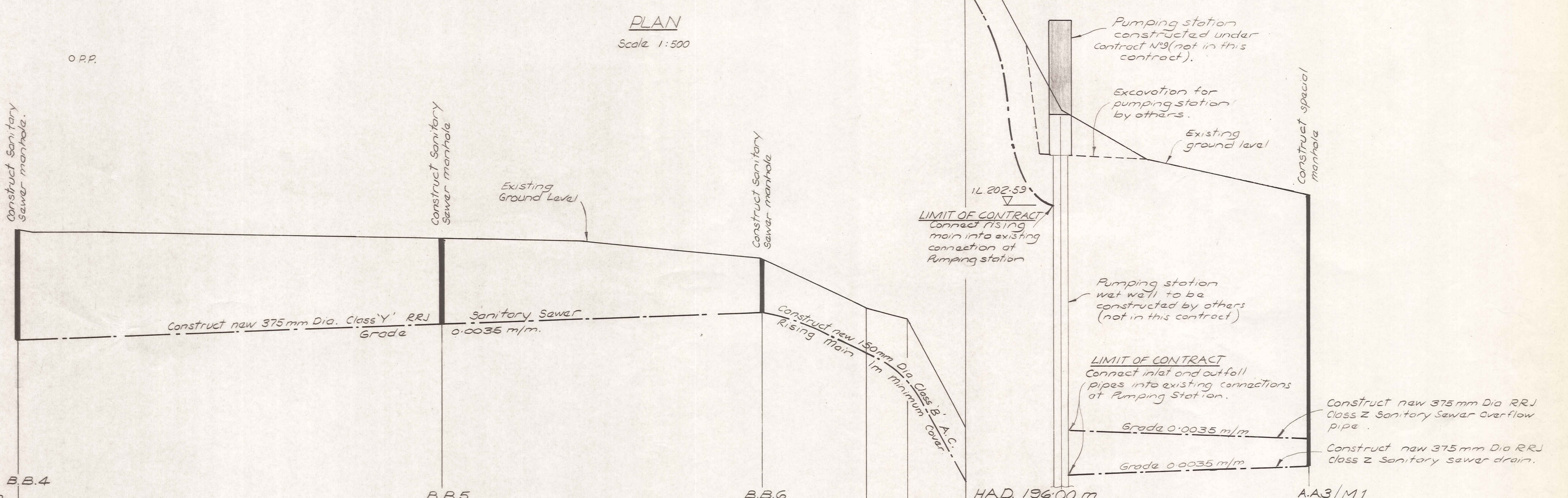
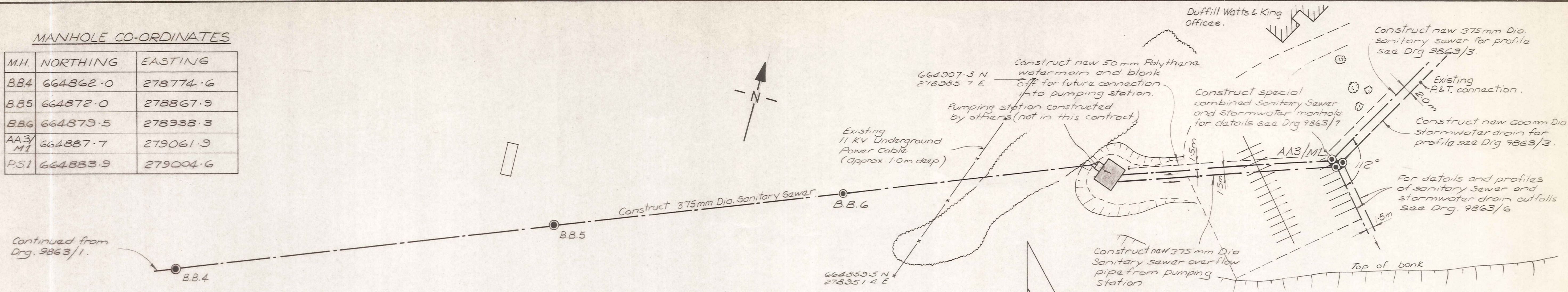


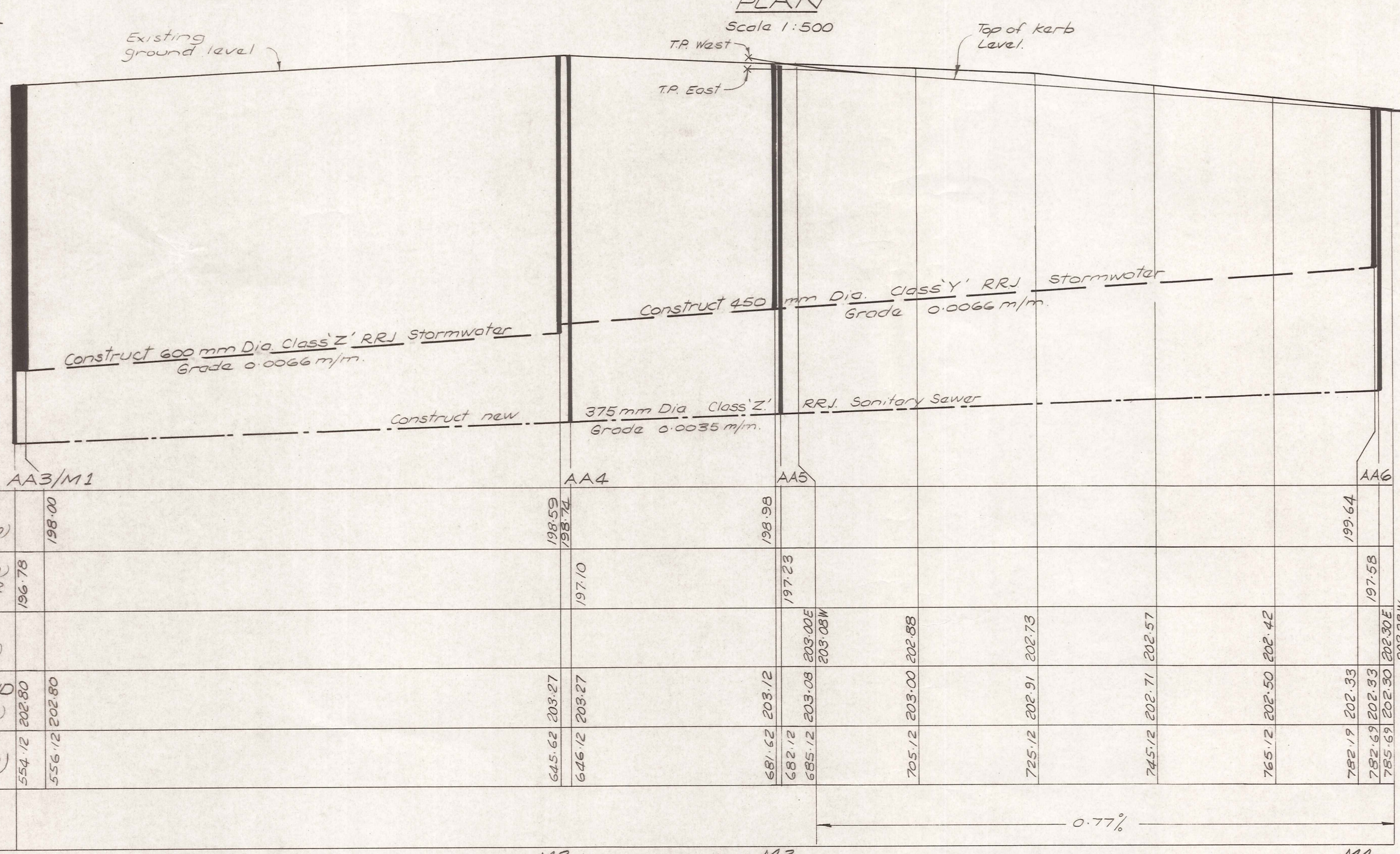
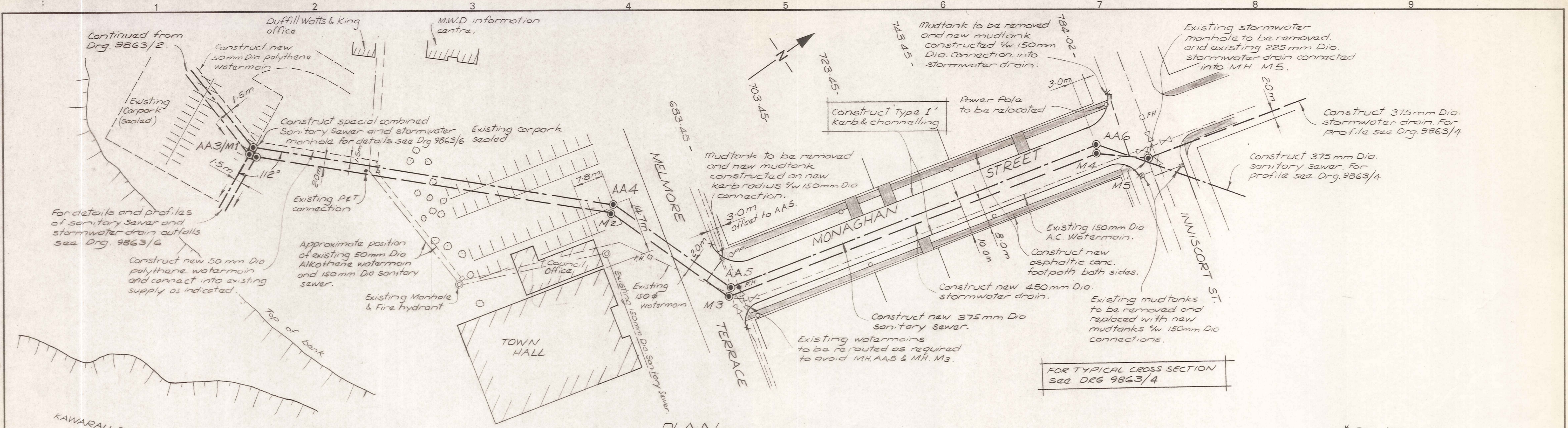
MANHOLE CO-ORDINATES

M.H.	NORTHING	EASTING
BB4	664862.0	278774.6
BB5	664872.0	278867.9
BB6	664879.5	278938.3
AA3/M1	664887.7	279061.9
PS1	664883.9	279004.6

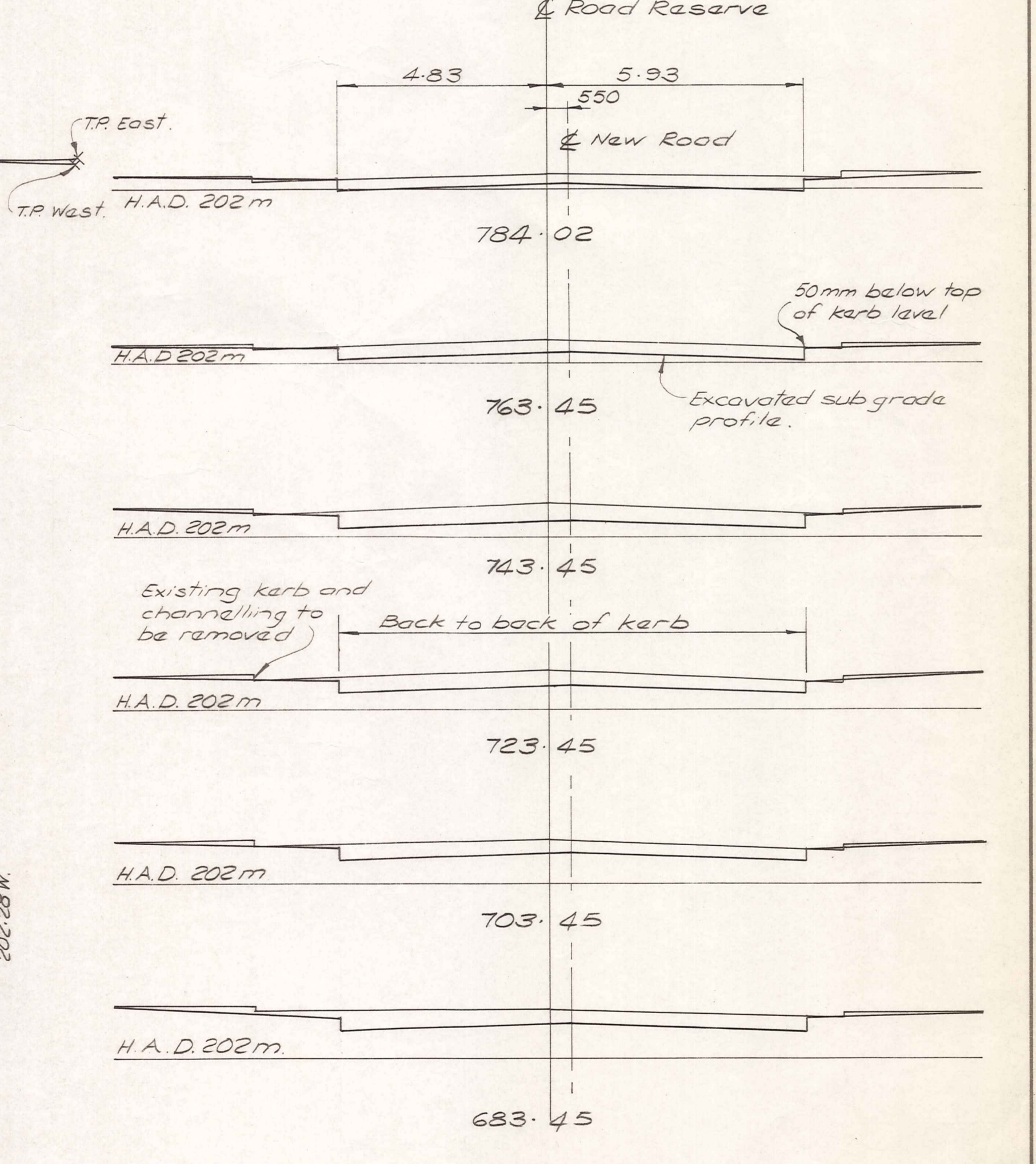


	B.B.4	B.B.5	B.B.6		A.A3/M1
H.A.D 207.00 m				H.A.D. 196.00 m	
INVERT LEVEL (m) STORMWATER					
INVERT LEVEL (m) SANITARY SEWER	210.62	210.95	211.20	196.59 (INLET) 197.59 (OUTFALL)	196.78 197.39 (over-flow)
EXISTING GROUND LEVEL (m)	213.20	212.85	212.41	204.77	202.80
DISTANCE (m)	266.38	360.21	431.06	454.05 463.05	554.12

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					Appvd.	Surveyed	Drawn	Calculations	Traced		



	AA3/M1	AA4	AA5	AA6
H.A.D. 196.00m				
INVERT LEVEL STORMWATER (m)	198.00	198.69 198.74	198.98	199.64
INVERT LEVEL (m) SANITARY SEWER	196.78	197.10	197.23	197.58
TOP OF KERB LEVEL (m)			203.02 203.08 203.08M	202.88 202.73 202.57
EXISTING GROUND LEVEL (m)	202.80 202.202	203.27 203.27	203.12 203.08 203.08	202.50 202.42 202.30E 202.28M
DISTANCE (m)	554.12 555	645.62 646.12	681.42 682.12 685.12	705.12 725.12 745.12 765.12 782.19 782.65 785.69
KERB GRADES				0.77%



ORIGINAL SIZE
mm INCHES

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CROMWELL BOROUGH COUNCIL

NEIGHBOURHOOD 1 DEVELOPMENT

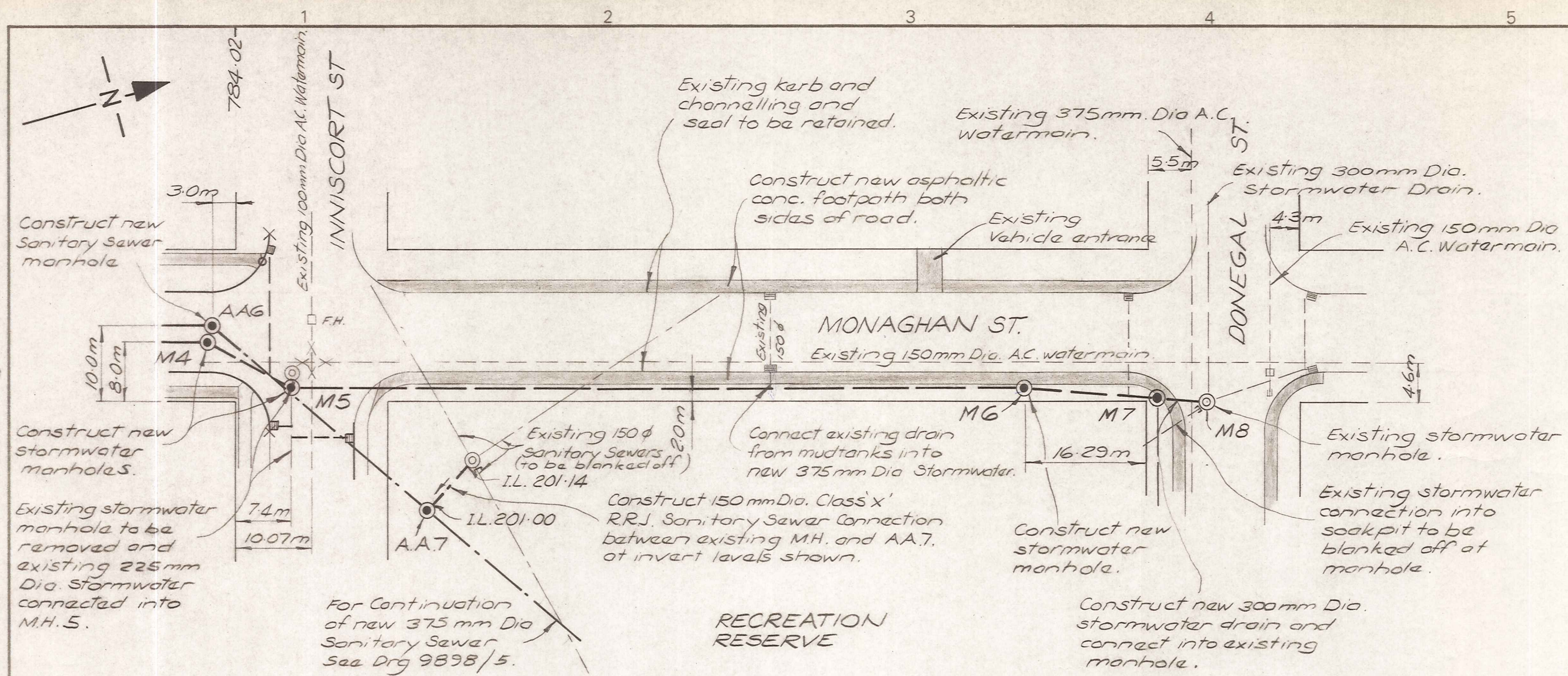
CONTRACT No 8
TRUNK SERVICE MAINS AND STREETWORK CONSTRUCTION

STAGE II TRUNK MAINS AND STREETWORKS

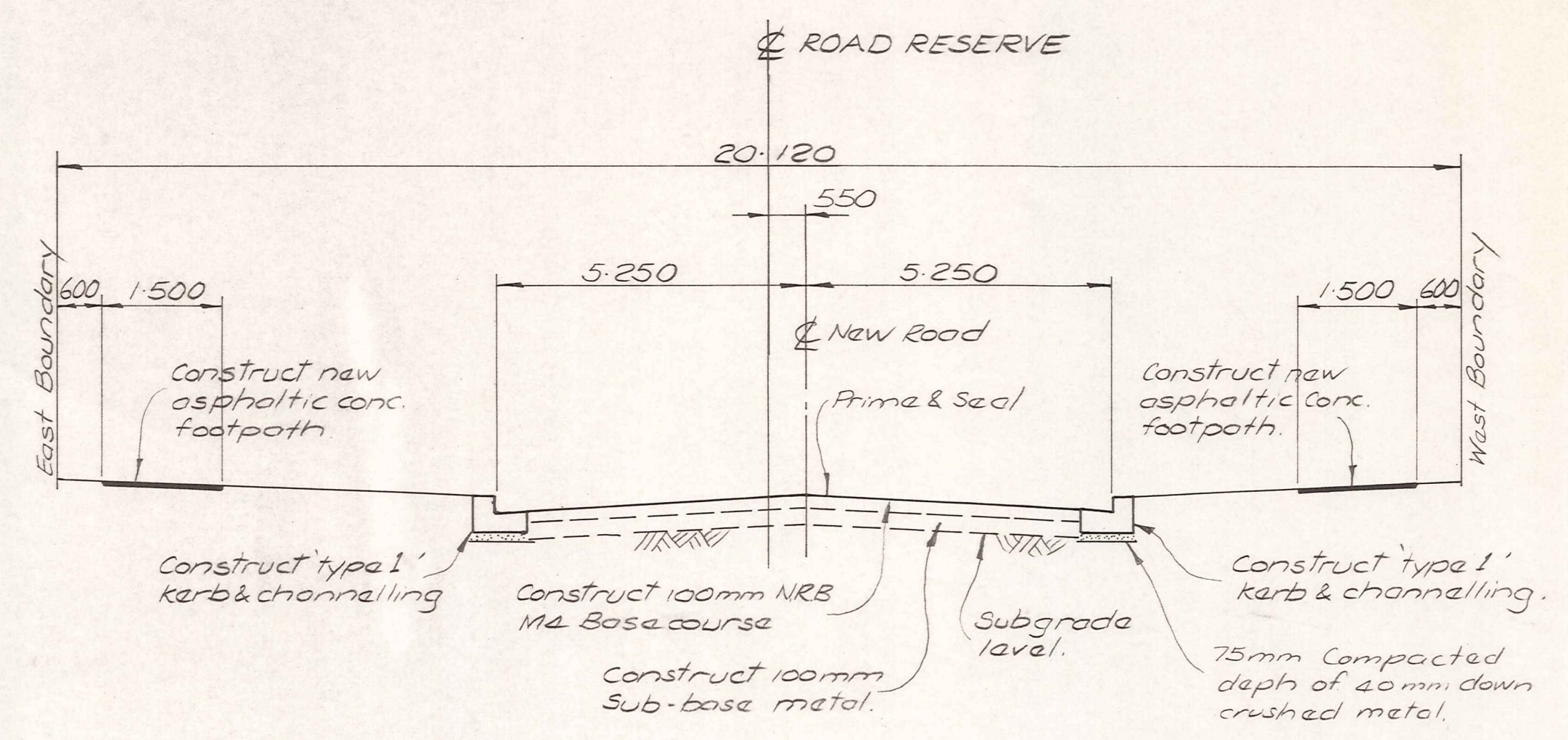
AMENDMENTS			NAME	DATE
NO.	BY	DATE		

Appvd.	Surveyed	N. JELLEY	5-82
	Drawn		
	Calculations		
	Traced	M. COOPER	5-82
	Checked		
	Approved		

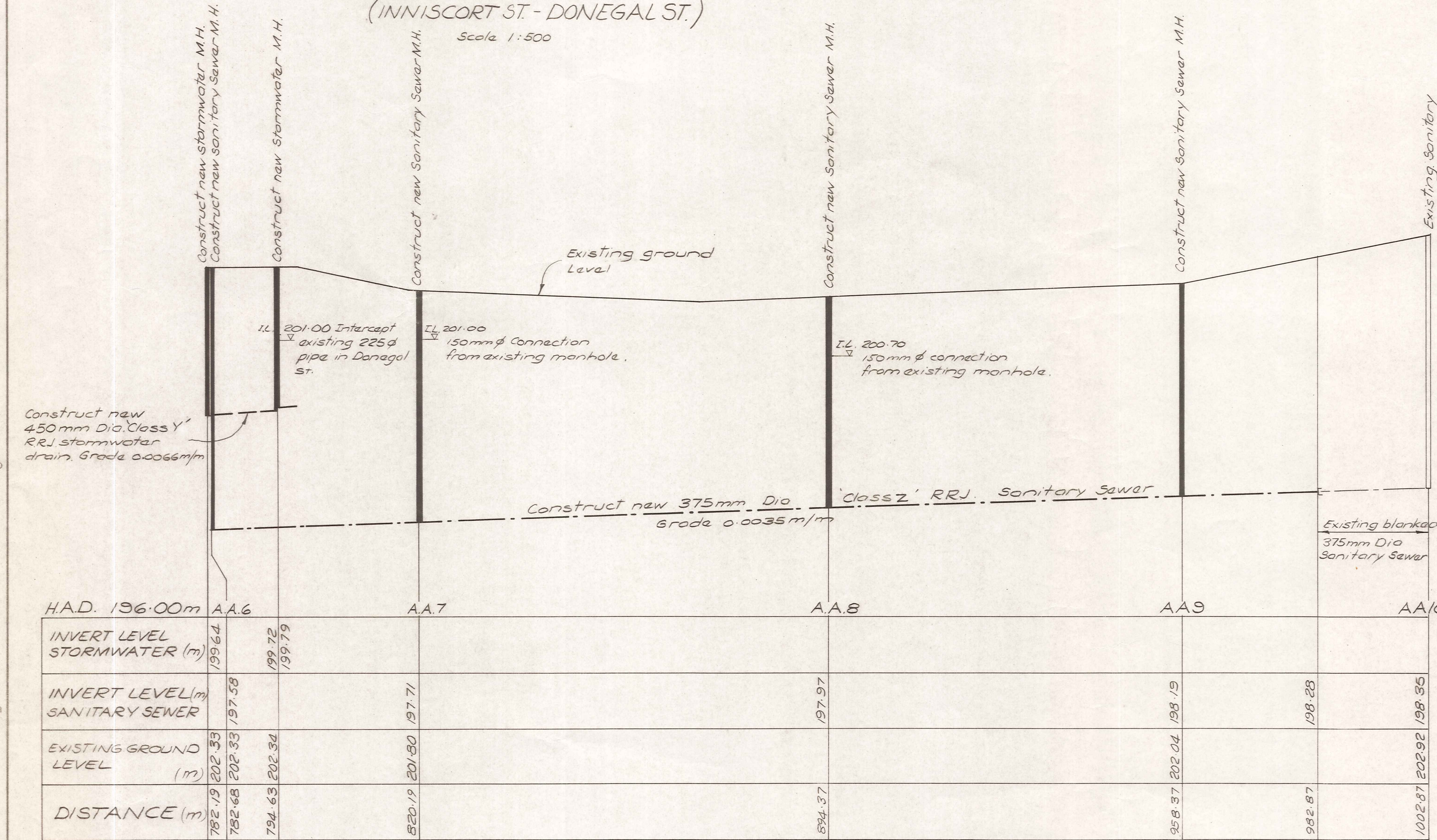
JOB NO. **9863**
Sheet No. **3**
of 11 sheets
F.B.



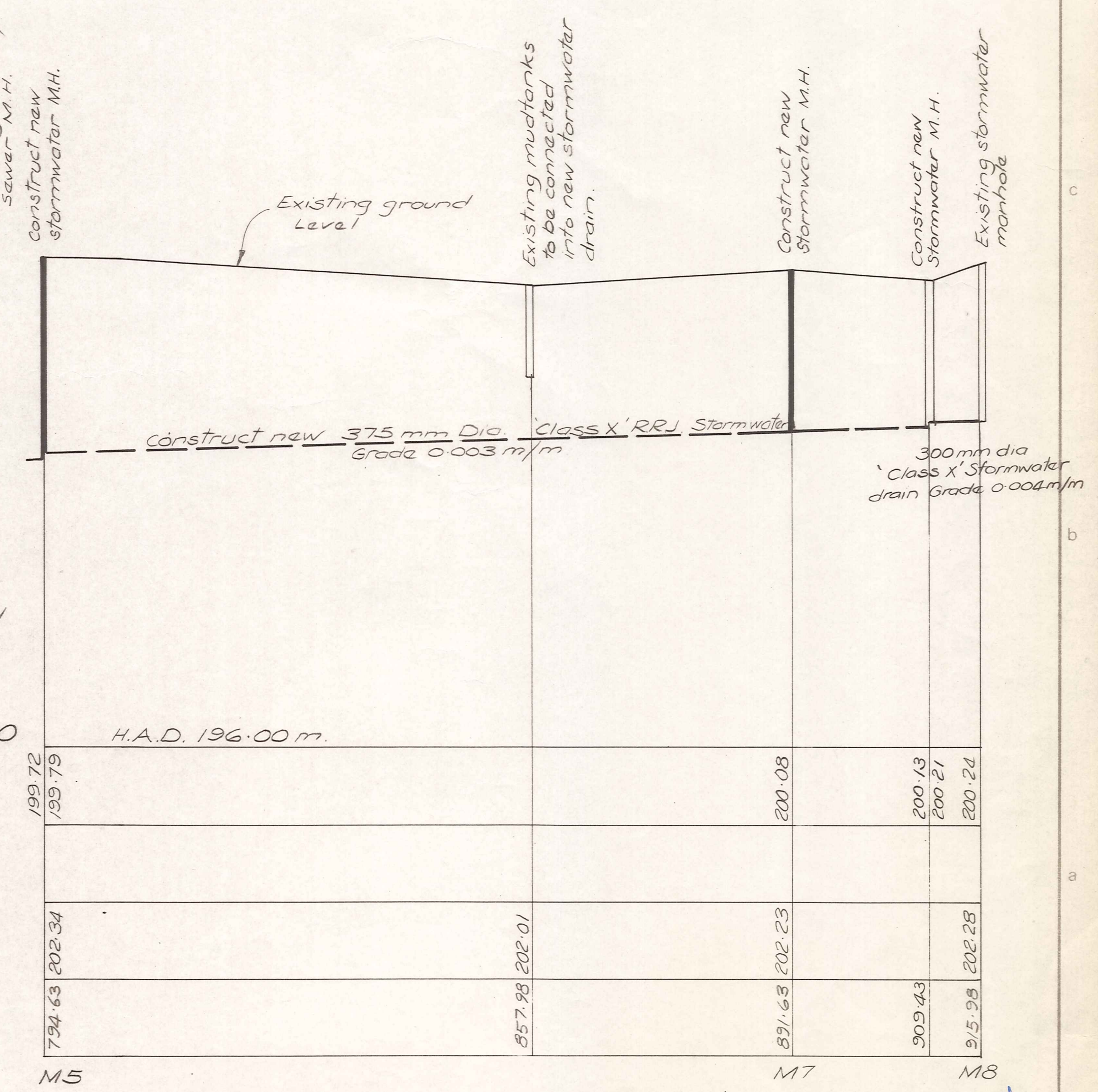
PLAN - MONAGHAN ST.
(INNISCORT ST. - DONEGAL ST.)
Scale 1:500



TYPICAL CROSS SECTION
MONAGHAN ST
(MELMORE TERRACE - INNISCORT ST.)
(N.T.S.)



LONGITUDINAL SECTION (SANITARY SEWER AAG - AA10)
(STORMWATER DRAIN M4 - M5)
Scale: Horiz. 1:50
Vert. 1:500



LONGITUDINAL SECTION (STORMWATER DRAIN M5 - M8)
Scale: Horiz. 1:50
Vert. 1:500

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NEIGHBOURHOOD 1 DEVELOPMENT

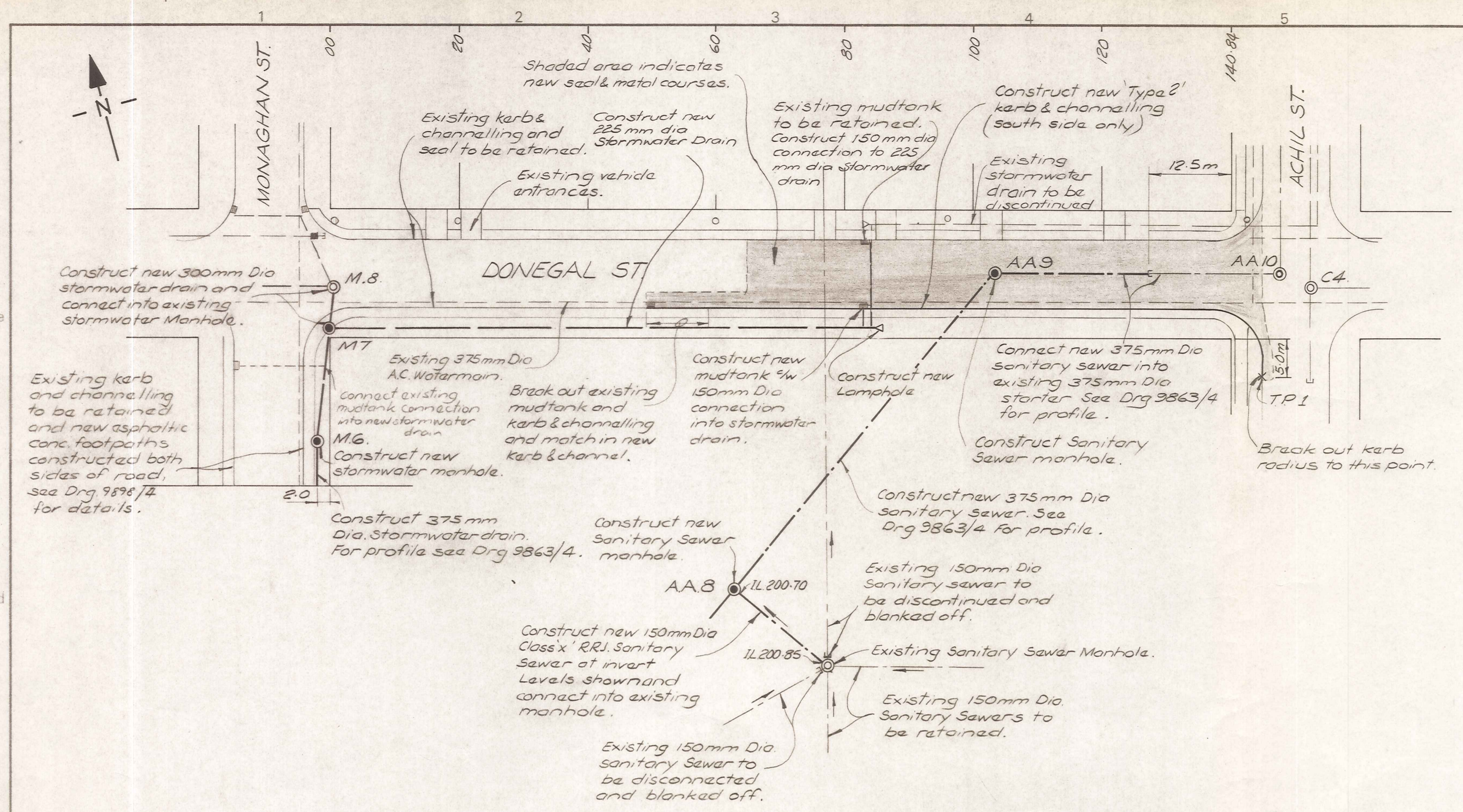
CONTRACT No. 8
TRUNK SERVICE MAINS AND STREETWORKS CONSTRUCTION

STAGE II TRUNK MAINS AND STREETWORKS

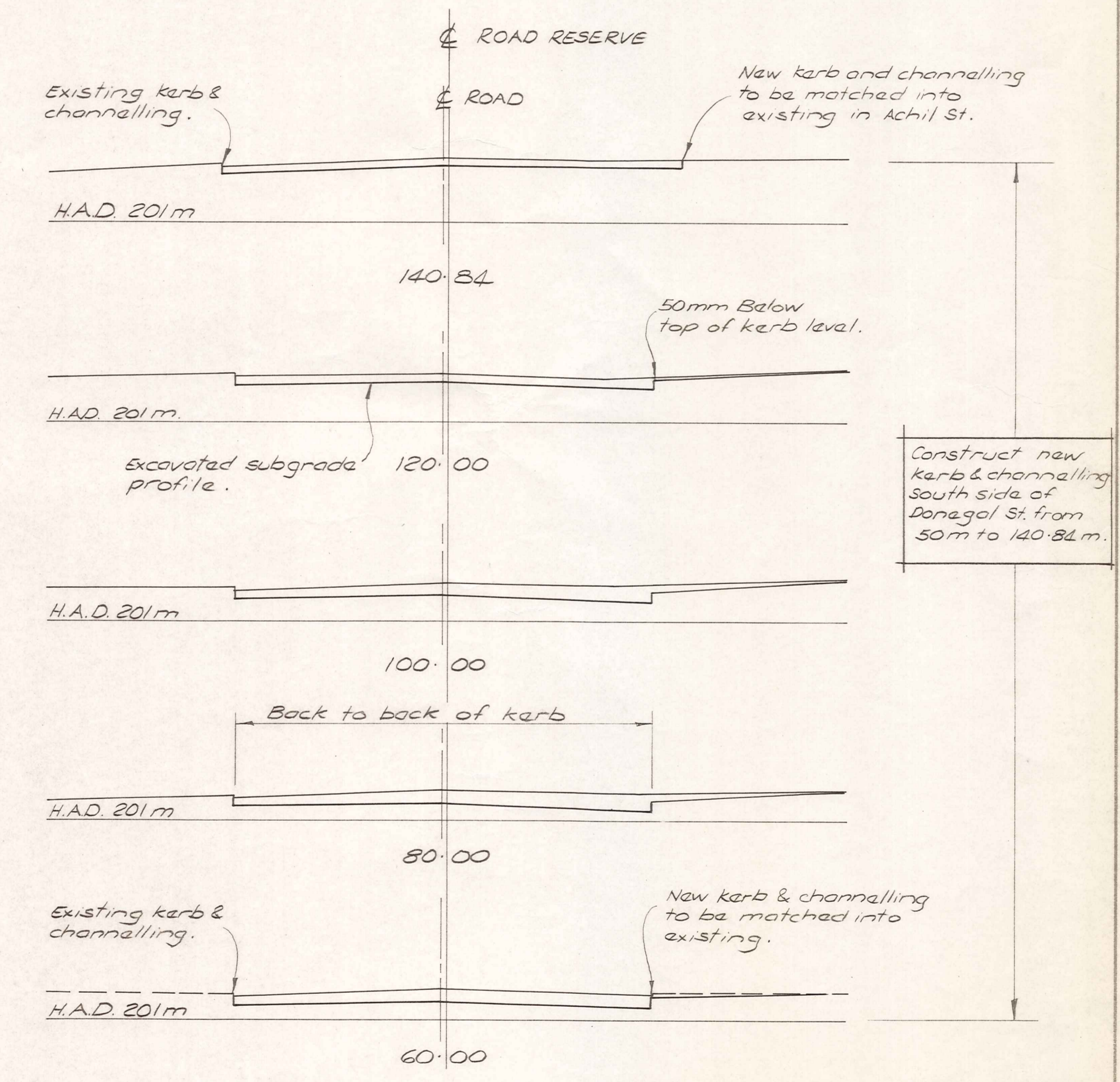
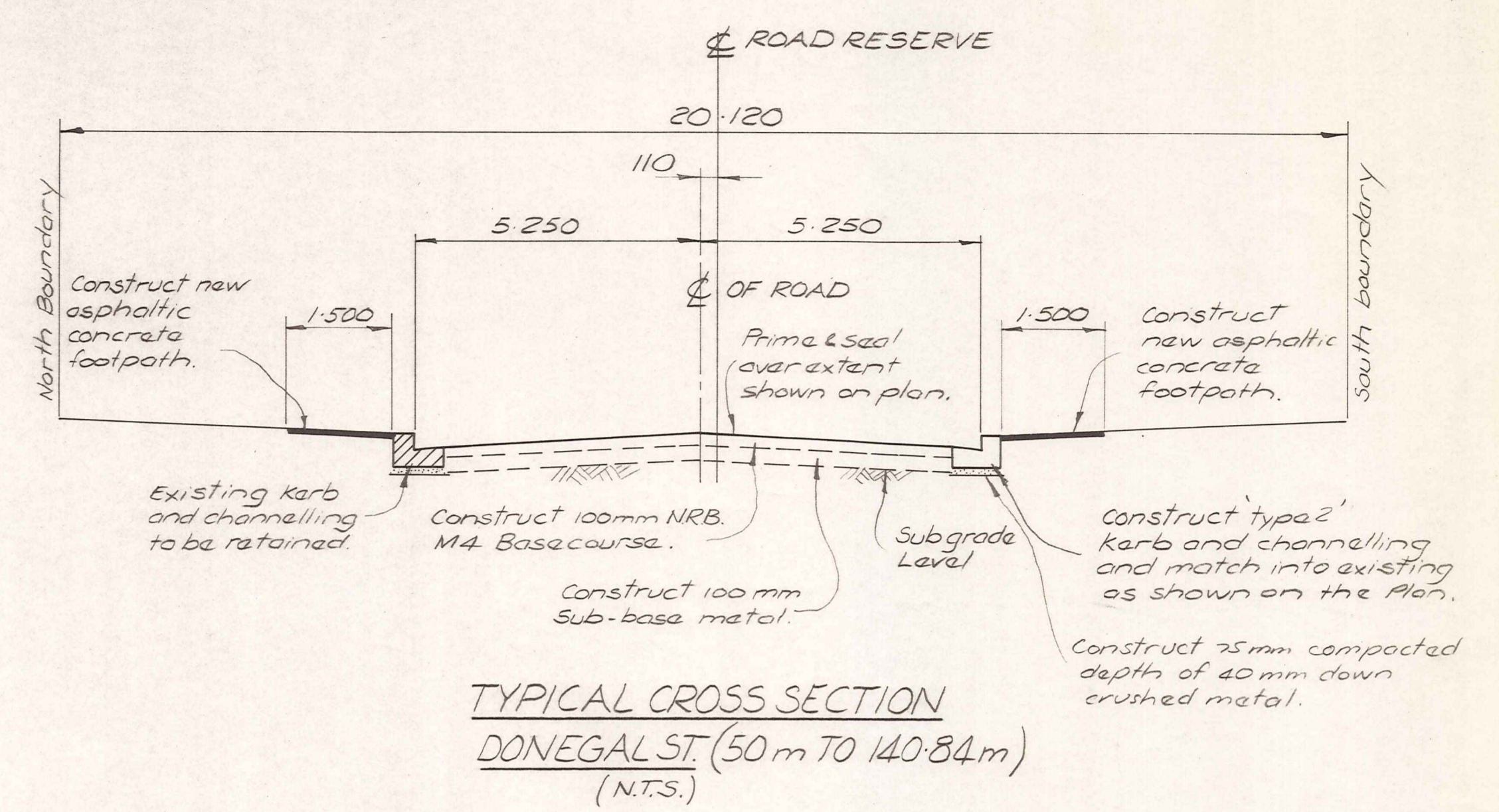
AMENDMENTS			NAME		DATE	JOB NO.	Sheet No.
NO.	BY	DATE	Appvd.	NAME	DATE		
				N. JELLEY	5-82	9863	4
				M. COOPER	5-82		
					16/6/82		
					22/6/82		

File: 9/19/9 LB 416 415 F.B.

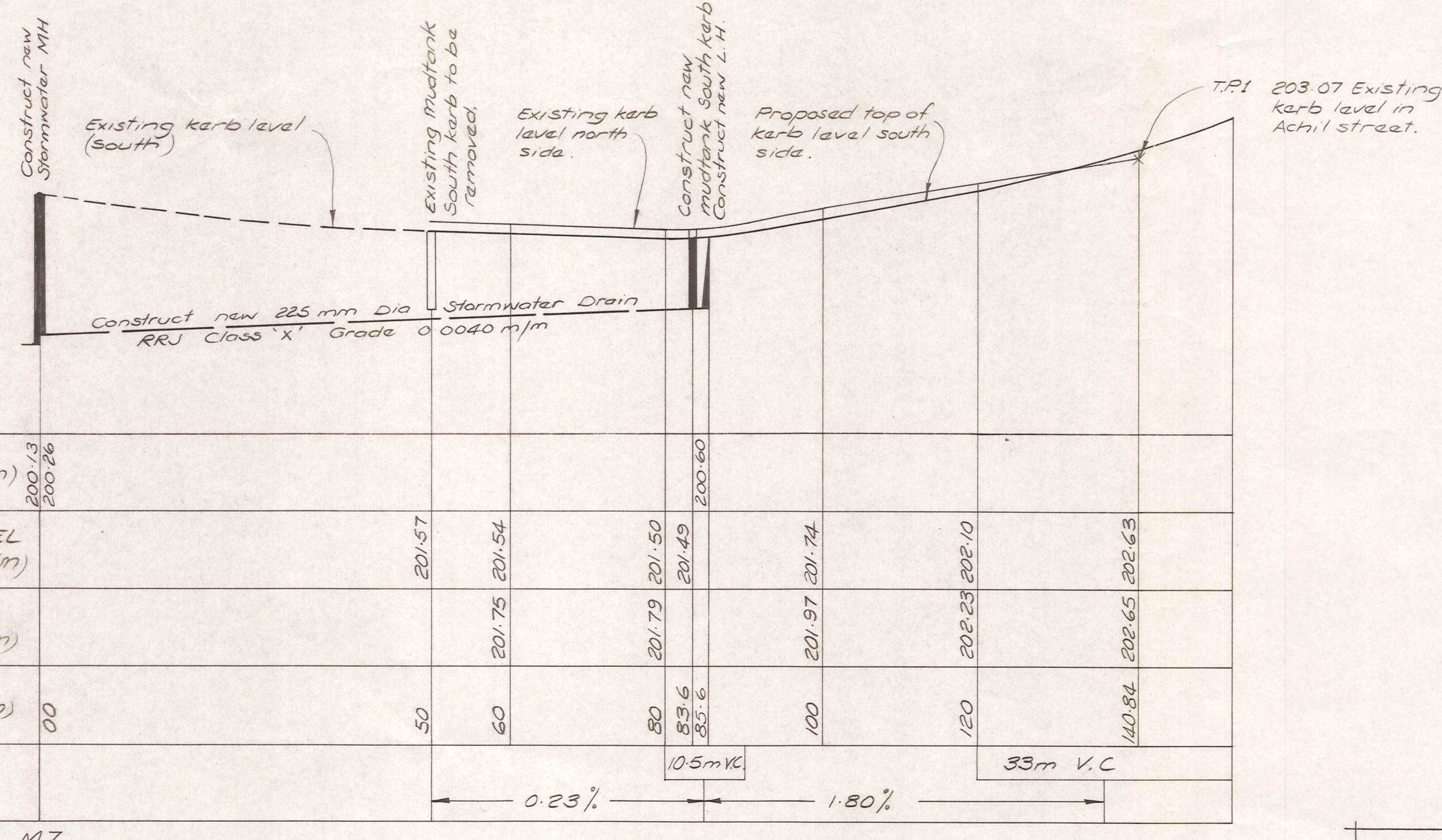
ORIGINAL SIZE INCHES



PLAN
Scale 1:500



CROSS SECTIONS - DONEGAL ST.
Scale 1:100



LONGITUDINAL SECTION (DONEGAL ST.)
Scale: Horiz. 1:500
Vert. 1:50

NOTE: For details and profiles of new Sanitary Sewer and stormwater drains shown on this Drawing see Drg 683/4.

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CROMWELL
BOROUGH COUNCIL

NEIGHBOURHOOD 1
DEVELOPMENT

CONTRACT No 8
TRUNK SERVICE MAINS
AND STREETWORKS
CONSTRUCTION

STAGE II TRUNKMANS
AND STREETWORKS
(DONEGAL STREET)

AMENDMENTS			NAME		DATE
NO.	BY	DATE	APPRV.		
			Surveyed	N. JELLEY	5-82
			Drawn		
			Calculations		
			Traced	M. COOPER	5-82
			Checked		14/6/82
			Approved		Dec 82

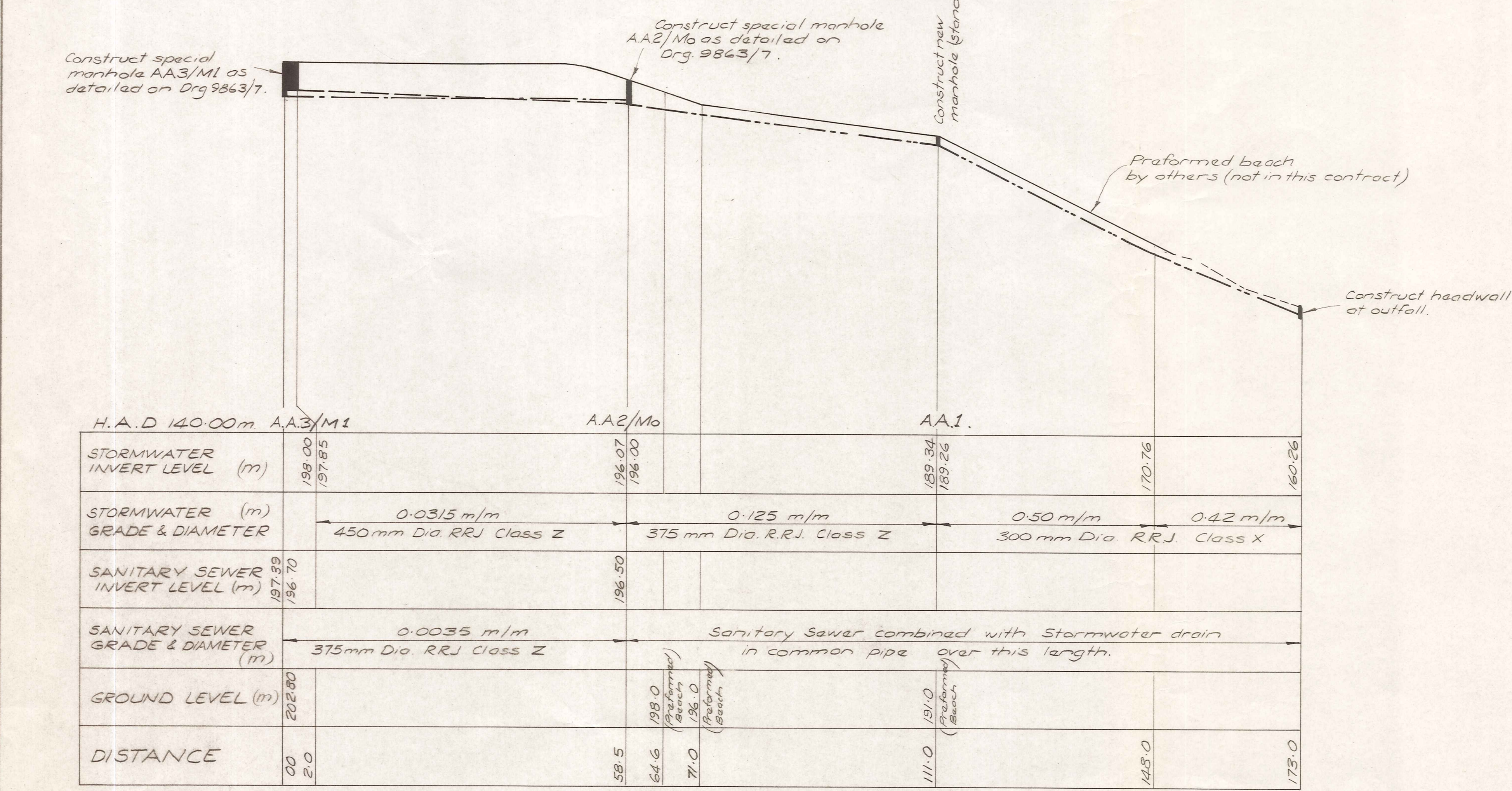
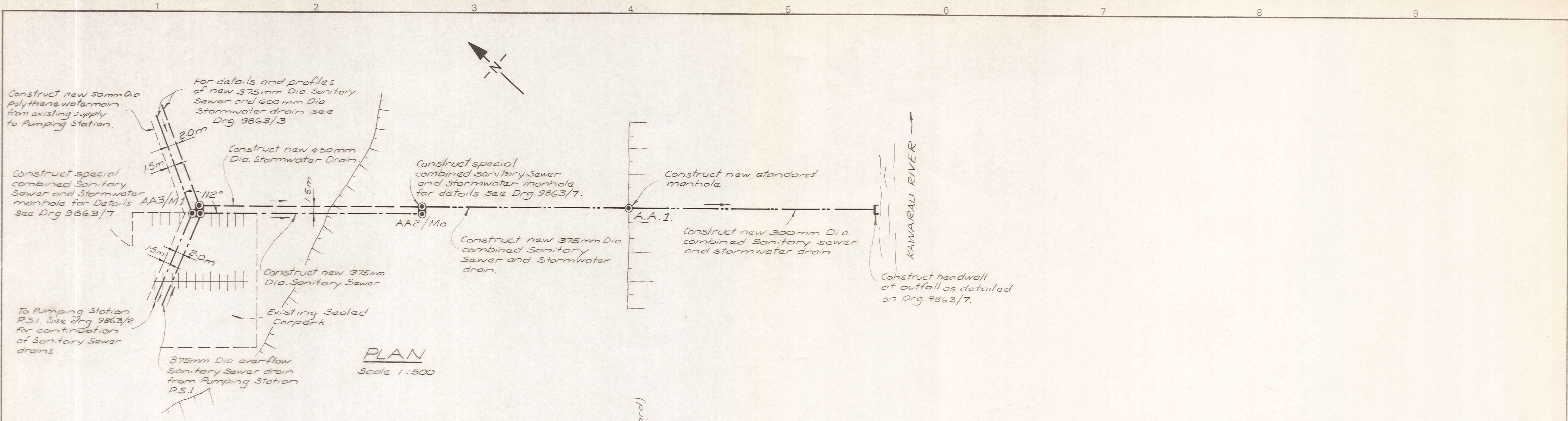
JOB NO.
9863

Sheet No
5
of 11 sheets

File 9/19/9

LB 414
415

FB



LONGITUDINAL SECTION
Scale: 1:500 (Natural scale)

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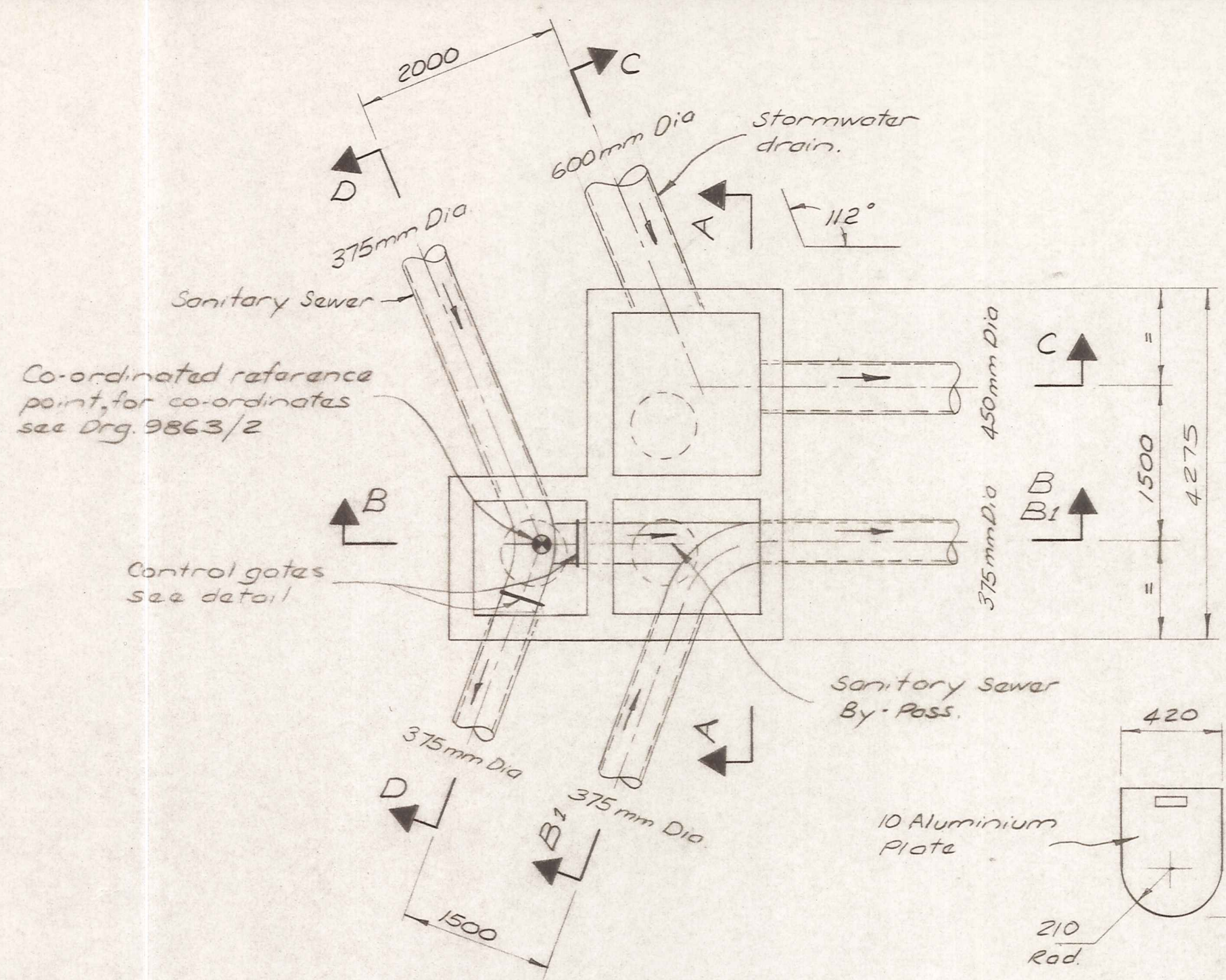
NEIGHBOURHOOD 1 DEVELOPMENT

CONTRACT No. 8
TRUNK SERVICE MAINS AND STREETWORK CONSTRUCTION

STAGE II TRUNKMANS AND STREETWORKS (KAWARAU RIVER OUTFALL)

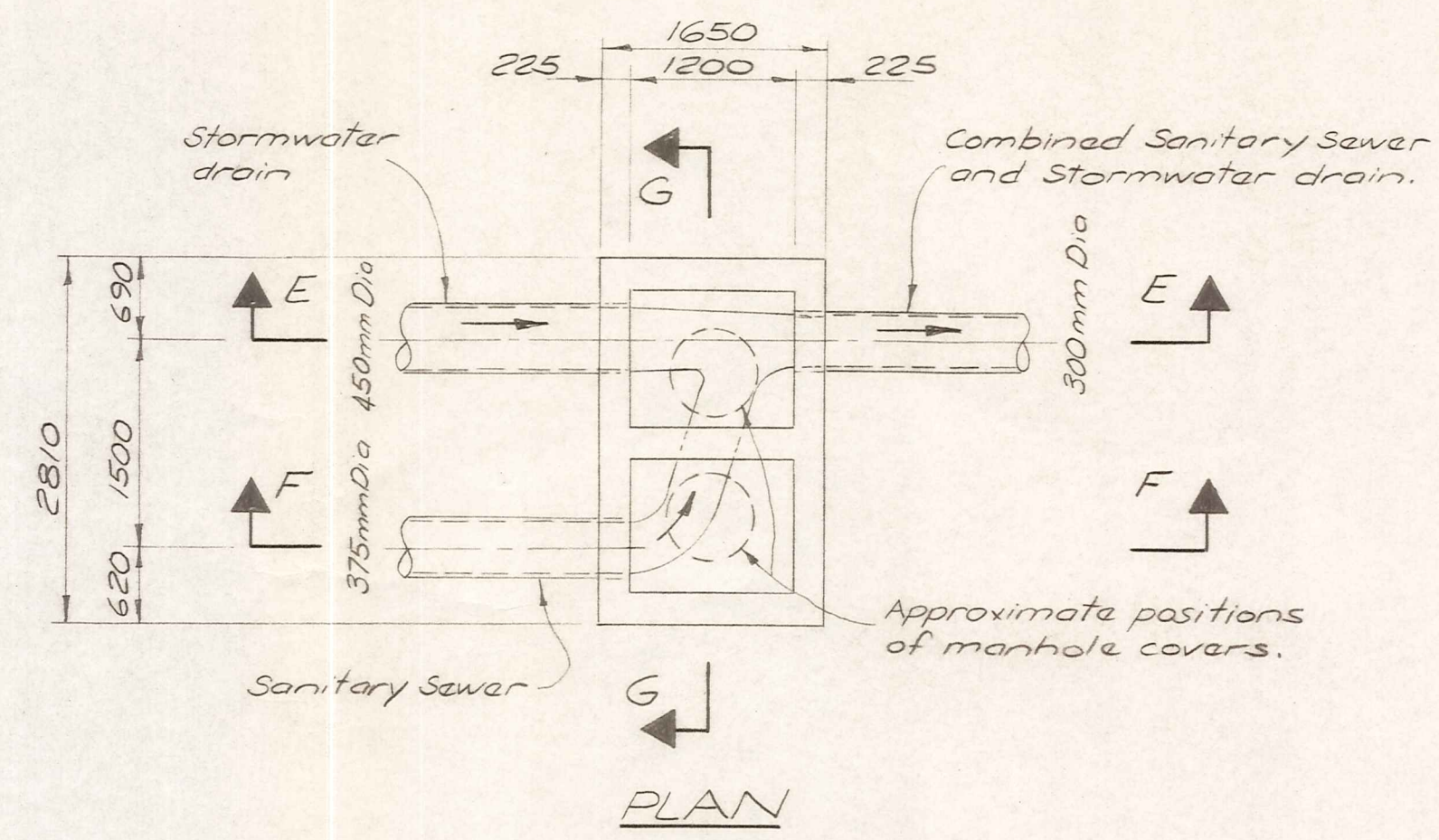
AMENDMENTS				NAME		DATE	JOB NO.	Sheet No
NO.	BY	DATE	Appvd.	Surveyed	N. JELLEY	5-82	9863	6
				Drawn	"	"		
				Calculations	"	"		
				Traced	M. COOPER	6-82		of 11 shts.
				Checked	<i>[Signature]</i>	16/6/82		
				Approved	<i>[Signature]</i>	Dec 82		

File 9/19/9 L.B 414 415 FB

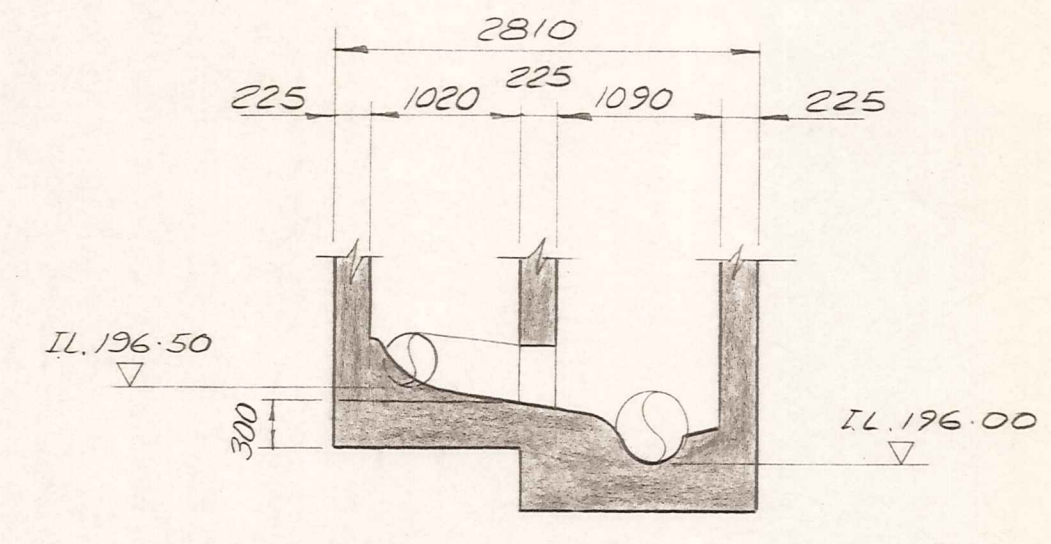


PLAN

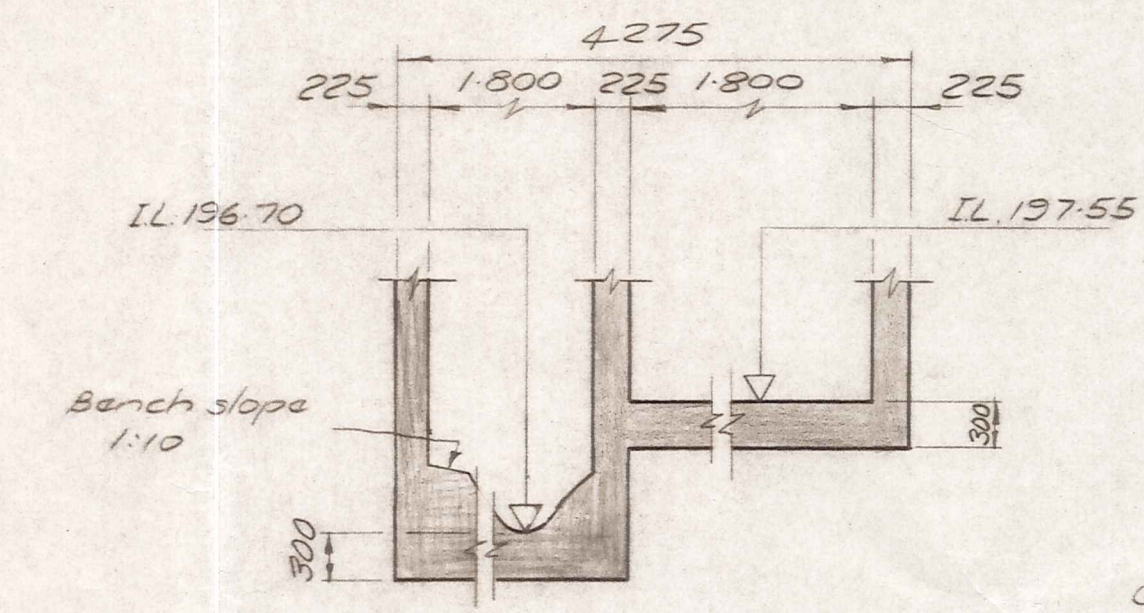
CONTROL GATE DETAILS (1 No. REQ'D) N.T.S.



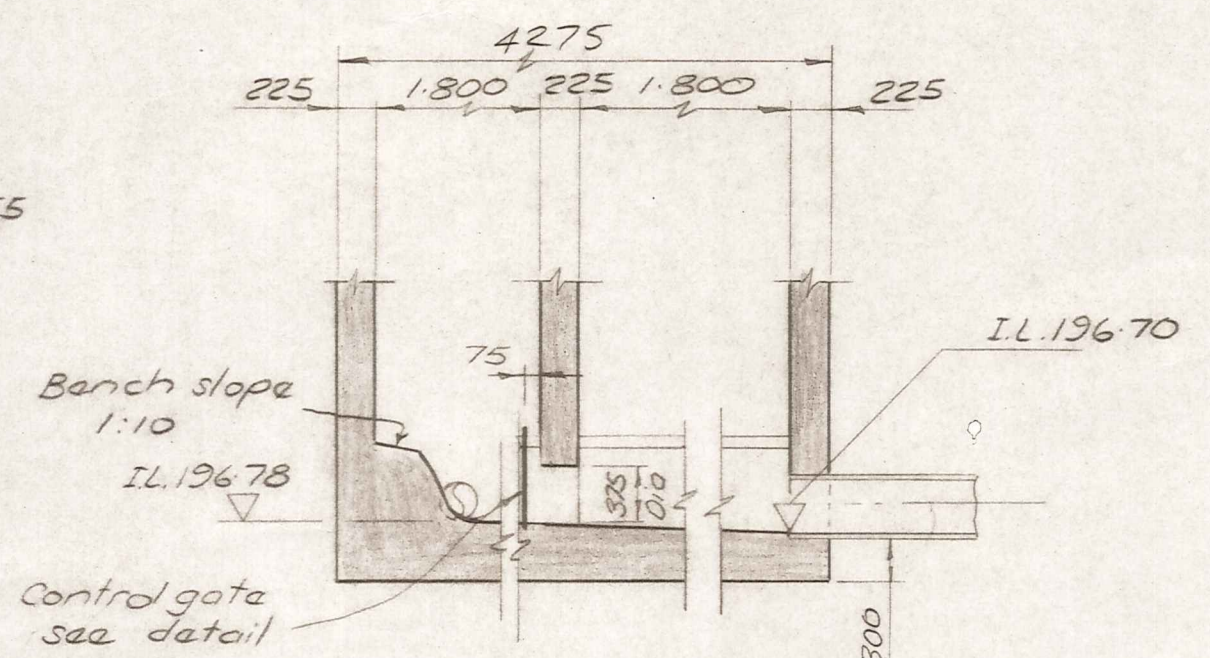
PLAN



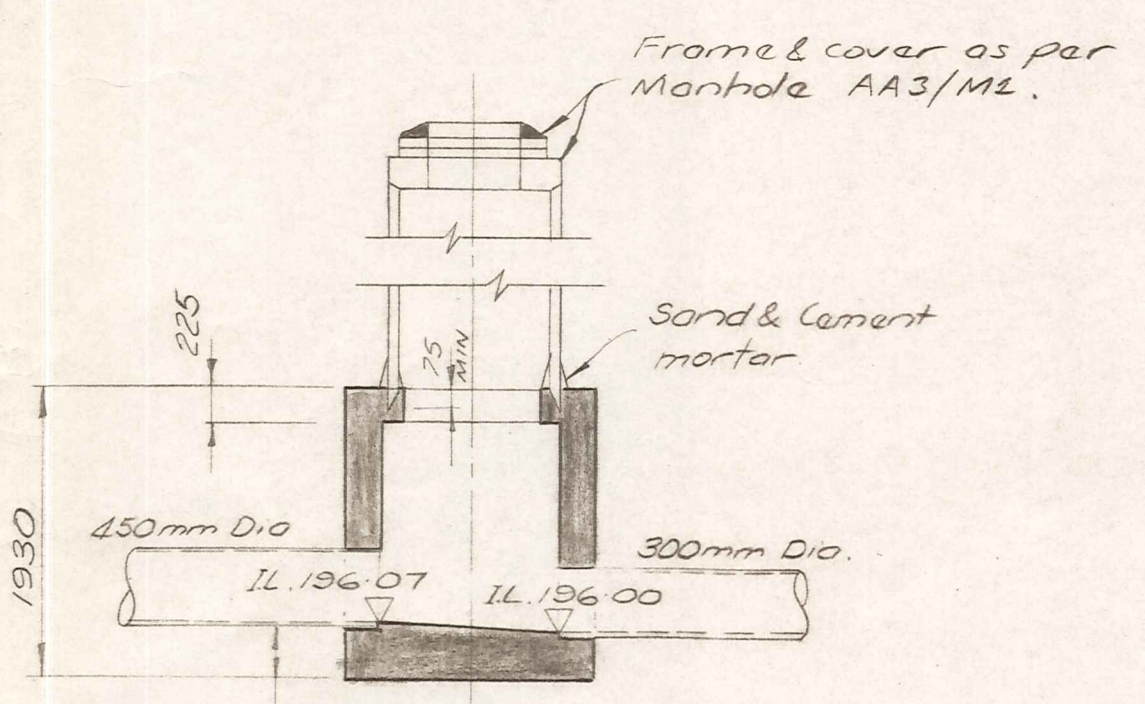
SECTION G-G



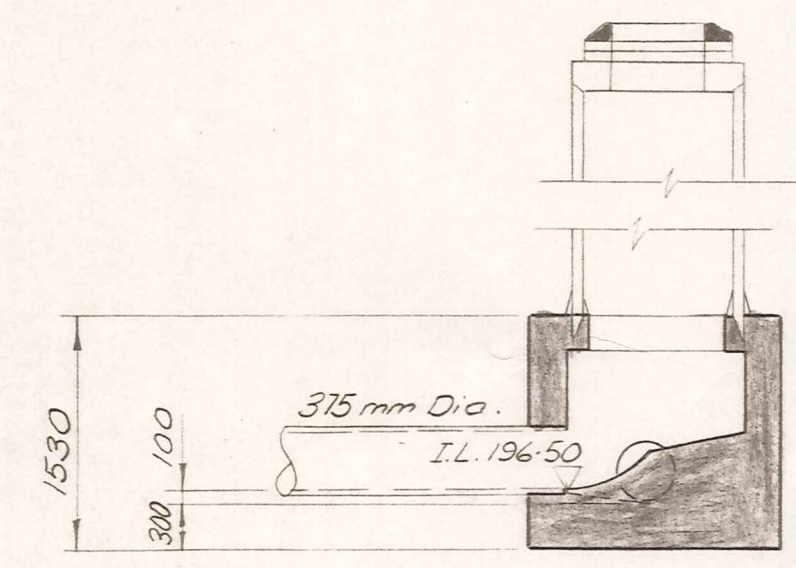
SECTION A-A FLOOR PROFILE



SECTION B-B

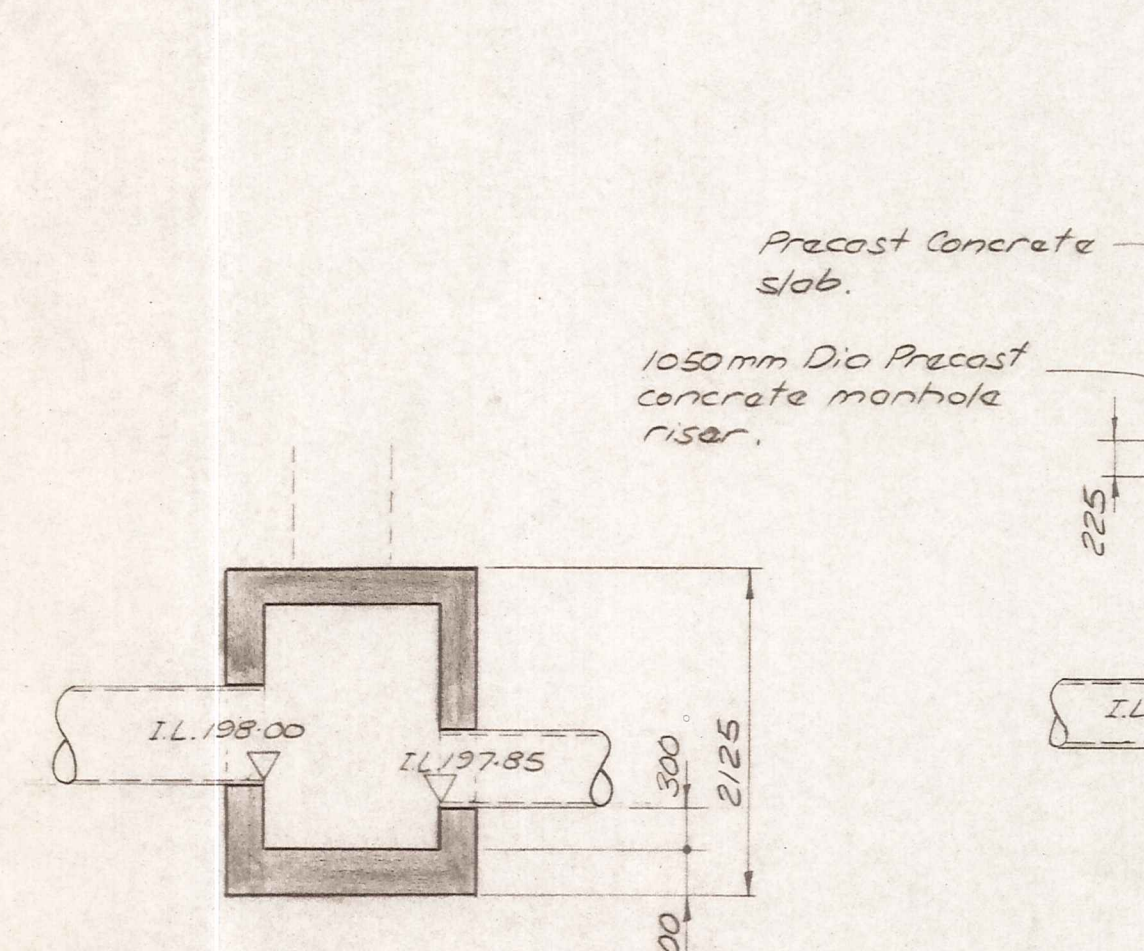


SECTION E-E

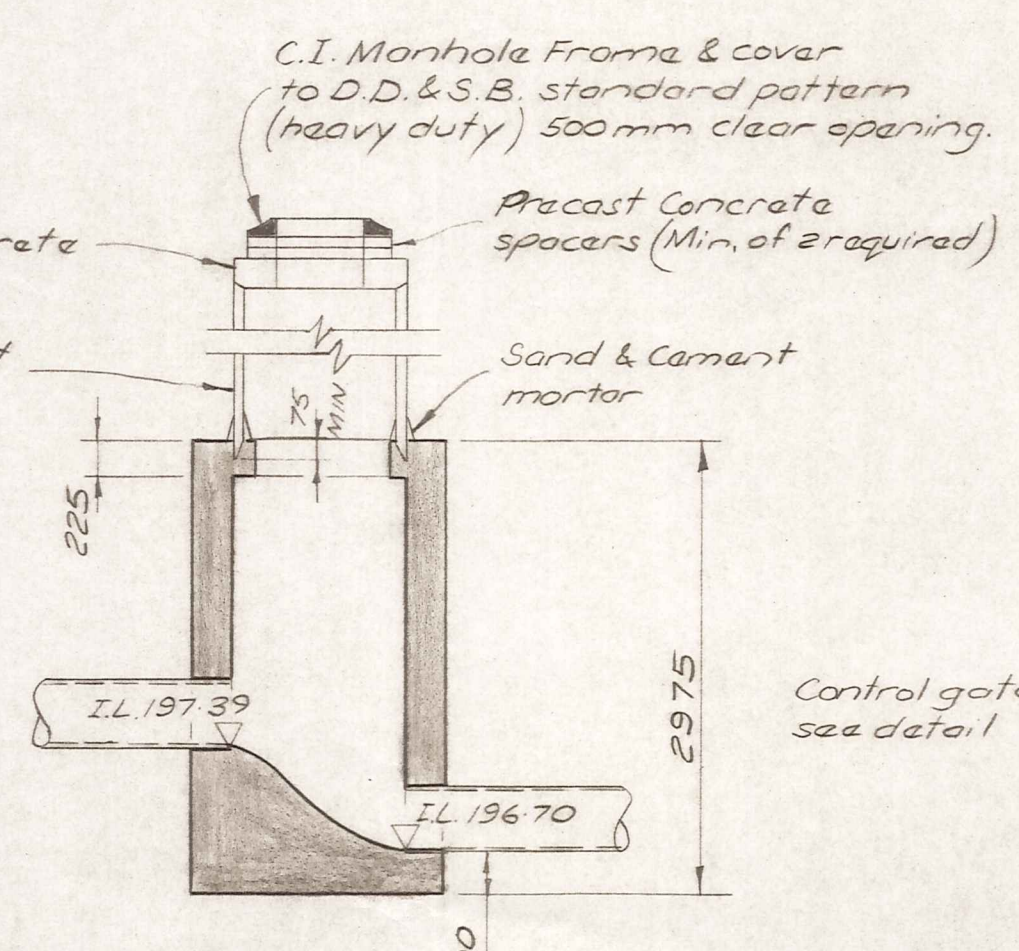


SECTION F-F

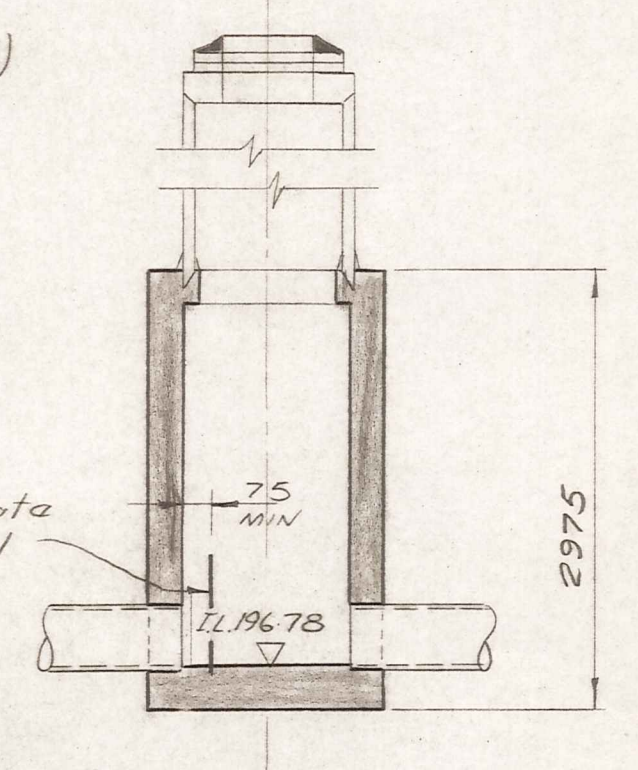
DETAILS OF COMBINATION MANHOLE AA2/M0 Scale 1:50



SECTION C-C

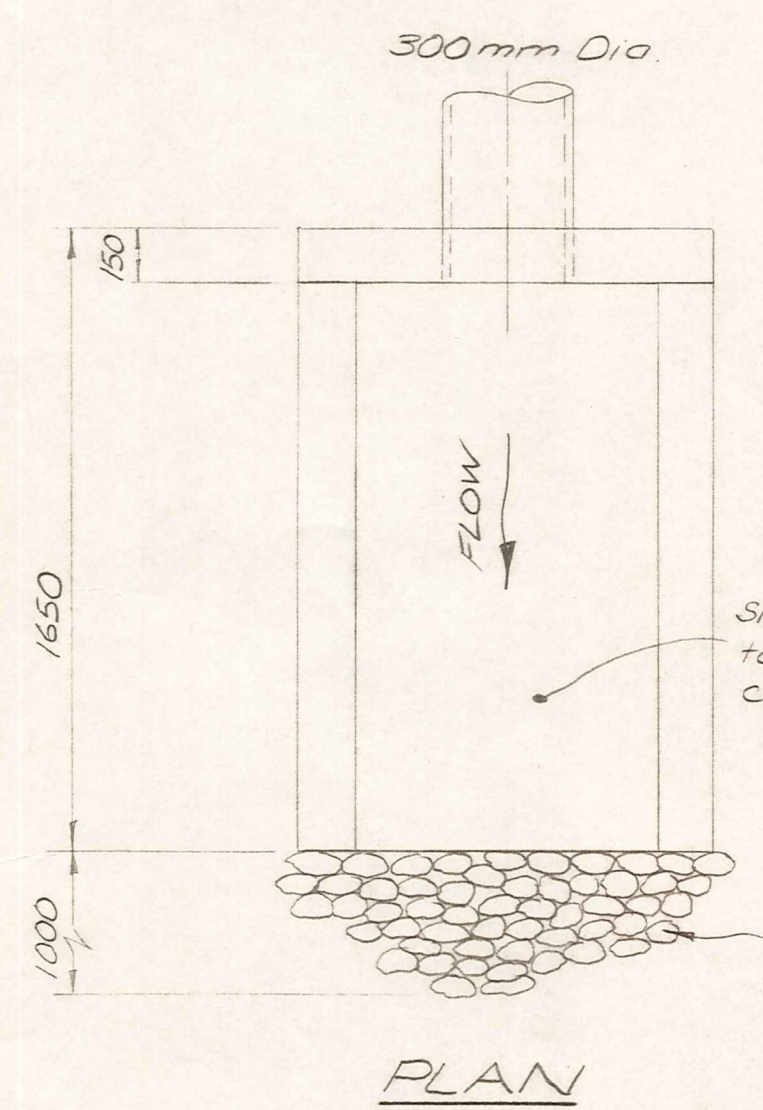


SECTION B1-B1

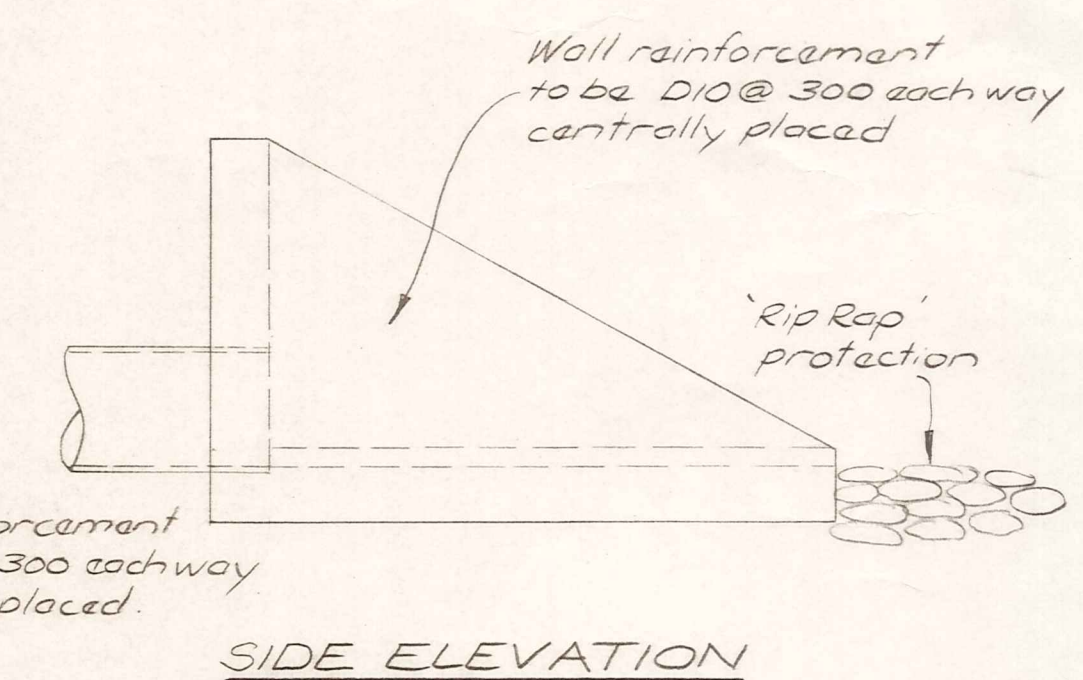


SECTION D-D

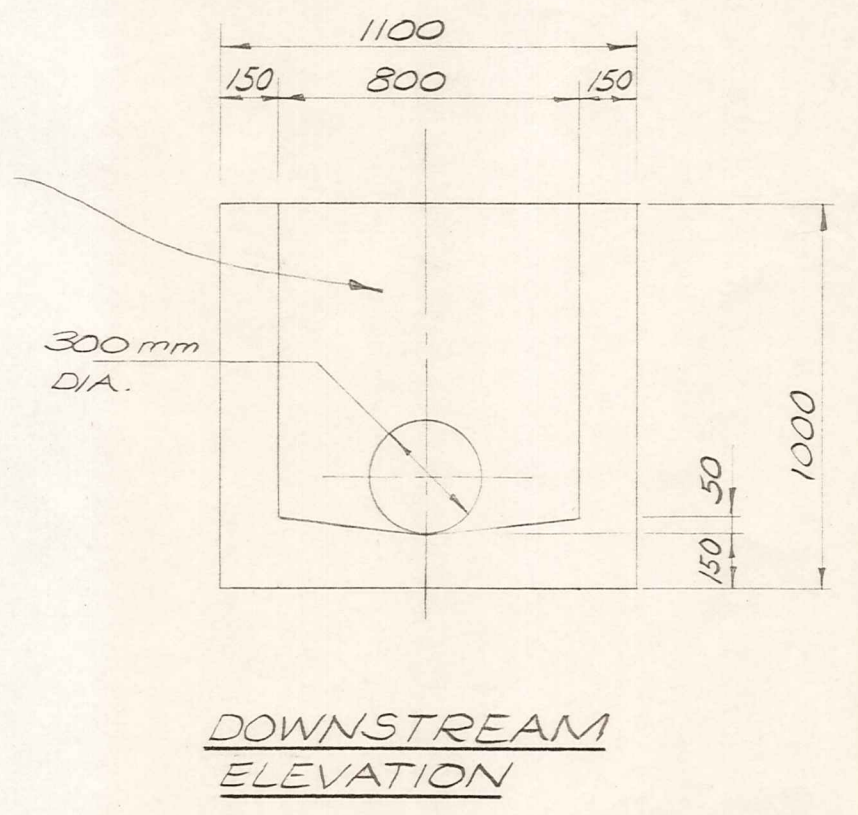
DETAILS OF COMBINATION MANHOLE AA3/M1 Scale 1:50



PLAN



SIDE ELEVATION



DOWNSTREAM ELEVATION

KAWARAU RIVER OUTFALL HEADWALL DETAILS (Scale 1:20)

NOTES:

- For reinforcement of manholes AA3/M1 and AA2/M0 see standard manhole details on 9863/8.
- Concrete strength to be 20Mpa at 28 days.

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CROMWELL BOROUGH COUNCIL

NEIGHBOURHOOD 1 DEVELOPMENT

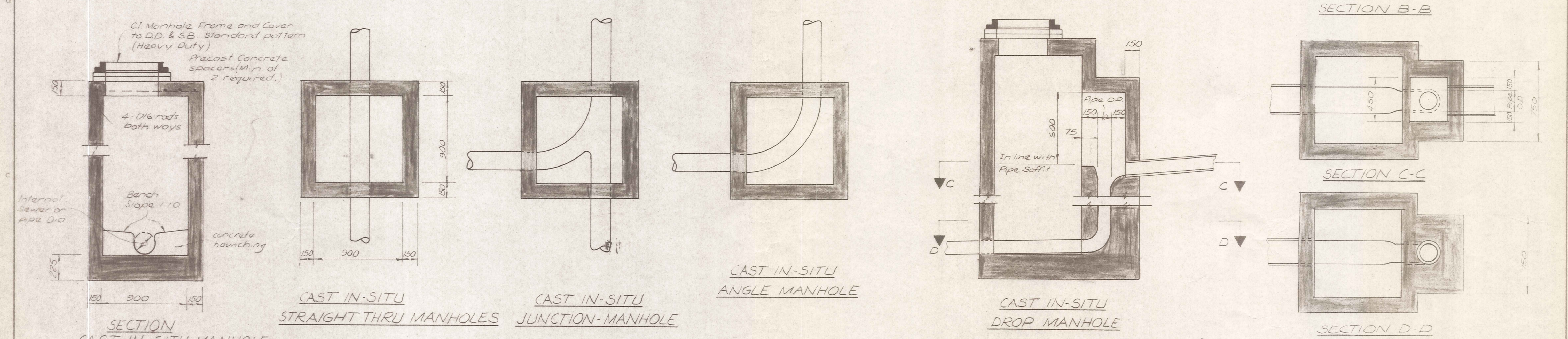
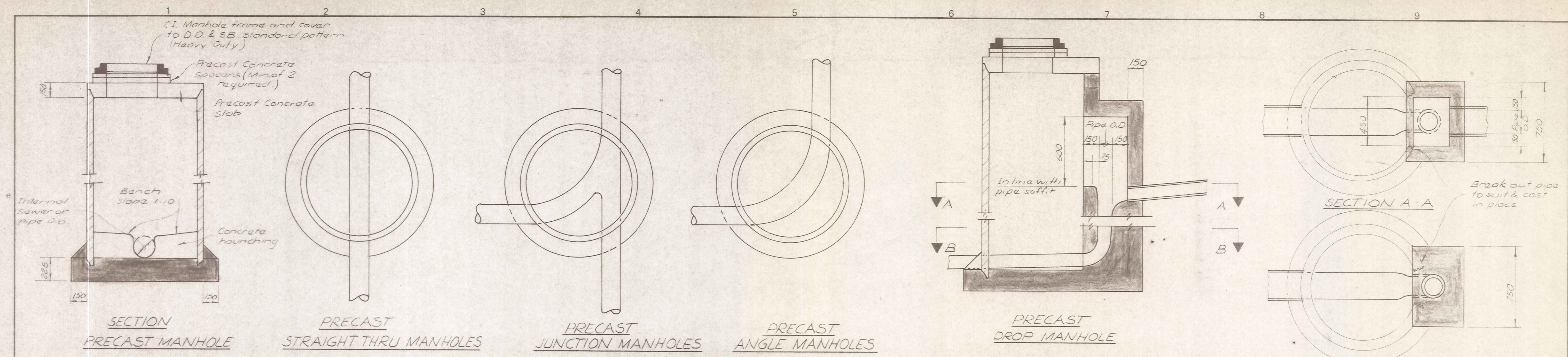
CONTRACT No. 8
TRUNK SERVICE MAINS AND STREETWORK CONSTRUCTION

STAGE II TRUNKMAINS AND STREETWORKS
(COMBINATION MANHOLES & HEADWALL)

AMENDMENTS			NAME	DATE
NO.	BY	DATE		
			N. JELLEY	6-82
			M. COOPER	6-82

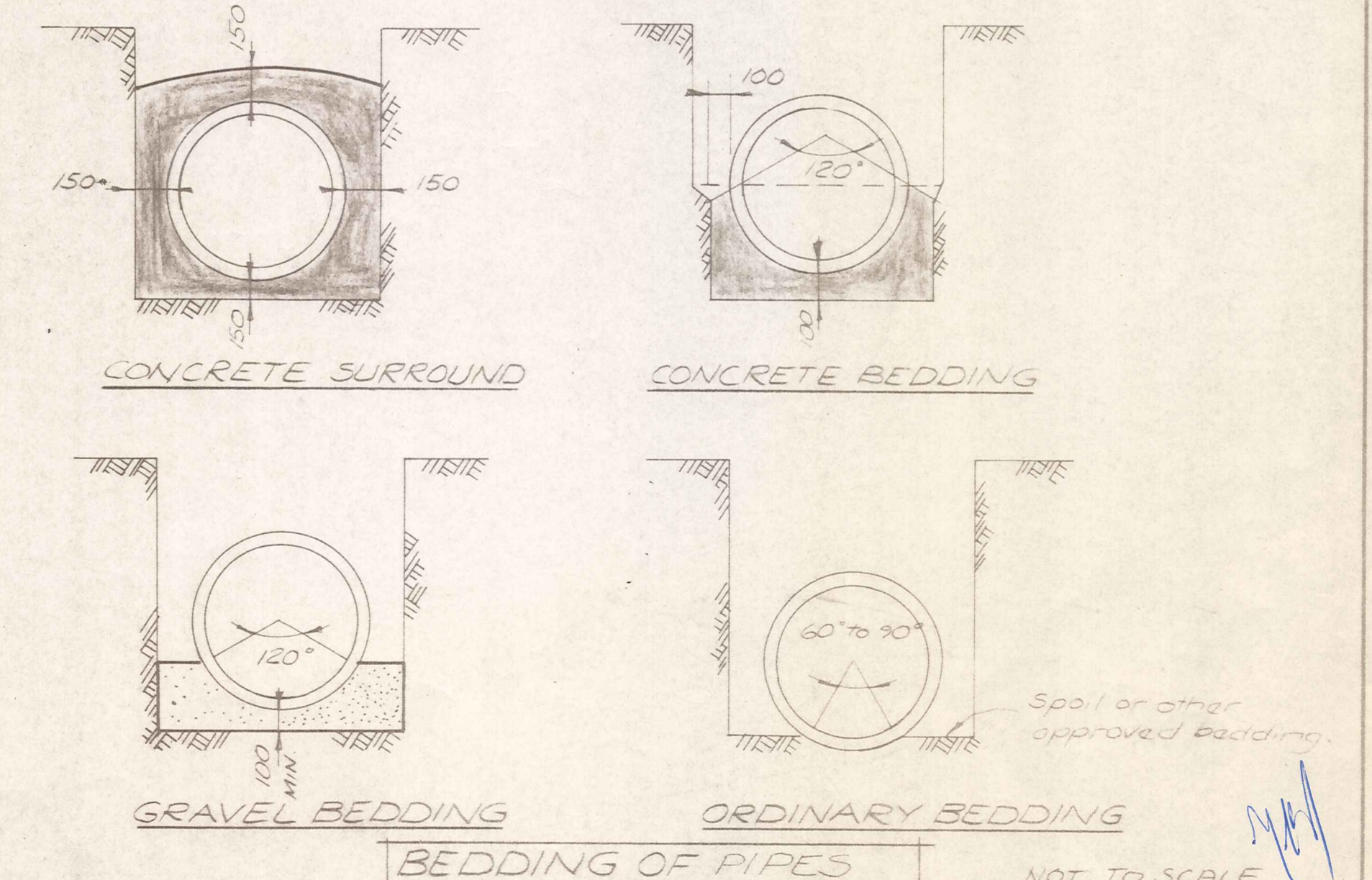
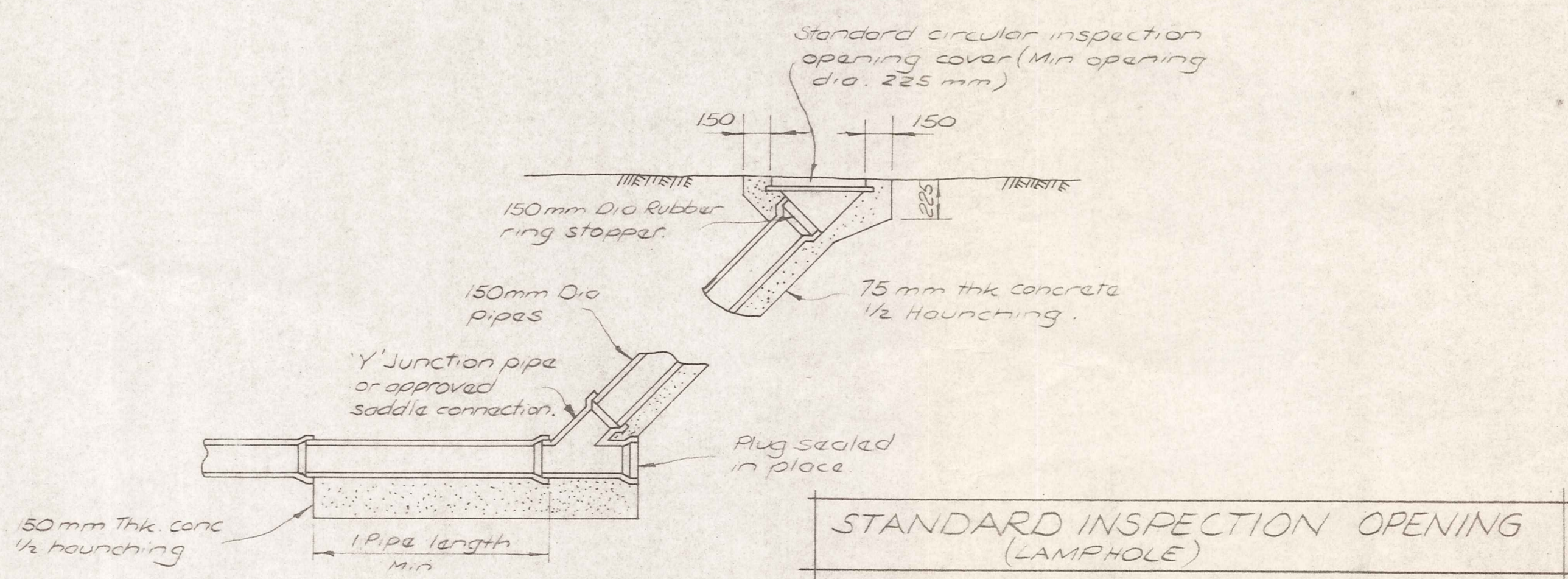
JOB NO.	9863	Sheet No.	7
File	9/19/9	L.B.	414 215
F.B.			

Handwritten initials and signature.



NOTE: Wall thickness increases to 225 mm for manholes greater than 3.0 m deep.

STANDARD SANITARY SEWER MANHOLE DETAILS
(FOR DIAMETERS LESS THAN 375 mm)



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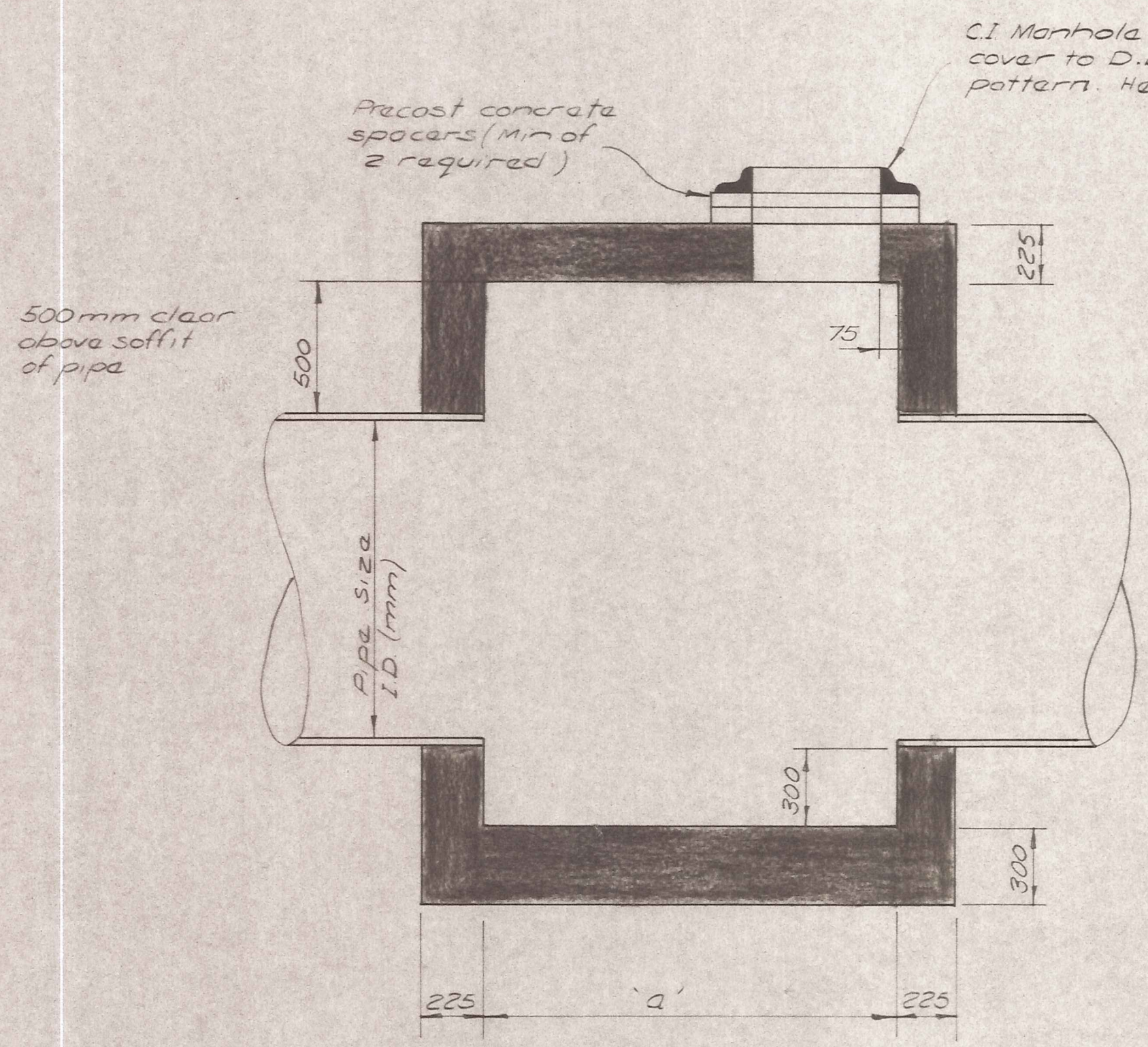
NEIGHBOURHOOD 1
DEVELOPMENT

CONTRACT No. 8
TRUNK SERVICE MAINS
AND STREETWORK
CONSTRUCTION

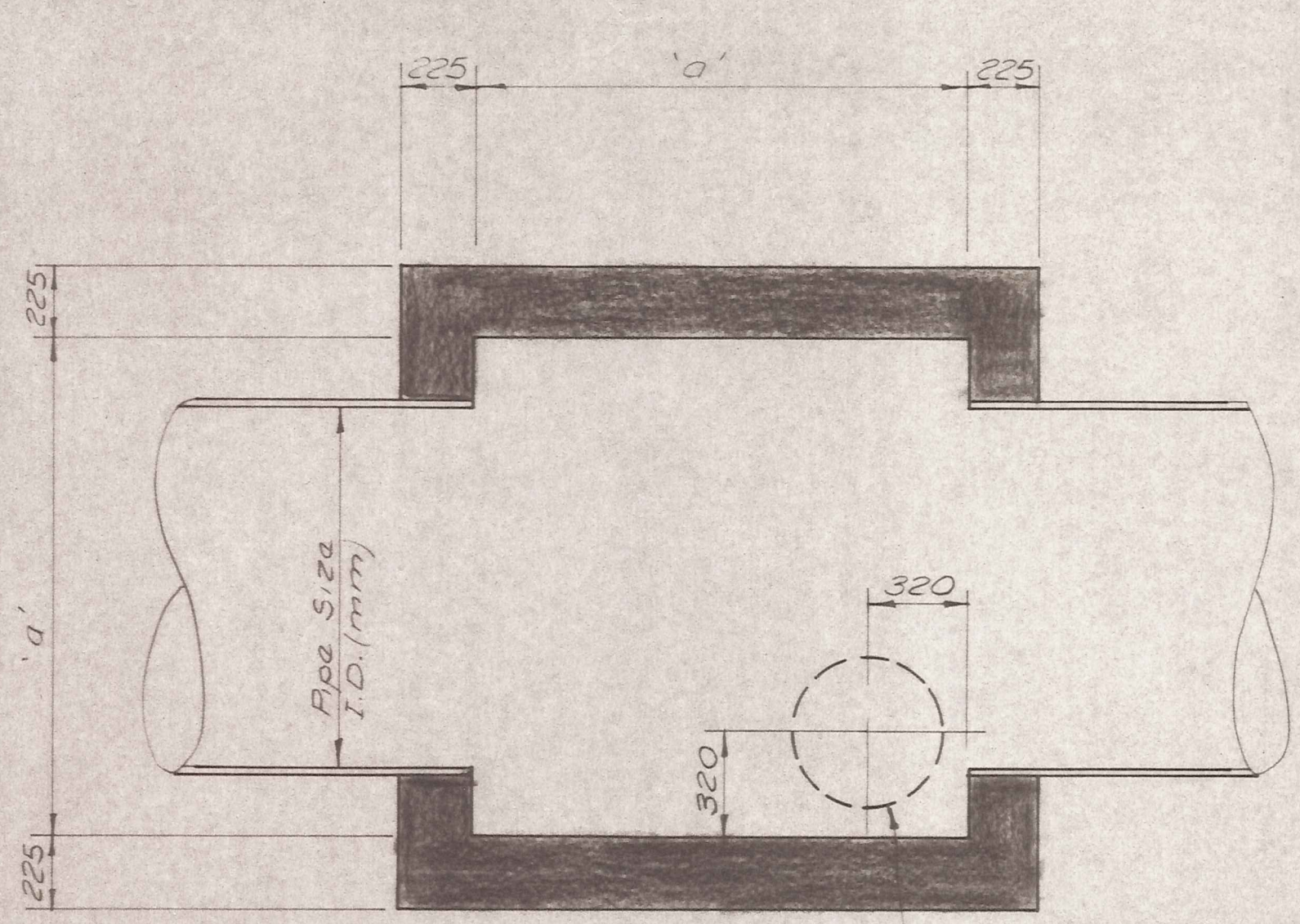
STANDARD DETAILS
(ENGINEERING SERVICES)

AMENDMENTS			NAME		DATE	JOB NO.	Sheet No
NO.	BY	DATE	Appvd.	Surveyed			
				B HAWKINS	6-82	9863	8
				Calculations			of 11 shts
				Traced	M COOPER	6-82	
				Checked	[Signature]	16/6/82	
				Approved	[Signature]	Dec '82	
						9/19/9	

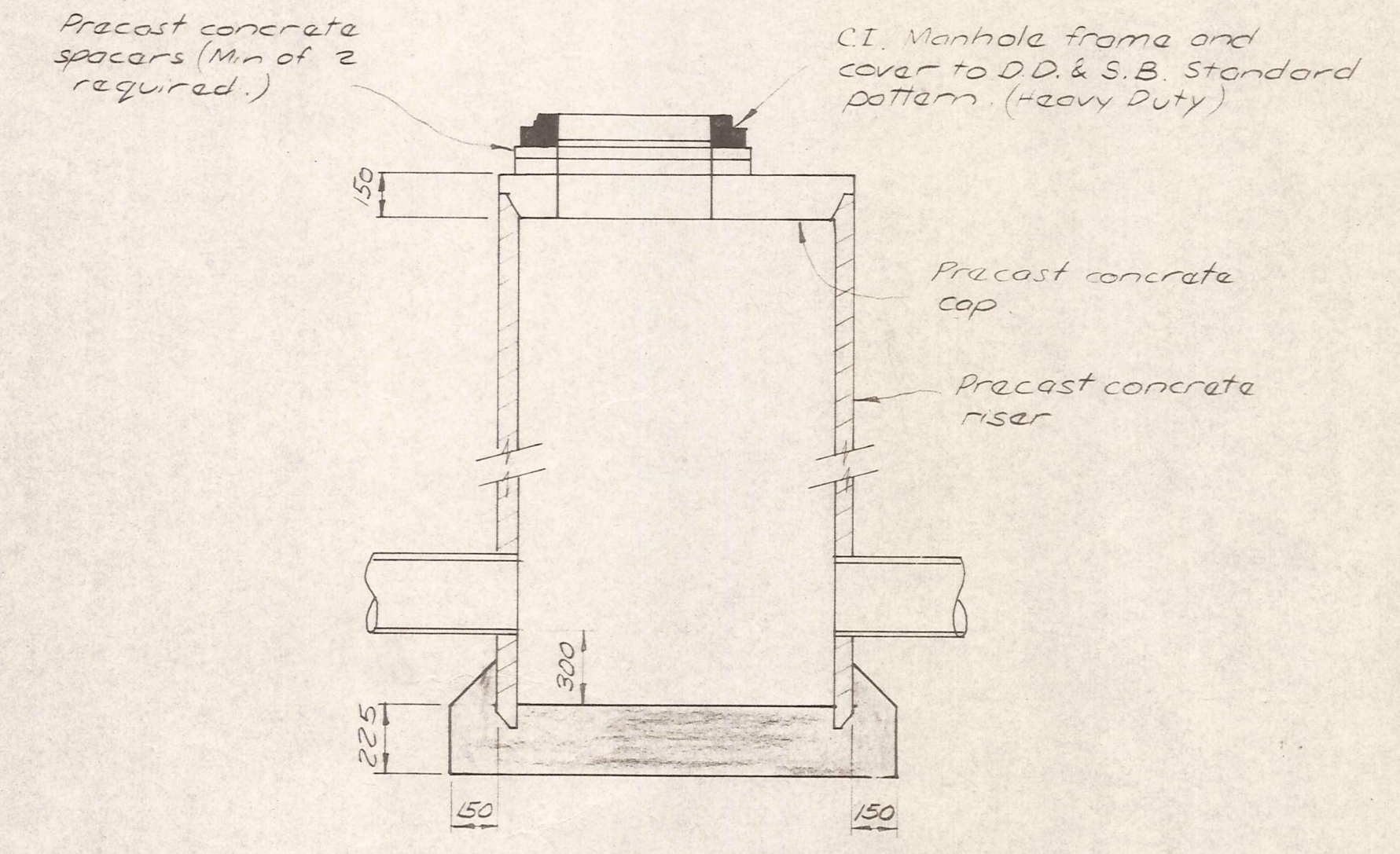
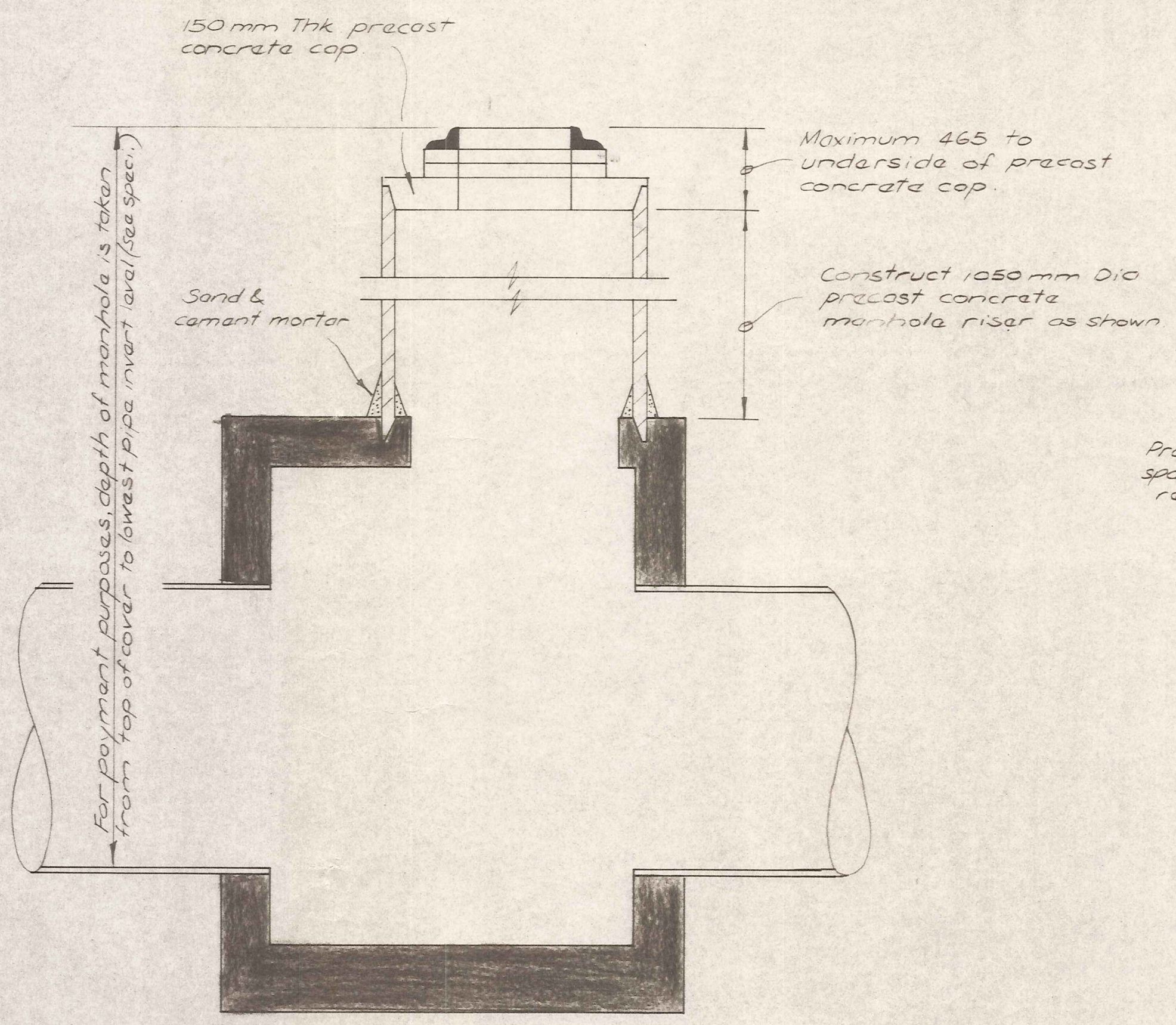
ORIGINAL SIZE
mm INCHES



ELEVATION



PLAN



SECTION PRECAST MANHOLE

DIMENSIONS		REINFORCING
Pipe Sizes I.D. (mm)	'a' (mm)	
1350	1750	ROOF: D12 @ 150 c/s Eathway (50 cover)
1200	1600	
1050	1600	
900	1300	Walls: D12 @ 300 c/s HORZ. D12 @ 450 c/s VERT. (centrally placed)
750	1200	
600	1200	
525	1200	
450	1050	

NOTE: Precast riser shaft to be positioned before insitu concrete at Base is poured.
The riser is to be supported such that a minimum 75mm is embedded into concrete. A sand and cement mortar is to be placed completely around base of riser as shown.

STANDARD STORMWATER DRAIN MANHOLE
(FOR STORMWATER DRAINS LESS THAN 450 mm Dia.)

STANDARD STORMWATER DRAIN MANHOLE
(FOR STORMWATER DRAINS 450 mm Dia & LARGER)

SCALE 1:20

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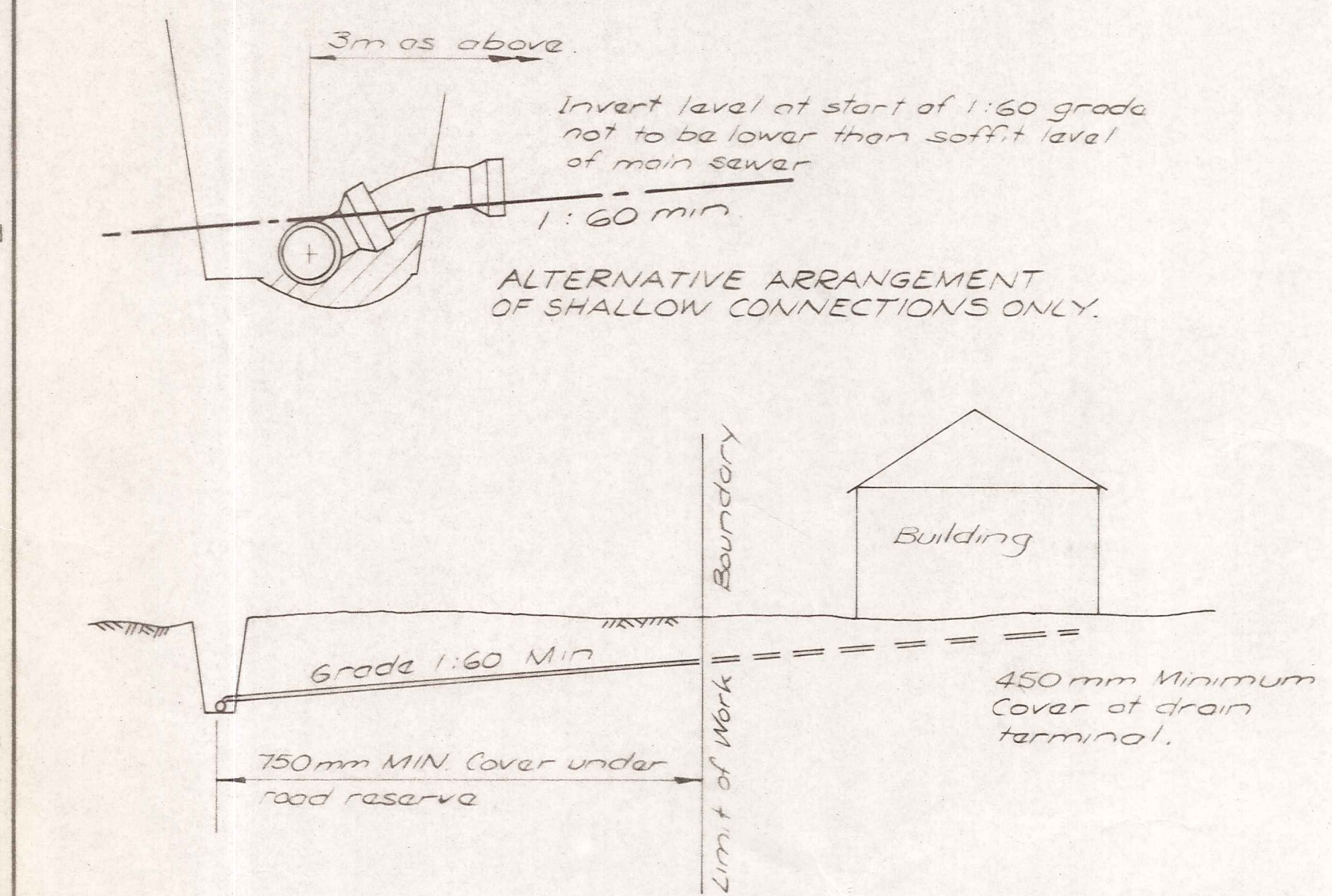
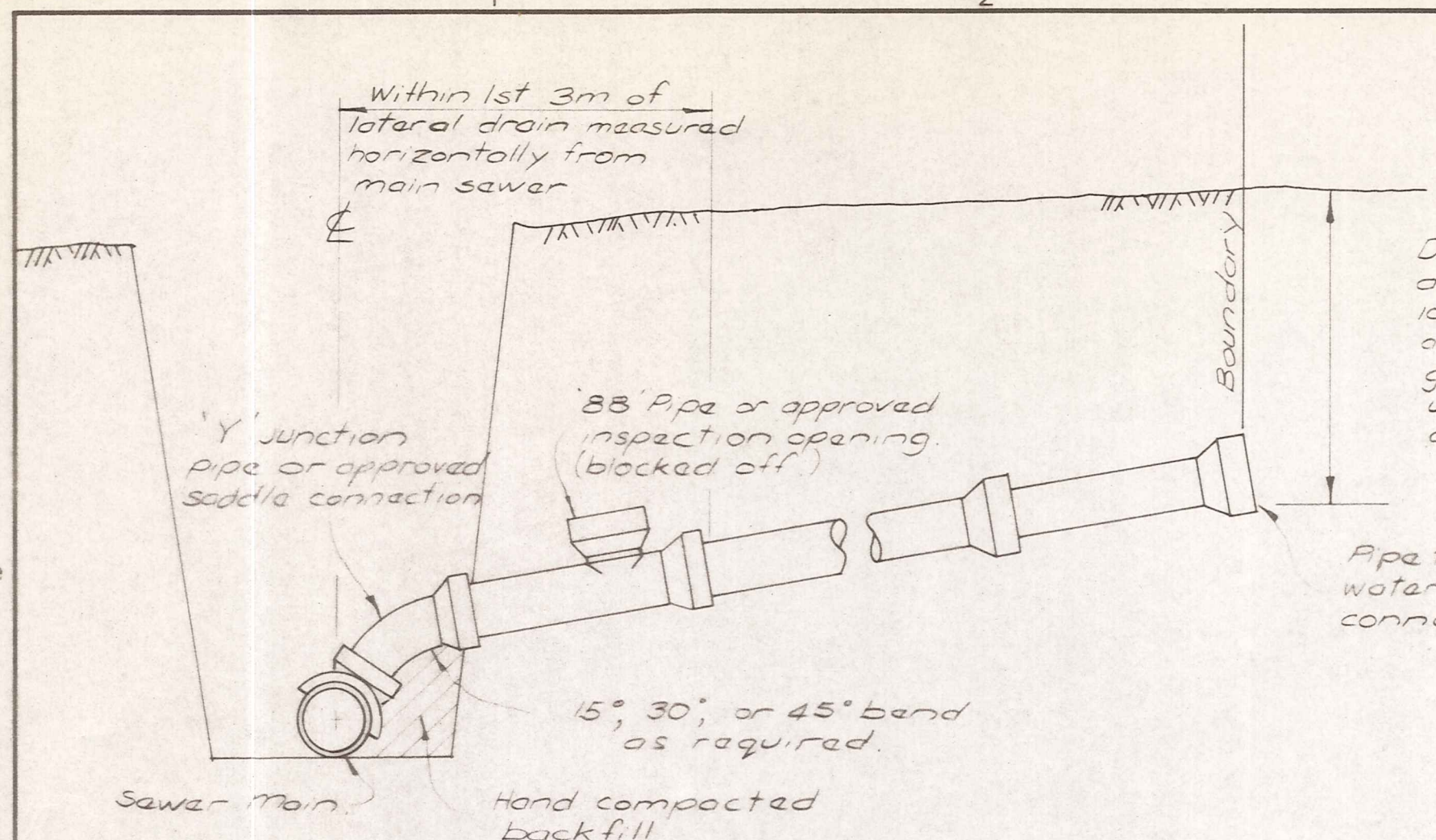
NEIGHBOURHOOD 1
DEVELOPMENT

CONTRACT No. 8
TRUNK SERVICE MAINS
AND STREETWORK
CONSTRUCTION

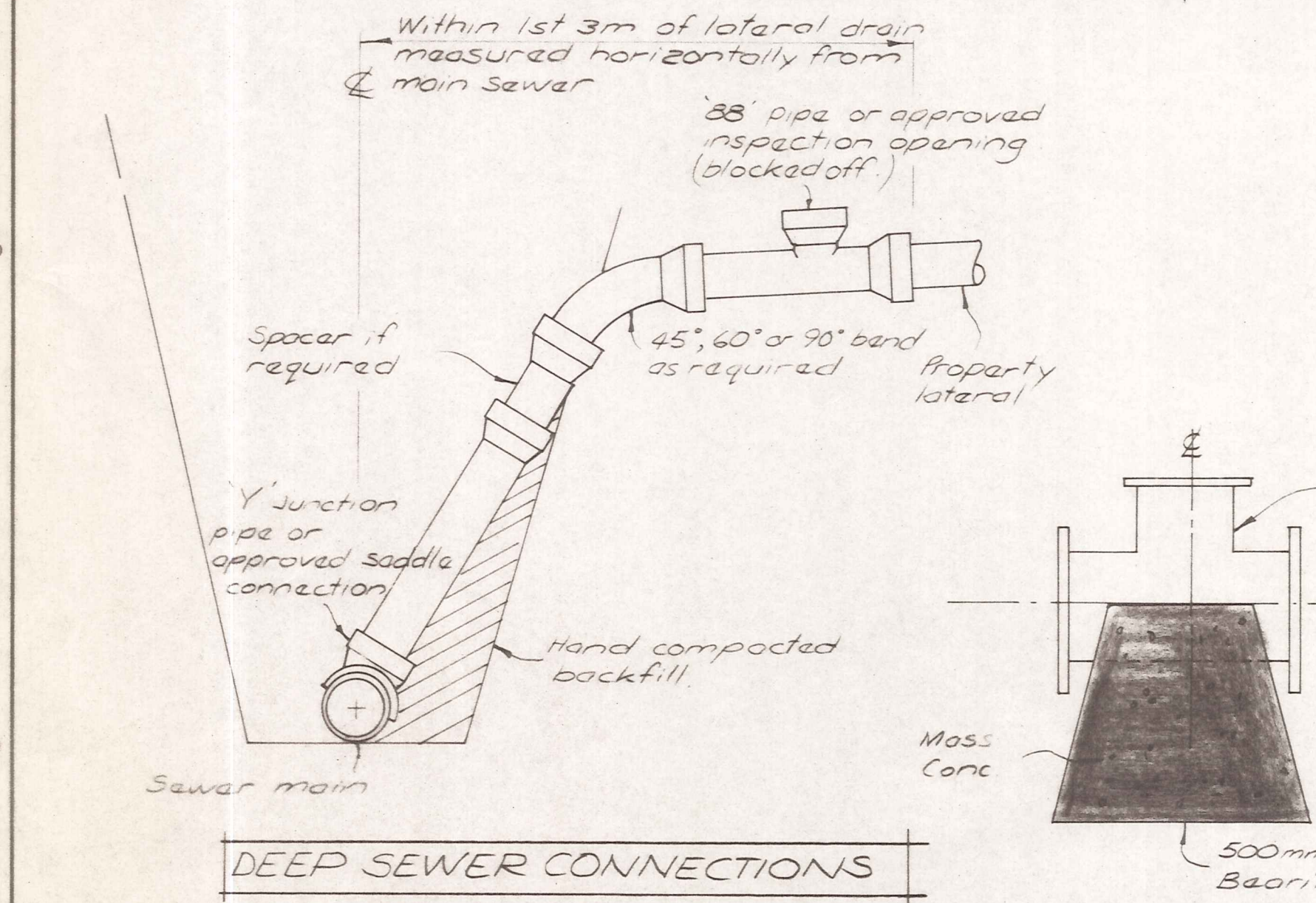
STANDARD DETAILS
(ENGINEERING SERVICES)

AMENDMENTS			NAME		DATE	JOB NO.	Sheet No
NO.	BY	DATE	Appvd	Surveyed			
				B HAWKINS	6-82	9863	9
				M. COOPER	6-82		of 11 shts
					16/6/82		
					Dec '82		
						9/19/9	F.B.

ORIGINAL SIZE INCHES
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 25 30 40 50 60 70 80 90 100 150 200 300

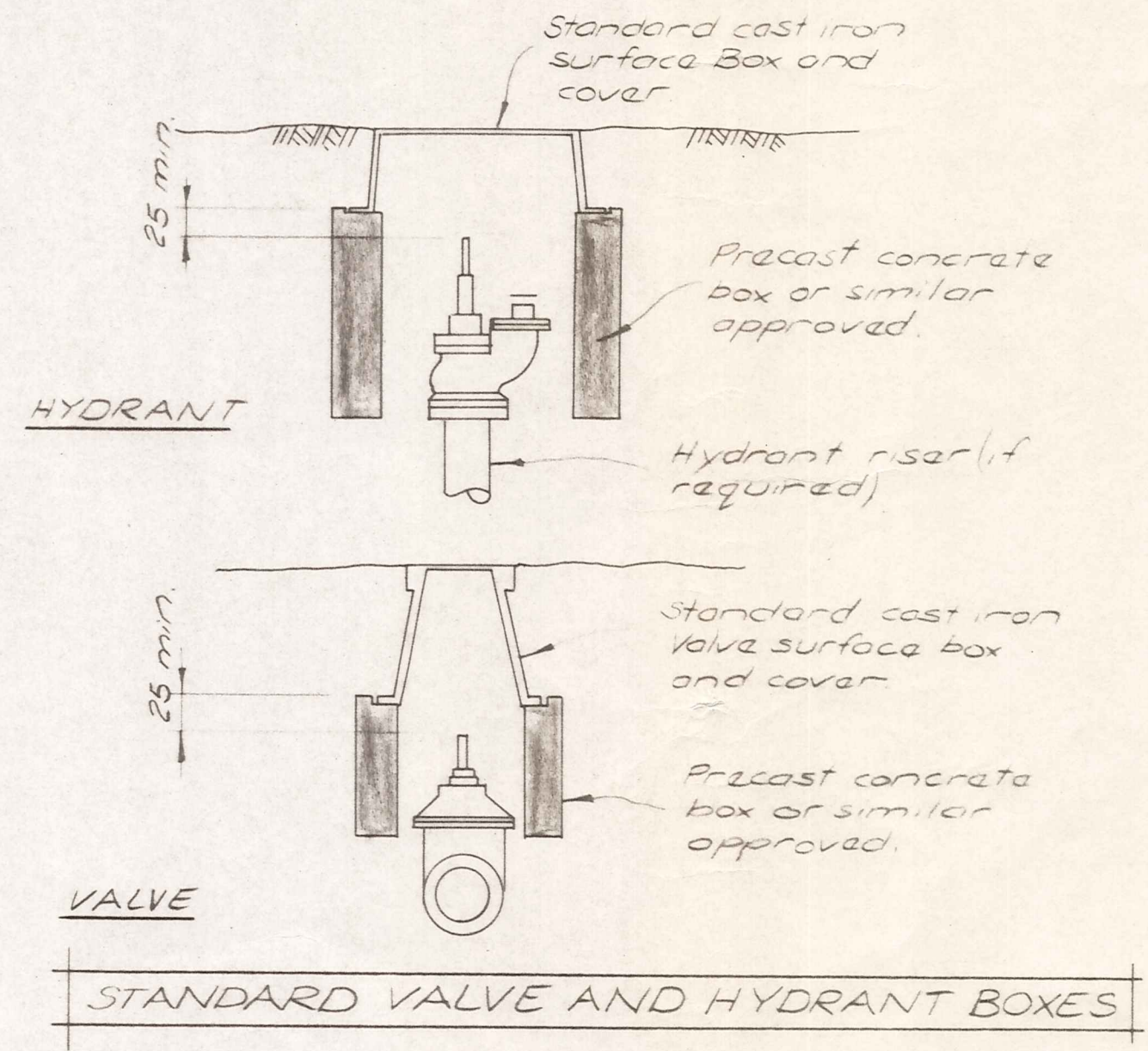


SHALLOW SEWER CONNECTIONS

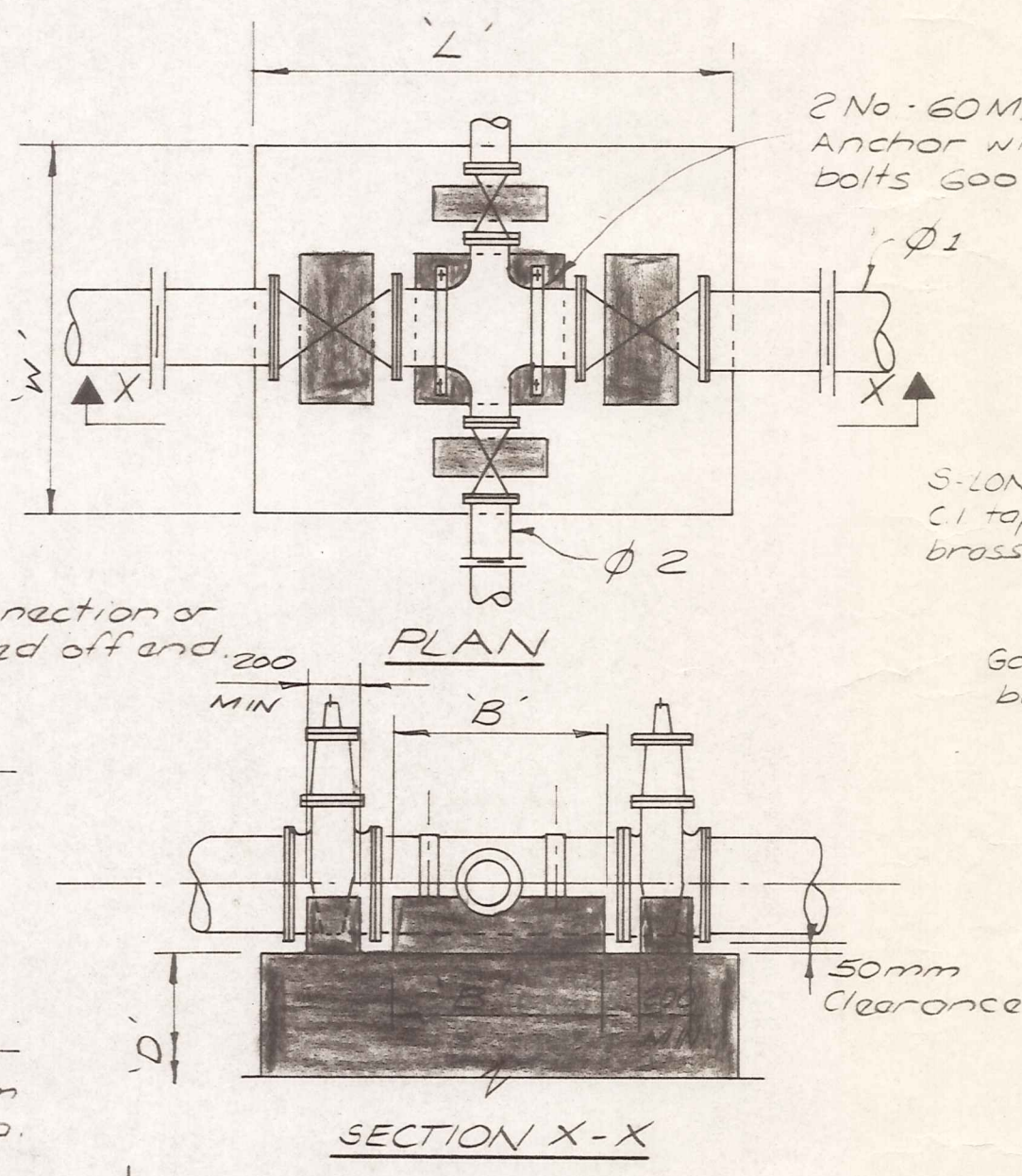


DEEP SEWER CONNECTIONS

NOTE: Deep Sewer Connections shall only be used when the main sewer is deeper than 2500 and then only provided adequate depth remains at the boundary as for the shallow sewer connections

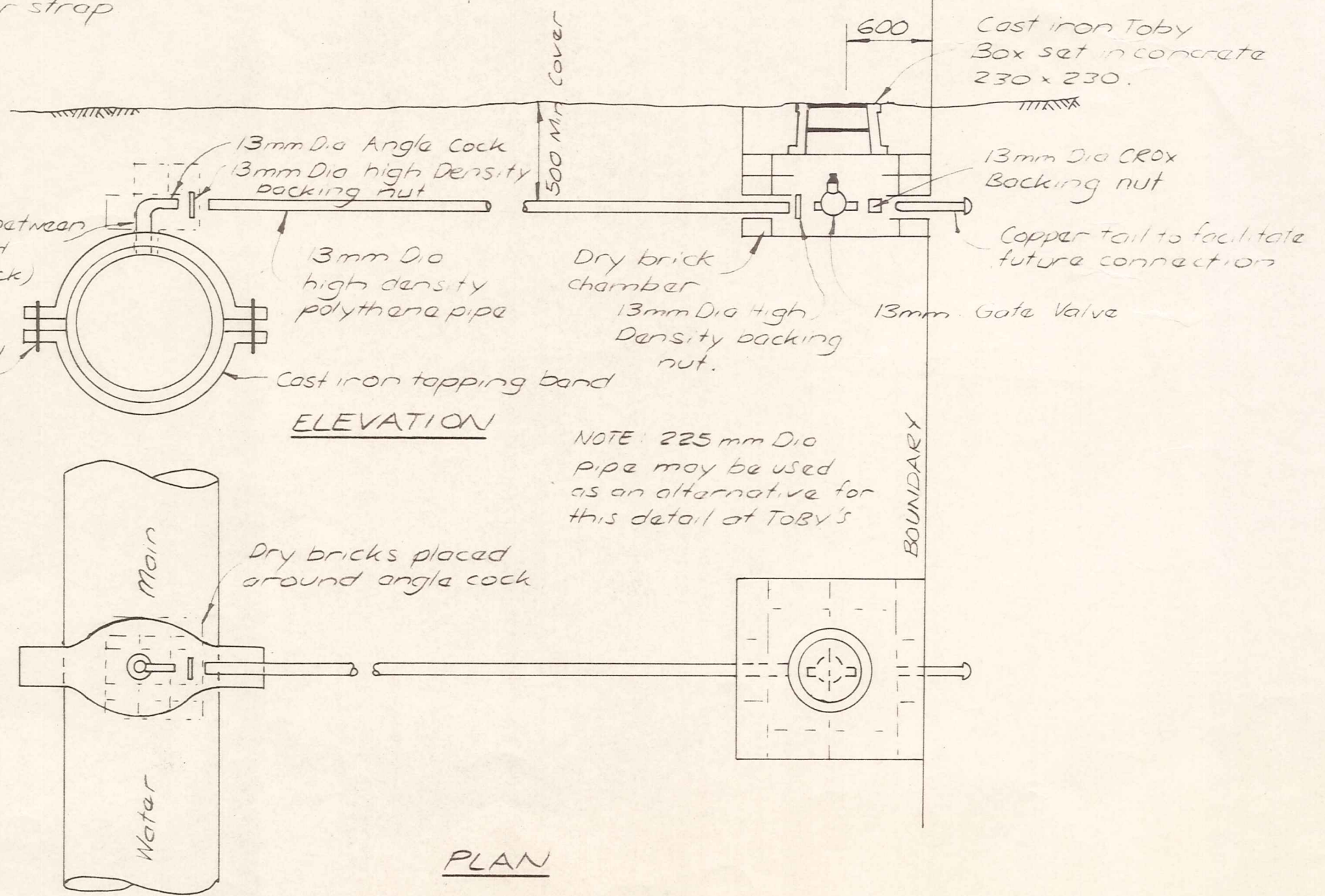


STANDARD VALVE AND HYDRANT BOXES

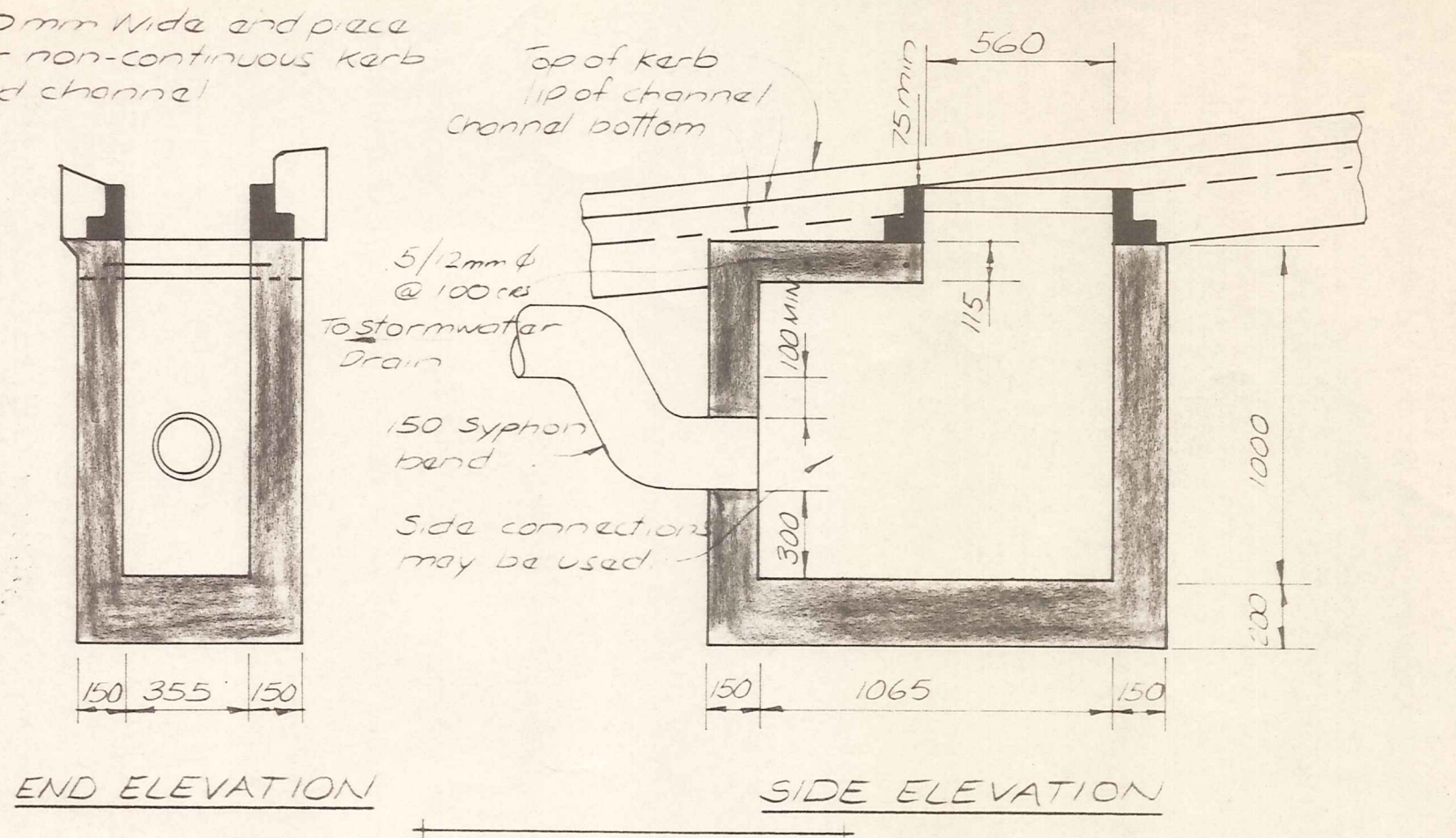


TYPE	φ1	φ2	W	L	D	B
A	100	100	900	300	400	200
B	150	100	1000	1000	400	250
C	150	150	1000	1000	400	250
D	375	150	1400	1600	1600	750

CROSS ANCHOR BLOCK DETAIL

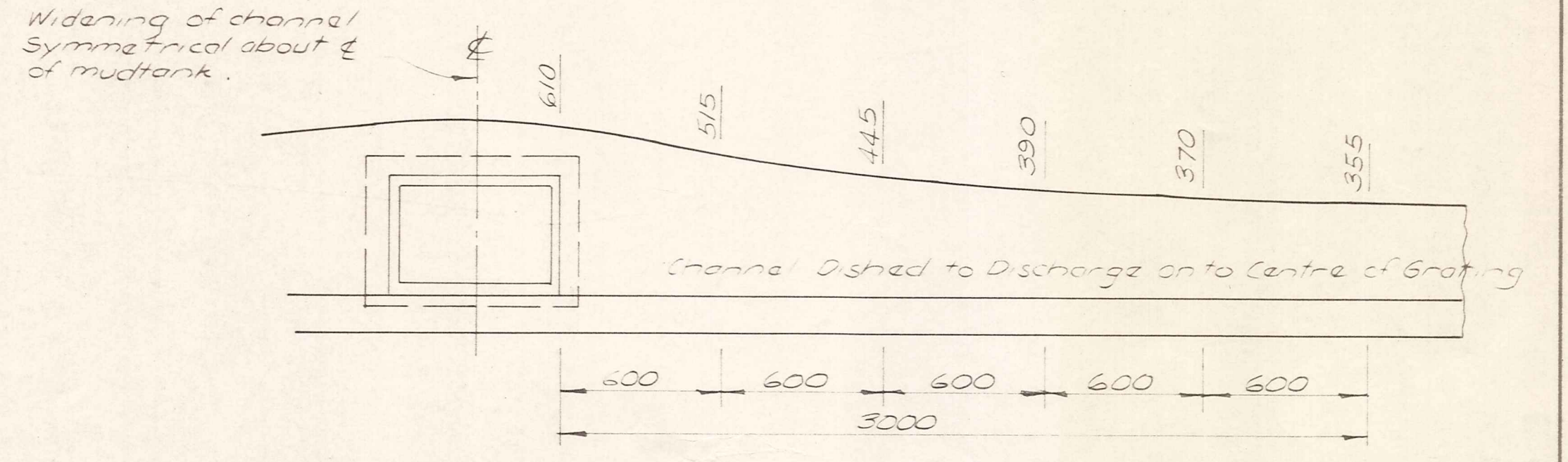


HOUSEHOLD WATER CONNECTION DETAIL

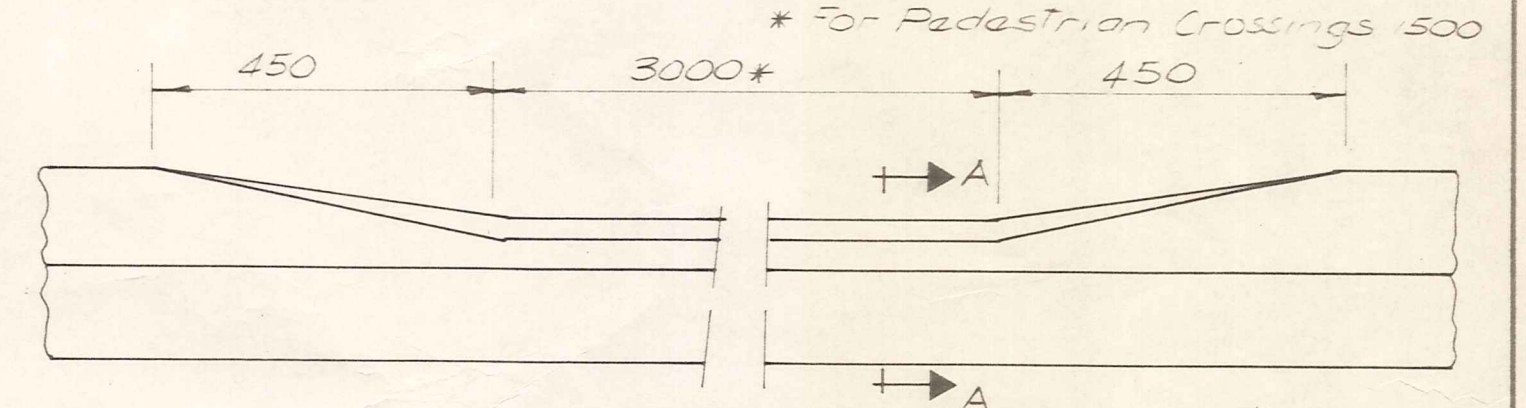


END ELEVATION SIDE ELEVATION

No 2 MUDTANK

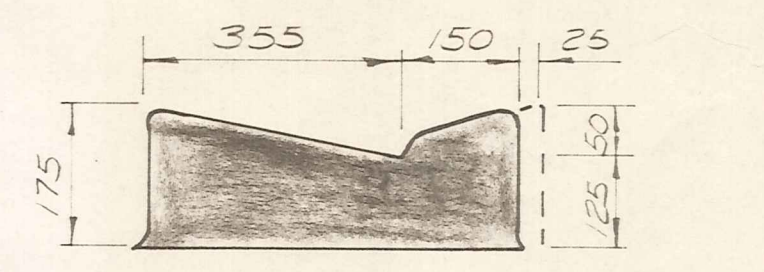


PLAN OF CHANNEL AT MUDTANKS

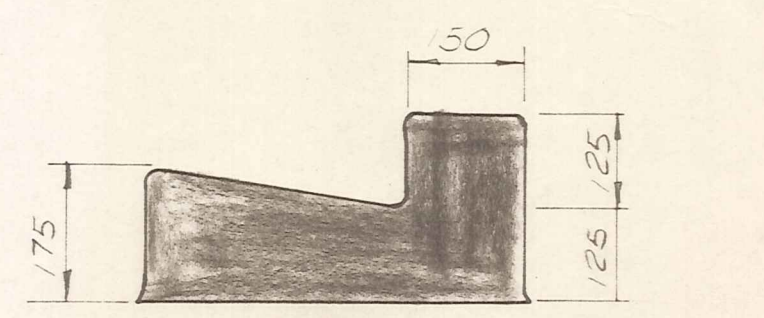


DROP KERB CROSSING

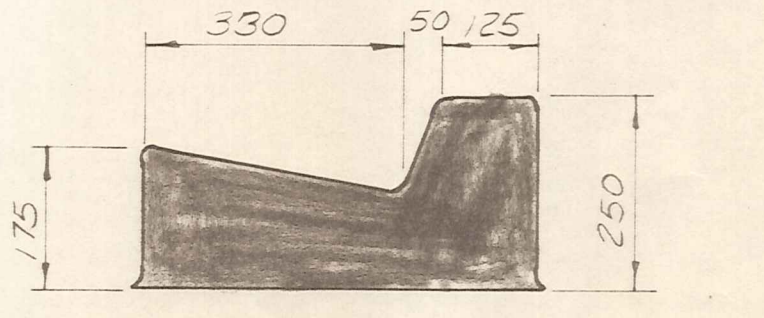
NOTE: Length of crossings 3000. Invert must be on grade. Concrete strength 20MPa @ 28 days



SECTION A-A



TYPE 1 (EAST OF MONAGHAN ST)



TYPE 2 (WEST OF MONAGHAN ST)

KERB AND CHANNEL DETAILS

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NEIGHBOURHOOD 1 DEVELOPMENT

CONTRACT No. 8
TRUNK SERVICE MAINS AND STREETWORK CONSTRUCTION

STANDARD DETAILS
(ENGINEERING SERVICES)

AMENDMENTS				NAME	DATE	JOB NO.	Sheet No.
NO	BY	DATE	Appvd	Surveyed	B. HAWKINS	6-82	10
				Drawn			of 11 sheets
				Calculations	M. COOPER	6-82	FB
				Traced			
				Checked		16/6/82	
				Approved		Dec 82	

ORIGINAL SIZE mm INCHES