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OMAKAU WATER SUPPLY

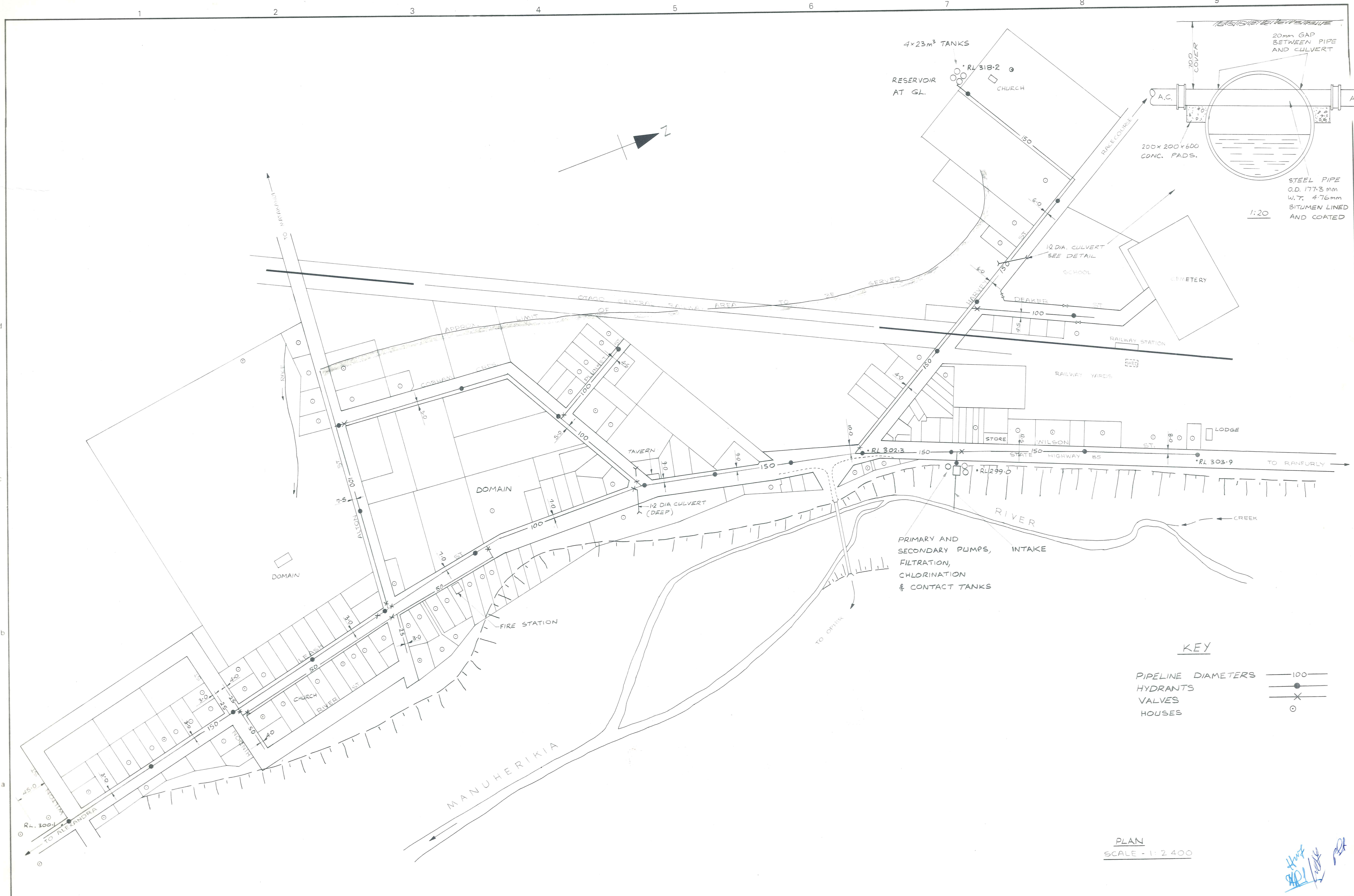
VINCENT
COUNTY COUNCIL

DUFFILL WATTS & KING LTD.
CONSULTING CIVIL & STRUCTURAL ENGINEERS
DUNEDIN, INVERCARGILL, BALCLUTHA, CROMWELL

VINCENT COUNTY COUNCIL

H.W. Felton
COUNTY CLERK
H.W. Felton CHAIRMAN

SET No.



KEY

PIPELINE DIAMETERS	— 100 —
HYDRANTS	●
VALVES	×
HOUSES	○

PLAN
SCALE - 1:2 400

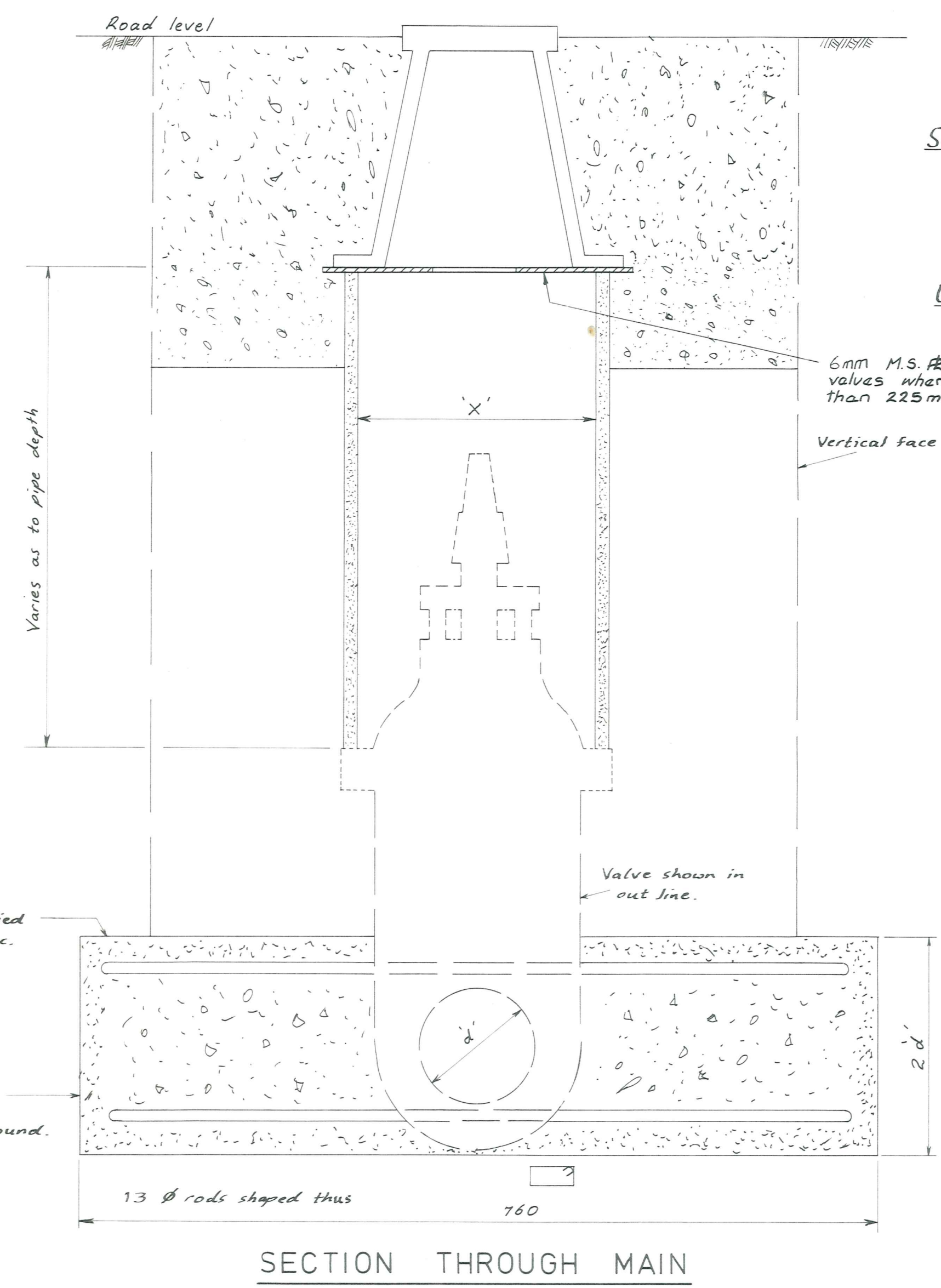
Handwritten initials and signatures in blue ink.

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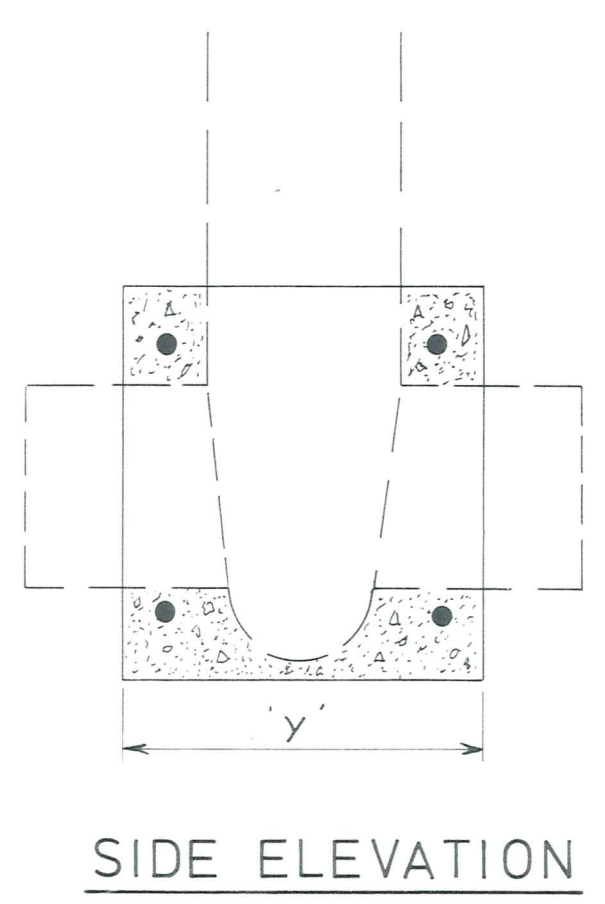
OMAKAU WATER SUPPLY PIPELINE LAYOUT

AMENDMENTS			NAME	DATE	JOB NO.	Sheet No.
NO.	BY	DATE	Appvd.	Surveyed	7087	1
				Drawn		
				Calculations		
				Traced		
				Checked		
				Approved	File 156	LB. 92



Sealed Surface: Backfill to level shown with metal or flooded sand then fill to within 20 of surface with lean mix concrete and finish with seal-coat.

Unsealed Surface: Backfill to surface with excavated material or trench-backfill and ram hard.



SECTION THROUGH MAIN

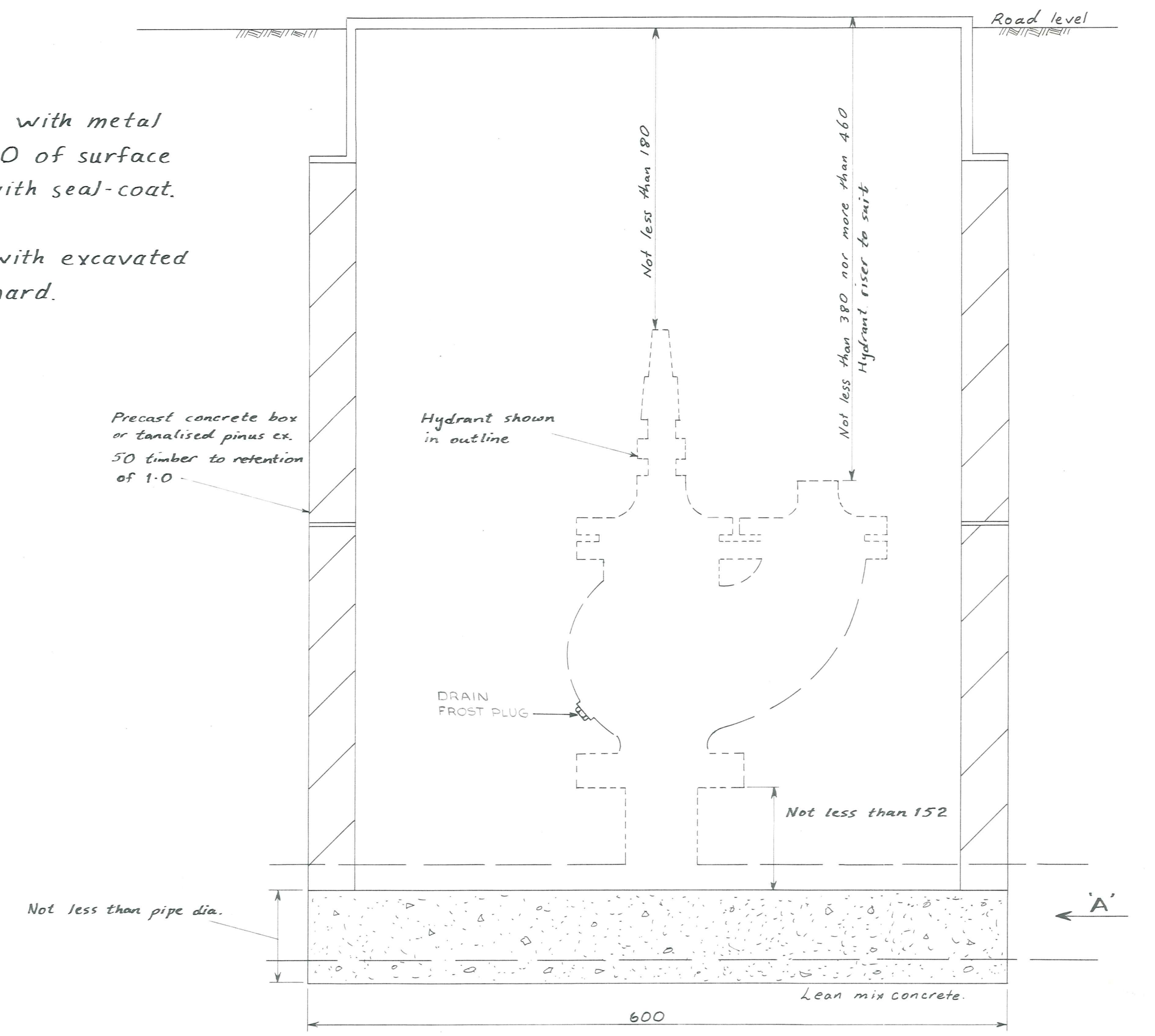
SIDE ELEVATION

Valve Dia.	X	Y
100	225	200
150	300	225
200	375	300
250	450	375

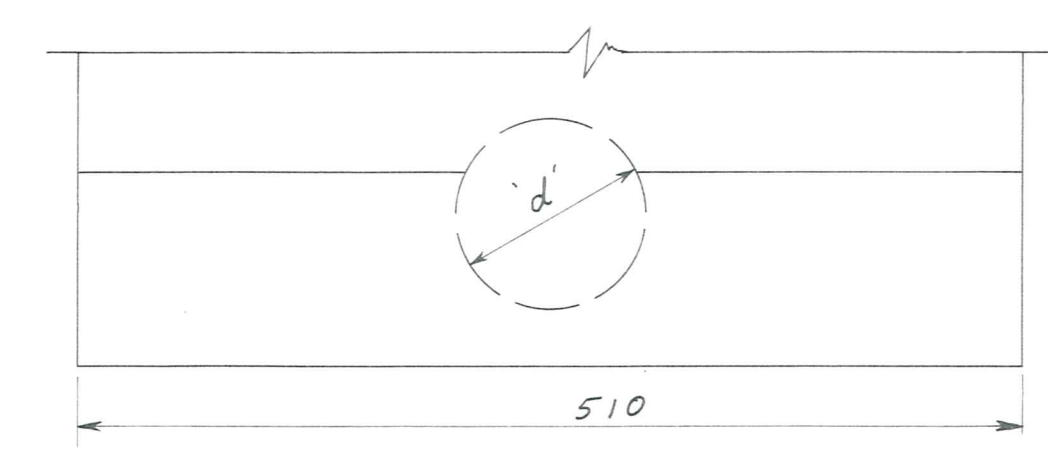
DETAIL OF VALVE INSTALLATION

Note: Valves and Hydrants shall be marked in accordance with N.Z.S. 1152. Valve and Hydrant markers shall be erected as close as possible to property boundaries, to the closest wall of a building or the closest fence line.

Note: Lean mix concrete to be 12 aggregate to 1 cement to be placed fairly dry and rammed hard.



SECTION ALONG MAIN



VIEW 'A'
DETAIL OF HYDRANT INSTALLATION

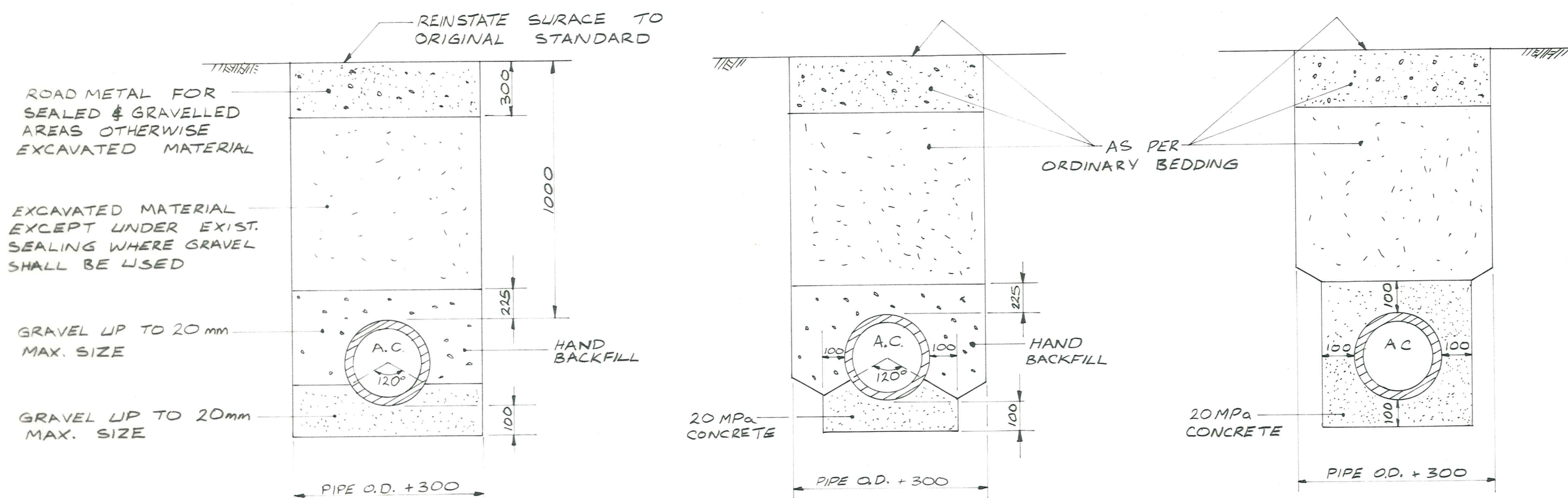
Not To Scale

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HYDRANT AND VALVE INSTALLATION

AMENDMENTS				NAME		DATE	JOB NO.	Sheet No	
NO.	BY	DATE	Appvd.	Surveyed			7087	2	
				Drawn					
				Calculations					
				Traced	P.R. Kicker	April '76			
				Checked					
				Approved			File	L.B.	F.B.

VALVES, HYDRANTS

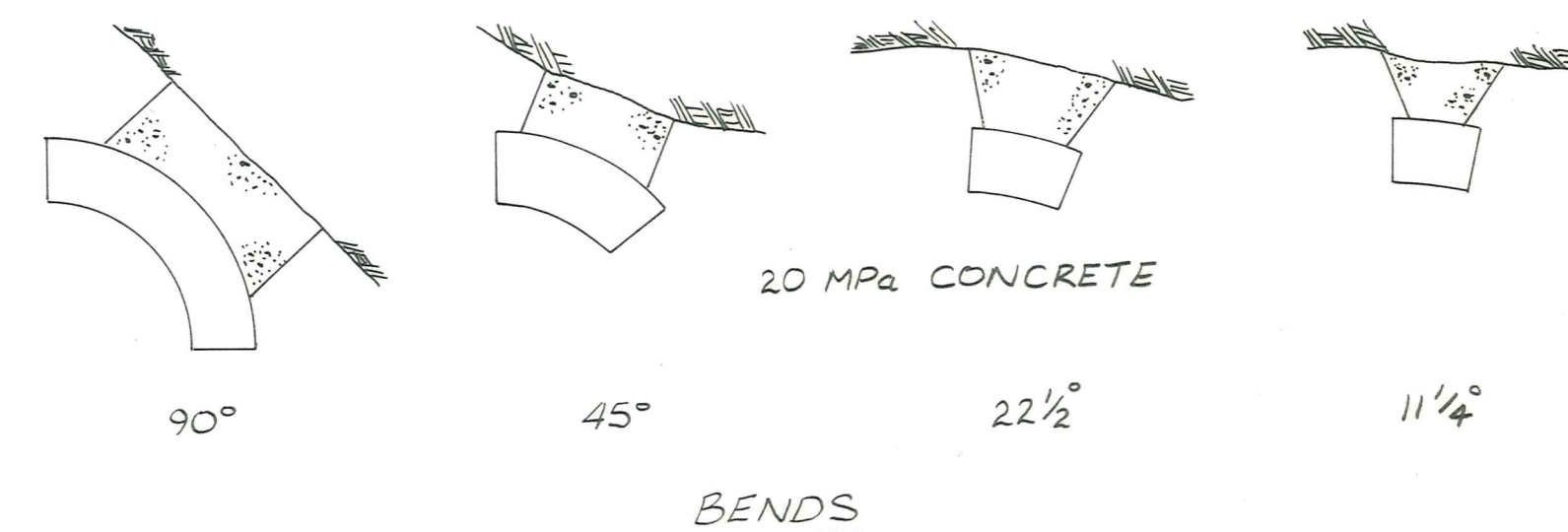


ORDINARY BEDDING

CONCRETE BEDDING

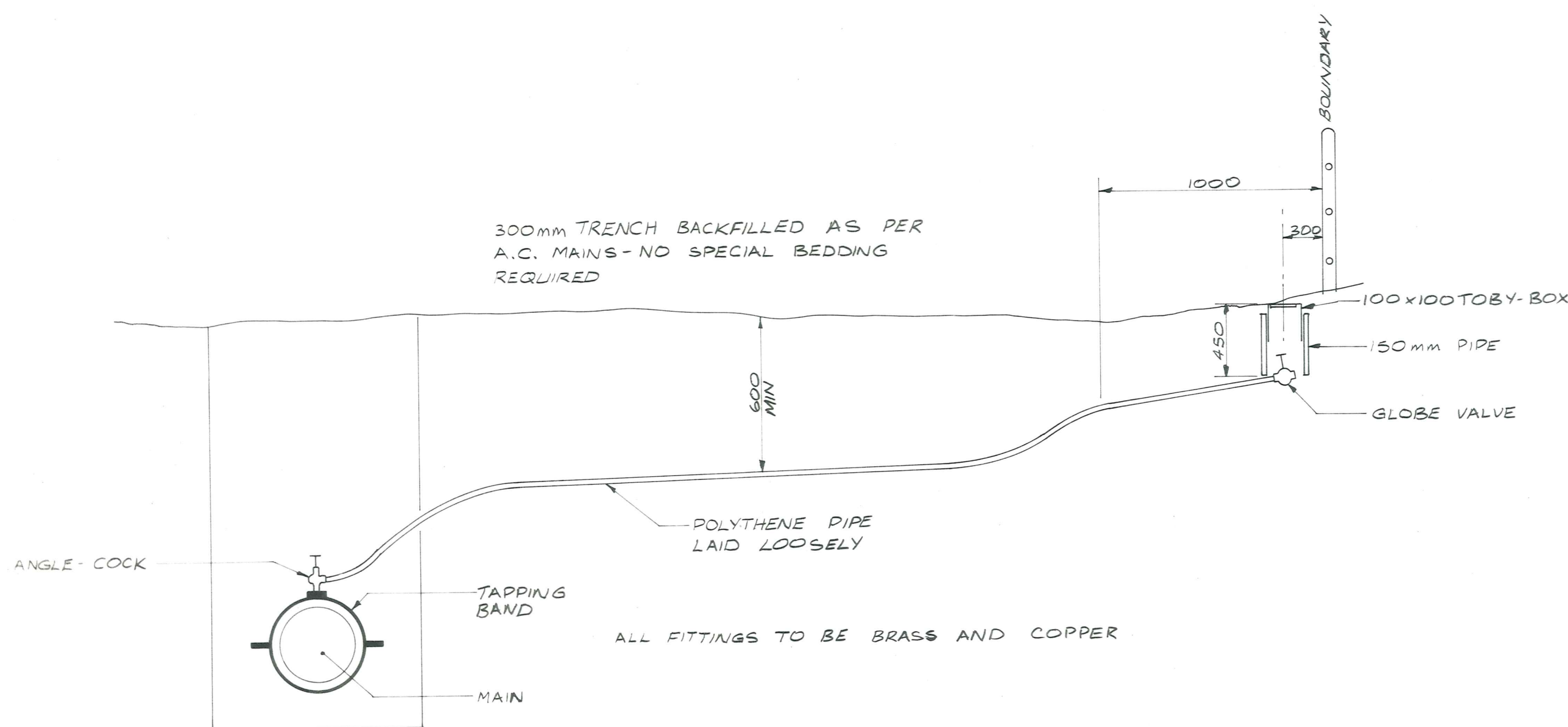
CONCRETE SURROUND

BEDDING DETAILS
N.T.S.



DIA.	90°	45°	22 1/2°	11 1/4°	TEE OR END
100 mm	0.4m x 0.4m	0.3m x 0.3m	0.3m x 0.3m	0.3m x 0.3m	0.3m x 0.3m
150 mm	0.6m x 0.6m	0.4m x 0.4m	0.3m x 0.3m	0.3m x 0.3m	0.5m x 0.5m

BEARING AREAS FOR THRUST BLOCKS



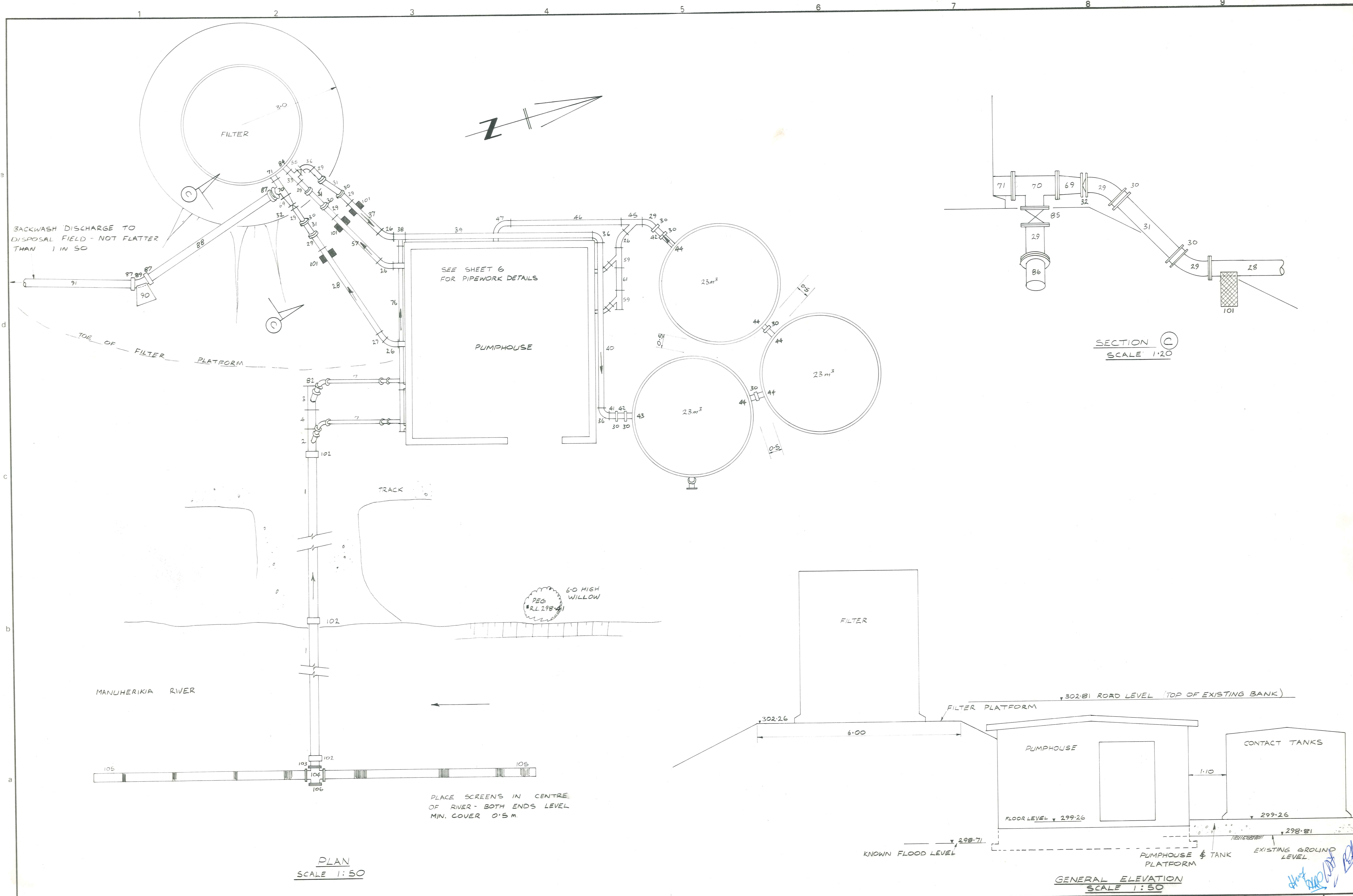
HOUSEHOLD CONNECTION DETAIL
N.T.S.

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OMAKAU WATER SUPPLY

AMENDMENTS				NAME DATE		JOB NO.	Sheet No
NO.	BY	DATE	Appvd	Surveyed	G. GILLESPIE AUG. 1979	7087	3
				Drawn	G.R. DUFF		
				Calculations	" "		
				Traced	M.J. BLAKIE SEPT. "		
				Checked	G.R. DUFF		
				Approved	[Signature]	File 156	L.B. 365



ORIGINAL SIZE INCHES

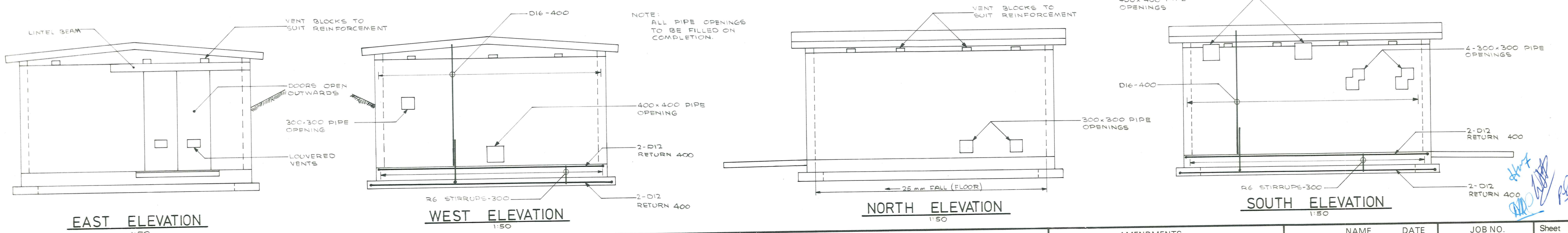
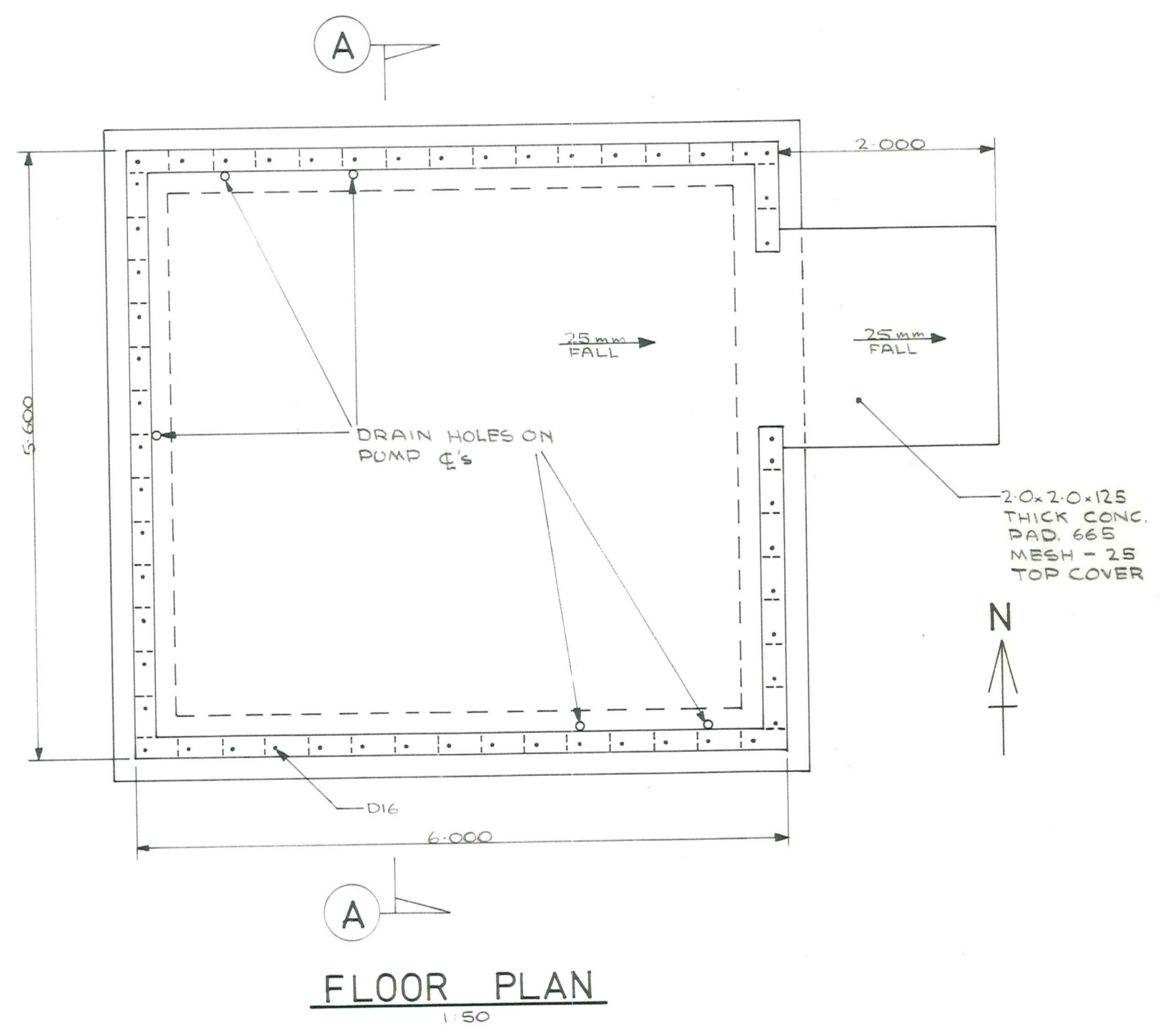
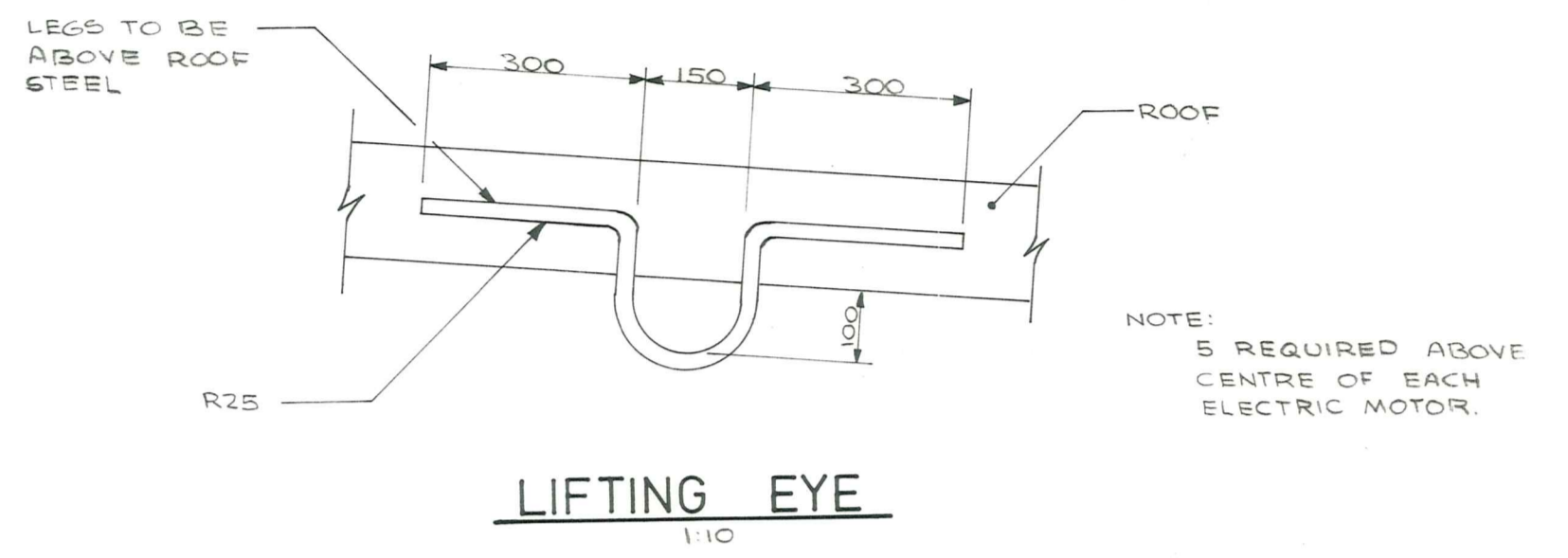
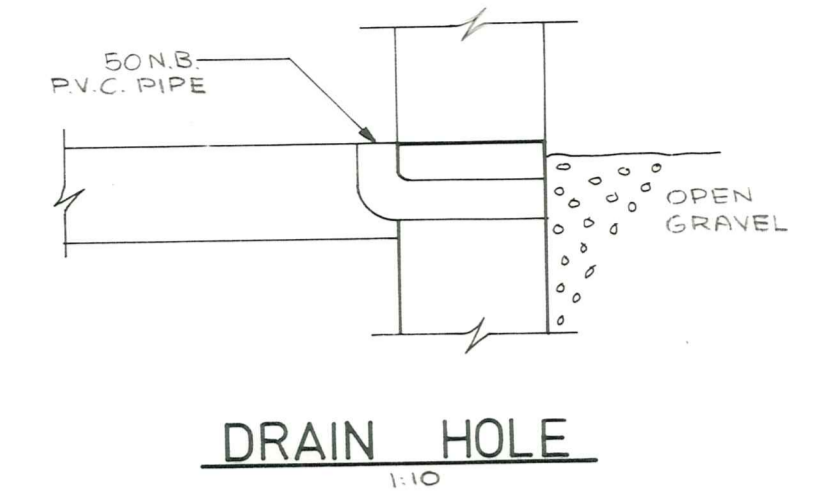
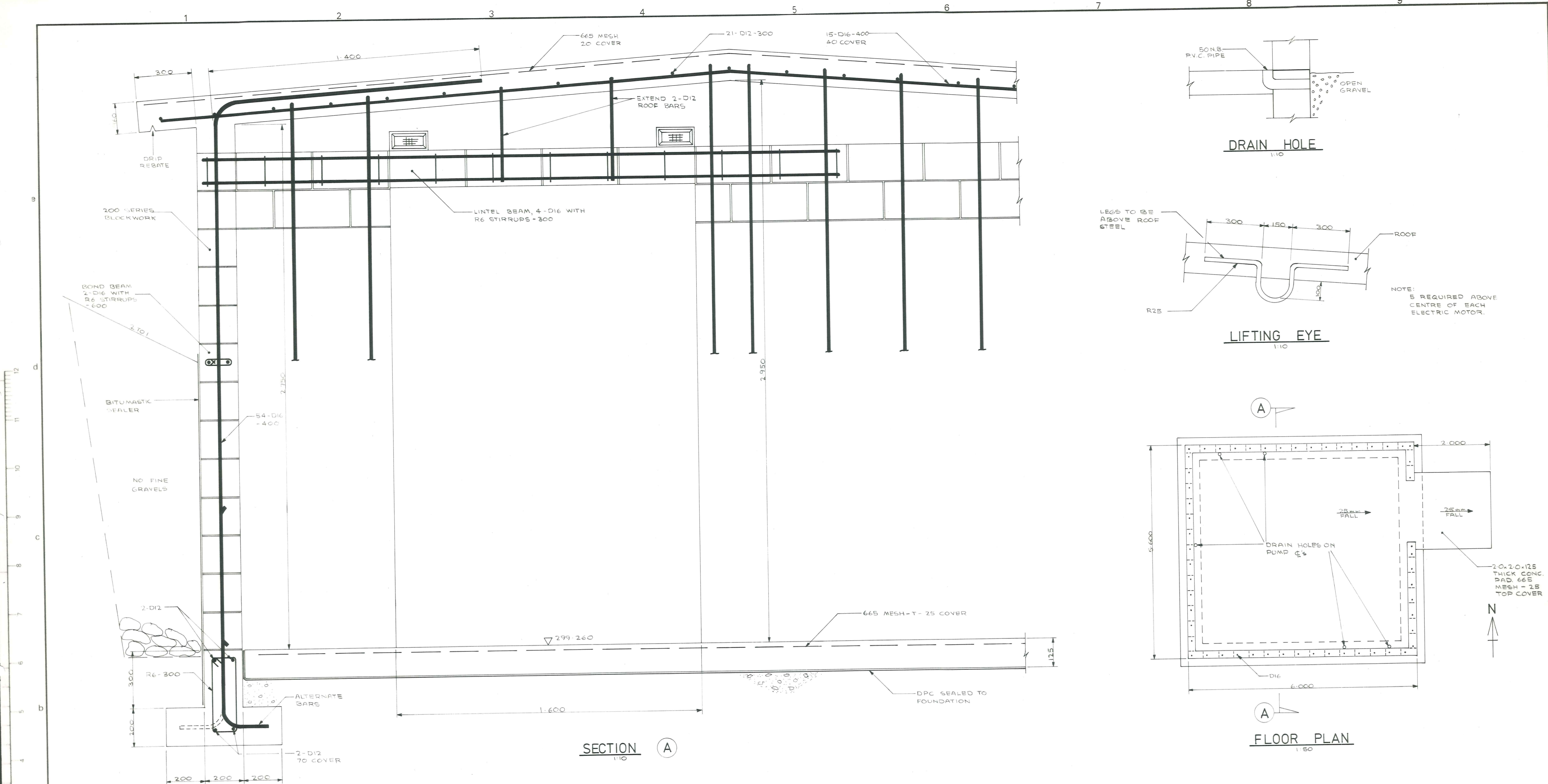
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OMAKAU WATER SUPPLY
PUMPHOUSE EXTERIOR PIPEWORK

AMENDMENTS			NAME		DATE	JOB NO.	Sheet No	
NO	BY	DATE						
			Appvd	Surveyed	GILLESPIE	AUG 1979	7087	4
				Drawn	G.R. DUFF	" "		of 10 sheets
				Calculations	" "	" "		
				Traced	M.T. BLAKIE	SEPT. "		
				Checked	G.R. DUFF	" "		
				Approved	(Signature)	" "	File 156 L.B. 365	F.B. -

PUMPHOUSE SITE.



ORIGINAL SIZE INCHES

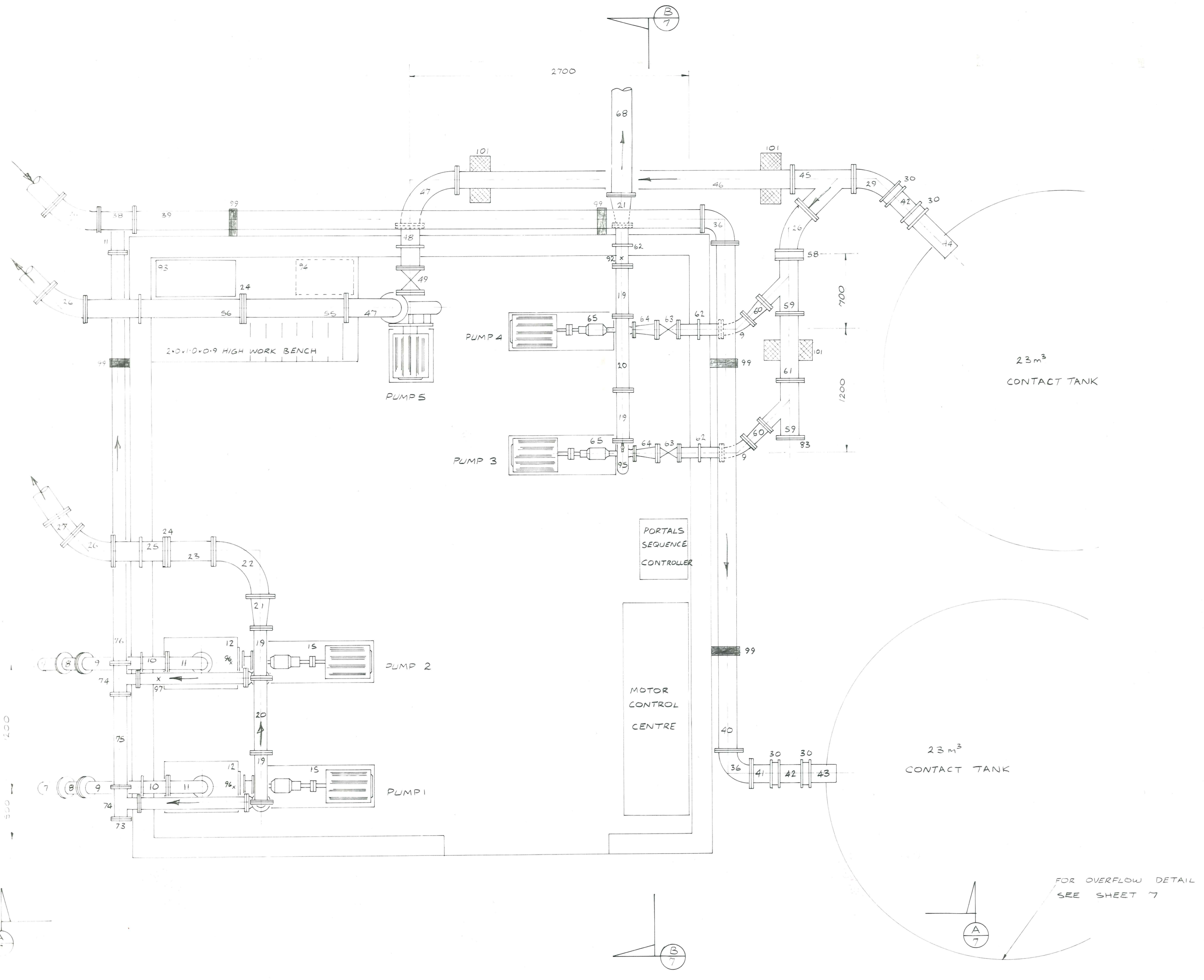
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OMAKAU WATER SUPPLY PUMPHOUSE

AMENDMENTS			NAME DATE		JOB NO.	Sheet No
NO.	BY	DATE	Appvd	Surveyed	7087	5
				G. GILLESPIE		
				G. C. SUDDARY		
				G. C. SUDDARY		
				G. C. SUDDARY		
				Checked	File 156	L.B. 365
				Approved	F.B.	

PUMPHOUSE



- CODE**
1. 225 mm A.C. stormwater pipe
 2. 225 mm x 150 mm Y, 2 Flanges only
 3. " " Y, 3 Flanges
 4. 225 mm x 506 mm long, straight D.F.
 5. 150 mm x 100 mm reducer D.F.
 6. 100 mm standard 45° bend D.F.
 7. 100 mm x 4727 mm long straight D.F.
 8. 100 mm standard 22.5° bend, D.F.
 9. " " 45° bend, D.F.
 10. 100 mm x 500 mm long straight D.F. plus puddle fl.
 11. 100 mm standard 90° bend D.F.
 12. Priming vessel
 13. 100 mm M & G. wafer swing check valve
 14. 100 mm x 100 mm long straight D.F.
 15. Ajax 3L pump
 16. 75 mm x 1220 mm long straight D.F.
 17. 75 mm Serck Audco 3-way T port valve (Fig M111)
 18. 75 mm standard 45° bend D.F.
 19. 100 mm x 75 mm Y, 3 Flanges
 20. 100 mm x 724 mm long straight D.F.
 21. 150 mm x 100 mm reducer D.F.
 22. 150 mm standard 45° bend D.F.
 23. 150 mm x 450 mm long straight D.F.
 24. Orifice plate
 25. 150 mm x 500 mm long straight D.F. plus puddle fl.
 26. 150 mm standard 45° bend D.F.
 27. " " 11.25° bend D.F.
 28. 150 mm x 3100 mm long straight D.F.
 29. 150 mm standard 45° bend 1 fl. only
 30. 150 mm gibault joint
 31. 150 mm x 950 mm long straight P.E.
 32. 150 mm M & G. wafer swing check valve
 33. 150 mm x 150 mm Tee, 3 flanges
 34. 150 mm washout valve
 35. 150 mm filter outlet valve
 36. 150 mm short radius 90° bend D.F.
 37. 150 mm x 1250 long straight D.F.
 38. 150 mm x 100 mm Tee 3 Flanges
 39. 150 mm x 5489 mm long straight D.F.
 40. 150 mm x 4900 mm long straight D.F.
 41. 150 mm x 225 mm long flange adaptor
 42. 150 mm x 320 mm long straight P.E.
 43. 150 mm x 300 mm long straight P.E.
 44. 150 mm x 500 mm long straight P.E.
 45. 150 mm x 150 mm Y, 3 Flanges
 46. 150 mm x 3200 mm long straight D.F.
 47. 150 mm standard 90° bend D.F.
 48. 150 mm x 400 mm long straight D.F. plus puddle fl.
 49. 150 mm valve, Blakeborough Fig. 2323
 50. Davies K15 B pump
 51. 150 mm x 125 mm reducer D.F.
 52. 150 mm M & G. wafer swing check valve
 53. 150 mm x 1200 mm long straight D.F.
 54. 150 mm Serck Audco butterfly valve
 55. 150 mm x 1000 mm long straight D.F.
 56. 150 mm x 1500 mm long straight D.F. plus puddle fl.
 57. 150 mm x 1850 mm long straight D.F.
 58. 150 mm x 60 mm long spacer
 59. 150 mm x 100 mm Y, 3 flanges
 60. 100 mm x 75 mm reducer D.F.
 61. 150 mm x 650 mm long straight D.F.
 62. 100 mm x 400 mm long straight D.F. plus puddle fl.
 63. 100 mm valve Blakeborough Fig. 2323
 64. 100 mm x 65 mm reducer D.F.
 65. Ajax 2L pump
 66. 75 mm x 50 mm reducer D.F.
 67. 75 mm APCO series 600 check valve Model 653
 68. 150 mm x 6000 mm long straight one fl. only plus puddle fl.
 69. 200 mm x 150 mm reducer D.F.
 70. 200 mm x 200 mm Tee 3 flanges
 71. 200 mm filter washout
 72. 75 mm x 1030 mm long straight D.F.
 73. 100 mm blank flange
 74. 100 mm x 75 mm Tee 3 flanges
 75. 100 mm x 894 long straight D.F.
 76. 100 mm x 3980 mm long straight D.F.
 77. 100 mm x 100 mm long straight D.F.
 78. 150 mm sluice valve and box
 79. 150 mm hydrant Tee P.E.
 80. Streamline hydrant, riser and box
 81. 150 mm Class D A.C. pipe
 82. 225 mm blank flange
 83. 150 mm " "
 84. 150 mm filter outlet
 85. 200 mm washout valve
 86. 200 mm flange adaptor
 87. 200 mm gibault joint
 88. 200 mm x 6000 mm long A.C. stormwater pipe
 89. 200 mm standard 45° bend P.E.
 90. Conc. anchor block 0.5 m x 0.5 m x 0.5 m
 91. 200 mm x 20.0 m A.C. stormwater pipe
 92. 150 mm pressure gauge (0-1000 kPa) plus gauge cock
 93. Chlorine equipment on work bench
 94. Compressor under work bench
 95. 12 mm hose tap plus 10 m rubber hose
 96. 63 mm vacuum gauge (-100 - 0 kPa)
 97. 12 mm gate-valve (drain) under pipe with hose through wall
 98. Type A support
 99. " B "
 100. " C "
 101. " D "
 102. 225 mm Supertite coupling
 103. 225 mm flange adaptor
 104. 225 mm x 225 mm cross 4 flanges
 105. 250 mm x 6200 mm Johnson irrigator screen one fl. one blanked-off end
 106. 225 mm blank flange - 2 bolts only
 107. 150 mm x 1700 mm long straight D.F.
 108. Galv. strap ex 50 mm x 6 mm plate
- Gillies dimensions used throughout, other Foundries acceptable, but some spacers could be required.
All flanges table D
Pipes can be C.1 med. galv. steel or bitumen lined steel
* Denotes supplied and installed by Portals

SCALE 1:20

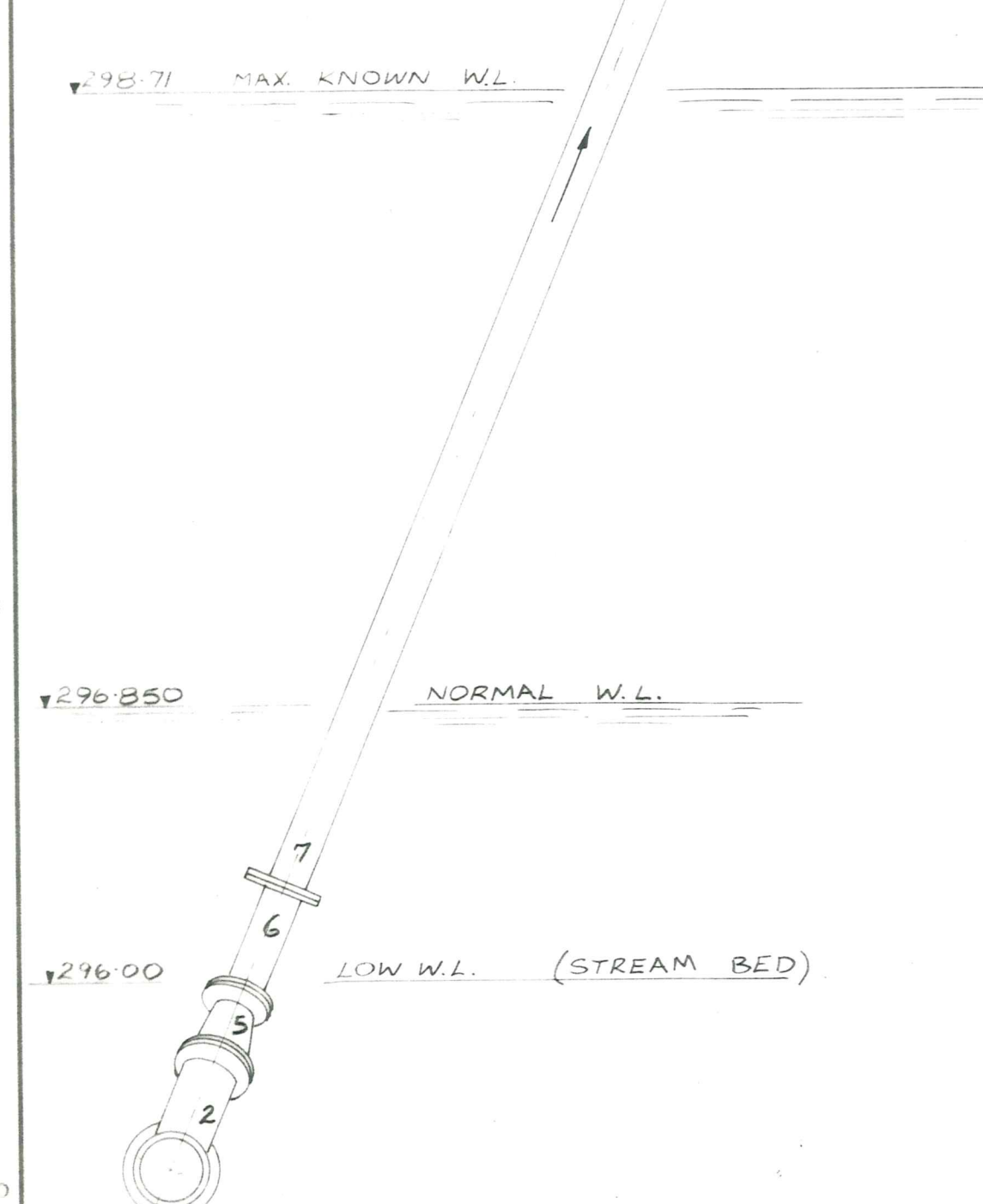
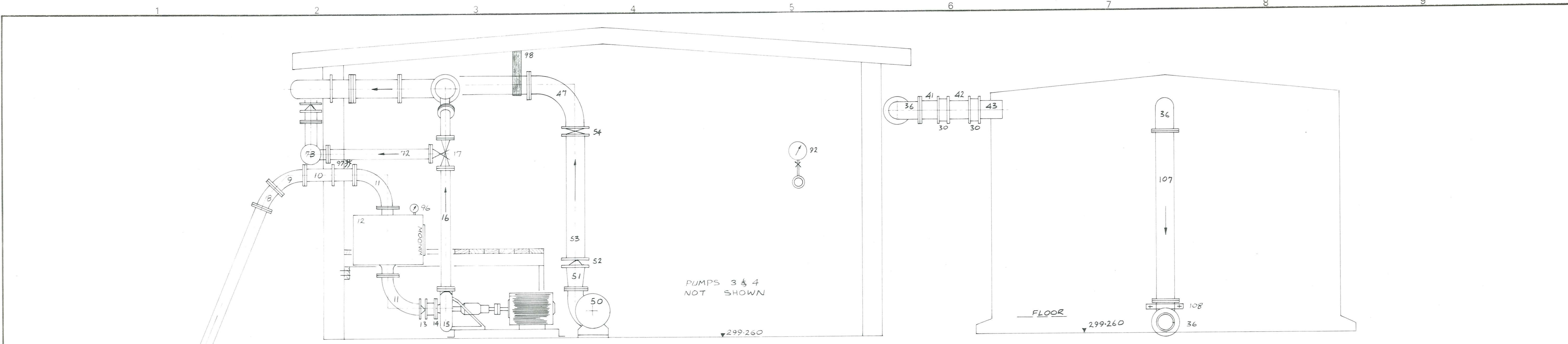
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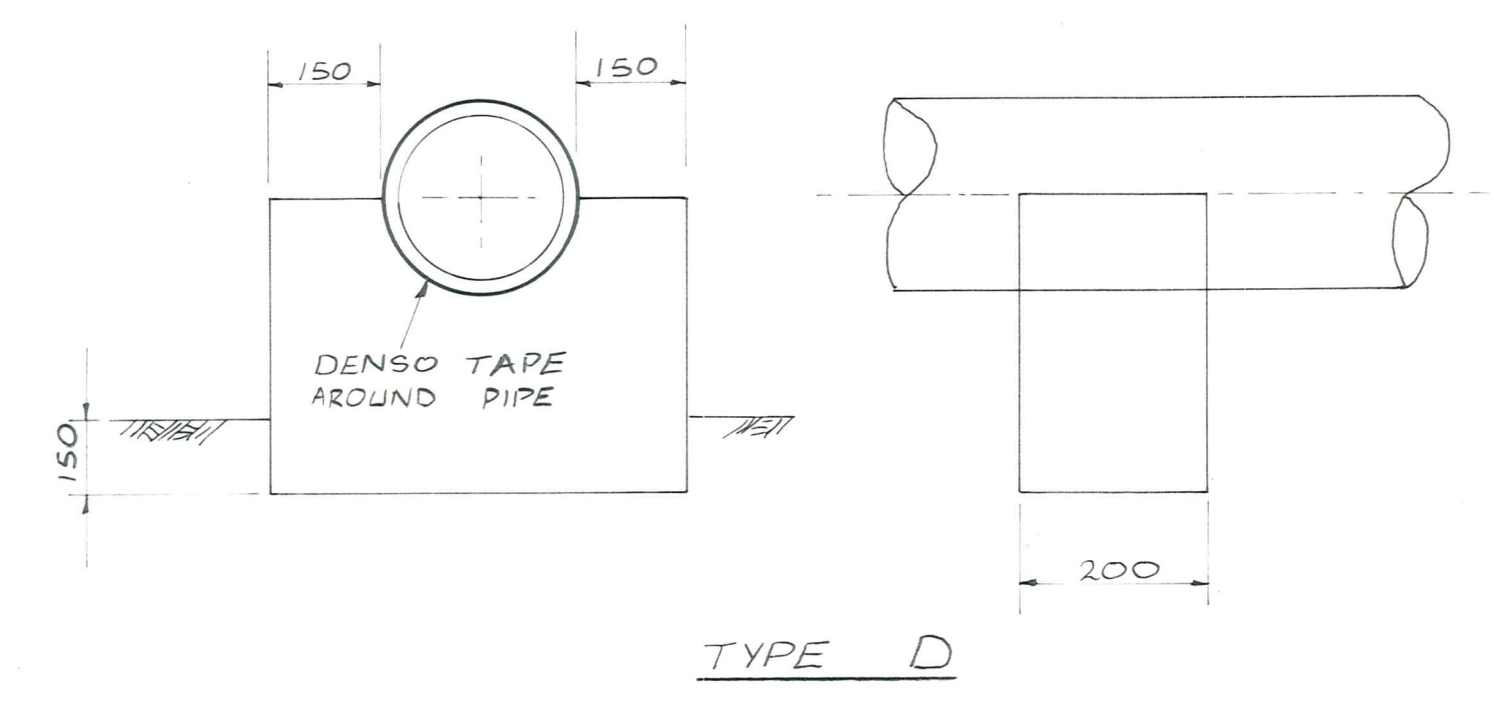
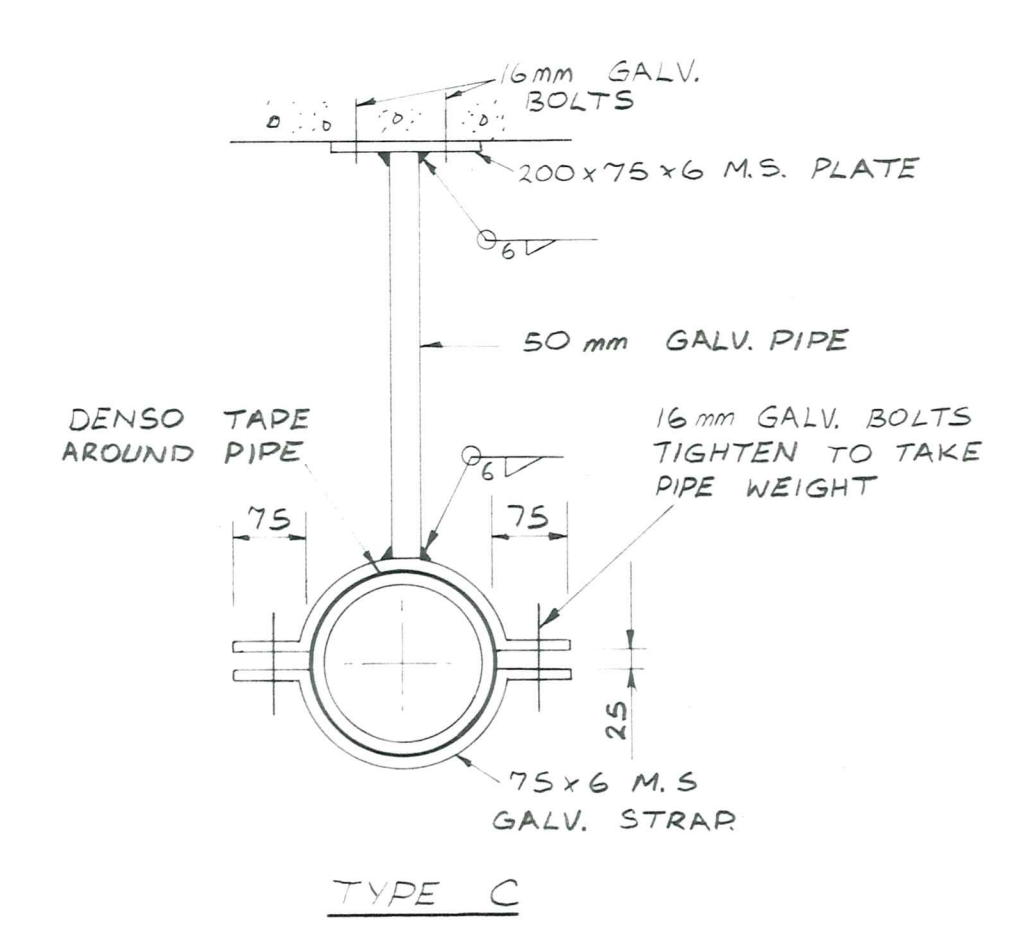
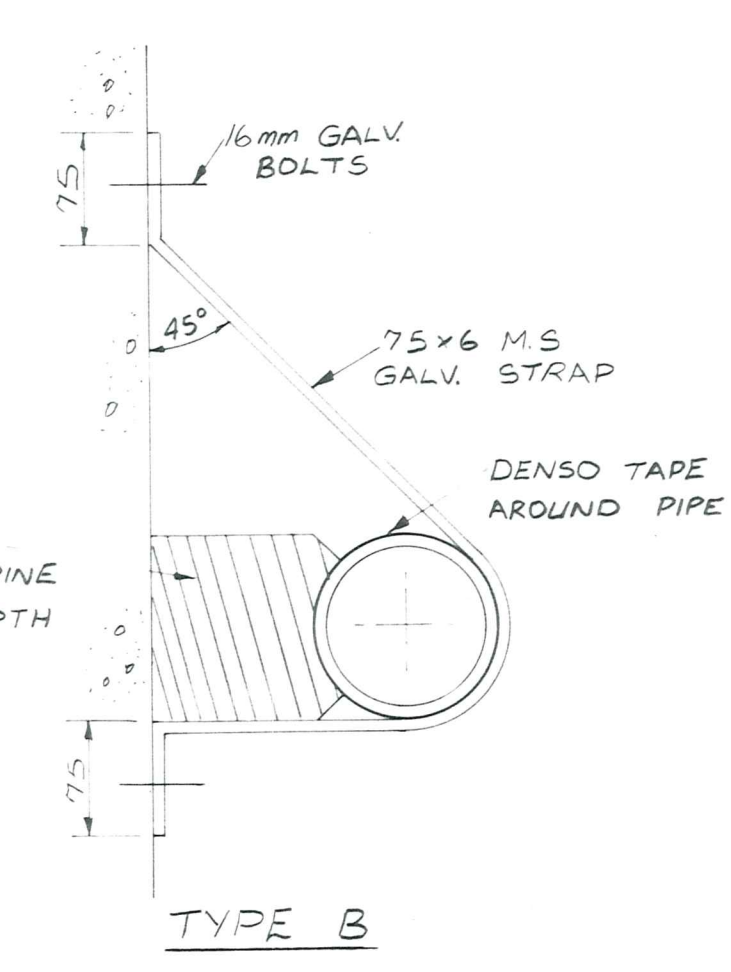
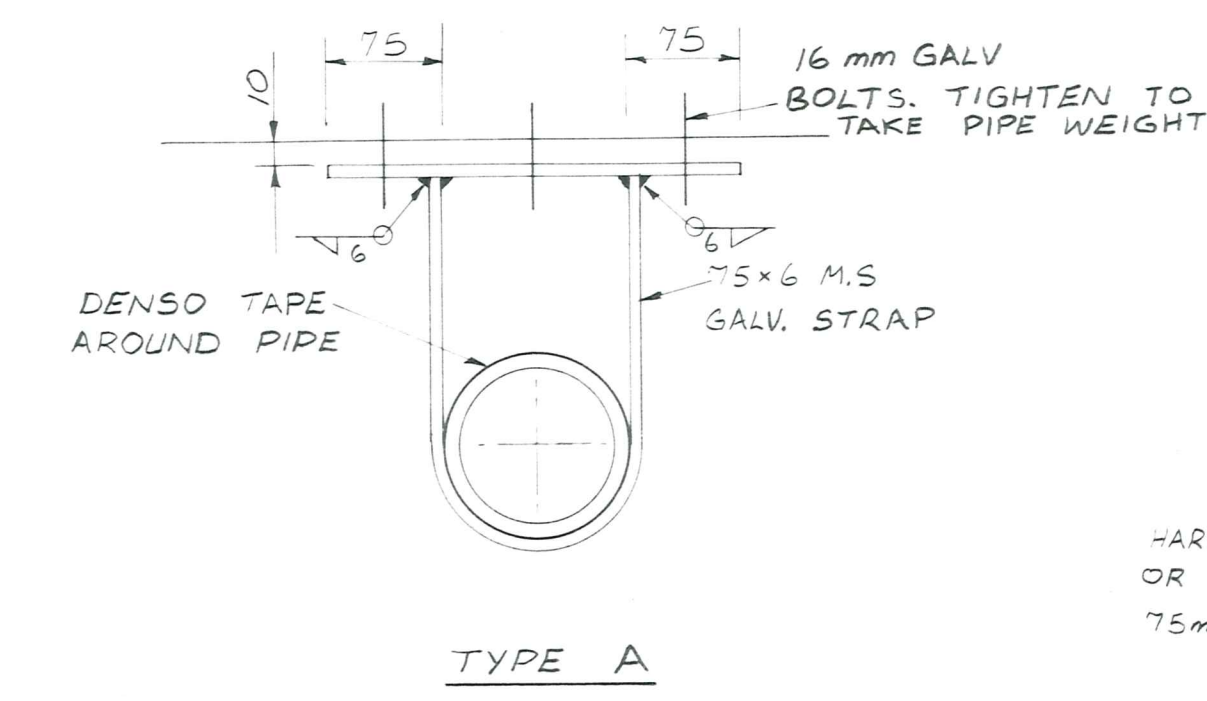
OMAKAU WATER SUPPLY PUMPHOUSE PIPEWORK

AMENDMENTS			NAME		DATE	JOB NO.	Sheet No
NO	BY	DATE	Appvd	Surveyed			
				G. GILLESPIE	AUG 1979	7087	6
				GR DUFF	"		
				Calculations	"		
				Traced	M. S. BLAKE	SEPT. "	
				Checked	GR DUFF	"	
				Approved	R. Watts	"	

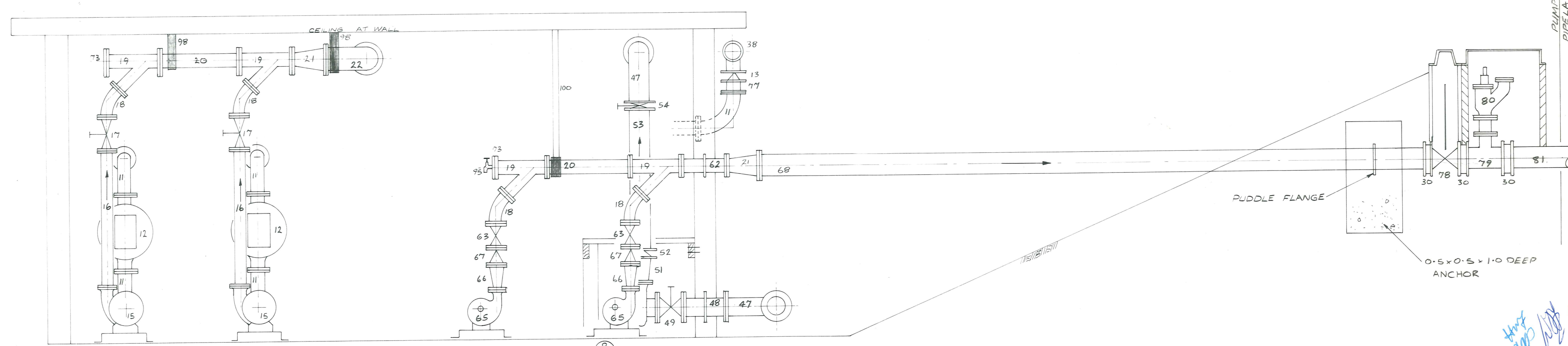
File 156 LB 365 F.B. —



SECTION A/6
SCALE 1:20



PIPE SUPPORT BRACKETS
N.T.S.



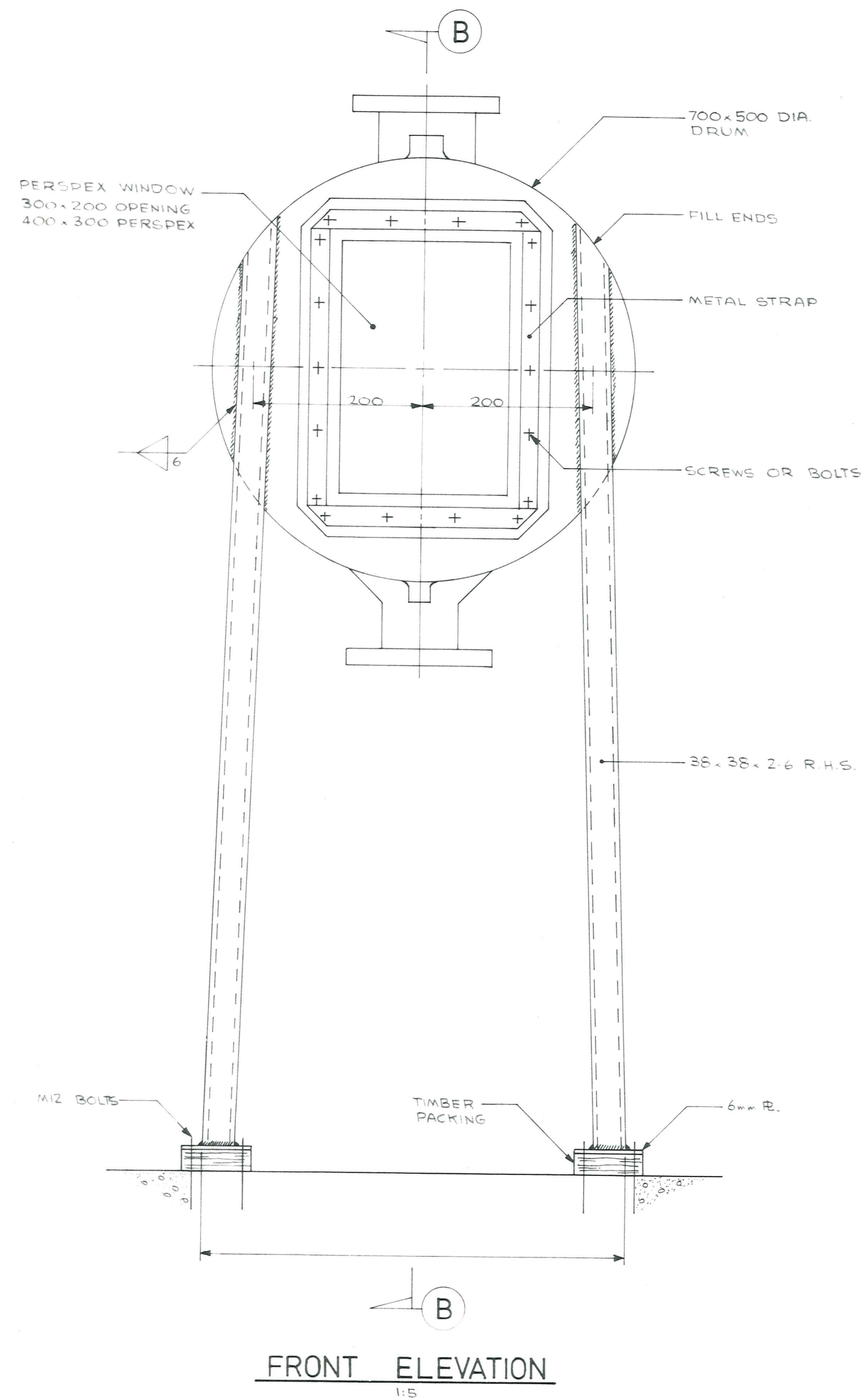
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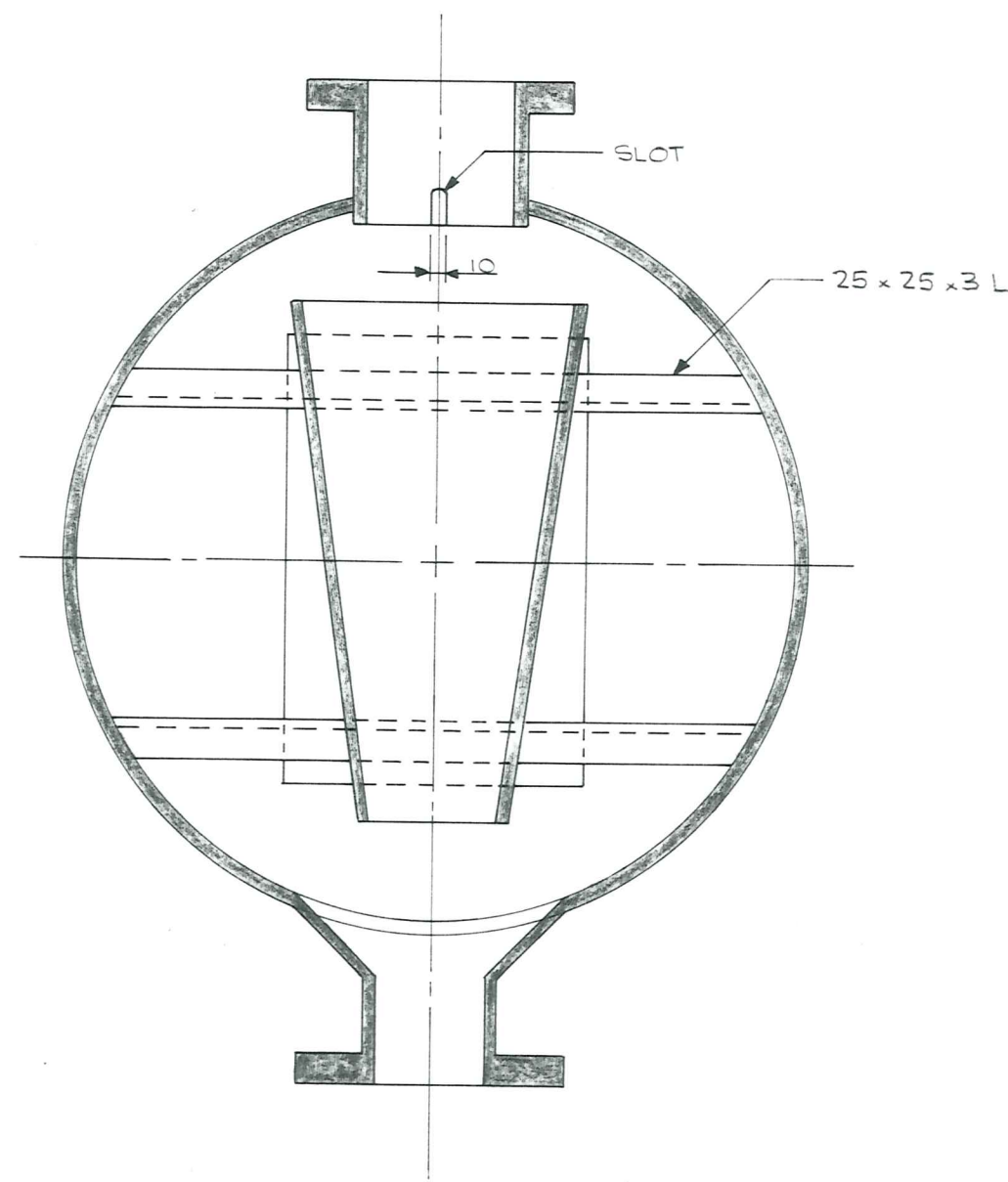
OMAKAU WATER SUPPLY
PUMPHOUSE PIPEWORK

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NO	BY	DATE	Appvd.	Surveyed	G. GILLESPIE	AUG 1979
				Drawn	G.R. DUFF	" "
				Calculations	" "	" "
				Traced	M.T. BLAKIE	SEPT "
				Checked	G.R. DUFF	" "
				Approved		" "
				File	156	L.B. 365
						F.B. —

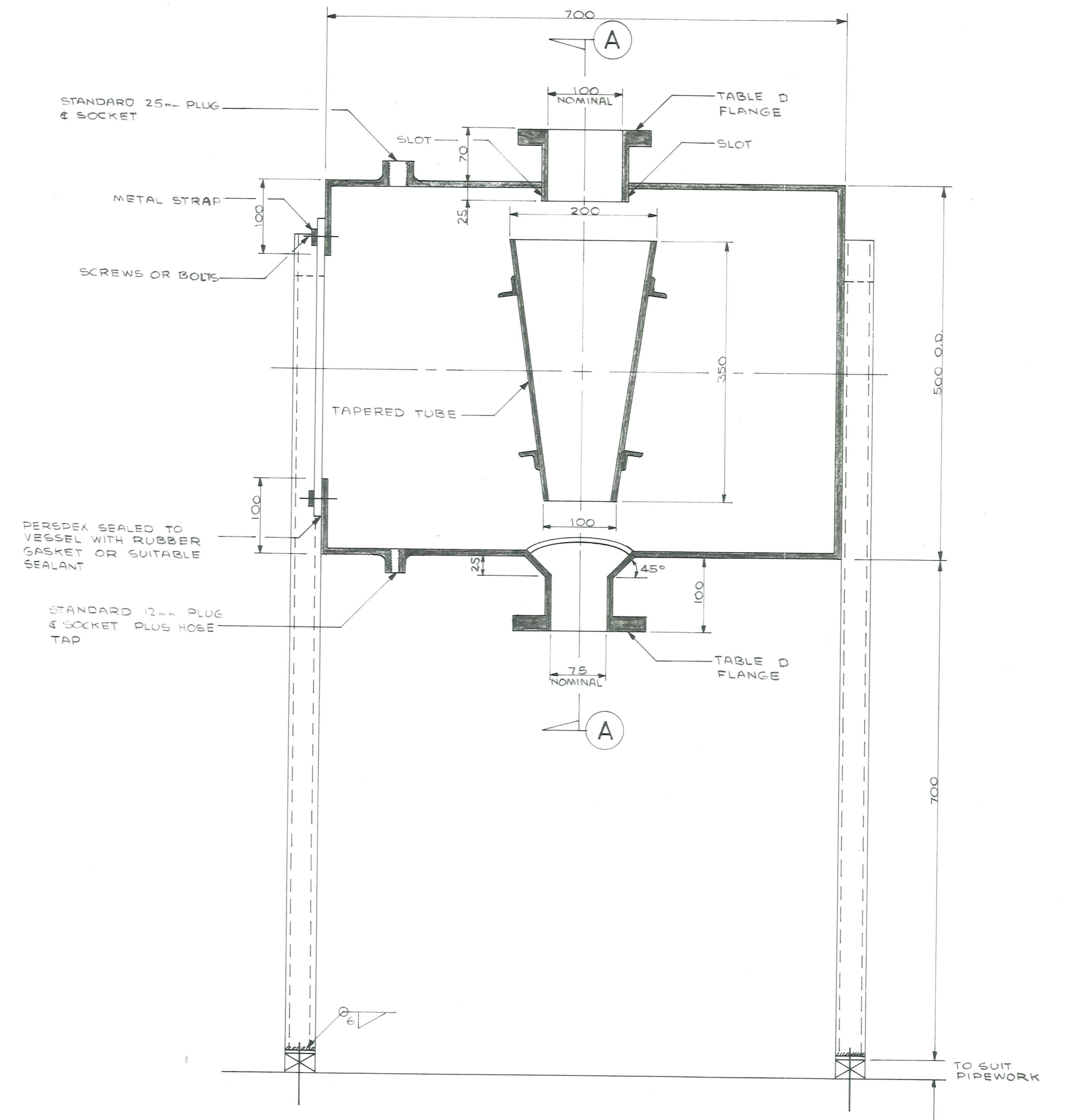
PUMPHOUSE PIPES



FRONT ELEVATION
1/5



SECTION A
1/5



SECTION B
1/5

SPECIFICATIONS

- MATERIALS** - 700x500 DIA. CYLINDER - MILD STEEL, MIN 3/16" THICK
 350 TAPERED TUBE - " " " " MIN 1/4"
 FLANGE NECKS - " " " " MIN 8g
 TAPERED TUBE SUPPORTS - " " " " 25x25x3 L
 WINDOW STRIPS - " " " " MIN 1/4"
 SCREWS & BOLTS - STAINLESS STEEL
 WINDOW - 10" PERSPEX
 LEGS - MILD STEEL, 38x38x2.6 R.H.S.
- PAINTING** - EXTERIOR SURFACES - 2 COATS INTERZINC
 INTERIOR SURFACES - 2 COATS INTERZINC
 PLUS FINAL WHITE ENAMEL
- TESTING** - PRIMING VESSEL MUST WITHSTAND 70% VACUUM. (-70 K.P.)

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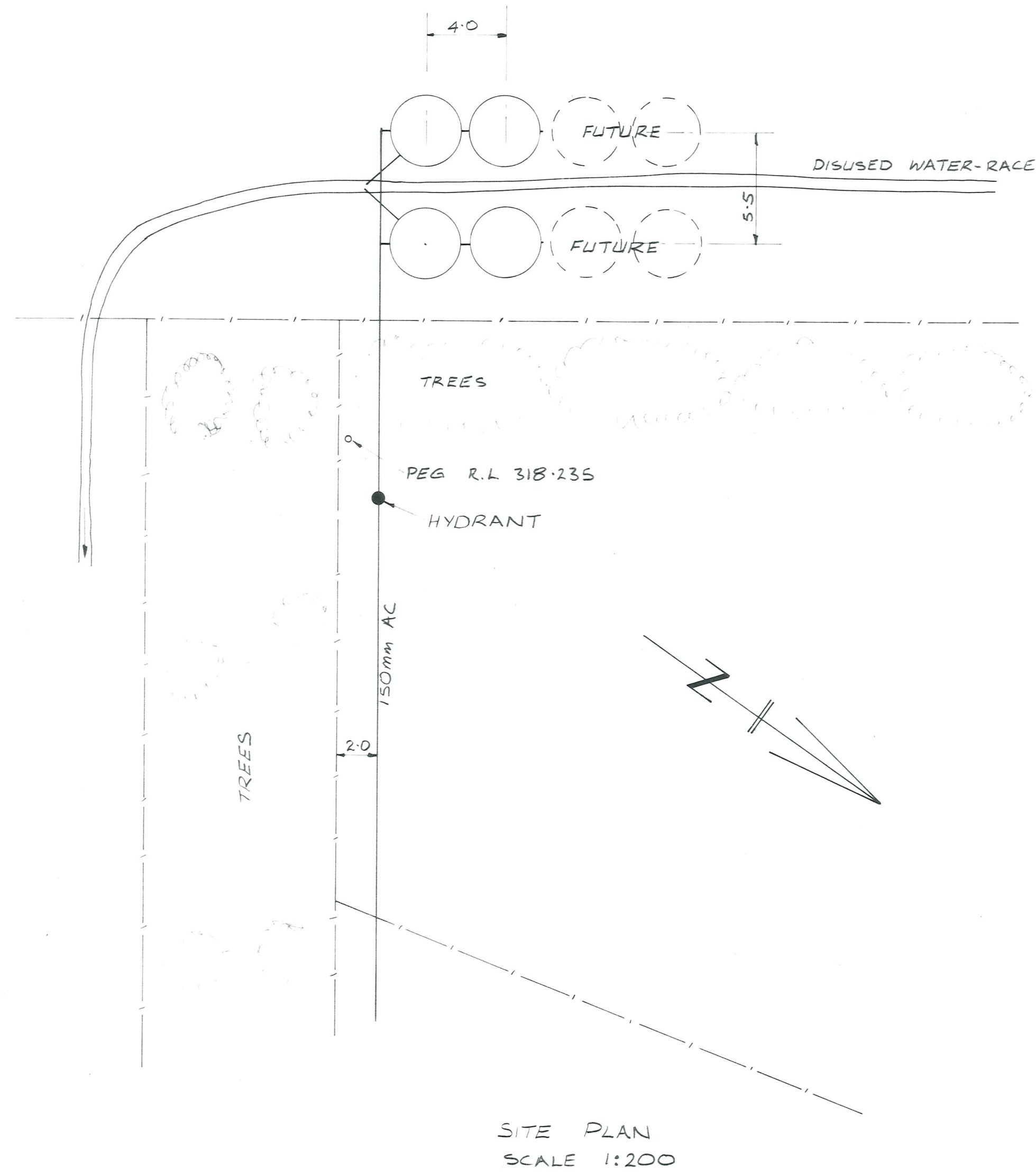
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OMAKAU WATER SUPPLY
 PRIMING VESSEL

AMENDMENTS				NAME	DATE	JOB NO.	Sheet No
NO.	BY	DATE	Appvd.				
				Surveyed			
				Drawn	G.R.D. & G.C.S.	SEPT. 79	8
				Calculations	G.R. DUFF	"	of 10 shts
				Traced	G.C. SUDDABY	"	
				Checked	G.R. DUFF	"	
				Approved		"	

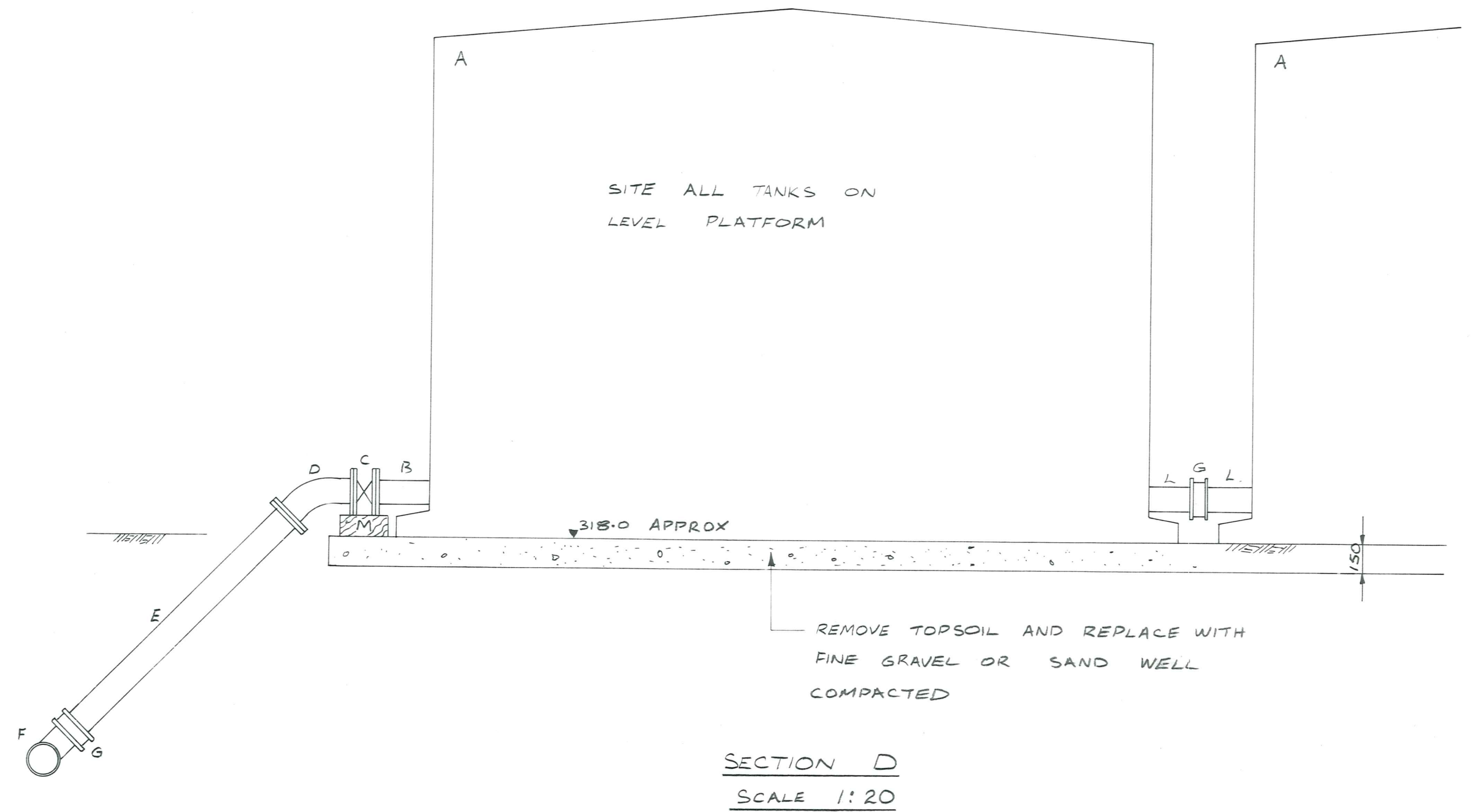
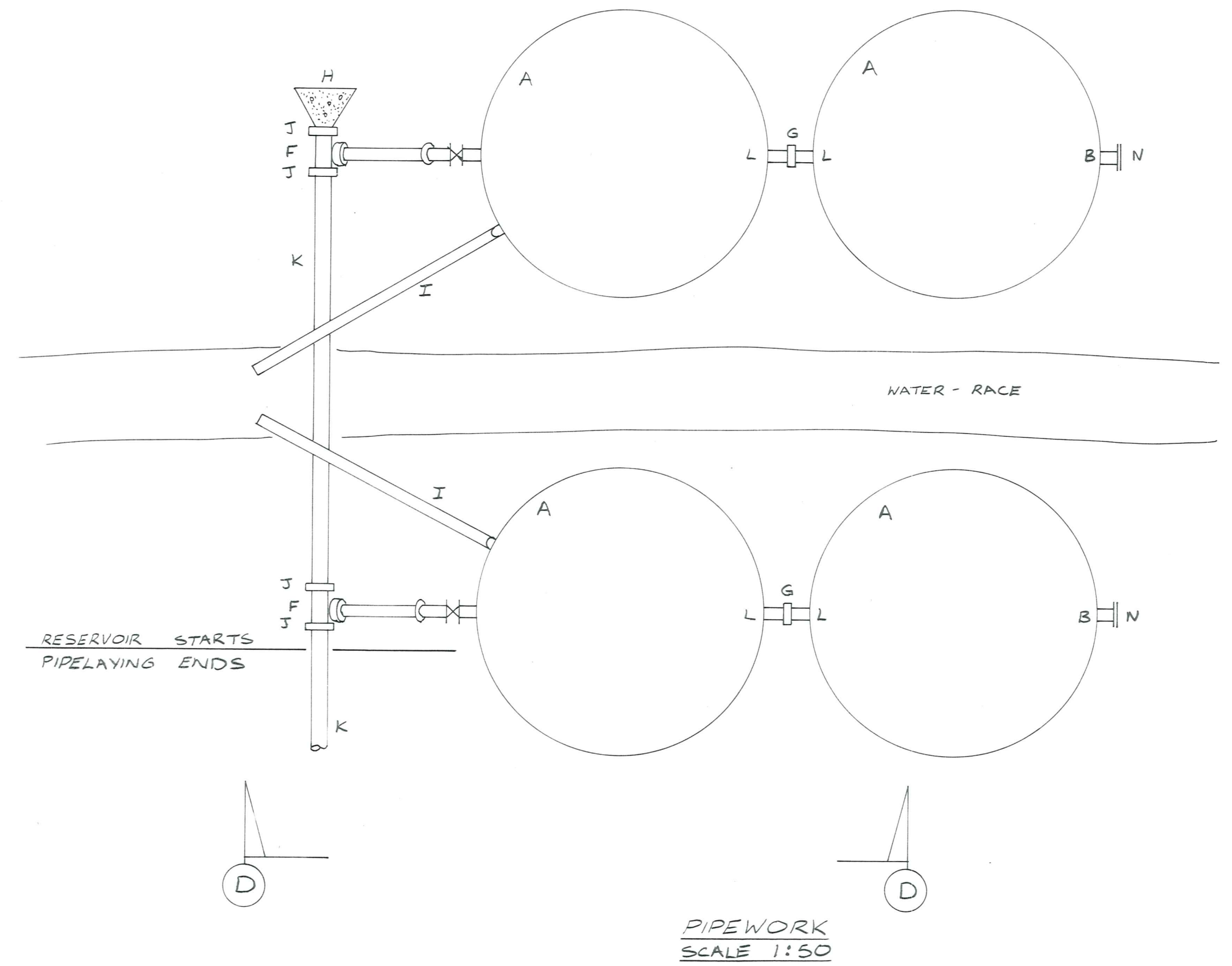
File 156 L.B. 365 F.B.

PRIMING VESSEL



CODE

- A. Standard 23 m³ Precast tanks
 - B. 100 mm x 500 mm straight one fl. only
 - C. 100 mm Blakeborough valve D.F.
 - D. 100 mm standard 45° bend D.F.
 - E. 100 mm x 1500 mm straight one fl. only
 - F. 150 mm x 100 mm Tee P.E.
 - G. 100 mm gibault joint
 - H. Conc. anchor block - 0.6 x 0.6 bearing area
 - I. 100 mm P.V.C. overflow strapped to tank with discharge to water race - min. cover 0.5 m
 - J. 150 mm gibault joint
 - K. 150 mm A.C. class D pipe
 - L. 100 mm x 500 mm straight P.E.
 - M. Tanalized timber support block
 - N. 100 mm blank flange
- NOTE: PIPES may be C.I. med. galv. steel or bitumen line steel.
All flanges table D.



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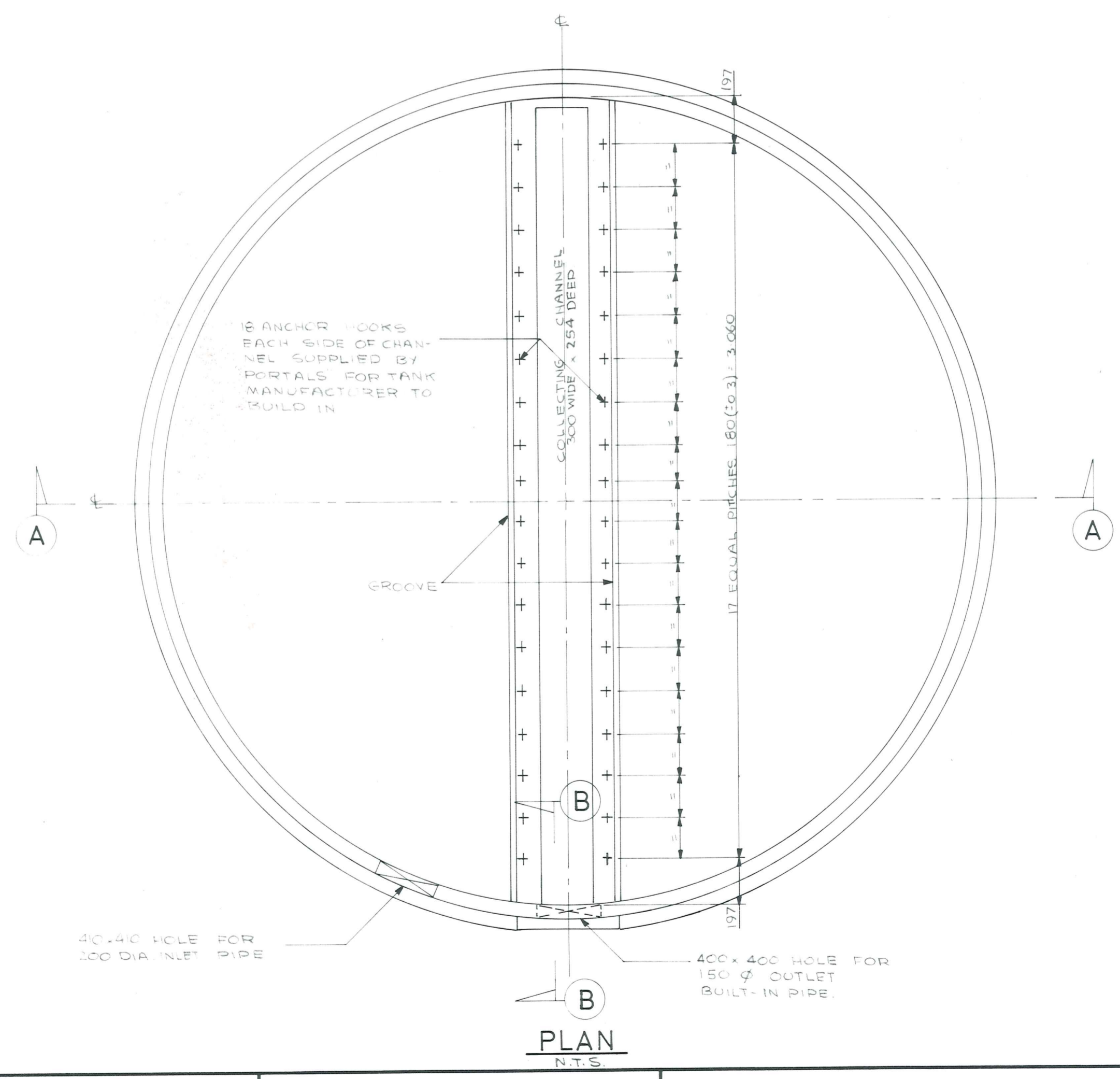
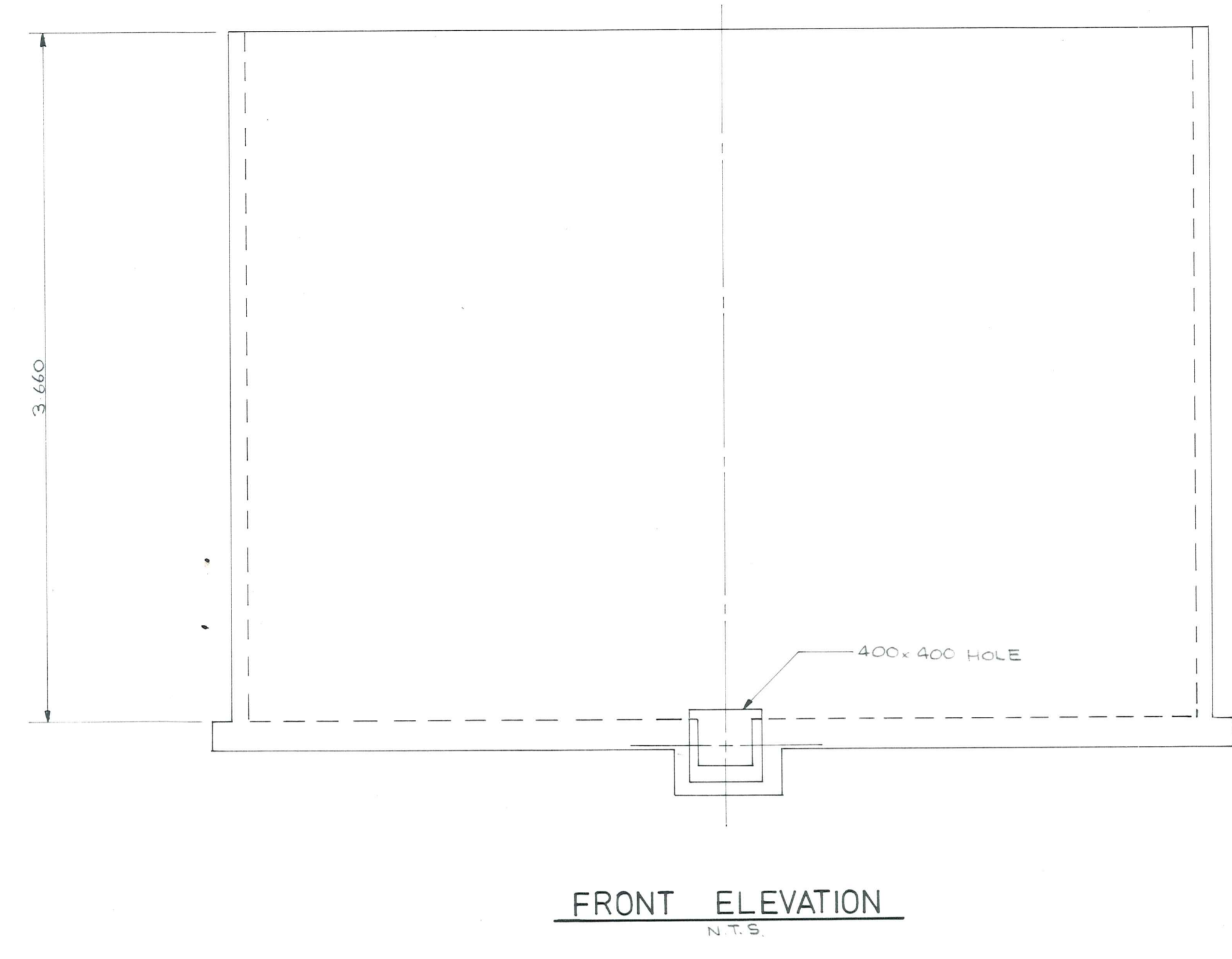
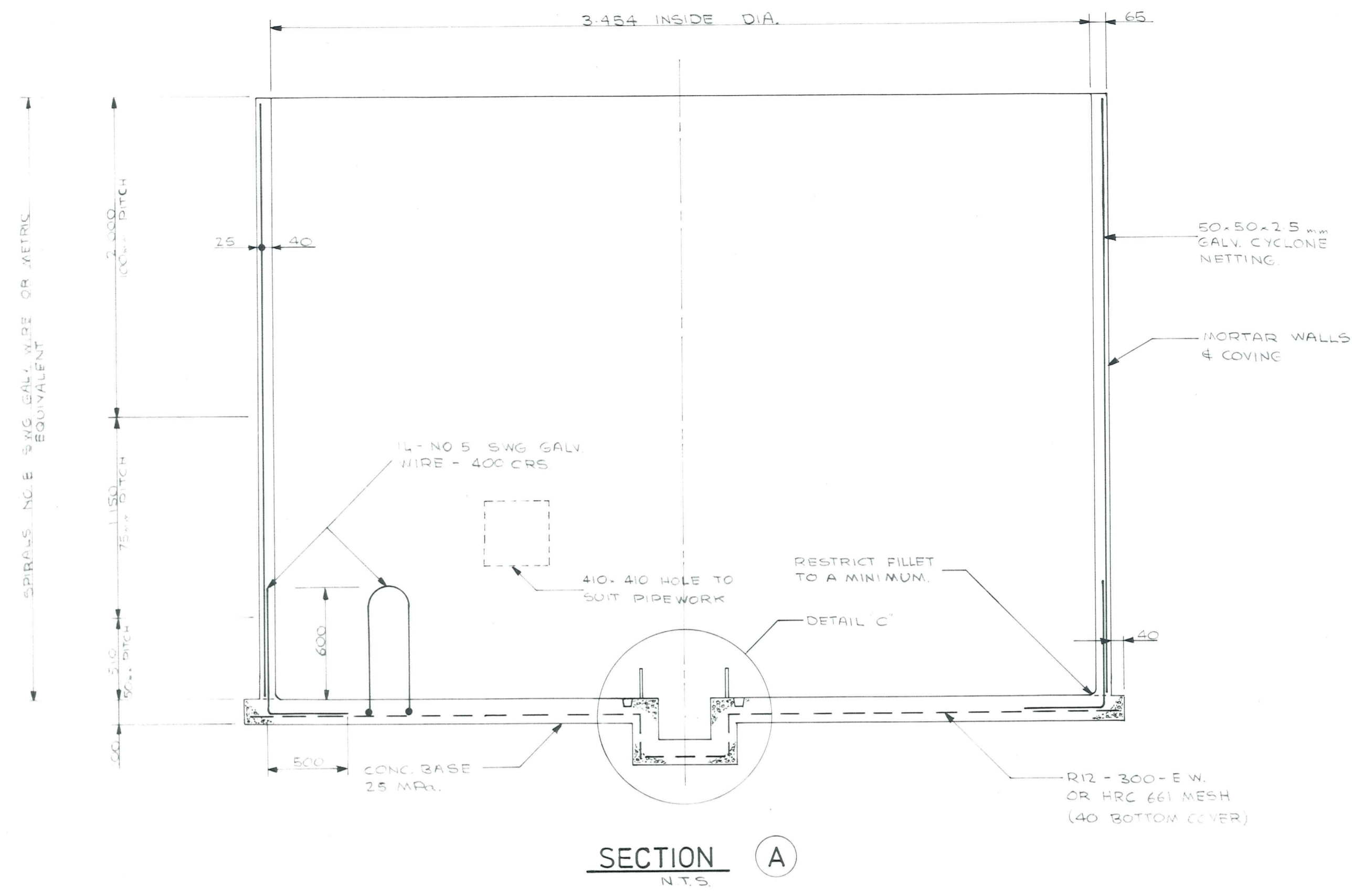
OMAKAU WATER SUPPLY
RESERVOIR DETAILS

AMENDMENTS				NAME	DATE	JOB NO.	Sheet No
NO.	BY	DATE	Appvd.	Surveyed	G.GILLESPIE	AUG 1979	9
				Drawn	S.R. DUFF	" "	
				Calculations	" "	" "	
				Traced	M.J. BLAKIE	SEPT "	
				Checked	S.R. DUFF	" "	
				Approved	(Signature)	" "	

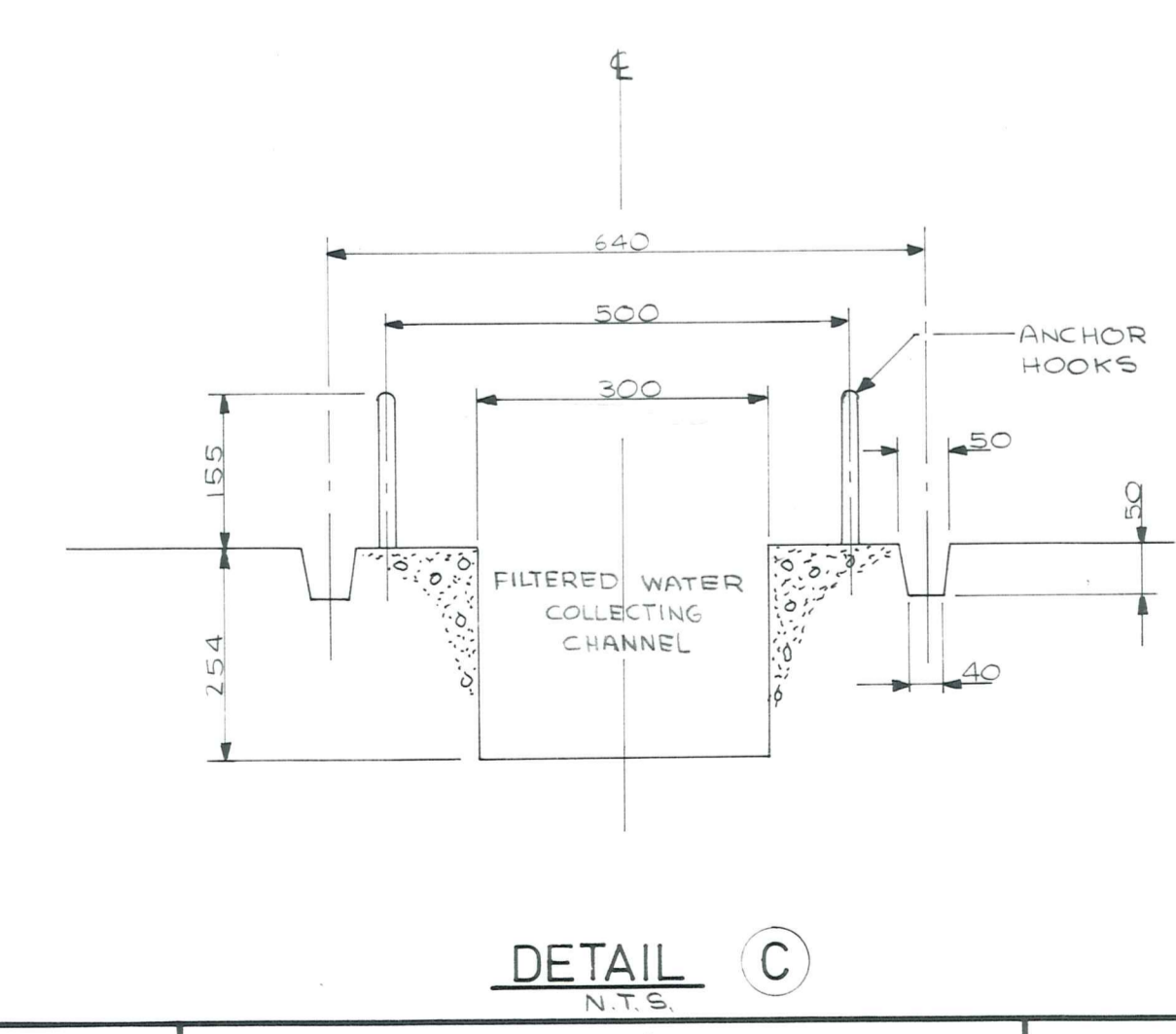
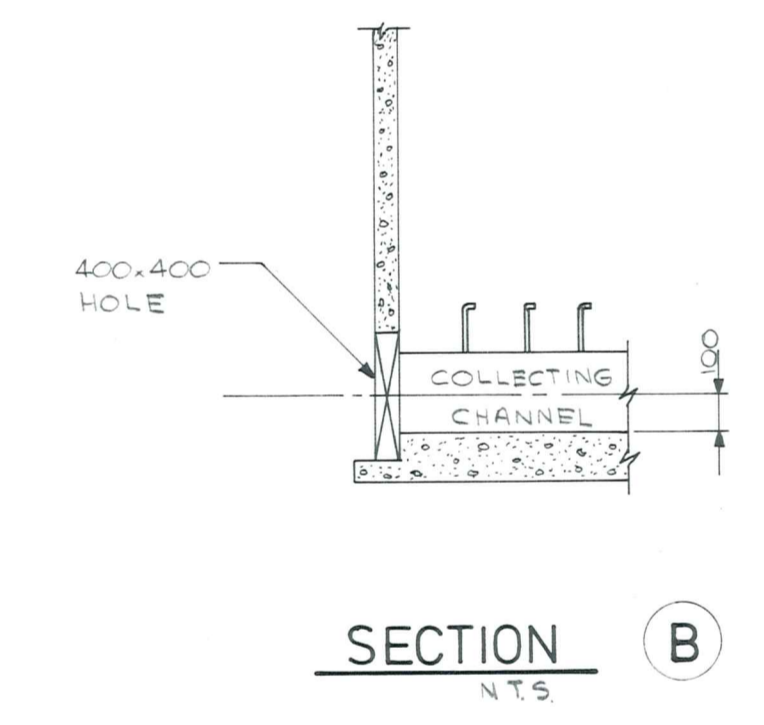
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RESERVOIR

Handwritten note: HAVE THE WORK DONE



NOTE:
FURTHER DETAILS ON
THE RECEIPT OF PORTALS
DRAWINGS.



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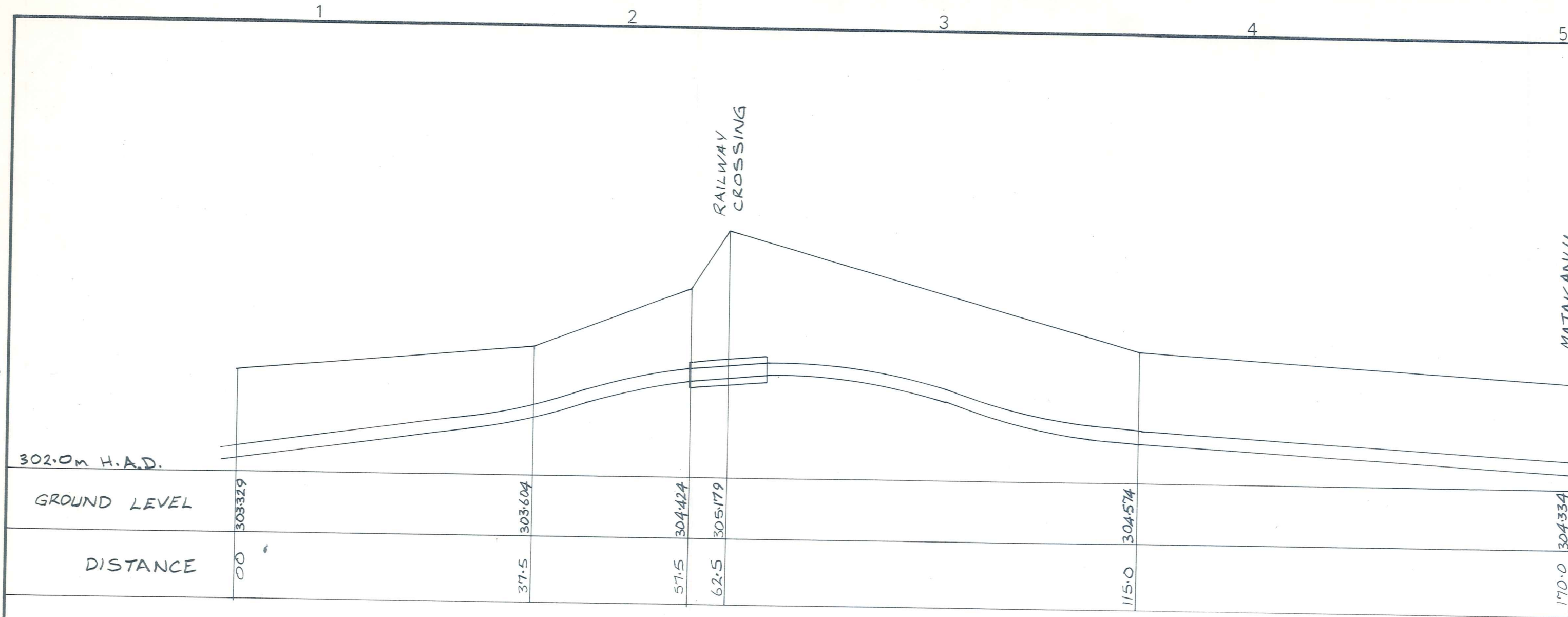
OMAKAU WATER SUPPLY
FILTER

AMENDMENTS			NAME		DATE	JOB NO.	Sheet No	
NO.	BY	DATE	Appvd.	Surveyed		7087	10 of 10 shts	
				Drawn	G.C. SODDABY			SEPT '79
				Calculations	J.R. WATTS			"
				Traced	G.C. SODDABY			SEPT '79
				Checked	G.R. DUFF			"
				Approved		"		
						File 156	L.B. 365	F.B.

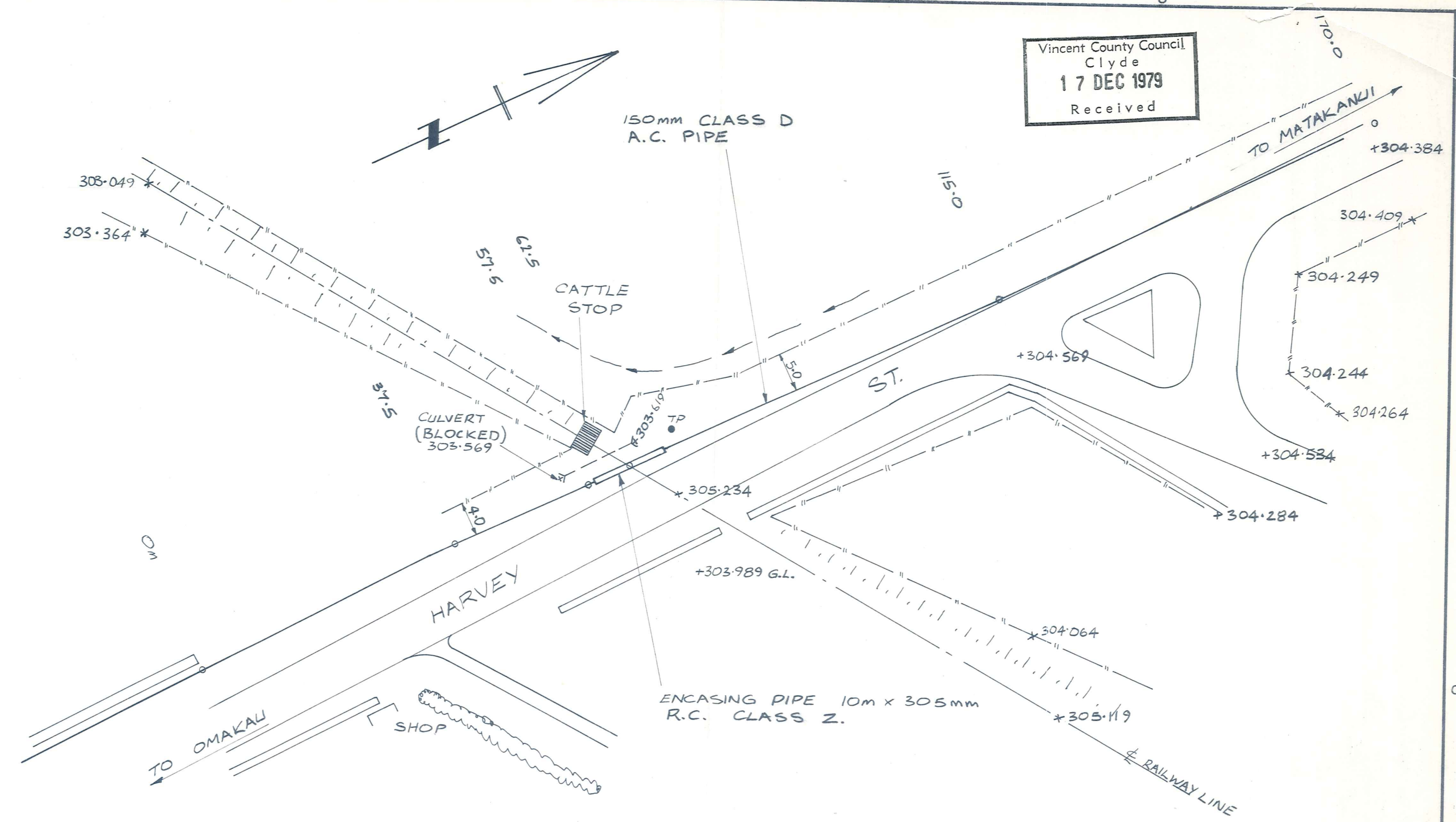
FILTER

ORIGINAL SIZE INCHES

Handwritten signatures and initials in blue ink.



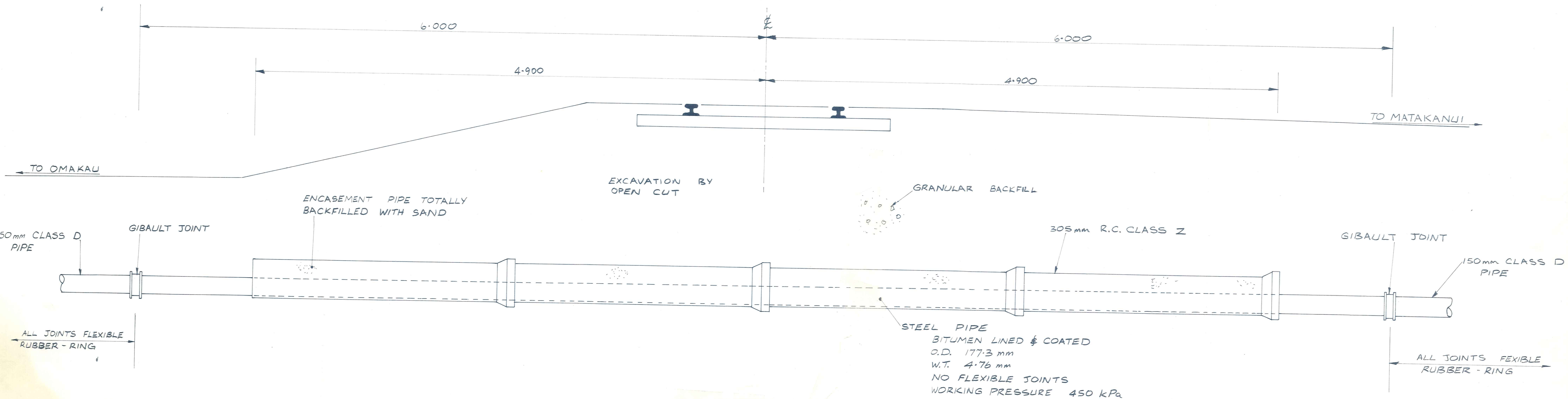
LONGITUDINAL SECTION
 SCALES: HORIZ. 1:500
 VERT. 1:50



PLAN
 SCALE: 1:500

Vincent County Council
 Clyde
 17 DEC 1979
 Received

DATUM: M.W.D. B.M. 0375
 R.L. 300.008 m



CROSS SECTION AT RIGHT ANGLES
 TO PIPELINE
 SCALE 1:200

ORIGINAL SIZE
 mm INCHES

DUFFILL WATTS & KING LTD
 CONSULTING CIVIL & STRUCTURAL ENGINEERS
 Dunedin PO Box 5269 Ph 777-133 Invercargill PO Box 576 Ph 83-049
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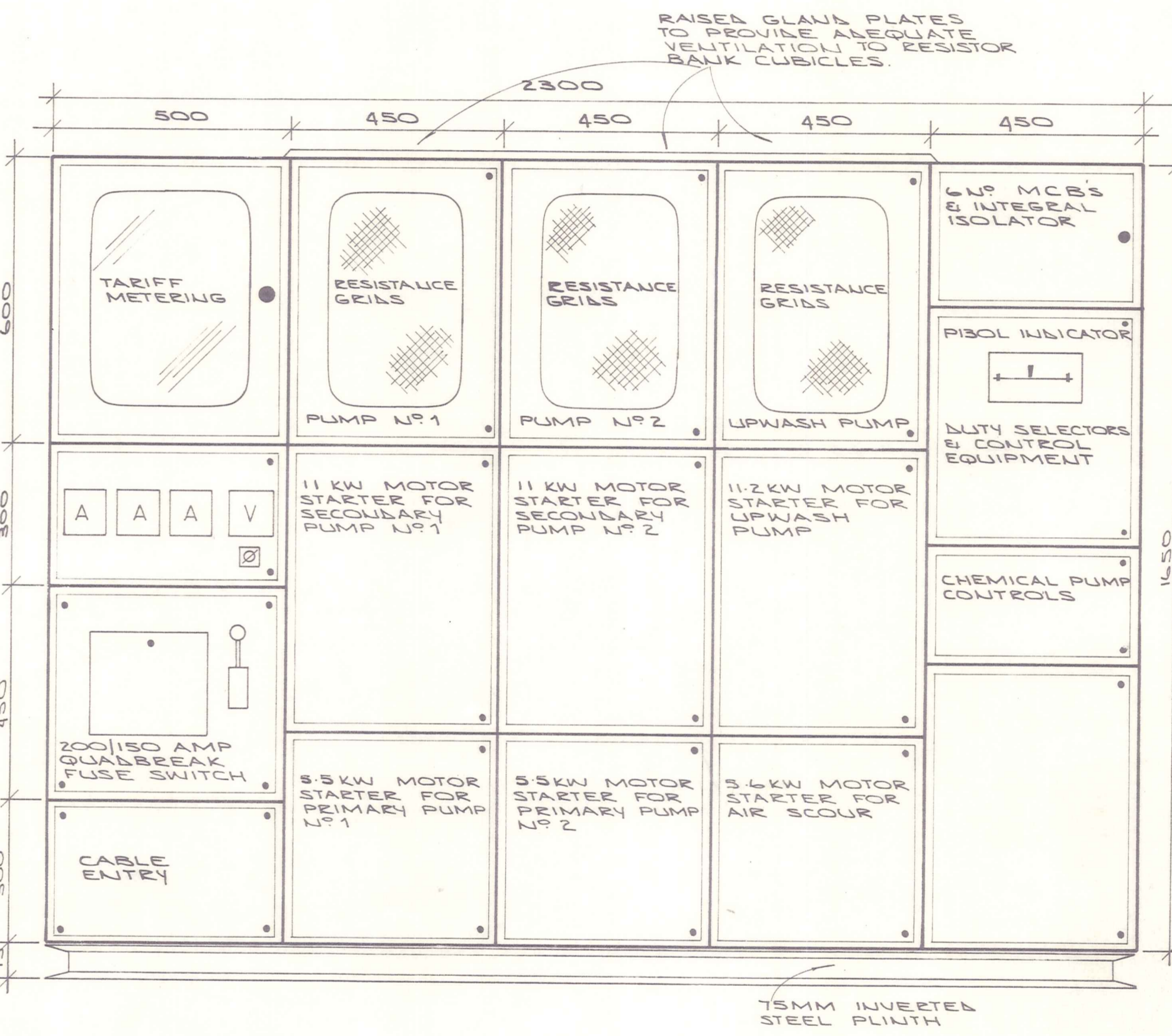
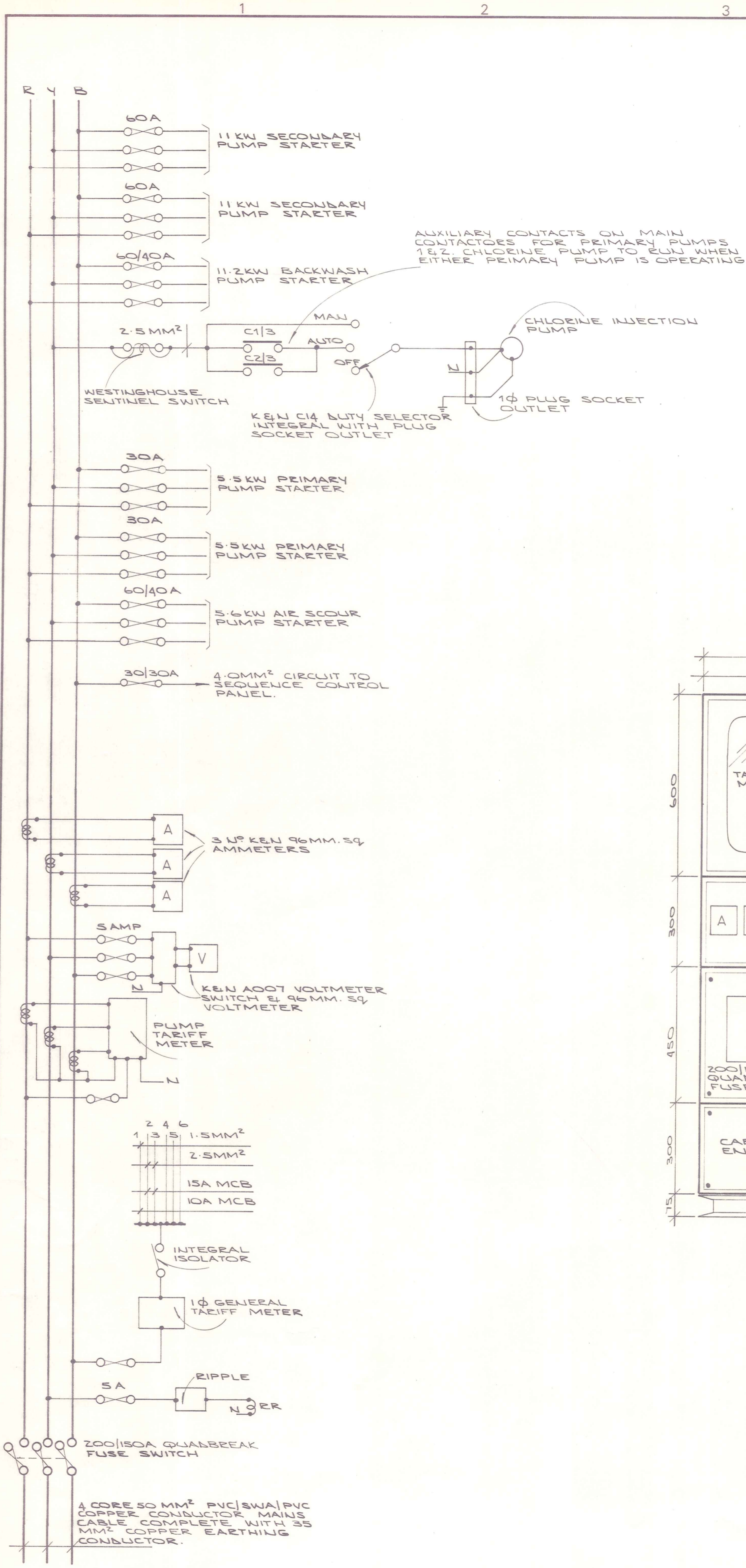
VINCENT
 COUNTY COUNCIL

OMAKAU WATER SUPPLY
 RAILWAY CROSSING

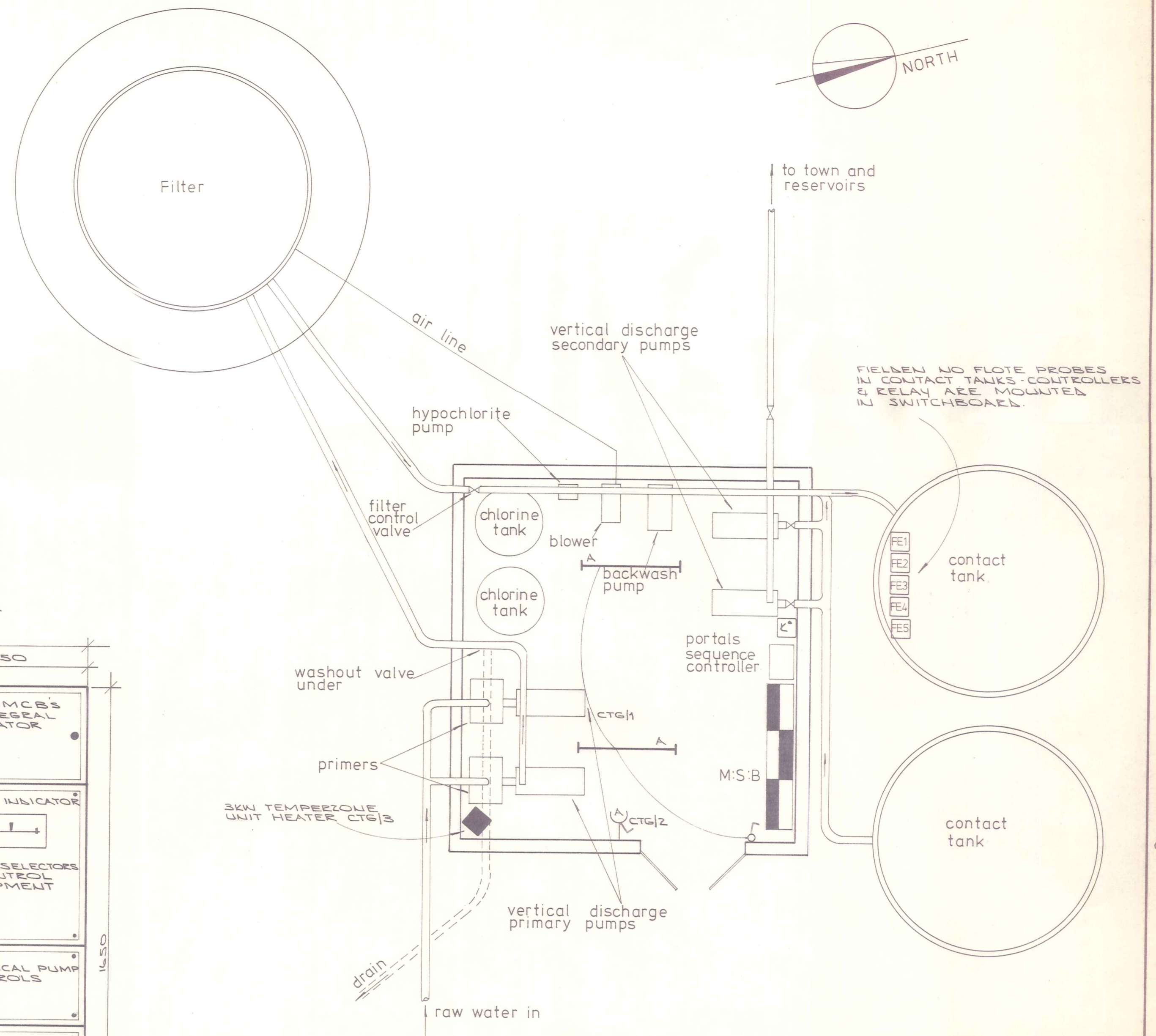
AMENDMENTS		
NO.	BY	DATE

NAME	DATE
G. GILLESPIE	OCT 1979
G. R. DUFF	"
"	"
M. J. BLAKIE	DEC. "
G. R. DUFF	"
"	"

JOB NO.	Sheet No
7087	11
of shts	F.B.
File 156	L.B. V.C.C. 365



MAIN SWITCHBOARD SCALE 1:10 400mm deep



LAYOUT SCALE 1:50

NOMENCLATURE	
FE1	PROBE IN CONTACT TANK TO STOP SECONDARY PUMPS ON LOW LEVEL
FE2	PROBE IN CONTACT TANK TO RESTART SECONDARY PUMPS ON LEVEL RISE 0.3M ABOVE FE1.
FE3	NO FLOTE PROBE IN CONTACT TANK TO START PRIMARY DUTY PUMP
FE4	NO FLOTE PROBE IN CONTACT TANK TO STOP PRIMARY PUMPS WHEN TANKS ARE FULL
FE5	NO FLOTE PROBE IN CONTACT TANK TO START PRIMARY STANDBY PUMP.

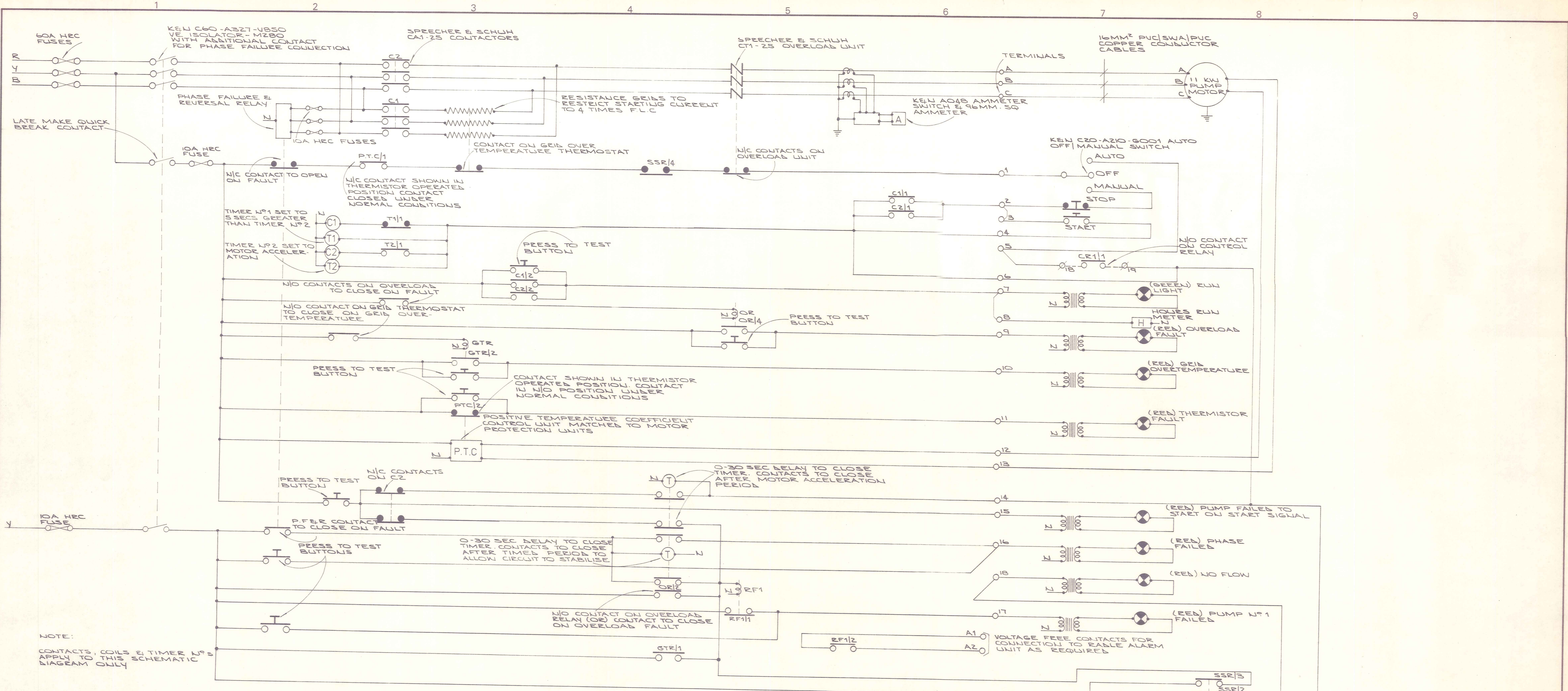
DUFFILL WATTS & KING LTD
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Dunedin P.O.Box 5269 Ph. 777-133 Invercargill P.O.Box 576 Ph. 83-049
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PEDERSEN & PARTNERS
CONSULTING ELECTRICAL ENGINEERS
P.O. BOX 5258 DUNEDIN

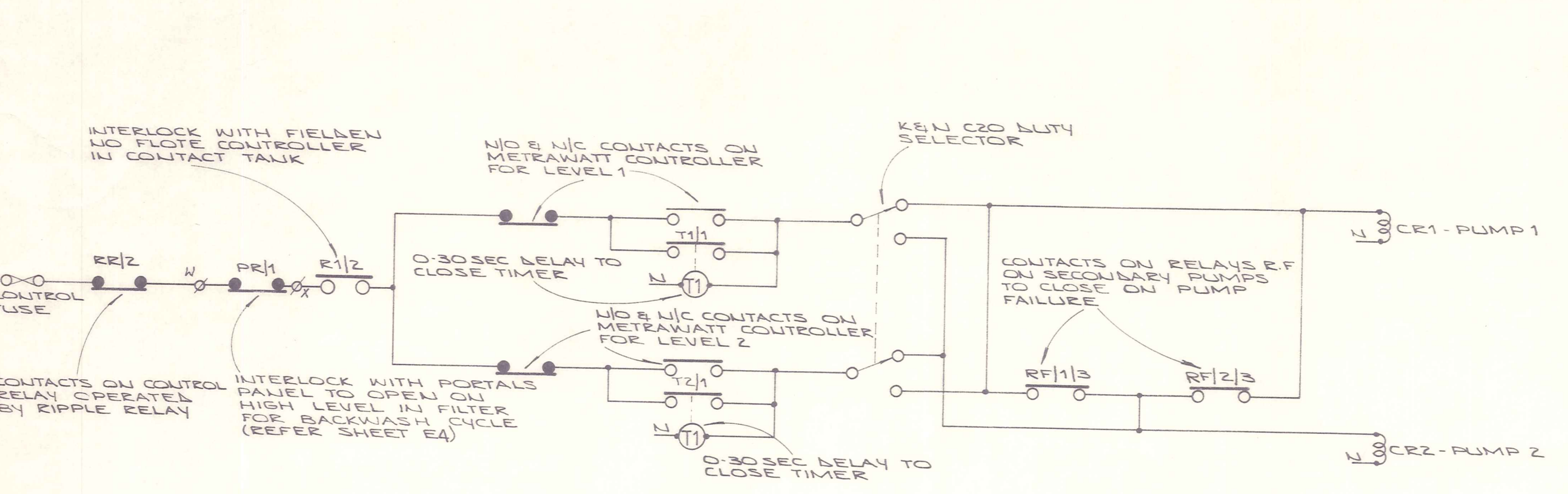
VINCENT
COUNTY COUNCIL

OMAKAU WATER SUPPLY
ELECTRICAL SERVICES

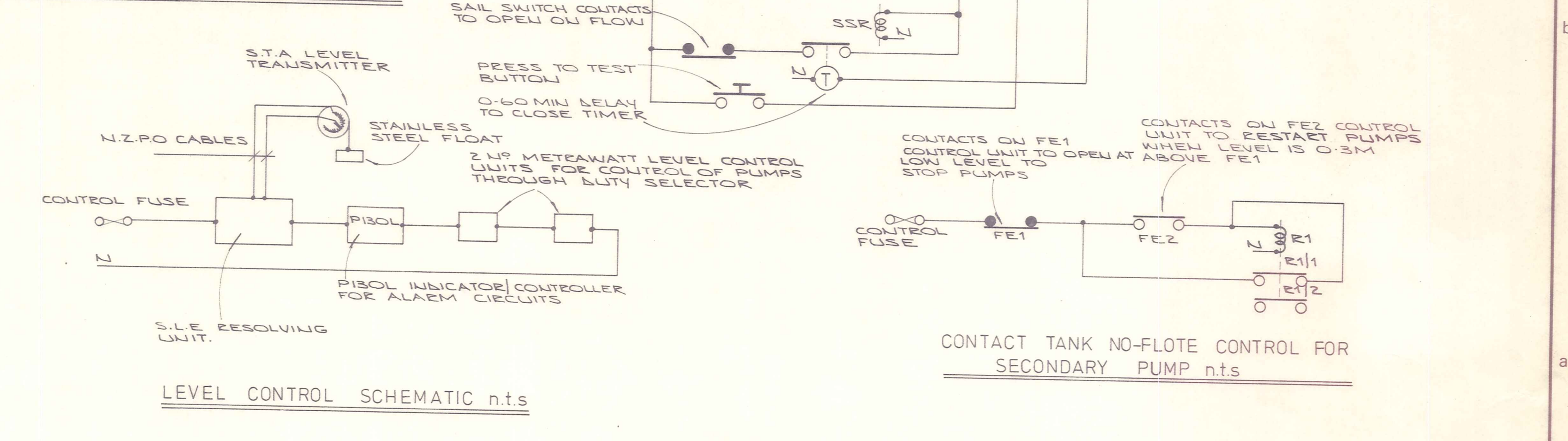
AMENDMENTS			NAME	DATE	JOB NO.	Sheet No
NO.	BY	DATE	Appvd.	Surveyed	7087	E1
			Drawn	SEPT '79		
			Calculations			
			Traced			
			Checked			
			Approved		File	L.B.



SCHMATIC DIAGRAM FOR 11kW PRIMARY RESISTANCE MOTOR STARTER FOR SECONDARY PUMPS (2 No. reqd.)

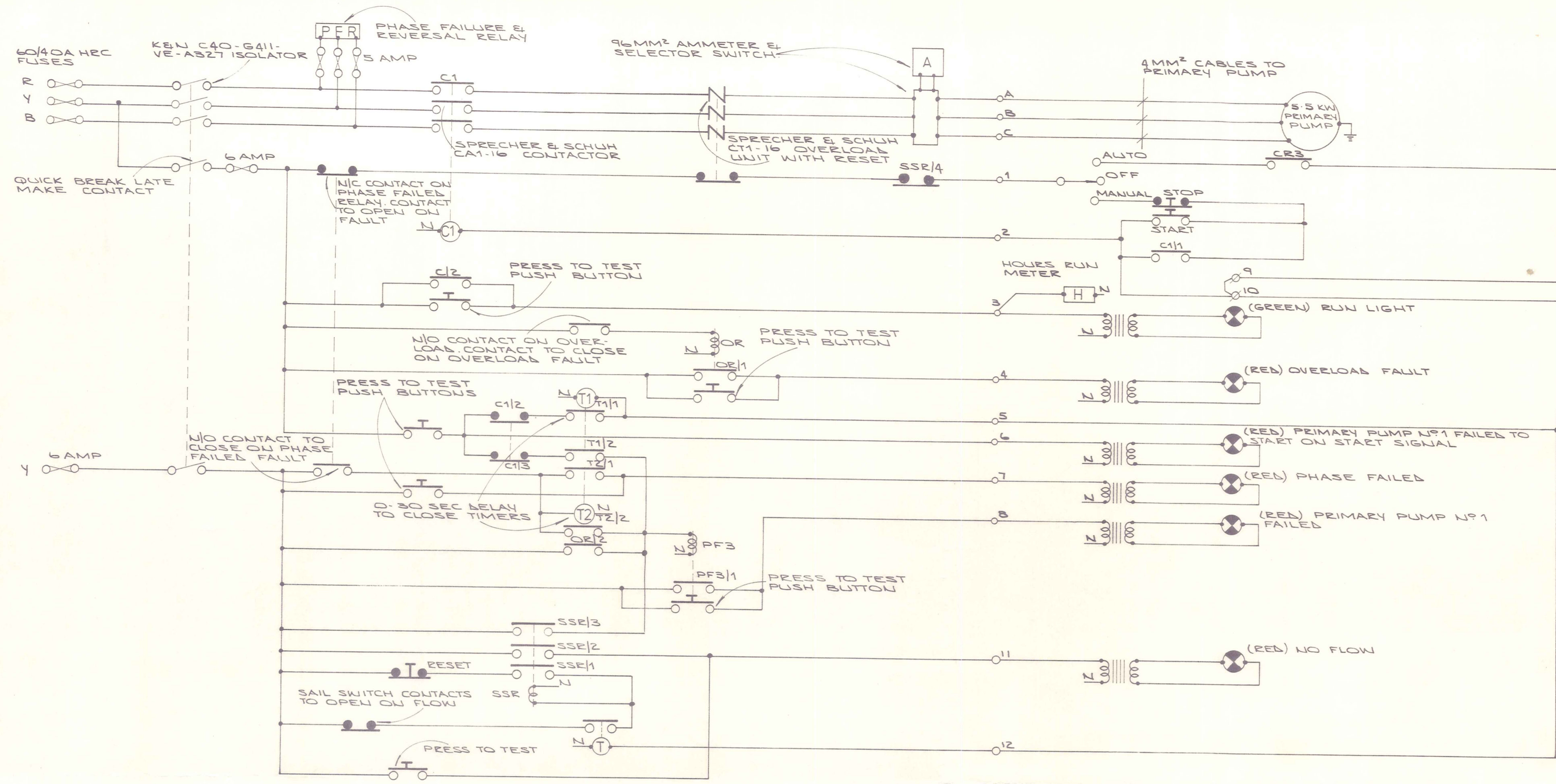


DUTY SELECTOR CIRCUIT FOR SECONDARY PUMPS n.t.s

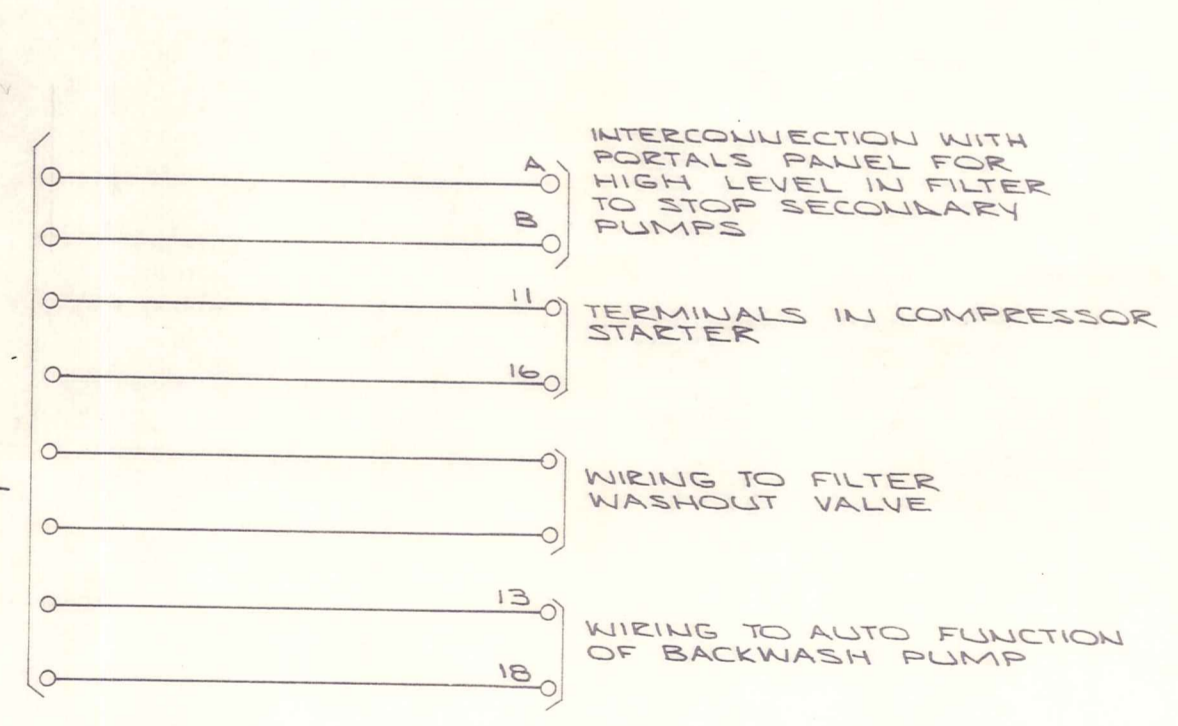


LEVEL CONTROL SCHEMATIC n.t.s

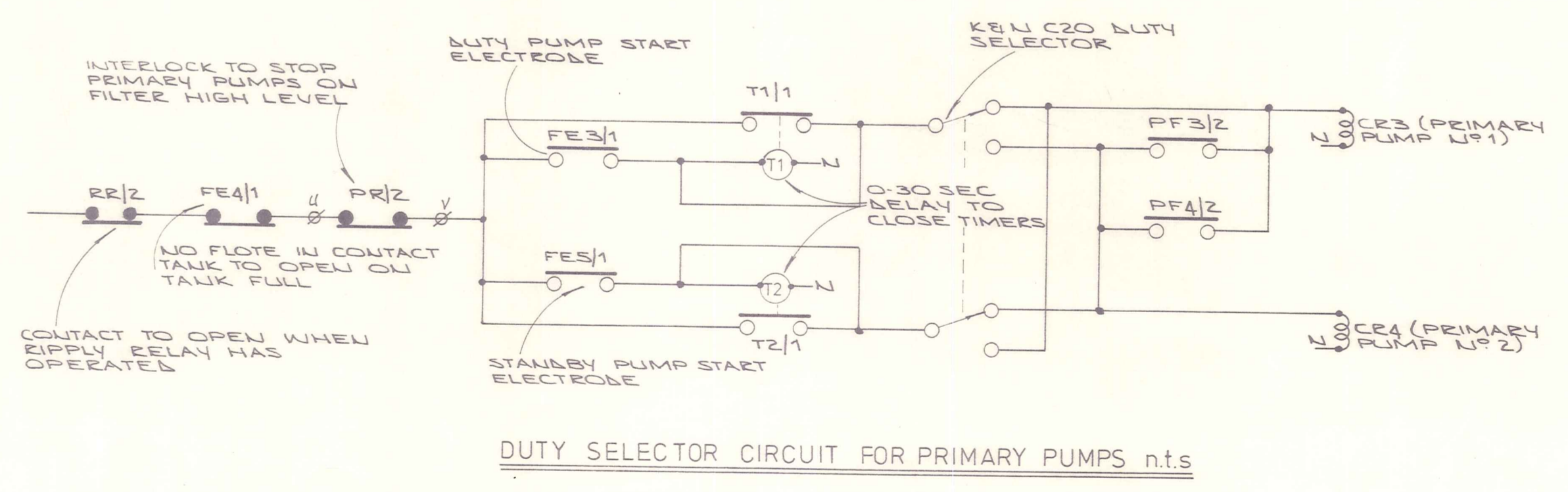
CONTACT TANK NO-FLOTE CONTROL FOR SECONDARY PUMP n.t.s



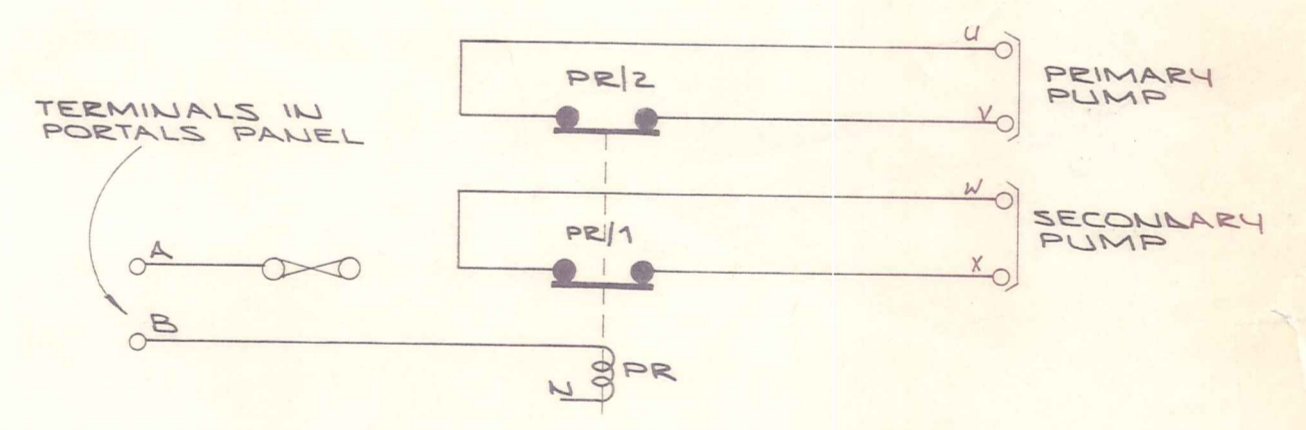
SCHEMATIC DIAGRAM FOR 55kW PRIMARY PUMP STARTER
(starter for primary pump no.2 is similar)



DETAILS OF PORTALS CONNECTIONS
n.t.s



DUTY SELECTOR CIRCUIT FOR PRIMARY PUMPS n.t.s



FILTER HIGH LEVEL STOP FOR PRIMARY & SECONDARY PUMPS n.t.s

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VINCENT
COUNTY COUNCIL

OMAKAU WATER SUPPLY
ELECTRICAL SERVICES

AMENDMENTS				NAME	DATE
NO.	BY	DATE	Appvd.		
				Richardson	SEPT '79
				Richardson	
				Richardson	

JOB NO.	Sheet No
7087	E4
File	of 4 shrs
L.B.	F.B.