

OOSTERWEEL VERBINDING -LINKEROEVER, G03 ANTWERP, ANTWERP, BELGIUM

Reinforced Soil Walls and Slope Reinforcement

Problem

The Oosterweel Link project is a new 15km-long motorway connection developed by Lantis for completing the Antwerp ring road R1 (Belgium). It is a major project in Belgium and its design started in the 1990s to find a solution to the congestion problems in and around Antwerp. The total estimated cost of the project is approximately €4.5bn. The Antwerp ring road is a key part of the Trans-European Transport (TEN-T) Core Network.

Maccaferri collaborated with the design and building of the Mechanically Stabilized Earth (MSE) walls with its main product family „Terramesh“. This is a well-known system used in Europe and in the rest of the world to support or enable the construction of infrastructures in tight urban corridors, forming retaining walls, road embankments, wing walls and bridge abutments known as Geosynthetic Reinforced Soil-Integrated Bridge Systems (GRS-IBS).

„Terramesh“ double twist steel wire mesh reinforcements have been used in combination with ParaLink® and Paragrid® geogrids representing an evolution and a significant advantage for both cost-effectiveness and performance. The project includes 15.000 facing sqm of „Terramesh Green®“, 14.000 facing sqm of „Terramesh Mineral® and System® and 5.000 facing sqm of gabion cladding.

Solution

The maximum retaining height of the direct bridge abutment called G03 is 13m with a front inclination of 85°. For the front Terramesh units were used, while for the main reinforcement, ParaLink and Paragrid geogrids were laid with a nominal tensile strength from 150 kN/m up to 700 kN/m. Main challenges have been encountered in the optimization and computation of the materials during the design processes, which have been made with the combined use of LEM, FEM, and BIM technologies, and mainly during installation due to the strict restrictions given by demanding geometry of the facing of the structures provided in the design. The geometry of the constructed structures has been checked with in situ testing, resulting in consistency within the design tolerances with a maximum measured vertical settlement of 160mm.

Client: Lantis / Texion Geosynthetics NV

Designer / Consultant: Arcadis NV /Lantis

Contractor: Stadsbader NV

Products used (Qty.)

- Terramesh	3.400 sqm of Terramesh
- MonoAxial GeoGrids	Paragrid/Paralink: 45.000sqm

Date of construction: 06/2021 - 06/2023

[Google Maps](#)

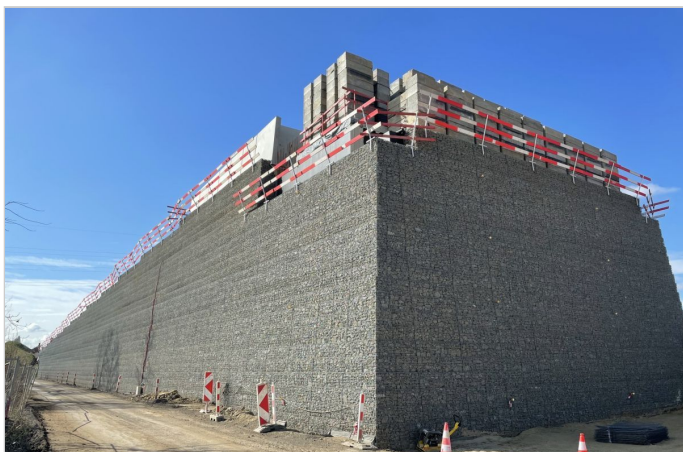
[Google Earth](#)



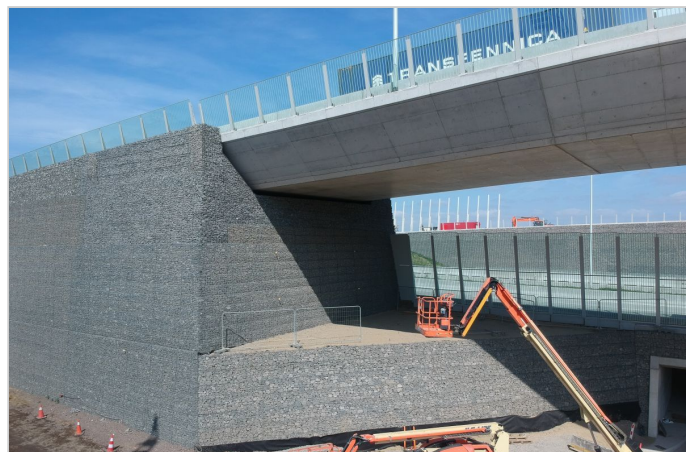
Start of the works of the object G03



End of the works and pre-loading phase



Bottom view of the direct bridge abutment



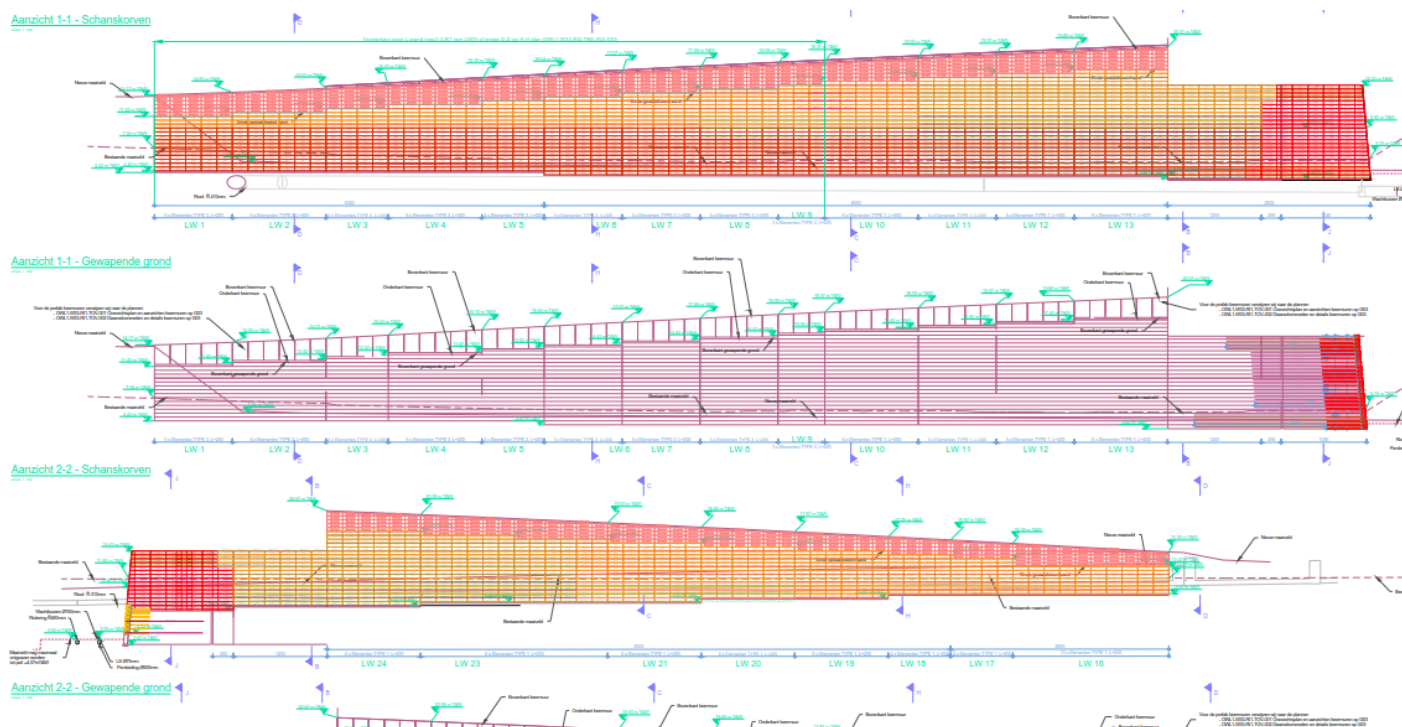
Launch of the road bridge



Detail of the road bridge



Drone view of the bridge abutment



Design front view

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