

## State Unitary Enterprise of the Orenburg Province

### “ORENBURGREMSTROY”

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To: President of Cantat Associates Inc, Alexander B. Zevin  
Director of LLC “Nova”, Marat R. Shigapov

Dear Gentlemen,

On December 8, 2011, SUE “ORENBURGREMSTROY”, aided by the Kurmanaevsk and Buzuluk highway authorities, paved a section of the Federal access highway to the city of Orenburg from the M-5 Federal highway. The pavement comprised a coarse porous asphalt mix, 7 cm in thickness, with Evotherm J1 concentrate, acquired from LLC “Nova”, city of Kazan.

Section length – 500 m.

Asphalt paving was performed on a macadam surface.

Weather conditions: temperatures of (-7) – (-10) °C, strong cross wind, periodic snowdrifts. Paver operated for 2 days in 2 lanes (with longitudinal joint at the end of the shift), 2 rollers weighing 11 tons were used.

Mix temperature – 155-160 °C. Haul performed in Kamaz dump trucks, 6 m<sup>3</sup> in volume, non-heated. Haul distance – 40 km.

When hauled in canvas covered dump trucks, crust did not form over the asphalt mix, temperature remained 155-160 °C.

Upon release from the asphalt paver, mix temperature drops by 2-3 °C. Visually, mix is very flexible, no chunks. During the compaction process, traces of the asphalt rollers are visible on the surface. Asphalt mix settles down, pavement temperature drops very slowly, allowing 8-10 passes over the same trace. Upon completion of the compaction process, mix temperature was approximately 90 °C. 30 minutes after the start of the asphalt placement, mix temperature was measured at 70 °C. The mix remains flexible until it is completely cooled down, the metal tip of the thermometer could easily be inserted into the pavement.

The pavement was tested the next day, following the completion of the paving operation. 2 cuts were performed on the first lane, PK 391+40 left and PK 394+85 axle.

Results were as follows:

|                | Water Saturation of samples | Water Saturation of monoliths | K Compaction |
|----------------|-----------------------------|-------------------------------|--------------|
| Plant mix      | 6.7                         |                               |              |
| PK 391+40 left | 6.0                         | 4.0                           | 0.99         |
| PK 394+85 axle | 5.5                         | 4.8                           | 0.98         |

Conclusion: Based on the obtained results, we believe that the utilization of Warm Mix Asphalt, prepared using the Evotherm J1 additive and based on the technology, provided by Cantat Associates Inc – Canada, allows carrying out road works at low weather temperatures, extends the asphalt compaction time by 50%, reduces the segregation temperature and improves mix flexibility, which allows to achieve the compaction coefficient, required by the GOST standard.

Consequently, the road construction season can be extended significantly, without any negative effects to the pavement quality.

General Director  
Khusid D.L.

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