Road D1884

Summary Accelerated pavement Test (ATP) using the Heavy Vehicle Simulator (HVS)

Test Commenced: 3 October 2018

Removal of HVS: 17 January 2018

Section 2 North bound lane: Material properties

			Base-layer		Sub-base layer		Upper Selected
			2018		2018		2018
			2018/01/15		2018/03/14		2018/03/14
			Mix Design				
			0 - 170				
Atterberg Limits	LL%		24		23		21
	PI		7		4		3
	LS%		3.5		2.1		1.4
GM			2.09		1.85		1.10
mod-AAHTO	OMC%		7.2		11.4		9.1
	MDD		2170		2030		1967
CBR	Comp MC		7.0		11.2		8.8
	% Swell		0.16		0.29		0.52
CBR @ Dednsity		100%	27		32		20
		98%	22		28		15
		97%	19		26		13
		95%	15		23		9
		93%	12		20		7
		90%	9		16		4
Classification	TRH14		G8		G7		G10
			Base		Sub-base		Sub-grade
Pavement Design:			150 mm NME4		150 mm NME4		Compacted to 93% mod AASHTO
Surfacing:	20/7 Double seal						

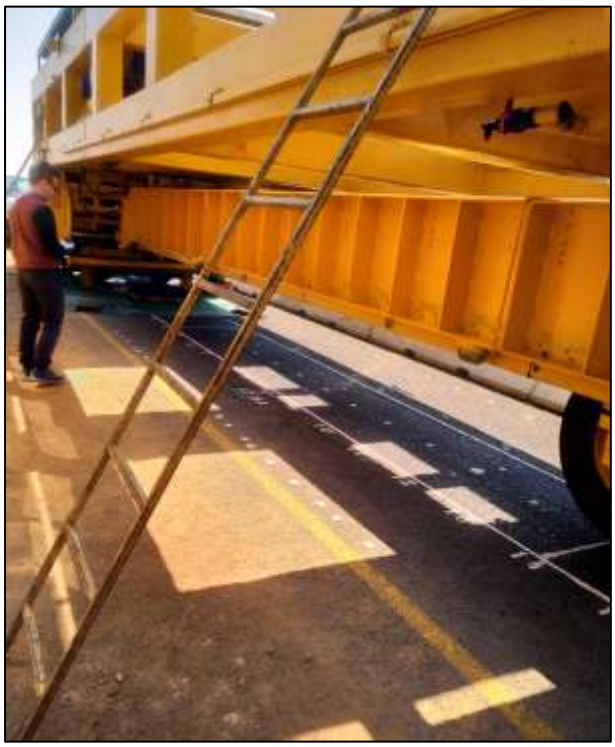
Design traffic loading over a 20 year design period: **3 Million E80s**

HVS testing was stopped after applying in excess of **7 Million E80s** with less than 10 mm rut depth and **no failure of either the base or sub-base layer**

Water was added continuously under trafficking to the HVS test section up to a depth of 500 mm through holes drilled next to the road since the beginning of December 2018. No water penetrated the base or sub-base layer and had no visible effect on the behaviour of the road under the HVS test.

Photograph 1
(18 September 2018)
Drilling of core on prepared HVS test site before start of HVS test

Photograph 2
(18 September 2018)
Drilled core showing the double seal, 150 mm NME4 base-layer (1.5% NME) and 150 mm sub-base layer (1.0% NME)
(NB: NO CEMENT !)



Photograph 3
(4 October 2018)
HVS test 3 days in progress

Photograph 4(a)

Photograph 4 (b)
(26 November 2018)
Wheel load at 80 kN (double normal). No deformation or damage to base or sub-base (seal pushed aside due to spillage of hydraulic oil from a burst pipe on the HVS) – 3 Million E80s applied to test section

Photograph 5
(8 January 2019)
Testing at a dual wheel load of 80 kN with water applied continuously on the surfacing and to a depth of 500 mm through holes next to the test section

Photograph 5
(17 January 2019)
Cores drilled in the middle of the HVS test section after removal of the HVS at the end of the test after applying in excess of 7 Millon E80s (more than double the design traffic loading)

Photograph 6
(17 January 2019)
HVS test site after removal of the HVS showing less than 10 mm rut depth

Photograph 7
Condition of the exposed base-layer at the end of the test after removal of the surfacing with a hammer and chisel