

## Certificate of acceptance of a geosynthetic material

**Product:** ParaGrid series uniaxial geogrid Grades 30/5, 40/5, 50/5, 65/5, 80/5, 90/5, 100/5, 110/5, 120/5, 135/5, 150/5, 160/5, 175/5, 200/5, 30/15, 50/15, 80/15, 100/15, 120/15, 150/15, 160/15, 200/15

**Expiry date:** 28/02/2027 subject to the conditions of expiry of certificate below

### Certificate history

Certificate no.	Issue no.	Date	Issue history
9	1	17/05/17	First accepted for use
	2	11/11/2020	Resubmission accepted for use
	3	10/12/2021	Removed 50/50 and 100/100
	4	27/07/2022	Updated ISO certificate expiry date for UK manufacturing plant and Geofabric NZ QMS certificate
	5	28/02/2024	Renewal after expiry on 11/11/2023.

### Manufacturer

Linear Composites Ltd  
Vale Mills  
Oakworth  
Keighley  
West Yorkshire  
BD22 0EB  
UK

Contact: Tim Balderson  
E-mail: [t.balderson@maccaferri.com](mailto:t.balderson@maccaferri.com)

### Supplier

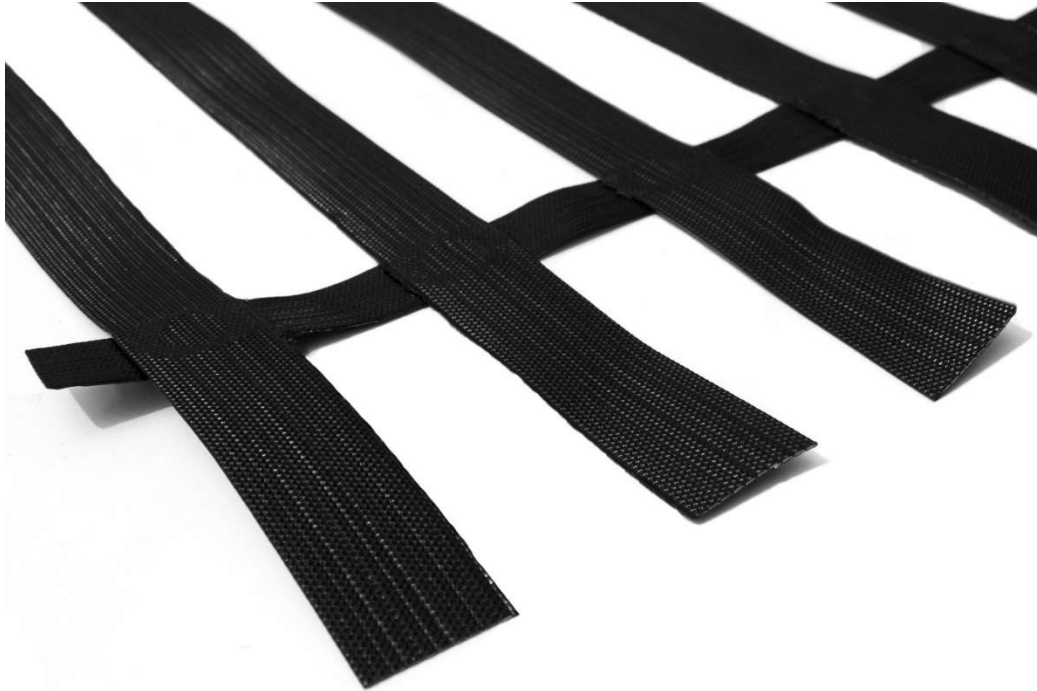
Geofabrics  
PO Box 12536  
Penrose  
Auckland 1642  
New Zealand

Contact: Gordon Stevens  
Telephone: +64 9 634 6495  
E-mail: [g.stevens@geofabrics.co.nz](mailto:g.stevens@geofabrics.co.nz)

### Product description

A geogrid made up of planar structures consisting of a biaxial array of composite geosynthetic strips. The strips contain a core of high tenacity polyester tendons encased in a polyethylene sheath.

## Product appearance



## Material properties

Refer to the appended ParaGrid technical datasheet.

## Packaging

The manufacturer shall identify each roll of product with the manufacturer's name and plant, product specification number, grade and batch identification, date code, and nominal dimensions. Labels shall be permanently fixed to each roll.

The manufacturer shall furnish complete written instructions for the storage, handling and installation of the product with the conditions of this warranty.

## Basis and scope of acceptance

Review of the Geofabrics Ltd submission for ParaGrid geogrid renewal dated 16 November 2023

## Scope of acceptance

The products above are accepted for use on Waka Kotahi projects within the defined scope of acceptance and any specific conditions of this certificate. Failure to abide by the certificate requirements may lead to the Waka Kotahi acceptance and the certificate becoming invalid.

This acceptance is issued in accordance with clause 6.8.1 of the 3<sup>rd</sup> Edition of the Waka Kotahi Bridge Manual and applies only to product sourced from the stated manufacturer.

This acceptance excludes any mechanically stabilised walls facing systems and connection between the facing system and the composite geotextile. Facing systems and connections, where applicable, shall be specifically designed on a project by project basis

This acceptance relates to the ParaGrid product only when used on Waka Kotahi projects for the specific use mentioned in the type of acceptance stated below. It does not remove the requirement for detailed design of the product.

### **Type of acceptance**

Accepted for specific use: Soil reinforcement

~~Accepted for provisional use~~

~~Not accepted / rejected~~

### **Product details supplied with the manufacturer's / supplier's submission**

Refer to the appended ParaGrid technical datasheet.

### **Specific Conditions of Use**

1. Users of the product are responsible for ensuring compliance with the certificate conditions. If a condition is not understood, guidance should be sought from Waka Kotahi.
2. The supplier shall provide product specifications and user manuals to purchasers / users of the product
3. The supplier shall notify Waka Kotahi within 20 working days of any deficiencies affecting the product quality, functionality and safety integrity (including corrective actions undertaken or proposed)
4. The supplier shall notify the Waka Kotahi within 20 working days of any intended change of the certified product including but not limited to:
  - a change of the product configuration (to the actual product or its application)
  - a variation to or addition of manufacturing locations or process
  - a change in the name or ownership of the manufacturing company.
5. Renewal of this certificate will be required if product specifications, product parameters, manufacturing standards or the manufacturer / supplier of the product change
6. Users receiving this product are responsible for ensuring that it is fit for purpose and that application of use complies with the scope from the Waka Kotahi acceptance
7. Anyone aware of any defect of the certified product (manufacture fault or any other defect) should notify the supplier immediately and Waka Kotahi in writing within 10 working days
8. Anyone becoming aware of a change to the product configuration (to the actual product or its application) and a variation to or addition of manufacturing locations or processes, should inform Waka Kotahi in writing within 10 working days
9. This acceptance is given for the specified product and its use as specified in the product configuration section of this certificate only
10. The product must be used / installed in accordance with the product installation specifications and relevant Waka Kotahi specifications. Where there is discrepancy between the product manual(s) and Waka Kotahi specifications and standards, the users must notify Waka Kotahi and seek resolution
11. Reference to this acceptance certificate should be given in project drawings and specifications.

### **Construction Quality Assurance Requirements**

Installers must ensure that they are familiar with relevant conditions, requirements and limitations of the product.

Verification of conformance of geosynthetics delivered to Waka Kotahi project sites with the manufacturer / supplier's specifications and the geosynthetic parameters advised by the manufacturer / supplier is the contractor's responsibility. Procedures specified in *ASTM D4759 Standard practice for determining the specification conformance of geosynthetics* can be used for this purpose.

The users shall review and verify submittals and sample information from the supplier. The users shall proceed with ordering the product only after the submittals have been reviewed.

The product delivered to the site shall be visually inspected by the users to check that the delivered product complies with the product description given in supplier's submittals and that labelling on the product confirms this. If changes in the product occur prior to the acceptance of the product by the user, the product shall be tested and evaluated with respect to the requirements of the contract documents. Product not meeting the requirements shall be removed from the site and replaced.

The manufacturer shall certify the quality of the rolls of the product. As a minimum, the manufacturer shall provide quality control certificates for each batch of product and each shift's production. These quality control certificates shall be signed by an officer of the manufacturer and provided to the user at least three weeks prior to the installation of the product.

The quality control certificate shall include:

- roll numbers and identification
- sampling procedures
- result of quality control tests, including a description of test methods used.

### **Expiry of Acceptance**

This acceptance expires on **28 February 2027** unless revoked and replaces any previous acceptance.

The current ISO9001:2015 certification expires on **31 July 2025** for the Linear Composites Ltd manufacturing plant and on **15 October 2026** for Geofabrics NZ Ltd. This acceptance expires for this plant for product manufactured after the expiry date unless the certificate is renewed and provided to Waka Kotahi.

This acceptance will also expire if BBA HAPAS Certificate 16/H249 issued on 17 March 2021 becomes invalid after passing the review period of 3 years from the date of issue.

The accepted product must not be deployed on state highway projects after the expiry date of acceptance unless a further period of acceptance is granted or the product has been formally included in relevant Waka Kotahi specifications. Failure to submit a renewal as required will void the product from the Waka Kotahi accepted product list.

Should Waka Kotahi discover that information on material composition and properties (including test data), manufacturing and quality assurance procedures or any other material information supplied with the submission were flawed, or that in-service performance of the product reveals unacceptable problems, or that the product being supplied and / or marketed differs significantly from the product that was approved, it reserves the right, at any time, to modify or revoke its acceptance of the product.

**Authorised by the Lead Advisor Structures  
Transport Services  
Waka Kotahi NZ Transport Agency**

## Appendix A – Summary table

PARAGRID Grade	Avg. Tensile strength - MD	Avg. Tensile strength - CMD	Strip reinforcement polymer	Strip coating polymer	Mass per unit area	Roll width	Roll length
	kN/m	kN/m	-	-	g/m <sup>2</sup>	m	m
30/5	37	6	PET	PE	213	3.9	100
40/5	46	6	PET	PE	218	3.9	100
50/5	57	6	PET	PE	244	3.9	100
65/5	70	6	PET	PE	312	3.9	80
80/5	86	6	PET	PE	362	3.9	80
90/5	96	6	PET	PE	397	3.9	80
100/5	106	6	PET	PE	416	3.9	80
110/5	116	6	PET	PE	441	3.9	50
120/5	125	6	PET	PE	452	3.9	50
135/5	141	6	PET	PE	510	3.9	50
150/5	160	6	PET	PE	567	3.9	50
160/5	170	6	PET	PE	604	3.9	50
175/5	185	6	PET	PE	656	3.9	50
200/5	212	6	PET	PE	705	3.9	50
30/15	37	17	PET	PE	328	3.9	50
50/15	57	17	PET	PE	367	3.9	50
80/15	86	16	PET	PE	435	3.9	50
100/15	106	16	PET	PE	488	3.9	50
120/15	130	17	PET	PE	547	3.9	50
150/15	160	17	PET	PE	671	3.9	50
160/15	170	17	PET	PE	700	3.9	50
200/15	212	17	PET	PE	781	3.9	50

(1) Short-term tests in accordance with EN ISO 10319:2015. The values given are mean values of ultimate strength and tolerance values correspond to the 95% confidence level to establish the characteristic short-term tensile strength ( $T_{ch}$ ) in accordance with EN 13251:2016;