

# NSW PROJECT FEATURE THE NORTHERN ROAD UPGRADE

Lendlease Engineering / Transport for NSW





# DRIVEN FOR SUCCESS

DEVELOPER : Transport for NSW



The Northern Road Upgrade Stage 3 is between Glenmore Parkway, Glenmore Park and Jamison Road, South Penrith. Work includes widening the road to provide additional lanes, as well as new traffic light intersections to improve traffic flow and reduce congestion. A new interchange with the M4 Motorway is also being provided as part of the upgrade. The project also includes a new roundabout and service road and upgraded foot paths, drainage, noise barriers, retaining walls, and landscaping.

**The Northern Road carries up to 16,000 vehicles per day and is a key north-south arterial link between the major centres of Narellan and Penrith.** Upgrading this vital transport link is part of the Australian and NSW Governments’ \$4.1 billion Western Sydney Infrastructure Plan.

In 2016 Transport for NSW awarded Lendlease Engineering the design and construct contract for Stage 3 of The Northern Road’s six-stage, \$1.6 billion upgrade. Stage 3 is a 4km section between Glenmore Parkway, Glenmore Park and Jamison Road, South Penrith.

Works started onsite in June 2017 and includes road widening and creating a divided road of up to eight lanes; upgrading the M4 Motorway interchange; replacing a major roundabout with a traffic light intersection and constructing a new bridge. Additional works involve building new turning lanes, service roads and footpaths as well as installing new street lighting, improving drainage, landscaping and installing precast concrete noise barriers and retaining walls.

“A major challenge of the project involved the relocation of utilities,” explained Lendlease Engineering Project Director, Barry Murphy.

“We coordinated with Endeavour Energy to move overhead power lines on the western side of the road to an underground position on the eastern side.”

“We had some challenges with older Telstra infrastructure. There was a lot of asbestos contaminated material in the old pits including permanent formwork and pipe linings that had to be properly removed and transferred to an appropriate waste facility. We also had to relocate Sydney Water assets as the new vertical alignment of the road pavement left the pipes sitting too high.”

“Changing a major existing roundabout to a traffic light intersection requires some careful planning and we are moving the roundabout a number of times as a temporary solution. There are many level differences to tie in and the whole process is being done in five stages over several months.”

A great success of this section of the upgrade was the demolition of the old bridge which connected The Northern Road over the M4 Motorway at Orchard Hills. Up to 60 workers removed 6,000 tonnes of concrete and steel over the June long weekend. The traditional method is to cut the bridge into sections to be removed to reduce impacts on traffic flow and maintain safety for all road users; a process that would have taken 20 weeks. “We were able to shut the motorway down and demolish the structure in less than 72 hours, ready for morning peak hour. We completed the new bridge in April 2019 and currently four lanes are being used, it will operate at full capacity, with eight lanes, by early 2020,” explained Barry.

“We recycled a lot of material onsite and used the crushed concrete from the old bridge as sub-base for new footpaths. We also used crushed recycled concrete with some slag from steel mills, bound with cement, for the road pavement.”



“The biggest challenge on the project has been working in the live environment, keeping the traffic flowing, maintaining safety standards, producing a quality job and minimising the construction impact on residents.”

“We collaborated with Transport for NSW and the community, especially at the northern end of the upgrade as the area becomes increasingly urbanised towards South Penrith and we are working very close to peoples’ homes. There was a 12 week period where we had to block residents’ driveways to carry out some key work so we took into consideration their needs in regards to traffic control by supplying parking spaces and safe access.”

Once this stage of the 35km The Northern Road upgrade is complete, road users will experience reduced travel times and improved road safety to meet the needs of the increasing population of the Western Sydney area.

*For more information contact Lendlease, Level 14, Tower Three, International Towers Sydney Exchange Place, 300 Barangaroo Avenue, Barangaroo NSW 2000, phone 02 9236 6111, website [www.lendlease.com.au](http://www.lendlease.com.au)*



Demolition in action - M4 bridge demolition

## WESTERN SYDNEY INFRASTRUCTURE PLAN PROJECT OVERVIEW

The Australian and NSW Governments are jointly funding a \$4.1 billion road investment program for Western Sydney. The Western Sydney Infrastructure Plan (WSIP) is delivering major road infrastructure upgrades to support an integrated transport solution for the region and capitalise on the economic benefits from developing the Western Sydney International Airport.

The WSIP objectives are grouped in four themes:

- Customer focus – Provide meaningful engagement with customers and stakeholders throughout the program life.
- Development and demand – Support the Western Sydney International Airport, land use change and residential growth; balancing functional, social, environmental and value for money considerations.
- Connectivity to airport – Provide a resilient connection for freight and people to the proposed Western Sydney Airport.
- Integrated network – Provide road improvements to support and integrate with the broader transport network.

The WSIP consists of a number of projects, including The Northern Road Upgrade. Around 35km of The Northern Road between The Old Northern Road, Narellan and Jamison Road, South Penrith will be upgraded from a generally two and four lane undivided road to a six and eight lane divided road.

## GLENMORE PARKWAY TO JAMISON ROAD (TNR3 – LENDLEASE ENGINEERING)

The project involves upgrading approximately 4km of The Northern Road between Glenmore Parkway, Glenmore Park and Jamison Road, South Penrith.

Key features of the upgrade include:

- Widening The Northern Road to provide a divided road with three general traffic lanes and a kerbside bus lane in each direction.
- Upgrading the M4 Motorway interchange including:
  - Replacing the existing bridge over the M4 Motorway with a new, wider bridge.
  - Realigning and widening the motorway entry and exit ramps to allow for future M4 Smart Motorway upgrades.
  - Replacing the two sets of existing traffic lights with one set of traffic lights controlling all movements through the interchange.
- Replacing the existing roundabout at Glenmore Parkway/ Wentworth Road with a four-way intersection and a set of traffic lights.
- Providing additional turning lanes at the following intersections Maxwell Street/Bringelly Road; Smith Street; Garswood Road; and Jamison Road.
- Removing all right-turns into and out of Homestead Road and Castle Road, with these roads to become left-in, left-out only.

- Providing traffic lights at the Frogmore Road/Tukara Road intersection.
- Realigning sections of Aspen Street and Hilliger Road to allow a proposed four-way roundabout at Maxwell Street.
- Upgrading Cross Road and extending it south to connect to an existing roundabout on Wentworth Road, creating a through connection between Homestead Road and Wentworth Road.
- Providing a new roundabout and entry to the Penrith Christian School from Frogmore Road, about 85m west of Simeon Road.
- Providing a new service road for access to Penrith Golf and Recreation Club.
- Providing new U-turn facilities for eastbound and westbound traffic on Glenmore Parkway via a new roundabout west of the golf course access.
- Providing retaining walls.
- Providing a shared path on the western side of The Northern Road, between Glenmore Parkway and Jamison Road; and on the eastern side between Wentworth Road and Bringelly Road.
- Upgrading the footpath on the eastern side of The Northern Road, between Bringelly Road and Jamison Road.

Continued on following page...





- Providing noise barriers at the following locations:
  - The northern side of the M4 Motorway eastbound exit ramp, and extending north along the western side of The Northern Road between the M4 Motorway and Tukara Road.
  - The western side of The Northern Road between Tukara Road and Aspen Street.
- Upgrading road drainage along the route (such as detention basins, where required).
- Moving utilities, such as pipes and cables.
- Providing new bus stops, and relocating some existing bus stops.
- Upgrading street lighting.
- Providing landscaping along the length of the route.
- Changing entries to private property (this would include changes to driveways) to suit the changed road alignment.

- Partially acquiring a number of properties to accommodate the wider road corridor.
- The Project objectives are to:**
- Improve transport connections from the Penrith region and M4 Motorway to the proposed and surrounding developments.
  - Support freight movement to efficiently address the growing freight task.
  - Cater for future traffic demand to improve the flow of traffic to provide reliable journeys.
  - Support public and active transport to promote sustainable and efficient journeys, as well as improve road safety.

Urban and landscape design objectives have also been developed for the project based on identified issues and opportunities during planning

- The objectives include:
- Protecting and enhancing existing views, character and cultural values of the corridor.
  - Providing a flowing road alignment that is responsive to, and integrated with, the natural and built landscape.
  - Facilitating good urban design outcomes for areas adjoining the road.
  - Developing a simple and unified palette of road design elements and details that are attractive and easily maintained.

- Benefits of the Project include:**
- Improving travel times by increasing the number of lanes, removing a set of traffic lights at the M4 Motorway interchange and providing a new and wider bridge and providing additional turning lanes at some intersections.

- Allowing for reliable public transport by providing a continuous kerbside bus lane in each direction.
- Improving safety for pedestrians and cyclists.
- Improving road safety by providing a central median to separate opposing traffic flows, installing new traffic lights at two existing intersections, providing separate turning lanes at some intersections, improving the alignment of the road.
- Improving local access by providing an extension of Cross Road to Wentworth Road.
- Mitigating traffic noise impacts by providing noise barriers.
- Reducing flooding impacts to surrounding properties by upgrading cross drainage beneath The Northern Road.

*For more information about The Northern Road*, phone 1800 703 457, website [www.rms.nsw.gov.au/projects/the-northern-road](http://www.rms.nsw.gov.au/projects/the-northern-road)



**Below** Baines Masonry supplied split faced, pale yellow blocks that were used to construct the retaining walls on TNR3.



**Below** Rose Atkins Rimmer completed detailed design and management activities of the Water Based Coordinator (WSC) activities on the project.



Baines Masonry are a specialist manufacturer of concrete products and supply blocks and pavers in a wide variety of styles and colours. Their product range includes retaining wall systems and a range of accessories, and in 2018, Baines Masonry was contracted to manufacture and supply concrete masonry product for the retaining walls at The Northern Road Upgrade. The blocks supplied were split faced, and pale yellow in colour called ‘Appin Stone’.

“The challenge involved the logistics, it was a large volume job and we did some intense preliminary work planning the process and getting all the materials together at the right time,” said Sales and Marketing Manager, Tim McGoldrick.

Baines Masonry manufactures standard structural grey blocks, fire and acoustic rated blocks as well as LockBlock, a thin bed mortared interlocking block requiring an adhesive to bond the blocks, not the traditional sand and cement mortar. The company supplies a wide range of coloured masonry including split face and smooth blocks. Finishes include honed and attractive polished blocks.

A focus for Baines Masonry is to add to their product range and are currently researching effective cleaners, sealers glues and adhesives.

Baines Masonry have recently introduced an American product, SRW Adhesive, a rapid set polyurethane specially formulated for construction and landscape projects that require a fast set up time.

Established in 1984, Baines Masonry services the commercial and residential sectors including home owners, builders and design professionals through six outlets in metropolitan Sydney and six more across regional New South Wales.

Baines Masonry has a unique website with masonry designer software that allows you to build a wall. Choices of blocks and mortar, laying patterns and courses are available to give a colour printout of a custom made concrete block wall. As well as brochures and technical manuals, the site also has a useful excel spreadsheet for block weight and pallet calculations and a fire and acoustic calculator to help choose the right product.

*For more information contact Baines Masonry*, 900 Wilton Road, Appin NSW 2560, phone 02 4631 1383, email [info@bainesmasonry.com.au](mailto:info@bainesmasonry.com.au), website [www.bainesmasonry.com.au](http://www.bainesmasonry.com.au)

Rose Atkins Rimmer (RAR) is a specialist Sydney based Water Servicing Coordinator (WSC). RAR provides infrastructure design and construction surveillance for water and sewer, providing certification that works are designed and constructed in accordance with Sydney Water standards.

In 2016, RAR was initially contracted for pre-tender design work for relocation works for The Northern Road Upgrade project. After Lendlease Engineering was awarded the design and construct contract, RAR was engaged to undertake detailed design and manage the WSC activities for the project.

“We also made site visits during the construction,” said Managing Director, Steve Rimmer. “We had to work with Sydney Water to shutdown their system to facilitate scheduled night time work. The main challenge was the sheer size of the pipes, including the DN750 watermain, that required relocation.”

The adjustment and relocation of watermain and reconnection to the existing system, required a lot of organisation and consultation with stakeholders. RAR is an expert in this field and implemented the required procedures to obtain approvals for design and construction

coordination, including obtaining Sydney Water Building Over and Adjacent to pipe assets.

Established in 2000, RAR is a team of engineers, designers, QA site assessors and administration staff. RAR has over 20 years experience consulting with Sydney Water and offering project management services for development issues including obtaining Section 73 certificates. Their team has managed large scale developments such as the North West Rail Link Upgrade.

Previous RAR projects include the North Strathfield Rail Underpass for the relocation of a DN500 steel cement lined pressure sewer pipeline across a dedicated sewer and gas bridge. RAR is currently completing work on the Sydney Metro, adjusting mains to facilitate the construction of the underground station boxes.

*For more information contact Rose Atkins Rimmer*, 142 Sunnyholt Road, Blacktown NSW 2148, phone 02 9853 0200, email [info@rari.com.au](mailto:info@rari.com.au), website [www.rari.com.au](http://www.rari.com.au)



**B&K Revegetation and Landscaping (B&K) provides specialist revegetation and landscaping services for large scale developments.** Their capabilities include the supply, installation and maintenance of hard and soft landscaping elements for commercial and urban developments.

Onsite work at The Northern Road Upgrade (TNR3) started in early 2018 with B&K undertaking the permanent and temporary hydromulching works and supplying erosion and dust control polymers for instant stabilisation. These preliminary works at TNR3 included hydromulching an area of 20ha and dust control with water trucks applying Vital Bon-Matt Stonewall polymer to the area.

The company specialise in hydromulching and recommend it as a most cost effective technique to distribute a mix of seed and mulch for large coverage in a minimal time frame.

B&K commenced work at TNR2 in early 2019, undertaking the supply and planting of 1.6 million plants, mostly eucalypts and other natives, including 9,000 advanced trees and 37,000m<sup>3</sup> of mulch. “It’s often a challenge for us to source large quantities of plants and have them available when required, on large infrastructure projects such as The Northern Road,” said James Nebauer, Manager. “So we source from numerous nurseries Australia wide.”

“Logistically, the movement of landscape materials along the 15km worksite although proving difficult at times, was undertaken with little or no disruption to the general public being pedestrian or vehicular,” said James. “The valued assistance from Lendlease Engineering and the experience of the B&K project managers helps overcome any challenges onsite.”

B&K have a crew of 40 working between TNR2, TNR3 and TNR4 and expect to be working through 2020 to complete the projects. There is then a 12 month maintenance contract to maintain the plants and landscaped areas in an optimal condition.

B&K is a family company established in 1983 by Brendan Nebauer. With a highly skilled and experienced team of more

than 80 staff, comprising administration, qualified landscapers, operators, tradespeople, environmental scientists, and project managers they service Sydney, Newcastle and regional New South Wales from offices on the Central Coast, Port Macquarie and Penrith. In 2009, they opened an office in the Northern Territory in response to a demand for commercial landscaping there.

The company works in the industrial and commercial sectors including recreational sites, schools, subdivisions, commercial buildings, open-cut mines, shopping centers, expressways and golf courses. For ecologically sensitive areas such as wetlands, foreshores and Aboriginal heritage sites, B&K are experts in the field. B&K undertake contracts for private building and civil corporations, Sydney, Brisbane and Darwin airports as well as Federal and Local government departments throughout Australia.

They offer a comprehensive service that includes initial excavation and earthworks, concreting and blockwork for footings and retaining walls. The company provide planting, turfing and seeding, Lendlease Engineering and artscapes for parks, gardens and playgrounds. B&K also construct garden beds and install outdoor furniture, supply mulching, irrigation, paving, concreting and fencing.

In the area of revegetation works B&K provides environmental weed management, dust and erosion control and water cartage. They supply hydromulching and strawmulching, erosion matting and mass tree planting for large scale industrial, mining, roads and construction sites.

Previous projects with Lendlease include mass planting and mulching on roads projects including the Oxley Highway Upgrade, the Hunter Expressway, and parts of the Pacific Highway from Woolgoolga to Ballina. B&K also carry out vital environmental procedures that reduce soil erosion and assisted developers to satisfy state and local council environmental guidelines.

***For more information contact B&K Revegetation and Landscaping,*** 6 Apprentice Drive, Berkeley Vale NSW 2261, phone 02 4384 4159, email [info@bkreveg.com.au](mailto:info@bkreveg.com.au), website [www.bkreveg.com.au](http://www.bkreveg.com.au)

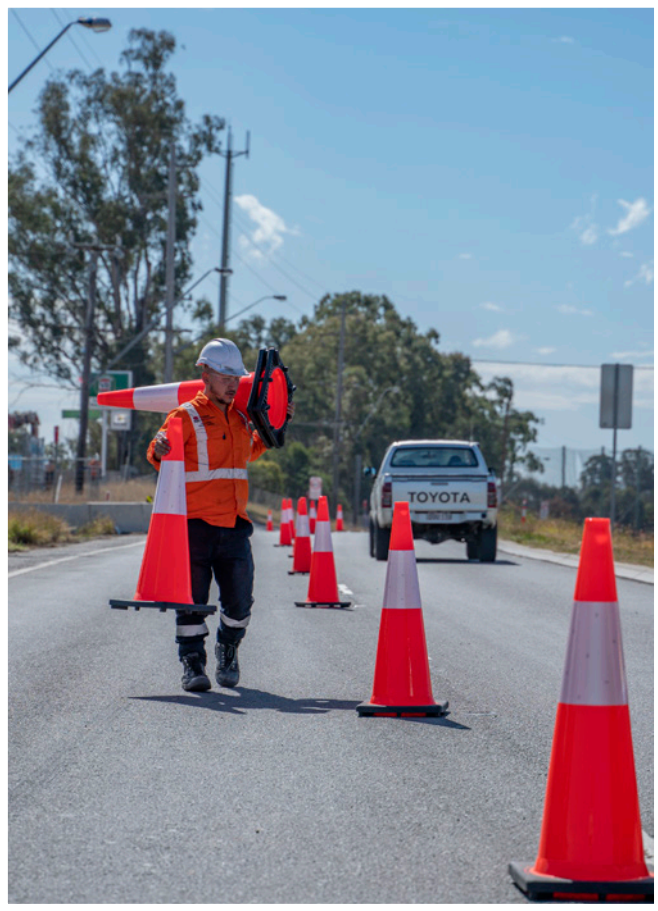




**Below** Australian Traffic Solutions provided a comprehensive traffic management service including the supply of crews, signs and traffic control plans.



**Below** Caddmandu Design & Drafting used MXROAD design software to design the temporary roads and changes to existing infrastructure.



**At The Northern Road upgrade Australian Traffic Solutions (ATS) supplied crews of traffic operators as well as traffic control equipment, signage and vehicles.**

Pre-site work involved designing and drawing traffic control plans for lane closures and traffic switches to move traffic from the old road to the new. All traffic management was carried out to government standards with ATS being pre-qualified with Transport for NSW.

“ATS were onsite from day one,” said Operations Manager, Michael Arthur. “We had 30 workers a day onsite, but there was a demand for more as the job progressed, so we had 50 onsite on one day. The challenge involved the organising the crews required for the job, we provided a number of staff at short notice. The equipment we used included traffic control vehicles, arrow boards and truck mounted attenuators (TMAs) as crash safety barriers for the work crews.”

Australian Traffic Solutions provides a comprehensive traffic management service for small and large scale projects throughout New South Wales and the Australian Capital Territory, which includes traffic control with trained road crews as well as a professional planning team that will take care of council and police permits and

scheduling. They have a representative available to oversee the projects and ensure traffic movement is efficient, safe and operating according to plan. ATS also hires out traffic control equipment, variable message boards, portable lighting and traffic lights and speed radars.

Previous projects for Australian Traffic Solutions include work for Lendlease Engineering at North Connex. “We have a good working relationship with Lendlease Engineering built up over time,” added Michael. “The future for ATS is on growing, expanding our fleet and moving into larger projects.”

Currently ATS is at work on a large scale project at West Connex with up to 100 traffic operators and 25 vehicles on site, day and night.

*For more information contact Australian Traffic Solutions, 13 Verrell Street, Wetherill Park NSW 2164, phone 1300 402 510, email [operations@atstraffic.com.au](mailto:operations@atstraffic.com.au), website [www.australiantrafficsolutions.com.au](http://www.australiantrafficsolutions.com.au)*

**Since 2003 Caddmandu Design & Drafting has specialised in traffic staging projects using MX road design software.** Their work involves the design and engineering of suitable temporary conditions for road users during construction projects and Caddmandu provided these services at TNR3.

“The Northern Road project was the most challenging I’ve ever had,” said Director, Jason Cox. “To keep the traffic moving we designed the necessary roads, all according to Transport for NSW safety and engineering standards of permanent roadways.”

“It was a Brownfields project to upgrade existing roads and infrastructure and we had to move utilities, water and communications, to add extra lanes. We also had to consider traffic movements on side roads and make space for the construction, the site and all the associated materials and equipment.”

Established in 1995, Caddmandu provides road design services from concept plan to final design for both rural and urban projects. Their work includes engineering and design for multi-lane road constructions, road upgrades and intersection improvements through to major highway and interchange design.

Caddmandu provides quality MX solutions and designs to the civil engineering industry, Transport for NSW, consultants and large contractors. Caddmandu also offers MX modelling for professional advice, expert witness investigations, reports and negotiations.

Caddmandu have worked on other similar projects including the Foxground-Berry bypass where they completed traffic staging work. “We were able to start on that job early in the design process. The staging works were taken into consideration as the design was finalised, it was a good project” said Jason.

Another large project for Caddmandu involved the civil design works for the eastern approaches to Anzac Bridge and Glebe Island Arterial, including providing assistance to the construction team and surveyors. More recently Caddmandu completed design services for the Albion Park Rail project and a bridge replacement on the Clarence River.

*For more information contact Caddmandu Design & Drafting, 31 Kirrawee Avenue, Kirrawee NSW 2232, phone 02 9576 5345, mobile (Jason) 0414 953 396, email [jason.cox@caddmandu.com.au](mailto:jason.cox@caddmandu.com.au), website [www.caddmandu.com.au](http://www.caddmandu.com.au)*



**Below** Brandster Services provides liquid waste management services at TNR3, operating vacuum tankers to pump out, transport, treat and dispose of liquid waste.

**With a fleet of up to date vacuum tankers Brandster Services specialises in the collection, treatment and disposal of liquid waste.** For over 50 years they have serviced the commercial, community, industrial and residential sectors.

Brandster Services is an Australian owned family run company, has a permanent workforce of 20, including a logistics supervisor and a site manager, they have a number of casual employees they are able to call on in emergency situations.

Brandster Services provided liquid waste management services at TNR3 throughout the construction period, where five drivers operating vacuum tankers removed the liquid waste from the site to Brandster Services' EPA licensed and Sydney Water approved, liquid waste treatment facility at St Marys. The company are experts at operating in high traffic areas, where public safety is a priority.

For The Northern Road Upgrade Brandster Services deployed a 20,000L plus size tank at the main compound which was connected to smaller 6,000L tank. With such a large workforce on the project there was a number of cars in this area and maneuvering around all the parked cars and accessing the tanks a challenge – for WHS reasons trucks were not permitted to reverse.

“Lendlease Engineering are a fantastic company to work for, the site is extremely well run with all the necessary safety procedures in place emailing updates to Brandsters daily, they are very professional,” Brandster Services' Assistant Manager said.

Brandster Services waste treatment facility comprises one plant for septic, sullage and greywater and the other for J120 waste. With waste received at the Septic, sullage and ground water plant a questionnaire is completed for all loads – if we suspect a load may be contaminated we take a sample and retain that until analysis results are received. Brandster Services receives and treats waste from many other transport companies.

J120 waste is water contaminated by oils, hydrocarbons or emulsions. J120 waste is collected from industrial sites, oily separator, storm water pits and car wash waste. The J120 waste is tracked using the EPA online tracking, each load is sampled and samples kept refrigerated until loads are

processed. Once sample analysis results are received this is all documented. If an analysis exceeds Brandster Services' licence parameters they are able to identify where it came from by the retained samples – retained samples are processed via treatment facility.

Brandster Services work with the EPA and other Government Authorities to ensure their treatment plants are operating legally and meeting all environmental standards. The J120 and Septic facilities maintain calibrated meters which record litres daily. Brandster Services agreement with Sydney Water are permitted to dispose of 600,000L of liquid waste per day.

Established in 1960, Brandster Services covers the Sydney city and metropolitan areas, as well as regional areas such as Blue Mountains, Camden, Campbelltown, Picton, Palm Beach and the Hawkesbury and service a range of commercial and community facilities including shopping centers, underground car parks, retirement villages and caravan parks. The company provides liquid waste collection, transport and treatment for large scale public events, construction and demolition sites.

Brandster Services also offers an efficient response to emergencies, especially to spills, with a 24 hour service and a pollution incident response management plan (PIRMP) is in place on their web site.

The company maintains a fleet of vehicles for pumping and transportation including a small 1,000L ranger for limited access space and steep sites and six vacuum tankers ranging in size from 2,000L to 30,000L capacity. Their trucks are ready for all scale jobs, maintained and ready to operate at Euro 5 standard. Brandster Services ensures they have ongoing training for their staff to keep them up to date with many WHS requirements of the waste industry.

Previous work includes liquid waste removal for large construction companies securing a large tender in 2016 finishing late 2018 for the construction of a subdivision providing pump out and collection services for the IOPs, they also serviced a 25,000L tank at the TNR2 site.

**For more information contact Brandster Services,** Unit 4-7, 15-17 Lee Holm Road, St Marys NSW 2760, phone 02 9623 1177, email [admin@brandsterservices.com.au](mailto:admin@brandsterservices.com.au), website [www.brandsterservices.com.au](http://www.brandsterservices.com.au)





**Below** Muller Acoustic Consulting developed the construction noise and vibration management plan, in addition to prediction models and impact assessments.



**Muller Acoustic Consulting (MAC)** lead the way in contemporary acoustic consultancy services, providing noise and vibration management plans and acoustic assessments for the built environment, commercial and industrial operations as well as for construction sites. In March 2017, MAC commenced work on the construction noise and vibration management plan for the TNR3 site.

“We used 3D noise modelling software to predict site emissions for future construction scenarios,” said Principal Acoustic Scientist, Oliver Muller. “Modelling results were compared against noise criteria so that effective management measures could be considered for the site.”

“We also developed an inhouse noise prediction and geospatial interface which worked extremely well for The Northern Road. The interface was developed on behalf of the TRN3 environment team so they could manage noise from various construction activities. This assisted in minimising impacts to community, especially during out of hours works” said Oliver.

“I also presented a training seminar at The Northern Road,” added Oliver. “The seminar addressed noise policy and fundamental tasks such

as conducting noise monitoring in accordance with relevant standards and provided advice with respect to community engagement.”

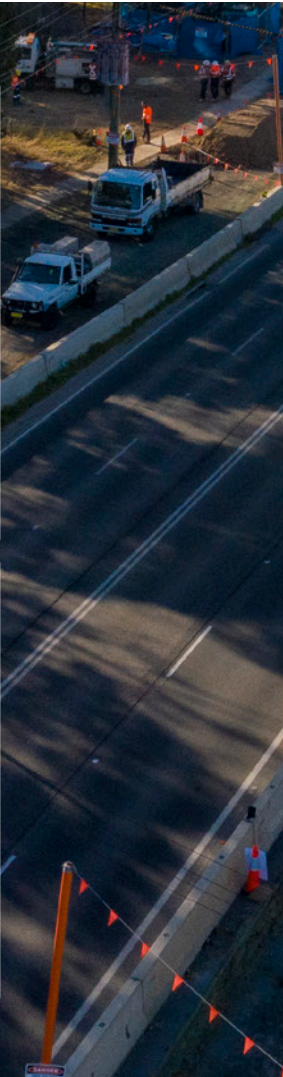
Oliver has extensive experience liaising with approval authorities including the EPA, the Department of Planning and Environment, and local councils, delivering successful outcomes to clients and stakeholders.

Established in 2015, MAC employs six technical staff and deliver work across New South Wales in the industrial, commercial and government sectors. MAC provides noise impact assessments and due diligence for planning and DA submissions as well as compliance monitoring for existing operations.

MAC also provides management and control of noise and vibration for construction sites as well as mining and transportation industries. Recent work includes acoustic assessments and monitoring for the M1 and M4 upgrades and residential subdivisions of greenfield sites.

*For more information contact Muller Acoustic Consulting*, phone 02 4920 1833, email [omuller@mulleracoustic.com](mailto:omuller@mulleracoustic.com), website [www.mulleracoustic.com](http://www.mulleracoustic.com)

**Below** Productivity Force provided skilled crews for formwork, steel fixing, concrete, and general labour to TNR3.



**Productivity Force specialises in skilled labour hire and contract work for the construction industry focusing on training and providing a pathway to work for young people.** In October 2018 they commenced a crew maintaining The Northern Road Upgrade – TNR3.

“Lendlease Engineering were so impressed with the quality work that they contracted us for additional works,” said Director, Kieran Duffy. “We supplied formworkers and steel fixers, concretors and apprentices and now have a permanent team of 15 onsite.”

“At The Northern Road Upgrade we tried to prove to Lendlease Engineering that we had the manpower for the project. It was an opportunity to show that we could be better than the competition, we showed we could do it. We are onsite till the end of the project and are finishing in line with the programme.”

“We are training the workforce of the future,” said Kieran. “Through our sister company, Productivity Bootcamp, involving eight weeks of intensive training at our simulated work sites in Penrith and at Quakers Hill, the workers learn to be part of a team and be work ready.”

Productivity Force has been in operation since 2015. They offer labour hire and contract services with self performing crews and supervisors, in addition to specialising in formwork, steel fixing and concreting trades. The company also operates a precast concrete facility in Penrith, manufacturing a range of items including kerbs and acoustic wall panels for expressways.

Lendlease Engineering has further contracted four crews from Productivity Force for formwork, steel fixing and concreting services in the North Connex Tunnel.

*For more information contact Productivity Force*, PO Box 78, Quakers Hill NSW 2763, phone 0490 127 420, email [info@productivityforce.com.au](mailto:info@productivityforce.com.au), website [www.productivityforce.com.au](http://www.productivityforce.com.au)





**H&I Safety and Training (H&I)** is a leading safety and training provider catering to the civil and construction industries. They specialise in delivering training in earthmoving equipment and associated safety procedures, as well as providing Verification of Competency (VOC) assessments and Statements of Attainment. H&I also offer plant and equipment audits and inspections, design plant specific SWMS and plant risk assessments for plant machinery.

Ian and his team have been working on The Northern Road Upgrade – TNR3 which started in early 2018, H&I have provided training and assessing for plant operators/contractors and Lendlease Engineering employees, with the emphasis on suiting Lendlease Engineering requirements and standards for their site.

“His team conducted on training courses, VOC assessments on a range of plant and equipment including boom lifts, rollers, forklifts, excavators, vacuum trucks, dozers and graders and many more. We spend most days onsite doing various training for Lendlease Engineering and their subcontractors,” said Director, Ian Sparkes.

“As well as ongoing training at TNR3, we also carried out plant inspections of contractors’ machines prior to starting work onsite and throughout the two year project,” said Ian. “Inspections are a challenge of the industry. It’s usually short notice and they have to be done straight away to keep the job moving”

H&I was established by Ian in April 2014, offering training and assessment for those

new to the industry as well as to experienced operators needing upskilling and VOC.

They have over 25 courses in plant machinery available including training in Excavators, Skidsteers, Loaders, Dump Trucks, Scrapers, Backhoes and Elevated Work Platforms. The company also provide courses for the construction industry such as Working At Heights, Quick Cut Saws, Spotter Training and Working in a Confined Space.

H&I Safety have a large range of their own machines and with the help of Borg Civil can cater to all the contractor’s needs. Training onsite is always difficult as access to machines is an ongoing issue, so having access to a live site scenario set up at their facilities in Bringelly, sets them apart.

“It’s often difficult to have onsite training available. 18 months ago I was able to make an arrangement with my regular clients, Borg Civil, to rent their five acre block, so we can train people on a live site with deliveries, truck movements and stockpiles. It’s practical training in a real environment, using the machines and moving materials,” said Ian.

Ian has over 28 years experience in the civil industry as a plant manager and operations manager on some large scale projects including the Lane Cove Tunnel, Sydney Light Rail M2 upgrade, ETTT, MUR Barracks and Novorail projects throughout Sydney. He has a string of qualifications in Cert IV WHS, WHS Diploma, Cert IV Training and Assessing, and Cert III in Civil Construction Plant Operations. Ian has been inspecting contractors plant for Lendlease Engineering and CPB Contractors

since 2010 as an employee and contractor and visits various projects and sites for plant and machinery inspections.

The Safe Work Methods Statements (SWMS) for plant machinery and Plant Risk Assessments (PRA) are designed by Ian and are tailored to the needs of specific projects. They also offer plant and safety consultations with a focus on WHS procedures including working in high risk areas.

“We do a lot of training in safety procedures,” said Office Manager, Nicky Hackney. “The challenge is the updating required to keep the coursework relevant to the industry as well as compliant with government regulations, especially WHS issues”

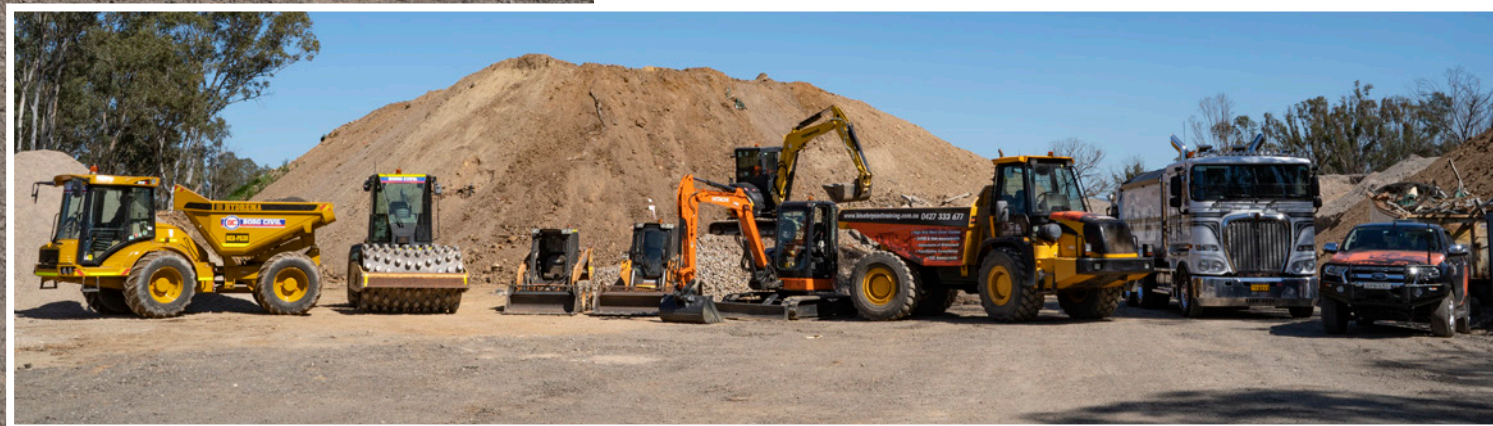
H&I’s qualified trainers have over 25 years combined experience in the civil and mining industries and can provide quality onsite training at any location. The required paperwork and photo cards are issued onsite at completion of the course.

The future for H&I involves building relationships within the industry and growing the company through repeat and referral business. H&I is also focused on taking advantage of their location as it is well placed for opportunities associated with infrastructure works at the new Western Sydney International Airport.

H&I provided training and plant inspections for the ETTT, the Epping to Thornleigh 3<sup>rd</sup> Track, a two and half year rail project for CPB Contractors. Also, for CPB Contractors, H&I worked at The Northern Beaches Hospital as a contractor, M2 Widening upgrade as a direct employee. Recently H&I was contracted to provide Excavator, Roller, Articulated Haul Truck, Wheeled Loader and Skidsteer training for workers at the Sydney Metro and West Connex sites.



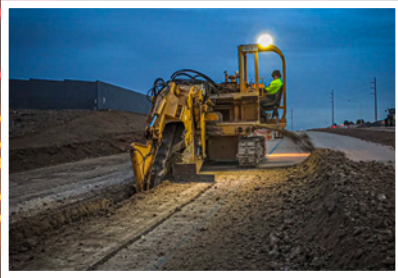
For more information please contact H&I Safety and Training, 150 Mersey Road, Bringelly NSW 2556, phone 0427 333 677, email [training@hisafetyandtraining.com.au](mailto:training@hisafetyandtraining.com.au), website [www.hisafetyandtraining.com.au](http://www.hisafetyandtraining.com.au)





**Below** Easterly Point Environmental provided contaminated land audit advice and certification in relation to the contaminated land remediation and disposal assessments.

**Below** M&A Civil provided trenching services on The Northern Road Upgrade, including the installation of subsoil drains.



**Easterly Point Environmental is a specialist consultancy firm, providing services in the assessment and management of contaminated land in both New South Wales and Queensland.**

Their expert services include contaminated land auditing, due diligence assessments for property transactions and environmental investigations including soil, gas and groundwater monitoring, remediation and management.

Marc Salmon was the appointed site auditor at TNR3 as well as TNR2 sections of The Northern Road Upgrade. In this role he reviewed the contaminated land reports to ensure that the management, remediation and disposal of asbestos contaminated material was undertaken in accordance with the NSW contaminated land framework.

Marc was instrumental in helping the project navigate and align the NSW contaminated land and planning frameworks, ensuring that the chosen remedial strategy was achievable while maintaining the project objectives. Due to Marc’s extensive experience and pragmatic approach, he played a key role in liaising and coordinating the various stakeholders involved in the project, including Lendlease Engineering, the environmental consultant, Transport for NSW and NSW EPA.

Easterly Point Environmental is an Australian, employee owned company committed to quality, performance and problem solving. Established in 2013, Marc is supported by a small, yet highly specialised team operating throughout the NSW Northern Rivers, Sydney, Brisbane, and the Gold Coast.

The company are also experts in the assessments and management of radiation, in particular, that associated with heavy mineral sands residues. They have recently acquired a new radiation meter, one of the most sensitive hand held radiation devices on the market, which is currently being used at a variety of sites across northern New South Wales and south-east Queensland.

*For more information contact Easterly Point Environmental, PO Box 2363, Byron Bay NSW 2481, phone 02 6685 6681, email hailey@easterlypoint.com, website [www.easterlypoint.com](http://www.easterlypoint.com)*

**M&A Civil specialises in excavation and subsoil drainage services, providing both large and small contract works for the civil and building industries.** The company has a long history of successful completion of large scale roadworks and sub divisions.

Onsite work for The Northern Road Upgrade – TNR2 started in June 2017 with M&A Civil providing trenching and the installation of subsoil drains. The job required a team of five comprising plant operators, pipe layers and general labourers using trenchers, excavators, skidsteers and a flowcon truck.

“It was a big job. We dug over 65km of line trenches, placed geotextile fabric and filter gravel. We connected the pipes and then did the backfilling according to specifications. The whole job went very well overall this was due to the Lendlease Engineering staff and site managers, they were professional and accommodating and had the site very well organised,” said Project Manager, Jay Dowse.

Based in Western Sydney, M&A Civil are ready for any size project with an experienced workforce and site management team. Offering a range of services including excavation, trenching, trench drains, and subsoil drains services, and plant hire, M&A Civil is committed

to ensuring a safe working environment. The company has a fleet of construction equipment, excavators, trenchers and skidsteers as well as flowcon trucks, float trucks, trailers and tractors. M&A Civil maintains their plant for their own projects and also has it available for hire by the hour or by contract.

In 2018, M&A Civil completed excavation, trenching and subsoil drainage services along the 5.7km Bringelly Road Upgrade, an important link to The Northern Road Upgrade. In the same year they finished work on the Great Western Highway Reconstruction at Forty Bends in rural New South Wales.

Currently the company are at work on the enormous road building project on the Princes Highway, from Berry to Bomaderry.

*For more information contact M&A Civil, 50 Westbrook Road, Cawdor NSW 2570, phone 0417 715 975, email [jay@mandacivil.com.au](mailto:jay@mandacivil.com.au), website [www.mandacivil.com.au](http://www.mandacivil.com.au)*



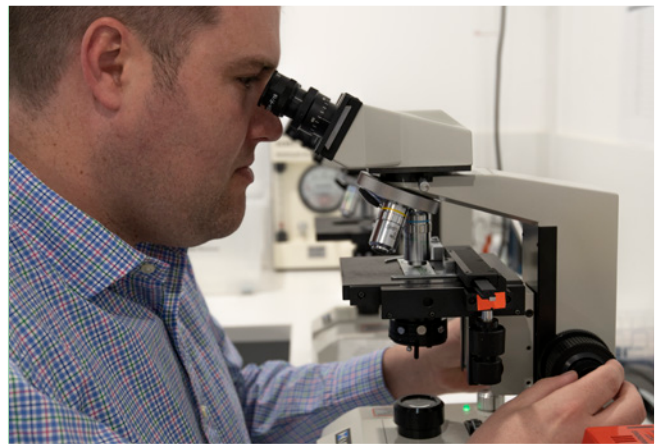




**Below** RPM Hire supplied crucial equipment for the control, monitoring and recording of traffic movement on the project.



**Below** Progressive Risk Management carried out soil assessments at The Northern Road Upgrade for waste classification.



**RPM Hire is a leading traffic management equipment hirer operating across New South Wales, Victoria and Tasmania.** At The Northern Road Upgrade, RPM Hire supplied equipment for the control, monitoring and recording of traffic movement during roadworks on the TNR3 section.

RPM Hire supplied 20 advance notification VMS boards two weeks prior to the bridge demolition project. Once construction started, equipment supplied included 50 VMS boards pre-set and programmed, strategically placed to safely and effectively direct drivers. RPM Hire also had staff on the ground available 24/7 for on demand requests throughout the bridge demolition and hired out four high tech CCTV Trailers.

The cameras have full pan tilt and zoom capabilities, allowing 360 vision and the ability to zoom in 10x. The CCTV cameras were used to monitor que lengths, traffic control setups, delays and vehicle behavior. This allowed the team to implement real time changes to improve traffic flow, as well as reduce or eliminate potential safety risks, allow real time adjustments to traffic setups and monitor the results. The cameras were vital in the safe delivery of the traffic changes. “The CCTV cameras are a new product for us, so commissioning them in time and with remote

viewing and programming capability was a challenge that all came together nicely,” said Director, Ashley Woodcock.

The traffic management equipment available for hire from RPM Hire includes Variable Message Sign (VMS), light towers and portable traffic lights, crash cushions, concrete, steel and waterfilled barriers. RPM Hire supply their equipment throughout Victoria on major roadworks, level crossing removals, infrastructure and asphaltting projects. They are also involved in major events such as Melbourne’s New Years Eve, the Australian Open and the Moomba Festival.

Previous contracts with Lendlease Engineering include the supply of equipment for many major projects including the Tullamarine Freeway Widening Project and the Melbourne Metro Tunnel Project. RPM Hire has been contracted by Lendlease Engineering for further work at The Northern Road. “RPM Hire expanded to Sydney in June 2019, with the TNR3 as our first project. We have high aspirations for our expansion, and bring with us a wealth of knowledge, experience and a high level of customer service,” said Ashley.

**For more information contact RPM Hire**, phone 1300 479 570, email [enquiries@rpmhire.com.au](mailto:enquiries@rpmhire.com.au), website [www.rpmhire.com.au](http://www.rpmhire.com.au)

**Progressive Risk Management (PRM) is a professional risk management consultancy focusing on environmental risk and workplace safety for new developments as well as existing properties.** PRM specialises in carrying out soil investigations which includes asbestos in soil assessments and waste classifications at The Northern Road Upgrade TNRBRU2 and TNR3 sites.

“Transport for NSW wanted to manage potentially contaminated soil with as little offsite disposal as possible. Any soil visually identified to be impacted by asbestos for example was assessed for remediation through manually picking techniques, or encapsulated onsite as contaminated waste, where possible,” said Contaminated Land Team Leader, Jessica Little.

At TNRBRU2 a team of six worked onsite carrying out visual inspections for asbestos in the soil and PRM then provided soil management and remediation advice. “We provide experienced consultants to offer practical solutions when rapid decision making was required onsite,” said Managing Director – Workplace Safety Risk, Jared Clifford.

Established in 2014, PRM has over 30 consultants across Australia and New Zealand, specialising in asbestos, occupational hygiene and

environmental risk, 12 are licensed asbestos assessors and two are certified environmental practitioners.

PRM provides their consultancy services across a range of industries including construction, infrastructure and utilities, industrial and greenfields development sites. They also provide property risk assessment audits to identify health and safety risks to people accessing a site. “PRM looks for unique and challenging projects where we can assist clients through the different scenarios of development, helping to achieve goals and objectives,” said Jared.

PRM also provides expert advice in the field of occupational hygiene assessments, particularly, noise, diesel particulate matter and crystalline quartz (silica) as well as the management of workplace health and safety and offers WHS system development and review, as well as risk assessments in the workplace. PRM’s experienced team of practitioners with a broad variety of skill sets is well placed to assist on infrastructure or construction projects.

**For more information contact Progressive Risk Management**, Unit 14/76 Reserve Road, Artarmon NSW 2064, phone 0417 572 239, email [info@progressiverm.com.au](mailto:info@progressiverm.com.au), website [www.progressiverm.com.au](http://www.progressiverm.com.au)



**Below** R.A Smith Contracting undertook extensive water, sewer, stormwater infrastructure and civil works, including water main relocation.



**R.A Smith Contracting (RASC) is an infrastructure contractor with expertise in the water industry.** They specialise in the installation of water, sewer, stormwater infrastructure and civil works.

In June 2018, RASC started onsite at The Northern Road Upgrade. Civil services supplied by RASC included relocating the water mains to make way for the new road to be constructed. New pipes ranged from 750mm SCL to 100mm PVC were installed and connections made to the existing Sydney Water system.

“We needed to plan with the community in mind,” said Director, Tim Smith. “There were challenges around working in a residential area and working at night. So, we opted for micro tunneling and boring techniques where possible, to lay past some of the existing services we had to build support structures to avoid damage to these critical services.”

Sydney based RASC is a family owned and operated company, established in 1977. Founder Robert Smith has 47 years experience in civil contracting including excavation and underground pipeline installation as well as project and company management. RASC has years of experience providing quality service and

equipment for large scale projects, with previous work for Lendlease Engineering including water, sewer and stormwater installations.

RASC works across New South Wales, Australian Capital Territory, Victoria and Queensland installing underground utilities. Their services include non-destructive digging, supply of plant and vehicles, the installation of stormwater, rainwater harvesting and re-use systems, stormwater pits, pipes and culverts. They also install Gross Pollutant Traps (GPT) and Onsite Detention Tanks (OSD).

The company constructed water and sewer mains infrastructure for sections of the north west and south west growth areas of Sydney as well as new medium density urban developments. RASC has also been at work on Sydney’s Light Rail project for ACCIONA since early 2016 installing and connecting water, sewer and stormwater services including installation of electrical conduits, pits, smart pole foundations, pavement construction and streetscape works.

*For more information contact R.A Smith Contracting, 13 Cunningham Street, Moorebank NSW 2170, phone 02 9601 8366, email [info@rasmith.com.au](mailto:info@rasmith.com.au), website [www.rasmith.com.au](http://www.rasmith.com.au)*

**Below** Rowley’s Plant & Transport Management supplied trucks and front end loaders for materials handling and stockpiling.



**Rowley’s Plant & Transport is an experienced earth moving equipment hire company, a leader in the delivery of infrastructure programmes for both rail and civil projects.**

The company started onsite at The Northern Road Upgrade in June 2017 and worked along all 4km. They were onsite with a range of plant and equipment and qualified operators. The company supplied trucks and front end loaders for materials handling and stockpiling and their vehicles carried the huge drain pipes from storage to site. The new crane truck with an impressive lift capacity of 1.2ton at 17m reach was used for placement of some pipes and tipper trucks transported outgoing spoil.

“Over the final six months the job got considerably faster,” said Managing Director, Adam Rowley. “The difficult part was keeping the traffic moving through the site. The majority of the work was in residential areas so there were problems with access and safety for the general public. Lendlease Engineering took care of it all very well.”

Rowley’s Plant & Transport has a huge range of trucks and dump trucks with dog trailers, loaders, excavators and water carts for hire and will source specialised equipment. They also operate a distinctive

pink water cart with proceeds from their operation donated to the Breast Cancer Foundation. The company maintains a network of subcontractors, owner operators and contracting companies to enable them to provide plant and equipment across metropolitan and regional New South Wales.

Rowley’s Plant & Transport is a family company with three divisions: rail, civil works and project management.

They have over 20 years of experience in rail construction completing two years work laying track for the ETTT in 2017. Their civil capabilities include, bulk earthworks, bridge and road work, subdivisions, drainage works, erosion and vegetation control. Project management services include site supervision, logistics and scheduling as well as sourcing plant specific to project needs.

*For more information contact Rowley’s Plant & Transport, phone 0424 733 019, email [management@rpt.net.au](mailto:management@rpt.net.au), website [www.rowleysplantandtransport.com.au](http://www.rowleysplantandtransport.com.au)*



# IT'S TIME

Australia is moving to MASH tested Crash Cushions on December 31st 2019 and the time to prepare, is NOW!

## SMART CUSHION

Speed Dependent Crash Attenuators

**MASH TESTED & APPROVED** ✓

### DECEMBER 2019

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31 transition to MASH		2	3	4

JANUARY 2020

S	M	T	W	T	F	S
		1	2	3	4	
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

FEBRUARY 2020

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

According to the Austroads / ASBAP 'Transition to MASH' process, tenders called for new crash cushions installed on Australian roads after December 31st 2019, will require them to be tested and approved under the AASHTO MASH guidelines, rather than the superseded NCHRP350 guidelines.

With this date rapidly approaching, **NOW IS THE TIME** to start preparing for this critical transition.

**SMART CUSHION** has been **ASSESSED, APPROVED & RECOMMENDED FOR ACCEPTANCE** throughout Australia by ASBAP (Austroads Safety Barrier Assessment Panel).

**SMART CUSHION** has been used in the USA for almost two decades and in Australia for over 5 years.

**SMART CUSHION** is the **ONLY** crash cushion to have passed both the NCHRP350 and MASH-2016 crash test standards.



### SAVE TIME...

For most impacts up to 100km/h (by vehicles up to 2,270kg) the SMART CUSHION can usually be repaired and reinstated into service in under 60 minutes.



### SAVE MONEY...

In 90% of all impacts in Australia, the only spare structural parts needed for repairs are 2 shear pins (COST <\$5). After 59 impacts in Australia, the average cost for each reset was \$169.



### SAVE LIVES...

After more than 20 years of successful service internationally and over 5 years successful service in Australia, SMART CUSHION has been directly credited with saving numerous lives and significantly reducing the severity of injuries in literally thousands of impacts.

**SMART CUSHION**  
Speed Dependent Crash Attenuators



**LB AUSTRALIA**

Ph 02 9631 8833

[www.lbaustralia.com.au](http://www.lbaustralia.com.au)