

Sustainable Solutions at Downer:

Turning Waste into Value Added Products



Services in Victoria



- Asphalt supply
- Asphalt laying
- Asphalt profiling
- Bitumen spraying and sealing
- Microsurfacing
- Surface rejuvenation
- In-situ stabilisation
- Innovative products and solutions
- Intelligent Transport Systems
- Traffic Management
- NATA-accredited research, development and laboratory facilities
- NATA-accredited RIDE car

- Detritus processing and material recycling
- Recycled road base
- Ex-situ cement stabilised base
- Ex-situ foam stabilised base
- Sustainable solutions

- Road network management
- Asset Maintenance
- Routine maintenance
- Intelligent transport systems
- Smart city infrastructure

Downer: Our Purpose and Values

Our Purpose

Enabling Communities to Thrive

Our Values

Connection Respect Excellence Integrity

Our Sustainability Objectives:

Avoid Waste

Avoid Waste Going to Landfill

Recycle/Reuse

Use Recycled Materials to Replace Virgin Materials

Reduce Carbon

Reduce our Carbon Footprint to Zero by 2050

Repurposed materials currently utilised in Asphalt at Downer



- Reclaimed asphalt pavement (RAP)
- Used toner cartridges
- Waste glass
- Waste soft plastic
- Waste oil
- Waste tyre rubber.
- Recycled sands and aggregates from the detritus process
- Repurposed Construction and Maintenance Waste
- Steel Slag.



INNOVATIVE
SOLUTIONS



SUSTAINABLE
SOLUTIONS



INCREASED
VALUE

Our Journey With EcologiQ

- Downer and EcologiQ share common objectives:
 - **“Recycled First”** for Greener Transport Infrastructure
- EcologiQ encouraged the industry to recycle more
- EcologiQ facilitated discussions between Downer as a supplier and Department Of Transport as the regulator
- The Department of Transport and Downer agreed a testing regime to validate material performance characteristics
- **Reconophalt** – Asphalt containing Recycled Asphalt Pavement, Soft Plastics, Printer Toner and Crushed Recycled Glass first registered
- Environmental Testing
- Health Testing

DoT Mix Registrations

Department of Transport
22 Luluabur Drive
Bentley Hills VIC 3181 Australia

5 June 2020

Downer ECR Works Pty Ltd
120, 128 Somerton Rd
Somerton, VIC 3042

ATTENTION: Thomas Wines

Dear Mr Wines,

APPLICATION FOR REGISTRATION OF MIX DESIGN FOR DOWNER ECR WORKS

ASPHALT PLANT: Baywater

ASPHALT MIXES: Soreen and Soreen Type H (Reconophalt mixes)

I refer to your applications of 27 April 2020 and 27 May 2020 together with mix design documentation requesting the registration of asphalt mixes to be produced at the above plant.

All asphalt mixes proposed for use on Department of Transport (DoT, formerly VicRoads) works or on any other works on arterial roads or freeways are required to be registered by DoT in accordance with Victorian Contract Practice (VCP) 2010 (1) and Victorian Standard Specifications Section 407. All mix designs registered with DoT are issued in status according to compliance (a).

Subject: FW: Reconophalt SS M80

Control mix	4.4, 4.5 and 4.7%, target of 4.5%
Binder content	3.5mm
Wheel tracking (avg)	4703 MPa
Modulus (avg)	87 µε at 1 million cycles
Fatigue	

Reconophalt	4.2%, target 4.4%
Binder content	2.5mm
Wheel tracking (avg)	4236 MPa
Modulus (avg)	116 µε at 1 million cycles
Fatigue	

Flexural modulus is very similar for both mixes.

As such it is considered that the AC20 C120 30% RAP + Toner/Plas can act as a replacement for the Type S5 on this project with the following conditions:

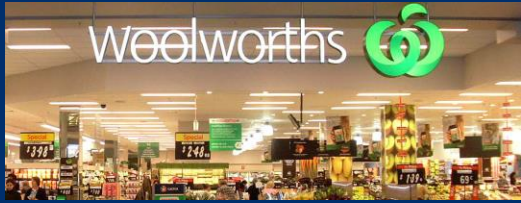
- The RAP Management requirements from the April 2021 Section 407 are adhered to
- The mix is still considered as an S5 with regards to the ambient conditions for placement
- Asphalt production testing as per the CPB M80 Reconophalt ITP proposal forwarded with DoT inclusions on 18th May 2021

The use of the AC14 Reconophalt as a replacement for the Type H specified under the Open Graded is also considered to be acceptable. The AC14 Reconophalt mixes were registered under the just superseded Sec 407 so the testing requirements under that version of the specification will need to be met unless it is proposed to adopt the April 2021 Sec 407 RAP testing requirements for these AC14 Reconophalt mixes. The contractor will need to confirm the approach that they intend to adopt.

Regards

Robert Rowthill
Lead Engineer, Recycled Surfacing
Pavement, Geotechnical & Materials Engineering
Department of Transport
22 Luluabur Drive BENTLEY HILLS EAST
VIC 3181
R.Rowthill@dot.vic.gov.au

Reconophalt - Soft Plastics & Toner into Asphalt



Performance Benefits



Superior performance of **Reconophalt™ asphalt**

TESTS HAVE SHOWN RECONOPHALT HAS:



Significant improvement in **fatigue life**



Increased **pavement life**



Increased **traffic loading**



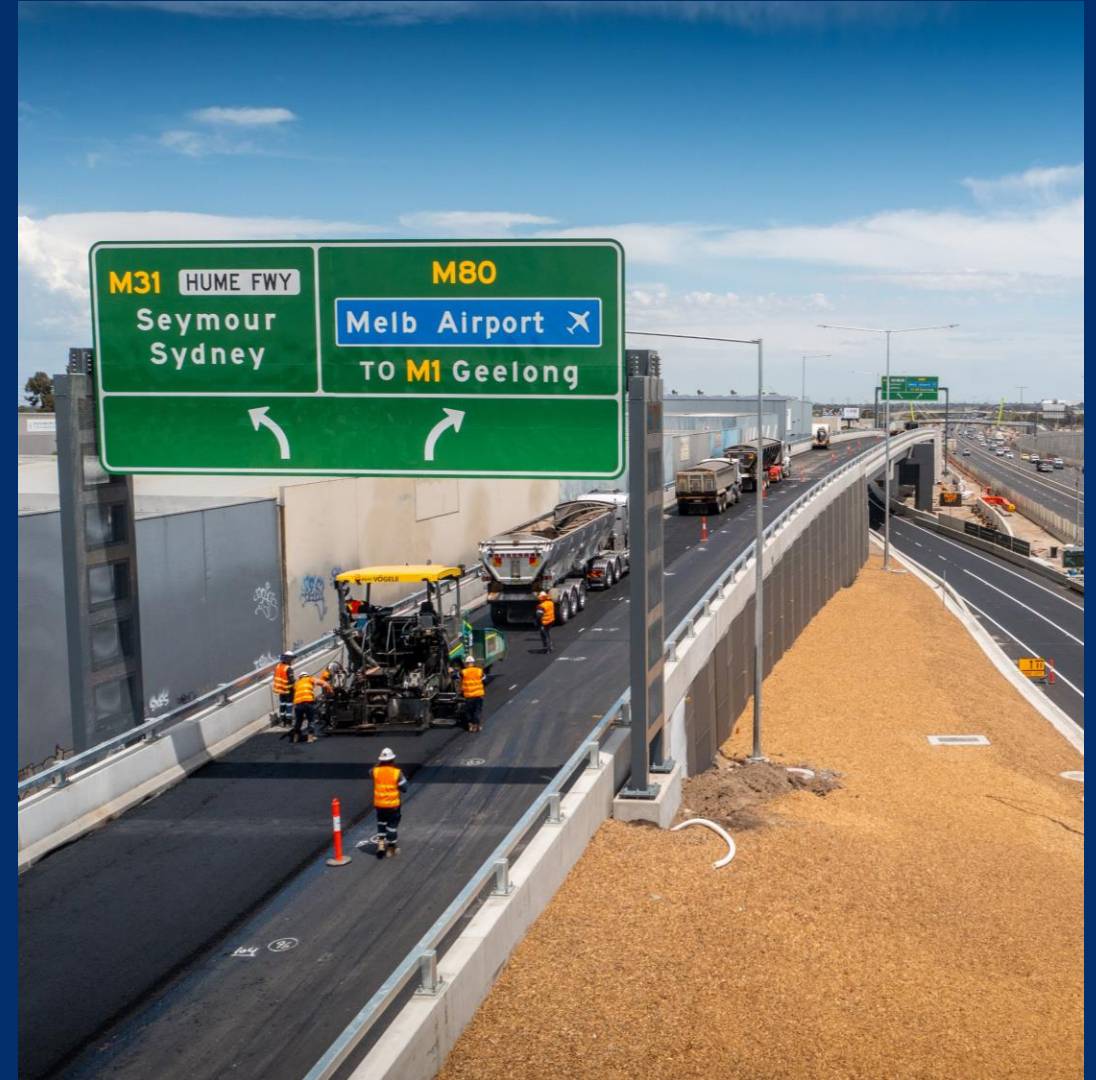
Reduction in **asphalt thickness** in deep lift pavements

ASPHALT MADE WITH REPURPOSED WASTE

The Outcome

Produced and Laid Reconophalt on:

- The M80 Freeway
- The Monash Freeway
- Many other MRPV Suburban Road Upgrade projects
- Local Government Roads
- Subdivisions
- Carparks



Reconophalt™

Laid on the M80 & Monash Freeways



Created Savings of
400t CO2e
And Diverted:

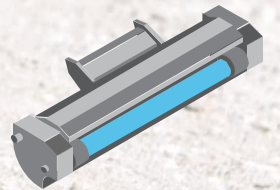
42.6 million

plastic bags/
soft plastics



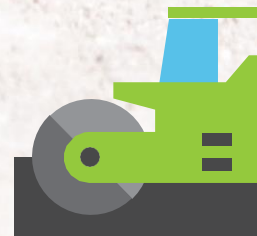
1.24 million

used toner
cartridges



14,400 tonnes

reclaimed asphalt



6 million

recycled glass
bottles



Reconophalt placed on the Monash and M80 Freeways = 47,918t

