

# Roads

## Master Specification

### RD-EW-S1 Supply of Geotextiles

#### Document Information

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## RD-EW-S1 Supply of Geotextiles

### 1 General

- 1.1 This Part specifies the requirements for supply of:
- a) geotextiles used as separation, filtration, or drainage elements in earthworks and pavement construction; and
  - b) paving fabrics used in bituminous spray sealing applications.
- 1.2 Any project specific requirements will be shown on the drawings or the Contract Documents.
- 1.3 Document(s) referenced in this Part are listed below:
- a) AS 3706      Geotextiles – Methods of Test.

### 2 Properties of Geotextile Material

- 2.1 Geotextiles must consist of woven or non-woven fabric manufactured from synthetic fibres of a long chain polymer such as polypropylene, polyethylene, polyester or similar. After forming, geotextiles must be processed so that the fibres retain their relative positions with respect to each other.
- 2.2 Geotextiles must be free from defects or flaws which significantly affect its physical and / or filtering properties.
- 2.3 If geotextiles are to be joined, the thread used for joining must be high strength polyolefin, polyester or Kevlar.
- 2.4 Non-woven geotextiles must have filaments bonded by needle punching, heat or chemical bonding processes.
- 2.5 Woven geotextiles must have filaments interlaced in two sets, mutually at right angles. One set must be parallel to the longitudinal direction of the geotextile.
- 2.6 Geotextiles must be stabilised against deterioration due to ultraviolet radiation.

### 3 Properties of Geotextiles

#### Geotextiles Used for Filtration, Drainage and Separation

- 3.1 The Geotextile Strength Rating "G" must be calculated as follows:

$$G = \sqrt{(L \times h50)}$$

Where:

- L      =    Plunger failure load (N) as determined by AS 3706.4 "Determination of Burst Strength; CBR Plunger Method".
- h50    =    Normalised drop height (mm) as determined by AS 3706.5 "Determination of Puncture Resistance; Drop Cone Method".

Type 1 geotextiles: must have a G rating greater than 2 000.

Type 2 geotextiles: must have a G rating greater than 3 000.

#### Geotextiles Used in Spray Seals (Paving Fabrics)

- 3.2 The minimum melt temperature of the fabric must be greater than 195oC. At least 28 days prior to use, the Contractor must provide the Bitumen Retention rate. Provision of this information shall constitute a **Hold Point**.
- 3.3 In addition to the requirements of Clause 5 "Storage, Packaging and Identification", the Contractor must prevent the contamination of geotextiles used in sealing applications from precipitation and any other source of moisture.

## 4 Sampling and Testing

- 4.1 Geotextiles must be tested by a NATA certified testing authority in accordance with AS 3706.1 "General Requirements, Sampling, Conditioning, Basic Physical Properties and Statistical Analysis".
- 4.2 The Contractor must provide test results for each of the properties listed in Section "Test Procedures" to demonstrate conformance with this Specification.
- 4.3 The sampling and testing frequency must be in accordance with the following:

**Table RD-EW-S1 4-1 Geotextiles - sampling and testing frequency**

| Batch or order size (sq. m) defined as the lot size | Number of rolls to be sampled representing the lot |
|---|--|
| Initial 10 000 or part thereof                      | 1  |
| Each subsequent 10 000 (maximum)                    | 1  |

- 4.4 Prior to use, the Contractor must provide a certificate of compliance, certifying that the geotextile complies with all requirements of this Specification for each type of geotextile. All test results reported on NATA endorsed test documents must accompany the certificate.
- 4.5 Control testing must be carried out for each batch of geotextile in accordance with the Geotextile Supplier's quality system.
- 4.6 Submission of the above certificate shall constitute a **Hold Point**.

## 5 Storage, Packaging and Identification

- 5.1 Geotextiles must be stored under protective cover or wrapped with a waterproof, opaque UV protective sheeting to avoid any UV damage prior to installation.
- 5.2 Geotextiles must not be stored directly on the ground or in any manner in which they may be affected by heat. The method of storage must be in accordance with any other recommendations set by the manufacturer.
- 5.3 The geotextile rolls must be clearly labelled showing manufacturer, type of geotextile and batch identification number.

## 6 Test Procedures

- 6.1 The Contractor must use the following test procedures (refer [https://www.dpti.sa.gov.au/contractor\\_documents](https://www.dpti.sa.gov.au/contractor_documents)) to verify conformance with the Specification:

**Table RD-EW-S1 6-1 Test Procedures**

| Property  | Test procedure |
|---|----------------|
| General Requirements, Sampling, Conditioning, Basic Physical Properties and Statistical Analysis. | AS 3706.1      |
| Determination of Burst Strength - California Bearing Ratio (Cbr) Plunger Method                   | AS 3706.4      |
| Determination of Puncture Resistance - Drop Cone Method   | AS 3706.5      |
| Determination of Pore Size Distribution – Dry Sieving Method                                      | AS 3706.7      |
| Determination of Tensile Properties—Wide-Strip Method   | AS 3706.2      |
| Determination of Durability – Resistance to Degradation by Heat, Light and Moisture               | AS 3706.11     |
| Mass Per Unit Area  | AS 3706.1      |
| Bitumen Retention   | ASTM D6140-00  |

## 7 Hold points

- 7.1 The following is a summary of Hold Points referenced in this Part:

| Ref. | Hold point                          | Response time  |
|------|-------------------------------------|----------------|
| 3.2  | Provision of Bitumen Retention Rate | 7 working days |

| Ref. | Hold point   | Response time  |
|------|--|----------------|
| 4.   | Prior to use of geotextile – verification requirements | 7 working days |

## 8 Measurement

- 8.1 If measurement is required for the purpose of payment, the measurement must be based on the final surface area covered, with no allowance for the specified overlaps.
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