

Client: Iluka Resources Limited

Prepared By: Simon Welsh

Project: Public Roads Upgrade

Reviewed By: Joshua Kliemnt

Date: 11/11/2024

Construction Process: Sprayed Bituminous Surfacing

Approved By: Simon Jaworksi

Date: 11/11/2024

Specifications: ETS100, 101, 102

Structure / Component:

Lot No:

Lot Details:

Lot size/Quantity:

Date:

Item No.	Task/Activity Description	Inspection/Test					HP/ WP/ AP/ IP/ TP/ SCP	Responsibility	Checked by:			
		Frequency	Acceptance Criteria	Reference Documents	Inspection / Test Method	Record of conformity			TfNSW	Fulton Hogan	PV	Date
1	Preliminary											
1.01	Planning Documents	Once	<ul style="list-style-type: none">Prepare CMS to address all the applicable items listed in Annexure 1061/D to be included as PQP requirements.Issue CMS via iTWOcx to TfNSW for their review.	R106.1.2.4 & Annex R106/D		iTWOcx Transmittal	AP	Site Engineer				
1.02	Materials	Per Material Type	<p>Materials</p> <ul style="list-style-type: none">Bituminous Materials as specified in Annexure R106/A modified in accordance with iTWOcx RFI#0080 - C240 bitumen, hence:<ul style="list-style-type: none">Binder for seals & reseals conform to TfNSW 3253 (require doc evidence of binder conformity for each delivery used in the work).Refinery cutback bitumen conform to TfNSW 3261.Aggregate Precoating Agent And Bitumen Adhesion Agent<ul style="list-style-type: none">Aggregate precoating agents conform to TfNSW 3258.Bitumen adhesion agents conform to TfNSW 3259.Oils for reducing the viscosity of bitumen must conform to AS 3568.Aggregate (7 mm)<ul style="list-style-type: none">Supply & delivery of aggregate conform to TfNSW 3151Obtain test results for each Lot of aggregate, as per TfNSW 3151, before aggregate from the Lot is incorporated in the Project Works. When requested, provide a sample to the Principal from the same Lot by riffing or quartering samples. Amount of material obtained for each sample must be the nominal size of aggregate as per AS 1141.3.Stockpiles<ul style="list-style-type: none">Arrange and manage aggregate stockpiles to TfNSW R106.2.4.2 requirements. <p>Stockpiles that exhibit visible segregation, contamination or weathering rectify or replace.</p>	R106.2, Annex R106/A, RFI#0080, TfNSW 3253, 3261, 3258, 3259 & 3151		NATA Report/ Verification Checklist	IP	Site Engineer				
1.03	Geotextile R63-GEO-LOT No.:.....	As Required	Geotextile must be a nonwoven needle punched fabric with a minimum melting point of 165oC, minimum mass of 130 g/m ² and a minimum bitumen saturation of 0.9 L/m ²	R106.2.5 & G63		R63-GEO LOT	IP	Site Engineer				

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1.04	Nominated materials & design of Bituminous Surfacing	Per Mix Design	Design in accordance with TfNSW form 395A or TfNSW form 395K as appropriate. ▪ Submit design details Inc. all results from texture testing for reseals & ball embedment tests for seals. Design application rates are " <i>nominated application rates</i> " and materials used for the design are " <i>nominated materials</i> ". ▪ The proportion of constituents in any bituminous surfacing must conform to the limits as specified in Table R106.1.	R106.3.1 & R106.3.2		Form 395A or Form 395K	AP	Site Engineer				
1.05	Verification of each Constituent Material	Per Material	▪ Test results for all nominated materials, inc. stripping & initial adhesion for combination of nominated materials; ▪ Aggregates - source, geological type, particle size distribution, nominated average least dimension (ALD); ▪ Precoating agent and bitumen adhesion agent - types & proportions; ▪ Bitumen - refinery source; ▪ Cutback bitumen - refinery source of bitumen, source of cutter oil; ▪ Cutter Oil / Flux Oil - type and source; <i>The sampling and testing of a nominated material must be carried out within the six months period prior to the date of submission to the Principal.</i> ▪ Submit a statement signed by you stating that each design and its constituent materials meet the requirements of TfNSW R106 Clauses 2 & 3. The statement must include NATA endorsed test results for all specified tests. <i>A copy of your completed verification checklist must be attached.</i>	R106.3.3.1, R106.3.3.2 & R106.3.3.3		NATA Test Reports / R106 Checklist Review Spreadsheet	AP	Site Engineer				
1.06	Submit the nominated mix design for approval	Each Mix Design	Documents referred to in R106.1.2.4 and proposed bituminous surfacing design together with certification for the nominated materials & design verification documents ≥ 7 days prior to commencement of sprayed bituminous surfacing work.	R106.23.3.3		Hold Point	HP	Site Engineer				
1.07	Check if notification issued for covering base/subbase Hold Point No.:..... Relevant Lot No.:.....	Per Lot	The notification has been made not less than 24 hours prior to covering or sealing a completed lot of subbase/base.	R44.6.1.2, R71.6.8 & R73 6.11		Refer to R44, R71 & R73 Lots	IP	Site Engineer				
1.08	Review of nominated application rates	Per Lot	Review bituminous surfacing design at each location based on actual ALD test result for actual aggregate to be used instead of ALD value of nominated aggregate & using appropriate TfNSW 395 design form.	R106.3.4		NATA Reports / Verification Checklist	IP	Site Engineer				

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			The revised application rates are “target application rates”									
1.09	Revised application rates	As Required	Submission of aggregate Lot details and target application rates prior to application at each work location.	R106.3.4		Hold Point	HP	Site Engineer				
1.10	Sampling & testing	As Required	<ul style="list-style-type: none"> Ensure sampling & testing of materials is undertaken in accordance with relevant material specifications in TfNSW R106 .2 and AS 2008. Testing must comply with Annexure R106/L. <i>The Principal may conditionally agree to a proposal to reduce specified minimum frequency of testing.</i> 	R106.4.1 & Annex R106/L		NATA Reports / Verification Checklist	IP	Site Engineer				
2.0	Spray Seal Works											
2.01	Check pre-coated aggregate	Per Delivery / Stockpile	<ul style="list-style-type: none"> Aggregate precoating provides complete, light, uniform, effective cover of all aggregate particles. Precoated aggregates covered from wet weather to prevent precoating material being washed from particles & prevented from settlement of dust or drying out of the precoating agent on stockpiled aggregate. 	R106.5.1		Subc. Records / Visual Inspection	IP	Site Engineer				
2.02	Preparation of pavement surface	Per Lot Area	<ul style="list-style-type: none"> Ensure pavement surface is swept with a rotary road broom or suction broom for a uniformly clean surface. If necessary, carry out additional sweeping by hand, using stiff bass or similar brooms. Sweeping must extend ≥ 300 mm beyond each edge of area to be sprayed. Pavement surface must be slightly damp for spraying of primer or primerbinder. Where work is carried out on localised areas or half pavement widths, remove remaining loose foreign material from pavement surface adjacent to swept area. Services & road fixtures are covered to prevent primer, primerbinder, binder, aggregate or other material used on the work from entering or adhering to them. 	R106.5.2 & R106.5.4		Verification Checklist	IP	Site Foreman				
2.03	Pavement temperature & weather conditions	Per Lot	<ul style="list-style-type: none"> Pavement Temperature at or above 10°C @ least 1 hr before commencement, and does not fall below specified min. pavement temperature for spraying during spraying. Spraying did not commence in wet pavement or while rain appears imminent or during strong winds. 	R106.5.3		Subc. Records / Verification Checklists	IP	Site Engineer				
2.04	Application Plant	Once Per Sprayer	<ul style="list-style-type: none"> The sprayer has a current Sprayer Certificate (TfNSW Form 354) issued or accepted by TfNSW. The sprayer nozzles are make & type endorsed on Sprayer Certificate. 	R106.6.1, R106.6.2 & R106.8		Subc. Records	IP	Site Engineer				

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			<ul style="list-style-type: none">Spare nozzles available to replace damaged / worn onesSpreading equipment (including box spreaders) must be used to spread aggregate and must be capable of achieving a uniform spreading rate.Rollers used must be two or more dual axle smooth pneumatic tyred multi-wheel rollers of mass greater than 7 tonnes without ballast and minimum tyre pressure of 550 kPa.									
2.05	Supervise the application of primer, primerbinder or binder	Per Lot / 1 per 2 hours	<ul style="list-style-type: none">Sprayer must maintain a constant road speed throughout length of each spray run.<i>Areas not within 5% of target application rate of primer, primerbinder or binder constitute a 'Nonconformity' under the Contract.</i>Where a sprayer is not able to satisfactorily spray small areas or areas of irregular shape, spray such areas by means of hand spray equipment attached to sprayer.Temperature is measured and record using a suitable thermometer accurate to within 2.5% of the correct temperature. Bituminous material temperatures are within upper and lower limits of TfNSW Spec. Tables R106.2 and R106.3. <i>Any bituminous material that has been overheated must not be used in the work.</i>Determine and record the proportion of cutter oil required for each sprayer load, using TfNSW Form 382 for seals / reseals and TfNSW Form 395A for primes / primerseals.Where bitumen adhesion agent and / or cutter oil have been added to binder, adjust application rate of the total binder at 15°C, using TfNSW Form 500A, to allow for the quantities of bitumen adhesion agent and/or cutter oil in the mixture.Determine hot applicable rate of total binder, including bitumen adhesion agent and/or cutter oil using TfNSW Form 382.Where refinery cutback bitumen is used as the binder, increase target application rate of binder to allow for the cutter oil in the mixture according to TfNSW Table R106.4	R106.6.2, R106.6.3, R106.6.6, R106.6.7, R106.7.2 & R106.7.3	Subcontractor Records	IP	Site Engineer					
2.06	<i>If Required:</i> Apply geotextile	As Required	<ul style="list-style-type: none">Apply geotextile fabric where nominated in Annexure R106/A or as directed.	R106.6.4		Verification Checklist	IP	Site Engineer				

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			<ul style="list-style-type: none"> After tack coat application fix fabric to pavement smoothly and without wrinkles. Adjoining geotextile fabric overlap existing fabric by ≥ 100 mm. Joining fabric in the longitudinal direction under wheel path must be minimised. 									
2.07	Application & incorporation of aggregates	Per Lot	<ul style="list-style-type: none"> Only pre-coated aggregate for seal & primerseals. Application of aggregate, must proceed after spraying of the binder has commenced & be completed ≤ 15 minutes of spraying bitumen or cutback bitumen. Applied uniformly (spreader truck) @ nominated target spread rate. Method to determine actual aggregate spread rate TfNSW T274 or a method approved by the Principal. Initial rolling commenced with dual axle smooth pneumatic tyred multi-wheel rollers (>7T) without ballast and min. tyre pressure of 550 kPa. Continue initial rolling until aggregate is firmly embedded in primerbinder or binder. Pneumatic multi tyred roller are used with at least 8 passes within 1 hour of spraying. Any remaining loose aggregates are removed. 	R106.8	T274	Subcontractor Records	IP	Site Engineer				
2.08	Obtain / verify subcontractor field record	Per Lot	<p>The following field records for conformity are checked on form 500A or 500C:</p> <ul style="list-style-type: none"> Bitumen temperature: within limits in TfNSW R106.6.6 Binder application rate: $\pm 5\%$ of target application rate Aggregate spread rate: as nominated Control charts are completed where 10 or more sprayer runs greater than 1000 L are required. <p>Supply the Principal with a copy of each completed form.</p>	R106.6.6, R106.6.2, R106.4.3 & R106.4.4		Subcontractor Records / TfNSW Form 500A or 500C	IP	Site Engineer				

Final Inspection

The signature below verifies that this ITP has been completed in accordance with the Fulton Hogan's Quality system Procedures and verifies lot compliance with specifications.

Print Name:
Position:
Signature:
Date:

/ /

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Legend:

HP	Hold Point	Work shall not proceed past the HP until released by the Project Verifier	IP	Inspection point	Formal Inspection to be done and recorded
HP*	Fulton Hogan Hold Point	Work shall not proceed past the HP* until released by Fulton Hogan	TP	Test Point	Product compliance test to be undertaken and recorded/reported
WP	Witness Point	An inspection which must be witnessed by the Project Verifier	SCP	Survey conformance point	A qualified surveyor to check product/section/structure and report
AP	Approval Point	Written or verbal approval given by the Project Verifier			

Notes