STANDARD PAVEMENT SUBSURFACE DRAINAGE DETAILS

VOLUME 6 - SUPPLEMENTARY MODEL DRAWINGS

related drawings:
VOLUME 1 - DESIGN AND LOCATION
VOLUME 2 - GRANULAR PAVEMENT WITH BITUMINOUS SURFACING DETAILS
VOLUME 3 - FULL DEPTH ASPHALT PAVEMENT DETAILS
VOLUME 4 - ASPHALT OVER BOUND SUBBASE PAVEMENT DETAILS
VOLUME 5 - RIGID PAVEMENT DETAILS
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<th>SHEET</th>
<th>ISSUE DETAIL</th>
<th>AUTHORISED</th>
<th>DATE</th>
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<td>INITIAL SETUP</td>
<td>PRP&amp;GE*</td>
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<td>EDGE DRAINS</td>
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* DENOTES PRINCIPAL ROAD PAVEMENT AND GEOTECHNICAL ENGINEER
NOTES

1. ALL CONCRETE N20.
2. ALL DIMENSIONS IN MILLIMETRES UNLESS SHOWN OTHERWISE.

STEEP BATTER
STeeper than 4 hor : 1 ver

SCALE 1:10

ELEVATION
TO SUIT BATTER SLOPE
75

SECTION
SCALE 1:10

UNSLOTTED PIPE

6 mm REINFORCING BAR

WING WALL

DEMOUNTABLE GALVANISED
RODENT PROOF MESH COVER

SECTION
SCALE 1:10

ELEVATION

FLAT BATTER
4 hor : 1 ver or flatter

SCALE 1:10

ELEVATION

TO SUIT BATTER SLOPE
75

PLAN
SCALE 1:10

STEEP BATTER
STeeper than 4 hor : 1 ver

SCALE 1:10

SECTION

WING WALL

DEMOUNTABLE GALVANISED
RODENT PROOF MESH COVER

UNSLOTTED PIPE

6 mm REINFORCING BAR

6 mm REINFORCING BAR

6 mm REINFORCING BAR

RODENT PROOF MESH COVER

DEMOUNTABLE GALVANISED

1. WORK VOLUME 6 - SUPPLEMENTARY MODEL DRAWINGS
2. STANDAR D PAVEMENT SUBSURFACE DRAINAGE DETAILS
3. BATTER OUTLET STRUCTURES
4. FOR SUBSURFACE DRAINS

FOR SUBSURFACE DRAINS

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THIS SHEET MAY BE PREPARED USING COLOUR AND MAY BE INCOMPLETE IF COPIED
Plan of Joint
(Used where sub-surface drain turned at right angles across shoulder to outlet)

Section NTS

Notes:
1. All concrete N20.
2. Ensure depth of outlet is sufficient to cater for any future trenching associated with utilities.
3. All dimensions in millimetres unless shown otherwise.

Selected back fill material

Filter material as specified

Corrugated non-perforated plastic drainage pipe

Corrugated perforated plastic drainage pipe

Outlet

Filter material as specified

Selected back fill material

Corrugated non-perforated plastic drainage pipe

Corrugated perforated plastic drainage pipe

Pavement

Verge material

Cold materials

Back fill material

1000

1000

R 1.0m sweep bend
NOTE
1. ALL DIMENSIONS IN MILLIMETRES UNLESS SHOWN OTHERWISE.

FIGURE A
INFLTRATION FROM
SIDE OF TRENCH

FIGURE B
INFLTRATION FROM
TOP OF TRENCH

FIGURE C
CALCULATION OF AREA
OF GEOTEXTILE PER METRE
OF TRENCH LENGTH

OVERLAP LENGTH = W

DIRECTION OF TRENCH AND FLOW

MINIMUM OVERLAP 500

OVERLAP 100

AGGREGATE FILTER MATERIAL
(OR NO FINES CONCRETE
WHERE SPECIFIED)

100 DIA CORRUGATED
PERFORATED PLASTIC
DRAINAGE PIPE OR
150mm RIGID STRIP FILTER

SINGLE LAYER OF GEOTEXTILE
FABRIC AT TOP OF TRENCH

SHEET No
No OF SHEETS

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## OPTIONS FOR TRENCH DRAINS

<table>
<thead>
<tr>
<th>Drain Grade (%)</th>
<th>Maximum Outlet Spacing (m)</th>
<th>Trench Width W (mm)</th>
<th>Minimum Aggregate Filter Material size</th>
<th>Pipe Required</th>
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<tr>
<td></td>
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<td>200</td>
<td>300</td>
<td>500</td>
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### NOTES

a. Trench drains used to drain pavement drainage layers are to be 500 wide and extend 500 below drainage layer with F20 aggregate and corrugated perforated plastic drainage pipes (2x100 on low side and 1x100 on high side) with seamless tubular fabric filter or 200 rigid strip filter wrapped geotextile. Maximum outlet spacing of 50 m or as specified elsewhere.

b. No fines concrete can be substituted for any grade aggregate filter material.

c. Where Class F5 aggregate filter material is used, a pipe must be used due to the likelihood of the drain clogging with fines.

d. Where Class F5 or Class F7 aggregate filter material is used with a corrugated perforated plastic drainage pipe, the pipe must be enclosed in a seamless tubular filter fabric.

e. Pipe can be either 100 nominal diameter corrugated perforated plastic pipe or 150 high rigid strip filter.

f. For grades greater than 2%, the maximum outlet spacing can be increased to 120 m.

g. All dimensions in millimetres unless shown otherwise.
STAGE 1
CONSTRUCT BEFORE PLACEMENT OF SELECTED MATERIAL.

STAGE 2
PLACE SELECTED MATERIAL.

STAGE 3
TRENCH THROUGH SELECTED MATERIAL ZONE AND PLUG EXTEND GEOTEXTILE AND BACKFILL WITH FILTER MATERIAL.

STAGE 4
PLACE PAVEMENT LAYERS

NOTES
1. 100mm DIA CORRUGATED PERFORATED PLASTIC DRAINAGE PIPE MAY BE REPLACED WITH A RIGID STRIP FILTER.
2. ALL DIMENSIONS IN MILLIMETRES UNLESS SHOWN OTHERWISE.
NOT TO SCALE

LAYOUTS AT GULLY PIT

SUBSURFACE PIPE START AT OR NEAR THE SURFACE OF THE PIT AND RUN TO THE NEXT OUTLET.

CONNECT TO CORRUGATED PERFORATED PLASTIC DRAINAGE PIPE.

NON-PERFORATED CORRUGATED PLASTIC DRAINAGE PIPE

CORRUGATED PERFORATED PLASTIC DRAINAGE PIPE

DISCHARGE ABOVE HYDRAULIC HEAD OF STORMWATER PIPE

CORRUGATED PERFORATED PLASTIC DRAINAGE PIPE WITH FILTER SOCK TO BE LAID FOR 3.0m UPSTREAM OF THE GULLY PIT WALL OR HEADWALL TO DRAIN STORMWATER TRENCH.

TRENCH DRAIN TRENCH AT OUTLET TO PIT

PLASTIC DRAINAGE PIPE TO BASE OF TAPER CORRUGATED PERFORATED HEADWALL TO DRAIN STORMWATER TRENCH.

UPSTREAM OF GULLY PITS

CROSS SECTION OF PIPE LAYOUTS

NOT TO SCALE

STORMWATER PIPE

PIPE CAP

PIPE SUPPORT MATERIAL IN ACCORDANCE WITH SPECIFICATION R11

TRENCH BACKFILL MATERIAL IN ACCORDANCE WITH SPECIFICATION R11

STORMWATER PIPE

CORRUGATED PERFORATED PLASTIC DRAINAGE PIPE 3.0m LONG TO DRAIN STORMWATER TRENCH

STORMWATER PIPE

PLASTIC DRAINAGE PIPE

CONNECT TO CORRUGATED PERFORATED PLASTIC DRAINAGE PIPE.

FILTER SOCK TO BE LAID FOR 3.0m UPSTREAM OF THE GULLY PIT WALL OR HEADWALL TO DRAIN STORMWATER TRENCH.

SUBSURFACE DRAINAGE PIPE CONNECTIONS AT STORM WATER PITS

NOT TO SCALE

NOTE

1. ALL DIMENSIONS IN MILLIMETRES UNLESS SHOWN OTHERWISE.
1. May be required for use on steep grades where significant moisture in pavement layers is expected and where the longitudinal flow path is greater than the transverse flow path (longitudinal grade exceeds crossfall) and/or in bags.

2. Spacing to be based on ratio of flow path lengths (longitudinal/horizontal).

3. Consider permeability of pavement layers in relation to suitability of application.

4. Consider interaction with drainage layer where ground water is encountered.

5. For two way cross fall situations outlets are required on both sides.

6. Where slotted FPRP is substituted with Class 1000 corrugated perforated plastic drainage pipe extend intra-pavement drain to 300mm below the selected material zone and place the drainage pipe 100mm above the bottom of the trench.

7. All dimensions in millimetres unless shown otherwise.