. IF CONDITIONS DIFFER FROM THESE THE CONTRACTOR SHALL ASSURE THAT ADEQUATE PROVISION IS MADE TO PREVENT PIPE MOVEMENT.

8. PRIOR TO CONNECTING THE MUNICIPAL WATER MAIN, THE CONTRACTOR IS TO DISINFECT THE NEW WATER MAIN IN ACCORDANCE WITH THE MUNICIPAL REQUIREMENTS. AN APPROVED TESTING AGENY TO TEST AND SUBMIT A REPORT TO THE AUTHORITY HAVING JURISDICTION. A COPY OF TEST RESULTS TO BE PROVIDED FOR INCLUSION IN THE MAINTENANCE MANUALS.

CONTROLS SPECIFICATION

1. GENERAL

- 11 WORK INCLUDED
1 COMPLETE SYSTEM OF ELECTRIC AND ELECTRONIC AUTOMATIC CONTROLS.
2 REMOTE PANELS, SENSORS, CONTROL DEVICES, AND CONTROL CIRCUIT TRANSFORMERS.
3 WIRING, PIPING, RACEWAYS AND CONDUIT.
4 INSTRUMENTATION.
5 TIMECLOCKS
6 CALIBRATIONS, ADJUSTMENTS AND CHECKOUTS.
7 INSTRUCTIONS FOR OWNERS.
12 QUALITY ASSURANCE
1 AT COMPLETION OF INSTALLATION PROVIDE A ONE HALF DAY INSTRUCTION PERIOD FOR OWNER'S OPERATING PERSONNEL.
2 GUARANTEE THE COMPLETE AUTOMATIC CONTROL SYSTEMS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE CONSULTANT.
3 PROVIDE FOR COMPLETE SERVICE OF CONTROLS INCLUDING CALL BACKS FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY CONSULTANT. IN ADDITION TO REQUIRED SERVICE CALLS, SUBMIT WRITTEN REPORT TO CONSULTANT AFTER EACH INSPECTION.
13 SUBMITTALS
1 PROVIDE SHOP DRAWINGS COMPLETE WITH SYSTEM SCHEMATICS, MIXING DIAGRAMS, OPERATING DATA AND DETAILED DESCRIPTION OF OPERATIONAL SEQUENCES OF CONTROLS.
2 AT COMPLETION OF INSTALLATION INCLUDING CALIBRATION OF CONTROLS AND START UP, MAKE DETAILED CHECK OF ALL CONTROL SYSTEMS AND SUBMIT WRITTEN REPORT TO THE CONSULTANT.

2. PRODUCTS

- 21 CONTROL DAMPERS
1 PROVIDE OPPOSED BLADE CONTROL DAMPERS WHERE SHOWN ON THE DRAWINGS. DAMPER BLADES TO BE OF GALVANIZED STEEL OR EXTRUDED ALUMINUM, ADEQUATELY STIFFENED AND PROVIDED WITH STAINLESS STEEL SHAFTS WITH OIL IMPREGNATED SINTERED BRONZE BEARINGS. OUTDOOR AIR AND EXHAUST AIR DAMPERS TO BE INSULATED LOW LEAKAGE TYPE WITH CONTINUOUS NEOPRENE EDGE STOPS AND SEALS ON ALL SIDES.
3 CONTROL DAMPER SCHEDULE
MD-1 RUSKIN IL-35 INSULATED CONTROL DAMPER 24"x12"
MD-2 RUSKIN IL-35 INSULATED CONTROL DAMPER 24"x12"
MD-3 RUSKIN CD-40 CONTROL DAMPER 18"x18"
MD-4 RUSKIN CD-40 CONTROL DAMPER 18"x18"
22 DAMPER OPERATORS
1 PROVIDE DAMPER OPERATORS TO SUIT THE AIR HANDLING UNIT CONTROL DAMPERS, OPERATORS TO BE ADEQUATELY SIZED TO PROVIDE SMOOTH AND FULL TRAVEL IN BOTH DIRECTIONS.
2 GENERALLY OPERATORS TO BE MAINTENANCE FREE 24 VOLT DIRECT COUPLED ACTUATORS WITH 45 DEGREE ROTATION, MAXIMUM NOISE LEVEL OF 45 DBA, POSITION INDICATOR, NON-OVERLOADING, AND SHALL BE UL LISTED. DIRECTION OF ROTATION SHALL BE REVERSIBLE WITHOUT WIRING CHANGE.
3 SEPARATE DAMPER OPERATORS TO BE PROVIDED WHERE INDIVIDUAL DAMPERS ARE INSTALLED. ON MULTI-SECTION DAMPERS, INSTALL SEPARATE DAMPER OPERATORS FOR EACH SECTION EXCEPT WHERE A JACK SHAFT DRIVE ARRANGEMENT IS INDICATED.
4 PROVIDE DAMPER LINKAGES WHERE DIRECT COUPLING OF MOTOR TO DAMPER SHAFT IS NOT POSSIBLE.
5 MOUNT DAMPER OPERATORS ON MOUNTING BRACKETS ADEQUATELY STIFFENED.
6 ACTUATORS FOR MODULATING DAMPERS WITH EDGE SEALS SHALL BE BELIMO NF24.

2.3 ROOM TEMPERATURE SENSORS AND THERMOSTATS

- 1 PROVIDE ALL ROOM TEMPERATURE SENSORS AND THERMOSTATS AS SHOWN ON THE DRAWINGS AND AS SPECIFIED.
2 ALL SENSORS TO BE CAPABLE OF RESPONDING TO A TEMPERATURE CHANGE OF 0.1°C SENSORS TO HAVE ADJUSTABLE SENSITIVITY AND SET POINT.
3 THERMOSTATS ARE TO BE KEY ADJUSTABLE, WALL MOUNTED TYPE AND ARE TO HAVE WINDOW WITH SET-POINT IN DEGREES C VISIBLE. DO NOT PROVIDE TEMPERATURE INDICATING THERMOMETER.
4 CO-ORDINATE LOCATION OF INSTRUMENTS WITH LIGHT SWITCHES AND TO CONSULTANT'S APPROVAL, MOUNTING HEIGHT 1500 MM ABOVE FINISHED FLOOR LEVEL UNLESS OTHERWISE STATED. MOUNT ELECTRICAL INSTRUMENTS ON STANDARD ELECTRICAL ROUGH-IN BOXES.
5 PROVIDE LOCKING COVERS FOR ALL THERMOSTATS SO DESIGNATED ON THE DRAWINGS.

2.4 SENSORS AND CONTROLLERS

- 1 ALL SENSORS AND CONTROLLERS SHALL BE OF COMMERCIAL GRADE OR AS SPECIFIED AND SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. PROVIDE FULL DETAILS OF ALL SENSORS AND CONTROLLERS PROPOSED, INCLUDING THEIR RANGE AND ACCURACY.
2 SUPPLY APPROVED TEMPERATURE WELLS OF THE APPROPRIATE SIZE AND TYPE FOR SENSING WATER TEMPERATURES, AS REQUIRED. TEMPERATURE WELLS ARE TO BE INSTALLED BY THE MECHANICAL CONTRACTOR.

2.5 CONDUIT, WIRING AND CABLING

- 1 ALL WORK SHALL BE INSTALLED TO THE CANADIAN ELECTRICAL CODE AND LOCAL BUILDING CODES.
2 WHERE THERE IS NOT AN ALTERNATIVE TO SUPPLYING EQUIPMENT WHICH IS NOT CSA CERTIFIED, SUBMIT SUCH EQUIPMENT TO THE INSPECTION AUTHORITIES FOR SPECIAL INSPECTION AND OBTAIN APPROVAL BEFORE DELIVERY OF EQUIPMENT TO SITE. SUCH EQUIPMENT MUST BE INDIVID
3 THE CONTRACTOR IS RESPONSIBLE FOR ALL CONTROL WIRING AND CONNECTIONS (120 VOLT AND LESS) INCLUDING THOSE BETWEEN LINE VOLTAGE TEMPERATURE CONTROLS, SAFETY, LIMITING AND OTHER DEVICES DIRECTLY RELATED TO STARTERS, HOLDING COILS, AUXILIARY CONTACTORS.
4 DO NOT USE EXPOSED CONDUIT OR WIRING IN PUBLIC AREAS OF THE BUILDING. ANY CONDUIT INSTALLED EXPOSED IN SERVICE AREAS SHALL BE PAINTED TO MATCH THE SURROUNDINGS.

5 USE CODED CONDUCTORS THROUGHOUT WITH DIFFERENT COLOURED CONDUCTORS FOR EACH PHASE AND WHITE WIRE FOR NEUTRAL. FOR DC SYSTEMS AND CIRCUITS, USE RED (POSITIVE) AND BLACK (NEGATIVE).

- 6 IDENTIFY EACH WIRE AND CABLE AT EVERY TERMINATION POINT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ANY MARKER THAT MAY HAVE FALLEN OFF BEFORE THE WARRANTY PERIOD IS OVER.
7 SIZE OF CONDUIT AND SIZE/TYPE OF WIRE SHALL BE THE DESIGN RESPONSIBILITY OF THIS CONTRACTOR, EXCEPT AS NOTED.
8 110V CIRCUITS SHALL BE AT A MINIMUM OF #14 AWG RX-90 COPPER. FOR RUNS OVER 45 METRES IN LENGTH, USE #12 AWG RX-90 COPPER.

2.6 CONTROL HARDWARE

- 1 PROVIDE ENAMELLED STEEL ENCLOSURES FOR MOUNTING MOTOR CONTROL RELAYS AND COMPONENTS WHICH REQUIRE ADDITIONAL PROTECTION. ENCLOSURES ARE TO MEET NEMA SPECIFICATIONS WHERE REQUIRED BY THE CANADIAN ELECTRICAL CODE.
2 ALL COMPONENTS SHALL BE POSITIONED TO PROVIDE EASY ACCESS FOR MAINTENANCE OR REPLACEMENT.
2.1 FURNACES F-1 AND F-2 SYSTEMS
1 FOR EACH FURNACE SYSTEM, PROVIDE THE FOLLOWING CONTROL COMPONENTS:
- HONEYWELL T814 THERMOSTAT WITH FAN-ON SWITCH SUBBASE
- OUTDOOR AIR DAMPER AND RETURN AIR DAMPER ACTUATORS
- TIMECLOCK
- DAMPER MINIMUM POSITION POTENTIOMETER

3. EXECUTION

- 3.1 THE INSTALLATION SHALL CONFORM BOTH TO MANUFACTURER'S RECOMMENDED PROCEDURES AND TO ALL APPLICABLE CODES AND REGULATIONS AND TO THE APPROVAL OF THE AUTHORITIES HAVING JURISDICTION.
2 PROVIDE ALL CONTROL COMPONENTS, WIRING, DEVICES, AND LABOUR TO ACCOMPLISH THE CONTROL SEQUENCES AS DESCRIBED HEREIN.
3.2 CALIBRATION
1 SET UP AND CALIBRATE CONTROLS DURING INITIAL START-UP OF THE SYSTEMS AND CHECK, RECALIBRATE AND READJUST AS NECESSARY DURING THE COMMISSIONING PERIOD.
3.3 INSTALLATION OF SENSORS/SWITCHES
1 SENSORS PROVIDED UNDER THIS CONTRACT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PRESCRIBED PROCEDURE.
3.4 EXHAUST FANS
1 EXHAUST FANS EF-1 SHALL BE TIME CONTROLLED BY ONE TIME CLOCK PROVIDED BY THIS SECTION. ALL OTHER FANS ARE MANUALLY CONTROLLED.
2 PROVIDE HAND-OFF-AUTO SWITCHES FOR ALL FANS CONTROLLED BY TIME CLOCKS. MOUNT THE SWITCH LOCAL TO EACH FAN.

3.5 ELECTRIC HEATERS

- 1 MOUNT THE THERMOSTATS FOR ELECTRIC HEATER EH-1, 2, 3, 4, & 5 AND CONNECT TO THE HEATER RELAY.
3.6 FURNACES F-1 AND F-2 & MIXING AND RELIEF DAMPERS
1 FOR EACH FURNACE SYSTEM, INSTALL THE THERMOSTAT, SUBBASE, AND DAMPER ACTUATORS, AND CONNECT THE COMPONENTS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
2 CONNECT AND SET CONTROL COMPONENTS SO THAT DURING OCCUPIED TIMES AS DETERMINED BY THE TIME CLOCK, THE MINIMUM OUTDOOR AIR SHALL BE SET FOR 15%. DURING UNOCCUPIED TIMES, THE OUTDOOR AIR DAMPER SHALL BE CLOSED.

EQUIPMENT SCHEDULES

1. FURNACES

F-1 & F-2 NORTON #21-B10
10 KW HEATER 240/1/60, 600 CFM @ 0.5" ESP, MOTOR 1/4 HP
FURNACE ACCESSORIES/FEATURES: AUTOMATIC FAN CONTROL, ENERGY SAVER, SUMMER FAN SWITCH, DISPOSABLE FILTER AND FILTER FRAME, THERMOSTAT WITH SUB BASE FOR FAN CONTROL. MINIMUM 150 CFM OUTDOOR AIR.

2. EXHAUST FANS

EF-1 LOREN COOK GN-420 CEILING BLOWER, 235 CFM AT 0.275" ESP, MOTOR 1/2 HATTS @ 1075 RPM, 120/1/60, MAXIMUM SONNES 1.2
ACCESSORIES: VARIABLE SPEED CONTROLLER MOUNTED ON WALL OF JANITOR'S ROOM, AND KC6-2 WALL CAP. FAN CONTROL BY TIME CLOCK.
EF-2 LOREN COOK GC-240, 100 CFM AT 0.25" ESP, MOTOR 65 HATTS @ 1200 RPM, 120/1/60, MAXIMUM SONNES 1.5
ACCESSORIES: KC6-2 WALL CAP, FAN CONTROL BY WALL SWITCH.

3. ACCESS PANEL

AP 18"x12" MAXAM METAL PRODUCTS LTD. STYLE "L"

4. RANGE HOOD

RH-1 NUTONE NN 8330WHC, 250 CFM 120/1/60, ACCESSORIES: WALL CAP

5. ELECTRIC BASEBOARD HEATERS

- EH-1 OULLET F1002 (1000 WATTS) 115/1/60 C/W LOW VOLTAGE TRANSFORMER & REMOTE THERMOSTAT WITH LOCKABLE COVER.
EH-2 OULLET 1002 (1000 WATTS) 115/1/60 C/W LOW VOLTAGE TRANSFORMER & REMOTE THERMOSTAT WITH LOCKABLE COVER.
EH-3 OULLET OACO 2000 (2000 WATTS) 240/1/60 C/W LOW VOLTAGE TRANSFORMER & REMOTE THERMOSTAT WITH LOCKABLE COVER.
EH-4 OULLET F0302 (300 WATTS) 115/1/60 C/W BUILT-IN THERMOSTAT.
EH-5 OULLET F1002 (1000 WATTS) 115/1/60 C/W LOW VOLTAGE TRANSFORMER & REMOTE THERMOSTAT WITH LOCKABLE COVER.
EH-6 OULLET OARO 752 (750 WATTS) 115/1/60 C/W BUILT-IN THERMOSTAT. RECESSED INSTALLATION
EH-7 OULLET OARO 752 (750 WATTS) 115/1/60 C/W BUILT-IN THERMOSTAT. RECESSED INSTALLATION

6. DIFFUSERS / GRILLES / LOUVRES

- SD-1 TITUS THS/311/21/1/16-15/25
SG-1 TITUS 212/FL/AG-15/-1/1/25
SG-2 TITUS CT48/1/2-1-1/1/25
RG-1 TITUS 350/FL/-1/1/25
RG-2 TITUS 50/FL/-1/1/25
EG-1 TITUS 350/FL/AG-15/-1/1/25
EG-2 TITUS 350/FL/FF/1/01
L-1 & L-2 AIRLOTE K6T16 C/W BIRDSCREEN

7. HOT WATER TANK

HWT-1 JOHN HOOD # JWB08, 150 LITRE CAPACITY, 3000 WATT 240/1/60 ELECTRICAL SERVICE, GLASS LINED TANK, FIBREGLASS INSULATED ANODE ROD, AUTOMATIC TEMPERATURE CONTROL. INSTALL ASME RATED TEMPERATURE AND PRESSURE RELIEF VALVE ON TANK AND PIPE FULL SIZE TO DRAIN. PROVIDE VACUUM RELIEF VALVE ON TANK. TANK TO SIT IN A CORROSION RESISTANT WATER TIGHT PAN 24" DIAMETER X 2" HIGH. PROVIDE SEISMIC RESTRAINT CABLES AROUND TANK.

8. PLUMBING FIXTURES

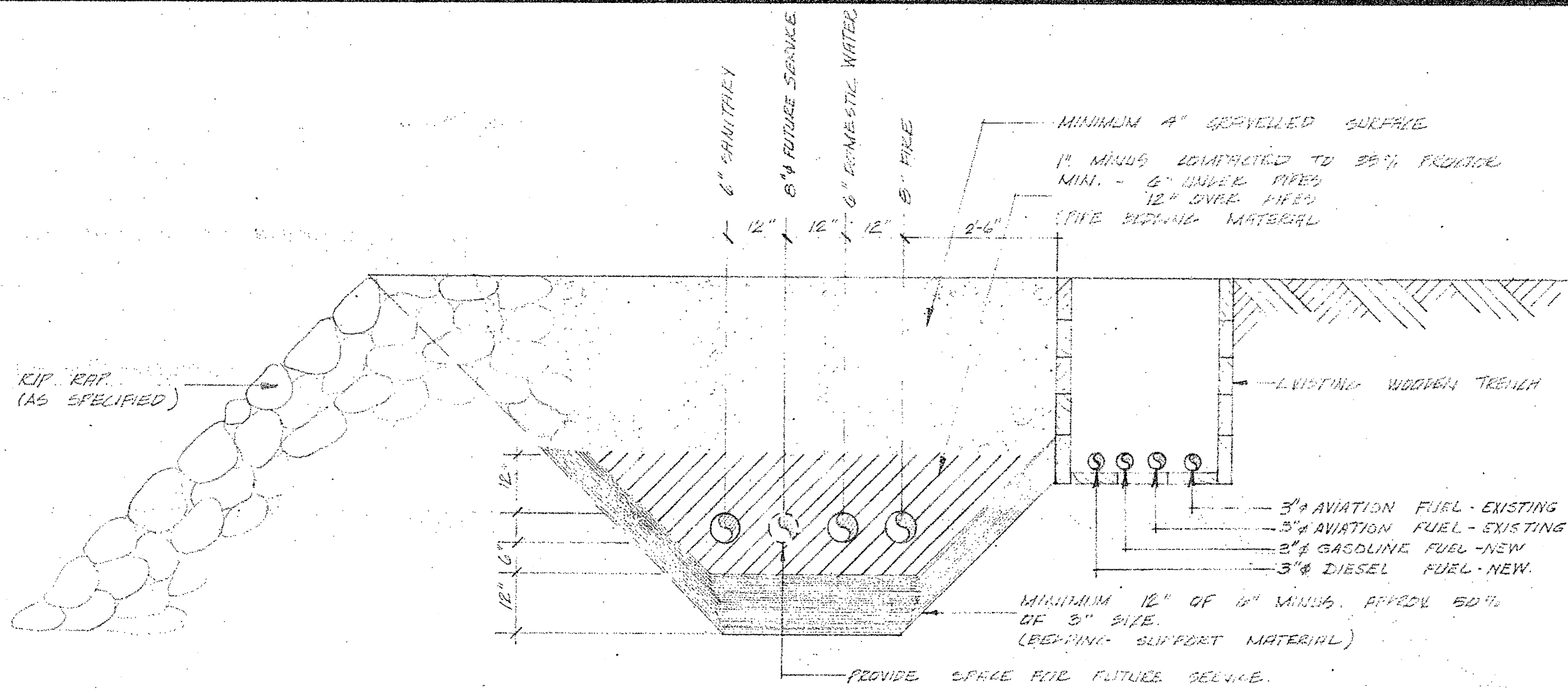
- WC-1 AMERICAN STANDARD AF 2660.0000 CADET III ELONGATED WATER SAVER WATER CLOSET WITH OLSONITE #44 TOILET SEAT AND BRASSCRAFT CHROME PLATED ANGLE SUPPLY VALVE WITH ESCUTCHEON.
WC-2 AMERICAN STANDARD AF 2108.0508 (HANDICAP) 18" HIGH ELONGATED CADET WATER CLOSET WITH OLSONITE #44 TOILET SEAT AND BRASSCRAFT CHROME PLATED ANGLE SUPPLY VALVE WITH ESCUTCHEON. TANK LID TO BE BOLTED DOWN.
L-1 AMERICAN STANDARD CADET AF-0444 LAVATORY COMPLETE WITH AMERICAN STANDARD 6V 2000.1000 FAUCET, AMERICAN STANDARD T116.0200 GRID DRAIN WITH CAST BRASS "P" TRAP AND BRASSCRAFT CHROME PLATED ANGLE SUPPLY VALVE WITH ESCUTCHEON AND FLEXIBLE RISERS.
L-2 AMERICAN STANDARD AF 0355.012F LUCERNE HALL HING LAVATORY C/W AMERICAN STANDARD 6V2000.1000 FAUCET, AMERICAN STANDARD T123.018 OFFSET GRID DRAIN WITH CAST BRASS "P" TRAP, BRASSCRAFT CHROME PLATED ANGLE SUPPLY VALVE WITH ESCUTCHEON AND FLEXIBLE RISER. CARRIER ZURN 21291 CONCEALED ARM SYSTEM.

S-1 KINDRED STEEL QUEEN QL-2 SINGLE BOWL, STAINLESS STEEL SINK WITH CRUMB CUP AND STRAINER. AMERICAN STANDARD 6V2021.7910 CERAMIX SINK FITTING, 1 1/2" WASTE & CAST BRASS "P" TRAP, BRASSCRAFT CHROME PLATED ANGLE SUPPLY VALVE WITH ESCUTCHEONS AND FLEXIBLE RISERS.

S-2 KINDRED STEEL QUEEN QDL-2 DOUBLE BOWL, STAINLESS STEEL SINK WITH CRUMB CUP AND STRAINER. AMERICAN STANDARD 6V2021.7910 CERAMIX SINK FITTING, 1 1/2" WASTE & CAST BRASS "P" TRAP, BRASSCRAFT CHROME PLATED ANGLE SUPPLY VALVE WITH ESCUTCHEONS AND FLEXIBLE RISERS.

Vertical sidebar containing project details: JOB NAME PENELAKUT TRIBE SH'ULH-ETUN HEALTH SOCIETY CLINIC, KUPER ISLAND, BC. DRAWING TITLE SPECIFICATION & SCHEDULES. JOB NUMBER 353. DRAWING NUMBER M2 OF 2. Includes logos for CONSULTANTS VERSACON and CONSULTANT DAVID NAIRNE & ASSOCIATES LTD VANCOUVER BC.

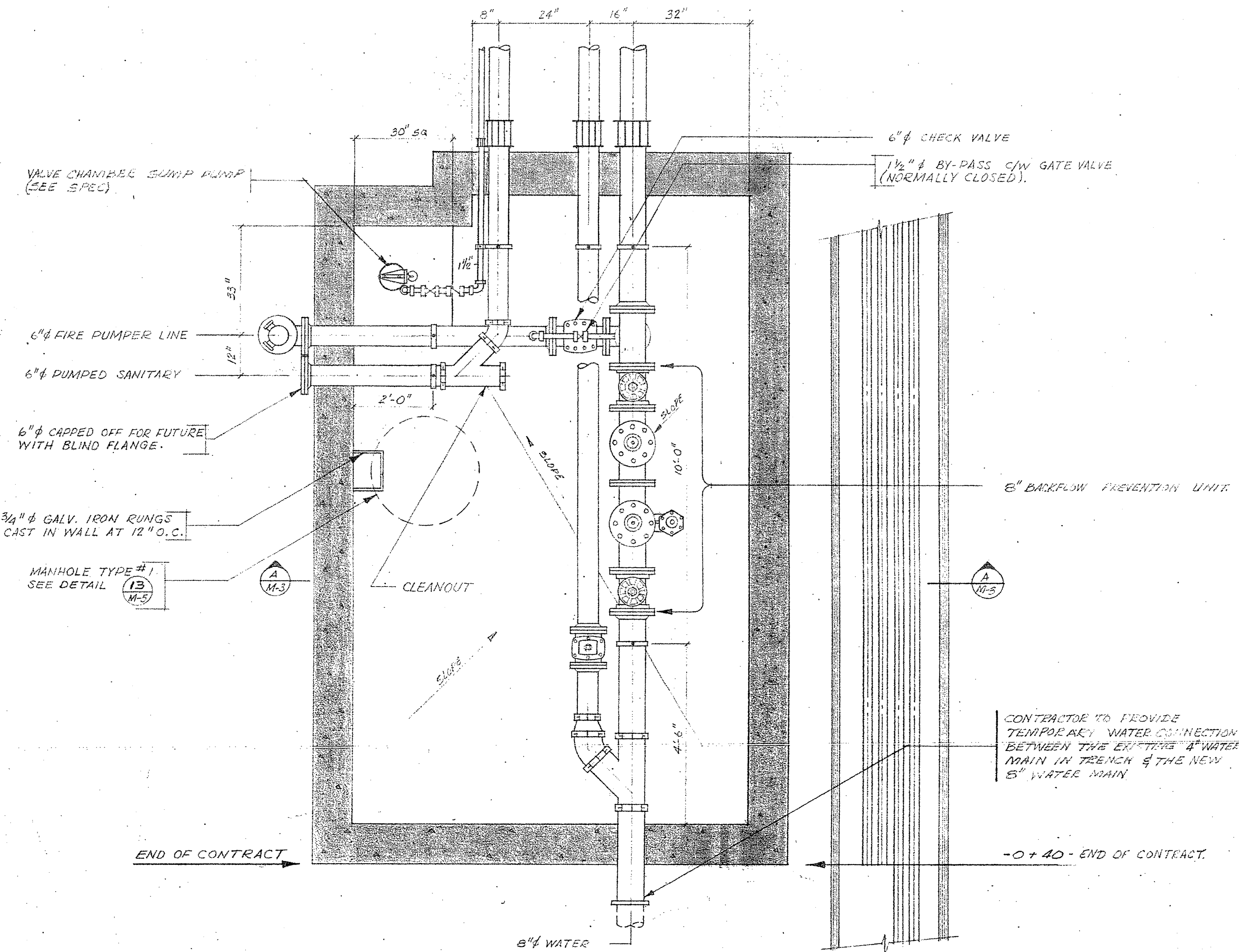




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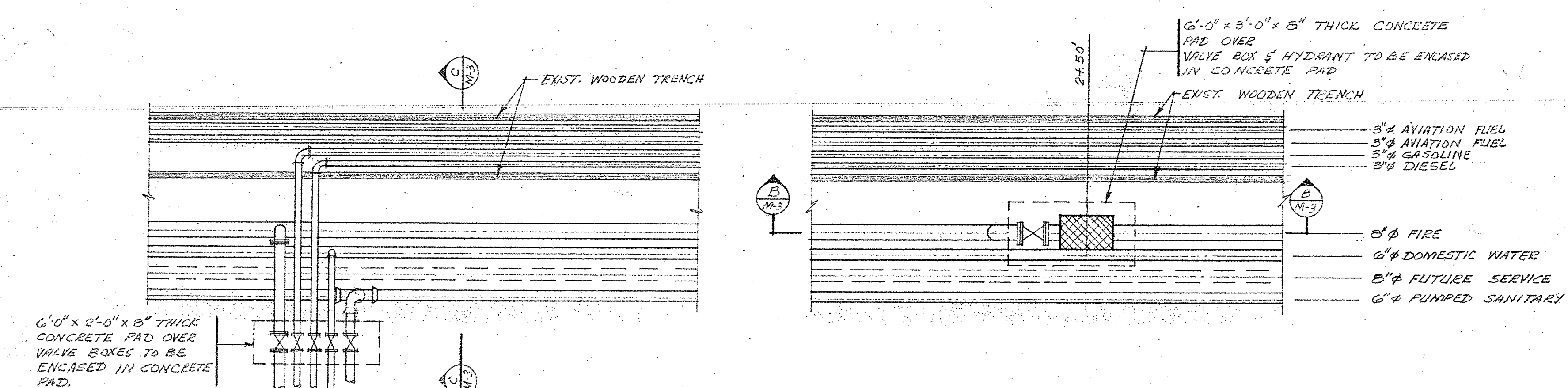
TYPICAL BEDDING DETAIL (U M-3)

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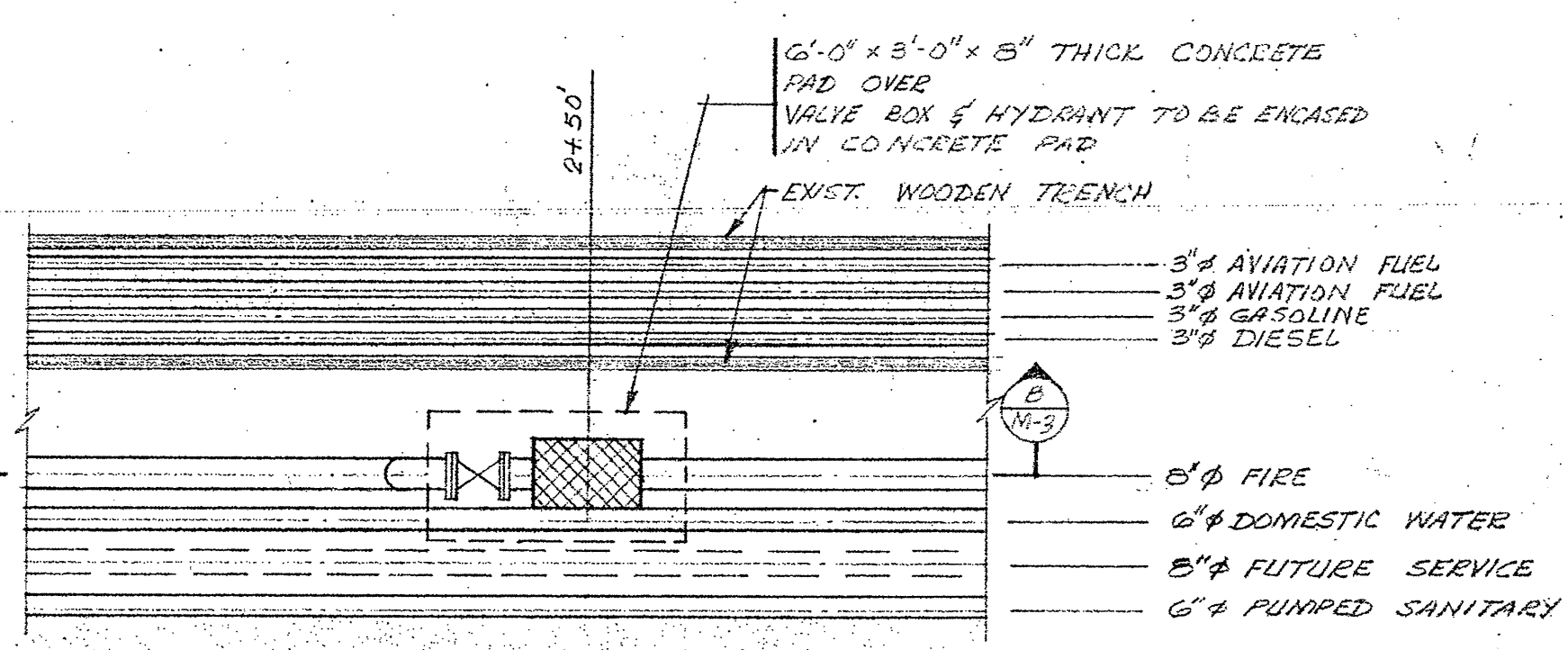
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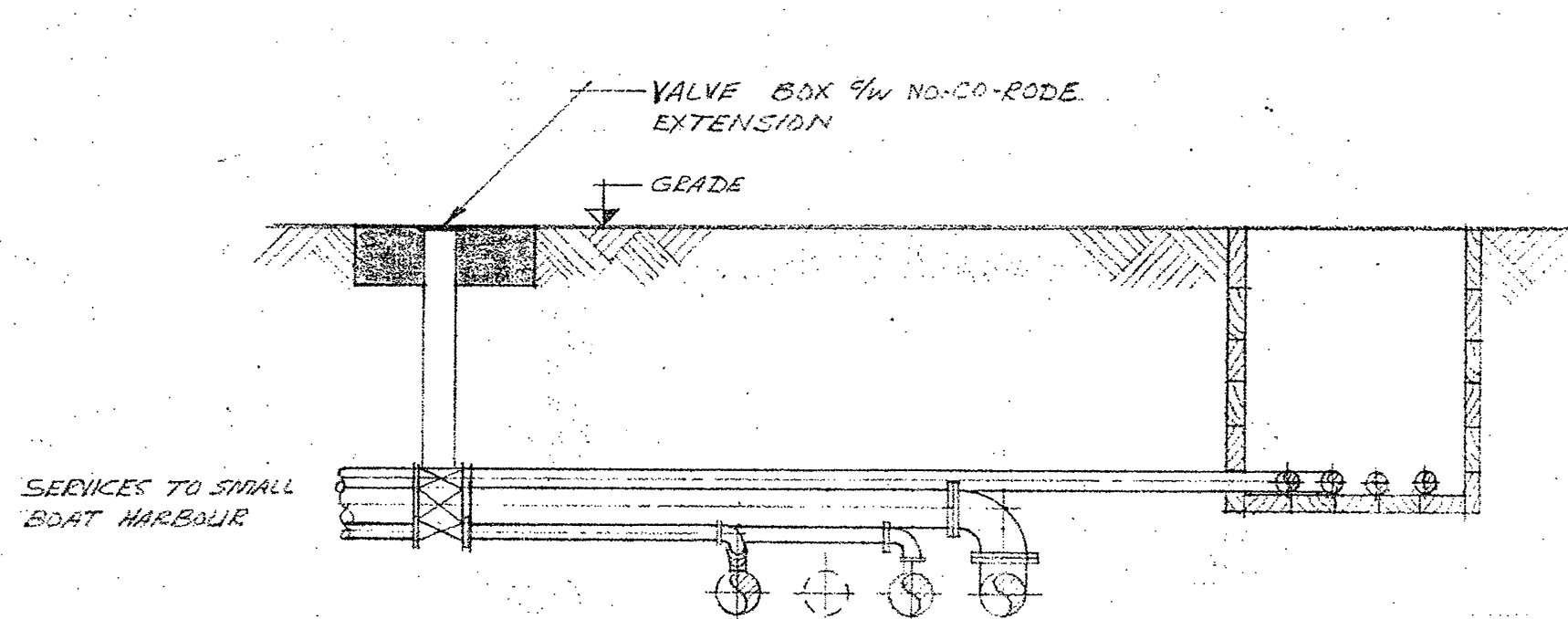
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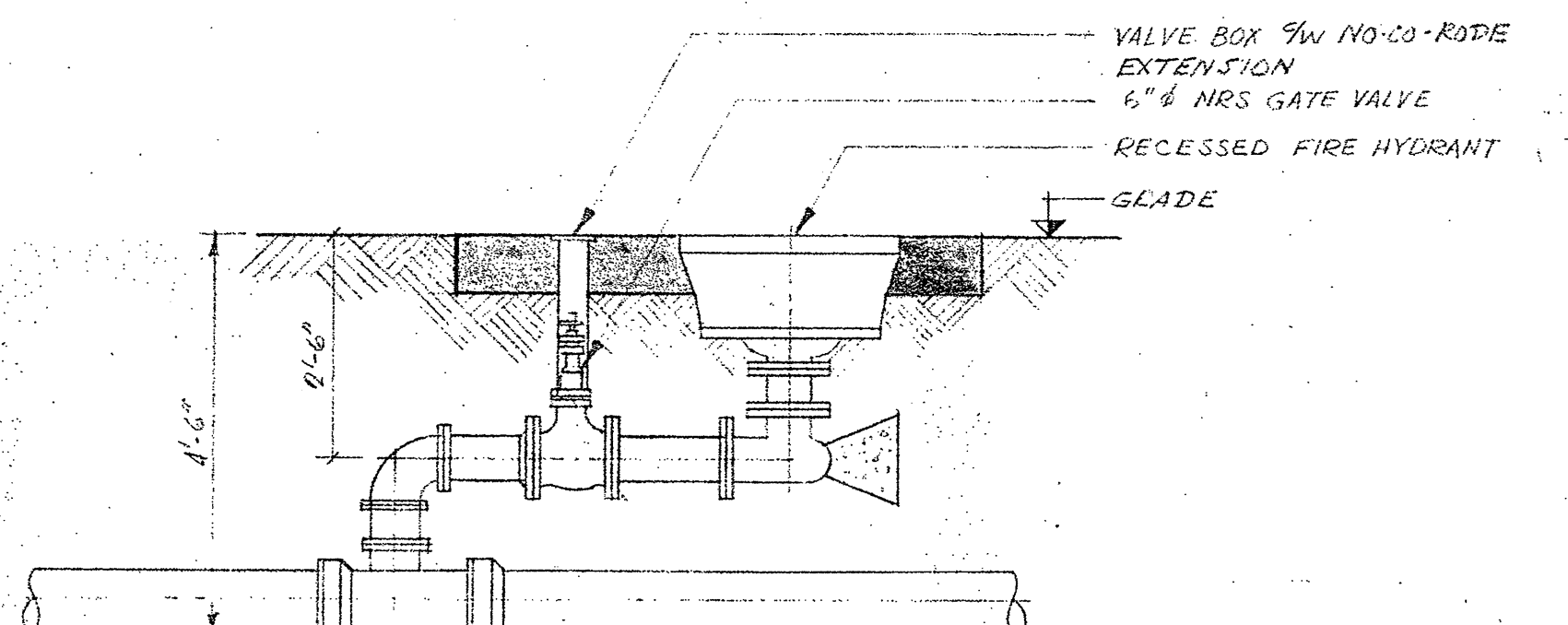
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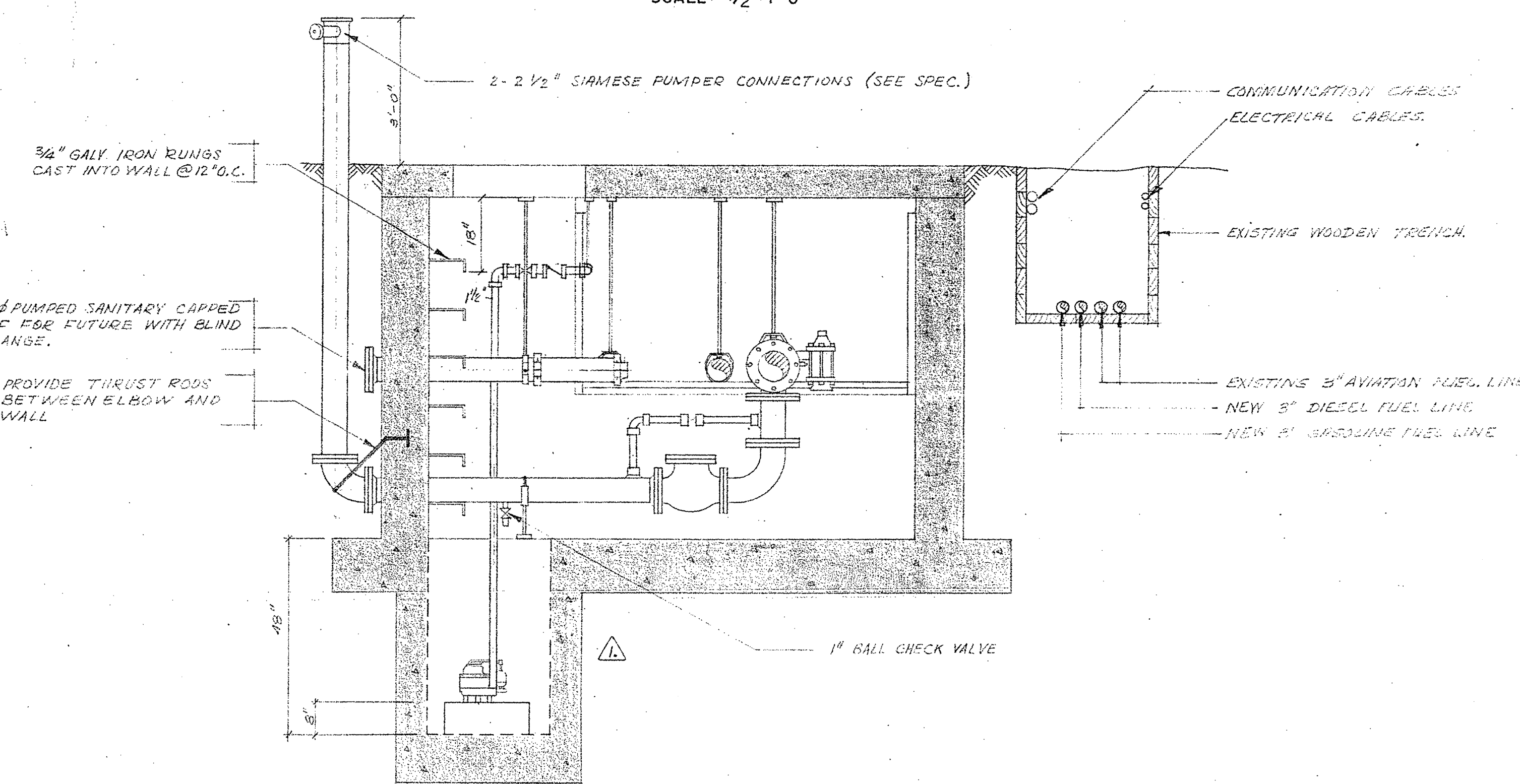
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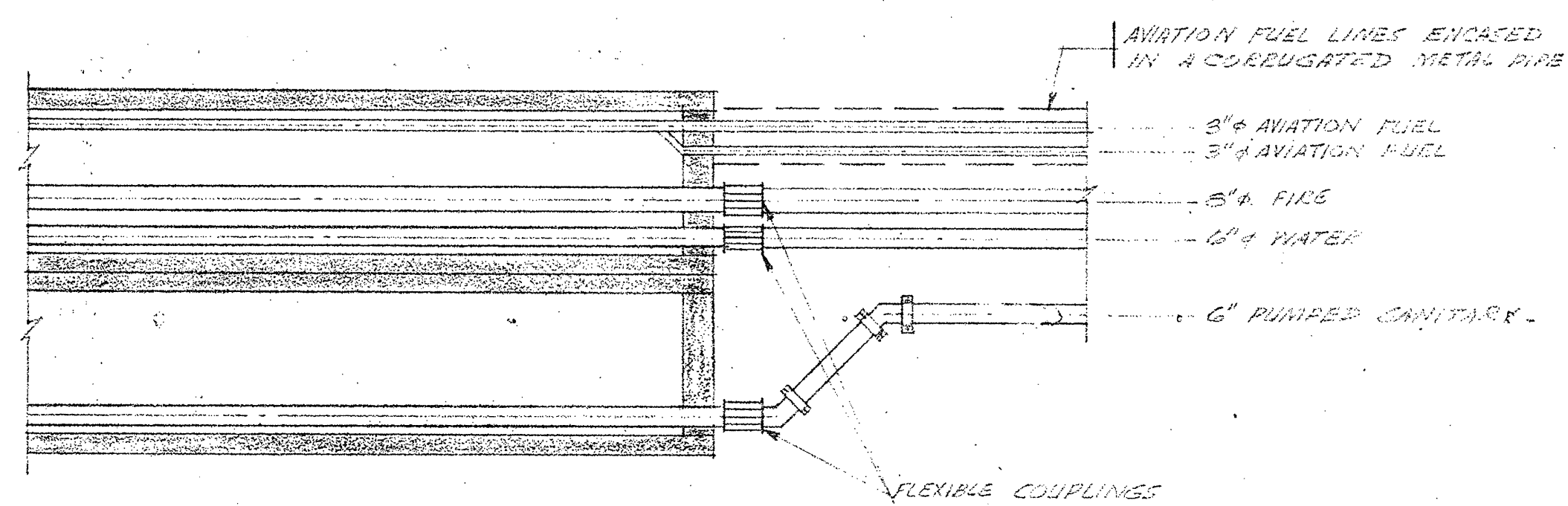
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SECTION (A M-3)

SCALE: 1/2\"/>



PLAN (5 M-3)

SCALE: 1/4\"/>

R. J. Davis







PACIFIC REGION

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CONSULTING ENGINEERS  
MECHANICAL - ELECTRICAL - CIVIL

1690 WEST BROADWAY  
VANCOUVER 9, B.C.

D.W.T. JOB NO 4306-03

A detail no. detail no.

B location drawing no. sur dessin no.

C drawing no. dessin no.

revisions

1. AVIATION FUEL, SANITARY & BILGE WATER PIPING REVISIONS TO BE MADE TO DRAWING PLAN REVISED.

DATE

DATE

DATE

DATE

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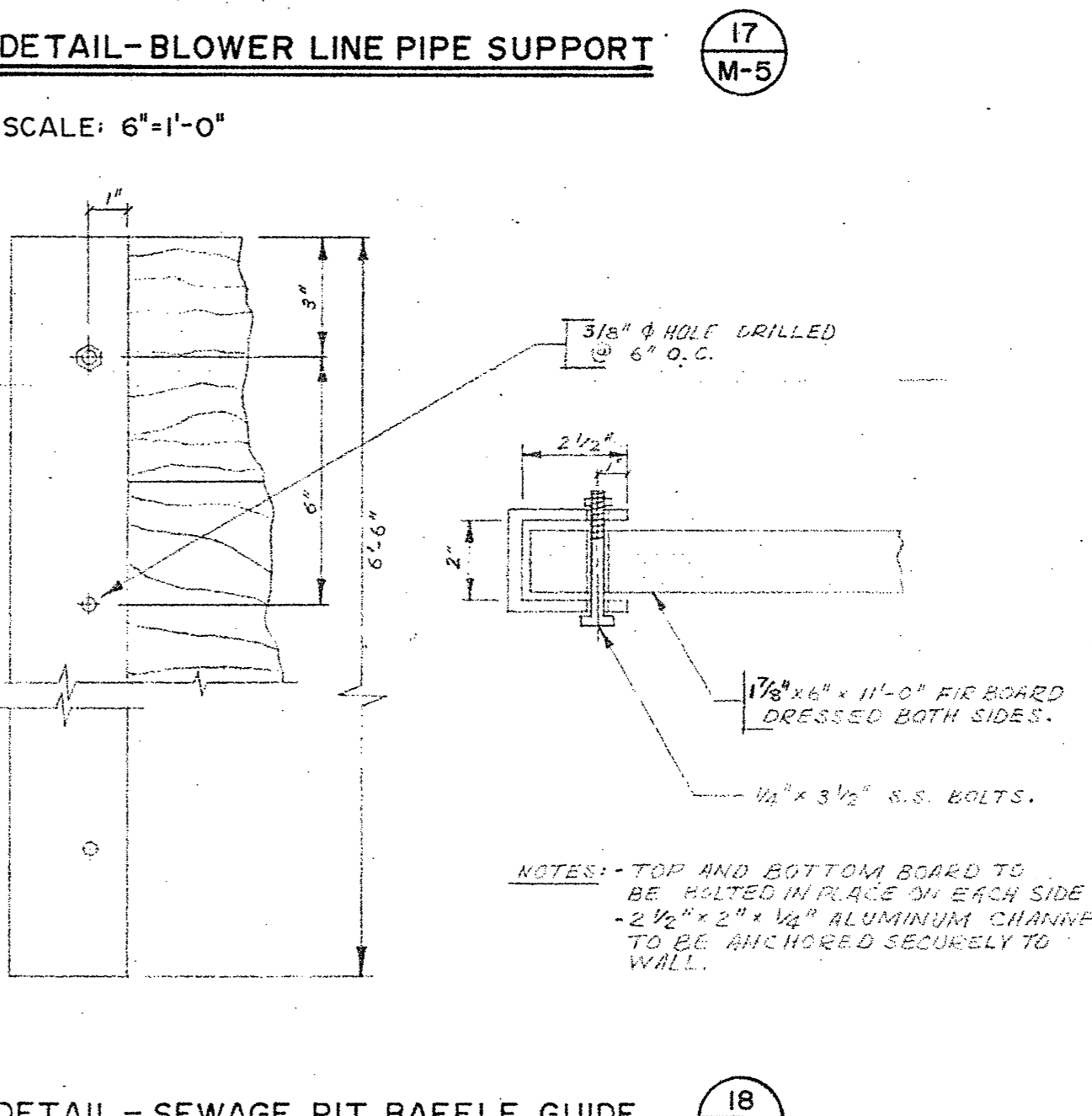
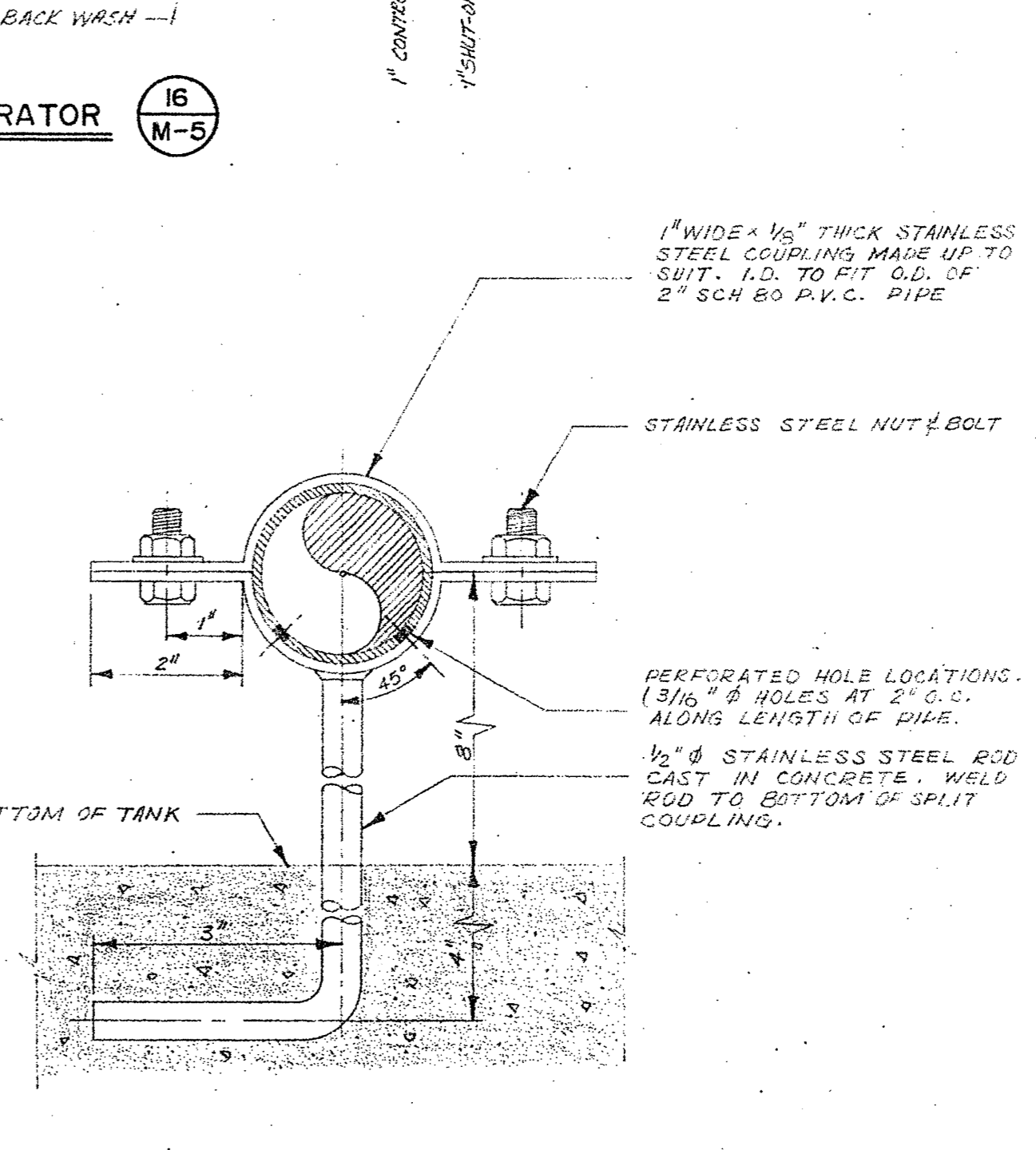
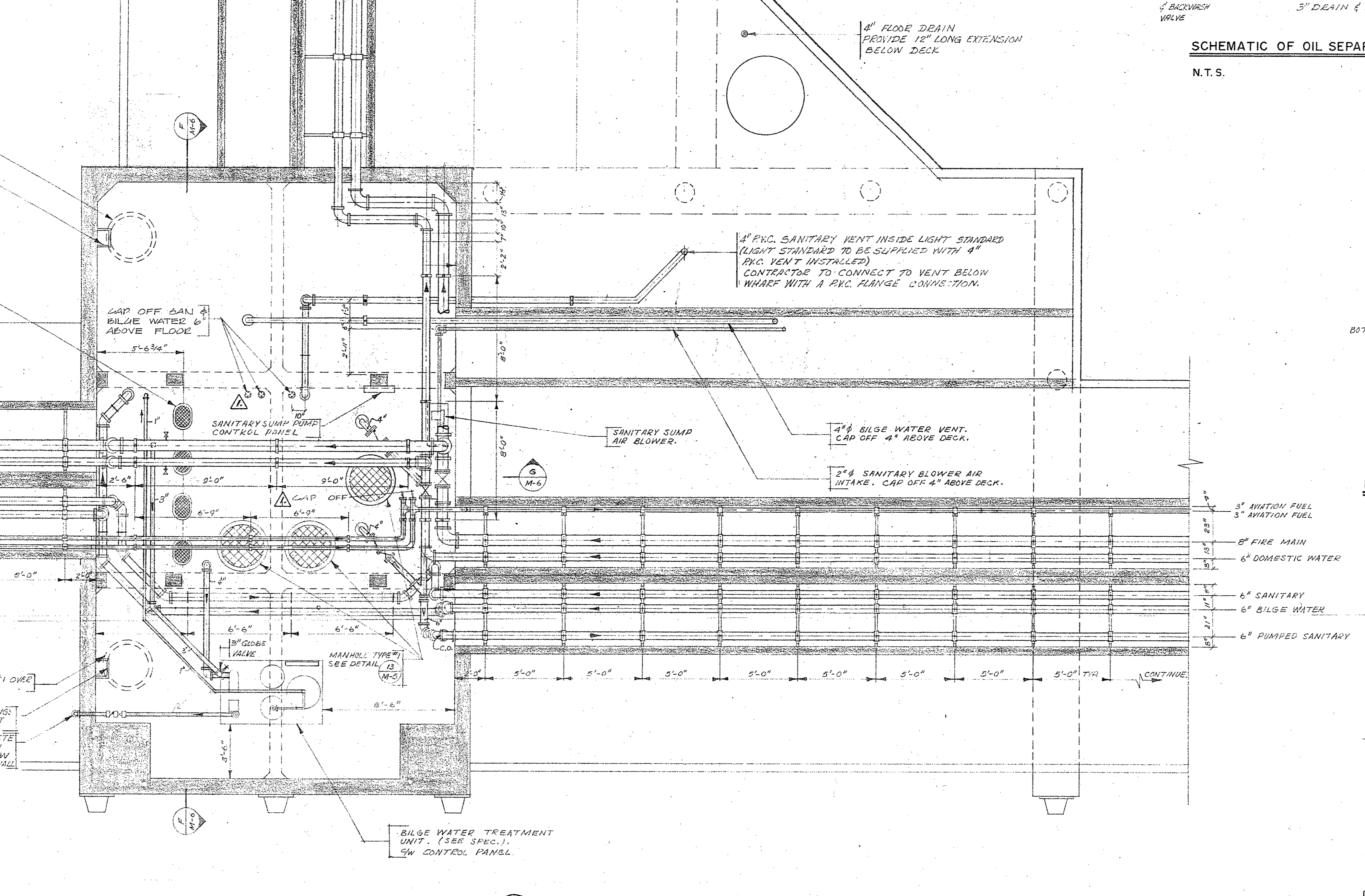
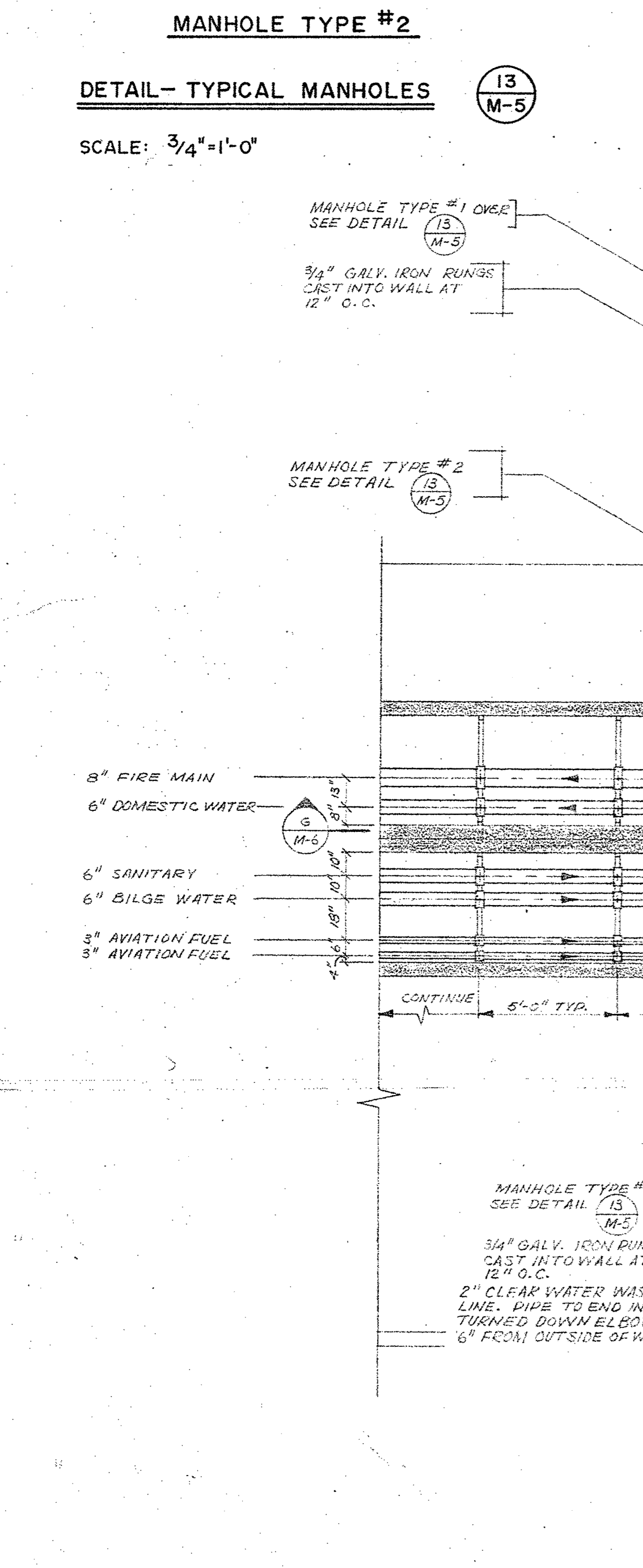
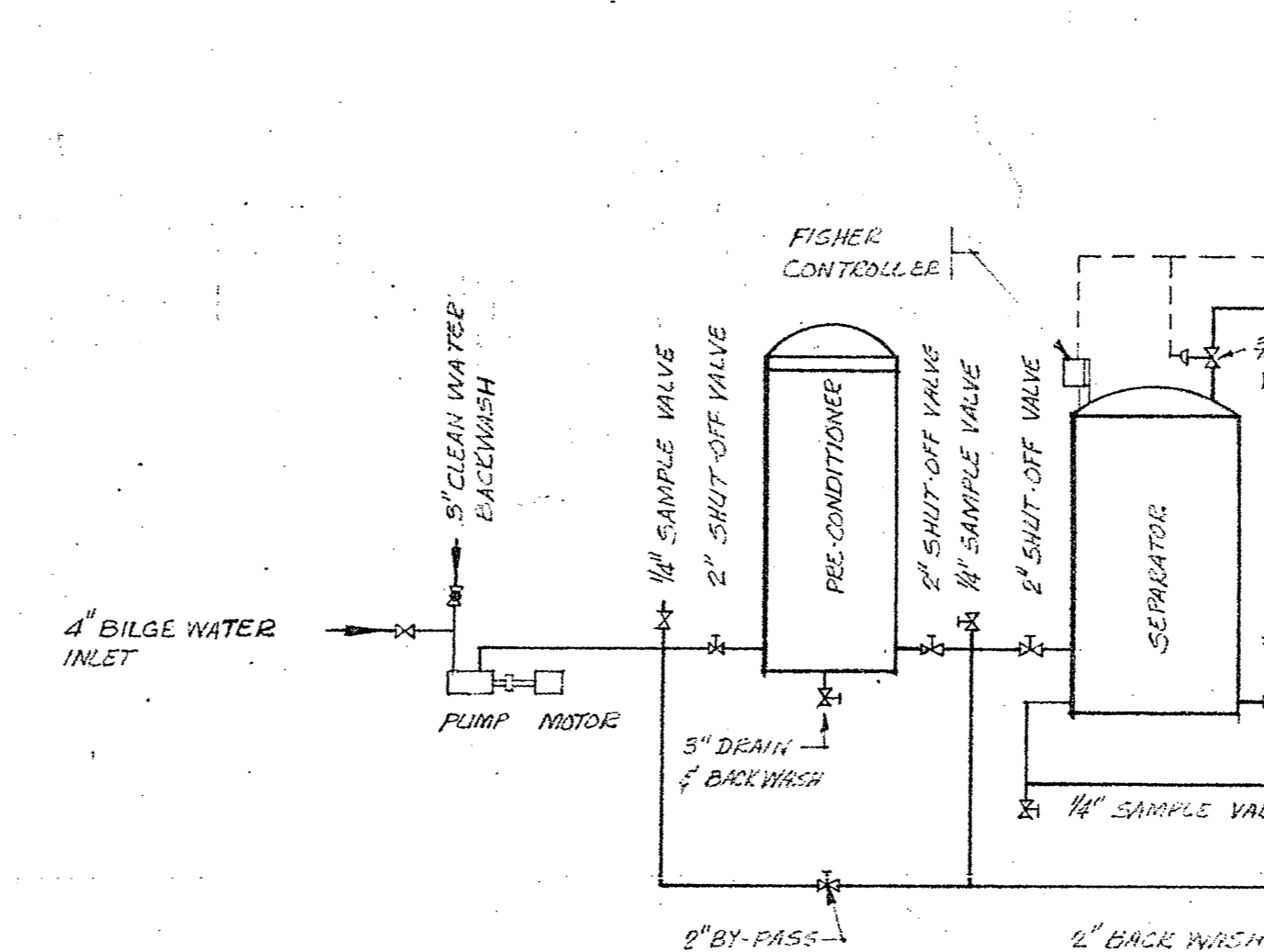
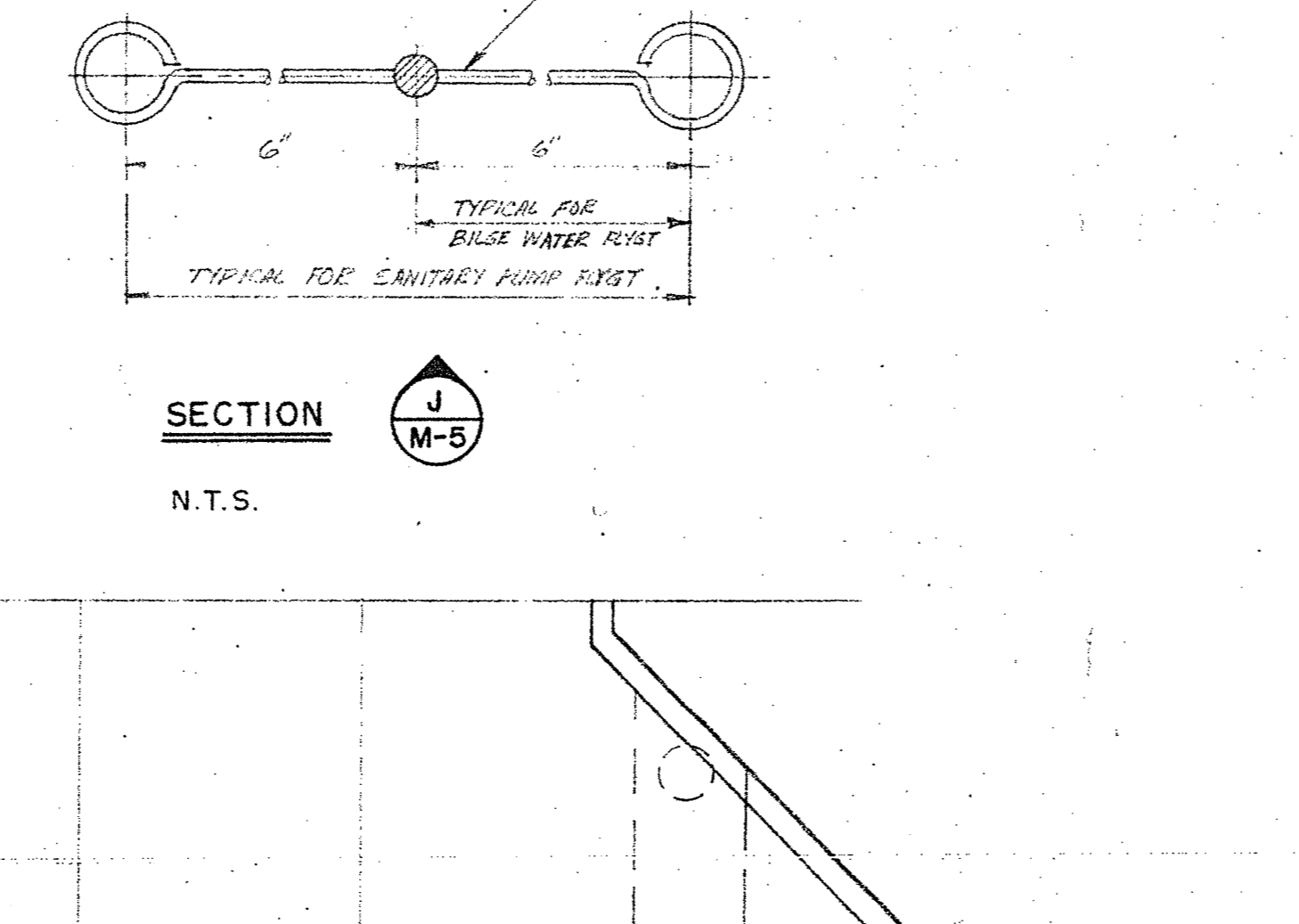
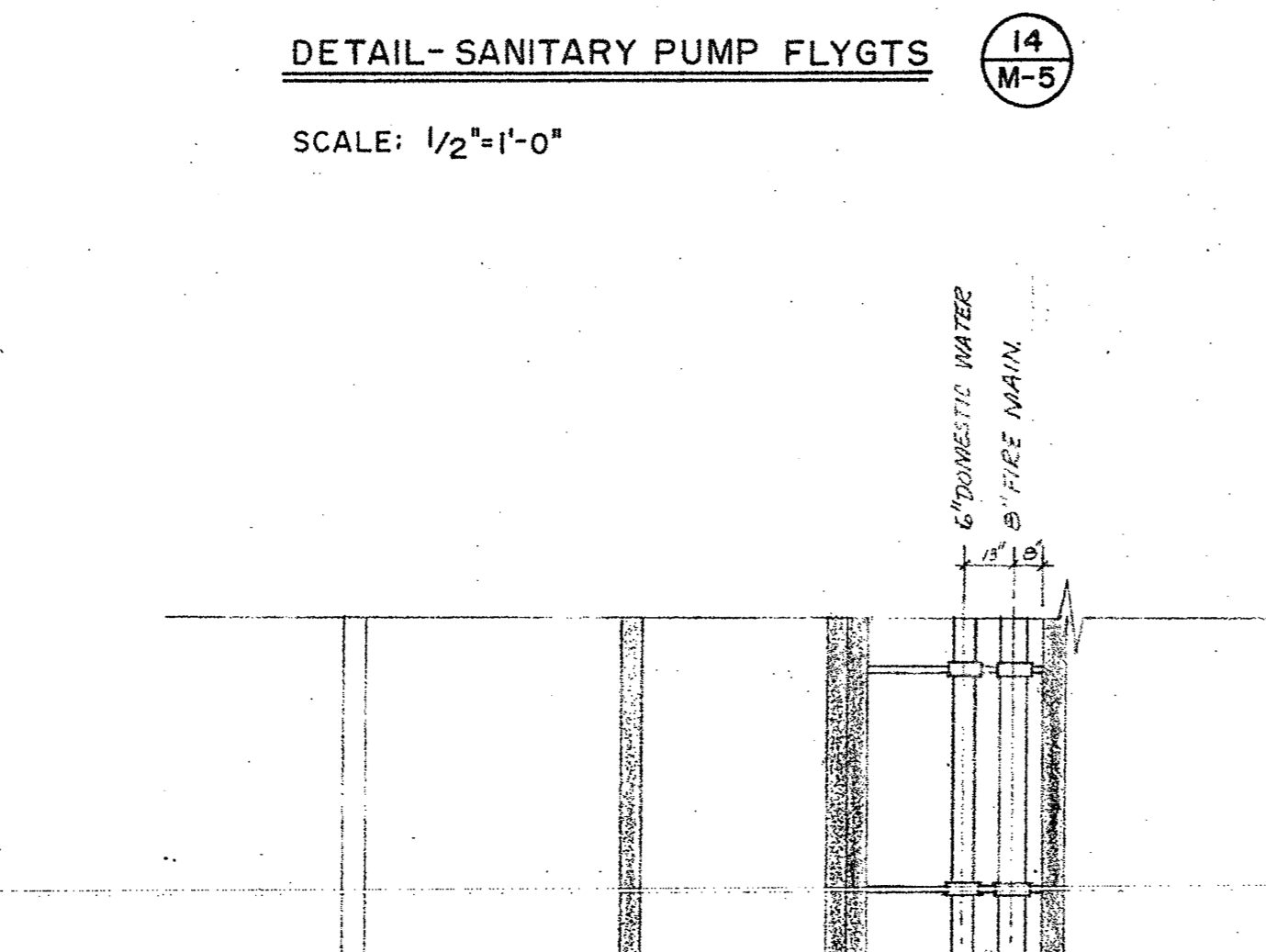
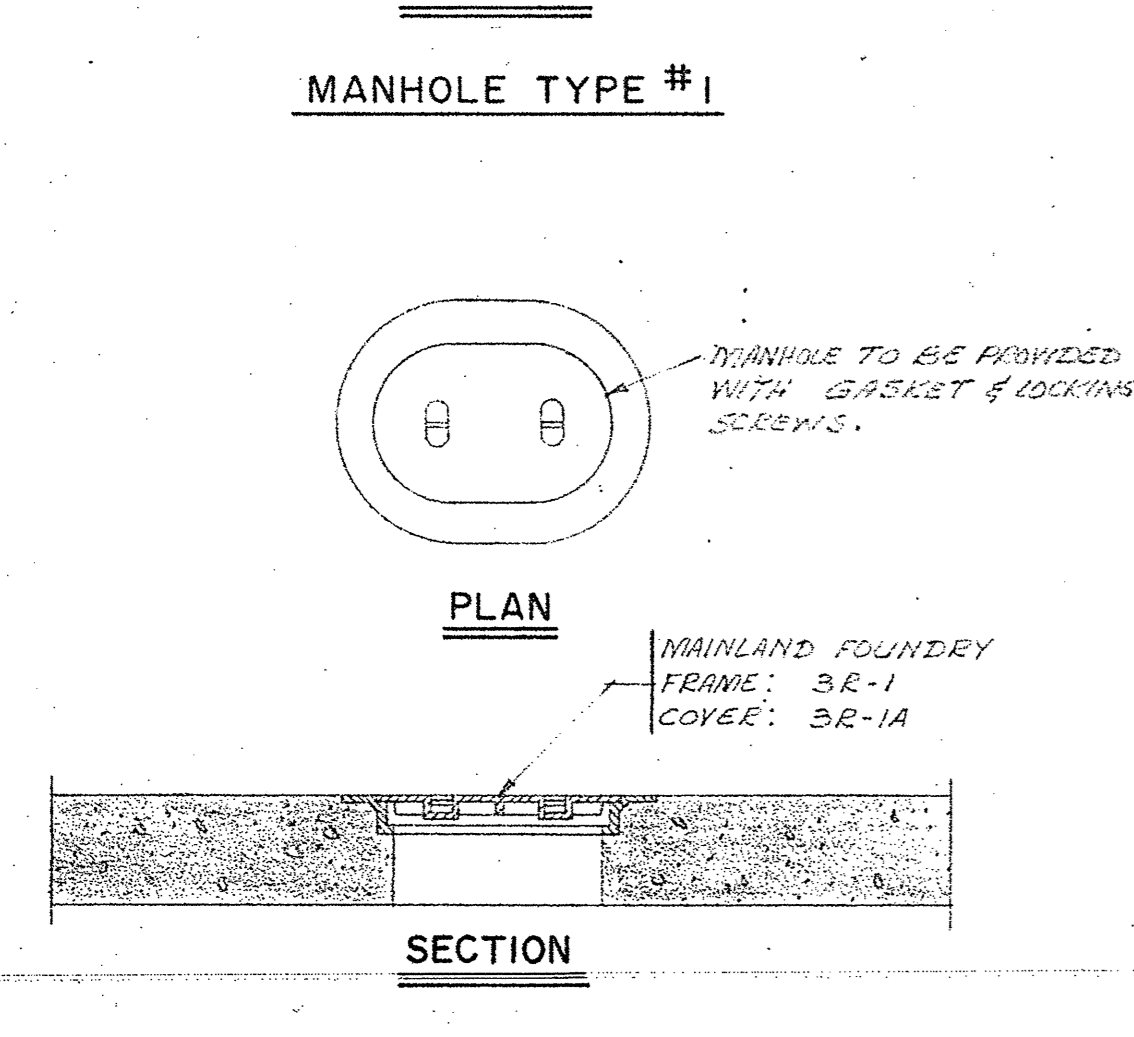
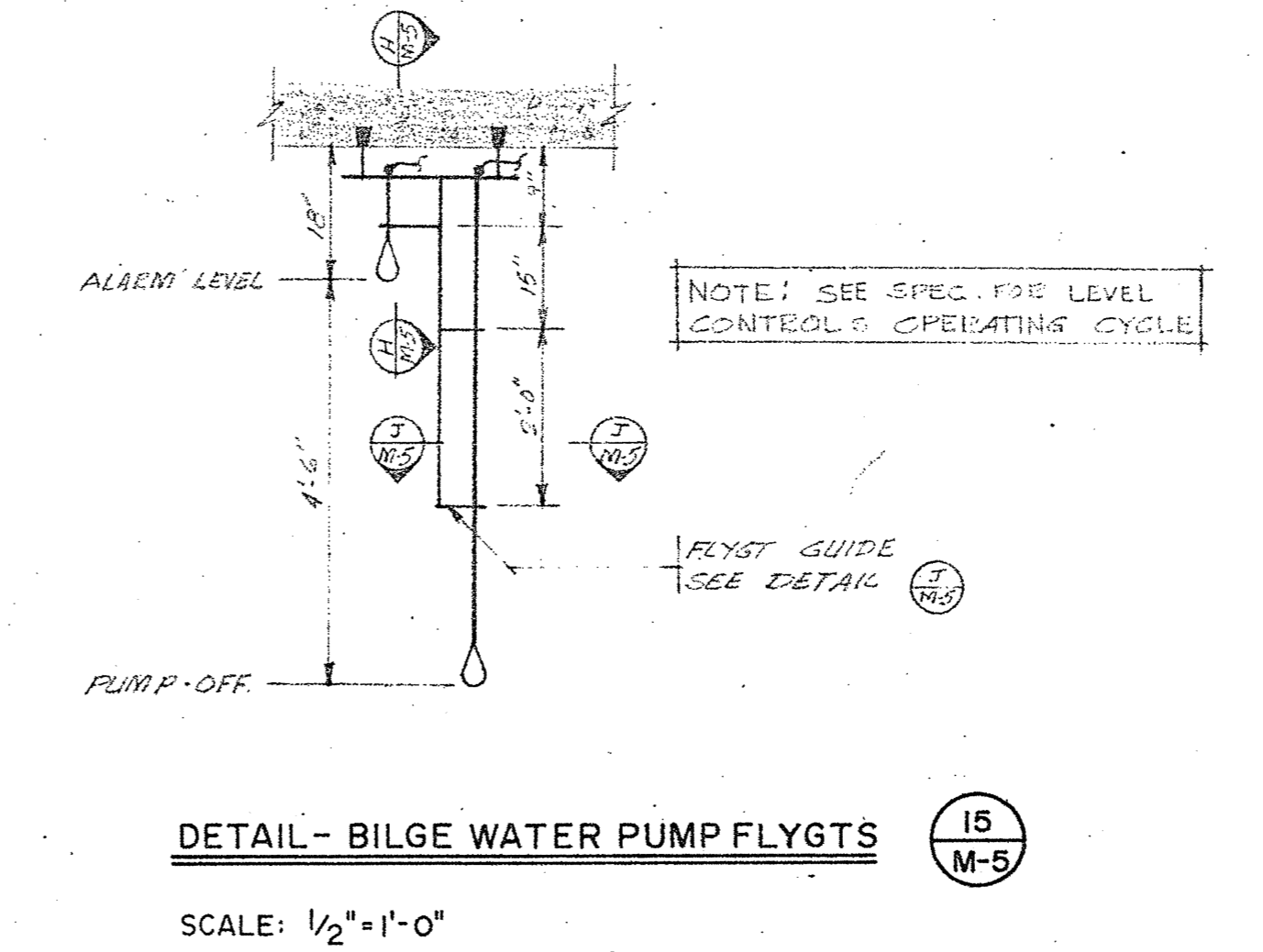
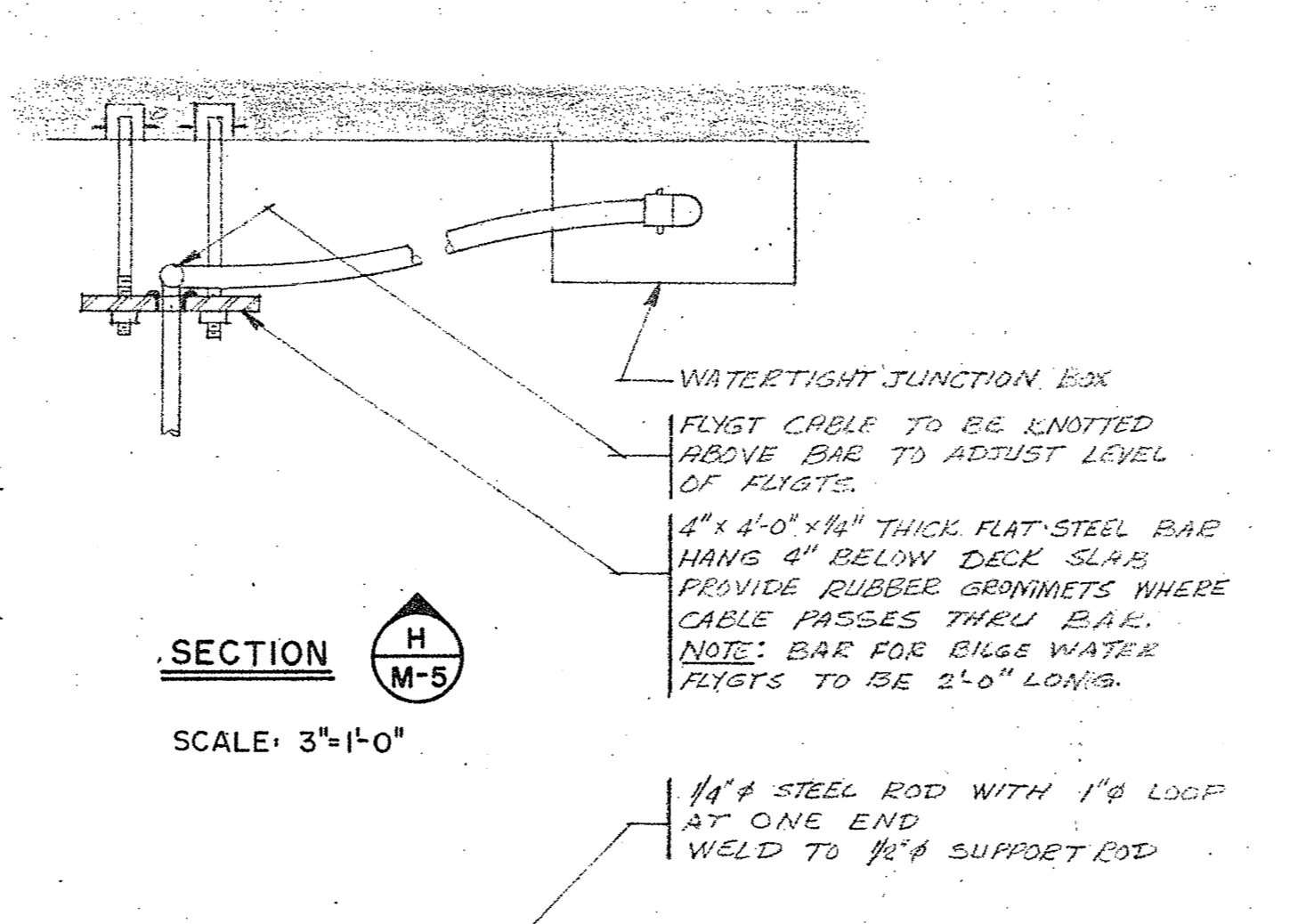
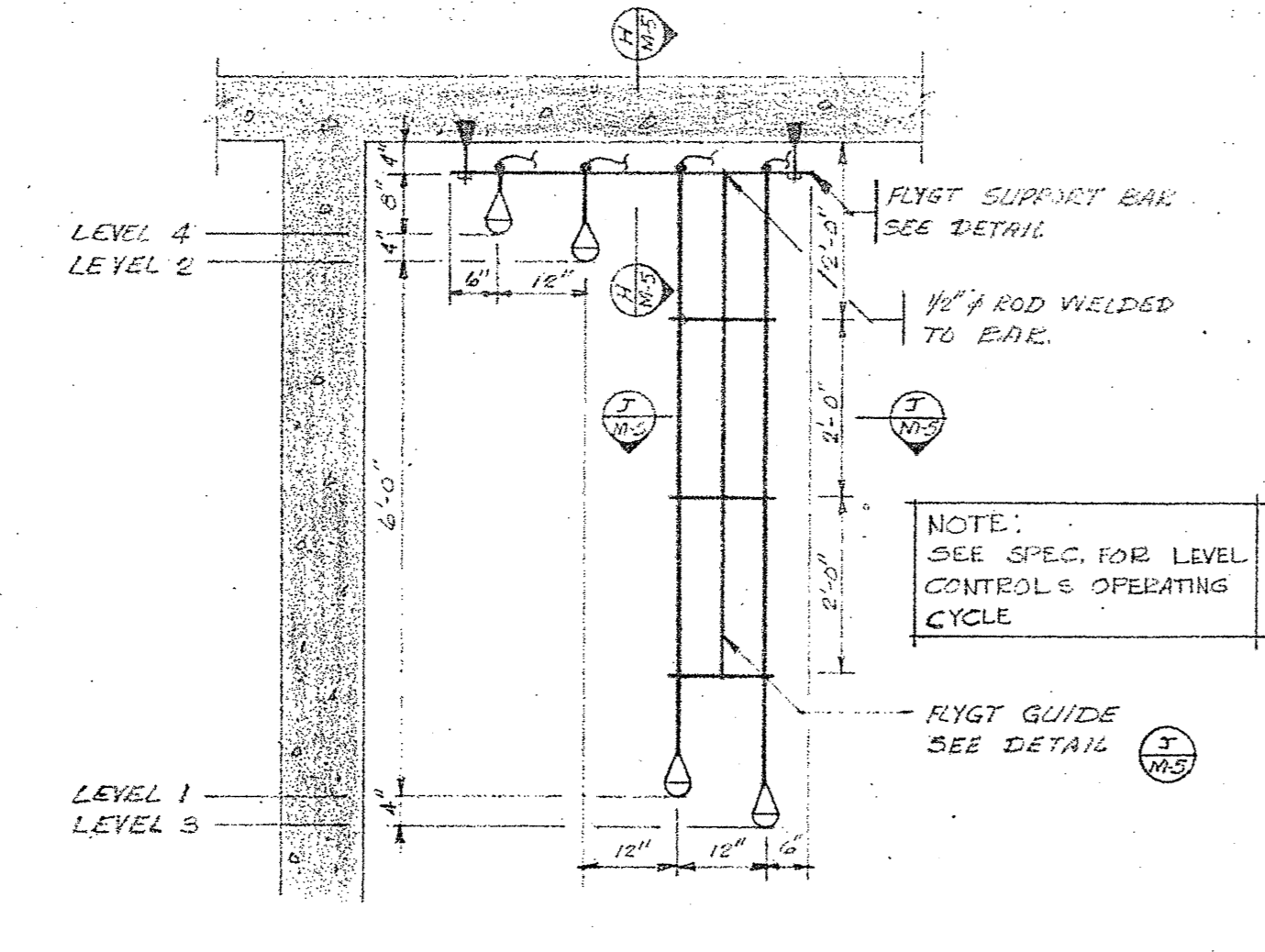
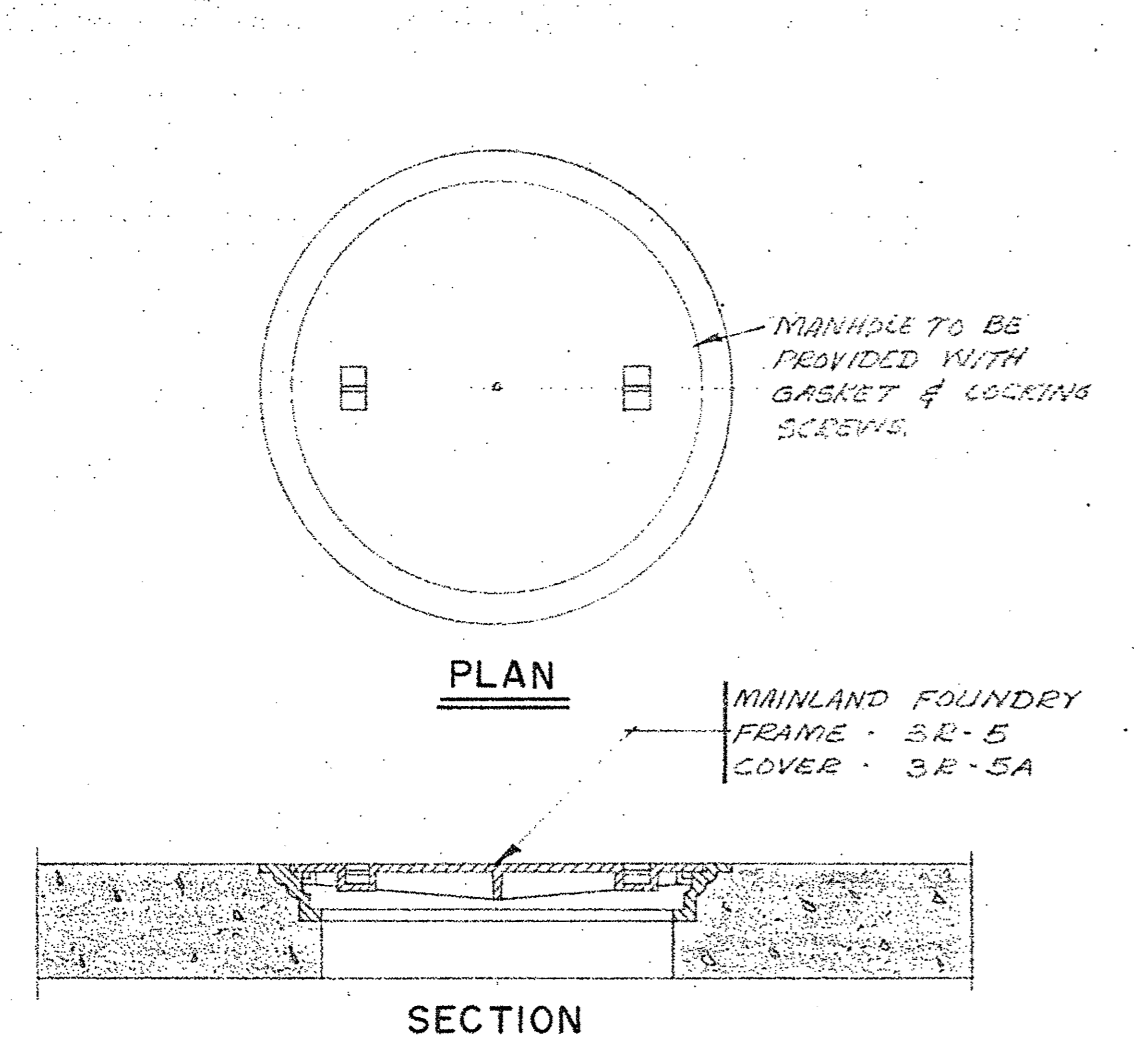
DATE

DATE

DATE

DATE

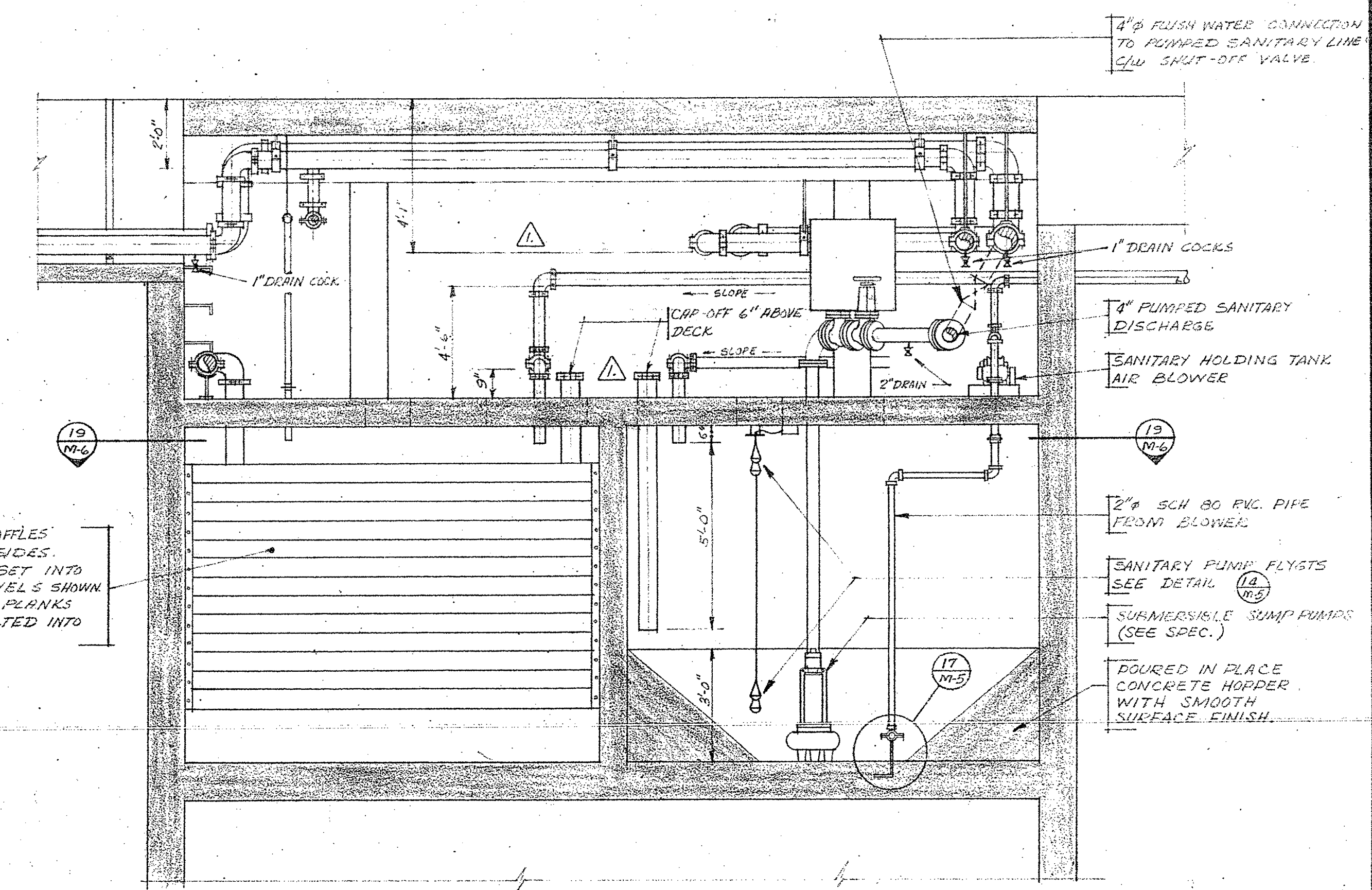
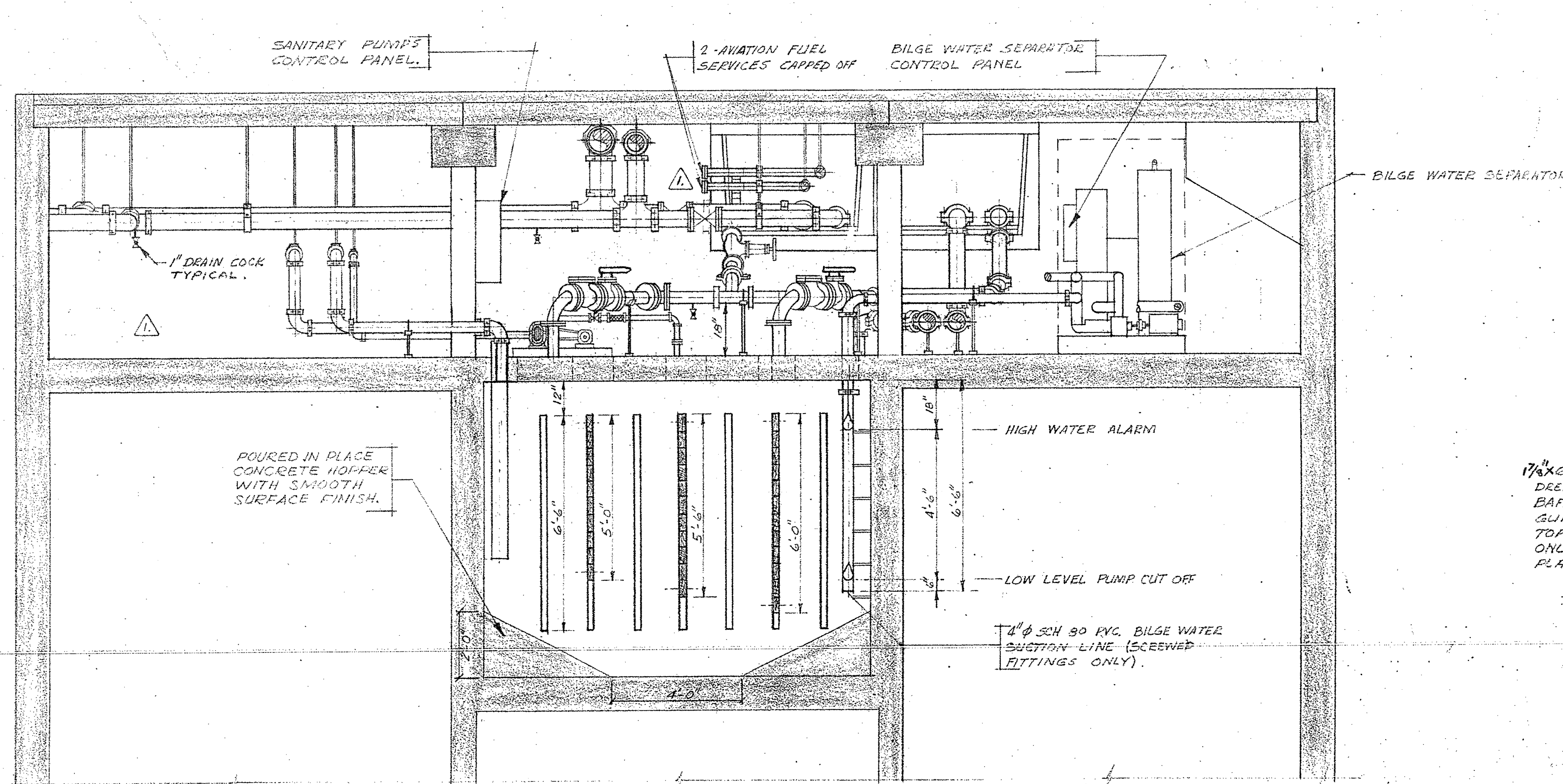
DATE



NOTES: TOP AND BOTTOM BOARD TO BE HALTED IN PLACE ON EACH SIDE - 2x6x2x1/4" ALUMINUM CHANNEL TO BE ANCHORED SECURELY TO WALL.

DESIGNED BY E. CROWDIS RE DAVIS  
DATE AUG. 14, 1974  
DRAWN BY E. CROWDIS  
REVIEWED BY R. E. DAVIS  
DATE  
APPROVED BY  
DATE  
TENDER  
D.P.W. Project Manager Administrateur de projets I.T.P.  
PROJECT NUMBER 89323  
DRAWING NO. M-5

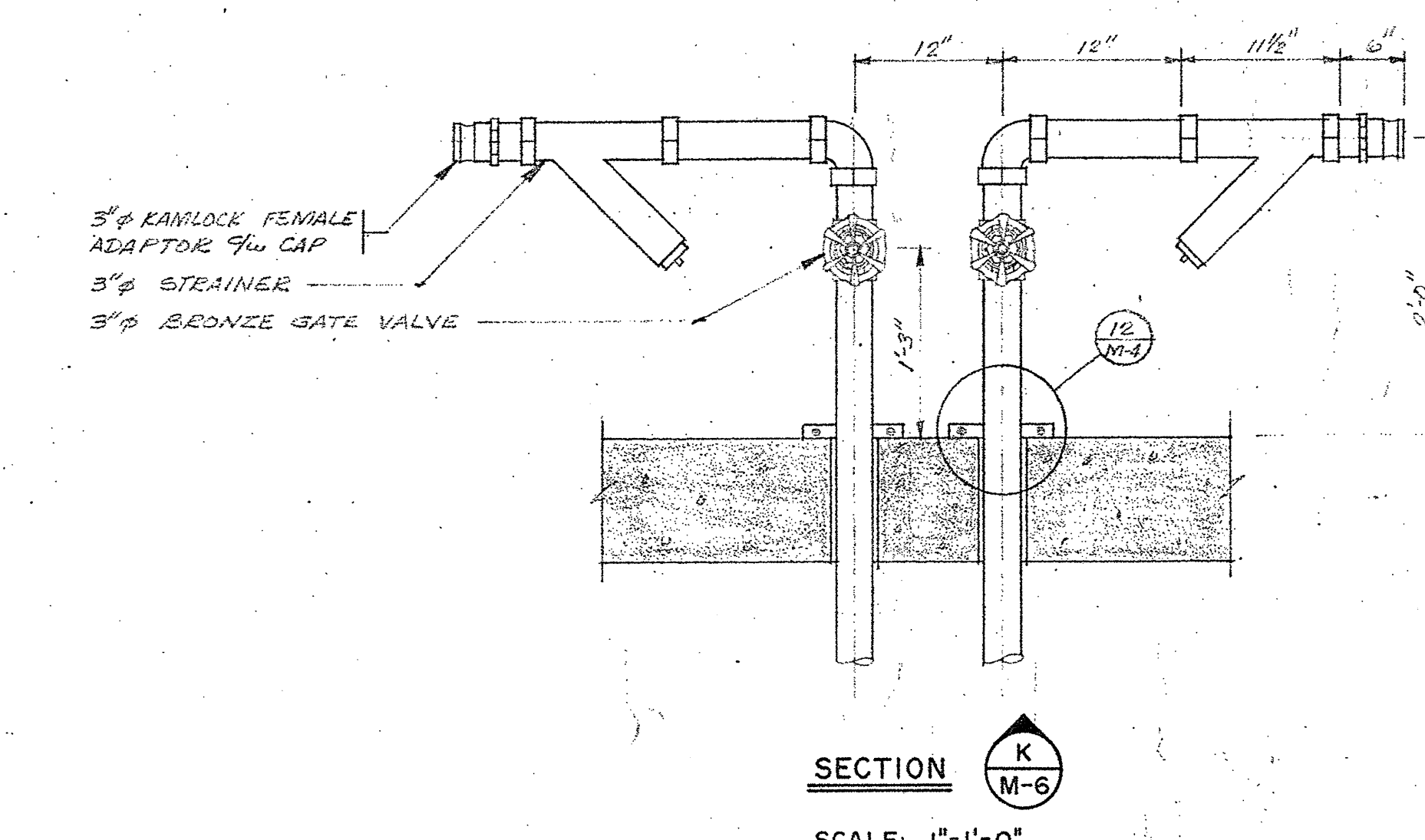
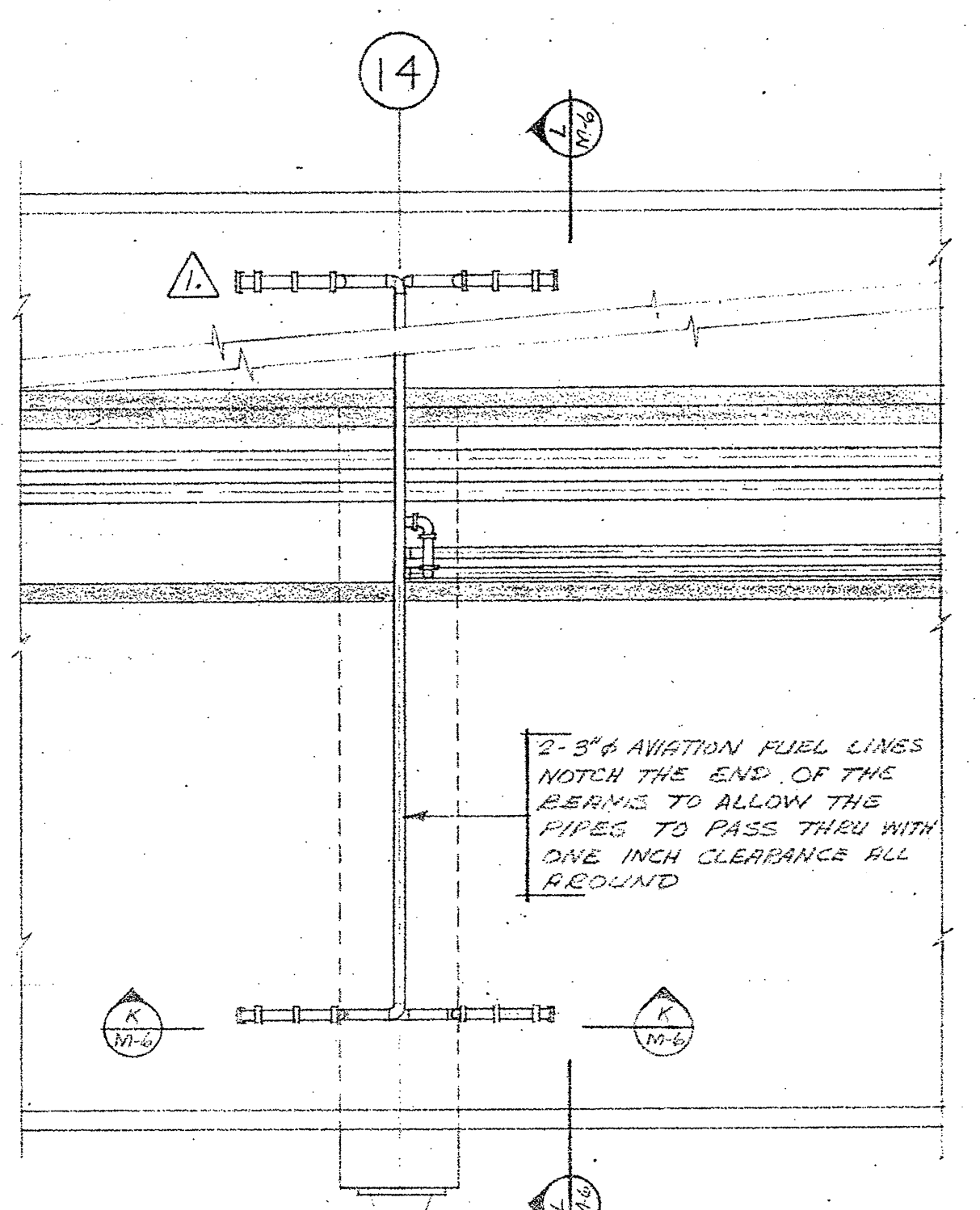




17/16" x 11'-0" FIR BAFLES  
DRESSED FOUR SIDES  
BAFLES TO BE SET INTO  
GUIDES AT LEVELS SHOWN  
TOP & BOTTOM PLANKS  
ONLY TO BE BOLTED INTO  
PLACE

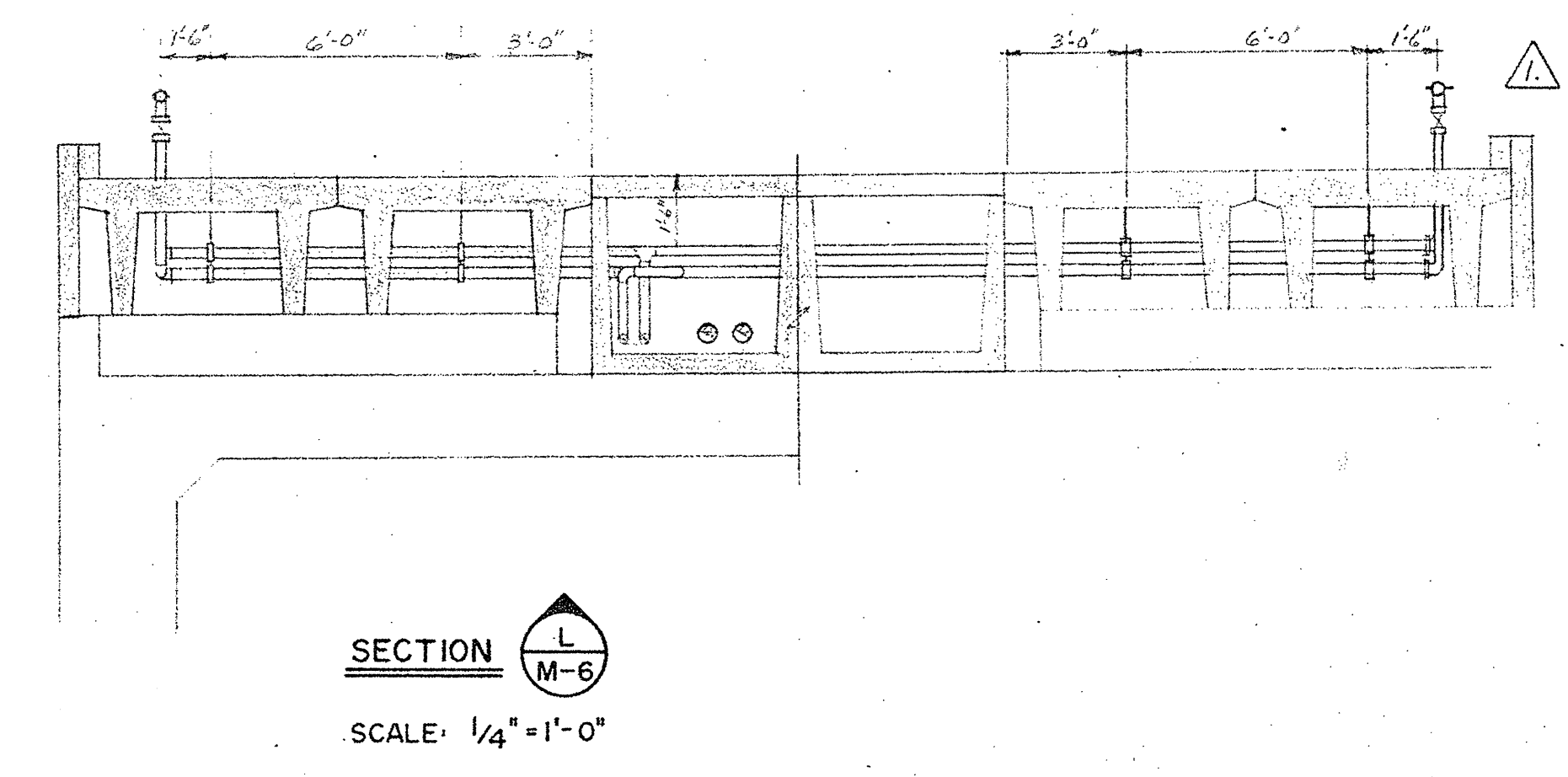
SECTION F  
M-6  
SCALE: 3/8" = 1'-0"

SECTION G  
M-6  
SCALE: 3/8" = 1'-0"

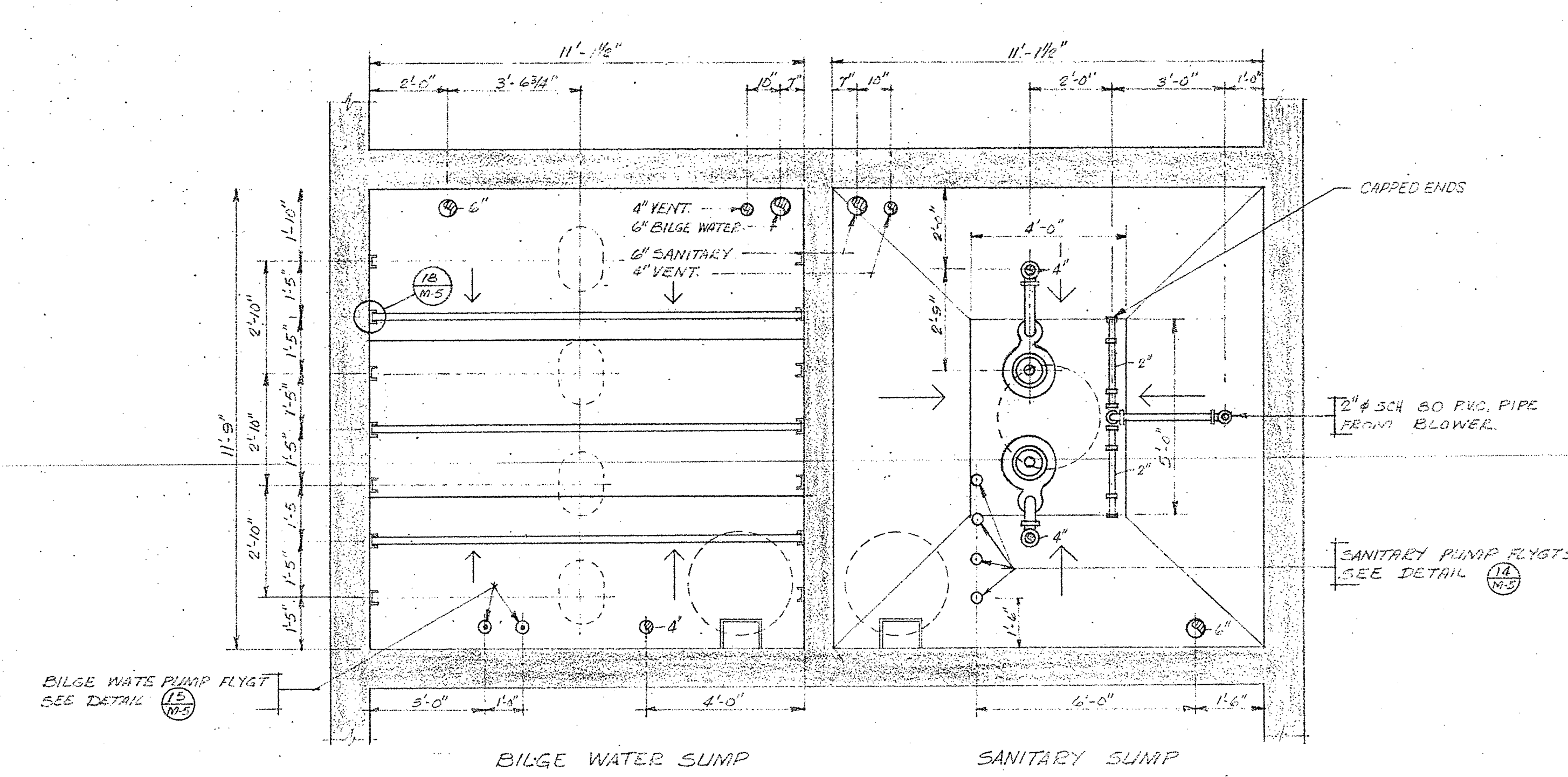


PLAN-AVIATION FUEL CONNECTIONS  
SCALE: 1/4" = 1'-0"

SECTION K  
M-6  
SCALE: 1" = 1'-0"



SECTION L  
M-6  
SCALE: 1/4" = 1'-0"



PLAN-SANITARY AND BILGE WATER HOLDING TANKS  
SCALE: 3/8" = 1'-0"

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D.W.T. JOB NO. 4306-03

A	detail no.	detail no.
BC	location drawing no.	sur dessin no.
	c drawing no.	desain no.
	revisions	date
	1 AVIATION FUEL SERVICE & BILGE WATER EXHAUST FROM NO. 1 FINGER	24/11/74
	AVIATION FUEL CONN. RELOCATED TO SOUTH FINGER.	

project title / titre du projet  
**MARINE STRUCTURES**  
INSTITUTE OF OCEAN SCIENCES  
PATRICIA BAY B.C.

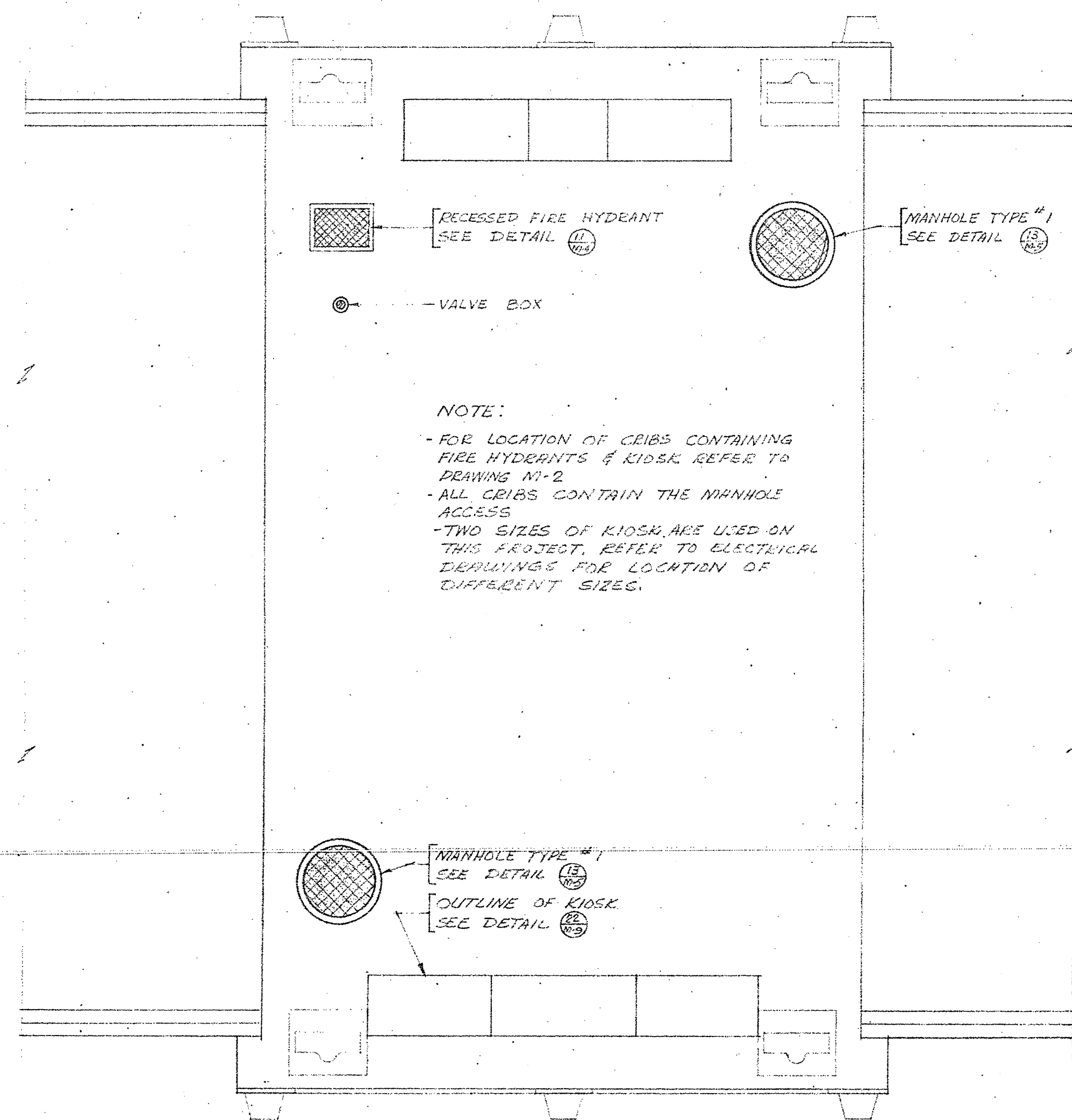
drawing title / titre du dessin  
**HOLDING TANKS**  
SECTIONS & DETAILS

designed by	E. CROWDIS R.F. DAVIS	conçu par	
date	AUG. 14, 1974		
drawn by	E. CROWDIS	dessiné par	
date			
reviewed by	R. F. DAVIS	examiné par	
date			
approved by		approuvé par	
date			
Tender		Submission	
D.P.W. Project Manager	Administrateur de projets M.T.P.		
project number	89323	no. du projet	
drawing no.	M-6	dessain no.	

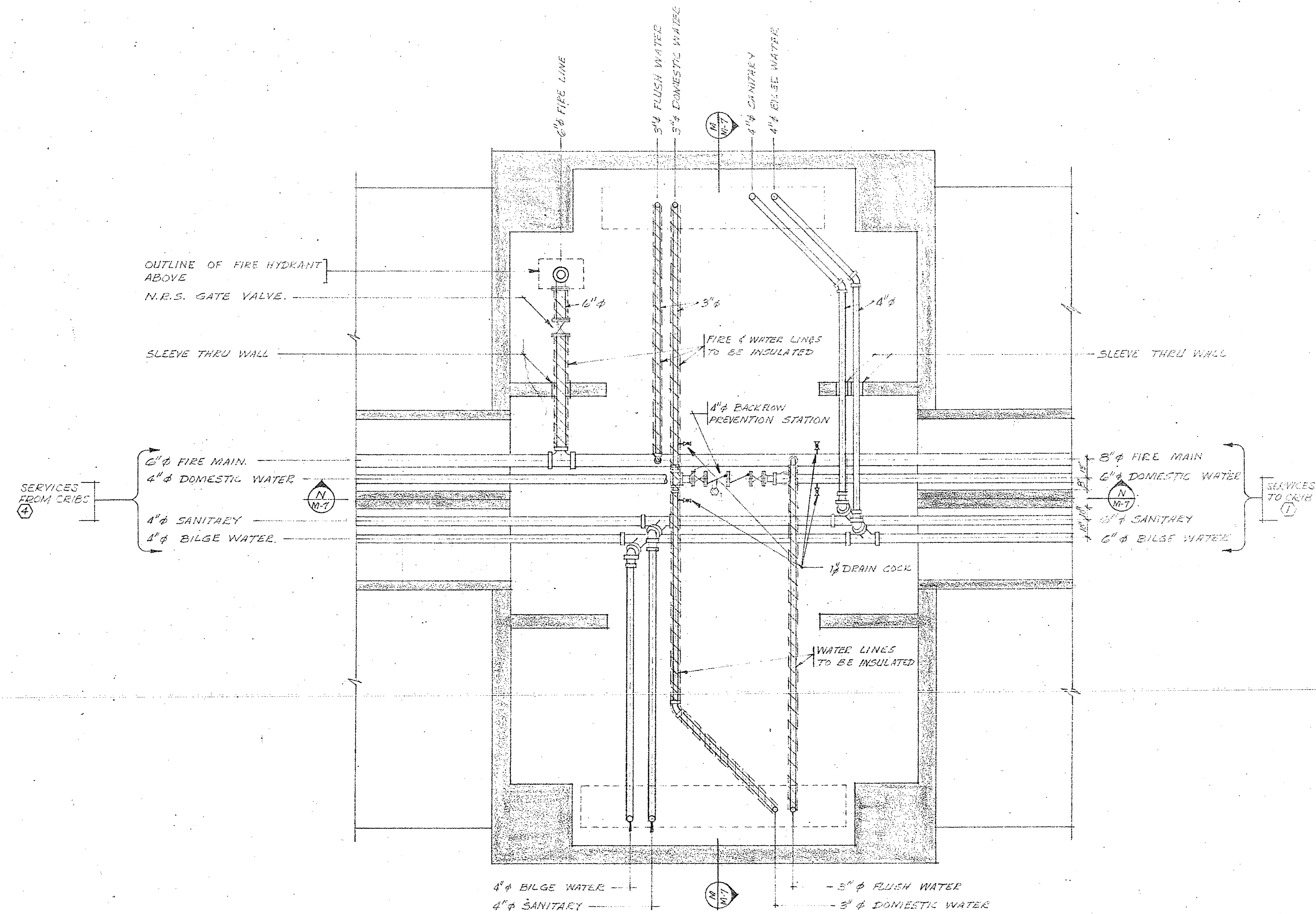


A	Detail no.	sheet no.
B	Location drawing no.	sur dessin no.
C	Drawing no.	dessin no.

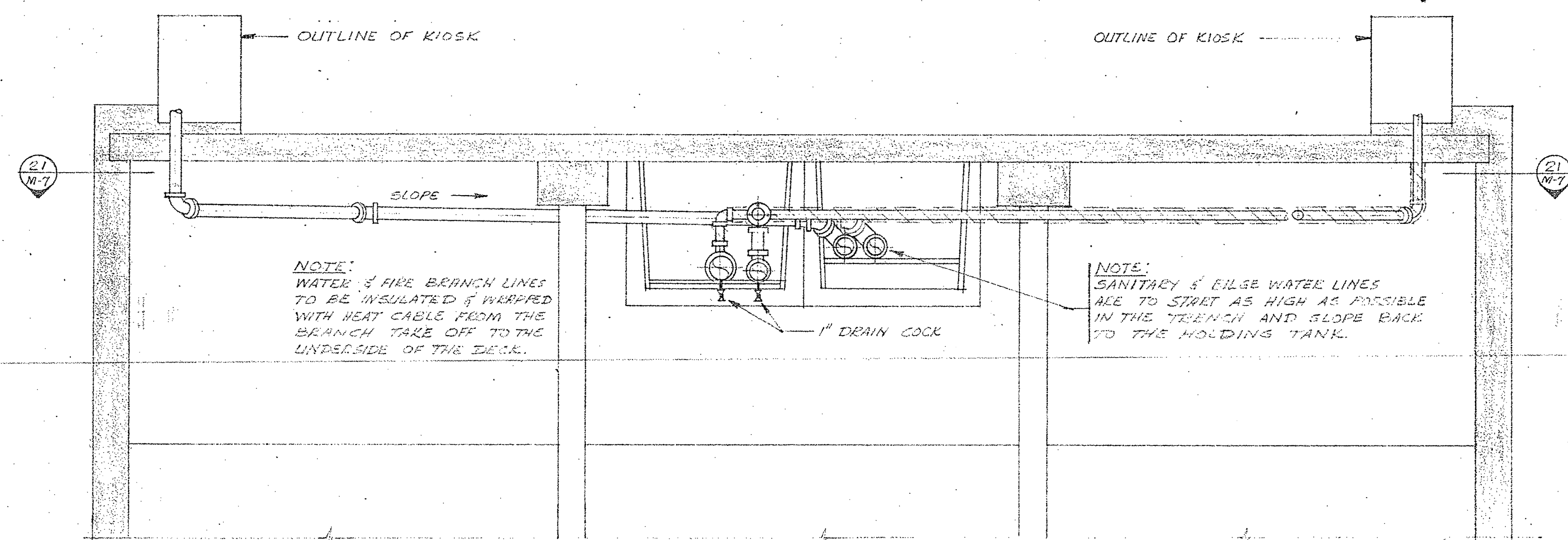
revisions	date
DETAIL REFERENCE CHANGED TO SOUTH FINGER ONLY	26/11/74



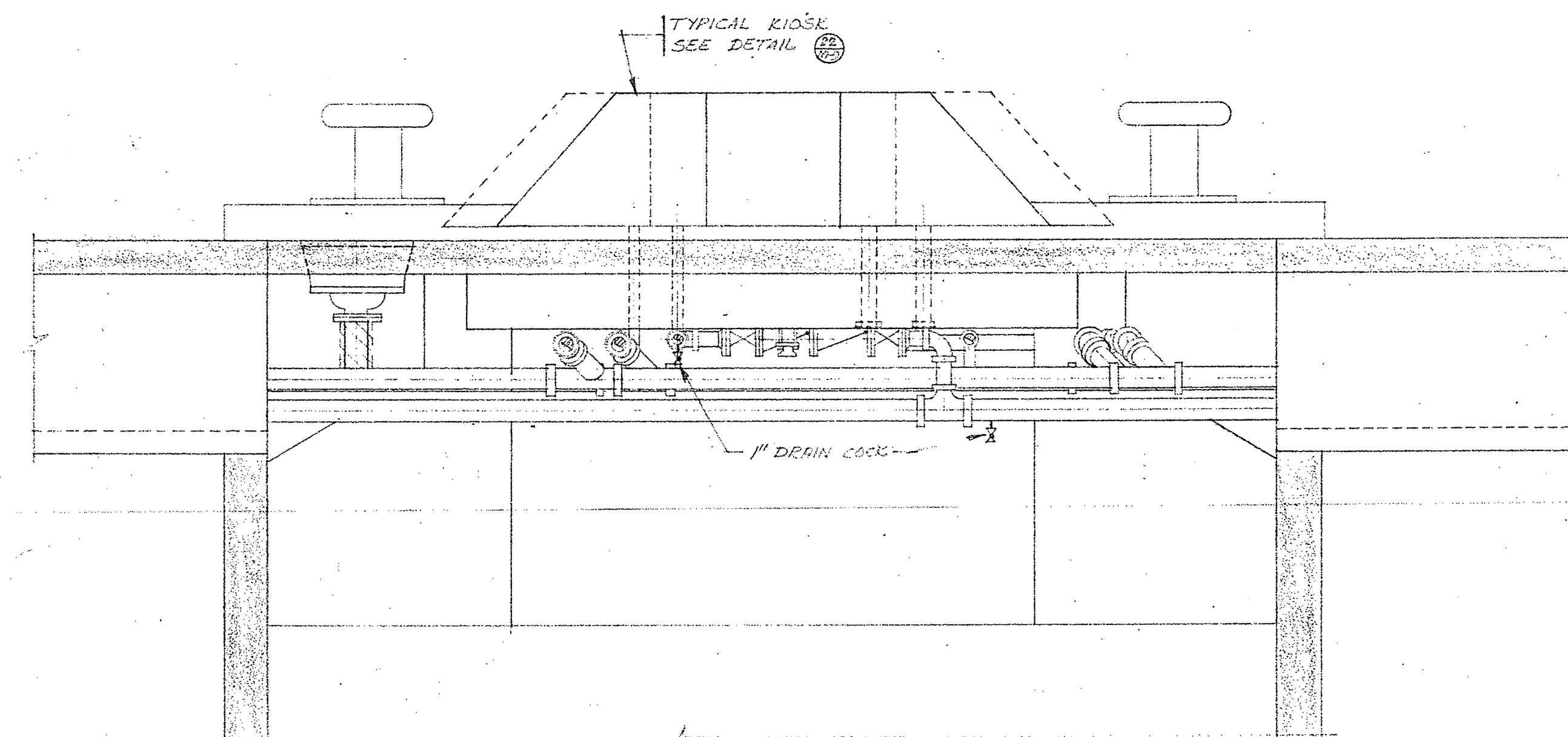
PLAN-TYPICAL CRIB DECK PLAN (M-7) SOUTH FINGER  
SCALE: 1/4" = 1'-0"



PLAN-TYPICAL CRIB BELOW DECK (M-7) SOUTH FINGER  
SCALE: 1/4" = 1'-0"



SECTION (M-7)  
SCALE: 3/8" = 1'-0"



SECTION (N-M-7)  
SCALE: 3/8" = 1'-0"

project title / titre du projet

MARINE STRUCTURES  
INSTITUTE OF OCEAN SCIENCES  
PATRICIA BAY B.C.

drawing title / titre du dessin

CRIB DETAILS - SOUTH FINGER

designed by E. CROWDIS R.F. DAVIS comp par

date AUG. 14, 1974

drawn by E. CROWDIS dessin par

date

reviewed by R.F. DAVIS examiné par

date [Signature] date

approved by [Signature] approuvé par

date

Tender / soumission

D.P.W. Project Manager / Administrateur de projets M.T.P.

project number / no. du projet

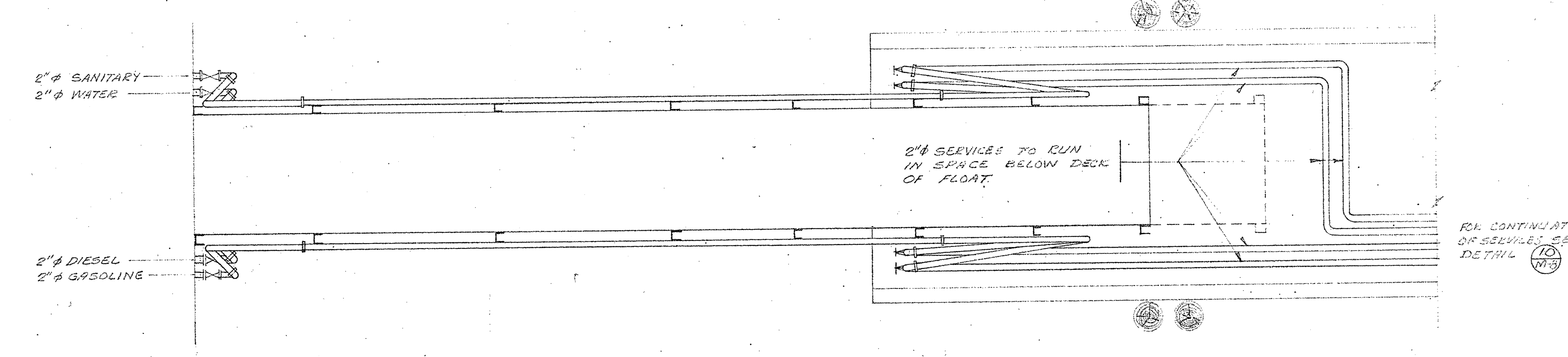
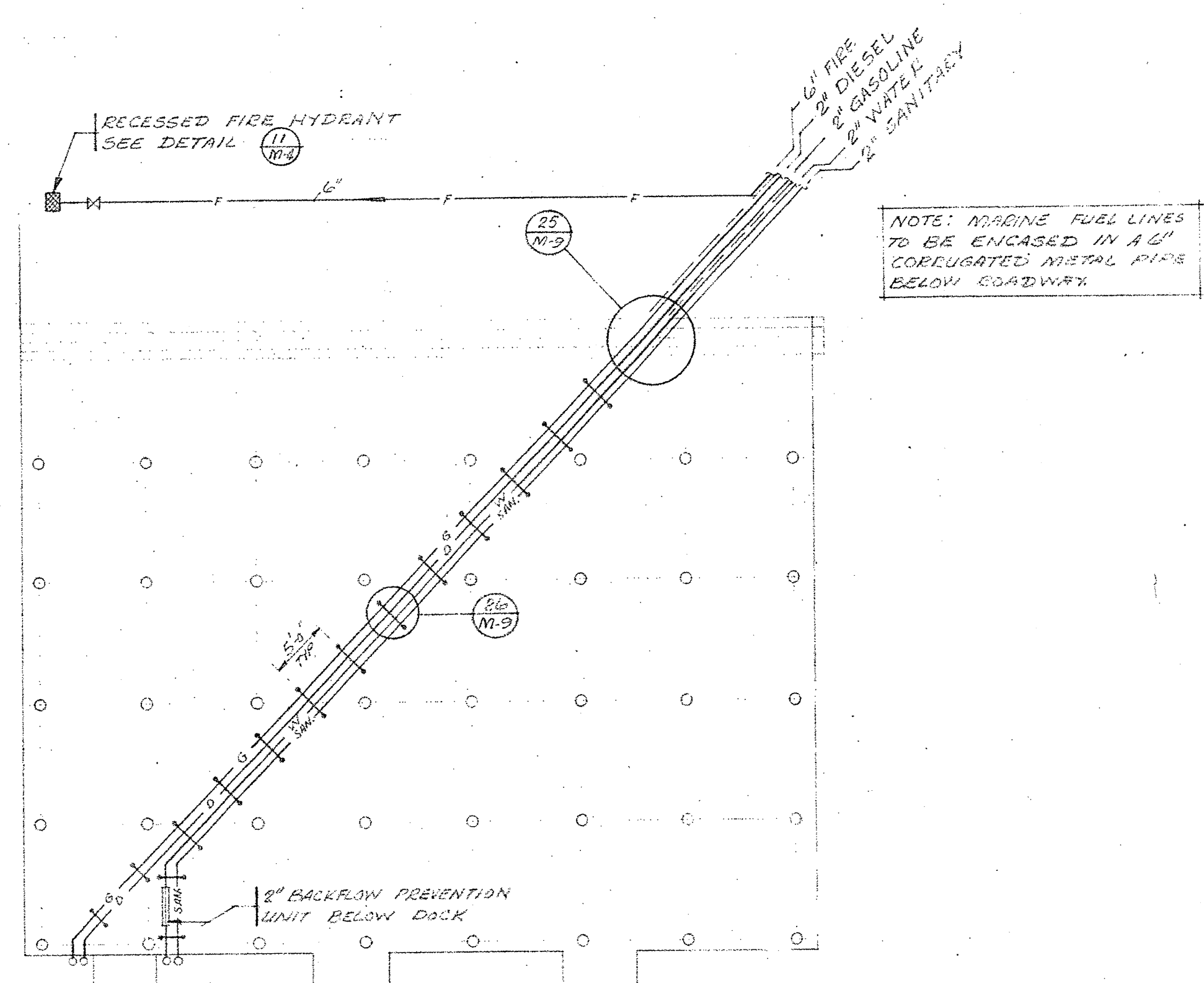
89323

drawing no. / dessin no.

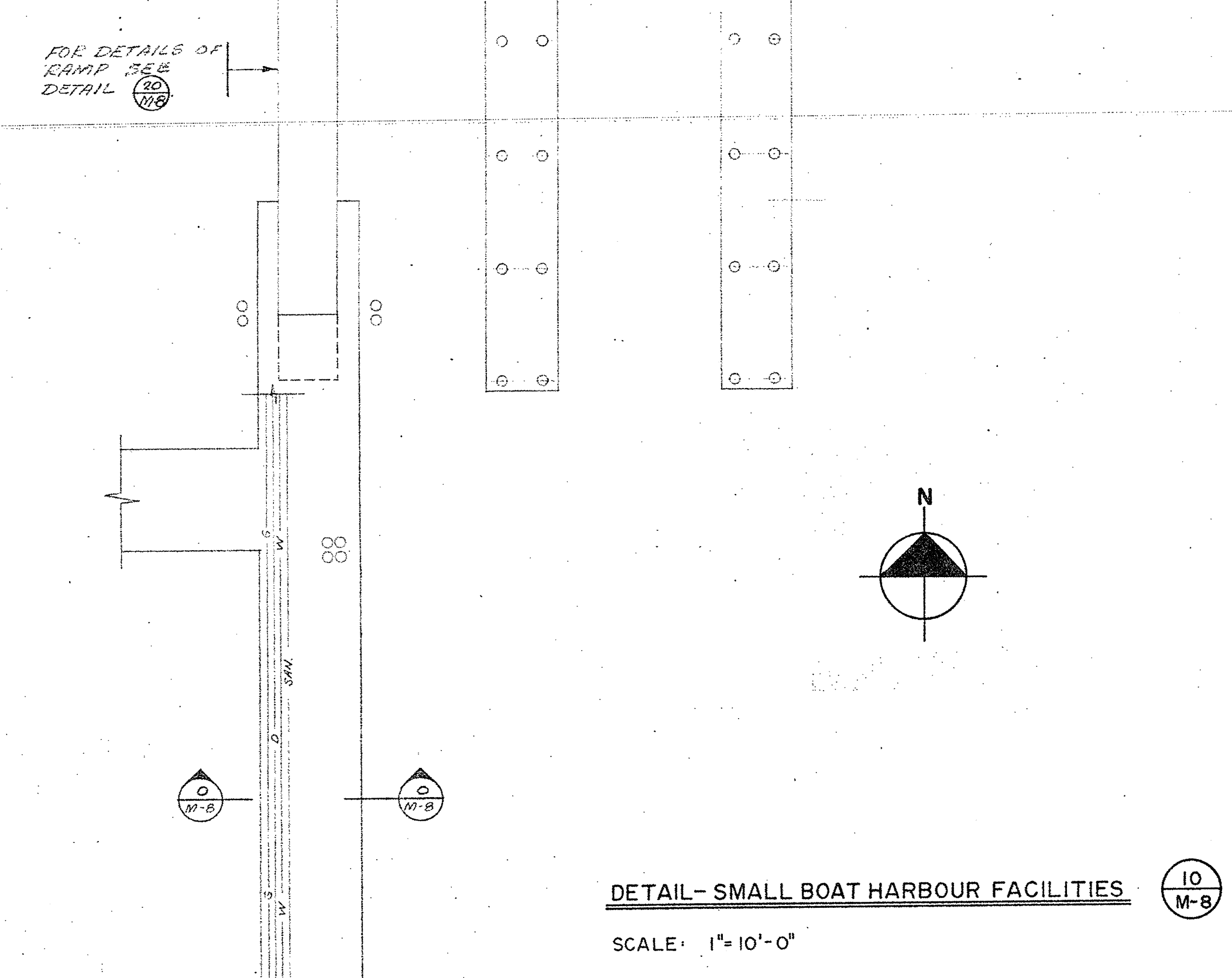
M-7

[Signature]

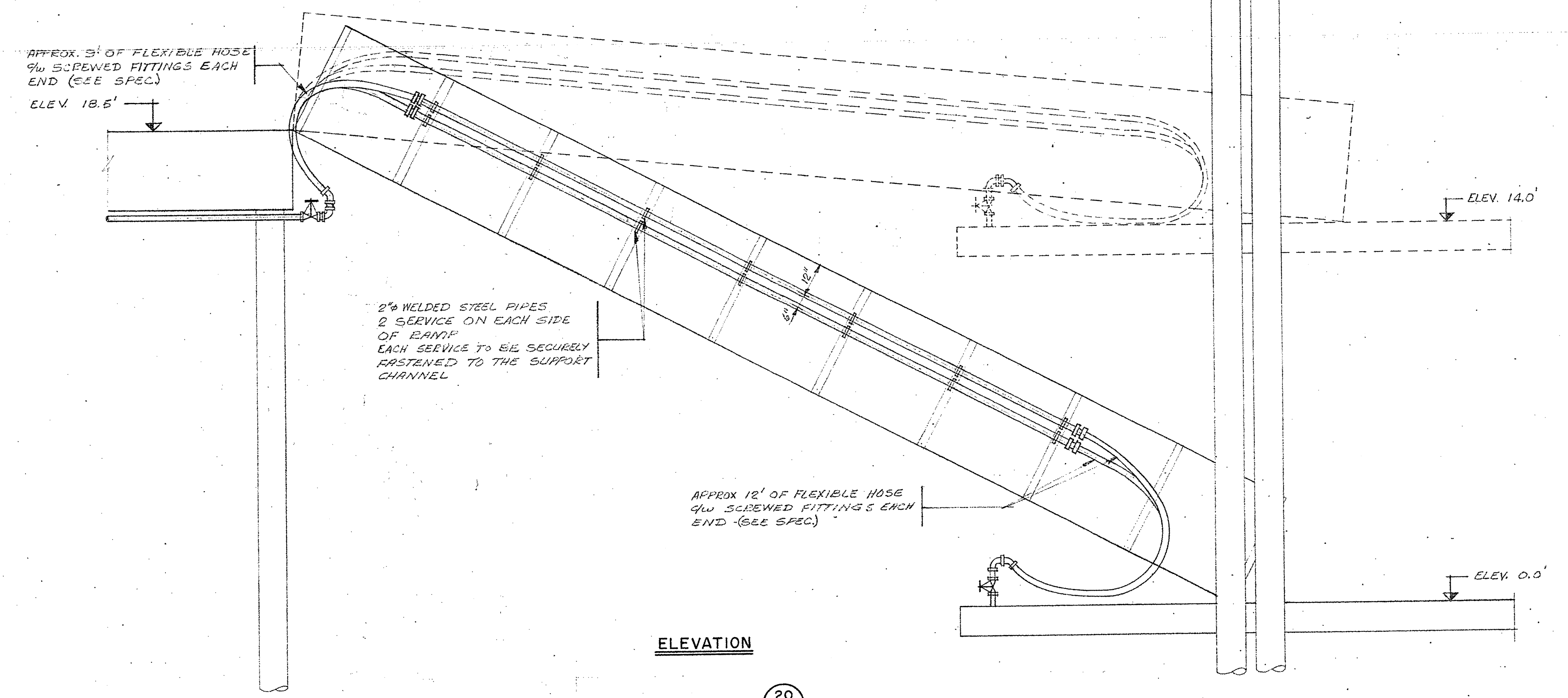




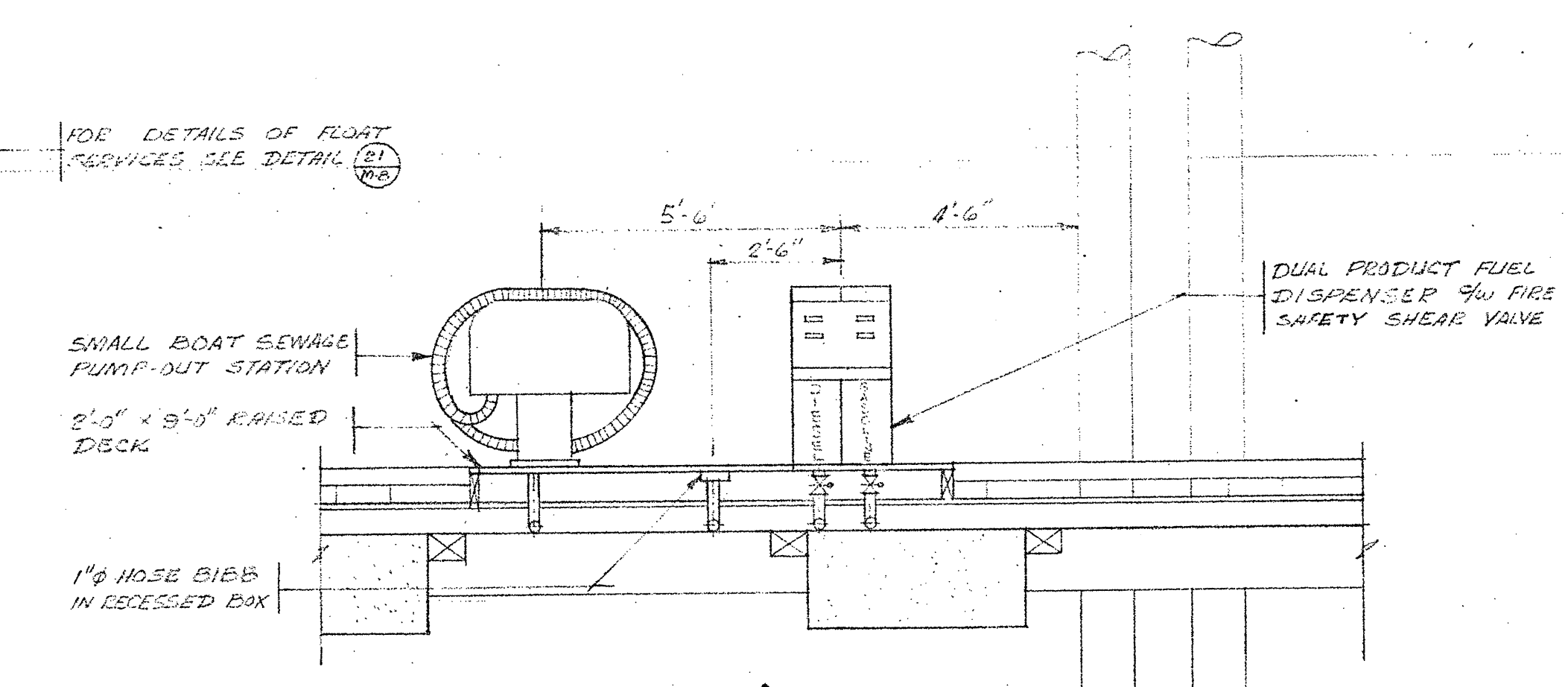
PLAN



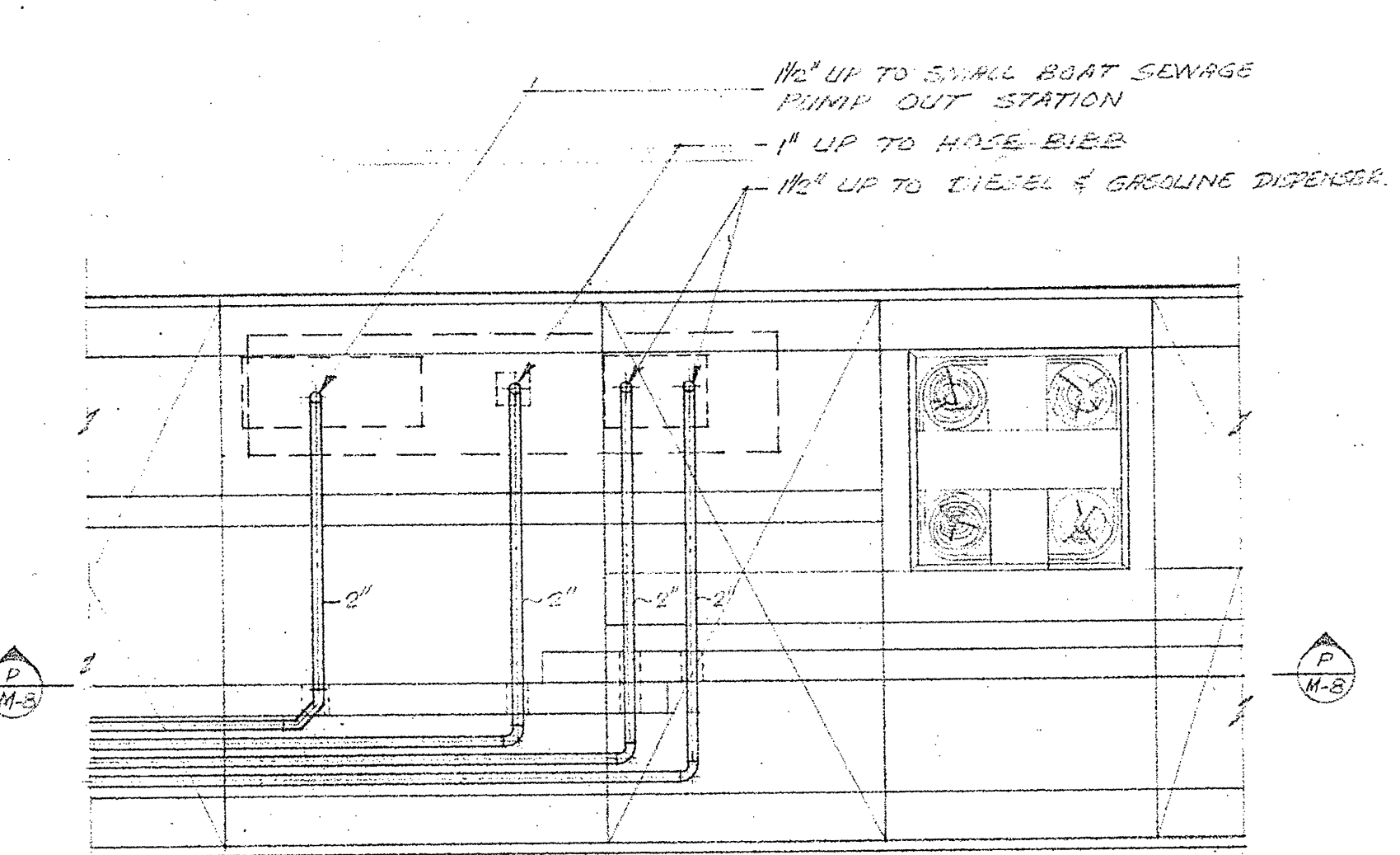
DETAIL - SMALL BOAT HARBOUR FACILITIES  
SCALE: 1" = 10'-0"



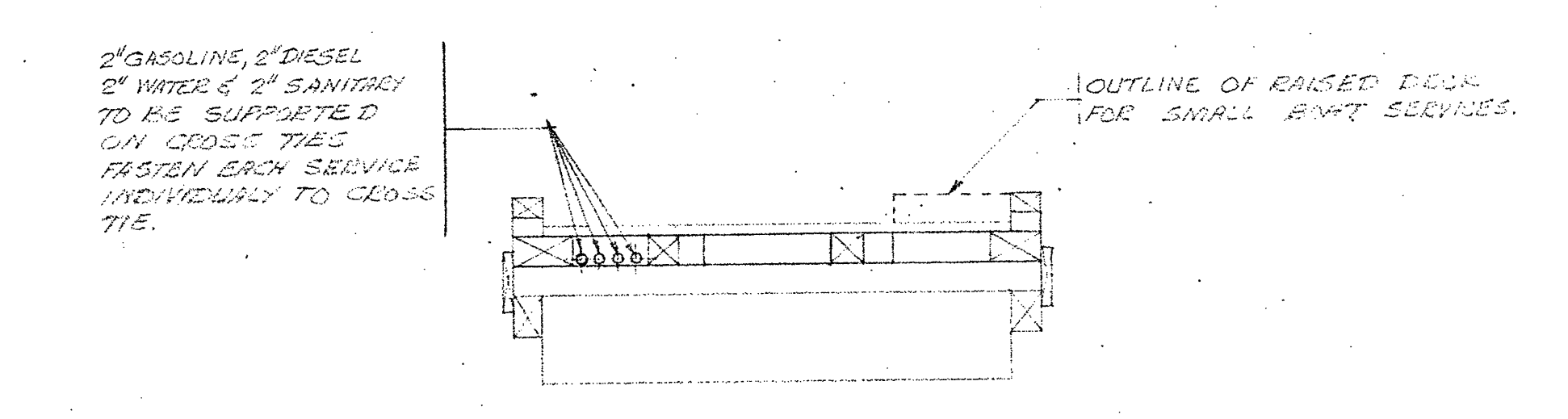
ELEVATION  
DETAIL - RAMP  
SCALE: 3/8" = 1'-0"



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



PLAN - SERVICES BELOW FLOAT DECK  
SCALE: 3/8" = 1'-0"



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

Public Works Canada / Travaux publics Canada

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VANCOUVER 9, B.C.

D.W.T. JOB NO. 4306-03

A	Detail no.	titre no.
B/C	Location drawing no.	sur dessin no.
C	Drawing no.	dessin no.
	revisions	date

project title / titre du projet

MARINE STRUCTURES  
INSTITUTE OF OCEAN SCIENCES  
PATRICIA BAY B.C.

drawing title / titre du dessin

SMALL BOAT HARBOUR

designed by / conçu par

date / date

drawn by / dessiné par

date / date

approved by / approuvé par

date / date

Tender / Soumission

D.P.W. Project Manager / Administrateur de projets M.T.P.

project number / no. du projet

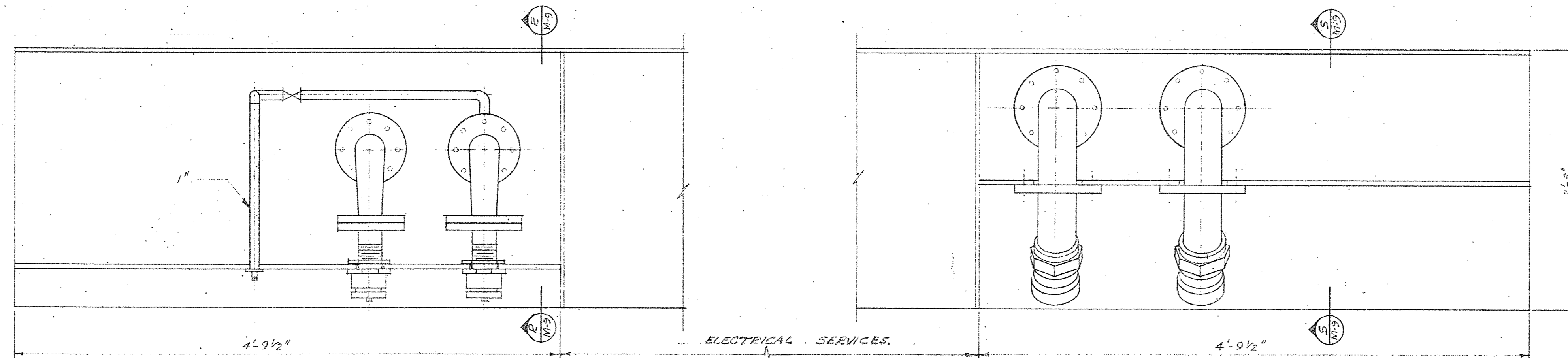
89323

drawing no. / dessin no.

M-8

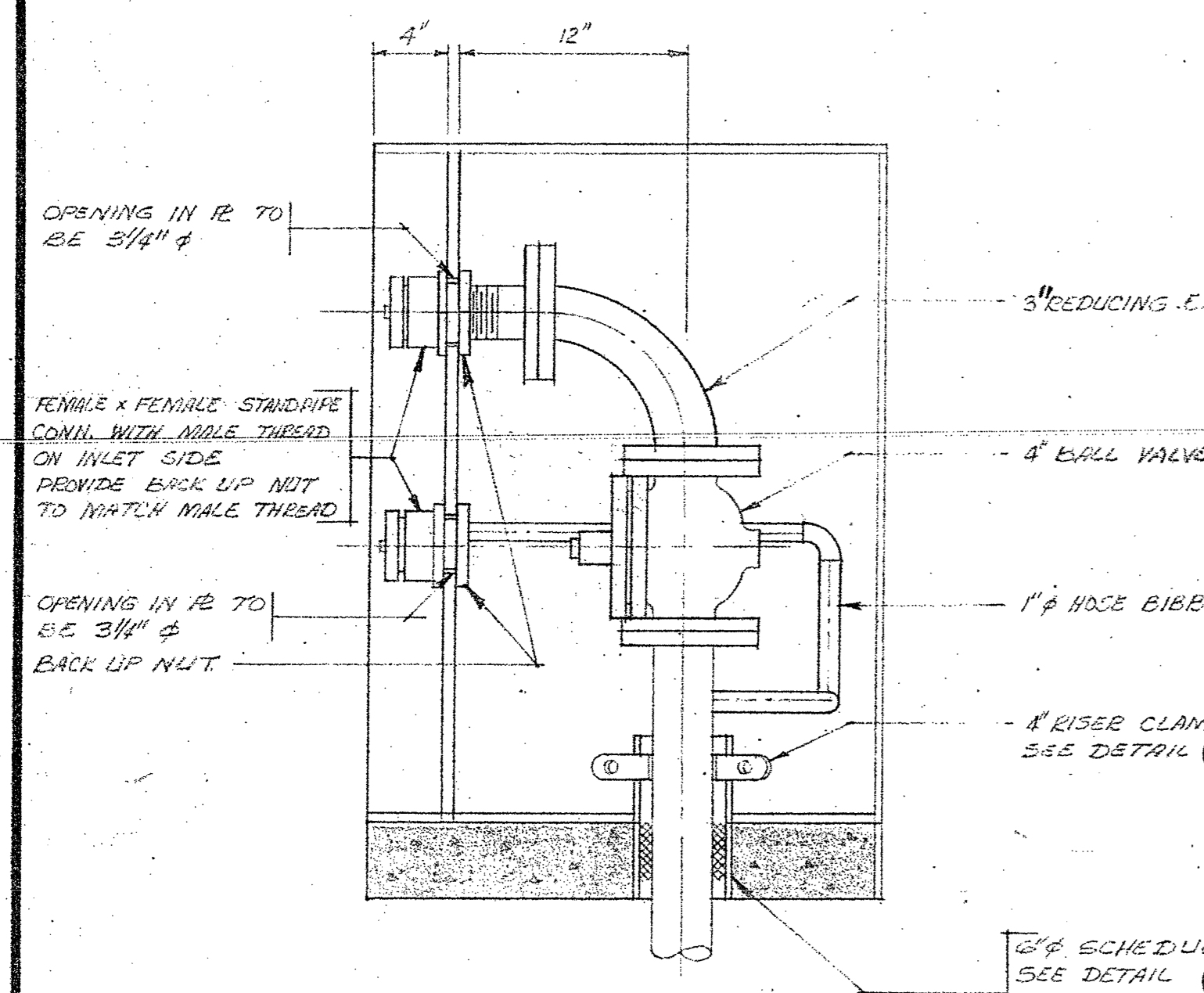
*R.F. Davis*



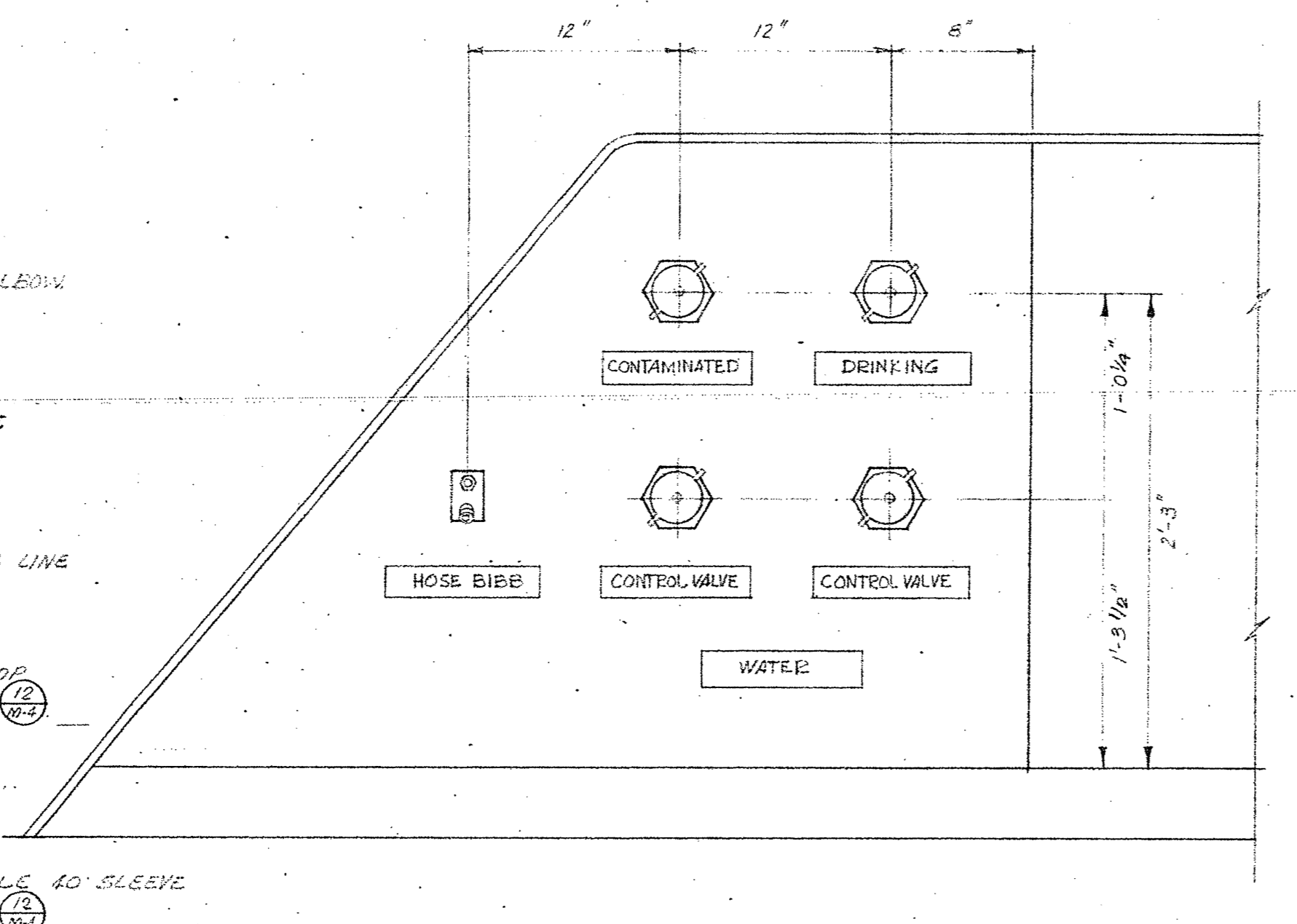


PLAN

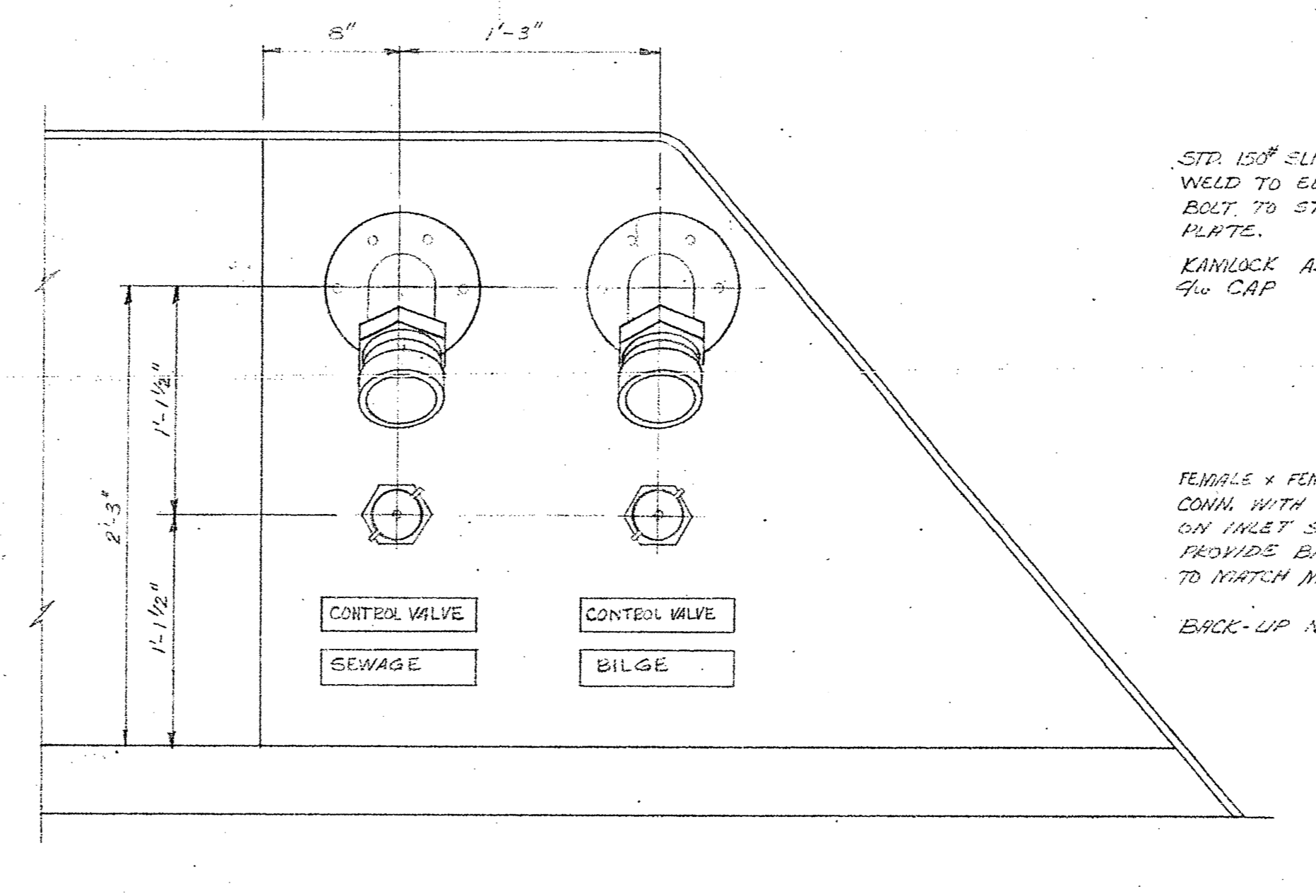
**NOTE:**  
 KIOSKS ON NORTH FINISH, WHILE SERVICES ARE DELIVERED BY THE EAST, WILL STILL REQUIRE ALL WARE PARTS, HOSE CONNECTIONS, CONTROL VALVE OPENING, FABRICATED ELBOW, REDUCING ELBOW & BALL VALVES.  
 RISERS TO BE ADJUSTABLE TO MATCH THE SERVICE IF CONNECTED TO THE BALL VALVE IN OUTSIDE THE KIOSK WALL BE QUANTITY 1000.



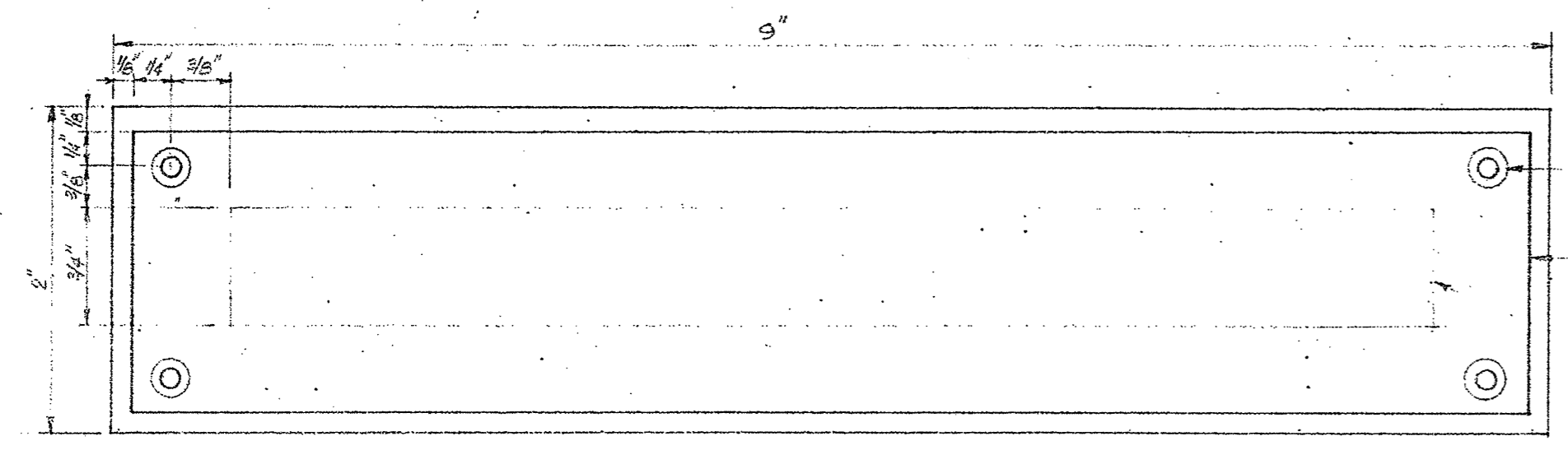
SECTION R-M-9  
 SCALE: 1 1/2" = 1'-0"



DETAIL - KIOSK 22 M-9  
 SCALE: 1 1/2" = 1'-0"

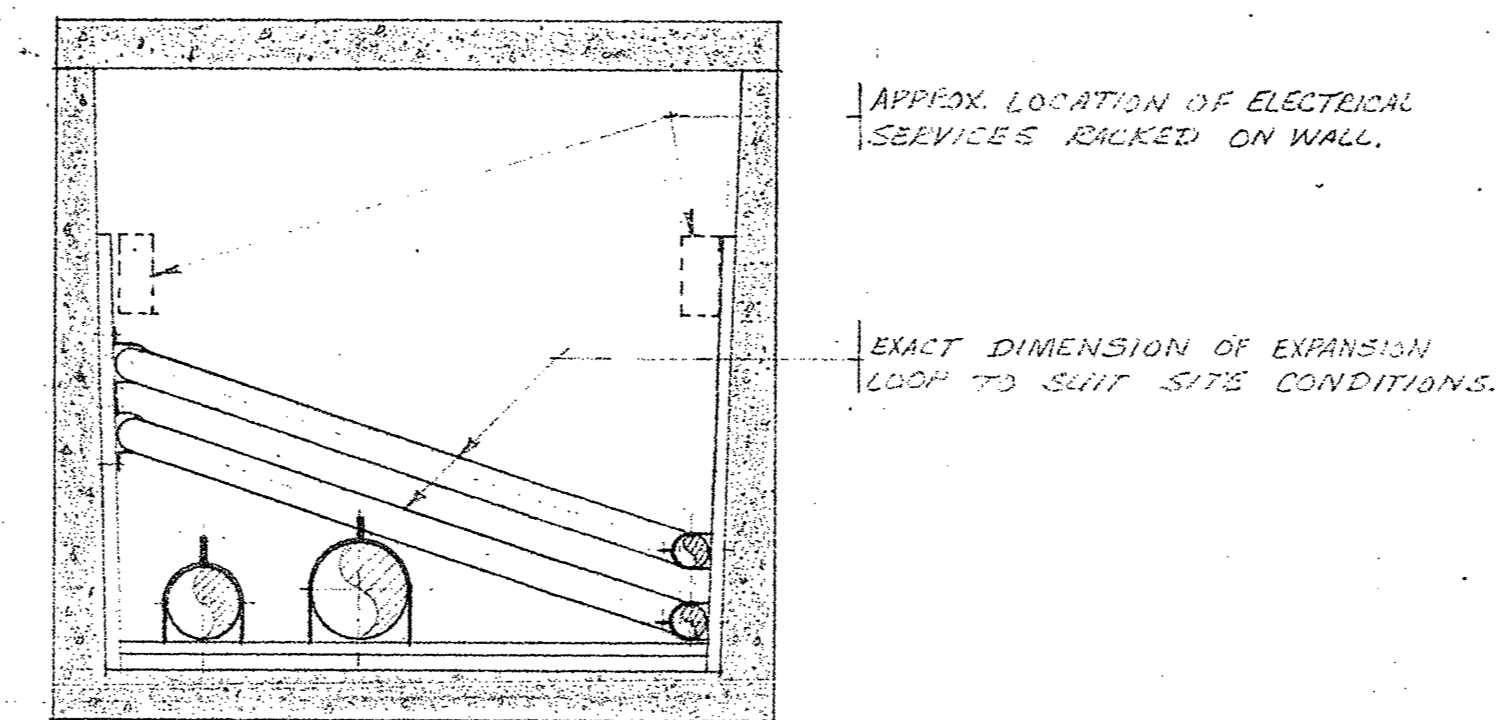


SECTION S-M-9  
 SCALE: 1 1/2" = 1'-0"

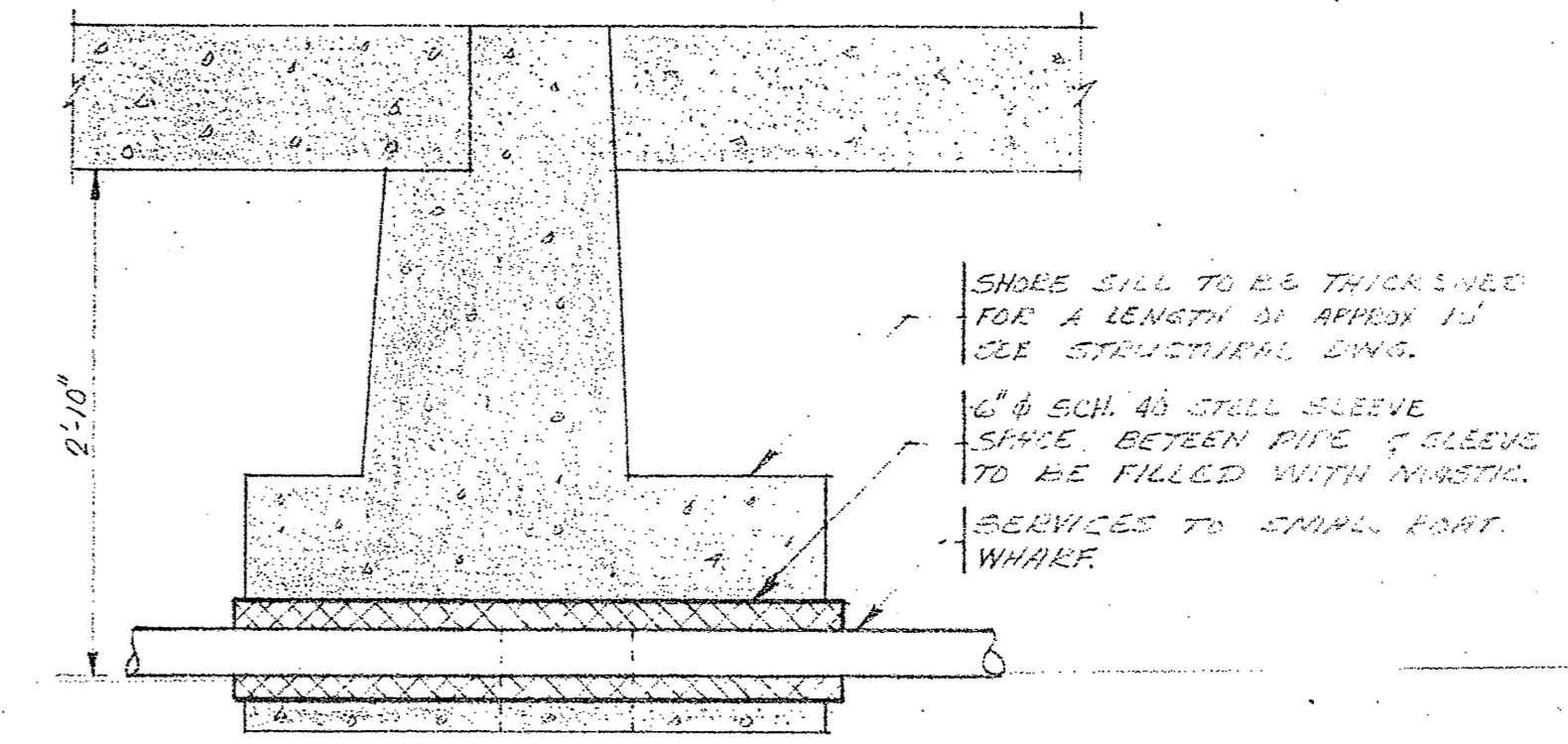


DETAIL - NAME-PLATE 23 M-9  
 FULL SIZE

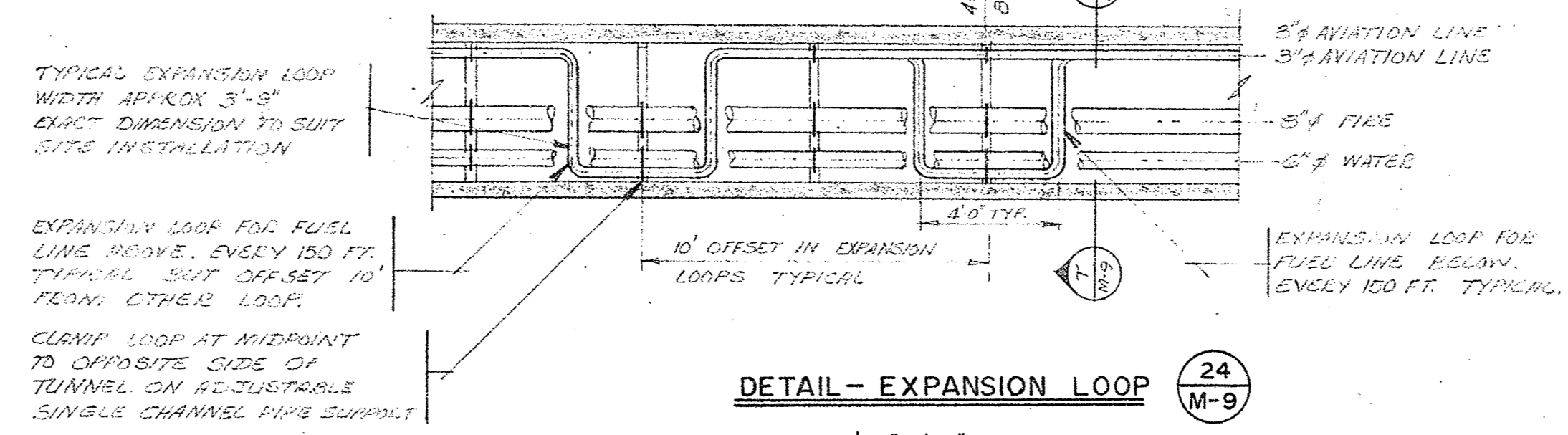
**NOTES:**  
 - THE FOLLOWING WIRING PLATE ARE TO BE MADE UP WITH THE CORRESPONDING BACK GROUND COLOUR:  
 DRINKING - GREEN  
 HOSE BIBB - GREEN  
 CONTAMINATED - RED  
 SEWAGE - RED  
 BILGE WATER - RED  
 CONTROL VALVE - GREEN, 3 RED  
 WATER - RED  
 - THE FACE OF THE LETTERING IS TO BE BUFFED OFF SO AS TO EXPOSE THE CORROSION RESISTANT FINISH UNDERNEATH THE PLATE TO BE CONSTRUCTED OF 3/16" CAST ALUMINUM WITH A RAISED EDGE & LETTERING 1/8" HIGH ABOVE BODY OF PLATE. THE PLATE TO BE COATED WITH A CORROSION RESISTANT FINISH AND THEN COLOUR CODED AS NOTED ABOVE.



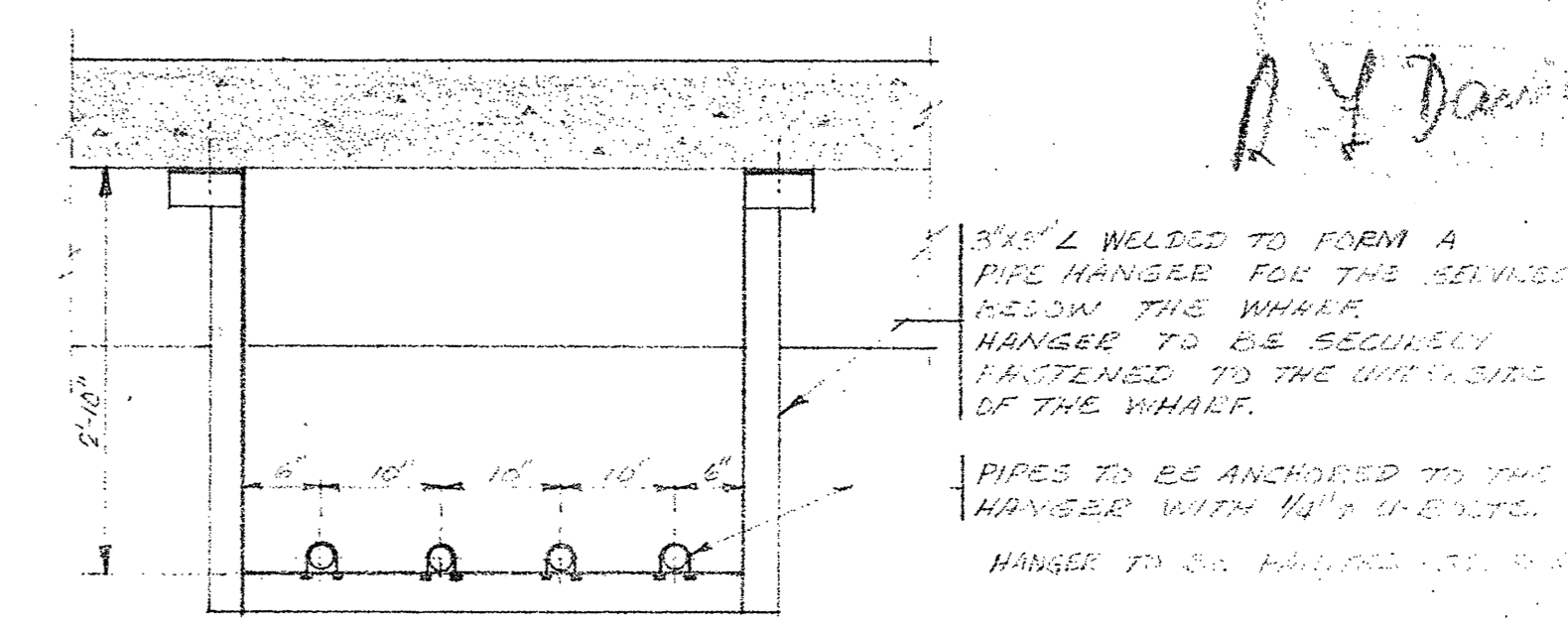
SECTION T-M-9  
 SCALE: 1" = 1'-0"



DETAIL - SERVICE THROUGH SHORE SILL 25 M-9  
 SCALE: 1" = 1'-0"



DETAIL - EXPANSION LOOP 24 M-9  
 SCALE: 1/4" = 1'-0"



DETAIL - PIPE HANGER SMALL BOAT HARBOUR 26 M-9  
 SCALE: 3/4" = 1'-0"

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D.W.T. JOB NO. 4306-03

A detail no.	detail no.
B location drawing no.	sur dessin no.
C drawing no.	dessin no.
revisions	date

NOTE: SEE SERVICE TO KIOSK ON NORTH FINISH.

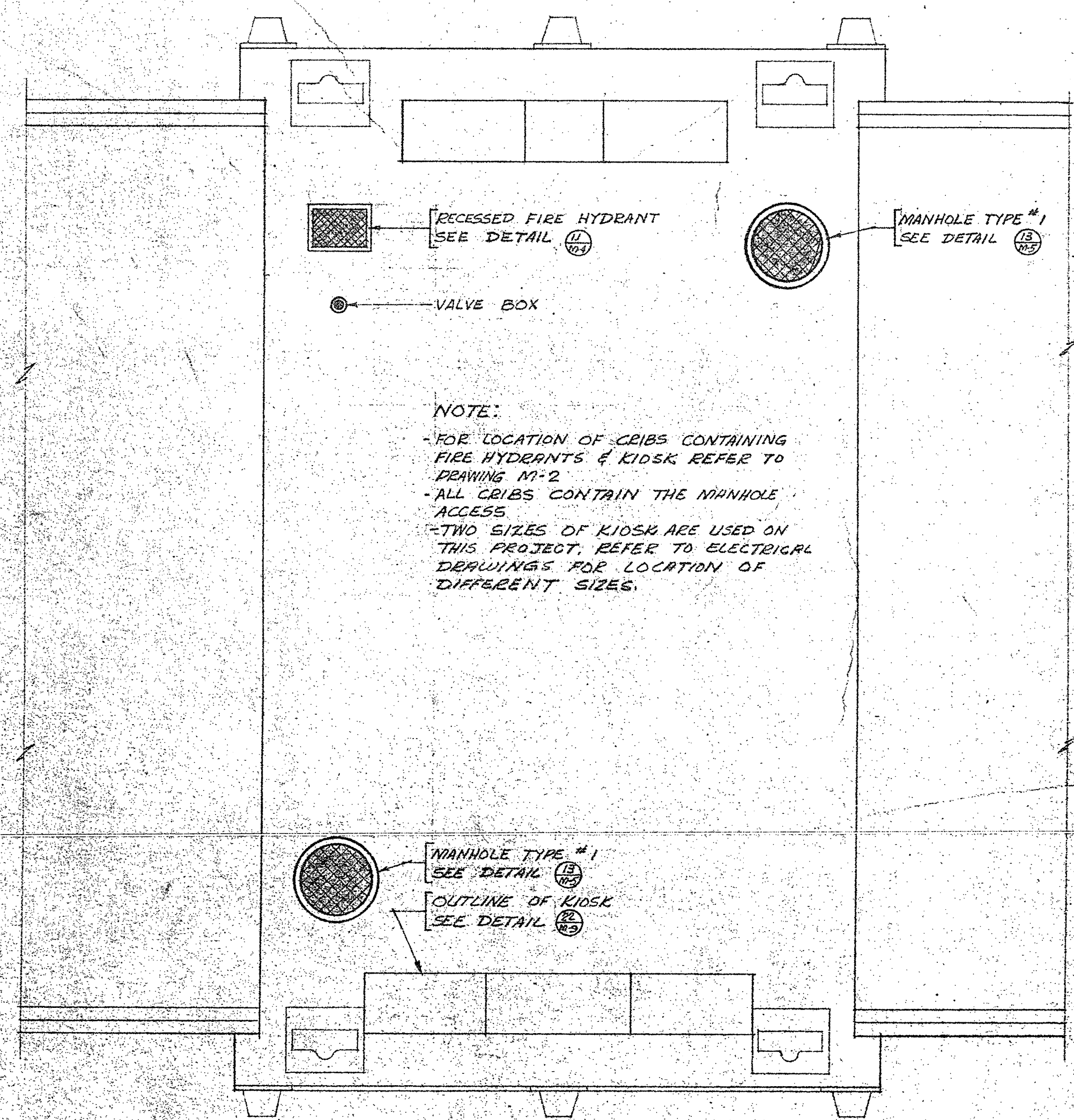
project title: MARINE STRUCTURES INSTITUTE OF OCEAN SCIENCES  
 Patricia Bay B.C.

drawing title: DETAILS

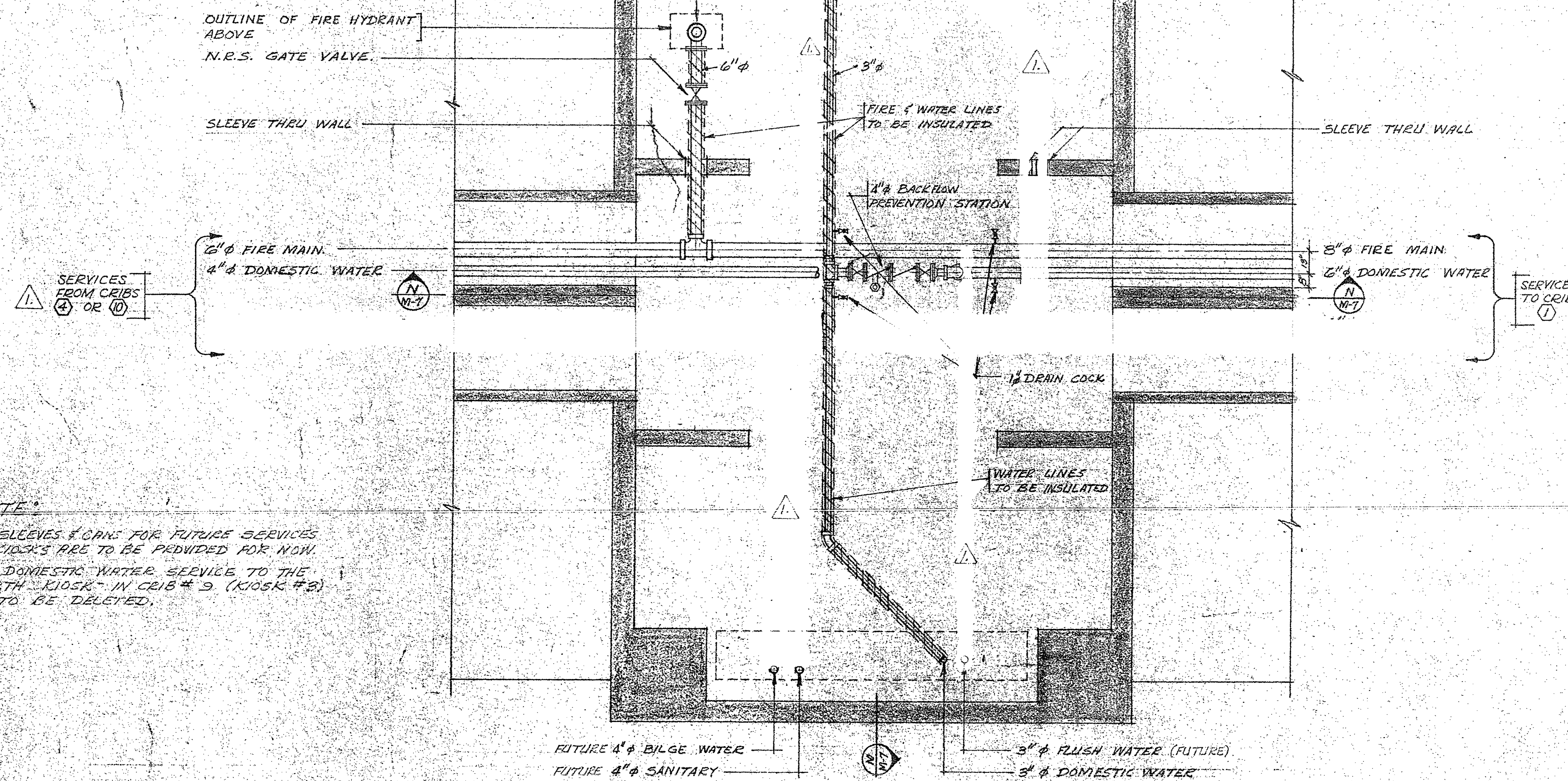
designed by: E. CROWDIS R.F. DAVIS  
 date: AUG. 14, 1974  
 drawn by: E. CROWDIS  
 reviewed by: R.F. DAVIS  
 date: R.F. DAVIS  
 approved by: R.F. DAVIS  
 date: R.F. DAVIS

D.W.T. Project Manager / Administrateur de projets M.T.P.  
 project number: 89323  
 drawing no: M-9

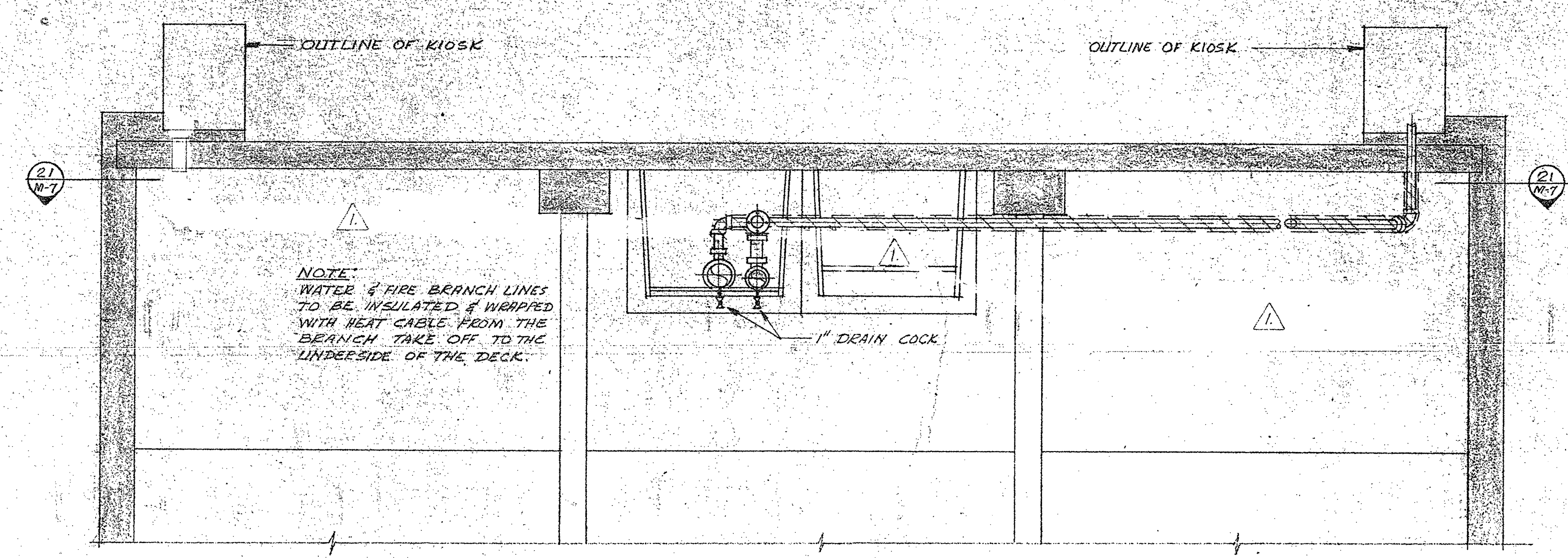




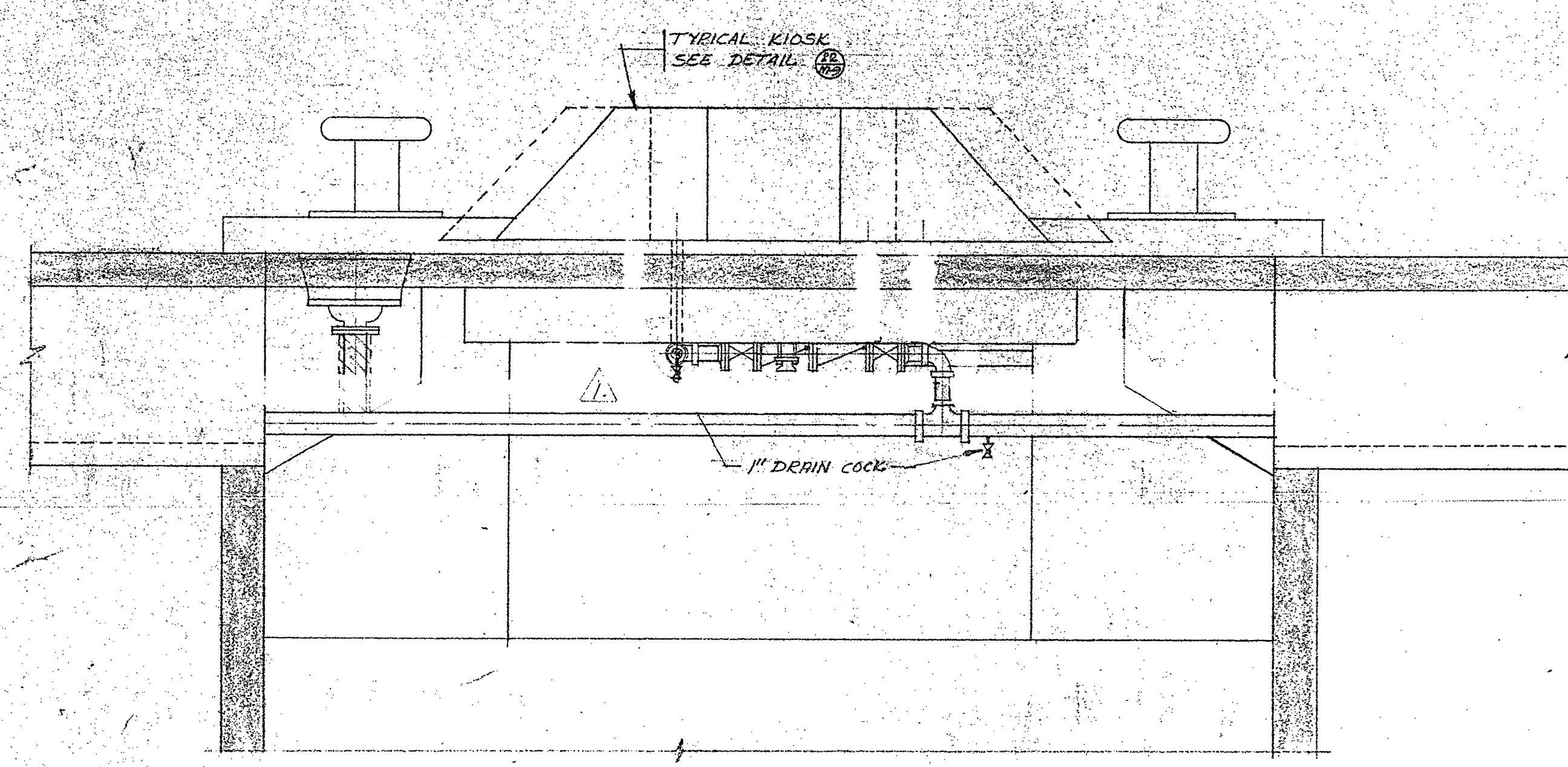
PLAN - TYPICAL CRIB DECK PLAN (9 M-10) NORTH FINGER  
SCALE: 1/4" = 1'-0"



PLAN - TYPICAL CRIB BELOW DECK (21 M-10) NORTH FINGER  
SCALE: 1/4" = 1'-0"



SECTION (M M-10)  
SCALE: 3/8" = 1'-0"



SECTION (N M-10)  
SCALE: 3/8" = 1'-0"

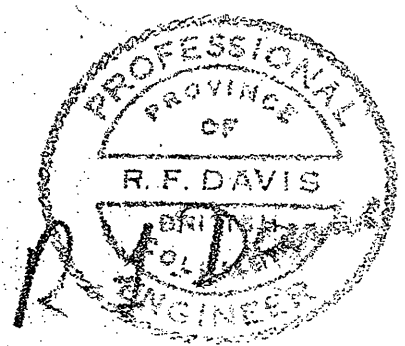
A detail no.	detail no.
B location drawing no.	sur dessin no.
C drawing no.	dessin no.
revision	date

1	SANITARY & DILUTE WATER SERVICES DELETED	27/1/74
	FLUSH WATER DELETED	
	DOMESTIC WATER TO KIOSK #5 DELETED	

project title / titre du projet  
**MARINE STRUCTURES**  
INSTITUTE OF OCEAN SCIENCES  
PATRICIA BAY B.C.

drawing title / titre du dessin  
**CRIB DETAILS - NORTH FINGER**

designed by / conçu par	E. CROWDIS R.F. DAVIS
date	AUG. 14, 1974
drawn by / dessiné par	E. CROWDIS
date	
reviewed by / examiné par	R.F. DAVIS
date	
approved by / approuvé par	
date	
Tender / Soumission	
D.P.W. Project Manager / Administrateur de projets M.T.P.	
project number / no. du projet	89323
drawing no. / dessin no.	M-10





# INSTITUTE OF OCEAN SCIENCES ENVIRONMENT CANADA

AS BUILT  
DRAWINGS

## PATRICIA BAY, B.C. MARINE FACILITY

### DRAWING LIST

#### STRUCTURAL

- S1 - EXISTING STRUCTURE SITE PLAN
- S2 - GENERAL ARRANGEMENT
- S3 - DREDGING PLAN
- S4 - WHARF GENERAL ARRANGEMENT
- S5 - WHARF PILING & CRIB LAYOUT
- S6 - WHARF - CRIBS TYPICAL FIRST STAGE CONC OUTLINE & REINF
- S7 - WHARF CRIB N° 1 CONC OUTLINE & REINF
- S8 - WHARF TYPICAL SECTIONS
- S9 - WHARF APPROACH PILE CAPS CONC OUTLINE & REINF

- S10 - WHARF PIER 1, 2 & CROSS PIER PILE CAPS CONC OUTLINE & REINF
- S11 - WHARF STANDARD CRIB DETAILS KIOSK PAD AND CLEAT DETAILS
- S12 - WHARF AND APPROACH KIOSK PAD AND LAMP STANDARD DETAILS
- S13 - WHARF CROSS PIER PILE CAP & BEAM LAYOUT
- S14 - WHARF CROSS PIER BEAMS CONC OUTLINE & REINF
- S15 - WHARF AND APPROACH DECK PANEL AND DRAINAGE DETAILS

- S16 - WHARF AND APPROACH DECK PANEL DETAILS
- S17 - WHARF AND APPROACH FENDER SYSTEM DETAILS
- S18 - CAUSEWAY GENERAL ARRANGEMENT
- S19 - CAUSEWAY TYPICAL SECTIONS AND DETAILS
- S20 - CAUSEWAY SERVICE DUCT CONC OUTLINE & REINF
- S21 - LAUNCHING PIER PLAN AND DETAILS
- S22 - LAUNCHING PIER FLOATS, SEAPLANE BASE PLAN AND DETAILS
- S23 - STANDARD 4' X 36' STEEL - GANGWAY

#### MECHANICAL

- M1 - PARTIAL SITE, PLAN (EAST)
- M2 - PARTIAL SITE, PLAN (WEST)
- M3 - DETAILS OF VALVE PIT & SERVICE TRENCH ON APPROACH PIER
- M4 - SERVICES TO APPROACH PIER KIOSK PLAN, SECTIONS & DETAILS
- M5 - PLAN OF CRIB AT TRESTLE HEAD
- M6 - HOLDING TANKS SECTIONS & DETAILS
- M7 - CRIB DETAILS - SOUTH FINGER
- M8 - SMALL BOAT HARBOUR
- M9 - DETAILS
- M10 - CRIB DETAILS - NORTH FINGER

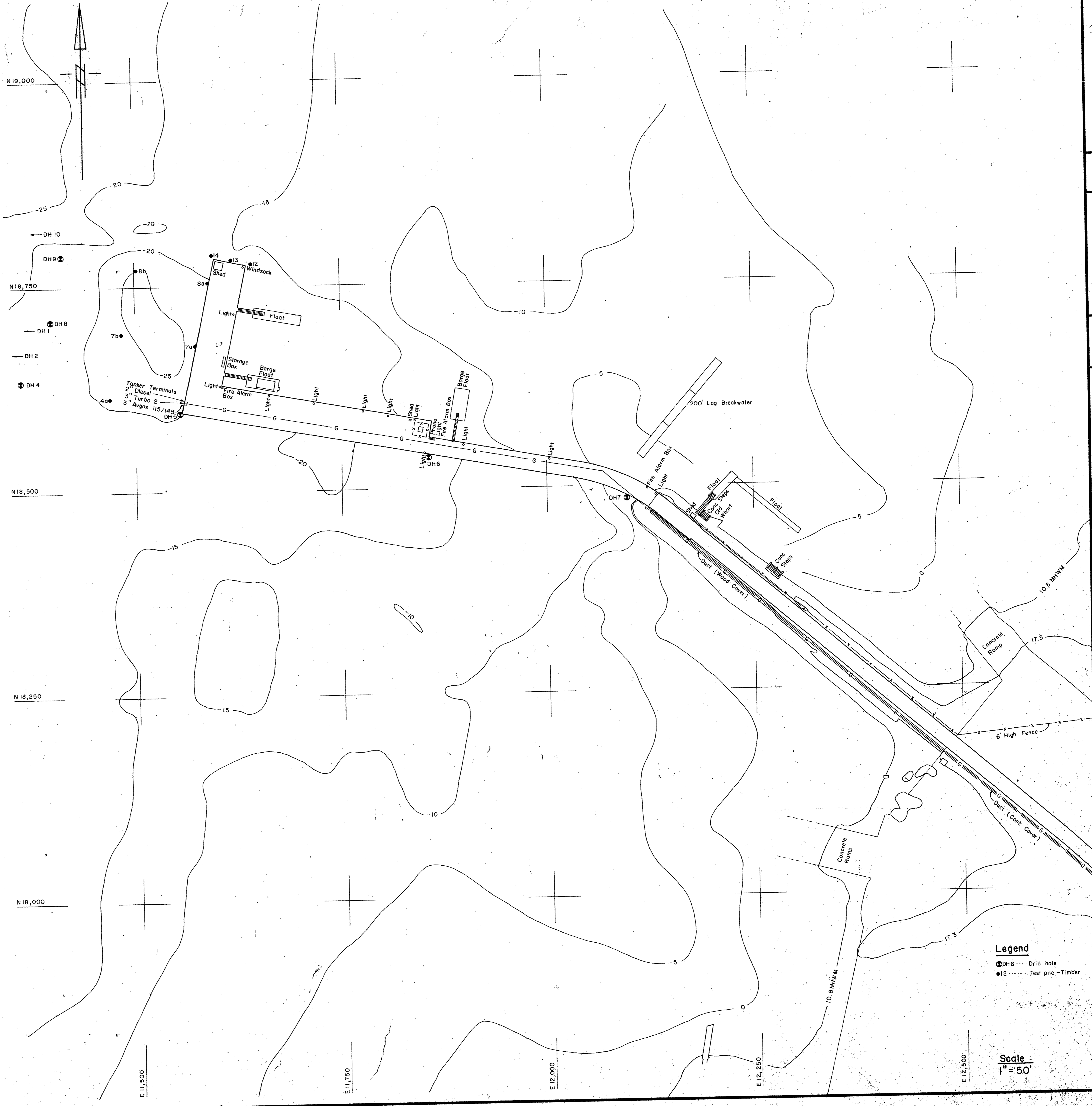
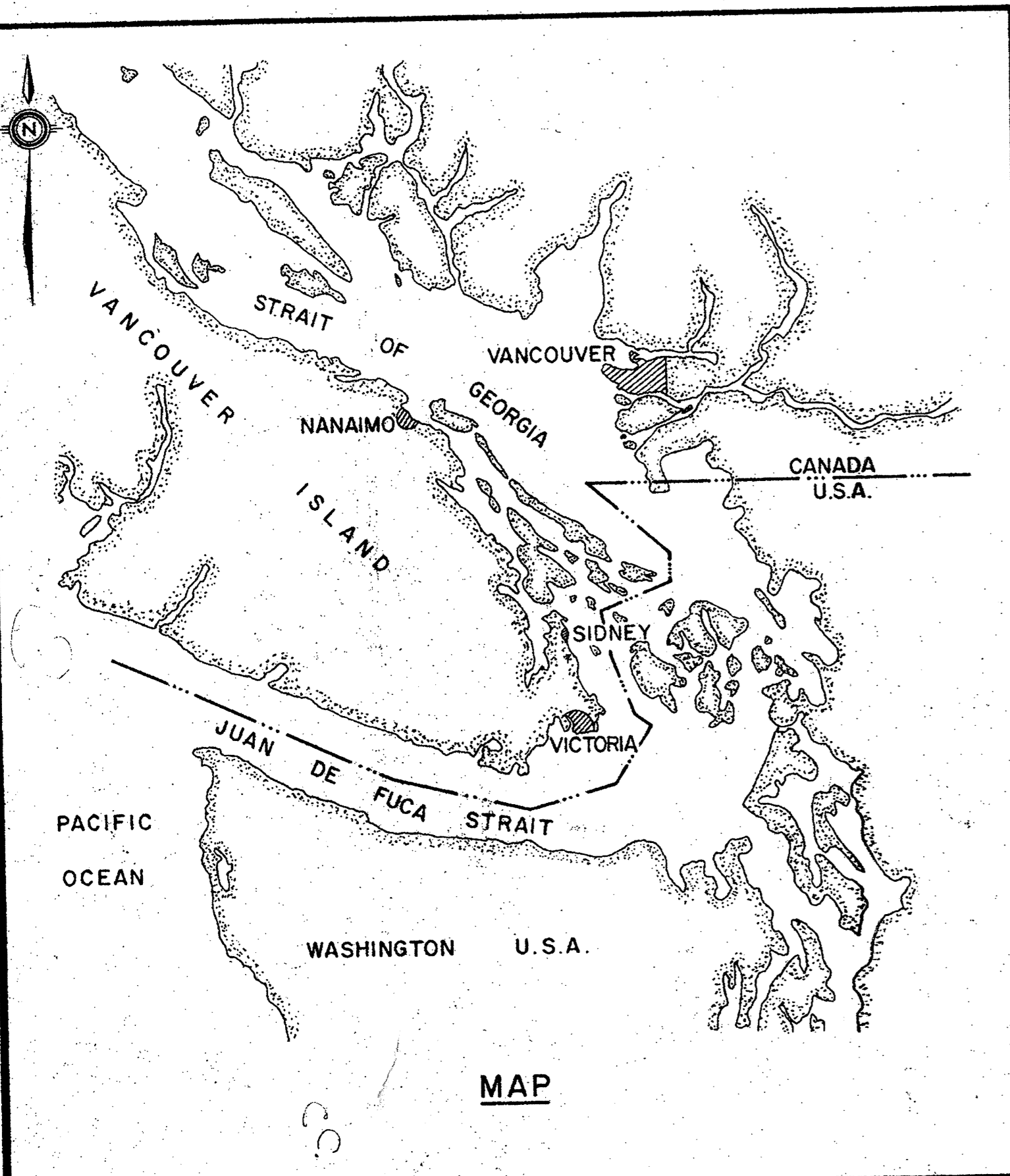
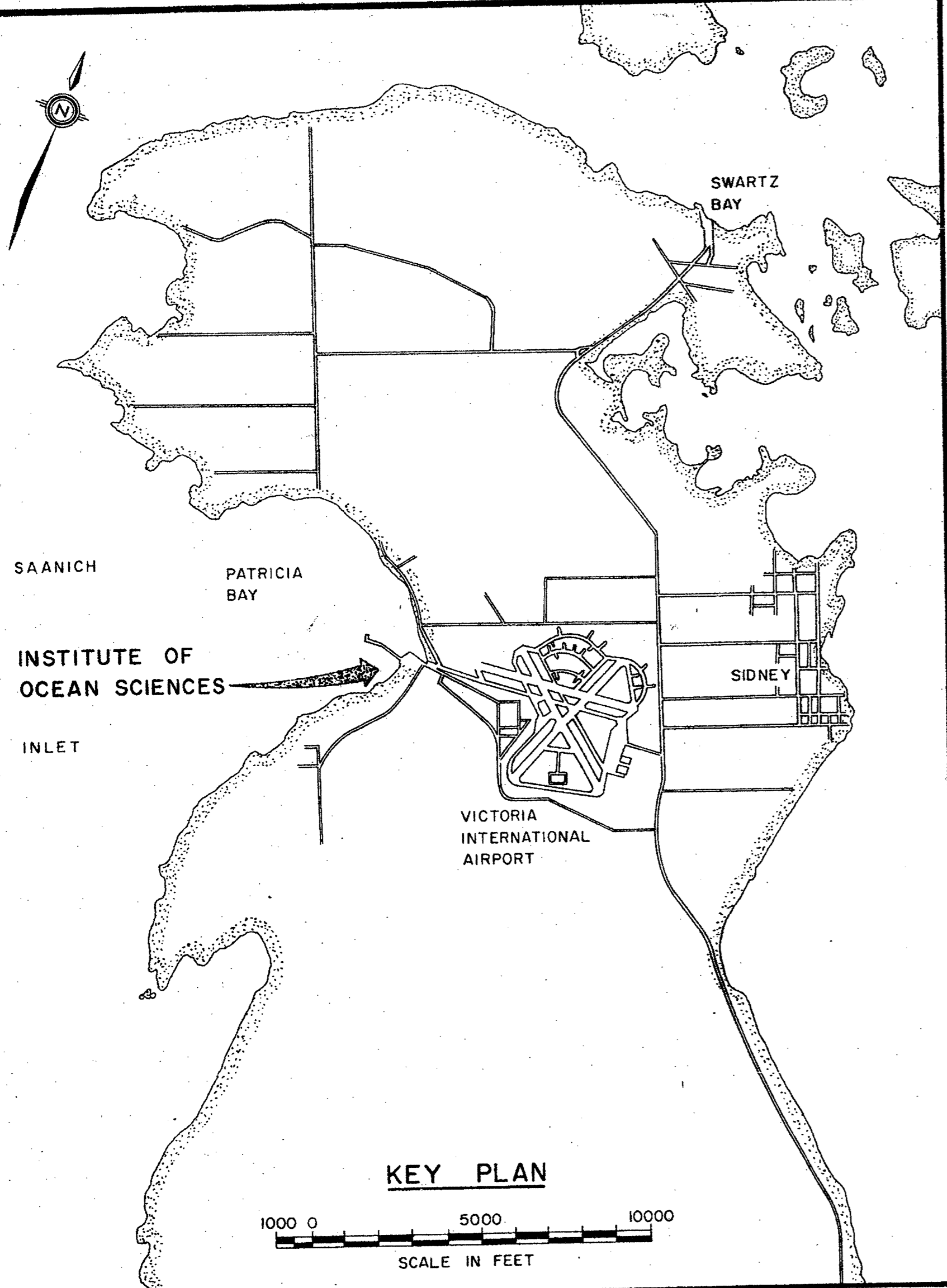
#### ELECTRICAL

- E1 - CAUSEWAY PLAN
- E2 - WHARF PLANS - FEEDER PLAN AND LIGHTING AND POWER PLAN
- E3 - KIOSKS - ELECTRICAL EQUIPMENT DETAILS
- E4 - CRIB DETAILS AND KIOSK ASSEMBLY DETAILS
- E5 - LIGHTING DETAILS AND SUBSTATION DETAILS
- E6 - DISTRIBUTION SINGLE LINE DIAGRAM AND PANELBOARDS



# Public Works Canada





Public Works Canada / Travaux publics Canada

PACIFIC REGION

INSTITUTE OF OCEAN SCIENCES ENVIRONMENT CANADA

A detail no.	détail no.
B location drawing no.	sur dessin no.
C drawing no.	dessin no.
revisions	
A - Contours revised	

project title / titre du projet

PATRICIA BAY, B.C. MARINE FACILITY

drawing title / titre du dessin

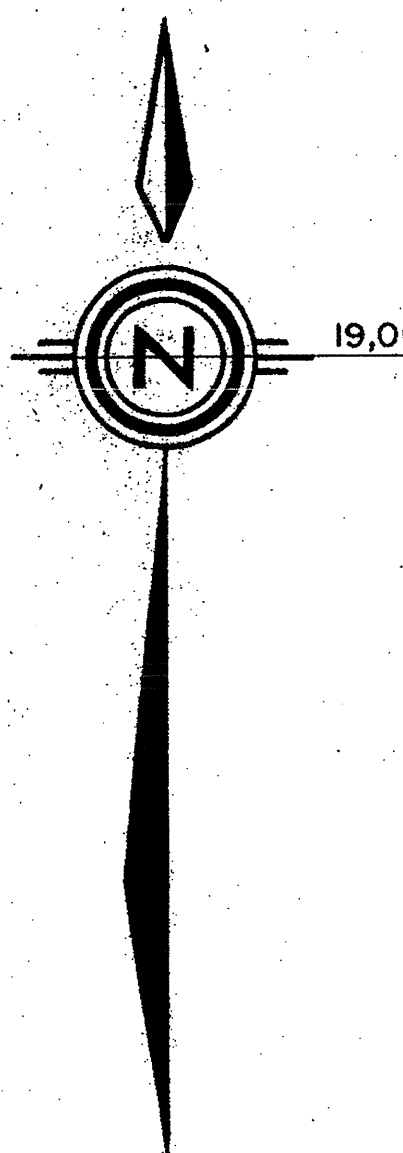
EXISTING STRUCTURE SITE PLAN

designed by / conçu par	
date / date	12-8-74
drawn by / dessiné par	H.D.T.
date / date	
reviewed by / examiné par	
date / date	
approved by / approuvé par	<i>[Signature]</i>
date / date	12-8-74
Tender / soumission	
D.P.W. Project Manager / Administrateur de projets M.T.P.	
project number / no. de projet	89323
drawing no. / dessin no.	S I

Legend  
 ● DH6 Drill hole  
 ● 12 Test pile - Timber

Scale  
 1" = 50'





19,000 N

18,750 N

18,500 N

18,250 N

11,000 E

11,250 E

11,500 E

11,750 E

12,000 E

12,250 E

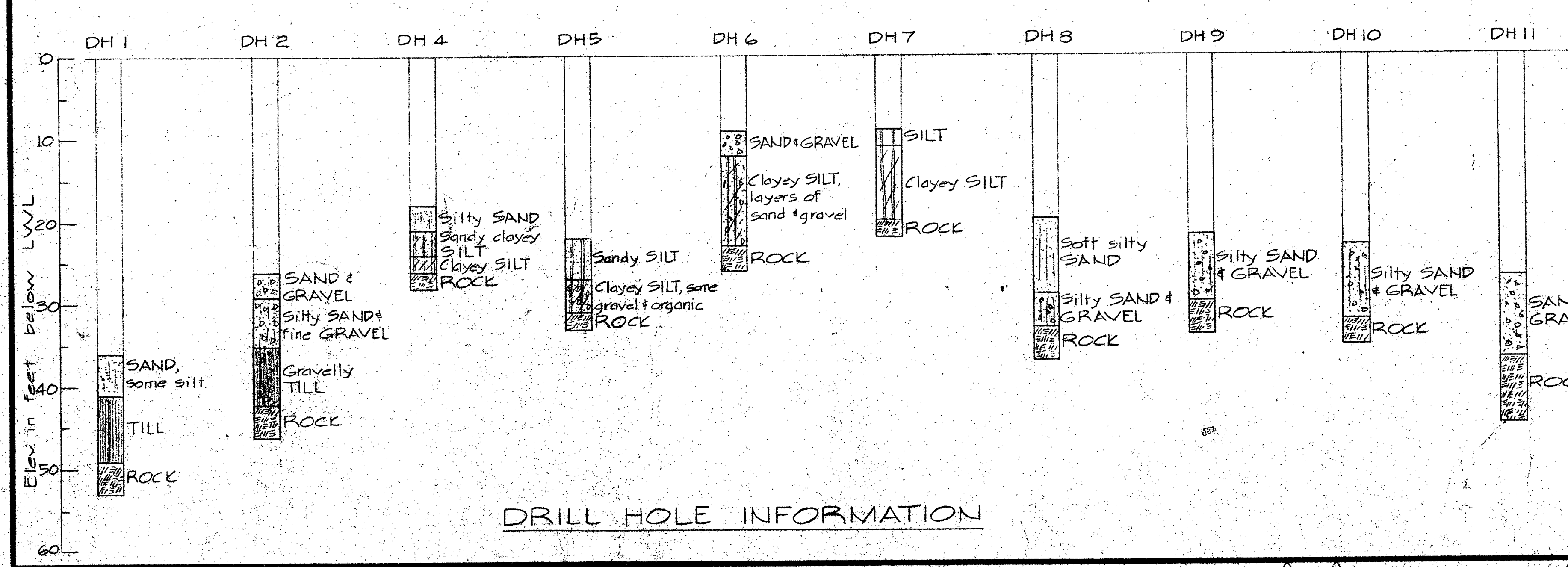
12,500 E

**LEGEND**

- Drill hole number 6
- Test pile - steel, number 7b, rock at 4.6'
- Wash boring number 'D', 8.0' rock at 8.0'

**NOTES**

Contours are in feet and are referred to Local Low Water equal to 0



DRILL HOLE INFORMATION

A detail no.	sheet no.
B location drawing no.	sur. design no.
C drawing no.	design no.

revisions  
 A - Cross pier layout & 2 approach pile caps changed Dec 2/74  
 B - Contours revised

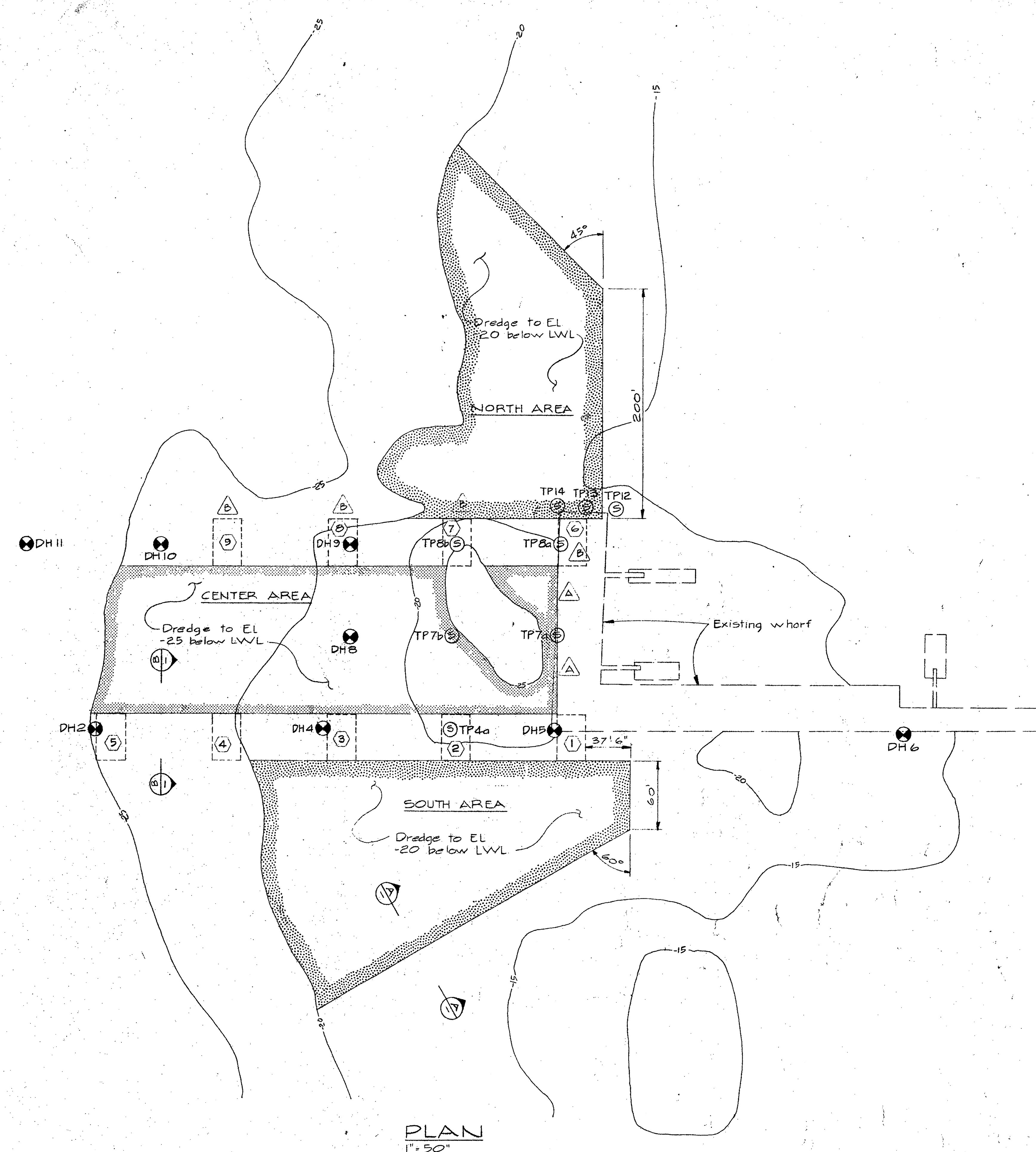
PATRICIA BAY, B.C. MARINE FACILITY

GENERAL ARRANGEMENT

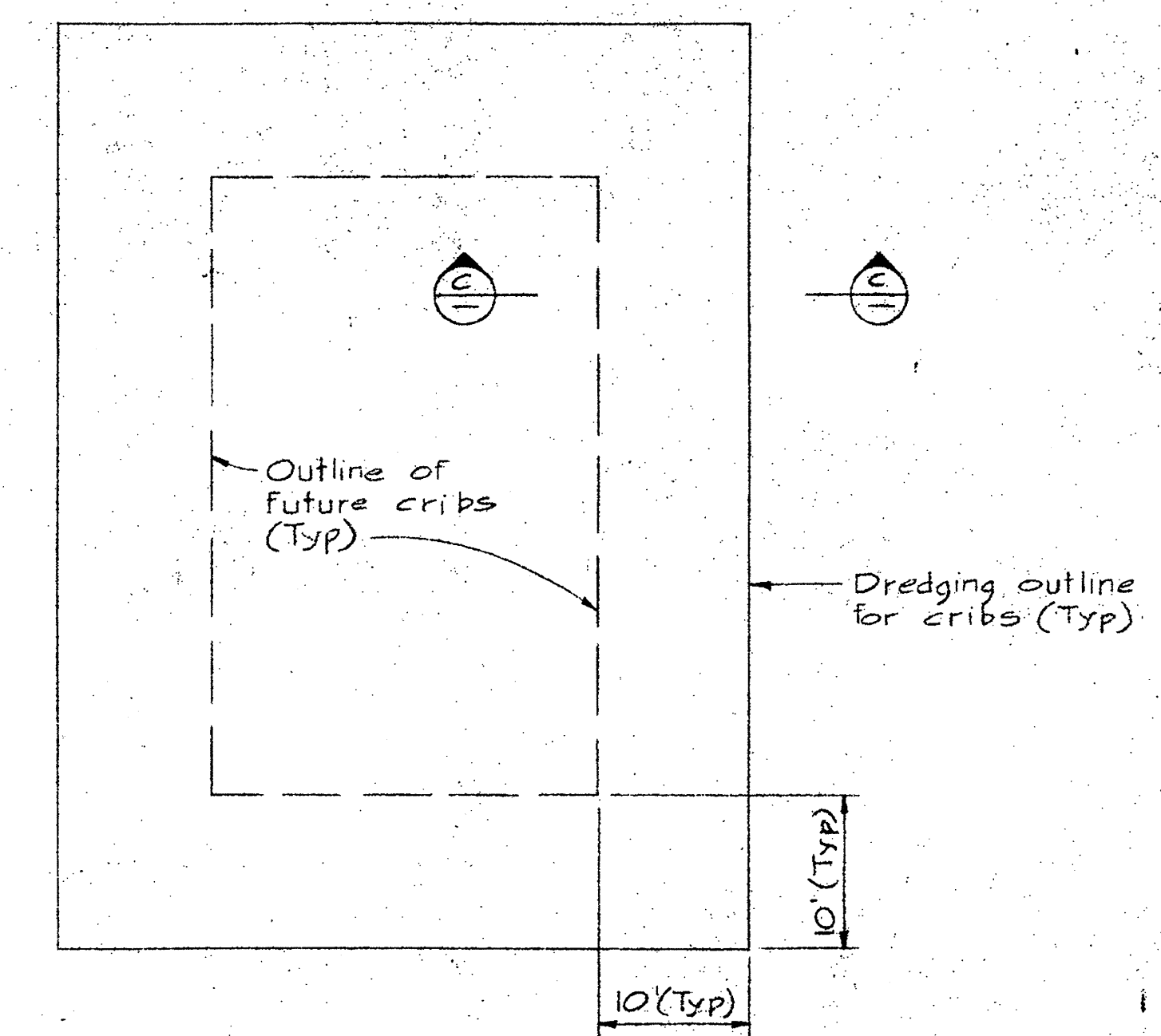
designed by	concep. par
drawn by	dessiné par
checked by	examiné par
approved by	approuvé par
Project Manager	Administrateur de projets
project number	no. du projet
89323	
sheet no.	feuille no.
S 2	

Scale 1" = 50'

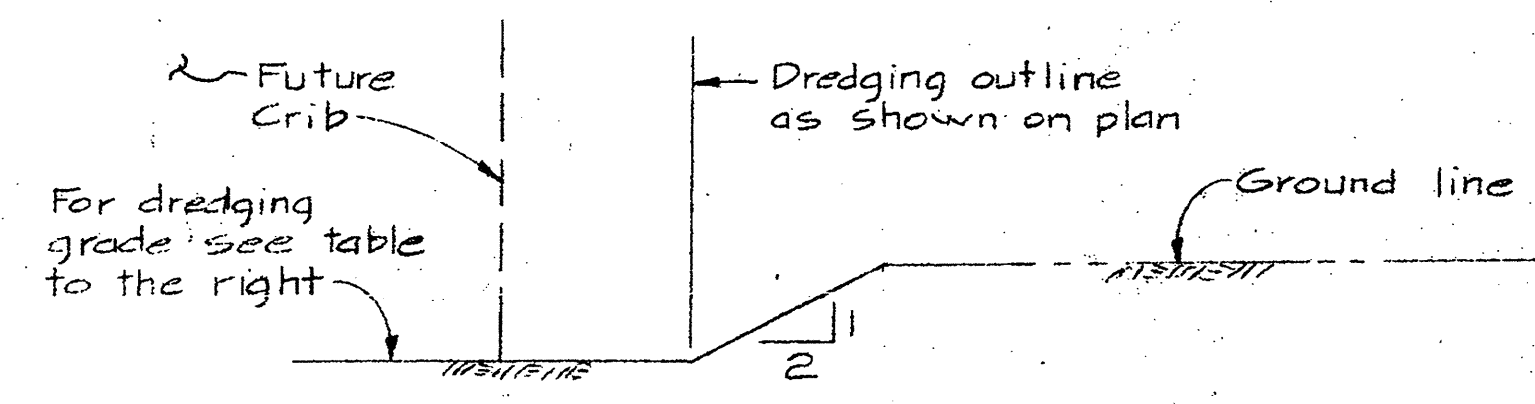




PLAN  
1"=50'



PLAN OF CRIB DREDGING  
1"=10'

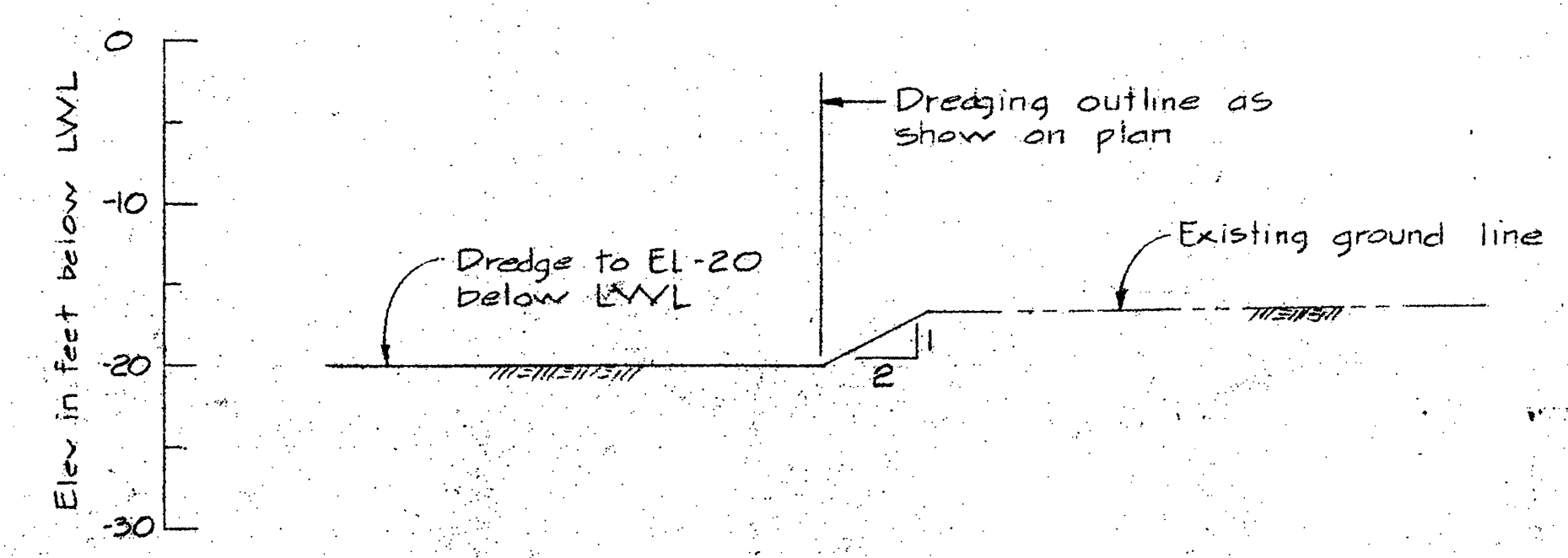


SECTION (A)  
1"=10'

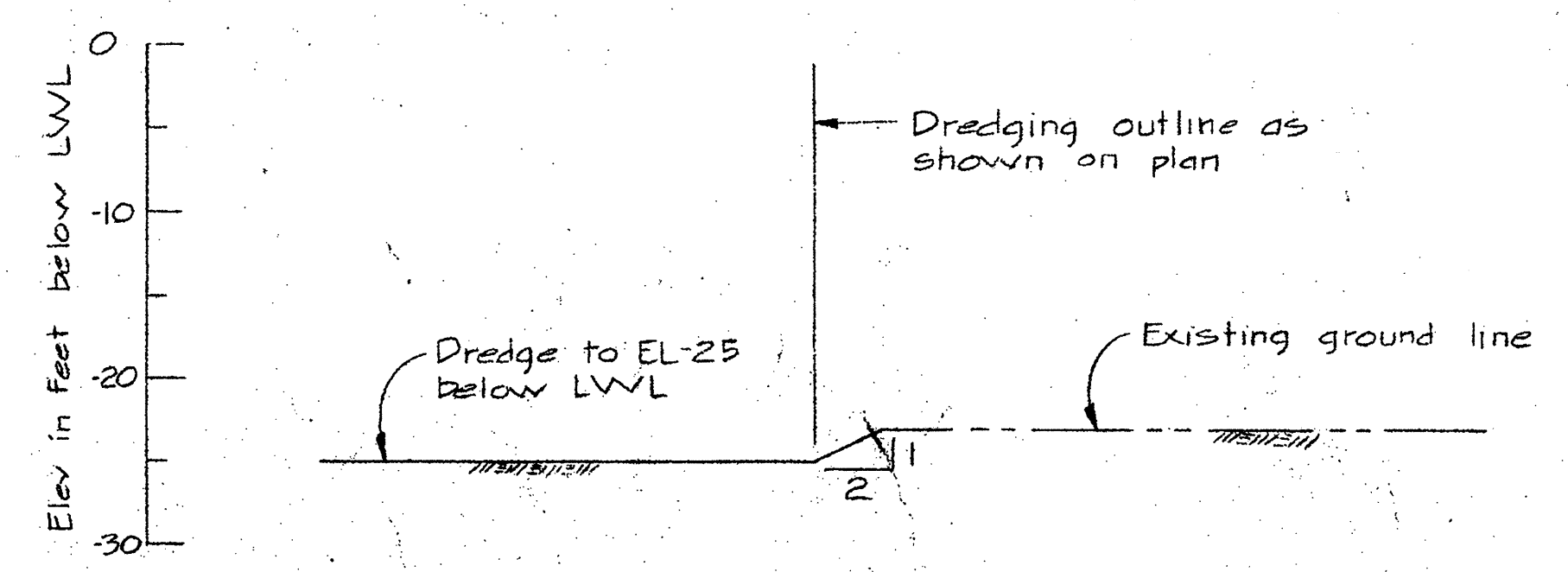
At crib No. 1 dredge to	Material
2	Rock
3	Rock
4	Rock
5	Till
6	Rock
7	El -26
8	El -26
9	El -26

A detail no.	detail no.
B location drawing no.	sur dessin no.
C drawing no.	dessin no.

revisions  
 A - Removed dredging at Cribs #6 & #7, Dec 2/74  
 B - Renumber Cribs #8, #9, #10 & #11 to read #6, #7, #8 & #9 + contours revised



SECTION (A)  
1"=10'



SECTION (B)  
1"=10'

LEGEND

- ⊙ Drill hole
- DH 6
- ⊙ Test pile - Steel
- ⊙ TP 12
- ⊙ Crib number

PATRICIA BAY, B.C. MARINE FACILITY

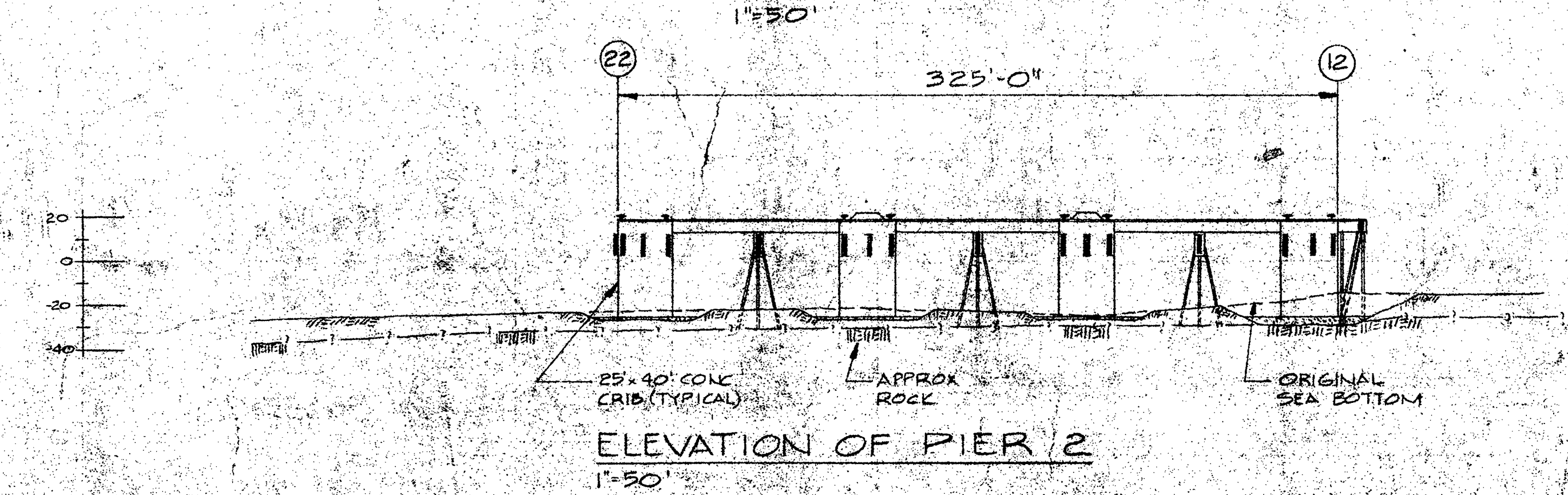
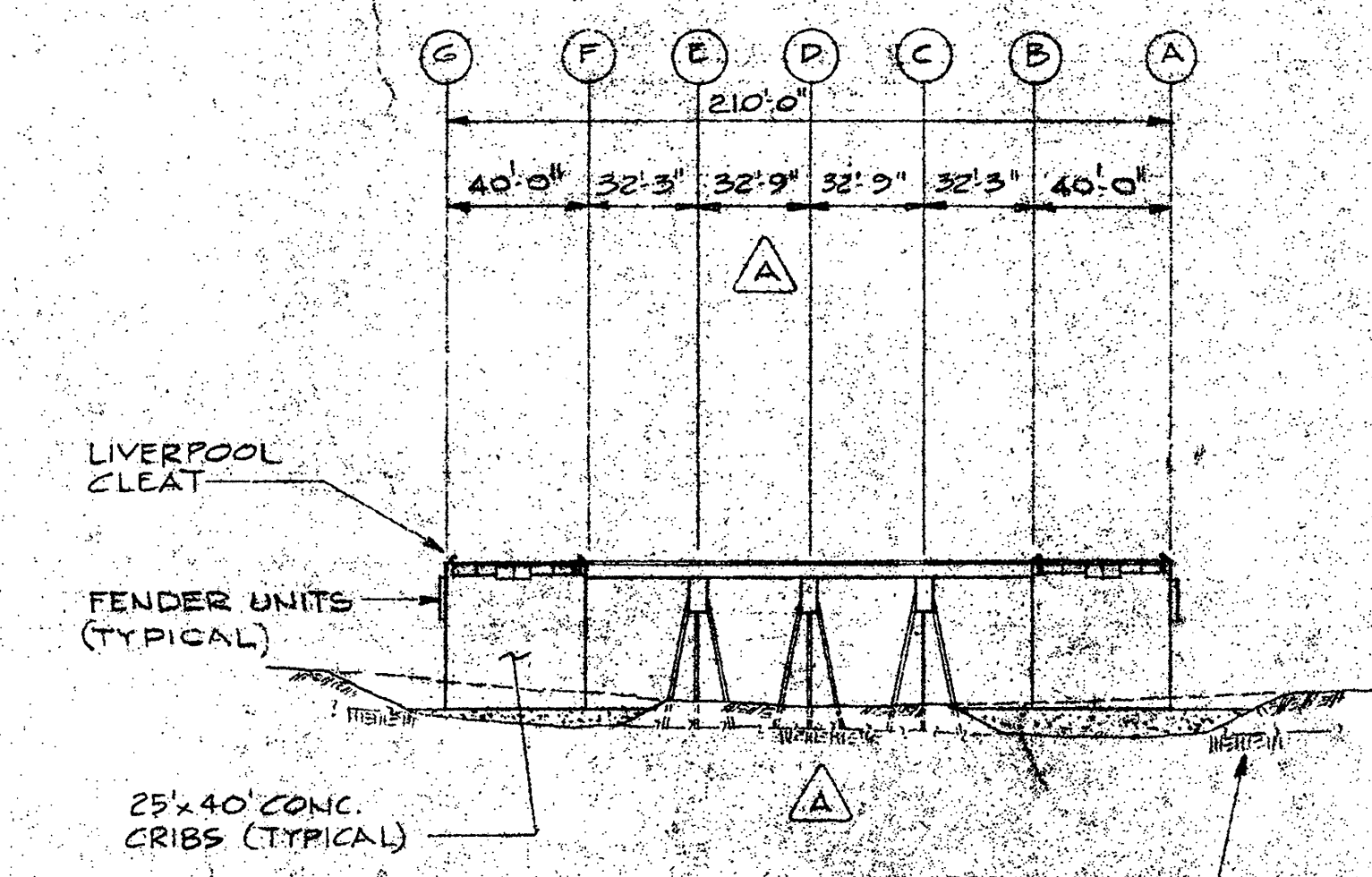
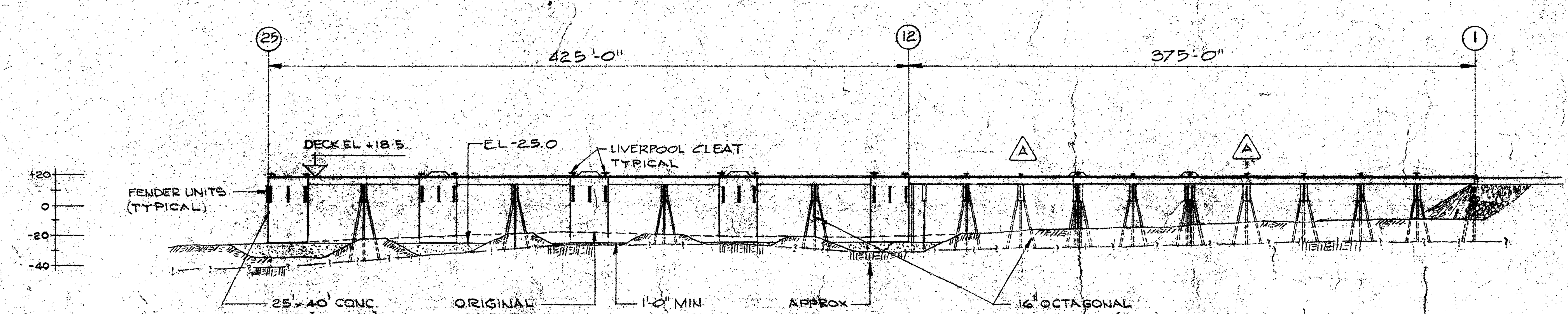
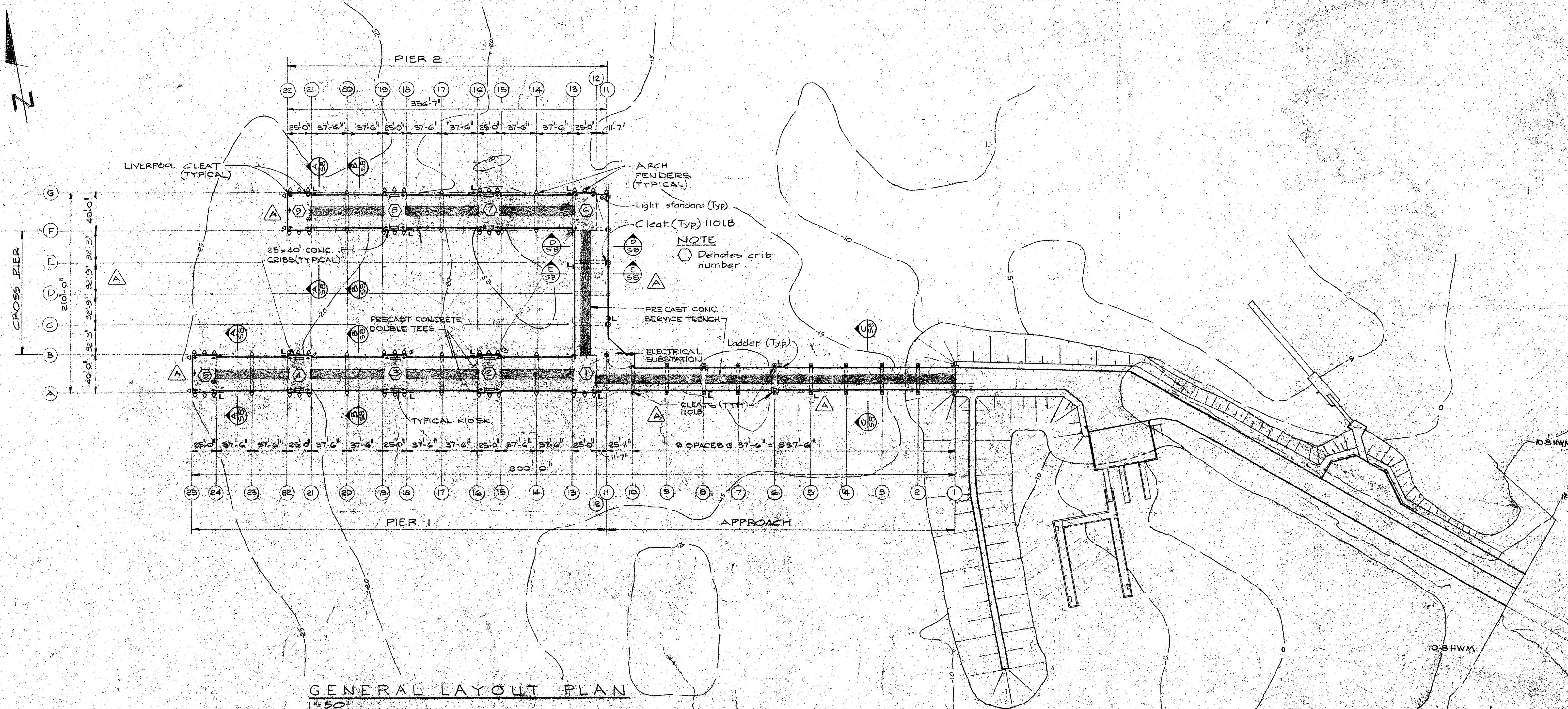
DREDGING PLAN

designed by	compu per
date	
drawn by	dessiné par
date	
reviewed by	examiné par
date	
approved by	approuvé par
date	
Tender	Soumission
D.P.W. Project Manager	Administrateur de projets S.P.W.
project number	no. du projet
89323	
drawing no.	dessin no.
S-3	



A detail no.	sheet no.
B location drawing no.	sur. sheet no.
C drawing no.	sheet no.

Revisions  
 A - General revision Dec 2007 to Plan & Elevations  
 B - Ladders, fenders & cleats clarified on plan; Legend added; Contours revised



- LEGEND**
- Ladders
  - Light standards
  - △ Arch fenders unit
  - 533 Lb 2.5' Liverpool cleat
  - 110 Lb 2.5' Barge cleat
  - 10" Cylindrical fenders

**NOTE**  
 For details of fender system see Dwg 517

PATRICIA BAY, B.C. MARINE FACILITY

WHARF GENERAL ARRANGEMENT

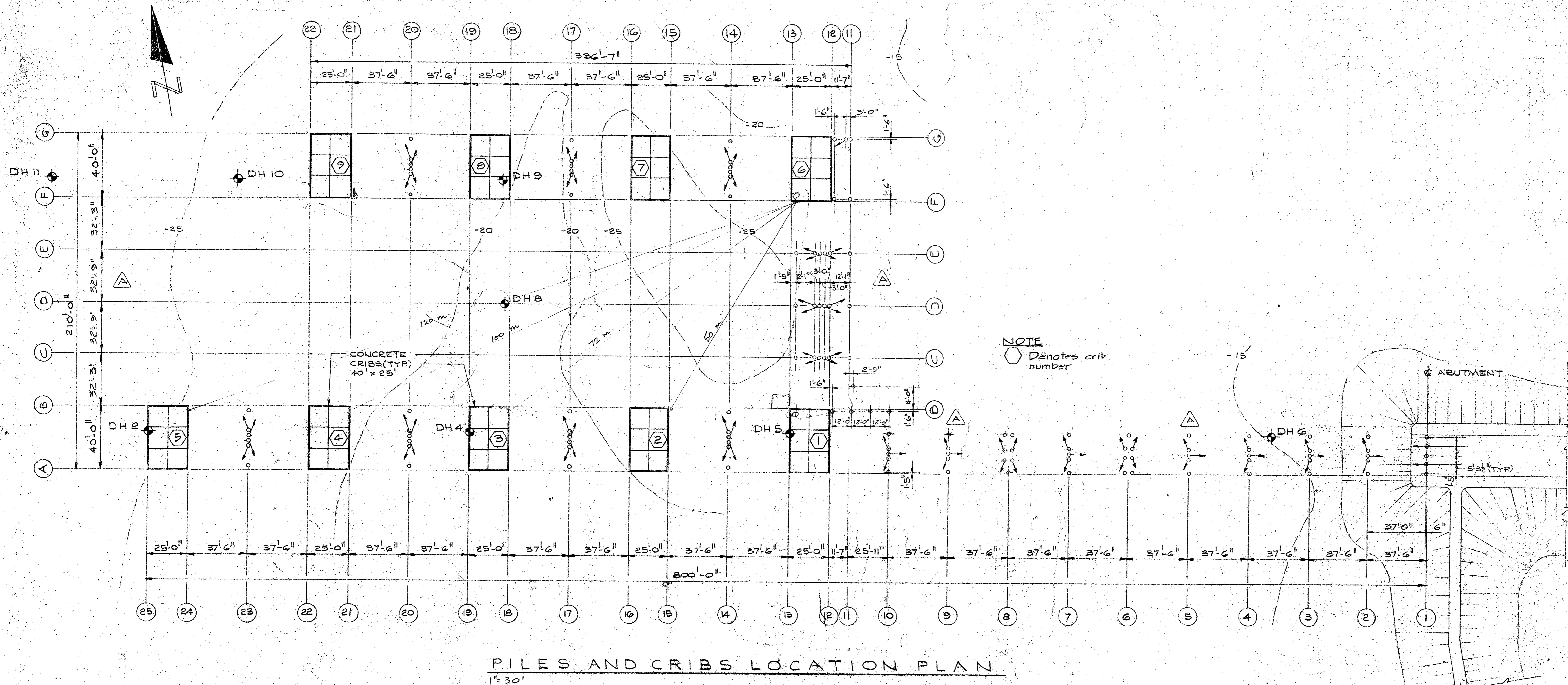
approved by: [Signature]  
 checked by: [Signature]  
 prepared by: [Signature]  
 title: [Signature]  
 D.P.W. Project Manager / Administrateur de projets M.T.P.

89323  
 S 4

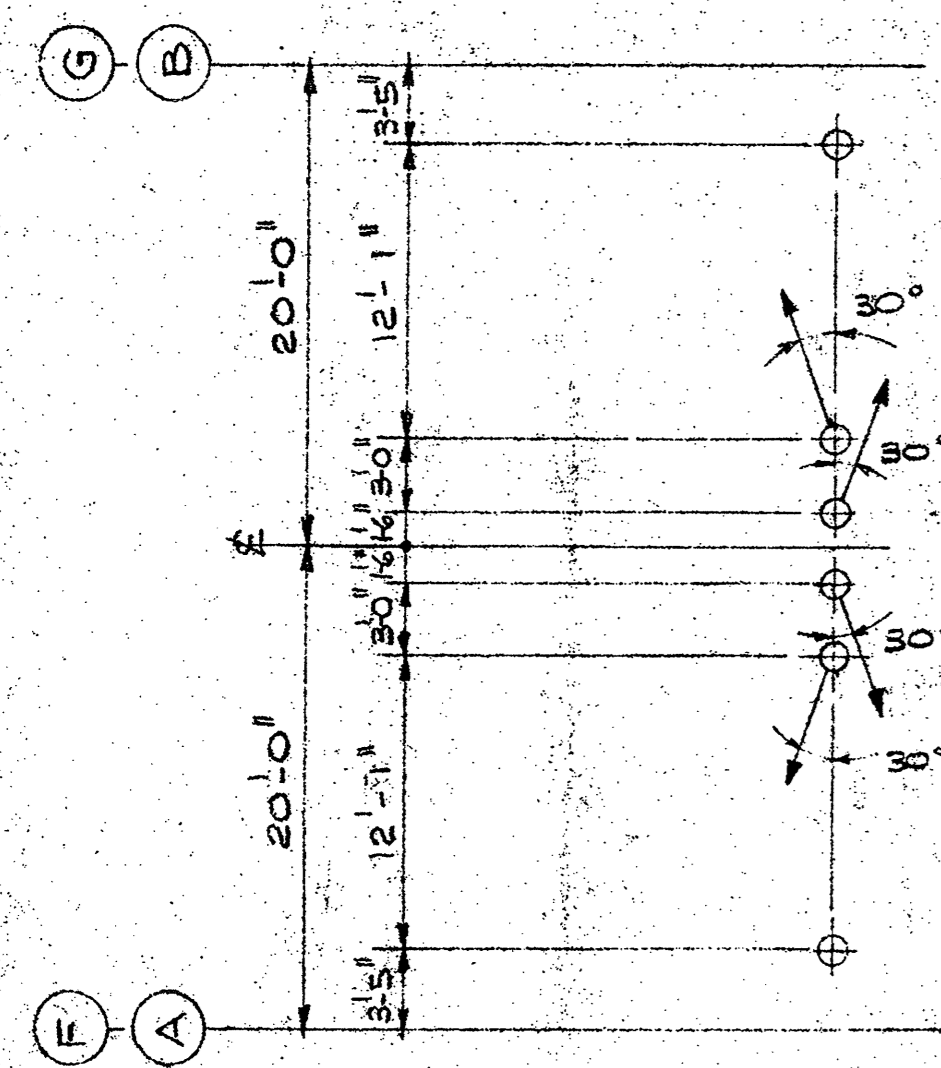


Detail no.	Sheet no.
Location drawing no.	Drawn no.
Drawing no.	Check no.
Revision	Date

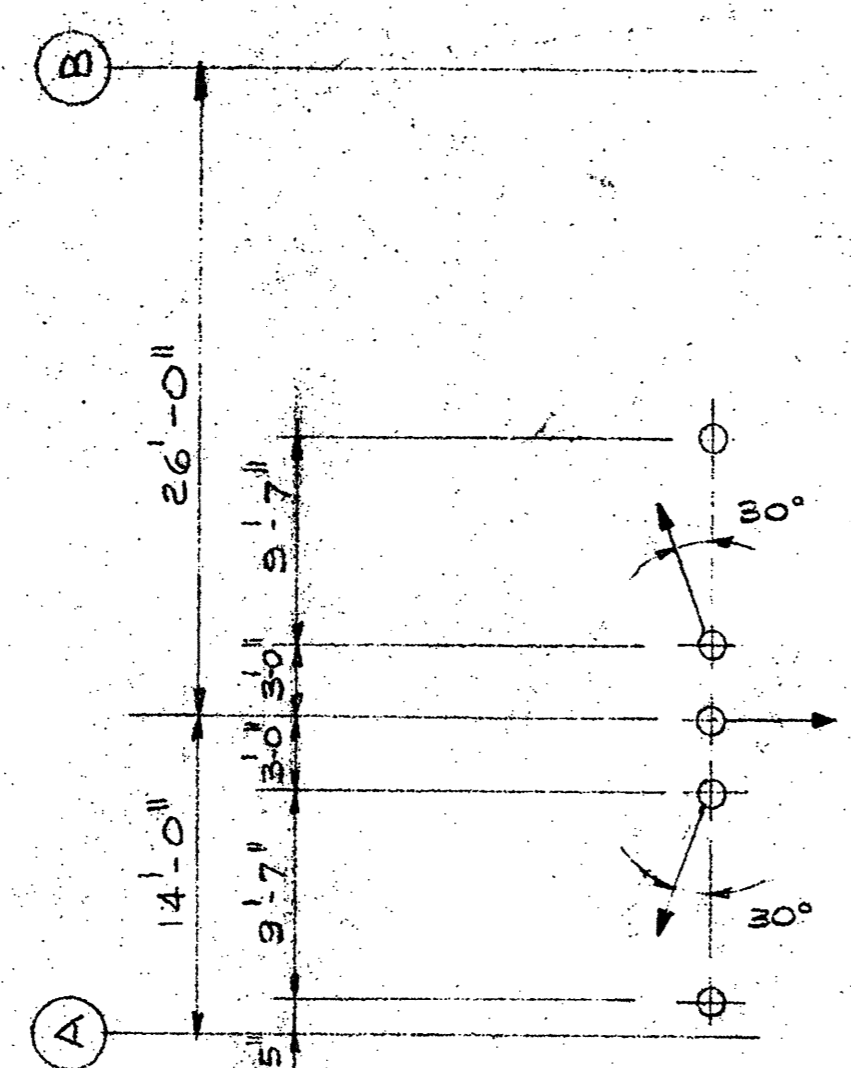
A - Revise pile layout on Cross pier, Lines 5, 3, 10 + B, Per 2/75  
B - Notes added



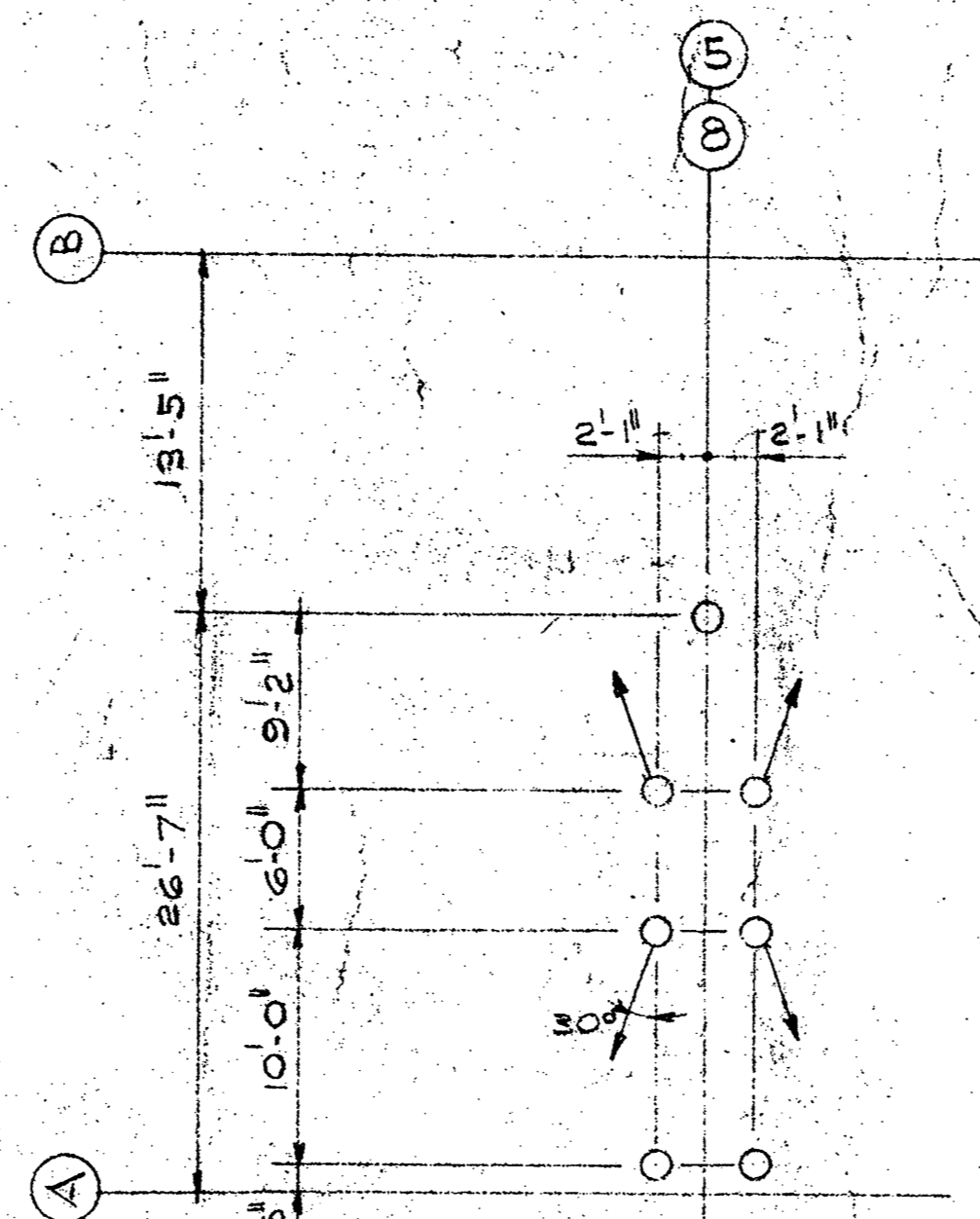
PILES AND CRIBS LOCATION PLAN  
1" = 30'



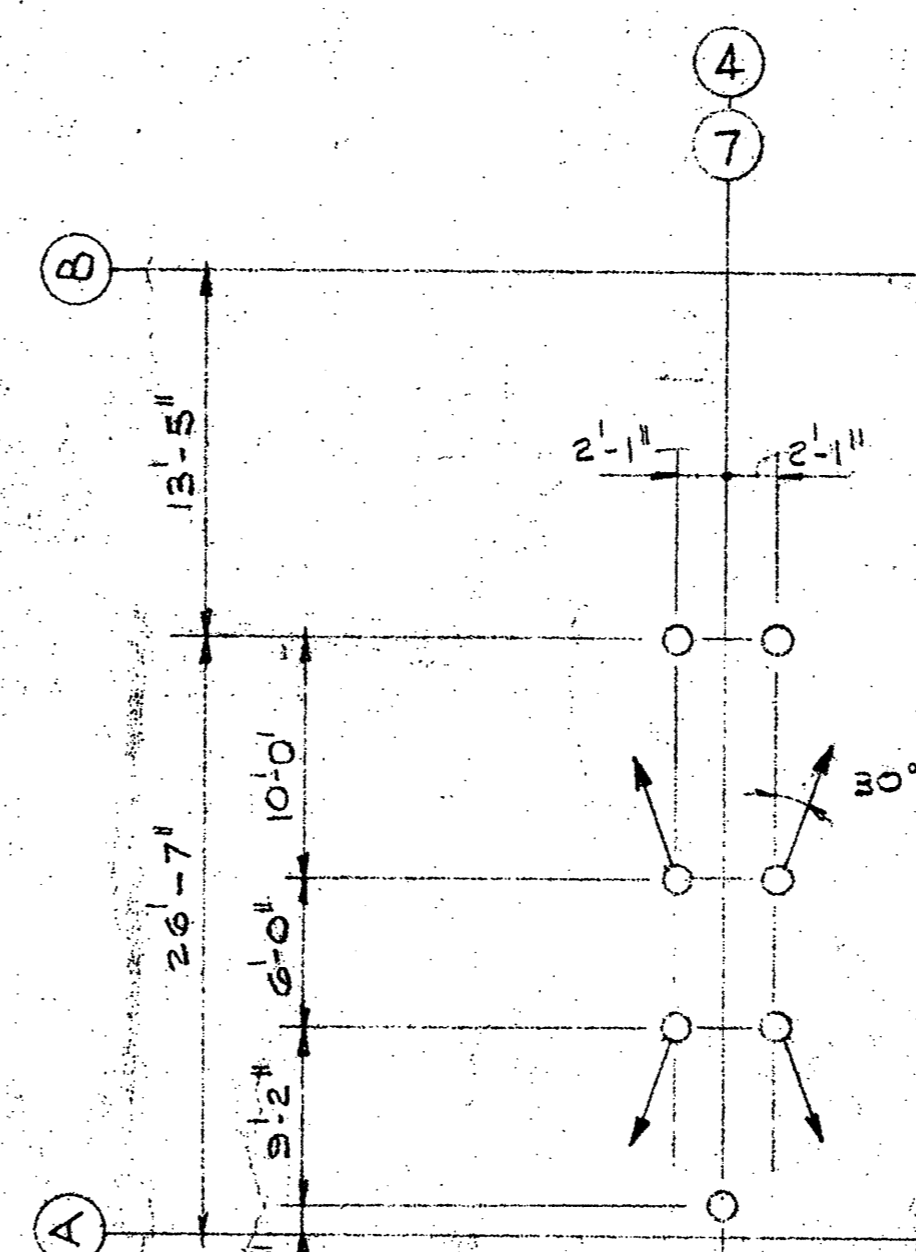
PILES LAYOUT  
ON LINES 14, 17, 20, 23  
(PIERS 101 + 102)  
PILE LAYOUT SIMILAR  
ON LINES C, D + E



PILES LAYOUT  
ON LINES 2, 3, 4, 5, 7, 9, 10



PILES LAYOUT  
ON LINE 6



PILES LAYOUT  
ON LINE 8

NOTES

- Embedment of piles in caps and/or beams shall be 4" min, 6" max
- O - Denotes battered piles Slope 1:5
- All conc piles in approach bents, abutment, & cross pier bents C, D & E to be cut off at EL 11.98 (±1')
- All conc piles in pier 1 & 2 bents to be cut off at EL 12.01 (±1')
- All conc piles in beams 1, 2, 3 & 4 to be cut off at EL 13.92 (±1')
- Pile locations are dimensioned 4" above base of caps

Project title: Patricia Bay, B.C. Marine Facility

PATRICIA BAY, B.C.  
MARINE FACILITY

WHARF  
PILING & CRIB LAYOUT

Designed by: <i>J. Curtis</i>	Checked by:
Drawn by: H.T. & T.M. DE CURTIS	Designated by:
Reviewed by:	Approved by:
Project number: 89323	Sheet no.: S.5



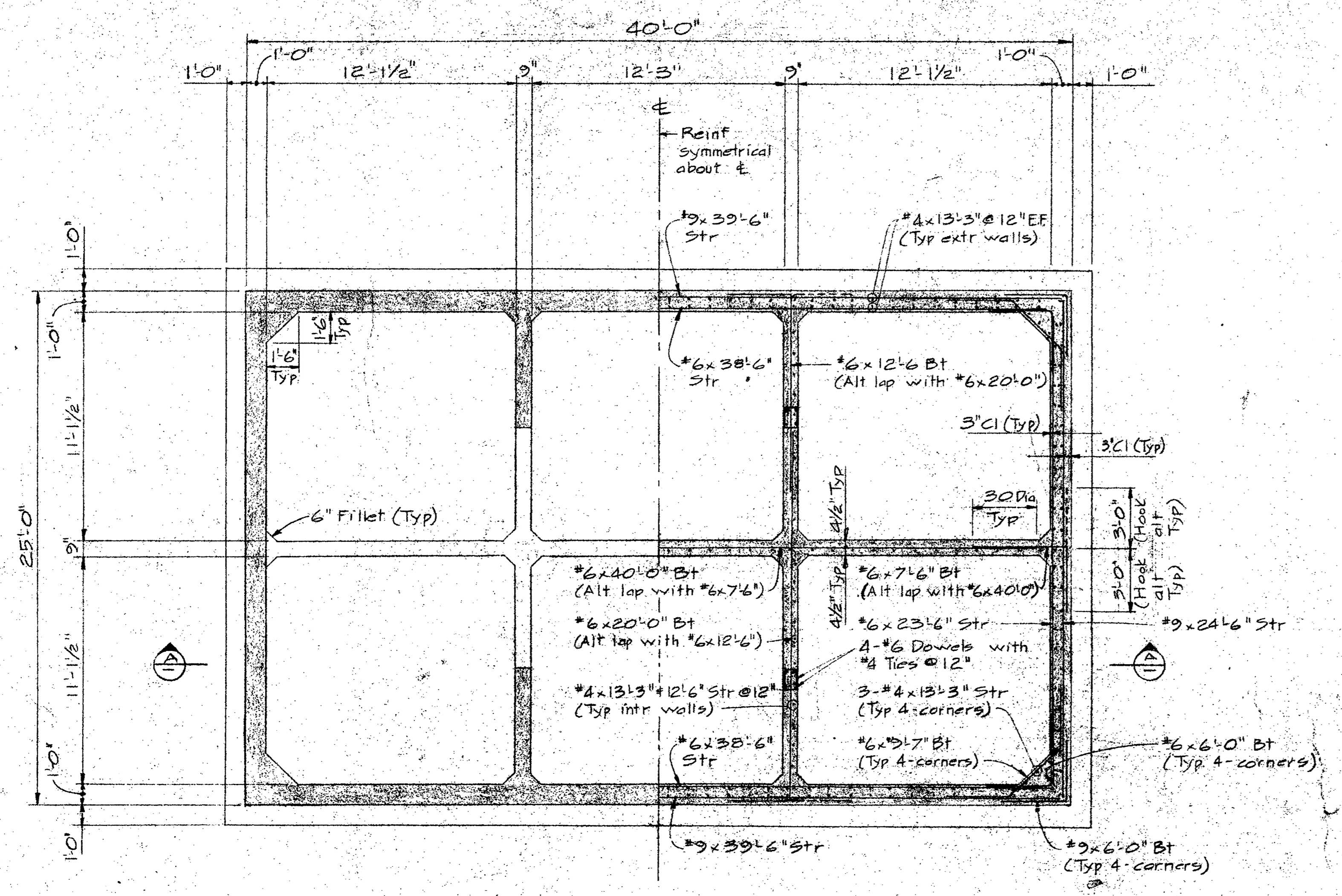


Department of Public Works  
Ministère des Travaux publics

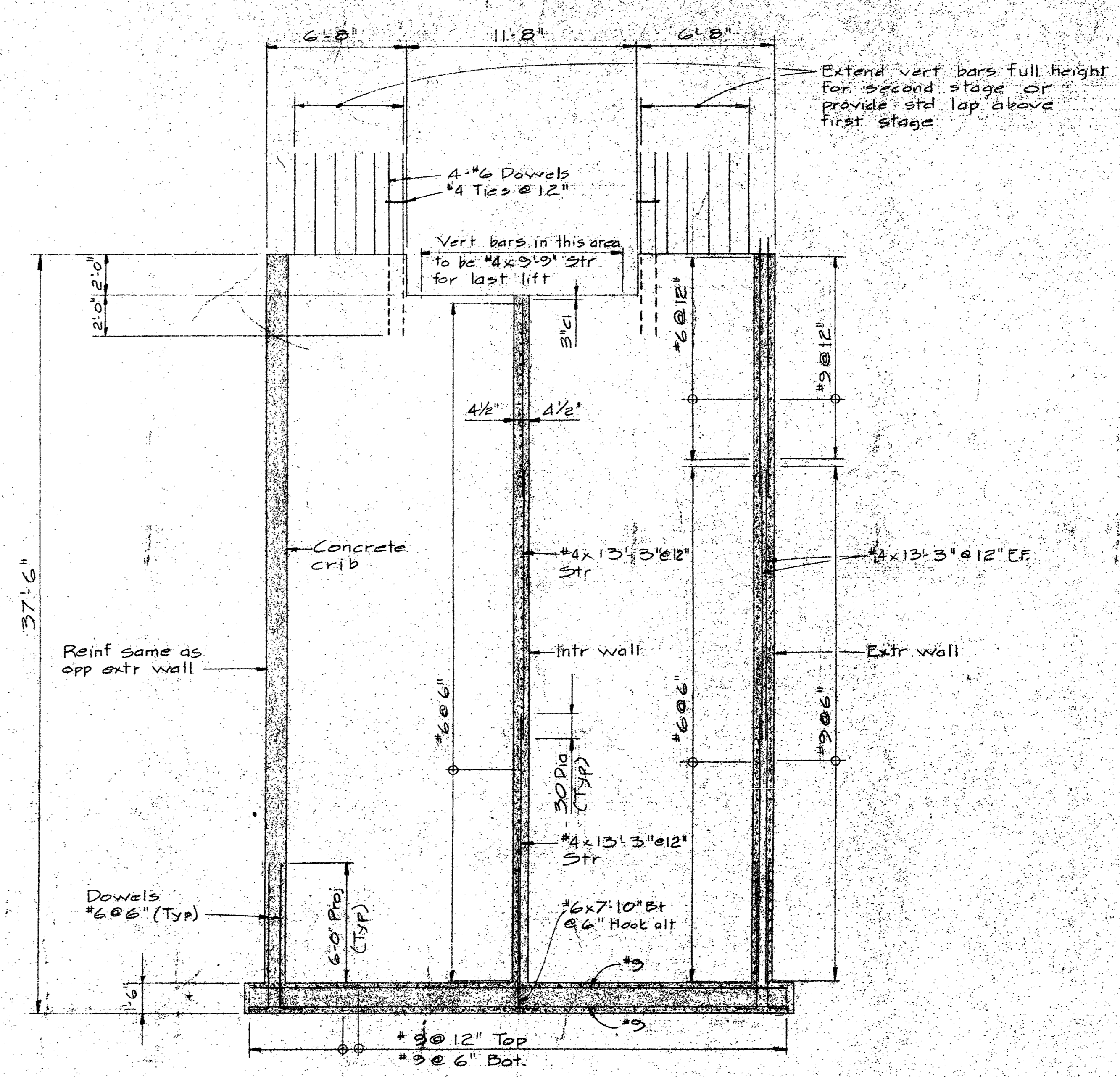
PACIFIC REGION

INSTITUTE OF OCEAN SCIENCES  
ENVIRONMENT CANADA

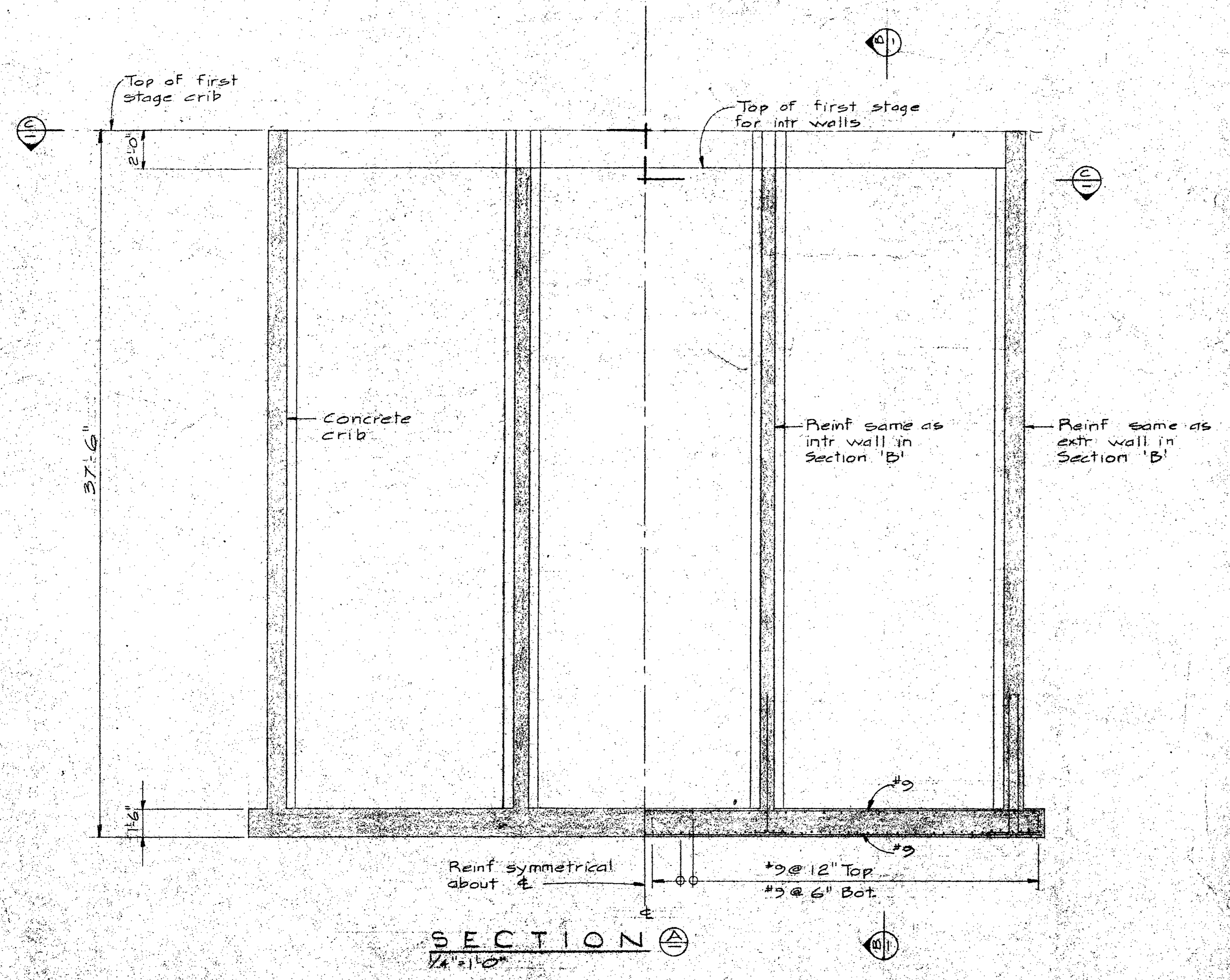
A detail no.	sheet no.
B location drawing no.	our design no.
C drawing no.	sheet no.
revision	date
A - General revision.	



SECTION A THRU CONCRETE CRIB  
1/4" = 1'-0"



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



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

**NOTE**  
For differences of first stage in Crib W#1 see Dwg S7  
For details of second stage in Crib see Dwg S11

project title titre du projet

PATRICIA BAY, B.C.  
MARINE FACILITY

drawing title titre du dessin

WHARF - CRIBS  
TYPICAL FIRST STAGE  
CONC OUTLINE & REINF

designed by	checked by
date	date
drawn by P.T. 4 TONY DE CUYPPE	checked by
date	date
reviewed by	approved by
date	date
approved by	approved by
date	date
D.P.W. Project Manager Administrateur de projets M.T.P.	project number no. du projet
	89323
drawing no.	sheet no.
	S 6





Department of Public Works  
Ministère des Travaux publics

PACIFIC REGION

INSTITUTE OF  
OCEAN SCIENCES  
ENVIRONMENT CANADA

A detail no. detail no.  
B location drawing no. sur dessin no.  
C drawing no. dessin no.

revisions  
A - Revise Cross Pier & Liverpool wharf cleat anchor block Dec 2/74  
B - General revision

project title titre du projet

PATRICIA BAY, B.C.  
MARINE FACILITY

drawing title titre du dessin

WHARF  
CRIB NO. 1  
CONC OUTLINE & REINF

designed by *Shelton* conçu par  
date 12-2-74

drawn by H.D.T. & Tony De Curtis dessiné par

checked by \_\_\_\_\_ vérifié par

approved by *J. MacRae* approuvé par  
date 12-2-74

Tender \_\_\_\_\_ soumission

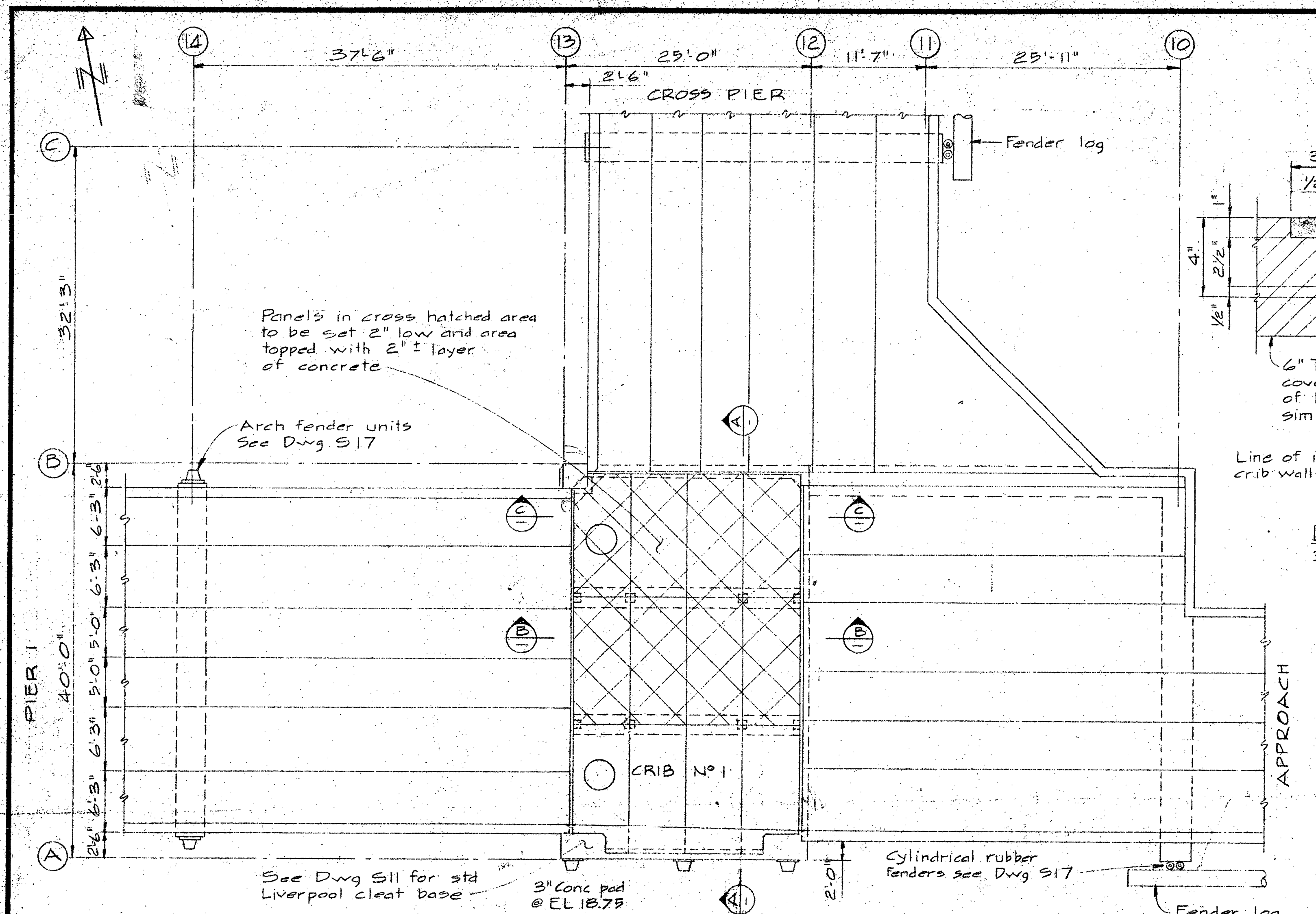
D.P.W. Project Manager Administrateur de projets M.T.P.

project number no. du projet

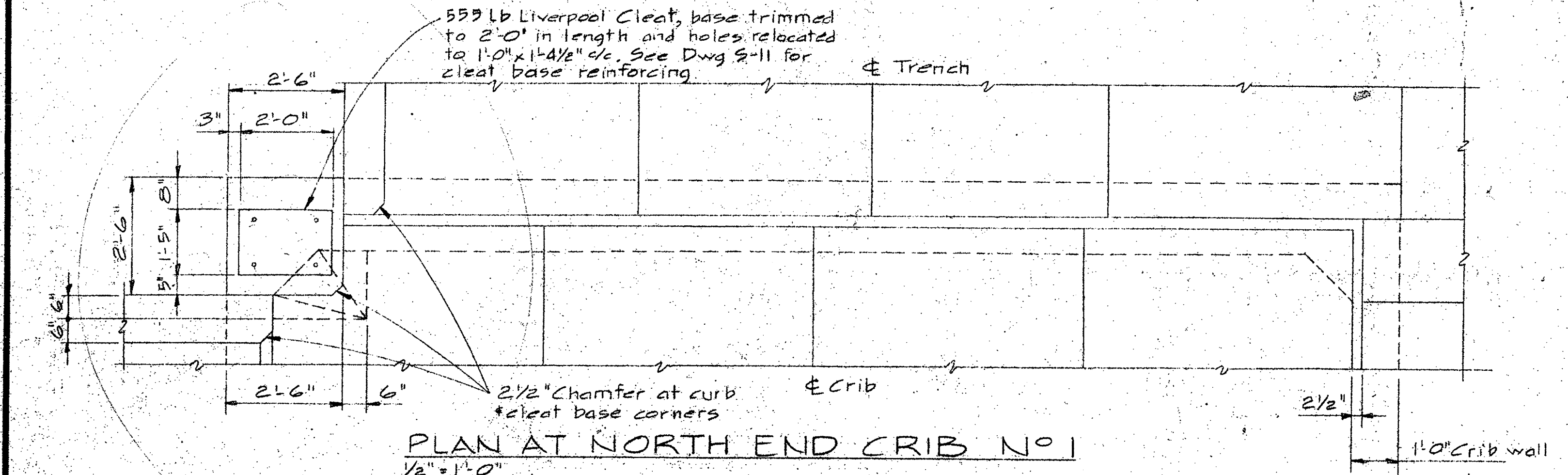
89323

drawing no. dessin no.

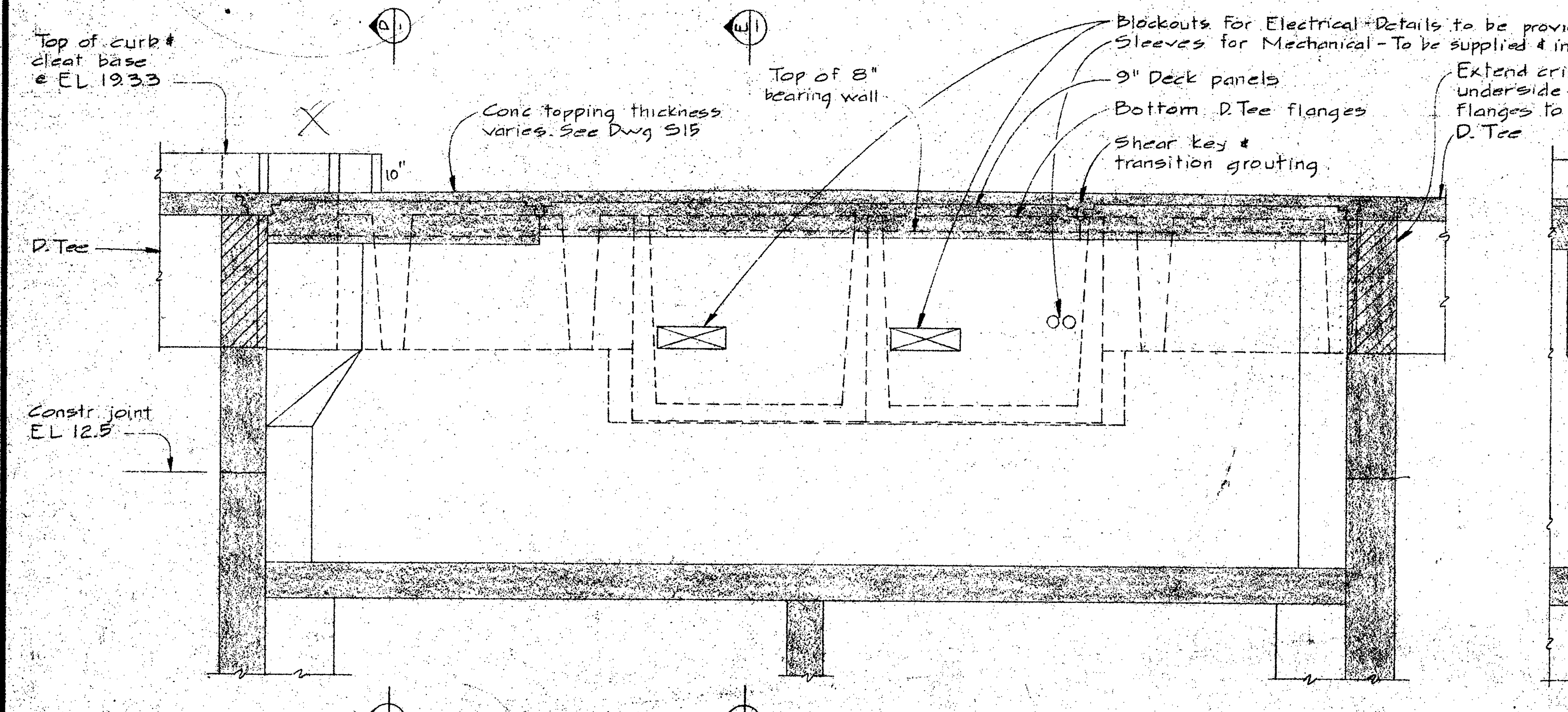
S 7



PLAN-CRIB ARRANGEMENT AT JUNCTION OF APPROACH, PIER I & CROSS PIER  
1/4" = 1'-0" (CLEATS NOT SHOWN)

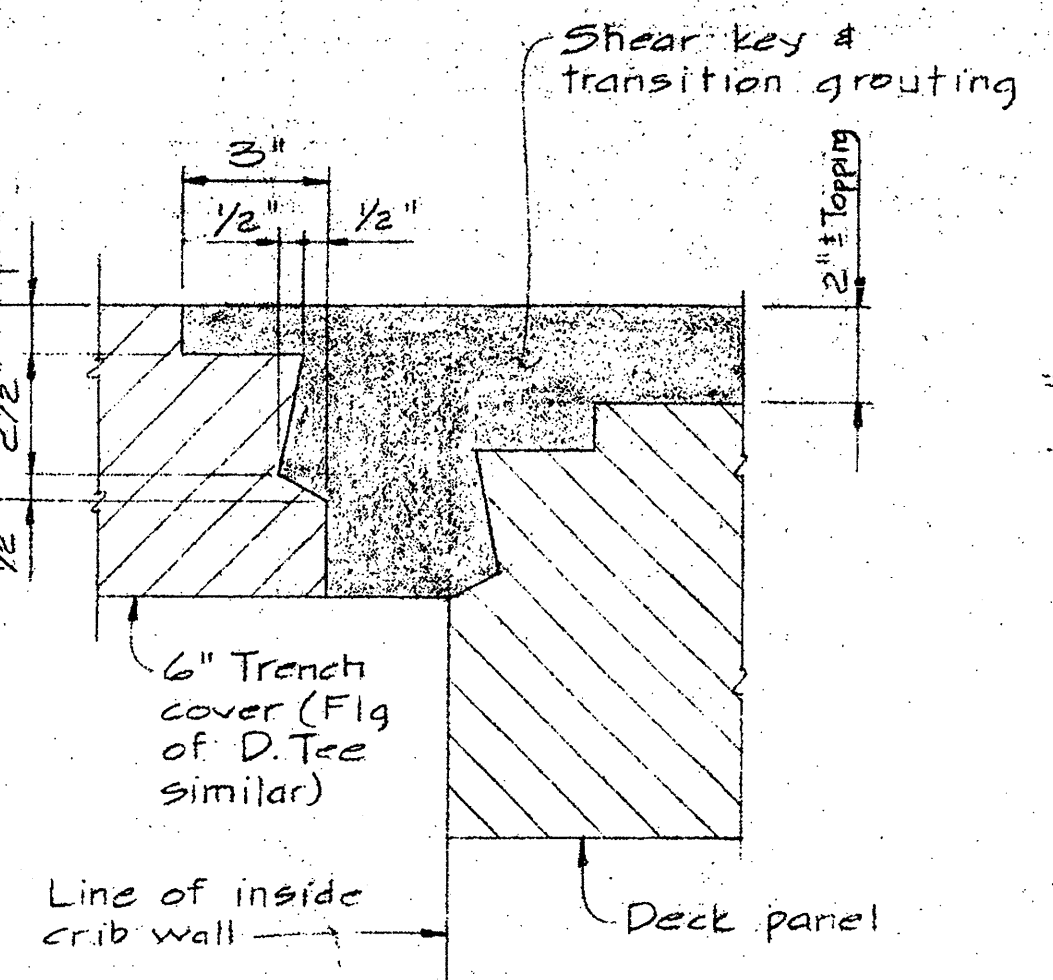


PLAN AT NORTH END CRIB NO. 1  
1/2" = 1'-0"

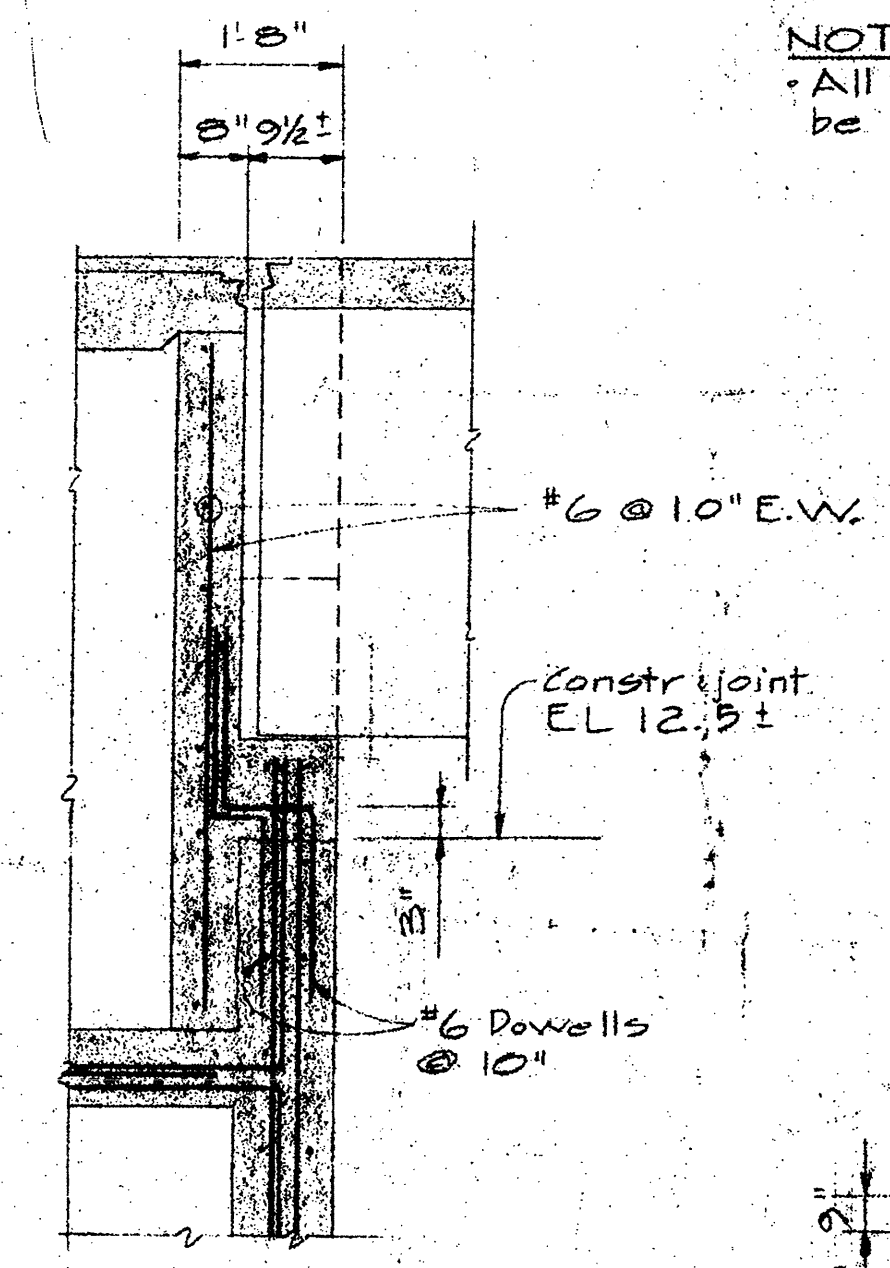


SECTION A-A  
1/2" = 1'-0"

NOTE - South End of Crib No. 6 Similar

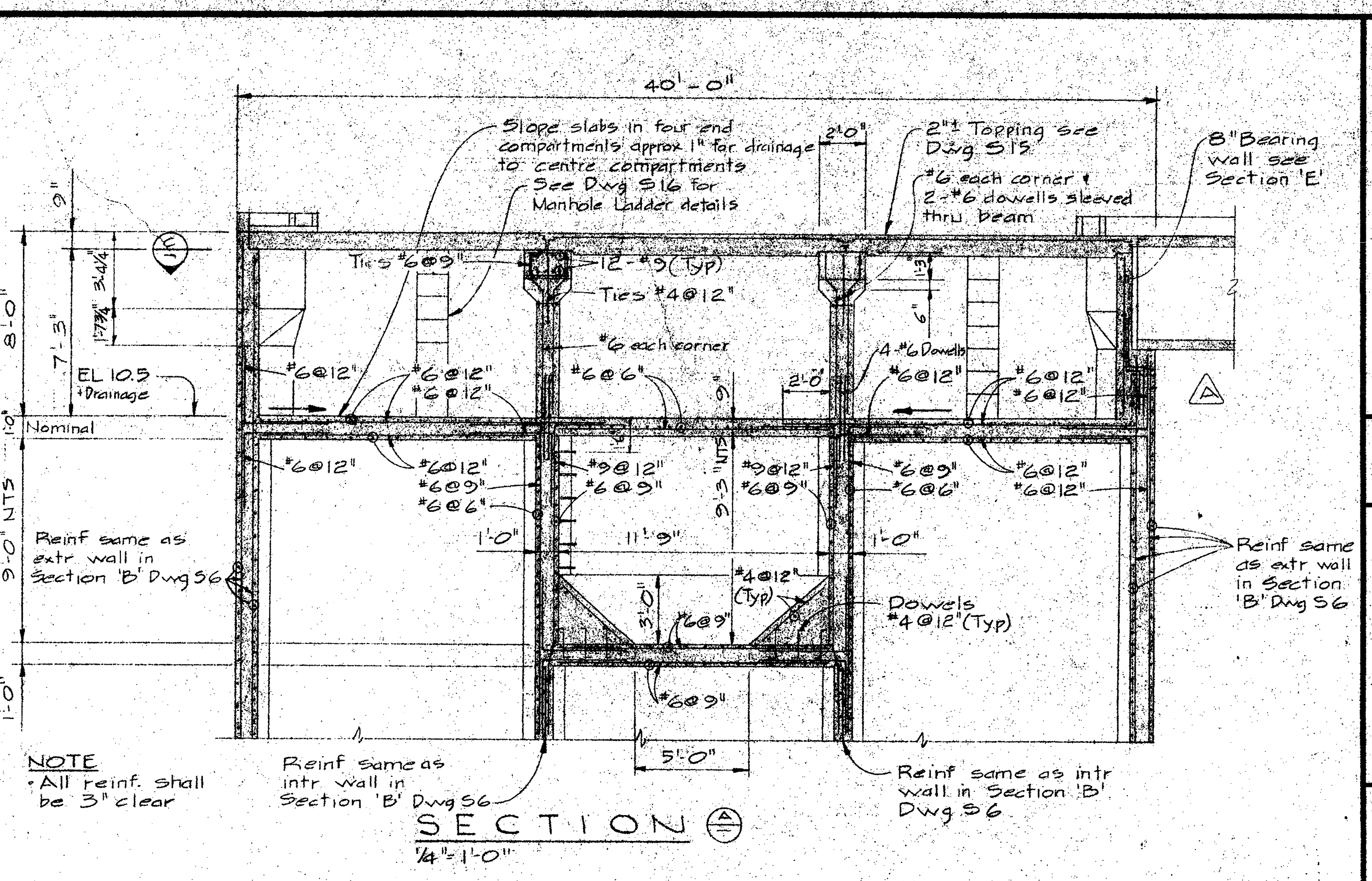


DETAIL 1-1  
3' x 1'-0"



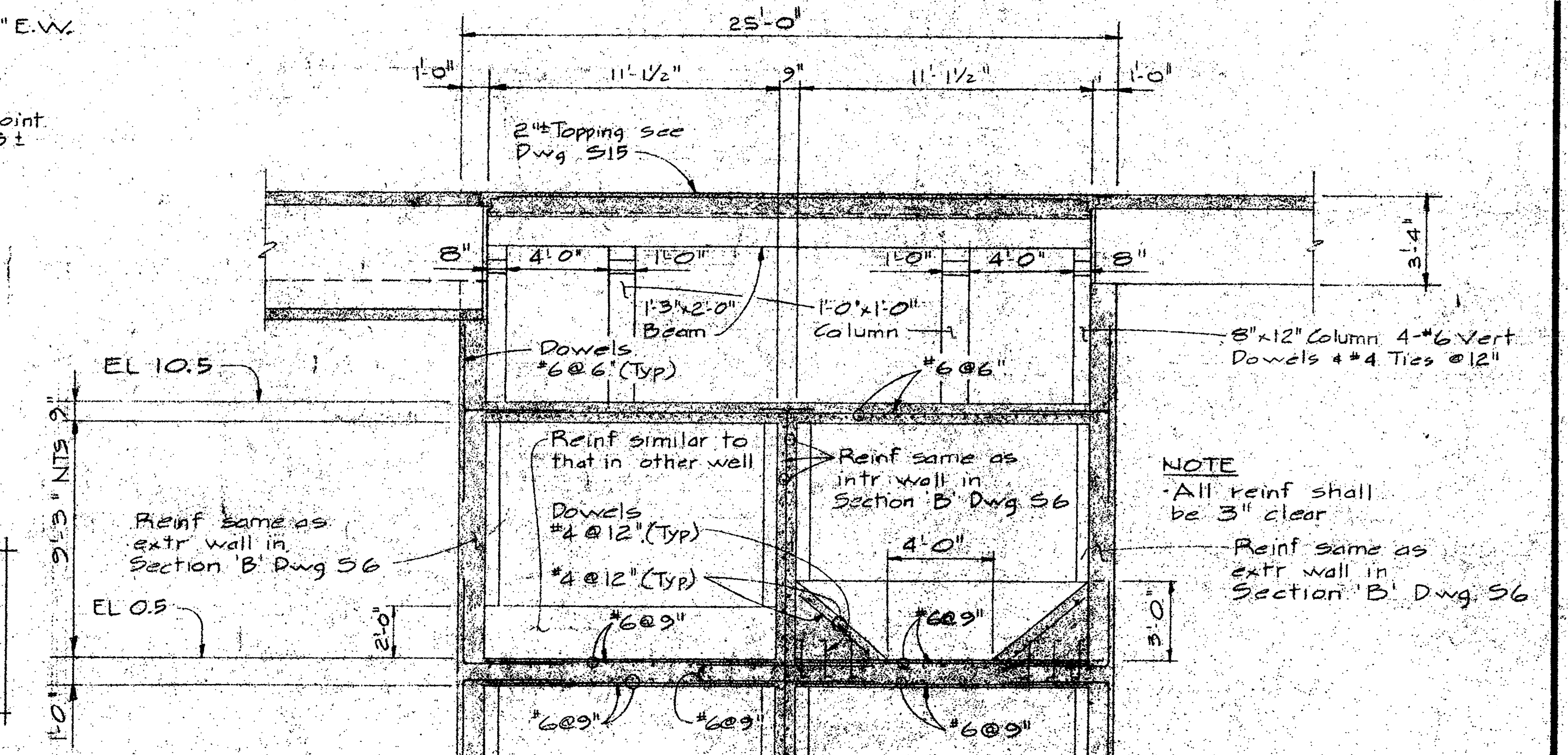
SECTION B-B  
1/2" = 1'-0"

NOTE  
All bearing surfaces for deck panels to be screeded 3/8" to 1/2" low to provide for sand-cement leveling mortar



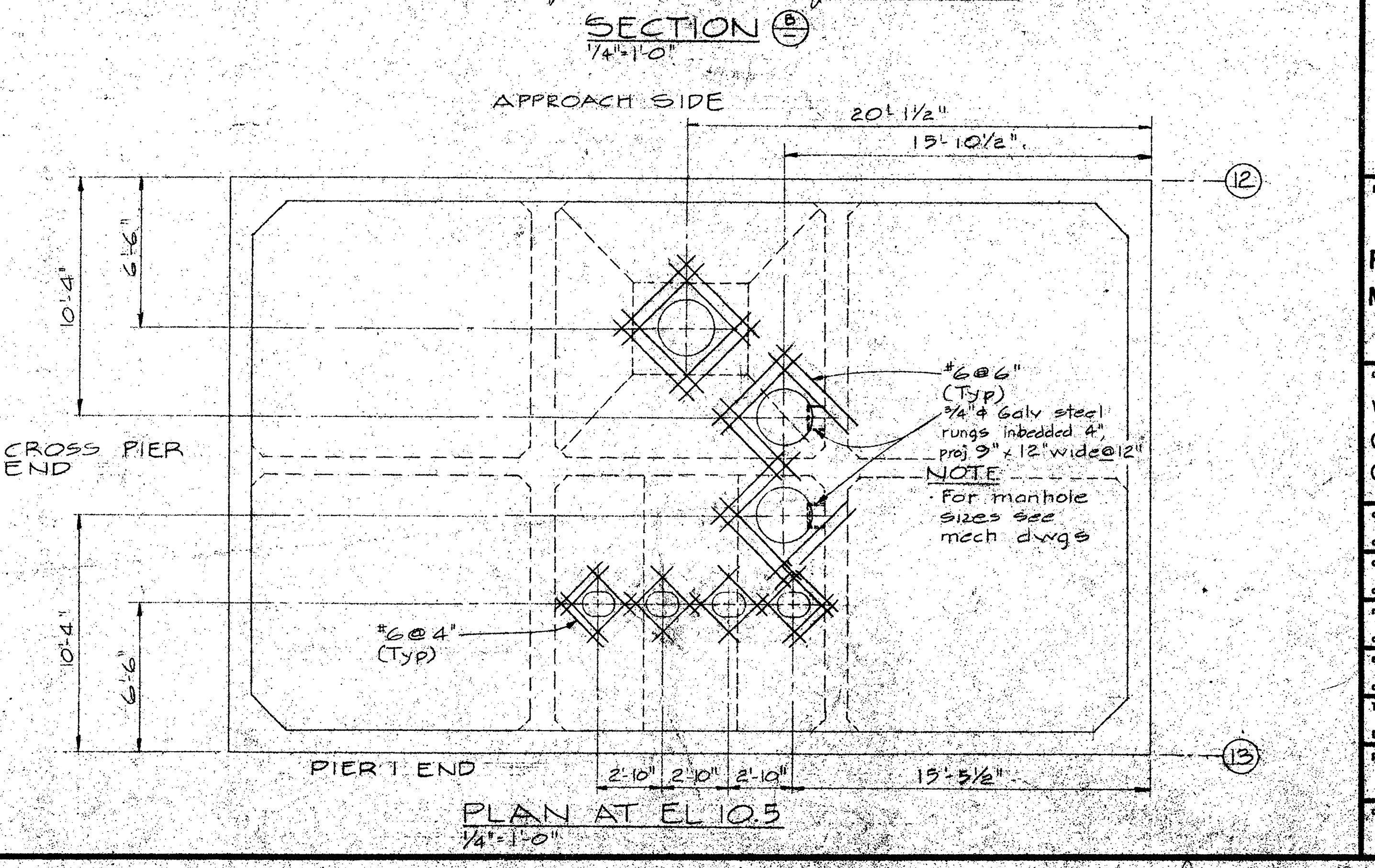
SECTION C-C  
1/4" = 1'-0"

NOTE  
All reinf. shall be 3" clear



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

NOTE  
All reinf. shall be 3" clear



PLAN AT EL. 10.5  
1/4" = 1'-0"





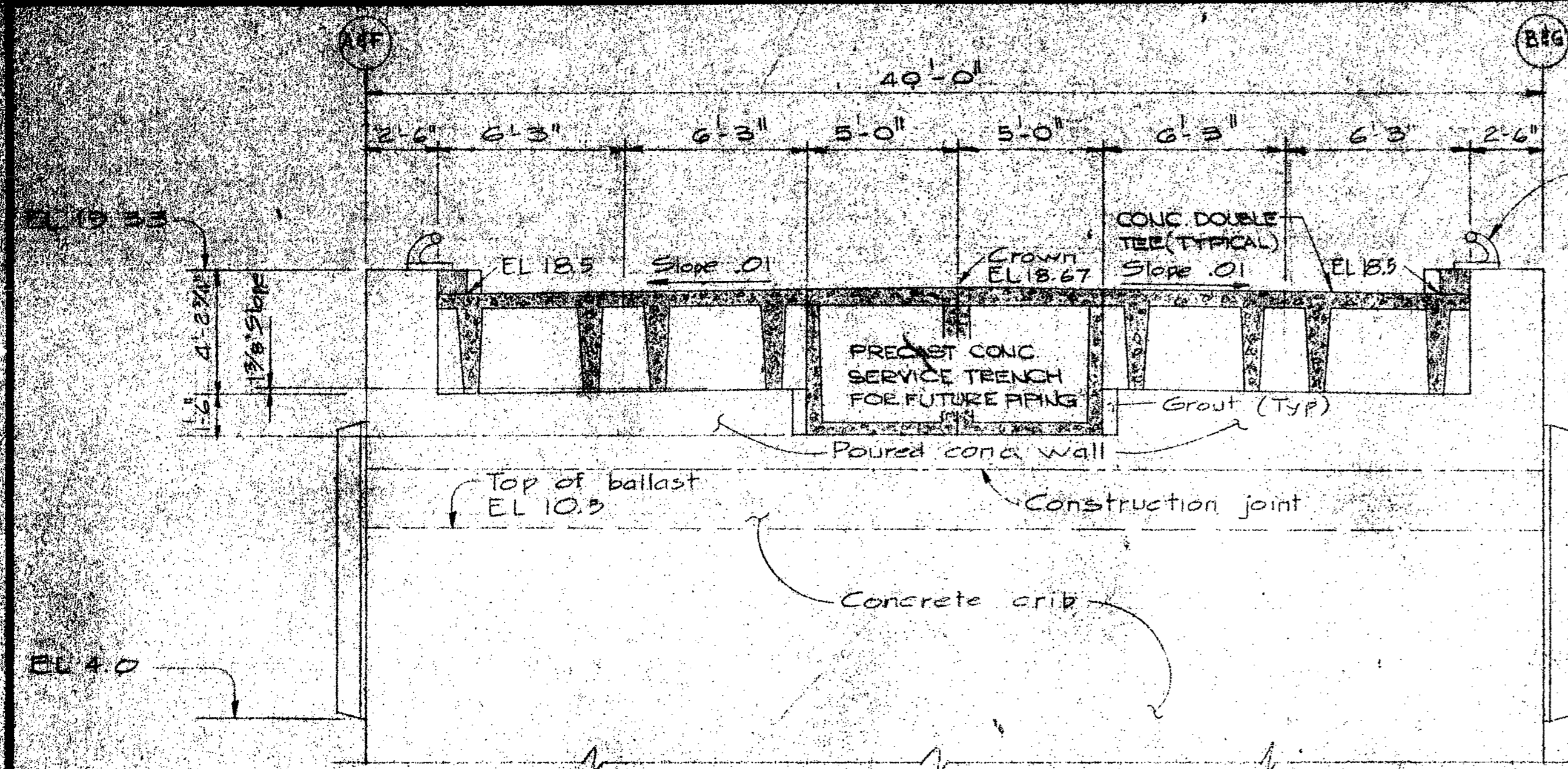
Department of Public Works  
Ministère des Travaux publics

PACIFIC REGION

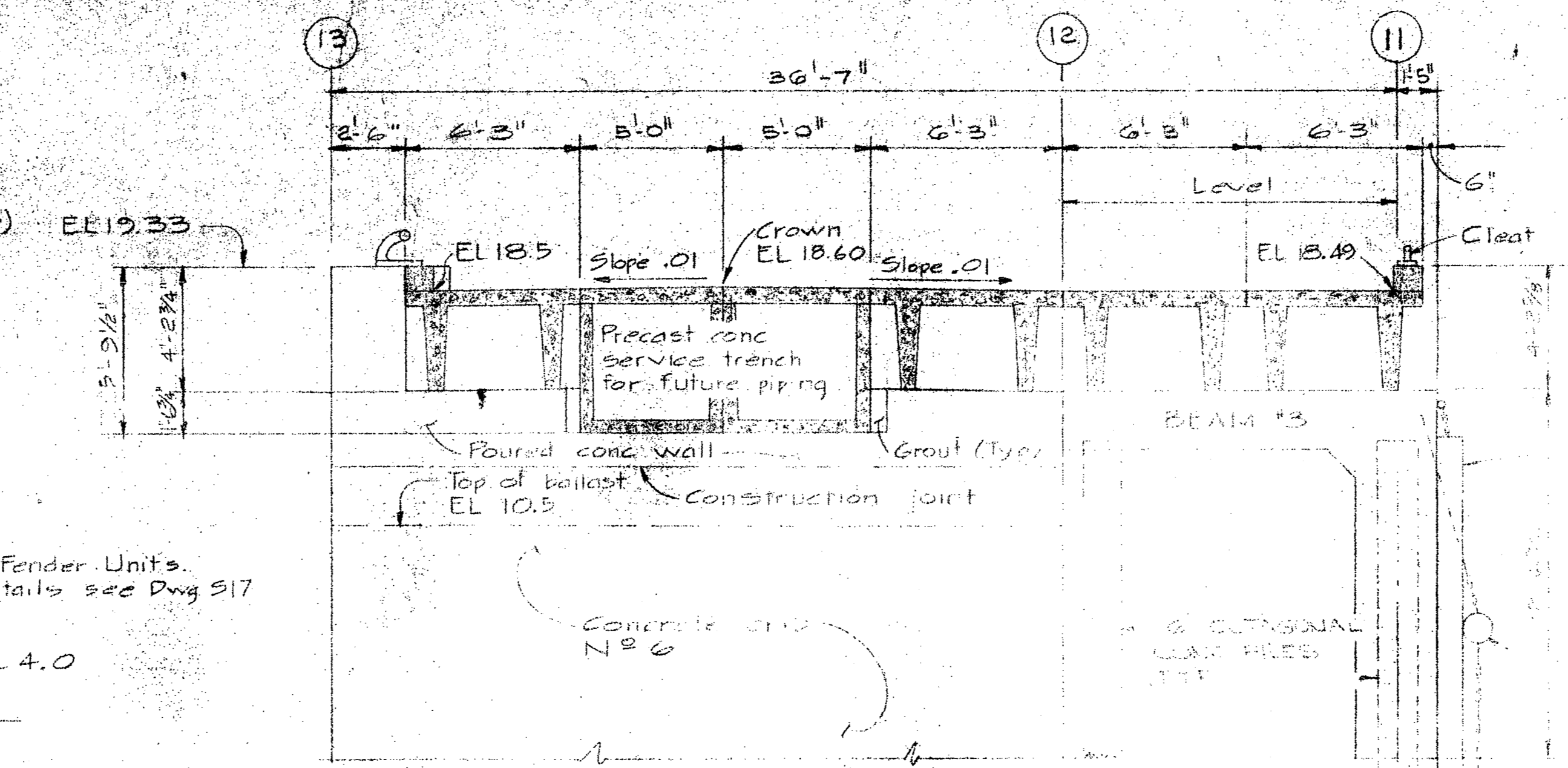
INSTITUTE OF  
OCEAN SCIENCES  
ENVIRONMENT CANADA

A	Detail no.	Sheet no.
B	Location drawing no.	Sheet no.
C	Drawing no.	Sheet no.

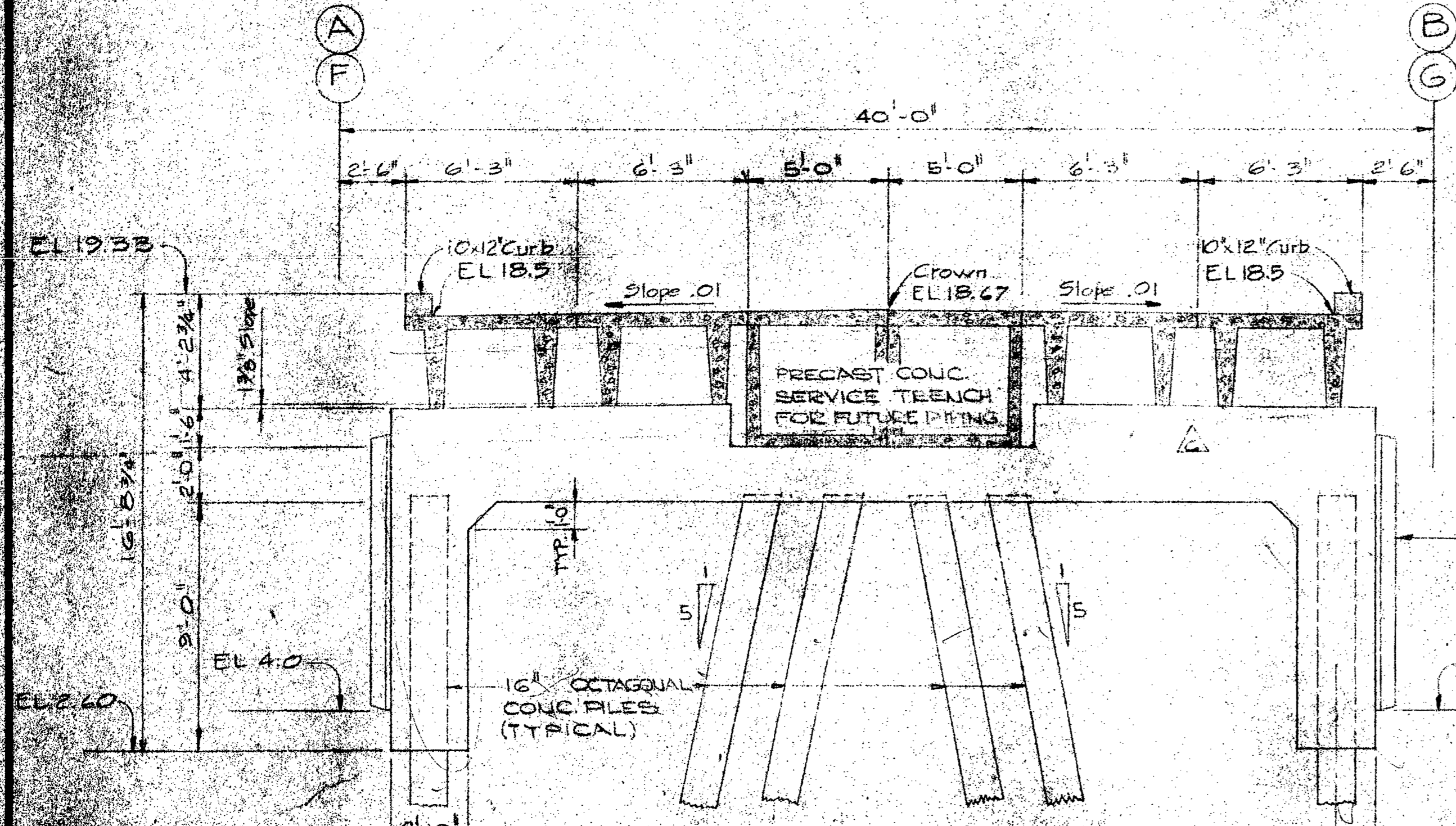
Revisions  
 A - General revision to all sections. Section "F" deleted. Dec 2/74  
 B - General revision  
 C - As built



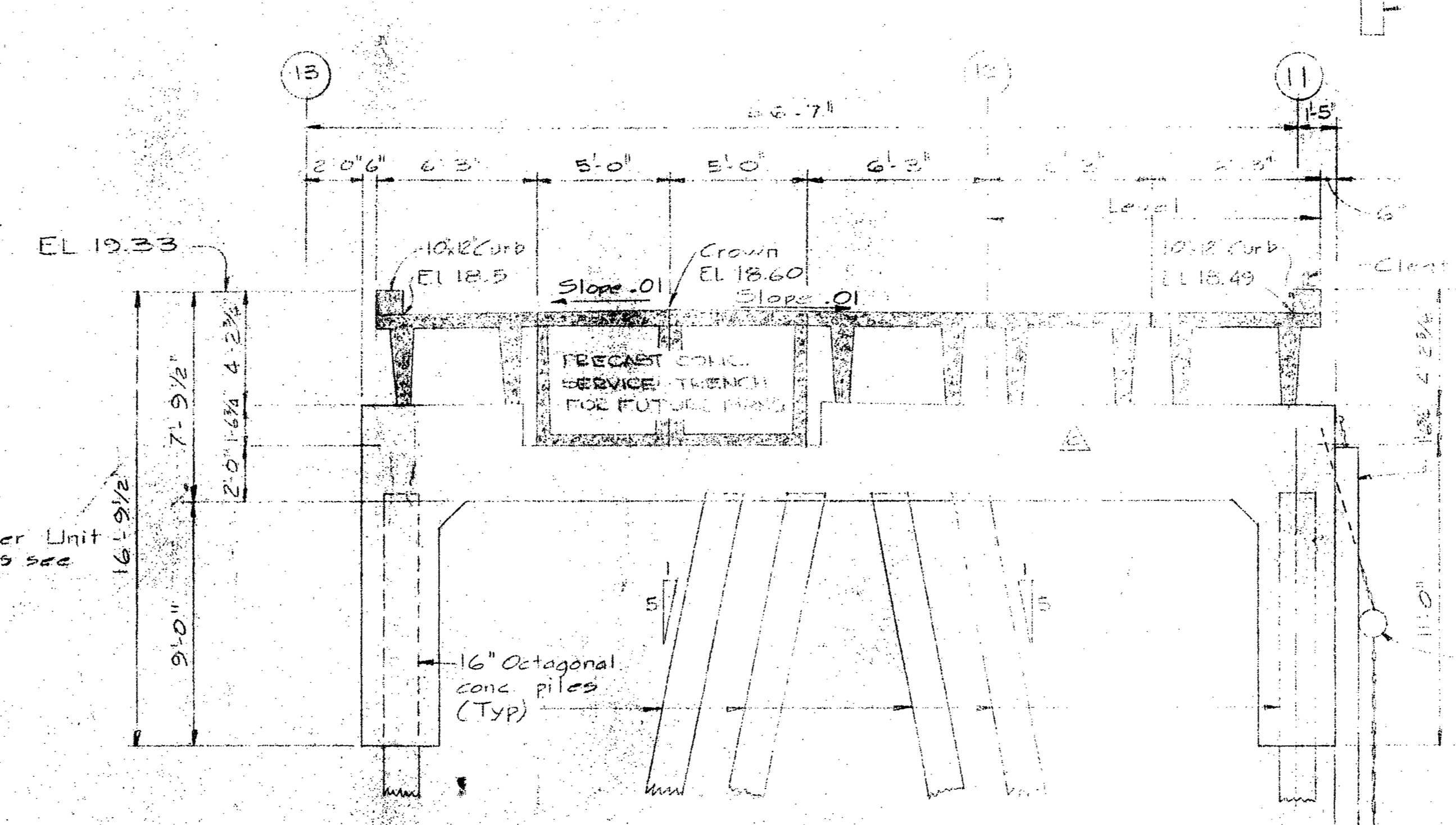
SECTION A  
TYPICAL CRIB  
1/4" = 1'-0"



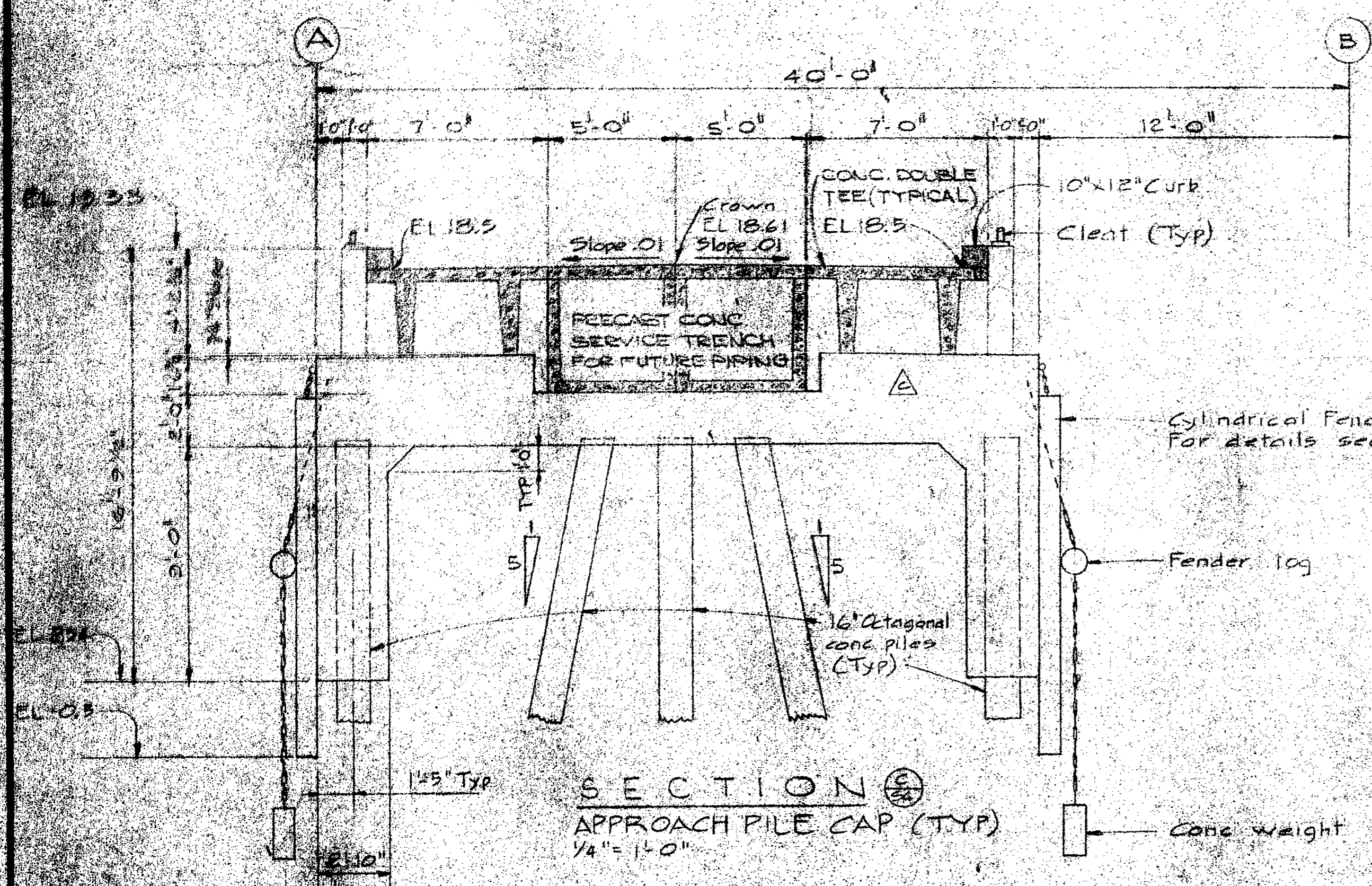
SECTION B  
1/4" = 1'-0"



SECTION C  
MAIN PIER PILE CAP (TYP)  
1/4" = 1'-0"



SECTION D  
CROSS PIER PILE CAP (TYP)  
1/4" = 1'-0"



SECTION E  
APPROACH PILE CAP (TYP)  
1/4" = 1'-0"

Project title: WHARF TYPICAL SECTIONS

PATRICIA BAY, B.C.  
MARINE FACILITY

drawing title: WHARF TYPICAL SECTIONS

designed by: [Signature]

drawn by: H.T. + Terry De. Curran

approved by: [Signature]

date: 12-9-74

D.P.W. Project Manager Administration de projets M.T.P.

89323  
S 8





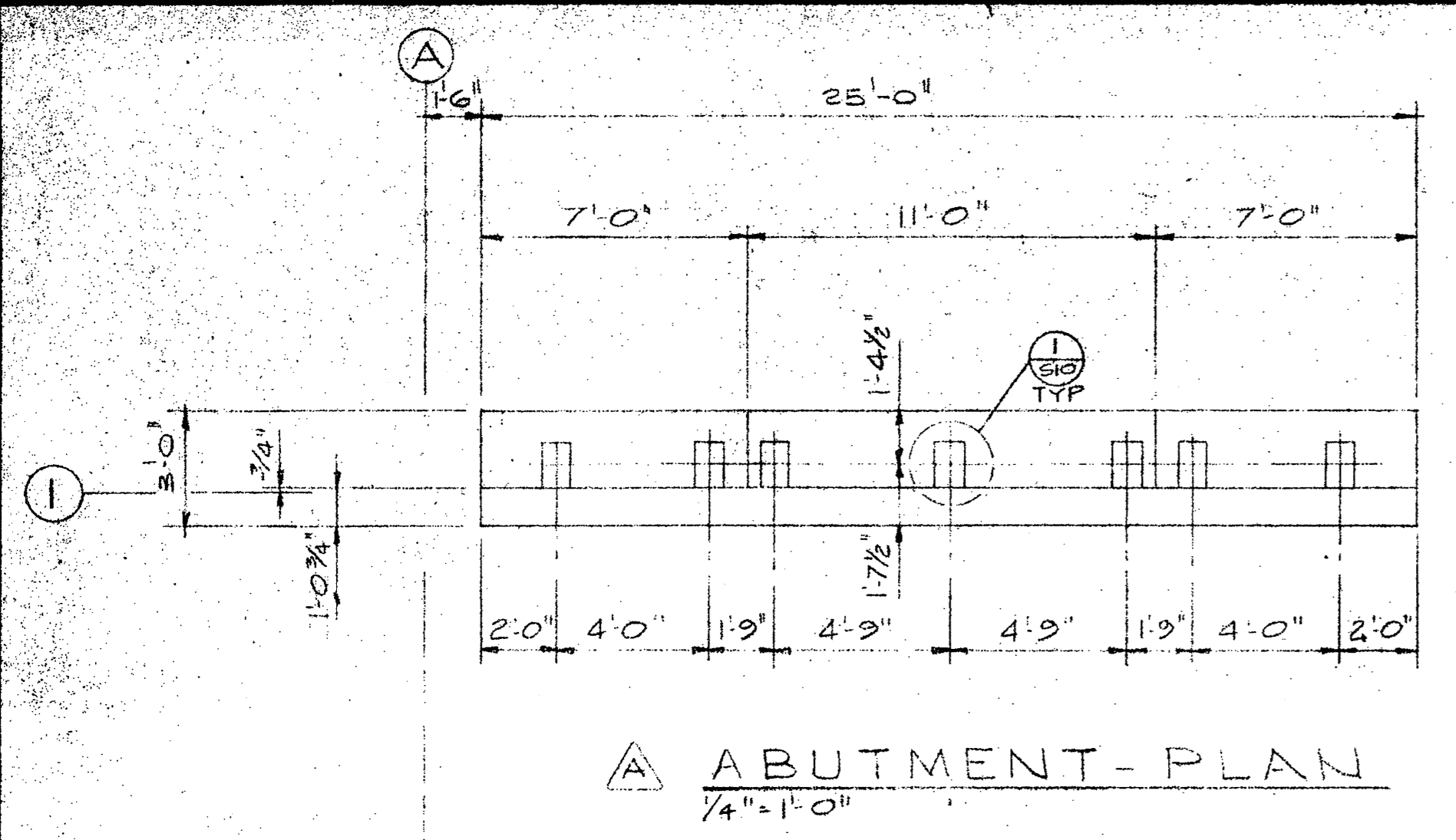
Department of Public Works  
Ministère des Travaux publics

PACIFIC REGION

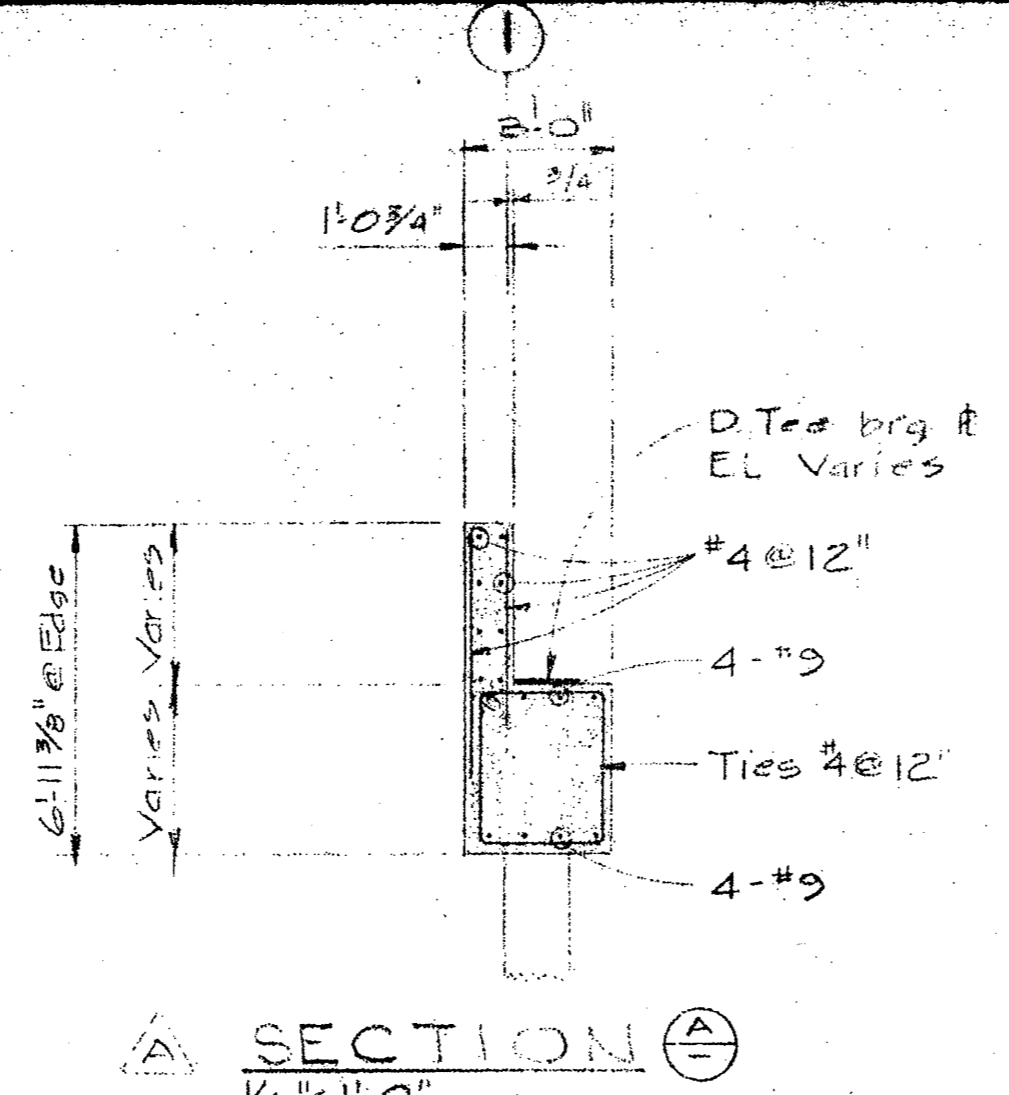
INSTITUTE OF  
OCEAN SCIENCES  
ENVIRONMENT CANADA

A detail no. sheet no.  
B location drawing no. sur dessin no.  
C drawing no. dessin no.

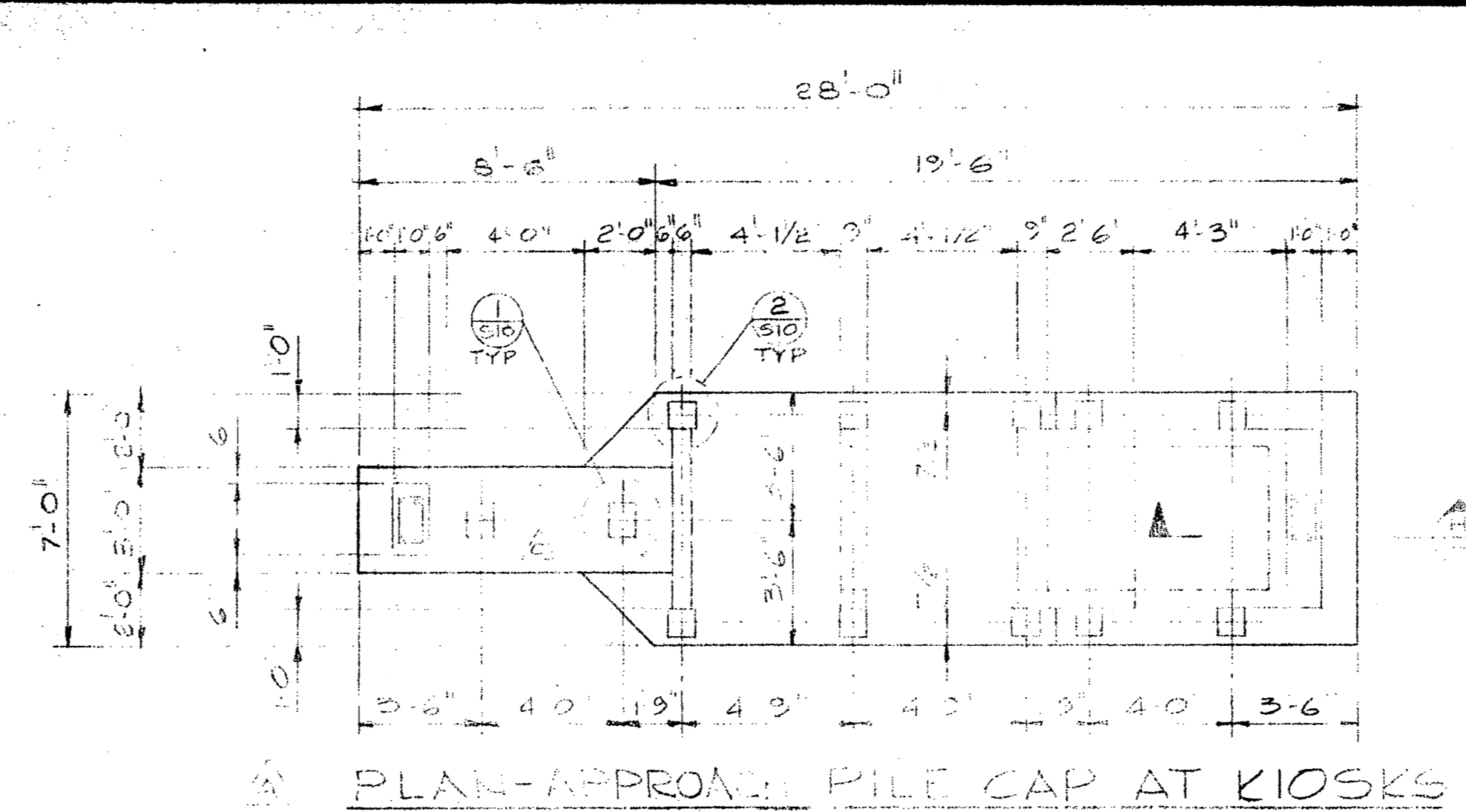
revisions  
A - [unclear]  
B - [unclear]  
C - [unclear]



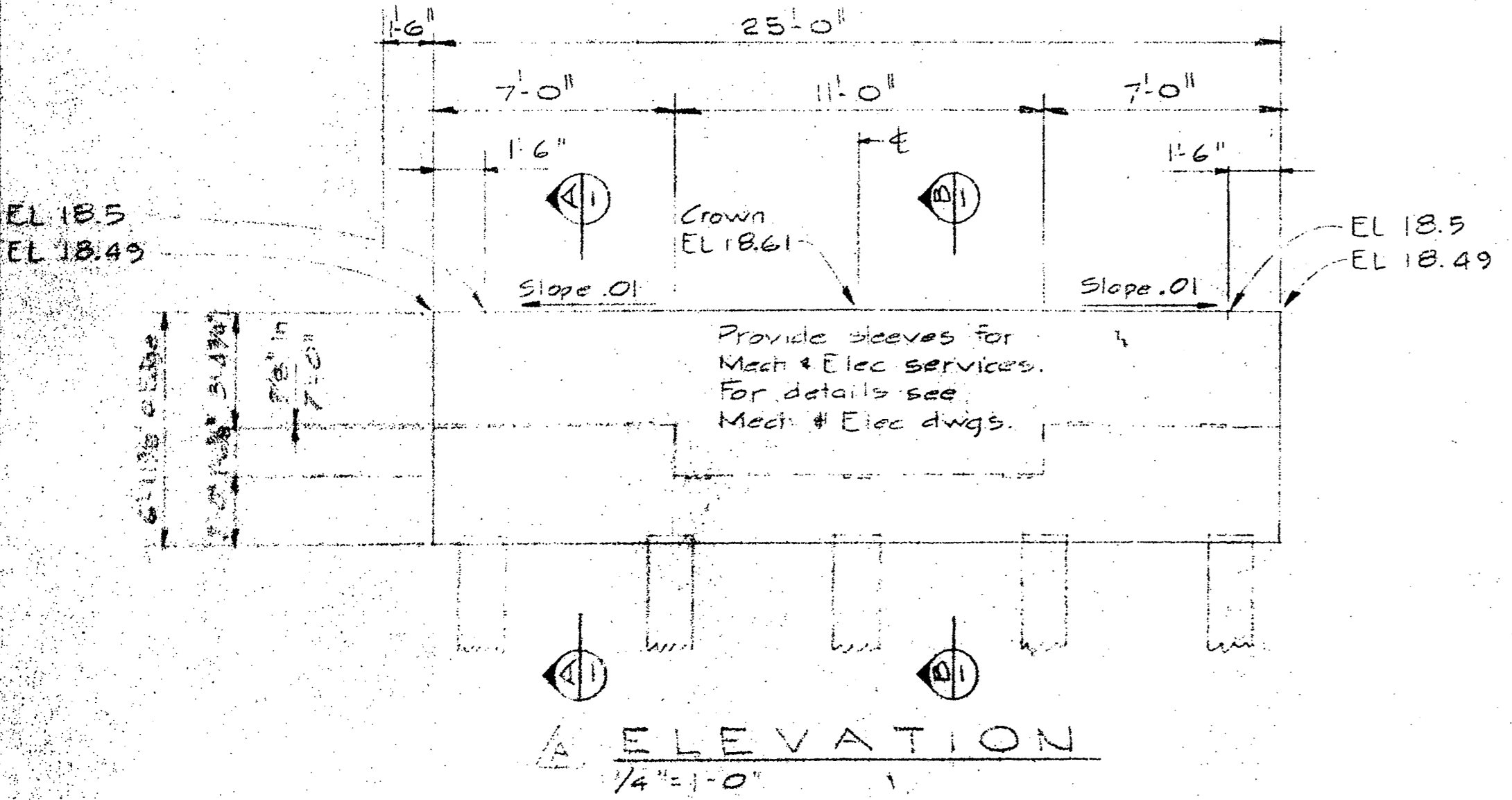
ABUTMENT-PLAN  
1/4"=1'-0"



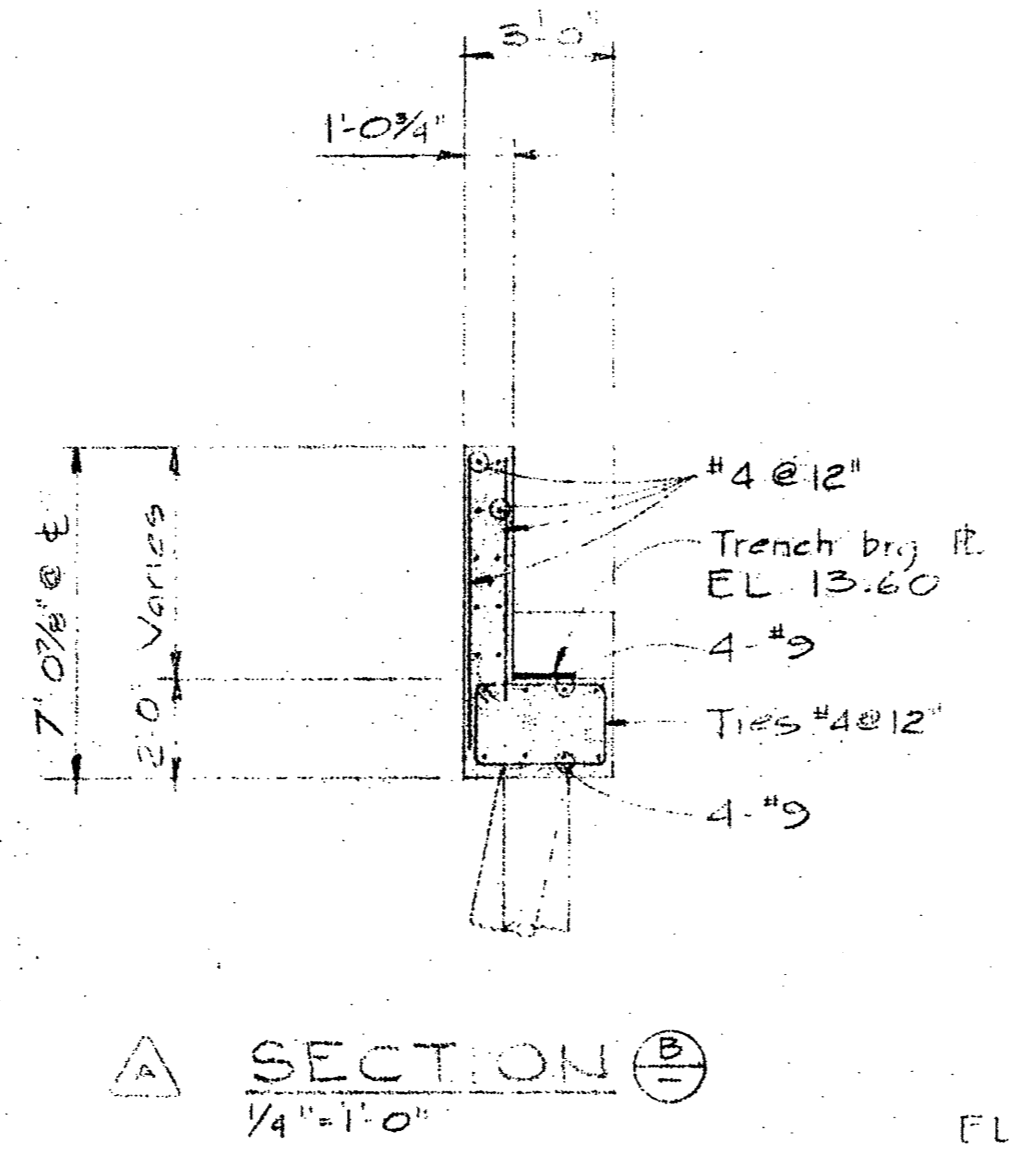
SECTION A-A  
1/4"=1'-0"



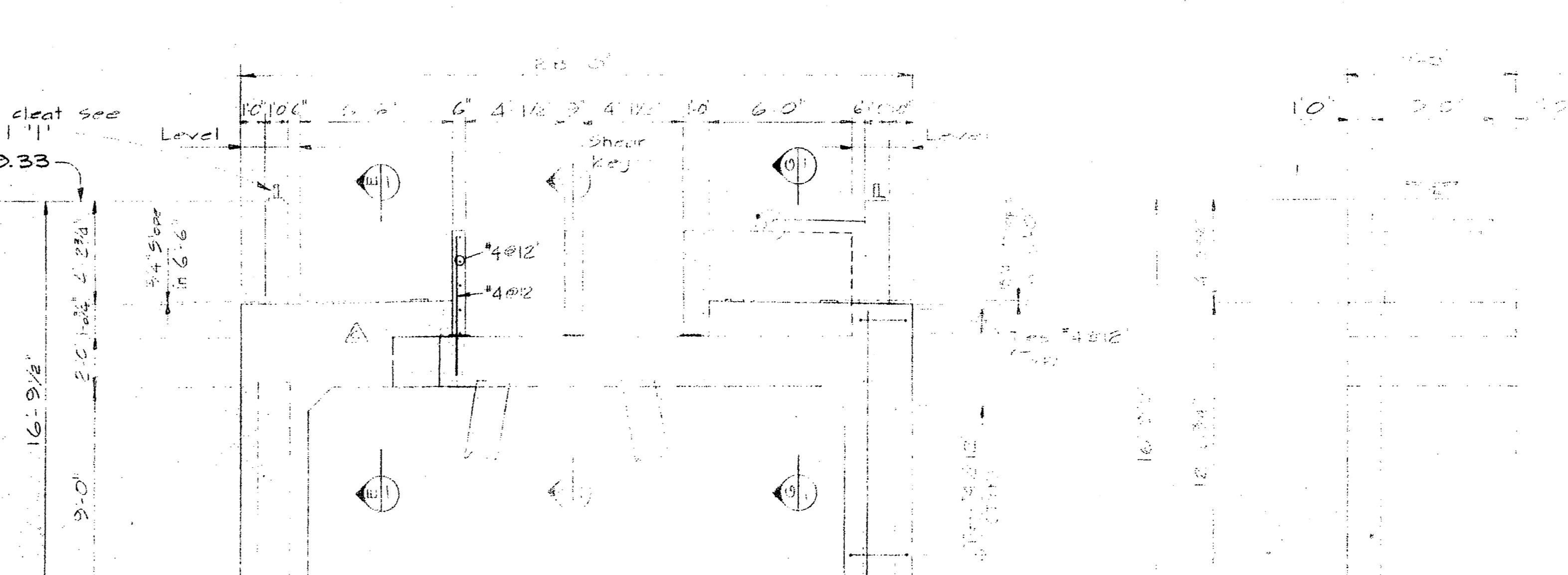
PLAN-APPROX. PILE CAP AT KIOSKS  
1/4"=1'-0"



ELEVATION  
1/4"=1'-0"

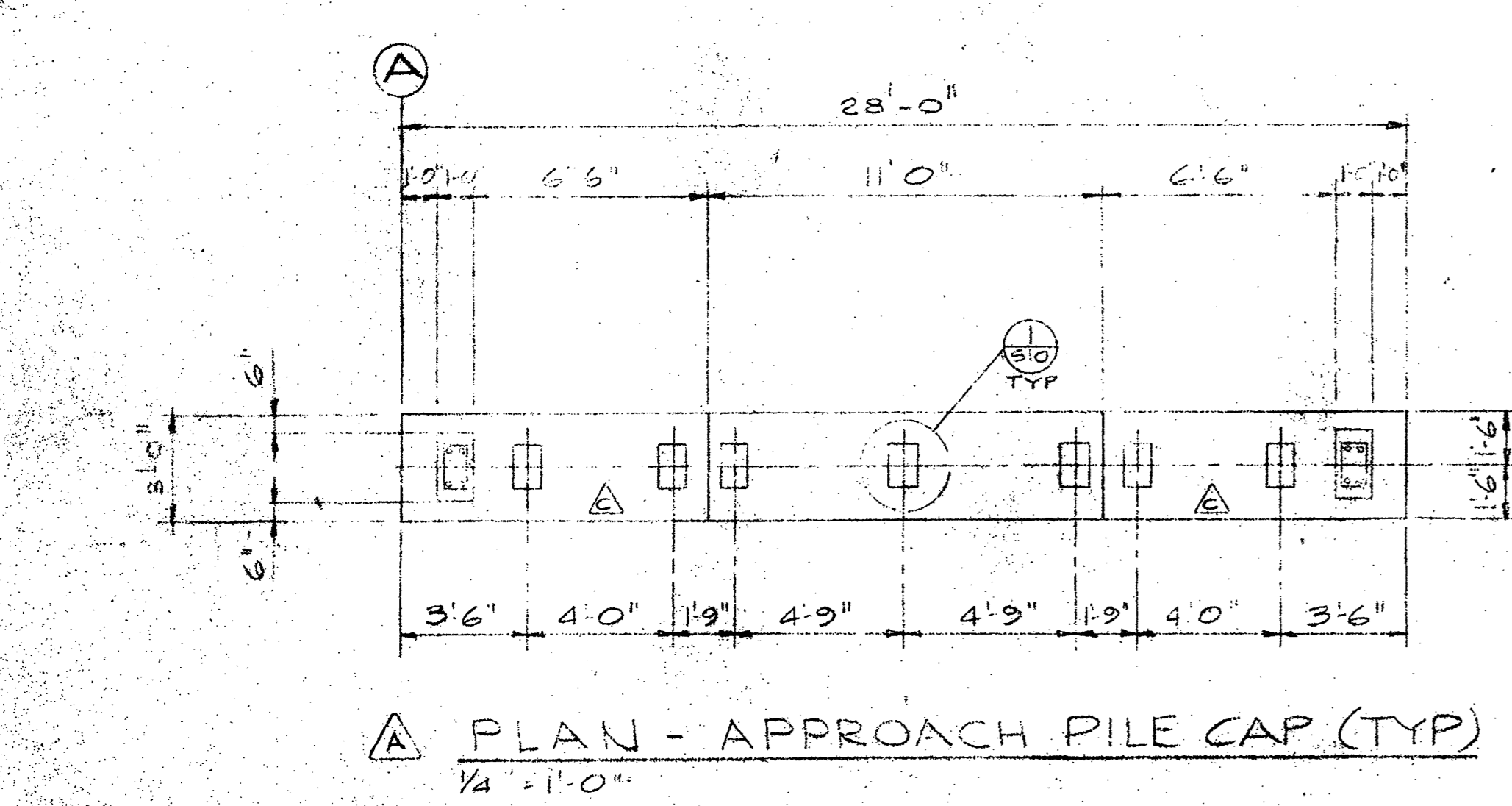


SECTION B-B  
1/4"=1'-0"

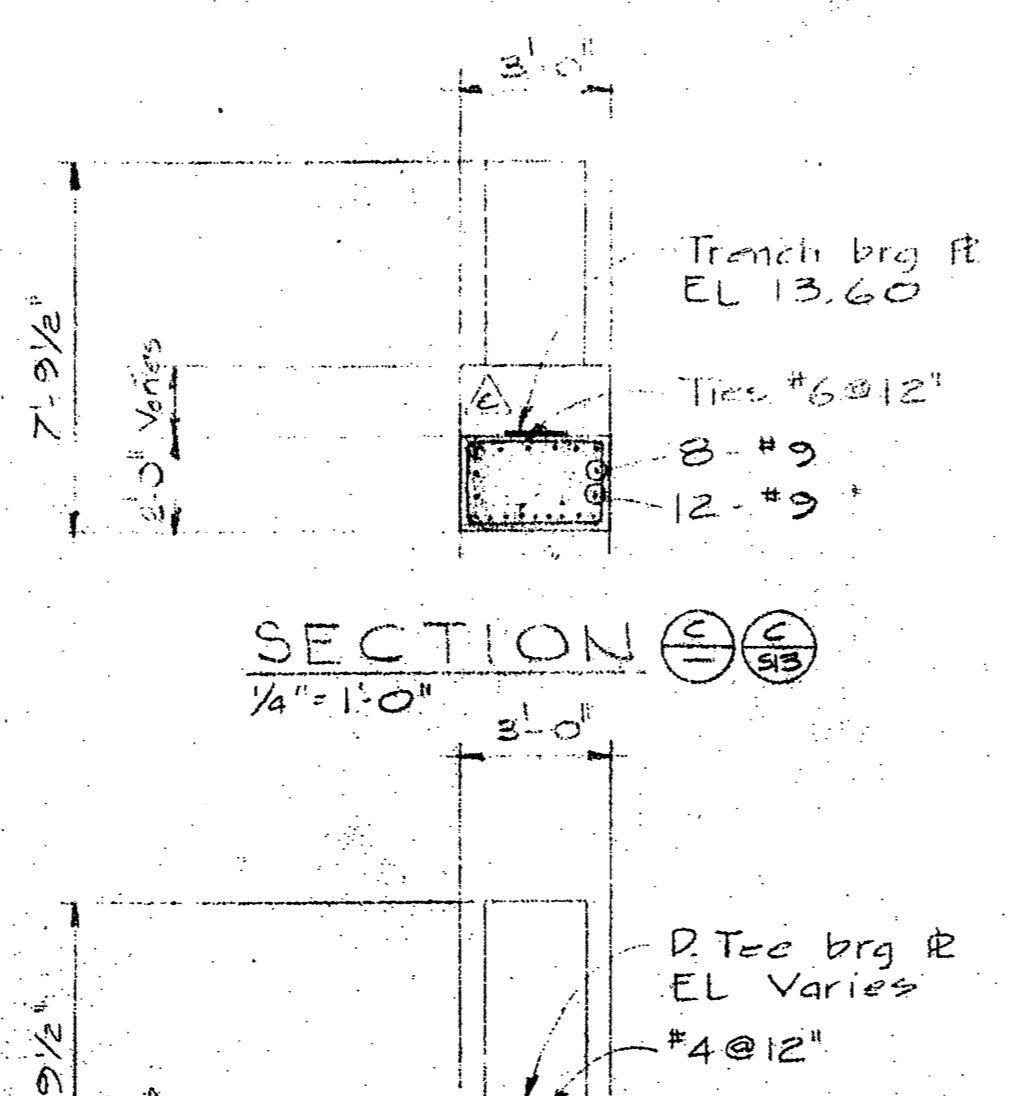


FRONT ELEVATION  
1/4"=1'-0" (FENDER SYSTEM NOT SHOWN)

SIDE ELEVATION  
1/4"=1'-0"

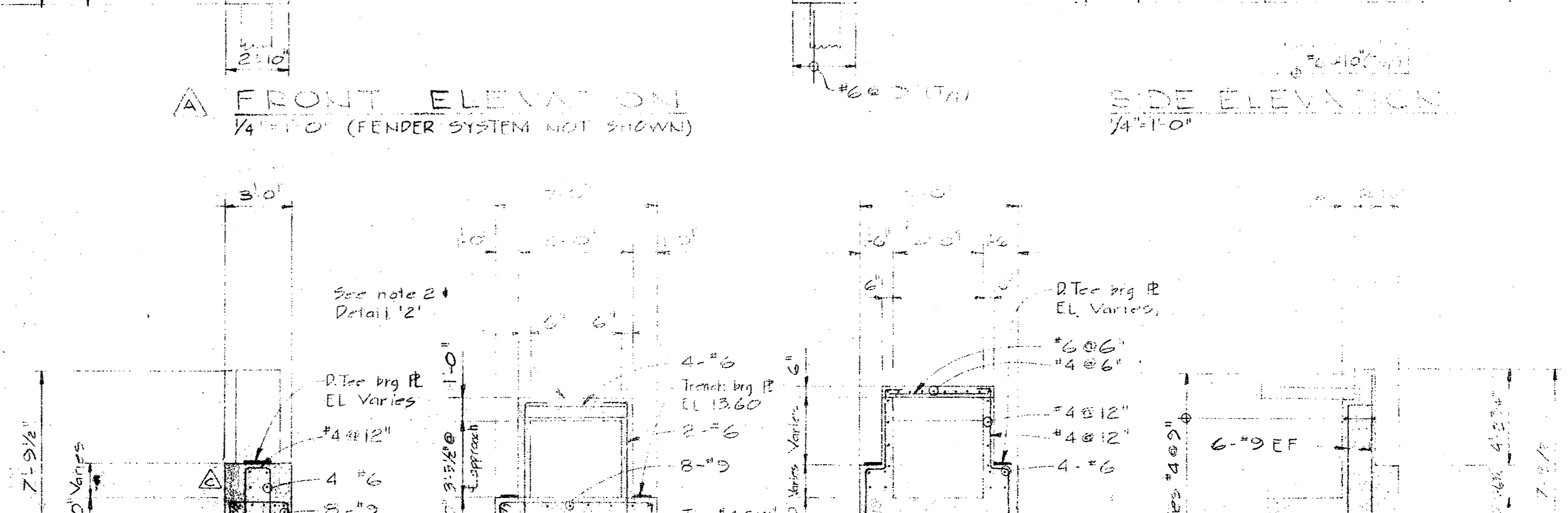


PLAN - APPROACH PILE CAP (TYP)  
1/4"=1'-0"



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

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

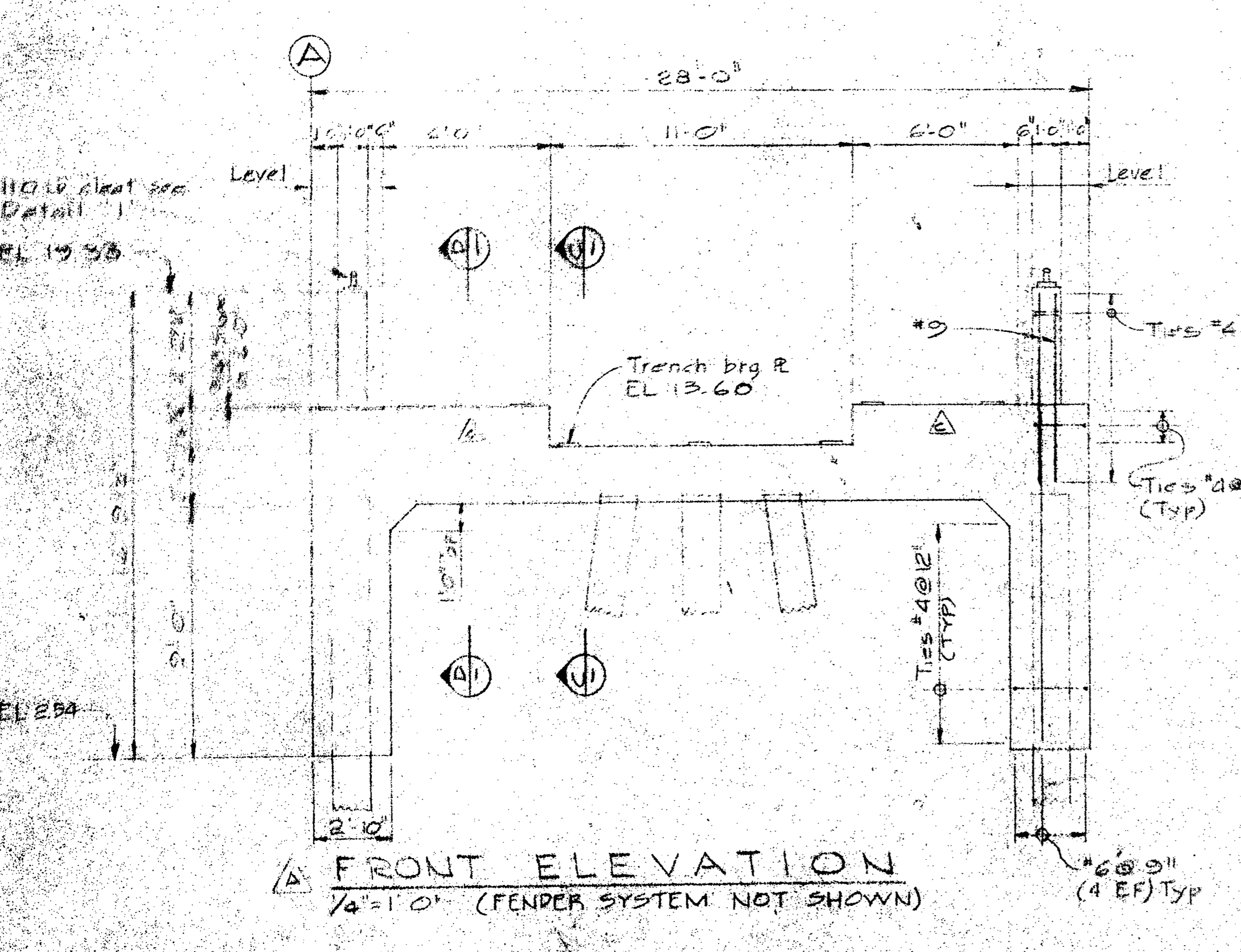


SECTION E-E  
1/4"=1'-0"

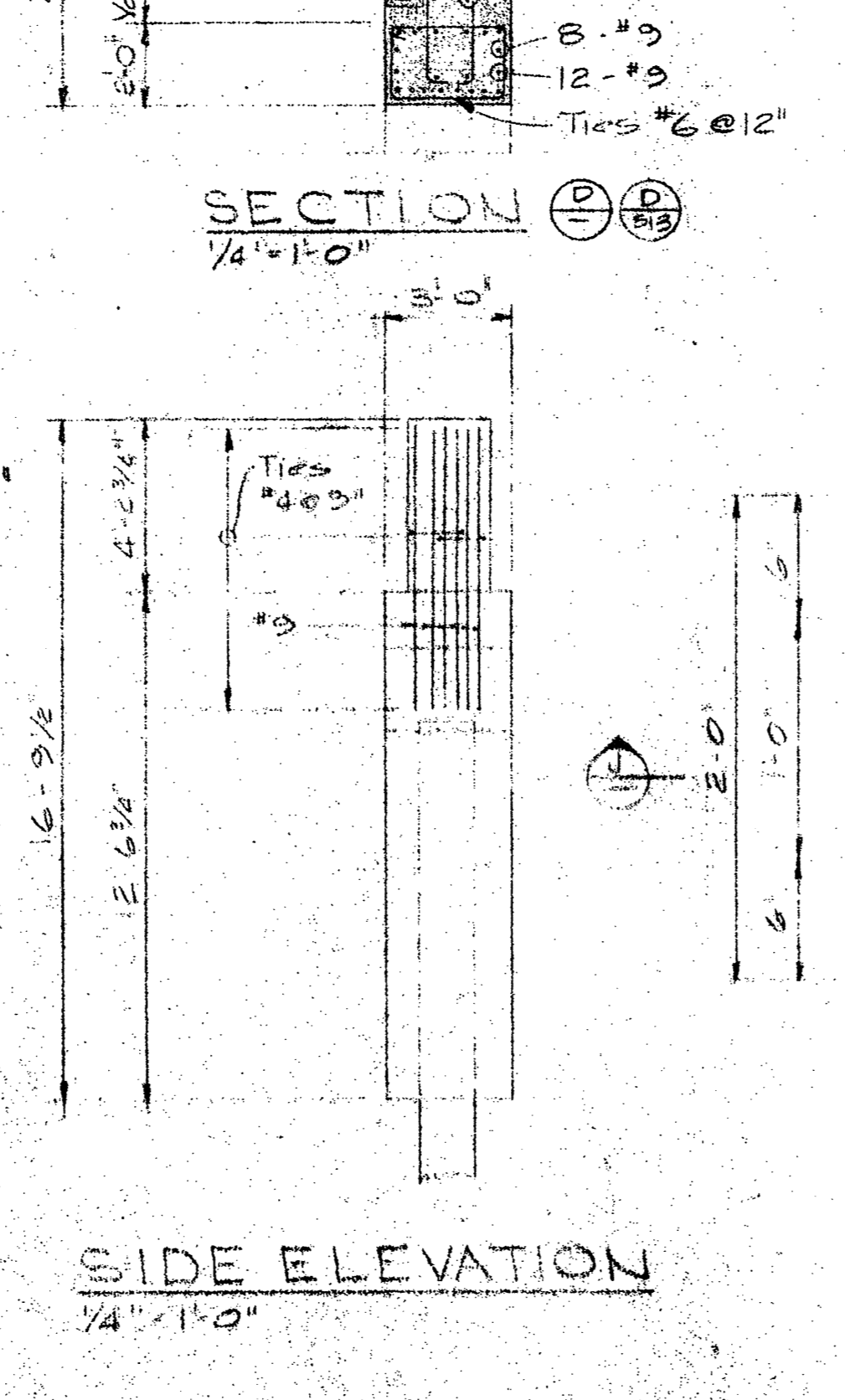
SECTION F-F  
1/4"=1'-0"

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

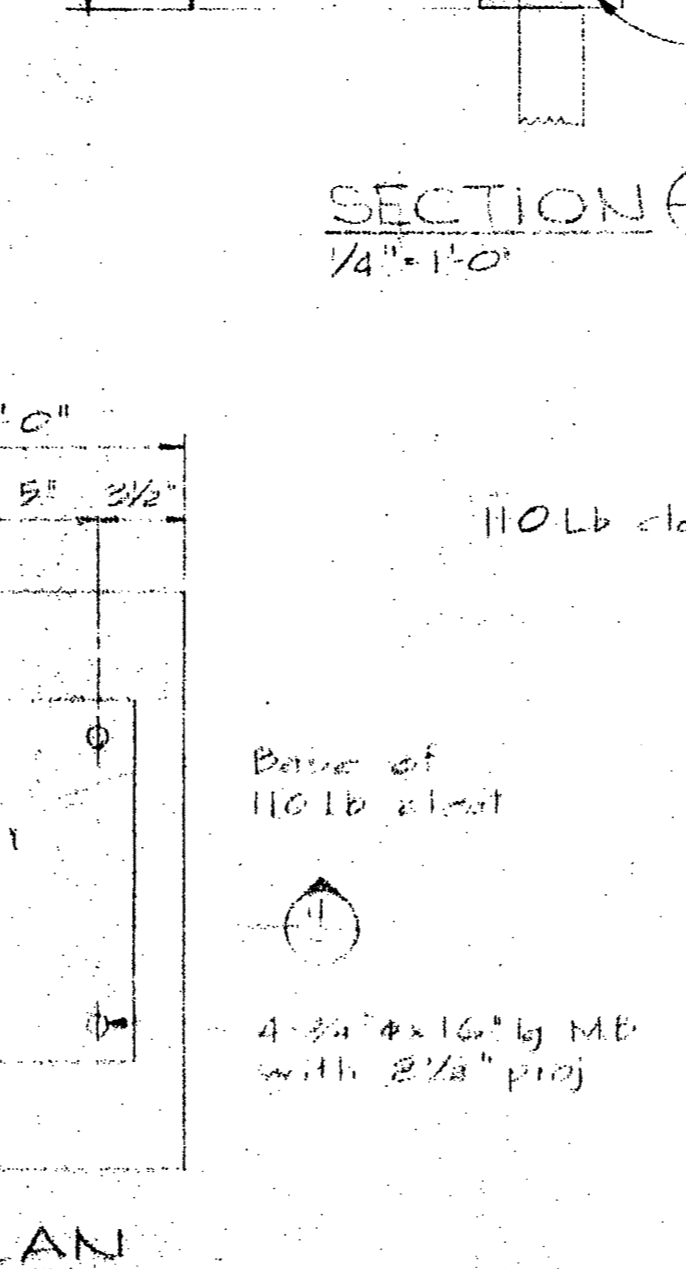
SECTION H-H  
1/4"=1'-0"



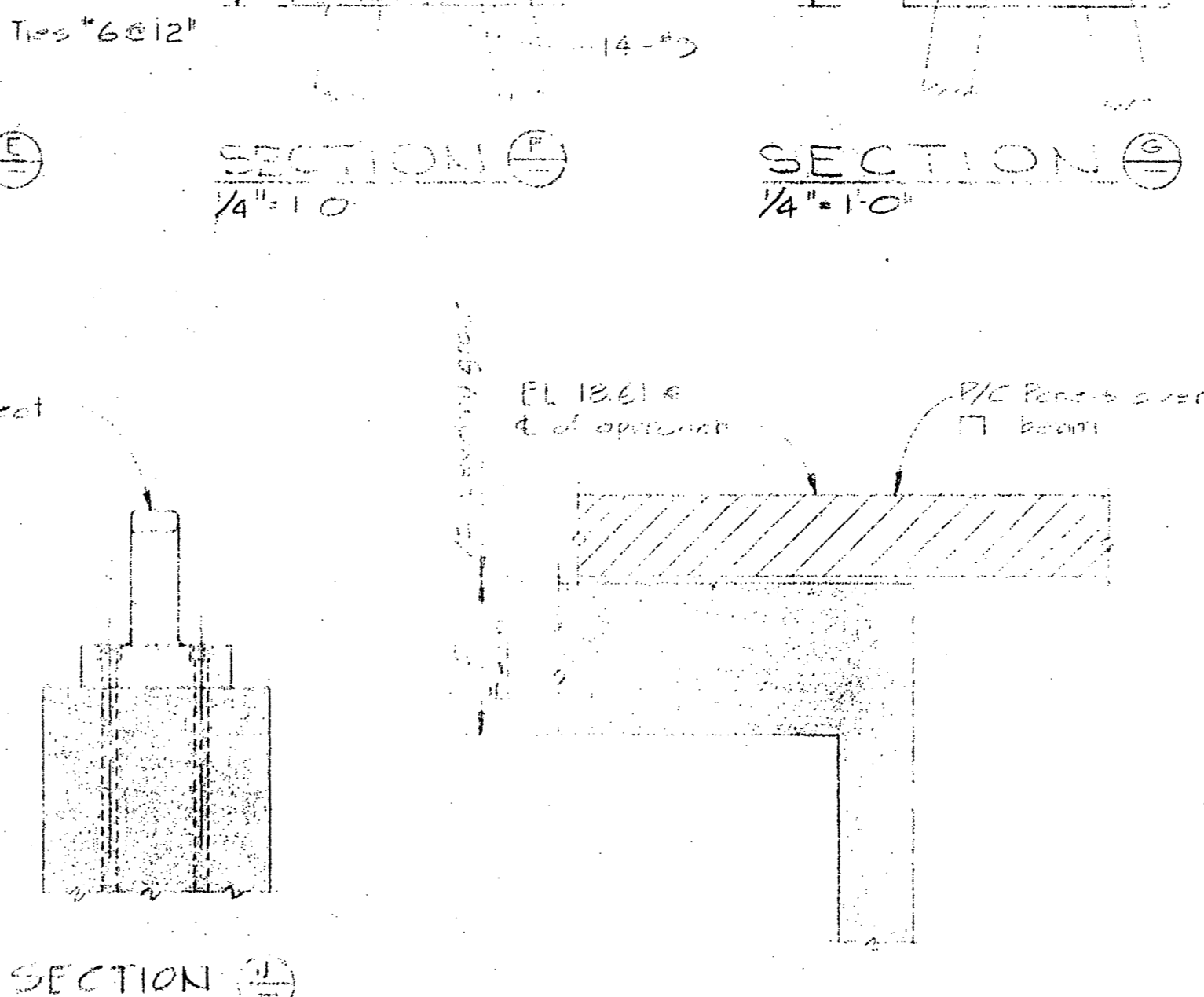
FRONT ELEVATION  
1/4"=1'-0" (FENDER SYSTEM NOT SHOWN)



SIDE ELEVATION  
1/4"=1'-0"



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



DETAIL J-J  
1'-0"

NOTES  
- FOR PLAN, ELEVATION & SECTIONS OF APPROACH PILE CAP ON LINE OF B.P. DWS C/S.  
- All bearing surfaces for steel panels to be screeded 3/8" to 1/2" low to provide for a sand-cement leveling grout.

project title titre du projet

PATRICIA BAY, B.C.  
MARINE FACILITY

drawing title titre du dessin

WHARF  
APPROACH  
PILE CAPS  
CONC OUTLINE & REINF

designed by dessiné par

drawn by H.D.T. & T.A.M. D.E. C. checked by

date

approved by approuvé par

date

Tender soumissionnaire

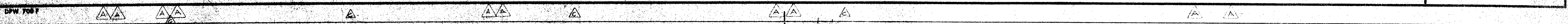
D.P.W. Project Manager Administrateur de projets M.T.P.

project number no. du projet

89323

drawing no. dessin no.

S 9







Department of Public Works  
Ministère des Travaux publics

PACIFIC REGION

INSTITUTE OF  
OCEAN SCIENCES  
ENVIRONMENT CANADA

A detail no. \_\_\_\_\_ detail no.  
B location drawing no. \_\_\_\_\_ sur base no.  
C drawing no. \_\_\_\_\_ sheet no.

revisions  
A - Clear pedestal and cross pier pile cap removed Dec 2/74  
B - General revision  
C - As built

PATRICIA BAY, B.C.  
MARINE FACILITY

drawing title \_\_\_\_\_ titre de dessin

WHARF  
PIER 1, 2 & CROSS PIER  
PILE CAPS  
CONC OUTLINE & REINF

designed by \_\_\_\_\_ conçu par

date \_\_\_\_\_ date

drawn by H.D.T. / Tour DE COURTOIS, dessiné par

date \_\_\_\_\_ date

reviewed by \_\_\_\_\_ examiné par

date \_\_\_\_\_ date

approved by \_\_\_\_\_ approuvé par

date \_\_\_\_\_ date

Tender \_\_\_\_\_ soumission

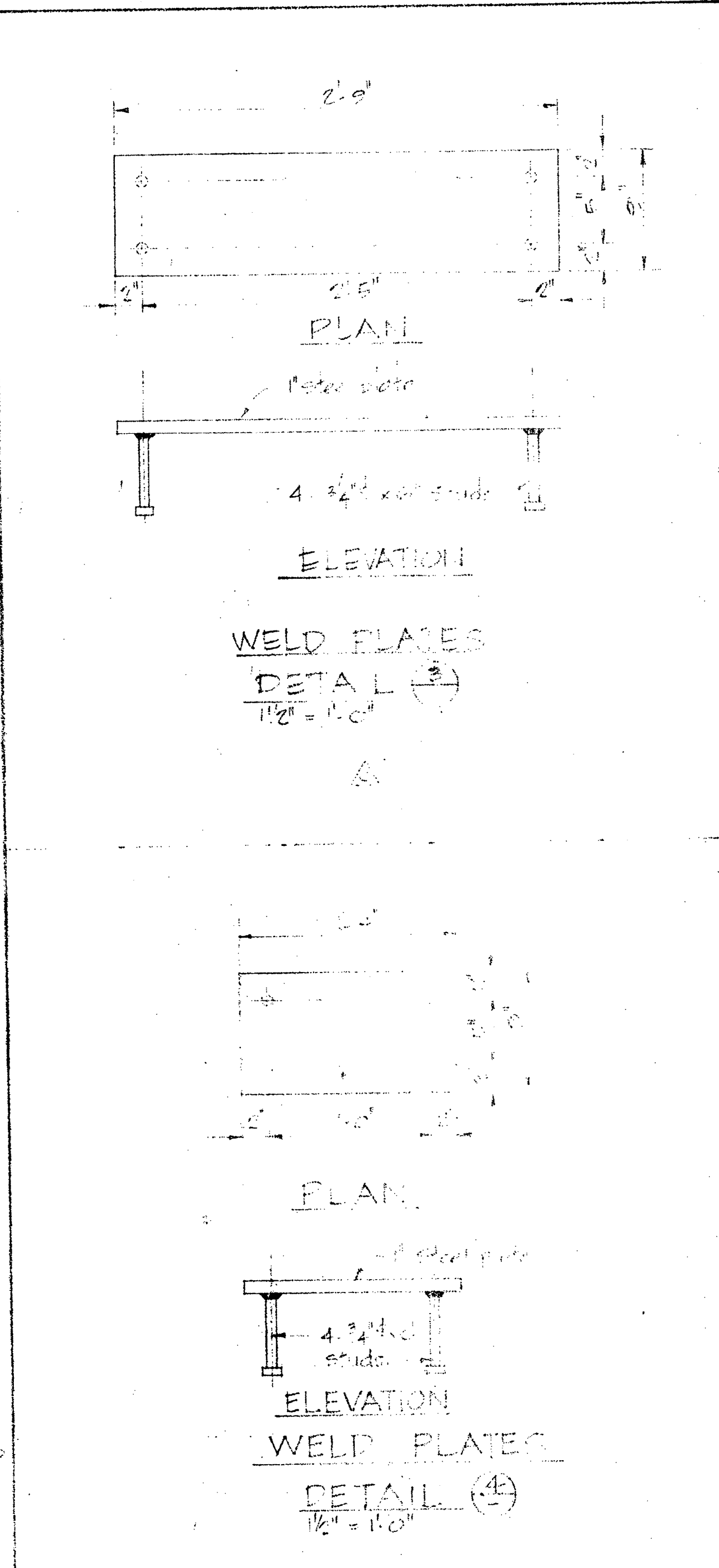
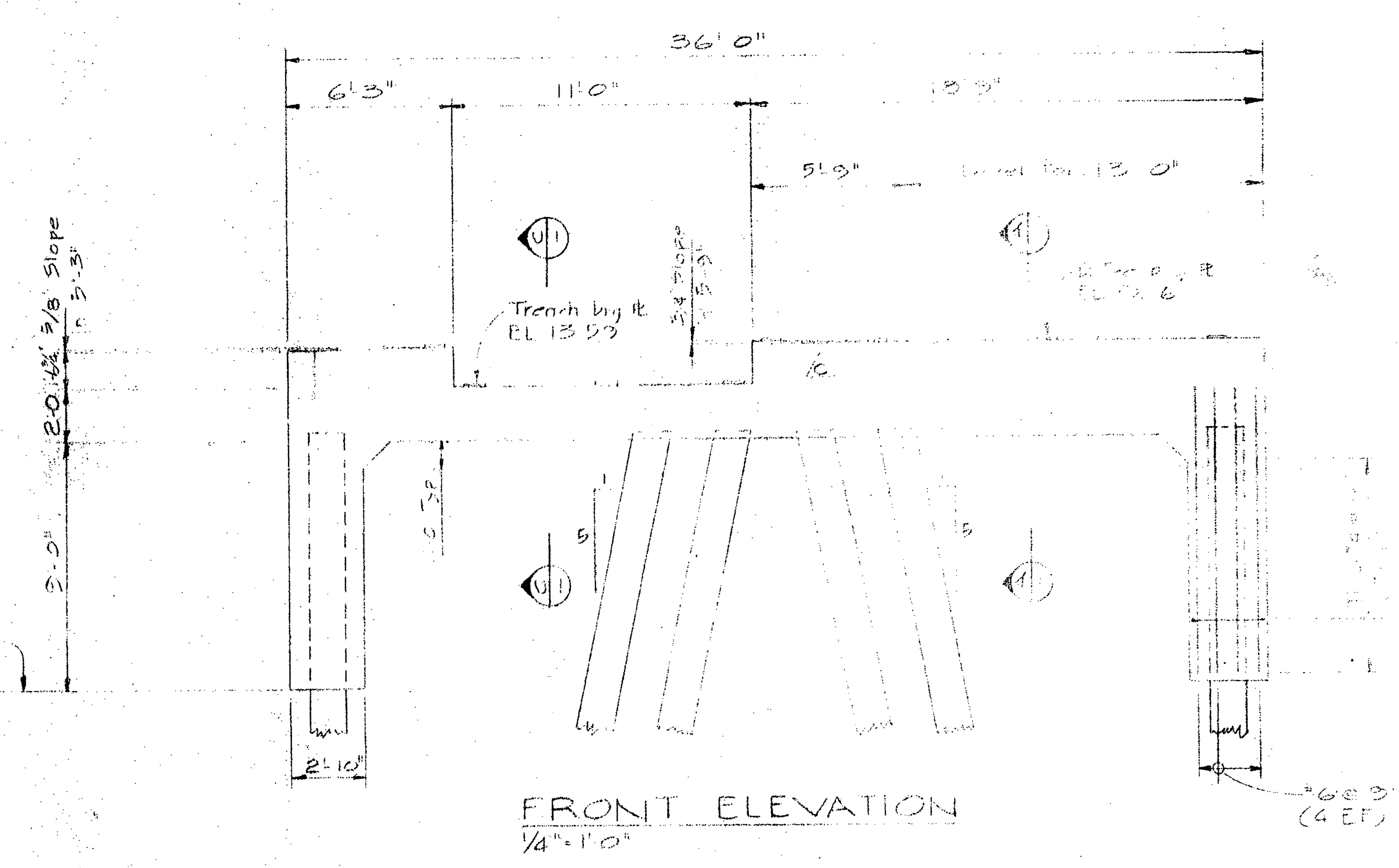
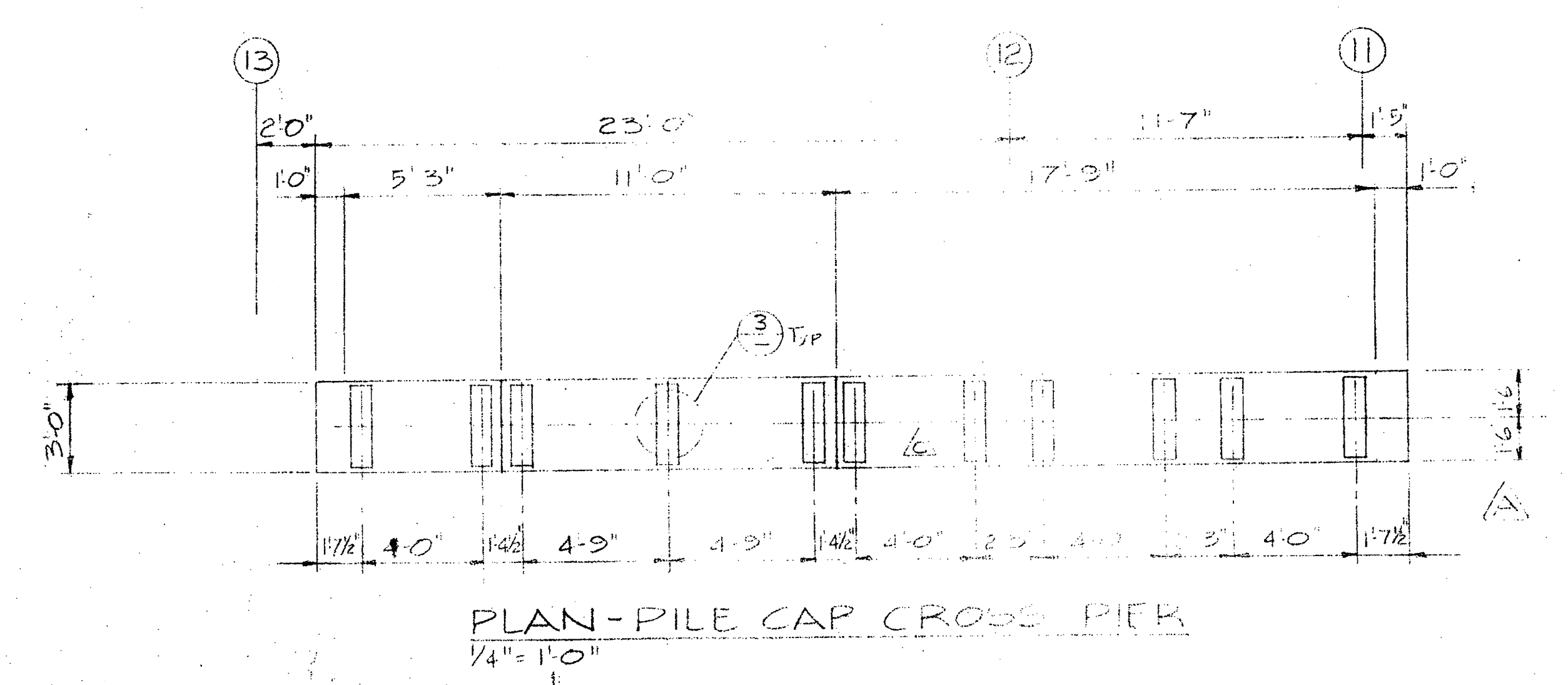
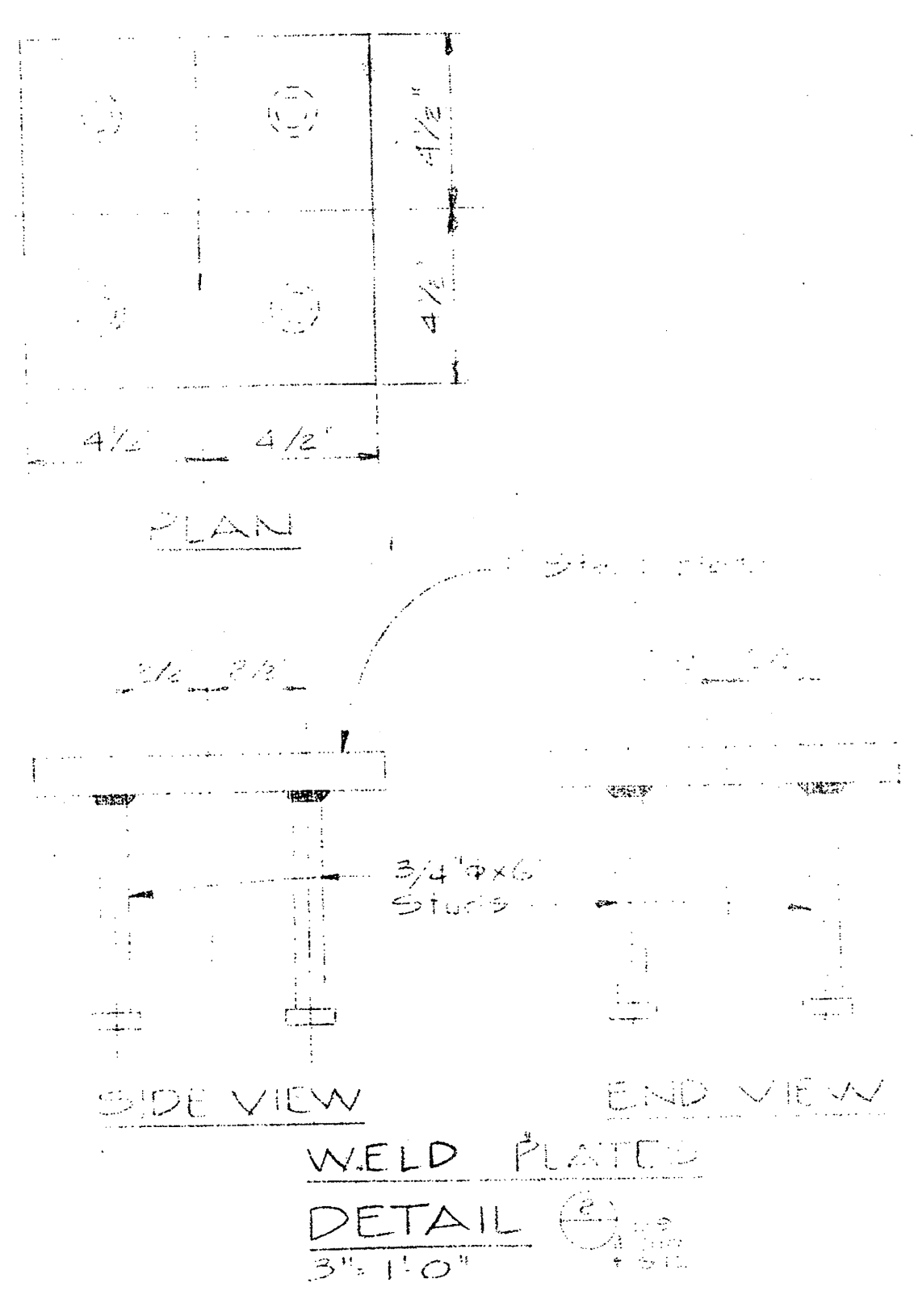
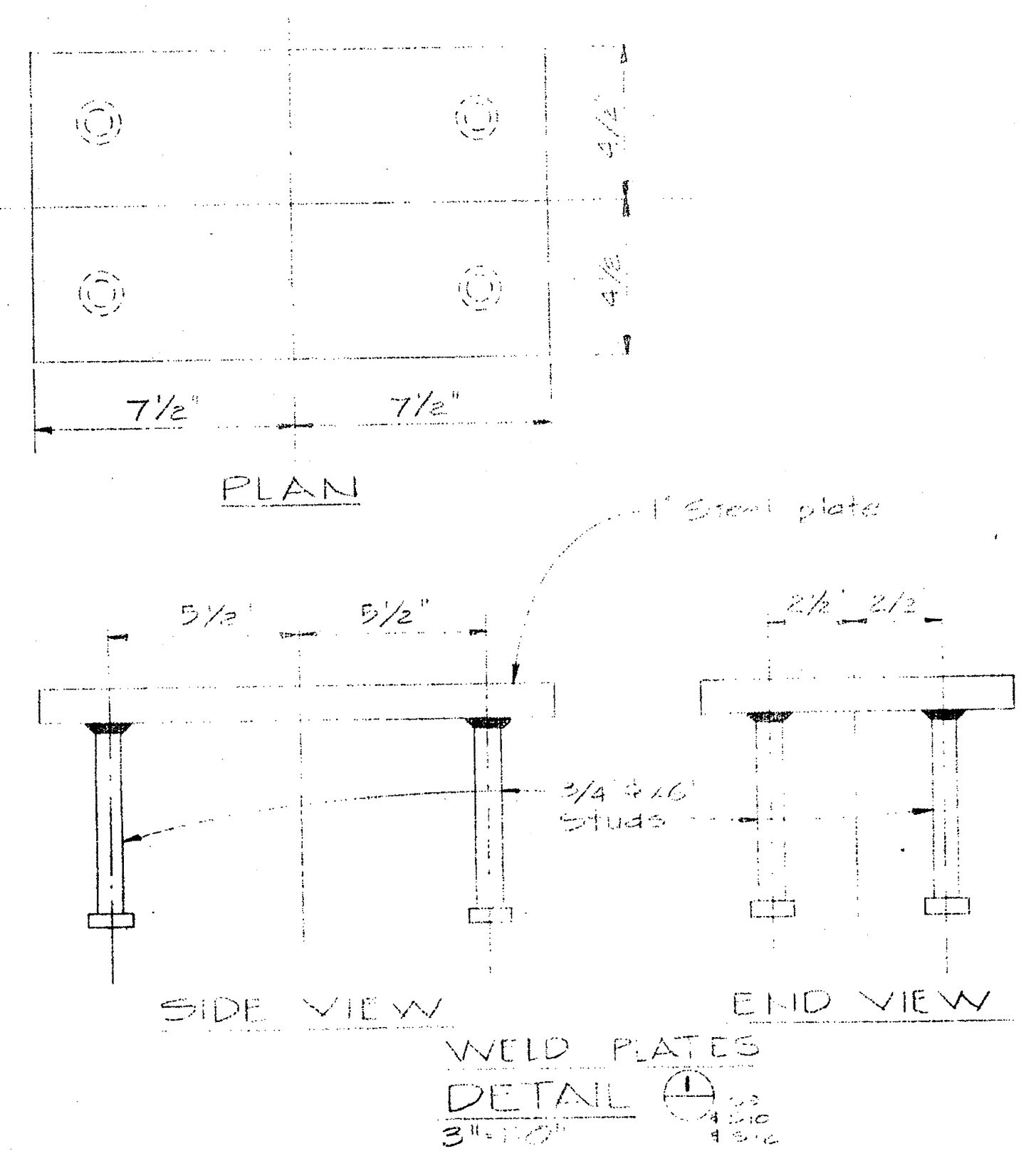
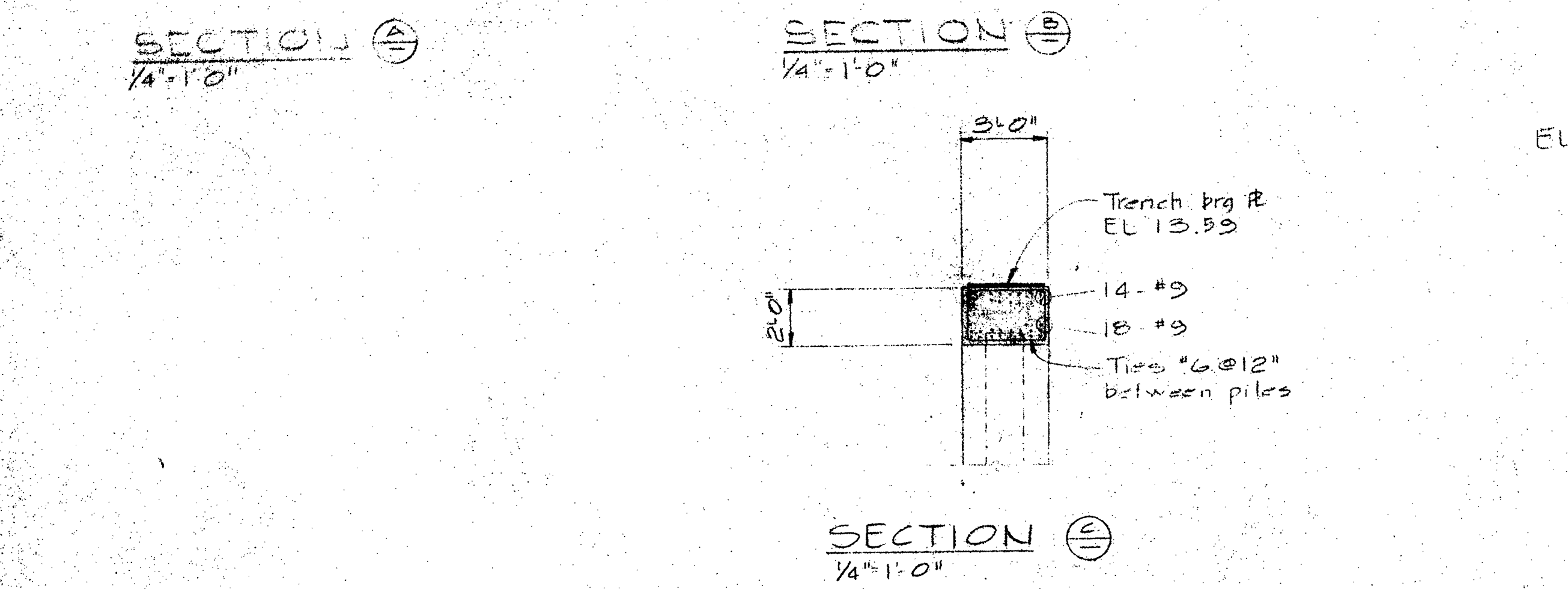
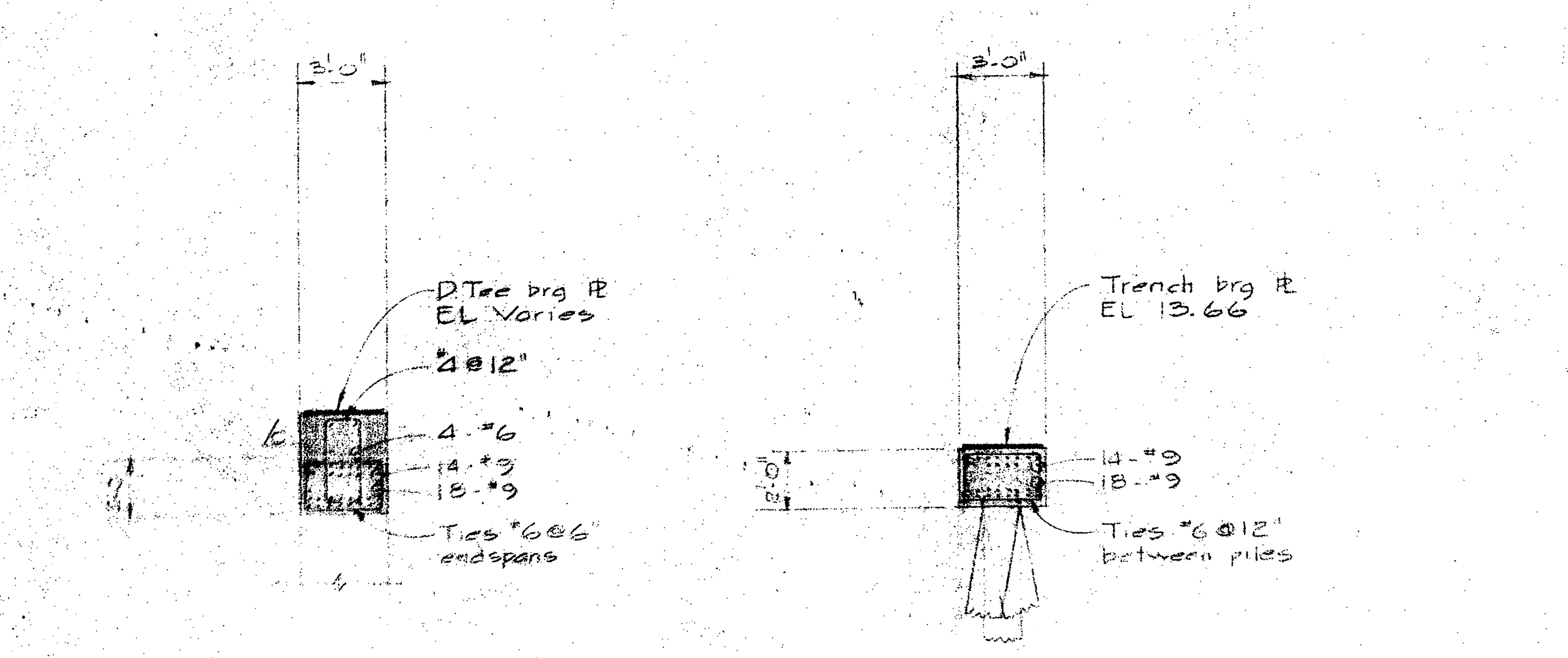
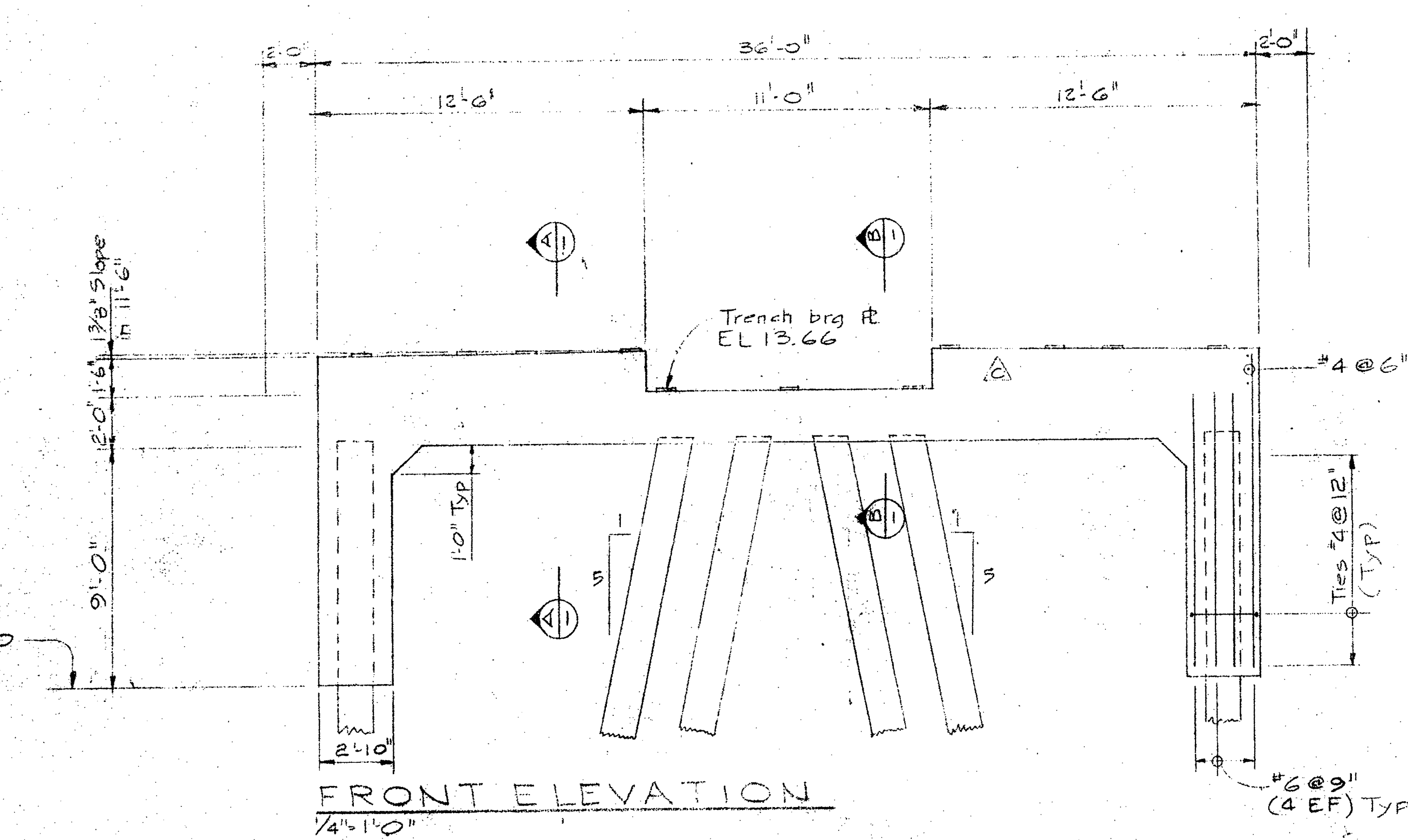
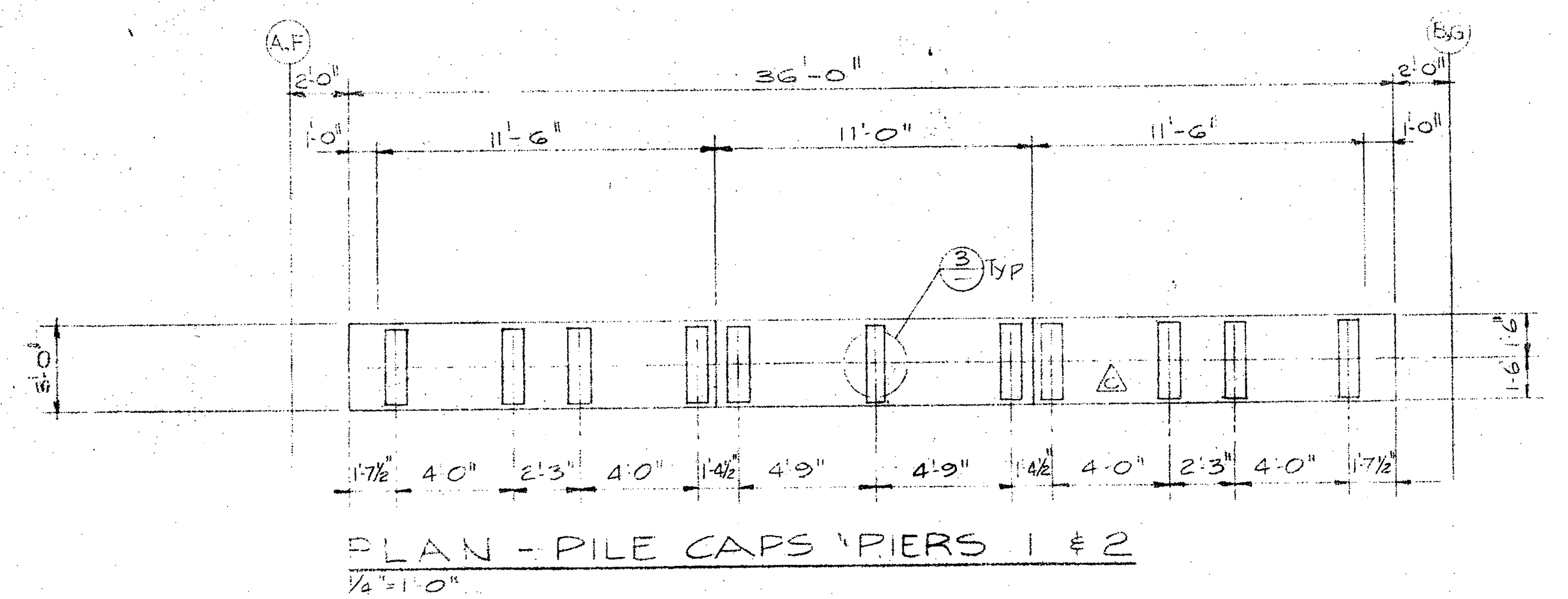
D.P.W. Project Manager Administrateur de projets M.T.P.

project number \_\_\_\_\_ no. de projet

89323

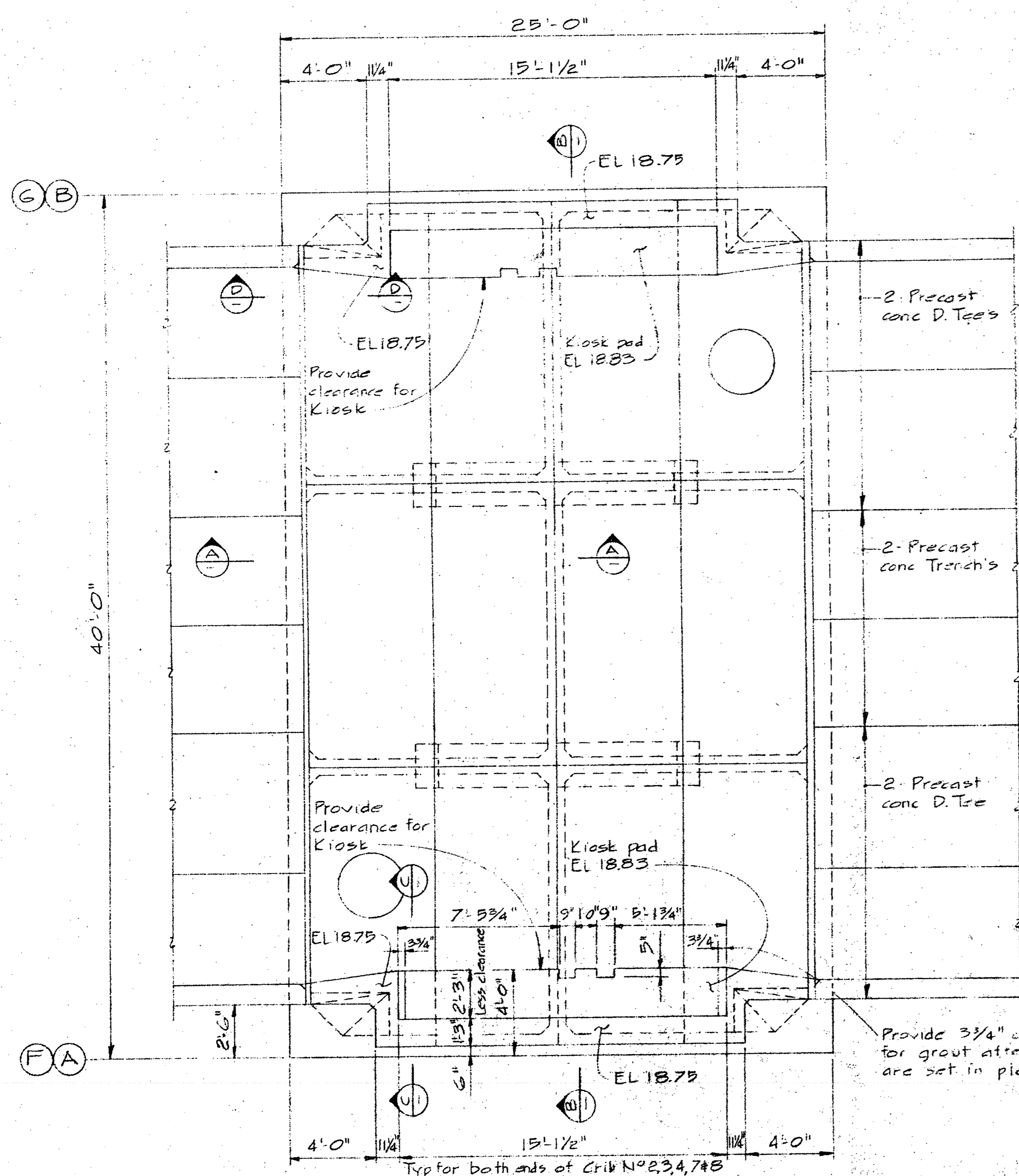
drawing no. \_\_\_\_\_ dessin no.

S 10

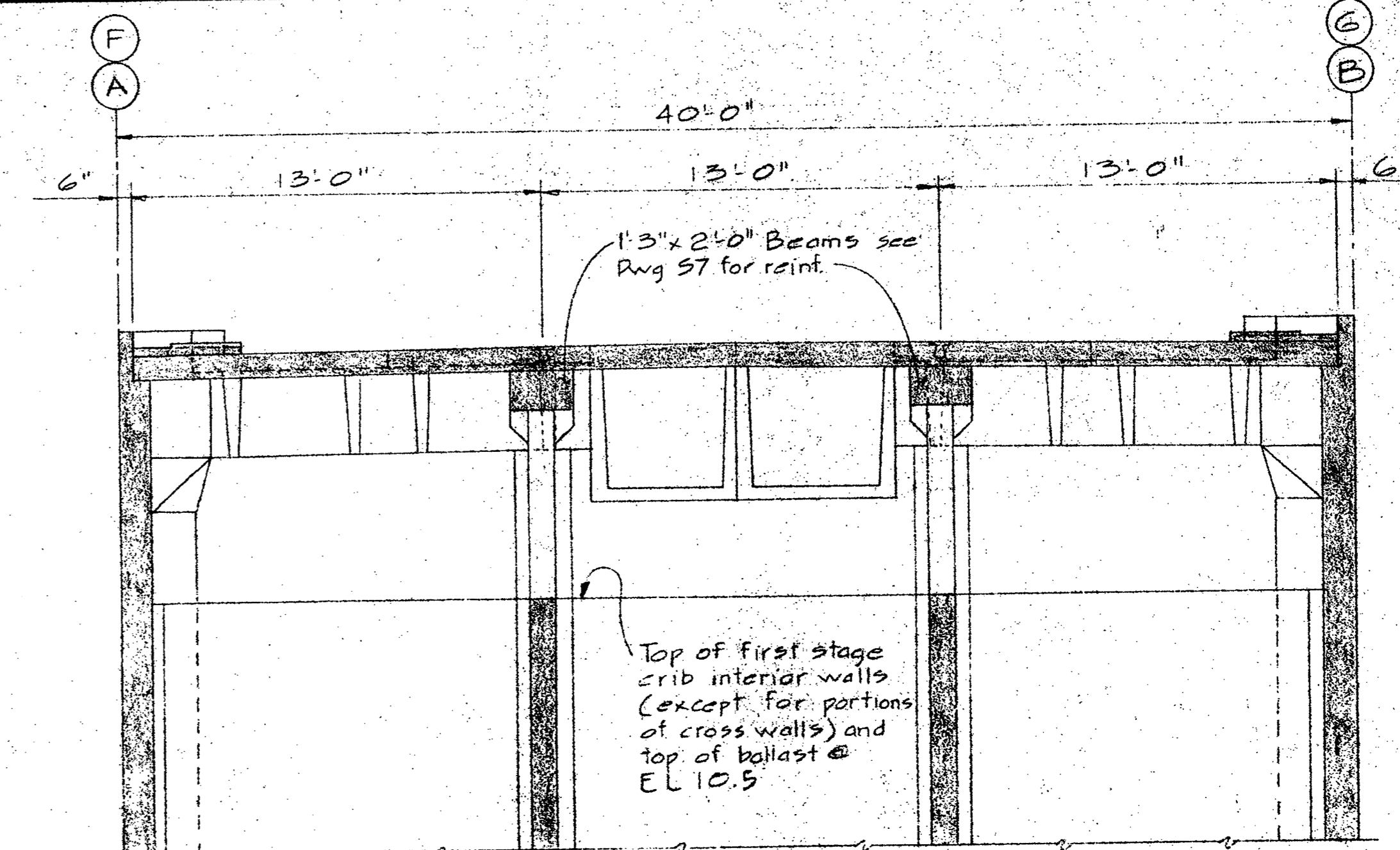




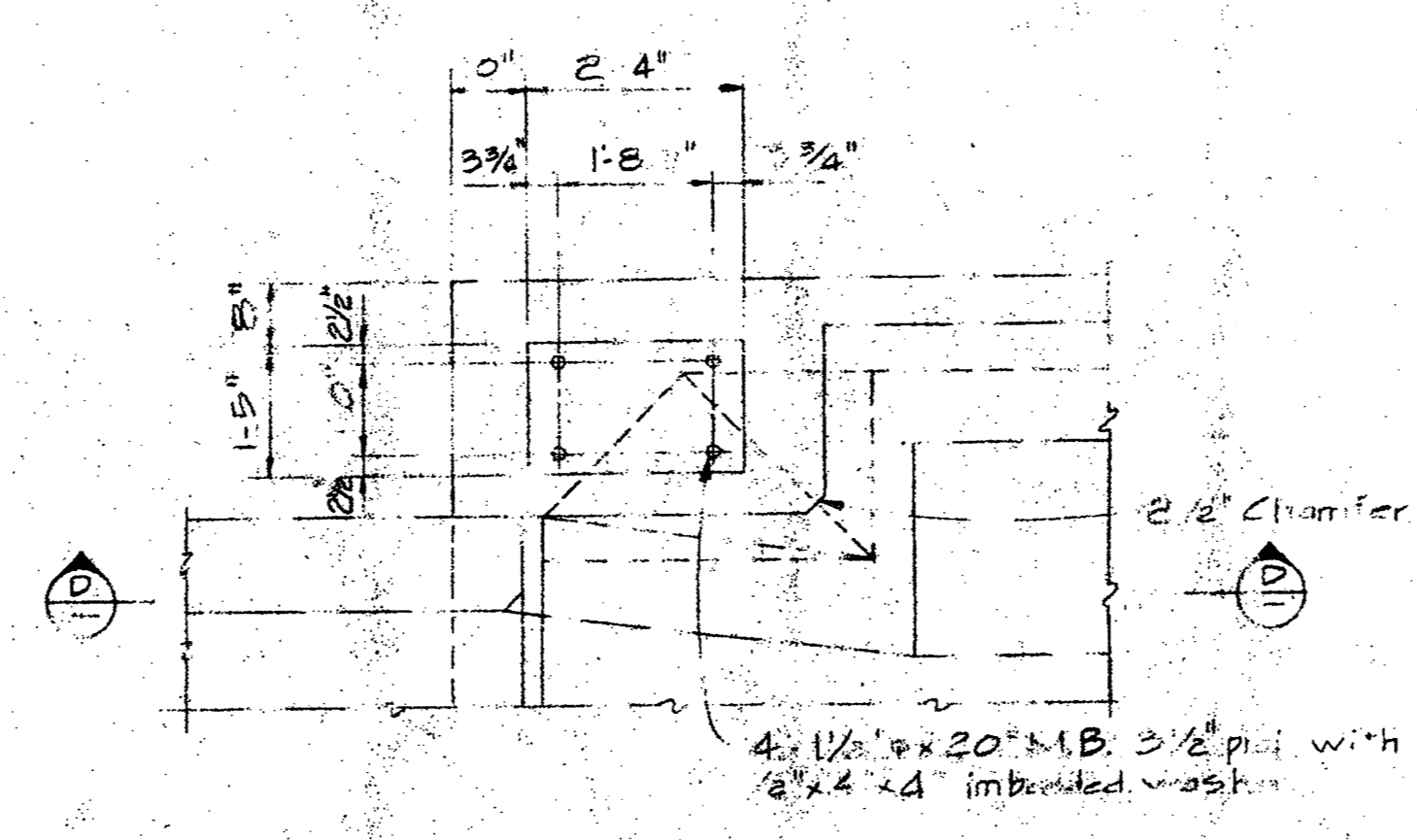
A	Detail no.	
B	Location drawing no.	
C	Drawing no.	
A - General revisions B - Redrawn Dec 2/74		



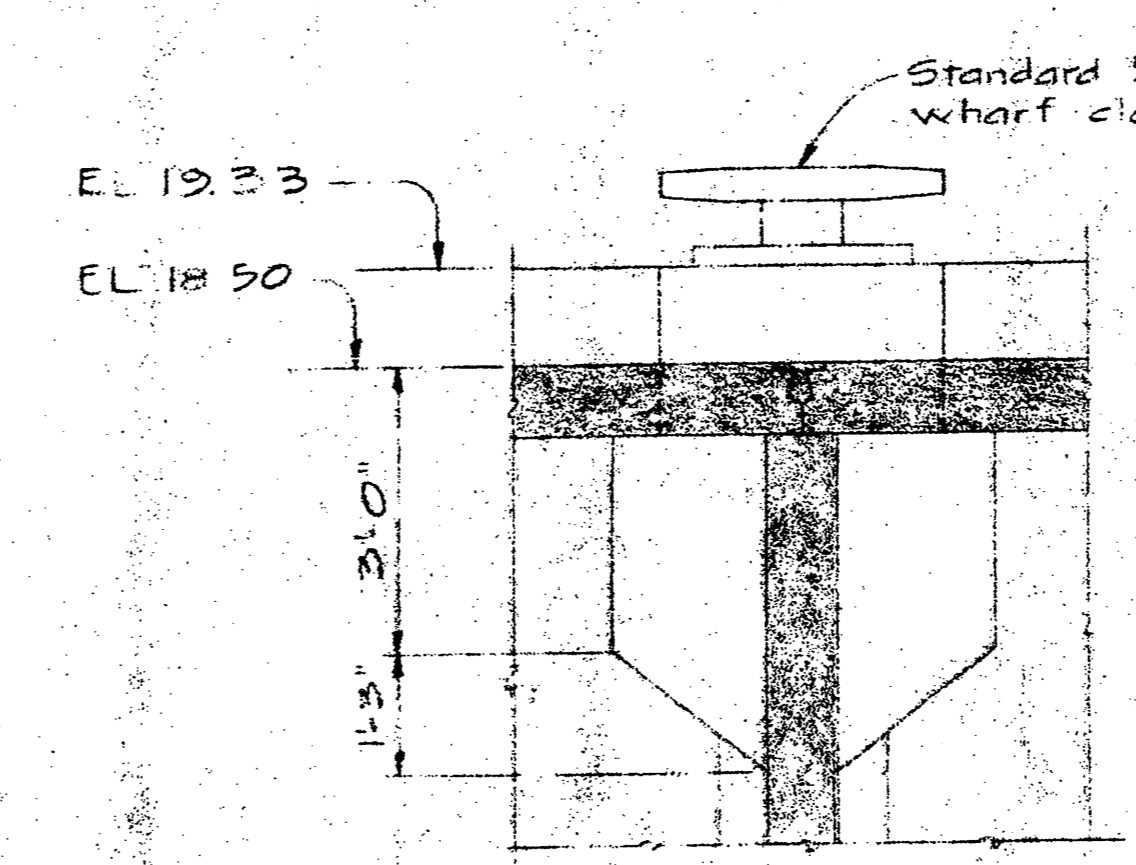
TYPICAL DECK PLAN FOR CRIBS WITHOUT KIOSKS  
1/4" = 1' 0"



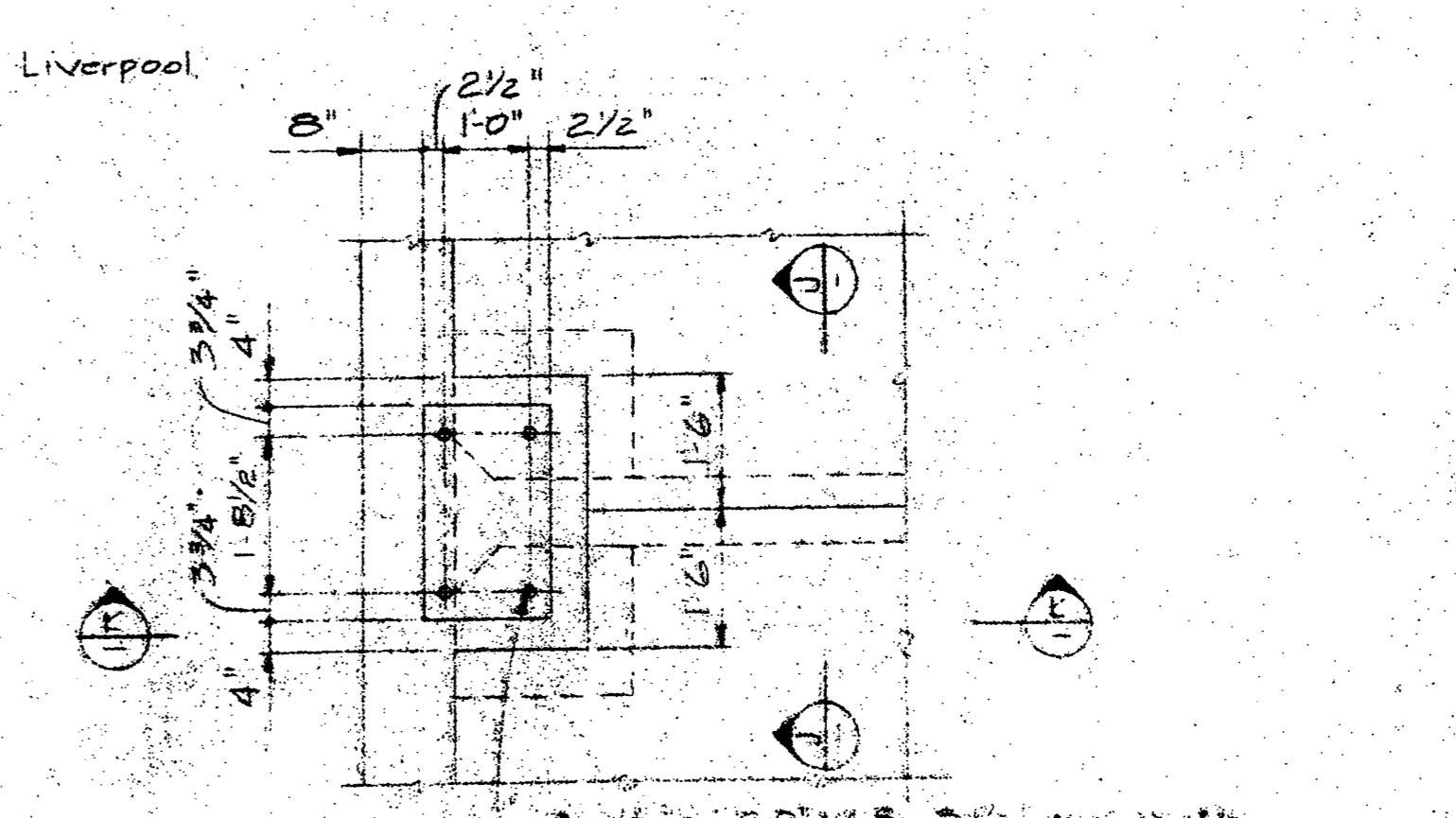
SECTION B  
1/4" = 1' 0"



PLAN VIEW OF TYP. CLEAT LOCATION ON CRIBS  
1/2" = 1' 0"

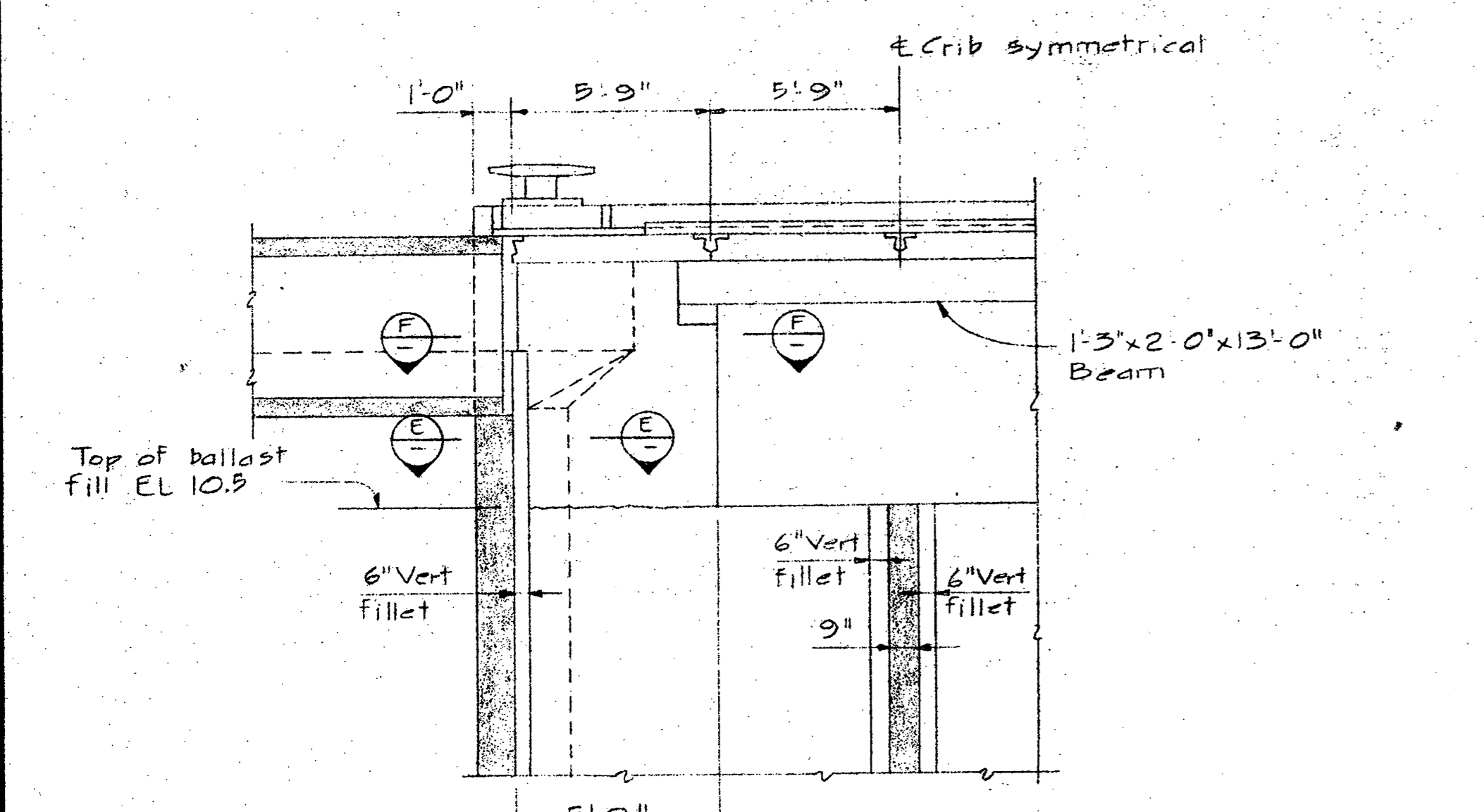


SECTION A  
1/2" = 1' 0"

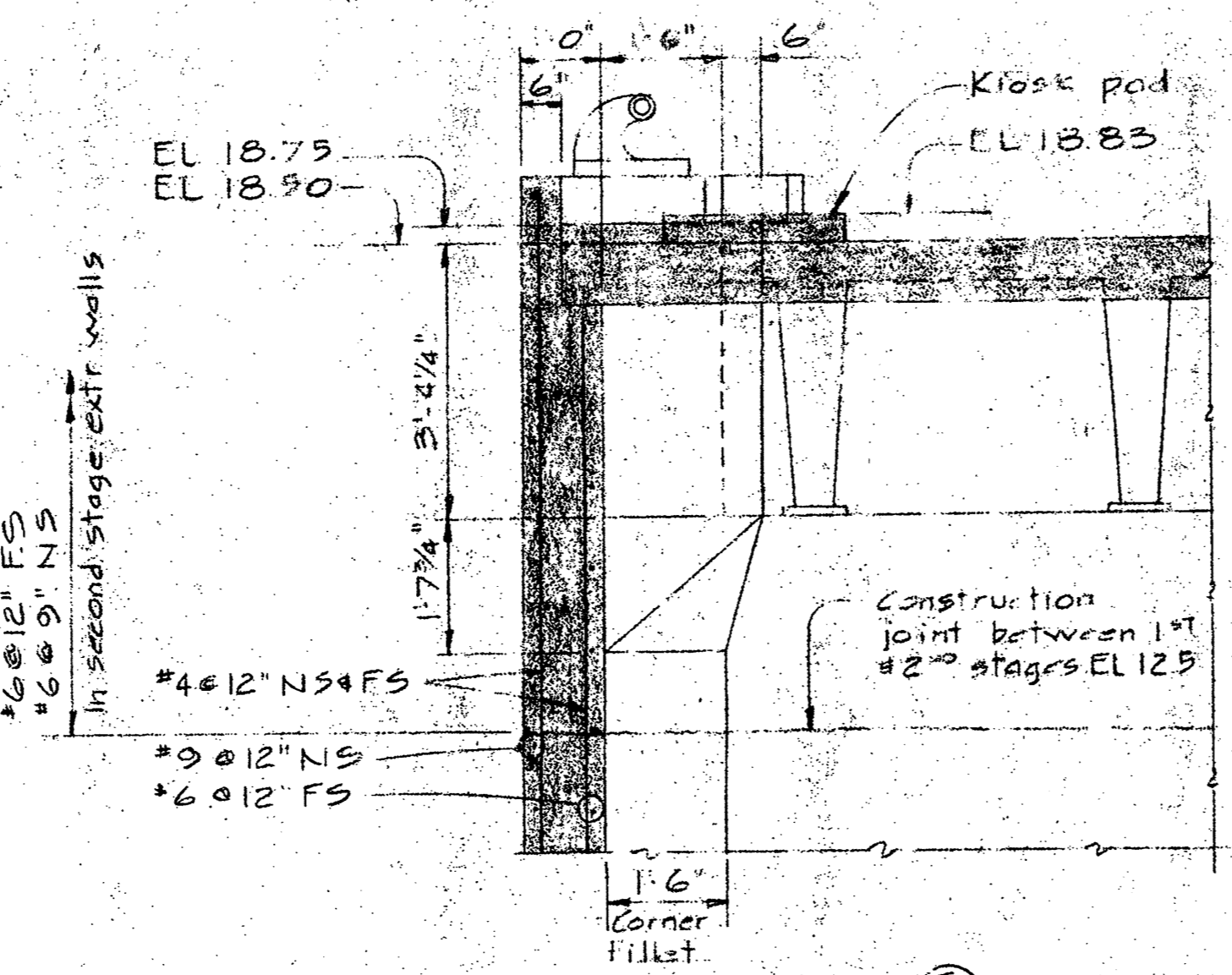


PLAN OF CLEAT LOCATION ON WEST SIDE OF CRIBS  
1/2" = 1' 0"

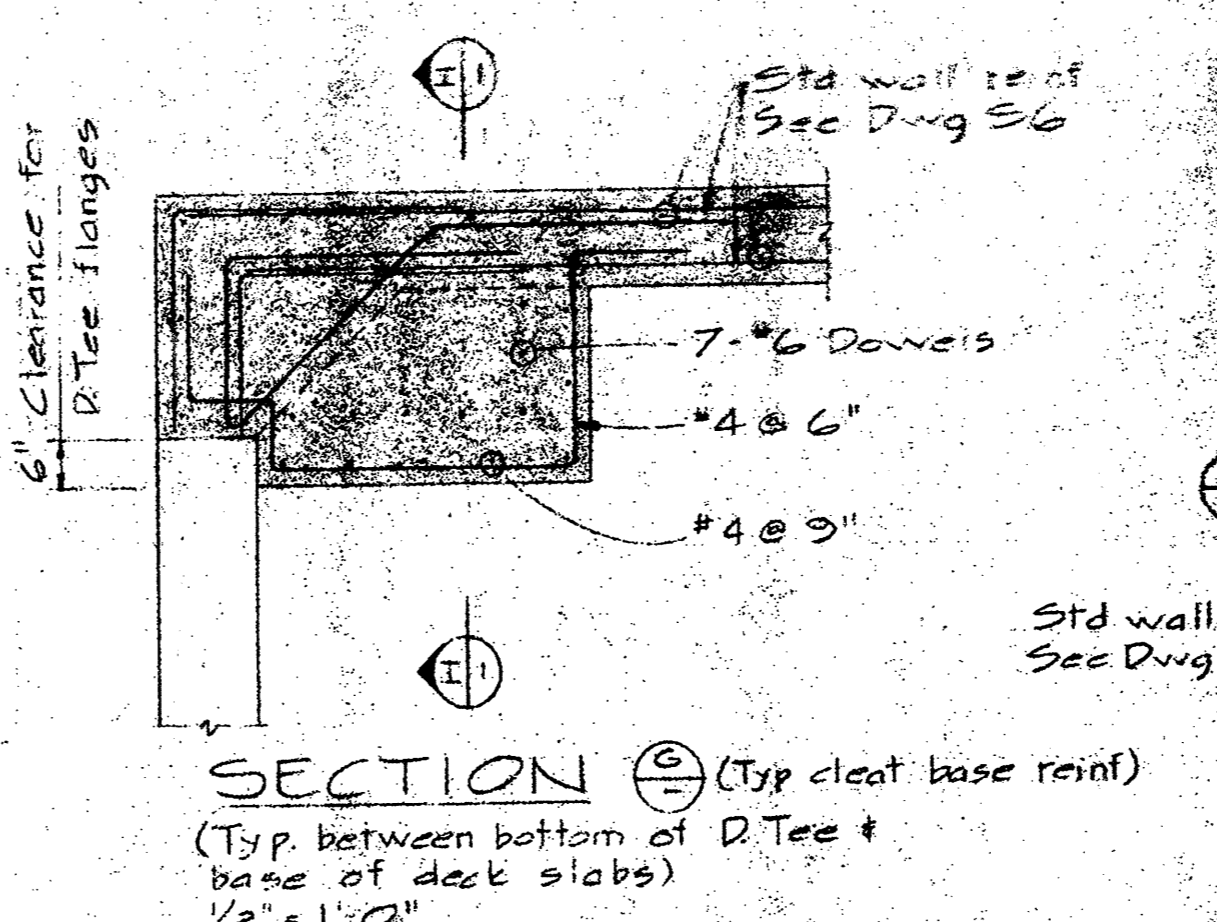
TYPICAL DECK PLAN FOR CRIBS WITH KIOSKS  
1/4" = 1' 0" (FENDER SYSTEM NOT SHOWN)



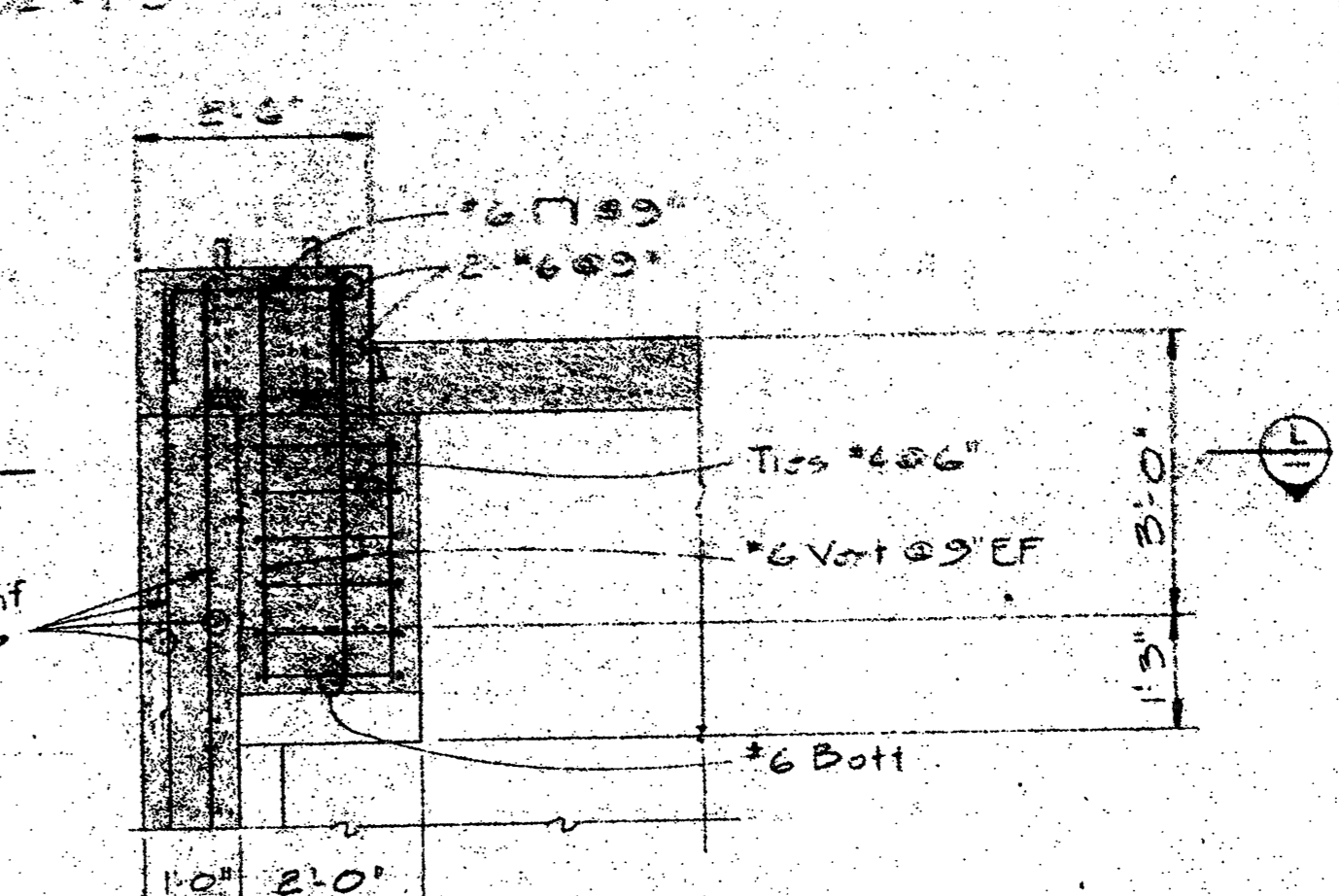
SECTION A  
1/4" = 1' 0"



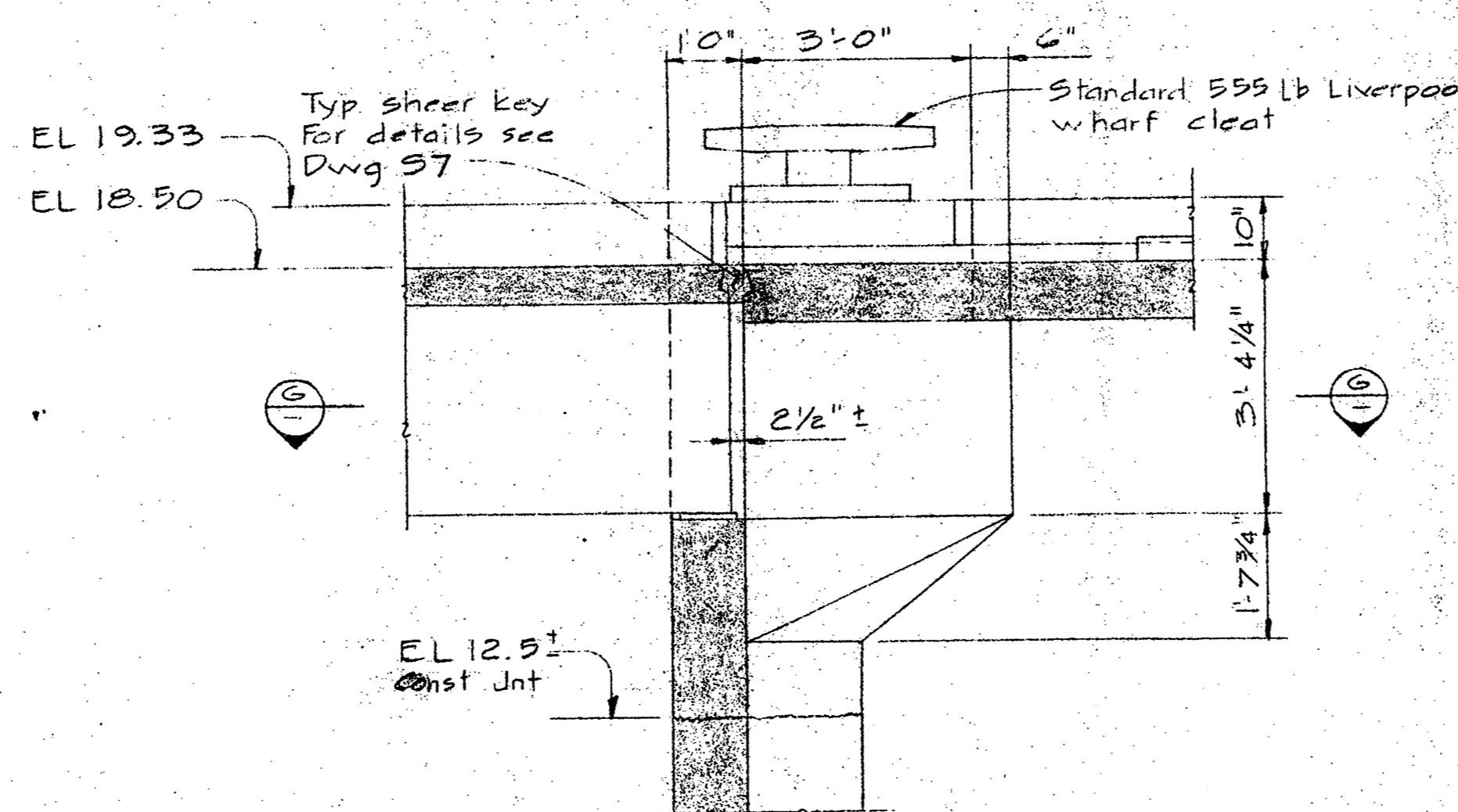
SECTION B  
1/2" = 1' 0"



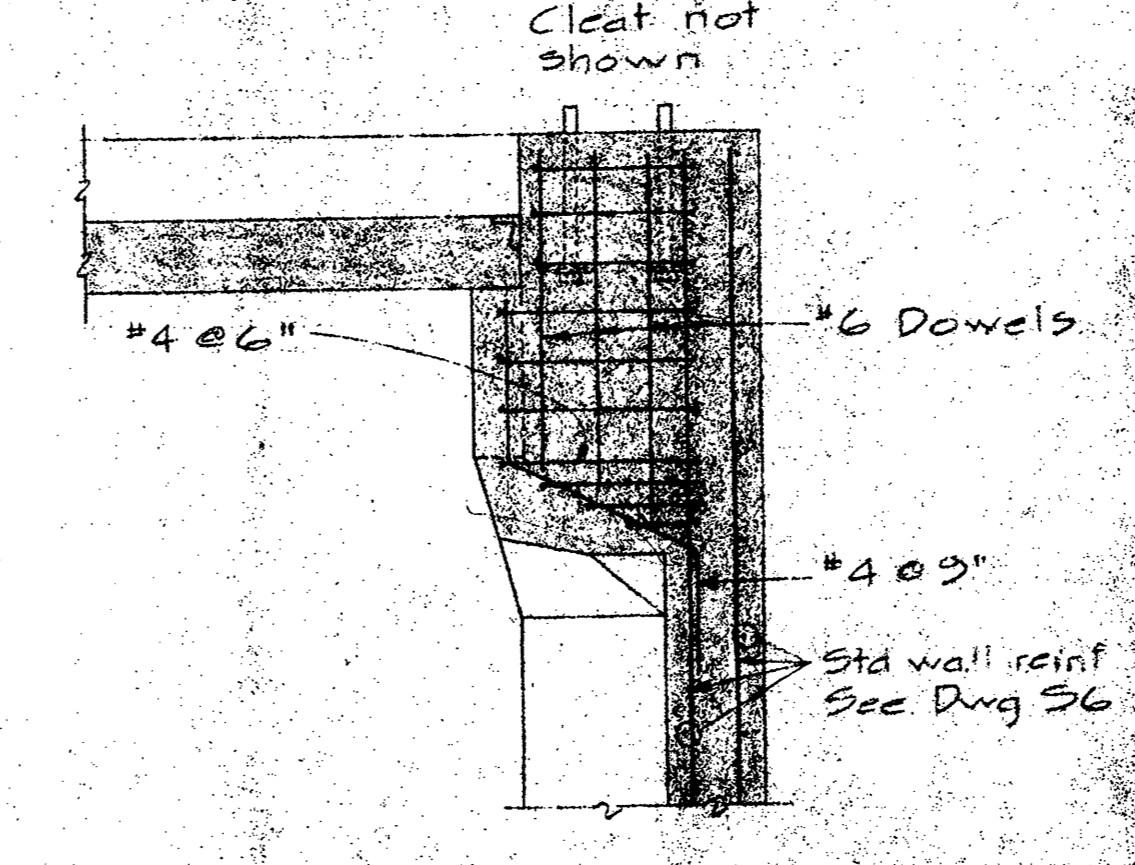
SECTION C (Typ cleat base reinf)  
1/2" = 1' 0"



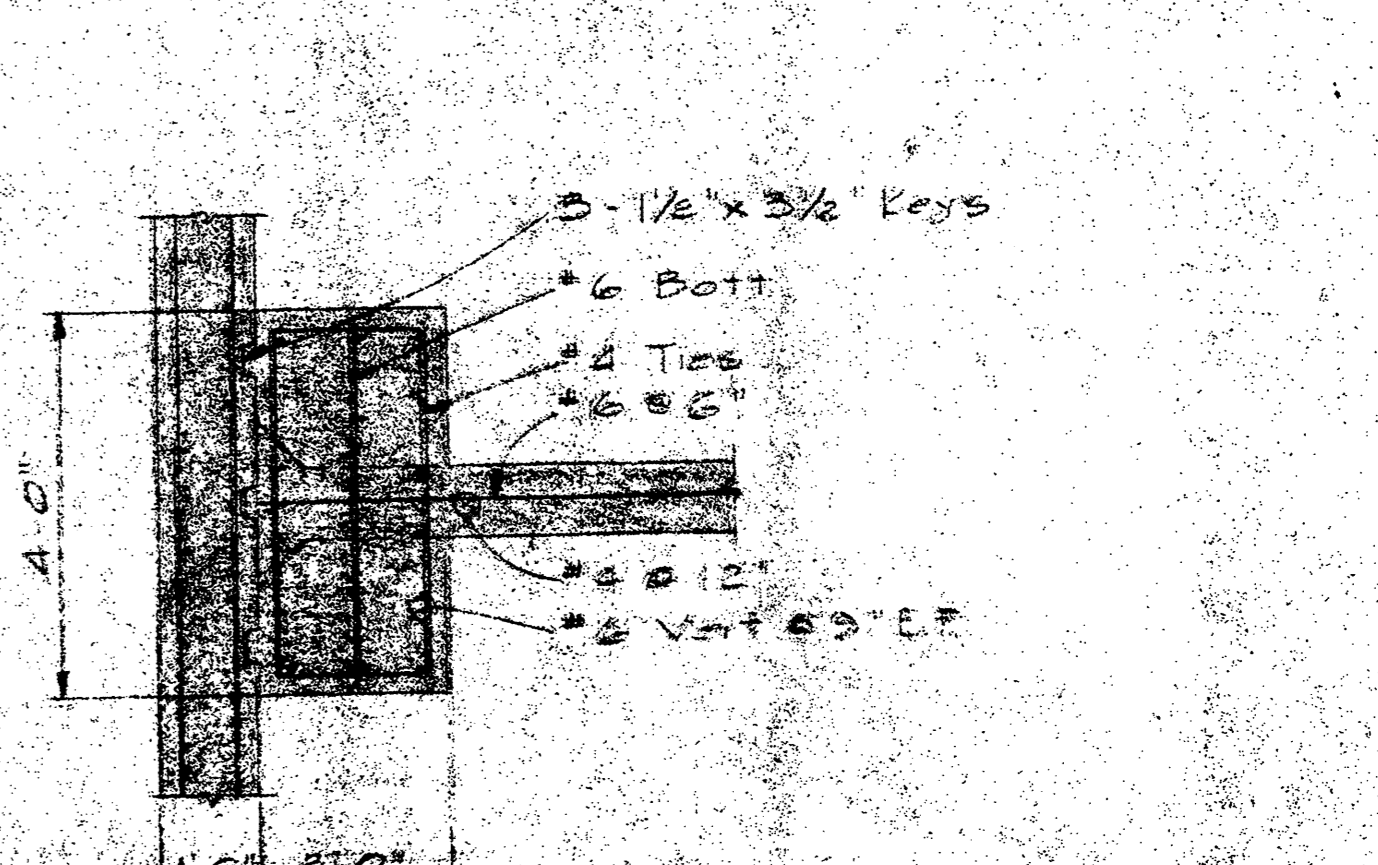
SECTION D  
1/2" = 1' 0"



SECTION E  
1/2" = 1' 0"



SECTION F  
1/2" = 1' 0"



SECTION G  
1/2" = 1' 0"

NOTE  
All bearing surfaces for deck panels to be screeded 3/8" to 1/2" low to provide for a sand cement levelling mortar.  
For details of kiosks see Dwg E4

SECTION A  
Typical between top of first stage & base of R Tee  
3/8" = 1' 0"

SECTION B  
Typical between base of R Tees & top of cross wall  
3/8" = 1' 0"

Project title	Site de projet
PATRICIA BAY, B.C. MARINE FACILITY	
Wharf	
STANDARD CRIB DETAILS	
KIOSK PAD AND CLEAT DETAILS	
Scale	
Drawn by	
Checked by	
Approved by	
D.P.E. Project Manager	Administrateur de projet M.P.
89323	
S 11	





Department of Public Works  
Ministère des Travaux publics

PACIFIC REGION

INSTITUTE OF  
OCEAN SCIENCES  
ENVIRONMENT CANADA

A detail no. sheet no.  
B location drawing no. sur dessin no.  
C drawing no. dessin no.

revisions  
A - General revision Dec 2/74  
B - General revision  
C - As built.

project title titre du projet

PATRICIA BAY, B.C.  
MARINE FACILITY

drawing title titre du dessin

WHARF AND APPROACH  
KIOSK PAD AND  
LAMP STANDARD DETAILS

designed by  
date 13-5-74

drawn by H.D.T. & Tony De CURTIS  
date

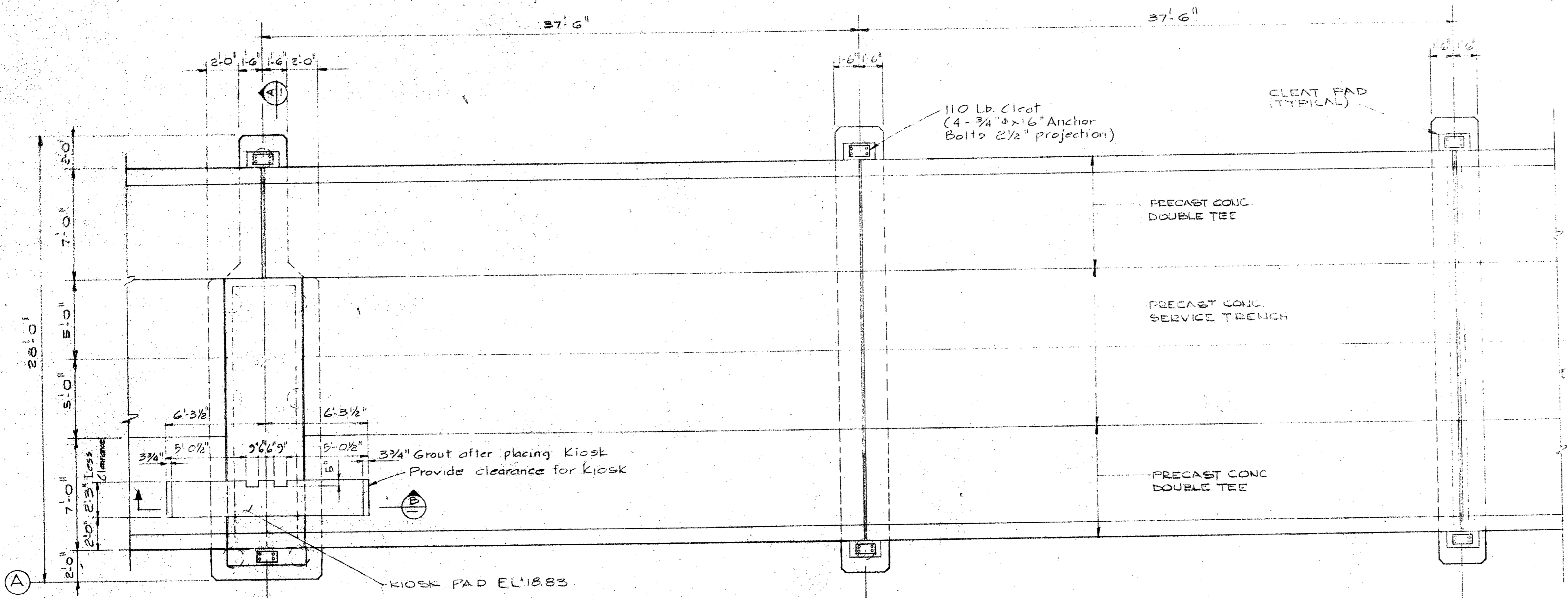
checked by  
date

approved by  
date

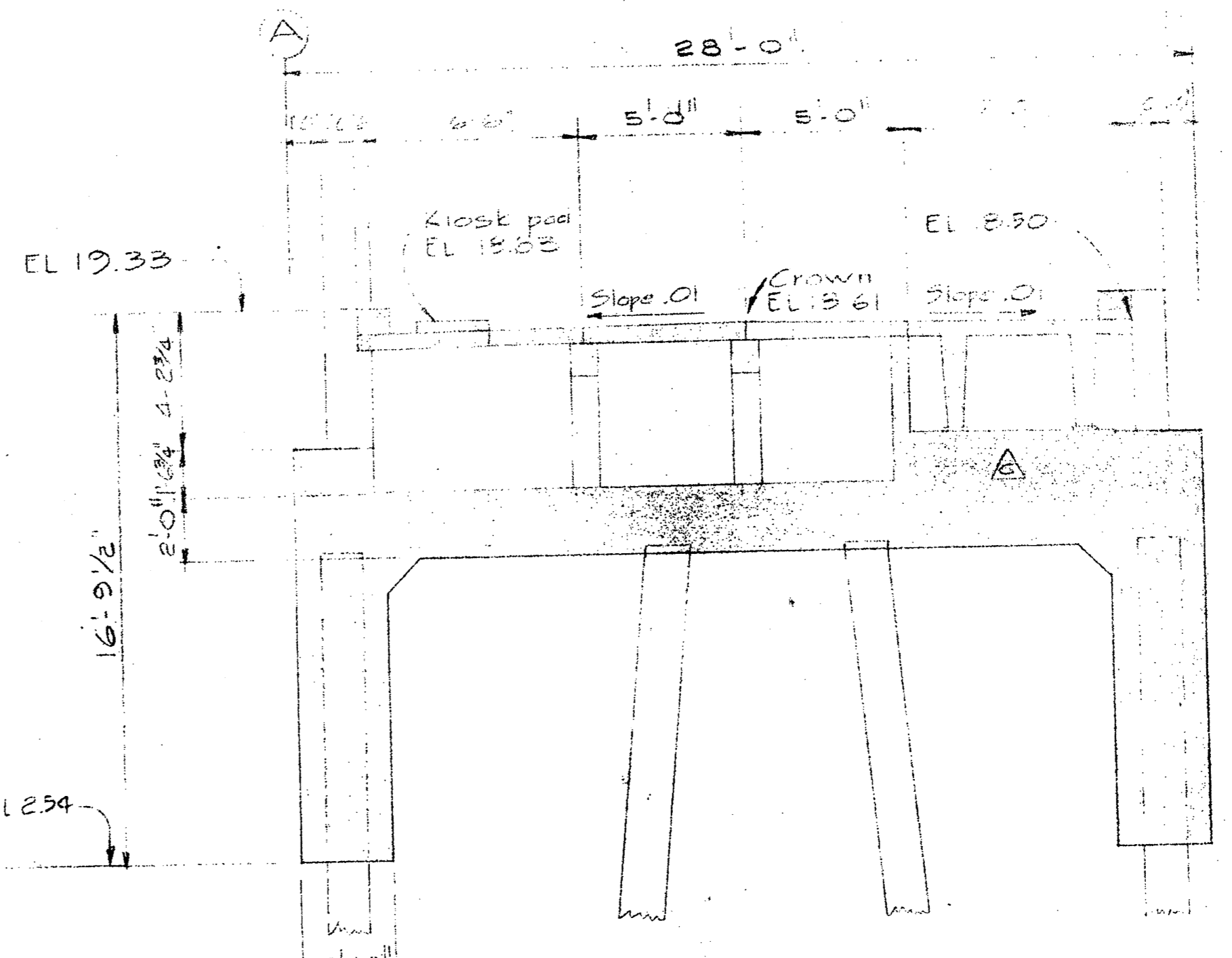
Tender  
D.P.W. Project Manager Administrateur de projets

project number  
89323

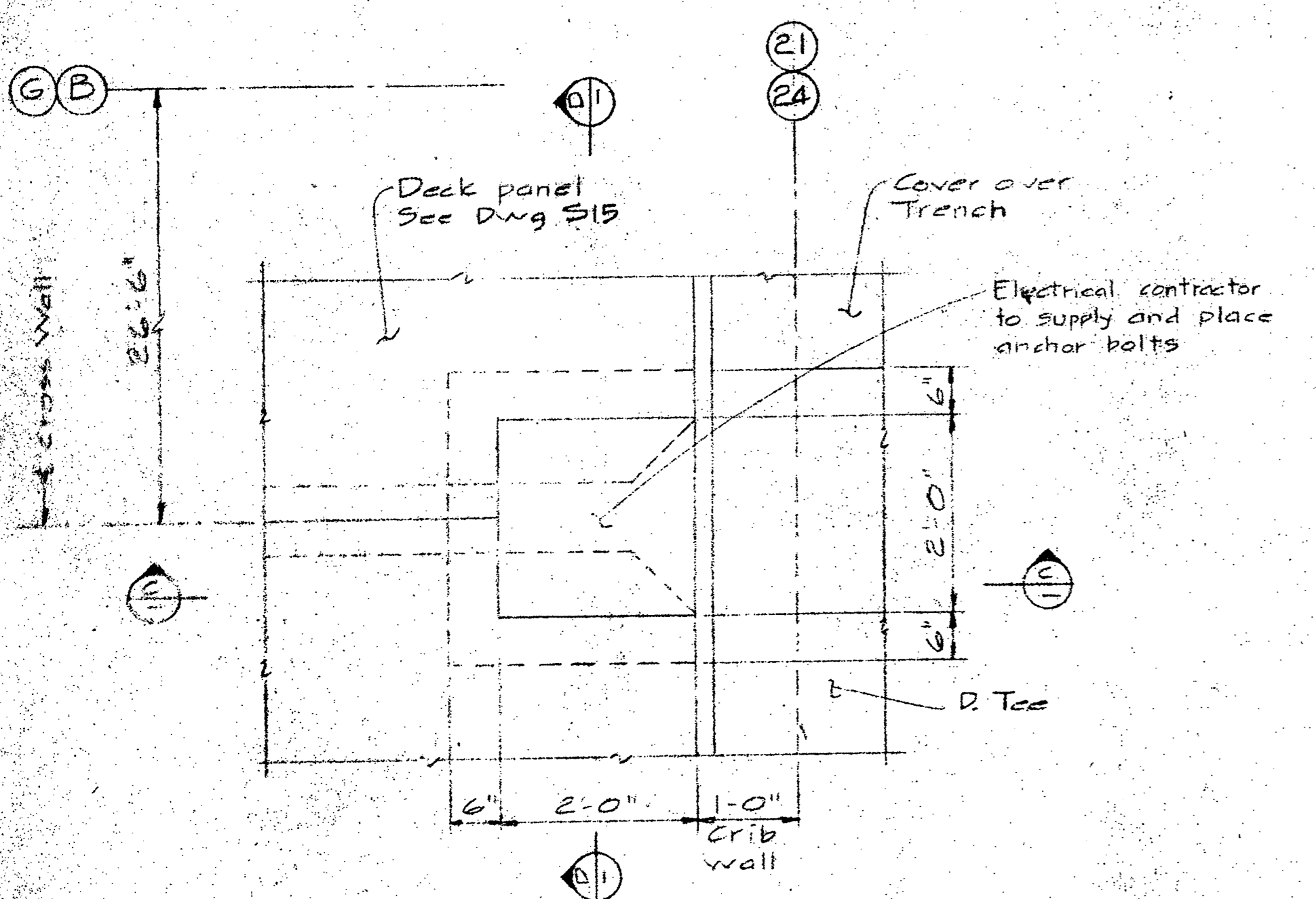
drawing no.  
S 12



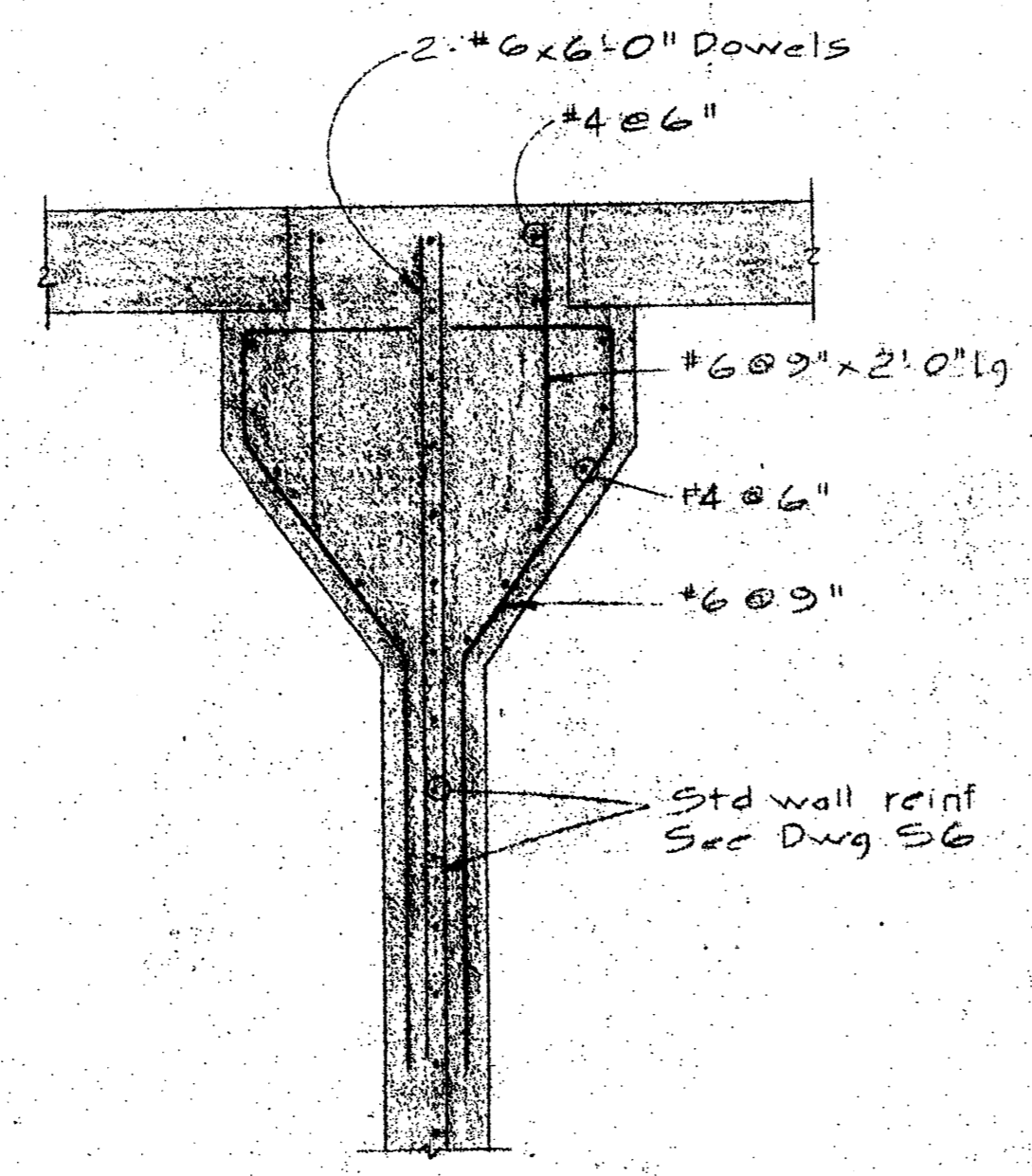
**A PART PLAN OF APPROACH**  
FENDER SYSTEM NOT SHOWN SEE DWG S17  
1/4" = 1'-0"



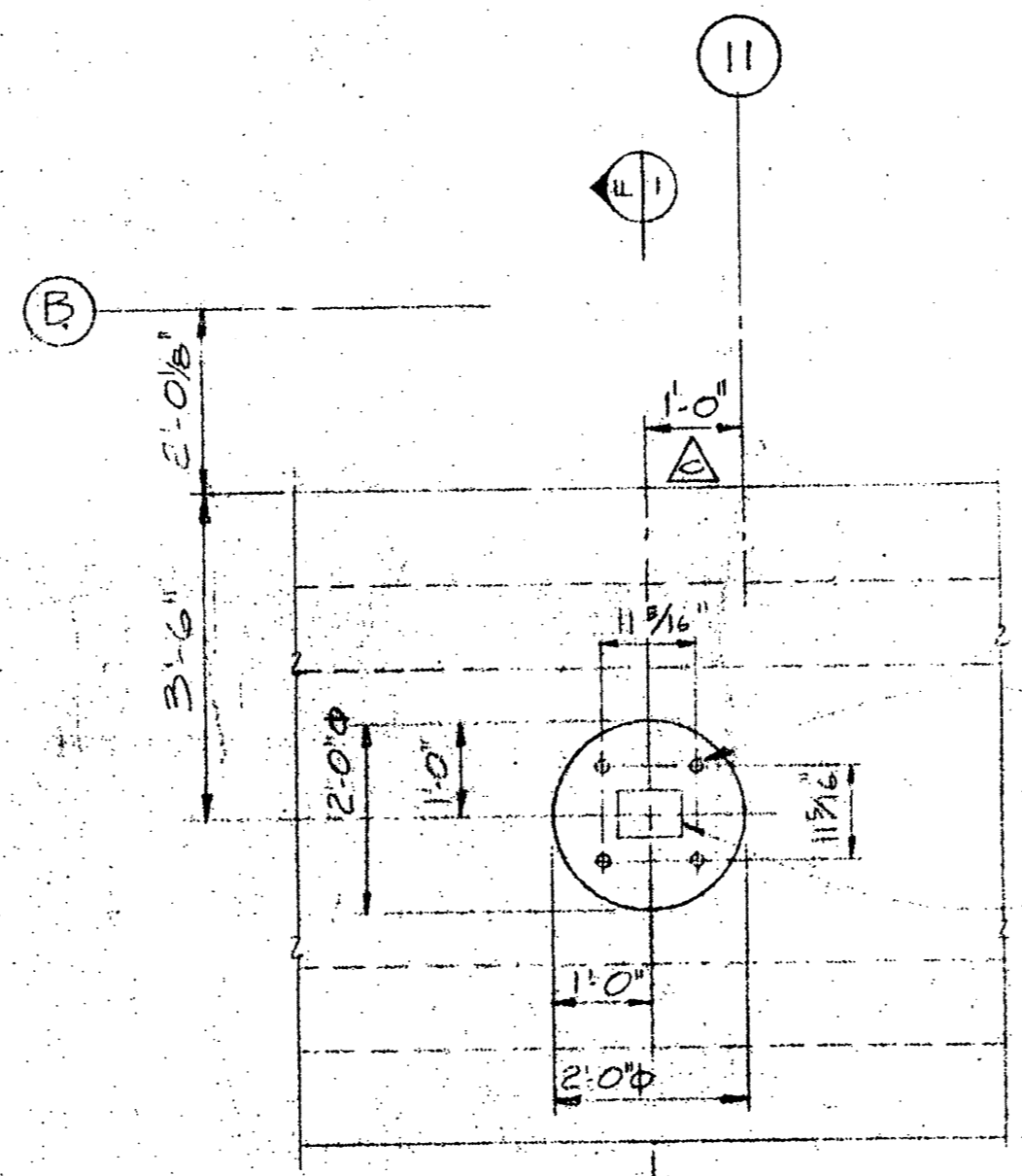
**SECTION A**  
FENDER SYSTEM NOT SHOWN  
SEE DWG S17  
1/4" = 1'-0"



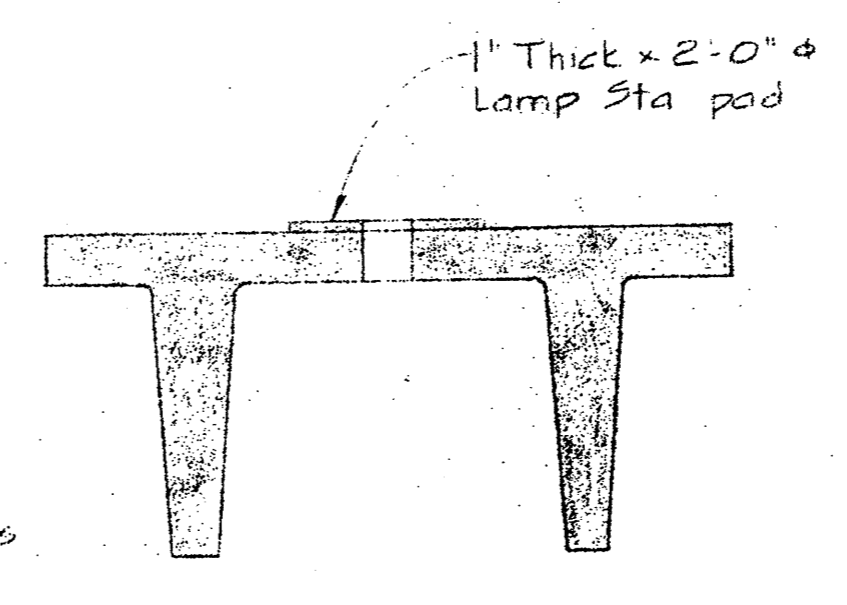
**PLAN OF LAMP STANDARD BASES  
CRIBS N° 5 AND 9**  
3/4" = 1'-0"



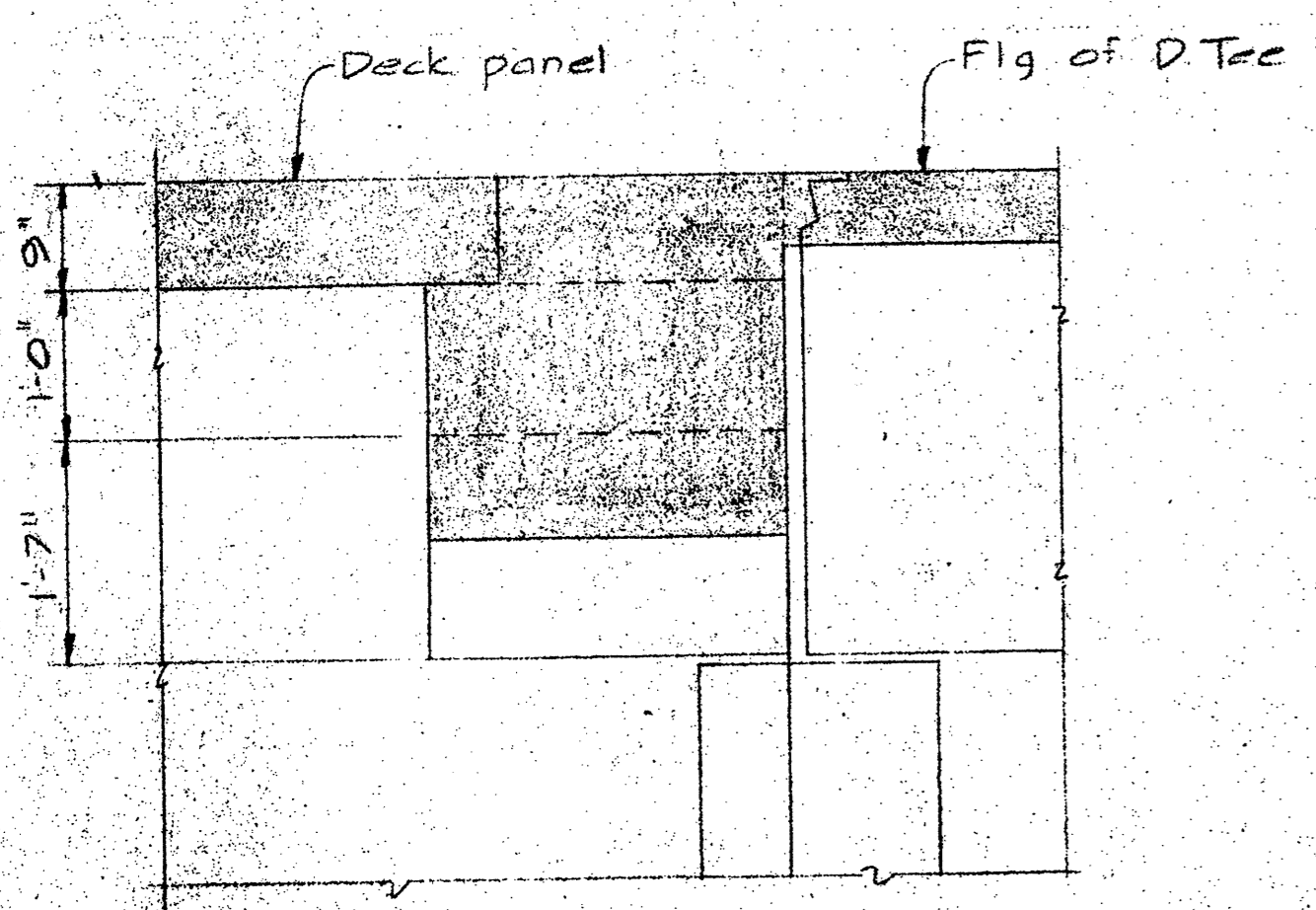
**SECTION B**  
3/4" = 1'-0"



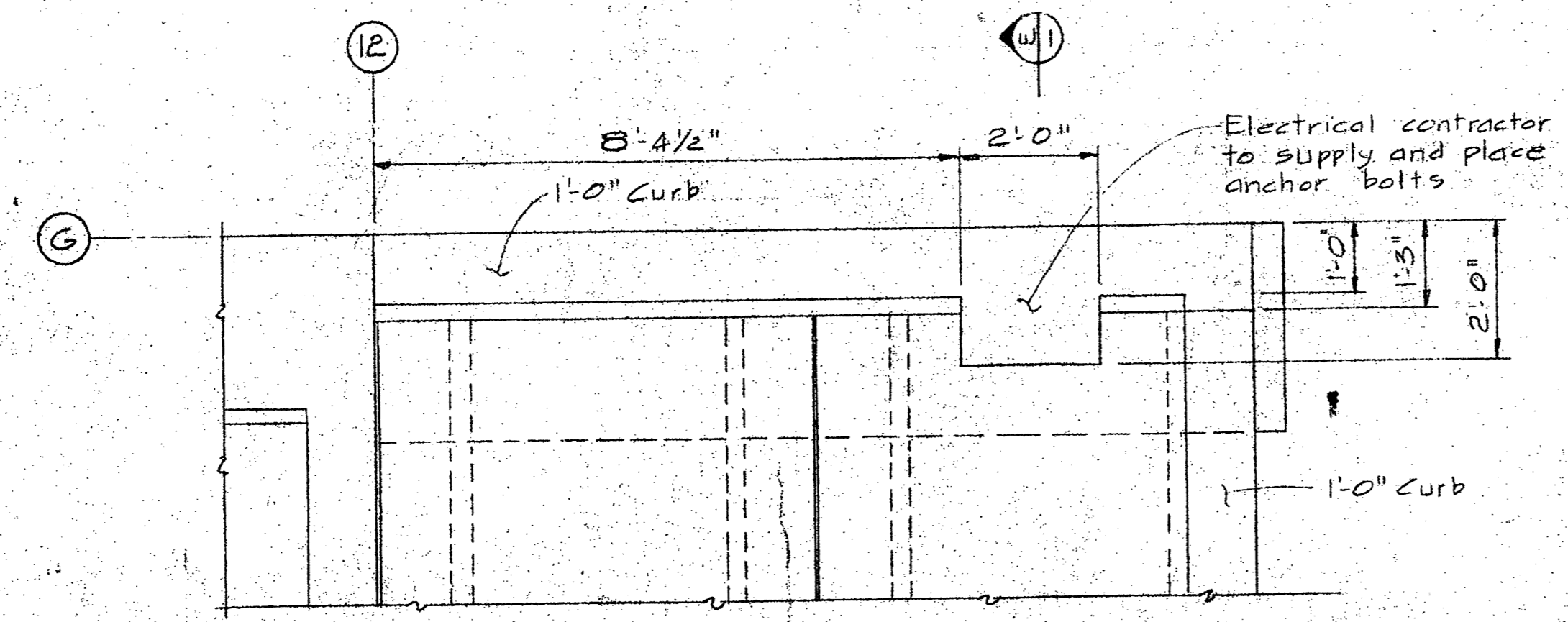
**PLAN OF LAMP STANDARD BASE  
TO THE S.E. OF CRIB N° 1**  
1/2" = 1'-0"



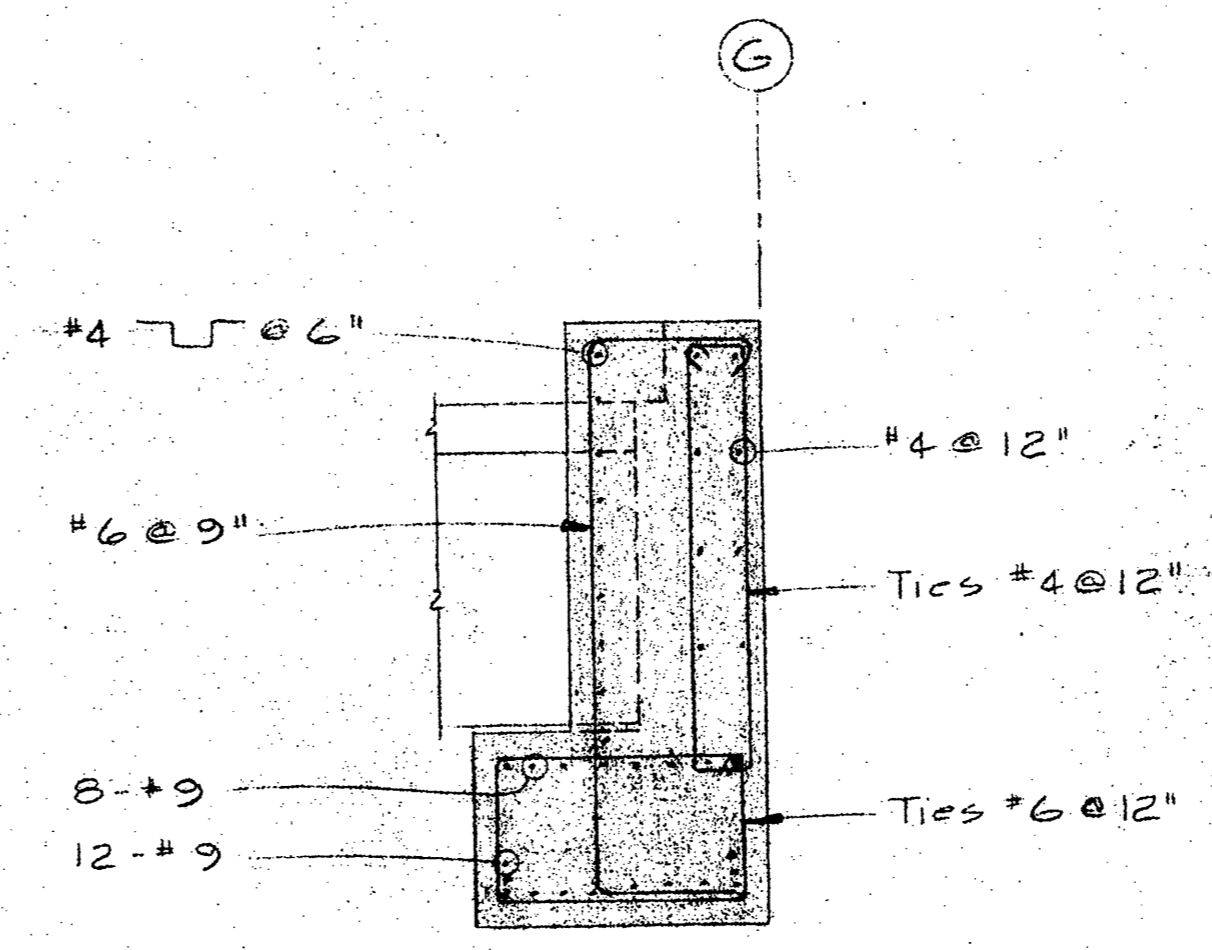
**SECTION C**  
1/2" = 1'-0"



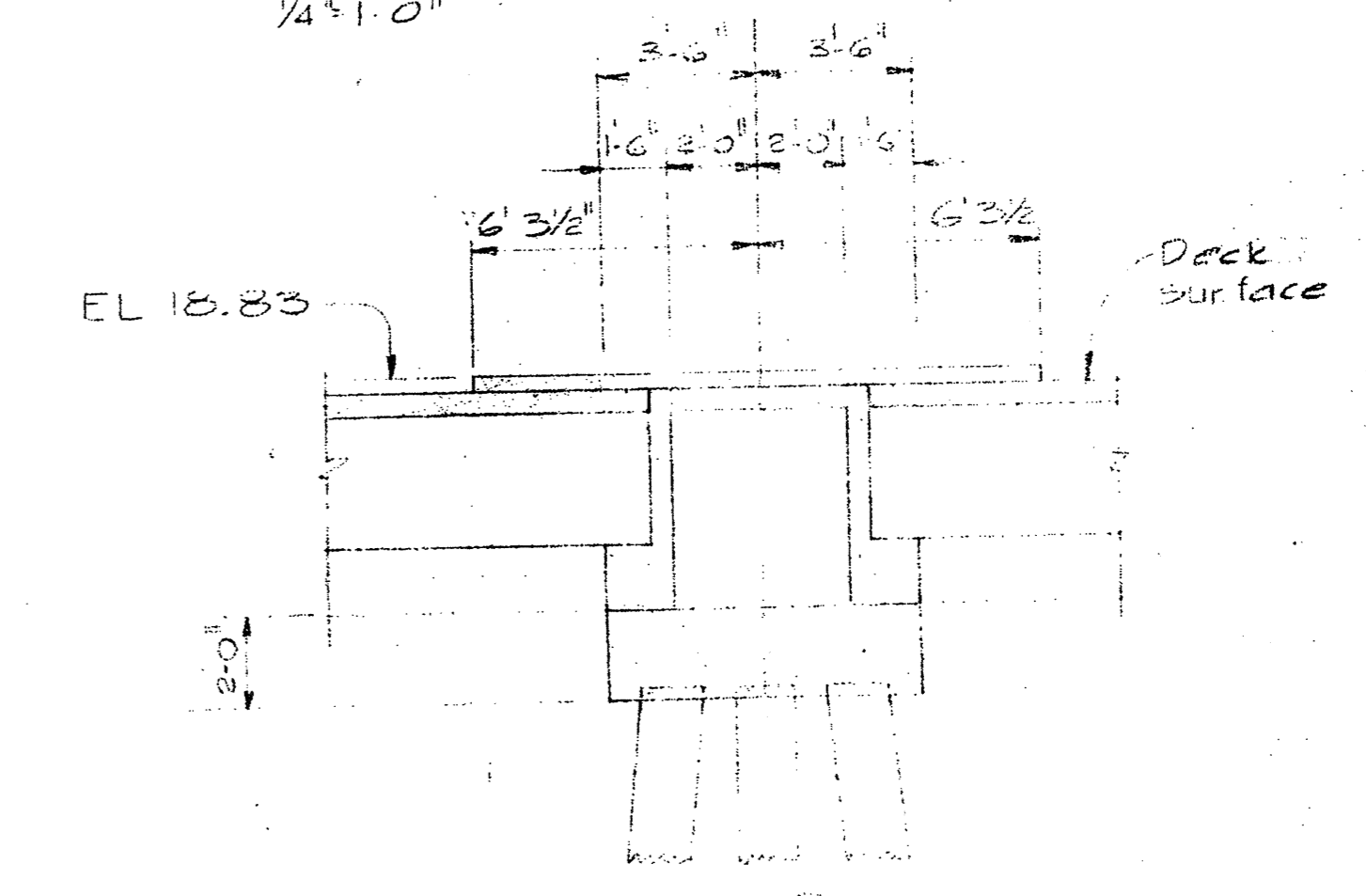
**SECTION E**  
3/4" = 1'-0"



**PLAN OF LAMP STANDARD BASE  
TO THE N.E. OF CRIB N° 6**  
1/2" = 1'-0"

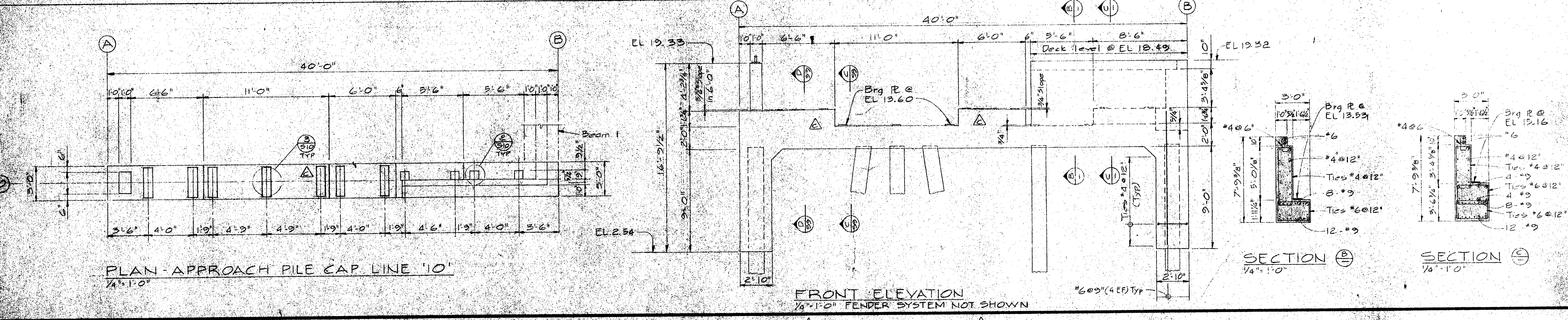
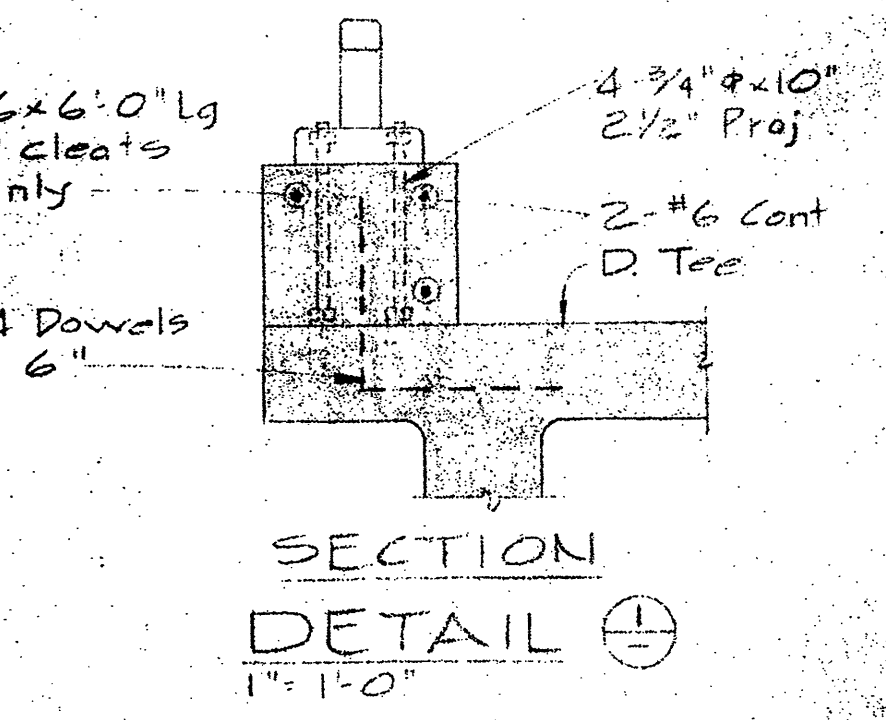
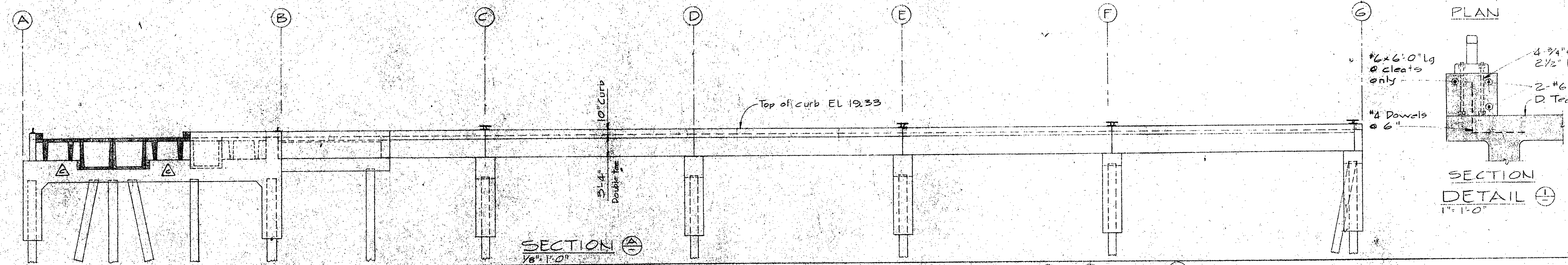
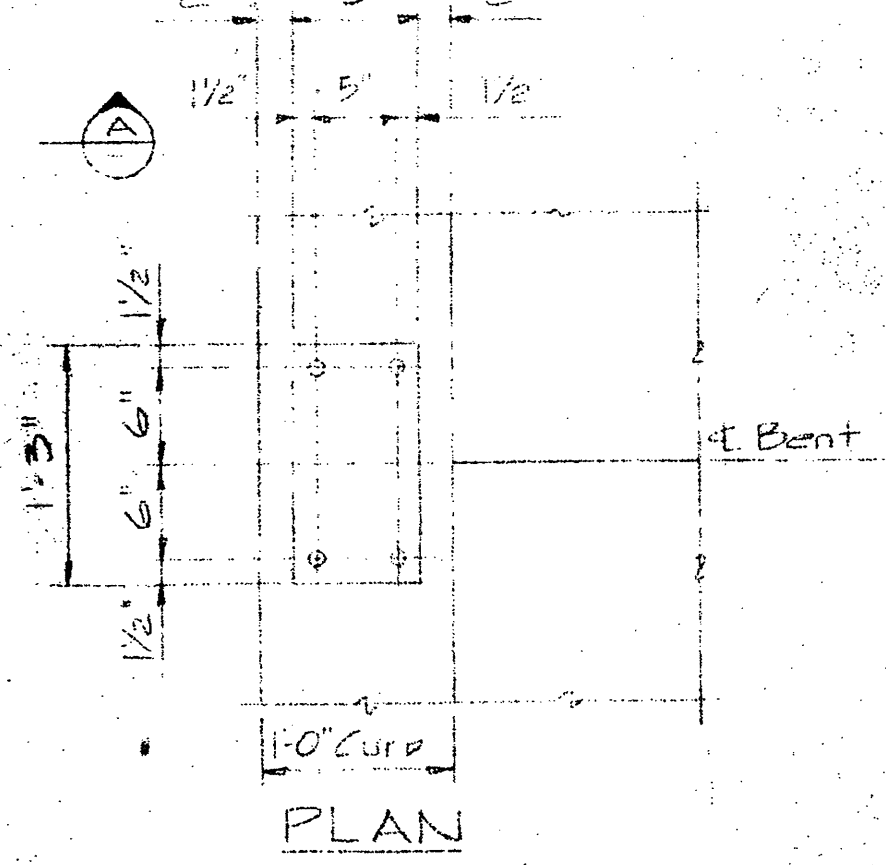
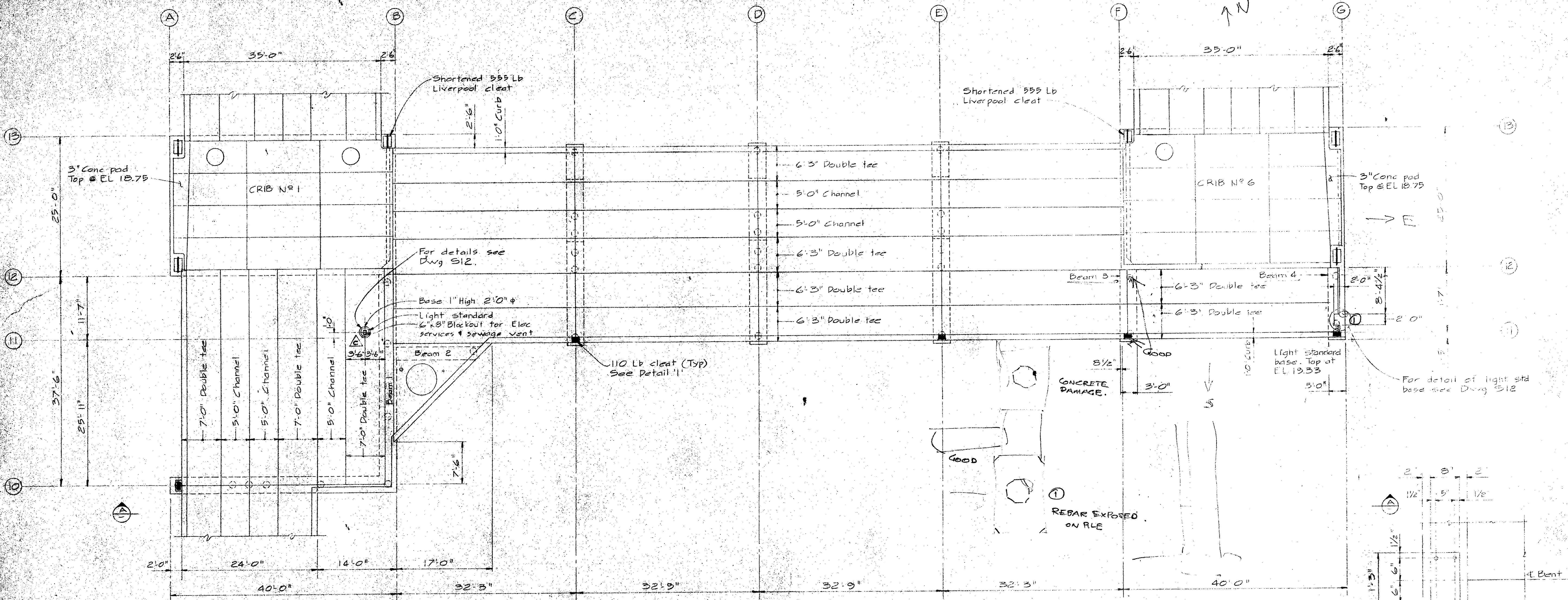


**SECTION G**  
1/2" = 1'-0"

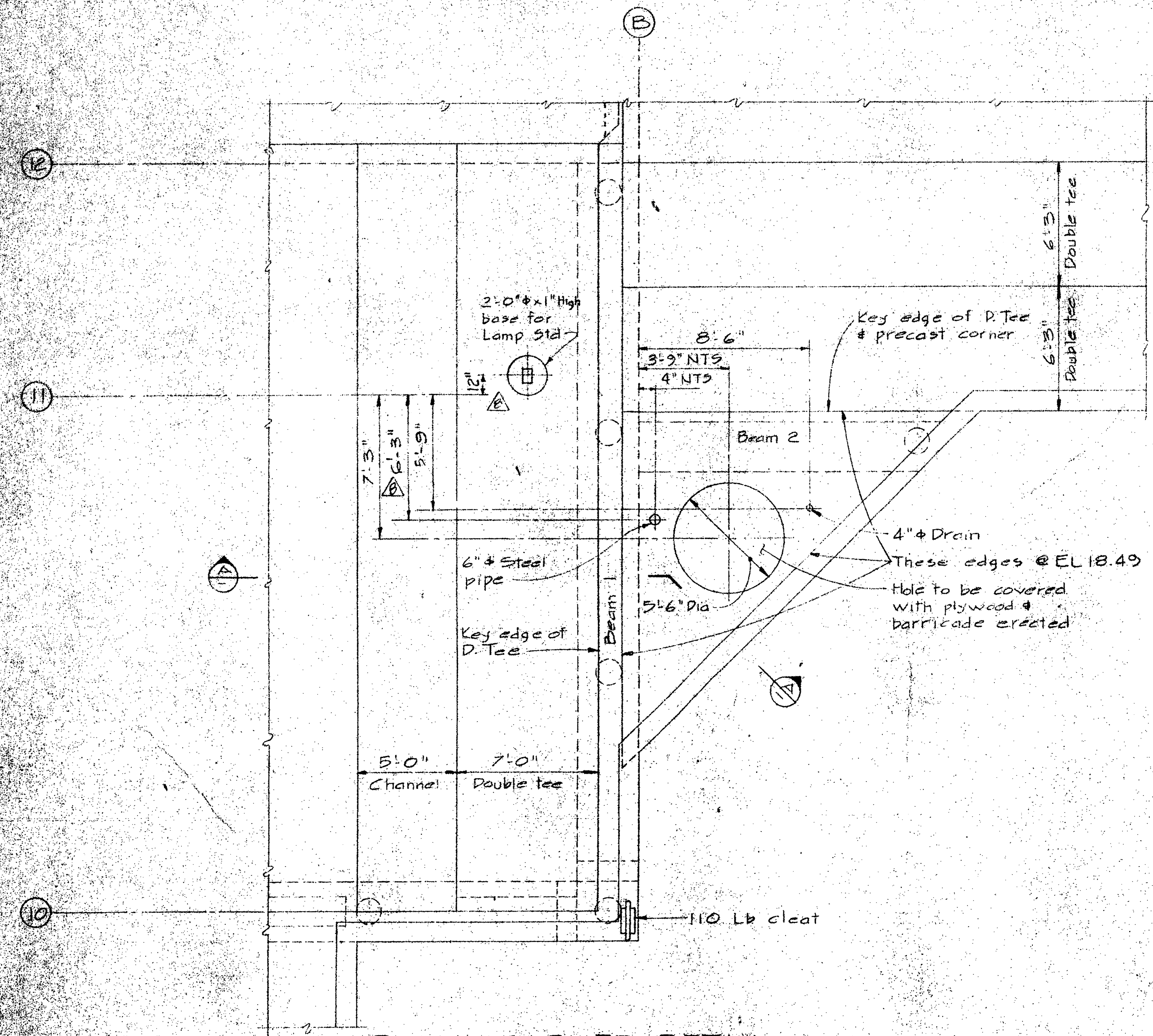


**SECTION D**  
1/4" = 1'-0"

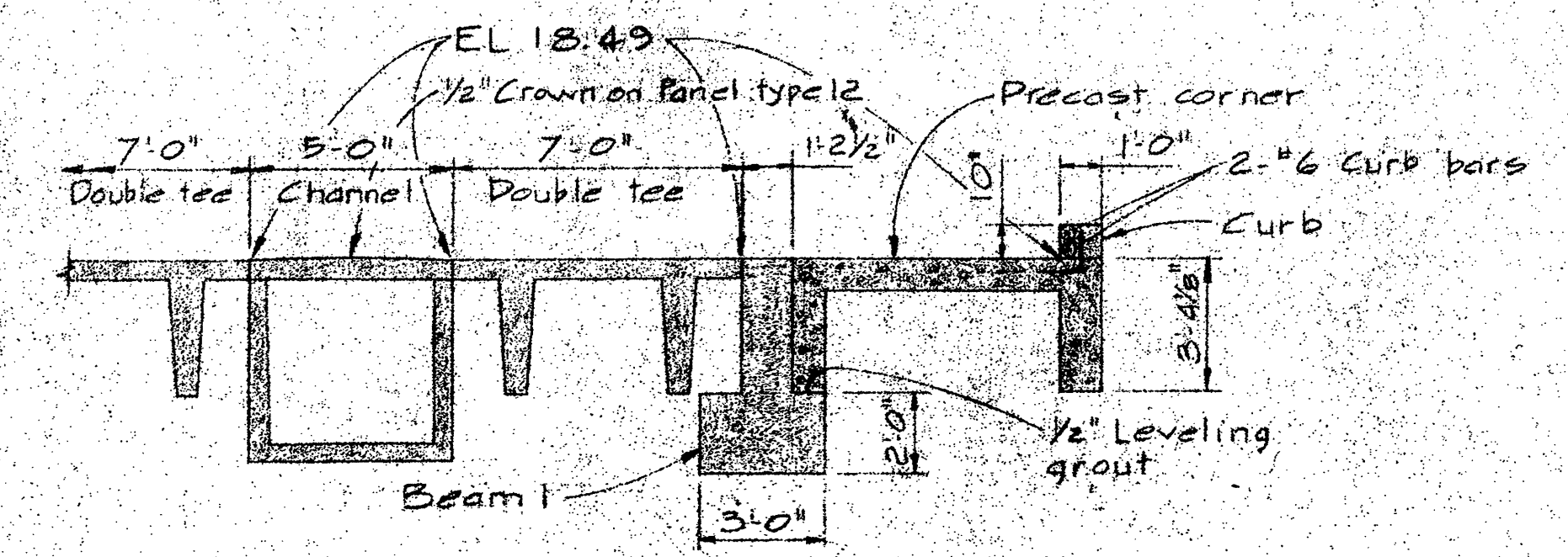




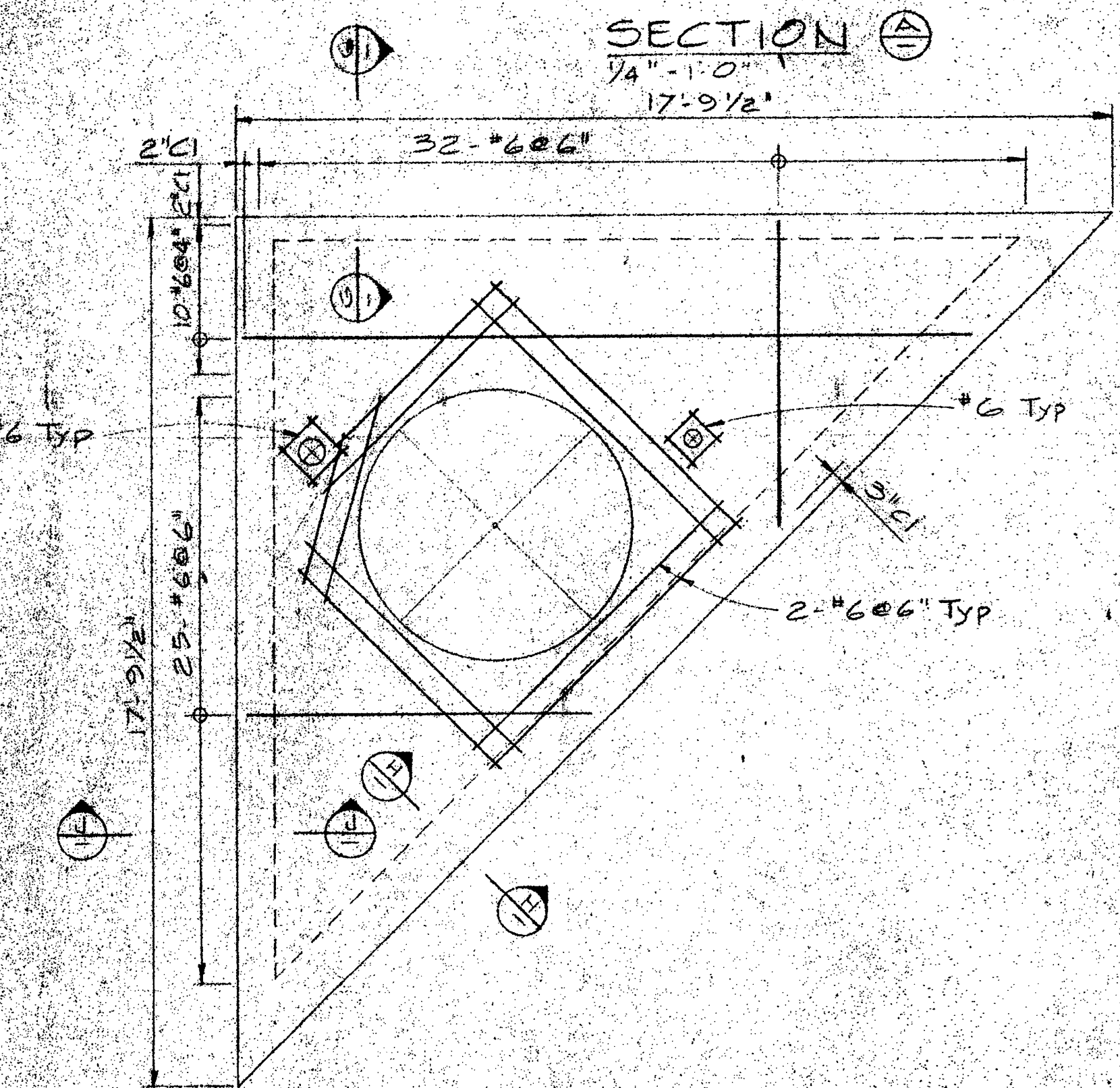




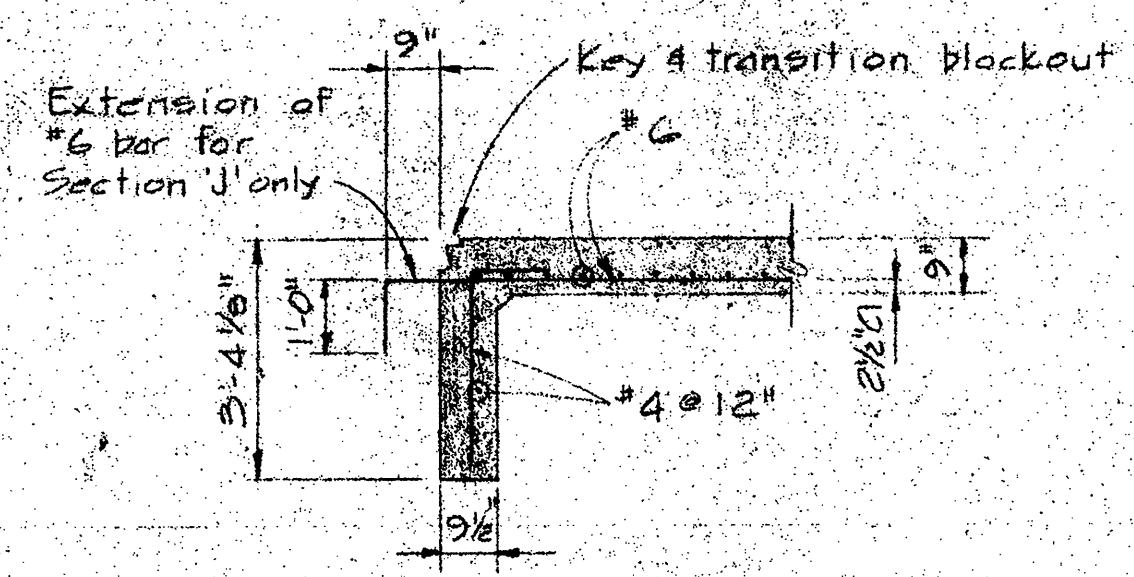
PLAN - CORNER DETAIL  
 1/4" x 1'-0"



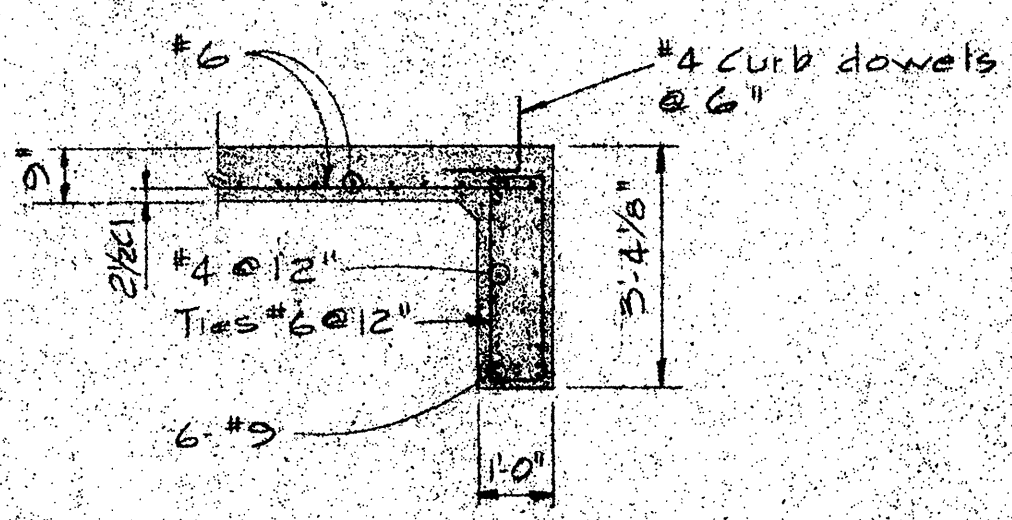
SECTION A-A  
 1/4" x 1'-0"



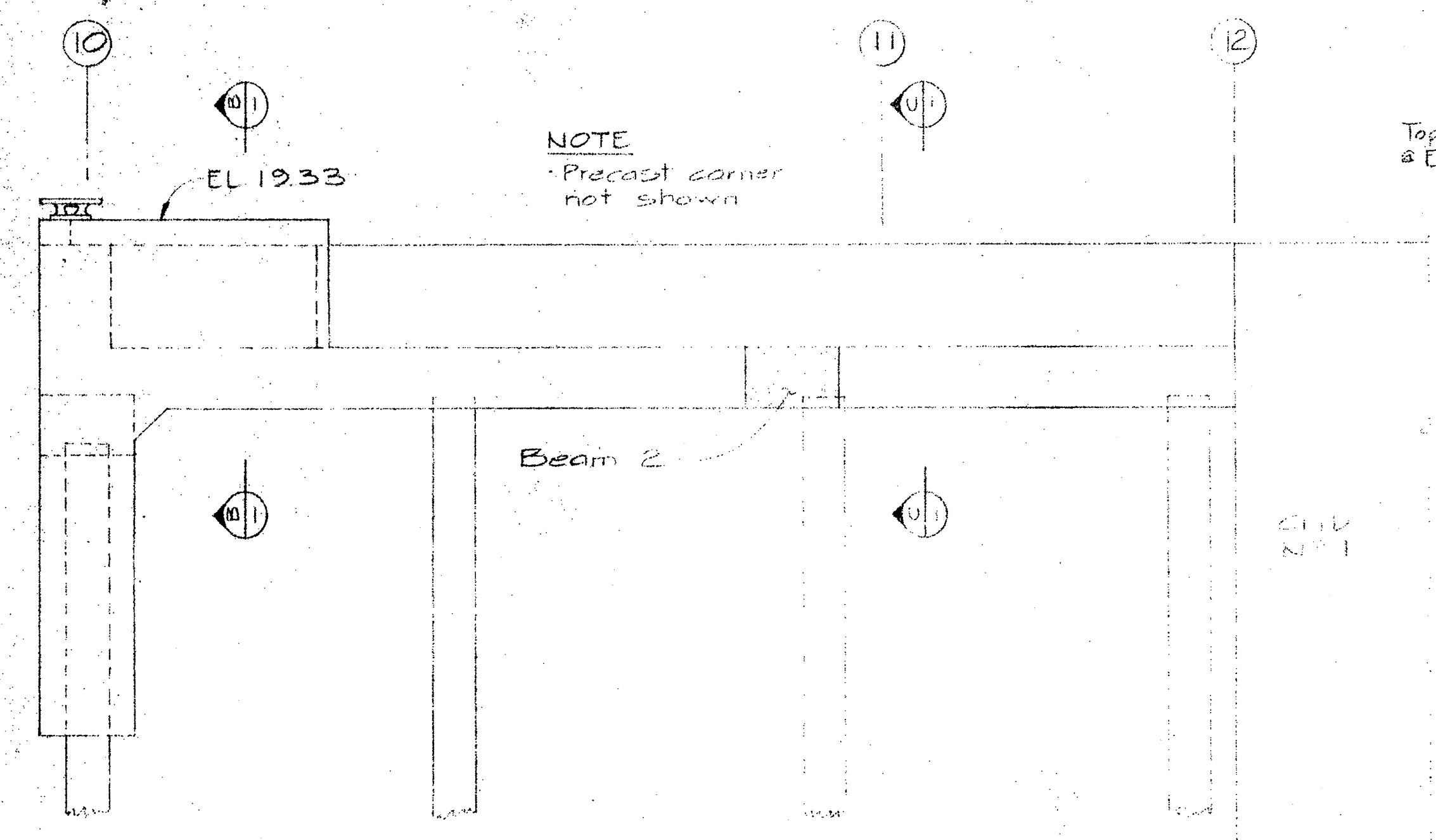
PLAN - PRECAST CORNER  
 3/8" x 1'-0"



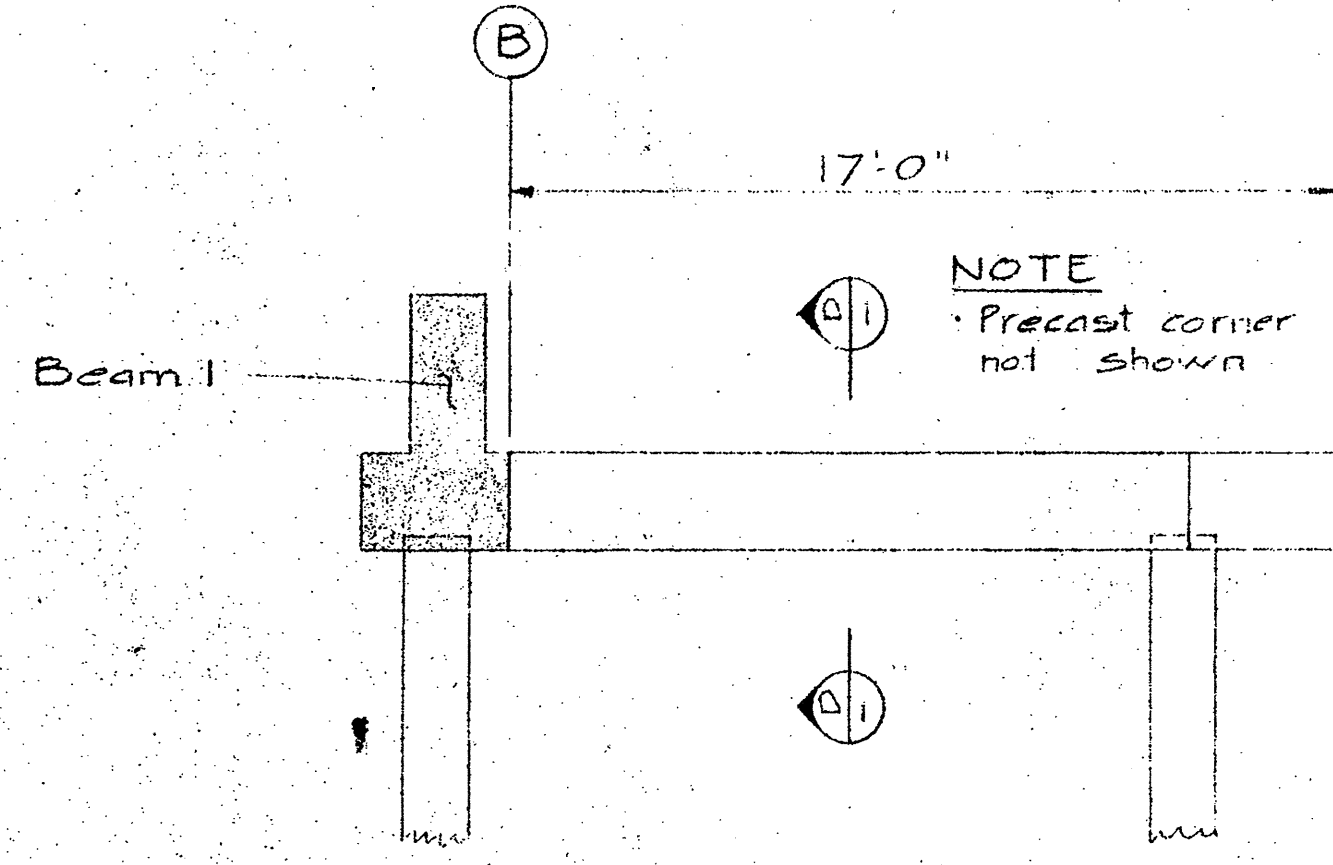
SECTION B-B SIM  
 EXCEPT AS NOTED  
 3/8" x 1'-0"



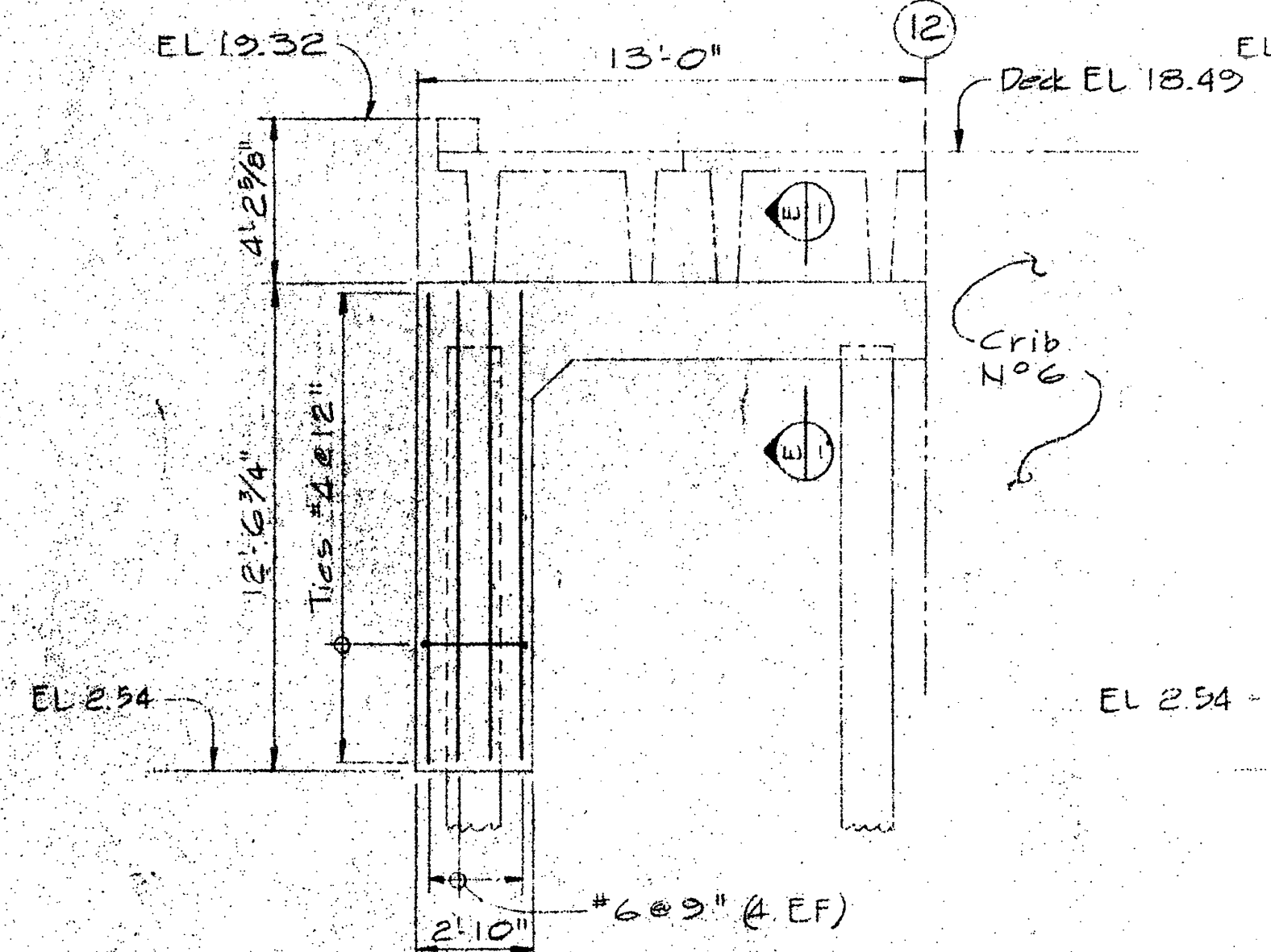
SECTION C-C  
 3/8" x 1'-0"



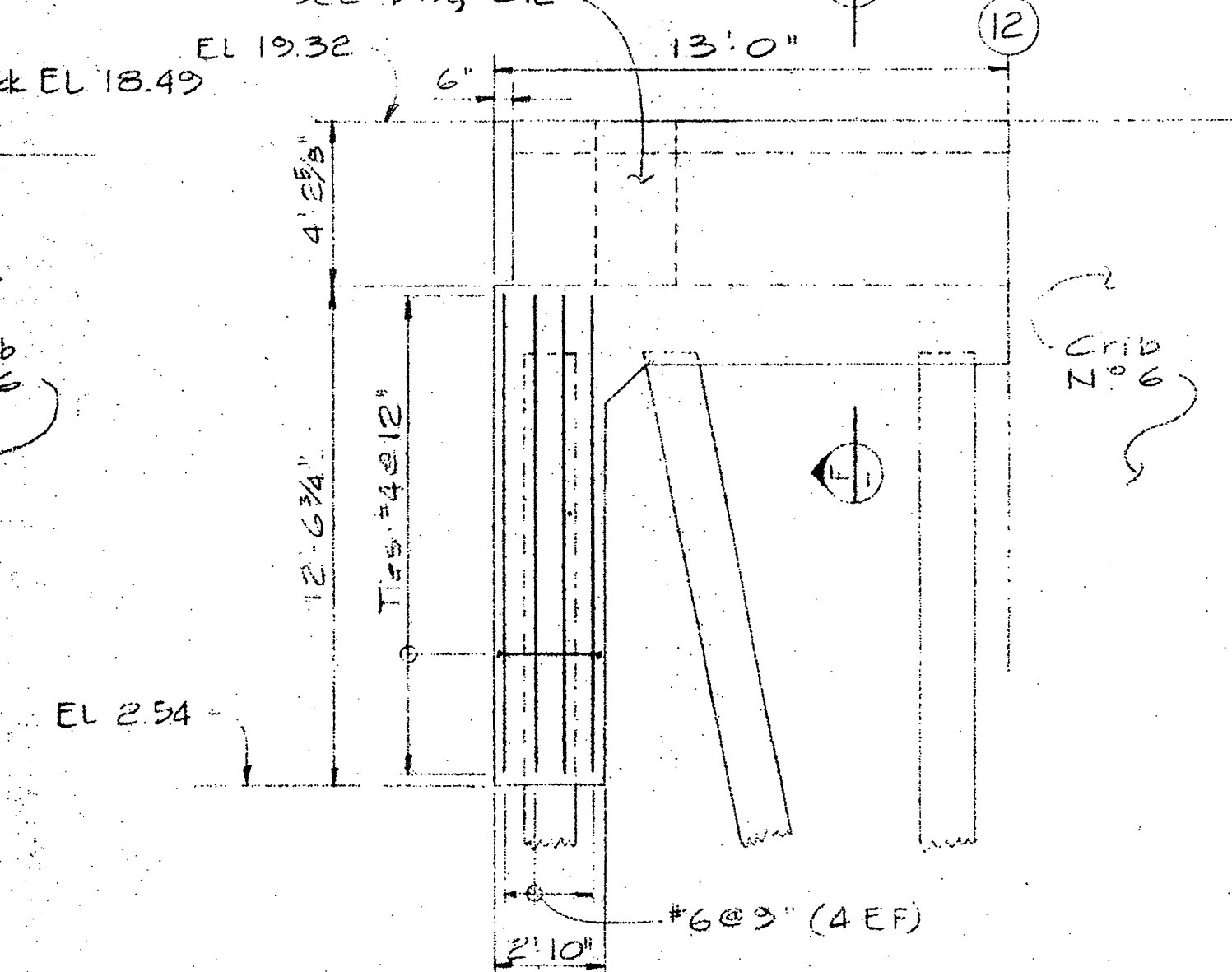
ELEVATION - BEAM 1  
 1/4" x 1'-0"



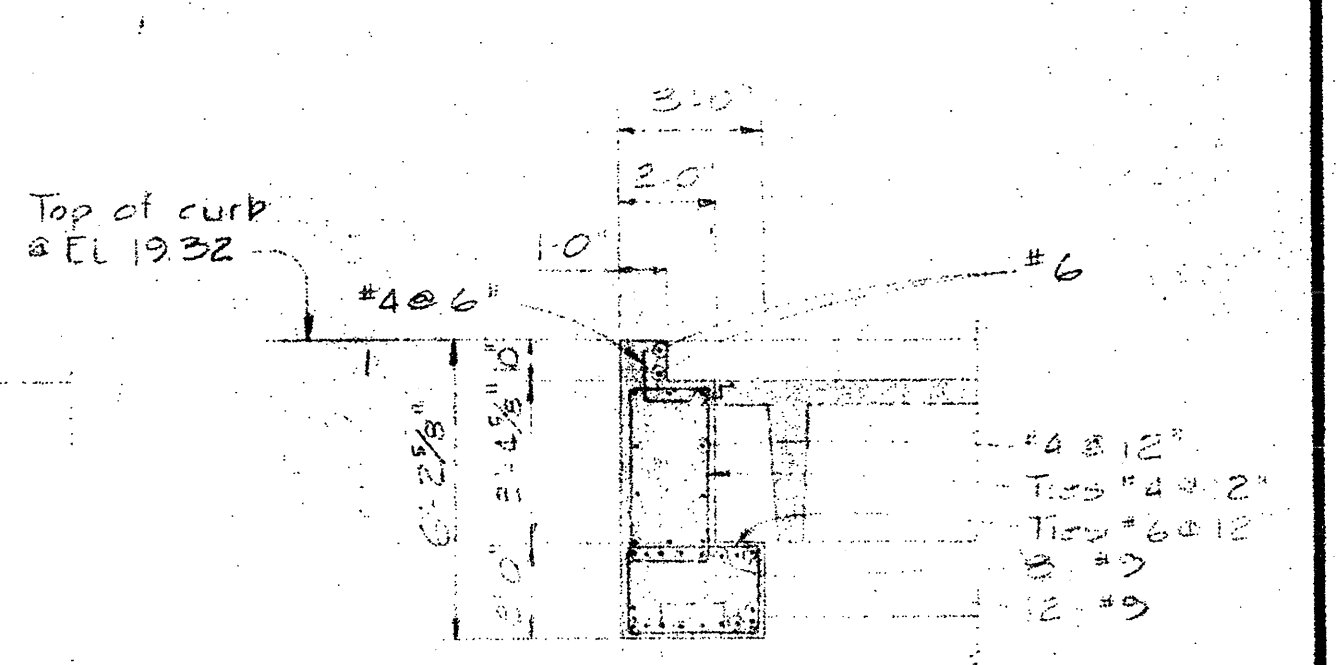
ELEVATION - BEAM 2  
 1/4" x 1'-0"



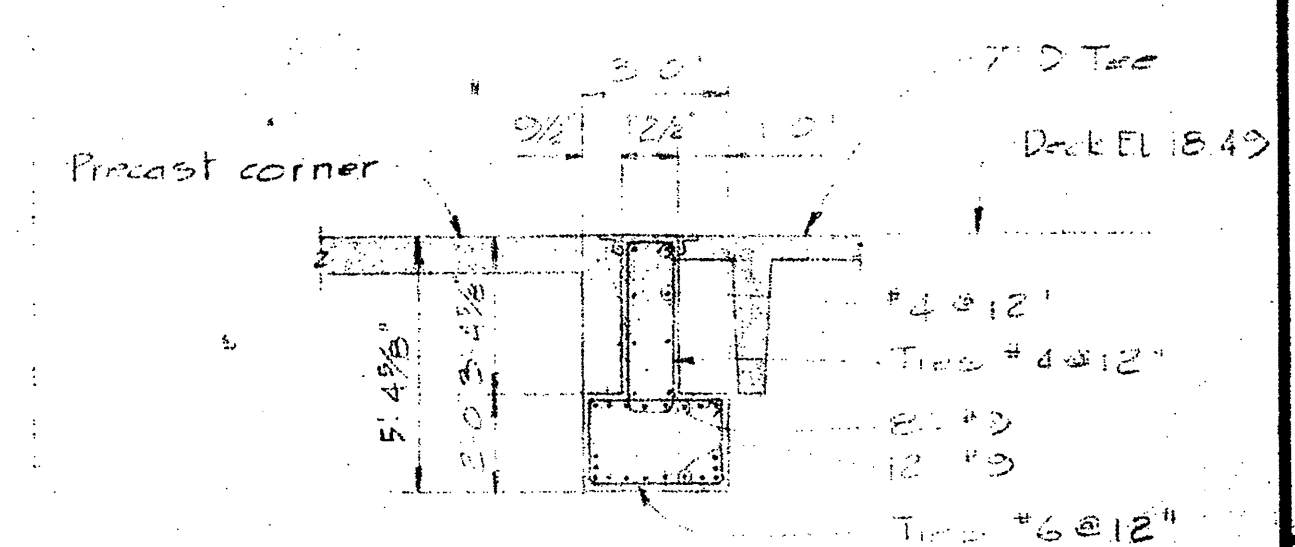
ELEVATION - BEAM 3  
 1/4" x 1'-0" FENDERS NOT SHOWN



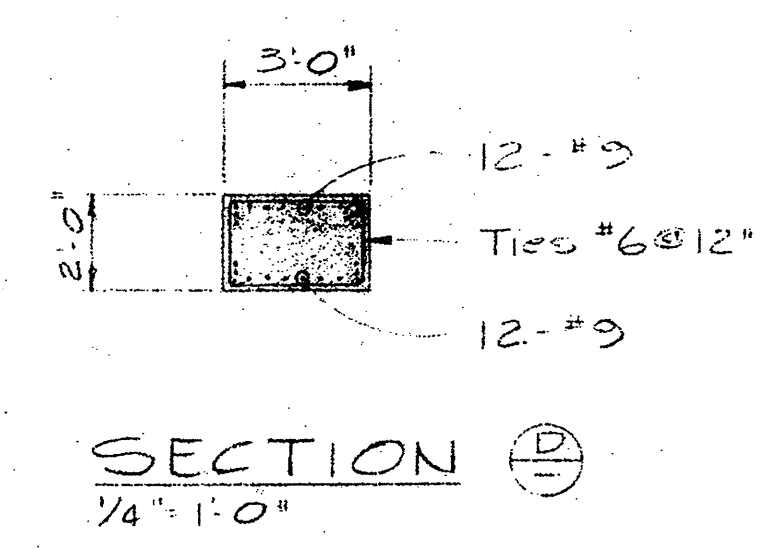
ELEVATION - BEAM 4  
 1/4" x 1'-0" FENDERS NOT SHOWN



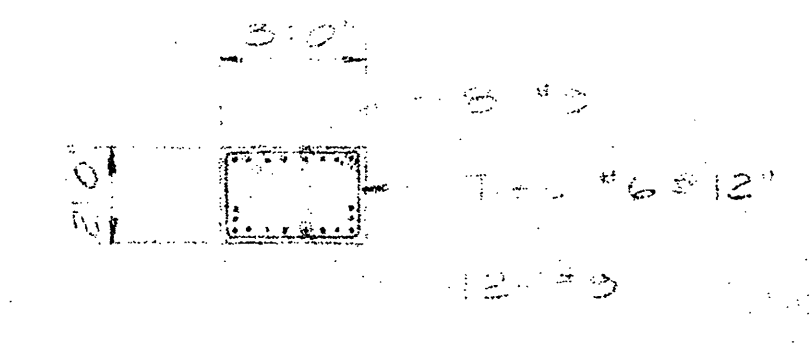
SECTION D-D  
 1/4" x 1'-0"



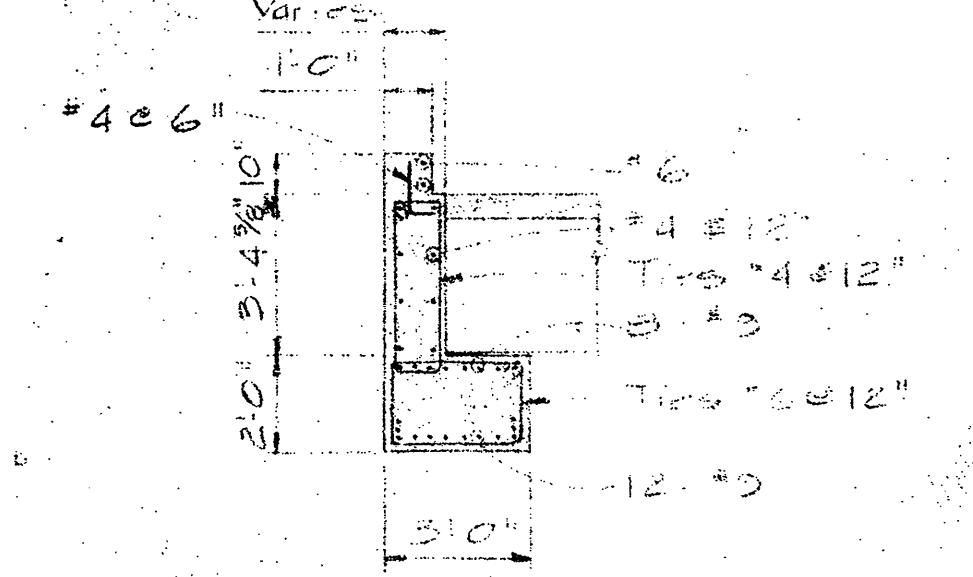
SECTION E-E  
 1/4" x 1'-0"



SECTION F-F  
 1/4" x 1'-0"



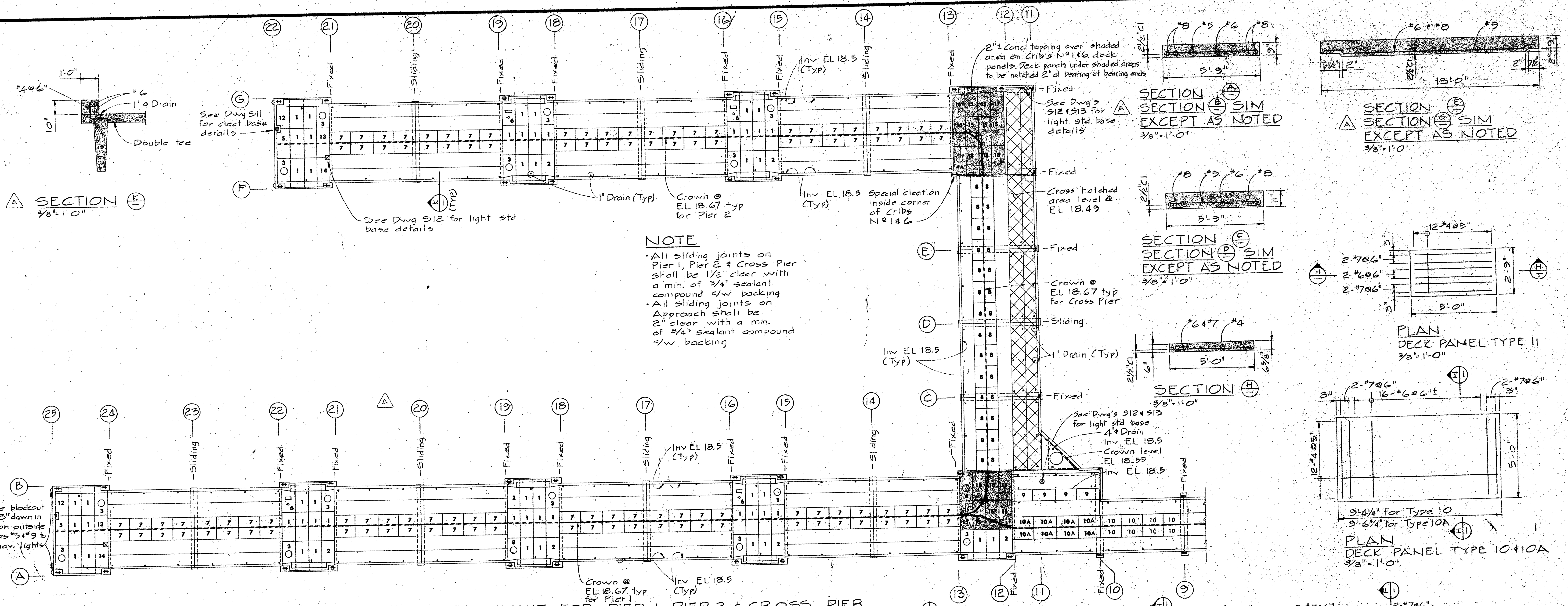
SECTION G-G  
 1/4" x 1'-0"



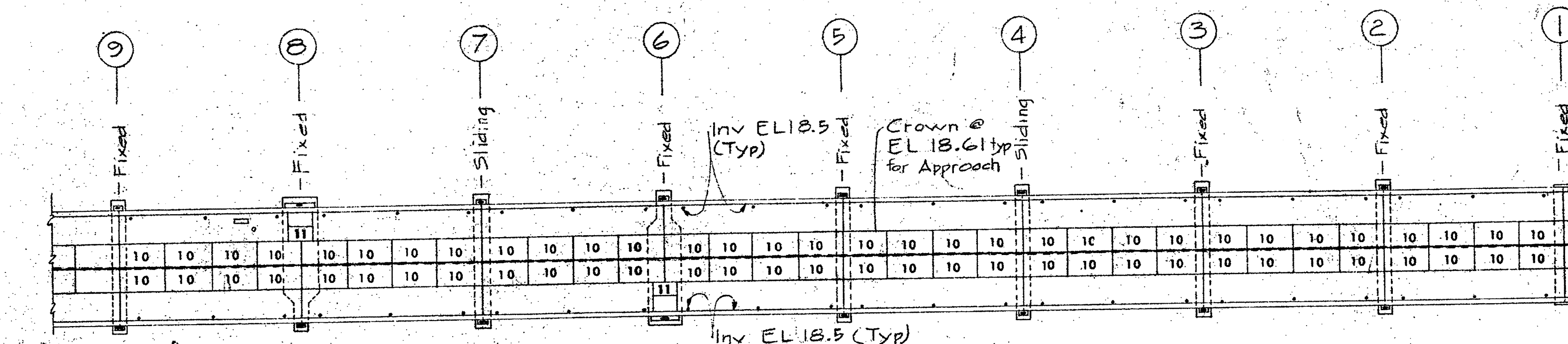
SECTION H-H  
 1/4" x 1'-0"



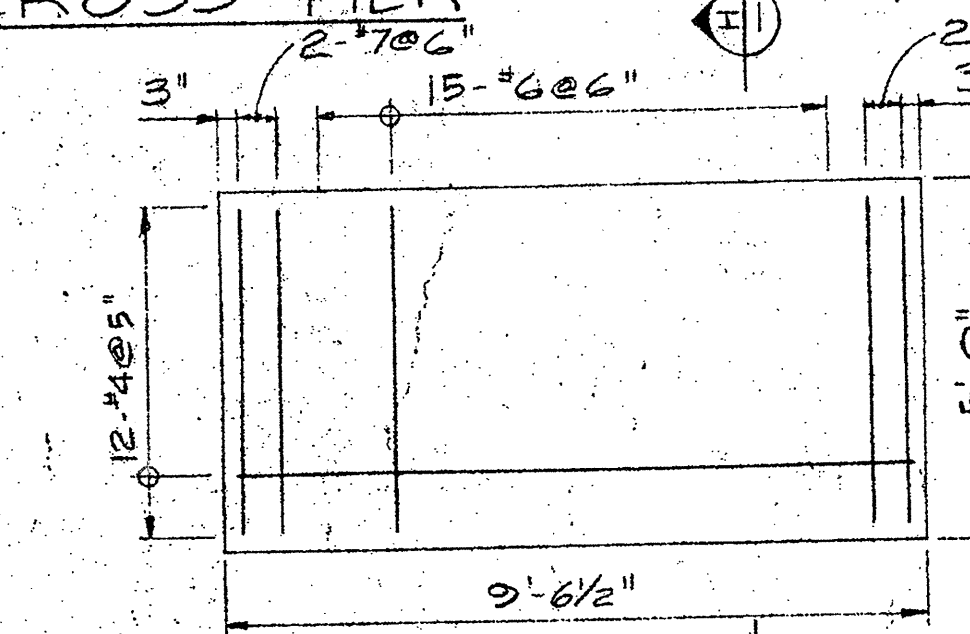
A detail no.      sheet no.  
 B location drawing no.      our design no.  
 C drawing no.      design no.  
 revisions  
 A - General revision. Fascia and deck panel type B19 deleted Dec 2/74.  
 B - General revision



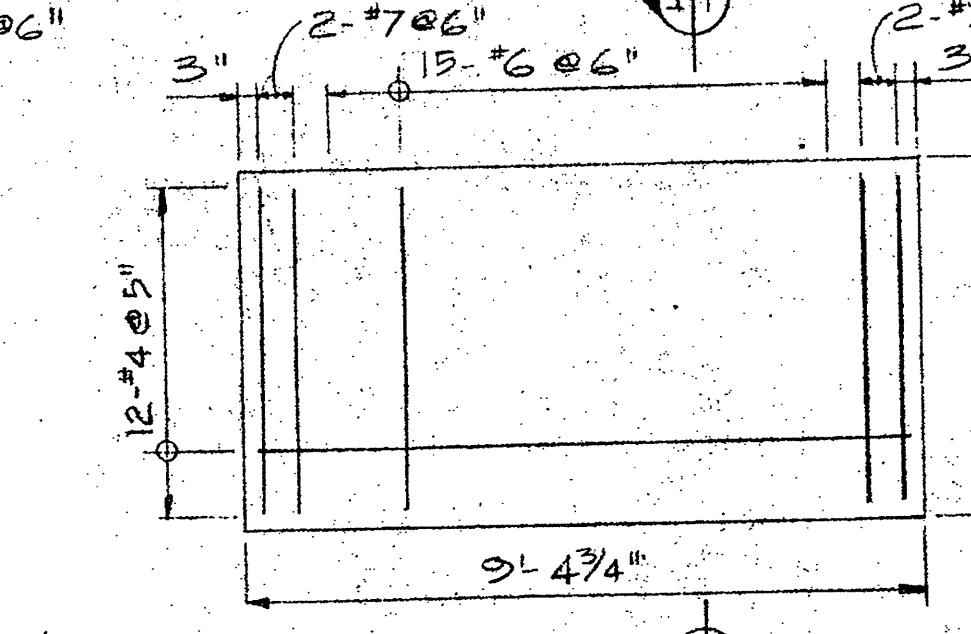
PLAN OF DECK PANEL LAYOUT FOR PIER 1, PIER 2 & CROSS PIER  
1" = 20"



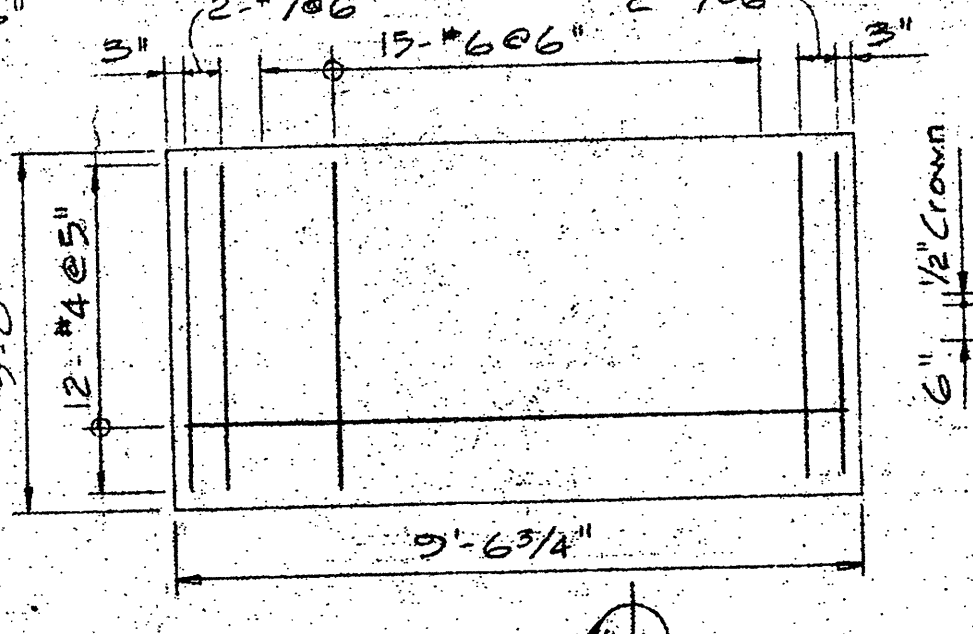
PLAN OF DECK PANEL LAYOUT FOR APPROACH  
1" = 20"



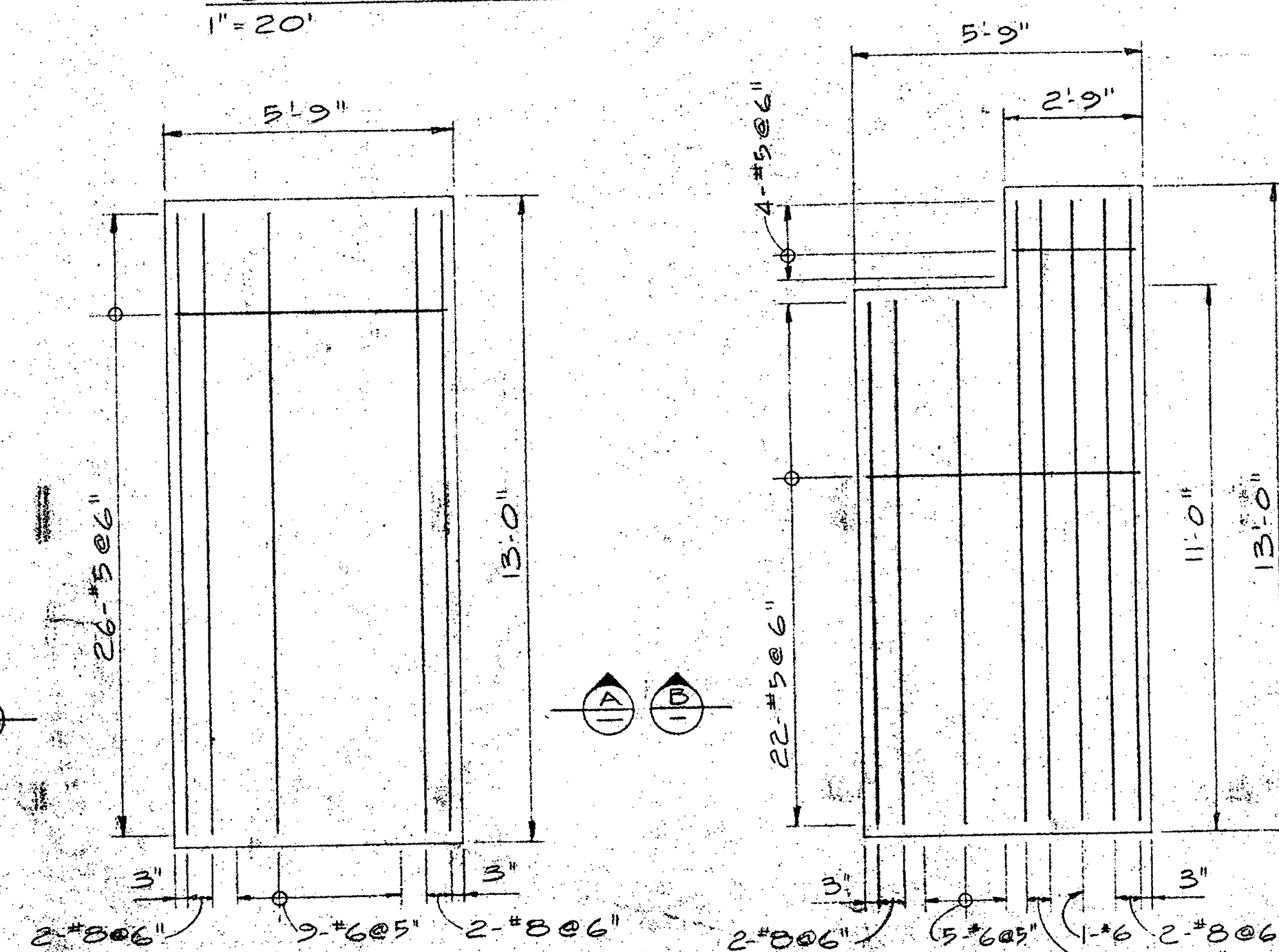
PLAN DECK PANEL TYPE 7  
3/8" = 1'-0"



PLAN DECK PANEL TYPE 8  
3/8" = 1'-0"

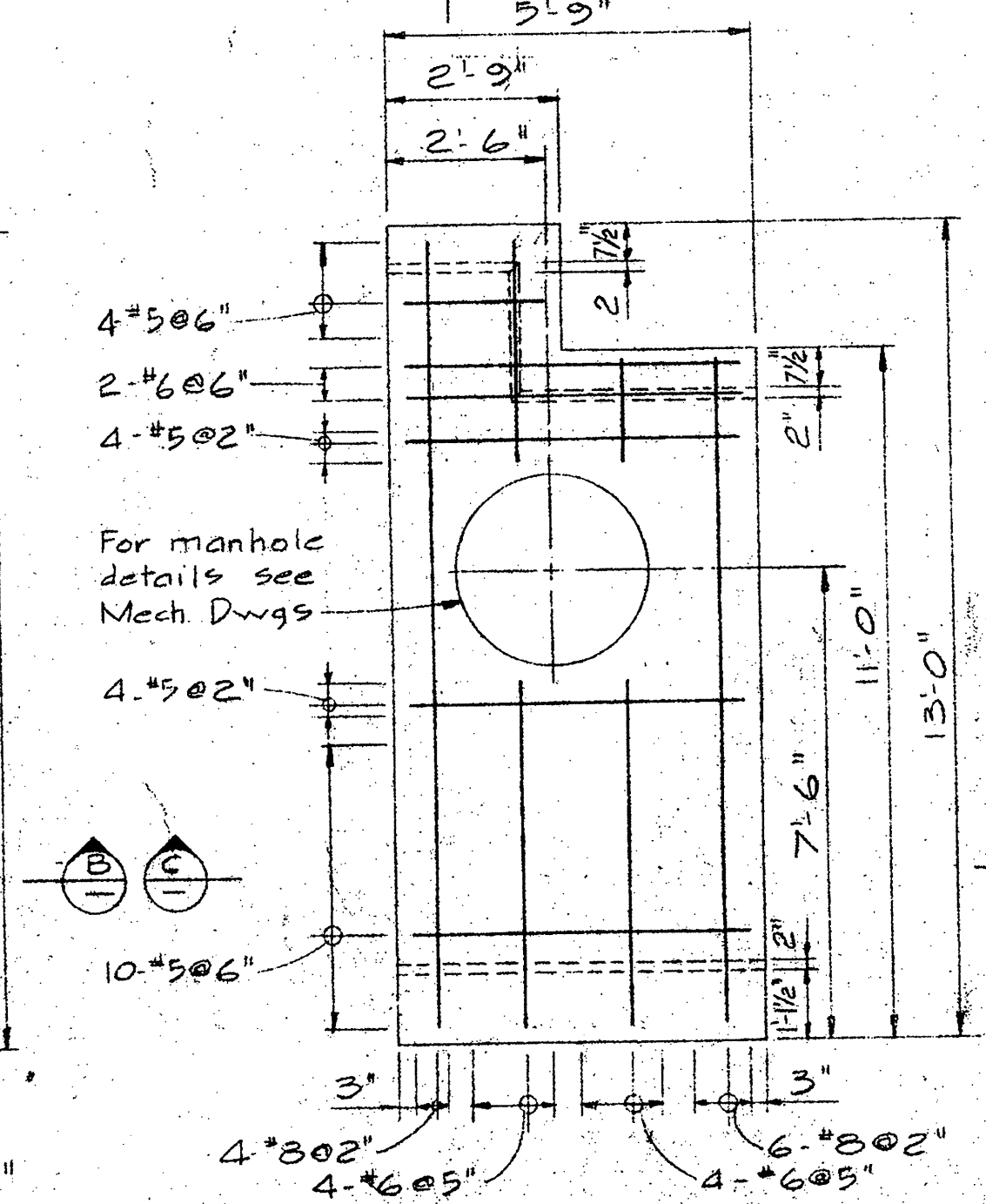


PLAN DECK PANEL TYPE 9  
3/8" = 1'-0"

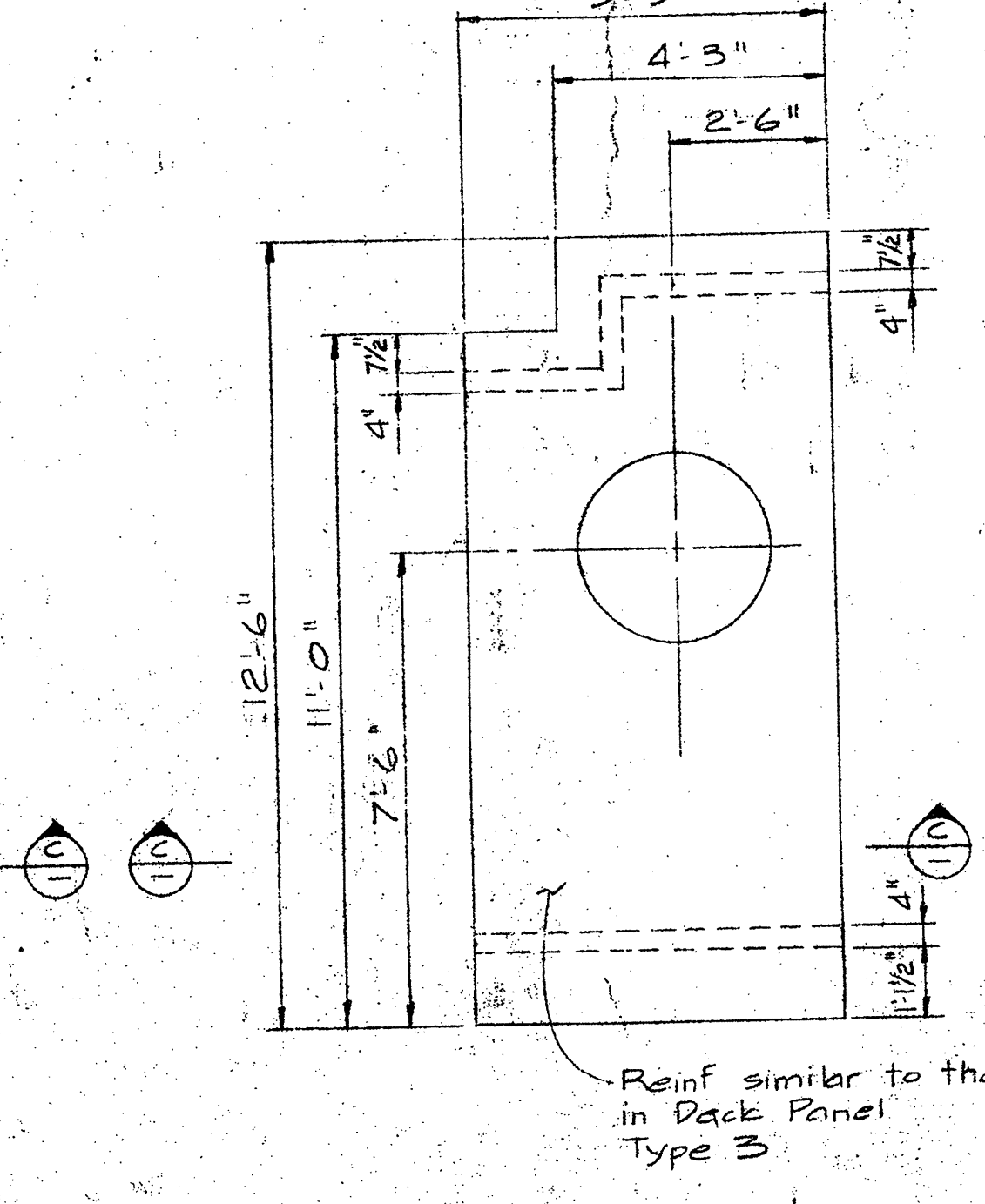


PLAN DECK PANEL TYPE 1  
3/8" = 1'-0"

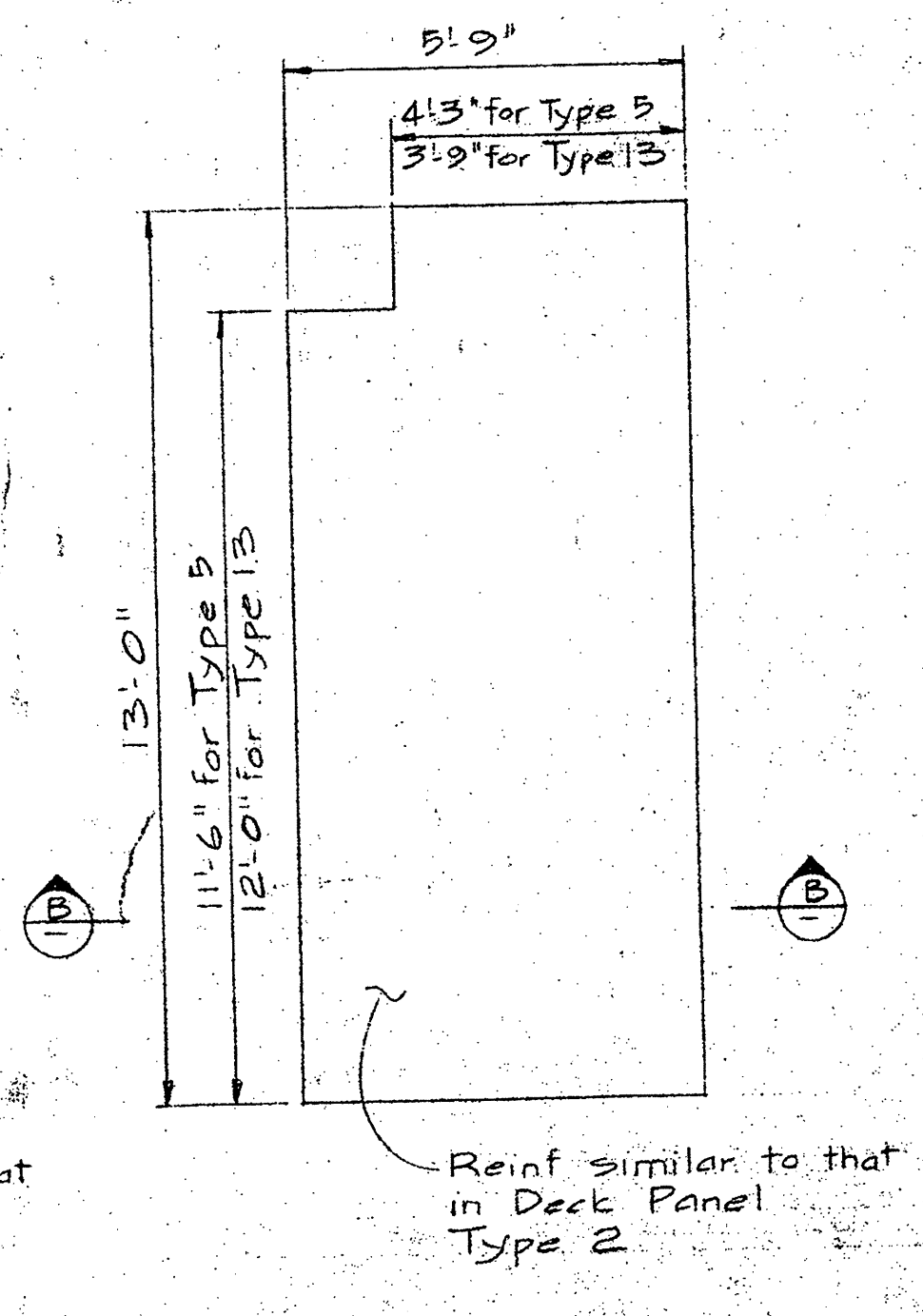
PLAN DECK PANEL TYPE 2  
3/8" = 1'-0"



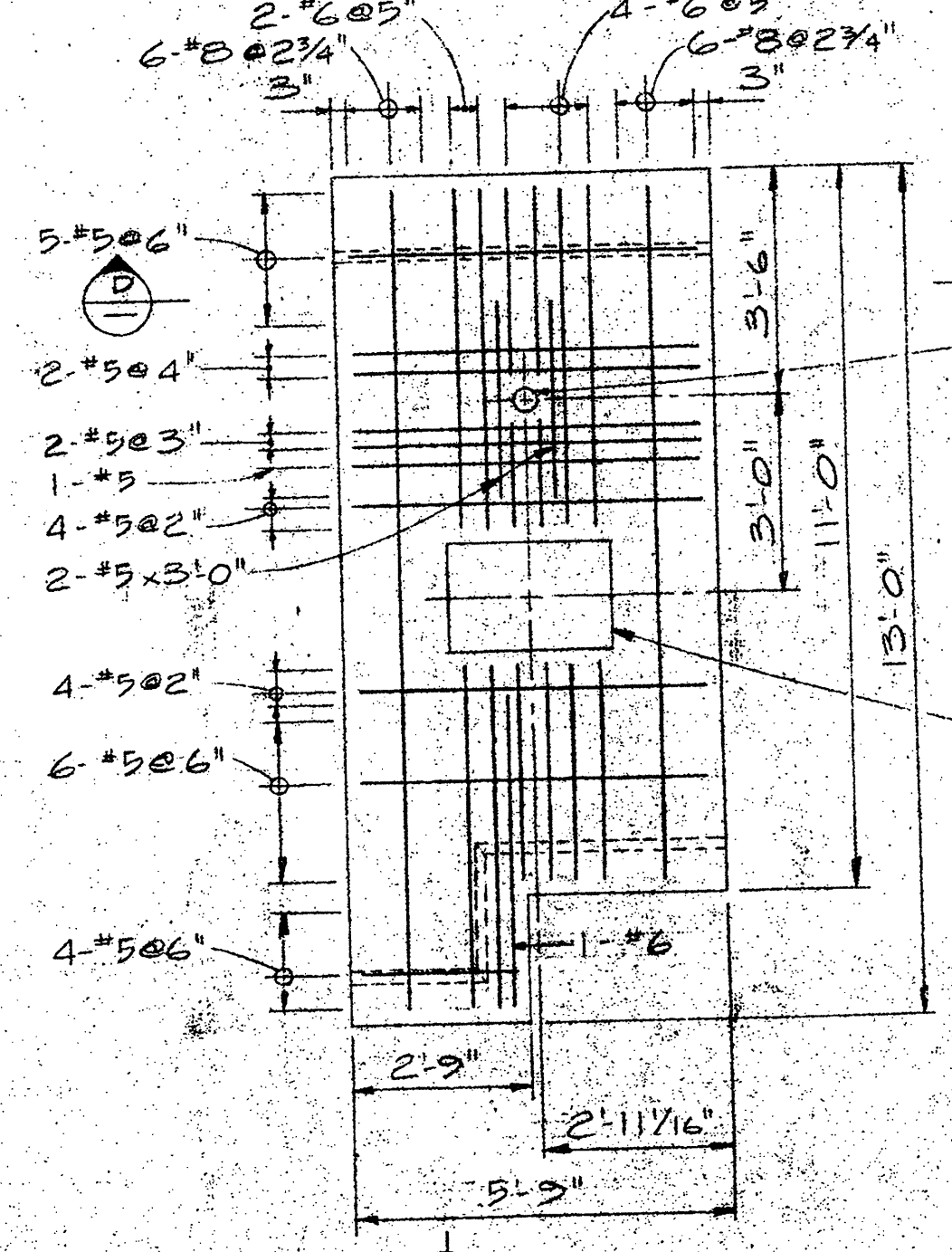
PLAN DECK PANEL TYPE 3  
3/8" = 1'-0"



PLAN DECK PANEL TYPE 4  
3/8" = 1'-0" (TYPE 4A SIM)



PLAN DECK PANEL TYPE 5 #13  
3/8" = 1'-0"



PLAN DECK PANEL TYPE 6  
3/8" = 1'-0"

**LEGEND**

- Denotes crown for drainage
- Denotes deck panel type
- Light standard
- 555 Lb Liverpool cleat
- 110 Lb Two post cleat
- Manhole
- Fire hydrant 4 valve

**NOTE**

- All sliding joints on Pier 1, Pier 2 & Cross Pier shall be 1/2" clear with a min. of 3/4" sealant compound w/ backing.
- All sliding joints on Approach shall be 2" clear with a min. of 3/4" sealant compound w/ backing.

SECTION A SIM EXCEPT AS NOTED  
3/8" = 1'-0"

SECTION B SIM EXCEPT AS NOTED  
3/8" = 1'-0"

SECTION C SIM EXCEPT AS NOTED  
3/8" = 1'-0"

SECTION D SIM EXCEPT AS NOTED  
3/8" = 1'-0"

SECTION E SIM EXCEPT AS NOTED  
3/8" = 1'-0"

SECTION F SIM EXCEPT AS NOTED  
3/8" = 1'-0"

SECTION G SIM EXCEPT AS NOTED  
3/8" = 1'-0"

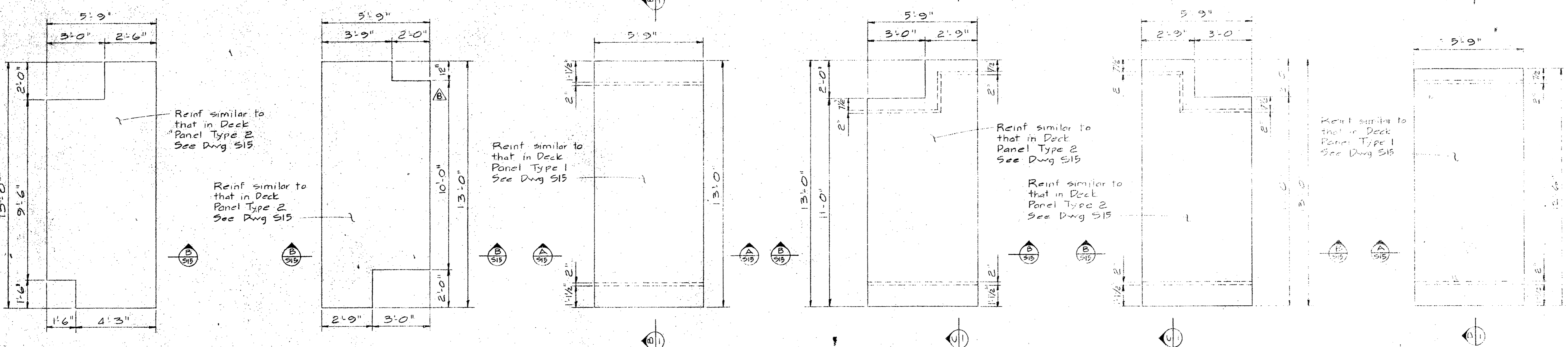
SECTION H SIM EXCEPT AS NOTED  
3/8" = 1'-0"

PLAN DECK PANEL TYPE II  
3/8" = 1'-0"

PLAN DECK PANEL TYPE 10 + 10A  
3/8" = 1'-0"

SECTION I SIM EXCEPT AS NOTED  
3/8" = 1'-0"





PLAN DECK PANEL TYPE 12  
3/8" x 1'-0"

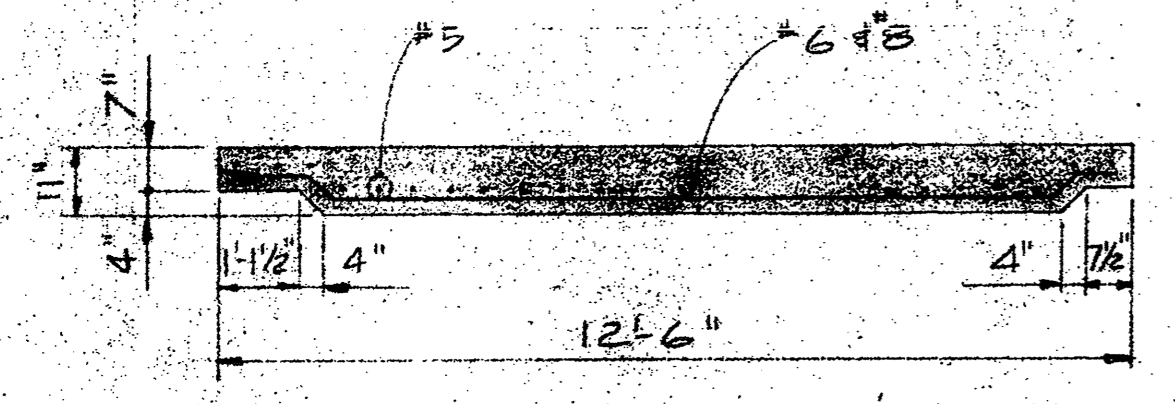
PLAN DECK PANEL TYPE 14  
3/8" x 1'-0"

PLAN DECK PANEL TYPE 15  
3/8" x 1'-0"

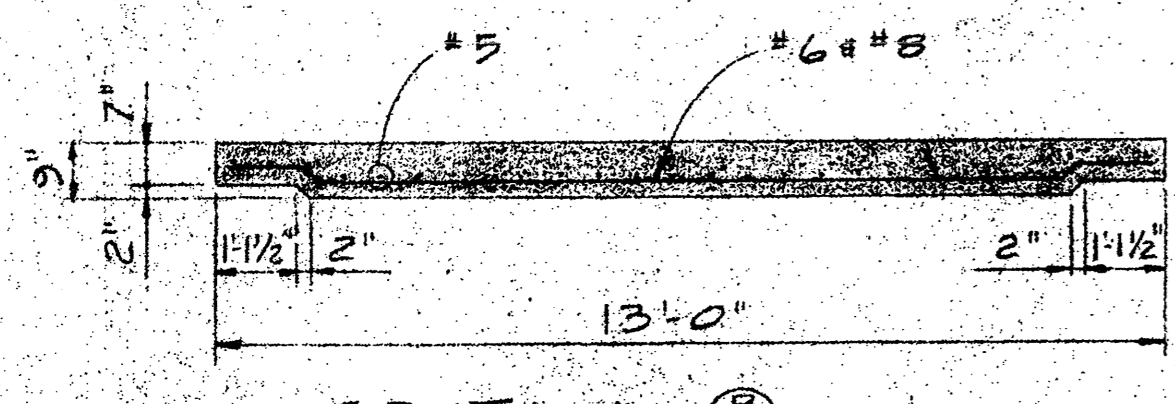
PLAN DECK PANEL TYPE 16  
3/8" x 1'-0"

PLAN DECK PANEL TYPE 17  
3/8" x 1'-0"

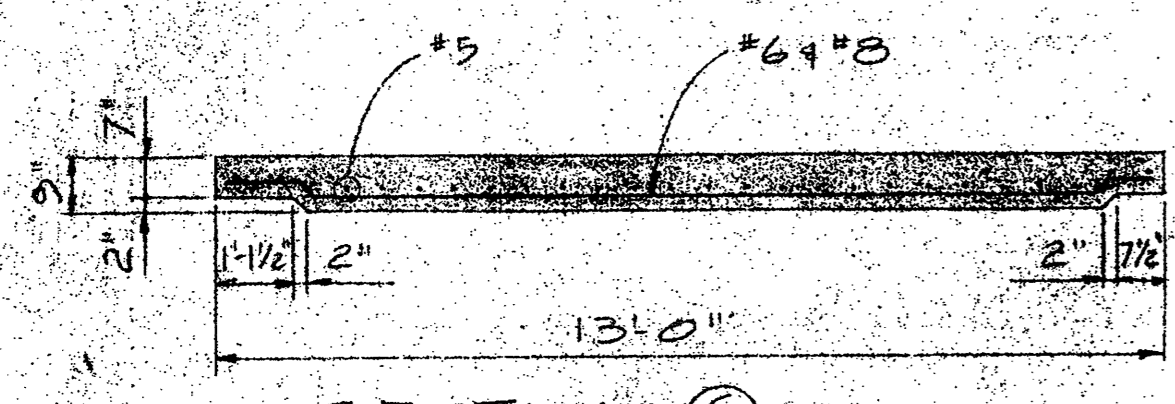
PLAN DECK PANEL TYPE 18  
3/8" x 1'-0"



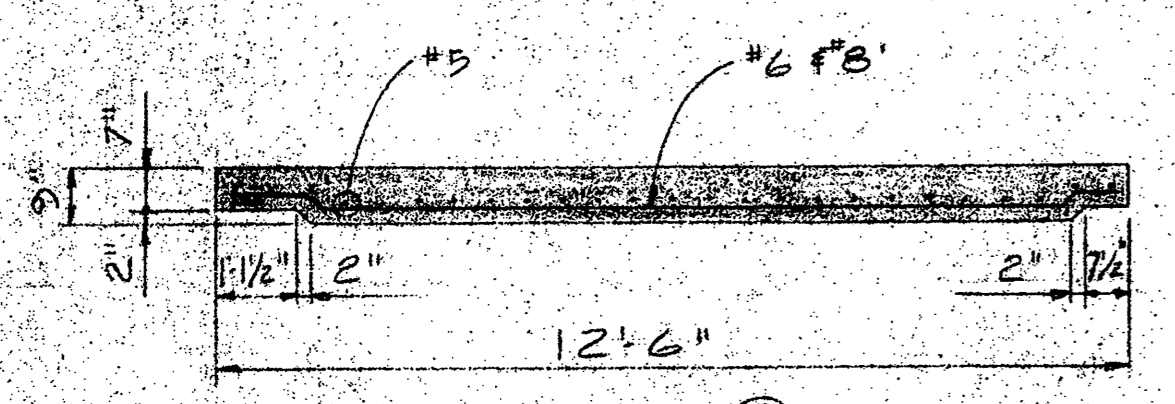
SECTION A-A  
3/8" x 1'-0"



SECTION B-B  
3/8" x 1'-0"



SECTION C-C  
3/8" x 1'-0"

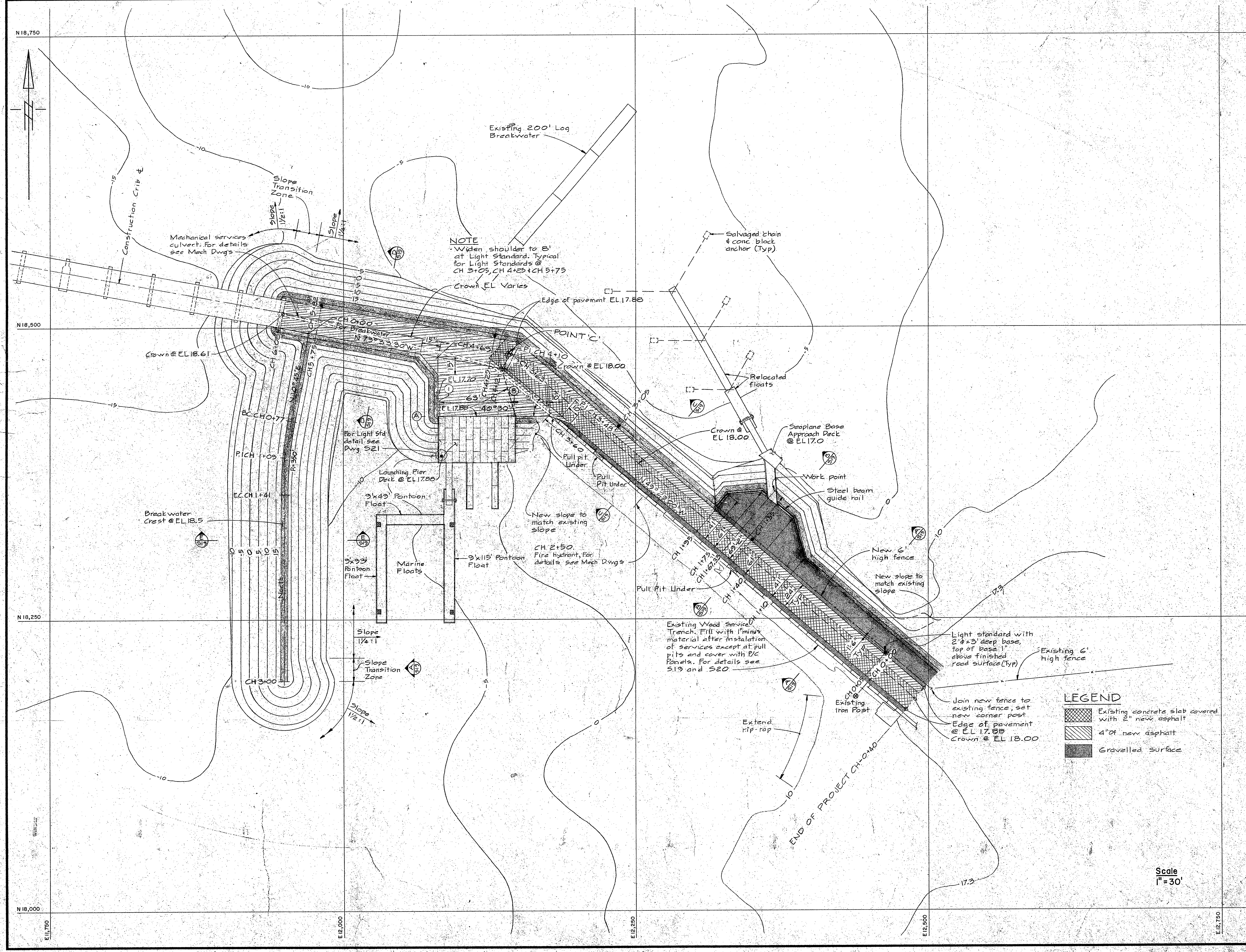


SECTION D-D  
3/8" x 1'-0"









A detail no.	detail no.
B location drawing no.	sur dessin no.
C drawing no.	dessin no.
revisions	date
A - General revision Dec 8/74	
B - General revision	

project title / titre du projet

**PATRICIA BAY, B.C. MARINE FACILITY**

drawing title / titre du dessin

**CAUSEWAY GENERAL ARRANGEMENT**

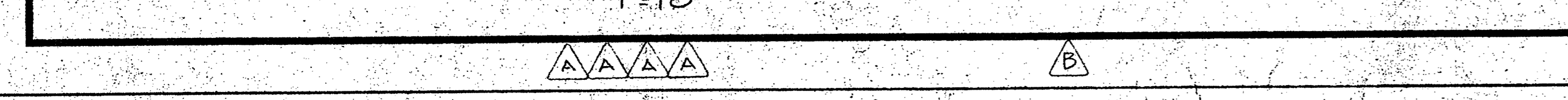
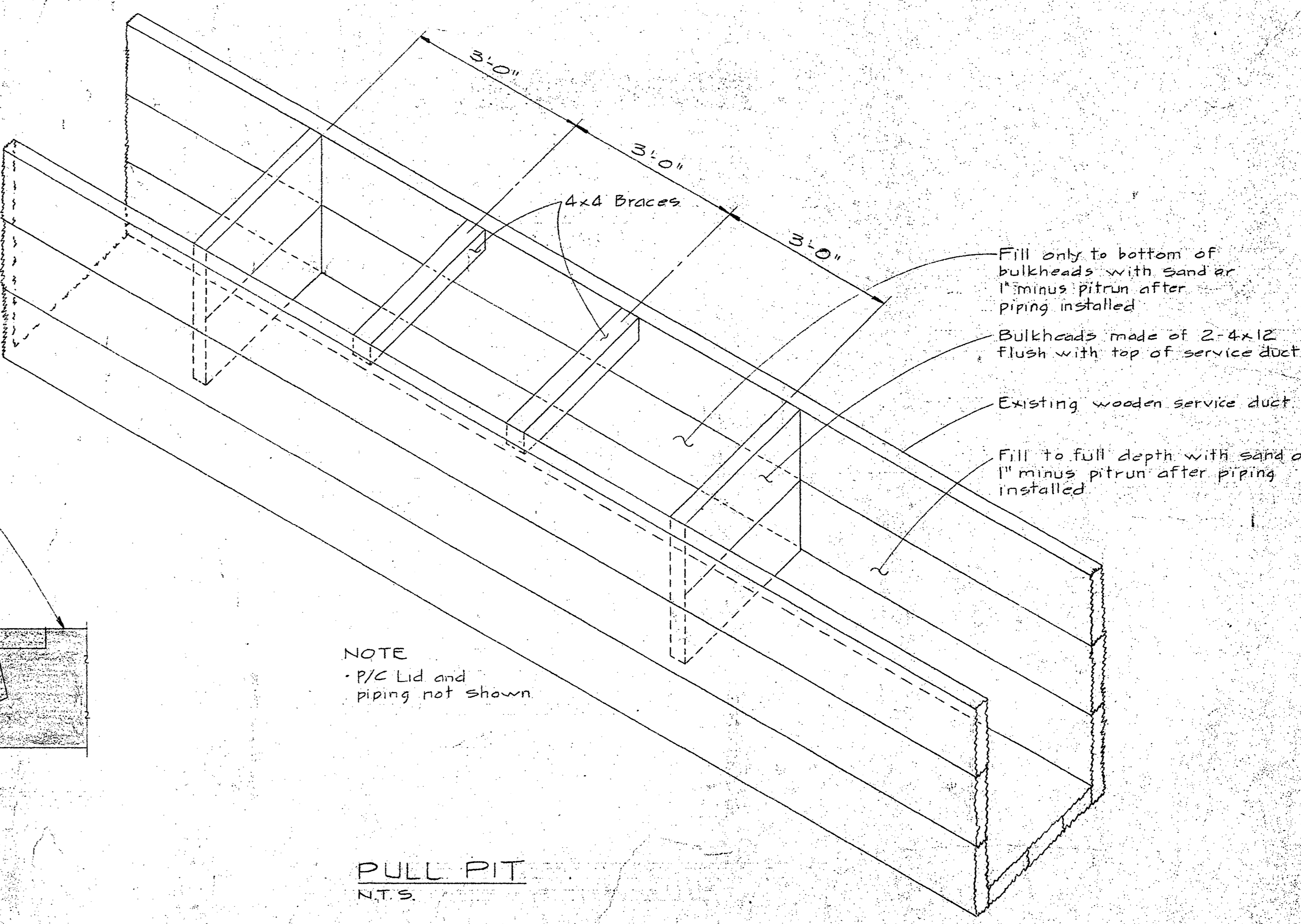
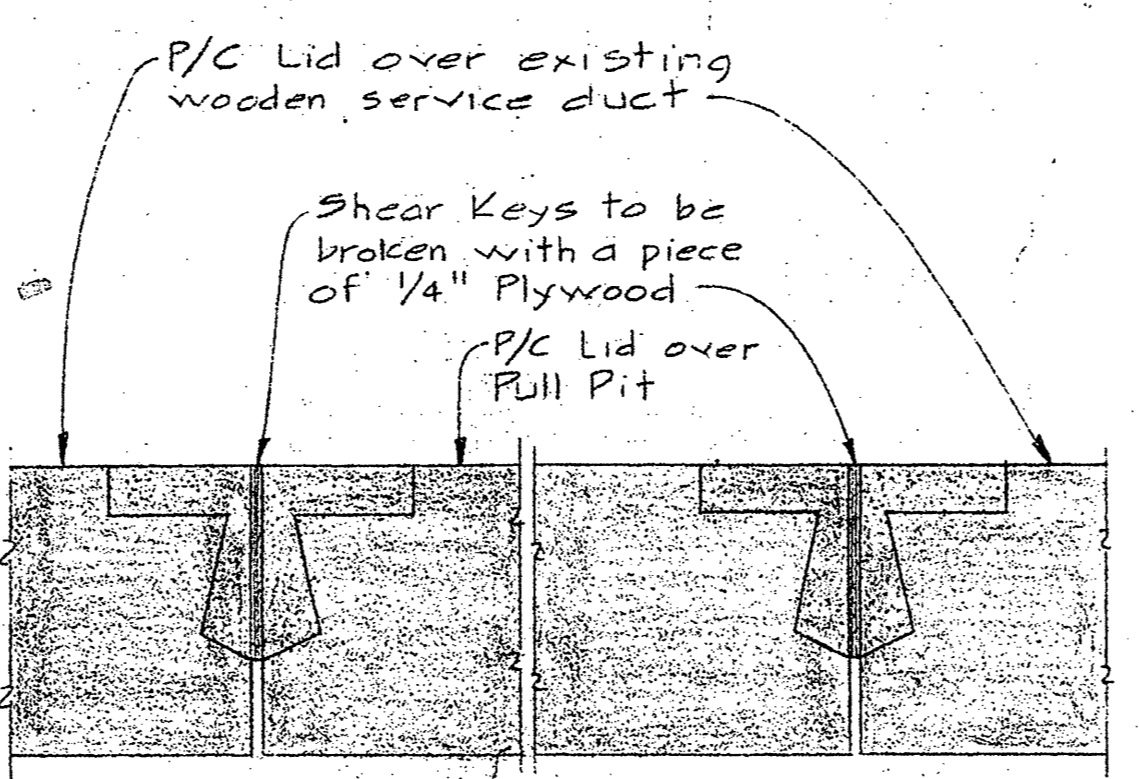
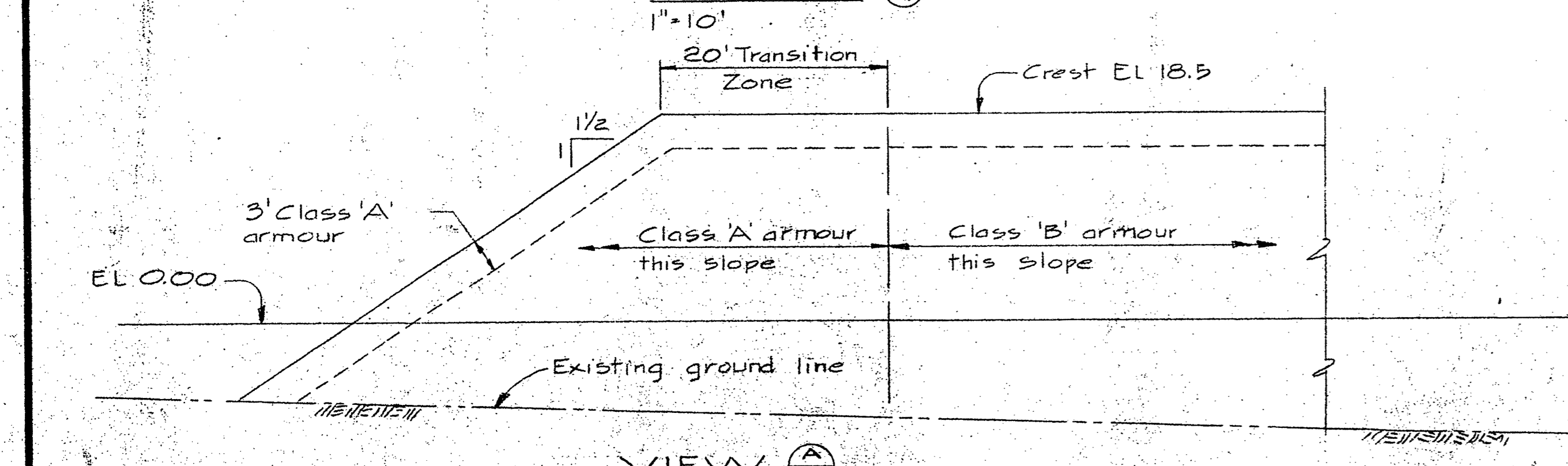
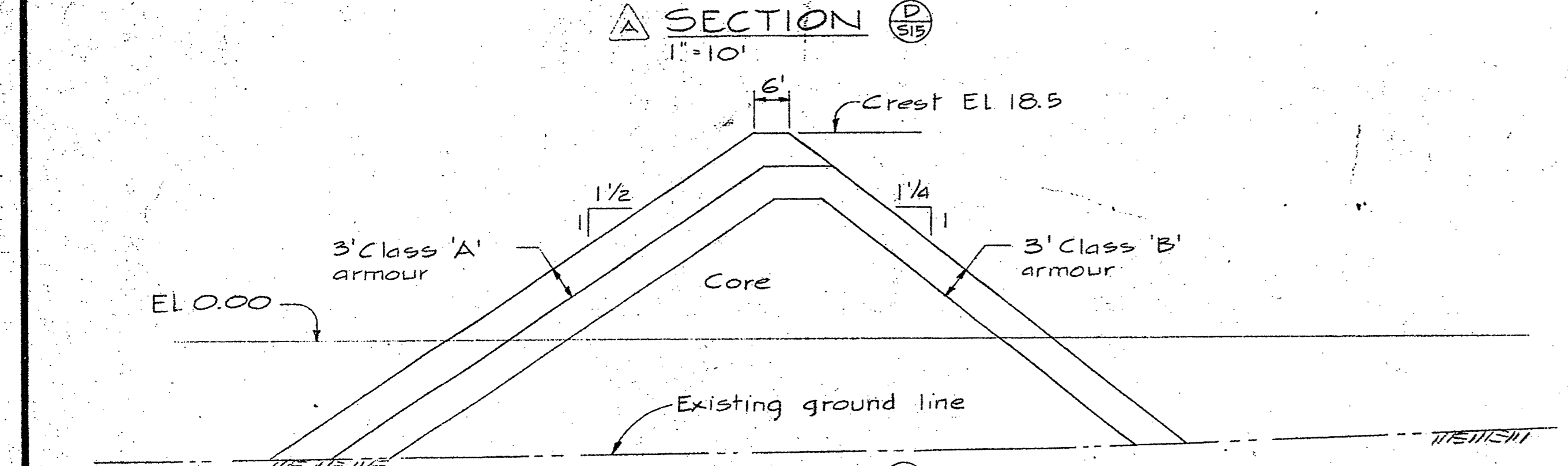
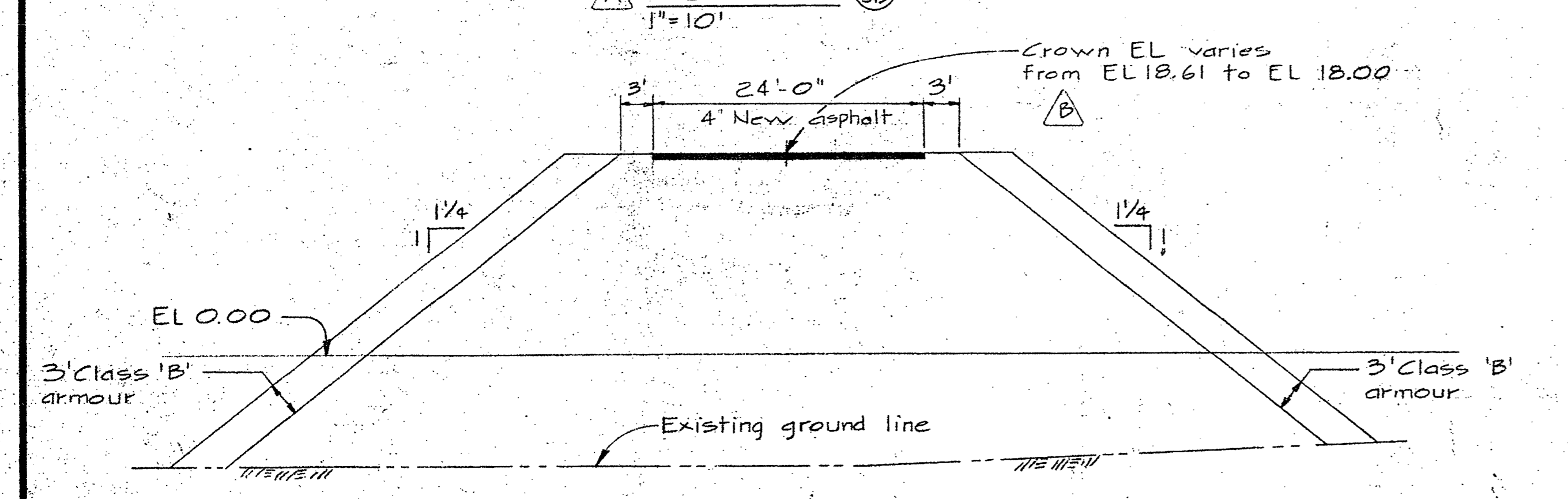
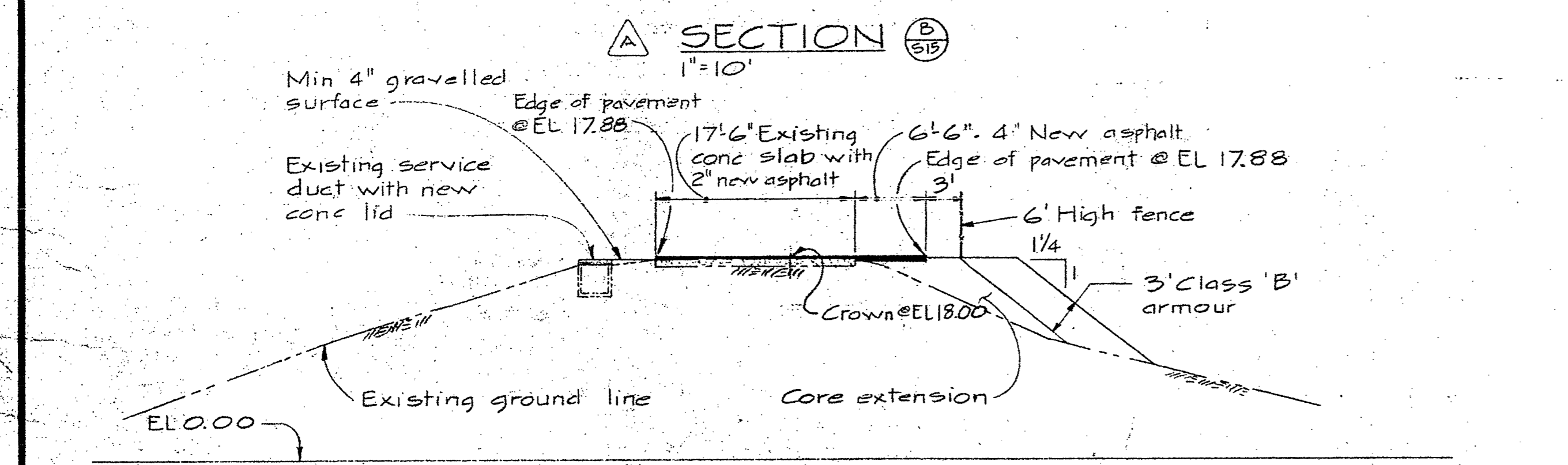
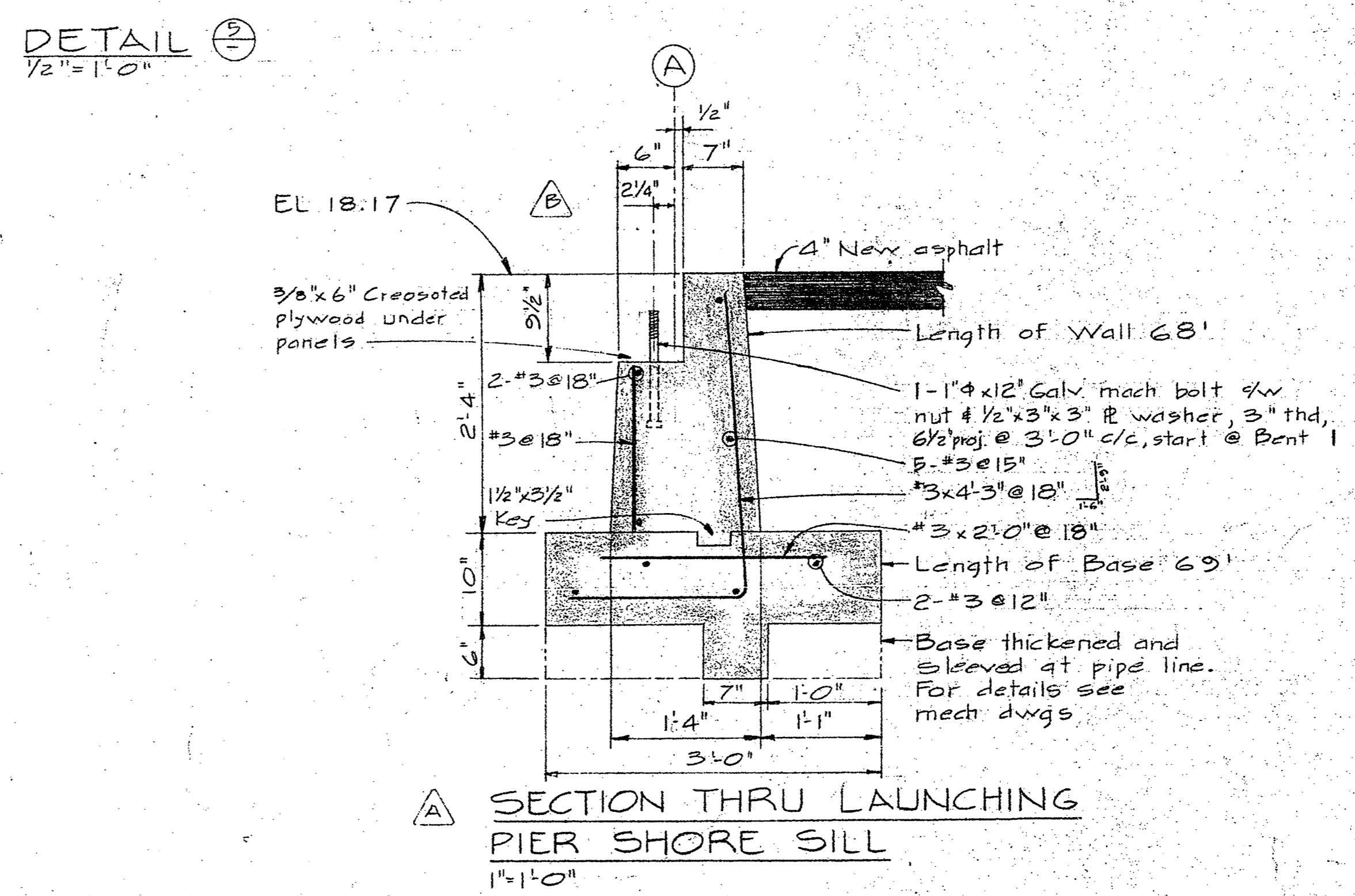
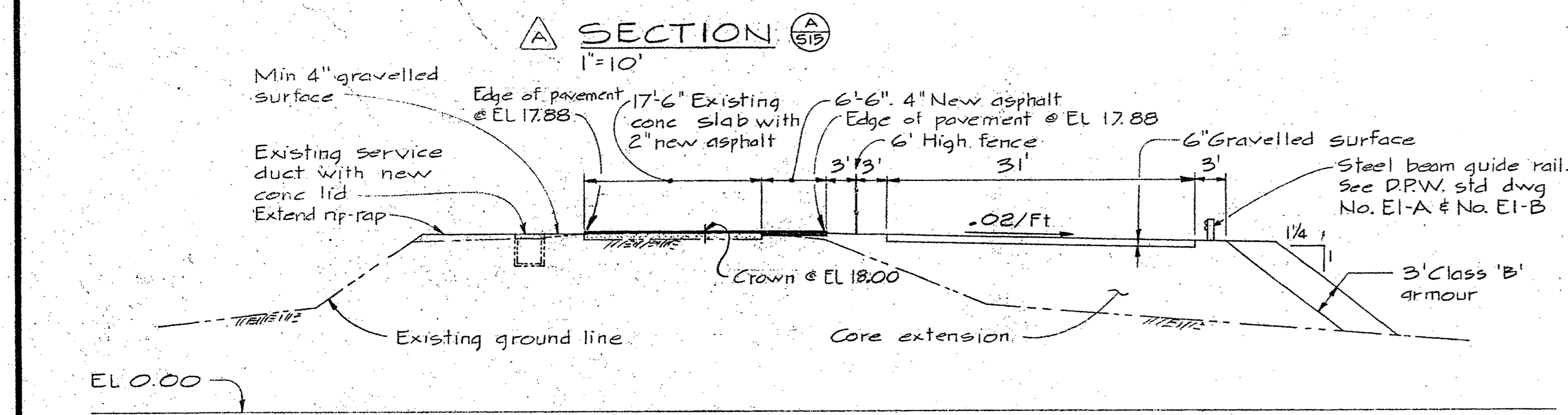
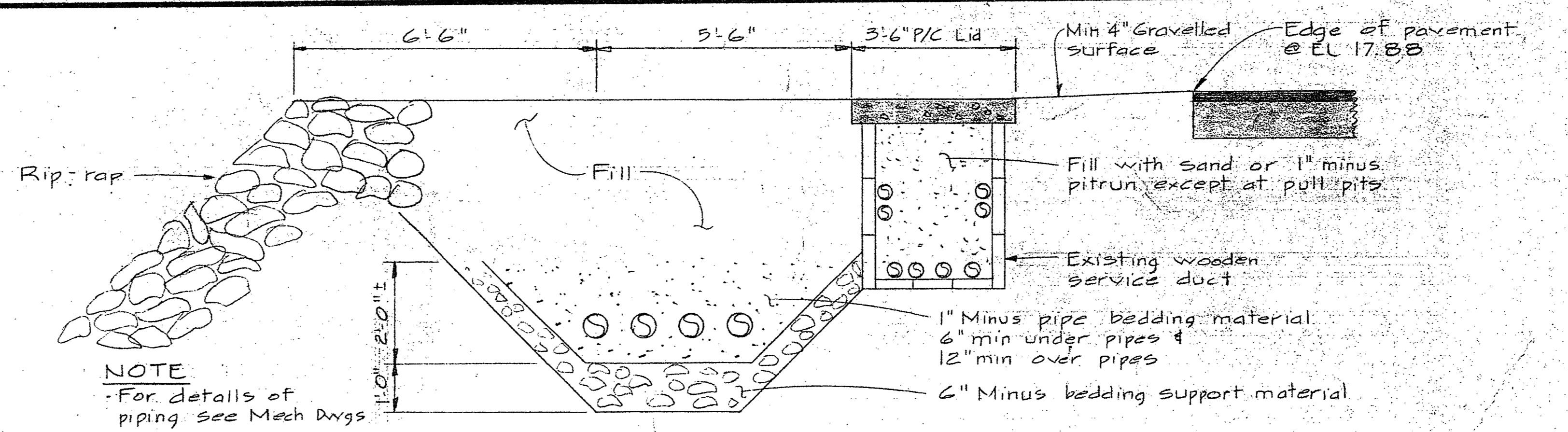
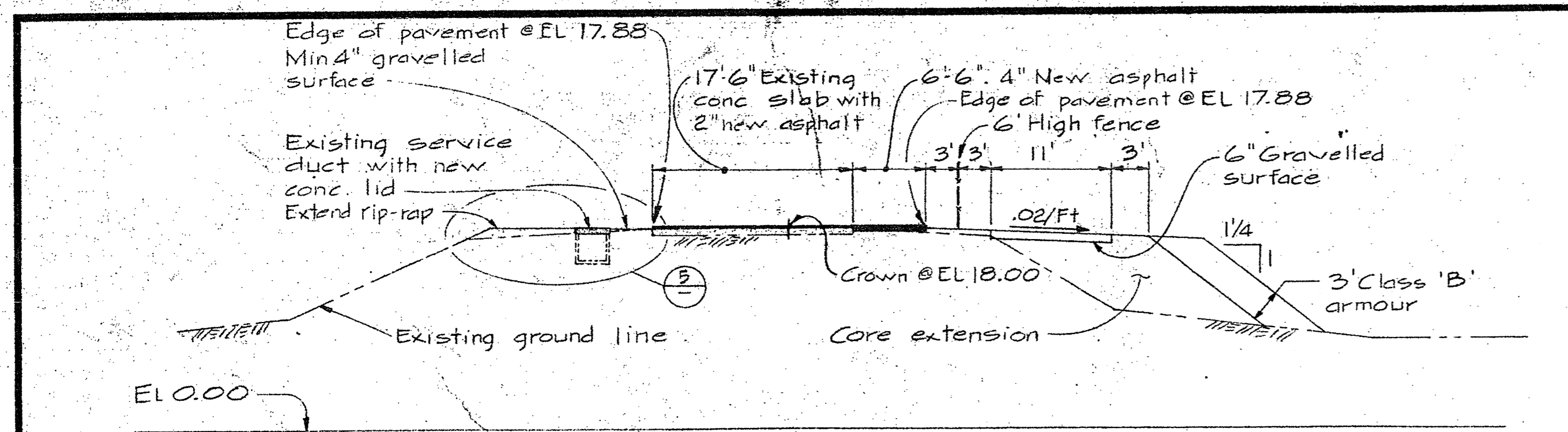
designed by / conçu par	date / date
drawn by / dessiné par	date / date
reviewed by / examiné par	date / date
approved by / approuvé par	date / date
Tender / soumission	no. du projet
89323	
drawing no. / dessin no.	S 18

Scale 1" = 30'



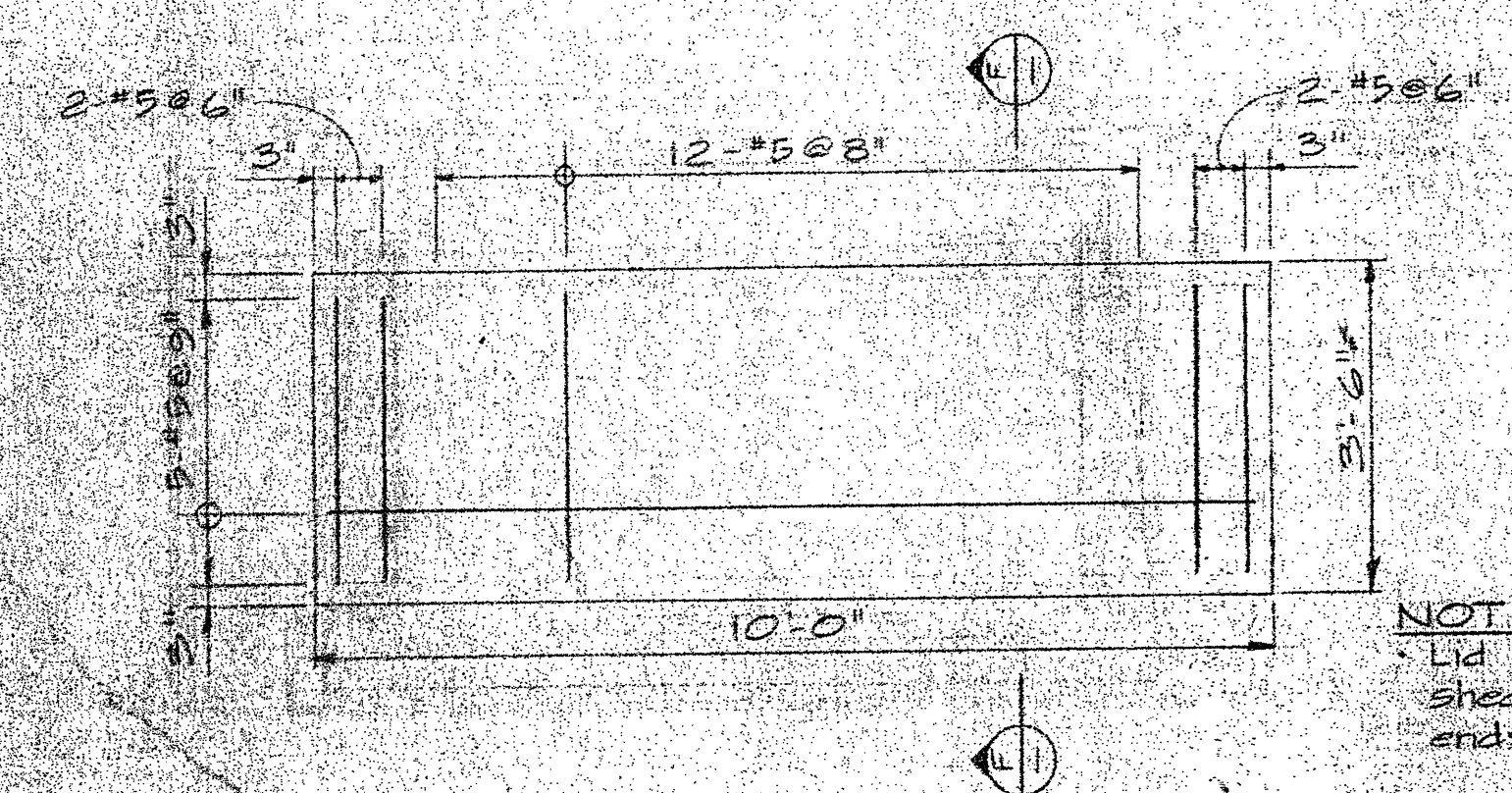
revisions:  
 A - Sections A, B, C, D & section thru launching pier shore sill revised. Detail 1, 2, 3, 4 & section thru retaining wall deleted. Dec 2/74  
 B - Section thru launching pier shore sill & section 'D' revised. Detail '5' Pull Pit added

designed by	conçu par
date	date
drawn by	dessiné par
date	date
reviewed by	examiné par
date	date
approved by	approuvé par
date	date
Tender	dommestration
D.P.W. Project Manager / Administrateur de projets M.P.P.	no. du projet
project number	89323
drawing no.	design no.
	S 19

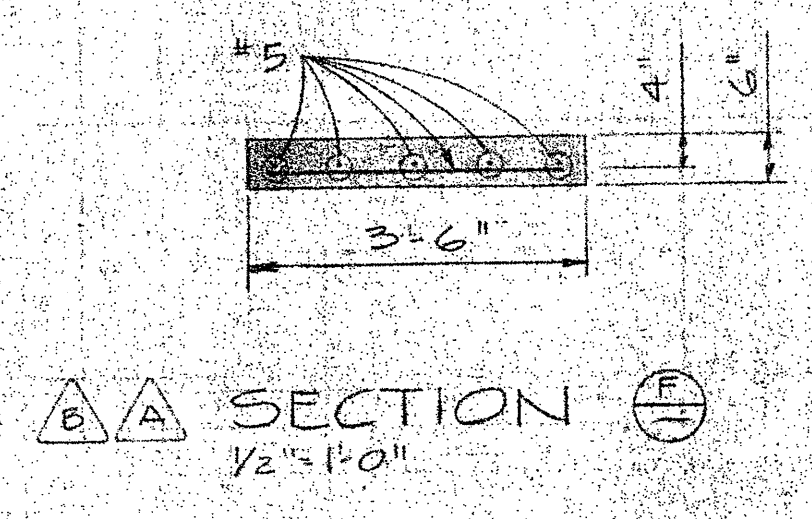




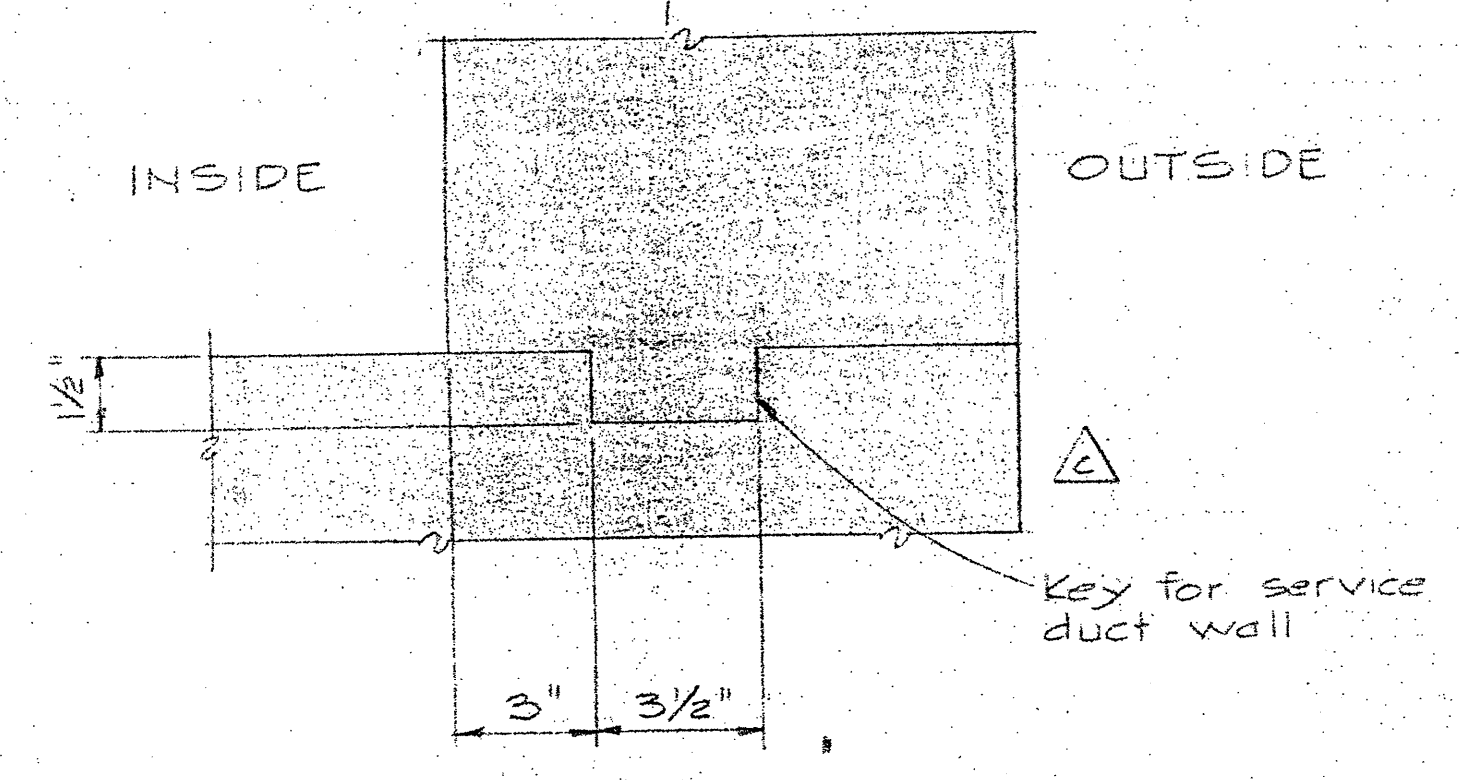
- revisions:
- A - Plan of Valve Pit & Section 2'D, 2'E revised Section thru Service Duct, Removable Service Duct Lid, Section A & B, Fixed Service Duct Lid at CH 4 & 5, Jct of Service Duct and Abutment & Lid, Fire Hydrant Location & Lid deleted. Lid for Existing Service Duct & Section F added. *Rev 2/79*
  - B - Lid for Existing Service Duct, Section C, D, E & F Revised. Section 'G' & Notes added.
  - C - As built.



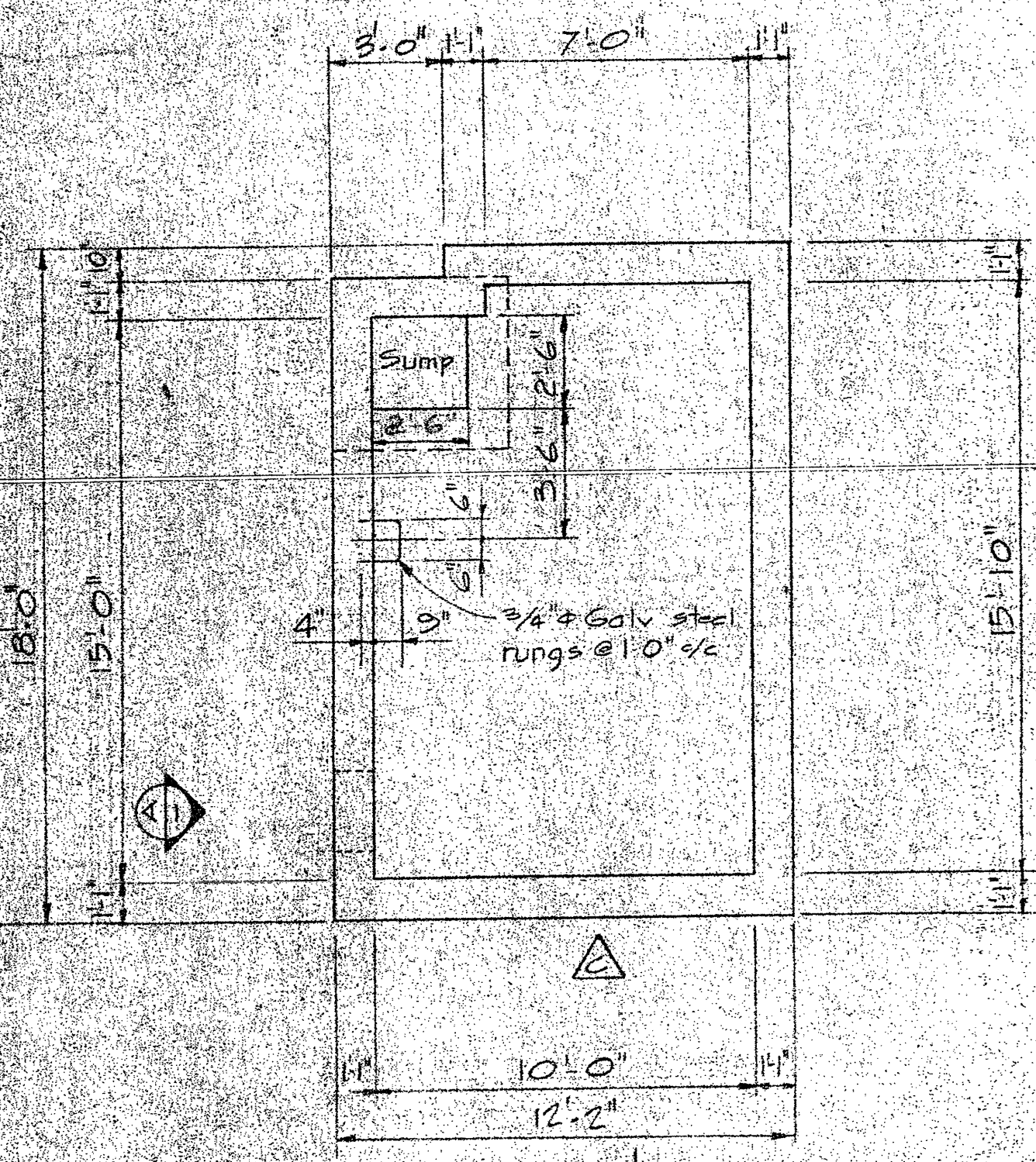
PLAN OF LID FOR EXISTING SERVICE DUCT  
1/2" x 1'0"



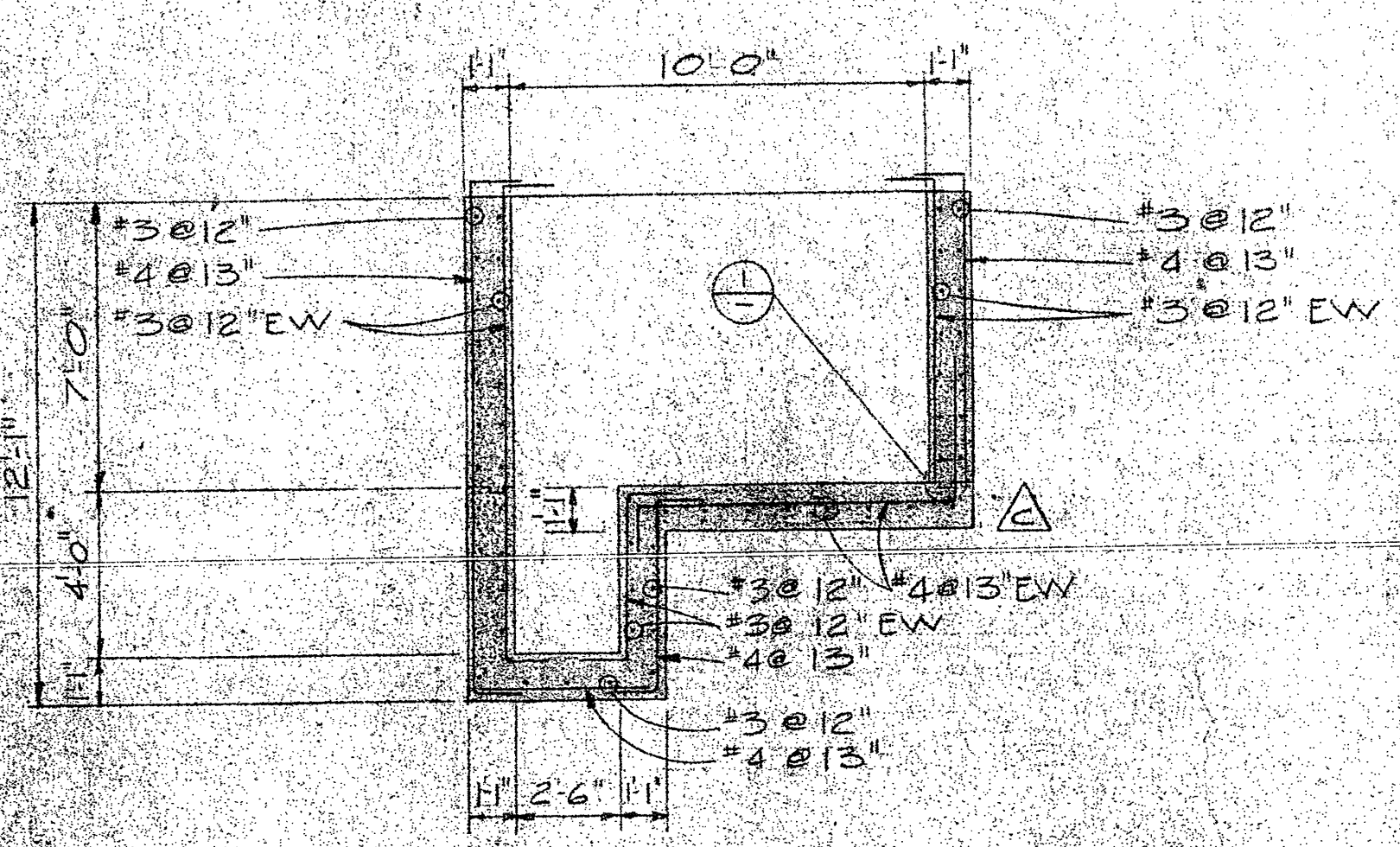
SECTION 1  
1/2" x 1'0"



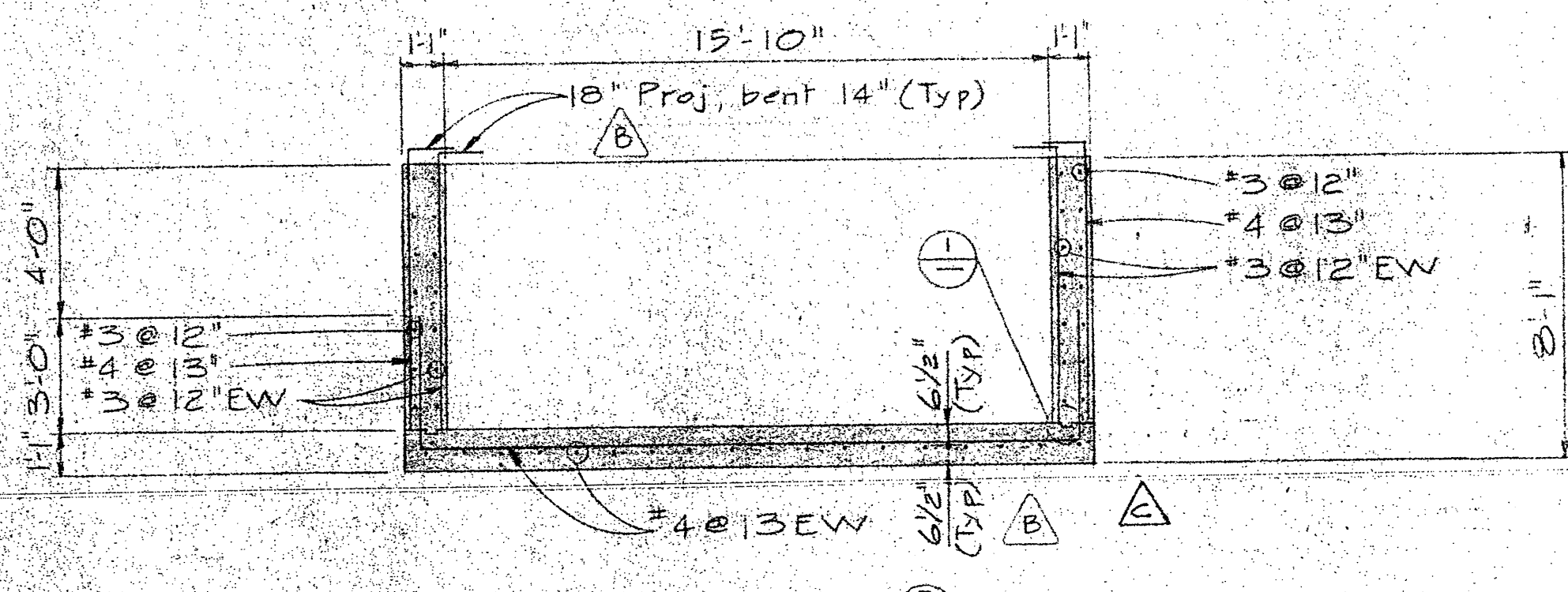
DETAIL  
3" x 1'0"



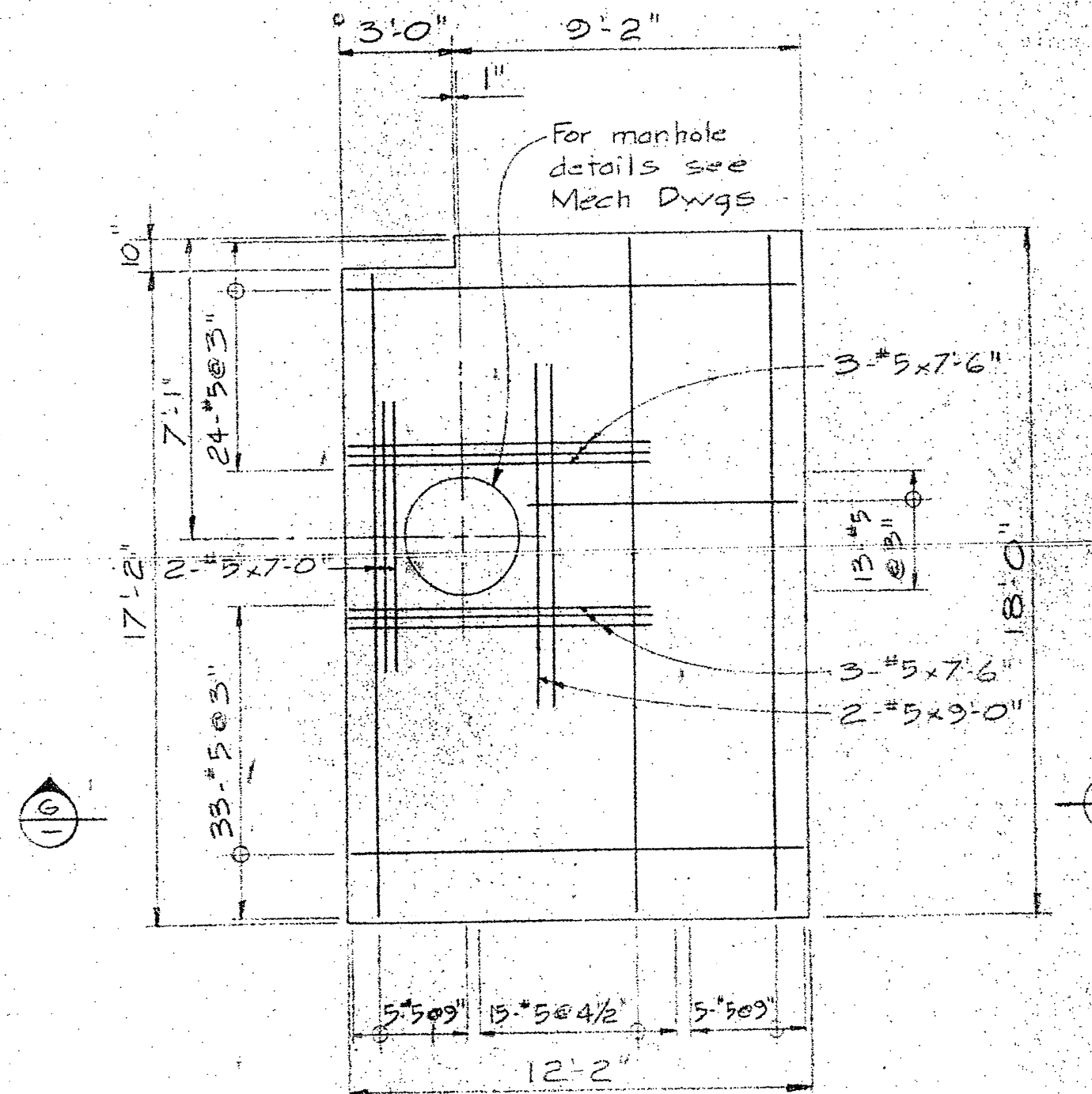
PLAN OF VALVE PIT  
Shown without fixed lid  
1/4" x 1'0"



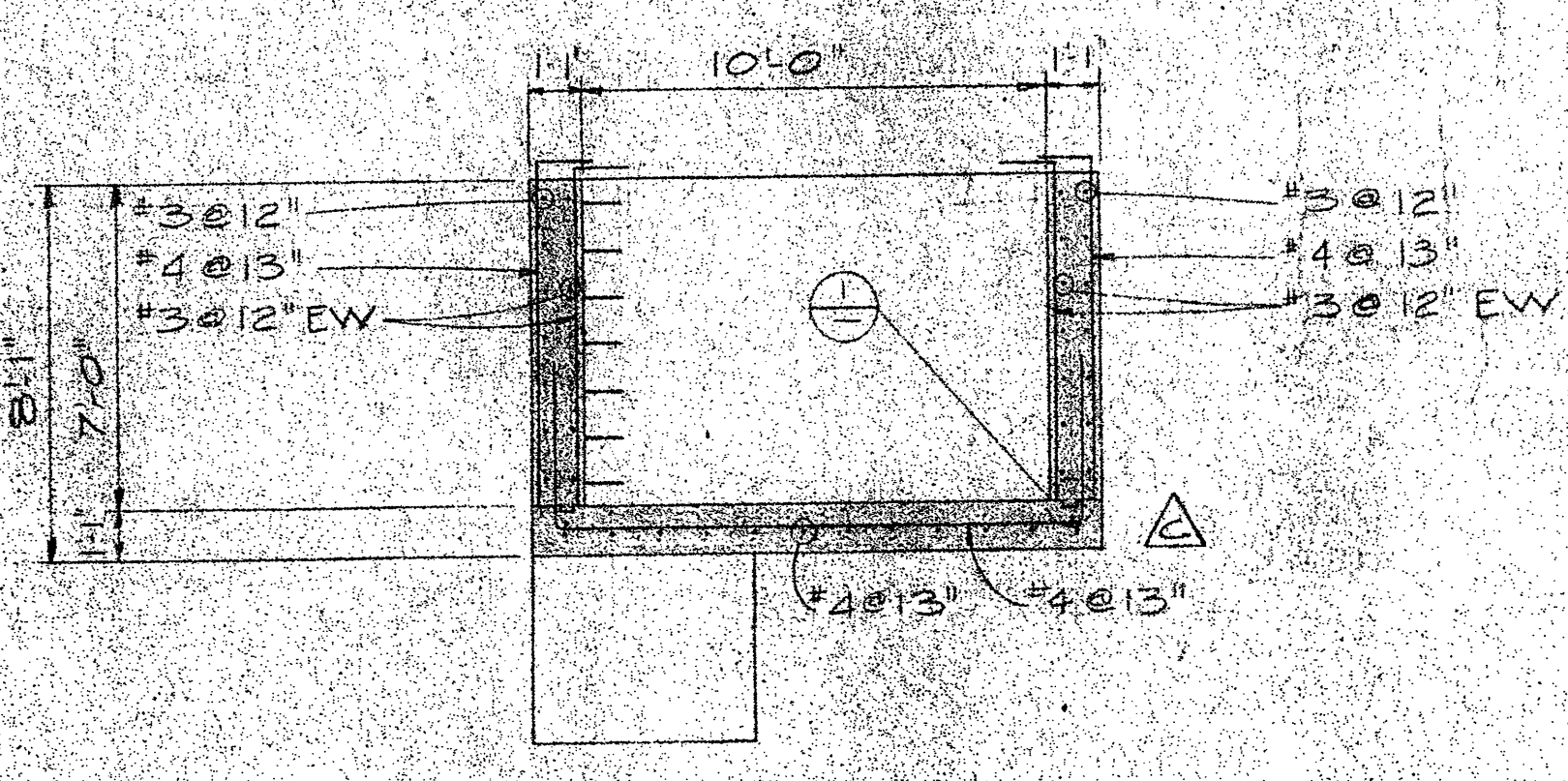
SECTION 1  
1/4" x 1'0"



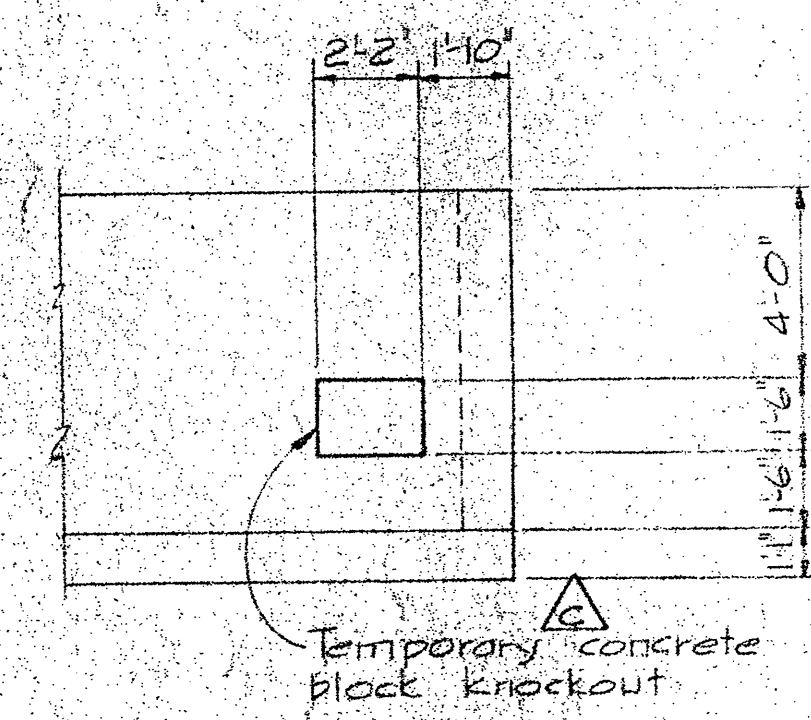
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1/4" x 1'0"



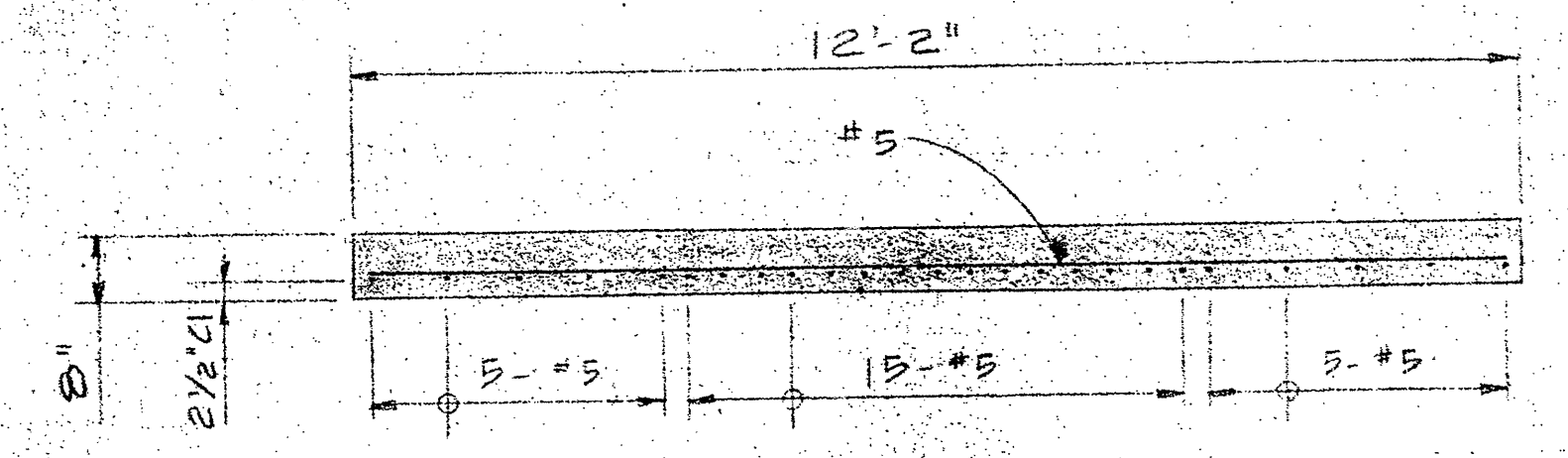
PLAN OF VALVE PIT  
FIXED LID  
1/4" x 1'0"



SECTION 1  
1/4" x 1'0"



VIEW  
1/4" x 1'0"

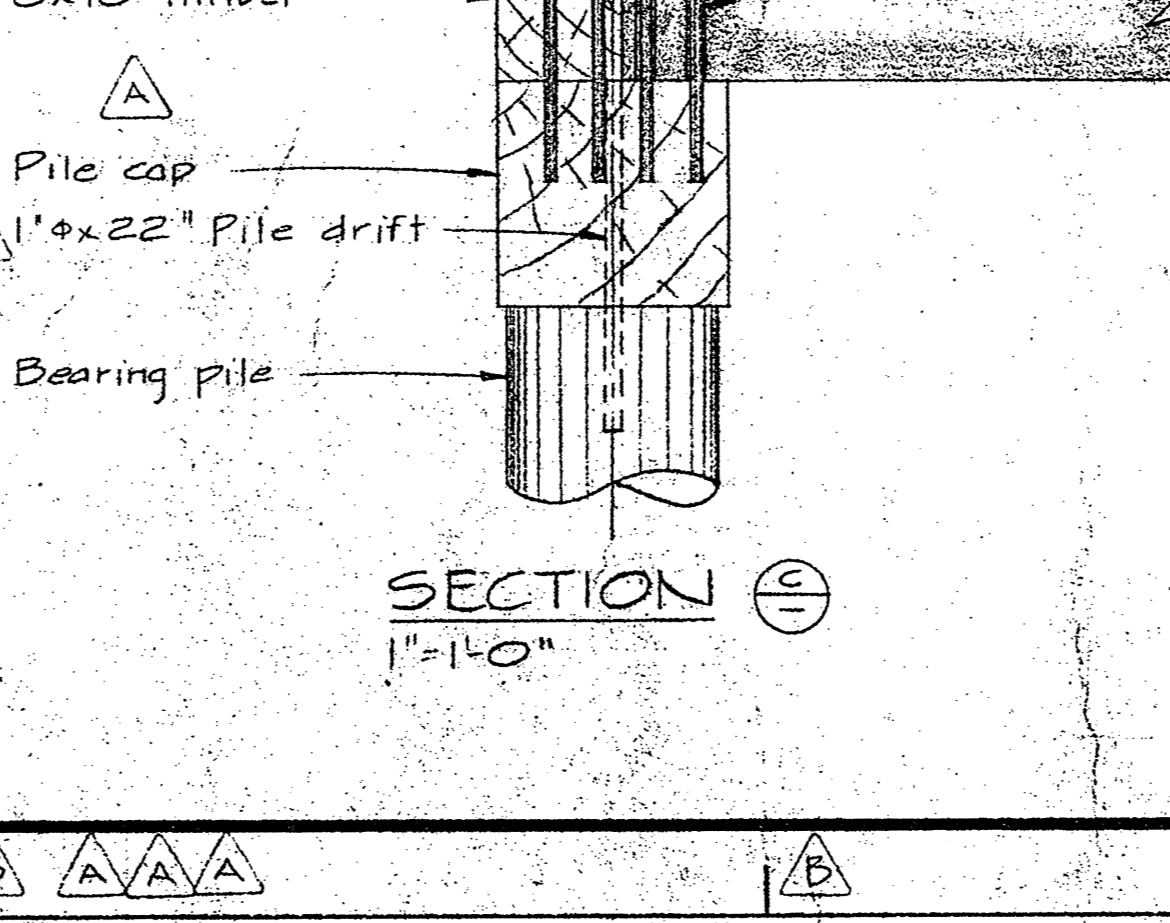
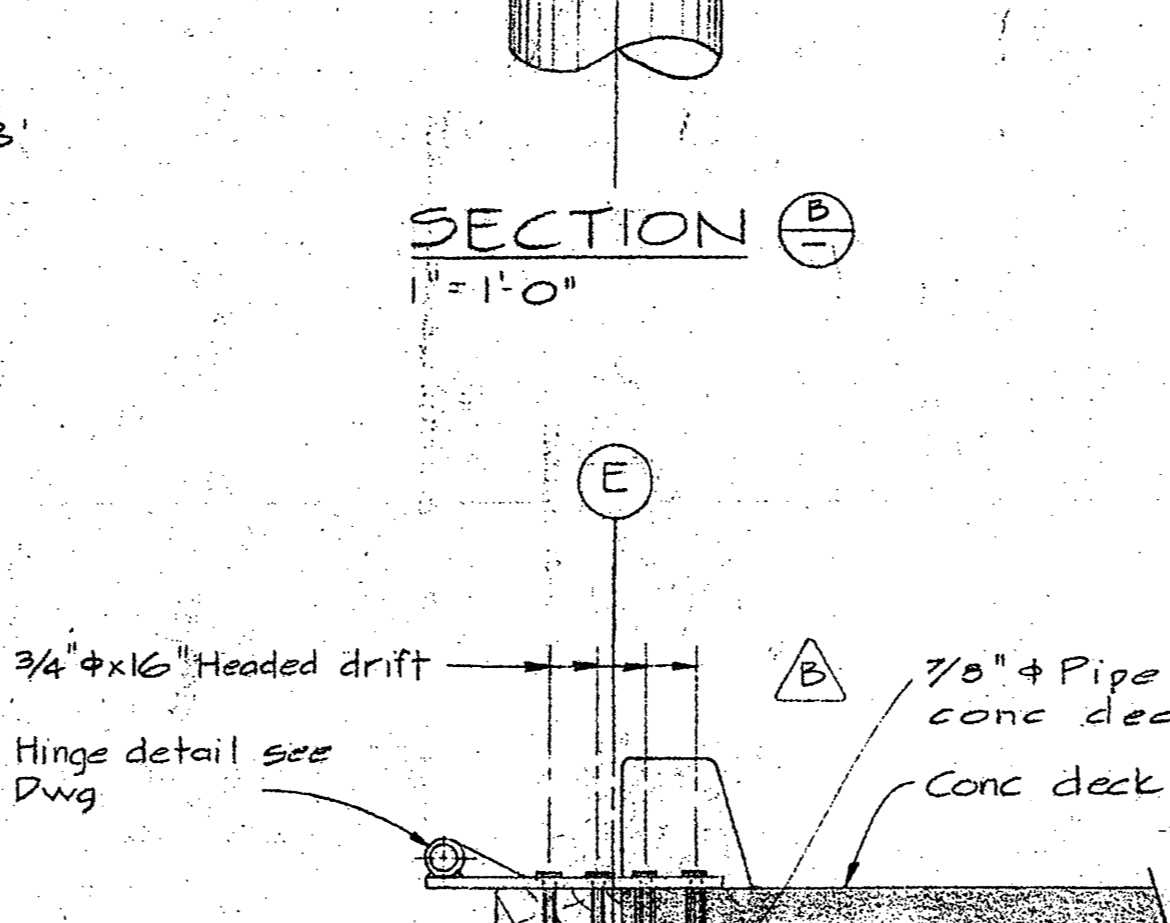
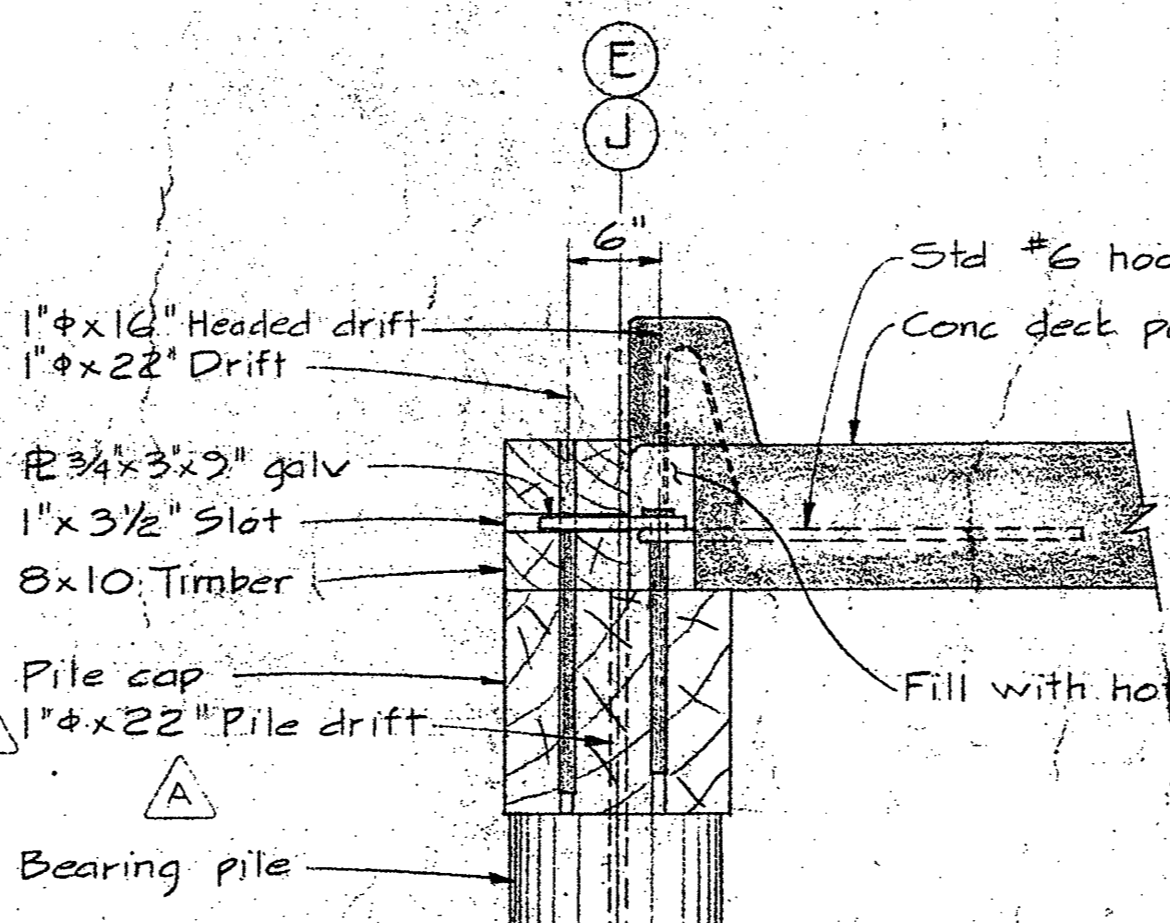
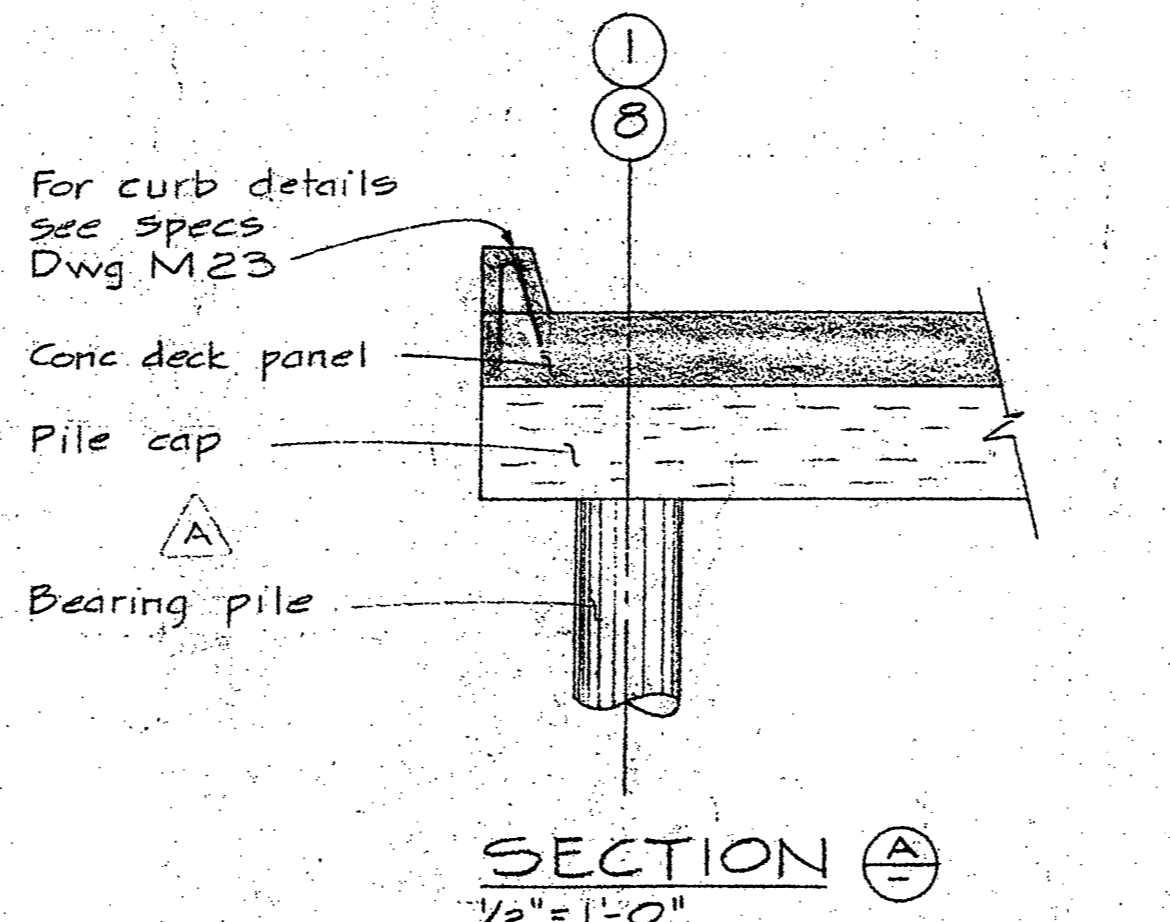
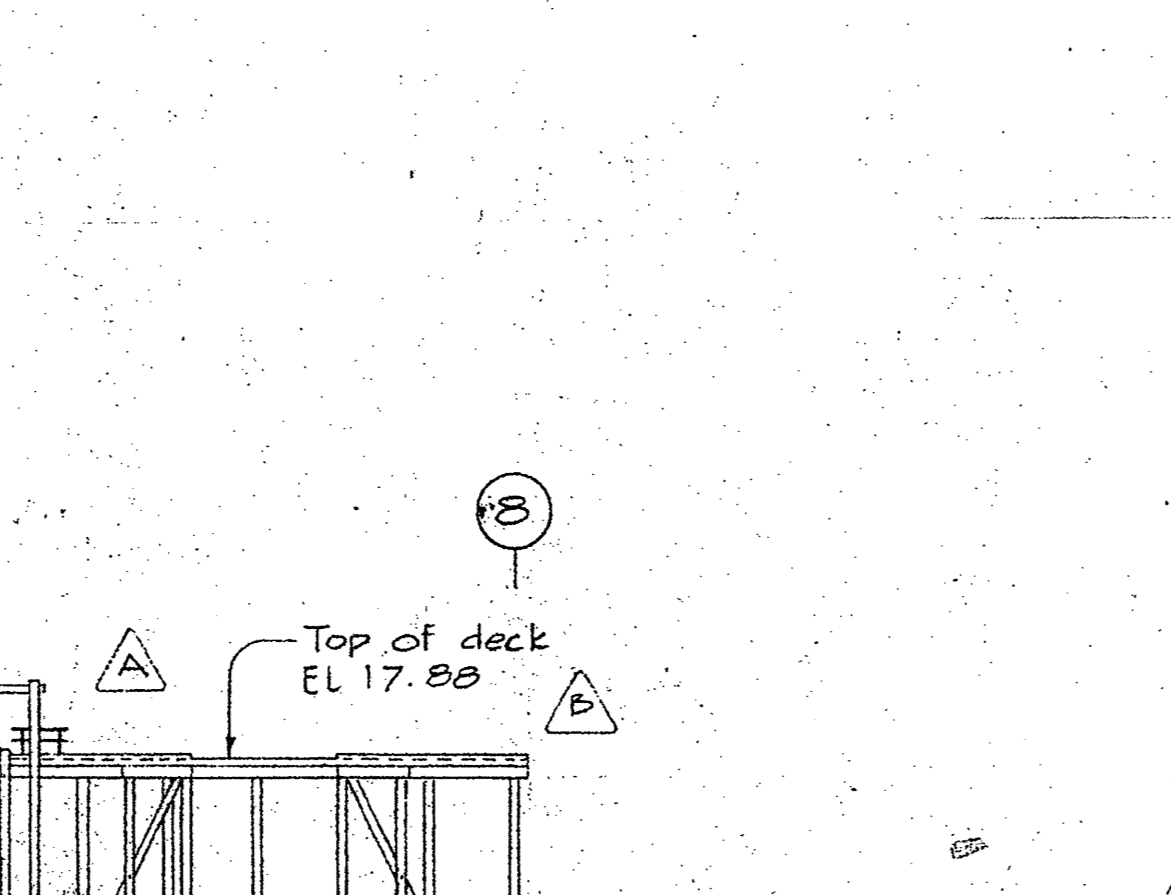
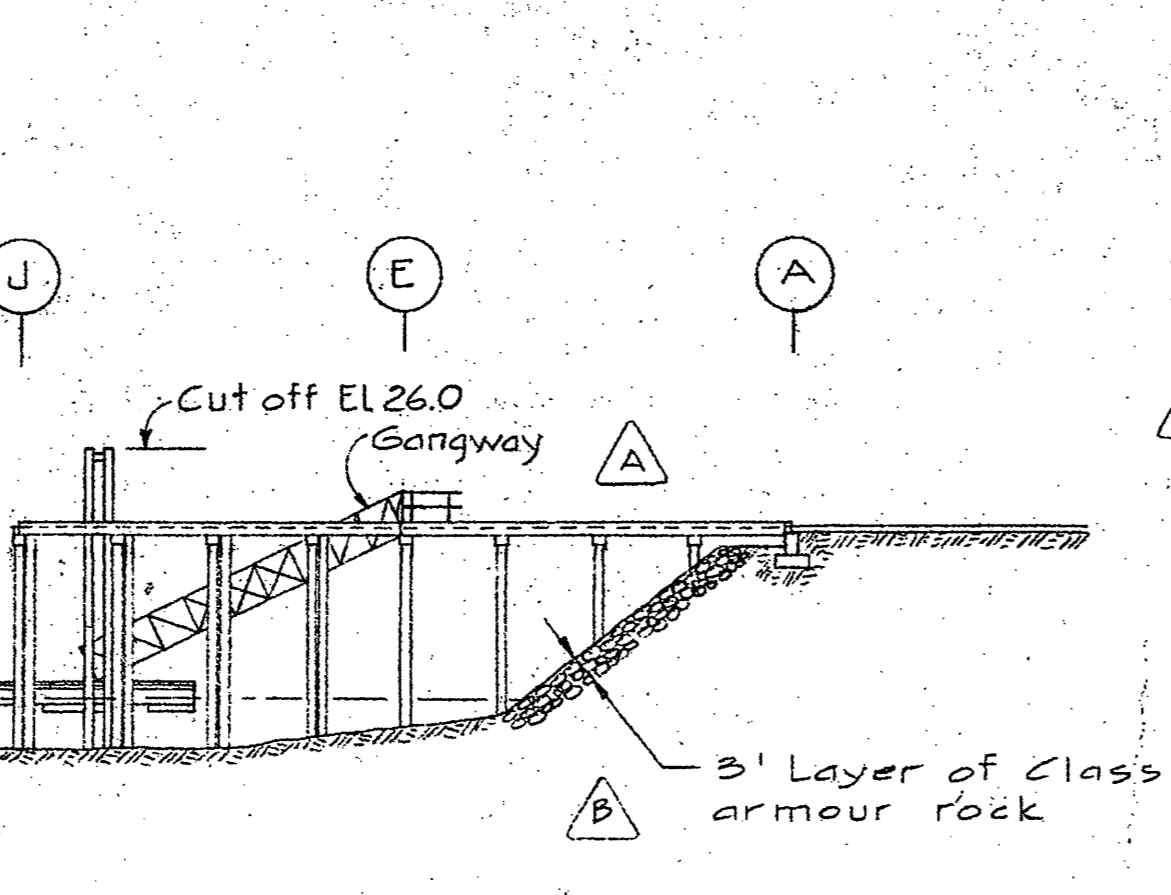
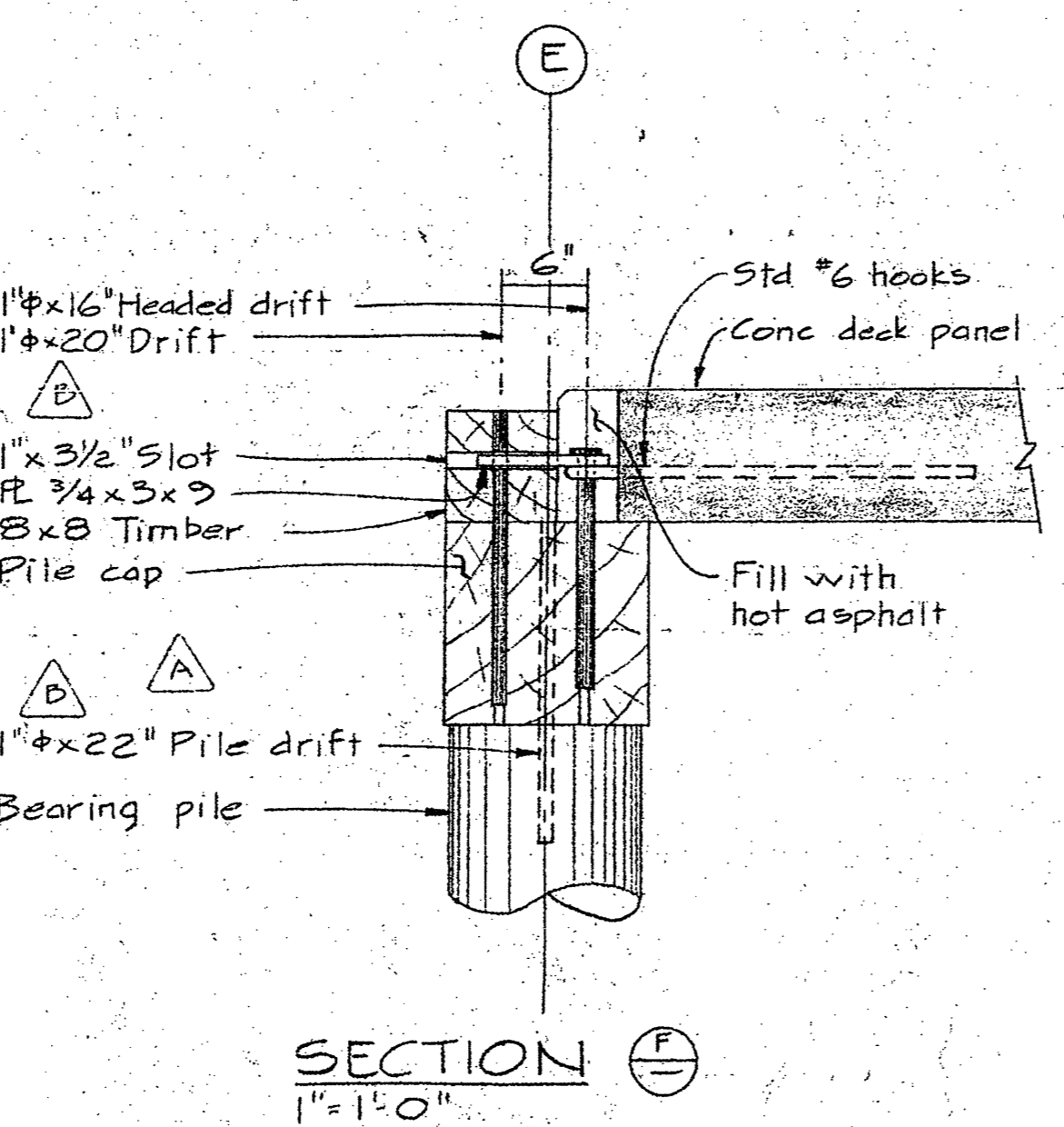
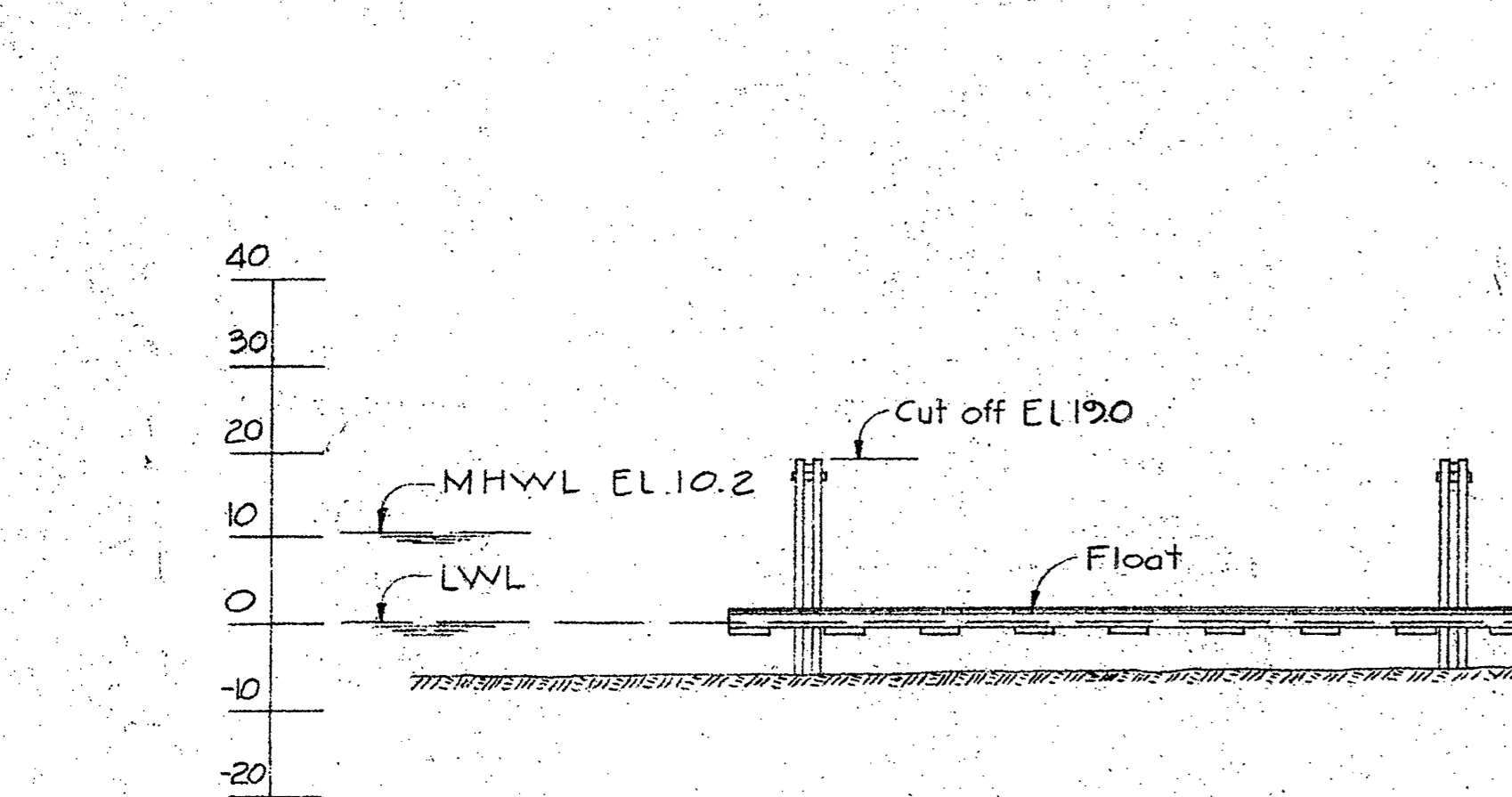
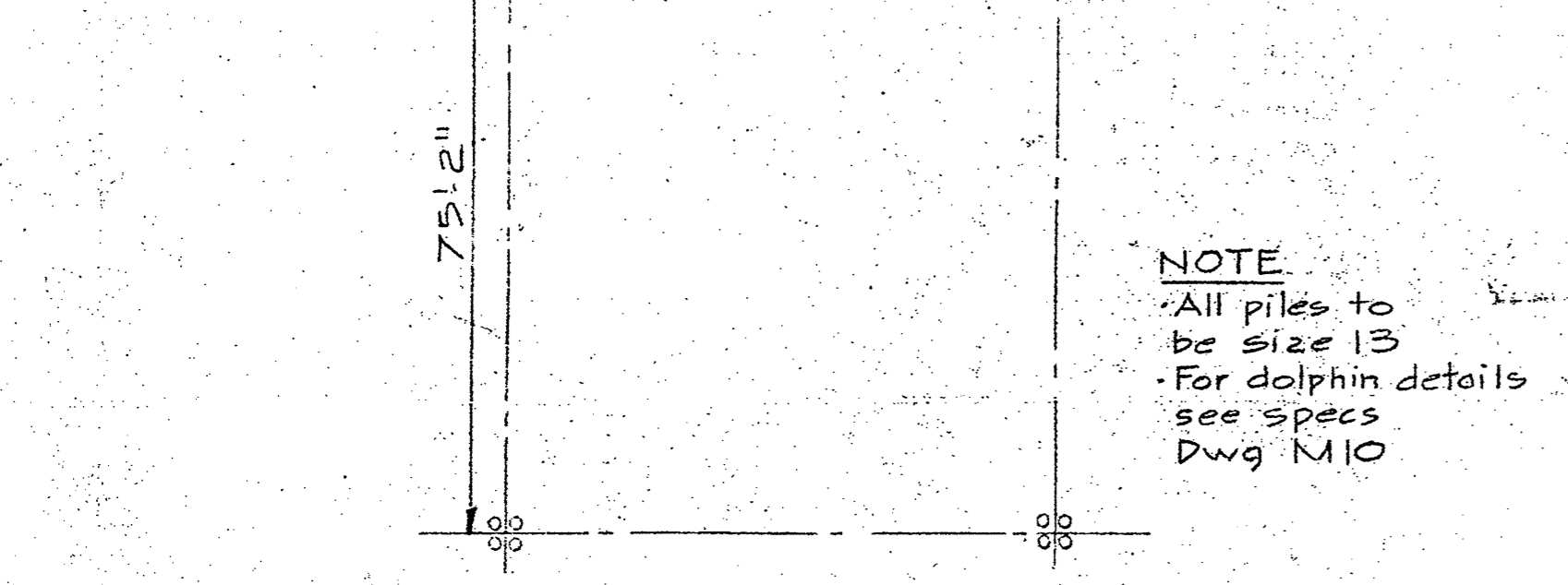
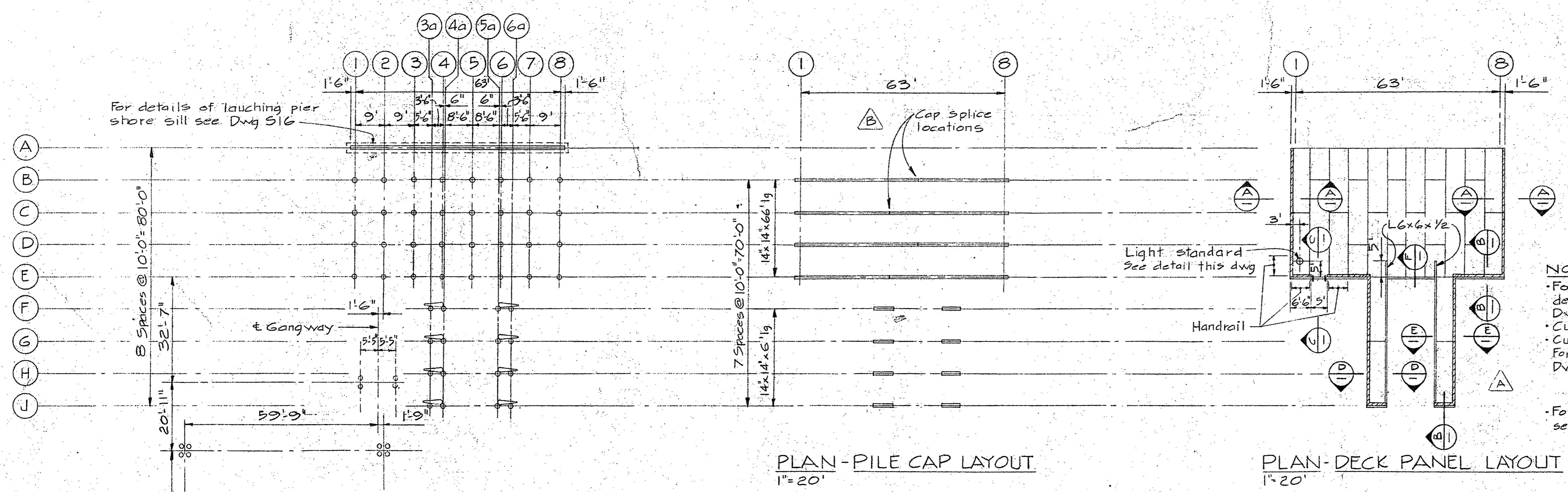


SECTION 1  
1/2" x 1'0"

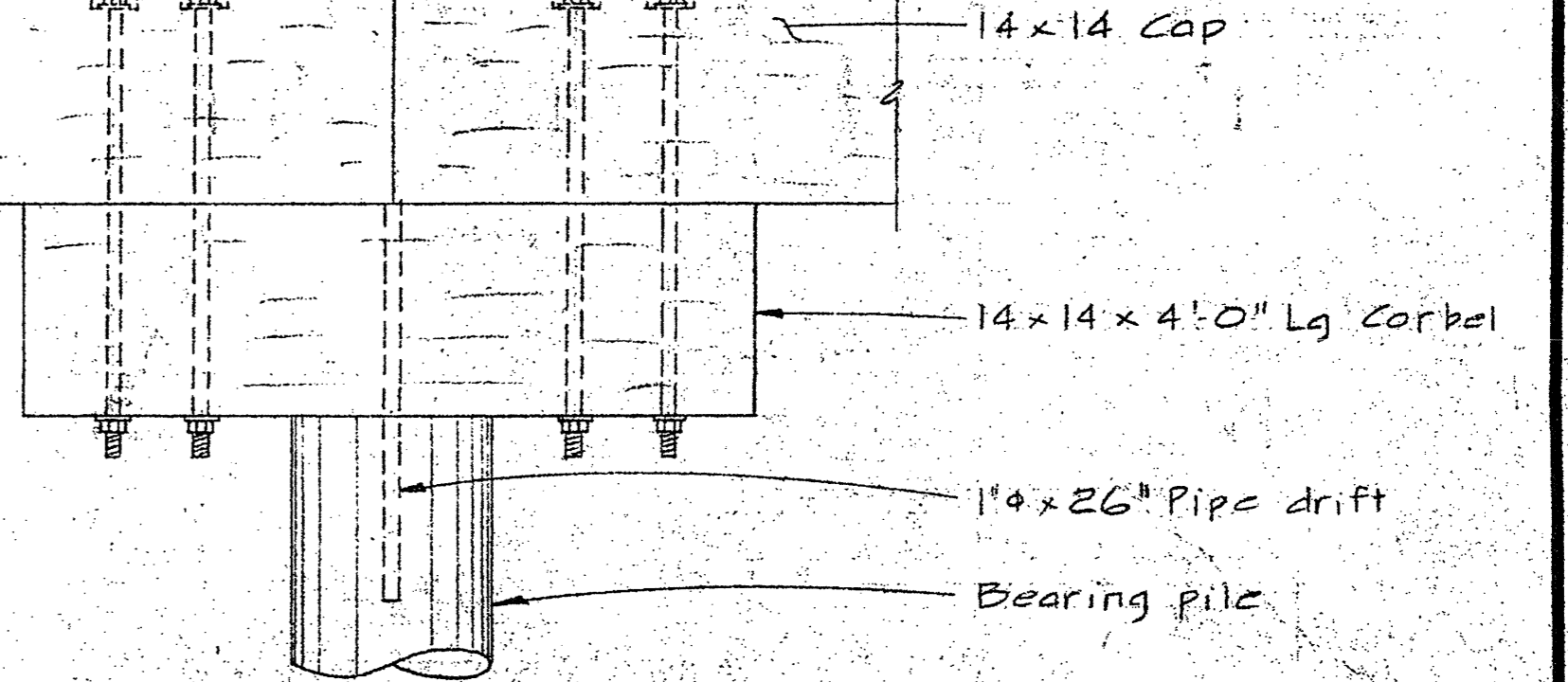
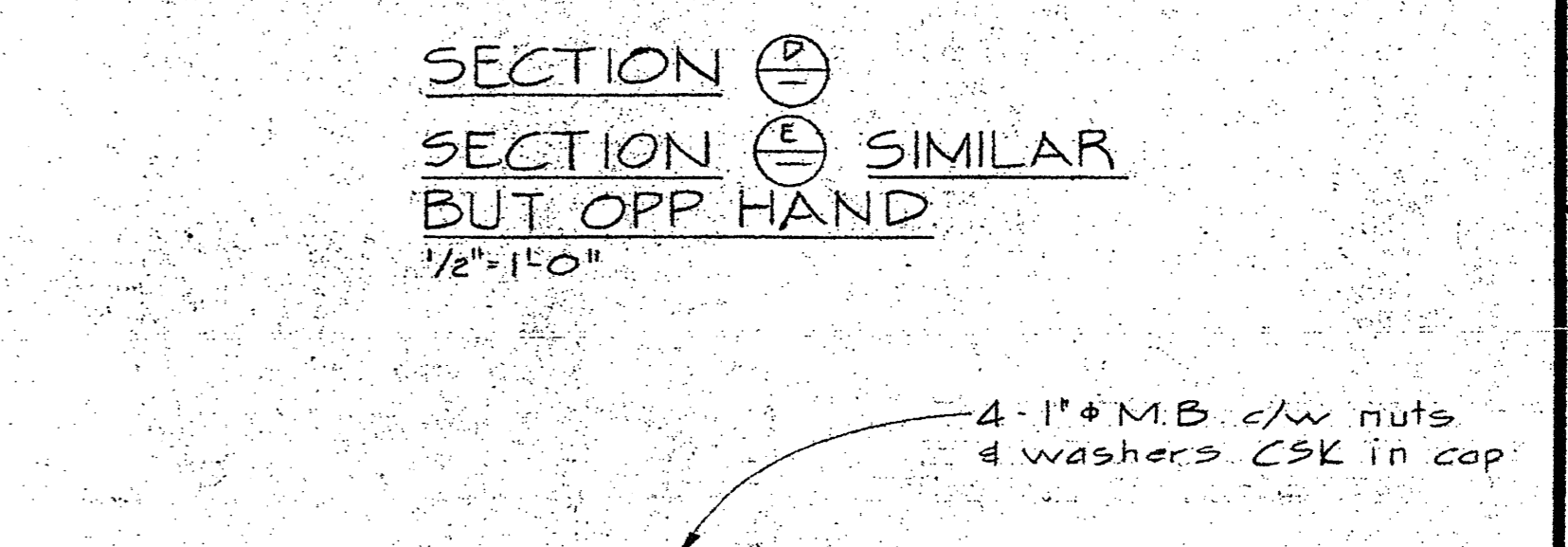
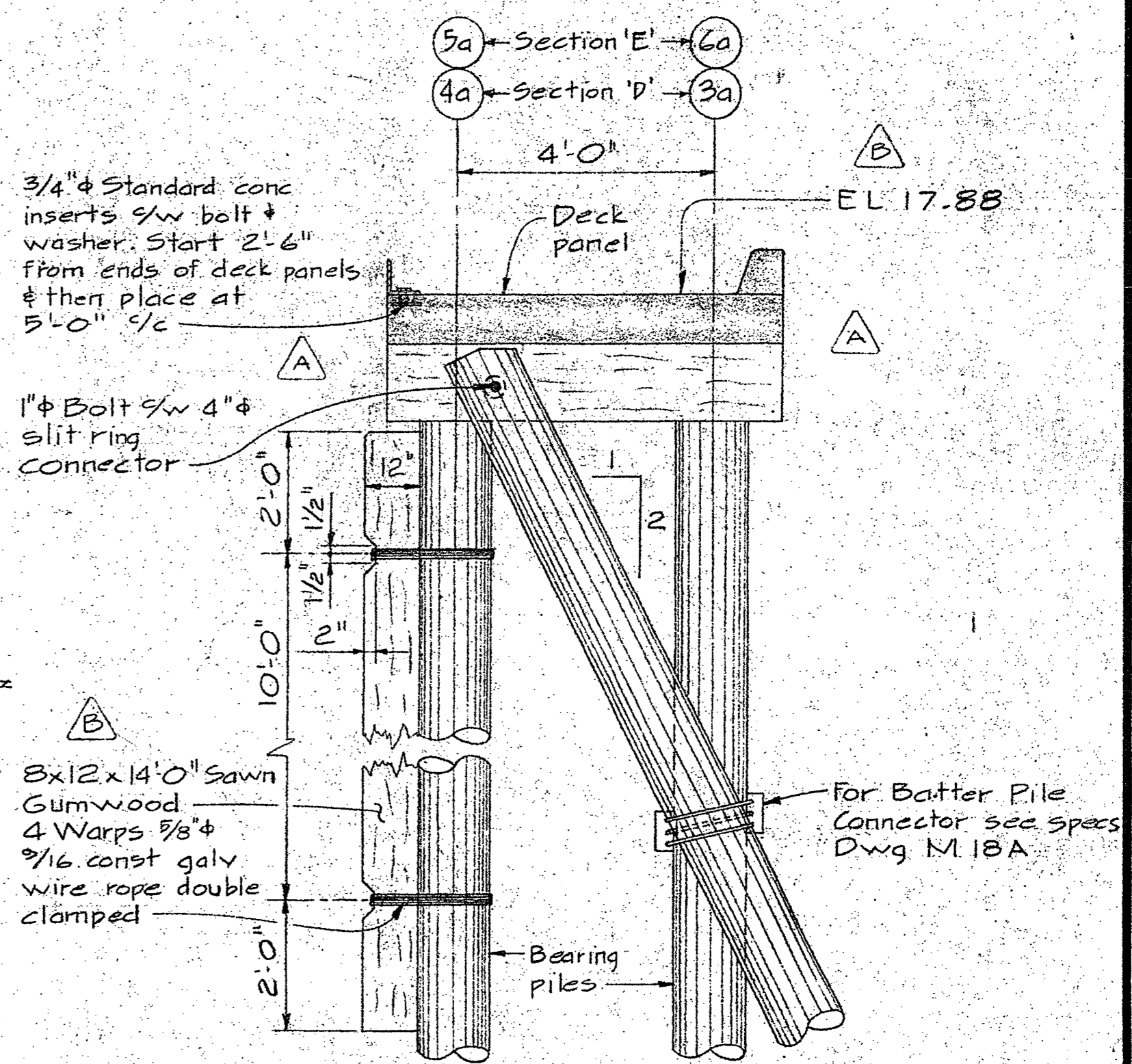
NOTES  
 - Exterior walls to be coated with bitumastic damp-proofing compound  
 - References: Sec. Mech Dwg M1 & M3  
 - See Elec Dwg E1

project title	site or group
PATRICIA BAY, B.C. MARINE FACILITY	
drawing title	site or group
CAUSEWAY SERVICE DUCT CONC OUTLINE & REINF	
designed by	checked by
date	date
drawn by	designed by
date	date
reviewed by	checked by
date	date
approved by	approved by
Tender	Contractor
D.P.W. Project Manager	Administrateur de projet
project number	site or group
89323	
drawing no.	sheet no.
S 20	





NOTE  
 - For details for conc deck panels see specs Dwg M21, M22 & M24  
 - Curb to be cast in field. For details see specs Dwg M23  
 - For details for handrail see specs Dwg M16-A



NOTE  
 - All piles to be size 13  
 - For dolphin details see specs Dwg M10

LEGEND  
 ○ Bearing pile  
 ▽ Batter pile

revisions

no.	description	date
A	Fascia deleted	Dec 2/74
B	Pile cap layout, Sections B, D, E, F & elevations revised. Corbel & Light Standard Base details added.	

project title / titre du projet  
**PATRICIA BAY, B.C. MARINE FACILITY**

drawing title / titre du dessin  
**LAUNCHING PIER PLAN AND DETAILS**

designed by / conçu par	
date / date	15-3-74
drawn by / dessiné par	H.D.T.
date / date	
reviewed by / examiné par	
date / date	
approved by / approuvé par	
date / date	
Tender / soumission	
D.P.W. Project Manager / Administrateur de projets M.T.P.	
project number / no. du projet	89323
drawing no. / dessin no.	S 21









Department of Public Works  
Ministère des Travaux publics

PACIFIC REGIC

INSTITUTE OF  
OCEAN SCIENCES  
ENVIRONMENT CANADA

A detail no. \_\_\_\_\_  
B location drawing no. \_\_\_\_\_  
C drawing no. \_\_\_\_\_  
revisions  
November 30, 1973

project title

PATRICIA BAY, B.C.  
MARINE FACILITY

drawing title  
STANDARD 4' x 36'  
STEEL - GANGWAY

designed by  
date 12-8-74  
drawn by  
date MAR 15 72  
reviewed by  
date  
approved by  
date  
Tender  
D.P.W. Project Manager / Administrateur de projets  
project number 89323  
drawing no. S 23

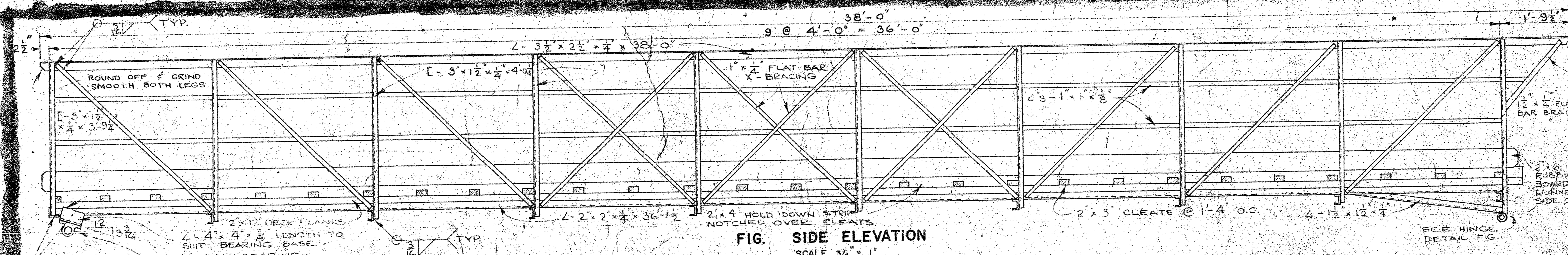


FIG. SIDE ELEVATION  
SCALE 3/4" = 1'

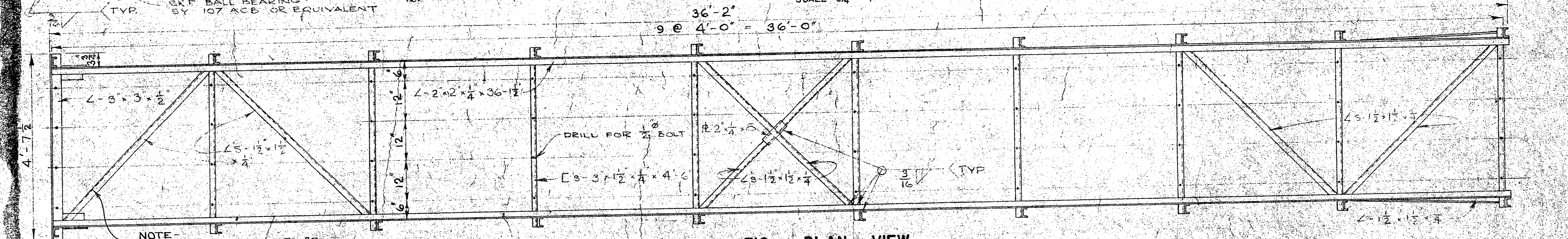


FIG. PLAN VIEW  
SCALE 3/4" = 1'

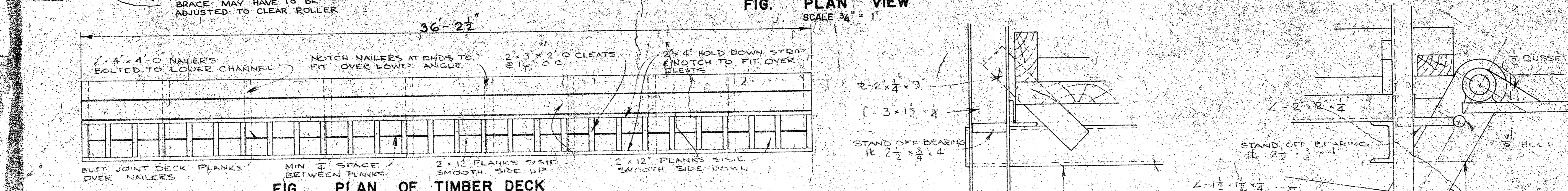


FIG. PLAN OF TIMBER DECK  
SCALE 3/8" = 1'

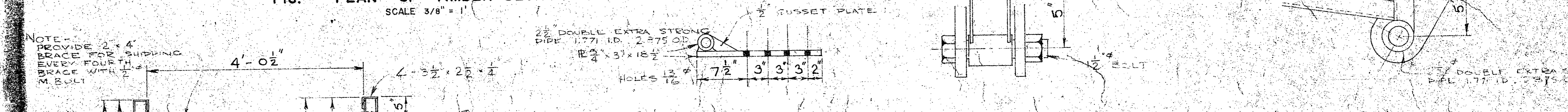


FIG. HINGE DETAIL  
SCALE 1 1/2" = 1'

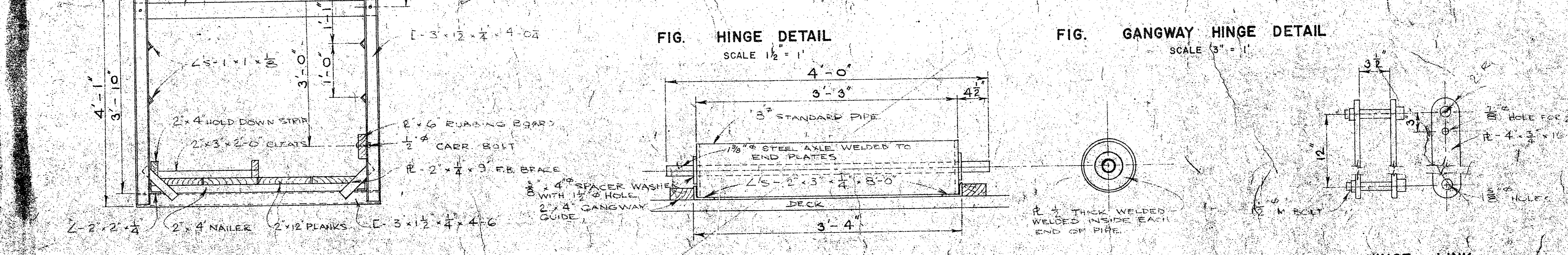


FIG. TYPICAL SECTION  
SCALE 1" = 1'

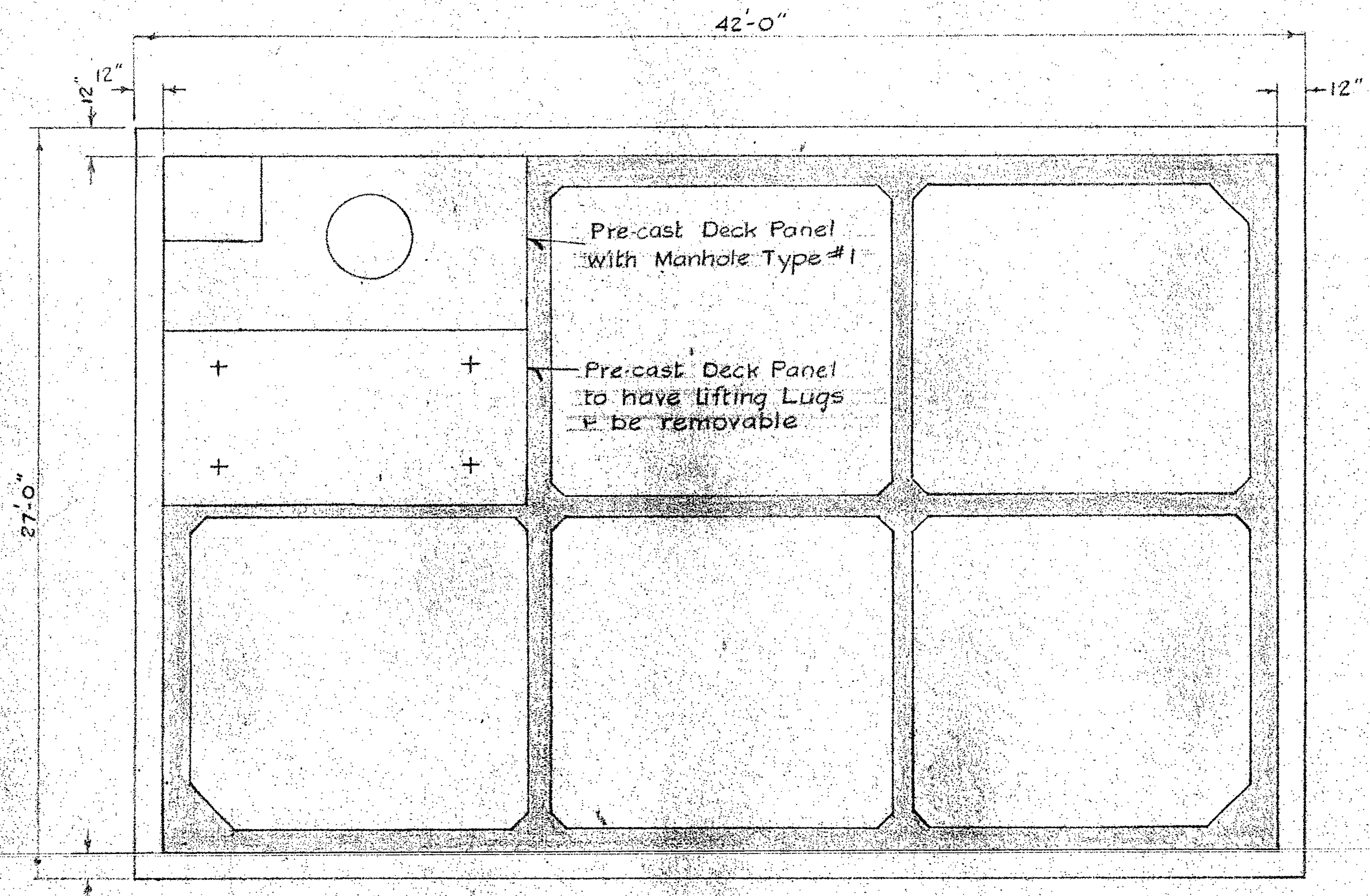
FIG. GANGWAY HINGE DETAIL  
SCALE 3/8" = 1'

FIG. ROLLER DETAIL  
SCALE 1 1/2" = 1'

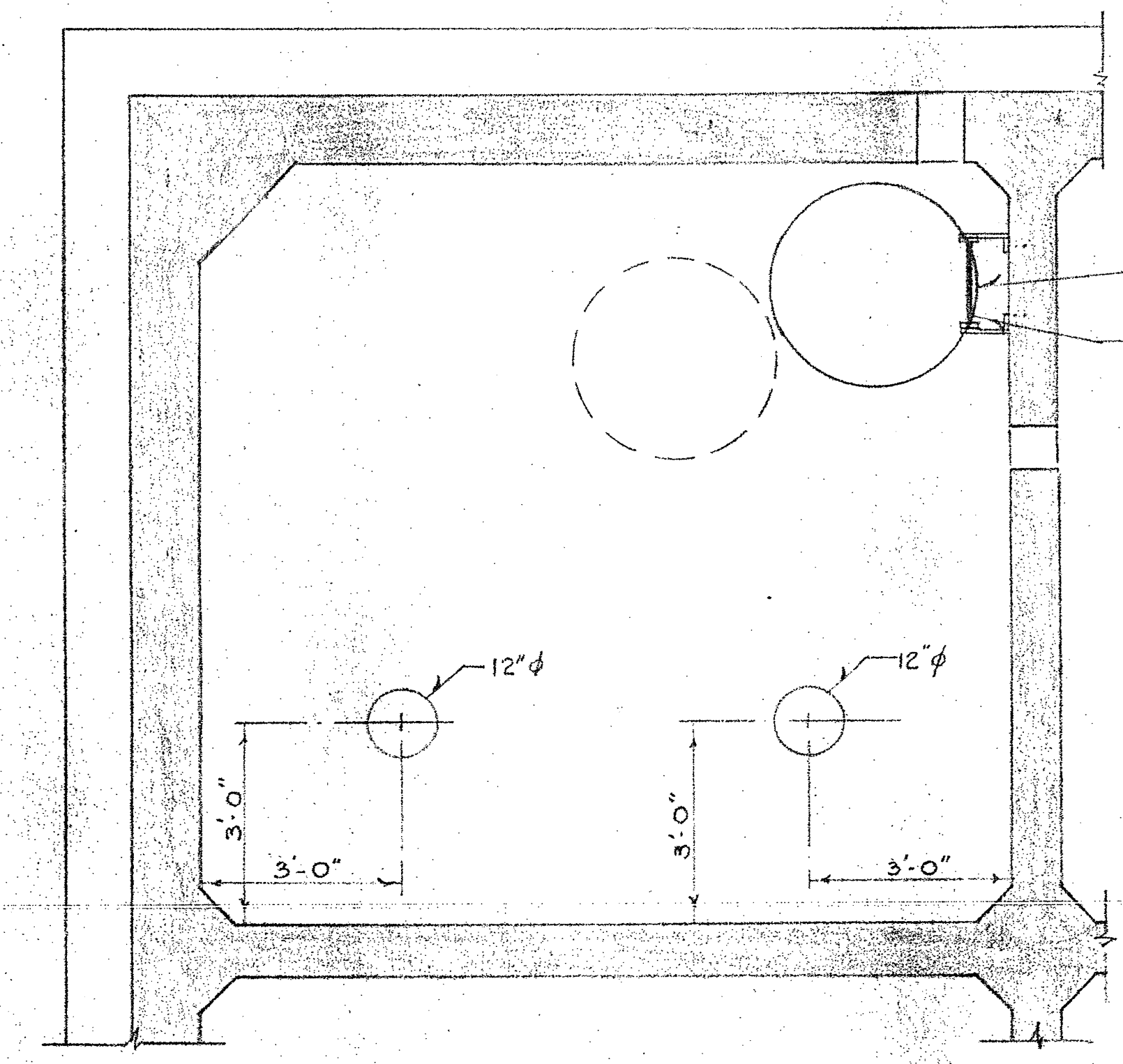
FIG. HINGE LINK  
SCALE 1 1/2" = 1'



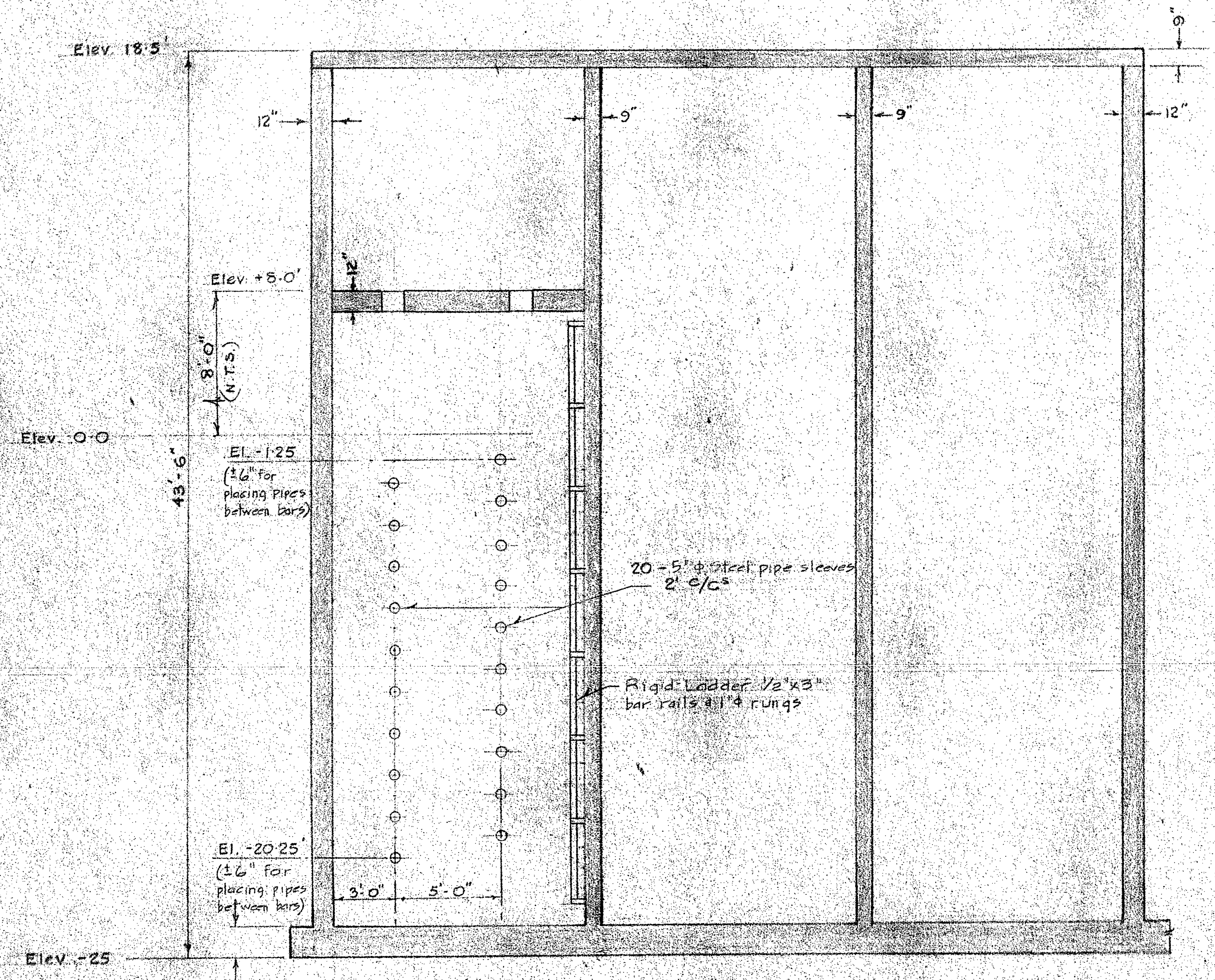
A detail no.	sheet no.
B location drawing no.	set design no.
C drawing no.	scale no.
revisions	date



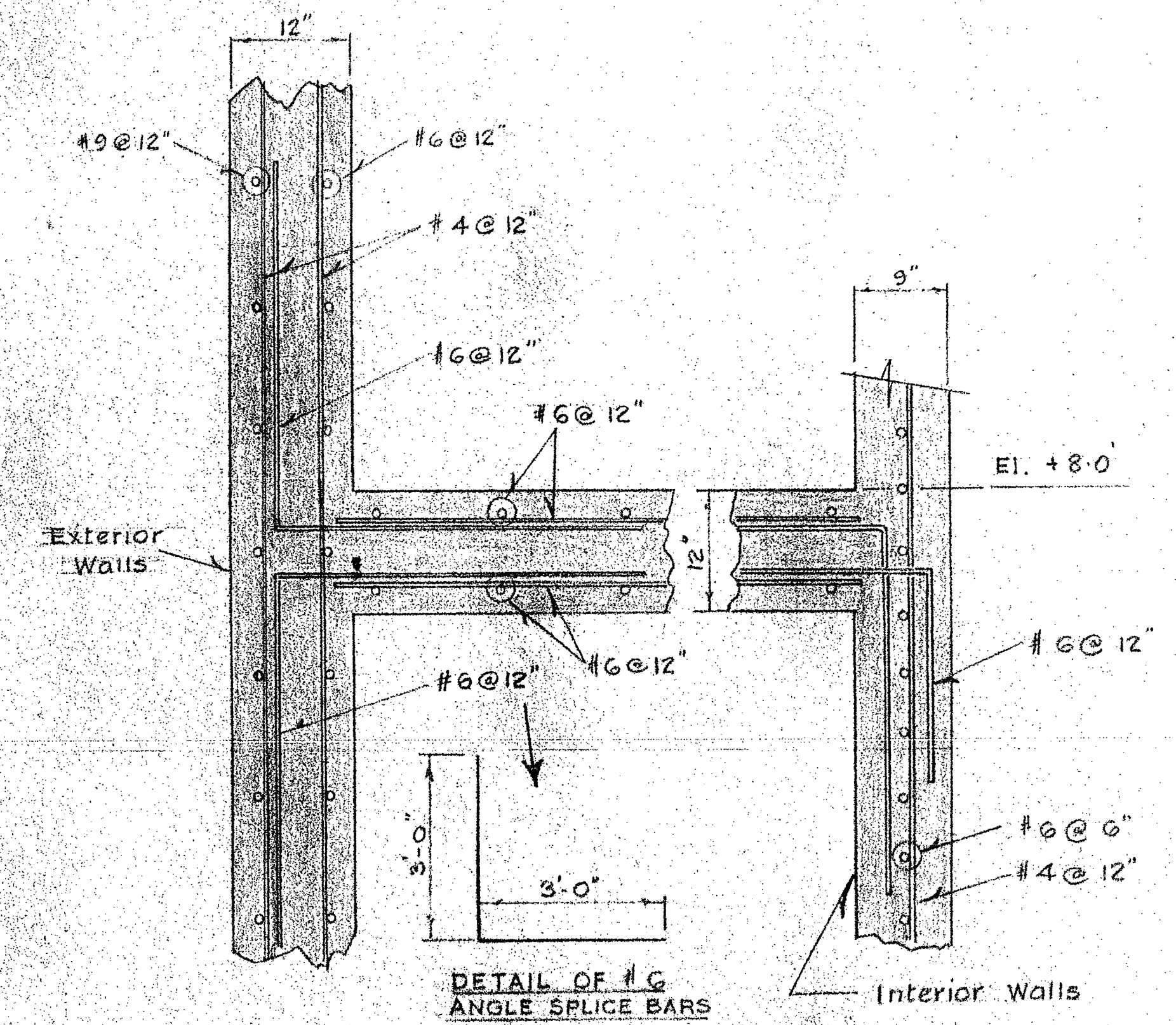
DECK PLAN  
Scale: 1" = 4'



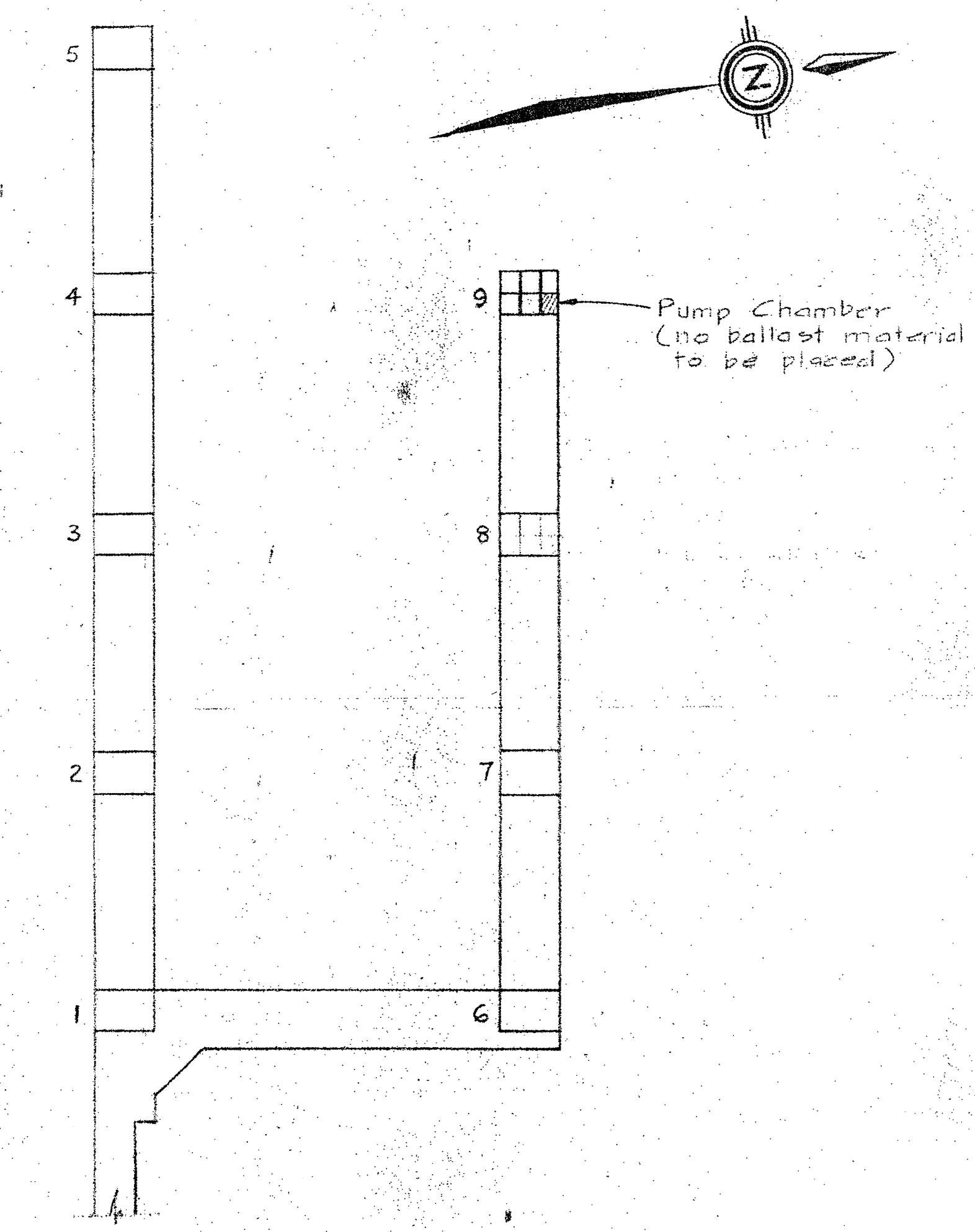
PLAN OF PUMP ROOM  
Scale: 1" = 2'



SECTIONAL ELEVATION  
Scale: 1" = 4'



PART SECTIONAL ELEVATION  
SHOWING REINFORCING  
Scale: 1" = 1'



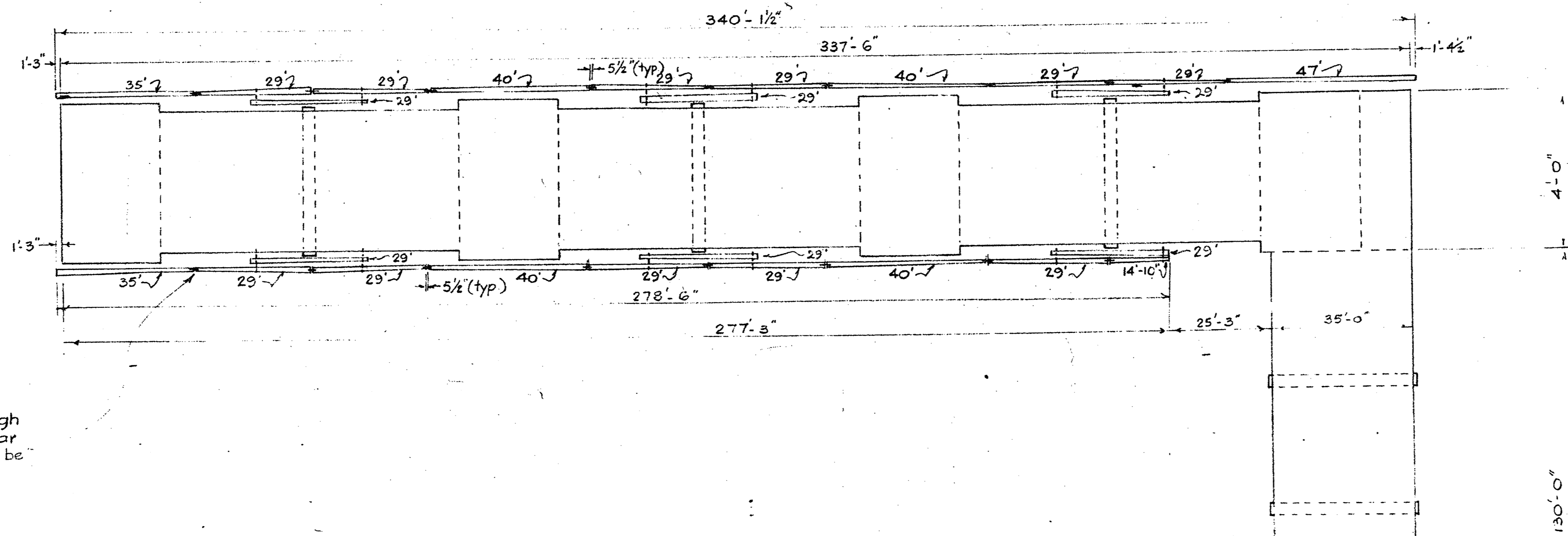
KEY PLAN  
Scale: 1" = 80' ±

project title / titre du projet  
**INSTITUTE OF OCEAN SCIENCES MARINE STRUCTURES**

drawing title / titre du dessin  
**SEA WATER INTAKE**

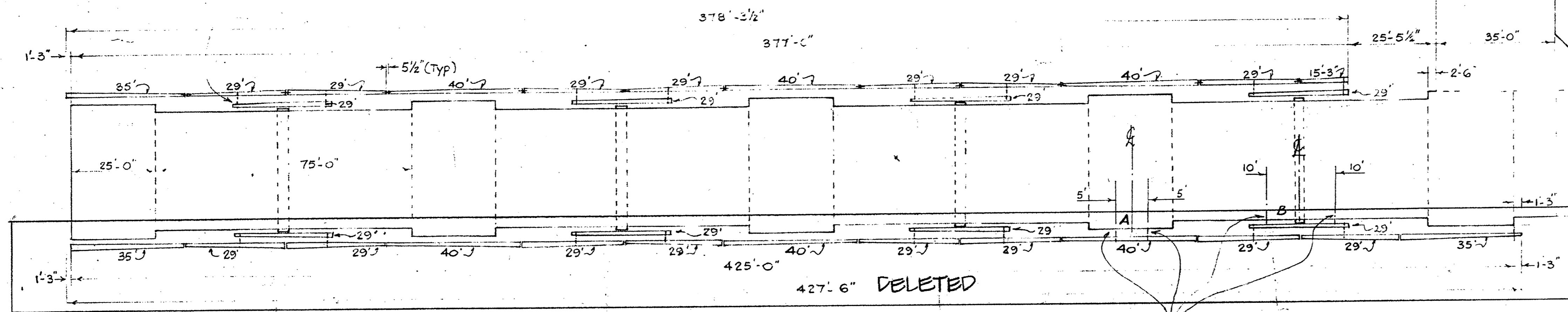
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date	établi par
drawn by	dessiné par
date	révisé par
revised by	approuvé par
date	approuvé par
approved by	approuvé par
date	dessiné par
Tender	Destination
O.P.W. Project Manager	Administrateur de projets de P.P.
project number	no. du projet
drawing no.	dessin no.





Note: 3/4" φ Galv. Connecting Chains through 4" φ Holes in Logs with min. 12" clear between Holes and Log ends. Logs to be placed tip to tip and butt to butt.

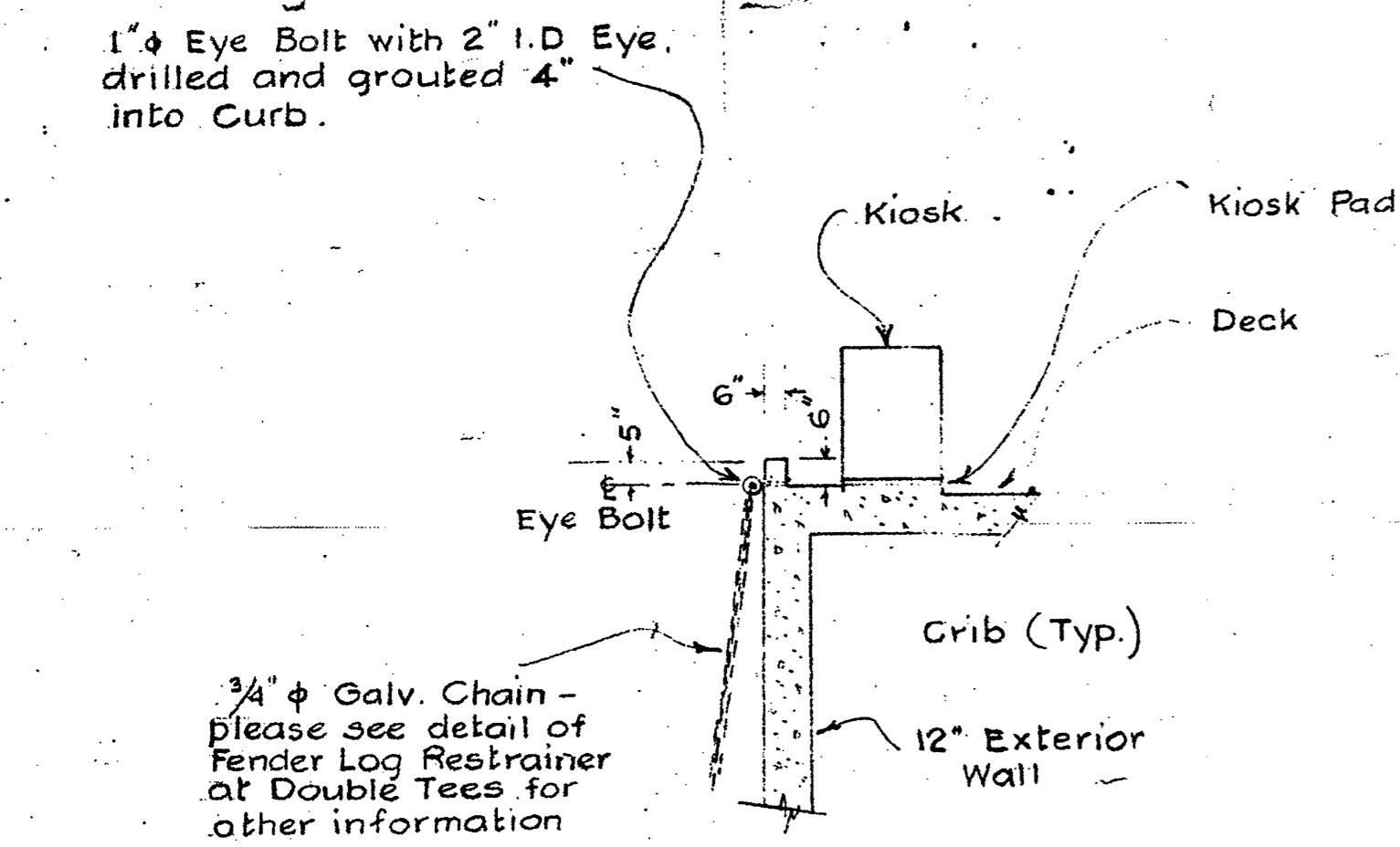
Similar Chain Connection between the two rows of Logs



PLAN OF LAYOUT

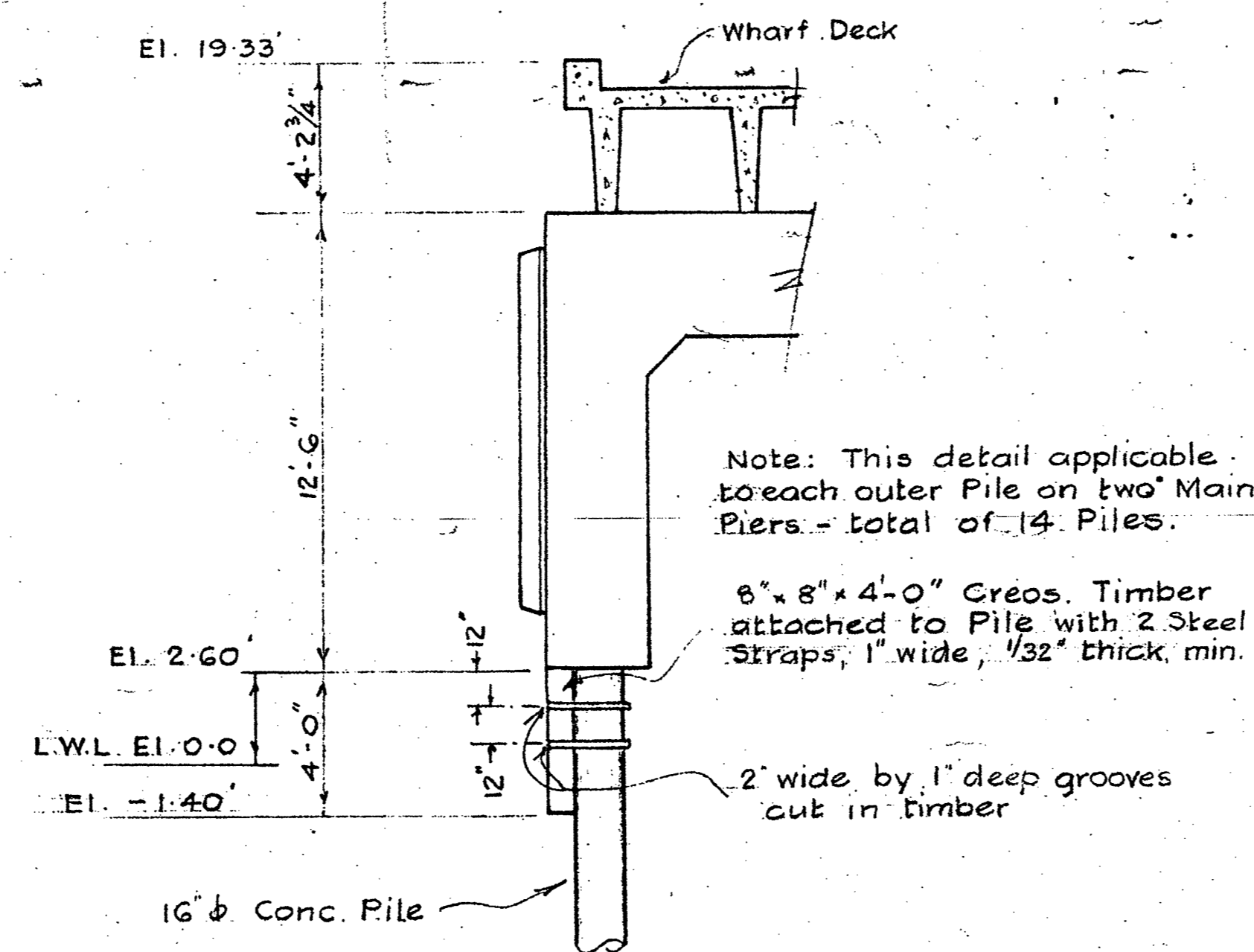
Scale: 1" = 20'

Location of Fender Log Restrainer Systems (Typ.)  
A - at Cribs, B - at double T's



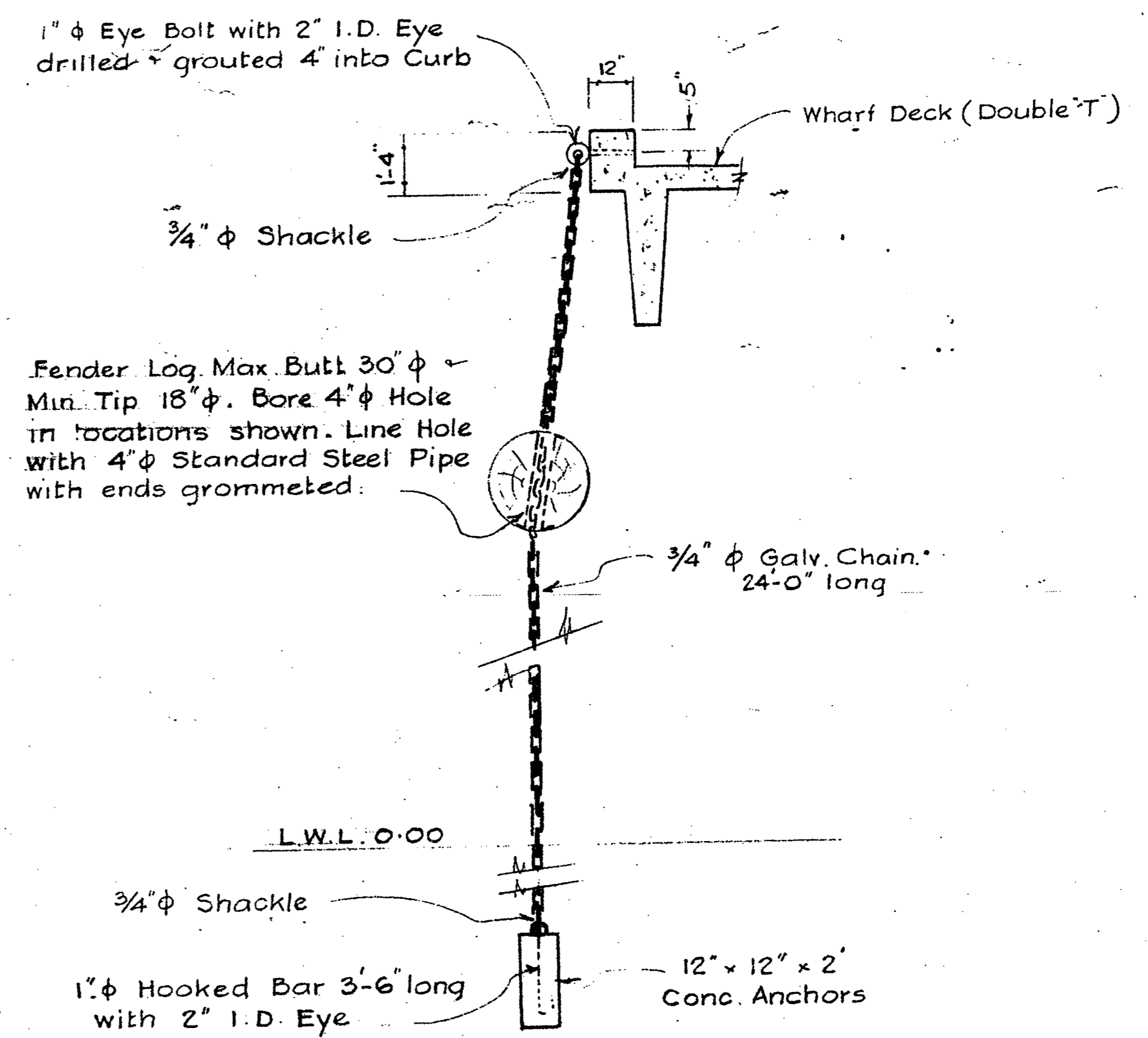
DETAIL OF FENDER LOG RESTRAINER SYSTEM AT CRIBS

Scale: 1" = 4'



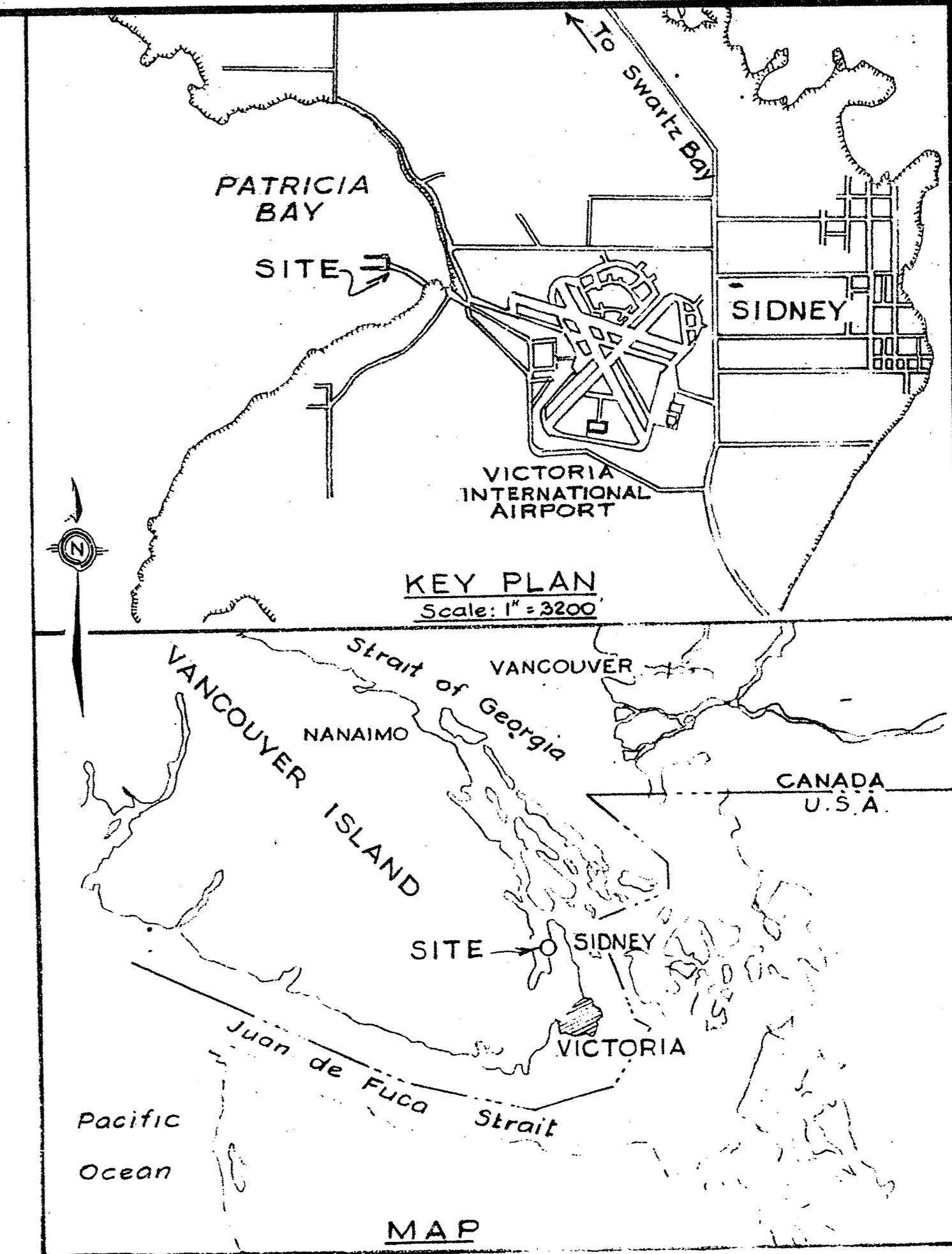
DETAIL OF FENDER LOG RUBBING TIMBERS

Scale: 1" = 4'



DETAIL OF FENDER LOG RESTRAINER AT DOUBLE T'S

Scale: 3/8" = 1'



Public Works Canada / Travaux publics Canada

PACIFIC REGION

INSTITUTE OF OCEAN SCIENCES ENVIRONMENT CANADA

A detail no. / B location drawing no. / C drawing no.

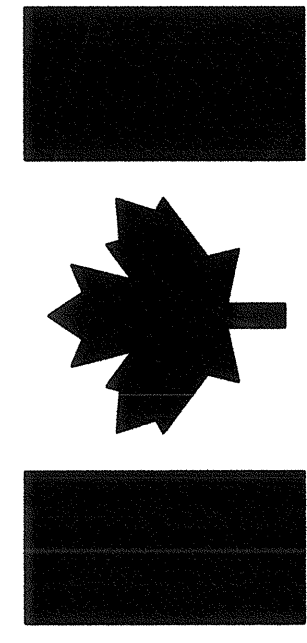
REV. 1 ALL LOGS SCOUR SIDE DELETED

PATRICIA BAY, B.C. MARINE FACILITY

FENDER LOGS

designed by / date / drawn by W.G.F. / date 6.4.76 / reviewed by / approved by / date / Tender / D.P.W. Project Manager / project number OAS-CONS-0001 / drawing no. OAS-CONS-0001 / 1 of 1





Public Works and  
Government Services  
Canada

# PATRICIA BAY, B.C. MARINE FACILITY WHARF SEISMIC RETROFIT

DRAWING No.:

TITLE:

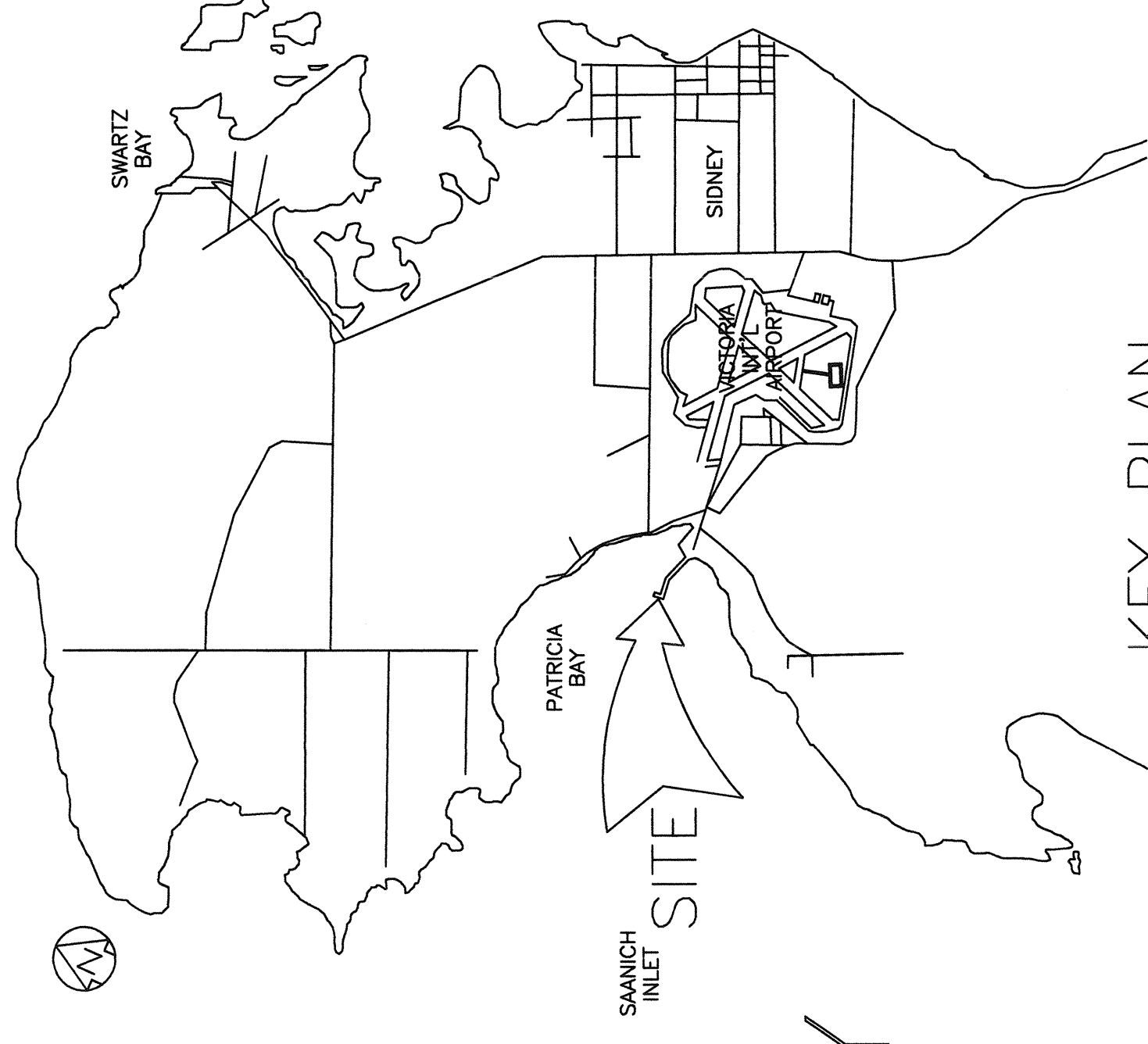
- 142232-8200
- 142232-8201
- 142232-8202
- 142232-8203
- 142232-8204
- 142232-8205
- 142232-8206
- 142232-8207

- COVER SHEET
- GENERAL NOTES
- GENERAL ARRANGEMENT
- EXISTING SECTIONS
- BENT RETROFITS
- BENT AND CRIB RETROFITS - SHEET 1 OF 2
- BENT AND CRIB RETROFITS - SHEET 2 OF 2
- TYPICAL DETAILS

REFERENCE DRAWINGS

- 89323-S1 EXISTING STRUCTURE SITE PLAN
- 89323-S2 GENERAL ARRANGEMENT
- 89323-S3 DREDGING PLAN

Ⓐ (SEE EDMR DRAWING NUMBER NOTE THIS DRAWING)



KEY PLAN  
N.T.S.

Ⓐ



Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

Pacific Region / Région du Pacifique

Fisheries and Oceans Canada  
Small Craft Harbours Branch



CAD FILE No. 142232-8200  
PWSSC PROJECT No. 850497  
SANDWELL PROJECT No. 142232

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NOTE:  
REFER TO AS-BUILT DRAWING DETAIL  
REVISION EDMR DRAWINGS: #82392,  
#82391, #82390, #82389, #82387,  
#82385, #82384, #82383, #82382,  
#82381 and #82455 SHEETS 1-4.

number	revision	revision	date
B	AS BUILT	03.30.01	
	ISSUED FOR TENDER	02.01.07	

A	A
C	B/C

A detail number  
number du détail  
B source drawing no.  
de dessin no.  
C detail on drawing no.  
détail sur dessin no.

project  
PATRICIA BAY, B.C.  
MARINE FACILITY

drawing  
WHARF SEISMIC RETROFIT  
COVER SHEET

designed	conçu
date	date
drawn	dessiné
date	date
approved	approuvé
date	date
Tender	Submission

PWSSC Project Manager / Administrateur de projets TPSSC  
project number / numéro du projet  
850497

drawing number / numéro du dessin	142232-8200	rev.	B
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EDRM #81911 (Version 2)  
PLOT 1:1

142232-8200



Fisheries and Oceans Canada  
Small Craft Harbours Branch



CDI FILE No. 14232-8201  
PWSC PROJECT No. 850497  
SANDWELL PROJECT No. 14232

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NOTE:  
REFER TO AS-BUILT DRAWING DETAIL REVISION EDM DRAWINGS: #82392, #82391, #82390, #82389, #82387, #82385, #82384, #82383, #82382, and #82381.

number	revision	date
A		
B	AS BUILT	03.30.01
C	ISSUED FOR TENDER	02.01.07

number	revision	date
A		
B		
C		

project  
PATRICIA BAY, B.C.  
MARINE FACILITY

drawing  
WHARF SEISMIC RETROFIT  
GENERAL NOTES

designed	GN	conçu
date drawn	01.12.15	date dessinée
date approved	01.11.20	date approuvée
date Tender		date Soumission

PWSC Project Manager Administrateur de projets, PWSC  
project number 850497  
numero du projet

drawing number	numero du dessin	rev.
14232-8201		B

GENERAL NOTES

- REFER TO TECHNICAL SPECIFICATIONS WHICH ARE TO BE READ IN CONJUNCTION WITH THESE DRAWINGS.
  - ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
  - BERTH FACE IS ESTABLISHED AS THE FACE OF THE FENDER CAMEL.
- CONCRETE
- ALL CONCRETE WORK SHALL CONFORM TO CSA STANDARD A23.1-00. UNLESS NOTED OTHERWISE.
  - ALL EXPOSED CONCRETE EDGES TO BE CHAMFERED 20mm UNLESS NOTED OTHERWISE.
  - CLEAR COVER TO ALL REINFORCEMENT TO BE 50mm UNLESS NOTED OTHERWISE.
  - ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 35 MPa (fc') AT 28 DAYS

fc'	CLASS	TYPE	NOMINAL SIZE OF COARSE AGGREGATE	SUMP	AIR CONTENT	AIR DRY CONCRETE DENSITY	MAXIMUM W/C RATIO
35	MPa	C1	20mm	80 ± 30mm	5 TO 8%	2300±150kg/m <sup>3</sup>	0.40

- CONCRETE TESTING TO BE DETERMINED IN ACCORDANCE WITH CSA STANDARD A23.2-94.
- SET EMBEDDED STEEL TRUE TO POSITION SHOWN WITHIN ±3mm.

REINFORCING STEEL

- ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO CAN/CSA-C30.18-10/2 GRADE 400R.
- FABRICATION DETAILS TO CONFORM TO CSA A23.1.
- NO WELDING OF REINFORCEMENT IS PERMITTED, UNLESS NOTED OTHERWISE.
- THREADED COUPLERS SHALL DEVELOP A MINIMUM OF 125% OF THE SPECIFIED STRENGTH OF THE BAR.
- NO SPLICES IN THE MAIN REINFORCING BARS IS PERMITTED UNLESS NOTED OTHERWISE.
- WHERE NOT SHOWN ON THE DRAWINGS, SPLICES IN THE SECONDARY REINFORCEMENT SHALL BE LAP JOINTS. LAP JOINTS SHALL BE NO MORE THAN ONE HALF OF TENSION REINFORCEMENT SHALL BE LAP SPLICES AT ANY LOCATION.
- LAP SPLICES IN TENSION REINFORCEMENT SHALL BE STAGGERED BY A MINIMUM OF ONE SPLICE LENGTH.
- REINFORCING DEVELOPMENT AND SPLICE LENGTH SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:

BAR SIZE	CLASS B TENSION SPLICE (mm)	STRAIGHT BAR DEVELOPMENT (mm)	HOOKED DEVELOPMENT (mm)
10M	340	260	190
15M	480	370	270
20M	590	450	330
25M	830	640	430
30M	1170	900	510
35M	1680	1290	610

DEVELOPMENT OF TOP BARS WITH MORE THAN 300mm OF CONCRETE CAST BELOW THE BAR TO BE 1.4 TIMES THAT SHOWN IN TABLE.

GROUT

- UNDER BASE PLATES USE PRE-MIXED CEMENTITIOUS, FLOWABLE NON SHRINK GROUT CONFORMING TO ASTM C1107. MINIMUM COMPRESSIVE CUBE STRENGTH OF 21MPa AT 3 DAYS AND 45MPa AT 28 DAYS.
- FOR TENSION ANCHORS USE CEMENT, SAND AND WATER NON-SHRINK SULPHATE RESISTANT GROUT. MINIMUM COMPRESSIVE CUBE STRENGTH OF 30MPa AT 28 DAYS.

STRUCTURAL AND MISCELLANEOUS STEEL

- ALL ROLLED OR WELDED SECTIONS AND PLATES SHALL CONFORM TO CAN/CSA G40.20/G40.21, GRADE 500R.
- PIPE FOR TENSION ANCHORS SHALL CONFORM TO ASTM A53 GRADE B. TO ASTM A507 GRADE A.
- ALL EMBEDDED ANCHOR BOLTS TO BE GALVANIZED AND CONFORM TO ASTM A307 GRADE A.
- TENSION ANCHORS TO BE DOUBLE CORROSION PROTECTED THREADBAR AS MANUFACTURED BY SYSTEMS INTERNATIONAL (S-I) OR EQUIVALENT. BOLTS IN ANCHOR BRACKET SHALL BE CAN/CSA G18-M82 GRADE 113/620 MPa. ZINC COATING OF 60g/m<sup>2</sup> WHERE INDICATED TO CAN/CSA G164, MINIMUM 97m<sup>2</sup>.
- STRUCTURAL STEEL CONNECTION BOLTS SHALL CONFORM TO ASTM A325 TYPE ZINC COATED UNLESS NOTED OTHERWISE.
- ALL BOLTED CONNECTIONS TO BE BEARING TYPE WITH THREADS EXCLUDED FROM SHEAR PLANES UNLESS NOTED OTHERWISE.
- PAINTING TO BE IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS.
- MINIMUM THICKNESS OF CONNECTION PLATES IS 6mm.
- 32mm<sup>Ø</sup> THREADED RODS TO BE WILLIAMS ALL-THREADED (GRADE 150 KSI) OR EQUIVALENT.

WELDING

- WELDING MATERIAL AND WELDERS SHALL COMPLY WITH CSA-W59 AND CSA-W47.1.
- MINIMUM WELD SIZE TO BE 6mm UNLESS NOTED OTHERWISE.
- ALL WELDS TO BE CONTINUOUS UNLESS NOTED OTHERWISE.
- ELECTRODES SHALL BE IN ACCORDANCE WITH CSA STANDARD W48.1-M.
- ELECTRODES TO BE E480XX CLASSIFICATION.
- SEAL WELD ALL WELDED JOINTS.

ELASTOMERIC BEARINGS

- THE ELASTOMER USED SHALL BE NATURAL RUBBER, GRADE 3, 10MPa SHEAR MODULUS.
- BEARING PLATES TO BE MACHINED TO PROVIDE 90% BEARING.
- SHEAR STUDS TO CONFORM TO ASTM A108 GRADE 1015, 1018 OR 1020 # Z2A120 UNLESS NOTED OTHERWISE.
- ALL EXPOSED PLATE TO BE GALVANIZED PER CAN/CSA C164 (REMOVE GALVANIZING IN AREA OF BONDED PAD BEFORE VULCANIZATION).
- ALL STEEL PLATE SHALL CONFORM TO CAN/CSA G40.20/G40.21, GRADE 500R.
- ELASTOMER TO BE SHIELDED FROM WELDING ARC.
- ALTERNATE WELD PASSES BETWEEN OPPOSITE SIDES TO AVOID OVERHEATING CONCRETE OR RUBBER.

STRUCTURAL DESIGN CRITERIA

- DESIGN CODES ARE: ASHTO, CSA A23.3, CSA S16.1
- ELEVATION RELATIVE TO LOWER LOW WATER (LLW) 0.0m.
- HIGH WATER MARK (HWM) 3.87m.
- EARTHQUAKE (1/475)  
PEAK HORIZONTAL GROUND ACCELERATION 0.337g  
PEAK HORIZONTAL GROUND VELOCITY, 0.286m/s  
ACCELERATION RELATED SEISMIC ZONE, Z<sub>e</sub> 6  
VELOCITY RELATED SEISMIC ZONE, Z<sub>v</sub> 5  
RESPONSE MODIFICATION FACTOR (R) 2  
NO LOAD ALLOWANCE FOR FUTURE TOPPING IS MADE IN THIS DESIGN.



NOTE:

REFER TO AS-BUILT DRAWING DETAIL REVISION EDM DRAWINGS: #82392, #82391, #82390, #82389, #82387, #82385, #82384, #82383, #82382, #82381 AND #82455 SHEETS 1 - 4.

number	revision	revision	date
B	AS BUILT	03.01.30	
	ISSUED FOR TENDER	02.01.07	

A	A
C	B/C

project  
PATRICIA BAY, B.C.  
MARINE FACILITY

drawing  
WHARF SEISMIC RETROFIT  
GENERAL ARRANGEMENT

designed	GN	conçu
date	01.12.15	date
drawn	DH	dessiné
date	01.11.20	date
approved		approuvé
date		date
Tender		Submission

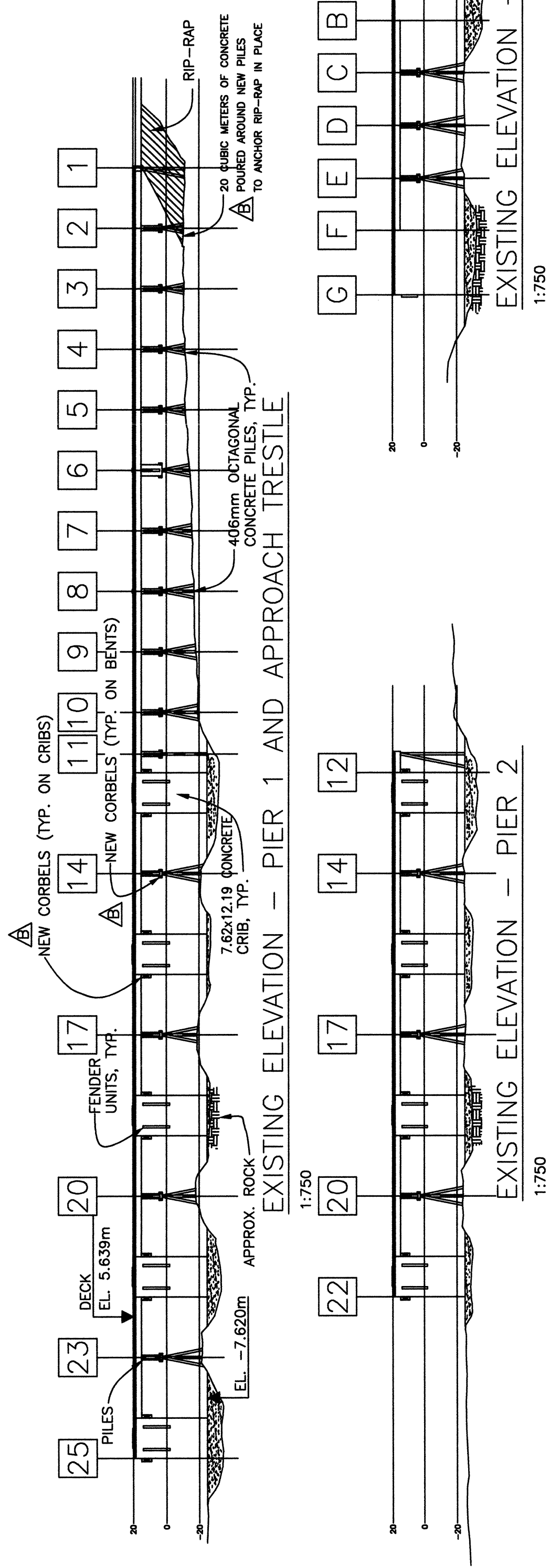
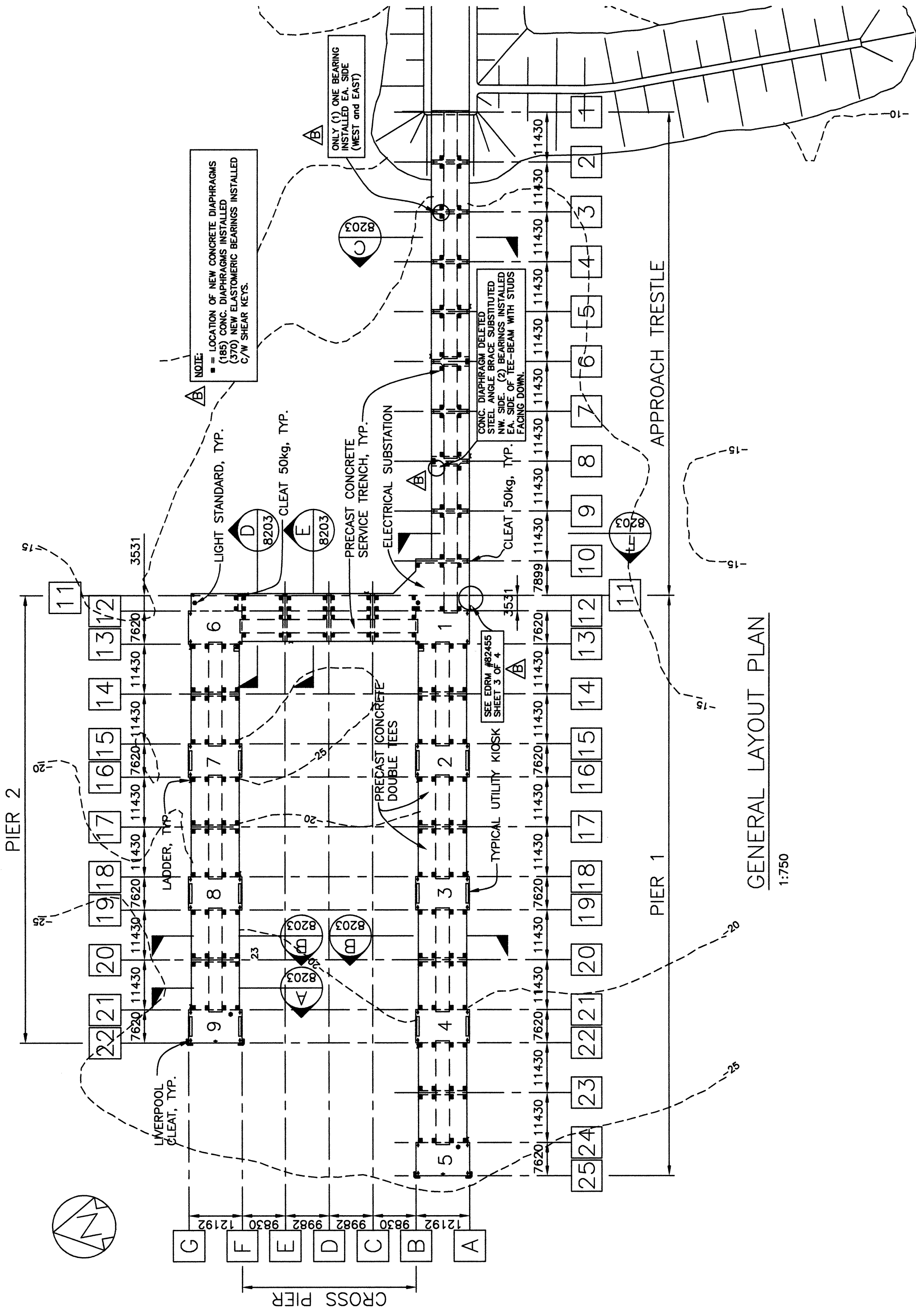
PWSSC Project Manager  
Administrateur de projets TPSSC  
project number  
850497

drawing number  
142232-8202  
rev.  
B

DESCRIPTION	DRAWINGS	BENTS
SEISMIC ANCHORS (2/BENT)	8204 8205 8207	2-10 14, 17, 20 (NORTH AND SOUTH) 23, C, D, E
PILE CAP STRENGTHENING (STEEL PLATES)	8204 8205	2-5, 7, 9, 10 14, 17, 20 (NORTH AND SOUTH) 23, C, D, E
PILE CAP STRENGTHENING AND SEATING RETROFIT	8204 8207	2-5, 7, 9, 10
CONCRETE CORBEL ON BENT CAPS	8205 8207	6, 8
CONCRETE CORBEL ON CAISSONS	8206 8207	3 SIDES - CAISSON 1 2 SIDES - CAISSONS 2, 3, 4, 6, 7, 8 1 SIDE - CAISSONS 5, 9
CONCRETE DIAPHRAGMS, BEARINGS & SHEAR KEYS	8204 8205 8207	2-10 14, 17, 20 (NORTH AND SOUTH) 23, C, D, E
CAISSON RETROFIT	TO COME	

**NOTE:**  
BEARINGS REMOVED AT THE FOLLOWING LOCATIONS:  
APPROACH TRESTLE  
BENTS 2 THRU 9  
BENT 10 - (4) BEARINGS NOT REMOVED ON NW. SIDE  
and (2) BEARINGS NOT REMOVED ON NE. SIDE  
PIER 1  
BENTS 14, 17, 20, and 23  
CRIB #2 EAST WALL (4) BEARINGS REMOVED.  
PIER 2  
BENTS 14, 17, and 20  
CRIBS #7, #8, and #9.  
GROSS PIER  
BENTS C, D, and E  
CRIB #6 SOUTH WALL (4) BEARINGS REMOVED  
SE. CORNER.

**NOTES**  
1. DIMENSIONS AND ELEVATIONS OF EXISTING CRIBS AND PILED BENTS ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ACTUAL DIMENSIONS IN THE FIELD.











CDI FILE No. 142232-8204  
PWSC PROJECT No. 850497  
SANDWELL PROJECT No. 142232

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number	revision	revision	date
B	AS BUILT		03.02.17
	ISSUED FOR TENDER		02.01.07

A	B	C
A	A	A
C	B	B
	C	C

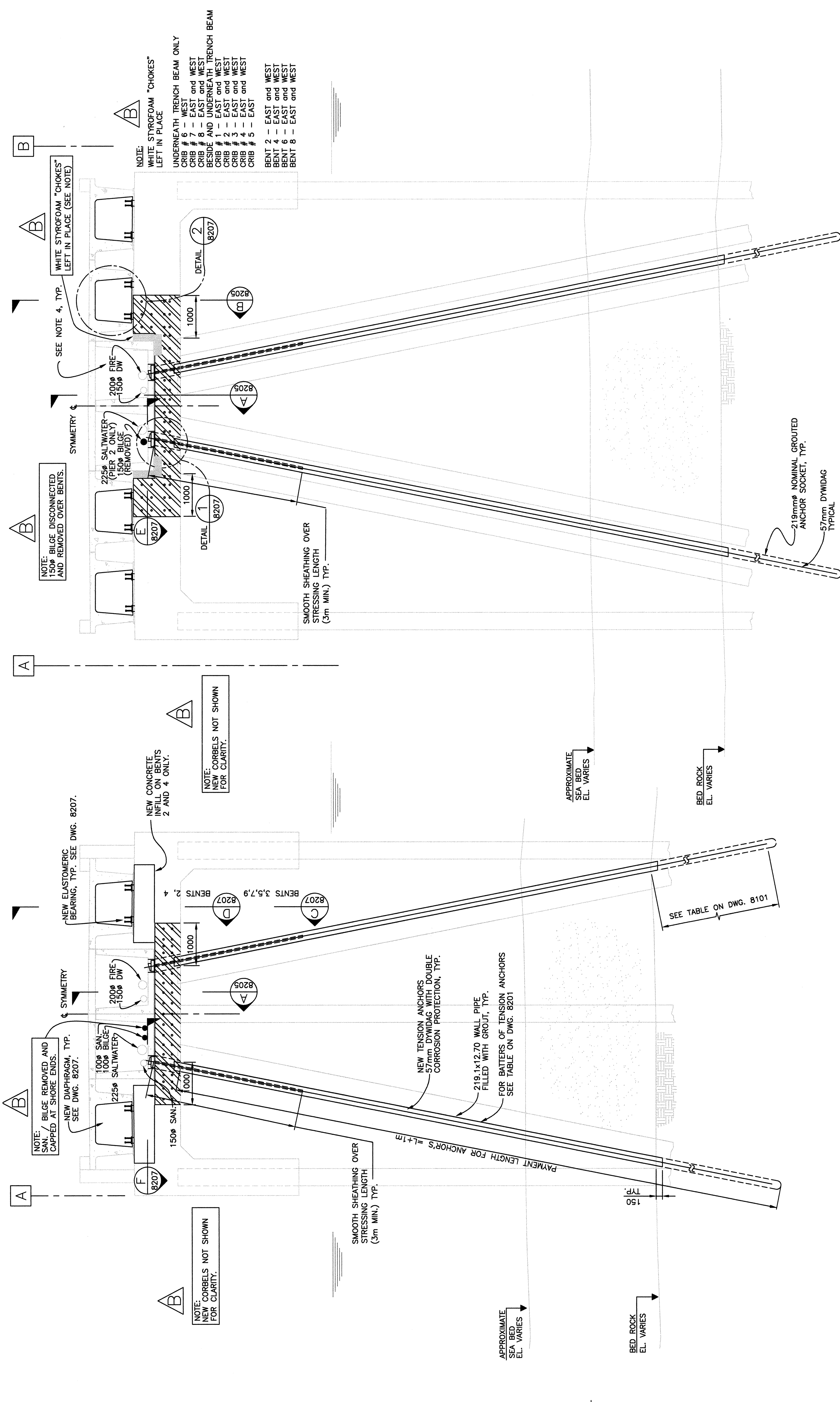
project  
PATRICIA BAY, B.C.  
MARINE FACILITY

drawing  
WHARF SEISMIC RETROFIT  
BENT RETROFITS

designed	LL	conçu
date	01.12.15 <td>date</td>	date
drawn	DH <td>dessiné</td>	dessiné
date	01.11.20 <td>date</td>	date
approved		approuvé
date		date
Tender		Submission

PWSC Project Manager  
Administrateur de projets TPSC  
project number  
850497

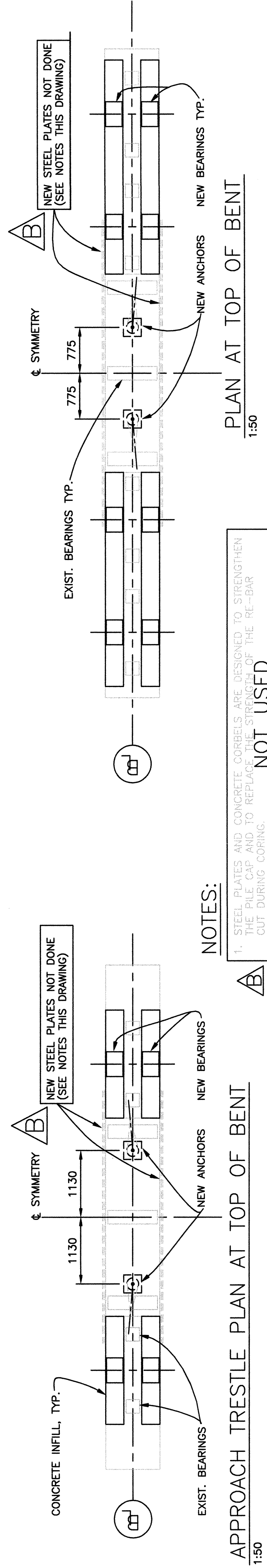
drawing number  
142232-8204  
rev.  
B



FINGER PIER 2  
BENTS 14 - 20 (17 SIMILAR)  
1:50

FINGER PIER 1  
BENTS 14 - 20 (17 AND 23 SIMILAR)  
1:50

APPROACH TRESTLE  
BENTS 2 & 4 (3, 5, 7, 9 AND 10 SIMILAR)  
1:50



- NOTES:
- STEEL PLATES AND CONCRETE CORBELS ARE DESIGNED TO STRENGTHEN THE PILE CAP AND TO REPLACE THE STRENGTH OF THE RE-BAR CUT DURING CORING. **NOT USED**
  - PILE CAP STRENGTHENING TO BE IN PLACE PRIOR TO TESTING OF ANCHORS.
  - WHERE SURFACE HAS BEEN SHOTCRETED, USE 20-25mm GROUT PAD TO LEVEL SURFACE.
  - TEMPORARILY REMOVE UTILITY PIPES AS REQUIRED TO FACILITATE INSTALLATION OF TENSION ANCHORS. RE INSTALL PIPES TO THEIR ORIGINAL STATE. ADVISE ENGINEER IF DIFFICULTY ARISES WITH REPOSITIONING THE PIPES.





CAD FILE No. 142232-8205  
PWSSC PROJECT No. 850497  
SANDWELL PROJECT No. 142232  
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NOTE:  
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number	revision	revision	date
B	AS BUILT		03.02.17
	ISSUED FOR TENDER		02.01.07

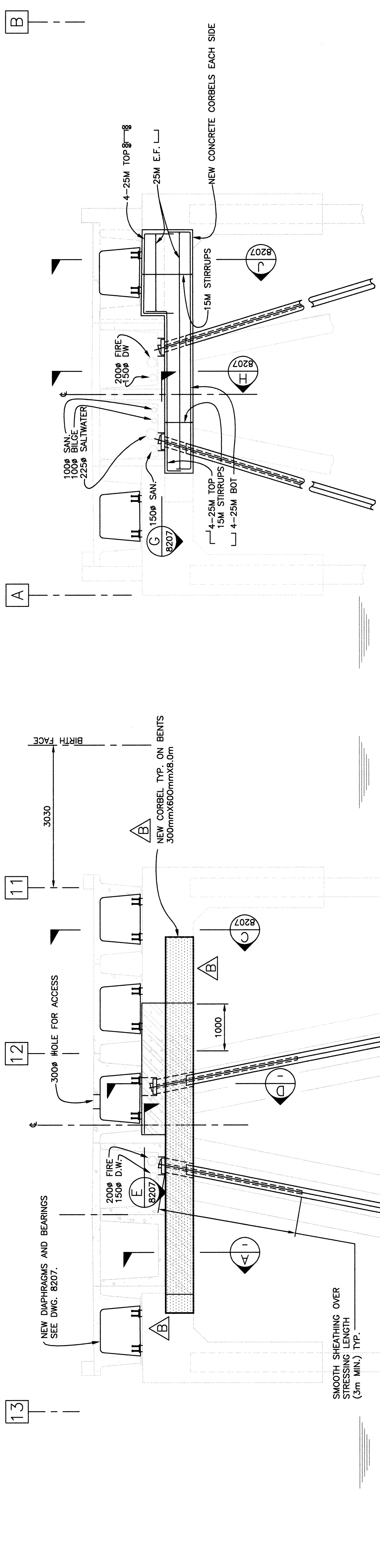
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detail number	number du détail	A
source drawing no.	de dessin no.	B/C
detail on drawing no.	détail sur dessin no.	

Project: PATRICIA BAY, B.C. MARINE FACILITY  
Project number: 850497

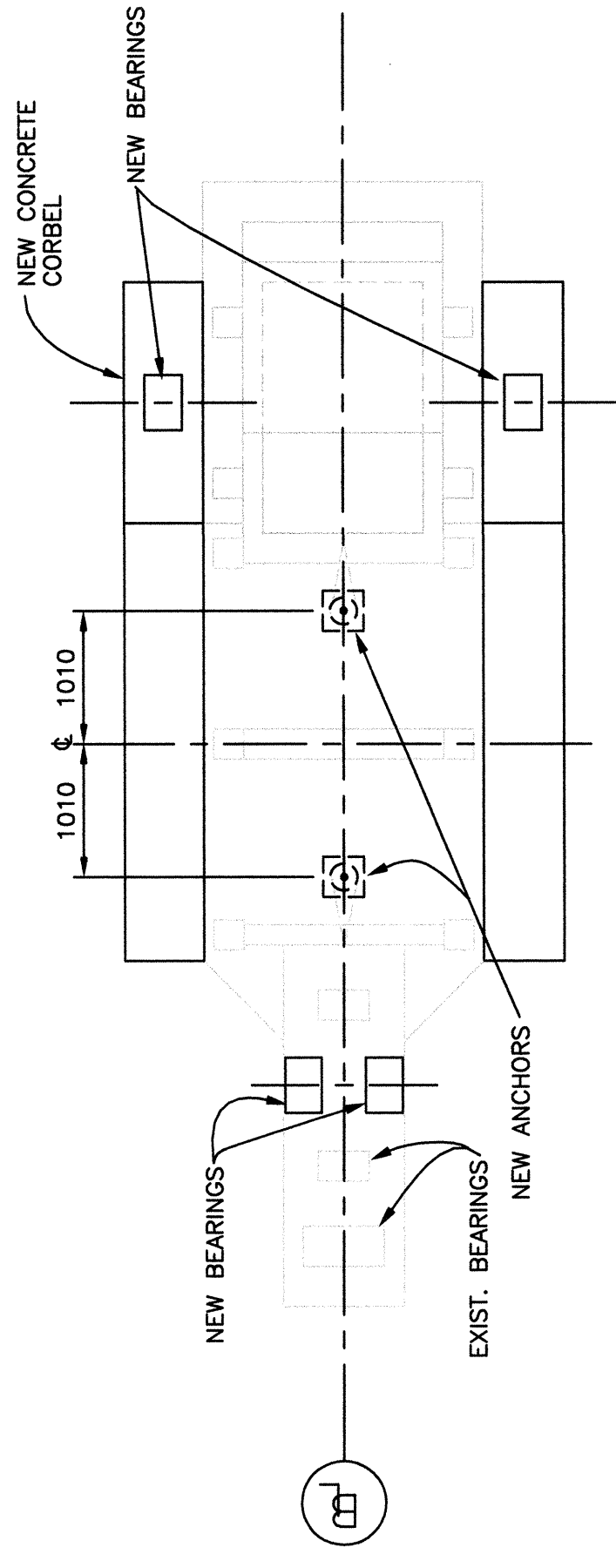
designed: L.L.  
date drawn: 01.12.15  
date approved: 01.11.20

drawing: WHARF SEISMIC RETROFIT BENT AND CRIB RETROFITS SH. 1 OF 2  
designed: L.L.  
date drawn: 01.12.15  
date approved: 01.11.20  
Tender: [blank]  
PWSSC Project Manager: Administrateur de projets TPSSC  
Project number: 850497

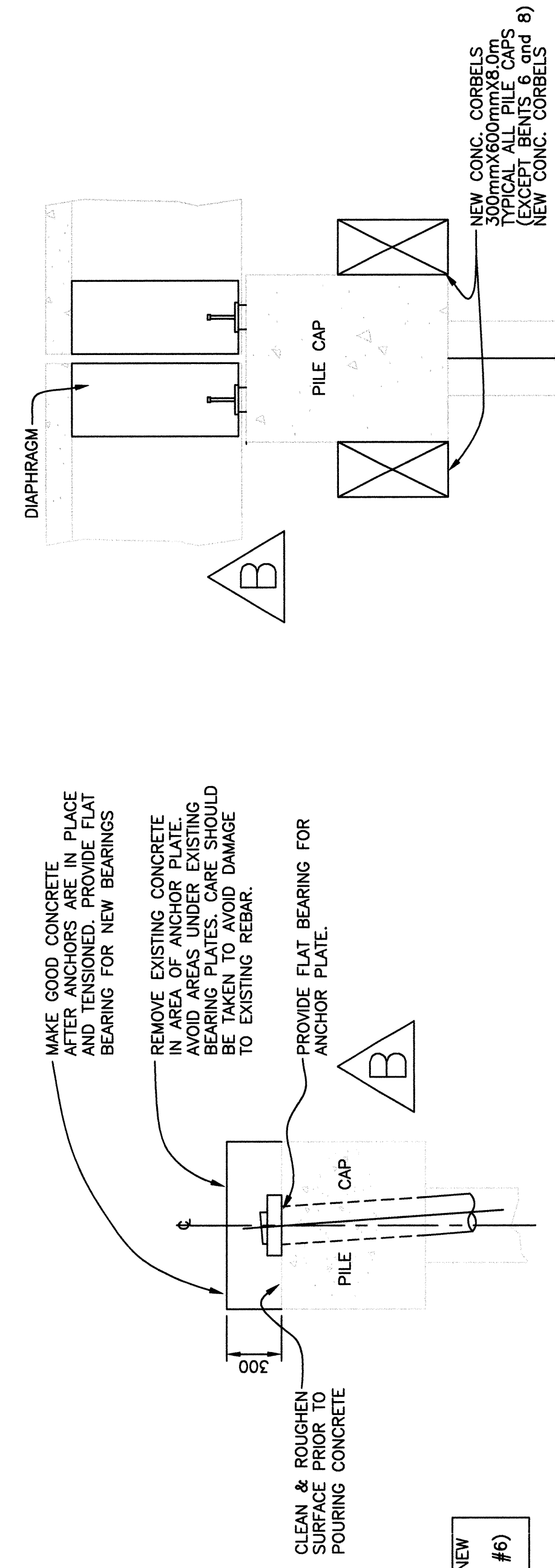
drawing number	révision
142232-8205	



KIOSK PIER AT BENT 6 (BENT 8 OPPOSITE HAND)  
1:50



PLAN AT BENT 6 (BENT 8 OPPOSITE HAND)  
1:50

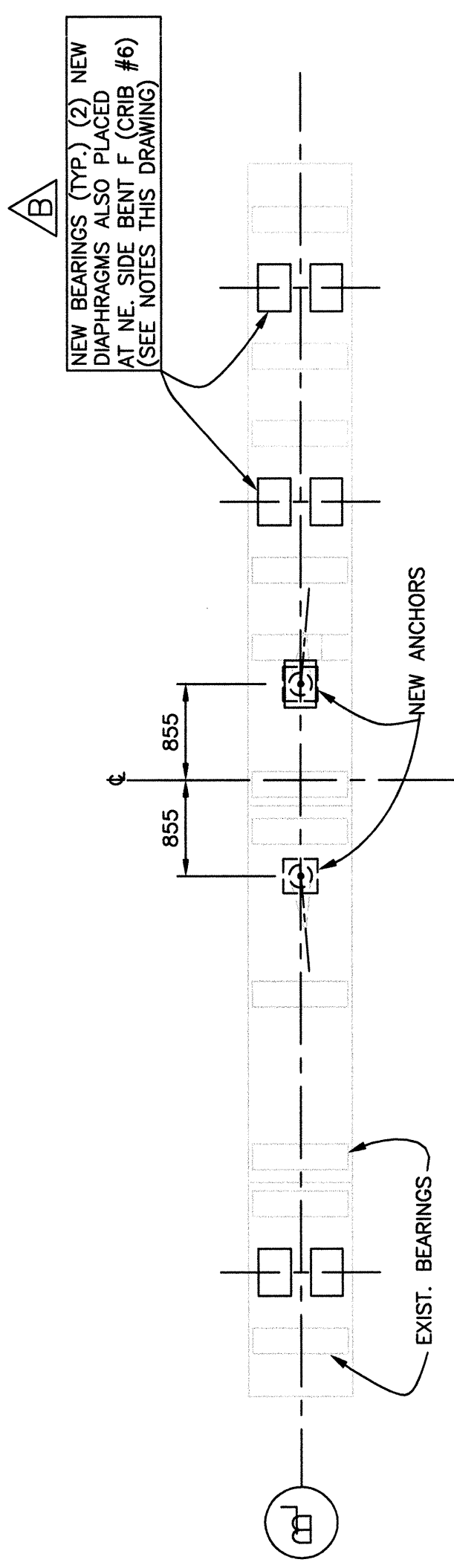


CROSS PIER AT BENT E (BENTS C AND D SIMILAR)  
1:50

SECTION B 1:25

DETAIL NOT USED

SECTION D 1:25



PLAN AT TOP OF BENT E (BENTS C AND D SIMILAR)  
1:50

NOTES  
1. FOR RETROFIT NOTES SEE DWG. 8204.





CDI FILE No. 142232-8206  
PWSSC PROJECT No. 850497  
SANDWELL PROJECT No. 142232

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NOTE:  
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number	revision	revision	date
B	AS BUILT		03.02.17
	ISSUED FOR TENDER		02.01.07

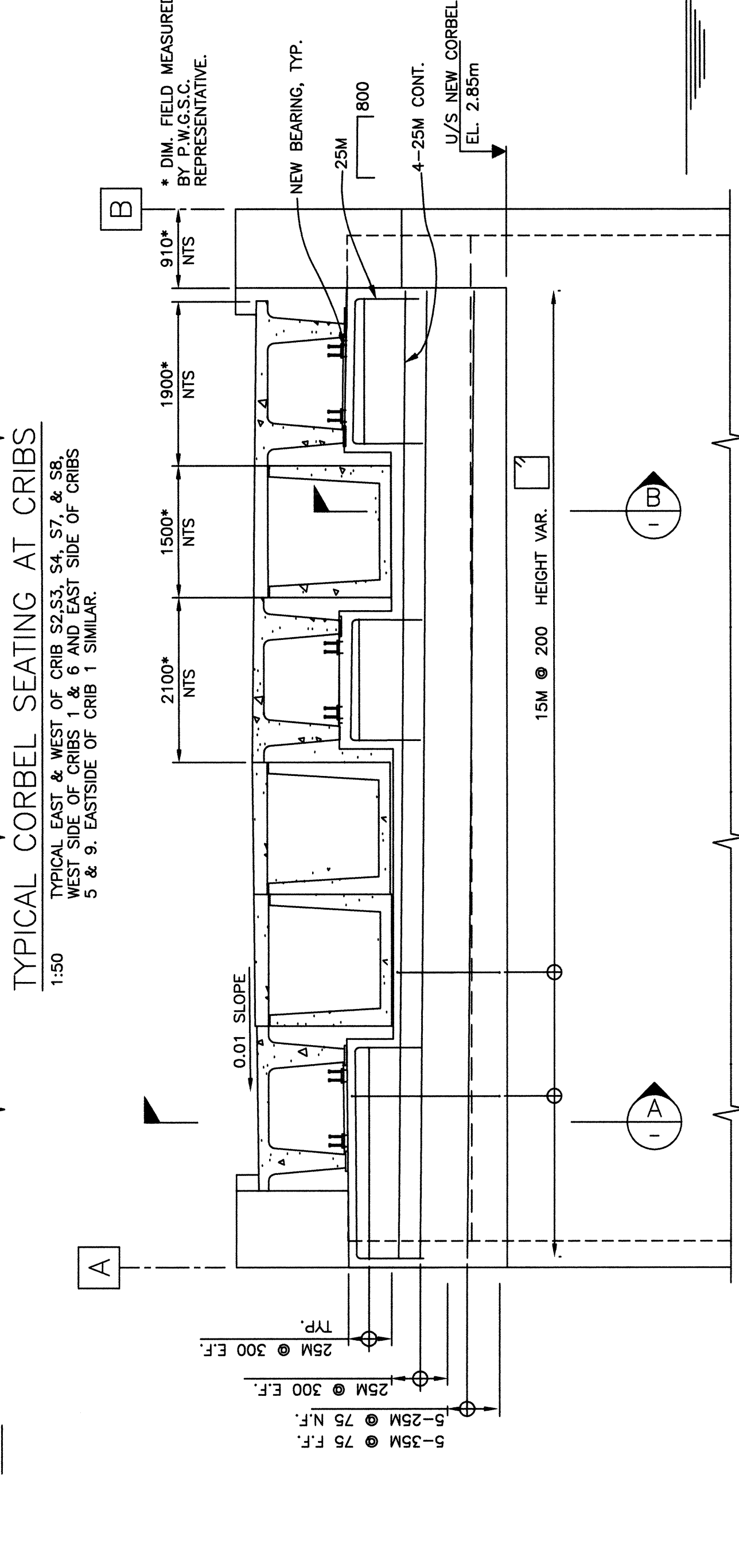
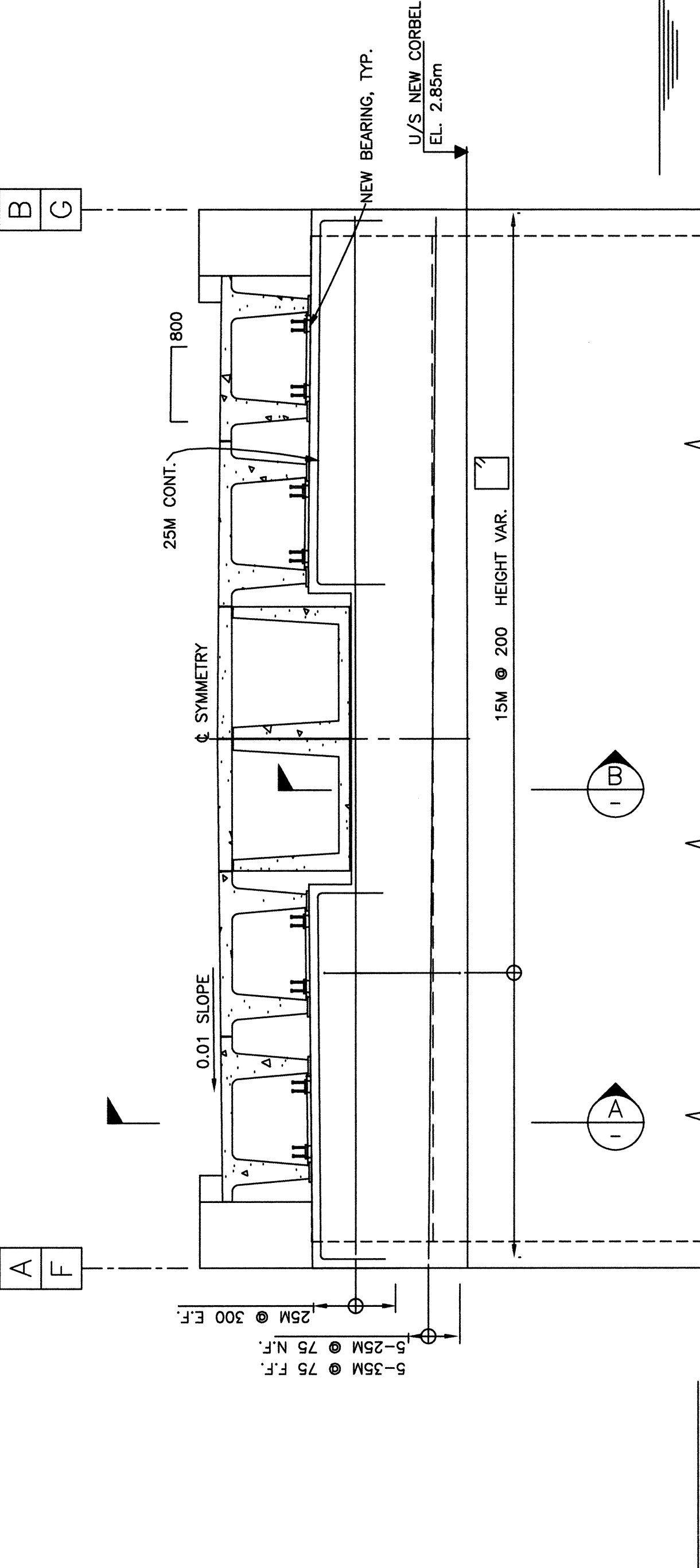
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	C	C

project  
PATRICIA BAY, B.C.  
MARINE FACILITY

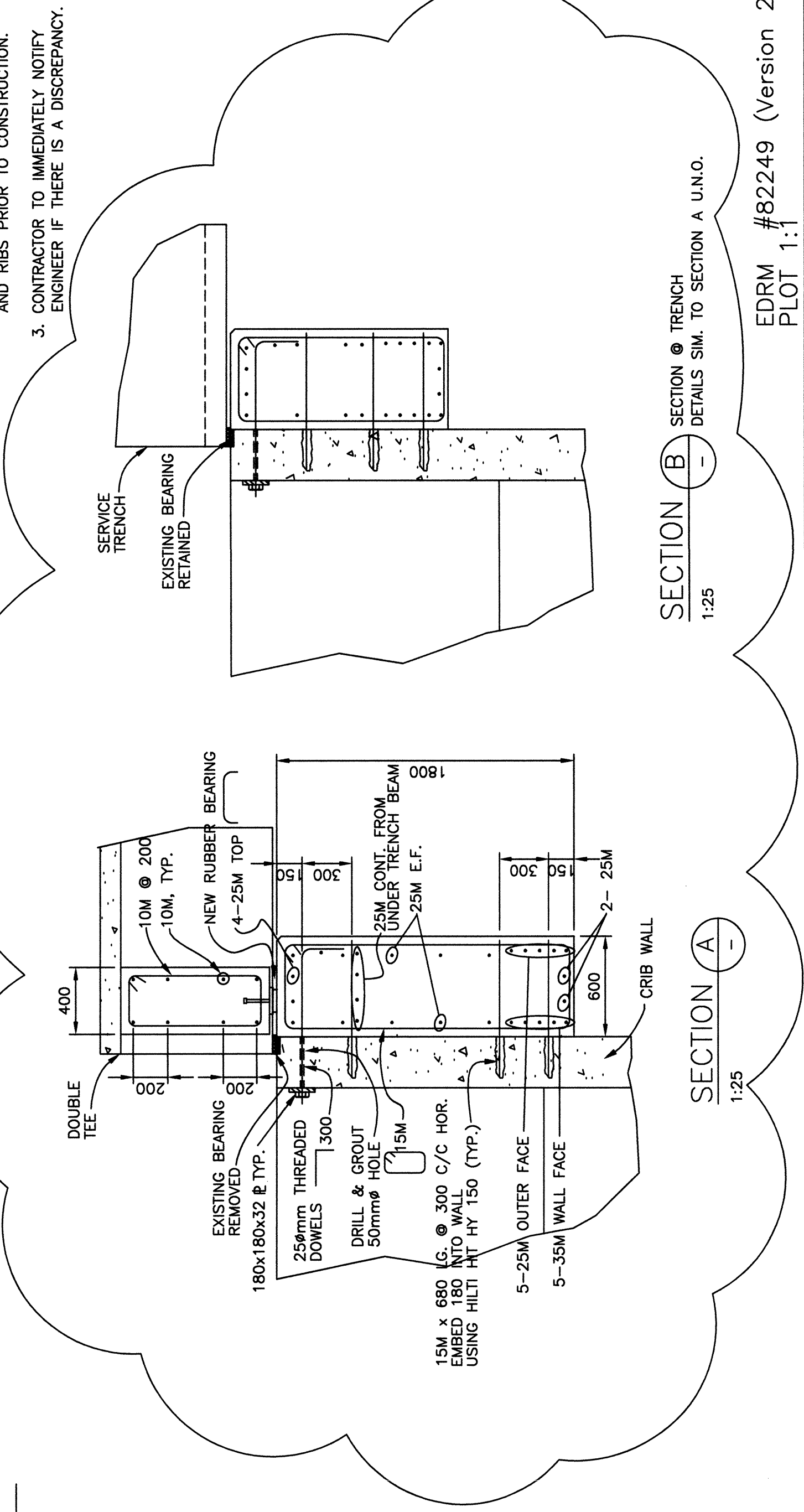
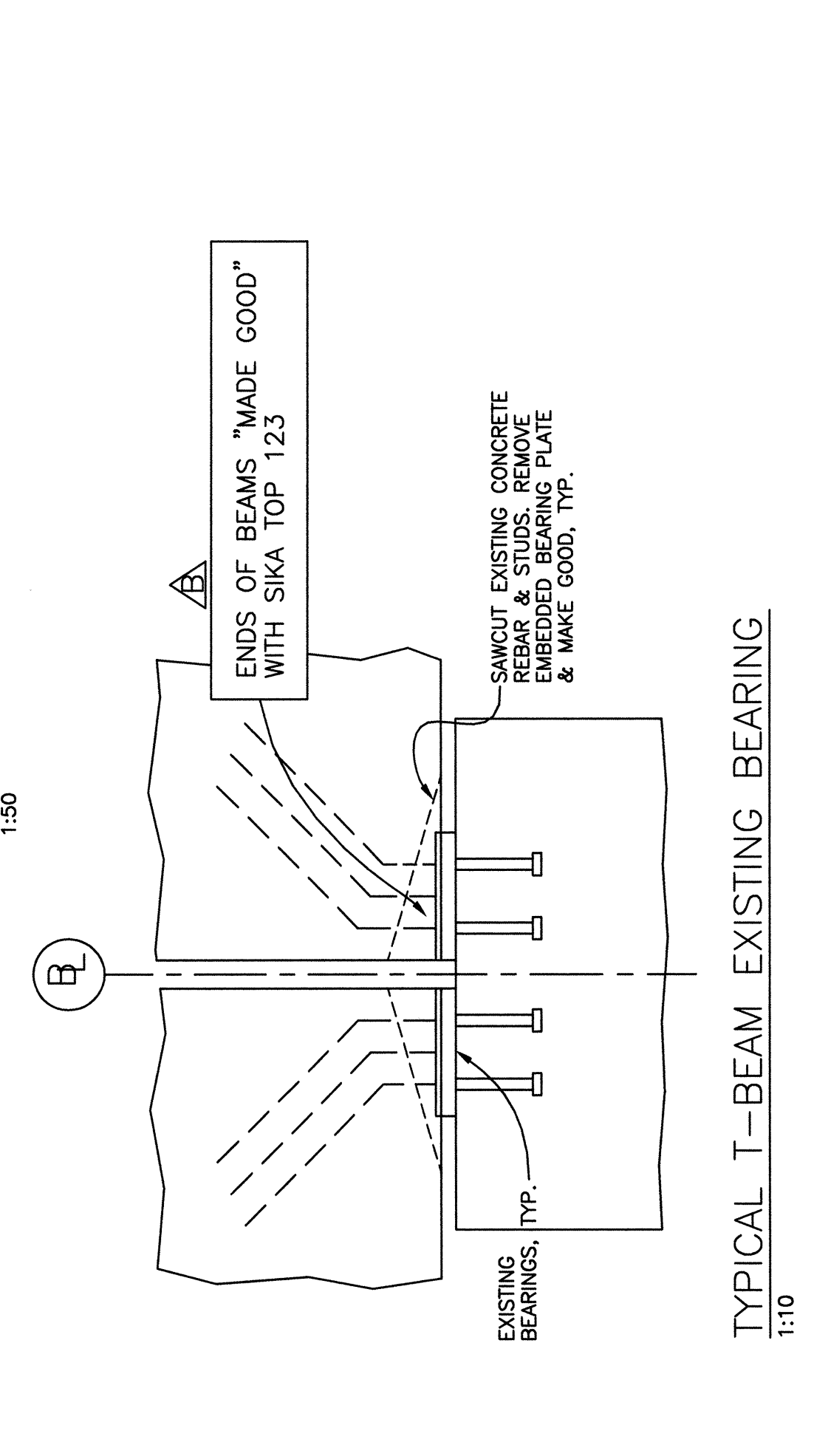
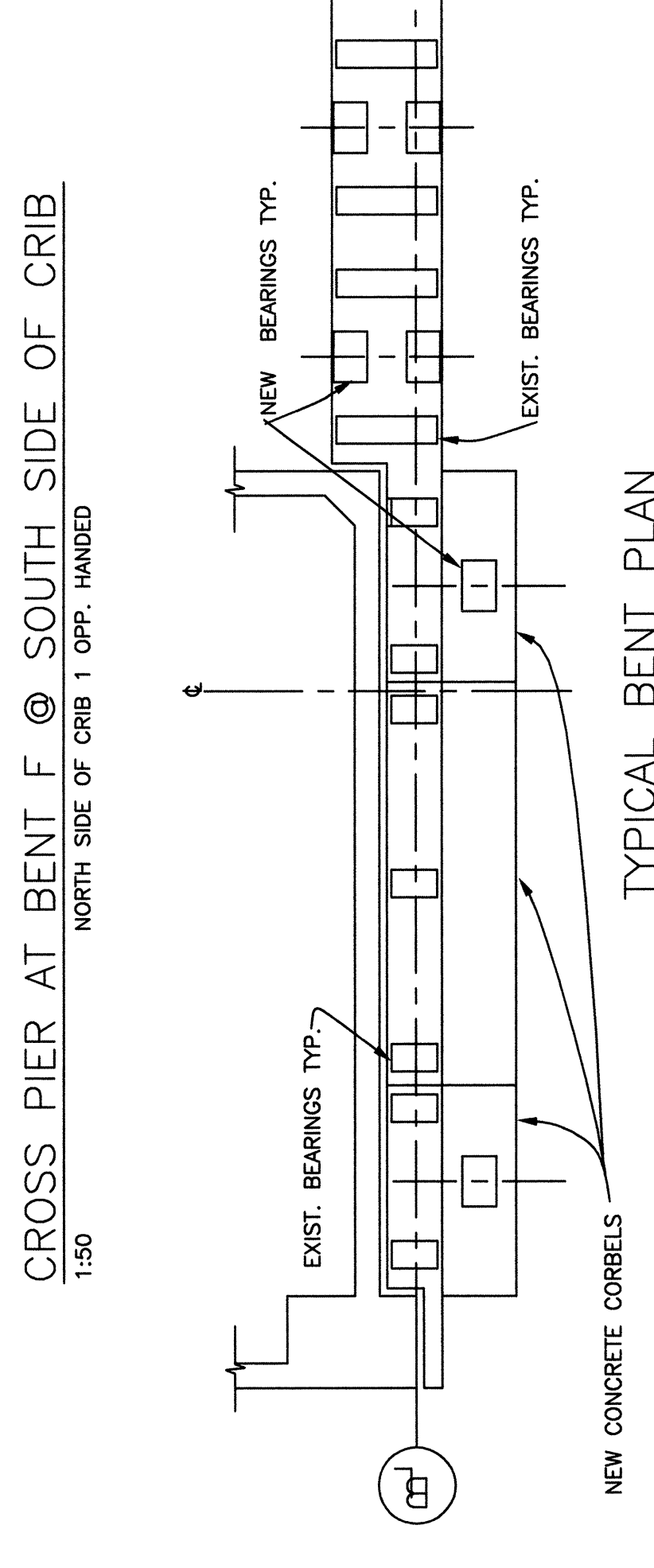
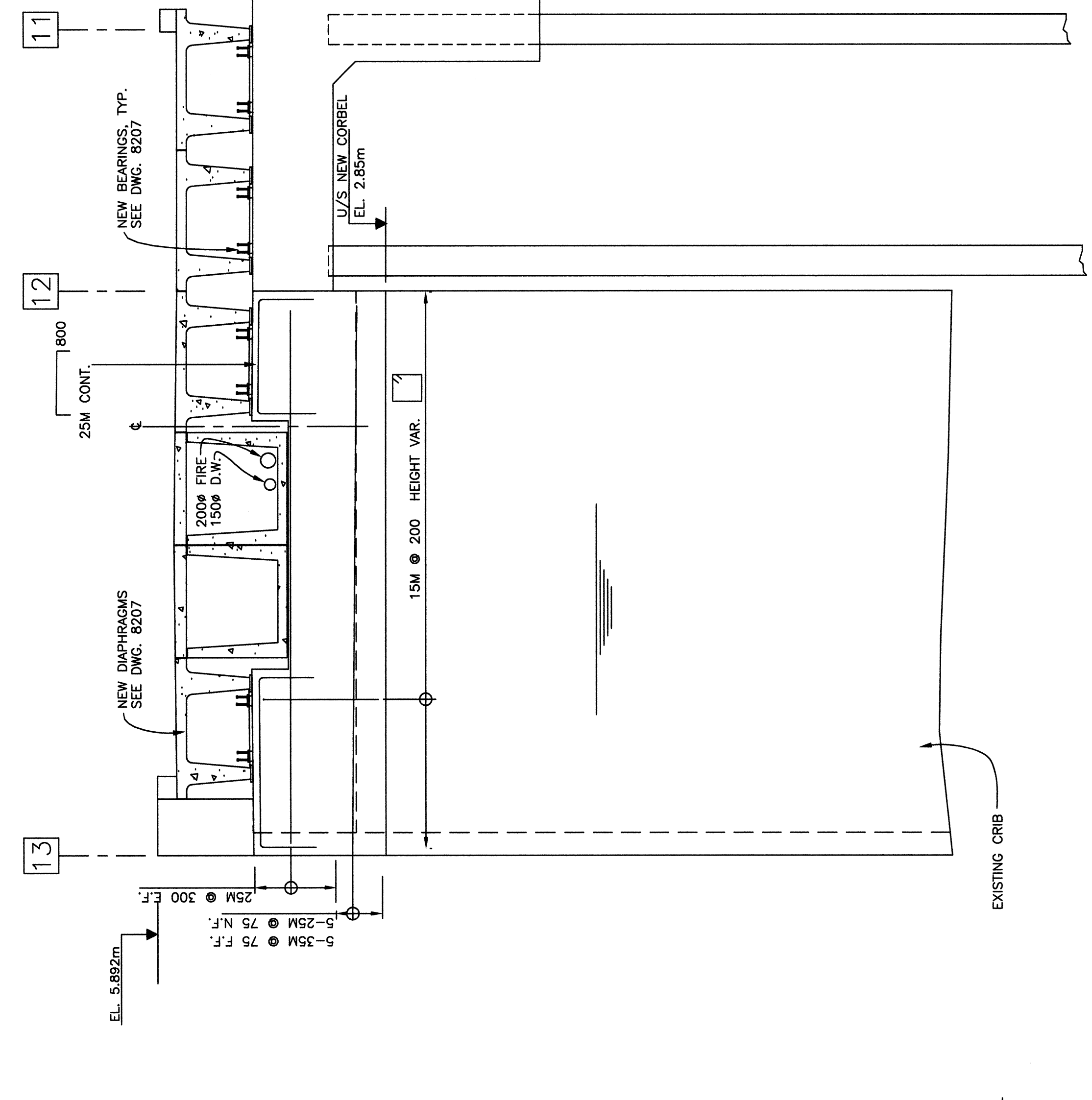
drawing  
WHARF SEISMIC RETROFIT  
BENT AND CRIB RETROFITS  
SH. 2 OF 2

designed	conçu
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date	date
01.12.15	DH
drawn	dessiné
date	date
01.11.20	approval
approved	approuvé
date	date
	Submission
Tender	Submission
PWSSC Project Manager	Administrateur de projets PWSSC
project number	numero du projet
850497	

drawing number	numero du dessin	rev.
142232-8206		B



- NOTES:
- FOR RETROFIT NOTES SEE DWG. 8204.
  - CONTRACTOR TO VERIFY THE LOCATIONS OF EXISTING CRIB INTERIOR STAIRS AND RISERS PRIOR TO CONSTRUCTION.
  - CONTRACTOR TO IMMEDIATELY NOTIFY ENGINEER IF THERE IS A DISCREPANCY.



EDRM #82249 (Version 2)  
PLOT 1:1



