Client	Transport for New South Wales	**INSPECTION AND TEST PLAN FOR:** **R116 Heavy Duty Dense Graded Asphalt**	**Work Area:**
Contract No.#			
Contract			**Inspection and Test Plan Number / Lot No:**
Workplace Name	A183 - New Dubbo Bridge		ITC-16 R116 Heavy Duty Dense Graded Asphalt

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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	**Production Trial**	R116 Cl 2.3.2	As part of your nominated mix design submission process, conduct a production trial to demonstrate conformity of the nominated mix. All production trial tests on each nominated mix must be from one trial batch. The tests on the constituent materials must represent the materials used in this trial batch.	Once / Prior to placement		**S**	**S**		Conformity Statement
1.2	**Nominated Mix Designs**	R116 Cl 2.3.5	Submit to the principal documents referenced in Clause 2.3.3 (Nominated Mix Design Submission Details) at least 7 working days before the nominated mixes are proposed to be placed.	Once / Prior to placement		**H**	**H**		Mix Design Submission
2. Placing Asphalt									
2.1	**General Placement**	R116 Cl 3.1	Provide for traffic in accordance with the requirements of Specification TfNSW G10 when carrying out asphalt paving. Prepare the surface to be paved in accordance with AS 2150, including removal of raised extruded thermoplastic road markings and raised pavement markers.	Once / Prior to placing Asphalt		**S**	**S**		Visual Inspection
2.2	**Application of Tackcoat**	R116 Cl 3.2	The existing surface must be clean, dry and free from loose material, prior to application of the tackcoat. Apply the tackcoat evenly at a rate of between 0.15 and 0.30 litres of residual bitumen per square metre, ensuring that it is effectively bonded to the surface. For joints and chases, double the application rate. Nominate in writing to the principal your proposed tackcoat application rate prior to applying the tackcoat. Provide to the Principal a signed daily record of the average tackcoat application rate applied to each Lot. Report the tackcoat application rate in terms of residual bitumen and state the percentage dilution of the tackcoat used during spraying.	Once / Prior to applying tackcoat		**S**	**S**		Application Rate Statement Daily Records

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2.3	**Temperature and Weather Conditions for Asphalt Placement**	R116 Cl 3.3	Measure and record the temperature of the surface to be paved, and wind velocity at the point of asphalt placing. Do not commence or continue placing asphalt containing binder complying with TfNSW 3253 if the temperature of the surface to be paved over, measured at existing surface level, is less than 8°C where the nominal size of asphalt is less than 20 mm, or less than 5°C where the nominal size of asphalt is 20 mm or greater, for a zero-wind speed. These minimum temperatures are increased by 5°C for asphalt containing binder complying with TfNSW 3252. These minimum temperatures are increased by a further 5°C for each 5 kph of wind speed above zero; however the minimum temperatures must not exceed 30°C. Do not place tackcoat and/or asphalt when the surface is wet, and/or when wet weather appears imminent.	Once / Prior to each asphalt placement		**S**	**S**		Visual Inspection
2.4	**Paving and Compaction Temperatures**	R116 Cl 3.5	Submit the following details prior to commencement of paving using nominated mixes: (a) minimum temperature at which asphalt will be delivered to the paver; (b) minimum temperature at which initial compaction of the asphalt can still commence; (c) method of temperature measurement.	Once / Prior to commencement of paving		**H**	**H**		Paving Temperatures Report
2.5	**Course and Layer Thickness**	R116 Cl 3.6	Control the course thickness by maintaining the design levels during placing and the surface shape requirements specified in Clause 5.6. Where a course comprises more than one layer, and the layer thicknesses have not been specified on the Drawings, nominate the thickness of each layer in your PROJECT QUALITY PLAN. The nominated thickness of a layer of asphalt must be between 3.0 to 5.0 times the nominal mix size.	Once / Prior to commencement of Paving		**S**	**S**		Project Quality Plan

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2.6	**Nonconforming Layer Thicknesses**	R116 Cl 3.6.3	For corrective courses and tie-ins to an existing pavement, you may propose for approval by the Principal to place layers in thicknesses that does not conform to the specified thickness requirements. Prior to placing asphalt in layer thickness not conforming to specifried layer thicknesses, submit o the principal the following: (a) nominated layer thicknesses which does not conform to specified thicknesses; (b) work methods capable of producing a dense homogeneous layer at these thicknesses; (c) areas affected, and evidence that these areas are the absolute minimum necessary.	Once / Continuation of works in Lot		**H**	**H**		Non-Conformance Report
2.7	**Joints**	R116 Cl 3.7	Longitudinal joints must be: (a) offset by 150 mm from the joint in the underlying layers; (b) located within 150 mm of the line of change in crossfall; (c) coincident with final traffic markings, unless otherwise approved by the Principal. Transverse joints must be: (i) located at a minimum of 25 m apart; (ii) offset by a minimum of 1 m from the joint in the underlying layer; (iii) formed at the commencement of each paving run; (iv) formed when a delay in paving causes asphalt temperature to fall below the initial compaction temperature nominated in Clause 3.5. Include in your PROJECT QUALITY PLAN the procedure for the construction of joints ***including a jointing plan showing widths and include temporary and final lane line configurations***.	Once / Prior to Paving		**S**	**S**		Project Quality Plan

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2.8	**Trial Section**	R116 Cl 3.8	Prior to commencement of paving of the Works, construct a separate trial section using the plant and personnel proposed for the work for each nominated mix. Each trial section must be located remote from the Works, unless otherwise approved by the Principal. Demonstrate conformity with the Specification in respect of: (a) homogeneity; (b) insitu air voids; (c) course thickness; (d) course position; (e) surface shape; (f) joint quality***, widths and layout***; (g) ride quality, where specified. Submit to the principal details of: Verification checklist and all relevant test results from the trial section demonstrating conformity to the specified requirements, at least 3 working days prior to commencing of paving at locations other than trial sections.	Once / at least 3 working days prior to Commencement of paving at locations other than trial section		**H**	**H**		Verification Checklist
3. Sampling and Testing of Placed Asphalt									
3.1	**Frequency of sampling and Testing**	R116 Cl 4.1.1	Frequency of sampling and testing of placed asphalt must be in accordance with Annexure R116/L. **Table R116/L.3 – Minimum Frequency of Testing of Asphalt** **Quantity of Asphalt Supplied in Each Shift (1)** / **Minimum Frequency of Testing** Less than 100 tonnes / One per 50 tonnes or part thereof 101 to 300 tonnes / One per 100 tonnes or part thereof 301 to 600 tonnes / One per 150 tonnes or part thereof Over 600 tonnes / One per 200 tonnes or part thereof	Once / At least 14 working days prior to each placement		**H**	**H**		Test Reports

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3.2	**Determination of Bulk Density**	R116 Cl 4.2.2	Do not test asphalt layers less than or equal to 30 mm thickness for insitu air voids. Calculate the characteristic values of insitu air voids in accordance with Annexure R116/K1. Determine Bulk Density by either of the below methods **Cores** Take cores in accordance with AS 2891.1.2. When trimming, do not reduce the core layer thickness by more than 5 mm. Determine the bulk density of cores taken in accordance with AS/NZS 2891.9.2. **Nuclear density gauge** Take measurements in accordance with AS/NZS 2891.14.2 and AS/NZS 2891.14.3. Determine the bulk density of cores taken for density offset calculations in accordance with AS/NZS 2891.9.2. Determine the density offset separately for every change in nominated mix and specified layer thickness. Verify that the applied density offset is still valid wherever there is a change in site characteristics, such as underlying surface roughness, composition of underlying layer and density of underlying layer. Report the density offset on all test reports.	Once / Prior to Lot Closure		S	S		Test Results
3.3	**Determination of Course Thickness**	R116 Cl 4.3	**From Cores:** Determine the characteristic values and average value of thickness of the Lot using statistical techniques as specified in TfNSW Q from cores taken in accordance with AS 2891.1.2.The cores may be the same as those taken for determination of air voids (refer Clause 4.2), but the core layer thickness is determined prior to trimming of the core. Where the asphalt is placed in one or more layers to form a single course, determine the course thickness by adding the average thickness from cores of the lower and upper layers. For the purpose of determining the course thickness from cores, the core diameter can be less than 95 mm and the test specimen may comprise more than one layer. Calculate the maximum and minimum characteristic values of thickness for the Lot in accordance with Annexure R116/K2. **By Survey:** Carry out surveys for product conformity in accordance with Specification TfNSW G71 Clause 5.3.3. The average compacted course thickness of each Lot calculated from surveys must be consistent with the average compacted course thickness of the respective Lot determined from cores.	Once / Prior to Lot Closure		S	S		Test Results

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3.4	**Determination of Course Position**	R116 Cl 4.4	Where finished surface levels are not specified, determine the course position of each Lot by reference to existing pavement surface and road fixtures. Where finished surface levels are specified, measure the course position of each Lot by survey in accordance with TfNSW Q and TfNSW G71 Clause 5.3.3. The survey location of any point on the surface of a course for level determination must be located within 25mm from the corresponding point determined from the Drawings.	Once / Prior to lot closure		S	S		Survey Report
3.5	**Determination of Surface Shape**	R116 Cl 4.5	Determine and report the surface shape in accordance with Test Method TfNSW T183. The maximum Lot size must be in accordance with TfNSW Q but extended to include the adjacent longitudinal joints, transverse joints and tie-ins. Prior to placing the next overlying course, determine the surface shape in accordance with Clause 4.5.1. Deal with any conformities in accordance with Clause 5.8.1.	Once / Prior to lot closure		S	S		Shape Report
3.6	**Determination of Ride Quality**	R116 Cl 4.6	See subcontractor ITP	Once / Prior to lot Closure		S	S		ITP
4. Conformity									
4.1	**Rectification of Non-Conforming Lots**	R116 Cl 5.8.5	Submit to the principle the non-conformity report and details of your proposal to rectify or replace the lot prior to undertaking rectification works or replacement of a non-conforming lot.	Once / Prior to lot Closure		H	H		NCR

REVIEW BY PROJECT MANAGER						
Any non-conformances?	☐ YES	☐ NO	Nos:	Closed Out	☐ YES	☐ NO
All work has been satisfactorily completed.	☐ YES	☐ NO				
Name		Signature		Date		