

Hamilton City Development Manual	
Volume 4 : Quality Systems for Land Development	Part 3 - Roading
Authorised by : Transportation Manager	Page 1 of 3

PART 3 : ROADING

3.1 GENERAL

Roading includes that portion of Earthworks testing of the subgrade, the carriageway construction including under channel drains, kerb and channel, metal construction, sealing, paths, vehicle crossings, access lot and right-of-way construction, topsoiling and grassing of berms.

Council's function is a combination of audits of the above works for adherence to Council Standards, and more formal acceptance tests of:

- a) subgrade
- b) basecourse metal on completion
- c) basecourse metal on completion prior to sealing
- d) sealing during and on completion
- e) completed carriageway including carriageway surface, paths, crossings and berms

The Engineer will carry out the appropriate test to determine the compliance of the following:

Naturally occurring subgrade

- depth
- strength
- shape

Imported subgrade, sub-base and basecourse

- quality and source
- compatibility (with other material immediately above and below)
- layer depth
- total depth
- compaction
- strength
- final shape

Sealing (Chipseal)

- surface of basecourse after sweeping
- chip size, type and application rate (theoretical and actual)
- binder type and temperature
- additive
- design application rate
- chip coverage
- rolling

Sealing Asphalt

- surface of chipseal after sweeping
- binder
- depth of a/c (theoretical and actual)
- sequence of runs

Hamilton City Development Manual	
Volume 4 : Quality Systems for Land Development	Part 3 - Roading
Authorised by : Transportation Manager	Page 2 of 3

- mix temperature
- rolling

Kerb & Channel

- levels
- alignment
- metal base
- concrete strength
- kerb profile

Services

- location, depth and alignment for
 - stormwater
 - wastewater
 - electricity) ducts if necessary
 - telecommunication)
 - gas
 - backfill provisions and compliances
- installation to standards

Concrete Footpaths

- alignment, location and configuration
- subgrade depth and strength (natural and imported)
- depth of concrete
- concrete strength
- crack control
- surface finish

In all cases of non-compliance, the Engineer shall determine remedies and then consult with the Council Unit for the satisfactory outcome. No remedy shall be undertaken until the method is approved by the manager of the relevant unit.

3.2 TESTING GUIDELINES

The following guidelines are a summary of the testing requirements in Volume 3 – Technical Specifications. These guidelines are provided for the assistance of developers. If there is any ambiguity between the requirements of Volume 3 and these guidelines, then Volume 3 takes precedence.

3.2.1 Scala Penetrometer Use (Insitu & Imported Subgrades)

The Scala Penetrometer shall only be employed where a significant part of the subgrade particles pass a 9.5mm sieve.

The cone is bedded into the soil with one (or more) blows. The zero point for depth and the number of blows is taken neglecting the bedding blows.

Hamilton City Development Manual	
Volume 4 : Quality Systems for Land Development	Part 3 - Roading
Authorised by : Transportation Manager	Page 3 of 3

There are 2 methods of recording the results and all test sites must comply.

<u>CBR</u>	<u>max mm/blow</u>	<u>min blows/100mm</u>
7	32	3
10	23	4
15	17	6

The CBR vs Penetration graph for sand silt materials is shown on Drawing TS345.

On Carriageways

Scala tests are to be taken at the following locations and frequency.

- a) Carriageway 4.0m wide and less - Along centreline
- b) Carriageway between 4.0m and 8.0m - At the kerbside wheel tracks
- c) Carriageway 8.0m and wider - At centreline and kerbside wheel tracks

As a means of compliance for an acceptable CBR in carriageways at the insitu subgrade, the scala readings are averaged for the top 600mm. At the imported subgrade or lower sub-base surface, the scala readings are averaged for the full depth of the pavement layer being tested.

The test sites are to be at a maximum of 15m centres for each line or where 2 or 3 lines are required these may be staggered at 10m intervals, giving a space of 20 and 30m for each line.

Footpaths

Scala readings are to be taken to a depth of 300mm below the final subgrade level to ensure that the appropriate CBR's are achieved at the appropriate depth.

Vehicle Crossings

A minimum of three scala penetrometer tests randomly spread shall be taken to a depth of 300mm below the final subgrade level per crossing. One test per 5m² on crossings greater than 15m² (kerb to boundary).

3.2.2 Shape And Relative Height Tolerances

At top of Layer	Centreline and near pavement edge	At channel edge	Deviation from 3m straight edge or camber board
Surface			1: 12mm 2: 8mm
Basecourse	-5mm to +15mm	1: 0mm to +10mm	12mm
Sub-Base	-25mm to +5mm	-25mm to +5mm	15mm
Subgrade	-30mm to 0mm	-30mm to 0mm	15mm

- 1: Chip sealed surface
- 2: Asphalt surface (typically 25mm thick)

Construction levels are based on lip of channel, appropriate crossfall and designed pavement layer thickness.