



CASE STUDY

NSFC Gosford Passing Loops – Brady's Gully Under Bridge

Gosford, NSW, Australia

Post & Panel Barrier Wall

Owner: RMS

Consultants: SMEC

Contractor: Robson Civil Projects

Construction: 2014

Background

The Gosford Passing Loops Project is part of the Northern Sydney Freight Corridor (NSFC) Program. This program is a joint Australian and NSW Government initiative to improve capacity and reliability for passenger and freight trains between Sydney and Newcastle. The new rail infrastructure is being built within the existing rail corridor and currently comprises four projects: North Strathfield Rail Underpass, Epping to Thornleigh Third Track, Gosford Passing Loops and Hexham Passing Loop.

The Gosford Passing Loops project involves the construction of two passing loops (northbound and southbound) adjacent to the existing lines between Gosford and Narara Stations which will allow faster passenger trains to overtake and pass freight trains. Six new rail under bridges over Brady's Gully, Wingello Creek and Wyoming Creek will be constructed to accommodate the new tracks.

The Reinforced Earth Company (RECO) was initially awarded the design and supply of 592 sqm of Reinforced Earth® TerraPlus® abutment and retaining walls as part of the construction of these bridges. An additional wall was also supplied for a post & panel barrier wall at Brady's Gully.

Challenge

The main challenge for RECO was to design precast concrete facing panels for a post and panel barrier wall where the support posts were already in place.

The urban design intent was to have this wall looking similar to the other walls supplied by RECO. However unavailability of space behind the facing panels removed the option to design it as a mechanically stabilized earth wall. Therefore, a system was developed where the wall looked like a Reinforced Earth® wall, where in fact it was a post and panel wall. The main challenge for the designers was to hide the posts so that they are not visible from the front of the wall.

Solution

As RECO designed and supplied Reinforced Earth® TerraPlus® retaining walls for the project, the precasting, scheduling and logistics were already in place. The RECO precasting facility had experience with the textured grey architectural finish named Reckli® Rhein.

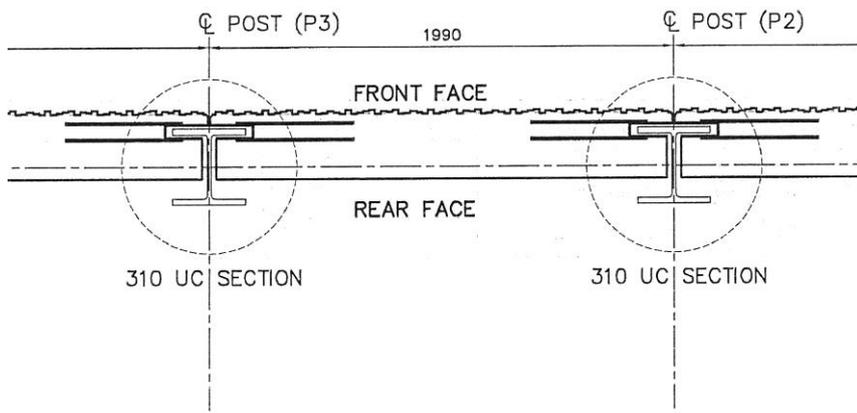


Main: Brady's Gully Under bridge Post and Panel wall
Above Top: Reckli® Rhein Finish
Above: View from above with safety rails attached.

Rail infrastructure



REINFORCED EARTH
SUSTAINABLE TECHNOLOGY



PANEL LAYOUT
SCALE 1:30



Left: Cross Section from above showing the panels fitting down between the support posts so they are concealed from view.

Above: The vertical connection beam cast into the panel.

RECO moulds were heavily customized to achieve the urban design intent. Concealed steel vertical beams were cast into the sides of the panels, so that they are not visible from the outside. These panels slide down into place with the beams encasing the support posts, hence achieving a Reinforced Earth® wall like look.

Special features/benefits of post and panel barrier walls

Post and panel walls provide a low cost, effective and aesthetically pleasing permanent or temporary barrier solution for transportation, utility, industrial and commercial applications. They are useful as a sound barrier, to hide utilities or where space is limited. The post and panel system supplied by RECO is called StressTech which is fully engineered, durable, fast and convenient to install and can be supplied with many and varied attractive architectural finishes. StressTech is a precast system

which consists of precast modular panels, precast posts and insitu bored pile footings. The StressTech structure has a unique, rotatable connection which makes it extremely versatile. Panels can be connected at any angle from straight to a full 90-degree corner in any direction.

Conclusion

The precast elements of the post and panel barrier wall were delivered ready for installation. Fast construction in a limited space saved on site costs. Precast concrete facing panels adjusted for different support connections but with the same finish made for a more attractive and cohesive aesthetic across the project.

Project specifications

System	Precast Concrete Facing Panels
Finish	Reckli® Rhein, Grey
Structure	Post & Panel Barrier Wall
Max. Height	4.3 m



Above: The joints between the panels showing the recess where the support posts hide.