

# STANDARD DRAWINGS

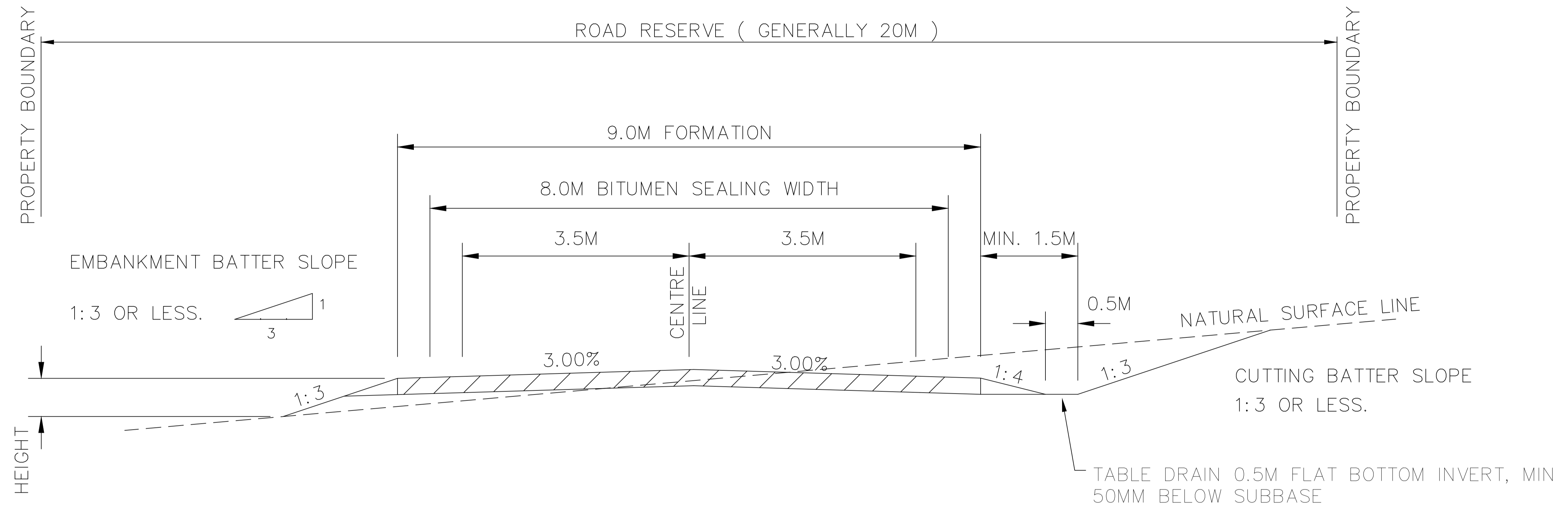
## ROADS

## STORMWATER DRAINAGE

NUMBER	TITLE	NUMBER	TITLE
SD-R 01	RURAL ROAD - 7M SEALED ROAD TYPICAL CROSS SECTION	SD-D 01	SIDE ENTRY PIT - NO EXTENDED CHAMBER PIT
SD-R 02	URBAN ROAD - TYPICAL CROSS SECTION	SD-D 02	JUNCTION PIT
SD-R 03	BICYCLE PATH AND HOLDING RAIL	SD-D 03	DRAINAGE CONNECTIONS - MINOR
SD-R 04	STANDARD FOOTPATH 1.2M WIDE	SD-D 04	SURFACE INLET PIT
SD-R 05	KERB & GUTTER	SD-D 05 A,B,C	KERB INLET PIT WITH GRATE - EXTENDED CHAMBER PIT
SD-R 06	VEHICULAR DRIVEWAY PROFILES	SD-D 06	INTERLOT DRAINAGE CONNECTIONS
SD-R 07	VEHICLE CROSSING PLAN RESIDENTIAL AND INDUSTRIAL	SD-D 07	STANDARD CONCRETE HEAD WALL 300-900mm
SD-R 08	STANDARD ALLOCATION FOR PUBLIC UTILITIES IN FOOTPATH	SD-D 08	PRECAST BOXCULVERTS (EXCAVATION, BEDDING & BACKFILLING)
SD-R 09	KERB OUTLET	SD-D 09	MASS CONCRETE WINGWALL
SD-R 10 A & B	KERB RAMPS	SD-D 10	MASS CONCRETE WINGWALL QUANTITIES
SD-R 11	STREET NAME PLATE & POST	SD-D 11	STEP IRON DETAILS
SD-R 12	RURAL ACCESS OFF A PUBLIC ROAD	SD-D 12 A,B	GRASS LINED CHANNEL - OUTLET DETAILS
SD-R 13	TRENCH BACKFILL DETAILS FOR ROAD CROSSING	SD-D 13	SWALE FOOTPATH CROSSING
		SD-D 14	SWALE DRIVEWAY PROFILES
		SD-D 15	SWALE STABILISED SITE ACCESS
		SD-D 16	RAIN GARDEN
WATER SUPPLY			
NUMBER	TITLE		
SD-W 01	TYPICAL 20-25MM WATER METER ASSEMBLY ARRANGEMENT		



CIVIC CENTRE 184-194 BOURKE STREET, GOULBURN, NSW - 2580.  
LOCKED BAG 22, GOULBURN, NSW - 2580.  
PHONE: (02) 4823 4444. FAX: (02) 4823 4456.



NOTES:

1. THIS ONLY INDICATES ONE ROAD WIDTH. DIFFERENT RURAL ROAD WIDTHS HAVE SIMILAR ARRANGEMENTS. REFER TO DESIGN SPECIFICATION DECTION D1
2. TABLE DRAIN WITH LONGITUDINAL GRADE BETWEEN 0% AND 5.0% TO BE UNLINED. TABLE DRAINS STEEPER THAN 5.0% BUT NOT STEEPER THAN 10.0% SHALL BE LINED WITH BITUMEN AND JUTEMESH (OR SIMILAR). TABLE DRAINS STEEPER THAN 10% SHALL BE LINED WITH PERMANENT IMPERVIOUS LINING.
3. ROADSIDE SAFETY BARRIER TO BE INSTALLED IF BATTER FILL HEIGHT IS 4.0M OR GREATER. REFER TO AUSTROADS PART 6 ROADSIDE DESIGN SAFETY & BARRIERS SECTION 6.3
4. BATTER AND EMBANKMENT SLOPES CAN BE STEEPER THAN INDICATED SUBJECT TO GEOTECHNICAL ANALYSIS, AND ANY NECESSARY STABILISING WORKS. A LONGER MAINTENANCE PERIOD WOULD APPLY IN THIS INSTANCE

INDEX	NAME	DATE	AMENDMENTS
SURVEYED			NOTES CHANGED/ADDED, LANE WIDTH CHANGED (I.ALDRIDGE 2012)
DESIGNED & DRAFTED	P.SMART	14/04/2009	VARIOUS CHANGES (I.ALDRIDGE JANUARY 2018)
DESIGN REVIEWED	P.SMART	14/04/2009	
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012	
ISSUED FOR CONSTRUCTION			
WORK AS EXECUTED			



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GOULBURN, NSW-2580  
LOCKED BAG 22, GOULBURN, NSW-2580  
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FAX: (02) 4823 4456

AUSTRALIAN HEIGHT DATUM

AS-1100 STANDARDS

If the actual work done differs from the original drawing the person performing the work must amend this copy accordingly and return it to the Design Office.

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DIRECTOR OF  
GOULBURN MULWAREE  
OPERATIONS

DATE: 28/02/2018

**RURAL ROAD**  
**8 METRE SEALED ROAD**  
**TYPICAL CROSS SECTION**



A1 - SCALE  
AS SHOWN

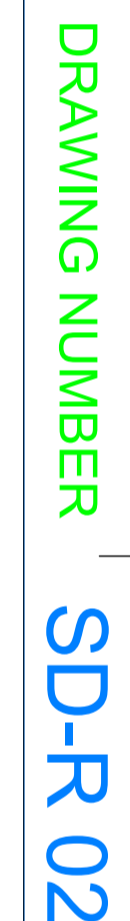
NUMBER OF SHEETS  
34

SHEET NUMBER  
1


FILE NAME:  
REVISION  
GMC-VER-1

STANDARD DRAWINGS.DWG

**SD-R 01**



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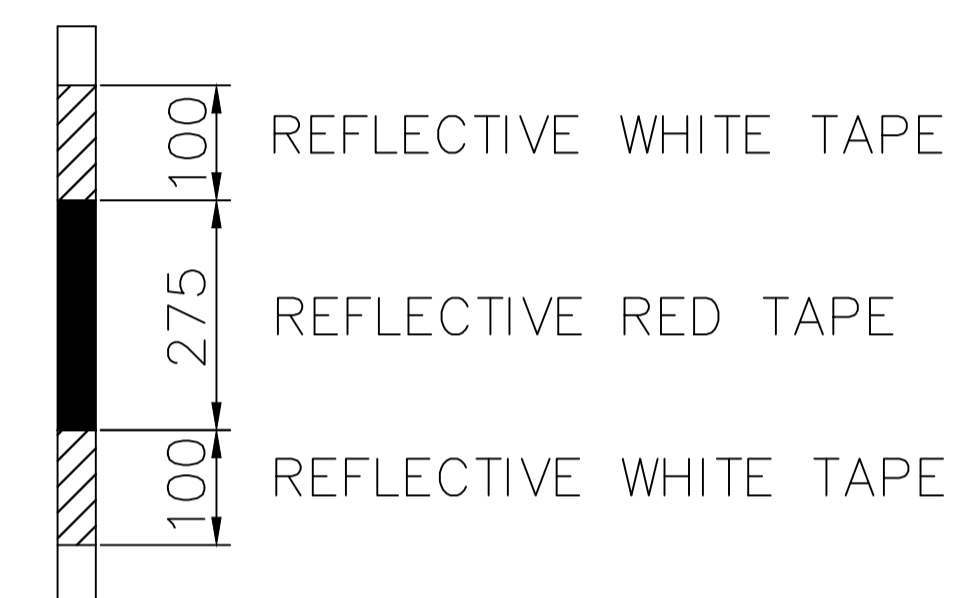
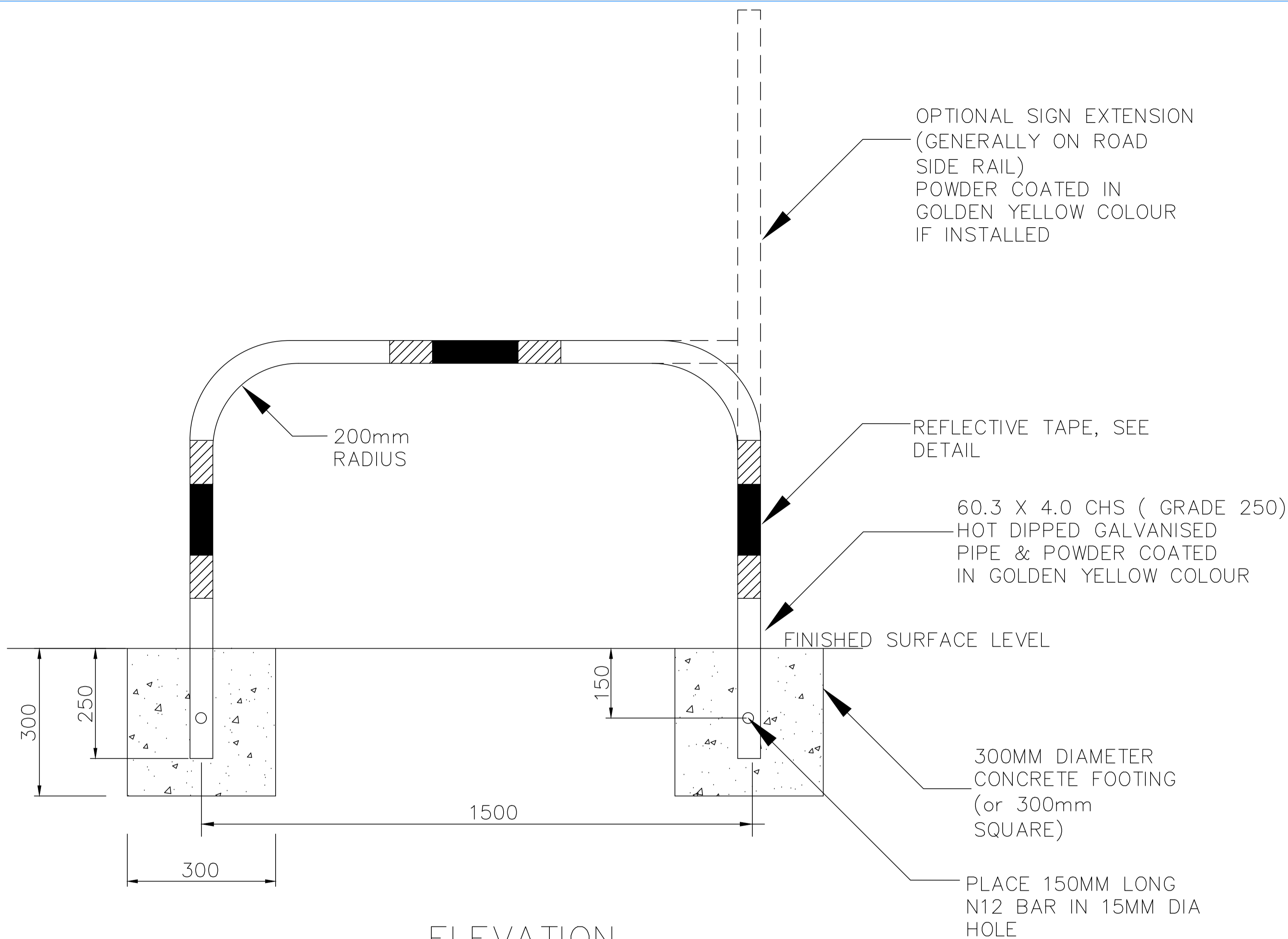
DATE: 28/02/2018

## URBAN ROAD

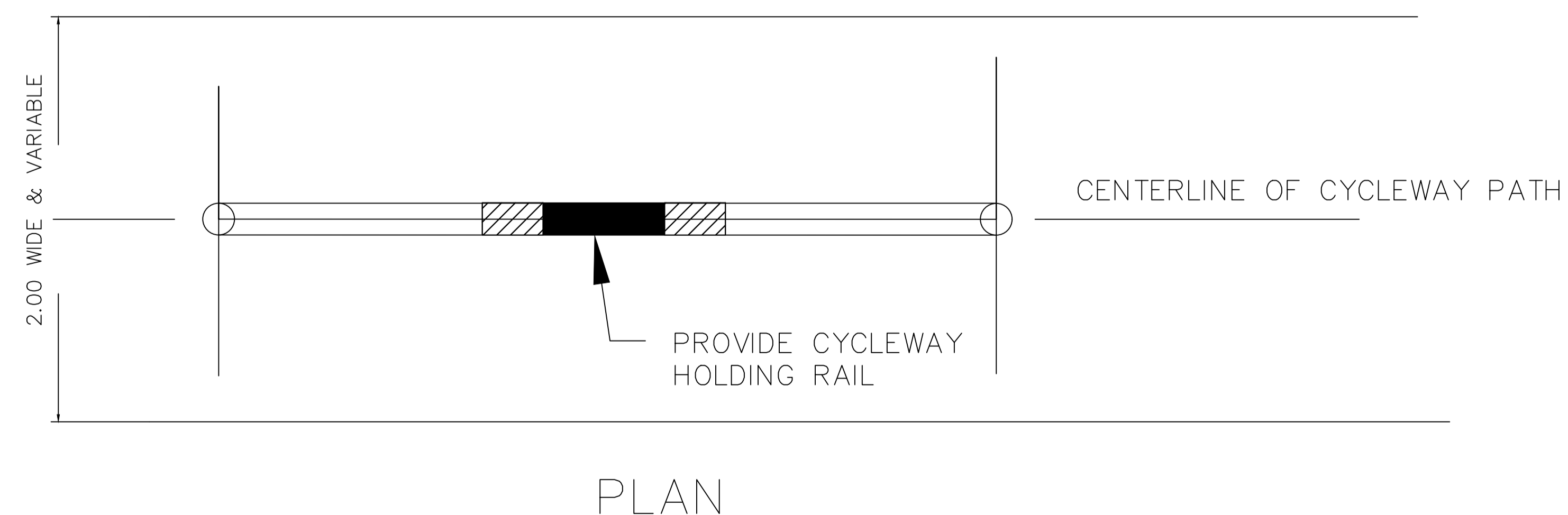
A graphic with a black background. At the top, the words "SAFETY FIRST" are written in large, bold, red capital letters. Below this, the words "PERSONAL PROTECTIVE EQUIPMENT" are written in smaller, bold, white capital letters, and "MUST BE WORN ON SITE" is written in even smaller, bold, red capital letters. In the center, the website address "www.dialbeforeyoudig.com.au" is written in white. At the bottom, there is a red circle with a diagonal slash through it, containing a black silhouette of a person digging. To the right of this symbol, the words "DIAL 1100" are written in large, bold, white capital letters, and "BEFORE YOU DIG" is written in smaller, bold, white capital letters below it.

A1 - SCALE <b>AS SHOWN</b>	NUMBER OF SHEETS <b>34</b>	SHEET NUMBER <b>2</b>
FILE NAME:		STNADARD DRAWINGS.DWG
REVISION <b>GMC-VER-1</b> RD: <i>not used</i>	<b>SD-R 02</b>	



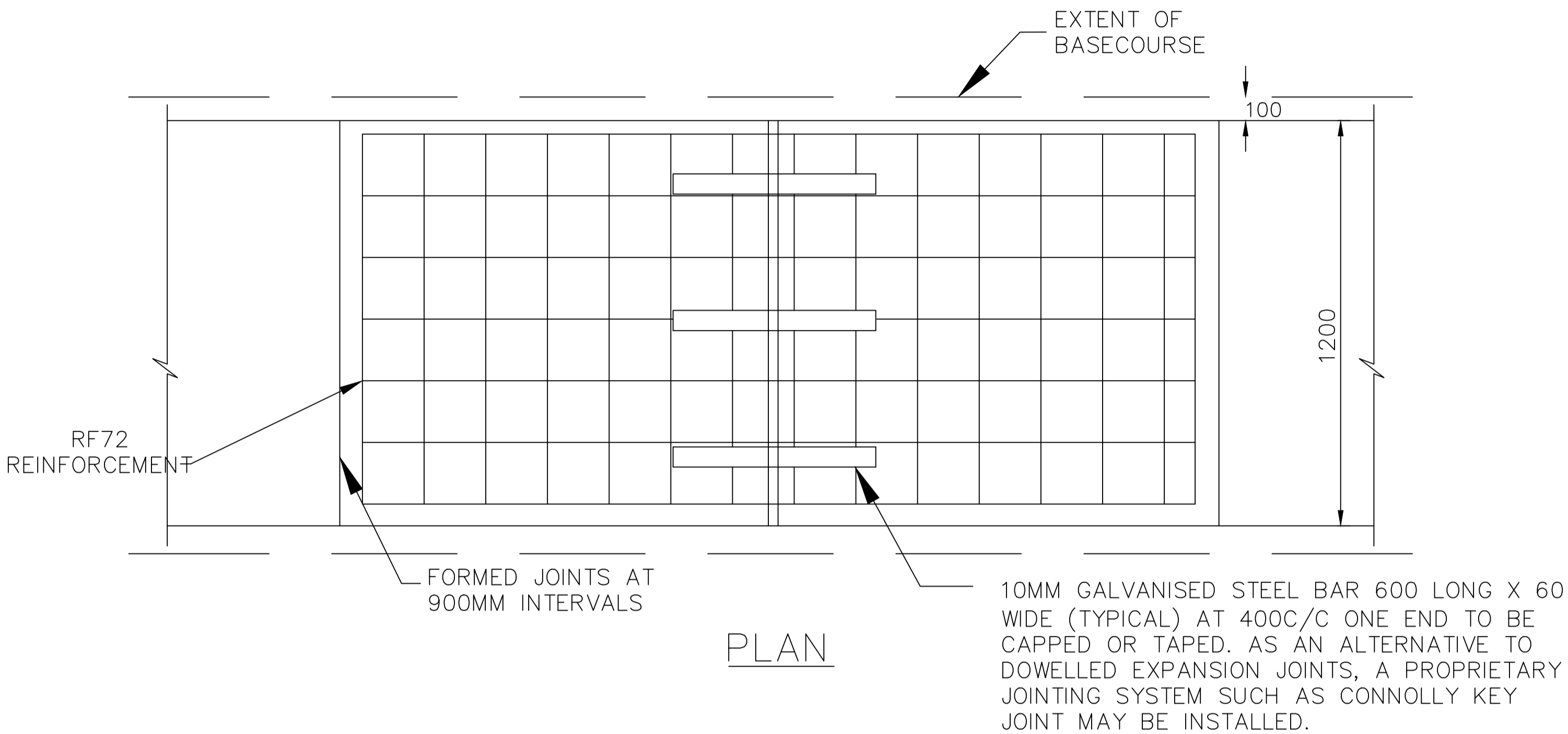


REFLECTIVE TAPE DETAIL



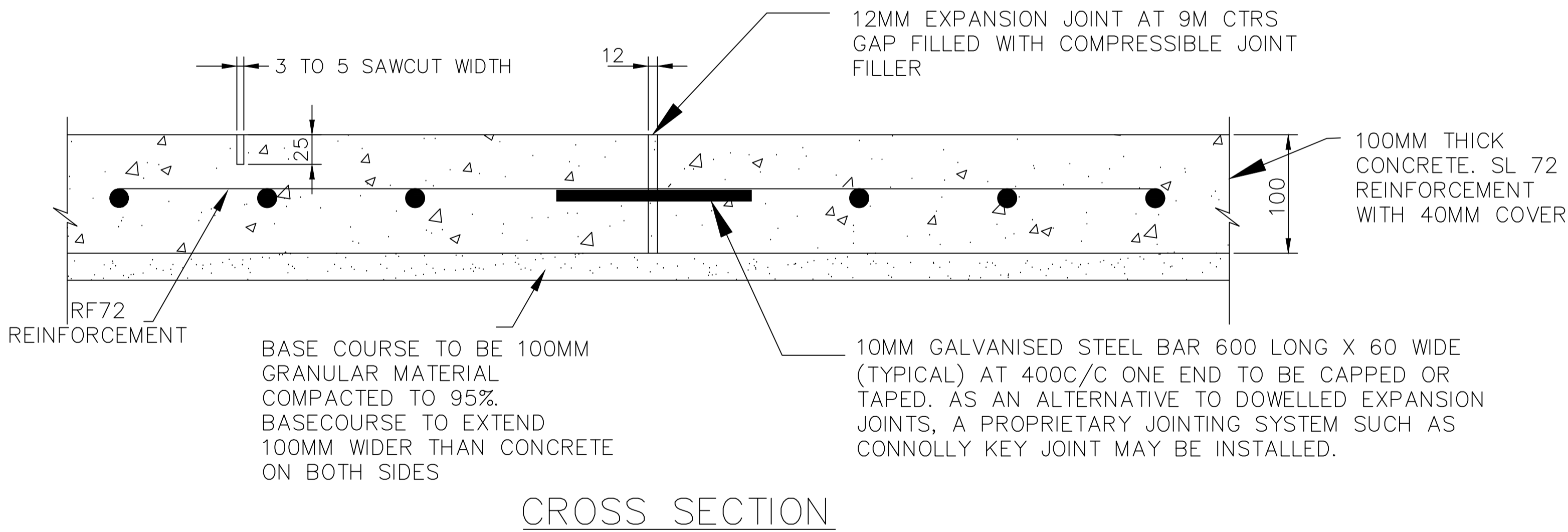
NOTE:  
CONCRETE TO BE 25 MPA AT 28DAYS

INDEX	NAME	DATE	AMENDMENTS							
SURVEYED			NOTES CHANGED/ADDED, TITLE CHANGED (I.ALDRIDGE 2012)	 CIVIC CENTRE, 184-194 BOURKE STREET GOULBURN, NSW-2580 LOCKED BAG 22, GOULBURN, NSW-2580 PHONE: (02) 4823 4444 FAX: (02) 4823 4456  AUSTRALIAN HEIGHT DATUM AS-1100 STANDARDS  If the actual work done differs from the original drawing the person performing the work must amend this copy accordingly and return it to the Design Office.	<b>APPROVED</b>  DIRECTOR OF GOULBURN MULWAREE OPERATIONS DATE: 28/02/2018	SHARED PATH/BICYCLE PATH & HOLDING RAIL	 SAFETY FIRST PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN ON SITE www.dialbeforeyoudig.com.au <b>DIAL 1100</b> BEFORE YOU DIG	A1 - SCALE AS SHOWN	NUMBER OF SHEETS 34	SHEET NUMBER 3
DESIGNED & DRAFTED	T.DIMEC	10/02/2009	HOLDING RAIL DETAILS ADDED (I.ALDRIDGE 2013)							
DESIGN REVIEWED	T.DIMEC	10/02/2009								
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012								
ISSUED FOR CONSTRUCTION										
WORK AS EXECUTED										
				STANDARD DRAWINGS.DWG				<b>SD-R 03</b>		




NOTES:

1. CONCRETE SHALL HAVE A 28 DAY STRENGTH (F'C) OF 25MPA.
2. ANY VARIATIONS TO STANDARD CROSSFALL 2% MIN – 4% MAX ON FOOTPATH SHALL REQUIRE THE PRIOR APPROVAL OF COUNCIL'S ENGINEER.
3. ALL DOWELS TO BE 600MM LONG WITH 300MM PENETRATION INTO EACH SLAB, ONE END CAPPED OR TAPED.
4. EXPANSION JOINTS TO BE PLACED EVERY 9 METRES.
5. FORM CONTROL JOINTS 25MM DEEP AT 1200MM CTRS WITHIN 24 HOURS OF FINISHING CONCRETE
6. FOOTPATHS SHALL BE 100MM THICK REINFORCED CONCRETE, RF72 REINFORCEMENT.



INDEX	NAME	DATE	AMENDMENTS
SURVEYED			NOTES CHANGED/ADDED (I.ALDRIDGE 2012)
DESIGNED & DRAFTED	T.DIMEC	04/05/2011	NOTES CHANGED/ADDED (I.ALDRIDGE MARCH 2017)
DESIGN REVIEWED	T.DIMEC	04/05/2011	
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012	
ISSUED FOR CONSTRUCTION			
WORK AS EXECUTED			



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AS-1100 STANDARDS

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OPERATIONS

DATE: 28/02/2018


STANDARD FOOTPATH

1.2M WIDE

TITLE4

**SAFETY FIRST**  
PERSONAL PROTECTIVE EQUIPMENT  
MUST BE WORN ON SITE

www.dialbeforeyoudig.com.au



A1 - SCALE  
AS SHOWN

FILE NAME:  
STANDARD DRAWINGS.DWG

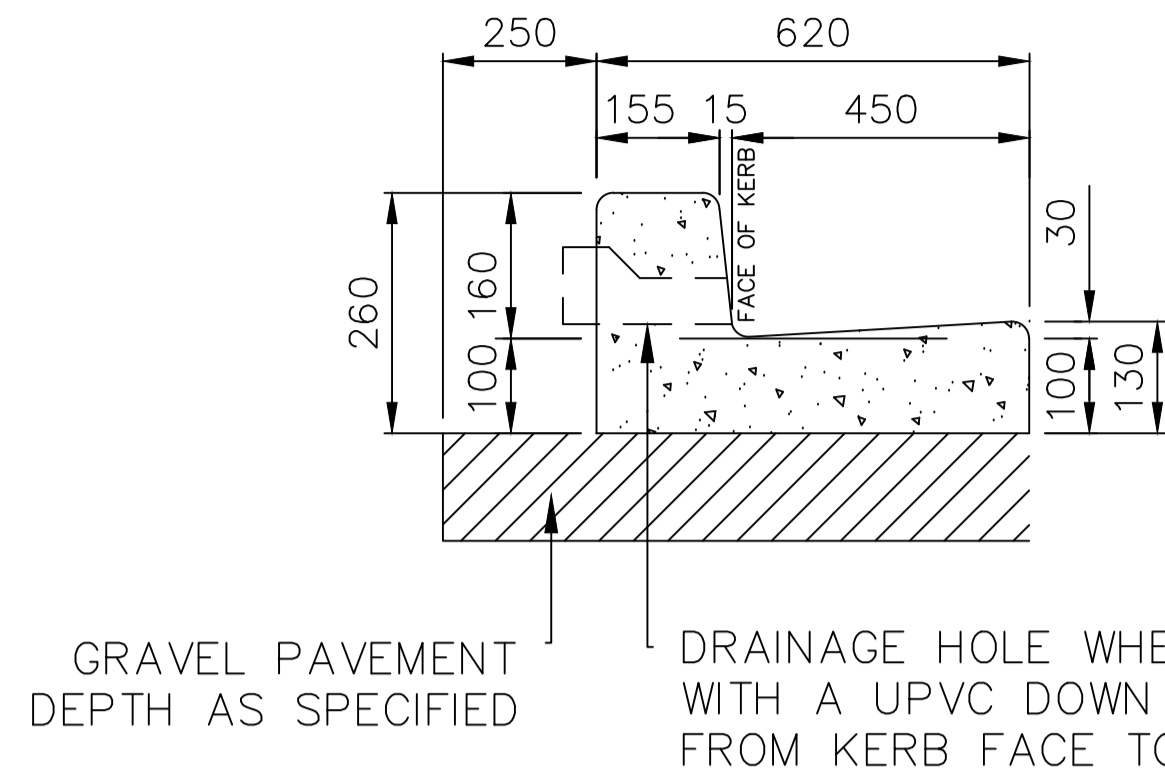
REVISION  
GMC-VER-1

RD: -/-/-/-/-

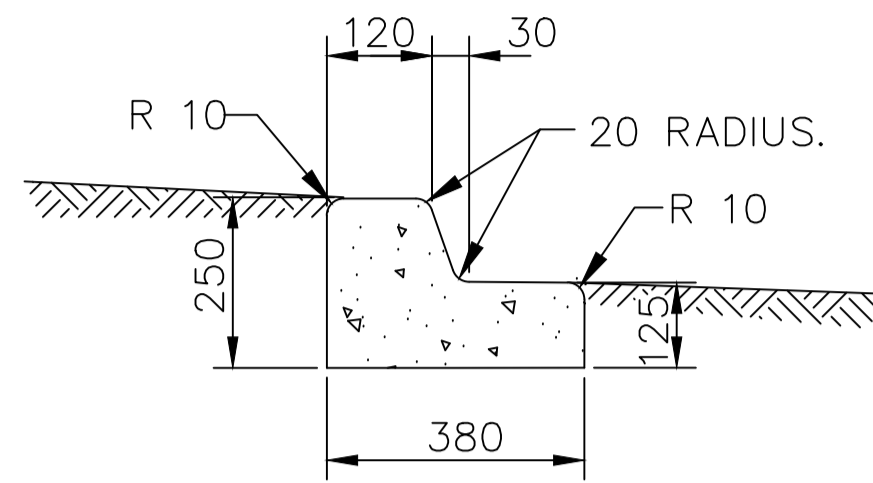
NUMBER OF SHEETS  
34

SHEET NUMBER  
4

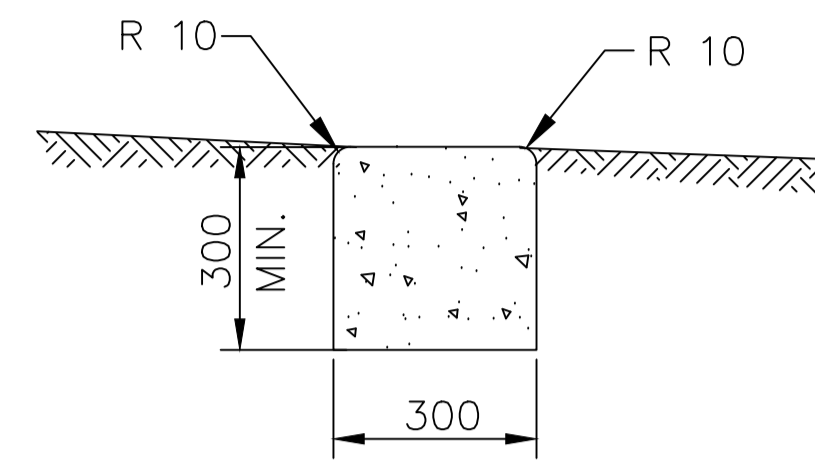
SD-R 04



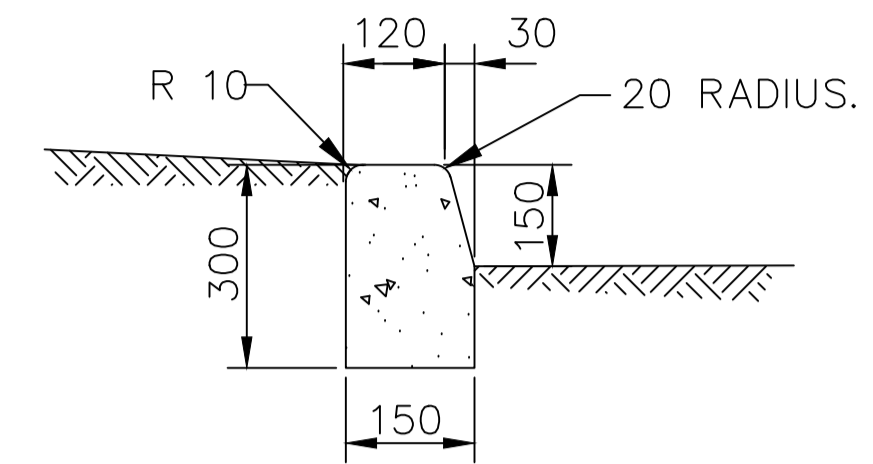
BARRIER KERB AND GUTTER



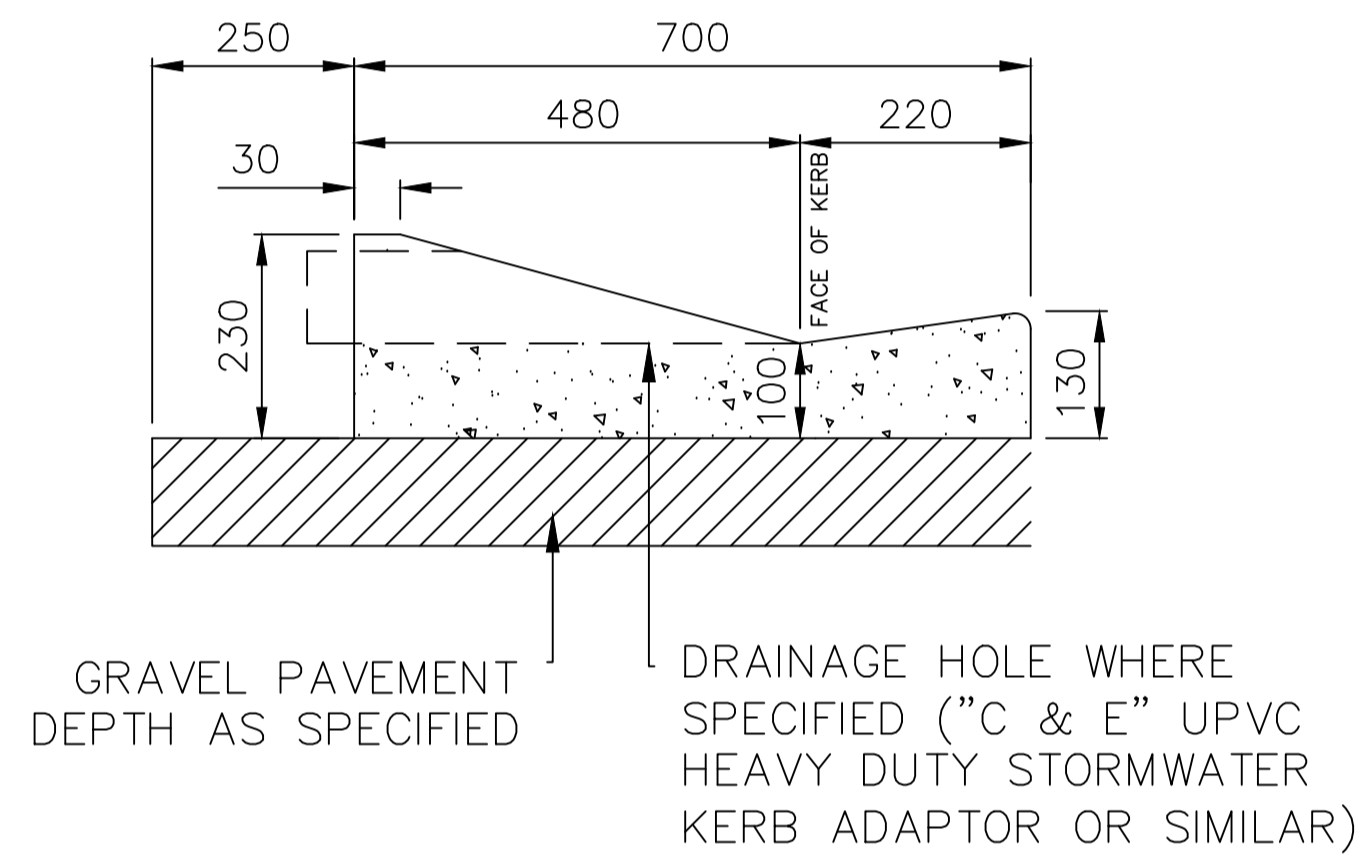
KERB WITH TOE



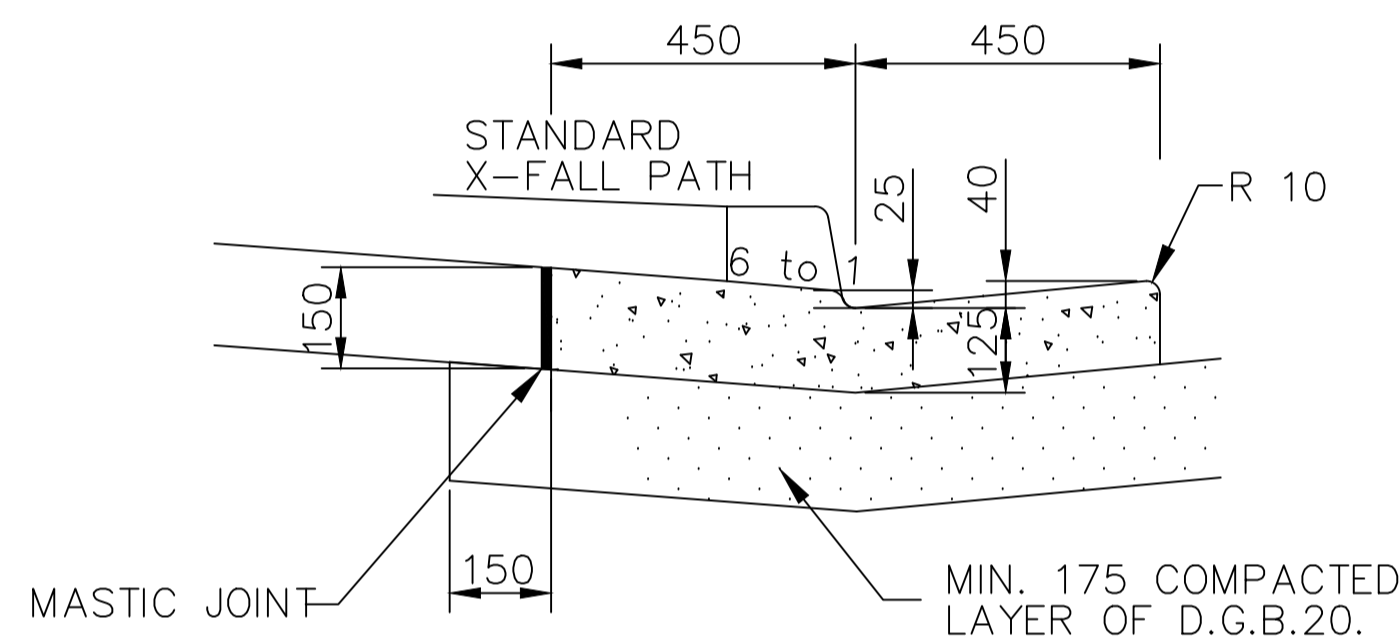
EDGE STRIP



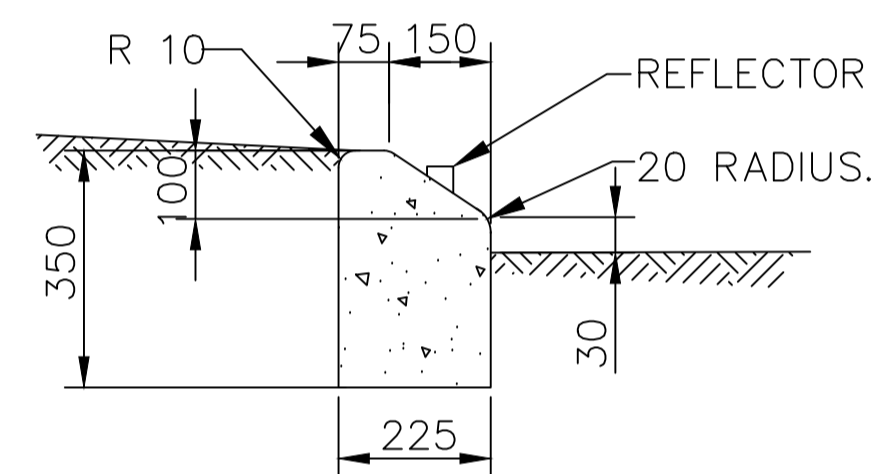
KERB ONLY



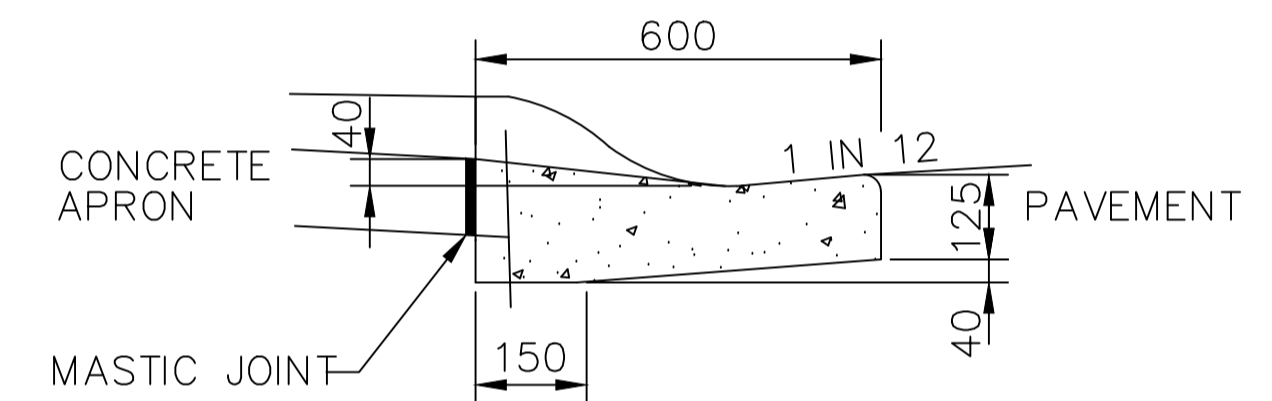
LAYBACK KERB



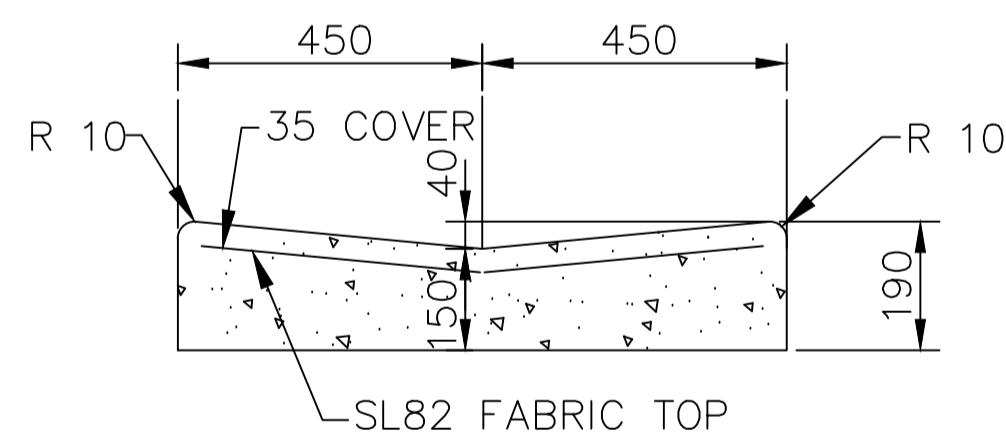
RESIDENTIAL LAYBACK



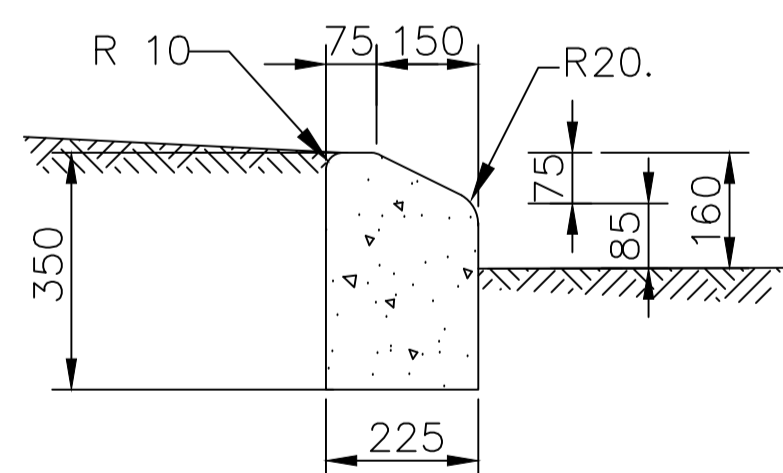
MEDIAN KERB



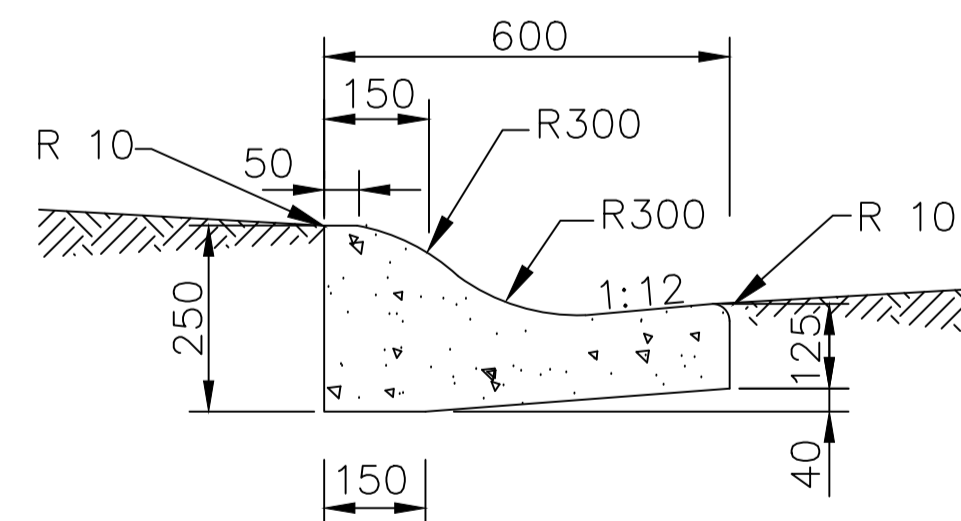
STANDARD ROLL TOP KERB AT VEHICULAR CROSSING



DISH CROSSING



MOUNTABLE KERB



ROLL TOP KERB AND GUTTER

#### NOTES:

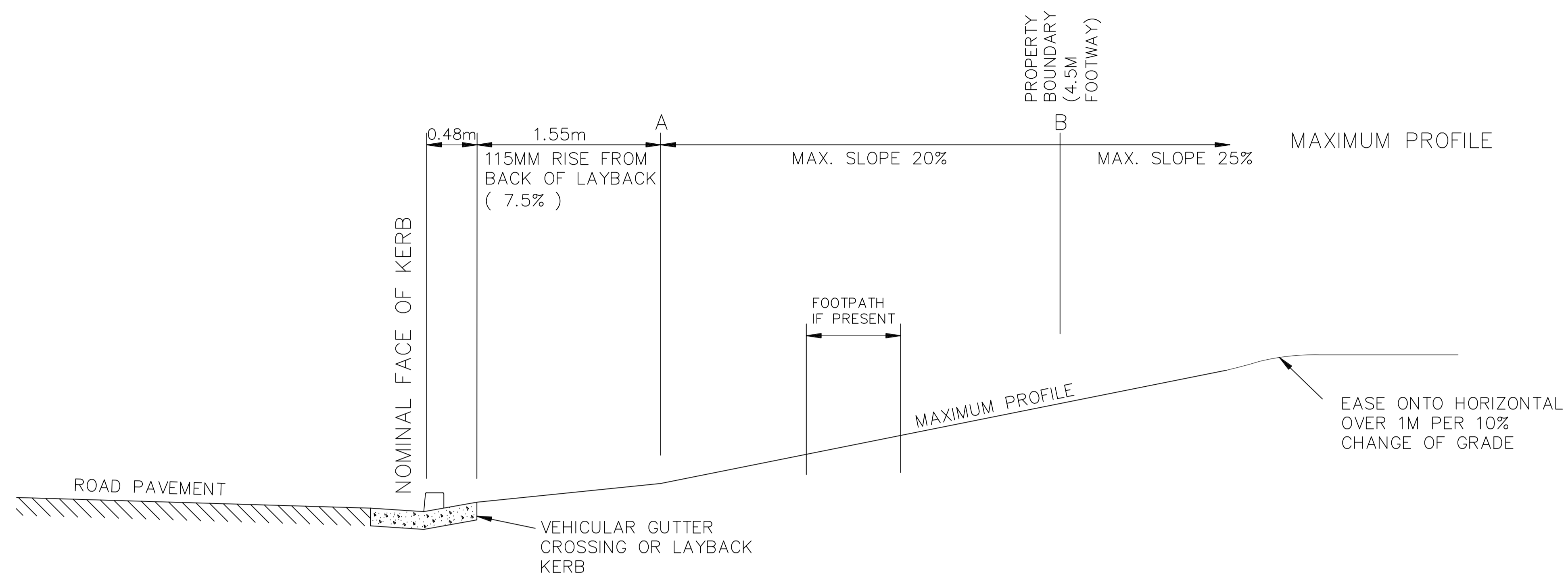
1. ROAD SUB BASE SHALL BE EXTENDED BENEATH KERBS, GUTTERS AND DISH CROSSINGS 150 BEHIND REAR OF KERB A MIN. DEPTH OF 175 & SUBJECT TO SUB-SOIL DRAINAGE REQUIREMENTS.
2. CONCRETE SHALL BE OF 25 MPA COMPRESSIVE STRENGTH (F'C) AT 28 DAYS WITH NO SLUMP MIX FOR KERBS AND GUTTERS, DISH CROSSINGS, MISCELLANEOUS KERBS AND EDGE STRIPS.
3. REINFORCING FABRIC SHALL BE TO AS 4671:2001 "STEEL WIRE REINFORCING FABRIC" WITH 35 COVER.
4. CONDUIT LOCATIONS SHALL BE MARKED ON KERB FACES WITH AN APPROVED TOOL OR AS OTHERWISE DIRECTED.
5. ALL DIMENSIONS ARE IN MILLIMETRES.

INDEX	NAME	DATE	AMENDMENTS				
SURVEYED			DETAILS CHANGED/ADDED				
DESIGNED & DRAFTED	T.DIMEC	08/04/2011					
DESIGN REVIEWED	T.DIMEC	08/04/2011					
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012					
ISSUED FOR CONSTRUCTION							
WORK AS EXECUTED							

		CIVIC CENTRE, 184-194 BOURKE STREET GOULBURN, NSW-2580 LOCKED BAG 22, GOULBURN, NSW-2580 PHONE: (02) 4823 4444 FAX: (02) 4823 4456
AUSTRALIAN HEIGHT DATUM	AS-1100 STANDARDS	
If the actual work done differs from the original drawing the person performing the work must amend this copy accordingly and return it to the Design Office.		

APPROVED		DIRECTOR OF GOULBURN MULWAREE OPERATIONS
DATE: 28/02/2018		

KERB & GUTTER		SAFETY FIRST PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN ON SITE www.dialbeforeyoudig.com.au 
A1 - SCALE AS SHOWN	NUMBER OF SHEETS 34	SHEET NUMBER 5
FILE NAME: STANDARD DRAWINGS.DWG	REVISION GMC-VER-1	SD-R 05



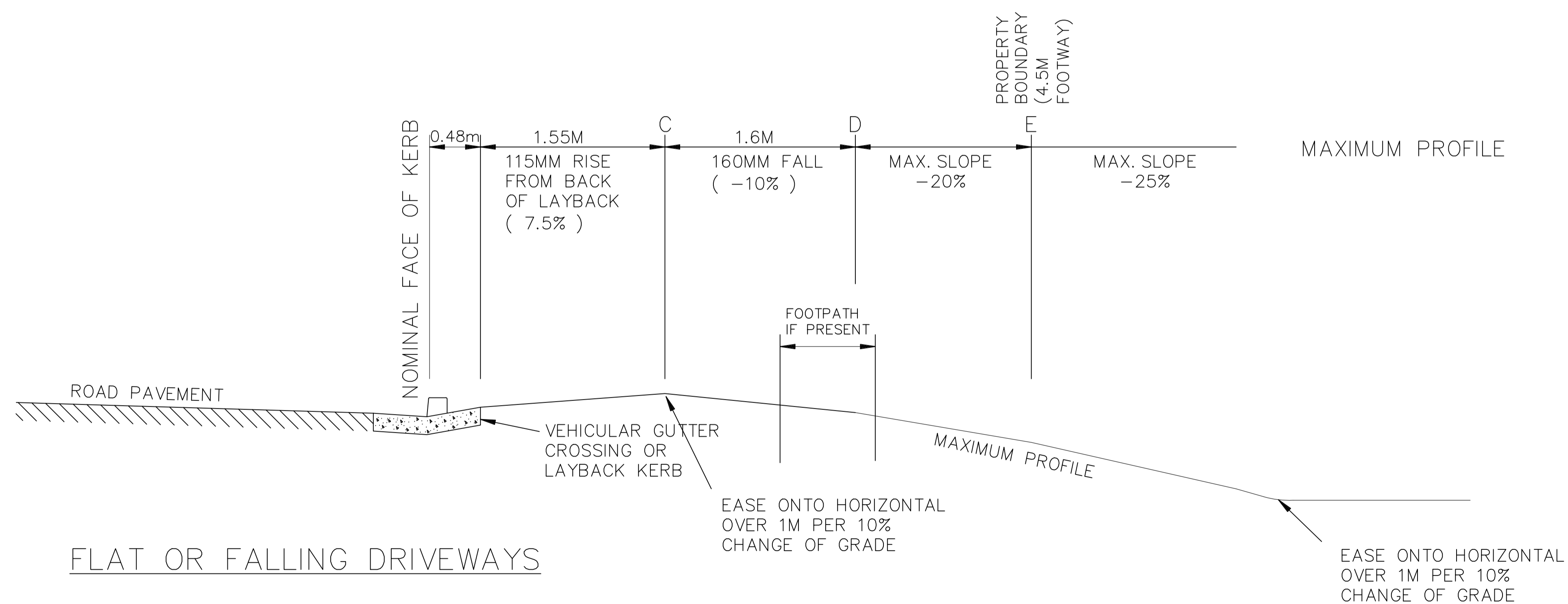
## RISING DRIVEWAYS

LEVELS:

- A. MANDATORY 115MM ABOVE BACK OF LAYBACK  
B. MAX 609MM ABOVE BACK OF LAYBACK  
C. MANDATORY 115MM ABOVE BACK OF LAYBACK  
D. MAX 45MM BELOW BACK OF LAYBACK  
E. MAX 219MM BELOW BAK OF LAYBACK

NOTES:

1. A DRIVEWAY DESIGN SHOULD BE COMPLETED BEFORE ANY DRIVEWAY CONSTRUCTION WORK IS UNDERTAKEN.
2. THE SLOPE A LONG THE ROAD OF THE DRIVEWAY CROSSING OVER THE FOOTWAY IS TO BE THE SAME AS THE ADJACENT GUTTER.
3. CHANGES OF GRADE TO BE EASED DURING CONSTRUCTION.
4. WHERE A CONCRETE FOOTPATH IS PRESENT OR INTENDED, THE DRIVEWAY PROFILE SHALL BE ADJUSTED TO MATCH THE FOOTPATH CROSSFALL.
5. WHEN THE DRIVEWAY LEVELS DIFFER TO THE FOOTPATH, THE FOOTPATH SHALL BE RECONSTRUCTED EITHER SIDE OF THE DRIVEWAY TO ENSURE SMOOTH TRANSITION.

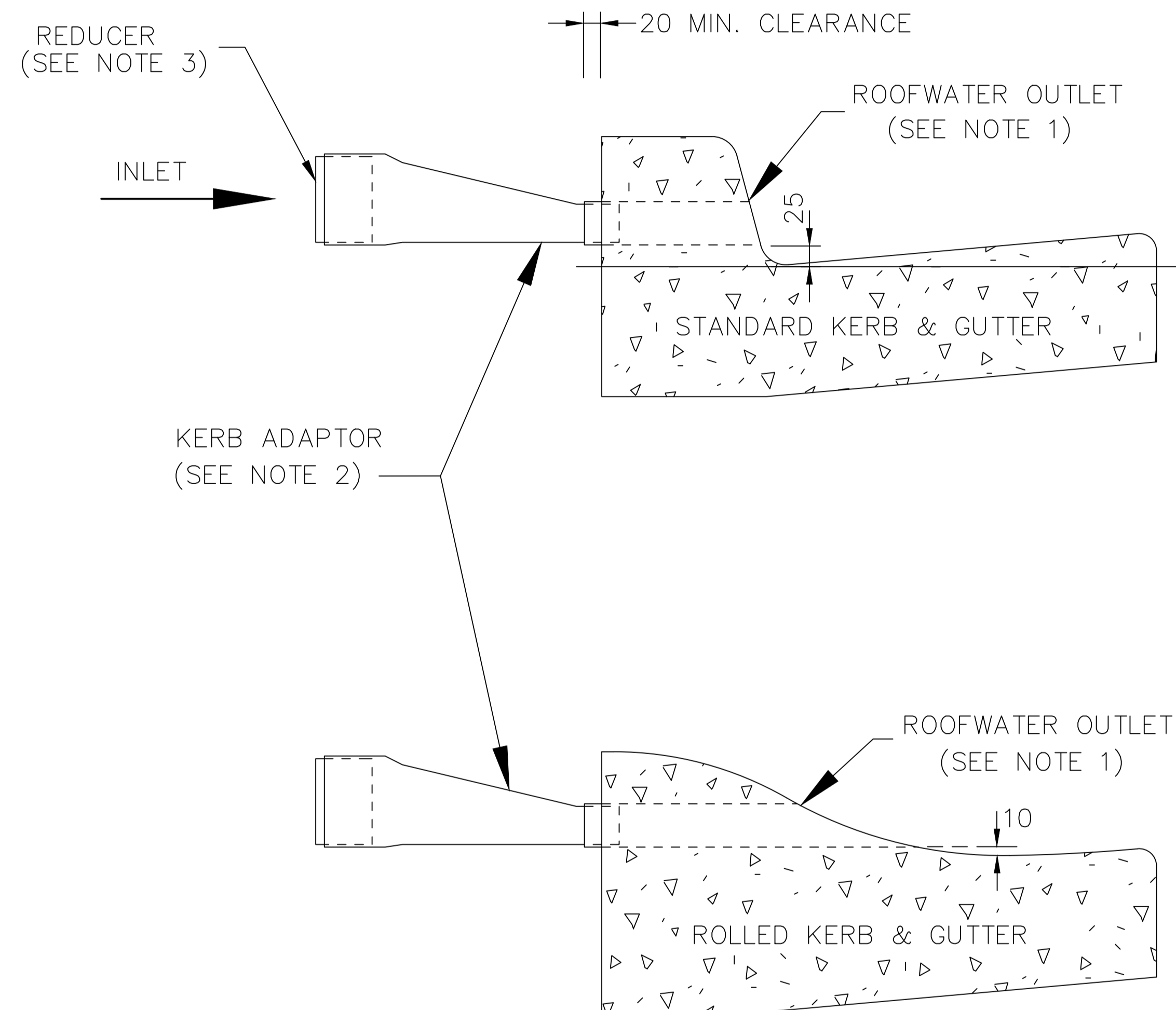


## FLAT OR FALLING DRIVEWAYS

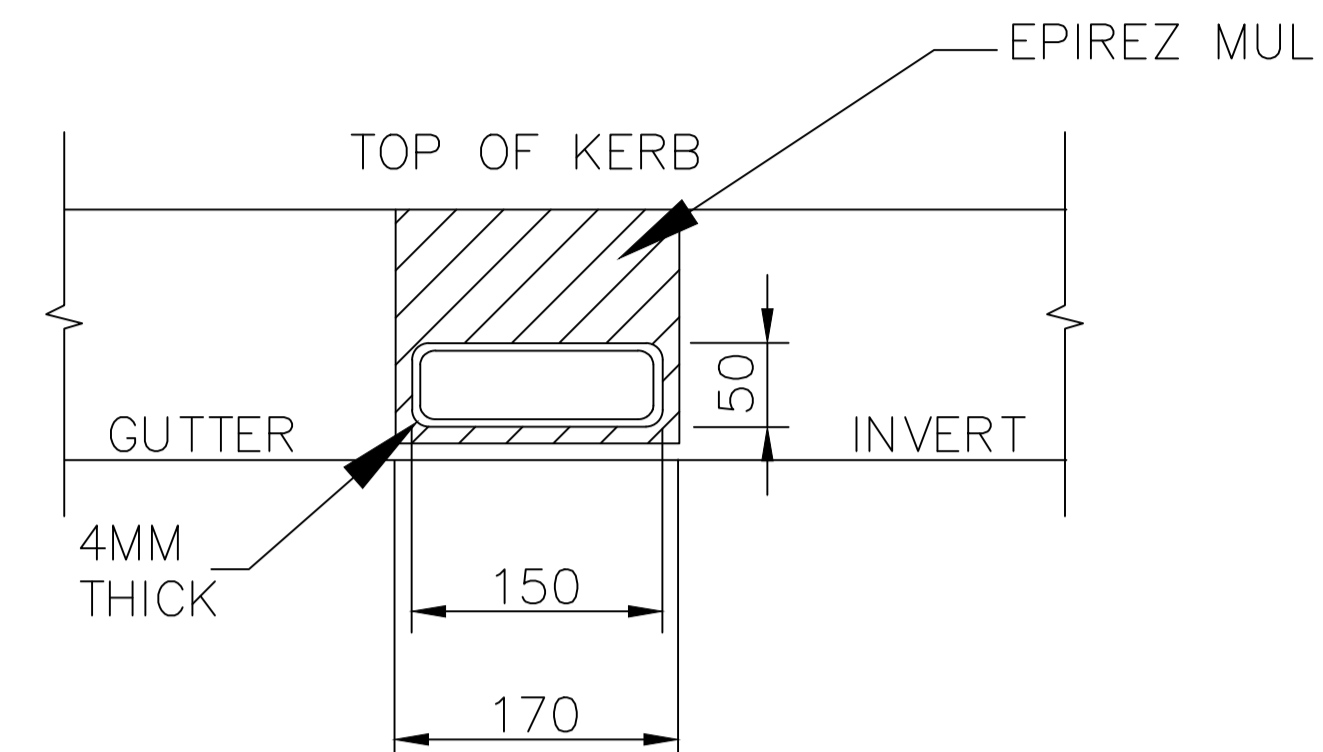
INDEX	NAME	DATE	AMENDMENTS	<div><p>CIVIC CENTRE, 184-194 BOURKE STREET GOULBURN, NSW-2580 LOCKED BAG 22, GOULBURN, NSW-2580  PHONE: (02) 4823 4444 FAX: (02) 4823 4456</p><p>AUSTRALIAN HEIGHT DATUM      AS-1100 STANDARDS</p><p>If the actual work done differs from the original drawing the person performing the work must amend this drawing and return it to the Design Office.</p></div>	<div><div>APPROVED</div><p>DIRECTOR OF GOULBURN MULWAREE OPERATIONS</p></div>	<div>VEHICULAR DRIVEWAY</div> <div>PROFILES</div>	<div><div><div>SAFETY FIRST</div><div>PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN ON SITE</div></div><div><a href="http://www.dialbeforeyoudig.com.au">www.dialbeforeyoudig.com.au</a></div><div></div></div>	<div>A1 - SCALE</div> <div>AS SHOWN</div>	<div>NUMBER OF SHEETS</div> <div>34</div>	<div>SHEET NUMBER</div> <div>6</div>
SURVEYED			NOTES CHANGED/ADDED, D-WAY TOP 16M (I ALDRIDGE 2012)							
DESIGNED & DRAFTED	R.McDONALD	03/06/1996	NOTES CHANGED/ADDED (I ALDRIDGE JANUARY 2018)							
DESIGN REVIEWED	R.McDONALD	03/06/1996								
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012								
ISSUED FOR CONSTRUCTION										
WORK AS EXECUTED										
				DATE: 28/02/2018						





TYPICAL CROSS SECTION



TYPICAL ELEVATION

NOTE:

FITTING OUTLETS TO EXISTING KERB

SAWCUT KERB 10MM WIDER AND DEEPER THAN KERB OUTLET BED AND BACKFILL WITH 'EPIREZ MUL' OR EQUIVALENT AND MAKE SMOOTH JOIN WITH EXISTING KERB.

NOTES:

1. ROOFWATER OUTLETS TO BE 'CORDINA' TYPE OR SIMILAR MANUFACTURED FROM 150X50X4 HOT DIPPED GAL. MILD STEEL, TO SUIT KERB TYPE TO EXTEND MIN. 20MM BEHIND REAR OF KERB.
2. ROOF WATER DRAIN PIPE ACROSS FOOTWAY TO BE DUCTILE IRON OR GALVANISED PIPE.
3. KERB ADAPTOR TO BE PVC 'CORDINA' TYPE OR SIMILAR 4MM THICK AND 355MM LONG TO SUIT PVC STORMWATER CONNECTION AND ROOFWATER OUTLET SECTION.
4. PROVIDE REDUCER IF REQUIRED TO SUIT 90MM PVC STORMWATER CONNECTION.
5. CHECK ROOFWATER OUTLET IS UNOBSTRUCTED PRIOR TO CONNECTING ADAPTOR.
6. SEAL JOINT BETWEEN ADAPTOR AND OUTLET WITH APPROVED SILICON SEALANT.
7. ALL JOINTS TO BE SEALED AND WATERTIGHT.
8. ALL DIMENSIONS ARE IN MILLIMETRES

INDEX	NAME	DATE	AMENDMENTS
SURVEYED			NOTES CHANGED/ADDED (I ALDRIDGE DECEMBER 2017)
DESIGNED & DRAFTED	T.DIMEC	09/07/2009	
DESIGN REVIEWED	T.DIMEC	09/07/2009	
FINAL DESIGN CHECKED	I/ALDRIDGE	12/12/2012	
ISSUED FOR CONSTRUCTION			
WORK AS EXECUTED			



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AS-1100 STANDARDS

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*[Signature]*

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GOULBURN MULWAREE  
OPERATIONS

DATE: 28/02/2018

## KERB OUTLET

### KERB ROOFWATER OUTLET & KERB ADAPTOR



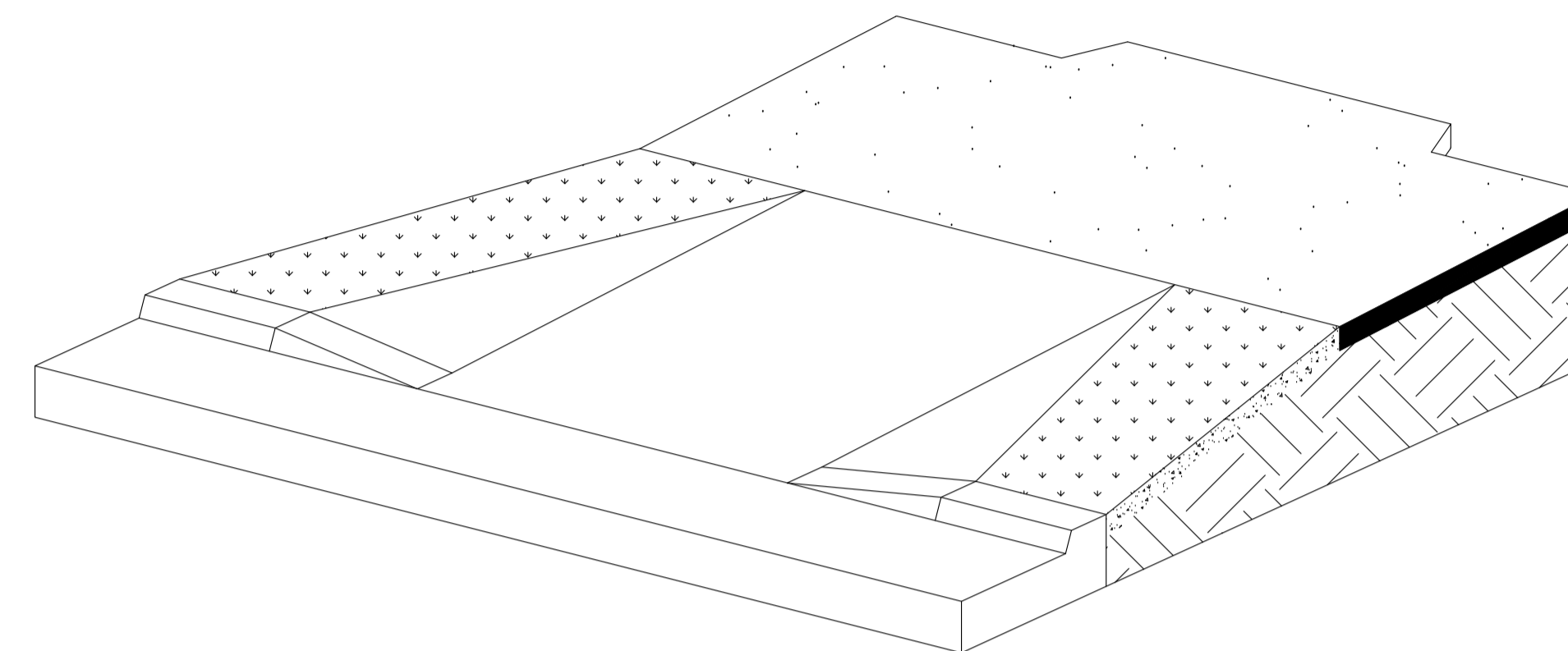
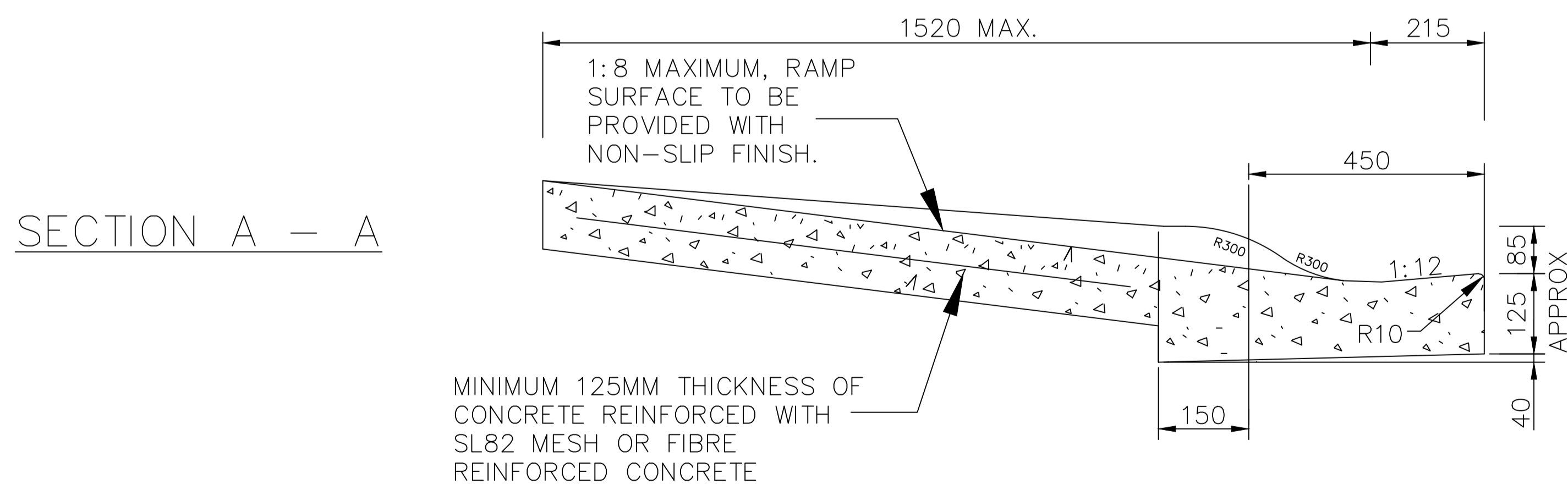
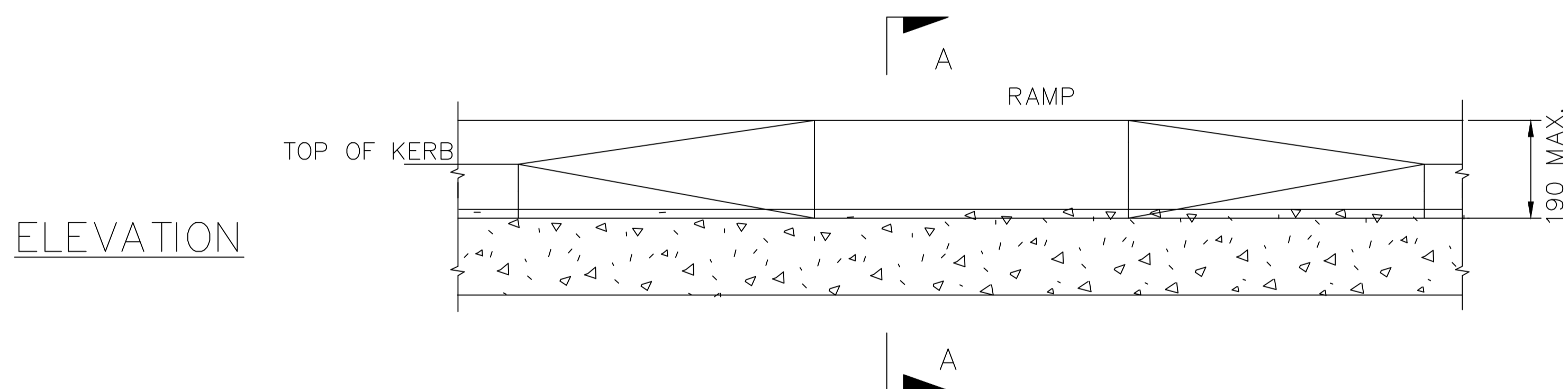
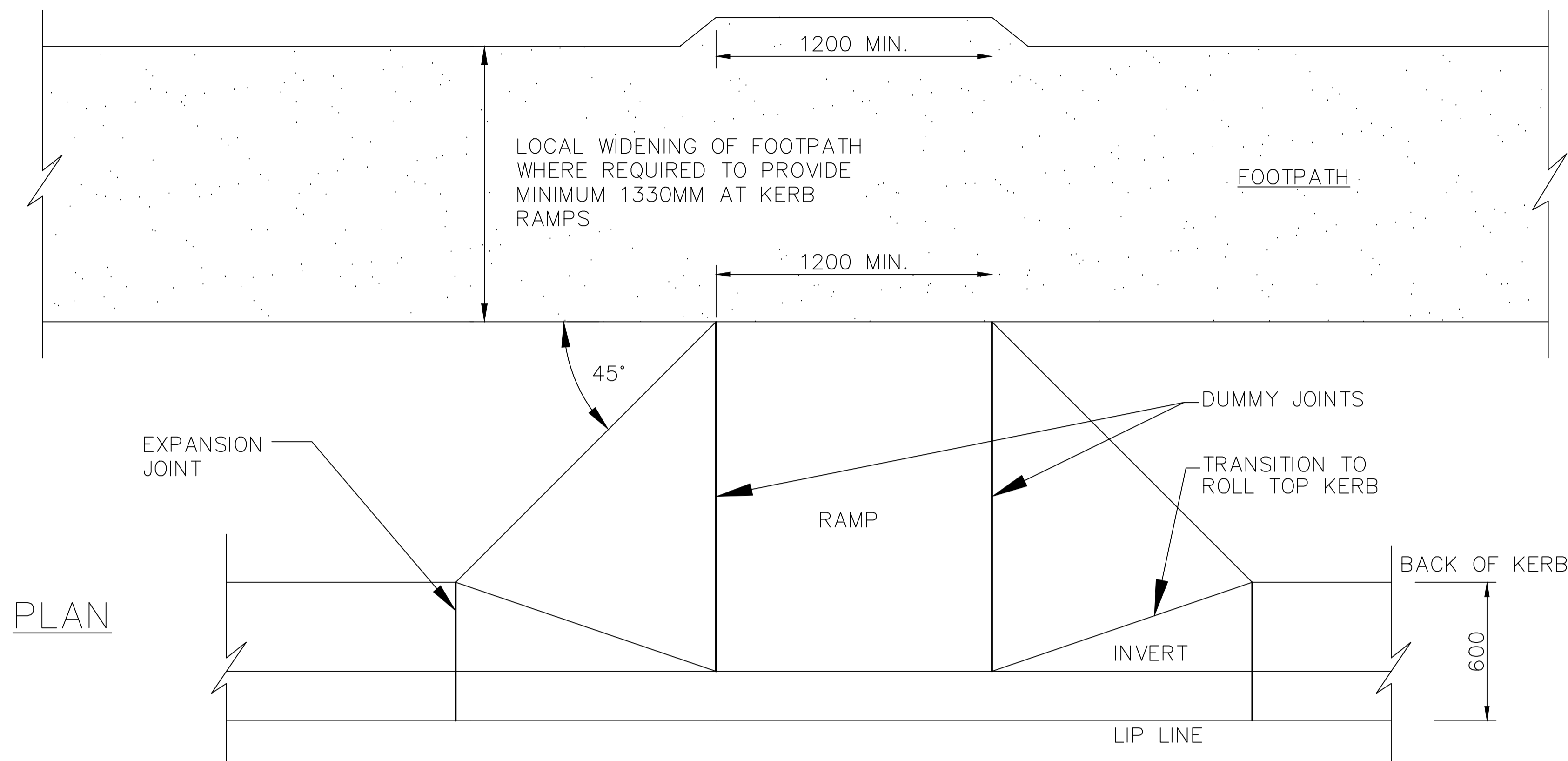
A1 - SCALE  
AS SHOWN

NUMBER OF SHEETS  
34

SHEET NUMBER  
9

FILE NAME:  
REVISION  
GMC-VER-1  
RD: -/-/-/-/-

STANDARD DRAWINGS.DWG  
**SD-R 09**



ISOMETRIC VIEW  
NOT TO SCALE

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. FOR DETAIL KERB AND GUTTER OPTIONS SEE SD-R05
3. ALL KERB RAMPS ARE TO BE ALIGNED WITH THE DESIRED DIRECTION OF PEDESTRIAN TRAVEL AND BE A MINIMUM OF 1200 WIDE.
4. AT PEDESTRIAN CROSSINGS AND MARKED FOOT CROSSING RAMPS MUST LINE UP WITH CROSSING AND CORRESPONDING CROSSING ON OTHER SIDE OF ROAD.
5. EXPANSION JOINTS TO BE PROVIDED WHERE ENDS OF KERB RAMP ABUTS KERB AND GUTTER.
6. SEPARATE KERB RAMPS MUST BE USED FOR ADJACENT CROSSING AT INTERSECTIONS.

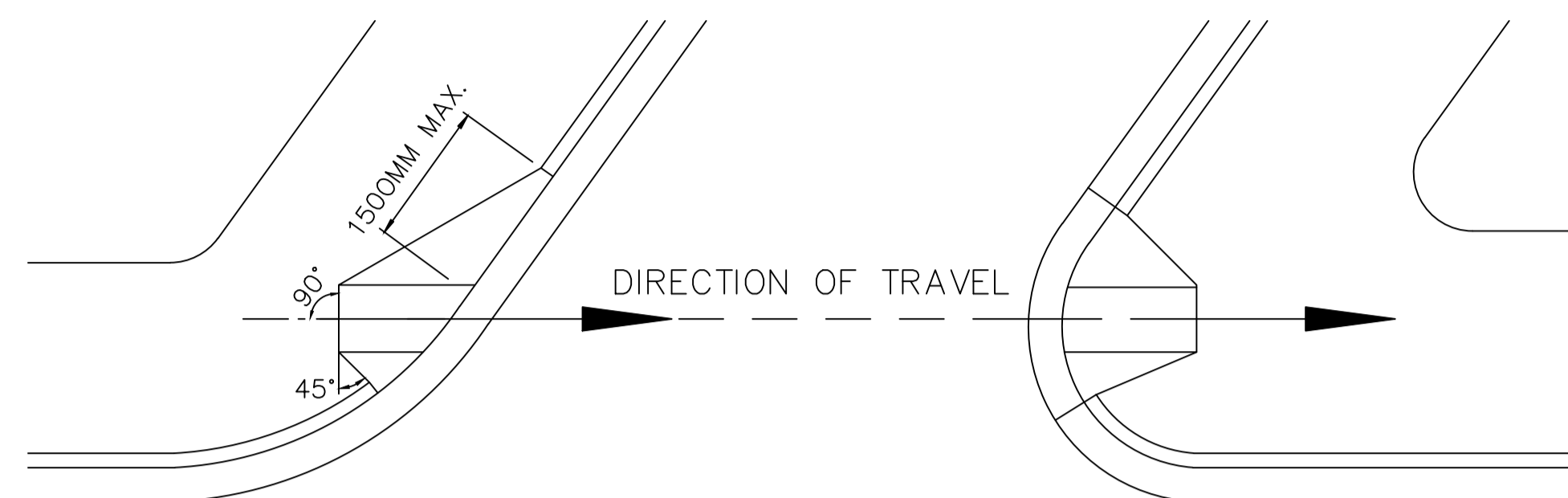
INDEX	NAME	DATE	AMENDMENTS			
SURVEYED			NOTES & DETAILS CHANGED/ADDED			
DESIGNED & DRAFTED	T.DIMEC	09/07/2009				
DESIGN REVIEWED	T.DIMEC	09/07/2009				
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012				
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WORK AS EXECUTED						

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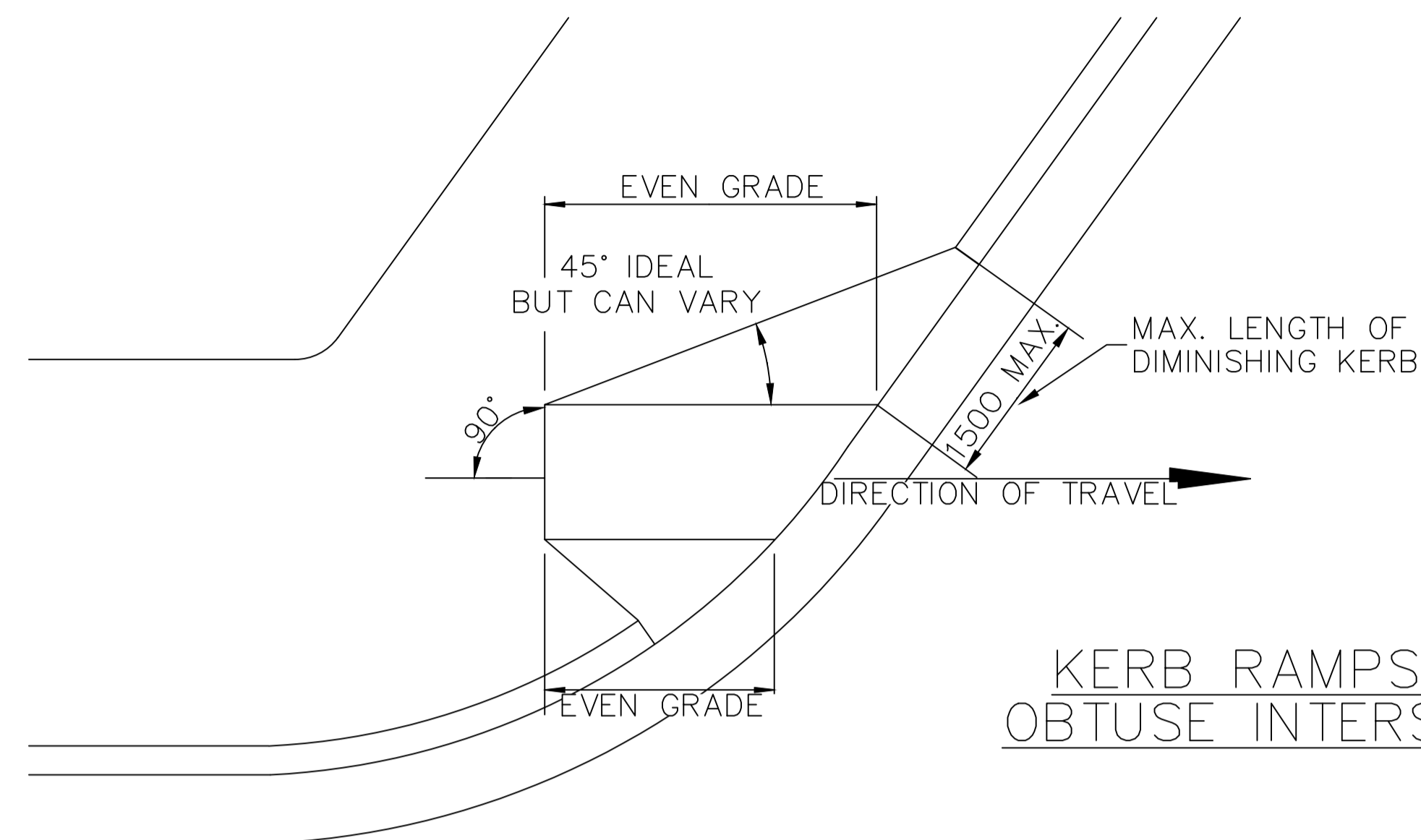
APPROVED		DIRECTOR OF GOULBURN MULWAREE OPERATIONS
DATE: 28/02/2018		

KERP RAMPS			A1 - SCALE AS SHOWN	NUMBER OF SHEETS 34	SHEET NUMBER 10
			FILE NAME: STANDARD DRAWINGS.DWG		

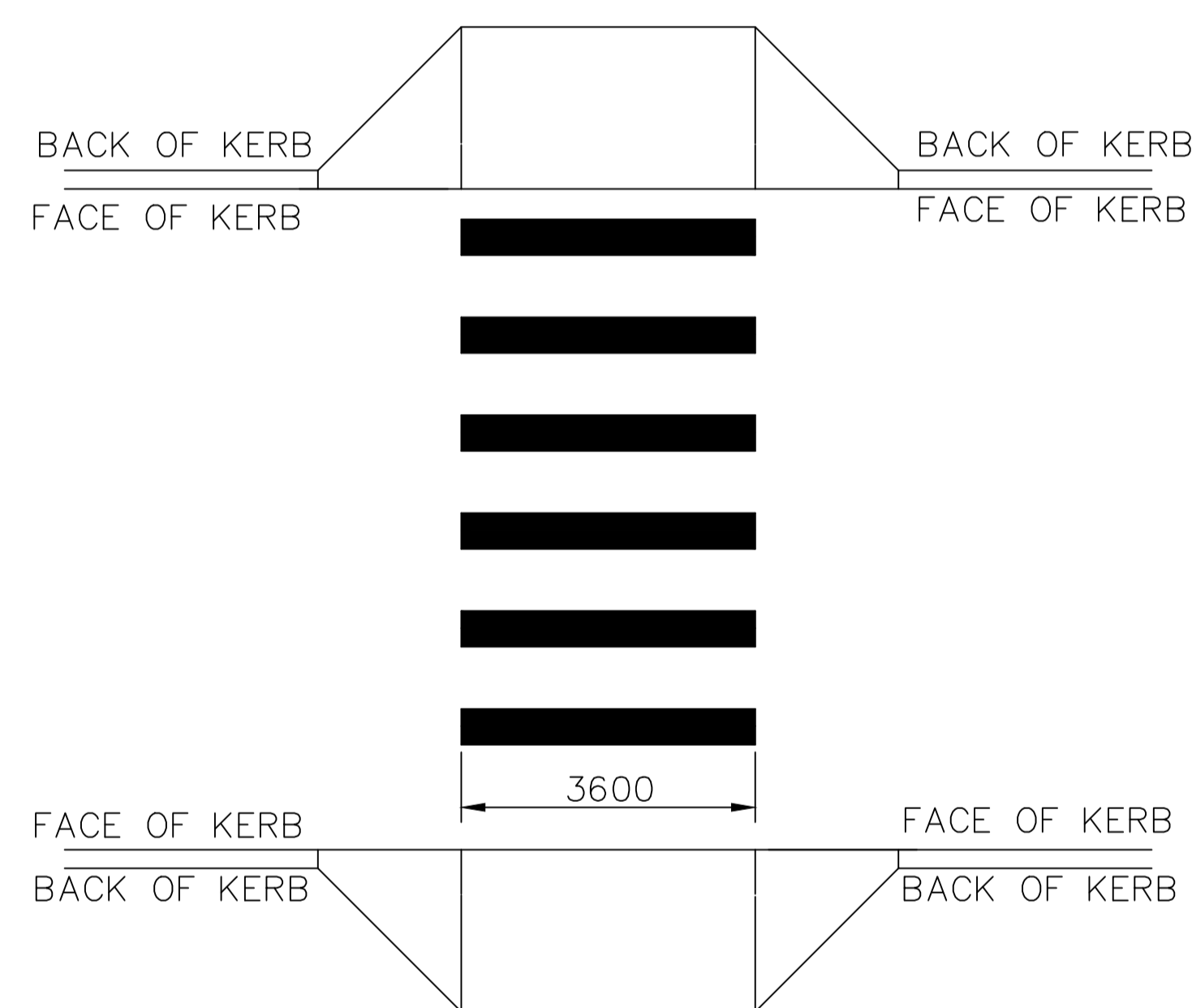
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	GMC-VER-1 RD: -/-/-/-/-	



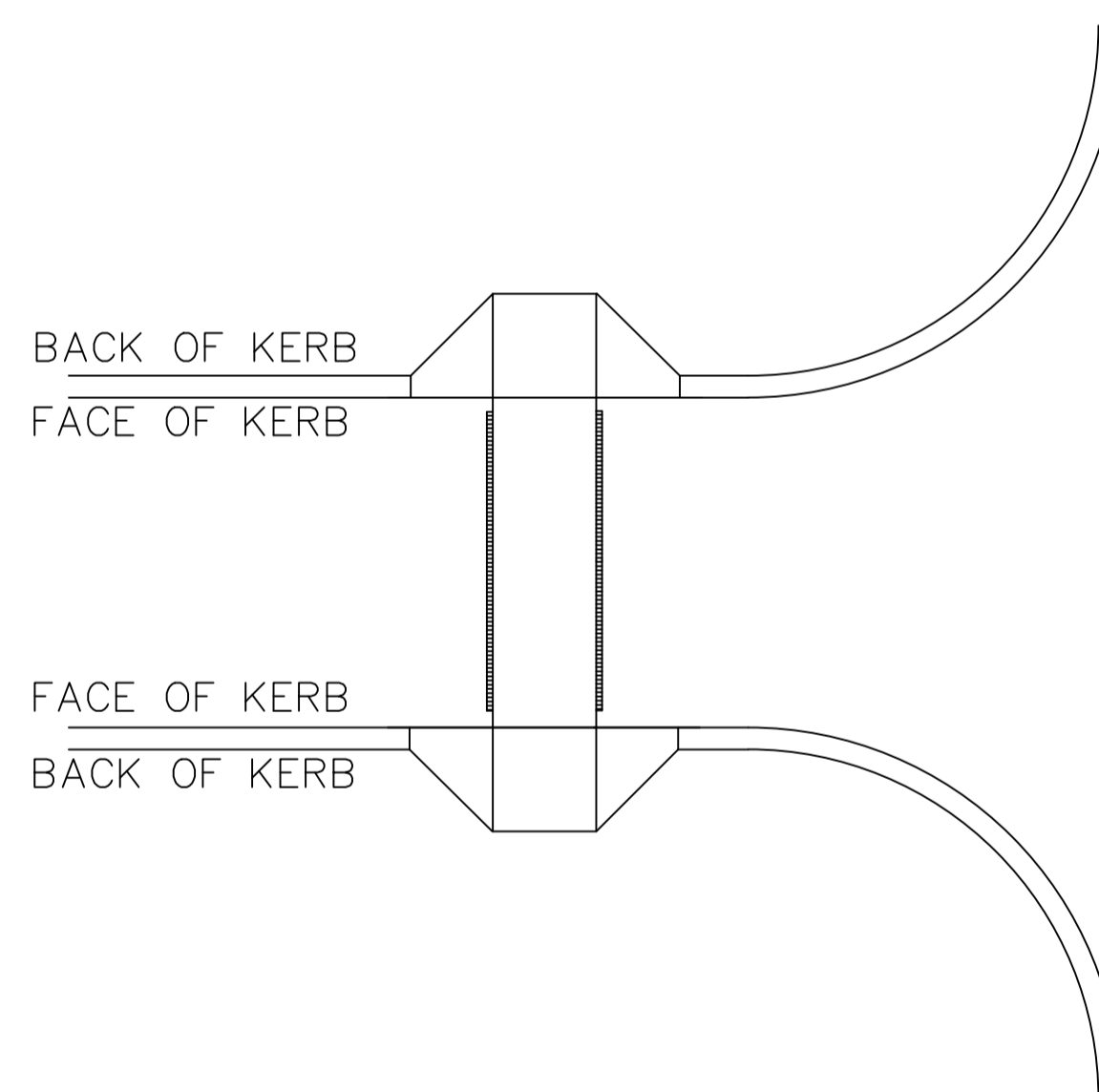
KERB RAMPS FOR  
ACUTE/OBTUSE INTERSECTION



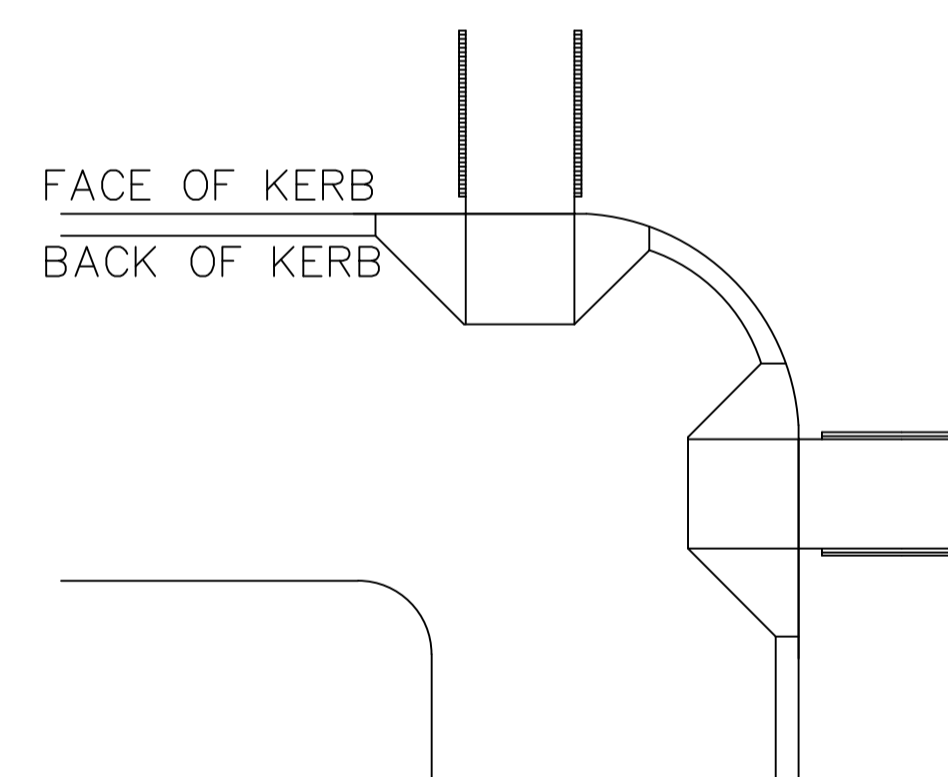
KERB RAMPS FOR  
OBTUSE INTERSECTION



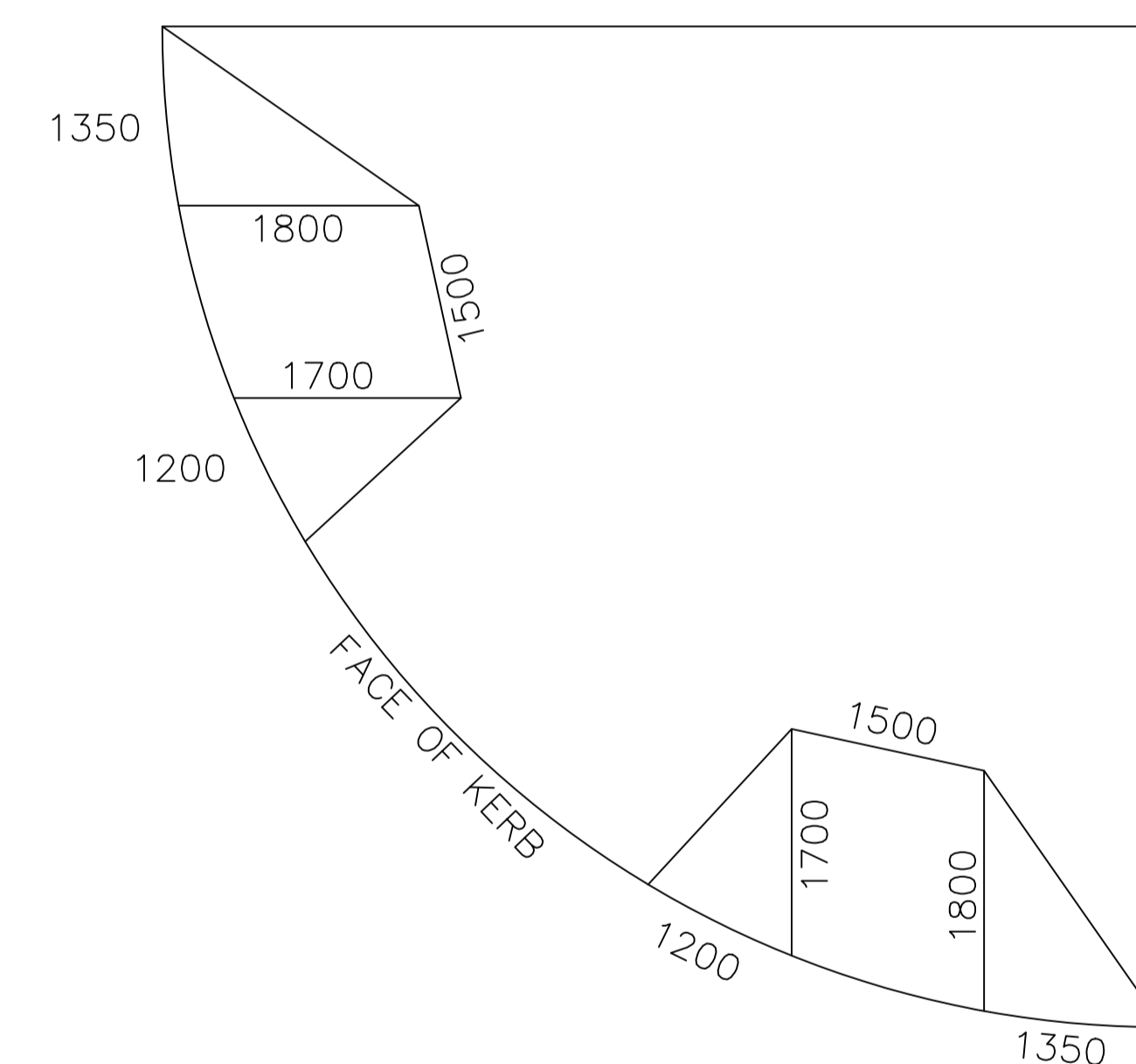
AT PEDESTRIAN  
CROSSING (ZEBRA)  
SEE NOTE 4 ON SD-R 10 A



ALIGNED KERB RAMPS  
SEE NOTE 4 ON SD-R 10 A



ADJACENT CROSSINGS  
SEE NOTE 6 ON SD-R 10 A



LARGE DUAL RAMPS  
FOR CBD AND MAJOR INTERSECTIONS

NOTE:

1. DIMENSIONS APPROX. TO SUIT KERB RADIUS AND SITE GRADES.
2. IF NECESSARY LENGTHEN TO PROVIDE MAX. 1:8 (12.5%) GRADE

INDEX	NAME	DATE	AMENDMENTS		
SURVEYED			NOTES & DETAILS CHANGED/ADDED (I.ALDRIDGE 2012)		
DESIGNED & DRAFTED	T.DIMEC	09/07/2009	NOTES CHANGED/ADDED (I.ALDRIDGE DECEMBER 2017)		
DESIGN REVIEWED	T.DIMEC	09/07/2009			
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012			
ISSUED FOR CONSTRUCTION					
WORK AS EXECUTED					

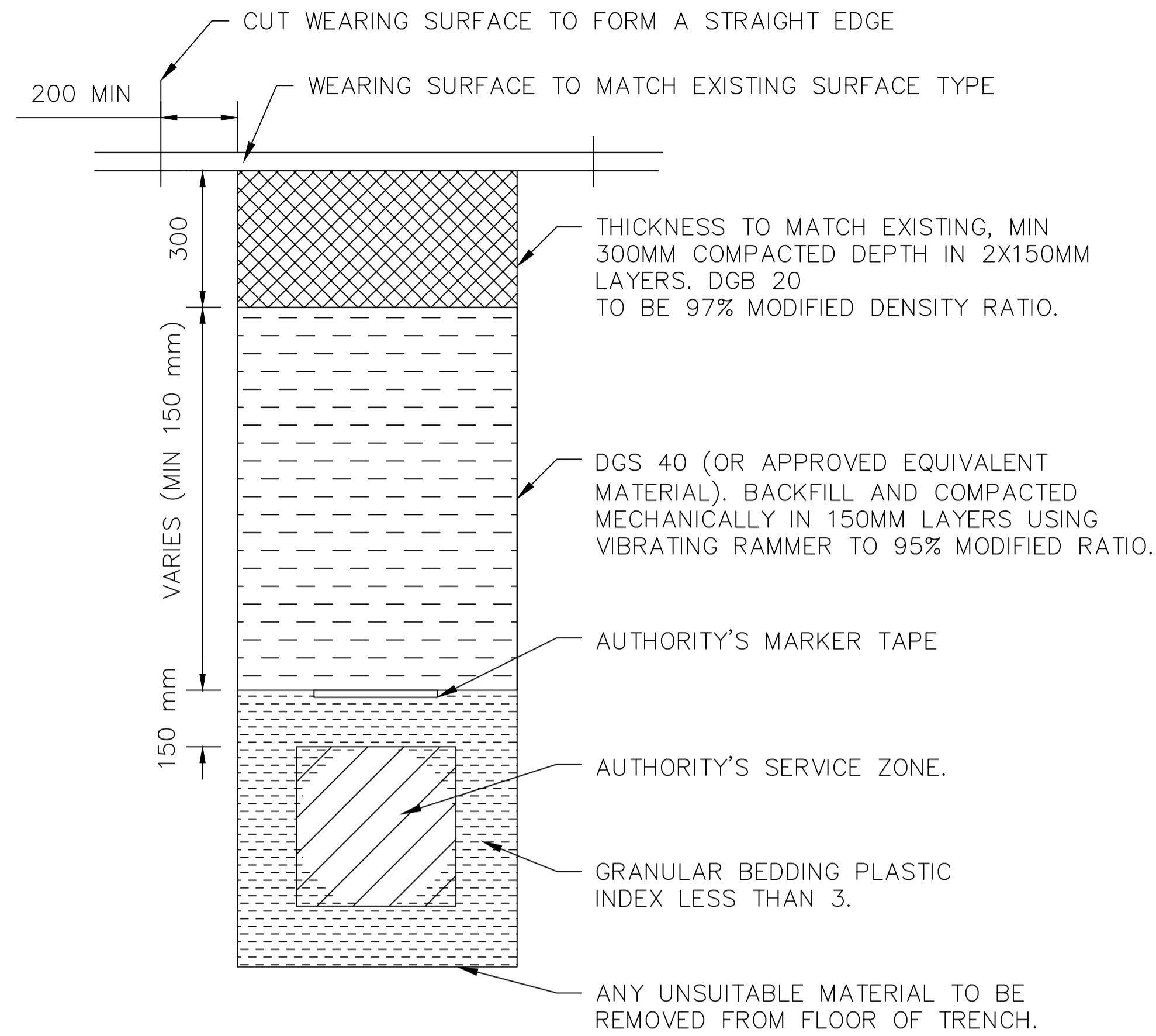
		CIVIC CENTRE, 184-194 BOURKE STREET GOULBURN, NSW-2580 LOCKED BAG 22, GOULBURN, NSW-2580 PHONE: (02) 4823 4444 FAX: (02) 4823 4456
AUSTRALIAN HEIGHT DATUM	AS-1100 STANDARDS	
If the actual work done differs from the original drawing the person performing the work must amend this copy accordingly and return it to the Design Office.		

APPROVED	
DIRECTOR OF GOULBURN MULWAREE OPERATIONS	
DATE: 28/02/2018	

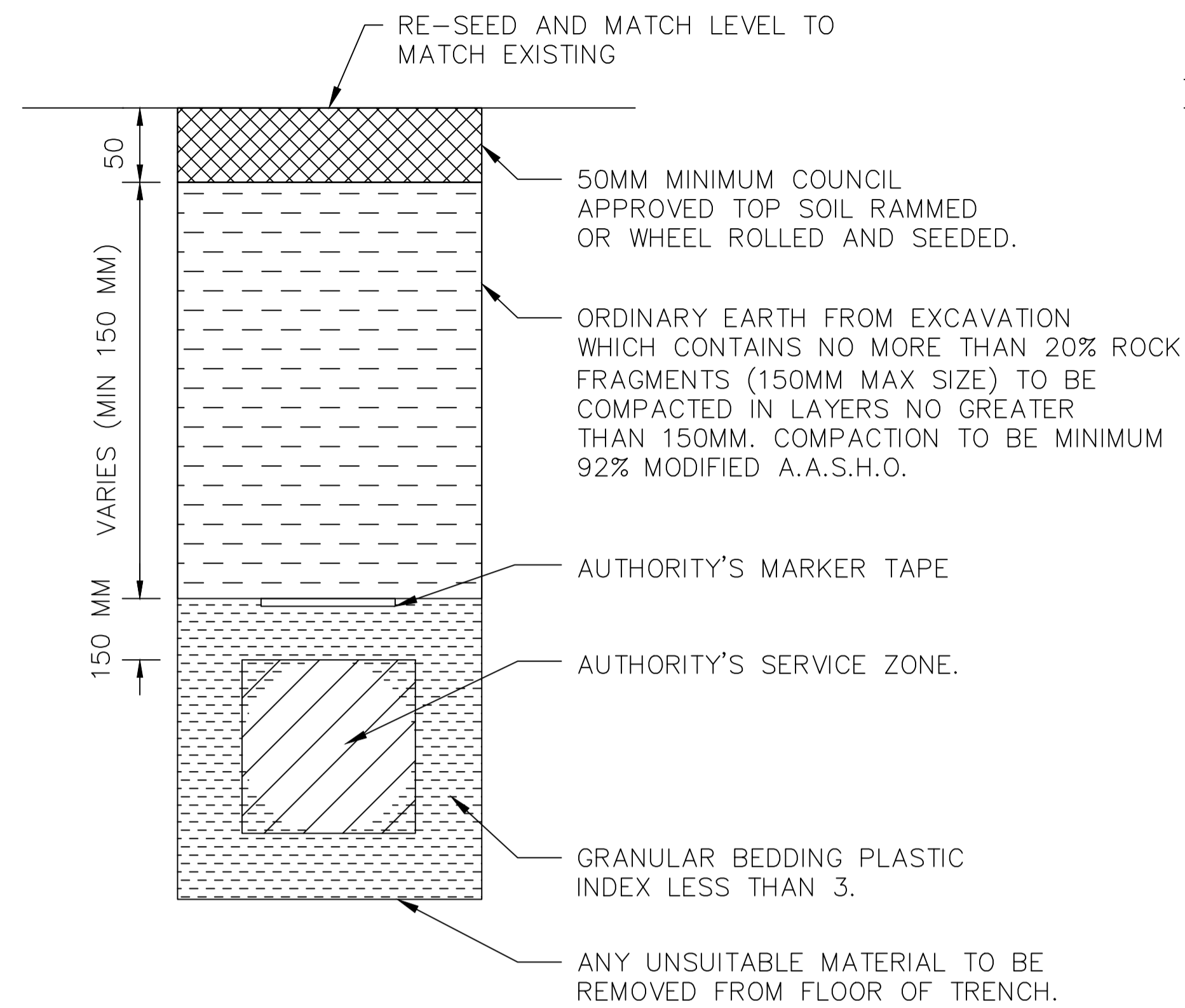
KERB RAMPS LAYOUT AT INTERSECTIONS		A1 - SCALE AS SHOWN	NUMBER OF SHEETS 34	SHEET NUMBER 11
	<a href="http://www.dialbeforeyoudig.com.au">www.dialbeforeyoudig.com.au</a> 	FILE NAME: STANDARD DRAWINGS.DWG	REVISION GMC-VER-1	
		SD-R 10 B		



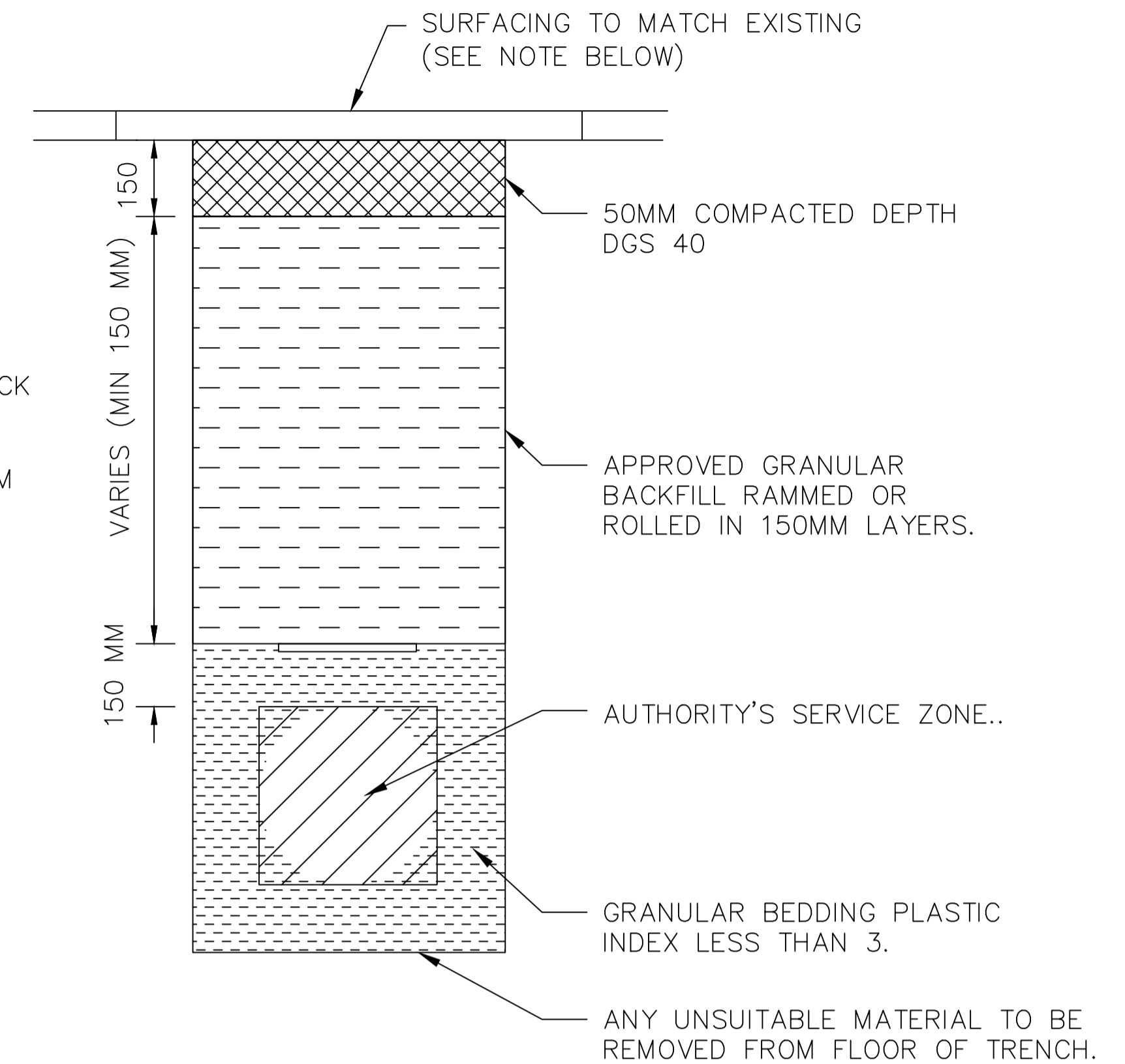




PAVED CARRIAGEWAYS



GRASSED FOOTWAYS



PAVED FOOTWAYS

NOTES:

- S 138 APPROVAL
  - "APPLICATION TO CARRY OUT ACTIVITY UNDER S138 OF ROADS ACT" FORM MUST BE OBTAINED FROM COUNCIL PRIOR TO WORKS COMMENCING.
  - A MINIMUM THREE WORKING DAYS NOTICE TO BE GIVEN PRIOR TO COMMENCEMENT.
- COMPACTION AND TESTING
  - MOISTURE CONTENT SHALL BE ADJUSTED TO OPTIMUM AT TIME OF COMPACTION.
  - COMPACTION TESTS ARE REQUIRED FOR EACH LAYER WHERE DENSITY IS SPECIFIED.
- SURFACING

CONCRETE FOOTPATH	25 MPA CONCRETE, 75MM DEEP (REF: SD-R 04)
CONCRETE VEHICULAR CROSSING	25 MPA CONCRETE, 125MM DEEP INCLUDING F72 MESH (REF: SD-R 08)
SEAL	(I) BITUMINOUS CONCRETE (HOTMIX) 30MM RESIDENTIAL ROADS. 40MM COLLECTORS ROADS/INDUSTRIAL ROADS (II) 2 COAT SPRAY SEAL ON EXISTING SPRAY SEAL ROADS ONLY.

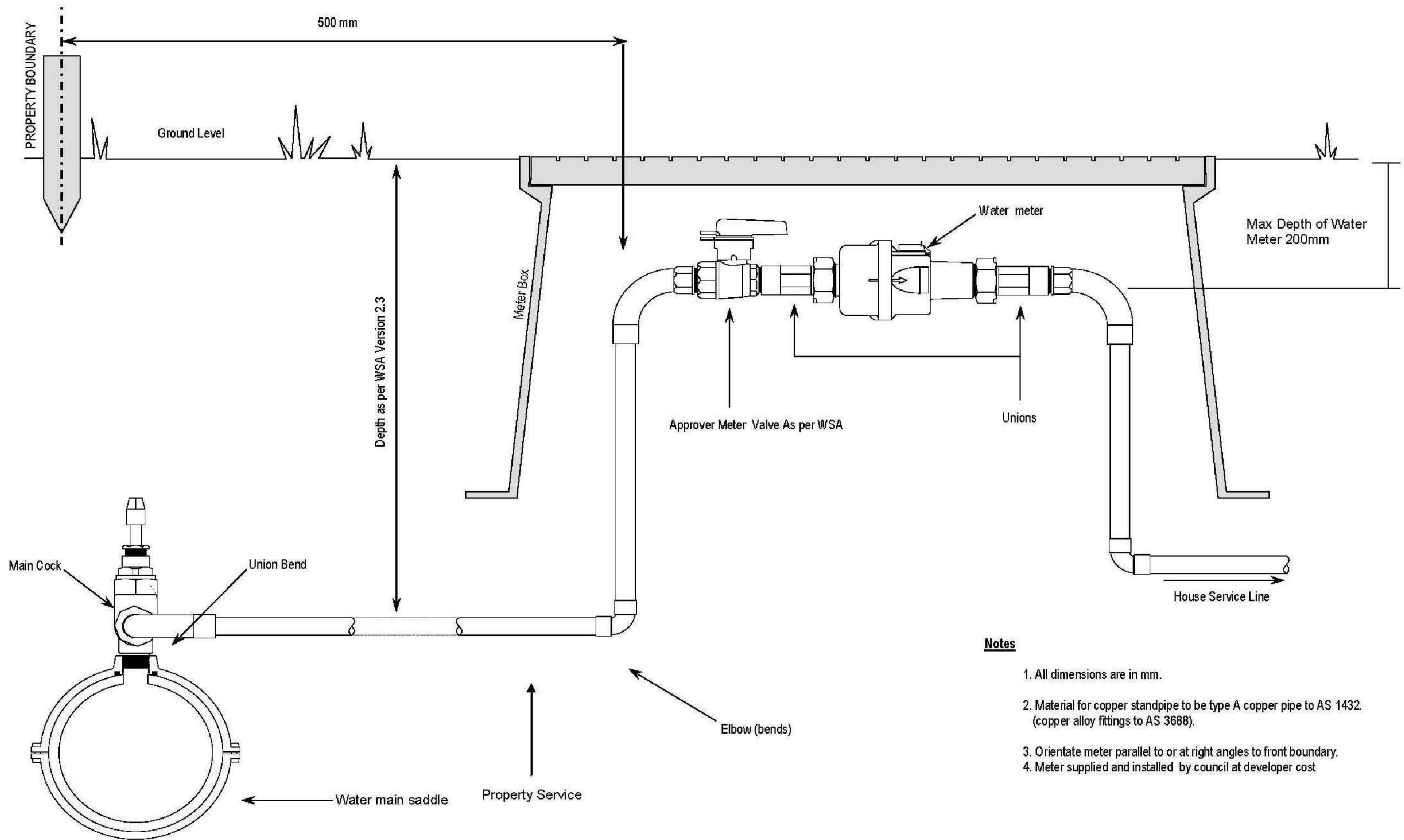
INDEX	NAME	DATE	AMENDMENTS						
SURVEYED			NOTES REMOVED MINES ACT 15M (I.ALDRIDGE 2012)						
DESIGNED & DRAFTED	T.DIMEC	09/07/2009	NOTES CHANGED/ADDED (I.ALDRIDGE JANUARY 2018)						
DESIGN REVIEWED	T.DIMEC	09/07/2009							
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012							
ISSUED FOR CONSTRUCTION									
WORK AS EXECUTED									

<b>GOULBURN MULWAREE COUNCIL</b>	CIVIC CENTRE, 184-194 BOURKE STREET GOULBURN, NSW-2580 LOCKED BAG 22, GOULBURN, NSW-2580 PHONE: (02) 4823 4444 FAX: (02) 4823 4456
AUSTRALIAN HEIGHT DATUM	AS-1100 STANDARDS
If the actual work done differs from the original drawing the person performing the work must amend this copy accordingly and return it to the Design Office.	

<b>APPROVED</b>	<b>DIRECTOR OF GOULBURN MULWAREE OPERATIONS</b>
DATE: 28/02/2018	

<b>TRENCH BACKFILL DETAILS</b>	<b>FOR ROAD CROSSINGS</b>
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<b>SAFETY FIRST</b> PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN ON SITE www.dialbeforeyoudig.com.au <b>DIAL 1100</b> BEFORE YOU DIG	A1 - SCALE <b>AS SHOWN</b>	NUMBER OF SHEETS <b>34</b>	SHEET NUMBER <b>14</b>
FILE NAME: STANDARD DRAWINGS.DWG	REVISION <b>GMC-VER-1</b>	<b>SD-R 13</b>	



#### Notes

1. All dimensions are in mm.
2. Material for copper standpipe to be type A copper pipe to AS 1432. (copper alloy fittings to AS 3688).
3. Orientate meter parallel to or at right angles to front boundary.
4. Meter supplied and installed by council at developer cost

INDEX	NAME	DATE	AMENDMENTS
SURVEYED			
DESIGNED & DRAFTED	K.STEWART	08/05/2012	
DESIGN REVIEWED	K.STEWART	08/05/2012	
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012	
ISSUED FOR CONSTRUCTION			
WORK AS EXECUTED			



CIVIC CENTRE, 184-194 BOURKE STREET  
GOULBURN, NSW-2580  
LOCKED BAG 22, GOULBURN, NSW-2580  
PHONE: (02) 4823 4444  
FAX: (02) 4823 4456

AUSTRALIAN HEIGHT DATUM

AS-1100 STANDARDS

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*[Signature]*  
DIRECTOR OF  
GOULBURN MULWAREE  
OPERATIONS

DATE: 28/02/2018

## TYPICAL 20-25MM WATER METER ASSEMBLY ARRANGEMENT



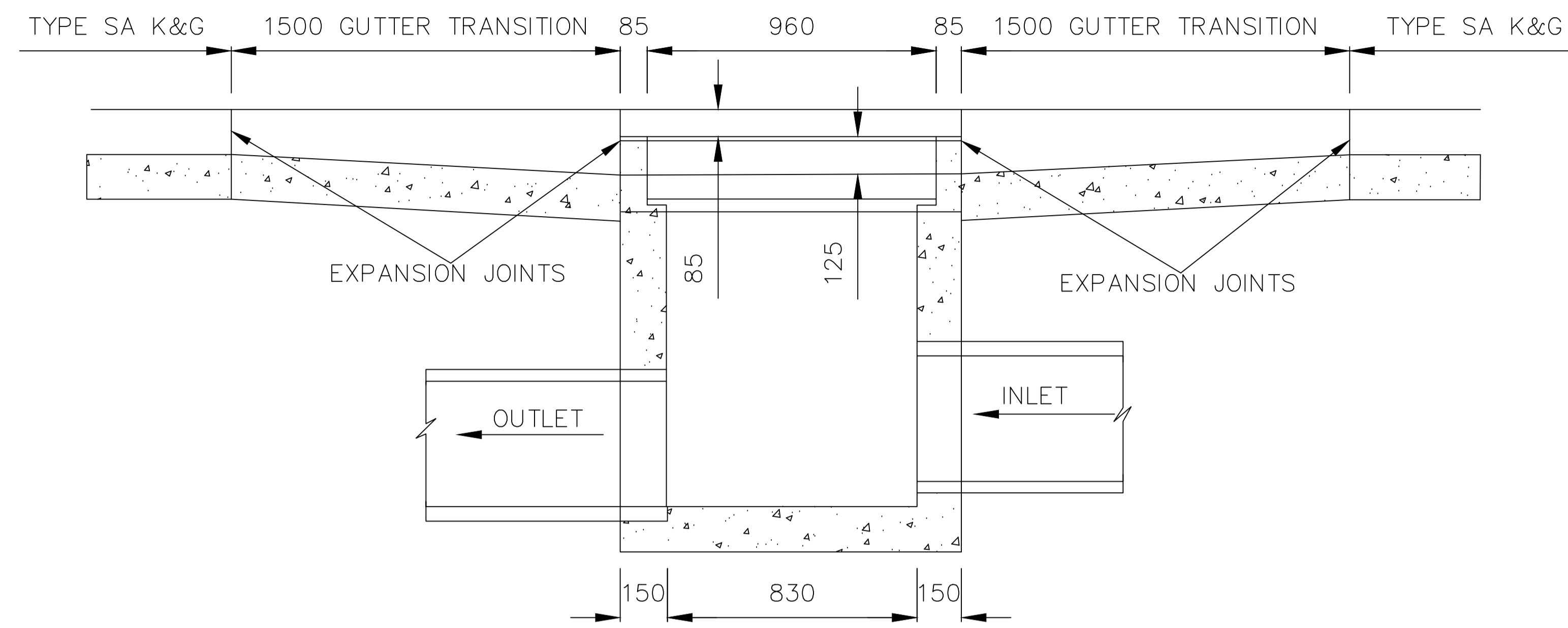
A1 - SCALE  
AS SHOWN

NUMBER OF SHEETS  
34

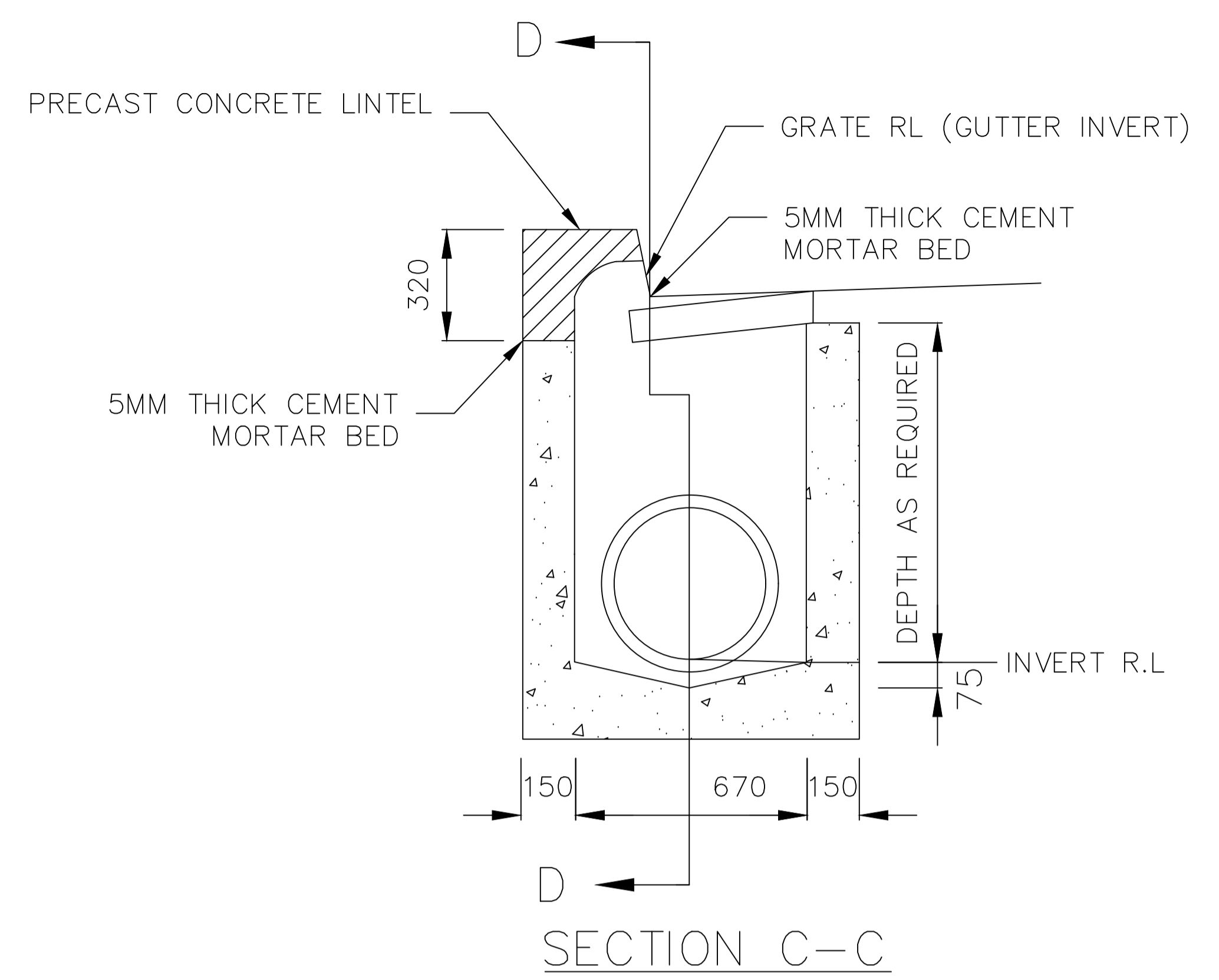
SHEET NUMBER  
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FILE NAME:  
STANDARD DRAWINGS.DWG  
REVISION  
GMC-VER-1  
RD: -/-/-/-

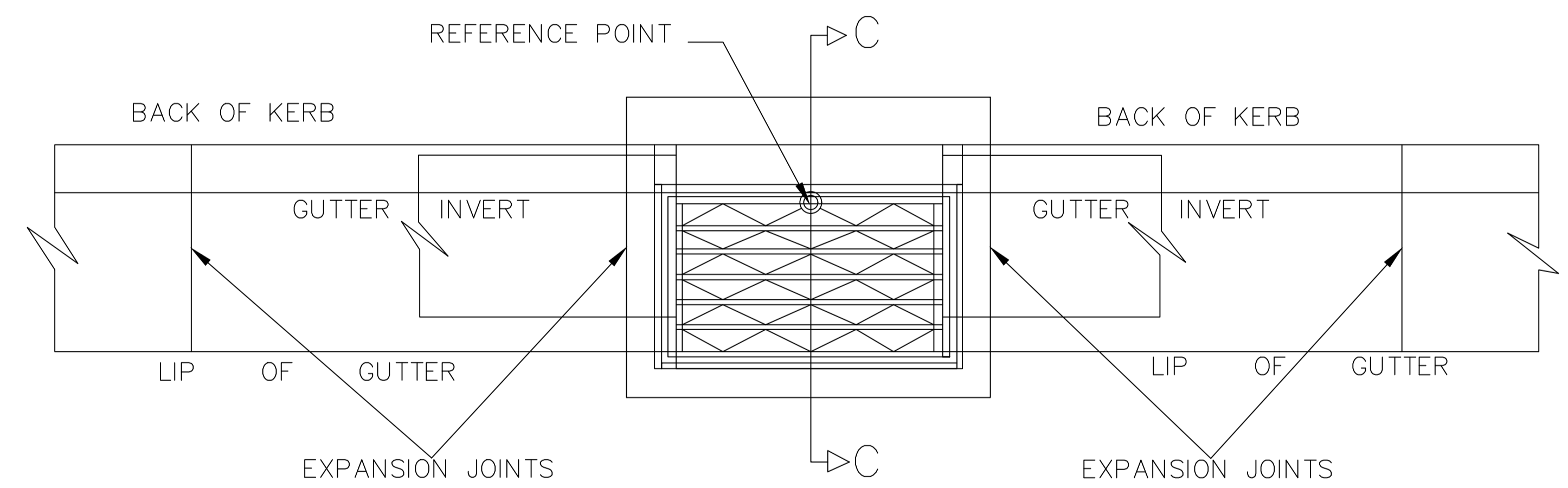
**SD-W 01**



SECTION D-D (GRATING REMOVED)



SECTION C-C



PLAN

NOTES:

1. CONCRETE STRENGTH 25 MPA.
2. STEEL: HOT DIP GALVANISED IN ACCORDANCE WITH AS1650.
3. PROVIDE SUBSURFACE DRAINS INTO PITS.
4. SIDE WALLS OF PITS DEEPER THAN 1500 TO BE REINFORCED WITH ONE LAYER OF N72 MESH AND RETURNED INTO BASE.
5. STEP IRONS ARE REQUIRED WHERE PITS ARE DEEPER THAN 600. REFER TO (SD-D 11)
6. GULLY GRATE AND FRAME TYPE GG 78-49, GG 78-50 OR EQUIVALENT.

INDEX	NAME	DATE	AMENDMENTS
SURVEYED			NOTES CHANGED/ADDED, TITLE CHANGED (I.ALDRIDGE 2012)
DESIGNED & DRAFTED	RMS		
DESIGN REVIEWED	GS.LOTAY	07/11/2011	
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012	
ISSUED FOR CONSTRUCTION			
WORK AS EXECUTED			

**GOULBURN MULWAREE COUNCIL**

CIVIC CENTRE, 184-194 BOURKE STREET  
GOULBURN, NSW-2580  
LOCKED BAG 22, GOULBURN, NSW-2580  
PHONE: (02) 4823 4444  
FAX: (02) 4823 4456

AUSTRALIAN HEIGHT DATUM AS-1100 STANDARDS

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**APPROVED**

*[Signature]*

DIRECTOR OF GOULBURN MULWAREE OPERATIONS

DATE: 28/02/2018

**SIDE ENTRY PIT**

**WITHOUT EXTENDED CHAMBER PIT**

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PERSONAL PROTECTIVE EQUIPMENT  
MUST BE WORN ON SITE  
www.dialbeforeyoudig.com.au  
**DIAL 1100**  
BEFORE YOU DIG

A1 - SCALE  
**AS SHOWN**

NUMBER OF SHEETS  
**34**

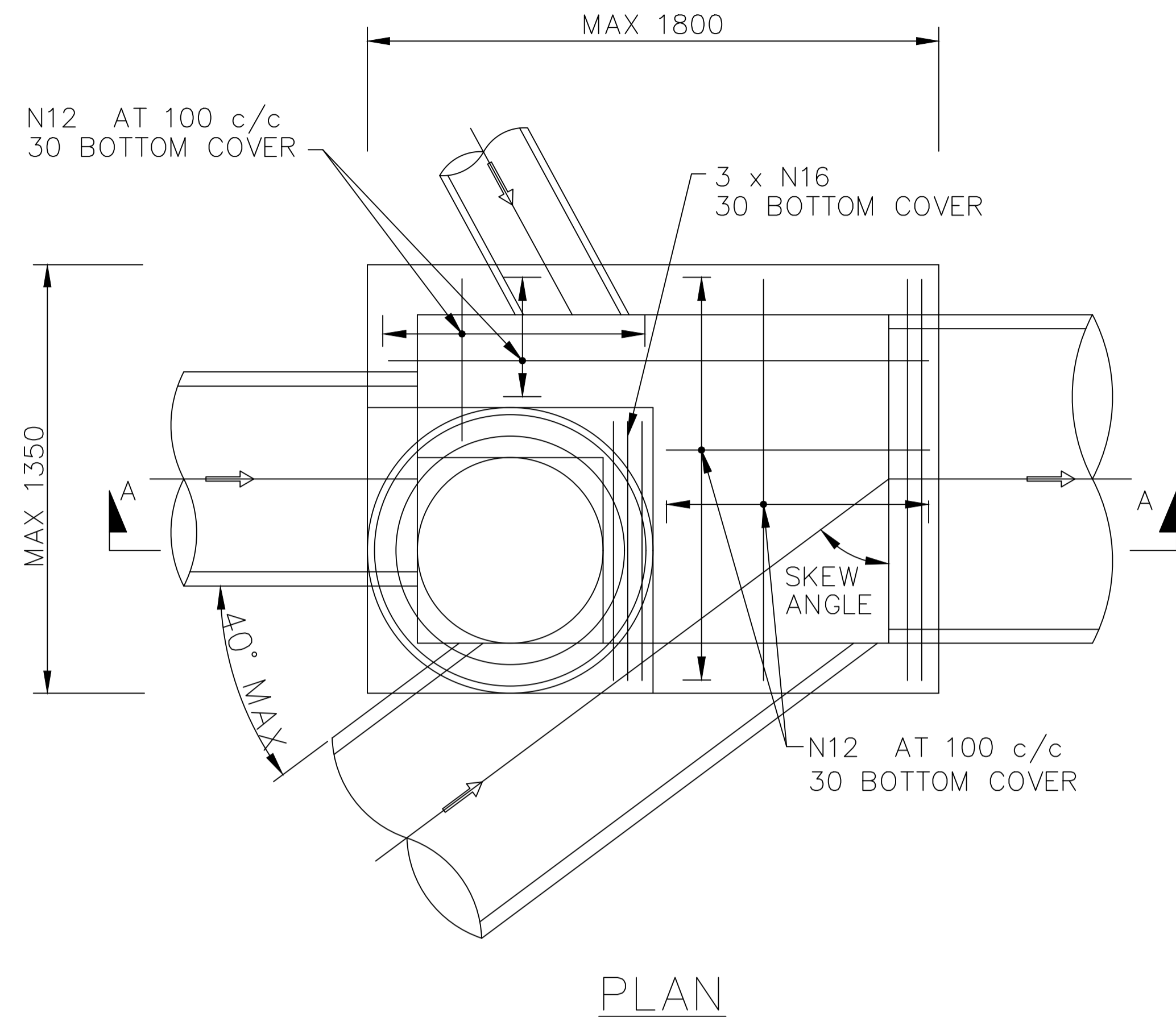
SHEET NUMBER  
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FILE NAME:  
STANDARD DRAWINGS.DWG

REVISION  
**GMC-VER-1**

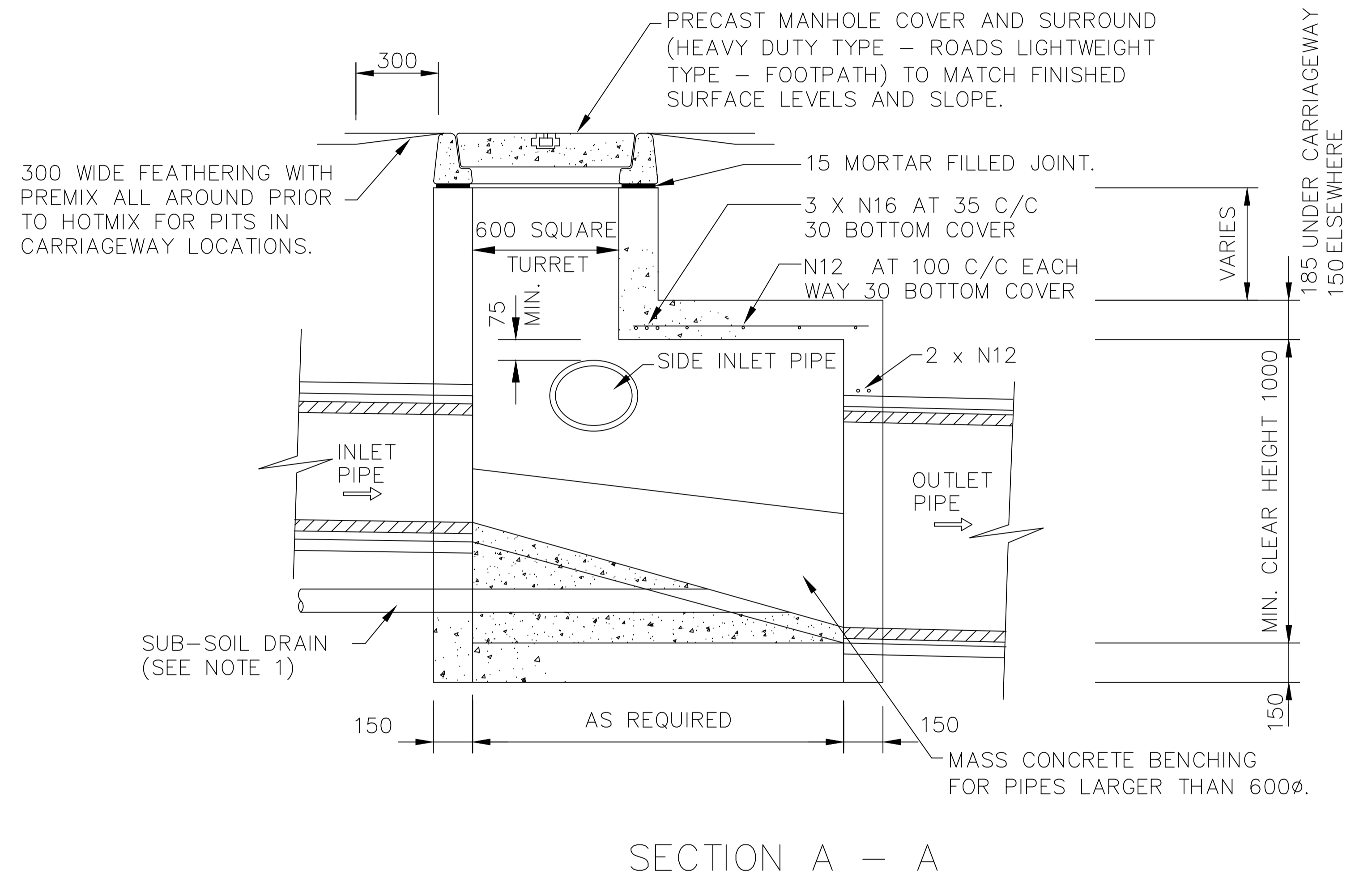
RD: -/-/-/-/-

**SD-D 01**



#### NOTES:

1. PROVIDE  $\phi 100$  SUB-SOIL DRAINAGE PIPE, 2000 LONG, WRAPPED IN FABRIC SOCK ADJACENT TO INLET PIPES.
2. MAXIMUM OUTLET PIPE ON STRAIGHT  $\phi 900$ .
3. MAXIMUM OUTLET PIPE ON SKEW  $\phi 825$ .
4. MAXIMUM SIDE ENTRY PIPE  $\phi 825$  AT APPROX.  $40^\circ$  SKEW.
5. MINIMUM INTERNAL DIMENSIONS – LENGTH 900 MM  
– WIDTH 700 MM  
– HEIGHT 1000 MM
6. CAST IN SITU CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 25 MPA AT 28 DAYS.
7. WHERE PITS ARE DEEPER THAN 600 MM PROVIDE STEP IRONS, REFER TO SD-D 11.
8. PITS DEEPER THAN 1500 MM SHALL BE REINFORCED WITH ONE LAYER OF SL82 TO FLOOR AND WALLS FOR THE FULL DEPTH. PITS DEEPER THAN 2000 MM SHALL BE STRUCTURALLY DESIGNED.



INDEX	NAME	DATE	AMENDMENTS
SURVEYED			TITLE CHANGED (I ALDRIDGE 2012)
DESIGNED & DRAFTED	P.SMART	14/07/2009	
DESIGN REVIEWED	P.SMART	14/07/2009	
FINAL DESIGN CHECKED	I.ALDRIIDGE	12/12/2012	
ISSUED FOR CONSTRUCTION			
WORK AS EXECUTED			



CIVIC CENTRE: 184-194 BOURKE STREET  
GOULBURN, NSW-2580  
LOCKED BAG 22, GOULBURN, NSW-2580  
PHONE: (02) 4823 4444  
FAX: (02) 4823 4456

AUSTRALIAN HEIGHT DATUM

AS-1100 STANDARDS

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APPROVED

*[Signature]*

DIRECTOR OF  
GOULBURN MULWAREE  
OPERATIONS

DATE: 28/02/2018

## JUNCTION PIT



A1 - SCALE  
AS SHOWN

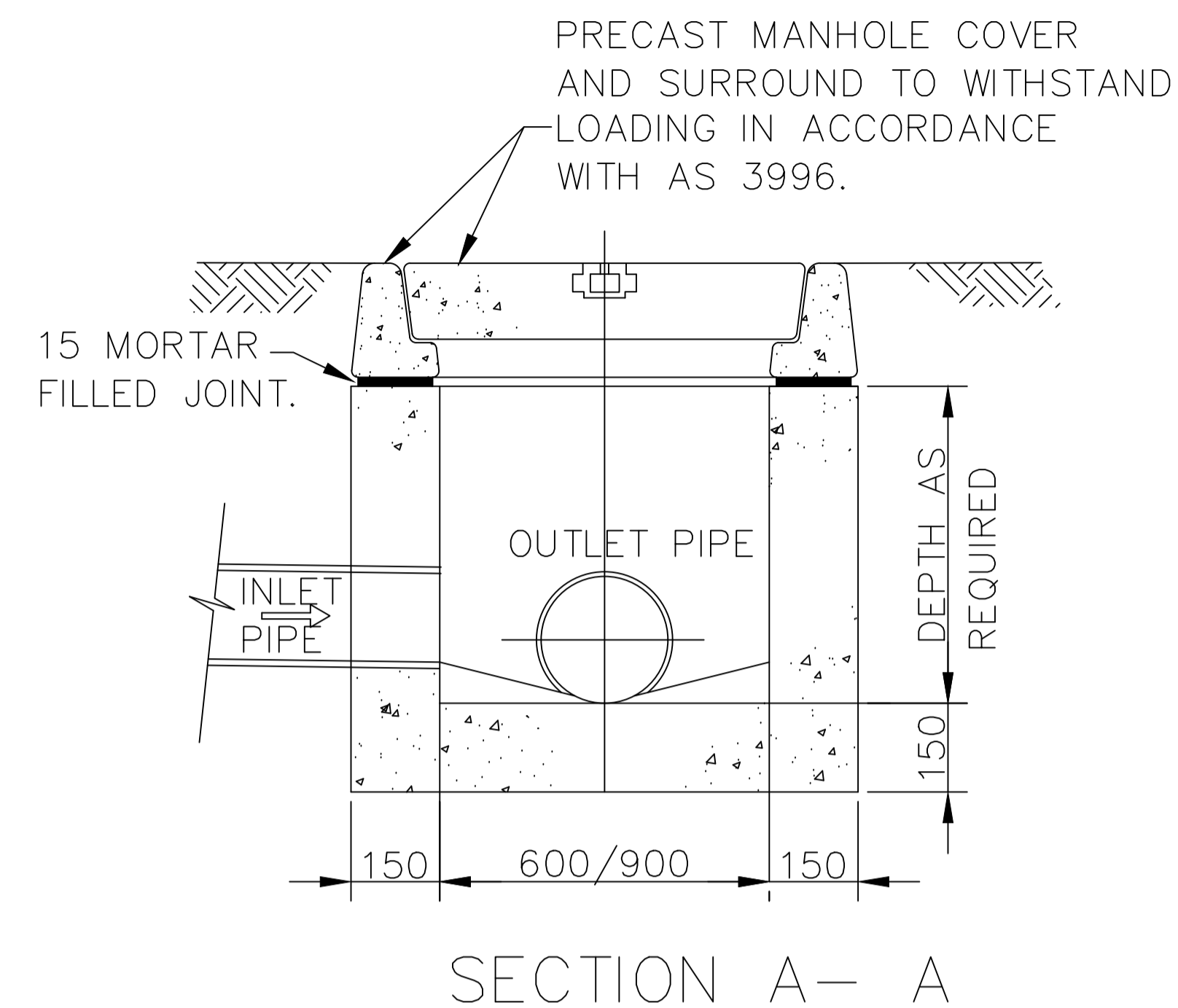
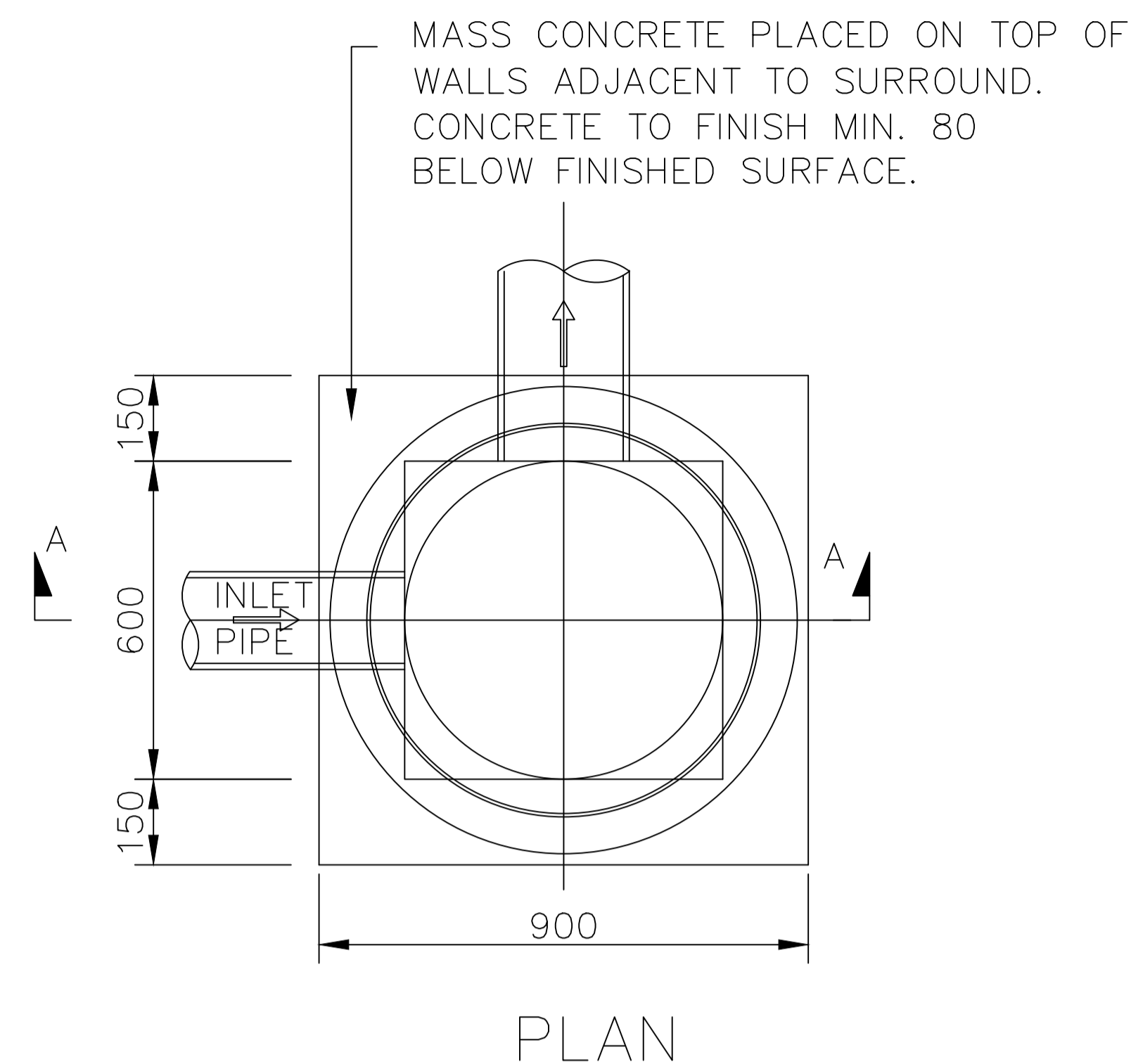
NUMBER OF SHEETS  
34

SHEET NUMBER  
17

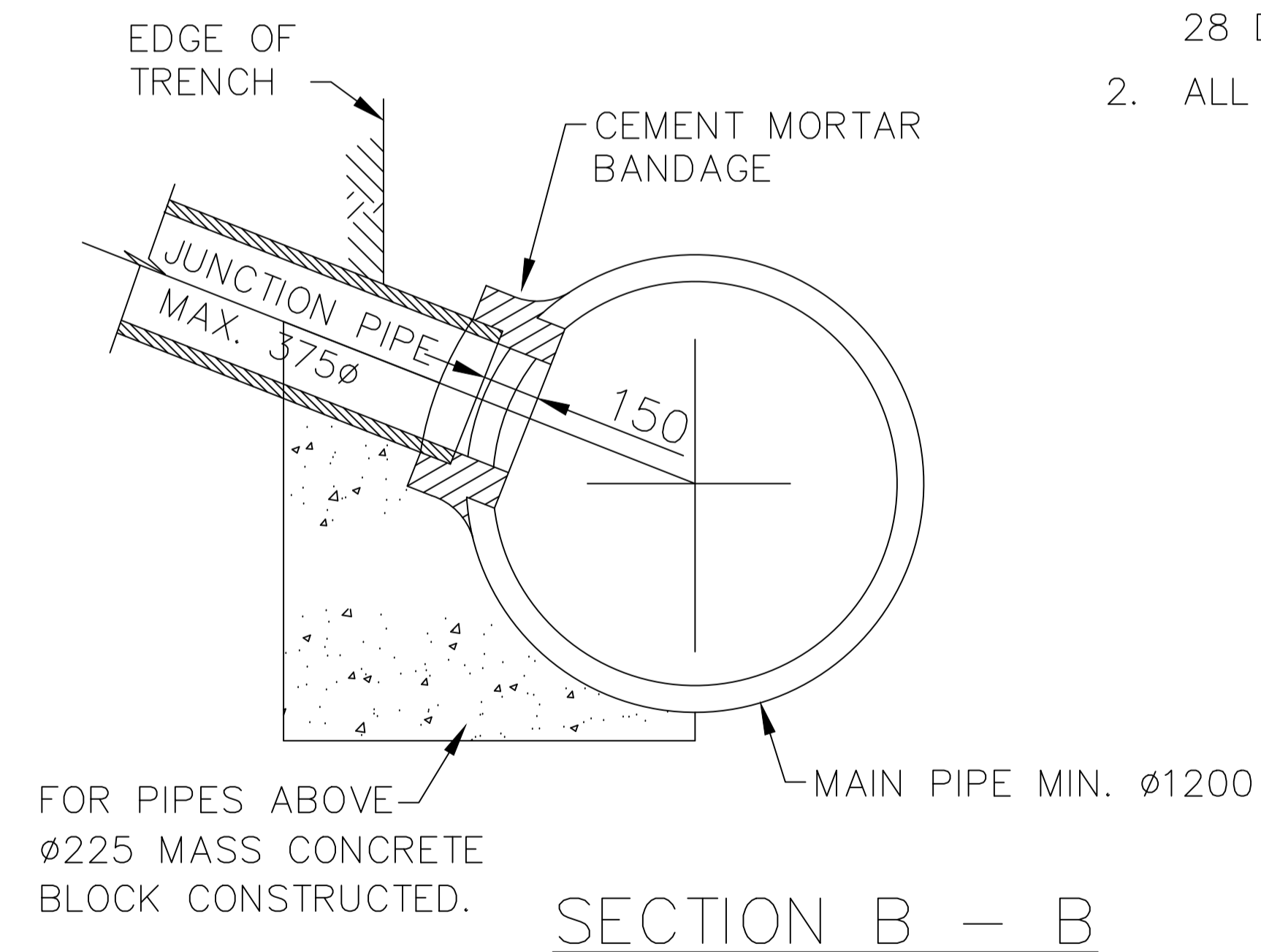
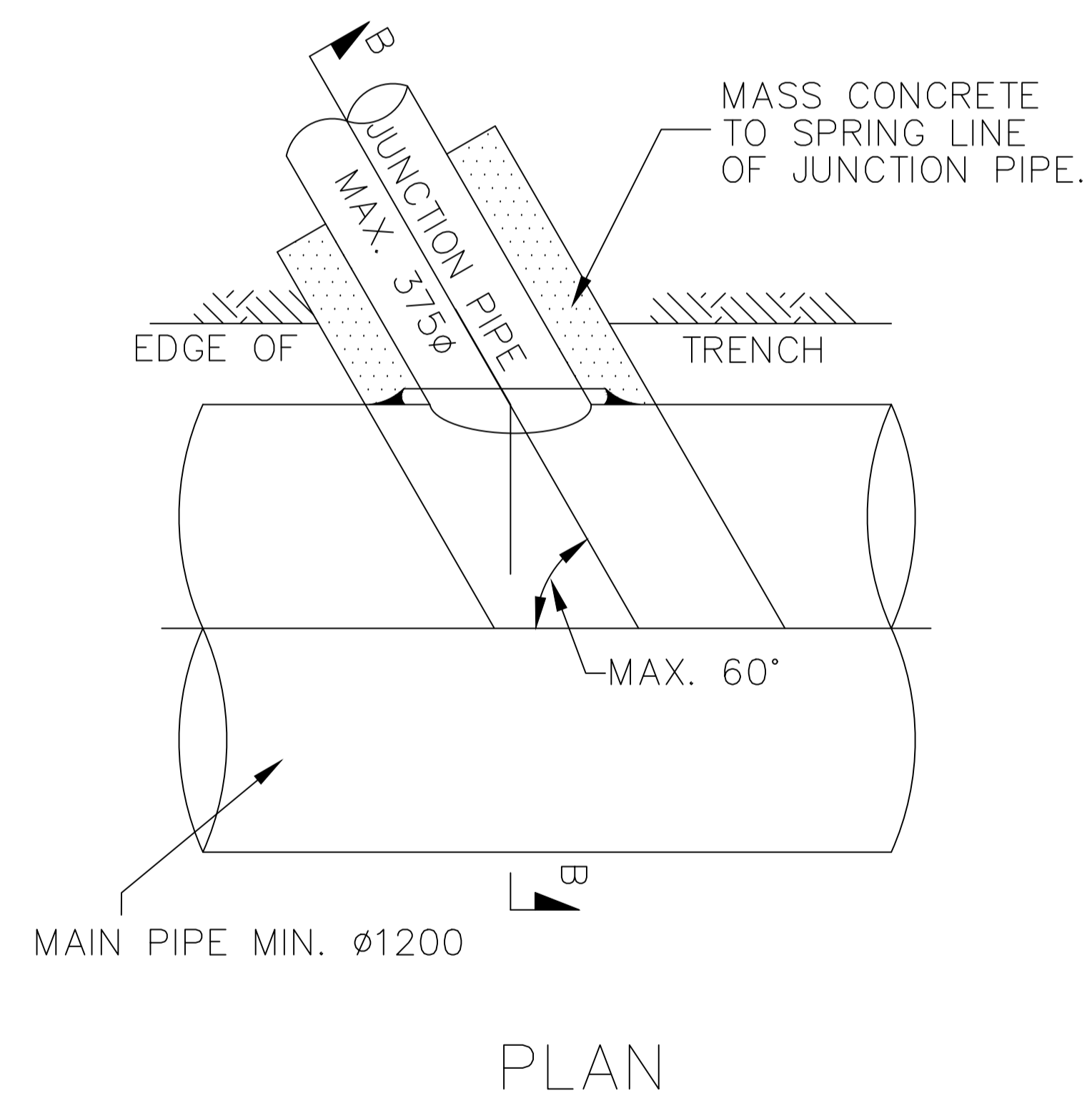
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REVISION  
GMC-VER-1  
RD: -/-/-/-/-

SD-D 02

DRAWING NUMBER SD-D 02

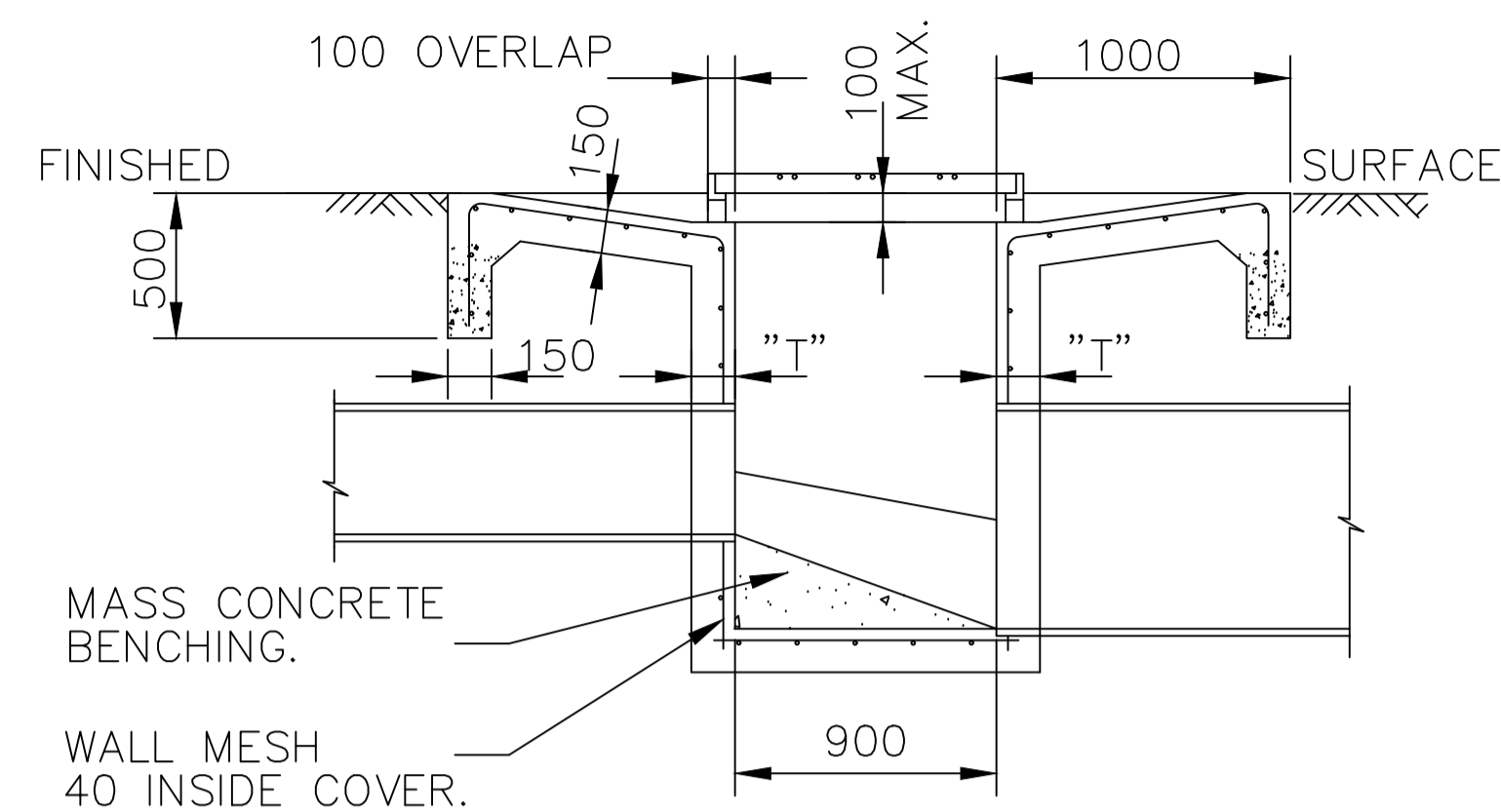


# CONCRETE INSPECTION PIT



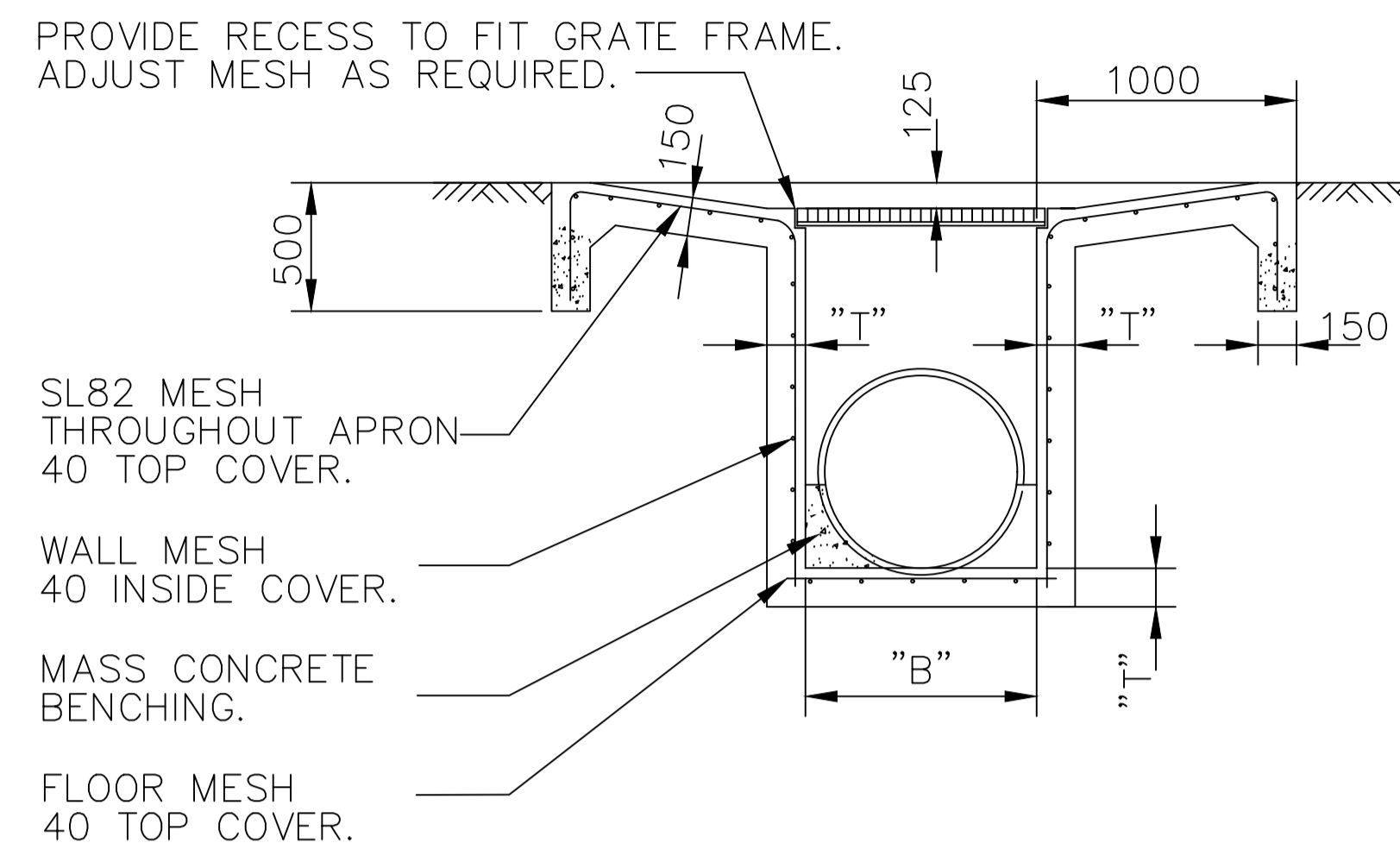
## TYPICAL DIRECT CONNECTION OF SMALL PIPE AND LARGE PIPE

INDEX	NAME	DATE	AMENDMENTS	<div><p>CIVIC CENTRE, 184-194 BOURKE STREET GOULBURN, NSW-2580 LOCKED BAG 22, GOULBURN, NSW-2580 PHONE: (02) 4823 4444 FAX: (02) 4823 4456</p><p>AUSTRALIAN HEIGHT DATUM      AS-1100 STANDARDS</p><p>If the actual work done differs from the original drawing the person performing the work must amend this and return it to the Design Office.</p></div>	<div><div>APPROVED</div><p>DIRECTOR OF GOULBURN MULWAREE OPERATIONS</p><p>DATE: 28/02/2018</p></div>	<div><div>DRAINAGE CONNECTIONS</div><div>MINOR</div></div>	<div><div><div><div>SAFETY FIRST</div><div>PERSONAL PROTECTIVE EQUIPMENT</div><div>MUST BE WORN ON SITE</div></div><div><div>www.dialbeforeyoudig.com.au</div><div><div><div>DIAL 1100</div><div>BEFORE YOU DIG</div></div></div></div></div></div>	A1 - SCALE AS SHOWN	NUMBER OF SHEETS 34	SHEET NUMBER 18
SURVEYED			NOTES & DETAILS CHANGED/ADDED (I/ALDRIDGE 2012)					FILE NAME: STANDARD DRAWINGS.DWG		
DESIGNED & DRAFTED	P.SMART	14/07/2009						REVISION		
DESIGN REVIEWED	P.SMART	14/07/2009						GMC-VER-1		
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012						RD: 		
ISSUED FOR CONSTRUCTION								SD-D 03		
WORK AS EXECUTED										



SECTION A - A

PIT TYPE A - RAISED GRATE

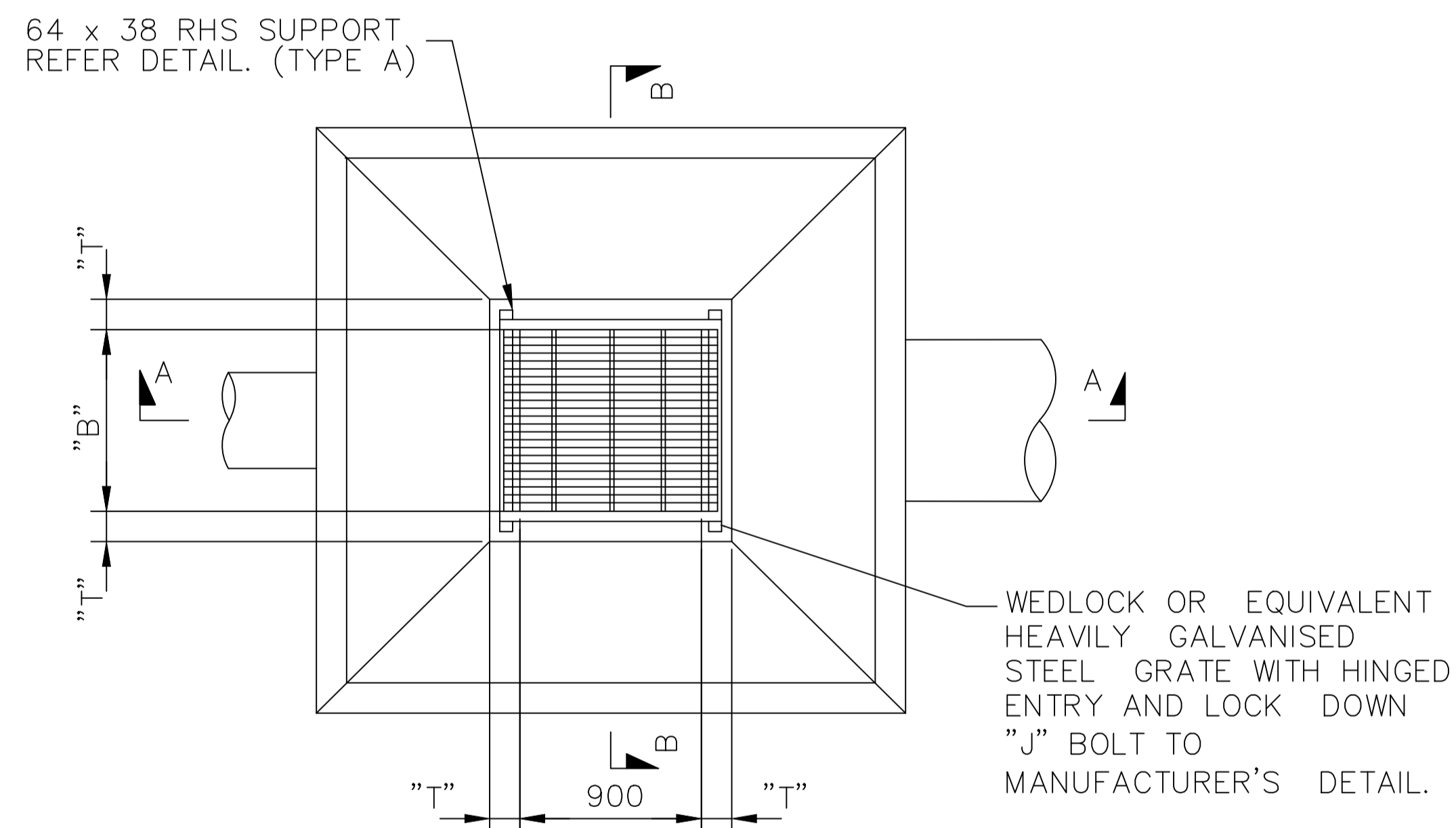


SECTION B - B

PIT TYPE B - FLUSH GRATE

NOTES:

1. ALL CONCRETE TO HAVE A MINIMUM STRENGTH OF 25 MPA EXCEPT MASS CONCRETE BENCHING 5MPA.
2. APPROVED STEP IRONS SHALL BE PROVIDED WHERE THE PIT EXCEEDS 600MM IN DEPTH. REFER TO SD-D 11.
3. GRATES MUST BE CLASS C FOR NON-ROAD INSTALLATION AND CLASS D FOR ROAD INSTALLATION. CLASSES AS DEFINED IN A.S.3996.
4. GRATE LEGS TO BE WELDED TO FRAME PRIOR TO GALVANISING. (TYPE A)
5. MASS CONCRETE BENCHING TO PIPE CENTERLINE MUST BE PROVIDED AS INDICATED.
6. WHERE SITE CONDITIONS DICTATE, THE PIT TOPS MAY BE INCLINED TO AN UPPER LIMIT OF 1 VERTICAL. IN 4 HORIZONTAL. NO ALTERATION TO REINFORCEMENT IS REQUIRED, HOWEVER, THE ENTIRE PIT ROOF (AND ACCOMPANYING APRONS) ARE TO REMAIN PLANAR.
7. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

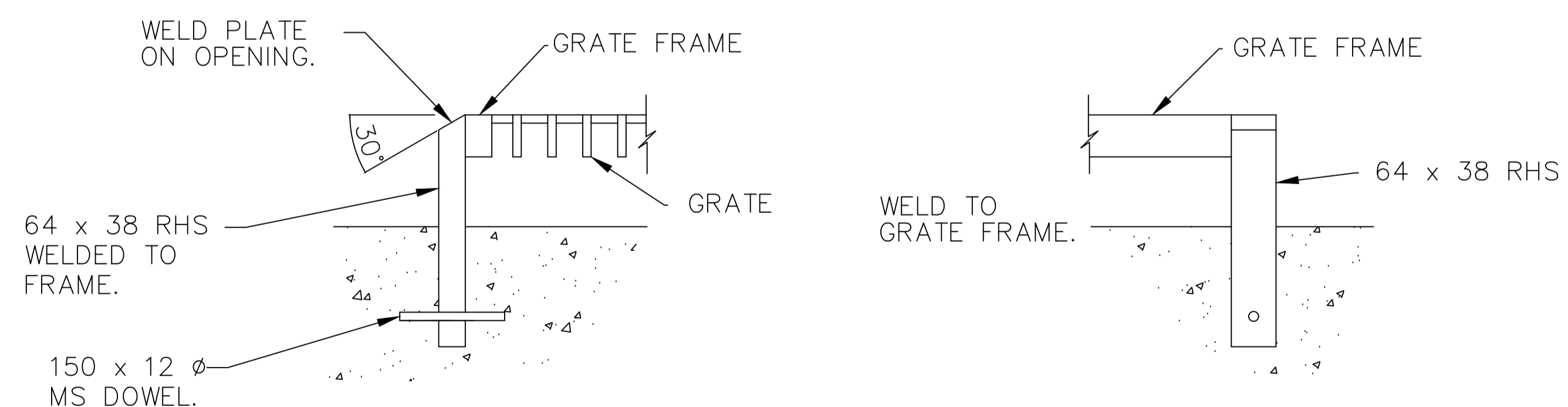


PLAN - PIT TYPE A and B

TYPICAL DETAIL SURFACE INLET TO SUIT PIPES UP TO 1500mm DIA.

PIT DIMENSIONS AND MESH			
LARGEST PIPE CONNECTED TO PIT	DIMENSION "B"	DIMENSION "T"	MESH (WALLS and FLOOR ONLY)
UP TO 525	600	150	SL82
UP TO 750	900	150	SL82
825 - 900	1000	150	SL82
1050 - 1200	1400	150	SL82
1350	1550	200	SL82
1500	1700	200	SL102

NOTWITHSTANDING THE ABOVE TABLE, PITS DEEPER THAN 2000mm TO INVERT SHALL BE STRUCTURALLY DESIGNED.



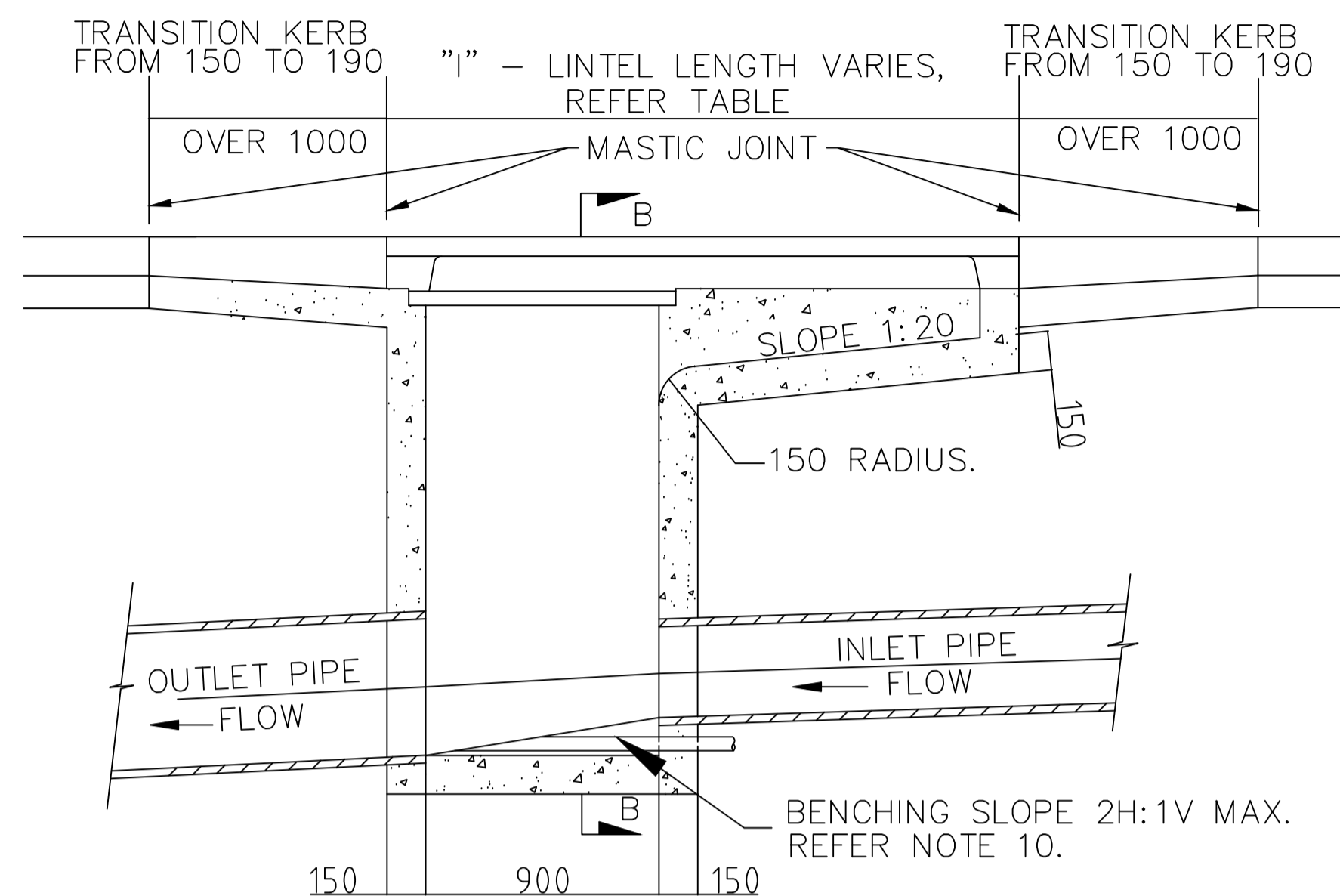
DETAIL SHOWING CONNECTION OF RAISED GRATE TO PIT. (TYPE A)

INDEX	NAME	DATE	AMENDMENTS				
SURVEYED			NOTES CHANGED/ADDED (I.LALDRIDGE 2012)				
DESIGNED & DRAFTED	P.SMART	14/07/2009					
DESIGN REVIEWED	P.SMART	14/07/2009					
FINAL DESIGN CHECKED	I.LALDRIDGE	12/12/2012					
ISSUED FOR CONSTRUCTION							
WORK AS EXECUTED							

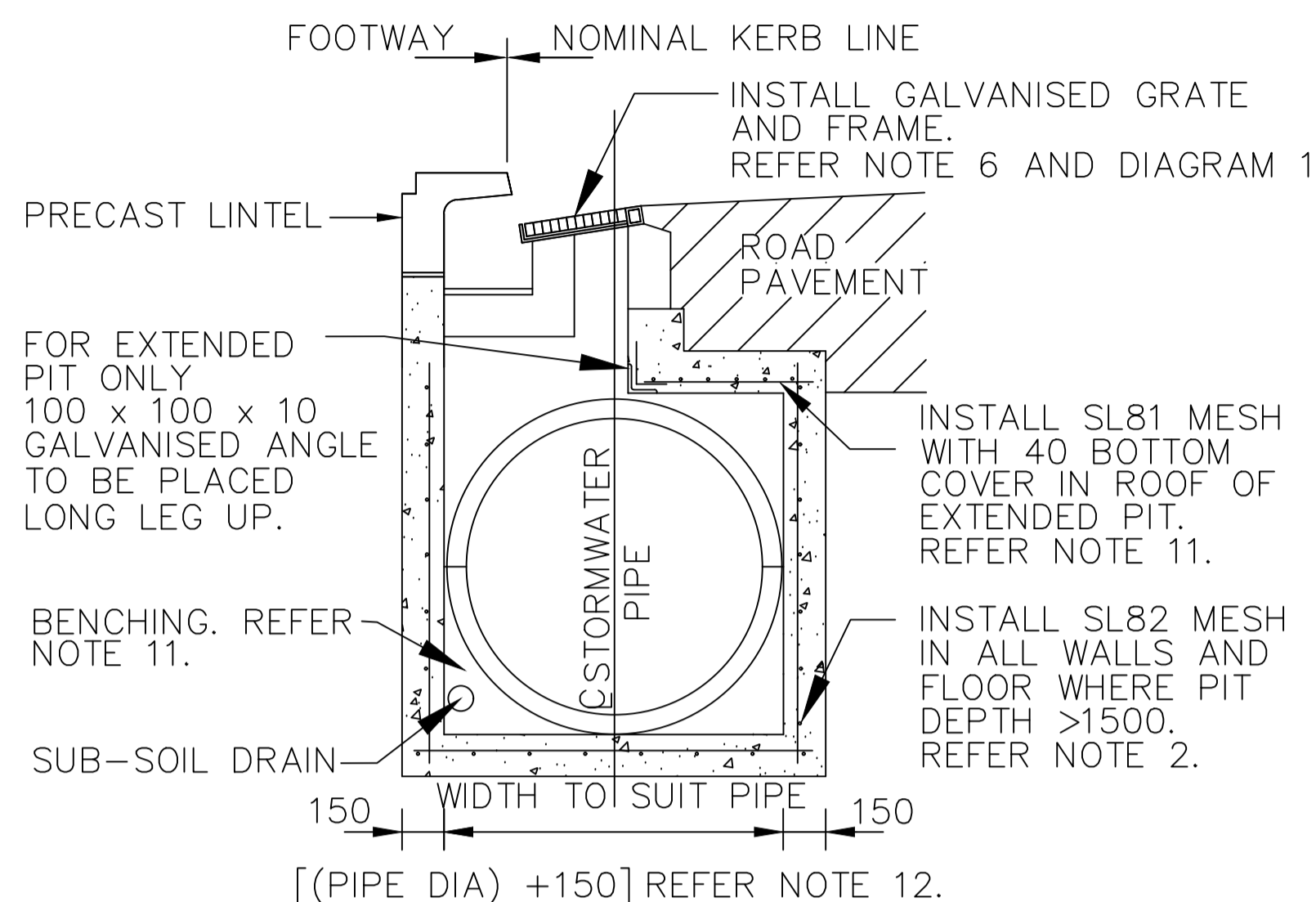
		CIVIC CENTRE, 184-194 BOURKE STREET GOULBURN, NSW-2580 LOCKED BAG 22, GOULBURN, NSW-2580 PHONE: (02) 4823 4444 FAX: (02) 4823 4456
AUSTRALIAN HEIGHT DATUM	AS-1100 STANDARDS	
If the actual work done differs from the original drawing the person performing the work must amend this copy accordingly and return it to the Design Office.		

APPROVED  DIRECTOR OF GOULBURN MULWAREE OPERATIONS DATE: 28/02/2018	<b>SURFACE INLET PITS</b> <b>TYPE A - RAISED GRATE</b> <b>TYPE B - FLUSH GRATE</b>
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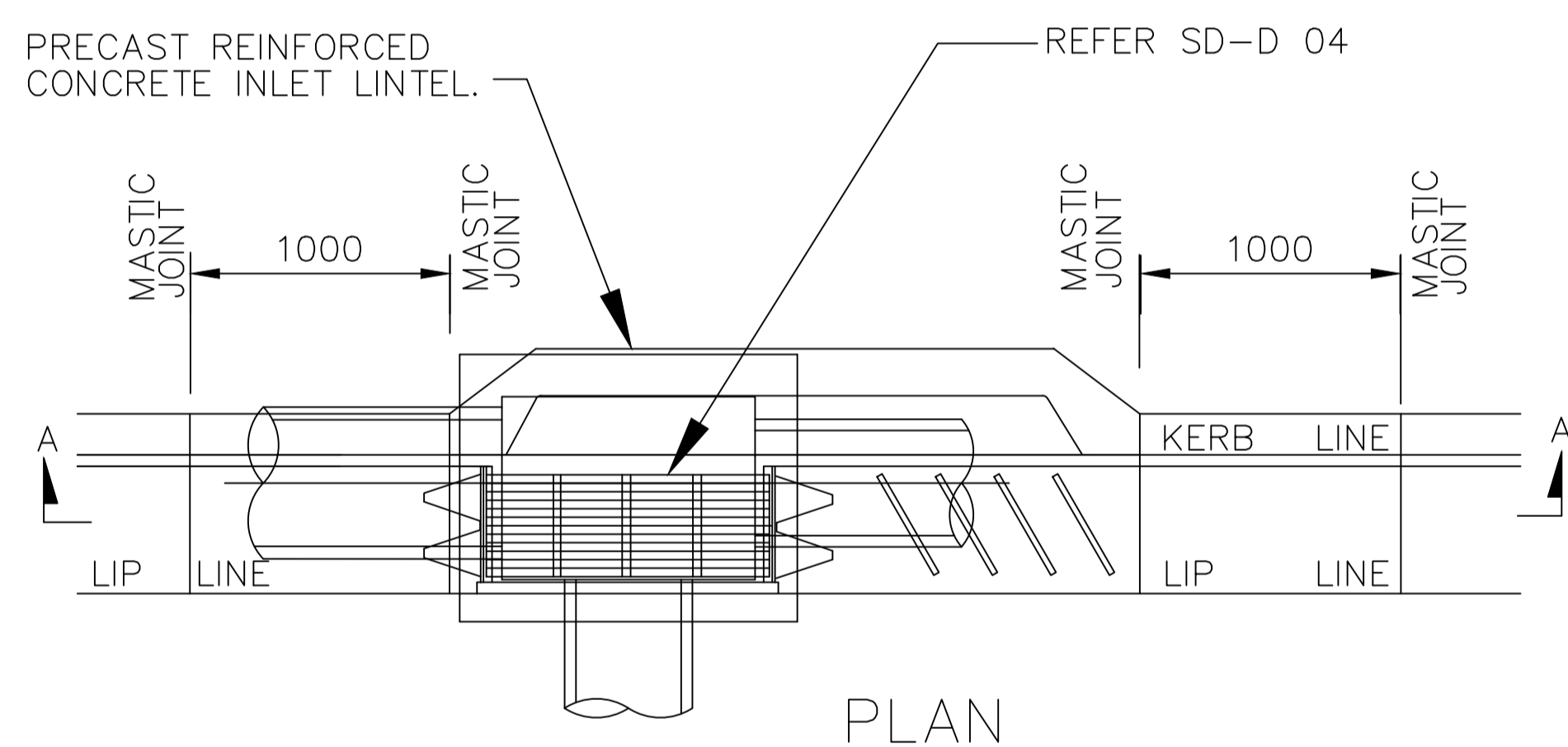
<b>SAFETY FIRST</b> PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN ON SITE www.dialbeforeyoudig.com.au 	A1 - SCALE AS SHOWN FILE NAME: STANDARD DRAWINGS.DWG REVISION GMC-VER-1 RD:	NUMBER OF SHEETS 34 SHEET NUMBER 19
<b>SD-D 04</b>		



SECTION A - A



SECTION B - B  
EXTENDED PIT CHAMBER  
REFER NOTE 9.



PLAN

PRECAST LINTEL SIZES.	
NOMINAL OPENING SIZE METRES	OVERALL LENGTH "l" mm
0.9	1825
1.2	1825
1.8	2438
2.4	3048
3.0	3657
3.6	4267
4.2	4877
4.8	5486

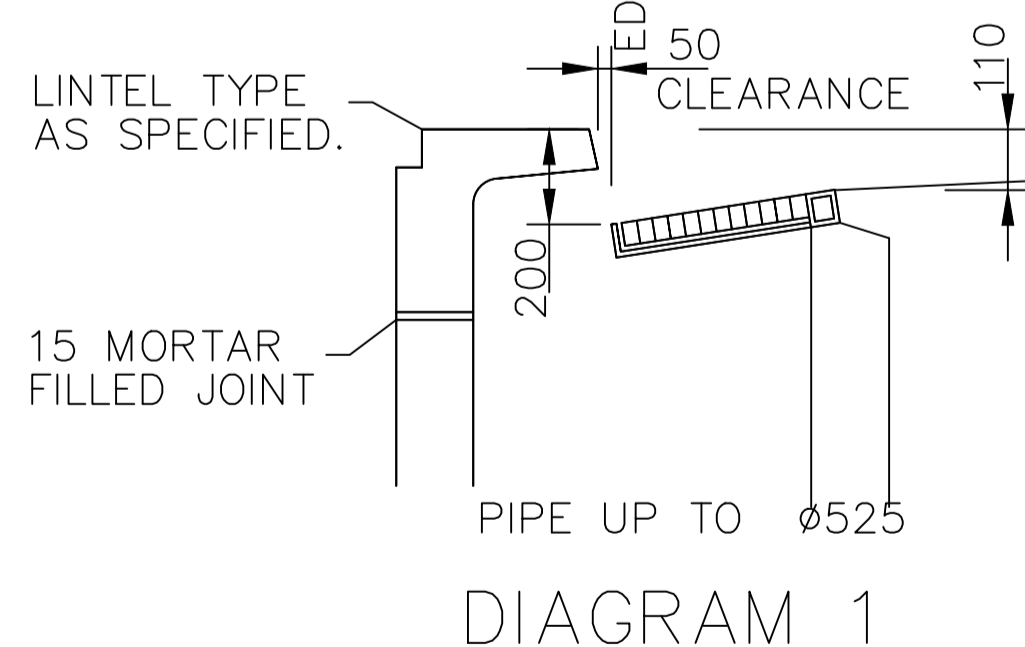
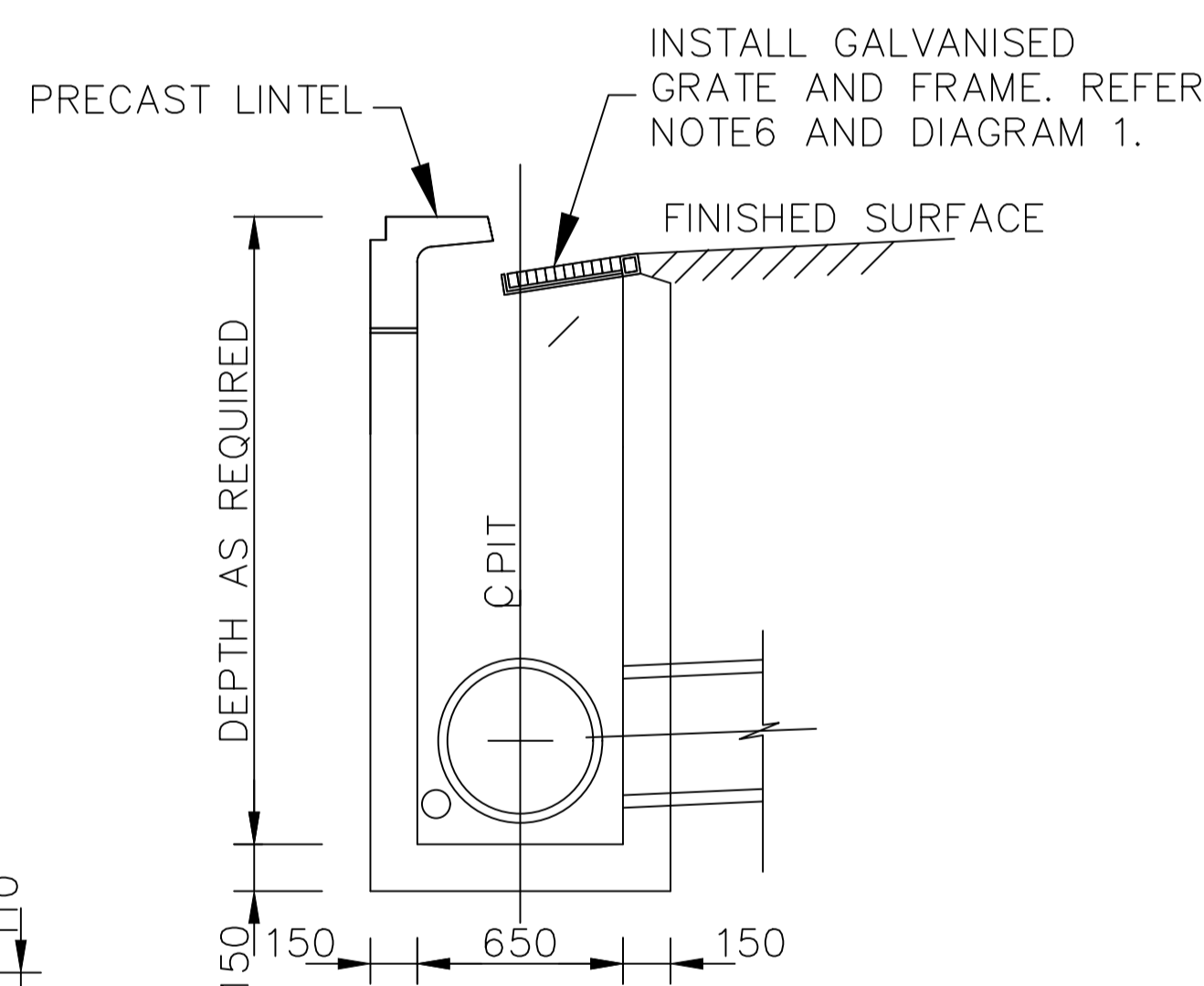


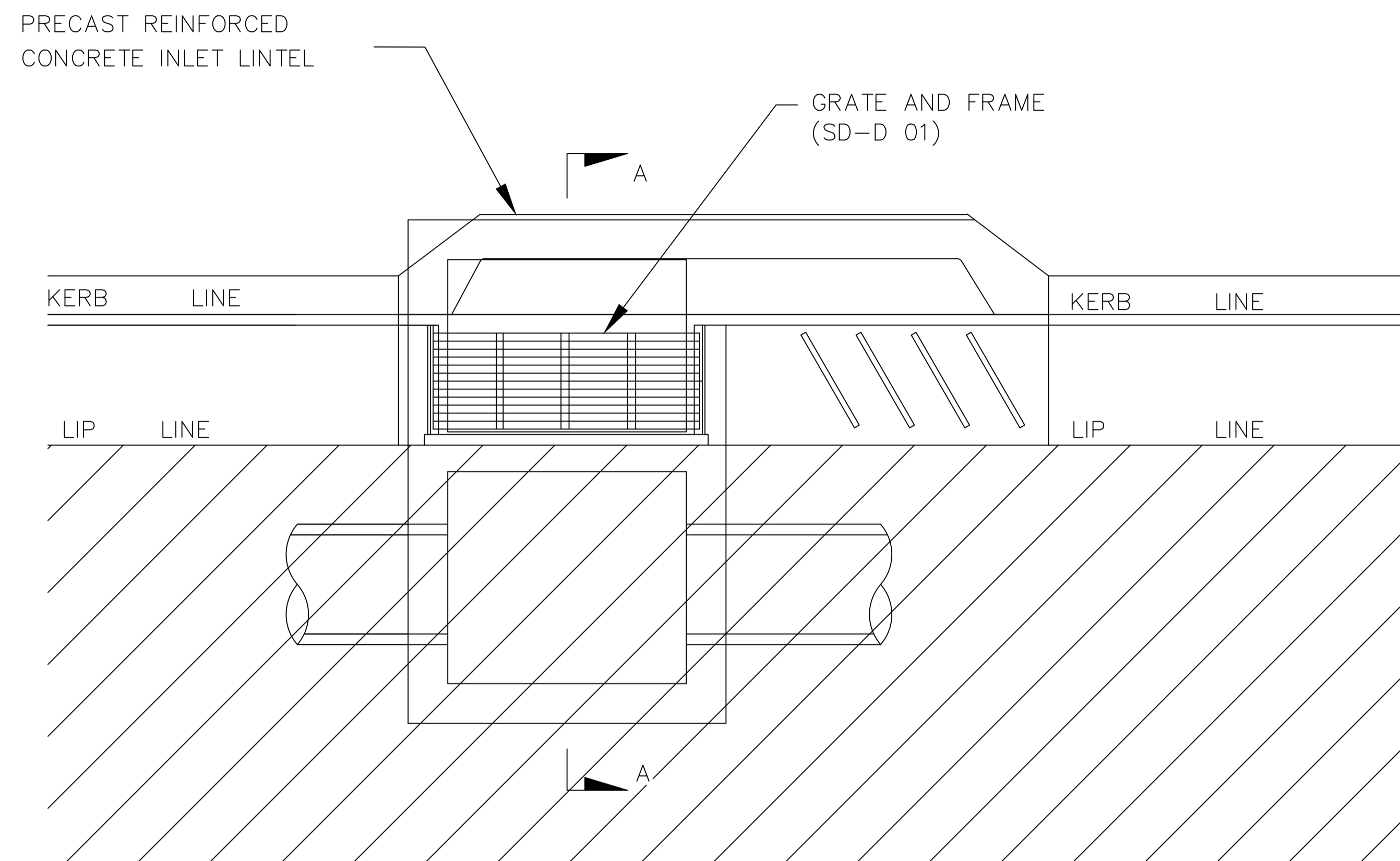
DIAGRAM 1



SECTION B - B  
STANDARD PIT  
REFER NOTE 9.

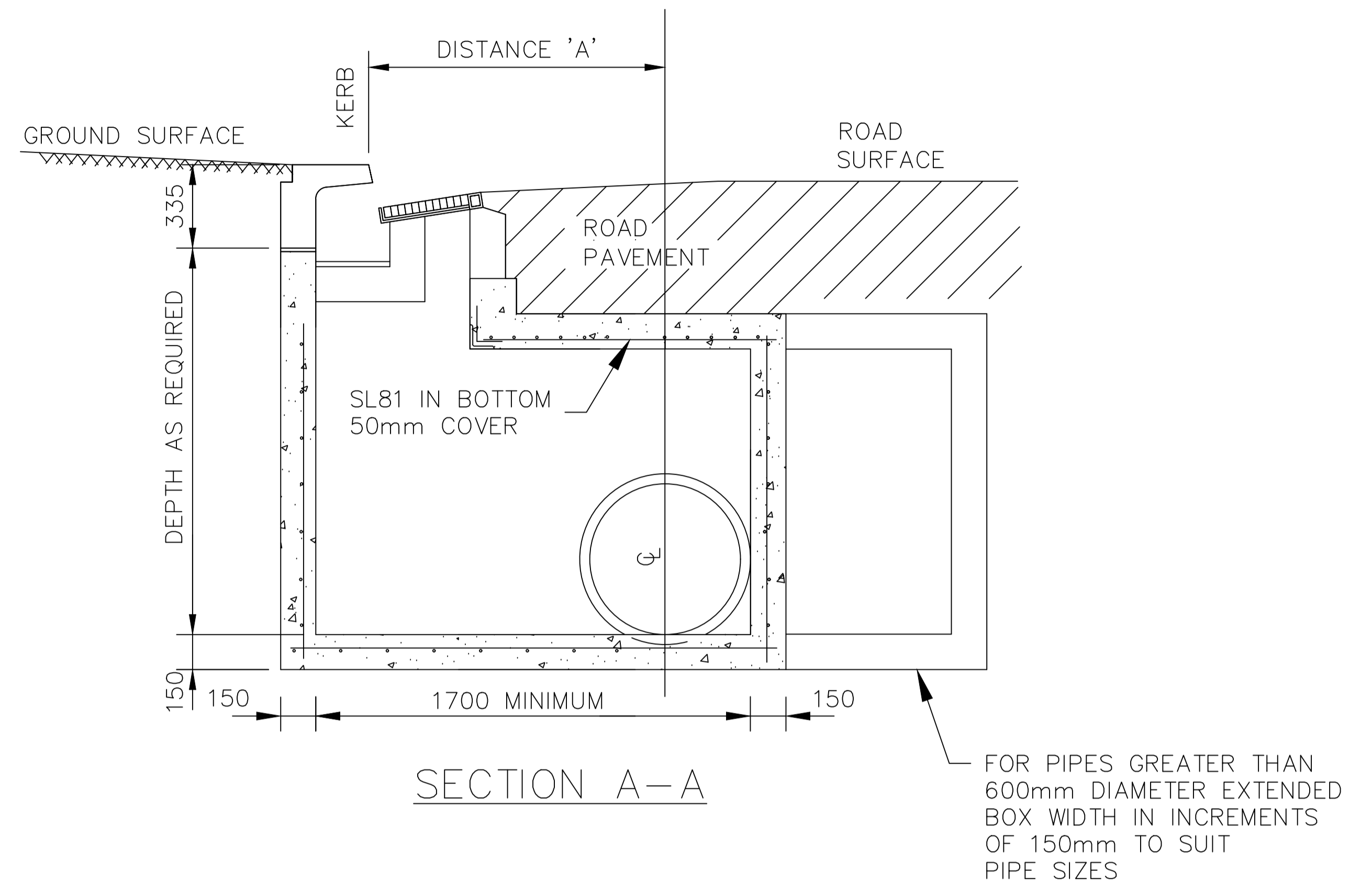
NOTES:

- ALL CONCRETE TO HAVE A MINIMUM STRENGTH OF 25 MPA AT 28 DAYS UNLESS OTHERWISE NOTED.
- WHERE DEPTH OF PIT EXCEEDS 1500MM, WALLS AND BOTTOM TO BE REINFORCED IN ALL DIRECTIONS WITH SL82 MESH AT 40 COVER TO INSIDE FACE WITH N12 CORNER BARS 300 LEGS AT 400 CTRS. PITS DEEPER THAN 2000 SHALL BE DESIGNED BY A PROFESSIONAL STRUCTURAL ENGINEER.
- SAG PITS TO HAVE LINTEL LOCATED CENTRALLY OVER PIT.
- BACKFILL ADJACENT TO PITS TO BE APPROVED GRANULAR MATERIAL.
- A 3M LENGTH OF APPROVED "FILTER FABRIC" WRAPPED 100MM SUB-SOIL DRAIN OR EQUIVALENT IS TO BE PROVIDED AND CONNECTED TO THE UPSTREAM PIT WALL.
- PIT GRATE AND FRAME TO BE "WELDLOK" GG78-50 FOR RESIDENTIAL ROADS AND GG78-42A FOR INDUSTRIAL ROADS, FITTED WITH A LOCKABLE "J" BOLT.
- STEP IRONS WHERE THE PIT EXCEEDS 600MM IN DEPTH. AS PER SD-D 11.
- THE CENTRE LINES OF INTERSECTING PIPES ARE TO MEET AT THE DOWNSTREAM FACE OF THE PIT WHERE POSSIBLE.
- WHERE ENTERING PIPE EXCEEDS 525MM IN DIAMETER, EXTEND PIT CHAMBER AS SHOWN.
- FLOOR OF PIT TO BE BENCHED TO MID POINT OF OUTLET PIPE WHERE OUTLET PIPE IS >600MM DIAMETER.
- WHERE EXTENDED CHAMBER WIDTH EXCEEDS 1200MM, ROOF REINFORCEMENT TO BE DESIGNED BY A PROFESSIONAL STRUCTURAL ENGINEER.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
- PITS IN AREAS OF SALINITY HAZARD SHALL BE APPROPRIATELY DESIGNED.






PLAN

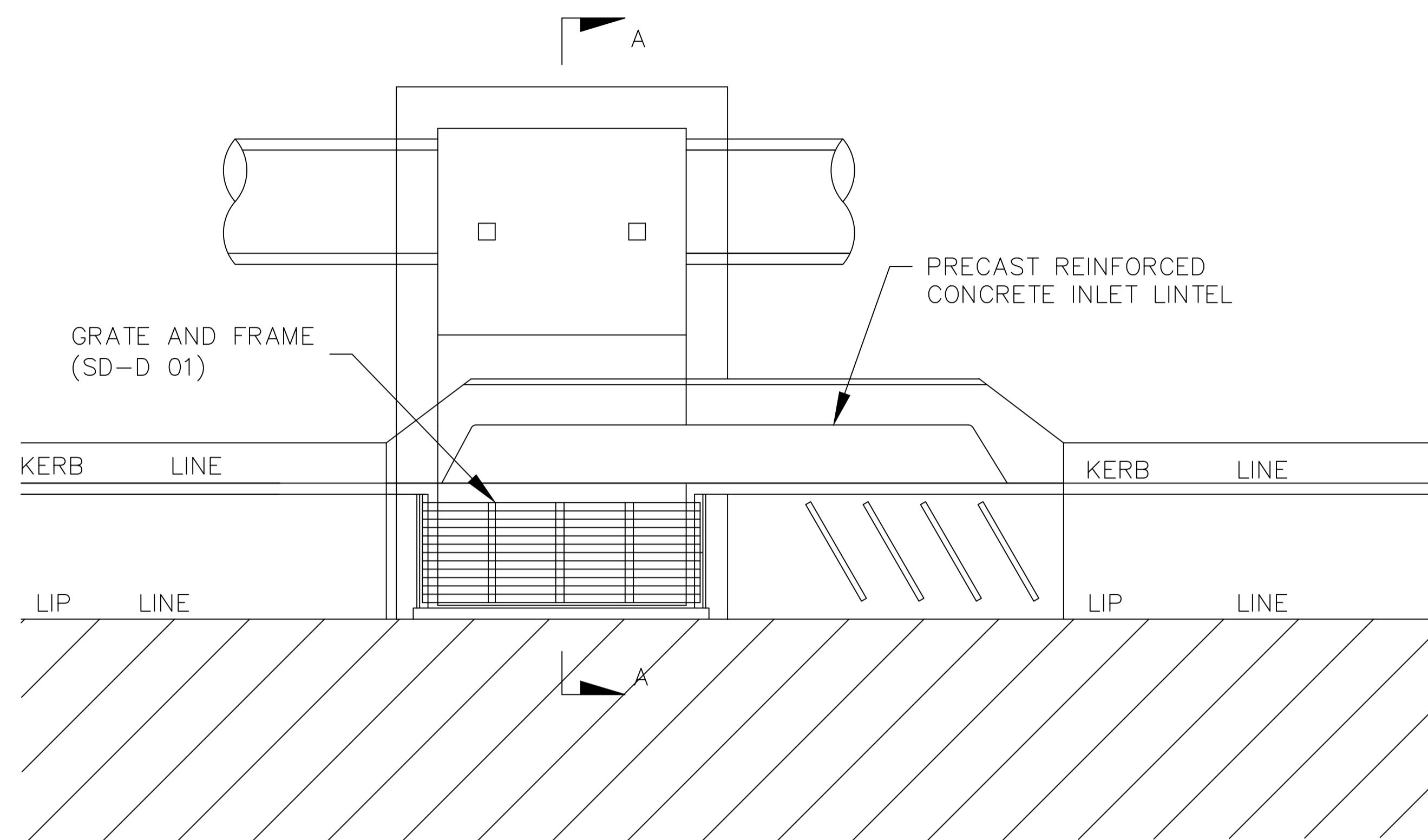
PIPE $\phi$ OFFSETS FROM KERB	
PIPE DIAMETER "mm"	DISTANCE 'A' "mm"
375	1100
450	1100
525	1100
600	1100
675	1250
750	1250
825	1250
900	1250
1050	1450
1200	1450



NOTES:

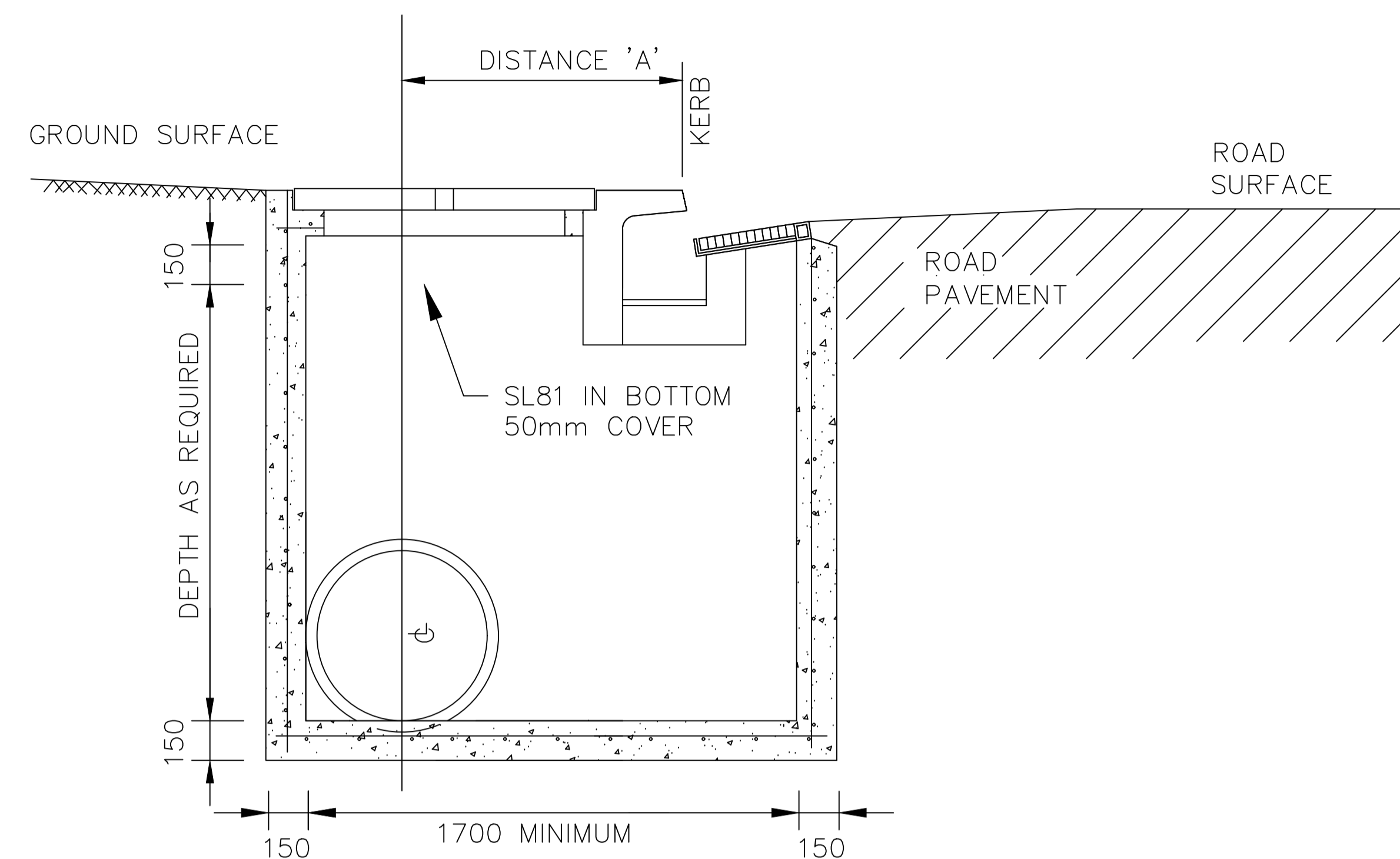
1. CONCRETE STRENGTH 25 MPA.
2. STEEL: HOT DIP GALVANISED IN ACCORDANCE WITH AS1650.
3. SIDE WALLS OF PITS DEEPER THAN 1500 TO BE REINFORCED WITH ONE LAYER OF N72 MESH AND RETURNED INTO BASE.
4. STEP IRONS ARE REQUIRED WHERE PITS ARE DEEPER THAN 600MM. (REFER TO: SD-D 11)
5. GULLY GRATE AND FRAME TYPE GG 78-49, GG 78-50 OR EQUIVALENT. (REFER TO SD-D 01)
6. KERB INLET TO BE ADJUSTED AS REQUIRED TO SUIT "WEDLOCK" GRATE AND LINTEL GG 78-57 OR SIMILAR.

INDEX	NAME	DATE	AMENDMENTS	<div><div>CIVIC CENTRE, 184-194 BOURKE STREET GOULBURN, NSW-2580 LOCKED BAG 22, GOULBURN, NSW-2580 PHONE: (02) 4823 4444 FAX: (02) 4823 4456</div></div> <div><div>AUSTRALIAN HEIGHT DATUM</div><div>AS-1100 STANDARDS</div></div> <div>If the actual work done differs from the original drawing the person performing the work must amend this copy accordingly and return it to the Design Office.</div>		<div>APPROVED</div> <div></div> <div>DIRECTOR OF GOULBURN MULWAREE OPERATIONS</div> <div>DATE: 28/02/2018</div>	KERB INLET PIT WITH GRATE		STORMWATER PIPE IN FRONT OF KERB		<div><div>SAFETY FIRST</div><div>PERSONAL PROTECTIVE EQUIPMENT</div><div>MUST BE WORN ON SITE</div><div>www.dialbeforeyoudig.com.au</div><div></div><div>DIAL 1100</div><div>BEFORE YOU DIG</div></div>	A1 - SCALE AS SHOWN	NUMBER OF SHEETS 34	SHEET NUMBER 21
SURVEYED			NOTES CHANGED/ADDED (I.ALDRIDGE 2012)				FILE NAME: STANDARD DRAWINGS.DWG	SD-D 05 B						
DESIGNED & DRAFTED	P.SMART	14/07/2009												
DESIGN REVIEWED	P.SMART	14/07/2009												
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012												
ISSUED FOR CONSTRUCTION														
WORK AS EXECUTED														



## PLAN

PIPE $\varnothing$ OFFSETS FROM KERB	
PIPE " DIAMETER "mm"	DISTANCE 'A' "mm"
375	1000
450	1000
525	1000
600	1000
675	1100
750	1100
825	1200
900	1200
1050	1300
1200	1400



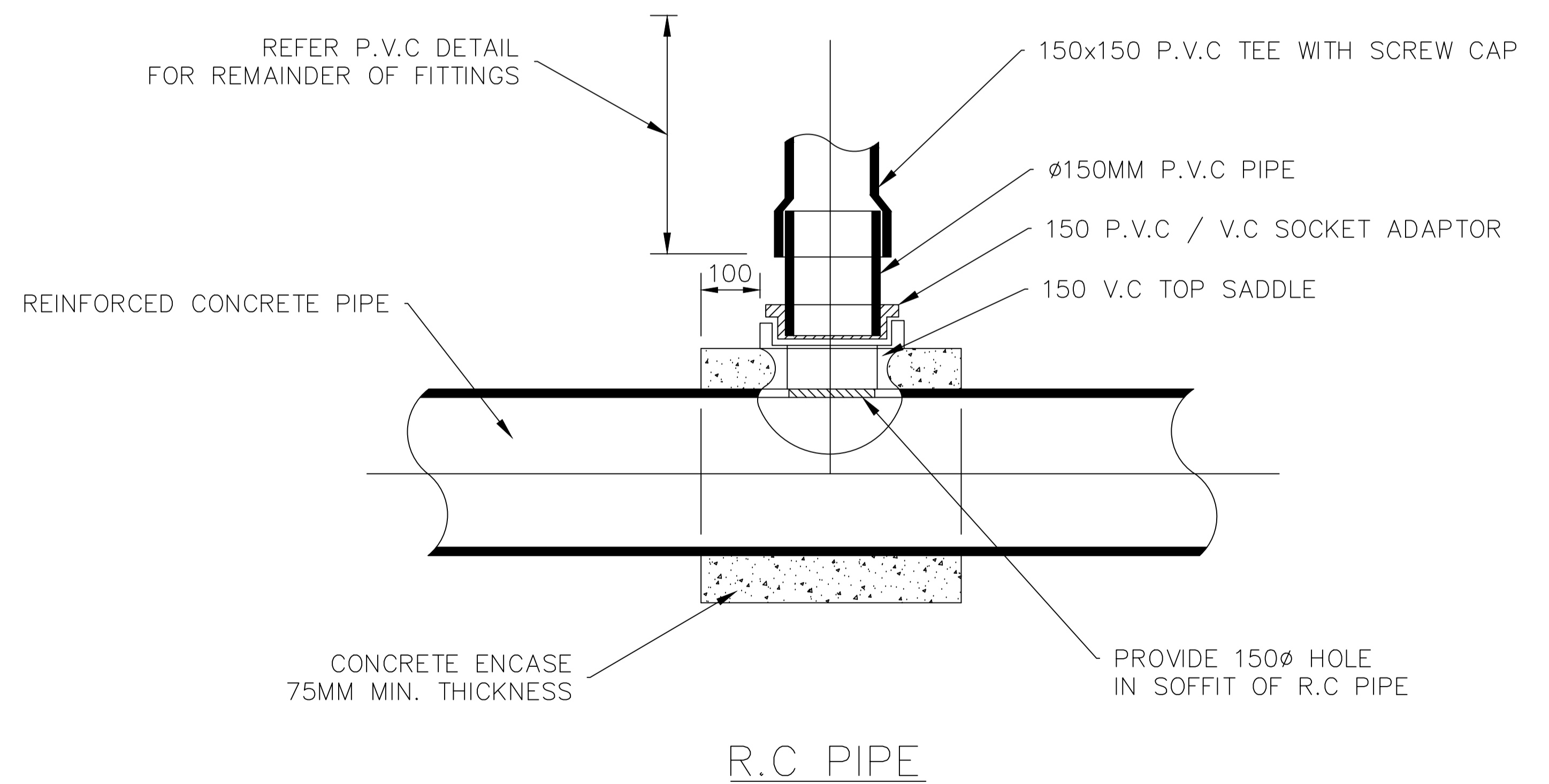
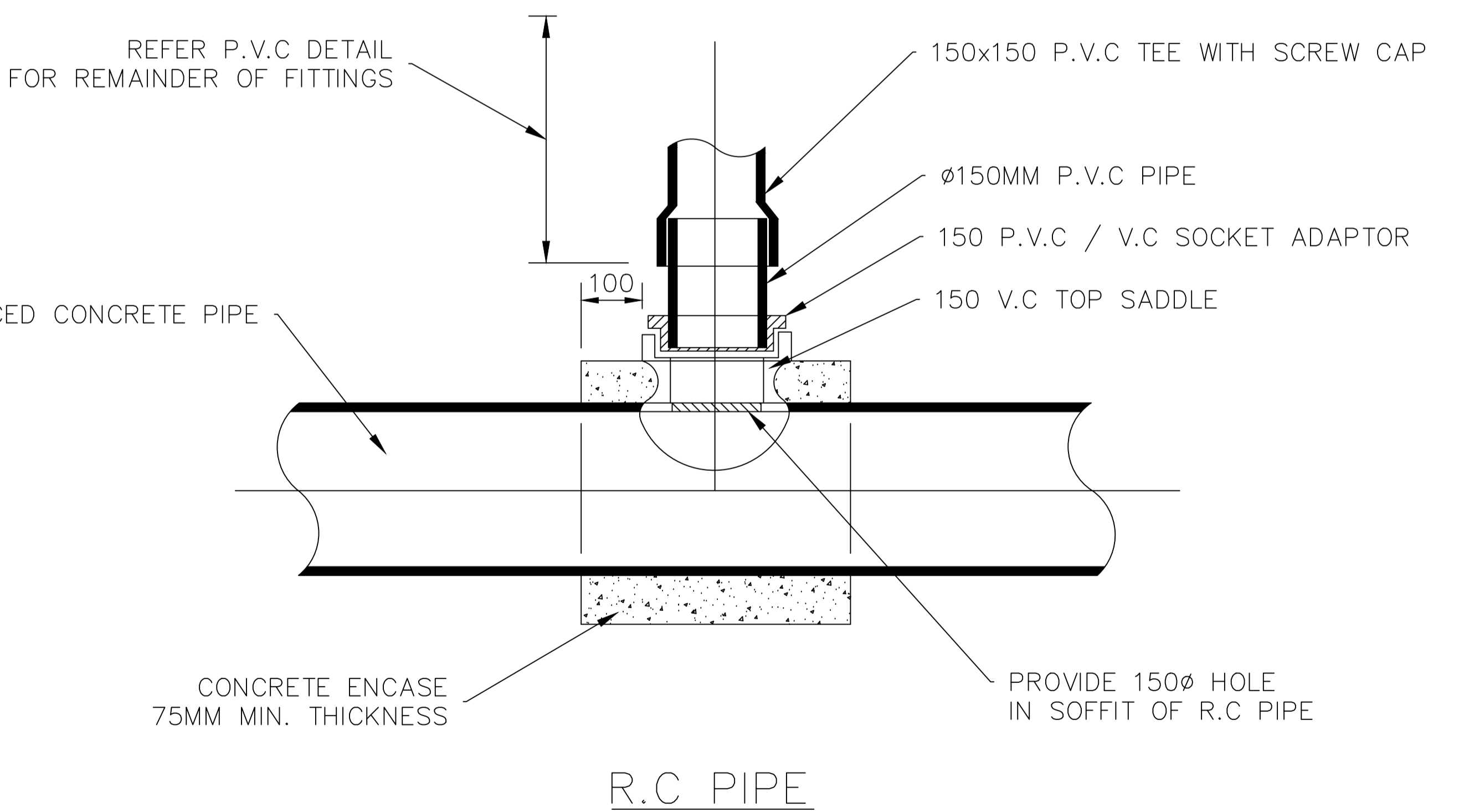
SECTION A-A

NOTES:

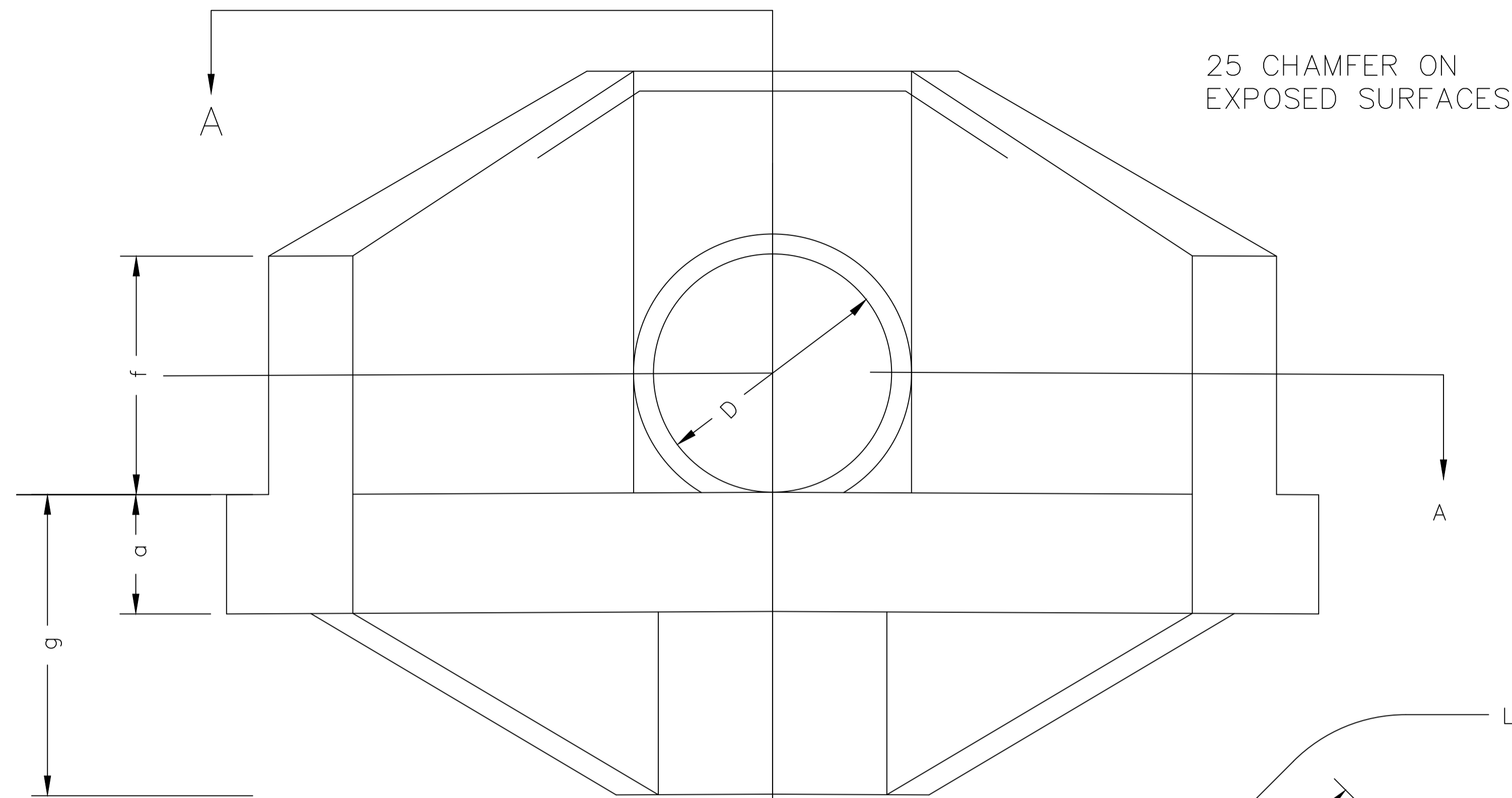
1. CONCRETE STRENGTH 25 MPA.
2. STEEL: HOT DIP GALVANISED IN ACCORDANCE WITH AS1650.
3. SIDE WALLS OF PITS DEEPER THAN 1500 TO BE REINFORCED WITH ONE LAYER OF N72 MESH AND RETURNED INTO BASE.
4. STEP IRONS ARE REQUIRED WHERE PITS ARE DEEPER THAN 600MM. (REFER TO: SD-D 11)
5. GULLY GRATE AND FRAME TYPE GG 78-49, GG 78-50 OR EQUIVALENT. REFER TO (SD-D 01)
6. KERB INLET TO BE ADJUSTED AS REQUIRED TO SUIT "WEDLOCK' GRATE AND LINTEL GG 78-57 OR SIMILAR.

INDEX	NAME	DATE	AMENDMENTS	 <p>CIVIC CENTRE, 184-194 BOURKE STREET GOULBURN, NSW-2580 LOCKED BAG 22, GOULBURN, NSW-2580 PHONE: (02) 4823 4444 FAX: (02) 4823 4456</p> <p>AUSTRALIAN HEIGHT DATUM      AS-1100 STANDARDS</p> <p>If the actual work done differs from the original drawing the person performing the work must amend this copy accordingly and return it to the Design Office.</p>	<p><b>APPROVED</b></p>  <p>DIRECTOR OF GOULBURN MULWAREE OPERATIONS</p> <p>DATE: <u>28/02/2018</u></p>	<h1>KERB INLET PIT WITH GRATE</h1> <h2>STORMWATER PIPE BEHIND THE KERB</h2>	<div> <div>  <p><b>SAFETY FIRST</b> PERSONAL PROTECTIVE EQUIPMENT <small>MUST BE WORN ON SITE</small></p> <p>www.dialbeforeyoudig.com.au</p>  <p><b>DIAL 1100</b> BEFORE YOU DIG</p> </div> <div> <p>A1 - SCALE AS SHOWN</p> <p>NUMBER OF SHEETS 34</p> <p>SHEET NUMBER 22</p> </div> </div>
SURVEYED			NOTES CHANGED/ADDED (I.ALDRIDGE 2012)				
DESIGNED & DRAFTED	P.SMART	14/07/2009					
DESIGN REVIEWED	P.SMART	14/07/2009					
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012					
ISSUED FOR CONSTRUCTION							
WORK AS EXECUTED							<p>FILE NAME: STANDARD DRAWINGS.DWG</p> <p>REVISION</p> <p>GMC-VER-1</p> <p>RD: </p> <h1>SD-D 05 C</h1>

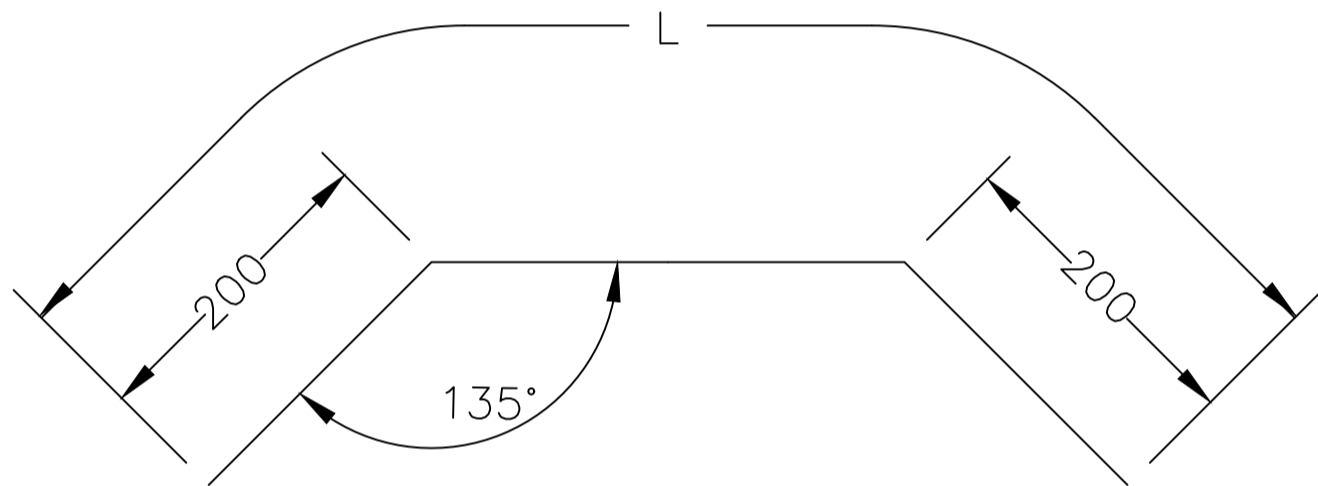
ANY OTHER JUNCTION CONNECTIONS RECOMMENDED BY THE  
MANUFACTURER CAN BE USED WITH PRIOR APPROVAL



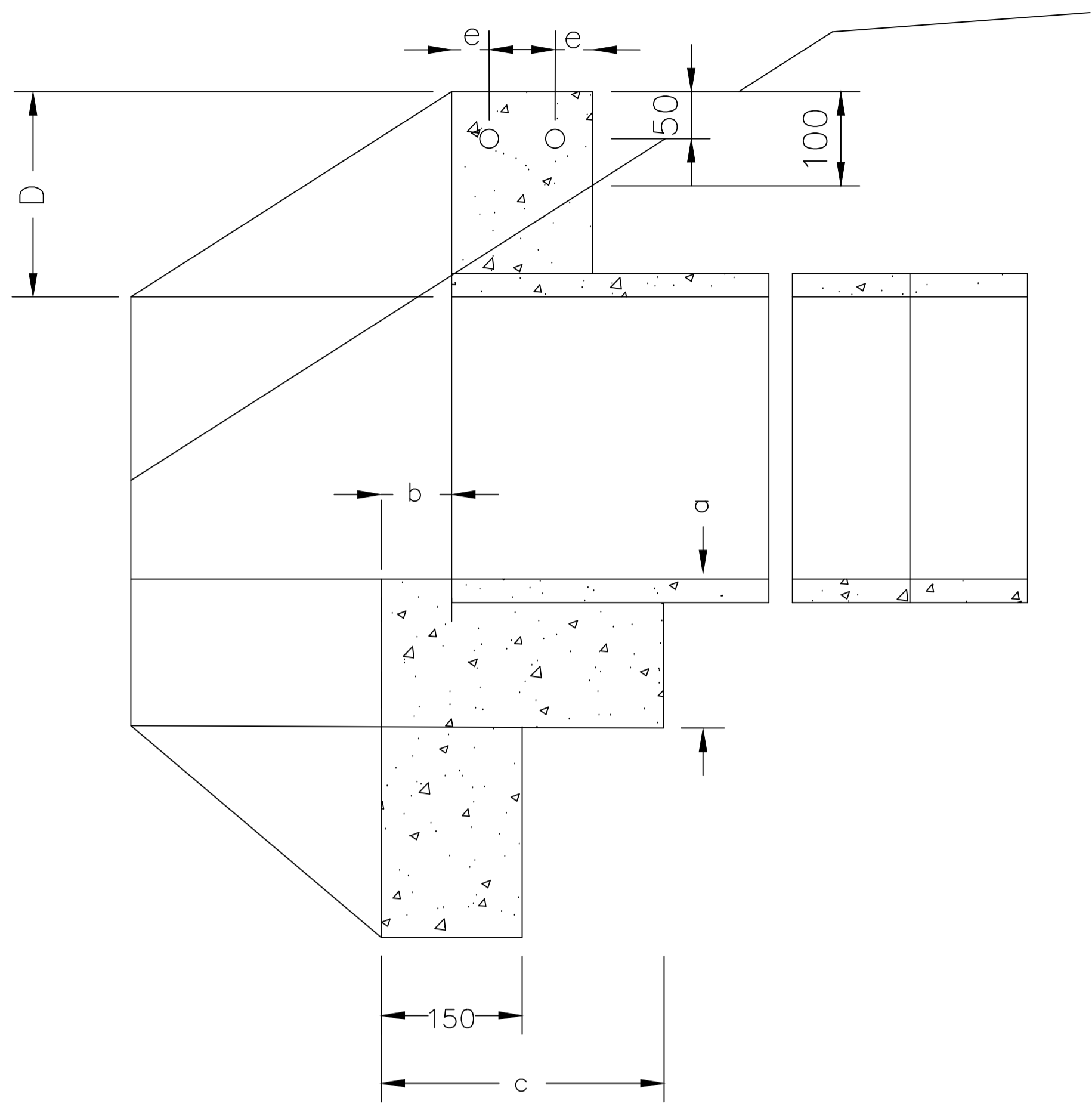
INDEX	NAME	DATE	AMENDMENTS	<div><div><div>GOULBURN MULWAREE COUNCIL</div><div><div><div>CIVIC CENTRE, 184-194 BOURKE STREET GOULBURN, NSW-2580 LOCKED BAG 22, GOULBURN, NSW-2580 PHONE: (02) 4823 4444 FAX: (02) 4823 4456</div><div>AUSTRALIAN HEIGHT DATUMAS-1100 STANDARDS</div></div><div>If the actual work done differs from the original drawing the person performing the work must amend this form accordingly and return it to the Design Office</div></div></div><div><div>APPROVED</div><div><div><div><div></div></div><div>DIRECTOR OF GOULBURN MULWAREE OPERATIONS</div></div><div>DATE: 28/02/2018</div></div></div><div><div>INTERLOT DRAINAGE</div><div>CONNECTIONS SECTIONAL ELEVATIONS</div></div></div>	<div><div><div>SAFETY FIRST</div><div>PERSONAL PROTECTIVE EQUIPMENT</div><div>MUST BE WORN ON SITE</div></div><div><div>www.dialbeforeyoudig.com.au</div><div><div><div><div></div><div>DIAL 1100</div><div>BEFORE YOU DIG</div></div></div></div></div><div><div>A1 - SCALE AS SHOWN</div><div>NUMBER OF SHEETS 34</div><div>SHEET NUMBER 23</div></div><div><div>FILE NAME: STANDARD DRAWINGS.DWG</div><div><div>REVISION GMC-VER-1</div><div>RD: -/-</div></div></div></div>
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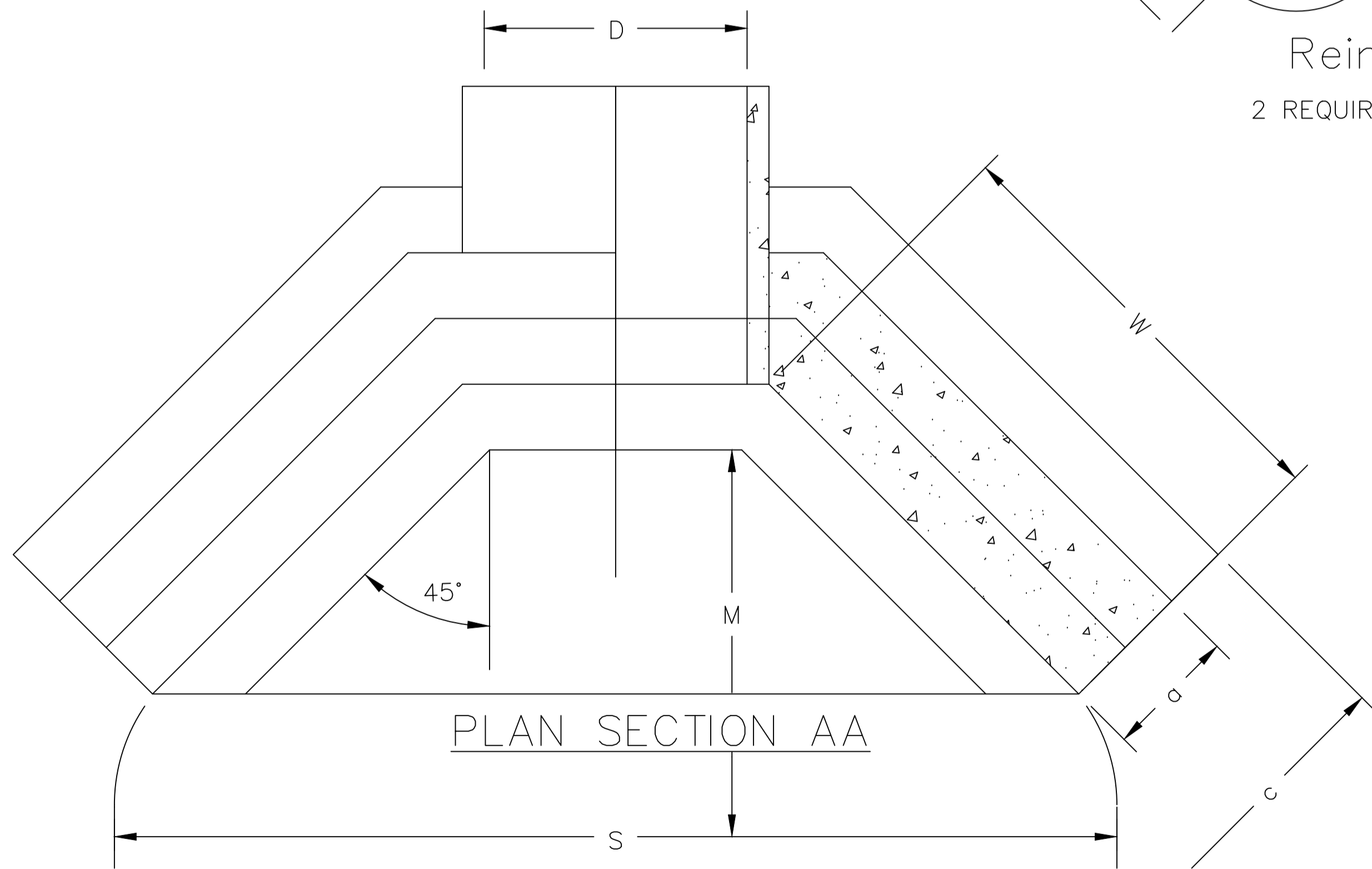
ELEVATION



Reinforcement  
2 REQUIRED IN EACH HEADWALL




LONGITUDINAL SECTION



PLAN SECTION AA

D	PIPE DIAMETER	(mm)	300	375	450	525	600	750	900
a	FOOTING & KERB	(mm)	150	150	150	150	180	205	230
b	CURTAIN WALL	(mm)	75	75	75	75	110	110	110
c	CURTAIN WALL WIDTH	(mm)	300	300	300	300	450	450	450
d	KERB-HEIGHT	(mm)	230	230	230	230	300	300	300
e	KERB-COVER	(mm)	40	40	40	40	50	50	50
f	HEADWALL HEIGHT	(mm)	300	300	300	300	380	380	380
g	CURTAIN WALL DEPTH	(mm)	380	380	380	380	530	530	530
w	HEADWALL LENGTH	(mm)	500	690	840	990	1120	1450	1780
L	Reinforcement length	(mm)	765	840	915	990	1100	1250	1400
REINFORCEMENT DIA		(mm)	10	10	10	10	12	12	12
REINFORCEMENT IN TWO HEADWALLS	Length	(mm)	3060	3360	3660	3960	4400	5000	5600
	Mass	(kg)	2.0	2.2	2.4	2.6	4.0	5.2	5.9
CONC. IN TWO HEADWALLS		(cub.m)	0.48	0.54	0.65	0.76	1.34	2.04	2.80
M	MATRESS WIDTH	(mm)	1200	1600	2400	3100	3600	4300	4800
S	Mattress length	(mm)	1450	1800	2100	2400	2750	3350	4000

INDEX	NAME	DATE	AMENDMENTS
SURVEYED			
DESIGNED & DRAFTED	P.SMART	04/07/2009	
DESIGN REVIEWED	T.DIMEC	04/07/2009	
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012	
ISSUED FOR CONSTRUCTION			
WORK AS EXECUTED			




CIVIC CENTRE, 184-194 BOURKE STREET  
GOULBURN, NSW-2580  
LOCKED BAG 22, GOULBURN, NSW-2580  
PHONE: (02) 4823 4444  
FAX: (02) 4823 4456

AUSTRALIAN HEIGHT DATUM

AS-1100 STANDARDS

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OPERATIONS

DATE: 28/02/2018

CONCRETE HEADWALL

STANDARD FROM 300MM - 900MM

**SAFETY FIRST**

PERSONAL PROTECTIVE EQUIPMENT  
MUST BE WORN ON SITE

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A1 - SCALE  
AS SHOWN

NUMBER OF SHEETS  
34

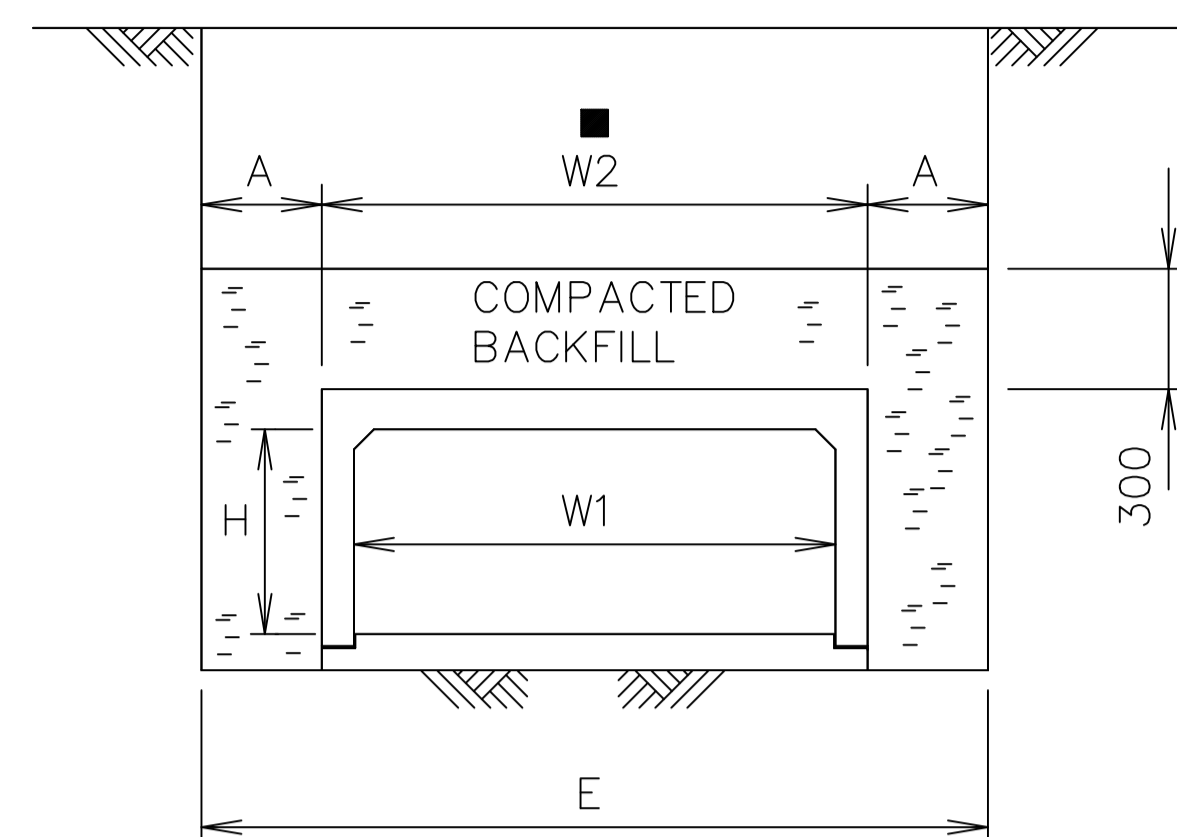
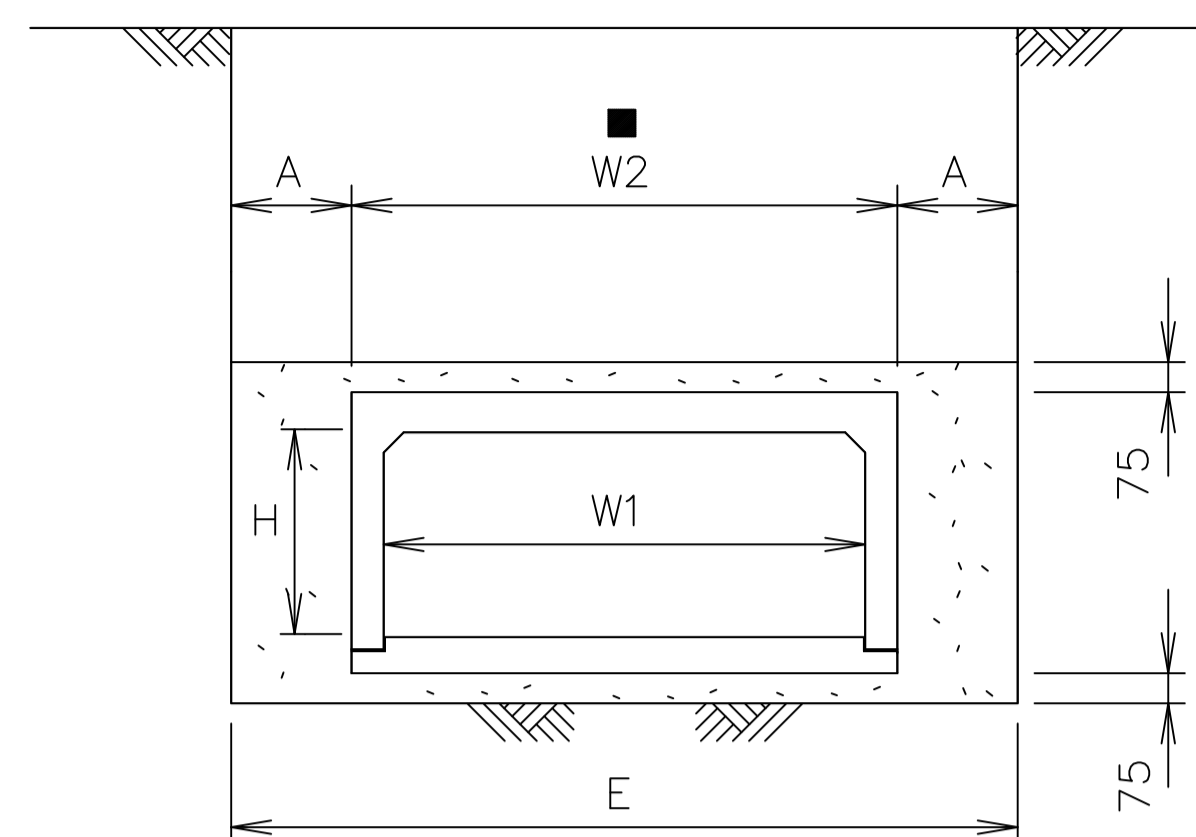
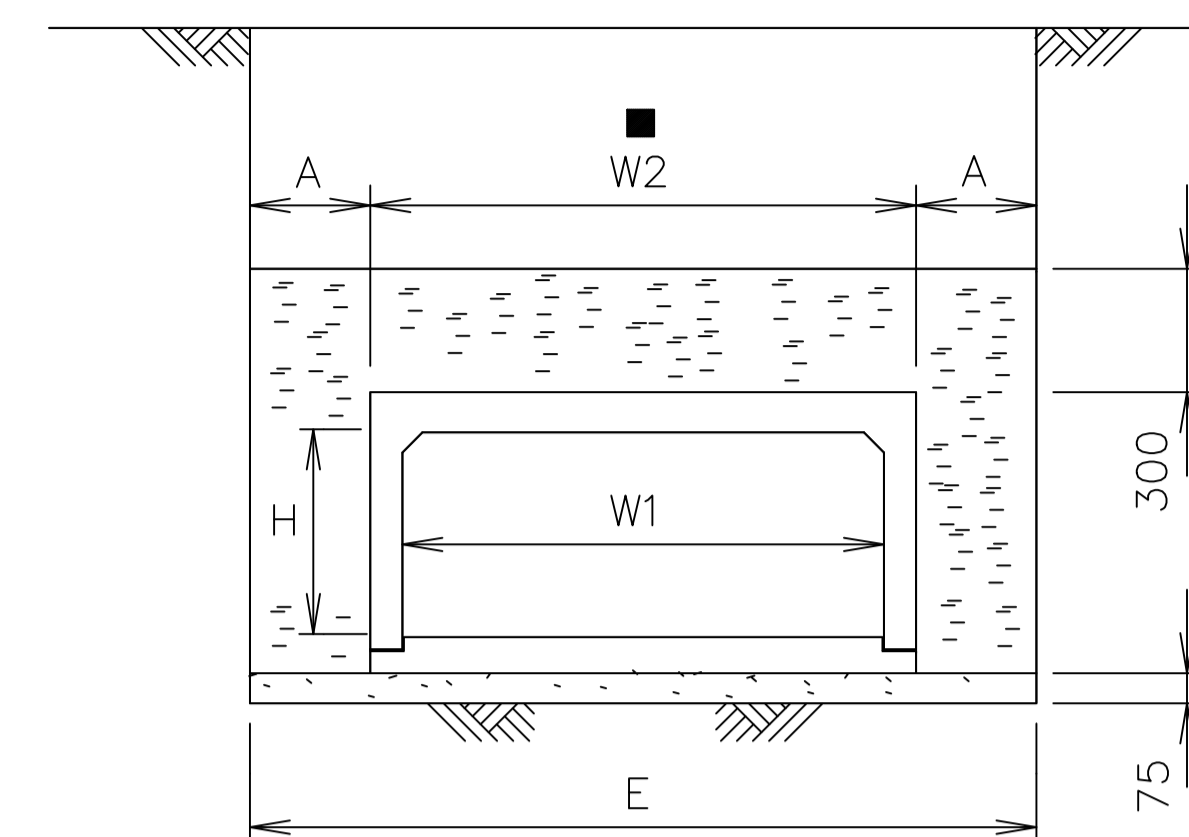
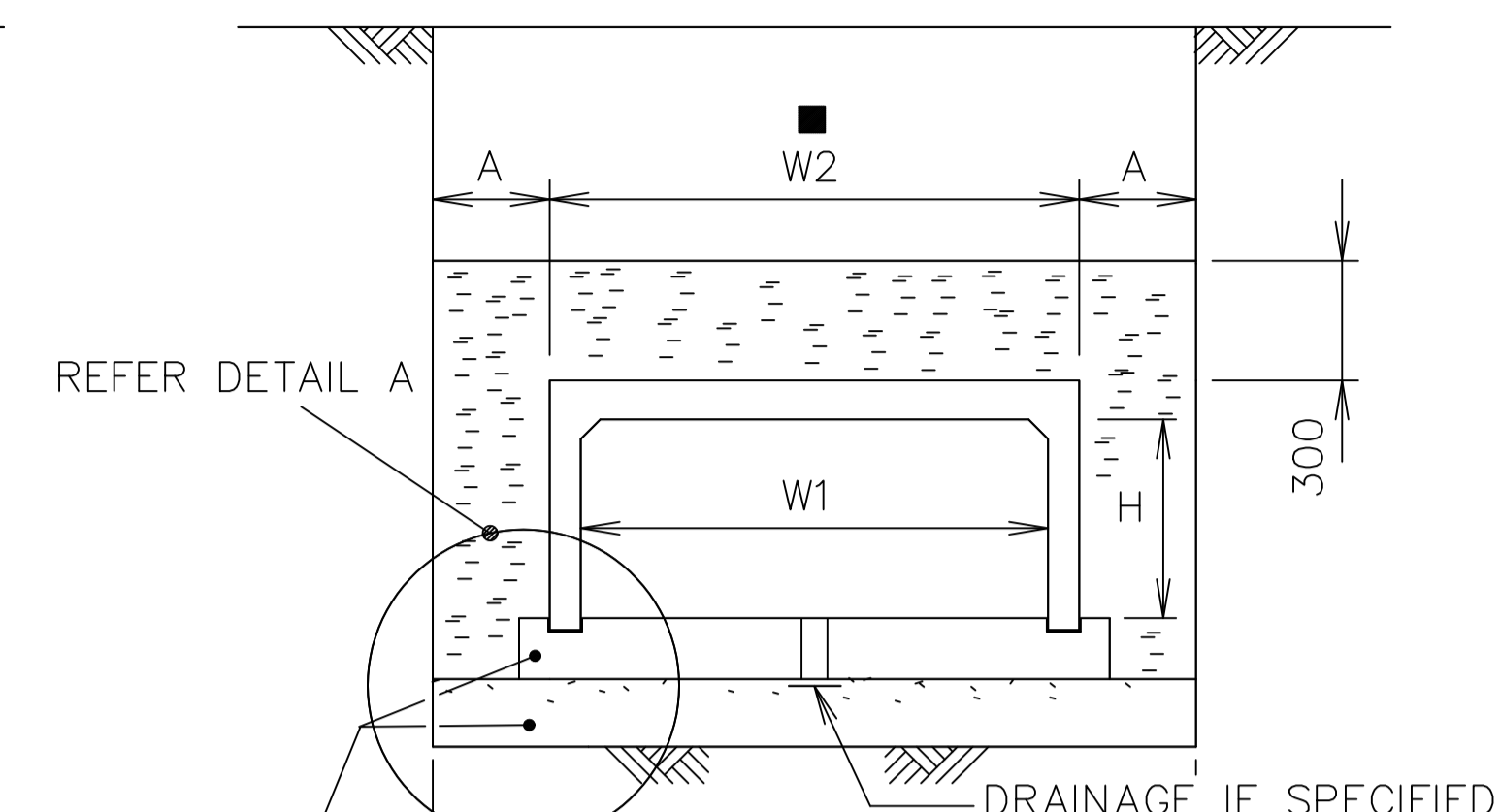
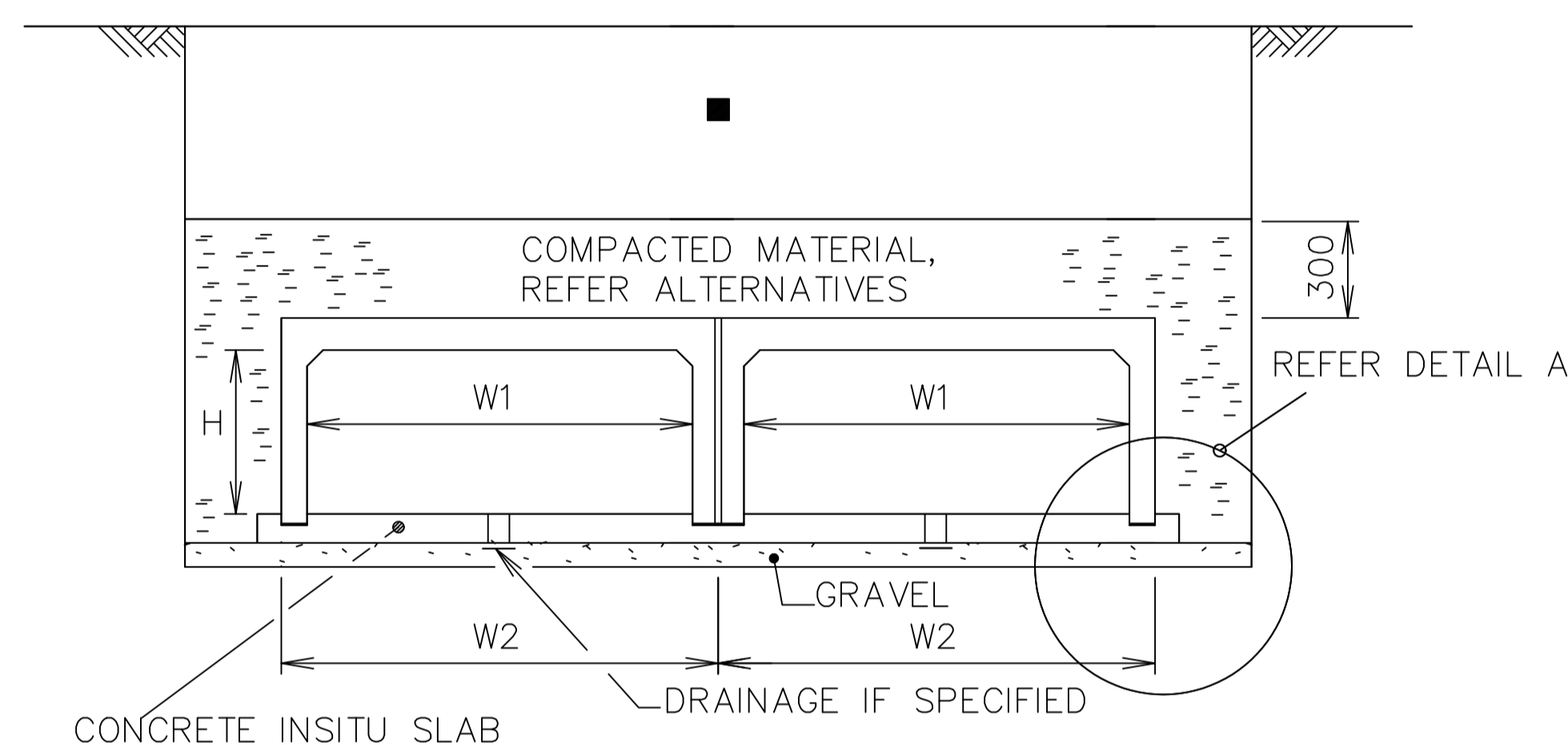
SHEET NUMBER  
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FILE NAME:  
STANDARD DRAWINGS.DWG

REVISION  
GMC-VER-1

RD: -/-/-/-/-

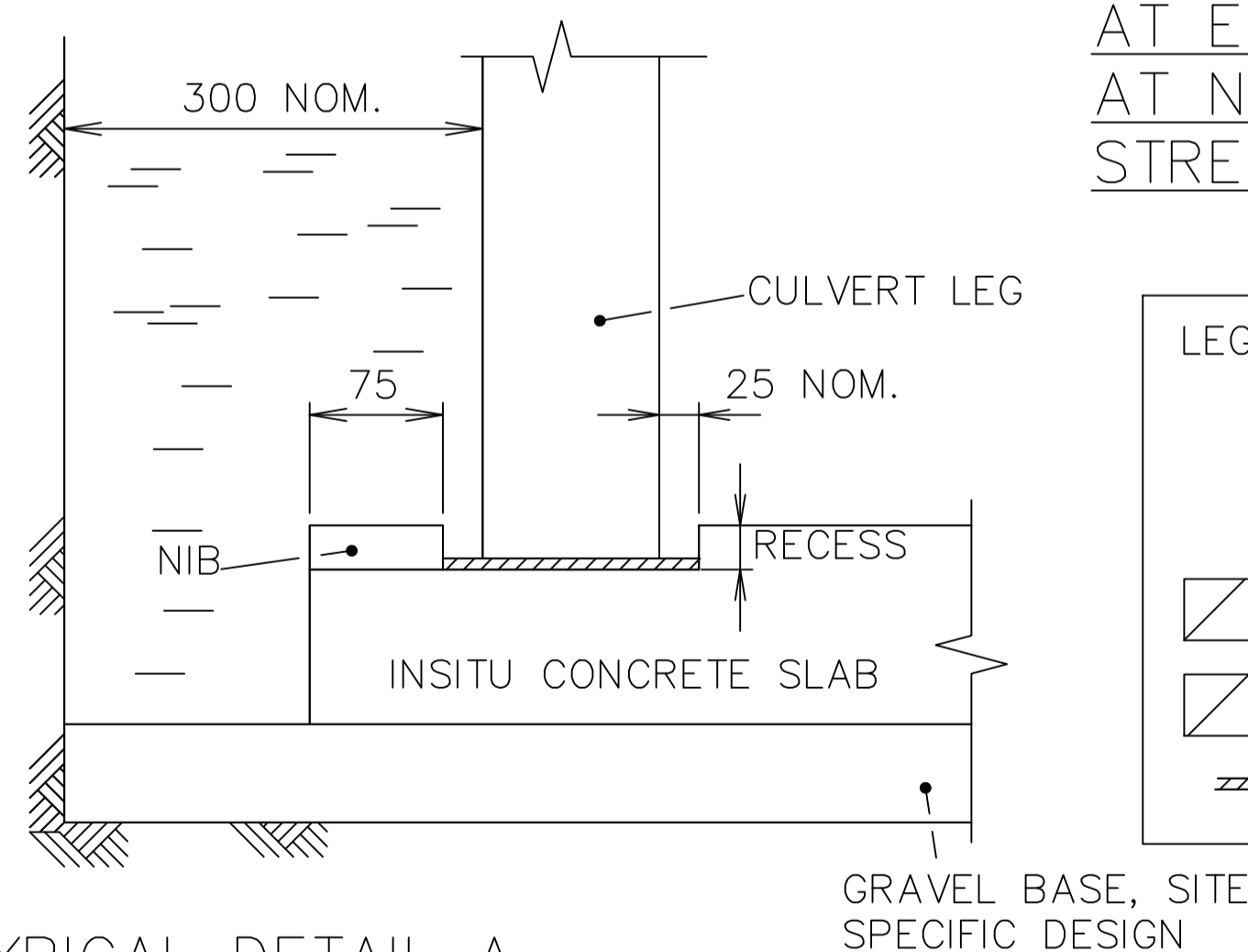
SD-D 07

TYPE 1  
NATURAL BEDDINGTYPE 2  
SAND SURROUNDTYPE 3  
SAND BEDDINGTYPE 4  
INSITU BASE SLAB

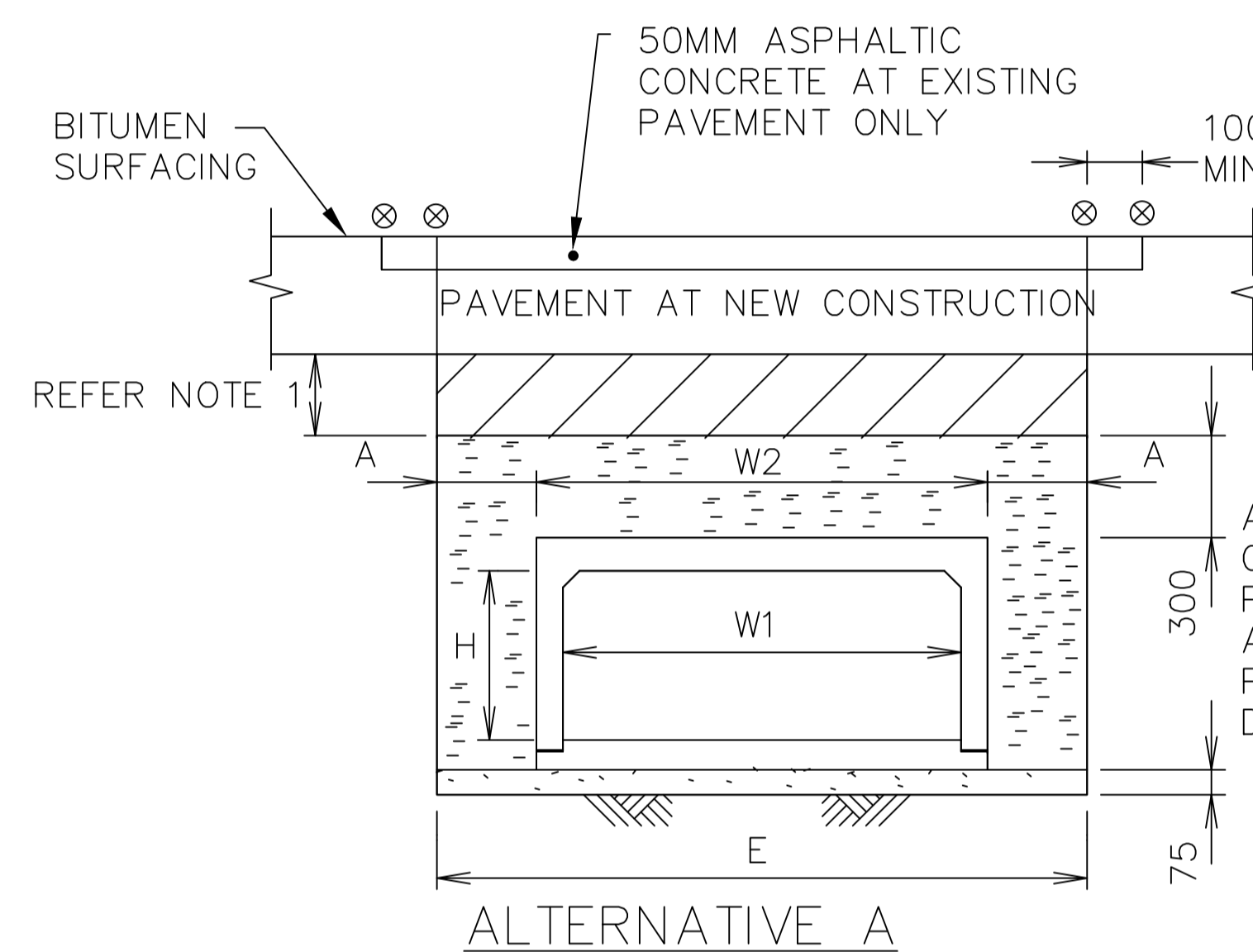
MULTIPLE CULVERTS

W1	W2	E NOM.
300	420	1000
375	500	1100
450	570	1200
600	730	1300
750	890	1500
900	1050	1700
1200	1360	2000
1520	1700	2300
1820	2010	2600
2130	2340	3000
2440	2670	3300

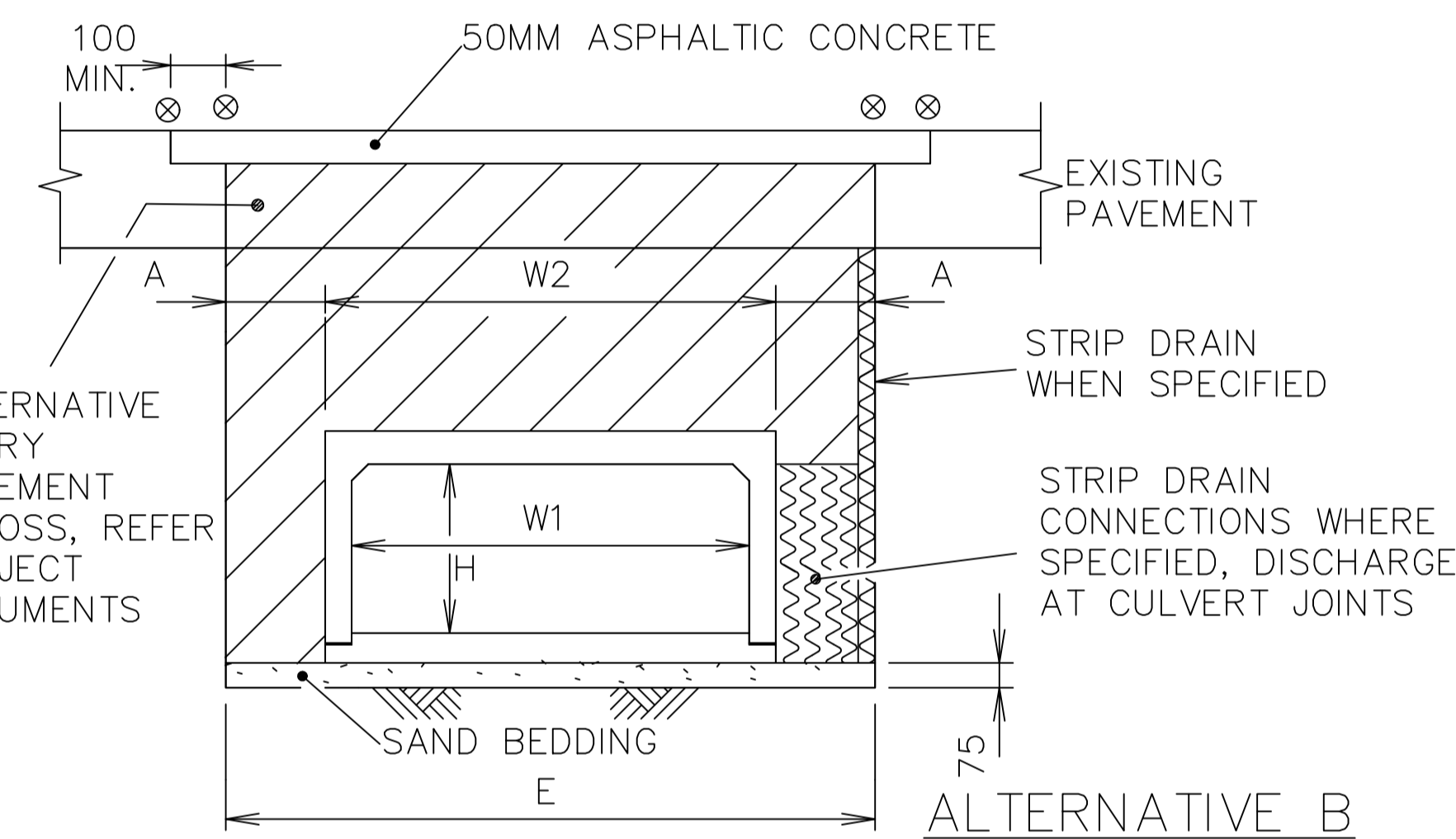
EXCAVATION WIDTH



TYPICAL DETAIL A



ALTERNATIVE A

AT EXISTING SURFACED PAVEMENTS OR  
AT NEW PAVEMENTS ON RESIDENTIAL  
STREETS & RURAL ROADS

ALTERNATIVE B

AT EXISTING SURFACED PAVEMENTS  
ON INDUSTRIAL, TRUNK COLLECTOR,  
SUB-ARTERIAL & ARTERIAL STREETS / ROADS

## LEGEND

- A 300MM NOMINAL
- REFER ALTERNATIVE A FOR BACKFILL REQUIREMENTS AT NEW PAVEMENT
- ⊗ SAW CUT AT EXISTING PAVEMENT
- ▨ GRAVEL (MIN CBR15) OR 75MM CRUSHER RUN BACKFILL
- ▨ LEAN MIX CONCRETE BACKFILL (1:15 MIX)
- ▨ 10MM CEMENT MORTAR BED, 1:3 MIX

## NOTES:

- BACKFILL COMPACTION:
  - APPROVED FILL / APPROVED BEDDING / COMPACTED BACKFILL / CBR15 GRAVEL 90%
  - COMPACTED GRAVEL (300MM LAYER) UNDER ROAD PAVEMENT 95%
  - COMPACTED FILL - AT FOOTPATHS / PRIVATE PROPERTY 90%
  - MAX. DENSITIES DETERMINED BY STANDARD COMPACTION TESTS TO AS 1289.E5.1.
- TAPE ALL JOINTS WITH 75MM WIDE DENSO (600) TAPE OR EQUIVALENT.
- ALL DIMENSIONS IN MILLIMETRES.
- CONCRETE SLAB 150MM THICK WITH SL82.

INDEX	NAME	DATE	AMENDMENTS
SURVEYED			
DESIGNED & DRAFTED	P.SMART	10/02/2010	
DESIGN REVIEWED	T.DIMEC	10/02/2010	
FINAL DESIGN CHECKED	T.DIMEC	10/02/2010	
ISSUED FOR CONSTRUCTION			
WORK AS EXECUTED			

	CIVIC CENTRE, 184-194 BOURKE STREET GOULBURN, NSW-2580 LOCKED BAG 22, GOULBURN, NSW-2580 PHONE: (02) 4823 4444 FAX: (02) 4823 4456
AUSTRALIAN HEIGHT DATUM	AS-1100 STANDARDS
If the actual work done differs from the original drawing the person performing the work must amend this copy accordingly and return it to the Design Office.	

APPROVED  
  
DIRECTOR OF  
GOULBURN MULWAREE  
OPERATIONS  
DATE: 28/02/2018PRECAST BOX CULVERTS  
EXCAVATION, BEDDING & BACKFILLING

TITLE4



A1 - SCALE AS SHOWN	NUMBER OF SHEETS 34	SHEET NUMBER 25
FILE NAME: STANDARD DRAWINGS.DWG		
REVISION GMC-VER-1		
RD: -/-/-/-/-		

SD-D 08




NOMINAL WIDTH (w)	NOMINAL HEIGHT (h)	SINGLE BOX					
		TYPE 1 SLOPE AT 1.5:1		TYPE 2 SLOPE AT 2:1		TYPE 3 SLOPE AT 3:1	
		CONCRETE VOLUME (m <sup>3</sup> )	REINFORCEMENT BAR (m)	CONCRETE VOLUME (m <sup>3</sup> )	REINFORCEMENT BAR (m)	CONCRETE VOLUME (m <sup>3</sup> )	REINFORCEMENT BAR (m)
600	450	0.65	9.3	0.80	10.2	1.10	12.0
750	450	0.68	9.7	0.83	10.6	1.14	12.4
750	600	0.96	11.1	1.20	12.4	1.68	15.0
900	450	0.72	10.1	0.87	11.0	1.18	12.9
900	600	0.99	11.5	1.24	12.8	1.73	15.4
900	750	1.33	12.9	1.68	14.6	2.38	18.0
1200	450	0.78	10.9	0.94	11.8	1.26	13.7
1200	600	1.06	12.3	1.31	13.6	1.81	16.3
1200	900	1.80	15.1	2.29	17.1	3.27	21.4

NOMINAL WIDTH (w)	NOMINAL HEIGHT (h)	ADDITIONAL BOX	
		CONCRETE VOLUME (m <sup>3</sup> )	REINFORCEMENT BAR (m)
600	450	0.12	1.6
750	450	0.14	2.0
750	600	0.14	2.0
900	450	0.17	2.3
900	600	0.17	2.3
900	750	0.17	2.3
1200	450	0.22	3.0
1200	600	0.22	3.0
1200	900	0.22	3.0

NOMINAL WIDTH (w)	NOMINAL HEIGHT (h)	TWIN BOX					
		TYPE 1 SLOPE AT 1.5:1		TYPE 2 SLOPE AT 2:1		TYPE 3 SLOPE AT 3:1	
		CONCRETE VOLUME (m <sup>3</sup> )	REINFORCEMENT BAR (m)	CONCRETE VOLUME (m <sup>3</sup> )	REINFORCEMENT BAR (m)	CONCRETE VOLUME (m <sup>3</sup> )	REINFORCEMENT BAR (m)
600	450	0.77	10.9	0.92	11.8	1.22	13.6
750	450	0.83	11.7	0.98	12.5	1.28	14.4
750	600	1.10	13.1	1.34	14.3	1.83	16.9
900	450	0.89	12.5	1.04	13.4	1.35	15.2
900	600	1.17	13.9	1.41	15.2	1.90	17.8
900	750	1.50	15.3	1.85	16.9	2.56	20.4
1200	450	1.00	13.9	1.16	14.8	1.48	16.8
1200	600	1.28	15.3	1.53	16.6	2.03	19.3
1200	900	2.02	18.1	2.51	20.1	3.49	24.4

- NOTES:
- 1. REFER TO: SD–D 08 FOR CULVERT DETAILS.
  - 2. ALL REINFORCEMENT BARS ARE 12MM DIAMETRE.
  - 3. 10% ALLOWANCE HAS BEEN MADE FOR ON SITE CUTTING AND SPLICING OF BAR REINFORCEMENT.

INDEX	NAME	DATE	AMENDMENTS
SURVEYED			NOTES CHANGED/ADDED (I.ALDRIDGE MARCH 2012)
DESIGNED & DRAFTED	T.DIMEC	17/02/2010	
DESIGN REVIEWED	I.ALDRIDGE	12/12/2012	
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012	
ISSUED FOR CONSTRUCTION			
WORK AS EXECUTED			



CIVIC CENTRE, 184-194 BOURKE STREET  
GOULBURN, NSW-2580  
LOCKED BAG 22, GOULBURN, NSW-2580  
PHONE: (02) 4823 4444  
FAX: (02) 4823 4456

AUSTRALIAN HEIGHT DATUM

AS-1100 STANDARDS

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GOULBURN MULWAREE  
OPERATIONS

DATE: 28/02/2018

MASS CONCRETE WINGWALL

QUANTITIES



**SAFETY FIRST**  
PERSONAL PROTECTIVE EQUIPMENT  
MUST BE WORN ON SITE  
www.dialbeforeyoudig.com.au  
**DIAL 1100**  
BEFORE YOU DIG

A1 - SCALE  
AS SHOWN

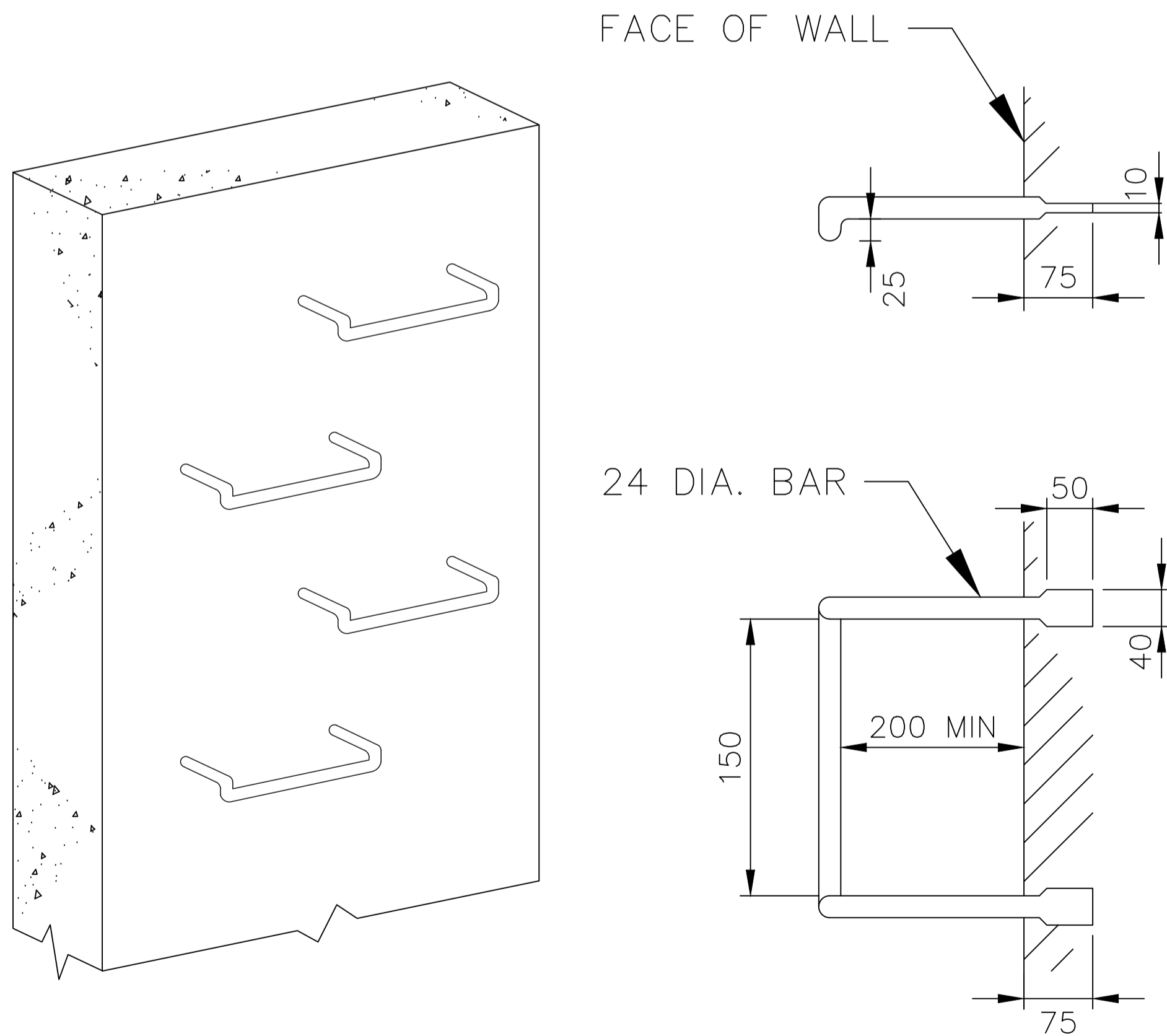
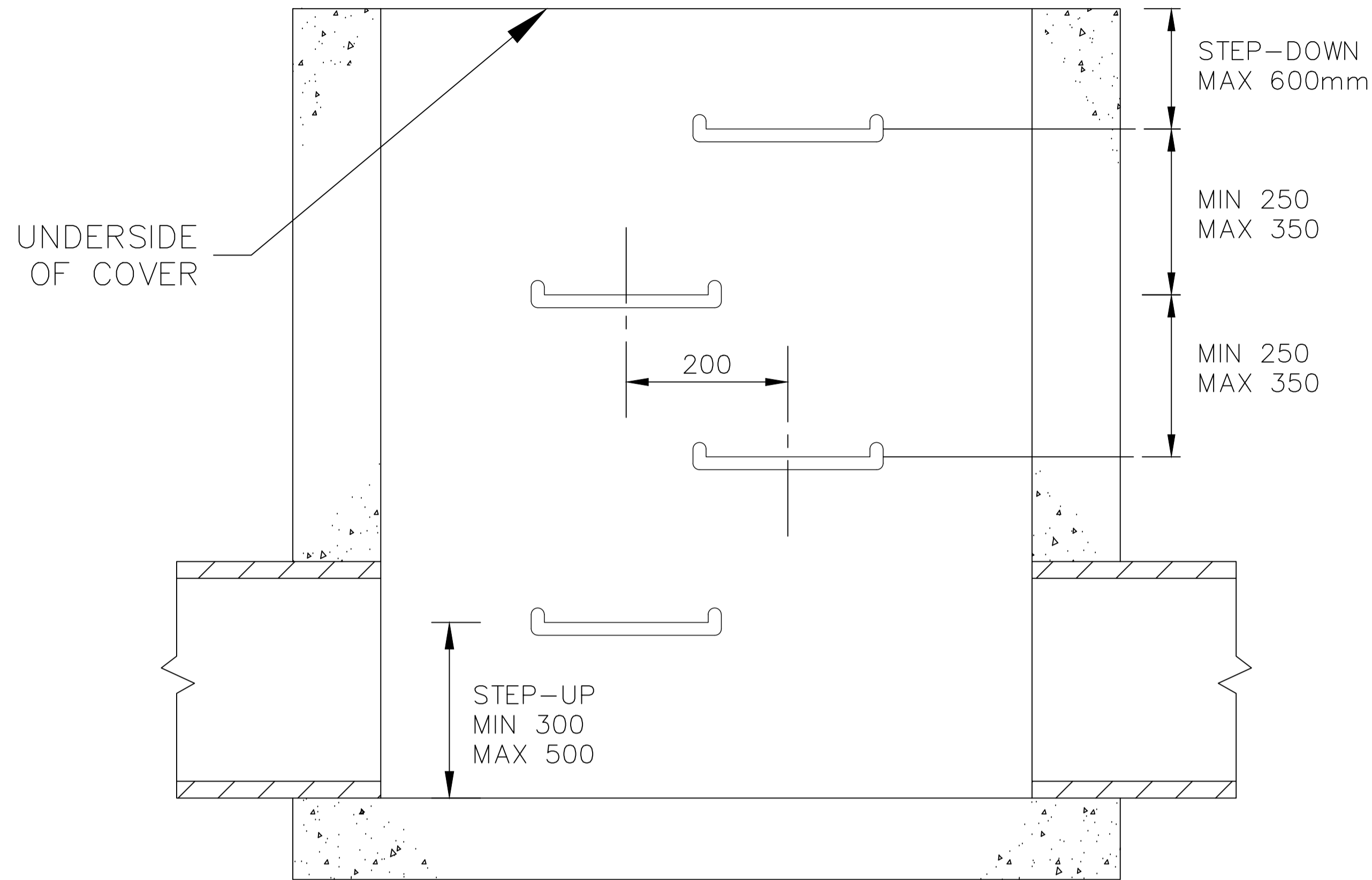
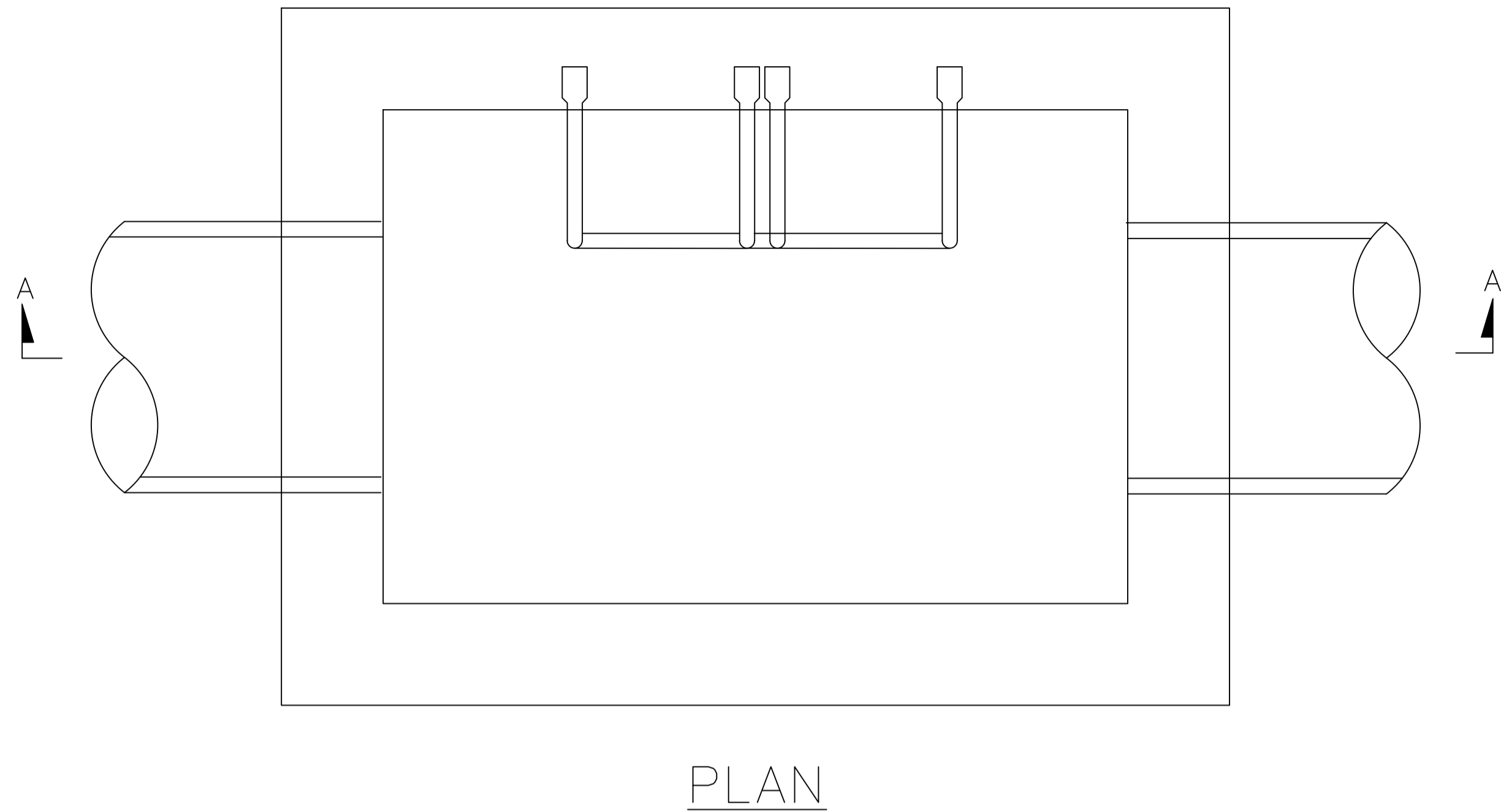
FILE NAME:  
STANDARD DRAWINGS.DWG

REVISION  
GMC-VER-1  
RD: -/-/-/-/-

NUMBER OF SHEETS  
34

SHEET NUMBER  
27


**SD-D 10**



NOTES:

- 1. ALL DIMENSIONS ARE IN MILLIMETRES.
- 2. STEP IRONS TO BE FABRICATED FROM  $\varnothing 24$  M.S. BARS
- 3. ALL BENDS TO BE FORMED AROUND  $\varnothing 12$  PIN
- 4. STEP IRONS TO BE HOT DIPPED GALVANISED
- 5. PROPRIETARY PLASTIC ENCAPSULATED INDIVIDUAL –RUNG LADDERS(OR APPROVED ALTERNATIVE ) MAY BE USED.
- 6. STEP IRONS ARE IN ACCORDANCE WITH AS 1657
- 7. IF STRUCTURE IS DEEPER THEN 600mm STEP IRONS ARE TO BE INSTALLED.
- 8. RUNG LADDERS MUST BE INSTALLED
- 8.1. DIRECTLY BELOW THE OPENING OF THE COVER
- 8.2. DESIRABLY ON A WALL WITHOUT PIPE OPENING
- 8.3. DESIRABLE ON ONE OF THE LONG SIDES OF THE PIT

INDEX	NAME	DATE	AMENDMENTS
SURVEYED			
DESIGNED & DRAFTED	T.DIMEC	14/07/2009	
DESIGN REVIEWED	T.DIMEC	14/07/2009	
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012	
ISSUED FOR CONSTRUCTION			
WORK AS EXECUTED			




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PHONE: (02) 4823 4444  
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AUSTRALIAN HEIGHT DATUM

AS-1100 STANDARDS

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GOULBURN MULWAREE  
OPERATIONS

DATE: 28/02/2018

### STEP IRON DETAILS



SAFETY FIRST  
PERSONAL PROTECTIVE EQUIPMENT  
MUST BE WORN ON SITE

www.dialbeforeyoudig.com.au



DIAL 1100  
BEFORE YOU DIG

A1 - SCALE  
AS SHOWN

FILE NAME:  
STANDARD DRAWINGS.DWG

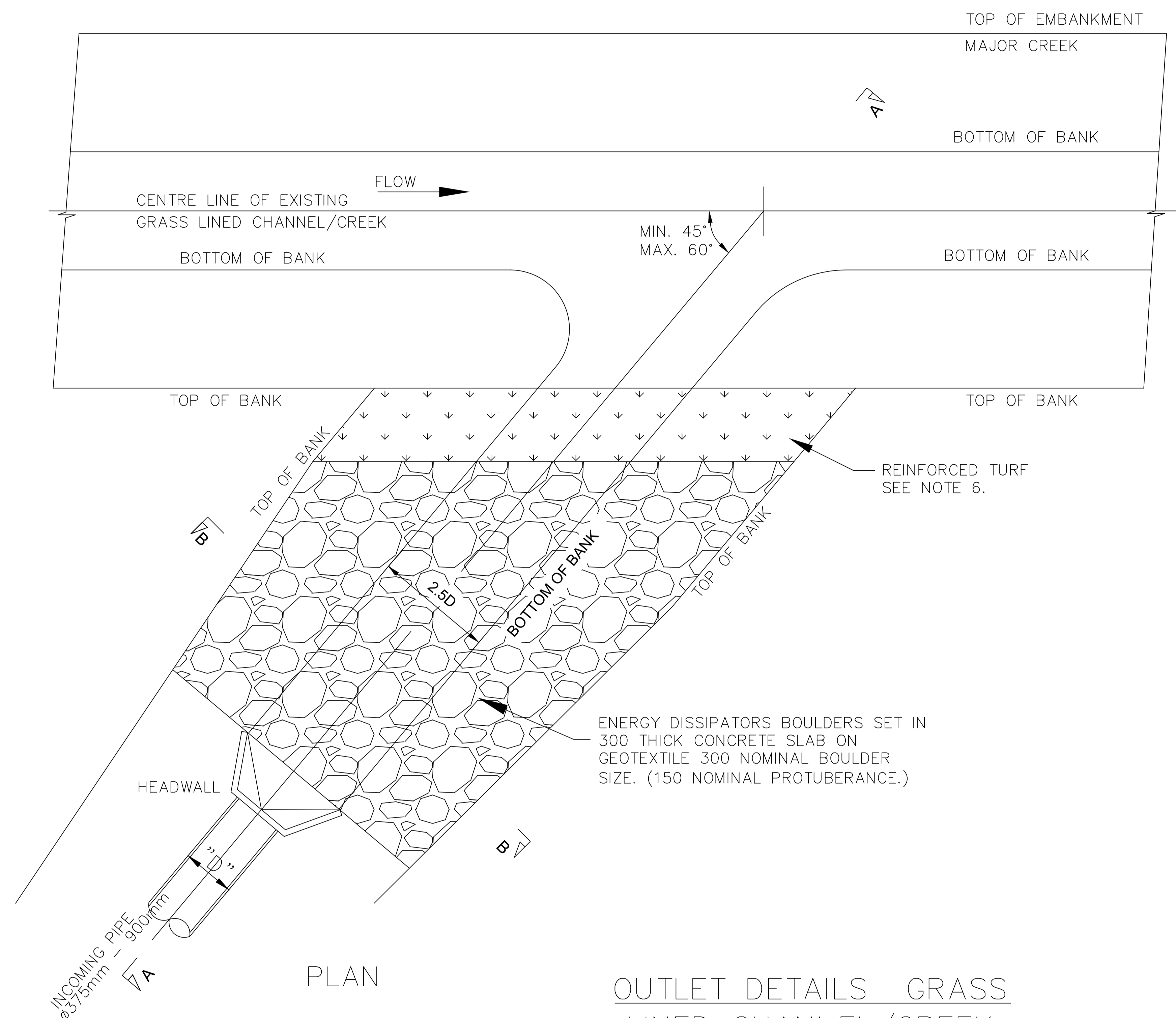
REVISION  
GMC-VER-1

RD: -/-/-/-/-

NUMBER OF SHEETS  
34

SHEET NUMBER  
28






SD-D 11



OUTLET DETAILS GRASS  
LINED CHANNEL/CREEK

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED
2. CONCRETE STRENGTH TO BE GRADE N32, A.S 3600 (32MPa) THROUGHOUT UNLESS OTHERWISE NOTED.
3. COMPACTION AROUND STRUCTURES, UNDER APRONS ETC: UNDISTURBED SUBGRADE OR APPROVED MATERIAL TO BE COMPACTED TO 98% OF THE STANDARD MAXIMUM DRY DENSITY & IS TO BE WITHIN  $-1$  TO  $+2\%$  OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE STANDARD COMPACTION TEST (A.S 1289.5.1.1 – 1993)
4. THE SANDSTONE ROCKS TO BE USED ARE TO BE OF ADEQUATE DURABILITY, SO AS TO BE MINIMALLY AFFECTED BY THE ERODING EFFECTS OF WATER AND BY CHANGES IN TEMPERATURE.
5. FOUNDATION TO BE APPROVED FOR A SAFE BEARING CAPACITY OF 200kPa PRIOR TO CONSTRUCTION.
6. THE EXTENT OF REINFORCED TURF MAY BE EXTENDED AT COUNCIL'S DISCRETION GIVING CONSIDERATION TO THE STABILITY OF THE EXISTING CREEK.

INDEX	NAME	DATE	AMENDMENTS	<div><div><p>CIVIC CENTRE, 184-194 BOURKE STREET GOULBURN, NSW-2580 LOCKED BAG 22, GOULBURN, NSW-2580 PHONE: (02) 4823 4444 FAX: (02) 4823 4456</p></div><div><p>AUSTRALIAN HEIGHT DATUM</p><p>AS-1100 STANDARDS</p></div><div><p>If the actual work done differs from the original drawing the person performing the work must amend this copy accordingly and return it to the Design Office.</p></div></div>	<div><div><p><b>APPROVED</b></p><p>DIRECTOR OF GOULBURN MULWAREE OPERATIONS</p></div><div><p>DATE: <b>28/02/2018</b></p></div></div>	<div><div><p><b>OUTLET DETAILS</b></p><p><b>GRASS LINED CHANNEL</b></p></div></div>	<div><div><div><div><p><b>SAFETY FIRST</b> PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN ON SITE</p></div><div><p>www.dialbeforeyoudig.com.au</p><p><b>DIAL 1100</b> BEFORE YOU DIG</p></div></div><div><div><p>A1 - SCALE <b>AS SHOWN</b></p><p>NUMBER OF SHEETS <b>34</b></p><p>SHEET NUMBER <b>29</b></p></div></div></div></div>	<div><p>FILE NAME: STANDARD DRAWINGS.DWG</p><p>REVISION <b>GMC-VER-1</b></p><p>RD: </p><p><b>SD-D 12A</b></p></div>
SURVEYED								
DESIGNED & DRAWN	T.DIMEC	08/05/2012						
DESIGN REVIEWED	T.DIMEC	08/05/2012						
FINAL DESIGN CHECKED	I.ALDRIDGE	12/12/2012						
ISSUED FOR CONSTRUCTION								
WORK AS EXECUTED								

EXISTING GRASS LINED CHANNEL/CREEK


REINFORCED TURF

SIZE: (150 NOMINAL PROTUBERANCE.)

SUBSOIL DRAIN

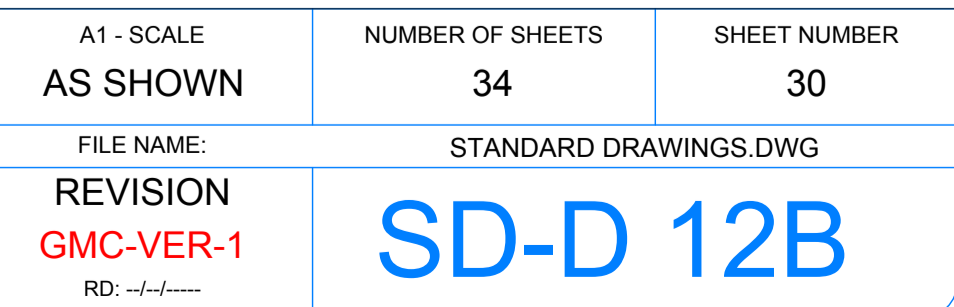
This technical drawing shows a cross-section of a drainage structure, likely a manhole or storm drain. The structure consists of a central circular opening surrounded by a concrete frame. The base of the structure is supported by a layer of stone bedding, which is shown as a series of irregular polygons. The entire structure is covered by a sloped roof or cover, which is supported by a series of vertical ribs or channels. The drawing includes various hatching and line styles to indicate different materials and structural components.

## OUTLET DETAILS GRASS LINED CHANNEL

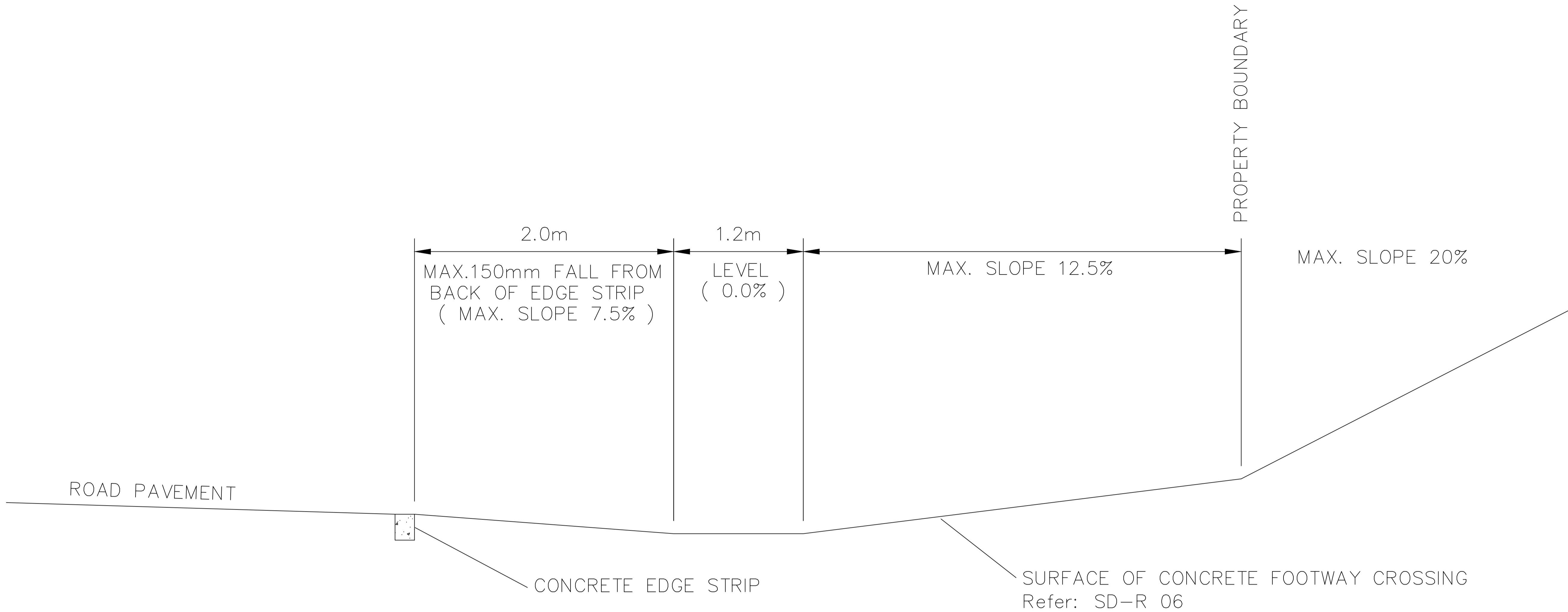
	<p>CIVIC CENTRE, 184-194 BOURKE STREET GOULBURN, NSW-2580 LOCKED BAG 22, GOULBURN, NSW-2580 PHONE: (02) 4823 4444 FAX: (02) 4823 4456</p>
<p>AUSTRALIAN HEIGHT DATUM</p>	<p>AS-1100 STANDARDS</p>
<p><i>If the actual work done differs from the original drawing the person performing the work must amend this cover sheet accordingly and return it to the Design Office</i></p>	

## OUTLET DETAILS

### GRASS LINED CHANNEL








RISING DRIVEWAYS ACROSS SWALE

NOTES:

- 1. A DRIVEWAY DESIGN SHOULD BE COMPLETED BEFORE ANY DRIVEWAY CONSTRUCTION WORK IS UNDERTAKEN.
- 2. THE CROSS SLOPE OF THE DRIVEWAY CROSSING OVER THE FOOTPATH IS TO BE THE SAME AS THE ADJACENT CONCRETE EDGE STRIP.
- 3. CHANGES OF GRADE TO BE EASED DURING CONSTRUCTION.
- 4. THE MAX. CHANGE IN GRADE SHOULD NOT EXCEED 12.5%

INDEX	NAME	DATE	AMENDMENTS
SURVEYED			
DESIGNED & DRAFTED	P.SMART	DEC 2004	
DESIGN REVIEWED	I.ALDRIDGE	DEC 2004	
FINAL DESIGN CHECKED	I.ALDRIDGE	DEC 2004	
ISSUED FOR CONSTRUCTION			
WORK AS EXECUTED			



CIVIC CENTRE, 184-194 BOURKE STREET  
GOULBURN, NSW-2580  
LOCKED BAG 22, GOULBURN, NSW-2580  
PHONE: (02) 4823 4444  
FAX: (02) 4823 4456

AUSTRALIAN HEIGHT DATUM

AS-1100 STANDARDS

If the actual work done differs from the original drawing the person performing the work must amend this copy accordingly and return it to the Design Office.

APPROVED



DIRECTOR OF GOULBURN MULWAREE OPERATIONS

DATE: 28/02/2018

SWALE DRIVEWAY PROFILE

**SAFETY FIRST**  
PERSONAL PROTECTIVE EQUIPMENT  
MUST BE WORN ON SITE

www.dialbeforeyoudig.com.au



A1 - SCALE  
AS SHOWN

REVISION  
GMC-VER-1

RD: -/-/-/-/-

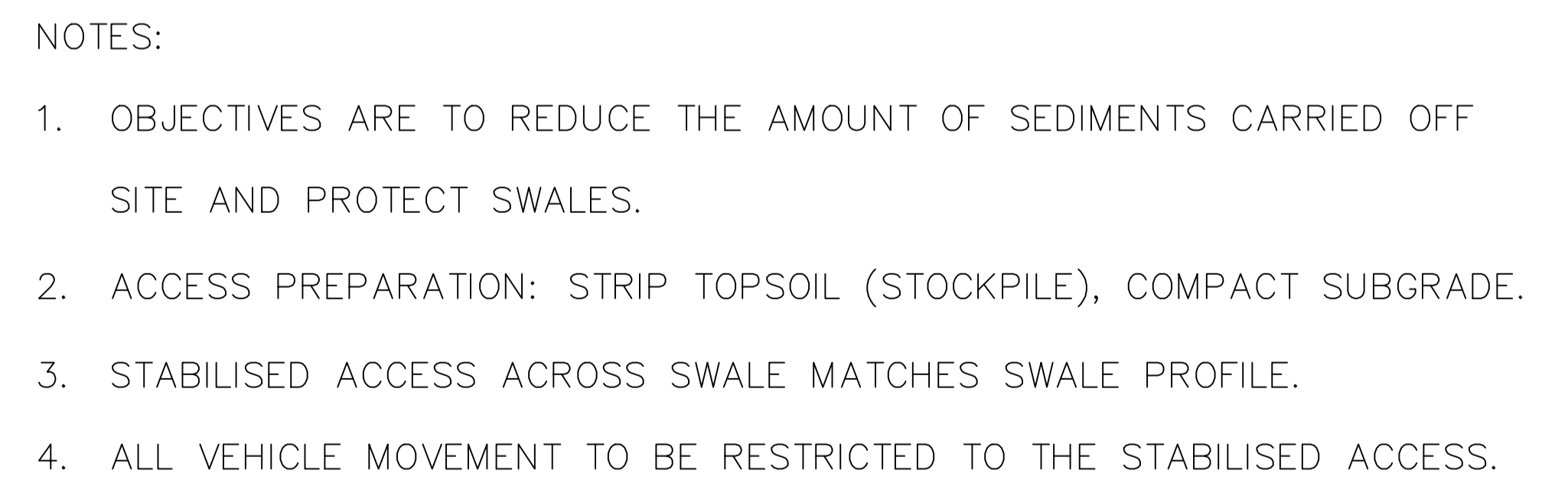
NUMBER OF SHEETS  
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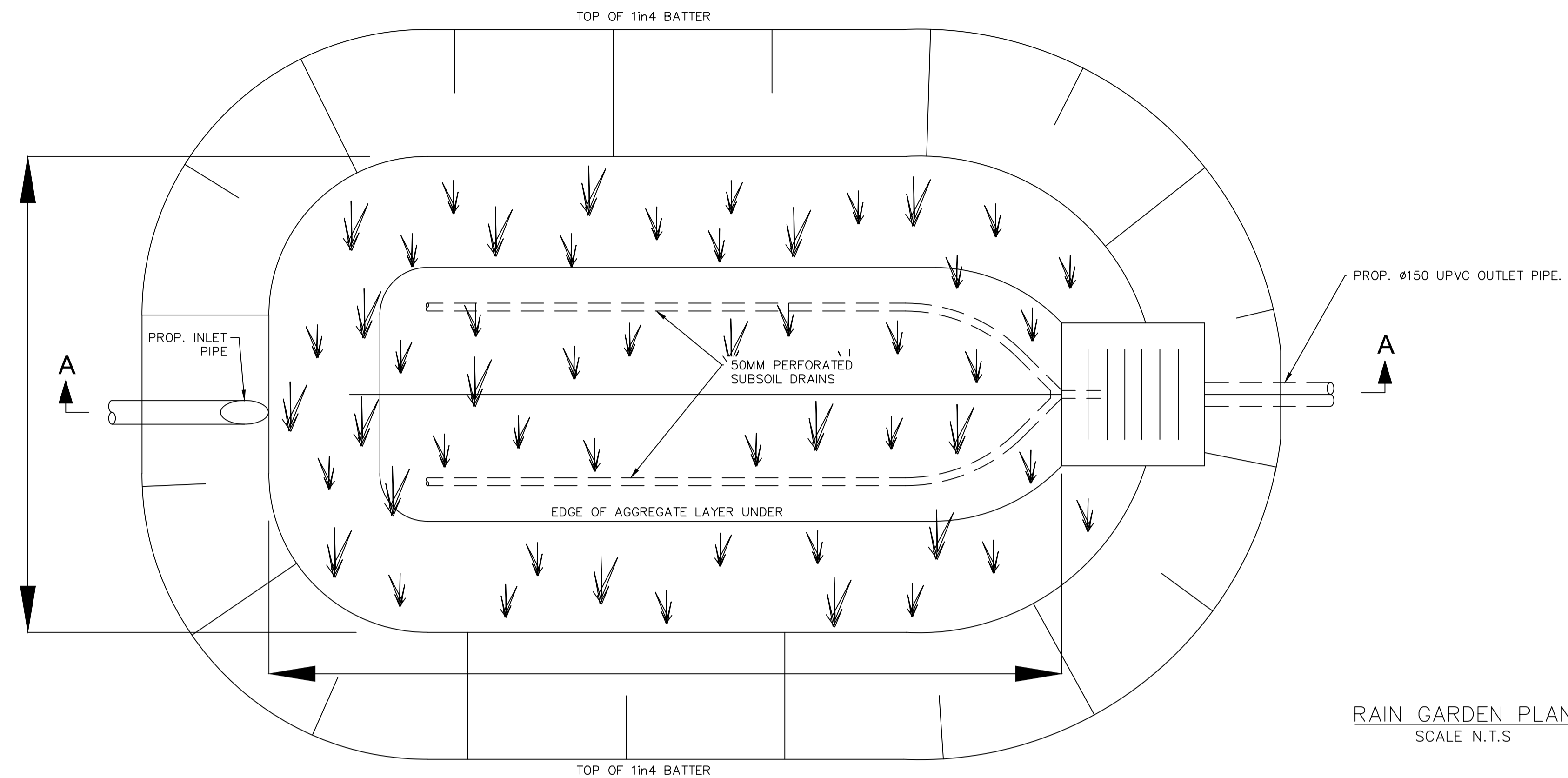
STANDARD DRAWINGS.DWG

SHEET NUMBER  
32

**SD-D 14**

DRAWING NUMBER SD-D 15

A1

RAIN GARDEN PLAN  
SCALE N.T.S

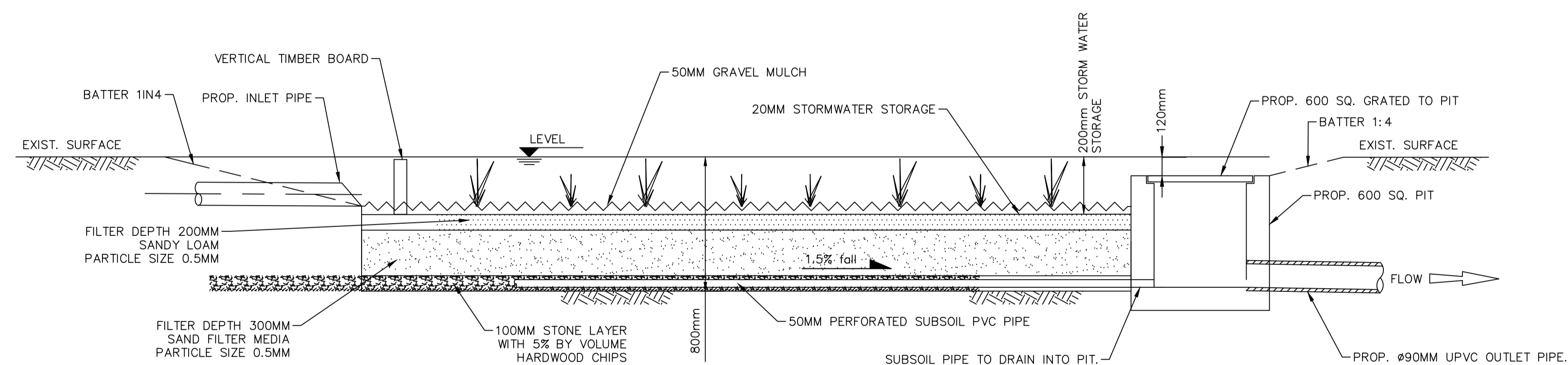
## RAIN GARDEN NOTES

1. FILTER SURFACE AREA DIMENSIONS DEPENDENT ON THE AREA TO BE TREATED
2. RAIN GARDEN SHAPE MAY BE ALTERED,
3. INTERNAL AREA NEEDS TO BE MAINTAINED.
4. INLET PIPE FROM FUTURE DWELLING TO CONNECT INTO NEAREST POINT OF THE RAIN GARDEN.
5. RAIN GARDEN OUTLET CAN BE POSITIONED TO SUIT THE POINT OF DISCHARGE.
6. RAIN GARDEN TO BE PLANTED AT A DENSITY OF 8-12 PLANTS PER SQUARE METER CONSISTING OF CAREX SP WITHIN THE RAIN GARDEN & JUNCUS SP AROUND THE PERIMETER.

## Note:

Subsoil pipes to be evenly spaced at 1/3 width up to a maximum distance apart of 1 meter.

Rain gardens with width greater than 3m will required additional pipes.

SECTION A-A  
SCALE N.T.S

INDEX	NAME	DATE	AMENDMENTS	<div><div>CIVIC CENTRE, 184-194 BOURKE STREET GOULBURN, NSW-2580 LOCKED BAG 22, GOULBURN, NSW-2580 PHONE: (02) 4823 4444 FAX: (02) 4823 4456</div><div>AUSTRALIAN HEIGHT DATUMAS-1100 STANDARDS</div><div>If the actual work done differs from the original drawing the person performing the work must amend this copy accordingly and return it to the Design Office.</div></div>		APPROVED		RAIN GARDEN		<div><div><div>SAFETY FIRST</div><div>PERSONAL PROTECTIVE EQUIPMENT</div><div>MUST BE WORN ON SITE</div></div><div>www.dialbeforeyoudig.com.au</div><div><div><div>DIAL 1100</div><div>BEFORE YOU DIG</div></div></div></div>		A1 - SCALE		NUMBER OF SHEETS	SHEET NUMBER
SURVEYED						AS SHOWN		34		34					
DESIGNED & DRAFTED	T.DIMEC	APRIL 2011				FILE NAME:		STANDARD DRAWINGS.DWG							
DESIGN REVIEWED	T.DIMEC	APRIL 2011				REVISION		GMC-VER-1		SD-D 16					
FINAL DESIGN CHECKED	I.ALDRIDGE	DEC 2012				DATE: 28/02/2018									
ISSUED FOR CONSTRUCTION															
WORK AS EXECUTED															