

**R & B Division**  
**Junagadh**

**Name of Work :Resurfacing of Dagad Approach Road Ch. 0+000 to 0+360 Km, Ta. Manavadar Dist. Junagadh.**

### **MATERIAL TEST SCHEDULE**

Sr. No.	Materials to be tested	Name of laboratory test	Frequency of testing	Remarks
1	2	3	4	5
1	Cement	Consistency	Upto 50 M.T. = 1 Sample	As per receipt of cement, one sample of 15 Kg. from 20 bags in consignment of 50 M.T. shall be taken for testing. Minimum one sample for each consignment less than 50 M.T. of cement received.
		Initial & Final setting time	50 to 100 M.T. = 2 Sample	
		Compressive strength	100 to 200 M.T. = 3 Sample	
		Fineness	200 to 300 M.T. = 4 Sample	
		Soundness	300 to 500 M.T. = 5 Sample	
		Specific gravity	500 to 800 M.T. = 6 Sample	
		Chemical analysis	800 to 1300 M.T. = 7 Sample and 8 Sample for large consignment	
2	Water	Potability	1 test per each source of supply per every working season.	Or as required while execution or change of source.
		Salinity		
		Chemical analysis		
3	Sand	Fineness modules	1 test per each source of supply per every working season.	Or as required while execution or change of quarry.
		Specific gravity		
		Water absorption		
		Clay & Fine silt content		
		Gradation test		
		Pentography exclusion		
4	Crushed Stone aggregate	Specific gravity	1 Test / 150 Cu.m	Or as required while execution or change of quarry.
		Soundness		
		Water Absorption		
		Impact Value		
		Gradation Test		
		Crushing Test		
		Abrasion Value		
		Flakiness		
5	T.M.T. Steel / M.S. steel	Elongation	One test per 40 M.T. for each categories & every lots supplied.	Or as required while execution
		Tensile Strength		
		Bend and rebend test		
		Yield Strength		

		Dimension Test		
6	C.C. Cubes (Ordinary and Controlled cement concrete)	Compressive Strength for 7 & 28 days	1 to 5 Cum. = 1 Test 6 to 15 Cum = 2 Test 16 to 30 Cum = 3 Test 31 to 50 Cum = 4 Test 51 & above 4 + 1 test each 50 Cum.	Or as required while execution
7	Earth work	C.B.R. test (Soaked and unsoaked)	1 test per every 3000 Cum.	Or as required while execution
8	Sand ( For Sub-base)	Silt content	One test per work	Or as required while execution
		Gradation	One test per 200 Cu.m.	
		C.B.R.	One test per work	
9	Crushed Metal (W.B.M. & Granular Sub-base)	Aggregate Impact Value Flakiness Index Water absorption Gradation Stripping Value Soundness Crushing Strength	Up to 100 Cum. = 1 Test 101 to 500 Cum. = 3 Test 501 to 1500 Cum. = 5 Test 1501 to 5000 Cum. = 7 Test 5001 & above = 1 Additional Test	Or as required while execution
10	Hard Murrum	Gradation	One Test / 200 Cum.	Or as required while execution
		Atterbergs Limit		
		Deleterious Constancy		
		C.B.R.		
11	Soft Murrum / Binding materials	Atterbergs Limit	One Test / 50 Cum.	Or as required while execution
12	Quarry spall	Silt content	One test per work	Or as required while execution
		Gradation	One test per 200 Cu.m.	
		C.B.R.	One test per work	
13	Tack coat	Binder Temperature for application	At regular close intervals	Or as required while execution
		Rate Spread of binder	Two test per day.	

14	Asphalt (1) Emulsion (2) Bulk 80/100 (3) Bulk 60/70	Penetration Test as per IS 1203	1 to 10 Tanker = 1 Test	Or as required while execution
		Ductility Test	11 to 20 Tanker = 2 Test	
		Specific Gravity Test	21 to 50 Tanker = 3 Test	
		Softening point Test	51 to 100 Tanker = 4 Test	
		Viscosity Test	Remaining every 50 Tanker = 1 Test	
15	Crushed Metal for B.B.M./ BUSG / B.M. / SDBC	Aggregate Impact Value Flakiness Index Water absorption Gradation Stripping Value Soundness Crushing Strength	Up to 100 Cum. = 1 Test 101 to 500 Cum. = 3 Test 501 to 1500 Cum. = 5 Test 1501 to 5000 Cum. = 7 Test 5001 & above = 1 Additional Test	Or as required while execution
16	Asphalt Painting	Binder Temperature for application	At regular close intervals	Or as required while execution
		Rate Spread of binder	Two test per day.	

**Note :**

- 1 Testing of materials should be as per statement attached with the specification. The materials shall be tested in GERI Bill for testing shall be paid by the Deptt. and 1% (One percent) of amount put to tender from the running account bills of the work (As per G.R.(R&B) Deptt.No. TNC 1085/4/C Dt. 10-5-85.
- 2 Samples to be sent by contractor to GERI.

Signature of Bidder

Deputy Executive Engineer  
Dist. R&B Sub Division  
Junagadh

Executive Engineer  
R & B Division  
Junagadh

**R & B Division  
Junagadh**

**Name of Work :Resurfacing of Dagad Approach Road Ch. 0+000 to 0+360 Km, Ta. Manavadar Dist. Junagadh.**

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**MATERIAL TEST SCHEDULE**

<b>Sr. No.</b>	<b>Material to be tested</b>	<b>Test</b>	<b>Frequency</b>
1	Retro reflective sheeting for signages	Co-efficient of retro reflection	3 readings for 10 boards for each colour
2	Road Studs/Cateyes	Compressive Strength	1 sample for each colour per lot/Brand
		Flexural strength	1 sample for every colour
		Lens Impact strength	1 sample for every colour
		Co-efficient of Luminious Intensity	1 sample for every colour
	Hot applied Thermoplast Road Marking	Retro reflectivity	5 readings for every 5 kilometer
		Proportion of constituents of Marking Paint	1 sample for every colour
		Skid resistance	5 readings for every 5 kilometer

## TEST SCHEDULE

Sr. No.	Materials	Code of Practice	Onsite / Laboratory	Name Of Laboratory Test	Reference Table	Frequency of Test																																																									
1	2	3	4	5	6	7																																																									
1	Retro Reflective Sheeting for the Signage	IRC 67 : 2012; ASTM D-4956	On Site Testing with Reflectometer make: Delta, zehntner, Roadvista - complying to ASTM D 4956	Co-efficient of Retro Reflection	<b>Class-B Type-04 Micro Prismatic Grade</b>	Readings for 10 Boards for each Colour																																																									
					<table> <tr> <th>Observation Angle</th><th>Entrance Angle</th><th>White</th><th>Yellow</th><th>Green</th><th>Red</th><th>Blue</th></tr> <tr> <td>0.1<sup>oB</sup></td><td>-4°</td><td>500</td><td>380</td><td>70</td><td>90</td><td>42</td></tr> <tr> <td>0.1<sup>oB</sup></td><td>+30°</td><td>240</td><td>175</td><td>32</td><td>42</td><td>20</td></tr> <tr> <td>0.2°</td><td>-4°</td><td>360</td><td>270</td><td>50</td><td>65</td><td>30</td></tr> <tr> <td>0.2°</td><td>+30°</td><td>170</td><td>135</td><td>25</td><td>30</td><td>14</td></tr> <tr> <td>0.5°</td><td>-4°</td><td>150</td><td>110</td><td>21</td><td>27</td><td>13</td></tr> <tr> <td>0.5°</td><td>+30°</td><td>72</td><td>54</td><td>10</td><td>13</td><td>6</td></tr> </table>		Observation Angle	Entrance Angle	White	Yellow	Green	Red	Blue	0.1 <sup>oB</sup>	-4°	500	380	70	90	42	0.1 <sup>oB</sup>	+30°	240	175	32	42	20	0.2°	-4°	360	270	50	65	30	0.2°	+30°	170	135	25	30	14	0.5°	-4°	150	110	21	27	13	0.5°	+30°	72	54	10	13	6								
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2	Road studs/ Cat eyes / RPM (Raised Pavement Marker)	IRC 35:2015; ASTM D4280	Laboratory Testing	Compressive Strength	Compressive strength (Breaking load)- <b>13635kgf without breakage</b>	1 sample for each color per lot/ brand																																																									

		IRC 35:2015; ASTM D4280	Laboratory Testing	Flexural Strength	909kgf without breakage or significant deformation (3.3mm)	1 sample for each color																		
		IRC 35:2015; ASTM D4280	Laboratory Testing	Resistance to Lens Cracking, Lens Impact Strength	No More than 2 radial cracks longer than 6.4mm	1 sample for each color																		
		IRC 35:2015; ASTM D4280	Laboratory Testing	Co-efficient of Luminous Intensity - ASTM D4280	<table><tr><th>Observation Angle</th><th>Entrance Angle</th><th>White</th><th>Yellow</th><th>Red</th></tr><tr><td>0.2</td><td>0</td><td>279</td><td>167</td><td>70</td></tr><tr><td>0.2</td><td>+20</td><td>112</td><td>67</td><td>28</td></tr><tr><td>0.2</td><td>-20</td><td>112</td><td>67</td><td>28</td></tr></table>	Observation Angle	Entrance Angle	White	Yellow	Red	0.2	0	279	167	70	0.2	+20	112	67	28	0.2	-20	112	67
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3	Hot Applied Thermoplast Road Marking	IRC 35 : 2015; Section 800 of Reflectometer	On Site Testing with Reflectometer	(RL) retro Reflectivity (mcd/m2/ lux)	Retro Reflectivity (mcd/m2/lux) <table><tr><th>Design speed</th><th>Initial (7 days)</th><th>Min Threshold Level (TL) Upto 2 years</th></tr><tr><td>Upto 65 kmph</td><td>200</td><td>80</td></tr><tr><td>65-100</td><td>250</td><td>120</td></tr></table>	Design speed	Initial (7 days)	Min Threshold Level (TL) Upto 2 years	Upto 65 kmph	200	80	65-100	250	120	5 readings for every 5 kilometer									
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IRC 35 : 2015; Section 800 of MORTH	Laboratory Testing	Proportions of Constituents of Marking Material	<table><tr><th>Component</th><th>White</th><th>Yellow</th></tr><tr><td>Binder</td><td>18.0 Min</td><td>18.0 Min</td></tr><tr><td>Glass Beads</td><td>30-30</td><td>30-30</td></tr><tr><td>Titanium Dioxide</td><td>10.0 Min</td><td>--</td></tr><tr><td>Calcium Carbonate and Inert Filler</td><td>42.0 Max</td><td>--</td></tr></table>	Component	White	Yellow	Binder	18.0 Min	18.0 Min	Glass Beads	30-30	30-30	Titanium Dioxide	10.0 Min	--	Calcium Carbonate and Inert Filler	42.0 Max	--	1 sample for each color					
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		IRC 35 : 2015; Section 800 of MORTH	On Site Testing	Skid Resistance	Not less than 45 BPN (British Pendulum Number) as per BS:6044	5 readings for every 5 kilometer																		

**Note :**

- 1 Testing of materials should be as per statement attached with the specification. The materials shall be tested in GERI Bill for testing shall be paid by the Deptt. and 1% (One percent) of amount put to tender from the running account bills of the work (As per G.R.(R&B) Deptt.No. TNC 1085/4/C Dt. 10-5-85.
- 2 Samples to be sent by contractor to GERI.

Signature of Bidder

Deputy Executive Engineer  
Dist. R&B Sub Division  
Junagadh

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