STANDARD DRAWING INDEX

DRAWING NUMBER	DRAWING TITLE
	ROADWORKS
DH-RD-1000	TYPICAL RESIDENTIAL KERB
DH-RD-1010	KERB & WATERTABLE INSTALLATION ABUTTING EXISTING PAVEMENT
DH-RD-1015	STANDARD STORMWATER KERB OUTLET DETAILS-INSTALLED DURING CONSTRUCTION
DH-RD-1020	HEAVY DUTY STORMWATER KERB OUTLET DETAILS - EXISTING KERB
DH-RD-1025	KERB RAMP SPECIFICATIONS SHEET 1 OF 2
DH-RD-1030	KERB RAMP SPECIFICATIONS SHEET 2 OF 2
DH-RD-2000	TYPICAL PEDESTRIAN CROSSING ARRANGEMENT DETAIL
DH-RD-2005	TYPICAL CONCRETE FOOTPATH DETAIL SHEET 1 OF 2
DH-RD-2010	TYPICAL CONCRETE FOOTPATH DETAIL SHEET 2 OF 2
DH-RD-2015	TYPICAL HOT MIX ASPHALT FOOTPATH
DH-RD-2020	BLOCK PAVED FOOTPATH
DH-RD-2025	RETROFIT RESIDENTIAL VEHICLE CROSSING DETAIL
DH-RD-2030	RESIDENTIAL VEHICLE CROSSING DETAIL
DH-RD-2035	VEHICLE BLOCK PAVED CROSSING DETAIL
DH-RD-2045	VEHICLE CROSSING LONGITUDINAL SECTIONS
DH-RD-2050	ROUNDABOUT INSTALLATION TYPE 1
DH-RD-2055	ROUNDABOUT INSTALLATION TYPE 2
DH-RD-2060	TERMINATION ROAD TURNAROUND PROVISIONS
DH-RD-2065	TYPICAL PAVEMENT SUBSOIL DRAINAGE
DH-RD-2070	TYPICAL ROAD CROSSING TRENCH BACKFILL REQUIREMENTS
DH-RD-2075	TYPICAL BUS STOP DETAIL
DH-RD-3000	TYPICAL ROAD CROSS SECTION AND PLAN ACCESS STREET
DH-RD-3001	TYPICAL ROAD CROSS SECTION AND PLAN LEVEL 1 COLLECTOR/CONNECTOR STREET
DH-RD-3002	TYPICAL ROAD CROSS SECTION AND PLAN LEVEL 1 COLLECTOR/CONNECTOR STREET WITH INDENTED CARPARK
DH-RD-3003	TYPICAL ROAD CROSS SECTION AND PLAN COLLECTOR ROAD
DH-RD-3004	TYPICAL ROAD CROSS SECTION AND PLAN STANDARD ACCESS LANE
DH-RD-3015	TRENCH AND BACKFILL DETAILS - CWMS

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
DH-SW-6104	BIORETENTION DRAINAGE PROFILE TYPE 3

STANDARD DRAWING INDEX

DRAWING NUMBER	DRAWING TITLE
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	POROUS 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)

AMENDMENTS		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
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	E					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE: AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DISCLAIMER
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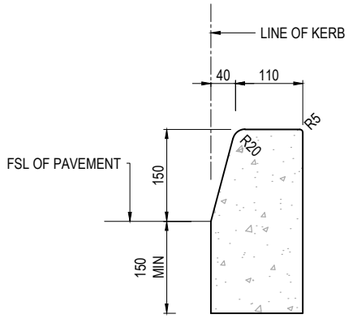
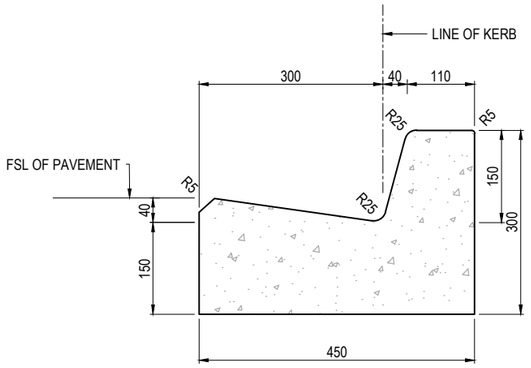
DRAWING TITLE: COVER SHEET/ DRAWING LIST

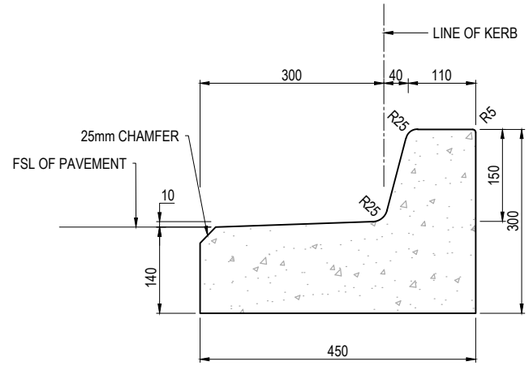
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-GE-0000		E



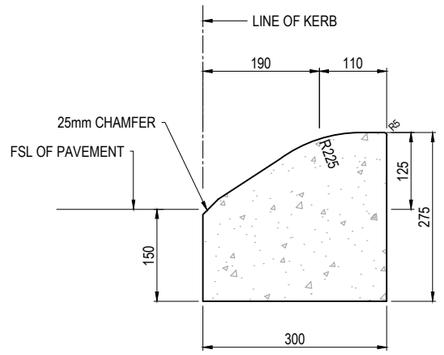
BARRIER KERB ONLY (BK)



150mm BARRIER KERB AND WATER TABLE

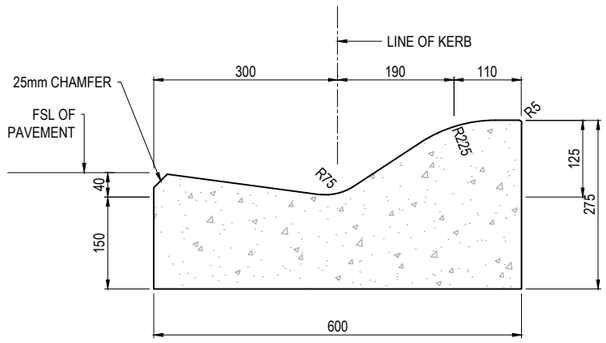


150mm BARRIER KERB AND TRAY

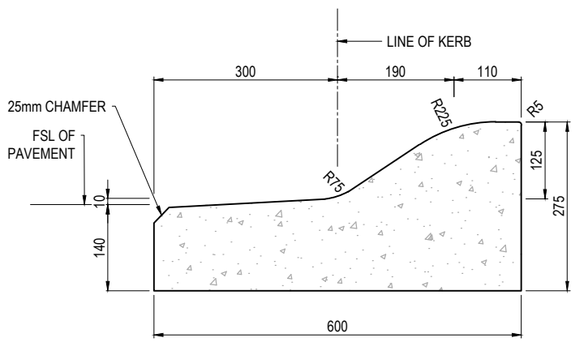


SEMI-MOUNTABLE KERB ONLY

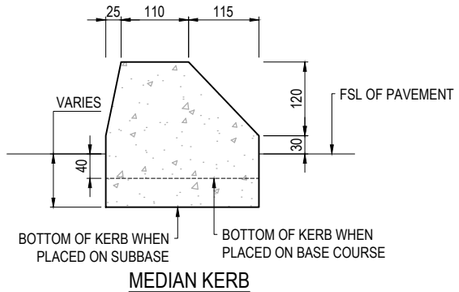
*NOT TO BE USED FOR PROPERTY ACCESS OR AT BUS STOPS



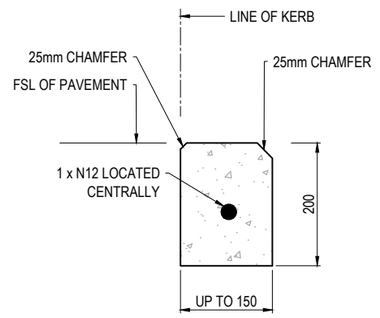
SEMI-MOUNTABLE KERB AND WATERTABLE



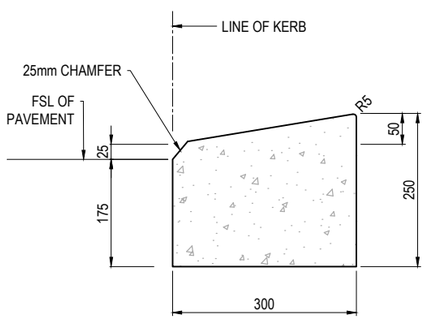
SEMI-MOUNTABLE KERB AND TRAY



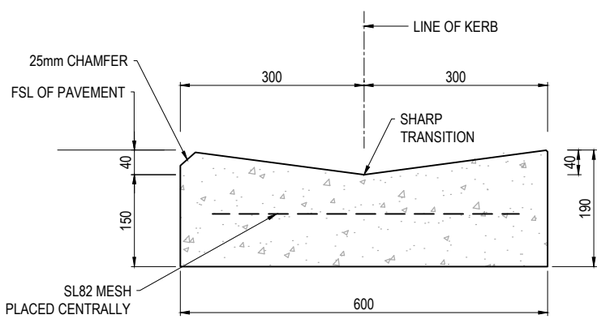
MEDIAN KERB



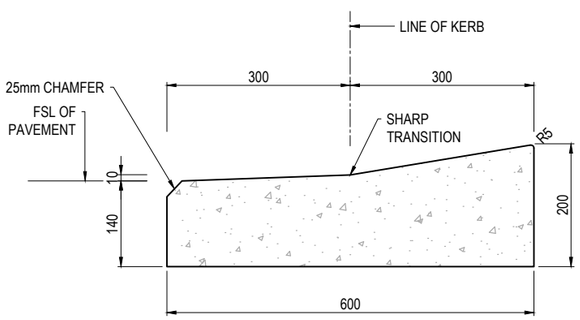
EDGE STRIP



MOUNTABLE KERB



600mm WIDE SPOON DRAIN



MOUNTABLE KERB AND TRAY

NOTES:

1. CONCRETE SHALL BE NORMAL CLASS N32 STANDARD STRENGTH GRADE COMPLYING WITH THE REQUIREMENTS OF AS. 1379 UNLESS OTHERWISE NOTED.
2. BEDDING TO BE PM2 / 20 COMPACTED TO 96% MMDD TO AS1289 METHOD 5.2.1. BEDDING TO EXTEND MIN. 300mm BEHIND BACK OF KERB. THICKNESS MIN. 100mm OR MATCH EXISTING PAVEMENT.
3. CONCRETE TO BE SMOOTH TROWELLED FINISHED ON TRAY AND KERB.
4. CONCRETE SPONGE FINISHED ON LAYBACK.
5. SHRINKAGE CONTROL JOINTS (TOOLED JOINT) LOCATED AT 2500mm MAXIMUM SPACING. MIN. 50% OF SECTION AREA TO BE CUT. FINISHED WITH TOOLED JOINT 20mm DEPTH, 5mm WIDE.
6. CONSTRUCTION JOINTS AS REQUIRED TO BE IN ACCORDANCE WITH AS 2876 WHERE ADJACENT PAVEMENT IS BLOCK PAVED OR CONCRETE.
7. BACKFILL BEHIND KERB UNTIL FLUSH WITH COMPACTED APPROVED IN-SITU SITE MATERIAL OR PM2 / 20 COMPACTED TO 95% MMDD TO AS1289 METHOD 5.2.1.

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

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENTS	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
FIRST ISSUE						
A					19/12/24	ISSUED FOR REVIEW
B					20/12/24	ISSUED FOR REVIEW
C					02/04/25	CLIENT SUBMISSION
D					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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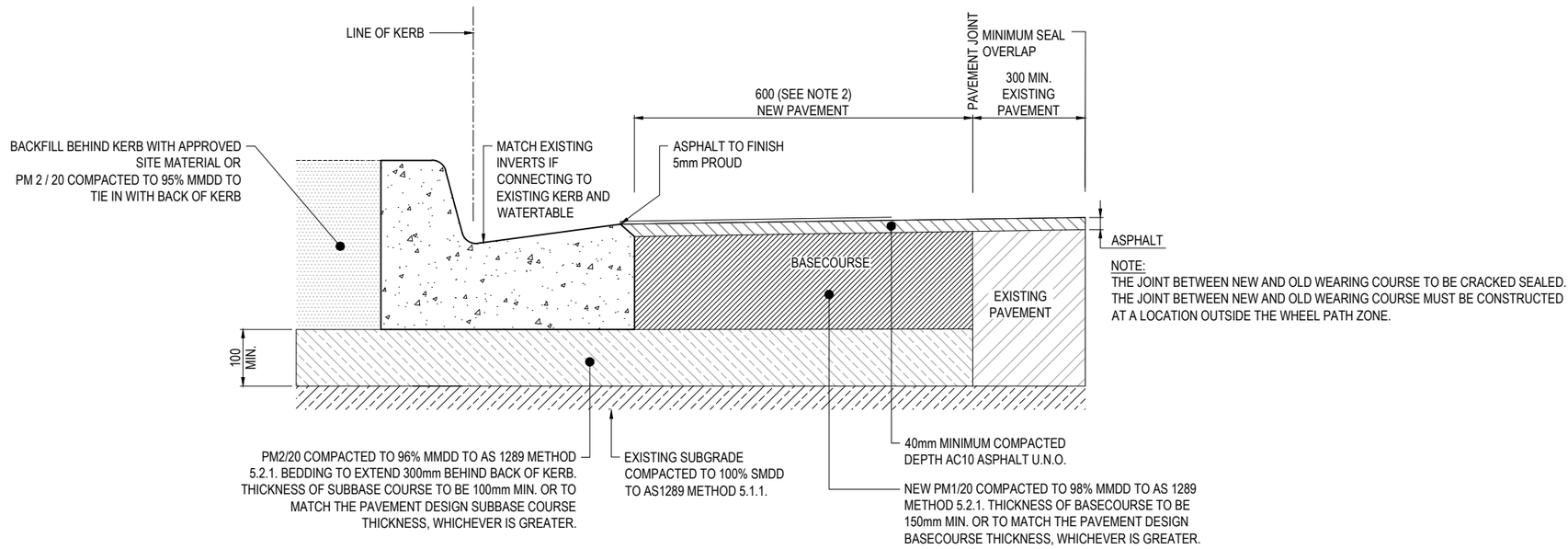
DRAWING TITLE: TYPICAL RESIDENTIAL KERB

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-1000		D

NOTES:

1. REFER TO DH-RD-1000 FOR KERB DETAILS.
2. FOR WIDTH OF MINIMUM 100 TO 350mm USE CONTROLLED LOW STRENGTH MATERIAL (CLSM) INFILL.
3. PM 2/20 RG TO BE USED INSTEAD OF PM 2/20 QG ONLY WHEN SPECIFICALLY APPROVED RELEVANT AUTHORITY.
4. REFER PAVEMENT DESIGN FOR PAVEMENT THICKNESS.
5. INSTALLATION OF KERBING SHALL BE IN ACCORDANCE WITH AS2876.
6. EXCAVATED MATERIAL SHALL NOT BE RE-USED IN THE PM2/20 REINSTATEMENT AND SHALL BE REMOVED OFFSITE.



NOTE:
THE JOINT BETWEEN NEW AND OLD WEARING COURSE TO BE CRACKED SEALED. THE JOINT BETWEEN NEW AND OLD WEARING COURSE MUST BE CONSTRUCTED AT A LOCATION OUTSIDE THE WHEEL PATH ZONE.

TYPICAL SECTION

NOT TO SCALE

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ALL MEASUREMENTS IN MILLIMETRES

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SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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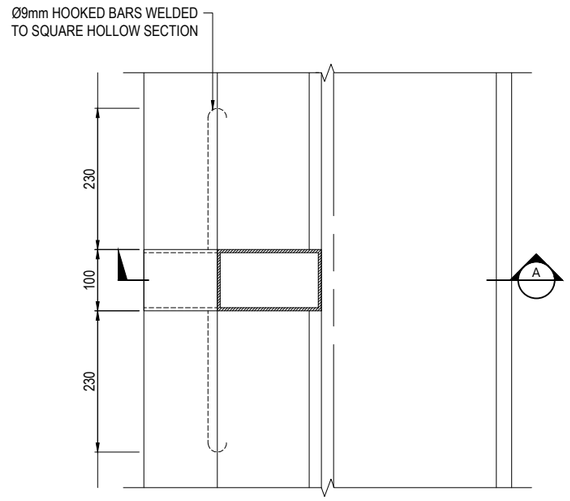
DRAWING TITLE
KERB & WATERTABLE INSTALLATION ABUTTING EXISTING PAVEMENT

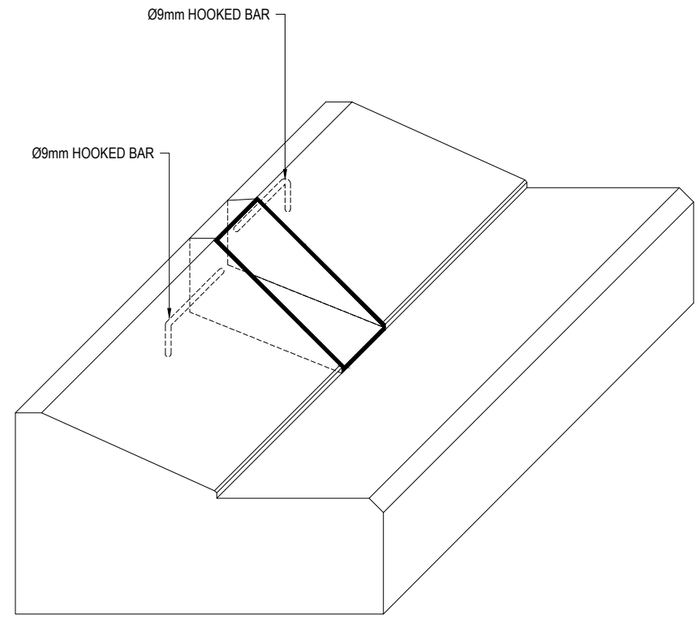
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-1010		D

NOTES:

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

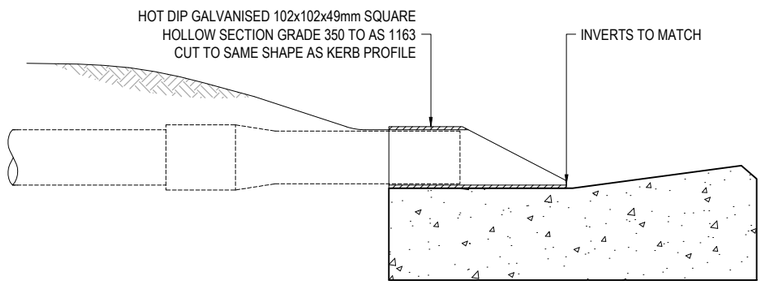


RESIDENTIAL STORMWATER
OUTLET CONNECTION
NOT TO SCALE



STORMWATER OUTLET DETAIL
NOT TO SCALE

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



SECTION A-A
NOT TO SCALE

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ALL MEASUREMENTS IN MILLIMETRES

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SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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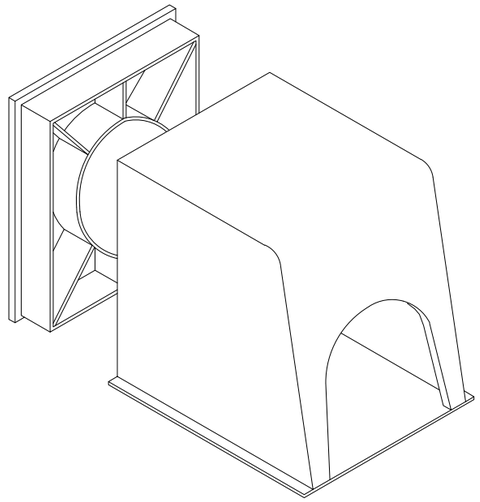
DRAWING TITLE: STANDARD STORMWATER KERB OUTLET DETAILS-INSTALLED DURING CONSTRUCTION

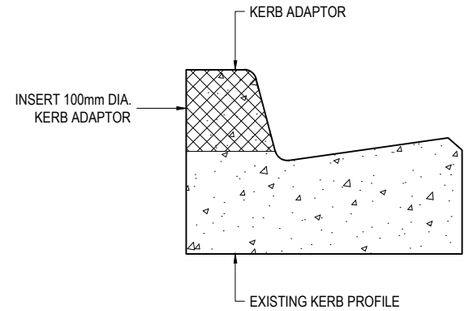
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-1015		C

NOTES:

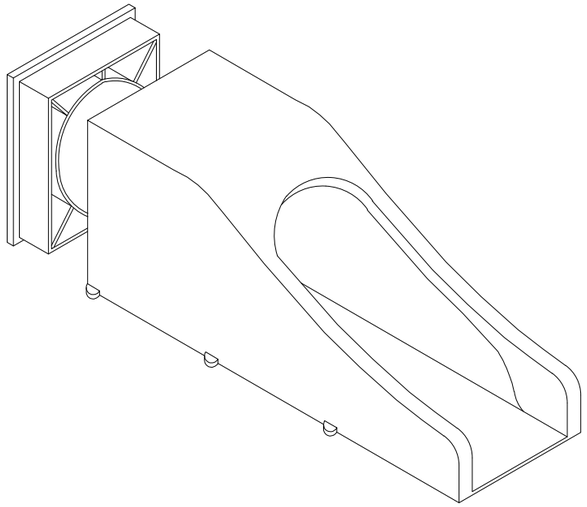
1. ALL KERB ADAPTORS ARE TO BE AN APPROVED PROPRIETARY PRODUCT CONSTRUCTED FROM EITHER HEAVY DUTY UPVC OR HOT DIPPED GALVANIZED MILD STEEL.
2. KERB IS TO BE NEATLY SAW CUT & KERB ADAPTOR EPOXIED INTO POSITION.



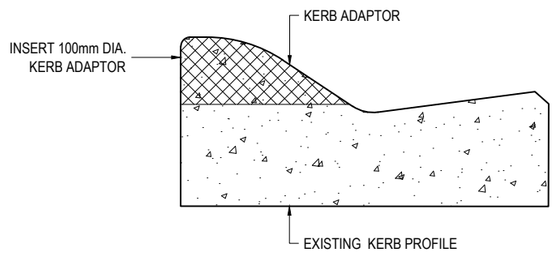
KERB ADAPTOR - UPRIGHT KERB



UPRIGHT KERB WITH KERB ADAPTOR SECTIONAL VIEW



KERB ADAPTOR - SEMI MOUNTABLE KERB



SEMI MOUNTABLE KERB WITH KERB ADAPTOR SECTIONAL VIEW

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ALL MEASUREMENTS IN MILLIMETRES

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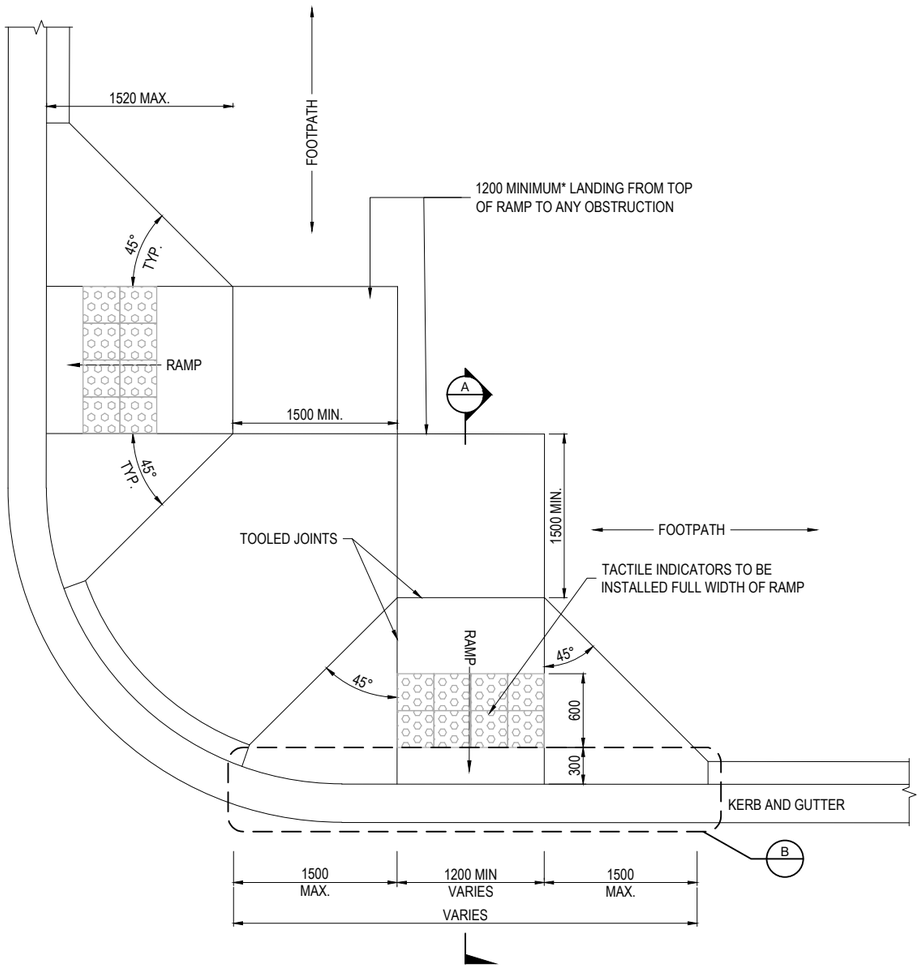
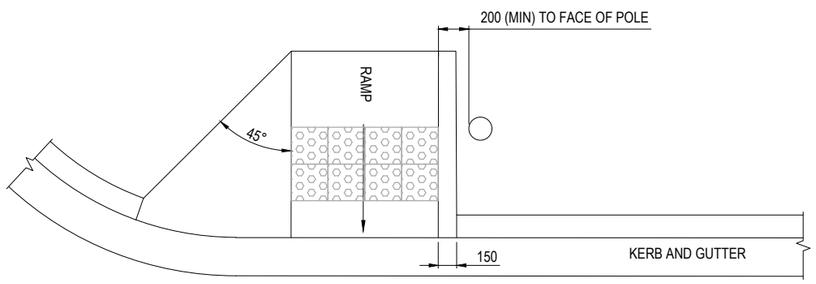
DRAWING TITLE: HEAVY DUTY STORMWATER KERB OUTLET DETAILS - EXISTING KERB

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-1020		C



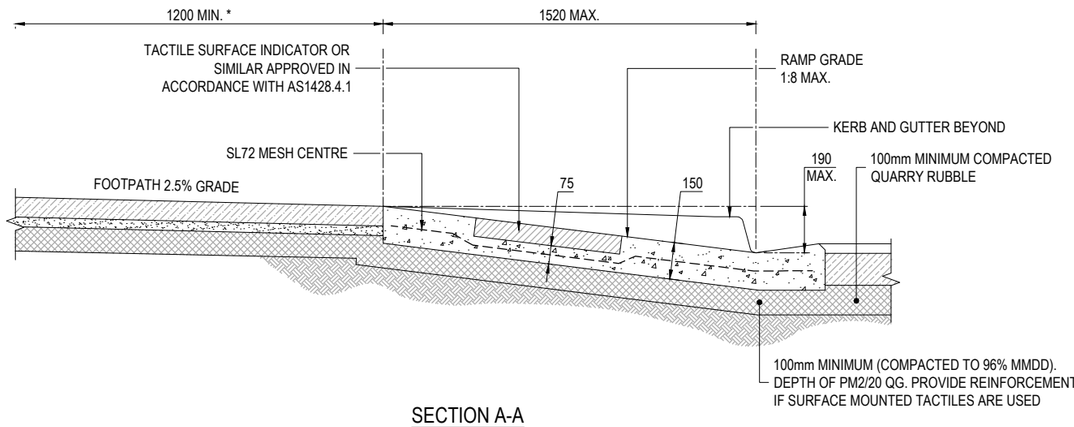
KERB RAMP PLAN
NOT TO SCALE



KERB RAMP WITH VERTICAL SIDE - PLAN
NOT TO SCALE

NOTES:

1. THE RAMP AND SLOPING SIDES SHALL BE SLIP RESISTANT WITH TACTILE SURFACE INDICATORS (CONTRASTING COLOUR), WARNING TACTILE INDICATORS 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.
3. 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.
5. KERB RAMP SHALL BE LAID IN THE DIRECTION OF TRAVEL, ALIGNED WITH THE KERB RAMP ON THE OPPOSITE SIDE OF THE ROAD
6. KERB RAMPS ARE TO BE PROVIDED AT 1500mm CLEAR WIDTH TO MATCH THE ADJOINING FOOTPATH. WHERE PHYSICAL CONSTRAINTS EXIST, A MINIMUM CLEAR FOOTPATH WIDTH OF 1200mm IS ACCEPTABLE.
7. EXTEND THE BEDDING MATERIAL UNDER THE KERB RAMP AND TO MATCH IN WITH FOOTPATH BEDDING MATERIAL.



SECTION A-A
NOT TO SCALE

ELEVATION B
NOT TO SCALE

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

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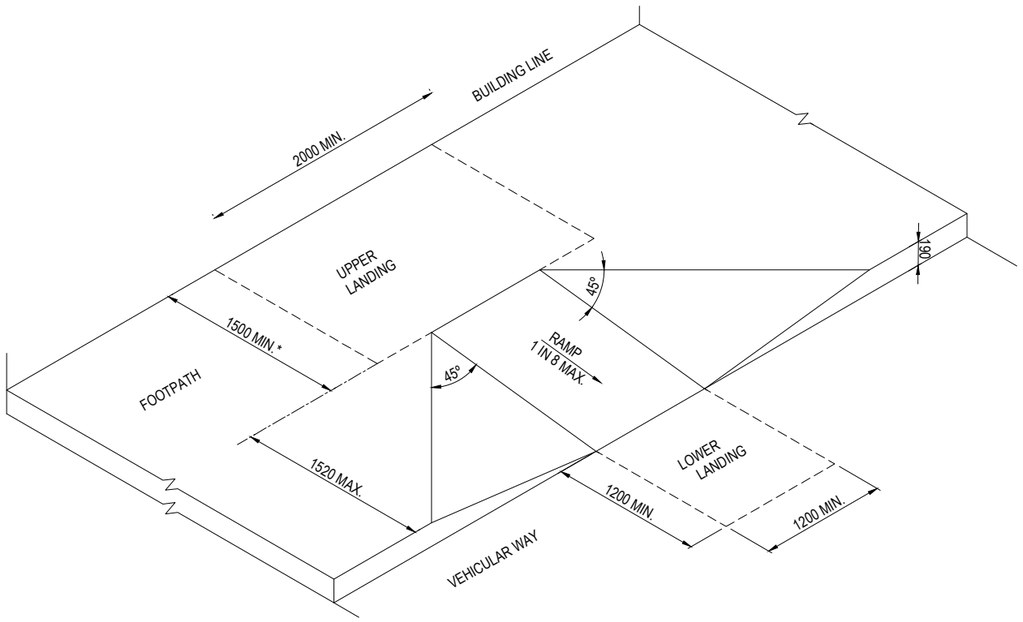
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DRAWING TITLE: KERB RAMP SPECIFICATIONS SHEET 1 OF 2

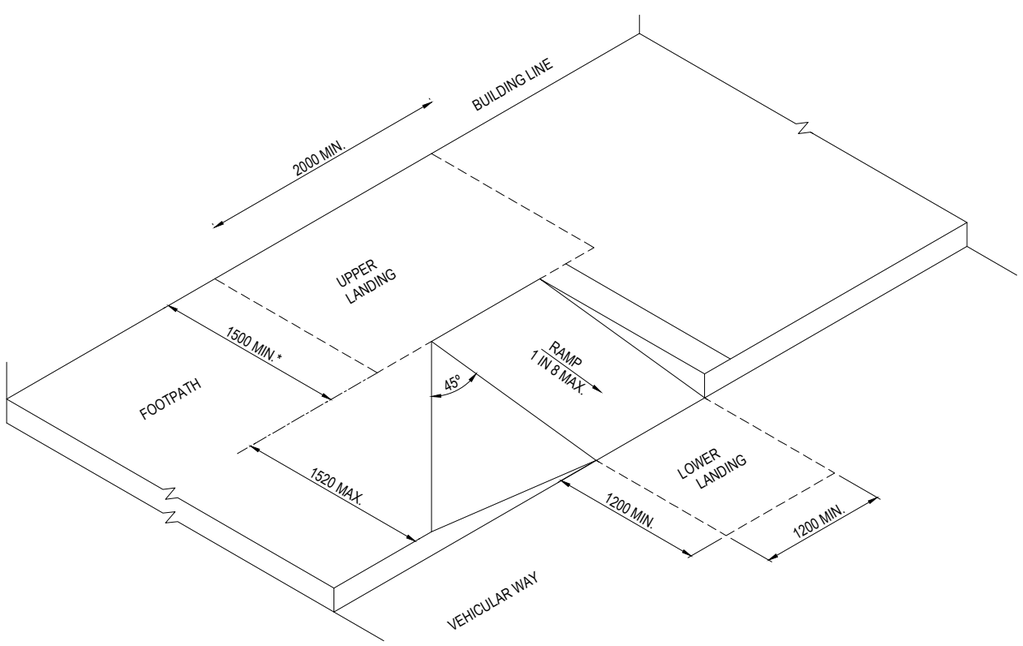
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-1025		C



KERB RAMP ISOMETRIC VIEW

SCALEAS SHOWN

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



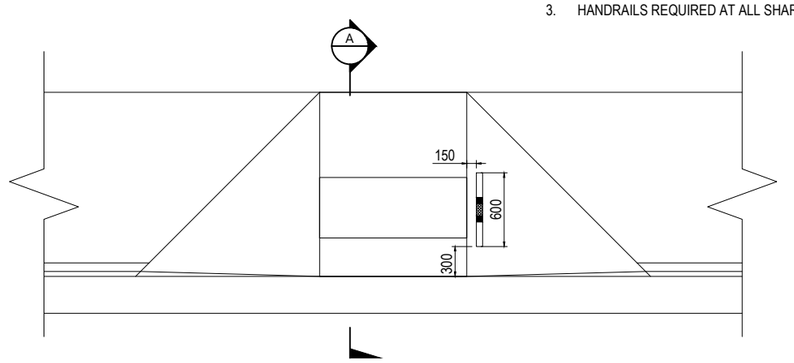
KERB RAMP WITH VERTICAL SIDE - ISOMETRIC VIEW

SCALEAS SHOWN

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

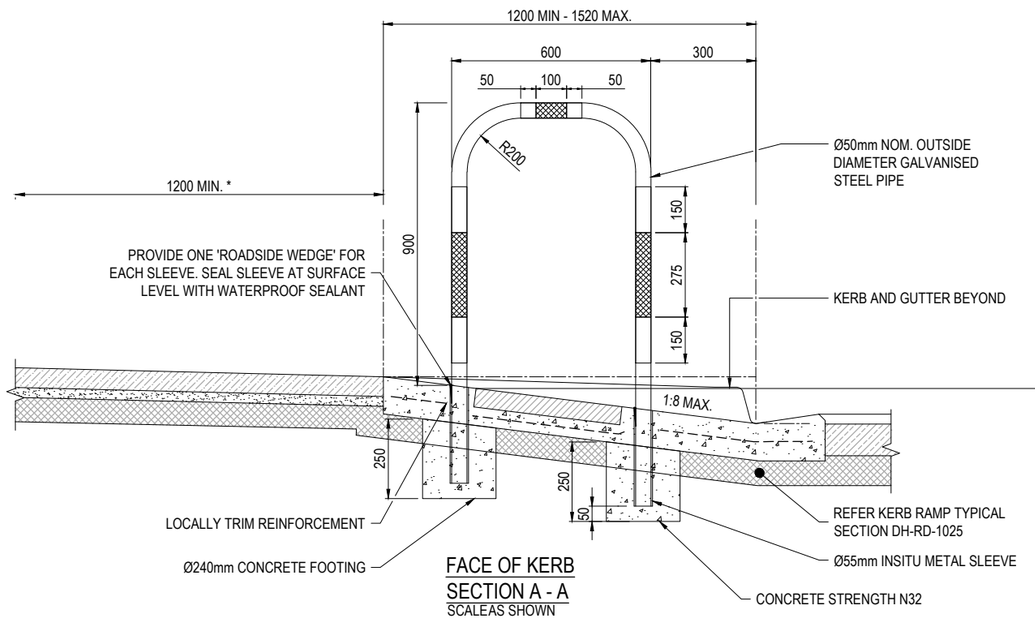
NOTE:

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



KERB RAMP HAND RAIL DETAIL

SCALEAS SHOWN



FACE OF KERB SECTION A - A

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

AMENDMENTS		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
FIRST ISSUE							
	A					19/12/24	ISSUED FOR REVIEW
	B					02/04/25	CLIENT SUBMISSION
	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DRAWING TITLE: KERB RAMP SPECIFICATIONS SHEET 2 OF 2

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-1030		C

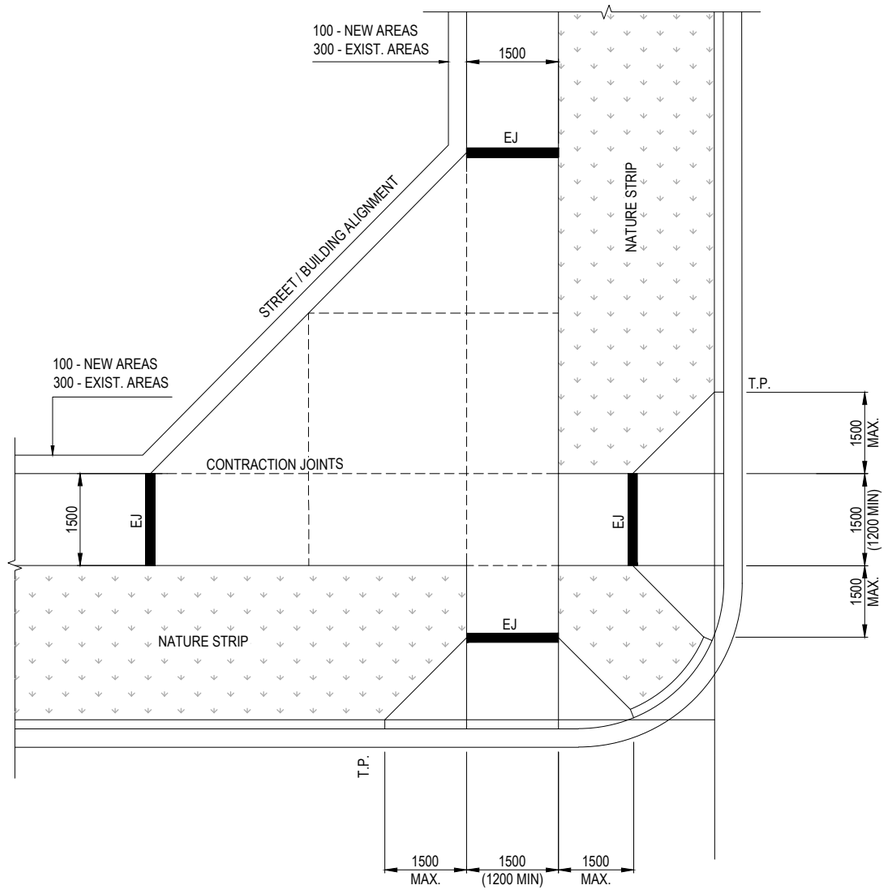
LEGEND:

EXPANSION JOINT — EJ

CONSTRUCTION JOINTS / TOOLED JOINTS – – – – –

NOTES:

1. LOCATION OF CROSSINGS TO BE CASE BY CASE & ONLY WHERE APPROVED.
2. CROSSING GENERALLY TO BE LOCATED AT TANGENT POINTS.
3. CONCRETE TO BE SMOOTH TROWELLED FINISH ON TRAY.
4. CONCRETE TO BE FINE SOFT HAIR BROOM FINISH ON LAYBACK.
5. MINIMUM CONCRETE STRENGTH TO BE 32 MPA.
6. BEDDING TO BE COMPACTED PM2/20 QG 100mm MIN. THICKNESS.
7. IF SPLAY IS NOT REQUIRED FOOTPATH IS TO CONTINUE THROUGH TO LAYBACKS.
8. TGI'S (TILES), WHERE REQUIRED, ARE TO BE TO BE INSTALLED TO AS1428.4.1.
9. KERB RAMPS ARE TO BE PROVIDED AT 1500mm CLEAR WIDTH TO MATCH THE ADJOINING FOOTPATH. WHERE PHYSICAL CONSTRAINTS EXIST, A MINIMUM CLEAR FOOTPATH WIDTH OF 1200mm IS ACCEPTABLE.



TYPICAL ARRANGEMENT PLAN
SCALE AS SHOWN

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

ALL MEASUREMENTS IN MILLIMETRES

FIRST ISSUE		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
AMENDMENTS	A					19/12/24	ISSUED FOR REVIEW
	B					02/04/25	CLIENT SUBMISSION
	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DISCLAIMER
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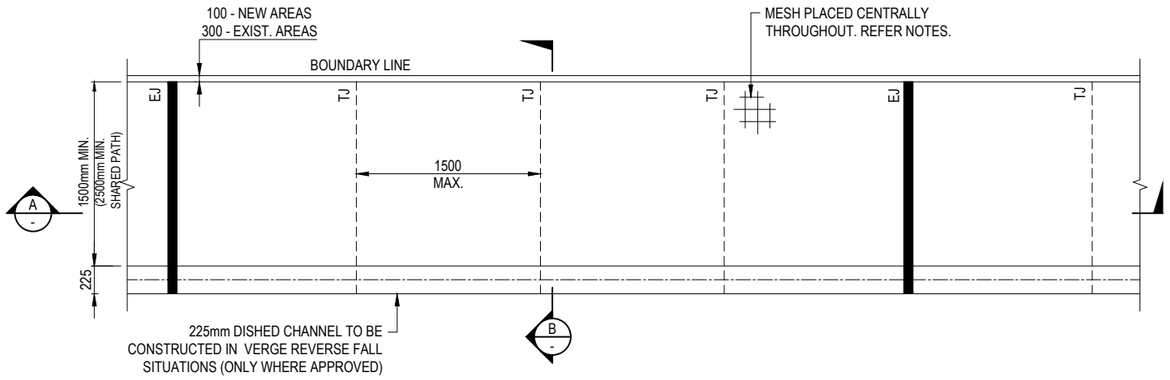
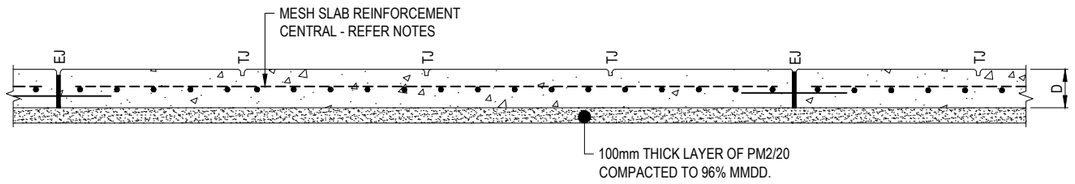
DRAWING TITLE: TYPICAL PEDESTRIAN CROSSING ARRANGEMENT DETAIL

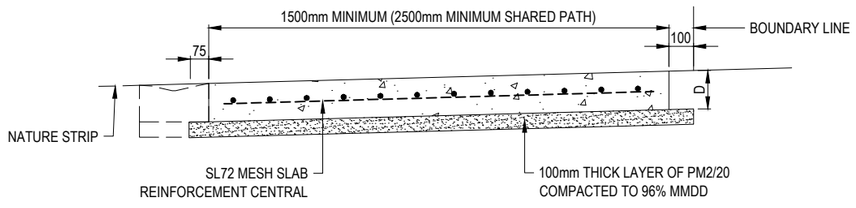
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-2000		C



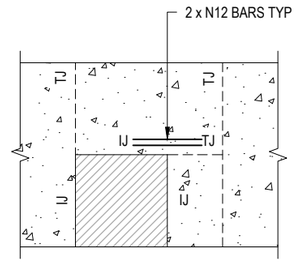
PLAN
NOT TO SCALE



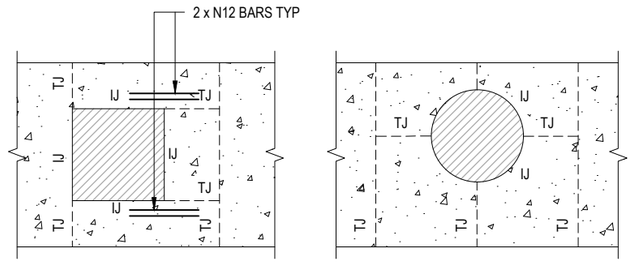
TYPICAL 125mm & 150mm FOOTPATH SECTION A
AS SHOWN



TYPICAL 125mm & 150mm FOOTPATH SECTION B
AS SHOWN



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



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

LEGEND:

EXPANSION JOINT @ 6m CTS. MAX.	EJ
CONTRACTION/TOOLED JOINTS @ 1.2m CTS. MAX.	TJ
ISOLATION JOINT	IJ

NOTES:

1. ALL CONCRETE TO BE 32 MPa.
2. REFER DH-RD-2010 FOR DETAILS OF JOINT TYPES.
3. ALIGNMENT OF FOOTPATH TO BE SHOWN ON DESIGN PLANS ONLY WHERE APPROVED.
4. FOR NORMAL SERVICE PIT LIDS, PROVIDE A TOOL JOINT IN ORDER FOR ACCESS REQUIREMENTS.
5. CONTRACTION JOINTS SHALL BE FORMED BY TOOLING WHEN THE CONCRETE IS SUFFICIENTLY FIRM TO SUPPORT THE JOINTING TOOL WITHOUT SURFACE DAMAGE AND BEFORE UNCONTROLLED CRACKING OCCURS. WHERE TOOLING IS NOT PRACTICABLE DUE TO EARLY SETTING, SAW CUTTING SHALL BE USED. SAW-CUT JOINTS SHALL BE COMPLETED AS SOON AS PRACTICABLE AFTER FINISHING AND NO LATER THAN 24 HOURS AFTER CONCRETE PLACEMENT.
6. THE NEW FOOTPATH MATCHES INTO EXISTING FOOTPATH.

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

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENTS		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
FIRST ISSUE							
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	B					02/04/25	CLIENT SUBMISSION
	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

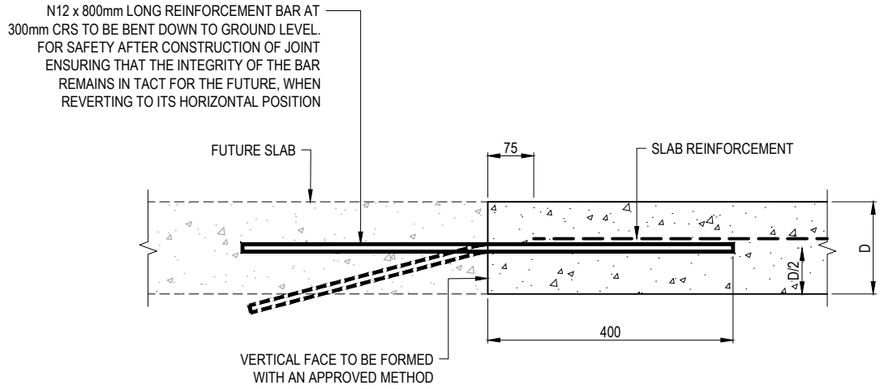
SCALE: AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

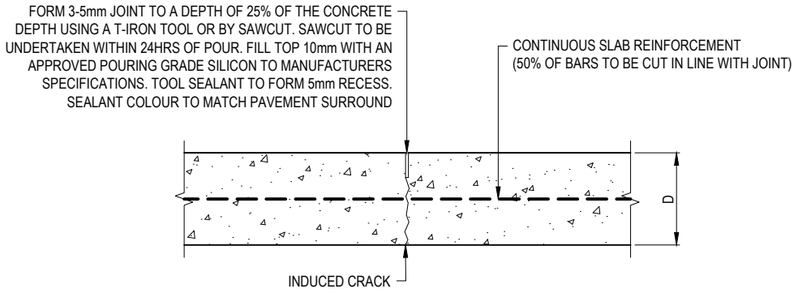
DRAWING TITLE: TYPICAL CONCRETE FOOTPATH DETAIL SHEET 1 OF 2

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-2005		C



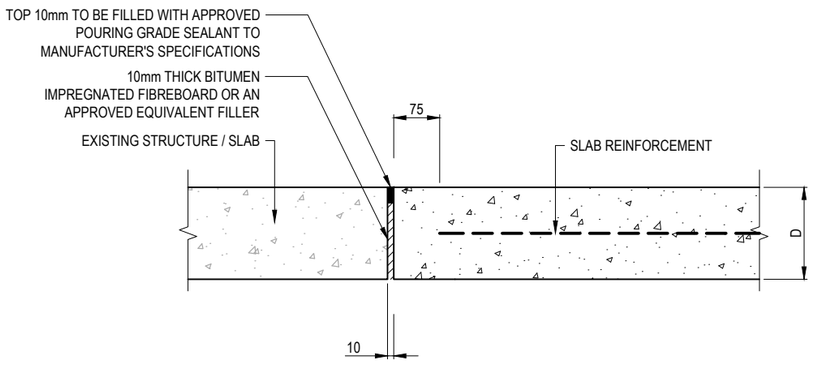
TYPICAL FUTURE CONSTRUCTION JOINT

SCALE 1:5



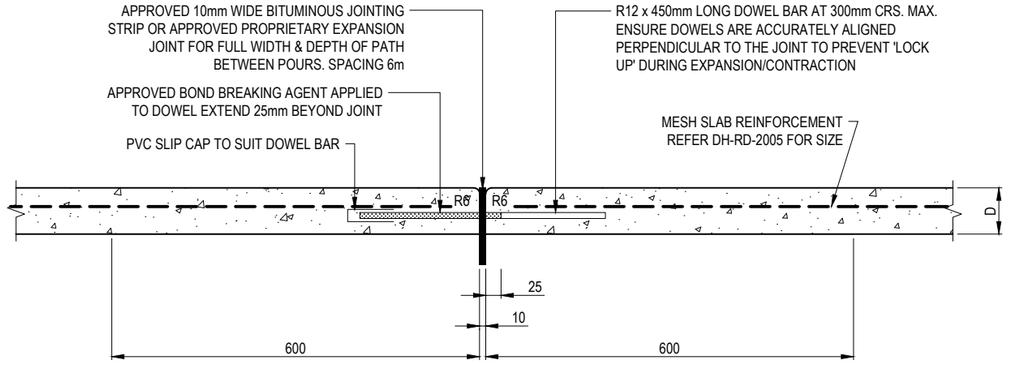
TYPICAL CONTRACTION / TOOLED JOINT

SCALE 1:5



TYPICAL ISOLATION JOINT SECTION

SCALE 1:5



TYPICAL FOOTPATH EXPANSION JOINT - SECTION

SCALE 1:5

NOTE:

1. 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 1.5m

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

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	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4

SCALE 1:5 (A1) SCALE 1:10 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DISCLAIMER

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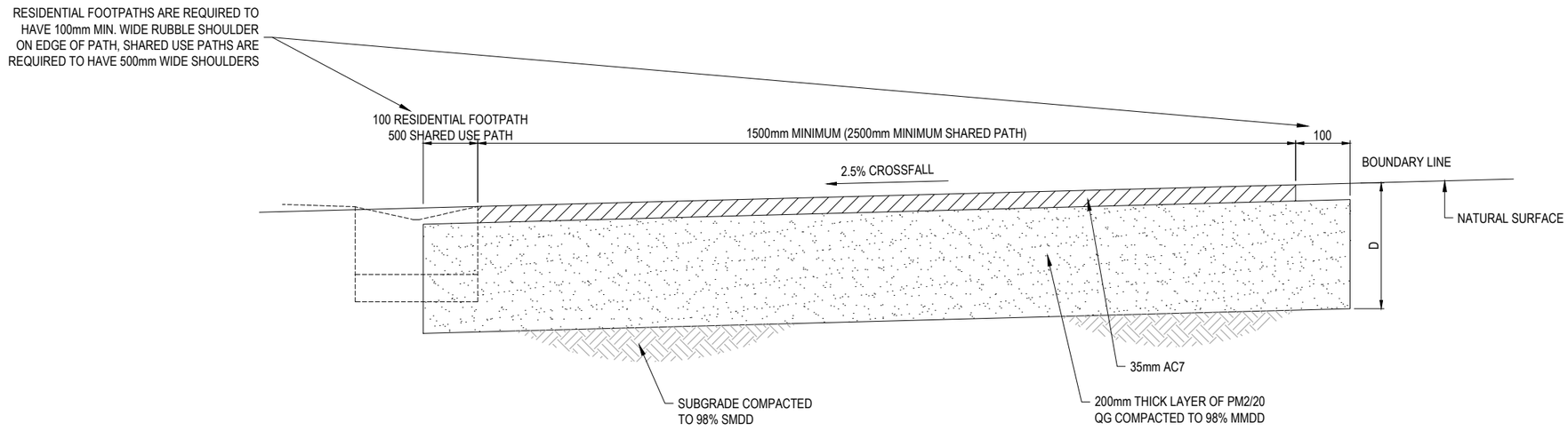
DRAWING TITLE: TYPICAL CONCRETE FOOTPATH DETAIL SHEET 2 OF 2

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-2010		C

NOTES:

1. 'D' = DEPTH OF ASPHALT FOOTPATH TYPICAL ASPHALT FOOTPATH DEPTH 'D'= 230mm TYPICAL 'D' MAY VARY DEPENDANT ON SUBGRADE CBR AND POSSIBLE MAINTENANCE OR EMERGENCY VEHICLE TRAFFIC ACCESS.
2. 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.
3. NATURE STRIP SHOULD GRADE TOWARDS ROAD, WHERE NATURE STRIP IS GRADED TOWARDS FOOTPATH, DISHED CHANNEL SHALL BE PROVIDED AND TO BE APPROVED BY THE RELEVANT AUTHORITY.



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

AMENDMENTS	DESIGN	DRAWN	CHECK	APPD	DATE	AMENDMENT DETAILS
FIRST ISSUE						
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C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4

SCALE 1:5 (A1) SCALE 1:10 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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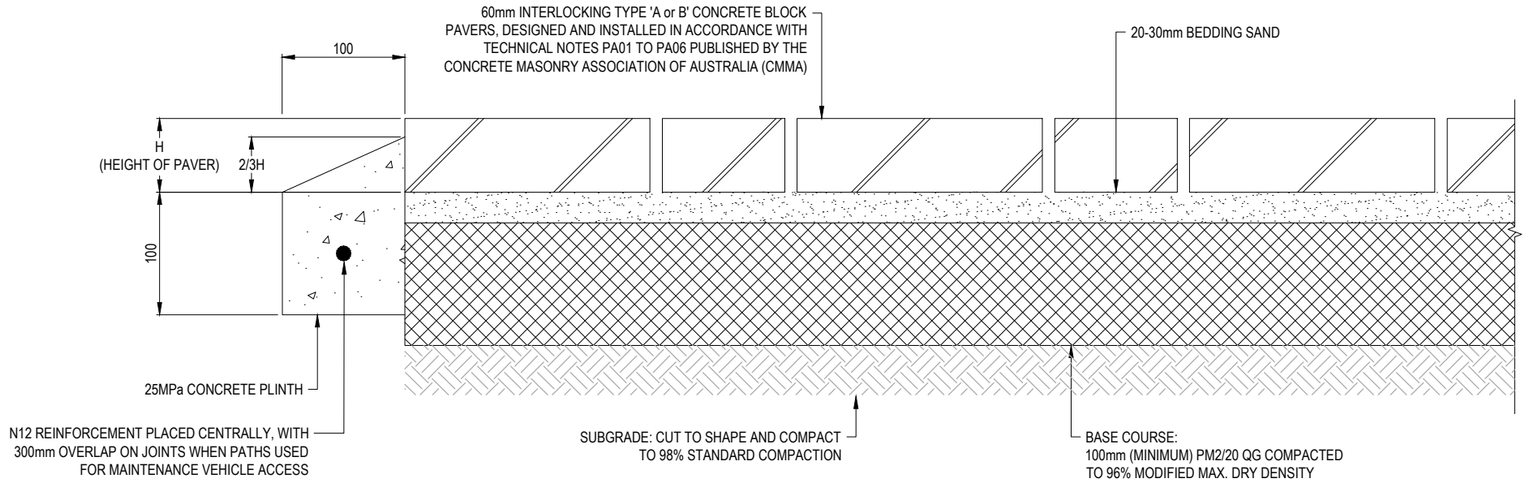
DRAWING TITLE: TYPICAL HOT MIX ASPHALT FOOTPATH

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-2015		C



SECTION THROUGH EDGE OF FOOTPATH

SCALE 1:2.5

NOTES:

1. 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 PRACTICE.
3. PAVING BLOCKS TO BE LAID IN 90° HERRINGBONE PATTERN WITH HEADER COURSE UP TO THE CONCRETE PLINTH OR AS SPECIFIED.
4. 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 PAVELOCK SAND.
5. ALL CUTTING OF PAVERS TO BE WITH MASONRY SAW ONLY.
6. CLAY PAVERS OR OTHER NON INTERLOCKING PAVERS ARE SUBJECT TO APPROVAL BASED ON PERFORMANCE REQUIREMENTS INCLUDING SLIP RESISTANCE AND STRENGTH.
7. USE 80mm THICK PAVERS AT ALL DRIVEWAY CROSSOVERS.

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

ALL MEASUREMENTS IN MILLIMETRES

FIRST ISSUE		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
AMENDMENTS	A					19/12/24	ISSUED FOR REVIEW
	B					20/12/24	ISSUED FOR REVIEW
	C					02/04/25	CLIENT SUBMISSION
	D					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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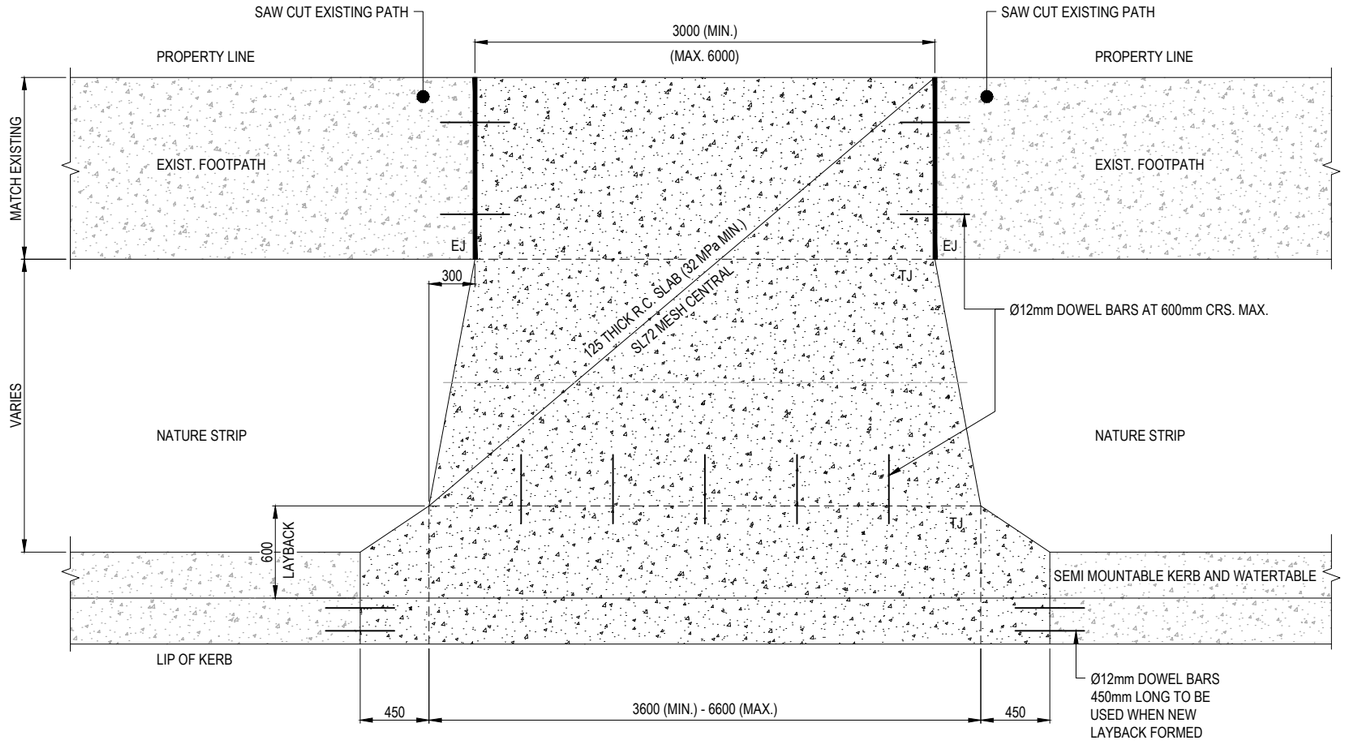
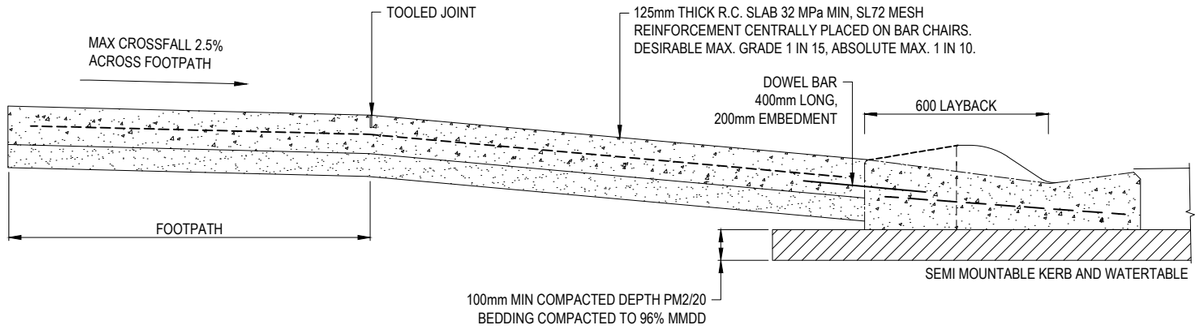
DRAWING TITLE: BLOCK PAVED FOOTPATH

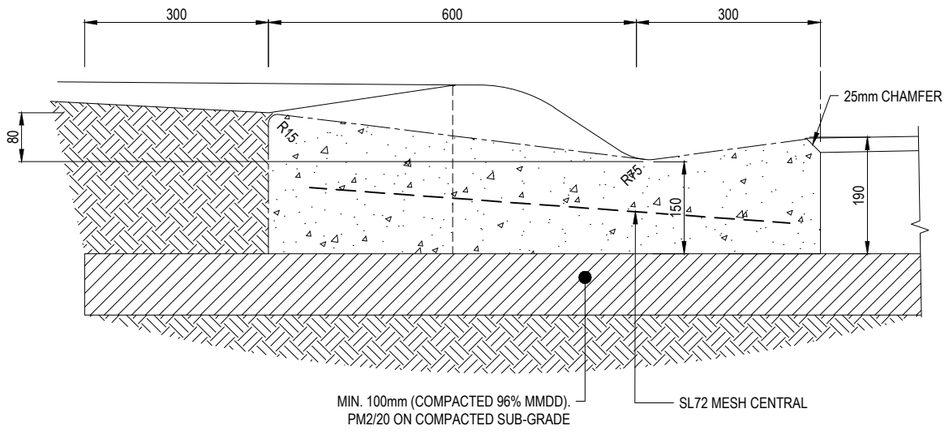
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-2020		D



PLAN
SCALE 1:20



SECTION A-A
SCALE 1:10



SECTIONAL VIEW OF RESIDENTIAL KERB & LAYBACK
SCALE 1:5

LEGEND:

EXPANSION JOINT — EJ

TOOLED JOINTS (REFER TO DH-RD-2010) — TJ

NOTES:

1. THIS DRAWING DETAILS DIMENSIONS FOR STANDARD RESIDENTIAL CROSSINGS ONLY.
2. CROSSING WIDTHS EXCEEDING THE MAXIMUM ALLOWABLE WILL REQUIRE APPLICATION FOR SPECIAL CONSIDERATION.
3. 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.
5. 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.
6. 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.
7. IF REVERSE FALL IS REQUIRED, DESIGN OF VEHICLE CROSSOVER TO BE ON A SITE SPECIFIC BASIS.
8. LOCATION AND DEPTH OF ANY UNDERGROUND SERVICES WITHIN FOOTWAY AREA MUST BE ESTABLISHED BEFORE COMMENCEMENT OF EXCAVATION.
9. 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
10. 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.

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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STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DISCLAIMER
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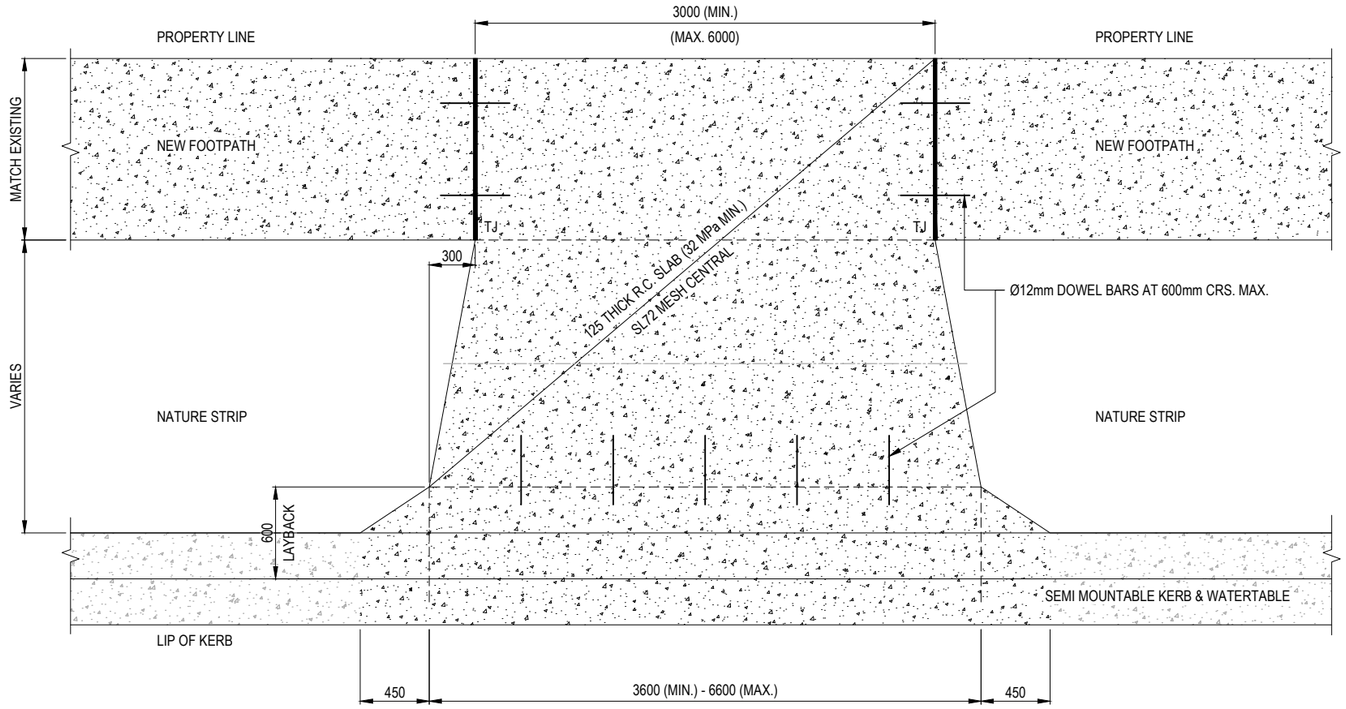
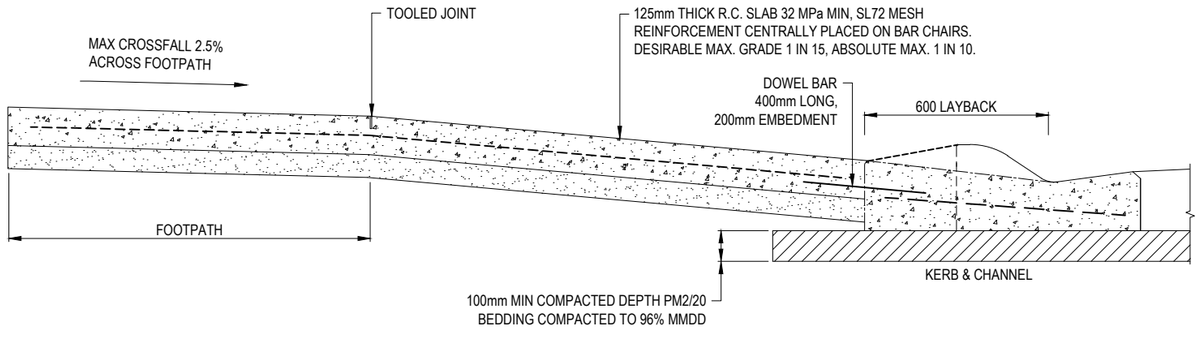
DRAWING TITLE: RETROFIT RESIDENTIAL VEHICLE CROSSING DETAIL

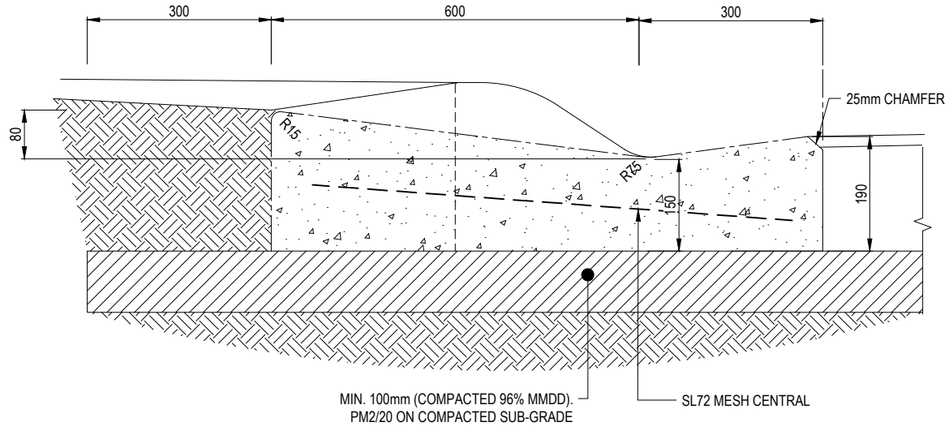
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-2025		C



PLAN
SCALE 1:20



SECTION A-A
SCALE 1:10



SECTIONAL VIEW OF RESIDENTIAL KERB & LAYBACK
SCALE 1:5

LEGEND:

EXPANSION JOINT — EJ

TOOLED JOINTS (REFER TO DH-RD-2010) — TJ

NOTES:

1. THIS DRAWING DETAILS DIMENSIONS FOR STANDARD RESIDENTIAL CROSSINGS ONLY.
2. CROSSING WIDTHS EXCEEDING THE MAXIMUM ALLOWABLE WILL REQUIRE APPLICATION FOR SPECIAL CONSIDERATION.
3. JOINTS AND DOWEL BARS ARE REQUIRED ON EITHER SIDE OF THE CROSSING AT THE INTERFACE WITH THE CONCRETE FOOTPATH.
4. 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.
5. 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.
6. 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 6.6m, OR ELSE HAVE A MINIMUM SEPARATION OF 9m.
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.
8. IF REVERSE FALL IS REQUIRED, DESIGN OF VEHICLE CROSSOVER TO BE ON A SITE SPECIFIC BASIS.
9. 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.

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

ALL MEASUREMENTS IN MILLIMETRES

FIRST ISSUE		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
AMENDMENTS	A					20/12/24	ISSUED FOR REVIEW
	B					02/04/25	CLIENT SUBMISSION
	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DISCLAIMER
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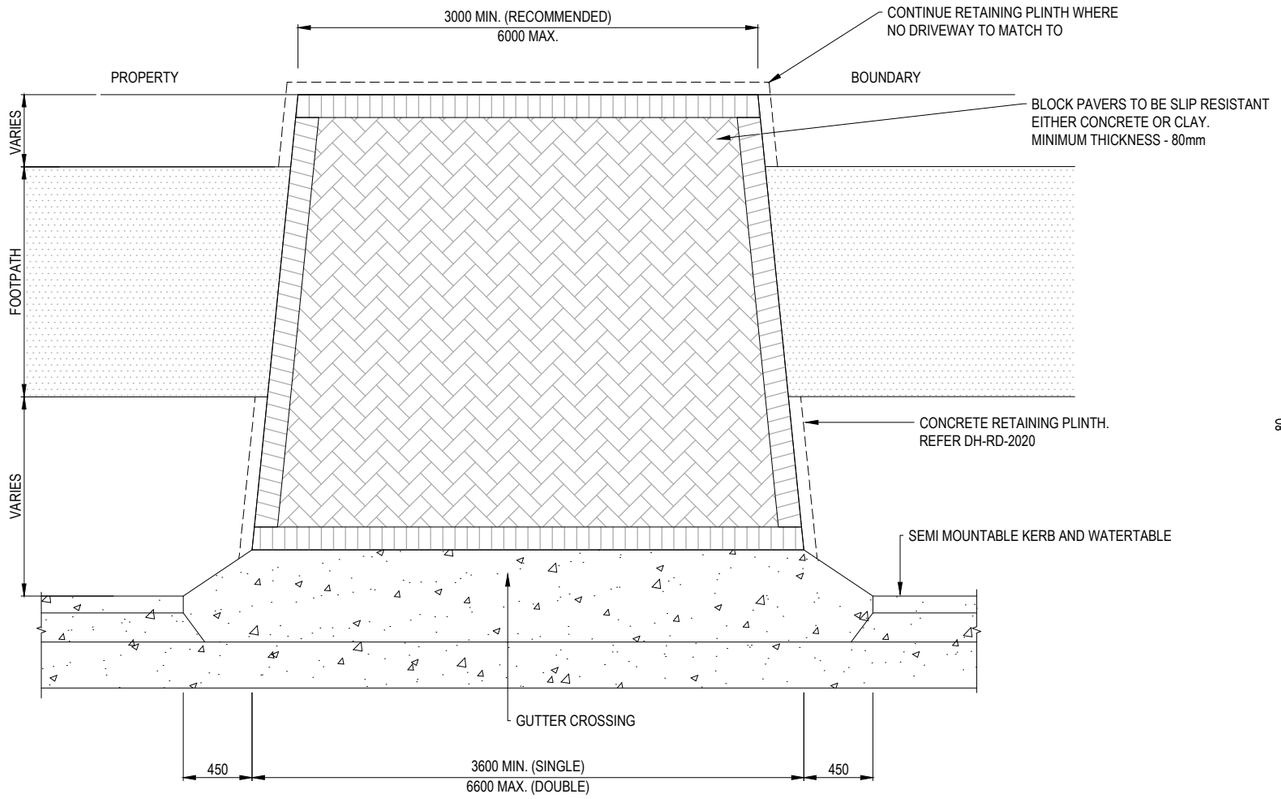
DRAWING TITLE: RESIDENTIAL VEHICLE CROSSING DETAIL

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-2030		C

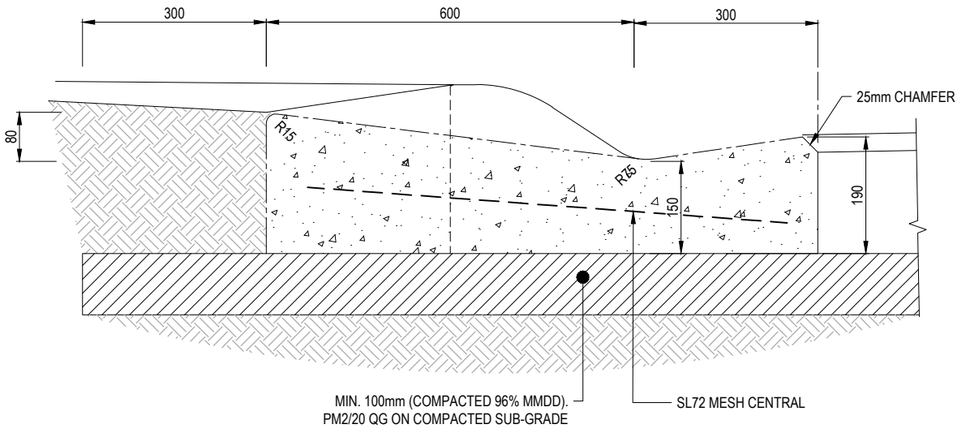


PLAN OF BLOCK PAVED VEHICLE CROSS-OVER

SCALE 1:20

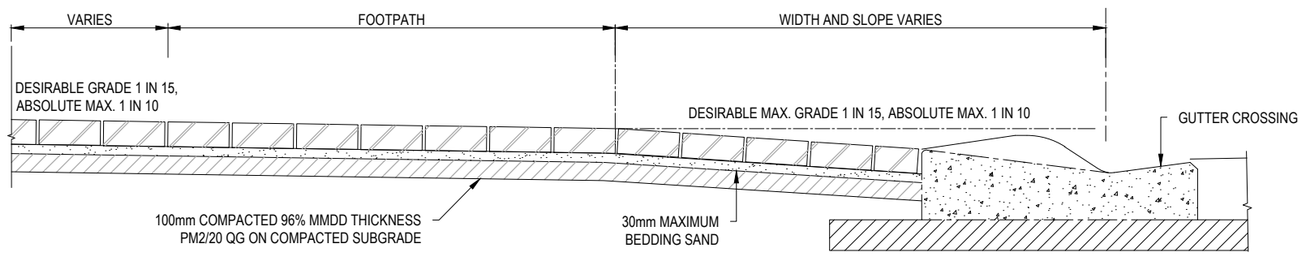
NOTES:

1. TO BE READ IN CONJUNCTION DRAWING DH-RD-2025.
2. REFER ALSO TO NOTES ON DRAWING DH-RD-2025.



SECTIONAL VIEW OF RESIDENTIAL KERB & LAYBACK

SCALE 1:5



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

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	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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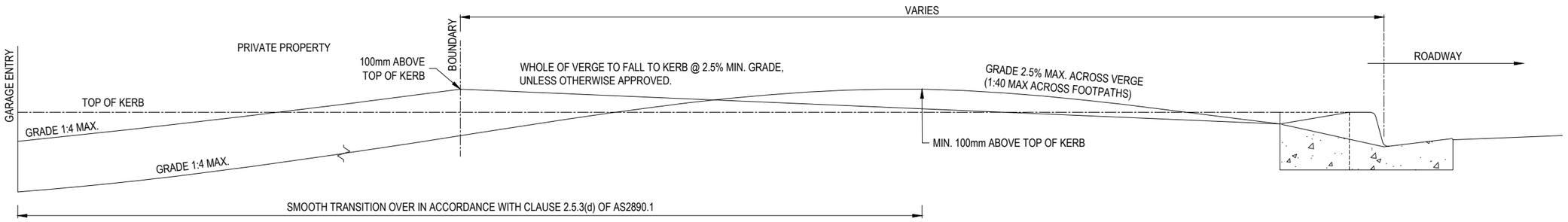
DRAWING TITLE: VEHICLE BLOCK PAVED CROSSING DETAIL

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-2035		C

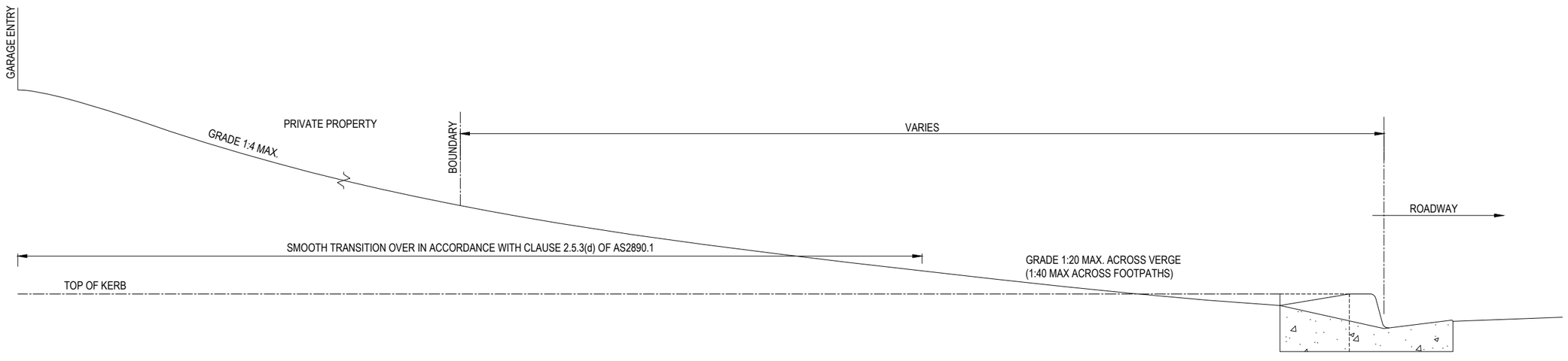
NOTES:

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

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AMENDMENTS	DESIGN	DRAWN	CHECK	APP'D.	DATE	AMENDMENT DETAILS
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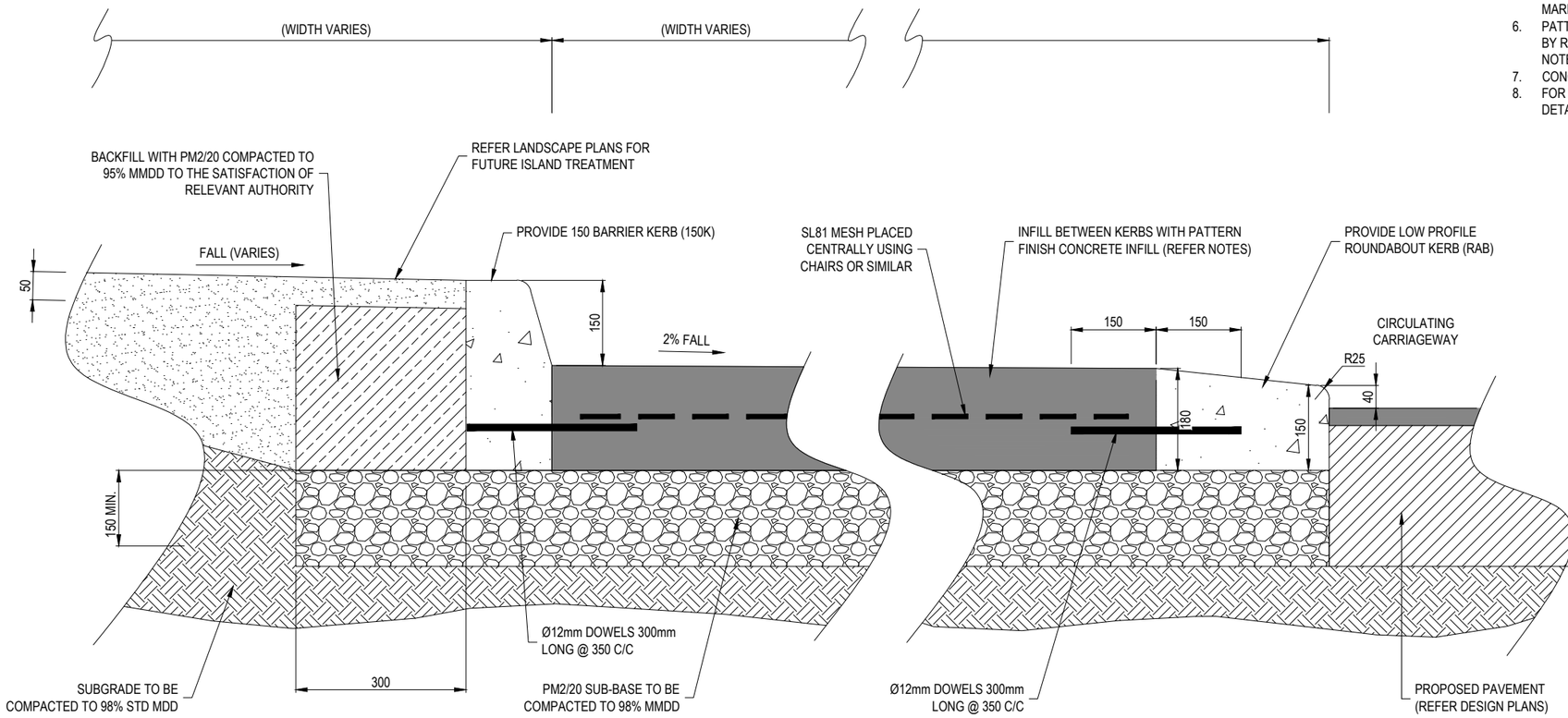
DRAWING TITLE: VEHICLE CROSSING LONGITUDINAL SECTIONS

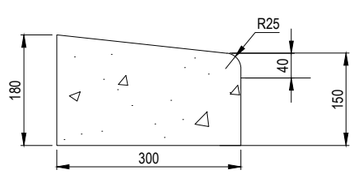
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-2045		C

NOTES:

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.
4. ALL STREETLIGHTS AND POLES SHALL BE OF AN APPROVED SA POWER NETWORKS STANDARD AND AS 1158 COMPLIANT.
5. ROUNDABOUT KERBING SHALL BE DELINEATED WITH AN OUTLINE MARKING SEPARATED FROM THE KERB BY 100mm.
6. 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.
8. FOR INSTALLATION REQUIREMENTS, REFER TO KERB INSTALLATION DETAIL(S).



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



LOW PROFILE ROUNDABOUT KERB (RAB)

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ALL MEASUREMENTS IN MILLIMETRES

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AMENDMENTS

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

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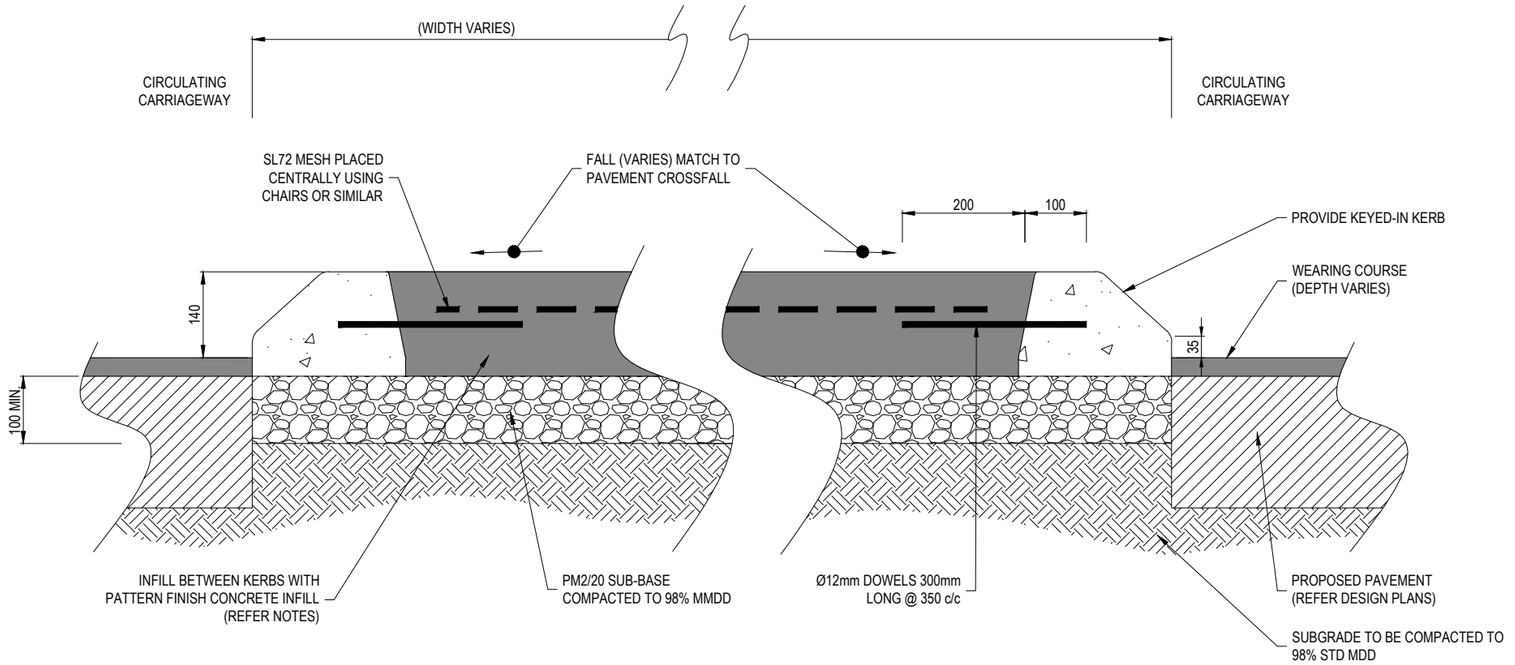
DRAWING TITLE: ROUNDABOUT INSTALLATION TYPE 1

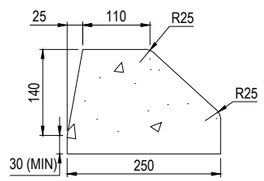
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-2050		D

NOTES:

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'.
4. ALL STREET LIGHTS AND POLES SHALL BE OF AN APPROVED SA POWER NETWORKS STANDARD AND AS 1158 COMPLIANT.
5. ROUNDABOUT KERBING SHALL BE DELINEATED WITH AN OUTLINE MARKING SEPARATED FROM THE KERB BY 100mm.
6. PATTERN FINISH CONCRETE INFILL COLOUR & TYPE TO BE ADVISED BY RELEVANT AUTHORITY. INFILL & KERB CONCRETE TO BE 32MPa UNLESS NOTED OTHERWISE.



ROUNDABOUT INSTALLATION (TYPE 2)
PATTERN FINISH CONCRETE INFILL
NOT TO SCALE



KEYED-IN KERB
FOR MEDIANS (MED) OR ROUNDABOUTS (RAB)

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ALL MEASUREMENTS IN MILLIMETRES

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D					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

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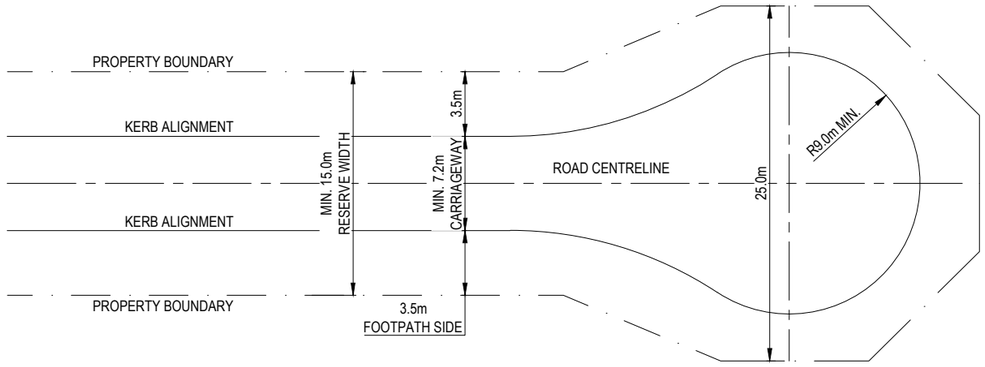
DRAWING TITLE: ROUNDABOUT INSTALLATION TYPE 2

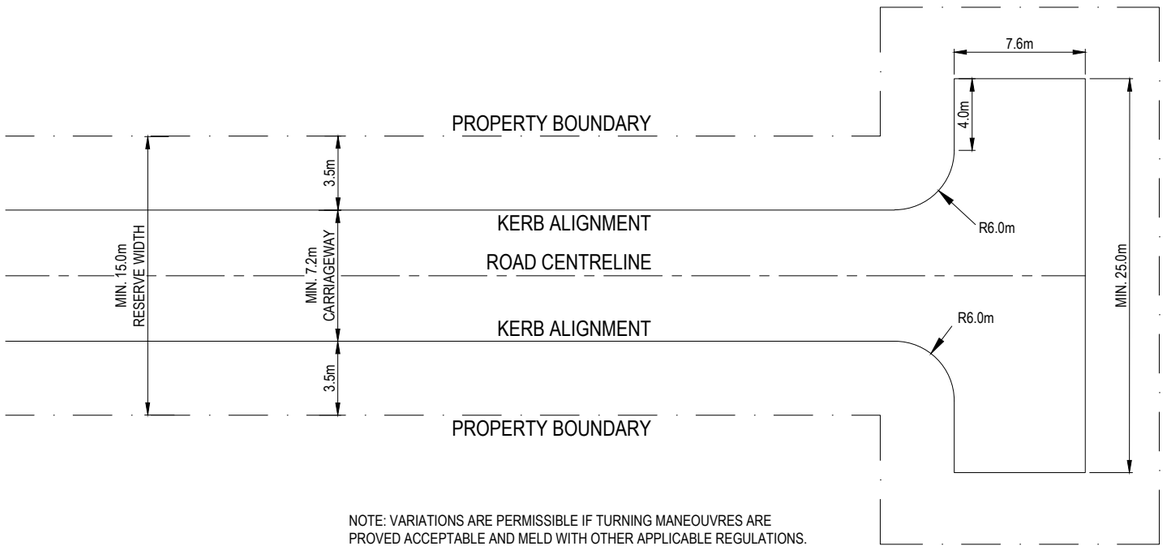
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-2055		D



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



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

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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	D					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

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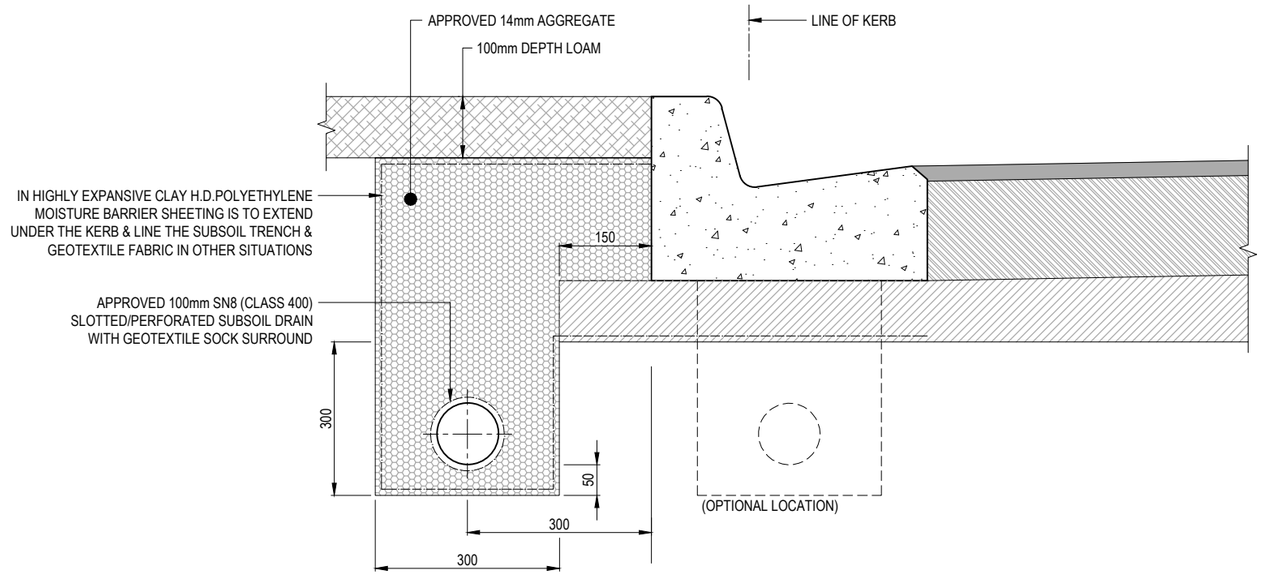
DRAWING TITLE: TERMINATION ROAD TURNAROUND PROVISIONS

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-2060		D

NOTES:

1. THE DRAINS SHALL BE LAID ON A GRADE PARALLEL TO THE FINISHED SURFACE.
2. FOR FLUSHOUT RISER DETAILS REFER TO STANDARD DRAWINGS DH-SW-3065.
3. 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 SECTION
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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STATUS: FOR INFORMATION

SCALE AS SHOWN

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SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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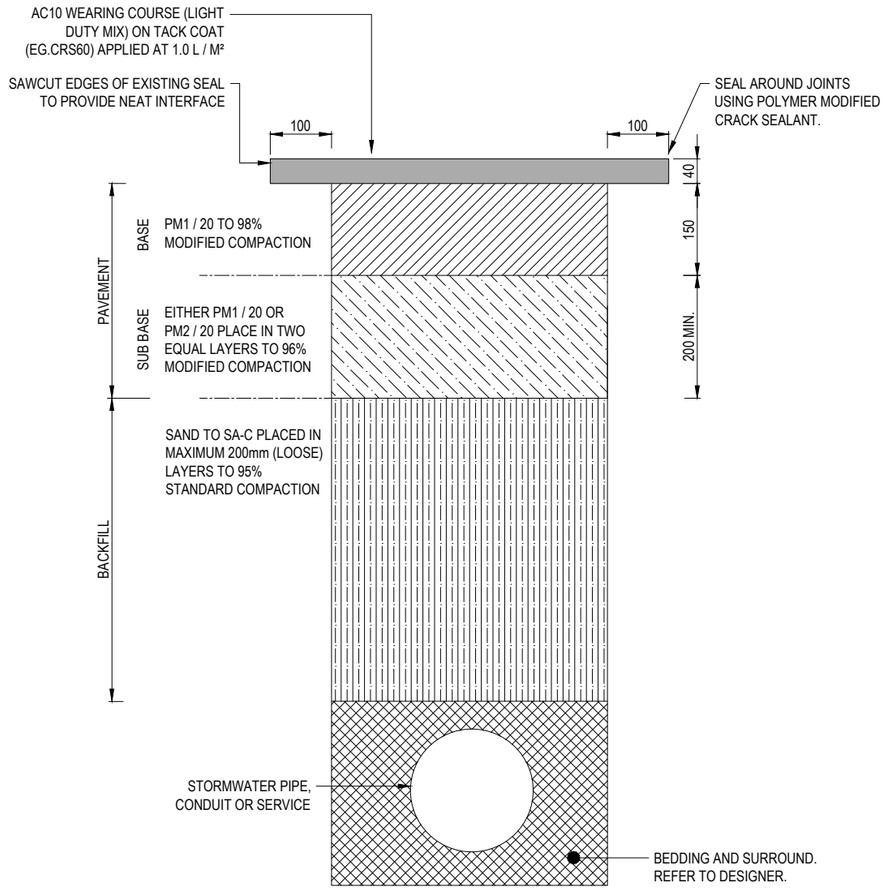
DRAWING TITLE: TYPICAL PAVEMENT SUBSOIL DRAINAGE

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-2065		C



LIGHTLY TRAFFICKED ROADS WITH ASPHALT SURFACE

(< 1000 VPD)
(< 5% CV)

NOTE:

1. ROADS WITH TRAFFIC VOLUMES OR CV EXCEEDING THOSE SHOWN, REFER TO DIT PAVEMENT REINSTATEMENT CONFIGURATIONS.
2. 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 OFFSITE.
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 PAVEMENT.
6. NEW ASPHALT TO BE HEATED AND BLENDED INTO THE EXISTING ASPHALT SEAL.
7. TRENCH REINSTATEMENT OVER WATER AND SEWER PIPES TO BE IN ACCORDANCE WITH SA WATER STANDARD DRAWINGS.
8. IF EXISTING ASPHALT DEPTH IS GREATER THAN 40mm, MATCH THE EXISTING PAVEMENT ASPHALT DEPTH.
9. BEDDING AND HAUNCHING TO MANUFACTURERS SPECIFICATION.

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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	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4
SCALE 1:5 (A1) SCALE 1:10 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

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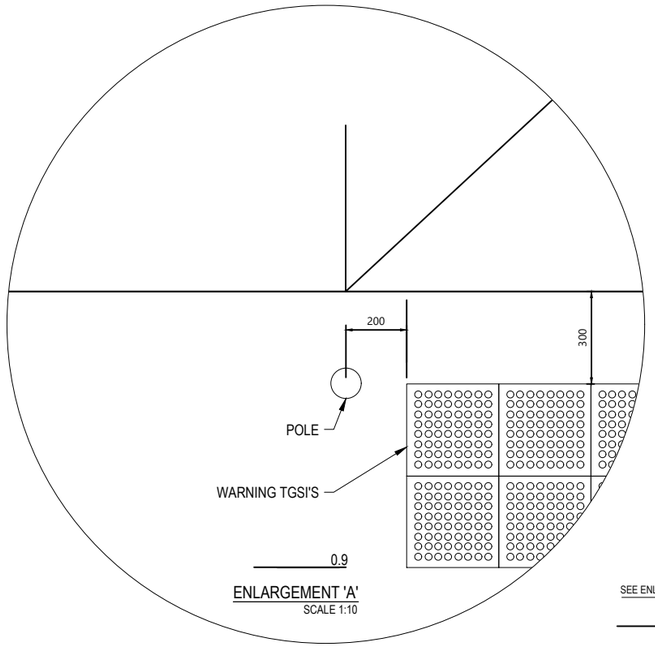
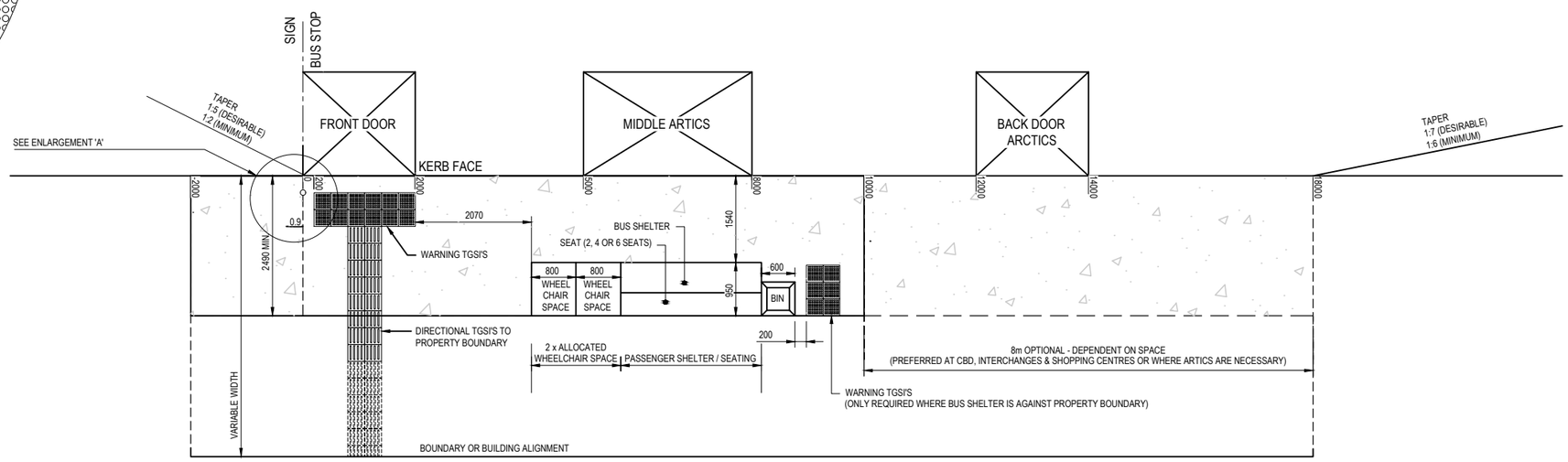
DRAWING TITLE: TYPICAL ROAD CROSSING TRENCH BACKFILL REQUIREMENTS

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-2070		C

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



ENLARGEMENT 'A'
SCALE 1:10



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

ALL MEASUREMENTS IN MILLIMETRES

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STATUS: FOR INFORMATION

SCALE AS SHOWN
0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0
SCALE 1:50 (A1) SCALE 1:100 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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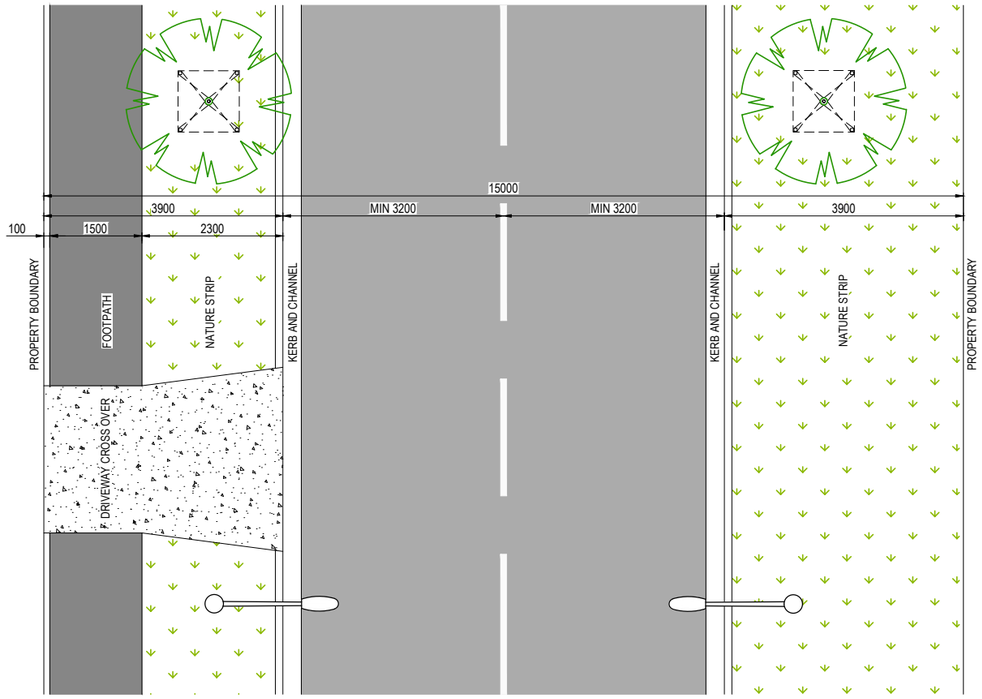
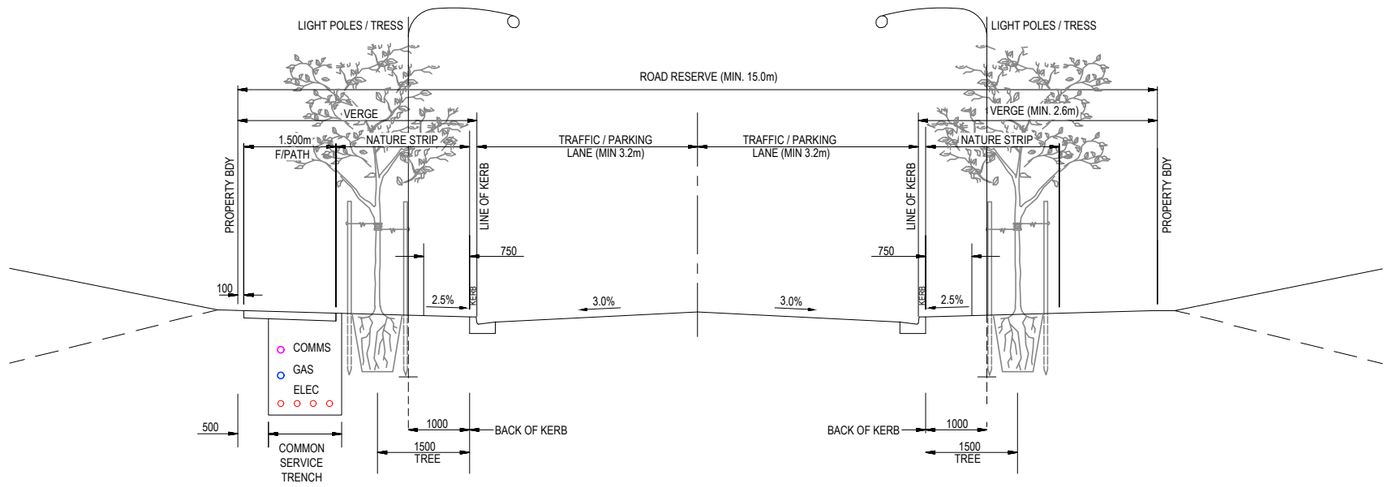
DRAWING TITLE: TYPICAL BUS STOP DETAIL

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-2075		C



PLAN - RESIDENTIAL STREET
SCALE 1:50



TYPICAL CROSS SECTION - RESIDENTIAL STREET
SCALE 1:50

NOTES:

1. THE LOCATIONS OF TREES AND STREETLIGHT POLES SHOWN ARE FOR REFERENCE ONLY AND REQUIRE A SPECIFIC DESIGN FOR EACH SITE.
2. THE ROAD MARKINGS SHOWN ARE FOR REFERENCE ONLY AND REQUIRE A SPECIFIC DESIGN FOR EACH SITE.
3. TRAFFIC LANE WIDTHS ARE NOT TO EXCEED 3.5m TO ALLOW FLEXIBILITY FOR THE PROVISION OF CYCLE LANES, ON-STREET PARKING AND LOCAL AREA TRAFFIC MANAGEMENT TREATMENTS WITHIN THE KERBSIDE ZONE.

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENTS		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
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	C					04/04/25	CLIENT SUBMISSION
	D					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN
0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0
SCALE 1:50 (A1) SCALE 1:100 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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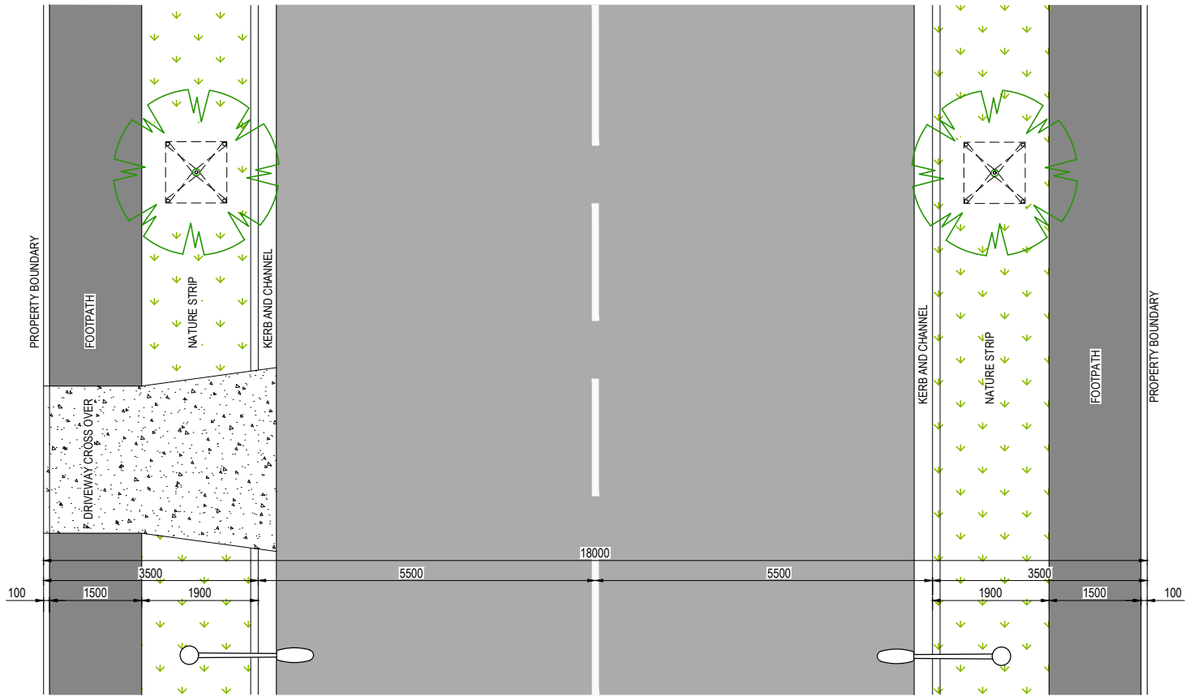
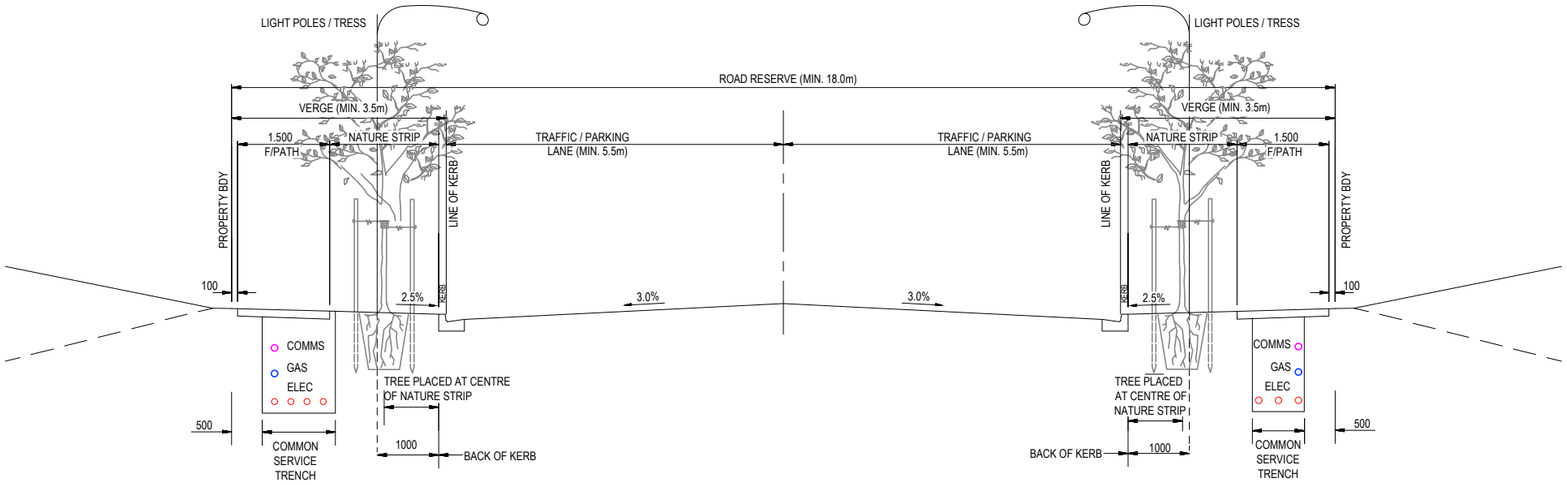
DRAWING TITLE: TYPICAL ROAD CROSS SECTION AND PLAN ACCESS STREET

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-3000		D



PLAN - LEVEL 1 COLLECTOR/CONNECTOR STREET
SCALE 1:50



TYPICAL CROSS SECTION - LEVEL 1 COLLECTOR/CONNECTOR STREET
SCALE 1:50

NOTES:

1. THE LOCATIONS OF TREES AND STREETLIGHT POLES SHOWN ARE FOR REFERENCE ONLY AND REQUIRE A SPECIFIC DESIGN FOR EACH SITE.
2. THE ROAD MARKINGS SHOWN ARE FOR REFERENCE ONLY AND REQUIRE A SPECIFIC DESIGN FOR EACH SITE.
3. TRAFFIC LANE WIDTHS ARE NOT TO EXCEED 3.5m TO ALLOW FLEXIBILITY FOR THE PROVISION OF CYCLE LANES, ON-STREET PARKING AND LOCAL AREA TRAFFIC MANAGEMENT TREATMENTS WITHIN THE KERBSIDE ZONE.

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENTS		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
FIRST ISSUE							
	A					04/04/25	CLIENT SUBMISSION
	B					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN
0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0
SCALE 1:50 (A1) SCALE 1:100 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DISCLAIMER
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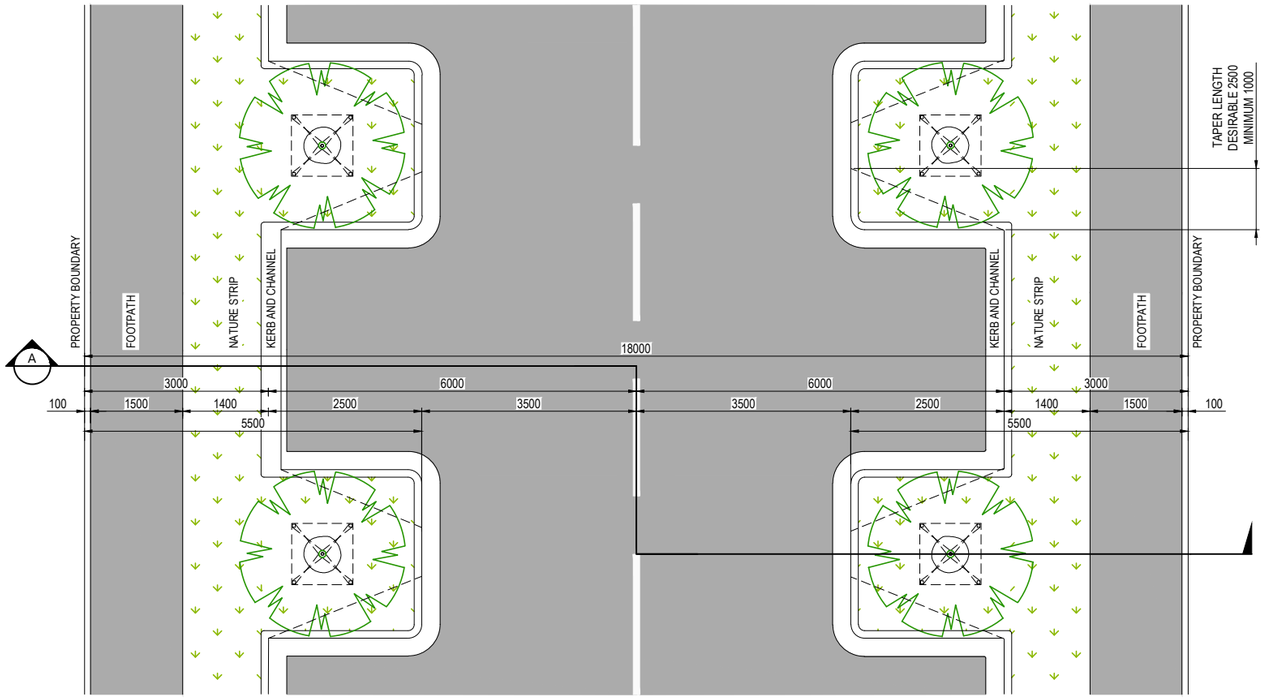
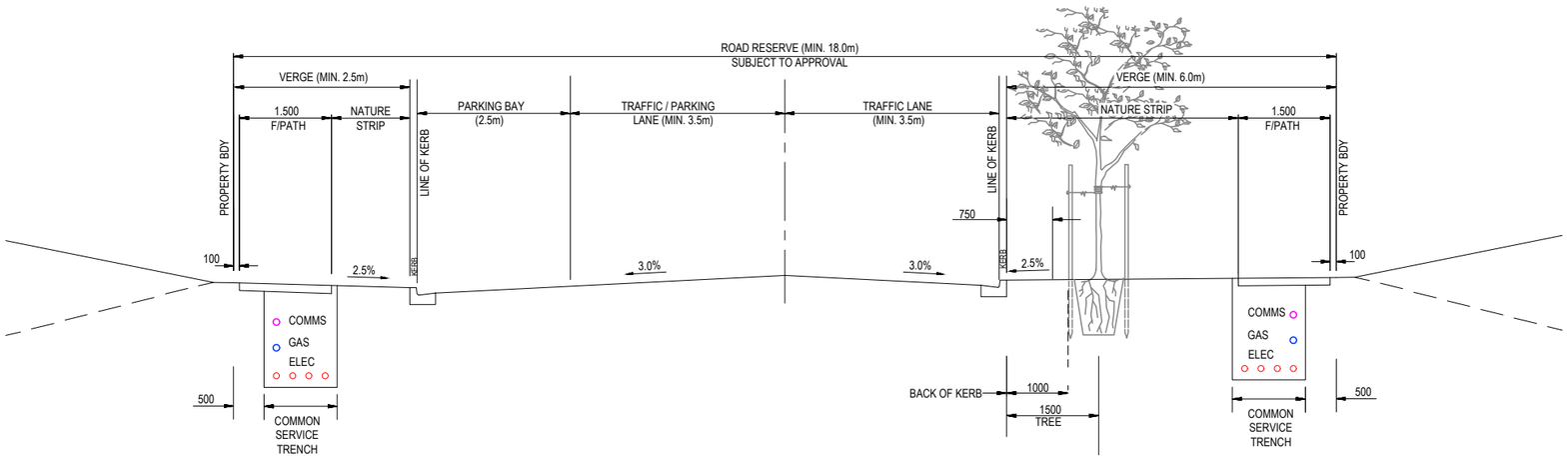
DRAWING TITLE
TYPICAL ROAD CROSS SECTION AND PLAN LEVEL 1 COLLECTOR/CONNECTOR STREET

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-3001		B



PLAN - LEVEL 1 COLLECTOR/CONNECTOR STREET
WITH INDENTED PARKING BAY
SCALE 1:50



TYPICAL CROSS SECTION A - LEVEL 1 COLLECTOR/CONNECTOR
STREET WITH INDENTED PARKING BAY
SCALE 1:50

NOTES:

1. THE LOCATIONS OF TREES AND STREETLIGHT POLES SHOWN ARE FOR REFERENCE ONLY AND REQUIRE A SPECIFIC DESIGN FOR EACH SITE.
2. THE ROAD MARKINGS SHOWN ARE FOR REFERENCE ONLY AND REQUIRE A SPECIFIC DESIGN FOR EACH SITE.
3. TRAFFIC LANE WIDTHS ARE NOT TO EXCEED 3.5m TO ALLOW FLEXIBILITY FOR THE PROVISION OF CYCLE LANES, ON-STREET PARKING AND LOCAL AREA TRAFFIC MANAGEMENT TREATMENTS WITHIN THE KERBSIDE ZONE.
4. PARALLEL PARKING BAY SHALL BE MINIMUM 2.3m WIDE AND MINIMUM 6m LONG.

ALL MEASUREMENTS IN MILLIMETRES

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPD	DATE	AMENDMENT DETAILS
AMENDMENTS A					09/05/25	CLIENT SUBMISSION
B					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN
0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0
SCALE 1:50 (A1) SCALE 1:100 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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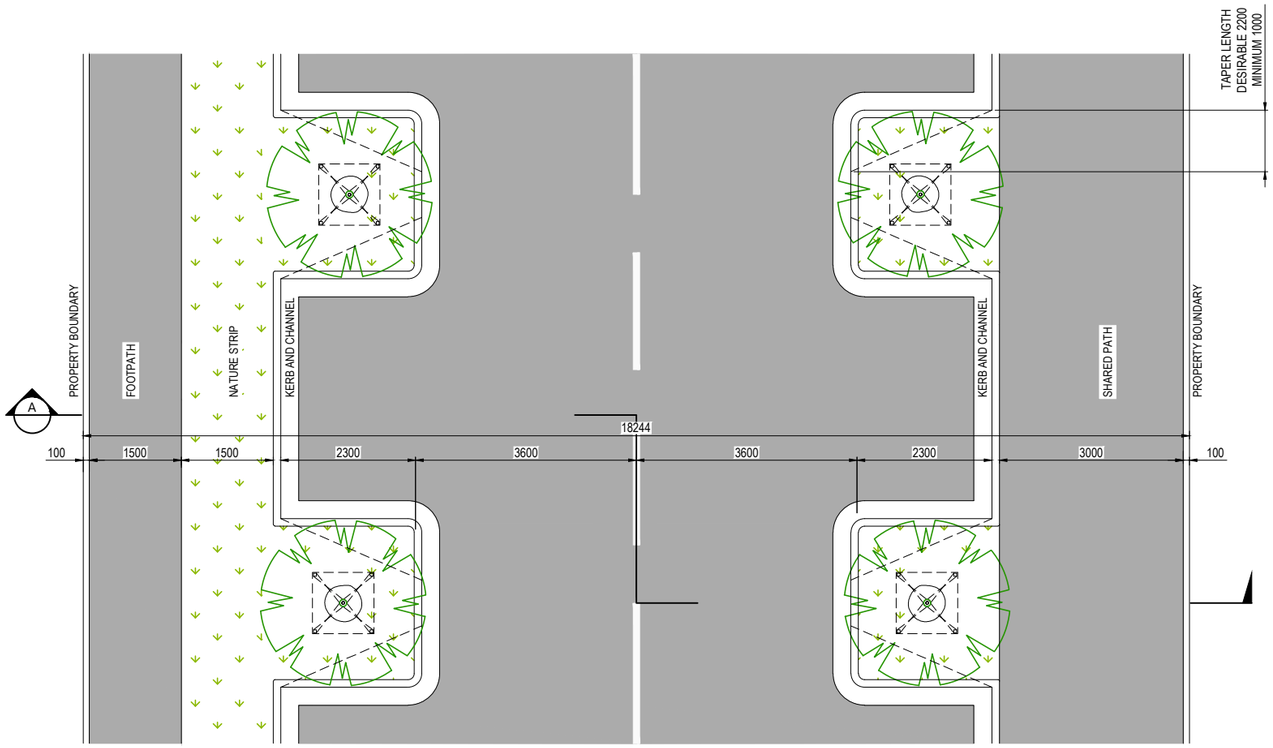
DRAWING TITLE
TYPICAL ROAD CROSS SECTION AND PLAN LEVEL 1 COLLECTOR/CONNECTOR STREET (WITH INDENTED CARPARK)

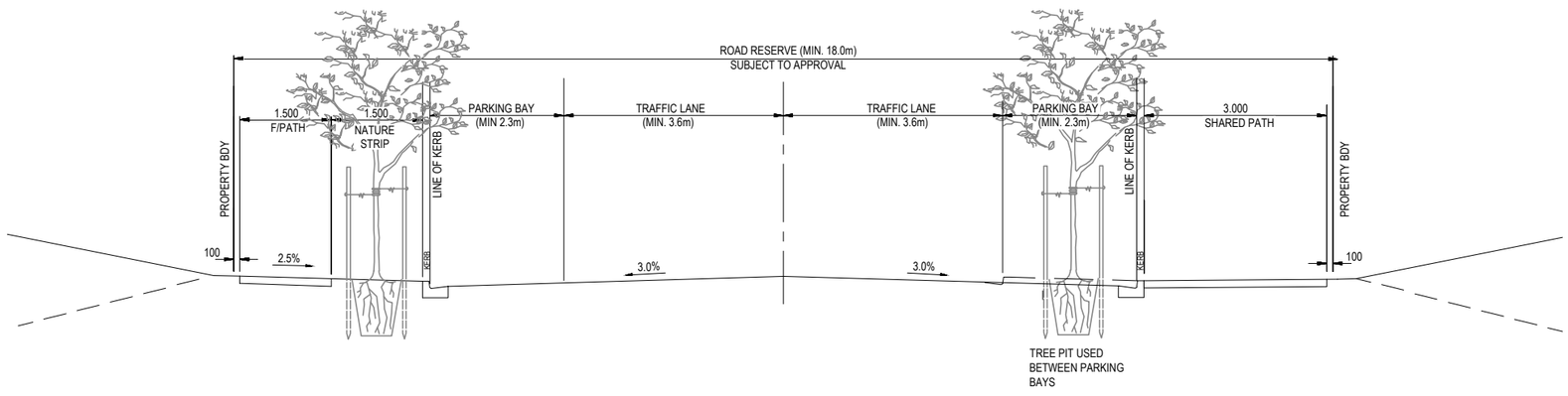
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-3002		B



PLAN - COLLECTOR ROAD WITH SHARED PATH
SCALE 1:50

NOTES:

1. THE LOCATIONS OF TREES AND STREETLIGHT POLES SHOWN ARE FOR REFERENCE ONLY AND REQUIRE A SPECIFIC DESIGN FOR EACH SITE.
2. THE ROAD MARKINGS SHOWN ARE FOR REFERENCE ONLY AND REQUIRE A SPECIFIC DESIGN FOR EACH SITE.
3. PARALLEL PARKING BAY SHALL BE MINIMUM 2.3m WIDE AND MINIMUM 6m LONG.



TYPICAL CROSS SECTION A - COLLECTOR ROAD WITH SHARED PATH
SCALE 1:50

ALL MEASUREMENTS IN MILLIMETRES

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
AMENDMENTS A					16/03/26	CLIENT SUBMISSION
B					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

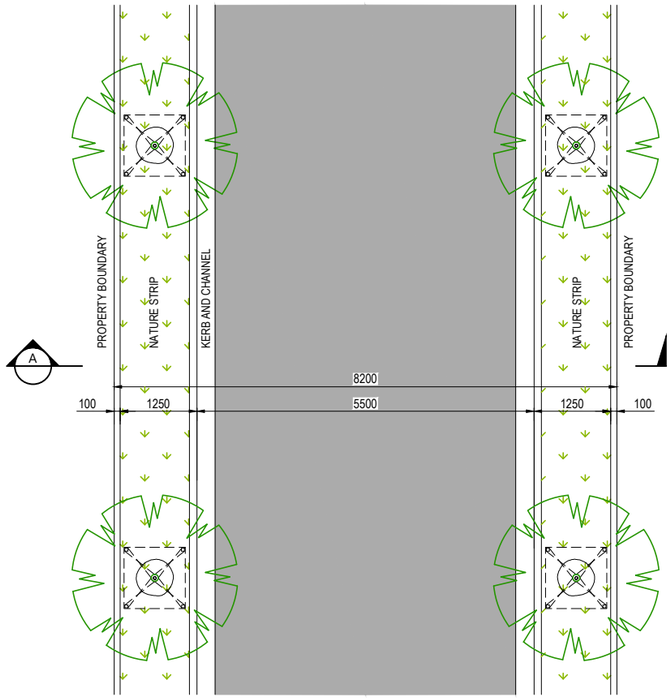
SCALE AS SHOWN
0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0
SCALE 1:50 (A1) SCALE 1:100 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

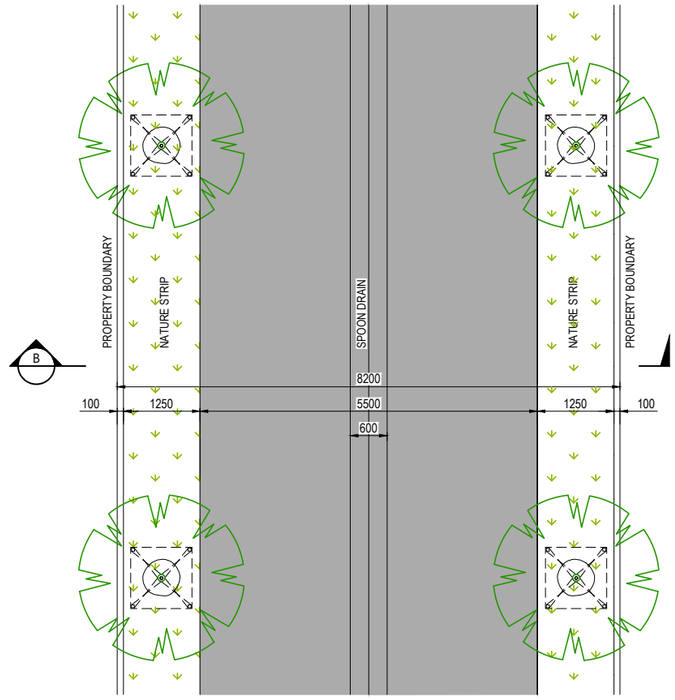
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DRAWING TITLE: TYPICAL ROAD CROSS SECTION AND PLAN COLLECTOR ROAD

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-3003		B



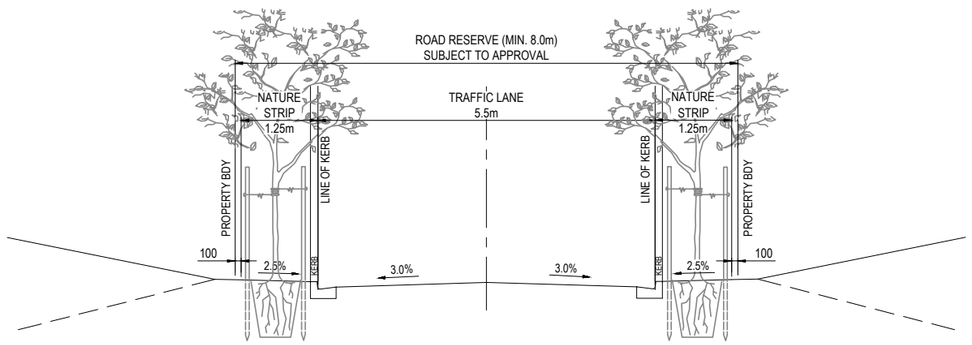
PLAN - STANDARD ACCESS LANE
SCALE 1:50



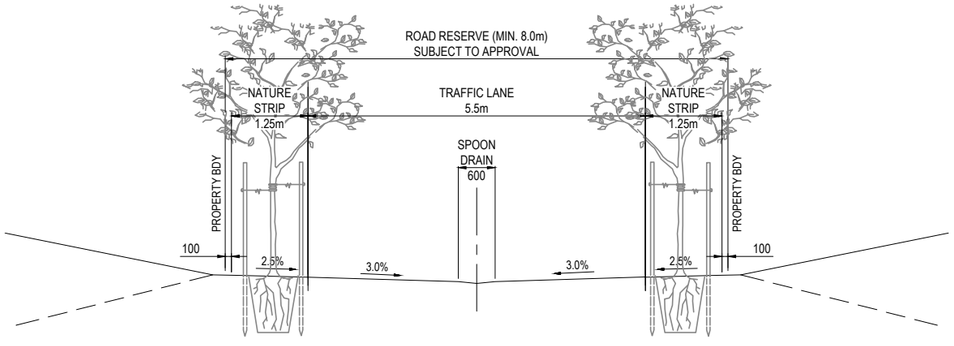
PLAN - STANDARD ACCESS LANE WITH SPOON DRAIN IN THE MIDDLE
SCALE 1:50

NOTES:

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



TYPICAL CROSS SECTION A - STANDARD ACCESS LANE
SCALE 1:50



TYPICAL CROSS SECTION B - STANDARD ACCESS LANE WITH SPOON DRAIN IN MIDDLE
SCALE 1:50

ALL MEASUREMENTS IN MILLIMETRES

FIRST ISSUE		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
AMENDMENTS	A					16/03/26	CLIENT SUBMISSION
	B					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN
0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0
SCALE 1:50 (A1) SCALE 1:100 (A3)

CLIENT
Government of South Australia
Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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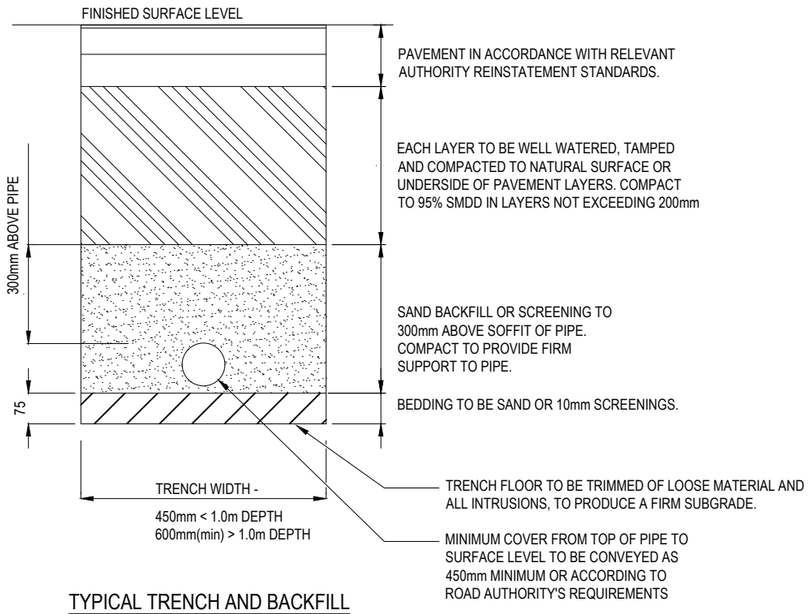
DRAWING TITLE
TYPICAL ROAD CROSS SECTION AND PLAN STANDARD ACCESS LANE

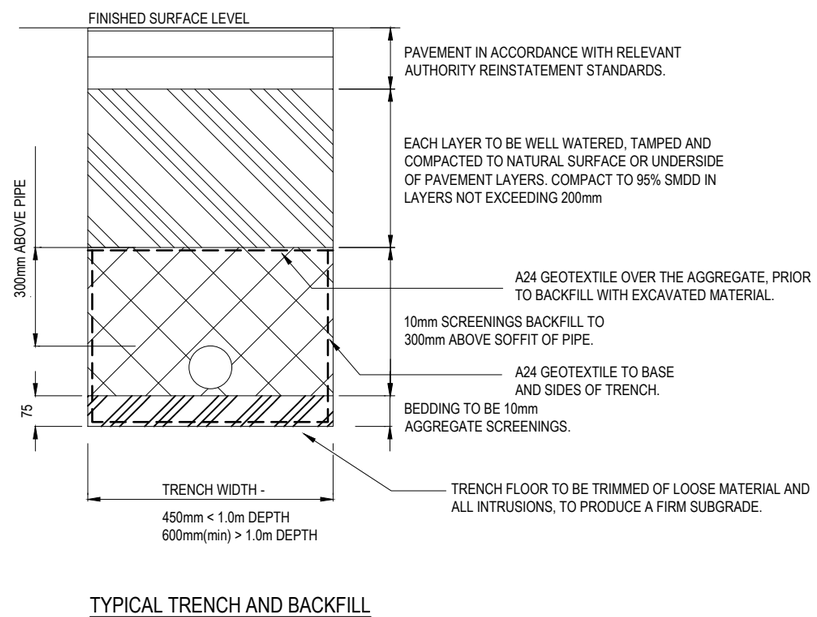
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-3004		B

NOTES:

1. PIPES TO BE LOCATED CENTRALLY IN TRENCH.
2. TRENCH BASE TO BE FIRM AND TO HAVE CONSTANT GRADE.
3. UNEVEN TRENCHES ARE NOT ACCEPTABLE.
4. DEWATER TRENCH DURING CONSTRUCTION.
5. TRENCHES EXCEEDING 1.5m IN DEPTH ARE TO BE APPROPRIATELY SUPPORTED TO PREVENT COLLAPSE AND ENSURE WORKER SAFETY. IN ACCORDANCE WITH THE SAFE WORK AUSTRALIA MODEL CODE OF PRACTICE: EXCAVATION WORK AND AS4744.1-STEEL SHORING AND TRENCH LINING EQUIPMENT.



TYPICAL TRENCH AND BACKFILL
NO GROUNDWATER
NOT TO SCALE



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

AMENDMENTS		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
FIRST ISSUE							
	A					19/12/24	ISSUED FOR REVIEW
	B					20/12/24	ISSUED FOR REVIEW
	C					02/04/25	CLIENT SUBMISSION
	D					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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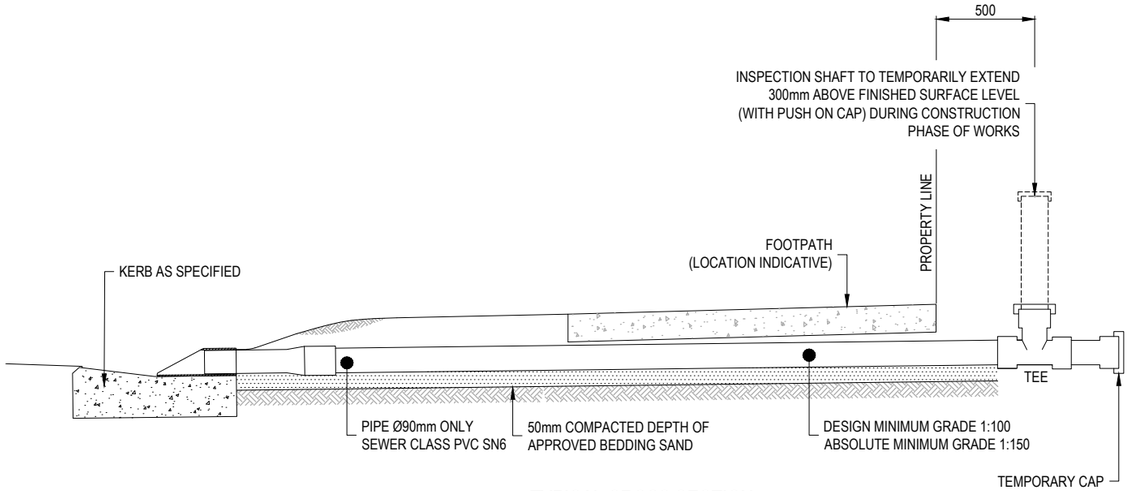
DRAWING TITLE: TRENCH AND BACKFILL DETAILS - CWMS

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-RD-3015		D

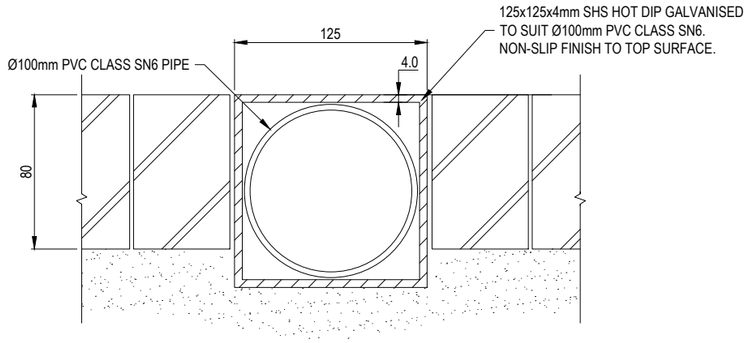


TYPICAL CROSS SECTION

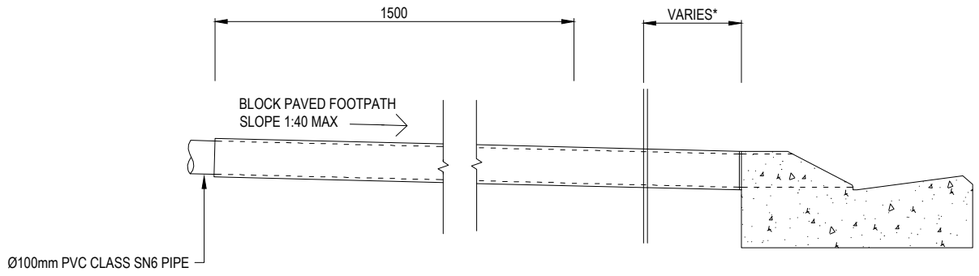
NOT TO SCALE

NOTES:

1. 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.
2. PM2/20 QG OR DOLOMITE SAND BACKFILL TO BE USED.
3. REFER DH-RD-1015 FOR DETAILS OF KERB ADAPTOR.
4. PROPRIETARY GALVANISED 'TOP HAT' SECTION IS SUITABLE ALTERNATIVE.

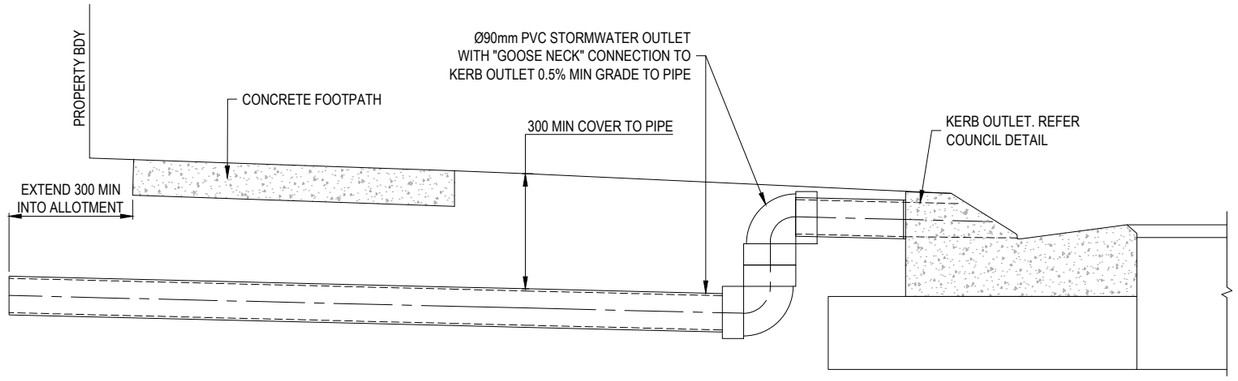


TYPICAL SHS CROSS SECTION

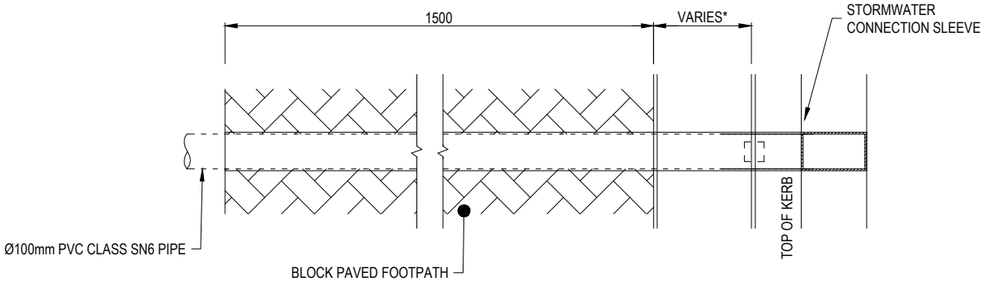


LONGITUDINAL SECTION

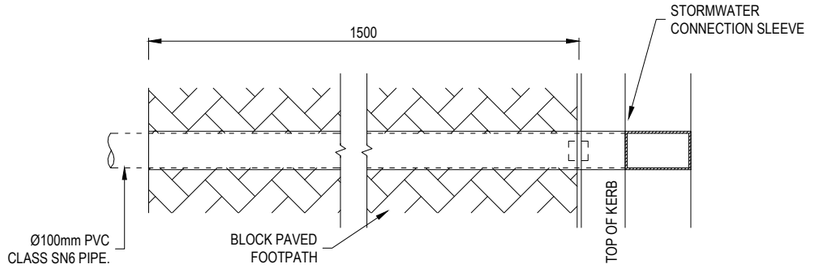
(BLOCK PAVED FOOTPATH NOT SHOWN)



GOOSE NECK STORMWATER OUTLET DETAIL



PLAN VIEW



ALTERNATE PLAN VIEW

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

ALL MEASUREMENTS IN MILLIMETRES

FIRST ISSUE		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
AMENDMENTS	A					19/12/24	ISSUED FOR REVIEW
	C					02/04/25	CLIENT SUBMISSION
	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

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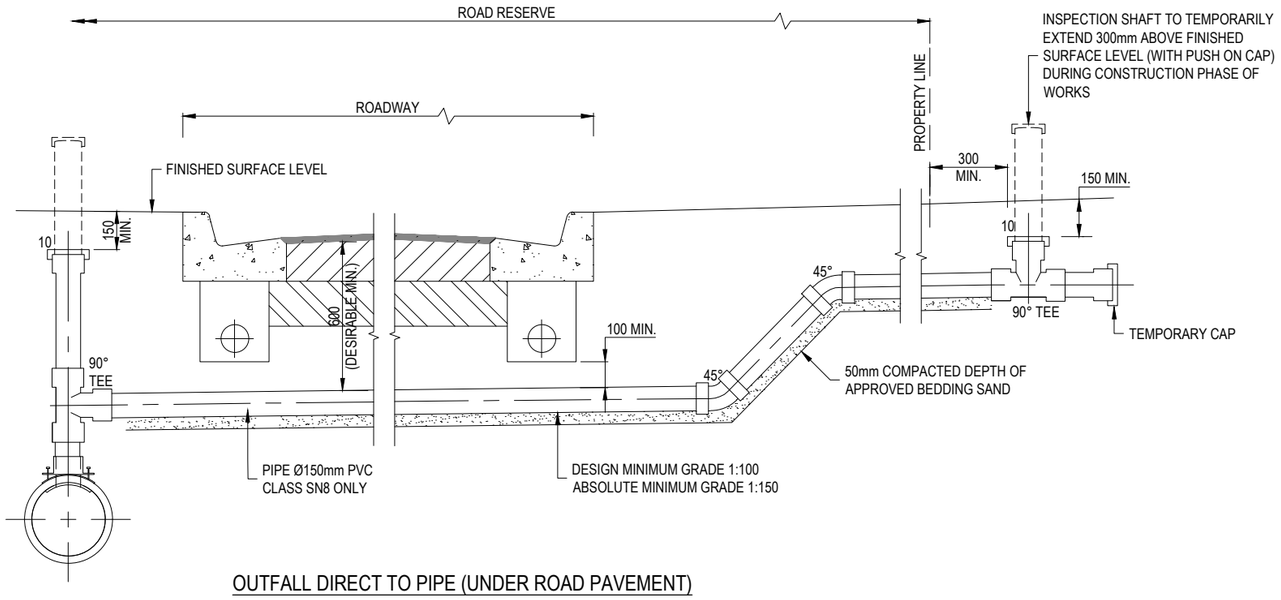
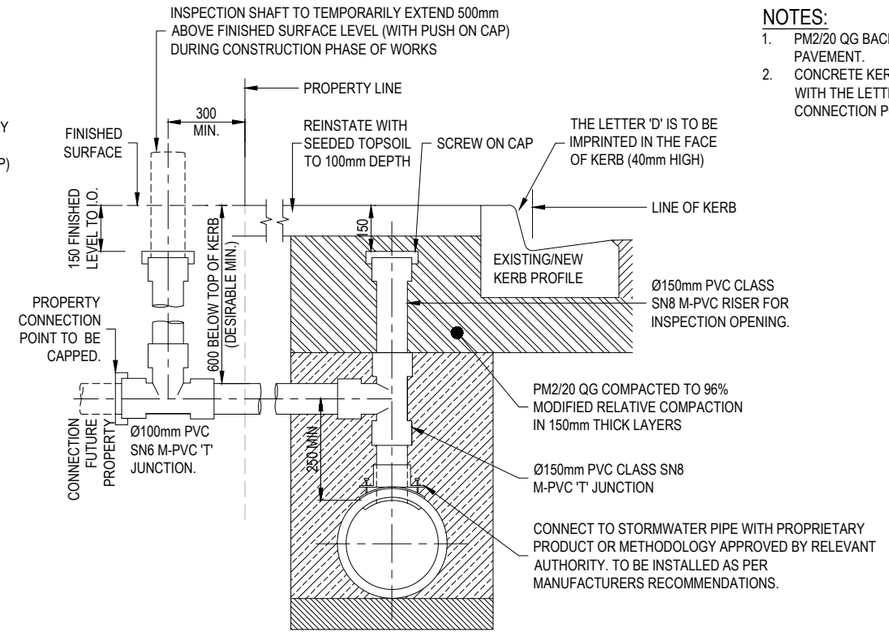
DRAWING TITLE: DRAIN STORMWATER ALLOTMENT TO KERB AND CHANNEL CONNECTION

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-3050		C



OUTFALL DIRECT TO PIPE (UNDER ROAD PAVEMENT)

NOT TO SCALE



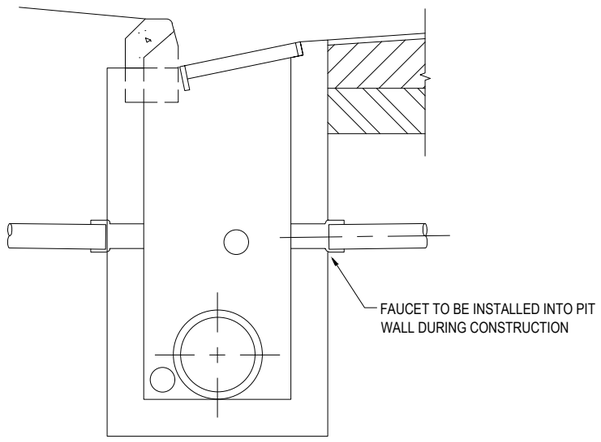
TYPICAL CROSS SECTION

NOT TO SCALE

OUTFALL DIRECT TO PIPE-SAME SIDE OF ROAD

NOTES:

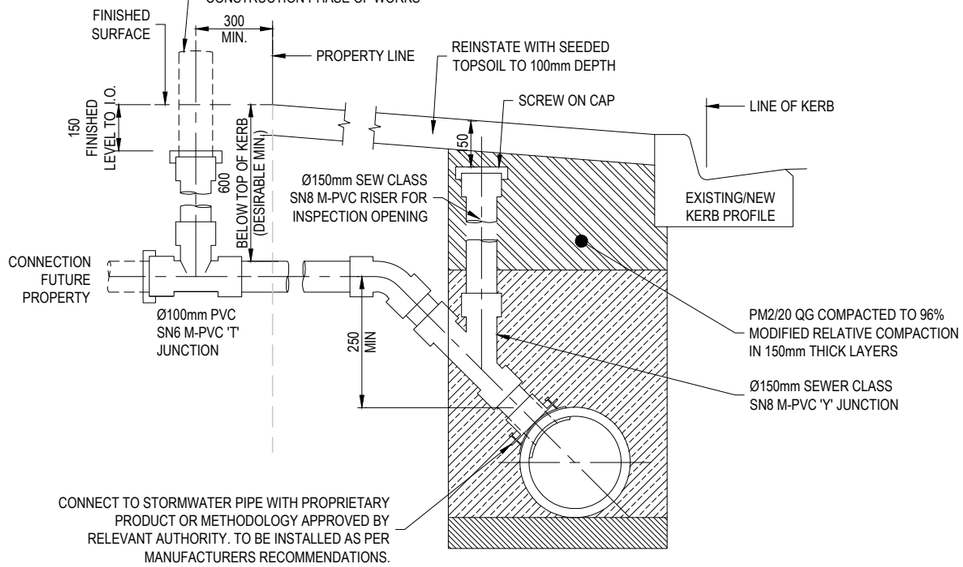
1. PM2/20 QG BACKFILL TO BE USED UNDER ROAD PAVEMENT.
2. CONCRETE KERB TO BE STAMPED WHEN CURING WITH THE LETTER 'D' ADJACENT THE HOUSE DRAIN CONNECTION POINT.



OUTFALL DIRECT TO DRAINAGE PIT

NOT TO SCALE

STREET DRAINAGE



ALTERNATIVE CROSS SECTION

NOT TO SCALE

CONNECTION TO PIPE WHERE AT SHALLOW DEPTH

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

ALL MEASUREMENTS IN MILLIMETRES

		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
FIRST ISSUE							
AMENDMENTS	A					19/12/24	ISSUED FOR REVIEW
	B					20/12/24	ISSUED FOR REVIEW
	C					02/04/25	CLIENT SUBMISSION
	D					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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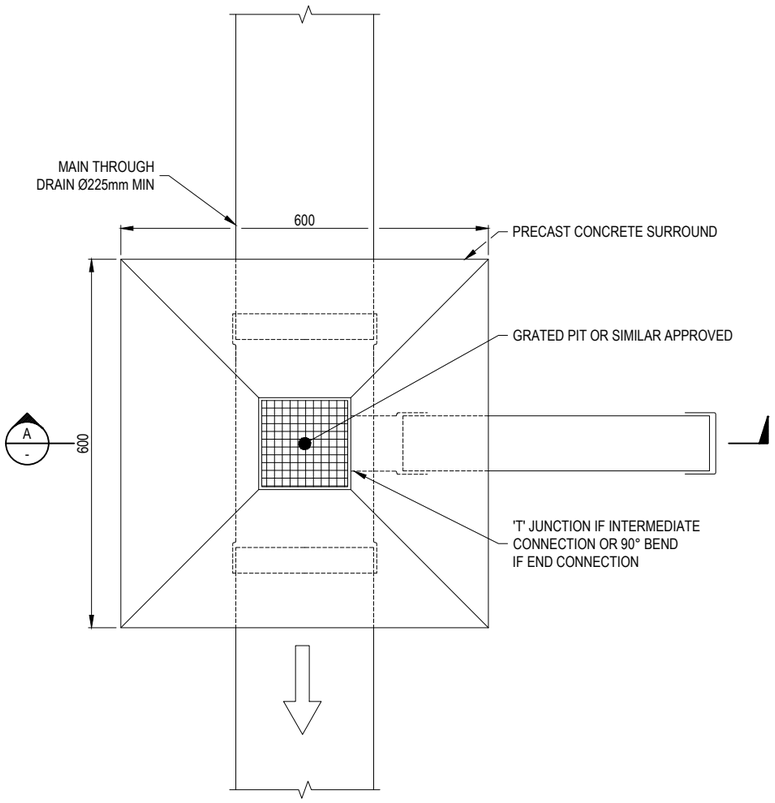
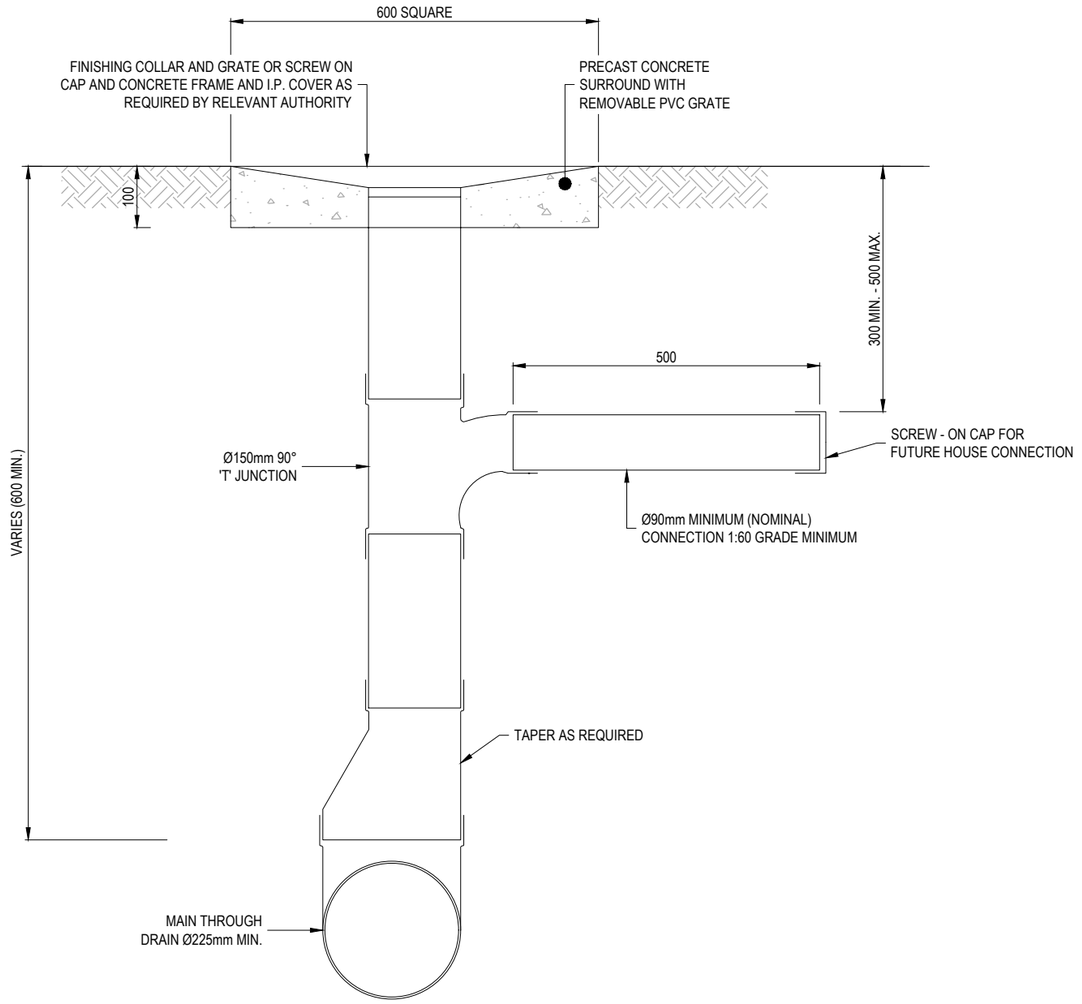
DRAWING TITLE: STORMWATER ALLOTMENT DRAIN CONNECTION TO AUTHORITY PIPELINE

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-3055		D

NOTES:
1. MINIMUM COVER TO PIPES TO BE 300mm.
2. ALL STORMWATER PIPES TO BE PVC SN8 (Ø150mm) SN6 (Ø100mm).



SIDE ELEVATION
SCALE 1:5



SECTION A - A
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

AMENDMENTS		DESIGN	DRAWN	CHECK	APPD	DATE	AMENDMENT DETAILS
FIRST ISSUE							
	A					19/12/24	ISSUED FOR REVIEW
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	C					02/04/25	CLIENT SUBMISSION
	D					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4
SCALE 1:5 (A1) SCALE 1:10 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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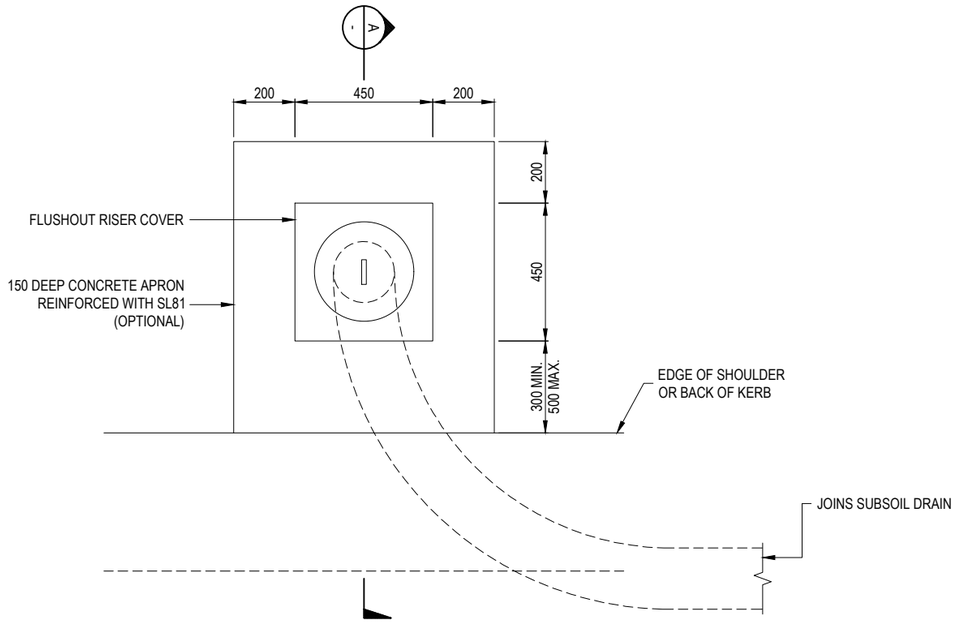
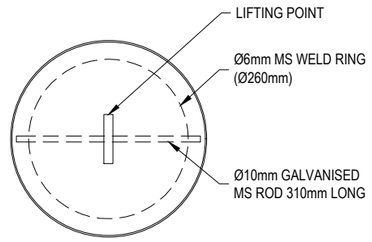
DRAWING TITLE: STORMWATER ALLOTMENT CONNECTION IN EASEMENT DETAIL

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-3060		D

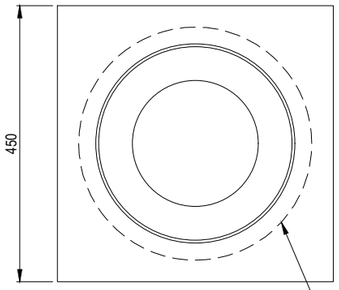


TYPICAL FLUSHOUT RISER PLAN

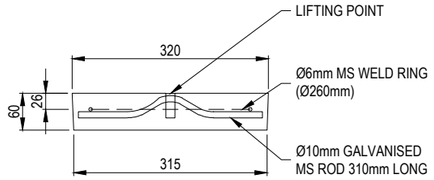
NOT TO SCALE



PLAN

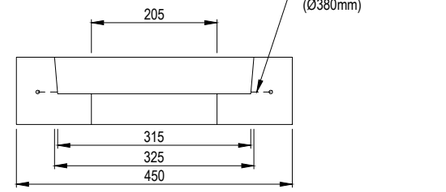


PLAN



SECTION

CONCRETE PLUG

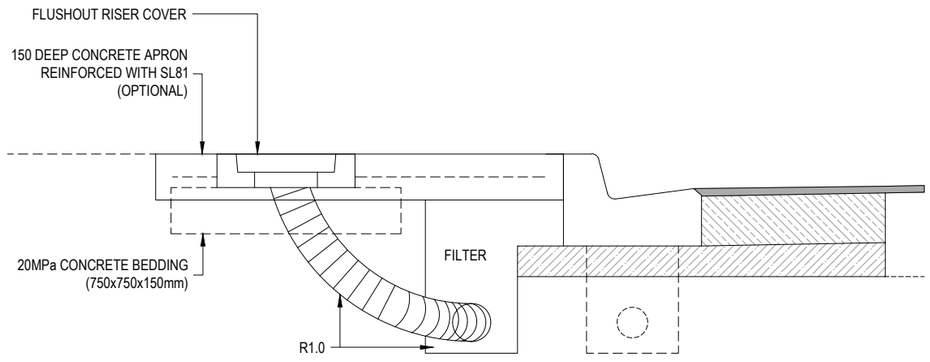


SECTION

CONCRETE SURROUND

FLUSHOUT RISER COVER DETAIL

NOT TO SCALE



TYPICAL FLUSHOUT RISER SECTION A - A

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

		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
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AMENDMENTS	A					19/12/24	ISSUED FOR REVIEW
	B					02/04/25	CLIENT SUBMISSION
	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE: AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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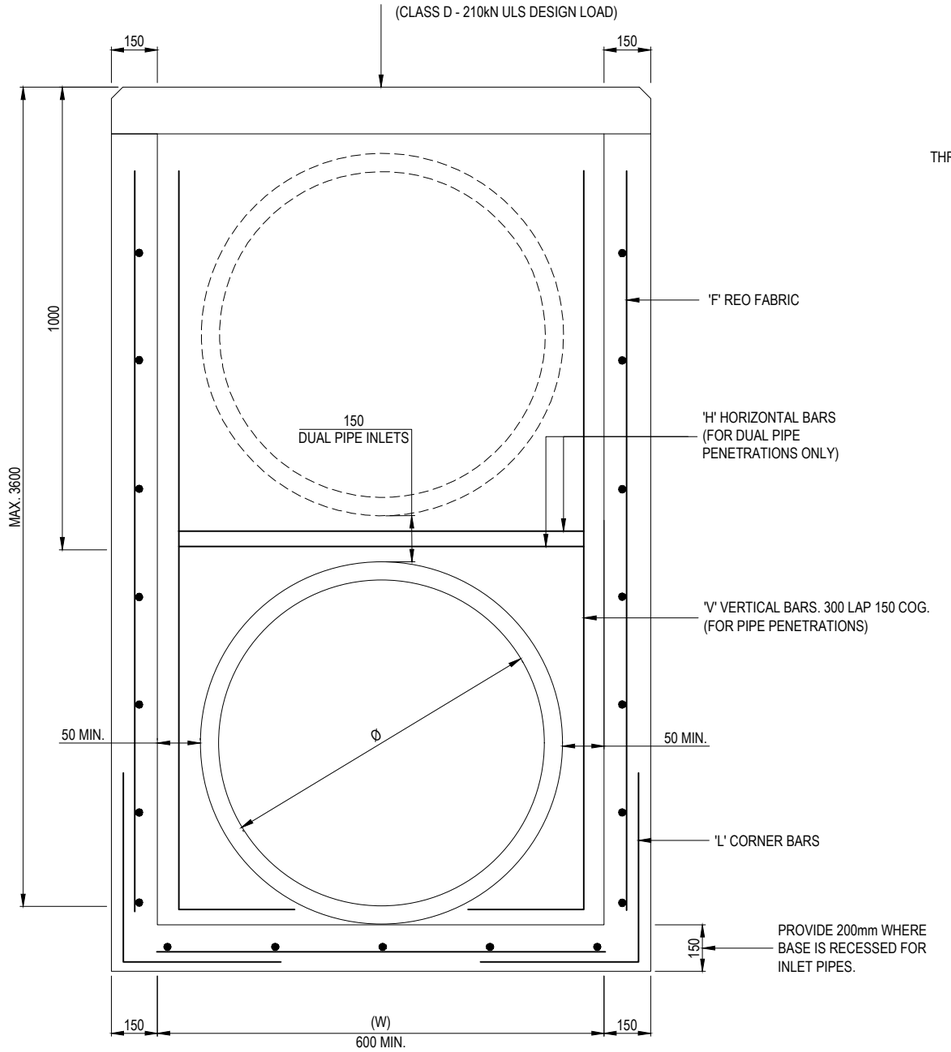
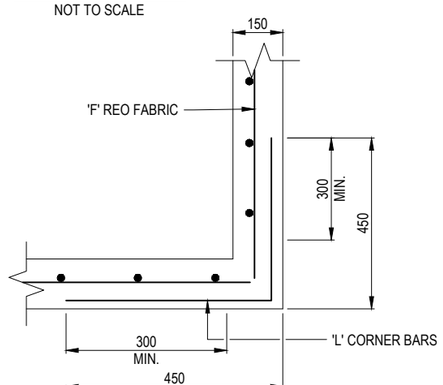
DRAWING TITLE: SUBSOIL DRAINAGE FLUSHOUT RISER DETAIL

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-3065		C



TYPICAL PIT DETAIL

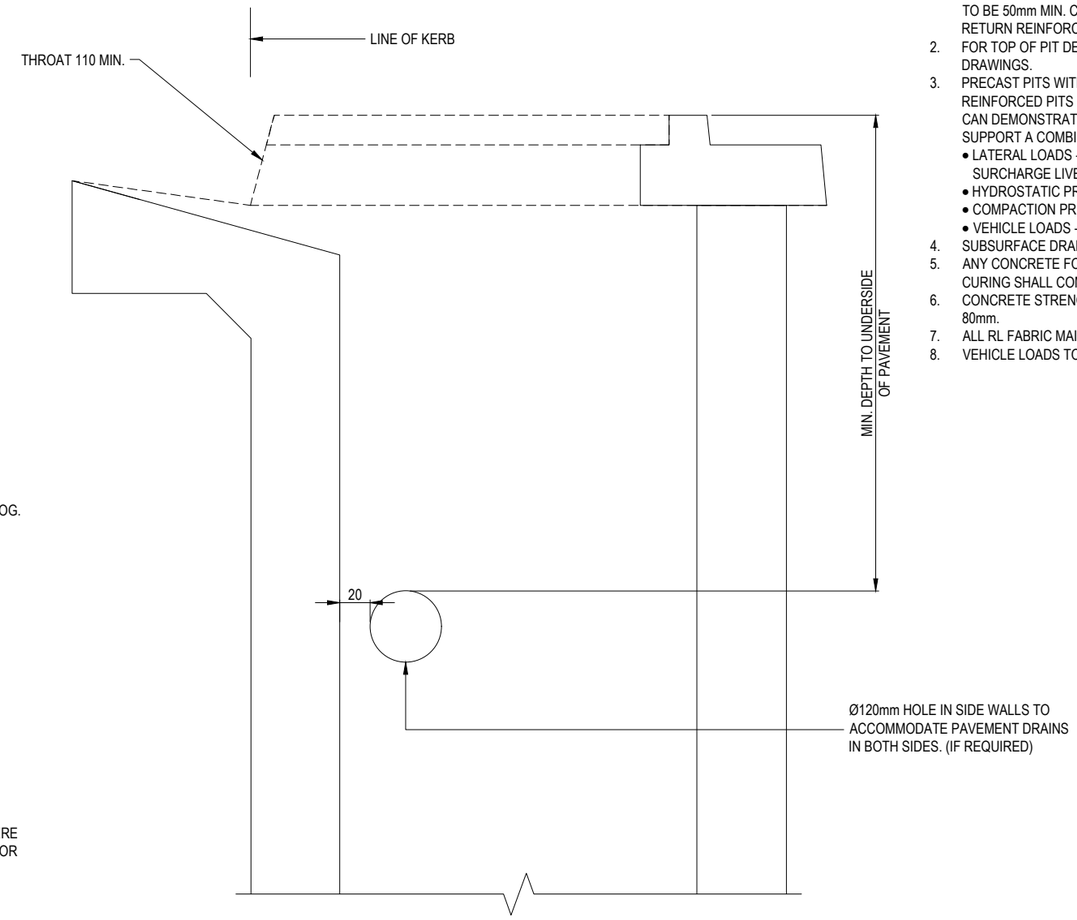
NOT TO SCALE



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



PRECAST PIT

NOT TO SCALE

NOTES:

1. PIT REINFORCEMENT SHALL HAVE 300mm MIN. LAPS. CLEAR COVER TO BE 50mm MIN. CORNER.
   RETURN REINFORCEMENT MAY BE FABRIC OR EQUIVALENT BARS.
2. FOR TOP OF PIT DETAILS, REFER TO RELEVANT STANDARD DRAWINGS.
3. PRECAST PITS WITH THINNER WALLS AND LESS STEEL OR FIBRE REINFORCED PITS MAY BE ACCEPTED WHERE THE MANUFACTURER CAN DEMONSTRATE THAT THE PITS HAVE ADEQUATE CAPACITY TO SUPPORT A COMBINATION OF THE FOLLOWING LOADS:
   - LATERAL LOADS - EARTH PRESSURE WITH APPROPRIATE SURCHARGE LIVE LOAD CLASS
   - HYDROSTATIC PRESSURE
   - COMPACTION PRESSURE (25kPa MIN.)
   - VEHICLE LOADS - DESIGN VEHICLE LOAD.
4. SUBSURFACE DRAIN HOLES TO BE SEALED IF NOT USED.
5. ANY CONCRETE FORMWORK, REINFORCEMENT, POURING AND CURING SHALL COMPLY WITH AS 3600 AND THE ASSOCIATED CODES.
6. CONCRETE STRENGTH F'C - 32 MPa. (MIN.) AT 28 DAYS. SLUMP TO BE 80mm.
7. ALL RL FABRIC MAIN BARS SHOULD BE PLACED HORIZONTALLY.
8. VEHICLE LOADS TO DESIGN LOAD CLASS.

REINFORCEMENT DETAILS

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

NOTE:

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

ALL MEASUREMENTS IN MILLIMETRES

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	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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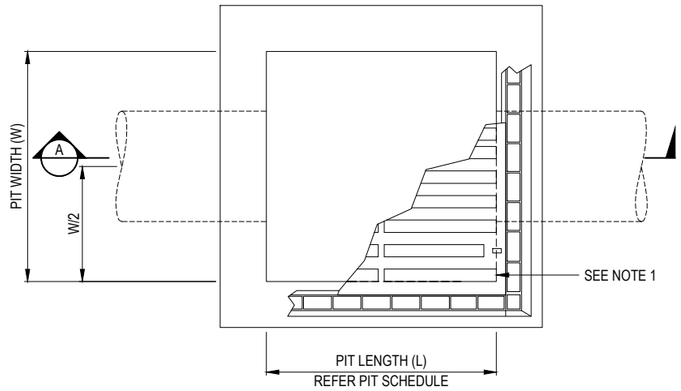
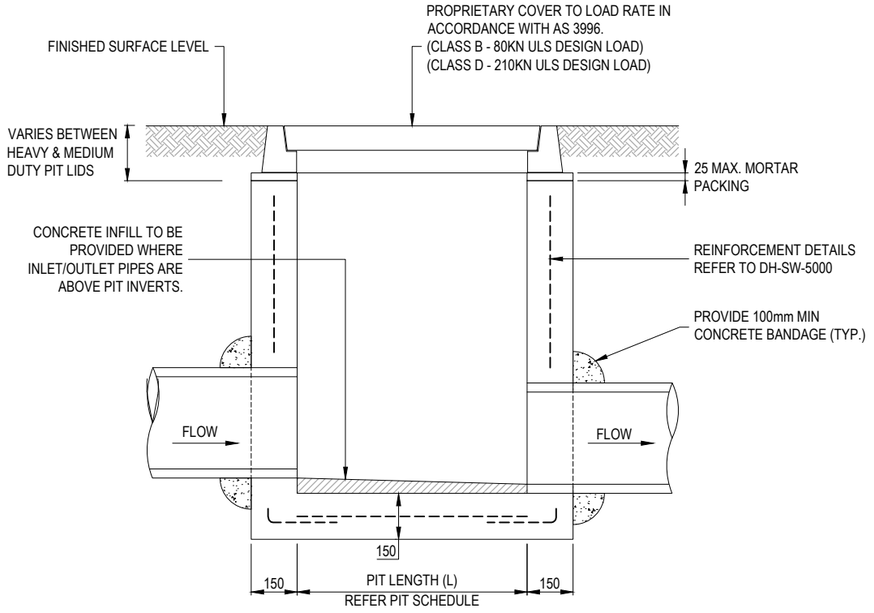
DRAWING TITLE: STORMWATER PITS REINFORCEMENT DETAILS

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5000		C



PLAN
NOT TO SCALE



SECTION A-A
NOT TO SCALE

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.
3. INTERNAL PIT DIMENSIONS SHALL ALLOW FOR THE PIPE OUTER DIAMETER AT CUT ANGLE PLUS CONSTRUCTION TOLERANCE PLUS 50mm EACH SIDE.
4. MINIMUM PIT LID OPENING SIZE TO BE 600mm DIAMETER FOR ALL PITS GREATER THAN 600mm DEPTH.
5. ALL GRATED COVERS TO BE HOT DIP GALVANISED FOR INSTALLATIONS IN NON-TRAFFICKED AREAS.
6. ROUND PIT LIDS PREFERRED TO REDUCE RISK OF FALL INTO THE PITS.
7. REINFORCED PITS CAN BE USED FOR STANDARD SIZES.
8. 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.
9. GRATED INLET PIT COVER HEAVY DUTY GALVANISED GRATE AND FRAME WITH 600x 600mm CLEAR OPENING. HEELSAFE IN PEDESTRIAN AREAS.
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 AND CONFINED SPACE WARNING SIGN REQUIRED IN PITS >2m DEEP.
14. ALL JB WITHIN CARRIAGEWAY SHOULD BE MINIMUM 900X900mm TO ALLOW FOR SAFE ACCESS.
15. IF PIT IS WITHIN 1m OF THE KERB IT IS TO BE CLASS C OTHERWISE CLASS B.

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
1200 < d ≤ 2000	900 x 900
d ≥ 2000	1200 x 1200

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ALL MEASUREMENTS IN MILLIMETRES

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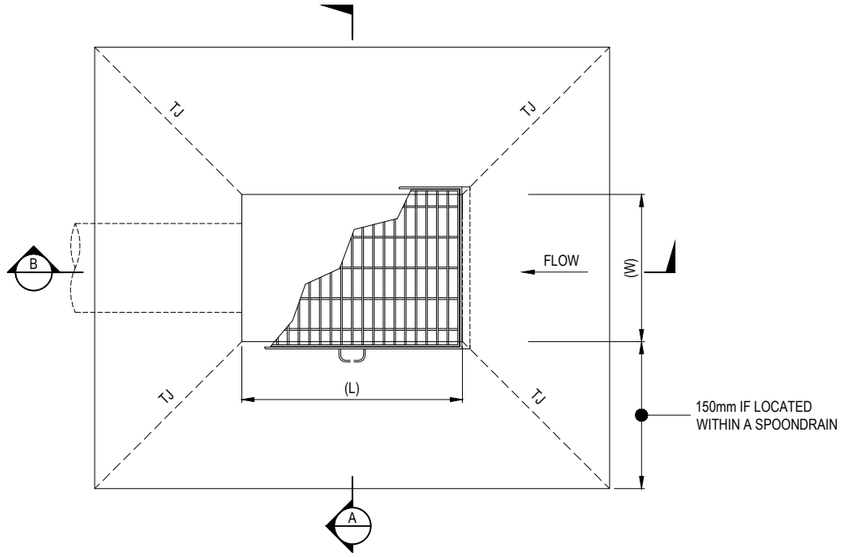
DRAWING TITLE: STORMWATER JUNCTION PIT

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5005		C



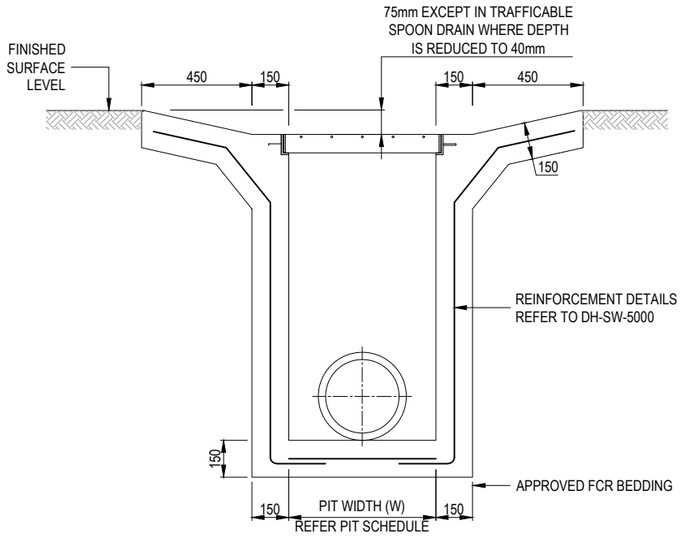
PLAN
NOT TO SCALE

LEGEND:

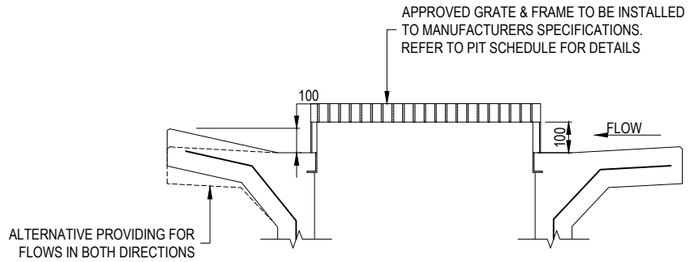
TOOLED JOINT (REFER TO DH-RD-2010) — TJ

NOTES:

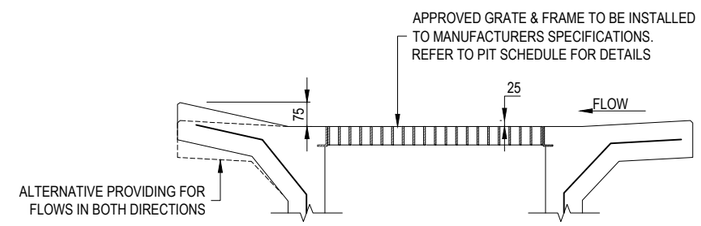
1. HEAVY DUTY COVERS TO BE USED WHEN SUBJECT TO TRAFFICABLE LOADS (AS3996 CLASS D - 210KN) OR APPROVED EQUIVALENT. MEDIUM DUTY COVERS TO BE USED IN OFF ROAD USE (AS3996 CLASS B - 80KN) OR APPROVED EQUIVALENT.
2. IF PIT IS LOCATED WITHIN A SPOON DRAIN REDUCE DEPRESSION TO 40mm.
3. USE HEELSAFE GRATES IN PEDESTRIAN AREAS U.N.O.
4. GRATES TO BE BOLT DOWN U.N.O.



SECTION A-A
NOT TO SCALE



ALTERNATIVE ARRANGEMENT
NOT TO SCALE



SECTION B-B
NOT TO SCALE

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ALL MEASUREMENTS IN MILLIMETRES

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PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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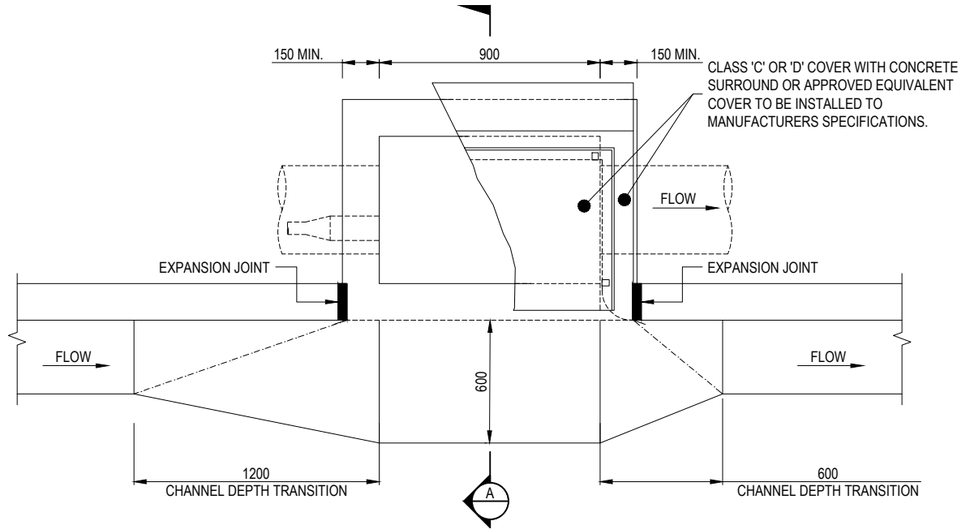
DRAWING TITLE: STORMWATER DEPRESSED GRATED PIT

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5010		C

NOTES:

1. REFER TO DH-RD-1000 FOR KERB DETAILS.
2. CHANNEL DEPTH TRANSITION TO BE INCREASED TO 1200mm BOTH SIDES AT LOW POINT (SAG) LOCATIONS.
3. CLASS D PIT LID TO BE USED IN ROAD, IF PIT IS WITHIN 1m OF THE KERB IT IS TO BE CLASS C OTHERWISE CLASS B.



PLAN
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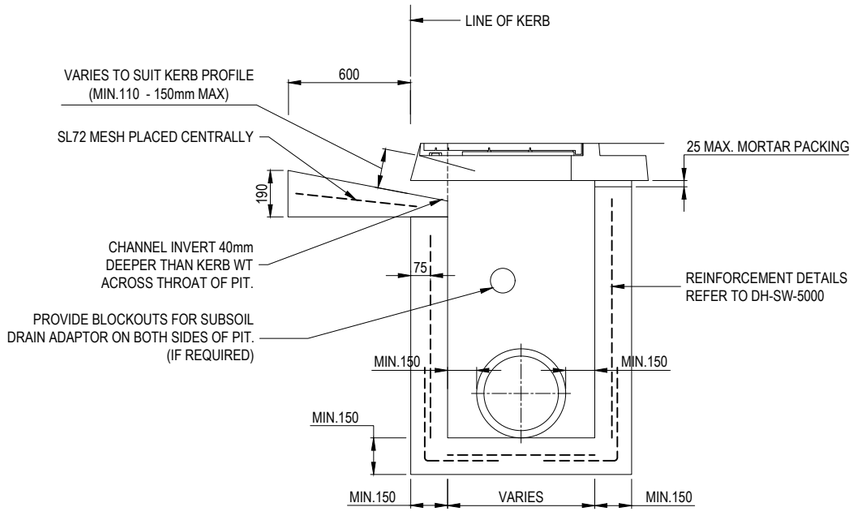

SECTION A-A
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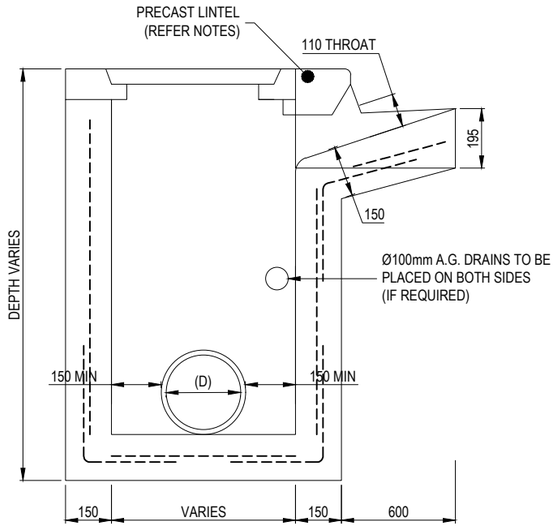
DRAWING TITLE: STORMWATER SIDE ENTRY PIT 900mm INLET

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5020		C

NOTES:

1. PRECAST LINTEL FRAME AND LIDS AS APPROVED BY RELEVANT AUTHORITY TO BE INSTALLED TO MANUFACTURERS RECOMMENDATIONS. MINIMUM CLASS C PIT SHALL BE PROVIDED.
2. CONSTRUCT - Ø100mm P.V.C. PIPE WITH CONSTRUCTION WORKS TO DRAIN WATER FROM PAVEMENT. AS DIRECTED BY RELEVANT AUTHORITY.
3. AT LOW POINT (SAG) TRANSITION 1200mm BOTH SIDES.
4. PRECAST LINTEL TO MATCH REQUIRED KERB TYPE.
3. CLASS D PIT LID TO BE USED IN ROAD, IF PIT IS WITHIN 1m OF THE KERB IT IS TO BE CLASS C OTHERWISE CLASS B.



SECTION A-A
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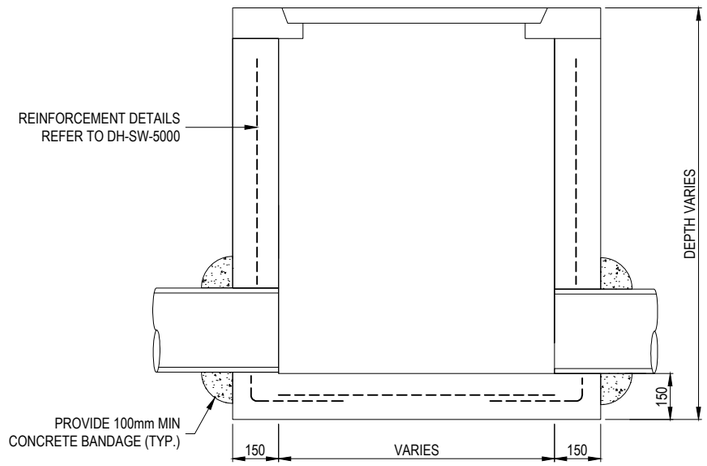

SECTION B-B
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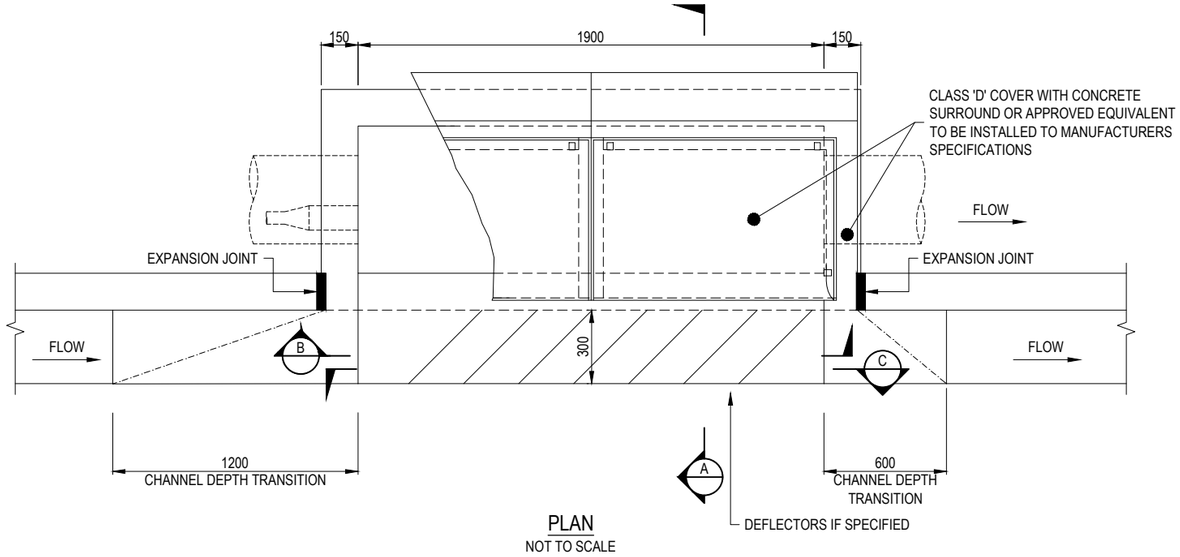
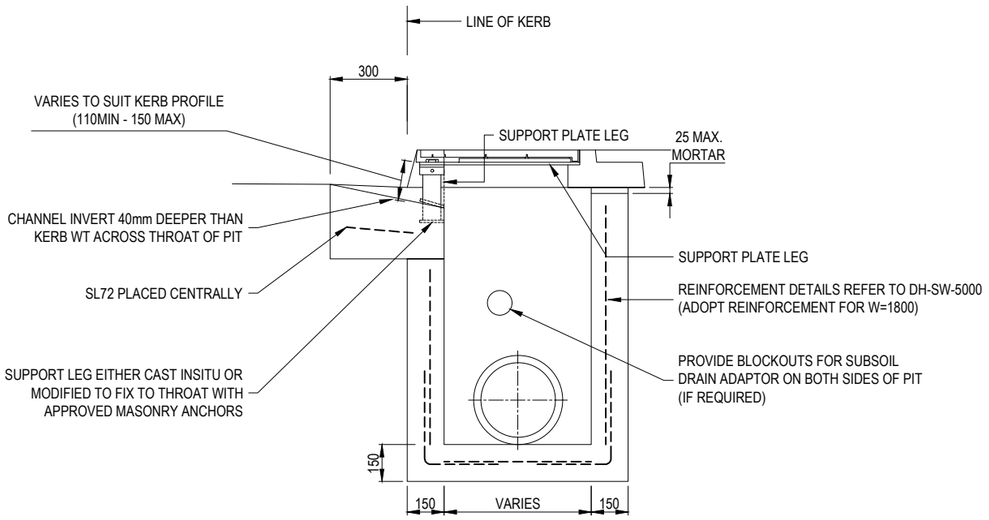
DRAWING TITLE: STORMWATER SIDE ENTRY PIT AND LIDS WITH PRECAST LINTEL

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5025		D

NOTE:
1. REFER TO DH-RD-1000 FOR KERB DETAILS.
2. CHANNEL DEPTH TRANSITION TO BE INCREASED TO 1200mm BOTH SIDES AT LOW POINT (SAG) LOCATIONS.
3. CLASS D PIT LID TO BE USED IN ROAD, IF PIT IS WITHIN 1m OF THE KERB IT IS TO BE CLASS C OTHERWISE CLASS B.



PLAN
NOT TO SCALE



SECTION A-A
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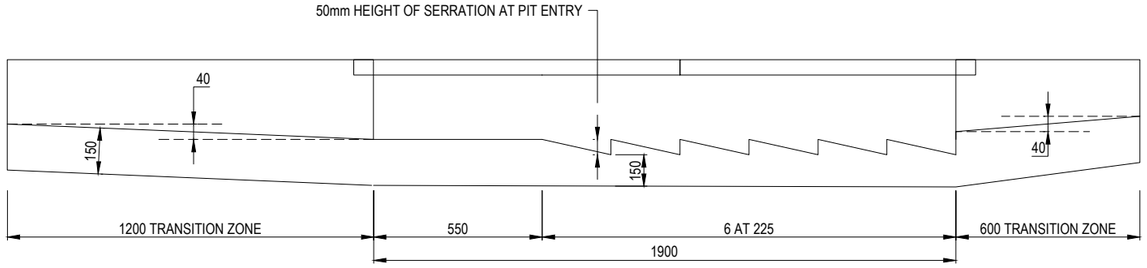
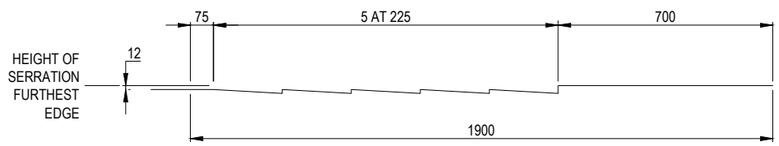


SECTION B-B
NOT TO SCALE



SECTION C-C
NOT TO SCALE

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ALL MEASUREMENTS IN MILLIMETRES

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SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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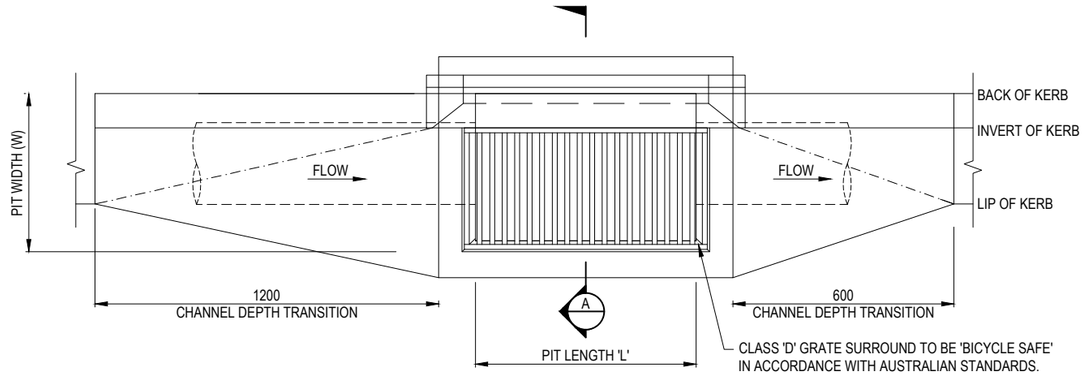
DRAWING TITLE: STORMWATER DOUBLE SIDE ENTRY PIT 1900mm INLET

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5030		C

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



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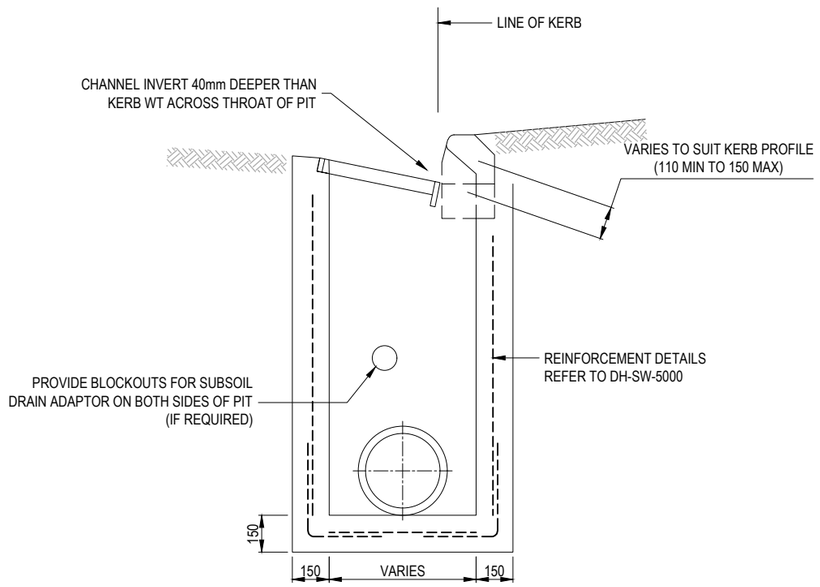

SECTION A-A
NOT TO SCALE

ALL MEASUREMENTS IN MILLIMETRES

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DRAWING TITLE: PRECAST SIDE ENTRY PIT INLET WITH GRATE INLINE

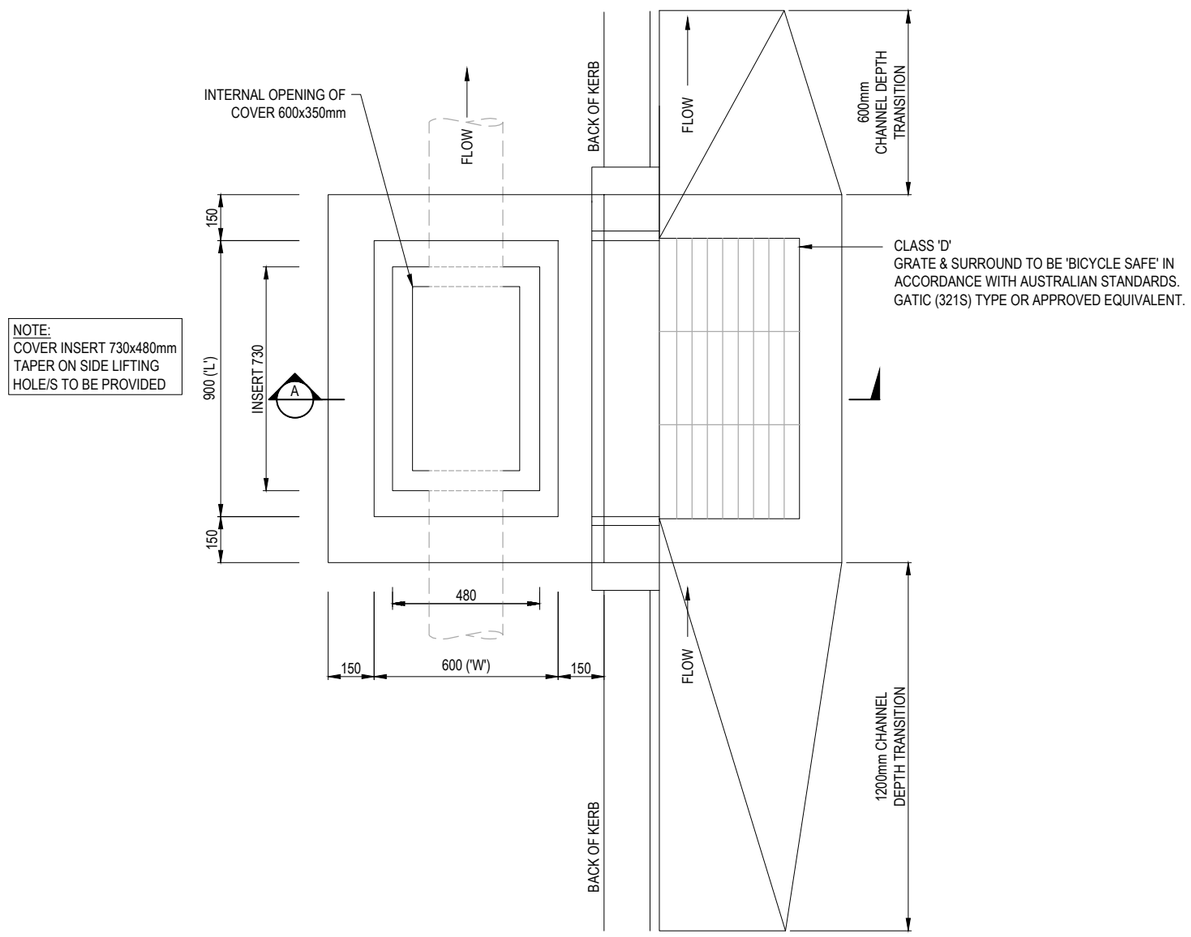
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5035		C

NOTES:

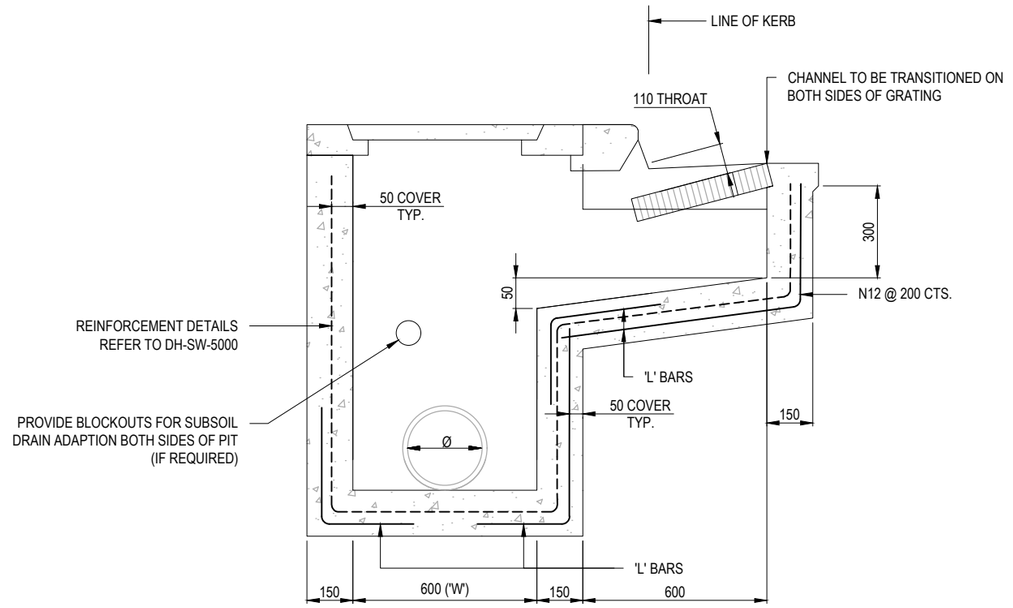
1. CLASS D LOAD RATING REQUIRED FOR GRATE. COVERS TO BE CLASS C OR HIGHER IF LIKELY TO BE DRIVEN OVER.
2. PRECAST LINTEL AND GRATES APPROVED BY RELEVANT AUTHORITY TO BE INSTALLED BY MANUFACTURERS RECOMMENDATIONS.
3. CHANNEL DEPTH TRANSITION TO BE INCREASED TO 1200mm ON BOTH SIDES AT LOW POINT (SAG) LOCATIONS.
3. CLASS D PIT LID TO BE USED IN ROAD, IF PIT IS WITHIN 1m OF THE KERB IT IS TO BE CLASS C OTHERWISE CLASS B.

NOTE:
DRAWING TO BE UTILISED WHERE NO OTHER SERVICES ARE WITHIN THE NATURESTRIP.

NOTE:
COVER INSERT 730x480mm TAPER ON SIDE LIFTING HOLE/S TO BE PROVIDED



PLAN



SECTION A-A

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SCALE AS SHOWN
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SCALE 1:10 (A1) SCALE 1:20 (A3)

CLIENT
Government of South Australia
Department for Housing and Urban Development

PROJECT
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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DRAWING TITLE
OFFSET SIDE ENTRY PIT WITH 900mm INLET GRATE

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5040		D

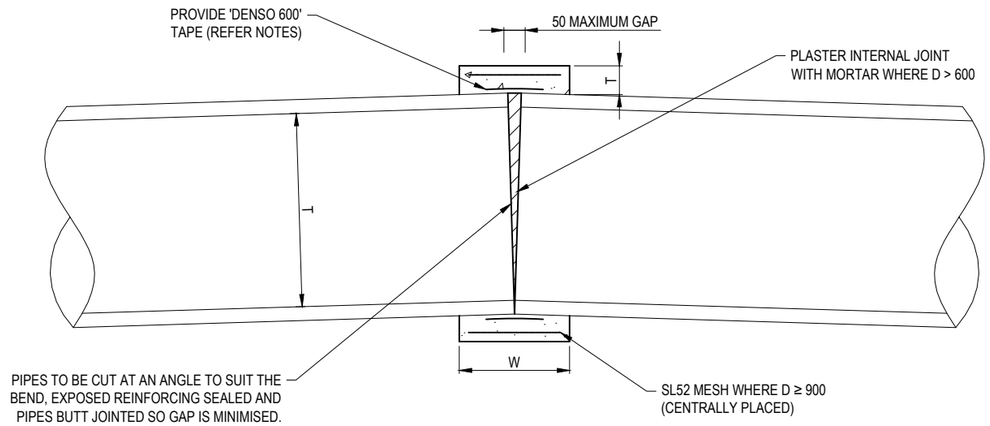
BANDAGE JOINT NOTES:

1. ALL CONCRETE WORKS TO BE 32MPa UNLESS NOTED OTHERWISE.
2. '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
• Ø375mm	15°
• Ø600mm	14°
• Ø900mm	12°
• Ø1800mm	6°

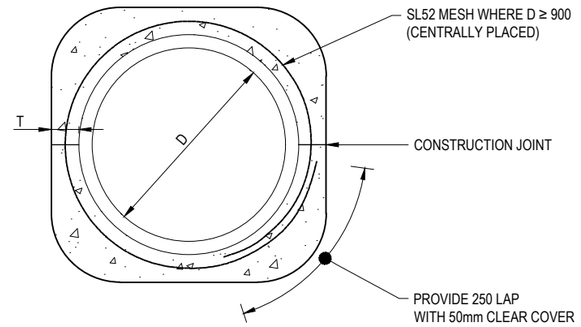
PREFABRICATED SPLAYS SHALL BE USED WHERE DEFLECTION EXCEED ABOVE ANGLES.

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



LONGITUDINAL SECTION

BANDAGE JOINT
FOR CONCRETE PIPES
NOT TO SCALE



CROSS-SECTION
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

AMENDMENTS		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
FIRST ISSUE							
	A					19/12/24	ISSUED FOR REVIEW
	B					02/04/25	CLIENT SUBMISSION
	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DISCLAIMER
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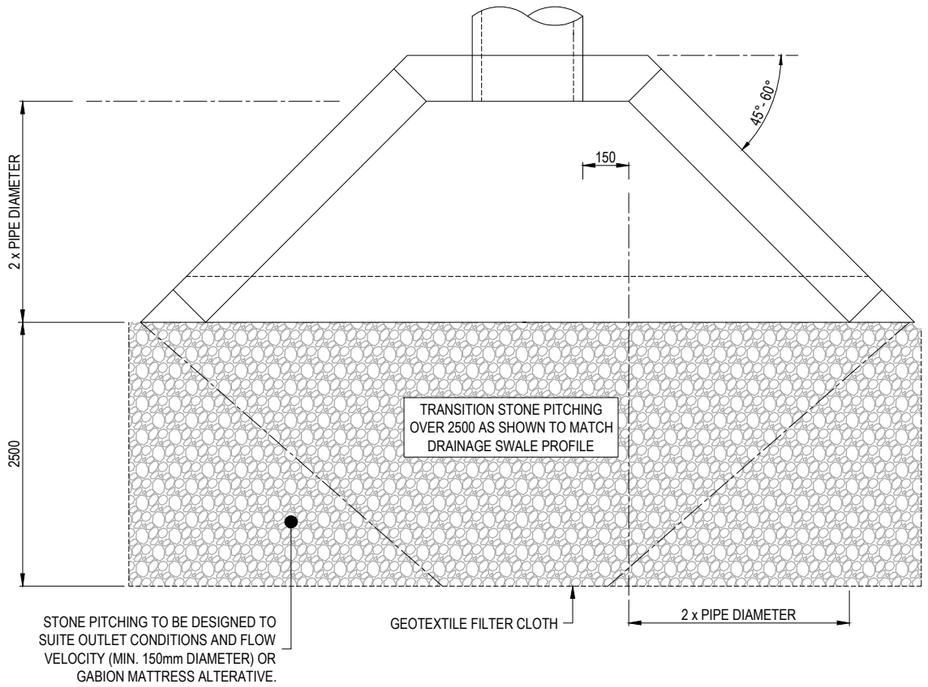
DRAWING TITLE: BANDAGE JOINT

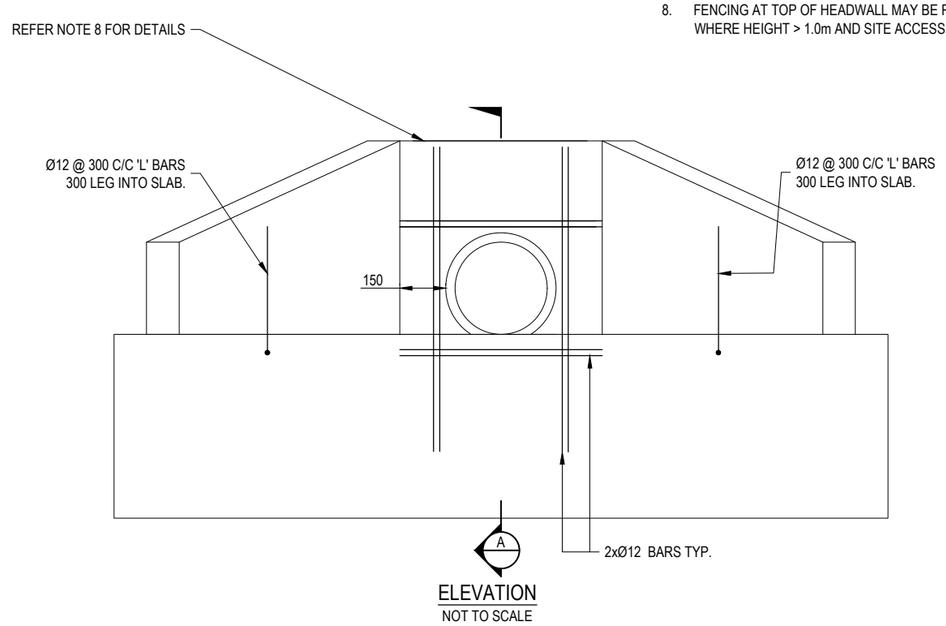
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5100		C



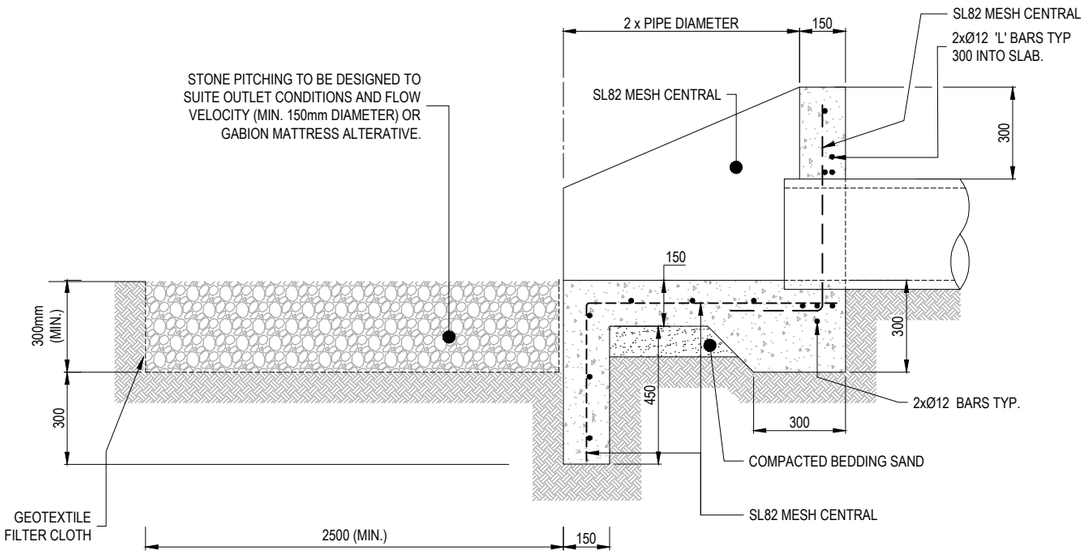
PLAN
NOT TO SCALE

NOTES:

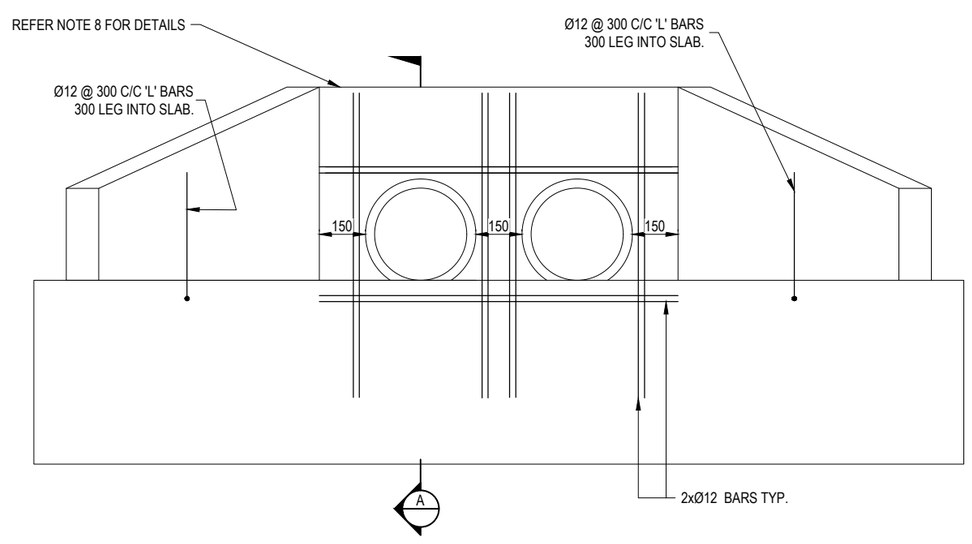
1. STREAMLINING AT UPSTREAM END ONLY.
2. SCOUR PROTECTION AT INLET AND OUTLET AROUND ENTIRE HEADWALL (NOMINAL WIDTH 1m), UNLESS OTHERWISE APPROVED.
3. APPROVED PRECAST HEADWALLS MAY BE USED AS AN ALTERNATIVE.
4. MINIMUM COVER TO PIPES TO BE 300mm.
5. MINIMUM FABRIC LAP 300mm.
6. CONCRETE GRADE TO BE N32, SLUMP 80mm IN ACCORDANCE WITH AS3600.
7. MAXIMUM BATTER SLOPE ABOVE HEADWALL 1 IN 6.
8. FENCING AT TOP OF HEADWALL MAY BE REQUIRED IN LOCATION WHERE HEIGHT > 1.0m AND SITE ACCESSIBLE TO THE PUBLIC.



ELEVATION
NOT TO SCALE



SECTION A-A
NOT TO SCALE



ELEVATION
NOT TO SCALE

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ALL MEASUREMENTS IN MILLIMETRES

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STATUS: FOR INFORMATION

SCALE: AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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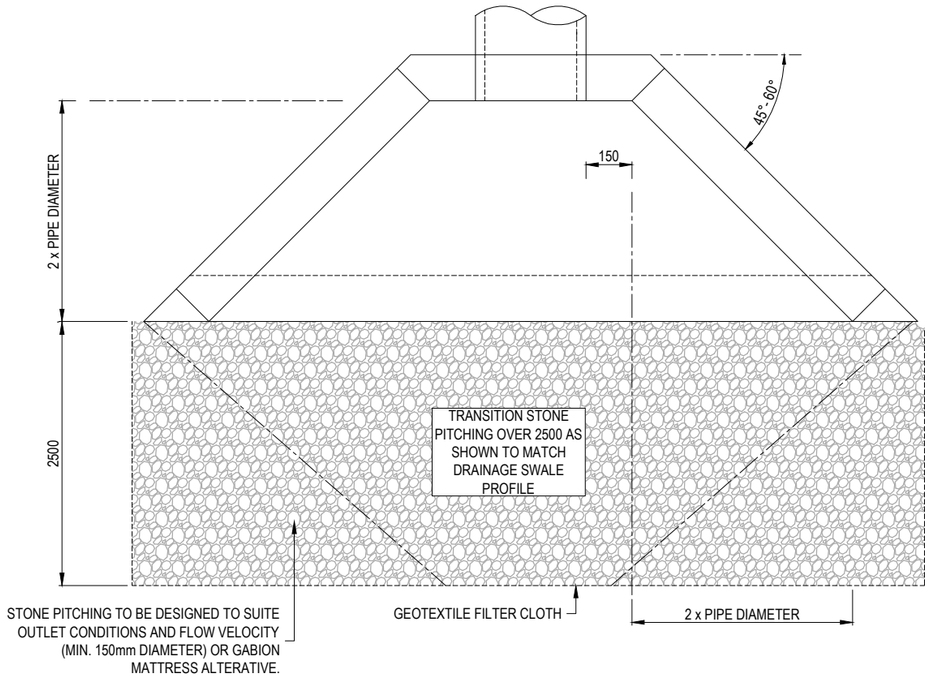
DRAWING TITLE: STANDARD HEADWALL FOR PIPES 300-375 DIAMETER

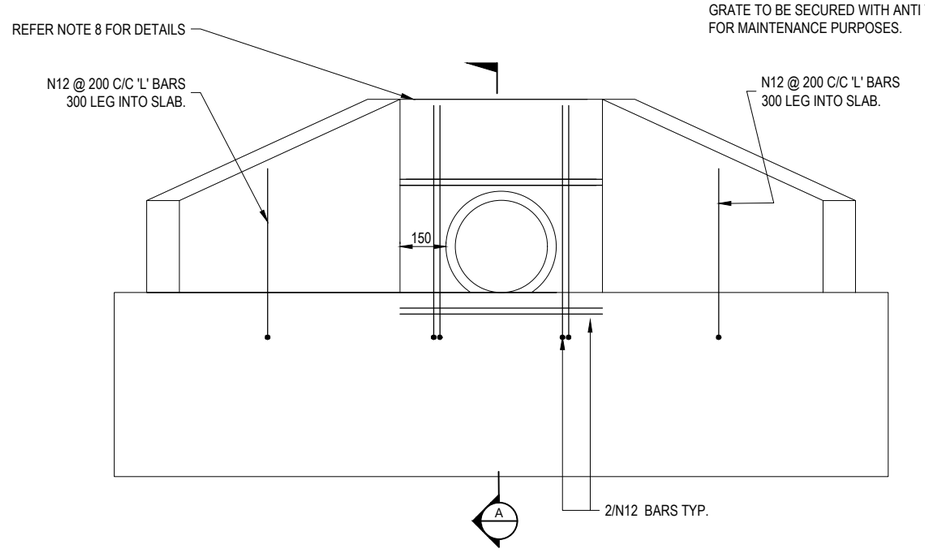
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5200		C



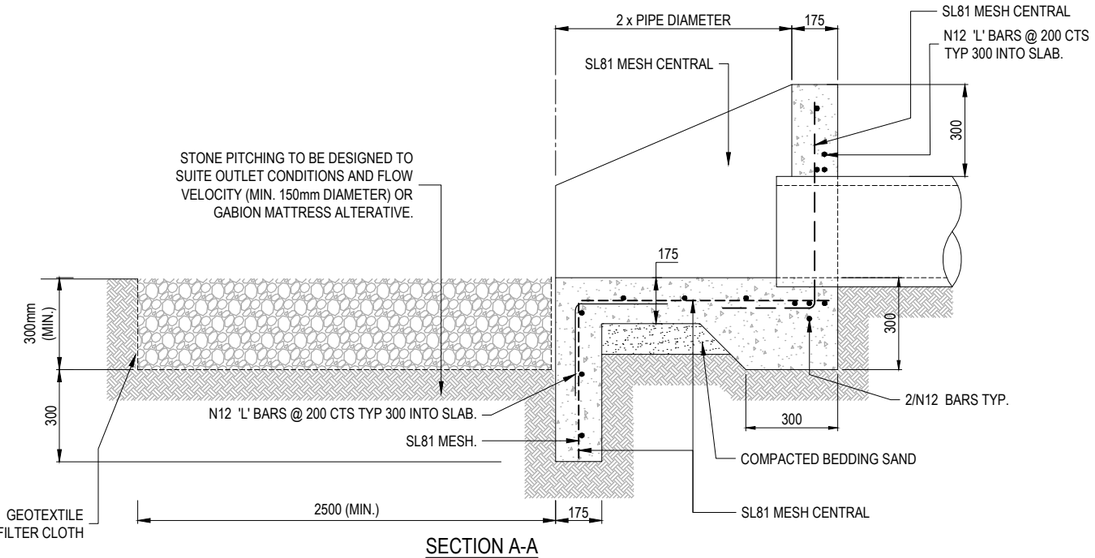
PLAN
SCALE 1:10

NOTES:

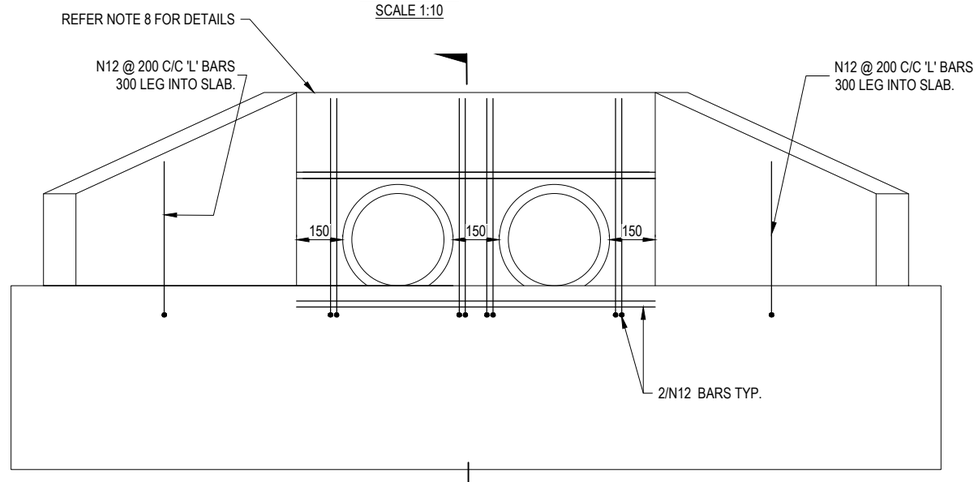
1. STREAMLINING AT UPSTREAM END ONLY.
2. SCOUR PROTECTION AT INLET AND OUTLET AROUND ENTIRE HEADWALL (NOMINAL WIDTH 1m), UNLESS OTHERWISE APPROVED.
3. APPROVED PRECAST HEADWALLS MAY BE USED AS AN ALTERNATIVE.
4. MINIMUM COVER TO PIPES TO BE 300mm.
5. MINIMUM FABRIC LAP 300mm.
6. CONCRETE GRADE TO BE N32, SLUMP 80mm IN ACCORDANCE WITH AS3600.
7. MAXIMUM BATTER SLOPE ABOVE HEADWALL 1 IN 6.
8. FENCING AT TOP OF HEADWALL MAY BE REQUIRED IN LOCATION WHERE HEIGHT > 1.0m AND SITE ACCESSIBLE TO THE PUBLIC.
9. COVER GRATE TO BE FIXED TO HEADWALL OVER PIPES 750mm DIAMETER OR GREATER TO PREVENT UNAUTHORISED ACCESS. GRATE TO BE SECURED WITH ANTI THEFT FIXINGS AND BE LOCKABLE FOR MAINTENANCE PURPOSES.



ELEVATION
SCALE 1:10



SECTION A-A
SCALE 1:10



ELEVATION
SCALE 1:10

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ALL MEASUREMENTS IN MILLIMETRES

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	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8
SCALE 1:10 (A1) SCALE 1:20 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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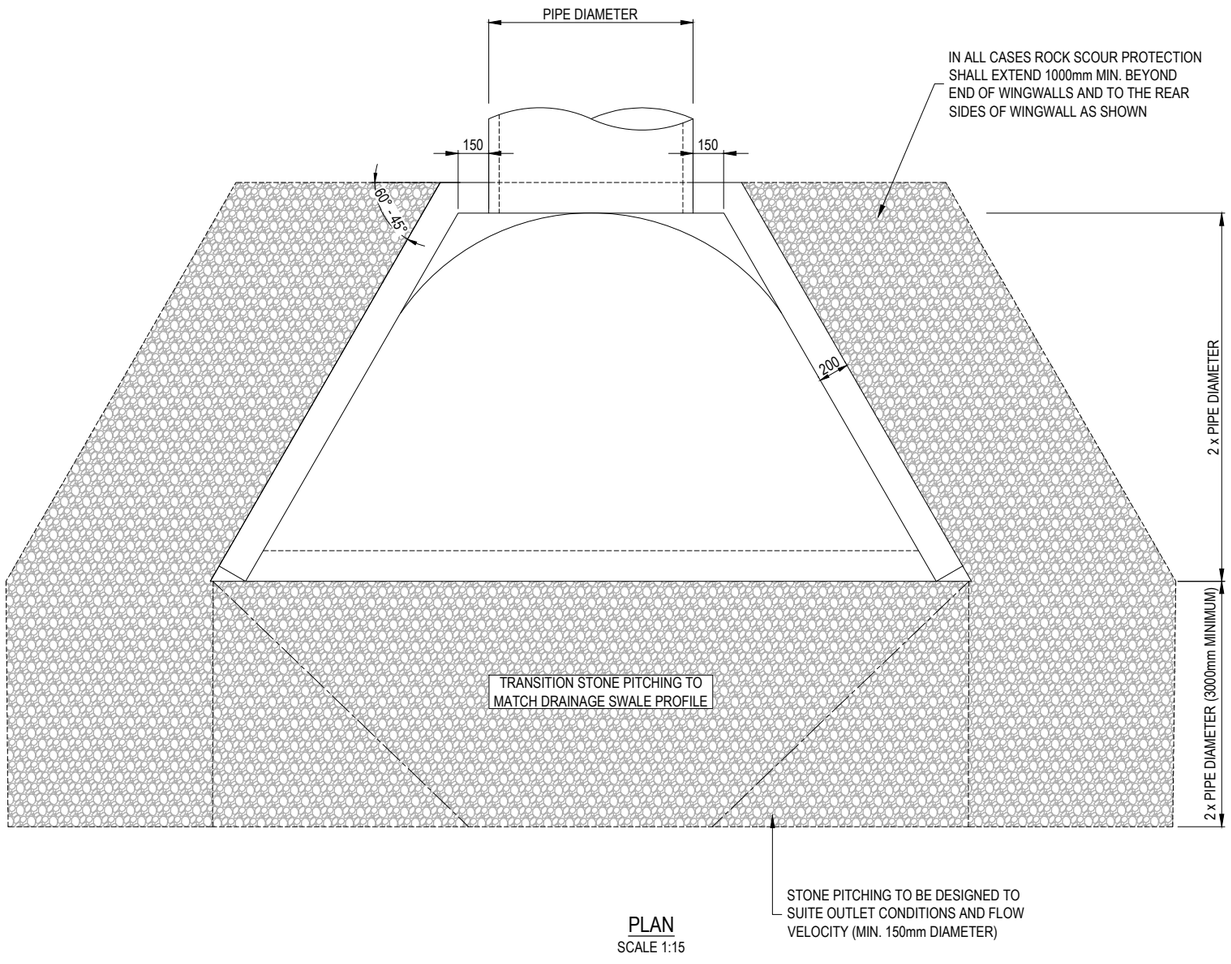
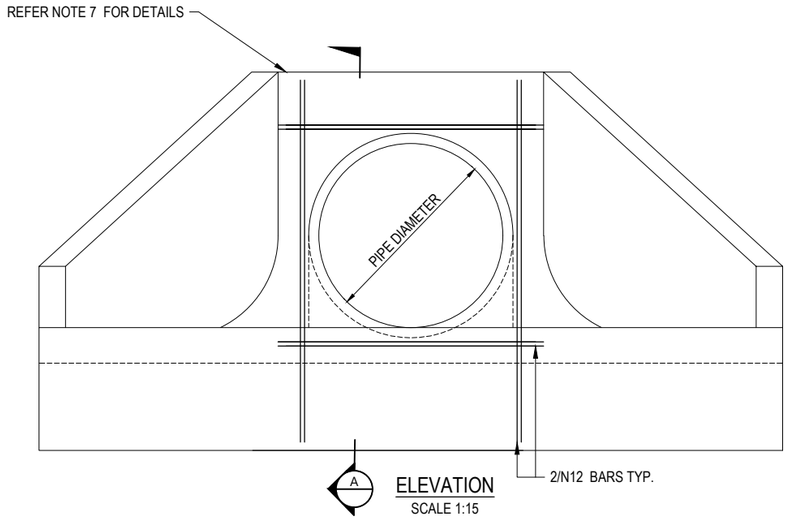
DRAWING TITLE: STANDARD HEADWALL FOR PIPES 450-750 DIAMETER

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5205		C



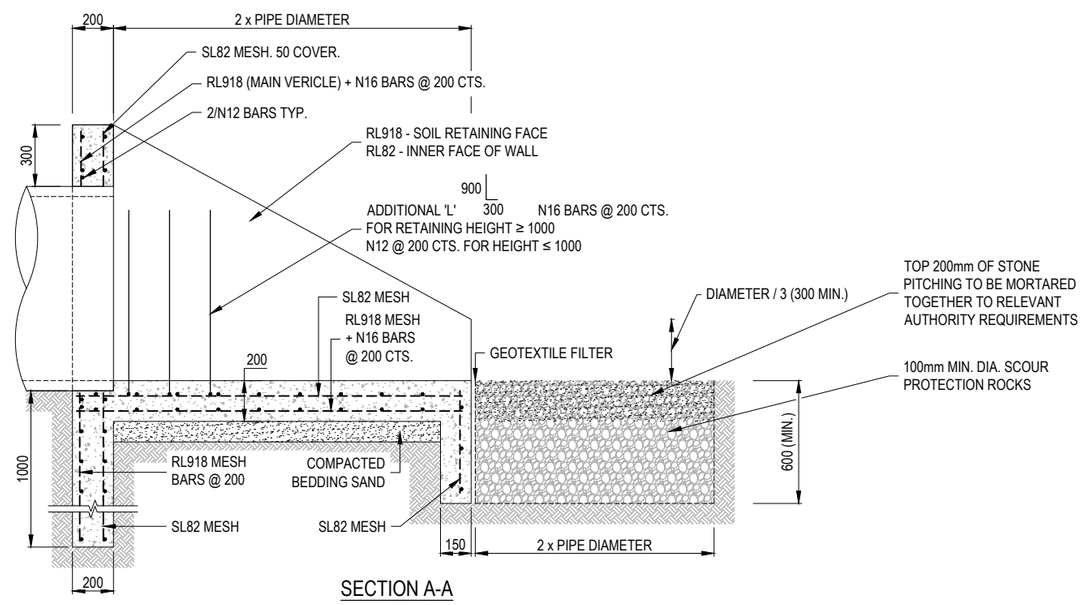
PLAN
SCALE 1:15



ELEVATION
SCALE 1:15

NOTES:

1. STREAMLINING AT UPSTREAM END ONLY
2. SCOUR PROTECTION AT INLET AND OUTLET AROUND ENTIRE HEADWALL (NOMINAL WIDTH 1m), UNLESS OTHERWISE APPROVED.
3. APPROVED PRECAST HEADWALLS MAY BE USED AS AN ALTERNATIVE WITH CAST IN SITU LEGS.
4. MINIMUM COVER TO PIPES TO BE 300mm
5. MINIMUM FABRIC LAP 300mm
6. CONCRETE GRADE TO BE N32, SLUMP 80mm IN ACCORDANCE WITH AS3600.
7. FENCING AT TOP OF HEADWALL MAY BE REQUIRED IN LOCATION WHERE HEIGHT > 1.0m AND SITE ACCESSIBLE TO THE PUBLIC.
8. ALTERNATE SCOUR PROTECTION INCLUDING MATTRESSES AT OUTLET OF HEADWALL ACCEPTABLE SUBJECT TO DESIGN BASED ON FLOW RATE AND VELOCITY.
9. MAXIMUM BATTER SLOPE 1V : 6H
10. COVER GRATE TO BE FIXED TO HEADWALL OVER PIPES 750mm DIAMETER OR GREATER TO PREVENT UNAUTHORISED ACCESS. GRATE TO BE SECURED WITH ANTI THEFT FIXINGS AND BE LOCKABLE FOR MAINTENANCE PURPOSES.



SECTION A-A
SCALE 1:15

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ALL MEASUREMENTS IN MILLIMETRES

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0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8
SCALE 1:10 (A1) SCALE 1:20 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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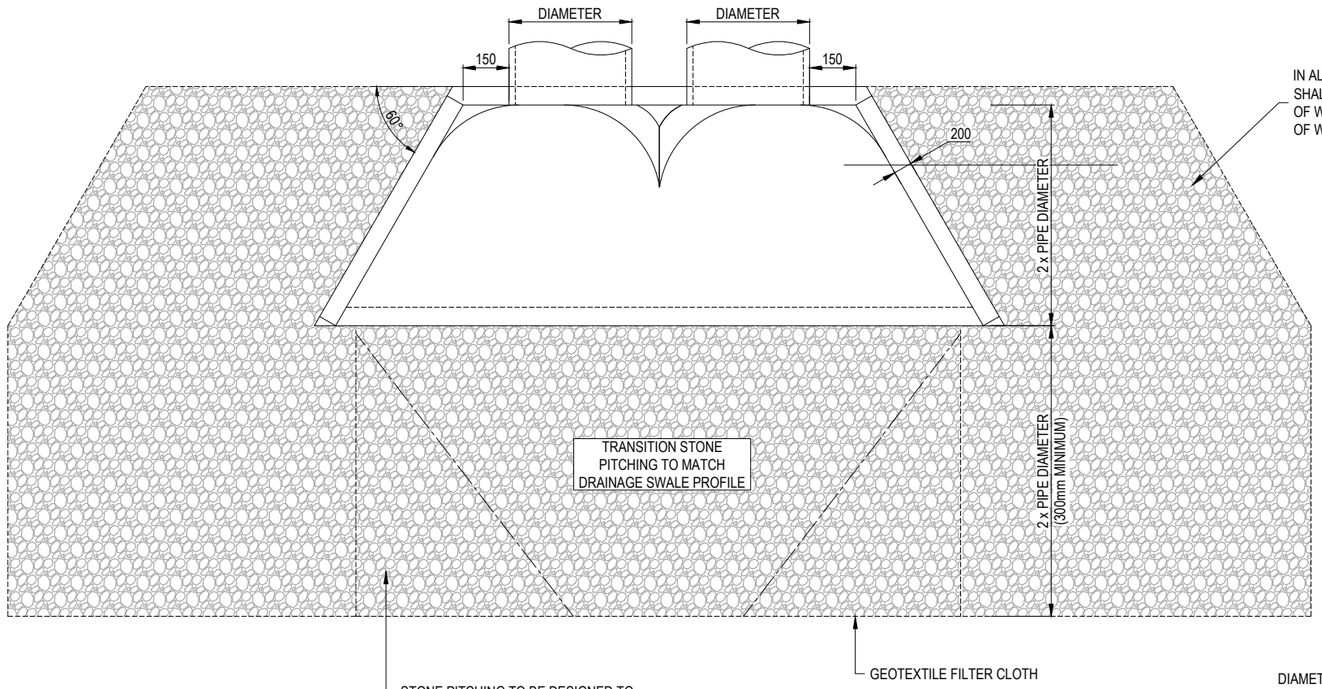
DRAWING TITLE: STANDARD HEADWALL FOR SINGLE PIPES 675-1800 DIAMETER

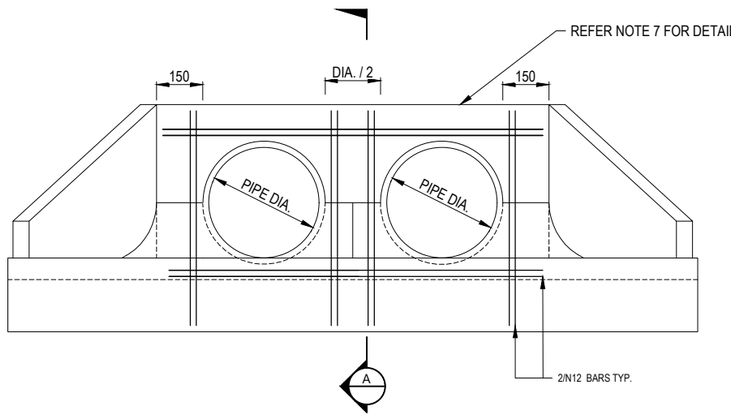
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5210		D



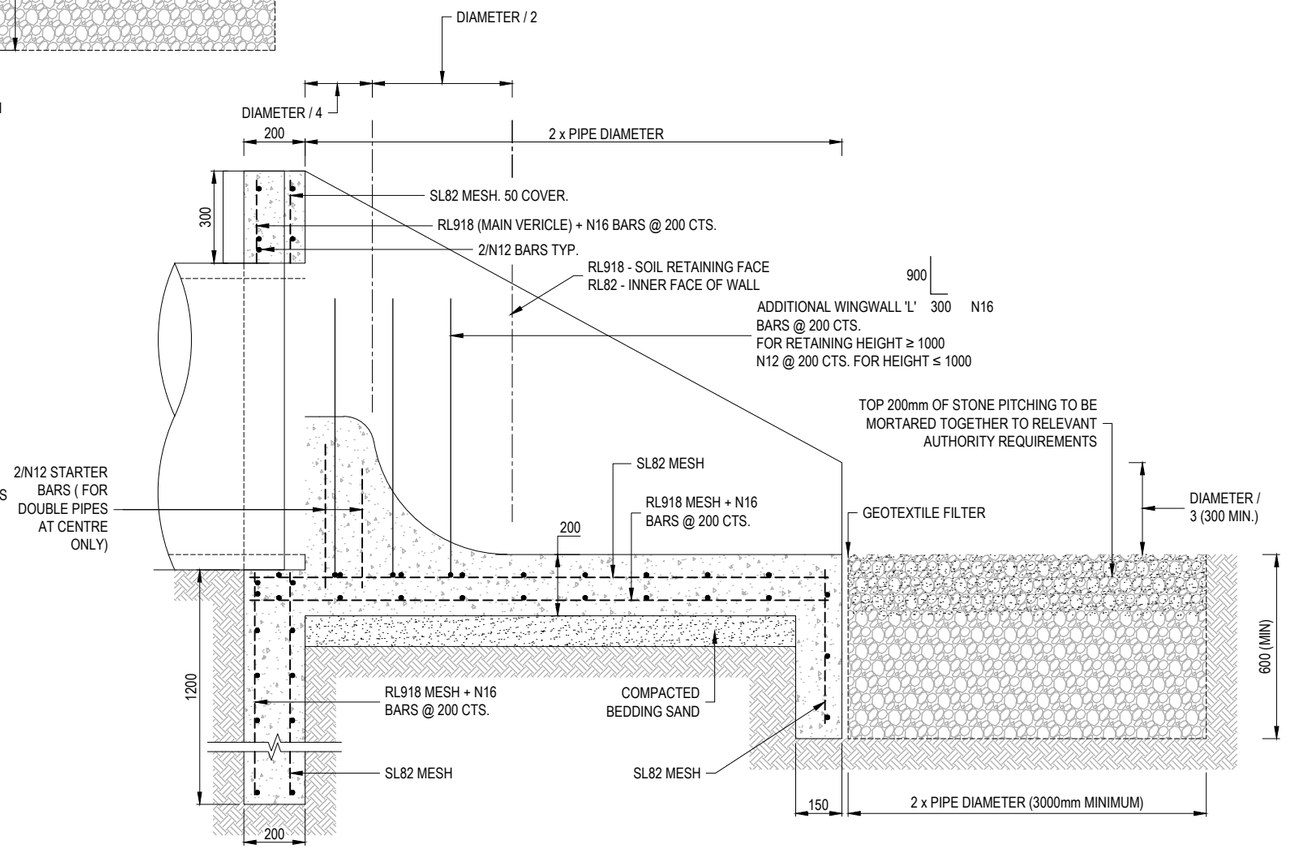
PLAN
SCALE 1:10

NOTES:

1. STREAMLINING AT UPSTREAM END ONLY.
2. SCOUR PROTECTION AT INLET AND OUTLET AROUND ENTIRE HEADWALL (NOMINAL WIDTH 1m), UNLESS OTHERWISE APPROVED.
3. APPROVED PRECAST HEADWALLS MAY BE USED AS AN ALTERNATIVE.
4. MINIMUM COVER TO PIPES TO BE 300mm.
5. MINIMUM FABRIC LAP 300mm.
6. CONCRETE GRADE TO BE N32, SLUMP 80mm IN ACCORDANCE WITH AS3600.
7. FENCING AT TOP OF HEADWALL MAY BE REQUIRED IN LOCATION WHERE HEIGHT > 1.0m AND SITE ACCESSIBLE TO THE PUBLIC.
8. ALTERNATE SCOUR PROTECTION INCLUDING MATTRESSES AT OUTLET OF HEADWALL ACCEPTABLE SUBJECT TO DESIGN BASED ON FLOW RATE AND VELOCITY.
9. MAXIMUM BATTER SLOPE 1 IN 6.
10. COVER GRATE TO BE FIXED TO HEADWALL OVER PIPES 750mm DIAMETER OR GREATER TO PREVENT UNAUTHORISED ACCESS. GRATE TO BE SECURED WITH ANTI THEFT FIXINGS AND BE LOCKABLE FOR MAINTENANCE PURPOSES.



ELEVATION
SCALE 1:10



SECTION A-A
SCALE 1:10

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ALL MEASUREMENTS IN MILLIMETRES

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STATUS: FOR INFORMATION

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0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8
SCALE 1:10 (A1) SCALE 1:20 (A3)

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PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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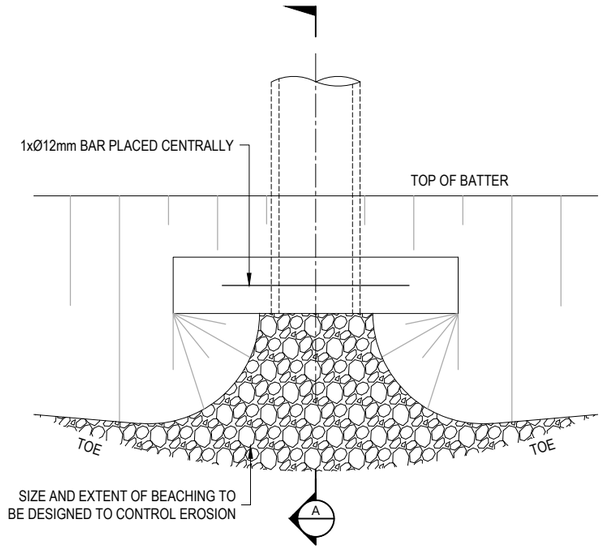
DRAWING TITLE: STANDARD HEADWALL FOR TWIN PIPES 675-1800 DIAMETER

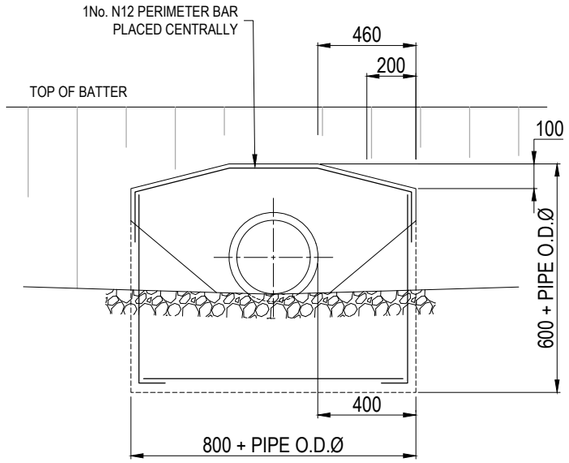
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5215		D

NOTES:

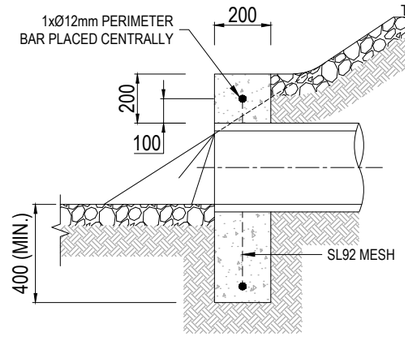
1. COMPACTION PRESSURE BEHIND ENDWALLS IS NOT TO EXCEED 12.5kPa.
   REFER (1.5 TONNE VIBRATORY ROLLER).
2. A MAXIMUM PIPE SIZE OF Ø300mm FOR THIS ENDWALL ARRANGEMENT.
3. NOT TO BE USED WHERE GENERAL VEHICULAR TRAFFIC IS PRESENT (MAINTENANCE OR EMERGENCY VEHICLES EXCEPTED).
4. ALTERNATIVELY PRECAST ENDWALL MAY BE USED WHERE APPROVED BY RELEVANT AUTHORITY.
5. CONCRETE STRENGTH F'C = 32 MPa (MIN.) AT 28 DAYS.
6. MAXIMUM BATTER SLOPE 1V : 6H.



PLAN
NOT TO SCALE



END ELEVATION
NOT TO SCALE



SECTION A-A
NOT TO SCALE

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ALL MEASUREMENTS IN MILLIMETRES

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D					23/03/26	CLIENT SUBMISSION

AMENDMENTS

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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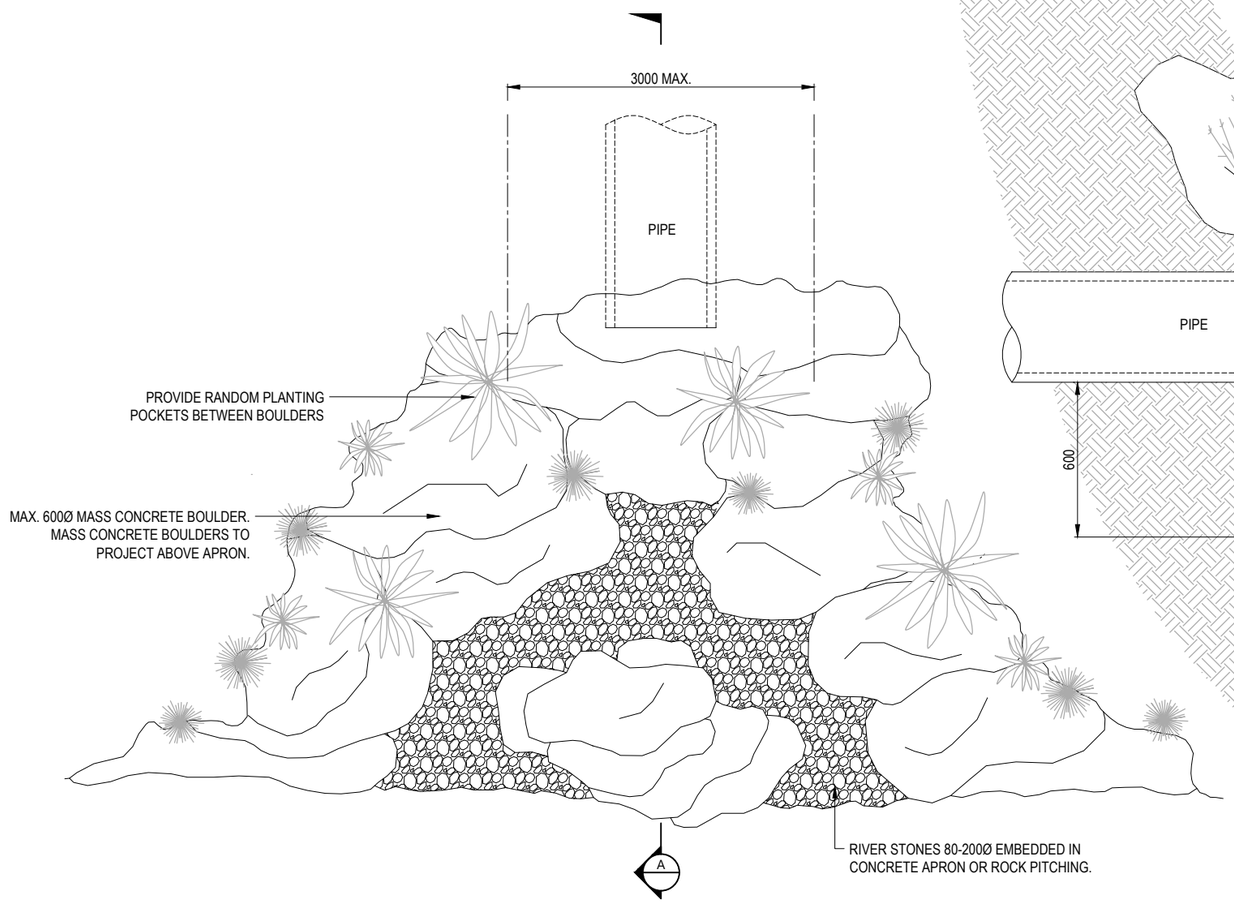
DRAWING TITLE: CONCRETE ENDWALL FOR PIPES UP TO Ø300mm (WALKWAYS,PATHS AND TRACKS)

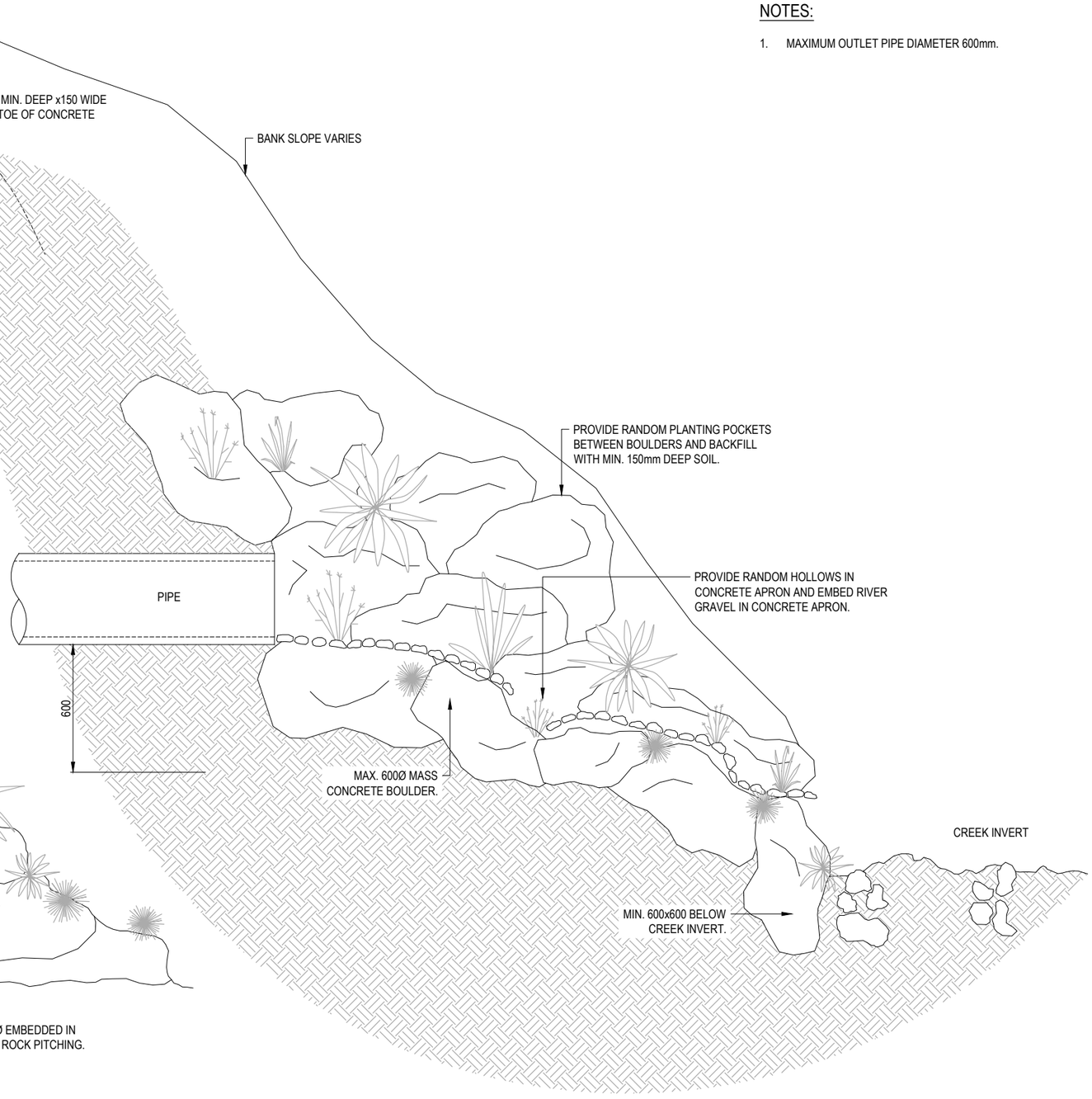
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5220		D

NOTES:

1. MAXIMUM OUTLET PIPE DIAMETER 600mm.



PLAN
NOT TO SCALE



SECTION A-A
NOT TO SCALE

ALL MEASUREMENTS IN MILLIMETRES

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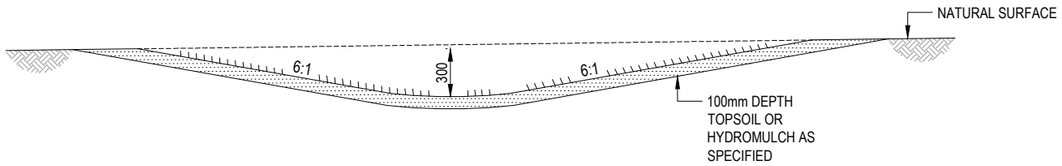
DRAWING TITLE: NATURAL LOOK CONCRETE AND BOULDER HEADWALL

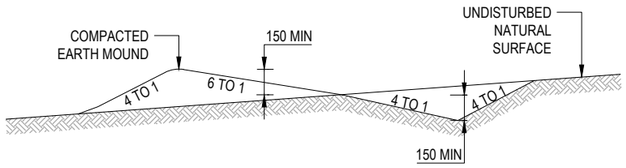
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5225		C

NOTES:

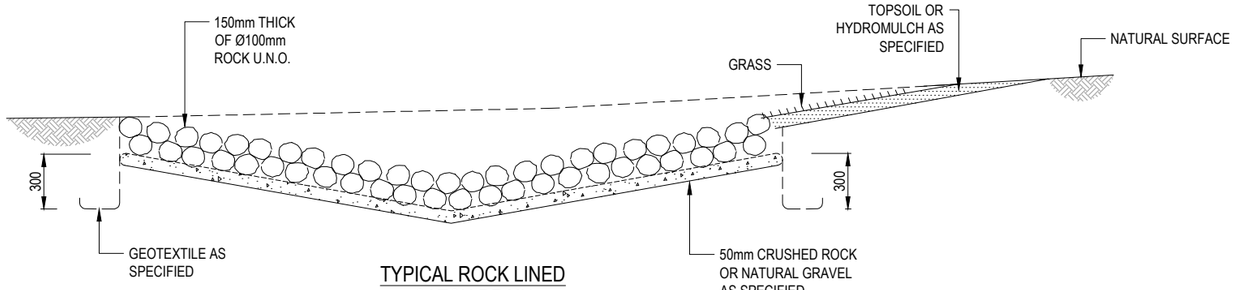
1. CATCH DRAINS SHALL BE CONSTRUCTED WHERE INDICATED ON ALIGNMENT PLANS.
2. CATCH DRAINS LOCATION RELATIVE TO THE BATTER SHALL BE DETERMINED BY THE RELEVANT AUTHORITY.
3. CATCH DRAINS SHALL BE GRADED TO CULVERTS OR EXISTING LOW POINTS.
4. CATCH DRAINS SHALL SHALL BE SPECIFIED BY THE DESIGNER AND THE LINING DETAILS BASED ON DESIGN FLOW VELOCITY, SCOUR POTENTIAL AND SOIL TYPE.



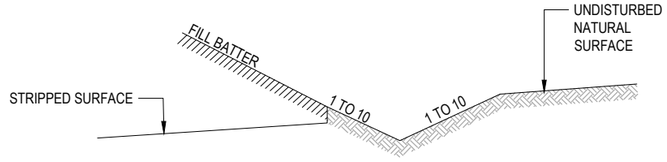
TYPICAL GRASS CATCH DRAIN SECTIONS
NOT TO SCALE



TYPICAL MOUNDED CATCH DRAIN (ERODABLE TERRAIN)
NOT TO SCALE



TYPICAL ROCK LINED CATCH DRAIN
NOT TO SCALE



TYPICAL CATCH DRAIN AT TOE OF BATTER
NOT TO SCALE

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ALL MEASUREMENTS IN MILLIMETRES

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STATUS: FOR INFORMATION

SCALE AS SHOWN

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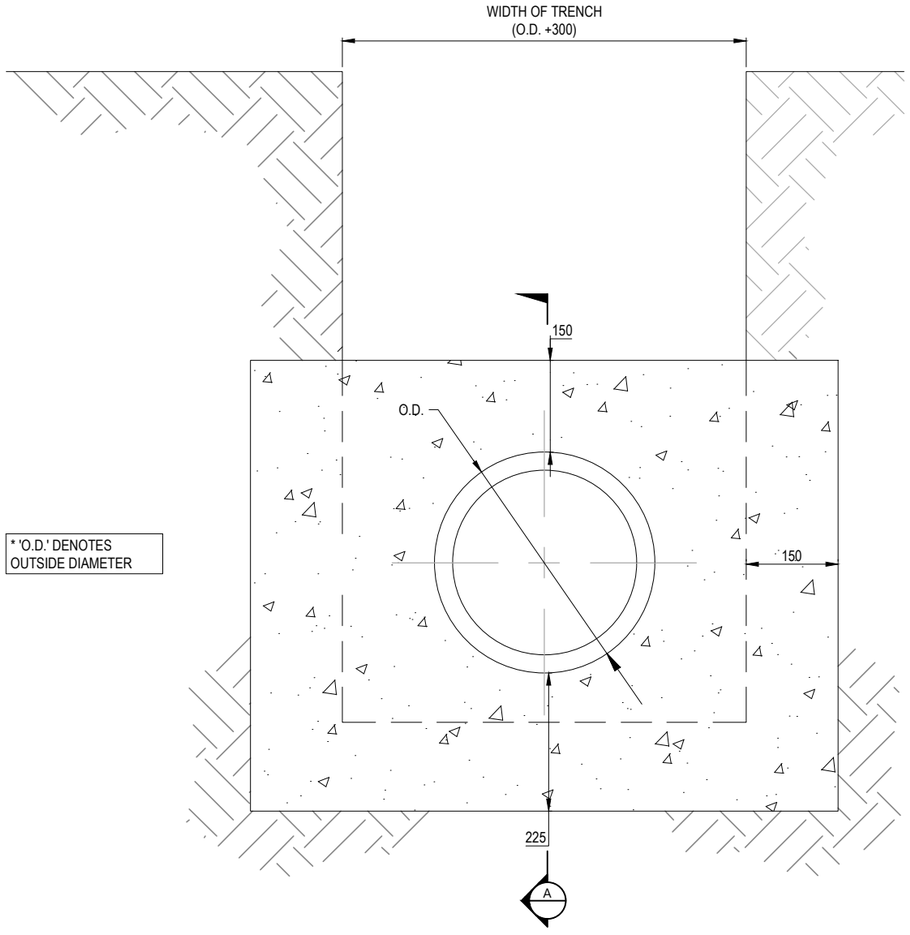
DRAWING TITLE: STORMWATER CATCH DRAIN DETAILS

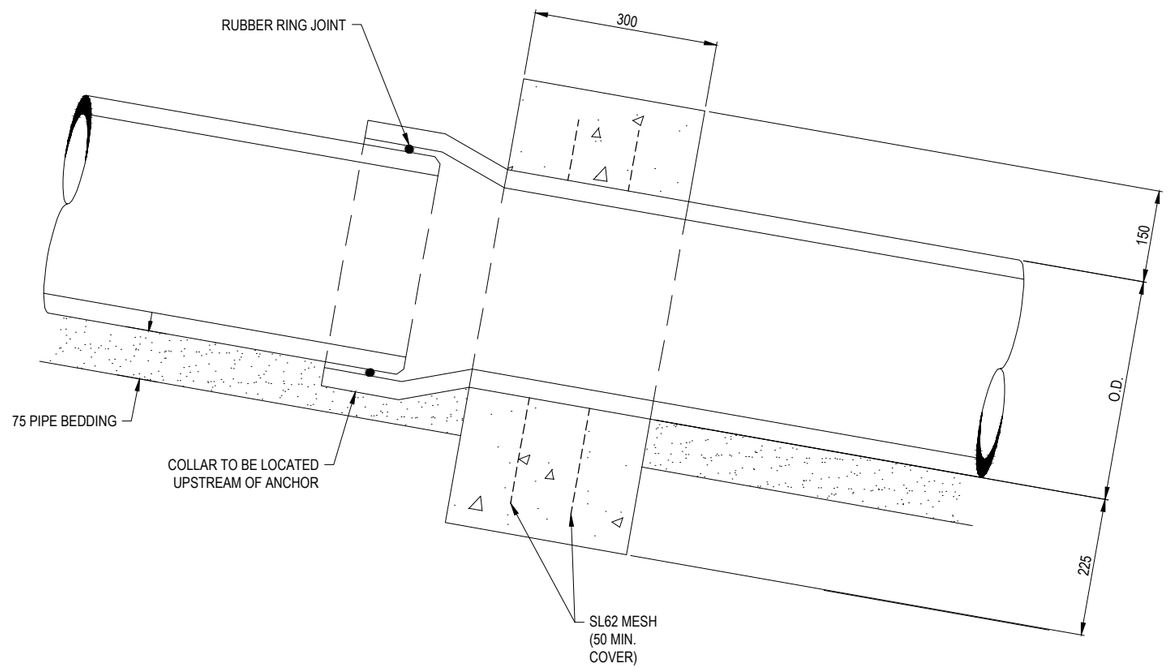
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5300		D

NOTES:

1. 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.
2. TO BE CONSTRUCTED AT A MIN EVERY 5TH JOINT AND AT ALL STRUCTURES.
3. CONCRETE STRENGTH TO BE 32MPa.
4. RRJ PIPES TO BE USED.



ELEVATION
SCALE 1:5



SECTION A-A
SCALE 1:5

ALL MEASUREMENTS IN MILLIMETRES

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STATUS: FOR INFORMATION

SCALE AS SHOWN
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SCALE 1:5 (A1) SCALE 1:10 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DISCLAIMER
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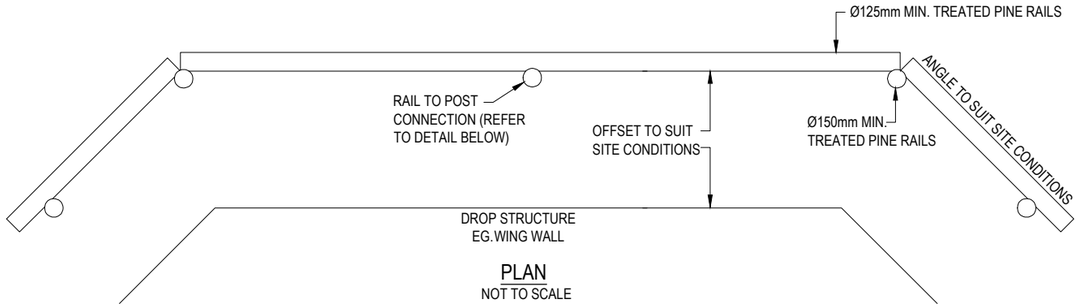
DRAWING TITLE: STORMWATER DRAINAGE PIPE ANCHOR BLOCK

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5400		C



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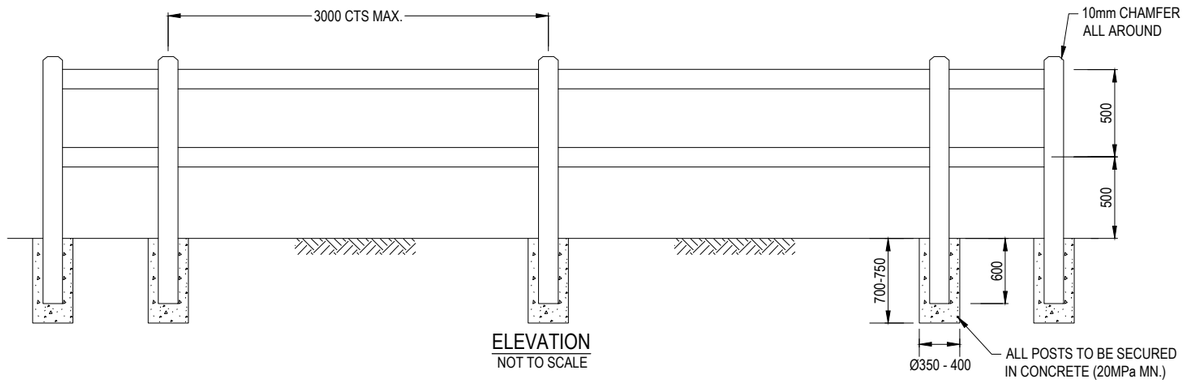

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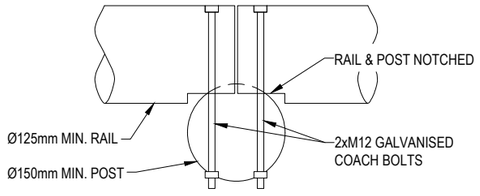
NOTES:

1. ALL RAILS AND POSTS SHALL BE WOOD EQUIVALENT (COMPOSITE PRODUCT), FREE OF DEFECTS 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.



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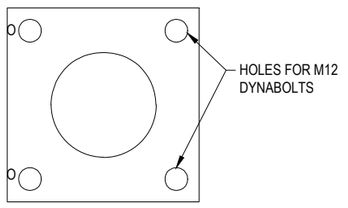

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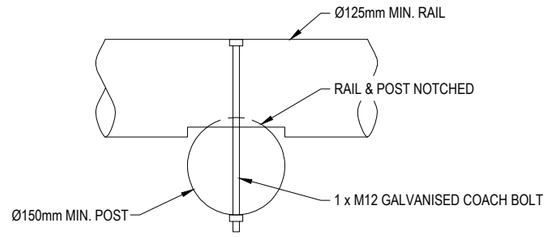

RAIL (CONTINUOUS) TO POST CONNECTION -PLAN
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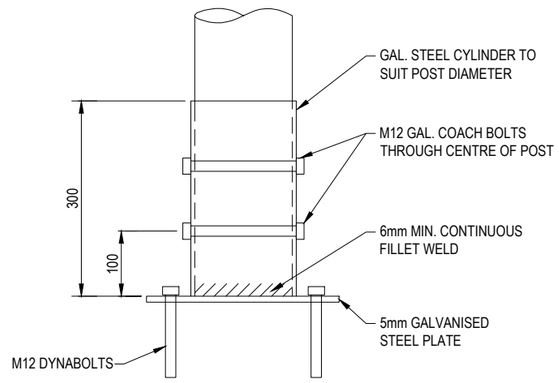

ELEVATION
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NOT TO SCALE

AMENDMENTS	DESIGN	DRAWN	CHECK	APPD	DATE	AMENDMENT DETAILS
FIRST ISSUE						
A					19/12/24	ISSUED FOR REVIEW
B					02/04/25	CLIENT SUBMISSION
C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DISCLAIMER
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DRAWING TITLE: POST AND RAIL SAFETY BARRIER AROUND DROP ZONES

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-5600		C

BIORETENTION STANDARD NOTES

BIORETENTION SYSTEM SPECIFICATION

1. REFERENCED DOCUMENTS.
THE FOLLOWING DOCUMENTS ARE INCORPORATED INTO THIS SPECIFICATION BY REFERENCE:

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
GUIDE TO RAINGARDEN PLANT SPECIES SELECTION AND PLACEMENT (WATER SENSITIVE SA)

1.2.1. GUIDELINES FOR SOIL FILTER MEDIA IN BIORETENTION SYSTEMS-THE CURRENT VERSION OF THE GUIDELINE CAN BE FOUND AT
https://watersensitivecities.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)
https://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)
https://waterbydesign.com.au/download-category/water-sensitive-urban-design/page/2

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:

2.2. FILTER: SOIL LAYER WHICH ACTS AS A POLLUTANT FILTER AND SUPPORTS PLANT GROWTH.

2.3. IMPERMEABLE LINERS: THE LINER THAT PREVENTS WATER MOVEMENT BETWEEN THE FILTER AND THE SURROUNDING SOILS AND DEFINES THE EDGE OF THE SYSTEM.

2.4. TRANSITION LAYER: LAYER TO SEPARATE FILTER LAYER FROM THE DRAINAGE LAYER TO AVOID MIGRATION OF SOILS FROM THE FILTER TO THE DRAINAGE LAYER.

2.5. DRAINAGE LAYER: RELATIVELY FREE DRAINING LAYER TO CONVEY INFILTRATED WATER TO THE UNDERDRAINAGE.

2.6. UNDER-DRAINS: SLOTTED DRAINS COLLECT TREATED STORMWATER FROM THE DRAINAGE LAYER AT THE BASE OF THE BIORETENTION SYSTEM.

3. TEST METHODS AND STANDARDS

3.1. THE FOLLOWING TEST METHODS AND STANDARDS ARE TO BE USED AS SPECIFIED IN THE ABOVE GUIDELINES WHEN CONDUCTING TESTS ASSOCIATED WITH THIS SPECIFICATION:

3.2. THE HYDRAULIC CONDUCTIVITY OF POTENTIAL FILTER MEDIA SHALL BE MEASURED USINGTHEASTM F1815-11 METHOD.

3.3. 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.

4.2. 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

5.1. 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.

5.2. 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 VERSION).

6. EARTHWORKS AND HYDRAULIC STRUCTURES

6.1. 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.

6.2. 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

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 REQUIREMENTS:

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 THRESHOLD, THE FILTER MEDIA MAY BE AMELIORATED BY ADDING 50 mm OF COMPOST AND TINING IT INTO THE TOP 150 mm OF FILTER MEDIA
ORGANIC CONTENT	AS 4419	
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. MATERIALS

9.1.1.1. TRANSITION LAYER SHALL BE MINIMUM THICKNESS OF 100mm COARSE WASHED 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).

9.2. 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 PIPES.

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 SMALLER IS PREFERRED).

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 OVERFLOW 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 SLOPES.

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 WEIGHT.

14. 6. 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.

14.7. PLANT METHOD MUST MINIMISE SOIL COMPACTION AND ENSURE THAT ALL ROOTS ARE COVERED BY AT LEAST 10 -20mm OF SOIL, AVOID COVERING PLANT CROWNS.

14.8. 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

-WEEK6-10 THREE WATERINGS PER WEEK

-WEEK11-15 TWO WATERINGS PER WEEK

-THEREAFTER AS REQUIRED TO SUSTAIN PLANTS UNTIL SUCCESSFUL ESTABLISHMENT

14.9. REPLANTING MUST OCCUR DURING THE ESTABLISHMENT PERIOD IF LESS THAN 90% OF PLANTS SURVIVE.

14.10. 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.

-AVERAGE GROUNDCOVER PLANT HEIGHT MUST BE GREATER THAN 500mm.

-PLANTS MUST BE HEALTHY 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.

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 SUPERINTENDENT.

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

AMENDMENTS		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
FIRST ISSUE							
	A					19/12/24	ISSUED FOR REVIEW
	B					27/03/25	CLIENT SUBMISSION
	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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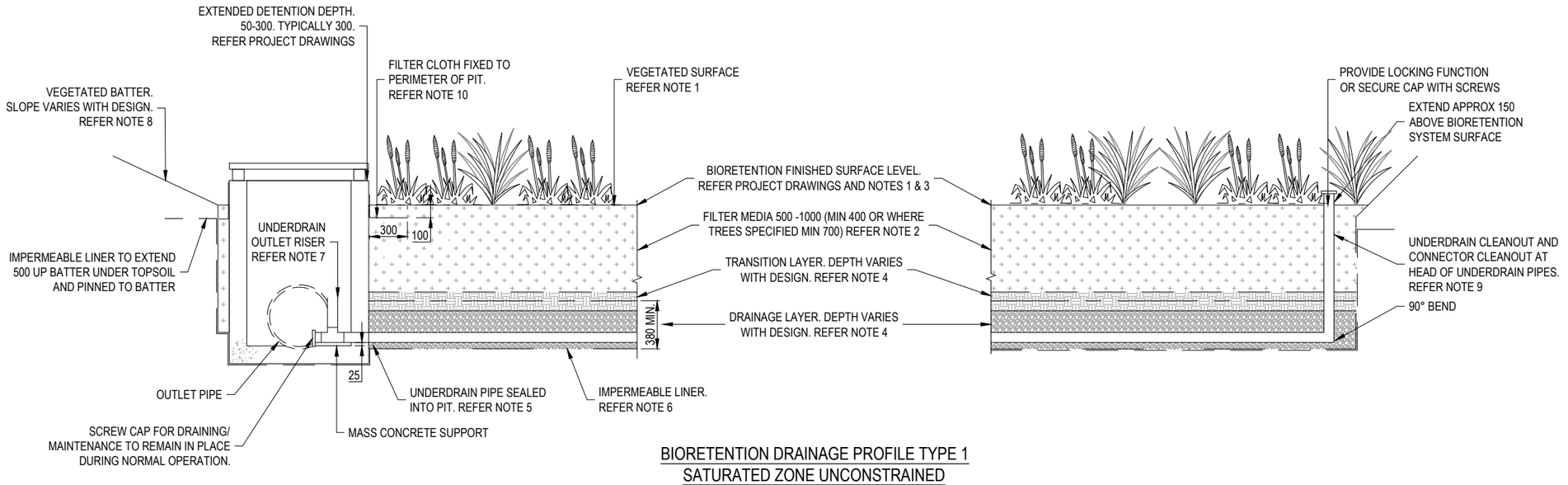
DRAWING TITLE: BIORETENTION STANDARD NOTES

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6100		C



BIORETENTION DRAINAGE PROFILE TYPE 1
SATURATED ZONE UNCONSTRAINED
NOT TO SCALE

NOTES:

1. BIORETENTION SYSTEM SURFACE. SURFACE LEVEL IS TOP OF FILTER MEDIA. SURFACE 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).
3. CONSTRUCTION TOLERANCES SHALL BE IN ACCORDANCE WITH THE 'CONSTRUCTION AND ESTABLISHMENT GUIDELINES -SWALES, BIORETENTION SYSTEMS AND WETLANDS' (WATER BY DESIGN).
4. 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 uPVC/FLEXIBLE AGRICULTURAL 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, BENTONITE 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).
7. UNDERDRAIN OUTLET RISER ESTABLISHES MAX SATURATED ZONE WATER LEVEL. UNDERDRAIN OUTLET RISER AS PER PROJECT DRAWINGS AND 'BIORETENTION TECHNICAL DESIGN GUIDELINES' (WATER BY DESIGN).
8. VEGETATED BATTER. SLOPE AND PLANTING TO BE IN ACCORDANCE WITH PROJECT DRAWINGS AND WATER SENSITIVE SA GUIDE "GUIDE TO RAINGARDEN PLANT SPECIES SELECTION AND PLACEMENT (WATER SENSITIVE SA)".
9. 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).
10. FILTER CLOTH TO BE FIXED TO PERIMETER OF PIT TO AVOID TUNNELLING 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 DH-SW-6100.

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

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENTS		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
FIRST ISSUE							
	A					19/12/24	ISSUED FOR REVIEW
	B					27/03/25	CLIENT SUBMISSION
	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DISCLAIMER
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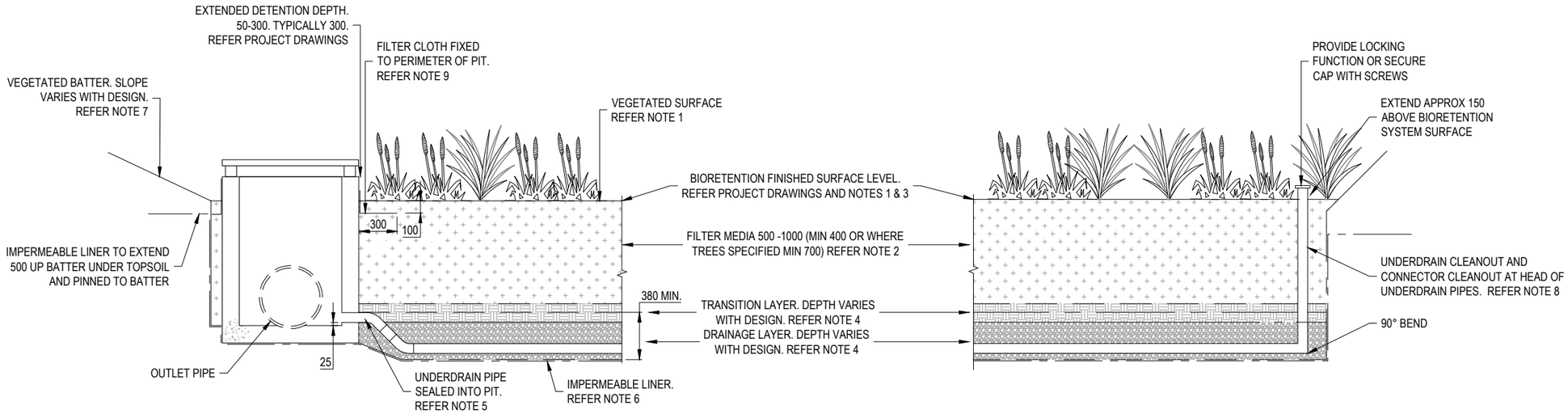
DRAWING TITLE: BIORETENTION DRAINAGE PROFILE TYPE 1 SATURATED ZONE UNCONSTRAINED

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6101		C

NOTES:

1. BIORETENTION SYSTEM SURFACE REFER NOTE 1 DH-SW-6101.
2. FILTER MEDIA SPECIFICATION REFER NOTE 2 D DH-SW-6101.
3. CONSTRUCTION TOLERANCES REFER NOTE 3 DH-SW-6101.
4. TRANSITION LAYER AND DRAINAGE LAYER REFER NOTE 4 DH-SW-6101.
5. UNDERDRAIN REFER NOTE 5 DH-SW-6101.
6. IMPERMEABLE LINER REFER NOTE6 DH-SW-6101.
7. VEGETATED BATTER REFER NOTE 8 DH-SW-6101.
8. INSPECTION/CLEANOUT POINT REFER NOTE 9 DH-SW-6101.
9. FILTER CLOTH REFER NOTE 10 DH-SW-6101.
10. FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO DH-SW-6100.



BIORETENTION DRAINAGE PROFILE TYPE 1
SATURATED ZONE CONSTRAINED
NOT TO SCALE

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	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

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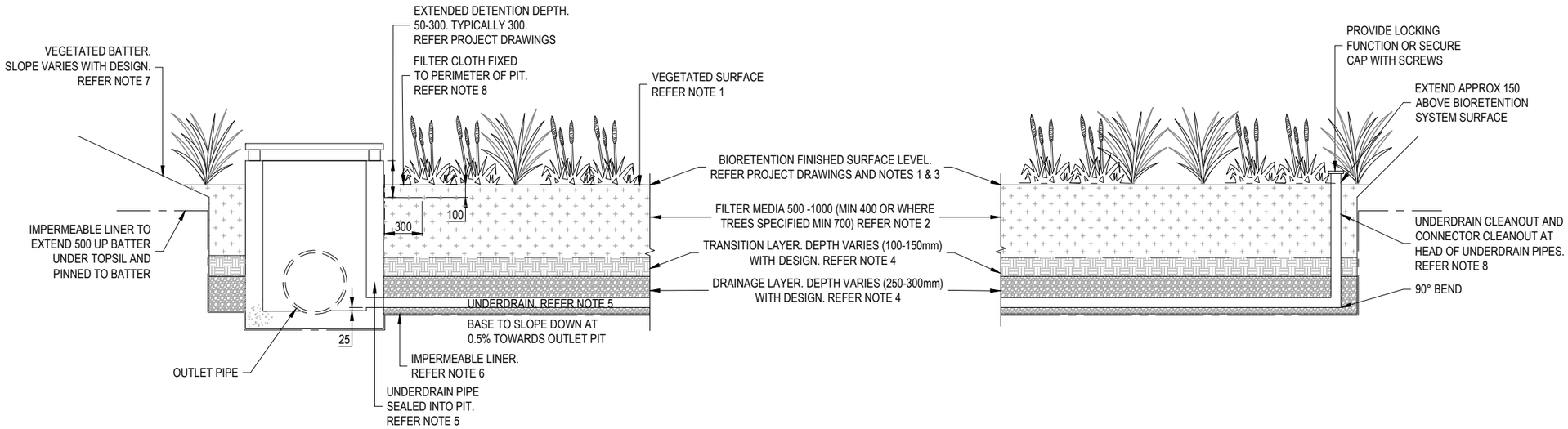
DRAWING TITLE: BIORETENTION DRAINAGE PROFILE TYPE 1 SATURATED ZONE CONSTRAINED

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6102		C

NOTES:

1. BIORETENTION SYSTEM SURFACE. REFER NOTE 1 DH-SW-6101.
2. FILTER MEDIA SPECIFICATION. REFER NOTE 2 DH-SW-6101.
3. CONSTRUCTION TOLERANCES. REFER NOTE 3 DH-SW-6101.
4. TRANSITION LAYER AND DRAINAGE LAYER. REFER NOTE 4 DH-SW-6101.
5. UNDERDRAIN. REFER NOTE 5 DH-SW-6101.
6. IMPERMEABLE LINER. REFER NOTE 6 DH-SW-6101.
7. VEGETATED BATTER. REFER NOTE 8 DH-SW-6101.
8. INSPECTION/CLEANOUT POINT. REFER NOTE 9 DH-SW-6101.
9. FILTER CLOTH REFER NOTE 10 DH-SW-6101.
10. FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO DH-SW-6100.



BIORETENTION DRAINAGE PROFILE TYPE 2
SEALED

NOT TO SCALE

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ALL MEASUREMENTS IN MILLIMETRES

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
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C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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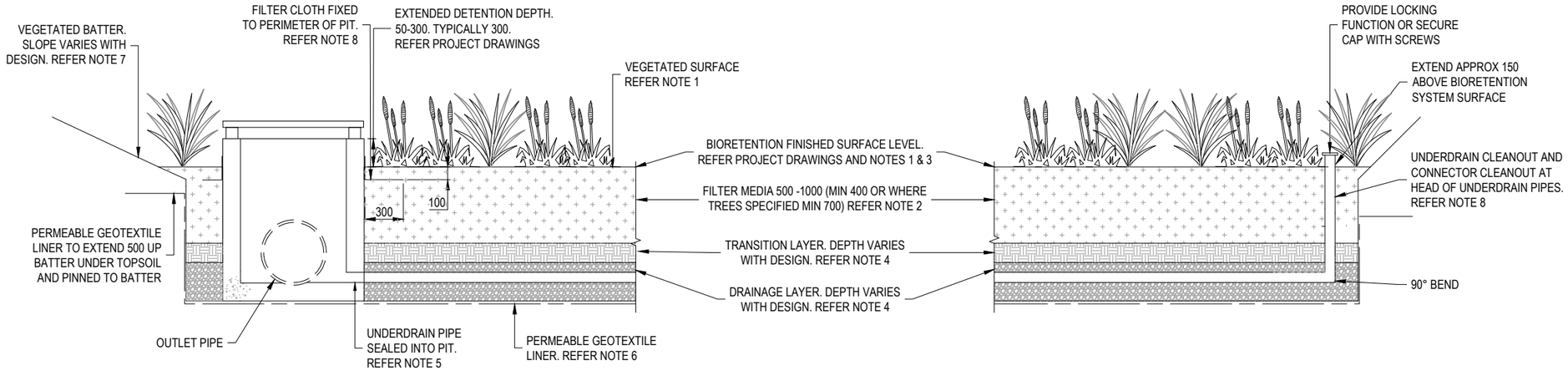
DRAWING TITLE: BIORETENTION DRAINAGE PROFILE TYPE 2 - SEALED

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6103		C

NOTES:

1. BIORETENTION SYSTEM SURFACE. REFER NOTE 1 DH-SW-6101.
2. FILTER MEDIA SPECIFICATION. REFER NOTE 2 DH-SW-6101.
3. CONSTRUCTION TOLERANCES. REFER NOTE 3 DH-SW-6101.
4. TRANSITION LAYER AND DRAINAGE LAYER .REFER NOTE 4 DH-SW-6101.
5. UNDERDRAIN. REFER NOTE 5 DH-SW-6101.
6. PERMEABLE GEOTEXTILE 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).
7. VEGETATED BATTER REFER NOTE 8 DH-SW-6101.
8. INSPECTION/CLEANOUT POINT. REFER NOTE 9 DH-SW-6101.
9. FILTER CLOTH REFER NOTE 10 DH-SW-6101.
10. FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO DH-SW-6100.



BIORETENTION DRAINAGE PROFILE TYPE 3

BIORETENTION DRAINAGE PROFILE TYPE 3
CONVENTIONAL

NOT TO SCALE

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ALL MEASUREMENTS IN MILLIMETRES

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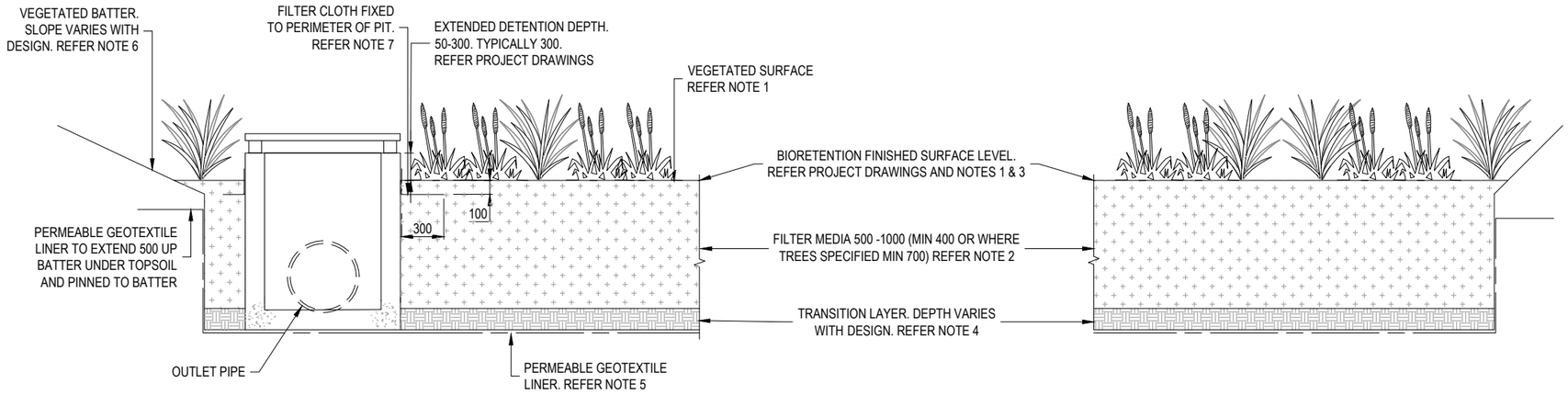
DRAWING TITLE: BIORETENTION DRAINAGE PROFILE TYPE 3

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6104		C

NOTES:

1. BIORETENTION SYSTEM SURFACE. REFER NOTE 1 DH-SW-6101.
2. FILTER MEDIA SPECIFICATION. REFER NOTE 2 DH-SW-6101.
3. CONSTRUCTION TOLERANCES. REFER NOTE 3 DH-SW-6101.
4. 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).
5. PERMEABLE GEOTEXTILE LINER. REFER NOTE 6 DH-SW-6104.
6. VEGETATED BATTER. REFER NOTE 8 DH-SW-6100.
7. FILTER CLOTH REFER NOTE 10 DH-SW-6101.
8. FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO DH-SW-6100.
9. DESIGN SHOULD ONLY BE APPLIED IN SANDY OR FREE DRAINING SOILS TO AVOID WATER LOGGING.
10. DROUGHT TOLERANT PLANT SPECIES SHOULD BE USED, RATHER THAN SPECIES FROM TYPICAL BIORETENTION NITROGEN REMOVING PLANTING GUIDES.



BIORETENTION DRAINAGE PROFILE TYPE 4
PIPELESS
NOT TO SCALE

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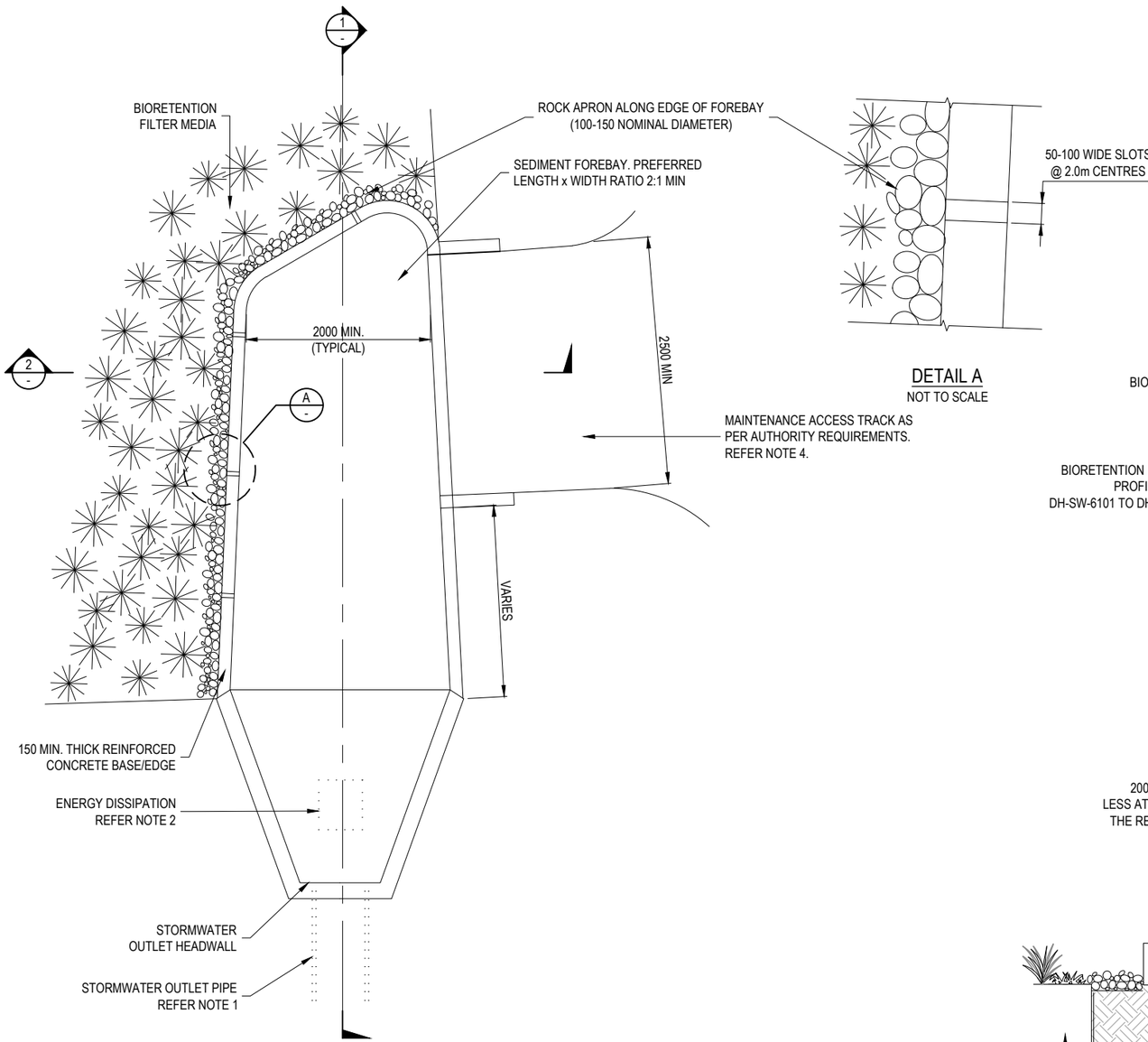
DRAWING TITLE: BIORETENTION DRAINAGE PROFILE TYPE 4 - PIPELESS

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6105		C



PLAN LARGE BIORETENTION SEDIMENT FOREBAY

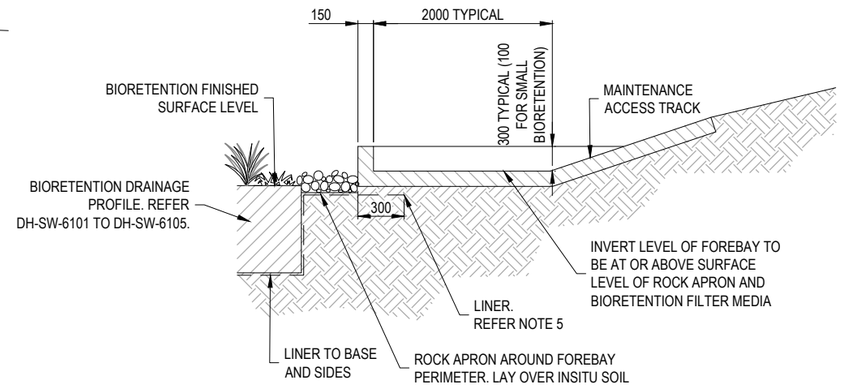
NOT TO SCALE

DETAIL A

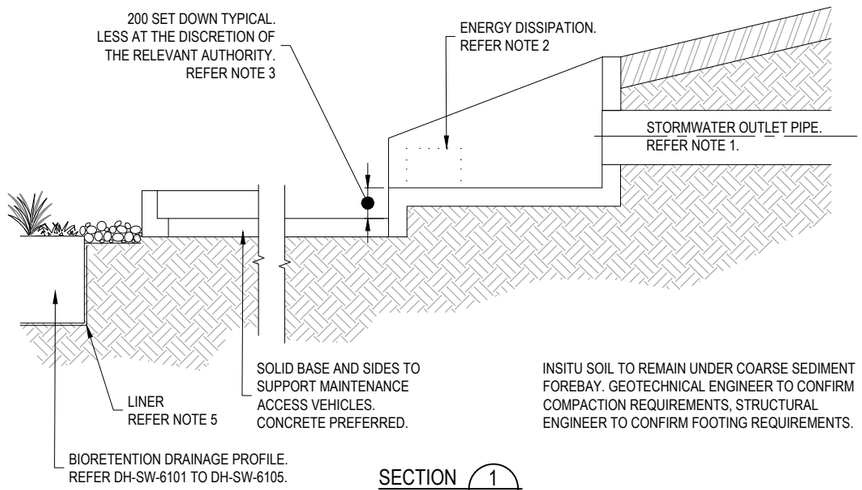
NOT TO SCALE

NOTES:

1. STORMWATER OUTLET PIPE. REFER PROJECT DRAWINGS FOR DIAMETER AND INVERT LEVEL. PIPE TO BE ALIGNED TO WITHIN 40° MAX OF LONG AXIS OF THE COARSE SEDIMENT FOREBAY.
2. ENERGY DISSIPATION TO BE IN ACCORDANCE WITH THE PROJECT DRAWINGS.
3. SET DOWN FOR SEDIMENT ACCUMULATION REQUIRED SUBJECT TO RELEVANT AUTHORITY REQUIREMENTS AND SITE CONSTRAINTS. SET DOWN OF UP TO 200mm IS TYPICAL. CAN BE FLUSH AT RELEVANT AUTHORITY DISCRETION.
4. MAINTENANCE ACCESS TRACK REFER WSUD DESIGN STANDARD.
5. LINER MAY BE PERMEABLE OR IMPERMEABLE DEPENDING ON DESIGN REFER TO PROJECT DRAWINGS. LAY LINER OVER INSITU SOIL PIN LINER UNDERNEATH SEDIMENT FOREBAY 300mm MINIMUM.
6. FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO DH-SW-6100.



SECTION 2 - AS SHOWN



SECTION 1 - AS SHOWN

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ALL MEASUREMENTS IN MILLIMETRES

		DESIGN	DRAWN	CHECK	APPD	DATE	AMENDMENT DETAILS
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STATUS: FOR INFORMATION

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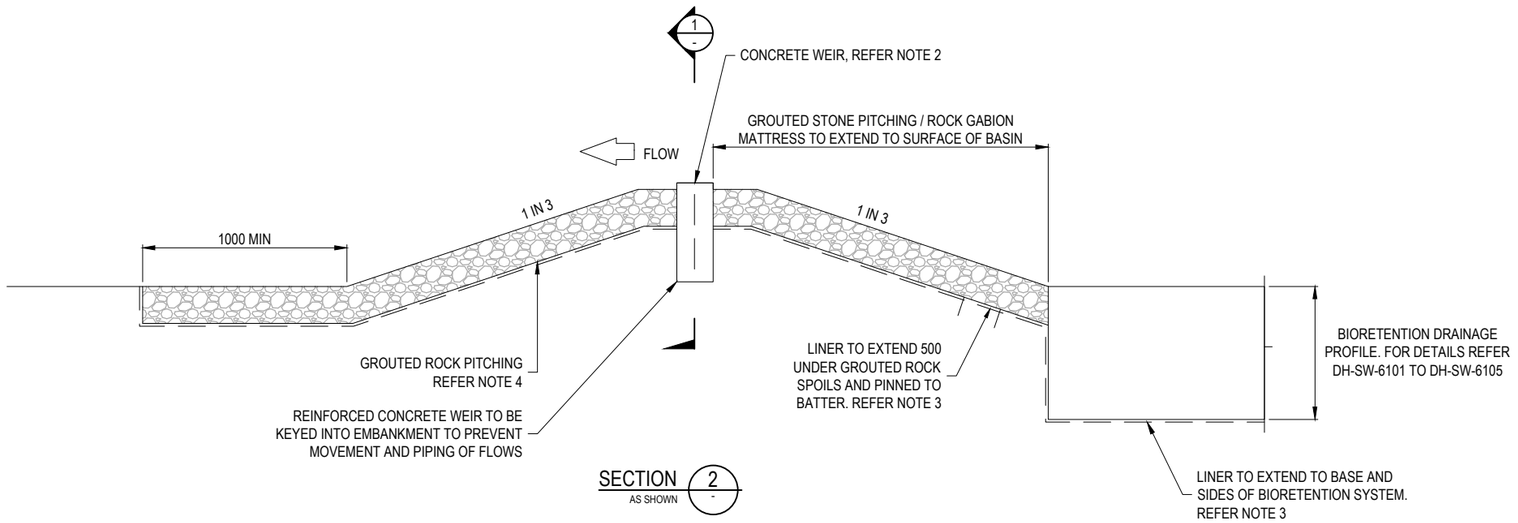
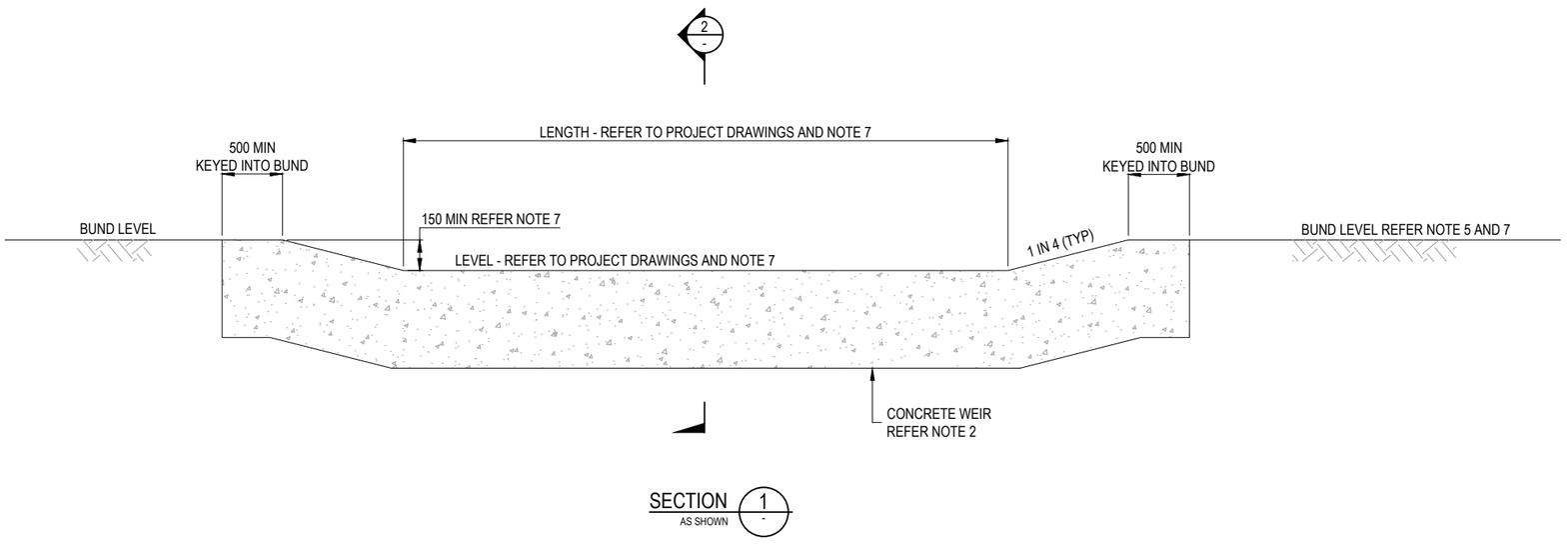
DRAWING TITLE: LARGE BIORETENTION SEDIMENT FOREBAY

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6110		D



BIORETENTION WEIR



NOTES:

1. INSITU MATERIAL TO BE TESTED AND APPROVED BY GEOTECHNICAL ENGINEER PRIOR TO WEIR CONSTRUCTION.
2. CONCRETE WEIR - 300 WIDEx600 DEEP CONCRETE (N32) WITH SL82 MESH 2 PLACED CENTRALLY.
3. LINER. PERMEABLE OR IMPERMEABLE DEPENDING ON DESIGN. REFER TO DH-SW-6101 TO DH-SW-6105.
4. 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 SUBSOIL.
5. CONSTRUCTION TOLERANCES AS DOCUMENTED IN THE 'WATER SENSITIVE URBAN DESIGN CONSTRUCTION AND ESTABLISHMENT GUIDELINES -SWALES, BIORETENTION SYSTEMS AND WETLANDS' (WATER BY DESIGN) MUST BE ACHIEVED. CONSTRUCTION TOLERANCES AND BUND LEVELS MUST BE NOTED ON PROJECT PLANS.
6. FOR EXTENT AND DETAILS OF SCOUR PROTECTION REFER TO PROJECT DRAWINGS.
7. BUND LEVEL, REFER TO PROJECT DRAWINGS FOR MINIMUM FREEBOARD REQUIREMENTS. BUND LEVELS MUST BE NOTED ON PROJECT DRAWINGS.
8. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
9. 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 CONNECTED TOGETHER THROUGH THE CONCRETE WEIR OR SECURED THROUGH OTHER METHODS, TO BE SPECIFIED BY THE DESIGN ENGINEER. REFER PROJECT DRAWINGS FOR GABION CONNECTION AND SECUREMENT DETAILS.

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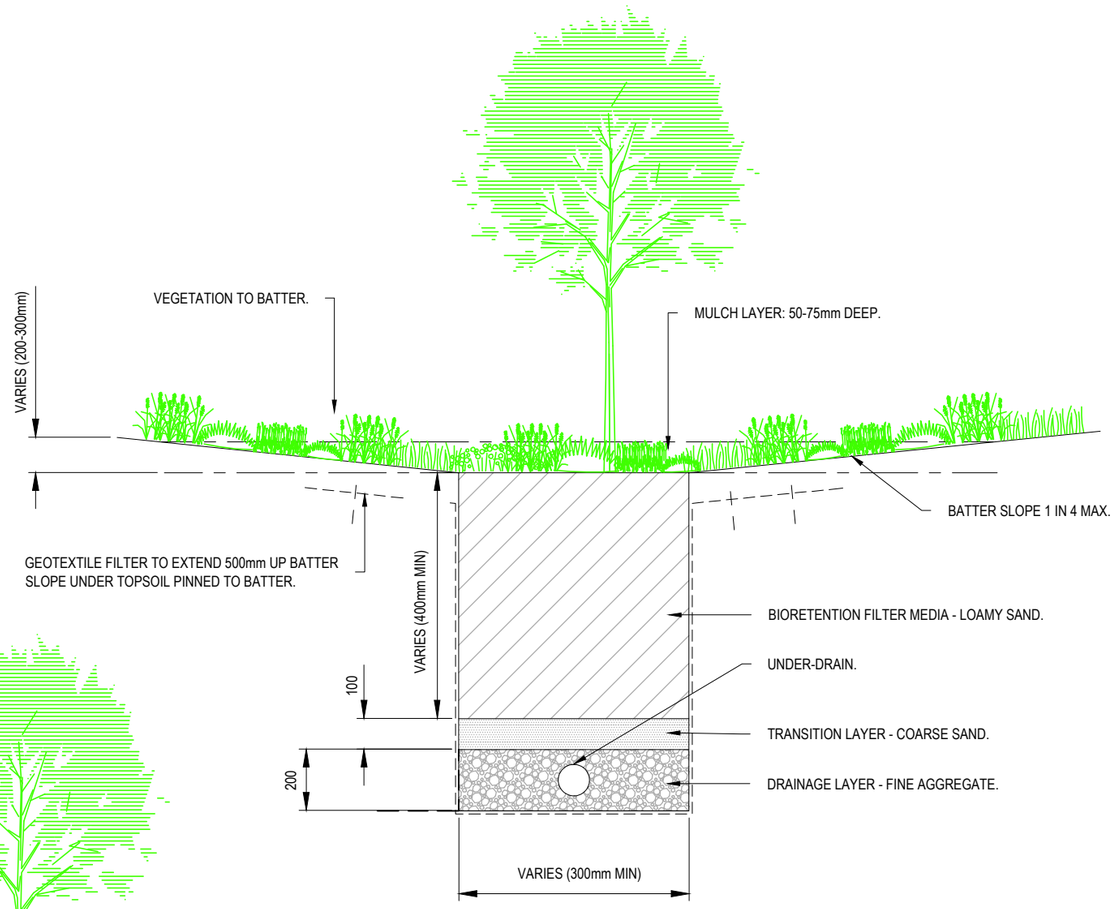
DRAWING TITLE: BIORETENTION WEIR

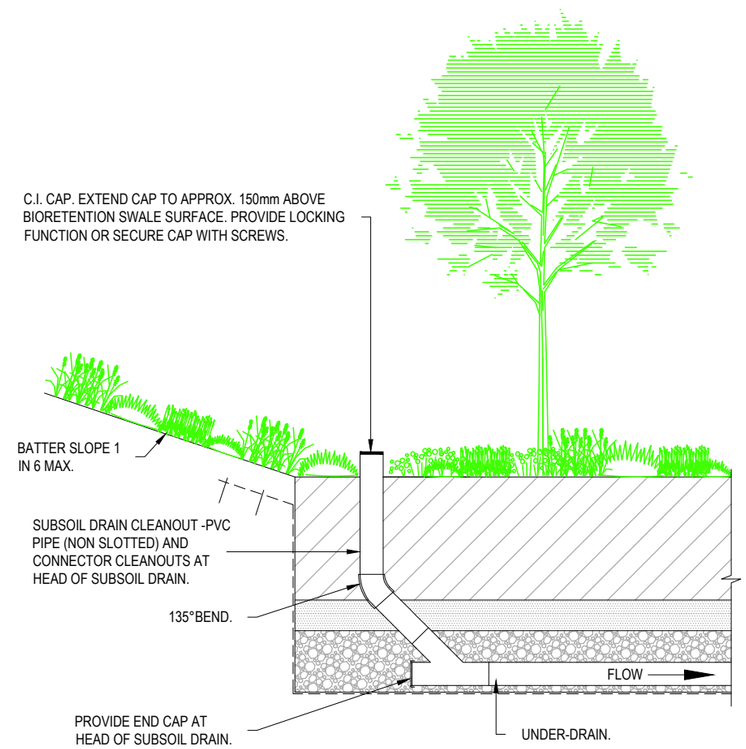
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6111		C

NOTES:

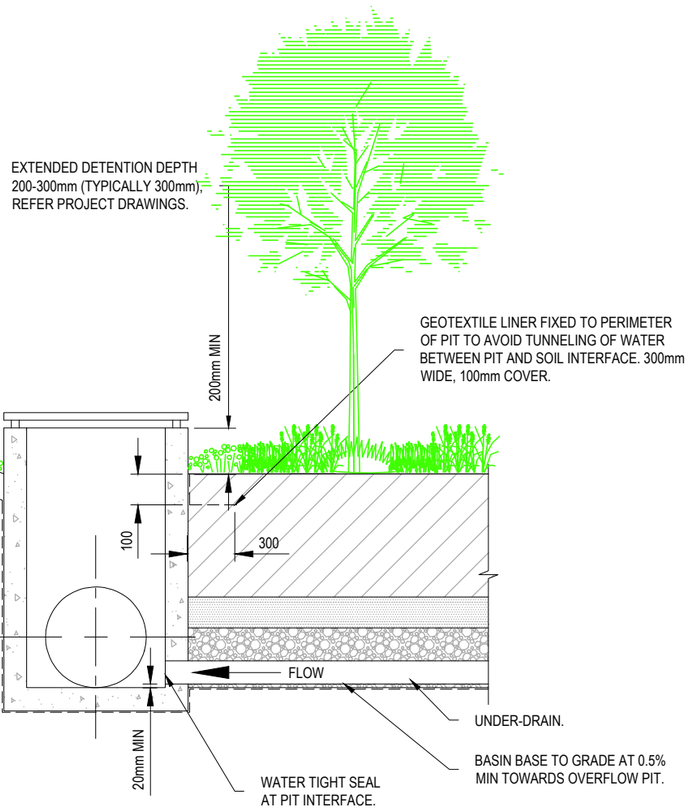
1. FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO DH-SW-6100.
2. TRAFFIC CONTROLS: FOR STREETSCAPE SYSTEMS, DESIGNERS SHALL INCORPORATE FEATURES THAT PREVENT OR DISCOURAGE THE DRIVING OR PARKING OF VEHICLES IN THE BIORETENTION SYSTEM. BOLLARDS MAY BE USED WITHIN THE TREES AND POLES ALIGNMENT IN ACCORDANCE WITH THE FOLLOWING:
   - MINIMUM HEIGHT TO BE 1000mm.
   - CONSIDER VISIBILITY WHEN SPECIFYING COLOUR.
   - BOLLARDS TO BE MADE FROM SUSTAINABLE PRODUCTS.
   - NOT RECOMMENDED FOR GREATER THAN 50km/hr ENVIRONMENTS.
   - PREFERABLE MAXIMUM IN CROSS SECTION TO BE 150x150mm.
   - NO CONCRETE FOOTINGS.
3. SERVICES: LOCATION OF SERVICES TO BE VERIFIED PRIOR TO EXCAVATION. BIORETENTION SYSTEMS MUST HAVE A MINIMUM HORIZONTAL SETBACK OF 300mm FROM ANY WATER SUPPLY AND SEWERAGE INFRASTRUCTURE.
4. ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.



BIORETENTION SWALE -TYPICAL SECTION
NOT TO SCALE



BIORETENTION UNDER-DRAIN CLEANOUT -TYPICAL SECTION
NOT TO SCALE



BIORETENTION OVERFLOW PIT -TYPICAL SECTION
NOT TO SCALE

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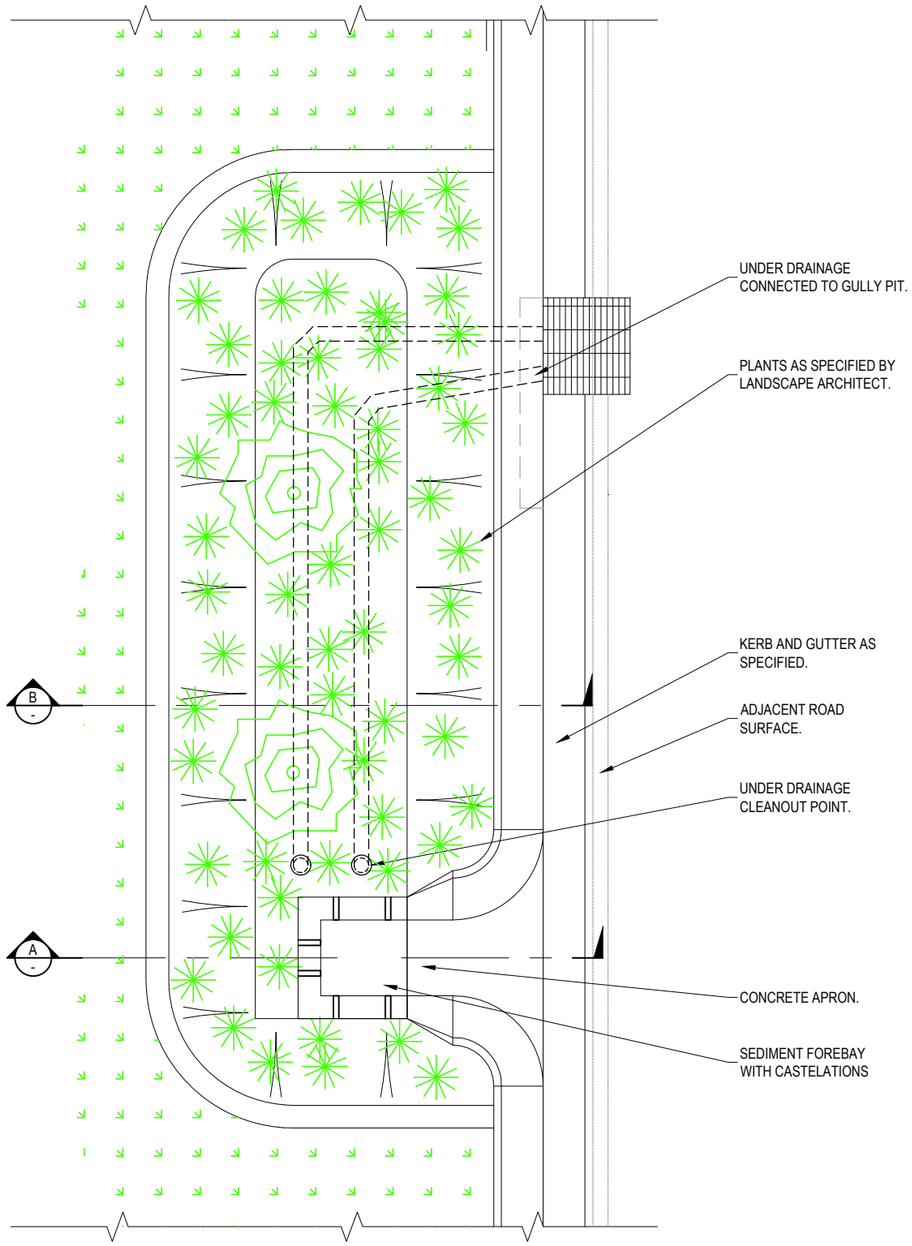
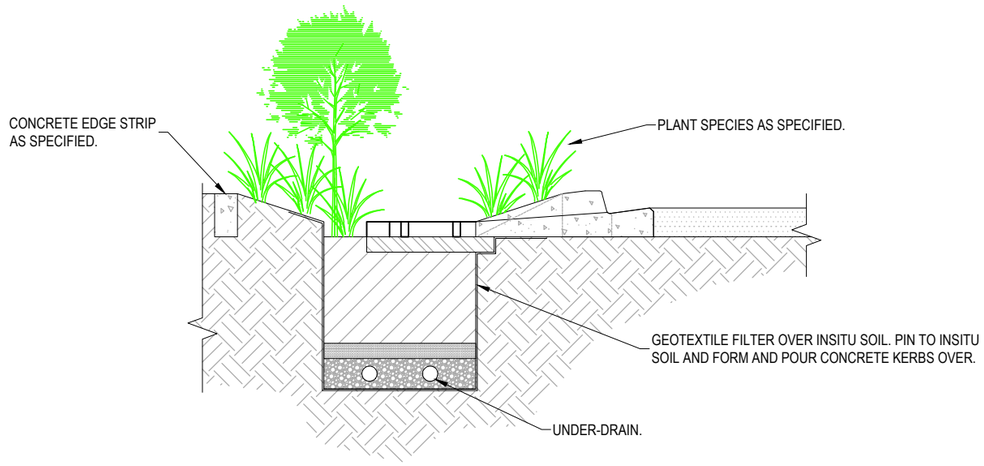
DRAWING TITLE: BIORETENTION SWALE TYPICAL SECTIONS

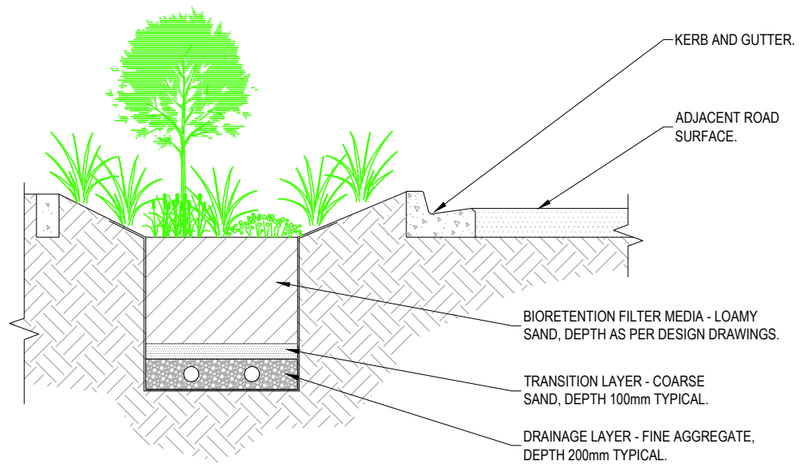
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6113		C



PLAN
NOT TO SCALE



SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE

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SCALE: AS SHOWN

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SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DISCLAIMER
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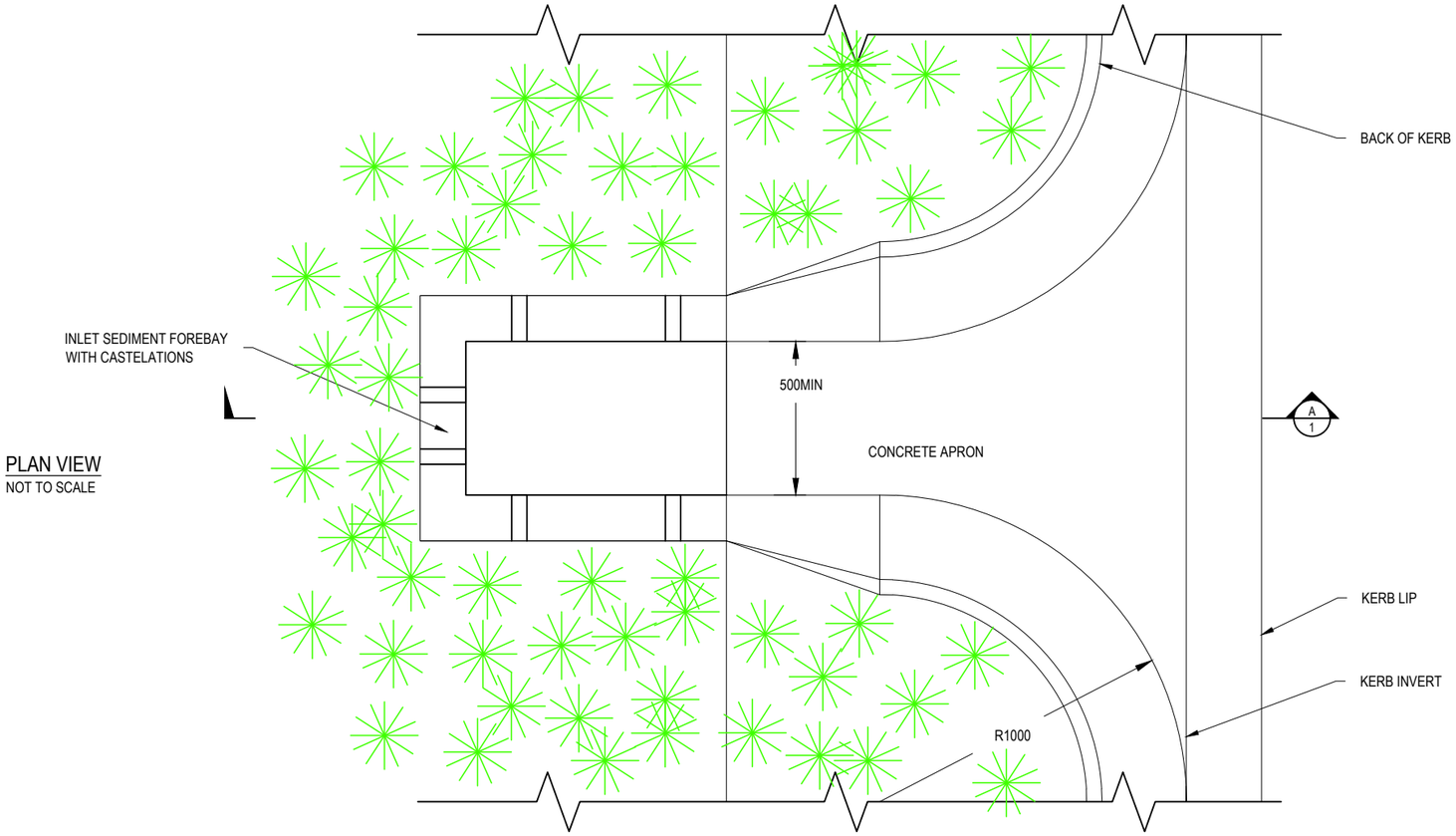
DRAWING TITLE: STREETSCAPE BIORETENTION

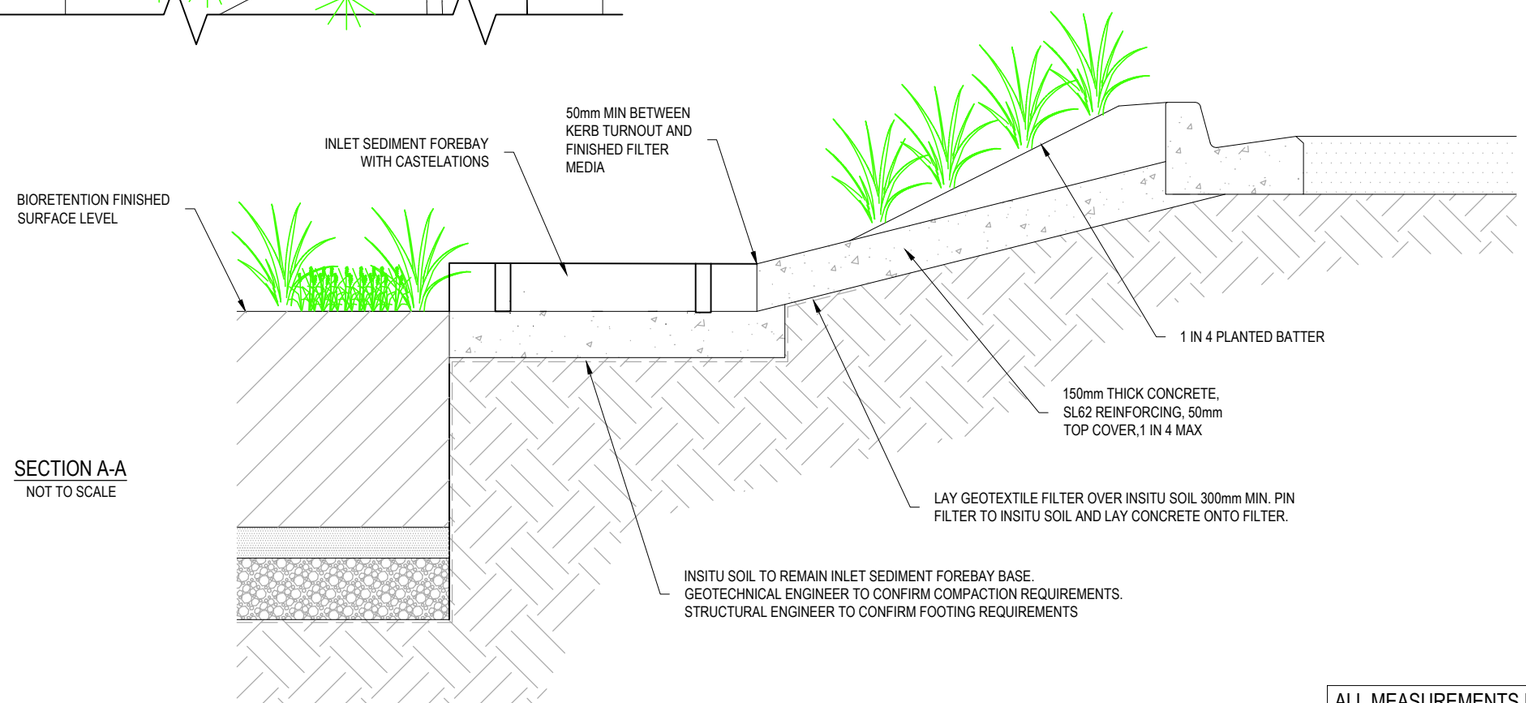
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6120		C



PLAN VIEW
NOT TO SCALE

NOTES:

1. FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO DH-SW-6100.
2. DRAWING DETAIL BASED ON THE INSTITUTE OF PUBLIC WORKS ENGINEERING AUSTRALIA QUEENSLAND DIVISION INC. STANDARD DRAWINGS.
3. ALL DIMENSIONS IN MILLIMETERS UNLESS SPECIFIED OTHERWISE.



SECTION A-A
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

FIRST ISSUE		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
AMENDMENTS	A					19/12/24	ISSUED FOR REVIEW
	B					27/03/25	CLIENT SUBMISSION
	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

CLIENT: Government of South Australia, Department for Housing and Urban Development

SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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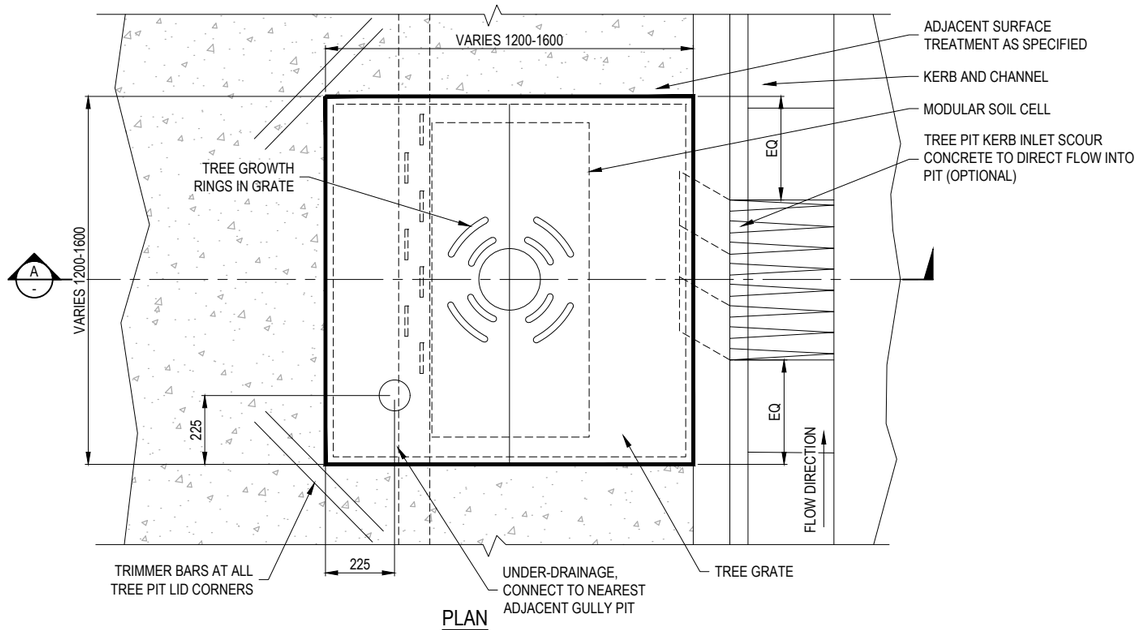
DRAWING TITLE: BIORETENTION POD SEDIMENT FOREBAY

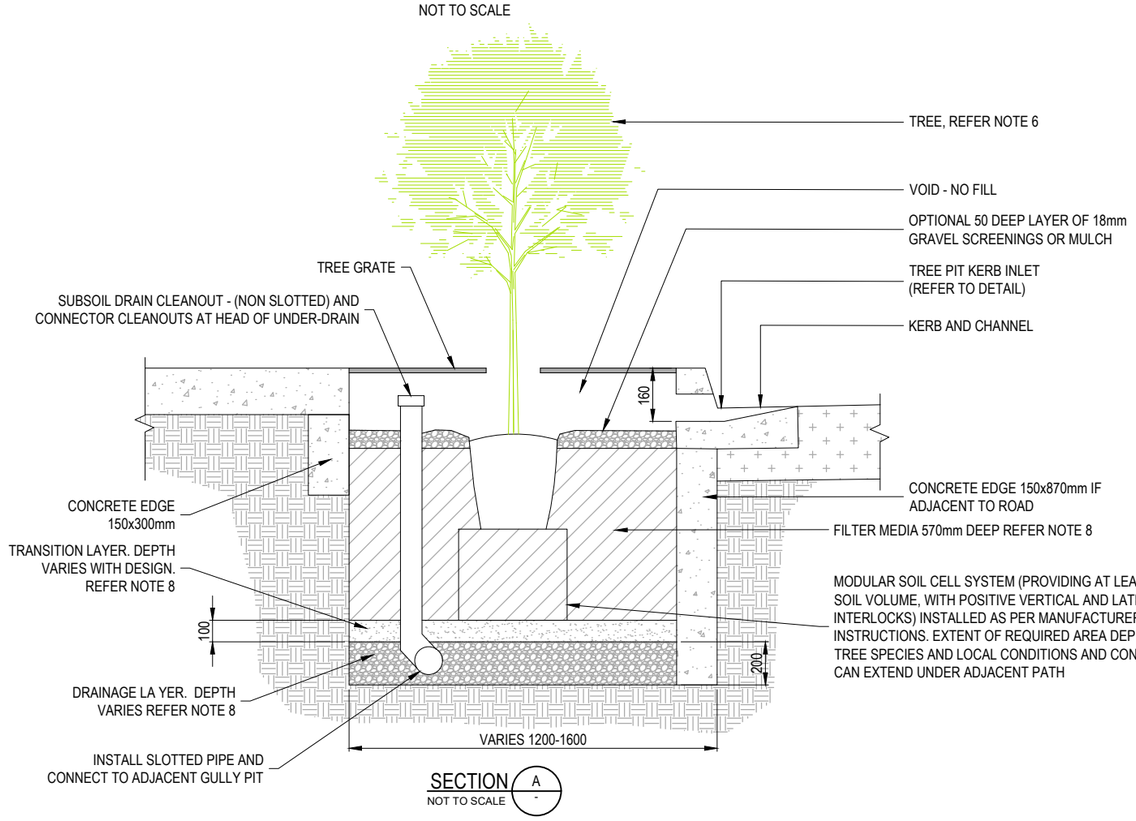
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6121		C



PLAN

BIORETENTION STREET TREE

NOT TO SCALE

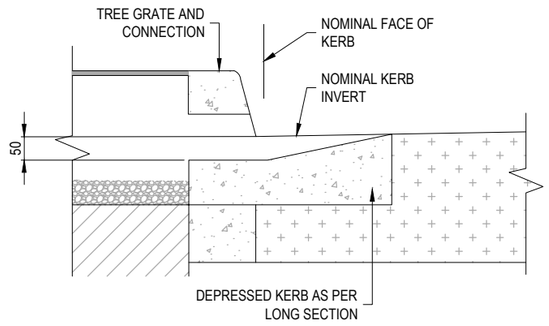


SECTION A-A

NOT TO SCALE

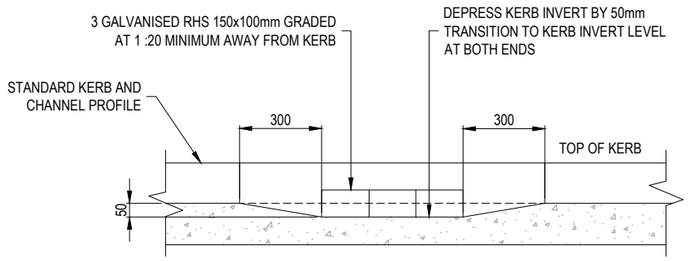
NOTES:

1. FOR GENERAL DESIGN AND CONSTRUCTION NOTES REFER TO DH-SW-6100.
2. WSUD KERB SHOWN IS ONLY SUITABLE FOR STREET TREE PITS AND SMALL RAINGARDENS. LARGER SYSTEMS MAY NEED SPECIFIC INLET DESIGN OR MULTIPLE INLETS.
3. WHERE NO PARKING LANE EXISTS, RHS KERB INLET MAY BE REPLACED BY AN OPEN KERB CUT.
4. ENSURE TREE PIT DRAINAGE IS CONNECTED TO STORMWATER SYSTEM TO AVOID FLOODING THE TREE.
5. TREE PITS ARE TO BE LOCATED UPSTREAM OF GULLY PITS.
6. STREET TREE TO BE APPROPRIATE FOR TRAFFIC SIGHT LINES.
7. 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).
8. TRANSITION LA YER AND DRAINAGE LA YER SPECIFICATIONS TO BE IN ACCORDANCE WITH BIORETENTION TECHNICAL DESIGN GUIDELINES (WATER BY DESIGN).
9. ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.



TREE PIT KERB INLET TYPICAL SECTION

NOT TO SCALE



TREE PIT KERB INLET ELEVATION

NOT TO SCALE

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ALL MEASUREMENTS IN MILLIMETRES

AMENDMENTS		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
FIRST ISSUE							
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	C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

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SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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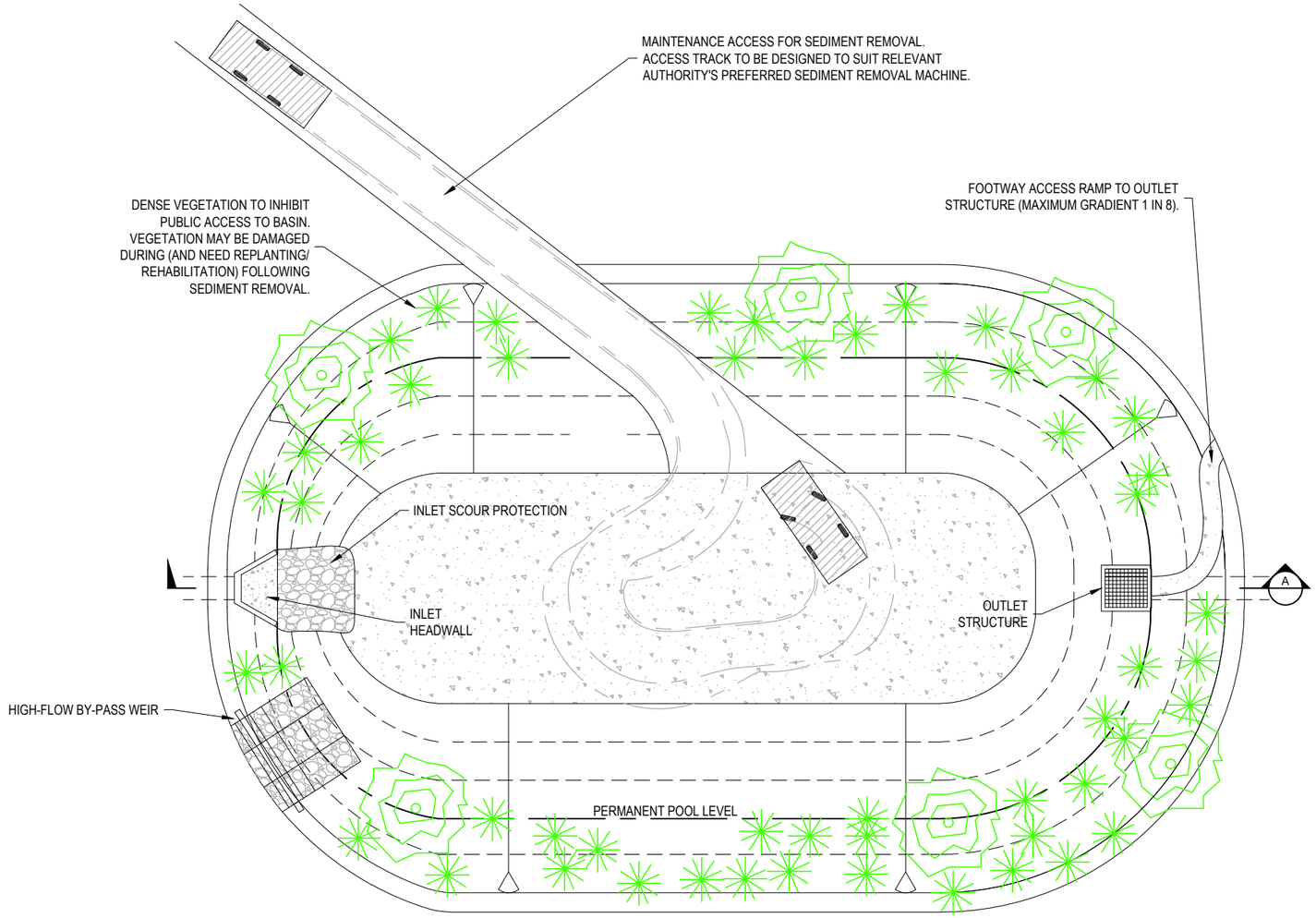
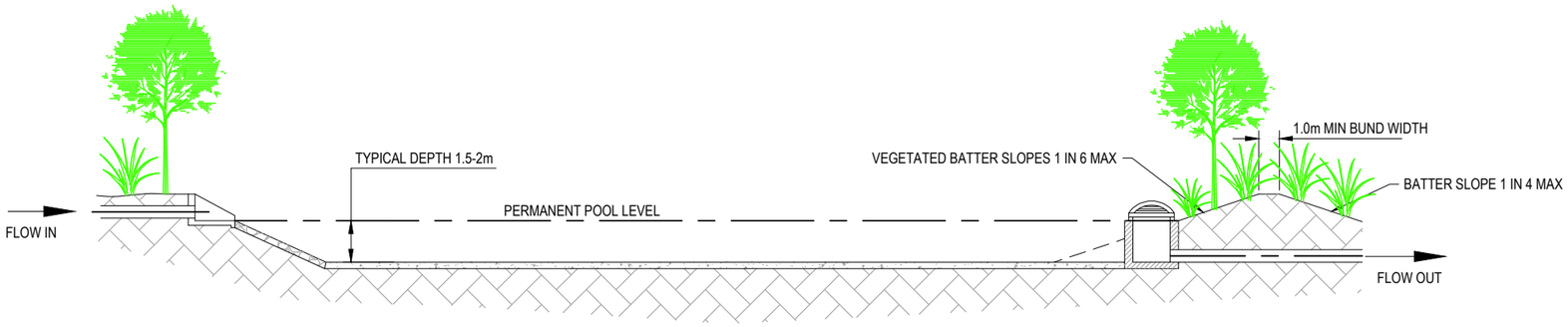
DRAWING TITLE: BIORETENTION STREET TREE

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6130		C



PLAN
NOT TO SCALE



SECTION A-A
NOT TO SCALE

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.
2. DRAINAGE REQUIREMENTS FOR SEDIMENT BASIN TO BE CONFIRMED WITH RELEVANT AUTHORITY.
3. ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.

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ALL MEASUREMENTS IN MILLIMETRES

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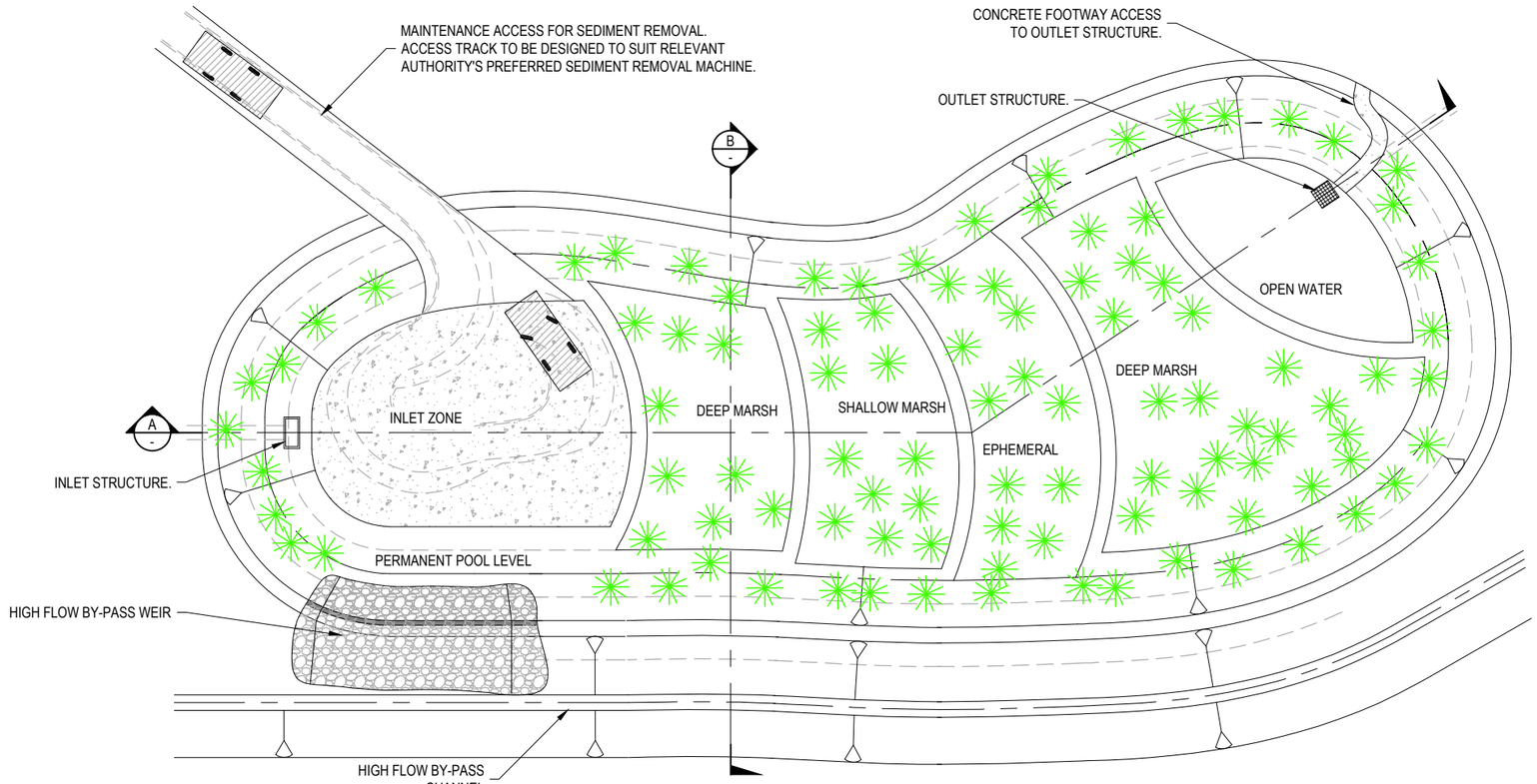
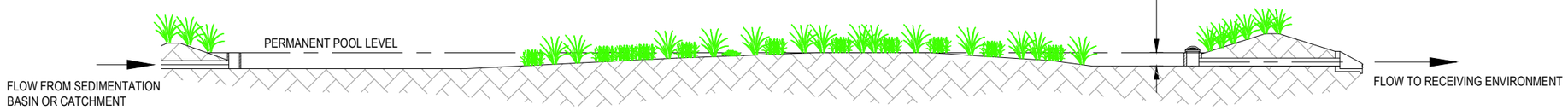
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DRAWING TITLE
SEDIMENT BASIN
TYPICAL PLAN AND SECTION

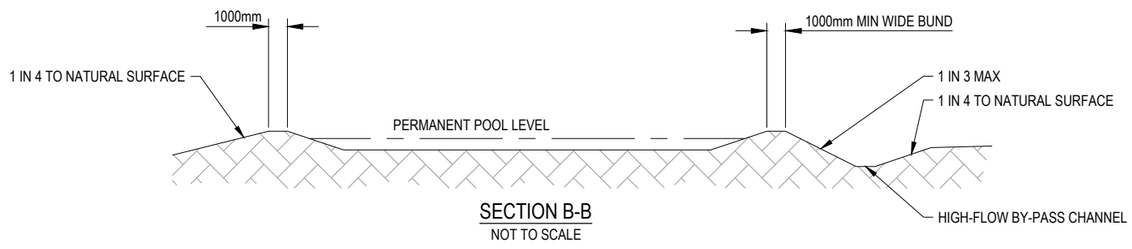
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6210		C



PLAN
NOT TO SCALE



SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE

NOTES:

1. 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.
2. THE PROVISION FOR A MAINTENANCE DRAIN SHALL BE CONFIRMED WITH RELEVANT AUTHORITY.
3. 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.

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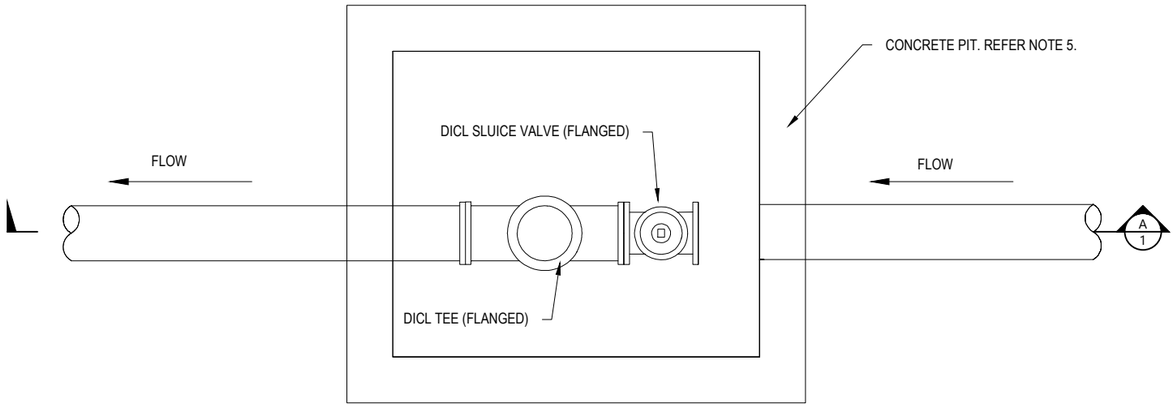
DRAWING TITLE
CONSTRUCTED WETLAND
TYPICAL PLAN AND SECTIONS

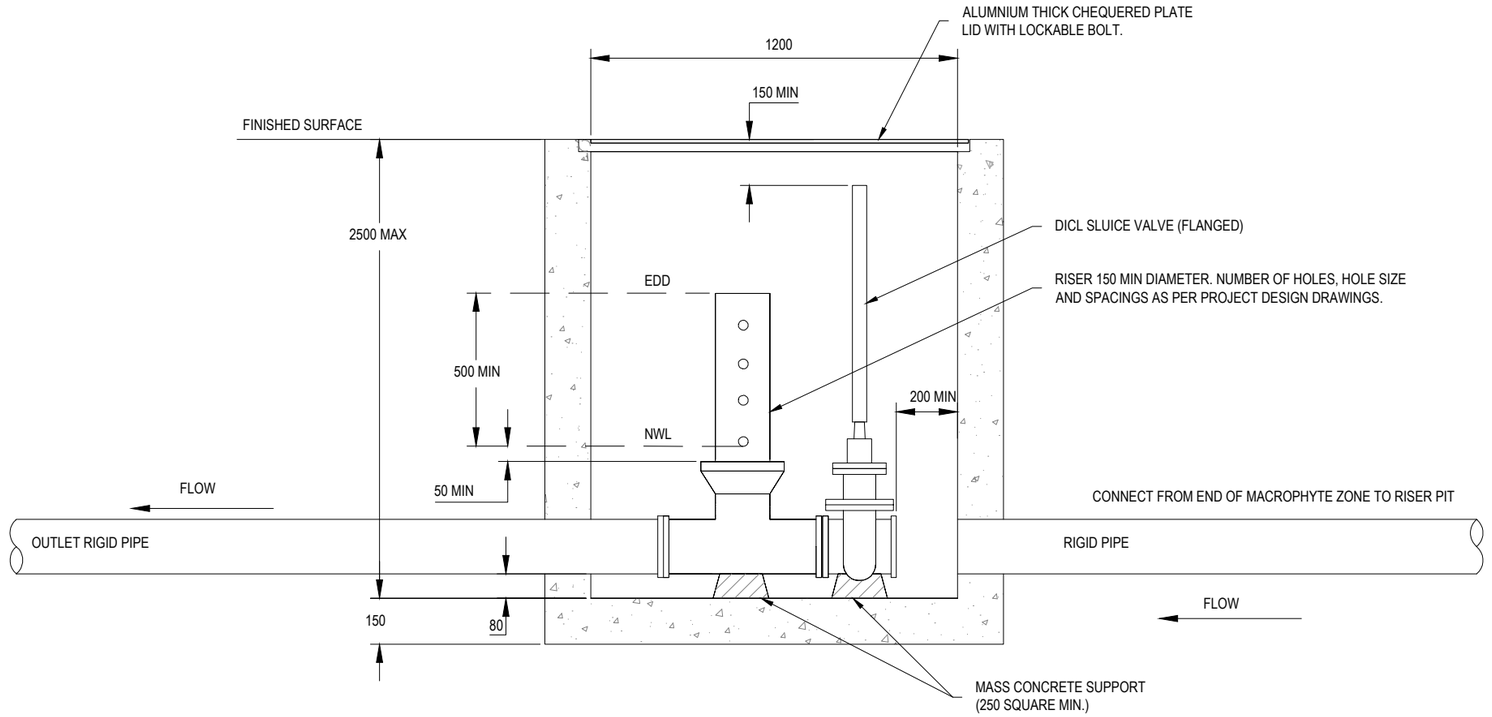
PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6211		C

NOTES:

1. REFER TO PROJECT DRAWINGS FOR RIGID PIPE DIAMETER AND INVERT LEVEL.
2. 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.
3. 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).
4. FOR PITS OVER 2500mm IN DEPTH, REFER PROJECT DRAWINGS FOR PIT DIMENSIONS AND REINFORCING DETAILS.
5. CONCRETE N25 IN ACCORDANCE WITH AS1379 AND AS3600.
6. ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.



PLAN
NOT TO SCALE



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ALL MEASUREMENTS IN MILLIMETRES

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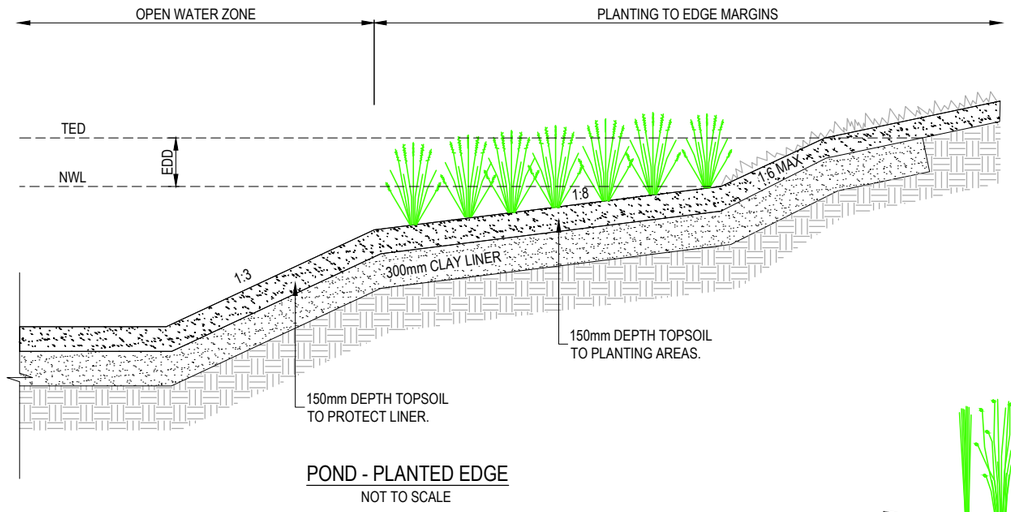
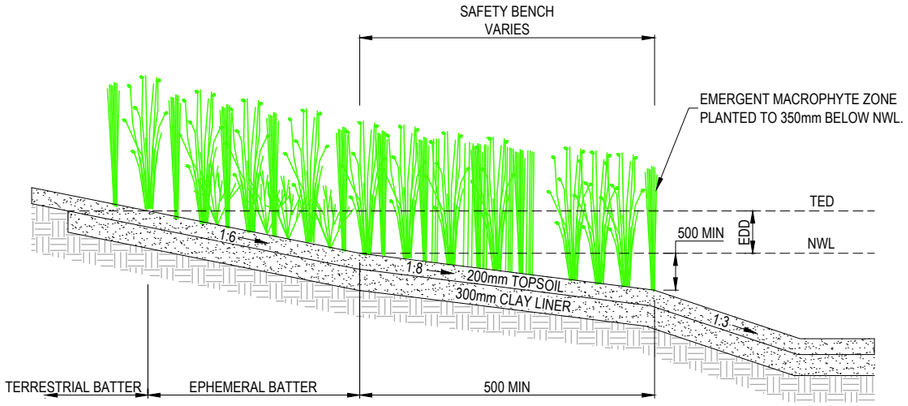
DRAWING TITLE: WETLAND LOW FLOW RISER OUTLET

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6220		C



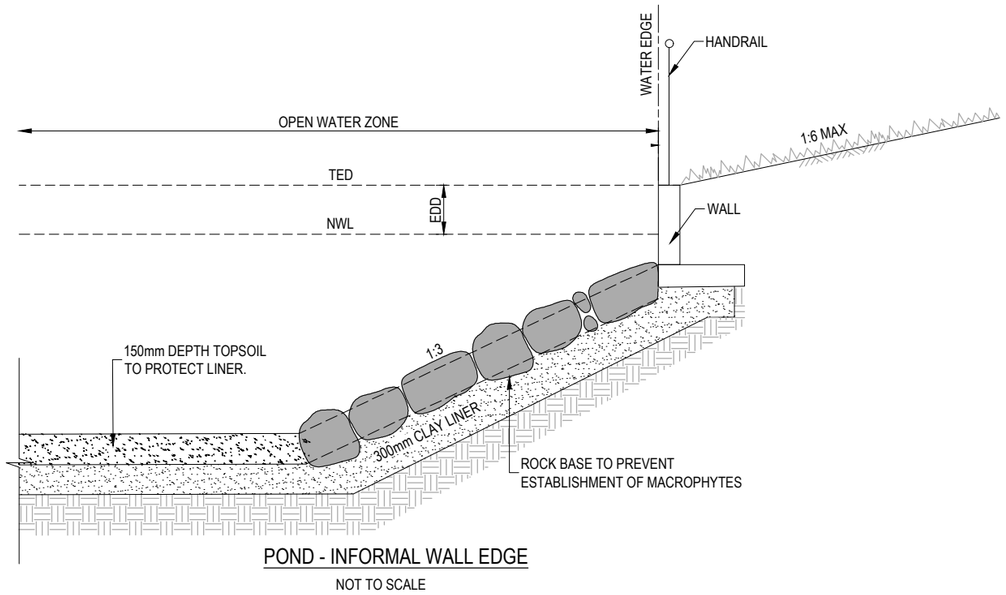
POND - PLANTED EDGE

NOT TO SCALE



WETLAND - PLANTED EDGE

NOT TO SCALE



POND - INFORMAL WALL EDGE

NOT TO SCALE

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ALL MEASUREMENTS IN MILLIMETRES

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C					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

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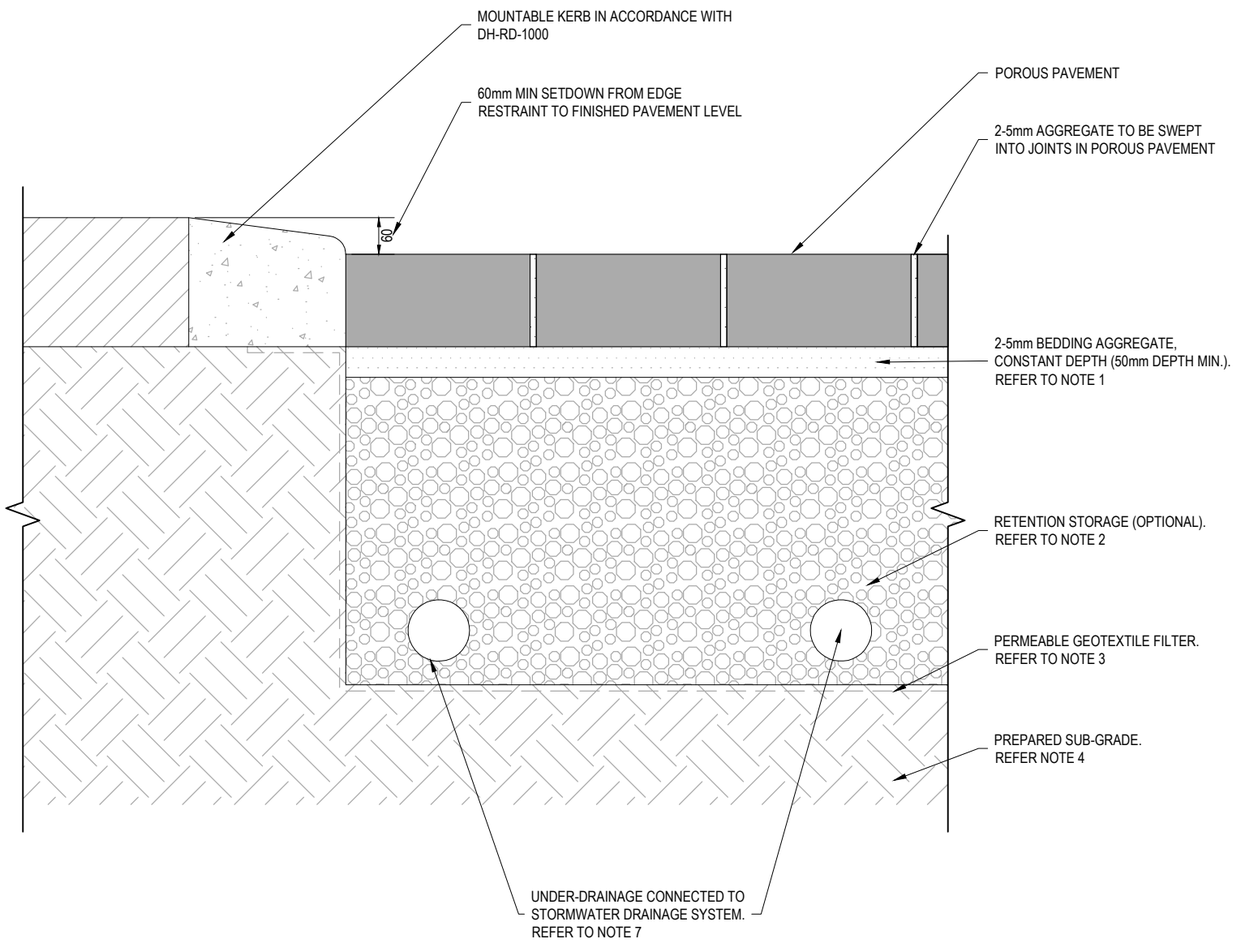
DRAWING TITLE: TYPICAL POND/WETLAND EDGE TREATMENTS

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6230		C



POROUS PAVEMENT TYPICAL SECTION

NOT TO SCALE

NOTES:

1. 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.
3. 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).
4. SUB-GRADE TO BE RIPPED/ HARROWED PRIOR TO PLACEMENT OF GEOTEXTILE FILTER.
5. WHERE POSSIBLE, ANY RUNOFF DIRECTED TO POROUS PAVEMENTS SHALL BE PRE-TREATED TO REMOVE COARSE TO MEDIUM SEDIMENTS.
6. REFER TO MANUFACTURE'S SPECIFICATION FOR MAXIMUM TRAFFIC LOADING.
7. 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.
8. 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.
9. ALL DIMENSIONS IN MILLIMETRES UNLESS SPECIFIED OTHERWISE.
10. REFER PROJECT DRAWINGS FOR ALL DIMENSIONS, SPECIFICATIONS AND MATERIAL SELECTION.

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ALL MEASUREMENTS IN MILLIMETRES

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	C					23/03/26	CLIENT SUBMISSION

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SCALE AS SHOWN

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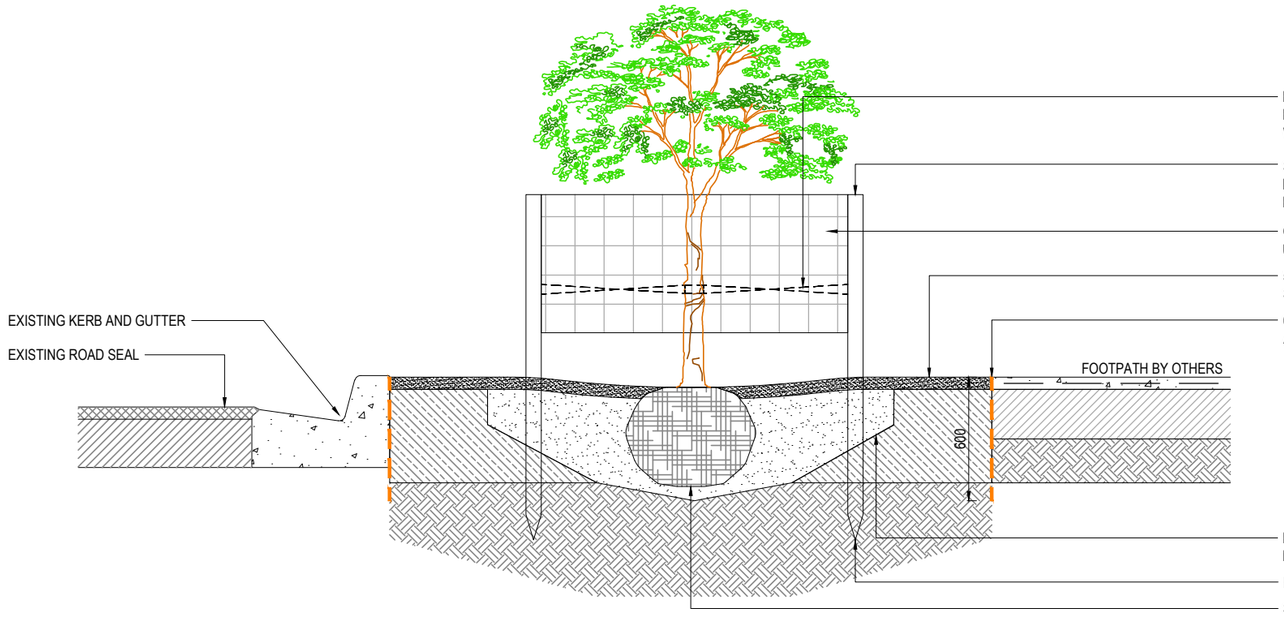
SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DRAWING TITLE: PORUS PAVEMENT – TYPICAL SECTION

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-SW-6310		C



HESSIAN TIES OR SIMILAR APPROVED FIXED TO STAKES WITH 2 GALV SCREWS. HALF HITCH KNOT EITHER SIDE OF TREE TRUNK. TIES TO BE APPROPRIATELY LOCATED WHERE MOST NEEDED TO SUPPORT TREE.

STAKE ALL TREES WITH 4 CHISEL POINTED HARDWOOD STAKES. EXTEND $\frac{1}{3}$ OF STAKE INTO GROUND TO MAKE RIGID. FURTHER EXTEND STAKES INTO UNDISTURBED SOIL IF REQUIRED (NOM. 300mm).

ORANGE MESH BARRIER FIX TO STAKES 300mm ABOVE GROUND WHERE DWELLING UNDER CONSTRUCTION.

50mm ORGANIC MULCH OR COMPACTED GRANULITIC FINES OR ALTERNATIVE APPROVED SURFACE TREATMENT. LIGHTLY TAMPER FINES IN AREA WITH DISTURBED SOIL.

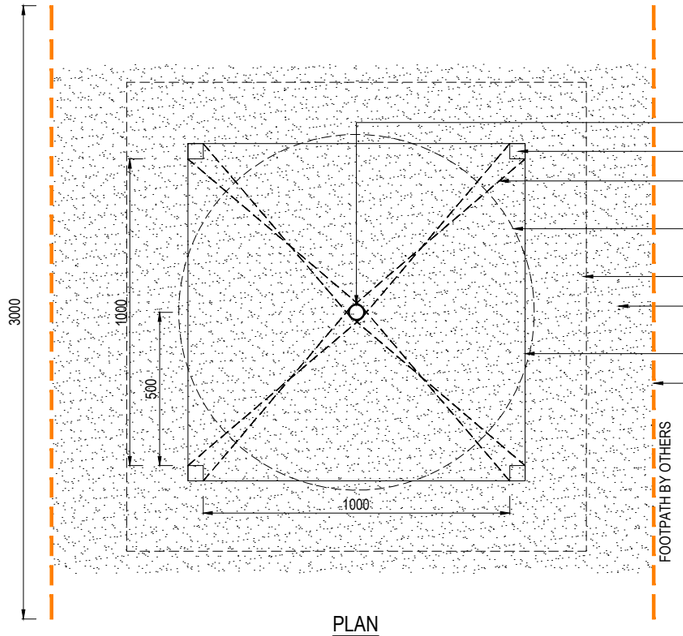
600mm DEEP 3.0m LONG ROOT BARRIER (1.5m EITHER SIDE FROM CENTER OF TREE) ALONG ANY HARD EDGES LIKE BACK OF KERB AND FOOTPATH.

PACK BACKFILL SOIL AROUND SIDES OF ROOT BALL TO STABALISE. NO MULCH MATERIAL TO BE MIXED.

EXTEND STAKES INTO UNDISTURBED SOIL.

SET ROOT BALL ON LIGHTLY PACK SOIL.

SECTION



TREE TRUNK

TREE STAKES

HESSIAN TIES FIXED TO STAKES WITH 2 GALV SCREWS. HALF HITCH KNOT EITHER SIDE OF TREE TRUNK.

FORM FINE AROUND TREE TO CREATE A SAUCER CAPABLE OF HOLDING 40 - 60L OF WATER.

INDICATIVE WIDTH OF TREE HOLE. LIGHTLY TAMPER FINES WITHIN THIS AREA.

50mm ORGANIC MULCH OR COMPACTED GRANULITIC FINES OR ALTERNATIVE APPROVED SURFACE TREATMENT.

ORANGE MESH BARRIER.

ROOT CONTROL BARRIER.

PLAN

TYPICAL TREE PLANTING - VERGE

NON-IRRIGATED

NOTES:

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.
3. 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.
5. 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. 600m 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.
10. BACKFILL AND PLANTING AROUND TREEBALL TO CONSIST OF APPROPRIATE PLANTING MATERIAL

ALL MEASUREMENTS IN MILLIMETRES

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	D					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

SCALE 1:10 (A1) SCALE 1:20 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

DISCLAIMER
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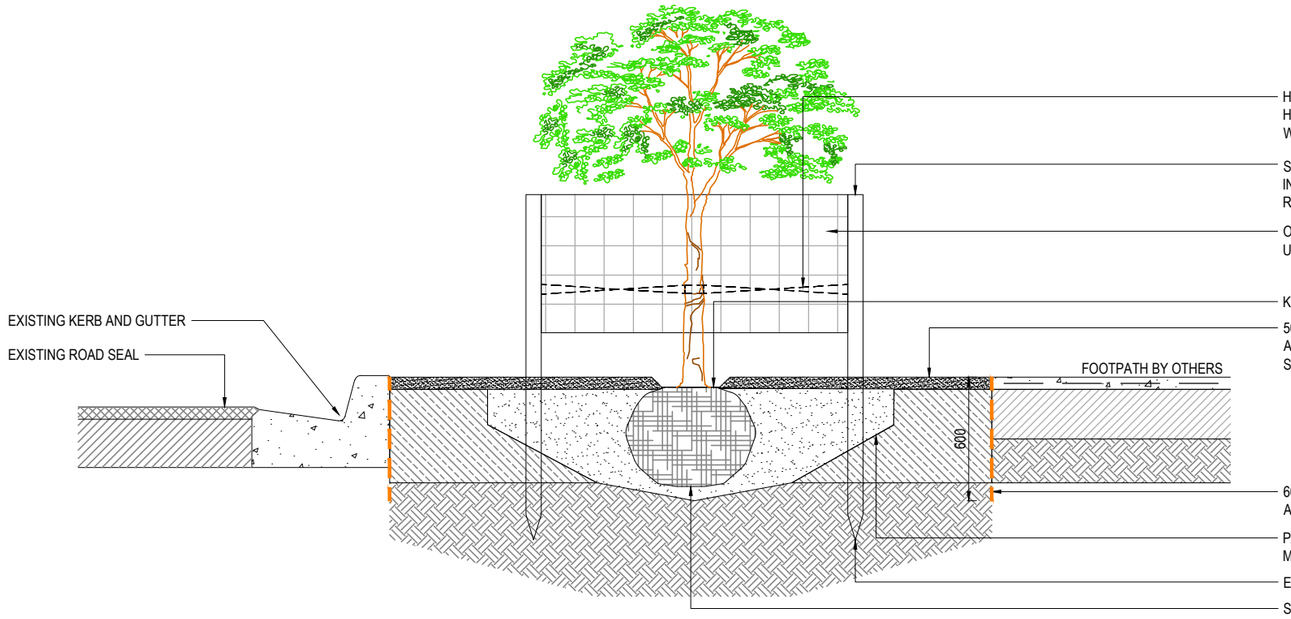
DRAWING TITLE: TYPICAL TREE PLANTING VERGE DETAIL (NON IRRIGATED)

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-LS-7000		D



HESSIAN TIES OR SIMILAR APPROVED FIXED TO STAKES WITH 2 GALV SCREWS. HALF HITCH KNOT EITHER SIDE OF TREE TRUNK. TIES TO BE APPROPRIATELY LOCATED WHERE MOST NEEDED TO SUPPORT TREE.

STAKE ALL TREES WITH 4 CHISEL POINTED HARDWOOD STAKES. EXTEND $\frac{1}{3}$ OF STAKE INTO GROUND TO MAKE RIGID. FURTHER EXTEND STAKES INTO UNDISTURBED SOIL IF REQUIRED (NOM. 300mm).

ORANGE MESH BARRIER FIX TO STAKES 300mm ABOVE GROUND WHERE DWELLING UNDER CONSTRUCTION.

KEEP TOPSOIL AWAY FROM BASE OF TRUNK AND TOP OF ROOT BALL.

50mm ORGANIC MULCH OR COMPACTED GRANULITIC FINES OR ALTERNATIVE APPROVED SURFACE TREATMENT. LIGHTLY TAMPER FINES IN AREA WITH DISTURBED SOIL.

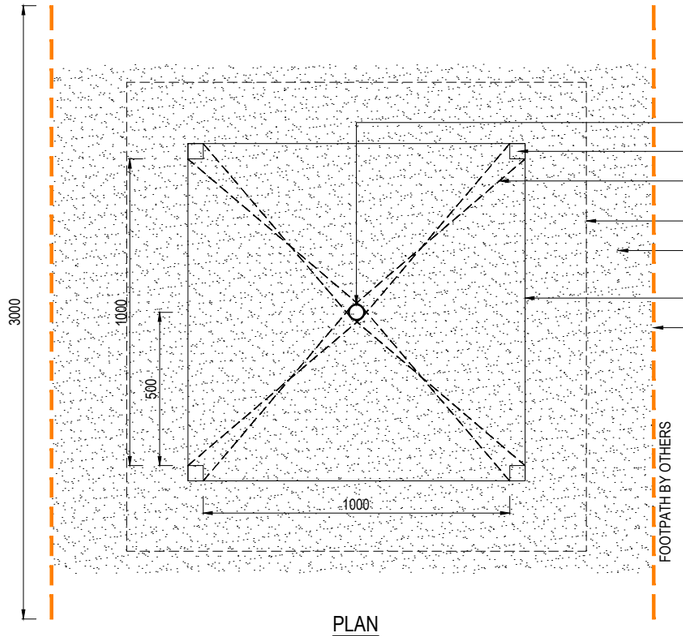
600mm DEEP 3.0m LONG ROOT BARRIER (1.5m EITHER SIDE FROM CENTER OF TREE) ALONG ANY HARD EDGES LIKE BACK OF KERB AND FOOTPATH.

PACK BACKFILL SOIL AROUND SIDES OF ROOT BALL TO STABALISE. NO MULCH MATERIAL TO BE MIXED.

EXTEND STAKES INTO UNDISTURBED SOIL.

SET ROOT BALL ON LIGHTLY PACK SOIL.

SECTION



TREE TRUNK

TREE STAKES

HESSIAN TIES FIXED TO STAKES WITH 2 GALV SCREWS. HALF HITCH KNOT EITHER SIDE OF TREE TRUNK.

INDICATIVE WIDTH OF TREE HOLE. LIGHTLY TAMPER FINES WITHIN THIS AREA.

50mm ORGANIC MULCH OR COMPACTED GRANULITIC FINES OR ALTERNATIVE APPROVED SURFACE TREATMENT.

ORANGE MESH BARRIER.

ROOT CONTROL BARRIER.

PLAN

TYPICAL TREE PLANTING - VERGE
IRRIGATED

NOTES:
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.
3. 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.
5. 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. 600m 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.
10. BACKFILL AND PLANTING AROUND TREEBALL TO CONSIST OF APPROPRIATE PLANTING MATERIAL

ALL MEASUREMENTS IN MILLIMETRES

FIRST ISSUE		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
AMENDMENTS	A					21/02/25	ISSUED FOR REVIEW
	B					04/04/25	CLIENT SUBMISSION
	C					08/05/25	CLIENT SUBMISSION
	D					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN
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SCALE 1:10 (A1) SCALE 1:20 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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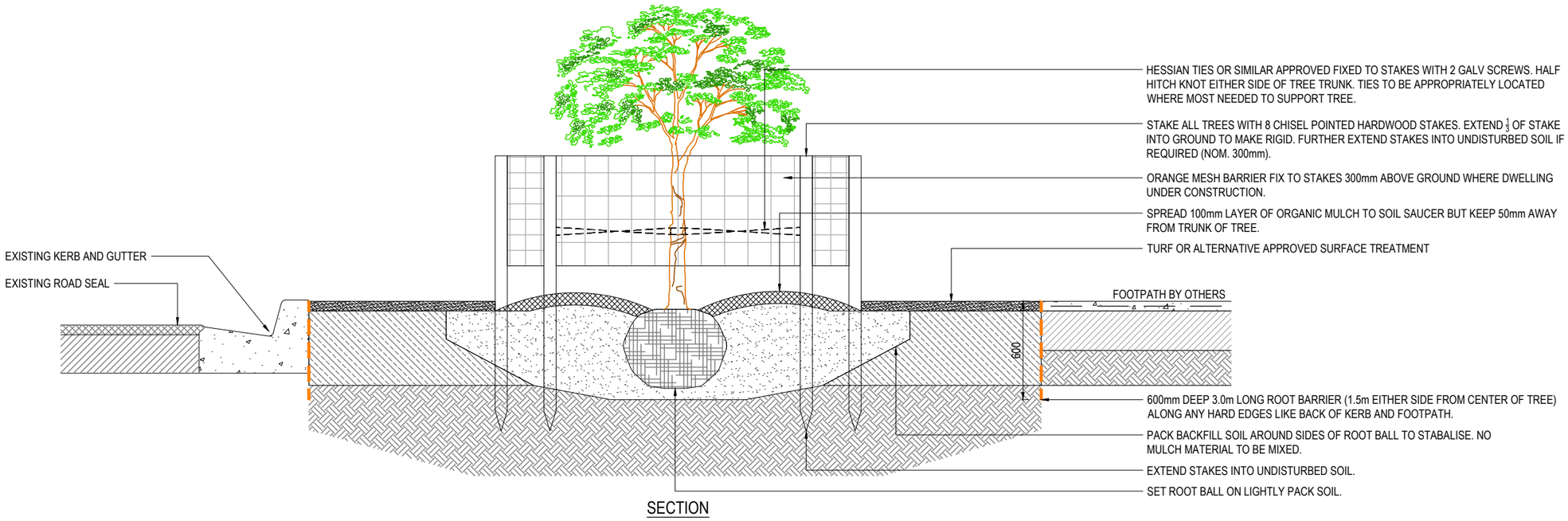
DRAWING TITLE: TYPICAL TREE PLANTING VERGE DETAIL (IRRIGATED)

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-LS-7001		D



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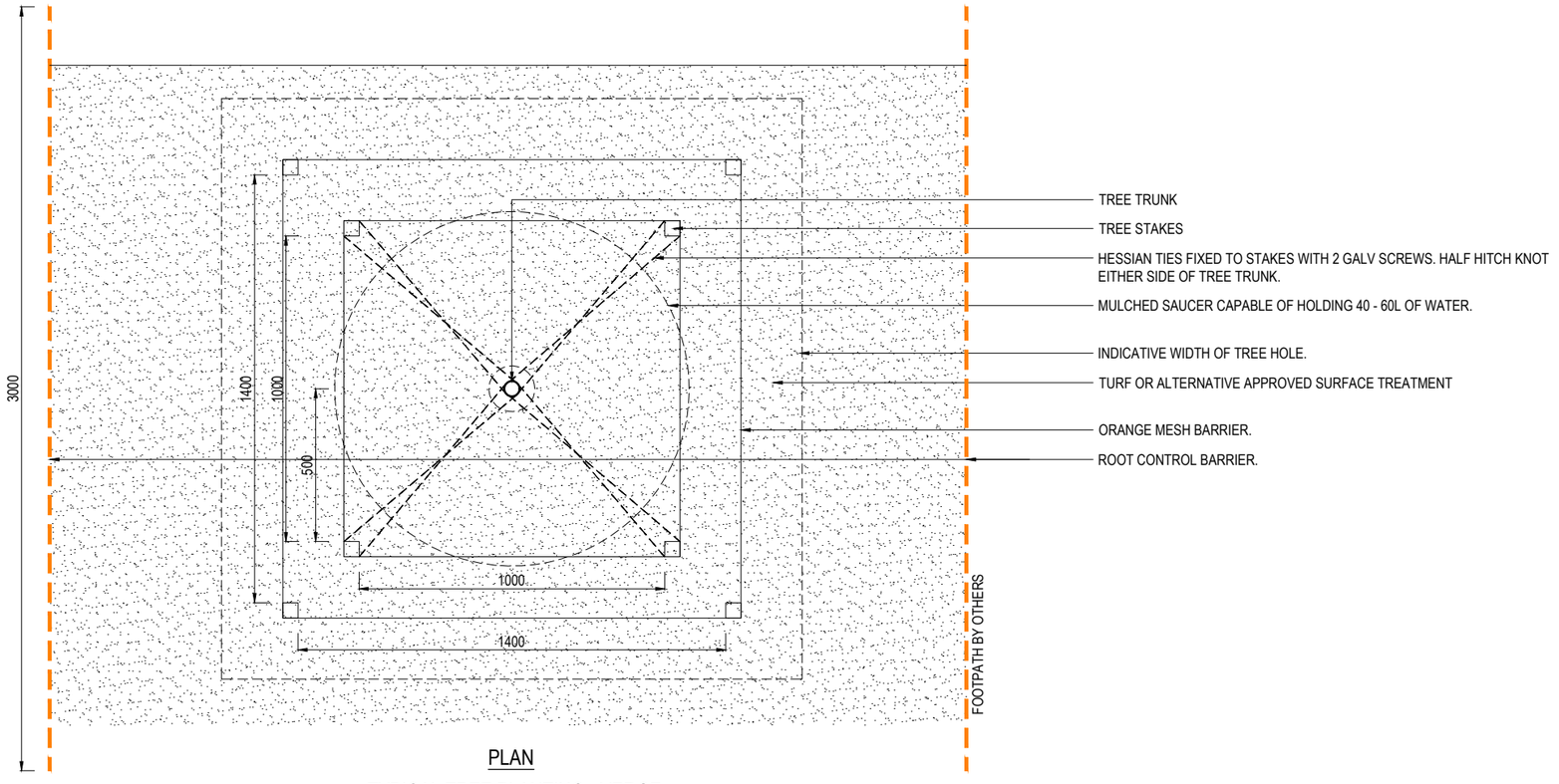

PLAN

TYPICAL TREE PLANTING - VERGE
DOUBLE BUNTING

NOTES:

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.
3. 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.
5. 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.
10. BACKFILL AND PLANTING AROUND TREEBALL TO CONSIST OF APPROPRIATE PLANTING MATERIAL.

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENTS		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
FIRST ISSUE							
	A					21/02/25	ISSUED FOR REVIEW
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	C					08/05/25	CLIENT SUBMISSION
	D					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN
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SCALE 1:10 (A1) SCALE 1:20 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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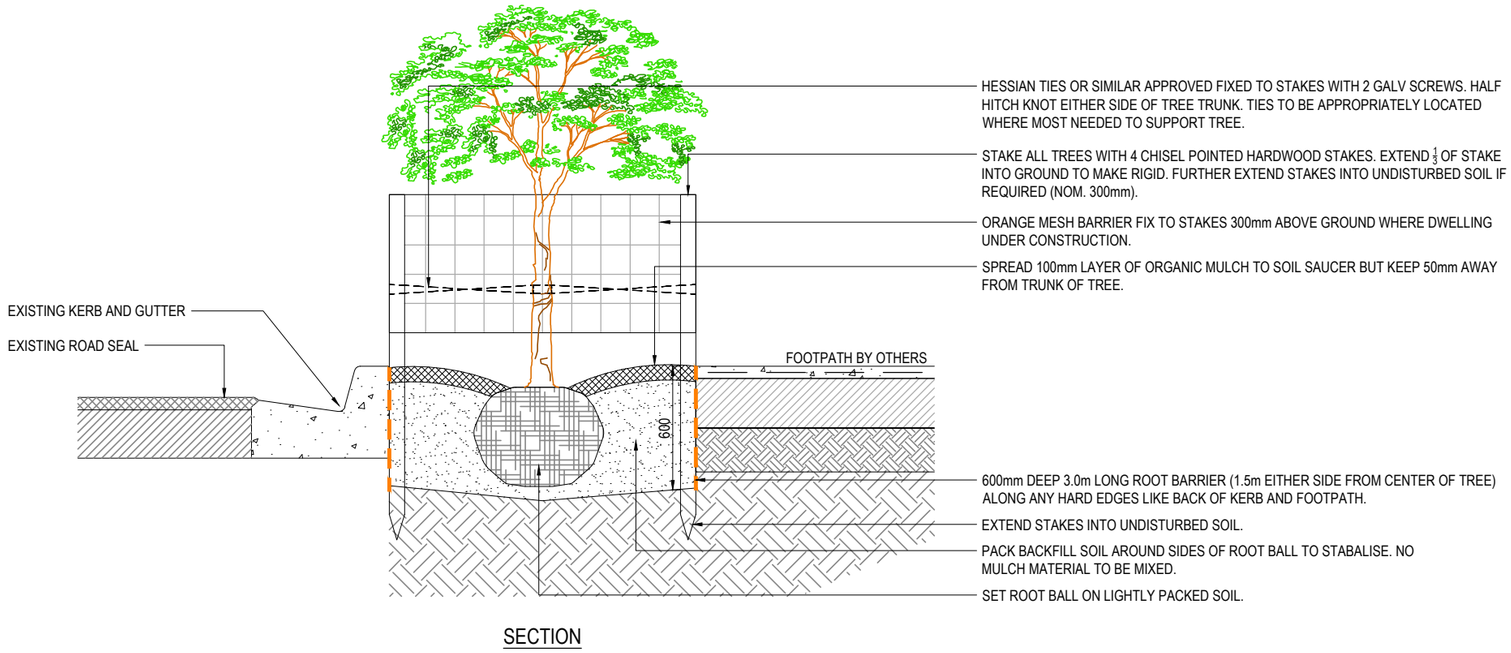
DRAWING TITLE: TYPICAL TREE PLANTING VERGE DETAIL (DOUBLE BUNTING)

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-LS-7002		D



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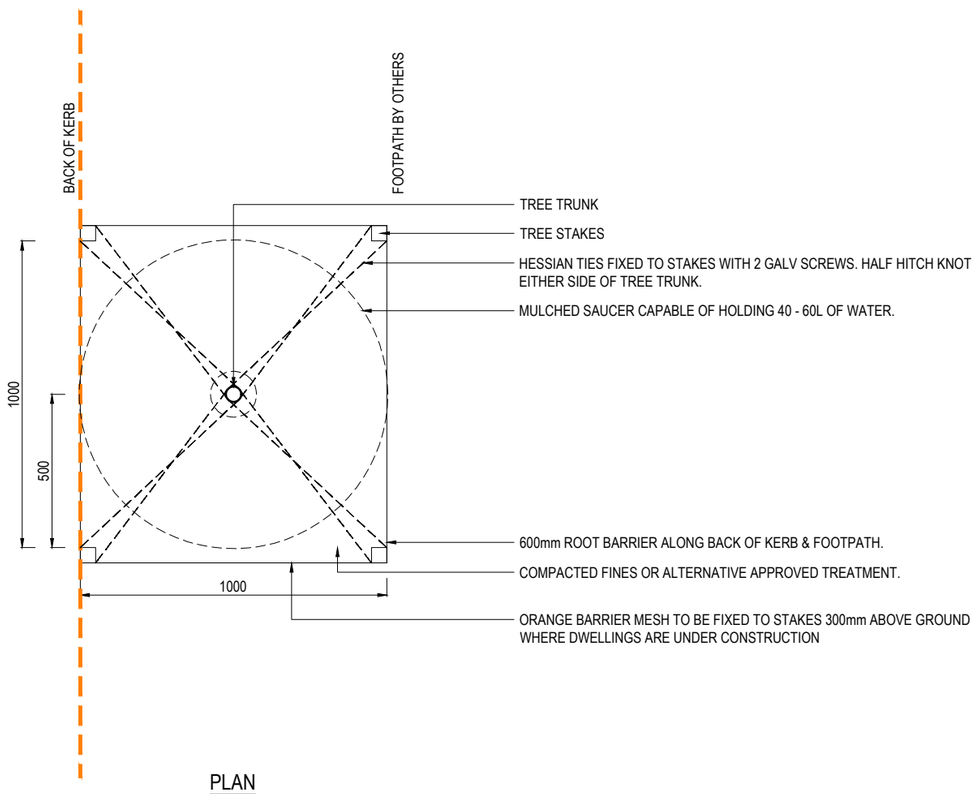

PLAN

TYPICAL TREE PLANTING - NARROW VERGE

NOTES:

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.
3. 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.
5. 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.
10. BACKFILL AND PLANTING AROUND TREEBALL TO CONSIST OF APPROPRIATE PLANTING MATERIAL.

ALL MEASUREMENTS IN MILLIMETRES

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
A					21/02/25	ISSUED FOR REVIEW
B					04/04/25	CLIENT SUBMISSION
C					08/05/25	CLIENT SUBMISSION
D					23/03/26	CLIENT SUBMISSION

AMENDMENTS

STATUS: FOR INFORMATION

SCALE AS SHOWN
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8
SCALE 1:10 (A1) SCALE 1:20 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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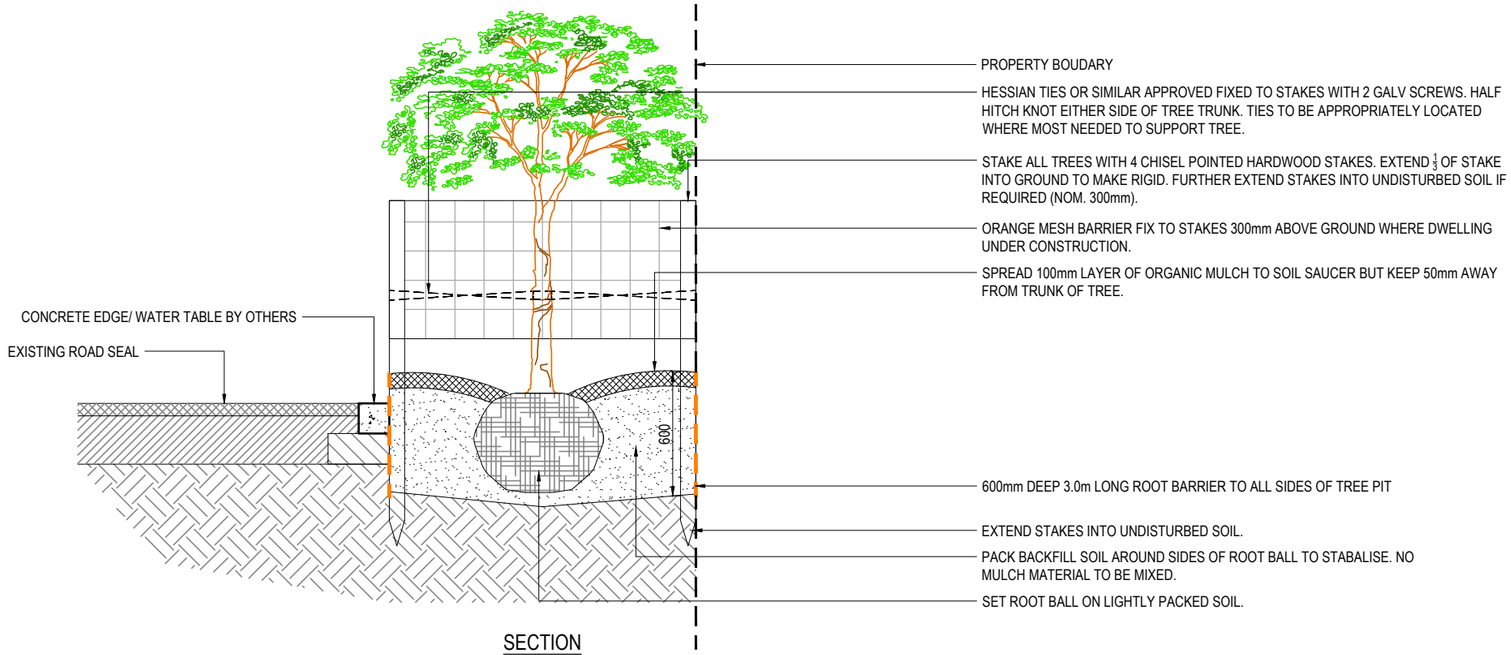
DRAWING TITLE: TYPICAL TREE PLANTING VERGE DETAIL (NARROW VERGE)

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-LS-7003		D



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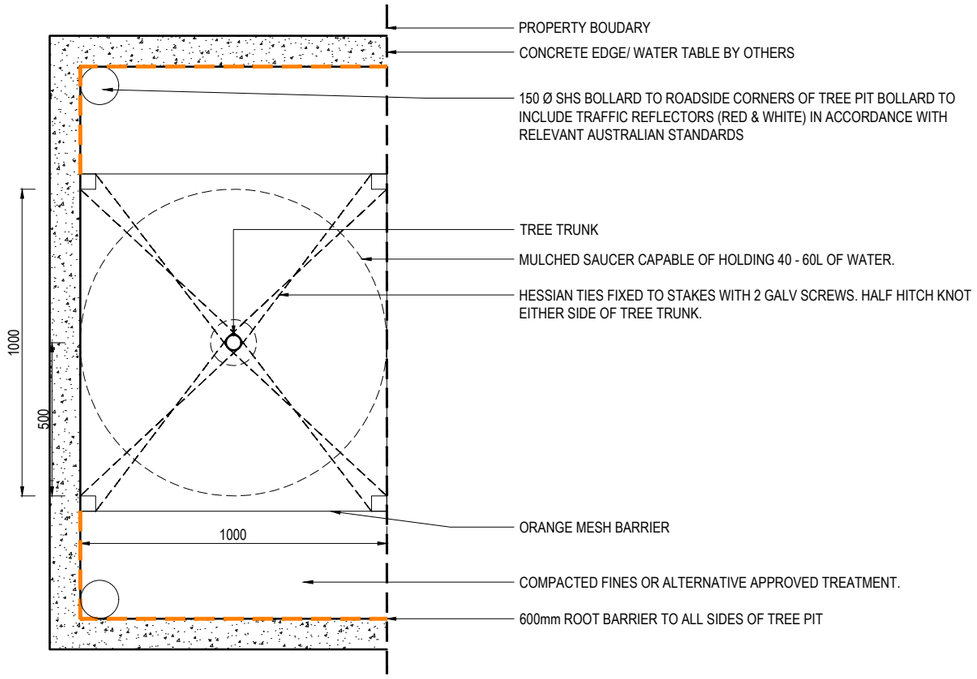

PLAN

TYPICAL TREE PLANTING - LANEWAY

NOTES:

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.
3. 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.
5. 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.
10. BACKFILL AND PLANTING AROUND TREEBALL TO CONSIST OF APPROPRIATE PLANTING MATERIAL.

ALL MEASUREMENTS IN MILLIMETRES

FIRST ISSUE		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
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	C					08/05/25	CLIENT SUBMISSION
	D					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8
SCALE 1:10 (A1) SCALE 1:20 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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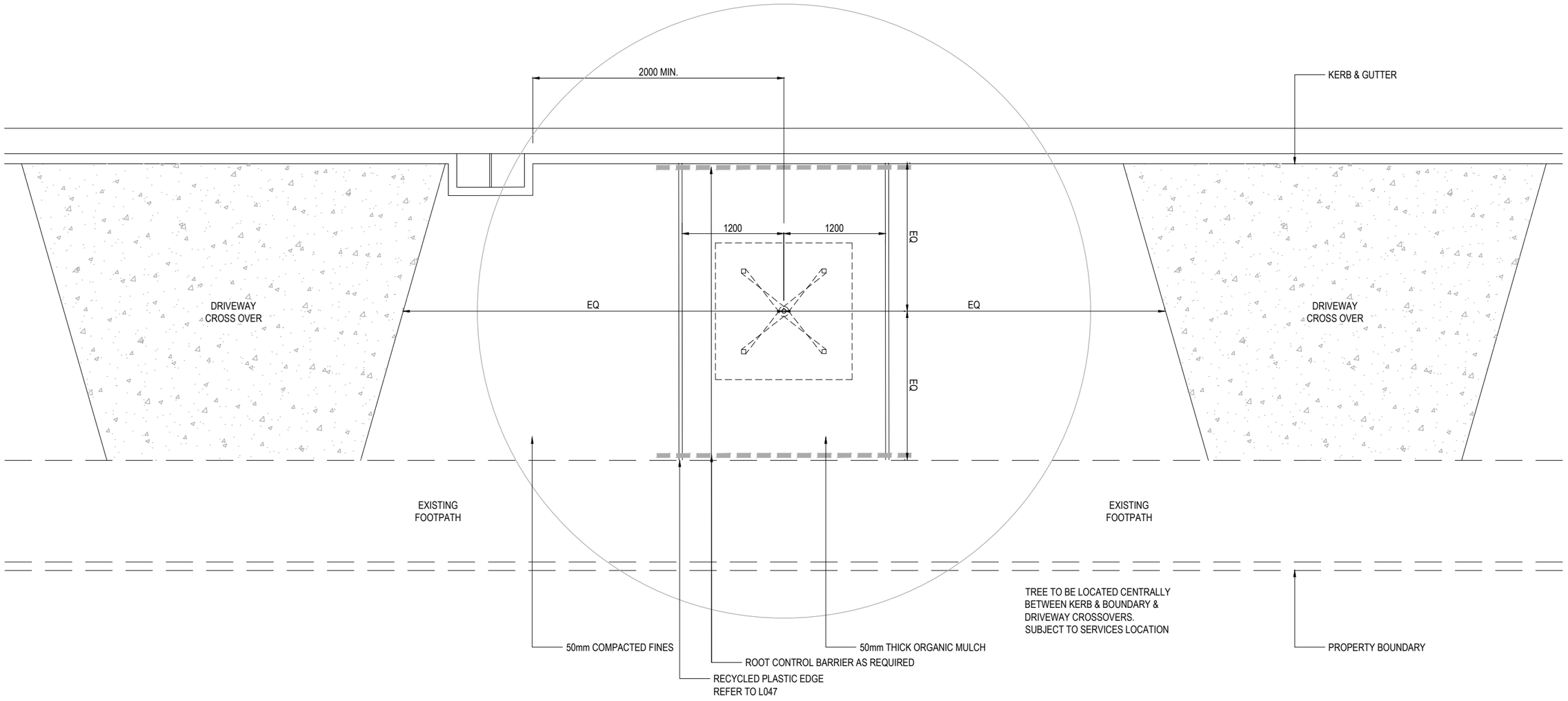
DRAWING TITLE: TYPICAL TREE PLANTING DETAIL (LANE WAY)

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-LS-7004		D



STREET TREE PLANTING PLAN

NOTE:

1. 600mm DEEP ROOT CONTROL BARRIER TO BE INSTALLED

ALL MEASUREMENTS IN MILLIMETRES

AMENDMENTS		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
FIRST ISSUE							
	A					21/02/25	ISSUED FOR REVIEW
	B					04/04/25	CLIENT SUBMISSION
	C					08/05/25	CLIENT SUBMISSION
	D					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

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SCALE 1:25 (A1) SCALE 1:50 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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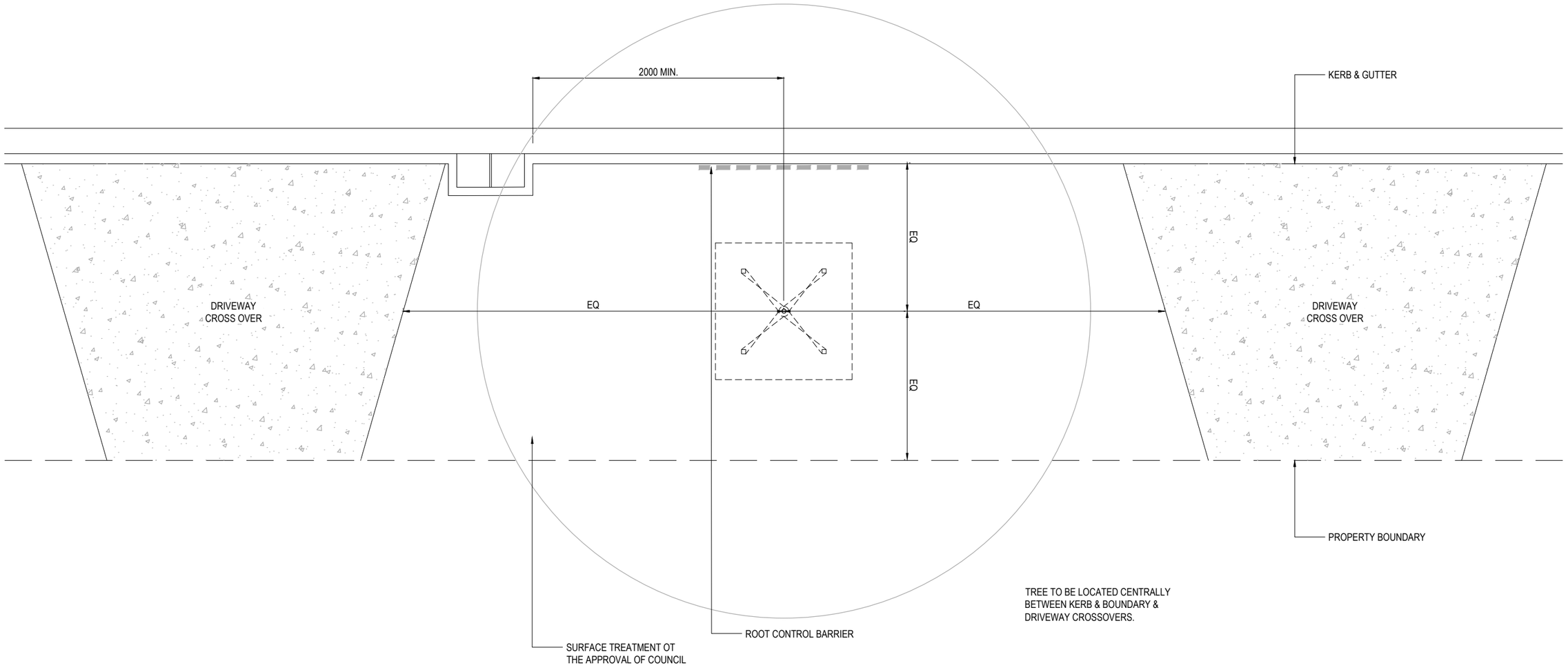
DRAWING TITLE: STREET TREE PLANTING PLAN

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-LS-7005		D



STREET TREE PLANTING PLAN - NO FOOTPATH

NOTE:

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

ALL MEASUREMENTS IN MILLIMETRES

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
AMENDMENTS A					21/02/25	ISSUED FOR REVIEW
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C					08/05/25	CLIENT SUBMISSION
D					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

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SCALE 1:25 (A1) SCALE 1:50 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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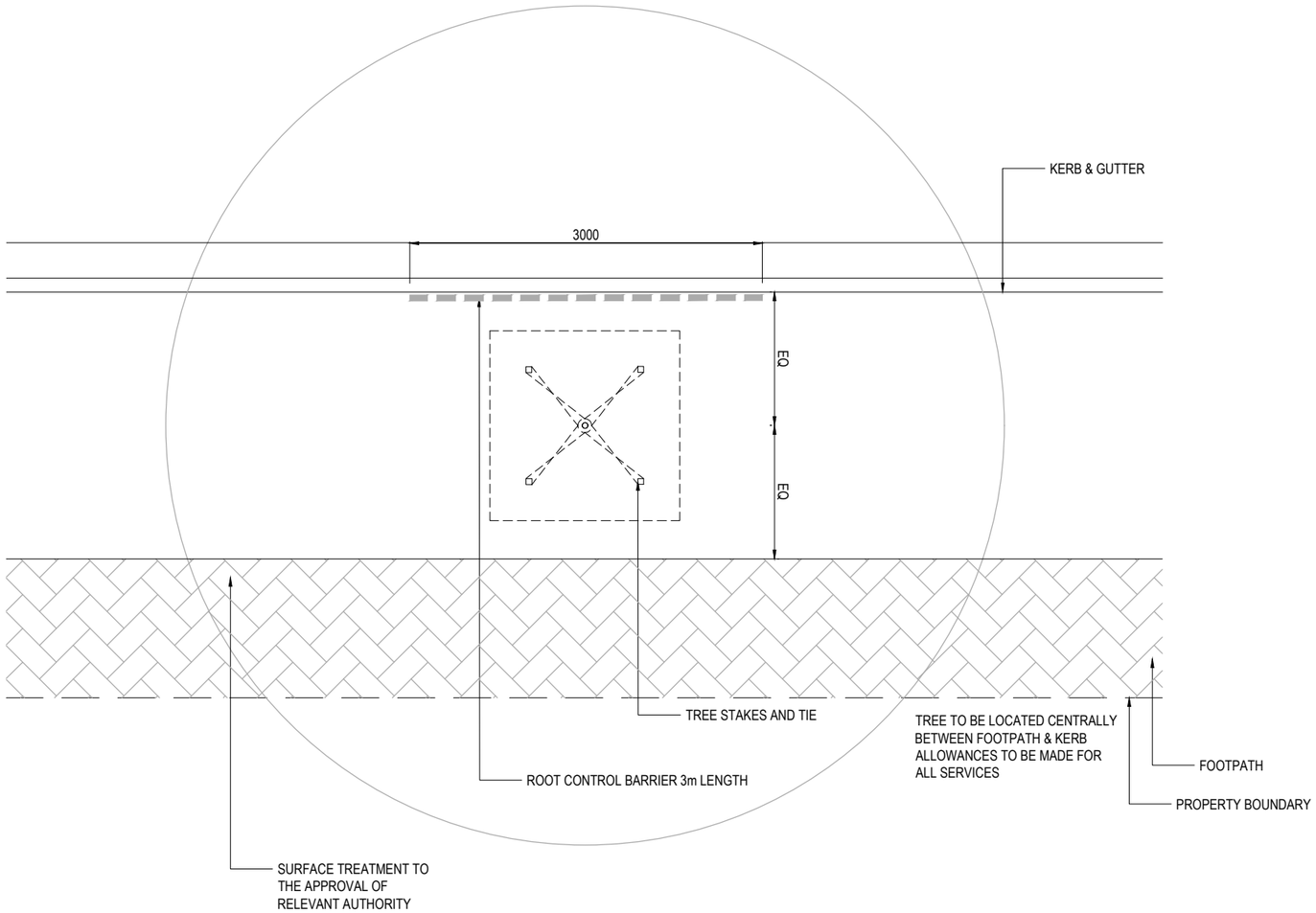
DRAWING TITLE: STREET TREE PLANTING DETAIL (NO FOOTPATH)

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-LS-7006		D



STREET TREE PLANTING PLAN

NOTE:

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

ALL MEASUREMENTS IN MILLIMETRES

FIRST ISSUE		DESIGN	DRAWN	CHECK	APPD.	DATE	AMENDMENT DETAILS
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	D					23/03/26	CLIENT SUBMISSION

STATUS: FOR INFORMATION

SCALE AS SHOWN

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SCALE 1:25 (A1) SCALE 1:50 (A3)

CLIENT: Government of South Australia, Department for Housing and Urban Development

PROJECT: SOUTH AUSTRALIA GROWTH AREAS ENGINEERING STANDARDS

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DRAWING TITLE: STREET TREE PLANTING DETAIL (PATH AGAINST KERB)

PROJECT No.	DRAWING No.	MILESTONE	REVISION
24-000479	DH-LS-7007		D