




2 August 2020 ROADS TO REUSE – INFORMATION SESSION

Crushed Recycled Concrete RtR Pilot Project



DWER Roads to Reuse (RtR)

- 25,000t Pilot Project
- Industry collaboration
- Robust testing regime
- Independent audit tests


Good workability & strength

- Lower moisture need
- Easy to work
- Excellent surface finish

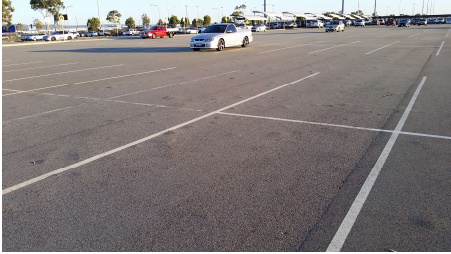
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Crushed Recycled Concrete Risk Mitigation

Risk	Cause	MRWA Mitigation Measures
Cracking	Reactivation of cement - shrinkage - fatigue (high traffic)	Use as sub-base under Full Depth Asphalt Consider geofabric seal if used as basecourse Do not use as basecourse under heavy traffic
Popping	Expansive contaminants (eg aluminium, gypsum)	Promote awareness and inspection - remove and replace if occurs
Hazardous Contaminants	Asbestos and other hazardous materials not removed in demolition	DWER RtR Specification and Guidelines • Robust industry management systems • Strict supplier end product testing DWER independent audit testing
pH	Reactivation of cement	Do not use near wetlands / groundwater

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Crushed Recycled Concrete (CRC) - Popping



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Asbestos Risk Management for CRC


Responsibility	Asbestos Risk Mitigation Measures
Demolition Site	Asbestos check – illegal to recycle asbestos Audit and enforcement of legislation
CRC Supplier	Robust approved Quality System - Incoming materials asbestos check at gate - High asbestos awareness and inspection during processing - Strict dust control measures, and quarantine of asbestos - Strict supplier end product testing
DWER	DWER system audit of Suppliers DWER independent end product audit testing
MRWA Project	Clearly identify product as CRC and understand risks and mitigations - strict dust control measures and advise laboratories

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Sustainability in Main Roads Specifications

501.05 SUSTAINABILITY CONSIDERATIONS

- Materials for road pavements shall be managed under the sustainability hierarchy of REDUCE, REUSE and RECYCLE.
- Unless defined otherwise, the materials described in this specification shall be sourced from pits or quarries of natural materials, and shall be blended, crushed or processed as applicable to produce a homogenous material. These materials are a finite resource and waste shall be reduced to a minimum. *Reduce*
- Where practical, redundant pavement materials should be recovered and reused, or otherwise recycled to the highest level use practical. Reused materials shall be processed to produce a homogenous material and shall meet the specified applicable requirements for sub-base or basecourse. *Reuse*
- This specification also includes manufactured materials sourced from recycled Construction & Demolition Waste. Recycled materials for pavement construction shall be blended, crushed or processed as applicable to produce a homogenous material by a recycling premises licensed by DWER. Recycled materials shall only be included in materials which are designated as recycled. *Recycle*

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Main Roads CRC Specification 501.92

CRC Pilot Project Specification 501.92 successful

- Will be published as stand-alone Annexure in 501
- Processing management as per Rtr Spec
- Engineering properties same as IPWEA Spec

➤ **Additional MRWA Specification requirements:**

- Ensure dust control on site and at laboratories
- Independent DWER audit testing
- Supply to cease if asbestos breach & investigate

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Benefits of CRC to Main Roads

Engineering benefits:

- Robust sub-base under Full Depth Asphalt
 - Recementation provides design benefit
- Excellent tight stone mosaic surface finish
 - Readily accepts prime for good bond

Sustainability benefits:

- Upcycling of C&D Waste material into road building
- Reduced water usage in road construction

➤ **Main Roads commitment to 100,000+ tonnes/year**

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Opportunities of CRC for Local Government

Engineering aspects:

- High strength, sound, durable
- Manage cracking potential (recementation)
 - Suitable pavement for low traffic roads
 - Recommend GRS for CRC basecourse

Sustainability aspects:

- Upcycling of C&D Waste material
- Reduced water usage in road construction

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Thank you

Questions welcome at end of session
