STANDARD DRAWING INDEX						
DRAWING NUMBER	DRAWING TITLE					
	STORMWATER					
DH-SW-3050	DRAIN STORMWATER ALLOTMENT TO KERB AND CHANNEL CONNECTION					
DH-SW-3055	STORMWATER ALLOTMENT DRAIN CONNECTION TO AUTHORITY PIPELINE					
DH-SW-3060	STORMWATER ALLOTMENT CONNECTION IN EASEMENT DETAIL					
DH-SW-3065	SUBSOIL DRAINAGE FLUSHOUT RISER DETAIL					
DH-SW-5000	STORMWATER PITS REINFORCEMENT DETAILS					
DH-SW-5005	STORMWATER JUNCTION PIT					
DH-SW-5010	STORMWATER DEPRESSED GRATED PIT					
DH-SW-5020	STORMWATER SIDE ENTRY PIT 900mm INLET					
DH-SW-5025	STORMWATER SIDE ENTRY PIT AND LIDS WITH PRECAST LINTEL					
DH-SW-5030	STORMWATER DOUBLE SIDE ENTRY PIT 1900mm INLET					
DH-SW-5035	PRECAST SIDE ENTRY PIT INLET WITH GRATE INLINE					
DH-SW-5040	OFFSET SIDE ENTRY PIT WITH 900mm INLET GRATE					
DH-SW-5100	BANDAGE JOINT					
DH-SW-5200	STANDARD HEADWALL FOR PIPES 300-375 DIAMETER					
DH-SW-5205	STANDARD HEADWALL FOR PIPES 450-750 DIAMETER					
DH-SW-5210	STANDARD HEADWALL FOR SINGLE PIPES 675-1800 DIAMETER					
DH-SW-5215	STANDARD HEADWALL FOR TWIN PIPES 675-1800 DIAMETER					
DH-SW-5220	CONCRETE ENDWALL FOR PIPES UP TO Ø300mm (WALKWAYS,PATHS AND TRACKS)					
DH-SW-5225	NATURAL LOOK CONCRETE AND BOULDER HEADWALL					
DH-SW-5300	STORMWATER CATCH DRAIN DETAILS					
DH-SW-5400	STORMWATER DRAINAGE PIPE ANCHOR BLOCK					
DH-SW-5600	POST AND RAIL SAFETY BARRIER AROUND DROP ZONES					
DH-SW-6100	BIORETENTION STANDARD NOTES					
DH-SW-6101	BIORETENTION DRAINAGE PROFILE TYPE 1 SATURATED ZONE UNCONSTRAINED					
DH-SW-6102	BIORETENTION DRAINAGE PROFILE TYPE 1 SATURATED ZONE CONSTRAINED					
DH-SW-6103	BIORETENTION DRAINAGE PROFILE TYPE 2 - SEALED					

STANDARD DRAWING INDEX									
DRAWING NUMBER	DRAWING TITLE								
DH-SW-6104	BIORETENTION DRAINAGE PROFILE TYPE 3 - CONVENTIONAL								
DH-SW-6105	BIORETENTION DRAINAGE PROFILE TYPE 4 - PIPELESS								
DH-SW-6110	LARGE BIORETENTION SEDIMENT FOREBAY								
DH-SW-6111	BIORETENTION WEIR								
DH-SW-6113	BIORETENTION SWALE TYPICAL SECTIONS								
DH-SW-6120	STREETSCAPE BIORETENTION								
DH-SW-6121	BIORETENTION POD SEDIMENT FOREBAY								
DH-SW-6130	BIORETENTION STREET TREE								
DH-SW-6210	SEDIMENT BASIN TYPICAL PLAN AND SECTION								
DH-SW-6211	CONSTRUCTED WETLAND TYPICAL PLAN AND SECTIONS								
DH-SW-6220	WETLAND LOW FLOW RISER OUTLET								
DH-SW-6230	TYPICAL POND/WETLAND EDGE TREATMENTS								
DH-SW-6310	PORUS PAVEMENT – TYPICAL SECTION								

DRAWING NUMBER	DRAWING TITLE
	LANDSCAPE
DH-LS-7000	TYPICAL TREE PLANTING VERGE DETAIL (NON IRRIGATED)
DH-LS-7001	TYPICAL TREE PLANTING VERGE DETAIL (IRRIGATED)
DH-LS-7002	TYPICAL TREE PLANTING VERGE DETAIL (DOUBLE BUNTING)
DH-LS-7003	TYPICAL TREE PLANTING VERGE DETAIL (NARROW VERGE)
DH-LS-7004	TYPICAL TREE PLANTING DETAIL (LANE WAY)
DH-LS-7005	STREET TREE PLANTING DETAIL
DH-LS-7006	STREET TREE PLANTING DETAIL (NO FOOTPATH)
DH-LS-7007	STREET TREE PLANTING DETAIL (PATH AGAINST KERB)

DRAWINGS HAVE BEEN DEVELOPED FROM IPWEA STANDARDS WITH DHUD AMENDMENTS

FIRST DESIGN DRAWN CHECK APPD. DATE FOR INFORMATION 20/12/24 ISSUED FOR REVIEW 02/04/25 CLIENT SUBMISSION 08/05/25 CLIENT SUBMISSION



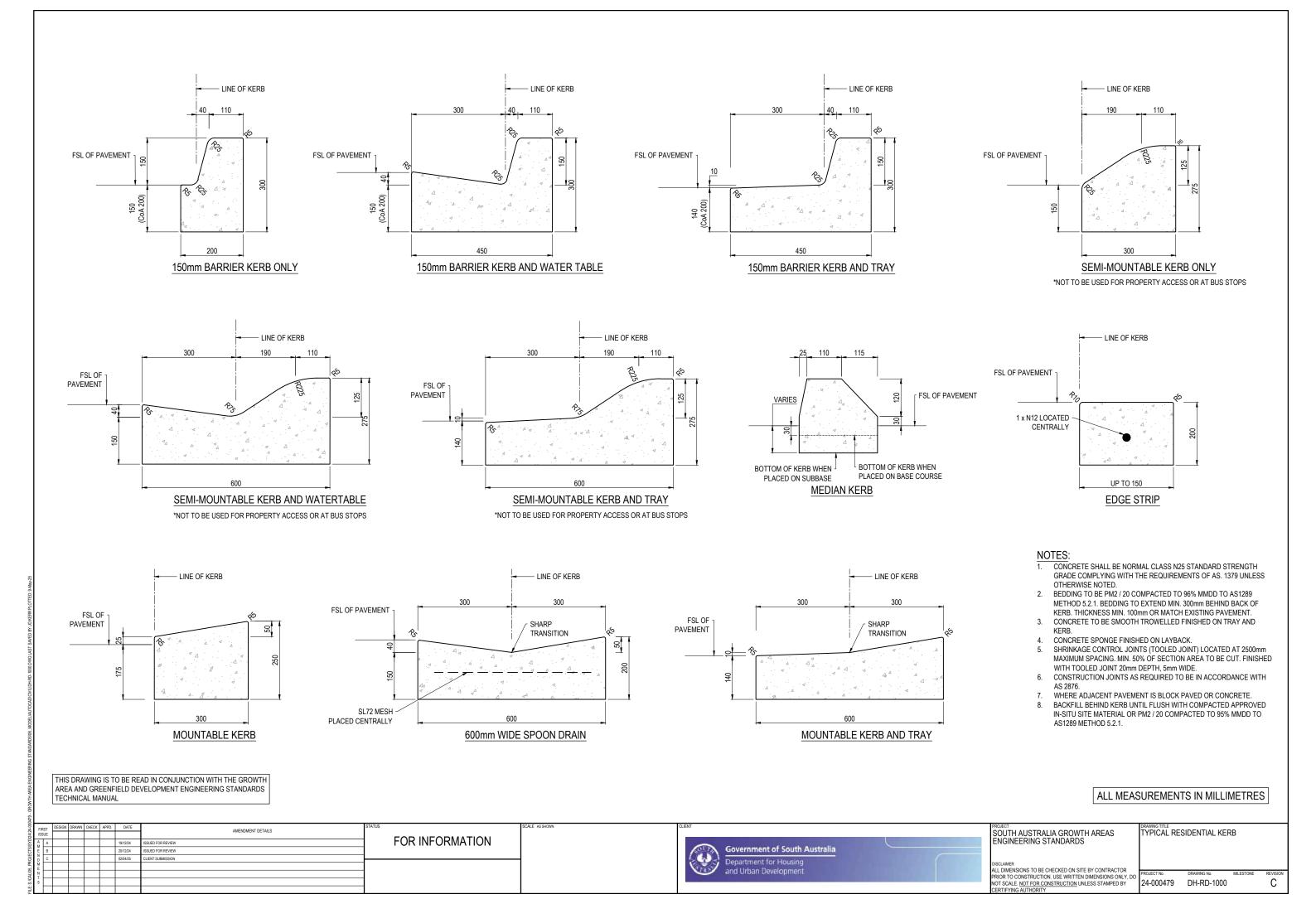
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

COVER SHEET/ DRAWING LIST

ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CEDITENING AUTHORITY.

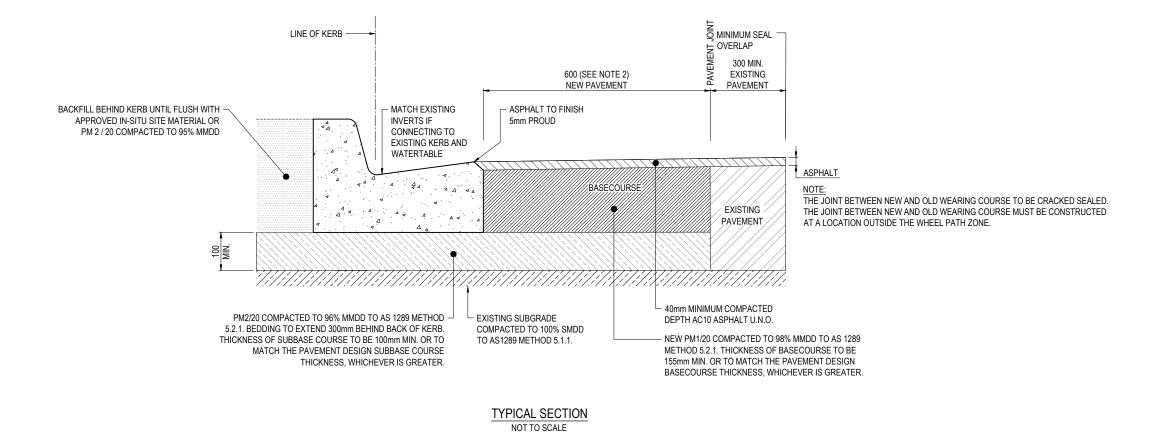
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D



- REFER TO DH-RD-1000 FOR KERB DETAILS.
- FOR WIDTH MINIMUM OF 100 TO 350mm USE CONTROLLED LOW STRENGTH MATERIAL (CLSM) INFILL.
- STRENGTH MATERIAL (CLSM) INFILL.

 PM 2/20 RG TO BE USED INSTEAD OF PM 2/20 QG ONLY WHEN
 SPECIFICALLY APPROVED RELEVANT AUTHORITY.
 REFER PAVEMENT DESIGN FOR PAVEMENT THICKNESS.
 INSTALLATION OF KERBING SHALL BE IN ACCORDANCE WITH AS2876.
 EXCAVATED MATERIAL SHALL NOT BE RE-USED IN THE BACKFILL
 REINSTATEMENT AND SHALL BE REMOVED OFFSITE.



THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENT DETAILS FOR INFORMATION 20/12/24 ISSUED FOR REVIEW 02/04/25



SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

KERB & WATERTABLE INSTALLATION
ABUTTING EXISTING PAVEMENT

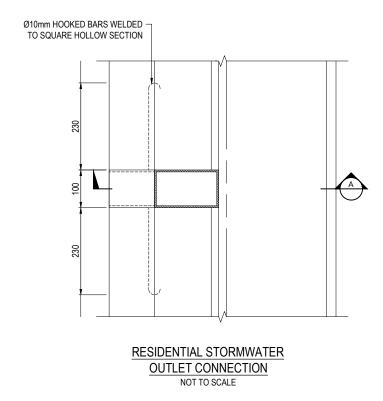
SULPHINER

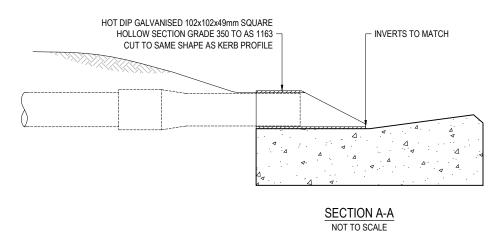
LE DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR
RIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO

T SCALE, NOT FOR CONSTRUCTION UNLESS STAMPED BY
ESTIEVANCE AUTHORITY.

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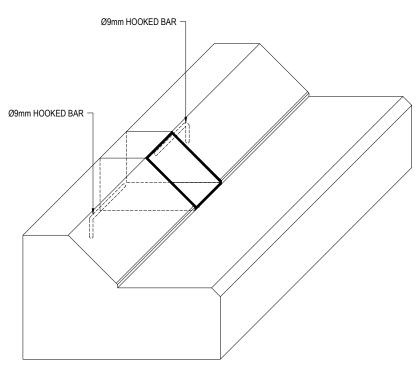
ALL WELDING TO HAPPEN BEFORE GALVANISING. SITE WELDING AND COLD GALVANISING ARE NOT PERMITTED.





THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS

TECHNICAL MANUAL



STORMWATER OUTLET DETAIL NOT TO SCALE

PROVIDE ONE OUTLET PER 10m OF FRONTAGE ON LOW SIDE OF LOT (UP TO 2 OUTLETS PER LOT)

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENT DETAILS FOR INFORMATION 02/04/25 CLIENT SUBMISSION



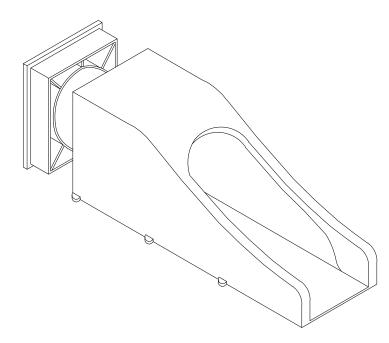
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DISSCAMBER
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DRAWING TITLE
STANDARD STORMWATER KERB OUTLET
DETAILS-INSTALLED DURING
CONSTRUCTION

24-000479 DH-RD-1015 В

KERB ADAPTOR - UPRIGHT KERB



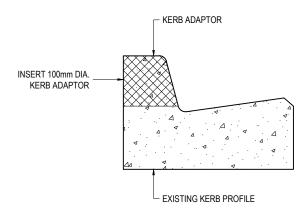
KERB ADAPTOR - SEMI MOUNTABLE KERB

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

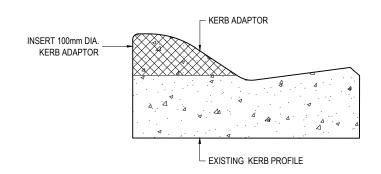
NOTES:

- ALL KERB ADAPTORS ARE TO BE AN APPROVED PROPRIETARY PRODUCT CONSTRUCTED FROM EITHER HEAVY DUTY UPVC OR HOT DIPPED GALVANIZED MILD STEEL.

 KERB IS TO BE NEATLY SAW CUT & KERB ADAPTOR EPOXIED INTO POSITION.



UPRIGHT KERB WITH KERB ADAPTOR SECTIONAL VIEW



SEMI MOUNTABLE KERB WITH KERB ADAPTOR SECTIONAL VIEW

ALL MEASUREMENTS IN MILLIMETRES

3	FIRST	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS	STATUS	SCALE AS SHOWN
124/24	ISSUE						AMENDMENT DETAILS	FOR INFORMATION	
SYD	A A					19/12/24	ISSUED FOR REVIEW	FOR INFORMATION	
CTS	E B					02/04/25	CLIENT SUBMISSION		
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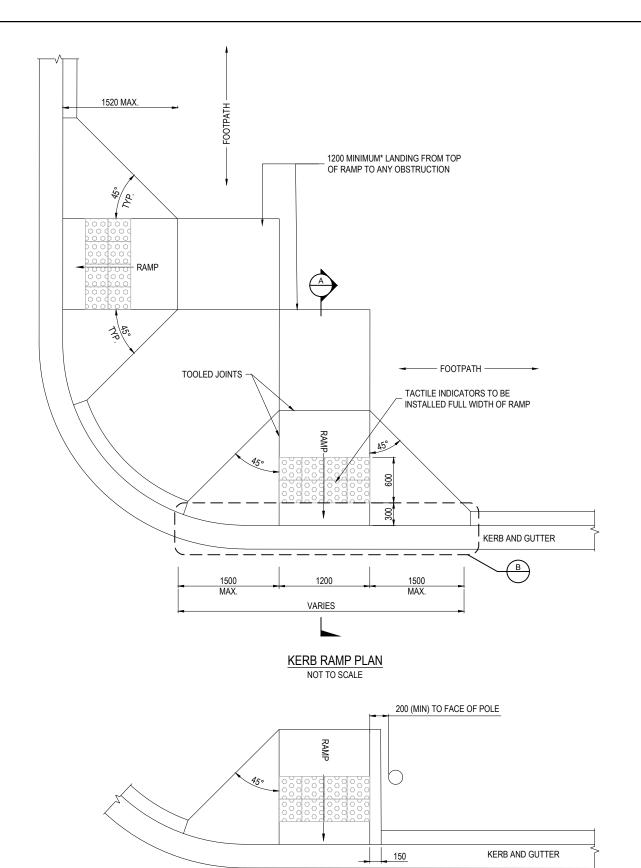


PROJECT
SOUTH AUSTRALIA GROWTH AREAS
ENGINEERING STANDARDS

DRAWING TITLE
HEAVY DUTY STORMWATER KERB
OUTLET DETAILS - EXISTING KERB

UISCLAIMENT ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION, USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY

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KERB RAMP WITH VERTICAL SIDE - PLAN NOT TO SCALE

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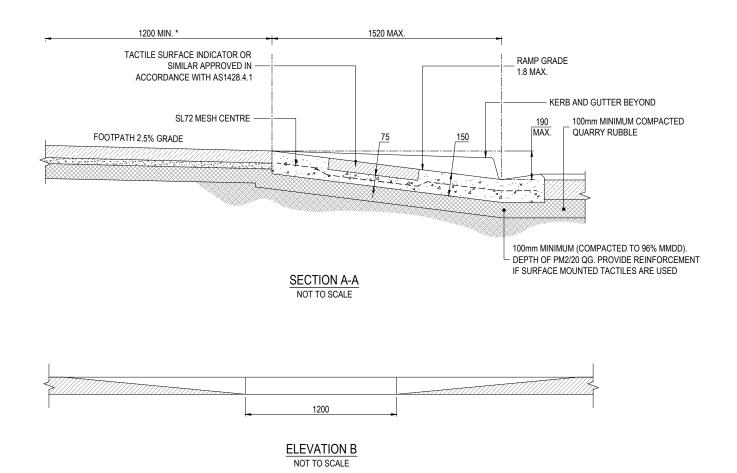
CLIENT SUBMISSION

02/04/25

AMENDMENT DETAILS

NOTES:

- 1. THE RAMP AND SLOPING SIDES SHALL BE SLIP RESISTANT WITH TACTILE SURFACE INDICATORS (CONTRASTING COLOUR), TYPE 'B' AND SHALL BE INSTALLED IN ACCORDANCE WITH AS1428.4.1. COLOUR TO BE CONFIRMED BY LOCAL AUTHORITY. REFER TO AS1428.4.1.
- 2. CONCRETE GRADE SHALL BE N32 FOR KERB, GUTTERS AND RAMPS.
- KERB RAMPS MUST CONFORM WITH AS1428.4.1.
- 4. KERB RAMP WINGS CAN BE STEEPENED AND A HAND RAIL PROVIDED IN LOCATIONS WHERE ACCESS FROM THE SIDES IS NOT POSSIBLE, OR ON CURVES.



* DENOTES MINIMUM DIMENSION. TO BE 1500 IF A TURN IN DIRECTION OF TRAVEL IS REQUIRED.

ALL MEASUREMENTS IN MILLIMETRES



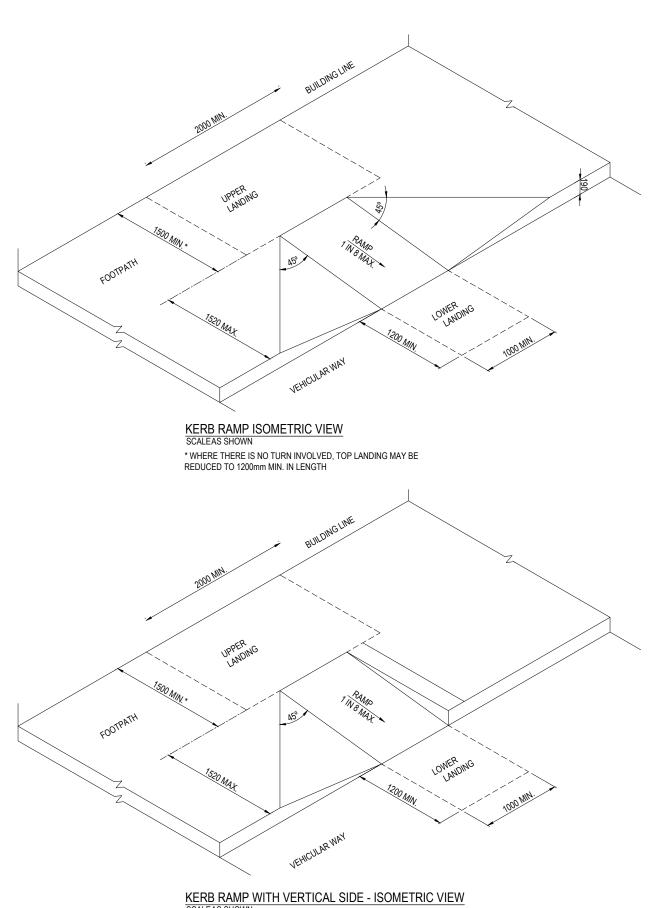
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DRAWING TITLE
KERB RAMP SPECIFICATIONS
SHEET 1 OF 2

DISCLAIMER
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SHEET 1 OF 2

PROJECT No. DRAWING No. MILESTONE REVISION 24-000479 DH-RD-1025 B

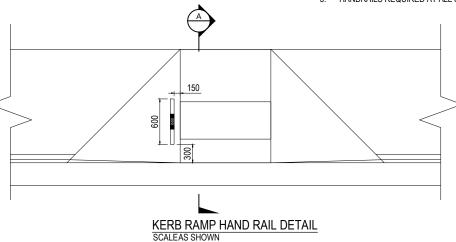


SCALEAS SHOWN

* WHERE THERE IS NO TURN INVOLVED, TOP LANDING MAY BE REDUCED TO 1200mm MIN. IN LENGTH

NOTE:

- REFER DH-RD-1025 FOR DETAILS.
 HANDRAIL REQUIRED AT JUNCTIONS FOR ALL COLLECTOR ROADS AND ROUNDABOUTS.
- 3. HANDRAILS REQUIRED AT ALL SHARED PATH CROSSINGS.



1200 MIN - 1520 MAX. 300 100 Ø50mm NOM. OUTSIDE DIAMETER GALVANISED 1200 MIN. * PROVIDE ONE 'ROADSIDE WEDGE' FOR EACH SLEEVE. SEAL SLEEVE AT SURFACE LEVEL WITH WATERPROOF SEALANT KERB AND GUTTER BEYOND REFER KERB RAMP TYPICAL LOCALLY TRIM REINFORCEMENT -SECTION DH-RD-1025 Ø55mm INSITU METAL SLEEVE FACE OF KERB Ø240mm CONCRETE FOOTING -SECTION A - A - CONCRETE STRENGTH N32 SCALEAS SHOWN

> THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

> > ALL MEASUREMENTS IN MILLIMETRES

AMENDMENT DETAILS FOR INFORMATION 02/04/25 CLIENT SUBMISSION

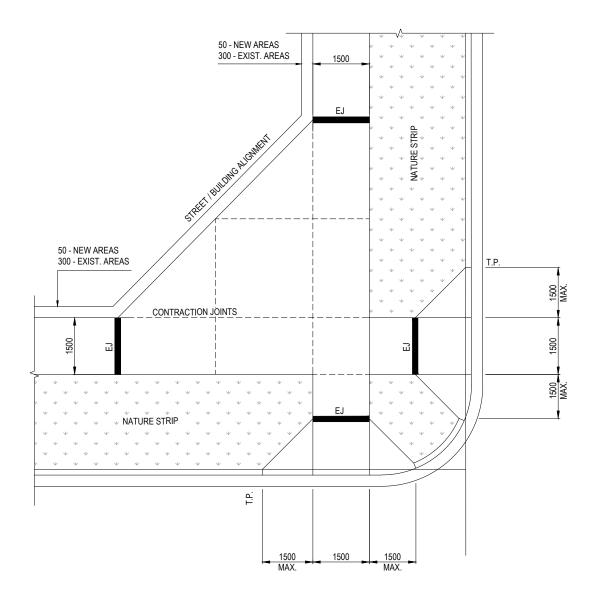


PROJECT
SOUTH AUSTRALIA GROWTH AREAS
ENGINEERING STANDARDS

KERB RAMP SPECIFICATIONS
SHEET 2 OF 2

DISCLAIMER	ı
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NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY	Ľ
CERTIFYING AUTHORITY	ı

24-000479 DH-RD-1030 В



TYPICAL ARRANGEMENT PLAN SCALE AS SHOWN

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS

02/04/25 CLIENT SUBMISSION

TECHNICAL MANUAL

AMENDMENT DETAILS

FOR INFORMATION

Government of South Australia Department for Housing

ALL MEASUREMENTS IN MILLIMETRES

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

TYPICAL PEDESTRIAN CROSSING ARRANGEMENT DETAIL

DISSCAMBER
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PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DC
NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY
CERTIFYING AUTHORITY

LEGEND: **EXPANSION JOINT**

CONTRACTION JOINTS

LAYBACKS.

AS1428.4.

NOTES:

1. LOCATION OF CROSSINGS TO BE CASE BY CASE & ONLY WHERE

CROSSING GENERALLY TO BE LOCATED AT TANGENT POINTS. CONCRETE TO BE SMOOTH TROWELLED FINISH ON TRAY. CONCRETE TO BE FINE SOFT HAIR BROOM FINISH ON LAYBACK.

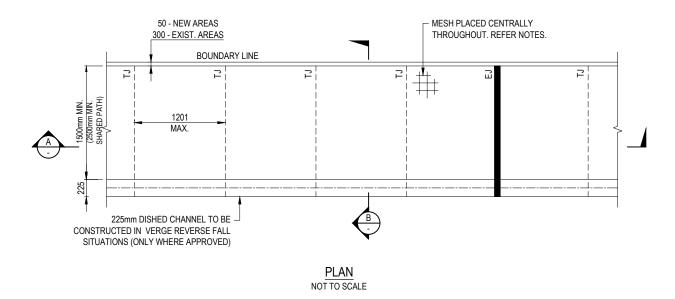
BEDDING TO BE COMPACTED PM2/20 QG 100mm MIN. THICKNESS.

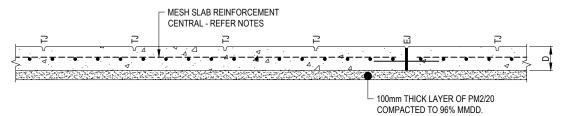
TGI'S (TILES), WHERE REQUIRED, ARE TO BE TO BE INSTALLED TO

IF SPLAY IS NOT REQUIRED FOOTPATH IS TO CONTINUE THROUGH TO

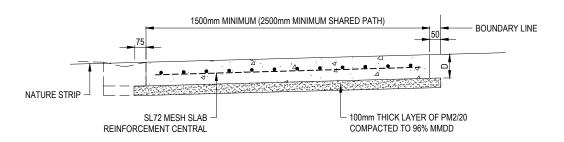
MINIMUM CONCRETE STRENGTH TO BE 32 MPA.

В 24-000479 DH-RD-2000

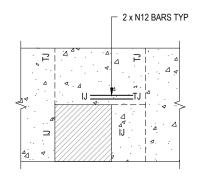




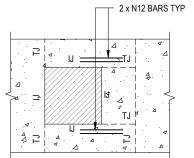
TYPICAL 125mm & 150mm FOOTPATH SECTION (A



TYPICAL 125mm & 150mm FOOTPATH SECTION B



PIT / ACCESS HOLE AT EDGE (PLAN) NOT TO SCALE



PIT / ACCESS HOLE NOT AT EDGE (PLAN) NOT TO SCALE

LEGEND:

@ 1.2m CTS. MAX.

ISOLATION JOINT

NOTES:

EXPANSION JOINT @ 6m CTS. MAX. CONTRACTION/TOOLED JOINTS

___IJ

ALL CONCRETE TO BE 32 MPa.
 REFER DH-RD-2010 FOR DETAILS OF JOINT TYPES.
 ALIGNMENT OF FOOTPATH TO BE SHOWN ON DESIGN PLANS ONLY

WHERE APPROVED.

 FOR NORMAL SERVICE PIT LIDS, PROVIDE A TOOL JOINT IN ORDER FOR ACCESS REQUIREMENTS.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENT DETAILS FOR INFORMATION Government of South Australia 02/04/25 CLIENT SUBMISSION Department for Housing



SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

TYPICAL CONCRETE FOOTPATH DETAIL SHEET 1 OF 2

JISCULINIER
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HOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY
SEPTIMENE AUTHORITY.

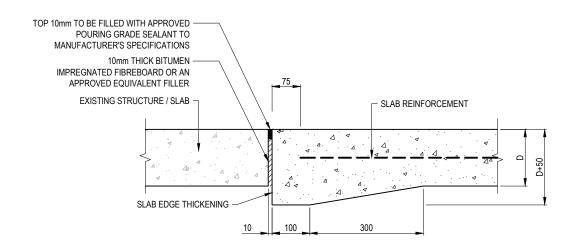
В 24-000479 DH-RD-2005

TYPICAL FUTURE CONSTRUCTION JOINT SCALE 1:5

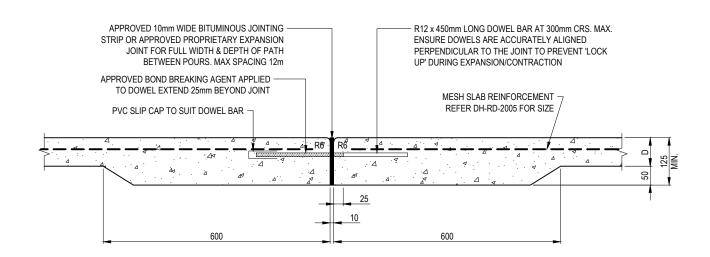
FORM 3-5mm JOINT TO A DEPTH OF 25% OF THE CONCRETE
DEPTH USING A T-IRON TOOL OR BY SAWCUT. SAWCUT TO BE
UNDERTAKEN WITHIN 24HRS OF POUR. FILL TOP 10mm WITH AN
APPROVED POURING GRADE SILICON TO MANUFACTURERS
SPECIFICATIONS. TOOL SEALANT TO FORM 5mm RECESS.
SEALANT COLOUR TO MATCH PAVEMENT SURROUND

INDUCED CRACK

TYPICAL CONTRACTION / TOOLED JOINT SCALE 1:5



TYPICAL ISOLATION JOINT SECTION SCALE 1:5



NOTE:

 PROPRIETARY EXPANSION JOINTS (DANLEY/CONNOLLY) CAN BE USED WHERE APPROVED IN REACTIVE SOILS OR WHERE TREE ROOTS MAY AFFECT PATHS. THE SEPARATION OF JOINTS SHALL BE EVERY 6 METRES AND TOOL JOINTS EVERY 1.2m

TYPICAL FOOTPATH EXPANSION JOINT - SECTION

NOTE: LOCALLY DEEPEN WHERE D ≤ 125mm

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES



PROJECT SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

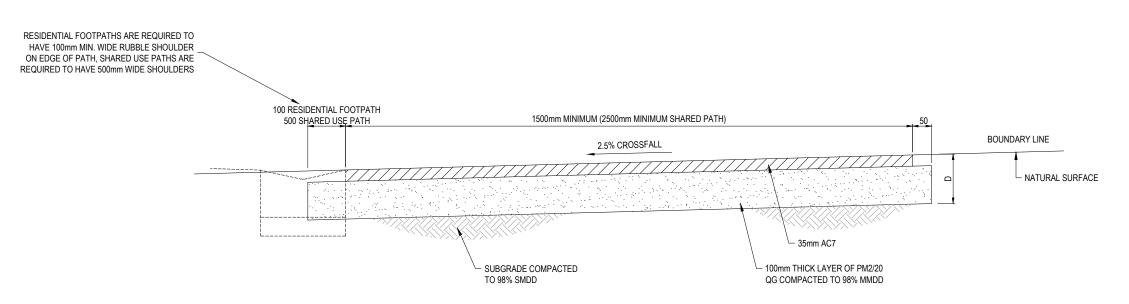
TYPICAL CONCRETE FOOTPATH DETAIL SHEET 2 OF 2

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PROJECT No. DRAWING No. MILESTONE REVISIO 24-000479 DH-RD-2010 B

- 'D' = DEPTH OF ASPHALT FOOTPATH TYPICAL ASPHALT FOOTPATH DEPTH 'D'= 130mm TYPICAL 'D' MAY VARY DEPENDANT ON SUBGRADE CBR AND POSSIBLE MAINTENANCE OR EMERGENCY VEHICLE TRAFFIC ACCESS.

 ASPHALT FOOTPATHS/ SHARED USE PATHS ARE REQUIRED TO HAVE A PAVEMENT DESIGN UNDERTAKEN BASED ON PROPOSED LOADING AND SITE CONDITIONS INCLUDING INVESTIGATION INTO THE GEOTECHNICAL REVIEW.

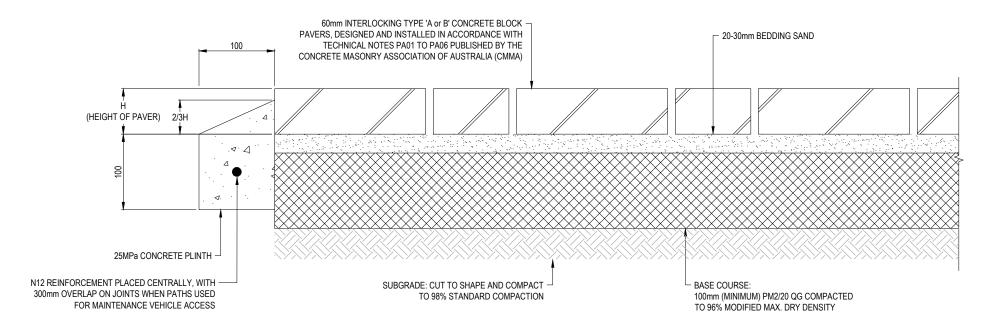


TYPICAL ASPHALT FOOTPATH SECTION SCALE 1:5

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS AMENDMENT DETAILS TYPICAL HOT MIX ASPHALT FOOTPATH FOR INFORMATION Government of South Australia 02/04/25 CLIENT SUBMISSION 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 Department for Housing DISCAMBER
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CERTIFYING AUTHORITY 24-000479 DH-RD-2015 В



SECTION THROUGH EDGE OF FOOTPATH

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

AMENDMENT DETAILS FOR INFORMATION 20/12/24 ISSUED FOR REVIEW



ALL MEASUREMENTS IN MILLIMETRES

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

BLOCK PAVED FOOTPATH

UNIONAMENT OF THE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE, NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFICAND. AUTHORITY.

NOTES:

PRACTICE.

PAVELOCK SAND.

SLIP RESISTANCE AND STRENGTH.

CONCRETE PLINTH TO BE USED WHERE NOT BACK OF KERB, OR BOTH SIDES OF FOOTPATH WHEN NOT BACK OF KERB OR AGAINST FIXED

EDGE.

2. MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT PUBLICATION OF THE CONCRETE MASONRY ASSOCIATION OF AUSTRALIA AND SHALL BE IN ACCORDANCE WITH BEST TRADE

 PANING BLOCKS TO BE LAID IN 90° HERRINGBONE PATTERN WITH HEADER COURSE UP TO THE CONCRETE PLINTH OR AS SPECIFIED.
 BLOCKS SHALL BE CONCRETE INTERLOCKING. COLOUR AND STYLE TO BE NOMINATED ON DRAWING APPROVED BY RELEVANT AUTHORITY. ALL JOINTS TO BE FILLED WITH SUPERSAND/OR

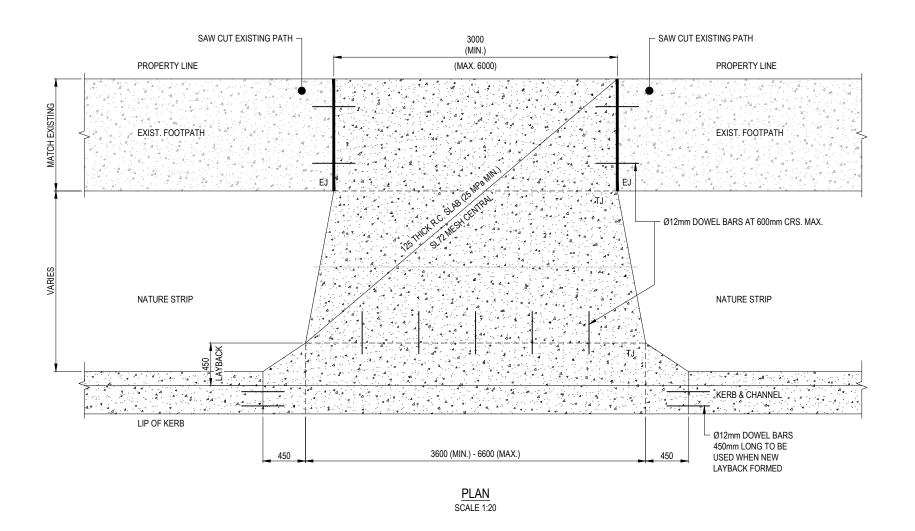
ALL CUTTING OF PAVERS TO BE WITH MASONRY SAW ONLY. CLAY PAVERS OR OTHER NON INTERLOCKING PAVERS ARE SUBJECT

7. USE 80mm THICK PAVERS AT ALL DRIVEWAY CROSSOVERS.

TO APPROVAL BASED ON PERFORMANCE REQUIREMENTS INCLUDING

24-000479 DH-RD-2020

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LEGEND:

EXPANSION JOINT

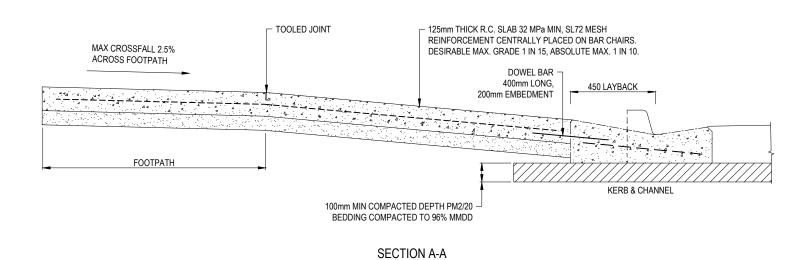
TOOLED JOINTS

TJ

(REFER TO DH-RD-2010)

NOTES:

- THIS DRAWING DETAILS DIMENSIONS FOR STANDARD RESIDENTIAL CROSSINGS ONLY.
- 2. CROSSING WIDTHS EXCEEDING THE MAXIMUM ALLOWABLE WILL REQUIRE APPLICATION FOR SPECIAL CONSIDERATION.
- JOINTS AND DOWEL BARS ARE REQUIRED ON BOTH SIDES OF THE CROSSING AT THE INTERFACE WITH THE CONCRETE FOOTPATH. PROVISION SHALL BE MADE IN EXISTING CONCRETE SECTIONS BY DRILLING HOLES TO A MINIMUM DEPTH OF 150mm AND INSERTING Ø12x300mm LONG DOWEL BARS.
- 4. AN APPROVED JOINT FILLER SHALL BE PLACED ON BOTH SIDES OF THE CROSSING AGAINST FOOTPATH SLABS. DOWEL BARS ARE TO HAVE AN APPROVED BOND BREAKER APPLIED TO THE END OF THE BAR INSERTED INTO THE EXISTING CONCRETE FOOTPATH SECTIONS REFER DH-RD-2010
- ADDITIONAL TOOLED JOINT REQUIRED IF DISTANCE FROM BACK OF KERB TO FOOTPATH IS GREATER THAN 3000 AND SHALL BE PLACED AT THE MIDPOINT OF THE DISTANCE.
- THE MAXIMUM NUMBER OF CROSSINGS, WHERE ANY CROSSING EXCEEDS 3.6m WIDTH, SHALL BE ONE (1) CROSSING WITH THE MAXIMUM WIDTH OF THAT CROSSING TO BE 6.6m. CROSSINGS TO ADJACENT PROPERTIES SHALL BE EITHER FULLY COMBINED, WITH A MAXIMUM WIDTH OF 6.6m, OR ELSE HAVE A MINIMUM SEPARATION OF 9m.
- IF REVERSE FALL IS REQUIRED, DESIGN OF VEHICLE CROSSOVER TO BE ON A SITE SPECIFIC BASIS.
- LOCATION AND DEPTH OF ANY UNDERGROUND SERVICES WITHIN FOOTWAY AREA MUST BE ESTABLISHED BEFORE COMMENCEMENT OF EXCAVATION.
- TRANSITION AREA TO CONFORM TO AS2890.1. ANY CHANGES OF GRADE GREATER THAN 12.5% TO BE CHECKED USING THE TEMPLATE IN APPENDIX C AS2890.1
- A MINIMUM CLEARANCE OF 1m MUST BE ACHIEVED FROM THE DRIVEWAY EDGE TO ANY STREET ASSET. THIS INCLUDES STREET TREES, LIGHT POLES, SIDE ENTRY PITS, PEDESTRIAN RAMPS AND STOBIE POLES.
- 11. DRIVEWAY INVERTS FOR CORNER ALLOTMENTS SHALL BE LOCATED NO CLOSER THAN 6m FROM THE INTERSECTION OF THE PROJECTED ROAD FRONTAGE BOUNDARIES UNLESS APPROVED BY COUNCIL.
- 12. LOCATE DRIVEWAY ON LOW SIDE OF ALLOTMENT 1.0m FROM THE PROJECTED SIDE BOUNDARY OR AS SPECIFIED.



SCALE 1:10

300 450 300

25mm CHAMFER

MIN. 100mm (COMPACTED 96% MMDD).

PM2/20 ON COMPACTED SUB-GRADE

SECTIONAL VIEW OF RESIDENTIAL KERB & LAYBACK
SCALE 1:5

ALL MEASUREMENTS IN MILLIMETRES

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS

TECHNICAL MANUAL

Government of South Australia

Department for Housing and Urban Development

Discount Australia

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

ROWTH AREAS RETROFIT RESIDENTIAL VEHICLE CROSSING DETAIL

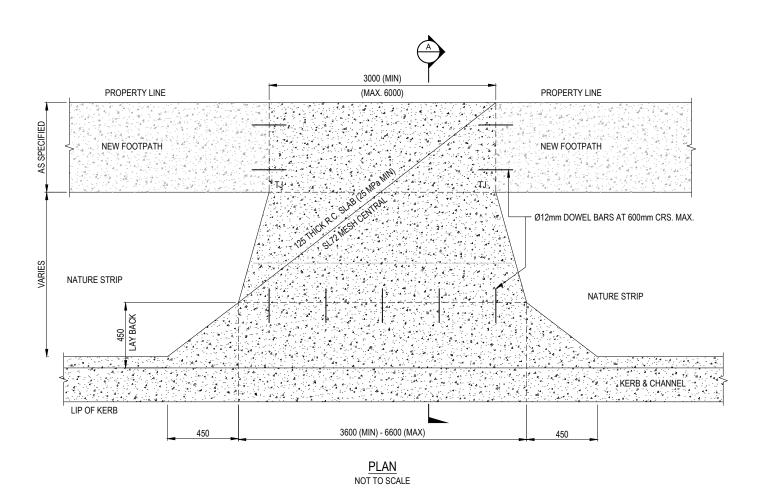
DISCLAIMER
ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR
PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO
NOT SCALE, NOT FOR CONSTRUCTION UNLESS STAMPED BY

VEHICLE CROSSING DETAIL

PROJECT No. DRAWING No. MILESTONE

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24-000479 DH-RD-2025

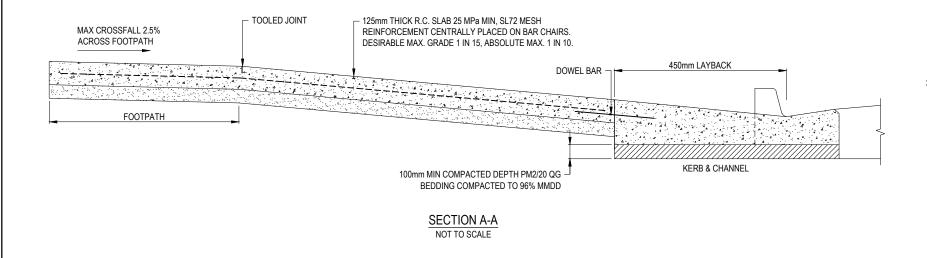


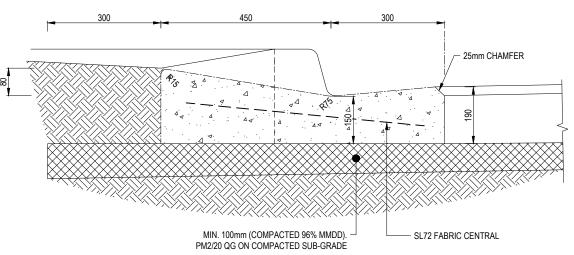
LEGEND:

EXPANSION JOINT TOOLED JOINTS (REFER TO DH-RD-2010)

NOTES:

- THIS DRAWING DETAILS DIMENSIONS FOR STANDARD RESIDENTIAL CROSSINGS ONLY.
- CROSSING WIDTHS EXCEEDING THE MAXIMUM ALLOWABLE WILL REQUIRE APPLICATION FOR SPECIAL CONSIDERATION.
- JOINTS AND DOWEL BARS ARE REQUIRED ON EITHER SIDE OF THE CROSSING AT THE INTERFACE WITH THE CONCRETE FOOTPATH.
- AN APPROVED JOINT FILLER SHALL BE PLACED ON EITHER SIDE OF THE CROSSING AGAINST FOOTPATH SLABS. DOWEL BARS ARE TO HAVE AN APPROVED BOND BREAKER APPLIED TO THE END OF THE BAR INSERTED INTO THE EXISTING CONCRETE FOOTPATH SECTIONS REFER DH-RD-2010.
- ADDITIONAL TOOLED JOINT REQUIRED IF DISTANCE FROM BACK OF KERB TO FOOTPATH IS GREATER THAN 3000 AND SHALL BE PLACED AT THE MIDPOINT OF THE DISTANCE.
- THE MAXIMUM NUMBER OF CROSSINGS, WHERE ANY CROSSING EXCEEDS 3.6m WIDTH, SHALL BE ONE (1) CROSSING WITH THE MAXIMUM WIDTH OF THAT CROSSING TO BE 6.6m. CROSSINGS TO ADJACENT PROPERTIES SHALL BE EITHER FULLY COMBINED, AND OF MAXIMUM WIDTH OF $6.6 \mathrm{m}$, OR ELSE HAVE A MINIMUM SEPARATION OF $9 \mathrm{m}$.
- 7. FOOTPATHS OF 100mm THICKNESS ARE ACCEPTABLE ONLY WHERE THE LOTS ARE DEVELOPED ALREADY AND THE RISK OF SITE CONSTRUCTION DAMAGE IS NEGLIGIBLE. WHERE GREENFIELD SITES AND FUTURE HOUSING IS STILL TO BE DONE, THEN THE DEPTH OF THE FOOTPATH SHALL BE 125mm THROUGHOUT.
- IF REVERSE FALL IS REQUIRED, DESIGN OF VEHICLE CROSSOVER TO BE ON A SITE SPECIFIC BASIS.
- LOCATION AND DEPTH OF ANY UNDERGROUND SERVICES WITHIN FOOTWAY AREA MUST BE ESTABLISHED BEFORE COMMENCEMENT OF EXCAVATION.
- 10. TRANSITION AREA TO CONFORM TO AS2890.1. ANY CHANGES OF GRADE GREATER THAN 12.5% TO BE CHECKED USING THE TEMPLATE IN APPENDIX C AS2890.1
- 11. A MINIMUM CLEARANCE OF 1m MUST BE ACHIEVED FROM THE DRIVEWAY EDGE TO ANY STREET ASSET. THIS INCLUDES STREET TREES, LIGHT POLES, SIDE ENTRY PITS, PEDESTRIAN RAMPS AND STOBIE POLES.





SECTIONAL VIEW OF RESIDENTIAL KERB & LAYBACK NOT TO SCALE

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENT DETAILS FOR INFORMATION 02/04/25 CLIENT SUBMISSION



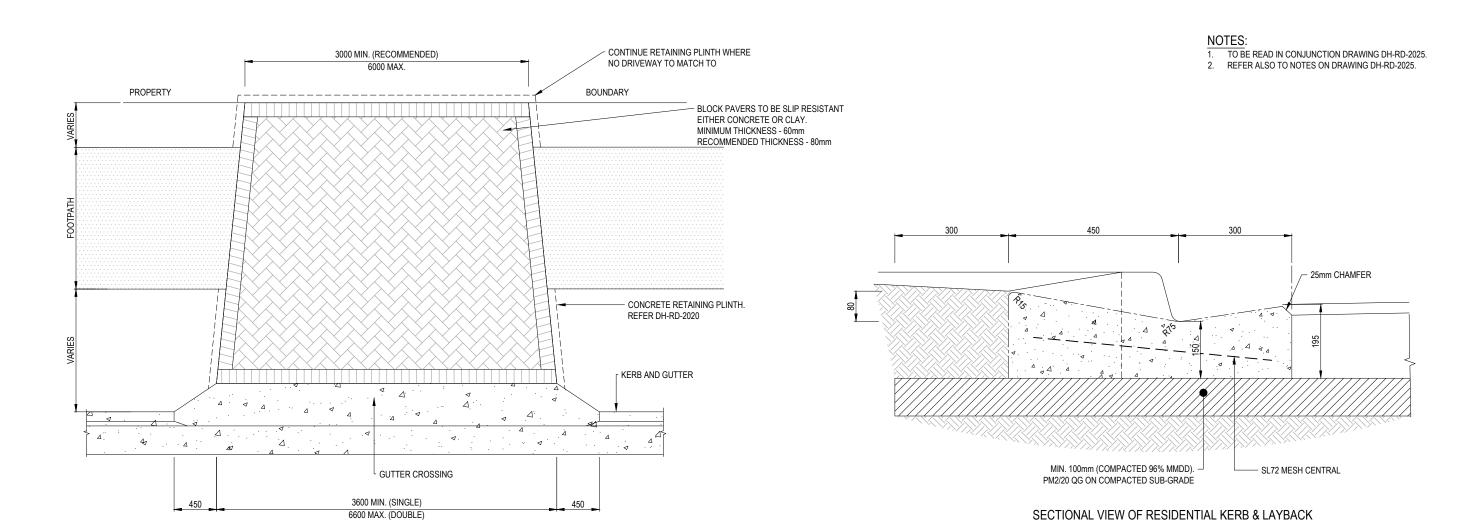
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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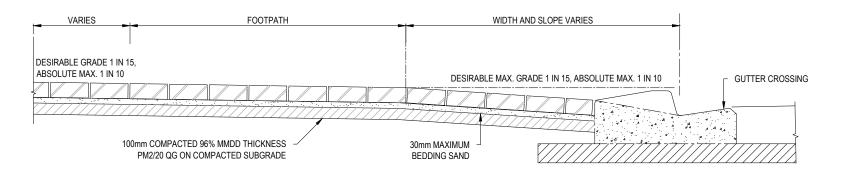
RESIDENTIAL VEHICLE CROSSING DETAIL

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24-000479 DH-RD-2030



PLAN OF BLOCK PAVED VEHICLE CROSS-OVER SCALE 1:20



SECTIONAL VIEW OF VEHICLE CROSSOVER
SCALE 1:10

(HIGH SIDE OF STREET)

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

SCALE 1:5

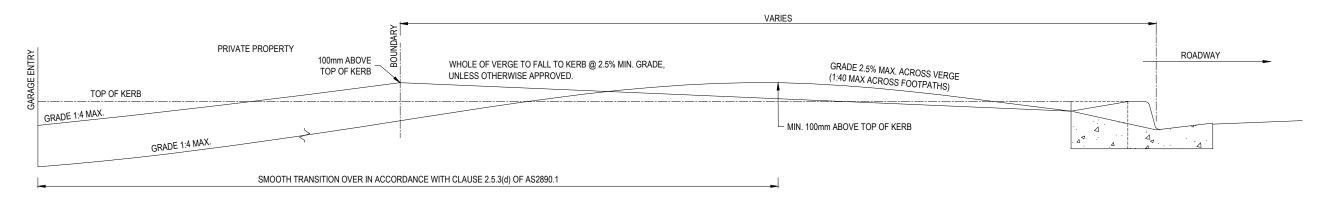
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₽.	A A B		19/12/24 02/04/25	ISSUED FOR REVIEW CLIENT SUBMISSION	FOR INFORMATION		Government of South Australia	ENGINEERING STANDARDS	
ILE: S:ICAL105_PROJE	D D M E N T S S						Department for Housing and Urban Development	DISCLAIMER ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY	PROJECT No. DRAWING No. MILESTONE REVISION 24-000479 DH-RD-2035 B

- 1. LOCATION AND DEPTH OF ANY UNDERGROUND SERVICES WITHIN FOOTWAY AREA MUST BE ESTABLISHED BEFORE COMMENCEMENT OF EXCAVATION.

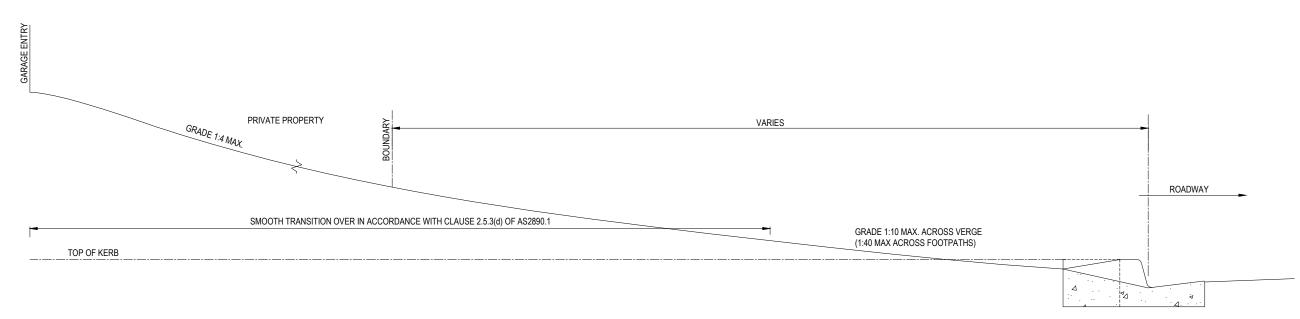
 2. UNDERTAKE A 'DIAL BEFORE YOU DIG' SEARCH (PH: 1100) TO LOCATE SERVICES PRIOR TO COMMENCING EXCAVATION.

 3. TRANSITION AREA TO CONFORM TO AS2890.1 (2004) FIGURE 2.10. ANY CHANGES OF GRADE GREATER THAN 12.5% TO BE CHECKED USING THE TEMPLATE IN APPENDIX C AS2890.1

 4. MAXIMUM TRANSITION OF 12.5% OVER 2m.



LONGITUDINAL DRIVEWAY SECTION - LOWER SIDE OF STREET NOT TO SCALE



LONGITUDINAL DRIVEWAY SECTION - HIGHER SIDE OF STREET NOT TO SCALE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

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PROJECT
SOUTH AUSTRALIA GROWTH AREAS
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

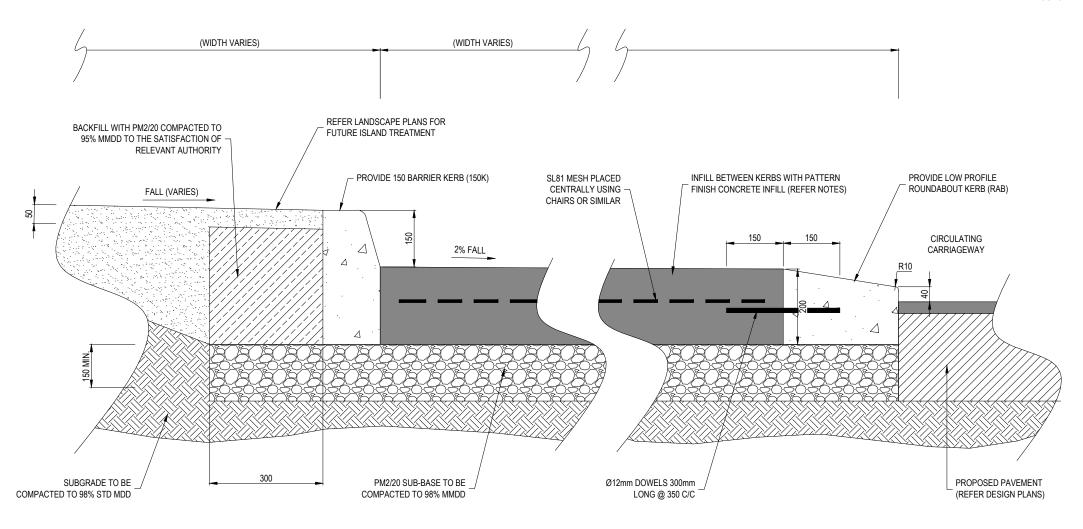
VEHICLE CROSSING LONGITUDINAL SECTIONS

	DISCLAIMER
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	PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO
	NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY
	CERTIFYING AUTHORITY

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24-000479 DH-RD-2045

- 1. INSTALLATION OF ROUNDABOUT KERBING SHALL BE IN ACCORDANCE WITH AS 1742, AS 3876 AUSTROADS 'GUIDE TO TRAFFIC MANAGEMENT' AND 'GUIDE TO ROAD DESIGN'.
- 2. REFER TO THE DESIGN PLANS FOR ROUNDABOUT KERB LOCATION, SIZE & SETOUT DATA.
- 3. ROUNDABOUT KERB FACES SHALL BE PAINTED REFLECTORISED WHITE AS REQUIRED.
- 4. ALL NIGHT ROAD LIGHTING SHALL BE IN ACCORDANCE WITH AS 1158.
- ROUNDABOUT KERBING SHALL BE DELINEATED WITH AN OUTLINE MARKING SEPARATED FROM THE KERB BY 100mm.
- PATTERN FINISH CONCRETE INFILL COLOUR & TYPE TO BE ADVISED BY RELEVANT AUTHORITY. INFILL CONCRETE TO BE 32MPa UNLESS NOTED OTHERWISE.
 7. CONCRETE STRENGTH TO BE 32MPa, 200mm THICKNESS.



ROUNDABOUT INSTALLATION (TYPE 1) MOUNTABLE ISLAND & LANDSCAPED CENTER ISLAND NOT TO SCALE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

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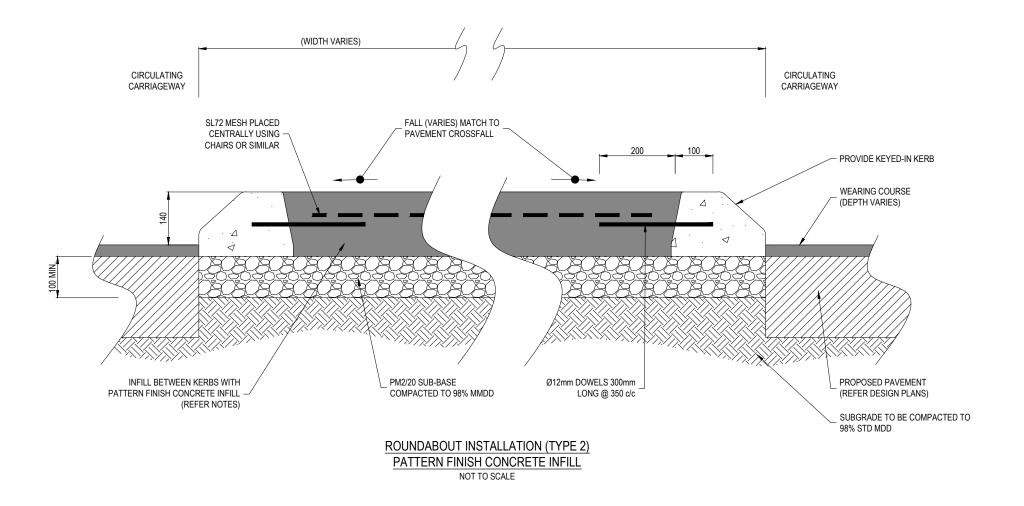
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS ROUNDABOUT INSTALLATION TYPE 1

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LE DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR
RIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO
OT SCALE, NOT FOR CONSTRUCTION UNLESS STAMPED BY
ENTERING AUTHORITY.

С 24-000479 DH-RD-2050

- 1. INSTALLATION OF ROUNDABOUT KERBING SHALL BE IN ACCORDANCE WITH AS 1742, AS 2876 AUSTROADS 'GUIDE TO TRAFFIC MANAGEMENT' AND 'GUIDE TO ROAD DESIGN'.
- 2. REFER TO THE DESIGN PLANS FOR ROUNDABOUT KERB LOCATION, SIZE & SETOUT DATA.
- 3. ROUNDABOUT KERB FACES SHALL BE PAINTED REFLECTORISED WHITE AS REQUIRED BY THE 'PAVEMENT MARKING MANUAL'.
- ALL NIGHT ROAD LIGHTING SHALL BE IN ACCORDANCE WITH AS 1158.
- ROUNDABOUT KERBING SHALL BE DELINEATED WITH AN OUTLINE MARKING SEPARATED FROM THE KERB BY 100mm.
- PATTERN FINISH CONCRETE INFILL COLOUR & TYPE TO BE ADVISED BY RELEVANT AUTHORITY. INFILL CONCRETE TO BE 32MPa UNLESS NOTED OTHERWISE.



THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

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SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

ROUNDABOUT INSTALLATION TYPE 2

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OT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY
ESTEMING. AUTHORITY.

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NOTE: VARIATIONS ARE PERMISSIBLE IF TURNING MANEOUVRES ARE PROVED ACCEPTABLE AND MELD WITH OTHER APPLICABLE REGULATIONS.

TYPICAL: CUL-DE-SAC HEAD LAYOUT NOT TO SCALE

PROPERTY BOUNDARY

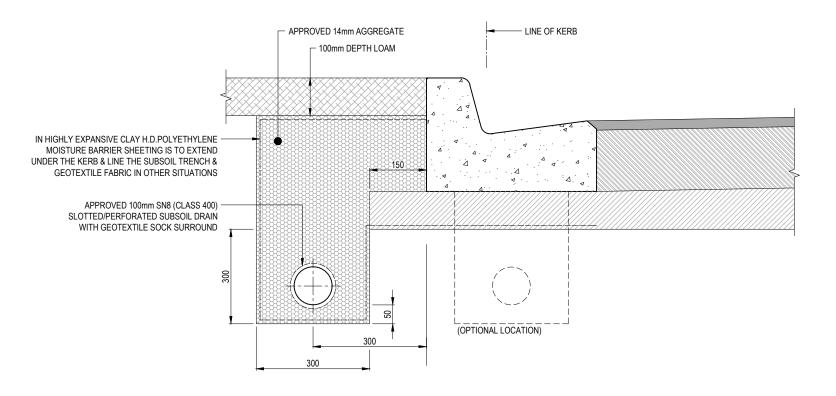
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| RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJOM | RAJ

TYPICAL : T HEAD LAYOUT NOT TO SCALE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

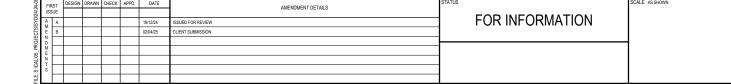
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TYPICAL SECTION NOT TO SCALE

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ALL MEASUREMENTS IN MILLIMETRES





SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

NOTES:

SURFACE.

THE DRAINS SHALL BE LAID ON A GRADE PARALLEL TO THE FINISHED

2. FOR FLUSHOUT RISER DETAILS REFER TO STANDARD DRAWINGS

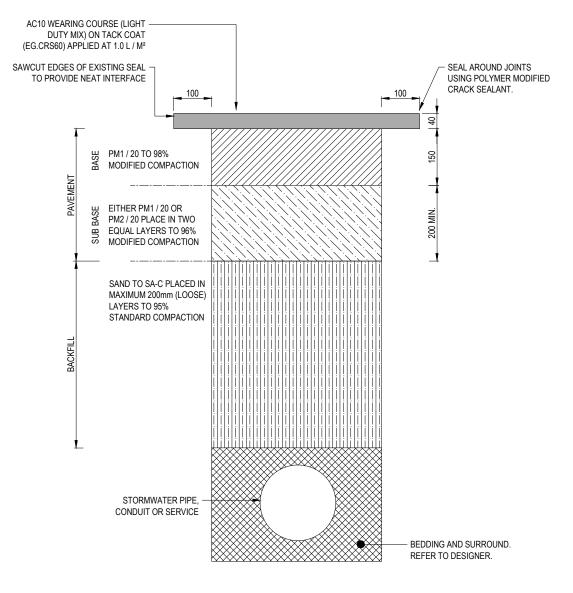
FOR FLUSHOUT RISER DETAILS REFER TO STANDARD DRAWINGS
DH-SW-3065.
 WHERE THE SUBGRADE IS CLASSIFIED AS BEING EXPANSIVE,
SUBSURFACE PAVEMENT DRAINS SHALL BE DESIGNED TO BE
CONTAINED WHOLLY WITHIN THE CAPPING LAYER. IN ADDITION, NO
PART OF THE SUBSURFACE DRAINAGE TRENCH SHALL BE LOCATED
WITHIN 150mm OF THE UNDERLYING SUBGRADE. IF NECESSARY, THE
CAPPING LAYER MAY HAVE TO BE THICKENED TO SATISFY THIS
REQUIREMENT.

TYPICAL PAVEMENT SUBSOIL DRAINAGE

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LIGHTLY TRAFFICKED ROADS WITH ASPHALT SURFACE

> (< 1000 VPD) (< 5% CV)

FOR INFORMATION

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS

CLIENT SUBMISSION

02/04/25

TECHNICAL MANUAL

AMENDMENT DETAILS

Government of South Australia 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 Department for Housing

ALL MEASUREMENTS IN MILLIMETRES

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

NOTE:

OFFSITE.

PAVEMENT.

ASPHALT SEAL.

1. ROADS WITH TRAFFIC VOLUMES OR CV EXCEEDING THOSE SHOWN, REFER TO DIT PAVEMENT REINSTATEMENT CONFIGURATIONS. THE MINIMUM PAVEMENT THICKNESS OF THE REINSTATED PAVEMENT LAYERS SHALL BE AS DETAILED OR SHALL MATCH THE

EXISTING PAVEMENT LAYERS. WHICHEVER IS GREATER.

3. EXCAVATED MATERIAL SHALL NOT BE REUSED IN THE REINSTATEMENT OF THE TRENCHES AND SHALL BE REMOVED

4. ALL LINE MARKING, PAVEMENT MARKING AND ROAD FURNITURE SHALL BE REINSTATED TO MATCH EXISTING.

5. THE FINISHED SERVICE LEVEL OF ALL SERVICE COVERS SHALL BE

FLUSH WITH THE FINISHED SURFACE OF THE REINSTATED

6. NEW ASPHALT TO BE HEATED AND BLENDED INTO THE EXISTING

TYPICAL ROAD CROSSING TRENCH BACKFILL REQUIREMENTS

В

DISCOMMENT

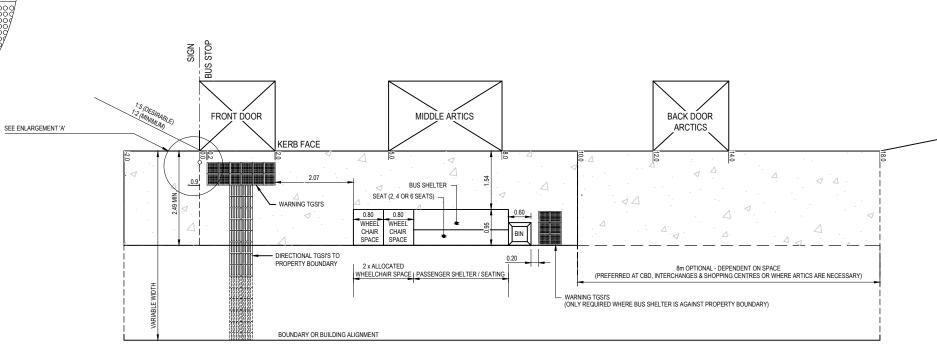
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CERTIFYING AUTHORITY

24-000479 DH-RD-2070



MINIMUM FOOTPATH WIDTH SHOWN AS 4m (TOTAL) WITH SHELTER - MINIMUM FOOTPATH WIDTH WITHOUT SHELTER REDUCED TO 2.5m.



TYPICAL BUS STOP LAYOUT SCALE 1:50

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

POLE -

ENLARGEMENT 'A' SCALE 1:10

WARNING TGSI'S

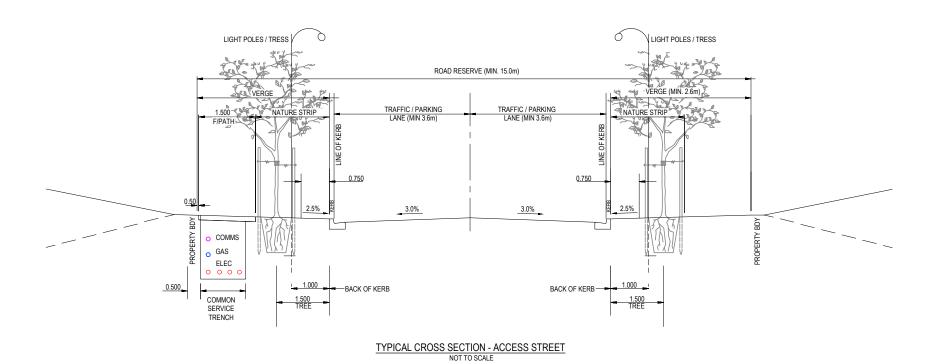
ALL MEASUREMENTS IN MILLIMETRES

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PROTECTIVE STAND CHANNEL KERB AND CHANNEL KERB

PLAN - ACCESS STREET

NOT TO SCALE

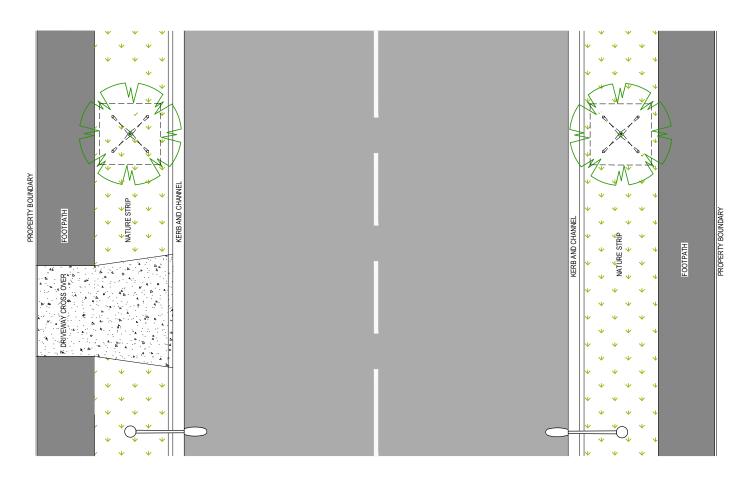


ALL MEASUREMENTS IN MILLIMETRES

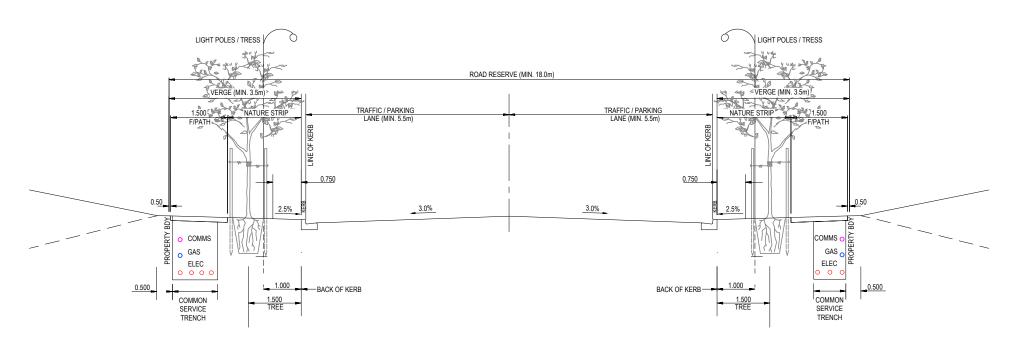
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85 M						SCALE 1:50 (A1) SCALE 1:100 (A3)	Department for housing	DISCLAIMER ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR	
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9								CERTIFYING AUTHORITY	

NOTES:

- THE LOCATIONS OF TREES AND STREETLIGHT POLES SHOWN ARE FOR REFERENCE ONLY AND REQUIRE A SPECIFIC DESIGN FOR EACH SITE.
- THE ROAD MARKINGS SHOWN ARE FOR REFERENCE ONLY AND REQUIRE A SPECIFIC DESIGN FOR EACH SITE.



PLAN - LEVEL 1 COLLECTOR/CONNECTOR STREET



 $\underbrace{\text{TYPICAL CROSS SECTION - LEVEL 1 COLLECTOR/CONNECTOR STREET}}_{\text{NOT TO SCALE}}$

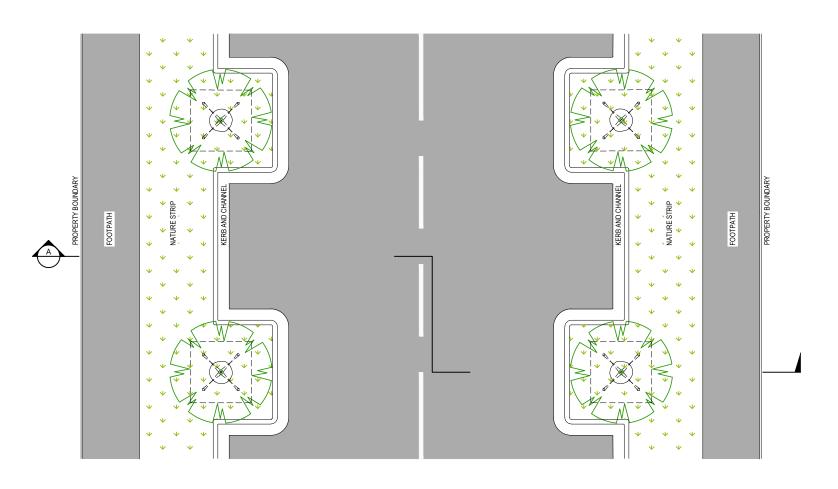
ALL MEASUREMENTS IN MILLIMETRES

NOTES:

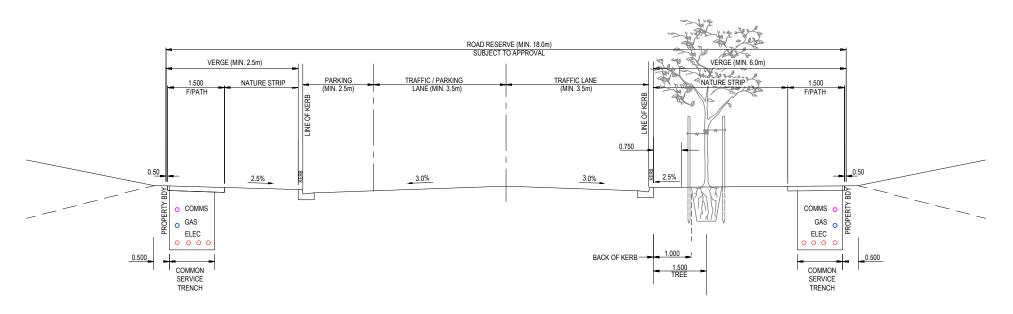
THE LOCATIONS OF TREES AND STREETLIGHT POLES SHOWN ARE FOR REFERENCE ONLY AND REQUIRE A SPECIFIC DESIGN FOR

 THE ROAD MARKINGS SHOWN ARE FOR REFERENCE ONLY AND REQUIRE A SPECIFIC DESIGN FOR EACH SITE.

FIRST DESIGN DRAWN OFFICK APPO. DATE
SULE IN OUTDATES
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PLAN - LEVEL 1 COLLECTOR/CONNECTOR STREET WITH INDENTED PARKING BAY



TYPICAL CROSS SECTION A - LEVEL 1 COLLECTOR/CONNECTOR STREET WITH INDENTED PARKING NOT TO SCALE

ALL MEASUREMENTS IN MILLIMETRES

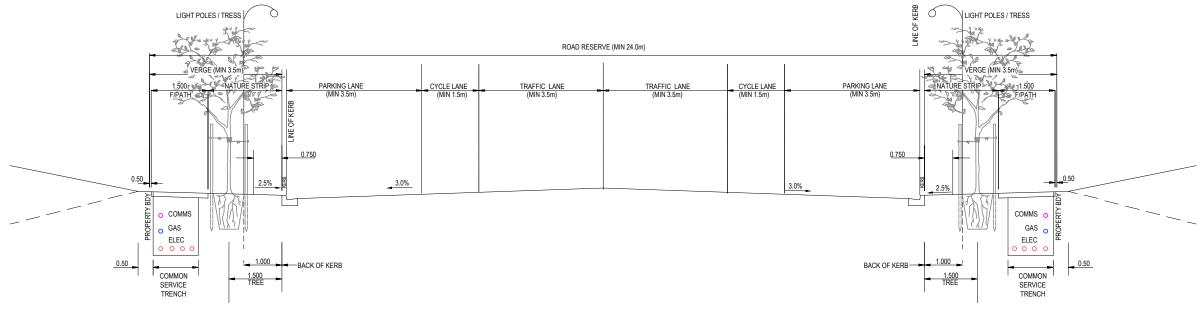
FRST DESIGN DEFINITION

FOR INFORMATION

NOTES:

- THE LOCATIONS OF TREES AND STREETLIGHT POLES SHOWN ARE FOR REFERENCE ONLY AND REQUIRE A SPECIFIC DESIGN FOR EACH SITE
- THE ROAD MARKINGS SHOWN ARE FOR REFERENCE ONLY AND REQUIRE A SPECIFIC DESIGN FOR EACH SITE.

NOTES: 2. THE ROAD MARKINGS SHOWN ARE FOR REFERENCE ONLY AND PLAN - LEVEL 2 COLLECTOR ROAD (ON-ROAD CYCLEWAY)



 $\frac{\text{TYPICAL CROSS SECTION - LEVEL 2 COLLECTOR/CONNECTOR STREET}}{\underbrace{\text{(ON-ROAD CYCLEWAY)}}_{\text{NOT TO SCALE}}}$

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENT DETAILS FOR INFORMATION 08/05/25 CLIENT SUBMISSION 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0



SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DRAWING TITLE
TYPICAL ROAD CROSS SECTION AND PLAN
LEVEL 2 COLLECTOR ROAD
(ON-ROAD CYCLEWAY)

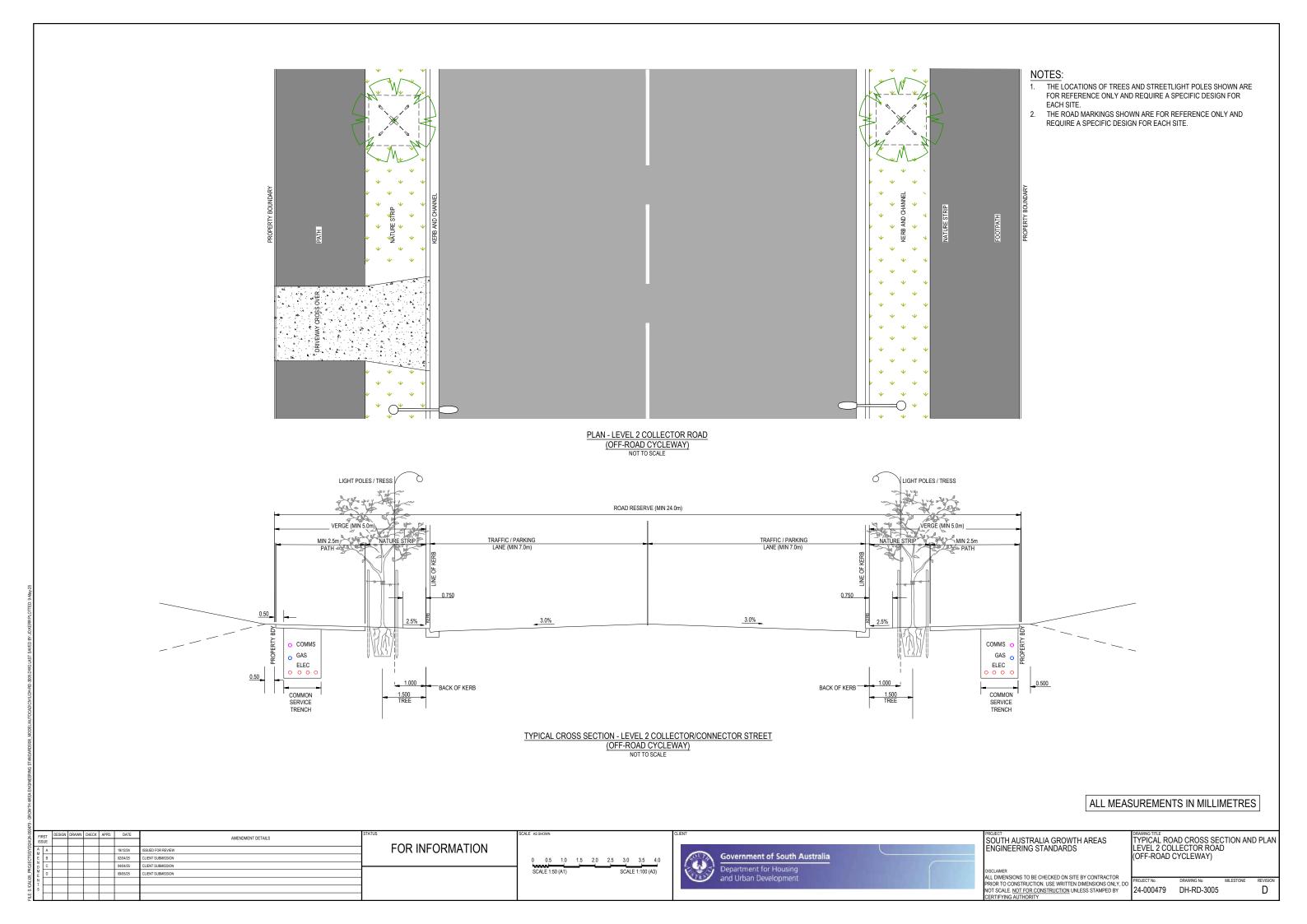
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DISSCAMBER
ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR
PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO
NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY
CERTIFYING AUTHORITY

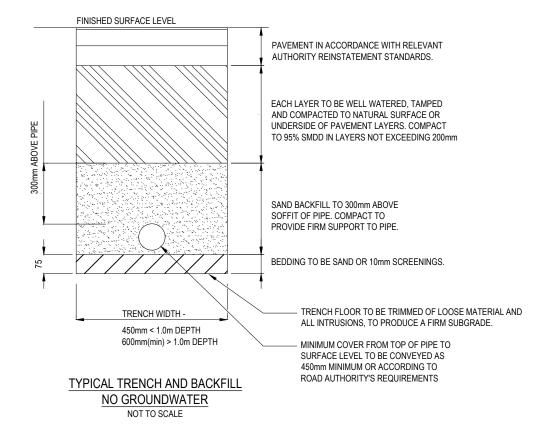
24-000479 DH-RD-3004

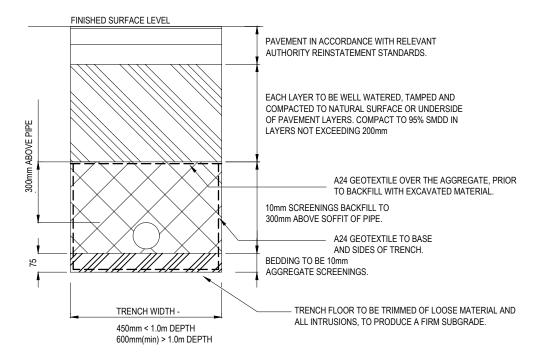
THE LOCATIONS OF TREES AND STREETLIGHT POLES SHOWN ARE FOR REFERENCE ONLY AND REQUIRE A SPECIFIC DESIGN FOR

REQUIRE A SPECIFIC DESIGN FOR EACH SITE.



- PIPES TO BE LOCATED CENTRALLY IN TRENCH.
 TRENCH BASE TO BE FIRM AND TO HAVE CONSTANT GRADE.
 UNEVEN TRENCHES ARE NOT ACCEPTABLE.
- 4. DEWATER TRENCH DURING CONSTRUCTION.





TYPICAL TRENCH AND BACKFILL IN GROUNDWATER NOT TO SCALE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

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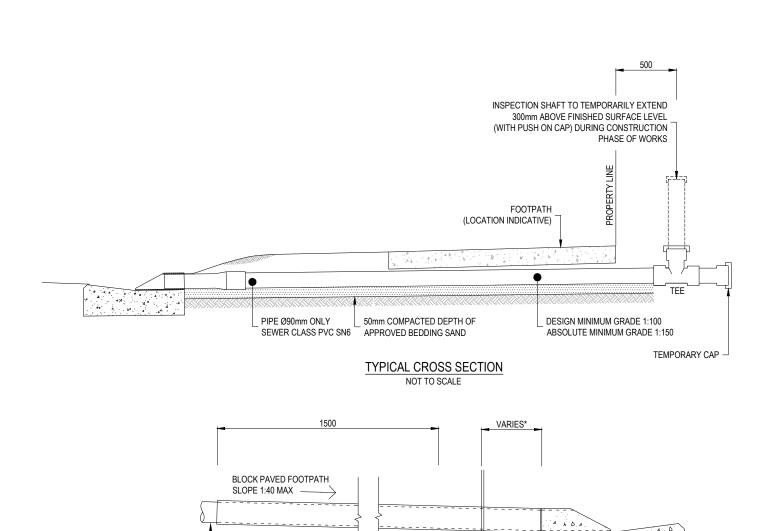
PROJECT	DRAWING TITLE
SOUTH AUSTRALIA GROWTH AREAS	TRENCH AND BACKFILL DETAILS - CWMS
ENCINEEDING STANDARDS	

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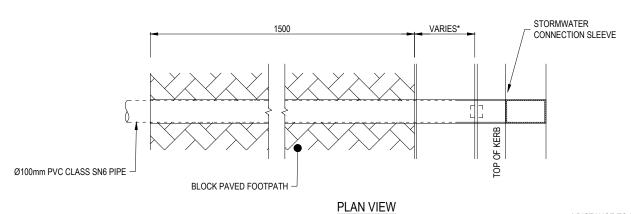
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ESTIEVANCE, MILEORITY.

С 24-000479 DH-RD-3015



LONGITUDINAL SECTION (BLOCK PAVED FOOTPATH NOT SHOWN)



Ø100mm PVC CLASS SN6 PIPE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS

TECHNICAL MANUAL

* DISTANCE TO KERB MAY VARY, REFER TO TYPICAL LAYOUT DRAWINGS

Ø100mm PVC CLASS SN6 PIPE. FOOTPATH

NOTES:

LOCATION OF HOUSE DRAINS WITHIN PROPERTY BOUNDARY TO BE MARKED WITH AN APPROVED TAPE TIED TO EXTEND THROUGH FINISHED SURFACE FOR EASY LOCATION BY BUILDERS.
PM2/20 QG OR DOLOMITE SAND BACKFILL TO BE USED.
REFER DH-RD-1015 FOR DETAILS OF KERB ADAPTOR.
PROPRIETARY GALVANISED 'TOP HAT' SECTION IS SUITABLE ALTERNATIVE.

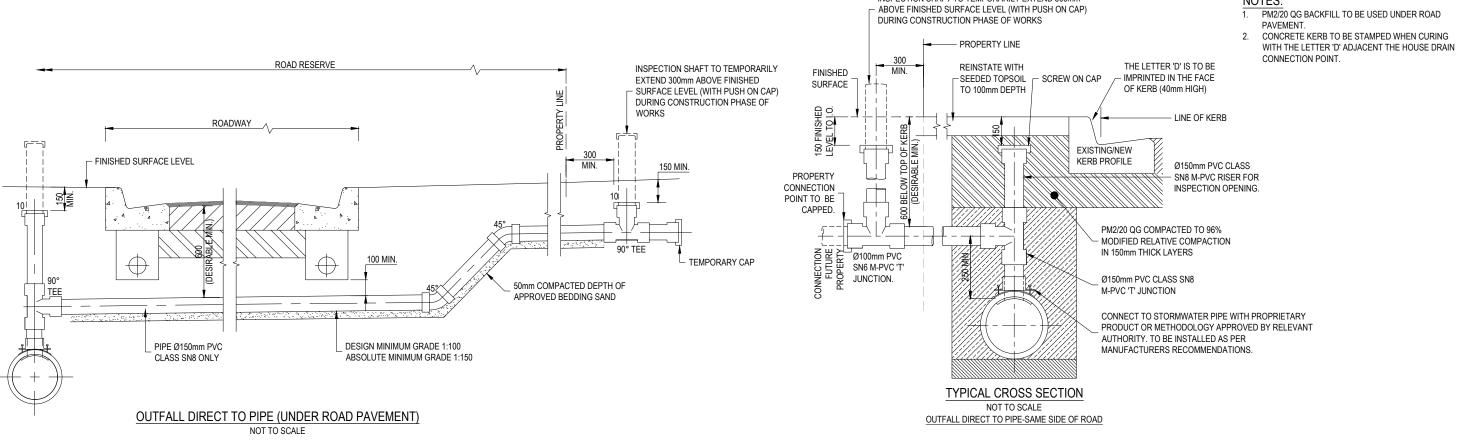
ALTERNATE PLAN VIEW

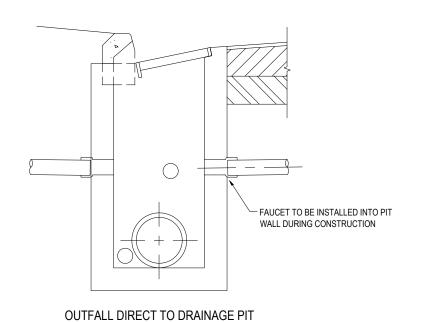
ALL MEASUREMENTS IN MILLIMETRES

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FOR INFORMATION

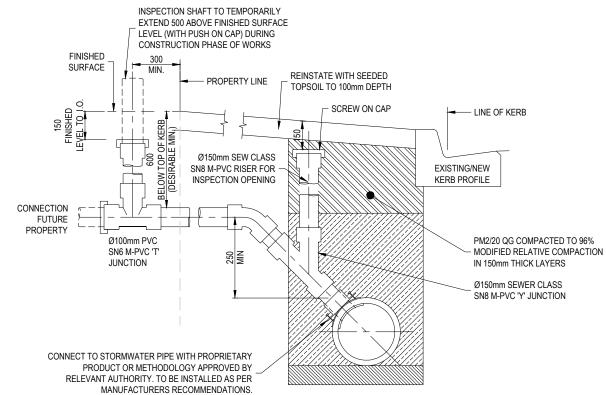
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NOT TO SCALE STREET DRAINAGE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL



INSPECTION SHAFT TO TEMPORARILY EXTEND 500mm

ALTERNATIVE CROSS SECTION NOT TO SCALE

CONNECTION TO PIPE WHERE AT SHALLOW DEPTH

ALL MEASUREMENTS IN MILLIMETRES

NOTES:

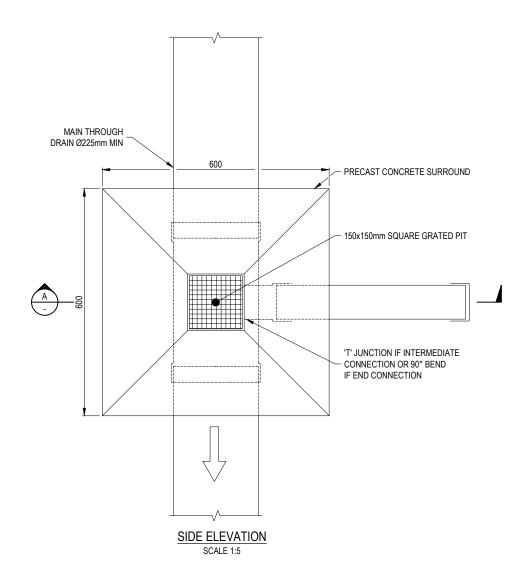
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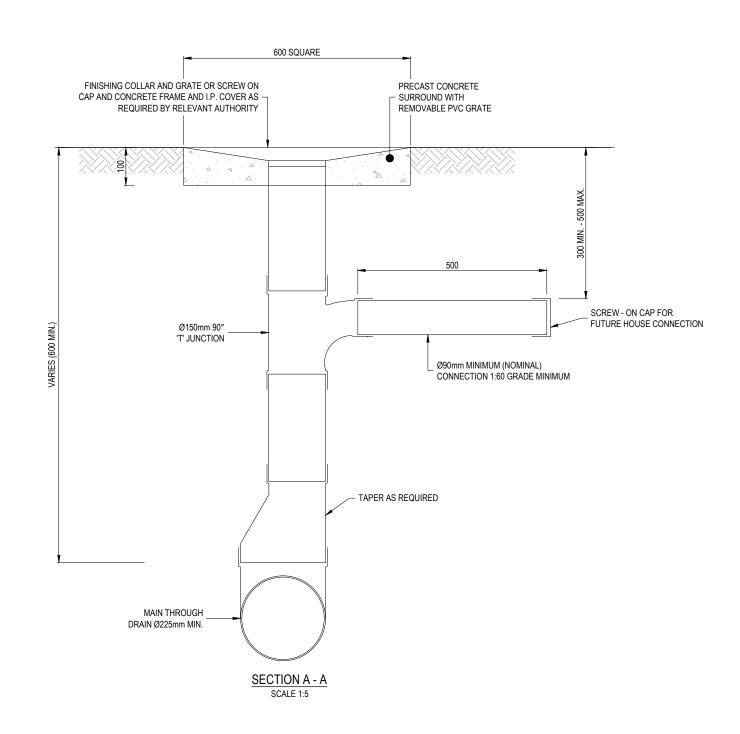
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

STORMWATER ALLOTMENT DRAIN CONNECTION TO AUTHORITY PIPELINE

С

- MINIMUM COVER TO PIPES TO BE 300mm.
 ALL STORMWATER PIPES TO BE PVC SN8 (Ø150mm) SN6 (Ø100mm).



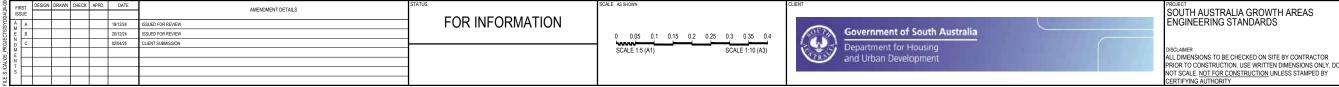


THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

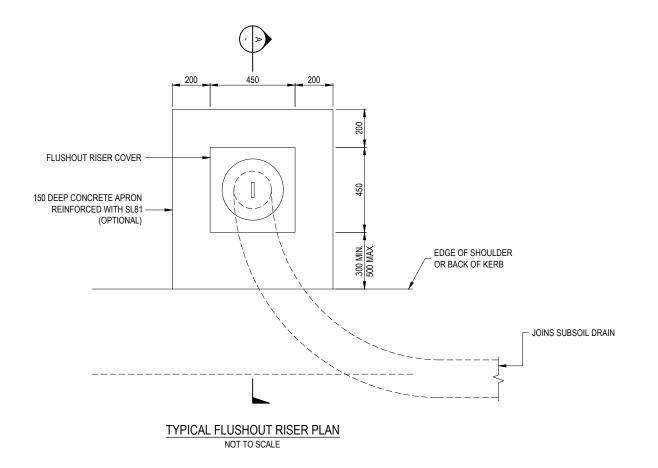
ALL MEASUREMENTS IN MILLIMETRES

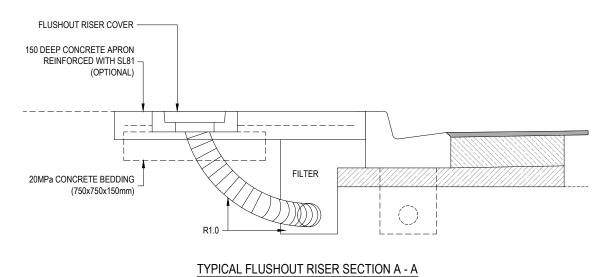
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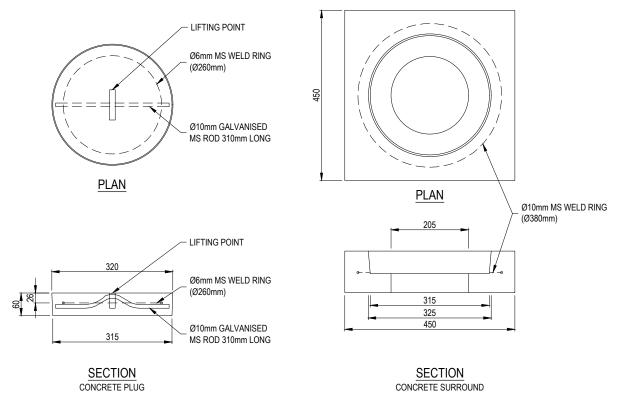


STORMWATER ALLOTMENT CONNECTION IN EASEMENT DETAIL SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS





NOT TO SCALE



FLUSHOUT RISER COVER DETAIL

NOT TO SCALE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES



SOUTH AUSTRALIA GROWTH AREAS SENGINEERING STANDARDS

SUBSOIL DRAINAGE FLUSHOUT RISER DETAIL

DISCLAIMER
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PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO
NOT SCALE, NOT FOR CONSTRUCTION UNLESS STAMPED BY
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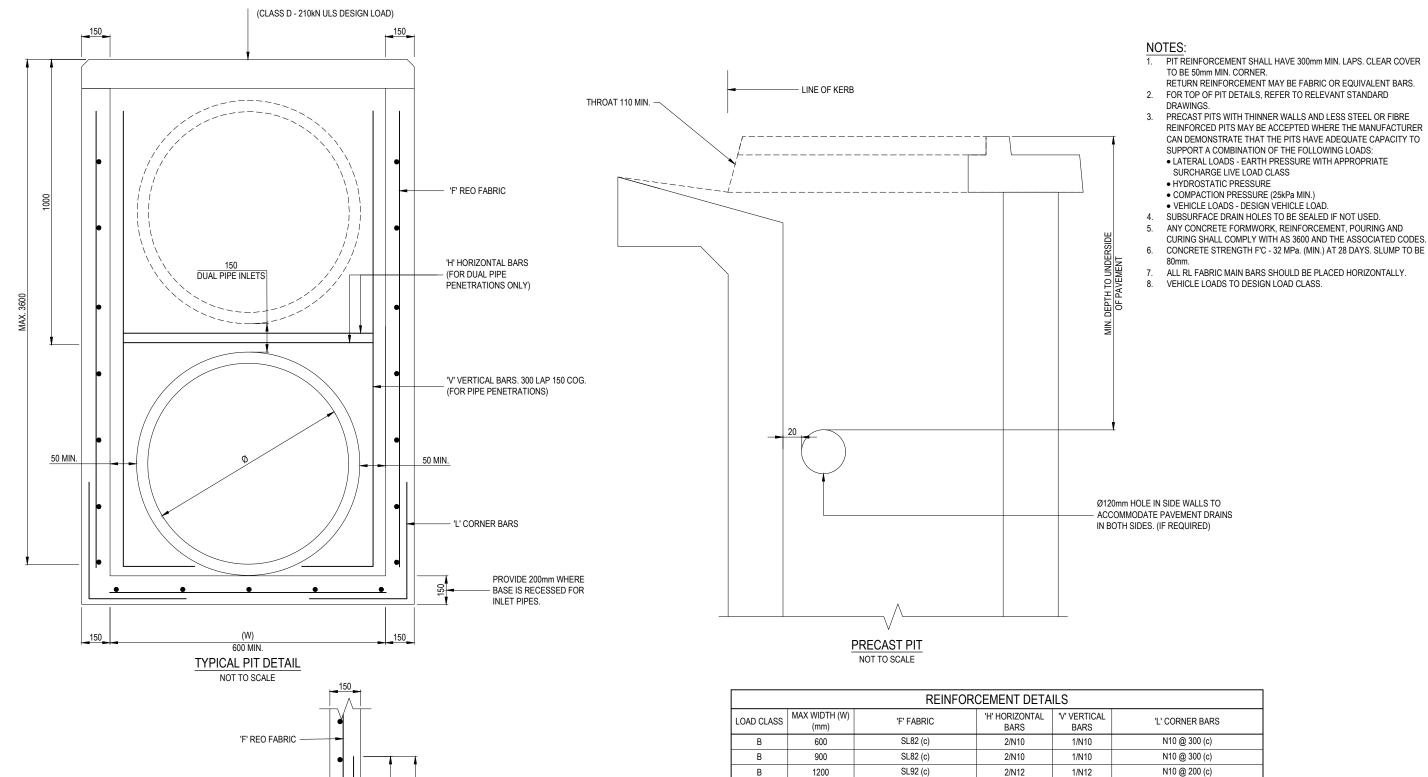
DRAWING NO.

24-000479

DH-SW-3065

PROJECT No. DRAWING No. MILESTONE

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REINFORCEMENT DETAILS						
LOAD CLASS	MAX WIDTH (W) (mm)	'F' FABRIC	'H' HORIZONTAL BARS	'V' VERTICAL BARS	'L' CORNER BARS	
В	600	SL82 (c)	2/N10	1/N10	N10 @ 300 (c)	
В	900	SL82 (c)	2/N10	1/N10	N10 @ 300 (c)	
В	1200	SL92 (c)	2/N12	1/N12	N10 @ 200 (c)	
В	1500	SL92 (50 INTERNAL COVER)	2/N12	1/N16	N10 @ 200 (c) (50 INTERNAL COVER)	
В	1800	SL92 (50 INTERNAL COVER)	2/N16	1/N16	N12 @ 200 (c) (50 INTERNAL COVER)	
D	600	SL82 (c)	2/N10	1/N10	N10 @ 300 (c)	
D	900	SL92 (50 INTERNAL COVER)	2/N10	1/N10	N10 @ 200 (c) (50 INTERNAL COVER)	
D	1200	RL818 (50 INTERNAL COVER)	2/N12	1/N12	N12 @ 200 (c) (50 INTERNAL COVER)	
D	1500	RL1018 (50 INTERNAL COVER)	2/N12	1/N16	N12 @ 200 (c) (50 INTERNAL COVER)	
D	1800	RL1218 (50 INTERNAL COVER)	2/N16	1/N16	N12 @ 200 (c) (50 INTERNAL COVER)	

- PROVIDE REINFORCEMENT AS PER TABLE FOR WALL WITH CORRESPONDING WIDTH (W).
- IF ADJACENT WALLS HAVE DIFFERENT WIDTHS, ADOPT 'L' CORNER BARS CORRESPONDING TO HIGHER WIDTH.

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENT DETAILS FOR INFORMATION 02/04/25 CLIENT SUBMISSION

150mm CORNER DETAIL

NOT TO SCALE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH

AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS

TECHNICAL MANUAL

- 'L' CORNER BARS



SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

SULPHINER

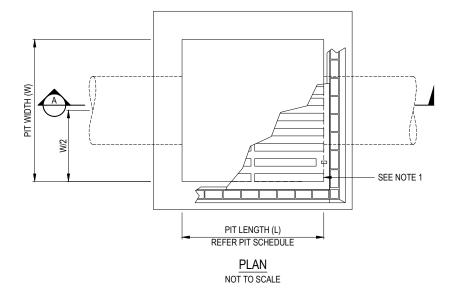
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RIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO

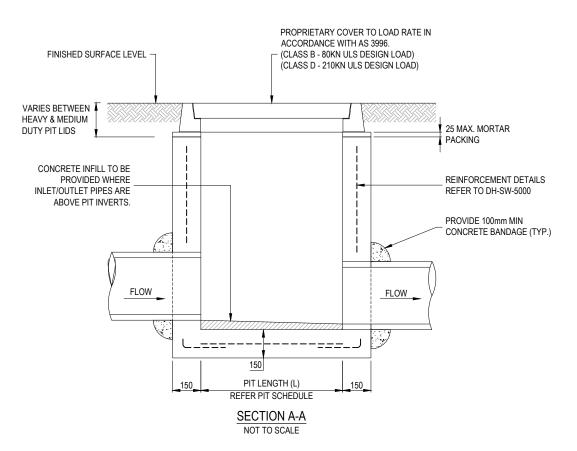
T SCALE, NOT FOR CONSTRUCTION UNLESS STAMPED BY
ESTIEVANCE AUTHORITY.

STORMWATER PITS REINFORCEMENT DETAILS

24-000479 DH-SW-5000

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THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

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NOTES:

- 1. HEAVY DUTY COVERS TO BE USED WHEN SUBJECT TO TRAFFICABLE LOADS (AS3996 CLASS D - 210kN) OR APPROVED EQUIVALENT.
 MEDIUM DUTY COVERS TO BE USED IN OFF ROAD USE (AS3996
- CLASS B 80kN) OR APPROVED EQUIVALENT.

 2. CONCRETE PIT STREAMLINING TO BE PROVIDED WHERE SHOWN ON DRAWINGS
- INTERNAL PIT DIMENSIONS SHALL ALLOW FOR THE PIPE OUTER DIAMETER AT CUT ANGLE PLUS CONSTRUCTION TOLERANCE PLUS 50mm EACH SIDE.
- MINIMUM PIT LID OPENING SIZE TO BE 600mm DIAMETER FOR ALL PITS GREATER THAN 600mm DEPTH.
- ALL GRATED COVERS TO BE HOT DIP GALVANISED FOR INSTALLATIONS IN NON-TRAFFICKED AREAS.
- ROUND PIT LIDS PREFERRED TO REDUCE RISK OF FALL INTO THE
- REINFORCED PITS CAN BE USED FOR STANDARD SIZES. HEAVY DUTY COVER (ALL JBS) 600mm (MIN. SIZE) HEAVY DUTY CAST IRON NON-ROTATING COVER BY 'BIANCO' OR SIMILAR APPROVED BOLTED TO COVER SLAB. LID TO HAVE CAST IRON LIFTING SOCKET.
- GRATED INLET PIT COVER HEAVY DUTY GALVANISED GRATE AND FRAME WITH 600x 600mm CLEAR OPENING. HEELSAFE IN PEDESTRIAN
- 10. COVER SLAB 'BIANCO' OR SIMILAR APPROVED 32MPa, SL82 REINFORCEMENT.
- 11. MINIMUM SIZE 900x900mm IN COUNCIL ROAD RESERVE.
- 12. GROUT BETWEEN LID AND COVER TO BE SPECIFIED ON DRAWING. GROUT TO CONSIST OF 2 PARTS SAND, 1 PART CEMENT AND SUFFICIENT WATER TO PRODUCE MIX OF SUITABLE CONSISTENCY.
- 13. STEP IRONS REQUIRED IN PITS >1.2m DEEP.
- 14. CONFINED SPACE WARNING SIGN REQUIRED IN ALL NEW PITS.

MINIMUM INTERNAL	PIT SIZES (AS 3500)
PIT DEPTH	MINIMUM PIT SIZE
d ≤ 600	450 x 450
600 < d ≤ 900	600 x 600
900 < d ≤ 1200	600 x 900
d ≥ 1200	900 x 900

ALL MEASUREMENTS IN MILLIMETRES

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

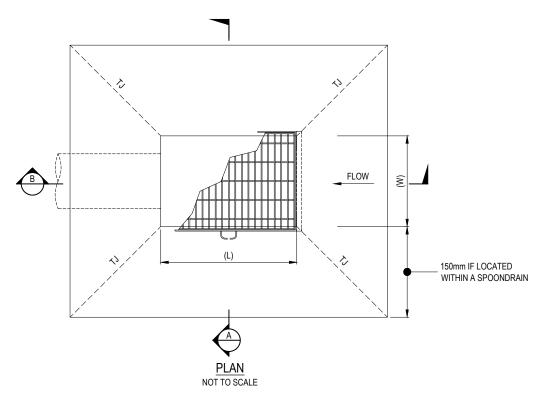
STORMWATER JUNCTION PIT

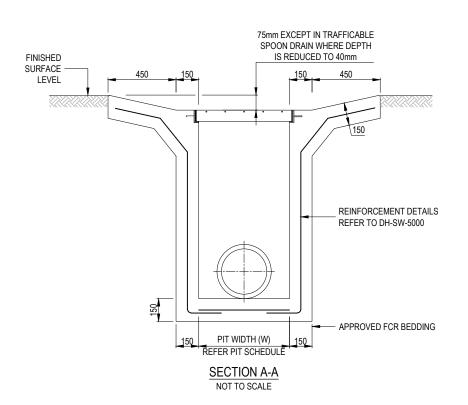
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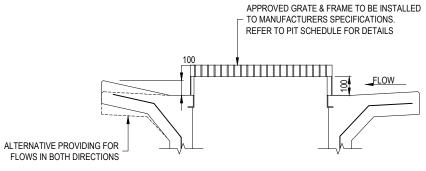
LE DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR
RIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO

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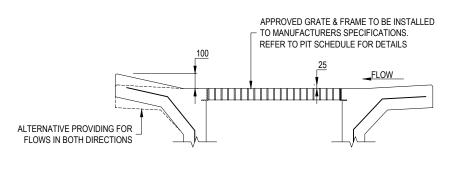
В 24-000479 DH-SW-5005







ALTERNATIVE ARRANGEMENT NOT TO SCALE



SECTION B-B NOT TO SCALE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENT DETAILS FOR INFORMATION Government of South Australia 02/04/25 CLIENT SUBMISSION Department for Housing



SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

LEGEND:

NOTES:

TOOLED JOINT (REFER TO DH-RD-2010)

 HEAVY DUTY COVERS TO BE USED WHEN SUBJECT TO TRAFFICABLE LOADS (AS3996 CLASS D - 210KN) OR APPROVED EQUIVALENT. MEDIUM DUTY COVERS TO BE USED IN OFF ROAD USE (AS3996 CLASS

2. IF PIT IS LOCATED WITHIN A SPOON DRAIN REDUCE DEPRESSION TO

USE HEELSAFE GRATES IN PEDESTRIAN AREAS U.N.O. GRATES TO BE BOLT DOWN U.N.O.

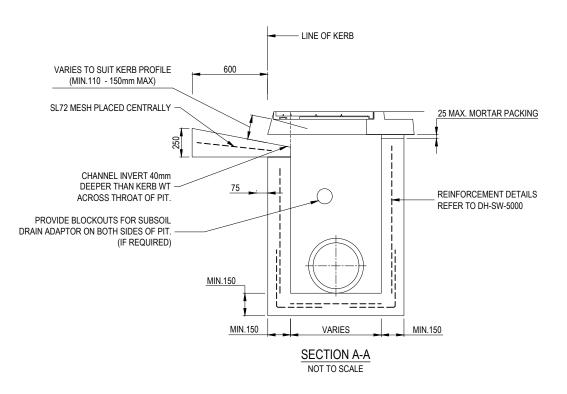
B - 80KN) OR APPROVED EQUIVALENT.

STORMWATER DEPRESSED GRATED PIT

JISCLAIMER
ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR
PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO
HOT SCALE. NOT FOR CONSTRUCTION.
UNLESS STAMPED BY
**EXPTRICTION: ALL TRICIPLY.

24-000479 DH-SW-5010 В

EXPANSION JOINT FLOW FLOW FLOW CHANNEL DEPTH TRANSITION NOT TO SCALE



THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

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SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

NOTES:

REFER TO DH-RD-1000 FOR KERB DETAILS.
 CHANNEL DEPTH TRANSITION TO BE INCREASED TO 1200mm BOTH SIDES AT LOW POINT (SAG) LOCATIONS.

STORMWATER SIDE ENTRY PIT 900mm INLET

DISCLAIMER
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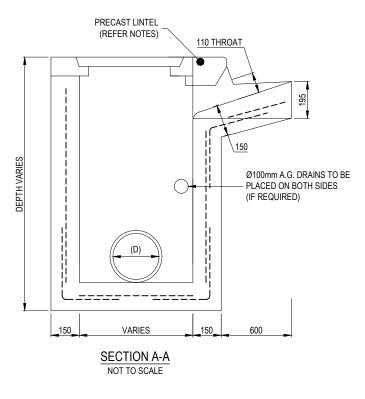
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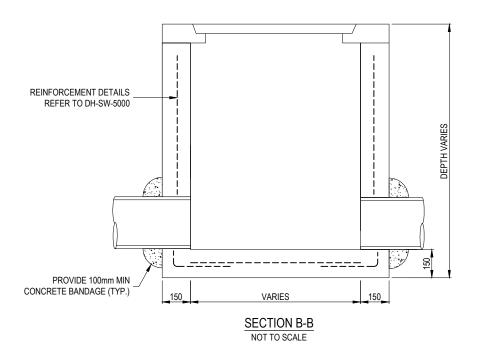
- PRECAST LINTEL FRAME AND LIDS AS APPROVED BY RELEVANT AUTHORITY TO BE INSTALLED TO MANUFACTURERS RECOMMENDATIONS.
- RECOMMENDATIONS.

 2. CONSTRUCT Ø100mm P.V.C. PIPE WITH CONSTRUCTION WORKS TO DRAIN WATER FROM PAVEMENT. AS DIRECTED BY RELEVANT AUTHORITY.

 3. AT LOW POINT TRANSITION 1200mm BOTH SIDES.

 4. PRECAST LINTEL TO MATCH REQUIRED KERB TYPE.





THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENT DETAILS FOR INFORMATION 20/12/24 ISSUED FOR REVIEW 02/04/25 CLIENT SUBMISSION



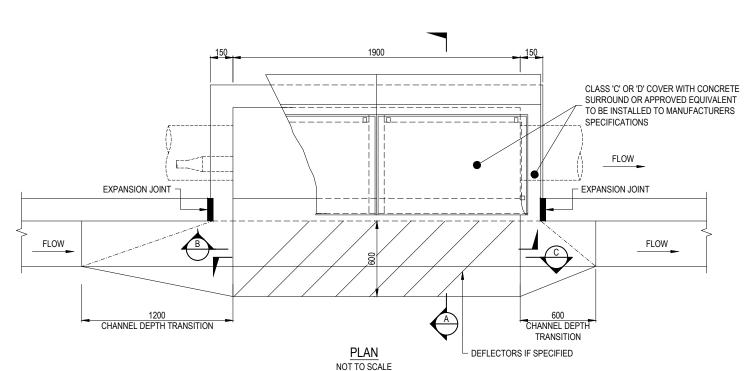
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

STORMWATER SIDE ENTRY
PIT AND LIDS WITH PRECAST LINTEL

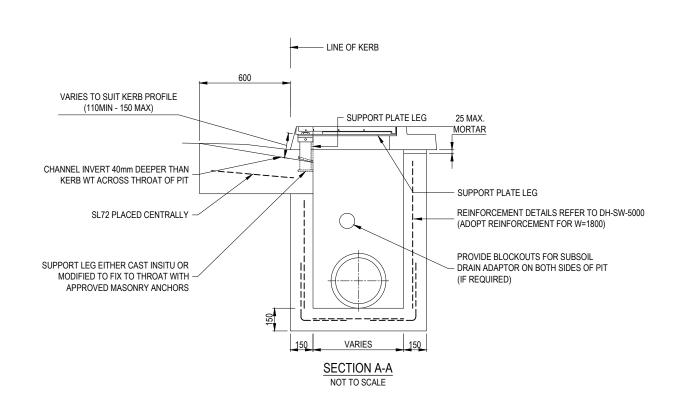
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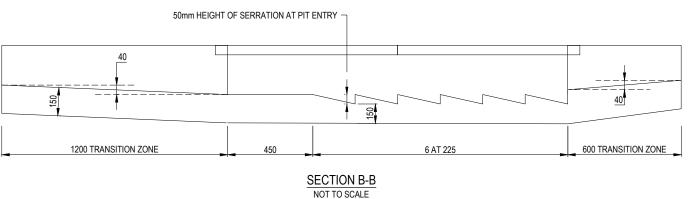
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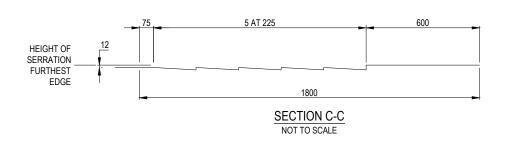
24-000479 DH-SW-5025



- REFER TO DH-RD-1000 FOR KERB DETAILS.
 CHANNEL DEPTH TRANSITION TO BE INCREASED TO 1200mm BOTH SIDES AT LOW POINT (SAG) LOCATIONS.







THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

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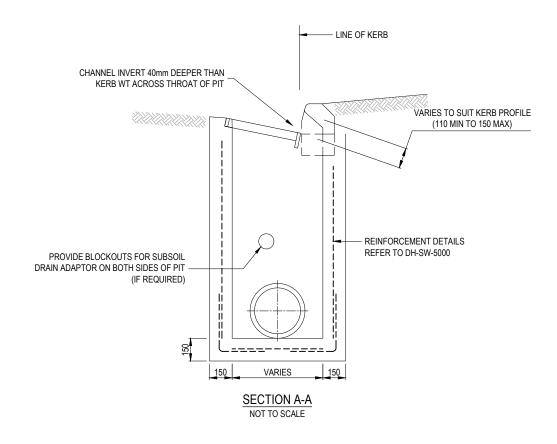
PROJECT
SOUTH AUSTRALIA GROWTH AREAS
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

STORMWATER DOUBLE SIDE ENTRY PIT 1900mm INLET

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ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR
PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, D
NOT SCALE, NOT FOR CONSTRUCTION UNLESS STAMPED BY
SEPTIMENTS AUTHORITY.

В 24-000479 DH-SW-5030

BACK OF KERB INVERT OF KERB LIP OF KERB 1200 CHANNEL DEPTH TRANSITION 600 CHANNEL DEPTH TRANSITION CLASS 'D' GRATE SURROUND TO BE 'BICYCLE SAFE' PIT LENGTH 'L' IN ACCORDANCE WITH AUSTRALIAN STANDARDS. GATIC (321S) TYPE OR APPROVED EQUIVALENT. PLAN NOT TO SCALE



ALL MEASUREMENTS IN MILLIMETRES

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	1100201
	ISOUTH AUSTRALIA GROWTH AREAS
	SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

NOTES:

REFER TO DH-RD-1000 FOR KERB DETAILS.
CLASS D LOAD RATING REQUIRED.
CHANNEL DEPTH TRANSITION TO BE INCREASED TO 1200mm ON BOTH SIDES AT LOW POINT (SAG) LOCATIONS.

PRECAST SIDE ENTRY PIT INLET WITH GRATE INLINE

DISCLAMER
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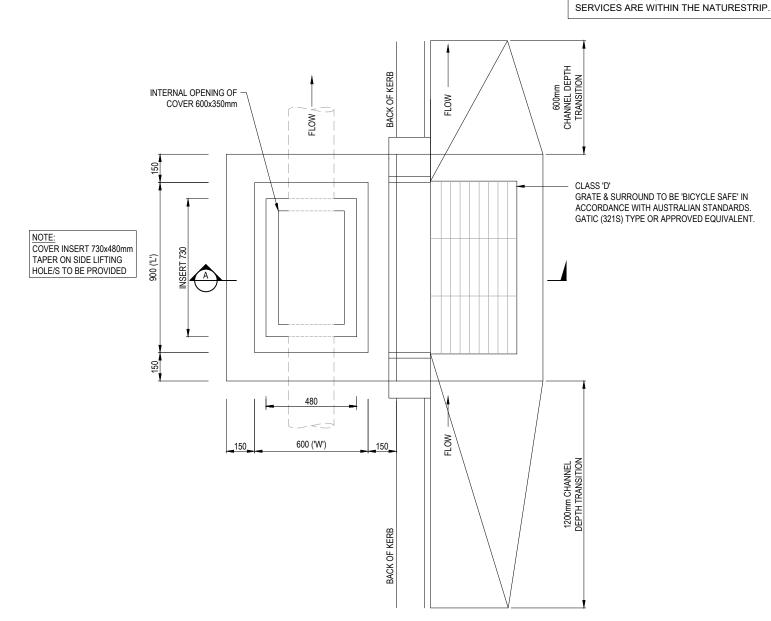
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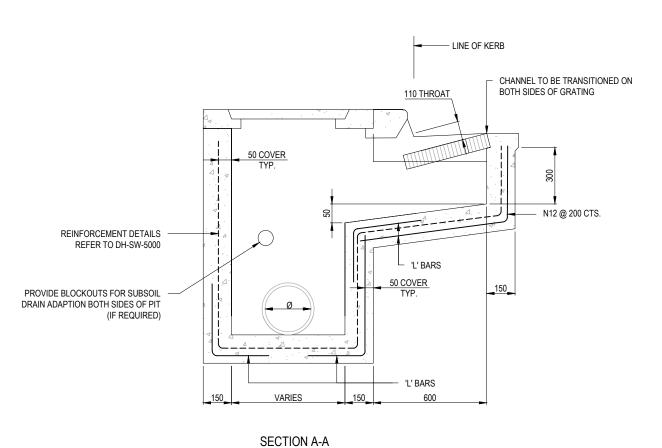
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- CLASS D LOAD RATING REQUIRED FOR GRATE. COVERS TO BE CLASS B OR HIGHER IF LIKELY TO BE DRIVEN OVER.
- PRECAST LINTEL AND GRATES APPROVED BY RELEVANT AUTHORITY
- TO BE INSTALLED BY MANUFACTURERS RECOMMENDATIONS.
 CHANNEL DEPTH TRANSITION TO BE INCREASED TO 1200mm ON BOTH SIDES AT LOW POINT (SAG) LOCATIONS.

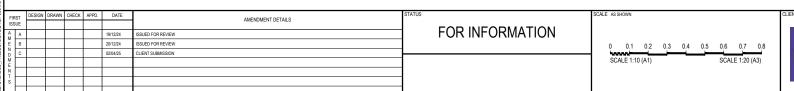
NOTE:
DRAWING TO BE UTILISED WHERE NO OTHER





THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES



<u>PLAN</u>



SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

OFFSET SIDE ENTRY PIT WITH 900mm INLET GRATE

DISCLAMMER
ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR
PRIOR TO CONSTRUCTION, USE WRITTEN DIMENSIONS ONLY, DO
NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY
CERTIFYING AUTHORITY

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BANDAGE JOINT NOTES:

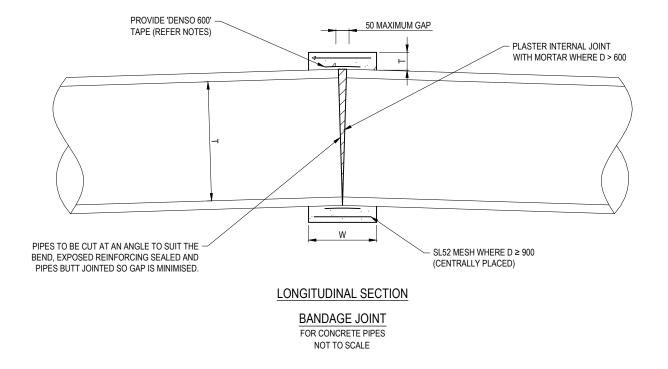
- 1. ALL CONCRETE WORKS TO BE 32MPa UNLESS NOTED OTHERWISE.
- 'DENSO 600' TAPE OR SIMILAR APPROVED SHALL BE USED. TAPE TO BE 200mm MIN. WIDTH AND LAPPED 100mm MIN. TAPE IS TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
- 3. MORTAR MIX TO CONSIST OF 3 PARTS SAND TO 1 PART CEMENT BY VOLUME.
- 4. MAXIMUM DEFLECTION ANGLE

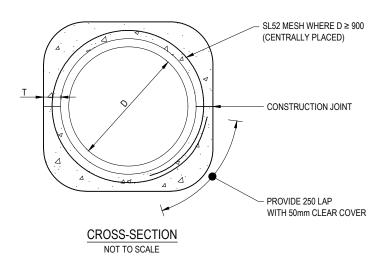
PIPE SIZE MAXIMUM DEFLECTION ANGLE

Ø300mm
 Ø600mm
 Ø900mm
 Ø1800mm
 6°

PREFABRICATED SPLAYS SHALL BE USED WHERE DEFLECTION EXCEED ABOVE ANGLES.

BANDAGE JOINT REQUIREMENTS							
PIPE DIAMETER (D)	THICKNESS (T)	WIDTH (W)					
D < 900	150	1000					
D ≥ 900	200	1500					





THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

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SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

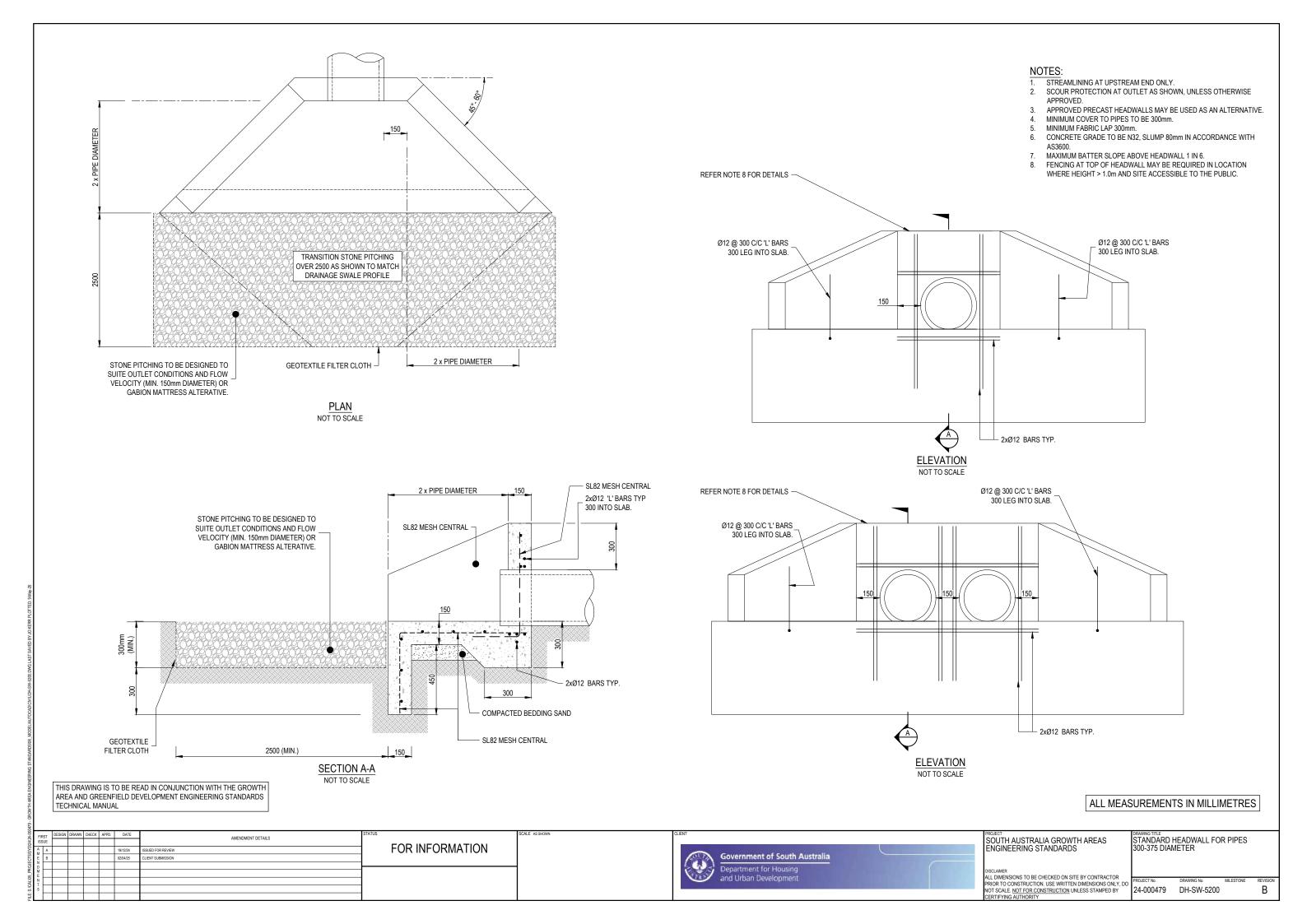
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NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY
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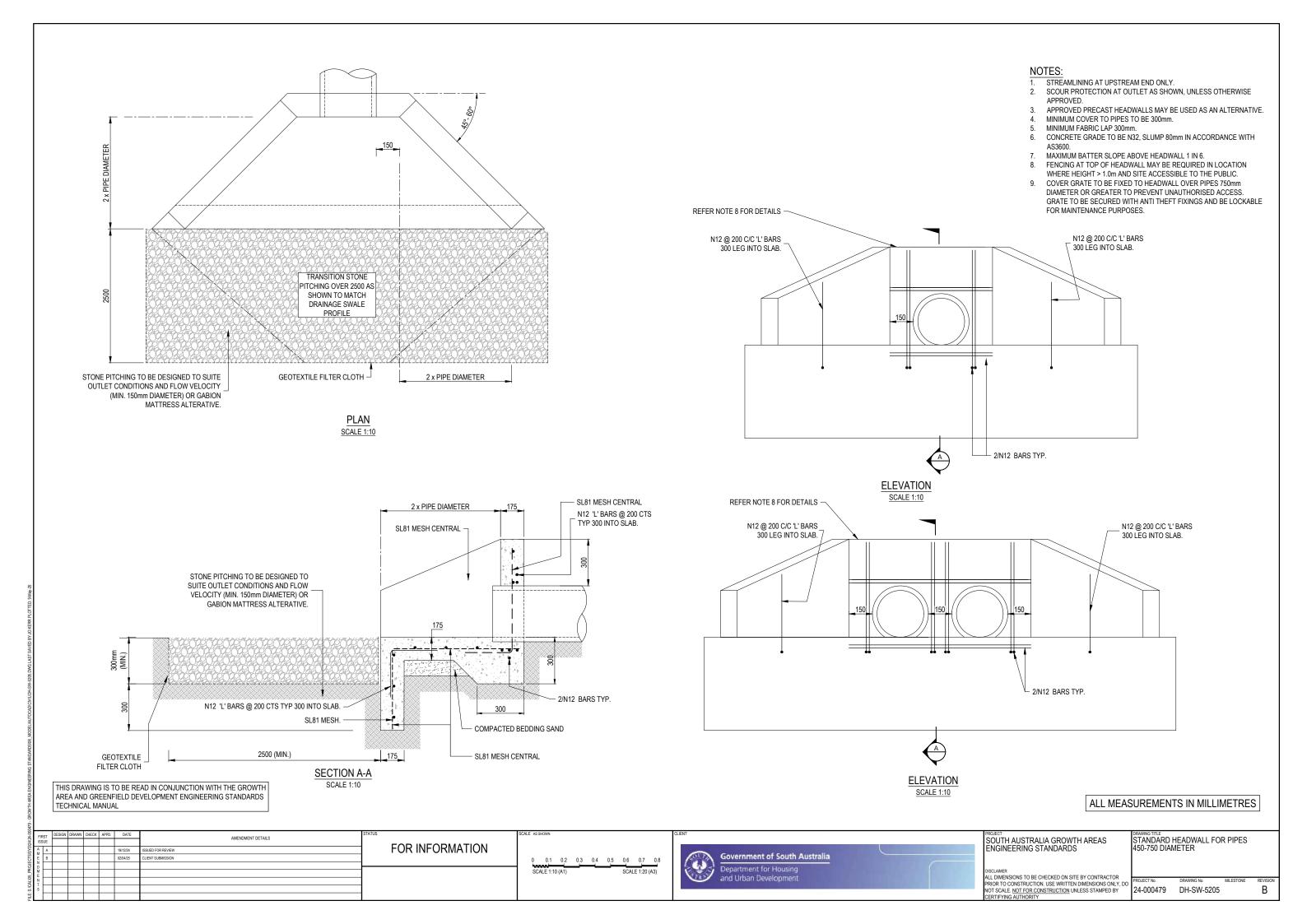
BANDAGE JOINT

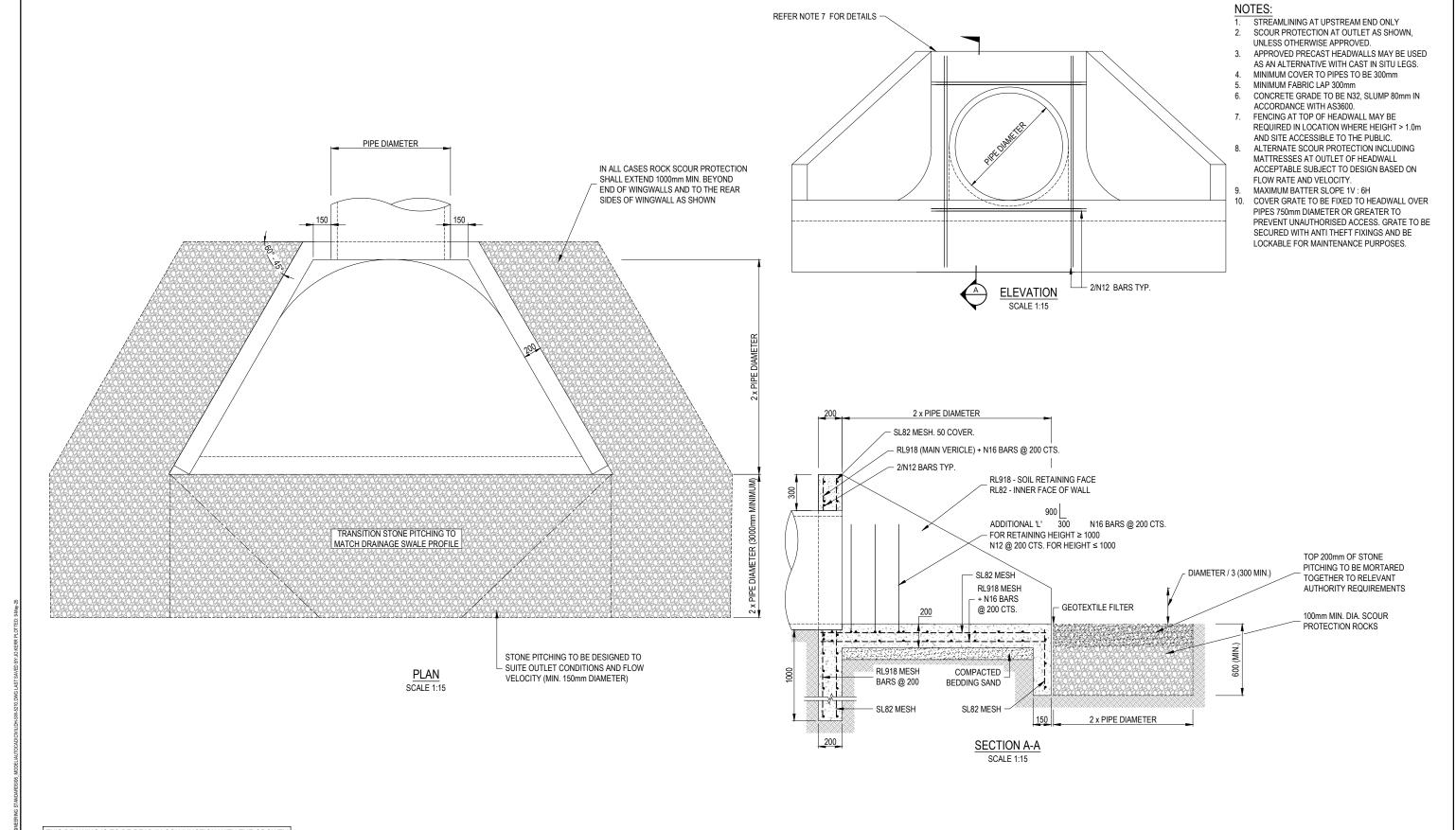
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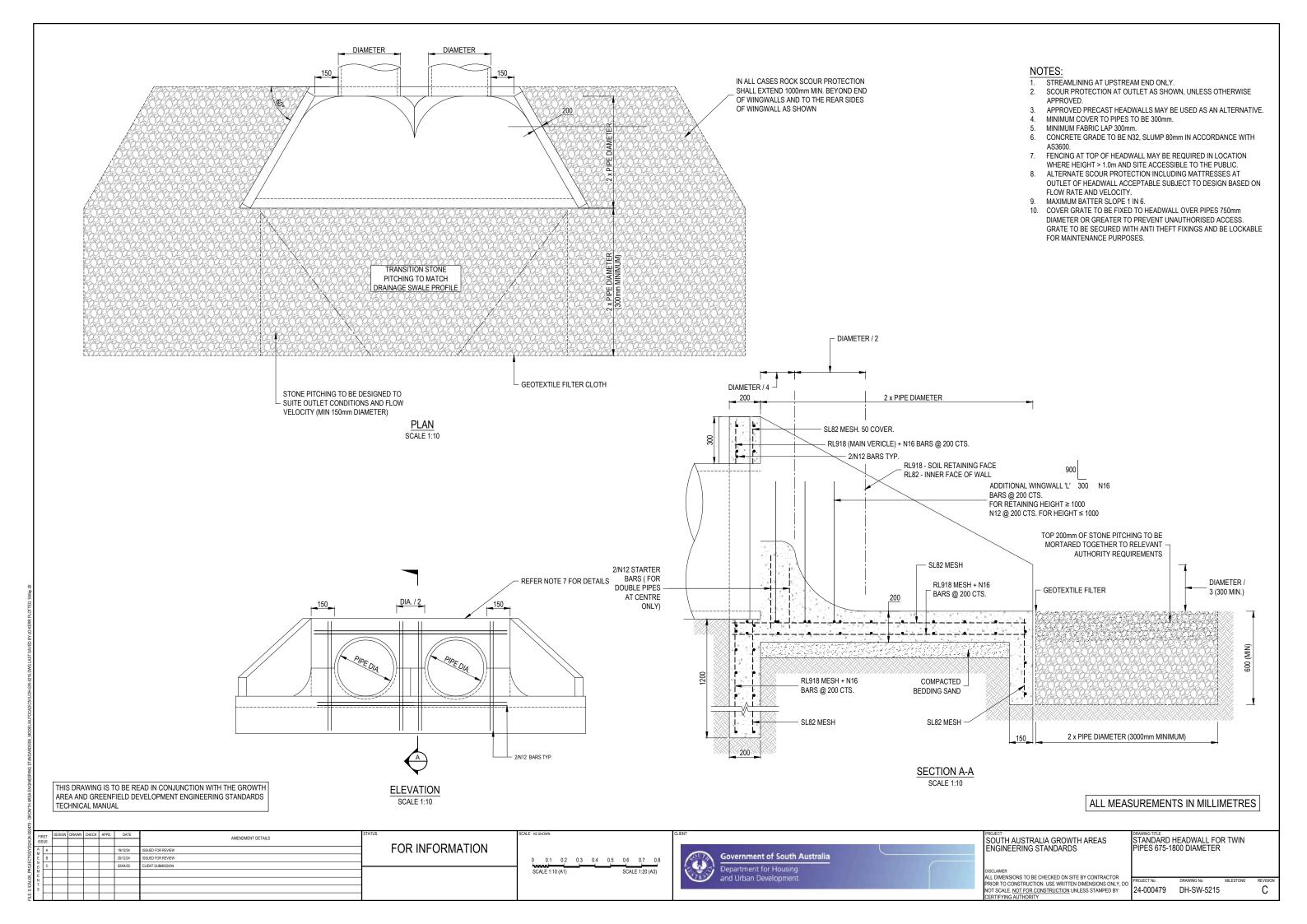






THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

	IRST DESI	IGN DRAWN CHECK	APPD. DATE	AMENDMENT DETAILS		SCALE AS SHOWN	CLIENT	SOUTH AUSTRALIA GROWTH AREAS	STANDARD HEADWALL FOR SINGLE
Q. A.	A		19/12/24	ISSUED FOR REVIEW	FOR INFORMATION			ENGINEERING STANDARDS	PIPES 675-1800 DIAMETER
CTS E	В		20/12/24	ISSUED FOR REVIEW		0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8	Government of South Australia		
S S S	С		02/04/25	CLIENT SUBMISSION			Department for Housing		
ac M yo E						SCALE 1:10 (A1) SCALE 1:20 (A3)	Department of Housing	DISCLAIMER ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR	
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- 1. COMPACTION PRESSURE BEHIND ENDWALLS IS NOT TO EXCEED 12.5kPa.
- 12.5kPa.

 REFER (1.5 TONNE VIBRATORY ROLLER).

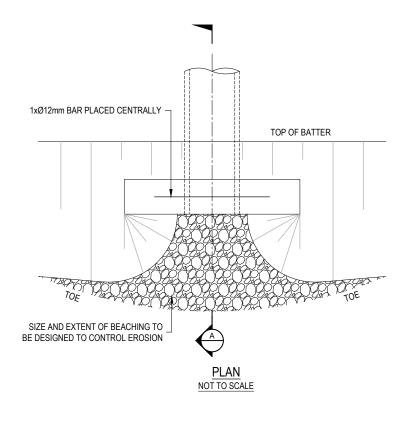
 A MAXIMUM PIPE SIZE OF Ø300mm FOR THIS ENDWALL ARRANGEMENT.

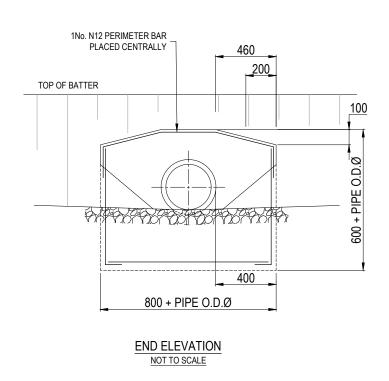
 NOT TO BE USED WHERE GENERAL VEHICULAR TRAFFIC IS PRESENT (MAINTENANCE OR EMERGENCY VEHICLES EXCEPTED).

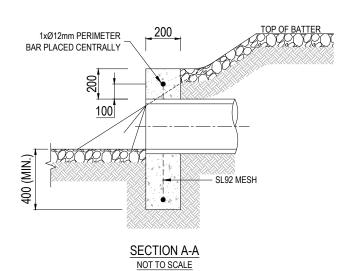
 ALTERNATIVELY PRECAST ENDWALL MAY BE USED WHERE APPROVED BY RELEVANT AUTHORITY.

 CONCRETE STRENGTH F'C = 25 MPa (MIN.) AT 28 DAYS.

 MAXIMUM BATTER SLOPE 1V: 6H.







THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENT DETAILS FOR INFORMATION 20/12/24 ISSUED FOR REVIEW

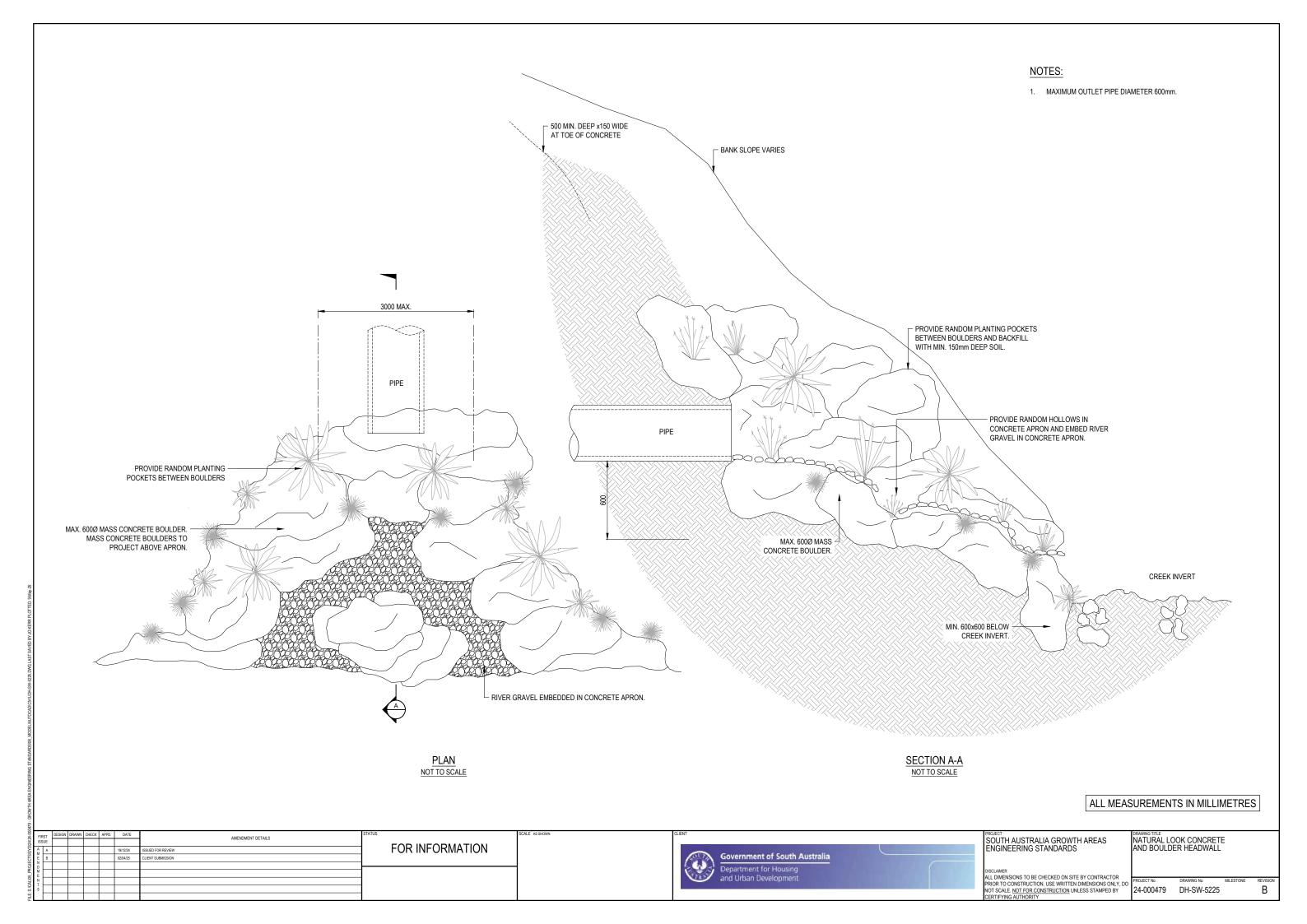


PROJECT
SOUTH AUSTRALIA GROWTH AREAS
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

CONCRETE ENDWALL FOR PIPES UP TO Ø300mm (WALKWAYS,PATHS AND TRACKS)

UISCLAIMENT ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION, USE WRITTEN DIMENSIONS ONLY, DO NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY

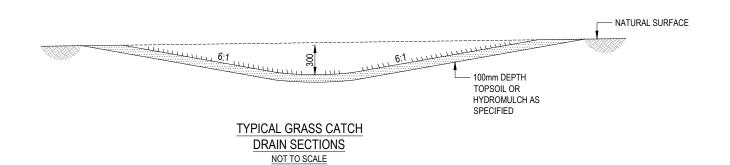
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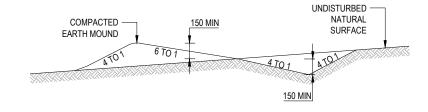


- CATCH DRAINS SHALL BE CONSTRUCTED WHERE INDICATED ON ALIGNMENT PLANS.
 CATCH DRAINS LOCATION RELATIVE TO THE BATTER SHALL BE
- DETERMINED BY THE RELEVANT AUTHORITY.

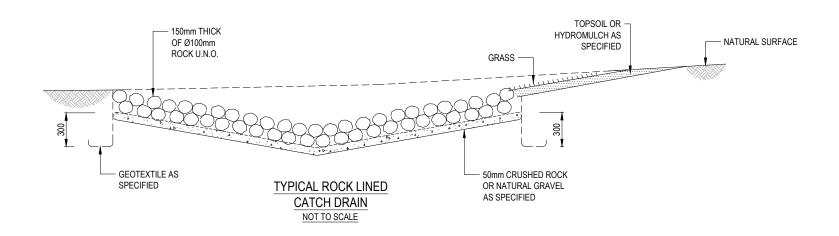
 3. CATCH DRAINS SHALL BE GRADED TO CULVERTS OR EXISTING LOW
- POINTS.

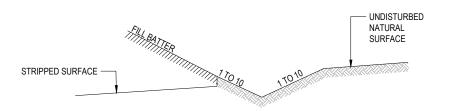
 4. CATCH DRAINS SHALL SHALL BE SPECIFIED BY THE DESIGNER AND THE LINING DETAILS BASED ON DESIGN FLOW VELOCITY, SCOUR POTENTIAL AND SOIL TYPE.





TYPICAL MOUNDED CATCH DRAIN (ERODABLE TERRAIN) NOT TO SCALE





TYPICAL CATCH DRAIN AT TOE OF BATTER NOT TO SCALE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

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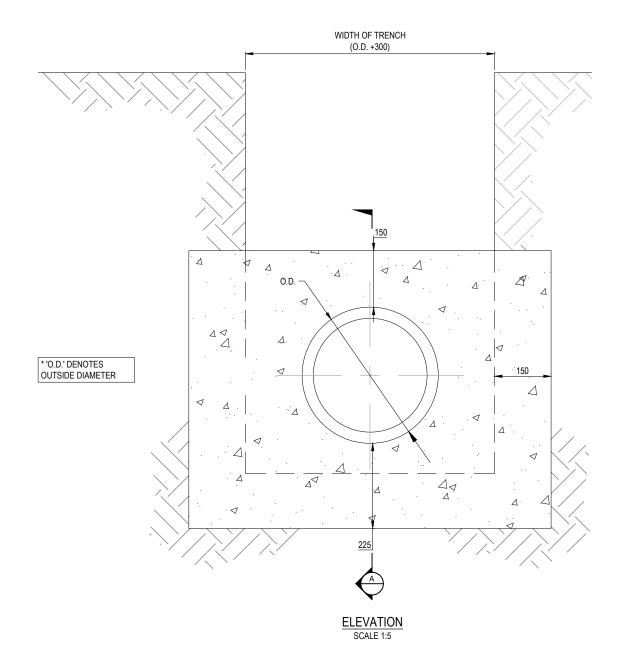


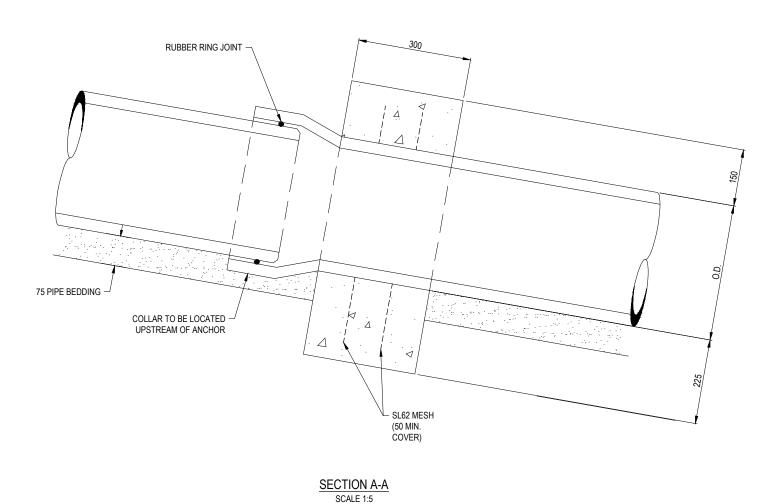
PROJECT
SOUTH AUSTRALIA GROWTH AREAS
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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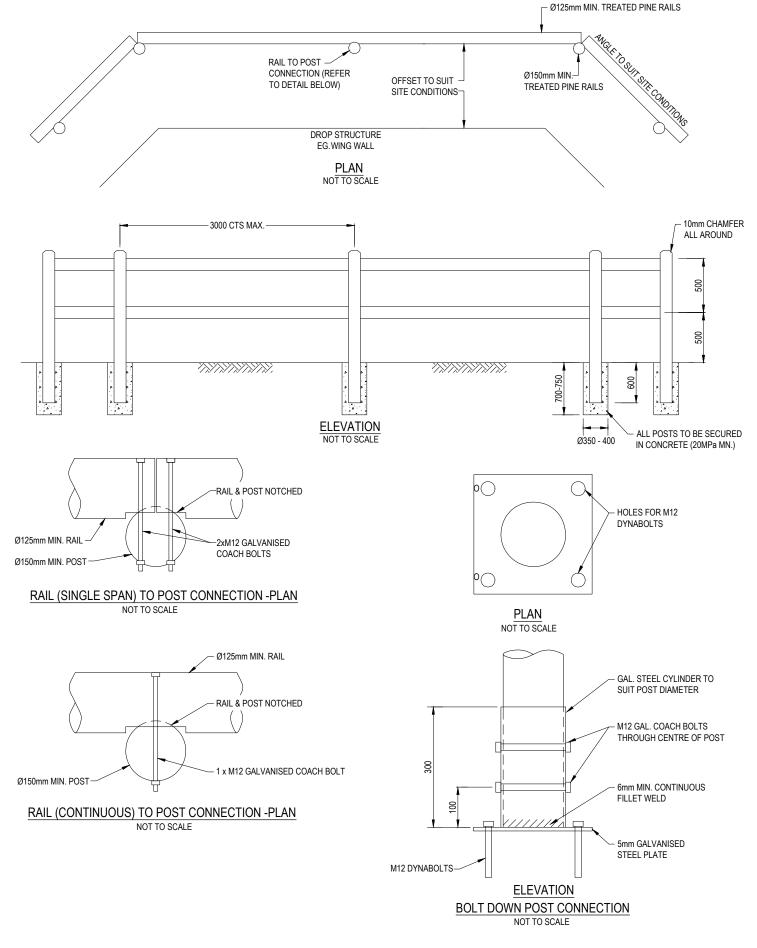
STORMWATER CATCH DRAIN DETAILS

- FOR USE ON STORMWATER DRAINAGE PIPE DIAMETERS UP TO 600mm AT GRADES OF 1 IN 5 OR GREATER. LARGER PIPES TO BE DESIGNED BASED ON SOIL TYPE AND DESIGN FLOW.
- TO BE CONSTRUCTED AT A MIN EVERY 5TH JOINT AND AT ALL STRUCTURES.
- CONCRETE STRENGTH TO BE 25MPa. RRJ PIPES TO BE USED.





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AMENDMENT DETAILS

02/04/25 CLIENT SUBMISSION

FOR INFORMATION

NOTES:

- 1. ALL TIMBER SHALL BE TREATED PINE OR WOOD EQUIVALENT (COMPOSITE PRODUCT), FREE OF BARK AND SPLINTERS, RELATIVELY STRAIGHT AND UNIFORM IN DIAMETER.

 2. LAYOUT AND OFFSET OF BARRIER WILL VARY ACCORDING TO THE DROP STRUCTURE LAYOUT AND SITE CONDITIONS.
- 3. FIXINGS TO BE ANTI-THEFT.

SOUTH AUSTRALIA GROWTH AREAS
ENGINEERING STANDARDS

Government of South Australia

Department for Housing

POST AND RAIL SAFETY BARRIER AROUND DROP ZONES

DISCLAIMENT AND ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY CERTIFYING AUTHORITY

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REVISION

THE FOLLOWING DOCUMENTS ARE INCORPORATED INTO THIS SPECIFICATION BY

- 1.1. STANDARDS
- 1.1.1 AS 1289-METHODS OF TESTING SOILS FOR ENGINEERING PURPOSES.
 1.1.2 AS 1289.5.4.1 -SOIL COMPACTION AND DENSITY TESTS—COMPACTION CONTROL
- TEST-DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO.
- 1.1.3. AS 1289.5.7.1 -SOIL COMPACTION AND DENSITY TESTS--COMPACTION CONTROL TEST-HILF DENSITY RATIO AND HILF MOISTURE VARIATION (RAPID METHOD)
- 1.1.4. AS 2758 -AGGREGATES AND ROCK FOR ENGINEERING PURPOSES.
- 1.1.5. AS 4419 -SOILS FOR LANDSCAPING AND GARDEN USE.
- 1.1.6. 1.1.6 AS4454 -COMPOSTS, SOIL CONDITIONERS AND MULCHES.
- 1.2. OTHER PUBLICATIONS
 1.2.1. GUIDELINES FOR SOIL FILTER MEDIA IN BIORETENTION SYSTEMS-THE CURRENT VERSION OF THE GUIDELINE CAN BE FOUND AT
- sitivecities.org.au/wp-content/uploads/2016/1 O/AGSBS-C1-Appensix.pdf 1.2.2. CONSTRUCTION AND ESTABLISHMENT GUIDELINES -SWALES, BIORETENTION
- SYSTEMS AND WETLANDS (WATER BY DESIGN)
- hltps://waterbydesign.com.au/download-category/water-sensitive-urban-design/page/2 1.2.3. TRANSFERRING OWNERSHIP OF VEGETATED STORMWATER ASSETS (WATER BY
- DESIGN) https://waterbydesign.com.au/download-category/water-sensitive-urban-design/page/2
- 1.2.4. BIORETENTION TECHNICAL DESIGN GUIDELINES (WATER BY DESIGN)
- 1.2.5. WATER SENSITIVE URBAN DESIGN FIELD GUIDE (WATER BY DESIGN).
- 2. ABBREVIATIONS AND DEFINITIONS
- 2.1. THE BIORETENTION SYSTEM SPECIFICATION CONSISTS OF THE FOLLOWING ABBREVIATIONS AND DEFINITIONS
- FILTER: SOIL LAYER WHICH ACTS AS A POLLUTANT FILTER AND SUPPORTS PLANT
- IMPERMEABLE LINERS: THE LINER THAT PREVENTS WATER MOVEMENT BETWEEN THE FILTER AND THE SURROUNDING SOILS AND DEFINES THE EDGE OF THE SYSTEM.
 TRANSITION LAYER: LAYER TO SEPARATE FILTER LAYER FROM THE DRAINAGE LAYER
- TO AVOID MIGRATION OF SOILS FROM THE FILTER TO THE DRAINAGE LAYER. DRAINAGE LAYER: RELATIVELY FREE DRAINING LAYER TO CONVEY INFILTRATED
- WATER TO THE UNDERDRAINAGE. UNDER-DRAINS: SLOTTED DRAINS COLLECT TREATED STORMWATER FROM THE
- DRAINAGE LAYERATTHE BASE OF THE BIORETENTION SYSTEM.

3. TEST METHODS AND STANDARDS

- THE FOLLOWING TEST METHODS AND STANDARDS ARE TO BE USED AS SPECIFIED IN THE ABOVE GUIDELINES WHEN CONDUCTING TESTS ASSOCIATED WITH THI SPECIFICATION:
- THE HYDRAULIC CONDUCTIVITY OF POTENTIAL FILTER MEDIA SHALL BE MEASURED USINGTHEASTM F1815-11 METHOD.
- PARTICLE SIZE DISTRIBUTION: AS 1289.3.6.1. 3.4. SOILS FOR LANDSCAPING AND GARDEN USE: AS4419.

4. MATERIALS

- 4.1. MATERIALS SHALL MEET THE REQUIRED SPECIFICATIONS DETAILED IN SECTION 8 FILTER MEDIA, SECTION 9 TRANSITION LAYER, SECTION 10 DRAINAGE LA YER, SECTION 11 UNDER DRAINAGE, SECTION 12 PERMEABLE LINER, SECTION 13 IMPERMEABLE LINER AND SECTION 14 LANDSCAPING OF THIS DOCUMENT
- ALL MATERIALS MUST BE CERTIFIED BY THE SUPPLIER WITH CERTIFICATION AND DELIVERY SUPPLY DOCKETS SHALL BE PROVIDED ON REQUEST TO CERTIFY THE MATERIAL DELIVERED IS THE MATERIAL TESTED

5. TIMING AND EROSION AND SEDIMENT CONTROL

- THE TIMING OF CIVIL AND LANDSCAPE WORKS FOR BIORETENTION SYSTEMS MUST BE CAREFULLY PLANNED TO ENSURE THAT BOTH THE BIORETENTION SYSTEM AND THE DOWNSTREAM WATERWAYS, ARE NOT IMPACTED BY STORMWATER AND SEDIMENT (E.G. THROUGH BEST PRACTICE EROSION AND SEDIMENT CONTROL). IN PARTICULAR, THE DRAINAGE LAYER, TRANSITION LAYER AND FILTER MEDIA MUST NOT BE PLACED UNTIL THE RISK OF HIGH SEDIMENT LOADING FROM UPSTREAM CONSTRUCTION ACTIVITIES HAS BEEN MITIGATED. THE CONSTRUCTION SEQUENCE MUST BE APPROVED BY THE SUPERINTENDENT.
- EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION MUST BE DELIVERED IN ACCORDANCE WITH ALL LEGISLATIVE REQUIREMENTS INCLUDING, WHERE REQUIRED, THE PREPARATION OF SITE-SPECIFIC ESC PLAN/SIN ACCORDANCE WITH CURRENT BEST PRACTICE EROSION AND SEDIMENT CONTROL (E.G. IECA 2008, OR LATER

6. EARTHWORKS AND HYDRAULIC STRUCTURES

19/12/24

27/03/25

CLIENT SUBMISSION

- THE CONSTRUCTION OF HYDRAULIC STRUCTURES MUST ENSURE THE DESIGN LEVELS ARE ACHIEVED. BLINDS/ EMBANKMENTS SURROUNDING THE SYSTEM SHALL BE AT CORRECT LEVELS. THE BELOW TABLE SUMMARISES THE CONSTRUCTION TOLERANCES FOR EACH ELEMENT OF A TYPICAL BIORETENTION SYSTEM.
- BIORETENTION SYSTEMS TOLERANCES.

BIORETENTION ELEMENT	TOLERANCE (UNLESS SPECIFIED OTHERWISE)				
HYDRAULIC STRUCTURES	+ 1-25 mm (+/-15 mm FOR STREETSCAPE SYSTEMS)				
EARTHWORKS	+/-50mm				
UNDER-DRAINAGE	+/-25mm				
DRAINAGE AND TRANSITION LAYERS	+ 25mm				
SURFACE LEVEL	+/25 mm +/-40 mm FOR FILTER MEDIA >300 M* PROVIDED THE AVERAGE EXTENDED DETENTION REQUIREMENT IS WITHIN 25 mm OF THE DESIGN REQUIREMENT.				
EMBANKMENTS AND BLINDS	-25 mm, + 50 mm				

AMENDMENT DETAILS

7. MAINTENANCE ACCESS

MAINTENANCE ACCESS IS PROVIDED IN ACCORDANCE WITH THE DESIGN DRAWINGS

8. FILTER MEDIA

8.1. MATERIALS

A FUNDAMENTAL PART OF BIORETENTION SYSTEMS IS THE FILTER MEDIA. THE MAIN ROLE OF THE FILTER MEDIA IS TO SUPPORT VEGETATION AND REMOVE POLLUTANTS. FILTER MEDIA SHOULD BE LOAMY SAND THAT HAS HIGH PERMEABILITY WHEN COMPACTED. IT SHOULD NOT CONTAIN ANY RUBBISH OR DELETERIOUS MATERIAL. THE LOAMY SAND SHOULD CONTAIN SOME ORGANIC MATTER TO IMPROVE WATER-HOLDING CAPACITY AND PLANT HEALTH, BUT IT SHOULD BE LOW IN NUTRIENT CONTENT. THE FILTER MEDIA MUST BE COMPLIANT WITH AS 4419 -SOILS FOR LANDSCAPING AND GARDEN USE, AND MEET THE FOLLOWING

PARAMETER	TEST METHOD IN ACCORDANCE WITH	REQUIREMENT
SATURATED HYDRAULIC CONDUCTIVITY	ASTM F1815-11	50 • 500 mm/HR (200 PREFERRED)
PH	AS 4419	5.5-7.5
ELECTRICAL CONDUCTIVITY	AS 4419	<1.2 DS/M
NITROGEN CONTENT	AS 4419	<800 MG/KG <40 MG/KG
PHOSPHORUS CONTENT	AS 4419	3%-10%. WHERE ORGANIC CONTENT IS BELOW THIS.
ORGANIC CONTENT	AS 4419	THRESHOLD, THE FILTER MEDIA MAY BE AMELIORATED BY ADDING 50 mm OF COMPOST AND TINING IT INTO THE TOP 150 mm OF FILTER MEDIA
PARTICLE SIZE DISTRIBUTION	AS 1289.3.6.1	CLAY & SILT 3 -6% (<0.05 mm) VERY FINE SAND 5 -30% (0.05 -0.15 mm) FINE SAND 10-30% (0.15-0.25 mm) MEDIUM TO COARSE SAND 40-60% (0.25 • 1.0 mm) COARSE SAND 7 -10% (1.0 -2.0 mm) FINE GRAVEL <3% (2.0 • 3.4%)

SOURCE: GUIDELINES FOR SOIL FILTER MEDIA IN BIORETENTION SYSTEMS AND BIORETENTION TECHNICAL DESIGN GUIDELINES (WATER BY DESIGN)

FILTER MEDIA MUST BE FREE OF WEEDS AND PROPAGATES. OTHER CHARACTERISTICS OF THE FILTER MEDIA REQUIRED FOR PLANT GROWTH SHOULD BE CONFIRMED WITH A SOIL ANALYSIS OR CONFIRMED WITH A HORTICULTURIST/LANDSCAPE ARCHITECT.

8.2. TESTING FREQUENCY

SUITABLE FILTER MEDIA CAN BE DELIVERED TO SITE OR IMPORTED SAND CAN BE AMELIORATED TO MEET THE ABOVE SPECIFICATION, IN EITHER CASE, THE MEDIA SHALL BE TESTED AGAINST THE ABOVE PARAMETERS AT ONE SAMPLE PER 500M3 OF FILTER MEDIA. FOR SOIL SUPPLIED TO SITE, TESTING MUST BE UNDERTAKEN ON THE ACTUAL MATERIAL TO BE DELIVERED TO THE BIORETENTION SYSTEM. THE SUPPLIER AND CONTRACTOR WILL BE RESPONSIBLE FOR ENSURING THE FILTER MEDIA MEETS THE SPECIFICATION AND THE CORRECT MATERIAL IS DELIVERED TO SITE PRIOR TO INSTALLATION

8.3. INSTALLATION AND COMPACTION

- WHEN INSTALLING, THE FOLLOWING SPECIFICATIONS SHALL BE APPLIED:
- 8.3.1. FILTER MEDIA SHALL BE INSTALLED AND COMPACTED IN TWO LIFTS FOR DEPTHS OF OVER 500mm, COMPACTION SHALL BE LIGHT AND EVEN ACROSS THE SURFACE.
- 8.3.2. THE TOP SURFACE OF THE DRAINAGE LAYER, TRANSITION LAYER AND THE FILTER MEDIA LAYER SHALL BE LEVEL AND FREE FROM LOCALISED DEPRESSIONS TO ENSURE EVEN DISTRIBUTION OF STORMWATER FLOWS ACROSS THE SURFACE AND PREVENT LOCALISED PONDING.
- 8.3.3. FILTER FABRIC MUST NOT BE USED BETWEEN DRAINAGE LAYER. TRANSITION LAYER AND THE FILTER MEDIA LAYERS OR WRAPPED AROUND THE UNDER-DRAINAGE

9. TRANSITION LAYER (WHERE SPECIFIED)

- 9.1. TRANSITION LAYERS PREVENT FILTER MEDIA MIGRATING INTO THE DRAINAGE LAYER.
 - 9.1.1.1. TRANSITION LAYER SHALL BE MINIMUM THICKNESS OF 100mm COARSE SAND UNLESS OTHERWISE SPECIFIED (TYPICALLY 1 mm PARTICLE SIZE DIAMETER) WITH <2% FINES.
 - 9.1.1.2. A PARTICLE SIZE DISTRIBUTION FOR THE SAND SHALL BE OBTAINED TO ENSURE THAT IT MEETS THE FOLLOWING CRITERIA (VICROADS).
 - 9.1.1.3. D15 (TRANSITION LAYER),; 5 X D85 (FILTER MEDIA)
- TESTING
- A SAMPLE OF THE PROPOSED TRANSITION LAYER IS TO BE PROVIDED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION. THE SUPERINTENDENT MAY REQUIRE THE TRANSITION LA YER TO BE TESTED TO ENSURE ITS PARTICLE SIZE MEETS THE REQUIREMENTS.

10. DRAINAGE LAYER

DRAINAGE LAYERS CONVEY INFILTRATED WATER INTO THE SLOTTED UNDER-DRAINAGE

10.1. MATERIALS

- 10.1.1. DRAINAGE LAYER SHALL BE COMPRISED OF FINE GRAVEL (NOMINAL 2-5mm) WITH <2% FINES AND A MINIMUM SATURATED HYDRAULIC CONDUCTIVITY OF 400mm/HR. THE DEPTH OF THE DRAINAGE LAYER SHALL ENSURE AT LEAST 50mm OF AGGREGATE COVER OVERALL PERFORATED UNDER-DRAINAGE PIPES.
- 10.1.2. A PARTICLE SIZE DISTRIBUTION FOR THE GRAVEL SHALL BE OBTAINED TO ENSURE THAT IT MEETS THE FOLLOWING BRIDGING CRITERIA (VICROADS): D15 (DRAINAGE LAYER),; 5 X D85 (TRANSITION LAYER)

10.2. TESTING

A SAMPLE OF THE PROPOSED DRAINAGE LAYER IS TO BE PROVIDED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO INSTALLATION. THE SUPERINTENDENT MAY REQUIRE THE DRAINAGE LAYER TO BE TESTED TO ENSURE ITS PARTICLE SIZE MEETS THE REQUIREMENTS

11. UNDER-DRAINAGE (WHERE SPECIFIED)

11.1. MATERIALS

- EITHER SLOTTED RIGID PIPE (HDPE OR SIMILAR) OR AG-PIPE CAN BE USED FOR UNDER-DRAINAGE AS SPECIFIED IN THE CONSTRUCTION DRAWINGS. WHEN INSTALLING, THE FOLLOWING SPECIFICATIONS SHALL BE CONSIDERED:
- 11.1.1. TYPICALLY 100mm -SLOTTED HDPE PIPE IS THE PREFERRED TYPE OF RIGID PIPE
- 11.1.2. THE SLOTS IN THE PIPE SHALL NOT ALLOW THE DRAINAGE LAYER AGGREGATE TO FREELY ENTER THE PIPE (UNDER-DRAINAGE WITH SLOT WIDTH OF 2mm OR
- 11.1.3 UNDER-DRAINAGE PIPES MUST NOT BE SURROUNDED BY ANY GEOFABRIC OR SOCK 11.2. INSTALLATION
- 11.2.1. THE MAXIMUM SPACING OF UNDER-DRAINS FOR BIO-RETENTION SYSTEMS <100 M2 IS 1.5M FROM CENTRE TO CENTRE. FOR BIORETENTION SYSTEMS >100M2 THE MAXIMUM SPACING CAN BE INCREASED TO 2.0 -2.5M IF SPECIFIED IN THE CONSTRUCTION DRAWINGS
- 11.2.2. THE UNDER-DRAINS SHALL BE SLOPED TOWARDS THE OUTLET PIT (MIN. 0.5% LONGITUDINAL GRADE) AND THE BASE OF FILTRATION TRENCH SHALL BE FREE FROM LOCALISED DEPRESSIONS. FOR BIORETENTION SYSTEMS WITH A SATURATED ZONE A 0% PIPE GRADE IS ACCEPTABLE.
- 11.2.3. ALL JUNCTIONS AND CONNECTIONS SHALL BE APPROPRIATELY SEALED.
- 11.2.4. UNDER-DRAINAGE PIPES SHALL BE SEALED INTO THE OVERELOW PIT.
- 11.2.5. ALL UNDER DRAINAGE PIPES TO HAVE RAISED CLEAN OUT POINTS CONSTRUCTED. FROM NON-SLOTTED PIPES WHICH EXTEND TO 150mm ABOVE FILTER MEDIA SURFACE.

12. PERMEABLE LINER (WHERE SPECIFIED)

- 12.1. A PERMEABLE GEOTEXTILE LINER FABRIC MUST BE USED TO LINE THE OUTSIDE OF THE BIORETENTION SYSTEM.
- 12.2. THE LINER MUST EXTEND AT LEAST 500mm BEYOND THE TOP OF THE SIDES AND MUST BE KEYED INTO BATTER AND COVERED BY AT LEAST 200mm OF TOPSOIL
- 12.3. THE LINER MUST BE RESISTANT TO ALL SOIL ACIDS AND ALKALIS. RESISTANT TO MICROORGANISMS AND COMPLY WITH THE REQUIREMENTS OF AS3706.12 AND AS3706.13.

13. IMPERMEABLE LINER (WHERE SPECIFIED)

13.1. MATERIALS

LINER OPTIONS INCLUDE CLAY, GEOSYNTHETIC BENTONITE CLAY LINERS OR HIGH-DENSITY POLY ETHYLENE (HDPE) LINERS. REFER TO THE PROJECT DRAWINGS FOR LINER DETAILS.

13.2. INSTALLATION

INSTALLATION MUST BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND DESIGN DRAWINGS AND ACHIEVE THE FOLLOWING:

- 13.2.1. THE LINERS SHALL BE KEYED INTO THE BATTERS AND TO THE EMBANKMENTS.
- 13.2.2. LINERS MUST BE SEALED AROUND PROTRUSIONS SUCH AS OUTLET PIPES. 13.2.3 MUST ACHIEVE A MAXIMUM PERMEABILITY OF 1X10"9M/S

14. LANDSCAPING

- 14.0. REFER TO LANDSCAPE DESIGN DRAWINGS
- 14.1. BATTER SLOPES MUST HAVE MIN 200mm TOPSOIL WHICH MUST BE TESTED BY A NATA-ACCREDITED LABORATORY IN ACCORDANCE WITH AS 4419.
- 14.2. SUBSOILS TO BE CULTIVATED TO 150mm PRIOR TO PLACING TOPSOIL ON BATTER
- 14.3. PLANTING DENSITIES AND SPECIES MUST BE CONSISTENT WITH THE LANDSCAPE DESIGN DRAWINGS. NO SUBSTITUTIONS SHOULD BE MADE UNLESS APPROVED BY THE SUPERINTENDENT.

14.4. PLANTS SUPPLIED TO SITE MUST.

- 14.4.1. BE GROWN IN CLEAN, WEED-AND PEST-FREE CONDITIONS;
- 14.4.2. BE WELL DEVELOPED, SUN-HARDENED AND CONTAIN A FULLY ESTABLISHED ROOT BALL THAT DOES NOT CRUMBLE WHEN REMOVED FROM ITS CONTAINER
- 14.4.3. BE AT LEAST 200mm HIGH.
- 14.4.4. SHOW NO SIGN OF PEST AND DISEASE
- 14.4.5. SHOW NO SIGNS OF NUTRIENT DEFICIENCY. 14.4.6. BE FREE FROM WEEDS.

14.4.7. BE CLEARLY LABELLED.

- 14.4.8. BE SUPPLIED IN A CONTAINER THAT IS AT LEAST: 90mm HIGH X 50mm WIDE.
- 14.5. PREPARING FILTER MEDIA: UNLESS SPECIFIED OTHERWISE, EACH PLANT MUST RECEIVE AT LEAST 10G OF SLOW-RELEASE NATIVE FERTILIZER IN GRANULAR OR TABLET FORM. PRE-HYDRATED WATER CRYSTALS MAY BE APPLIED AT 1-2% BY
- 14.6. MULCH MUST BE APPLIED IN ACCORDANCE WITH THE DESIGN DRAWINGS, BE APPLIED PRIOR TO PLANTING, PROVIDE COVERAGE OF THE SOIL AND NOT EXCEED 75mm THICKNESS, AND BE KEPT 50mm CLEAR OF PLANT STEMS, LINLESS OTHERWISE SPECIFIED, MULCH SHOULD BE FINE SUGAR CANE MULCH SECURED IN PLACE BY A LOOSE WEAVE JUTE NET PINNED AT 500mm CENTRES.
- 14. 7. FILTER MEDIA SURFACE AND PLANT STOCK ARE TO BE WATERED IMMEDIATELY PRIOR TO PLANTING, UNLESS OTHERWISE SPECIFIED, PLANTS SHOULD BE PLANTED IN CLUMPS OF THE SAME SPECIES, AND LARGE MONOCUL TURES AVOIDED.
- 14.8. PLANT METHOD MUST MINIMISE SOIL COMPACTION AND ENSURE THAT ALL ROOTS ARE COVERED BY AT LEAST 10 -20mm OF SOIL, AVOID COVERING PLANT CROWNS
- 14.9. UNLESS SPECIFIED OTHERWISE, THE FOLLOWING IRRIGATION SCHEDULE APPLIES DURING PLANT ESTABLISHMENT (AT2.5-5L PER PLANT PER WEEK)

-WEEK 1-5 FIVE WATERINGS PER WEEK THREE WATERINGS PER WEEK -WEEK6-10

TWO WATERINGS PER WEEK -WEEK11-15

-THEREAFTER AS REQUIRED TO SUSTAIN PLANTS UNTIL SUCCESSFUL

ESTABLISHMENT 14.10. REPLANTING MUST OCCUR DURING THE ESTABLISHMENT PERIOD IF LESS THAN 90%

OF PLANTS SURVIVE 14.11. SUCCESSFUL PLANT ESTABLISHMENT IN BIORETENTION SYSTEMS IS CONSIDERED WHEN THE PLANTS ARE ROBUST AND SELF-SUSTAINING, AND MEET THE FOLLOWING

CRITERIA: -VEGETATION MUST COVER AT LEAST 90% OF THE BIORETENTION SURFACE WITH

MULCH COVERING THE REMAINDER(< 10% MULCH VISIBLE FROM ABOVE) -AVERAGE GROUNDCOVER PLANT HEIGHT MUST BE GREATER THAN 500mm

-PLANTS MUST BE HEAL THY AND FREE FROM DISEASE. -NO WEEDS OR LITTER TO BE PRESENT.

15. CERTIFICATION AND CHAIN OF CUSTODY

- 15.1. THE FOLLOWING CERTIFICATION AND THE CHAIN OF CUSTODY APPLIES TO BIORETENTION MEDIA
- 15.1.1. THE SUPPLIER AND CONTRACTOR ARE RESPONSIBLE FOR ENSURING THE BIORETENTION MEDIA MEETS THE SPECIFICATIONS OUTLINED IN THESE GUIDELINES AND THAT THE CORRECT MATERIAL IS DELIVERED TO SITE. THE SUPPLIER MUST ARRANGE FOR TESTING OF THE FILTER MEDIA BY A SOIL LABORATORY CERTIFIED FOR THE METHODS IN ACCORDANCE WITH THE REQUIREMENTS LISTED ABOVE. ON THE BASIS OF THE TESTING, THE SOIL LABORATORY AND SUPPLIER MUST CERTIFY THE MATERIAL MEETS THESE SPECIFICATIONS. THE SUPPLIER MUST PROVIDE THE CERTIFICATION AND LABORATORY TEST RESULTS TO THE CONTRACTOR WITH THE SUPPLY DOCKET.
- 15.1.2. THE CONTRACTOR PROVIDES A COPY OF THE SUPPLIER'S CERTIFICATION, TEST RESULTS AND SUPPLY DOCKET TO THE SITE SUPERINTENDENT OR BIORETENTION DESIGNER FOR REVIEW.
- 15.1.3. FOLLOWING REVIEW OF THE CERTIFICATION, TEST RESULTS AND THE SUPPLY DOCKET, THE SITE SUPERINTENDENT OR BIORETENTION DESIGNER APPROVES INSTALLATION OF THE BIORETENTION MEDIA.
- 15.1.4. THE RELEVANT SECTIONS OF THE BIORETENTION MEDIA SIGN-OFF FORM AS PER THE CONSTRUCTION AND ESTABLISHMENT GUIDELINES (WATER BY DESIGN) SHOULD BE COMPLETED AND SIGNED. THIS SIGN-OFF FORM IS PROVIDED AS PART OF THE CONSTRUCTION CERTIFICATION BY THE SITE SUPERINTENDENT OR BIORETENTION DESIGNER.

16. HOLD POINTS

- 16.1. THE FOLLOWING HOLD POINTS MUST BE OBSERVED IN ACCORDANCE WITH THE MOST RECENT WATER BY DESIGN CONSTRUCTION CHECKLISTS AND SUPERINTENDENT APPROVAL IS REQUIRED FOR WORKS TO PROCEED:
- 16.1.1. PRESTARTMEETING
- 16.1.2. COMPLETION OF HYDRAULIC STRUCTURES AND UNDER-DRAINAGE.
- 16.1.3 PRIOR TO PLACING FILTER MEDIA.
- 16.1.4. AFTER PLACEMENT OF FILTER MEDIA (PRIOR TO APPLYING MULCH
- 17. COMPLIANCE TESTING (FOR ON-MAINTENANCE OR OFF-MAINTENANCE)
- 17.1. COMPLIANCE TESTING MUST BE IN ACCORDANCE WITH CHAPTER 5 OF TRANSFERRING OWNERSHIP OF VEGETATED STORMWATER ASSETS (WATER BY DESIGN). CHECKLISTS MUST BE COMPLETED AND SIGNED BY THE

DISCLAIMER: IT IS THE RESPONSIBILITY OF THE CERTIFYING REGISTERED PROFESSIONAL ENGINEER TO ENSURE THESE STANDARD NOTES ARE ADAPTED TO THE SPECIFIC NEEDS OF THE PROJECT. IT IS EXPECTED THAT ADDITIONAL DRAWING NOTES WOULD BE REQUIRED TO COVER OTHER IMPORTANT PROJECT ISSUES (E.G. WORKPLACE HEALTH AND SAFETY. ENVIRONMENTAL PROTECTION, EROSION AND SEDIMENT CONTROL, ETC), HEALTHY WATERWAYS, IPWEA AND ALL CONTRIBUTORS TO THIS DOCUMENT ACCEPT NO LIABILITY FOR THE USE, MISUSE OR ANY OMISSION OR INACCURACY IN THIS DOCUMENT

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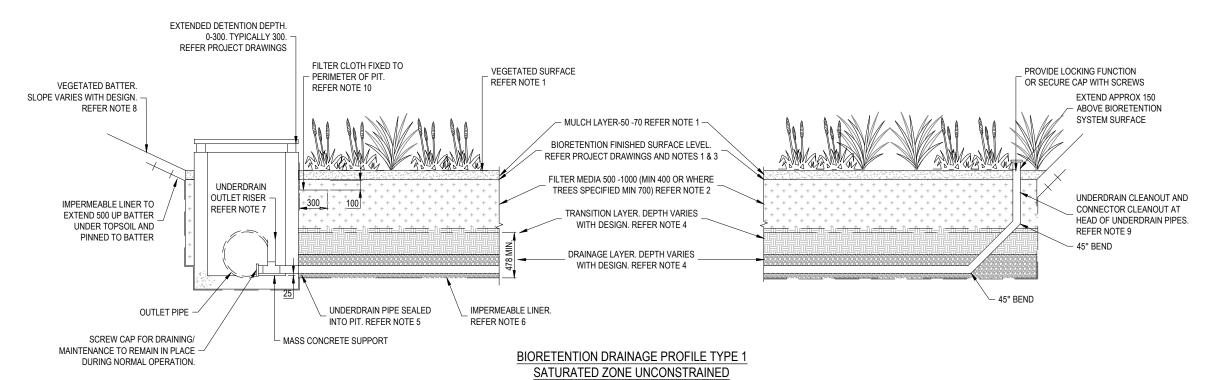
SOUTH AUSTRALIA GROWTH AREAS

BIORETENTION STANDARD NOTES

24-000479 DH-SW-6100

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FOR INFORMATION



NOT TO SCALE

NOTES:

- BIORETENTION SYSTEM SURFACE. SURFACE LEVEL IS TOP OF FILTER MEDIA. SURFACE TO BE MULCHED AND PLANTED AS PER PROJECT DRAWINGS AND THE 'BIORETENTION TECHNICAL DESIGN GUIDELINES' (WATER BY DESIGN).
- 2. FILTER MEDIA SPECIFICATION SHALL BE IN ACCORDANCE WITH THE 'ADOPTION GUIDELINES FOR STORMWATER BIOFILTRATION SYSTEMS (CRC FOR WATER SENSITIVE CITIES)' AND THE 'BIORETENTION TECHNICAL DESIGN GUIDELINES' (WATER BY DESIGN). BIORETENTION HYDRAULIC CONDUCTIVITY SHALL BE IN ACCORDANCE WITH 'PRACTICE NOTE 1: IN SITU MEASUREMENT OF HYDRAULIC CONDUCTIVITY' (FAWB. THE NUMBER OF SAMPLES TO BE TESTED SHALL BE IN ACCORDANCE WITH THE 'CONSTRUCTION AND ESTABLISHMENT GUIDELINES -SWALES, BIORETENTION SYSTEMS AND WETLANDS' (WATER BY DESIGN).
- CONSTRUCTION TOLERANCES SHALL BE IN ACCORDANCE WITH THE 'CONSTRUCTION AND ESTABLISHMENT GUIDELINES -SWALES, BIORETENTION SYSTEMS AND WETLANDS' (WATER BY DESIGN)
- TRANSITION LAYER AND DRAINAGE LA YER DEPTHS VARY WITH DESIGN. DEPTHS AND SPECIFICATION TO BE IN ACCORDANCE WITH PROJECT DRAWINGS AND THE BIORETENTION TECHNICAL DESIGN GUIDELINES' (WATER BY DESIGN).
- 5. UNDERDRAIN SLOTTED RIGID PIPE LAID FLAT. REFER TO PROJECT DRAWINGS FOR DIAMETER AND PIPE INVERT. PIPE SHOULD NOT BE INSTALLED WITH A FILTER SOCK SURROUNDING PIPE. UNDERDRAIN PIPES SHALL BE SEALED INTO PITS USING GROUT OR OTHER APPROVED WATERTIGHT SEAL.
- 6. IMPERMEABLE LINER. COMPACTED CLAY OR SYNTHETIC LINER WITH PERMEABILITY OF NO GREATER THAN 1 x 10-9M/S. IMPERMEABLE LINER TO BE SEALED AROUND ALL PROTRUSIONS. SYNTHETIC LINERS TO BE INSTALLED AND SEALED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. IMPERMEABLE LINER AS PER PROJECT DRAWINGS AND 'BIORETENTION TECHNICAL DESIGN GUIDELINES' (WATER BY DESIGN).
- UNDERDRAIN OUTLET RISER ESTABLISHES MAX SATURATED ZONE WATER LEVEL. UNDERDRAIN OUTLET RISER AS PER PROJECT DRAWINGS AND 'BIORETENTION TECHNICAL DESIGN GUIDELINES' (WATER BY DESIGN).
- VEGETATED BATTER. SLOPE AND PLANTING TO BE IN ACCORDANCE WITH PROJECT DRAWINGS AND 'BIORETENTION TECHNICAL DESIGN GUIDELINES' (WATER BY DESIGN).
- INSPECTION/CLEANOUT POINT. VERTICAL SOLID PIPE SECTION ATTACHED TO THE END OF EACH UNDERDRAIN IN ACCORDANCE WITH PROJECT DRAWINGS AND THE 'BIORETENTION TECHNICAL DESIGN GUIDELINES' (WATER BY DESIGN).
- FILTER CLOTH TO BE FIXED TO PERIMETER OF PIT TO AVOID RUNNELLING OF WATER BETWEEN PIT AND SOIL INTERFACE. BEGIN FILTER CLOTH 100 ABOVE SURFACE. EXTEND TO 100 BELOW SURFACE. CONTINUE 300 HORIZONTALLY INTO FILTER MEDIA.
- 11. FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO

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ALL MEASUREMENTS IN MILLIMETRES

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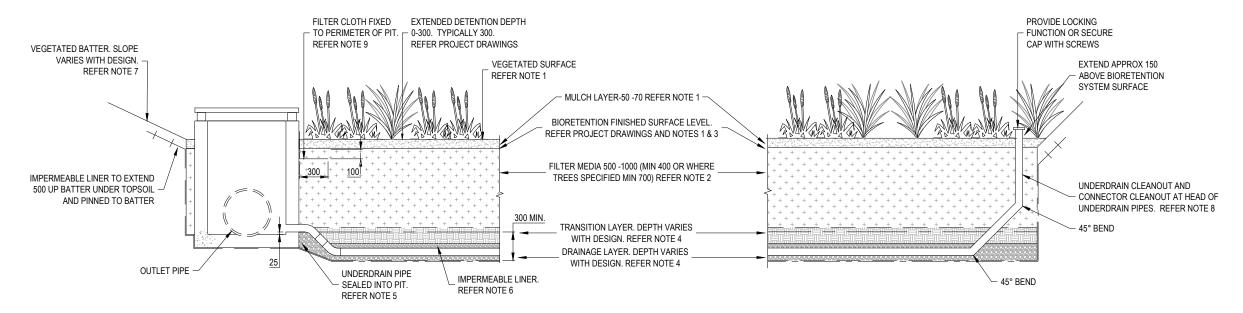
BIORETENTION DRAINAGE PROFILE TYPE SATURATED ZONE UNCONSTRAINED

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PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO
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NTRACTOR OINS ONLY, DO AMPED BY 24-000479 DH-SW-6101

- BIORETENTION SYSTEM SURFACE REFER NOTE 1 DH-SW-6101.
- FILTER MEDIA SPECIFICATION REFER NOTE 2 D DH-SW-6101.
- CONSTRUCTION TOLERANCES REFER NOTE 3 DH-SW-6101.
- TRANSITION LAYER AND DRAINAGE LAYER REFER NOTE 4 DH-SW-6101.
- UNDERDRAIN REFER NOTE 5 DH-SW-6101.
 IMPERMEABLE LINER REFER NOTE6 DH-SW-6101.
- VEGETATED BATTER REFER NOTE 8 DH-SW-6101.
- INSPECTION/CLEANOUT POINT REFER NOTE 9 DH-SW-6101.
- FILTER CLOTH REFER NOTE 10 DH-SW-6101.
- FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO



BIORETENTION DRAINAGE PROFILE TYPE 1 SATURATED ZONE CONSTRAINED NOT TO SCALE

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ALL MEASUREMENTS IN MILLIMETRES

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SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

BIORETENTION DRAINAGE PROFILE TYPE SATURATED ZONE CONSTRAINED

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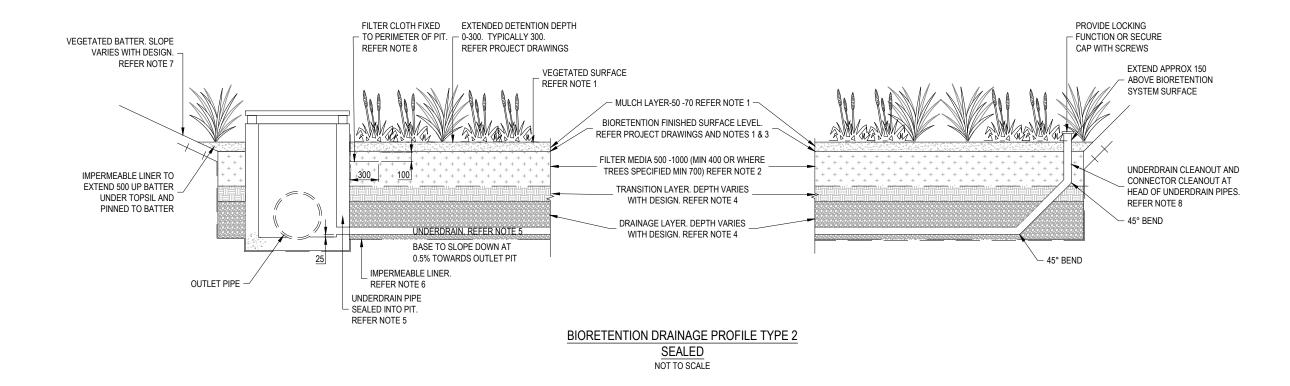
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- BIORETENTION SYSTEM SURFACE. REFER NOTE 1 DH-SW-6101.
- FILTER MEDIA SPECIFICATION. REFER NOTE 2 DH-SW-6101.
- CONSTRUCTION TOLERANCES. REFER NOTE 3 DH-SW-6101.
- TRANSITION LAYER AND DRAINAGE LAYER. REFER NOTE 4 DH-SW-6101.
- UNDERDRAIN. REFER NOTE 5 DH-SW-6101.
- IMPERMEABLE LINER. REFER NOTE 6 DH-SW-6101.
- VEGETATED BATTER. REFER NOTE 8 DH-SW-6101.
- INSPECTION/CLEANOUT POINT. REFER NOTE 9 DH-SW-6101.
- FILTER CLOTH REFER NOTE 10 DH-SW-6101.
- FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO



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ALL MEASUREMENTS IN MILLIMETRES

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SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

BIORETENTION DRAINAGE PROFILE TYPE 2 - SEALED

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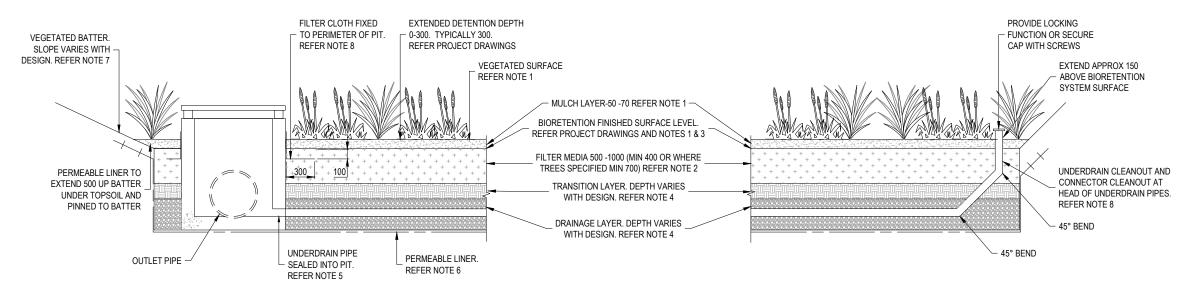
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RIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO

T SCALE, NOT FOR CONSTRUCTION UNLESS STAMPED BY
ESTIEVANCE AUTHORITY.

24-000479 DH-SW-6103

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- BIORETENTION SYSTEM SURFACE. REFER NOTE 1 DH-SW-6101.
- FILTER MEDIA SPECIFICATION. REFER NOTE 2 DH-SW-6101.
- CONSTRUCTION TOLERANCES. REFER NOTE 3 DH-SW-6101.
- TRANSITION LAYER AND DRAINAGE LAYER .REFER NOTE 4 DH-SW-6101.
- UNDERDRAIN. REFER NOTE 5 DH-SW-6101.
- PERMEABLE LINER. NON-WOVEN GEOTEXTILE FILTER CLOTH TO BASE AND SIDES OF BIORETENTION SYSTEM. FILTER CLOTH NOT TO BE PLACED BETWEEN ANY FILTER LAYERS. PERMEABLE LINER AS PER PROJECT DRAWINGS AND 'BIORETENTION TECHNICAL DESIGN GUIDELINES' (WATER BY DESIGN).
- VEGETATED BATTER REFER NOTE 8 DH-SW-6101.
- INSPECTION/CLEANOUT POINT. REFER NOTE 9 DH-SW-6101.
- FILTER CLOTH REFER NOTE 10 DH-SW-6101.
- FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO



BIORETENTION DRAINAGE PROFILE TYPE 3 CONVENTIONAL

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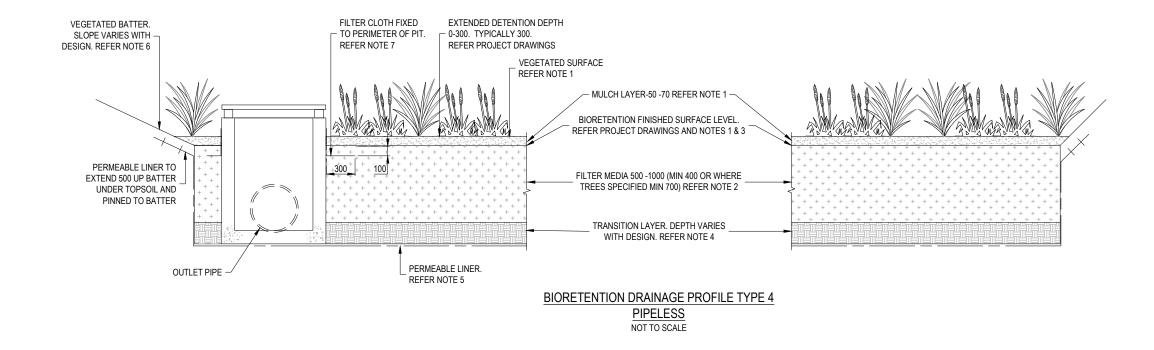
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- BIORETENTION SYSTEM SURFACE. REFER NOTE 1 DH-SW-6101.
 FILTER MEDIA SPECIFICATION. REFER NOTE 2 DH-SW-6101.
 CONSTRUCTION TOLERANCES. REFER NOTE 3 DH-SW-6101.
 TRANSITION LAYER DEPTH VARIES WITH DESIGN. DEPTH AND
 SPECIFICATION TO BE IN ACCORDANCE WITH PROJECT DRAWINGS
 AND THE BIORETENTION TECHNICAL DESIGN GUIDELINES' (WATER BY

- DESIGN).
 PERMEABLE LINER. REFER NOTE 6 DH-SW-6104.
 VEGETATED BATTER. REFER NOTE 8 DH-SW-6100.
 FILTER CLOTH REFER NOTE 10 DH-SW-6101.
 FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO DH-SW-6100.



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ALL MEASUREMENTS IN MILLIMETRES

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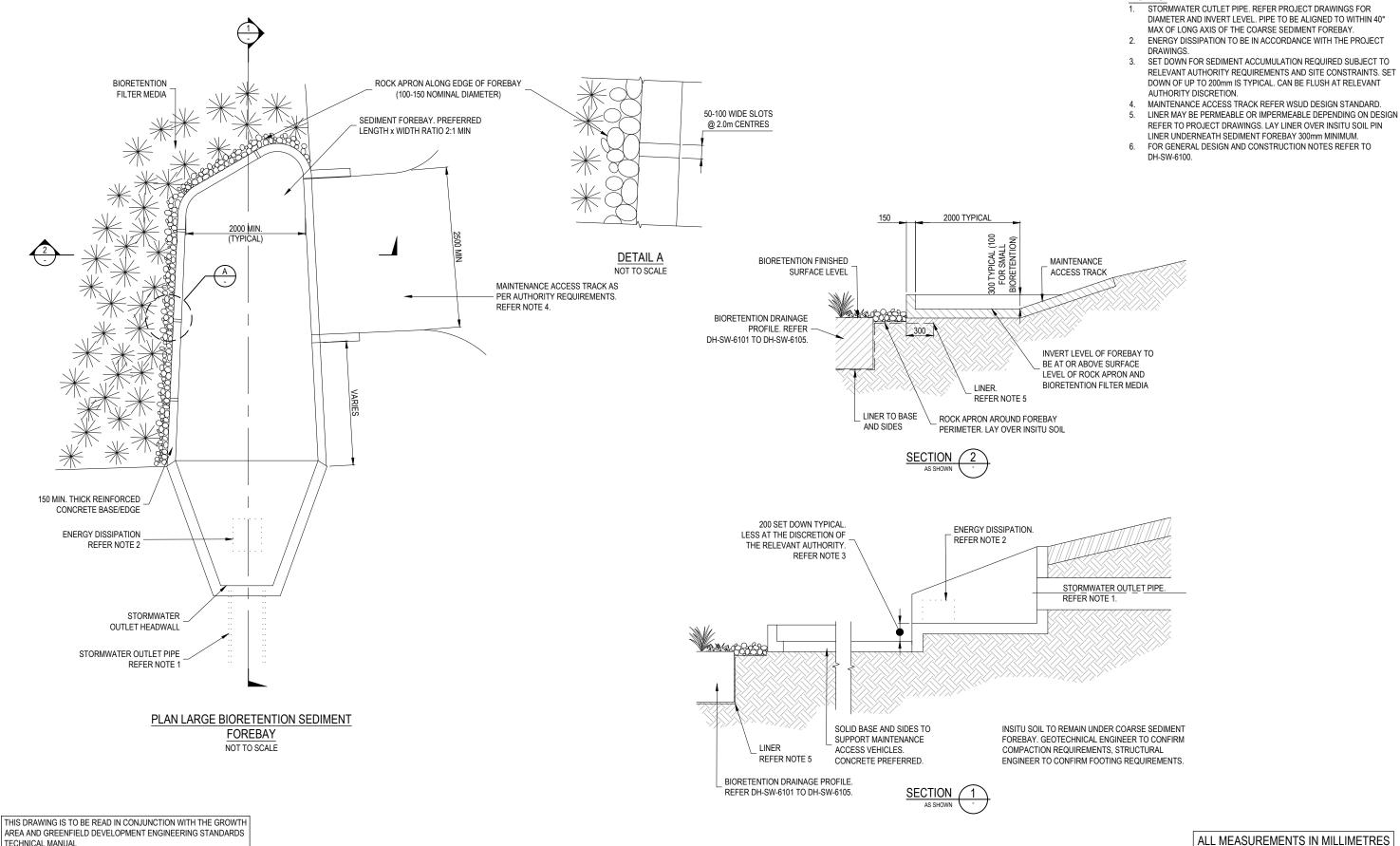
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

BIORETENTION DRAINAGE PROFILE TYPE 4 - PIPELESS

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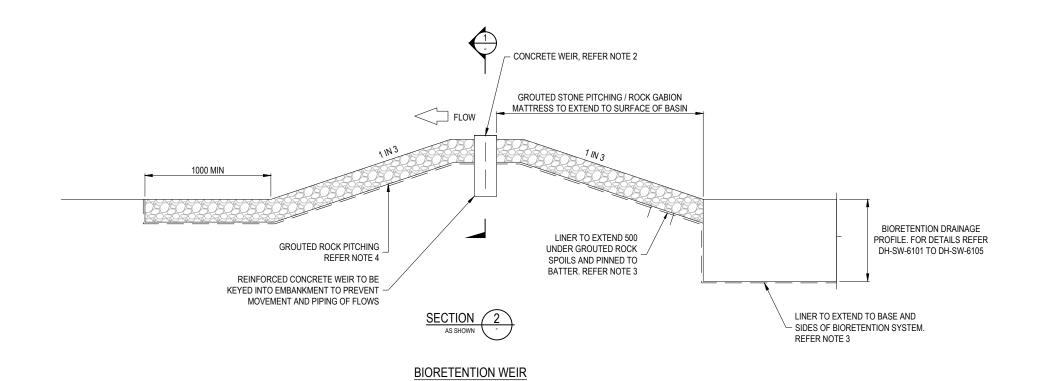
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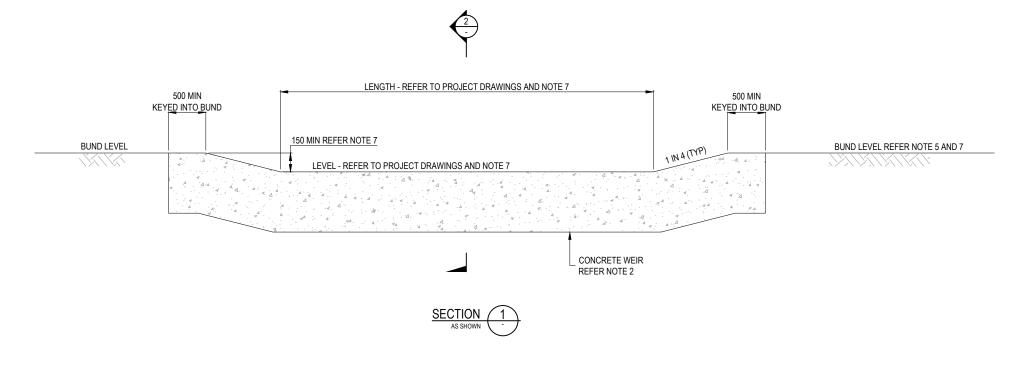
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LO DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR RIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, EDITIONS ONLY, EDITIONS ON THE CONSTRUCTION UNLESS STAMPED BY STEPHING AUTHORITY.

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ALL MEASUREMENTS IN MILLIMETRES

INSITU MATERIAL TO BE TESTED AND APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO WEIR CONSTRUCTION. CONCRETE WEIR - 300 WIDEx600 DEEP CONCRETE (N32) WITH SL82 MESH 2 PLACED CENTRALLY. LINER. PERMEABLE OR IMPERMEABLE DEPENDING ON DESIGN.

LINER. PERMEABLE OR IMPERMEABLE DEPENDING ON DESIGN.
 REFER TO DH-SW-6101 TO DH-SW-6105.
 GROUTED ROCK PITCHING -STONES 75-100, 300 THICK ON FILTER CLOTH, REFER NOTE 3. REFER LANDSCAPE DRAWINGS AND PROJECT DRAWINGS FOR PLANT SPECIFICATION AND DETAILS. GEOTECHNICAL

ENGINEER TO CONFIRM COMPACTION REQUIREMENTS FOR BUND

CONSTRUCTION TOLERANCES AS DOCUMENTED IN THE 'WATER SENSITIVE URBAN DESIGN CONSTRUCTION AND ESTABLISHMENT

6. FOR EXTENT AND DETAILS OF SCOUR PROTECTION REFER TO

BUND LEVEL, REFER TO PROJECT DRAWINGS FOR MINIMUM FREEBOARD REQUIREMENTS. BUND LEVELS MUST BE NOTED ON

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.

FOR ROCK GABION MATTRESS, REFER PROJECT DRAWINGS FOR ALL

SPECIFICATIONS INCLUDING DIMENSIONS, MESH COATING MATERIAL

AND THICKNESS, ROCK SELECTION AND LINER SELECTION. WHERE

NECESSARY, GABIONS MAY BE REQUIRED TO BE MECHANICALLY

SECURED THROUGH OTHER METHODS, TO BE SPECIFIED BY THE

CONNECTED TOGETHER THROUGH THE CONCRETE WEIR OR

DESIGN ENGINEER. REFER PROJECT DRAWINGS FOR GABION

CONNECTION AND SECUREMENT DETAILS.

GUIDELINES -SWALES, BIORETENTION SYSTEMS AND WETLANDS' (WATER BY DESIGN) MUST BE ACHIEVED. CONSTRUCTION TOLERANCES AND BUND LEVELS MUST BE NOTED ON PROJECT

SUBSOIL.

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PROJECT DRAWINGS.

PROJECT DRAWINGS.

AMENDMENT DETAILS FOR INFORMATION Government of South Australia 27/03/25 CLIENT SUBMISSION Department for Housing

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

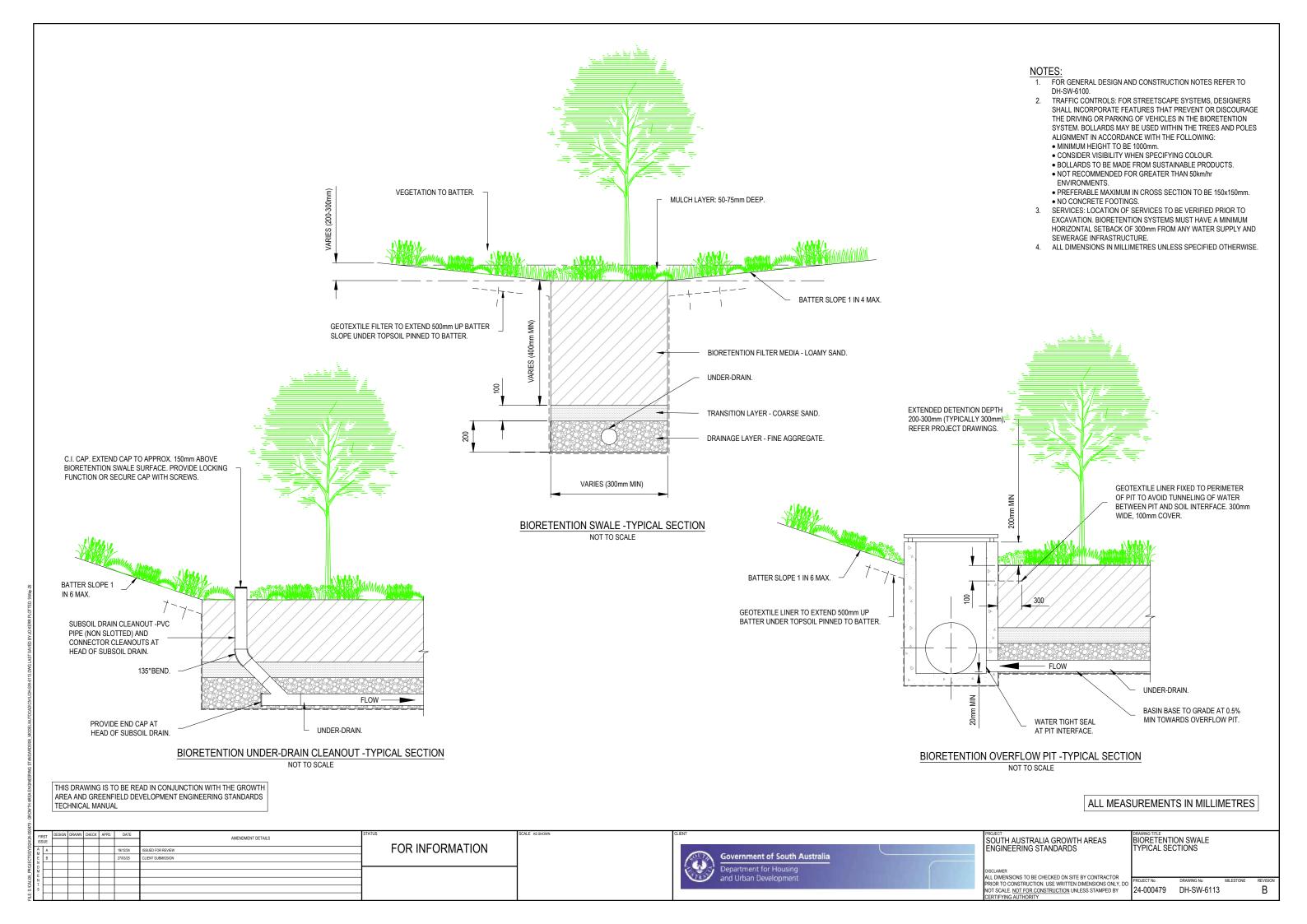
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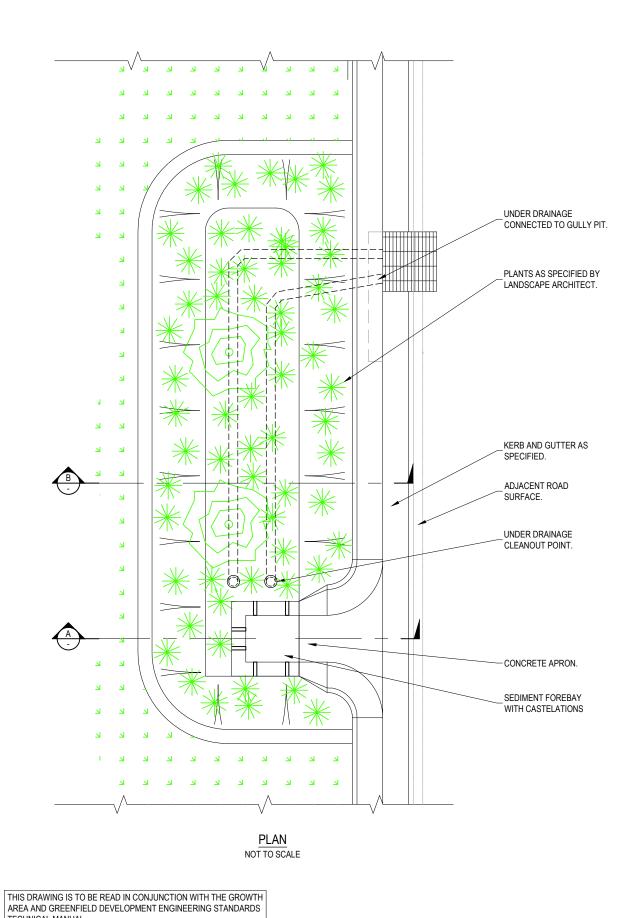
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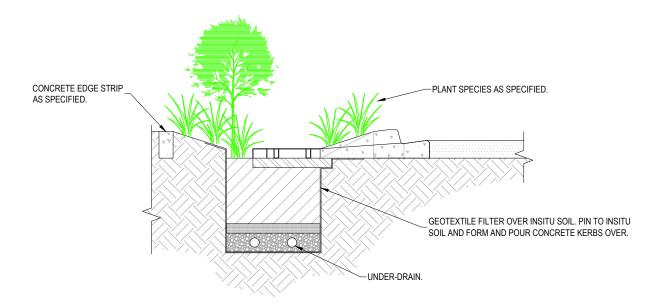
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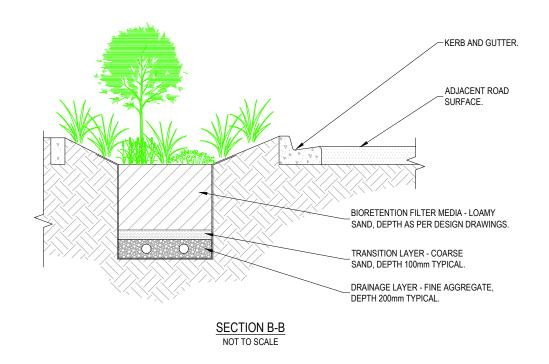
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SECTION A-A NOT TO SCALE



ALL MEASUREMENTS IN MILLIMETRES

FIRST SIZE DESIGN DRAWN CHECK APPO. DATE AMENDMENT DETAILS

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TECHNICAL MANUAL

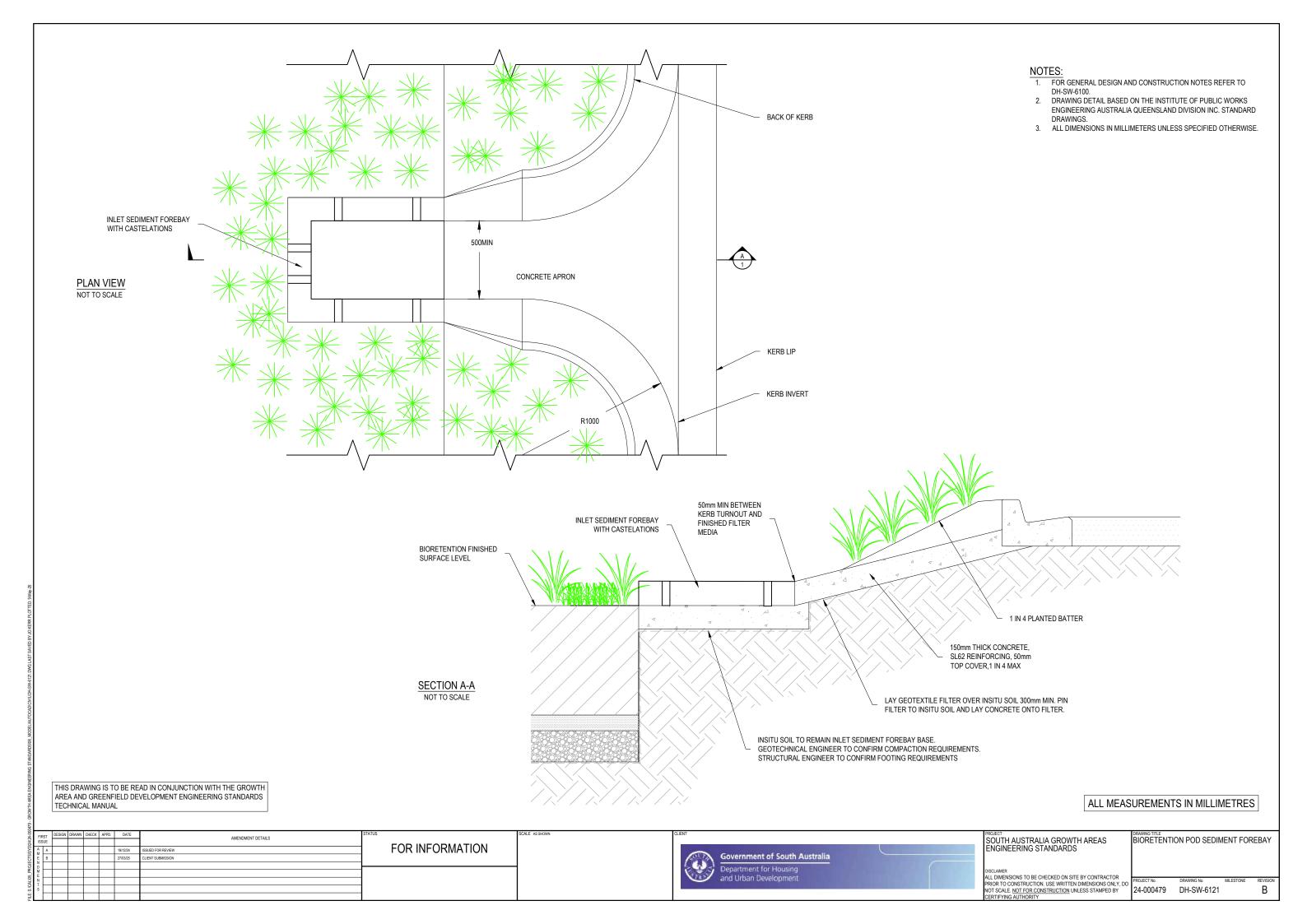


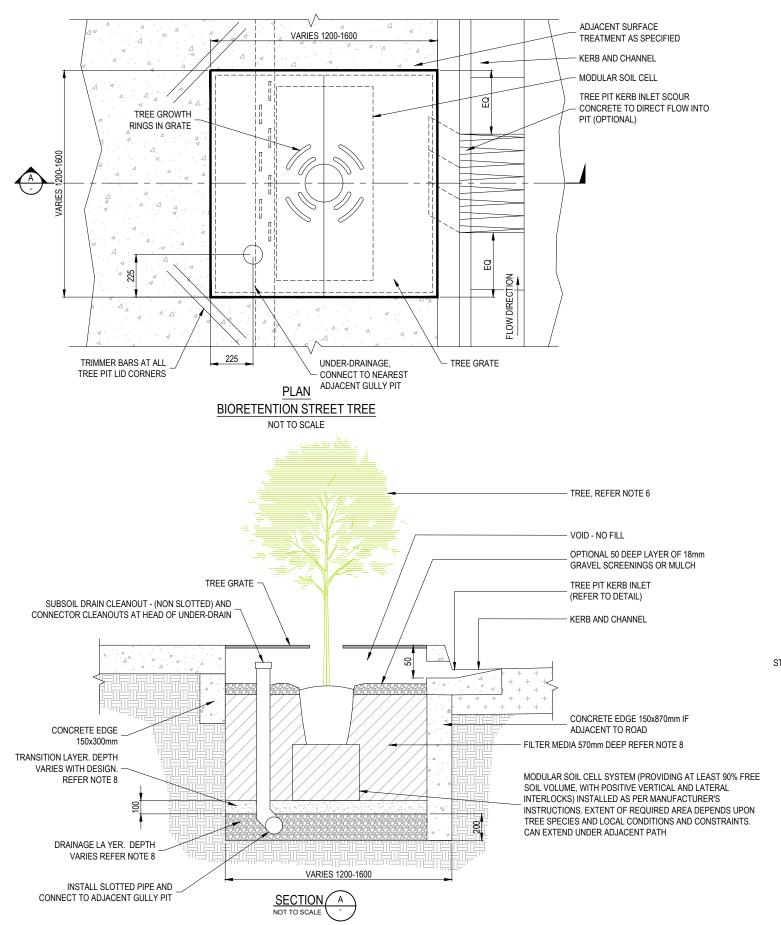
PROJECT
SOUTH AUSTRALIA GROWTH AREAS
ENGINEERING STANDARDS

STREETSCAPE BIORETENTION

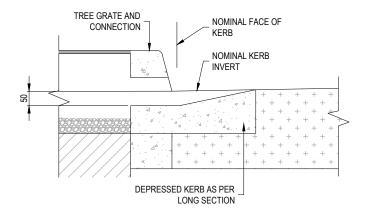
DISCLAIMER
ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR
PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY, DO
NOT SCALE. NOT FOR CONSTRUCTION UNLESS STAMPED BY
CERTIFYING AUTHORITY

PROJECT No. DRAWING No. MILESTONE REVISION B



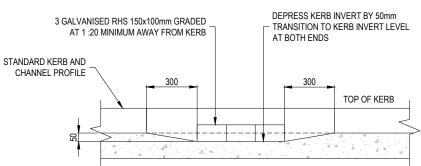


- 1. FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO DH-SW-6100.
- WSUD KERB SHOWN IS ONLY SUITABLE FOR STREET TREE PITS AND SMALL RAINGARDENS. LARGER SYSTEMS MAY NEED SPECIFIC INLET DESIGN OR MULTIPLE INLETS.
- WHERE NO PARKING LANE EXISTS, RHS KERB INLET MAY BE REPLACED BY AN OPEN KERB CUT.
 ENSURE TREE PIT DRAINAGE IS CONNECTED TO STORMWATER
- SYSTEM TO AVOID FLOODING THE TREE.
- TREE PITS ARE TO BE LOCATED UPSTREAM OF GULLY PITS.
- STREET TREE TO BE APPROPRIATE FOR TRAFFIC SIGHT LINES.
- FILTER MEDIA SPECIFICATION SHALL BE IN ACCORDANCE WITH THE 'GUIDELINES FOR SOIL FILTER MEDIA IN BIORETENTION SYSTEMS'. (FAWB) AND THE 'BIORETENTION TECHNICAL DESIGN GUIDELINES', (WATER BY DESIGN). BIORETENTION HYDRAULIC CONDUCTIVITY SHALL BE IN ACCORDANCE WITH 'PRACTICE NOTE 1: INSITU MEASUREMENT OF HYDRAULIC CONDUCTIVITY' (FAWB). THE NUMBER OF SAMPLES TO BE TESTED SHALL BE IN ACCORDANCE WITH THE 'CONSTRUCTION AND ESTABLISHMENT GUIDELINES -SWALES, BIORETENTION SYSTEMS AND WETLANDS' (WATER BY DESIGN).
- TRANSITION LA YER AND DRAINAGE LA YER SPECIFICATIONS TO BE IN ACCORDANCE WITH BIORETENTION TECHNICAL DESIGN GUIDELINES (WATER BY DESIGN).
- ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.



TREE PIT KERB INLET TYPICAL SECTION

NOT TO SCALE



TREE PIT KERB INLET ELEVATION NOT TO SCALE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENT DETAILS FOR INFORMATION Government of South Australia 27/03/25 CLIENT SUBMISSION Department for Housing



SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

BIORETENTION STREET TREE

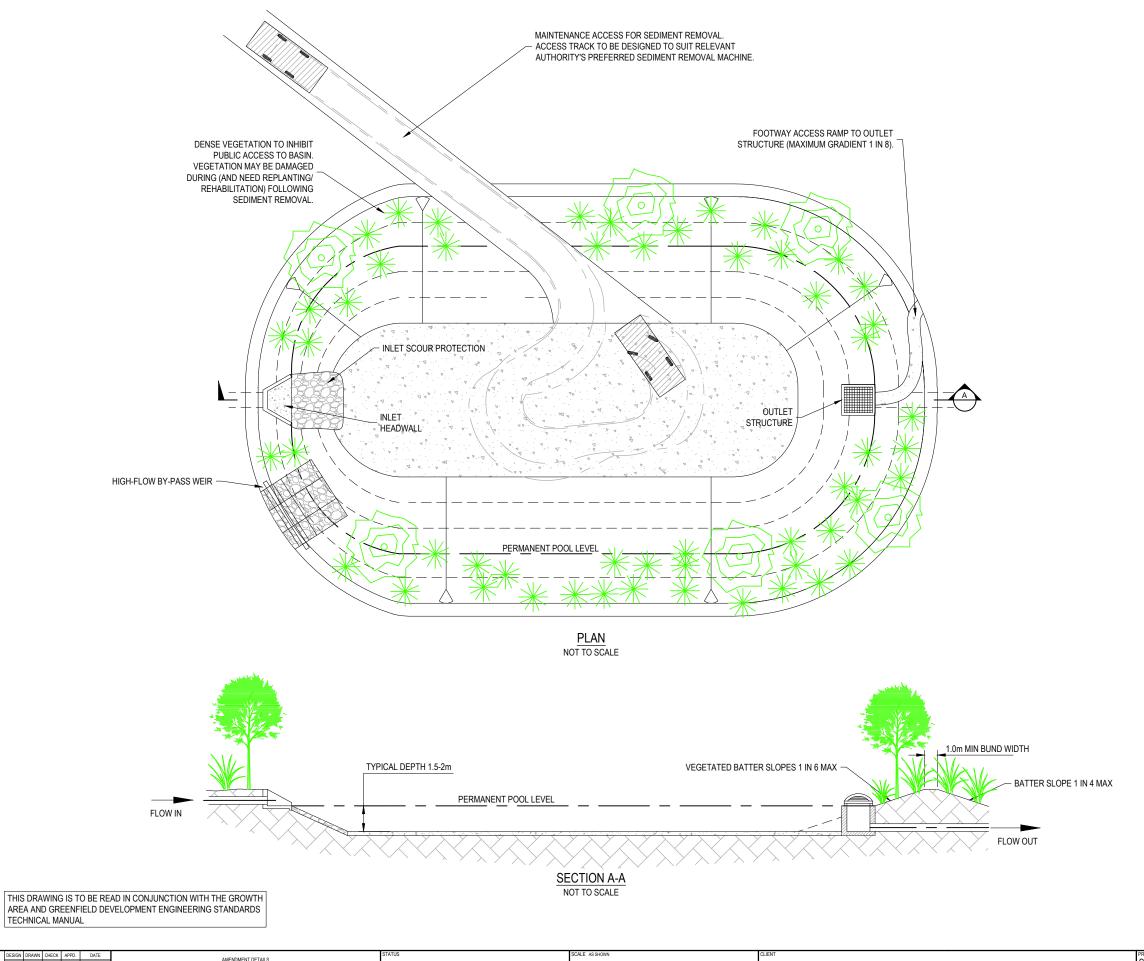
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TECHNICAL MANUAL

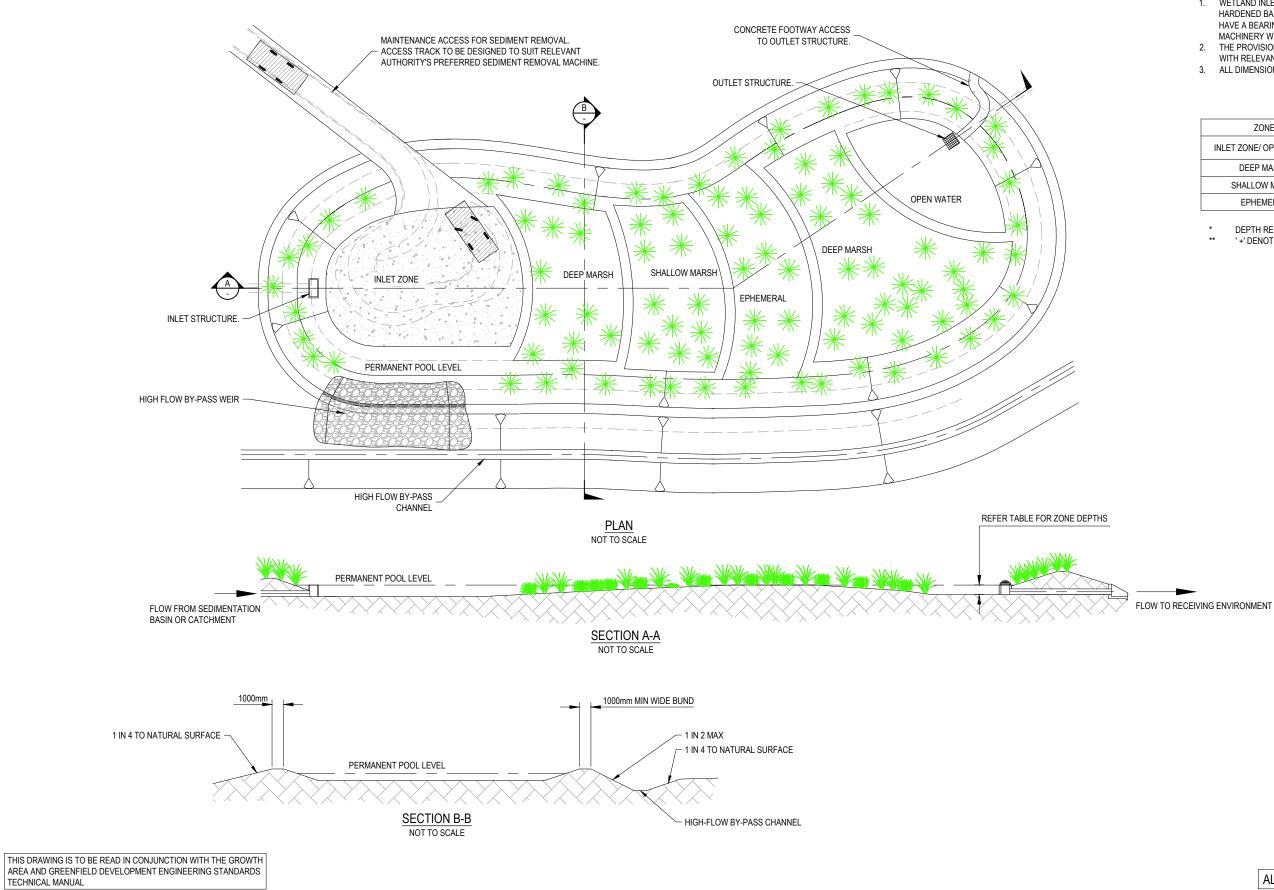
NOTES:

- 1. SEDIMENT BASIN SHALL INCLUDE A HARDENED BASE CAPABLE OF SUPPORTING MAINTENANCE EQUIPMENT AND PROVIDING A CLEAR INDICATION OF THE BASIN FLOOR DURING MAINTENANCE.
 REFER PROJECT DRAWINGS FOR SPECIFICATIONS.
 DRAINAGE REQUIREMENTS FOR SEDIMENT BASIN TO BE CONFIRMED WITH RELEVANT AUTHORITY.

 ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.

ALL MEASUREMENTS IN MILLIMETRES

SEDIMENT BASIN
TYPICAL PLAN AND SECTION AMENDMENT DETAILS SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS FOR INFORMATION Government of South Australia 27/03/25 CLIENT SUBMISSION Department for Housing JISCLAIMER
ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR
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- WETLAND INLET ZONE SHALL BE CONSTRUCTED WITH A
 HARDENED BASE TO ASSIST WITH MAINTENANCE. THE BASE MUST
 HAVE A BEARING CAPACITY TO SUPPORT MAINTENANCE
 MACHINERY WHEN ACCESS IS REQUIRED INTO THE BASIN.
 THE PROVISION FOR A MAINTENANCE DRAIN SHALL BE CONFIRMED
 WITH DELEVANT AUTHORITY.
- WITH RELEVANT AUTHORITY.
- ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.

ZONE	DEPTH* (M)
INLET ZONE/ OPEN WATER	0.5 TO 1.5
DEEP MARSH	0.35 TO 0.5
SHALLOW MARSH	0.2 TO 0.35
EPHEMERAL	0.0 TO +0.2**

DEPTH REFERS TO DEPTH BELOW PERMANENT POOL LEVEL.

'+' DENOTES LEVEL ABOVE PERMANENT POOL LEVEL.

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENT DETAILS FOR INFORMATION Government of South Australia 27/03/25 CLIENT SUBMISSION Department for Housing

TECHNICAL MANUAL

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

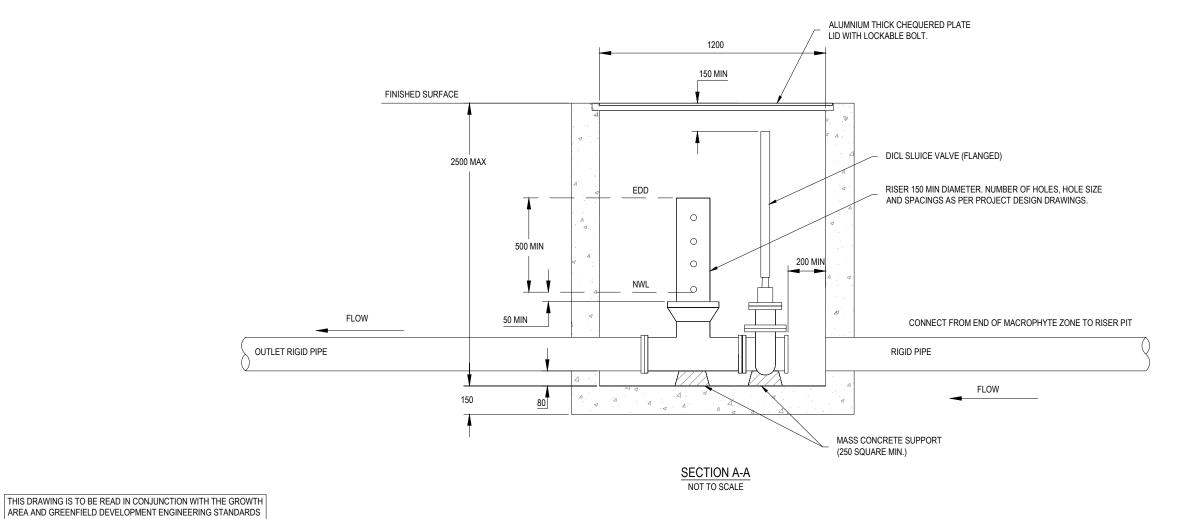
CONSTRUCTED WETLAND
TYPICAL PLAN AND SECTIONS

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LE DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR
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CONCRETE PIT. REFER NOTE 5. DICL SLUICE VALVE (FLANGED) FLOW FLOW DICL TEE (FLANGED) <u>PLAN</u> NOT TO SCALE



ALL MEASUREMENTS IN MILLIMETRES

AMENDMENT DETAILS FOR INFORMATION 27/03/25 CLIENT SUBMISSION

TECHNICAL MANUAL



SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

NOTES:

INVERT LEVEL.

1. REFER TO PROJECT DRAWINGS FOR RIGID PIPE DIAMETER AND

DICL SLUICE VALVE, REFER PROJECT DRAWINGS FOR VALVE SIZE. VALVE TO REMAIN IN CLOSED POSITION FOR NORMAL OPERATION. VALVE TO BE OPENED TO LOWER THE WATER LEVEL FOR MAINTENANCE OF THE WETLAND, BIORETENTION SYSTEM OR SEDIMENTATION BASIN.

SEDIMENTATION BASIN.
RISER RIGID PIPE CL16, REFER TO PROJECT DRAWINGS FOR
HOLES SIZES AND LOCATIONS. HOLE SIZE AND NUMBER AS PER
RELEVANT SECTION OF "WATER SENSITIVE URBAN DESIGN
TECHNICAL DESIGN GUIDELINES" (WATER BY DESIGN).

FOR PITS OVER 2500mm IN DEPTH, REFER PROJECT DRAWINGS

FOR PIT DIMENSIONS AND REINFORCING DETAILS. CONCRETE N25 IN ACCORDANCE WITH AS1379 AND AS3600. ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.

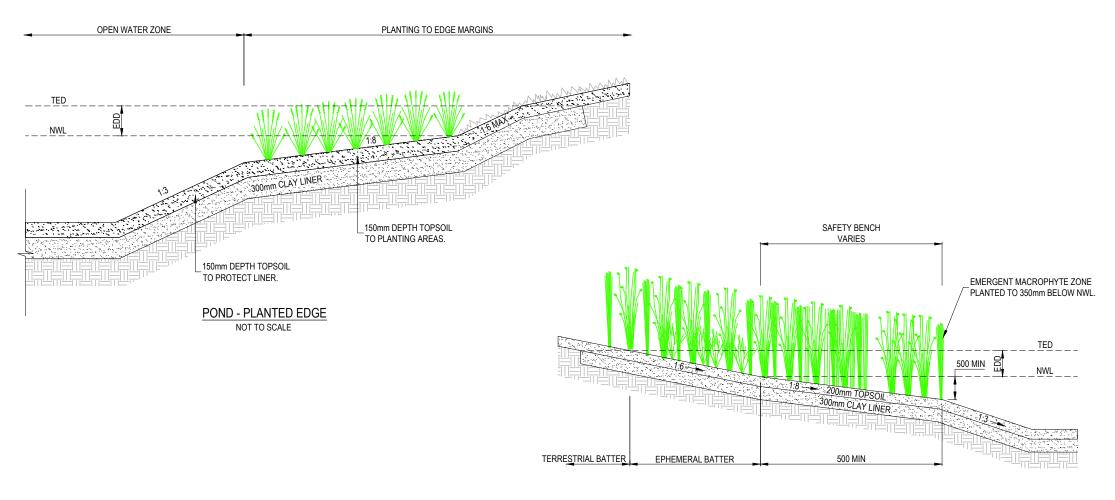
WETLAND LOW FLOW RISER OUTLET

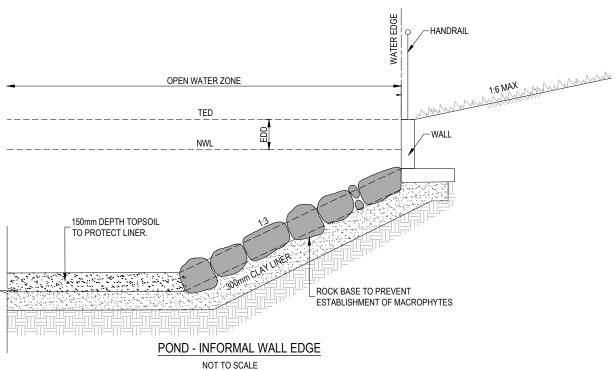
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WETLAND - PLANTED EDGE NOT TO SCALE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

ALL MEASUREMENTS IN MILLIMETRES

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GOVERNment of South Australia
Department for Housing and Urban Development

FOR INFORMATION

FOR INFORMATION

STATUS

GOVERNment of South Australia
Department for Housing and Urban Development

DISCLAMER
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TYPICAL POND/WETLAND
EDGE TREATMENTS

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TYPICAL POND/WETLAND
EDGE TREATMENTS

DESCRIPTION OF CONSTRUCTION, UNLESS STAMPED BY ON SCALE APPOIL DATE

TYPICAL POND/WETLAND
EDGE TREATMENTS

PROJECT NO. DRAWING NO. MILESTONE REVISION
24-000479 DH-SW-6230 B

DESCRIPTION OF CONSTRUCTION, UNLESS STAMPED BY

TYPICAL POND/WETLAND
EDGE TREATMENTS

TYPICAL POND/WETLAND
EDGE TREATMENTS

TYPICAL POND/WETLAND
EDGE TREATMENTS

DESCRIPTION OF CONSTRUCTION, UNLESS STAMPED BY

TYPICAL POND/WETLAND
EDGE TREATMENTS

DESCRIPTION OF CONSTRUCTION UNLESS STAMPED BY

TYPICAL POND/WETLAND
EDGE TREATMENTS

TYPICAL POND/WETLAND
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TYPICAL POND/WETLAND
EDGE TREATMENTS

DESCRIPTION OF CONSTRUCTION UNLESS STAMPED BY

TYPICAL POND/WETLAND
EDGE TREATMENTS

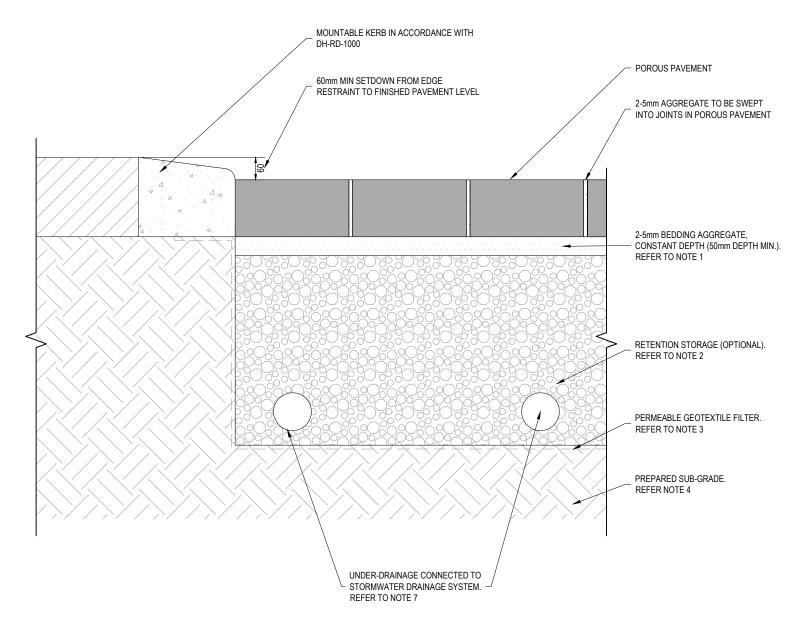
TYPICAL POND/WETLAND

TYPICAL POND/WETLAND

TYPICAL POND/WETLAND

TYPICAL POND/WETLAND

TYPICAL POND



POROUS PAVEMENT TYPICAL SECTION NOT TO SCALE

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE GROWTH AREA AND GREENFIELD DEVELOPMENT ENGINEERING STANDARDS TECHNICAL MANUAL

AMENDMENT DETAILS FOR INFORMATION 27/03/25 CLIENT SUBMISSION



NOTES:

- BEDDING AGGREGATE MATERIAL SHALL MEET MATERIAL AND GRADING COMPATIBILITY CRITERIA IN TECHNICAL SPECIFICATION FOR THE WORKS AND/ OR THE PAVEMENT MANUFACTURER'S
- TECHNICAL SPECIFICATIONS.

 2. THE RETENTION STORAGE MEDIA SHALL COMPRISE COARSE, SOUND, CLEAN STONE OR ROCK OF GENERALLY UNIFORM PARTICLE SIZE (TYPICALLY 10-63mm SIZE) AND FREE FROM SILT/CLAY FINES OR OTHER DELETERIOUS MATTER, OR AS SPECIFIED IN THE PAVEMENT MANUFACTURE'S TECHNICAL SPECIFICATION.
- NON-WOVEN GEOTEXTILE FILTER MEDIA NOT TO BE PLACED BETWEEN ANY FILTER LAYERS. IMPERVIOUS LINER MAY BE REQUIRED SUBJECT TO SOIL TESTING REQUIREMENTS IN ACCORDANCE WITH THE 'WATER SENSITIVE URBAN DESIGN TECHNICAL GUIDELINES' (WATER BY DESIGN).
- SUB-GRADE TO BE RIPPED/ HARROWED PRIOR TO PLACEMENT OF GEOTEXTILE FILTER.
- WHERE POSSIBLE, ANY RUNOFF DIRECTED TO POROUS PAVEMENTS SHALL BE PRE-TREATED TO REMOVE COARSE TO MEDIUM SEDIMENTS.
- REFER TO MANUFACTURE'S SPECIFICATION FOR MAXIMUM TRAFFIC LOADING.
- UNDER-DRAINAGE -SLOTTED PVC PIPE (uPVC OR SIMILAR TO AS2439.1) OR APPROVED EQUIVALENT, 0.5% MINIMUM GRADE, INSTALLED AT 1500mm MAXIMUM CENTRES. DIAMETER TYPICALLY 100-500mm. PIPE JOINS SHOULD BE GLUED WITH PLUMBING CEMENT. UNDER-DRAINAGE PIPE SHALL BE SEALED INTO PITS USING GROUT OR OTHER APPROVED WATERTIGHT SEAL. 50mm DRAINAGE LAYER (FINE AGGREGATE) COVER OVER SLOTTED PIPE.
- POROUS PAVEMENT CAN PROVIDE AN ALTERNATIVE TO CONVENTIONAL IMPERMEABLE PAVEMENT IN LOCATIONS SUCH AS COMMERCIAL CAR PARK BAYS, RESIDENTIAL OR LIGHT COMMERCIAL DRIVEWAYS, INDUSTRIAL STORAGE AREAS OR LOADING ZONES, FOOTPATHS, CYCLEWAYS, PARKING PADS (E.G. MAINTENANCE ACCESS) AND TREE PIT SURROUNDS. THE FOLLOWING AREAS, HOWEVER, ARE NOT SUITABLE FOR PERMEABLE PAVING SYSTEMS:
- WHERE A WATER TABLE IS LOCATED WITHIN 2m OF THE PROPOSED PAVEMENT SURFACE.
- AREAS WITH HIGH TRAFFIC VOLUMES OR WITH REGULAR HEAVY VEHICLE TRAFFIC.
- LOCATIONS WITH CLAY SOILS OR SOILS WITH A HYDRAULIC CONDUCTIVITY OF LESS THAN 0.36mm/hr
- AREAS WHERE IMPERMEABLE ROCK IS LOCATED WITHIN 2m OF THE PROPOSED PAVEMENT SURFACE.

- LOCATIONS SUBJECT TO RUN-OFF WITH A HIGH SEDIMENT LOAD. ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE. REFER PROJECT DRAWINGS FOR ALL DIMENSIONS, SPECIFICATIONS AND MATERIAL SELECTION.

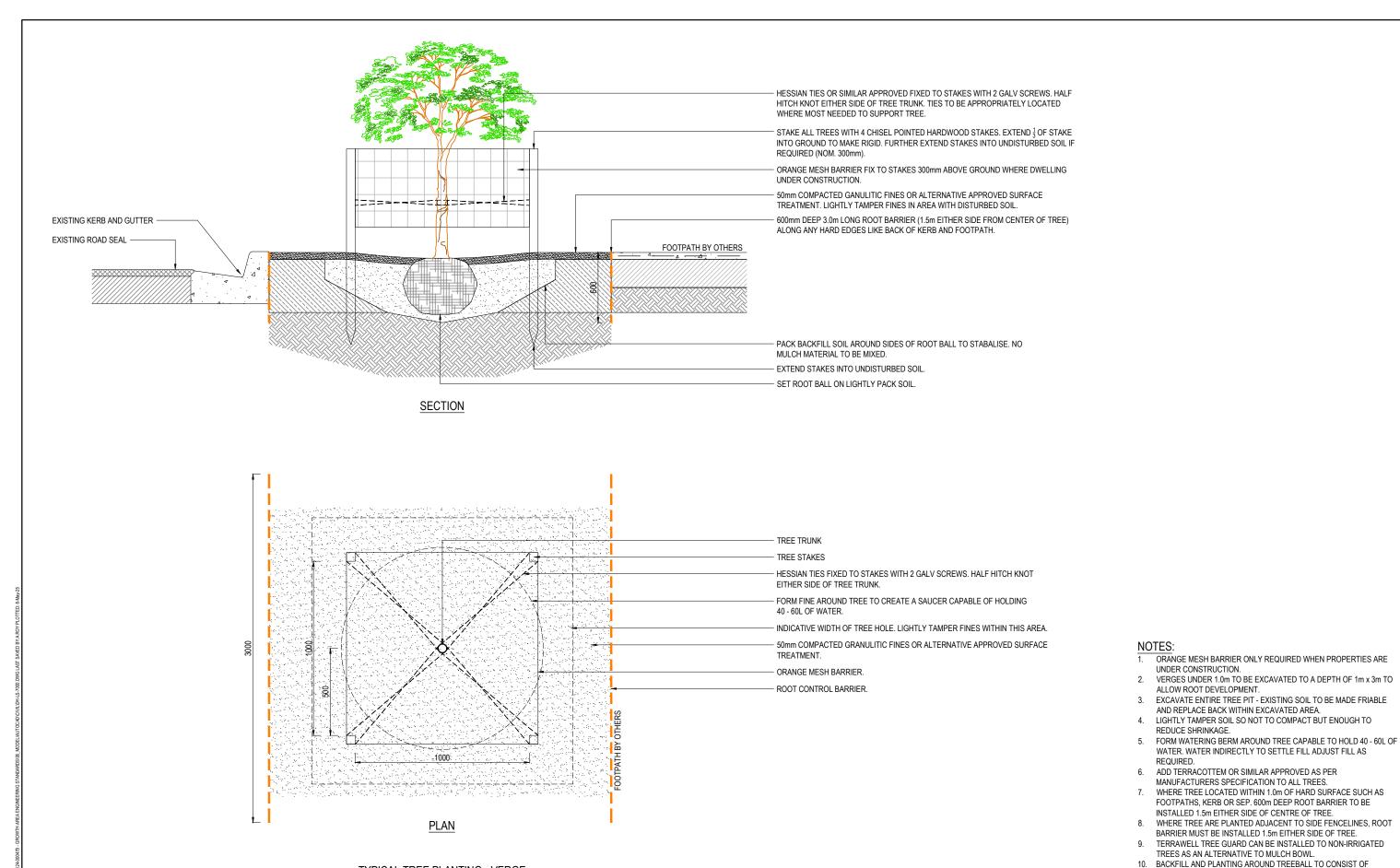
ALL MEASUREMENTS IN MILLIMETRES

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

PORUS PAVEMENT – TYPICAL SECTION

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TYPICAL TREE PLANTING - VERGE

NON-IRRIGATED

AMENDMENT DETAILS FOR INFORMATION 04/04/25 CLIENT SUBMISSION 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8



ALL MEASUREMENTS IN MILLIMETRES

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

TYPICAL TREE PLANTING VERGE DETAIL (NON IRRIGATED)

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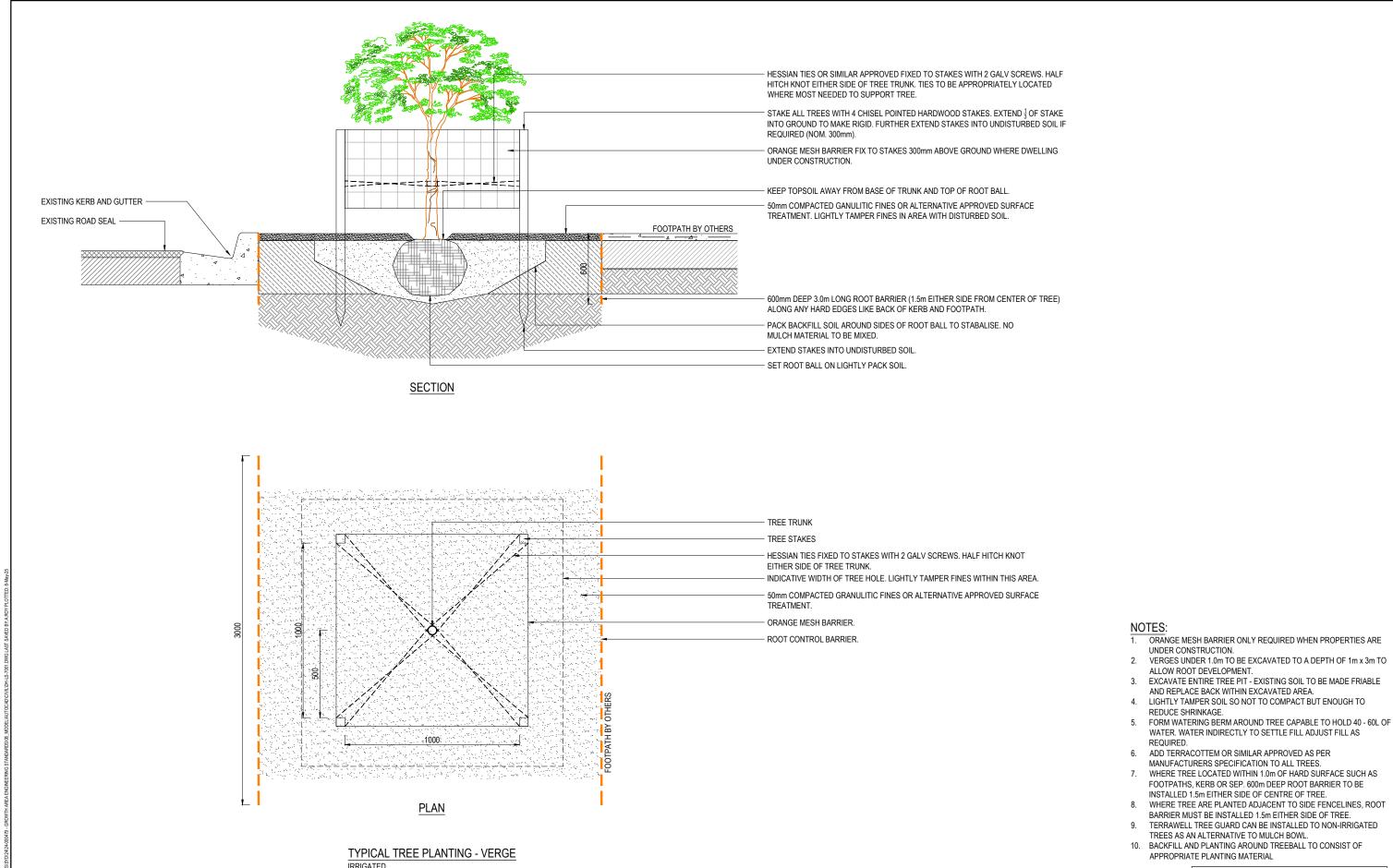
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APPROPRIATE PLANTING MATERIAL



ALL MEASUREMENTS IN MILLIMETRES

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AMENDMENT DETAILS FOR INFORMATION Government of South Australia 04/04/25 CLIENT SUBMISSION 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 Department for Housing

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

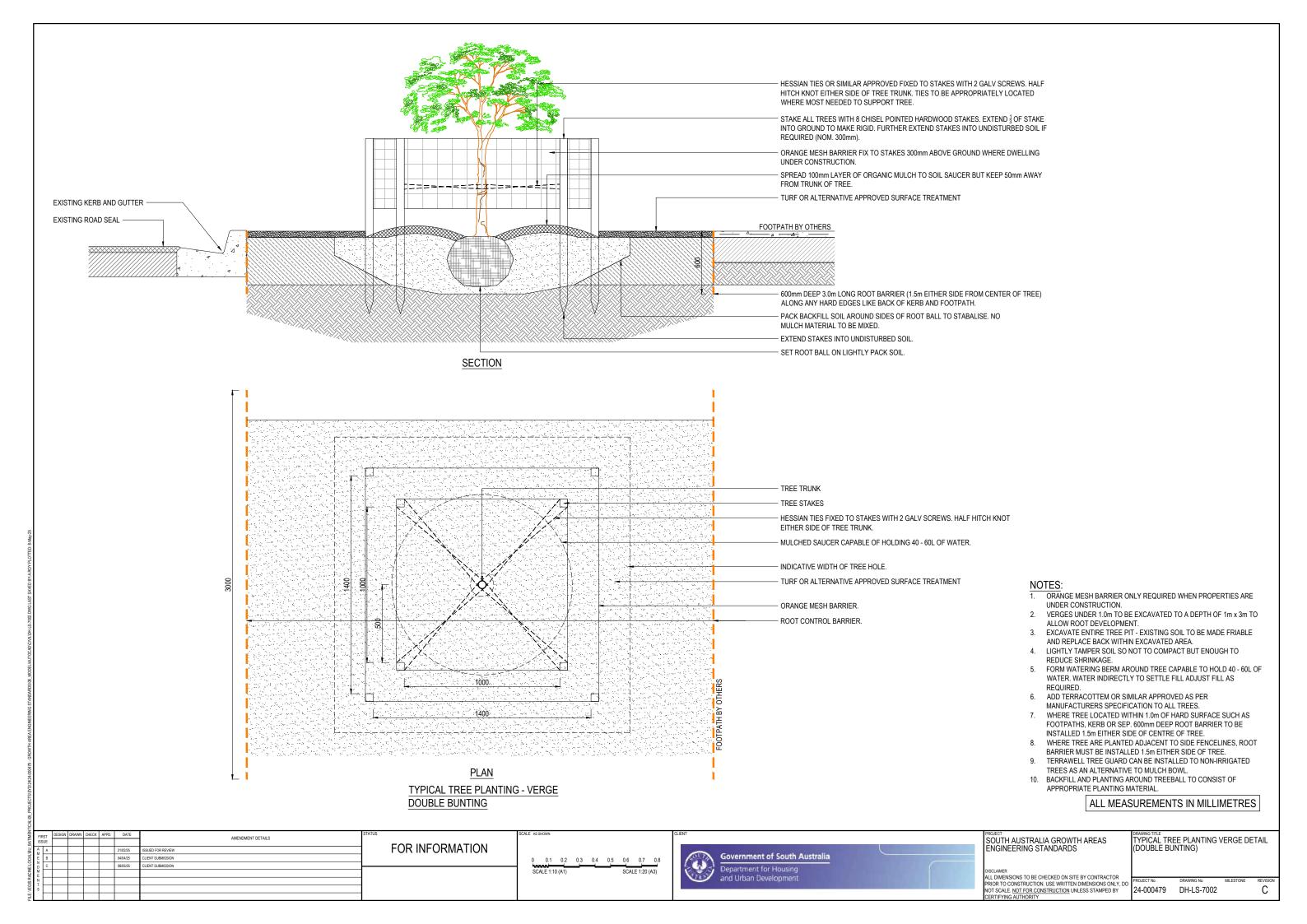
TYPICAL TREE PLANTING VERGE DETAIL (IRRIGATED)

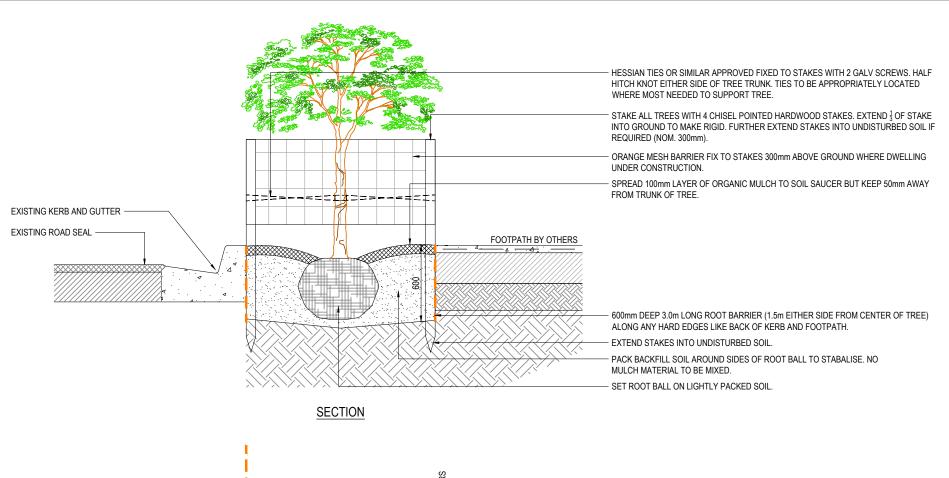
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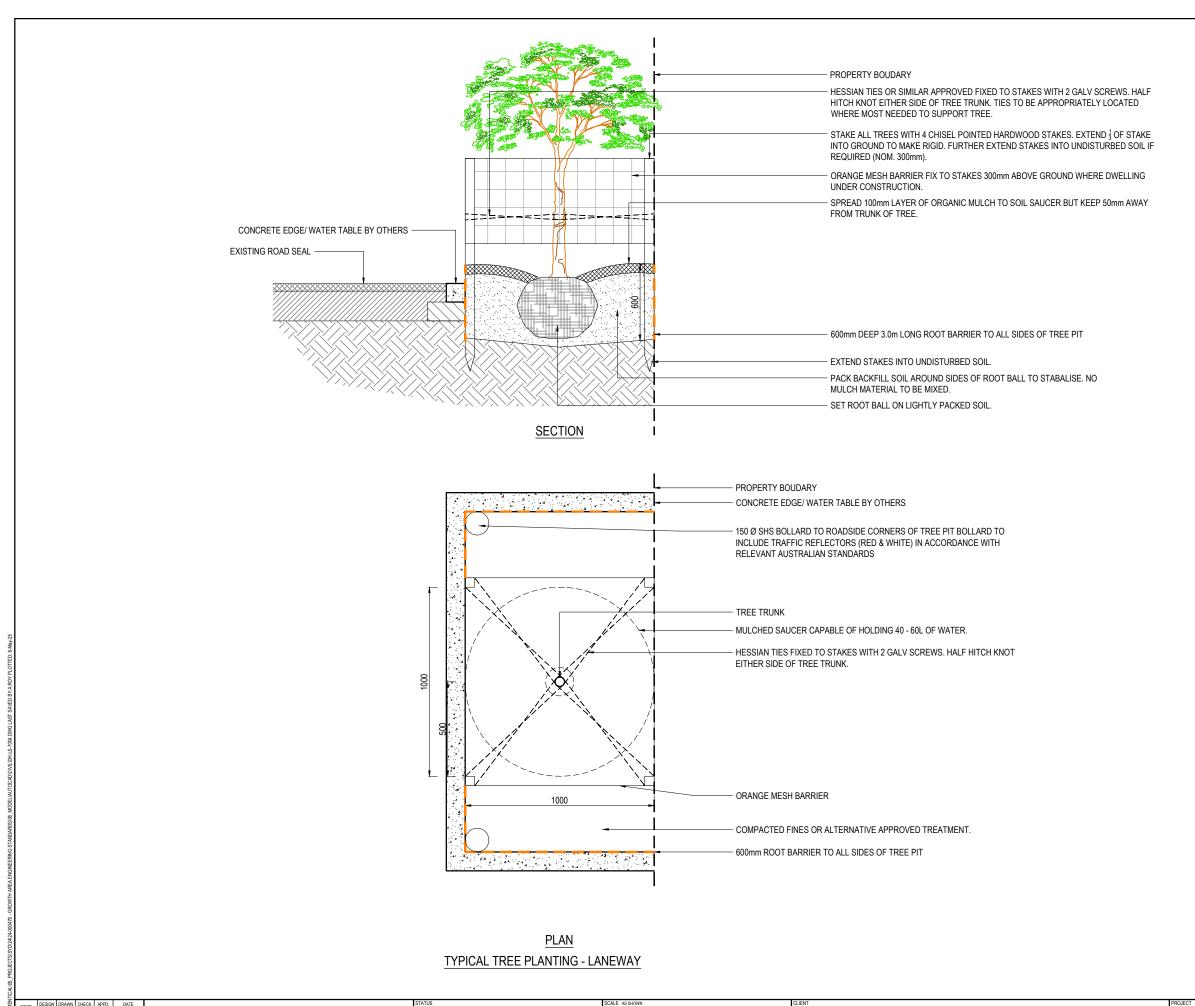


TREE TRUNK TREE STAKES HESSIAN TIES FIXED TO STAKES WITH 2 GALV SCREWS. HALF HITCH KNOT EITHER SIDE OF TREE TRUNK. MULCHED SAUCER CAPABLE OF HOLDING 40 - 60L OF WATER. 600mm ROOT BARRIER ALONG BACK OF KERB & FOOTPATH. COMPACTED FINES OR ALTERNATIVE APPROVED TREATMENT. ORANGE BARRIER MESH TO BE FIXED TO STAKES 300mm ABOVE GROUND WHERE DWELLINGS ARE UNDER CONSTRUCTION PLAN TYPICAL TREE PLANTING - NARROW VERGE

NOTES:

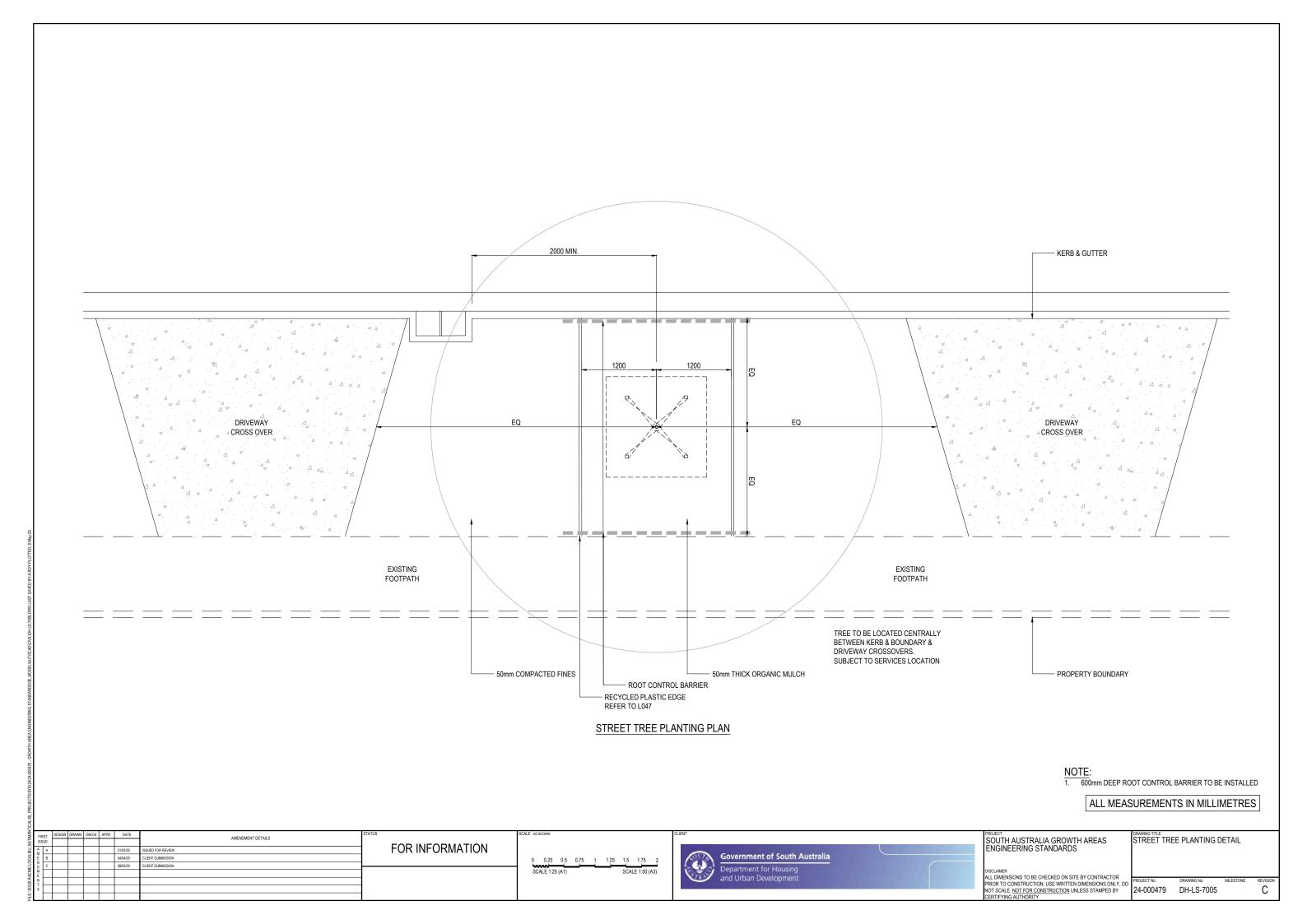
- ORANGE MESH BARRIER ONLY REQUIRED WHEN PROPERTIES ARE UNDER CONSTRUCTION.
- VERGES UNDER 1.0m TO BE EXCAVATED TO A DEPTH OF 1m x 3m TO ALLOW ROOT DEVELOPMENT.
- EXCAVATE ENTIRE TREE PIT EXISTING SOIL TO BE MADE FRIABLE AND REPLACE BACK WITHIN EXCAVATED AREA.
- 4. LIGHTLY TAMPER SOIL SO NOT TO COMPACT BUT ENOUGH TO REDUCE SHRINKAGE.
- FORM WATERING BERM AROUND TREE CAPABLE TO HOLD 40 60L OF WATER. WATER INDIRECTLY TO SETTLE FILL ADJUST FILL AS REQUIRED.
- 6. ADD TERRACOTTEM OR SIMILAR APPROVED AS PER MANUFACTURERS SPECIFICATION TO ALL TREES.
- 7. WHERE TREE LOCATED WITHIN 1.0m OF HARD SURFACE SUCH AS FOOTPATHS, KERB OR SEP. 600mm DEEP ROOT BARRIER TO BE INSTALLED 1.5m EITHER SIDE OF CENTRE OF TREE.
- 8. WHERE TREE ARE PLANTED ADJACENT TO SIDE FENCELINES, ROOT BARRIER MUST BE INSTALLED 1.5m EITHER SIDE OF TREE.
- 9. TERRAWELL TREE GUARD CAN BE INSTALLED TO NON-IRRIGATED TREES AS AN ALTERNATIVE TO MULCH BOWL.
- BACKFILL AND PLANTING AROUND TREEBALL TO CONSIST OF APPROPRIATE PLANTING MATERIAL.

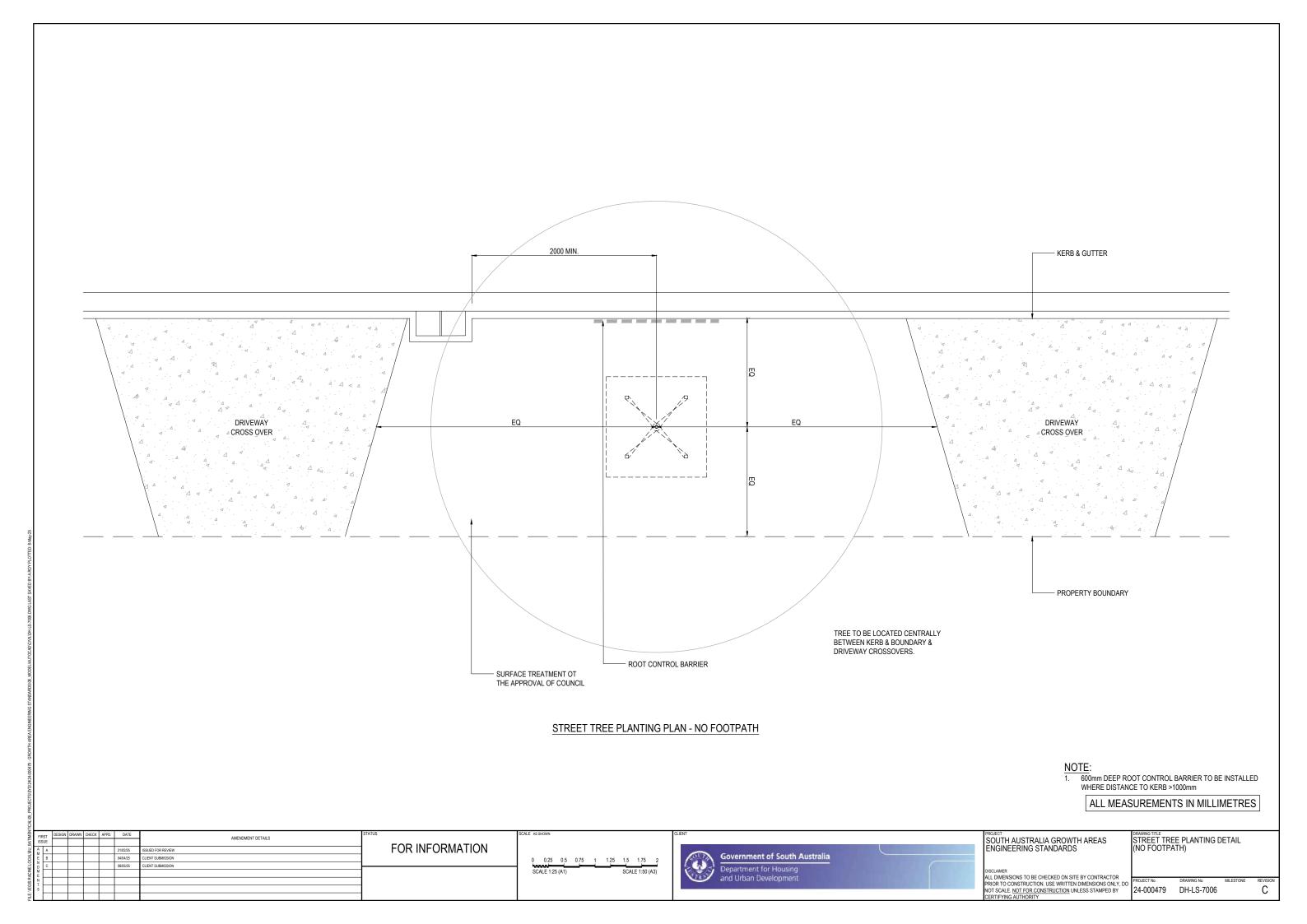
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ğ	D C		08/05/25	CLIENT SUBMISSION		_ `·····	Department for Housing		
F.	M F					SCALE 1:10 (A1) SCALE 1:20 (A3)	Department for Housing	DISCLAIMER ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR	
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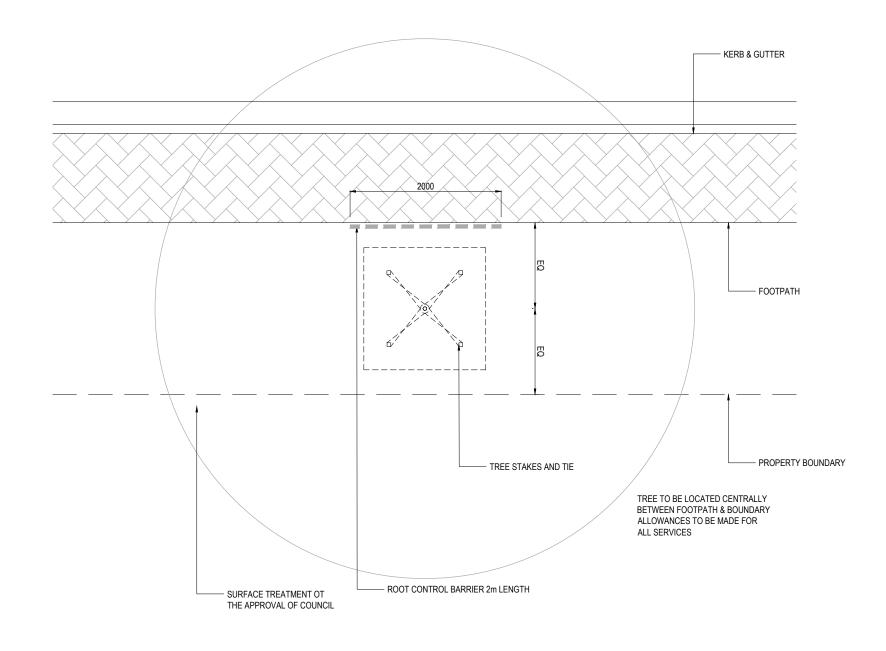


- 1. ORANGE MESH BARRIER ONLY REQUIRED WHEN PROPERTIES ARE UNDER CONSTRUCTION.
- 2. VERGES UNDER 1.0m TO BE EXCAVATED TO A DEPTH OF 1m x 3m TO ALLOW ROOT DEVELOPMENT.
- EXCAVATE ENTIRE TREE PIT EXISTING SOIL TO BE MADE FRIABLE AND REPLACE BACK WITHIN EXCAVATED AREA.
- LIGHTLY TAMPER SOIL SO NOT TO COMPACT BUT ENOUGH TO REDUCE SHRINKAGE.
- FORM WATERING BERM AROUND TREE CAPABLE TO HOLD 40 60L OF WATER. WATER INDIRECTLY TO SETTLE FILL ADJUST FILL AS
- ADD TERRACOTTEM OR SIMILAR APPROVED AS PER MANUFACTURERS SPECIFICATION TO ALL TREES.
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- WHERE TREE ARE PLANTED ADJACENT TO SIDE FENCELINES, ROOT BARRIER MUST BE INSTALLED 1.5m EITHER SIDE OF TREE.
- TERRAWELL TREE GUARD CAN BE INSTALLED TO NON-IRRIGATED TREES AS AN ALTERNATIVE TO MULCH BOWL.
- 10. BACKFILL AND PLANTING AROUND TREEBALL TO CONSIST OF APPROPRIATE PLANTING MATERIAL.

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B A	A	21/02/25	ISSUED FOR REVIEW	FOR INFORMATION			ENGINEERING STANDARDS	(LANE WAY)
SQ III	3	04/04/25	CLIENT SUBMISSION		0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8	Government of South Australia		
E E		08/05/25	CLIENT SUBMISSION		204540(4)	Department for Housing	DICCLAIMED	
™ gcl					SCALE 1:10 (A1) SCALE 1:20 (A3)	278 and Urban Davalonment	ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR	
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STREET TREE PLANTING PLAN - NO FOOTPATH

NOTE:

1. 600mm DEEP ROOT CONTROL BARRIER TO BE INSTALLED WHERE DISTANCE TO KERB >1000mm

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IVS/I	A		21/02/25	ISSUED FOR REVIEW	FOR INFORMATION			ENGINEERING STANDARDS	(PATH AGAINST KERB)
SI CI	В		04/04/25	CLIENT SUBMISSION		0 0.25 0.5 0.75 1 1.25 1.5 1.75 2	Government of South Australia		
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