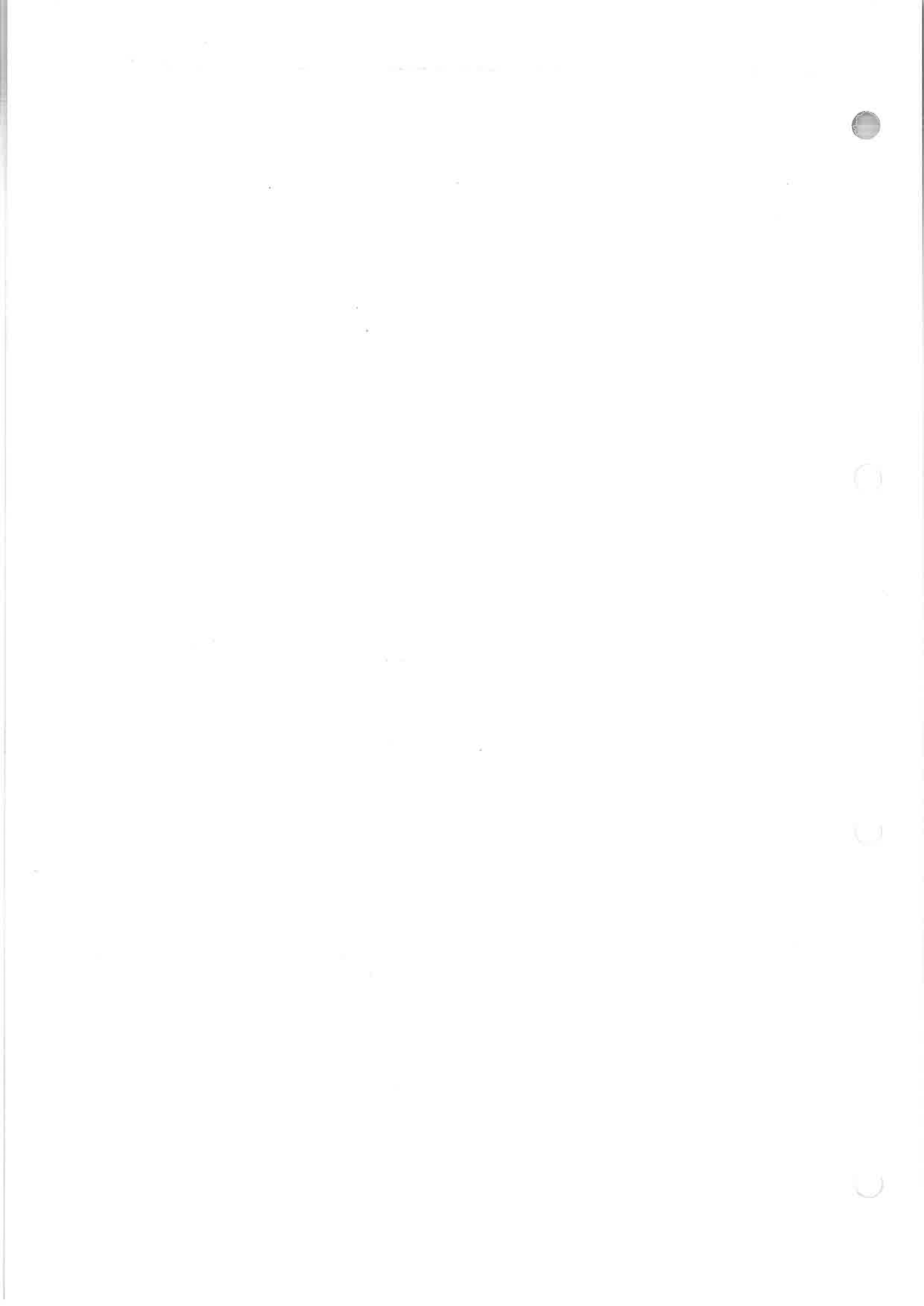


DEVELOPMENT
CONSTRUCTION
SPECIFICATION

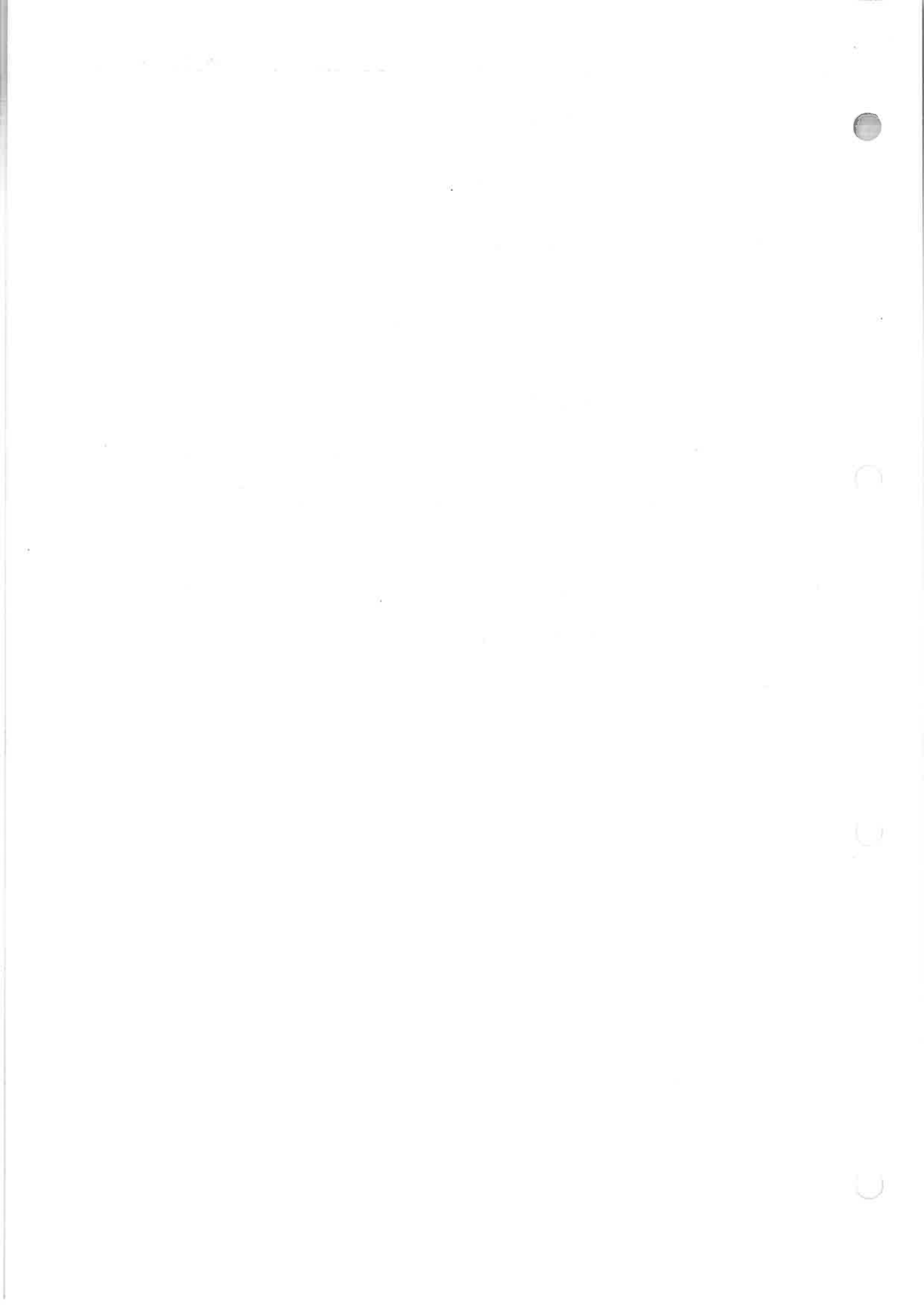
C233

DRAINAGE MATS



SPECIFICATION C233 - DRAINAGE MATS

CLAUSE	CONTENTS	PAGE
GENERAL		1
C233.01	SCOPE	1
C233.02	TERMINOLOGY	1
C233.03	REFERENCE DOCUMENTS	1
C233.04	ORDER OF CONSTRUCTION	1
CONSTRUCTION		1
C233.05	TYPE A MATS	1
C233.06	TYPE B MATS	2
LIMITS AND TOLERANCES		3
C233.07	SUMMARY OF LIMITS AND TOLERANCES	3



SPECIFICATION C233: DRAINAGE MATS

GENERAL

C233.01 SCOPE

- | | |
|---|---------------------------------|
| 1. The work to be executed under this Specification covers the installation of Drainage Mats (Blankets). | <i>Scope</i> |
| 2. Drainage mats shall be constructed where and as shown on the Drawings or as directed by The Geotechnical Engineer or Council's Development Engineer. | <i>Location</i> |
| 3. This Specification should be read in conjunction with Specification C230 - SUBSURFACE DRAINAGE - GENERAL. | <i>Associated Specification</i> |

C233.02 TERMINOLOGY

- | | |
|--|--------------------|
| 1. Type A drainage mats are intended to ensure continuity of a sheet flow of water under fills, to collect surface seepage from a wet seepage area or for protection of vegetation or habitat downstream of the road reserve where a fill would otherwise cut the flow of water. | <i>Type A Mats</i> |
| 2. Type B drainage mats are constructed to intercept water, which would otherwise enter pavements by capillary action or by other means on fills, and to intercept and control seepage water and springs in the floors of cuttings. | <i>Type B Mats</i> |

C233.03 REFERENCE DOCUMENTS

- | | |
|--|---|
| 1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated. | <i>Documents
Standards Test
Methods</i> |
| (a) Council Specifications | |
| C230 - Subsurface Drainage - General | |
| C232 - Pavement Drains | |
| (b) Australian Standards | |
| AS 1289.5.4.1 - Compaction control test – Dry density ratio, moisture variation and moisture ratio. | |

C233.04 ORDER OF CONSTRUCTION

- | | |
|--|--------------------|
| 1. Type A drainage mats shall be constructed after the site has been cleared and grubbed and before commencement of embankment construction. | <i>Type A Mats</i> |
| 2. Type B drainage mats shall be constructed after completion of the subgrade construction and before construction of the pavement. | <i>Type B Mats</i> |

CONSTRUCTION

C233.05 TYPE A MATS

- | | |
|--|-----------------|
| 1. Type A drainage mats shall be constructed under embankments as and where shown on the Drawings or as directed by The Geotechnical Engineer or Council's Development Engineer. | <i>Location</i> |
|--|-----------------|

DRAINAGE MATS

2. After the embankment foundation has been trimmed and any necessary trench drains installed, a geotextile complying with the requirement of Specification C230 - SUBSURFACE DRAINAGE - GENERAL, shall be laid on the embankment foundation. The area of geotextile laid shall be sufficient to cover the area of the Type A drainage mat and an additional amount for enclosing the sides of the drainage mat after the filter material has been placed. Laps of minimum width of 500mm shall be provided at each join in the geotextile. *Placing of Geotextile*
3. Filter material, as shown on the Drawings or as determined by The Geotechnical Engineer or Council's Development Engineer, shall be placed on the geotextile and compacted to the satisfaction of The Geotechnical Engineer or Council's Development Engineer. The minimum thickness of the compacted filter material shall be 300mm plus an allowance for the expected consolidation of the embankment foundation under the embankment load or 500mm if the amount of the expected total consolidation of the embankment foundation is not known. The filter material shall be placed in two or more layers so that no layer, when compacted, has a thickness greater than 250mm. *Placing of Filter Material*
4. After completion of placement and compaction of the filter material, geotextile shall be placed on top of and around the sides of the filter material so that the filter material is completely enclosed by geotextile. The geotextile shall be secured in such a manner as to prevent movement of the geotextile by wind or by construction plant placing subsequent layers of filter material or earth filling over the drainage mat. *Securing of Geotextile*
5. An additional layer of geotextile shall be placed on the drainage mat under the base of any rock facing which may be placed as part of the embankment construction. The additional layer of geotextile shall extend beyond the outside and inside faces of the bottom layer of rock. *Geotextile under Rock Facing*
6. Care shall be taken not to damage the geotextile during the construction of the drainage mat or during placement of subsequent layers of filter material, earth filling or rock facing. Any geotextile so damaged shall be repaired or replaced to the satisfaction of The Geotechnical Engineer or Council's Development Engineer. *Damaged Geotextile*
7. Type A drainage mats shall extend 2m beyond the toes of embankments and such extensions shall be covered by a 300mm thick layer of filter material, as determined by The Geotechnical Engineer or Council's Development Engineer. This protective layer shall be placed immediately after completion of construction of each drainage mat. *Protective Layer*
8. Outlets from Type A drainage mats may be surface outlets at the toes of embankments or piped outlets connected to other drainage systems. Where piped outlets are constructed they shall conform to the requirements of Specification C230 - SUBSURFACE DRAINAGE - GENERAL. *Outlets*
- C233.06 TYPE B MATS**
1. Type B drainage mats shall be constructed in cuttings as and where shown on the Drawings or as directed by The Geotechnical Engineer or Council's Development Engineer. Type B drainage mats shall be constructed for the full width of cuttings and for the pavement width in other locations. *Location and Width*
2. After the subgrade material has been compacted and trimmed, a geotextile complying with the requirements of Specification C230 - SUBSURFACE DRAINAGE - GENERAL, shall be laid on the subgrade. Laps of minimum width of 500mm shall be provided at each join in the geotextile. *Placing of Geotextile*
3. Slotted thick walled unplasticised PVC pressure complying with AS 1477, shall be laid on the geotextile at a distance of 200 mm from and parallel to the longitudinal edges of the drainage blanket as shown on the Drawings. Details of slot sizes and spacings are shown in Specification C233 - PAVEMENT DRAINS. *UPVC Pressure Pipe*
4. Filter material complying with the requirements in Table C230.1 shall be placed on *Placing of*

the geotextile and compacted to achieve a relative compaction, determined by AS 1289.5.4.1 of at least 100 per cent (standard compaction). Alternatively, The Geotechnical Engineer or Council's Development Engineer may approve the use of a coarser filter material having a maximum particle size of 75mm and a maximum D90/D10 ratio of three.

Filter Material

5. The thickness of the compacted filter material shall be as shown on the Drawings or as tabled in this specification. If the required thickness of compacted filter material is greater than 250mm, the filter material shall be placed in two or more layers so that no layer, when compacted, has a thickness greater than 250mm.

Thickness of Filter Material

6. After completion of placement and compaction of the filter material, geotextile shall be placed on top of and around the sides of the filter material so that the filter material is completely enclosed by geotextile. The geotextile shall be secured in such a manner as to prevent movement of the geotextile by wind or by construction plant placing pavement layers over the drainage mat.

Securing of Geotextile

7. Care shall be taken not to damage the geotextile during the construction of the drainage mat or during placement of subsequent pavement layers. Any geotextile so damaged shall be repaired or replaced to the satisfaction of The Geotechnical Engineer or Council's Development Engineer

Damaged Geotextile

8. The surface of the completed drainage mat shall be at the design level for the top of the drainage mat with a tolerance of plus zero and minus 40mm.

Surface Level Tolerance

9. Outlet structures where specified, or where directed by The Geotechnical Engineer or Council's Development Engineer, shall be in accordance with the requirements of Specification C230 - SUBSURFACE DRAINAGE - GENERAL.

LIMITS AND TOLERANCES

C233.07 SUMMARY OF LIMITS AND TOLERANCES

1. The limits and tolerances applicable to the various clauses in this Specification are summarised in Table C233.1 below.

Item	Activity	Tolerances	Spec Clause
1.	Filter Material		
	(a) Layer Thickness	250 mm max.	C233.05 C233.06
	(a) Compaction (Relative) Type A filter material	100% Standard	C233.06
2.	Type B Mats		
	Design Level at top of mat	+0, -40 mm	C233.06

Table C233.1 - Table of Limits and Tolerances

