



Strategic Infrastructure Enhancement for High-Load Capacity

Cambridgeshire Reconstruction Programme



 **Contractor:** Octavius

 Long Drove - B660, Holme, Peterborough

 **Sector:** Infrastructure & Transport (inc Rail)

 **Client:** Cambridgeshire County Council

Project Overview

The Long Drove site, situated in a region characterised by demanding agricultural and logistical activity, required a complete infrastructure overhaul to meet modern operational standards. The existing access route had suffered years of degradation due to the combination of high-water tables and consistent heavy vehicle movements, leading to a surface that was no longer fit for purpose. The resurfacing project was not merely a cosmetic upgrade but a structural necessity. The primary driver was the requirement for the road to support heavy plant machinery and logistics fleets essential for the site's continued commercial viability. Without intervention, the deteriorating ground conditions posed a significant risk to vehicle safety and operational efficiency.

The Challenge

The site team faced significant technical constraints, primarily revolving around poor California Bearing Ratio (CBR) soil conditions which threatened the stability of the proposed access route. Traditional road construction would have required:

- Extensive excavation of sub-soils.
- Importation of vast quantities of expensive virgin aggregate.
- Extended project timelines due to complex ground preparation.
- Increased carbon emissions from heavy transport logistics.

The objective was clear: create a stable, safe, and reliable surface capable of supporting heavy vehicles whilst reducing the reliance on imported materials and minimising site disruption.

Innovative Solutions:

Geosynthetics Ltd specified a bespoke reinforcement system featuring Cellweb® wide. By implementing Cellweb® wide, the engineering team was able to:

- ◆ **Enhance Load Distribution:**
The cellular confinement system of Cellweb® wide provided exceptional lateral restraint for the aggregate, spreading loads across a wider area to protect the subgrade.
- ◆ **Reduce Aggregate Requirements:**
The structural reinforcement allowed for a significant reduction in the depth of the granular sub-base, cutting down on imported material needs.
- ◆ **Accelerate Installation:**
The lightweight and flexible nature of the product ensured a faster, safer deployment compared to rigid alternatives.



Results & Benefits Delivered:

1

Structural Integrity: The reinforced road successfully accommodated the required heavy plant loads without deformation.

2

Sustainability: By reducing the need for imported stone and soil disposal, the project lowered its overall environmental footprint.

3

Site Efficiency: The system provided a reliable, long-term access route that met the specific logistical requirements of the Long Drove location.

4

Technical Reliability: The access road maintained full structural integrity under peak plant loads, with zero recorded instances of surface deformation.

Key Takeaway

The Long Drove project demonstrates how Cellweb® wide provides a technically sound and resource-efficient alternative to traditional road construction. By addressing poor CBR values with cellular confinement, Geosynthetics Ltd delivered a stable, high-capacity access route with minimised environmental disruption.

Client Testimonial

"Throughout the design process, Geosynthetics were especially helpful in providing advice and geotechnical design support. We were able to produce a design tailored to the needs of the site that was verified and adjusted by Geosynthetics as required to ensure the long-term performance of the scheme. ...We are confident that defects we saw previously in the carriageway would now be mitigated for the foreseeable."

Jacob Longbottom - Cambridgeshire County Council
Design Engineer - Asset Management, Design & Delivery

