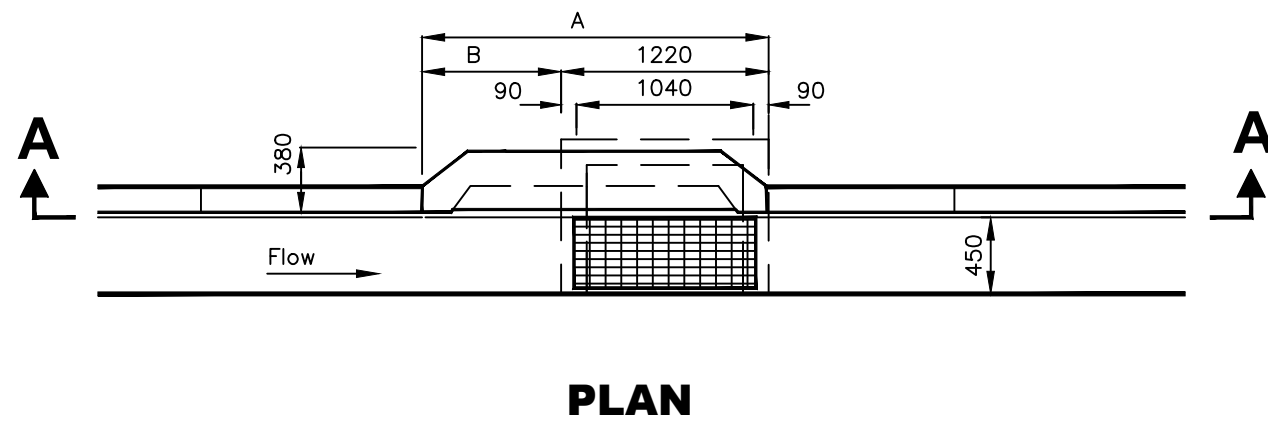


**STEP IRONS**

Provide AYMROO or alternate brand name equivalent plastic encapsulated step irons in accordance with AS 1657 and manufacturers requirements directly under lid at 300mm centres where pit is deeper than 1200mm.



**NOTE:**

1. Compressive strength, F'c for cast insitu concrete to be min of 32MPa to AS3600
2. All dimensions in mm
3. Provide SL82 mesh centrally placed to walls and base for all pits ≥1.5m deep. Minimum 50mm cover. Provide N12 L-Bars returned 400mm into base and sides.
4. All exposed steelwork shall be hot dip galvanised in accordance with AS 1650
5. Where a heavy duty steel grate is required a Weldlok GG78-42A grate or equivalent is to be specified.

Nominal Lintel Length	A	B
1200	1825	605
1800	2438	1218
2400	3048	1828
3000	3657	2437
3600	4267	3047

NOT TO SCALE

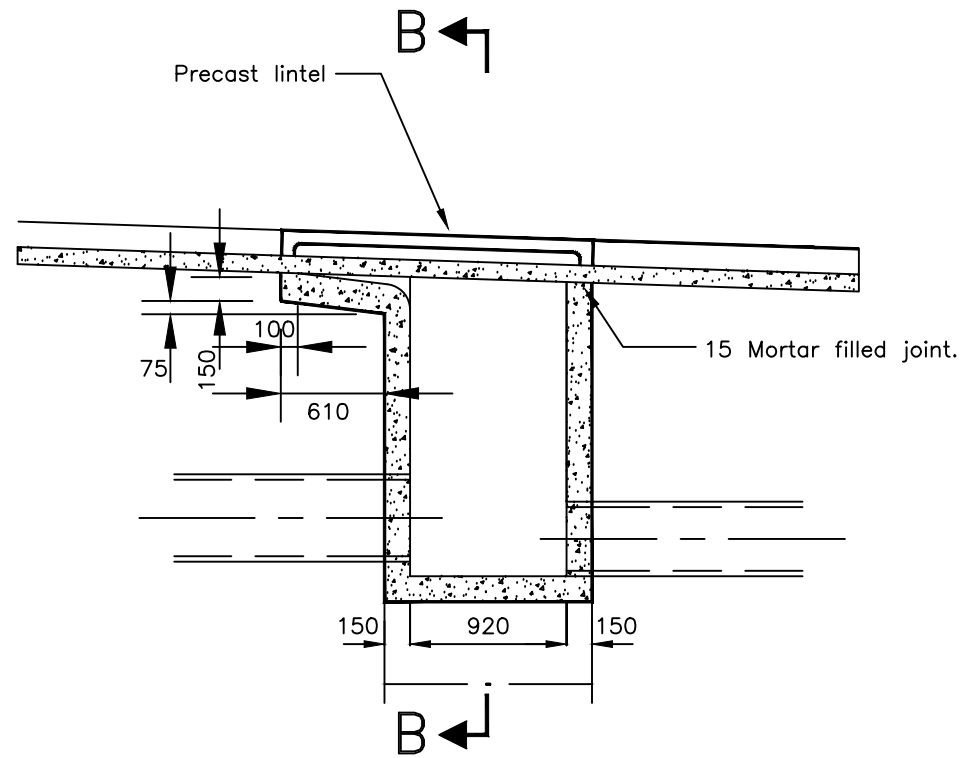
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET

**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152 CESSNOCK  
 ENGINEERING GUIDELINES  
 PHONE 4993 4100  
 FAX 4993 2505

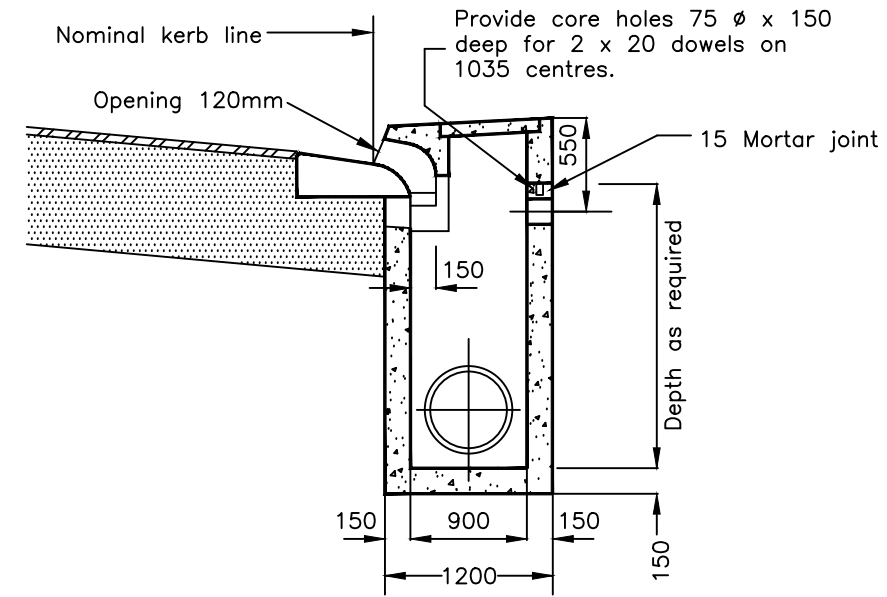
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**CAST IN-SITU GRATED GULLY PIT - Pipes up to 600 Ø**

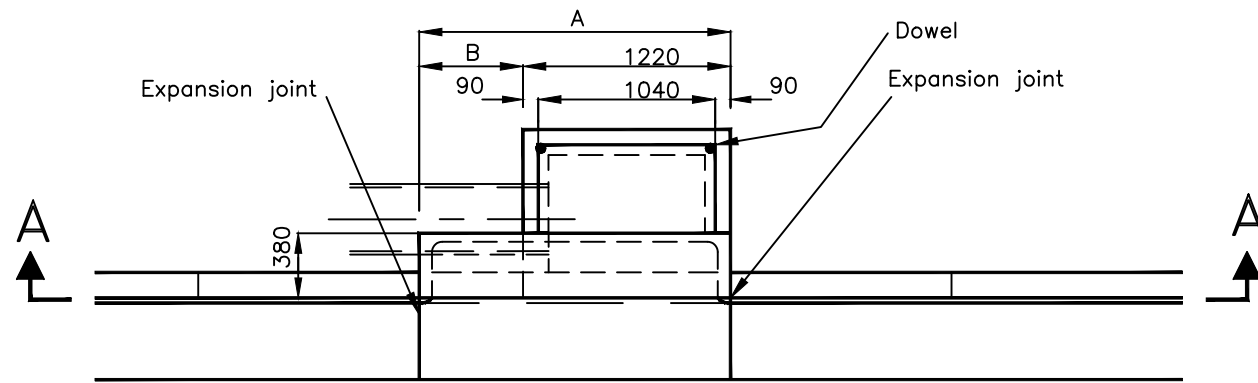
**SD-SW-001**



**SECTION A-A**



**SECTION B-B**



**PLAN**


Nominal Lintel Length	A	B
1200	1825	605
1800	2438	1218
2400	3048	1828
3000	3657	2437

**NOTE:**

1. Compressive strength  $f_c$  for cast in-situ concrete to be a minimum of 32MPa at 28 days.
2. All dimensions are in millimetres.
3. Provide SL82 mesh centrally placed to walls and base for pits  $\geq 1.5m$  deep.
4. All steelwork shall be hot dip galvanised in accordance with AS 1650
5. Expansion joints to be 15mm wide for full depth of kerb & gutter, with joint being of a preformed material of bituminous fibreboard.
6. Where pit is deeper than 1200mm provide step irons. Refer drawing SD-SW-001 for Step Iron details.

NOT TO SCALE

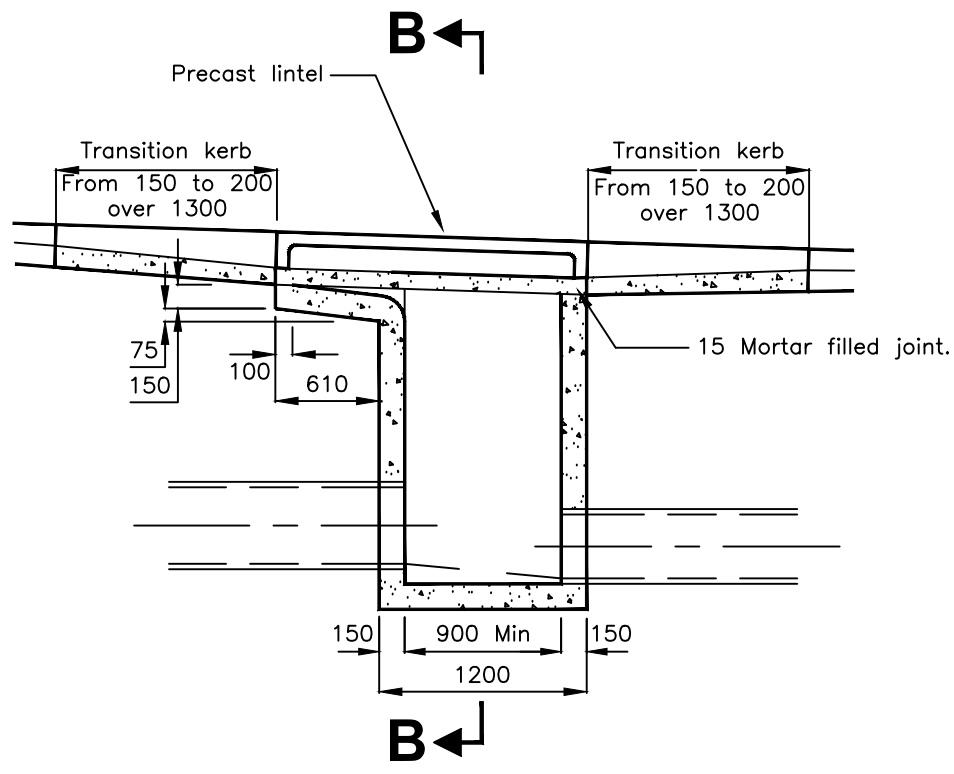
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152 CESSNOCK  
 ENGINEERING GUIDELINES  
 PHONE 4993 4100  
 FAX 4993 2505

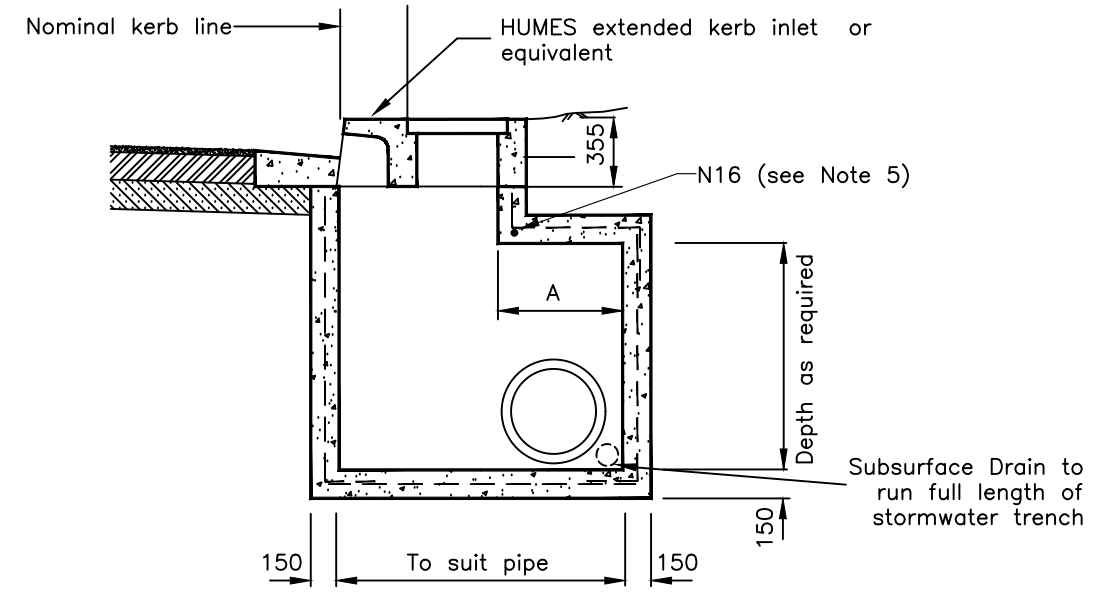
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**REAR ACCESS GULLY PIT - PIPES UP TO 600mm Ø**

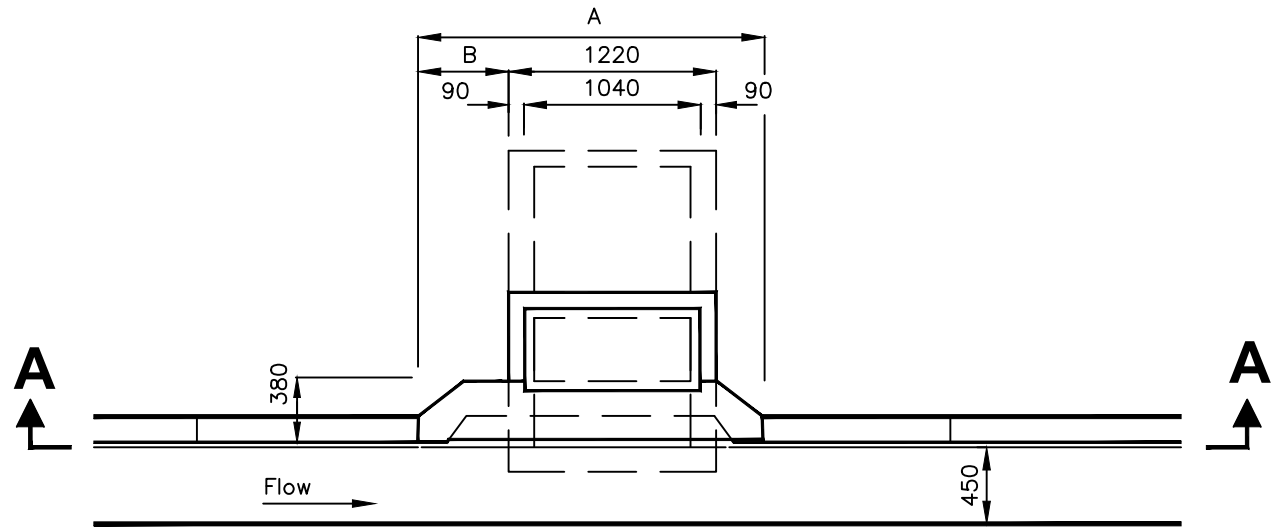
**SD-SW-002**



**SECTION A-A**



**SECTION B-B**



**PLAN**


Nominal Lintel Length	A	B
1200	1825	300
1800	2438	913
2400	3048	1523
3000	3657	2132
3600	4267	2742

**NOTE:**

1. Compressive strength, F'c for cast insitu concrete to be min N32 to AS3600
2. All dimensions in mm
3. Provide SL82 mesh centrally placed to walls and base for all pits  $\geq 1.5\text{m}$  deep. Minimum 50mm cover. Provide N12 L-Bars returned 400mm into base and sides.
4. All exposed steelwork shall be hot dip galvanised in accordance with AS 1650
5. Where  $A > 300$  provide N16 reinforcing returned min 400 into pit walls. Where  $A > 900$  design to be certified by Engineer.
6. For connection to subsoil drainage refer to SD-SW-006.
7. For provision of grates in pits refer to SD-SW-004. Where a heavy duty steel grate is required a Weldlok GG78-42A grate or equivalent is to be specified.
8. Where pit is deeper than 1200mm provide step irons. Refer drawing SD-SW-001 for Step Iron details.

NOT TO SCALE

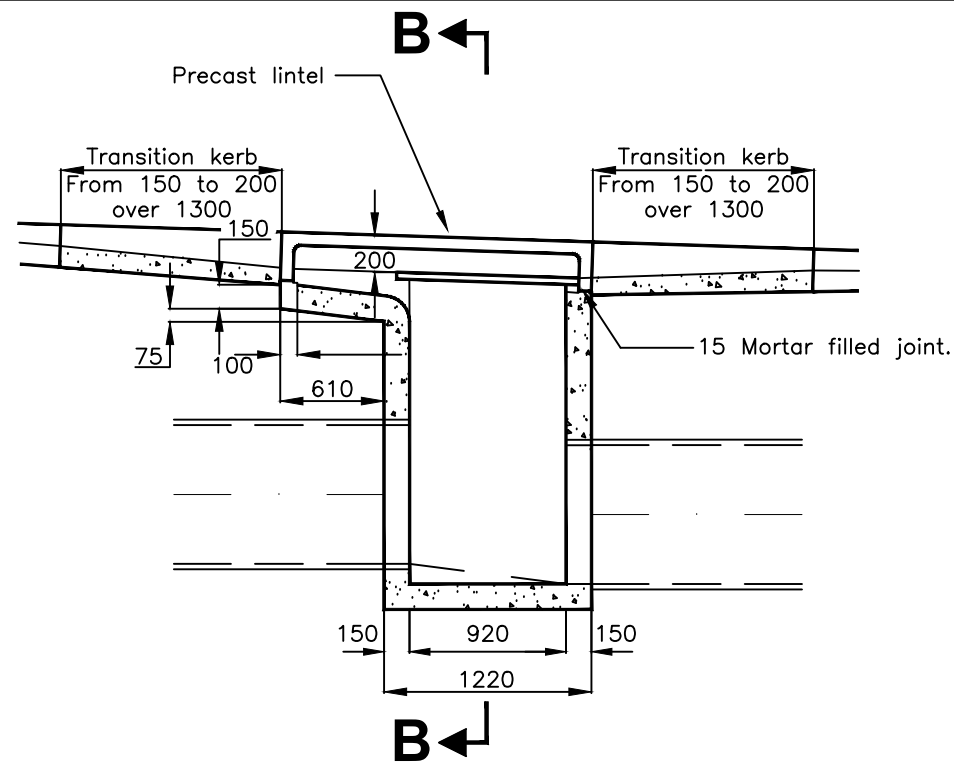
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 ENGINEERING GUIDELINES  
 PHONE 4993 4100  
 FAX 4993 2505

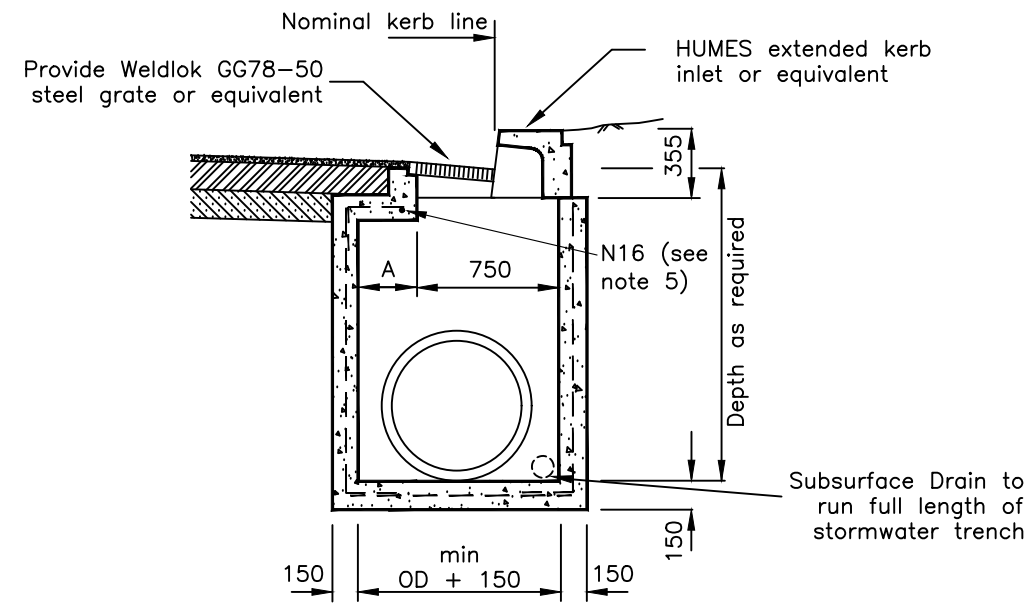
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**CAST IN-SITU REAR ACCESS GULLY PIT  
PIPES > 600 Ø**

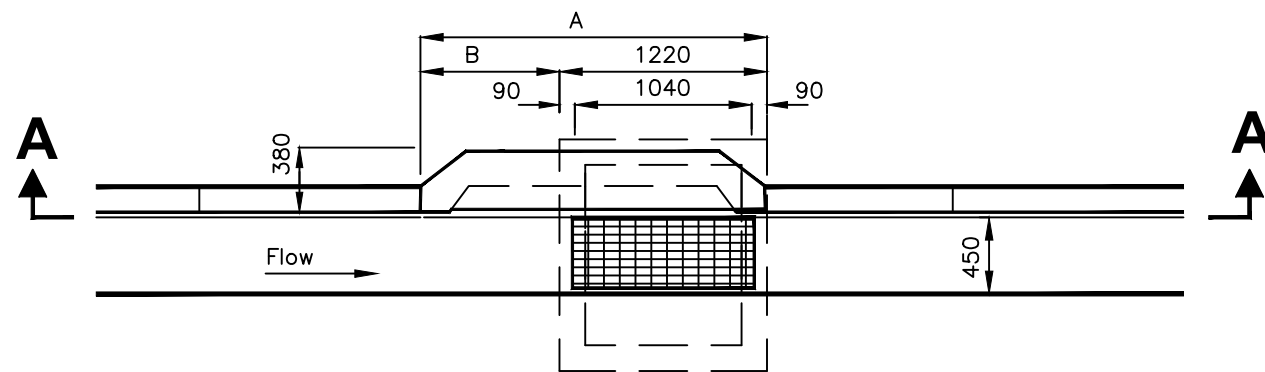
**SD-SW-003**



**SECTION A-A**



**SECTION B-B**



**PLAN**

Nominal Lintel Length	A	B
1200	1825	605
1800	2438	1218
2400	3048	1828
3000	3657	2437
3600	4267	3047

**NOTES:**

1. Compressive strength, F'c for cast insitu concrete to be min N32 to AS3600
2. All dimensions in mm
3. Provide SL82 mesh centrally placed to walls and base for all pits  $\geq 1.5\text{m}$  deep. Minimum 50mm cover. Provide N12 L-Bars returned 400mm into base and sides.
4. All exposed steelwork shall be hot dip galvanised in accordance with AS 1650
5. Where  $A > 300$  provide N16 reinforcing returned min 400 into pit walls. Where  $A > 900$  design to be certified by Engineer
6. For connection to subsoil drainage refer to SD-SW-006
7. Where a heavy duty steel grate is required a Weldlok GG78-42A grate or equivalent is to be specified
8. Where pit is deeper than 1200mm provide step irons. Refer drawing SD-SW-001 for Step Iron details.

NOT TO SCALE

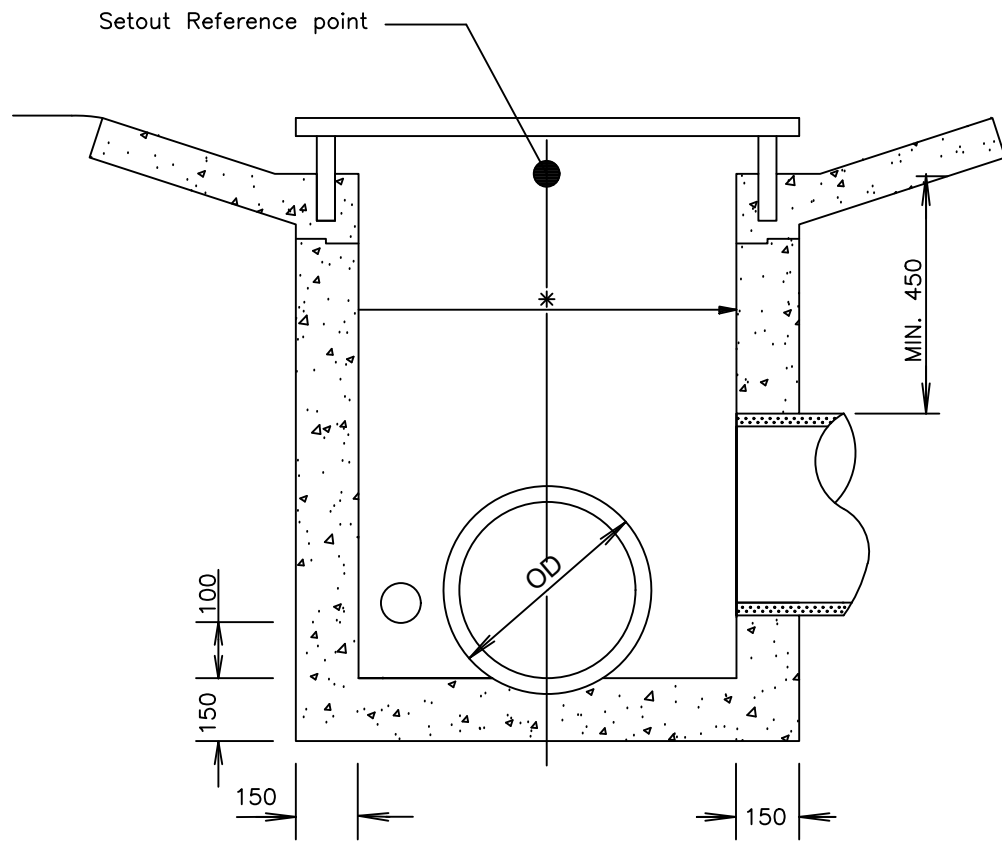
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET

**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152 CESSNOCK  
 ENGINEERING GUIDELINES  
 PHONE 4993 4100  
 FAX 4993 2505

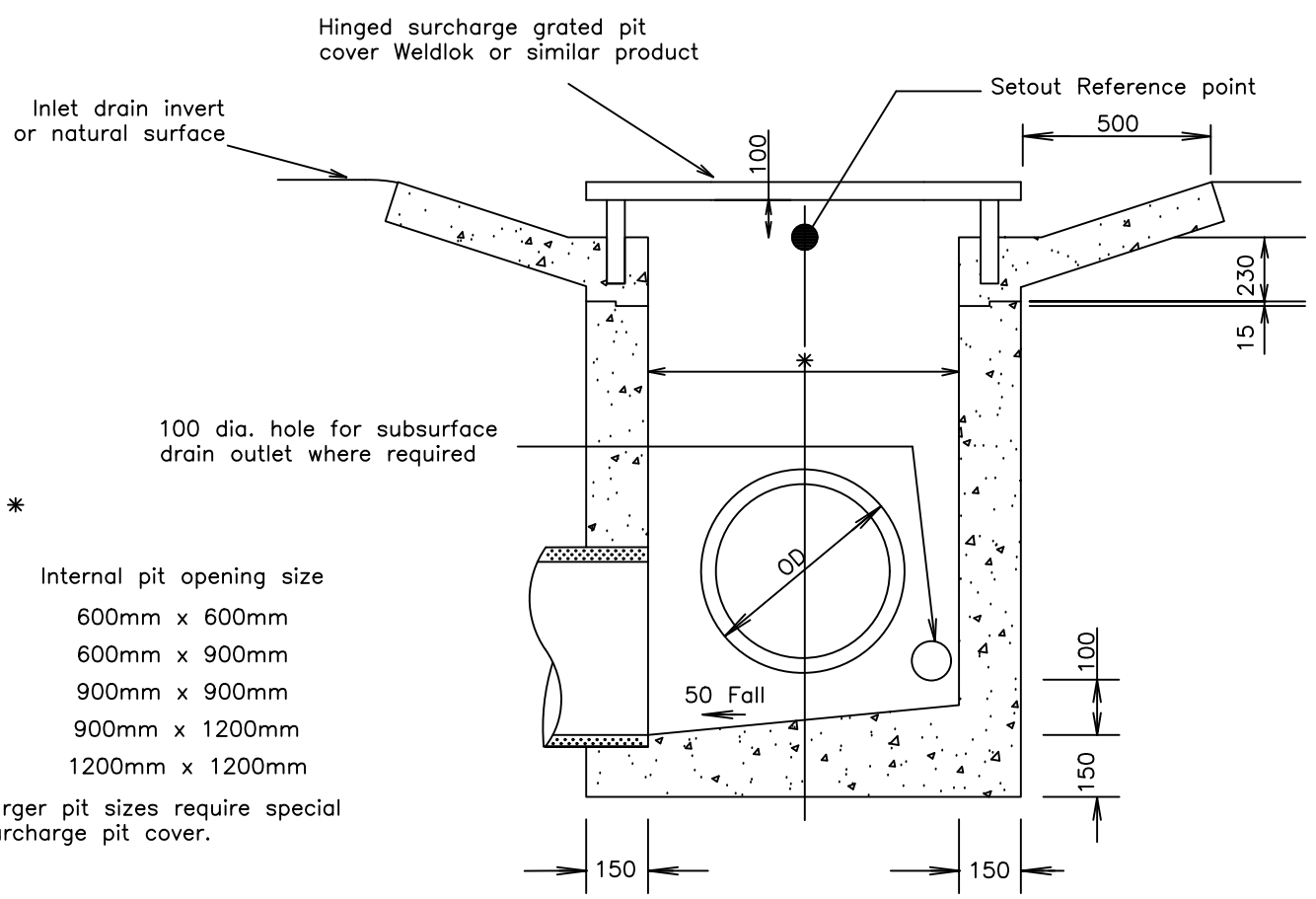
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**CAST IN-SITU GRATED GULLY PIT - PIPES > 600 Ø & PIPES IN CARRIAGEWAY**

**SD-SW-004**

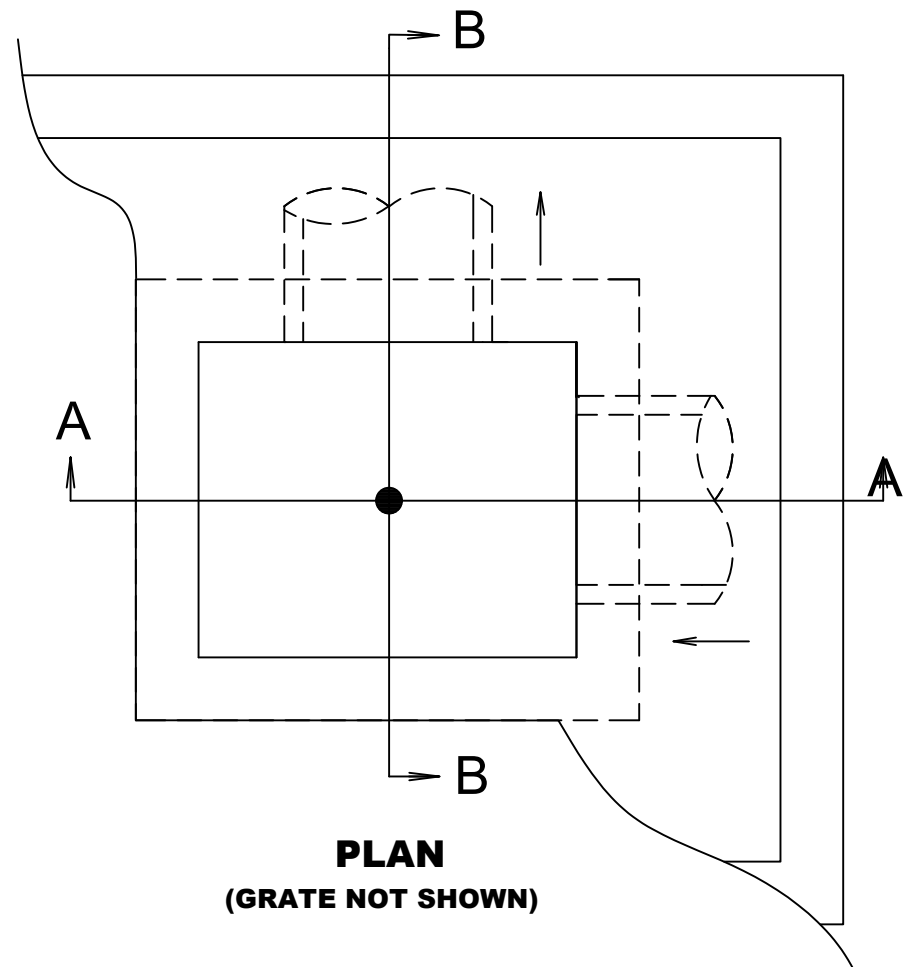


**SECTION AA**



**SECTION BB**

\*  
 Internal pit opening size  
 600mm x 600mm  
 600mm x 900mm  
 900mm x 900mm  
 900mm x 1200mm  
 1200mm x 1200mm  
 Larger pit sizes require special surcharge pit cover.



**PLAN  
 (GRATE NOT SHOWN)**


**ELEVATION**

**NOTE:**

1. Compressive strength  $f_c$  for cast insitu concrete to be a minimum of 32mpa at 28 days.
2. All dimensions are in millimetres.
3. Provide SL82 mesh centrally placed to walls of pits > 1.5m deep. 50mm min cover. Provide N12 L-Bars returned 400mm into base and sides.
4. All steelwork shall be hot dip galvanised in accordance with AS 1650
5. Max depth pit 3500mm
6. Provide min 50mm drop through pit
7. Where pit is deeper than 1200mm provide step irons. Refer drawing SD-SW-001 for Step Iron details.

NOT TO SCALE

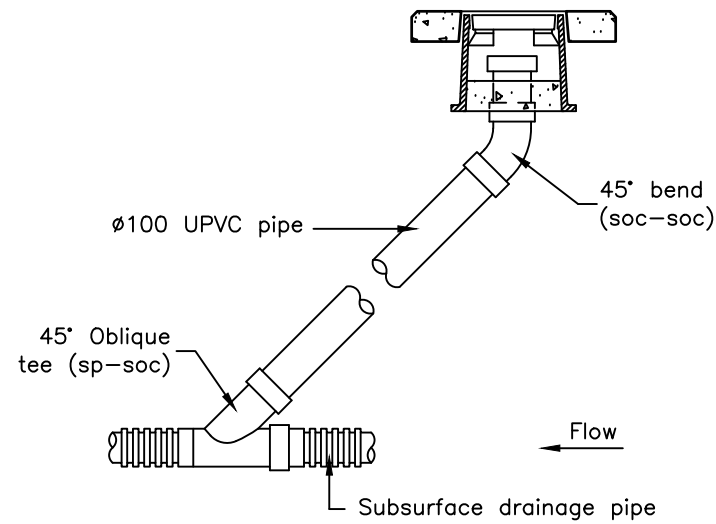
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 ENGINEERING GUIDELINES FAX 4993 2505

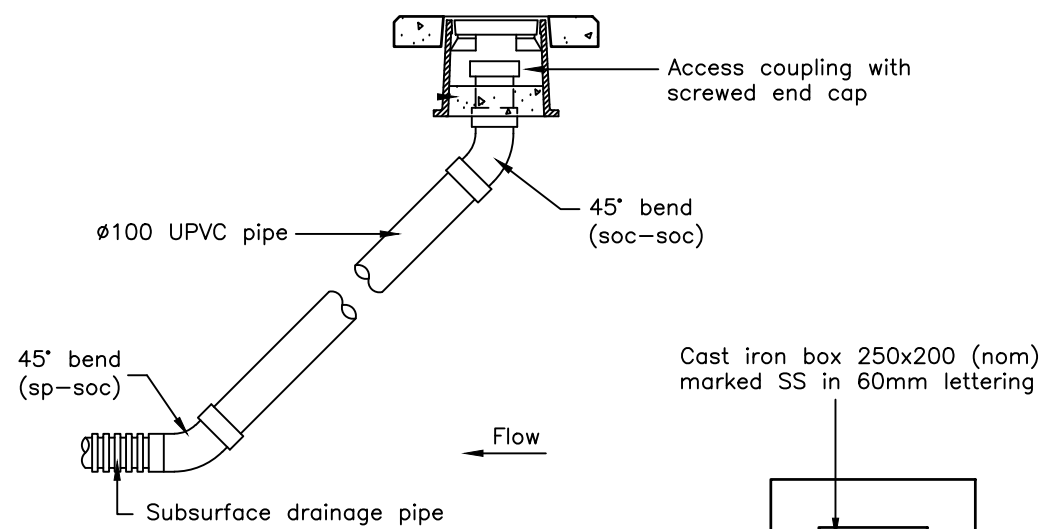
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**CAST INSITU STANDARD  
 SURFACE INLET PIT**

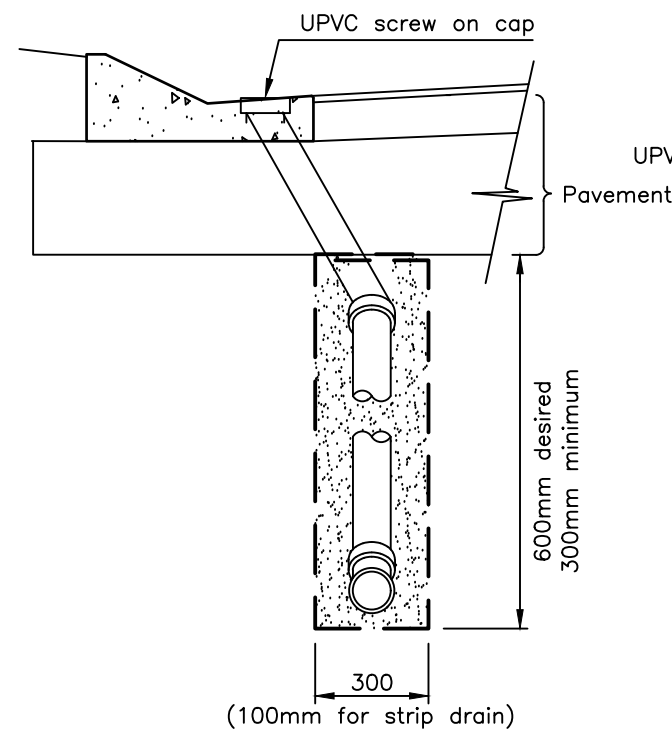
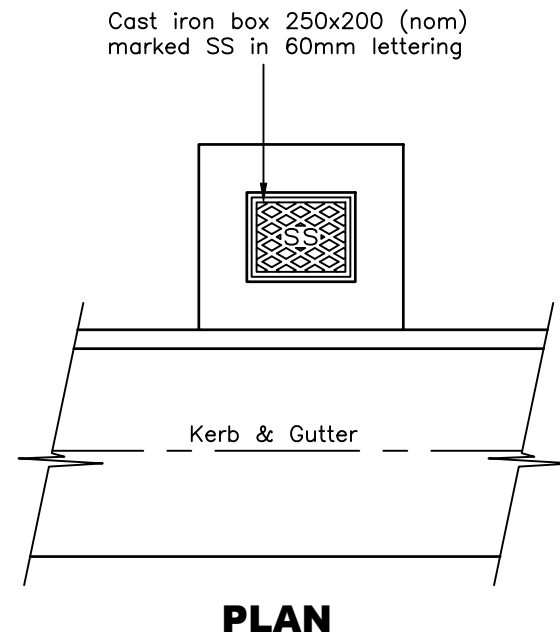
**SD-SW-005**



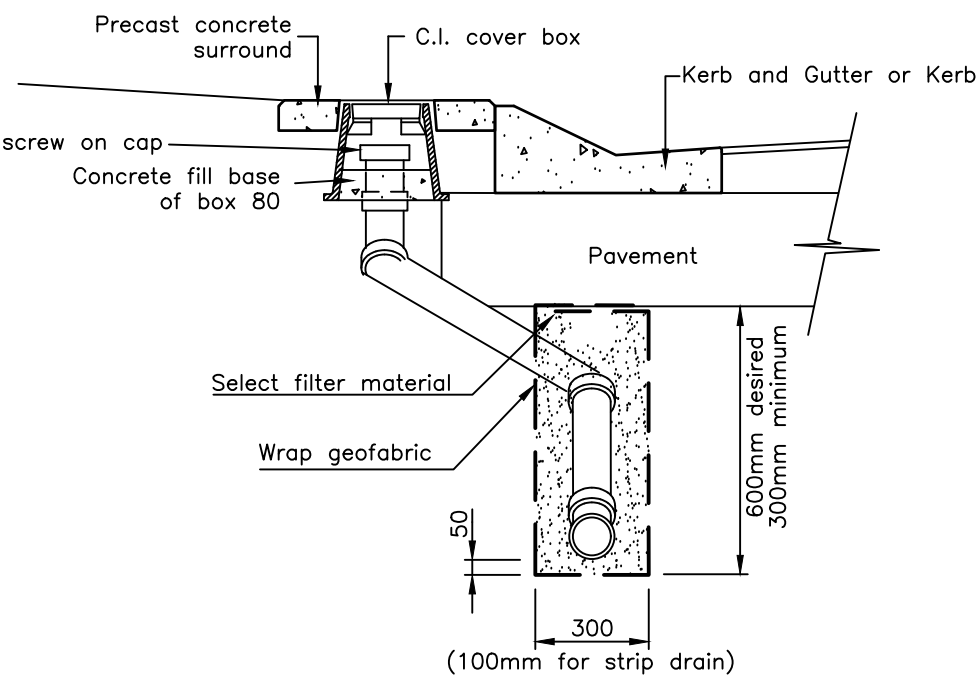
**FLUSHING POINT ON LINE**



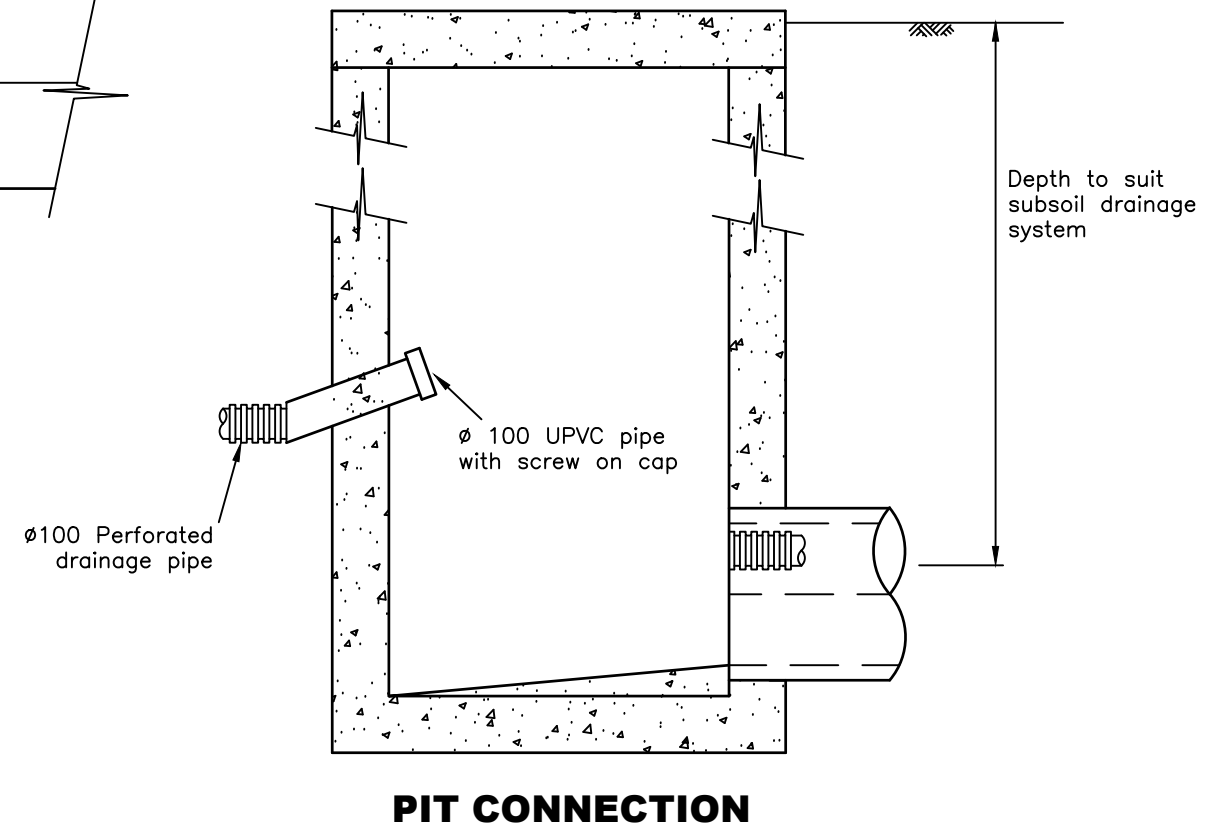
**FLUSHING POINT HEAD OF LINE**



**ALT. DETAIL  
Pavement Rehabilitation**



**PREFERRED LOCATION  
FLUSHING POINT BEHIND KERB**



**NOTES:**

1. Construction shall be in accordance with Aus-Spec 1171 - Subsurface drainage and 1172 - Subsoil and formation drains
2. Provide flushing points at max 50m centres and outlets at max 100m centres
3. Select filter material shall be meet the requirements of Type A filter material, Aus-Spec 1171 - Subsurface drainage
4. All filter material shall be geotextile wrapped, min 140 g/m<sup>2</sup> non woven geotextile to AS 3706
5. Subsoil drainage pipe shall be slotted UPVC or perforated, ribbed HDPE to AS 2439.1
6. Minimum longitudinal grades for pipes shall be: ribbed HDPE pipe - 1.5%, slotted UPVC pipe - 1%, 450mm strip drain - 0.5%
7. UPVC pipe and fittings shall be min Class 12
8. Road crossings to be Sewer Heavy grade UPVC Pipe

NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET

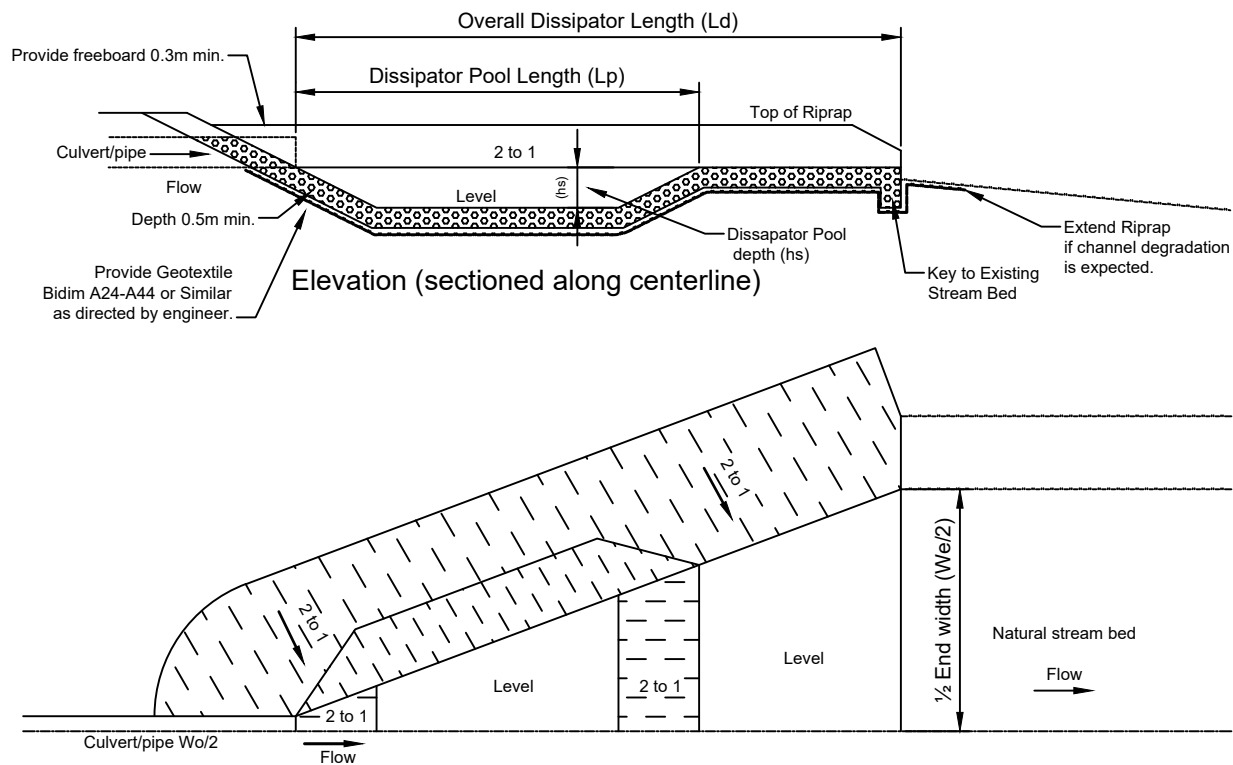

**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505  
**ENGINEERING GUIDELINES**

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

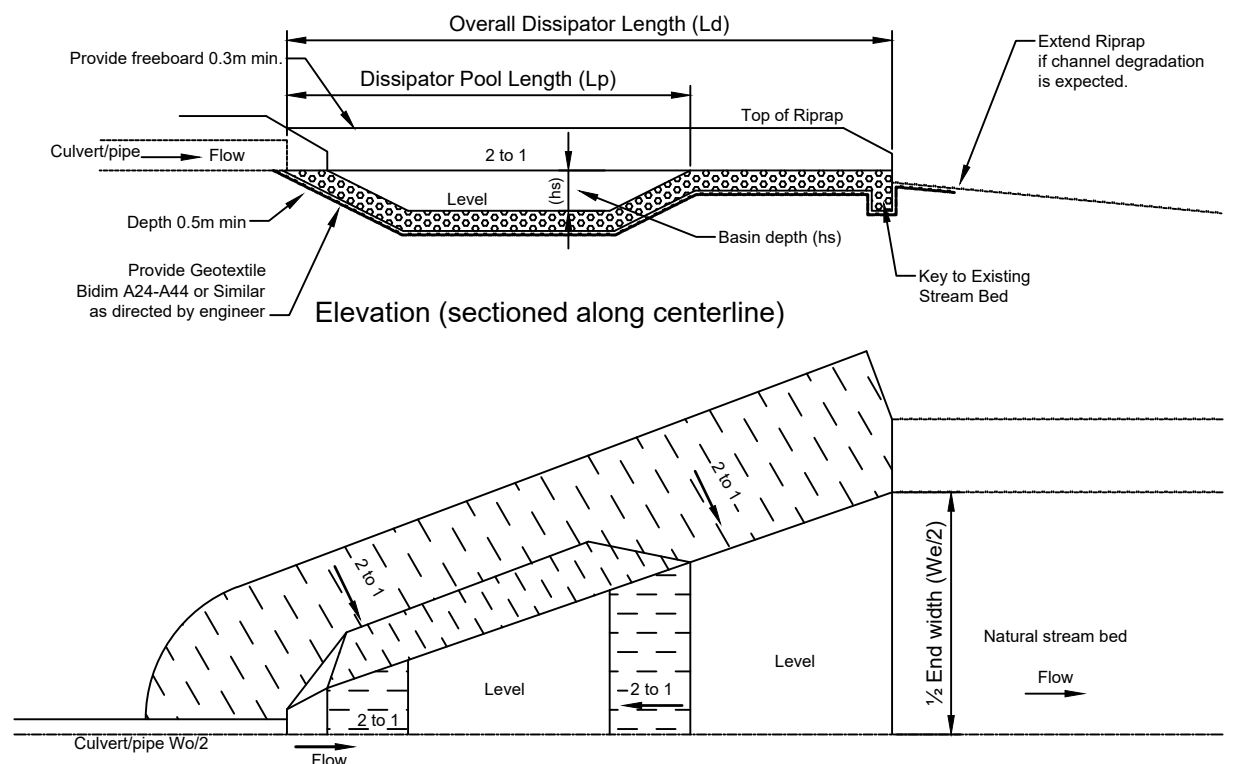
**STANDARD SUBSOIL DRAINAGE  
DETAILS**

**SD-SW-006**





**Riprap Outlet Protection/ Energy Dissipator  
Pipe Outlet Only**



**Riprap Outlet Protection/ Energy Dissipator  
Pipe Outlet with Headwall**


Pipe Culvert Rip Rap Outlet Treatment						
Pipe Size (mm)	Pipe Grade %	Outlet Rock Dia. (m)	Overall Length (m)	Exit Width (m)	Dissapator Pool Length (m)	Dissapator Pool Depth (m)
300ø	< 0.5	0.1	1.50	1.20	n/a	n/a
	0.5 - 2.0	0.1	1.0	1.0	1.0	0.10
	2.0 - 2.5	0.2	2.0	1.5	1.0	0.10
	2.5 - 3.0	0.2	2.5	2.0	1.5	0.20
	3.0 - 4.0	0.2	3.0	2.0	2.0	0.20
	4.0 - 5.0	0.2	4.0	3.0	2.5	0.25
	>5.0	detailed design reqd. Based on flow & velocity				
375ø	< 0.5	0.1	1.5	1.5	n/a	n/a
	0.5 - 2.0	0.1	1.5	1.0	1.0	0.10
	2.0 - 3.0	0.2	1.5	1.5	1.0	0.10
	3.0 - 4.0	0.2	2.0	1.5	1.5	0.15
	4.0 - 5.0	0.2	2.5	2.0	2.0	0.20
		>5.0	detailed design reqd. Based on flow & velocity			
450ø	< 0.5	0.2	2.5	2	n/a	n/a
	0.5 - 1.0	0.2	2.5	2	n/a	n/a
	1.0 - 2.0	0.2	1.0	1.0	1.0	0.10
	2.0 - 3.0	0.2	1.5	1.0	1.0	0.10
	3.0 - 4.0	0.2	2.0	2.0	1.5	0.15
	4.0 - 5.0	0.2	3.5	3.0	2.5	0.25
	>5.0	detailed design reqd. Based on flow & velocity				
525ø	< 0.5	0.2	1.5	1.5	n/a	n/a
	0.5 - 1.0	0.2	0.5	0.5	0.5	0.10
	1.0 - 2.0	0.2	1.0	1.0	1.0	0.10
	2.0 - 3.0	0.2	2.0	2.0	1.5	0.15
	3.0 - 4.0	0.2	3.5	3.0	2.0	0.20
	4.0 - 5.0	0.2	4.0	3.5	2.5	0.25
	>5.0	detailed design reqd. Based on flow & velocity				
600ø	<0.5	0.2	2.5	2	n/a	n/a
	0.5 - 2.0	0.2	2.0	1.5	1.0	0.10
	2.0 - 3.0	0.3	2.5	2.0	1.5	0.15
	3.0 - 4.0	0.3	3.0	2.5	2.0	0.20
	4.0 - 5.0	0.3	4.0	3.5	2.5	0.25
		>5.0	detailed design reqd. Based on flow & velocity			

**NOTES:**

1. Warp basin to conform to natural stream channel. Top of riprap in floor of basin should be at the same level or lower than natural channel at the end of the basin.
2. Culvert end treatment may be varied to suit site conditions.
3. A small diameter pipe should be provided to drain pool during periods of low flow.

NOT TO SCALE

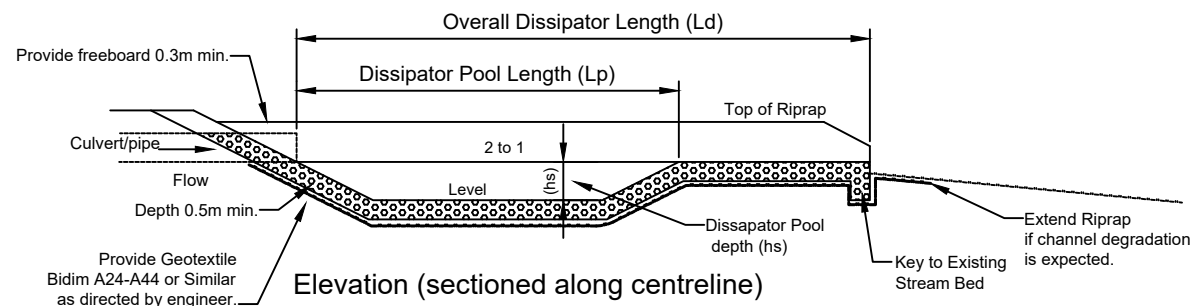
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505  
**ENGINEERING GUIDELINES**

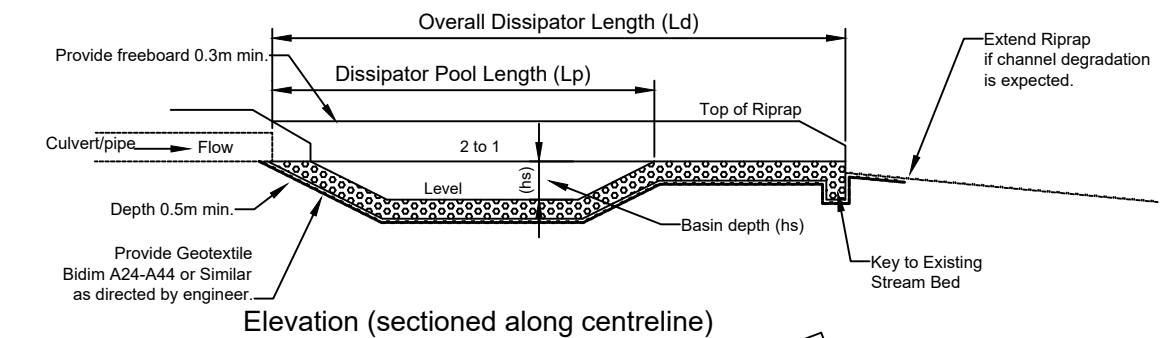
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**RIPRAP OUTLET PROTECTION 300 - 600mmØ PIPE**

**SD-SW-007**



Half Plan  
Riprap Outlet Protection/ Energy Dissipator  
Pipe Outlet Only



Half Plan  
Riprap Outlet Protection/ Energy Dissipator  
Pipe Outlet with Headwall


Pipe Culvert Rip Rap Outlet Treatment						
Pipe Size (mm)	Pipe Grade %	Outlet Rock Dia. (m)	Overall Length (m)	Exit Width (m)	Dissapator Pool Length (m)	Dissapator Pool Depth (m)
750ø	0.0 - 1.0	0.2	1.5	1.5	n/a	n/a
	1.0 - 2.0	0.3	1.0	1.0	0.5	0.10
	2.0 - 3.0	0.3	1.0	1.0	1.0	0.10
	3.0 - 4.0	0.3	2.0	2.0	1.5	0.15
	4.0 - 5.0	0.3	3.0	3.0	2.0	0.20
	>5.0	detailed design reqd. Based on flow & velocity				
900ø	0.0 - 1.0	0.2	3.0	3.0	n/a	n/a
	1.0 - 2.0	0.3	2.0	2.0	1.0	0.10
	2.0 - 3.0	0.3	3.5	3.5	2.5	0.25
	3.0 - 4.0	0.3	4.0	4.0	3.0	0.30
	4.0 - 5.0	0.3	7.0	6.5	4.5	0.35
	>5.0	detailed design reqd. Based on flow & velocity				
1050ø	< 0.5	0.2	3.0	3.1	n/a	n/a
	0.5 - 1.0	0.3	4.0	4.0	2.5	0.25
	1.0 - 2.0	0.3	5.0	5.0	3.5	0.30
	2.0 - 5.0	0.3	5.0	5.0	3.5	0.35
>5.0	detailed design reqd. Based on flow & velocity					
1200ø	< 0.5	0.2	6.0	6.5	n/a	n/a
	< 0.5	0.3	5.0	5.5	3.5	0.30
	0.5 - 1.0	0.3	7.0	7.0	4.5	0.45
	1.0 - 4.0	0.4	3.0	3.0	2.0	0.20
	4.0 - 5.0	0.4	4.5	5.0	3.0	0.30
	>5.0	detailed design reqd. Based on flow & velocity				
1500ø	< 0.5	0.2	6.0	7.0	n/a	n/a
	< 0.5	0.3	5.0	6.0	3.5	0.4
	0.5 - 2.0	0.4	3.0	3.5	2.0	0.2
	2.0 - 4.0	0.4	4.5	5.5	3.0	0.3
	4.0 - 5.0	0.4	5.5	7.0	4.0	0.4
>5.0	detailed design reqd. Based on flow & velocity					
1800ø	< 0.5	0.3	6	8	n/a	n/a
	< 0.5	0.4	4.5	6	3	0.3
	0.5 - 5.0	0.4	10	13	7	0.7
	>5.0	detailed design reqd. Based on flow & velocity				
2100ø	< 0.5	0.4	7.5	10.5	n/a	n/a
	< 0.5	0.4	10	13.5	7	0.8
	< 0.5	0.5	8	11	5.5	0.7
	> 1.0	detailed design reqd. Based on flow & velocity				

**NOTES:**

1. Warp basin to conform to natural stream channel. Top of riprap in floor of basin should be at the same level or lower than natural channel at the end of the basin.
2. Culvert end treatment may be varied to suit site conditions.
3. A small diameter pipe should be provided to drain pool during periods of low flow.

NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505  
**ENGINEERING GUIDELINES**

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**RIPRAP OUTLET PROTECTION 750 - 2100mmØ PIPE**

**SD-SW-008**

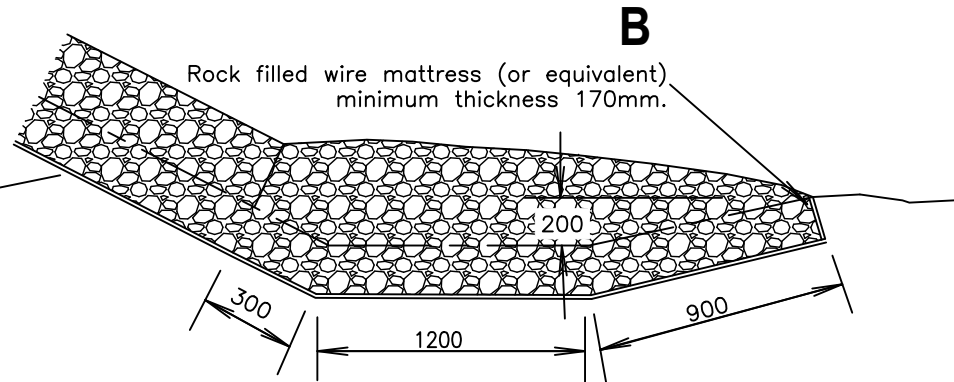
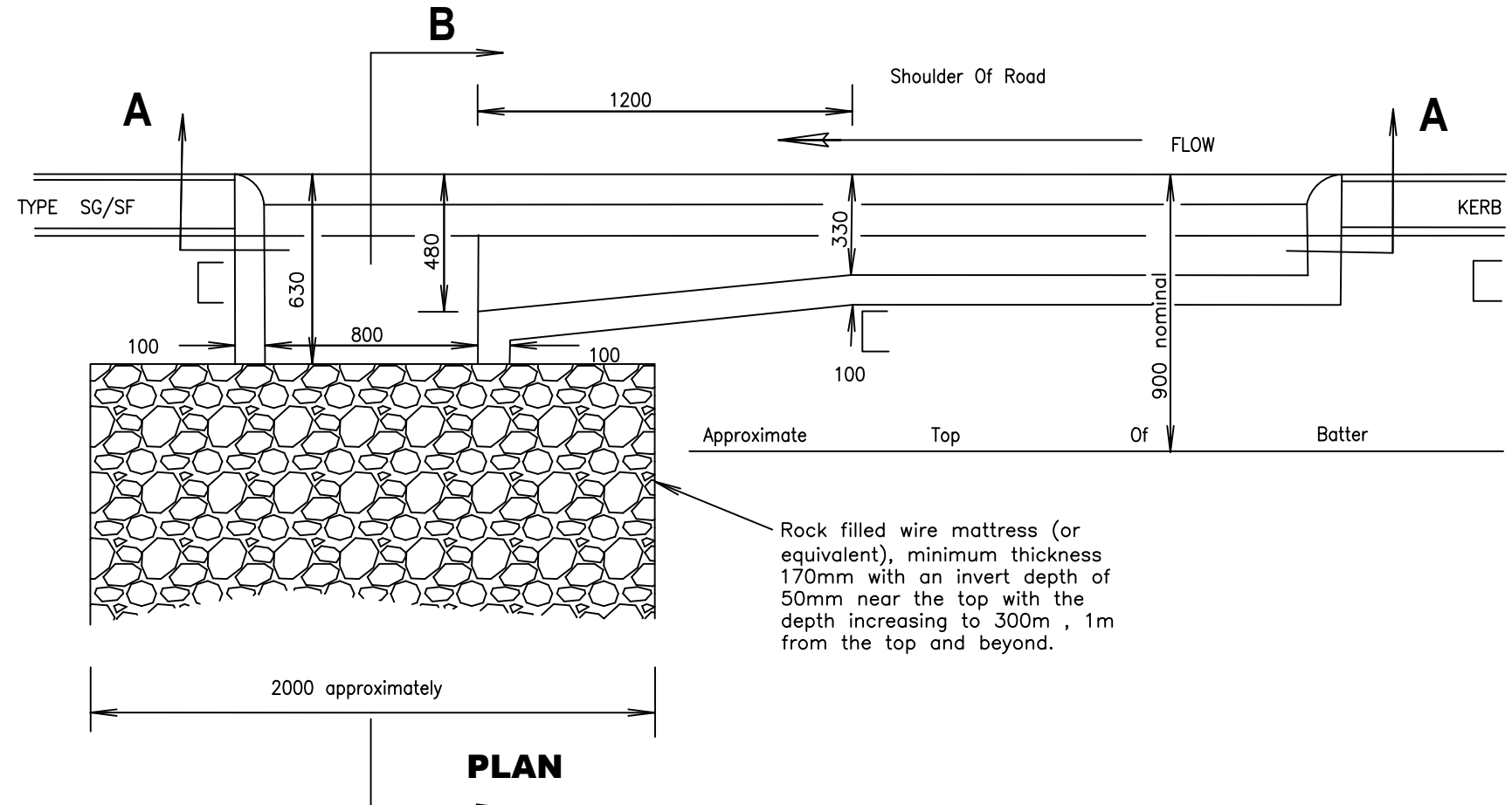
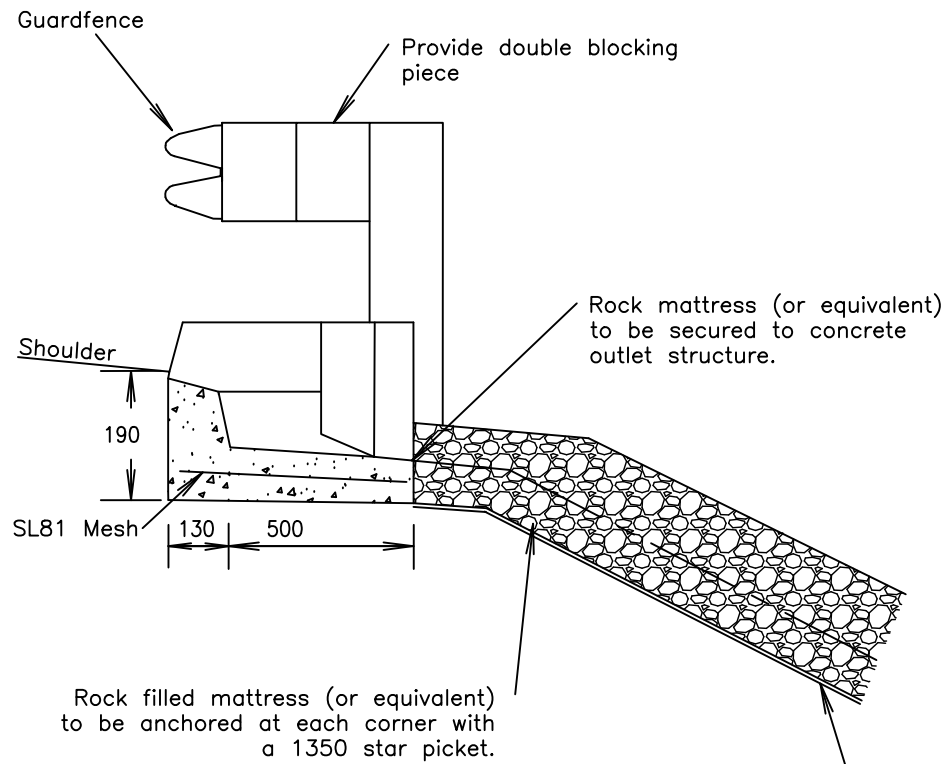
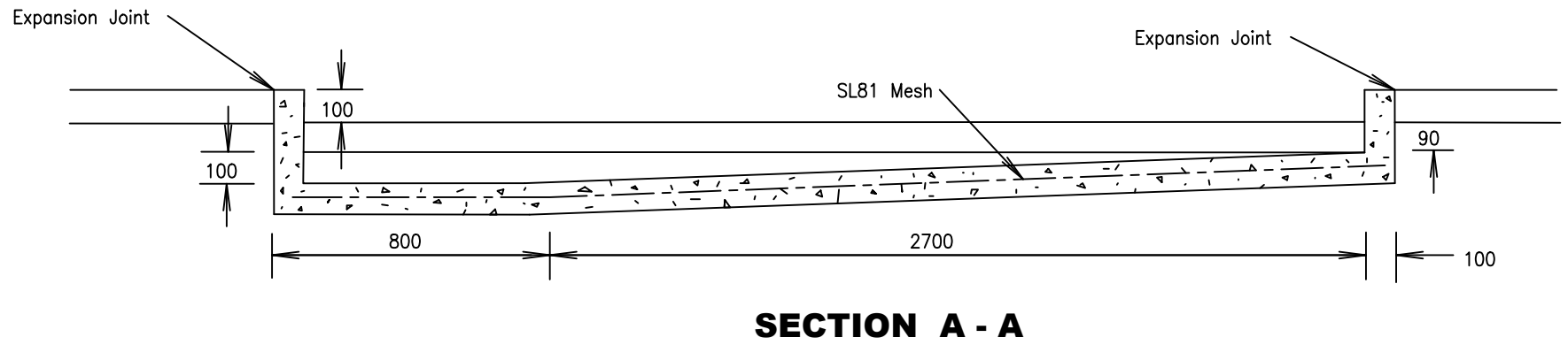




**NOTES:**

1. Compressive strength, F'c for cast insitu concrete to be min N32 to AS 3600
2. Construction shall be in accordance with Aus-Spec 1354 - Drainage structures.
3. Construct gully pit to suit direction of flow
4. Place geotextile filter fabric as specified under all rock filled wire mattress
5. On rock faced batters terminate drain at top of rock facing
6. All dimensions are in millimetres

*This plan has been adopted from the plan produced by Transport NSW (RMS), first issued June, 1998. Drawing Number R0230 - 03 REFER CURRENT OR EQUIVALENT EDITION BEFORE USE.*



Rock filled wire mattress (or equivalent), minimum thickness 170mm with an invert depth of 50mm near the top with the depth increasing to 300mm, 1m from the top and beyond.

NOT TO SCALE

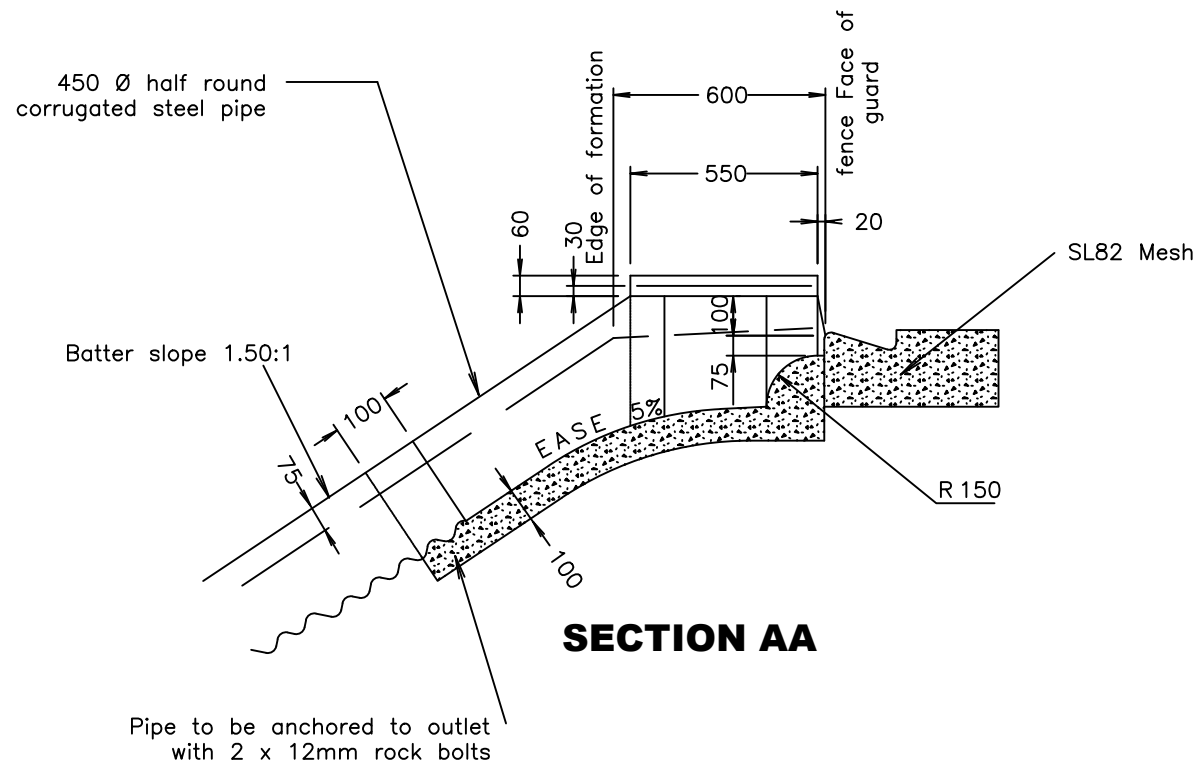
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET

**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505

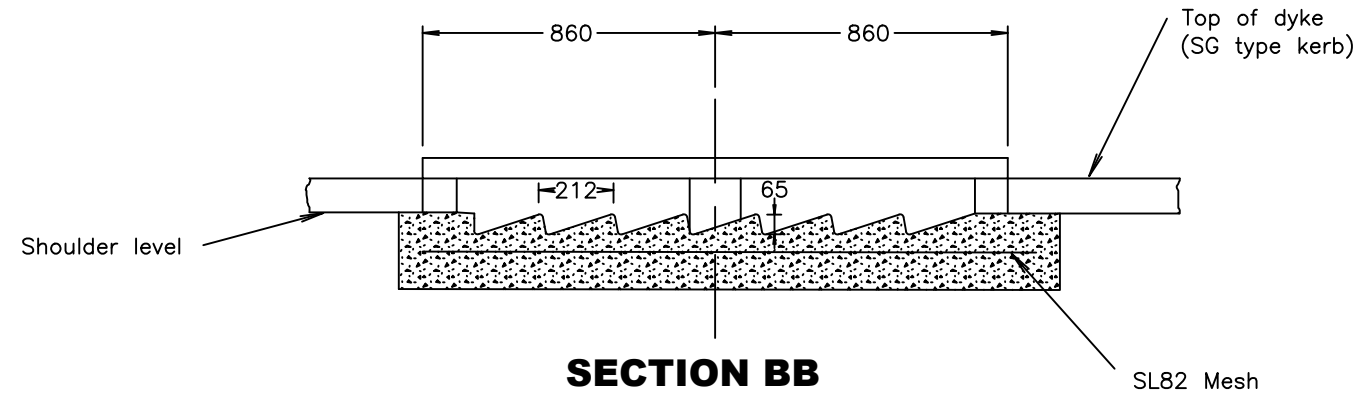
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**TYPE SG / SF KERB OUTLET WITH EMBANKMENT BATTER SLOPE DRAIN**

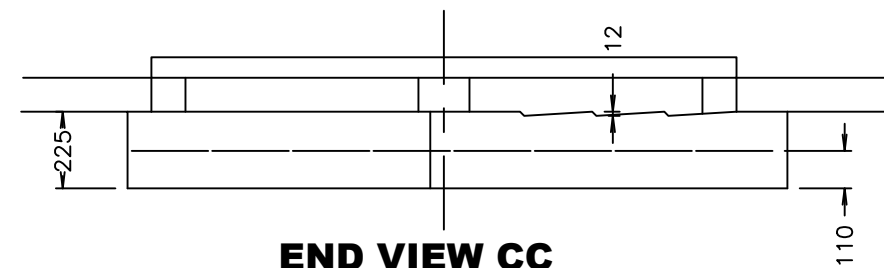
**SD-SW-010**



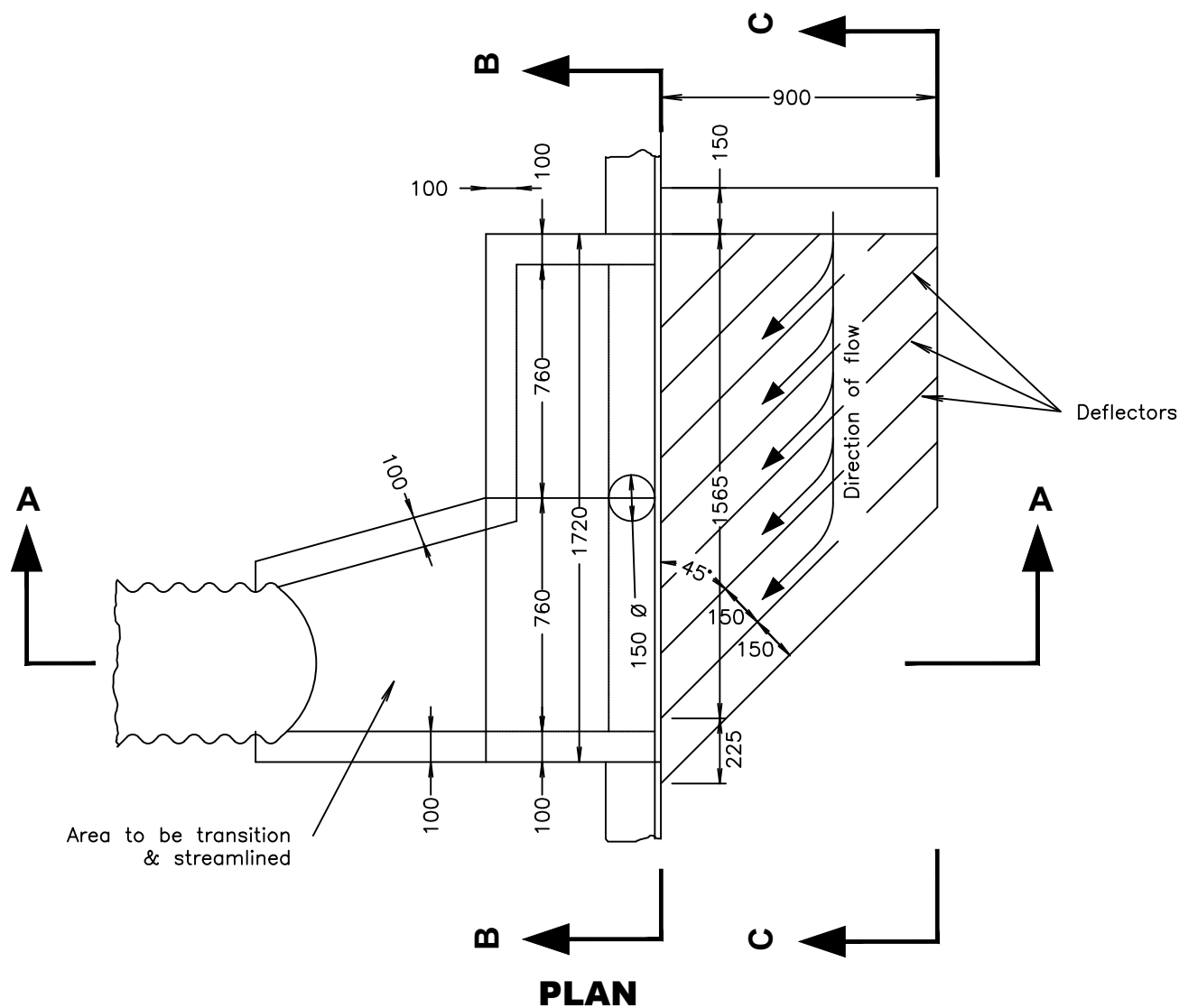
**SECTION AA**



**SECTION BB**



**END VIEW CC**



**PLAN**


**NOTE:**

1. Compressive strength, F'c for cast insitu concrete to be min N32 to AS 3600.
2. Construction shall be in accordance with Auspec 1354 - Drainage structures.
3. Construct gully pit in reverse when flow is in opposite direction.
4. Where gully pit is located under guardfence, covers may be omitted.
5. All dimensions are in millimetres.

*This plan has been adopted from the plan produced by Transport NSW (RMS), first issued June, 1998. Drawing Number R0220 - 13 REFER TO CURRENT OR EQUIVALENT EDITION BEFORE USE.*

NOT TO SCALE

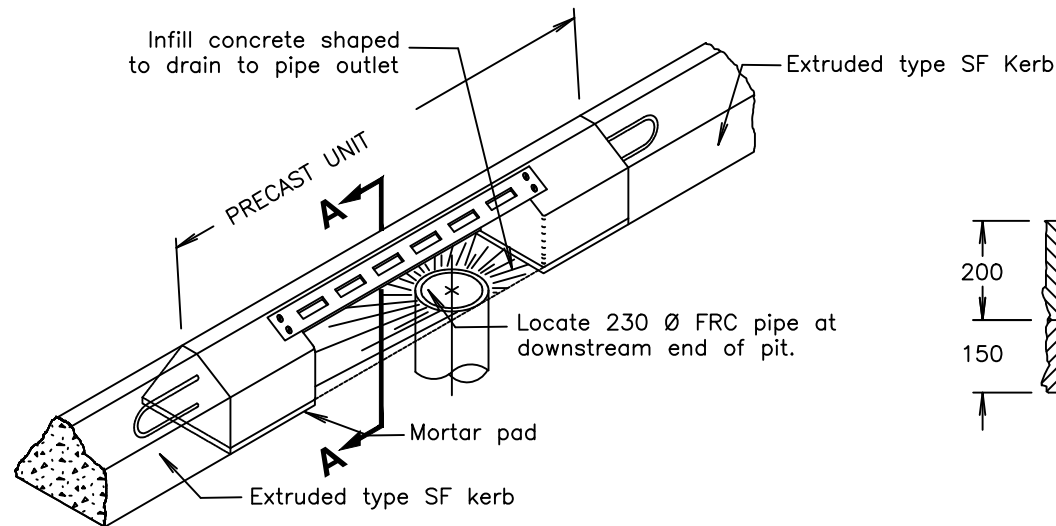
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505  
**ENGINEERING GUIDELINES**

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

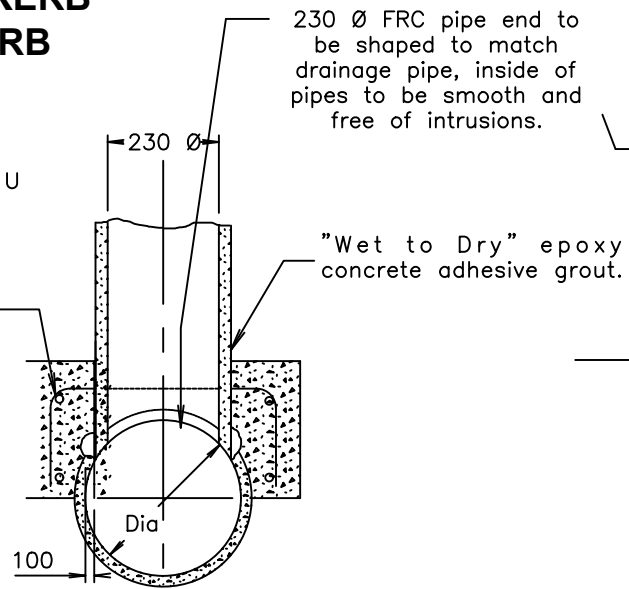
**STANDARD GULLY PIT TYPE SG1  
FOR TYPE SG KERB**

**SD-SW-011**



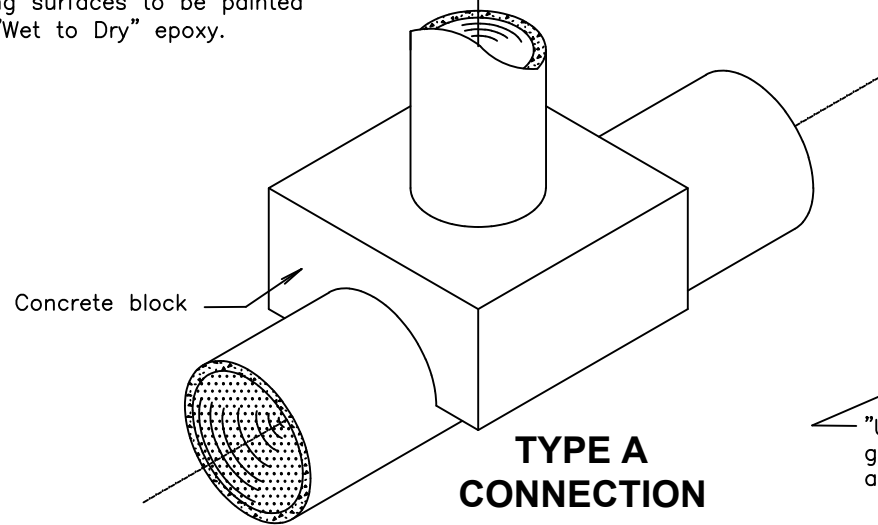
**PRECAST MEDIAN KERB INLET FOR SF KERB**

Concrete block 500 wide  
Reinforce with 2 x 12mm Ø U bars  
4 x 12mm Ø bars 400 long



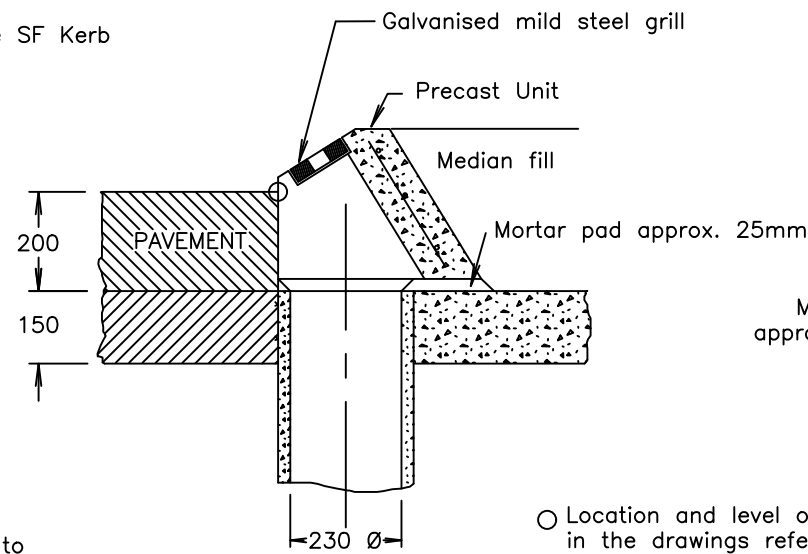
**TYPE 'A'**

**NOTE**  
Immediately prior to application of epoxy grout or concrete, jointing surfaces to be painted with "Wet to Dry" epoxy.



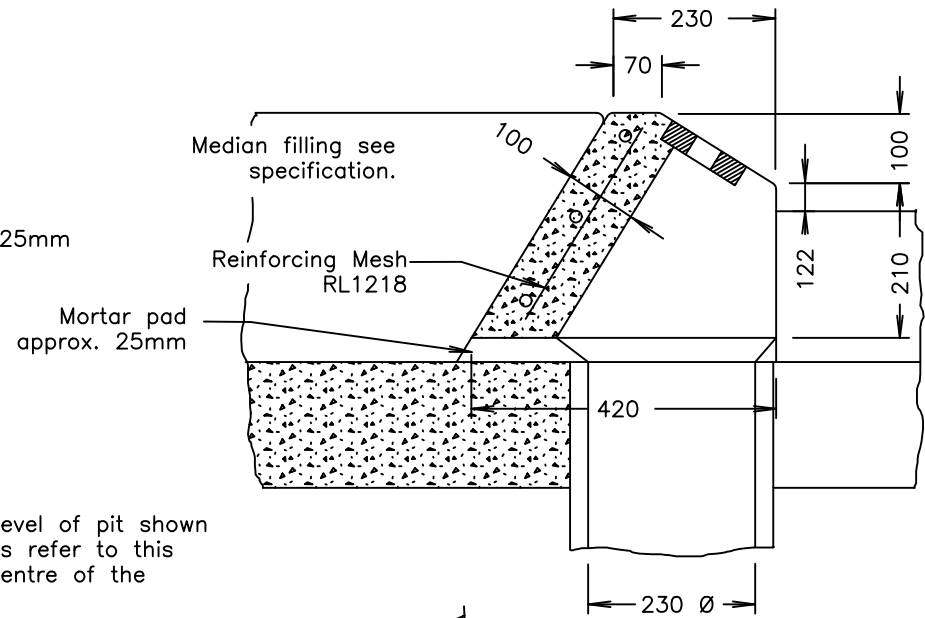
**CONNECTION TYPES**

TYPE A :- 300-525mm Ø R.C.P.  
TYPE B :- 600mm + Ø R.C.P.



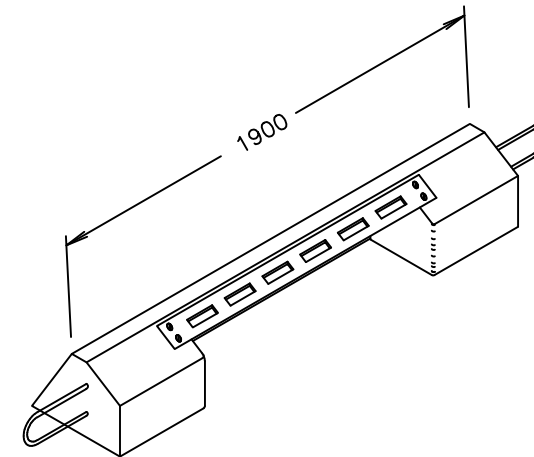
**TYPE 'B' SECTION 'AA'**

○ Location and level of pit shown in the drawings refer to this point at the centre of the inlet.

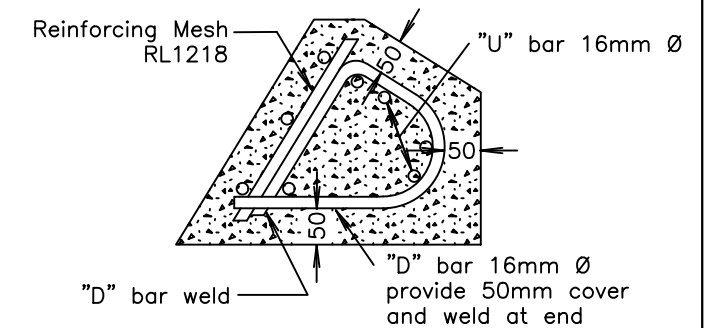


**SECTION 'AA'**

Concrete Grade N32



**PRECAST MEDIAN KERB INLET**

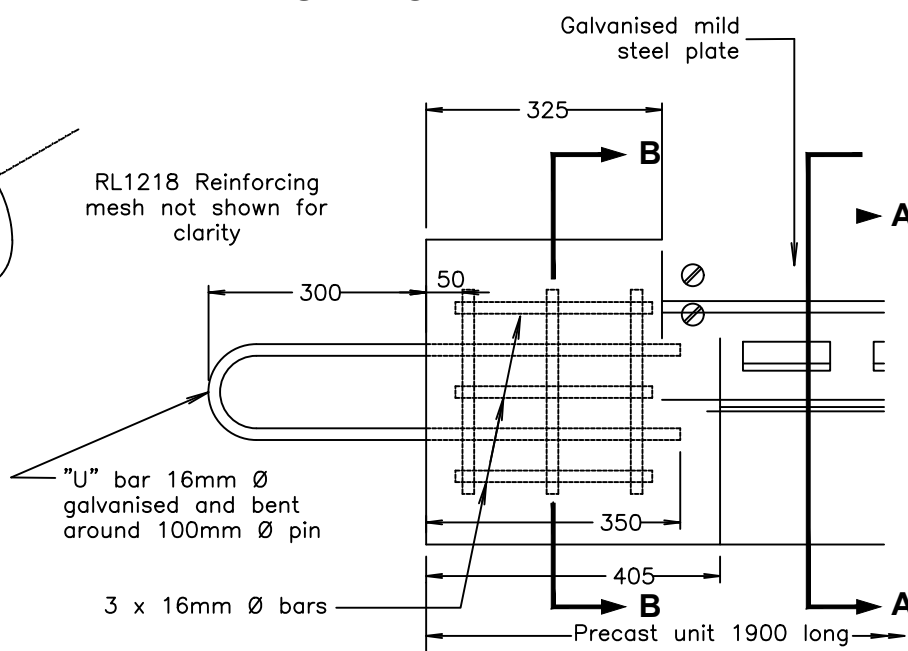


**SECTION 'BB'**

**NOTE**

Reinforcement and end treatment to be duplicated at other end. All dimensions are in millimetres unless otherwise stated.

*This plan has been adopted from the plan produced by Transport NSW (RMS), first issued June, 1998. Drawing Number R0220 - 11 REFER CURRENT OR EQUIVALENT EDITION BEFORE USE.*



**ELEVATION**

NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET

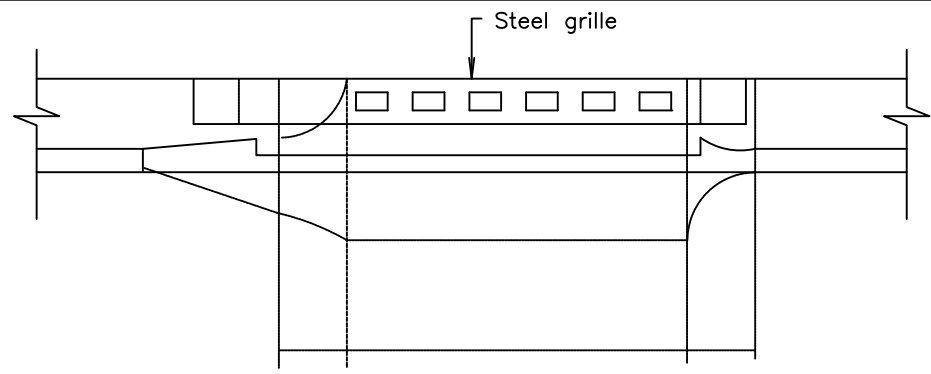
**CESSNOCK CITY COUNCIL**  
P.O. BOX 152 CESSNOCK  
PHONE 4993 4100  
FAX 4993 2505

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

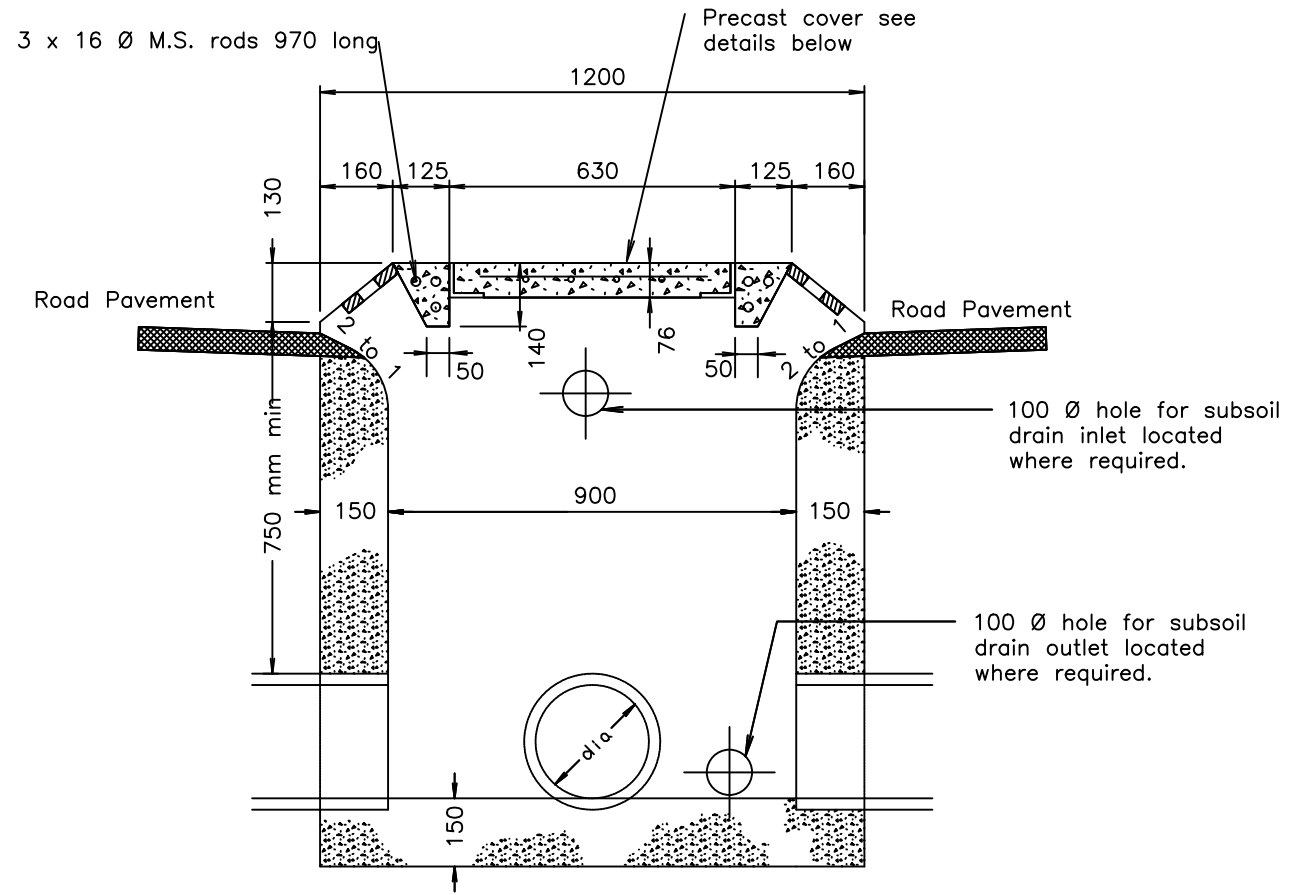
**PRECAST MEDIAN KERB INLET FOR SF KERB**

**SD-SW-012**

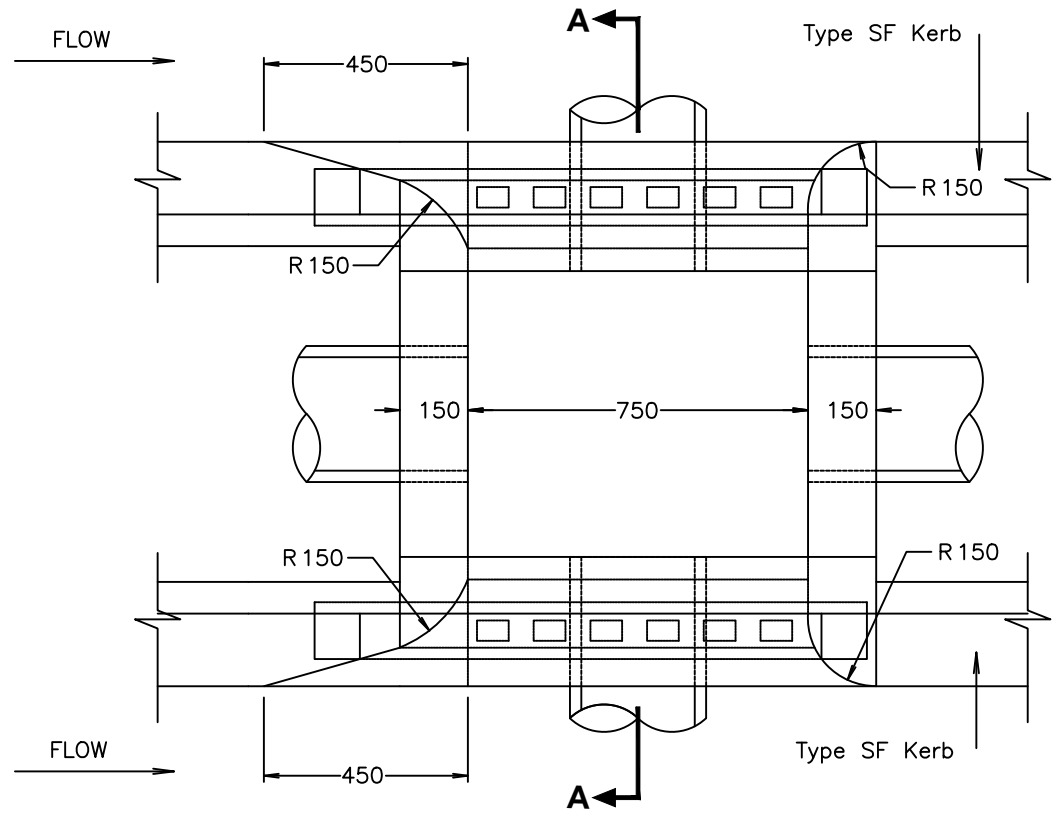




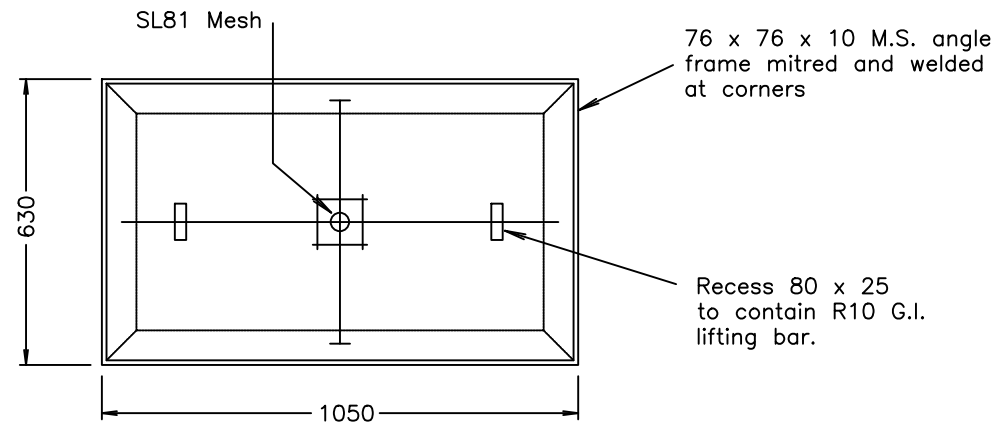
**ELEVATION OF INLET**



**SECTION AA**



**PLAN WITH COVER AND GRILLE REMOVED**



**PLAN OF PIT COVER**

**NOTES:**

1. Compressive strength,  $F_c$  for cast insitu concrete to be min N32 to AS 3600.
2. All exposed edges to be rounded with 20mm radius.
3. All mild steel material to be galvanised on completion in accordance with AS1650.
4. Side walls of all pits deeper than 1500 are to be reinforced with one layer of SL82 mesh returned 300 into base.
5. Depth of pit not to exceed 3500.
6. Where pit is deeper than 1200mm provide step irons. Refer drawing SD-SW-001 for Step Iron details.
7. For connection to subsoil drainage refer to SD-SW-006. 8. All dimensions are in millimetres.

**This plan has been adopted from the plan produced by Transport NSW (RMS), first issued June, 1998. Drawing Number R0220 - 10 REFER TO CURRENT EQUIVALENT EDITION BEFORE USE.**

NOT TO SCALE

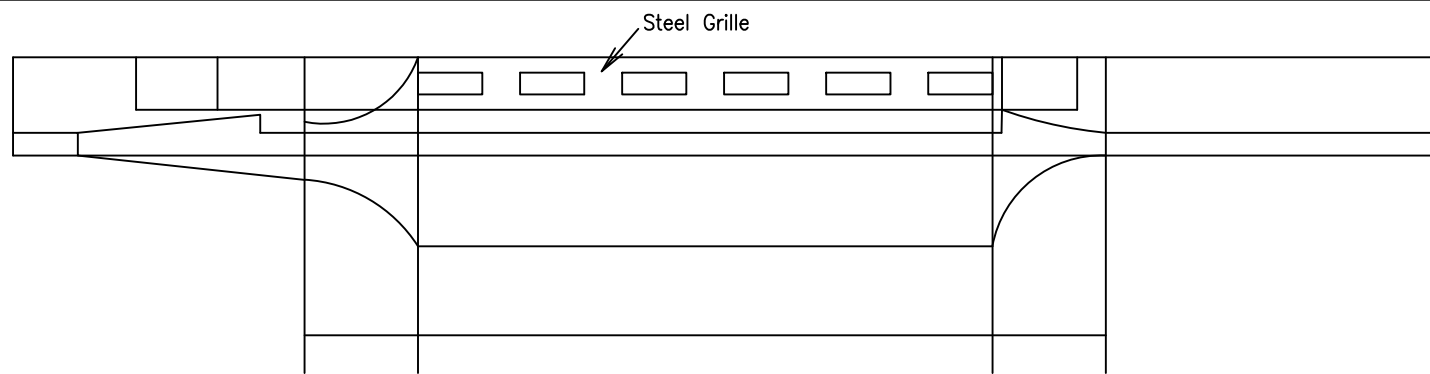
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET

**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152 CESSNOCK  
 ENGINEERING GUIDELINES  
 PHONE 4993 4100  
 FAX 4993 2505

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

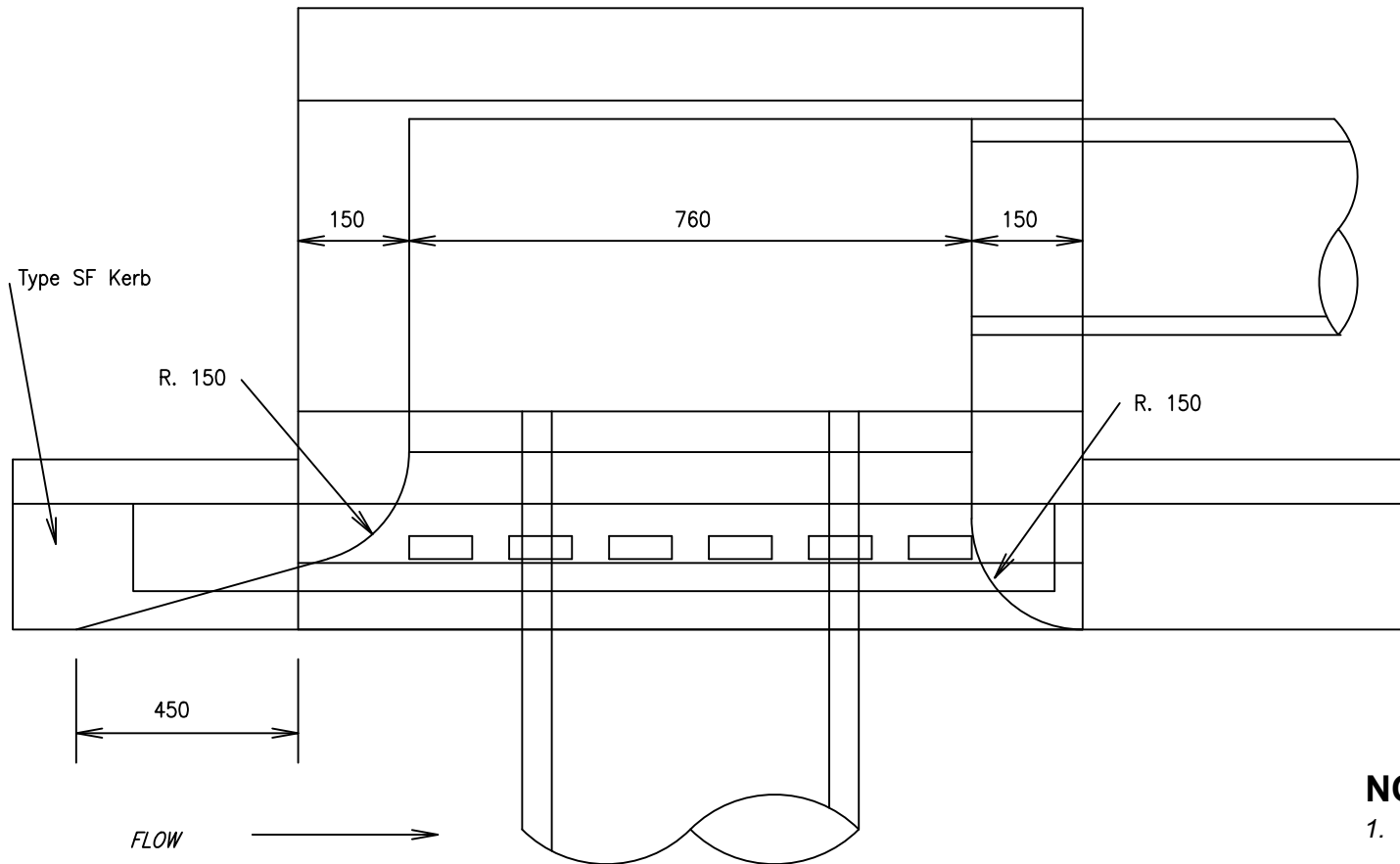
**STANDARD DOUBLE INLET GULLY PIT FOR TYPE SF KERB**

**SD-SW-013**



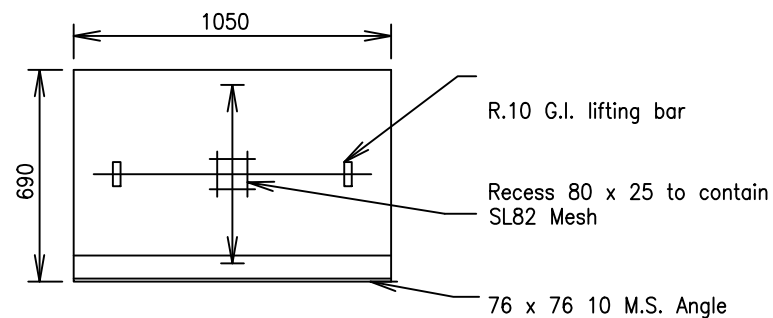
**ELEVATION OF INLET**

A ←

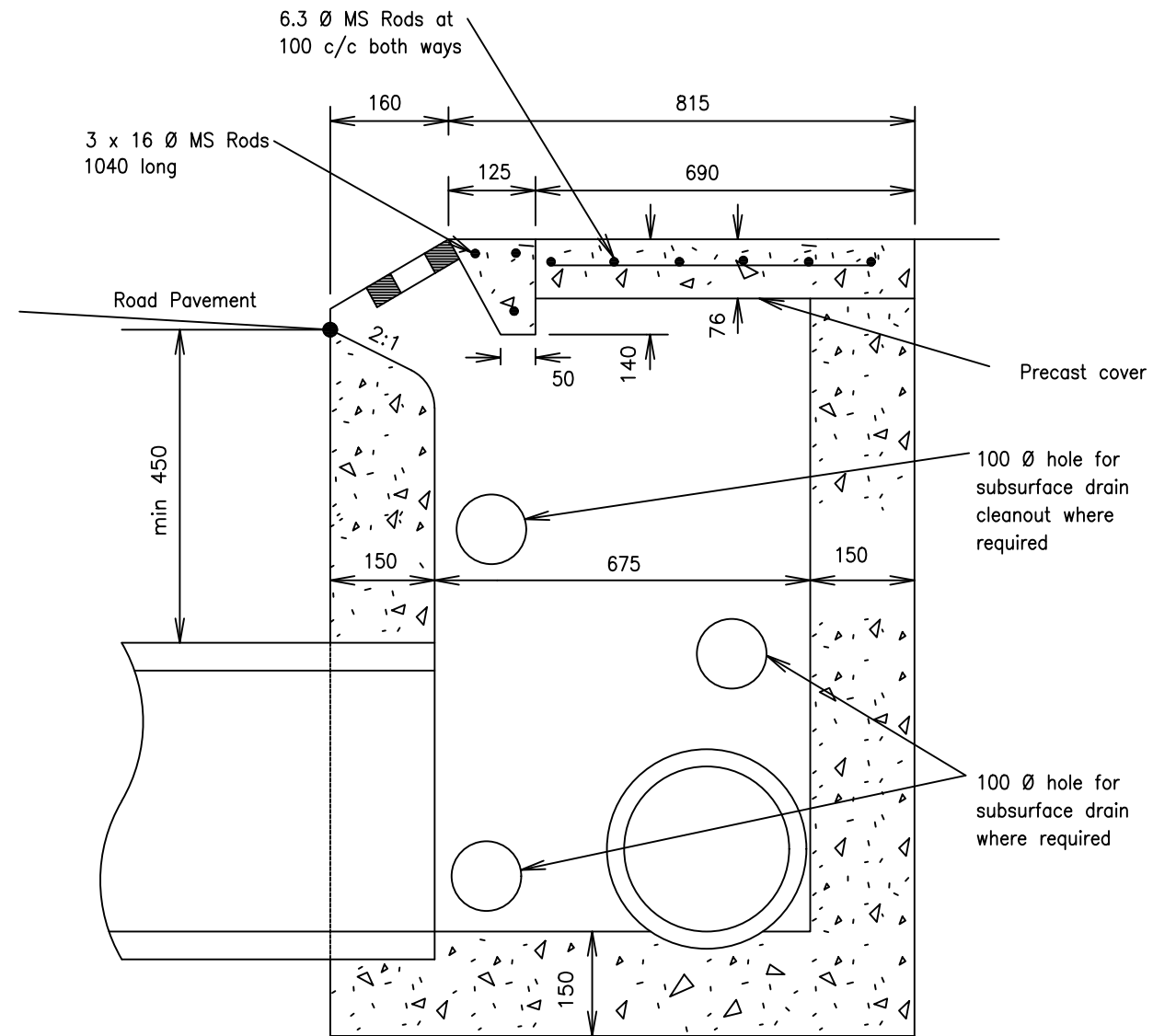


**PLAN WITH COVER AND GRILLE REMOVED**

A ←



**CONCRETE COVER**



**SECTION A - A**

**NOTES:**

1. Compressive strength, F'c for cast insitu concrete to be min N32 to AS 3600.
2. Side walls of pits deeper than 1500 are to be reinforced with one layer of SL82 mesh returned 300 into base.
3. Depth of pit not to exceed 3500.
4. Where pit is deeper than 1200mm provide step irons. Refer drawing SD-SW-001 for Step Iron details.
5. All exposed edges to be rounded to 20 radius.
6. For pipes greater than 450mm Ø \* = nOD + (n - 1) OD/2 + 200 n = number of pipes
7. All mild steel material to be galvanised on completion in accordance with AS 1650.
8. For connection to subsoil drainage refer to SD-SW-006.
9. All Dimensions are in millimetres.

**This plan has been adopted from the plan produced by the Roads and Traffic Authority NSW (RMS), first issued June, 1998. Drawing Number MD.R11.B09.A REFER TO CURRENT EQUIVALENT EDITION BEFORE USE.**

NOT TO SCALE

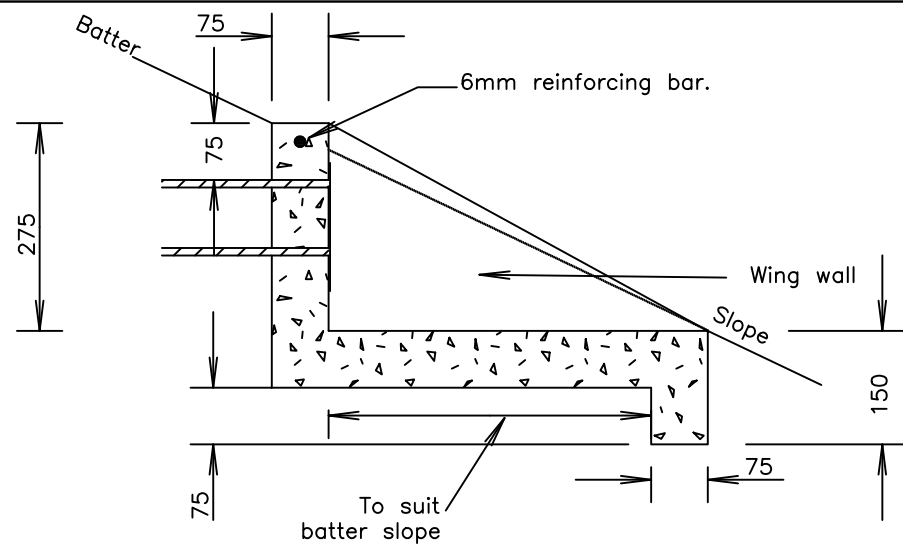
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET

**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152 CESSNOCK  
 ENGINEERING GUIDELINES  
 PHONE 4933 4100  
 FAX 4933 2505

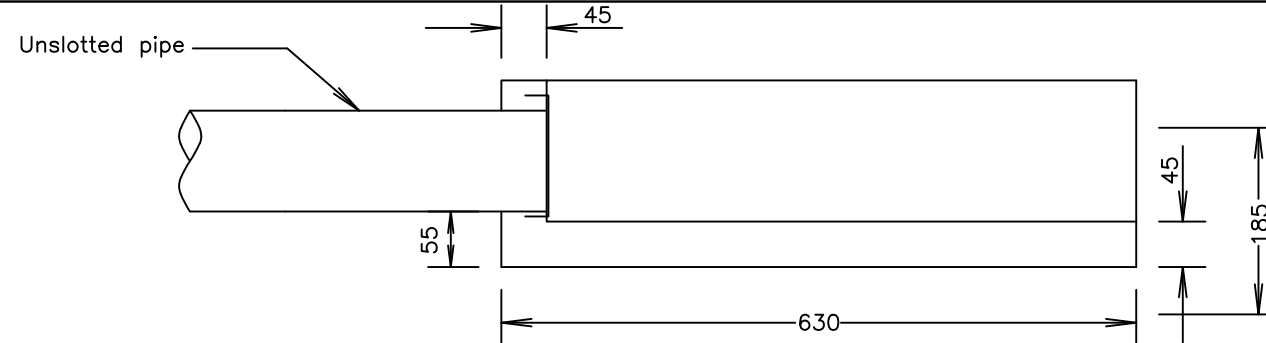
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**SINGLE INLET GULLY PIT FOR TYPE SF KERB**

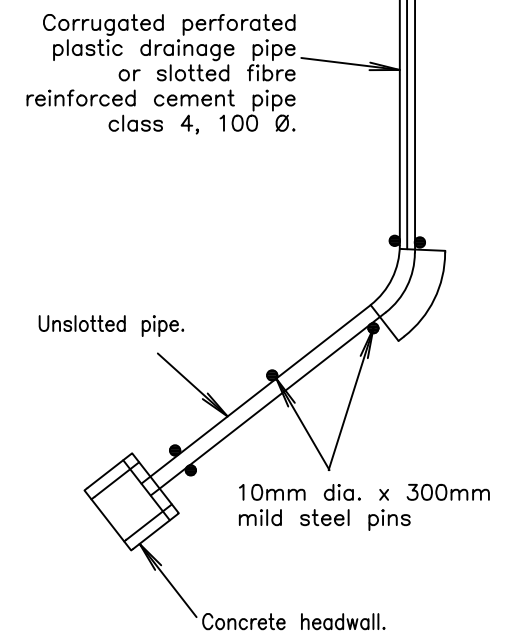
**SD-SW-014**



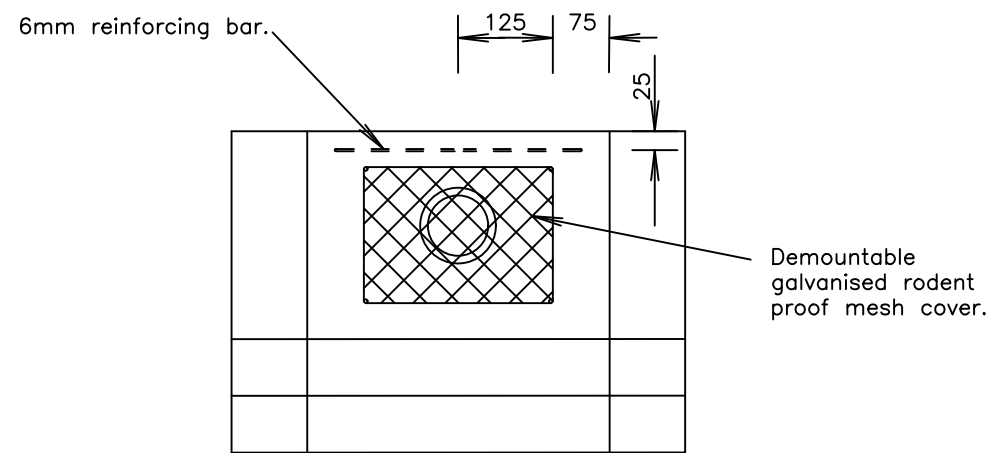
**SECTION A-A**



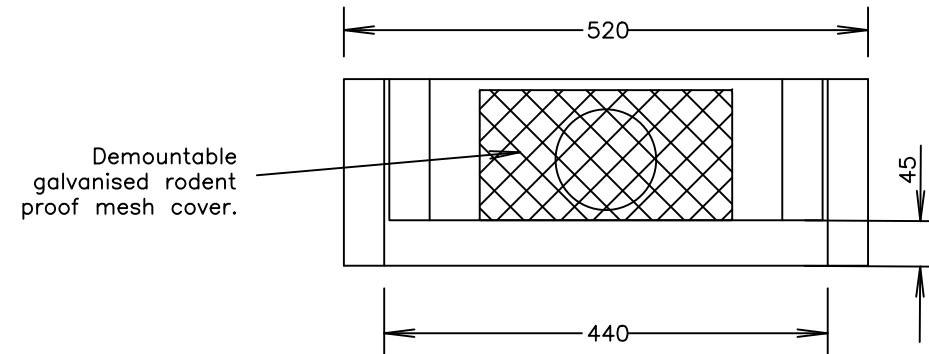
**SECTION C - C**



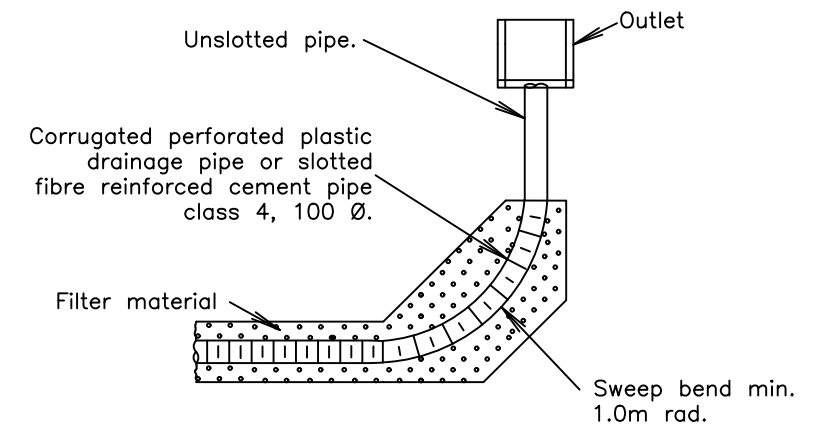
**OUTLET DETAILS TO HEADWALL**



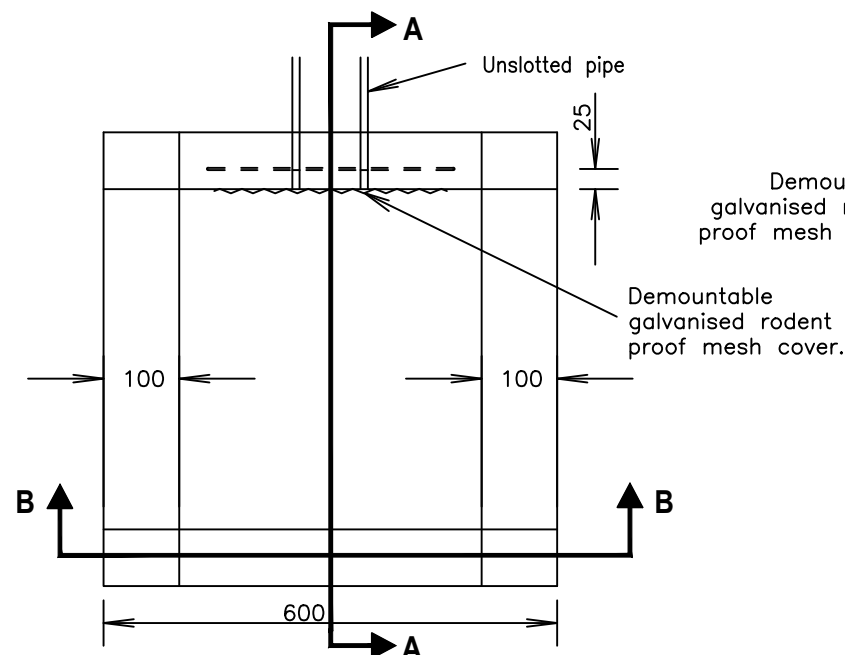
**SECTION B - B**



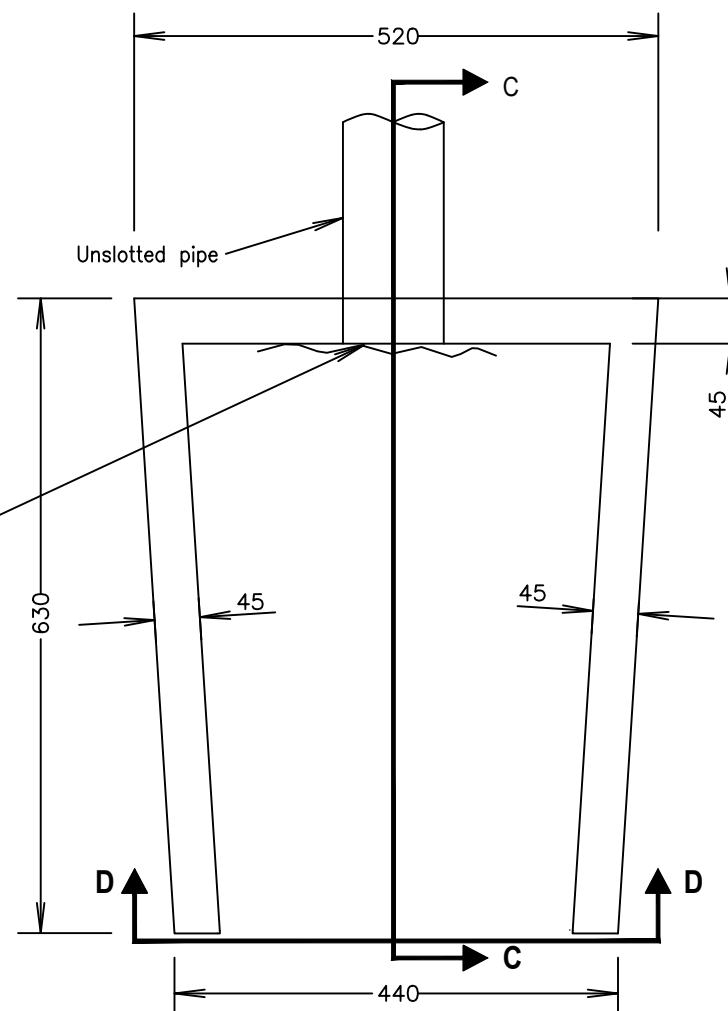
**SECTION D - D**



**PLAN OF JOINT**  
(Used where subsurface drain turned at right angles across shoulder to outlet.)



**PLAN STEEP BATTER**  
Steeper than 4 Hor. : 1 Vert.



**PLAN FLAT BATTER**  
4 Hor. : 1 Vert. or flatter.

**NOTES:**

1. Compressive strength F'c for cast insitu. Concrete to be min N32 to AS 3600.
2. All dimensions in millimetres unless otherwise stated

*This Drawing has been sourced from Transport NSW (RMS). Refer to Standard (Pavement) Drawings.*

NOT TO SCALE

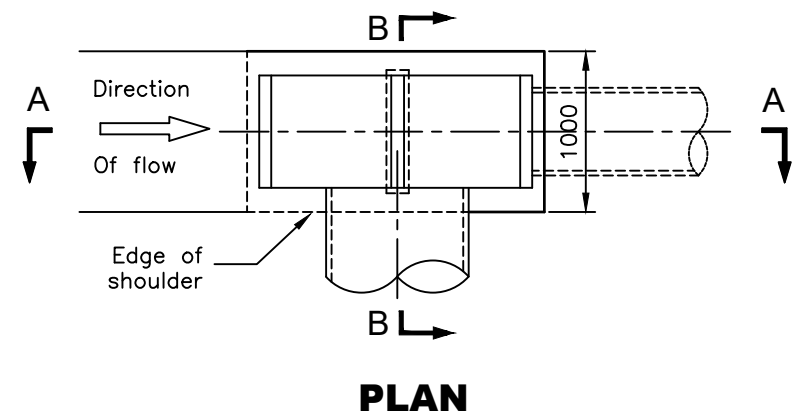
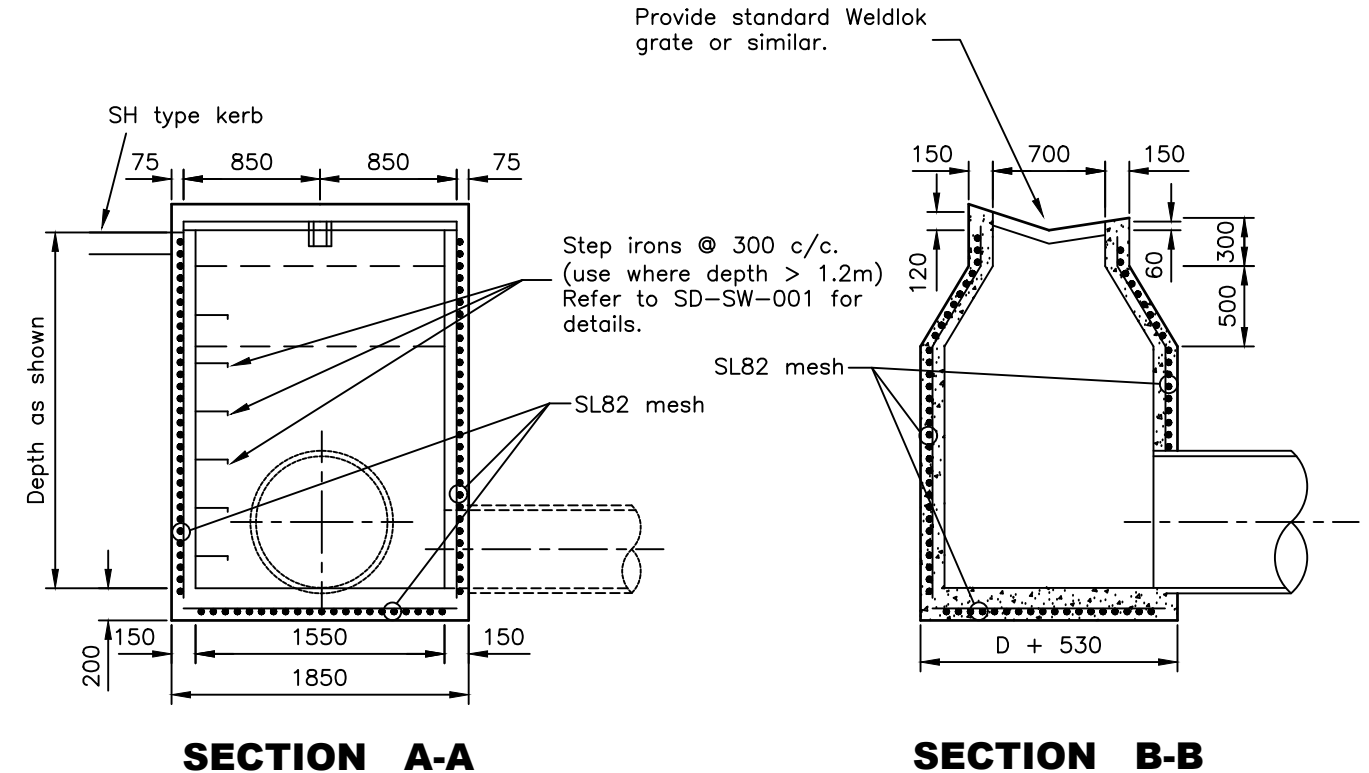
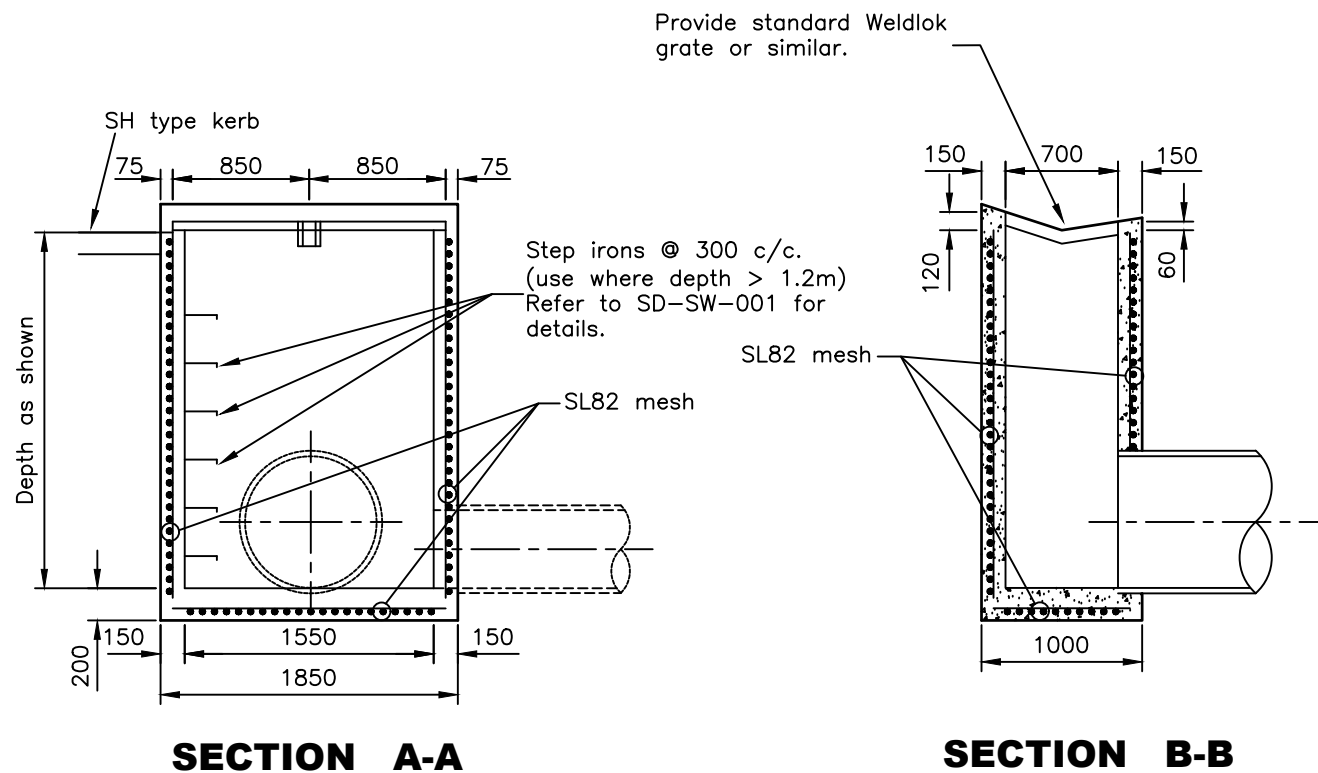
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152 CESSNOCK  
 PHONE 4993 4100  
 ENGINEERING GUIDELINES FAX 4993 2505

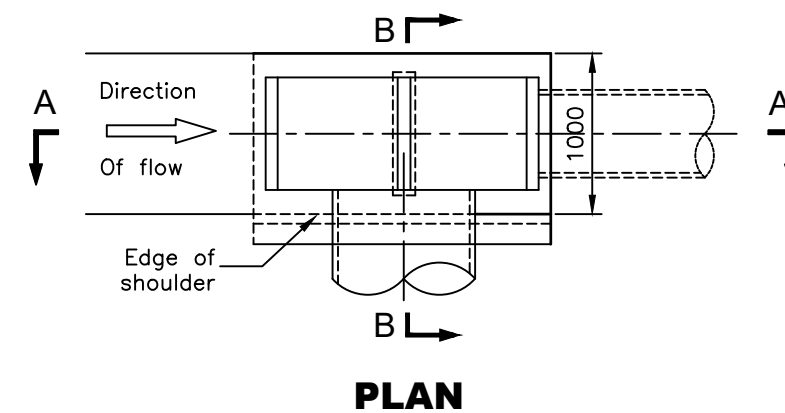
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**CAST INSITU OUTLET STRUCTURES FOR SUBSURFACE DRAINS**

**SD-SW-015**



**'V' DRAIN FOR PIPE Ø450 OR LESS**



**'V' DRAIN FOR PIPE Ø525 OR GREATER**

**NOTE:**

1. Compressive strength,  $F_c$  for cast insitu concrete to be min N32 to AS 3600
2. All dimensions in mm
3. Provide SL82 mesh centrally placed to walls and base for all pits >1.5m deep. Minimum 50mm cover. Return mesh 300mm into base and sides
4. All exposed steelwork shall be hot dip galvanised in accordance with AS 1650

NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 ENGINEERING GUIDELINES  
 PHONE 4993 4100  
 FAX 4993 2505

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**CAST INSITU GRATED "V" DRAIN PIT FOR SH TYPE DISH DRAIN**

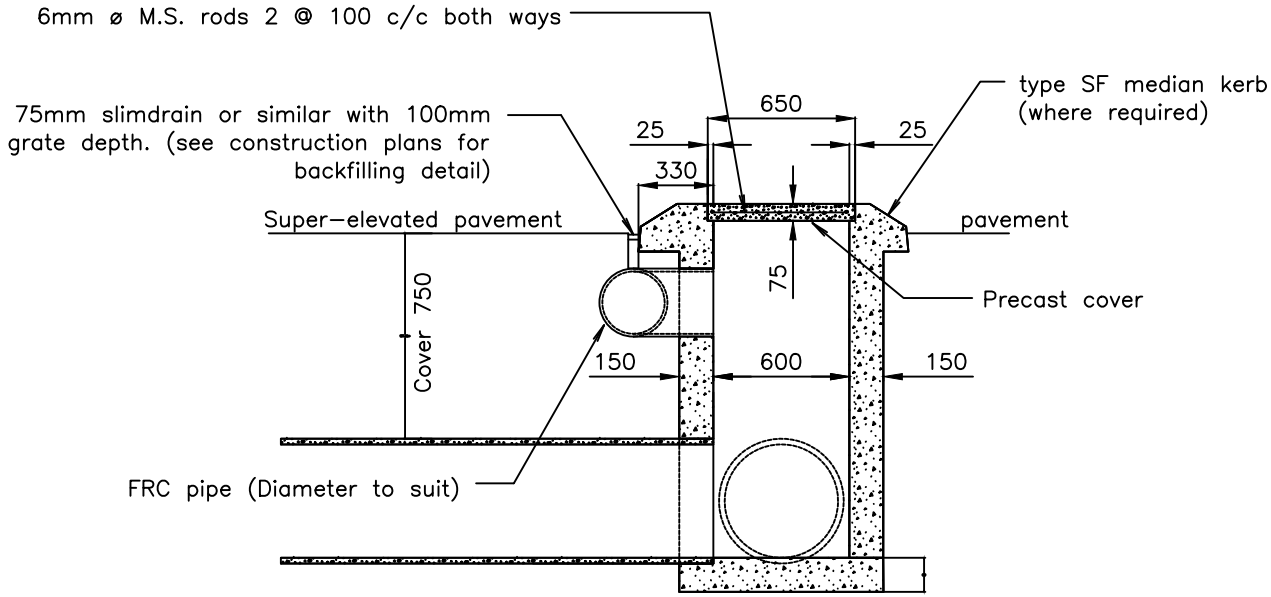
**SD-SW-016**



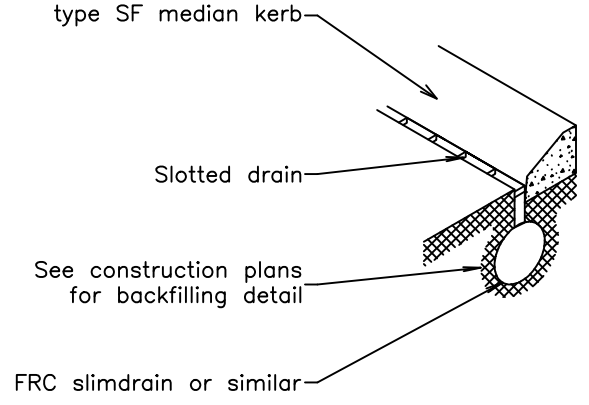
**NOTES:**

1. Compressive strength F'c for cast insitu concrete to be min N32 to AS 3600.
2. All dimensions in millimetres
3. Side walls of all pits deeper than 1500mm are to be reinforced with one layer of SL82 mesh returned 300mm into base
4. Depth of pit not to exceed 3500mm
5. Pits deeper than 1200mm to be fitted with galvanised step irons at 300mm centres. Refer to SD-SW-001
6. All exposed edges to be rounded with 200mm radius
7. Median width as shown is for minimum conditions
8. All reinforcement laps to be 300mm long
9. For use with flexible pavement only

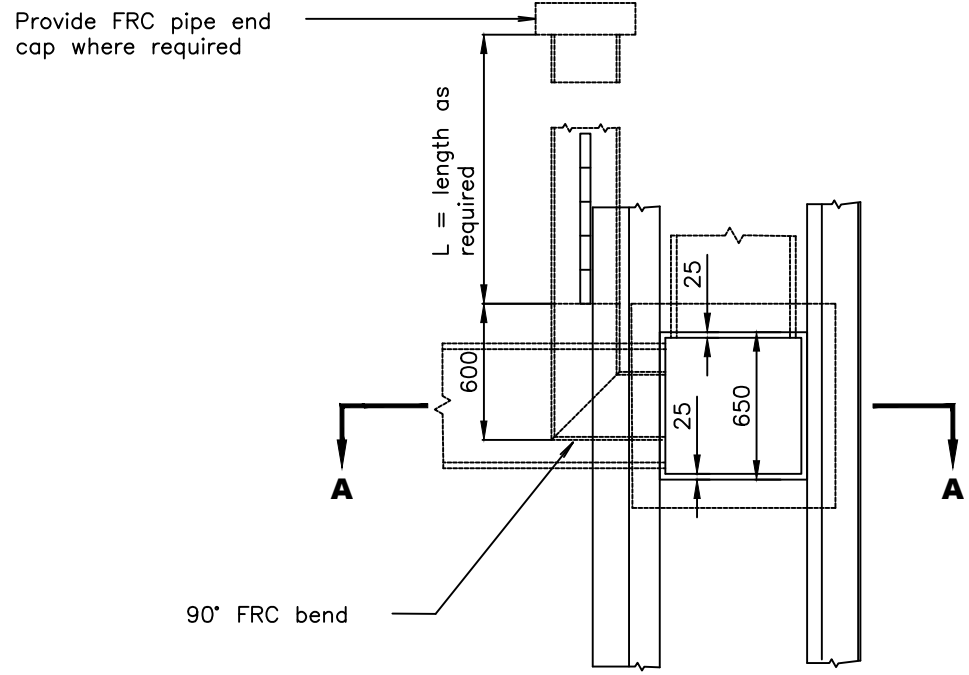
***This plan has been adopted from the plan produced by Transport NSW (RMS), first issued June, 1998. Drawing Number R0220 - 46. REFER TO CURRENT EDITION BEFORE USE.***



**SECTION AA**



**ISOMETRIC VIEW**



**PLAN  
[ Cover removed ]**

NOT TO SCALE

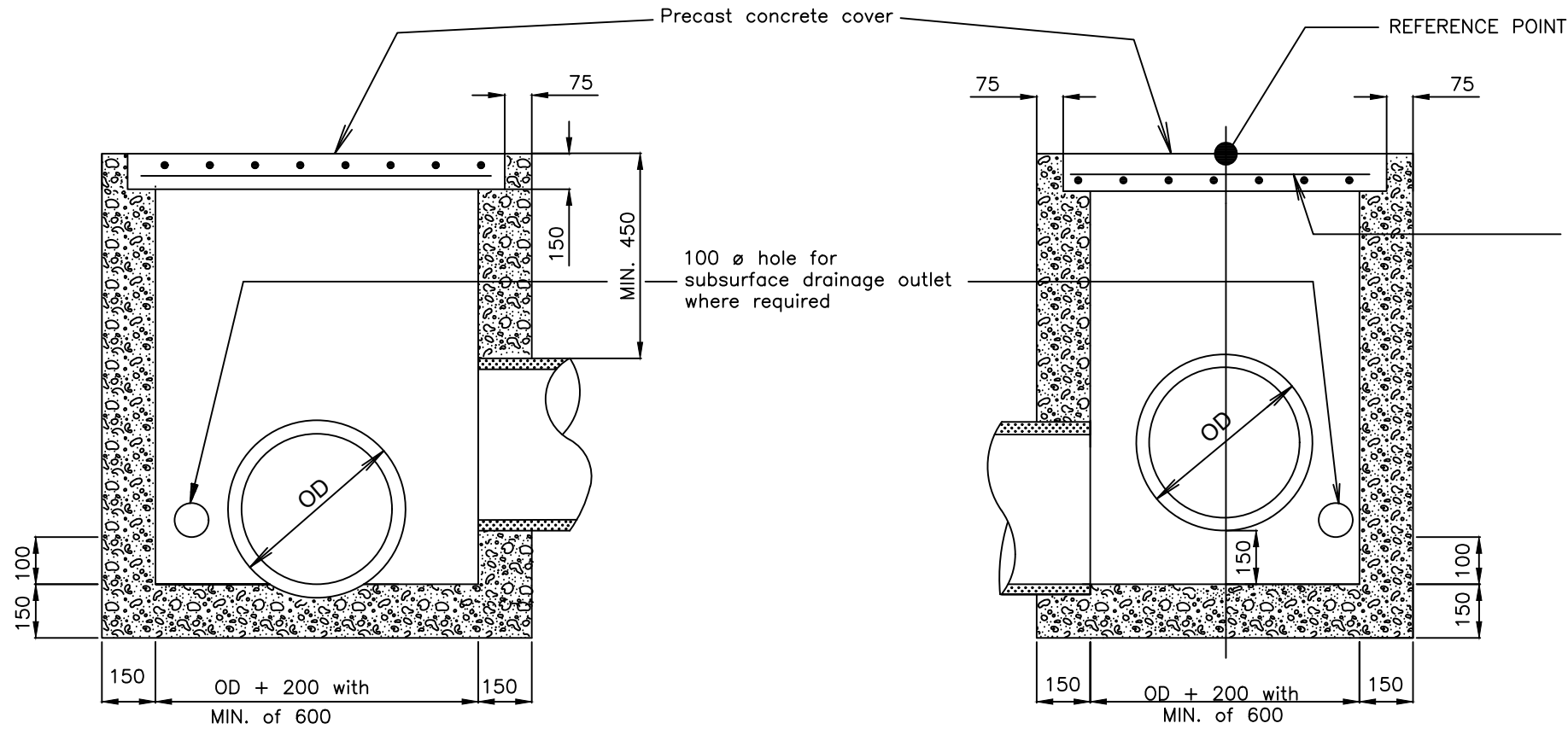
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET

**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505  
 ENGINEERING GUIDELINES

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**CAST INSITU SLIMDRAIN MEDIAN PIT**

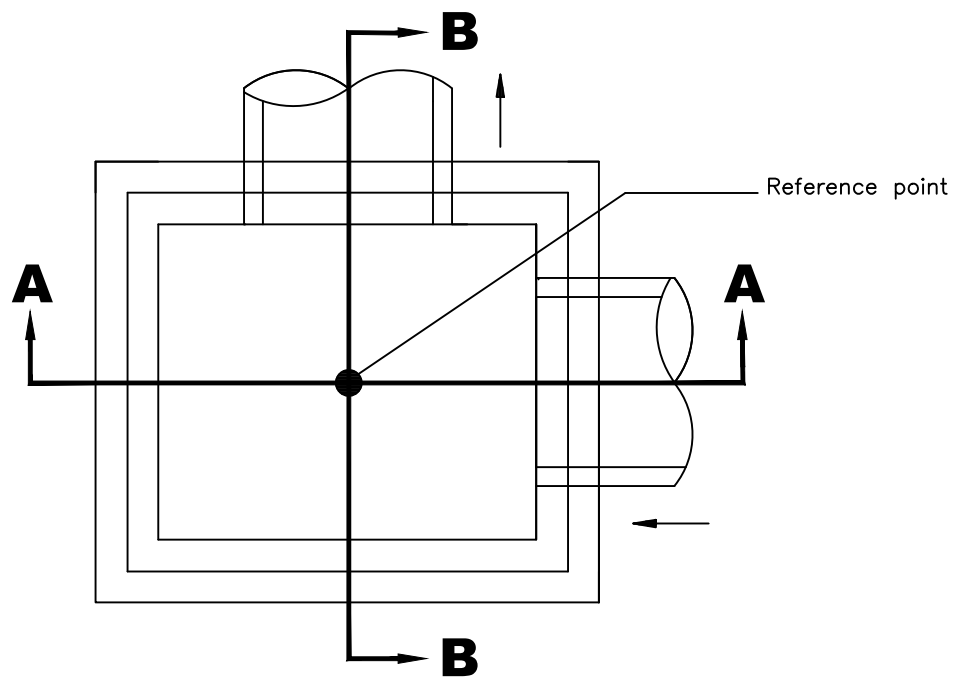
**SD-SW-017**



**SECTION AA**

**SECTION BB**

**ELEVATION**



**PLAN  
(LID REMOVED)**

**NOTES:**

1. Compressive strength F'c for cast insitu concrete to be min N32 to AS 3600
2. All dimensions in millimetres
3. Precast concrete covers to be reinforced with 6 Ø M.S. rods at 100 centres, placed longitudinally and transversely; or F81 mesh
4. Location and level of junction box shown in the drawings refer to this point: ●
5. Side walls of all pits deeper than 1500mm are to be reinforced with one layer of RL1218 mesh returned 300mm into base
6. Depth of pit not to exceed 3500mm
7. Pits deeper than 1200mm to be fitted with galvanised step irons at 300mm centres. See SD-SW-001 All exposed edges to be rounded with 200mm radius
8. At right angle change in pipe direction outlet invert to be 150 below inlet invert
9. All reinforcement laps to be 300mm long
10. Minimum cover of reinforcement shall be 50 unless shown otherwise.
11. Concrete covers must have suitable lifting eyelets or galvanised rods min. 10mm dia.

NOT TO SCALE

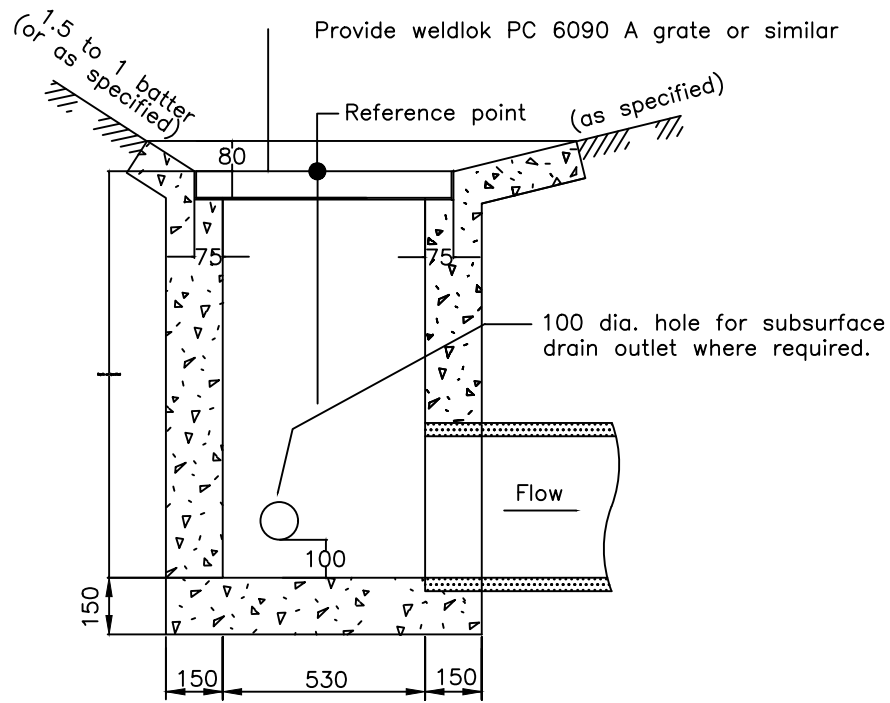
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	AUG 2022	INITIAL ISSUE- IPWEA DRAWING SET (FIXED HATCHING ERROR)


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505  
**ENGINEERING GUIDELINES**

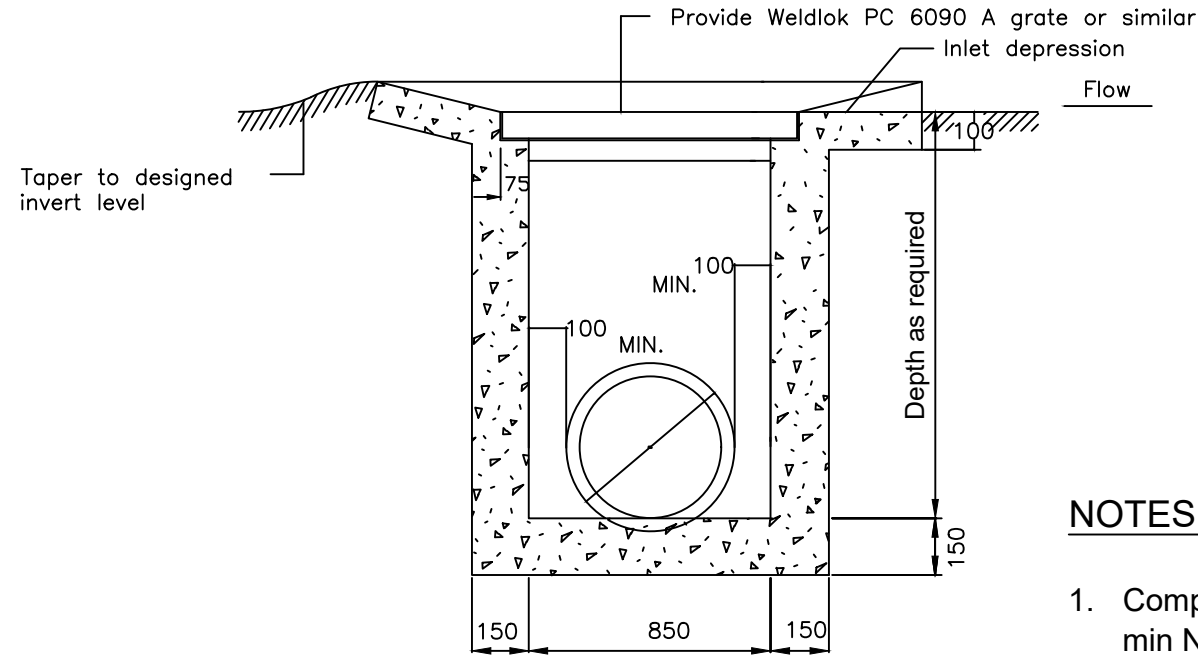
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**STANDARD JUNCTION PIT**

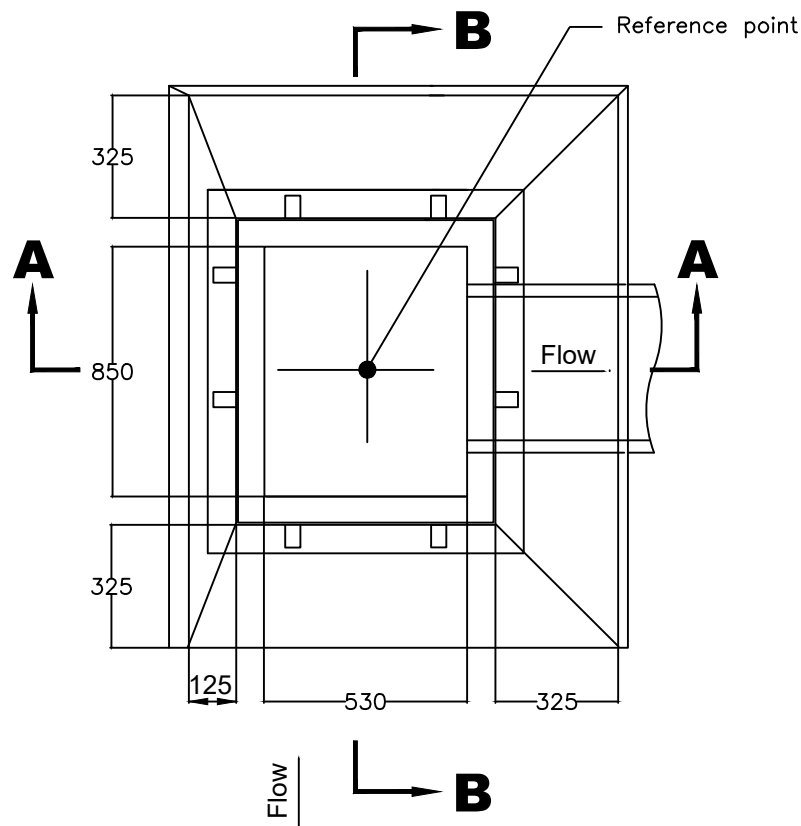
**SD-SW-018**



**SECTION A-A**



**SECTION B-B**



**PLAN  
(GRATE REMOVED)**

**NOTES:**

1. Compressive strength F'c for cast insitu concrete to be min N32 to AS 3600
2. All dimensions in millimetres
3. Where pit is located in a sag, inlet depressions are to be provided on both sides of the pit
4. Location and level of grated surface inlet pit shown in the drawings refer to this point: ●
5. Side walls of all pits deeper than 1500mm are to be reinforced with one layer of SL82 mesh returned 300mm into base
6. Depth of pit not to exceed 3500mm
7. Pits deeper than 1200mm to be fitted with galvanised step irons at 300mm centres. See SD-SW-001
8. All exposed edges to be rounded with 200mm radius
9. All reinforcement laps to be 300mm long
10. Minimum cover of reinforcement shall be 50 unless shown otherwise

NOT TO SCALE

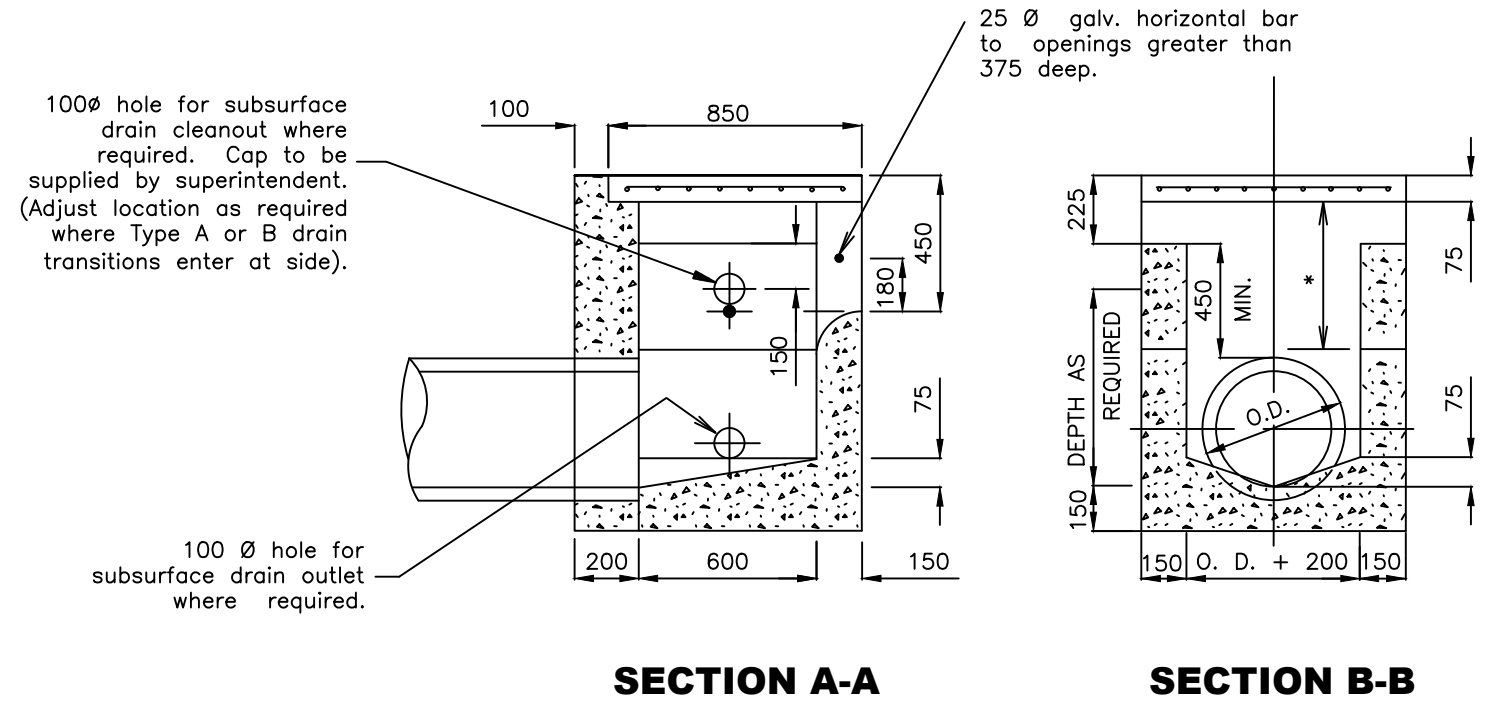
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505  
**ENGINEERING GUIDELINES**

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

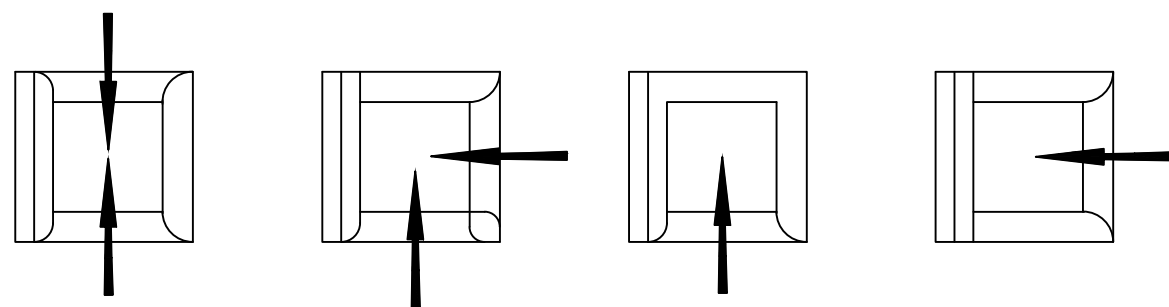
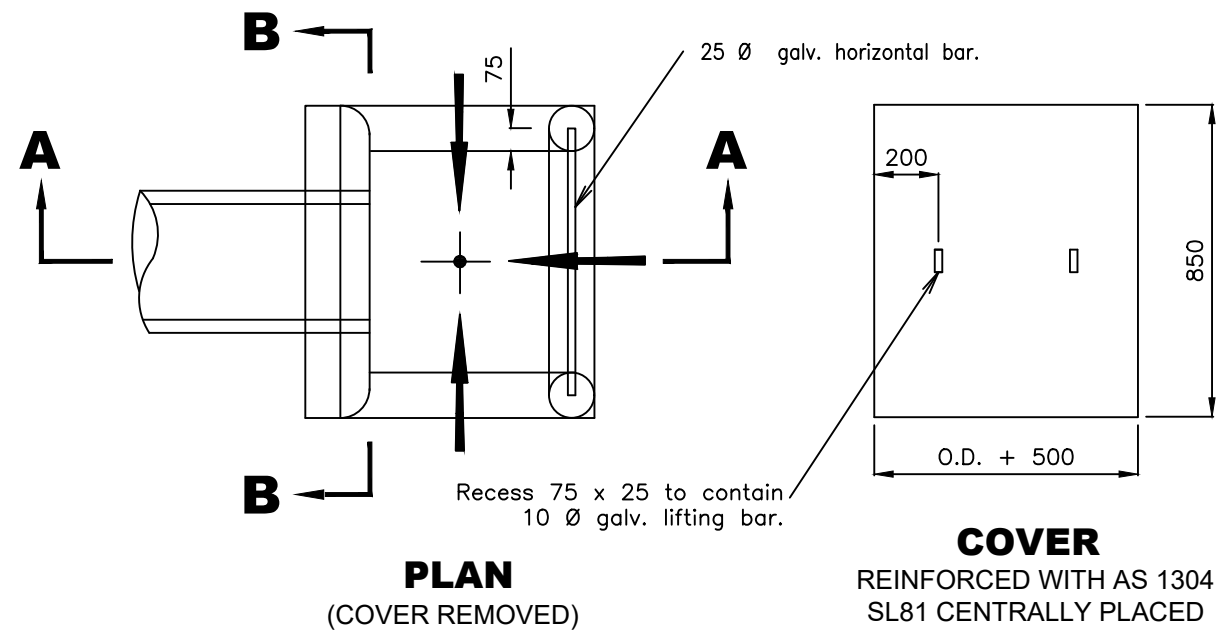
**CAST INSITU GRATED SURFACE INLET  
FOR CATCH DRAINS & TABLE DRAINS**

**SD-SW-019**



**NOTES:**

1. Compressive strength F'c for cast insitu concrete to be min N32 to AS 3600.
2. All dimensions in millimetres unless otherwise shown.
3. Location and level of surface inlet pit shown in the drawings refer to this point : ●
4. Side walls of all pits deeper than 1500mm are to be reinforced with one layer of SL82 mesh returned 300mm into base.
5. Depth of pit not to exceed 3500mm.
6. All exposed edges to be rounded with 200mm radius.
7. All reinforcement laps to be 300mm long.
8. Minimum cover of reinforcement shall be 50 unless shown otherwise.
9. Where pit is deeper than 1200mm provide step Irons. Refer drawing SD-SW-001 for Step Iron details.



**TWO INLETS**                      **ONE INLET**

**DETAIL OF ALTERNATE INLET ARRANGEMENT**

NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK**  
 CITY COUNCIL  
 ENGINEERING GUIDELINES

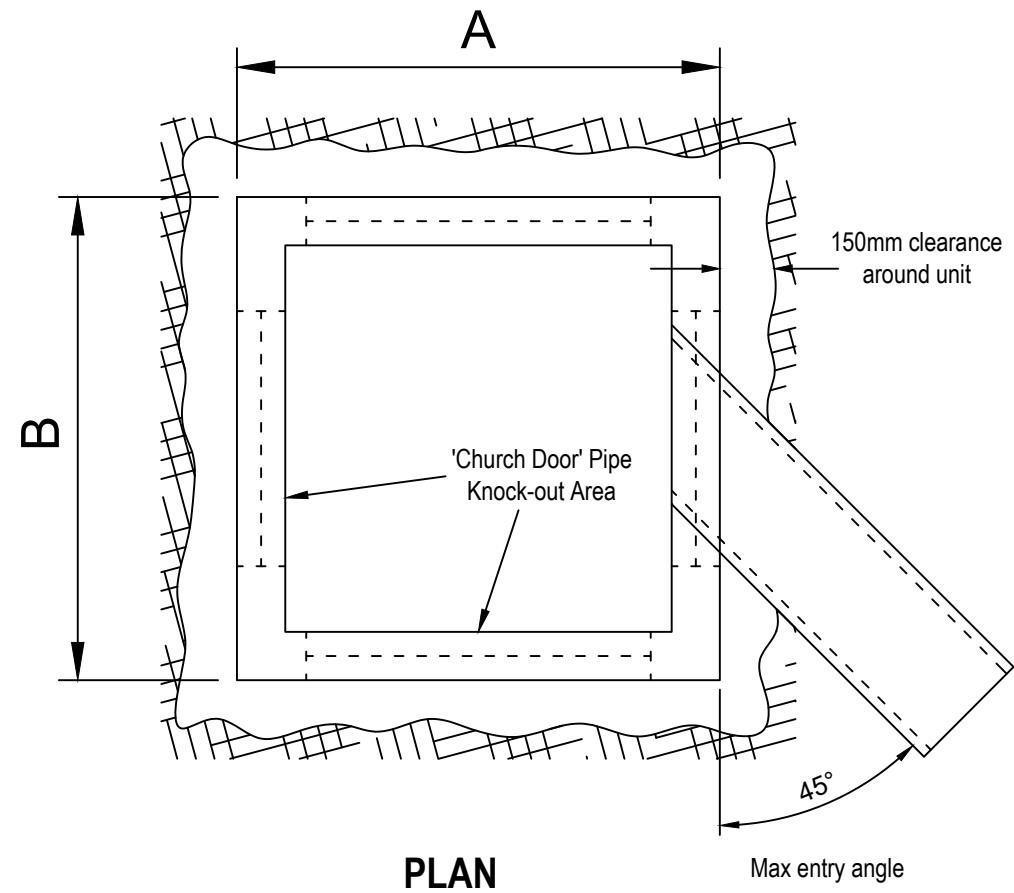
P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

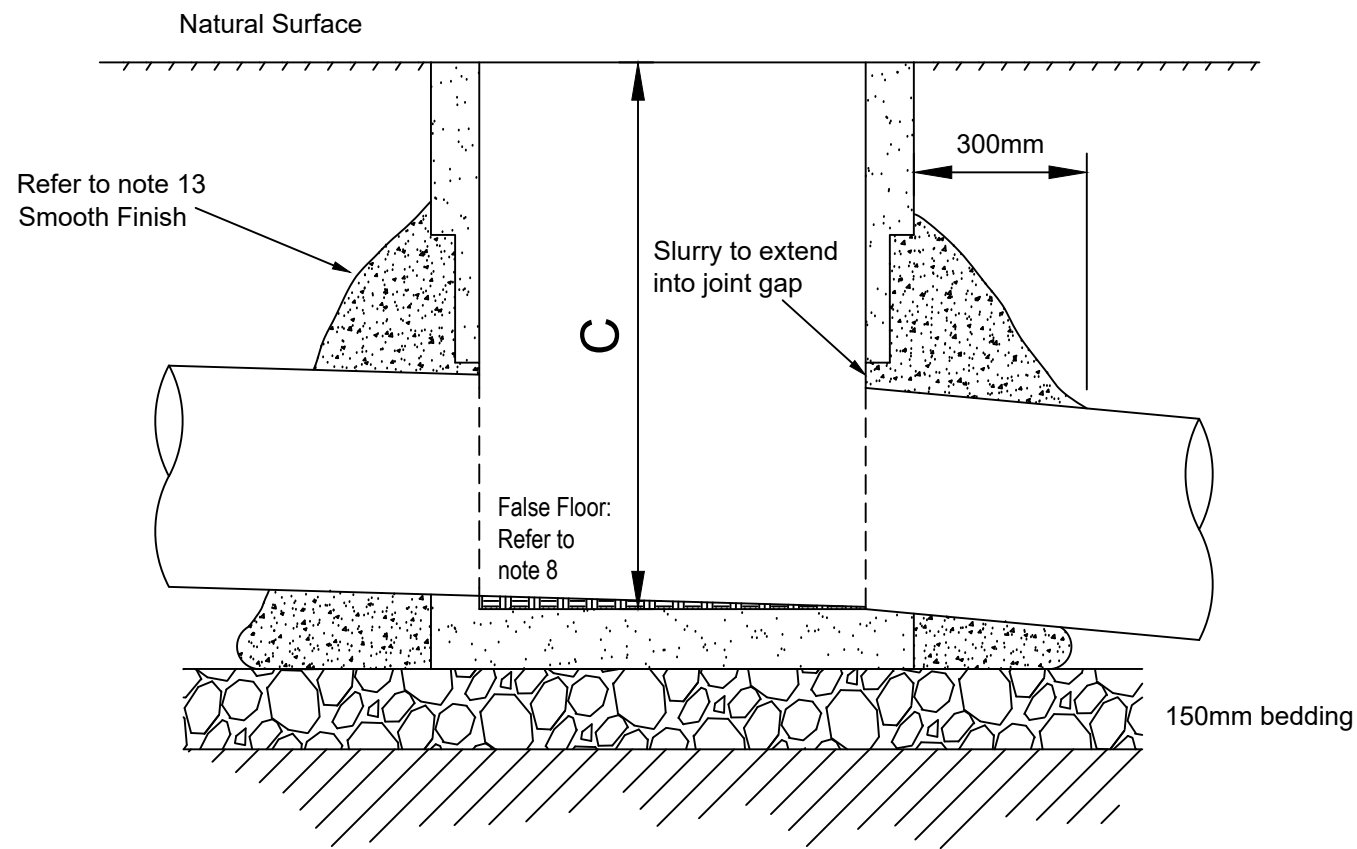
**SURFACE INLET PIT**

**SD-SW-020**





**PLAN**



**ELEVATION**

**General**

1. Precast concrete stormwater pits that are damaged with unacceptable defects shall be discarded.
2. Precast unit shall be finished design surface levels.

**Excavation**

3. All excavation must be 150mm clear of the precast unit.
4. A 150mm layer of compacted granular bedding material shall be provided under the unit.

**Assembly**

5. DO NOT oversize the knockout hole. Only the required size hole to accommodate the outside pipe diameter should be removed.
6. Nothing outside the prescribed knockout section is to be removed.
7. Pipes shall not enter the pit.
8. Pipes shall sit flush with the knockout ledge. Where the base of the pit is lower than pipe invert a false floor shall be pored. The floor shall be graded between upstream and downstream pipe inverts with a smooth finish.
9. For connection to subsoil drainage refer to SD-SW-006. All subsoil drainage connections shall only be through the knockout section and then rendered in accordance with note 12.
10. The knockout sections are designed for pipes entering at 90°. Pipes entering at skewed angles shall be contained within the knockout area. The knockout area width shall be the pipe horizontal skew dimensions.
11. The angle of entry shall be no less than 45 degrees. See table for maximum pipe size.
12. The jointing surface must be clean.
13. Pipe entry joints are to be rendered with an epoxy mortar to be smooth and free from intrusions and to ensure a watertight joint.
14. Concrete backfill (3:1 Sand /cement mortar) shall surround the pipe inlet and outlet to form a bell-housing effect with a smooth finish
15. Step irons at 300 centres required in pits greater than 1200mm deep. Unused step iron holes to be rendered. Refer drawing SD-SW-001 for Step Iron details.


**Backfilling**

16. Backfilling around external faces of the precast unit to be selected material, in accordance with AUS-SPEC 1351 - Stormwater drainage (Construction), added in 150mm layers and compacted simultaneously around the structure to avoid differential loading.

Max pipe size for 45° entry angle	
A x B x C	Pipe
450 x 450 x 450	None
600 x 600 x 600	225mm Ø
600 x 600 x 750	225mm Ø
900 x 750 x 600	225mm Ø
900 x 900 x 600	225mm Ø
900 x 750 x 900	375mm Ø
900 x 900 x 900	375mm Ø
900 x 900 x 1200	375mm Ø
1200 x 1200 x 1200	525mm Ø

NOT TO SCALE

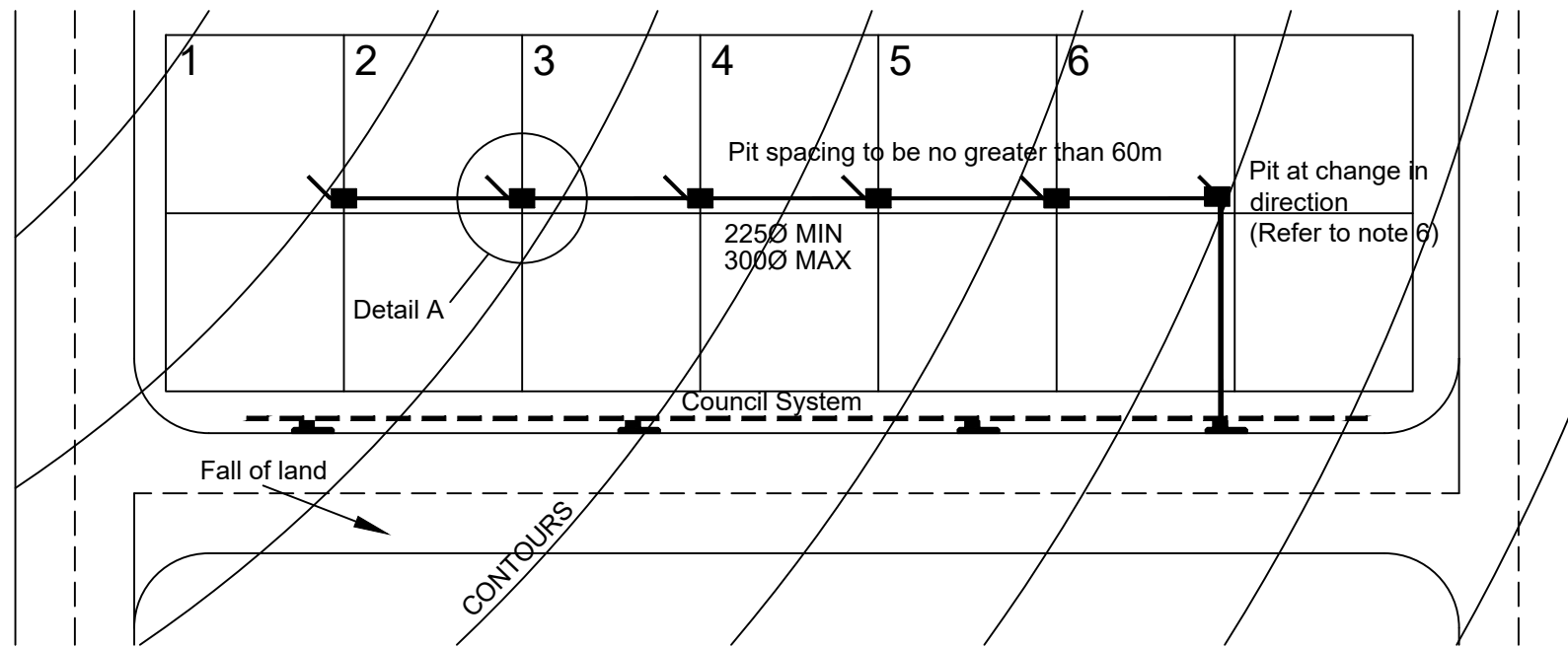
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505  
**ENGINEERING GUIDELINES**

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**PRECAST PIT INSTALLATION**

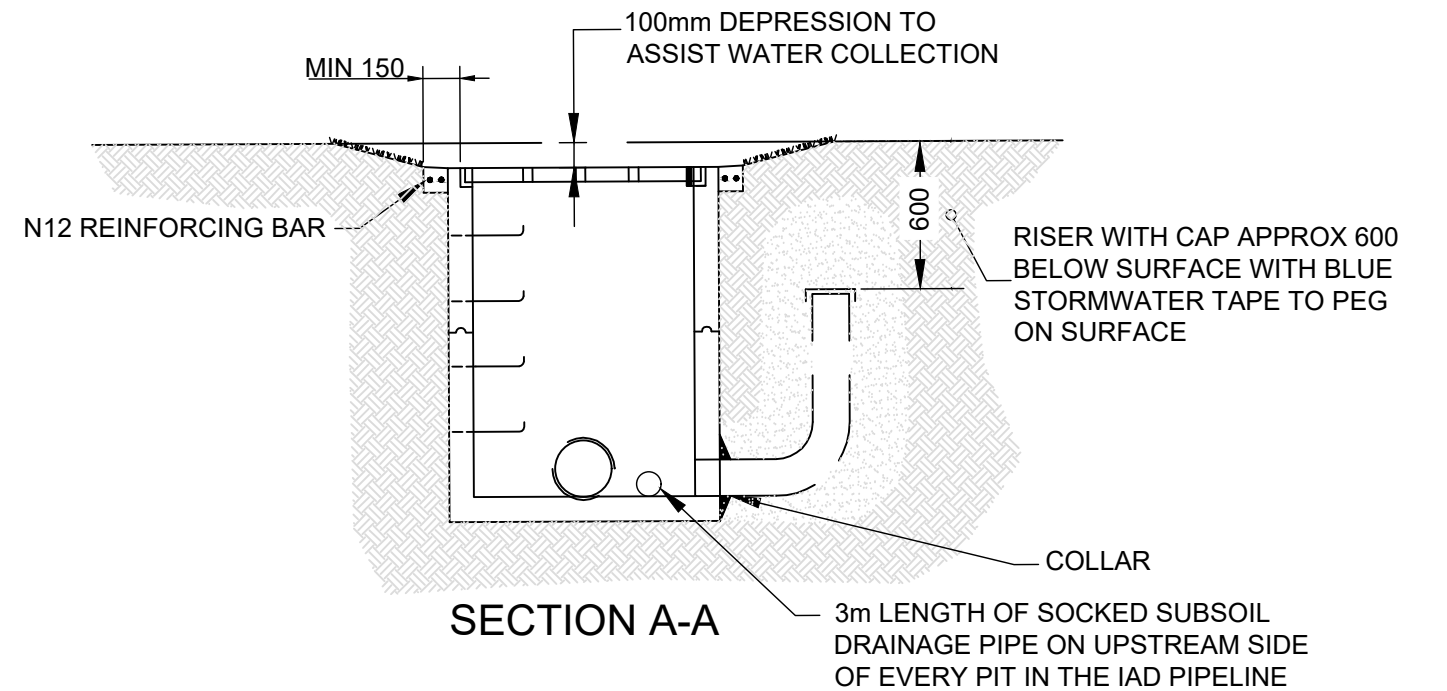
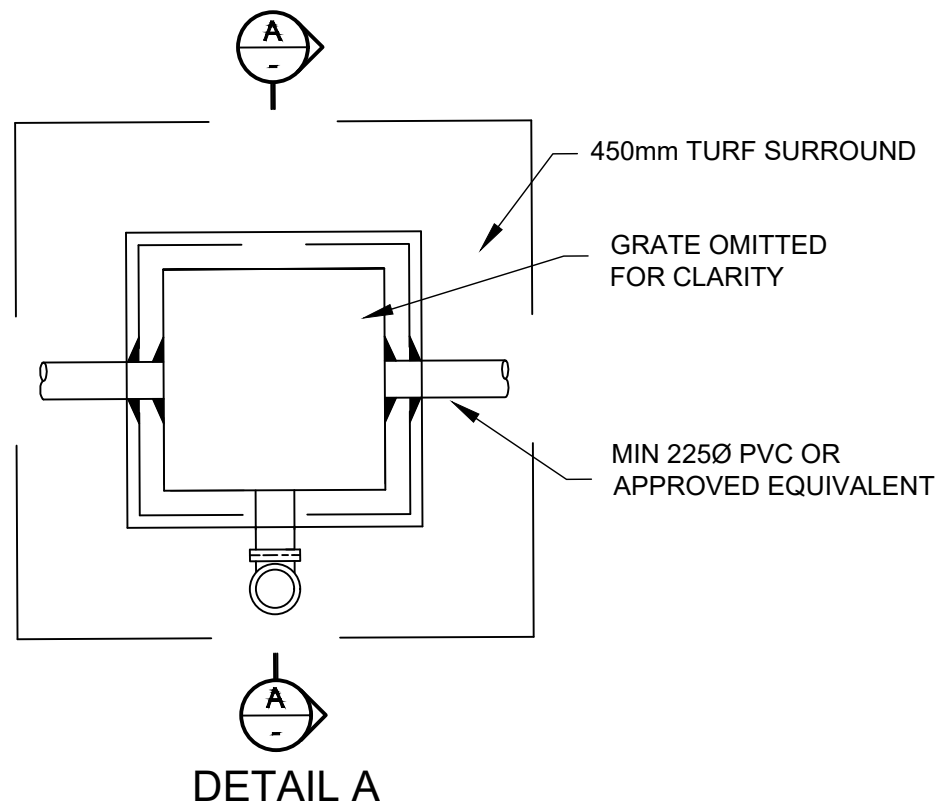
**SD-SW-021**



PLAN

### NOTES

1. All dimensions are in millimetres.
2. Locate inspection openings in accordance with design drawings. All connection types shown in this drawing are applicable to PVC (RRJ) pipes unless otherwise shown.
3. Property connection riser is part of the private stormwater service unless specified otherwise.
4. The maximum number of allotments connected to any interallotment system shall not foul 300Ø Max pipe size
5. Pit shall be in accordance with with IPWEA standard drawing SD-SW-021 (Min 600 x 600 internal dimensions)
6. Pits shall be constructed at all lot connections and changes in direction. The distance between pits shall be no greater than 60m



NOT TO SCALE

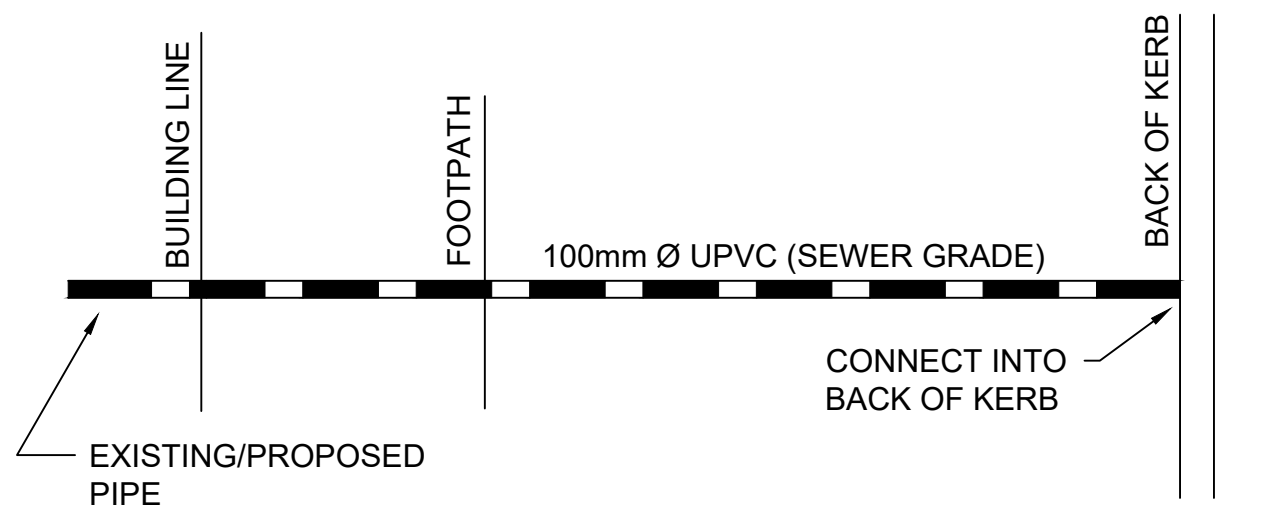
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET

**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152 CESSNOCK  
 ENGINEERING GUIDELINES  
 PHONE 4993 4100  
 FAX 4993 2505

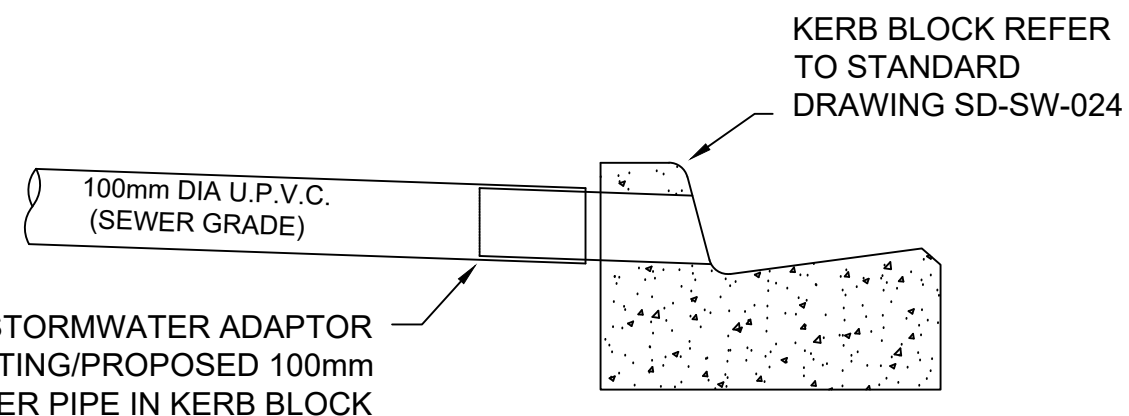
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

## INTERALLOTMENT PROPERTY DRAIN CONNECTIONS

# SD-SW-022

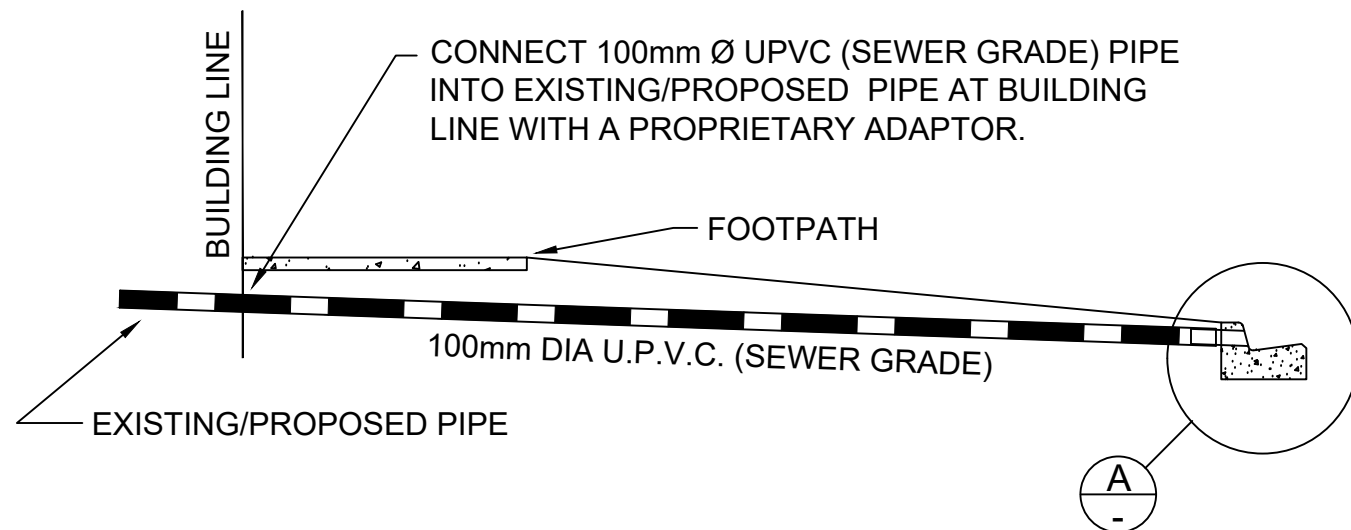


**STANDARD PLAN**



ADOPT 100mm TO 90mm STORMWATER ADAPTOR WHEN CONNECTING TO EXISTING/PROPOSED 100mm Ø UPVC STORMWATER PIPE IN KERB BLOCK

DETAIL A



**STANDARD SECTION**

NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET

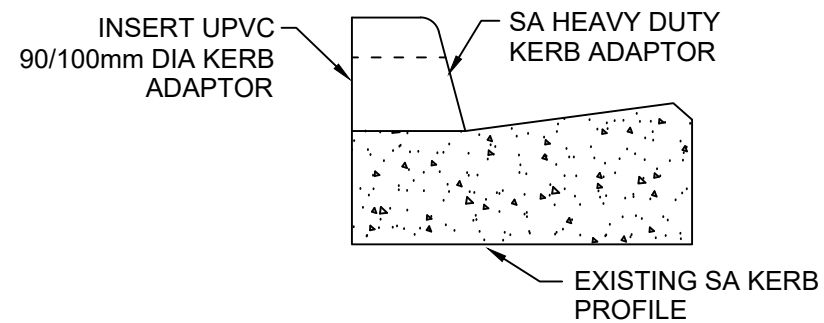

**CESSNOCK**  
 CITY COUNCIL  
 ENGINEERING GUIDELINES

P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505

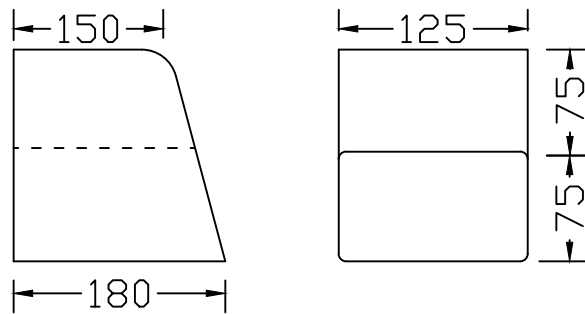
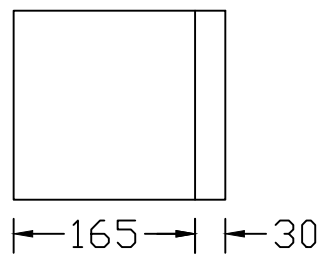
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**STORMWATER CONNECTION TO KERB**

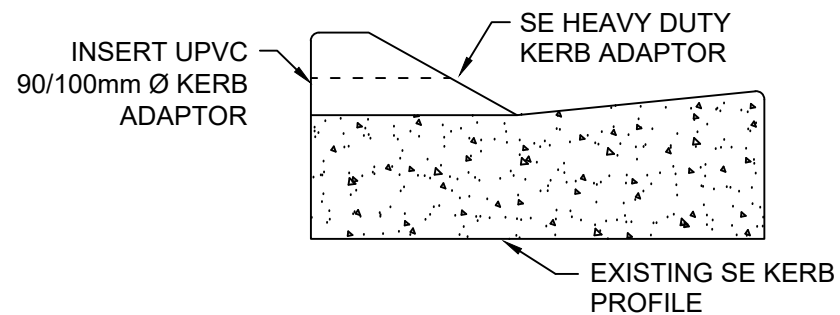
**SD-SW-023**



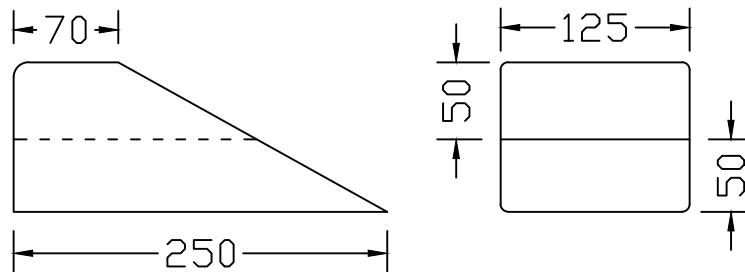
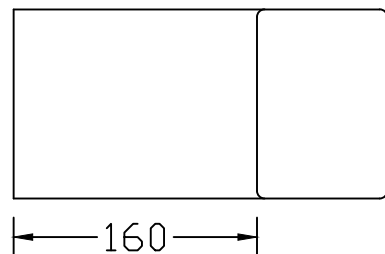
**SA KERB WITH HEAVY DUTY KERB ADAPTOR SECTIONAL VIEW**



**SA HEAVY DUTY KERB ADAPTOR**



**SE KERB WITH HEAVY DUTY KERB ADAPTOR SECTIONAL VIEW**



**SE HEAVY DUTY KERB ADAPTOR**

**NOTE:**

1. All heavy duty kerb adaptors are to be constructed from 125x75x3mm mild steel
2. All mild steel must be hot dipped galvanised before installation
3. The heavy duty kerb adaptors require a UPVC kerb adaptor to be inserted inside
4. Both kerb adaptors must be grouted in place to stop movement.

NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET

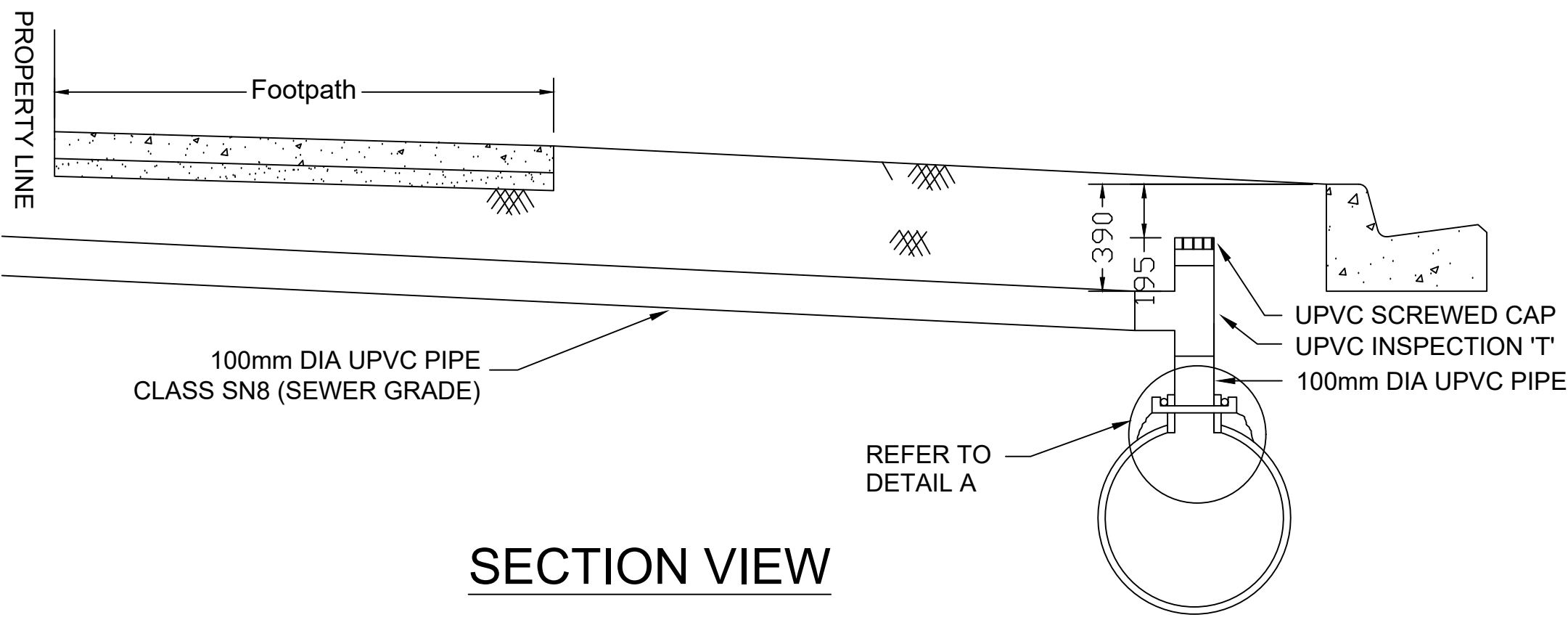

**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152 CESSNOCK  
 ENGINEERING GUIDELINES  
 PHONE 4993 4100 FAX 4993 2505

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

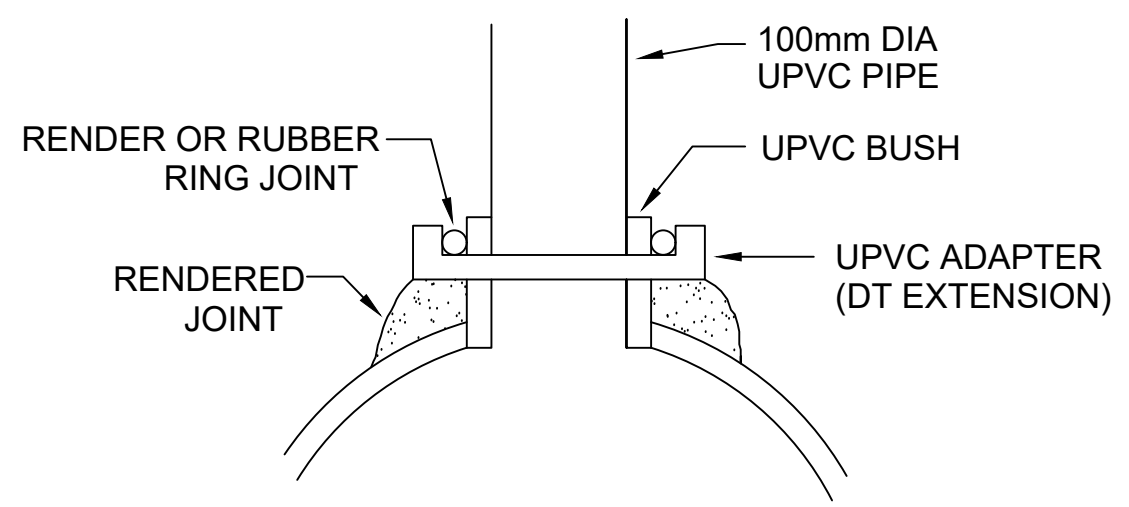
**HEAVY DUTY KERB ADAPTORS**

**SD-SW-024**





**SECTION VIEW**




**DETAIL A**

**NOTE:**

1. All pipes and fittings are to be of class SN8 UPVC
2. All solvent adhered joints must be completed as per the manufactures recommended instructions
3. The property storm water drain is to extend 500mm into the property and must be taped or have the end capped property storm water drain is to be installed 1.0 metres from the low corner of the lot unless services interfere
4. Where the footpath is not installed a peg is to be inserted at the property storm water drain end
5. The footpath and back of kerb are to be stamped with 'SW' to indicate the line of the property storm water drain

NOT TO SCALE

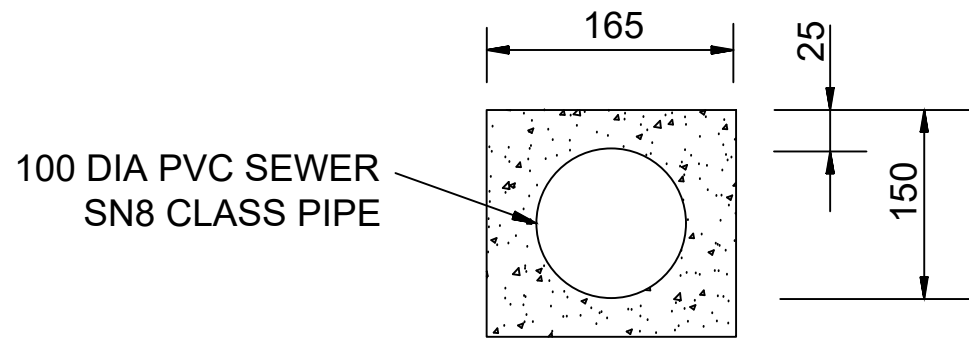
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505  
**ENGINEERING GUIDELINES**

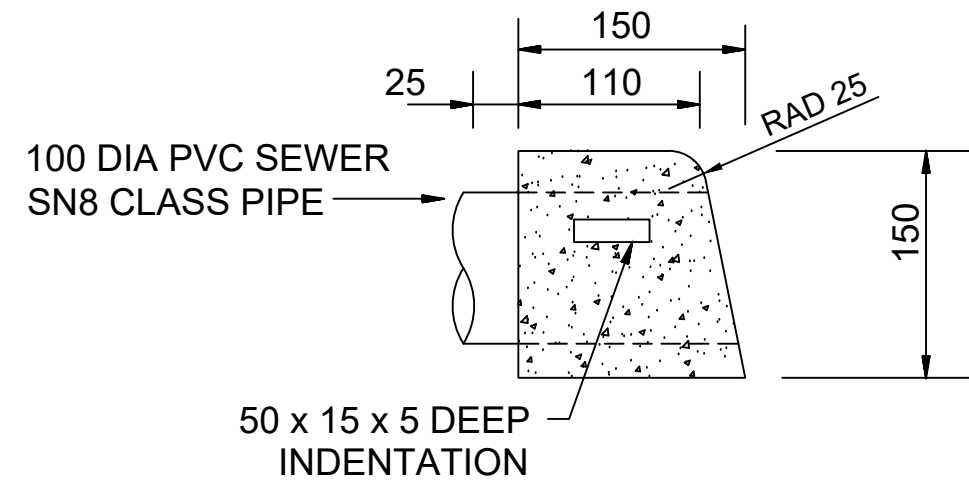
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**PROPERTY DRAIN CONNECTION  
DETAIL**

**SD-SW-025**



FRONT ELEVATION



SIDE ELEVATION

PROVIDE CONSTRUCTION JOINTS  
IN KERB & CHANNEL ADJACENT TO  
ALL HOUSE STORMWATER INLETS

NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK**  
 CITY COUNCIL  
 ENGINEERING GUIDELINES

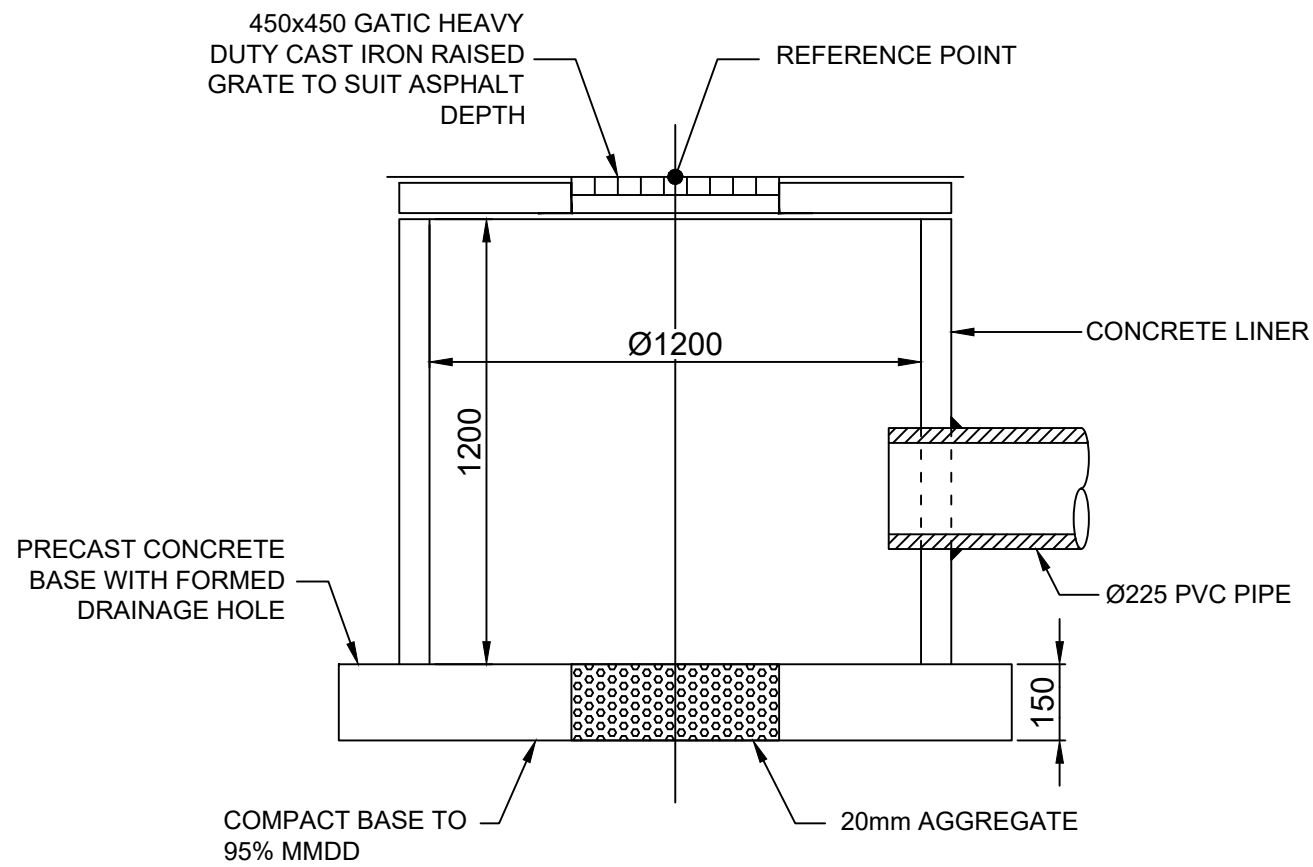
P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

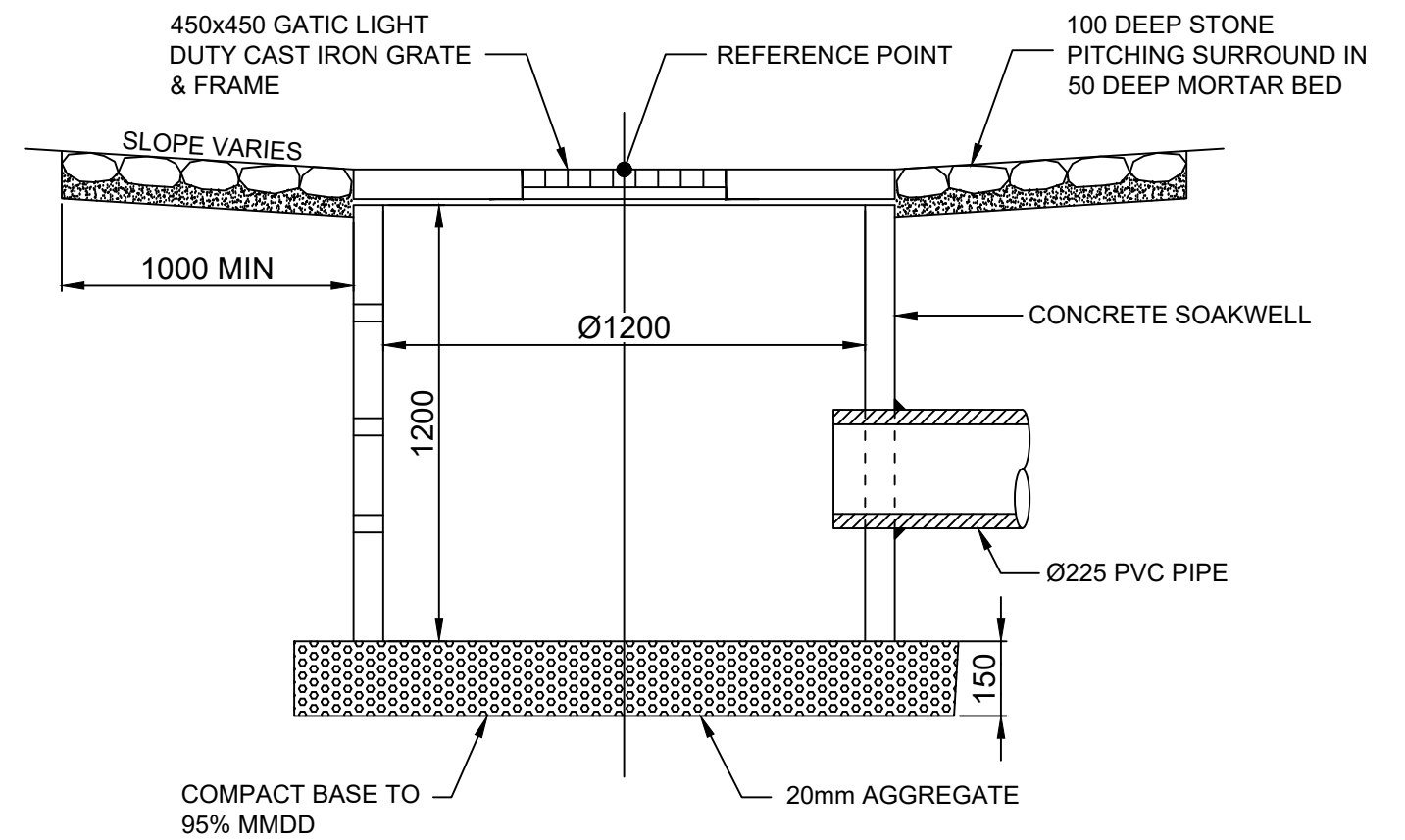
PRECAST KERB DRAINAGE BLOCK

SD-SW-026

1  
REV.




**GRATED PIT DETAIL**



**SOAKWELL DETAIL**

NOT TO SCALE

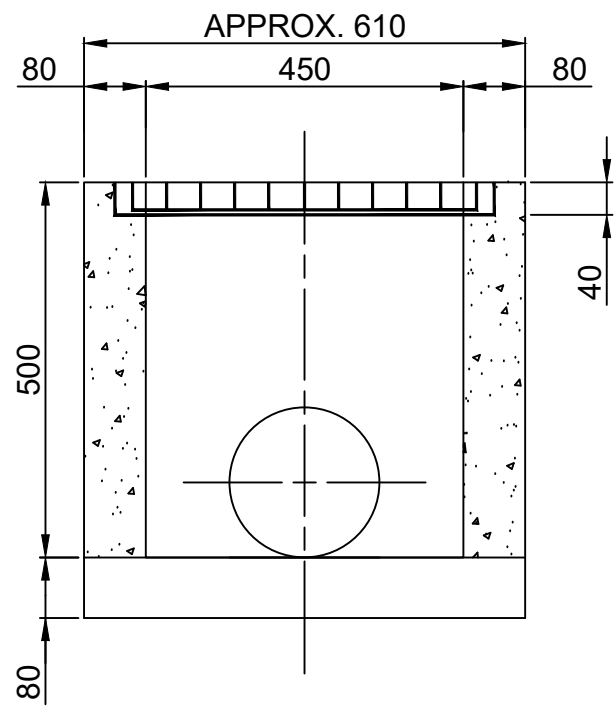
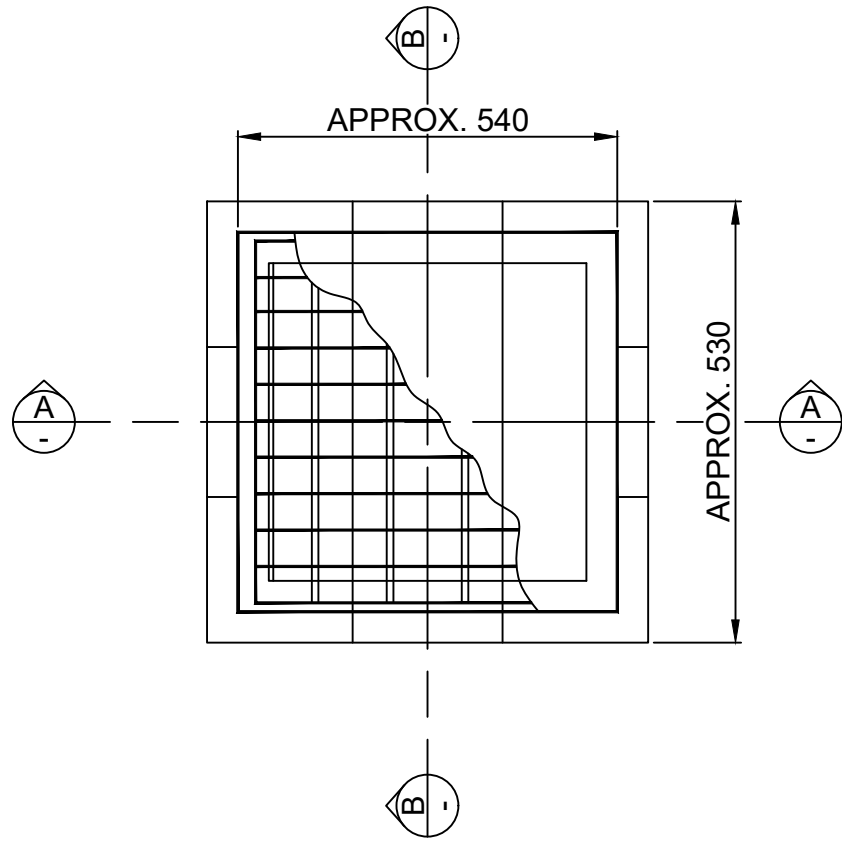
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 ENGINEERING GUIDELINES FAX 4993 2505

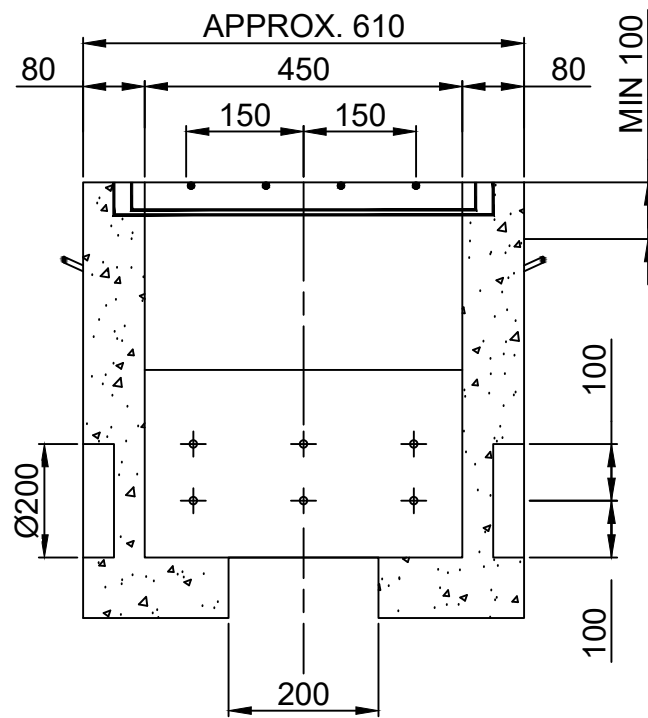
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

SOAK WELL PIT

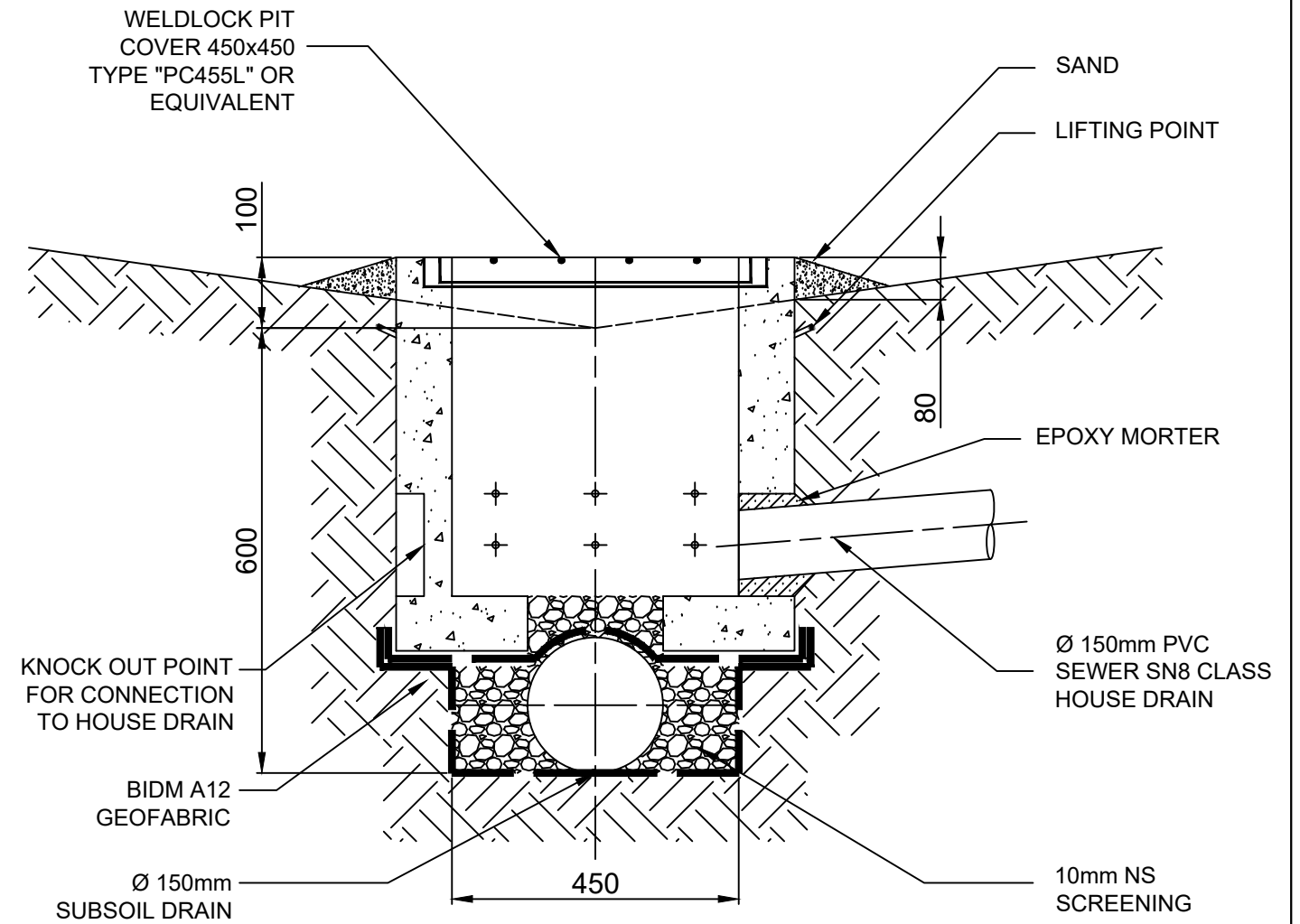
SD-SW-027



SECTION A-A




SECTION B-B



TYPICAL INSTALLATION  
DETAIL

NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505  
**ENGINEERING GUIDELINES**

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

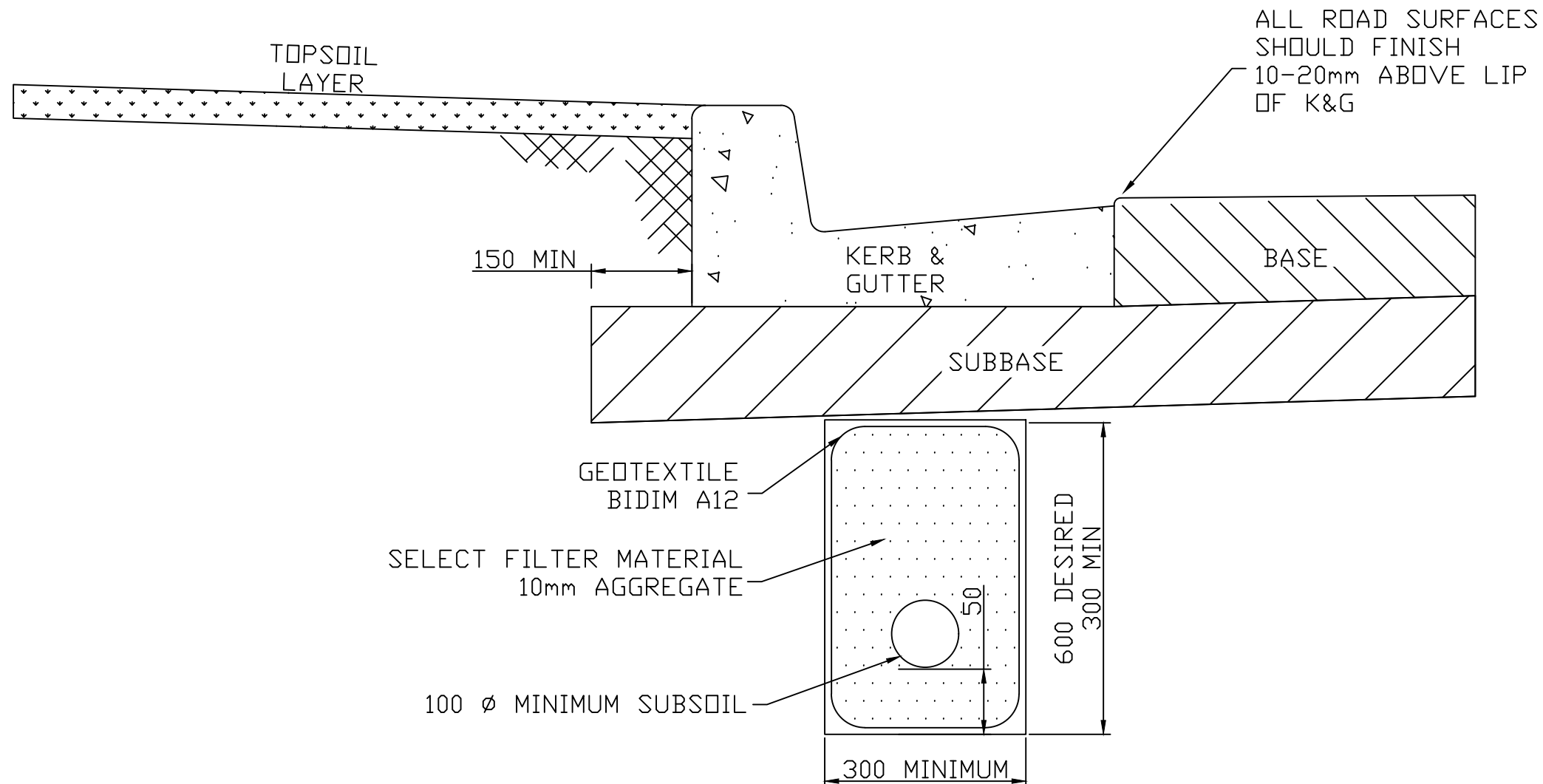
HOUSE DRAIN PIT

SD-SW-028




**NOTES:**

1. Construction shall be in accordance with Aus-Spec 1171 - Subsurface drainage and 1172 - Subsoil and formation drains
2. Provide flushing points at max 50m centres and outlets at max 100m centres
3. Select filter material shall meet the requirements of Type A filter material, Aus-Spec 1171 - Subsurface drainage
4. All filter material shall be geotextile wrapped, min 140 g/m<sup>2</sup> non woven geotextile to AS 3706
5. Subsoil drainage pipe shall be slotted UPVC or perforated, ribbed HDPE to AS 2439.1
6. Minimum longitudinal grades for pipes shall be: ribbed HDPE pipe - 1.5%, slotted UPVC pipe - 1%, 450mm strip drain - 0.5%
7. UPVC pipe and fittings shall be min Class 12
8. Road crossings to be Sewer UPVC Pipe SN8 CLASS
9. Refer to SD-SW-006 for further details.



NOT TO SCALE

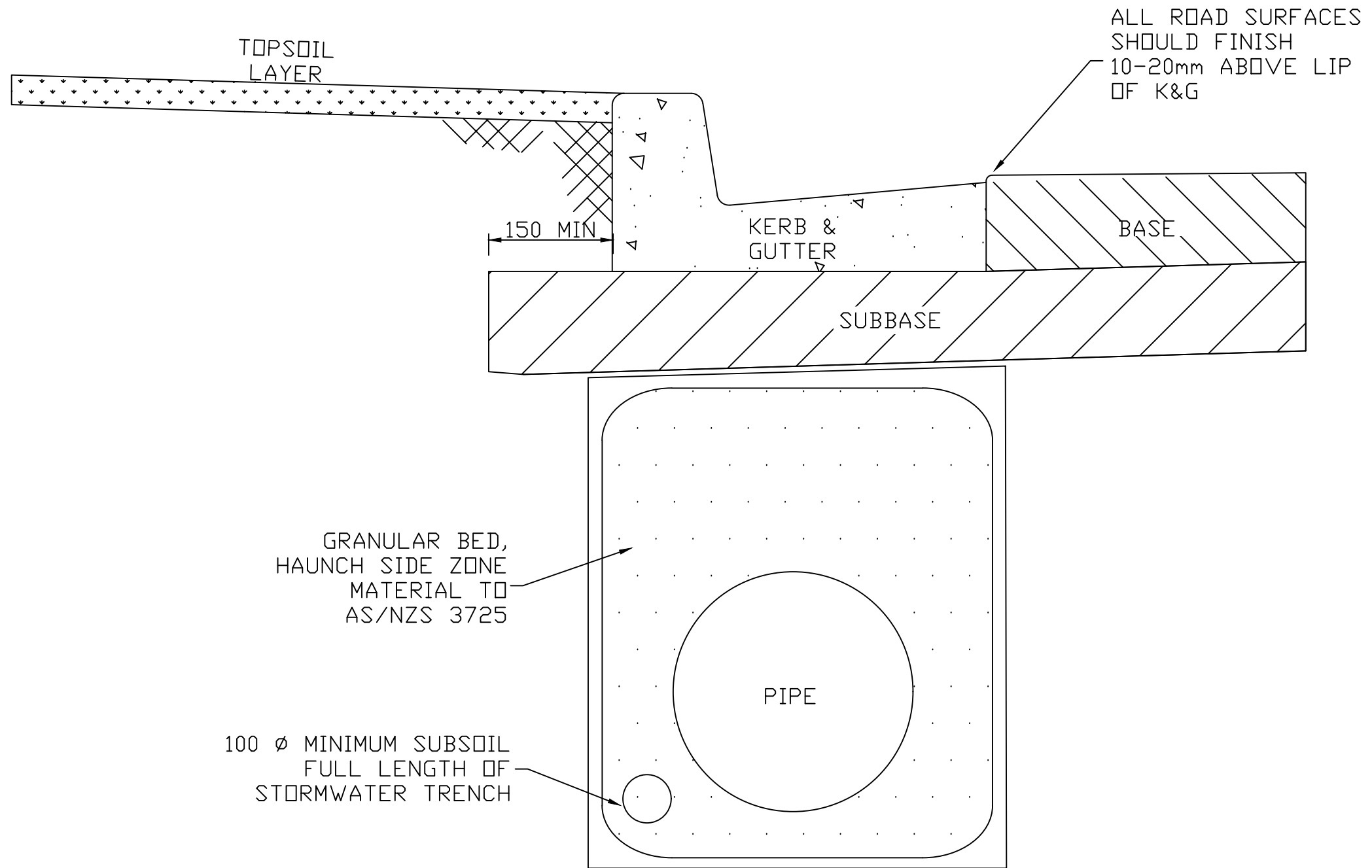
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152 CESSNOCK  
 ENGINEERING GUIDELINES  
 PHONE 4993 4100 FAX 4993 2505

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.


**SUB-SURFACE DRAINAGE  
TYPICAL SECTION**

**SD-SW-029A**



NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- ADDITION TO IPWEA DRAWING SET


**CESSNOCK**  
 CITY COUNCIL  
 ENGINEERING GUIDELINES

P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

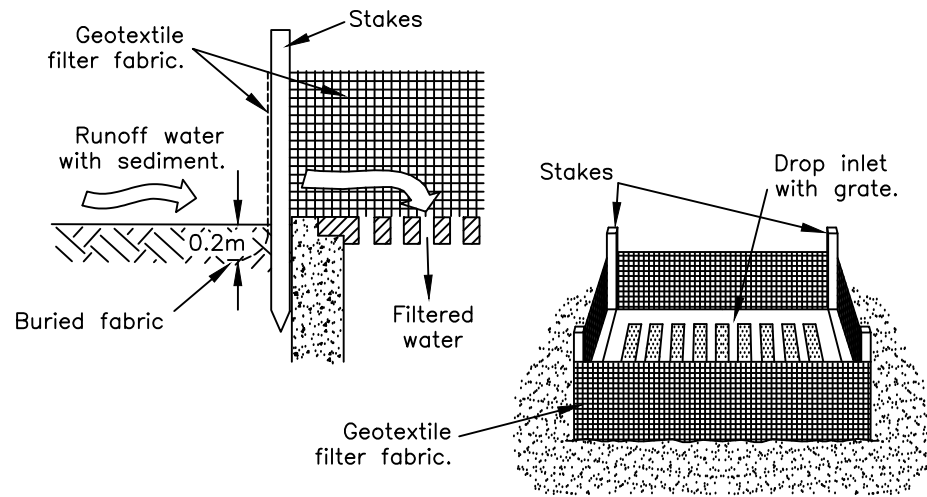
**STORMWATER TRENCH  
TYPICAL SECTION**

**SD-SW-029B**

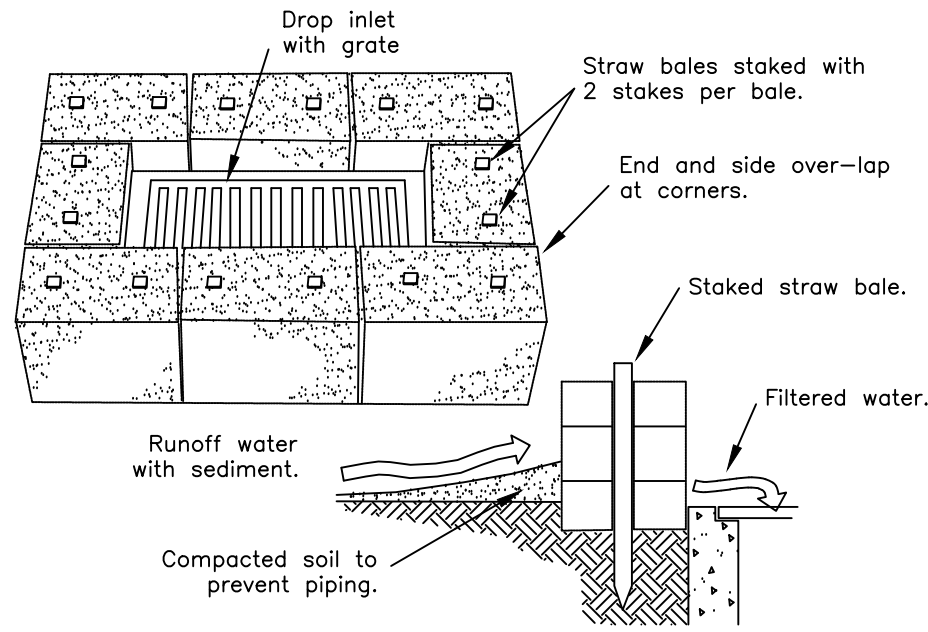
1
REV.

**NOTES:**

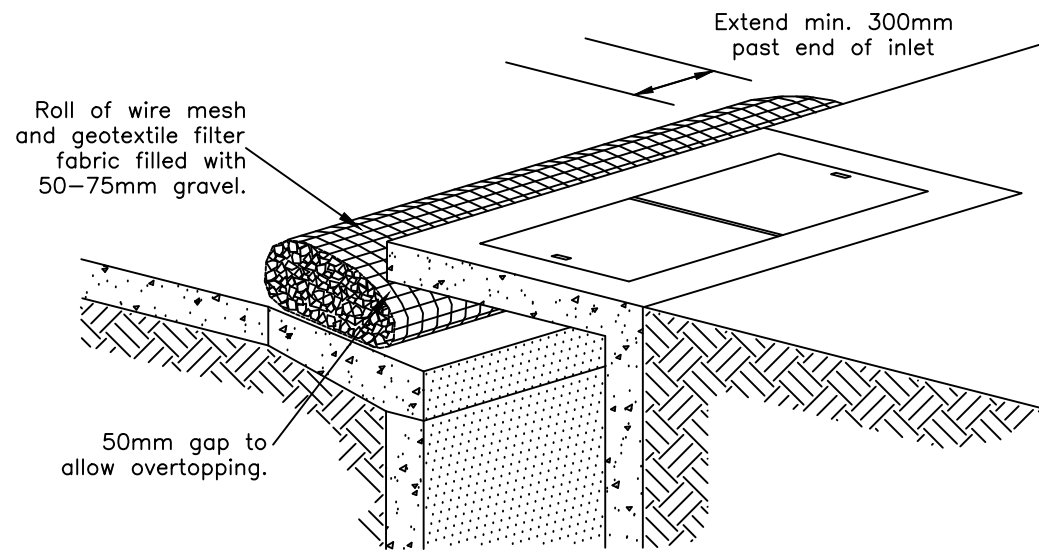
1. All works are to be in accordance with Landcom's Managing Urban Stormwater: Soils & Construction publication (the Blue Book)
2. Install traps in accordance with drawing prior to commencing construction
3. Install filter fabric instead of strawbales in areas accessible to stock.
4. Remove trapped sediments from site prior to removing sediment trap
5. Filter fabric shall be min 14g/m<sup>2</sup> nonwoven geotextile supported on wire fence or an approved woven silt stop fence
6. Provide gap between Sediment Trap & Kerb Inlet
7. Installations to be in accordance with approved erosion control plan



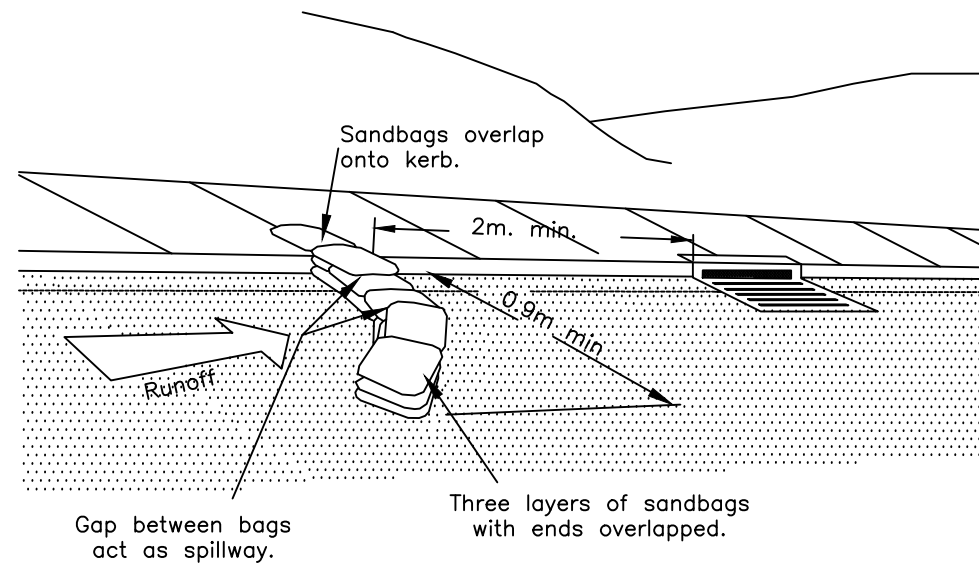
**Geotextile Filter Fabric Drop Inlet Sediment Trap.**



**Straw Bale Drop Inlet Sediment Trap.**



**Portable Gravel Kerb Inlet Sediment Trap**



**Sandbag Kerb Inlet Sediment Trap.**

**TYPICAL SEDIMENT CONTROL EXAMPLES**

NOT TO SCALE

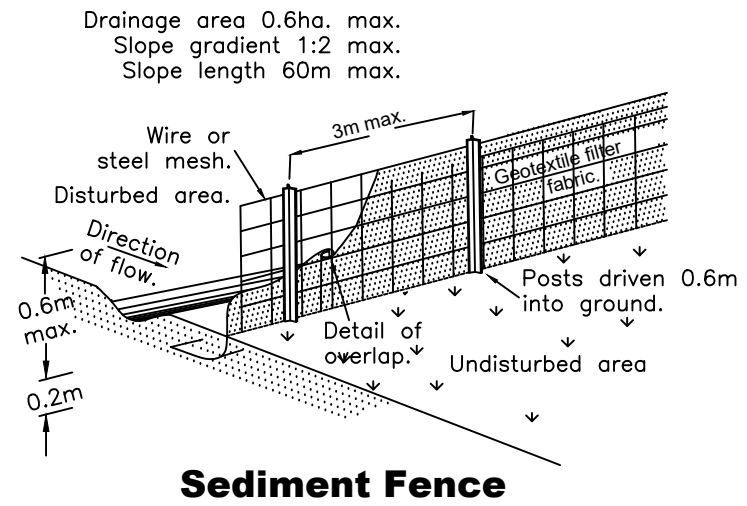
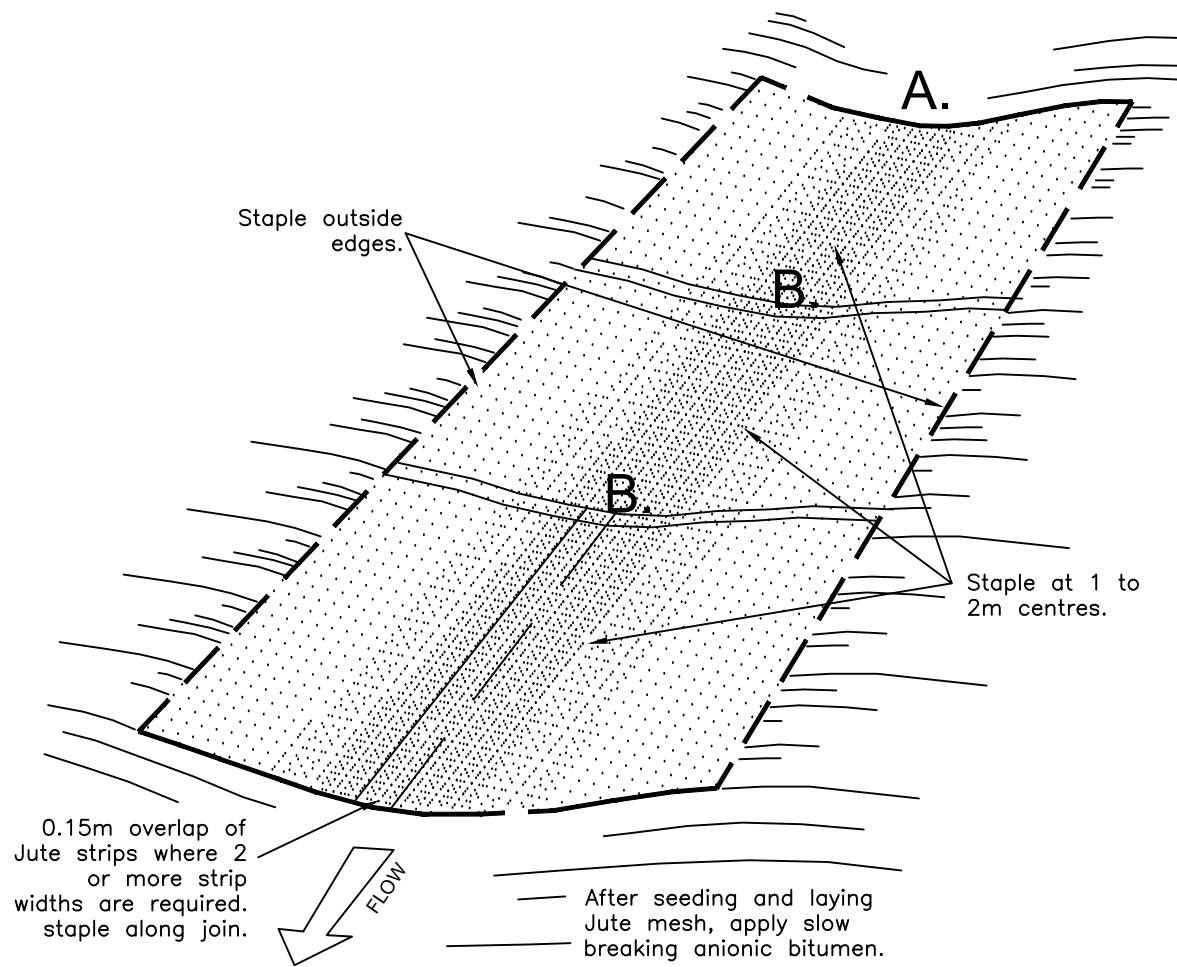
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505  
**ENGINEERING GUIDELINES**

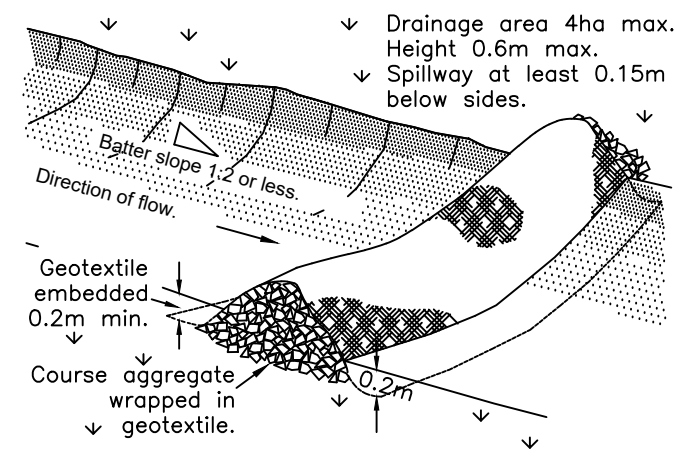
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**SEDIMENT TRAPS - SURFACE INLETS**

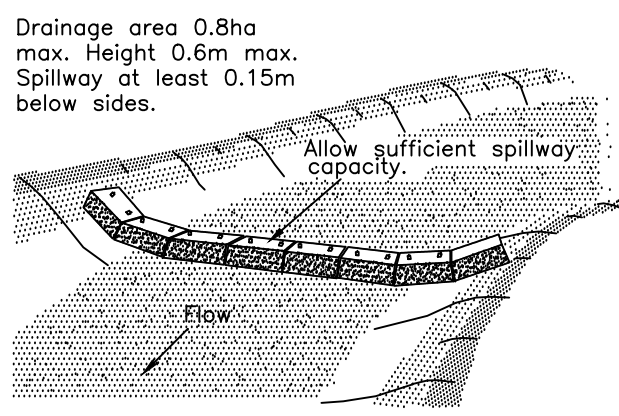
**SD-SW-030**



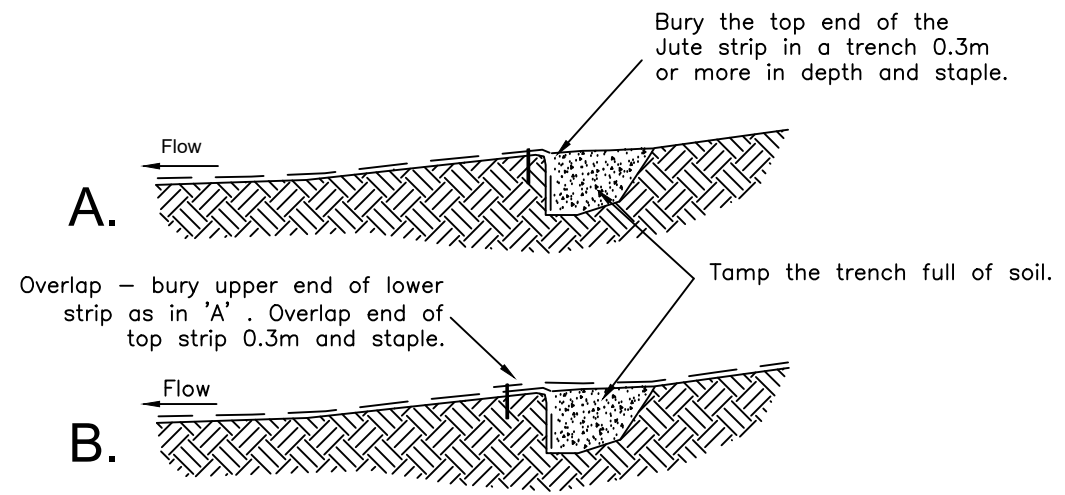
**Sediment Fence**



**Rock Check Dam**



**Straw Bale Check Dam**



**Channel Stabilisation with Jute Mesh and Bitumen.**

**NOTES:**

1. All works are to be in accordance with Landcom's Managing Urban Stormwater: Soils & Construction publication (the Blue Book)
2. Install traps in accordance with drawing prior to commencing construction.
3. Install filter fabric instead of strawbales in areas accessible to stock.
4. Remove trapped sediments from site prior to removing sediment trap.
5. Filter fabric shall be min 14g/m2 nonwoven geotextile supported on wire fence or an approved woven silt stop fence.
6. 14g/m2 nonwoven geofabric may be used in lieu of Jute and Bitumen for stabilising temporary drains.
7. Provide gap between Sediment Trap & Kerb Inlet
8. Installations to be in accordance with approved erosion control plan.

**TYPICAL SEDIMENT CONTROL EXAMPLES**  
NOT TO SCALE

NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET

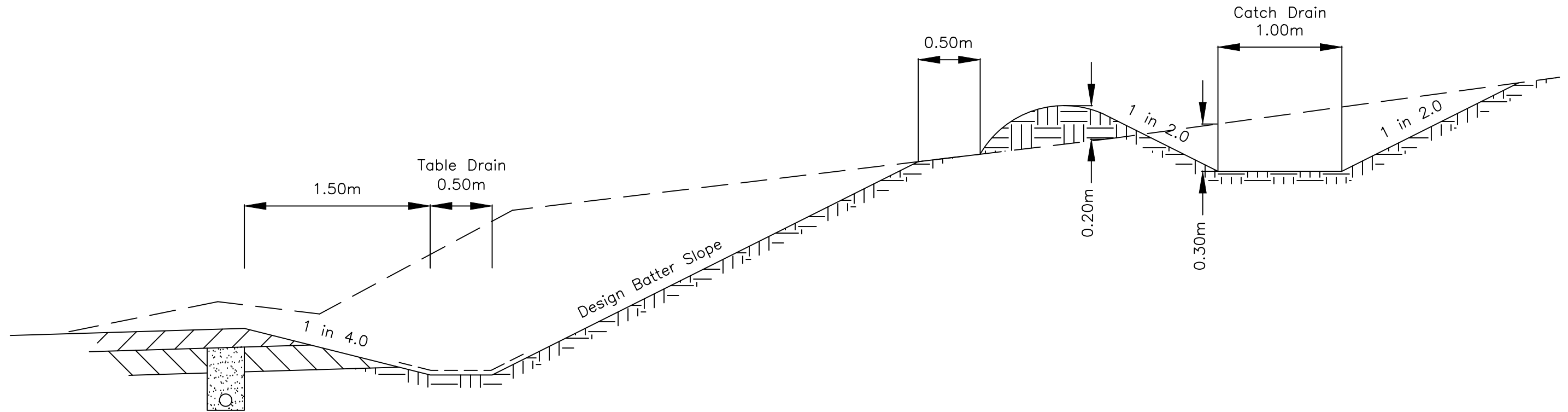
**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505  
**ENGINEERING GUIDELINES**

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**SEDIMENT CONTROL DRAINS**

**SD-SW-031**





### TYPICAL TABLE DRAIN AND CATCH DRAIN

#### NOTES:

1. Topsoil to be placed at a minimum depth of 100mm in accordance with the requirements of the current AUS-SPEC 1121 - Open Drains.

#### CATCH DRAINS


2. Catch drains are to be stabilised immediately. Longitudinal grade up to 5.0% to be lined with organic fibre matt & grass seeded to a width of 3.0m (max). > 5.0% catch drains are to be lined with sprayed concrete (50mm thick nom)

#### TABLE DRAINS - UNLINED

3. If it is necessary to deepen the table drain, the cutting should be widened so that the 1:4.0 slope is maintained. Desirably the depth is not to exceed 1.0m
4. The minimum longitudinal grade in an unlined table drain is 0.50% with the maximum grade to be 5.0%

NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET

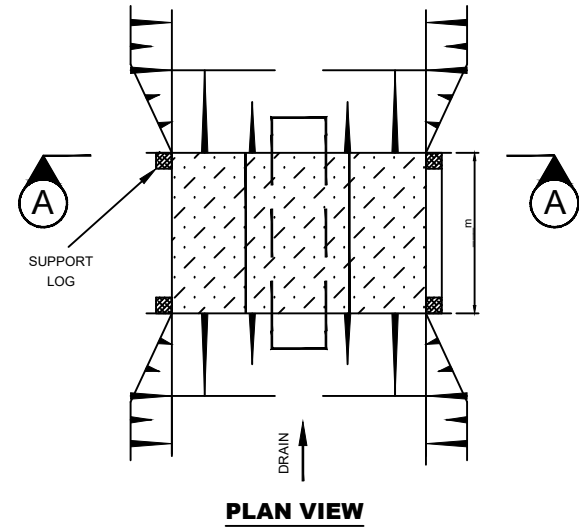
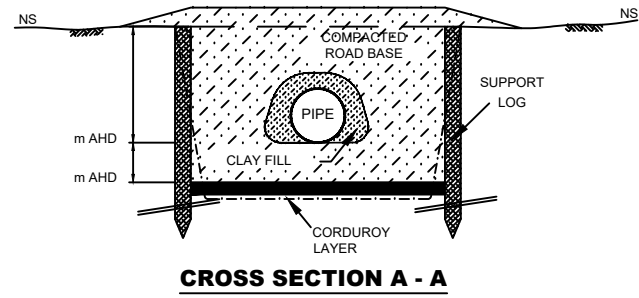

**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505  
**ENGINEERING GUIDELINES**

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

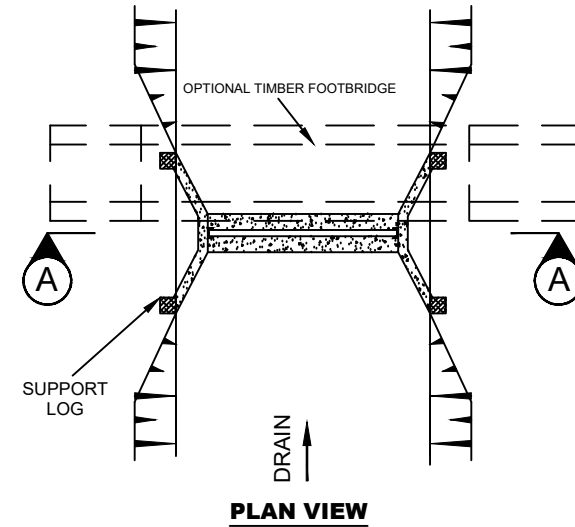
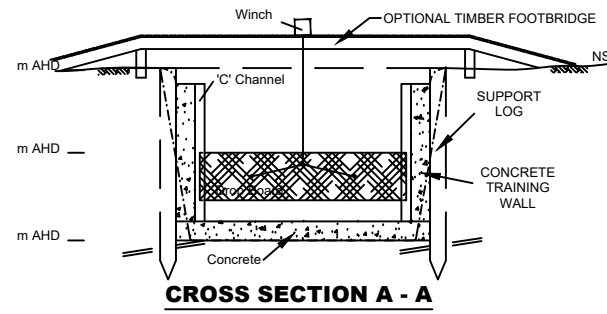
## EROSION TREATMENT FOR TABLE DRAINS & CATCH DRAINS

# SD-SW-032

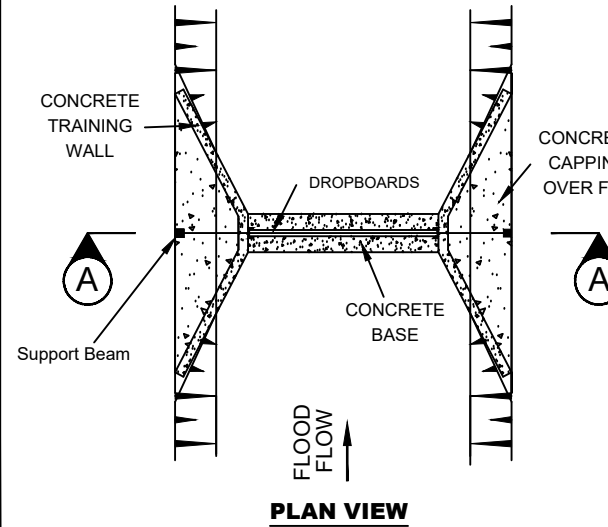
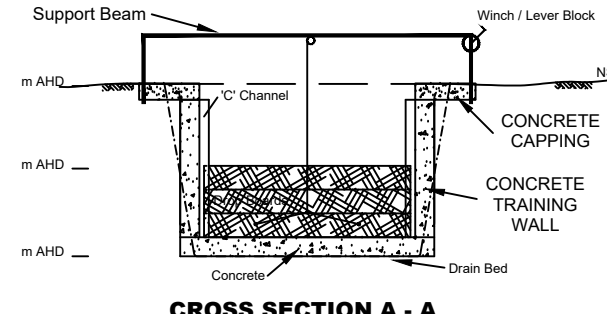
### RAISED EARTHEN WEIR



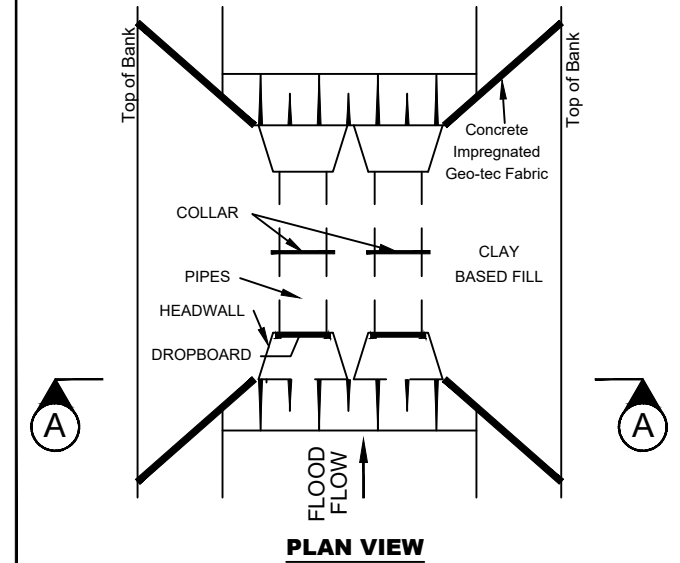
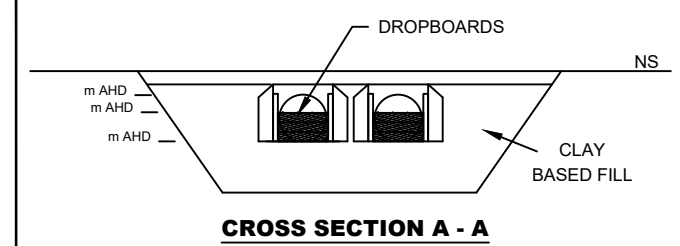
### DROPBOARD WEIR - 1



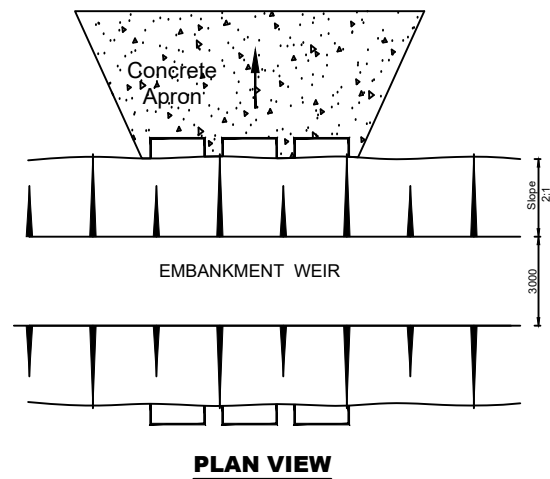
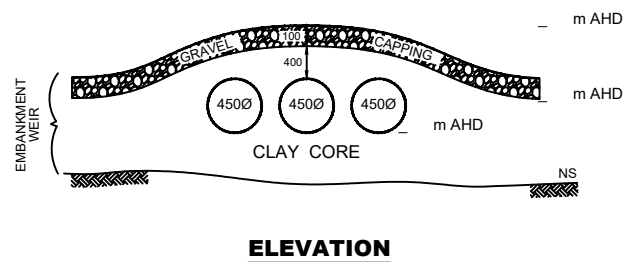
### DROPBOARD WEIR - 2



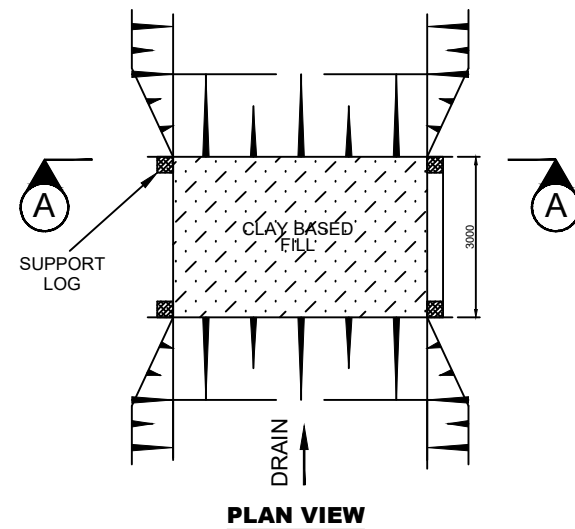
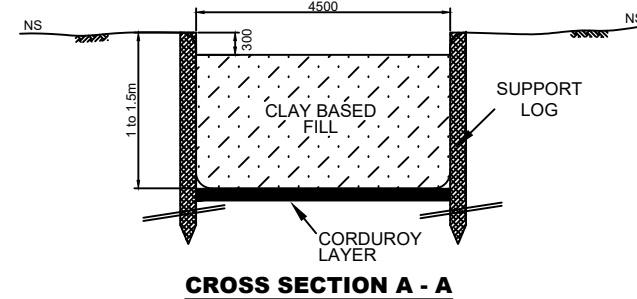
### DROPBOARD CULVERTS



### PIPE SPILLWAY



### CHECK BANK



### NOTES:

1. CONCEPTS ONLY - NOT FOR CONSTRUCTION
2. Sediment fence to be installed downstream of works prior to construction
3. Acid sulphate material extracted from drains is to be limed at a standard rate of 200kg of fine agricultural lime per m3 of soil (Assumes a 5% sulfur content). Excavated acid volatile sulfur sediments are to be limed at a lime: AVS volume ratio of 1:30 using fine agricultural lime
4. Bentonite / soil mix to be placed around pipes to minimise tunnelling
5. 'C' channel for dropboards to be fabricated from marine grade stainless steel
6. All concrete structures to be Grade F, acid / iron resistant cement
7. Clay based fill to contain at least 30% clay sized particles. Fill to be non-dispersive
8. Dropboard culverts are not designed for vehicular access
9. Support logs to be marine grade treated Koppers logs

NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET

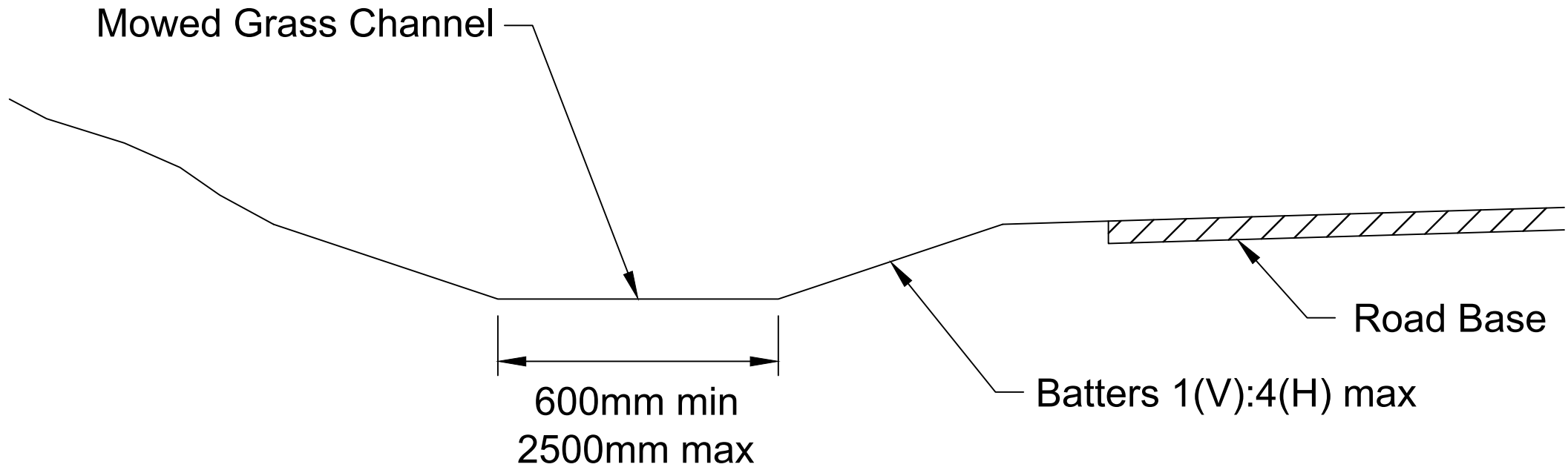
Road slope	Soil Erosion Risk Classes (refer note 7)		
	Moderate (m)	High to Very High (m)	Extreme (m)
>2% (1°)	150	120	70
2%-5%(2-3°)	130	100	50
5%-10% (3° - 5.5°)	120	90*	40*
10%-15% (5.5° - 8.5°)	95*	70*	30*
15%-20% (8.5° - 11°)	50*	35*	30*

TABLE 1: Spacing Between Cut-off or Rock Check Dams  
(Metres along roadside drainage)

\* Denotes requirement for rock check dam between cut-off drains


**NOTES:**

1. Cross slope 2% (1°) greater than the road
2. Drain to have a min length of 60m
3. Top width to depth ratio of 6:1 or greater
4. Grassed swale drains established on slope 4% (2.5°) or less with velocities less than 2m/s
5. If slope is greater than 4% (2.5°) rock check dams to be installed as per SD-SW-036 and Table 1.
6. Drain should have a capacity to convey a 1:2 storm event.



NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET

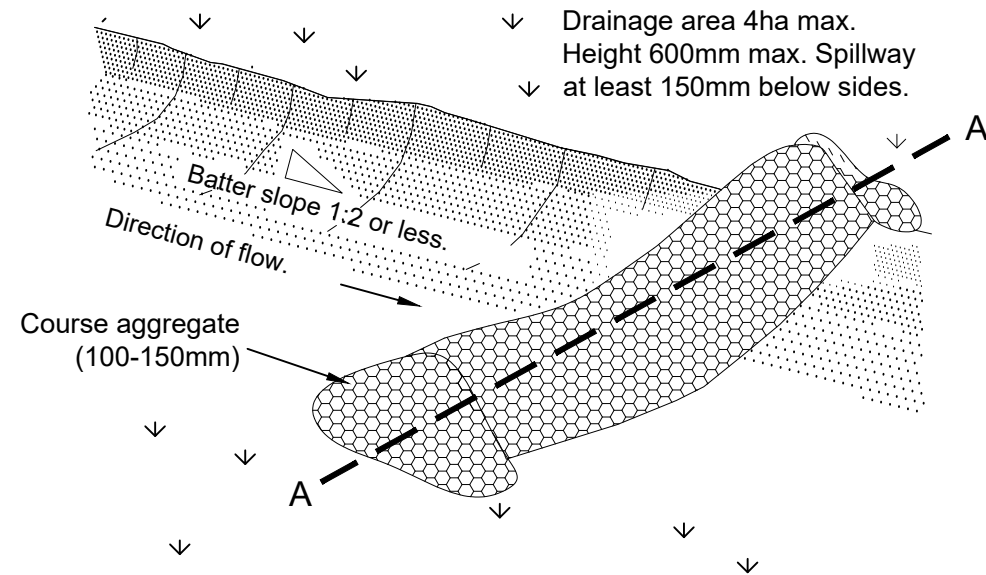

**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152 CESSNOCK  
 ENGINEERING GUIDELINES  
 PHONE 4993 4100  
 FAX 4993 2505

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

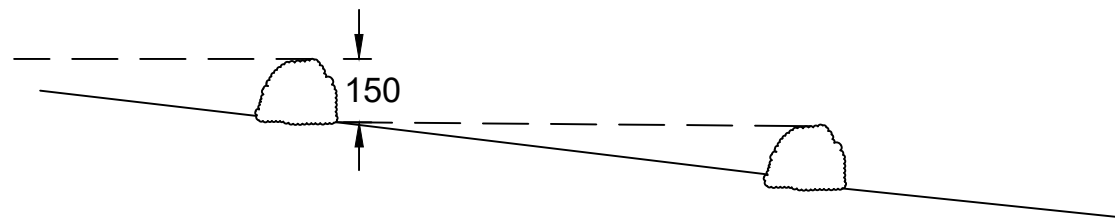
**GRASSED SWALE DRAINS - RURAL ROADS**

**SD-SW-034**

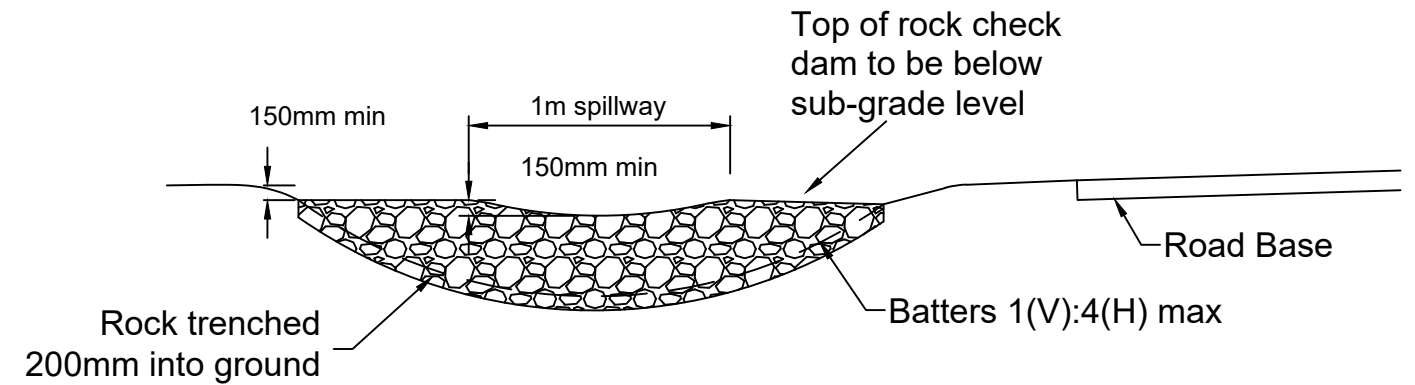
## Grassed Swale



## Rock Check Dam



Typical Rock Check Dam Elevation (Refer Note 4)



Section AA through Rock Check Dam

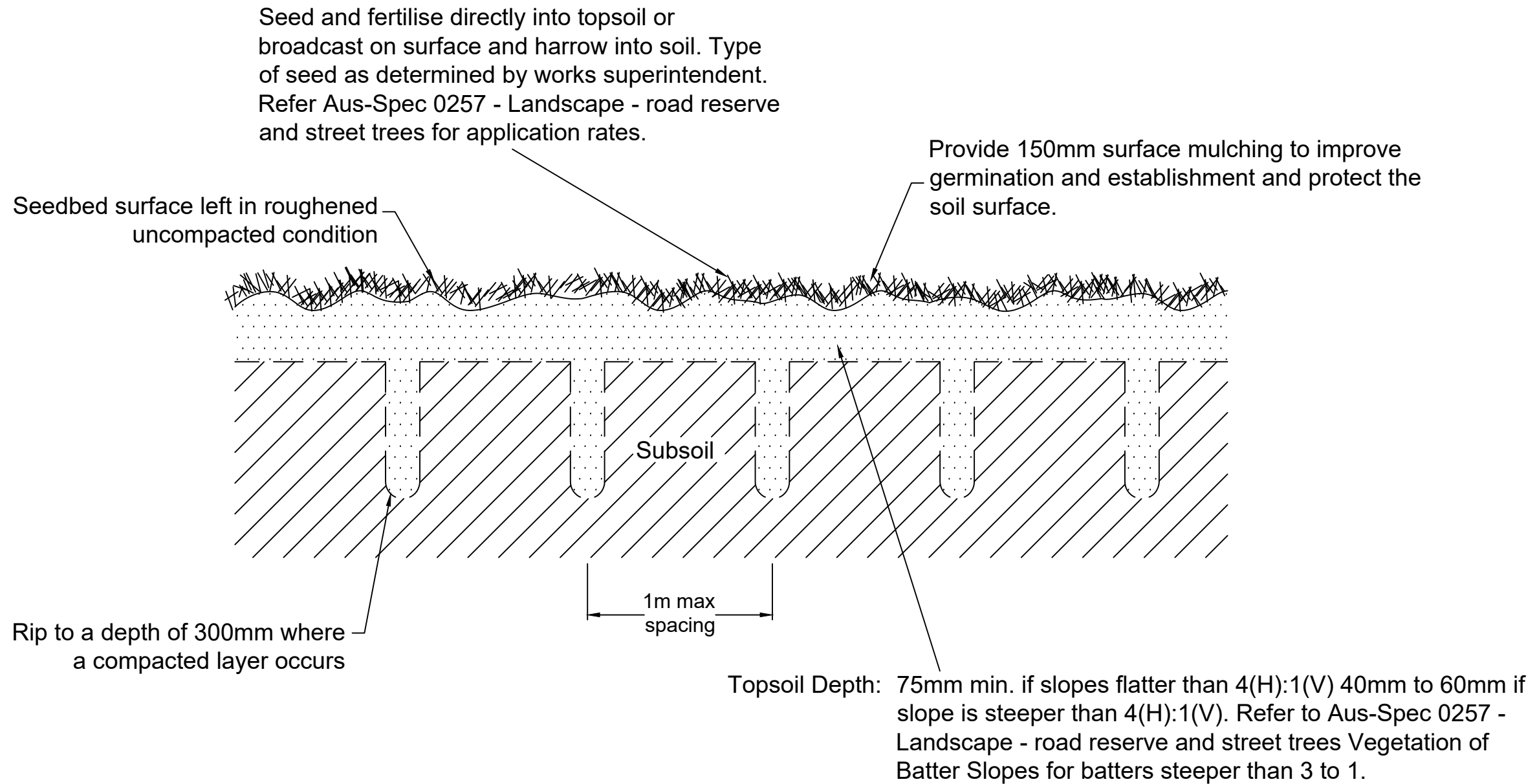
## NOTES:

1. Check dams can be built with various materials, including rocks, logs, gravel-filled sandbags. The maintenance program should ensure their integrity is retained
2. Trench the check dam 200mm into the ground across its whole width. Where rock is used, fill the trenches to at least 100mm above the ground surface to reduce the risk of undercutting
3. Maximum height should not exceed 600mm above the gully floor. The centre should act as a spillway, being at least 150mm lower than the outer edges
4. Space the dams so the toe of the upstream dam is level with the spill way of the next downstream dam
5. Place A14 or equivalent geofabric when working in extreme erosion risk areas
6. All works are to be in accordance with Landcom's Managing Urban Stormwater: Soils & Construction publication (the Blue Book)
7. Install traps in accordance with drawing prior to commencing to stock
8. Remove trapped sediments from site prior to removing sediment trap
9. Installations to be in accordance with approved erosion control plan

NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET






**NOTES:**

1. Loosen compacted soil before sowing any seed. If necessary, rip the soil to a depth of 300mm. Avoid rotary hoe cultivation
2. Minimise ground disturbance during seedbed preparation
3. Avoid cultivation in very wet or very dry conditions
4. Cultivate on or close to the contour where possible, not up and down the slope
5. Reference: Soils and Construction, Volume 1, 4th Edition, March 2004 SD 7-1

NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK**  
 CITY COUNCIL  
 ENGINEERING GUIDELINES

P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505

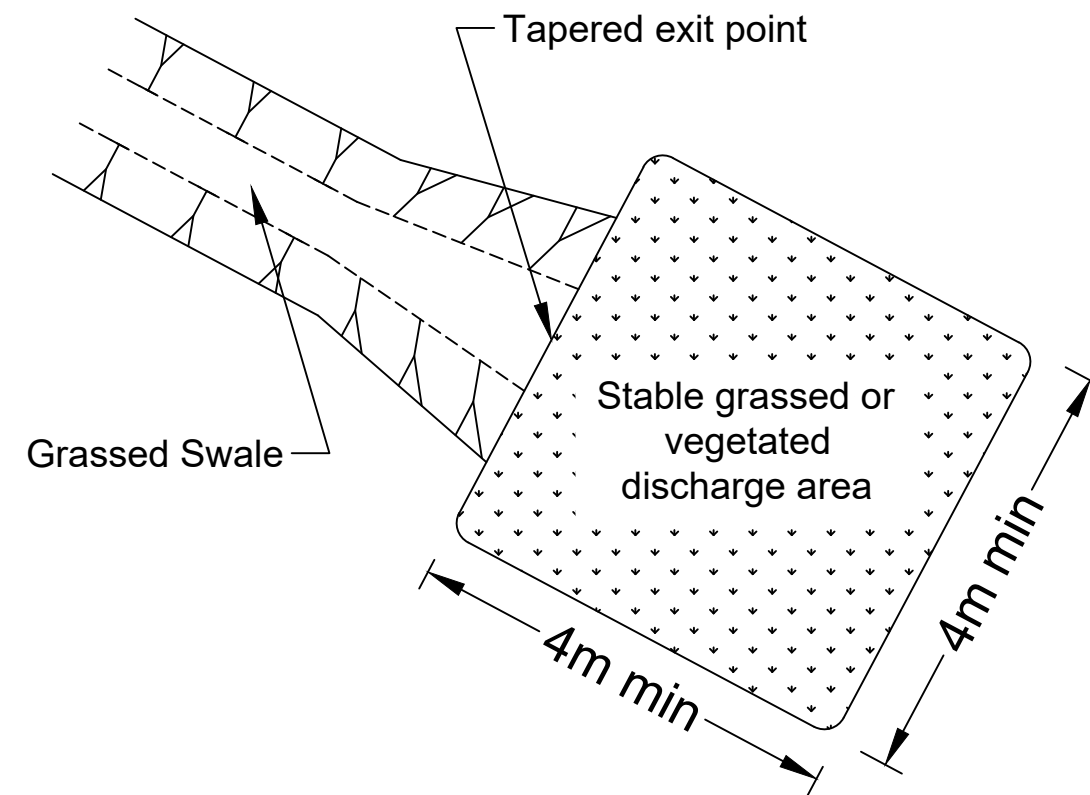
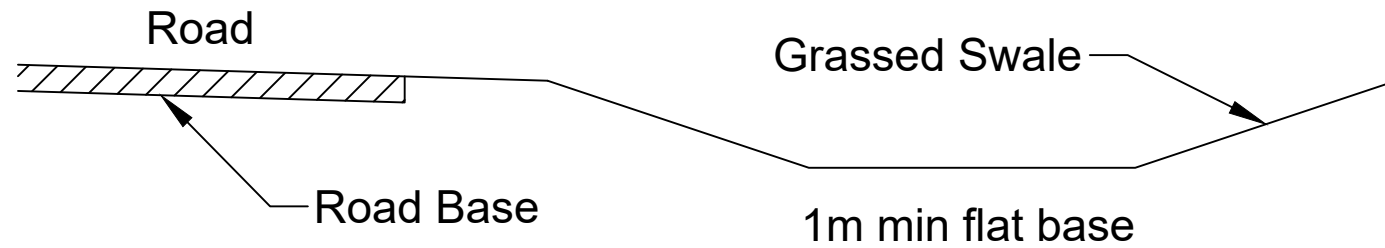
**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**SEEDBED PREPARATION -  
RURAL ROADS**

**SD-SW-036**

**NOTES:**

1. Cut-off drain discharge points not to be located near drainage lines or waterways
2. Space cut-off drains as per table 1, or if site conditions prevent cut-off drains, rock check dams are to be installed as an alternative
3. Grassed discharge point should not service an area >2ha and be positioned on a slope of 5% (3°) or less. Discharge point should have a minimum surface area of 16m<sup>2</sup>



Road slope	Soil Erosion Risk Classes (refer note 4)		
	Moderate (m)	High to Very High (m)	Extreme (m)
>2% (1°)	150	120	70
2%-5%(2-3°)	130	100	50
5%-10% (3° - 5.5°)	120	90*	40*
10%-15% (5.5° - 8.5°)	95*	70*	30*
15%-20% (8.5° - 11°)	50*	35*	30*

TABLE 1:  
Spacing Between Cut-off or Rock Check Dams (Metres  
along roadside drainage)

\* Denotes requirement for rock check dam between cut-off drains

NOT TO SCALE

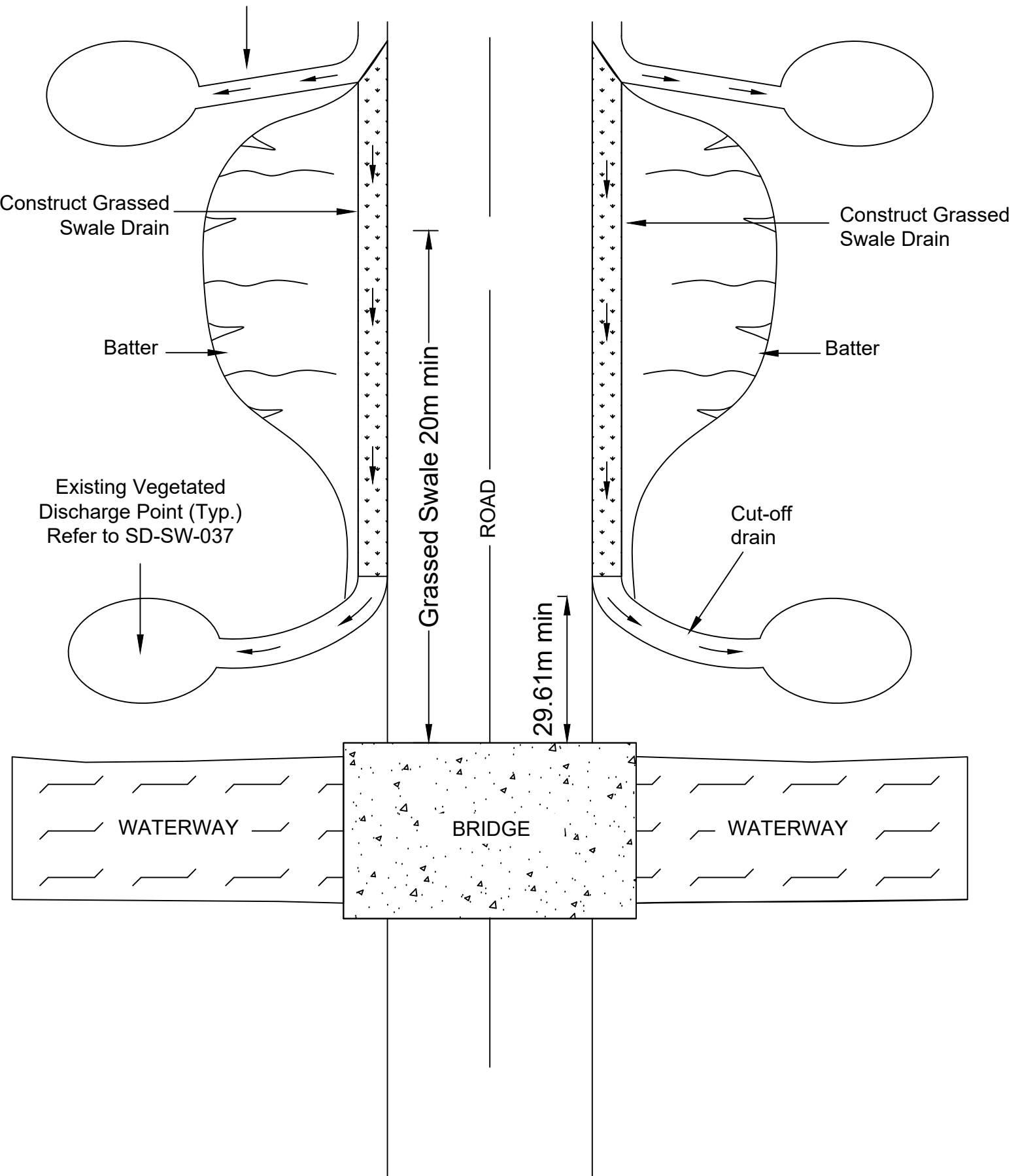
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505  
**ENGINEERING GUIDELINES**

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**CUT-OFF DRAINS - RURAL ROADS**

**SD-SW-037**




**NOTES:**

1. Ensure discharge cannot enter waterway.
2. If road slope exceeds 5% (3°) construct rock check dams as per SD-SW-035

NOT TO SCALE

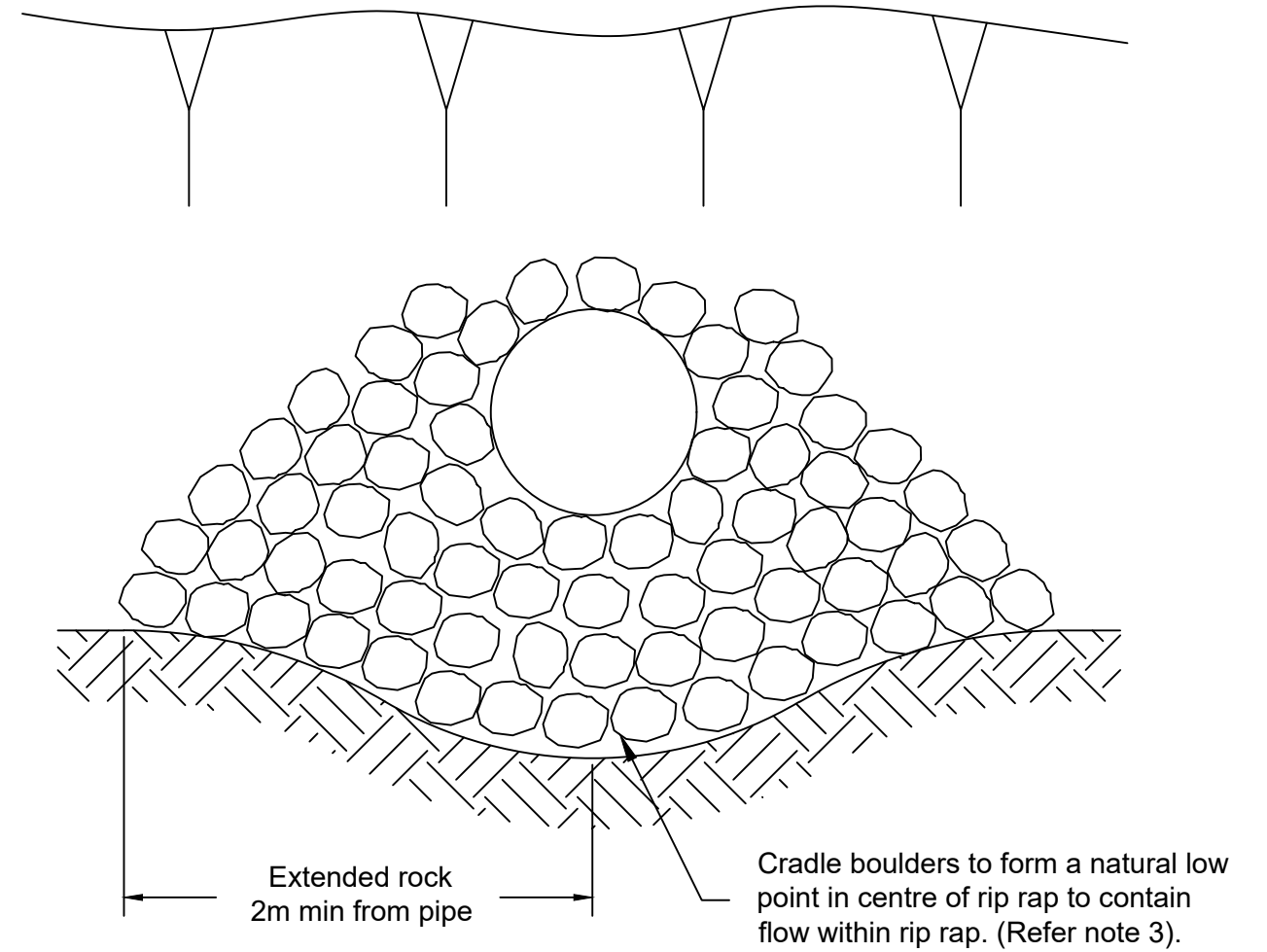
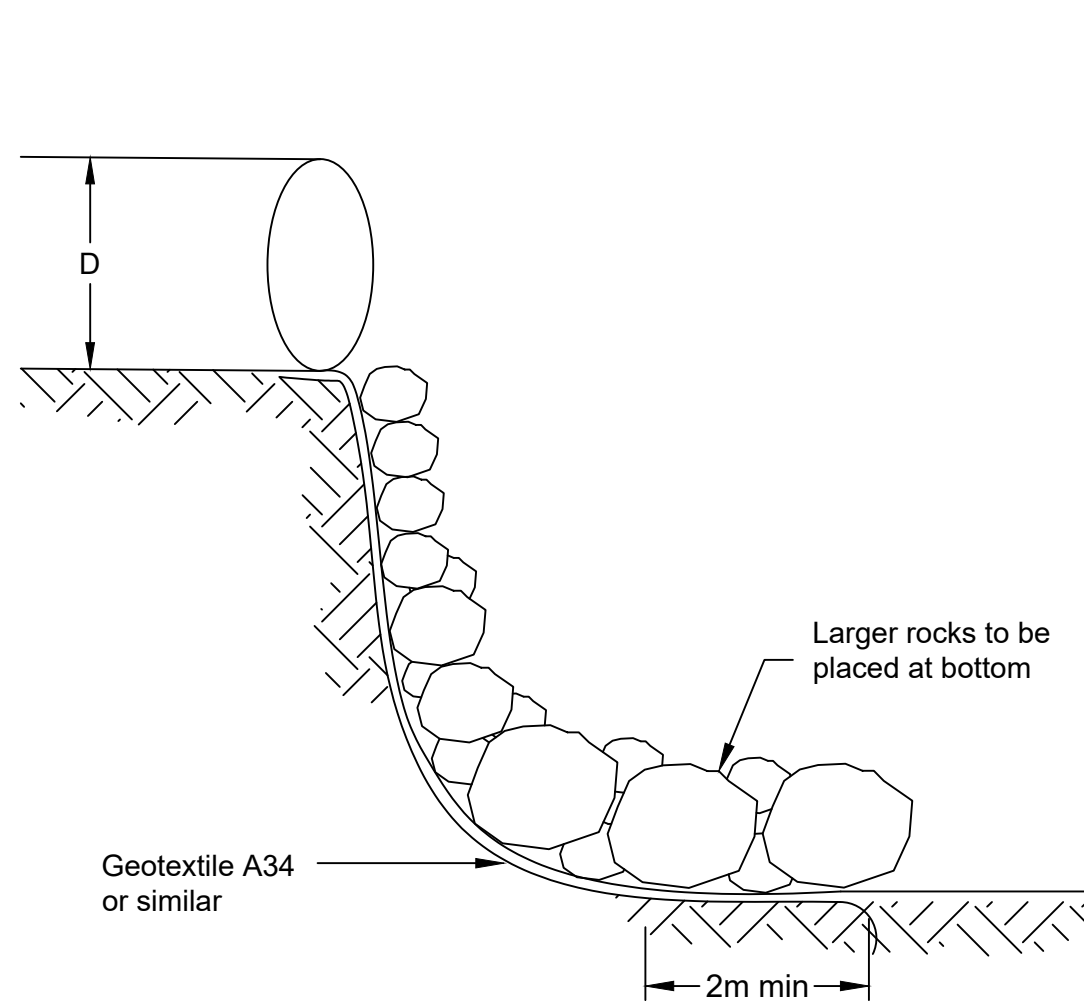
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505  
**ENGINEERING GUIDELINES**

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**ROADSIDE SWALE DRAINS AT WATERWAY CROSSINGS - RURAL ROADS**

**SD-SW-038**



**NOTES:**

1. Stack boulders from base up to top using larger boulders first
2. Continue rip rap to flat surface or where slope is < 5% (3°)
3. Place rip rap to conform to existing gully / drainage line shape

Pipe (D)	Min. Rock Size (mm)
750	500
900	500
1050	500
1200	800
1500	800
1800	1000
2100	1000

NOT TO SCALE

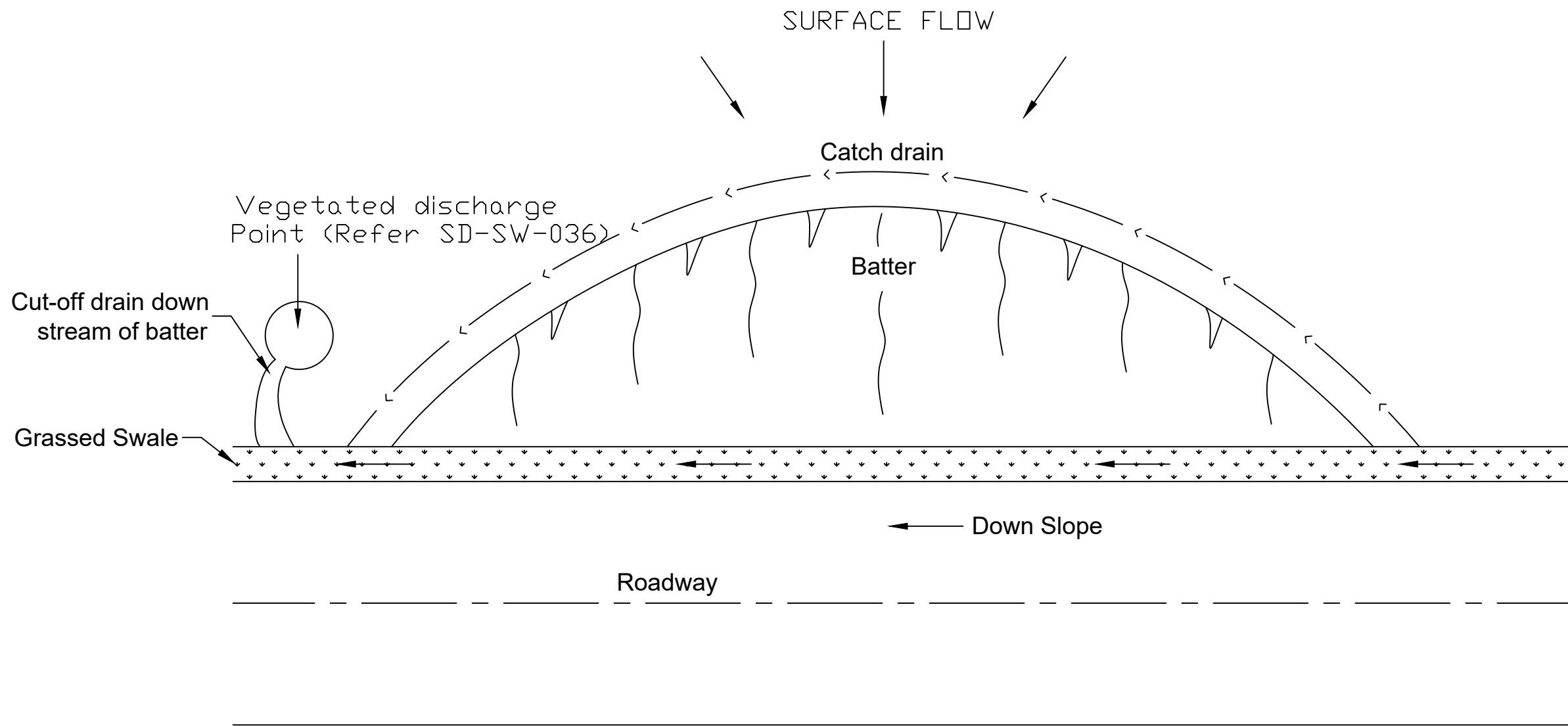
REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK CITY COUNCIL**  
 P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 ENGINEERING GUIDELINES FAX 4993 2505

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

**RIP RAP IN GULLY - SLOPE > 10% (6°)  
FOR RURAL ROADS**

**SD-SW-039**



NOT TO SCALE

REV.	DATE	REVISION
1	JAN 2024	INITIAL ISSUE- CCC DRAWING SET
0	JAN 2020	INITIAL ISSUE- IPWEA DRAWING SET


**CESSNOCK**  
 CITY COUNCIL  
 ENGINEERING GUIDELINES

P.O. BOX 152  
 CESSNOCK  
 PHONE 4993 4100  
 FAX 4993 2505

**Disclaimer:** This is a generic drawing. CCC makes no representation of any kind as to its use, suitability or accuracy, including for a specific project or application and users must undertake their own assessment and accept all risk in the drawing and its use. CCC has no liability of any kind arising out of or in connection with the use of this drawing.

## CATCH DRAIN & BATTERS FOR RURAL ROADS

# SD-SW-040