

SHOTCRETE

CASE STUDY



Shotcrete was contracted to carry out five trial repairs on the perimeter barriers that also support the footpaths within the West Dartford Tunnel.

Our scope of work included the controlled cutting and breakout of defective concrete sections, followed by the reinstatement of new barrier tops. The repair works were undertaken with careful consideration to retain and accommodate all structural and functional aspects of the existing barrier system.

CLIENT

Octavius

LOCATION

Dartford Tunnel West

COMPLETION DATE

2025

SECTOR

Highways

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MATERIALS USED

- ✓ Concrete/grout used for this job was LA55 and LA60.
- ✓ Epoxy used was Hilti resin.
- ✓ Steel was 12mm diameter rebar.

CHALLENGE / SCOPE

One of the major challenges we faced was reinstating the concrete in the limited space behind the panels. The working area was extremely limited, further complicated by the presence of multiple cables and a tray, which created additional obstructions.

Another key challenge involved integrating various structural and architectural elements, including accommodating the handrail posts, a newly added L bracket on the rear side, a horizontal load bar passing through the system, and several other components that had to align precisely with the new panel installation.

To overcome these constraints, we sourced compact drills, allowing us to carry out precise drilling at the back of the panels for post drilling holes and building shutters.

Through careful planning, we were able to anticipate potential risks early, particularly around conflicts with cast-in items and elements already incorporated into the structure.

THE PROCESS



The job began with the removal of the top section of the old panel, followed by saw-cutting and removal of the first two panels. The client required the remaining three panels to be locally broken out around areas of defective concrete.

The next phase involved work on the steel reinforcement. Replacement steel was installed, and anodes were added to help extend the design life of the repaired panels.

Once the steel was in place, it was primed, and the repair areas were shuttered. This included forming a step at the back and creating joints along the sides to ensure a clear separation between the new and existing concrete.

After pouring the new concrete, holes were drilled to allow for the installation of additional components using epoxy, further enhancing the durability and design life of the panels.

CONCLUSION

We had to develop a number of innovative solutions to successfully complete this job. From using specialist drills to operate in tight spaces, to creating custom lids for the shutters and manually flowing the concrete to prevent voids—every step required careful planning and adaptability.

Throughout the project, we continuously refined our methodology with each panel. The team on site worked exceptionally well

together, always looking for ways to improve and streamline the process.

Their collaborative effort and commitment to quality made a real difference in delivering a successful outcome.

THANK YOU

FOR YOUR INTEREST IN SHOTCRETE.

SHOTCRETE

CONTACT US:

Shotcrete Yard
Swattenden Lane
Cranbrook, Kent
TN17 3PS

Telephone: +44 (0) 1580 714747
Email: enquiries@shotcrete.co.uk



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