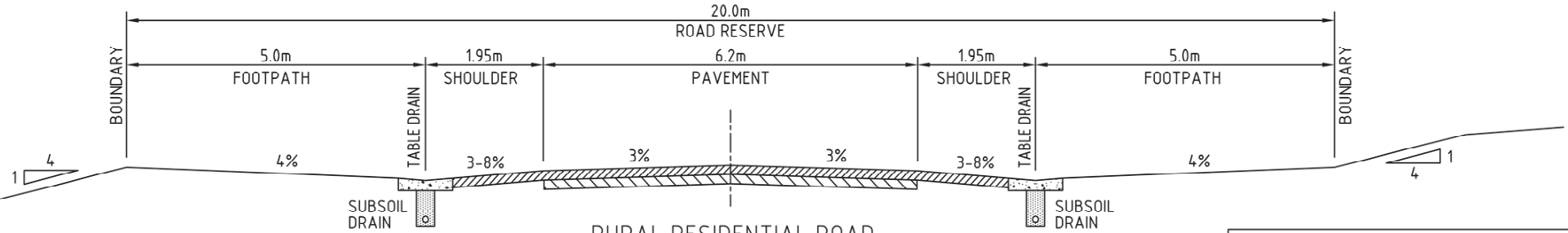
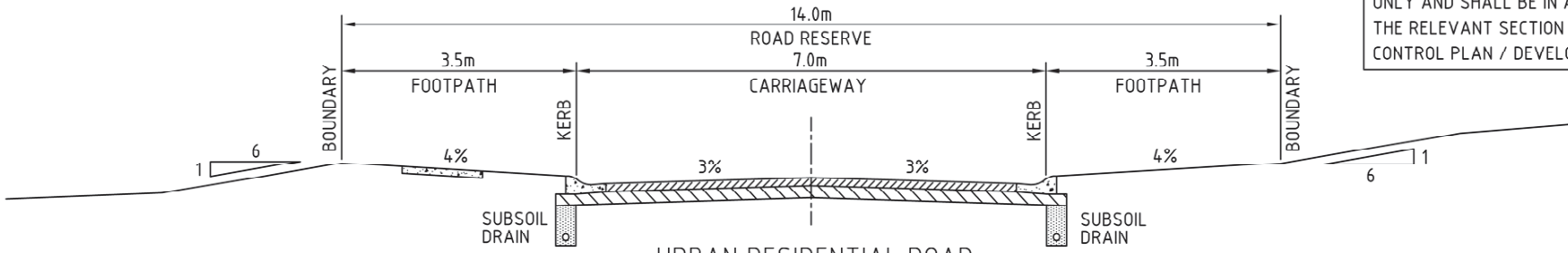


RURAL ROAD

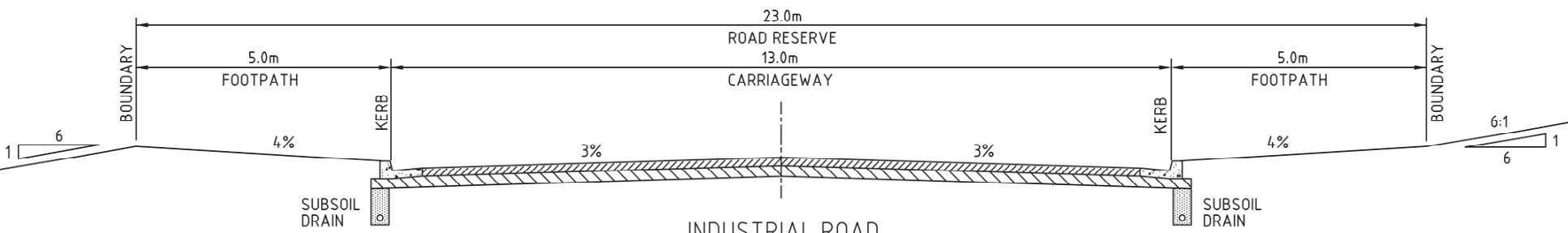


RURAL RESIDENTIAL ROAD

NOTE: DIMENSIONS SHOWN ARE INDICATIVE ONLY AND SHALL BE IN ACCORDANCE WITH THE RELEVANT SECTION OF THE DEVELOPMENT CONTROL PLAN / DEVELOPMENT CONSENT



URBAN RESIDENTIAL ROAD



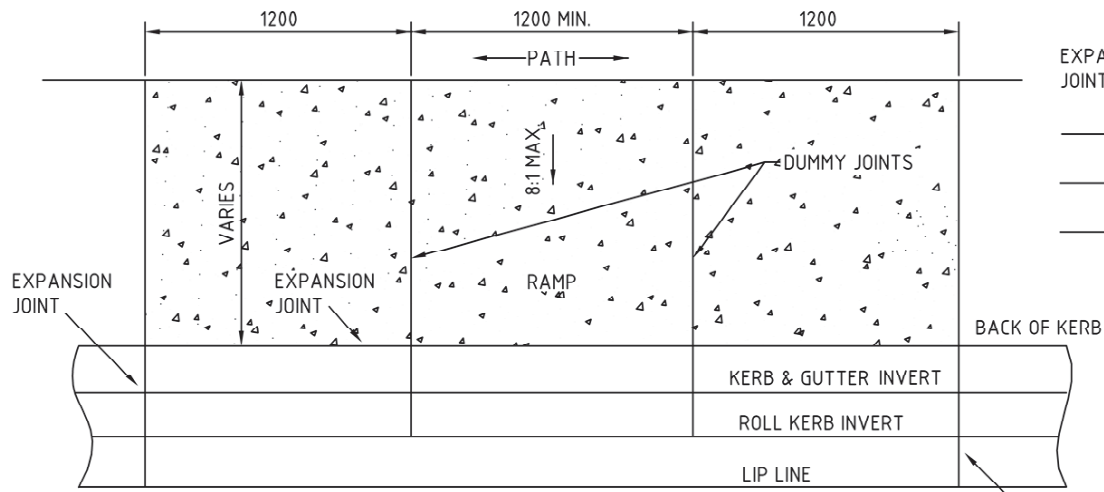
INDUSTRIAL ROAD

A	JAN 2009	FIRST ISSUE	A.P.	C.M.
REVISION	DATE	DESCRIPTION	DRAWN.	APP.



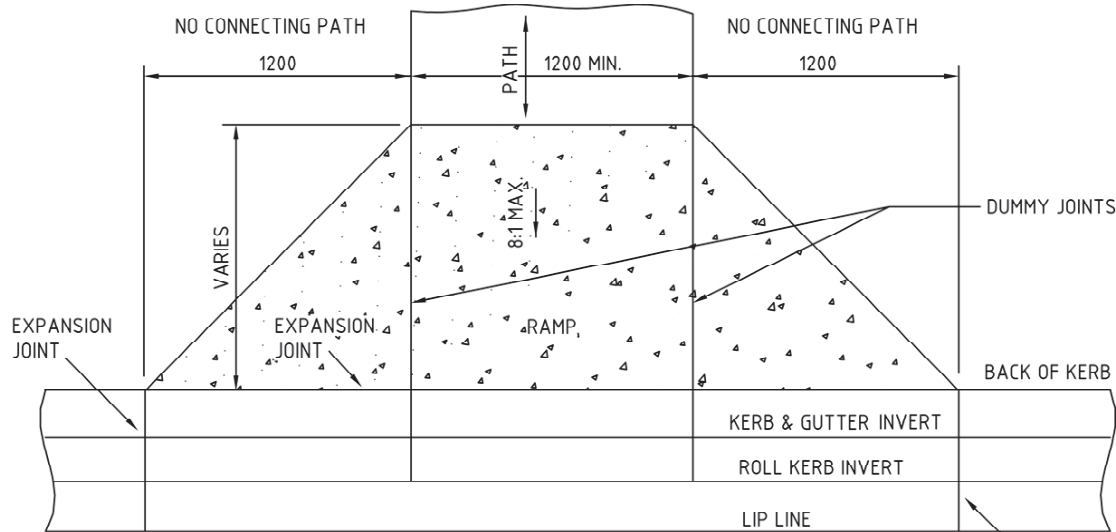
TITLE		SCALE	
TYPICAL ROAD CROSS SECTIONS		NTS	
APPROVED	DATE	DRAWING No.	REV
C. McINTYRE	JAN 2009	SD01	A





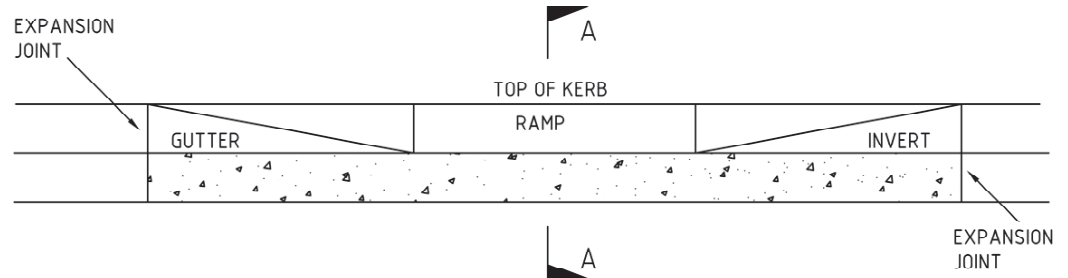
**PLAN**

(PATH PARALLEL TO KERB)



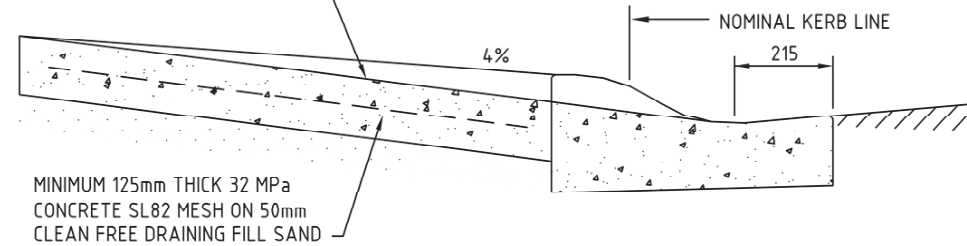
**PLAN**

(PATH PERPENDICULAR TO KERB)

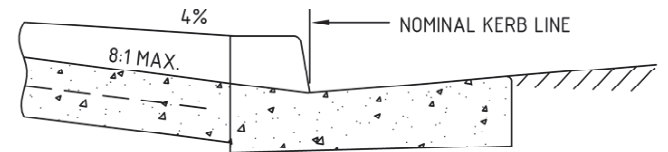


**ELEVATION**

8 : 1 MAXIMUM GRADE,  
RAMP SURFACE TO BE PROVIDED  
WITH NON-SLIP FINISH.



**SECTION A - A**  
(ROLL KERB)



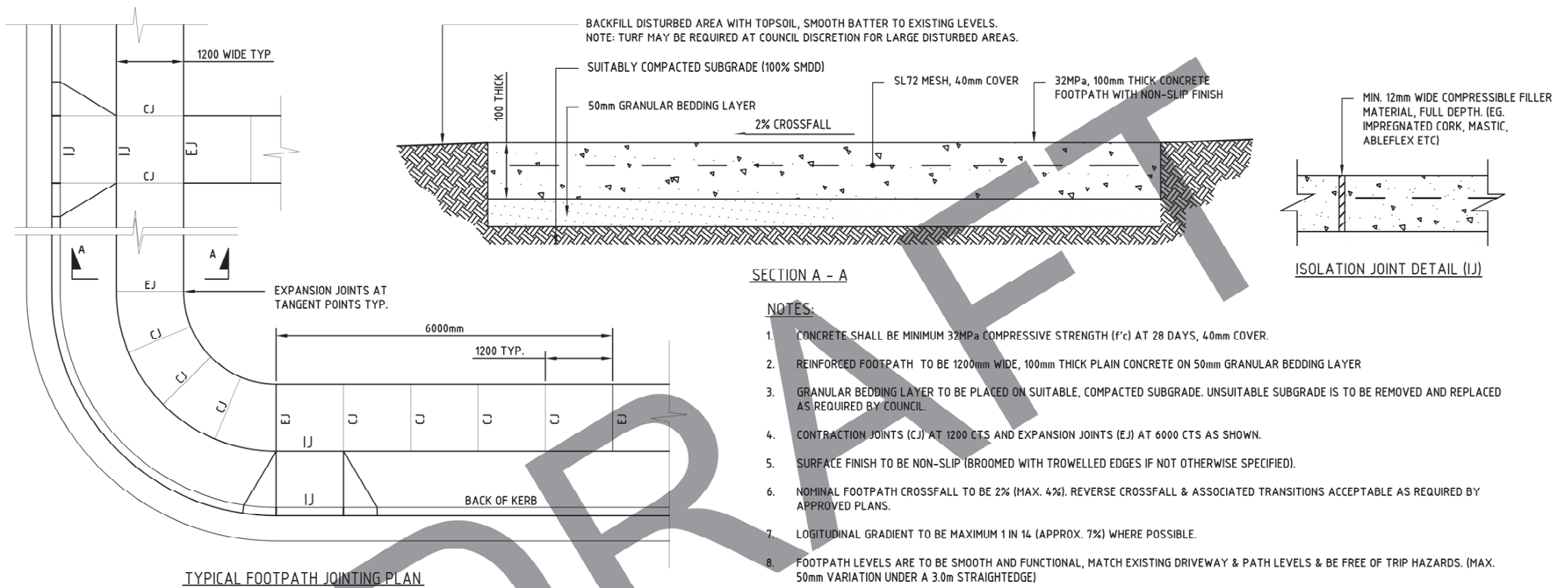
**SECTION A - A**  
(KERB & GUTTER)

**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL KERB RAMPS ARE TO BE ALIGNED WITH THE DESIRED DIRECTION OF PEDESTRIAN TRAVEL AND BE A MINIMUM OF 1200 WIDE.
3. EXPANSION JOINTS TO BE PROVIDED WHERE ENDS OF KERB RAMP ABUTS KERB AND GUTTER.
4. KERB AND GUTTER TO BE SAWCUT FOR RAMPS PLACED IN EXISTING KERB

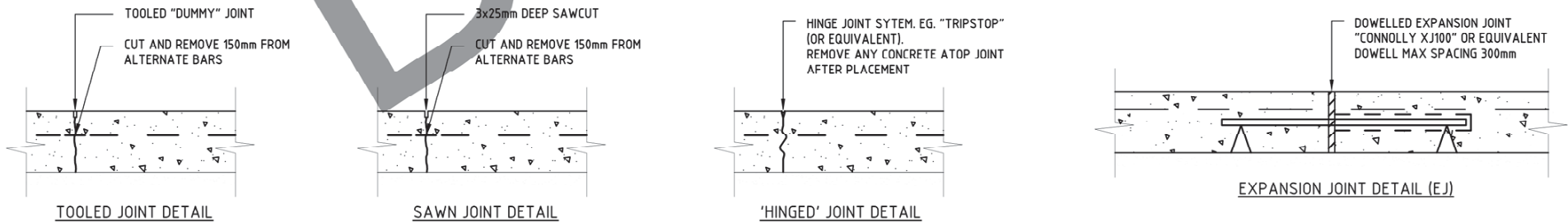
A	JAN 2009	FIRST ISSUE	A.P.	C.M.	
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	

TITLE			SCALE
KERB RAMP			NTS
APPROVED	DATE	DRAWING No.	REV
C. McINTYRE	JAN 2009	SD03	A



**NOTES:**

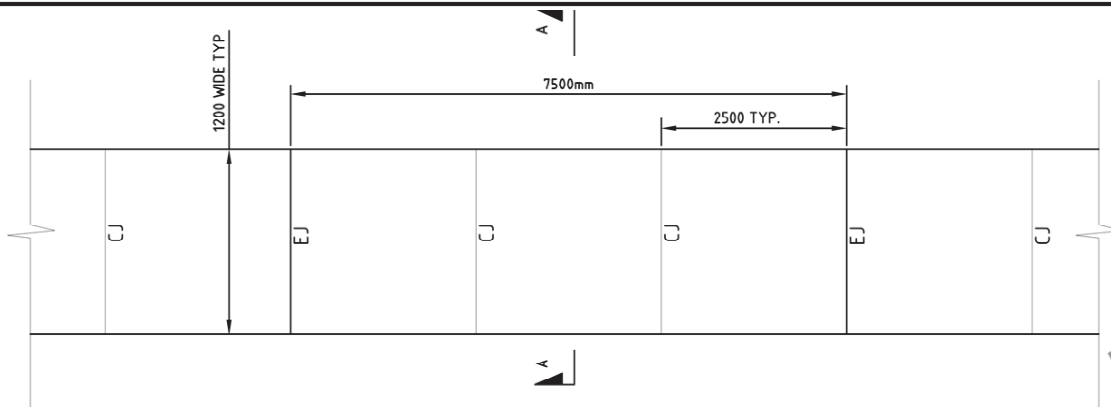
1. CONCRETE SHALL BE MINIMUM 32MPa COMPRESSIVE STRENGTH (f'c) AT 28 DAYS, 40mm COVER.
2. REINFORCED FOOTPATH TO BE 1200mm WIDE, 100mm THICK PLAIN CONCRETE ON 50mm GRANULAR BEDDING LAYER
3. GRANULAR BEDDING LAYER TO BE PLACED ON SUITABLE, COMPACTED SUBGRADE. UNSUITABLE SUBGRADE IS TO BE REMOVED AND REPLACED AS REQUIRED BY COUNCIL.
4. CONTRACTION JOINTS (CJ) AT 1200 CTS AND EXPANSION JOINTS (EJ) AT 6000 CTS AS SHOWN.
5. SURFACE FINISH TO BE NON-SLIP (BROOMED WITH TROWELLED EDGES IF NOT OTHERWISE SPECIFIED).
6. NOMINAL FOOTPATH CROSSFALL TO BE 2% (MAX. 4%). REVERSE CROSSFALL & ASSOCIATED TRANSITIONS ACCEPTABLE AS REQUIRED BY APPROVED PLANS.
7. LOGITUDINAL GRADIENT TO BE MAXIMUM 1 IN 14 (APPROX. 7%) WHERE POSSIBLE.
8. FOOTPATH LEVELS ARE TO BE SMOOTH AND FUNCTIONAL, MATCH EXISTING DRIVEWAY & PATH LEVELS & BE FREE OF TRIP HAZARDS. (MAX. 50mm VARIATION UNDER A 3.0m STRAIGHTEDGE)
9. ISSUES SUCH AS INCORRECT VERGE LEVELS & SERVICE COVER LEVELS (E.G. TELCO) ARE TO BE RAISED/LOWERED AS REQUIRED - MAINTAINING SMOOTH TRANSITIONS TO SURROUNDS.
10. VARIATION FROM THIS STANDARD DRAWING IS PERMISSABLE ONLY UNDER DIRECTION OF, OR WITH PRIOR APPROVAL FROM COUNCIL ENGINEER.



JOINT TO BE SAWN AS SOON AS CONCRETE HAS HARDENED SUFFICIENTLY THAT IT WILL NOT BE DAMAGED BY SAWING (MAX 24HRS)

**REINFORCED FOOTPATH CONTRACTION JOINT (CJ) OPTIONS**

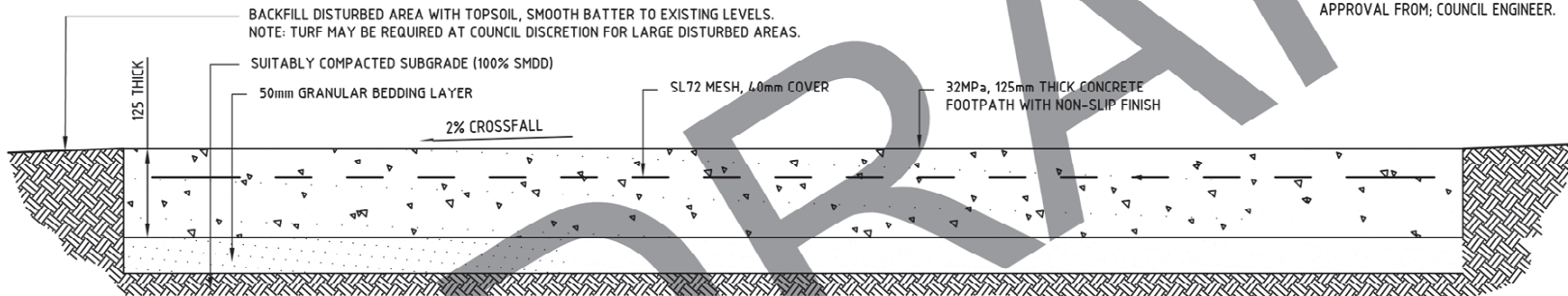
						TITLE <b>FOOTPATH DETAILS - REINFORCED</b>			SCALE NTS
A	NOV 2017	INITIAL ISSUE FOR DISCUSSION	A.B.	D.A.		APPROVED	DATE	DRAWING No.	REV
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	D.A.	NOV 2017	SD04	A	



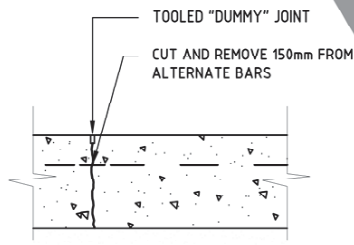
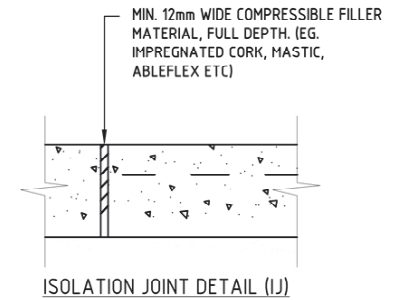
TYPICAL SHARED PATH JOINTING PLAN

NOTES:

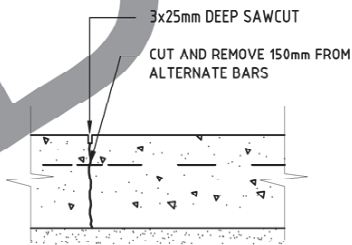
1. CONCRETE SHALL BE MINIMUM 32MPa COMPRESSIVE STRENGTH (f'c) AT 28 DAYS, 40mm COVER.
2. REINFORCED FOOTPATH TO BE 2500mm WIDE, 125mm THICK PLAIN CONCRETE ON 50mm GRANULAR BEDDING LAYER.
3. GRANULAR BEDDING LAYER TO BE PLACED ON SUITABLE, COMPACTED SUBGRADE. UNSUITABLE SUBGRADE IS TO BE REMOVED AND REPLACED AS REQUIRED BY COUNCIL.
4. CONTRACTION JOINTS (CJ) AT 2500 CTS AND EXPANSION JOINTS (EJ) AT 7500 CTS AS SHOWN.
5. SURFACE FINISH TO BE NON-SLIP (BROOMED WITH TROWELLED EDGES IF NOT OTHERWISE SPECIFIED).
6. NOMINAL FOOTPATH CROSSFALL TO BE 2% (MAX. 4%). REVERSE CROSSFALL & ASSOCIATED TRANSITIONS ACCEPTABLE AS REQUIRED BY APPROVED PLANS.
7. LONGITUDINAL GRADIENT TO BE MAXIMUM 1 IN 14 (APPROX. 7%) WHERE POSSIBLE.
8. FOOTPATH LEVELS ARE TO BE SMOOTH AND FUNCTIONAL, MATCH EXISTING DRIVEWAY & PATH LEVELS & BE FREE OF TRIP HAZARDS. (MAX. 50mm VARIATION UNDER A 3.0m STRAIGHTEDGE)
9. ISSUES SUCH AS INCORRECT VERGE LEVELS & SERVICE COVER LEVELS (E.G. TELCO) ARE TO BE RAISED/LOWERED AS REQUIRED - MAINTAINING SMOOTH TRANSITIONS TO SURROUNDS.
10. VARIATION FROM THIS STANDARD DRAWING IS PERMISSIBLE ONLY UNDER DIRECTION OF, OR WITH PRIOR APPROVAL FROM, COUNCIL ENGINEER.



SECTION A - A

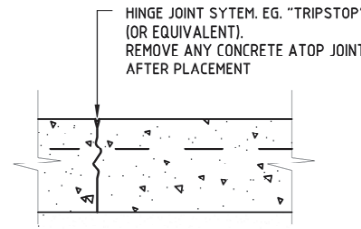


TOOLED JOINT DETAIL

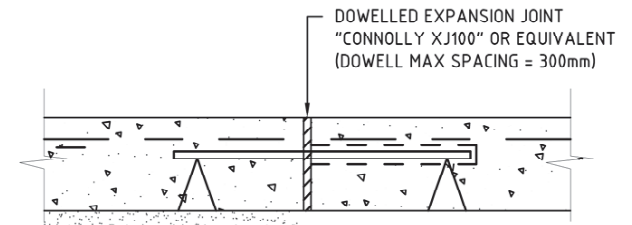


SAWN JOINT DETAIL

JOINT TO BE SAWN AS SOON AS CONCRETE HAS HARDENED SUFFICIENTLY THAT IT WILL NOT BE DAMAGED BY SAWING (MAX 24HRS)



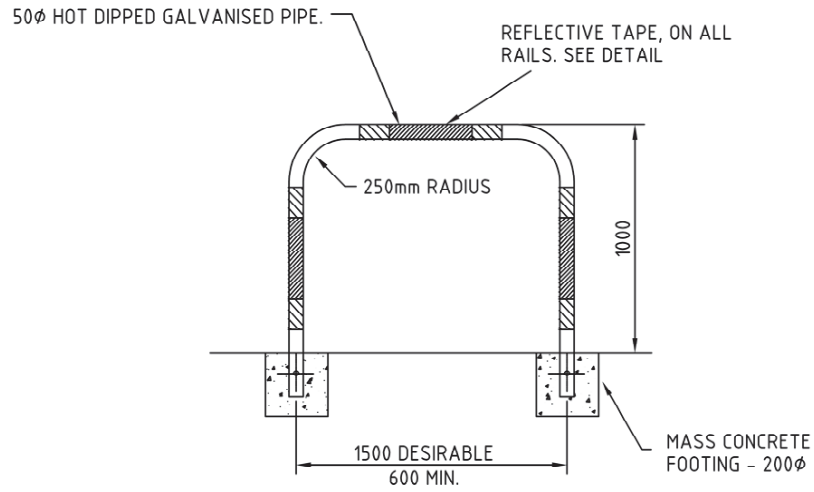
'HINGED' JOINT DETAIL



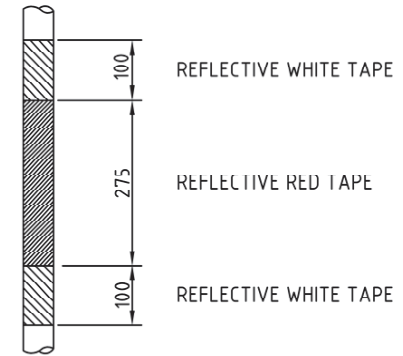
EXPANSION JOINT DETAIL (EJ)

REINFORCED FOOTPATH CONTRACTION JOINT (CJ) OPTIONS

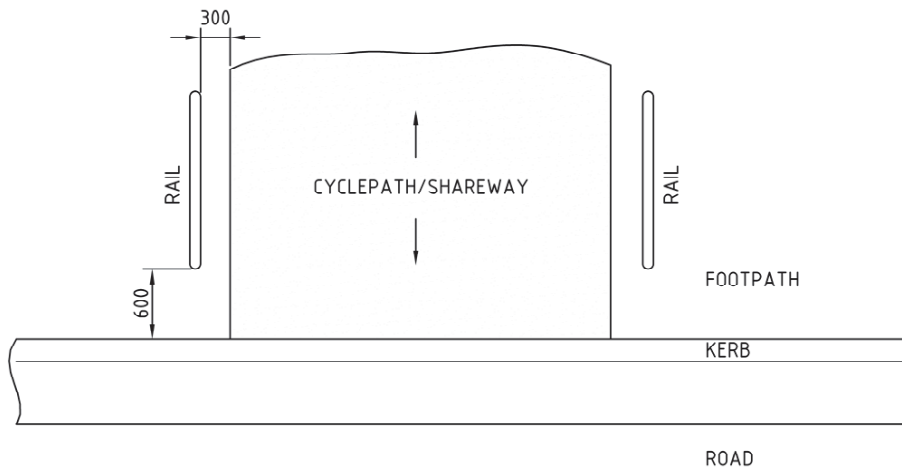
					TITLE			SCALE
					CONCRETE SHARED PATH / CYCLEWAY			NTS
APPROVED		DATE	DRAWING No.		REV			
D.A.		NOV 2017	SD05		A			
REVISION	DATE	DESCRIPTION	DRAWN.	APP.				
A	NOV 2017	INITIAL ISSUE FOR DISCUSSION	A.B.	D.A.				



ELEVATION




REFLECTIVE TAPE DETAIL



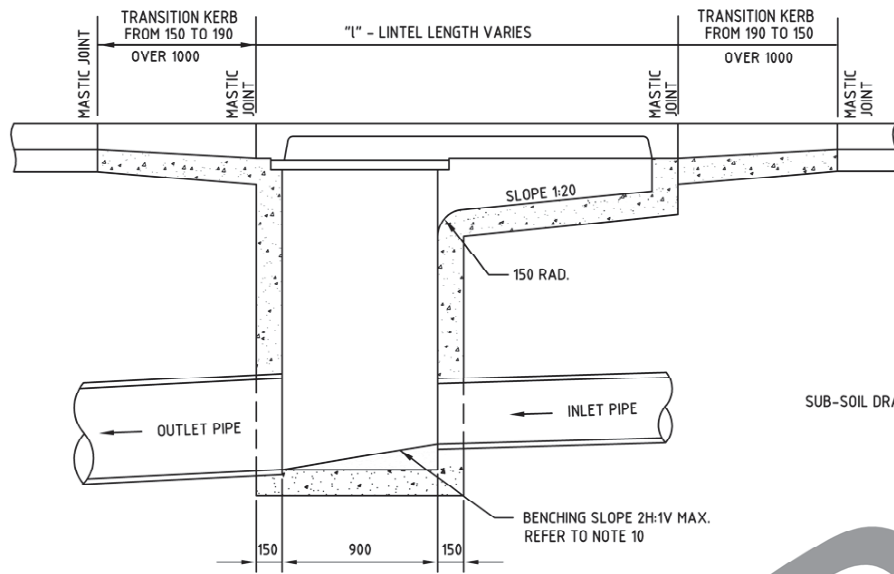
PLAN

NOTES:

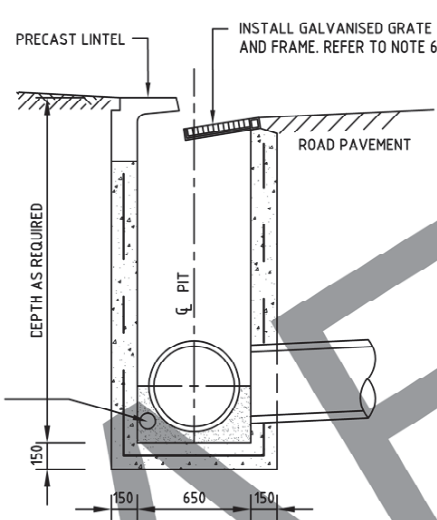
1. ALL DIMENSIONS ARE IN MILLIMETRES
2. PLACE N12 BAR 150mm LONG IN HOLE BEFORE FIXING INTO PLACE
3. CONCRETE TO BE 25MPa @ 28 DAYS.
4. ALL STEELWORK TO BE HOT DIPPED GALVANISED.
5. WHERE DIRECTED BY THE PCA/COUNCIL, ADDITIONAL/ALTERNATE RAILS MAY BE REQUIRED
6. ANY RAIL INSTALLATION SHALL BE IN ACCORDANCE WITH AUSTRROADS PART 14 - BICYCLES.
7. REFLECTIVE TAPE TO BE CLASS 1 (AS1906.1).

						TITLE		SCALE
						PATHWAY RAILS		NTS
A	JAN 2009	FIRST ISSUE	A.P.	C.M.	APPROVED	DATE	DRAWING No.	REV
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	C. McINTYRE	JAN 2009	SD06	A

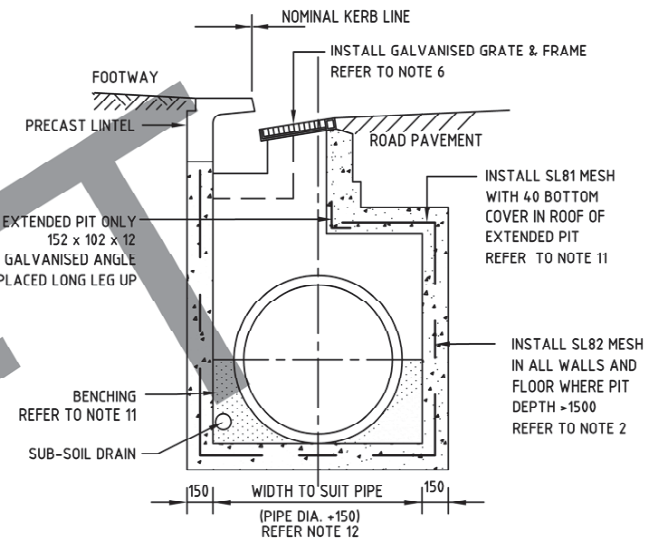




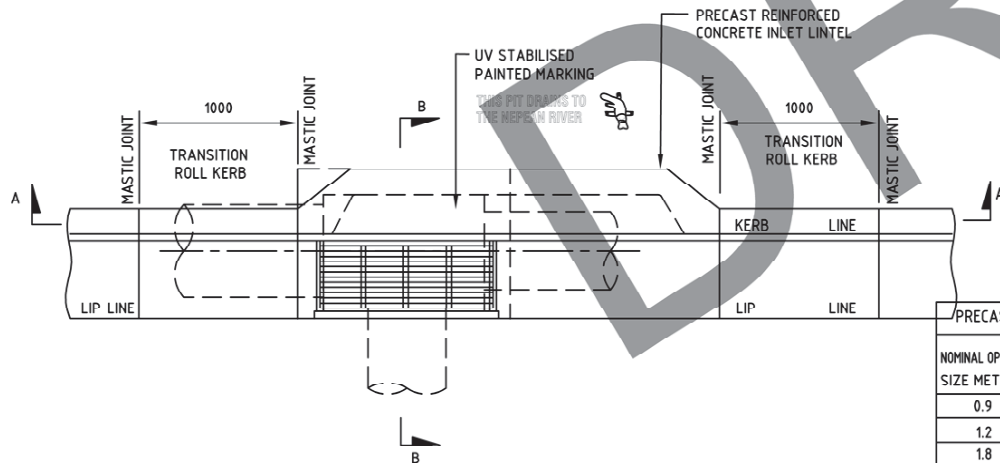
SECTION A - A



SECTION B - B



SECTION B - B  
(EXTENDED PIT CHAMBER)



PLAN

PRECAST LINTEL SIZES	
NOMINAL OPENING SIZE METRES	OVERALL LENGTH "L" mm
0.9	1000
1.2	1825
1.8	2438
2.4	3048
3.0	3657
3.6	4267
4.2	4877
4.8	5486

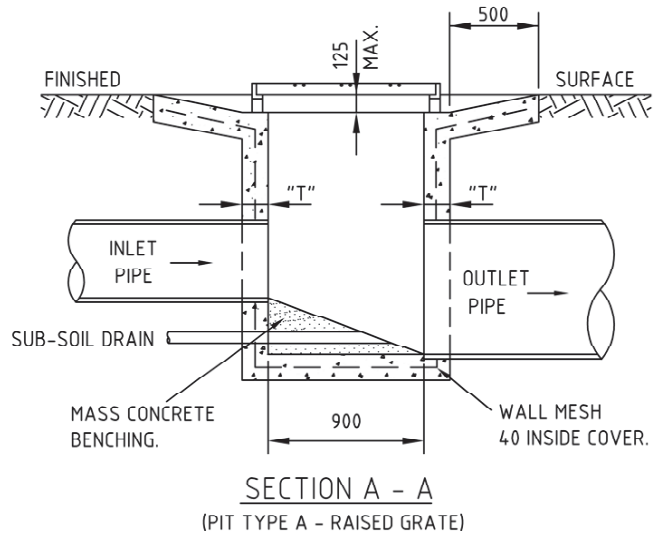
NOTES:

1. CONCRETE TO BE 32MPa MINIMUM AT 28 DAYS.
2. WHERE DEPTH OF PIT EXCEEDS 1500, WALLS AND BOTTOM TO BE REINFORCED IN ALL DIRECTIONS WITH SL82 MESH AT 40 COVER TO INSIDE FACE WITH N12 CORNER BARS 300 LEGS AT 400 CTRS. PITS DEEPER THAN 2000 SHALL BE DESIGNED BY A PROFESSIONAL STRUCTURAL ENGINEER. (DEPTH MEASURED FROM THE TOP OF GRATE TO THE INVERT OF THE PIT).
3. SAG PITS TO HAVE LINTEL LOCATED CENTRALLY OVER PIT.
4. BACKFILL ADJACENT TO PITS TO BE APPROVED GRANULAR MATERIAL.
5. A 3m LENGTH OF APPROVED "FILTER FABRIC" WRAPPED 100mm SUBSOIL DRAIN OR EQUIVALENT IS TO BE PROVIDED AND CONNECTED TO THE UPSTREAM PIT WALL.
6. PIT GRATE AND FRAME TO BE "WELDLOK" GG78-50 FOR RESIDENTIAL ROADS AND GG78-42A FOR INDUSTRIAL ROADS, FITTED WITH A LOCKABLE "J" BOLT.
7. STEP IRONS WHERE THE PIT EXCEEDS 1200 IN DEPTH AS PER SDS09.
8. THE CENTRE LINES OF INTERSECTING PIPES ARE TO MEET AT THE DOWNSTREAM FACE OF THE PIT WHERE POSSIBLE.
9. WHERE ENTERING PIPE EXCEEDS 525 IN DIAMETER, EXTENDED PIT CHAMBER AS SHOWN.
10. FLOOR OF PIT TO BE BENCHED TO MID POINT OF OUTLET PIPE WHERE OUTLET PIPE IS >600 DIAMETER.
11. WHERE EXTENDED CHAMBER WIDTH EXCEEDS 1200, ROOF REINFORCEMENT TO BE DESIGNED BY A PROFESSIONAL STRUCTURAL ENGINEER.
12. CONTRACTOR TO ENSURE CLEARANCE BETWEEN LINTEL AND OPEN GRATE.
13. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
14. PITS IN AREAS OF SALINITY HAZARD SHALL BE APPROPRIATELY DESIGNED.
15. PIT MARKING STENCILS ARE AVAILABLE FROM THE COUNCIL.
16. LIFTING LUGS ARE TO BE FILLED AFTER INSTALLATION.

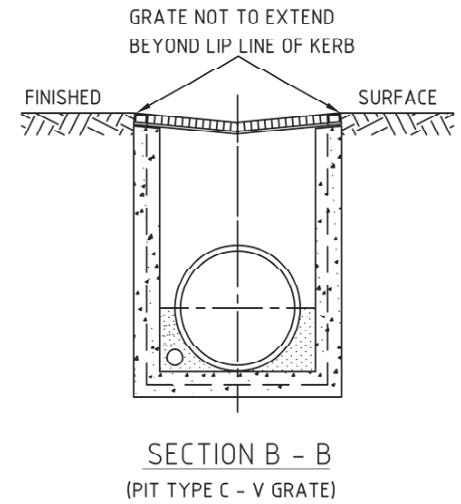
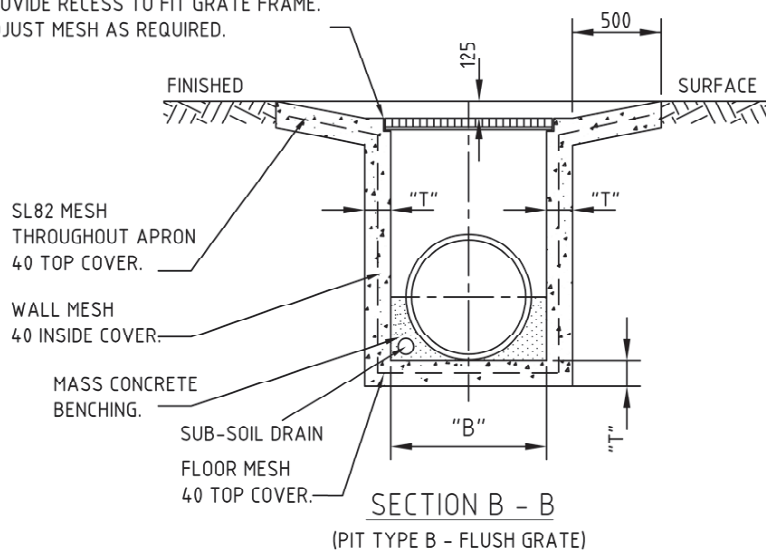
A	NOV 2017	INITIAL ISSUE FOR DISCUSSION	A.B.	D.A.
REVISION	DATE	DESCRIPTION	DRAWN.	APP.



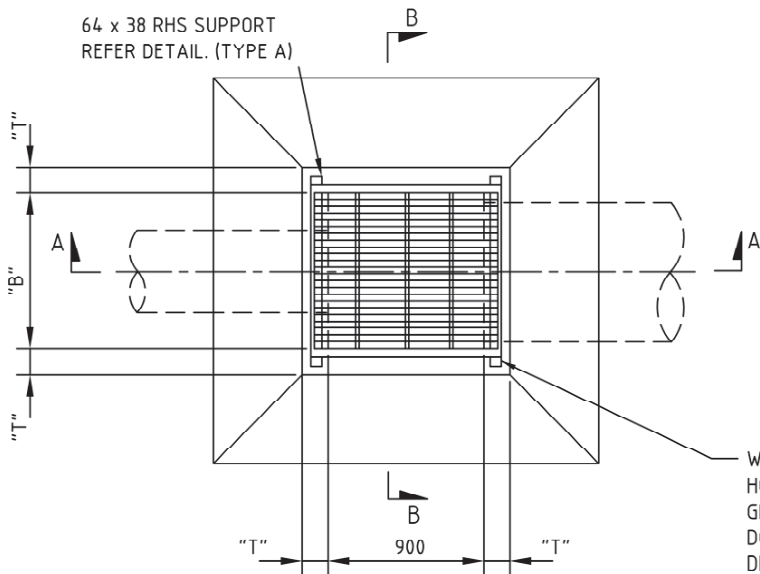
TITLE <b>GRADED GULLY PIT</b>		SCALE <b>NTS</b>	
APPROVED <b>D.A.</b>	DATE <b>NOV 2017</b>	DRAWING No. <b>SD12</b>	REV <b>A</b>



PROVIDE RECESS TO FIT GRATE FRAME.  
ADJUST MESH AS REQUIRED.



64 x 38 RHS SUPPORT  
REFER DETAIL. (TYPE A)



**PLAN - PIT TYPE A and B**  
(SUIT PIPES UP TO 1500mm DIA.)

PIT TYPE C - V GRATE FOR USE IN DISH CROSSINGS AND TABLE DRAINS


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

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

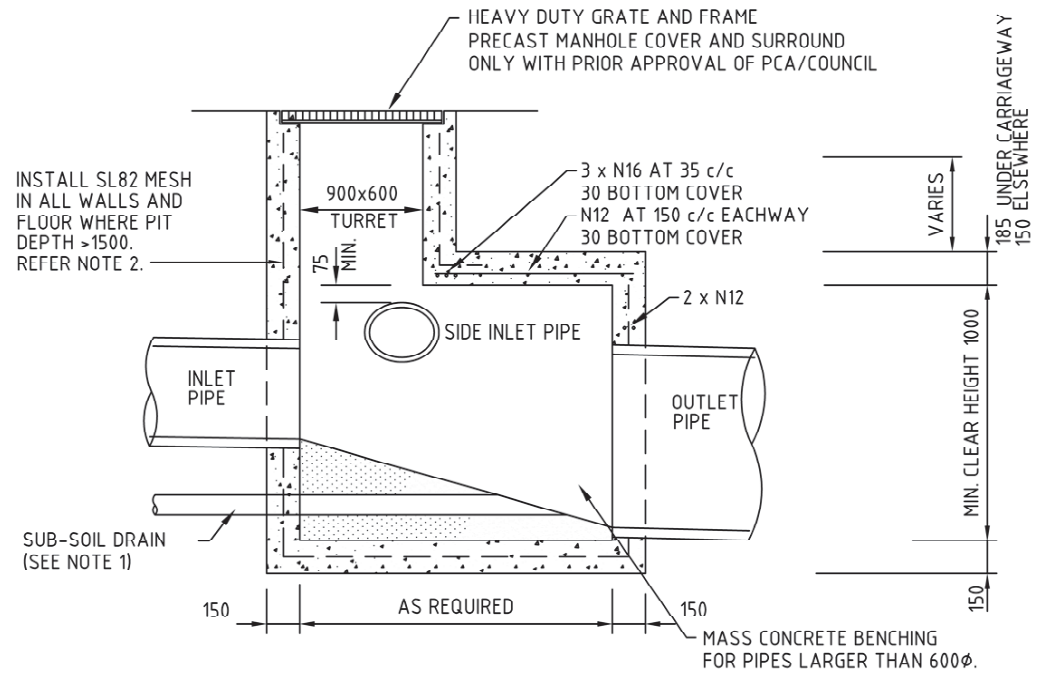
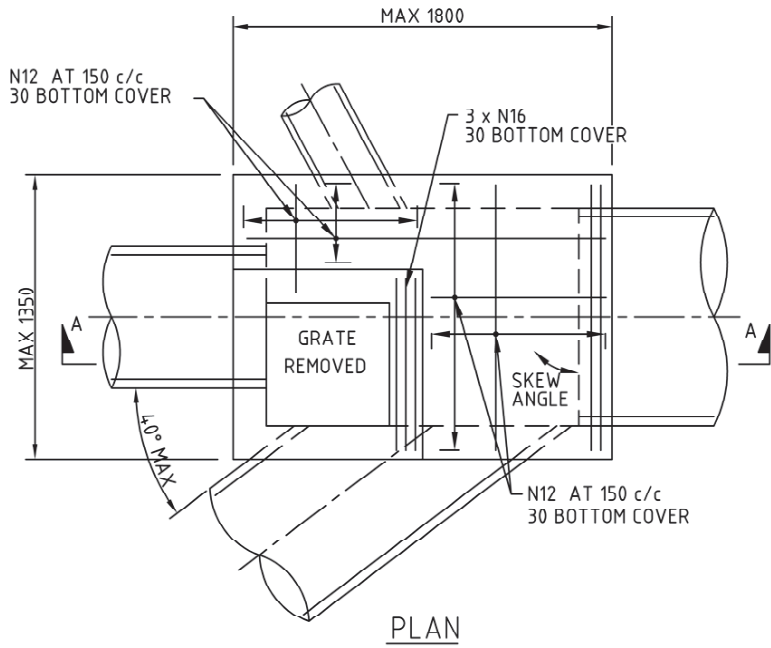
WELDLOK OR EQUIVALENT  
HOT DIPPED GALVANISED STEEL  
GRATE WITH HINGED ENTRY AND LOCK  
DOWN "J" BOLT TO MANUFACTURER'S  
DETAIL.

**NOTES.**

1. CONCRETE TO BE 32MP<sub>a</sub> MINIMUM AT 28 DAYS.
2. APPROVED STEP IRONS SHALL BE PROVIDED WHERE THE PIT EXCEEDS 1200 IN DEPTH. REFER TO SD20
3. GRATES MUST BE CLASS C FOR NON-ROAD INSTALLATION AND CLASS D FOR ROAD INSTALLATION. CLASSES AS DEFINED IN A.S.3996.
4. GRATE LEGS TO BE WELDED TO FRAME PRIOR TO GALVANISING. (TYPE A)
5. ALL CONCRETE WORK TO BE A MINIMUM OF 150 THICK.
6. MASS CONCRETE BENCHING TO PIPE CENTRELINE MUST BE PROVIDED AS INDICATED.
7. WHERE SITE CONDITIONS DICTATE, THE PCA/COUNCIL MAY INCLINE THE PIT TOPS TO AN UPPER LIMIT OF 1 VERT. in 4 HORIZ. NO ALTERATION TO REINFORCEMENT IS REQUIRED, HOWEVER, THE ENTIRE PIT ROOF (AND ACCOMPANYING APRONS) ARE TO REMAIN PLANAR.
8. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
9. PITS IN AREAS OF SALINITY HAZARD SHALL BE APPROPRIATELY DESIGNED.

						TITLE		SCALE
						SURFACE INLET PIT		NTS
A	JAN 2009	FIRST ISSUE	A.P.	C.M.	APPROVED	DATE	DRAWING No.	REV
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	C. McINTYRE	JAN 2009	SD13	A





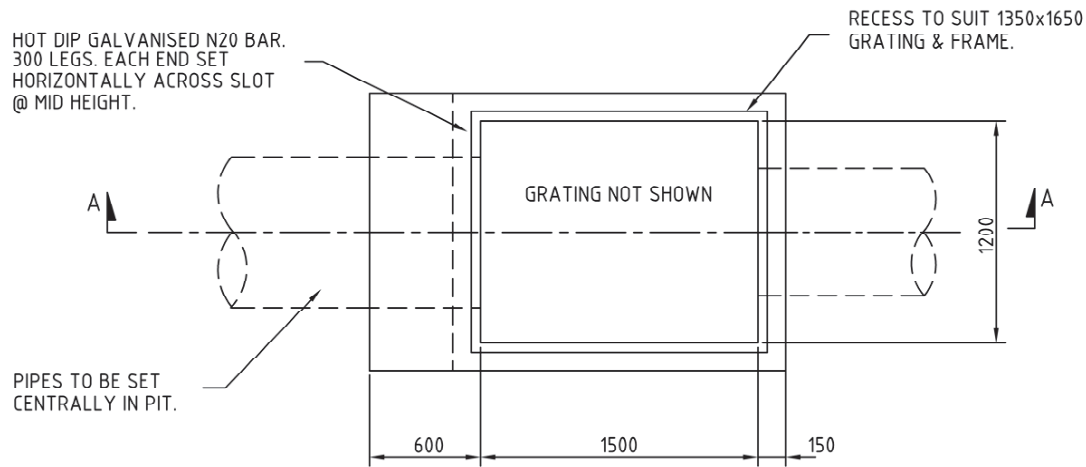
**NOTES:**

1. PROVIDE  $\phi 100$  SUB-SOIL DRAINAGE PIPE, 3000 LONG, WRAPPED IN FABRIC SOCK ADJACENT TO INLET PIPES.
2. MAXIMUM OUTLET PIPE ON STRAIGHT  $\phi 900$
3. MAXIMUM OUTLET PIPE ON SKEW  $\phi 825$
4. MAXIMUM SIDE ENTRY PIPE  $\phi 825$  AT APPROX.  $40^\circ$  SKEW.
5. MINIMUM INTERNAL DIMENSIONS - LENGTH 900  
- WIDTH 700  
- HEIGHT 1000.
6. CAST IN SITU CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF  $32\text{MPa}$  AT 28 DAYS.
7. WHERE PITS ARE DEEPER THAN 1200 PROVIDE STEP IRONS. REFER TO SD20
8. PITS DEEPER THAN 1500 SHALL BE REINFORCED WITH ONE LAYER OF SL82 TO FLOOR AND WALLS FOR THE FULL DEPTH. PITS DEEPER THAN 2000 SHALL BE STRUCTURALLY DESIGNED.
9. PITS IN AREAS OF SALINITY HAZARD SHALL BE APPROPRIATELY DESIGNED.

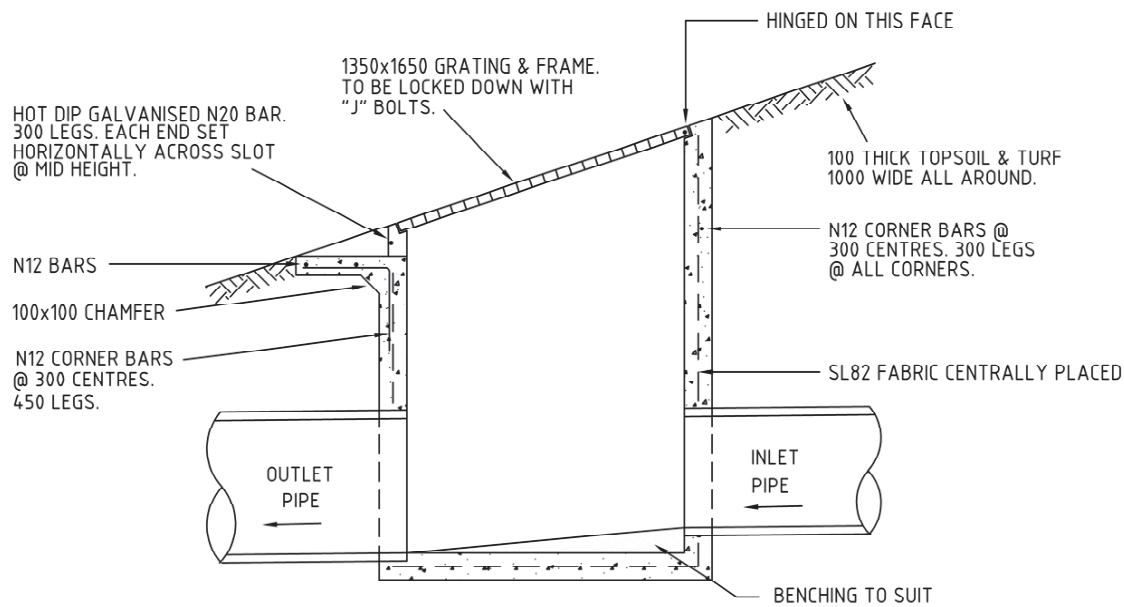
REVISION	DATE	DESCRIPTION	DRAWN.	APP.
A	JAN 2009	FIRST ISSUE	A.P.	C.M.



TITLE JUNCTION PIT			SCALE NTS
APPROVED C. McINTYRE	DATE JAN 2009	DRAWING No. SD14	REV A



PLAN



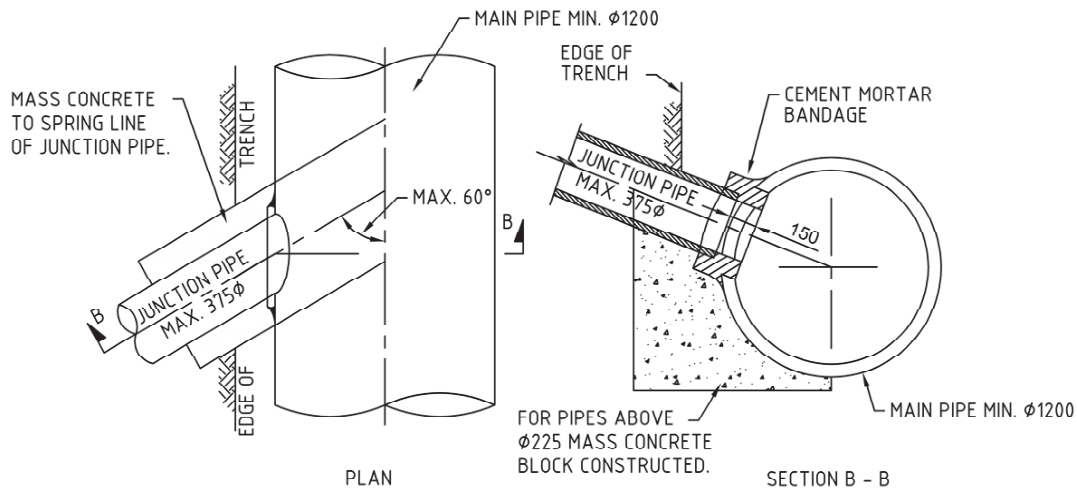
SECTION A - A

NOTES

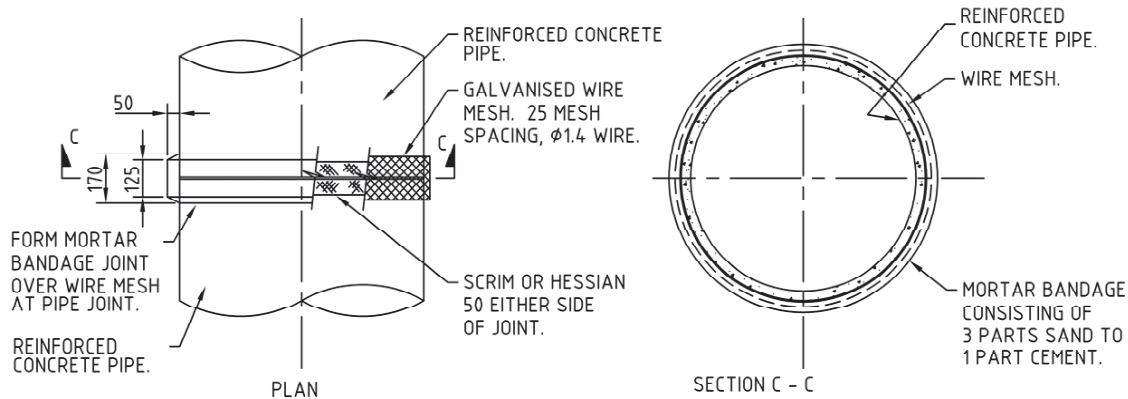
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. CONCRETE TO BE 32MPa @ 28 DAYS.
3. ALL REINFORCEMENT TO BE CENTRALLY LOCATED.
4. ALL PIT WALLS AND BASE TO BE MIN 150 THICK.
5. STREAMLINE BASE OF PIT TO SUIT.
6. PITS GREATER THAN 2000 IN DEPTH SHALL BE DESIGNED BY A PROFESSIONAL STRUCTURAL ENGINEER.
7. WHERE DIRECTED PROVIDE 3000 OF 100φ CORRUGATED P.V.C. SUBSOIL DRAIN ON INLET SIDE OF PIT. SUBSOIL DRAIN TO BE SURROUNDED BY MIN 300 OF 5mm AGGREGATE.
8. PROVIDE STEP IRONS AS PER SD20 FOR PITS DEEPER THAN 1200.
9. PITS IN AREAS OF SALINITY HAZARDS SHALL BE APPROPRIATELY DESIGNED.

A	JAN 2009	FIRST ISSUE	A.P.	C.M.	
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	

TITLE			SCALE	
SURCHARGE PIT			NTS	
APPROVED	DATE	DRAWING No.	REV	
C. McINTYRE	JAN 2009	SD16	A	



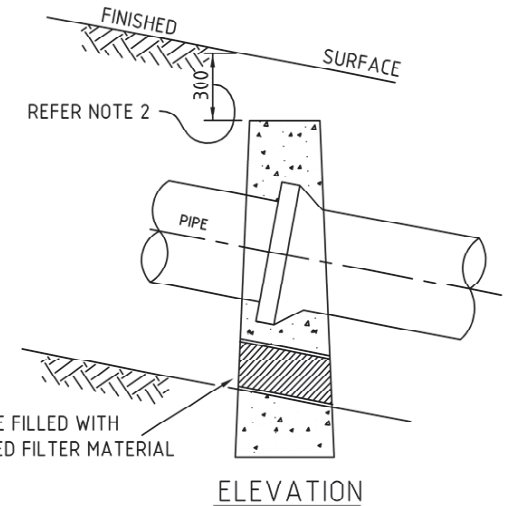
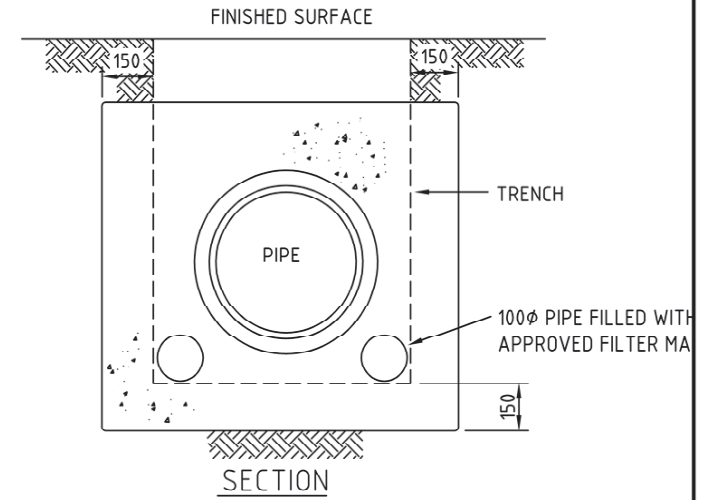
TYPICAL DIRECT CONNECTION OF SMALL PIPE AND LARGE PIPE



BANDAGE JOINT DETAILS

NOTES:


1. COMPRESSIVE STRENGTH  $F'c$  FOR CAST IN SITU CONCRETE TO BE A MIN.  $32 \text{ MPa}$  AT 28 DAYS.
2. ALL DIMENSION ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.



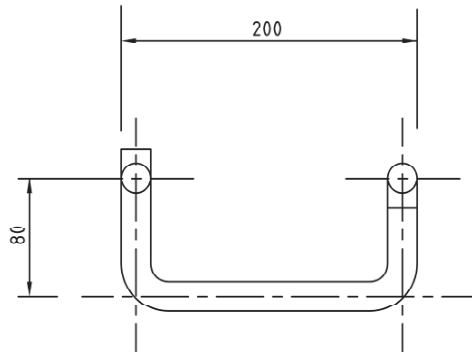
CONCRETE BULKHEAD

NOTES:

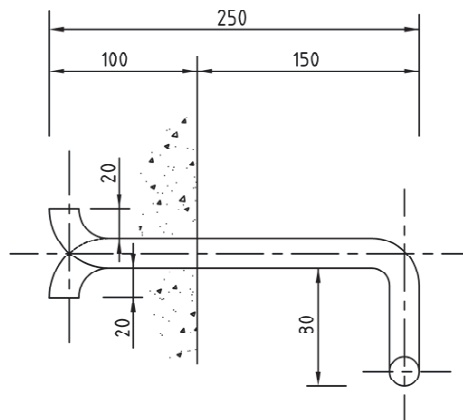
1. COMPRESSIVE STRENGTH  $F'c$  FOR CAST IN SITU CONCRETE TO BE A MIN.  $32 \text{ MPa}$  AT 28 DAYS.
2. WHERE THE PIPELINE IS UNDER ROAD PAVEMENT THE TOP OF THE BULKHEAD SHALL EXTEND TO THE SUBGRADE LEVEL.
3. BULKHEADS ARE TO BE PLACED AT EACH COLLAR JOINT FOR PIPELINE GRADES GREATER THAN 16%

					
A	JAN 2009	FIRST ISSUE	A.P.	C.M.	
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	

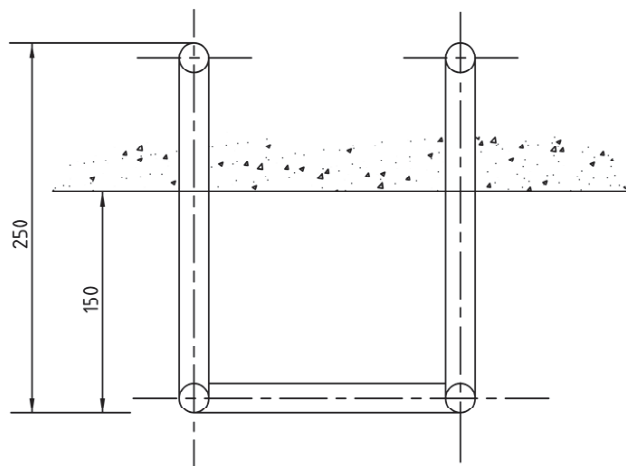
TITLE			SCALE
MINOR DRAINAGE CONNECTIONS			NTS
APPROVED	DATE	DRAWING No.	REV
C. McINTYRE	JAN 2009	SD17	A



FRONT ELEVATION



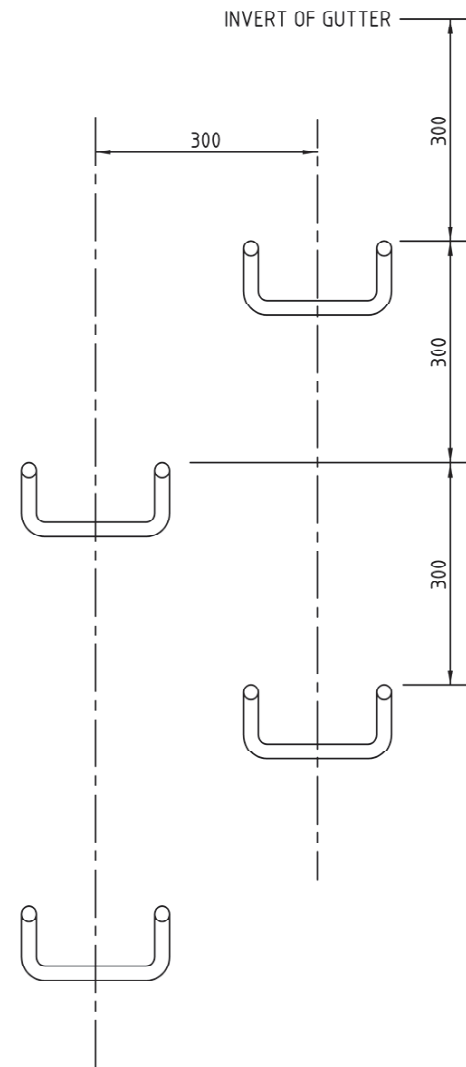
SIDE ELEVATION




PLAN

NOTES

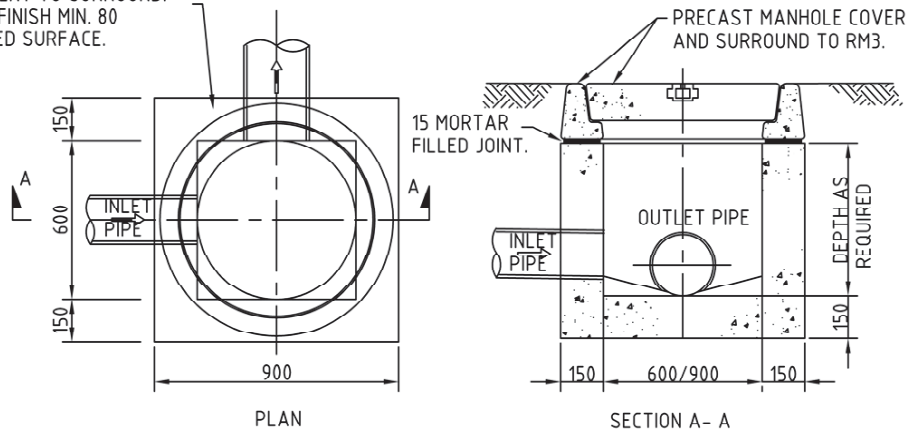
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. STEP IRONS TO BE FABRICATED FROM  $\phi 20$  M.S. BARS
3. ALL BENDS TO BE FORMED AROUND  $\phi 12$  PIN
4. STEP IRONS TO BE HOT DIPPED GALVANISED
5. PITS LESS THAN 1200mm (MEASURED FROM THE TOP OF KERB) TO HAVE ONE STEP IRON LOCATED 600mm BELOW INVERT OF GUTTER



STEP IRON PLACEMENT  
DIAGRAM


						TITLE		SCALE
						STEP IRONS		NTS
A	JAN 2009	FIRST ISSUE	A.P.	C.M.	APPROVED	DATE	DRAWING No.	REV
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	C. McINTYRE	JAN 2009	SD20	A

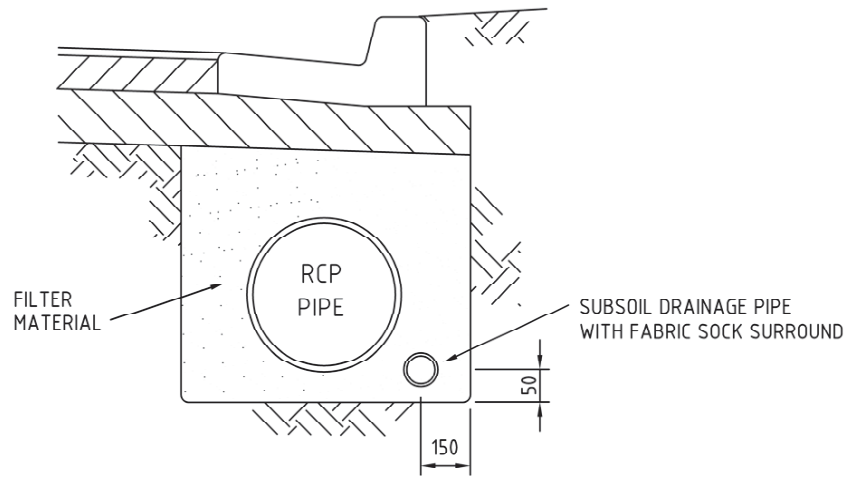
MASS CONCRETE PLACED ON TOP OF WALLS ADJACENT TO SURROUND. CONCRETE TO FINISH MIN. 80 BELOW FINISHED SURFACE.



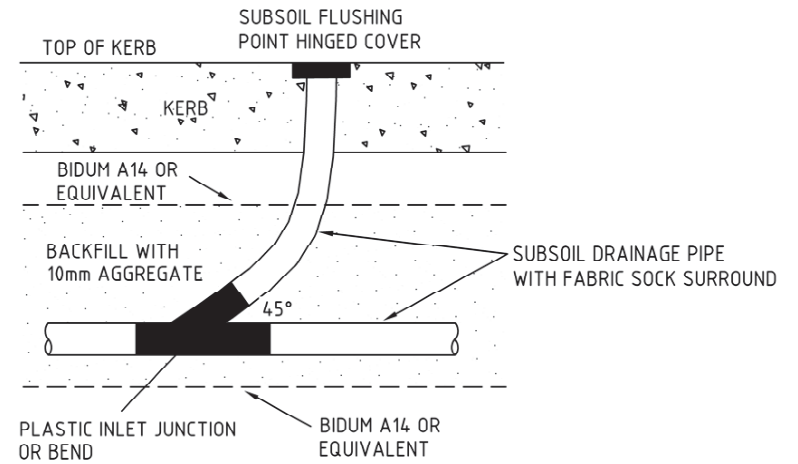
CONCRETE INSPECTION PIT

THE INTERNAL JUNCTION SHALL BE SMOOTHLY FINISHED WITH 2:1 CEMENT MORTAR SO AS TO PRESENT NO OBSTRUCTION WITHIN THE INTERNAL CHANNEL OF THE R.C. STORMWATER PIPE.

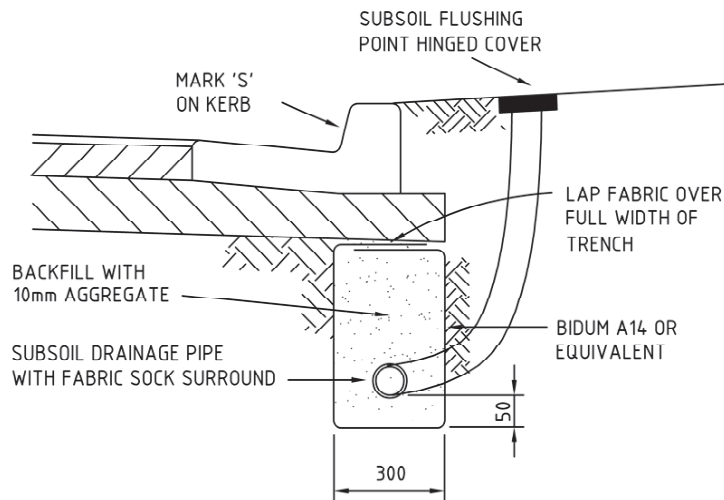
						TITLE		SCALE
						CONCRETE INSPECTION PIT		NTS
A	NOV 2006	FIRST ISSUE DRAFT	A.P.	C.M.	APPROVED	DATE	DRAWING No.	REV
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	C. McINTYRE	NOV 2006	SD22	A



SUBSOIL PIPE IN STORMWATER DRAINAGE TRENCH



SUBSOIL PIPE ELEVATION



SUBSOIL PIPE TRENCH

NOTES.

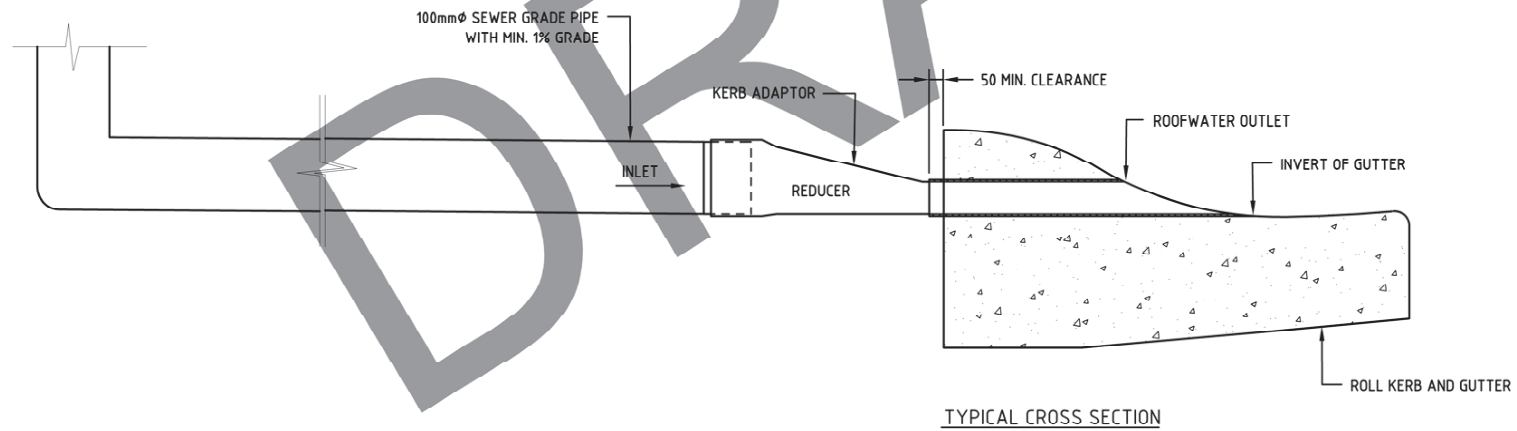
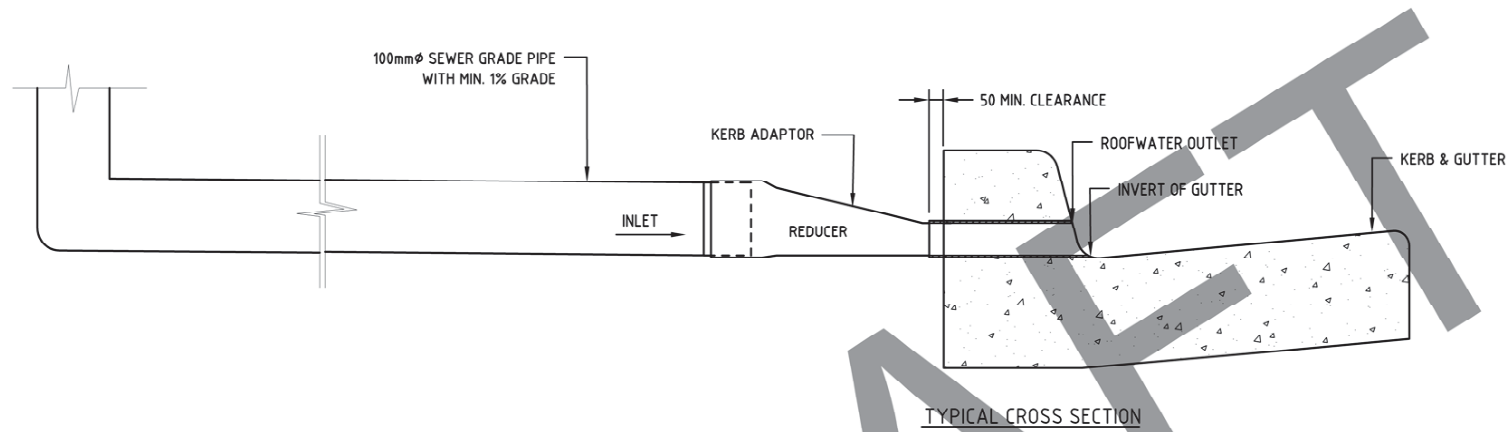
1. ALL SUBSOIL PIPE TO BE 100 $\phi$  MIN. SLOTTED PLASTIC
2. MINIMUM GRADE OF SUBSOIL TO BE 1%
3. SUBSOIL FLUSHING POINTS TO BE NOT MORE THAN 60 METRES INTERVALS
4. JOINTS IN FILTER FABRIC TO BE LAPPED MINIMUM 300mm
5. WHERE LOCATED UNDER ROAD PAVEMENT, SUBSOIL TRENCH IS TO BE AT SUBGRADE LEVEL
6. SUBSOIL DRAINS TO BE CONTINUED HARD UP AGAINST WALLS OF DRAINAGE PITS WITH SLOTTED PLASTIC DRAIN EXTENDING THROUGH THE UOSTREAM
7. SUBSOIL DRAINS ARE TO BE EVENLY GRADED WITH NO DEPRESSIONS
8. IN AREAS OF PERVIOUS SUBGRADE OR FRAGMENTED MATERIAL, THE BOTTOM OF THE TRENCH IS TO BE LINED WITH A SUITABLE PLASTIC MEMBRANE RETURNED 200mm UP EACH SIDE OF THE TRENCH

REVISION	DATE	DESCRIPTION	DRAWN.	APP.
A	NOV 2006	FIRST ISSUE DRAFT	A.P.	C.M.




TITLE			SCALE	
SUBSOIL DRAINAGE DETAILS			NTS	
APPROVED	DATE	DRAWING No.	REV	
C. McINTYRE	NOV 2006	SD100	A	



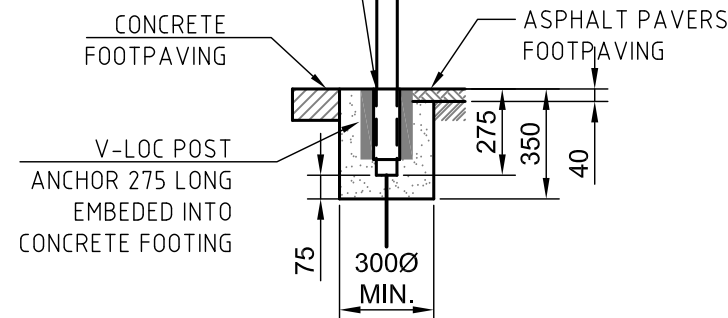


**NOTES:**

1. KERB OUTLETS TO BE MANUFACTURED FROM 150X50X4 mm HOT DIPPED GAL.MILD STEEL TO SUIT KERB TYPE, AND TO EXTEND MIN, 50mm BEHIND REAR OF KERB.
2. SEAL JOINT BETWEEN ADAPTOR AND OUTLET WITH APPROVED SILICON SEALANT.
3. FOR ALL OUTLETS, ADAPTORS AND REDUCERS TO BE FROM AN APPROVED MANUFACTURER AND ALL JOINTS TO BE SEALED & WATERTIGHT.

						TITLE <b>KERB ADAPTORS</b>			SCALE <b>NTS</b>
A	NOV 2017	INITIAL ISSUE FOR DISCUSSION	A.B.	D.A.		APPROVED	DATE	DRAWING No.	REV
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	D.A.	NOV 2017	SD26	A	

V-LOC TO BE POSITIONED WITH WEDGE IN DIRECTION OF TRAFFIC AND FINISHED FLUSH WITH SURFACE. LOCKING WEDGE TO BE LEFT 20 ABOVE SURFACE



TYPE-2 FOOTING PAVED AREAS

● LEPPINGTON ROAD

DOUBLE ENDED SIGN

FOOTING DETAILS AS PER SINGLE ENDED SIGN

SIGN PLATE

DETAILS GENERALLY AS FOR SINGLE ENDED SIGN UNLESS OTHERWISE SPECIFIED. REFER BRACKET DETAIL FOR CENTRE MOUNTING

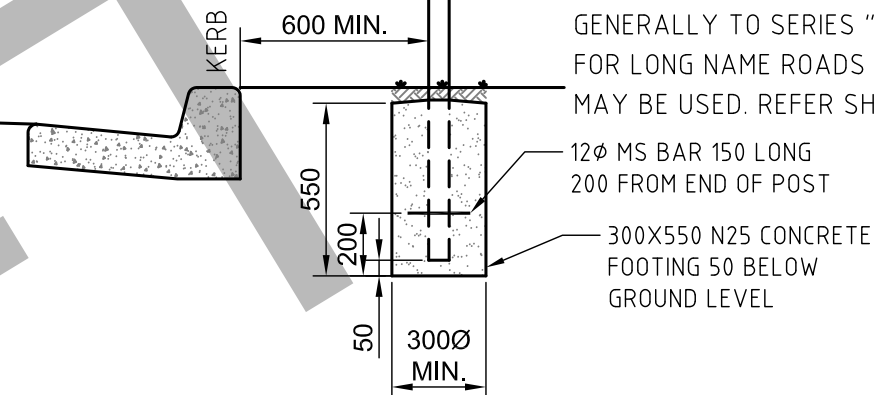
● CAMDEN ST.

SINGLE ENDED SIGN

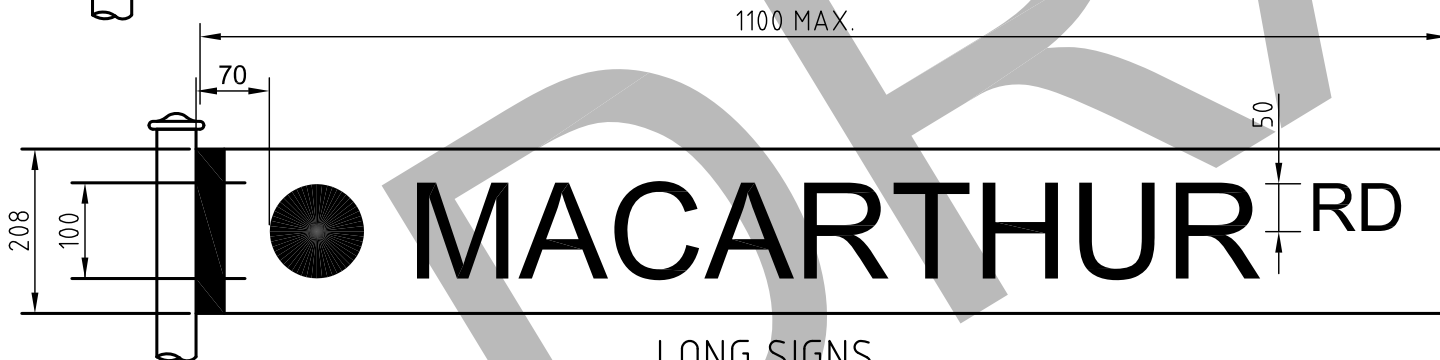
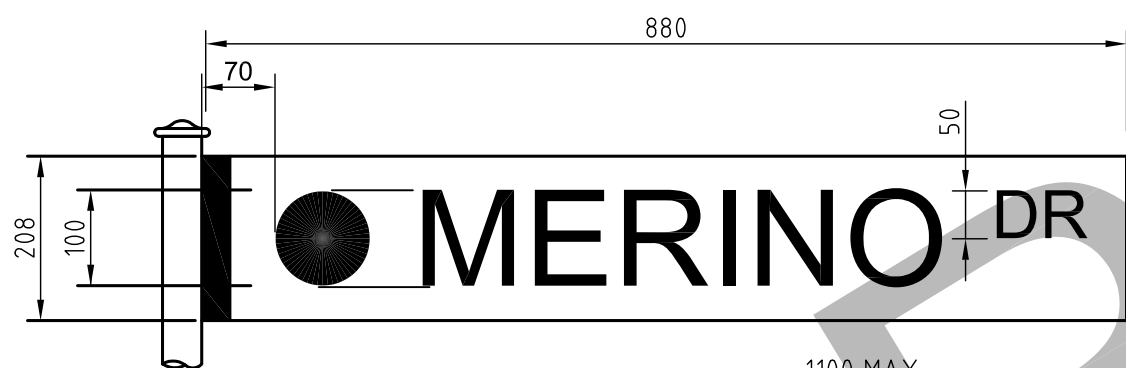
SIGN PLATE FOR DETAIL REFER SHEET 2

LETTERING

LETTERING AND NUMERALS TO CONFORM GENERALLY TO SERIES "D" OF AS1744-1975. FOR LONG NAME ROADS SERIES "C" LETTERING MAY BE USED. REFER SHEET 2.



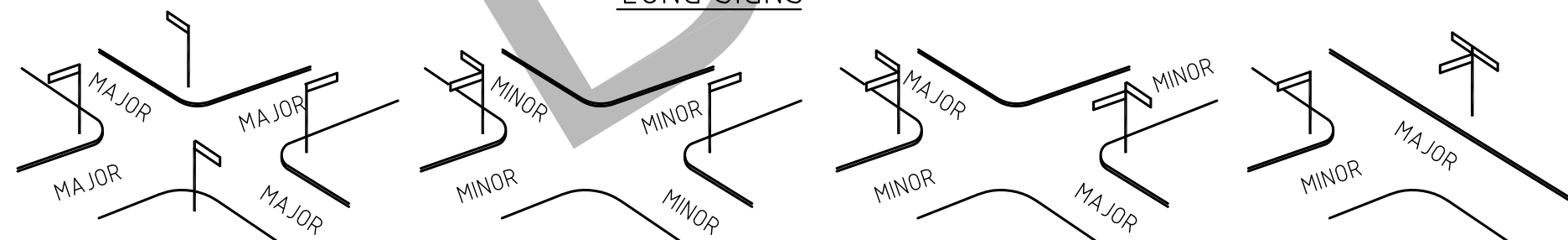
FOOTING DETAILS - TYPE 1 - STANDARD



LONG SIGNS




SHORT SIGNS

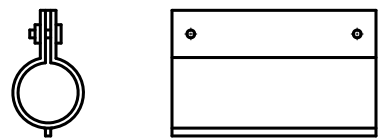


POST CONFIGURATION PLANS

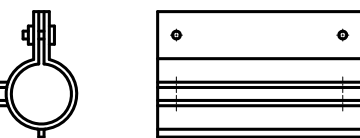
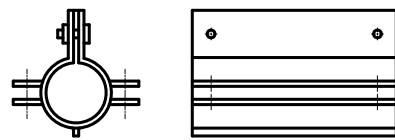
NOTES:

1. ALL COLOURS TO MATCH CAMDEN COUNCILS CORPORATE COLOURS - BLUE - PMS PROCESS BLUE, GREEN - PMS 348C, RED - PMS202C
2. ALL TEXT AND BACKGROUNDS TO BE REFLECTIVE
3. FONT TO BE ARIAL BOLD FOR SHORT NAMES ARIAL BOLD CONDENSED FOR LONG NAMES
4. CAMDEN COUNCIL LOGO TO ALWAYS BE POSITIONED CLOSEST TO THE POLE
5. PANELS TO BE 880 OR 1100 LONG, BUT NO LONGER
7. LOWER EDGE OF SIGNS TO BE 3000mm ABOVE GROUND LEVEL.
8. SIGNS TO BE BOLTED TO POST THROUGH STRENGTHENING BARS WITH CADMIUM PLATED BOLTS AND NUTS.
9. ALL POSTS ARE TO BE GALVANISED

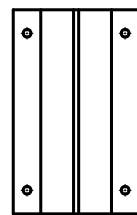
					TITLE			SCALE
C	FEB 2020	THIRD ISSUE	G.B.M		DETAILS OF ROAD NAME POSTS			NTS
B	FEB 2019	SECOND ISSUE	C.N.		APPROVED	DATE	DRAWING No.	REV
A	MAY 2011	FIRST ISSUE	A.P.		C. McINTYRE	MAY 2009	SD27A	C
REVISION	DATE	DESCRIPTION	DRAWN.	APP.				



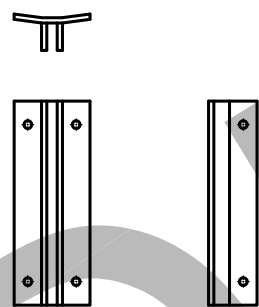
**DETAIL 1**  
BRACKET FOR ATTACHING  
SINGLE SIGN TO STEEL POST



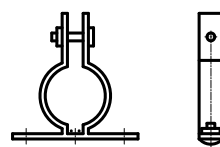
**DETAIL 2**  
BRACKET FOR ATTACHING  
TWO SIGNS TO STEEL POST



**DETAIL 3**  
BRACKET FOR ATTACHING  
THREE SIGNS TO STEEL POST



**DETAIL 4**  
BRACKET FOR ATTACHING  
TIMBER SIGN TO TIMBER POST



**DETAIL 5**  
BRACKET FOR ATTACHING  
EXTRA LENGTH SIGN TO MULTIPLE  
POSTS OR CENTRE MOUNTING  
DOUBLE ENDED SIGN

GROOVE ON SIGN  
PLATE FOR BOLTS  
ATTACHED TO BRACKET



**DETAIL A**

### 1.0 SIGN BLADE

2.1 SIGNS SHALL BE MANUFACTURED FROM AN APPROVED MARINE GRADE HIGH TENSILE STRENGTH ALUMINIUM EXTRUSION WITH SQUARE END.

2.2 THE LENGTH OF SIGNS SHALL NOT BE MORE THAN 1100mm

2.3 THE FLANGES SHALL BE 18mm MINIMUM WIDTH AND NO LESS THAN 6mm THICK. THE FILLET SHALL BE NOT LESS THAN 5mm WIDE AND 7mm MINIMUM THICKNESS AND THE WEB SHALL BE 2mm MINIMUM THICKNESS (REFER DETAIL A).

2.4 THE BLADES SHALL BE PRE-DRILLED TO COINCIDE WITH THE POSITION AND DIAMETER OF THE BRACKETS. THE BLADES SHALL BE 202mm BLADES.

### 2.0 STREET NAME SIGNS

#### 3.1 BACKGROUND

THE BACKGROUND SHEETING SHALL BE "CLASS 1 REFLECTIVE WHITE" VINYL SHEETING BONDED TO THE PREPARED ALUMINIUM EXTRUSION BLADE BY THE APPROVED METHOD TO MEET AS/NZ 1906.1.2017 APPLICABLE FOR A 8 YEAR DURABILITY WARRENTY. THE SHEETING SHALL EXTEND FOR THE FULL LENGTH OF THE BLADE AND BE UNSPLICED ALONG ITS ENTIRE LENGTH. THE MINIMUM WIDTH OF THE BACKGROUND MATERIAL SHALL BE 180mm FOR 202mm BLADES.

#### 3.0 BRACKETS

4.1 BRACKETS SHALL BE COMPATIBLE WITH THE SPECIFIED BLADE.

4.2 BRACKETS SHALL BE PRE-DRILLED (10mm DIA). BRACKETS SHALL BE SUPPLIED COMPATIBLE WITH BOLTS, NUTS AND WASHERS.

BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND OF SUITABLE SIZE.

#### 4.0 TOLERANCE

MANUFACTURING TOLERANCES OF SIGNS SHALL BE SPECIFIED IN SECTION 4 MANUFACTURING AND MATERIALS OF A.S. 1743.2018 SPECIFICATIONS.

#### 5.0 PROTECTION AND PACKAGING

PROTECTION AND PACKAGING OF ALL BLADES, AND ASSOCIATED FITTINGS FOR DELIVERY TO COUNCIL SHALL BE THE RESPONSIBILITY OF THE SUPPLIER. SIGNS ARE TO BE PROTECTED FROM DAMAGE DURING TRANSIT BY APPROVED WRAPPING PRIOR TO DELIVERY.

#### 6.0 WARRANTY

ALL STREET SIGN BLADES SHALL CARRY A 8 YEAR PERFORMANCE WARRENTY FROM THE RETRO-REFLECTIVE MATERIAL. MANUFACTURER DETAILS OF THE PERFORMANCE WARRENTY SHALL BE SUBMITTED WITH THE QUOTATION/TENDER.

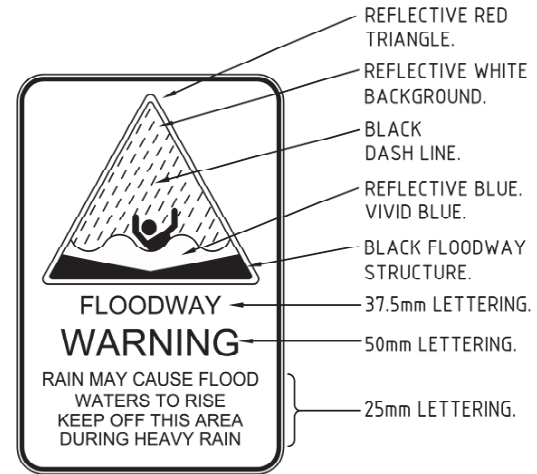
#### NOTE

1. CONTRACT SIGN MANUFACTURERS TO OBTAIN COUNCIL LOGO AND SPECIFICATIONS FROM COUNCIL.
2. END MOUNTED SIGNS MUST HAVE STREET NAME ON BOTH SIDES.
3. DOUBLE ENDED SIGNS MUST HAVE STREET NAMES ON ONE SIDE ONLY.

REVISION	DATE	DESCRIPTION	DRAWN.	APP.
B	FEB 2020	SECOND ISSUE DRAFT	G.B.M	
A	FEB 2019	FIRST ISSUE DRAFT	C.N.	C.M.



TITLE			SCALE
DETAILS OF BRACKETS FOR SIGN POSTS			NTS
APPROVED	DATE	DRAWING No.	REV
C. McINTYRE	NOV 2006	SD27B	B



- REFLECTIVE RED TRIANGLE.
- REFLECTIVE WHITE BACKGROUND.
- BLACK DASH LINE.
- REFLECTIVE BLUE. VIVID BLUE.
- BLACK FLOODWAY STRUCTURE.
- 37.5mm LETTERING.
- 50mm LETTERING.
- 25mm LETTERING.

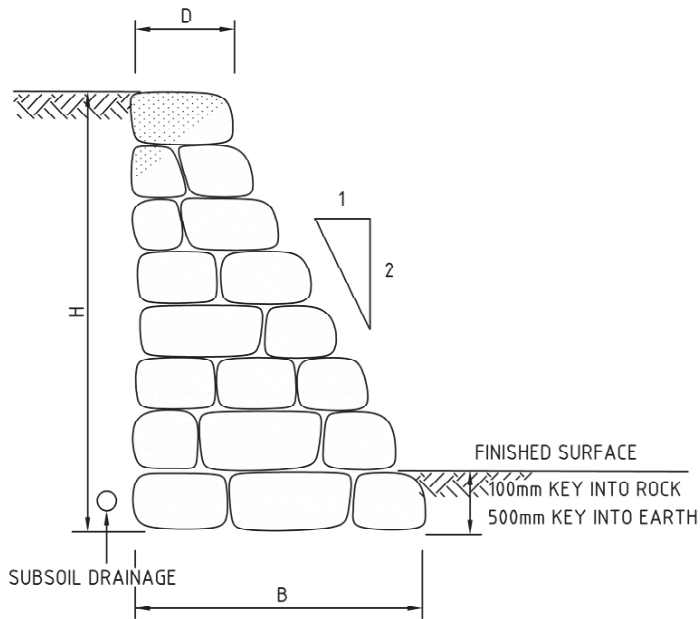
NOTES

1. SIGN TO CONSIST OF 3mm THICK ALUMINIUM & TO BE IN CORPORATE COLOURS ON A DIAMOND GRADE, WHITE REFLECTIVE PLATE, UV TREATED COVERED IN ANTI-GRAFFITI FILM AND COMPLY WITH A.S.1743.
2. LETTERING "WARNING" TO BE RED AND OTHERS IN BLACK.
3. THE GRAPHIC CONSISTS OF AN OUTLINE SKETCH OF THE PEDESTRIAN AND A RED SYMBOLIC SIGN "PROHIBITED ENTRY" OVER THE SKETCH.
4. COLOUR OF GRAPHIC SHALL BE BLACK.
5. THE SIGN SHALL BE 900 HIGH BY 600 WIDE WITH CORNER RADII OF 60.
6. SIGN POST SHALL BE HOT DIPPED GALVANISED, 101.6 x 5.0 CHS, 3100 LONG WITH HOT DIPPED GALVANISED TOP END CAP. POST TO BE SET 600 DEEP INTO Ø300 MASS CONCRETE. GROUND CLEARANCE TO SIGN TO BE MINIMUM 2000.

NOTES

1. SIGN TO CONSIST OF 3mm THICK ALUMINIUM & TO BE IN CORPORATE COLOURS ON A DIAMOND GRADE, WHITE REFLECTIVE PLATE, UV TREATED COVERED IN ANTI-GRAFFITI FILM AND COMPLY WITH A.S.1743.
2. LETTERING "WARNING" TO BE RED AND OTHERS IN BLACK.
3. THE SIGN SHALL BE 900 HIGH BY 600 WIDE WITH CORNER RADII OF 60.
4. SIGN POST SHALL BE HOT DIPPED GALVANISED, 101.6 x 5.0 CHS, 3100 LONG WITH HOT DIPPED GALVANISED TOP END CAP. POST TO BE SET 600 DEEP INTO Ø300 MASS CONCRETE. GROUND CLEARANCE TO SIGN TO BE MINIMUM 2000.

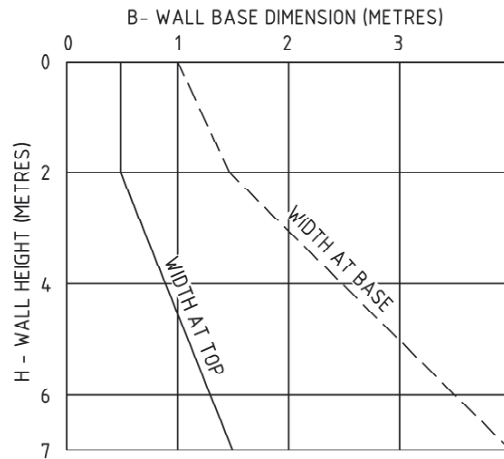
						TITLE FLOOD WARNING SIGNAGE			SCALE NTS
A	JAN 2009	FIRST ISSUE	A.P.	C.M.		APPROVED C. McINTYRE	DATE JAN 2009	DRAWING No. SD28	REV A
REVISION	DATE	DESCRIPTION	DRAWN.	APP.					



**ROCK WALL SECTION**  
NTS

**NOTES**

1. THE NORMAL LOADING CONDITION ASSUMES THAT THE WATER TABLE IS BELOW THE BASE OF THE WALL
2. BACKFILL MATERIALS TO BE ESSENTIALLY GRANULAR FREE DRAINING MATERIAL;
3. THE RETAINED SURFACE IS HORIZONTAL
4. WHERE THE SURFACE SLOPE OF THE RETAINED MATERIAL IS BETWEEN 1(V) TO 10(H), THE WALL BASE DIMENSION IS TO BE INCREASED BY 0.5M.
5. WHERE THE NATURAL SURFACE BEHIND THE WALL IS TO CARRY SURCHARGE LOADING THE WALL GEOMETRY SHALL BE AMENDED TO ALLOW FOR AN EQUIVALENT WALL HEIGHT EQUAL TO THE TRUE HEIGHT PLUS 0.5M FOR EACH 10KPA OF SURCHARGE. A 20KPA SURCHARGE ADEQUATELY COVERS THE B99 VEHICLE (AS/NZS 2830), FULLY LADEN. ALL SURCHARGES IN EXCESS OF 20KP WILL REQUIRE SITE SPECIFIC DESIGN.
6. WHERE WALL HEIGHTS EXCEED 2.5M THE WALL SHALL BE FOUNDED ON BEDROCK. WALLS OF LESS THAN 2.5M IN HEIGHT MAY BE PLACED ON SUITABLE SOIL FOUNDATIONS. SUITABLE FOUNDING SOILS WOULD NORMALLY BE RESIDUAL SANDSTONE OR OTHER DENSE CLAYEY SANDS. CLEAN SANDS, SILTY SANDS OR HIGH CLAY CONTENT SOILS SUCH AS RESIDUAL SHALE ARE GENERALLY UNACCEPTABLE AS FOUNDING MATERIALS FOR ROCK RETAINING WALLS. NOTWITHSTANDING THE ABOVE A FOUNDATION SAFE BEARING CAPACITY OF 200KPA MUST BE ACHIEVED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
7. DRAINAGE OF THE WALL FOUNDATION SHALL BE ACHIEVED BY INSTALLING A CONTINUOUS A 100MM
8. DIAMETER SUBSOIL DRAIN AT THE REAR OF THE WALL WHERE THE WALL FOUNDATION CONSISTS OF SOIL.



**ROCK WALL DESIGN CHART**

9. ALL SURFACE RUNOFF SHALL BE DIRECTED AWAY FROM THE BACK OF THE WALL SO AS TO PREVENT INFILTRATION OF SUCH SURFACE RUNOFF INTO THE GRANULAR BACKFILL. IN THE CASE OF WALLS FOUNDED ON SOIL THE SURFACE RUNOFF SHALL BE DIRECTED SO AS TO PREVENT EROSION AND POSSIBLE UNDERCUTTING ALONG THE TOE OF THE WALL.
10. MATERIALS USED FOR CONSTRUCTION OF THE WALL SHALL BE LARGE, DURABLE BOULDERS, IN GENERAL AT LEAST 0.5 SQUARE METERS IN AREA.
11. WHERE THE WALL IS FOUNDED ON BEDROCK THE PREPARATION OF THE FOUNDATION SHALL INCLUDE THE REMOVAL OF ALL LOOSE ROCK AND SOIL. ANY IRREGULARITIES IN THE LEVEL OF THE BEDROCK SHALL BE FILLED WITH MASS CONCRETE OR RIPPED ROCK COMPACTED TO A MINIMUM DRY DENSITY OF 98% STANDARD.
12. WHERE THE WALL MAY BE FOUNDED ON SOIL THE EXPOSED FOUNDATION SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 300MM, WETTED TO BRING IT NEAR TO THE STANDARD OPTIMUM MOISTURE CONTENT AND COMPACTED TO A MINIMUM DRY DENSITY RATION OF 95% STANDARD. ANY AREA WHICH REMAINS SOFT OR SPONGY AFTER THE COMPACTION, SHALL BE EXCAVATED AND FILLED.
13. ALL FILL SHOULD BE PLACED IN LAYERS WITH A MAXIMUM LOOSE THICKNESS OF 250MM AND COMPACTED IN THE MANNER DESCRIBED ABOVE. THE BASE LAYER OF BOULDERS SHALL BE SET IN CONCRETE OR MORTAR PLACED ON THE PREPARED SOIL FOUNDATION WITHIN THE KEY EXCAVATION. WHERE THE ROCK SURFACE FALLS AWAY BELOW THE TOE OF THE WALL, PARTICULAR CARE SHALL BE TAKEN TO ENSURE THAT THE WALL IS FOUNDED ON INTACT BEDROCK AND NOT ON A FOUNDATION OF FLOATERS.
14. WHERE THE WALL IS TO BE FOUNDED ON BEDROCK THE BASE OF THE WALL SHALL BE NOTCHED IN SOUND, INSITU ROCK A MINIMUM DEPTH OF 100MM BELOW THE FINISHED SURFACE LEVEL AT THE TOE OF THE WALL. WHERE ADDITIONAL RESISTANCE TO SLIDING IS REQUIRED THE BASE OF THE WALL SHALL BE LAID INTO THE FOUNDATION ROCK BY CONCRETING THE BASECOURSE OF BOULDERS.
15. WHERE THE WALL IS TO BE FOUNDED ON A COMPACTED SOIL THE BASE OF THE WALL SHALL BE AT A LEVEL WHICH IS A MINIMUM DEPTH OF 450MM BELOW THE FINISHED SURFACE LEVEL AT THE TOE OF THE WALL.
16. ROCK IS TO BE PLACED TO ENSURE THAT INDIVIDUAL BLOCKS ARE INTERLOCKING. TO ACHIEVE THIS, BLOCKS SHOULD BE LAID ROUGHLY COURSED AND DEDDED ON THEIR BROADEST BASES. ALL VERTICAL JOINTS BETWEEN BLOCS SHALL BE BROKEN. FILTER CLOTH SHALL BE PLACED BEHIND THE ROCK WALL AND UNDER THE BASE.
17. MATERIALS USED FOR BACKFILLING BEHIND THE WALL SHALL BE ESSENTIALLY GRANULAR FREE MATERIAL.
18. ANY COMPACTION OF FILL PLACED BEHIND THE WALL SHALL BE CAREFULLY CARRIED OUT TO MINIMISE THE INDUCED LATERAL STRESS AGAINST THE WALL.
19. ALL FILL SHOULD BE PLACED IN LAYERS WITH A MAXIMUM LOOSE THICKNESS OF 250MM AND COMPACTED TO A DRY DENSITY RATIO OF NOT LESS THAN 95% BASED ON STANDARD COMPACTION.
20. WHERE PAVEMENT CONSTRUCTION IS TO TAKE PLACE USING THE BACKFILL AS SUBGRADE MATERIAL, NEAR SURFACE COMPACTION OF THE BACKFILL SHALL BE CARRIED OUT IN ACCORDANCE WITH PAVEMENT COMPACTION REQUIREMENTS AND SURCHARGE LOADS BY COMPACTION MACHINERY.
21. WHERE THE POTENTIAL EXISTS FOR SIGNIFICANT SURFACE RUNOFF OR SUBSURFACE GROUNDWATER FLOW, SUFFICIENT DRAINAGE MEASURES SHALL BE INCORPORATED TO ENSURE THAT WATER PRESSURE DOES NOT DEVELOP IN THE MATERIAL RETAINED BY THE WALL.
22. WHERE REQUIRED THE OVERALL STABILITY OF THE SLOPE AND ROCK WALL SHALL BE EVALUATED. SUCH AN EVALUATION MUST BE CARRIED OUT BY A SUITABLY QUALIFIED CIVIL ENGINEER, PRACTICING GEOTECHNICAL ENGINEERING, PRIOR TO COMMENCING PLACEMENT OF THE WALL ROCK.
23. WHERE PIPES ARE TO PASS THROUGH OR BENEATH THE ROCK WALL THEY SHALL BE ENCASED IN CONCRETE TO ENSURE THAT THE BASE OF THE WALL IS FOUNDED IN COMPETENT MATERIAL.
24. THE NON STANDARD CONDITIONS THAT WARRANT SPECIAL DESIGN CONSIDERATION ARE:
  - (i) BACKFILL SLOPE STEEPER THAN 1(V) IN 4(H)
  - (ii) UNIFORM SURCHARGE GREATER THAN 20KPA OR LARGE ISOLATED LOADS WITHIN A DISTANCE OF ONE WALL HEIGHT OF THE EDGE OF THE WALL
  - (iii) BUILDINGS WITHIN A DISTANCE OF ONE WALL HEIGHT OF THE EDGE OF THE WALL
  - (iv) FOUNDATION CONDITIONS OUTSIDE THOSE SET OUT IN NOTE 4
  - (v) WALLS HIGHER THAN 7M
  - (vi) WALLS IN DESIGNATED LANDSLIP AREAS.
  - (vii) WALLS WHERE THE SITE CONDITIONS ARE SUCH THAT THE BACKFILL WILL NOT BE FULLY DRAINED

A	JAN 2009	FIRST ISSUE	A.P.	C.M.	
REVISION	DATE	DESCRIPTION	DRAWN.	APP.	

TITLE			SCALE
ROCK RETAINING WALL			NTS
APPROVED	DATE	DRAWING No.	REV
C. McINTYRE	JAN 2009	SD30	A

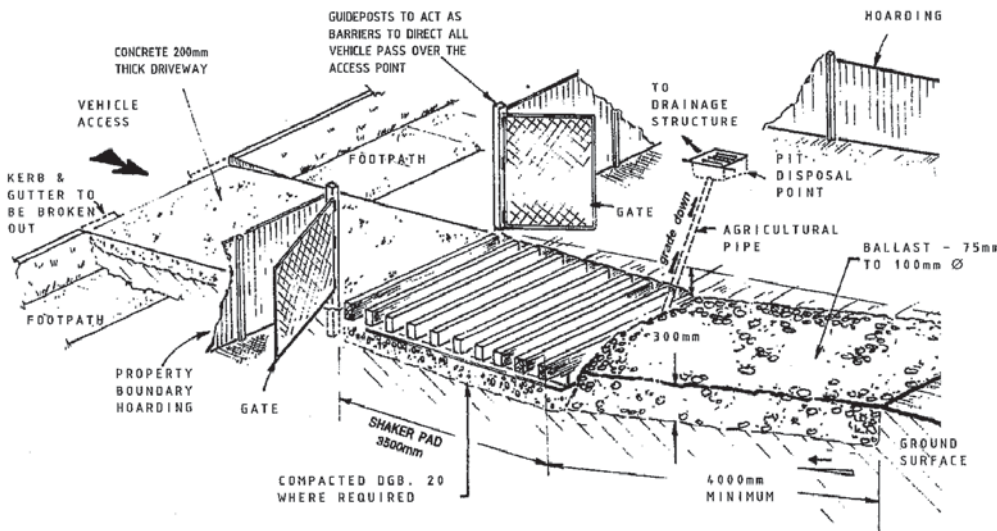


## STABILISED ACCESS POINT

### TYPE II SAP

THE TYPE II SAP DESIGN IS MORE DEFINED IN THAT IT REQUIRES AN AREA OF BALLAST WITHIN THE SITE COMBINED WITH A SHAKER PAD; ADJACENT THE SHAKER PAD AND IN THE PUBLIC WAY IS A TEMPORARY (CONCRETE) VEHICULAR CROSSING. (SEE DIAGRAM)

### STABILISED ACCESS POINT - TYPE 2



## NOTES

IN BOTH TYPE I AND TYPE II SAPS, THE TEMPORARY VEHICULAR CROSSING MUST:

CONNECT TO AN EXISTING GUTTER LAYBACK (WHERE KERB AND GUTTER EXIST). IF A GUTTER LAYBACK DOES NOT EXIST THEN THE CONNECTION MUST BE MADE TO THE GUTTER BY REMOVING THE ADJACENT KERB SECTION ONLY.

CONNECT TO A DISH CROSSING (WHERE KERB AND GUTTER DOES NOT EXIST). IF A DISH CROSSING DOES NOT EXIST, THEN IT MUST BE CONSTRUCTED IN ACCORDANCE WITH DETAILS CONTAINED IN COUNCIL'S ISSUED FOOTPATH CROSSING LEVELS.

IT SHOULD BE NOTED THAT THESE TYPES OF SAPS ARE CONSIDERED TO BE APPLICABLE FOR THE MAJORITY OF ACTIVITIES HOWEVER SOME SITES MAY REQUIRE SPECIAL CONSIDERATION.

## SHAKER PAD (CATTLE-GRID)

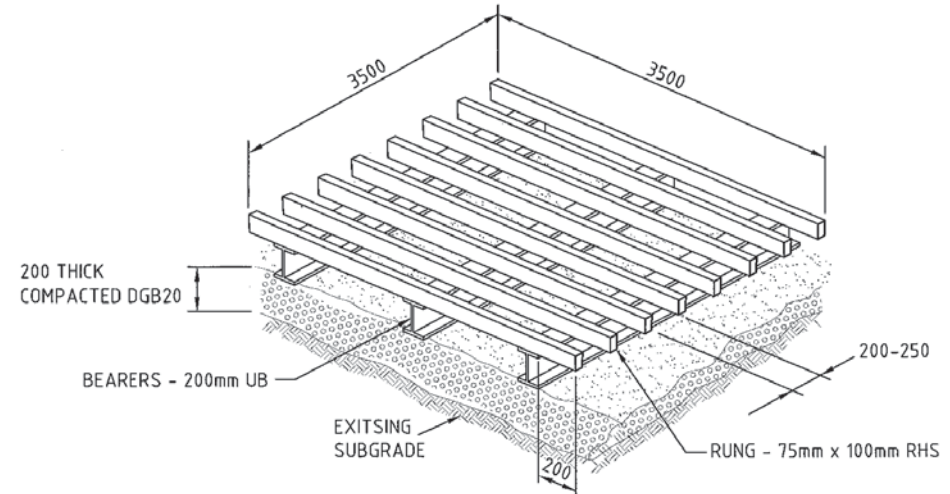
A CORRECTLY DESIGNED AND INSTALLED SHAKER PAD WILL ASSIST IN PREVENTING SEDIMENT TRANSFER FROM A SITE. ANY STABILISED ACCESS POINT (SAP) CAN BE DESIGNED WITH A SHAKER PAD (COMPULSORY IN TYPE II SAP'S).

SHAKER PADS CAN BE DESIGNED AND CONSTRUCTED TO ENABLE RE-USE ON FUTURE PROJECTS.


### THE SHAKER PAD:

- MUST BE DESIGNED AND CERTIFIED BY A PRACTICING STRUCTURAL ENGINEER. THE CERTIFIED DESIGN SHOULD BE SUBMITTED WITH THE RELEVANT APPLICATION
- CAN BE CONSTRUCTED FROM ANY SUITABLE MATERIAL
- MUST BE LOCATED ON A SUITABLY PREPARED AND COMPACTED SUB-GRADE/BASE MATERIAL
- MUST BE SITUATED SUCH THAT THE RUNGS OF THE SHAKER PAD ARE LEVEL WITH THE ADJOINING NATURAL SURFACE
- MUST BE A MINIMUM 3.5M IN LENGTH
- MUST BE A MINIMUM 3.5M IN WIDTH
- MUST HAVE CLEAR SPACING BETWEEN RUNGS OF 200 - 250MM
- RUNGS MUST HAVE A MAXIMUM WIDTH (BEARING AREA) OF 75MM
- MUST HAVE A MINIMUM CLEAR DEPTH OF 300MM IE FROM THE TOP OF THE RUNG TO THE FINISHED SUB-GRADE/BASE LEVEL

THE SHAKER PAD MUST BE PROVIDED WITH SUITABLE BARRIERS AT THE SIDES TO ENSURE THAT ALL TYRES OF VEHICLES LEAVING THE SITE TRAVERSE THE DEVICE.



## SHAKER PAD (CATTLE-GRID)

						TITLE	SCALE		
						STABILISED ACCESS POINT	NTS		
A	JAN 2009	FIRST ISSUE	A.P.	C.M.		APPROVED	DATE	DRAWING No.	REV
REVISION	DATE	DESCRIPTION	DRAWN.	APP.		C. McINTYRE	JAN 2009	SD31	A