

Client	Transport for New South Wales	INSPECTION AND TEST PLAN FOR: R107 Sprayed Bituminous Surfacing (with Polymer Modified Binder)	Work Area:
Contract No.#			
Contract			Inspection and Test Plan Number / Lot No:
Workplace Name	A183 - New Dubbo Bridge		ITC-18 R107 Sprayed Bituminous Surfacing (with Cutback Bitumen)

Legend:		W = Witness		H = Hold	S = Surveillance	ACPL = Abergeldie				S/C = Subcontractor
Activity No.#	Description	Document Reference / Applicable Standard	Acceptance Criteria	Frequency/ Process Held	Inspection – Sign & Date				Verifying Records	
					S/C	ACPL	Client	Date		
1. Material Requirements										
1.1	Bituminous Materials and Polymer Modified Binder	R107 CI 2.1	<p>Provide documentary evidence of the binder conformity for each delivery used in the work. Also sample at the point of delivery and provide a representative sample of the delivered binder to the Principal.</p> <p>The binder for seals and reseals must be in accordance with Annexure R107/A1 and must conform to Specification TfNSW 3252.</p> <p>Torsional recovery and softening point must also conform to the requirements of Annexure R107/A1.2 at the point of delivery.</p> <p>Do not heat binder above 190oC or the manufacturer’s written recommendations, whichever is the lesser.</p> <p>Implement procedures for storage and handling of binder that ensure prevention of segregation and contamination of the binder by flushing liquids or other materials.</p>	Once / Prior to supply of Bituminous Materials		S	S		Evidence of Conformity	
1.2	Aggregate Precoating Agent and Bitumen Adhesion Agent	R107 CI 2.2 TfNSW 3268 TfNSW 3269	<p>Aggregate precoating agents must conform to Specification TfNSW 3268 for the grade of polymer modified binder specified in Annexure R107/A.</p> <p>Bitumen adhesion agents must conform to Specification TfNSW 3269 for the grade of polymer modified binder specified in Annexure R107/A.</p>	Once / Prior to supply of aggregate precoating agent and bitumen adhesion agent		S	S		Certificate of Conformity	
1.3	Aggregate	R107 CI 2.4 TfNSW 3151	<p>Obtain test results for each Lot of aggregate, in accordance with TfNSW 3151, before aggregate from the Lot is incorporated in the Works.</p> <p>When requested, provide a sample to the Principal from the same Lot by riffing or quartering your own samples. The amount of material obtained for each sample must be in accordance with the nominal size of the aggregate as per AS 1141.3.</p>	Once / Prior to supply of aggregates		S	S		Test Results	

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1.4	General Materials and Design of Bituminous Surfacing	R107 Cl 3	Carry out the design of bituminous surfacing in accordance with TfNSW Form 395K as appropriate and submit the design details including all results from texture testing for reseals and ball embedment tests for seals. Design application rates are the "nominated application rates" and materials used for the design are the "nominated materials".	Once / Prior to placement		S	S		TfNSW Form 395K
1.5	Submission of Nominated Design	R107 Cl 3.3	<p>Submit to the Principal the nominated design together with certification for the nominated materials at least seven days prior to the commencement of sprayed bituminous surfacing works.</p> <p>Include the following details in the submission:</p> <p>(a) Each constituent material;</p> <p>(b) Verification of conformity of the nominated materials;</p> <p>(c) Endorsement.</p>	Once / Prior to placement		S	S		Design Certificate
1.6	Sealing Operations using Proposed Design	R107 cl 3.2.3	Submit to the principal Documents referred to in Clause 1.2.4 (Project Quality Plan) and the proposed bituminous surfacing design together with certification for the nominated materials and design verification documentation at least seven days prior to the commencement of sprayed bituminous surfacing work.	Once / 7 working days prior to commencement of sprayed bitumous surfacing work		H	H		Project Quality Plan Desig Verification Documentation
1.7	Review of Nominated Application Rates	R107 Cl 3.3	<p>Submit to the principal the below prior to spray sealing works for each work location:</p> <p>Select the locations where each Lot of aggregate is to be incorporated in the Works.</p> <p>Review the bituminous surfacing design at each location based on the actual ALD test result for the actual aggregate to be used instead of the ALD value of the nominated aggregate and using the appropriate TfNSW 395 design form. The revised application rates are "target application rates".</p>	Once / Prior to spray sealing works		H	H		Aggregate Lot Details Target Application Rates

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2. Process Control									
2.1	Application of Sprayed Bituminous Surfacing	R107 CI 4.2	Carry out sprayed bituminous surfacing so as to: (a) provide a uniform application of binder with adequate adhesion to the underlying surface; (b) provide a uniform cover of aggregate particles (except for primes); and (c) achieve effective bond between binder and aggregate (except for primes).	Once / Prior to Application		S	S		Project Quality Plan
2.2	Work Records	R107 CI 4.4	Record the particulars of the work performed on TfNSW Form 500E. Record details of primer, primerbinder, binder and aggregate applied immediately after every sprayer run. Each form must be signed by your representative as a true record of the work performed. Supply the principal with a copy of each completed form.	Once / Prior to Lot Closure		S	S		TfNSW Form 500E

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3. Conditions for Commencement											
3.1	Preparation of Pavement Surface	R107 Cl 5.2	<p>Before the application of primer, primerbinder or binder, sweep the pavement surface using a rotary road broom or suction broom to provide a uniformly clean surface. If necessary, carry out additional sweeping by hand, using stiff bass or similar brooms. Sweeping must extend at least 300 mm beyond each edge of the area to be sprayed.</p> <p>Where sealing work is carried out on localised areas and/or half pavement widths, remove any remaining loose material from the pavement surface immediately adjacent to the swept areas.</p> <p>Remove adherent patches of foreign material from the surface of the pavement. Mask or remove raised pavement markers.</p> <p>Measure and record pavement temperatures at regular intervals during work.</p> <p>Place a spirit or mercury-in-glass thermometer or other suitable type of thermometer in direct contact with the pavement.</p> <p>Undertake spraying of polymer modified binders only if the pavement temperature has been at or above 20oC for at least one hour before commencement of spraying and does not fall below the specified minimum pavement temperature for spraying during the period of spraying.</p> <p>Do not spray wet pavement or while rain appears imminent or during strong winds or dust storms.</p>	Once / Prior to application		S	S		Visual Inspection		

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4. Application of Spray Sealing, Binder and Aggregates										
4.1	Application of Sprayed Bituminous Surfacing	R107 CI 6	<p>Apply the binder by using a sprayer. The sprayer must have a current Sprayer Certificate (TfNSW Form 354) issued or accepted by Transport for NSW.</p> <p>Measure and record the temperature of the polymer modified binder using a thermometer or other suitable means, accurate to within 2.5% over the range 100-240C. If the temperature of the binder is below the minimum temperature recommended by the manufacturer of the polymer modified binder, the binder may be heated providing safe heating practices are adopted. Do not use burners unless the level of the material in the heating tank is at least 250 mm above the tops of the heating tubes.</p> <p>Where bitumen adhesion agent, cutter oil or flux oil is to be included, add it to the polymer modified binder in the sprayer and circulate the mixture at a rate of at least 700 litres per minute for fifteen minutes before spraying.</p>	Once / Prior to Application of Spray Seal		S	S		TfNSW Form 354	
4.2	Application of Polymer Modified Binder	R107 CI 7	<p>Limit the area to be sprayed to the area that can be covered with aggregate at the target application rate and rolled initially within five minutes of spraying polymer modified binder.</p> <p>Do not spray polymer modified binder over a prime until at least 48 hours after spraying the primer or such longer period as required for the primer to become completely dry.</p> <p>Do not spray polymer modified binder over a primerseal until at least twelve months after spraying the primerbinder unless the hardness of the primerseal measured using Test Method TfNSW T271 is less than 2.5 mm.</p> <p>The type of polymer modified binder must be as specified in Annexure R107/A1.</p> <p>Base nominated and target application rates and quantities of polymer modified binder on the volumes of polymer modified binder measured at a temperature of 15C and do not include any bitumen adhesion agent or added oils.</p> <p>Where bitumen adhesion agent and/or cutter oil has been added to the polymer modified binder, adjust the application rate of the total binder at 15C to allow for the quantity of additives in the mixture.</p> <p>Determine the hot application rate of total polymer modified binder, including bitumen adhesion agent and cutter oil, using the appropriate multiplier from TfNSW Form 500E.</p>	Once / Prior to application of Polymer Modified Binder		S	S		TfNSW Form 500E	

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4.3	Application and Incorporation of Aggregate	R107 CI 8	<p>Use only precoated aggregate.</p> <p>The application of aggregate must proceed after spraying is commenced and must be completed and rolled initially within five minutes of spraying the binder.</p> <p>Apply the aggregate of the specified nominal size and at the target aggregate application rate.</p> <p>The method to determine the actual aggregate spread rate must conform to Test Method TfNSW T274 or a method approved by the principal and detailed in the PROJECT QUALITY PLAN.</p> <p>Report the aggregate spread rate as actual rate using TfNSW Form 500E.</p> <p>After the aggregate has been applied to each section of the work, carry out initial rolling with 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. Continue initial rolling until the aggregate is firmly embedded in the binder</p> <p>Roll the cover aggregate with pneumatic tyred multi-wheel rollers at not less than eight passes within one hour of spraying at every point on the surface.</p>	Once / Prior to incorporation of aggregate		S	S		TfNSW Form 500E Project Quality Plan								
4.4	Sweeping and Loose Aggregate Removal (10mm and 14mm Seals / Reseals Only)	R107 CI 9	<p>After final sweeping and prior to the work being opened to traffic at the pre-existing signposted speed, the number of loose aggregate particles (per m2) not including aggregate particles from any scatter coat, determined in accordance with Test Method TfNSW T277 must not exceed the values shown in Table R107.1:</p> <table><tr><td colspan="2">Table R107.1 – Maximum Allowable Loose Aggregate Particles</td></tr><tr><td>Urban areas</td><td>20 particles/m²</td></tr><tr><td>Other medium to high traffic (>250 v/l/d)</td><td>30 particles/m²</td></tr><tr><td>Low traffic (≤ 250 v/l/d)</td><td>40 particles/m²</td></tr></table> <p>Areas where speed limits exceed 60 km/h and that are opened to traffic prior to final sweeping must have temporary speed zone ‘loose stones’ and ‘slippery’ warning signs and temporary 60 km/h speed zoning in place until the maximum allowable loose aggregate requirement is met.</p> <p>Notify the principle of the time and location prior to commencement of final sweeping and loose aggregate measurements prior to opening to traffic.</p>	Table R107.1 – Maximum Allowable Loose Aggregate Particles		Urban areas	20 particles/m²	Other medium to high traffic (>250 v/l/d)	30 particles/m²	Low traffic (≤ 250 v/l/d)	40 particles/m²	Once / Prior to Lot Closure		W	W		Visual Inspection
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REVIEW BY PROJECT MANAGER									
Any non-conformances?		<input type="checkbox"/> YES	<input type="checkbox"/> NO	Nos:		Closed Out		<input type="checkbox"/> YES	<input type="checkbox"/> NO
All work has been satisfactorily completed.				<input type="checkbox"/> YES		<input type="checkbox"/> NO			
Name			Signature			Date			

