

Road Drainage Index

SED_NO	SED_Version	Title	Last Published	Comments
RD0000	C	Road Drainage Index	02/03/2023 as working draft	Minor changes
RD0002	B	Rural surface channel drain in cutting	02/03/2023 as working draft	No changes
RD0003	B	Rural side drain culvert inlet	02/03/2023	No changes
RD0004	A	Rural side drain culvert outlet	02/03/2023 as working draft	No changes
RD0010	B	Subsoil drain	02/03/2023 as working draft	No changes
RD0020	C	Semi-recessed catch pit	02/03/2023	No changes
RD0021	A	Catchpit with half syphon	02/03/2023 as working draft	No changes
RD0022	C	Street catchpit 800 x 500	02/03/2023	Minor changes
RD0023	B	Street catchpit 800 x 500 precast lintel details	02/03/2023	No changes
RD0024	B	Street catchpit 800 x 500 precast unit details	02/03/2023	No changes
RD0025	B	Splay catchpit	02/03/2023 as working draft	No changes
RD0026	B	Splay catchpit details	02/03/2023 as working draft	No changes
RD0027	D	Replacement Standard catchpit	02/03/2023	Minor changes
RD0028	B	Field catchpit 440 x 440	02/03/2023	No changes
RD0030	B	Megapit	02/03/2023	No changes
RD0040	B	Catchpit gratings and frames	02/03/2023 as working draft	No changes
RD0041	B	Catchpit Backplate Installation Details	02/03/2023	Minor changes
RD0042	A	Spring - latched (safety) grate catchpit	02/03/2023	No changes
RD0050	A	Soakhole plan and section	02/03/2023 as working draft	No changes
RD0051	B	Soakhole filter cage details	02/03/2023 as working draft	No changes
RD0054	B	Soakage system inlet details	02/03/2023 as working draft	No changes
RD0056	A	Groundwater recharge pit for peat areas plan	02/03/2023 as working draft	No changes
RD0057	A	Groundwater recharge pit for peat areas (cross section)	02/03/2023 as working draft	No changes
RD0060	A	Kerb discharge	02/03/2023 as working draft	No changes

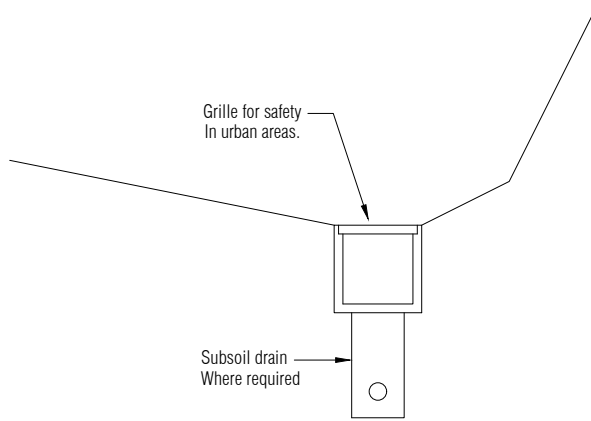


TDM TECHNICAL STANDARDS

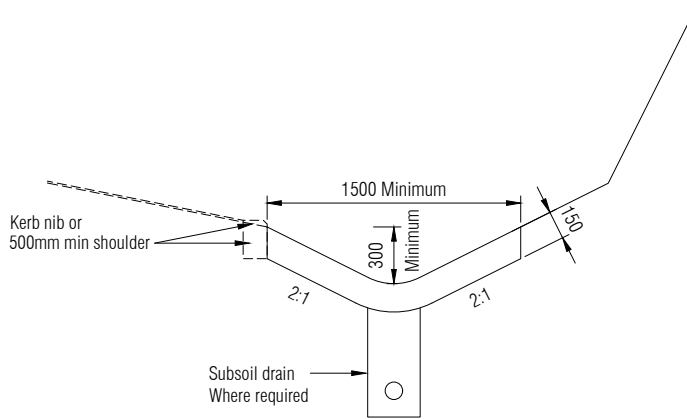
Road Drainage Index

Date: 09/07/2025

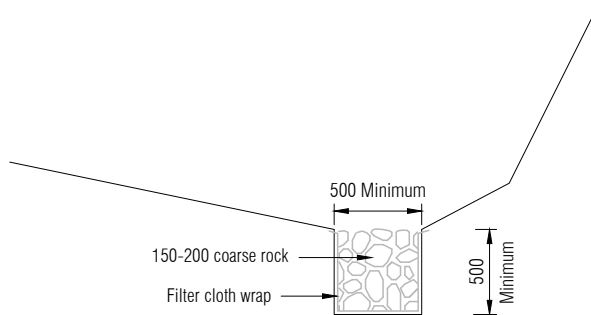
SED No. RD0000	Version C
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PRECAST CONCRETE GRATED CHANNEL DRAIN



CONCRETE LINED

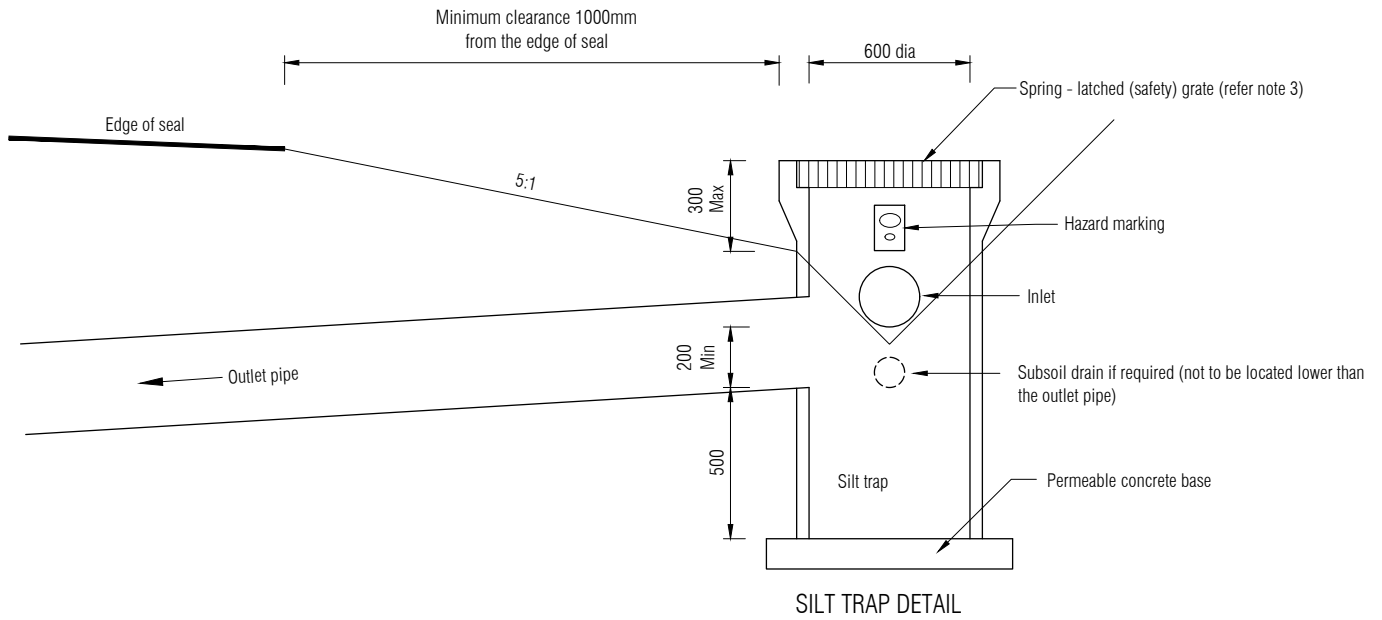


SURFACE WATER CHANNEL (ROCK LINED)

NOTES

1. Side drain to be sized such that it caters for contributing catchment.
2. A subsoil drain should be provided where the open drain is located along the edge of the seal.
3. Catchpit grates should be spring - latched (safety) grate should be Class D with a minimum weight of 62.5kg
 - Comply with EDC - Road drainage & surface water control, Clause 6.5





NOTES :-

1. Fit top of pipe with grated cover in collar. Cover and fixing details to be approved by the engineer.
2. On any road with a speed limit of 50kmh or where risk of vehicle running into drain is significant, the approaches to the inlet shall be protected so as to be traversable. Alternative inlet designs can be considered
3. Catchpit grates should be spring - latched (safety) grate should be Class D with a minimum weight of 62.5kg
 - Comply with EDC - Road drainage & surface water control, Clause 6.5

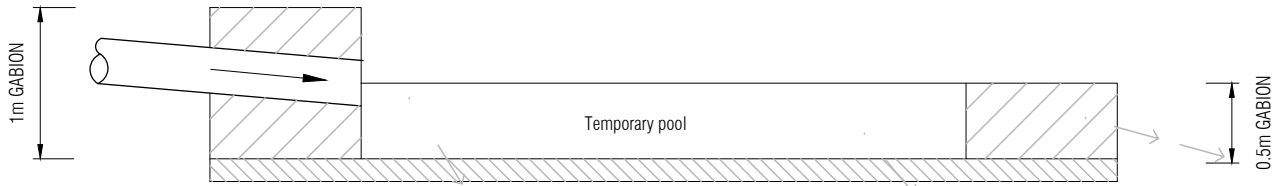


TRANSPORT DESIGN MANUAL

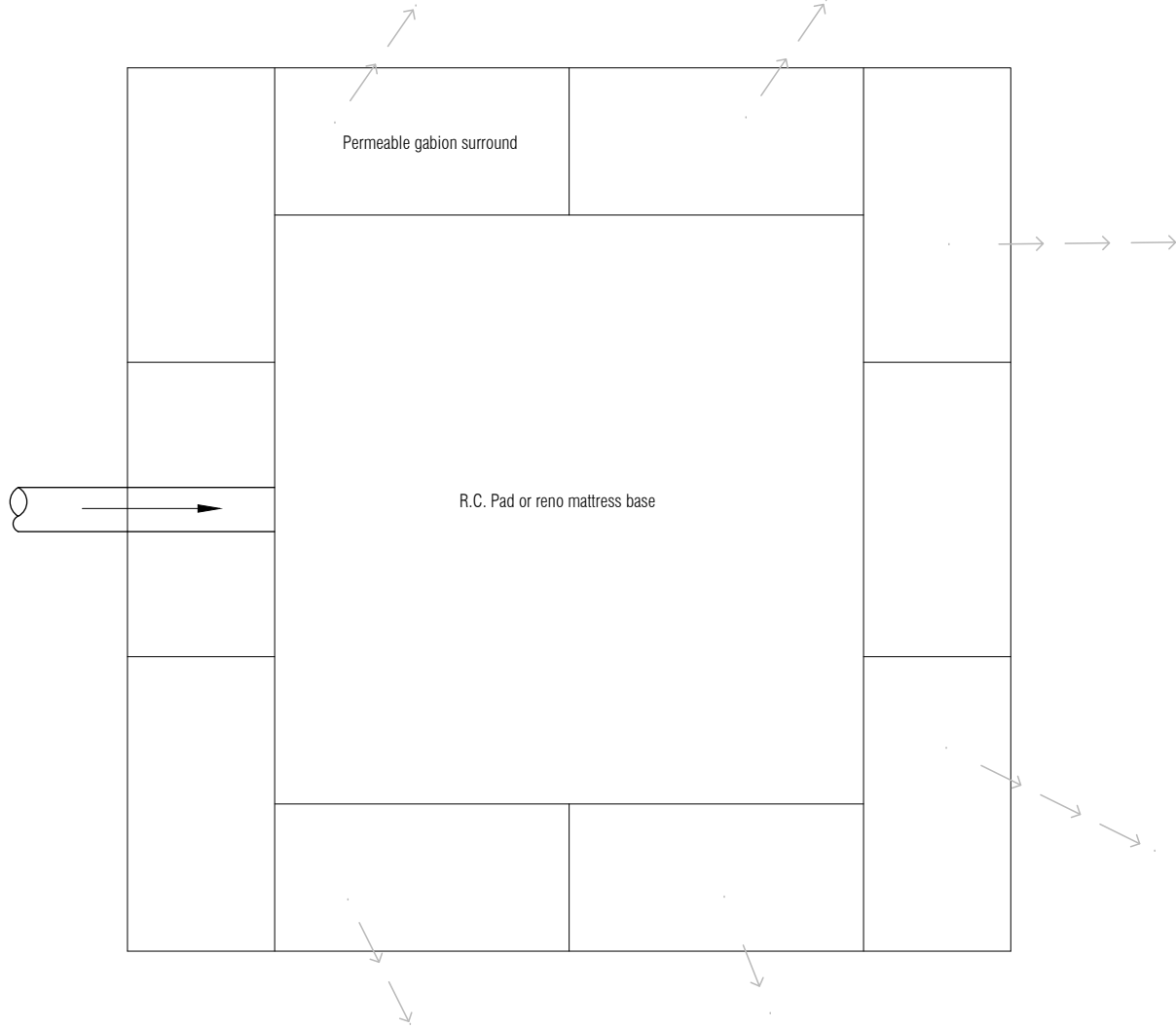
Rural side drain culvert inlet

Date: 16/11/2024

SED No.	Version
RD0003	B



SECTION



PLAN

Gabion ponding & seepage through sides & base

FOR USE IN PROTECTED BUSH AREAS

Note: specific design required of seepage system such that it caters for contributing catchment .



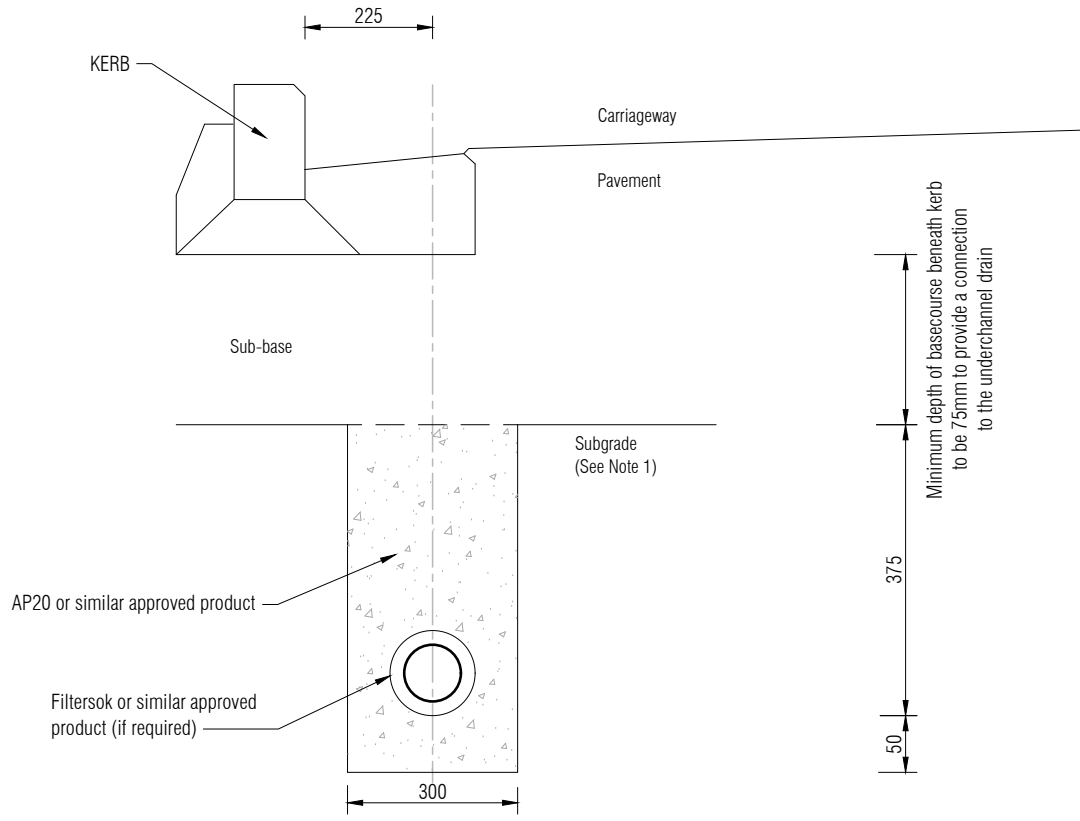
TRANSPORT DESIGN MANUAL

Rural side drain culvert outlet

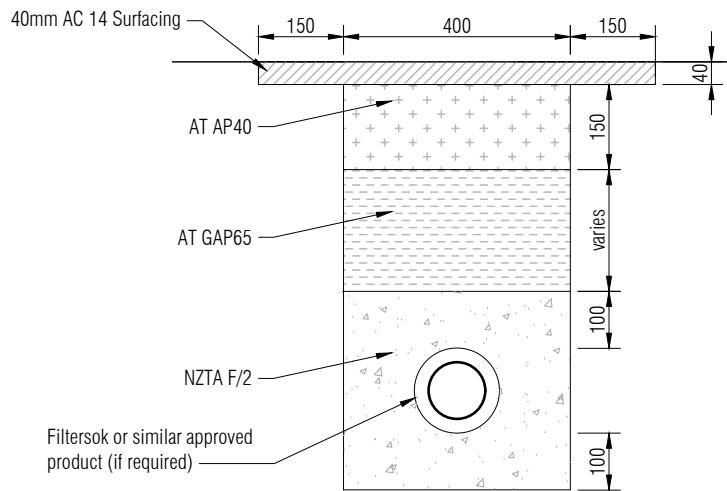
Date: 16/11/2024

SED No. Version

RD0004 A



UNDER KERB AND CHANNEL



IN CARRIAGEWAY

NOTES

1. Construct subsoil drain after construction and shaping of Subgrade. Subgrade must be level or fall towards subsoil drain
2. Underchannel Drains
Shall be approved perfortated drain pipe of 100mm internal diameter unless specified or scheduled otherwise. Subsoildrain pipes shall comply with the requirements of TNZ Specifications F/2. Trench backfill shall be approved AP20 material or similar. Trench backfill shall be approved 30/10 scoria or similar if a filter sock is provided. Depth below subgrade to be 375mm.
3. Sub-base material shall be laid with fall towards a downstream catchpit or other access chamber with connection invert level above the soffit level of the outlet pipe (or water level in a chamber with half-siphon traps)



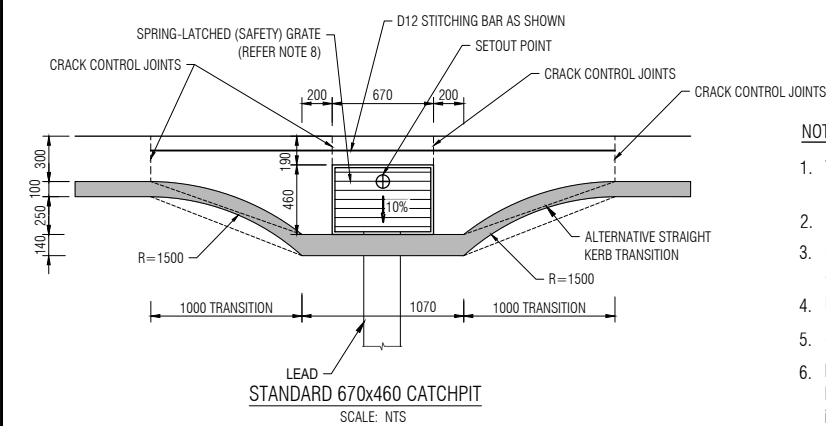
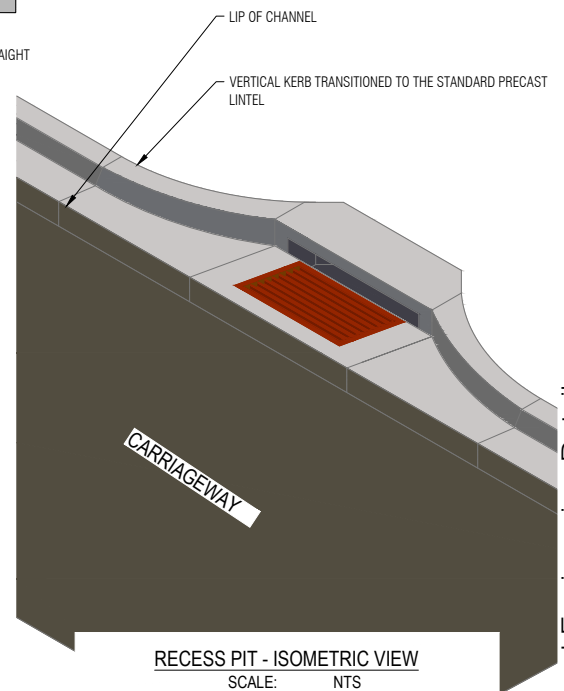
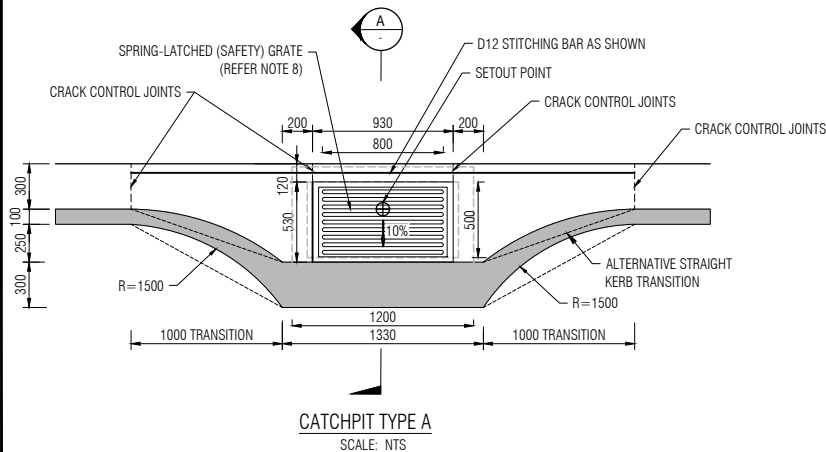
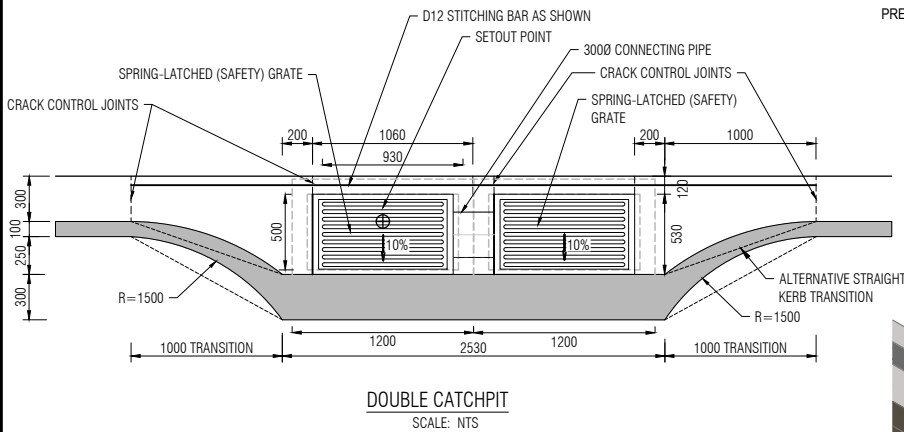
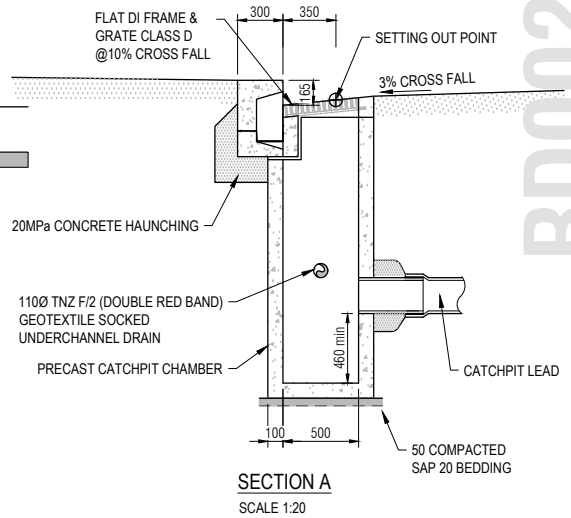
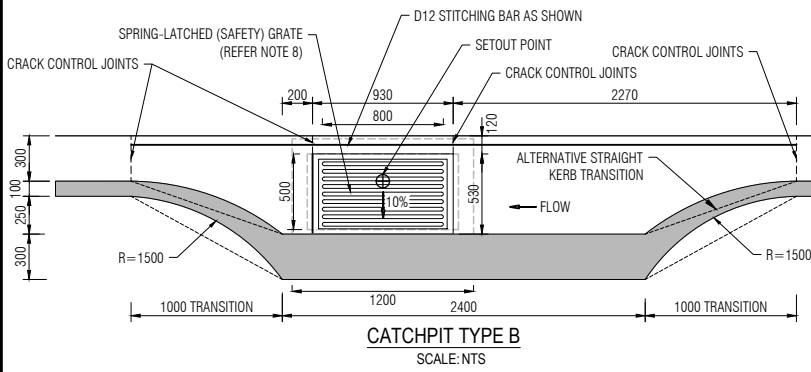
TDM TECHNICAL STANDARDS

Subsoil drain

Date: 16/11/2024

SED No. Version

RD0010 B



NOTES:

1. Transition kerb to be precast, slip - formed to radius or with in situ concrete element to match to adjoining kerb type
2. Catchpit to be setout by kerbs stringline on-site to ensure correct location
3. Standard 670x460 dished grate is not cycle-friendly. Do not use where cycle access permitted.
4. Half syphon to be used in combined catchment areas only.
5. Standard 670x460 catchpit to be 1.4m deep.
6. Nominal Dimensions only. Refer to supplier's information for actual dimensions of catchpits. Minimum wall thickness 75 mm, Sump depth 450 min. Minimum depth to catchpit lead invert 725mm in grassed areas.
7. Increase class of pipe where minimum cover of 900mm cannot be achieved for Catchpit leads.
8. Catchpit grates should be spring - latched (safety) grate should be Class D to AS3996 with a minimum weight of 62.5kg
 - Comply with EDC - Road drainage & surface water control, Clause 6.5
9. Back entry plates and galvanised lintel edges should have rounded edges to minimise worker injury.
10. Catchpit connecting to combined network system (wastewater/stormwater) should be installed with a spring latched safety grate.



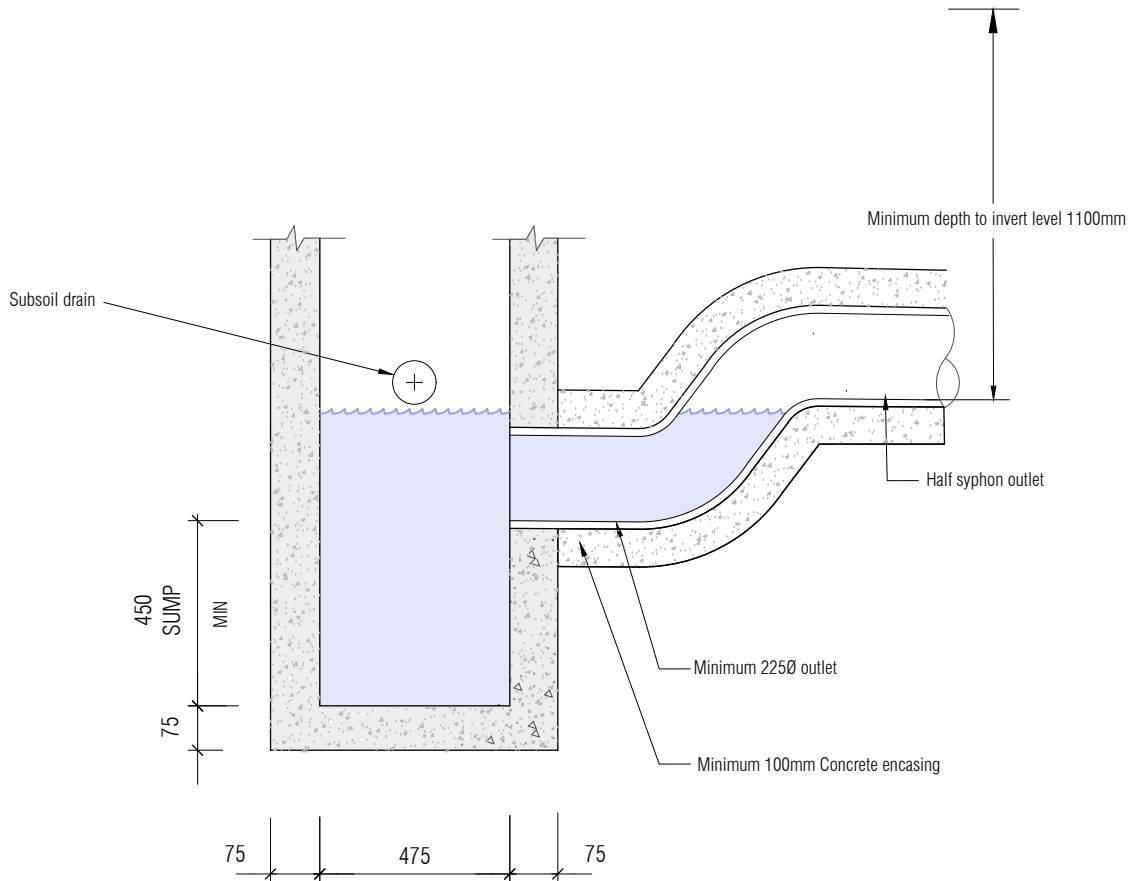
TDM TECHNICAL STANDARDS

Semi recessed catchpit

Date: 16/11/2024

SED No. Version

RD0020 C



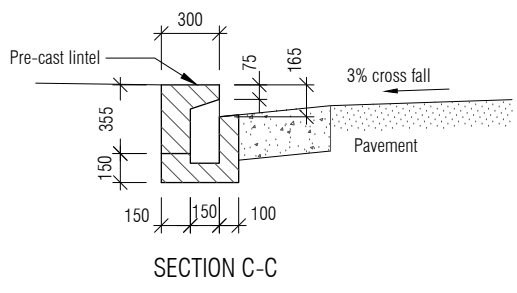
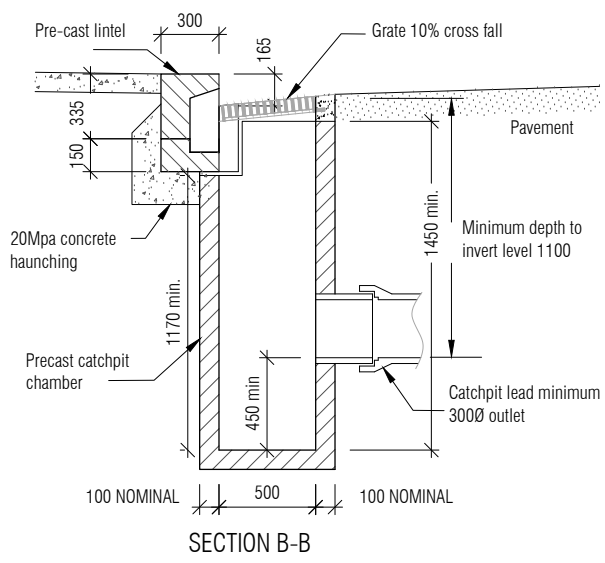
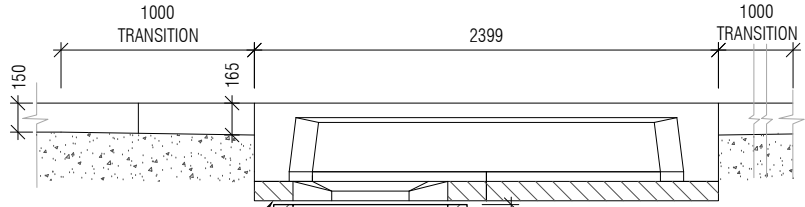
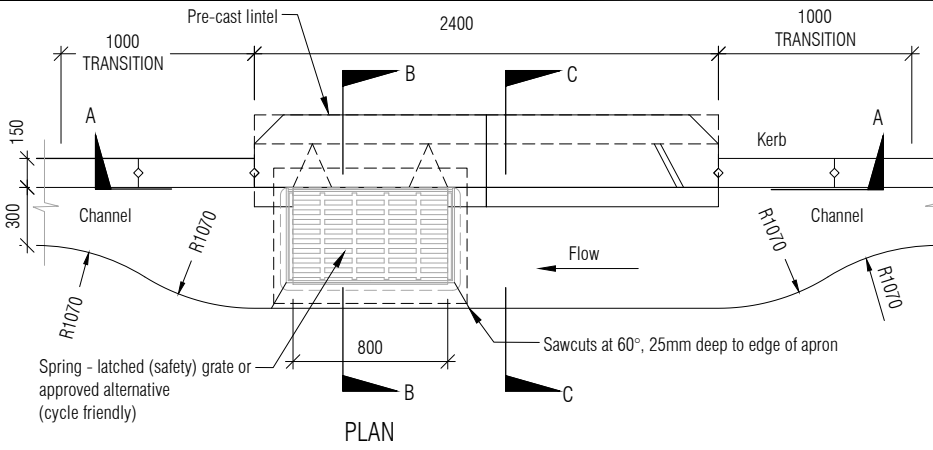
TDM TECHNICAL STANDARDS

Catchpit with half syphon

Date: 16/11/2024

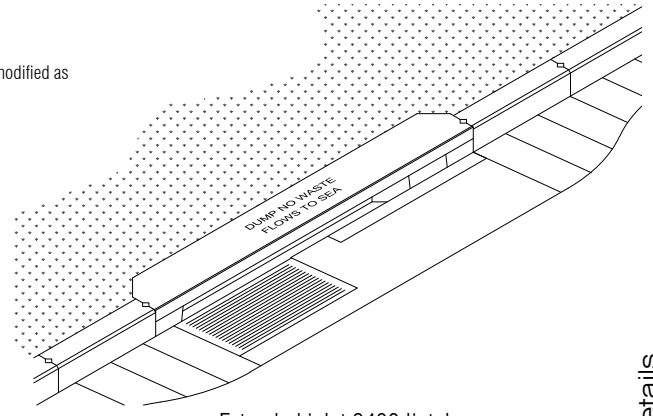
SED No. Version

RD0021 A

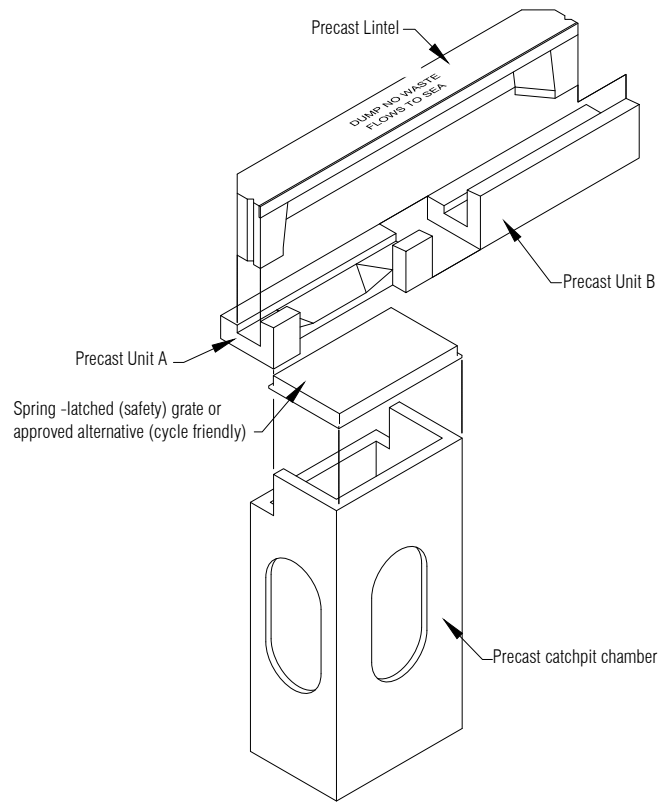


NOTES

1. Concrete to be 25 Mpa.
2. Catchpits to be 1.8m deep.
3. Transition-kerb height changes, from 150 to 165.
4. Precast units a and b with lintel can be retrofitted to existing catchpit.
5. Precast tapers have not been detailed, therefore all dimensions are nominal.
6. When retrofitting unit 'a' to existing catchpit, trim back existing catchpit as shown below. Place unit 'a' centrally over back of catchpit on concrete bedding.
7. Cycle-friendly. May be used adjacent to cycle lanes.
8. Catchpit grates should be spring-latched (safety) grate should be Class D to AS3996 with a minimum weight of 62.5kg
 - Comply with EDC - Road drainage & surface water control, Clause 6.5
9. Back entry plates and galvanised lintel edges should have rounded edges to minimise worker injury.



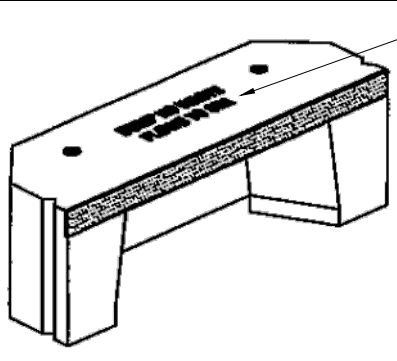
Extended inlet 2400 lintel
800x500 catchpit



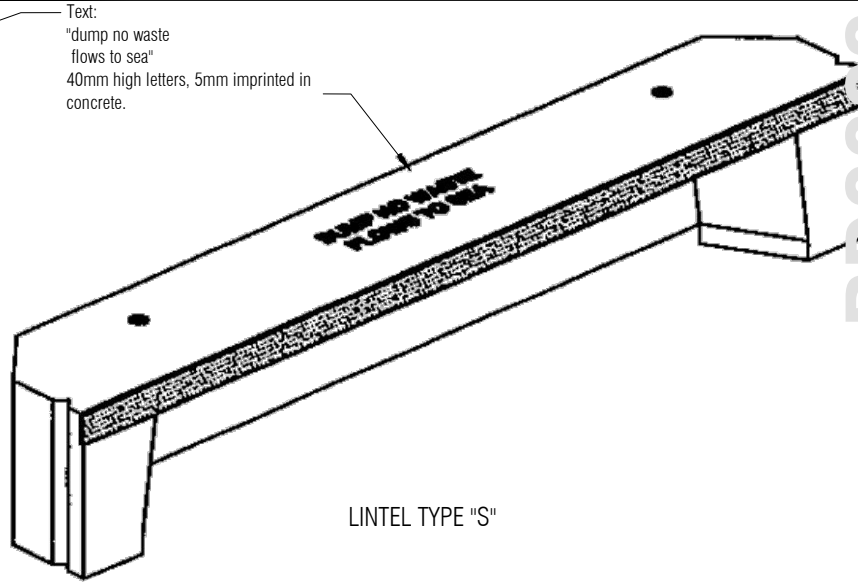
TDM TECHNICAL STANDARDS
Street catchpit 800 x 500

Date: 16/11/2024

SED No. **RD0022** Version **C**



LINTEL TYPE "VS"



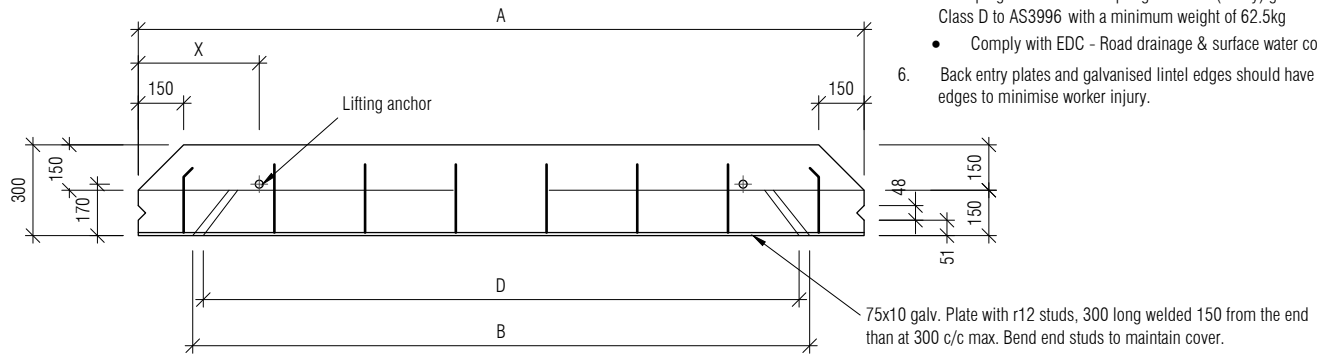
LINTEL TYPE "S"

Text:
"dump no waste
flows to sea"
40mm high letters, 5mm imprinted in
concrete.

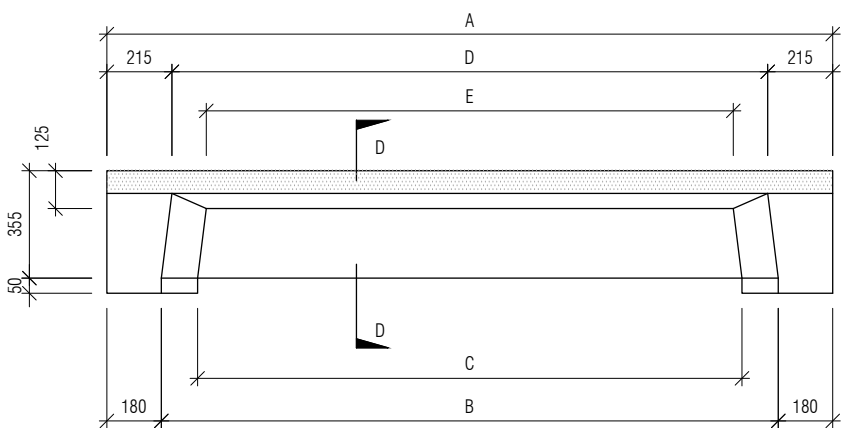
LINTEL	A	B	C	D	E	X	MASS(kg)
VS	1200	840	600	770	543	250	204
S	2400	2040	1800	1970	1743	400	499

NOTES

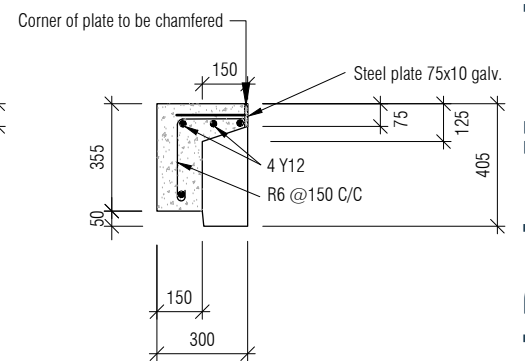
1. Precast Lintel Grade 25MPa concrete.
2. Cover to all bars to be 40mm minimum.
3. Lifting Anchor to be "Swiftlift" or equivalent 1.3 tonne galvanised.
4. Precasting tapers have not been shown. All dimensions nominal
5. Catchpit grates should be spring - latched (safety) grate should be Class D to AS3996 with a minimum weight of 62.5kg
 - Comply with EDC - Road drainage & surface water control, Clause 6.5
6. Back entry plates and galvanised lintel edges should have rounded edges to minimise worker injury.



PLAN



ELEVATION
LINTEL DETAIL

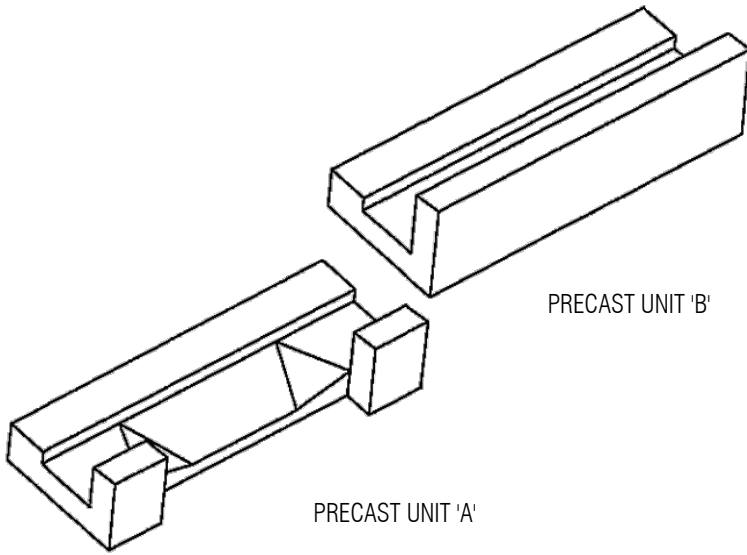


SECTION D-D



TDM TECHNICAL STANDARDS
Street catchpit 800 x 500 precast lintel details

Date:	16/11/2024	
SED No.	RD0023	Version
	B	

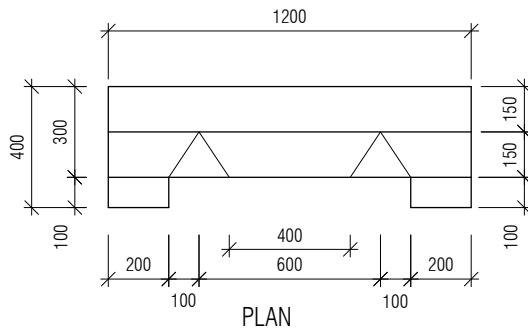


PRECAST UNIT 'A'

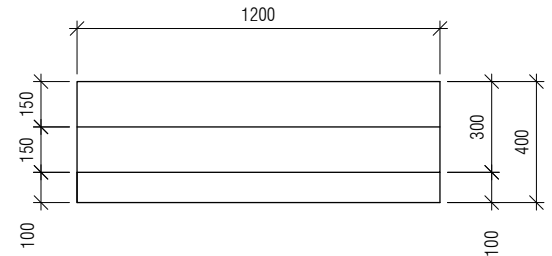
PRECAST UNIT 'B'

NOTES

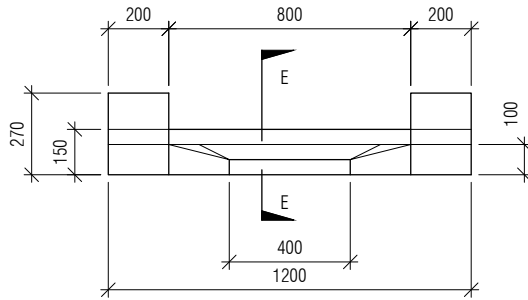
1. Precast Lintel Grade 25MPa concrete.
2. Cover to all bars to be 40mm minimum.
3. Lifting Anchor to be "Swiftlift" or equivalent 1.3 tonne galvanised.
4. Precasting tapers have not been shown. All dimensions nominal
5. Catchpit grates should be spring - latched (safety) grate should be Class D to AS3996 and with a minimum weight of 62.5kg
 - Comply with EDC - Road drainage & surface water control, Clause 6.5
6. Back entry plates and galvanised lintel edges should have rounded edges to minimise worker injury.



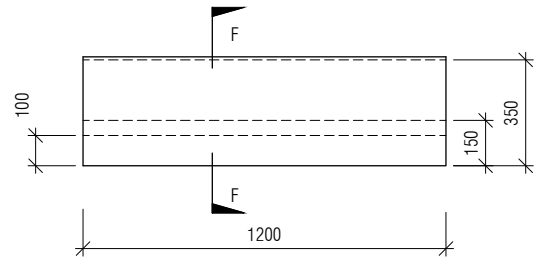
PLAN



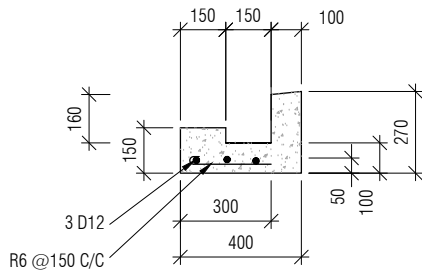
PLAN



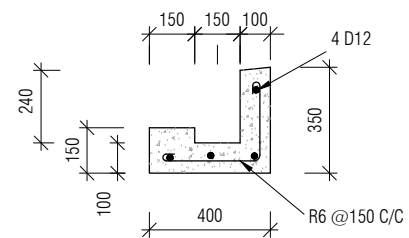
ELEVATION



ELEVATION



SECTION E-E
PRE-CAST UNIT 'A'



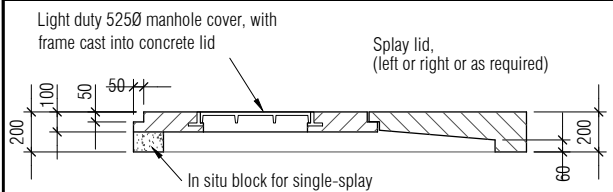
SECTION F-F
PRE-CAST UNIT 'B'



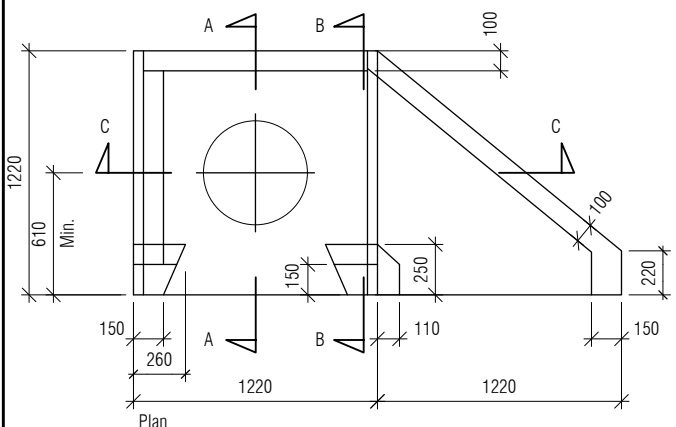
TDM TECHNICAL STANDARDS
Street catchpit 800 x 500 precast unit details

Date: 16/11/2024

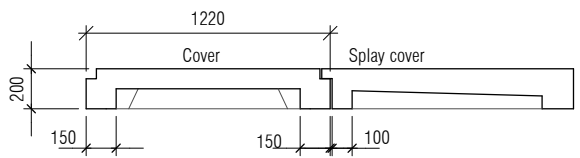
SED No. **RD0024** Version **B**



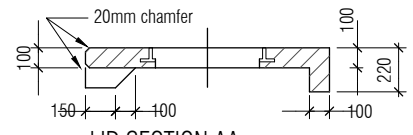
COVER & LID SECTION CC



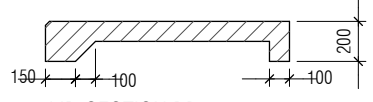
SINGLE-SPLAY CATCHPIT LID



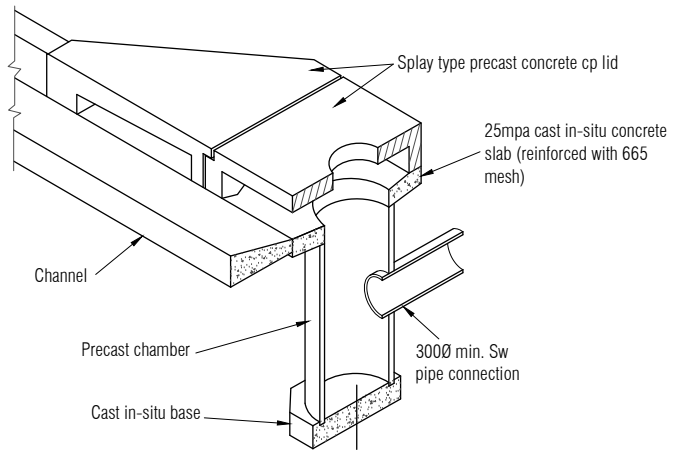
FRONT ELEVATION



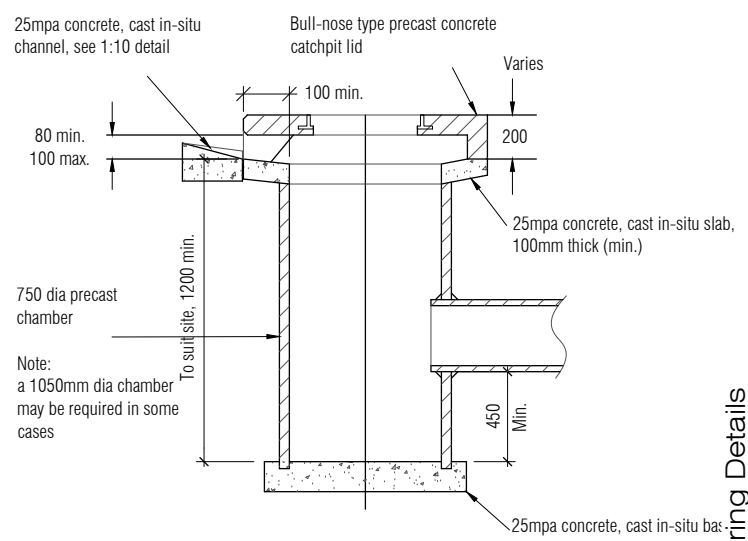
LID SECTION AA



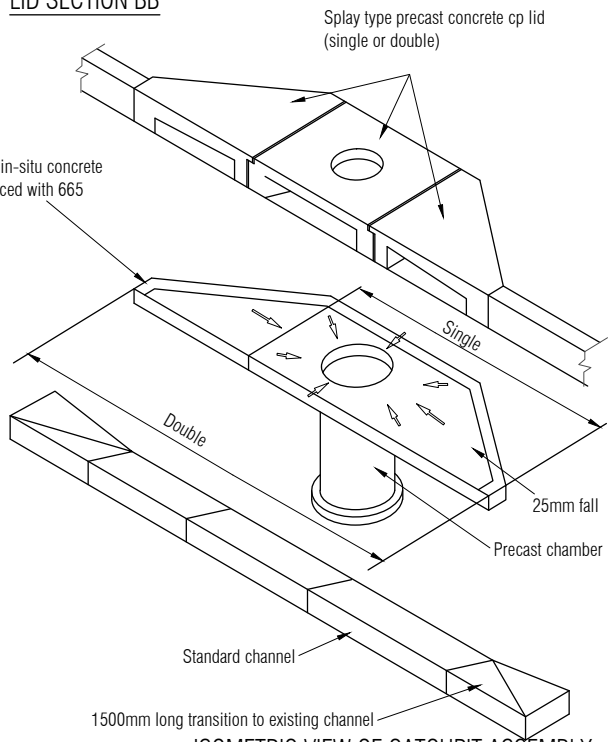
LID SECTION BB



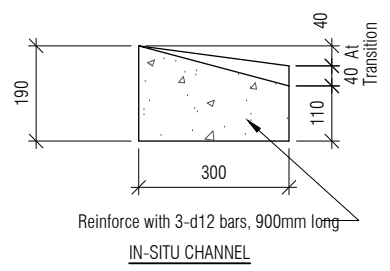
ISOMETRIC VIEW / SECTION



CATCHPIT-SECTION AA



ISOMETRIC VIEW OF CATCHPIT ASSEMBLY (DOUBLE SPLAY SHOWN)



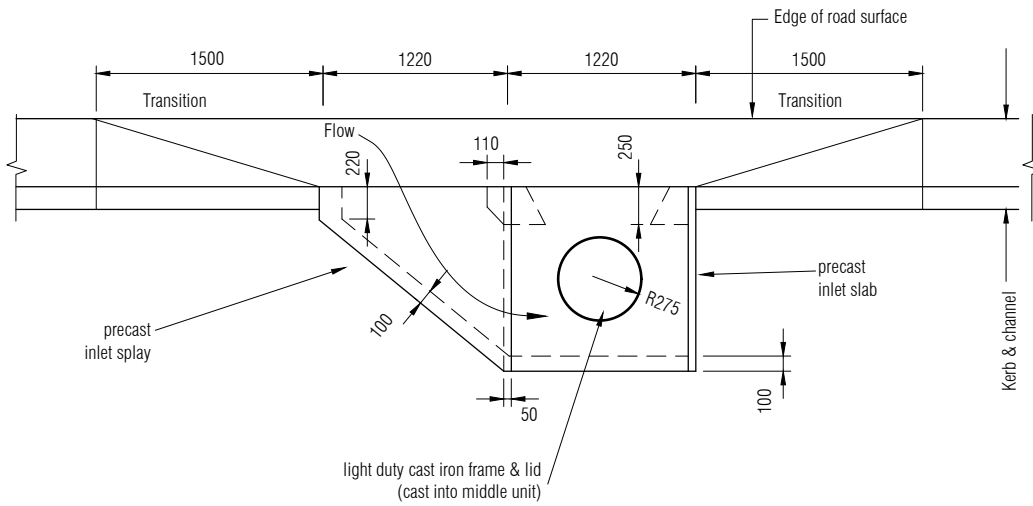
IN-SITU CHANNEL

Notes:
1. Cycle-friendly. May be used adjacent to cycle lanes

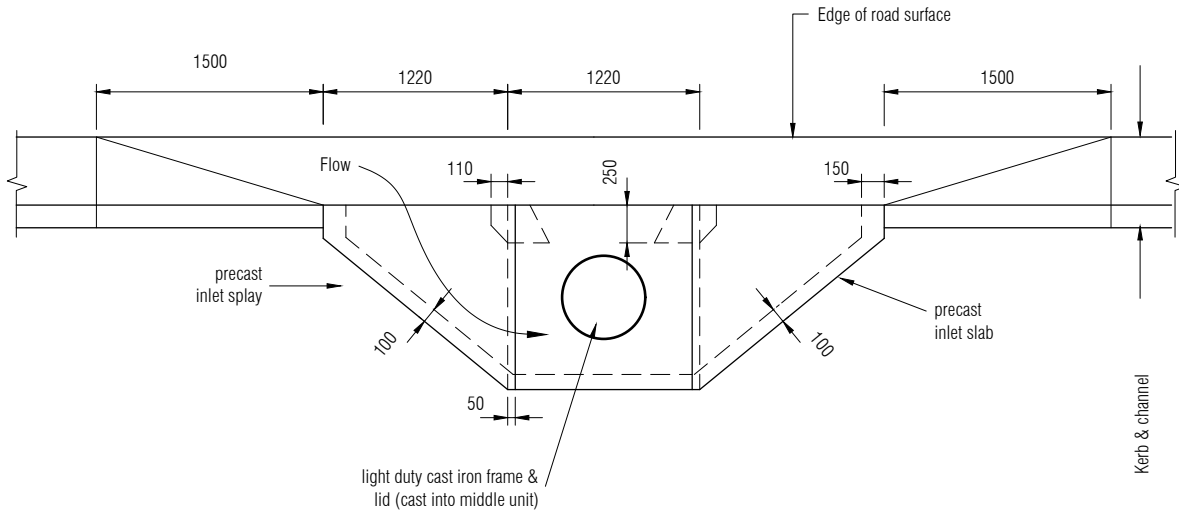


TDM TECHNICAL STANDARDS
Splay catchpit

Date:	16/11/2024	
SED No.	RD0025	Version
	B	



PLAN-SINGLE SPLAY
(DOUBLE OPENING)



PLAN-DOUBLE SPLAY
(TRIPLE OPENING)

NOTES :

- 1. Cycle-friendly. May be used adjacent to cycle lanes



TDM TECHNICAL STANDARDS

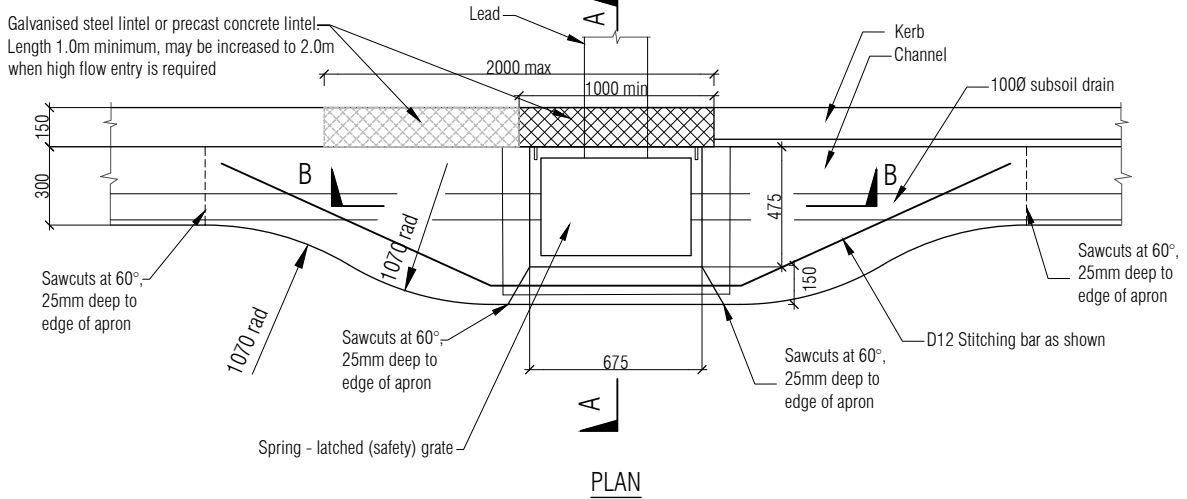
Splay catchpit details

Date: 16/11/2024

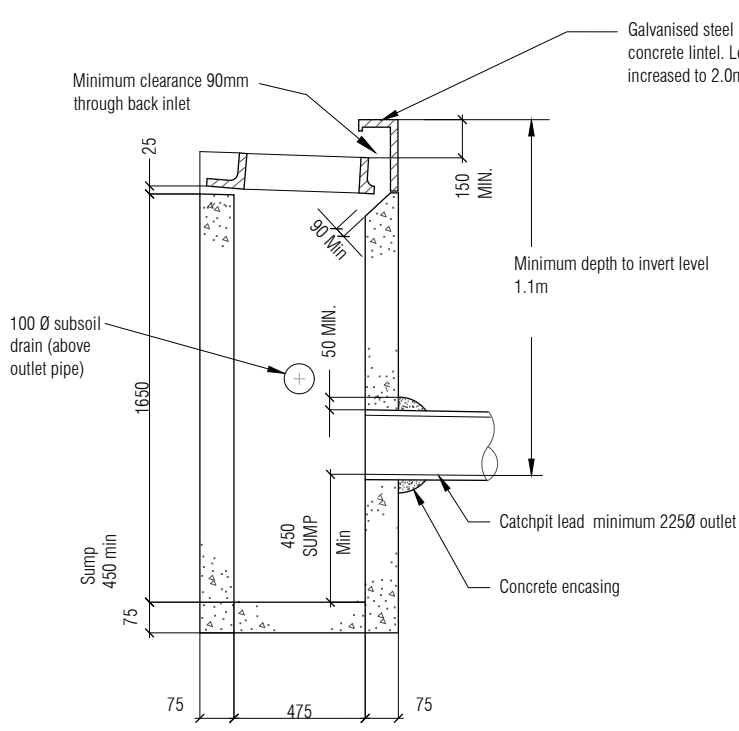
SED No. Version

RD0026

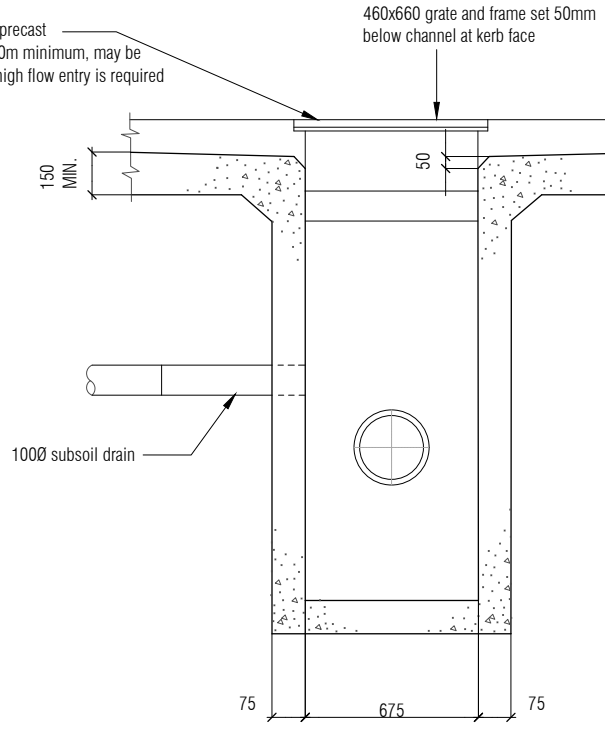
B



PLAN



SECTION A-A



SECTION B-B

NOTES

1. Concrete 25MPa, Fair faced finish.
2. Cast Iron hardware to be supplied ex. approved Foundry.
3. Not cycle-friendly. Do not use where cycle access permitted.
4. Half syphon to be used in combined catchment areas only.
5. Catchpits to be 1.4m deep.
6. Nominal Dimensions only. Refer "Manufacturers Precast Field Catchpit Specifications". Minimum wall thickness 75 mm, Sump depth 450 min. Minimum depth to catchpit lead invert 725mm in grassed areas.
7. Increase class of pipe where minimum cover of 900mm cannot be achieved for Catchpit leads.
8. Standard cast iron grate and frame is shown in drawing. Generally, a shallower ductile iron grate and frame will be used.
9. RD0041 steel back plate may be used in place or concrete lintel where inlet capacity of an existing catchpit requires increasing and RD0040 extended lintel cannot be used. Length 1.0m minimum, may be increased to 2.0m when high flow entry is required
- 10 Catchpit grates should be spring - latched (safety) grate should be Class D to AS3996 with a minimum weight of 62.5kg
 - Comply with EDC - Road drainage & surface water control, Clause 6.5
- 11 Back entry plates and galvanised lintel edges should have rounded edges to minimise worker injury.

1. For Design purposes, entry flow to catchpit = 16-18 l/s.

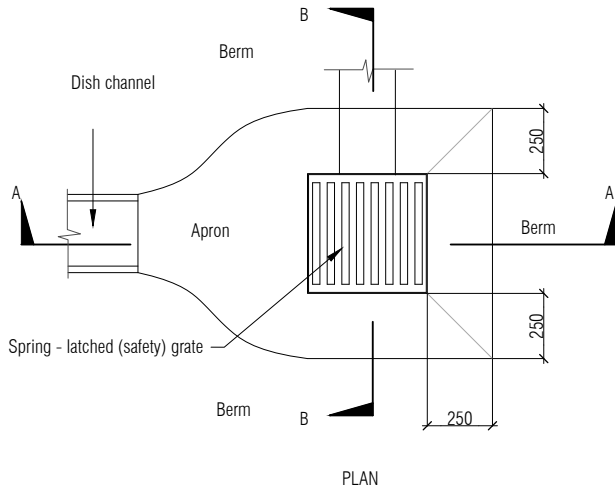
2. See table below for Catchpit Efficiency Guide for gradient of channel flow.

Channel Gradient	% of water collected
1%	82.3
2%	78.2
3%	76.5
6%	71.7
8%	64.6
12%	59.8

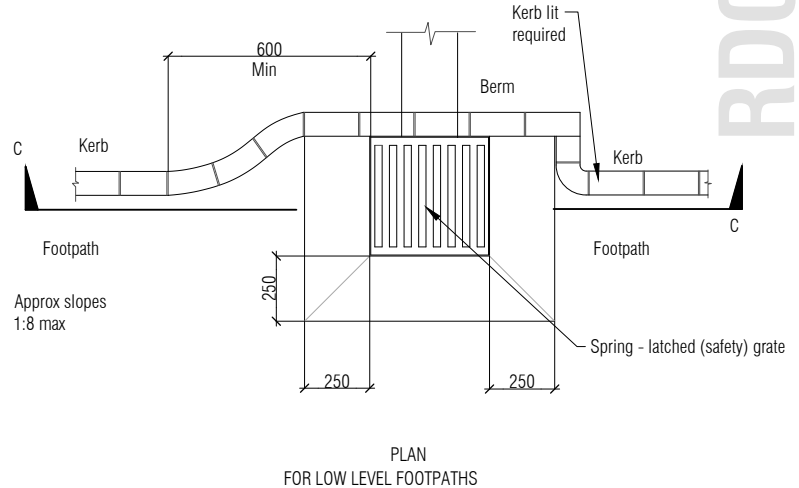


TDM TECHNICAL STANDARDS
Replacement standard catchpit

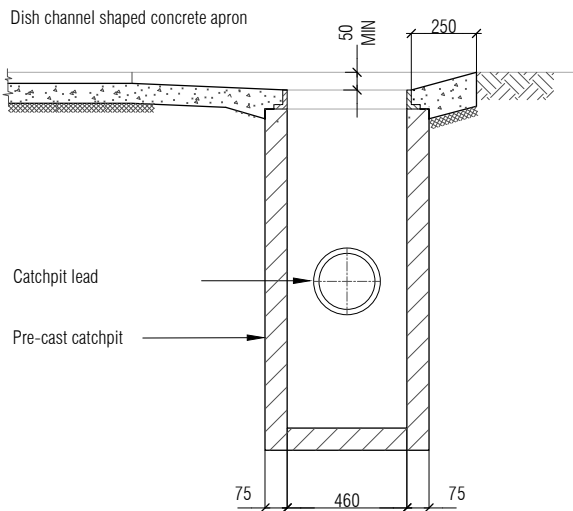
Date:	16/11/2024	
SED No.	RD0027	Version
		D



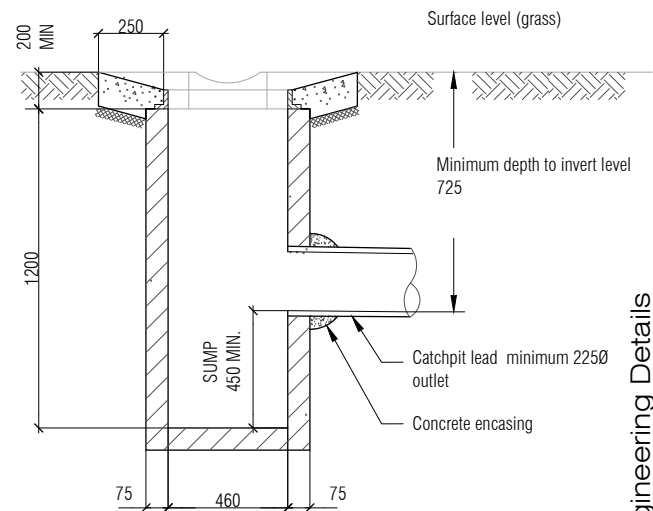
PLAN



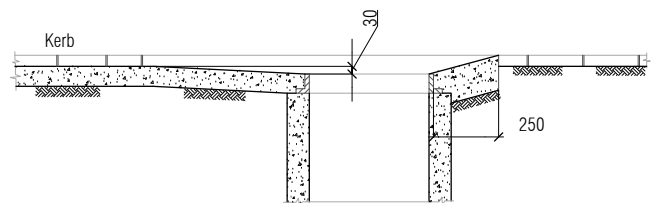
PLAN FOR LOW LEVEL FOOTPATHS



SECTION A-A



SECTION B-B



SECTION C-C

NOTES

1. Concrete 25mpa, fair faced finish.
2. Cast iron hardware to be supplied ex. Approved foundry.
3. Not cycle-friendly. Do not use where cycle access permitted.
4. Half syphon to be used in combined catchment areas only.
5. Catchpits to be 1.4m deep.
6. For design purposes, inlet capacity = 10 l/s
7. Nominal dimensions only. Refer "manufacturers precast field catchpit specifications". Minimum wall thickness 75 mm, sump depth 450 min. Minimum depth to catchpit lead invert 725mm in grassed areas.
8. Increase class of pipe where minimum cover of 900mm cannot be achieved for catchpit leads.
9. Catchpit grates should be spring - latched (safety) grate should be Class D to AS3996 with a minimum weight of 62.5kg
 - Comply with EDC - Road drainage & surface water control, Clause 6.5
10. Back entry plates and galvanised lintel edges should have rounded edges to minimise worker injury.

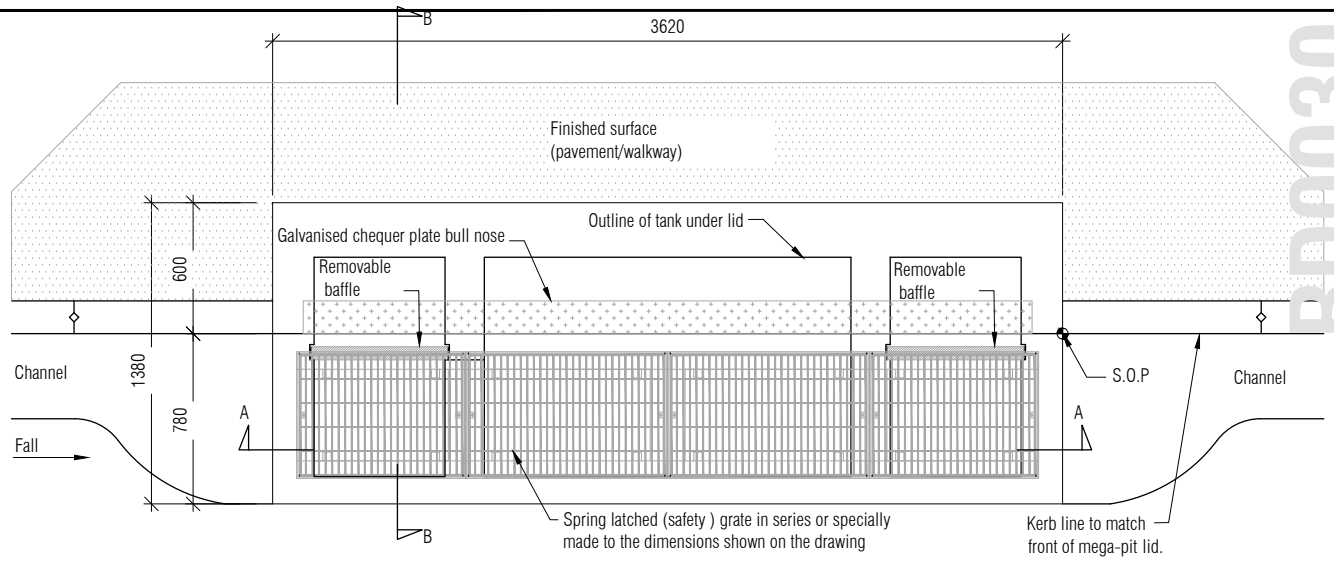


TDM TECHNICAL STANDARDS

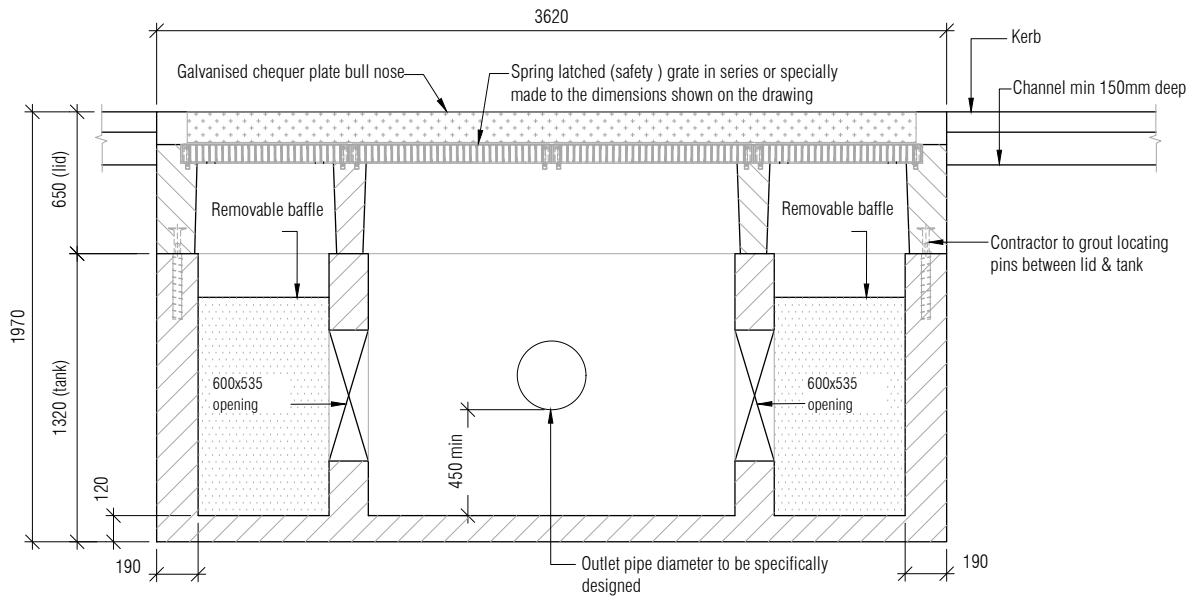
Field catchpit 440 x 440

Date: 16/11/2024

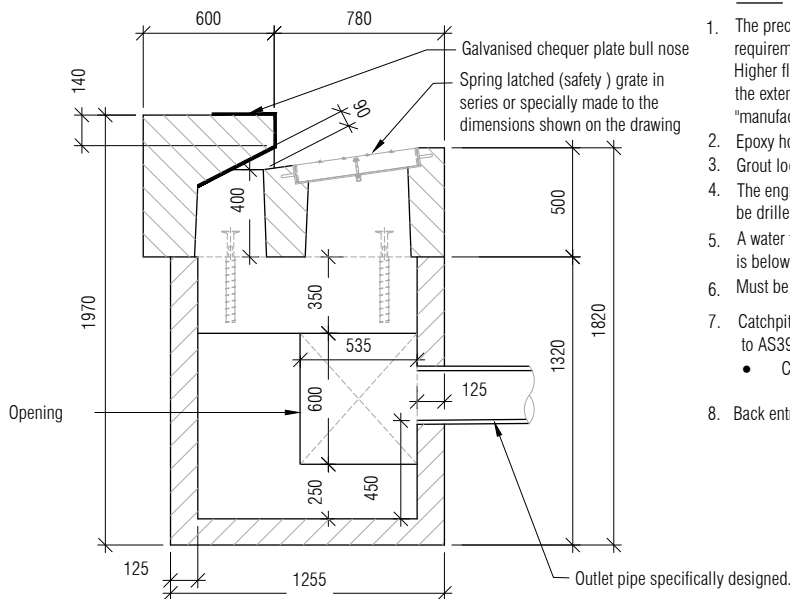
SED No. **RD0028** Version **B**



MEGA-PIT LID PLAN



SECTION A-A



**SECTION B-B (WITHOUT MASS CONCRETE)
FOR UNITS WITHOUT ENVIROPOD**

NOTES

1. The precast 'mega-pit' tank sections are supplied in two configurations depending on the specific site requirements. Higher flows are catered for by increasing the depth & width of the tank section. The lid section contains the extended custom made grate at road level and the extended kerb with the back entry inlet. Refer "manufactures mega-pit specifications".
2. Epoxy horizontal joint between lid and tank units.
3. Grout locating pins between lid & tank units.
4. The engineer shall determine the size and position of the outlet pipe. The hole for the outlet pipe shall be drilled and positioned to allow for a minimum sump depth of 450mm.
5. A water trap outlet must be installed if connected to combined sewer. Design to ensure trapped water level is below top of weir walls.
6. Must be installed in semi-recessed configuration where traffic or cycle lane is adjacent to the kerbline.
7. Catchpit grates should be spring - latched (safety) grate should be Class D to AS3996 with a minimum weight of 62.5kg
 - Comply with EDC - Road drainage & surface water control, Clause 6.5
8. Back entry plates and galvanised lintel edges should have rounded edges to minimise worker injury.

Table for mega-pit dimensions (in mm)				
Unit	Length	Breadth	Depth	Weight
Tank standard	3620	1255	1320	6640 kg
Tank (extra deep)	3620	1820	1840	8400 kg
Lid	3620	1380	650/500	3760 kg



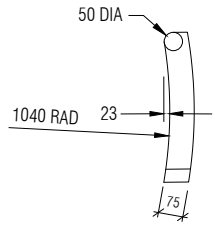
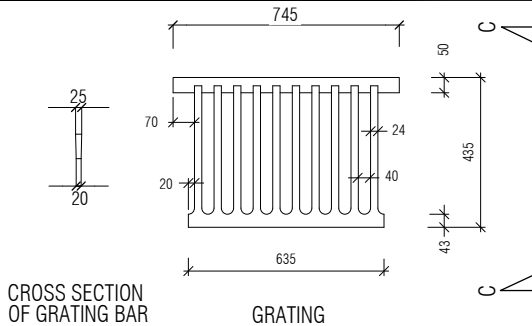
TDM TECHNICAL STANDARDS

Mega-pit

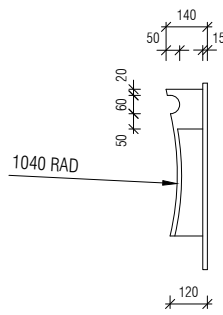
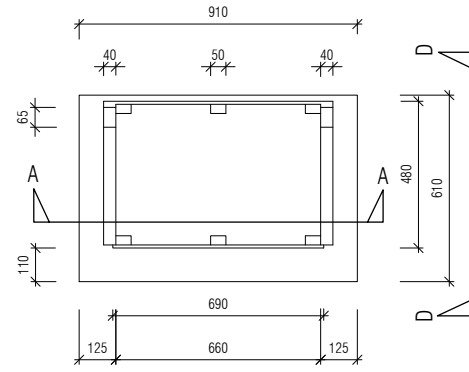
Date: 16/11/2024

SED No. Version

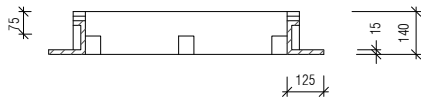
RD0030 B



SIDE ELEVATION C-C



SIDE ELEVATION D-D



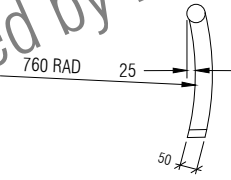
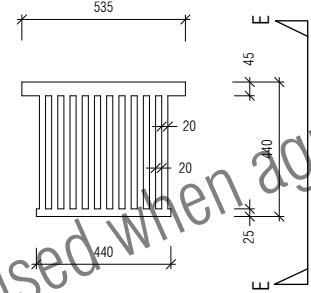
SECTION A-A

450 x 675 CATCHPIT
(FOR ROAD OR PAVED AREAS)

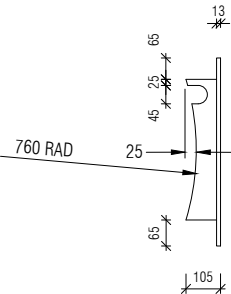
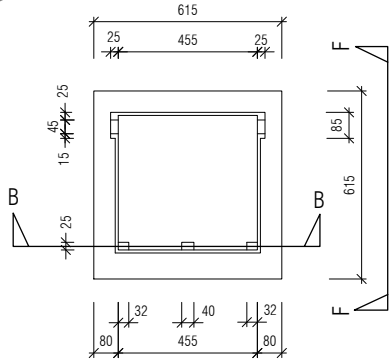
NOTE:

1. Not cycle-friendly. Do not use where cycle access permitted
2. Do not use where AC safety grates are required.

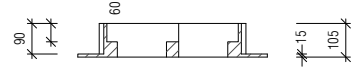
Only to be used when agreed by Design & Standards



SIDE ELEVATION E-E



SIDE ELEVATION F-F



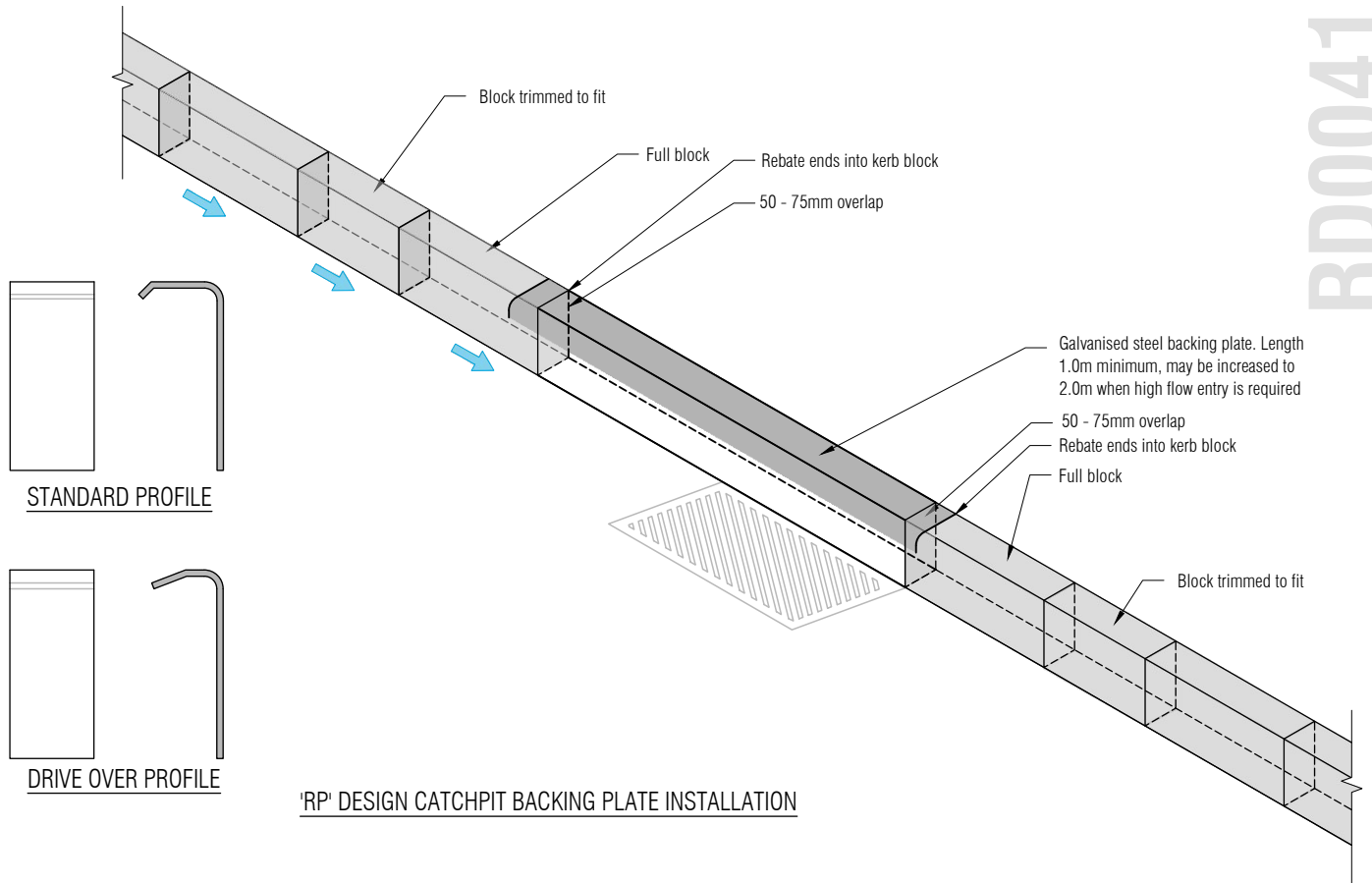
SECTION B-B

460 x 460 CATCHPIT
(FOR BERM OR GRASSED AREAS)

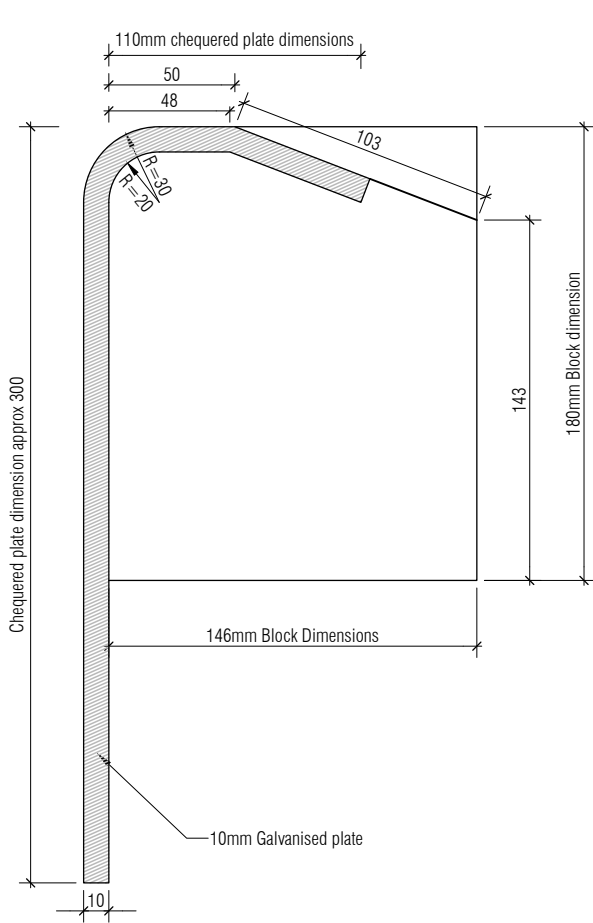
NOTES:

1. Not cycle-friendly. Do not use where cycle access permitted
2. Catchpit grates should be spring - latched (safety) grate should be Class D to AS3996 with a minimum weight of 62.5kg
 - Comply with EDC - Road drainage & surface water control, Clause 6.5
3. Back entry plates and galvanised lintel edges should have rounded edges to minimise worker injury.

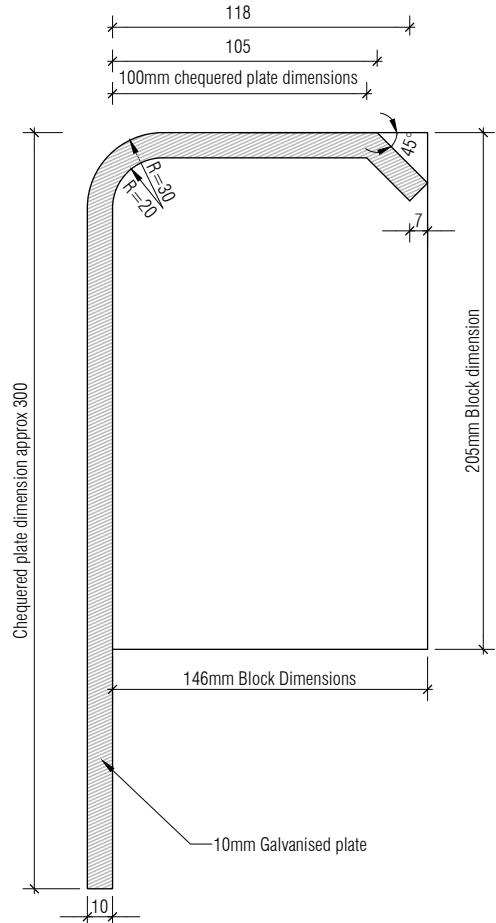




'RP' DESIGN CATCHPIT BACKING PLATE INSTALLATION

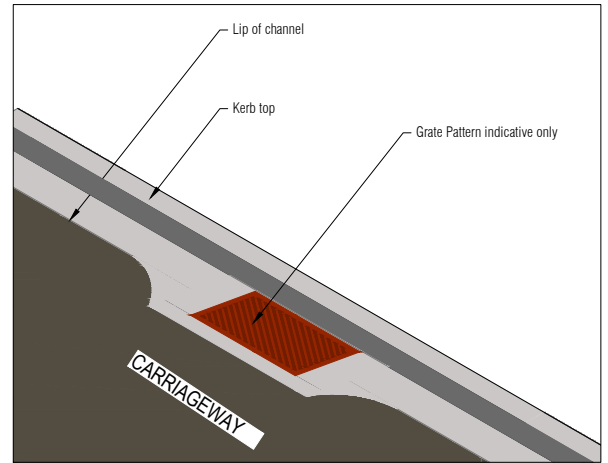
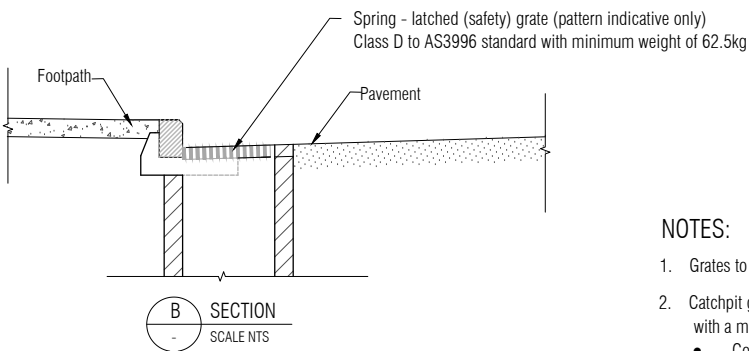
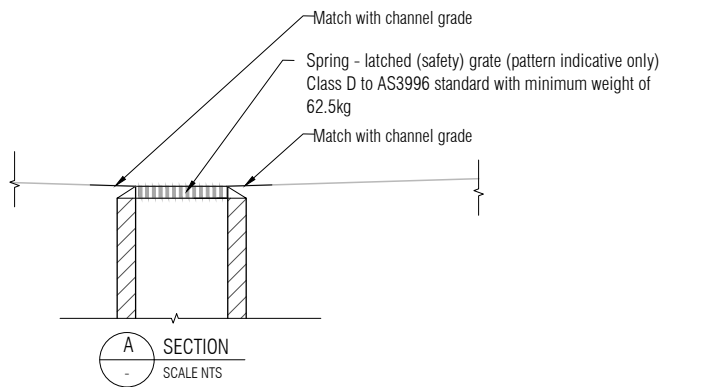
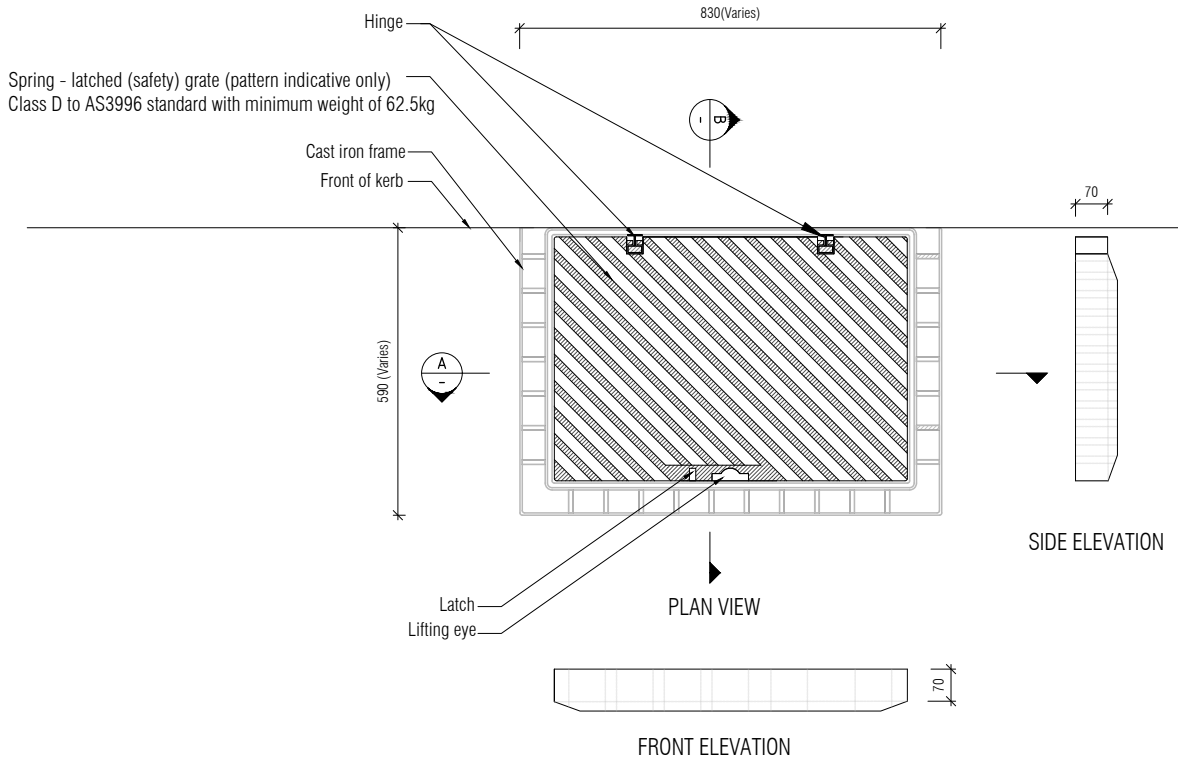


'RP' DESIGN 'DRIVE OVER' PROFILE
BACK PLATE FOR CATCHPIT



'RP' DESIGN STANDARD PROFILE
BACK PLATE FOR CATCHPIT



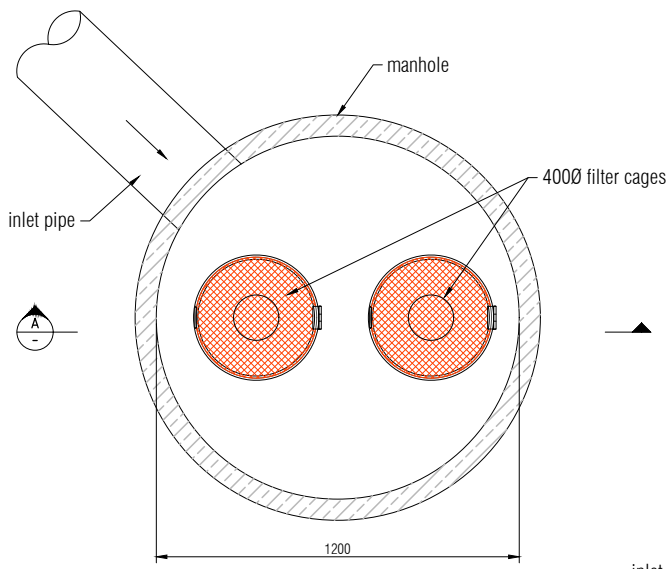


ISOMETRIC VIEW
SCALE : NTS

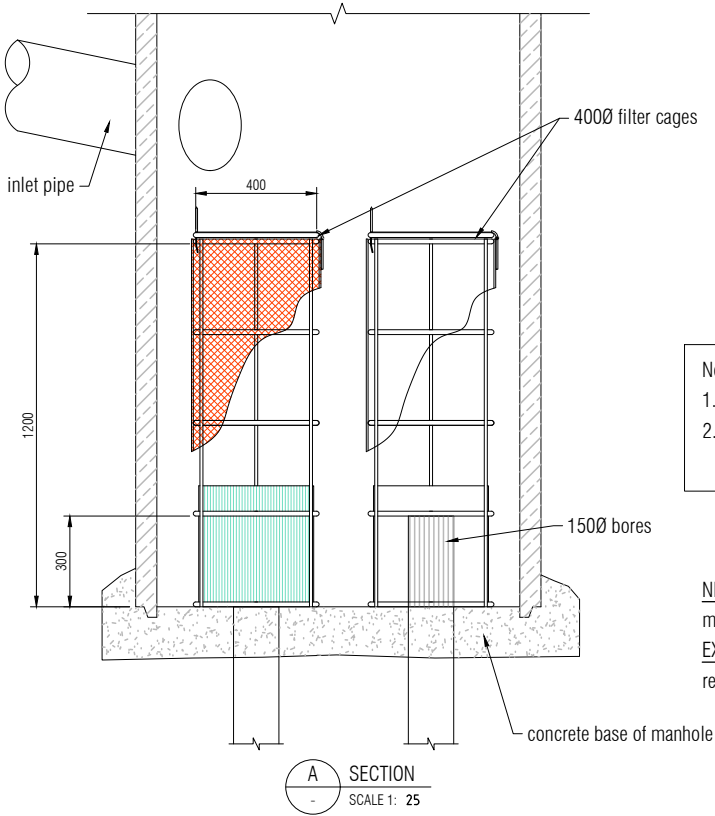
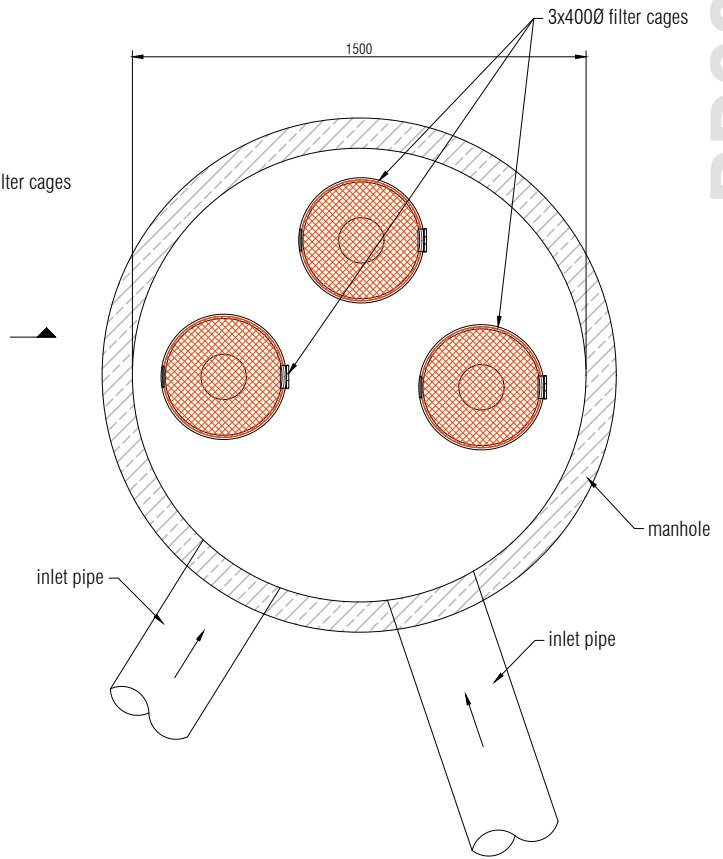
NOTES:

1. Grates to be cycle friendly unless instructed otherwise by AT
2. Catchpit grates should be spring - latched (safety) grate should be Class D to AS3996 with a minimum weight of 62.5kg
 - Comply with EDC - Road drainage & surface water control, Clause 6.5
3. Use only precast concrete catch-pits and make connection to grate/frame with "epoxy bedding" under frame as required. CP grate frame interface with concrete pit should sit true to level.
4. Catchpit exposed to marine conditions should be coated with black corrosion resistance paint.
5. Recommended that frame with flange on 3 sides, allowing installation along kerb.
6. Back entry plates and galvanised lintel edges should have rounded edges to minimise worker injury.





SOAKHOLE WITH 2 BORES
SCALE 1:25



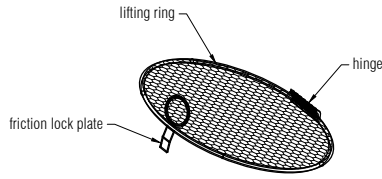
A SECTION
SCALE 1: 25

No. Of bore	Min. Soakhole diameter
2	1200
3	1500
4	1800

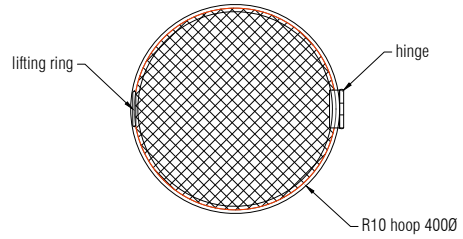
Notes:
 1. Minimum of two bores to be installed in soakhole.
 2. Flow testing of soakholes to be carried out before and after cage installation.

NEW SOAKHOLE
 minimum depth of manhole = 2.5m
EXISTING SOAKHOLE
 retrofit to existing soakhole: cage height = mh depth - 1.0m
 minimum cage height to be 1.0m

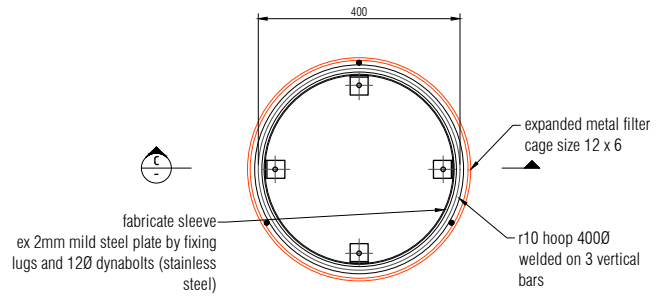




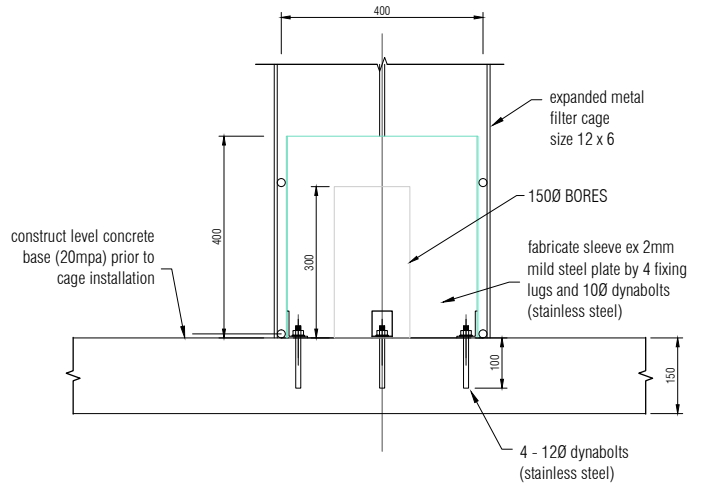
LID 3D VIEW



LID

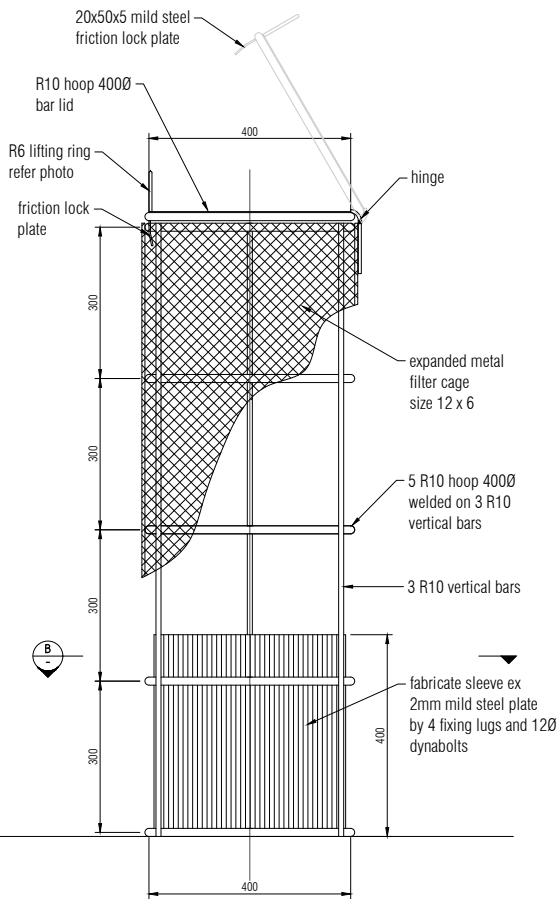


SECTION B
SCALE 1: 15



SECTION C
SCALE 1: 15

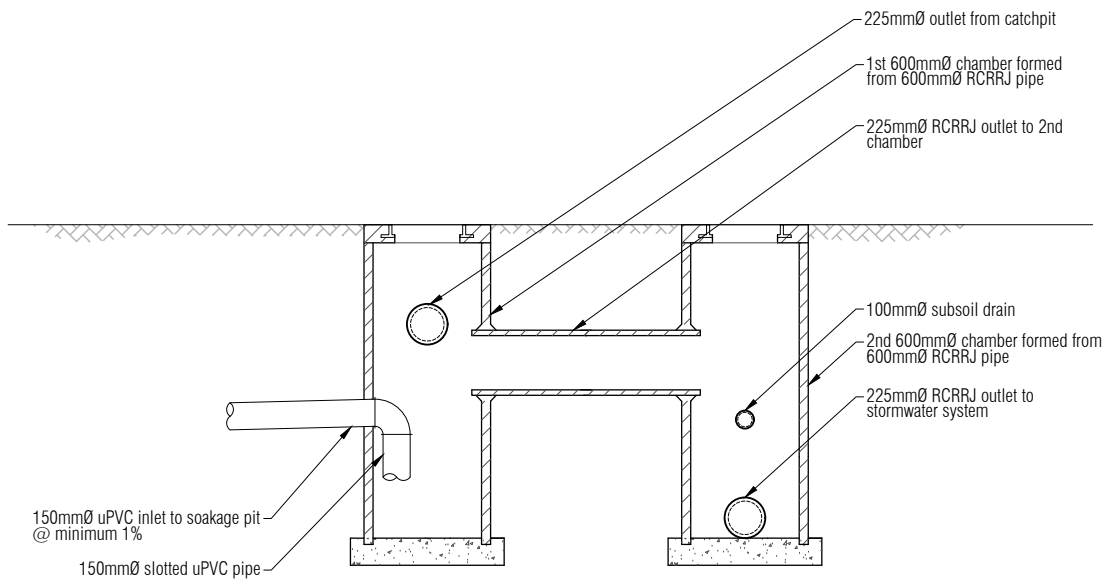
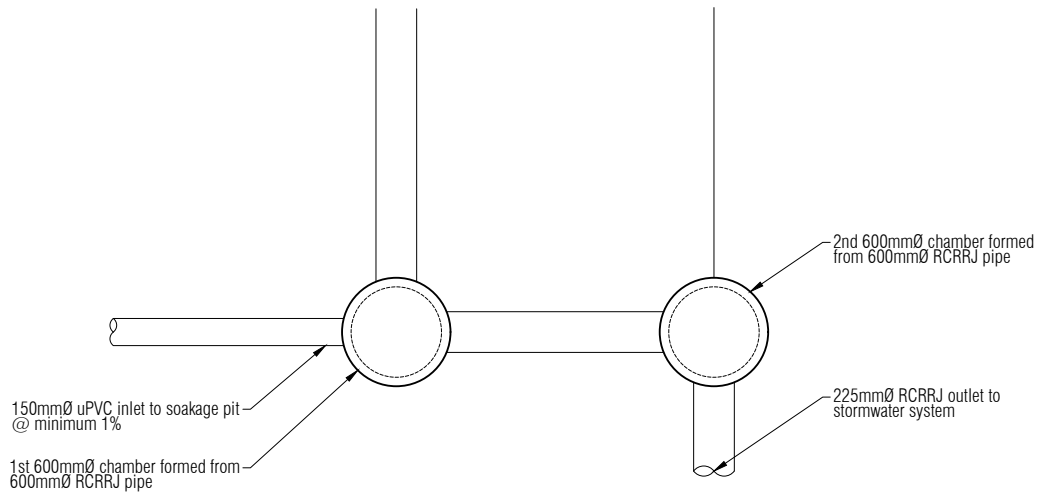
DETAIL 1 FILTER CAGE DETAIL
SCALE 1: 15



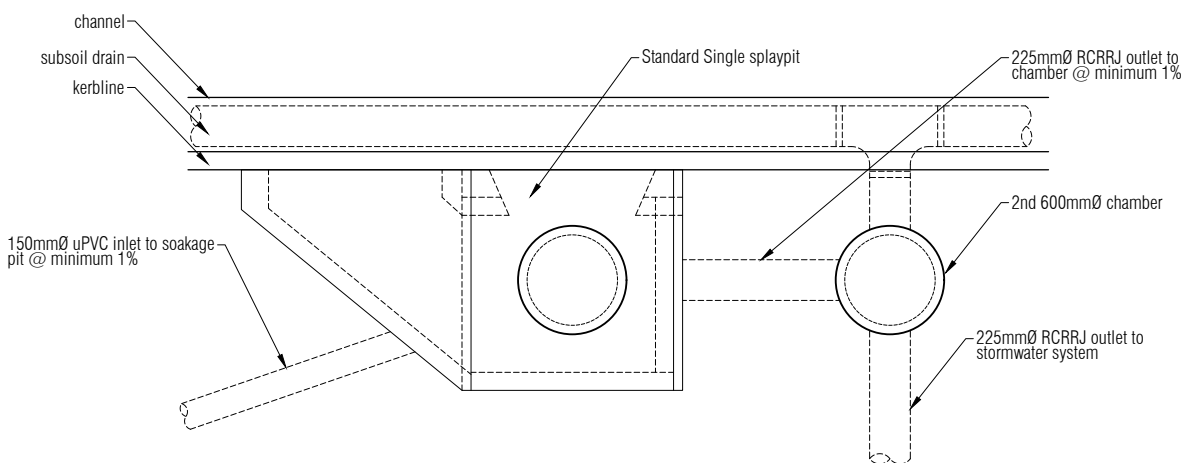
ELEVATION

NOTE:
hot dip galvanised whole cage and sleeve after fabrication.
(approximate weight of whole cage 16 to 18kg)





SECTION A - A



PLAN : STANDARD SPLAYPIT INLET



TDM TECHNICAL STANDARDS

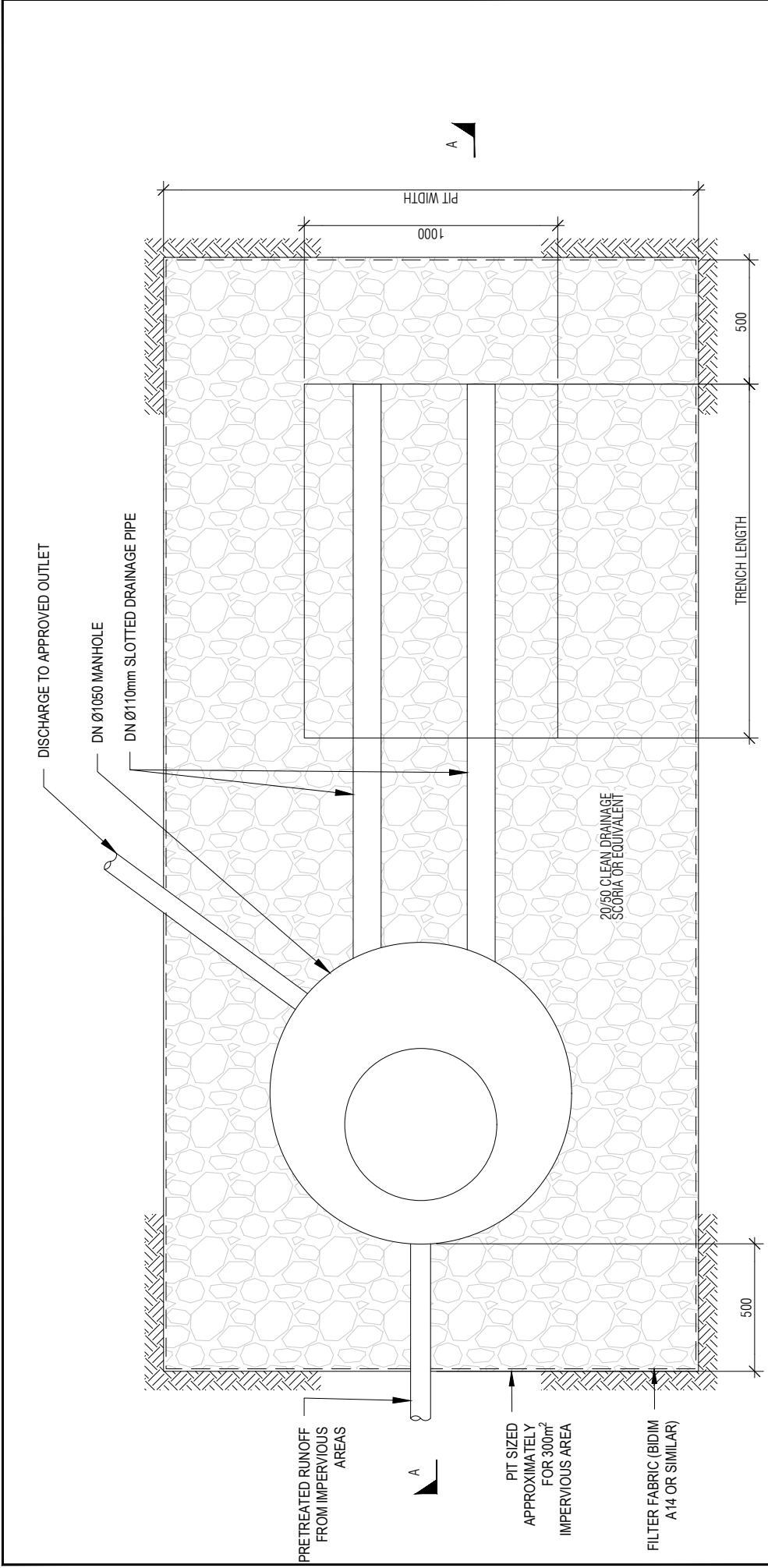
Soakage system inlet details

Date: 16/11/2024

SED No. Version

RD0054

B

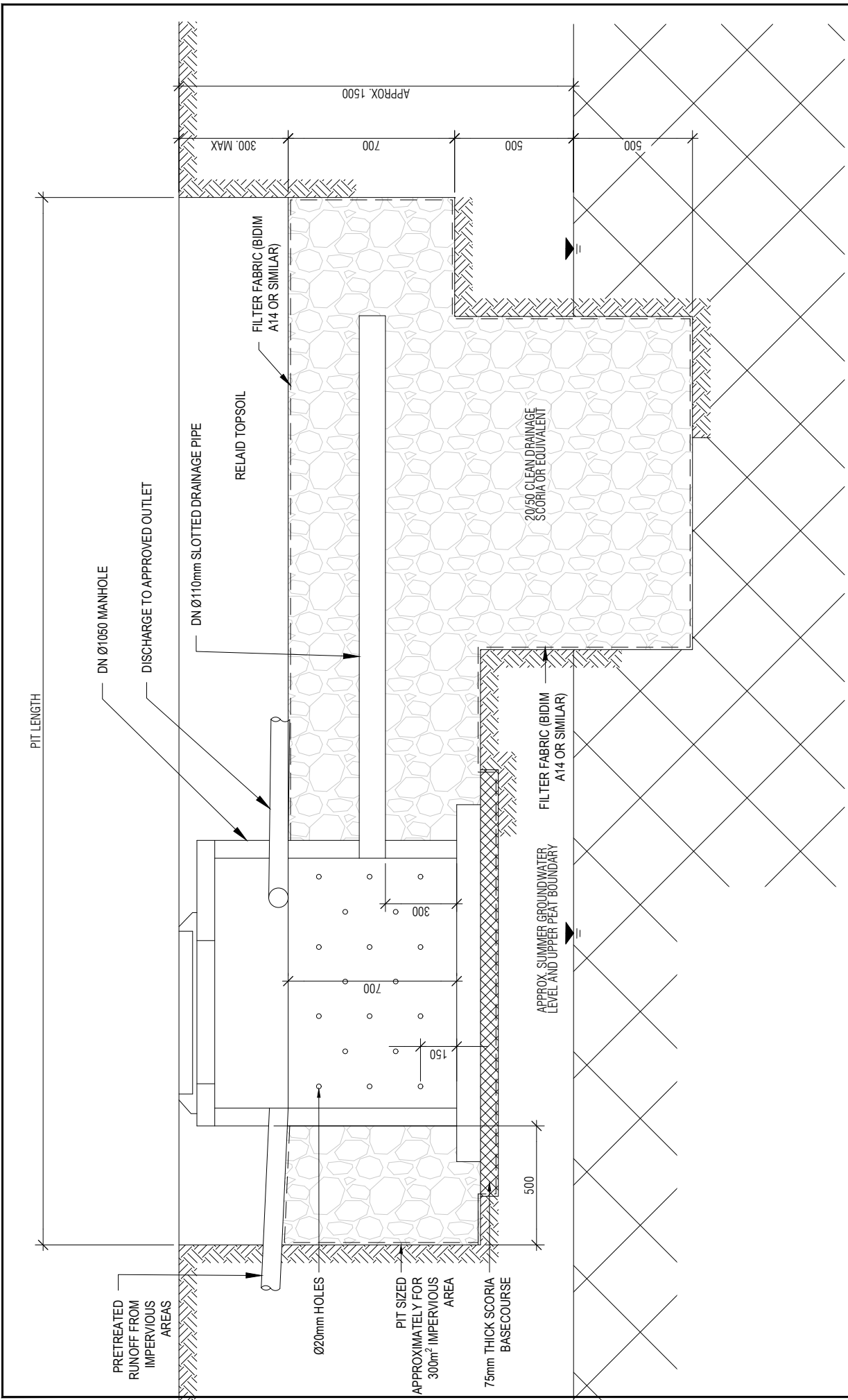


- NOTES**
1. All dimensions are in mm unless otherwise specified.
 2. Private sw connection pipes laid with <600mm cover require concrete protection.
 3. Manhole installation and sw connection to the public system as per the relevant parts of the ac/at code.
 4. Leaf trap to be installed in roof gutters.
 5. All scoria/soil interfaces to be lined with filter fabric (bidim a14 or similar)
 6. Recharge pits must not be located within 3.0m of buildings or boundaries, or 2.0m of sanitary sewers.
 7. 20mm Ø holes in mth chamber to be drilled at 300mm horizontal spacing and 150mm vertical spacing.
 8. Device dimensions to be sized in accordance with atcop-rd053.



TDM TECHNICAL STANDARDS
Groundwater recharge pit for peat areas plan

Date:	16/11/2024	
SED No.	RD0056	Version
	A	



NOTES

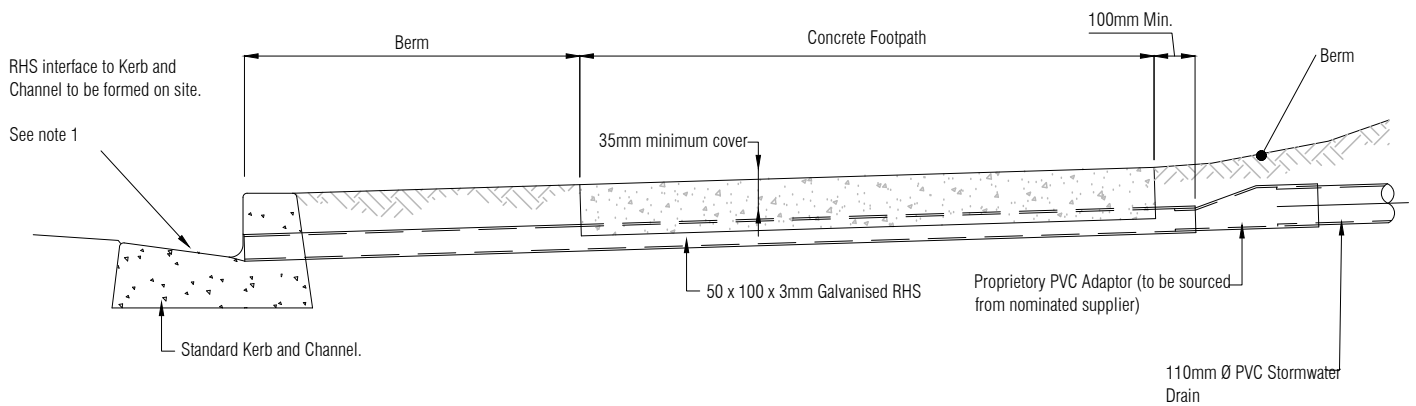
1. All dimensions are in mm unless otherwise specified.
2. Private sw connection pipes laid with < 600mm cover require concrete protection.
3. Manhole installation and sw connection to the public system as per the relevant parts of the ac/at code.
4. Leaf trap to be installed in roof gutters.
5. All scoria/soil interfaces to be lined with filter fabric (bidim a14 or similar).
6. Recharge pits must not be located within 3.0m of buildings or boundaries, or 2.0m of sanitary sewers.
7. 20mm Ø holes in man chamber to be drilled at 300mm horizontal spacing and 150mm vertical spacing.

SECTION A-A



TDM TECHNICAL STANDARDS
Groundwater recharge pit for peat areas (cross section)

Date:	16/11/2024	
SED No.	RD0057	Version
	A	



TYPICAL CROSS SECTION

Scale: Not to Scale

NOTES

1. Invert of pipe may be up to 10mm below the invert of the road channel if exposed kerb face is less than 105mm in height.
2. All dimensions are in millimetres unless otherwise stated.
3. RHS - Rectangular Hollow Section
4. 35mm min.
5. Reinstatement width to be 500mm either side of the new pipe. Kerb cutout to be wide enough to ensure 50mm cover to the new stormwater pipe.
6. Existing kerb to be cut out to facilitate installation of new stormwater pipe and reinstated using epoxy mortar or similar approved to the satisfaction of AT asset manager.
7. A shallow inspection chamber is required at any change of direction between road boundary and outlet.



TDM TECHNICAL STANDARDS

Kerb discharge

Date: 16/11/2024

SED No.	Version
RD0060	A