HVS-Nordic tests 2003

• Unbound Base Material Test 1
• Unbound Base Material Test 2
• Structural Design Test
• Crushed Sub Base Material Test
• Cement Stabilized Base Layer Test (Denmark)
After the tests in Poland

• The machine was taken back to Finland and completion of the interrupted tests there.
• In late December 2002 it was moved to Sweden and one test with two different unbound bases was carried out, natural gravel and crushed aggregate.
After the tests in Poland, cont.

• In the spring time 2003 the HVS was taken to a test site close to the construction site of the E6 Motorway in the western part of Sweden and accelerated loading of 8 test sections.

The objective of test 1-4 is to investigate the bearing capacity effect of different mica content in the unbound base. The objective of test 5-7 is to study the effect of different thickness of unbound base on light weight clay aggregate and test 8 the effect of a cement stabilized and reinforced expanded clay aggregate slab on the LWA.

Each test section was loaded by 100,000 loadings during one week and the test load was 80 kN dual wheel load and 1000 kPa tire pressure.
After the tests in Poland, cont.

• Today the machine is running test on a construction site on E4 Motorway in the south of Sweden.
  A. Three different crushed sub bases. Max aggregate sizes 300 mm, 150 and 120.
  B. For our Danish colleagues test on different quality of cement stabilized bases.
Base Layer Material Test, SE05

- Asphalt Layer 40 mm
- Base Layer: Crushed Aggregate 3 x 150 mm
- Base layer: Natural Gravel 3 x 150 mm
- Sand Sub Grade

EMU-coils
SE05, Surface Mean Rut depth, mm
Preliminary results

- Natural gravel
- Crushed aggregate

Repetitions

mm

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EMU-coils SE05, Base Layer 0-150 mm

Deformation, mm

Passes

Water added

Natural Gravel

Crushed Aggregate

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HVS Test section, Uddevalla Sweden
Instrumentation of section 1 with micaceous unbound base layer

Temp. sensors outside wheelpath.

0  1  2  3  4  5  6m

Temp 1

Moist 1

EMU40N

EMU40/42S

EMU42M

EMU41/43S

EMU41M

EMU43M

SPC230

SPC231

Asphalt 4 cm

Unbound base 13 cm

Unbound base 15 cm

Subbase 83 cm

Subgrade
HVS Test section, Uddevalla Sweden
Instrumentation of section 5 with Light Weight clay Aggregate subbase

Temp.sensors outside wheel path.

Temp 1 Temp 2

0 1 2 3 4 5 6 m

EMU56M
EMU57/58M
EMU58/59S
EMU60/61S
EMU56/57S
EMU59/60M
EMU61/62M
EMU62S

SPC238
SPC239
SPC240

LVDT31

Asphalt 4 cm
Unbound base 15 cm
Unbound base 35 cm
LWA 60 cm
LWA 60 cm
Subgrade
LVDT
EMU-coil
HVS Bearing Capacity Test SE07
Average Profile Deformation

Load Repetitions

Average Rut Depth, mm

Section 1
Section 2
Section 3
Section 4
Section 5
Section 6
Section 7
Section 8

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"Floating" coils