CONTENTS

1. LIST OF STANDARD DRAWINGS 1

Road Construction, Kerb and Gutter 1

Drainage 2

Footpaths, Driveways and Private Access 3

Signage and Street Furniture 3

1. LIST OF STANDARD DRAWINGS

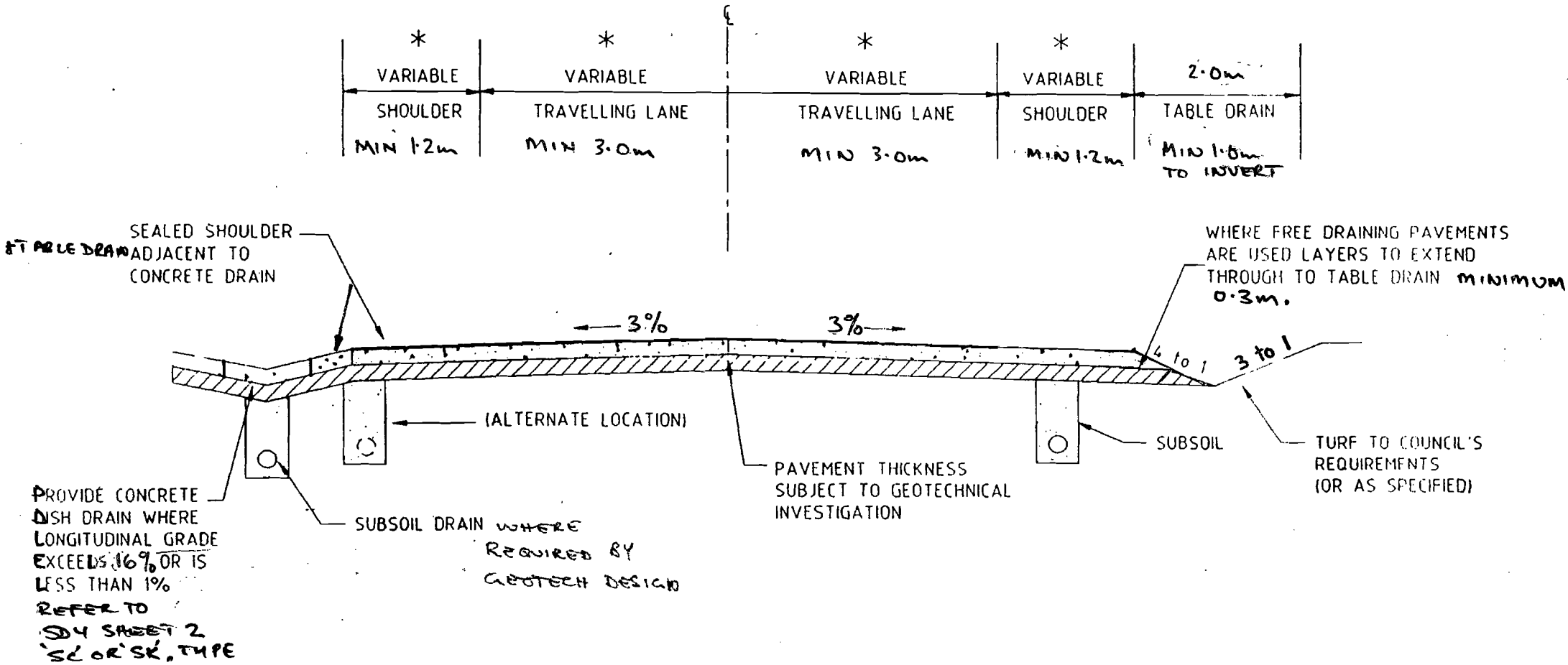
The following standard drawings are referenced throughout this document. All civil works to be undertaken shall be designed and constructed in accordance with these drawings.

Drawing Number	Description
Road Construction, Kerb and Gutter	
SD1	Typical Rural Road Cross Section
SD2	Typical Urban Road Cross Section
SD3	Subsoil Drainage Detail
SD4	Sheet 1 Standard Kerb and Gutter Profiles
	Sheet 2 Standard Kerb and Gutter Profiles
SD5	Sheet 1 Standard Dish Crossing for Kerb Returns
	Sheet 2 Standard Dish Crossing for Kerb Returns
SD6	Standard Infill Kerb and Gutter and Shoulder Works
SD7	Typical Turning Areas for Rural and Residential Accessways and Cul-de-sacs (Residential)
SD8	Fixing Kerb to Existing Pavement
SD9	Sheet 1 Concrete Joint and Layout Details for Accessways and Thresholds
	Sheet 2 Concrete Joint and Layout Details for Accessways and Thresholds
	Sheet 3 Concrete Joint and Layout Details for Accessways and Thresholds
SD10	Sheet 1 Wombat Crossings - 10 to 11m wide Carriageway Raised Threshold with Centre Island
	Sheet 2 Wombat Crossings - 10 to 11m wide Carriageway Flush Threshold with Centre Island
SD11	Sheet 1Wombat Crossings - 12 to 13m wide Carriageway Raised Threshold with Centre Island
	Sheet 2 Wombat Crossings - 12 to 13m wide Carriageway Flush Threshold with Centre Island
SD12	Sheet 1 Wombat Crossing- All Roads - Raised Threshold Signposting and Linemarking
	Sheet 2 Wombat Crossing- All Roads - Flush Threshold Signposting and Linemarking
	Sheet 3 Wombat Crossing- All Roads - Special Details
SD13	Typical Speed Hump Profile - Watts Profile
SD14	Typical Indented Bus Bay Detail

Drawing Number	Description
SD15	Sheet 1 Segmented Paving for Roads
	Sheet 2 Segmented Paving for Roads
Drainage	
SD30	Sheet 1 Standard Grated Gully Pit
	Sheet 2 Standard Grated Gully Pit (Multi Grated Sag Pit)
	Sheet 3 Standard Grated Gully Pit (Saddle Type)
SD31	Standard Grated Surface Inlet Pits
SD32	Standard Junction Pit Detail
SD33	Sheet 1 Standard Gully Pit for Type SF Kerb
	Sheet 2 Standard Gully Pit for Type SF Kerb
	Sheet 3 Standard Gully Pit for Type SF Kerb
SD34	Standard Flush Grated Surface Inlet Pit for Type SC Kerb
SD35	Reinforced Detail for Pits
SD37	Sheet 1 Concrete Headwalls for Single Pipe Culverts
	Sheet 2 Concrete Headwalls for Double Pipe Culverts
	Sheet 3 Concrete Headwalls for Triple Pipe Culverts
SD38	Bulkhead Detail for Stormwater Drainage Trenches
SD39	Kerb Roofwater Outlet Connection
SD41	Standard Step Iron Detail for Stormwater Pits
SD42	Concrete Cradle Support
SD43	Typical Open Drainage Channel
SD44	Sheet 1 Pedestrian Pathway - Overland Flow Path Type 1
	Sheet 2 Pedestrian Pathway - Overland Flow Path Type 2
	Sheet 3 Non-Pedestrian Overland Flow Path Type 1
	Sheet 4 Non-Pedestrian Overland Flow Path Type 2
	Sheet 5 Footpath Treatment for Overland Flowpaths
SD45	Flood Warning Sign

Drawing Number	Description
Footpaths, Driveways and Private Access	
SD60	Vehicular Crossing for High and Low Level Access
SD61	Sheet 1 Standard Footpath and Cycleway Details - Joint Detail
	Sheet 2 Standard Footpath and Cycleway Details - Handrail Detail
	Sheet 3 Standard Footpath and Cycleway Details - Pedestrian Pathway Barrier
SD62	Standard Pram Ramp Crossing
SD63	Pathway Steps
SD64	Footpath Treatment for Overland Flow Pathways
SD65	Sheet 1 Segmental Footpaving
	Sheet 2 Segmental Footpavings
SD66	Concrete Drive Slab Detail
SD67	Pavers Driveway Detail
SD68	Layback Crossing Detail
SD69	Piped Vehicular Crossing
SD70	Prohibited Location of Driveways
Signage and Street Furniture	
SD80	Standard Street Sign
SD81	Standard Street Sign Locations
SD82	Street Tree Planting Detail

* WIDTHS AS PER SPECIFICATION / CONSENT

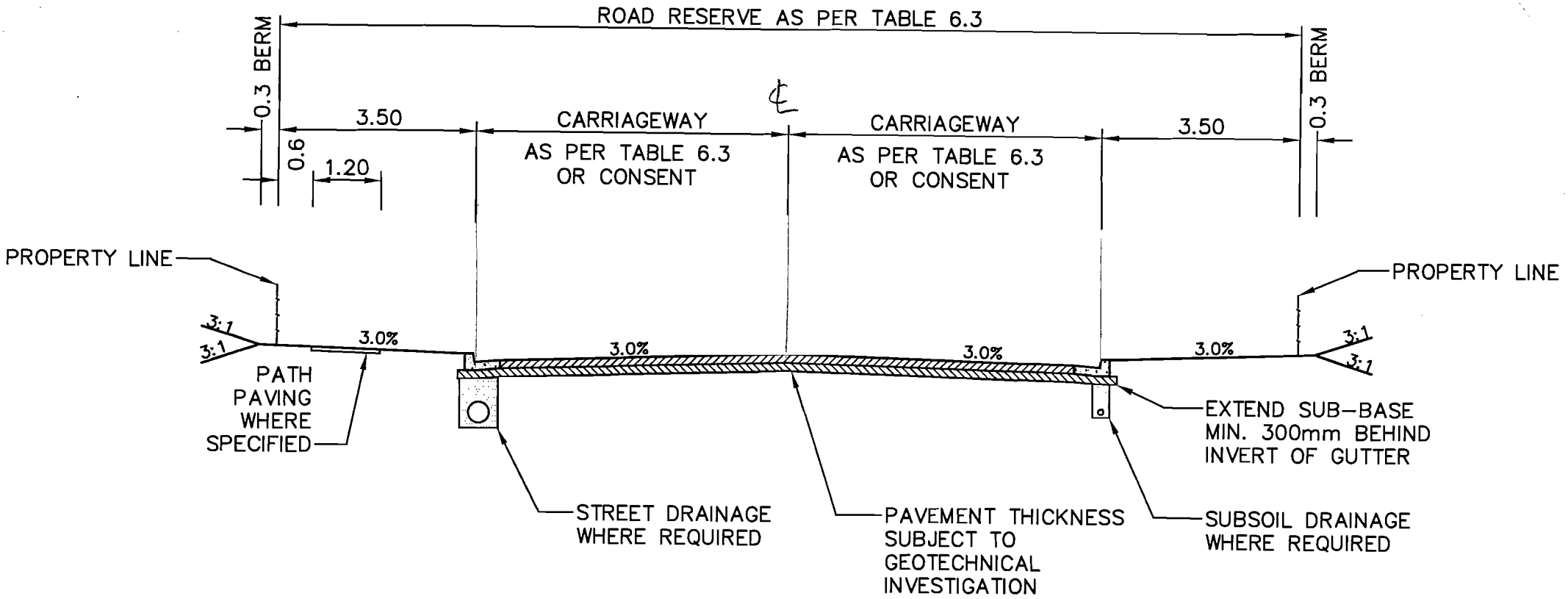


Hawkesbury City Council

TYPICAL RURAL ROAD CROSS SECTION

SCALE : NTS

DRAWING No. : SD1

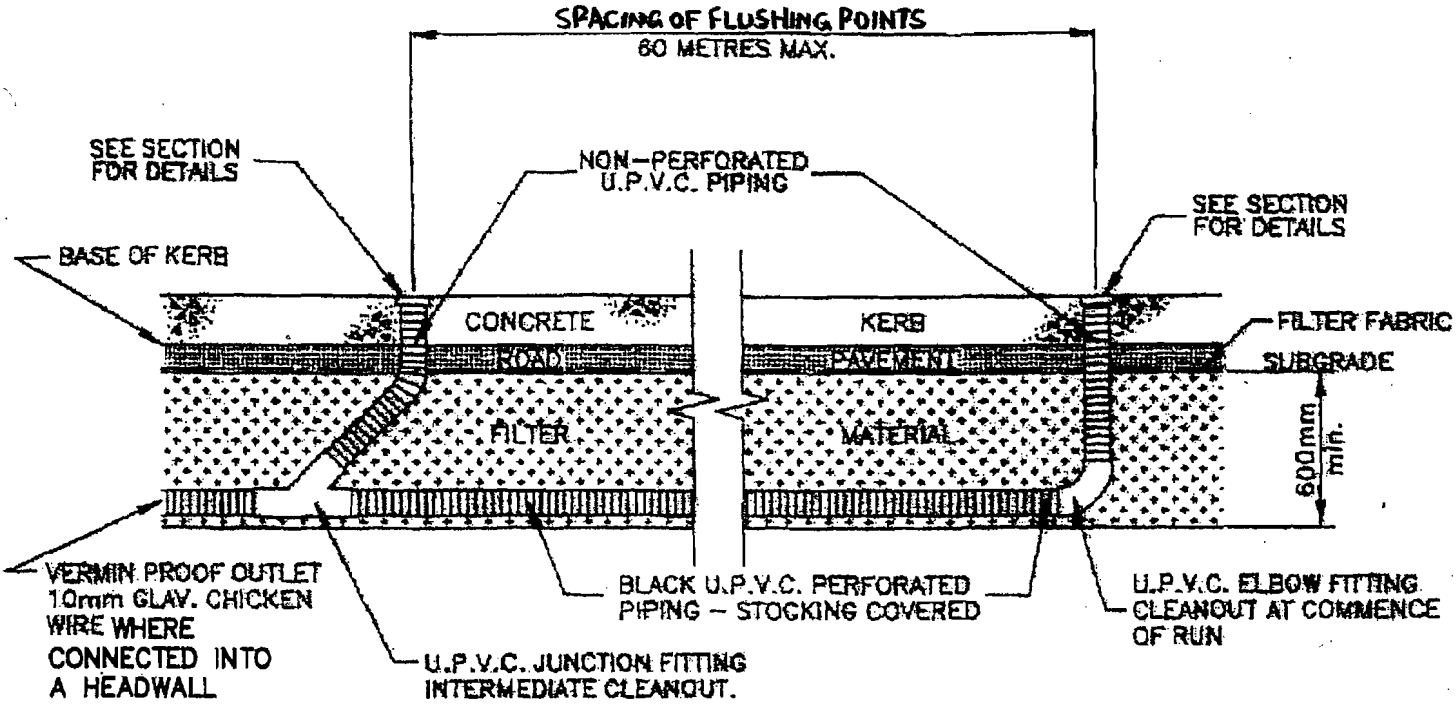


Hawkesbury City Council

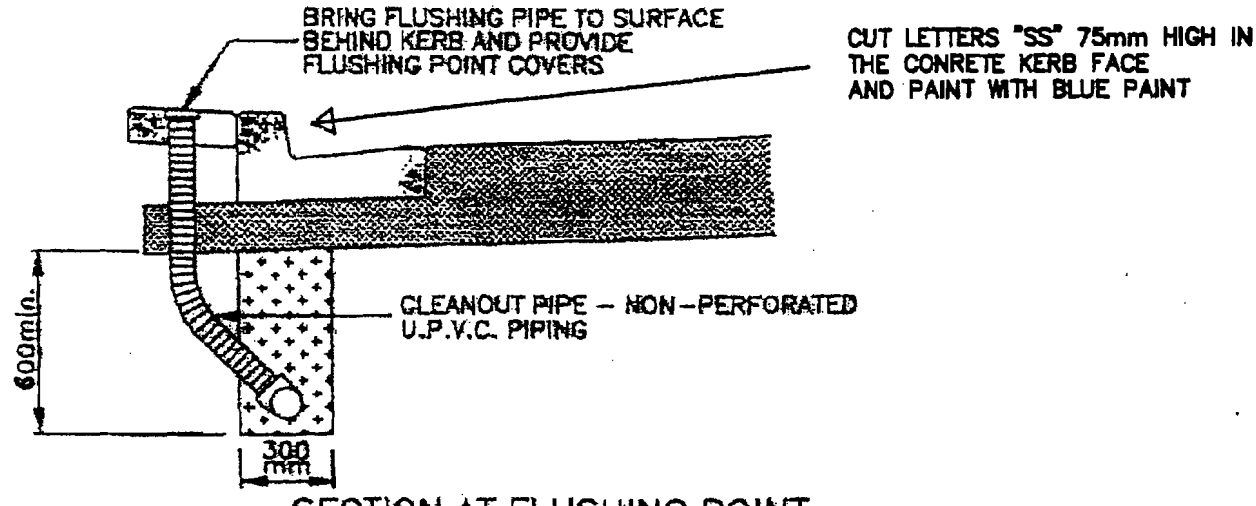
TYPICAL URBAN ROAD CROSS SECTION

SCALE : NTS

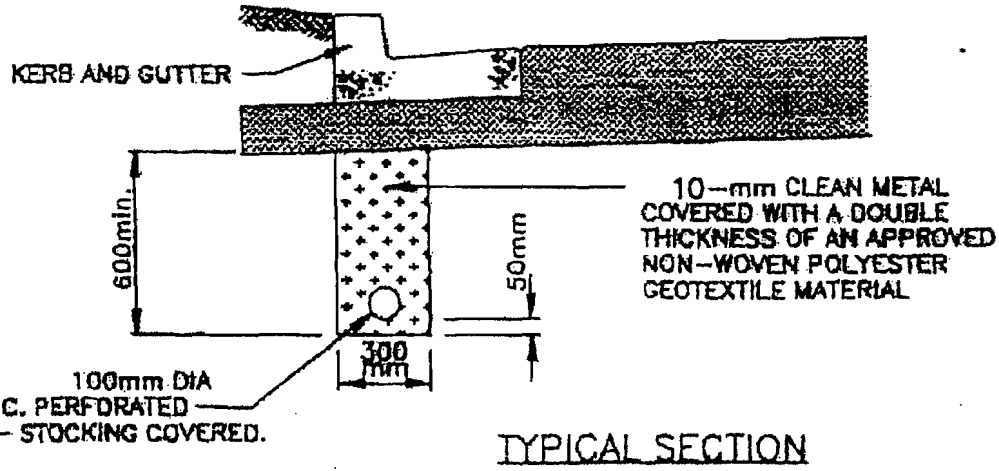
DRAWING No. : SD 2.



TYPICAL LONGITUDINAL SECTION



SECTION AT FLUSHING POINT



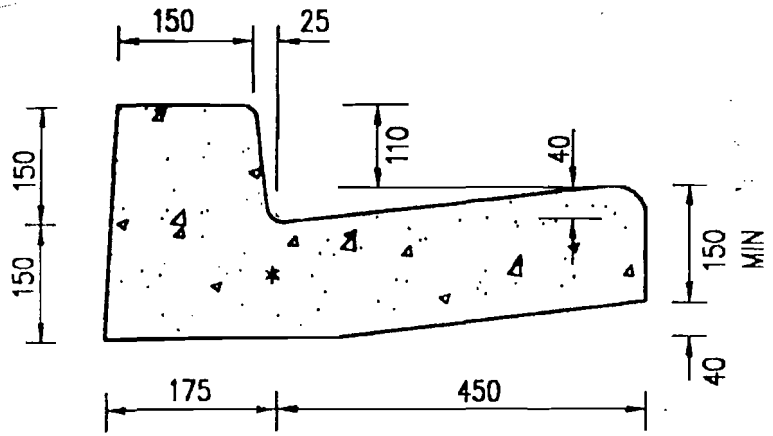
TYPICAL SECTION

Hawkesbury City Council

SUBSOIL DRAINAGE DETAIL

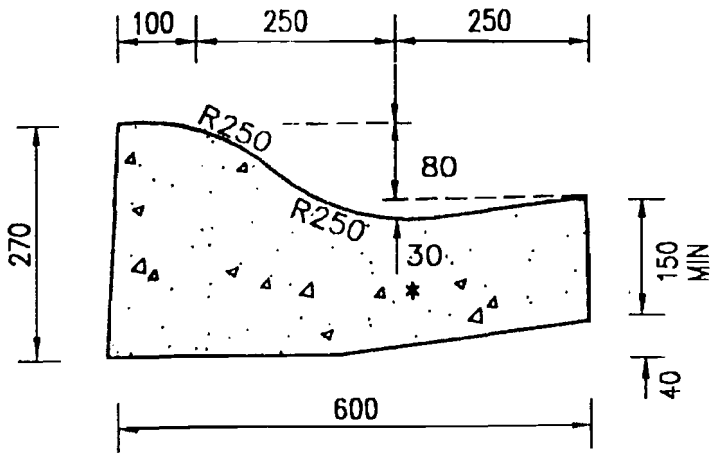
SCALE : NTS

DRAWING No. : SD3



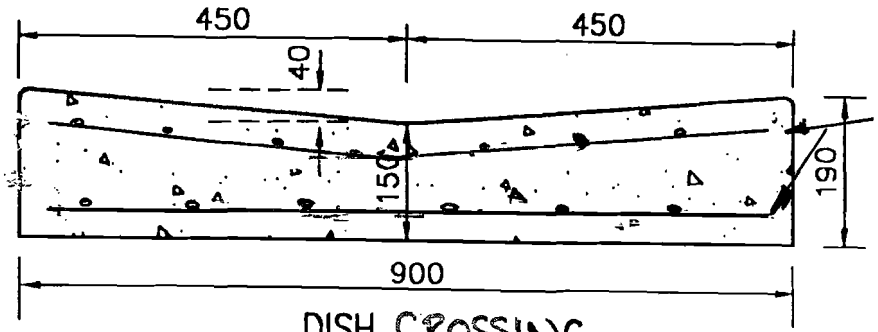
STANDARD KERB & GUTTER

(MODIFIED SA)



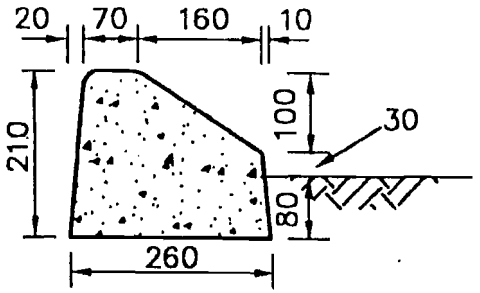
ROLL KERB & GUTTER

(MODIFIED RT)



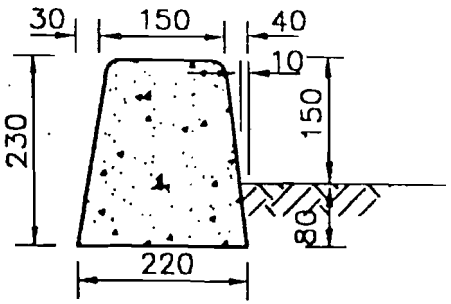
DISH CROSSING

(MODIFIED SB)



MOUNTABLE KERB

(SF)



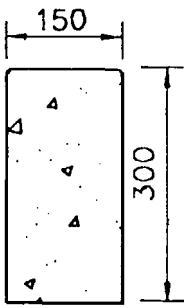
KERB ONLY OR BARRIER KERB

(SM)

NOTE:

1. CONCRETE TO BE 20 MPa UNLESS OTHERWISE SPECIFIED
2. ALL EXPOSED CORNERS TO HAVE A RADIUS OF 10 UNLESS OTHERWISE SPECIFIED
3. ALL DIMENSIONS IN MILLIMETRES
4. SOME KERB DIMENSIONS SLIGHTLY VARY FROM RTA STANDARDS
5. REFER TO SPECIFICATION FOR JOINT TYPE, LOCATION & SPACING REQUIREMENTS
6. REFER TO SPECIFICATION FOR CONSTRUCTION TOLERANCES.

* THINNEST PART OF KERBS TO BE MINIMUM 150 IRRESPECTIVE OF CONSTRUCTION TOLERANCES.



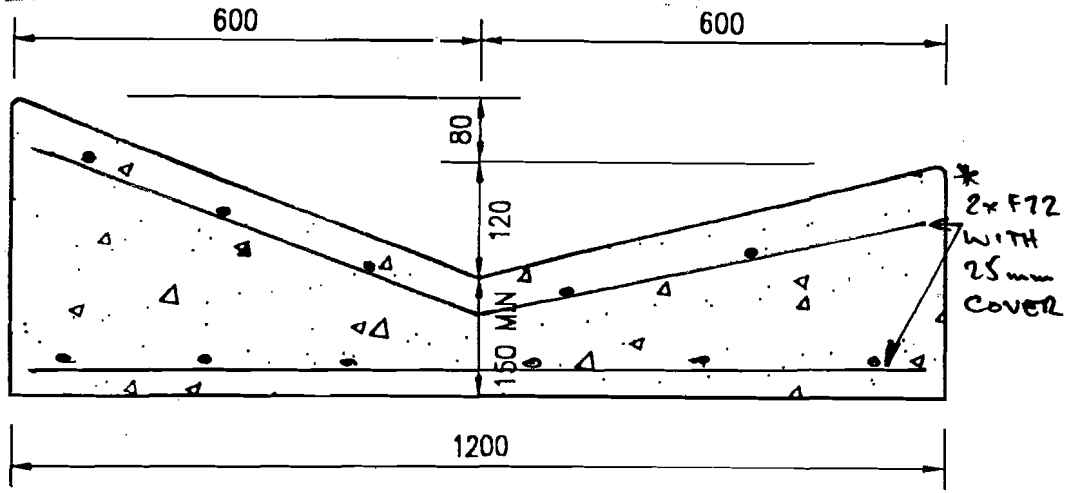
EDGE RESTRAINT

Hawkesbury City Council

STANDARD KERB & GUTTER PROFILES

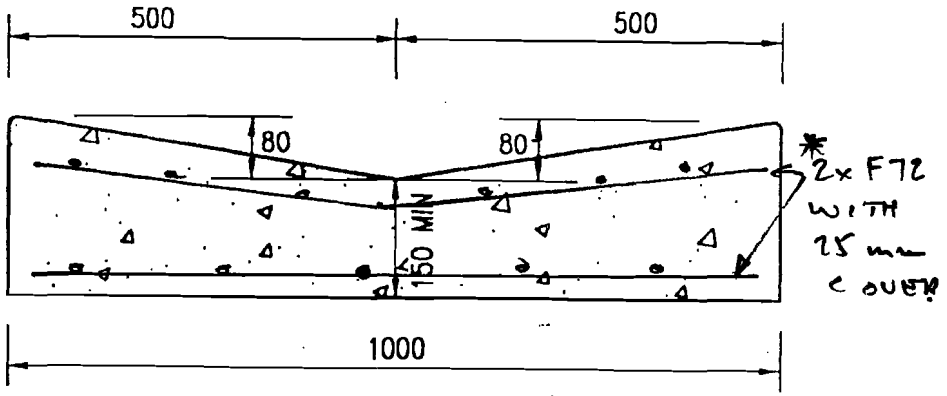
SCALE : NTS

DRAWING No. : SD4 SHEET 1 OF 2



MODIFIED 'V' DRAIN

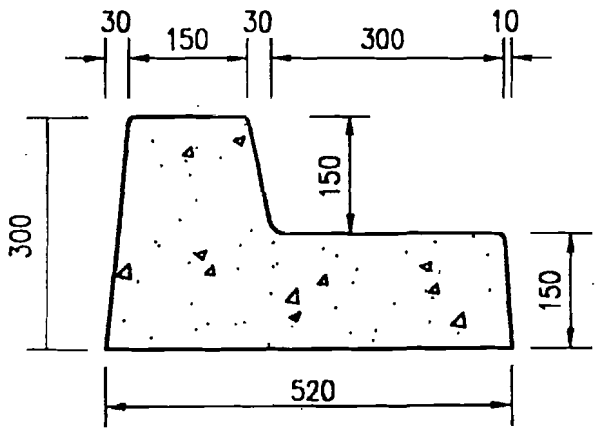
(SK)



DISH CROSSING

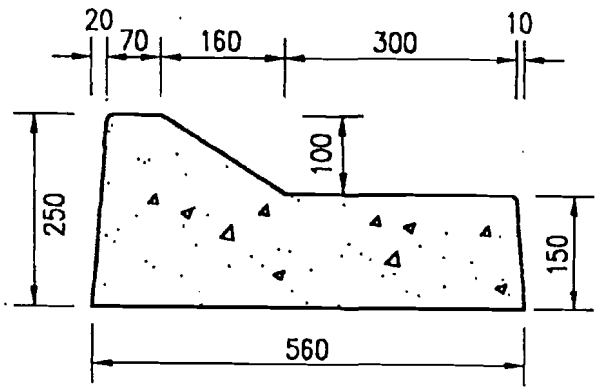
INCREASED WATERWAY

(SC)



BARRIER KERB WITH GUTTER

(SL)



MOUNTABLE KERB WITH GUTTER

(SE)

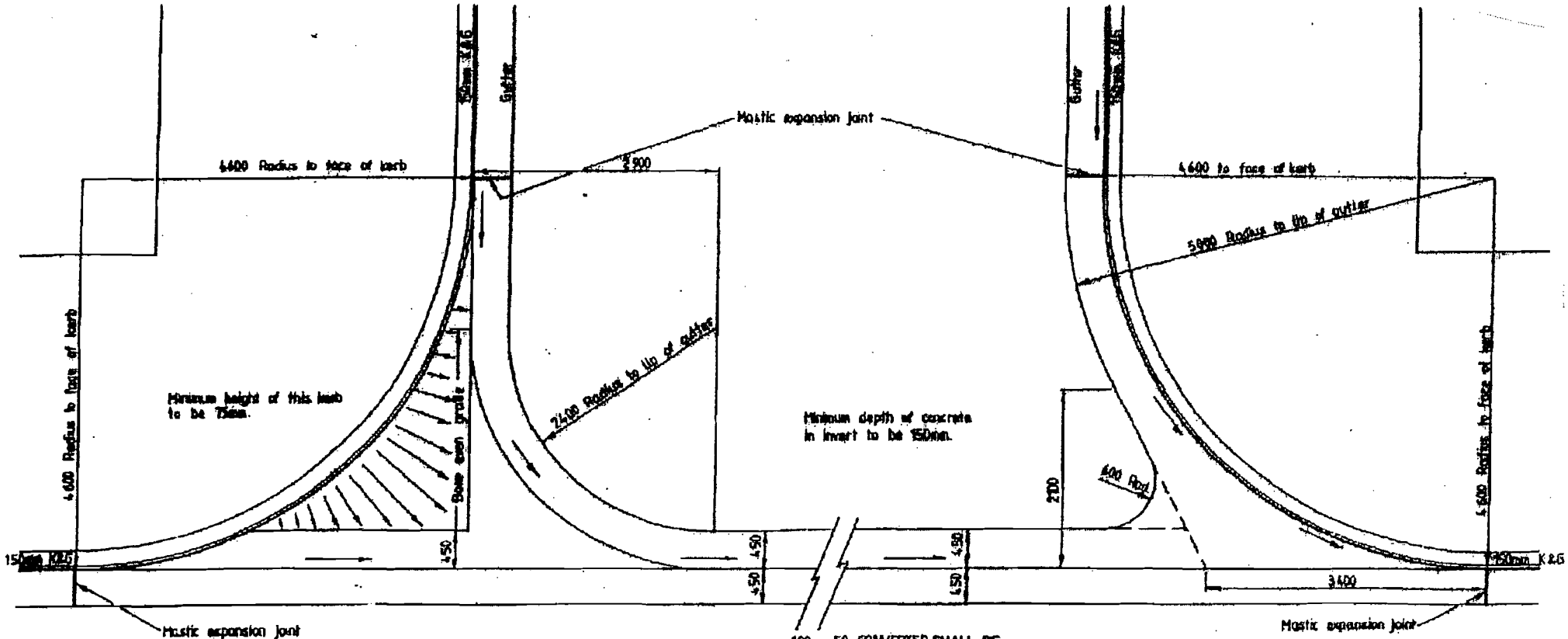
* REINFORCEMENT TO BE PROVIDED WHEN SUBJECT TO VEHICULAR LOADS.

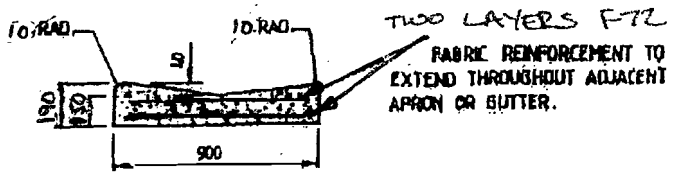
Hawkesbury City Council

STANDARD KERB & GUTTER PROFILES

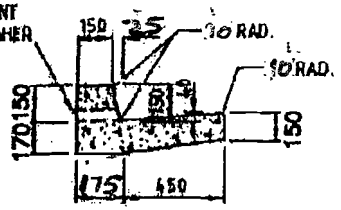
SCALE : NTS

DRAWING No. : SD4 SHEET 2 OF 2





DISH CROSSING



150 INTEGRAL KERB & GUTTER

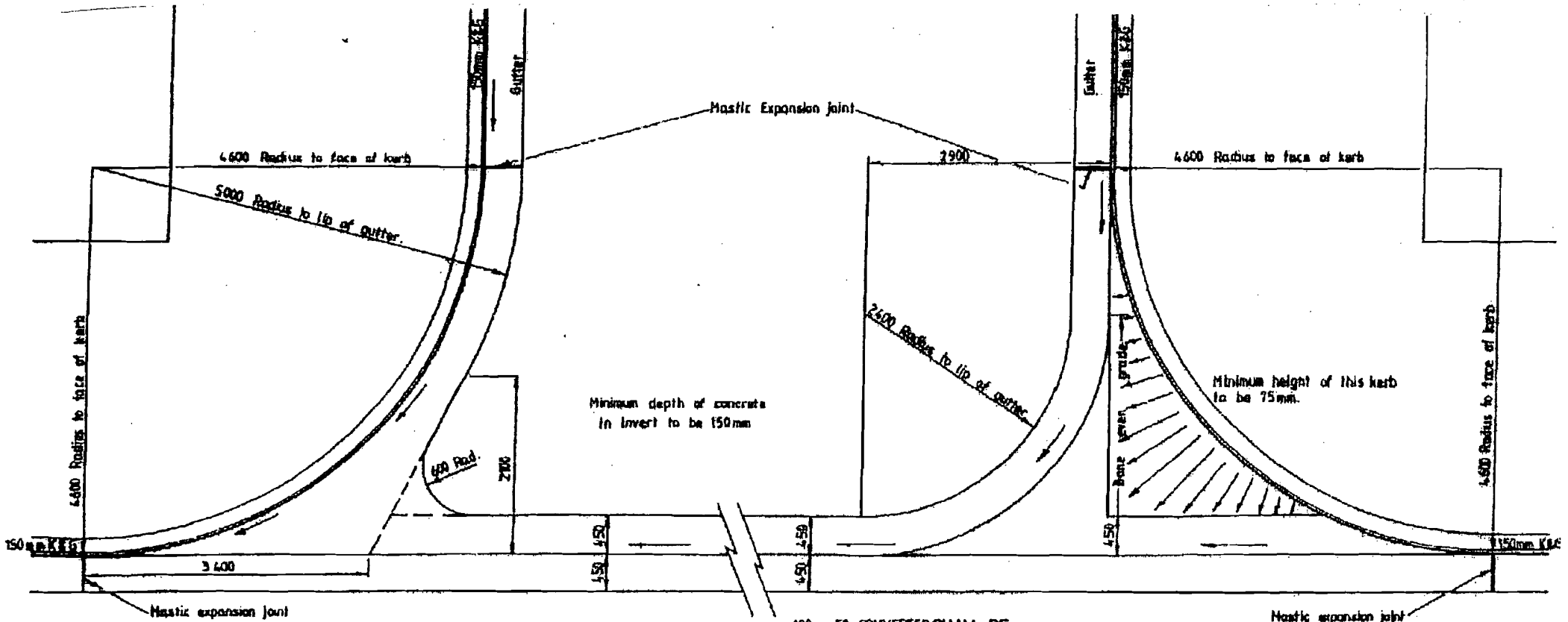
NOTE:- FOR HAND FORMED KERB & GUTTER CONTRACTION JOINTS REQUIRED AT 3m. INTERVALS. MASTIC EXPANSION JOINTS REQUIRED AT 6m. INTERVALS. FOR MACHINE POURED KERB & GUTTER PROVIDE GUILLOTINE JOINTS AT 3m. INTERVALS.

Hawkesbury City Council

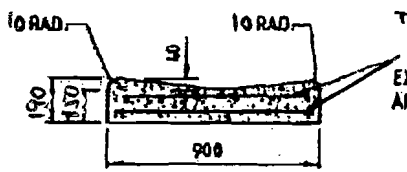
STANDARD DISH CROSSING FOR KERB RETURNS

SCALE : NTS

DRAWING No. : SD5 SHEET 1 OF 2

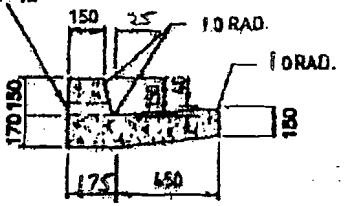


100 x 50 CONVERTER SHALL BE PROVIDED IN KERB ADJACENT TO EACH LOT ON THE HIGHER SIDE OF THE ROAD.



TWO LAYERS F72 FABRIC REINFORCEMENT TO EXTEND THROUGHOUT ADJACENT APRON OR GUTTER.

DISH CROSSING



150 INTEGRAL KERB & GUTTER

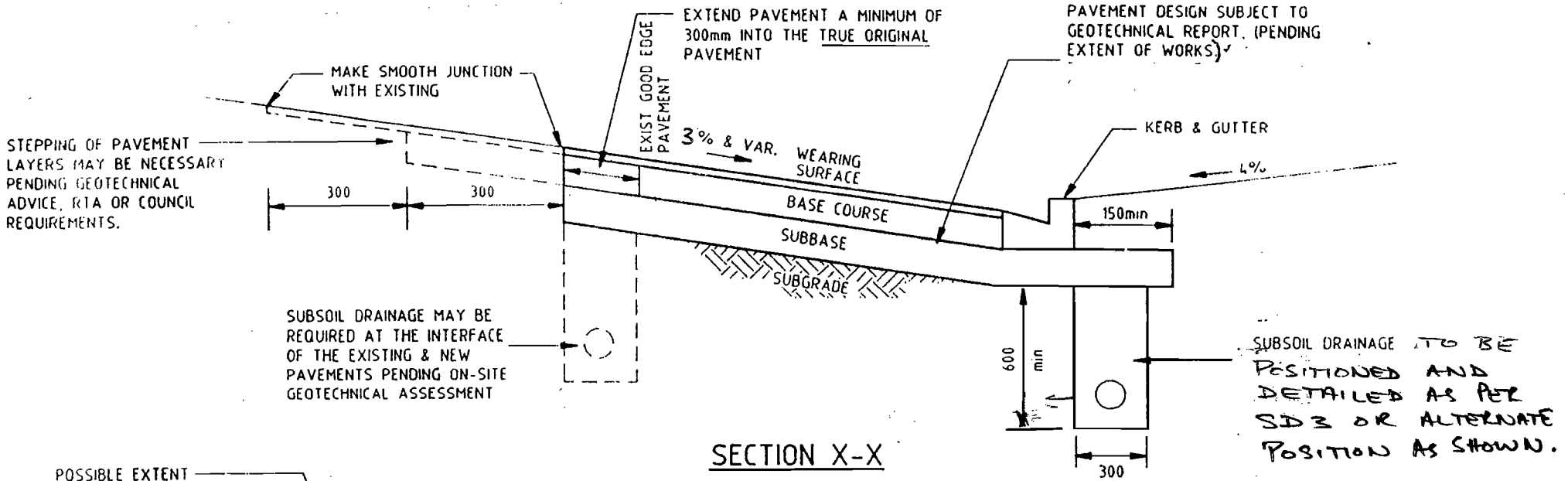
NOTE:- FOR HAND FORMED KERB & GUTTER CONTRACTION JOINTS REQUIRED AT 3m. INTERVALS. MASTIC EXPANSION JOINTS REQUIRED AT 6m. INTERVALS. FOR MACHINE POURED KERB & GUTTER PROVIDE GUILLOTINE JOINTS AT 3m. INTERVALS.

Hawkesbury City Council

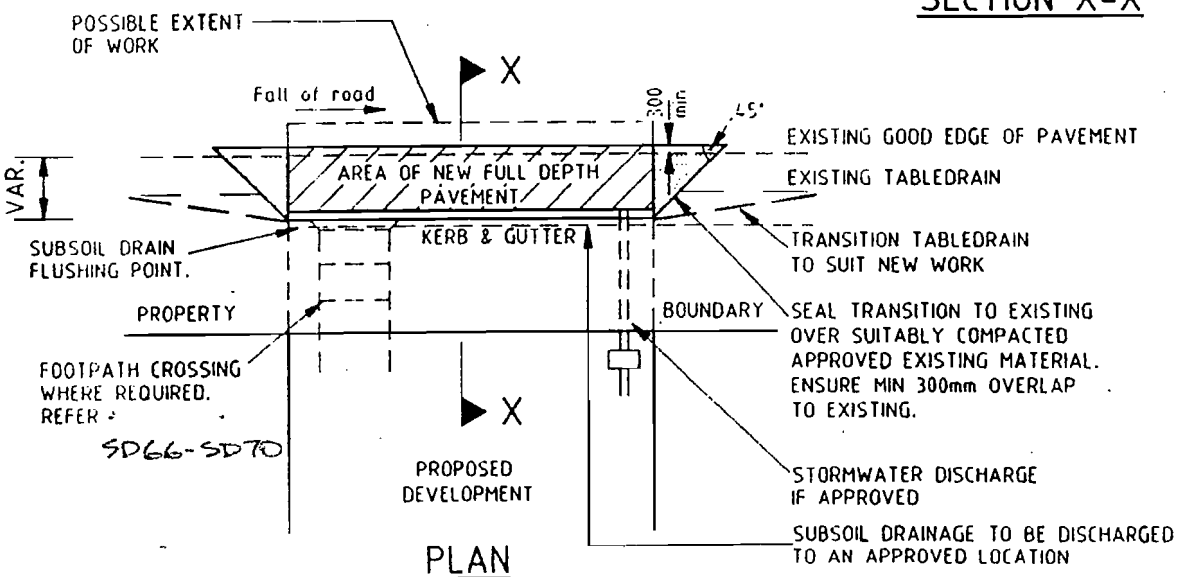
STANDARD DISH CROSSING FOR KERB RETURNS

SCALE : NTS

DRAWING No. : SD5 SHEET 2OF2



SECTION X-X



PLAN

NOTES

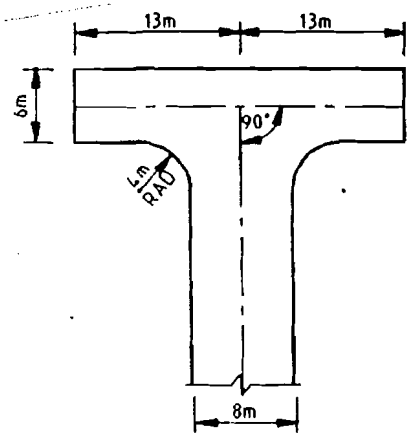
1. PAVEMENT JOINS ALONG WHEEL PATHS SHOULD BE AVOIDED. JOINTS TO BE AT LANE OR SUMP LINES WHERE POSSIBLE.
2. ALL DIMENSIONS IN MILLIMETRES.

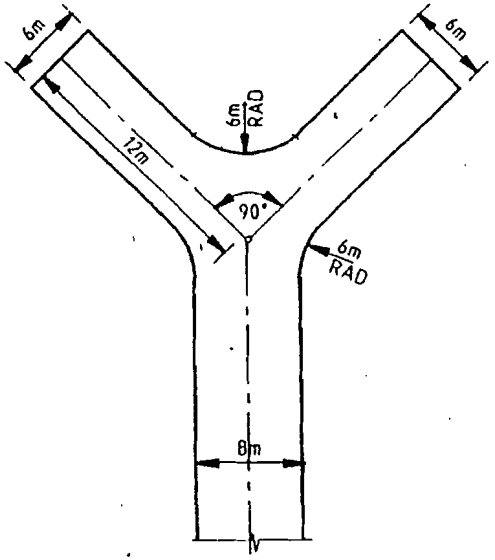
Hawkesbury City Council

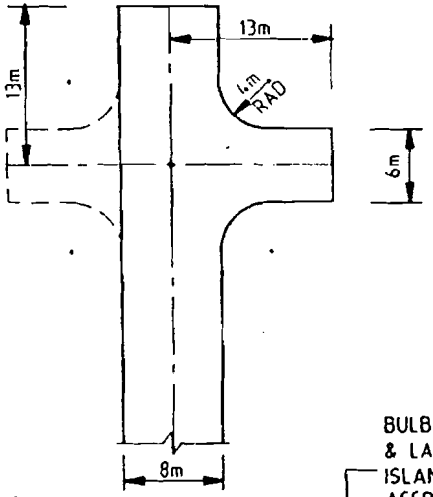
STANDARD INFILL KERB & GUTTER AND SHOULDER WORKS

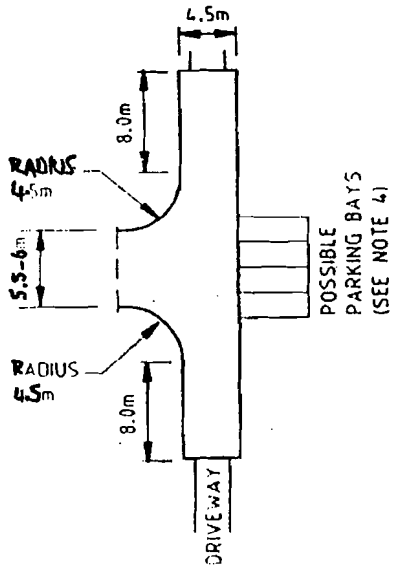
SCALE : NTS

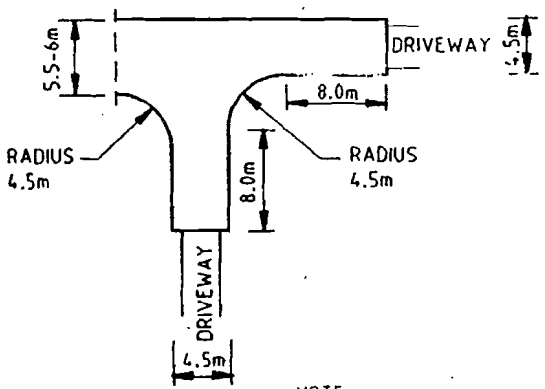
DRAWING No. : SD6

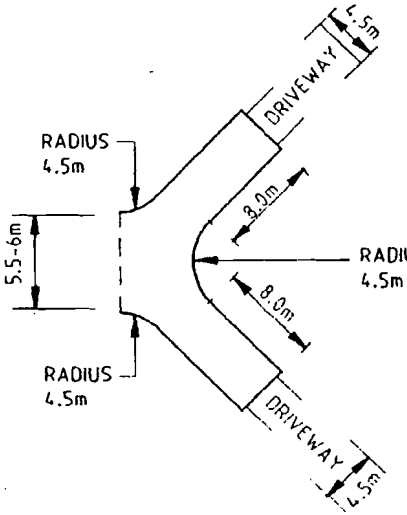


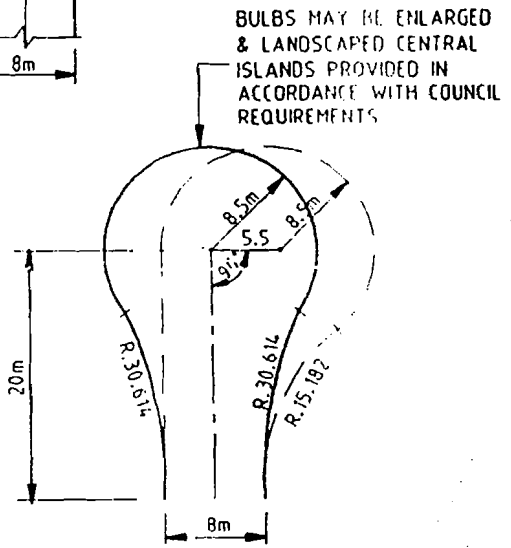












NOTE.

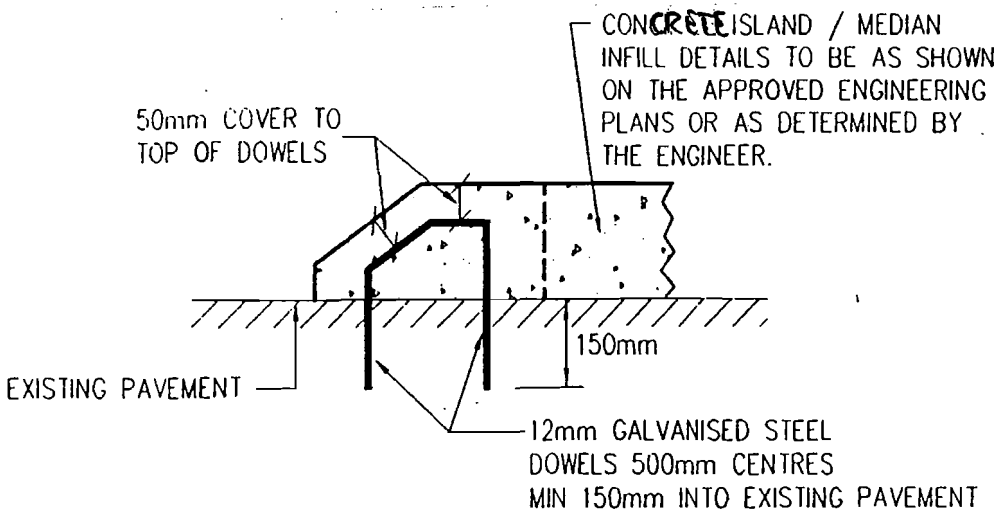
1. INCOMING WIDTHS TO SUIT ROAD CATEGORIES AS SHOWN.
2. NOTWITHSTANDING THE ABOVE DIMENSIONING, THE APPROPRIATE DESIGN VEHICLE TEMPLATE IS TO BE USED TO VERIFY ADEQUATE MANOEUVERING AREA.
3. VARIATIONS TO THESE MAY BE CONSIDERED PENDING CIRCUMSTANCES.
4. COUNCIL ENCOURAGES THE PROVISION OF OFF STREET PARKING WHERE SPACE PERMITS.

Hawkesbury City Council

TYPICAL TURNING AREAS FOR ACCESSWAYS & CUL-DE-SACS (RESIDENTIAL)

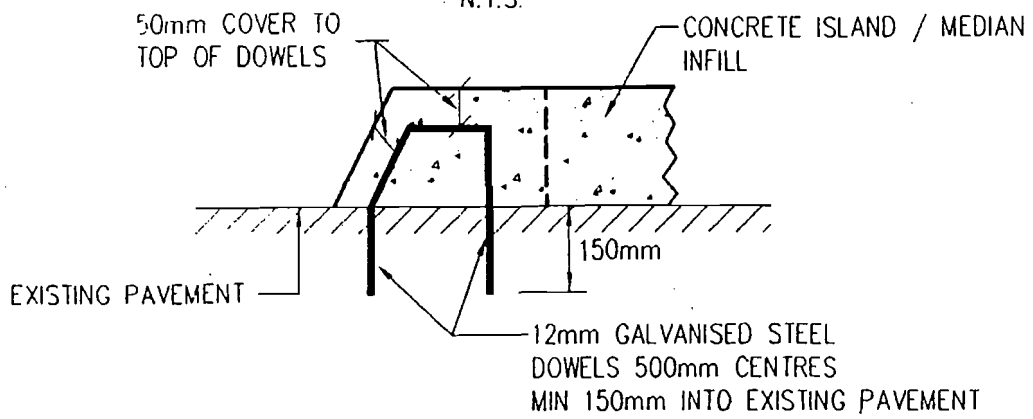
SCALE : NTS

DRAWING No. : SD 7



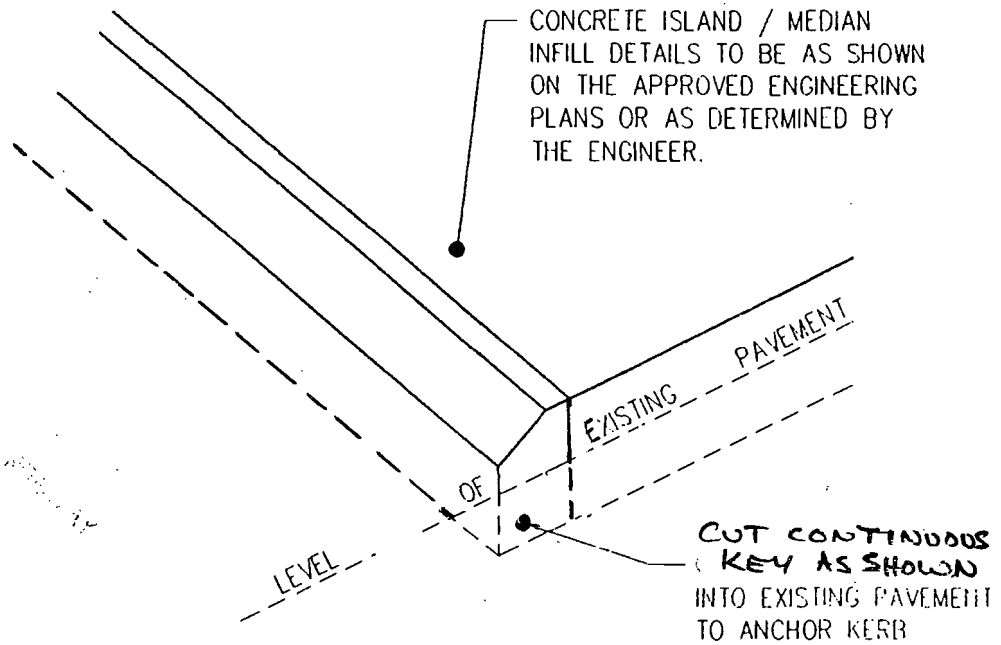
DETAIL OF DOWELLING MOUNTABLE (SF) KERB TO EXISTING PAVEMENT

N.T.S.



DETAIL OF DOWELLING BARRIER (SM) KERB TO EXISTING PAVEMENT

N.T.S.



DETAIL OF KERB ANCHORING INTO EXISTING PAVEMENT

N.T.S.

NOTES

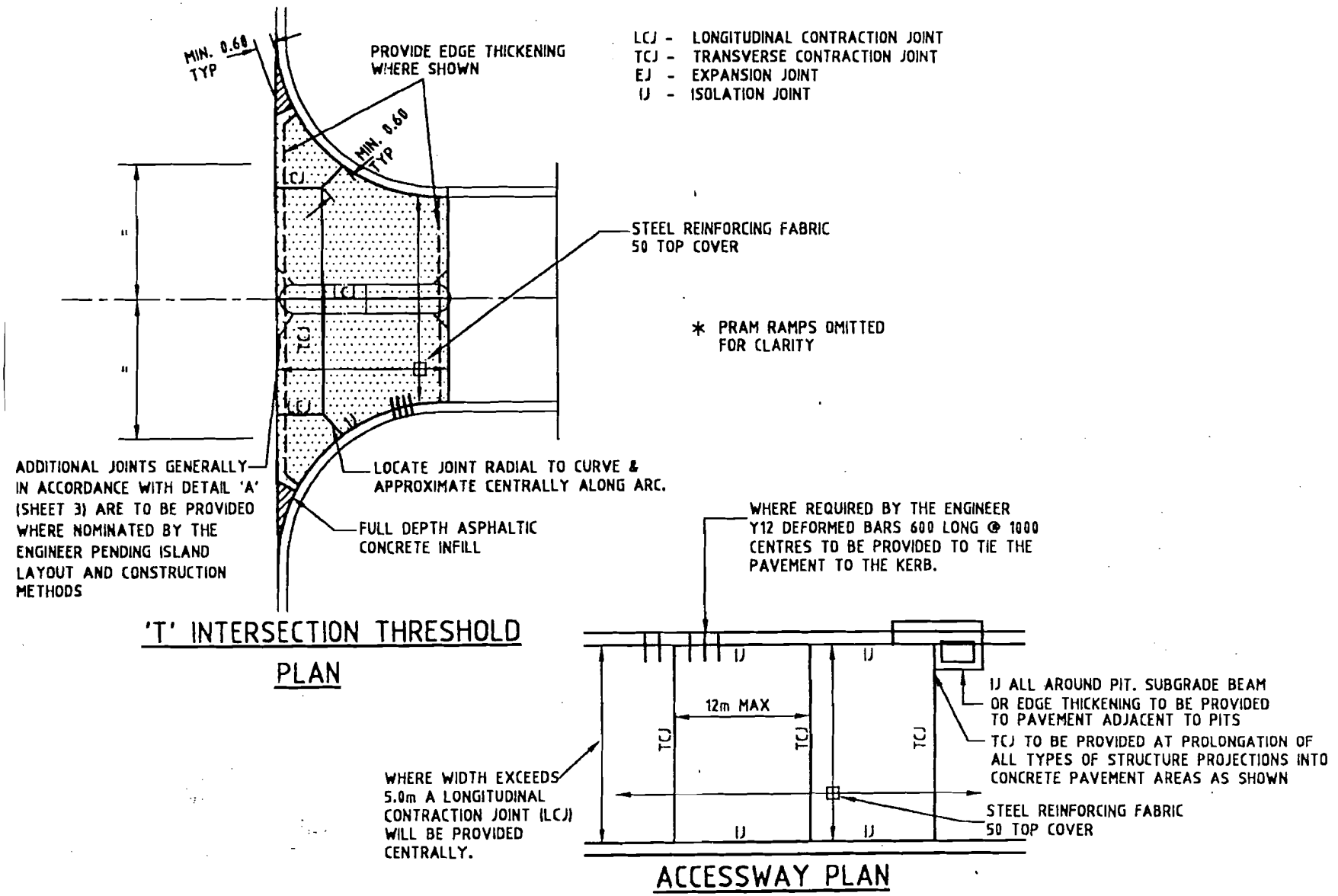
1. ONLY MOUNTABLE KERB OR BARRIER KERB (KERB ONLY) TO BE FIXED TO EXISTING PAVEMENTS AS DETAILED ABOVE.
2. WHERE ROADS ARE TO RECEIVE A RESHEET KERBS SHALL BE RAISED SUFFICEINTLY TO COMPENSATE FOR THE RESHEET THICKNESS UNLESS MILLING OF THE EXISTING SURFACE IS TO TAKE PLACE

Hawkesbury City Council

FIXING KERB TO EXISTING PAVEMENT

SCALE : NTS

DRAWING No. : SD8

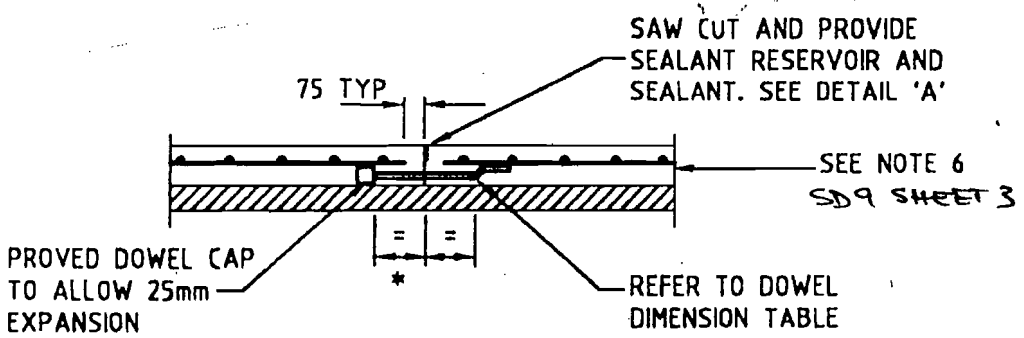


Hawkesbury City Council

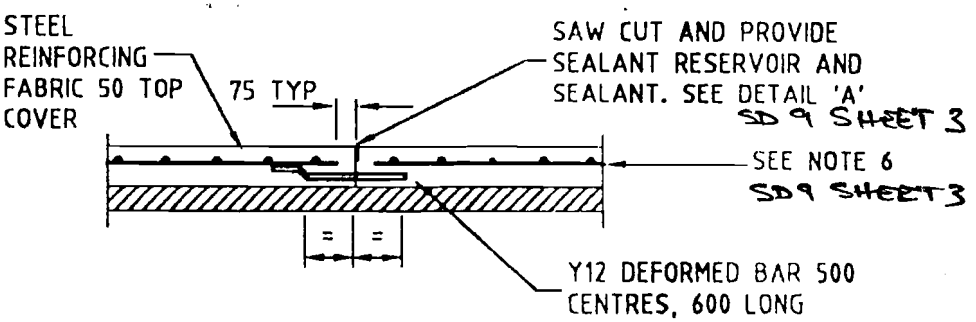
Concrete Joint & Layout Details For Accessways & Thresholds

SCALE : NTS

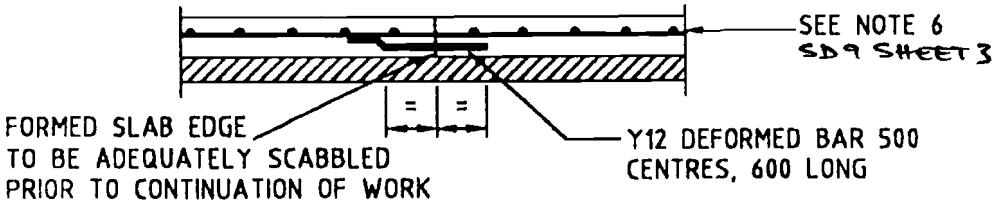
DRAWING No. : SD9 SHEET 1 OF 3



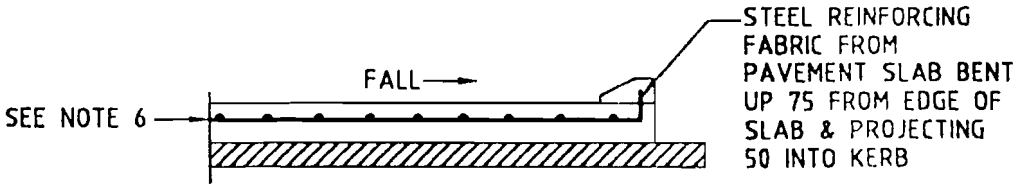
TRANSVERSE CONTRACTION JOINT (TCJ)



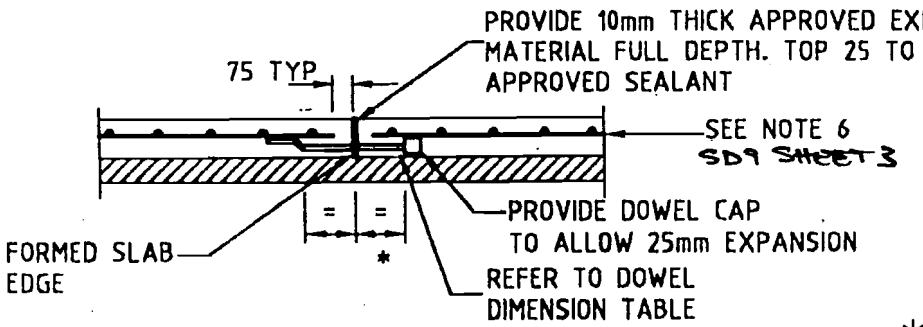
LONGITUDINAL CONTRACTION JOINT (LCJ)



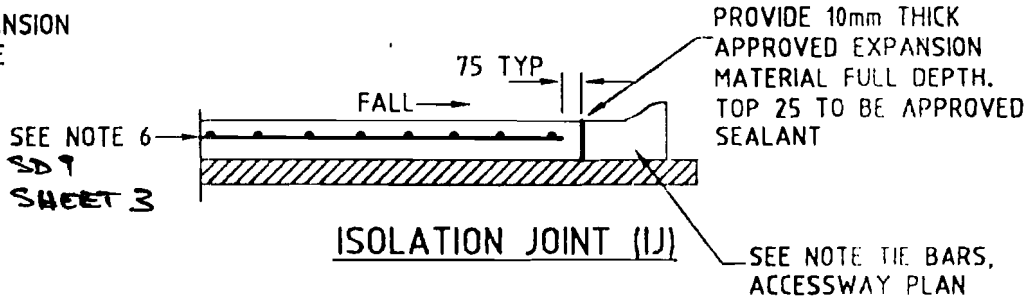
CONSTRUCTION JOINT



INTEGRAL KERB FOR CONCRETE ROADS



EXPANSION JOINT (EJ)



ISOLATION JOINT (IJ)

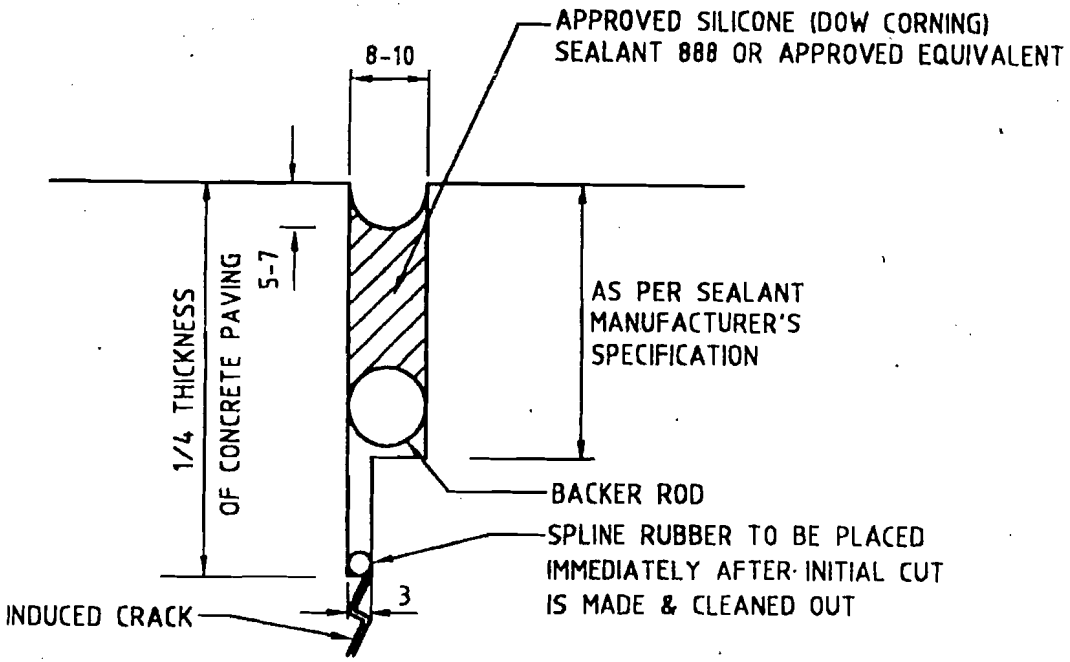
* DENOTES DOWEL TO BE DEBONDED BY APPLYING BITUMEN & POLYTHENE WRAPPING

Hawkesbury City Council

CONCRETE JOINT & LAYOUT DETAILS FOR ACCESSWAYS & THRESHOLDS

SCALE : NTS

DRAWING No. : SD9 SHEET 2 OF 3



DETAIL 'A'

CONCRETE BASE THICKNESS (mm)	STEEL REINFORCING FABRIC (AS 1204)
100	F72
125	F72
150	F72
175	F82 or F828
200	F82 or F828

STEEL REINFORCING FABRIC TABLE

CONCRETE THICKNESS (mm)	DOWEL DIAMETER (mm)	DOWEL LENGTH (mm)
100	12	250
125	16	300
150	20	350
175	20	350
200	24	350
All dowels placed at 300mm centres		

DOWEL DIMENSIONS

HCC

NOTES:

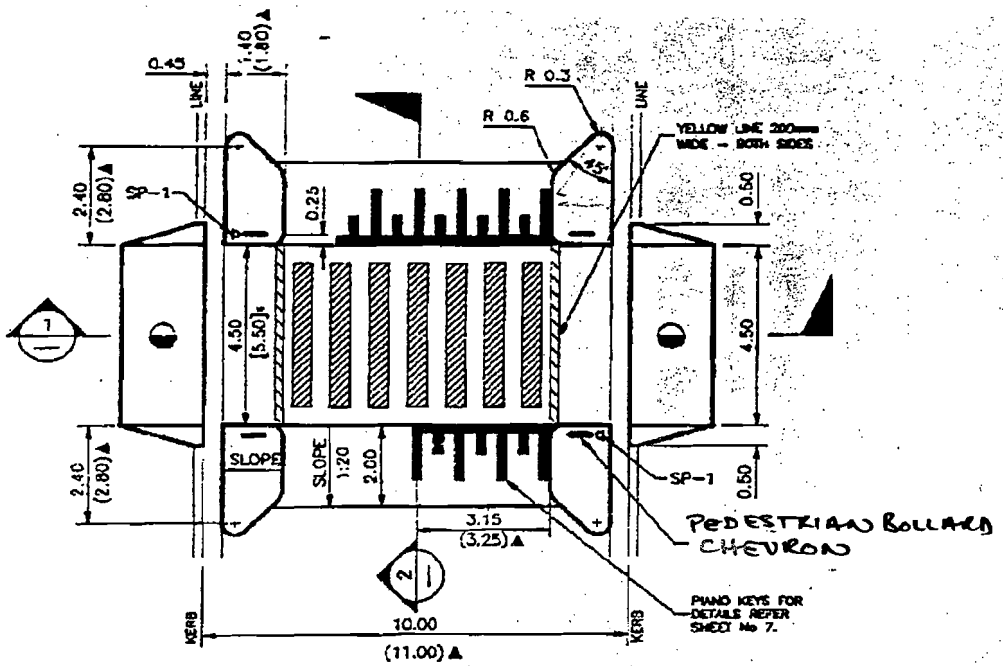
1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH WYONG SHIRE COUNCIL ENGINEERING REQUIREMENTS FOR DEVELOPMENTS.
2. ALL EXPOSED CONCRETE EDGES TO BE ROUNDED TO A 5mm RADIUS.
3. ALL DOWELS TO BE EFFECTIVELY DEBONDED AS SPECIFIED.
4. SAWCUTS TO BE CARRIED OUT AT A TIME TO ENSURE CRACKS ARE INDUCED AT THE JOINT LOCATIONS AND TO MINIMISE SPALLING.
   UNPLANNED CRACKS IN SLABS WILL RENDER THEM UNACCEPTABLE.
5. PROVIDE APPROVED CURING COMPOUND TO FINISHED CONCRETE SURFACE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
6. REFER TO STEEL REINFORCING FABRIC TABLE.
7. ALL DOWELS TO BE PLACED CENTRALLY.
8. CONCRETE THICKNESS SUBJECT TO GEOTECHNICAL INVESTIGATION/DESIGN & COUNCIL APPROVAL
9. THESE STANDARDS ARE TO BE READ IN CONJUNCTION WITH THE "CEMENT & CONCRETE ASSOCIATION OF AUSTRALIA". CONCRETE STREET & PARKING AREA PAVEMENT DESIGN & (TN 50) "OUTLINE GUIDE FOR CONSTRUCTION OF CONCRETE ROAD PAVEMENTS".
10. ALL DIMENSIONS IN MILLIMETRES U.N.O.
11. MINIMUM COMPRESSIVE STRENGTH (FC) TO BE 30MPa AT 28 DAYS.
12. PAVEMENT EDGE THICKENING WILL GENERALLY BE REQUIRED WHERE NO KERBING IS PROPOSED.
13. LATERAL SUBSOIL LINES WILL BE REQUIRED AT THE INTERFACE OF FLEXIBLE AND RIGID PAVEMENTS IN ADDITION TO COUNCIL'S STANDARD REQUIREMENTS.
14. WHERE LONGITUDINAL GRADES WARRANT OR THE PROTECTION OF ADJACENT PAVEMENTS OR STRUCTURES IS NECESSARY, SLAB ANCHORS WILL BE PROVIDED.

Hawkesbury City Council

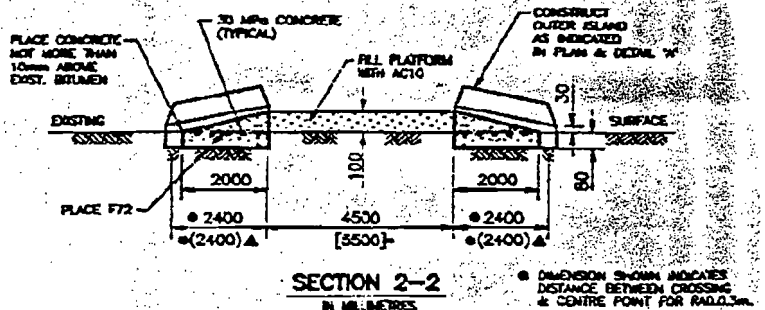
CONCRETE JOINT & LAYOUT DETAILS FOR ACCESSWAYS & THRESHOLDS

SCALE : NTS

DRAWING No. : SD9 SHEET 3 OF 3

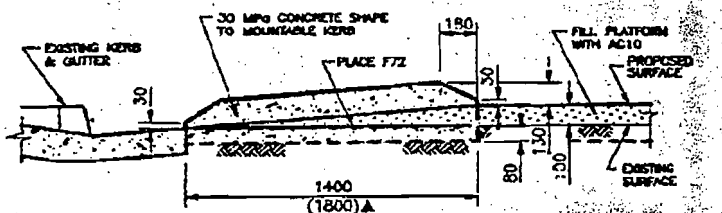


PLAN
IN METRES



SECTION 2–2
IN MILLIMETRES

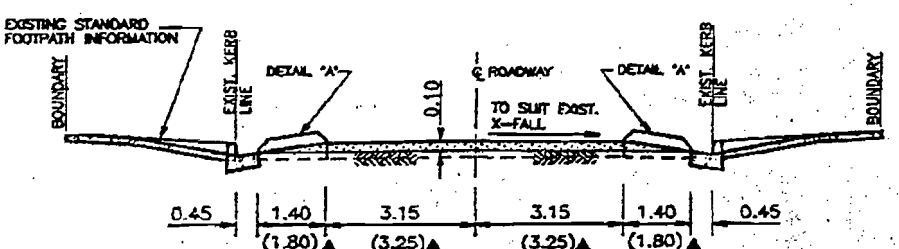
• DIMENSION SHOWN INDICATES DISTANCE BETWEEN CROSSING & CENTRE POINT FOR RAD 0.3m.



DETAIL 'A'
IN MILLIMETRES

(..)▲ DENOTES DIMENSIONS FOR 11m WIDE ROADWAY.

[..]• DENOTES WIDENED PLATFORM FOR BUS ROUTES ONLY.



SECTION 1–1
IN METRES

NOTES:

1. ALL ISLANDS TO BE PAINTED WHITE (THERMO PLASTIC OR SIMILAR).
2. PEDESTRIAN CROSSWALK MARKINGS & PIANO KEYS TO BE PAINTED WHITE (THERMO PLASTIC OR SIMILAR).
3. ALL OUTER ISLANDS TO HAVE PEDESTRIAN BOLLARD CHEVRONS AS INDICATED ON PLAN.
4. CONSTRUCT 4.5 m WIDE PRAM RAMP TO SUIT. PREFERRED SLOPE 1:14 & MIN. SLOPE 1:12 AS PER SD12 SHEET No. 3
5. FOR REGIONAL ROADS REFER TO RTA GUIDELINES FOR HEIGHT DETAILS & ADJUST THRESHOLD APPROACH RAMP TO SUIT.

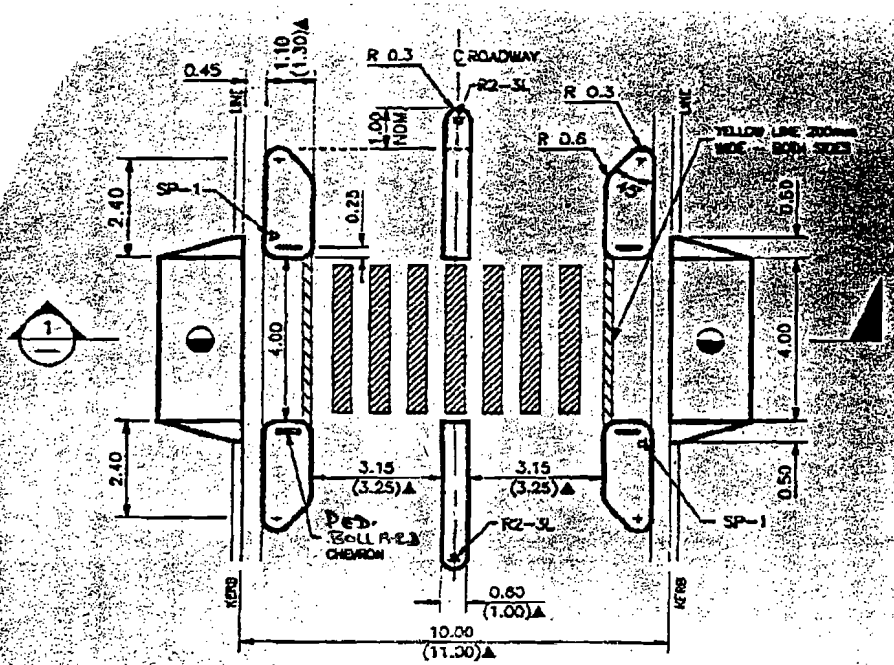
SCALE: NTS

Hawkesbury City Council

WOMBAT CROSSING.- 10m TO 11m WIDE CARRIAGEWAY

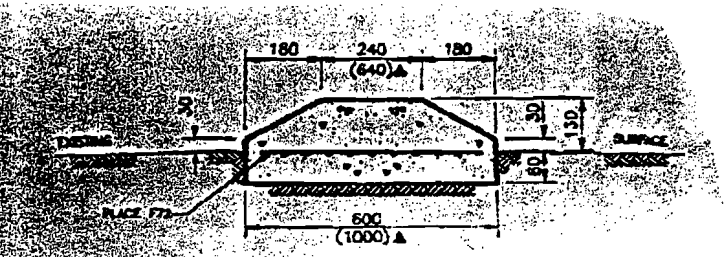
RAISE THRESHOLD – WITHOUT CENTRE ISLAND.

DRAWING No. : SD10 SHEET 1 OF 2.



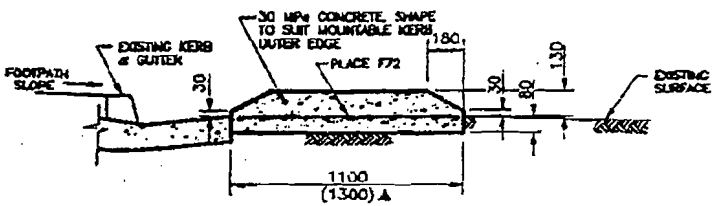
PLAN

IN METRES



DETAIL 'B'

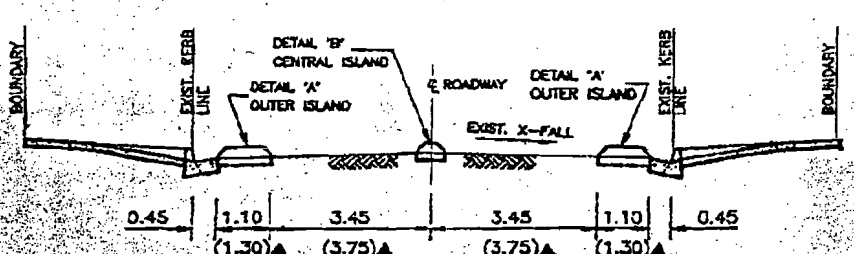
IN MILLIMETRES



DETAIL 'A'

IN MILLIMETRES

(..)▲ DENOTES DIMENSIONS FOR A 11m WIDE ROADWAY.



SECTION 1–1

IN METRES

NOTES:

1. ALL ISLANDS TO BE PAINTED WHITE (THERMO PLASTIC OR SIMILAR).
2. PEDESTRIAN CROSSWALK MARKINGS TO BE PAINTED WHITE (THERMO PLASTIC OR SIMILAR).
3. ALL OUTER ISLANDS TO HAVE PEDESTRIAN BOLLARD CHEVRONS AS INDICATED ON PLAN.
4. PLACE "KEEP LEFT" SIGNS ON BOTH APPROACHES IN CENTRE ISLAND.
5. CONSTRUCT 4.0 m WIDE PRAM RAMP TO SUIT. PREFERRED SLOPE 1:14 & MIN. SLOPE 1:12 AS PER SD 12 SHEET No.3

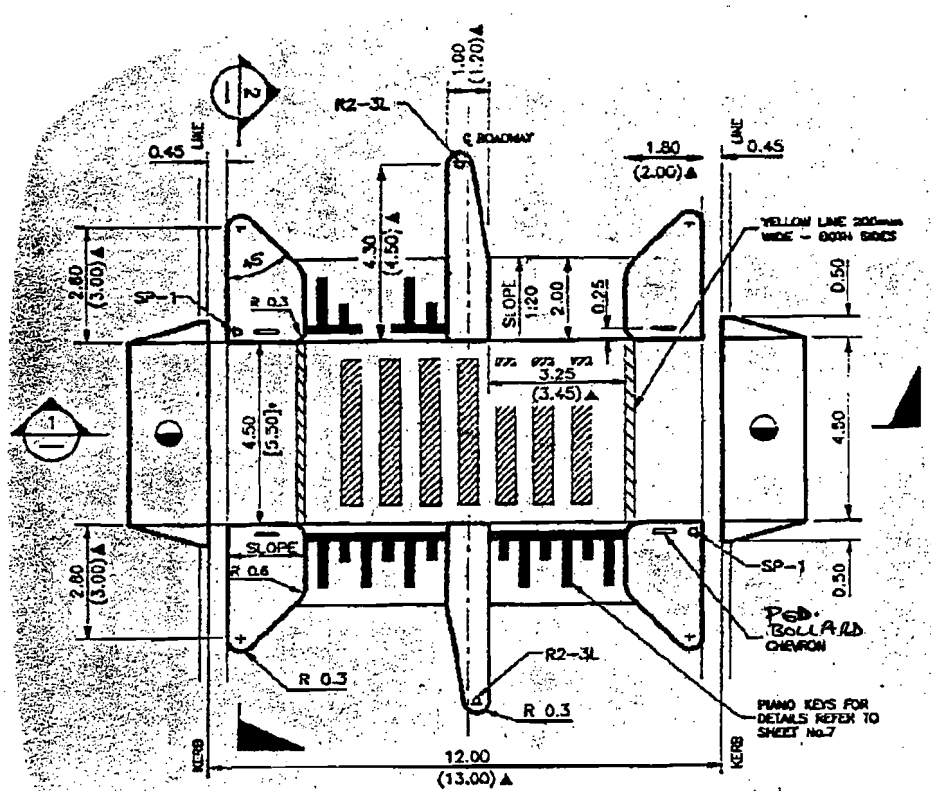
SCALE: NTS.

Hawkesbury City Council

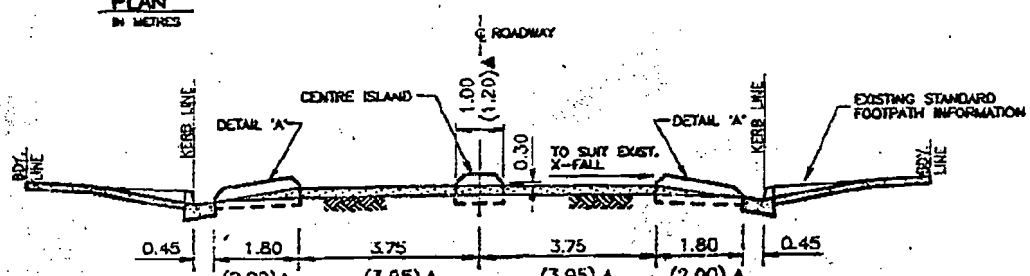
WOMBAT CROSSING - 10m TO 11m WIDE CARRIAGEWAY.

FLUSH THRESHOLD - WITH CENTRE ISLAND

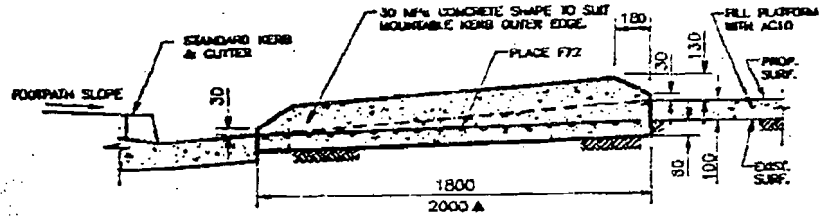
DRAWING No. : SD10 SHEET 2 OF 2



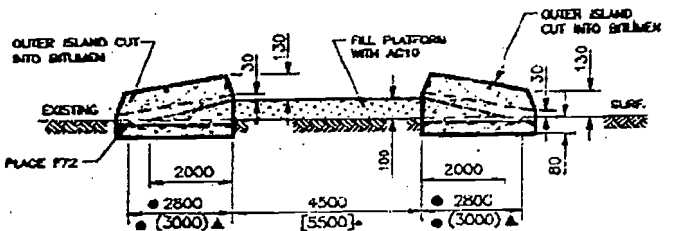
PLAN
IN METRES



SECTION 1-1
IN METRES



DETAIL 'A'
IN MILLIMETRES



SECTION 2-2
IN MILLIMETRES

• DIMENSION SHOWN INDICATES DISTANCE BETWEEN CROSSING & CENTRE POINT FOR RADIUS 0.3m.

(..)▲ DENOTES DIMENSIONS FOR A 13m WIDE CARRIAGEWAY.

[..]• DENOTES WIDENED PLATFORM & PRAM RAMP FOR BUS ROUTES ONLY.

NOTES:

1. ALL ISLANDS TO BE PAINTED WHITE (THERMO PLASTIC OR SIMILAR).
2. PEDESTRIAN CROSSWALK MARKINGS & PIANO KEYS TO BE PAINTED WHITE. (THERMO PLASTIC OR SIMILAR).
3. ALL OUTER ISLANDS TO HAVE PEDESTRIAN BOLLARD CHEVRONS AS INDICATED ON PLAN.
4. PLACE 'KEEP LEFT' SIGNS ON BOTH APPROACHES IN CENTRE ISLAND.
5. CONSTRUCT 4.5 m WIDE PRAM RAMP TO SUIT. PREFERRED SLOPE 1:14 & MIN. SLOPE 1:12 AS PER SD12 SHEET NO. 3
6. FOR REGIONAL ROADS REFER TO RTA GUIDELINES FOR HEIGHT DETAILS & ADJUST THRESHOLD APPROACH RAMP TO SUIT.
7. ROADS WIDER THAN 13m REQUIRE SPECIAL TREATMENT TO SUIT SITE CONDITIONS.

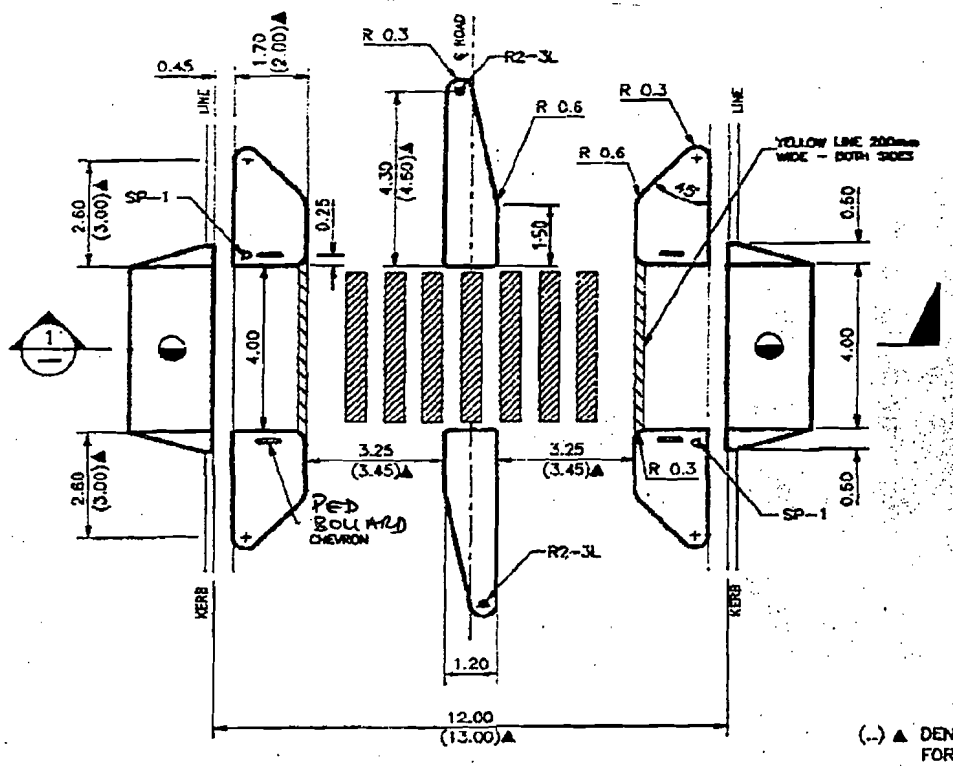
SCALE : NTS

Hawkesbury City Council

WOMBAT CROSSING - 12m TO 13m WIDE CARRIAGEWAY

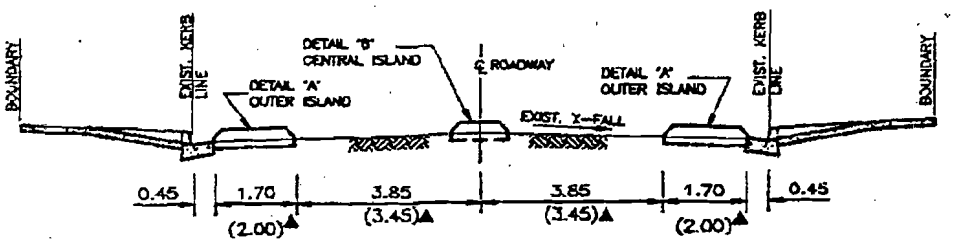
RAIS > THRESHOLD - WITH CENTRE ISLAND

DRAWING No. : SD11 SHEET 1 OF 2

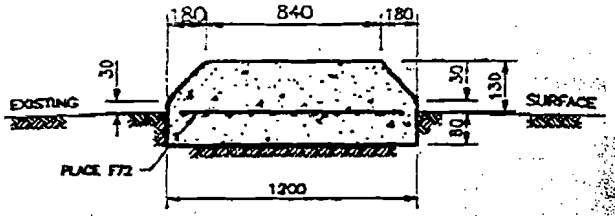


PLAN
IN METRES

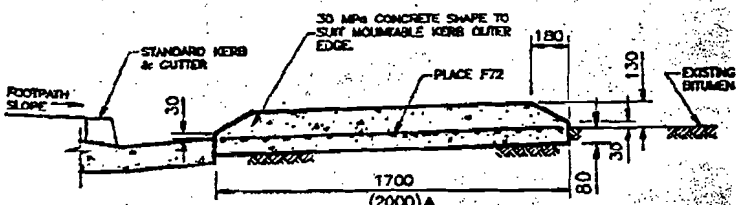
(..)▲ DENOTES DIMENSIONS FOR A 13m WIDE CARRIAGEWAY.



SECTION 1–1
IN METRES



DETAIL 'B'
IN MILLIMETRES



DETAIL 'A'
IN MILLIMETRES

NOTES:

1. ALL ISLANDS TO BE PAINTED WHITE (THERMO PLASTIC OR SIMILAR).
2. PEDESTRIAN CROSSWALK MARKINGS TO BE PAINTED WHITE (THERMO PLASTIC OR SIMILAR).
3. ALL OUTER ISLANDS TO HAVE PEDESTRIAN BOUNDARY CHEVRONS AS INDICATED ON PLAN.
4. PLACE 'KEEP LEFT' SIGNS ON BOTH APPROACHES IN CENTRE ISLAND.
5. CONSTRUCT 4.0 m WIDE PRAM RAMP TO SUIT. PREFERRED SLOPE 1:14 & MIN. SLOPE 1:12 AS PER SHEET No.3

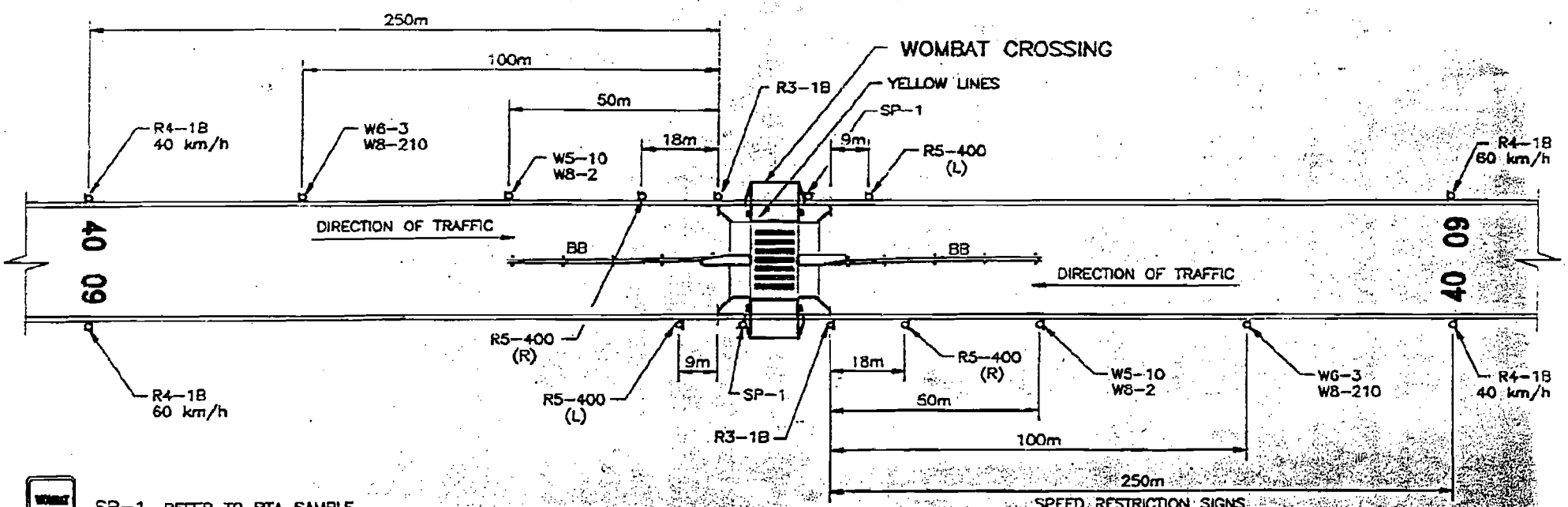
SCALE: NTS

Hawkesbury City Council

WOMBAT CROSSING - 12m TO 13m WIDE CARRIAGEWAY

FLUSH THRESHOLD - WITH CENTRE ISLAND

DRAWING No. : SD11 SHEET 2 OF 2.



SP-1 REFER TO RTA SAMPLE – FRIENDLY WOMBAT SIGN.

R5-400 (R)

W5-10

W6-3

R4-1B
60 km/h

R5-400 (L)

W8-2

R3-1B

W8-210

R4-1B
40 km/h

NOTES:

1. PROVIDE R.P.M. ON BB LINES AT 12m SPACING.
2. ALL ISLANDS TO BE PAINTED WHITE IN THERMO PLASTIC OR SIMILAR.
3. BB LINES AND 40kph/60kph ZONE PAVEMENT MARKINGS TO BE PAINTED WHITE IN THERMO PLASTIC OR SIMILAR.
4. WHERE NO CENTRAL MEDIAN ISLAND IS REQUIRED, BB LINES TO BE ADJUSTED TO SUIT.
5. BOLLARD CHEVRONS TO BE PLACED ON ALL FOUR OUTER ISLANDS. REFER SD12 SHEET 2 & 3
6. ALL SIGNS POST TO BE HELD IN POSITION WITH LOCK-SOCKET

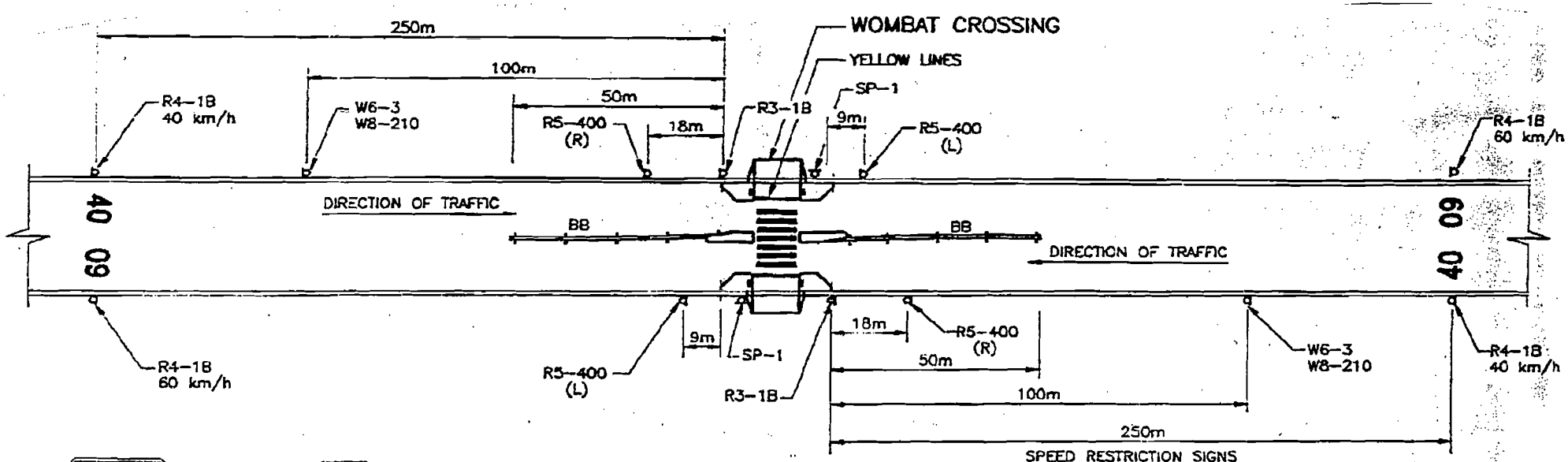
SCALE: NTS

Hawkesbury City Council

WOMBAT CROSSING – ALL ROADS.- RAISED THRESHOLD

SIC POSTING AND LINEMARKING

DRAWING No. : SD 12 SHEET 1 OF 3



W8-210

SP-1 REFER TO FCC STD. S 220
FRIENDLY WOMBAT SIGN. (TO RTA SAMPLE)

R5-400 (R)

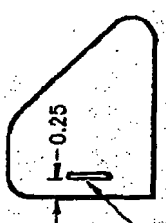
R5-400 (L)

R4-1B
40 km/h

R4-1B
60 km/h

W6-3

R3-1B



NOTES:

1. PROVIDE R.P.M. ON BB LINES AT 12m SPACING.
2. ALL ISLANDS TO BE PAINTED WHITE IN THERMO PLASTIC OR SIMILAR.
3. BB LINES AND 40kph/60kph ZONE PAVEMENT MARKINGS TO BE PAINTED WHITE IN THERMO PLASTIC OR SIMILAR.
4. WHERE NO CENTRAL MEDIAN ISLAND IS REQUIRED, BB LINES TO BE ADJUSTED TO SUIT.
5. PEDESTRIAN BOLLARD CHEVRONS TO BE PLACED ON ALL FOUR OUTER ISLANDS AS INDICATED ON THIS DRAWING. FOR DETAILS REFER SD 12 SHEET 3.
6. ALL SIGN POSTS TO BE HELD IN POSITION WITH LOCK - SOCKET

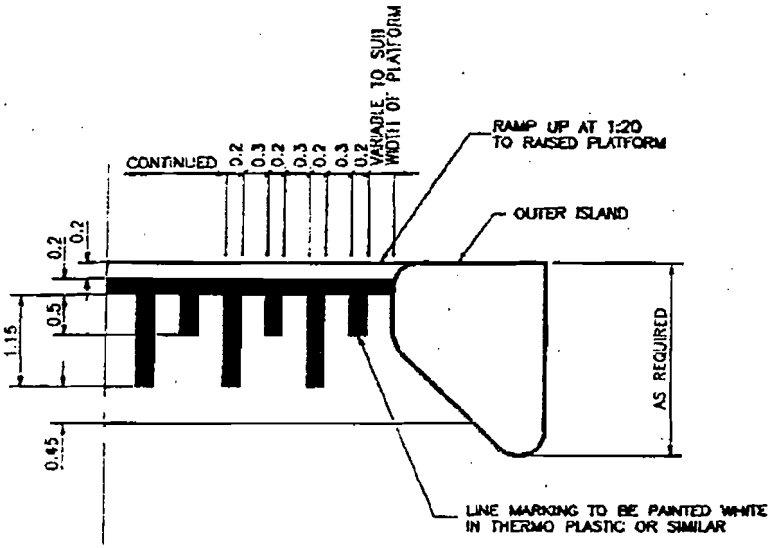
SCALE : NTS

Hawkesbury City Council

WOMBAT CROSSING - ALL ROADS - FLUSH THRESHOLD

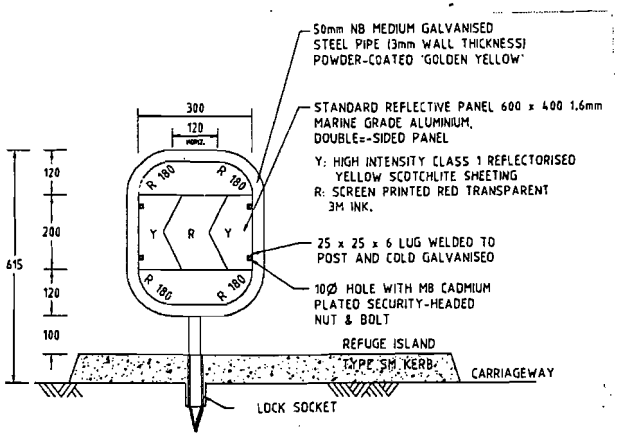
SIGNPOSTING AND LINEMARKING.

DRAWING No. : SD 12 SHEET 2 OF 3



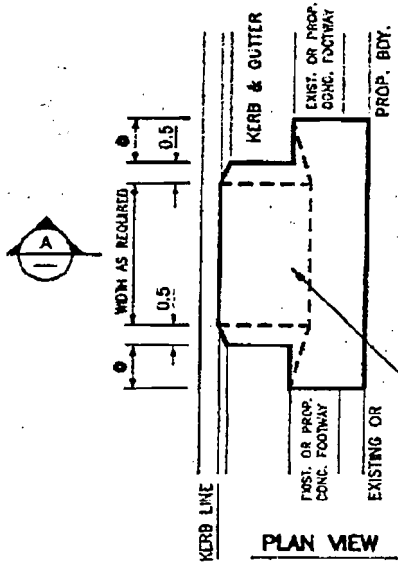
PIANO KEY MARKING DETAILS

IN METRES

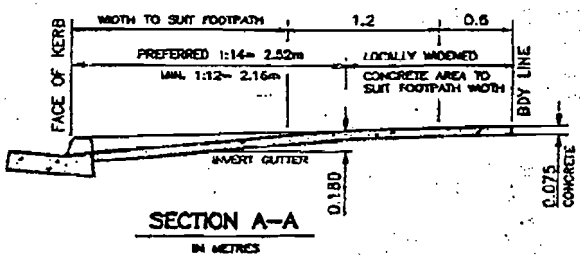


PEDESTRIAN BOLLARD

AS PER (PEDBA-HAWCO R-Y)



PLAN VIEW



SECTION A–A

IN METRES

TYPICAL PRAM RAMP DETAIL

NOTES:

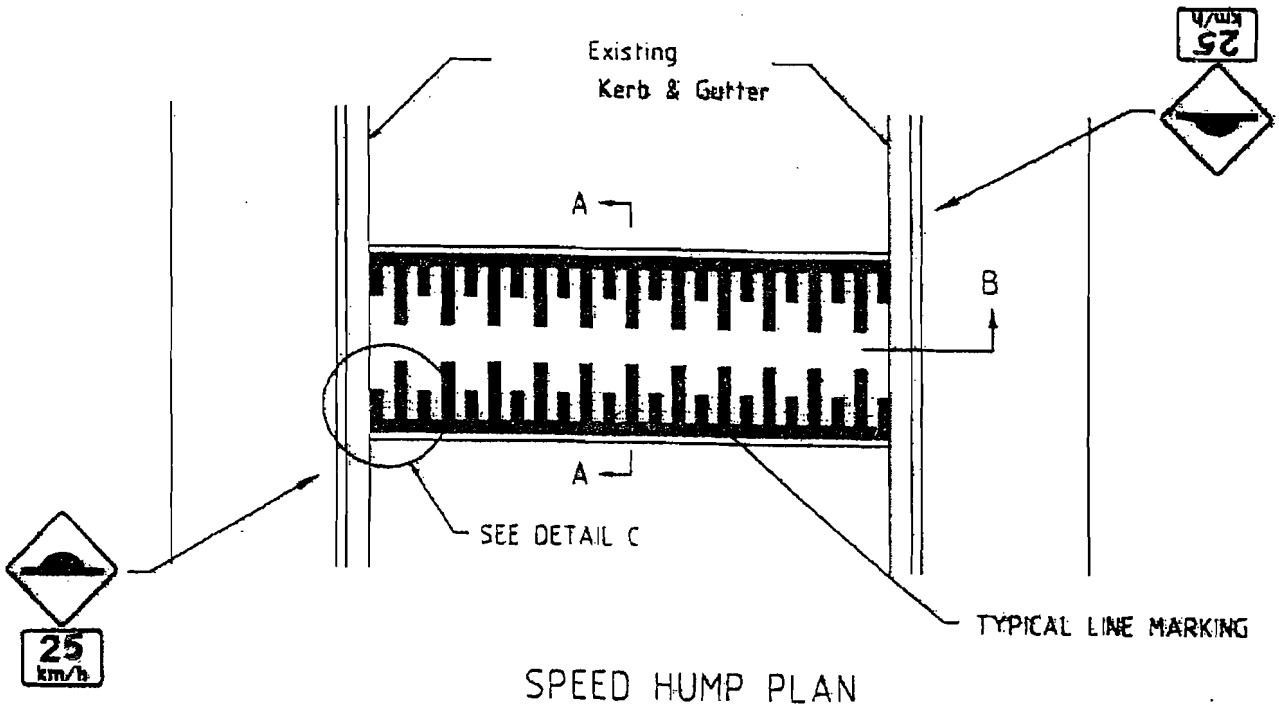
1. HIGH & LOW LYING EXISTING FOOTPATH FORMATIONS REQUIRE SPECIAL TREATMENT & DESIGN CONSIDERATION. MAINTAIN THE BASIC MIN. REQUIREMENT OF RAMP SLOPE 1:12.
2. EVERY CROSSING SHOULD HAVE AT LEAST 10m TO 15m OF FORMALISED FOOTPATH FORMATION ON EITHER SIDE OF CROSSING.

Hawkesbury City Council

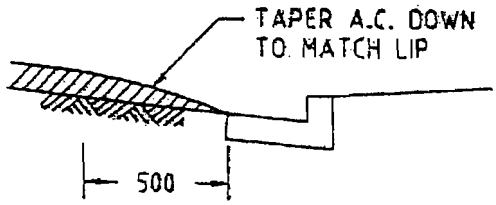
WOMBAT CROSSING - ALL ROADS - SPECIAL DETAILS

SCALE : NTS

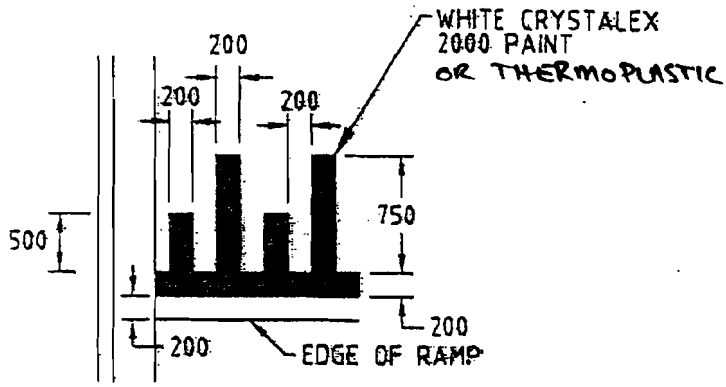
DRAWING No. : SD 12 SHEET 3 OF 3



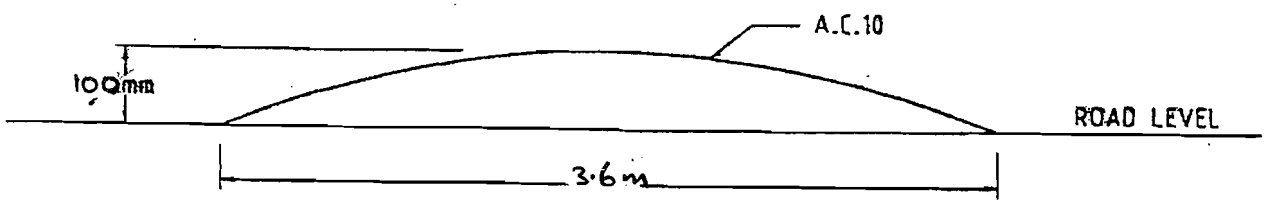
SPEED HUMP PLAN



SECTION B



DETAIL C



SECTION A-A

CROSS SECTION OF SPEED HUMPS

NOTES

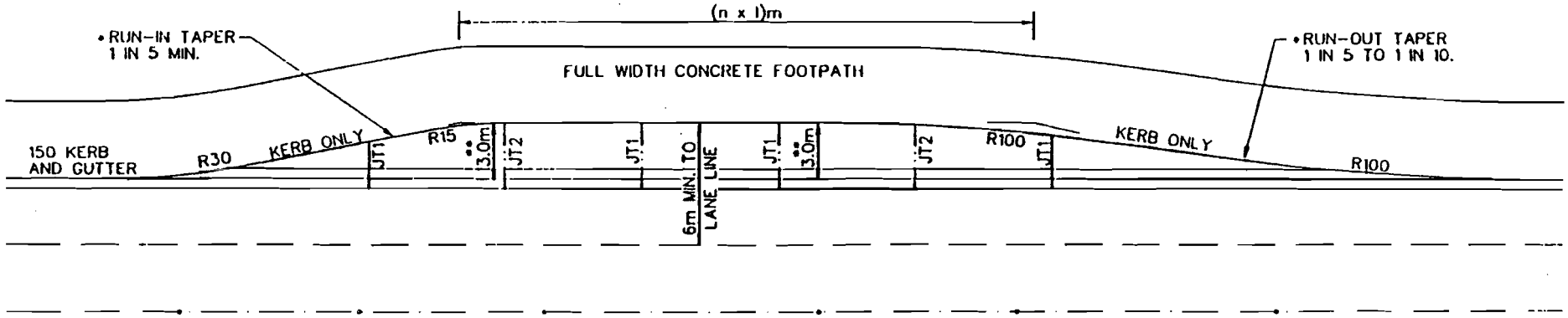
1. W5 - 10 (600 * 600)
2. The outside edges of the speed humps are located by drillholes on the top of kerb.

SCALE: NTS

Hawkesbury City Council

TYPICAL SPEED HUMP PROFILE (WATTS PROFILE)

DRAWING No. : SD 13

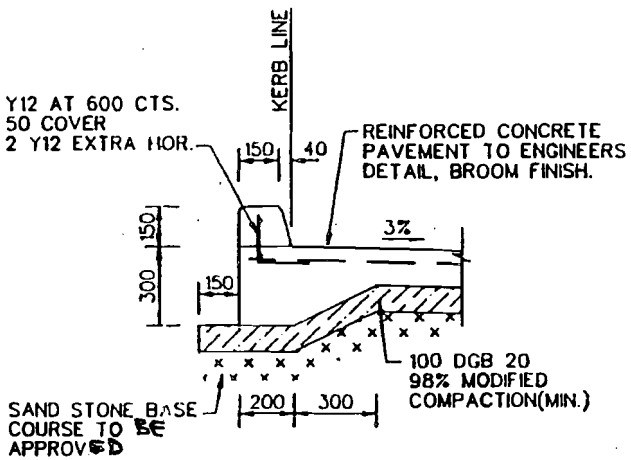


PLAN

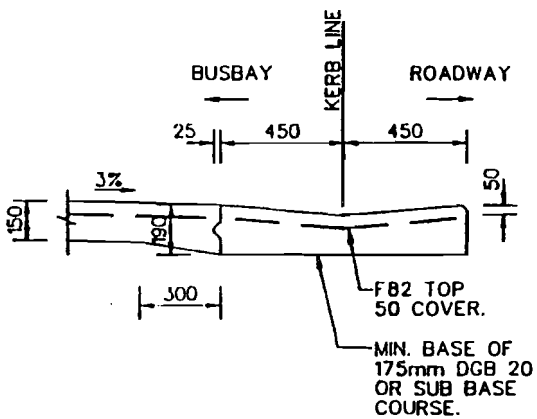
NOTE:
• RUN-IN AND RUN-OUT TAPERS MAY NEED TO BE VARIED ACCORDING TO SITE CONDITIONS, TRAFFIC SPEED AND VOLUME ETC.
RUN-IN TAPERS SHOULD NOT BE LESS THAN 1 IN 5.
RUN-OUT TAPERS SHOULD BE AS LONG AS PRACTICABLE.

•• WIDTH (INCLUDING CLEARANCES) MAY NEED TO BE INCREASED WHERE LARGE/WIDE BUSES ARE INVOLVED.

n = NUMBER OF BUSES USING THE STOP SIMULTANEOUSLY.
l = LENGTH OF BUS (INCLIDING CLEARANCES IF DESIRED).

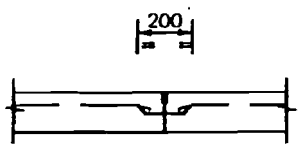


INTEGRAL STD. 150 KERB DETAIL



JOINT TYPE 3 (JT3) AND DISH DRAIN

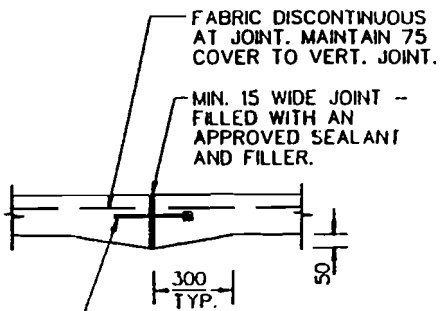
ISOLATION JOINT – EDGE THICKENING



FORMED KEY JOINT WITH REMOVEABLE PVC EDGE MOULDING – FABRIC DISCONTINUOUS AT JOINT.
OR
3mm WIDE SAWCUT JOINT 40mm DEEP – FILLED WITH AN APPROVED SEALANT. SAWCUT TO BE MADE WITHIN 24 HOURS OR INITIAL SET. EVERY SECOND WIRE TO BE CUT AND REMOVED, REMAINDED TO BE DRAPED TO PROVIDE MIN. 50 COVER TO SAW CUT.

JOINT TYPE 1 (JT1)

SAW CUT / FORMED JOINT



JOINT TYPE 2 (JT2)

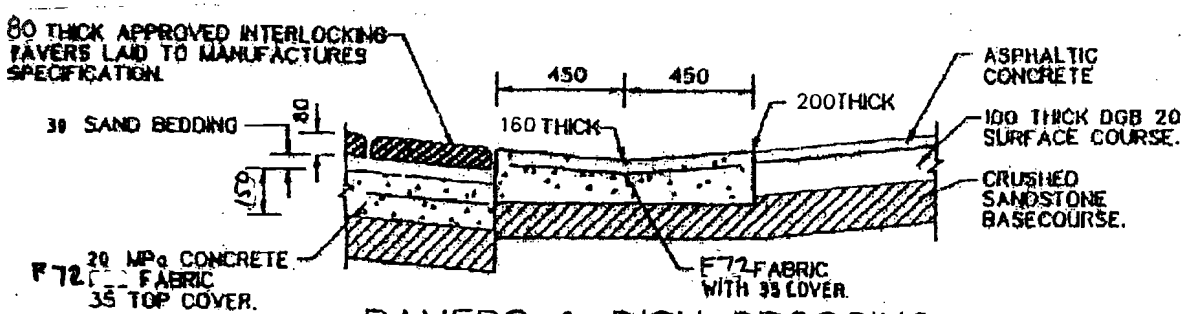
EXPANSION JOINT

Hawkesbury City Council

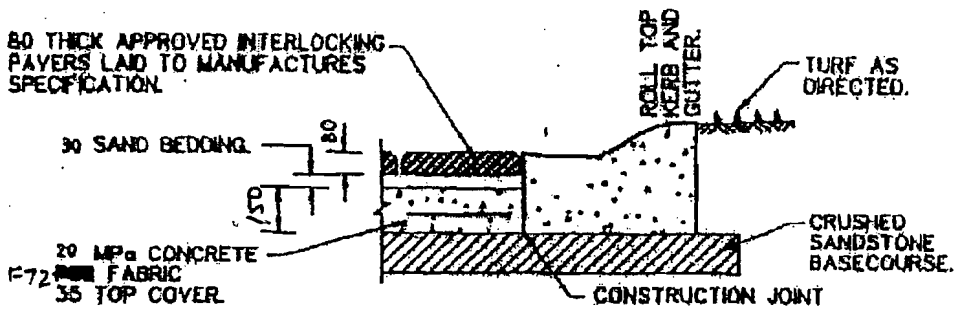
TYPICAL INDENTED BUS BAY DETAIL

SCALE : NTS

DRAWING No. : SD 14

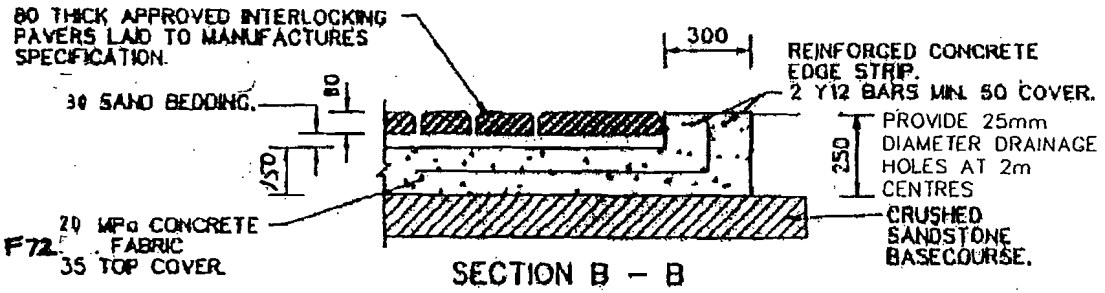


PAVERS & DISH CROSSING



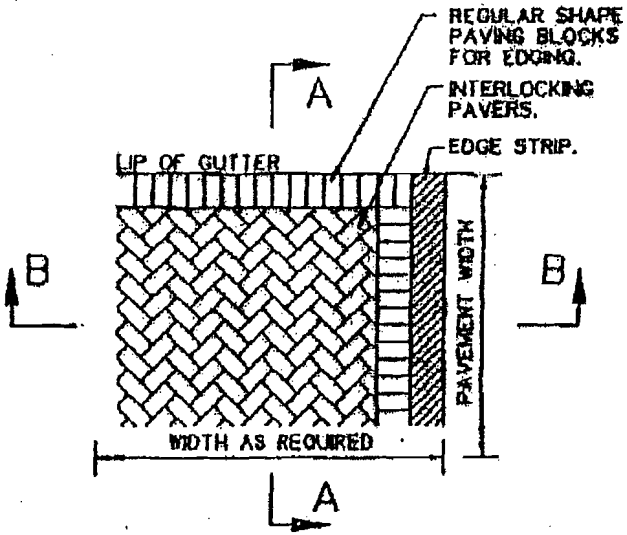
SECTION A – A

PAVERS & ROLL KERB DETAIL



SECTION B – B

PAVERS & EDGE STRIP DETAIL AT THRESHOLD



TYPICAL PAVING PLAN

NOTES.

1. COMPRESSIVE STRENGTH (Fc) FOR CAST INSITU CONCRETE SHALL BE A MINIMUM 20 MPa AT 28 DAYS.
2. REINFORCEMENT SHALL BE F72 TOP AND BOTTOM WHERE INDICATED AND COLD DRAWN BARS TO RELEVANT AUSTRALIAN STANDARD.
3. PAVERS SHALL BE 80mm THICK INTERLOCKING TYPE OF APPROVED MANUFACTURE AND SHALL BE LAID IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS ON A MINIMUM 30mm APPROVED SAND BEDDING.
4. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.

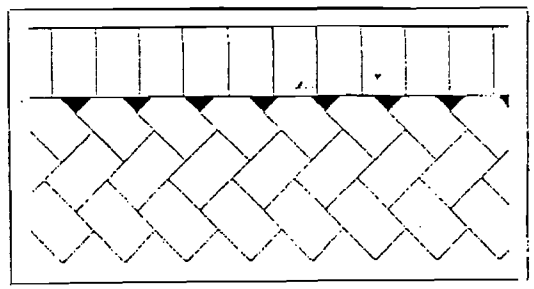
Hawkesbury City Council

SEGMENTAL PAVING FOR ROADS

SCALE : NTS

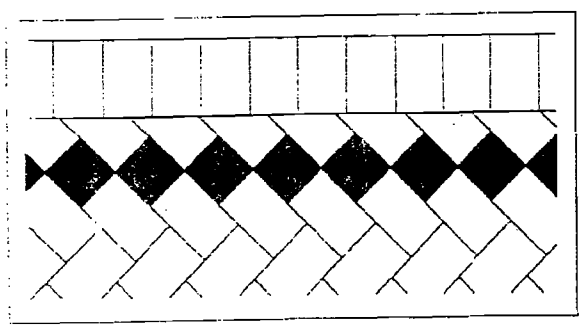
DRAWING No. : SD15 SHEET 1 OF 2

Figure 1 Trimming to avoid small edge infill pieces

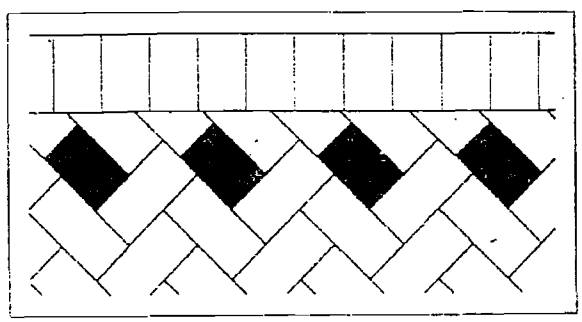


Small edge pieces not permitted

Figure 2



Recommended insertion of pavers cut to half length.



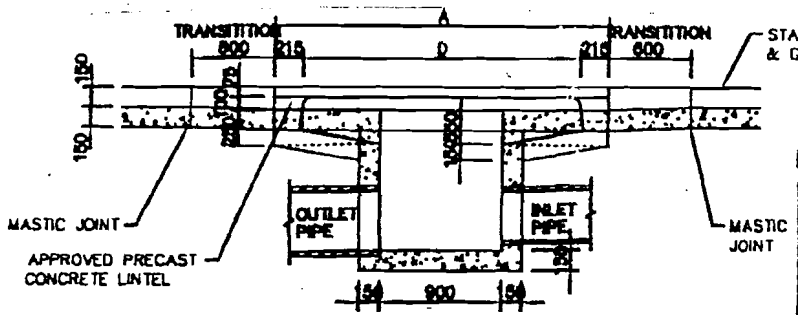
Alternative recommendation; insertion of pavers cut to three quarter length.

Hawkesbury City Council

SEGMENTAL PAVING FOR ROADS

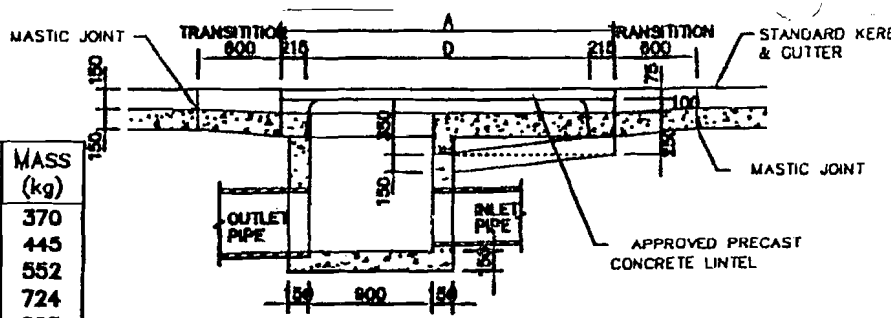
SCALE : NTS

DRAWING No. : SD15 SHEET 2 OF 2

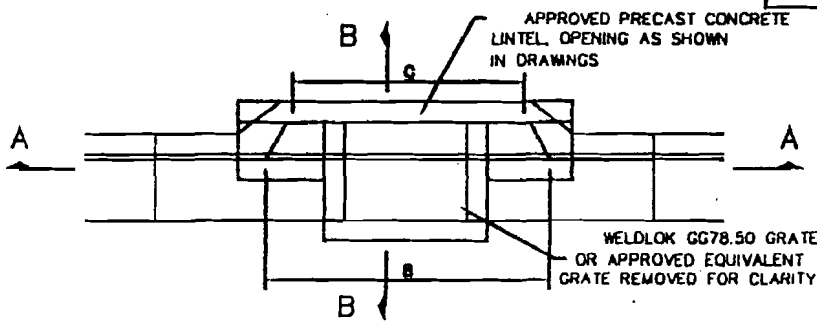


SECTION A – A

NOMINAL OPENING	A (mm)	B (mm)	C (mm)	D (mm)	MASS (kg)
1.2	1825	1460	1180	1365	370
1.8	2438	2083	1778	2007	445
2.4	3048	2692	2390	2615	552
3.0	3657	3302	3000	3226	724
3.6	4267	3912	3610	3835	823
4.2	4877	4521	4220	4445	904
4.8	5486	5130	4830	5055	998

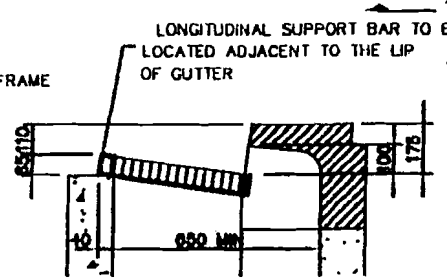


SECTION C – C

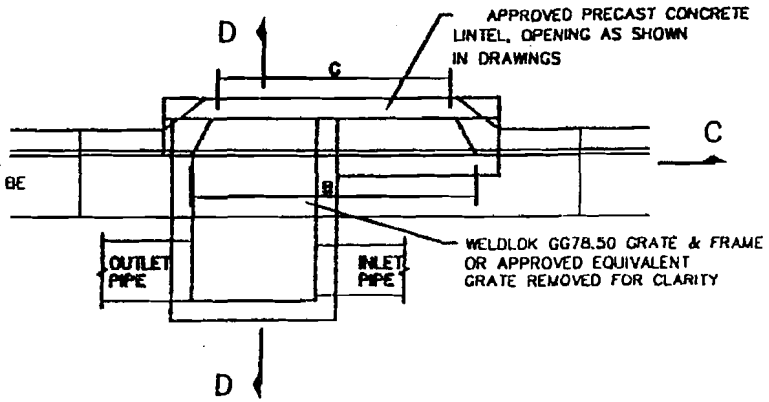


PLAN – TYPE 1

(TO BE USED AT SAG POINTS)

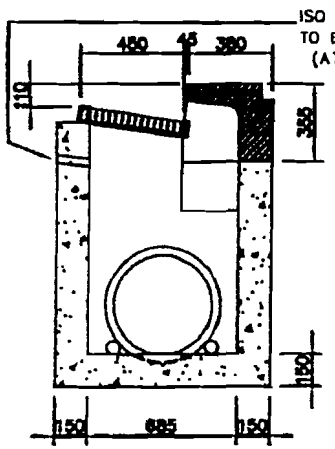


GRATING DETAIL

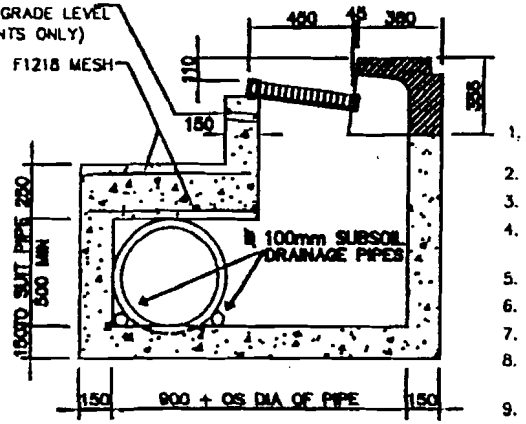


PLAN – TYPE 2

(TO BE USED ON GRADE)



SECTION B – B



SECTION D – D

NOTES :

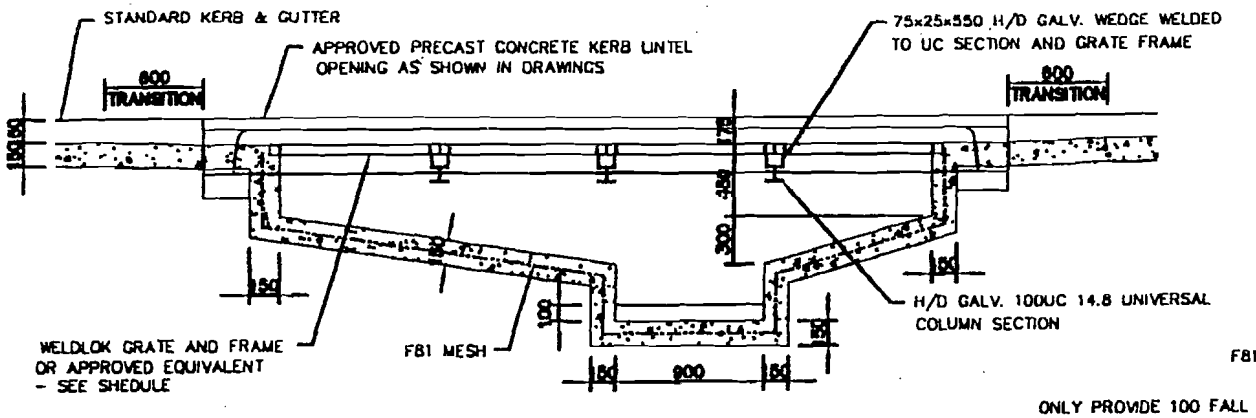
1. WHERE DEPTH EXCEEDS 1200mm PROVIDE APPROVED 24mm DIA STEEL STEP IRONS AT 350mm c\c TOP TO BOTTOM OF PIT SEE SD41
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF F'c = 20 MPa @ 28 DAYS
3. MINIMUM COVER TO ALL PIPES SHALL BE 600mm UNDER ROADS AND 450mm ELSEWHERE, UNLESS OTHERWISE SPECIFIED
4. WHERE THE INTERNAL WIDTH EXCEEDS 900mm OR DEPTH EXCEEDS 1800mm THE WALLS SHALL BE REINFORCED IN ACCORDANCE WITH SD 35.
5. MINIMUM COVER TO REINFORCEMENT SHALL BE 40mm
6. ALL STEEL REINFORCEMENT SHALL COMPLY WITH AS 1302 AND AS 1304
7. F1218 MESH CAN BE REPLACED WITH F81 MESH WITH Y16 BARS @ 200 c\c
8. 100mm DIA SUB SOIL DRAINAGE PIPE, 3.0m LONG AND WRAPPED IN A FILTER SOCK, SHALL BE PROVIDED ON THE UPSTREAM FACE OF THE PIT AND SHALL BE CONNECTED AT INLET PIPE INVERT LEVEL AND CLEAR OF ANY BENCHING. 2x100mm DIA SUB SOIL FOR PIPES GREATER THAN DIAMETER 525mm
9. THE GRATE FRAME SHALL BE INSTALLED WITH THE LONGITUDINAL SUPPORT BAR ADJACENT TO THE LIP OF THE GUTTER
10. DO NOT SCALE FROM THIS DRAWING

Hawkesbury City Council

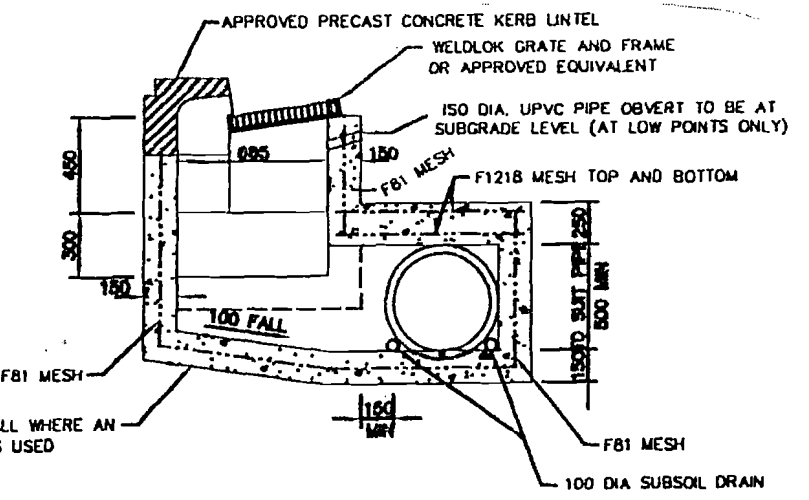
STANDARD GRATED GULLY PIT

SCALE : NTS

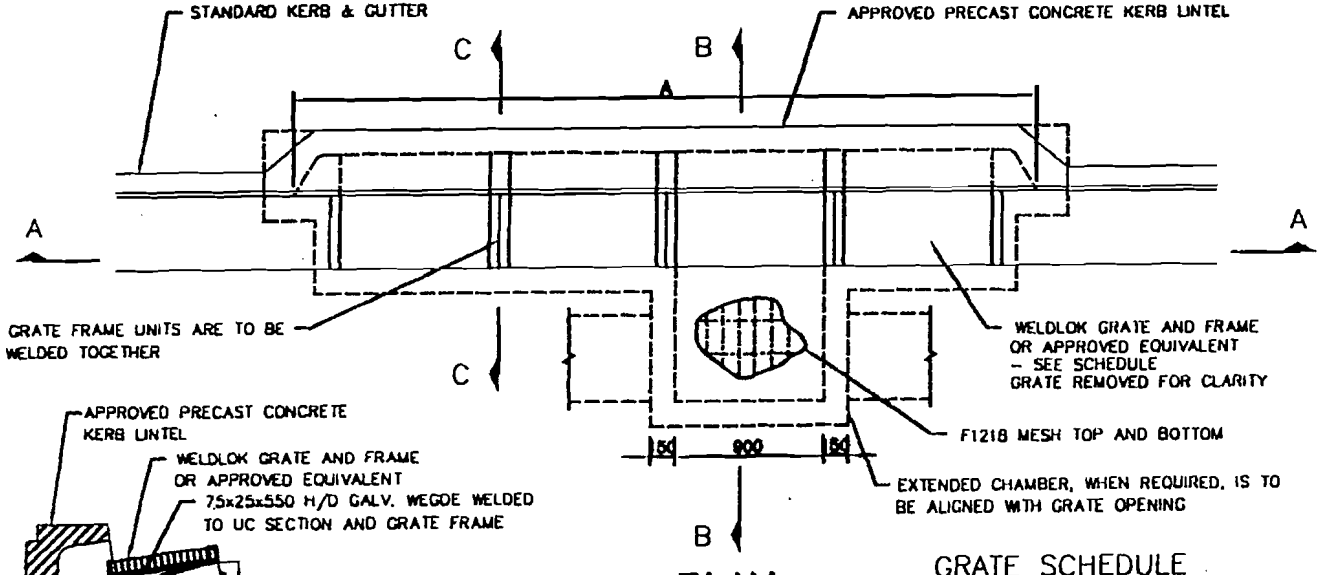
DRAWING No. : SD 30 SHEET 1 OF 3



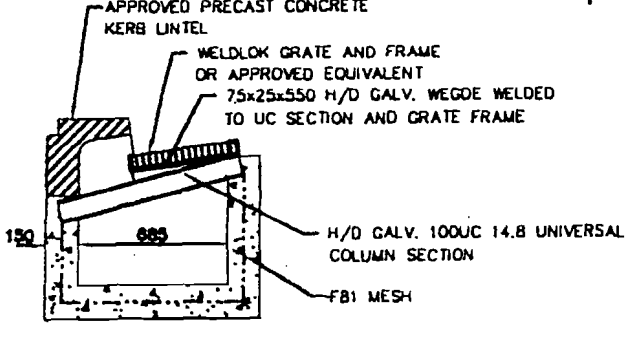
SECTION A – A



SECTION B – B



PLAN



SECTION C – C

GRATE SCHEDULE

NOMINAL OPENING	'A' (mm)	No. OF GRATE UNITS	
		GG78.60	GG78.49
3.0	3300	3	–
3.6	3910	–	4
4.2	4520	4	–
4.8	5130	3	2
5.4	5740	5	–

NOTES :

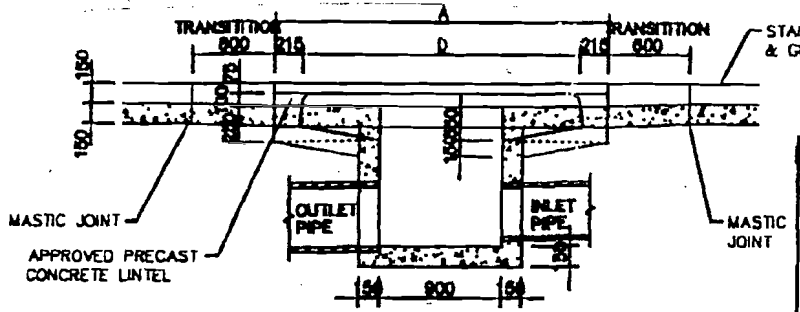
1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF F'c = 20 MPa @ 28 DAYS
2. ALL STEEL REINFORCEMENT SHALL COMPLY WITH AS 1302 AND AS 1304
3. MINIMUM COVER TO REINFORCEMENT SHALL BE 40mm
4. ALL STEELWORK FABRICATION SHALL BE STRICTLY IN ACCORDANCE WITH AS 4100 AND AS 1554
5. WELDS, UNLESS OTHERWISE NOTED, SHALL BE 6mm CONTINUOUS FILLET AND SHALL BE PROTECTED WITH AN APPROVED COLD GALVANISED PAINT
6. ALL STEELWORK SHALL BE HOT DIPPED GALVANISED (H/D GALV.) AFTER FABRICATION. ANY SURFACE SUBSEQUENTLY DAMAGED SHALL BE PROTECTED WITH AN APPROVED COLD GALVANISED PAINT
7. 100mm DIAMETER SUB SOIL DRAINAGE PIPE, 3.0m LONG AND WRAPPED IN A FILTER SOCK, SHALL BE PROVIDED ON THE UPSTREAM FACE OF THE PIT AND SHALL BE CONNECTED AT INLET PIPE INVERT LEVEL AND CLEAR OF ANY BENCHING. 2×100 mm DIA SUBSOIL FOR PIPES GREATER THAN 525mm.
8. WHERE THE DEPTH OF THE PIT EXCEEDS 1200mm PROVIDE 24mm DIAMETER HOT DIPPED GALVANISED STEEL STEP IRONS AT 350mm c\c FROM TOP TO BOTTOM OF PIT. SEE SD 41
9. F1218 MESH CAN BE REPLACED WITH F81 MESH WITH Y16 BARS @ 200 c\c
10. ~~THE GRATE FRAMES SHALL BE INSTALLED WITH THE LONGITUDINAL SUPPORT BAR ADJACENT TO THE LIP OF THE GUTTER~~
11. DO NOT SCALE FROM THIS DRAWING

Hawkesbury City Council

STANDARD GRATED GULLY PIT : (MULTI GRATED SAG PIT)

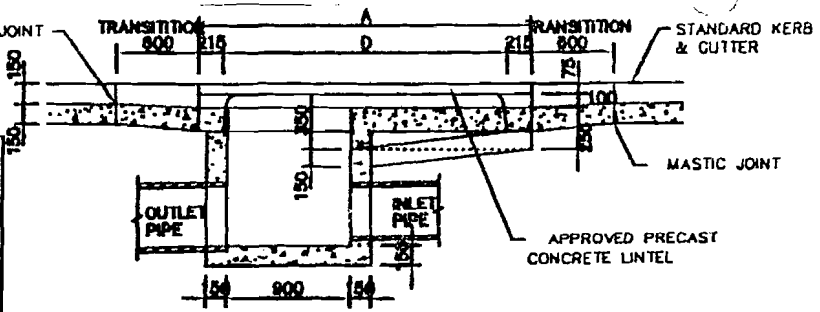
SCALE : NTS

DRAWING No. : SD 30 SHEET 2 OF 3

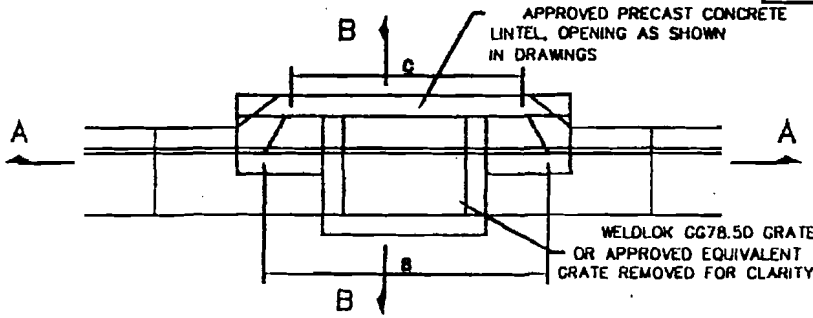


SECTION A – A

NOMINAL OPENING	A (mm)	B (mm)	C (mm)	D (mm)	MASS (kg)
1.2	1825	1460	1180	1365	370
1.8	2438	2083	1778	2007	445
2.4	3048	2692	2390	2615	552
3.0	3657	3302	3000	3226	724
3.6	4267	3912	3610	3835	823
4.2	4877	4521	4220	4445	904
4.8	5486	5130	4830	5055	996

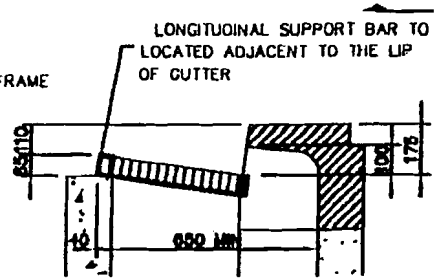


SECTION C – C

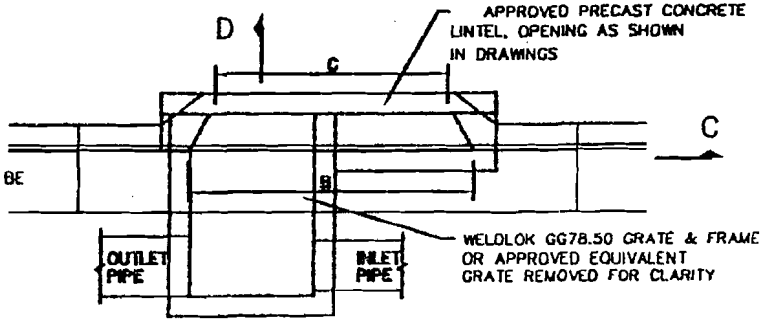


PLAN – TYPE 1

(TO BE USED AT SAG POINTS)

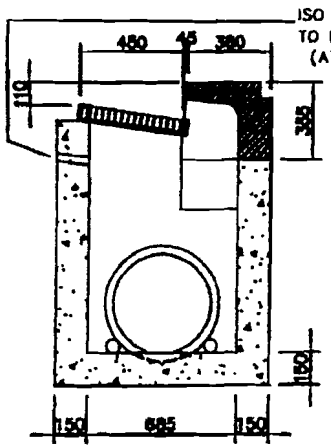


GRATING DETAIL

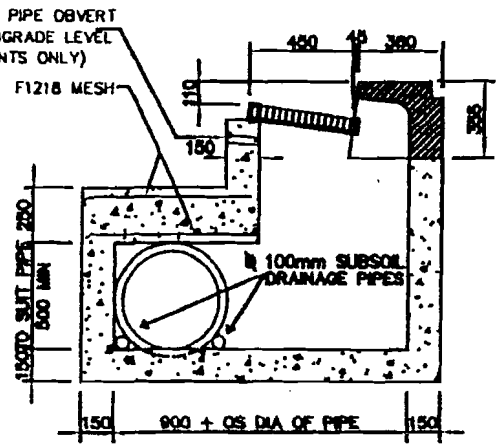


PLAN – TYPE 2

(TO BE USED ON GRADE)



SECTION B – B



SECTION D – D

NOTES :

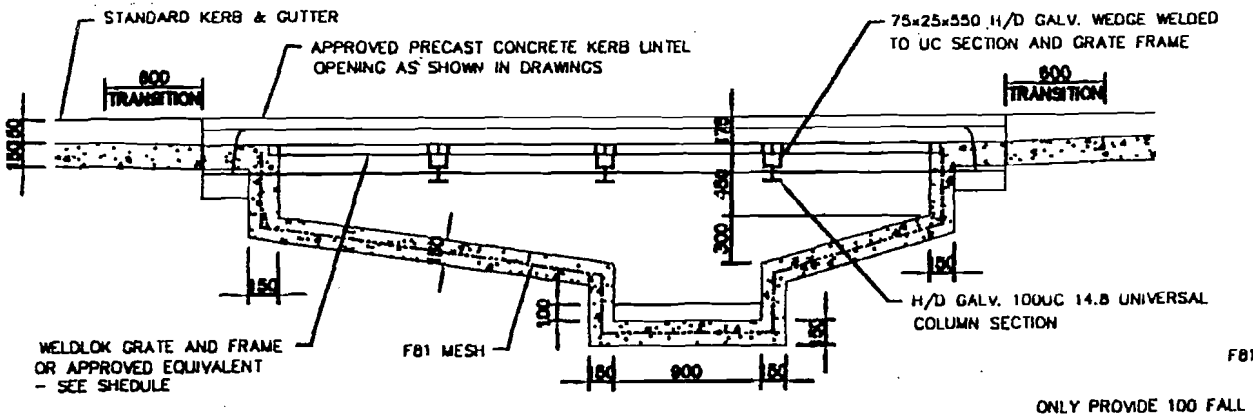
1. WHERE DEPTH EXCEEDS 1200mm PROVIDE APPROVED 24mm DIA STEEL STEP IRONS AT 350mm c\c TOP TO BOTTOM OF PIT See SD41
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF F'c = 20 MPa @ 28 DAYS
3. MINIMUM COVER TO ALL PIPES SHALL BE 600mm UNDER ROADS AND 450mm ELSEWHERE, UNLESS OTHERWISE SPECIFIED
4. WHERE THE INTERNAL WIDTH EXCEEDS 900mm OR DEPTH EXCEEDS 1800mm THE WALLS SHALL BE REINFORCED IN ACCORDANCE WITH SD 35.
5. MINIMUM COVER TO REINFORCEMENT SHALL BE 40mm
6. ALL STEEL REINFORCEMENT SHALL COMPLY WITH AS 1302 AND AS 1304
7. F1218 MESH CAN BE REPLACED WITH F81 MESH WITH Y16 BARS @ 200 c\c
8. 100mm DIA SUB SOIL DRAINAGE PIPE, 3.0m LONG AND WRAPPED IN A FILTER SOCK, SHALL BE PROVIDED ON THE UPSTREAM FACE OF THE PIT AND SHALL BE CONNECTED AT INLET PIPE INVERT LEVEL AND CLEAR OF ANY BENCHING. 2x100mm DIA SUB SOIL FOR PIPES GREATER THAN DIAMETER 525mm
9. THE GRATE FRAME SHALL BE INSTALLED WITH THE LONGITUDINAL SUPPORT BAR ADJACENT TO THE LIP OF THE GUTTER
10. DO NOT SCALE FROM THIS DRAWING

Hawkesbury City Council

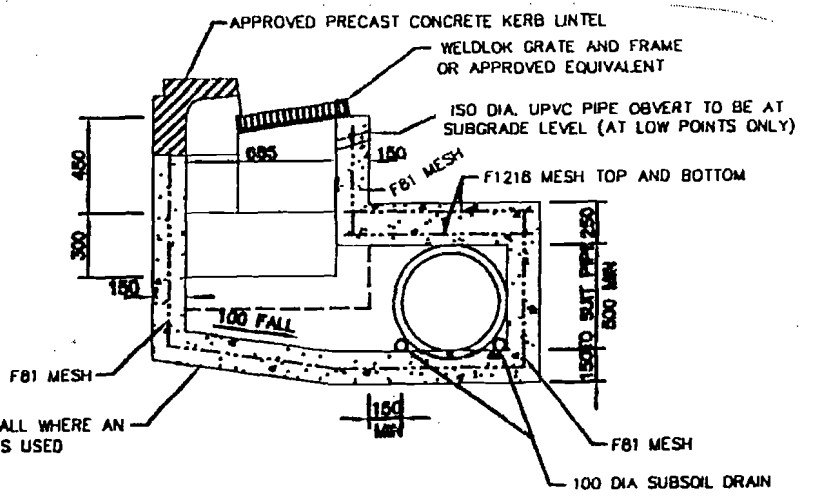
STANDARD GRATED GULLY PIT

SCALE : NTS

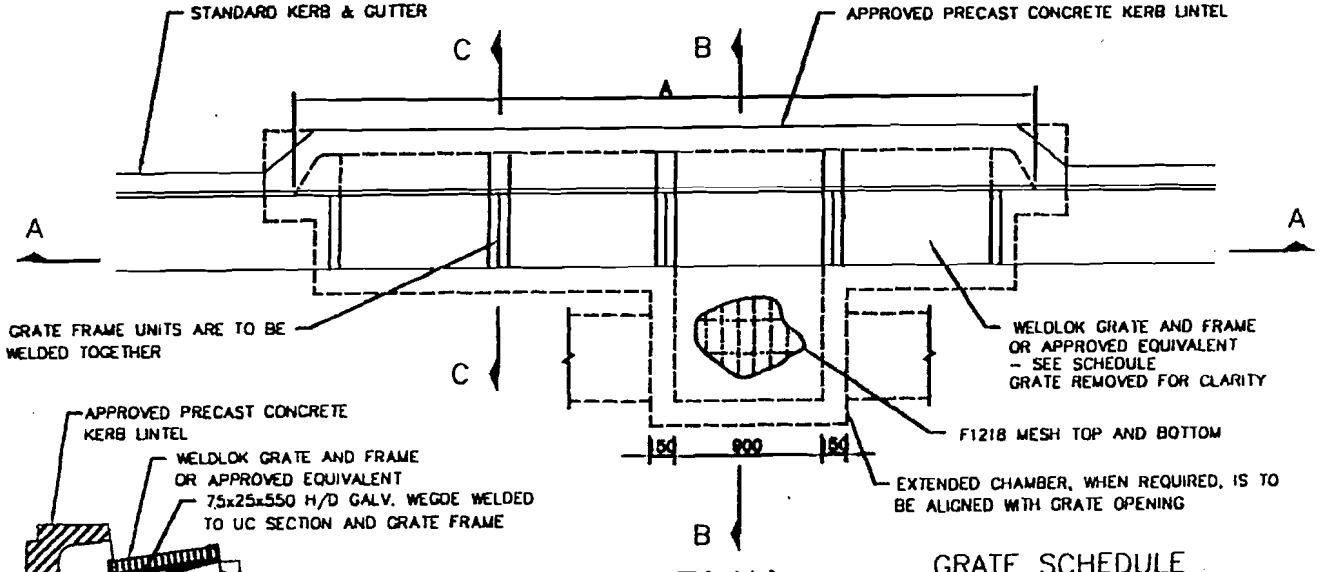
DRAWING No. : SD 30 SHEET 1 OF 3



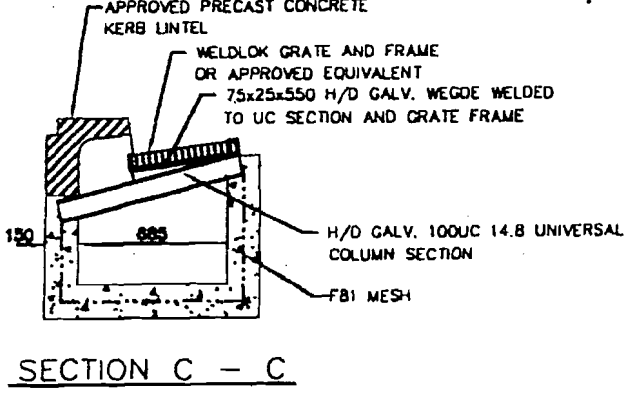
SECTION A – A



SECTION B – B



PLAN



SECTION C – C

NOTES :

1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF F'c = 20 MPa @ 28 DAYS
2. ALL STEEL REINFORCEMENT SHALL COMPLY WITH AS 1302 AND AS 1304
3. MINIMUM COVER TO REINFORCEMENT SHALL BE 40mm
4. ALL STEELWORK FABRICATION SHALL BE STRICTLY IN ACCORDANCE WITH AS 4100 AND AS 1554
5. WELDS, UNLESS OTHERWISE NOTED, SHALL BE 6mm CONTINUOUS FILLET AND SHALL BE PROTECTED WITH AN APPROVED COLD GALVANISED PAINT
6. ALL STEELWORK SHALL BE HOT DIPPED GALVANISED (H/D GALV.) AFTER FABRICATION. ANY SURFACE SUBSEQUENTLY DAMAGED SHALL BE PROTECTED WITH AN APPROVED COLD GALVANISED PAINT
7. 100mm DIAMETER SUB SOIL DRAINAGE PIPE, 3.0m LONG AND WRAPPED IN A FILTER SOCK, SHALL BE PROVIDED ON THE UPSTREAM FACE OF THE PIT AND SHALL BE CONNECTED AT INLET PIPE INVERT LEVEL AND CLEAR OF ANY BENCHING. 2×100 mm DIA SUBSOIL FOR PIPES GREATER THAN 525mm.
8. WHERE THE DEPTH OF THE PIT EXCEEDS 1200mm PROVIDE 24mm DIAMETER HOT DIPPED GALVANISED STEEL STEP IRONS AT 350mm c\c FROM TOP TO BOTTOM OF PIT. SEE SD 41
9. F1218 MESH CAN BE REPLACED WITH F81 MESH WITH Y16 BARS @ 200 c\c
10. ~~THE GRATE FRAMES SHALL BE INSTALLED WITH THE LONGITUDINAL SUPPORT BAR ADJACENT TO THE LIP OF THE GUTTER~~
11. DO NOT SCALE FROM THIS DRAWING

GRATE SCHEDULE

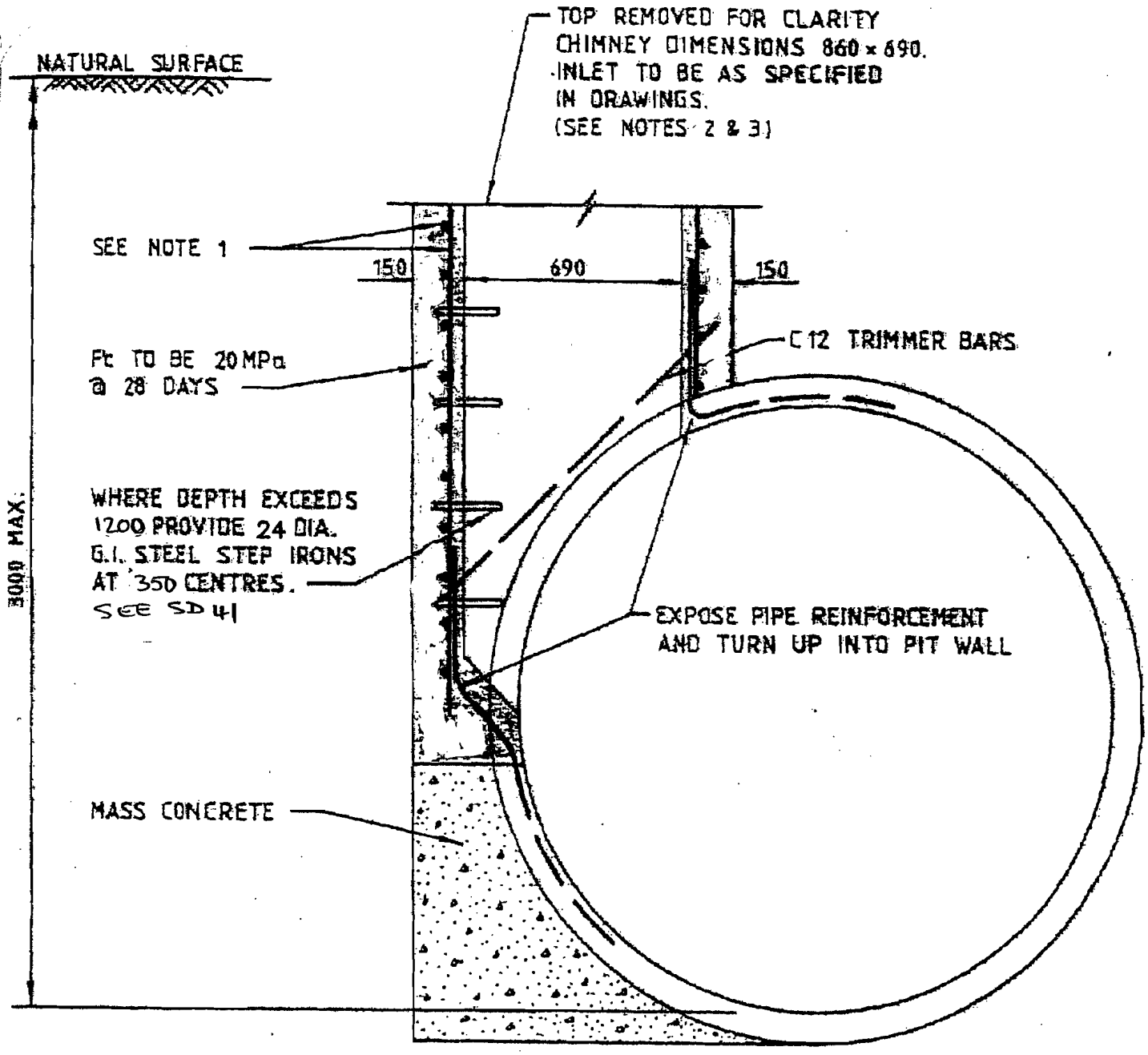
NOMINAL OPENING	'A' (mm)	No. OF GRATE UNITS	
		GG78.50	GG78.49
3.0	3300	3	–
3.6	3910	–	4
4.2	4520	4	–
4.8	5130	3	2
5.4	5740	5	–

Hawkesbury City Council

STANDARD GRATED GULLY PIT : (MULTI GRATED SAG PIT)

SCALE : NTS

DRAWING No. : SD 305 SHEET 2 OF 3



SECTIONAL ELEVATION

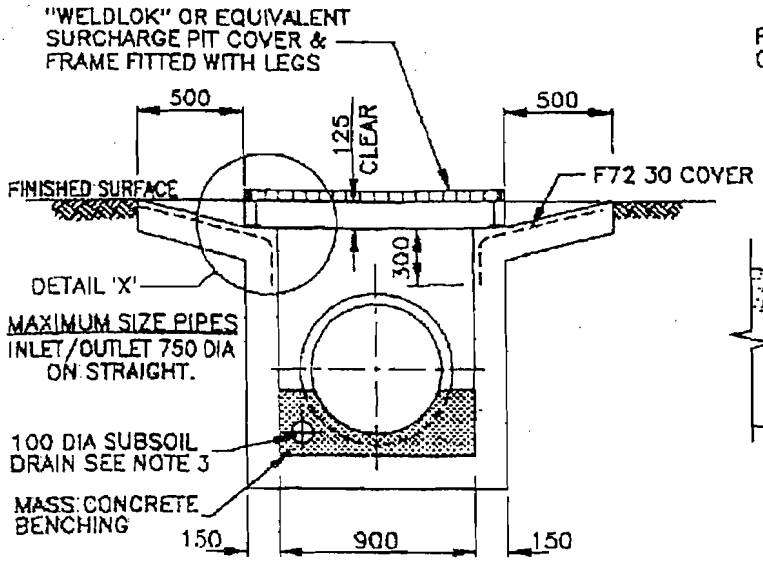
NOTES:
1. FOR DETAILS OF WALL STEEL SEE STANDARD DRAWING SD 35.
2. FOR DETAILS OF KERB INLET SEE STANDARD DRAWING SD 30.
3. WALL THICKNESS IN CHIMNEY SHALL BE ADJUSTED TO SUIT TYPE OF PIT LID.
4. SADDLE PITS SHALL BE CONSTRUCTED ON PIPES OF 1050mm DIA OR GREATER.

SCALE: NTS

Hawkesbury City Council

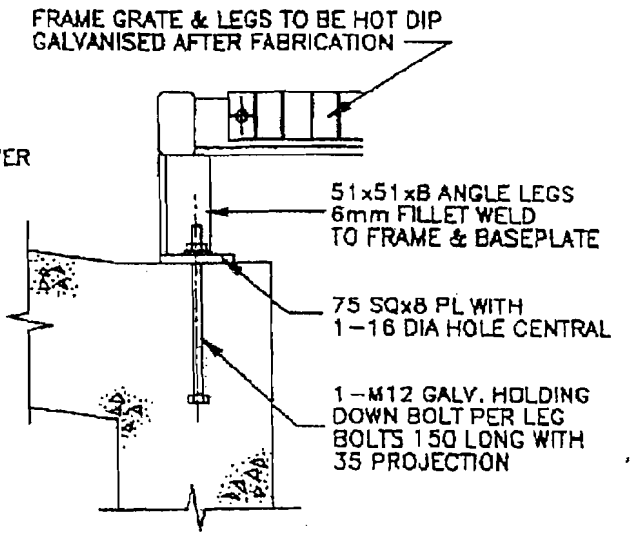
STANDARD GRATED GULLY PIT:
(SADDLE TYPE)

DRAWING No.: SD 30
SHEET 3 OF 3.



SECTION A–A

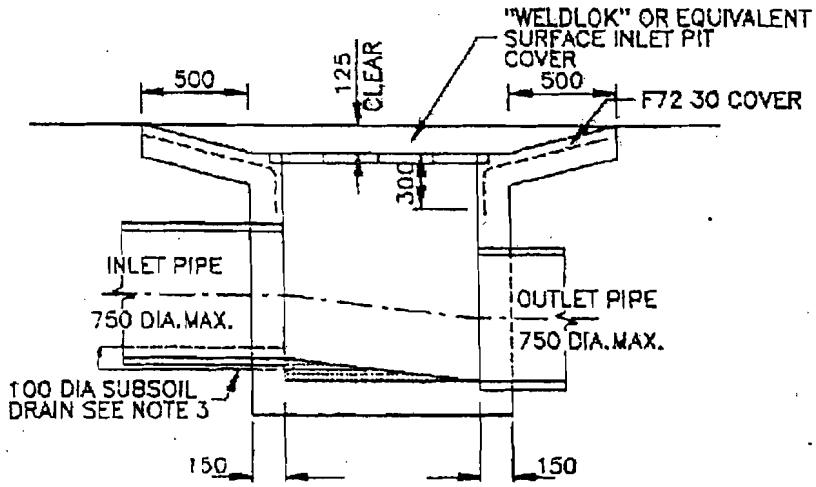
INLET AND SURCHARGE PIT TYPE A



DETAIL 'X'

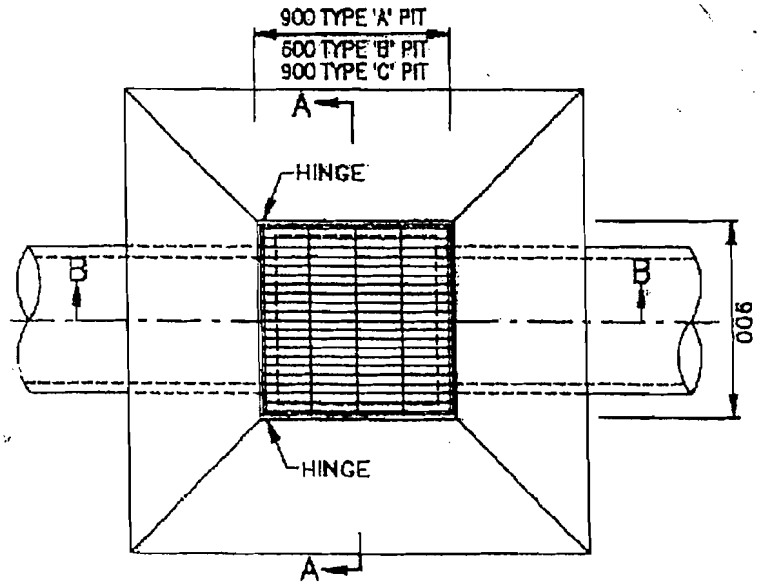
SURCHARGE PITS SIZES TABLE		
PIT	OPENING SIZE	GRATE TYPE
TYPE A	900x900	P.C.9090 B
TYPE B	600x900	P.C.6090 A
TYPE C	900x900	P.C.9090 B

* TYPE A GRATE TO BE FITTED WITH LEGS AS PER DETAIL 'X'



SECTION B–B

SURCHARGE PIT TYPES B & C



PLAN SURCHARGE PITS TYPE A,B & C

NOTES:

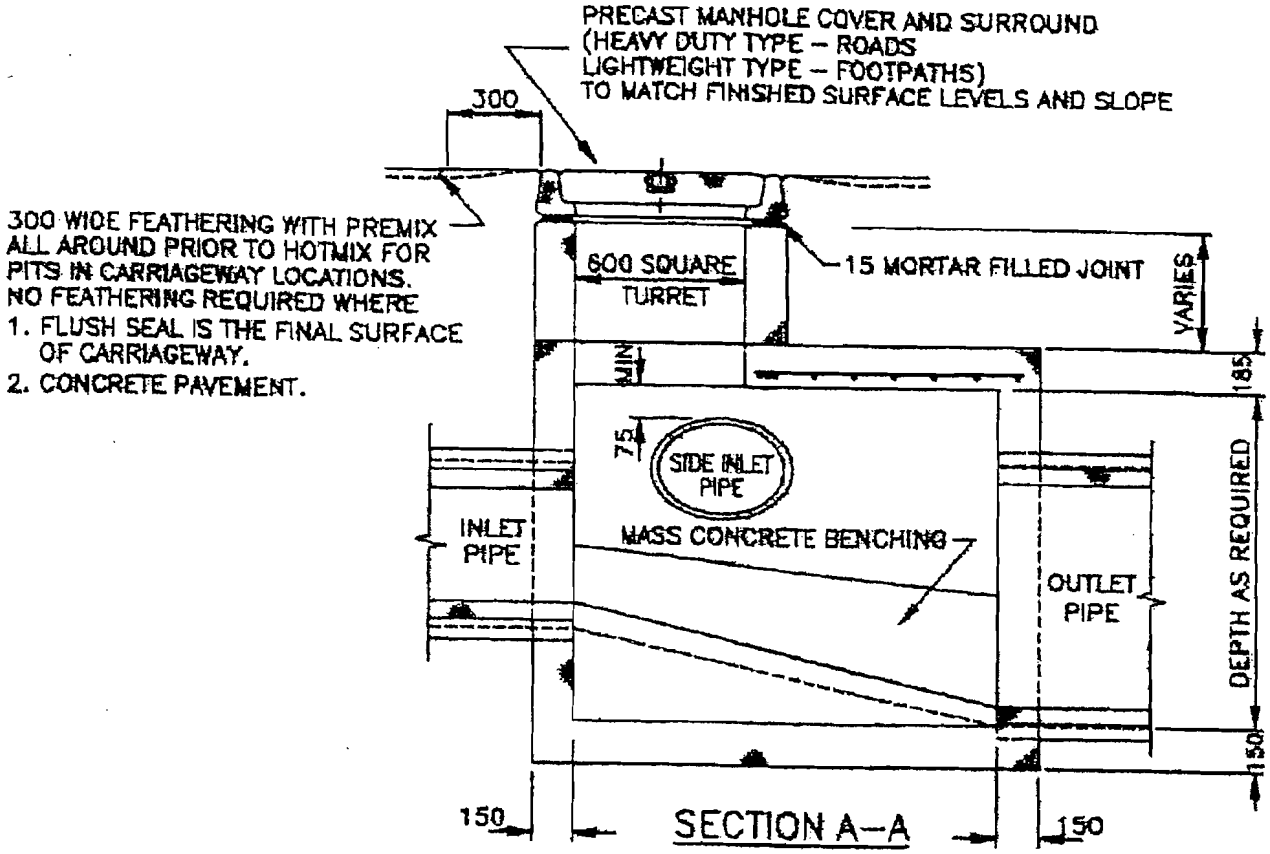
1. COMPRESSIVE STRENGTH (F'c) FOR CAST INSITU CONCRETE SHALL BE A MINIMUM 20 MPa AT 28 DAYS.
2. TOP OF BENCHING SHALL BE 1/2 OF OUTLET PIPE DIAMETER.
3. 100 DIA. SUBSOIL DRAINAGE PIPE 3000 LONG WRAPPED IN FABRIC SOCK SHALL BE PROVIDED ADJACENT TO INLET PIPES.
4. ALL PITS SHALL BE PROVIDED WITH A LOCKING CLIP.
5. PIT GRATE SHALL BE "WELDLOK" GULLY GRATE GG 78–51 OR APPROVED EQUIVALENT. (SKIRTED)
6. DURING INSTALLATION OF GRATE AND FRAME CONTRACTOR IS TO ENSURE CLEARANCE BETWEEN LINTEL AND OPEN GRATE (REFER TO INSTALLATION TOLERANCE)
7. WHERE PITS ARE PROVIDED IN PEDESTRIAN PATHWAYS THE GRATE SHALL BE SUPPLIED WITH A PEDESTRIAN SAFE MESH.
8. ALL DIMENSIONS ARE IN MILLIMETRES.

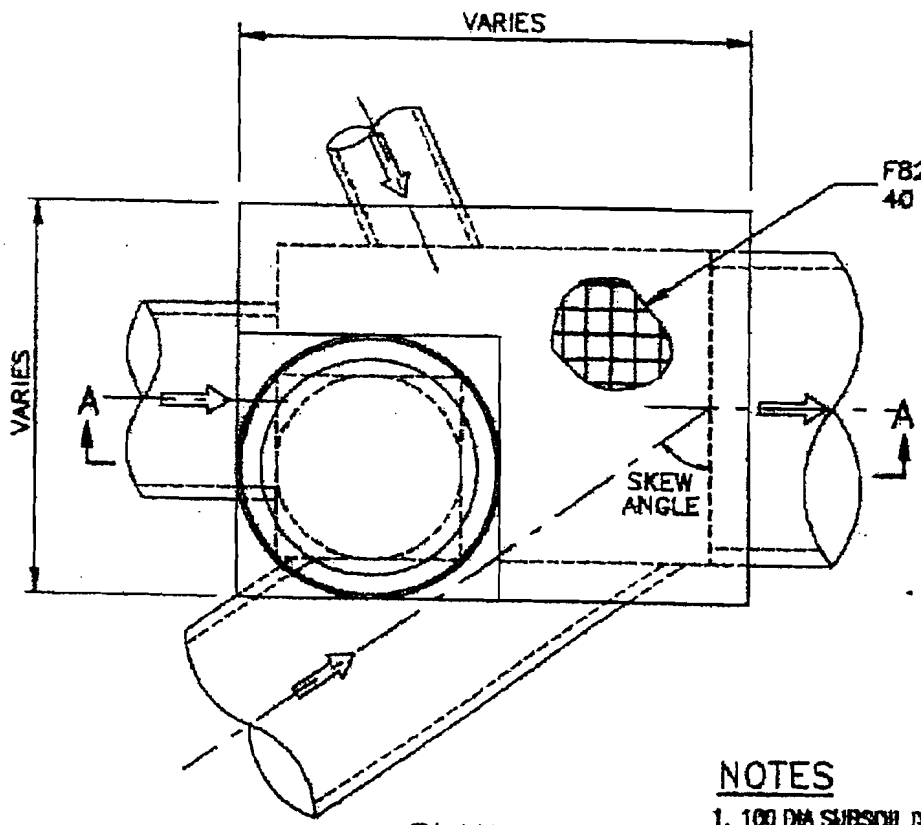
Hawkesbury City Council

STANDARD GRATED SURFACE INLET PITS

SCALE : NTS

DRAWING No. : SD 31





PLAN

NOTES

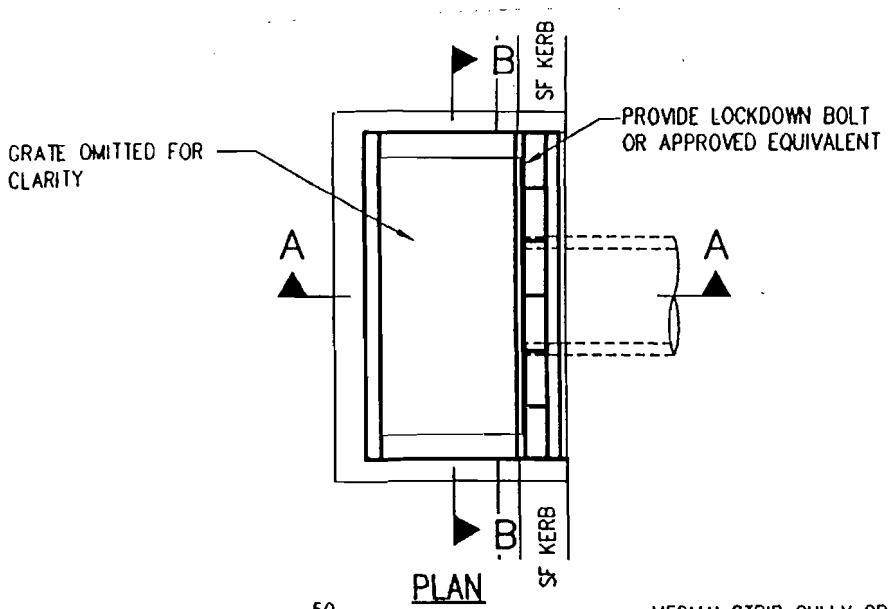
1. 100 DIA SUBSOIL DRAINAGE PIPE 3000 LONG WRAPPED IN FABRIC SOCK TO BE PROVIDED ADJACENT TO INLET PIPES.
2. COMPRESSIVE STRENGTH F'c FOR CAST INSITU CONCRETE SHALL BE MINIMUM 20 MPa AT 28 DAYS
3. WHERE PITS EXCEED 2000mm DEEP, PROVIDE STEP IRONS – REFER TO DRAWING SD 41.
4. TOP OF BENCHING SHALL BE 1/2 OF OUTLET PIPE DIAMETER
5. ALL DIMENSION ARE IN MILLIMETERS

Hawkesbury City Council

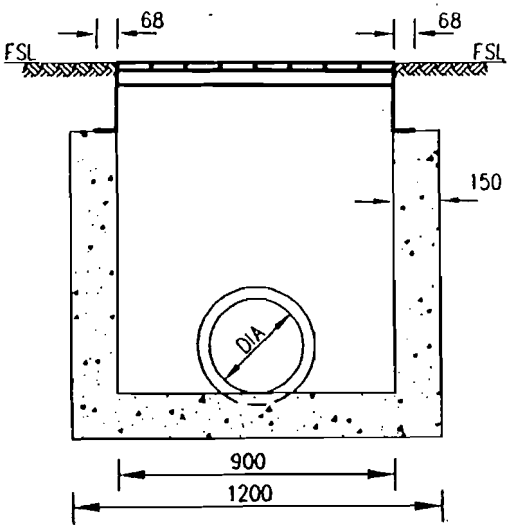
STANDARD JUNCTION PIT DETAIL

SCALE : NTS

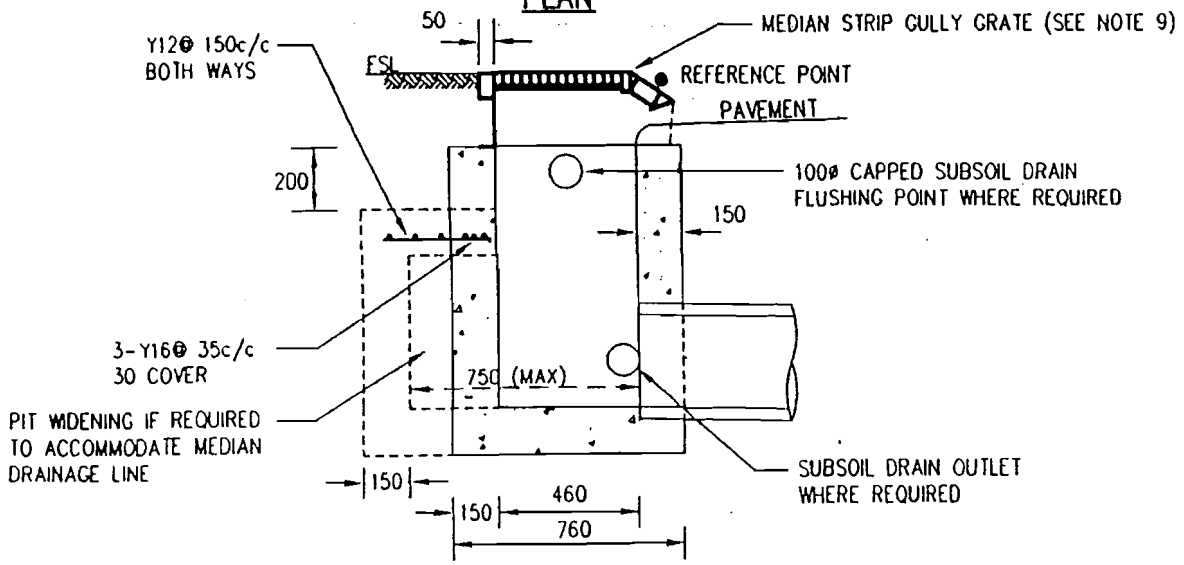
DRAWING No. : SD 32



PLAN



SECTION B–B



SECTION A–A

NOTES:

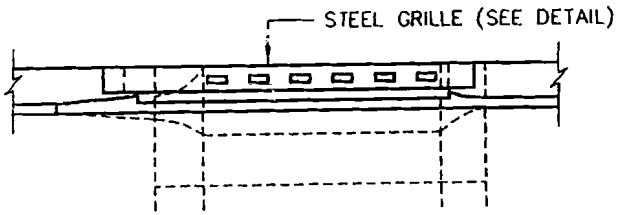
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. DRAWING NOT TO SCALE.
3. CONCRETE COMPRESSIVE STRENGTH F'c 20MPa.
4. LEVEL OF REFERENCE GULLY PIT SHOWN IN THE DRAWING REFER TO THIS REFERENCE POINT ●.
5. SIDE WALLS OF ALL PITS DEEPER THAN 1800 ARE TO BE REINFORCED AS PER SD 35.
6. DEPTH OF PIT NOT TO EXCEED 2000
7. PITS DEEPER THAN 1200 TO BE FITTED WITH GALVANISED STEP IRONS . AS PER SD 41
8. ALL EXPOSED EDGES TO BE ROUNDED WITH 20 RADIUS.
9. FOR DETAILS ON MEDIAN STRIP GULLY GRATE SEE WELDLOCK GG78 – 64 MEDIAN STRIP GRATE OR APPROVED EQUIVALENT

Hawkesbury City Council

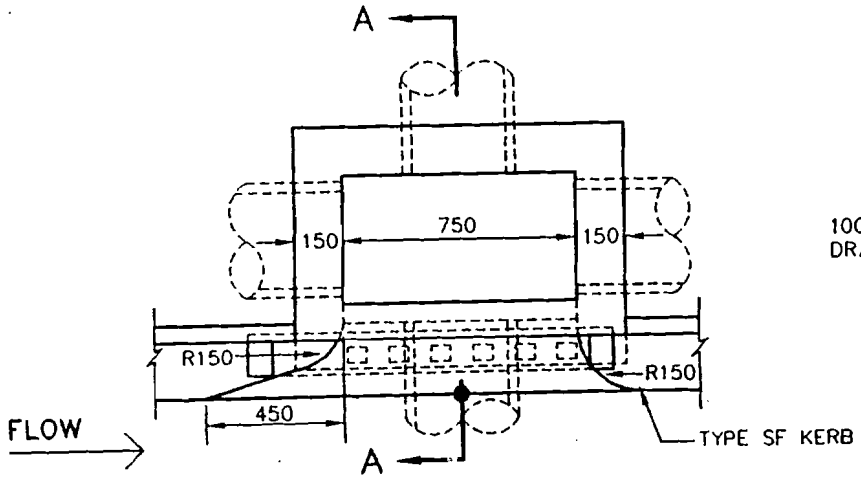
STANDARD GULLY PIT FOR TYPE SF KERB

SCALE : NTS

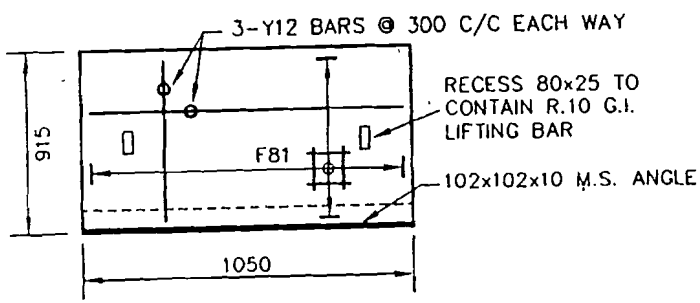
DRAWING No. : SD33 SHEET 1 OF 3



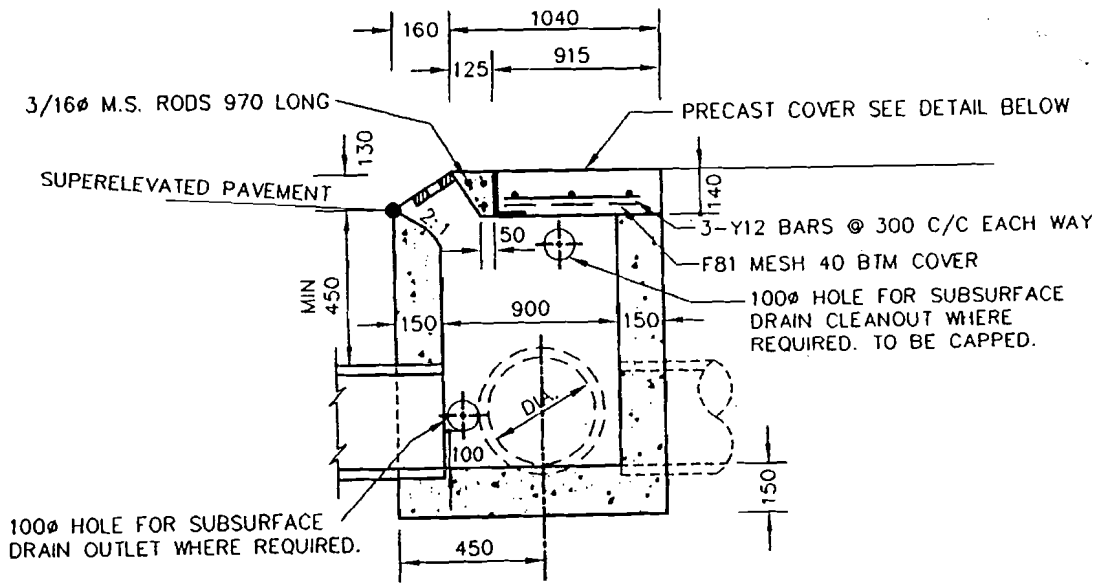
ELEVATION OF INLET



PLAN WITH COVER AND GRILLE REMOVED



PLAN OF PIT COVER



SECTION A–A

FOR PIPE DIAMETER UP TO 750mm

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. DRAWING NOT TO SCALE.
3. CONCRETE COMPRESSIVE STRENGTH F'c 20MPa.
4. LOCATION AND LEVEL OF GULLY PIT SHOWN IN THE DRAWINGS REFER TO THIS POINT ●
5. SIDE WALLS OF ALL PITS DEEPER THAN 1800 ARE TO BE REINFORCED AS PER SD 35.
6. DEPTH OF PIT NOT TO EXCEED 3500.
7. PITS DEEPER THAN 1200 TO BE FITTED WITH GALVANISED STEP IRONS AS PER SD41.
8. ALL EXPOSED EDGES TO BE ROUNDED WITH 20 RADIUS.
9. SURFACE OF PRECAST COVER TO BE FINISHED WITH MATERIALS AND METHOD SIMILAR TO THAT SPECIFIED FOR MEDIAN PAVING.

Hawkesbury City Council

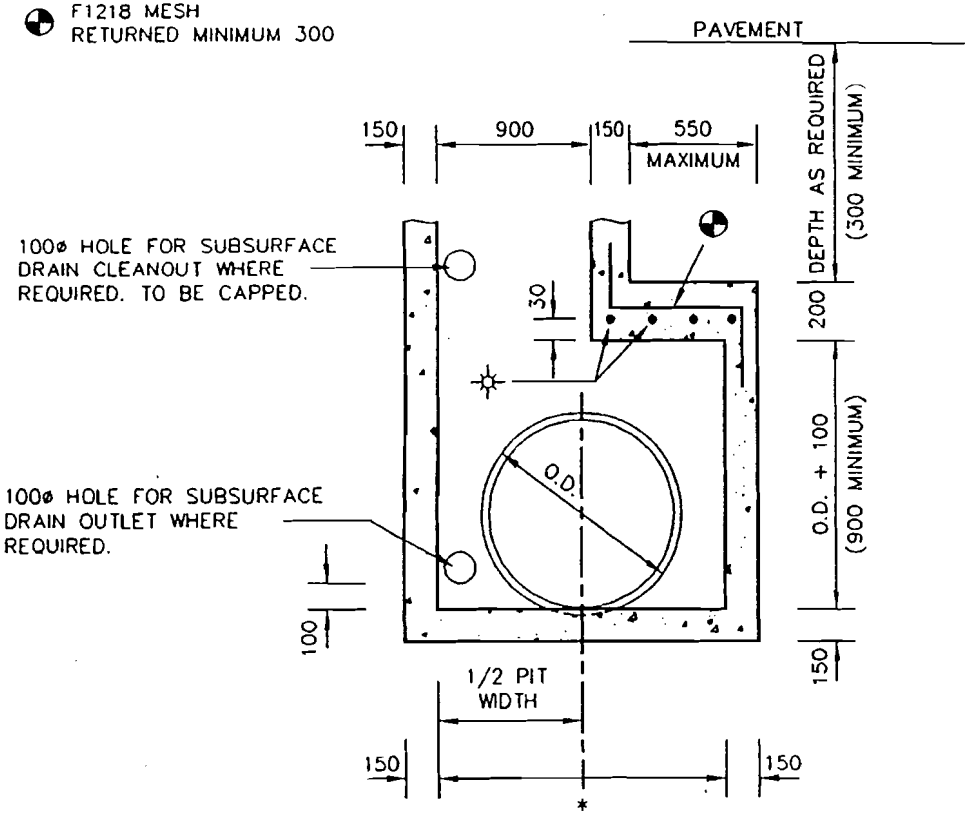
STANDARD GULLY PIT FOR TYPE SF KERB

SCALE : NTS

DRAWING No. : SD33 SHEET 2 OF 3

12ø 410Y REINFORCEMENT BARS AT 100 CENTRES (WHEN HAUNCHED IN 2 DIRECTIONS.)

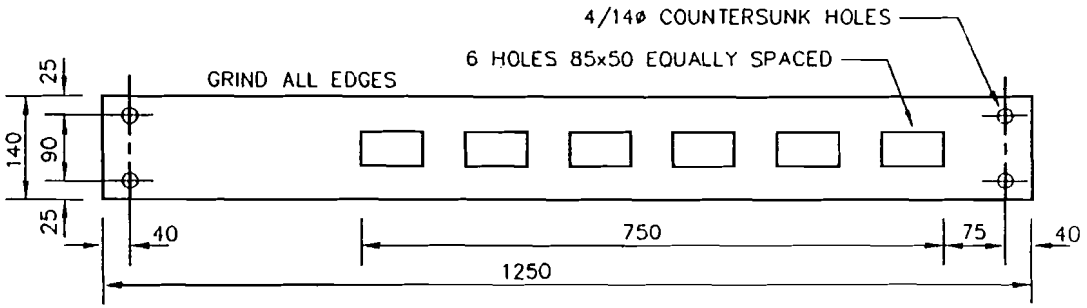
F1218 MESH RETURNED MINIMUM 300



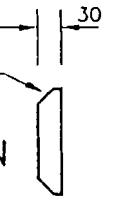
SECTION A–A
FOR PIPE DIAMETER OVER 750mm
AND MULTIPLE PIPES

*	PIPE DIAMETER RANGE
1200	825mm TO 900mm INCL
D+250	FOR PIPES > 900mm
ND+[(N-1)x250]+250	FOR MULTIPLE PIPES

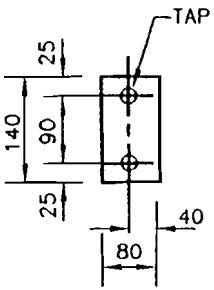
(WHERE N=NUMBER OF LINES)



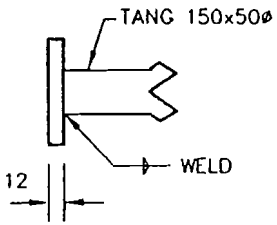
MILD STEEL GRILLE

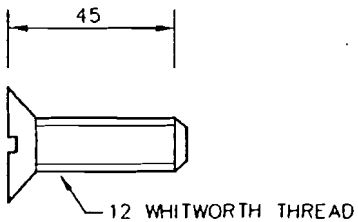


GRILLE SECTION



BEARING PLATE
2 REQUIRED





COUNTERSUNK SCREWS
4 REQUIRED

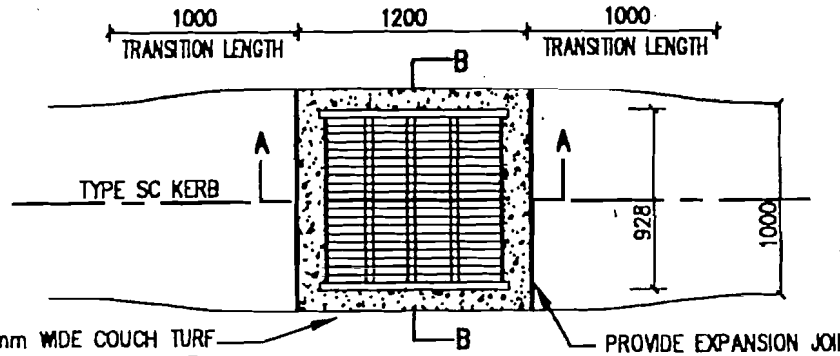
NOTE: ALL MILD STEEL MATERIAL TO BE GALVANISED ON COMPLETION.

Hawkesbury City Council

STANDARD GULLY PIT FOR TYPE SF KERB

SCALE : NTS

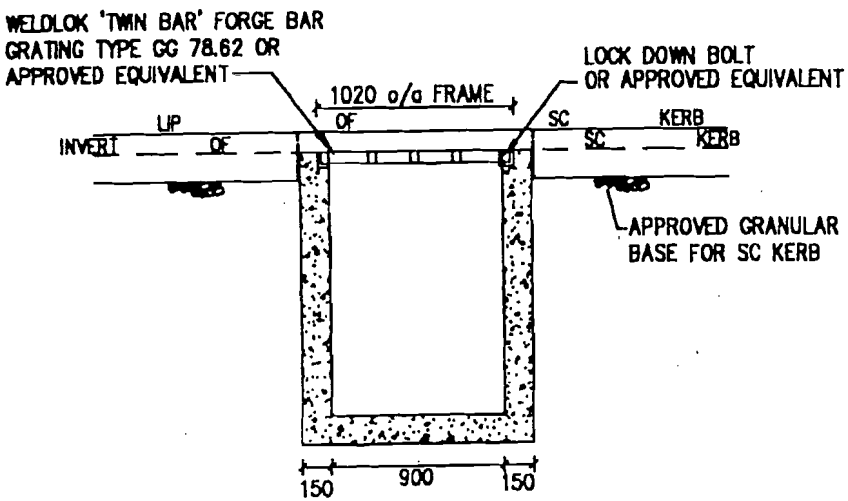
DRAWING No. : SD33 SHEET 3 OF 3



PLAN

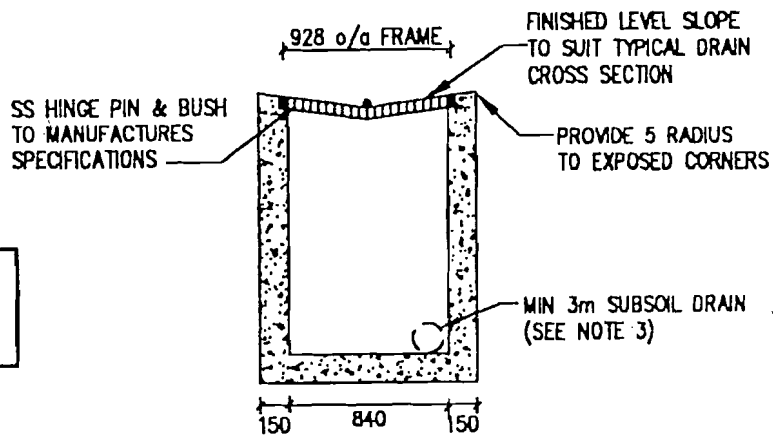
NOTES:

1. SIDE WALLS OF PIT DEEPER THAN 1800 TO BE REINFORCED AS PER SD 35.
2. COMPRESSIVE STRENGTH (Fc) FOR CAST INSITU. CONCRETE SHALL BE A MINIMUM 20MPa @ 28 DAYS.
3. 100 DIAMETER SUBSOIL DRAINAGE PIPE 3m LONG WRAPPED IN FABRIC SOCK TO BE PROVIDED ADJACENT TO INLET PIPES.
4. ALL PITS TO BE ADEQUATELY STREAMLINED.
5. PITS DEEPER THAN 1200 TO HAVE STEP IRONS PROVIDED. SEE SD 41.
6. ALL DIMENSIONS ARE IN MILLIMETRES U.N.O.
7. NO RENDERING PERMITTED IN STRUCTURAL COMPONENTS.
8. LEVEL AND LOCATION OF PIT REFERS TO POINT ● (COUNCIL USE ONLY).



SECTION A–A

PIPELINES NOT SHOWN FOR CLARITY



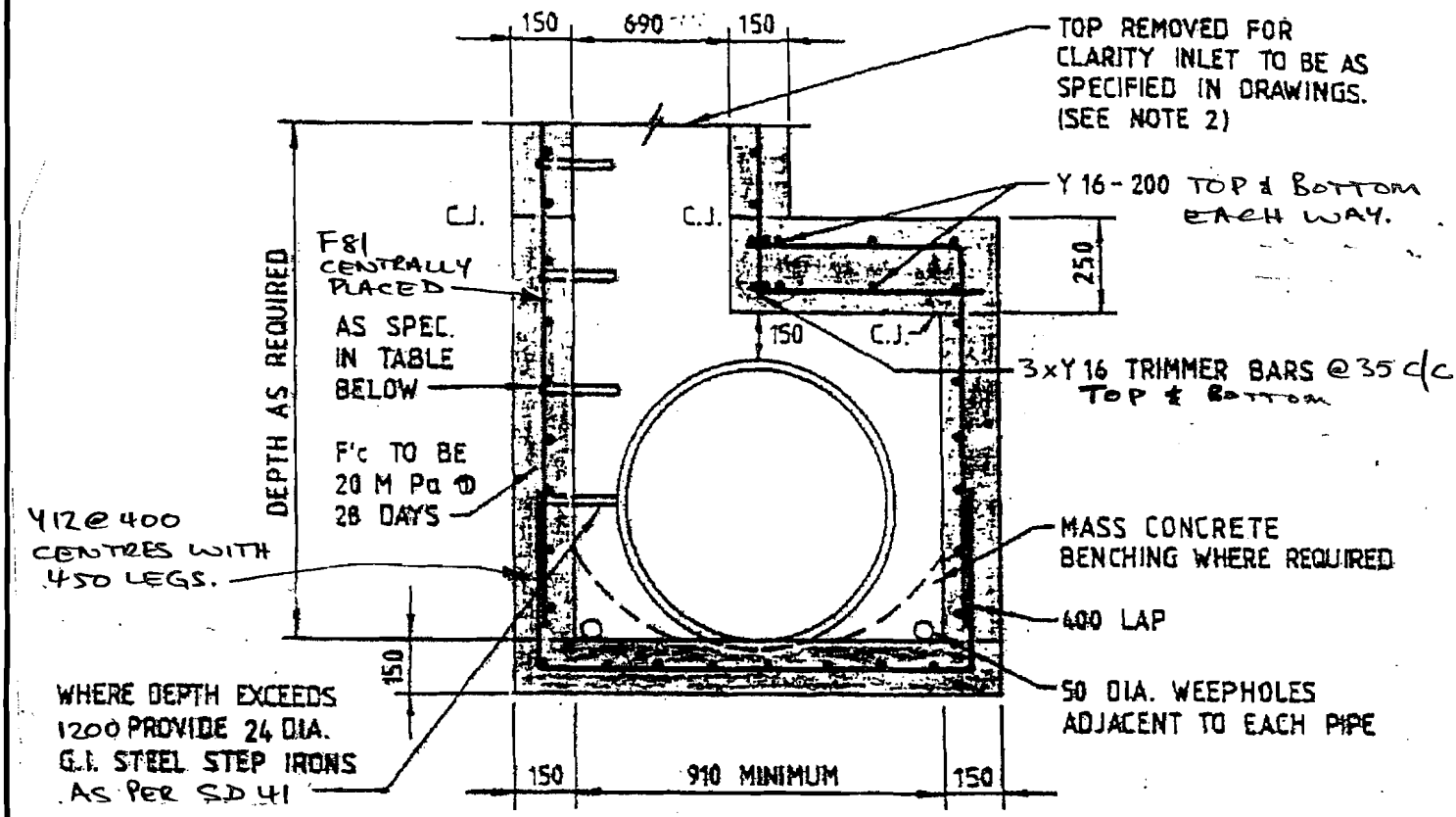
SECTION B–B

Hawkesbury City Council

STANDARD FLUSH GRATED SURFACE INLET PIT FOR TYPE SC KERB

SCALE : NTS

DRAWING No. : SD 34



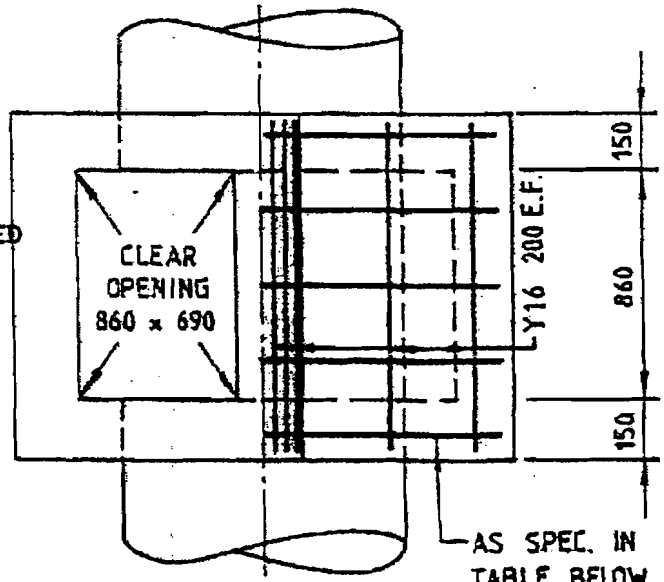
SECTIONAL ELEVATION A-A

NOTE:

1. MIN. 30mm COVER
2. WALL THICKNESS IN CHIMNEY SHALL BE ADJUSTED TO SUIT TYPE OF PIT LID.
3. SUBSOIL DRAINS SHALL BE PLACED FOR A DISTANCE OF 4 METRES FROM EACH WEEPHOLE.

A

4. PITS DEEPER THAN 3000mm TO HAVE STRUCTURAL DESIGN.



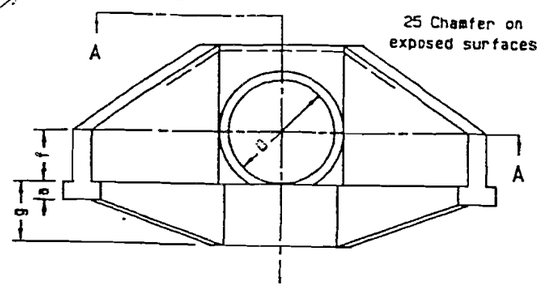
PLAN

Hawkesbury City Council

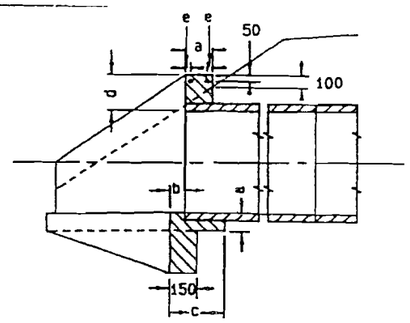
REINFORCEMENT DETAIL FOR PITS

SCALE : NTS

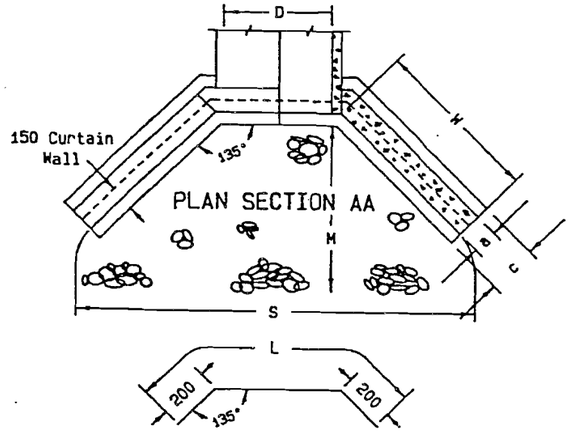
DRAWING No. : SD 35



ELEVATION



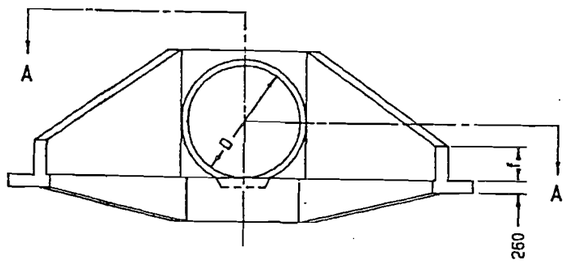
LONGITUDINAL SECTION



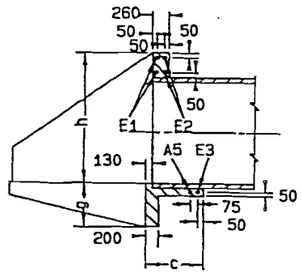
Reinforcement
2 required in each headwall

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		(m^3)	0.48	0.54	0.65	0.76	1.34	2.04	2.80
M Outlet protection		(m)	1.2	1.6	2.4	3.1	3.6	4.3	4.8
S Outlet protection		(m)	1.45	1.8	2.1	2.4	2.75	3.35	4.0

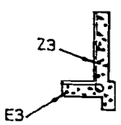
PIPE DIAMETERS 300 TO 900



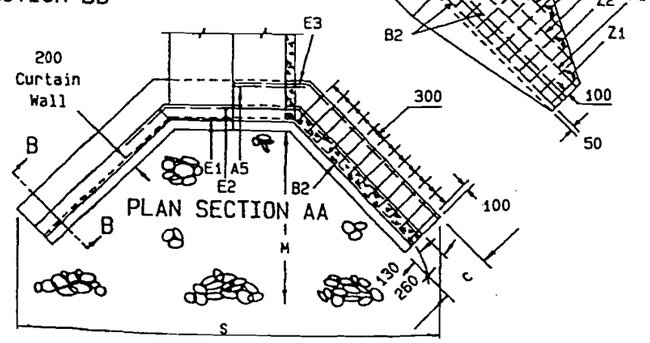
ELEVATION



LONGITUDINAL SECTION



SECTION BB



D Pipe diameter	(mm)	1050	1200	1350	1500	1800
h Headwall height	(mm)	1380	1550	1700	1900	2210
g Curtain wall depth	(mm)	600	600	700	700	750
c Curtain wall width	(mm)	700	700	700	900	900
f Headwall height	(mm)	450	450	530	530	600
W Headwall length	(mm)	1930	2300	2490	2850	3400
Conc.in two headwalls	(m^3)	4.3	5.6	6.4	8.2	11.1
M Outlet protection	(m)	5.5	6.1	6.7	7.3	8.5
S Outlet protection	(m)	4.6	5.2	5.65	6.1	7.3

PIPE DIAMETERS 1050 TO 1800

Clear cover to outer face of reinforcement
50mm unless otherwise shown
Concrete Grade 20MPa
All dimensions are in millimetres

S201

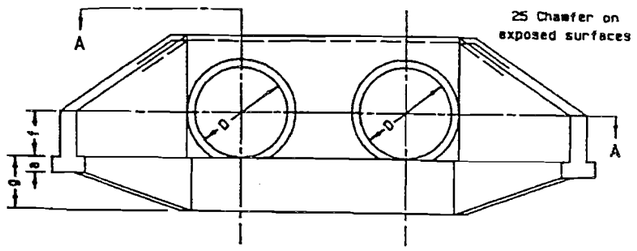
REINFORCEMENT FOR 2 HEADWALLS

SHAPE	MARK	DIA	PIPE DIA	L1	LENGTH	NO REQ'D	TOTAL LENGTH	MASS
		mm	mm	mm	mm		m	kg
L1	A1	12	1050	1850	1850	4	7.40	6.57
			1200	2250	2250	4	9.00	7.99
			1350	2400	2400	4	9.60	8.52
			1500	2800	2800	4	11.20	9.95
			1800	3300	3300	4	13.20	11.72
	A2	12	1050	1200	1200	4	4.80	4.26
			1200	1550	1550	4	6.20	5.51
			1350	1900	1900	4	7.60	6.75
			1500	2350	2350	4	9.40	8.35
			1800	2950	2950	4	11.80	10.48
	A3	12	1350	1250	1250	4	5.00	4.44
			1500	1700	1700	4	6.80	6.04
			1800	2350	2350	4	9.40	8.35
	A4	12	1800	1750	1750	4	7.00	6.22
	A5	12	1350	1825	1825	2	3.65	3.24
			1500	1975	1975	2	3.95	3.51
			1800	2300	2300	4	4.60	4.08
300 L1 135°	B1	12	1050	650	950	4	3.80	3.37
			1200	1000	1300	4	5.20	4.62
			1350	700	1000	4	4.00	3.55
			1500	1100	1400	4	5.60	4.97
			1800	1100	1400	4	5.60	4.97
	B2	12	1050	1950	2250	8	18.00	15.98
			1200	2350	2650	8	21.20	18.83
			1350	2525	2825	8	22.60	20.08
			1500	2850	3150	8	25.20	22.38
			1800	3450	3750	8	30.00	36.64
750 L1 750 135°	E1	12	1050	1200	2700	4	10.80	9.59
			1200	1350	2850	4	11.40	10.12
			1350	1575	3075	4	12.30	10.92
			1500	1750	3250	4	13.00	11.54
			1800	2100	3600	4	14.40	12.79
	E2	12	1050	1330	2830	4	11.32	10.05
			1200	1470	2970	4	11.88	10.55
			1350	1675	3175	4	12.70	11.28
			1500	1800	3300	4	13.20	11.72
			1800	2150	3650	4	14.60	12.96
L1 * 135° * 2 Pipe Dia's	E3	12	1050	1600	5800	2	11.60	10.30
			1200	1750	6550	2	13.10	11.63
			1350	1950	7350	2	14.70	13.05
			1500	2250	8250	2	16.50	14.65
			1800	2600	9800	2	19.60	17.40
	Z1	12	1050	580	1330	4	5.32	4.72
			1200	600	1350	8	10.80	9.59
			1350	700	1450	8	11.60	10.30
			1500	650	1650	8	13.20	11.72
			1800	650	1650	8	13.20	11.72
L1 620 * 380 160 dia	Z2	12	1050	740	1490	8	11.92	10.58
			1200	900	1650	8	13.20	11.72
			1350	1000	1750	8	14.00	12.43
			1500	950	1950	8	15.60	13.85
			1800	1000	2000	8	16.00	14.21
	Z3	12	1050	1010	1760	8	14.08	12.50
			1200	1200	1950	8	15.60	13.85
			1350	1300	2050	8	16.40	14.56
			1500	1200	2200	8	17.60	15.63
			1800	1250	2250	8	18.00	15.98
* 1500 dia and 1880 dia only	Z4	12	1050	1320	2070	8	16.56	14.71
			1200	1500	2250	8	18.00	15.98
			1350	1575	2325	8	18.60	16.52
			1500	1500	2500	8	20.00	17.76
			1800	1600	2600	8	20.80	18.47
	Z5	12	1500	1800	2800	8	22.40	19.89
			1800	1850	2850	8	22.80	20.25
	Z6	12	1800	2150	3150	8	25.20	22.38

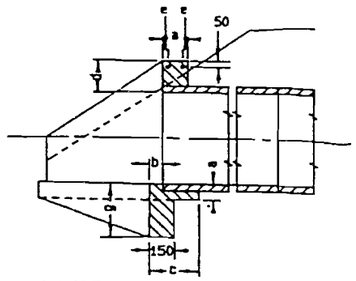
HAWKESBURY CITY COUNCIL | SD37 SHEET 1 OF 3

CONCRETE HEADWALLS FOR SINGLE PIPE CULVERTS

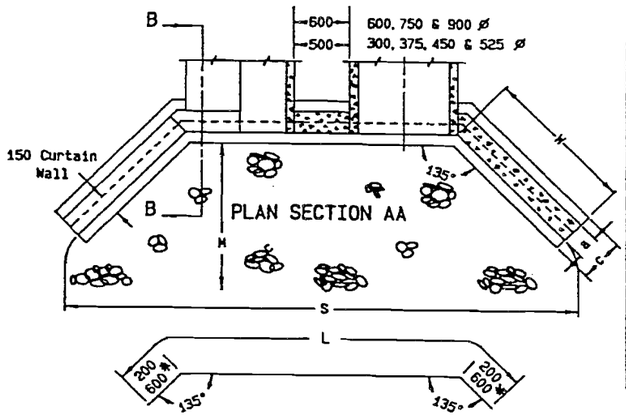
S202



ELEVATION



LONGITUDINAL SECTION BB



Reinforcement
2 required in each headwall

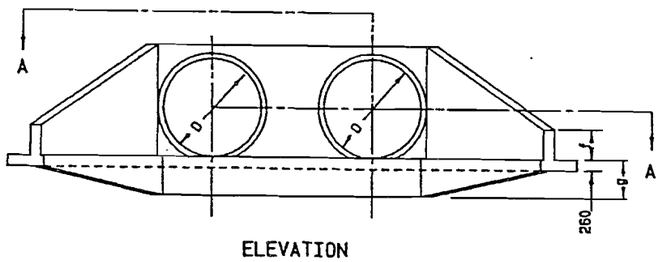
D	Pipe diameter	(mm)	300	375	450	525	600	750	900
a	Footing & Kerb	(mm)	150	150	150	150	180	205	230
b	Curtain wall	(mm)	75	75	75	75	120	120	120
c	Curtain wall width	(mm)	300	300	300	300	450	450	450
d	Kerb-height	(mm)	230	230	230	230	300	300	300
e	Kerb-cover	(mm)	40	40	40	40	50	50	50
f	Headwall height	(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	1100	1450	1800
L	Reinforcement length	(mm)	1630	1780	1930	2080	3350	3650	3950
Reinforcement dia		(mm)	10	10	10	10	12	12	12
Reinforcement in two headwalls	Length	(mm)	6520	7120	7720	8320	13400	14600	15800
	Mass	(kg)	4.0	4.4	4.8	5.1	11.9	13.0	14.0
Conc.in two headwalls		(m^3)	0.51	0.88	1.16	1.40	1.83	3.00	3.75
M	Outlet protection	(m)	1.2	1.6	2.4	3.1	3.6	4.3	4.8
S	Outlet protection	(m)	2.32	2.75	3.13	3.52	4.05	4.81	5.63

PIPE DIAMETERS 300 TO 900

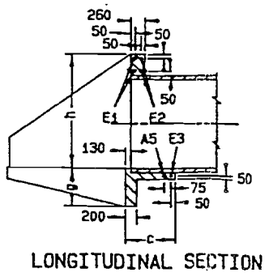
* 200mm for 300, 375, 450 & 525 ø and 600mm for 600, 750 & 900 ø

REINFORCEMENT FOR 2 HEADWALLS

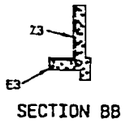
SHAPE	MARK	DIA	PIPE DIA	L1	LENGTH	NO REQ'D	TOTAL LENGTH	MASS
		mm	mm	mm	mm		m	kg
L1	A1	12	1050	1850	1850	4	7.40	6.57
			1200	2250	2250	4	9.00	7.99
			1350	2400	2400	4	9.60	8.52
			1500	2800	2800	4	11.20	9.95
			1800	3300	3300	4	13.20	11.72
	A2	12	1050	1200	1200	4	4.80	4.26
			1200	1550	1550	4	6.20	5.51
			1350	1900	1900	4	7.60	6.75
			1500	2350	2350	4	9.40	8.35
			1800	2950	2950	4	11.80	10.48
	A3	12	1350	1250	1250	4	5.00	4.44
			1500	1700	1700	4	6.80	6.04
			1800	2350	2350	4	9.40	8.35
	A4	12	1800	1750	1750	4	7.00	6.22
	A5	12	1350	4300	4300	2	8.60	3.24
			1500	4750	4750	2	9.50	3.51
			1800	5400	5400	2	10.00	4.08
300 L1	B1	12	1050	650	950	4	3.80	3.37
			1200	1000	1300	4	5.20	4.62
			1350	700	1000	4	4.00	3.55
			1500	1100	1400	4	5.60	4.97
			1800	1100	1400	4	5.60	4.97
	B2	12	1050	1950	2250	8	18.00	15.98
			1200	2350	2650	8	21.20	18.83
			1350	2525	2825	8	22.60	20.08
			1500	2850	3150	8	25.20	22.38
			1800	3450	3750	8	30.00	26.64
750 L1 750 135°	E1	12	1050	3500	5000	4	20.00	9.59
			1200	3800	5300	4	21.20	10.12
			1350	4200	5700	4	22.80	10.92
			1500	4550	6050	4	24.20	11.54
			1800	5175	6675	4	26.70	12.79
	E2	12	1050	3630	5130	4	20.52	18.22
			1200	3920	5420	4	21.68	19.25
			1350	4300	5800	4	23.20	20.60
			1500	4600	6100	4	24.40	21.67
			1800	5225	6725	4	26.90	23.89
L1 135° * 2 Pipe Dia's	E3	12	1050	3900	8100	2	16.20	14.39
			1200	4180	8900	2	17.96	15.95
			1350	4500	9900	2	19.80	17.58
			1500	5000	11000	2	22.00	19.54
			1800	5150	12350	2	24.70	21.93
620 * 380 L1 160 dia * 1500 dia and 1880 dia only	Z1	12	1050	580	1340	4	5.36	4.76
			1200	600	1360	8	10.88	9.66
			1350	700	1450	8	11.60	10.30
			1500	650	1650	8	13.20	11.72
			1800	650	1650	8	13.20	11.72
	Z2	12	1050	740	1520	8	12.16	10.80
			1200	900	1650	8	13.20	11.72
			1350	1000	1750	8	14.00	12.43
			1500	950	1950	8	15.60	13.85
			1800	1000	2000	8	16.00	14.21
	Z3	12	1050	1010	1790	8	14.32	12.72
			1200	1200	1950	8	15.60	13.85
			1350	1300	2050	8	16.40	14.56
			1500	1200	2200	8	17.60	15.63
			1800	1250	2250	8	18.00	15.98
	Z4	12	1050	1320	2100	8	16.80	14.92
			1200	1500	2250	8	18.00	15.98
			1350	1575	2325	8	18.60	16.52
			1500	1500	2500	8	20.00	17.76
			1800	1600	2600	8	20.80	18.47
	Z5	12	1500	1800	2800	8	22.40	19.89
			1800	1850	2850	8	22.80	20.25
	Z6	12	1800	2150	3150	8	25.20	22.38



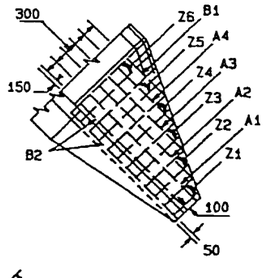
ELEVATION

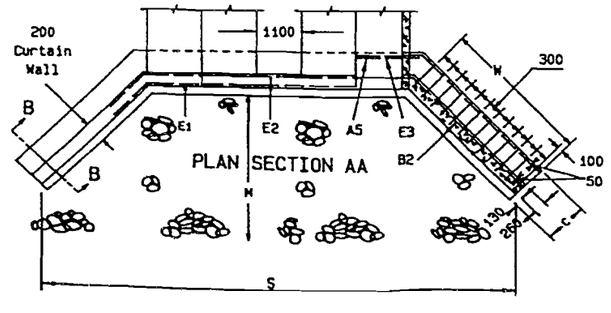


LONGITUDINAL SECTION



SECTION BB





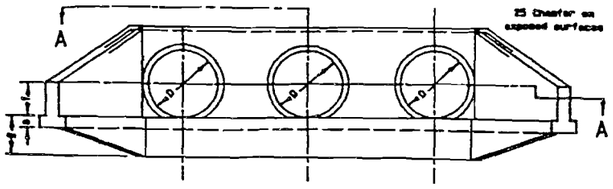
D	Pipe diameter	(mm)	1050	1200	1350	1500	1800
h	Headwall height	(mm)	1380	1550	1700	1900	2210
g	Curtain wall depth	(mm)	600	600	700	700	750
c	Curtain wall width	(mm)	700	700	700	900	900
f	Headwall height	(mm)	450	450	530	530	600
W	Headwall length	(mm)	1930	2300	2490	2850	3400
Conc.in two headwalls		(m^3)	6.0	8.2	9.3	11.8	14.9
M	Outlet protection	(m)	5.5	6.1	6.7	7.3	8.5
S	Outlet protection	(m)	6.89	7.66	8.27	8.88	10.4

PIPE DIAMETERS 1050 TO 1800

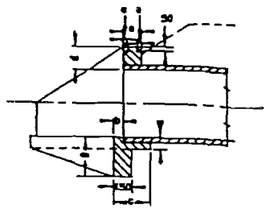
Clear cover to outer face of reinforcement
50mm unless otherwise shown
Concrete Grade 20MPa
All dimensions are in millimetres

HAWKESBURY CITY COUNCIL | SD 37 SHEET 2 OF 3

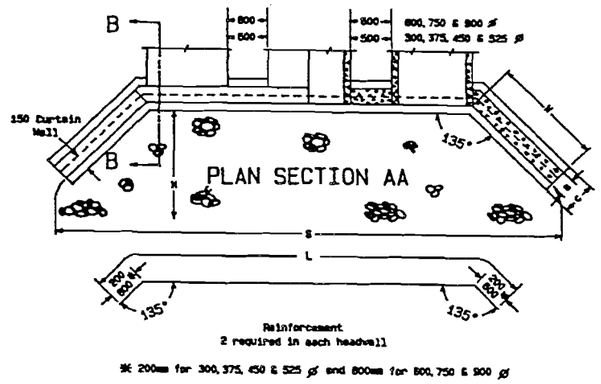
CONCRETE HEADWALLS FOR DOUBLE PIPE CULVERTS



ELEVATION



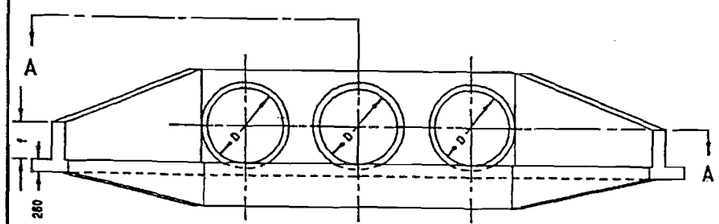
LONGITUDINAL SECTION BB



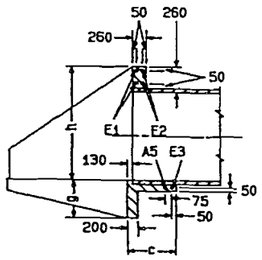
PLAN SECTION AA

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	120	120	120
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	1100	1450	1800
L Reinforcement length	(mm)	2500	2750	3000	3250	4600	5050	5500
Reinforcement dia	(mm)	10	10	10	10	12	12	12
Reinforcement in two headwalls — Length	(mm)	10000	11000	12000	13000	18400	20200	22000
Reinforcement in two headwalls — Mass	(kg)	6.2	6.8	7.4	8.0	16.3	17.9	19.5
Conc.in two headwalls	(m^3)	0.95	1.04	1.25	1.45	2.61	3.64	4.88
M Outlet protection	(m)	1.2	1.6	2.4	3.1	3.6	4.3	4.8
S Outlet protection	(m)	2.2	2.7	3.2	3.6	4.0	4.9	5.9

PIPE DIAMETERS 300 TO 900

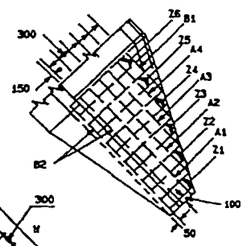


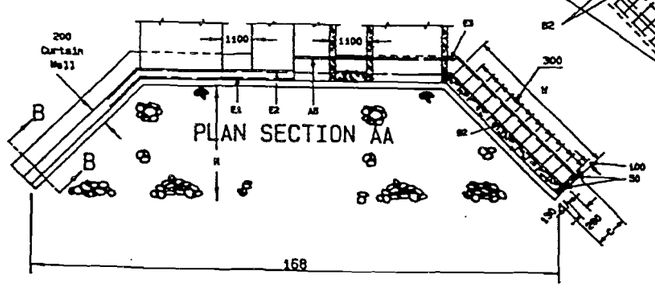
ELEVATION



LONGITUDINAL SECTION

SECTION BB





PLAN SECTION AA

D Pipe diameter	(mm)	1050	1200	1350	1500	1800
h Headwall height	(mm)	1380	1550	1700	1900	2210
g Curtain wall depth	(mm)	600	600	700	700	750
c Curtain wall width	(mm)	700	700	700	900	900
f Headwall height	(mm)	450	450	530	530	600
W Headwall length	(mm)	1930	2300	2490	2850	3400
Conc.in two headwalls	(m^3)	8.0	10.5	11.9	14.7	18.4
M Outlet protection	(m)	5.5	6.1	6.7	7.3	8.5
S Outlet protection	(m)	8.8	9.8	10.5	11.6	13.3

PIPE DIAMETERS 1050 TO 1800

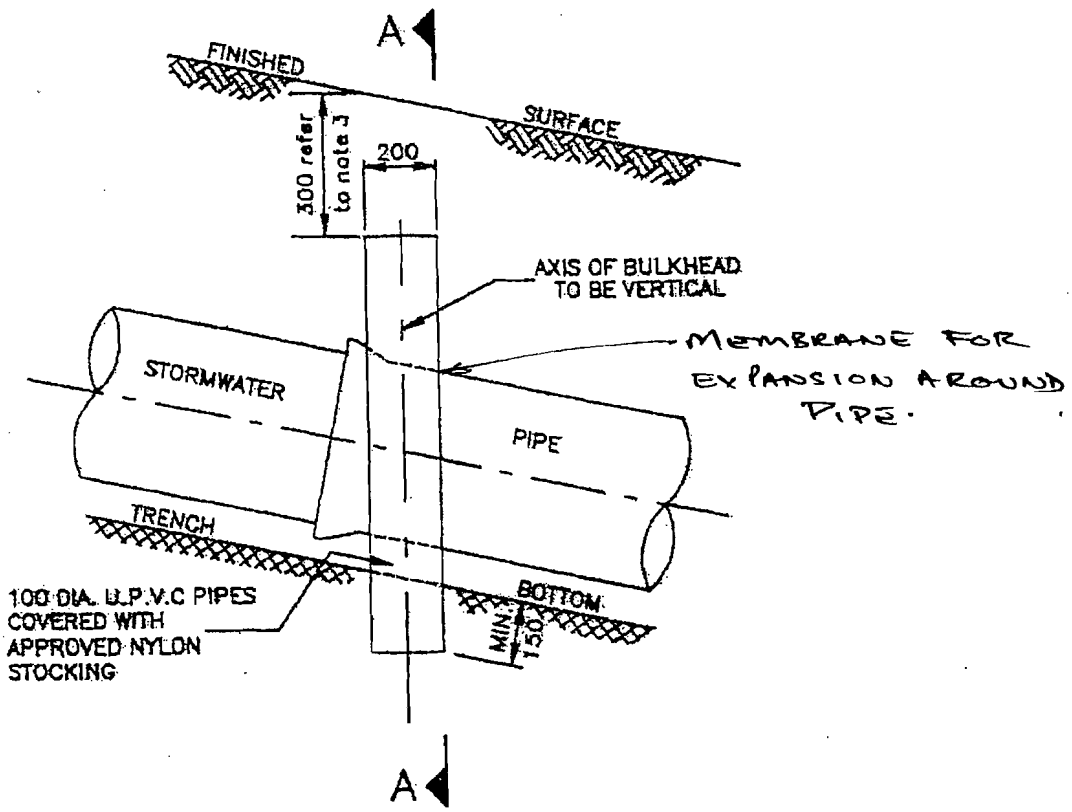
Concrete Grade 20MPa
All dimensions are in millimetres

REINFORCEMENT FOR 2 HEADWALLS

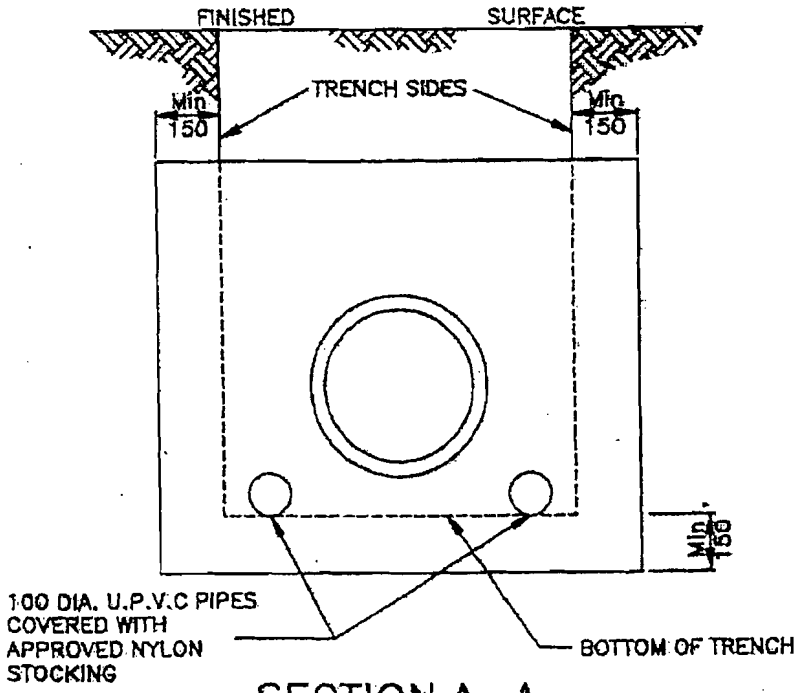
SHAPE	MARK	DIA	PIPE DIA	L1	LENGTH	NO REQ'D	TOTAL LENGTH	MASS
		mm	mm	mm	mm		m	kg
L1	A1	12	1050	1850	1850	4	7.40	6.57
			1200	2250	2250	4	9.00	7.99
			1350	2400	2400	4	9.60	8.52
			1500	2800	2800	4	11.20	9.95
			1800	3300	3300	4	13.20	11.72
	A2	12	1050	1200	1200	4	4.80	4.26
			1200	1550	1550	4	6.20	5.51
			1350	1900	1900	4	7.60	6.75
			1500	2350	2350	4	9.40	8.35
			1800	2950	2950	4	11.80	10.48
	A3	12	1350	1250	1250	4	5.00	4.44
			1500	1700	1700	4	6.80	6.04
			1800	2350	2350	4	9.40	8.35
	A4	12	1800	1750	1750	4	7.00	6.22
	A5	12	1350	7080	7080	2	14.16	17.57
			1500	7530	7530	2	15.86	13.35
			1800	8520	8520	2	17.84	15.04
300 L1	B1	12	1050	650	950	4	3.80	3.37
			1200	1000	1300	4	5.20	4.62
			1350	700	1000	4	4.00	3.55
			1500	1100	1400	4	5.60	4.97
			1800	1100	1400	4	5.60	4.97
	B2	12	1050	1950	2250	8	18.00	15.98
			1200	2350	2650	8	21.20	18.83
			1350	2525	2825	8	22.60	20.08
			1500	2850	3150	8	25.20	22.38
			1800	3450	3750	8	30.00	26.64
750 L1 750 135°	E1	12	1050	5800	7300	4	29.20	25.93
			1200	6250	7750	4	31.00	27.53
			1350	6820	8320	4	33.28	29.55
			1500	7330	8830	4	35.32	31.36
			1800	8280	9780	4	39.12	34.74
	E2	12	1050	6000	7500	4	30.00	26.64
			1200	6450	7950	4	31.80	28.24
			1350	6970	8470	4	33.88	30.09
			1500	7430	8930	4	35.72	31.72
			1800	8320	9820	4	39.28	34.88
L1 * 135° * 2 Pipe Dia's	E3	12	1050	6210	10410	2	20.82	18.49
			1200	6690	11490	2	22.98	20.41
			1350	7200	12600	2	25.20	22.38
			1500	7810	13810	2	27.62	24.53
			1800	8300	15500	2	31.00	27.53
L1 620 * 380 160 dia * 1500 dia and 1880 dia only	Z1	12	1050	580	1340	4	5.36	4.76
			1200	600	1360	8	10.88	9.66
			1350	700	1450	8	11.60	10.30
			1500	650	1650	8	13.20	11.72
			1800	650	1650	8	13.20	11.72
	Z2	12	1050	740	1520	8	12.16	10.80
			1200	900	1650	8	13.20	11.72
			1350	1000	1750	8	14.00	12.43
			1500	950	1950	8	15.60	13.85
			1800	1000	2000	8	16.00	14.21
	Z3	12	1050	1010	1790	8	14.32	12.72
			1200	1200	1950	8	15.60	13.85
			1350	1300	2050	8	16.40	14.56
			1500	1200	2200	8	17.60	15.63
			1800	1250	2250	8	18.00	15.98
	Z4	12	1050	1320	2100	8	16.80	14.92
			1200	1500	2250	8	18.00	15.98
			1350	1575	2325	8	18.60	16.52
			1500	1500	2500	8	20.00	17.76
			1800	1600	2600	8	20.80	18.47
	Z5	12	1500	1800	2800	8	22.40	19.89
			1800	1850	2850	8	22.80	20.25
	Z6	12	1800	2150	3150	8	25.20	22.38

HAWKESBURY CITY COUNCIL | SD37 SHEET 3OF3

CONCRETE HEADWALLS FOR TRIPLE PIPE CULVERTS



ELEVATION



SECTION A–A

NOTES:

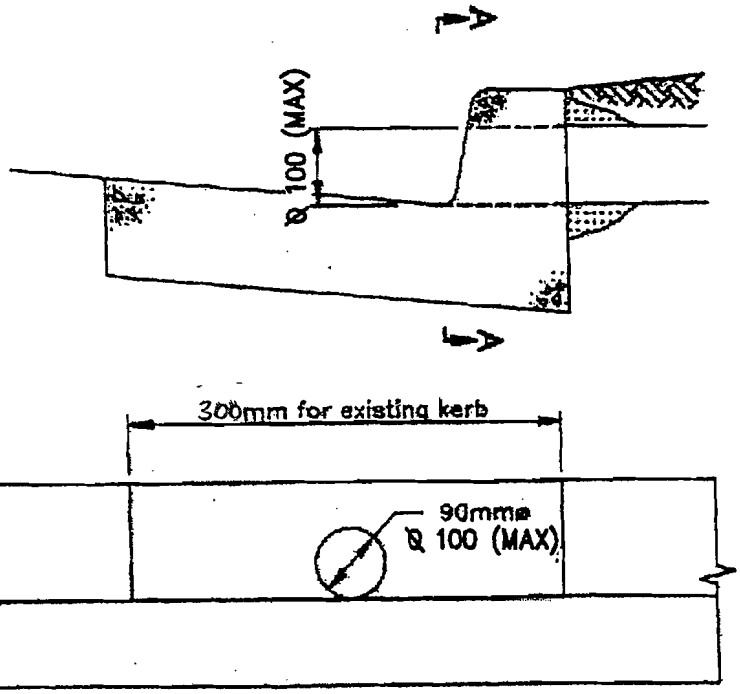
1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS SHALL BE 20MPa
3. WHERE THE PIPELINE IS UNDER A ROAD PAVEMENT, THE TOP OF BULKHEAD SHALL EXTEND TO SUBGRADE.

SCALE : NTS

Hawkesbury City Council

BULKHEAD DETAIL FOR STORMWATER DRAINAGE TRENCHES.

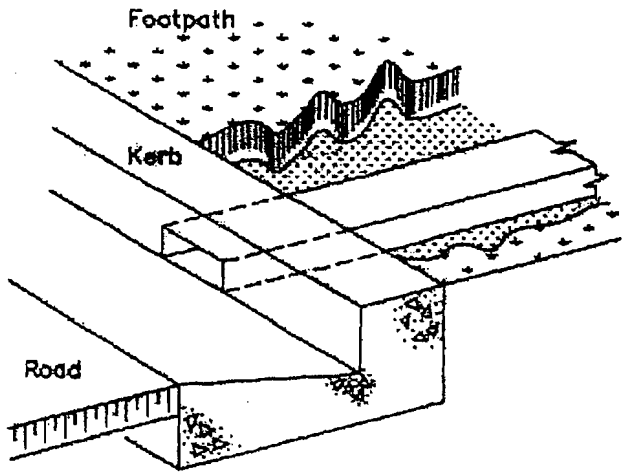
DRAWING No. : SD38



SECTION A–A

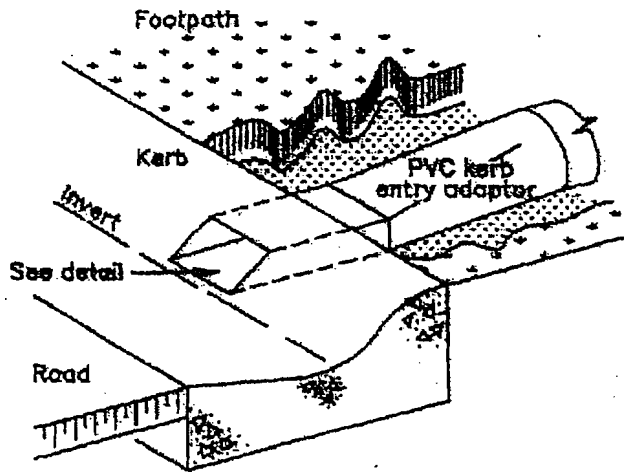
CASE 1

Normal Kerb and circular adaptor



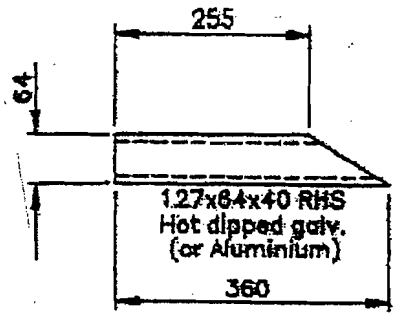
CASE 2

Kerb entry with RHS (100x200)



CASE 3

Rolled kerb and "Angle-cut" kerb entry adaptor



M.S. OR ALUMINIUM STORMWATER PIPE INSERT FOR RK & G

NOTES

1. All dimensions are in millimetres (UNO).
2. Invert of hole shall be flush with invert of gutter
3. Pipes across the footpath shall be butted and cement rendered to the back of the kerb.
4. For each roofwater connection in existing kerb a section of kerb 300mm long shall be removed, reformed and poured to incorporate standard roofwater outlet.

CASE 1

Preferred connection for standard kerb.

CASE 2

Alternative to case 1.

CASE 3

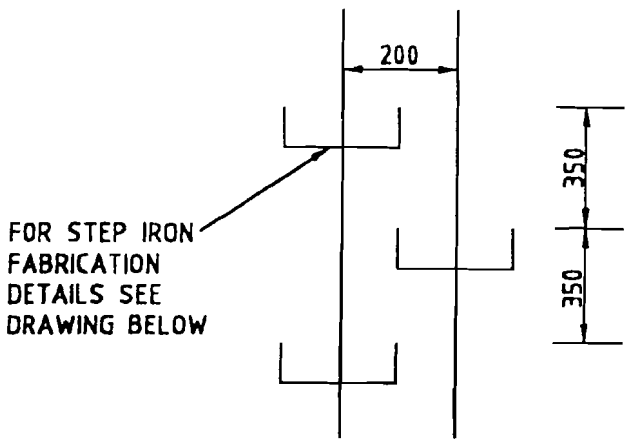
This method of roof water outlet connection shall be used for rolled kerb.

Hawkesbury City Council

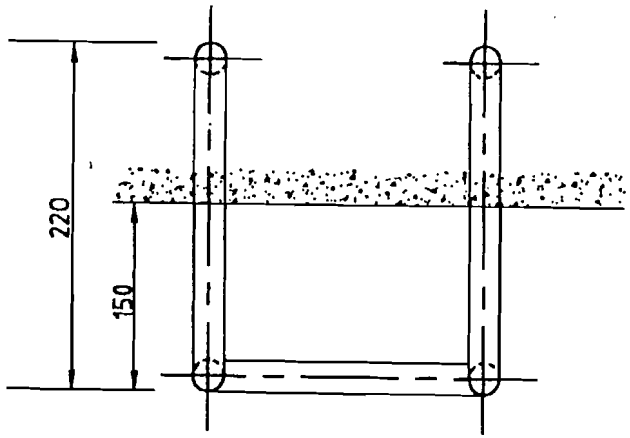
KERB ROOFWATER OUTLET CONNECTION

SCALE : NTS

DRAWING No. : SD 39



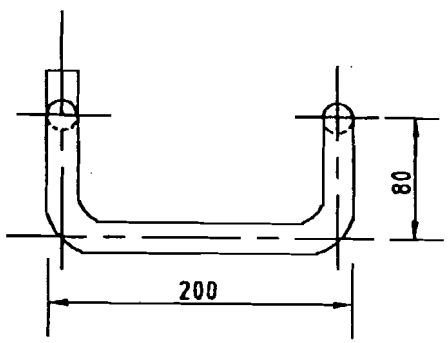
STEP IRON PLACEMENT DIAGRAM



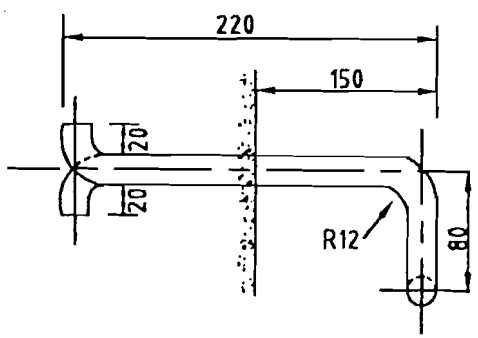
PLAN

NOTES

1. STEP IRON TO BE FABRICATED FROM 24mm DEFORMED BAR GRADE 230S TO AS 1302
2. STEP IRON TO BE HOT-DIPPED GALVANISED
3. PROPRIETARY EQUIVALENT PRODUCT MAY BE USED WHERE APPROVED
4. MAXIMUM DISTANCE FROM TOP & BOTTOM OF PIT TO BE 400mm.



FRONT ELEVATION



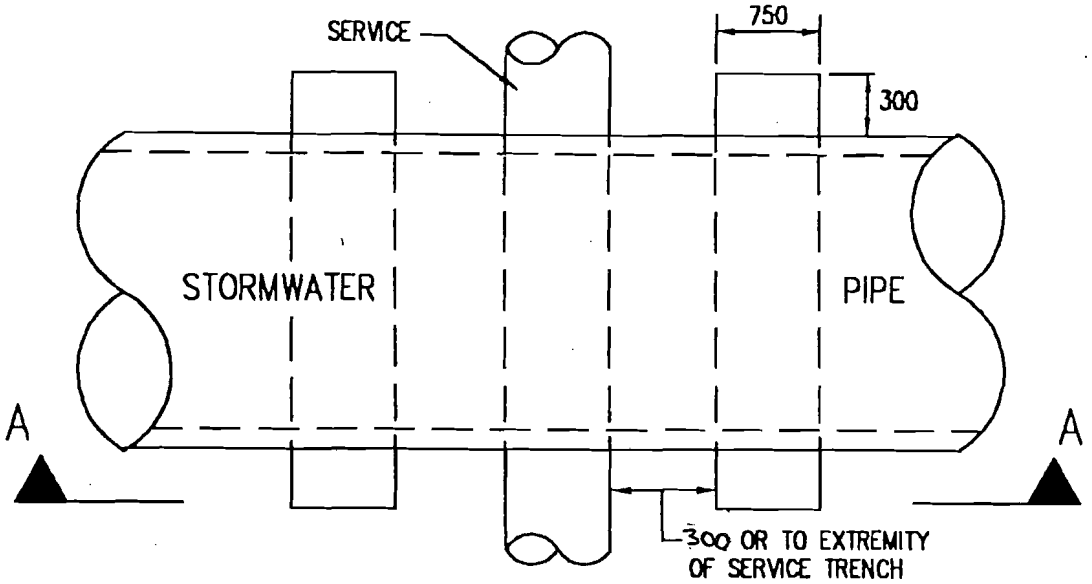
SIDE ELEVATION

Hawkesbury City Council

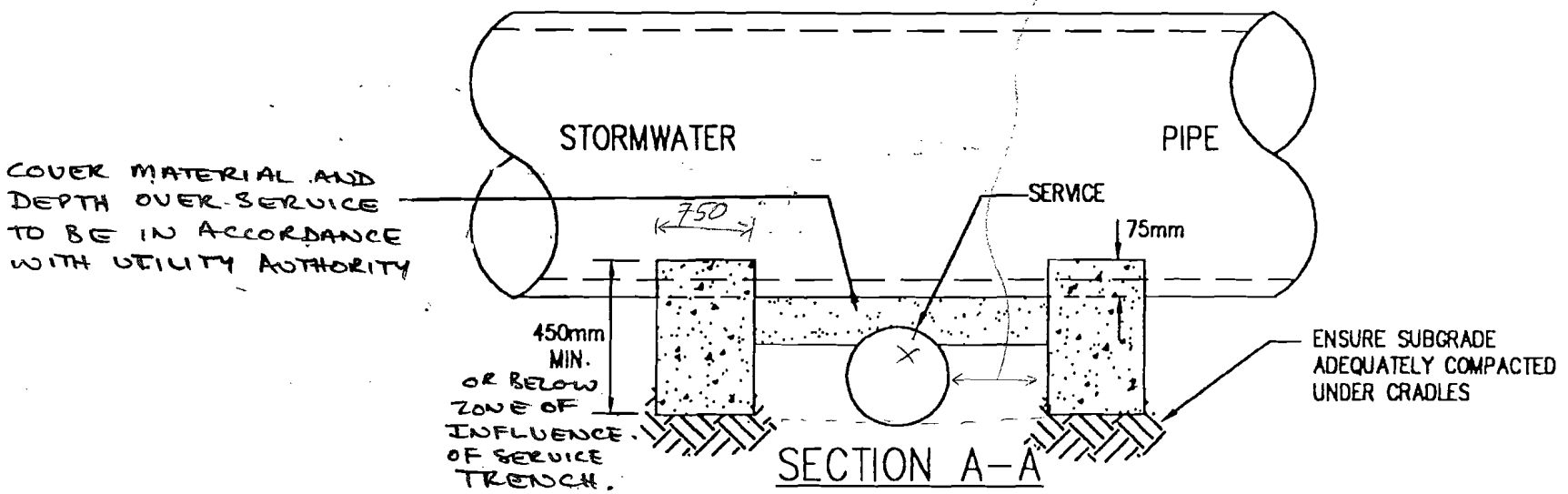
STANDARD STEP IRON DETAIL FOR STORMWATER PITS

SCALE : NTS

DRAWING No. : SD 41



PLAN



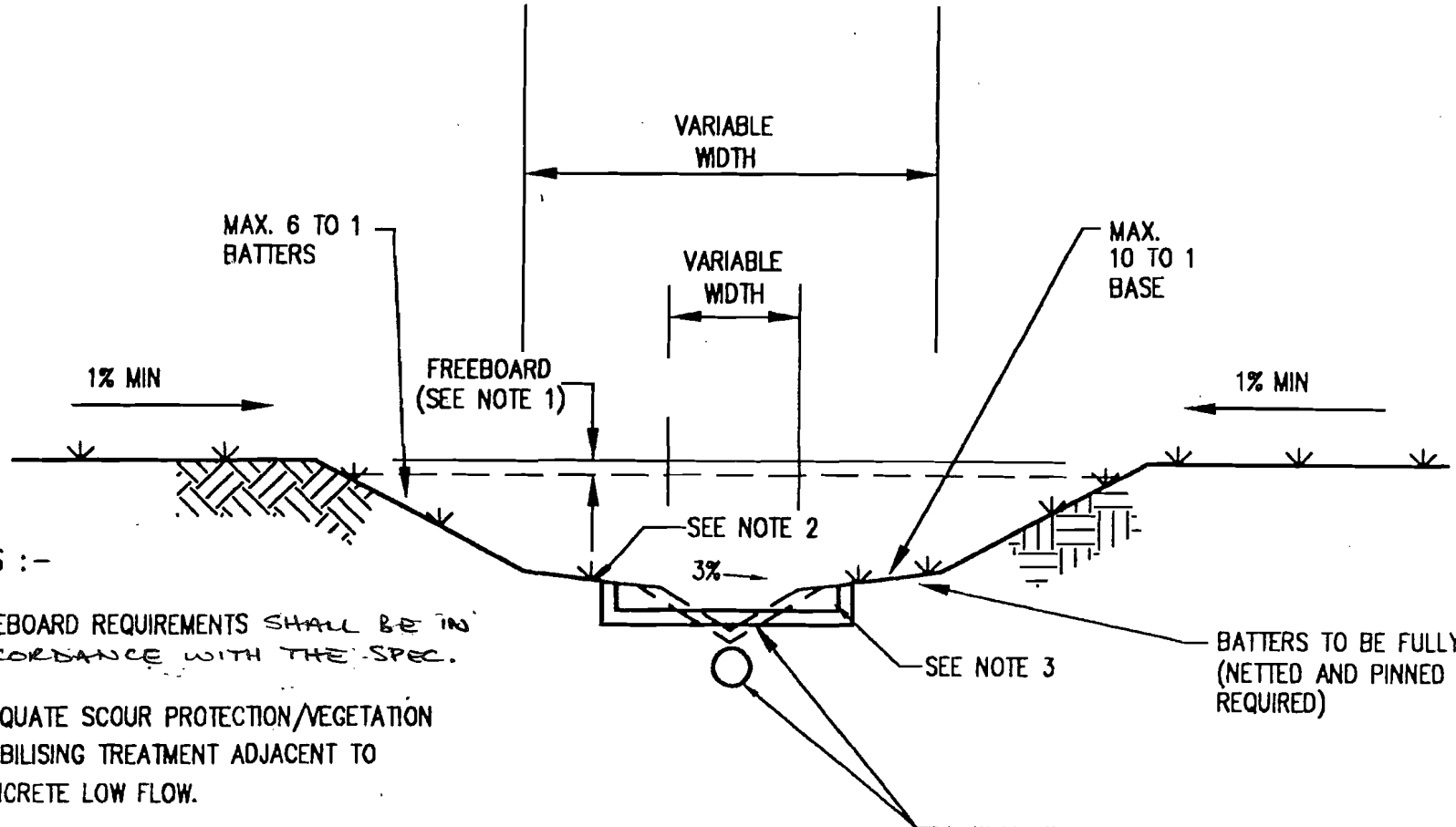
SECTION A–A

Hawkesbury City Council

CONCRETE CRADLE SUPPORT

SCALE : NTS

DRAWING No. : SD42



NOTES :-

1. FREEBOARD REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE SPEC.
2. ADEQUATE SCOUR PROTECTION/VEGETATION STABILISING TREATMENT ADJACENT TO CONCRETE LOW FLOW.
3. SUBSOIL DRAINAGE FOR CHANNEL BASE AND ADJACENT TO DROP STRUCTURES.
4. THIS DRAWING TO BE USED AS A GUIDE ONLY FOR THE PREPARATION OF DETAIL DESIGNS. REFER TO SPEC. FOR FURTHER DETAILS.

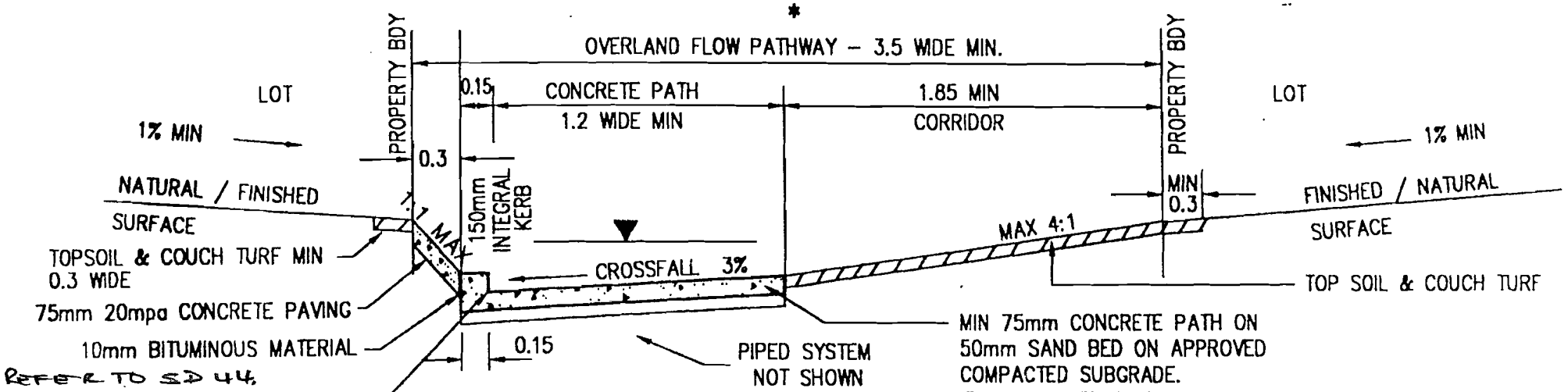
Hawkesbury City Council

TYPICAL OPEN DRAINAGE CHANNEL

SCALE : NTS

DRAWING No. : SD 43

1. ADJACENT STREET LIGHTING TO BE LOCATED TO PROVIDE ADEQUATE LIGHTING FOR PEDESTRIANS BUT NOT TO HINDER ADJACENT PROPERTY OWNERS.
2. IF PATHWAYS ARE LONG ENOUGH TO WARRANT ADDITIONAL LIGHTING ENERGY AUSTRALIA TO BE CONSULTED REGARDING LOCATION & TYPE.
3. CONTRACTION JOINTS IN CONCRETE PATH TO BE 15mm DEEP AND PLACED AT SPACINGS EQUAL TO THE PATHWAY WIDTH. EXPANSION JOINTS TO BE PLACED AT MAXIMUM 6m INTERVALS. JOINTING MATERIAL TO BE APPROVED 10mm THICK BITUMINOUS MATERIAL TO THE FULL DEPTH OF THE PATHWAY.
4. GENERALLY A 300mm FREEBOARD TO FLOOR LEVEL WILL BE REQUIRED. (REFER TO SPEC.)
5. REFER DRAWING SD61 FOR PATHWAY BARRIER DETAILS & SD44 SHEET 5 FOR OVERLAND FLOWPATH DETAILS ACROSS FOOTPATH AREA.
6. ALL DIMENSIONS IN METRES UNLESS OTHERWISE SHOWN.



REFER TO SD 44 SHEET 5 FOR KERB & FLOWPATH TREATMENT ACROSS FOOTPATH

* WIDTH MAY BE INCREASED. LANDSCAPING MAY BE PROVIDED OUTSIDE OF THE PROPOSED FLOW AREA.

▼ DENOTES REQUIRED CAPACITY OF OVERLAND FLOW PATH TO BE SHOWN ON DETAIL DESIGN SUPPORTED BY ALL RELEVANT CALCULATIONS.
IF CAPACITY INSUFFICIENT, OVERALL WIDTH TO BE INCREASED OR PROVIDE TYPE-2 SD 44 SHEET 2.

Hawkesbury City Council

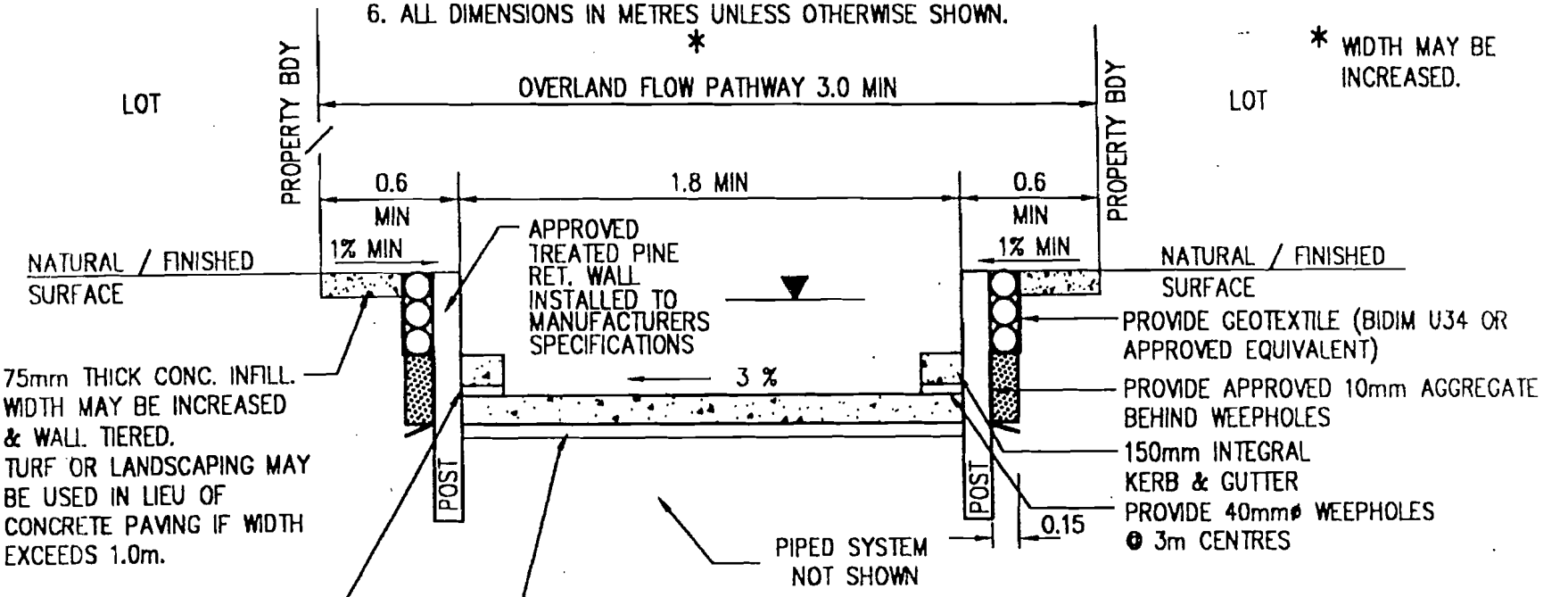
PEDESTRIAN PATHWAY - OVERLAND FLOWPATH - TYPE 1

SCALE : NTS

DRAWING No. : SD 44 SHEET 1 OF 5

▼ DENOTES REQUIRED CAPACITY OF OVERLAND FLOW PATH. TO BE SHOWN ON DETAIL DESIGN SUPPORTED BY ALL RELEVANT CALCULATIONS.

1. ADJACENT STREET LIGHTING TO BE LOCATED TO PROVIDE ADEQUATE LIGHTING FOR PEDESTRIANS BUT NOT TO HINDER ADJACENT PROPERTY OWNERS.
2. IF PATHWAYS ARE LONG ENOUGH TO WARRANT EXTRA LIGHTING ENERGY AUSTRALIA TO BE CONSULTED REGARDING LOCATION & TYPE.
3. CONTRACTION JOINTS IN CONCRETE PATH TO BE 15mm DEEP AND PLACED AT SPACINGS EQUAL TO THE PATHWAY WIDTH. EXPANSION JOINTS TO BE PLACED AT MAXIMUM 6m INTERVALS. JOINTING MATERIAL TO BE APPROVED 10mm THICK BITUMINOUS MATERIAL TO THE FULL DEPTH OF THE PATHWAY.
4. GENERALLY A FREEBOARD IN ACCORDANCE WITH THE SPEC. WILL BE REQUIRED.
5. REFER DRAWINGS SD61 FOR PATHWAY BARRIER DETAILS & SD44 SHEET 5 FOR OVERLAND FLOWPATH DETAILS ACROSS FOOTPATH AREA.
6. ALL DIMENSIONS IN METRES UNLESS OTHERWISE SHOWN.

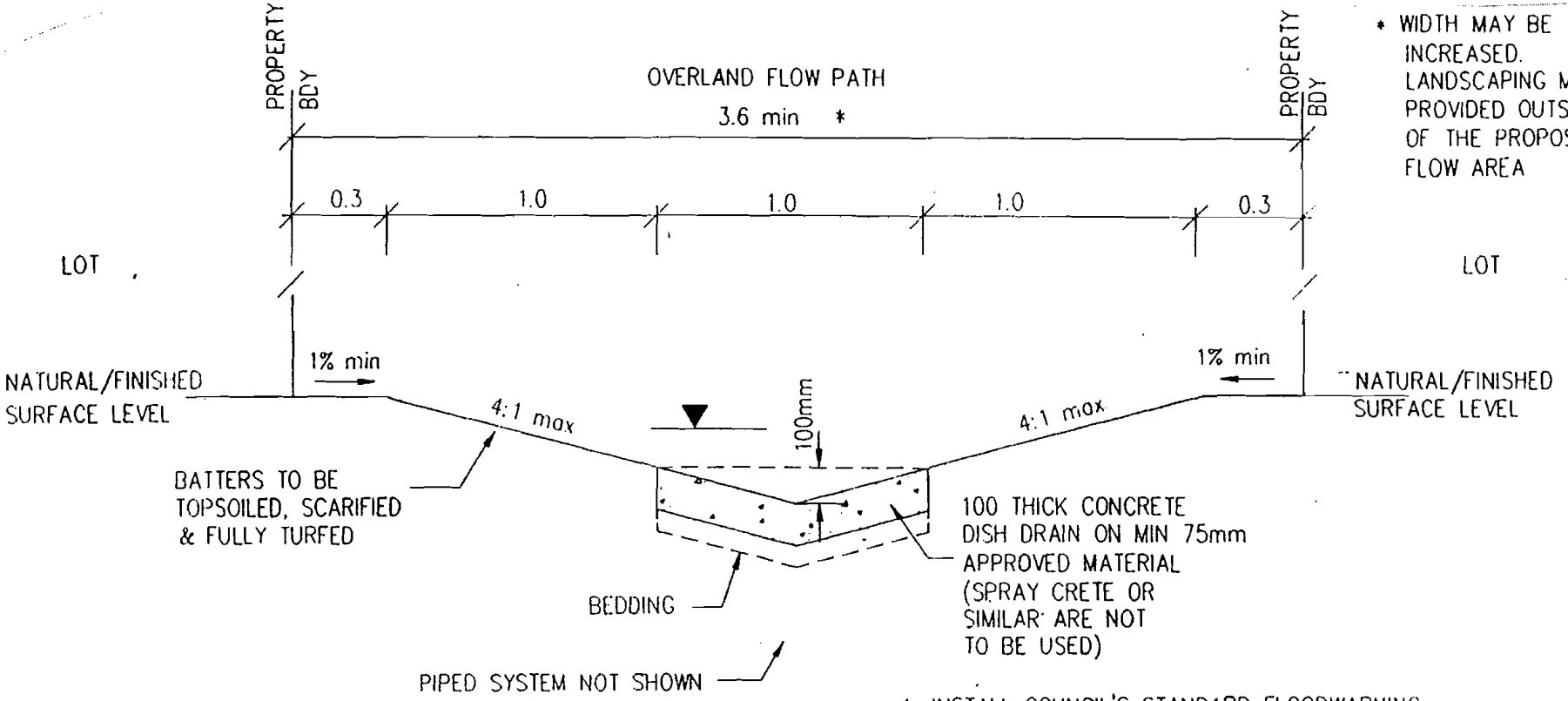


Hawkesbury City Council

PEDESTRIAN PATHWAY - OVERLAND FLOWPATH - TYPE 2

SCALE : NTS

DRAWING No. : SD44 SHEET 2 OF 5



▼ – DENOTES REQUIRED CAPACITY OF OVERLAND FLOW PATH TO BE SHOWN ON DETAIL DESIGN PLANS SUPPORTED BY ALL RELEVANT CALCULATIONS. IF CAPACITY IS INSUFFICIENT OVERALL WIDTH TO BE INCREASED OR PROVIDE TYPE-2 PLAN No SD 44 SHEET 4.

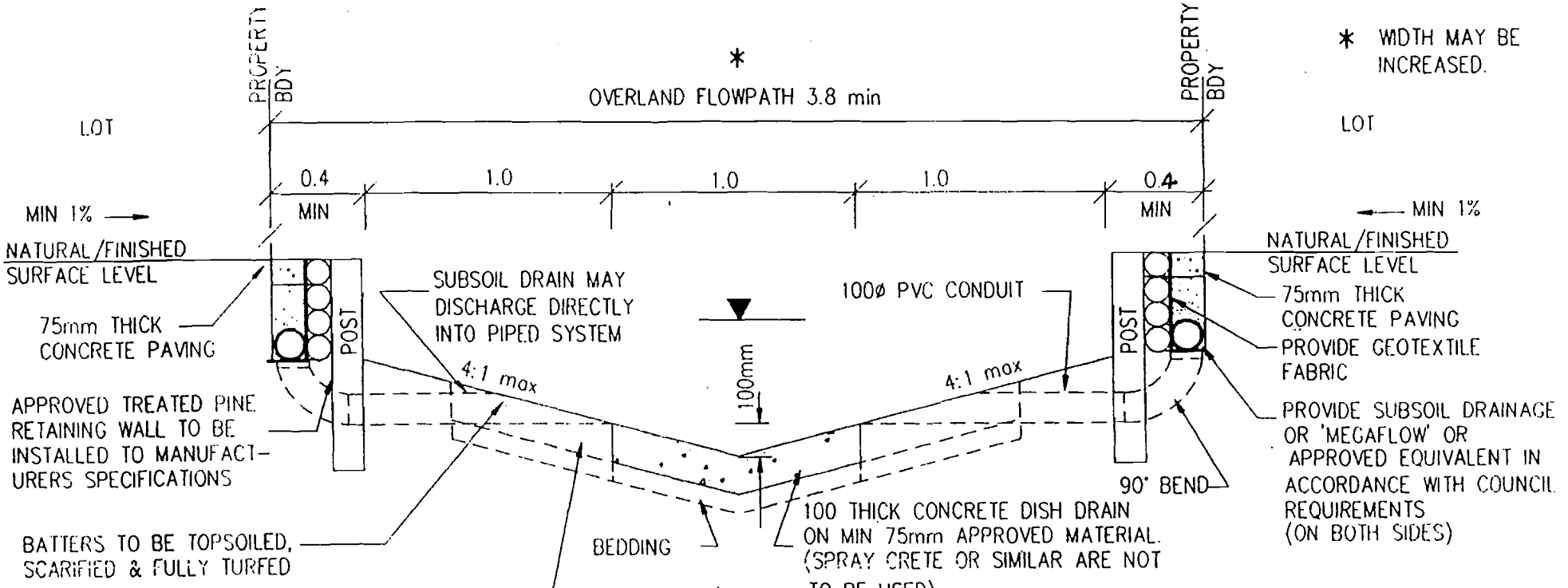
1. INSTALL COUNCIL'S STANDARD FLOODWARNING SIGN WHERE DIRECTED. REFER TO SD 45
2. OVERLAND FLOWPATH TO BE ADEQUATELY FENCED.
3. ACCESS FOR MAINTENANCE TO BE PROVIDED.
4. CONTRACTION JOINTS IN DISH DRAIN TO BE 20mm DEEP AND PLACED AT NO MORE THAN 5m INTERVALS. EXPANSION JOINTS TO BE PLACED AT NO MORE THAN 15m INTERVALS. JOINTING MATERIAL TO BE APPROVED 10mm THICK BITUMINOUS MATERIAL TO THE FULL DEPTH OF THE CONCRETE OR AS DIRECTED BY THE ENGINEER.
5. GENERALLY A 300mm FREEBOARD TO FLOOR LEVEL WILL BE REQUIRED
6. ALL DIMENSIONS IN METRES UNLESS OTHERWISE SHOWN

Hawkesbury City Council

NON-PEDESTRIAN OVERLAND FLOWPATH – TYPE 1

SCALE : NTS

DRAWING No. : SD44 SHEET 3 OF 5



1. INSTALL COUNCIL'S STANDARD FLOOD WARINING SIGNS WHERE DIRECTED. REFER TO SD 45
2. DRAINAGE RESERVE/OVERLAND FLOW PATH TO BE ADEQUATELY FENCED.
3. ACCESS FOR MAINTENANCE TO BE PROVIDED.
4. CONTRACTION JOINTS IN DISH DRAIN TO BE 20mm DEEP AND PLACED AT NO MORE THAN 5m INTERVALS. EXPANSION JOINTS TO BE PLACED AT NO MORE THAN 15m INTERVALS. JOINTING MATERIAL TO BE APPROVED 10mm THICK BITUMINOUS MATERIAL TO THE FULL DEPTH OF THE CONCRETE OR AS DIRECTED BY THE ENGINEER.
5. GENERALLY A 300mm FREEBOARD TO FLOOR LEVEL WILL BE REQUIRED.
6. ALL DIMENSIONS IN METRES UNLESS OTHERWISE SHOWN.

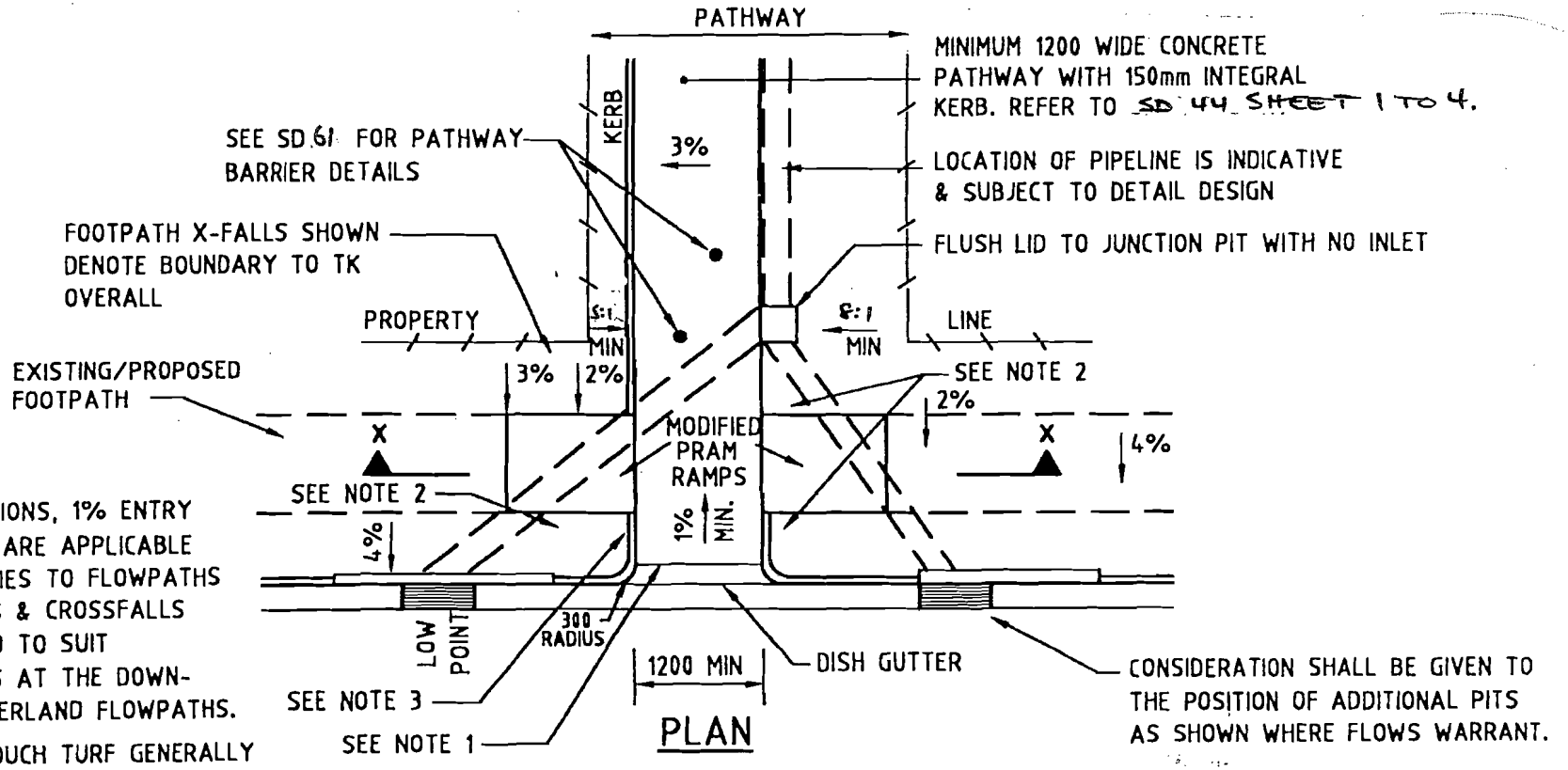
▼ - DENOTES REQUIRED CAPACITY OF OVERLAND FLOWPATH. TO BE SHOWN ON DETAIL DESIGN PLANS SUPPORTED BY ALL RELEVANT CALCULATIONS.

Hawkesbury City Council

NON-PEDESTRIAN OVERLAND FLOWPATH – TYPE 2

SCALE : NTS

DRAWING No. : SD 44 SHEET 4 OF 5



NOTES:-

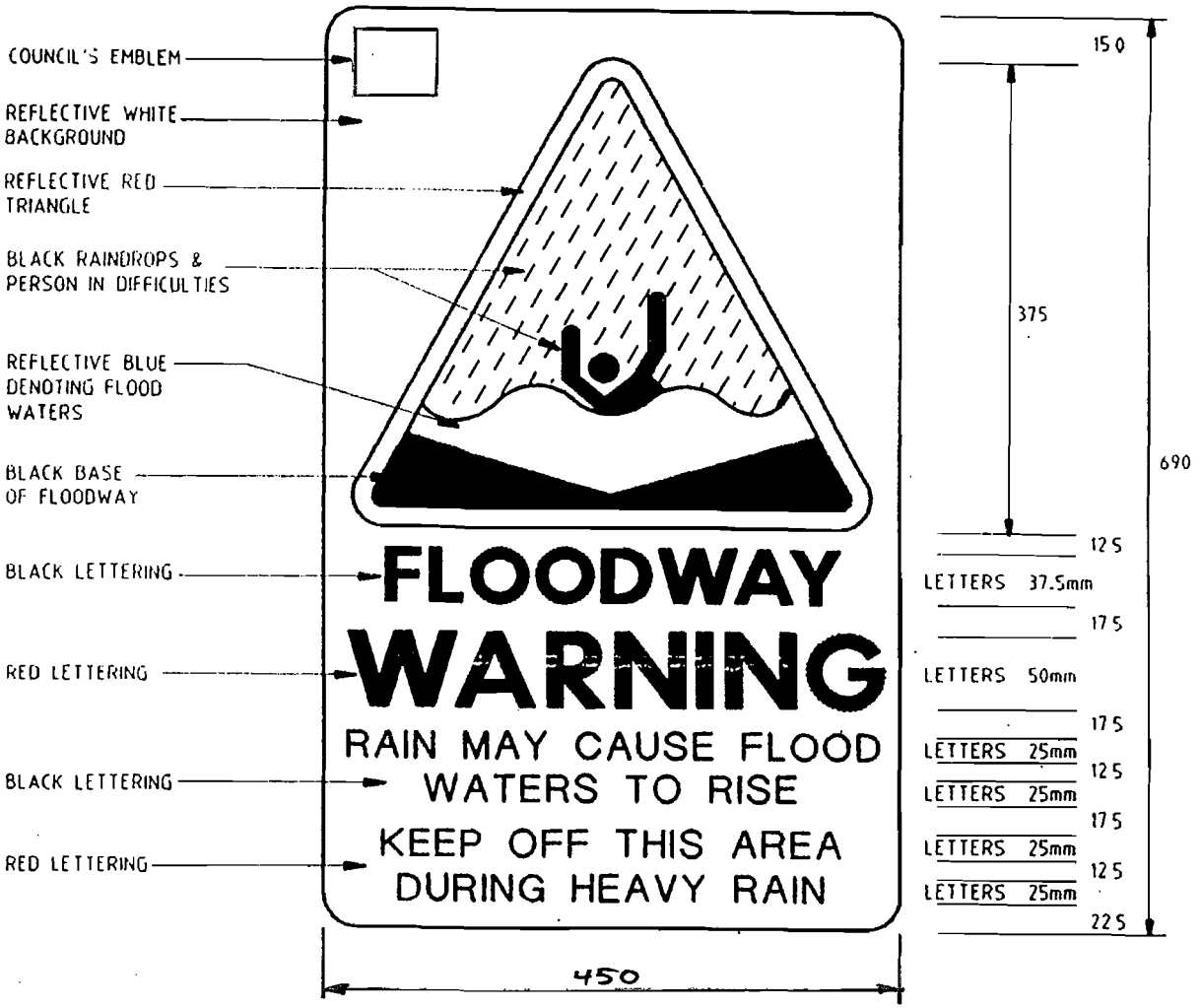
1. CROSSFALL TRANSITIONS, 1% ENTRY TO FLOWPATH ETC. ARE APPLICABLE AT UPSTREAM ENTRIES TO FLOWPATHS ONLY. SUCH GRADES & CROSSFALLS SHALL BE ADJUSTED TO SUIT STANDARD PROFILES AT THE DOWN-STREAM END OF OVERLAND FLOWPATHS.
2. SHAPE, GRADE & COUCH TURF GENERALLY IN ACCORDANCE WITH STANDARD PRAM RAMP WING SHAPE. (TYPICAL) REFER SD 62.
3. TRANSITION 150mm INTEGRAL KERB TO SUIT MODIFIED PRAM RAMP LEVELS OVER MINIMUM 600mm. (TYPICAL)
4. REFER SD44 SHEET 1 & SD9 FOR JOINT REQUIREMENTS IN CONCRETE PAVING.
5. MINIMUM 1.0m WIDE COUCH TURF SURROUND TO BE PROVIDED TO KERB & GUTTER, FLOWPATH & RAMP AREAS.

Hawkesbury City Council

FOOTPATH TREATMENT FOR OVERLAND FLOWPATHS

SCALE : NTS

DRAWING No. : SD44 SHEET 5 OF 5



NOTE: ALL LETTERING TO BE "E" SERIES

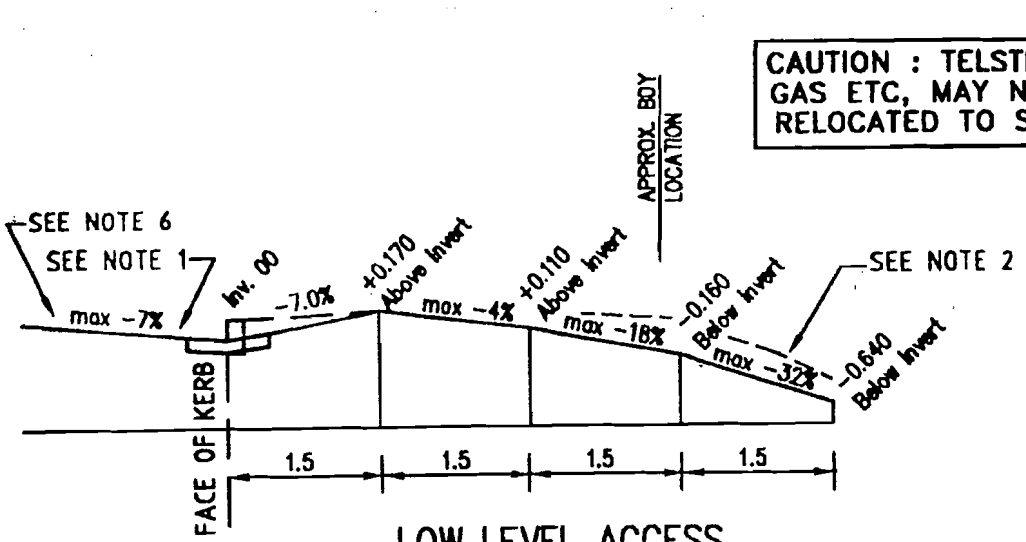
Hawkesbury City Council

FLOOD WARNING SIGN

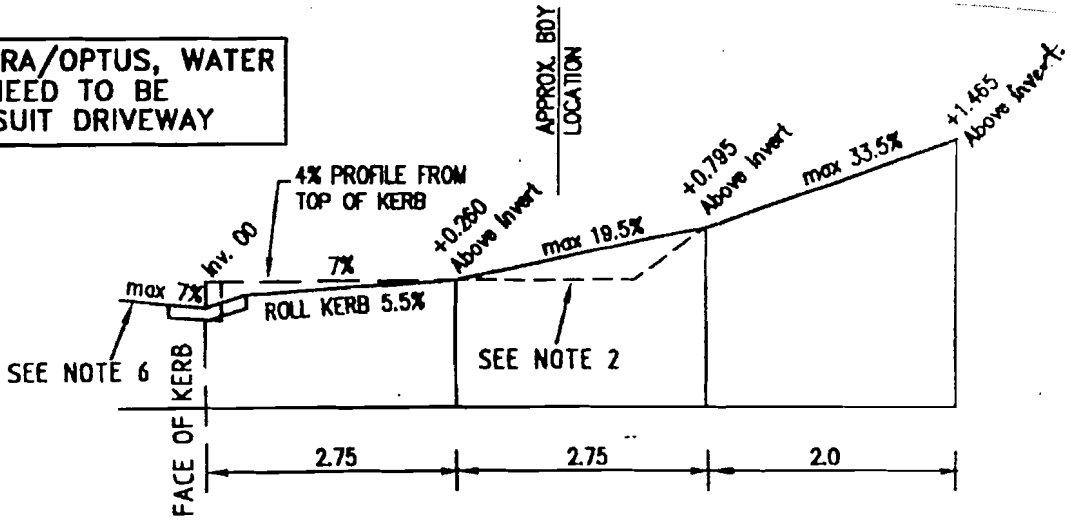
SCALE : NTS

DRAWING No. : SD 45

CAUTION : TELSTRA/OPTUS, WATER GAS ETC, MAY NEED TO BE RELOCATED TO SUIT DRIVEWAY



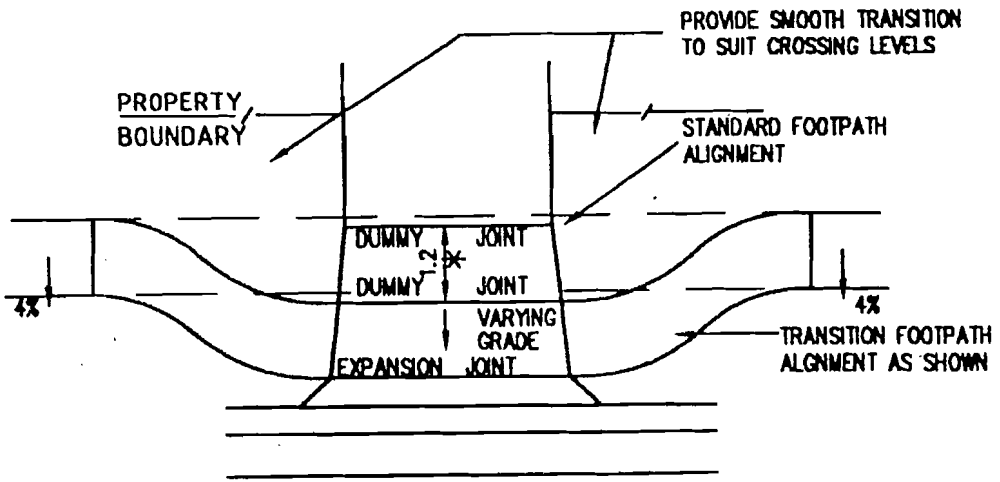
LOW LEVEL ACCESS



HIGH LEVEL ACCESS

NOTES

1. DEPTH OF SECONDARY FLOW IS CRITICAL. PROVIDE MINIMUM 100mm FREEBOARD FROM 100 YEAR ARI CALCULATED FLOW LEVEL TO HIGH POINT IN DRIVEWAY.
2. WHERE REQUIRED THE APPLICANT IS TO PROVIDE INTERIM CONSTRUCTION PADS FOR SERVICE AUTHORITIES ENSURING CORRECT COVER IS PROVIDED TO FINISHED SURFACE LEVELS.
3. THE ACCESSES ARE BASED ON THE 85TH PERCENTILE VEHICLE DIMENSIONS WITHOUT A TOWBAR.
4. WHERE VEHICLES ARE MODIFIED, LONGITUDINAL OR CROSSFALL GRADES ARE EXCESSIVE, FURTHER ADVICE FROM COUNCIL WILL BE REQUIRED.
5. COUNCIL WILL NOT BE RESPONSIBLE IF VEHICLES CAN NOT TRAVERSE THE DESIGN ACCESS WHERE THE ABOVE GUIDELINES ARE NOT TAKEN INTO ACCOUNT.
6. REFER TO NOTE 4 FOR SUPERELEVATED ROADS.



* WIDTH BETWEEN JOINTS MAY VARY SLIGHTLY TO SUIT REQUIRED GRADE

NOTE :- TO BE READ IN CONJUNCTION WITH SD 66 TO 70.
- ALL DIMENSIONS IN METRES

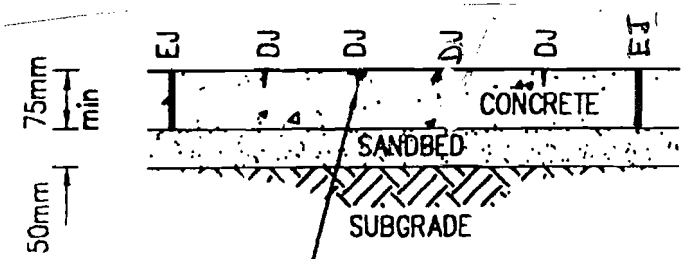
CONCRETE FOOTPATH LOCATION AT HIGH & LOW LEVEL CROSSINGS

Hawkesbury City Council

VEHICULAR CROSSING FOR HIGH & LOW LEVEL ACCESS

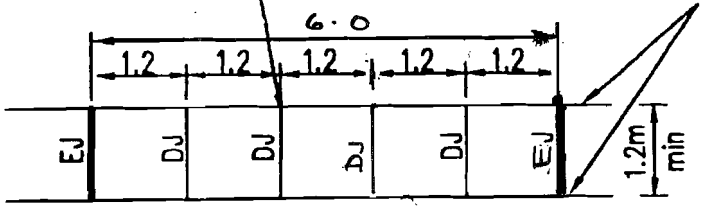
SCALE : NTS

DRAWING No. : SD 60



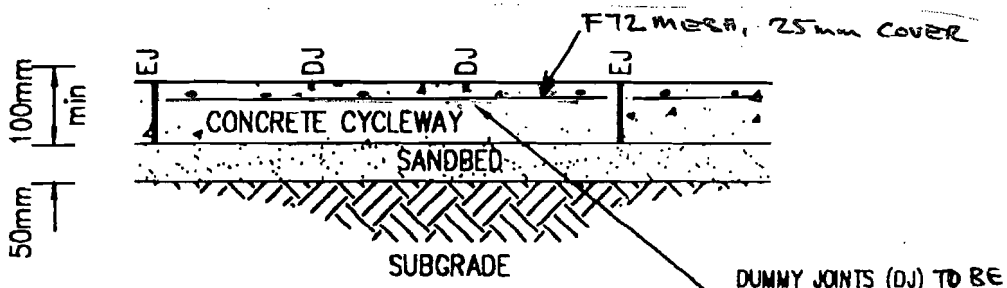
ELEVATION

DUMMY JOINTS (DJ) TO BE TOOL FORMED OR MAY BE SAWN JOINTS AS PER CYCLEWAYS, TO BE 10mm IN DEPTH FOR FOOTPATHS.



PLAN

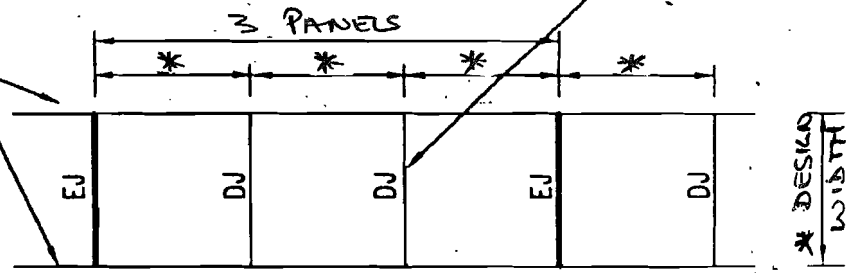
FOOTPATH



ELEVATION

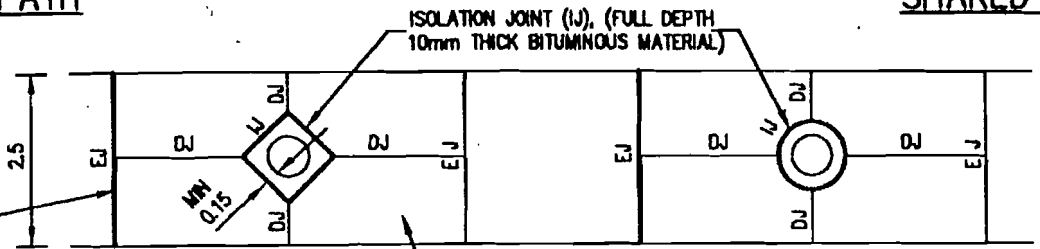
DUMMY JOINTS (DJ) TO BE SAW CUTS 10mm DEEP, AND FULL WIDTH.

PROVIDE 2 COUCH TURF STRIPS EITHER SIDE FLUSH WITH FOOTPATH/CYCLEWAY U.N.O.



PLAN

SHARED CYCLEWAY/PATHWAY



WHERE DJ ARE REQUIRED TO PROJECT FROM SERVICE PIT SURROUNDS LONGITUDINALLY THE NEXT TRANSVERSE JOINT SHALL BE AN EXPANSION JOINT AS SHOWN IRRESPECTIVE OF THE ABOVE DETAILS.

- WHERE POSSIBLE AVOID SERVICE PITS AND VALVES LOCATED WITHIN CYCLEWAYS.

STAND JOINT LAYOUTS MAY BE VARIED TO SUIT. SLAB SIZES NOT TO BE LESS THAN 1.0m AND NOT MORE THAN L TO W RATIO OF 1:6 TO 1. JOINT LAYOUT WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

PROJECTIONS INTO CYCLEWAYS/PATHWAYS

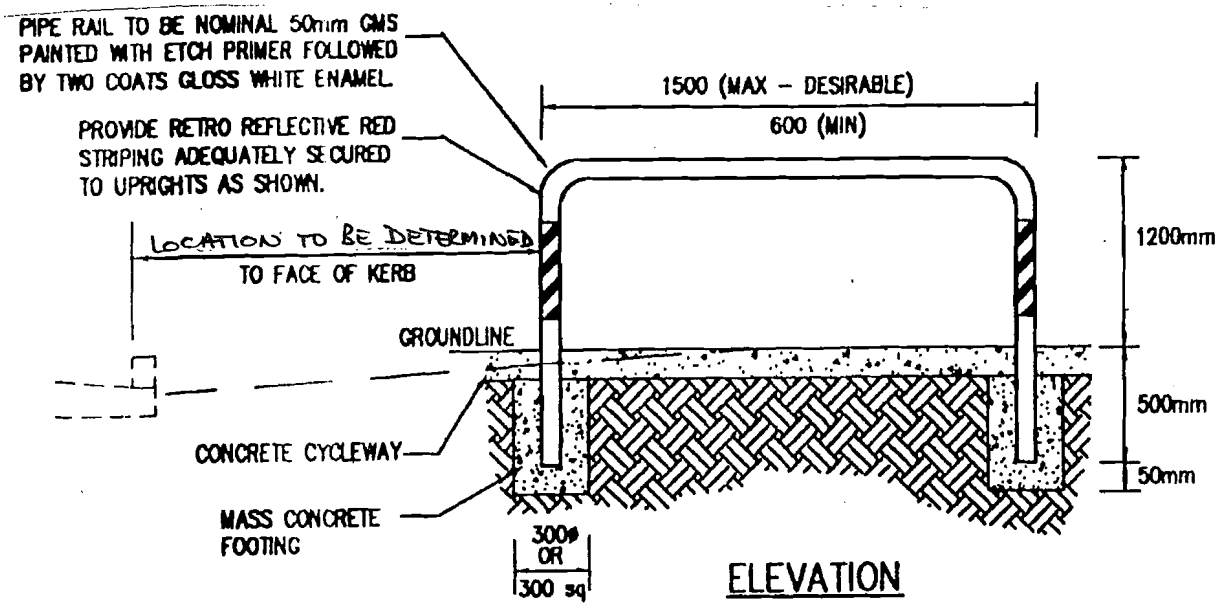
SCALE : NTS

Hawkesbury City Council

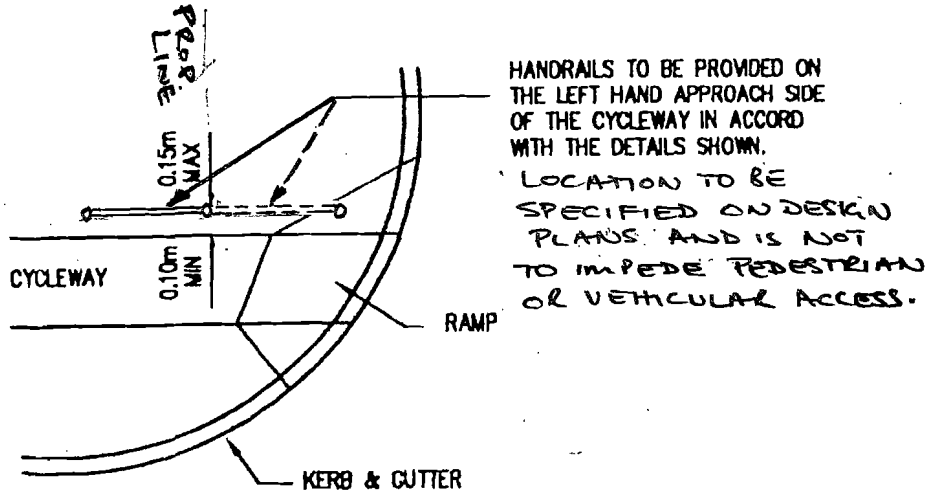
STANDARD FOOTPATH & CYCLEWAY DETAILS-

JOINT DETAIL.

DRAWING No. : SD61 SHEET 1 OF 3



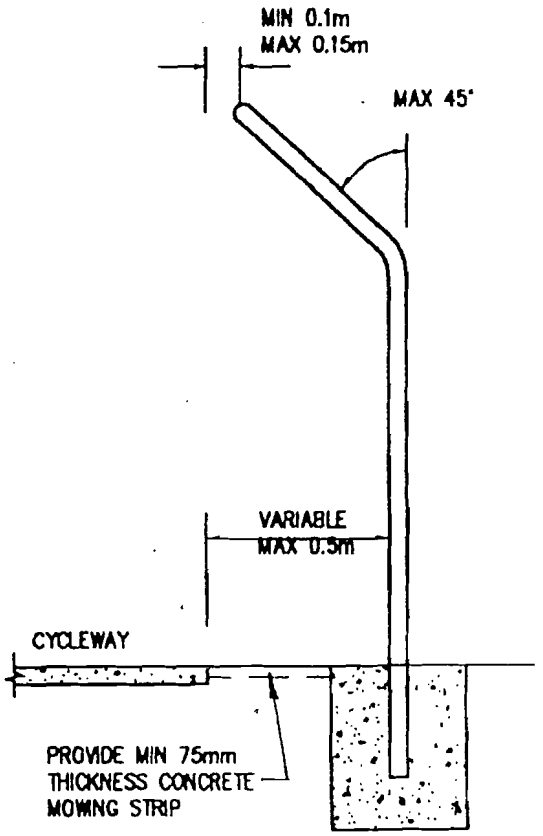
ELEVATION



HANDRAILS TO BE PROVIDED ON THE LEFT HAND APPROACH SIDE OF THE CYCLEWAY IN ACCORD WITH THE DETAILS SHOWN.

LOCATION TO BE SPECIFIED ON DESIGN PLANS AND IS NOT TO IMPEDE PEDESTRIAN OR VEHICULAR ACCESS.

PLAN



SECTION

* WHERE CONSTRAINTS EXIST THAT DO NOT PERMIT A VERTICAL HANDRAIL TO THE DIMENSIONS REQUIRED THE ABOVE TREATMENT SHALL BE PROVIDED.

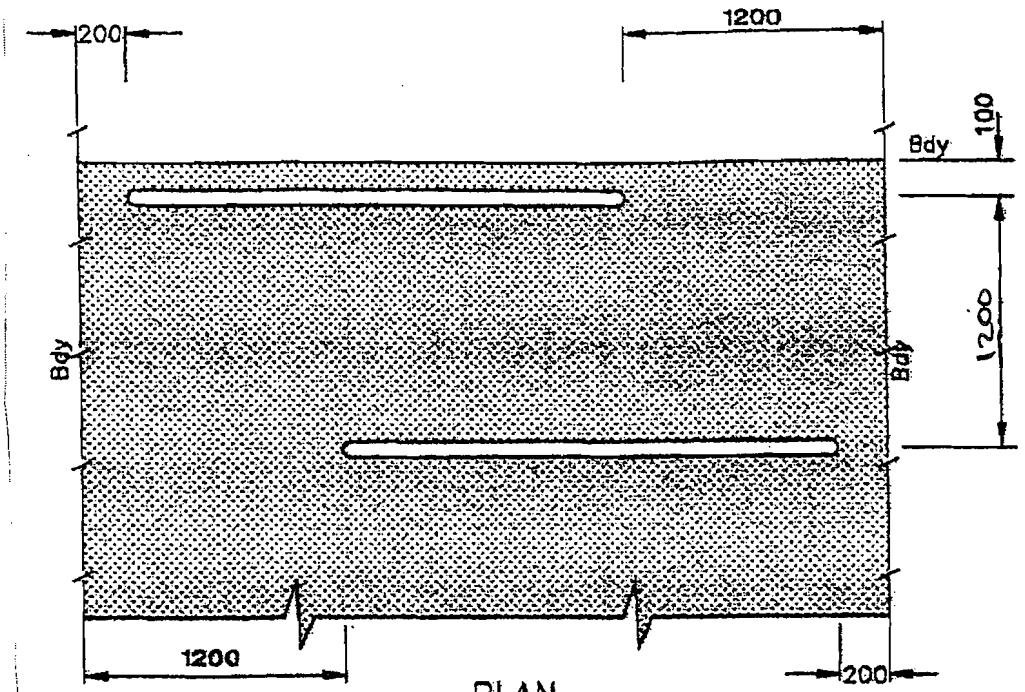
SCALE : NTS

Hawkesbury City Council

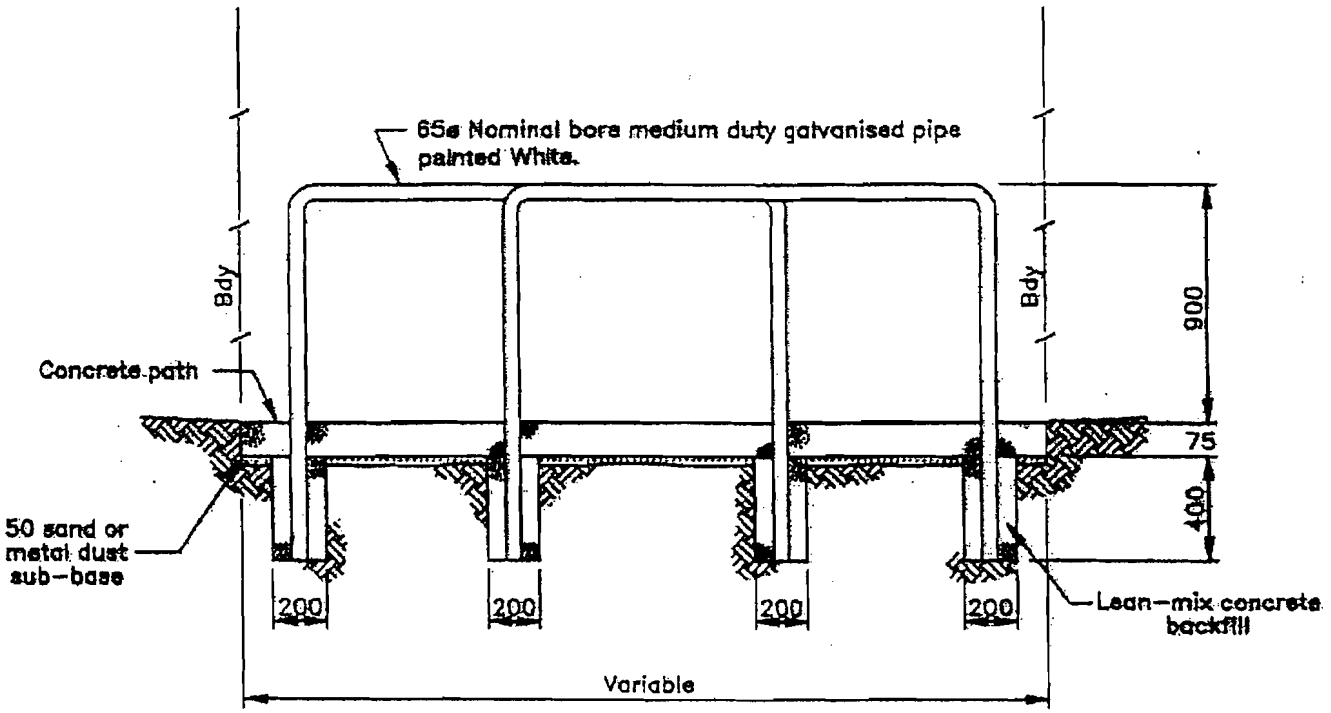
STANDARD FOOTPATH & CYCLEWAY DETAILS -

HANDRAIL DETAIL

DRAWING No. : SD61 SHEET 2 OF 3



PLAN



ELEVATION

Note: Class 1 reflective tape shall be placed **on cross rails.**

All dimensions are to be in millimetres (UNO)

SCALE: NTS

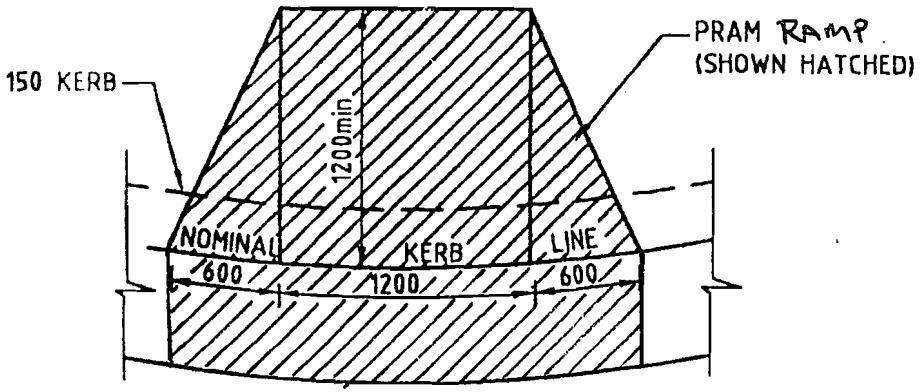
Hawkesbury City Council

STANDARD FOOTPATH & CYCLEWAY DETAILS

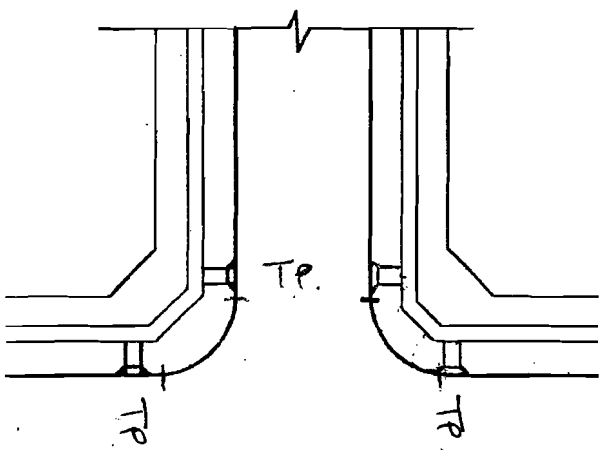
PEDESTRIAN PATHWAY BARRIER

DRAWING No. : SD 61

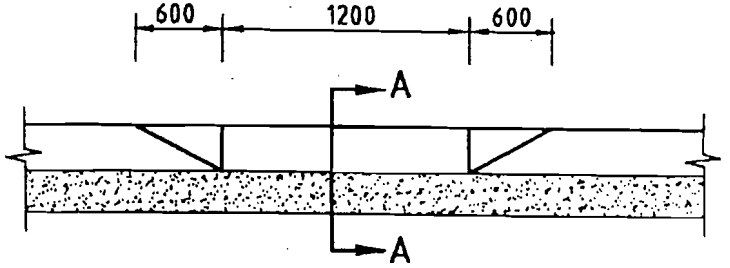
SHEET 3 OF 3



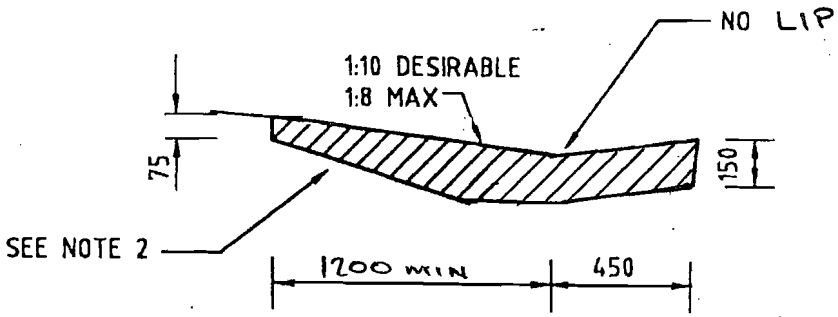
PLAN



PRAM RAMPS TO BE LOCATED AT ALL INTERSECTIONS IN ACCORDANCE WITH THE ABOVE DIAGRAM



ELEVATION



CROSS SECTION A-A

NOTES:-

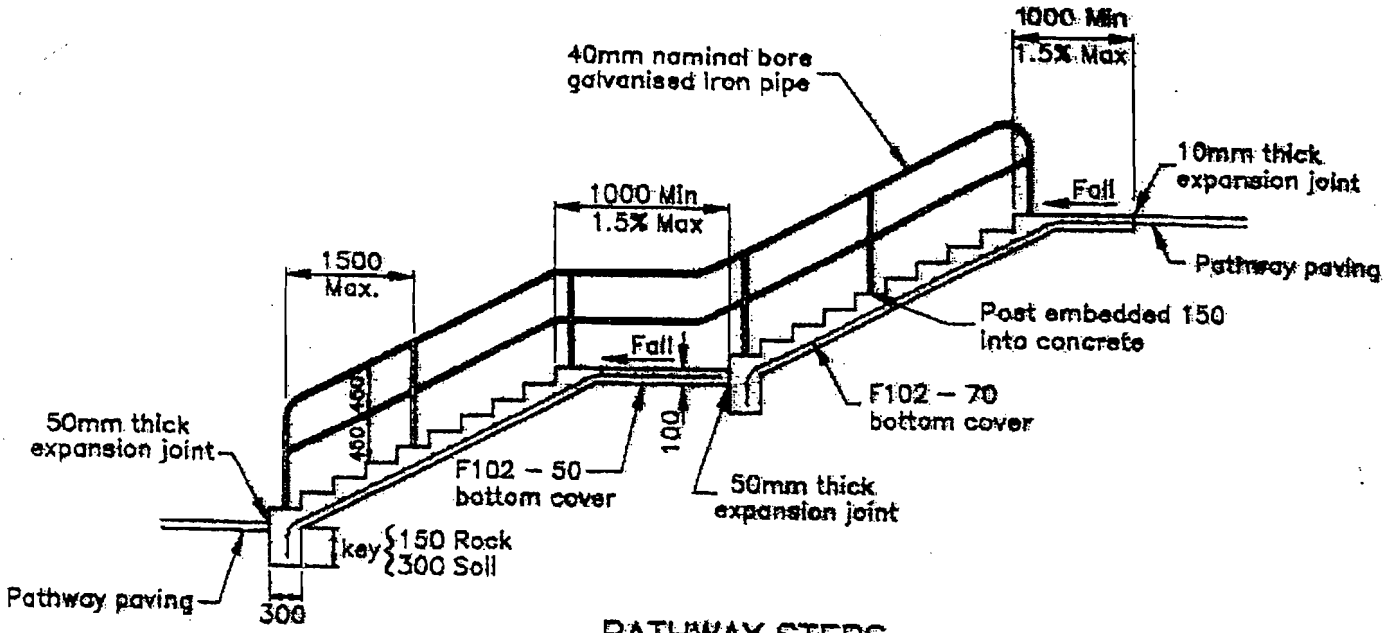
1. PRAM RAMPS WILL BE CONSTRUCTED AT ALL ROAD INTERSECTIONS & IN FRONT OF PATHWAYS. WHERE THE SPECIFIED CONSTRUCTION OF THE ROAD KERB HEIGHT VARIES FROM THE 150mm DIMENSION SHOWN ON THIS DRAWING.
2. PRAM RAMPS TO BE LAID ON A WELL COMPACTED FINE CRUSHED ROCK BASE, MINIMUM THICKNESS 75.
3. CONCRETE TO BE OF 20 MPa COMPRESSIVE STRENGTH (Fc) AT 28 DAYS.
4. RAMP SURFACE TO BE PROVIDED WITH NON-SLIP FINISH.
5. RAMPS TO BE LOCATED WHERE POSSIBLE ON DOWNSTREAM SIDE OF DRAINAGE PITS.
6. RAMPS TO BE PROVIDED WHERE SHOWN ON APPROVED ENGINEERING PLANS IN LIEU OF LOCATIONS SHOWN ON THIS STANDARD.
7. MINOR WARPING OF THE ADJACENT FOOTPATH MAY BE REQUIRED.

Hawkesbury City Council

STANDARD PRAM RAMP CROSSING

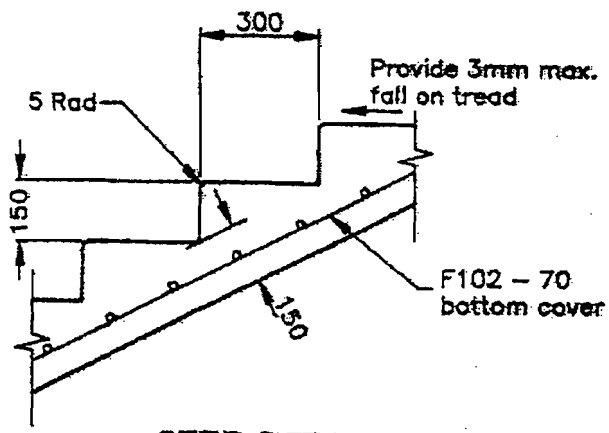
SCALE : NTS

DRAWING No. : SD62



PATHWAY STEPS

MIN WIDTH OF 1·2m.



STEP DETAILS

NOTES:

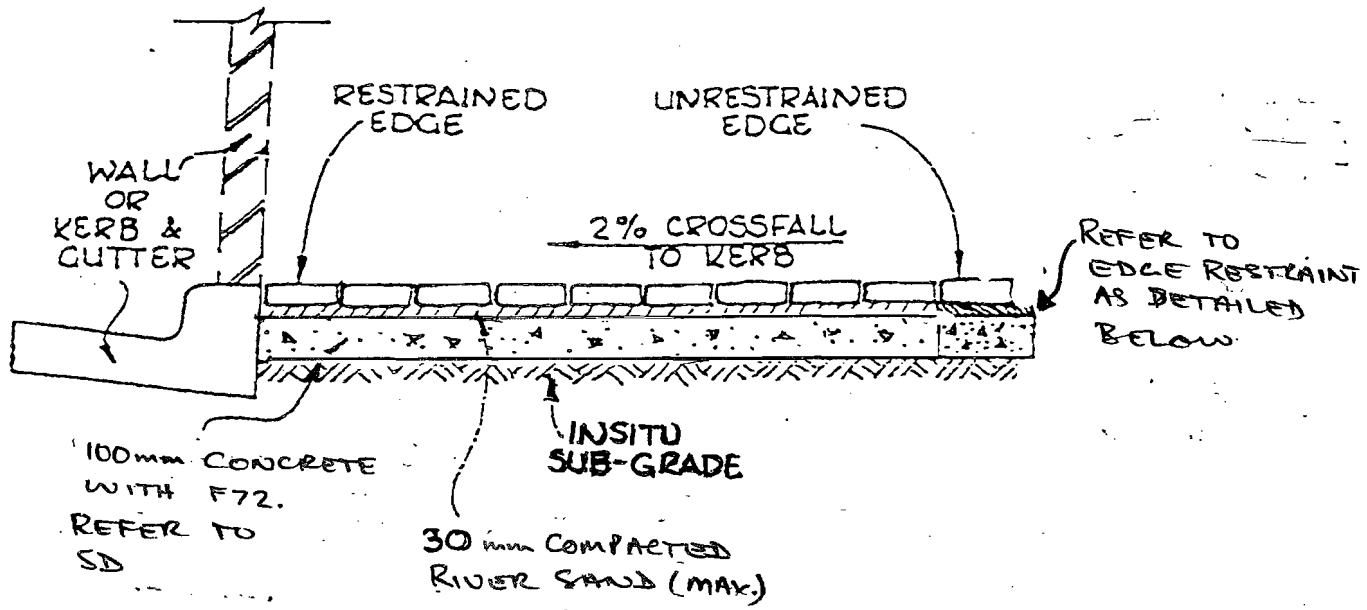
1. Maximum number of steps per flight = 10
2. Minimum number of steps per flight = 2
3. Handrailing shall be provided where there are more than 5 risers in one flight and located ON ONE SIDE AS A MINIMUM OR AS SHOWN ON THE ENGINEERING PLANS.
4. Handrailing shall be dipped galvanised after fabrication in accordance with A.S.1650-1981.
5. Compressive strength of concrete (F'c) at 28 days shall be 20 MPa
6. All dimensions are in millimetres.

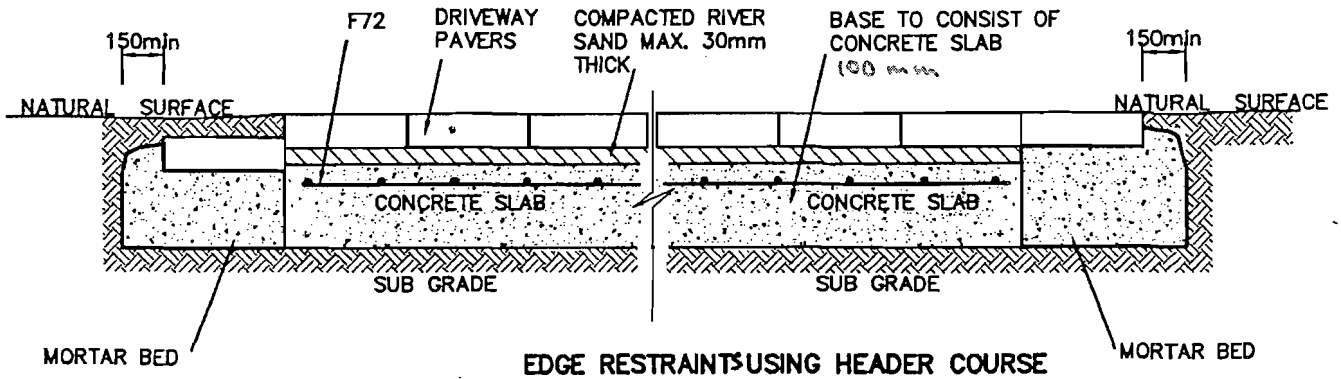
Hawkesbury City Council

PATHWAY STEPS

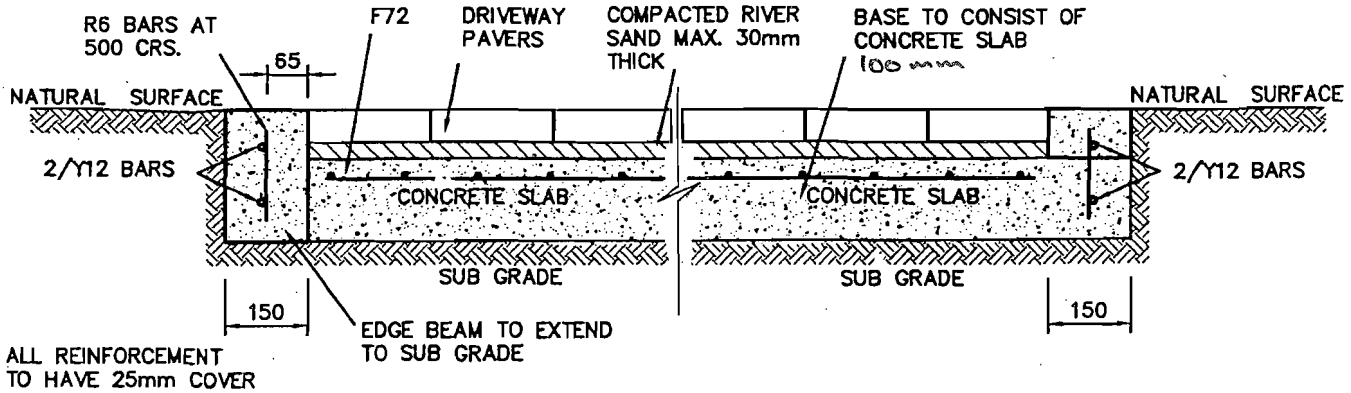
SCALE : NTS

DRAWING No. : SD 63





EDGE RESTRAINTS USING HEADER COURSE



EDGE RESTRAINTS USING REINFORCED CONCRETE EDGE BEAM

Hawkesbury City Council

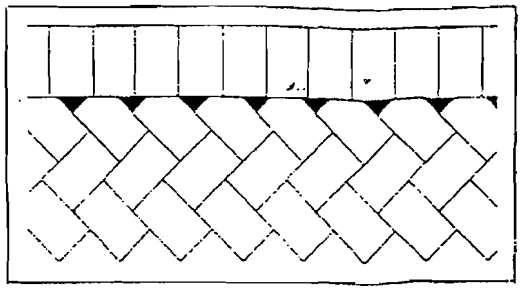
SEGMENTAL FOOTPAVING

SCALE : NTS

DRAWING No. : SD 65

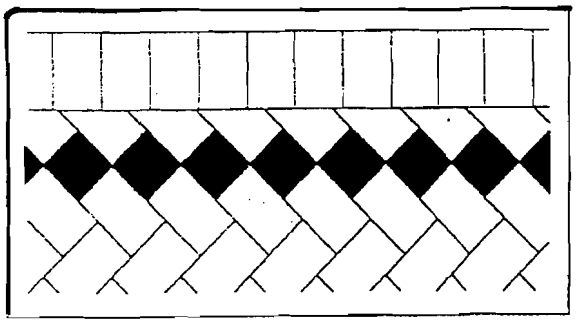
SHEET 1 OF 2

Figure 1 Trimming to avoid small edge infill pieces

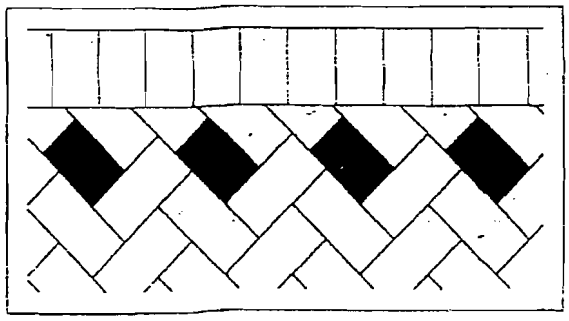


Small edge pieces not permitted

Figure 2

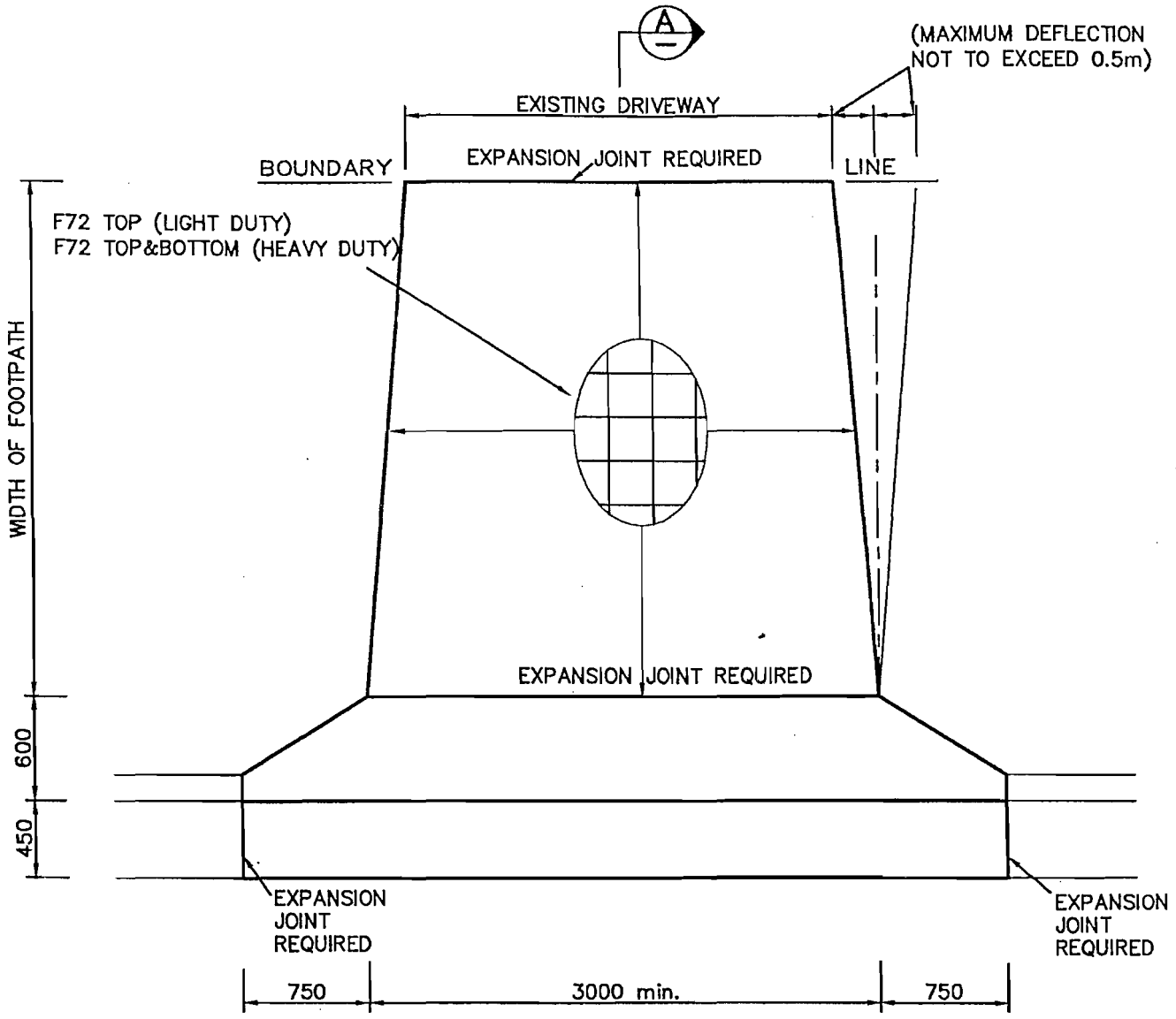


Recommended insertion of pavers cut to half length.

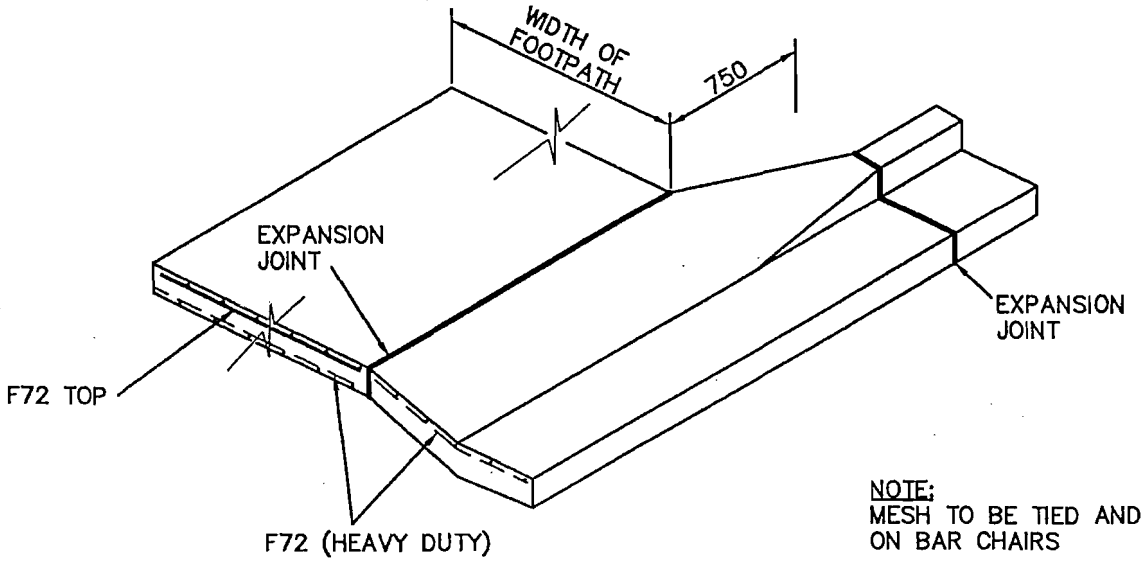


Alternative recommendation; insertion of pavers cut to three quarter length.

PLACEMENT OF PAVING UNITS



PLAN



NOTE:
MESH TO BE TIED AND SUPPORTED ON BAR CHAIRS

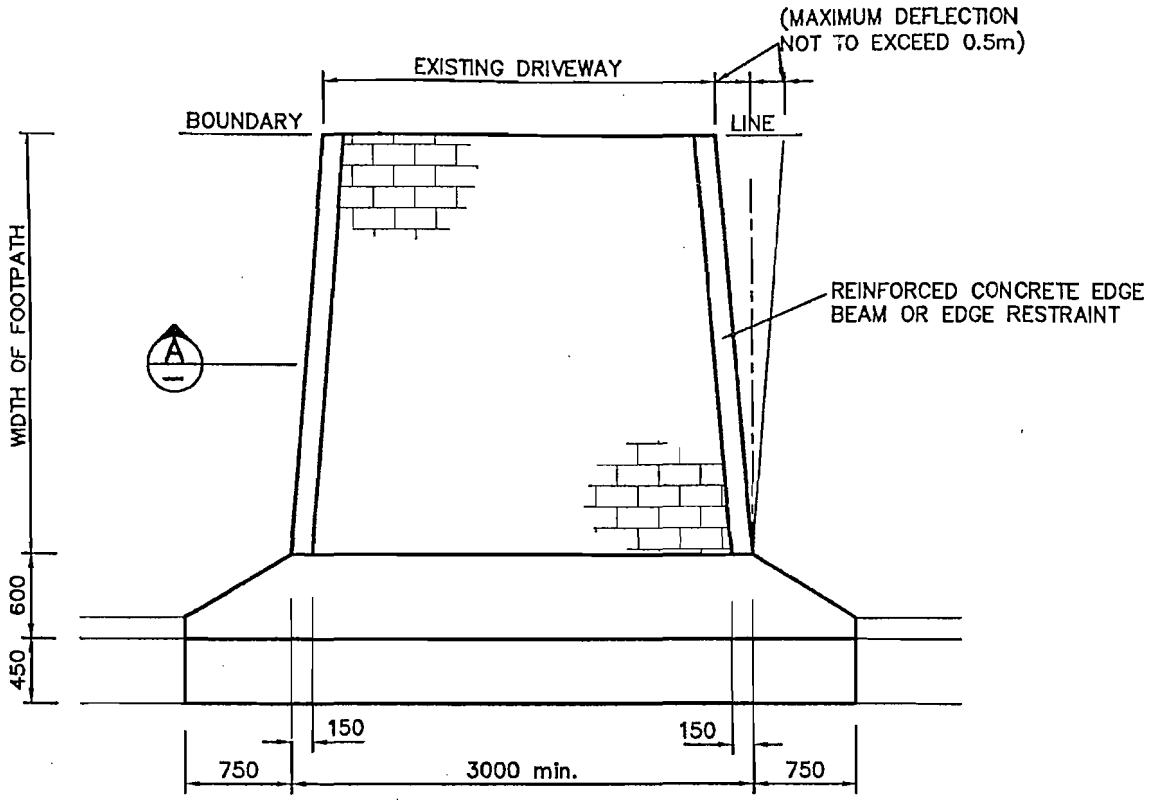
PICTORIAL VIEW

Hawkesbury City Council

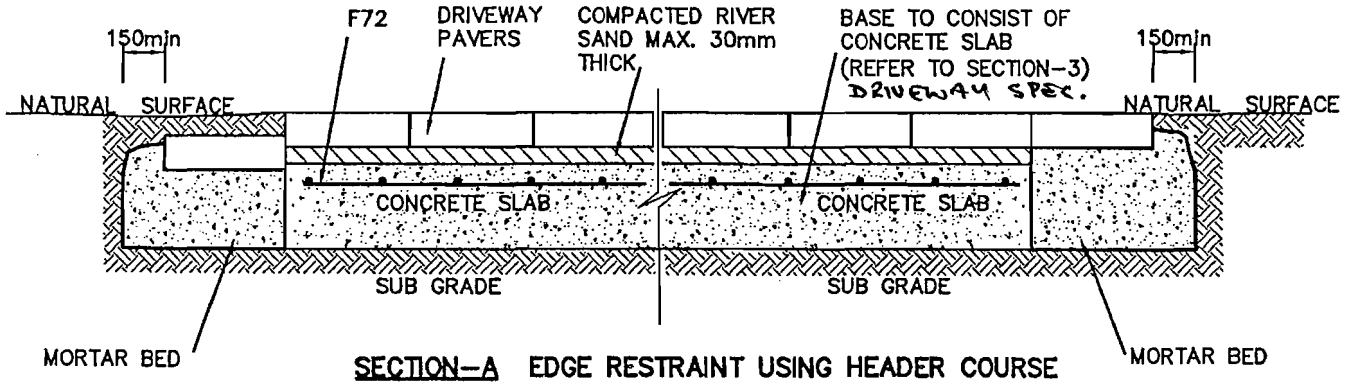
CONCRETE DRIVE SLAB DETAIL

SCALE : NTS

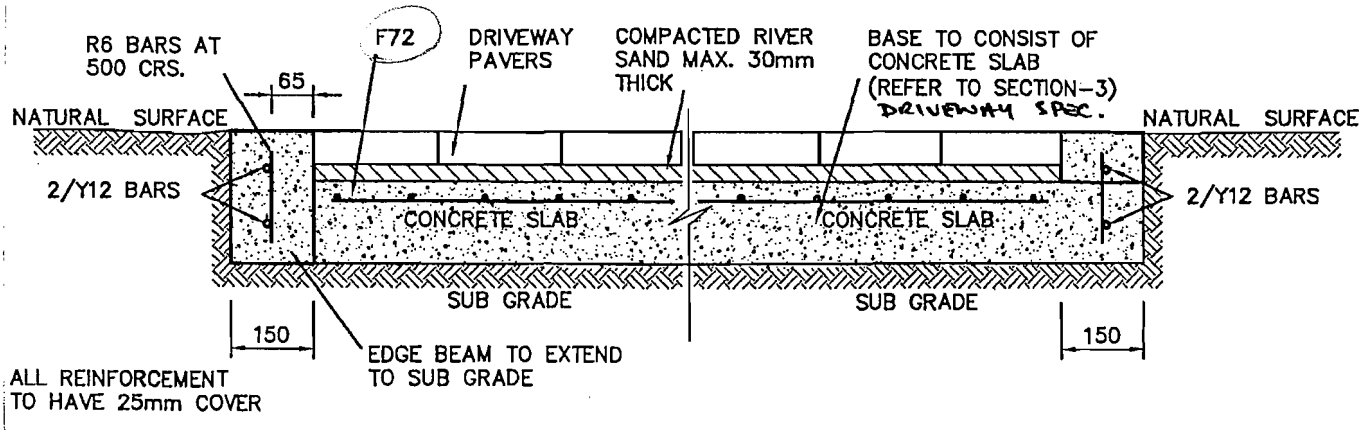
DRAWING No. : SD66



PLAN



SECTION–A EDGE RESTRAINT USING HEADER COURSE



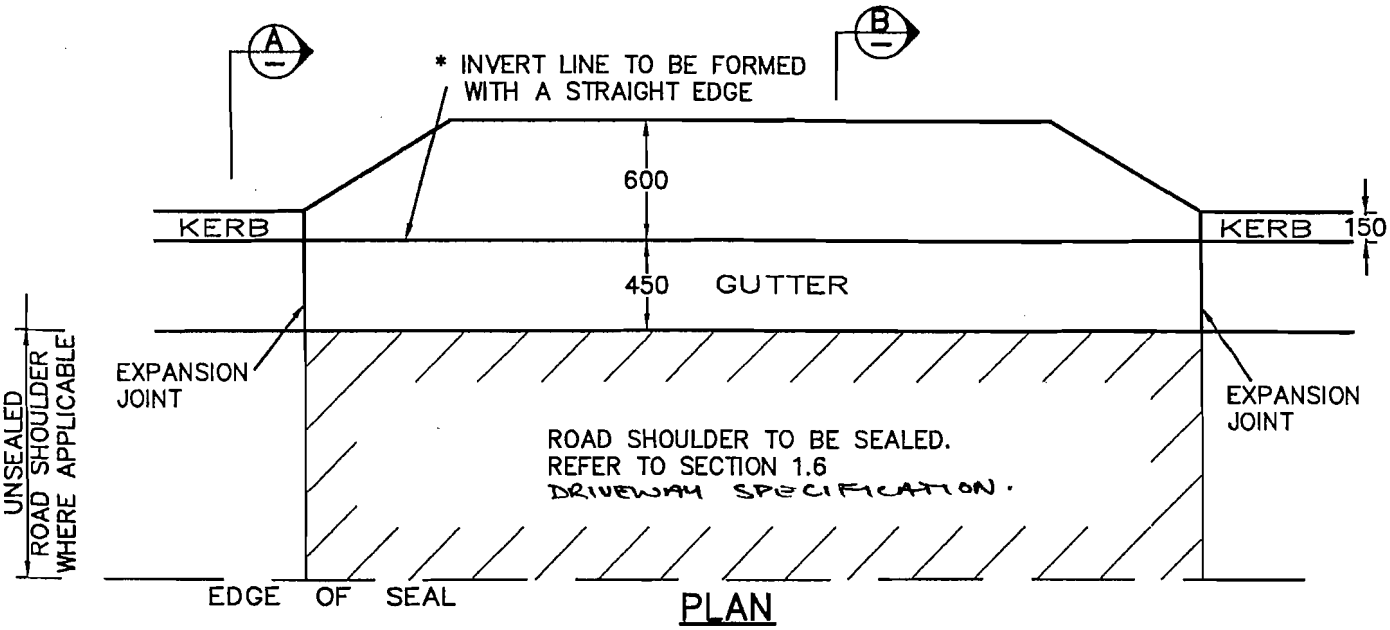
SECTION–A EDGE RESTRAINT USING REINFORCED CONCRETE EDGE BEAM

Hawkesbury City Council

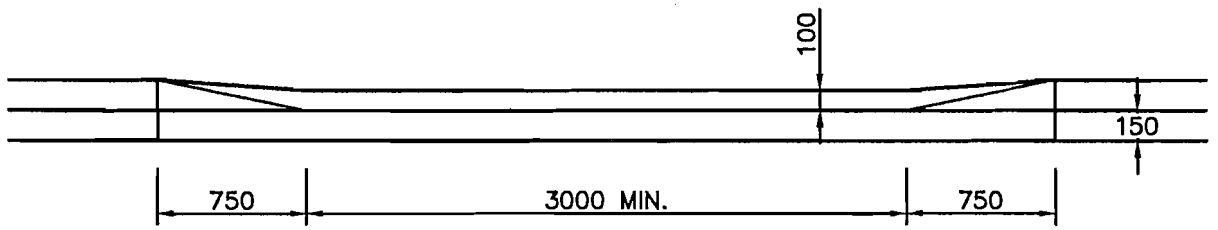
PAVERS DRIVEWAY DETAIL

SCALE : NTS

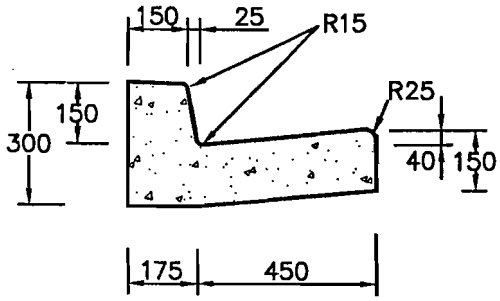
DRAWING No. : SD 67



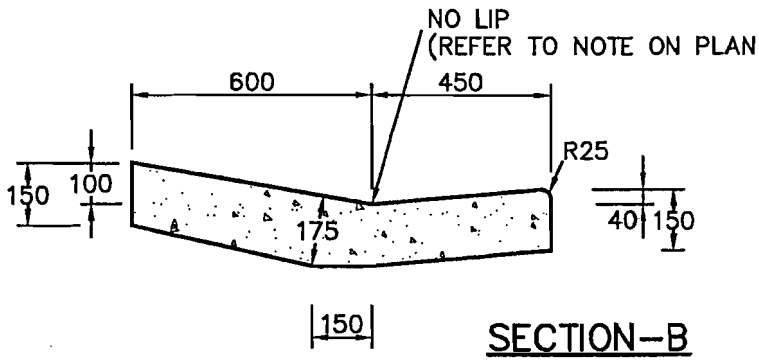
PLAN



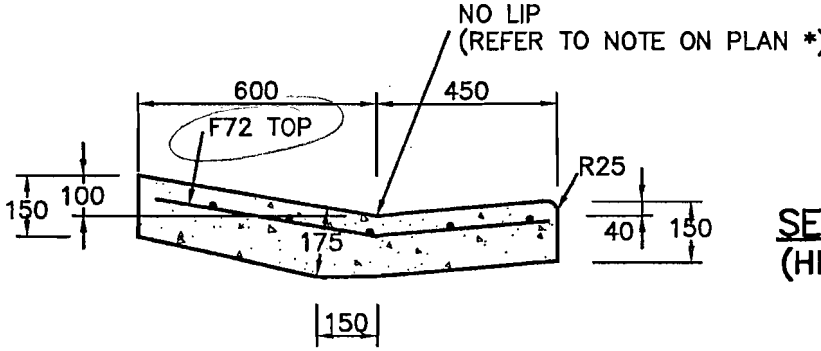
ELEVATION



SECTION–A



SECTION–B
(LIGHT DUTY)



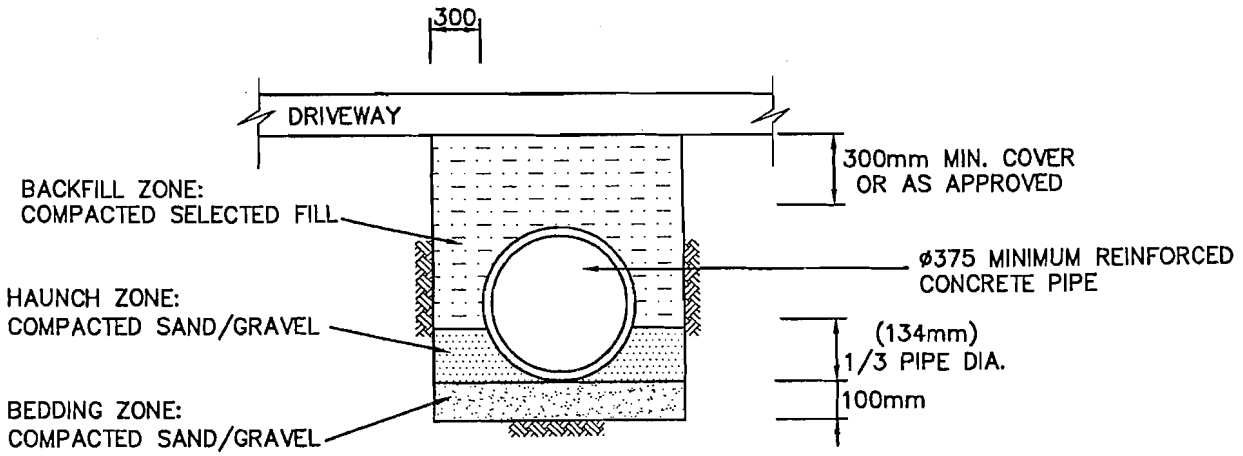
SECTION–B
(HEAVY DUTY)

Hawkesbury City Council

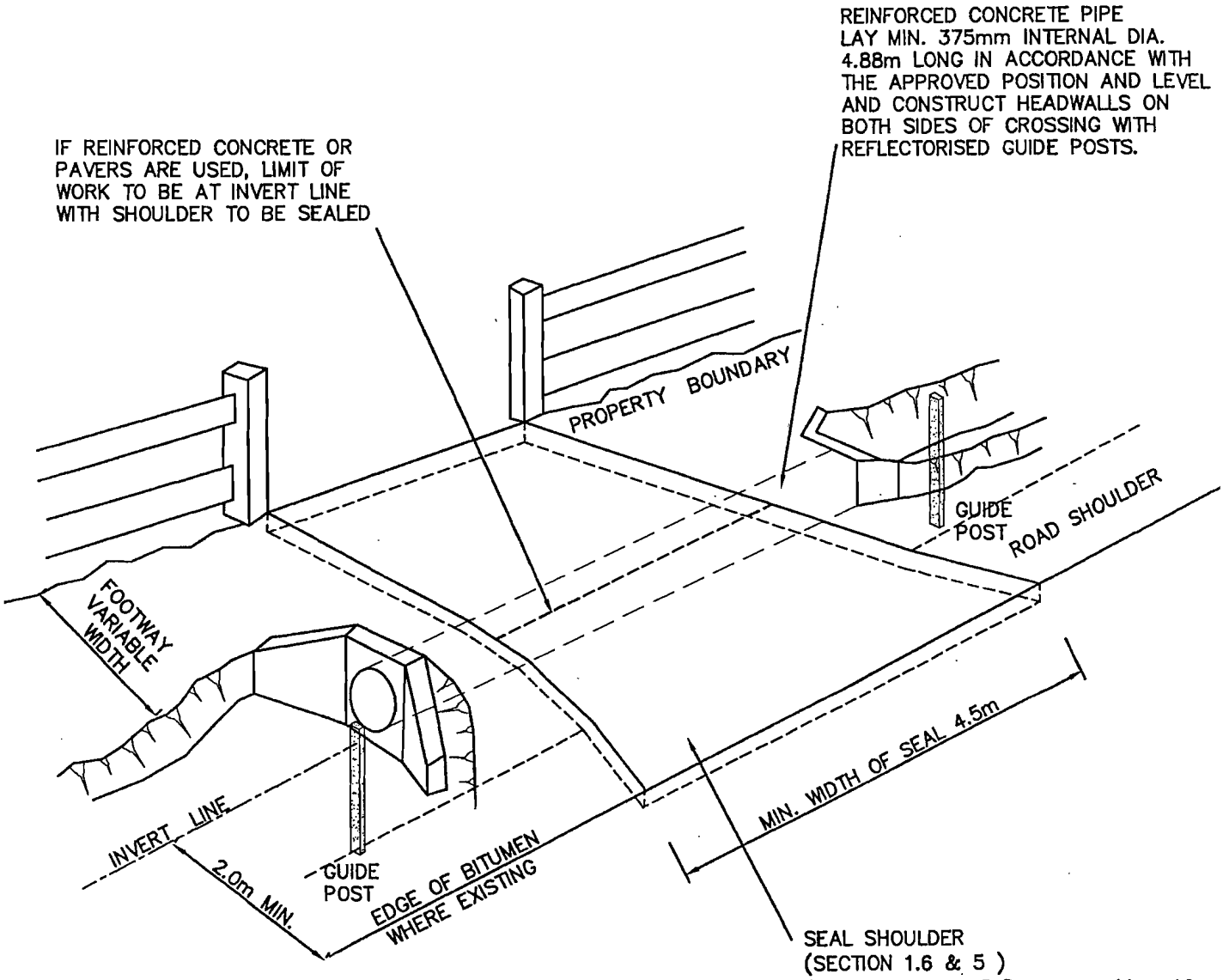
LAYBACK CROSSING DETAIL

SCALE : NTS

DRAWING No. : SD 68



PIPE BEDDING DETAIL



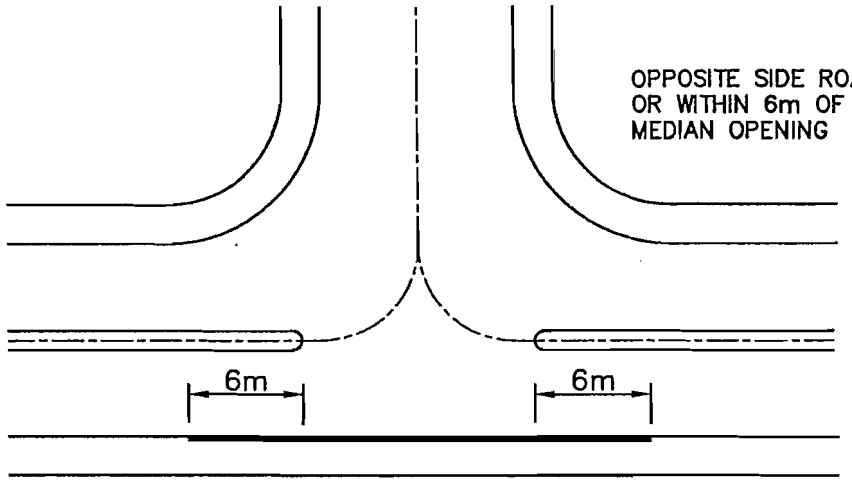
PICTORIAL VIEW

Hawkesbury City Council

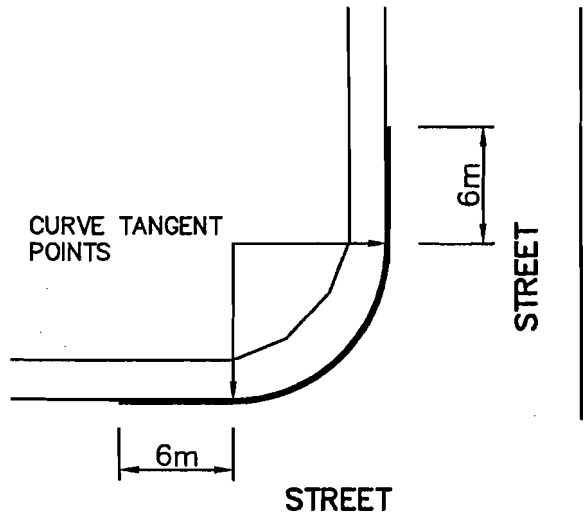
PIPED VEHICULAR CROSSING

SCALE : NTS

DRAWING No. : SD 69

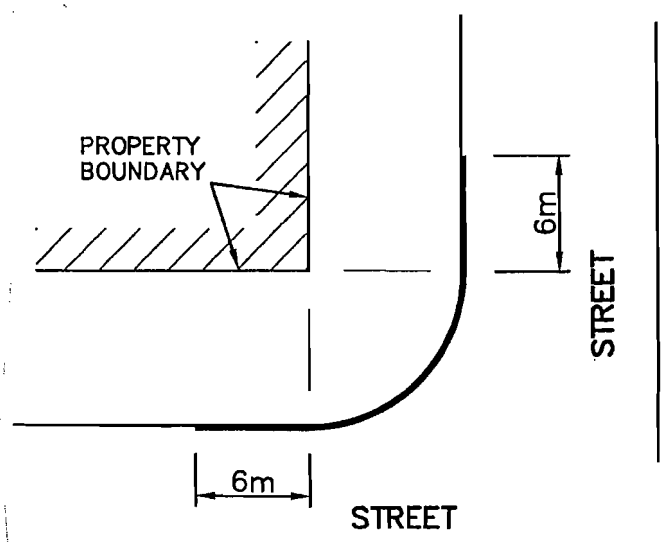


(A)



(B)

PROHIBITED LOCATION OF DRIVEWAYS
SHOWN BY HEAVY LINES



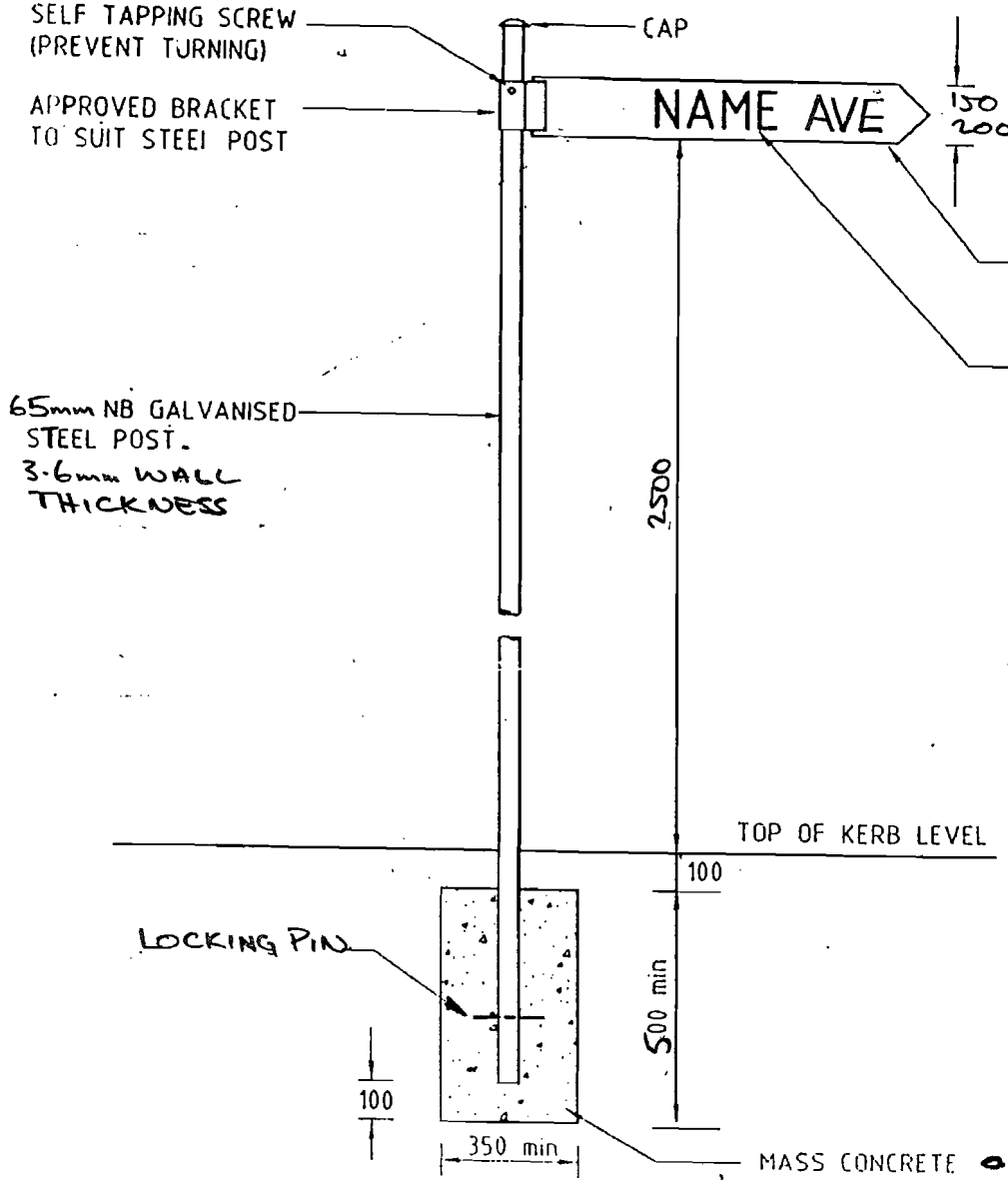
(C)

Hawkesbury City Council

PROHIBITED LOCATION OF DRIVEWAYS

SCALE : NTS

DRAWING No. : SD 70



NOTES:-

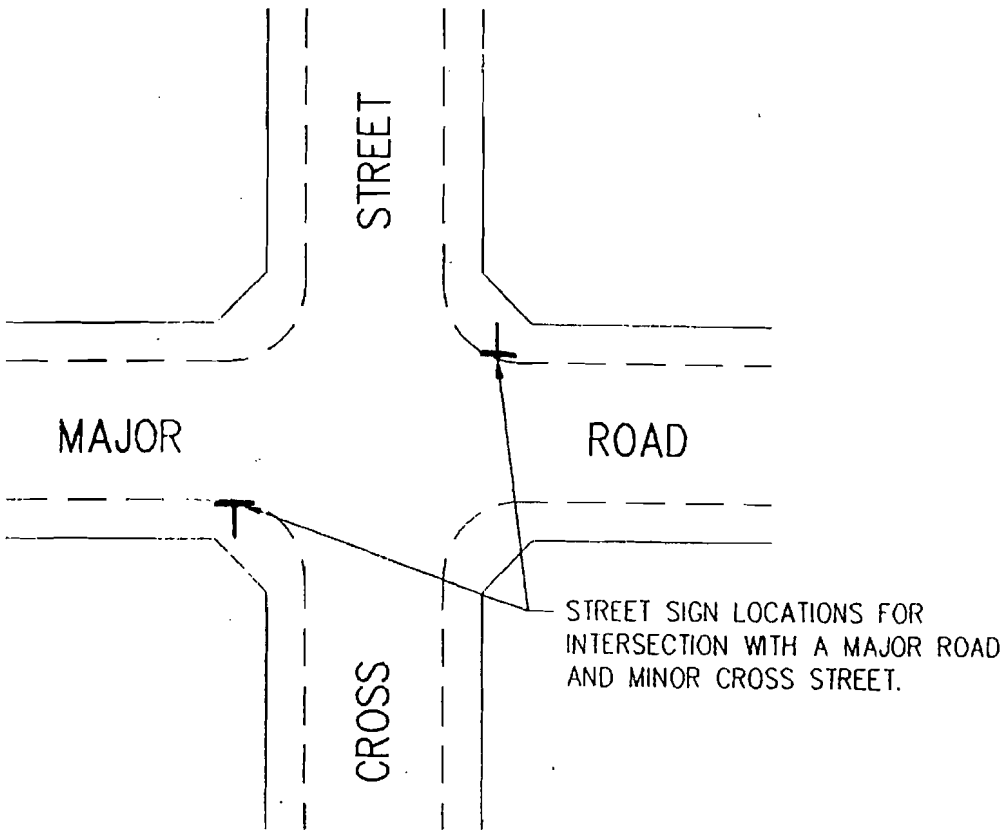
1. ALL DIMENSIONS IN MILLIMETRES.
2. ERECTION OF SIGNS AS PER SD 81
3. REFER TO THE SPECIFICATION FOR FURTHER DETAILS.
4. SIGN BLADE TO BE MARINE GRADE HIGH TENSILE STRENGTH ALUMINIUM EXTRUSION.

Hawkesbury City Council

STANDARD STREET SIGN

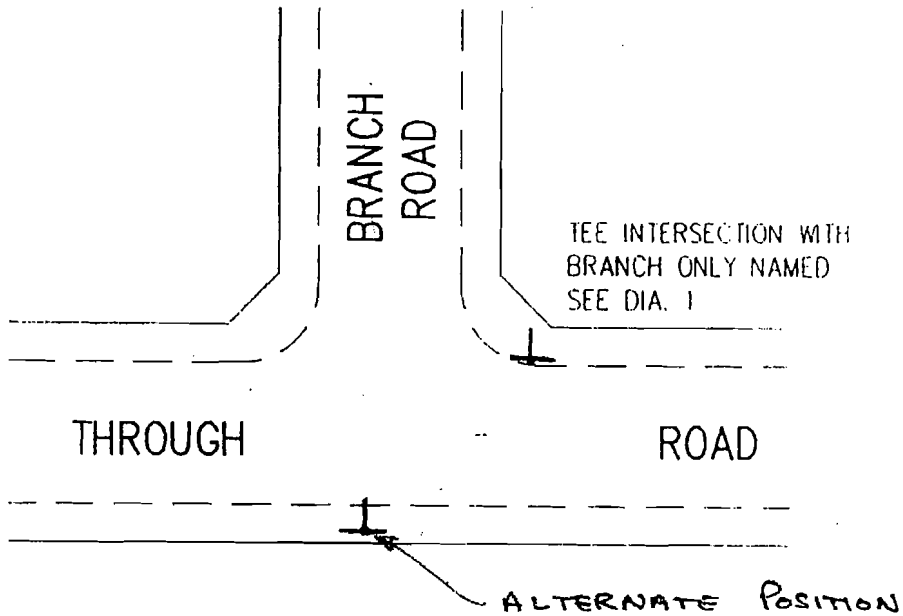
SCALE : NTS

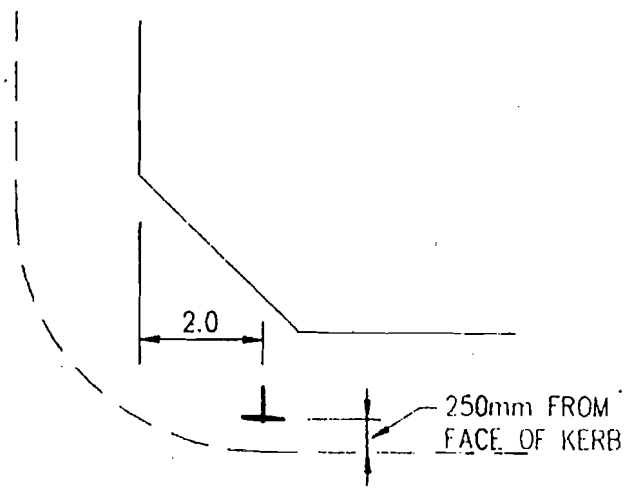
DRAWING No. : SD 80



STREET SIGN LOCATIONS FOR INTERSECTION WITH A MAJOR ROAD AND MINOR CROSS STREET.

NOTE: STREET SIGNS TO BE PROVIDED AT ROUNDABOUTS AND MAJOR INTERSECTIONS WHERE SHOWN ON THE APPROVED ENGINEERING PLANS.





POST LOCATION

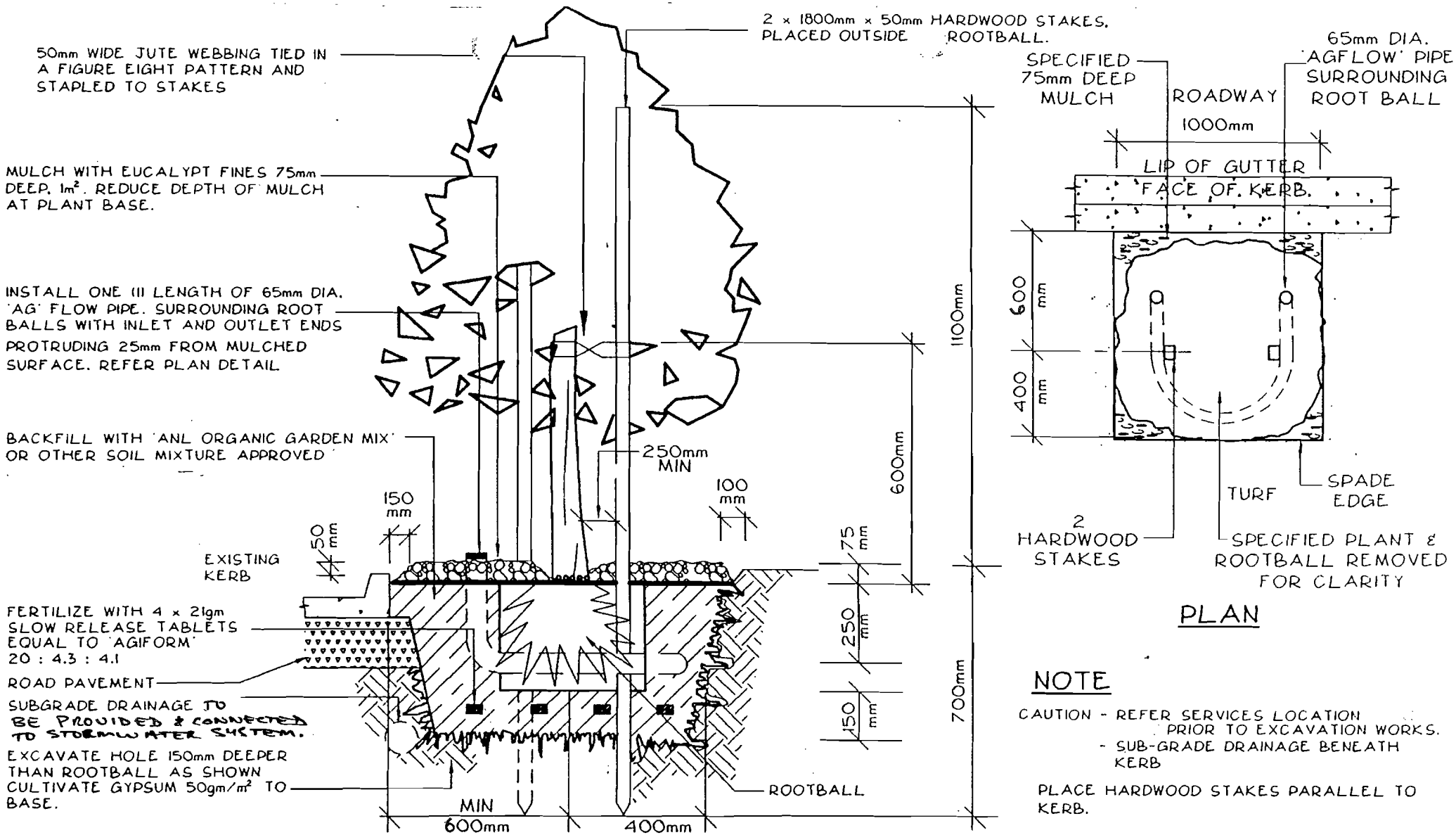
DIAGRAM 1

Hawkesbury City Council

STANDARD STREET SIGN LOCATIONS

SCALE : NTS

DRAWING No. : SD81



PLAN

NOTE

CAUTION - REFER SERVICES LOCATION PRIOR TO EXCAVATION WORKS.
- SUB-GRADE DRAINAGE BENEATH KERB

PLACE HARDWOOD STAKES PARALLEL TO KERB.

Hawkesbury City Council

STREET TREE PLANTING DETAIL

SCALE : NTS

DRAWING No. : SD82.