MACCAFERRI

CASE HISTORY

Ref: UK / CH / SSP — Rev: 01, February 2017

OAKLEIGH ROAD SOUTH VEHICLE DEPOT

BARNET, LONDON

SOIL STABILISATION

Product: MacGrid EG40S

Problem

Barnet Council was working with its appointed contractor, Willmott Dixon, to develop the Oakleigh Road South Vehicle depot (the former Abbots Depot site).
The Oakleigh Road South Vehicle Depot will provide a range of facilities for Barnet's waste collection service.
Alongside parking facilities for refuse and recycling collection vehicles, the new depot will house a vehicle maintenance building and cleaning bay, refuelling facilities and a covered bulking facility allowing recyclables to be put into larger vehicles for processing outside the borough.
The road make-up at the site entrance/junction off Oakleigh Road South was then modify.
To allow the Heavy Goods Vehicle (HGV) operations and accommodate the heavy loadings that effect the pavement structure, the use of a geogrid was considered.
The general site CBR was 3%, but with weak areas of CBR 1%.

Solution

A reinforced pavement structure was then defined considering a subgrade CRB=1% and the use of the Maccaferri EG40S geogrid as soil stabilisation within the unbond layers.

The reinforced pavement structure was identified using the American Association of State Highways and Transportation Officials (AASHTO) method which is commonly used worldwide for the design of flexible pavements.
Such method consists in defining a target thickness, called Structural Number SN, based on the expected traffic for the whole design life of the road and on the characteristics of subgrade.
When the extruded biaxial geogrid MacGrid EG is introduced for base and/or subbase reinforcement, their structural contribution to the flexible pavement system can be quantified by the increase in the layer coefficient of the aggregate base and subbase course.
This modified AASHTO method has been implemented in the in-house Maccaferri Software MACREAD 2.0 considering a parameter called LCR (Layer Coefficient Ratio).

LCR value is determined based on the results from laboratory testing on flexible pavement systems with and without geogrid.

Initial phase in June 2016

Type 1 (SHW) sub-base material on top of Macgrid EG40S

Main Client:

LONDON BOROUGH OF BARNET

Main Contractor:

WILLMOTT DIXON

Installer:

KANE GROUP

Engineer Consultant:

CAPITA

Products used:

MACGRID EG40S (20,000sqm)

Date of construction:

June 2016 - July 2016

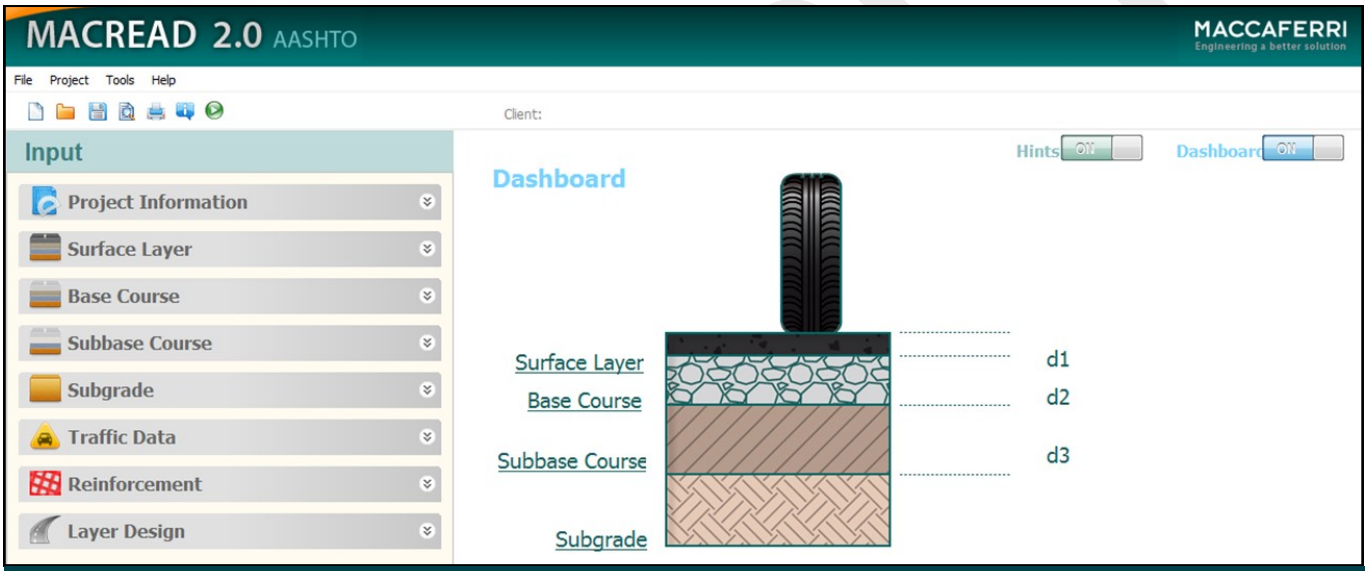
MACCAFERRI

The LCR value is considering the SNr, structural number of the reinforced section, and SNu, structural number of the unreinforced section. Both SN numbers are evaluated under the same pavement conditions, i.e. same base course depth, subgrade CBR, and rut depth.
In this way, the MACREAD 2.0 could compare the unreinforced and reinforced pavement package.

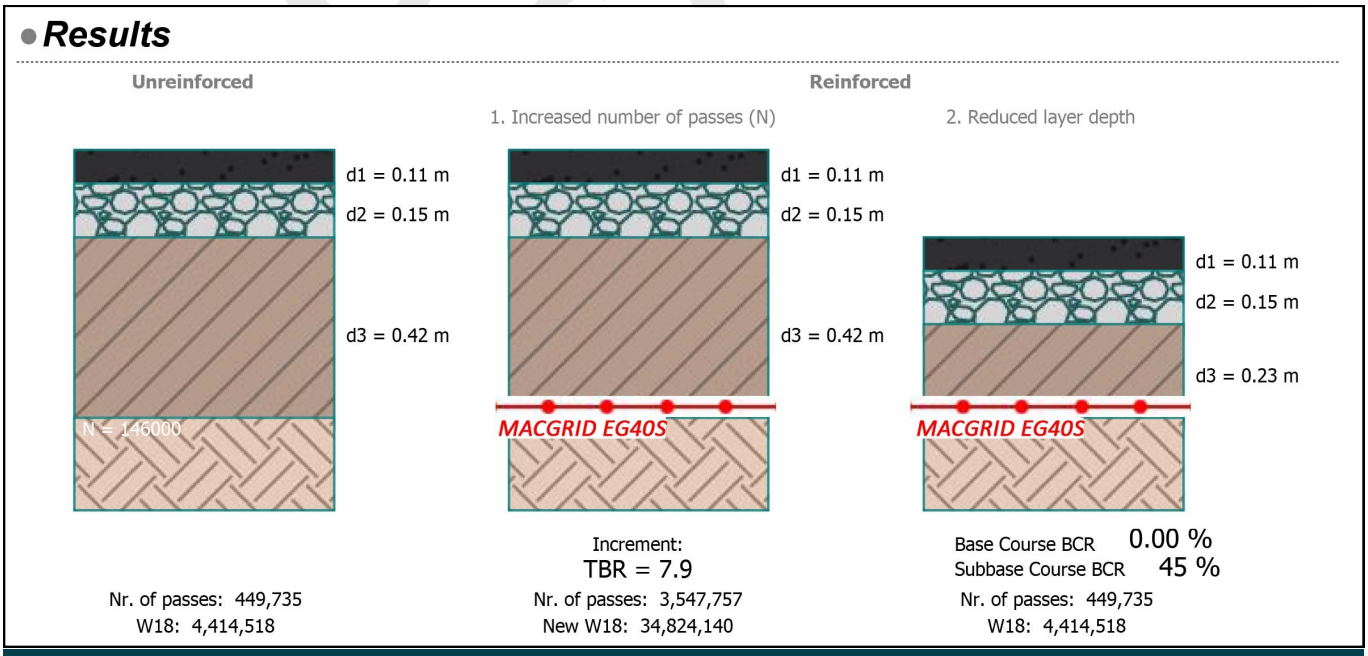
A clear and transparent output result will be provided explaining the benefit and advantages if MacGrid EG is considered within the pavement structure.

The addition of MacGrid EG 40S in the subgrade course results in an important increase of the design life or in a significant thickness reduction of the pavement package.

MacGrid EG40S laid with min 300mm roll overlap



Maccaferri MACREAD 2.0 software: initial screen



MACREAD 2.0 output result for Oakeleigh Road: comparison between the unreinforced and reinforced pavement section

Maccaferri Ltd:
Building 168, Harwell Campus, Didcot, OX11 0QT
T: (+44) 1865 770555
Rep of Ireland:
T: (+353) 18851662 www.geostrong.net

Specialist areas:
Sales: E: sales.uk@maccaferri.com
Technical: E: technical.uk@maccaferri.com
Construction: E: construction.uk@maccaferri.com
www.maccaferri.com/uk