

CONTRACTOR TO PROVIDE EAST-WEST ACCESS CORRIDOR FOR ALRT

APPROX. LOCATION OF ROCK

NOTE
FINAL SITE GRADING TO BE AS SHOWN ON THIS PLAN

No.	DATE	REVISION	BY	CHK	No.	DATE	REVISION	BY	CHK
1	FEB. 23 '84	ISSUED FOR TENDER			1	FEB. 23 '84	ISSUED FOR TENDER		
2	APR. 6 '84	INVERTS ADDED, CERTIFIED FOR CONST.			2	APR. 6 '84	INVERTS ADDED, CERTIFIED FOR CONST.		

CITY ENGINEERING DEPARTMENT, VANCOUVER, B.C.

DIV./BR. PS. & SEWERS

DATE: 84.01.19 DESIGN: JWA.

DWG: CT CHK:

REFS: DB 883

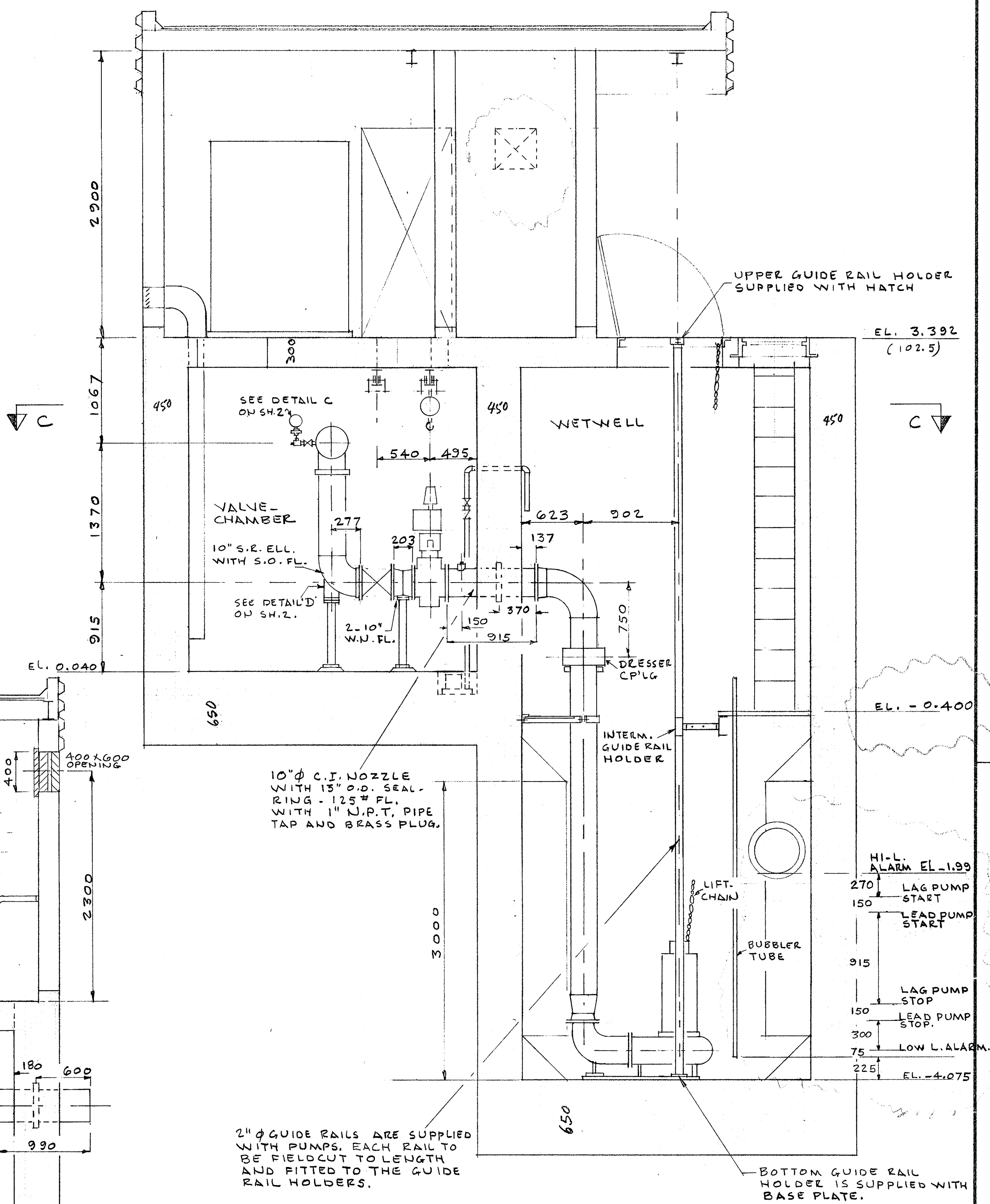
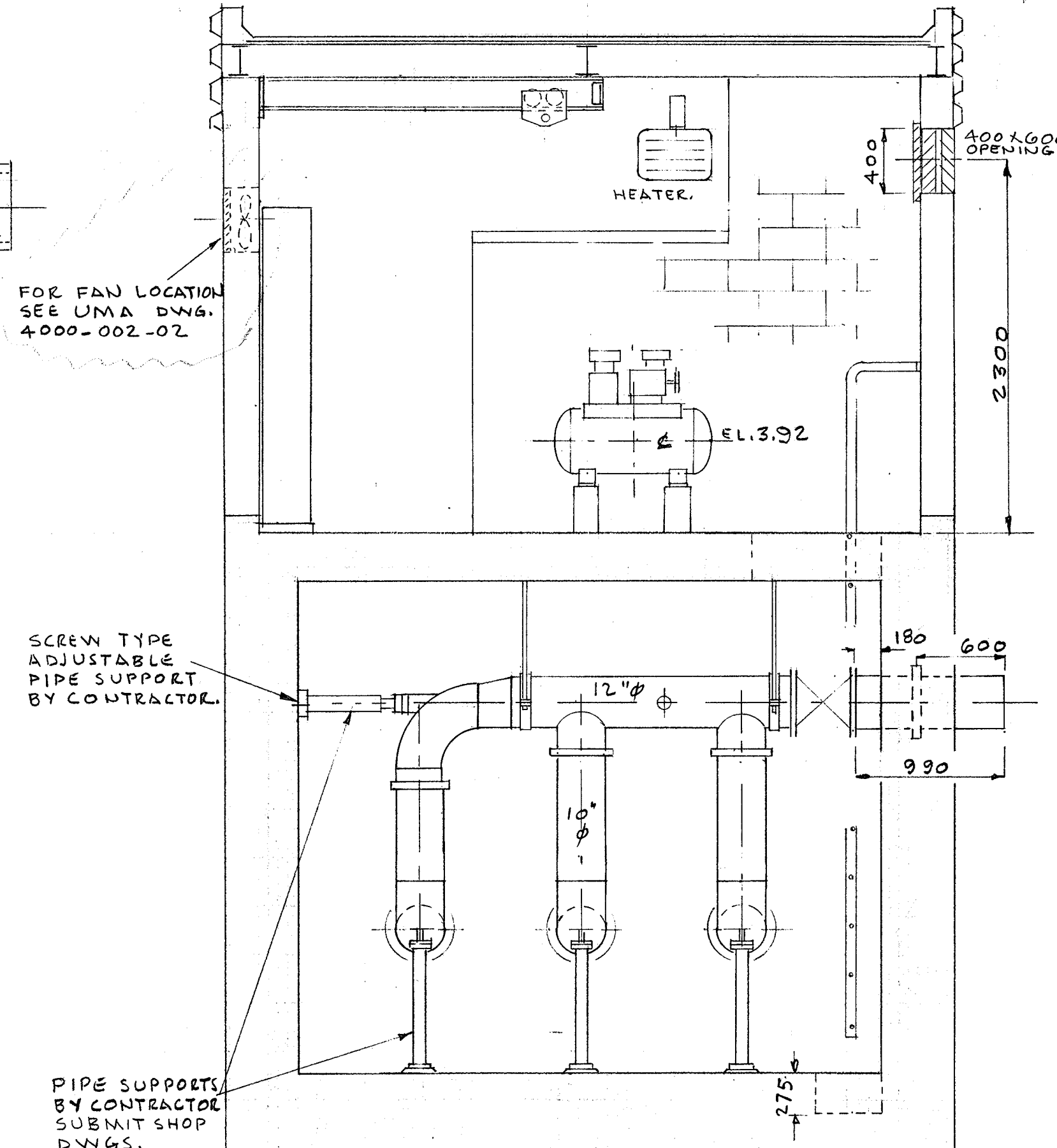
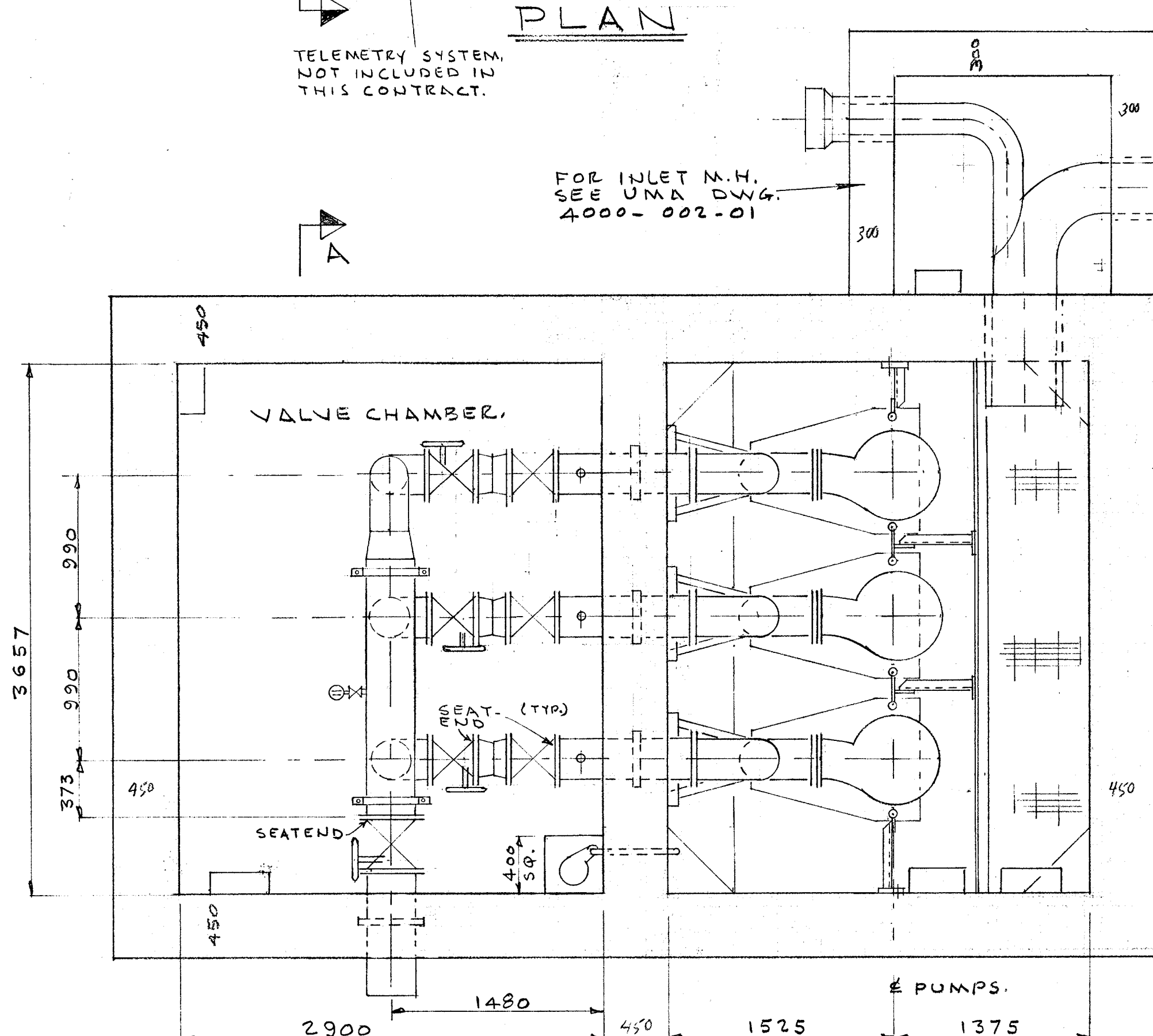
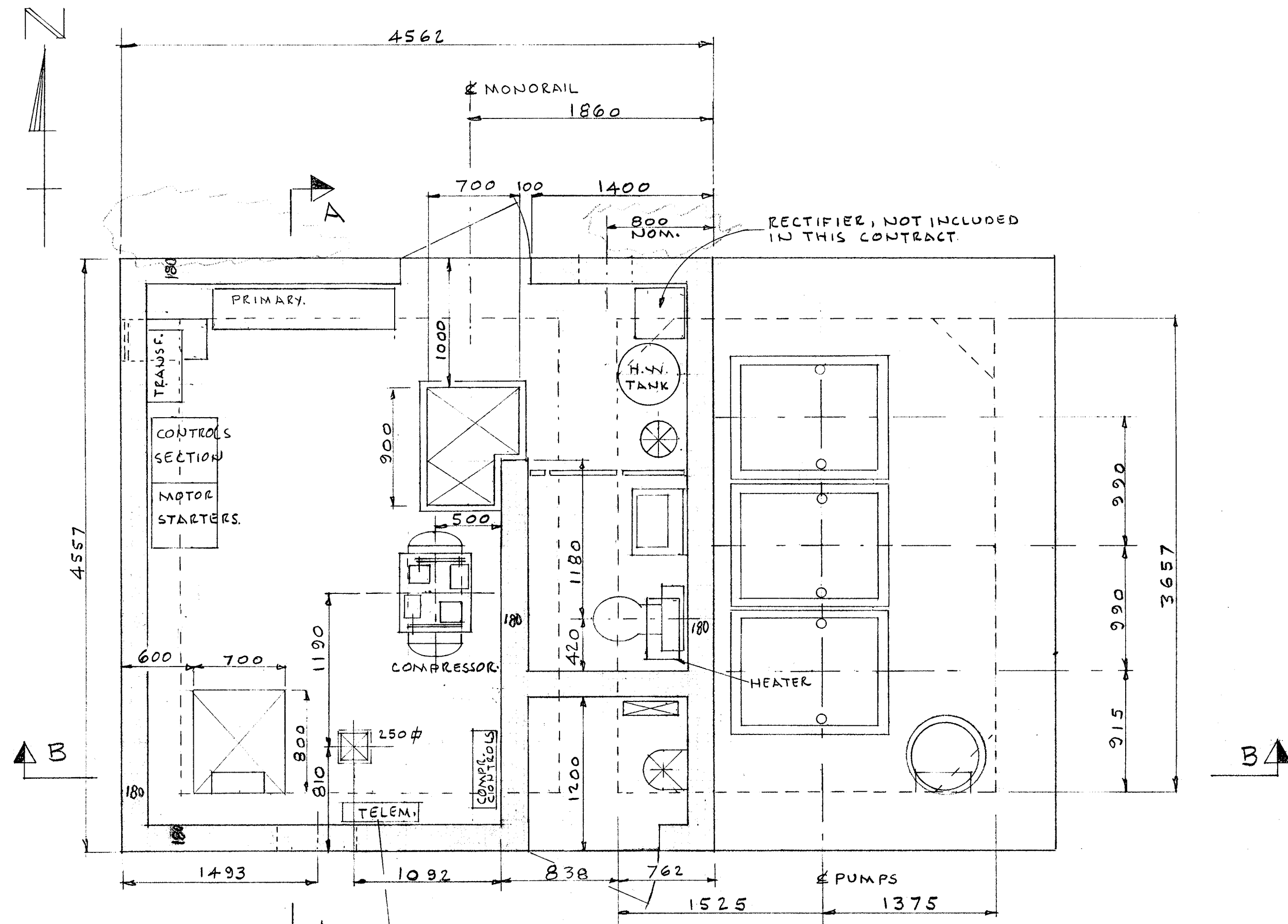
BURRARD SEWAGE PUMPING STATION

SITE PLAN & ACCESS

SCALE: 1:100

DWG. No. DB 911

SHT 1 OF 1 REVISION: 2



START-UP : DEC. 5 '1984

REVISION				REVISION				CITY ENGINEERING DEPARTMENT, VANCOUVER, B.C.	
No.	DATE	BY	CHK	No.	DATE	BY	CHK	DIV/BR	DESIGN
1	FEB 23 84			1	FEB 23 84				
2	FEB 27 84			2	MAY 24 84				
3	MAY 24 84			3	MAY 24 84				
4	MAY 24 84			4	MAY 24 84				

ISSUED FOR CONSTR. TENDER

MONORAIL, SUMP PUMP PIPING SHOWN. NOTES ADDED. RE-ISSUED UNDER ADDENDUM NO. 2

DIM. REVISED. CERTIFIED FOR CONSTR.

WALL FAN RELOCATED PUMPING LEVELS AND PLATE ELEV. REVISED

DATE: 10/84

DWG: A.N. CHK:

REFS:

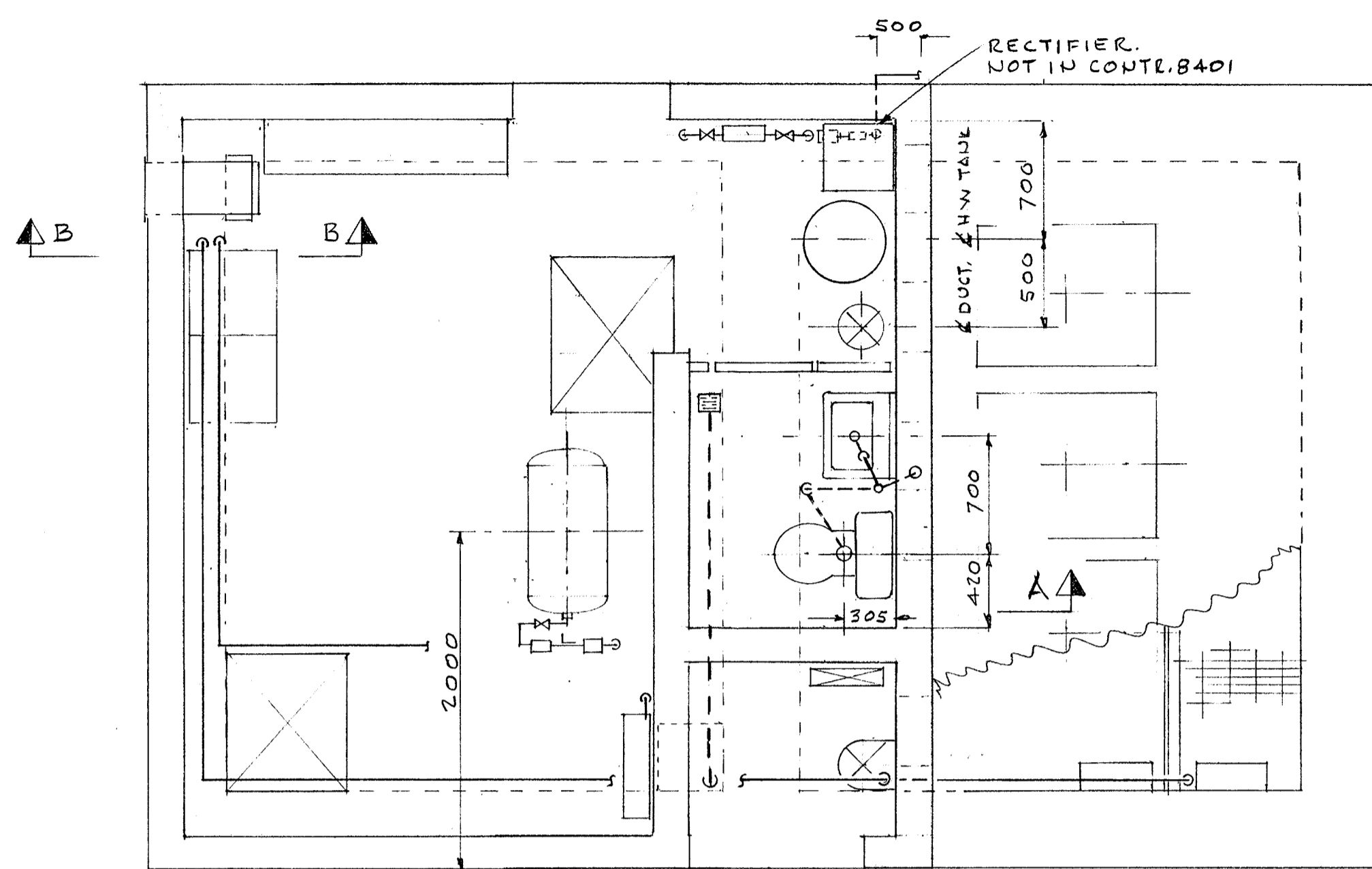
BURRARD SEWAGE PUMPING STATION GENERAL ARRANG'T.

SCALE: 1:30

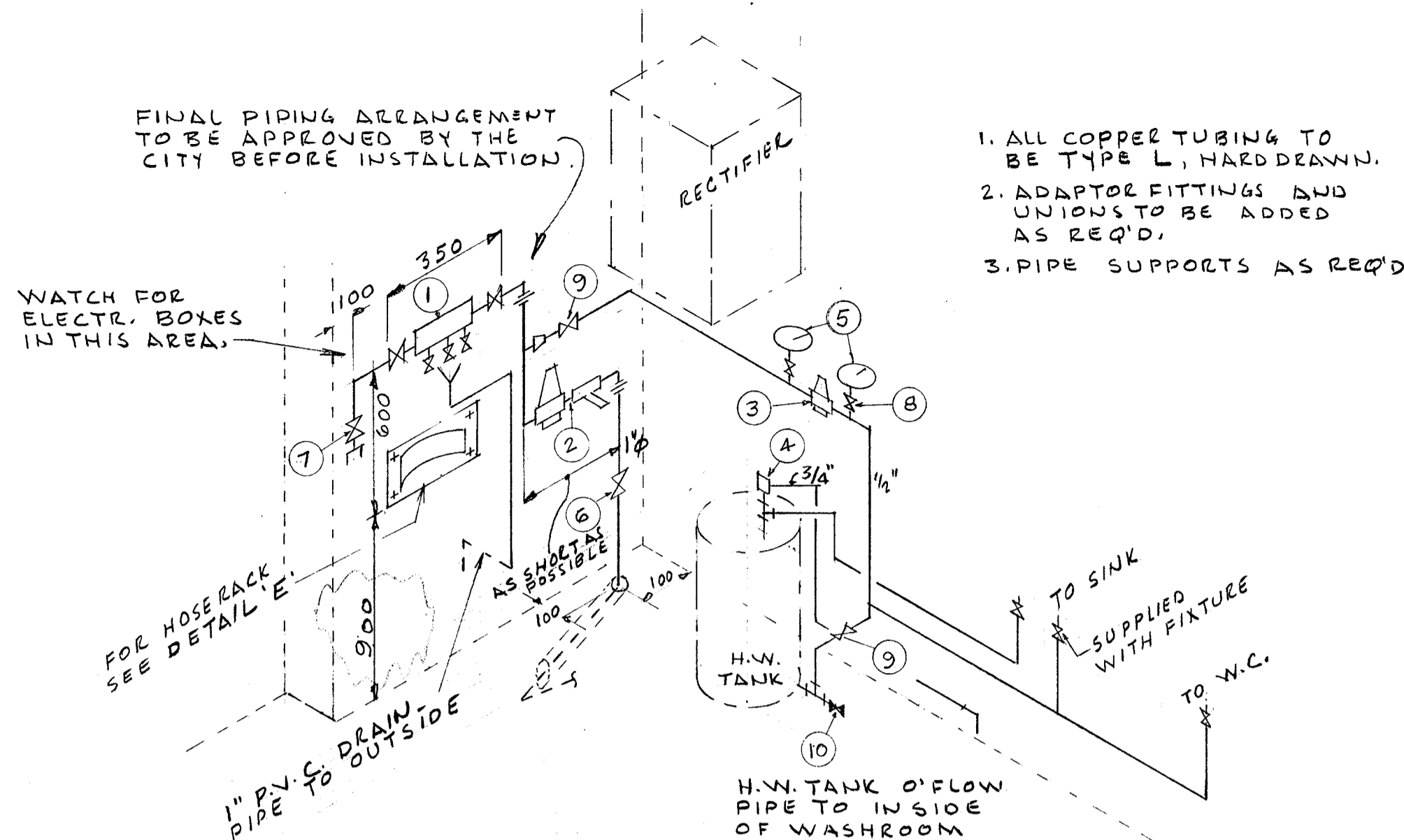
DWG No: PB-53

SHT 1 OF 6

REVISION 4

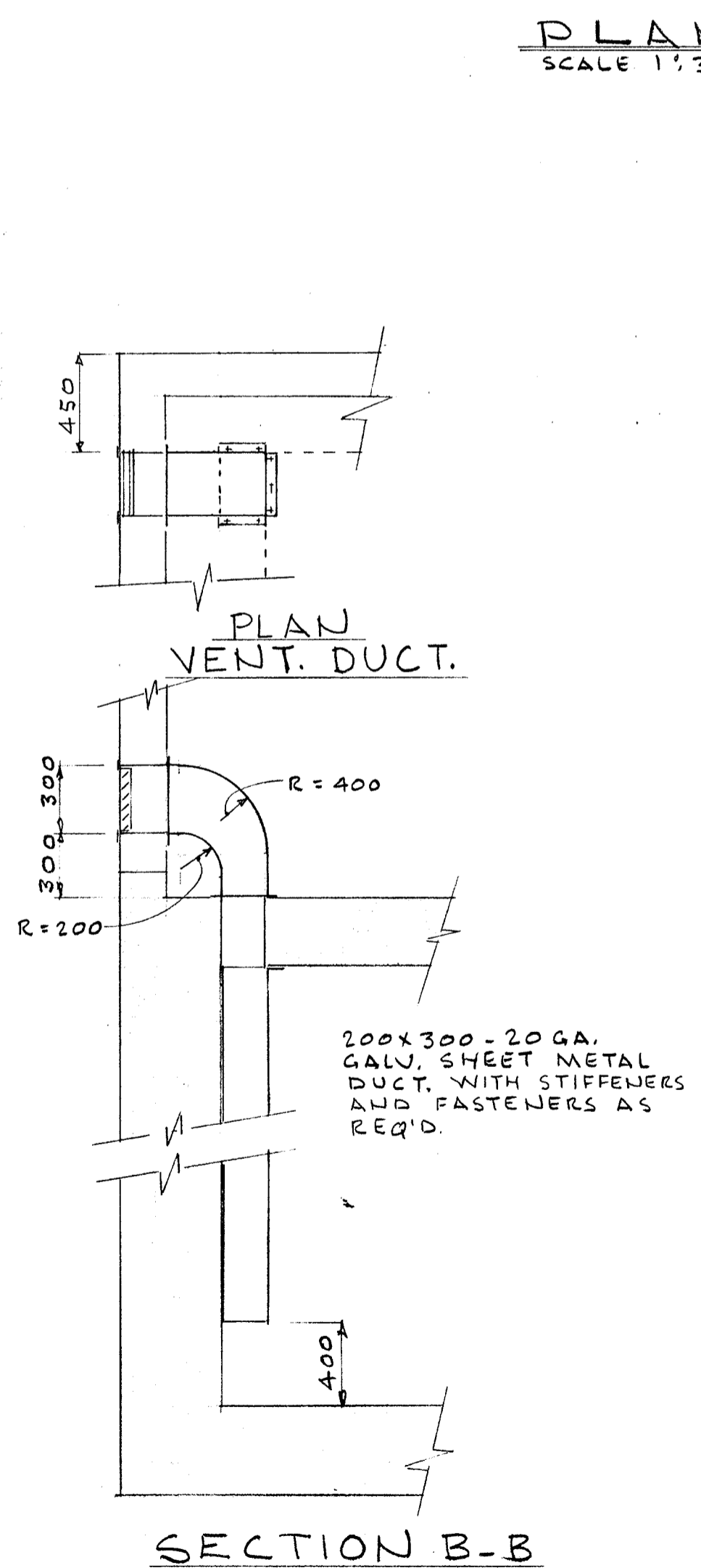


PLAN
SCALE 1:30

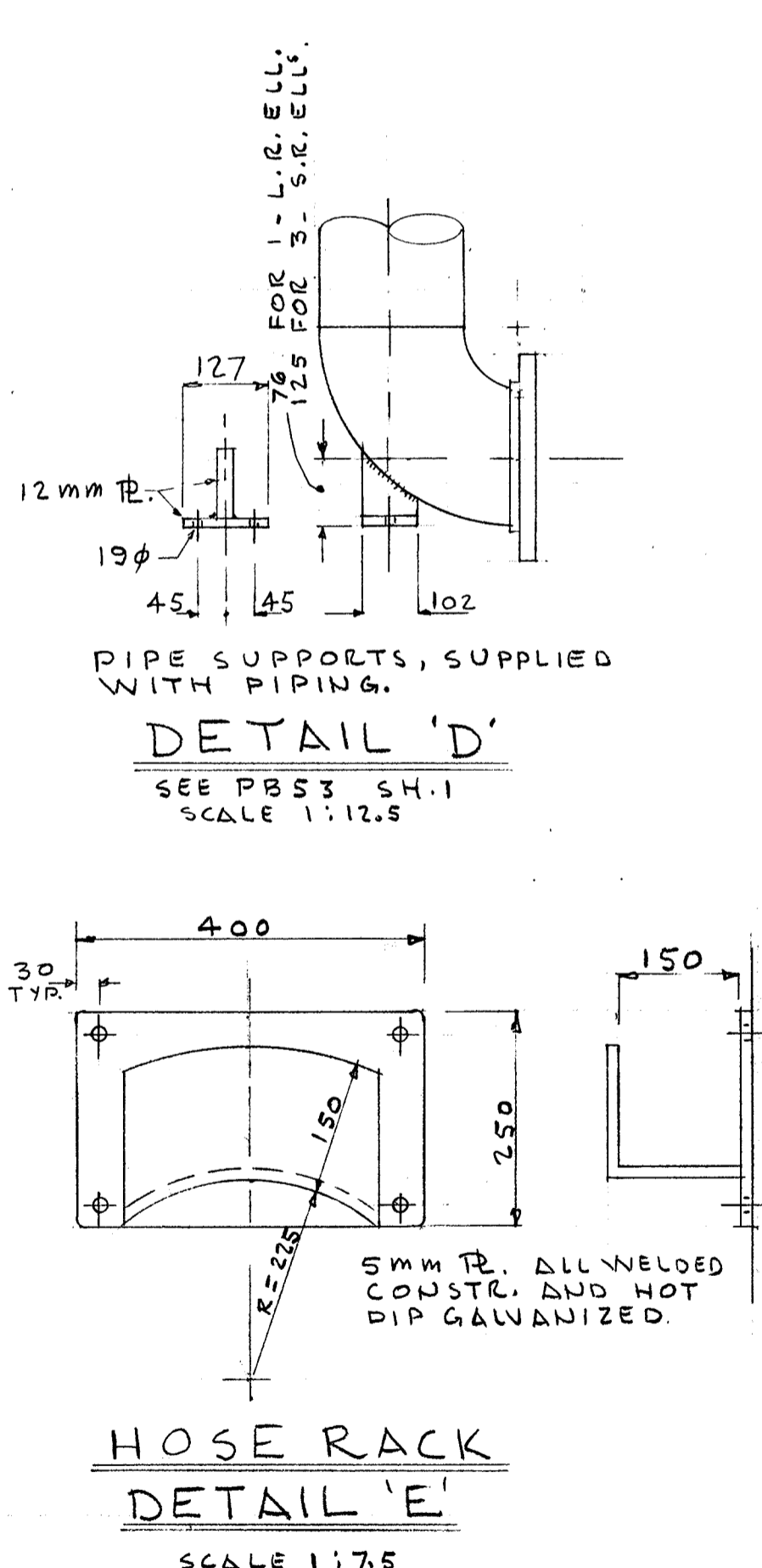


WATER PIPING SCHEMATIC

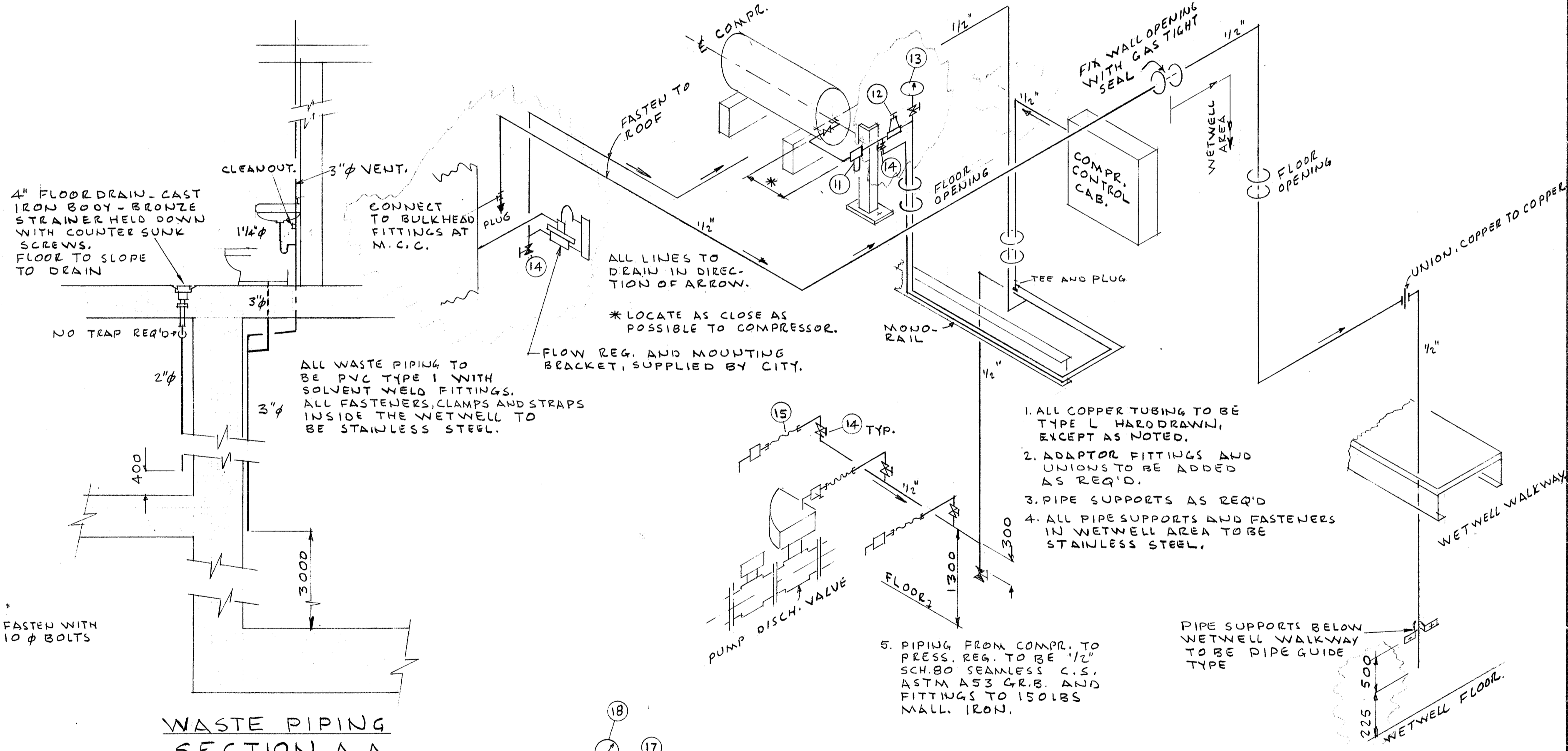
MATERIALS		
ITEM	QUANTITY	DESCRIPTION
1	1	BACKFLOW PREVENTOR 1" N.P.T. G.W. VALVES. GATE VALVES AND FITTINGS TO BE BRASS. PRESS. RATING 150 PSI. CLA-VAL MODEL RP-2.
2	1	1" PRESS. REGULATOR WITH STRAINER. WATTS MODEL 223 S SET AT 85 PSIG.
3	1	1/2" PRESS. REGULATOR WATTS MODEL 223 SET AT 50 PSIG.
4	1	PRESS. AND TEMP. RELIEF VALVE, SET AT 210° F AND 125 PSIG.
5	2	PRESS. GAUGES 2 1/2" DIAL, DUAL RANGE 0-1600 KPA/0-200 PSI 1/4" N.P.T. BOTT. CONN. ASHCROFT FIG. 1009 A
6	1	GATE VALVES .125 LBS. N.C.S. BRONZE BODY, SOLID WEDGE
7	1	1" φ - SOLDER ENDS TOYO FIG. 207A
8	2	1/2" φ - SCR. ENDS TOYO FIG. 206A
9	2	1/2" φ - SOLDER ENDS TOYO FIG. 207A
10	1	1/2" φ SEDIMENT FAUCET
11	1	AIR AND WATER FILTER WITH MECH. DRAINER, 1/2" N.P.T. METAL BOWL GUARD. WILKERSON MODEL F20-04-F00
12	1	1/2" PRESS. REGULATOR, SUPPLIED WITH COMPRESSOR.
13	1	PRESS. GAUGE, 2 1/2" DIAL, DUAL RANGE 0-1000 KPA/0-140 PSI 1/4" N.P.T. BOTT. CONN. ASHCROFT FIG. 1009 A
14	7	1/2" φ BALL VALVE, 150 LBS, SOLDER ENDS. TOYO FIG. 5049
15	1	1/2" - 250 # PUSH-ON TYPE FLEX. HOSE, 1/2" N.P.T. MALE ON ONE END - 1/2" N.P.T. MALE SWIVEL ON OTHER END.
16	1	1" φ BALL VALVE, 150 LBS, SCR. ENDS, TOYO FIG. 5044
17	1	DIAPHRAGM SEAL ASHCROFT FIG. 100 C .1" N.P.T. INLET, 1/4" N.P.T. INSTRUMENT CONN.
18	1	PRESS. GAUGE 3 1/2" DIAL, DUAL RANGE 0-1600 KPA/0-200 PSI 1/4" N.P.T. BOTT. CONN. ASHCROFT FIG. 1009 A, LIQUID FILLED



SECTION B-B
SCALE 1:25

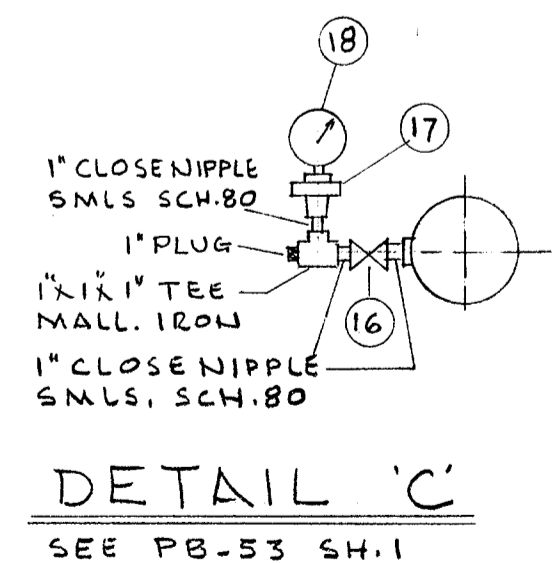


HOSE RACK
DETAIL 'E'
SCALE 1:7.5



WASTE PIPING
SECTION A-A

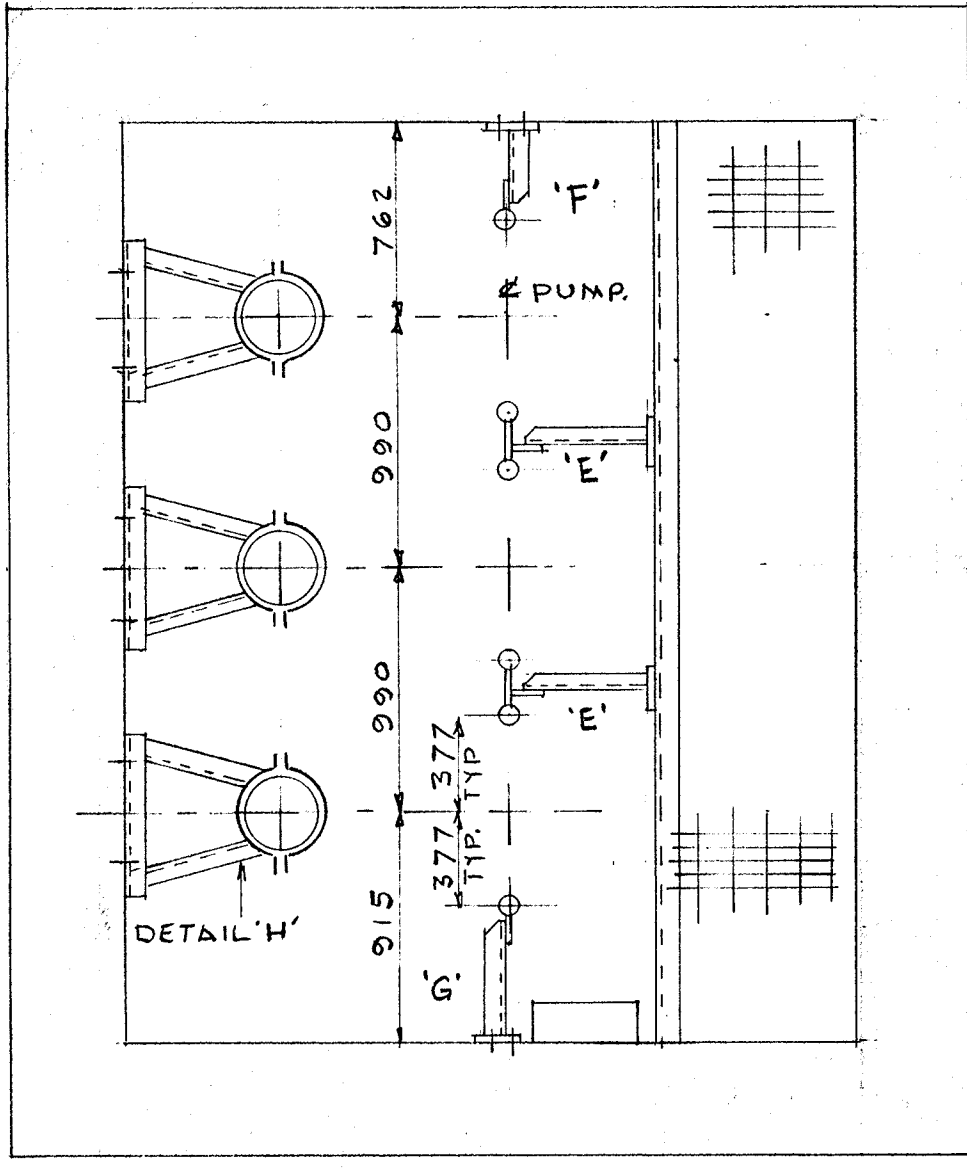
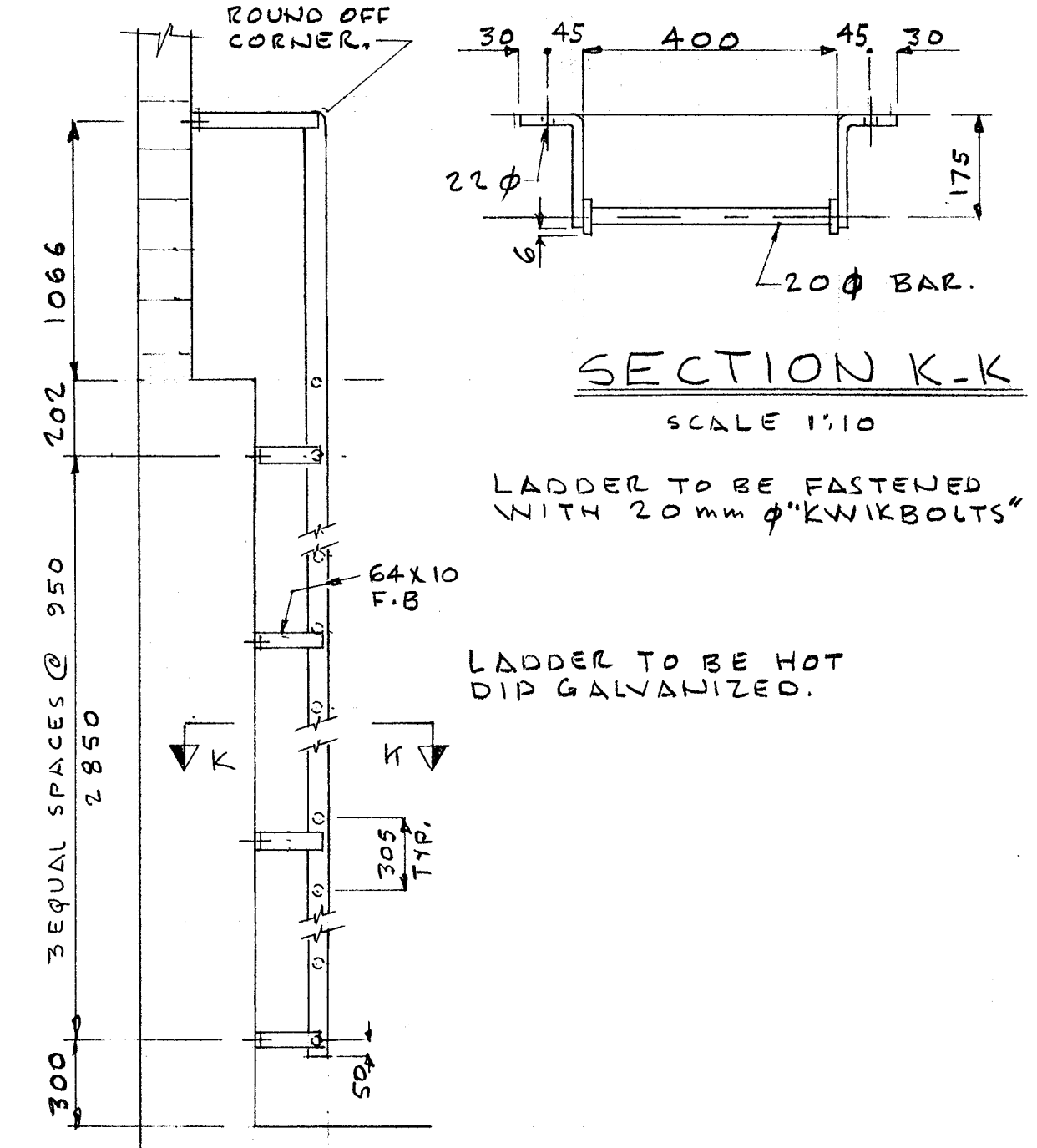
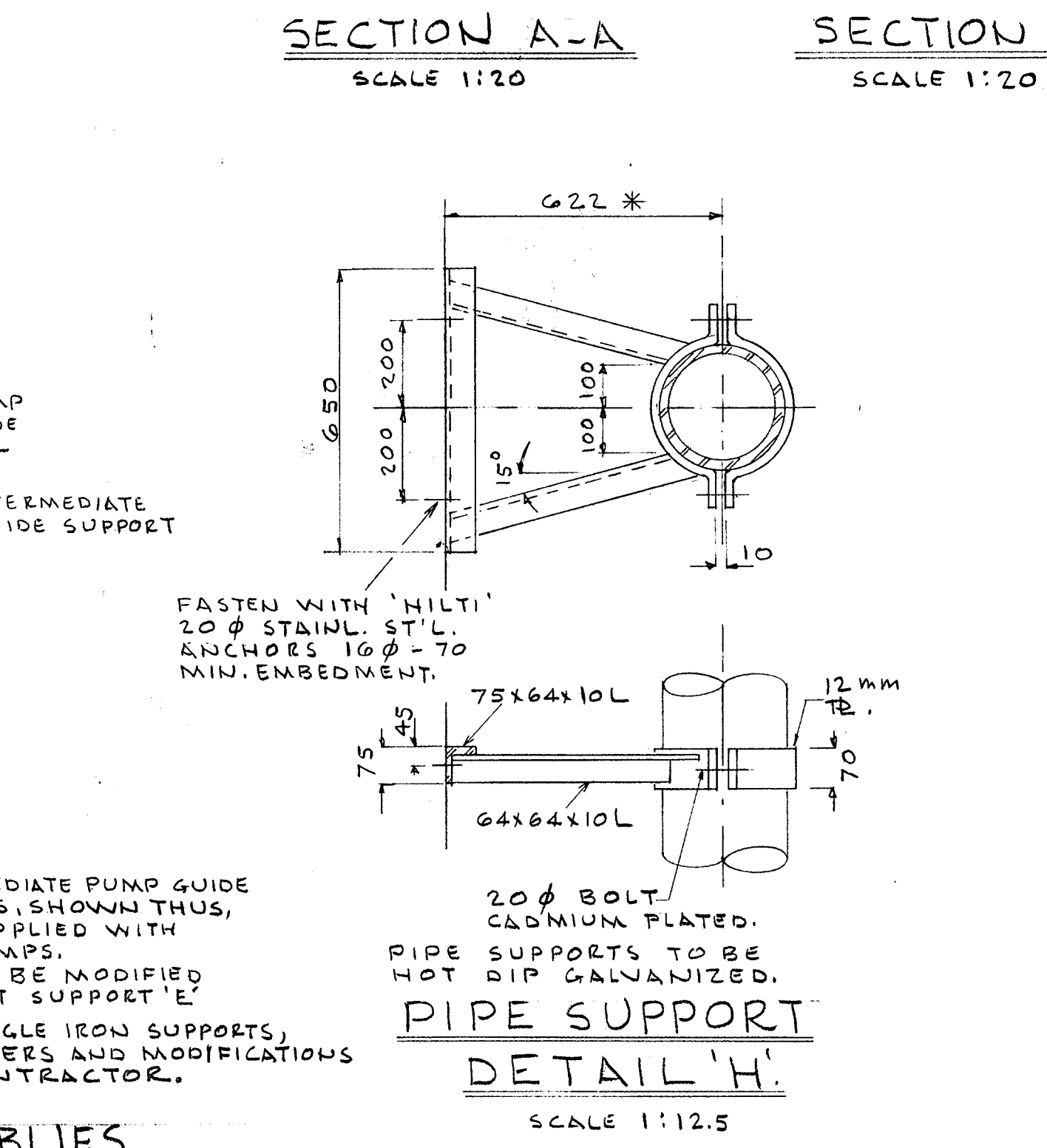
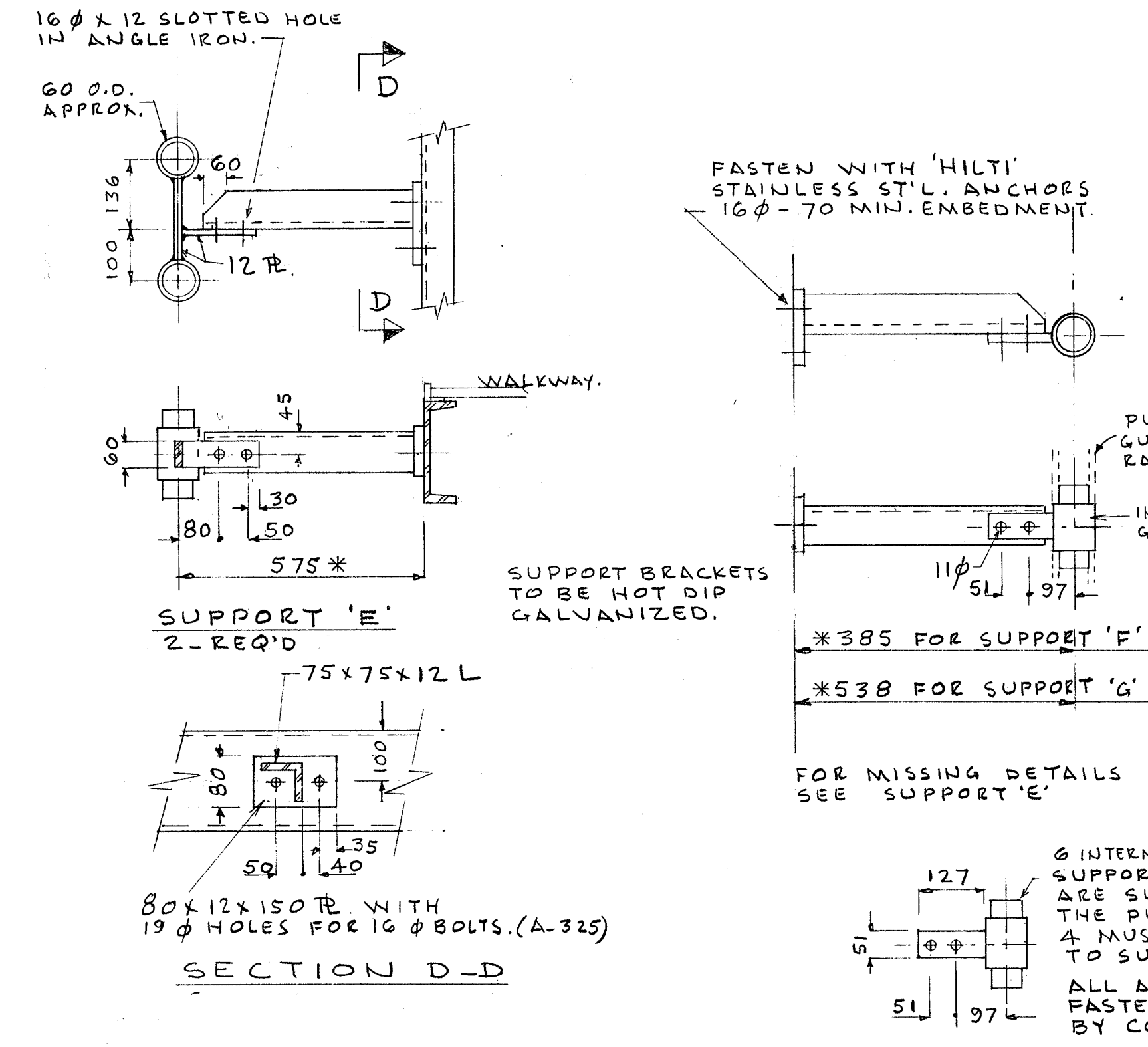
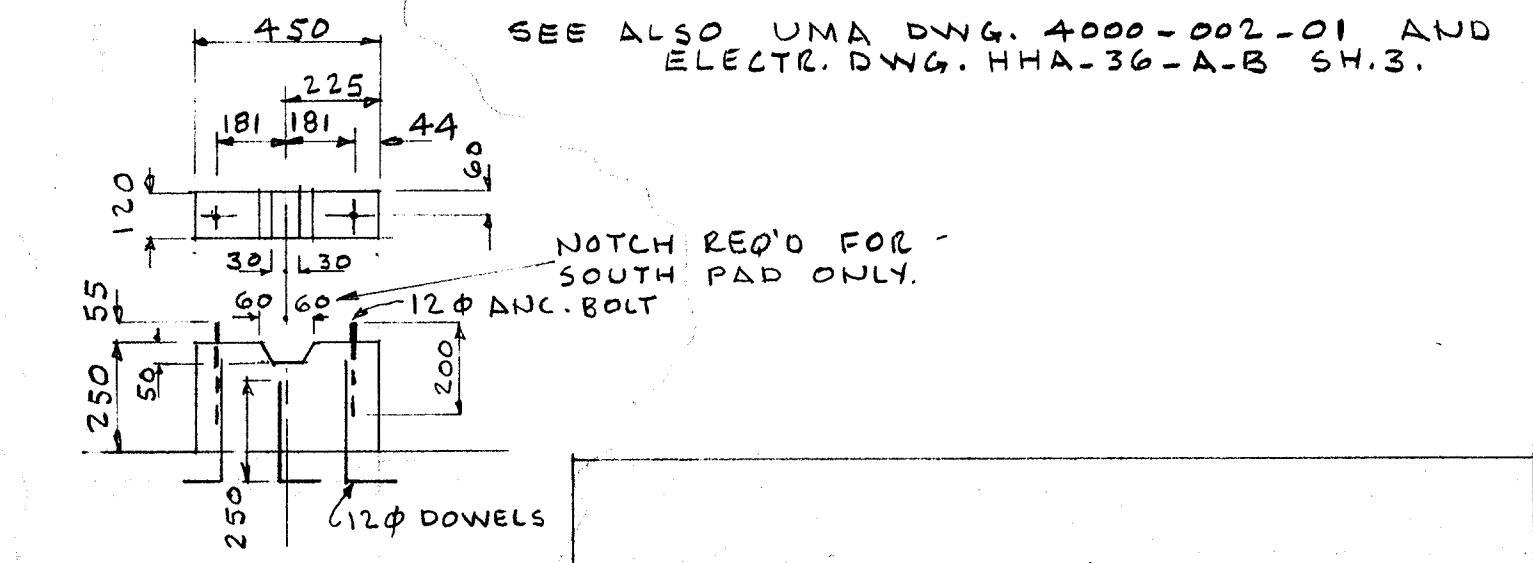
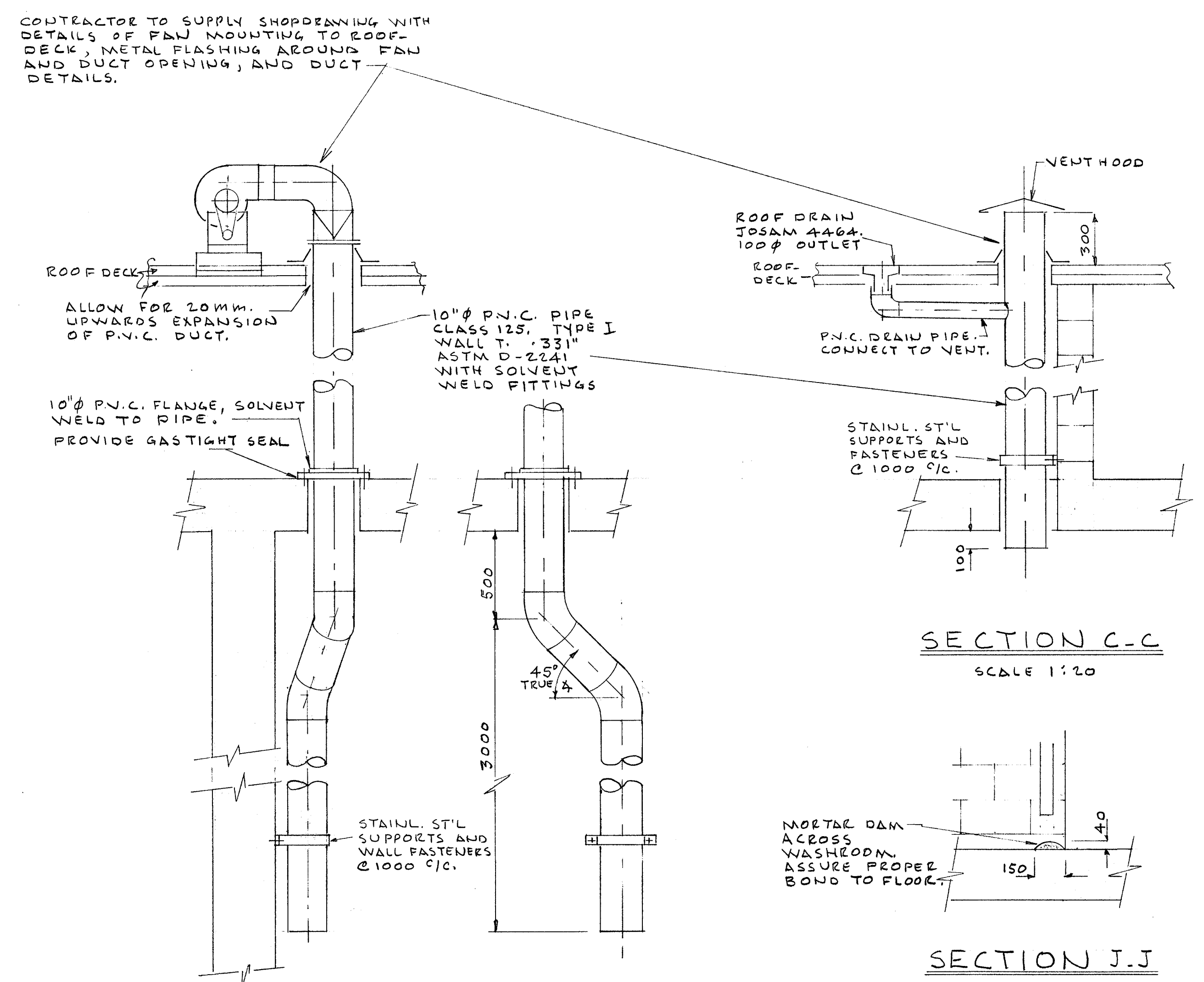
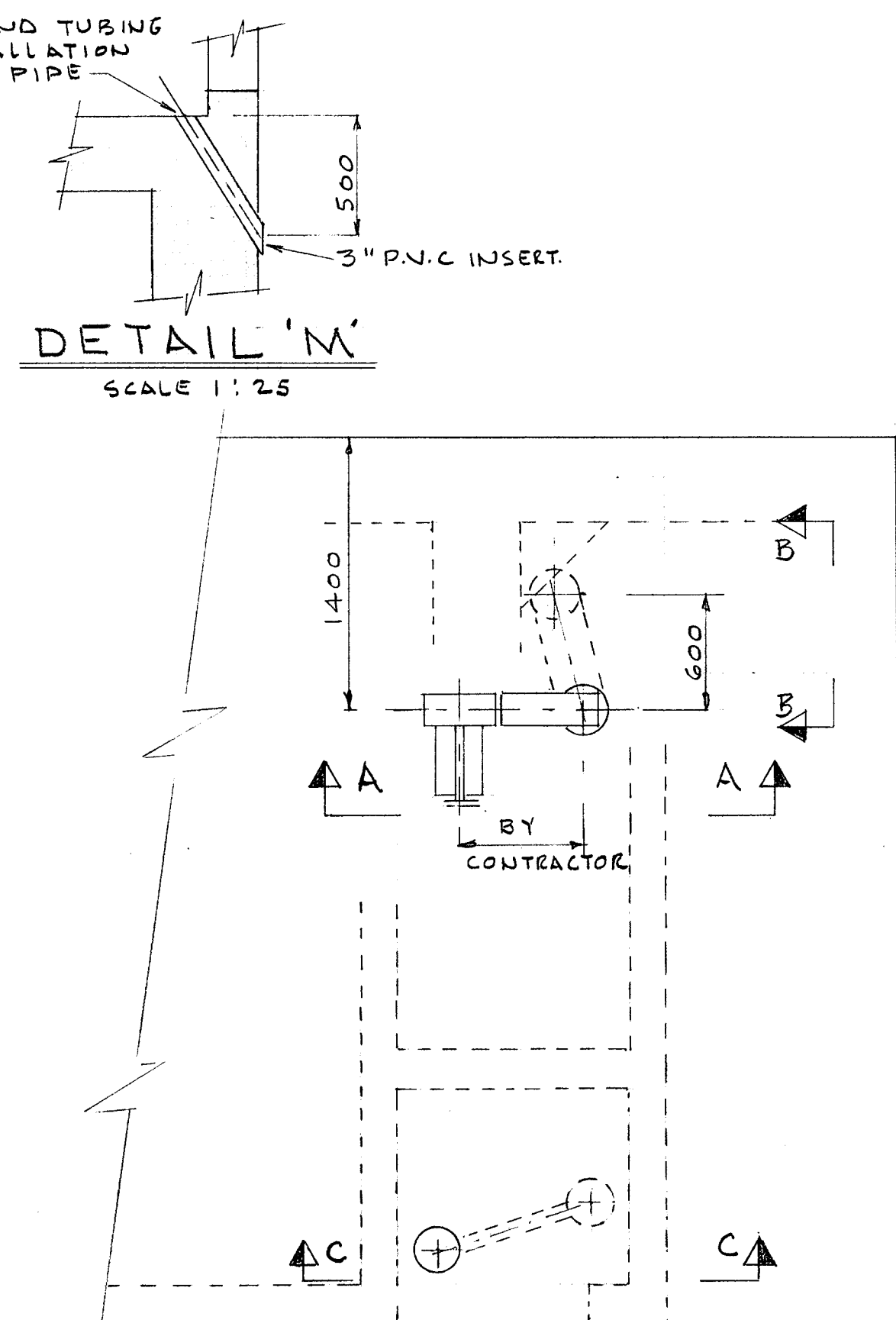
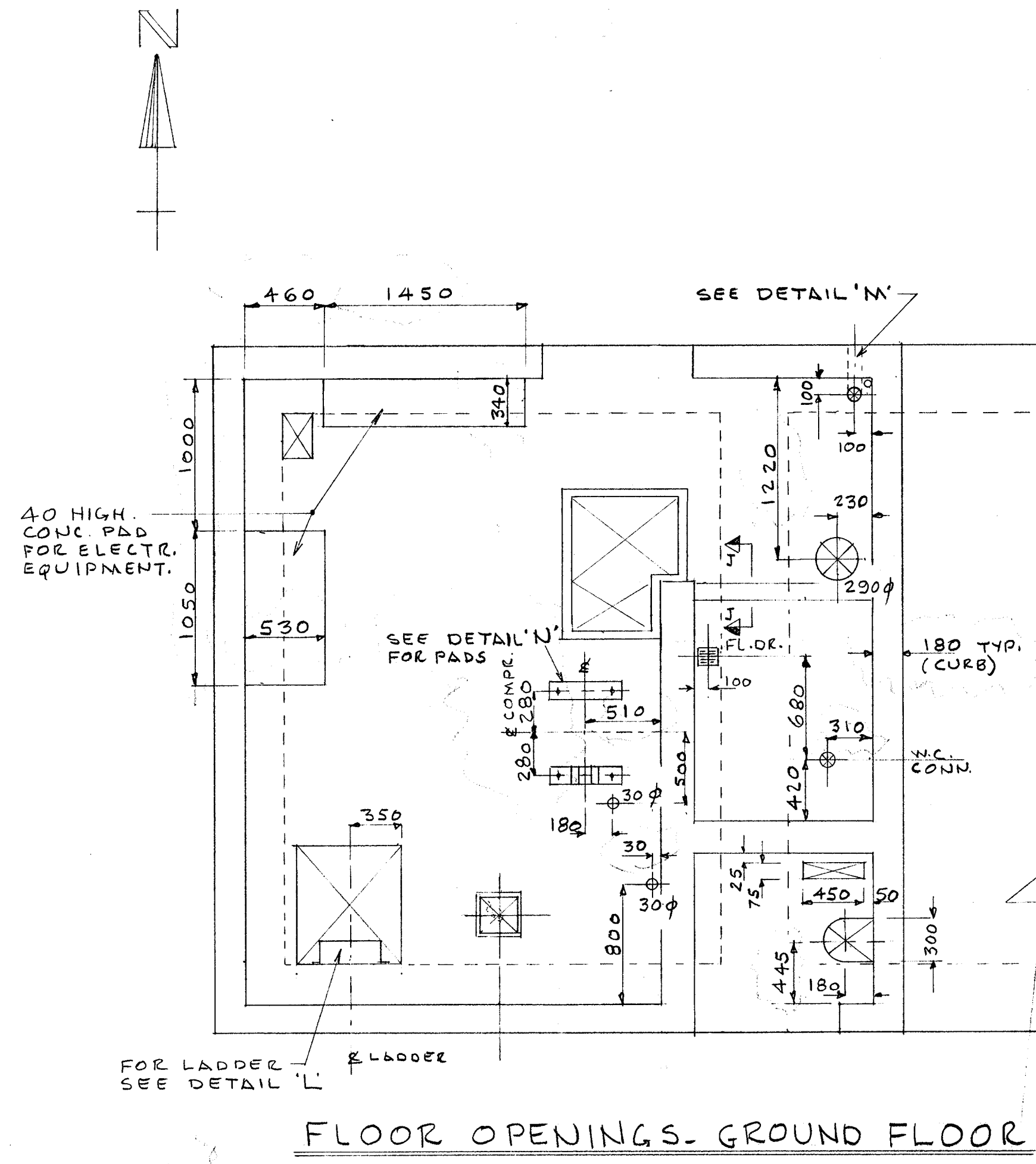
AIR PIPING SCHEMATIC



DETAIL 'C'
SEE PB-53 SH.1

No.	DATE	REVISION	BY	CHK	No.	DATE	REVISION	BY	CHK
1	FEB. 23 '84	ISSUED FOR CONSTR. TENDER			1	FEB. 23 '84	ISSUED FOR CONSTR. TENDER		
2	MAR. 27 '84	MINOR REVISIONS CERTIFIED FOR CONSTRUCTION.			2	MAR. 27 '84	MINOR REVISIONS CERTIFIED FOR CONSTRUCTION.		
3	JULY 12 '84	AIR PIPING REVISED. DIMS. ADDED.			3	JULY 12 '84	AIR PIPING REVISED. DIMS. ADDED.		

CITY ENGINEERING DEPARTMENT, VANCOUVER, B.C.									
DIV. I.B.R.					DATE: FEB. 1 '84				
DESIGN: [Signature]					DWG. A.N.				
CHECK: [Signature]					REFS:				
BARRARD SEWAGE PUMP-ING STATION. SERVICE PIPING & DUCT DETAILS.									
SCALE: AS SHOWN.									
DWG. No. PB-53									
SHT 2 OF 6 REVISION: 3									



* DIMENSIONS TO BE VERIFIED IN FIELD BEFORE FABRICATION

No.	DATE	REVISION	BY	CHK	No.	DATE	REVISION	BY	CHK
1	FEB 23 '84	ISSUED FOR CONSTR. TENDER			1	FEB 23 '84	ISSUED FOR CONSTR. TENDER		
2	FEB 27 '84	NOTES AND DETAIL 'M' ADDED. RE-ISSUED UNDER ADDENDUM NO. 3, TENDER 8401			2	FEB 27 '84	NOTES AND DETAIL 'M' ADDED. RE-ISSUED UNDER ADDENDUM NO. 3, TENDER 8401		
3	MAR 27 '84	DIM. ADDED. CERTIFIED FOR CONSTR.			3	MAR 27 '84	DIM. ADDED. CERTIFIED FOR CONSTR.		

CITY ENGINEERING DEPARTMENT, VANCOUVER, B.C.

DIV./BR.

DATE: _____ DESIGN: _____

DWG: A.N. CHK: _____

REFS:

BURRARD SEWAGE PUMPING STATION

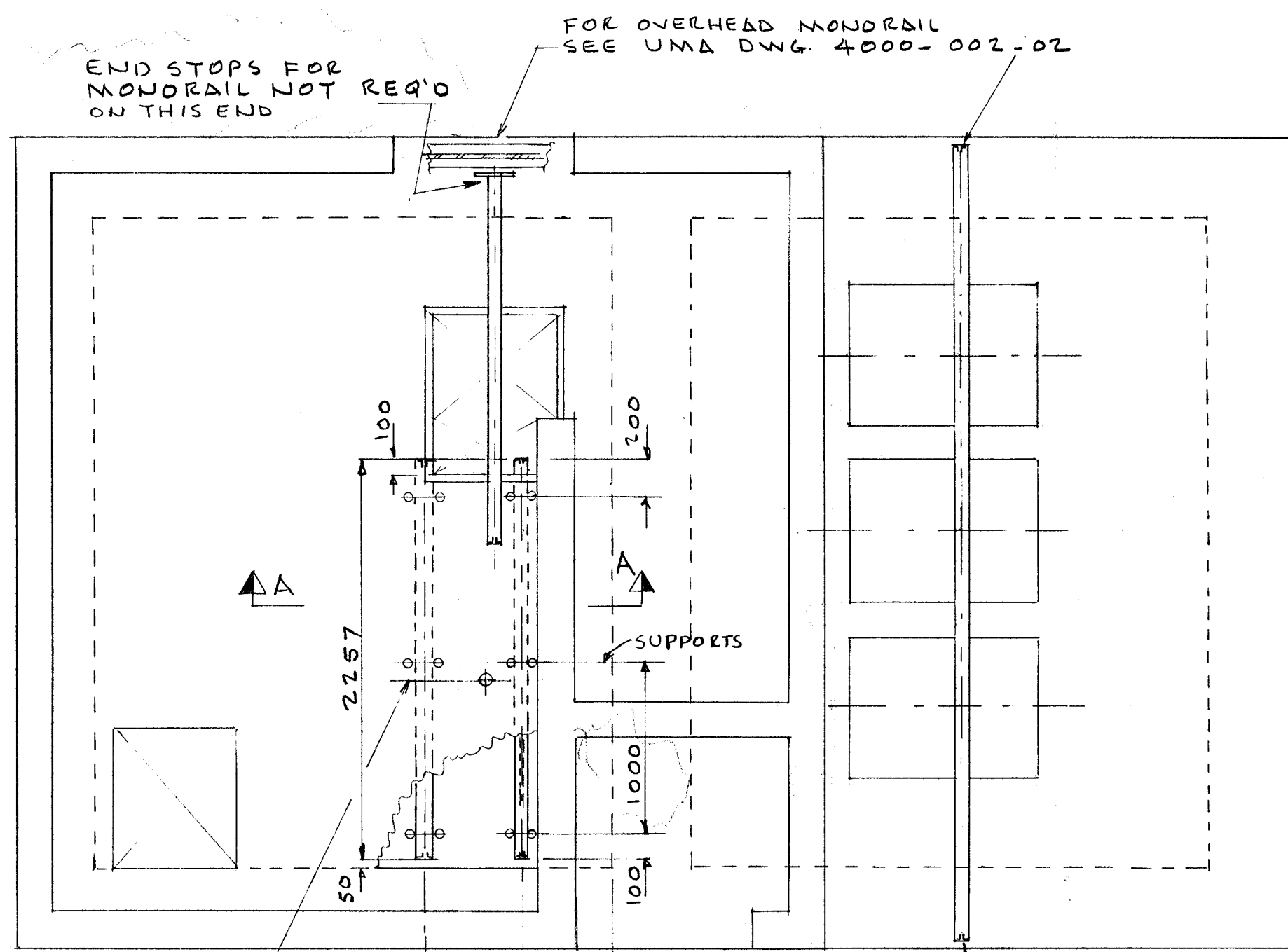
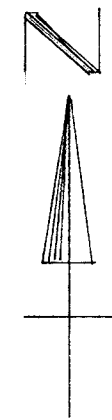
MISC. DETAILS

CODE

SCALE: AS NOTED.

DWG. No. **PB-53**

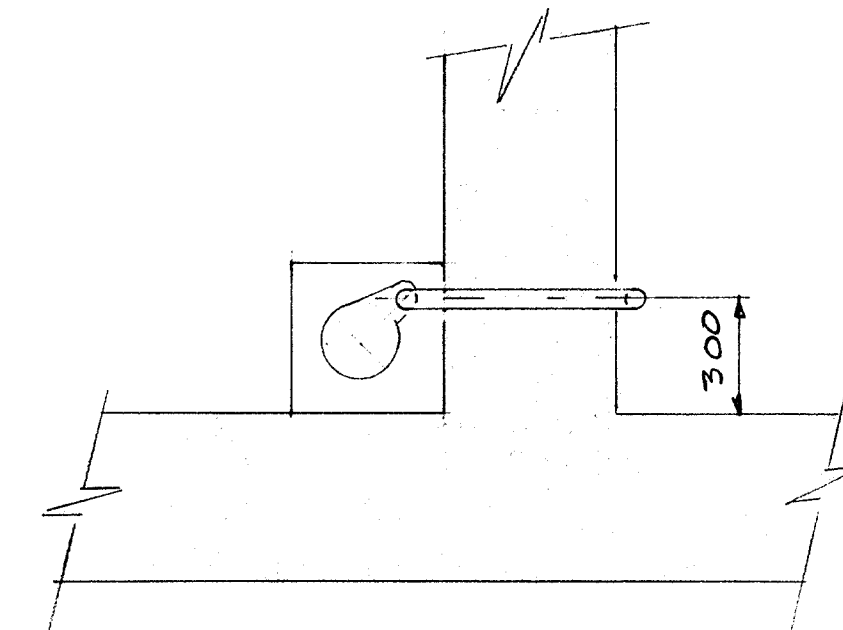
SHT 3 OF 6 REVISIONS



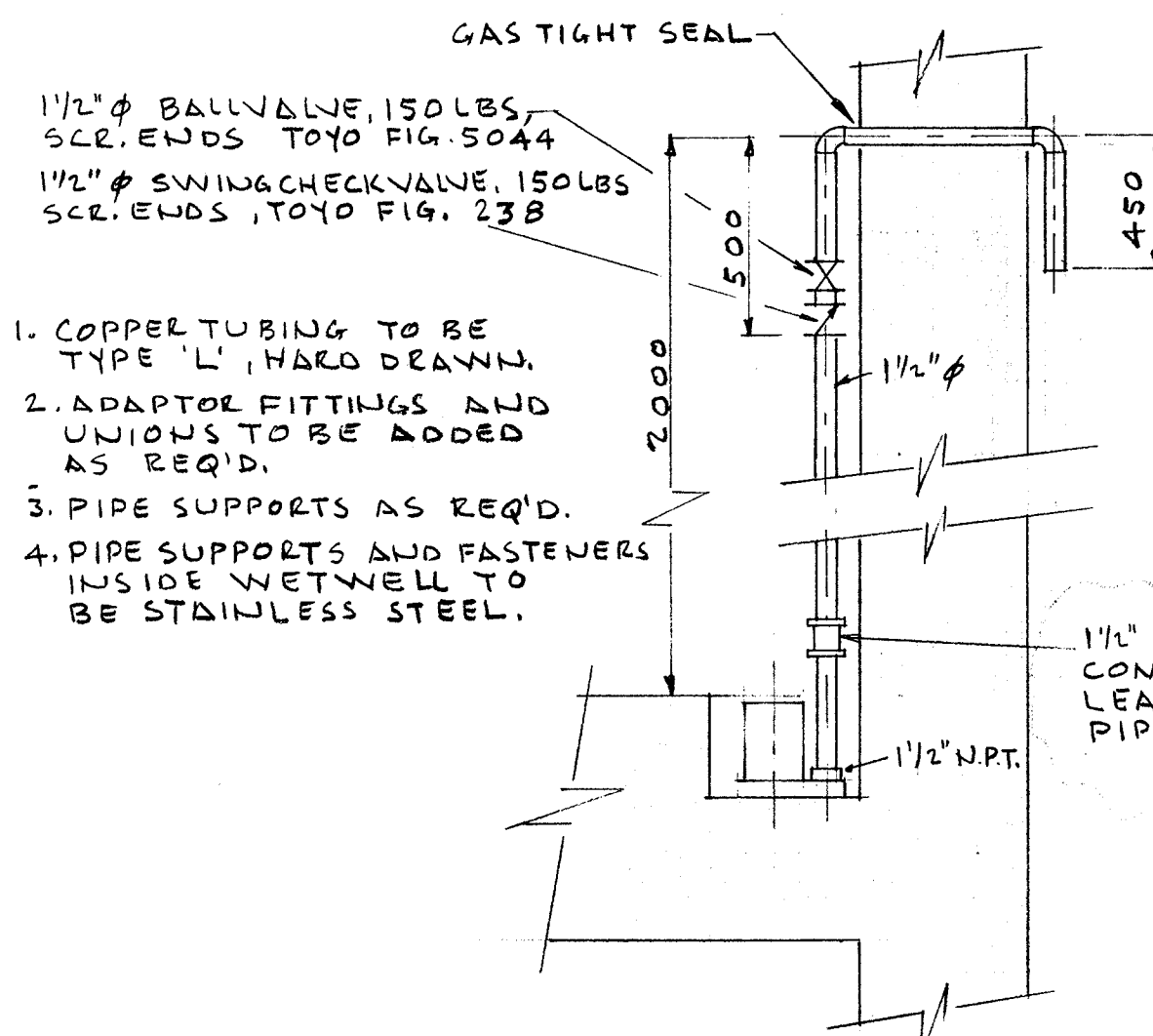
PLAN - MONORAILS

SCALE 1:30

THE COMPRESSOR DISCHARGE PIPING BELOW THE FLOOR MUST BE RE-ROUTED AROUND THE MONORAIL.



PLAN



SUMP PUMP DISCHARGE PIPING

DETAIL 'C'

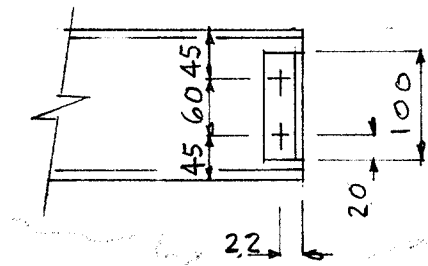
SCALE 1:20

1 1/2" φ BALL VALVE, 150 LBS. S.C.E. ENDS TOYO FIG. 5044
1 1/2" φ SWING CHECK VALVE, 150 LBS. S.C.E. ENDS TOYO FIG. 23B

1. COPPER TUBING TO BE TYPE 'L', HARD DRAWN.
2. ADAPTOR FITTINGS AND UNIONS TO BE ADDED AS REQ'D.
3. PIPE SUPPORTS AS REQ'D.
4. PIPE SUPPORTS AND FASTENERS INSIDE WETWELL TO BE STAINLESS STEEL.

1 1/2" UNION WITH COMPRESSION CONNECTIONS. LEAVE 10MM GAP BETWEEN PIPE ENDS

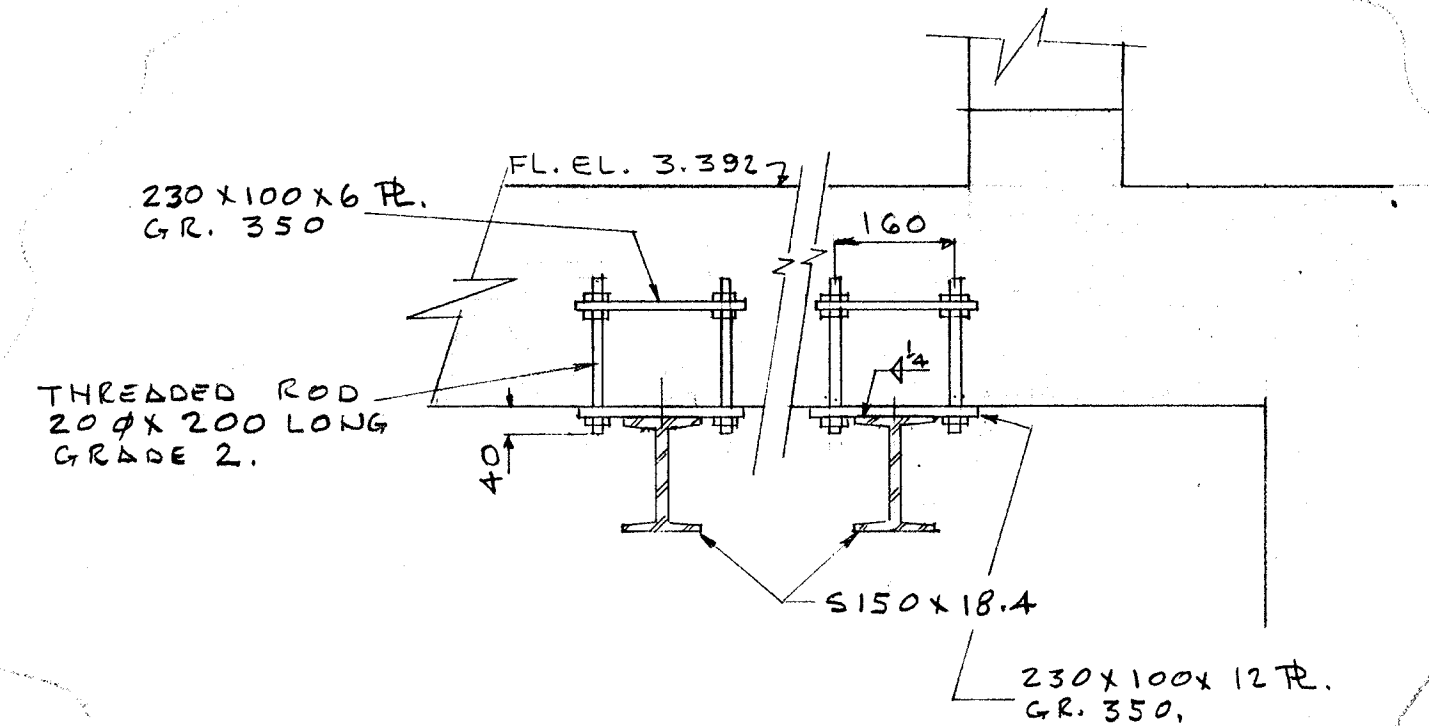
38x38x6 G.L., FASTENED WITH 12 φ BOLTS.



END STOPS FOR TROLLEY. REQ'D ON ENDS OF ALL MONORAILS, EXCEPT AS NOTED

DETAIL 'B'

SCALE 1:7.5

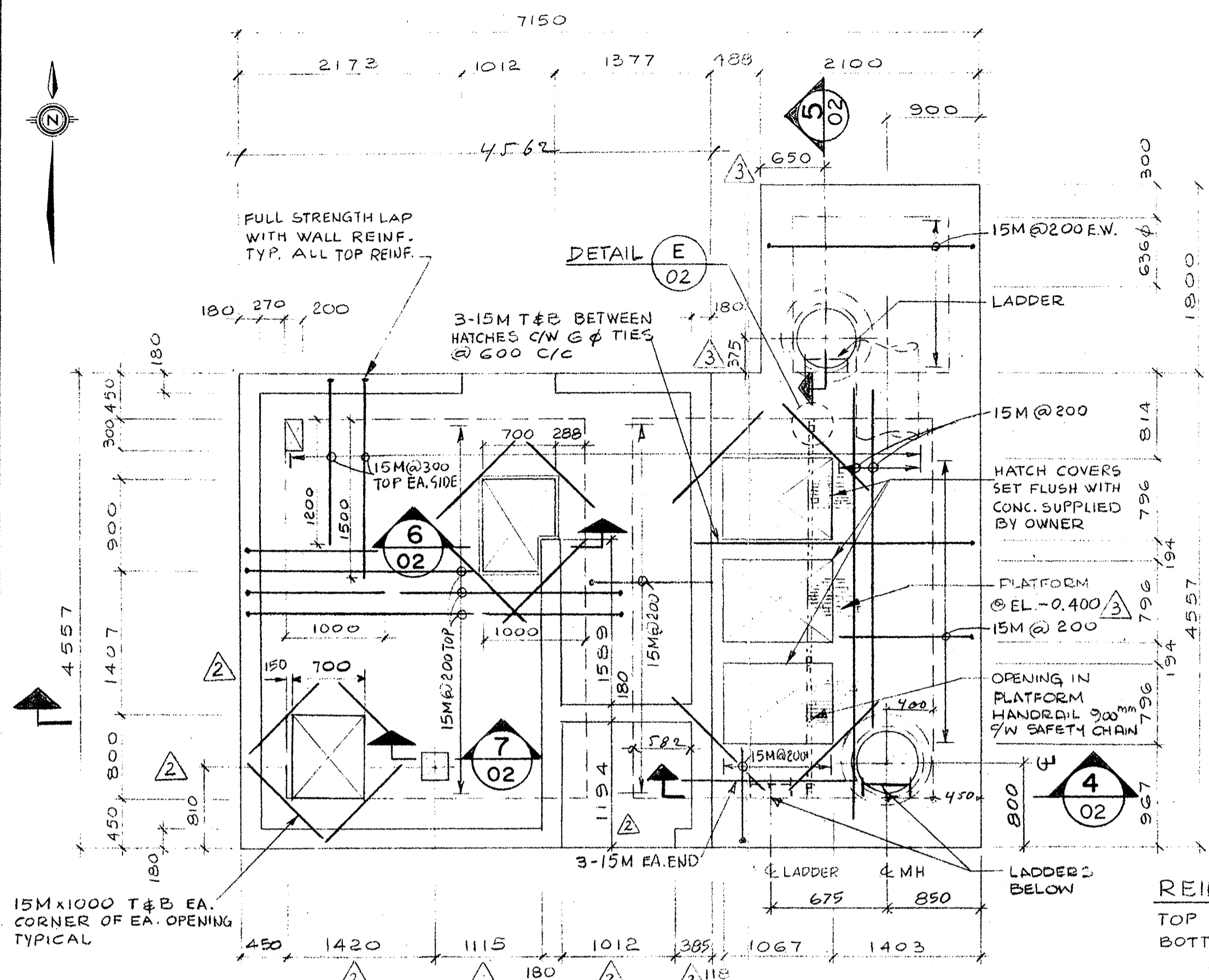


SECTION A-A

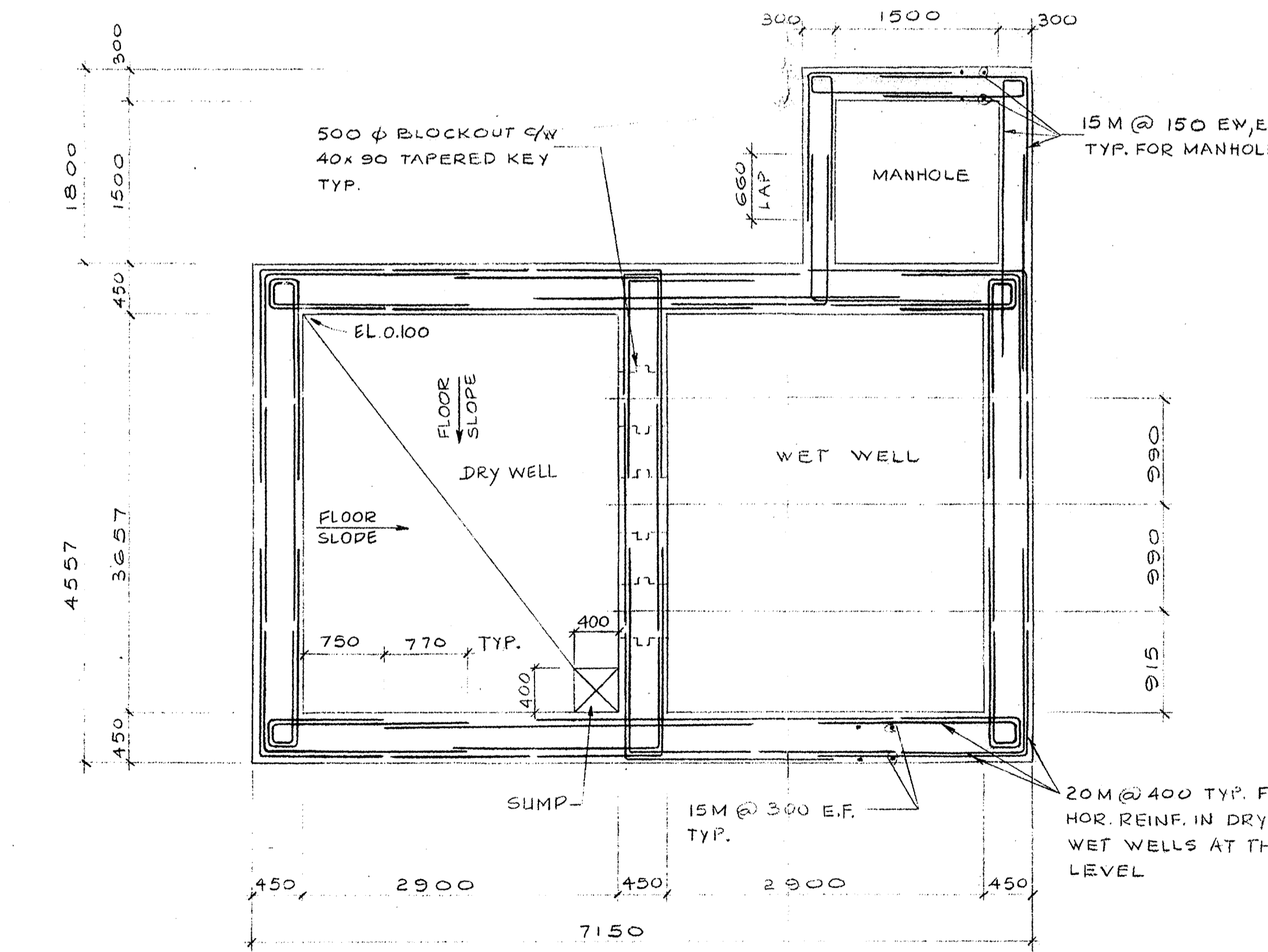
SCALE 1:10

NO.		DATE		REVISION		BY		CHK		CITY ENGINEERING DEPARTMENT, VANCOUVER, B.C.	
1	FEB. 27 84	ISSUED UNDER ADDENDUM NO. 3 TO TENDER BA01									
2	MAR. 27 84	DETAILS REVISED CERTIFIED FOR CONSTRUCTION									

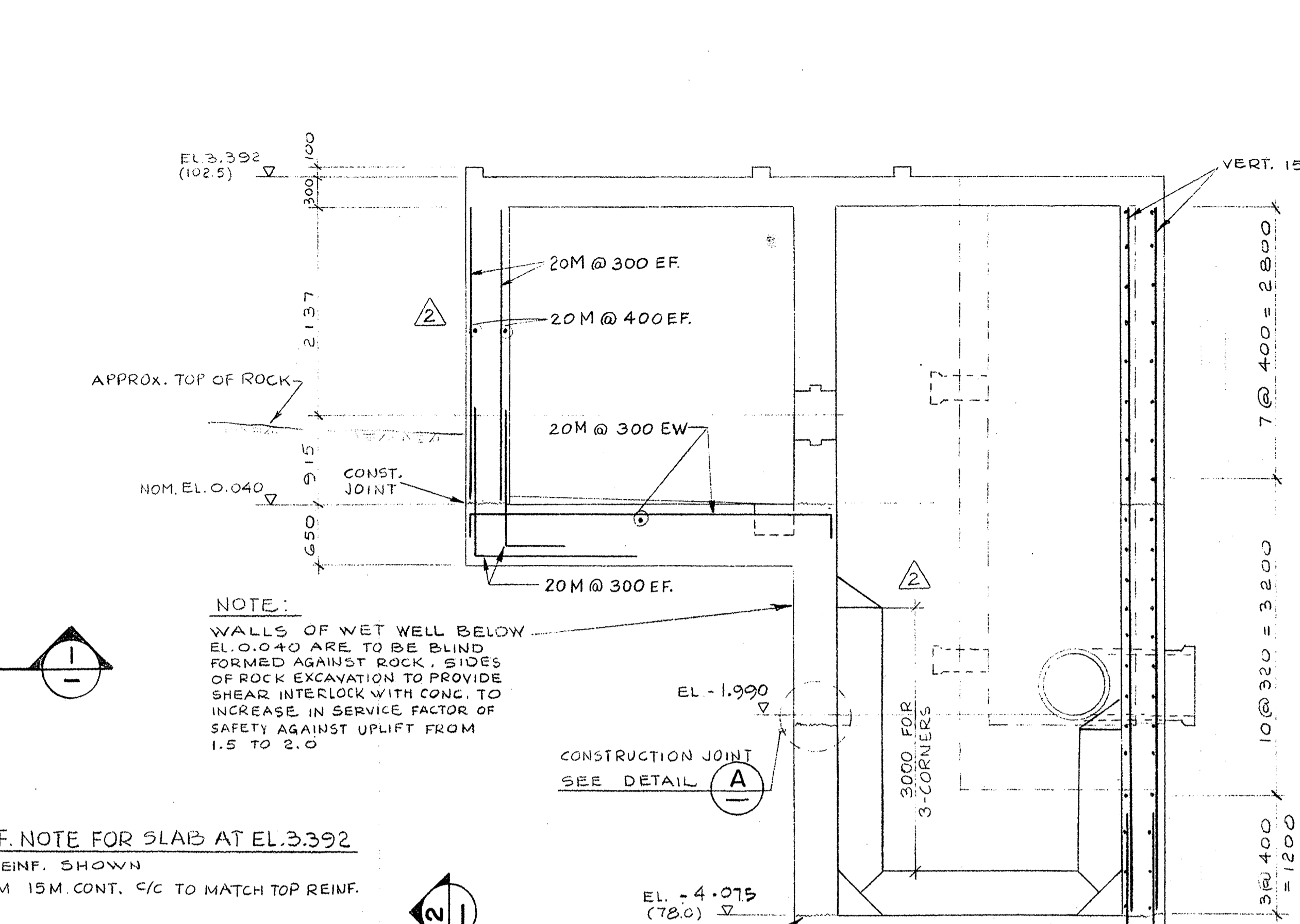
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DWG: AJ	CHK:	DWG. No. PB53
REFS:		SHT. 4 OF 6 REVISION: 2



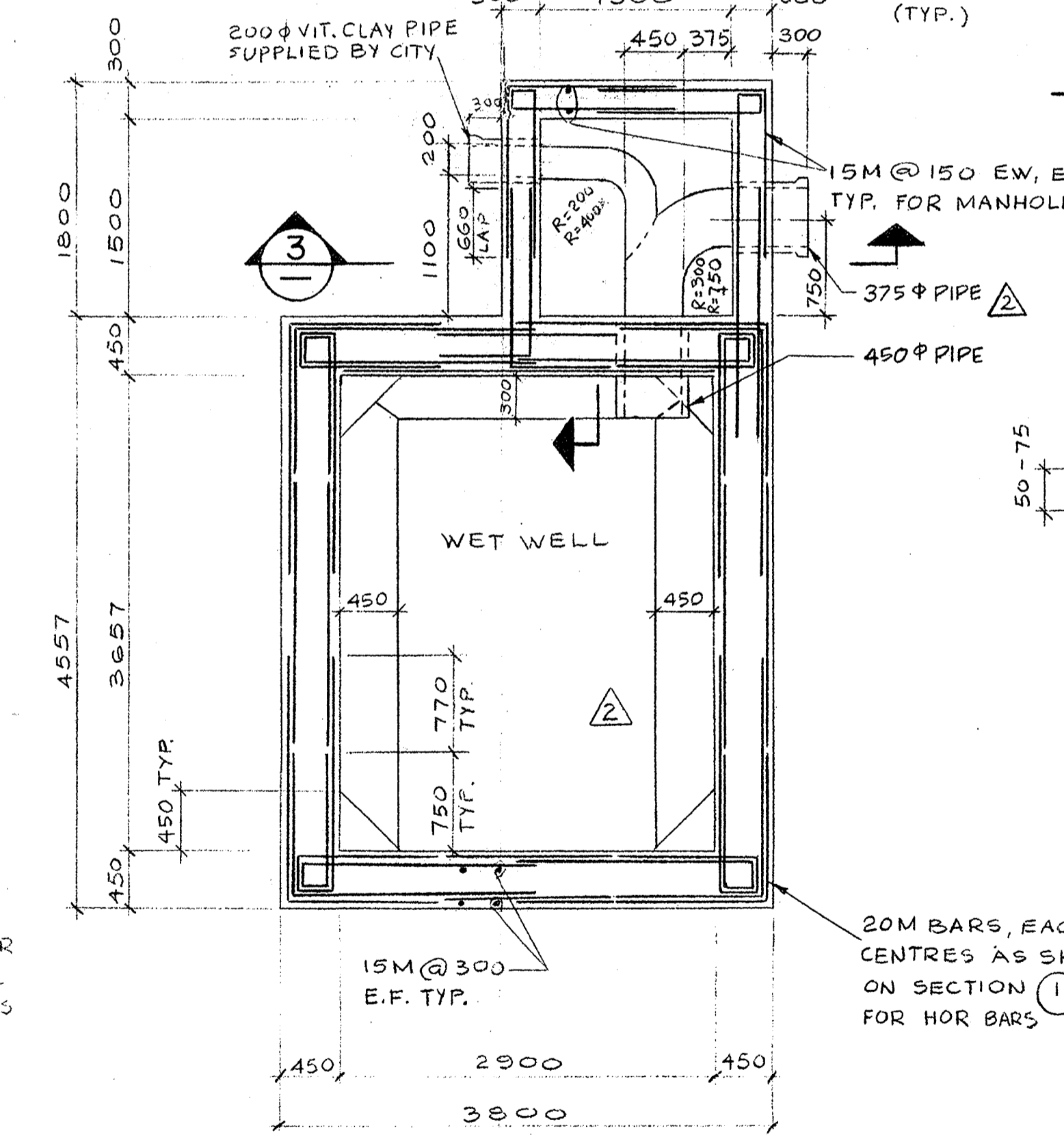
TOP VIEW AT EL. 3.392
1:40



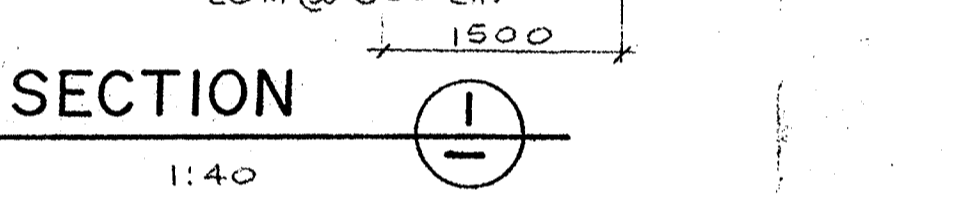
PLAN AT EL. 0.950
1:40



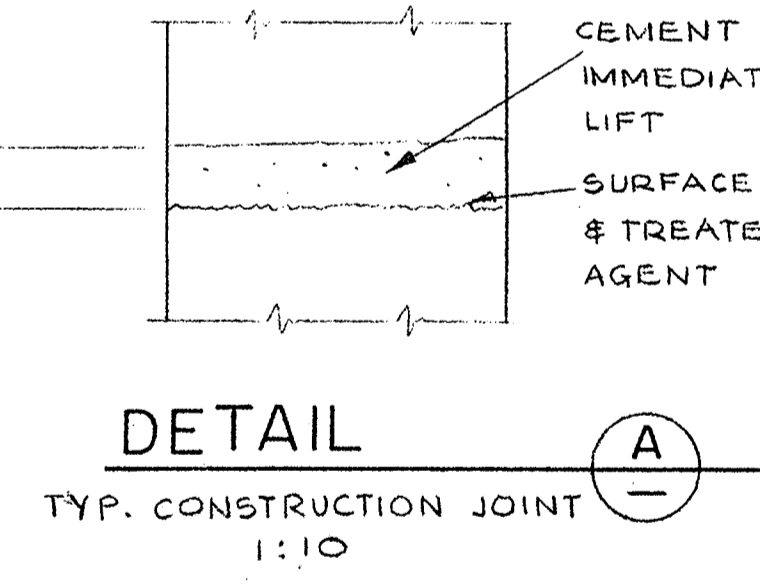
SECTION 1
1:40



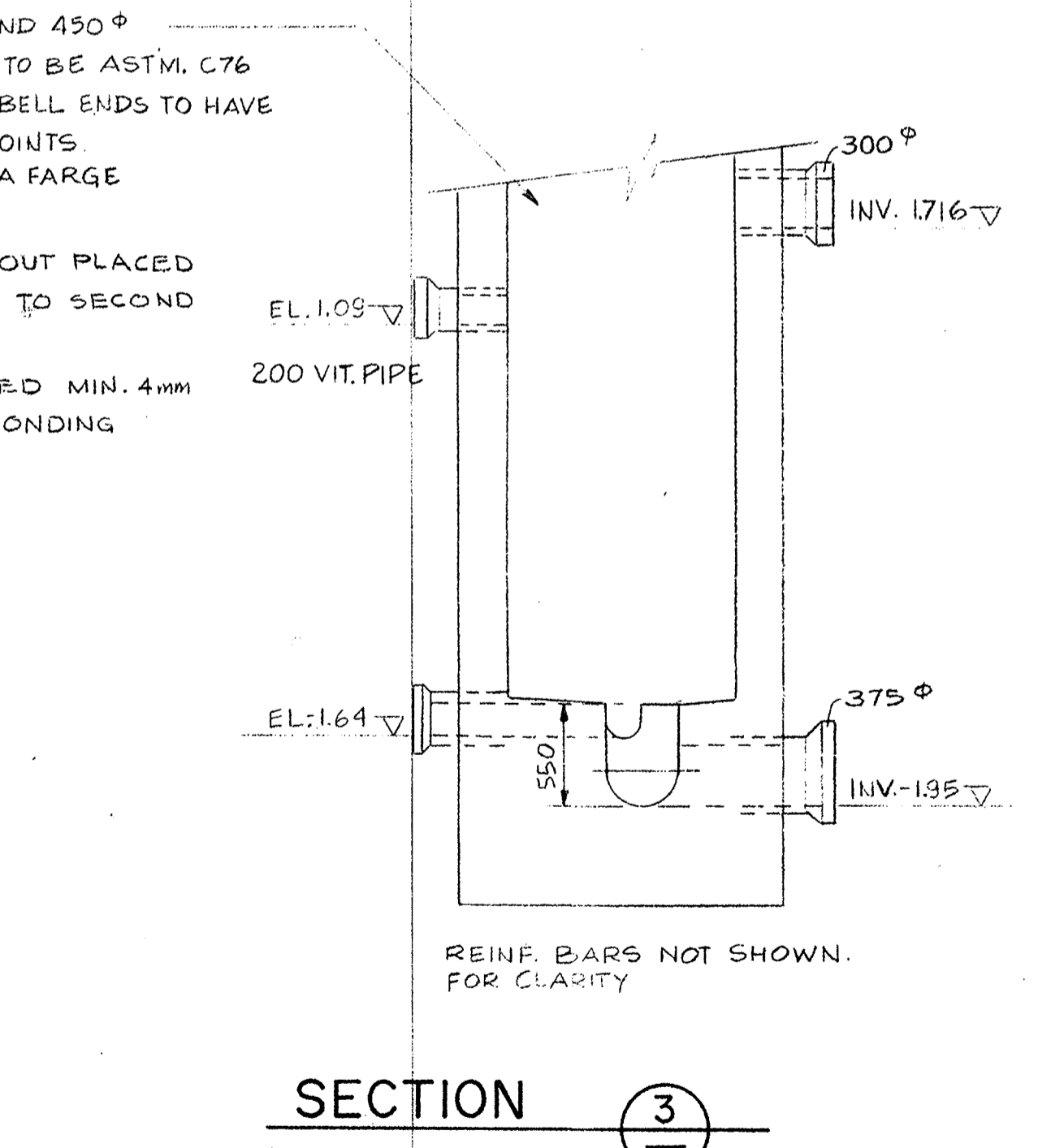
PLAN AT EL. -2.094
1:40



SECTION 2
1:40



DETAIL A
TYP. CONSTRUCTION JOINT
1:10



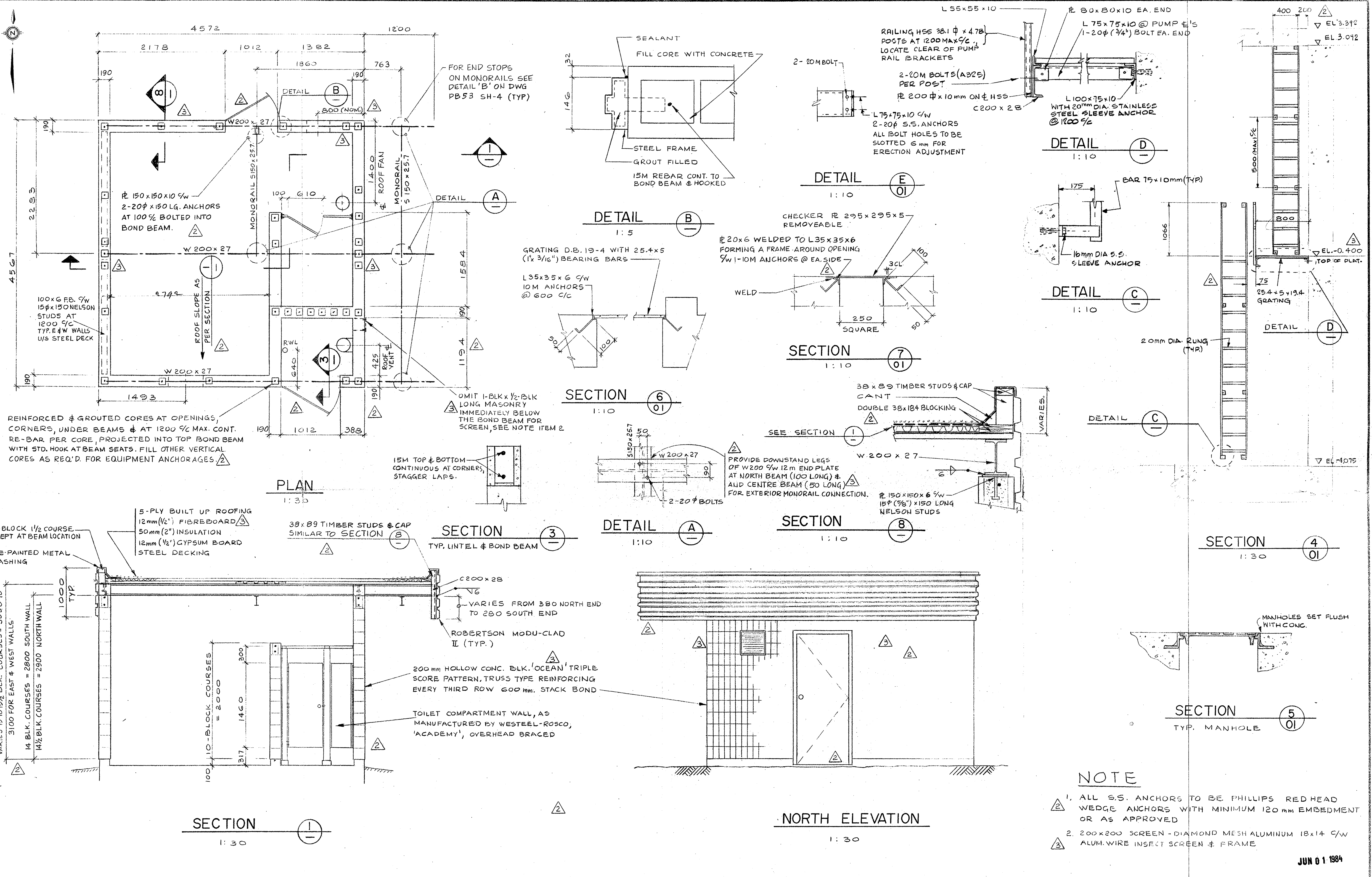
SECTION 3
1:40

REV	Y	M	D	REVISION	DESCRIPTION	DRN	SUPV	DES	CHK	ENG
3	84	05	29	PLATFORM EL. & M.H. LOC. REVISED	F.E.					
2	84	03	30	REVISED & ISSUED FOR CONSTRUCTION	KB F.E.					
1	84	02	27	REV. & RE-ISSUED FOR ADDENDUM 3						
0	84	02	20	FOR TENDER	F.E.					

Underwood McLellan Ltd.
Consulting Engineers and Planners
British Columbia Alberta Saskatchewan
Manitoba Ontario
Yukon Territory Northwest Territories

THE CITY OF VANCOUVER
BURRARD SEWAGE PUMPING STATION
PUMPSTATION-UNDERGROUND
CONCRETE STRUCTURE

SCALE: AS SHOWN
DRAWING No. 53
REV 5/16
JUN 01 1984



NOTE

- 1. ALL S.S. ANCHORS TO BE PHILLIPS RED HEAD WEDGE ANCHORS WITH MINIMUM 120 mm EMBEDMENT OR AS APPROVED
- 2. 200x200 SCREEN - DIAMOND MESH ALUMINUM 18x14 C/W ALUM. WIRE INSECT SCREEN & FRAME

JUN 01 1984

REV	Y	M	D	REVISION	DESCRIPTION	DRN	SUPV	DES	CHK	ENG
3	84	05	29	EL -0.400 WAS -0.600	FAN REL. BLOCK REV. VENT ADD.					FE
2	84	03	30	REVISED & ISSUED FOR CONSTRUCTION						K.B.F.E.
1	84	02	27	REV & RE-ISSUED FOR ADDENDUM 3						
0	84	02	20	FOR TENDER						FE

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 Consulting Engineers and Planners
 British Columbia Alberta Saskatchewan
 Manitoba Ontario
 Yukon Territory Northwest Territories

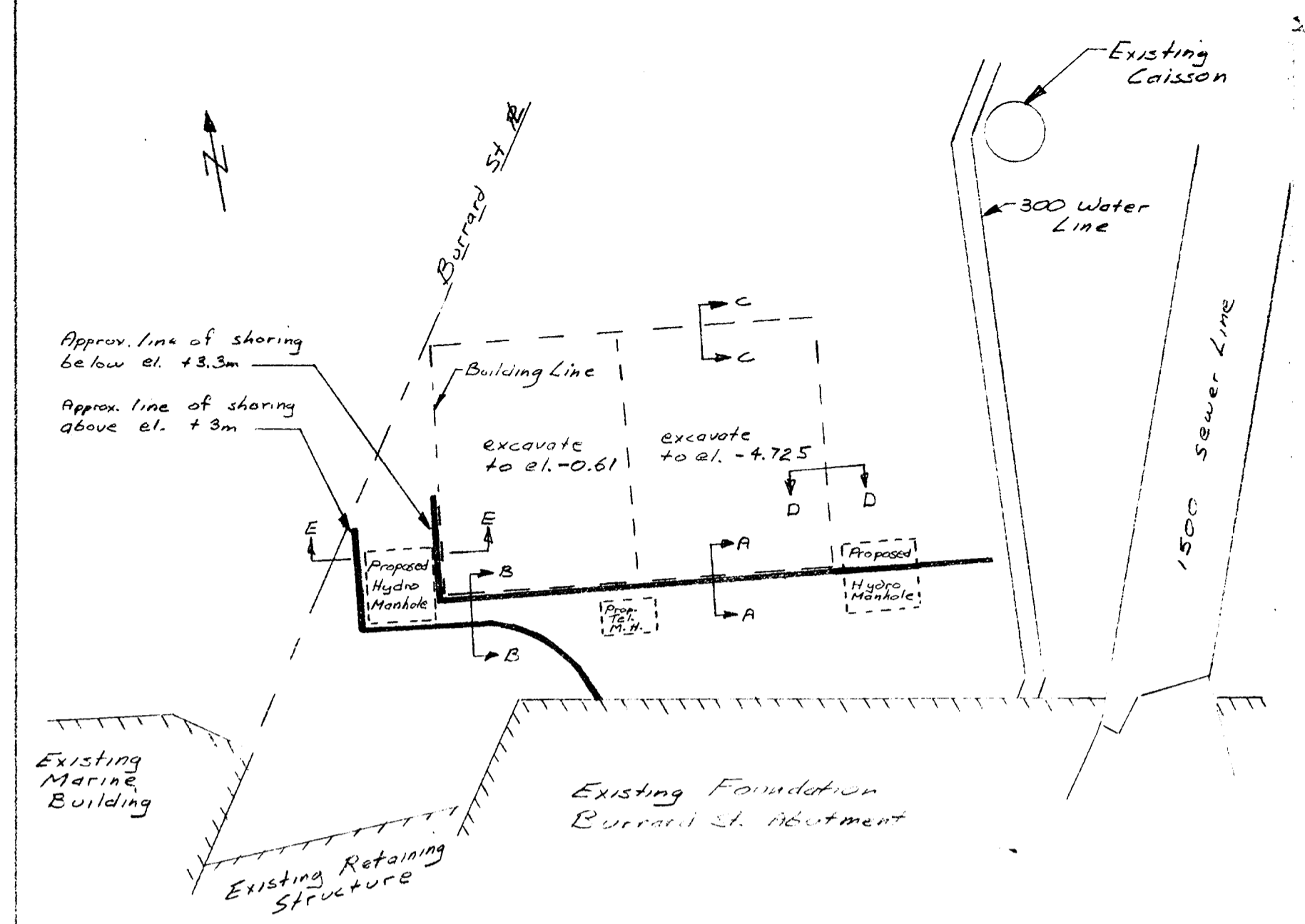
THE CITY OF VANCOUVER
BURRARD SEWAGE PUMPING STATION
PUMPSTATION - ABOVEGROUND
STRUCTURE



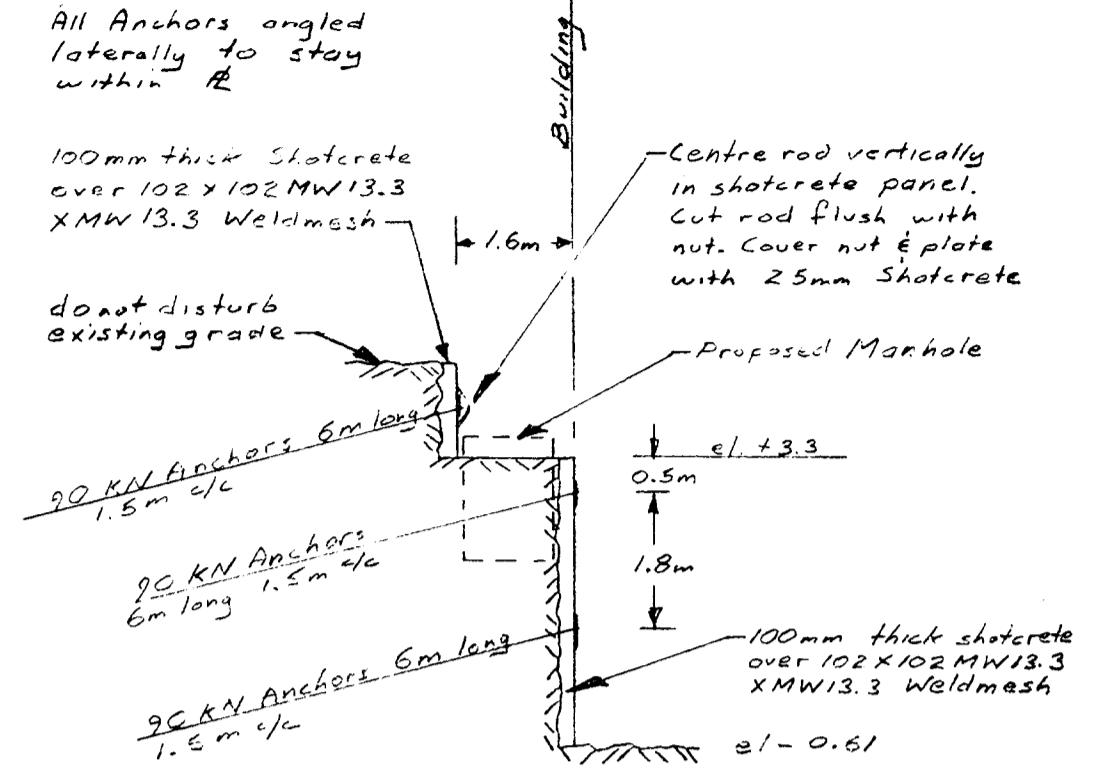
SCALE: AS SHOWN

P-53 DRAWING

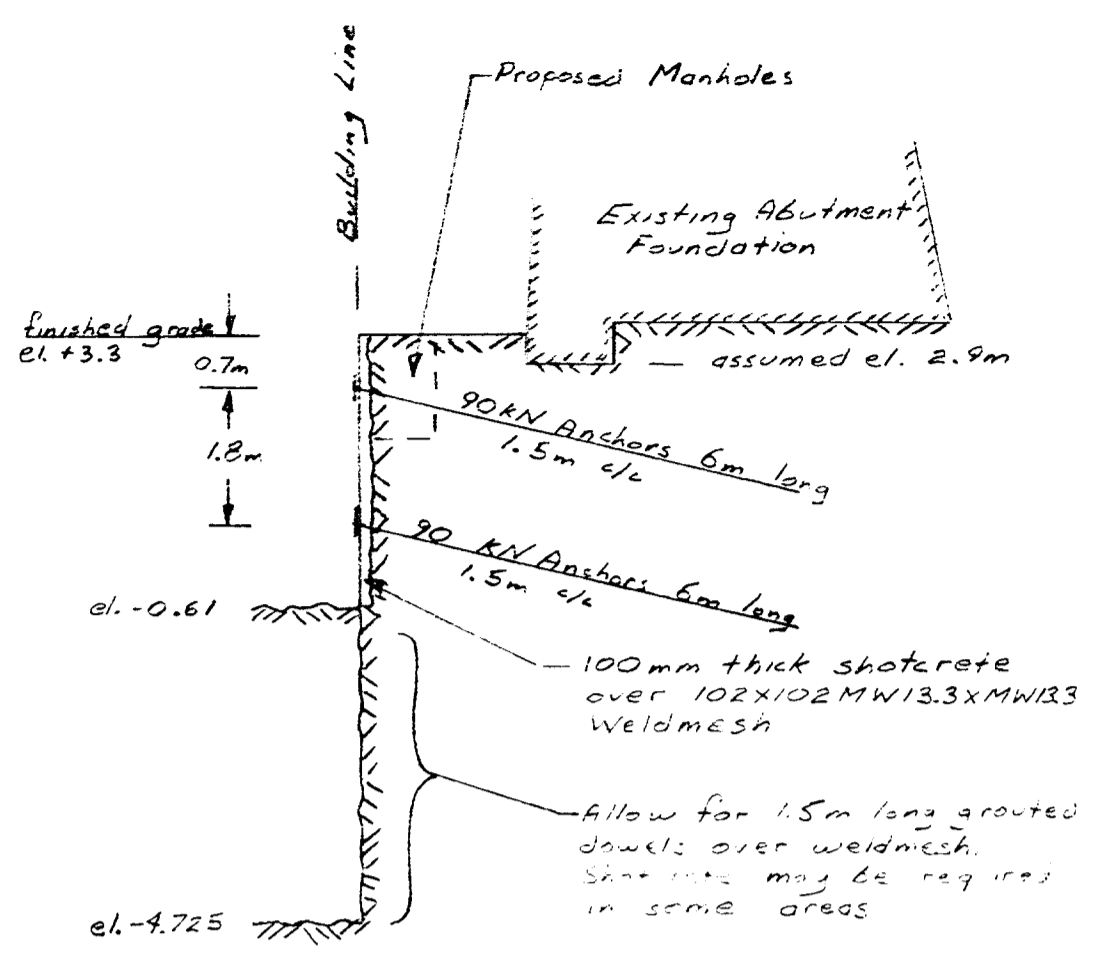
REV



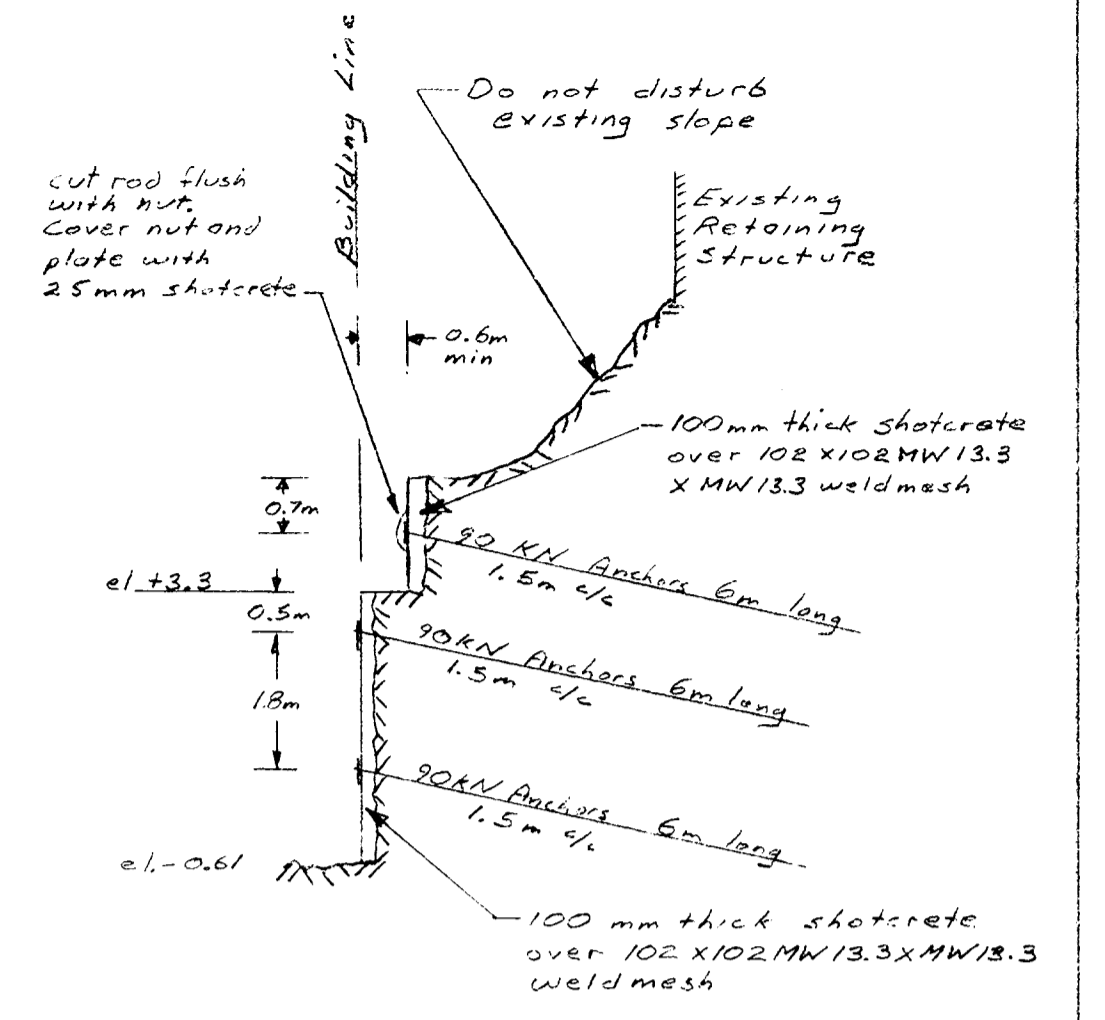
PLAN Scale 1:100



SECTION E-E Scale 1:100



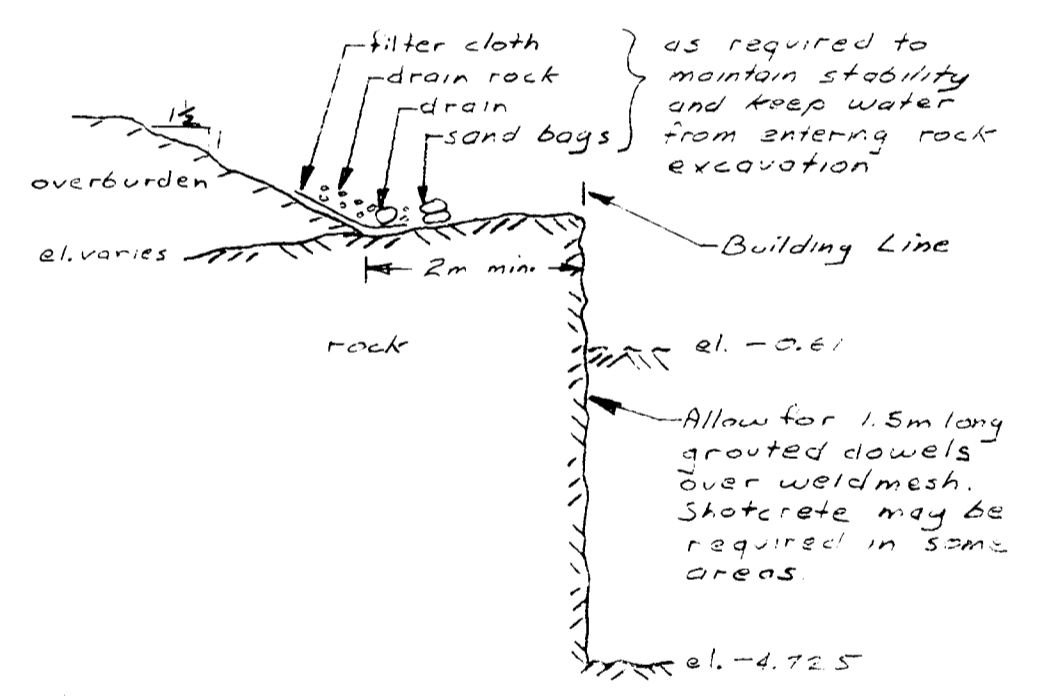
SECTION A-A Scale 1:100



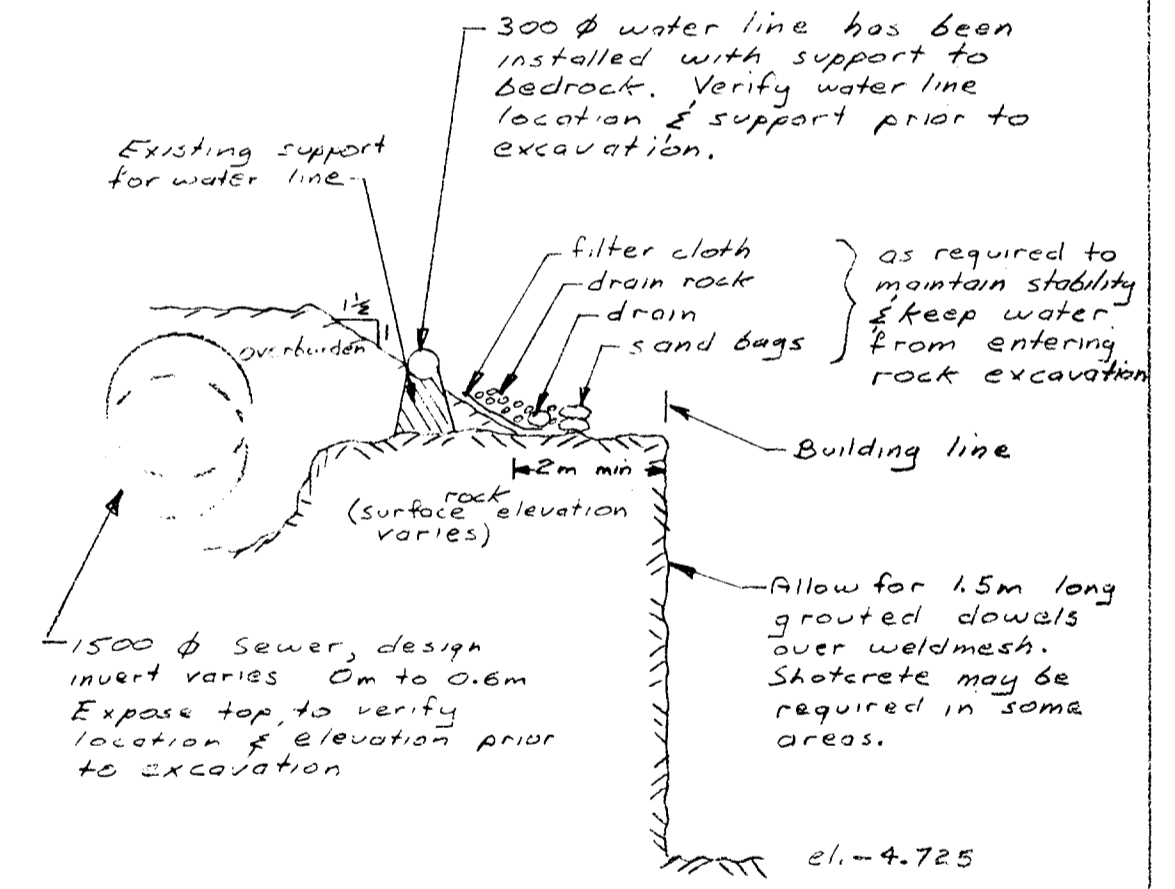
SECTION B-B Scale 1:100

NOTES:

- 13 - Excavation for 3 Manholes at south side of pump station
 - a) Excavation for manholes to be no larger than size of manhole plus 50mm max. clearance on all sides
 - b) Excavation for manholes can be made at same time as excavation for pump station, omitting the shotcrete panel at the manhole location only, or excavator for manhole can be made after pump station complete to above el. 3.3m
 - c) Backfill around manhole to consist of lean concrete.
- 14 - Final site grading at south side of station
 - a) Final site grading for service lines from manholes to be undertaken after pump station complete to above el. 3.3m
 - b) Final site grading to be as shallow as possible, but to satisfy requirements for minimum cover
 - c) Water table to not exceed width of service lines
 - d) To be controlled with lean concrete to level of 3.3m
 - e) Only 1 trench to be open at any time.
- 15 - Final grading
 - a) Final site grading at west side of pump station and north of Hydro manhole to be specified by Engineer on basis of field conditions
 - b) Site grading at south and west side of pump station as indicated on this drawing (Dwg. No. 2-6802 rev3) supersedes that shown on Dwg. No. DB911.



SECTION C-C Scale 1:100



SECTION D-D Scale 1:100

NOTES:

1. Except where shown otherwise, anchors and dowels consist of #5 Dywidag bar, fully grouted into hole min. dia. 80 mm. Slope anchors down at 10° to 15° but adjust slope as necessary to avoid buried services.
2. Unless shown otherwise, outer ends of all anchors and dowels have 230x230x20 mm steel plate over 4/25M bars 1800 mm long, where face is to be shotcreted. Where face is not to be shotcreted, the 25M bars are not required.
3. Anchor and dowel lengths noted are in-ground lengths.
4. Before drilling anchors verify locations and depths of all services and connections. Installer responsible for setting out anchors and to produce "as built" drawing of all anchors left in place on City property, as required by City.
5. Do not carry out any work on Neighbour's property without their written permission.
6. All shotcrete to be tested by compression specimens, cut from test panels formed on site in accordance with ACI 506-66. Unless permission is granted by the Engineer, excavation must not proceed below or beside any patch of applied shotcrete until its crushing strength as tested exceeds 20 MPa. (N.B. 7 day compression strength must not be less than 30 MPa and 7 day flexural strength must not be less than 4 MPa)
7. Short or long weep holes will be required through shotcrete that covers areas of seepage or as required by the engineer. Short weep holes are normally required and consist of a 300 mm length of 25 mm plastic pipe, pushed 50 or 80 mm into the cut face before shotcreting. Long weep holes may be required and consist of a 1500 mm length of 25 mm plastic pipe, loosely filled with sacking and placed in a hole drilled 1200 mm into the cut face. The area around the outside of the pipe should be packed with paper or sacking before shotcreting, to prevent shotcrete entering the hole around the pipe.
8. Location and dimensions of adjacent foundations are to be verified in field by Contractor and Cook Pickering & Doyle Ltd. notified before excavating or shoring proceeds in these areas.
9. Excavation to be inspected and shoring design may be modified by Engineer as work proceeds
10. Cook Pickering & Doyle Ltd. will not be responsible for hoarding design or setting out (excavation sides, anchor locations, measurement of excavation depths, etc.).
11. The methods and apparatus described in the drawing may be read on by the claims of third party patents and the Engineer does not accept liability for infringement of such claims.
12. The Contractor is responsible for dewatering the site. Adequate dewatering must be installed outside the area of the excavation in order to draw down the water level in permeable zones to the level of the rock surface, as outlined in the Cook Pickering & Doyle Ltd. geotechnical report of Feb. 3/84. The toe drains shown on Section CC and Section DD are intended to collect small amounts of seepage only.

For estimating purposes allow for the following quantities:

- 110 m of anchors
- 15 m of dowels
- 50 m² of shotcrete and mesh with short weep holes
- 30 m² of mesh without shotcrete
- 20 anchor plate systems for shotcrete areas
- 10 anchor plate systems for weld mesh areas
- 5 'long' weep holes (as per Note 7)

Actual quantities called for by the Engineer will vary from those noted above, according to the conditions encountered during excavation.

REVISION 1 - Revise Plan, Sections A-A, B-B
FEB 27/84 - Add Section E-E, Notes 13, 14, 15.

EXCAVATION SHORING
BURRARD ST PUMP STATION

Cook Pickering & Doyle Ltd.
Consulting Geotechnical Engineers

FEBRUARY 1984 DMW Dwg. No. 2-6802
REV. 1