

SHIRE OF KOJONUP



Roads and Technical Support Advisory Committee

Agenda

13 February 2025

TERMS OF REFERENCE

ROADS AND TECHNICAL SERVICES ADVISORY COMMITTEE (RTSAC)

Terms of Reference

To oversee and make recommendation to the Council on all matters pertaining to the long term planning of civil and technical services to assets and roads, and on all matters concerning the capital upgrades and to the maintenance of those assets. This includes roads and all civil or technical works.

RTSAC is not responsible for the operational and executive management of Works and/or Technical Services as per the *Local Government Act 1995*. The RTSAC will engage with the Chief Executive Officer (CEO), Manager Works and Services, and/or Manager Financial and Corporate Services in a constructive and professional manner in order to discharge its advisory responsibilities and formulate its advice to Council.

Duties and Responsibilities:

Members of RTSAC are expected to observe the legal and regulatory obligations of local government.

RTSAC members must not use or disclose information obtained through the RTSAC except in meeting the RTSAC's responsibilities, or unless expressly agreed by the President of the Shire.

RTSAC Members must adhere to the Code of Conduct for Council Members, Committee Members and Candidates, and demonstrate behaviour which reflects the Shire of Kojonup's (Shire) desired culture.

Members are expected to:

1. act in the best interests of the Shire as a whole;
2. apply good analytical skills, objectivity and good judgment ;
3. express opinions constructively and openly, raise issues that relate to the RTSAC's responsibilities and pursue lines of enquiry in relation to Roads and Technical Services; and
4. exercise due care, diligence and skill when performing their duties.

Members Duties and responsibilities:

1. Oversee the Shire's Road and Technical Management Strategies and Plans, through:
 - a) Advising Council on Works & Services long term plans for civil works in the Shire;
 - b) Receiving the 10 year Plant & Equipment Plan, the 10 year Road Capital and Maintenance Plan and recommending adoption to Council;
 - c) Overseeing the inputs and specifications required for future road and depot projects across the Shire;
 - d) Reviewing reports on the level of the Shire's current road funding risks, and the emergence of road and technical services strategic risks; and
 - e) Monitor and receive performance reports concerning the performance of tenders and contractor works, specifications and the effectiveness of the Shire's Road & Technical Services Management Framework.
2. Discuss and recommend naming frameworks for roads.
3. Oversee the Shire's financial management of road contracts, by:
 - a) Reviewing the Shire's road and technical services actual financials against the long term plans including reviewing benchmarks for performance;
 - b) Receiving and reviewing reports from the CEO and Manager Works & Services regarding the appropriateness and effectiveness of the Shire's Road and Technical Services Management Framework and ensuring any non-compliances are rectified on a timely basis; and
 - c) Consider and recommend the adoption of the Roads & Technical Services Annual Operating

Plans & Budget to the Council.

Membership

Three (3) Councillors; and

Two (2) Proxy Delegates (Councillors)

Supporting Team Members

Manager Works and Infrastructure

Chief Executive Officer or delegated nominee

Manager Financial and Corporate Services

Governance and Rates Officer

Meetings

Quarterly for meetings and as required related to Council requests for information on roads and technical services.

Open to Public: No, Internal Committee

Voting: Voting is in accordance with Section 5.21 of the *Local Government Act 1995 (Act)*.

Confidentiality: All Committee members will be required to adhere to the Shire's confidentiality requirements as per the Code of Conduct for Council Members, Committee Members and Candidates.

Conduct of Meetings: RTSAC meetings will be held in accordance with the *Act*, subsidiary legislation, and the Shire of Kojonup Local Government (Council Meetings) Local Law 2020.

ROADS AND TECHNICAL SUPPORT ADVISORY COMMITTEE

AGENDA

1. DECLARATION OF OPENING

The Chairperson declared the meeting open at _____am.

2. ATTENDANCE & APOLOGIES

Members

| | |
|---------------------------|--------|
| Cr Paul Webb | Member |
| Cr Ned Radford | Member |
| Cr Alan Egerton-Warburton | Member |

Staff (Observers)

| | |
|----------------|----------------------------------|
| Grant Thompson | Chief Executive Officer (CEO) |
| Tonya Pearce | Governance and Rates Officer |
| Darryn Watkins | Manager Works and Infrastructure |

Apologies

3. CONFIRMATION OF MINUTES

NA

4. BUSINESS ARISING

NA

5. STATUS REPORT

- a. Current Road Projects Status Report – MWI, Darryn Watkins
- b. Current Request for Quotes/Tenders updates

6. GENERAL BUSINESS

- a. 10 yr Plant Replacement Program - Update
- b. 10 Year Road Capex Program - Discussion
- c. 26-27 Road Capex Projects - Discussion
- d. Use of RTR funds as Council co-contribution to RRG projects - Discussion
- e. Road Specification - Discussion

7. OTHER ITEMS FOR DISCUSSION OR FURTHER RESEARCH

8. NEXT MEETING

The next meeting of the Roads and Technical Support Advisory Committee is scheduled to be held 15 May 2025.

9. CLOSURE

There being no further business to discuss, the Chairperson thanked members for their attendance and declared the meeting closed at _____am.

ATTACHMENTS (SEPARATE)

Project Report MWI Feb 25
RFQ Kojonup- Cement Stabilisation Works 24-25
RFQ-Bitumous_Surfacing_Kojonup_2024
Plant replacement program 25-26 rev 1 (version 1)
24-25 Capex Procurement Update
2024-25 Plant Capex notes
25-26 RRG Projects
Capital Works Program Kojonup 10 Year Program 24-25 Distn
Specification-515-in-situ-stabilisation-of-pavement-materials

CAPEX PROCUREMENT UPDATE

1. **BITUMEN SEALING VIA WALGA EQUOTES AND OTHERS** – See attachments (RFQ, quote summary)
2. **STABILISATION WORKS** – See summary attachments (RFQ,Specification and Summary)
3. **SHOULDER MASTER WORKS** – 3 quotes sought, 2 received submission received and awarded to Monarch Civil Ventures.
4. **AGGREGATE SUPPLY** -1100 tonne of aggregate supply and haulage awarded to Matthews Transport. Cost comparison between Fulton Hogan, Matthews Transport and no response Holcim. Total Value circa \$75,000

MINOR PURCHASES

1. **PRE-CAST DRAINAGE PRODUCTS** – 2 written quotes received via WALGA Preferred Supplier Panel members Value sub \$20,000. Awarded to MJB Industries Bunbury

2025/2026 REGIONAL ROAD GROUP PROJECTS (TBC – STATE ADVISORY COMMITTEE & MRWA)

| <i>PROJECT #</i> | <i>ROAD NAME</i> | <i>SLK</i> | <i>TREATMENT</i> | <i>TOTAL COST</i> | <i>LGA FUNDING</i> | <i>RRG FUNDING</i> |
|-------------------------|-------------------------|-------------------|--|---------------------------|---------------------------|---------------------------|
| KO1 | Shamrock Rd | 15.8 – 18.8 | Widen formation to 9mt and widen seal to 7mt | \$705,000 | \$235,000 | \$470,000 |
| KO2 | Darkan – Kojonup Rd | 3.8 – 5.0 | Pavement repairs and reseal to 7mt | \$105,000 | \$35,000 | \$70,000 |
| KO3 | Darkan – Kojonup Rd | 1.9 – 3.8 | Reconstruct failed pavement, stabilize and reseal to 7mt | \$615,000 | \$205,000 | \$410,000 |
| KO4 | Kojonup – Frankland Rd | 29 - 31 | Pavement repairs and reseal to 7mt | \$225,000 | \$75,000 | \$150,000 |
| KO5 | Jingalup Rd | 2.00 – 4.00 | Pavement repairs and reseal to 7mt | \$210,000 | \$70,000 | \$140,000 |
| KO6 | Broomehill – Kojonup Rd | 16.0 – 16.8 | Pavement repairs and reseal to 7mt | \$90,000 | \$30,000 | \$60,000 |
| CRSF | Riverdale Rd | 0.0 – 2.5 | Widen formation to 9mt and widen seal to 7mt | \$525,400 | \$175,400 | \$350,000 |
| CRSF | Tone Rd | 0.00 – 2.50 | Widen formation to 9mt and widen seal to 7mt | \$523,500 | \$174,500 | \$349,000 |
| <i>Total</i> | | | | <i>\$2,998,900</i> | <i>\$999,900</i> | <i>\$1,999,000</i> |

2024-25 PLANT CAPEX

- ***Ford Ranger MWI Utility*** - purchased Nov 2024 from Albany Ford. Purchased under State Common Use Arrangement. Budget Allocation \$80,000 Actual expenditure \$60,000
- ***Shoulder Master attachment***- The purchase is not warranted as it does not represent value for money. The Shire's Track Loader CAT259B3 does not have the hydraulic output to run the shoulder master attachment. It is noted that the Shire has only one shoulder widening project forecast for 25/26 period. This project would equate to 4 days utilization for the attachment. Budget allocation is \$150,000.
- ***Skid Steer Trailer*** - The Shire currently owns a tandem axle plant trailer, 2014 model with only 17,000kms use. This trailer has not been used for many years as I am advised the loading ramps were deemed too steep and unsafe. I have investigated with the manufacturer and have been advised that the trailer was engineered and manufactured in accordance with the Motor Vehicle Standards Act. The trailer will be serviced and returned to work. If need be, the manufacturer (AllRoads) can lengthen the ramps rather than purchase a new trailer. Budget Allocation was \$55,000 for the new purchase with budgeted value of \$45,000 on disposal of the existing unit.
- ***Fuel Pump System*** – Upon investigation the proposed system did not represent value for money. The budget allocation did not include installation costs as a separate power supply would need to be run from the sub board to the bowser. After investigation with the supplier it became evident there was not any support of their product. The MWI is currently working with fuel supply companies on a amortized rental arrangement for a 30,000lt bulk tank with integrated fuel management system.
- ***Disposal of Community Bus*** – This vehicle has been listed with Pickles Auctions for their WA Regional Timed Online Auction for February 2025. This process of disposal is at “arms length” and is fully compliant with the Local Government Act. The budgeted income for the vehicle is \$10,000. Fees payable to Pickles are 3.5% of the hammer price plus minor administration fees.

Discussion items

10 Year Plant Replacement Program

- The Shire currently has 2 small front end loaders the exact same model and capacity, i.e. CAT 924K which has a 2m³ bucket capacity. It is proposed that the Shire upgrade its main construction loader to a 950GC which has a bucket capacity of 3.2m³. For example over 5000m³ pavement construction project this would represent 750 less machine movements to load the same amount of material resulting in less operational cost for the loader and efficiency gains in a quicker turn around times for the gravel haulage.

The capital cost difference between the CAT 924K and 950GC is around \$40,000. It should be noted that the 950GC does not have quick hitch capability as both our smaller loaders currently have.

- **Ownership versus Rental :** 2 items of plant have been identified for Council to consider as Do.Not.Replace. It would be beneficial to rent that item of plant for the duration required especially for capital works projects and /or winter grading.

| <i>Plant</i> | <i>Shire Cost</i> | <i>Dry Hire Cost</i> |
|------------------------|--------------------------|-----------------------------|
| Multi Tyred Roller | \$880 | \$460 |
| 3 rd Grader | \$1160 | \$830 |

*POC above are based on 8hr machine utilization day.

*Fuel burn charged at \$1.75 ex GST

ROADS TO RECOVERY - CAPITAL WORKS

FUNDED BY ROADS TO RECOVERY (R2R)
23 May 2024 Shire of Kojonup awarded \$3,806,749 for next 5 years from 1 July 2024 - 30 June 2029

| | | | | FUNDING | \$ 761,350 | \$ 761,350 | \$ 761,350 | \$ 761,350 | \$ 761,350 | | | | | |
|---------|---|-------|-------|---------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Road ID | Road Name | SLK | | Length | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year |
| | | Start | End | | 24/25 | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 |
| 14 | Balgarup Rd (SLK 0.0 - 16.72) | | | | | | | | | | | | | |
| | Gravel sheet | 4.68 | 7.7 | 3000m | | \$ 180,000 | | | | | | | | |
| | Gravel sheet | 7.7 | 10.7 | 3000m | | | \$ 180,000 | | | | | | | |
| | Gravel sheet | 10.7 | 13.7 | 3000m | | | | \$ 180,000 | | | | | | |
| | Gravel sheet | 13.7 | 16.7 | 3000m | | | | | \$ 180,000 | | | | | |
| 158 | Boilup Road (SLK 0.0 4.58) | | | | | | | | | | | | | |
| | Seal bridge approach and deck | 0.6 | 0.6 | 100m | | \$ 25,000 | | | | | | | | |
| 12 | Boscabel-Chittinup Rd (SLK 0.0 - 18.27) | | | | | | | | | | | | | |
| | Reseal | 3.8 | 4.06 | 260m | | \$ 26,000 | | | | | | | | |
| | Reseal | 4.86 | 6.22 | 1360m | | \$ 136,000 | | | | | | | | |
| | Gravel sheet | 15.04 | 18.06 | 3020m | | | | | | | | | | |
| 45 | Marron Pool Road (SLK 0.0 6.44) | | | | | | | | | | | | | |
| | Seal bridge approach | 4.7 | 4.7 | 100m | | | \$ 25,000 | | | | | | | |
| 159 | Mission Road (SLK 0.0 - 7.1) | | | | | | | | | | | | | |
| | Floodway upgrade | 5.27 | 5.27 | 0.00 | \$ 20,000 | | | | | | | | | |
| 167 | Newton Road (SLK 0.0 - 0.25) | | | | | | | | | | | | | |
| | Reseal | 0 | 0.25 | 250m | \$ 44,000 | | | | | | | | | |
| 20 | Old Broomehill Road (SLK 0.0 - 20) | | | | | | | | | | | | | |
| | Seal bridge approach | 2.4 | 2.4 | 100m | | \$ 25,000 | | | | | | | | |
| | Seal bridge approach | 5.3 | 5.3 | 100m | | \$ 25,000 | | | | | | | | |
| | Seal bridge approach | 7.9 | 7.9 | 100m | | \$ 25,000 | | | | | | | | |
| 11 | Parker Road (SLK 0.0 - 12.42) | | | | | | | | | | | | | |
| | Gravel Sheet | 4.13 | 7.13 | 3000m | | | \$ 180,000 | | | | | | | |
| | Gravel Sheet | 7.13 | 10.13 | 3000m | | | | \$ 180,000 | | | | | | |
| | Gravel Sheet | 10.13 | 12.42 | 2300m | | | | | \$ 138,000 | | | | | |
| | Gravel Sheet | | | | | | | | | | | | | |
| 19 | Potts Road (SLK 0.0 - 16.98) | | | | | | | | | | | | | |
| | Gravel sheet | 5.75 | 8.75 | 3000m | | | \$ 180,000 | | | | | | | |
| | Gravel sheet | 8.75 | 11.75 | 3000m | | | | \$ 180,000 | | | | | | |
| | Gravel sheet | 11.75 | 13.45 | 1700m | | | | | \$ 102,000 | | | | | |
| 5 | Qualeup North (SLK 0.0 - 17.09) | | | | | | | | | | | | | |
| | Failure repair | 4.17 | 4.09 | 80m | | | | | | | | | | |
| | Failure repair | 1.52 | 1.51 | 1m | | | | | | | | | | |

ROADS TO RECOVERY - CAPITAL WORKS

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| | | | | FUNDING | \$ 761,350 | \$ 761,350 | \$ 761,350 | \$ 761,350 | \$ 761,350 | | | | | |
|---------|---------------------------------------|-------|-------|---------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Road ID | Road Name | SLK | | Length | Financial Year 24/25 | Financial Year 25/26 | Financial Year 26/27 | Financial Year 27/28 | Financial Year 28/29 | Financial Year 29/30 | Financial Year 30/31 | Financial Year 31/32 | Financial Year 32/33 | Financial Year 33/34 |
| | | Start | End | | | | | | | | | | | |
| 5 | Qualeup South (SLK 0.0 - 8.29) | | | | | | | | | | | | | |
| | Failure repair | 0.19 | 0.25 | 60m | \$ 35,000 | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 38 | Round Pool Road (SLK 0.0 - 10.9) | | | | | | | | | | | | | |
| | Seal bridge approach | 0.9 | 0.9 | 100m | | | \$ 25,000 | | | | | | | |
| | | | | | | | | | | | | | | |
| 21 | Samson Road (SLK 0.0 - 15.2) | | | | | | | | | | | | | |
| | Seal bridge approach | 2.8 | 2.8 | 100m | | | \$ 25,000 | | | | | | | |
| | Seal bridge approach | 5.1 | 5.1 | 100m | | | \$ 25,000 | | | | | | | |
| | | | | | | | | | | | | | | |
| 55 | Soldier Road (SLK 0.0 - 1.78) | | | | | | | | | | | | | |
| | Asphalt | 0.89 | 0.68 | 210m | \$ 75,000 | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 76 | Spring St (SLK 0.0 - 0.63) | | | | | | | | | | | | | |
| | Asphalt | 0 | 0.63 | 630m | \$ 347,350 | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 6 | Tone Rd (SLK 0.0 - 35.17) | | | | | | | | | | | | | |
| | Failure repair | 1.63 | 1.57 | 60m | \$ 90,000 | | | | | | | | | |
| | Failure repair | 5.98 | 6.12 | 122m | \$ 55,000 | | | | | | | | | |
| | Failure repair | 14.74 | 14.6 | 140m | \$ 70,000 | | | | | | | | | |
| | Widening to 7m seal | 0 | 1.5 | 1500m | | \$ 300,000 | | | | | | | | |
| | Widening to 7m seal | 1.5 | 3 | 1500m | | | \$ 300,000 | | | | | | | |
| | Widening to 7m seal | 3 | 4.5 | 1500m | | | | \$ 300,000 | | | | | | |
| | Widening to 7m seal | 4.5 | 6 | 1500m | | | | | \$ 300,000 | | | | | |
| | Widening to 7m seal | 6 | 7.5 | 1500m | | | | | | \$ 300,000 | | | | |
| | Widening to 7m seal | 7.5 | 9 | 1500m | | | | | | | \$ 300,000 | | | |
| | Widening to 7m seal | 9 | 10.05 | 1000m | | | | | | | | \$ 250,000 | | |
| | Seal bridge approach | 25.5 | 25.5 | 100m | | | \$ 25,000 | | | | | | | |
| | | | | | | | | | | | | | | |
| 110 | Wanwindup North Road (SLK 0.0 - 3.33) | | | | | | | | | | | | | |
| | Culvert repair | 1.22 | 1.22 | 0.00 | \$ 25,000 | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 34 | Yarranup Road (SLK 0.0 - 13.75) | | | | | | | | | | | | | |
| | Gravel sheet | 8.3 | 13.75 | 5450m | | \$ 327,000 | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | TOTAL | | | \$ 761,350 | \$ 1,069,000 | \$ 965,000 | \$ 840,000 | \$ 720,000 | \$ 300,000 | \$ 300,000 | \$ 250,000 | \$ - | \$ - |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

| REGIONAL ROAD GROUP (RRG) | | | | | Reseal/Widening/Recon etc | | | | | | | | | |
|---|--|-------|-------|--------|---------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| RRG FUNDING: 2/3RDS STATE - 1/3RD COUNCIL | | | | | | | | | | | | | | |
| Road ID | Road Name | SLK | | Length | Financial Year 24/25 | Financial Year 25/26 | Financial Year 26/27 | Financial Year 27/28 | Financial Year 28/29 | Financial Year 29/30 | Financial Year 30/31 | Financial Year 31/32 | Financial Year 32/33 | Financial Year 33/34 |
| | | Start | End | | | | | | | | | | | |
| 3 | BROOMEHILL ROAD (SLK 0.0 - 16.43) | | | | | | | | | | | | | |
| | Reseal | 16 | 16.8 | 800m | | \$ 90,000 | | | | | | | | |
| | Failure repair | 0.05 | 0.11 | 60m | | | | \$ 30,000 | | | | | | |
| | Failure repair | 5.9 | 6 | 100m | \$ 22,500 | | | | | | | | | |
| | Failure repair | 3.67 | 3.74 | 70m | \$ 22,500 | | | | | | | | | |
| | Failure repair | 0.22 | 0.37 | 150m | | | | \$ 20,000 | | | | | | |
| | | | | | | | | | | | | | | |
| 9 | JINGALUP ROAD (SLK 0.0 - 18.39) | | | | | | | | | | | | | |
| | Reseal | 0.00 | 2.00 | 2000m | \$ 210,000 | | | | | | | | | |
| | Reseal | 2.00 | 4.00 | 2000m | | \$ 220,000 | | | | | | | | |
| | Reseal | 4.00 | 6.00 | 2000m | | | \$ 230,000 | | | | | | | |
| | Reseal | 6.00 | 8.00 | 2000m | | | | | \$ 240,000 | | | | | |
| | Reseal | 8.00 | 10.00 | 2000m | | | | | | \$ 250,000 | | | | |
| | Reseal | 10.00 | 12.00 | 2000m | | | | | | | \$ 260,000 | | | |
| | Reseal | 12.00 | 14.00 | 2000m | | | | | | | | \$ 270,000 | | |
| | Reseal | 14.00 | 16.00 | 2000m | | | | | | | | | \$ 280,000 | |
| | Reseal | 16.00 | 18.30 | 2000m | | | | | | | | | | \$ 290,000 |
| | Re-con | 14.50 | 14.69 | 190m | | | | \$ 35,000 | | | | | | |
| | Re-con | 13.59 | 13.66 | 70m | | | | \$ 25,000 | | | | | | |
| | Re-con | 7.65 | 7.81 | 160m | | | | \$ 30,000 | | | | | | |
| | Re-con | 6.15 | 6.24 | 90m | | | | \$ 25,000 | | | | | | |
| | | | | | | | | | | | | | | |
| 1 | KOJ-DARKAN ROAD (SLK 0.0 - 32.0) | | | | | | | | | | | | | |
| | Reseal | 5 | 7 | 2000m | \$ 195,000 | | | | | | | | | |
| | Reseal | 3.8 | 5 | 1200m | | \$ 144,000 | | | | | | | | |
| | Re-con | 3.8 | 1.9 | 1900m | | \$ 620,000 | | | | | | | | |
| | Re-con | 1.9 | 0 | 1900m | | | \$ 640,000 | | | | | | | |
| | Re-con | 20.71 | 20.47 | 240m | | | | \$ 120,000 | | | | | | |
| | Re-con | 20.22 | 19.53 | 690m | | | | \$ 300,000 | | | | | | |
| | Re-con | 29.9 | 29.48 | 420m | | | | \$ 200,000 | | | | | | |
| | Re-con | 19.53 | 18.45 | 1080m | | | | | \$ 400,000 | | | | | |
| | Re-con | 8.95 | 8.27 | 680m | | | | | \$ 230,000 | | | | | |
| | Re-con | 29.9 | 29.48 | 420m | | | | | | \$ 210,000 | | | | |
| | Re-con | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 4 | KOJ - FRANKLAND ROAD (SLK 0.0 - 44.51) | | | | | | | | | | | | | |
| | Re-con | 0 | 2.6 | 2600m | | | | \$ 700,000 | | | | | | |
| | Re-con | 3.15 | 5.15 | 2000m | | | | | \$ 750,000 | | | | | |
| | Re-con | 5.15 | 7.15 | 2000m | | | | | | \$ 800,000 | | | | |
| | Re-con | 7.15 | 9.15 | 2000m | | | | | | | \$ 600,000 | | | |
| | Re-con | 9.15 | 10.67 | 1620m | | | | | | | | \$ 700,000 | | |
| | Re-con | 12.34 | 14.06 | 1720m | | | | | | | | | \$ 720,000 | |
| | Re-con | 14.06 | 15.79 | 1733m | | | | | | | | | | \$ 690,000 |
| | Reseal | 27 | 29 | 2000m | \$ 210,000 | | | | | | | | | |
| | Reseal | 29 | 31 | 2000m | | \$ 220,000 | | | | | | | | |
| | Reseal | 31 | 33 | 2000m | | | \$ 230,000 | | | | | | | |
| | Reseal | 33 | 35 | 2000m | | | | \$ 240,000 | | | | | | |
| | Reseal | 35 | 37 | 2000m | | | | | \$ 250,000 | | | | | |
| | Reseal | 37 | 39 | 2000m | | | | | | \$ 260,000 | | | | |
| | Reseal | 39 | 41 | 2000m | | | | | | | \$ 270,000 | | | |
| | Reseal | 41 | 43 | 2000m | | | | | | | | \$ 280,000 | | |
| | Reseal | 43 | 44.5 | 1500m | | | | | | | | | \$ 210,000 | |
| | Reseal | 15.79 | 17.79 | 2000m | | | | | | | | | | \$ 290,000 |
| | | | | | | | | | | | | | | |

| Road ID | Road Name | SLK | | Length | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year |
|---------|--------------------------------------|-------|-------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | | Start | End | | 24/25 | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 |
| 7 | SHAMROCK ROAD (SLK 0.0 - 22.04) | | | | | | | | | | | | | |
| | Reseal | 0.00 | 2.00 | 2000m | | | | \$ 230,000 | | | | | | |
| | Reseal | 2.00 | 4.00 | 2000m | | | | | \$ 240,000 | | | | | |
| | Reseal | 4.00 | 6.00 | 2000m | | | | | | \$ 250,000 | | | | |
| | Reseal | 6.00 | 8.00 | 2000m | | | | | | | \$ 260,000 | | | |
| | Reseal | 8.00 | 10.00 | 2000m | | | | | | | | \$ 270,000 | | |
| | Reseal | 10.00 | 12.00 | 2000m | | | | | | | | | \$ 280,000 | |
| | Reseal | 12.00 | 14.00 | 2000m | | | | | | | | | | \$ 290,000 |
| | Reseal | 14.00 | 16.00 | 2000m | | | | | | | | | | |
| | Widening | 12.80 | 15.80 | 3000m | \$ 690,000 | | | | | | | | | |
| | Widening | 15.80 | 18.80 | 3000m | | \$ 720,000 | | | | | | | | |
| | Widening | 18.80 | 21.80 | 3000m | | | \$ 750,000 | | | | | | | |
| | | | | | | | | | | | | | | |
| 26 | TAMBELLUP WEST ROAD (SLK 0.0 - 5.67) | | | | | | | | | | | | | |
| | Reseal | 0 | 2 | 2000m | | | | | | | \$ 270,000 | | | |
| | Reseal | 2 | 4 | 2800m | | | | | | | | \$ 280,000 | | |
| | Reseal | 4 | 5.6 | 1600m | | | | | | | | | \$ 210,000 | |
| | Widening | 2.8 | 5.6 | 2800m | \$ 255,000 | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | TOTAL | - | \$ 1,605,000 | \$ 2,014,000 | \$ 1,850,000 | \$ 1,955,000 | \$ 2,110,000 | \$ 1,770,000 | \$ 1,660,000 | \$ 1,800,000 | \$ 1,700,000 | \$ 1,560,000 |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

COMMODITY ROUTES

| | | | | | | | | | | | | | | |
|-------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| COMMODITY ROUTE FUNDING | | | | | | | | | | | | | | |
|-------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

| |
|-----------------------|
| 2/3 STATE 1/3 COUNCIL |
|-----------------------|

[illegible]

COUNCIL FUNDED PROJECTS

| FUNDED BY COUNCIL | | | | | | | | | | | | | | |
|-------------------|-----------------------|-------|-------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | | | | | | | | | | | | | | |
| Road ID | Road Name | SLK | | Length | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year | Financial Year |
| | | Start | End | | 24/25 | 25/26 | 26/27 | 27/28 | 28/29 | 29/30 | 30/31 | 31/32 | 32/33 | 33/34 |
| 57 | Anthony St | | | | | | | | | | | | | |
| | Kerbing/Reseal | | | | | | | | | | | | \$ 63,000 | |
| | New Footpath | | | | | | | | | | | | \$ 48,000 | |
| 67 | Bagg St | | | | | | | | | | | | | |
| | New kerb/Reseal | 0 | 0.33 | 330m | | \$ 89,600 | | | | | | | | |
| 70 | Church Ave | | | | | | | | | | | | | |
| | Kerbing/Reseal | 0 | 0.18 | 180m | | | | \$ 43,200 | | | | | | |
| | Footpath | 0 | 0.18 | 180m | | | | \$ 30,000 | | | | | | |
| 238 | Clarke St | | | | | | | | | | | | | |
| | Kerbing/Reseal | | | | | | | | | \$ 36,000 | | | | |
| | New footpath | | | | | | | | | \$ 24,000 | | | | |
| 61 | Elverd St (stage one) | | | | | | | | | | | | | |
| | Kerbing/Reseal | 0 | 0.2 | 200m | | | | | | | \$ 27,900 | | | |
| | New Footpath | 0 | 0.2 | 200m | | | | | | | \$ 32,000 | | | |
| 61 | Elverd St (stage two) | | | | | | | | | | | | | |
| | Kerbing/Reseal | 0.2 | 0.61 | 590m | | | | | | | | \$ 55,800 | | |
| | New Footpath | 0.2 | 0.61 | 590m | | | | | | | | \$ 64,000 | | |
| | Jones Rd | | | | | | | | | | | | | |
| | Kerbing/reseal | 0 | 0.22 | 220m | | | \$ 31,500 | | | | | | | |
| | Footpath | 0 | 0.22 | 220m | | | \$ 30,000 | | | | | | | |
| 171 | McHenry St | | | | | | | | | | | | | |
| | Kerbing/Reseal | 0 | 0.17 | 170m | | | | | \$ 45,800 | | | | | |
| | Footpath | 0 | 0.17 | 170m | | | | | nil | | | | | |
| 69 | McLeod St | | | | | | | | | | | | | |
| | Kerbing/Reseal | | | | | | | | | | | | | \$ 54,180 |
| | Footpath | | | | | | | | | | | | | \$ 33,600 |
| 167 | Newton St | | | | | | | | | | | | | |
| | Kerbing/Reseal | 0 | 0.25 | 259m | \$ 26,000 | | | | | | | | | |
| | Footpath | 0 | 0.25 | 259m | \$ 35,000 | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | TOTAL | | \$ 61,000 | \$ 89,600 | \$ 61,500 | \$ 73,200 | \$ 45,800 | \$ 60,000 | \$ 59,900 | \$ 119,800 | \$ - | \$ 87,780 |

TOWN FOOTPATH/KERBING/RESEALING PROGRAM
10 YEAR TOWN PLAN

| Road ID | Road Name | SLK | | Length | Width | Reseal | | Kerbing - by Council | | Footpath - by Council | | Council budget figure |
|---------|-------------------------|-------|--------------|---------------|-------|--------|-----------|----------------------|------------|-----------------------|------------|-----------------------|
| | | Start | Finish | | | Year | Budget | Year | Budget | Year | Budget | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | Spring Street | TBC | TBC | TBC | TBC | 24/25 | TBC | nil | nil | nil | nil | |
| 57 | Soldier Road | 0.66 | 1.32 | 1320 | 8.0 | 24/25 | \$ 37,000 | 24/25 | \$ 120,000 | 24/25 | \$ 93,000 | \$ 250,000 |
| 67 | Bagg Street | 0.00 | 0.33 | 330 | 7.4 | ? | \$ - | ? | \$ 33,000 | ? | \$ 5,000 | \$ 38,000 |
| 46 | Harrison Place | 0.00 | 0.10 | 100 | 7.9 | ? | \$ 5,530 | ? | \$ 10,000 | ? | \$ 3,000 | \$ 18,530 |
| 134 | Robinson Road | 0.00 | 0.40 | 400 | 6.0 | 24/25 | \$ 16,800 | 24/25 | \$ 80,000 | 24/25 | \$ 90,000 | \$ 186,800 |
| 70 | Church Avenue | 0.00 | 0.18 | 180 | 7.8 | 25/26 | \$ 9,828 | 25/26 | \$ 18,000 | 25/26 | \$40,500 | \$ 68,328 |
| 212 | Thorn Place | 0.00 | 0.08 | 80 | 6.2 | 26/27 | \$ 3,472 | 26/27 | \$ 8,000 | 26/27 | \$ 18,000 | \$ 29,472 |
| 171 | McHenry Street | 0.00 | 0.17 | 170 | 7.8 | 26/27 | \$ 9,282 | 26/27 | \$ 17,000 | 26/27 | \$ 3,000 | \$ 29,282 |
| 238 | Clarke Street | 0.00 | 0.15 | 150 | 7.8 | 27/28 | \$ 8,190 | 27/28 | \$ 15,000 | 27/28 | \$ 33,750 | \$ 56,940 |
| 61 | Elverd Street (stage 1) | 0.00 | 0.20 | 200 | 8.5 | 27/28 | \$ 11,900 | 27/28 | \$ 20,000 | 27/28 | \$ 45,000 | \$ 76,900 |
| 62 | Elverd Street (stage 2) | 0.20 | 0.61 | 410 | 8.5 | 28/29 | \$ 24,395 | 28/29 | \$ 41,000 | 28/29 | \$ 92,250 | \$ 157,645 |
| 57 | Anthony Street | 0.00 | 0.24 | 240 | 9.3 | 29/30 | \$ 15,624 | 29/30 | \$ 24,000 | 29/30 | \$ 54,000 | \$ 93,624 |
| 63 | Forsythe Road | 0.00 | 0.60 | 610 | 7.5 | 30/31 | \$ 32,025 | 30/31 | \$ 61,000 | 30/31 | \$ 137,250 | \$ 230,275 |
| 169 | John Street | 0.00 | 0.10 | 100 | 7.0 | 31/32 | \$ 4,900 | 31/32 | \$ 10,000 | | \$10,000 | \$ 24,900 |
| 167 | Newton Road | 0.00 | 0.25 | 250 | 8.4 | 31/32 | \$ 14,700 | 31/32 | \$ 25,000 | | \$ 37,500 | \$ 77,200 |
| 69 | McCleod Street | 0.00 | 0.21 | 210 | 9.2 | 31/32 | \$ 13,524 | 31/32 | \$ 21,000 | | | \$ 34,524 |
| 68 | George Street | 0.00 | 0.25 | 250 | 9.2 | 32/33 | \$ 16,100 | 32/33 | | | | \$ 16,100 |
| 170 | Cornwall Road | 0.00 | 0.45 | 450 | 7.5 | 32/33 | \$ 23,625 | 32/33 | | | | \$ 23,625 |
| 64 | Delaney Street | 0.30 | 0.80 | 800 | 6.70 | 33/34 | \$ 52,000 | 33/34 | | | | \$ 52,000 |
| 239 | Loton Close | 0.00 | 0.09 | 90 | 5.90 | 33/34 | \$ 6,500 | 33/34 | | | | \$ 6,500 |
| 211 | MacBride Place | 0.00 | 0.20 | 200 | 6.00 | 34/35 | \$ 13,500 | 34/35 | | | | \$ 13,500 |
| 66 | Spencer Street | 0.00 | 0.14 | 140 | 12.00 | 34/35 | \$ 10,000 | 34/35 | | | | \$ 10,000 |
| 86 | Tunney Road | 0.00 | 1.24 | 1240 | 5.50 | 35/36 | \$ 81,000 | 35/36 | | | | \$ 81,000 |
| 166 | Bilston Street | 0.00 | 0.46 | 460 | 8.30 | 36/37 | \$ 31,000 | 36/37 | | | | \$ 31,000 |
| | | | | | | | | | | | | |
| | | | TOTAL | 11,710 | | | | | | | | |

Small Vehicles and Utes

| | A | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S |
|----|--------------|----------|--|-----------------|-------------------|--------------|------------|-----------|------------|-----------|------------|------------|------------|------------|------------|-----------|------------|------------|
| 1 | Asset Number | Year | Asset Name | Useful life | Machine Hours/Kms | Avg usage PA | 2025/26 | | 2026/27 | | 2027/28 | | 2028/29 | | 2029/30 | | 2030/31 | |
| 2 | | | | | | | Purchase | Trade | Purchase | Trade | Purchase | Trade | Purchase | Trade | Purchase | Trade | Purchase | Trade |
| 3 | SUV & OTHERS | | | | | | | | | | | | | | | | | |
| 4 | PE478 | 16/09/21 | Toyota Prado Kakadu - 1KO - CEO | 3 Yrs-150,000km | 120,904km | 40,301km | | | \$85,000 | \$35,000 | | | | | \$90,000 | \$40,000 | | |
| 5 | P34066 | 02/06/21 | Isuzu MUX - KO784 EHO | 3 Yrs-150,000km | 123,257km | 35,293km | | | | | \$62,000 | \$25,000 | | | | | \$65,000 | \$32,000 |
| 6 | P34064 | 09/10/19 | Mitsubishi Pajero Sport - 2KO Pool car | 3 Yrs-150,000km | 85231kms | 21,307km | \$60,000 | \$25,000 | | | | | \$65,000 | \$30,000 | | | | |
| 7 | P34065 | 14/02/22 | Isuzu MUX - KO914 Project Mgr | 3 Yrs-150,000km | 120000 kms | 40,000km | | | | | \$62,000 | \$25,000 | | | | | \$65,000 | \$32,000 |
| 9 | PE0454 | 22/07/19 | Holden Equinox - KO662 - TO (changing to dual cab ute) | 3 Yrs-150,000km | 89,954kms | 17,990km | \$55,000 | \$15,000 | | | | | \$60,000 | \$25,000 | | | | |
| 10 | Utes | | | | | | | | | | | | | | | | | |
| 11 | PE0364 | 10/11/15 | Toyota Hilux Dual Cab (grader drivers) - KO 16 | 3 Yrs-150,000km | 194,705kms | 24,338km | \$55,000 | \$20,000 | | | | | \$55,000 | \$30,000 | | | | |
| 12 | PE0419 | 01/03/19 | Holden Colorado 4x4 Dual Cab - KO2 (Works Super) | 3 Yrs-150,000km | 191,447km | 42,543km | \$65,000 | \$20,000 | | | | | \$67,000 | \$25,000 | | | | |
| 13 | PE0497 | 01/01/22 | Toyota Hilux Xtra Cab - KO95 Mgr Prop/Build Services | 3 Yrs-150,000km | 26,595kms | 8,865km | | | | | \$55,000 | \$30,000 | | | \$57,000 | \$32,000 | | |
| 14 | PE0488 | 16/11/22 | Toyota Hilux 4x4 Dual Cab - KO118 P&G | 3 Yrs-150,000km | 87,315kms | 43,565km | | | \$52,000 | \$30,000 | | | \$57,000 | \$30,000 | | | | |
| 15 | PE0420 | 15/03/19 | Holden Colorado 4x4 Space Cab - KO528 (water ute) | 3 Yrs-150,000km | 67,817kms | 13,564km | | | | | | | | | \$57,000 | \$22,000 | | |
| 16 | P11027 | 20/06/22 | Toyota Hilux - KO10 - Mechanic | 3 Yrs-150,000km | 117,150kms | 46,860km | | | \$55,000 | \$25,000 | | | \$60,000 | \$28,000 | | | \$65,000 | \$30,000 |
| 17 | PE0473 | 02/06/21 | Ford Ranger 4x4 Dual Cab Ute - KO 525 BMO | 3 Yrs-150,000km | 80,216kms | 22,918km | | | | | \$55,000 | \$22,000 | | | | | \$60,000 | \$25,000 |
| 18 | PE0494 | 26/11/24 | Ford Ranger 4x4 Dual Cab - KO 5 MWI | 3 Yrs-150,000km | 8,035kms | 50,000km | | | | | \$75,000 | \$25,000 | | | | | \$80,000 | \$28,000 |
| 19 | PE0383 | 18/10/16 | Toyota Hiace Van - cleaner - KO 1022 | 150,000km | 44,090kms | 5,511km | | | | | | | | | | | | |
| 20 | | | | | | | 26/27 | | 2027/28 | | 2028/29 | | 2029/30 | | 2029/30 | | 2030/31 | |
| 21 | | | Yearly Totals | | | | \$ 235,000 | \$ 99,000 | \$ 192,000 | \$ 90,000 | \$ 309,000 | \$ 127,000 | \$ 364,000 | \$ 168,000 | \$ 204,000 | \$ 94,000 | \$ 335,000 | \$ 147,000 |
| 22 | | | Difference: Purchase - Trade | | | | \$ 136,000 | | \$ 102,000 | | \$ 182,000 | | \$ 196,000 | | \$ 110,000 | | \$ 188,000 | |

Small Vehicles and Utes

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S |
|----|-----------------------|--------------|------------|--|-------------|-------------------|--------------|------------|-----------|------------|-----------|------------|------------|------------|-----------|------------|-----------|------------|-----------|
| 1 | Asset Number | Plant Number | Year | Asset Name | Useful Life | Machine Hours/Kms | Avg usage PA | 2025/26 | | 2026/27 | | 2027/28 | | 2028/29 | | 2029/2030 | | 2030/31 | |
| 2 | | | | | | | | Purchase | Trade | Purchase | Trade | Purchase | Trade | Purchase | Trade | Purchase | Trade | Purchase | Trade |
| 3 | Small Trucks/Trailers | | | | | | | | | | | | | | | | | | |
| 4 | PE0470 | P25023 | 22/07/2020 | Hino 4.5T Truck KO 470 (spray truck) | 10yrs | 24,708km | 6,177km | | | | | | | | | | | \$90,000 | \$15,000 |
| 5 | PE0386 | P25016 | 13/12/2016 | Hino Tip Truck KO571 (patching truck) | 10yrs | 38,417km | 5,488km | | | \$85,000 | \$20,000 | | | | | | | | |
| 6 | PE0402 | P25017 | 3/11/2017 | Hino T Top KO 054 (concrete truck) | 10yrs | 102,634km | 17,105km | | | | | \$88,000 | \$22,000 | | | | | | |
| 7 | PE0415 | P25020 | 14/11/2018 | Isuzu NLR - tri tipper KO 524 | 10yrs | 54,590km | 9,098km | | | | | | | \$72,000 | \$15,000 | | | | |
| 8 | PE0416 | P25021 | 20/11/2018 | Hino 921 KO540 (signs & fuel tank) | 10yrs | 17,437km | 2,906km | | | | | \$88,000 | \$22,000 | | | | | | |
| 9 | PE0297 | P36002 | 30/06/10 | Isuzu Fire Truck 1DCF738 (town) | | | | | | | | | | | | | | | |
| 10 | PE0308 | P36003 | 01/04/11 | Isuzu Fire Truck 1DKK079 (Muradup) | | | | | | | | | | | | | | | |
| 11 | PE0395 | P36004 | 30/06/17 | Isuzu Fire Truck 1GFG819 (Kojonup) | | | | | | | | | | | | | | | |
| 12 | Trailers | | | | | | | | | | | | | | | | | | |
| 13 | PE0046 | P35006 | 31/01/04 | Special Build Steel Mower Trailer BY80148 | 15yrs | n/a | | | | | | | | | | | | | |
| 14 | PE0417 | P35020 | 27/11/18 | Coast Mac Boxtop Trailer - 1TT 0791 | 15yrs | n/a | | | | | | | | | | | | | |
| 16 | PE0242 | P0242 | 01/01/03 | Tandem Box Trailer Green 1TED 612 | 15yrs | n/a | not used | | | | | | | | | | | | |
| 17 | PE0244 | P0244 | 01/01/73 | Single Axle Caged Box Trailer - KO 5724 | 15yrs | n/a | | | | | | | | | | | | | |
| 18 | PE0248 | P0333 | 01/01/13 | Coast Mac Tdm Boxtop Trailer - 1TOK 585 | 15yrs | n/a | | | | | | | | | | | | | |
| 19 | PE0306 | P0247 | 01/01/10 | Loadstar box trailer - Fuel - 1TKT 707 | 15 yrs | n/a | | | | | | | | | | | | | |
| 20 | PE0350 | P0249 | 01/01/15 | Loadstar Tdm caged box Trailer - 1TQJ 322 | 15 yrs | | | | | | | | | | | | | | |
| 21 | PE0468 | P0250 | 01/12/17 | VMB Trailer KO 10555 | 15 yrs | n/a | | | | | | | | | | | | | |
| 22 | PE0417 | P35020 | 01/11/18 | Coastmac tdm box trailer | 15 yrs | n/a | | | | | | | | | | | | | |
| 23 | Large Trucks/Trailers | | | | | | | | | | | | | | | | | | |
| 24 | PE0464 | P25022 | 04/02/20 | Hino 700 series -KO8926 | 8yrs | 89,118km | 22,279km | | | | | | | \$272,000 | \$70,000 | | | | |
| 25 | PE0403 | P25018 | 09/01/18 | Hino 700 Series -KO163 | 8yrs | 147,950km | 24,658km | \$265,000 | \$60,000 | | | | | | | | | | |
| 26 | PE0404 | P25019 | 05/01/18 | Hino 700 Series -KO122 | 8yrs | 94,705km | 13,529km | | | | | \$268,000 | \$75,000 | | | | | | |
| 27 | PE0475 | P25024 | 01/06/21 | Allroad Motor Body Builder Side Tipping Trailer - ITWC603 | 15yrs | 34,804km | | | | | | | | | | | | | |
| 28 | PE0321 | P25012 | 30/06/12 | Allroad Motor Body Builder Side Tipping Trailer - ITNB660 | 15yrs | unknown | | | | \$145,000 | \$20,000 | | | | | | | | |
| 30 | PE0418 | P26003 | 13/02/19 | Hino Prime Mover KO134 | 10yrs | 52,325km | 10,465km | | | | | | | | | \$275,000 | \$55,000 | | |
| 31 | PE0300 | P26002 | 18/06/10 | Isuzu Prime Mover KO921 | 12yrs | 178,805km | 14,900km | \$250,000 | \$30,000 | | | | | | | | | | |
| 32 | PE0337 | P27008 | 01/10/13 | Roadwest Low Loader 1TFN 570 | 18 yrs | unknown | | | | | | | | | | | | | |
| 33 | PE0293 | P25012 | | Tdm axle side tipper H/Porter 1TNB 660 | 15yrs | unknown | | | | | | | | | | | | \$145,000 | \$25,000 |
| 34 | PE0343 | P27007 | 01/04/14 | All Motor Body Builder Plant Trailer 1TPC362 - trailer for skidsteer and excavator | 15yrs | 14,075km | 1,407km | | | | | | | | | \$75,000 | \$15,000 | | |
| 35 | Dollies | | | | | | | | | | | | | | | | | | |
| 36 | PE0326 | P25013 | 30/11/2012 | Tandem Axle Dolly - 1TNL804 | 15yr | unknown | | | | | | \$35,000 | \$8,000 | | | | | | |
| 37 | PE0334 | P27006 | 30/06/2014 | Tandem Axle Dolly - 1TOG863 | 15yr | unknown | | | | | | | | | | \$37,000 | \$8,000 | | |
| 38 | | | | | | | | | | | | | | | | | | | |
| 39 | | | | | | | | 25/26 | | 26/27 | | 27/28 | | 28/29 | | 29/30 | | 30/31 | |
| 40 | | | | Yearly Totals | | | | \$ 515,000 | \$ 90,000 | \$ 230,000 | \$ 40,000 | \$ 444,000 | \$ 119,000 | \$ 344,000 | \$ 85,000 | \$ 350,000 | \$ 70,000 | \$ 145,000 | \$ 25,000 |
| 41 | | | | | | | | | | | | | | | | | | | |
| 42 | | | | Difference: Purchase - Trade | | | | \$ 425,000 | | \$ 190,000 | | \$ 325,000 | | \$ 259,000 | | \$ 280,000 | | \$ 120,000 | |
| 43 | | | | | | | | | | | | | | | | | | | |

Small Vehicles and Utes

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S |
|----|--------------------|--------|------------|---|-------------|-------------------|--------------|------------|-----------|------------|-----------|------------|-----------|------------|------------|------------|-----------|------------|-----------|
| 1 | Asset | Plant | | | | | | 2025/26 | | 2026/27 | | 2027/28 | | 2028/29 | | 2029/30 | | 2030/31 | |
| 2 | Number | Number | Year | Asset Name | Useful Life | Machine Hours/Kms | Avg usage PA | Purchase | Trade | Purchase | Trade | Purchase | Trade | Purchase | Trade | Purchase | Trade | Purchase | Trade |
| 3 | Loaders/Skidsteer | | | | | | | | | | | | | | | | | | |
| 4 | PE0047 | P15005 | 25/02/2021 | CAT 940K Loader KO240 | 10yrs | 2856hrs | 714hrs | | | | | | | | | | | \$425,000 | \$70,000 |
| 5 | PE0335 | P15004 | 12/09/2013 | CAT 940K Loader KO291 | 10yrs | 8695hrs | 790hrs | \$340,000 | \$50,000 | | | | | | | | | | |
| 6 | PE0461 | P17003 | 9/12/2019 | CAT Skid Steer Loader KO736 | 10yrs | 2449hrs | 612hrs | | | | | | | \$165,000 | \$45,000 | | | | |
| 7 | PE0462 | P13012 | 16/12/2019 | CAT BA118C hydraulic angle broom | 8yrs | n/a | | | | | | | | | | \$12,000 | \$3,000 | | |
| 8 | PE0271 | P13003 | 30/06/2008 | Brushcutter Attachment for Skid Steer | 8yrs | n/a | | | | | | | | | | \$12,000 | \$1,500 | | |
| 9 | PE0303 | P13005 | 5/09/2022 | FAE Super Mulcher - ex attachment | 10yrs | n/a | high usage | | | \$90,000 | \$50,000 | | | | | | | | |
| 10 | Graders | | | | | | | | | | | | | | | | | | |
| 11 | PE0479 | P30008 | 4/05/2022 | CAT Grader 140 - KO 0000 | 7yrs | 2254hrs | 901hrs | | | | | | | | | | | | |
| 12 | PE0384 | P30006 | 27/10/2016 | CAT Grader 12M - 2019 - KO 107 | 7yrs | 6025hrs | 753hrs | | | | | \$470,000 | \$80,000 | | | | | | |
| 13 | PE0459 | P30007 | 6/11/2019 | CAT Grader 140 - KO 368 | 7yrs | 3330hrs | 832hrs | | | | | | | | | \$475,000 | \$85,000 | | |
| 14 | Excavators/Rollers | | | | | | | | | | | | | | | | | | |
| 15 | PE0365 | P28008 | 16/09/2015 | CAT Steel Roller KO11612 | 4yrs | 2255hrs | 282hrs | | | | | | | \$240,000 | \$30,000 | | | | |
| 16 | PE0348 | P28006 | 26/11/2014 | CAT Roller KO917 | 12yrs | 5,842hrs | 584hrs | \$250,000 | \$20,000 | | | | | | | | | | |
| 17 | PE0349 | P28007 | 26/11/2014 | CAT Roller KO170 | 12yrs | 6,104hrs | 610hrs | | | \$252,000 | \$20,000 | | | | | | | | |
| 18 | PE0302 | P29003 | 10/09/2010 | CAT Excavator KO891 | 10yrs | 8283hrs | 591hrs | | | | | | | \$425,000 | \$70,000 | | | | |
| 19 | PE0382 | P29004 | 29/09/2016 | CAT Mini Excavator (KO 8423) | 10yrs | 2028hrs | 253hrs | | | | | \$150,000 | \$35,000 | | | | | | |
| 20 | PE0309 | P13006 | 23/05/2011 | Rockbreaker attachment for mini excavator | 15 yrs | n/a | n/a | | | | | | | \$8,000 | \$2,000 | | | | |
| 21 | | | | | | | | 25/26 | | 26/27 | | 27/28 | | 28/29 | | 29/30 | | 29/30 | |
| 22 | | | | | | | | | | | | | | | | | | | |
| 23 | | | | Yearly Totals | | | | \$ 590,000 | \$ 70,000 | \$ 342,000 | \$ 70,000 | \$ 470,000 | \$ 80,000 | \$ 830,000 | \$ 145,000 | \$ 499,000 | \$ 89,500 | \$ 425,000 | \$ 70,000 |
| 24 | | | | | | | | | | | | | | | | | | | |
| 25 | | | | Difference: Purchase - Trade | | | | \$ 520,000 | | \$ 272,000 | | \$ 390,000 | | \$ 685,000 | | \$ 409,500 | | \$ 355,000 | |
| 26 | | | | | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | | | | | |

Small Vehicles and Utes

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S |
|----|--------------|--------------|------------|---|-------------|-------------------|--------------|-----------|----------|-----------|-----------|----------|-------|-----------|----------|-----------|-----------|------------|-----------|
| 1 | Asset Number | Plant Number | Year | Asset Name | Useful Life | Machine Hours/Kms | Avg usage PA | 2025/26 | | 2026/27 | | 2027/28 | | 2028/29 | | 2029/30 | | 2030/31 | |
| 2 | | | | | | | | Purchase | Trade | Purchase | Trade | Purchase | Trade | Purchase | Trade | Purchase | Trade | Purchase | Trade |
| 3 | Mowers | | | | | | | | | | | | | | | | | | |
| 4 | PE0480 | P12007 | 5/05/2022 | Kubota Zero Turn Mower KO 006 | 800 hrs | 323 hrs | | | | | | | | \$50,000 | \$7,000 | | | | |
| 5 | PE0339 | P18006 | 4/06/2015 | John Deere Mower - KO582 - waiting for delivery | 800 hrs | 378 hrs | | | | | | | | | | \$70,000 | \$10,000 | | |
| 6 | PE0460 | P13011 | 7/01/2018 | Major Swift Tractor Mounted Finishing Mower - update | | | | | | | | | | | | | | \$18,000 | \$2,000 |
| 7 | PE0342 | P13008 | 18/09/2013 | Peruzzo Mower/Catcher | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | Bus | | | | | | | | | | | | | | | | | | |
| 10 | PE0073 | P31001 | 28/09/2001 | "Daisy" Community Bus | | 78,000km | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | Water Tanks | | | | | | | | | | | | | | | | | | |
| 13 | PE0258 | P35017 | 30/11/2005 | Duraquip 10,000L Water Tanker Trailer | 12 yrs | | | | | \$70,000 | \$10,000 | | | | | | | | |
| 14 | PE0358 | P35019 | 30/3/15 | Duraquip 30,000L Water Tanker Trailer 1TQA893 | 12 yrs | | | | | | | | | | | | | \$130,000 | \$50,000 |
| 15 | | | | | | | | | | | | | | | | | | | |
| 16 | Tractors | | | | | | | | | | | | | | | | | | |
| 17 | PE482 | P18007 | 25/05/2022 | John Deere Front Loader | 5000 hrs | 565 hrs | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | | | | | |
| 19 | Misc. | | | (Items under \$5,000 are not an asset) | | | | | | | | | | | | | | | |
| 20 | PE0088 | P19001 | 26/02/2016 | Catepillar Forklift - KO 11777 (every 20 years) | 20 yrs | | | | | | | | | | | | | | |
| 21 | PE0388 | P22002 | 30/01/2017 | Can-Am Defender - KO 11743 (replace depending on condition) | 7000 km | 8500 km | | \$40,000 | \$5,000 | | | | | | | | | | |
| 22 | PE0223 | P35002 | | Electrical Hand Tools | | | | | | | | | | | | | | | |
| 23 | PE0224 | P35003 | | Shire Pumps | | | | | | | | | | | | | | | |
| 24 | PE0225 | P35004 | | Chainsaws/Whippers/Hand Mowers | | | | \$7,000 | \$1,000 | | | | | \$7,000 | \$1,000 | | | | |
| 25 | PE0226 | P35005 | | Concreting Equipment | | | | | | | | | | | | | | | |
| 26 | PE0144 | P35007 | 30/06/81 | Mobile Fuel Tanker Construction (Wash Blue Metal) | DNR | | | | | | | | | | | | | | |
| 27 | PE0222 | P35012 | | Sundry Plant & Equipment | | | | | | | | | | | | | | | |
| 28 | PE0234 | P35014 | 6/08/2007 | 250Litre Steel Vented Fuel Tank | DNR | | | | | | | | | | | | | | |
| 29 | PE0235 | P35015 | | 250L Steel Vented Fuel Tank | DNR | | | | | | | | | | | | | | |
| 30 | PE0236 | P35016 | 6/08/2007 | 500l Steel Vented Tank | DNR | | | | | | | | | | | | | | |
| 31 | PE0317 | P35018 | 16/08/2012 | 400L Steel Vented Tank | DNR | | | | | | | | | | | | | | |
| 32 | N/A | N/A | 30/09/2015 | Post Hole Digga, petrol engine (replace every 7 years) | | | | | | | | | | | | | | | |
| 33 | N/A | N/A | 29/10/2015 | Emulsion Air Pressure Vessel Spraying Skid Unit | | | | | | | | | | | | | | | |
| 34 | N/A | N/A | 30/11/2017 | Blue metal spreader | | | | | | | | | | | | | | | |
| 35 | N/A | N/A | 30/11/2017 | Blue metal spreader | | | | | | | | | | | | | | | |
| 36 | N/A | N/A | 28/03/2019 | Turf Edger Deluxe (under \$5000) | | | | | | | | | | | | | | | |
| 37 | PE0407 | P13010 | 21/12/2017 | Groundhog T4 Trencher | | | | | | | | | | | | | | | |
| 38 | PE0458 | P35022 | 11/10/2019 | Water jetter - KO 10536 | | | | | | | | | | | | | | | |
| 39 | N/A | N/A | new | Traffic Counters (x4) | | | | \$8,500 | | | | \$8,500 | | | | \$9,000 | | | |
| 40 | PE0246 | P0246 | 16/07/2004 | Honda diesel generator | | | | | | | | | | | | | | | |
| 41 | | | | | | | | 25/26 | | 26/27 | | 27/28 | | 28/29 | | 29/30 | | 30/31 | |
| 42 | | | | | | | | | | | | | | | | | | | |
| 43 | | | | Yearly Totals | | | | \$ 47,000 | \$ 6,000 | \$ 70,000 | \$ 10,000 | \$ - | \$ - | \$ 57,000 | \$ 8,000 | \$ 70,000 | \$ 10,000 | \$ 148,000 | \$ 52,000 |
| 44 | | | | | | | | | | | | | | | | | | | |
| 45 | | | | Difference: Purchase - Trade | | | | \$ 41,000 | | \$ 60,000 | | \$ - | | \$ 49,000 | | \$ 60,000 | | \$ 96,000 | |
| 46 | | | | | | | | | | | | | | | | | | | |
| 47 | | | | | | | | | | | | | | | | | | | |

Project Information

Road Capex Projects

- **RRG - Shamrock Road SLK 9.5-12.8 23/24 Carry Over** :maintenance zone mulching completed, formation widened to 9mt completed. Surface drainage installed. 2 coat bitumen sealing with 14/10mm aggregate booked in for February 25 by Fulton Hogan. Survey line marking spotting will take place once project is at practical completion. Minor works required to be delivered via punch list.
- **RRG - Shamrock Road SLK 12.8- 15.8**: maintenance zone mulching completed, formation widened to 9mt completed. Surface drainage installed. Culvert drainage installed under Overton Rd intersection. 2 coat bitumen sealing with 14/10mm aggregate booked in for February 25 by Fulton Hogan. Survey line marking spotting will take place once project is at practical completion. Minor works required to be delivered via punch list.
- **RRG - Kojonup Darkan Rd SLK 5.00 –7.5**: 10mm aggregate C170 hot bitumen reseal installed late Jan. Aggregate supplied Matthews Transport. C170 hot bitumen sealing works by Fulton Hogan. Line marking and minor works such as signage and culvert headwalls, inlets and outfalls to be completed.
- **RRG - Kojonup – Frankland Rd SLK 27-29**: maintenance zone mulching completed, shoulders pulled up and reformed and compacted. Remedial patches completed prior to C170 hot bitumen reseal by Fulton Hogan with 10mm aggregate. Aggregate supplied by Matthews Transport. Line marking and minor works such as signage and culvert headwalls, inlets and outfalls to be completed.
- **RRG - Tambellup West Rd SLK 0.0 – 0.0**: maintenance zone mulching completed. Shoulder widening and pull up, reform and compaction scheduled for February. Shoulder widening to be brought in-house with council's own resources. Reseal with 10mm aggregate C170 hot bitumen by Fulton Hogan. Minor works to be completed once at practical completion.
- **RRG – Broomheill Rd various patches** - RFQ via e-quotes awarded to West Coast Stabilisers. Shire to top up patches with 50mm gravel base course prior to stabilization. 2 coat C170 hot bitumen 14/10mm aggregate by Fulton Hogan. Scheduled for March 25.
- **State Blackspot Kojonup Darkan Rd** – Audible edge lining installed late November. Additional signage to be installed Feb 25 to complete the project.
- **CRSF (Commodity Route) Reillys Creek Rd SLK 0.0 – 3.0** : Gravel re-sheeting works. Gravel and water supplied by Michael Wright. Works scope is form, drain and re-sheet. Works to be undertaken April/ May 25.

- **RTR Tone Rd Failures** - RFQ via e-quotes awarded to West Coast Stabilisers. Shire to widen formation and overlay failed areas with a 50mm gravel base course layer prior to cement stabilization. 2 coat C170 hot bitumen 14/10mm aggregate by Fulton Hogan. Scheduled for March 25.
- **RTR Mission Rd Floodway repairs** – concrete patching to waterproof and minor repairs to rock pitching. Signage to be installed. Works planned later in the 2025 once major projects completed.
- **RTR Wanwindup South Rd SLK 1.22** – culvert repair. Pipe and headwall to be installed.
- **RTR Qualeup South Rd SLK 0.19 – 0.25** – temporary repairs to failed pavement carried out. Shire to overlay with 50mm gravel basecourse layer prior to stabilization and in sealing in March.
- **RTR Spring St SLK 0.0 – 0.63** asphalt overlay – deferred. Project requires survey and geotechnical testing before proceeding.
- **RTR Soldier Rd SLK 0.68 – 0.89** asphalt overlay – deferred.
- **Council Funds – Newton St** - deferred. Insufficient funding allocated in the 24/25 budget.



REQUEST FOR QUOTATION (RFQ)
VARIOUS CEMENT STABILISING WORKS 2024/25

I/We (Registered Entity Name): _____

(BLOCK LETTERS)

of: _____

(REGISTERED STREET ADDRESS)

ABN _____ ACN (if any) _____

Telephone No: _____ Facsimile No: _____

E-mail: _____

In response to __VARIOUS____ ROAD CEMENT STABILISING WORKS 2024 __/_25_:

I/We agree that I am/We are bound by, and will comply with this Request and its associated schedules, attachments.

The quoted price/s is valid up to the expiry of the request (90 DAYS)

I/We agree that there will be no cost payable by the Principal towards the preparation or submission of this request irrespective of its outcome.

The tendered consideration is as provided under the schedule of rates of prices in the prescribed format and submitted with this request.

Dated this _____ day of _____ 20____

Signature of authorised signatory of Contractor: _____

Name of authorised signatory (BLOCK LETTERS): _____

Position: _____

Telephone Number: _____

Authorised signatory Postal address: _____

Email Address: _____



Specifics of Request:

- The stabilizing works is planned to occur on the following roads:

Qualeup South Rd SLK 0.19 to 0.25 at 9mt width (full width) 540m²

Tone Rd SLK 1.5 to 1.75 at 9mt width (full width) 2250m²

Tone Rd SLK 5.2 to 5.33 at 9mt width (full width) 1170m²

Tone Rd SLK 5.98 to 6.12 at 9mt width (full width) 1098m²

Tone Rd SLK 14.6 to 14.74 at 9mt width (full width) 1260m²

Broomehill Rd SLK 0.19 to 0.25 at 9mt width (full width) 540m²

Broomehill Rd SLK 3.67 to 3.74 at 4.5mt width (full width) 221m²

Broomehill Rd SLK 5.9 to 6.0 at 9mt width (half width) 900m²

Shamrock Rd SLK 14.85 to 15.20 at 9mt width (full width) 3150m²

- The contractor should protect the site from the public, remove any rubbish and leave the site in a standard equivalent or better to the way they found it.
- The quotes provided shall be scored on the following weighted basis:
 - 100% Price Basis; and
- Stabilisation works shall be carried out to the following specification:
 - The stabilisation works shall be undertaken as per Main Roads WA (MRWA) Specification 515 In Situ Stabilisation.
 - Depth of stabilisation is 250mm of the existing seal and base course material but may be required to be adjusted on site (immediately) if sub-grade material is pulled up into the stabilised pavement. In this instance the Manager Works & Infrastructure (MWI) at the Shire of Kojonup shall be contacted immediately and advised of variation.
 - GP cement shall be used as the stabilising agent.
 - Cement stabilisation of the existing seal and base course shall be at **2%**.
 - Cement binder to be GP
 - The optimum moisture content of the stabilised material shall be as per Section 515.40 of MRWA Specification 515.



- The contractor shall be responsible for providing the following to complete the works (at their own cost and be included in the quoted cost) including:
 - Stabilising machine suitably sized to be able to undertake the works in a timely manner;
 - Sufficient sized (and number of) water truck/s so as to provide timely and sufficient moisture to the stabilised material at the point of stabilisation;
 - Appropriate number of staff that are all suitably qualified and experienced to undertake the works
 - Spreader Truck
 - Moisture controller
 - All materials to undertake stabilisation works (cement, diesel for plant/machinery, etc)
 - All small plant/fleet to complete the works
 - Any licences or levies required.
 - Any other materials/plant required to complete the works.
 - The Shire shall be responsible for providing the following (at the Shire's own cost):
 - Grader
 - Roller/s
 - Water (to be used by Contractor)
 - Traffic management
 - Markup of works
-
- If the quoting contractor, whether personally or by an agent, canvasses any of the Shire's Councillors or Officers (as the case may be) with a view to influencing the acceptance of any quote made by it or any other quoting company, then regardless of such canvassing having any influence on the acceptance of such quote, the Shire may at its absolute discretion omit the quoting company from consideration.
 - The Shire may choose to not accept any quotes provided entirely at the Shire's discretion.

QUOTING PERIOD CLOSES: 3pm Wednesday November 13th 2024



Price Schedule

Qualeup South Rd SLK 0.19 to 0.25 at 9mt width (full width) 540m2 _____

Tone Rd SLK 1.5 to 1.75 at 9mt width (full width) 2250m2 _____

Tone Rd SLK 5.2 to 5.33 at 9mt width (full width) 1170m2 _____

Tone Rd SLK 5.98 to 6.12 at 9mt width (full width) 1098m2 _____

Tone Rd SLK 14.6 to 14.74 at 9mt width (full width) 1260m2 _____

Broomehill Rd SLK 0.19 to 0.25 at 9mt width (full width) 540m2 _____

Broomehill Rd SLK 3.67 to 3.74 at 4.5mt width (full width) 221m2 _____

Broomehill Rd SLK 5.9 to 6.0 at 9mt width (half width) 900m2 _____

Shamrock Rd SLK 14.85 to 15.20 at 9mt width (full width) 3150m2 _____

Mobe/demobe _____

Nominated plant to be utilized _____

Proposed duration of works:

Registered Entity Name: _____

Signature of authorised signatory of Contractor: _____

Name of authorised signatory (BLOCK LETTERS): _____

Position: _____

Please fill out and return all pages.



SHIRE OF KOJONUP

REQUEST FOR QUOTATION

| | |
|------------------------------|-----------------------------|
| Request for Quotation | BITUMINOUS SURFACING |
|------------------------------|-----------------------------|

| | |
|-----------------|--|
| Deadline | 1.00 PM Friday 8th November 2024 |
|-----------------|--|

Contents

1.0 GENERAL

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1.0 GENERAL

1 INTRODUCTION

The Work to be executed under this Contract consists of the supply and application of sprayed bituminous treatments:

- (a) Cutback CL 170 Bitumen (Conventional) Primerseals & Seals

The Work to be executed under this Contract shall include but not be limited to the provision of all plant, labour, materials (including aggregate), equipment and Traffic Control for the works. This work includes but is not limited to setting out the works, provide bitumen binder for the works, managing traffic through the works, applying the bitumen and aggregate layers to the specified pavements within the Shire of Kojonup and roll and sweep, and provide all quality certification, all as per the designated standards within this specification. Kojonup town site is located 242km southeast of Perth.

The durability value shall be defined as the time in days to reach the specified apparent viscosity level when determining the “Long term effect of heat and air” in accordance with AS2341.13 and AS2341.5.

1.1 AGGREGATE SUPPLY

Aggregate is to be supplied from a suitably licensed and operating hard rock quarry capable of producing materials conforming to current Main Roads WA and Australian Standard requirements.

Delivery shall be only into sites that have been approved by the purchaser of the aggregate.

Stockpile areas are to be free draining and of sufficient size to enable segregation of individual and different sized aggregates sufficiently from each other.

All crushed aggregates shall be loaded into clean and suitably licensed trailers or tip bodies for delivery of conforming materials to site.

Single trailer, long vehicle and road train deliveries shall be in such a manner that the environment in and around the immediate area shall not be adversely impacted upon by the delivery process. The stockpile sites shall be reviewed for potential impacts of turning circles, tipping heights for overhead lines, other structures, flora, fauna and waterways. Aggregate deliveries shall not take place in designated National Parks or Reserves without the written permission of the client or regulatory body.

Aggregates are to be tipped only in agreed suitable areas that are free draining and do not allow contamination with other stockpiles or surrounding floor materials. Aggregates must be tipped and stored in an orderly manner with individual and different sized aggregates sufficiently segregated from each other

1.2 Crushed Aggregate Delivery / Dispatch Documentation

The following minimum details must be recorded on the Aggregate Delivery Docket.

- (a) name of the aggregate supplier
- (b) location of the despatch facility and place of manufacture
- (c) date and time of product loading
- (d) supplier's batch or traceable lot number for the aggregate(s) loaded
- (e) product type(s)
- (f) quantity or mass of each product loaded

Aggregate quantities and types are to be confirmed, and a suitable summary made available to the end user to confirm that adequate quantity and type(s) of aggregate are available for the nominated work areas.

2.1

GOVERNING AND APPLICABLE STANDARDS

| | |
|-------------|---|
| AS1160 | Bitumen Emulsions |
| AS 2008 | Residual Bitumen |
| AS 2157 | Cutback Bitumen |
| AS 3568 | Oils for Viscosity Reduction in Bitumen |
| MRWA | Raw Materials Specification 71-06-135 |
| Austroroads | NAS-70 Bitumen Sprayers |
| Austroroads | SDT 10 Bitumen Sprayer Calibration |

2.2

BITUMEN SUPPLY

Bituminous products for sprayed bituminous surfacing works shall be purchased in accordance with the relevant product and manufacturing standards and delivered to site in suitable quantities using appropriately licensed transport.

The following clauses detail the conformance criteria for bitumen products to be used in sprayed bituminous surfacings.

2.3

Bituminous Binders

All bitumen used as neat, cutback or for manufacturing bitumen emulsion shall be a straight run, slightly blown or blended product prepared from crude bituminous base oils. The bitumen shall be homogeneous. It shall not foam when heated to 205°C. The formation of a thin layer of bubbles during heating will not be regarded as foaming.

The manufacturer or supplier shall demonstrate compliance with bitumen property requirements by supplying copies of the relevant test reports that relate to the batch quantity or stored volume and by carrying out testing in accordance with the requirements and frequencies in this specification. The manufacturer or supplier shall make all necessary arrangements with the purchaser concerning load sizes, rates of supply, loading temperatures and all other required processes and documentation.

Class 170 Bitumen

Bitumen properties shall conform to the specification for Class 170 residual bitumen shown in AS 2008.

Bitumen Emulsion

The properties of the bitumen used for manufacturing bitumen emulsion shall conform to the requirements for Class 170 Residual Bitumen set out in AS 2008.

The grade of bitumen emulsion to be manufactured shall be Cationic Rapid Setting Emulsion CRS 170/60 conforming with the requirements of Table 1 of AS 1160, unless otherwise specified.

Cutback Bitumen

Where cutback bitumen for use in Primerseal or Prime binder treatments is required, the bitumen component shall be Class 170 bitumen conforming to AS 2008 and the solvent shall be Medium Curing Cutting Oil (MCC) which has been manufactured and supplied without change as Aviation Turbine Fuel (Jet A1 or equivalent) and mixed in the proportions as nominated by the responsible party in the contract documents.

Polymer Modified Binders

The supply of Polymer Modified Binder shall meet the requirements of MRWA Standard 71-06-135.

PRE-BITUMEN SPRAYING

Bitumen Delivery, Handling, Heating and Circulating

At all times, those responsible for supply, loading, transporting, heating, circulation, blending, transfer and sampling and delivery of bitumen, bitumen emulsion and cutback bitumen shall observe the provisions and be licensed to perform delivery and heating in accordance with the Dangerous Goods Regulations 1992 and where required are advised to follow the principles as detailed in the AUSTROADS "Bitumen Sealing Safety Guide" publication.

1. Heating of bitumen between the loading and delivery sites shall be minimised to those frequencies to enable arrival on site at the required temperature and, except in emergency circumstances, and generally at times and locations as required to ensure driver compliance with the Fatigue Management and Heavy Haulage guidelines.
2. The heating and circulating of bitumen shall be done only by competent experienced and trained personnel. Road tankers used for delivery shall be suitably insulated or lagged and have suitable and calibrated thermometers located sufficiently to enable representative temperature readings of the product in the tank.

Under no circumstances shall the bitumen temperature be raised greater than 205°C OR the maximum safe handling temperature for a cutback bitumen.

Any bitumen emulsion heated in excess of 80°C, after leaving the place of manufacture, shall not be used and shall be removed from site by the carrier at no cost to the purchaser.

Bitumen, Bitumen Emulsion, Polymer Modified Binder, Cutback Bitumen

Delivery / Despatch Documentation

All bitumen, bitumen emulsion, polymer modified binder or bitumen cutback supplied must be accompanied by a delivery or despatch docket clearly indicating the following:

Docket Details

- (a) name of the supplier
- (b) location of the despatch facility
- (c) date and time of product loading
- (d) supplier's batch number for the bitumen loaded
- (e) product type(s) or grade
- (f) quantity or mass of each product loaded
- (g) temperature of the product at time of loading
- (h) the quantity and the type of product(s) that were in the tank prior to loading of the bitumen, bitumen emulsion or cutback bitumen if the tank was not completely empty.

A copy of the delivery or despatch docket must be made available onsite at time of delivery to the site.

BITUMEN SPRAYING

The bitumen sprayer shall be compliant with NAS-70 and Austroads SDT 10 requirements.

The binder shall be circulated through the sprayer tank and spray bar for at least three (3) minutes immediately prior to spraying.

The spray bar shall be aligned with the nominated start point of the work area and applied at a uniform rate for the dimensions of the work area.

Where the direct use of the mechanical sprayer is impracticable, the binder may be applied by using a hand lance fed from the mechanical sprayer by competent personnel only in accordance with appropriate safety requirements.

5 WORK PRECOATING, LOADING, SPREADING AND ROLLING OF CRUSHED AGGREGATES SPECIFICATION LOCATIONS

This specification details the requirements for pre-coating, loading and spreading of crushed aggregates when supplied and used for works within Council's boundary for the purposes of bituminous surfacing.

5.1 GOVERNING STANDARDS

| | |
|-----------|---|
| MRWA | Specification 503 Bituminous Surfacing |
| MRWA | Specification 509 Polymer Modified Bituminous Surfacing |
| Austroads | AP-G76/04 Sprayed Sealing Guide |
| Austroads | AP-G41/02 Bitumen Sealing Safety Guide |
| AS1742.3 | Traffic Control Devices for Works on Roads |

5.2 Loading

When aggregates are loaded from stockpile sites into spreading equipment, the following requirements apply.

- Aggregates to be loaded from the correct stockpile.
- No aggregates should be pushed into or allowed to contaminate other aggregate stockpiles **UNLESS** they are of the same type and size.
- Foreign or different materials shall be separated by screening or other means such that no contamination occurs.
- Loading procedures shall be such that "floor" materials do not contaminate the sealing aggregate unless of the same type and size.

Any aggregate that is considered contaminated or otherwise non-conforming or unsuitable for use due to loading, delivery or tipping of aggregates after leaving the place of manufacture, shall not be used.

Singular or random quantities of other similar or rock particles apparent in the delivered aggregate while loading for pre-coating or spreading shall **not** be considered as contamination.

5.3 Aggregate Spreading Equipment

Where purpose built aggregate spreaders are to be used either mounted on tip trucks or other machinery, the spreader box shall be capable of distributing a uniform cover of aggregates over a surface to the nominated widths and lengths of the works.

At the time of loading, the volume of the tip body shall be known or calculated such that when quantities of aggregate are loaded for spreading that the amount spread can be recorded. Where the direct use of the mechanical spreading equipment is impracticable, the aggregate may be applied by using shovels or other hand work equipment by competent personnel only in accordance with appropriate safety requirements.

AGGREGATE ROLLING

Aggregates that have been spread in accordance with the nominated requirements are to be rolled using suitable mechanical rolling equipment commencing no more than 5 minutes after spreading of the aggregate for at least 8 passes with a suitable multi-tyred roller within. Where steel wheeled rollers have been specified or are required, the quality of the aggregate shall be reviewed by the aggregate purchaser to confirm that steel wheeled rollers will not adversely affect the aggregate. Rolling shall continue on sealed surfaces until it is considered that the initial adhesion of the aggregate is such that on opening to traffic that aggregate loss will be at a minimum.

PRE AND POST PREPARATION AND SWEEPING

Any surface to be sealed shall be satisfactorily swept using a mechanical broom or hand brooms as appropriate, such that loose and foreign materials are removed or controlled so as not to impact on the successful application of a sprayed seal.

Prior to commencement of spraying works, all surfaces must be considered as suitable to receive the sprayed seal surfacing.

After completion of the sprayed sealing, aggregate application and rolling, loose aggregates not yet incorporated into the seal are to be swept off the surface **at a time to be agreed between the Principal's Representative and the Contractor's onsite Supervisor**. Where traffic is to use the seal soon after application, then controls are to be in place as stated in AS 1742.3 or as nominated by the road owner or by the party responsible in the contract documents.

Post sealing sweeping should be performed in the coolest conditions.

Safety to road users is of the highest importance and traffic should not be allowed to use the sealed surface until satisfactorily swept or considered suitable for use by the road owner or by the party responsible in the contract documents.

SCOPE OF WORKS

The Work to be executed under this Contract by the Contractor shall include but not be limited to the provision of all plant, labour, materials, equipment, meals and accommodation and Traffic Control.

Indicative quantities listed below, though further works may be required depending on budget.

| Road Name | SLK Start | SLK End | Length (m) | Width (m) | Area (m2) | |
|----------------------------|-----------|---------|------------|---------------|-----------|------------------------------------|
| Shamrock Rd widening | 12.8 | 15.8 | 3000 | 1.2 each side | 7,200 | 14/10mm 2 coat Cutback Seal C170 |
| Tambellup West Rd widening | 2.8 | 5.6 | 3200 | 1.2 each side | 7,680 | 14/10mm 2 Coat Cutback Seal C170 |
| Kojonup Darkan Rd | 5.0 | 7.0 | 2000 | 7 | 14,000 | 10mm single coat Cutback Seal C170 |
| Kojonup Frankland Rd | 27.0 | 29.0 | 2000 | 7 | 14,000 | 10mm single coat Cutback Seal C170 |
| Jingalup Rd | 0.0 | 2.0 | 2000 | 7 | 14,000 | 10mm single coat Cutback Seal C170 |

These application details are for Tendering and Application Purposes for this Contract, and also relate and refer to the MRWA 503 Bituminous Surfacing Specification.

BITUMEN (CONVENTIONAL) PRIMERSEALS & SEALS

BINDER AND AGGREGATE APPLICATION DETAILS – DESIGN BY THE PRINCIPAL WITH ADJUSTMENT ONSITE BY PRINCIPAL’S SUPERINTENDENT AND CONTRACTOR’S ONSITE SUPERVISOR.

REFER SCOPE OF WORKS FOR BINDER APPLICATION RATES

TABLE B2 AGGREGATE TYPE AND SPREAD RATE

The Tendered Aggregate Spread Rate is to be modified onsite (if required) between the Principal’s Superintendent and the Contractor’s Onsite Supervisor taking into consideration the factors that will affect the agreed Aggregate Spread rate as specified in sections 503.22 and 503.23 of the MRWA 503 Bituminous Surfacing specification.

| Surface type | Cover material and size (mm) | Tender Aggregate spread rate (m ² /m ³) |
|--------------|------------------------------|--|
| Single coat | Aggregate - 14 | 100 - 110 |
| Single coat | Aggregate - 10 | 110 - 120 |
| Single coat | Aggregate - 7 | 115 - 125 |

NOTES:

1. Medium curing cutting oil shall be added to the seal/reseal coat binder in accordance with Figure B1. To compensate for the cutter added to the binder, the binder application rates shall be increased or decreased **as agreed by the Superintendent and the Contractor’s Onsite Supervisor** to preserve the designated residual bitumen application rate.
2. Where bitumen or bitumen cutback is delivered to site at a temperature higher than the upper limit of the recommended spraying temperature range, the spraying of the product shall be delayed until such time as the temperature of the product has cooled to the recommended upper limit.
3. In certain circumstances, the Superintendent may allow the spraying of binder at temperatures above those listed below. In such cases, the binder application rate will be adjusted as directed by the Superintendent.

UNDER NO CIRCUMSTANCES SHALL THE PRODUCT BE RE-HEATED IF THE TEMPERATURE IS ALREADY WITHIN THE SPECIFIED SPRAYING RANGE.

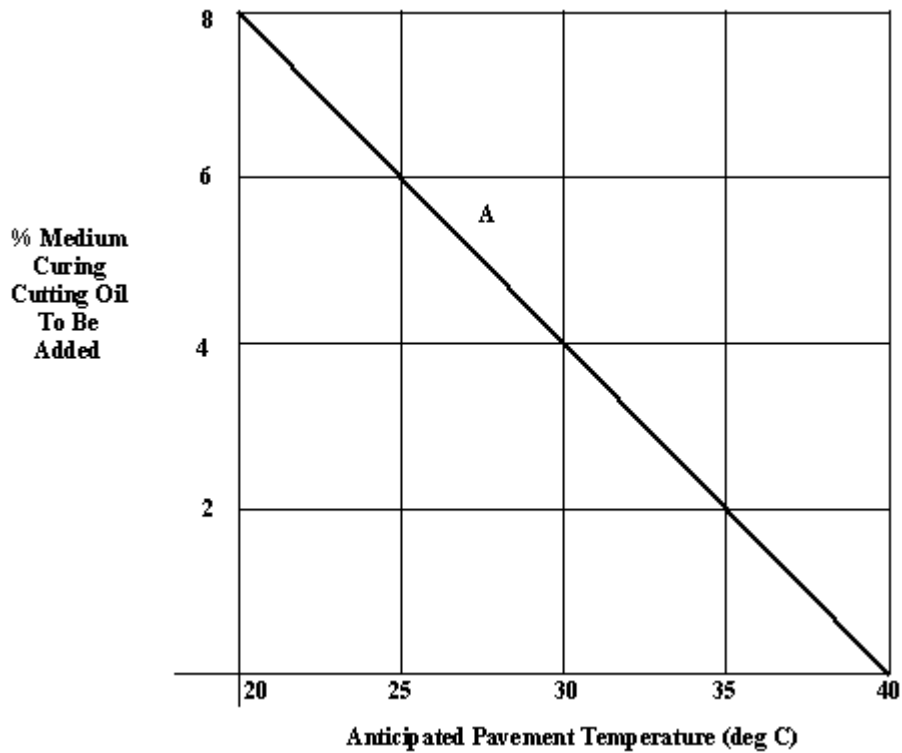


FIGURE B1: ADDITION OF MEDIUM CURING CUTTING OIL
LEGEND: Line A Class 170 bitumen

8

NOTES:

1. Minimum desirable pavement temperature for seals and reseals is 25°C.
2. If the anticipated pavement temperature is likely to rise, decrease the Medium Curing Cutting Oil percentage obtained from the chart.
3. If the aggregate is clean and freshly pre-coated, reduce the Medium Curing Cutting Oil proportion by 1%.

B.1.2 BINDER SPRAY TEMPERATURE

1. Binder Spraying Temperatures shall be in accordance with Table B3.

TABLE B3 BINDER SPRAYING TEMPERATURE

| Pavement Temperature (°C) | Binder Composition (Bitumen/MC Cutter) | Ideal Spraying Temperature Range (°C) |
|---------------------------|--|---------------------------------------|
| 40 + | 100/0 | 175-185 |
| 35 | 98/2 | 165-175 |
| 30 | 96/4 | 160-170 |
| 25 | 94/6 | 150-160 |
| 20 | 92/8 | 145-155 |

B.4 Rolling

1. Rolling of the seal surface shall be to the number of passes shown in Table B7.

TABLE B7 ROLLING

| Type of Roller | No. of Passes |
|---------------------|---|
| Rubber Tyred Roller | A minimum of 8 passes with a target of 12 passes. |

B.5 LINE MARKING DETAILS

1. Seal and reseal sections are spotted at the following intervals if required:

TABLE B8 LINE MARKING DETAILS

| Road Feature | Spotting Interval (m) |
|-------------------|-----------------------|
| Straight Sections | 10 |
| Curved Sections | 5 |

B.6 PRECOATING OF AGGREGATE

B.6.1 PRECOATING AGENT FOR CONVENTIONAL BITUMEN SEALS & PRIMERSEALS

- 1 For all aggregates, the precoating agent shall comprise 99% slow curing cutting oil plus 1% by volume of approved adhesion agent.

B.6.2 APPLICATION RATE FOR CONVENTIONAL BITUMEN SEALS & PRIMERSEALS

- 1 The Application Rate of Precoating Agent shall be as shown in Table B9:

TABLE B9 APPLICATION RATE FOR PRECOATING

| Nominal Size Aggregate (mm) | Application Rate (litres/m ³ loose) |
|-----------------------------|--|
| 10 | 2 - 4 |
| 14 | 2 - 4 |

B.6.3 PRECOATING AGENT FOR POLYMER MODIFIED BINDER SEALS

- 1 For all aggregates, the pre-coating agent shall comprise by volume 70-85% slow curing cutting oil, 14-29% Class 170 Bitumen and 1% of approved adhesion agent.

B.6.4 APPLICATION RATE FOR POLYMER MODIFIED BINDER SEALS

1 The Application Rate of Pre-coating Agent shall be as shown in Table B10:

TABLE B10 APPLICATION RATE FOR PRECOATING

| Nominal Size Aggregate (mm) | Application Rate (litres/m ³ loose) |
|-----------------------------|--|
| 10 | 2 - 4 |

9 **RESPONSIBILITY**

| Task | Responsibility | |
|---|----------------|--------|
| | Contractor | Client |
| Clearly Mark the Boundaries of the Works (Refer to clause 2.2.21) | Y | |
| Select or Design Aggregate Size(s) | | Y |
| Select or Design Binder Application Rates | Y | |
| Design Aggregate Spread Rate | Y | |
| Mobilisation to Site | Y | |
| Accommodation & Messing | Y | |
| Control Traffic Before Works | | |
| Control Traffic During Works | Y | |
| Control Traffic After Completion of Works | | Y |
| Supply, Deliver and Heat Bitumen | Y | |
| Supply and Deliver Aggregate | Y | |
| Supply Pre-coat Material and apply to Aggregate | Y | |
| Sweep the Surface before application | Y | |
| Load Aggregate into Spreading Plant | Y | |
| Apply water to pavement prior to spraying bitumen - if Primerseal | Y | |
| Spray Bitumen | Y | |
| Spread and Roll Aggregate in Defined Areas | Y | |
| Provide Materials Records & Quality Certification & Daily Record Sheets | Y | |
| Sweep the Surface after application – at a time to be agreed upon | Y | |
| Define or Reinstate Surface Markings or Other Safety Requirements | | Y |

10 **REFERENCES**

MRWA Specifications, Australian Standards and MRWA Test Methods are referred to in abbreviated form (eg AS 1234 or MRWA 123). For convenience, the full titles are given below:

Australian Standards

| | |
|---------|--|
| AS 1141 | Methods for Sampling and Testing Aggregates |
| AS 1152 | Specification for Test Sieves |
| AS 1160 | Bituminous Emulsions for the Construction and Maintenance of Pavements |
| AS 1726 | Geotechnical Site Investigations |
| AS 2008 | Residual Bitumen for Pavements |

AS 2341 Methods of Testing Bitumen and Related Road Making Products

MRWA Test Methods

| | |
|------------|---|
| MRWA 133.1 | Dry Density/Moisture Content Relationship: Modified Compaction |
| MRWA 756.2 | Stone Coating and Water Resistance Test Cationic Bituminous Emulsions |
| MRWA 200.1 | Sampling Procedures for Aggregates |
| MRWA 210.1 | Particle Size Distribution of Aggregate |
| MRWA 212.1 | Aggregate Moisture Content: Convection Oven Method |
| MRWA 212.2 | Aggregate Moisture Content: Microwave Oven Method |
| MRWA 215.1 | Average Least Dimension (ALD) |
| MRWA 216.1 | Flakiness Index |
| MRWA 220.1 | Los Angeles Abrasion Value |
| MRWA 223.1 | Crushing Test Value |
| MRWA 250.1 | Colour of Aggregate |
| MRWA 310.1 | Pavement Skid Resistance: British Pendulum Method |
| MRWA 311.1 | Texture Depth |
| MRWA 312.1 | Ball Embedment |
| MRWA 340.1 | Sprayed Application Rate: Carpet Tile Method |
| MRWA 700.1 | Sampling Procedures for Bitumen and Oils |

TRAFFIC CONTROL

| | |
|-----------|--|
| AS 1742.3 | Traffic Control Devices for Works on Roads |
| MRWA | Traffic Management for Works on Roads - Code of Practice |

Other Publications

Refer to the relevant Australian Standards and publications listed in sections 3.1.2, 3.2.2 and 3.3.2, that are applicable to each section of the specification.

PRICE SCHEDULE (Complete and return this part only)

BREAK DOWN OF SCHEDULE OF RATES

Option 1 Full Service

| Item No | Schedule of Rates Item | Area (indicative but not limited to) | Tendered Cost Rate | Unit |
|----------------|--|---|---------------------------|-------------|
| 1 | 14/10mm 2 Coat Cutback C170 Bitumen Shamrock Rd | 7,200 m2 | | \$/m2 + GST |
| 2 | 14/10mm 2 Coat Cutback C170 Bitumen Tambellup West Rd | 7,200 m2 | | \$/m2 + GST |
| 3 | 10mm single coat Cutback C170 Bitumen Kojonup Darkan Rd | 14,000m2 | | \$/m2 + GST |
| 4 | 10mm single coat Cutback C170 Bitumen Kojonup Frankland Rd | 14,000m2 | | \$/m2 + GST |
| 5 | 10mm single coat Cutback C170 Bitumen Jingalup Rd | 14,000m2 | | \$/m2 + GST |

| Item No | Schedule of Rates Item | Tendered Rate | Unit |
|----------------|--|----------------------|-------------|
| 6 | Rate to adjust CL 170 Bitumen BAR rate from OAR. | | \$/L + GST |
| 7 | Penalty for whole crew and equipment to work on weekends or public holidays (on top of scheduled rates above) – does not include delays due to inclement weather. | | \$/hr + GST |
| 8 | Class 170 Bitumen Price Rate / Tonne at the time of quoting. | | \$/T + GST |
| 9 | Dayworks Rate for Spray Truck | | \$/hr + GST |
| 10 | Dayworks Rate for Spreader Truck | | \$/hr + GST |
| 11 | Dayworks Rate for Tractor Broom | | \$/hr + GST |

| | | | |
|----|--|--|-------------|
| 12 | Dayworks Rate for Tow-a-long Broom | | \$/hr + GST |
| 13 | Dayworks Rate for Multi Tyre Roller | | \$/hr + GST |
| 14 | Dayworks Rate for Combination Roller | | \$/hr + GST |
| 15 | Dayworks Rate for Supervisor's Utility | | \$/hr + GST |
| 16 | Dayworks Rate for Maintenance / Utility Truck | | \$/hr + GST |
| 17 | Dayworks Rate for Truck and Trailer / Float | | \$/hr + GST |
| 18 | Mobilisation | | \$ + GST |
| 19 | De-mobilisation | | \$ + GST |
| 20 | Accommodation (please state the unit of measure such as per night) | | \$ + GST |

Option 2

Shire to supply aggregate (contractor to advise requirements)

| Item No | Schedule of Rates Item | Area (indicative but not limited to) | Tendered Cost Rate | Unit |
|---------|--|--------------------------------------|--------------------|-------------|
| 1 | 14/10mm 2 Coat Cutback C170 Bitumen Shamrock Rd | 7,200 m2 | | \$/m2 + GST |
| 2 | 14/10mm 2 Coat Cutback C170 Bitumen Tambellup West Rd | 7,200 m2 | | \$/m2 + GST |
| 3 | 10mm single coat Cutback C170 Bitumen Kojonup Darkan Rd | 14,000m2 | | \$/m2 + GST |
| 4 | 10mm single coat Cutback C170 Bitumen Kojonup Frankland Rd | 14,000m2 | | \$/m2 + GST |
| 5 | 10mm single coat Cutback C170 Bitumen Jingalup Rd | 14,000m2 | | \$/m2 + GST |

Option 3**Shire to supply traffic control**

| Item No | Schedule of Rates Item | Area (indicative but not limited to) | Tendered Cost Rate | Unit |
|----------------|--|---|-------------------------------|-------------|
| 1 | 14/10mm 2 Coat Cutback C170 Bitumen Shamrock Rd | 7,200 m2 | | \$/m2 + GST |
| 2 | 14/10mm 2 Coat Cutback C170 Bitumen Tambellup West Rd | 7,200 m2 | | \$/m2 + GST |
| 3 | 10mm single coat Cutback C170 Bitumen Kojonup Darkan Rd | 14,000m2 | | \$/m2 + GST |
| 4 | 10mm single coat Cutback C170 Bitumen Kojonup Frankland Rd | 14,000m2 | | \$/m2 + GST |
| 5 | 10mm single coat Cutback C170 Bitumen Jingalup Rd | 14,000m2 | | \$/m2 + GST |



mainroads
WESTERN AUSTRALIA

SPECIFICATION 515

IN SITU STABILISATION OF PAVEMENT MATERIALS

Copyright MAIN ROADS Western Australia

| REVISION REGISTER | | | |
|-------------------|-------------------------|---------------|------------|
| Clause Number | Description of Revision | Authorised By | Issue Date |
| Whole document | New Specification | MME | 30/09/2021 |

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SPECIFICATION 515

IN SITU STABILISATION OF PAVEMENT MATERIALS

GENERAL

515.01 SCOPE

1. The work under this specification consists of the supply and application of in situ stabilisation of granular pavement layers. This includes using one or a combination of chemical and bituminous stabilising agents, by means of a rotary drum stabilising machine. This specification shall apply to the stabilisation of sub-base and basecourse.
2. The work under this specification covers the following elements:
 - a. supply of pavement materials;
 - b. supply of bituminous stabilising agents, chemical stabilising agents and water required for the in situ stabilising process;
 - c. the in situ stabilisation process;
 - d. compaction and finishing of the stabilised layer(s); and
 - e. acceptance of the stabilised pavement layer(s).

515.02 REFERENCES

1. Australian Acts and Standards, MAIN ROADS Western Australia Standards, Test Methods and publications, and other State Road Authority test methods are referred to in abbreviated form (e.g. AS 1234, MRS 67-08-43 or WA 123). For convenience, the full titles are shown below:

Acts and Regulations

Dangerous Goods Safety (Storage and Handling of Non-Explosives)
Regulations 2007 (WA)

Australian Standards

| | |
|---------|--|
| AS 1141 | Methods for Sampling and Testing Aggregates |
| AS 1160 | Bituminous emulsions for the construction and maintenance of pavements |
| AS 1289 | Methods of Testing Soils for Engineering Purposes |
| AS 1672 | Limes and Limestones for Building |
| AS 2008 | Residual Bitumen for Pavements |
| AS 2350 | Methods of Testing Portland and Blended Cements |
| AS 3972 | Portland and Blended Cement |

| | |
|-----------|--|
| AS 2809.5 | Road tank vehicles for dangerous goods Part 5: Tankers for bitumen-based products |
| AS 1742.3 | Traffic Control Devices for Works on Roads |

MAIN ROADS WA Publications

| | |
|----------------------------|--|
| Engineering Road Note No 5 | Interim Guide to Prediction of Pavement Moisture for Strength Assessment of Granular Basecourse and Sub-Base Materials |
| Engineering Road Note No 8 | Statistically Based Quality Control for Density in Road Construction |
| Engineering Road Note No 9 | Procedure for the Design of Flexible Pavements |
| 6706-02-133 | Water to be used in Pavement Construction |

MAIN ROADS WA Test Methods

A complete list of Main Roads Test Methods is available on Main Roads' website at: <https://www.mainroads.wa.gov.au/technical-commercial/technical-library/?q=&take=20&filter=&type=&node=Materials%20Engineering,Test%20Methods&page=1§ionFilter=731>

MAIN ROADS WA Specifications

A number of Specifications form part of the Contract and are referenced in this specification. The Contractor must refer to the Contract for details of such Specifications.

Austroads Publications

| | |
|---------|-----------------------------------|
| TP 1903 | Bituminous Materials Safety Guide |
|---------|-----------------------------------|

Australian Technical Infrastructure Committee (ATIC) Specification

| | |
|------|-------------------------------------|
| SP43 | CEMENTITIOUS MATERIALS FOR CONCRETE |
|------|-------------------------------------|

515.03 DEFINITIONS

1. "Pavement" means the portion of the road placed above the design Subgrade level including shoulders.

Pavement

- | | |
|--|----------------------------------|
| 2. "In situ mixing" means the mixing of the material with the stabilising agents and water using in situ stabilisation equipment as described in this specification. | <i>In situ mixing</i> |
| 3. "Half-life" means the time, measured in seconds, in which the foamed bitumen collapses from the maximum expansion to half of the maximum expansion. | <i>Half-life</i> |
| 4. "Stabilising Agents" can mean foamed bitumen, bitumen emulsion, lime or cement except where the context of any particular passage indicates otherwise. | <i>Stabilising Agents</i> |
| 5. "CMRS" shall mean the Cementitious Material Registration Scheme | <i>CMRS</i> |

515.04 NOT USED

515.05 SUSTAINABILITY CONSIDERATIONS

- | | |
|--|-----------------------|
| 1. Materials for road pavements shall be managed under the sustainability hierarchy of REDUCE, REUSE and RECYCLE. | |
| 2. 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. | <i>Reduce</i> |
| 3. 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. | <i>Reuse</i> |
| 4. Recycled materials for pavement construction shall be blended, crushed, or processed as applicable to produce a homogenous material. | <i>Recycle</i> |

PRODUCTS AND MATERIALS

515.06 WATER

1. The Contractor is responsible for ensuring that the water for stabilisation, construction and curing of stabilised layers is free from impurities that may deleteriously affect the setting, hardening or strength of the stabilised material. Water used in the construction of road pavements shall contain no more than 3000 mg/L of Total Soluble Salts (TSS). This is to be measured in accordance with Test Method WA 910.1.
2. Where water is drawn from natural sources, an efficient filter shall be provided on the suction pipe to ensure freedom from weeds, roots, etc., which could cause blockage of the water nozzles in the stabiliser.

Water

515.07 GRANULAR MATERIALS

515.07.01 GENERAL

1. Additional granular pavement material must be incorporated in accordance with Annexure 515A using materials listed in Annexure 515C.

515.07.02 RECLAIMED ASPHALT PROFILINGS

1. Reclaimed asphalt pavement (RAP) may be imported and used as a supplementary pavement material up to a maximum of 10% of the volume of stabilised layer. It must be granulated asphalt obtained from the profiling of asphalt pavements or by crushing to a graded material with a maximum particle size of 26.5 mm.

RAP

515.08 STABILISING AGENTS

515.08.01 GENERAL

1. Stabilising agents must be either one, or a combination, of the materials detailed below.
2. No other chemicals or substances are permitted to be added to the materials unless approved by the Superintendent.

515.08.02 LIME

1. Lime must comply with AS 1672 and must be incorporated in accordance with Annexure 515A.

Lime

515.08.03 CEMENT

1. Cement must be incorporated in accordance with Annexure 515A. Any sampling and testing of cement must be in accordance with AS 2350. The cement must be sufficiently dry to flow freely during application.
2. High-early strength cement, type HE, must not be used as a stabilising agent.

Cement

3. Cement for stabilisation of any pavement layer must comply with the requirements of AS 3972 and the ATIC Specification SP43. The CMRS must be used to confirm that the cement complies to ATIC SP43. The standard application form for CMRS registration is shown in Annexure 515B.
4. **Prior to commencing cement stabilisation the Contractor must confirm that the cement complies with ATIC SP43 and must provide the CMRS registration number for the cement to the Superintendent for approval.**
5. The Contractor must use cement in approximately the chronological order in which it is delivered from the manufacturer. Transportation units and storage bins for bulk cement must be weatherproof and must be constructed so that there is no dead storage. Cement delivered in bags must be stored in weatherproof structures having floors raised above the ground. Cement that is more than three months old must not be used.

HOLD POINT

515.08.04 BITUMEN EMULSION

1. Bitumen Emulsion must comply with the requirements of Specification 511.

515.08.05 FOAMED BITUMEN

1. Foamed Bitumen must be produced from Class 170 bitumen complying with the requirements of Specification 511. Cutback or modified bitumen is not permitted to be used to produce Foamed Bitumen. The bitumen must achieve a minimum expansion of 10 times its original volume and a minimum half-life of six seconds when foamed.
2. All bituminous stabilising agents must be heated, stored, and handled strictly in accordance with the *Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007* (WA) in respect to the transport of Dangerous Goods including Flammable Liquids.

515.09 – 515.19 NOT USED

PLANT AND EQUIPMENT

515.20 PLANT FOR SUPPLY OF STABILISING AGENTS

1. Stabilising agents must be delivered in spreader trucks or in a transfer trailer attached to the stabilising plant.
2. All plant must be clean and free of any residual product, including where materials are delivered in bulk for transfer to the site plant. Bulk tankers must be equipped with a dipstick or other mechanism whereby used volumes can be monitored and verified.
3. When stabilising with foamed bitumen, the bulk delivery tanker must, in addition to the above, include the following features:
 - a. comply with the requirements of AS 2809.5-2001 Road tank vehicles for dangerous goods Part 5: Tankers for bitumen-based products, and the Australian Dangerous Goods Code;
 - b. have lagging and calibrated thermometers located at the top, middle and bottom thirds of the product tank;
 - c. have heating tubes and pipework to allow circulation of the product during heating;
 - d. have a permanent sampling cock that is safe and easy to use to obtain samples of the product.

515.21 PLANT FOR SPREADING CHEMICAL STABILISING AGENTS

1. The spreading equipment must be a stabilising agent spreader, which has been specifically designed for such work. The spreader must be capable of uniformly distributing cement and lime and accurately controlling the spread rate such that when mixing is complete; the cement or lime content can be measured in accordance with the requirements of Clause 515.33. The spreader must be equipped with gates to vary the width of spread and with electronic weigh scales to provide quantities of product used.
2. The spreading equipment must:
 - a. be capable of varying the spread width to cater for different stabilising widths;
 - b. be equipped with dust curtains to minimise the dust;
 - c. be fitted with release filters in the case of pressurised lime or cement powder;
 - d. be designed specifically for the work described in this specification and is capable of spreading the chemical stabilising agent uniformly within the specified range;
 - e. have electronic scales, calibrated within the last 12 months in accordance with the manufacturer's requirements, to verify spreads on individual Lots (or part there-of) and daily totals; and

- f. be capable of varying the spread rate depending upon the forward speed of the spreader.

515.22 PLANT FOR STABILISATION (MIXING PROCESS)

1. The stabilising machine must be specifically designed for cutting, pulverising, mixing, adding water and placing of mixed material in situ. Mixing using graders, profilers, or asphalt milling machines and agricultural type implements, is not be permitted for work forming part of this specification.
2. The stabilising machine must have a capacity to maintain a constant rotor and forward speed, and a capability of producing a uniformly mixed material to the specified depth. Where the stabiliser is utilised to mix any asphalt layers or bituminous seal into the pavement, the requirements detailed in Table 515.01 must be satisfied.

Stabilising Machine

TABLE 515.01: STABILISER MINIMUM PERFORMANCE REQUIREMENTS

| In Situ Pavement Composition | Minimum Power Output to Mixing Drum Width Ratio (kW/m) |
|---|--|
| Thin Asphalt or Sprayed Seal Pavements (less than 100 mm) | 130 |
| Thick Asphalt (greater than 100 mm) or Stabilised Layers | 175 |

3. As a minimum, the stabilising machine must have the following features:
 - a. a stabilising drum that rotates upwards into the direction of advance fitted with bullet teeth cutting tips. The drum must be located between the axles and must achieve at least 2.0 m of cut width in a single pass, unless otherwise specified in the Contract;
 - b. a mixing chamber capable of stabilising to the required depth with an effective volume that can accommodate additional material generated by increasing the depth of cut. The stabilising mixing drum must be independent of the mixing chamber housing;
 - c. a level control system capable of controlling the stabilising depth to within a tolerance of ± 10 mm of the required depth during continuous operation. The control system must be equipped for monitoring and verification of actual milled depths;
 - d. a provision for adding water automatically through a controlled pumping and metering system capable of increments of +0.1 litres in relation to travel speed and mass of material being stabilised. The pumping systems must have the capacity to supply up to 1500 litres per minute and be calibrated annually and verified regularly to deliver within a tolerance of ± 0.1 litres;
 - e. a system of nozzles that promotes a uniform application of water and/or fluid stabilising agent(s) across the full width of treatment. The application systems must be capable of adjustments for varying widths of treatments; and
 - f. an adjustable exit gate.

4. When stabilising with bitumen (or other fluid stabilising agents) the mixing equipment must, in addition to the above, include:
 - a. a bitumen injection system and flow meter capable of determining the amount of bitumen added in relation to the forward speed and mass of material being stabilised to the tolerances set out in Table 515.04.
5. When stabilising with foamed bitumen the mixing equipment must, in addition to the above, include the following features:
 - a. a test nozzle capable of producing a replicate sample of the foamed bitumen being injected into the stabilised material to ensure that the required expansion and half-life qualities of the bitumen are being achieved;
 - b. an electrically heated, self-cleaning nozzle system that promotes a uniform application of foamed bitumen across the full width of treatment; and
 - c. a bitumen pumping and transfer system capable of sucking bitumen from the tanker to the stabiliser, and fitted with a non-return valve (or similar) to prevent pumping bitumen back into the tanker for safety reasons.

515.23 – 515.29 NOT USED

CONSTRUCTION

515.30 GENERAL

- | | |
|--|----------------------------------|
| 1. The pavement layer must be constructed in accordance with the levels, grades and cross-sections shown in the Drawings and Specifications. | |
| 2. Pavement construction includes the supply, placing, compacting and finishing of pavement materials, including in situ stabilisation, in accordance with the Specifications and Drawings. | |
| 3. In situ stabilised natural gravels, must not be used as Basecourse material for freeway pavements. | Gravel & Restrictions |
| 4. Where a drainage layer has been constructed on the prepared Subgrade surface, the drainage layer must be the foundation for the subsequent Pavement Layer(s). | Drainage Layers |
| 5. Prior to the construction of any pavement layer, the Contractor must certify to the Superintendent that the underlying layer has been constructed as specified. | HOLD POINT |
| 6. Transverse joints must be offset from one layer to the next by not less than five metres. | Transverse Joints |
| 7. Longitudinal joints must not be located in the wheel paths. | Longitudinal Joints |
| 8. Unless specified otherwise final trim must be completed while the basecourse layer is still “green”, prior to dry back. Final trim is limited to removing no more than 20 mm of material at any point. If more than 20 mm is to be removed the lot must be reworked. | Final Trim |
| 9. If more than 20 mm is to be removed the lot must be reworked. If a completed layer of stabilised pavement does not satisfy all of the requirements of the Specification and has to be reworked, the Contractor shall repeat all the requirements for Stabilisation without the addition of additional binder at no cost to the Principal. | Rework |

515.31 LIMITATIONS

515.31.01 ENVIRONMENTAL LIMITATIONS **Environment**

- Transfer of all stabilising agents into the spreading equipment must be undertaken in such a manner to avoid contamination of the environment in accordance with Specification 204 – Environmental Management.

515.31.02 WEATHER LIMITATIONS

- | | |
|--|-------------|
| 1. Spreading of powdered chemical stabilising agents on the road ahead of the stabilising machine must not continue in windy conditions if the chemical stabilising agent may become airborne. | Wind |
|--|-------------|

2. No spreading of stabilising agents shall commence if it is raining or if rain is likely before the stabilising agent(s) can be mixed into the granular materials.

Rain

515.31.03 TIME LIMITATIONS

1. Mixing must commence as soon as practicable after spreading of the stabilising agent(s) on the granular materials, and mixing and compaction must be completed within the maximum working times in TABLE 515.02.

Working Time

TABLE 515.02: WORKING TIME FOR THE STABILISING PROCESS

| Stabilising Agent | Maximum Working Time |
|-------------------|----------------------|
| GP Cement | 6 hours |
| LH Cement | 7 hours |
| Lime | 8 hours |
| Foamed Bitumen | 12 hours |
| Bitumen Emulsion | 12 hours |

2. Where two or more stabilising agents are used, the time limitation must be that of the shorter of the individual agents.

515.32 PRE-STABILISATION ACTIVITIES

515.32.01 PRELIMINARY TREATMENT

1. Pre-ripping the in situ pavement or multiple passes of the stabilising machine is not permitted if degradation of the material is likely. If pre-ripping is necessary then the ripping depth must not exceed the depth to be stabilised.

Pre-Ripping

515.32.02 TRIAL

1. The Contractor must carry out a preliminary trial of the proposed stabilising operations for each of the stabilising agents and materials. The trial must determine:
 - a. the effectiveness of the plant and equipment;
 - b. whether a single pass of the stabilising machine is adequate to achieve the specified mixing or whether pre-ripping or multiple passes are required;
 - c. the bulking factor for trimming to spoil and level tolerances;
 - d. the additional moisture required to achieve specified compaction; and
 - e. the rolling pattern required to achieve specified compaction.
2. The trial section must be located within the first relevant pavement stabilisation Lot of the Works.

- | | |
|---|-------------------|
| 3. Prior to commencing any trial, the Superintendent must approve the location, length, width, and depth of trial section(s) within the Works. | HOLD POINT |
| 4. Prior to commencing construction of any pavement stabilisation Lot beyond the trial, the Contractor must submit the successful methodology from the trial to the Superintendent for approval. | HOLD POINT |
| 5. The Contractor must not change the approved method without the approval of the Superintendent. | |

515.32.03 SURFACE PREPARATION

1. Before stabilising commences:
 - a. the surface of the area to be stabilised must be suitable to achieve final longitudinal and transverse shape (i.e., no excessive shoving, rutting, high spots, or low spots);
 - b. the work area shall be accurately pre-marked to the proposed longitudinal cut lines on the existing road surface;
 - c. level control must be installed if required by the Contract; and
 - d. if not detailed in the Drawings or Specifications, the Contractor must accurately record the location of all road markings that will be removed in the stabilising process, through the installation of off-set pegs (or similar) or survey pick-up.
2. If there are excessive high spots, such spots may be corrected by pulverising or pre-milling, with excess material removed to spoil, as directed by the Superintendent.
3. If material is required to be imported for the purpose of shape correction, the material must be spread such that it will achieve the design longitudinal and transverse shape.
4. If material is required to be imported for the purpose of modifying the quality of the final stabilised material or modifying the longitudinal profile or overall pavement thickness, the material must be spread evenly as a layer of uniform thickness to achieve the design levels.
5. **Prior to the importing of material, the Contractor must certify to the Superintendent that the imported material complies with the requirements of 515.07.** **HOLD POINT**

515.32.04 SUPPLY OF STABILISING AGENTS TO SITE

1. **Prior to commencing stabilising the Contractor must provide the Superintendent with certificates of compliance for the stabilising agents for each batch of materials that contains the following information:**

HOLD POINT

- a. **Batch identification details including certification number;**
- b. **Product identification;**
- c. **Name of the supplier;**
- d. **Batch number and date of manufacture;**
- e. **Date, time, and place of loading;**
- f. **For cementitious materials, the registration pro-forma as per Annexure 515B.**

515.33 SPREADING OF LIME AND/OR CEMENT

1. Where the Pavement Layer involves the incorporation of lime and/or cement, the stabilised Pavement Layer must contain the proportion of lime or cement as a percentage of the dry mass of pavement material as shown in Annexure 515A. The cement or lime must be spread uniformly at a controlled rate over the area to be stabilised using a suitable spreader truck meeting the requirements of clause 515.21.
2. The percentage lime or cement applied must be determined by either
 - a. placing a canvas mat of one square metre on the area to be stabilised in front of the spreader truck, and measuring the mass of lime or cement deposited on the mat for each Lot; or
 - b. by use of an on-board calibrated electronic weight scale system.
3. The percentage cement or lime (P%) shall be calculated using the following formula:

$$P = \frac{M}{A \times T \times MDD} \times 100$$

Where:

- | | | |
|---|---|--|
| M | = | total mass of lime or cement (kg) as determined by one of the methods outlined at clause 515.33(2), being: method a): on each mat method b): on-board calibrated electronic weight scale system. |
| A | = | method a): total area of the mat (m ²) method b): total measured area spread (m ²) |
| T | = | Thickness to be stabilised (m) (including allowances for tolerances and trimming) |

MDD = Maximum Dry Density of the pavement material without the addition of cement (kg/m³)

4. The use of method (b) in determining the values 'M' and 'A' is subject to satisfactory calibration of the measuring device and the production of associated certification in accordance with the Contractor's Quality System. Audits on this method must be carried out using method (a).
5. The percentage lime or cement applied must be maintained within the tolerances set out in Table 515.03.

TABLE 515.03: TOLERANCE FOR SPREADING LIME AND/OR CEMENT

| Test | Frequency | Tolerance |
|--|---|---|
| Mat test: (1 m ² canvas) | At the start of each shift or every 2000 m ² , whichever is the lesser | Within $\pm 10\%$ of the specified application rate |
| Tanker reconciliation test: Total tonnes used (from delivery docket) over total mass of stabilised material | Upon emptying the spreader and bulk tanker | Within $\pm 10\%$ of the specified application rate |

6. Once the lime or cement has been spread, no plant other than that needed for stabilisation, is permitted to travel over the area to be stabilised.
7. **The Contractor must provide to the Superintendent daily records of the amounts of cement or lime used and actual spread rates per section treated, using the stabilisation pro-forma in Annexure 515D.**

HOLD POINT

515.33.01 SLAKING OF QUICKLIME

1. If using quicklime, the slaking must be achieved using a purpose-fitted pressurised spray bar on a water tanker to ensure thorough water penetration. Slaking must continue until no further reaction with additional water is visible and the slaked lime is completely converted to powdered form.
2. Slaking produces considerable volumes of steam which can limit the visibility of passing traffic. When the wind is such that steam will be blown towards passing traffic, all traffic movement must be stopped before commencing slaking.

515.33.02 PREVENTATION OF CONTAMINATION

1. Spreading of stabilising agents must be undertaken in such a manner to avoid contamination of the environment in accordance with Specification 204 – Environmental Management.

Contamination

515.34 ADDITION OF FOAM BITUMEN OR BITUMEN EMULSION

1. Foam bitumen and bitumen emulsion are referred to as bitumen in this clause 515.34.

2. Bitumen must be sucked from the mobile bulk tankers during the stabilising process. A system that controls the addition of bitumen in relation to the continuously calculated weight of the stabilised material must be used.
3. The percentage bitumen applied must be maintained within the tolerances set out in Table 515.04.

TABLE 515.04: TOLERANCES FOR ADDING BITUMEN

| Test | Frequency | Tolerance |
|--|-------------------------------|--|
| Flow meter | Continuous by operator | Within $\pm 0.2\%$ of the specified application rate |
| Microprocessor output Total volume of bitumen for each run | At the end of each run | Within $\pm 0.1\%$ of the specified application rate |
| Tanker reconciliation test: Total mass of bulk tanker used over total mass of stabilised area | Upon emptying the bulk tanker | Within $\pm 0.1\%$ of the specified application rate |

4. **Prior to the use of the plant proposed to be used for the modification process, the Contractor shall certify to the Superintendent that the plant is capable of meeting the requirements of Table 515.04.** **HOLD POINT**
5. The Contractor must provide to the Superintendent daily records of the amounts of bitumen used and actual application rates per section treated, using the stabilisation pro-forma in Annexure 515D. **Daily records**
6. Bitumen must not be heated above the maximum temperatures set out in TABLE 515.05. Any bitumen that does not comply must not be used and shall be removed from Site.

TABLE 515.05: TEMPERATURE LIMITS FOR STORAGE AND APPLICATION OF BITUMEN

| Material | Maximum storage temperature (°C) | | Application temperature (°C) (within 2 hours of use) | |
|----------|----------------------------------|------------|---|---------|
| | > 24 hours | < 24 hours | Minimum | Maximum |
| C170 | 125 | 175 | 175 | 195 |

7. For foamed bitumen stabilisation, the foaming characteristics of expansion and half-life, must be checked at the test nozzle of the stabilising machine within five minutes of starting with each new bitumen tanker load. The minimum expansion and the minimum half-life shall be as specified in Clause 515.08.05.

515.35 IN SITU MIXING

1. For in-situ mixing, the stabilising equipment shall be set up and operated to ensure that the requirements of this clause 515.35 are met.

515.35.01 CONTROL OF CUT DEPTH

1. Stabilisation must be undertaken to the depth specified in Annexure 515A with a maximum variation from the specified depth of -5 mm and +15 mm. The actual depth of the cut must be physically measured at both sides of the stabilised pavement at 20 m intervals.
2. In cases where both the sub-base and basecourse layers are stabilised, mixing of the basecourse layer must incorporate the upper 15 mm of the sub-base layer.

515.35.02 LAYER WIDTH

1. The outer top edge of any layer of the pavement must be no closer to the road centreline and no more than 100 mm further from the road centreline than the positions shown in the Drawings and/or Specifications.

515.35.03 LONGITUDINAL JOINTS

1. To ensure complete stabilisation across the full width of the area to be stabilised, longitudinal joints between successive cuts shall overlap by a minimum of 100 mm or half the layer thickness, whichever is greater, taking care to control water and binder addition along the joints.
2. All joints must be mixed, compacted and finished satisfactorily so that the final surface does not have permeable or loose patches.
3. Longitudinal construction joints between stabilised pavement and unstabilised pavement must not be located in the wheel paths.

515.35.04 CONTINUITY OF STABILISED LAYER

1. The exact location of the end of the cut must be carefully marked. This mark must coincide with the position of the centre of the mixing drum at the point at which the supply of stabilising agent ceased. To ensure continuity of the stabilised layer, the next cut must be started 1 m behind this mark.
2. Double application of bituminous stabilising agents is not permitted.

515.36 – 515.38 NOT USED

515.39 BINDER CONTENT

1. When stabilising with bitumen, a sample of stabilised material is to be taken after the mixing process and prior to compaction for determination of Binder Content and Particle Size Distribution in accordance with Test Method WA 730.1.
2. The binder content of the stabilised material must be within -0.1% to +0.3% of the dry mass of the design binder content.

Binder Content

515.40 CONSTRUCTION MOISTURE

515.40.01 CONTROL OF MOISTURE CONTENT

1. The moisture content of the stabilised material must be maintained in accordance with Table 515.06.
2. Sufficient water must be added during the stabilising process to achieve and maintain the construction moisture content at any point in the Lot within the range (of the stabilised material) set out in Table 515.06 to enable compaction. Care must be taken to prevent any portion of the work from excessive wetting.
3. The optimum moisture content (OMC) of the stabilised materials must be determined in accordance with Test Methods WA 133.1 or WA 133.2, as applicable. The field moisture content of the stabilised material must be determined in accordance with Test Methods WA110.1 or WA110.2 to confirm compliance with Table 515.06.

TABLE 515.06: CONSTRUCTION MOISTURE CONTENT

| Stabilising Agent | % of OMC |
|-------------------|-------------------------------|
| Cement/Lime | 90 - 110 |
| Foamed Bitumen | 85 - 100 |
| Bitumen Emulsion | 70 – 85 (excluding emulsion) |
| | 85 – 100 (including emulsion) |

4. The Contractor is responsible for achieving and maintaining the construction moisture content by controlling the amount of water added during the mixing process. This must include the use of an experienced operator following the stabiliser during mixing.

ACCEPTANCE

515.41 GENERAL

1. Each stabilised Pavement Layer must be constructed to the dimensions and details shown on the Drawings or Specifications and must be constructed in accordance with this specification to satisfy the criteria shown in Annexure 501A.
2. Where a pavement material has been supplied by the Contractor, the Contractor must undertake required testing of that material sampled from the stockpiles, in accordance with Specification 201 – Quality Management, to demonstrate that the material complies in all respects with the specified requirements. **Stockpile Material**
3. **Prior to the construction of any Pavement Layer, the Contractor must certify to the Superintendent that the pavement material supplied by the Contractor complies in all respects with the specified requirements.** **HOLD POINT**

515.42 COMPACTION

1. Each Pavement Layer must be compacted to the Characteristic Dry Density Ratio shown in Annexure 515A(1) or greater. **General**
2. The Characteristic Dry Density Ratio must be determined in accordance with Specification 20 – Quality Management. **Characteristic Dry Density Ratio**
3. Where the pavement material contains more than 20% by mass of material retained on a 37.5 mm sieve, the Maximum Dry Density must be determined on that portion of the material that passes a 37.5 mm sieve. **Oversize Material**
4. After each pass of the stabiliser, the mixed area must be initially compacted to eliminate the height differential between the bulked material, and any wheel ruts left by the stabiliser.
5. Compaction of all materials must be completed within the allowable working time specified in Table 515.02.
6. Stabilised layers must be compacted using equipment that achieves the compaction requirements in the most efficient manner without causing damage to adjacent structures.
7. Each stabilised layer must be constructed to the dimensions and details shown on the Drawings or Specifications and to the requirements of this specification.
8. Stabilised material trimmed from one Lot may be incorporated into another Lot provided it is uniformly spread and comprises no more than approximately 5% of the material. **Trimmings**

515.43 LAYER WIDTH

1. The outer top edge of any layer of the pavement must be no closer to the road centreline and no more than 100 mm further away from the road centreline than the positions shown in the Drawings or Specifications.

515.44 SURFACE SHAPE

1. Surface shape of Sub-Base and Basecourse must be tested in accordance with Test Method WA 313.2.

515.44.01 SUB-BASE

- | | |
|---|-------------------------------|
| 1. The shape of the sub-base will be judged to be acceptable when the maximum deviation from a 3-metre straight edge placed in any position on the surface does not exceed 10 mm. | Max Deviation 10mm |
| 2. The shape of the Sub-Base under Full Depth Asphalt will be judged to be acceptable when the maximum deviation from a 3-metre straight edge placed in any position on the surface does not exceed 15 mm. | Max Deviation 15mm |
| 3. Additionally, for pavement widening work, the crossfall at any position on the new surface measured at right angles to the centreline must be within 0.5% of the existing crossfall on the outer 2 metres of the adjacent traffic lane at that location. | Widening |

515.44.02 BASECOURSE

- | | |
|---|------------------------------|
| 1. The shape of the basecourse will be judged to be acceptable when the maximum deviation from a 3-metre straight edge placed in any position on the surface does not exceed 6 mm. | Max Deviation 6mm |
| 2. Additionally, for pavement widening work, the crossfall at any position on the new surface measured at right angles to the centreline must be within 0.5% of the existing crossfall on the outer 2 metres of the adjacent traffic lane at that location. | Widening |
| 3. All transition zones must be matched to the adjoining pavement shape. | |

515.45 SURFACE LEVELS

515.45.01 SUB-BASE

- | | |
|--|----------------------------------|
| 1. The level of the completed sub-base surface will be deemed to be conforming when the level measured at any point on the surface is within +5 mm, -25 mm of the sub-base level at that point as determined from the Drawings or Specifications. | Construction Sections |
| 2. The level of the completed sub-base surface will be deemed to be conforming when the levels of the sub-base at its junction with the existing pavement are within +5 mm, -25 mm of the levels as determined from the basecourse depth making due allowances for the effect of the existing crossfall of the pavement. | Widening Sections |

515.45.02 BASECOURSE

- | | |
|---|----------------------------------|
| 1. The level of the completed stabilised basecourse surface will be judged to be acceptable when the level measured at any point on the surface is within the following tolerances for the basecourse level for that point as determined from the drawings or works specifications. | Construction Sections |
| a. Where final surface is asphalt: -5 mm, +10 mm | |

b. Sprayed Seal areas: -5 mm, +20 mm

- | | |
|---|---|
| <p>2. The depth of stabilisation will be deemed to be acceptable when the actual depth of the stabilised material after compaction does not depart from the specified depth by more than -0 mm, +25 mm in any location.</p> <p>3. For pavement widening sections the level of the completed basecourse surface will be judged to be acceptable when the levels of the basecourse at its junction with the existing seal are within -0 mm, +5 mm of the top cut edge level of the existing seal.</p> | <p>Depth</p> <p>Widening Sections</p> |
|---|---|

515.46 SURFACE FINISH

- | | |
|---|------------------------|
| <p>1. Completed Pavement Layers must be in a homogeneous, uniformly bonded condition with no evidence of layering, cracking, disintegration, or surface tearing.</p> <p>2. The finished surface must appear as a stone mosaic interlocked with fine material and shall be dense, even textured and tightly bonded. Slurrying of fines to the surface must be avoided.</p> <p>3. Basecourse must retain the above characteristics after rotary brooming and be suitable to receive bituminous surfacing.</p> <p>4. Prior to the application of a bituminous surfacing the surface of the Basecourse must be uniformly dry.</p> | <p>Pavement</p> |
|---|------------------------|

515.47 MAINTENANCE OF COMPACTED LAYERS

- | | |
|--|--|
| <p>1. The surface of any compacted Pavement Layer or prepared Subgrade must be maintained in such a way as to minimise dust, prevent ravelling, erosion, deformation or any other damage to the layer resulting from environment conditions, traffic or construction activities. The layer must be kept free from contamination until any subsequent pavement work under the Contract is commenced.</p> <p>2. Completed Subgrade and Pavement Layers must be maintained to the specified standards of surface shape, level, dryback and compaction up to the time of construction of the subsequent Pavement Layer or application of the bituminous surfacing.</p> <p>3. Watering must be continued as necessary to prevent, dusting or loosening of the surface.</p> <p>4. Bituminous stabilised basecourse must not be sealed within three days of construction.</p> | <p>General</p> <p>Shape, Level, Dryback, Compaction</p> <p>Watering</p> |
|--|--|

515.48 – 515.80 NOT USED

AS BUILT AND HANDOVER REQUIREMENTS

515.81 – 515.90 NOT USED

CONTRACT SPECIFIC REQUIREMENTS

515.91 – 515.99 NOT USED

ANNEXURE 515A**CONSTRUCTION REQUIREMENTS****1. COMPACTION REQUIREMENTS**

- 1.1 Characteristic Dry Density Ratio shall be determined in accordance with Specification 201 – Quality Management.

TABLE 515A1: COMPACTION VALUES

| Pavement Layer | Minimum Characteristic Dry Density Ratio % (Rc) |
|------------------------------------|---|
| Stabilised Sub-base | 94-96% (Select appropriate value then delete this note. Refer to Guidance Notes) |
| Stabilised Basecourse | 96-98% (Select appropriate value then delete this note. Refer to Guidance Notes) |
| Foam Bitumen Stabilised Basecourse | 98% |

2. DRYBACK

- 2.1 Dryback Characteristic Moisture Content shall be determined in accordance with Specification 201 – Quality Management. Where the sub-base material contains more than 20% by mass of material retained on a 37.5 mm sieve, the Optimum Moisture Content must be determined on that portion of the material that passes a 37.5mm sieve.

TABLE 515A2: DRYBACK

| Pavement Layer | Minimum Characteristic Dry Density Ratio % (Rc) |
|-----------------------|---|
| Stabilised Sub-base | 85% |
| Stabilised Basecourse | 85% |

See Guidance Notes and delete this note

- 2.2 Bitumen stabilised basecourse requires a minimum 72 hours curing prior to sealing. This may require the pavement to be constructed up to 20 mm proud of final level while cured, if constructed under traffic, to allow for trimming. Once the basecourse has cured for 72 hours and satisfies the dry back requirement sealing may proceed or sealing preparation commence for basecourse constructed under traffic.

3. ADDITIONAL GRANULAR MATERIALS

3.1 Granular materials must be constructed with the parameters as shown in Table 515A3:

TABLE 515A3: ADDITIONAL GRANULAR MATERIALS

| Section | | Thickness of lift (mm) | Width of spread (m) |
|-------------------|----|---------------------------|------------------------|
| From | To | | |
| Basecourse Layers | | | |
| | | | |
| | | | |
| | | | |
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| | | | |
| | | | |

4. LIME STABILISED PAVEMENTS

4.1 Lime stabilised Pavement Layers must be constructed with the parameters as shown in Table 515A4:

TABLE 515A4: LIME STABILISED PAVEMENTS

| Type of Lime | | | | |
|-------------------|----|-----------------------------------|----------------------------------|---|
| Section | | Depth of Stabilisation (mm) | Width of Stabilisation (m) | Equivalent Lime Content (% by dry mass of Pavement Layer) |
| From | To | | | |
| Sub-Base Layers | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Basecourse Layers | | | | |
| | | | | |
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| | | | | |

5. CEMENT STABILISED

- 5.1 Cement stabilised Pavement Layers must be constructed at the locations and with the parameters as shown in Table 515A5:

TABLE 515A5: CEMENT STABILISED PAVEMENTS

| Type of Cement: | | | | |
|-------------------|----|-----------------------------|----------------------------|--|
| Section | | Depth of Stabilisation (mm) | Width of Stabilisation (m) | Cement Content (% by dry mass of Pavement Layer) |
| From | To | | | |
| Sub-Base Layers | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Basecourse Layers | | | | |
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6. BITUMEN EMULSION STABILISED PAVEMENTS

- 6.1 Bitumen Emulsion stabilised Pavement Layers must be constructed with the parameters as shown in Table 515A6:

TABLE 515A6: BITUMEN EMULSION STABILISED PAVEMENTS

| Bitumen Emulsion Type | | | | | | |
|-----------------------|----|-----------------------------|----------------------------|---|--|--|
| Section | | Depth of Stabilisation (mm) | Width of Stabilisation (m) | Bitumen Content (% by dry mass of Pavement Layer) | Supplementary Stabilising Agent (% lime by dry mass of Pavement Layer) | Supplementary Stabilising Agent (% cement by dry mass of Pavement Layer) |
| From | To | | | | | |
| Sub-Base Layers | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Basecourse Layers | | | | | | |
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| | | | | | | |

7. FOAMED BITUMEN STABILISED PAVEMENTS

- 7.1 Foamed Bitumen stabilised Pavement Layers must be constructed with the parameters as shown in Table 515A7:

TABLE 515A7: FOAMED BITUMEN STABILISED PAVEMENTS

| Section | | Depth of Stabilisation (mm) | Width of Stabilisation (m) | Bitumen Content (% by dry mass of Pavement Layer) | Supplementary Stabilising Agent (% lime by dry mass of Pavement Layer) | Supplementary Stabilising Agent (% cement by dry mass of Pavement Layer) |
|-------------------|----|-----------------------------------|----------------------------------|--|--|--|
| From | To | | | | | |
| Sub-Base Layers | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Basecourse Layers | | | | | | |
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| | | | | | | |

ANNEXURE 515B**CEMENTITIOUS MATERIALS****REQUEST FOR REGISTRATION OF CEMENTITIOUS MATERIALS**

| Product Details | |
|--|--|
| Product Name | |
| Type | |
| Proportions (if blend) | |
| Manufacturer | |
| Place of Manufacture | |
| Source of Constituent Materials | |
| Cement Clinker | |
| Fly Ash | |
| Slag | |
| Limestone | |
| Grinding Aids | |
| Supply Details | |
| Supplier Name | |
| Dispatch Centre (Address in Australia) | |
| Contact Name | |
| Contact Phone No. | |
| Contact Address | |
| Suppliers ABN | |

Send this form with the sample to:

Transport for NSW

Att: CMRS Administrator

**Level 3 Pod H, 110 George Street Parramatta
NSW 2150**

Email: cmrs@transport.nsw.gov.au

For Transport for NSW Use Only:

Date of Registration:

Registration No:

ANNEXURE 515C

IMPORTED PAVEMENT MATERIALS

1. LOCATION OF PRINCIPAL SUPPLIED MATERIAL

1.1 Location of Principal supplied material are recorded in Table 515C1 :

TABLE 515C1: PRINCIPAL SUPPLIED MATERIAL

| | | |
|-------------------------------|--|--|
| ROAD | | |
| SLK | | |
| OFFSET | | |
| MATERIAL DESCRIPTION | | |
| VOLUME (m³) | | |

2. CONTRACTOR SUPPLIED MATERIALS SPECIFICATIONS

TABLE 515C2: Contractor supplied materials

| MATERIALS SPECIFICATION (ex Specification 501) |
|---|
| |
| |
| |
| |

ANNEXURE 515D**DAILY APPLICATION RECORD SHEET**

DATE:

CONTRACT
NO:

PAVEMENT LAYER:

TIE IN POINTS:

FROM

TO

MAT TEST
REF. NO (S).**STABILISING COMPONENTS**

| | | Type | Design appl. Rate | Source | Batch No. |
|------|----------|------|-------------------------|--------|--------------|
| No.1 | Granular | | | | |
| No.2 | Lime | | | | |
| No.3 | Cement | | | | |
| No.4 | Emulsion | | | | |
| No.5 | Foam | | | | |

| Distribution No. | DISTANCE | | SIDE OF ROAD | STABILISED AREA | | | | TIME | | AMBIENT TEMPERATURE | STABILISER QUANTITY USED | | | ACTUAL APPLICATION RATES | ACTUAL % APPLICATION RATES |
|------------------|----------|----|-----------------------------|-----------------|-------|-------|----------------|-------------------------|---------------------------|------------------------|--------------------------|-----------|--------------------|---|----------------------------------|
| | From | To | | Length | Width | Depth | Area | Start time of mixing | End time of compaction | | Dip Before | Dip After | Quantity spread | | |
| | m | m | Left Right Full Width | m | m | m | m ² | | | °C | l or kg | l or kg | l or kg | l /m ² or kg/m ² | % |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |
| TOTALS | | | | | | | | | | | | | | | |

Remarks:

CONTRACTORS
REPRESENTATIVE:

SIGNATURE

SUPERINTENDENT:

SIGNATURE

GUIDANCE NOTES

To be completed and finalised after general acceptance of the specifications

FOR REFERENCE ONLY – DELETE GUIDANCE NOTES FROM FINAL DOCUMENT

1. All edits to downloaded Specifications shall be made using *Track Changes*, to clearly show added/deleted text.
2. If **all** information relating to a clause is deleted, the clause number should be retained and the words “**NOT USED**” should be inserted.
3. The proposed documents with tracked changes shall be submitted to the Project Manager for review, prior to printing the final batch of documents. When this final printing is carried out, the tracked changes option is to be turned off.
4. Before printing accept all changes in the document, turn off *Track Changes* and refresh the Table of Contents.
5. The Custodian of this specification is the Manager Materials Engineering.

1 GENERAL

- 1.1 Additional granular pavement material may be incorporated to:
 - a. Modify the particle size distribution of the final stabilised material;
 - b. Modify the quality of the final stabilised material;
 - c. Modify the profile (cross fall or longitudinal ride) of the road; or
 - d. Increase the overall pavement thickness above the subgrade.
- 1.2 Lime shall comply with AS 1672 and must be incorporated in accordance with Annexure 515A:
 - a. Hydrated lime in the form of Calcium Hydroxide ($\text{Ca}(\text{OH})_2$); and
 - b. Quicklime in the form of Calcium Oxide (CaO).
- 1.3 Low Heat strength cement, type LH, shall be used unless otherwise specified by the Principal.

2 CEMENT STABILISED PAVEMENTS (refer Clause 515.33)

- 2.1 Cement stabilisation can be applied to any Pavement Layer, but typically only to the Basecourse layer.
- 2.2 If cement stabilisation of the Basecourse is specified (e.g. at floodways), determine the following and insert into Annexure 515A (in addition to required Compaction):
 - a. Depth of stabilisation - typically 150 mm to 200 mm.
 - b. Cement content - typical values are 1.0%, 1.5% or 2% by dry mass of the Basecourse material.
 - c. The cement content required, will be determined by the unconfined compressive strength (UCS) of the material when tested in accordance with WA 143.1. The UCS

specimens shall be compacted using General Purpose (Type GP) cement, cured for seven (7) days in a controlled environment and immersed in water for four (4) hours prior to compression testing. The specimens are to be compacted at the specified density and 100% of OMC. The 7-day UCS must be in the range of 0.6 – 1.0 MPa.

- 2.3 The minimum practical spread rate that can be achieved by most cement spreaders is 3 kg/m², which equates to approximately 1% cement for a laterite gravel stabilised to a depth of 150 mm.
- 2.4 It is recommended that a rework trial is carried out in the laboratory to determine the % binder addition required to achieve a UCS of 0.6 MPa – 1.0 MPa when a test specimen is reprocessed. The testing will help to refine cement content required, if any, in rework in clause 515.30.

3 LIME STABILISATION (refer Clause 515.33)

- 3.1 If lime modification is specified, determine the following and insert into Annexure 515A (in addition to required compaction):
 - a. Depth of stabilisation – (typically 150 mm to 250 mm).
 - b. Lime content is determined by laboratory testing. Because lime varies in purity (depending on manufacture) and strength (depending on whether it is quicklime or hydrated lime), the optimum lime content must be expressed as a percentage of equivalent pure hydrated lime (calcium hydroxide) by dry mass of the pavement material
- 3.2 The process for determining whether Lime modification is appropriate and the required % of pure hydrated Lime for pavement modification is;
 - a. Refer to section 4.9 Preliminary Binder Selection of the Austroads Guide to Pavement Technology- Part - 4D: Stabilised Materials to determine if Lime is a suitable additive for the selected pavement material.
 - b. Determine the UCS of the modified material in accordance with Main Roads Test Method WA 143.1. The test specimens are to be compacted at the specified density and 100% of OMC and must be 28 day cured.
 - c. The optimum Lime content of the soil for modification produces a 28-day UCS in the range 0.6 MPa to 1.0 MPa.
- 3.3 The minimum practical spread rate that can be achieved by most lime spreaders is 3 kg/m², which equates to approximately 1% lime for a laterite gravel stabilised to a depth of 150 mm.

4 BITUMINOUS STABILISATION (refer Clause 515.34)

- 4.1 Bituminous stabilisation can be undertaken using three types of bituminous products;
 - a. Foamed Bitumen
 - b. Anionic Bitumen Emulsion
 - c. Cationic Bitumen Emulsion
- 4.2 Refer to Austroads Guide to Pavement Technology Part 4D: Stabilised Materials, for further information.
- 4.3 Selection of Bituminous Emulsion type.

- a. Cationic bitumen emulsions are predominantly used for stabilisation with non-calcareous pavement materials. These cationic emulsions (positively charged particles) react particularly well with acid-based mineral pavement materials derived from granite and quartzite and can be formulated to break at different times after mixing with pavement materials and cement (if applicable).
 - b. Anionic bitumen emulsions (negatively charged bitumen particles) is recommended for stabilising pavement materials comprised of limestone.
 - c. Both types of bitumen emulsions enable mixing to be carried out with damp mineral aggregates.
- 4.4 If Bitumen modification is specified, determine the following and insert into Annexure 515A (in addition to required compaction):
- a. Depth of stabilisation – (typically 150 mm to 300 mm).
 - b. Bitumen content may be determined in accordance with Austroads Guide to Pavement Technology Part 4D: Stabilised Materials

5 SUPPLY OF PAVEMENT MATERIALS TO SITE (refer to Clause 515.32.03)

- 5.1 The source(s) of Principal supplied Pavement Materials to be imported shall be outlined in ANNEXURE 515C. In the case of Contractor supplied materials, the relevant material specification in Specification 501 PAVEMENTS shall be specified. Specification 501 Annexures include a range of regional pavement material specifications to select from as appropriate.

6 STABILISING MIXING PROCESS (refer to Clause 515.22)

- 6.1 A conventional sized stabiliser is recommended to run at not more than 18 m/min to ensure the binder and water is mixed thoroughly through the pavement.

7 COMPACTION AFTER COMPLETION OF MIXING (refer to clause 515.41)

- 1.1 The mandatory use of padfoot rollers for initial compaction is recommended in the following circumstances:
- a. When the section length is 100 m or more.
 - b. The depth of material to be stabilised is 200 mm or more.
- 7.1 Pad foot rollers are more efficient in achieving density but trimming out the pad foot marks is difficult in short sections. Smooth drums should be used for final compaction to prevent padfoot marks reflecting through to the seal.

8 SUITABILITY OF MATERIALS (refer to clause 515.07.01)

- 8.1 Guide to Pavement Technology Part 4D: Stabilised Materials describes the design criteria for granular stabilisation. The grading and plasticity are the key inputs in determining suitable stabilising agents.

9 SUPPLEMENTARY BINDER (refer to clause 515.34)

Option 1: existing pavement materials are slightly plastic or non plastic (< 2% LS)

Mixing of the supplementary binder shall be undertaken in the same pass as the addition of bitumen. A separate pass will not be required.

Option 2: existing materials with higher plasticity (> 2% LS)

The lime shall be mixed into the pavement at 90% of the specified depth of stabilisation whilst adding sufficient water as required bringing the material to approximately 85% to 100% of the Optimum Moisture Content. The water shall only be applied through the mixing chamber to meet the moisture content.

After the lime mixing pass has been completed, the entire area shall be lightly compacted and shaped to the design finished level and left to cure for a period of at least 6 hours, but not more than 36 hours.

10 DRYBACK (refer to Table 515A2)

- 10.1 Consideration may be given to reducing the specified dryback moisture ratio to less than 85% OMC for heavily trafficked roads.

11 SURFACE PREPARATION (515.32.03)

11.1 Identify in Annexures sections where the depth of existing surfacing is greater than 25% of the proposed final stabilising depth and where that surfacing is required to be removed and disposed of at an approved location and replaced with suitable top-up material.

11.2 If any longitudinal or transverse mixing of material is required to obtain homogeneity, that shall be specified prior to stabilisation commencing.

12 CONTRACT SPECIFIC REQUIREMENTS

- 12.1 Required clauses are to be added under CONTRACT SPECIFIC REQUIREMENTS, as required. After inserting the clause, change the clause number and heading to style “H2 SP” so it appears in the Table of Contents.

AMENDMENT CHECKLIST

Specification No. **515** Title: **IN SITU STABILISATION OF PAVEMENTS** Revision No: _____

Project Manager: _____ Signature: _____ Date: _____

Checked by: _____ Signature: _____ Date: _____

Contract No: _____ Contract Description: _____

| ITEM | DESCRIPTION | SIGN OFF |
|---|---|----------|
| <i>Note: All changes/amendments must be shown in Tracked Changes mode until approved.</i> | | |
| 6. | Project Manager has reviewed Specification and identified Additions and Amendments. | |
| 7. | CONTRACT SPECIFIC REQUIREMENTS addressed? Contract specific materials, products, clauses added? (Refer Specification Guidance Notes for guidance). | |
| 8. | Any unlisted materials/products proposed and approved by the Project Manager? If "Yes" provide details at 16. | |
| 9. | Standard clauses amended? MUST SEEK approval from Manager Contracts. | |
| 10. | Clause deletes shows as " NOT USED ". | |
| 11. | Appropriate INSPECTION AND TESTING parameters included in Spec 201 (Text Methods, Minimum Testing Frequencies verified). | |
| 12. | ANNEXURES completed (refer Specification Guidance Notes). | |
| 13. | HANDOVER and AS BUILT requirements addressed. | |
| 14. | Main Roads QS has approved changes to SMM . | |
| 15. | Project Manager certifies completed Specification reflects intent of the design. | |
| 16. | Completed Specification – independent verification arranged by Project Manager. | |
| 17. | Project Manager's review completed. | |
| 18. | SPECIFICATION GUIDANCE NOTES deleted. | |
| 19. | TABLE OF CONTENTS updated. | |
| 20. | FOOTER updated with Document No., Contract No. and Contract Name. | |
| 21. | Supporting information prepared and submitted to Project Manager. | |
| Further action necessary: | | |

Signed: _____ (Project Manager) Date: _____