



MagnumStone Restores Australian Riverbank and Road Access

A major road restoration project used MagnumStone retaining walls to successfully reconstruct Greens Road, near Sydney, Australia, along Hawkesbury River. Heavy rainfall events in 2021 caused flooding that destroyed portions of the roadway, cutting off access to rural residential homes.

Two MagnumStone retaining walls were built along the riverbank to [stabilize the road and reconnect residents to their homes](#). The expedited focus of this project, completed in just 14 months, reflected its importance to the Hawkesbury community's regional stability and transportation access.

Total Block Installed	+32,000 sq. ft. (Over 2,970 sq. m.)
Maximum Height	14 ft. (4.3 m.)
MagnumStone Manufacturer	<u>Cirtex Australia</u>
Contractor	<u>Delaney Civil</u>
Engineer	<u>Pells Sullivan Meynink</u>
Owner	<u>Hawkesbury City Council</u>

MAGNUMSTONE RESTORES AUSTRALIAN RIVERBANK AND ROAD ACCESS

Lower Portland, NSW, Australia



PROJECT OVERVIEW: RIVERBANK RETAINING WALLS FOR FLOOD RECOVERY

In total, the MagnumStone positive connection retaining walls stretch and reinforce over 700 m. (2,300 ft.) of waterfront roadway. Key takeaways of MagnumStone's contributions to this project include:

- The system combined rapid construction with proven long-term performance
- MagnumStone's positive connection wall designs achieve 100% geogrid coverage
- Retaining walls engineered to handle slope stabilization, erosion control and future flood risks
- MagnumStone's precast strength, durability and speed of installation met all critical design considerations and project timelines

With blocks locally produced by [Cirtex](#), the project was delivered on time despite challenging timelines, accessibility and ongoing weather risks. MagnumStone's retaining walls deliver a trusted solution, designed to withstand and protect against future major storms. Furthermore, the restoration of Greens Road provides safe, reliable, year-round vehicular access for the Hawkesbury community.

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■ CHALLENGES & SOLUTIONS: SLOPE STABILIZATION & ROADWAY RECONSTRUCTION

The Greens Road reconstruction presented an array of difficult conditions that required strong technical solutions. In 2021, flooding severely eroded the riverbank and destroyed the roadway, leaving many properties inaccessible for extended periods. Civil infrastructure needed complete rebuilding, including river embankments up to eight meters deep, before safe access could be restored.

The design team developed retaining wall solutions capable of withstanding future floods, seasonal water level rises, and ongoing erosion risks. Project challenges included constrained site access, extremely tight construction timeframes, and complex logistics for block deliveries and material handling.

MagnumStone's [positive connection system](#) was selected for its superior geogrid coverage,

precast strength, and speed of installation. These characteristics allowed the contractor to stage construction effectively while ensuring residents retained essential access. Cirtex played a critical role in coordinating block production and ensuring timely delivery via the southern access point of Greens Road. Their ability to ship the exact units required for each stage prevented costly delays in such a restricted environment.

The combination of MagnumStone's engineered precast system, Cirtex's logistical expertise, and Delaney Civil's precision construction delivered proven, long-standing project solutions. This roadway restoration now provides the community a secure route strengthened against future natural disasters for generations to come.

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■ WALL DESIGN: SECURE RIVERBANK AND ROAD INFRASTRUCTURE SOLUTIONS

The Greens Road project required two MagnumStone retaining walls, each designed for strength, extreme active loading, efficient drainage, and adaptability. The first wall extends 350 m. (1,150 ft.), and the second wall measures more than 360 m. (1,180 ft.). Both walls were engineered by [Pells Sullivan Meynink](#), focusing on slope stabilization, erosion control and riverbank protection. MagnumStone's positive connection retaining wall designs provide 100% geogrid coverage behind the wall and delivering superior structural integrity.

Stratagrid reinforcement was integrated throughout the walls, anchoring the system into the compacted engineered sandstone backfill. To protect the wall's base from potential river inundation, a concrete footing was installed below the walls. Additional riprap was placed along the toe as a safeguard against erosion caused by water flow and seasonal flooding.

MagnumStone's [hollow core blocks](#) were filled with drainage gravel, creating continuous free-draining channels within the wall face. Drainage pipes were also built through the block face to efficiently channel stormwater runoff away from the roadway. The roadway's retaining walls accounted for varying base elevations along the riverbank.

Amazingly, no block cutting was required for the curved wall designs thanks to MagnumStone's tapered sides and unit versatility. This strategic adaptability simplified design complexity while preserving structural strength. The resulting retaining walls combine engineered resilience with efficient installation critical factors for the Greens Road reconstruction efforts.

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■ INSTALLATION: MAGNUMSTONE BLOCKS QUICKLY RESTORE ROAD ACCESS

Installing the MagnumStone retaining walls along Greens Road required navigating difficult access and logistical constraints along the steep riverbank. Cirtex manufactured and supplied over 4,100 MagnumStone blocks and 55,000 linear meters (over 180,000 ft.) of Stratagrid. Their team carefully coordinated deliveries to match progress by construction experts from [Delaney Civil](#), contractor of the project.

With limited access points, block deliveries arrived at the southern end of Greens Road, then transported to site for installation. Compact equipment, such as loaders and excavators, was used throughout construction, an approach made possible by MagnumStone's hollow core block weight. The system's SecureLugs easily maintained wall setback and alignment throughout the installation process.

The blocks' consistent precast quality allowed [efficient handling and rapid placement](#) without on-site adjustments. Units were placed to ensure the geogrid lengths properly wrapped through the hollow cores for positive connection designs. A structurally engineered sandstone backfill provided stronger compaction for long-term performance, steadily increasing accessibility along the road. The gravel-filled blocks enhanced drainage and added mass for further stability and resilience against hydrostatic pressures.

Despite additional storms during the year-long schedule, the project was delivered on time due to efficient installation sequencing. MagnumStone's speed of construction and adaptability proved invaluable for this infrastructure recovery project, ensuring the reconstructed roadway would be safely reinforced against future flood events.

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■ BLOCK AESTHETICS: NATURAL STONE BLOCK TEXTURES FIT RIVERBANK PROJECT

While structural integrity and resilience were the primary design drivers, aesthetics also played an important role in the Greens Road project. The retaining walls are highly visible along the riverbank and needed to complement the rugged local landscape. MagnumStone blocks were produced in their natural grey concrete finish, chosen for durability and to complement the surrounding environment.

The blocks' textured faces were installed in a randomized pattern using a running bond layout, creating a [natural stone appearance](#) across the long retaining walls. This design helped the walls blend into the riverside while maintaining a consistent professional finish. No blocks required cutting or trimming, even along the winding terrain of the riverbank, due to the tapered block design. Caps were placed atop the wall for an elegant finishing detail.

The community valued the walls' ability to restore roadway access while accounting for a natural appearance along the river. By providing both functionality and aesthetics, MagnumStone blocks successfully delivered on all project objectives for Greens Road.

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PROJECT SUMMARY: MAGNUMSTONE REBUILDS DURABLE RIVERBANK & ROADWAY

The Greens Road reconstruction project highlights the importance of resilient retaining wall infrastructure in flood-prone environments. Cirtex, Delaney Civil, and Pells Sullivan Meynink collaborated to successfully design and build two complex MagnumStone retaining walls. MagnumStone's positive connection system provided exceptional geogrid coverage, precast durability, and rapid installation benefits.

Combined with Stratagrid reinforcement, riprap protection, and integrated drainage, the system delivered a robust solution to withstand future flood conditions. Over 4,100 blocks were installed with precise logistics coordination, ensuring the tight project schedule was maintained despite adverse conditions.

The final result is a reconstructed, fully accessible roadway secured by [MagnumStone walls engineered to protect against erosion, stormwater, and future flood risks](#). Greens Road stands as a prime example of flood recovery infrastructure, demonstrating MagnumStone's ability to help communities fast-track emergency projects.

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■ WHY CHOOSE MAGNUMSTONE

MagnumStone retaining walls deliver a trusted, engineered solution for modern infrastructure projects that demand strength, speed, and resilience. Designed to perform in extreme environments, MagnumStone's precast system excels in challenging projects involving extensive flood management and erosion control.

Its large hollow-core blocks, versatile design flexibility and rapid installation make it ideal for quickly rebuilding and protecting essential infrastructure. MagnumStone offers cost-effective solutions that protect communities for generations.

- Proven performance in flood-prone and high-load environments
- Streamlined block installations and minimal maintenance required
- Achieves 100% geogrid coverage with Positive Connection designs
- Engineered drainage for long-term erosion control and slope stability

Begin designing your next retaining wall project with [MagnumStone's Retaining Wall Design Software](#), or for further insight and pricing details, [contact your nearest block supplier](#).

This project was successfully completed thanks to [Cirtex](#) (MagnumStone Producer), [Delaney Civil](#) (Contractor) and [Pells Sullivan Meynink](#) (Engineer).

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