

Route to Gold

Period 5



What is Construction Route to Gold?

Route to Gold is a performance measurement initiative within the Southern region Capital Delivery supply chain. The initiative aims to promote collaborative working behaviours, reduce costs caused by re-work and embed a culture of continuous improvement within the rail industry.

Balcombe Embankment was the highest scoring site for Period 5

Balcombe Embankment is situated on the Brighton main line in a rural location in Sussex. The embankment is 270m long and on the upside of the main line. Monitoring had shown that the embankment was moving and this was leading to track quality issues. Due to a deep rotational fault causing the embankment to fail a CFA piling solution was agreed upon rather than conventional sheet piling.

The site team mobilised in October 2021 and commenced with the vegetation clearance. Due to the piling system chosen for this embankment the temporary works required a haul road and piling platform to be constructed the whole length of the embankment. This required 1,100 x 2.5T legato blocks and 5,000T of type-1 fill. This was managed with an agreed speed restriction on the main road adjacent to the site entrance.



In March of this year, further movement of the embankment was recorded and an emergency speed restriction was imposed by our maintenance colleagues. The site team quickly mobilised and carried out sheet piling over the worst affected portion of the embankment. 84 sheet piles were driven to a depth of 7m to stabilise the embankment. The permanent works required 101 x CFA piles embedded up to 16m deep to be installed along the toe of the embankment with the assistance of a 120T crawler crane to insert the 16m long H beam reinforcement into the piles. The CFA piling was completed two weeks ahead of programme in part due to our piling contractor having their own concrete lorry to ensure a ready supply of concrete. Design was revised and the 1,100 legato blocks required for the temporary works were incorporated into the permanent works and the cut and regrade works started.

It is a challenging site logistically with only one entrance/exit to the site, very well managed by the site team. Traffic management on site is excellent and well-coordinated with zero accidents so far on the project. We have excellent pre-work briefings and safety stand downs with safety always at the centre of every day's work. In all, it is a great collaborative, committed and safety-conscious site team. Works are ongoing and due to complete in December 2022.

Some figures

- Temporary works – 1,100 x 2.5T legato blocks and 5,000T of type-1 fill.
- Piling – 101 x 16m steel H beams and 1,700T of concrete used to construct piles.
- Regrade – By project end: 16,000T of class-1A fill and 3,000T of topsoil will have been used.

Benefits

- Now the embankment is stabilised this has allowed our maintenance colleagues to carry out tamping works and remove the emergency speed restriction. This has meant a quicker, smoother journey for our passengers.
- Existing toe drainage was refurbished with a new head wall and chambers constructed. During CCTV surveys an adjacent culvert was found to be blocked and with our maintenance colleagues informed the blockage was removed.

Good practice

1. All substantial timber felled during vegetation clearance was donated to a local sawmill.
2. Access road with agreement of landowner to be left in place for future benefit of Balcombe Estate.
3. Reconfiguring site compound has resulted in surplus type-1 being recycled and sent to another Geotech site at Little Browns Cutting to assist with site set up.
4. The use of a portable warning system to assist setting up exclusion zones around plant.
5. Excess office furniture donated to local community association.

Stephen Clark - Construction Manager for Southern Capital Delivery (Sussex)



GOLD SITES



BAM Nuttall Ltd

- Balcombe Embankment

Global Rail Construction Ltd

- Hounslow Substation (Feltham Phase 3 Windsor and Staines)

Octavius Infrastructure Ltd

- Fareham Tunnel No.2 Cutting

SILVER SITES



Octavius Infrastructure Ltd

- Tolworth (Package E)
- Crest drainage, Farm track and VCB (Wallers Ash Cutting)
- Sturt Lane Substation
- Farnham Traincare Depot
- Esher station

B&M McHugh Ltd

- Strawberry Hill station
- Sunbury station

BAM Nuttall Ltd

- Eastbourne pit and shed
- Hassocks Embankment
- Oak Hill Substation (Phase 3)
- Waterloo Bridges (Whichcote Street)
- Tulse Hill Substation (Safer isolations, Phase 3)
- Lewisham Substation
- Mark Beech Tunnel
- Tunbridge Wells station
- Thanet Parkway station
- Hildenborough
- Crystal Palace safer isolations
- Catford station AFA
- Elmstead Woods TP Hut

Siemens

- London Victoria station SISS2
- Dollands Moor Substation

Top scoring sites by Route are:

Sussex	Balcombe Embankment	BAM Nuttall Ltd
Kent	Oak Hill Substation (Phase 3)	BAM Nuttall Ltd
Wessex	Fareham Tunnel No. 2 Cutting	Octavius Infrastructure Ltd
Southern (Signalling)	Hounslow Substation (Feltham P3 Windsor and Staines)	Global Rail Construction Ltd

If you would like a full score summary report for all Southern region Capital Delivery sites please contact: [Paul Burr](#).