Technical Specification

Transport and Main Roads Specifications MRTS07A Insitu Stabilised Subgrades using Quicklime or Hydrated Lime

July 2018

Queensland Government

Copyright

Feedback: Please send your feedback regarding this document to: tmr.techdocs@tmr.qld.gov.au

Contents

1 Introduction

This Technical Specification applies to the insitu stabilisation of materials by the addition of quicklime (hydrated and added as a slurry) or hydrated lime.

This Technical Specification shall be read in conjunction with MRTS01 *Introduction to Technical Specifications*, MRTS50 *Specific Quality System Requirements* and other Technical Specifications as appropriate.

This Technical Specification forms part of the Transport and Main Roads Specifications Manual.

2 Definition of terms

The terms used in this Technical Specification shall be as defined in Clause 2 of MRTS01 *Introduction to Technical Specifications*. Additional terms used in this Technical Specification shall be as defined in Table 2. Where indicated in Table 2, a more complete definition is contained in the referenced clause.

Table 2 – Definition of terms

Term	Definition
Actual stabilised layer thickness	Achieved stabilised layer thickness as measured from the bottom of stabilised layer to the top of compacted and trimmed stabilised layer
Allowable working time	The time measured from the commencement of wet incorporation (i.e. mixing) of stabilising agent into the material on the second day of the stabilisation process to completion of compaction and final trimming
Amelioration period	The time required for lime to react with expansive soil prior to compaction, known as mellowing period
Available Lime Index	The available calcium oxide for quicklime or available calcium hydroxide for hydrated lime in accordance with AS 4489.6.1
Bulking	Increase in vertical height during incorporating stabilising agent into material using a reclaimer / stabiliser. The increased vertical height of the material is measured from the surface level prior to this incorporation process – refer Figure 8.7.6.2.2
Design Depth	As shown in the drawings and contract documents – refer Figure 8.7.6.2.2
Exothermic reaction	Chemical reaction during slacking process generating heat and steam
Finish surface level	Top level of stabilised layer shown in the drawings and contract documents – refer Figure 8.7.6.2.2
Hydrated Lime	Hydrated lime is a granular form of lime consisting primarily of calcium hydroxide ($Ca(OH)_2$)
Lime Slurry	Lime slurry is formed after the quicklime after the quicklime has been fully slaked and takes the form of a slurry
Lower reference level	Bottom level of stabilised layer shown in the drawings and contract documents – refer Figure 8.7.6.2.2
Quicklime	Quicklime is a granular form of lime consisting primarily of calcium oxide (CaO), which can be readily slaked
Reclaimer / stabiliser	A single-rotor mix-in-place plant (i.e. plant that mixes insitu) of a type specifically designed for the dual task of reclamation and stabilisation work or designed for stabilising work

Term	Definition
Relative moisture ratio (RMR)	The relative moisture of the treated soil compared to optimum moisture content using standard compaction, express as a percentage
Slaking	The addition of water to quicklime (the purpose is to fully hydrate the quicklime)
Spot check	Inspecting quicklime after slaking process to identify that all quicklime is completely slaked.
Stabilising agent	Quicklime or Hydrated Lime
Target depth	Target depth is the cutting depth required by the reclaimer / stabiliser to achieve the lower reference level and shall consider the bulking height – refer Figure 8.7.6.2.2.
UCS test	Unconfined Compressive Strength test in accordance with Test Method Q115

3 Referenced documents

Table 3 lists documents referenced in this Technical Specification.

Table 3 – Definition of terms

Reference	Title
AS 4489.6.1	*Test methods for limes and limestones – Lime index – Available lime*
MRTS01	*Introduction to Technical Specifications*
MRTS04	*General Earthworks*
MRTS23	*Supply and Delivery of Quicklime and Hydrated Lime For Road Stabilisation*
MRTS50	*Specific Quality System Requirements*
TN151	*Testing of Materials for Lime Stabilisation*

4 Standard test methods

The standard test methods listed in Table 4 shall be used in this Technical Specification.

Further details of test method numbers and test descriptions are given in Clause 4 of MRTS01 *Introduction to Technical Specifications*.

Table 4 – Standard test methods

Property to be tested	Method No.
Determination of the relationship between standard and subsidiary test methods	Q010
Selection of sampling and test locations	Q050
Sampling of soils, crushed rock and aggregates	Q060
Spot sampling of soils, crushed rock and aggregates	Q061
Preparation of disturbed samples	Q101
Laboratory reference density	Q142A, Q143, Q144A
Relative compaction	Q140A, Q141A, Q141B
Sulfate content	AS 1289.4.2.1

Property to be tested	Method No.
Lime demand	Q133
Lime Content of Lime Treated Materials	AS 5101.3.2
Unconfined compressive strength of stabilised materials	Q115
Stabilising Agent Content	Q134
Surface spread rate of stabilising agent	Q719
Plastic limit and plasticity index	Q104A, Q104D, Q105, Q106
Particle Size Distribution	Q103A
Ferrous Oxide FeO content*	Determination of ferrous iron by acid digestion
Organic Content	Q120B
Relative Moisture Ratio	Q250

*Private analytical laboratories will use in-house methods based on classical techniques.

5 Quality system requirements

5.1 Hold Points, Witness Points and Milestones

General requirements for Hold Points, Witness Points and Milestones are specified in Clause 5.2 of MRTS01 *Introduction to Technical Specifications*.

The Hold Points, Witness Points and Milestones applicable to this Technical Specification are summarised in Table 5.1.

Table 5.1 – Hold Points, Witness Points and Milestones

Clause	Hold Point	Witness Point	Milestone
5.2.2	1. Approval of construction procedures, construction program and proposed material sources		Supply of the construction procedures and construction program for the stabilisation works (42 days)
7.1	2. Compliance of all materials, prior to their incorporation		
8	3. Construction permitted to proceed		
8.3	4. Survey of services, utilities, buildings and drainage		
8.6.1	5. Approval of compaction based on a process requirement		
8.6.2		1. Construction of trial section (if process standard specified for compaction)	

Clause	Hold Point	Witness Point	Milestone
8.7.2		2. Removal and disposal of material not suitable for stabilisation	
8.7.3		3. Compacting and trimming surface prior to spreading of the stabilising agent	
8.7.5.1		4. Spreading of stabilising agent	
8.7.5.3	6. Slaking (if quicklime is used)		
8.7.6.2.1		5. Nominating the target depth	
8.8.1.1			Ordered spread rate of stabilising agent (14 days)
9.8		6. Testing for visible deflection of pavement layers	
9.9	7. Acceptance		

5.2 Construction procedures

5.2.1 General

The Contractor shall prepare documented procedures for all construction processes in accordance with Clause 5 of MRTS50 *Specific Quality System Requirements*.

The construction procedure described in Clause 5.2.2 shall be submitted to the Administrator.

5.2.2 Insitu stabilisation

A construction procedure detailing all work described in this Technical Specification shall be prepared.

The construction procedure shall include, but not be limited to:

a) Details of all plant associated with the work detailed in this Technical Specification.

b) Details of how services, utilities, buildings and drainage components shall be located (refer to Clause 8.3).

c) Details of how services, utilities, buildings, drainage components, plant personnel shall be protected from damage, injury, etc. (refer to Clause 8.3).

d) Daily calibration procedures of stabilising agent spreader and verification of spread rate in the field (refer to Clause 8.7.5.1).

e) A detailed sequence of operations for all aspects of the stabilisation works, including, but not necessarily limited to:

   i. details of excavation (refer Clause 8.7.1)

   ii. details of joint locations

   iii. details of joint overlaps

iv. the length of each run

v. the width of each run

vi. marking-out the extents of each run

vii. details of procedure for undertaking slaking if quicklime is used (including slaking time, calculated water ratio and rectification of displaced quicklime or slaked lime)

viii. details of procedure for working up to, or against, kerb, kerb and channel and road safety barriers, and structures such as bridges, access chambers, gullies, culverts and concrete medians and any existing pavement cutback point, and

ix. curing methodology.

f) The proposed program of works, and

g) A testing program which shall include, but not be limited to, the testing methodology that shall be used to assess:

i. stabilising agent spread rate

ii. slaking of quicklime (if quicklime is used)

iii. stabilisation target depth

iv. relative moisture ratio

v. compaction standard

vi. geometric tolerances

vii. actual stabilised layer

viii. strength gain of the stabilised layer (UCS if required) with time.

The following shall be submitted to the Administrator along with the construction procedure:

a) details of the proposed source(s) of the stabilising agent(s)

b) test results demonstrating compliance of each proposed stabilising agent to MRTS23 *Supply and Delivery of Quicklime and Hydrated Lime For Road Stabilisation* (including a statement of the available lime index)

c) test results which details the content of sulphate and other containments for each proposed water source, and

d) compliance test results and a representative sample of material from each proposed source to be used to replace material not suitable for stabilisation.

The construction procedure shall be submitted to the Administrator at least 42 days prior to the commencement of stabilisation works. **Milestone**

No stabilisation work shall be commenced until the construction procedure for stabilisation works is acceptable to, and approved by the Administrator. **Hold Point 1**

5.3 Conformance requirements

The conformance requirements which apply to lots of stabilised material covered by this Technical Specification are given in Clause 6 to Clause 9.

5.4 Testing frequencies and lot sizes

Material compliance testing requirements are specified in Clause 7 and construction compliance testing requirements are specified in Clause 9.

The testing frequencies and lot sizes for any new material to be stabilised shall be as stated in Clause 1.1 of Annexure MRTS07A.1.

The testing frequencies and lot sizes for construction shall be as stated in Clause 1.2 of Annexure MRTS07A.1.

Certification of the compliance of each stabilising agent with this Technical Specification is required for each source and for each load.

6 Material

6.1 New material to replace material not suitable for stabilisation

New material which is required to replace material not suitable for stabilisation shall comply with the requirements stated in Clause 2 of Annexure MRTS07A.1. Where not so stated in the Annexure, new material shall comply with the requirements for Class C general fill material for embankments as specified in Table 14.2.2 of MRTS04 *General Earthworks*.

The lime demand of any new material, determined in accordance with Test Method Q133, shall be not more than the stabilising agent content nominated for the remainder of the works.

Additionally, any new material incorporated into the works shall not have deleterious materials exceeding the limits specified in Transport and Main Roads technical note TN151 *Testing of Materials for Lime Stabilisation* Table 3.2.

6.2 Stabilising agent

The stabilising agent shall comply with the requirements of MRTS23 *Supply and Delivery of Quicklime and Hydrated Lime for Road Stabilisation*. The stabilising agent shall have an available lime index of not less than 80%. At the time of spreading, the stabilising agent shall not be more than three months old, measured from its date of manufacture.

The type, estimated content and specified spread rate of the stabilising agent to be used at specific locations shall be as stated in Clause 8 of Annexure MRTS07A.1. If the specified spread rate is not stated in Clause 8 of Annexure MRTS07A.1, the specified spread rate shall be 2% higher than the minimum lime content identified from lime demand test results.

The Contractor shall make allowance for the variation in spread rate due to the available lime index of the stabilising agent(s) supplied. The calculation to convert the hydrated lime content used in the laboratory to the quicklime or hydrated lime content used in construction is shown below.

Converted Quicklime content (%) from laboratory Hydrated Lime content (%)

$$\text{Rate Q} = 0.76 \times (\text{Rate H}) \times \frac{AL_x}{AL_y}$$

where:

Rate Q is the content of quicklime to be targeted in the field (% by mass)

Rate H is the content of hydrated lime nominated in the design (% by mass)

AL_x is available lime index of hydrated lime (%), used in the laboratory mix design testing

AL_y is available lime index of quicklime (%), used in construction

Converted Hydrated Lime content (%) from laboratory Hydrated Lime content (%)

$$\text{Rate Q} = (\text{Rate H}) \times \frac{AL_x}{AL_y}$$

where:

Rate Q is the content of hydrated lime to be targeted in the field (% by mass)

Rate H is the content of hydrated lime nominated in the design (% by mass)

AL_x is available lime index of hydrated lime (%), used in the laboratory mix design testing

AL_y is available lime index of hydrated lime (%), used in construction

6.3 Water

Water used should be potable. Where potable water is not available, the Administrator may consider water from other sources. In all cases, the water used shall contain less than 0.05% of sulfates and be free from oil, acids, organic matter and any other matter that could be deleterious to the mixture.

Recycled water shall not be used for lime stabilisation. Recycled water shall not be used for any other purpose without the written approval of the Administrator.

The source(s) of water shall not be changed without the written permission of the Administrator.

7 Material compliance testing

7.1 General

No material shall be incorporated into the works unless it has been demonstrated, to the Administrator's satisfaction, that the material(s) to be used complies fully with the requirements of this Technical Specification. **Hold Point 2**

The Contractor is responsible for carrying out sufficient testing to ensure that the material complies with the requirements of this Technical Specification. However, the Contractor's testing program shall be such that the testing frequencies and number of tests are not less than those given in Clause 5.4.

The testing of individual samples shall be carried out in accordance with the test methods described in Table 4. Testing frequencies and lot sizes shall be as per Clause 5.4.

The costs associated with material compliance testing shall be deemed to be included in the related / relevant work items.

7.2 Stabilising agent and water

Sampling and testing shall be carried out in accordance with the relevant specifications.

A certificate of test results demonstrating compliance of each proposed stabilising agent to MRTS23 *Supply and Delivery of Quicklime and Hydrated Lime for Road Stabilisation* shall be provided for each load, or part thereof, of each stabilising agent.

A certificate of test results demonstrating the compliance of each proposed water source shall be provided.

7.3 New material to replace material not suitable for stabilisation – general (Class C) fill material

Compliance testing of any new material used to replace material not suitable for stabilisation shall be carried out in accordance with the requirements of Clause 1.1 of Annexure MRS07A.1.

Class C general fill material shall comply with the requirements of Table 14.2.2 of MRTS04 *General Earthworks* and TN151 *Testing of Materials for Lime Stabilisation* Table 3.2.

8 Construction

Prior to acceptance (Clause 9.9), construction shall not proceed until the Administrator is satisfied that the requirements covered by Clause 8.1 to Clause 9.5 have been adhered to by the Contractor.
Hold Point 3

8.1 General

Construction of the lime stabilised layer shown in the Drawings or otherwise specified in the Contract shall be completed as one layer.

The required design depth shall be stated in Clause 8 of Annexure MRTS07A.1.

The datum for measurement of the target depth (refer to Figure 8.7.6.2.2) shall be stated in Clause 9 of Annexure MRTS07A.1.

Details of measuring the actual thickness of stabilised layer is described in Clause 8.8.4.1.2.

8.2 Program of works

The Contractor shall submit the proposed program of the stabilisation works to the Administrator at least 42 days prior to the commencement of stabilisation works unless otherwise agreed to by the Administrator.

Stabilisation works shall not commence until the program has been approved by the Administrator (refer to Clause 5.2.2 Hold Point 1).

8.3 Site services, utilities, buildings and drainage

A survey of the site to determine the location and depth of services, utilities, buildings and drainage components shall be carried out prior to commencement of construction. The survey shall include details of how these and plant and personnel on site shall be protected and how the stabilisation works shall be completed without any detrimental effects to them. All such details shall be included in the proposed construction procedure (refer to Clause 5.2.2).

Stabilisation works shall not commence until the survey has been completed and a copy of the report provided to the Administrator. **Hold Point 4**

8.4 Allowable working time

Compaction and trimming of the stabilised layer shall be completed within the allowable working time.

The allowable working time, measured from the commencement of the wet incorporation (i.e. mixing) of stabilising agent into the material on the second day of the stabilisation operation to the completion of compaction and trimming of the stabilised material, shall be as stated in Clause 8 of Annexure MRTS07A.1. Where not so stated, the allowable working time shall be 48 hours.

Instances where the compaction and trimming process after the wet incorporation cannot be completed within the 48 hour allowable working time due to unforeseeable circumstances, the Administrator may consider the following:

- If the construction can recommence within 48 hours, the process may continue, provided the material prior to compaction meets the requirements of this Technical Specification, particularly Clause 8.8.2.
- If the construction delay exceeds 48 hours, treatment with up to an additional 5 kg/m² of hydrated lime (or equivalent quicklime) could be considered. Any extra lime addition (over 5 kg/m²) should be only considered after extensive investigation and testing.
- Consideration needs to be taken of the prevailing temperature condition and to be noted that a stabilised layer may take longer 'set up' in lower temperatures.
- In all cases, any rework shall be performed to the full depth of the stabilised layer.

8.5 Construction process

8.5.1 General

The construction process shall be based on either a process requirement or a product standard. The method for this Contract shall be as stated in Clause 8 of Annexure MRTS07A.1.

8.5.2 Construction based on process requirements

If a process requirement is specified in Clause 8 of Annexure MRTS07A.1, construction shall:

a) incorporate the methodology and construction of trial sections in accordance with the requirements of Clause 8.6

b) comply with the construction requirements stated in Clause 8.7, and

c) comply with the product standards stated in Clause 8.8 except that compaction testing shall not be required on completed works other than trial section provided that the Contractor uses the same construction plant, process and methodology as that used for the trial section.

8.5.3 Construction based on product standards

If a product requirement is specified in Clause 8 of Annexure MRTS07A.1, construction shall:

a) comply with the construction requirements stated in Clause 8.7, and

b) comply with the product standards stated in Clause 8.8.

8.6 Process requirements

8.6.1 Methodology

Each section of the Works with a unique combination of stabilising agent type, stabilising agent spread rate, material(s) to be stabilised and depths shall be identified as a separate area for construction.

A trial section shall be constructed for each separate area for construction in accordance with the requirements of Clause 8.6.2.

The compaction of each trial section shall be checked for compaction in accordance with Clause 8.8.3 and tested in accordance with Clause 5.4. If the characteristic value of the relative compaction results for the trial section is not less than the value specified in Clause 8.8.3, no further compaction testing shall be carried out for the balance of the area for construction that is represented by that trial section provided that the same construction plant, processes and methodology is used to construct the remaining area as that used for the construction of the trial section.

If the characteristic value of the relative compaction results for the trial section is less than the value specified in Clause 8.8.3, the trial section shall be rectified so that it complies with this Technical Specification and an additional trial section shall be constructed and assessed in accordance with this Clause 8.6.

Construction based on a process requirement and a trial shall not be used for the balance of the works without approval of the Administrator. **Hold Point 5**

8.6.2 Trial section

A trial section shall be constructed using the same construction plant, processes and methodology that are proposed to be used for the remainder of the works represented by the trial section. **Witness Point 1**

A trial section shall be at least 200 metres long, three metres wide and include a longitudinal joint.

All operations, testing, etc., required by this Technical Specification, including compaction testing, shall be used in the construction and testing of a trial section.

8.7 Construction requirements

8.7.1 Removal and disposal of overlying material (if required)

Material shall be excavated to the shapes, lines, dimensions and other requirements shown on the Drawings or as otherwise specified in Clause 3 of Annexure MRTS07A.1. The typical position of the vertical face of excavation is shown in Figure 8.7.7.2.

Overlying material to be disposed shall be disposed of in accordance with Clause 10 of MRTS01 *Introduction to Technical Specifications*.

8.7.2 Removal and disposal of material not suitable for stabilisation (if required)

Material not suitable for stabilisation shall include:

a) Unbound material with:

   i. a plasticity index less than 10%, and

   ii. less than 25% passing the 0.425 mm sieve.

b) Any patch which may include:

   i. concrete

   ii. cement treated material, and

   iii. asphalt.

c) Any material to be stabilised which contains deleterious materials exceeding the limits specified in TN151 *Testing of Materials for Lime Stabilisation* Table 3.2, and

d) Any additional requirements stated in Clause 4 of Annexure MRTS07A.1.

Where material not suitable for stabilisation is encountered, the volume to be removed shall be agreed with the Administrator prior to commencing removal and replacement of material. **Witness Point 2**

Material that is unsuitable for stabilisation shall be removed and disposed of in accordance with Clause 10 of MRTS01 *Introduction to Technical Specifications*.

New material conforming to the requirements stated in Clause 6.1 shall be used to replace the unsuitable material removed. It shall be spread, compacted and trimmed to a shape in accordance with the Drawings or Contract for the completed work.

8.7.3 Compacting and trimming of the surface prior to spreading of the stabilising agent

Prior to spreading of the stabilising agent, the surface shall be shaped, compacted and trimmed to a degree that is sufficient to facilitate stabilisation specified in the Contract. **Witness Point 3**

8.7.4 Stabilising agent equipment

Stabilising agent shall be transported, stored and spread using equipment that is both waterproof and watertight. Equipment used to transfer the stabilising agent shall also be waterproof during the transfer process. All such equipment shall be emptied, cleaned and dried prior to the introduction of each type of stabilising agent to be used in the stabilisation works.

The stabilising agent shall be spread using a purpose-built spreader. The stabilising agent and water shall be incorporated into the insitu material using a reclaimer / stabiliser or stabiliser.

Where a reclaimer / stabiliser with a calibrated integrated spreader is used or required, the stabilising agent shall be incorporated directly into the material to be stabilised. In this case, quicklime shall not be used as the stabilising agent.

8.7.5 First day of stabilisation process

8.7.5.1 Spreading of stabilising agent (first day)

On the first day of the stabilisation process, the stabilising agent shall be spread up to half of the required rate. The balance of the required rate shall be spread after the amelioration period specified in Clause 8.7.5.5.

The stabilising agent shall be uniformly spread over the insitu material at a controlled rate (mass per unit area, kg/m²).

Where quicklime is spread, it shall be slaked in accordance with Clause 8.7.5.3. The longitudinal grade and crossfall of the subgrade level prior to spreading quicklime shall not be greater than 5% to avoid excessive water flow and displacement of quicklime or slaked lime during the slaking process. The fully slaked lime or lime slurry formed from the slaking of quicklime shall then be incorporated into the material in accordance with Clause 8.7.5.4.

The maximum amount of hydrated lime to be spread in one pass shall be 10 kg/m² to avoid wastage. Spread rates greater than 10 kg/m² are generally not recommended. However, a maximum spread rate of 12 kg/m² may be considered by the Administrator provided a successful field trial is carried out. If excessive wastage is seen, a maximum spread rate of 10 kg/m² shall be adopted. The number of passes shall be calculated to comply with this requirement.

The maximum amount of quicklime to be spread in one pass shall be 10 kg/m² to avoid the displacement of the quicklime during the slaking process and the slaking water not being able to penetrate the full depth of the quicklime. Spread rates greater than 10 kg/m² are generally not recommended. However, a maximum spread rate of 12 kg/m² could be considered by the Administrator provided a successful field trial is carried out. If excessive wastage is seen or it does not comply with the slaking requirements of Clause 8.7.5.3, a maximum spread rate of 10 kg/m² shall be adopted. The number of passes shall be calculated to comply with this requirement.

Traffic shall be stopped during spreading of stabilising agent if wind direction is such that airborne lime particles are impeding through traffic.

At the start of each individual spreading run, the surface spread rate of the stabilising agent shall be determined using the surface spread rate test method (Q719). The surface spread rate test shall be carried out within a distance of 35 m from the start of each individual spreading run. After the purpose built calibrated spreader / integrated spreader has spread over the mat or tray/s, the spreader shall be halted, the actual spread rate measured and this result compared with the allowable tolerances specified in Clause 8.8.1.2. If the spread rate result is within the allowable tolerance, the spreader shall be allowed to complete the run. If the spread rate result is outside the allowable tolerance, additional surface spread rate tests shall be repeated in 35 m intervals until the measured surface spread rate result is within the tolerance stated in Clause 8.8.1.2. The Contractor shall undertake corrective action in the area which has non-conforming surface spread rates. **Witness Point 4**

Additional surface spread rate tests at other locations (for example, middle and/or end of a run) shall be conducted upon the request of the Administrator.

Once the stabilising agent has been spread, no traffic, other than the construction plant employed for the stabilisation work, shall travel over it.

All surface spread rate test results shall be recorded and included in the Contractor's quality records (refer to Clause 9.5).

8.7.5.2 Time between spreading and incorporation of stabilising agent

8.7.5.2.1 Using hydrated lime

The maximum allowable time between spreading hydrated lime and commencement of incorporation into the insitu material shall be one hour.

8.7.5.2.2 Using quicklime

The maximum allowable time between spreading quicklime, slaking quicklime and incorporation into the insitu material shall be two hours.

In all cases, the maximum allowable time between spreading quicklime and commencement of slaking shall be 30 minutes. The Contractor shall ensure that the slaking is completed as per requirements of Clause 8.7.5.3 before commencement of incorporation.

8.7.5.3 Slaking of quicklime

The Principal Contractor shall ensure the slaking of quicklime is completed by a Stabilising Subcontractor. The Stabilising Subcontractor shall be responsible for the provision of water / water carts / operators and associated plant / operators for the purpose of slacking quicklime. This is to ensure the slaking procedures, plant and water is adequate for the purpose of slaking quicklime in accordance with this clause.

Quicklime shall be slaked with sufficient water to allow complete hydration such that the material remains friable after slaking and no further exothermic reaction occurs when additional water is added to the lime.

All through traffic shall be stopped during slaking operations.

Quicklime and/or lime slurry formed from the slaking process shall be evenly placed and contained within the stabilising area at the required spread rate. Where displacement of quicklime and/or lime slurry has occurred, corrective action shall be undertaken by the Contractor prior to commencement of the incorporation. The Contractor shall ensure that no quicklime and/or lime slurry runs into the adjacent table drain or the creek during the spreading and slaking.

The slaked quicklime shall be spot checked with a temperature probe and a shovel to ensure that no pockets of unslaked quicklime remain (refer to Figure 8.7.5.3). Where excessive amounts of quicklime is present (e.g., due to poor distribution), additional slaking shall be carried out to ensure complete hydration prior to the incorporation. Where an impervious thin layer (or crust) forms on the top of the quicklime making it difficult for additional water to penetrate for the slaking process, the Contractor may need to open-up the crust in a safe manner (with proper personal protective equipment) so further water can access the unslaked quicklime below.

The results of the spot checks performed on the slaked quicklime shall be included in the Contractor's quality records (refer Clause 9.5). The frequency of the spot check testing shall be as per Clause 1.2 in the Annexure MRTS07A.1. Where not so stated in the Annexure, spot checks on the slaked quicklime shall be undertaken at 25 m intervals selecting at the thickest area. **Hold Point 6**

Figure 8.7.5.3 – Checking completion of slaking with temperature probe

Process of spot check for slaking:

1. Remove the “crust” formed on the top of quicklime after the initial slaking.
2. Insert temperature probe to cove the full depth of quicklime being slaked.
3. Add water to the area surrounding the temperature probe (water bottle suggested).
4. Note for any rise in temperature and steam.
5. If increase in the temperature (and steam), additional slaking is required and steps 1 to 4 above should be repeated until no temperature rise and further steaming occurs (exothermic reaction).

8.7.5.4 Incorporation of stabilising agent (first day)

Incorporation of stabilising agent shall be achieved using a reclaimer / stabiliser. Where quicklime is used as the stabilising agent, incorporation of stabilising agent shall not be commenced until slaking is completed as per the requirements of Clause 8.7.5.3.

All first day incorporation of the stabilising agent shall be mixed 50 mm less than design depth (50 mm above the lower reference level).

8.7.5.5 Amelioration period

Upon completion of the first day stabilisation process, a minimum 12 hour amelioration period shall be required prior to commencing the second day stabilisation process. Where heavy clays are being stabilised, the amelioration period required may be longer than 12 hours in order to satisfy the material particle size requirements listed in Clause 8.7.6.2. The maximum amelioration period shall be 72 hours.

The Contractor shall ensure that the lime treated layer from the first day stabilisation process shall be compacted with an adequate roller in order to minimise evaporation loss or excessive wetting from possible rains during the amelioration period.

8.7.6 Second day of stabilisation process

8.7.6.1 Spreading of stabilising agent (second day)

Spreading of stabilising agent shall be undertaken in accordance with Clause 8.7.5.1.

Time between spreading and incorporation pass shall be in accordance with Clause 8.7.5.2.

Slaking, if quicklime is used, shall be completed in accordance with Clause 8.7.5.3.

8.7.6.2 Incorporation of stabilising agent (second day)

All second day incorporation of stabilising agent (including slaked lime) shall be in accordance with Clause 8.7.5.4 and mixed 30 mm less than design depth (30 mm above the lower reference level).

Prior to the final wet incorporation pass (refer to Clause 8.7.6.2.2), the Contractor shall ensure the following:

a) all material (other than stones) can pass a 19 mm AS sieve

b) at least 60% of such material can pass a 9.5 mm AS sieve, and

c) the stabilising agent is uniformly mixed through the material.

Where test results or visual inspection by the Administrator indicates that the mixing requirements stated in this clause have not been met, additional mixing pass(es) shall be carried out to improve the uniformity of:

a) the materials to be stabilised so as to adhere to the particle size requirements stated in this clause, and

b) the distribution of the stabilising agents.

No additional or separate payment shall be made for any additional passes ordered by the Administrator.

8.7.6.2.1 Compaction and trimming of surface prior to the final wet incorporation process

Prior to the final wet incorporation pass, the surface level shall be compacted and shaped to the specified crossfall. Surface level heights higher than specified in the Drawings or Contract after compaction and shaping due to the effects of 'bulking' shall be uniform and shall be identified. In this case, the difference in height between that specified in the Drawings or Contract and attained (bulking) shall be added to the design depth to determine the stabilising target depth for the final wet incorporation pass (refer to Figure 8.7.6.2.2). **Witness Point 5**

Alternatively, the surface shall be shaped, compacted and trimmed to the alignment, height and crossfall specified in the contract document prior to the final wet incorporation pass.

8.7.6.2.2 Final wet incorporation process

The distribution of the stabilising agent and water shall be uniform throughout the entire layer depth for the area stabilisation. The moisture content shall be adjusted as necessary during the wet incorporation process to achieve the relative moisture ratio stated in Clause 8.8.2. The target depth shall ensure mixing to the lower reference level whereby meeting the requirements of Clause 8.8.4.1.

Unless otherwise approved by the Administrator, water shall be added by means of a controlled pressure feed distribution system located inside the mixing chamber of the reclaimer / stabiliser or stabiliser. This system shall be capable of spraying varying rates across its width.

Where test results or visual inspection by the Administrator indicates that any of the requirements stated in this Clause have not been met, additional mixing passes shall be carried out to improve the uniformity of the:

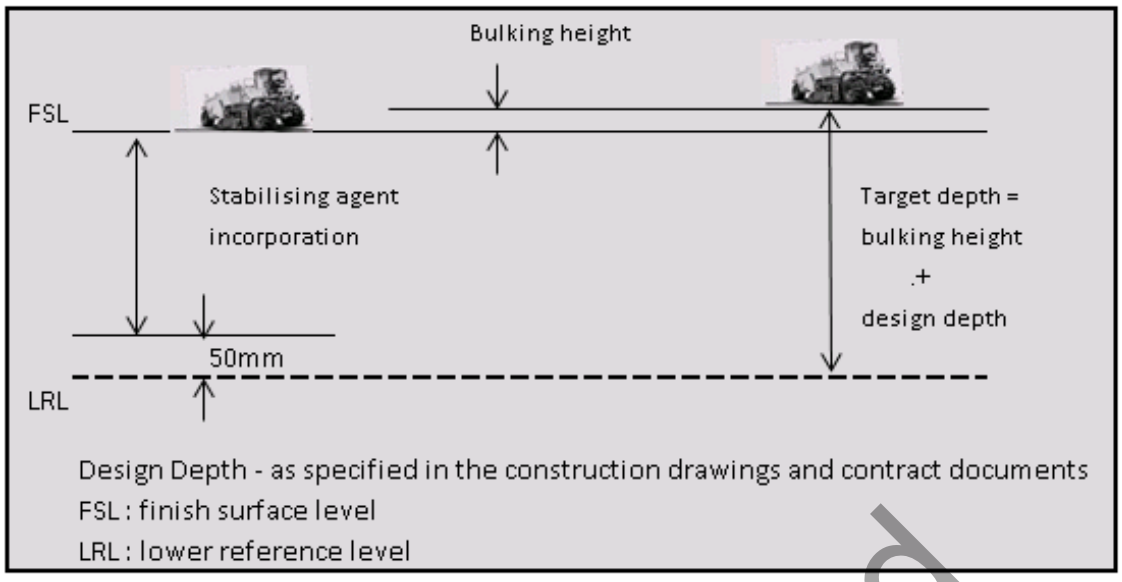
a) materials to be stabilised

b) distribution of the stabilising agent, and

c) distribution of water.

No additional or separate payment shall be made for any additional passes ordered by the Administrator.

Figure 8.7.6.2.2 – Target depth sketch



Incorporation of stabilising agent	Bulking after incorporation of stabilising agent	Target depth on the final pass
Incorporation of stabilising agent shall be 50 mm less than the design depth (first day), and 30 mm less than the design depth (second day).	After surface compaction and trimming, the materials will change in volume due to incorporation of the stabilising agent. The bulking height above FSL needs to be identified and added to the design depth.	Cutting depth required on the final pass by the reclaimer / stabiliser to reach the LRL shall account for the additional bulking above the FSL.

8.7.6.3 Compaction and trimming after final wet incorporation pass

Immediately after wet incorporation pass, the stabilised area shall be compacted with adequate rollers (refer Clause 8.7.10) to achieve the compaction stated in Clause 8.8.3. The Contractor shall ensure that no marks caused by a pad foot or other rollers shall remain on the surface.

Initial shaping of the stabilised surface shall be carried out after the stabilised layer has been compacted. Final trimming shall be undertaken within the allowable working time as specified in Clause 8.4.

The trimmed surface shall be free from loose pockets, holes, bumps and lenses of materials. The identified depressions shall be filled with additional stabilised material that is mixed and placed within its allowable working time as specified in Clause 8.4.

All trimming shall involve cutting to waste. All material cut to waste shall be disposed of in accordance with Clause 10 of MRTS01 *Introduction to Technical Specifications*. No separate payment shall be made for the disposal of material cut to waste. The cost of all activities associated with the disposal of material cut to waste shall be deemed to be incorporated into the relevant work items.

The following guide may be considered in the construction process:

- A stabilised layer may take longer 'set up' in lower temperatures.
- Initial compaction is required to be carried out immediately after the wet incorporation pass.
- Final trim can be carried out within 48 hours of the completion of the wet incorporation pass.
- Bulking which has resulted from the stabilisation process can remain until final trim.
- Where possible, water curing (especially initial water curing) should be performed without the water truck travelling over the stabilised surface.
- In cases of boxed excavations, adequate over excavation of the crown is required to accommodate for machine mixing offsets / capabilities and compliance with the longitudinal joint requirements of this Technical Specification. In addition, compliance of longitudinal joint requirements for subsequent pavement layers shall be considered.

8.7.7 Construction joints

8.7.7.1 General

Joints shall be constructed such that the material at the joints complies with the requirements of this Technical Specification.

A construction joint (longitudinal or transverse) shall be deemed fresh when the material on each side of the joint has been stabilised, placed and compacted within the allowable working time of the stabilised material constructed first.

8.7.7.2 Longitudinal joints

Longitudinal joints shall not be located in the through traffic wheel paths.

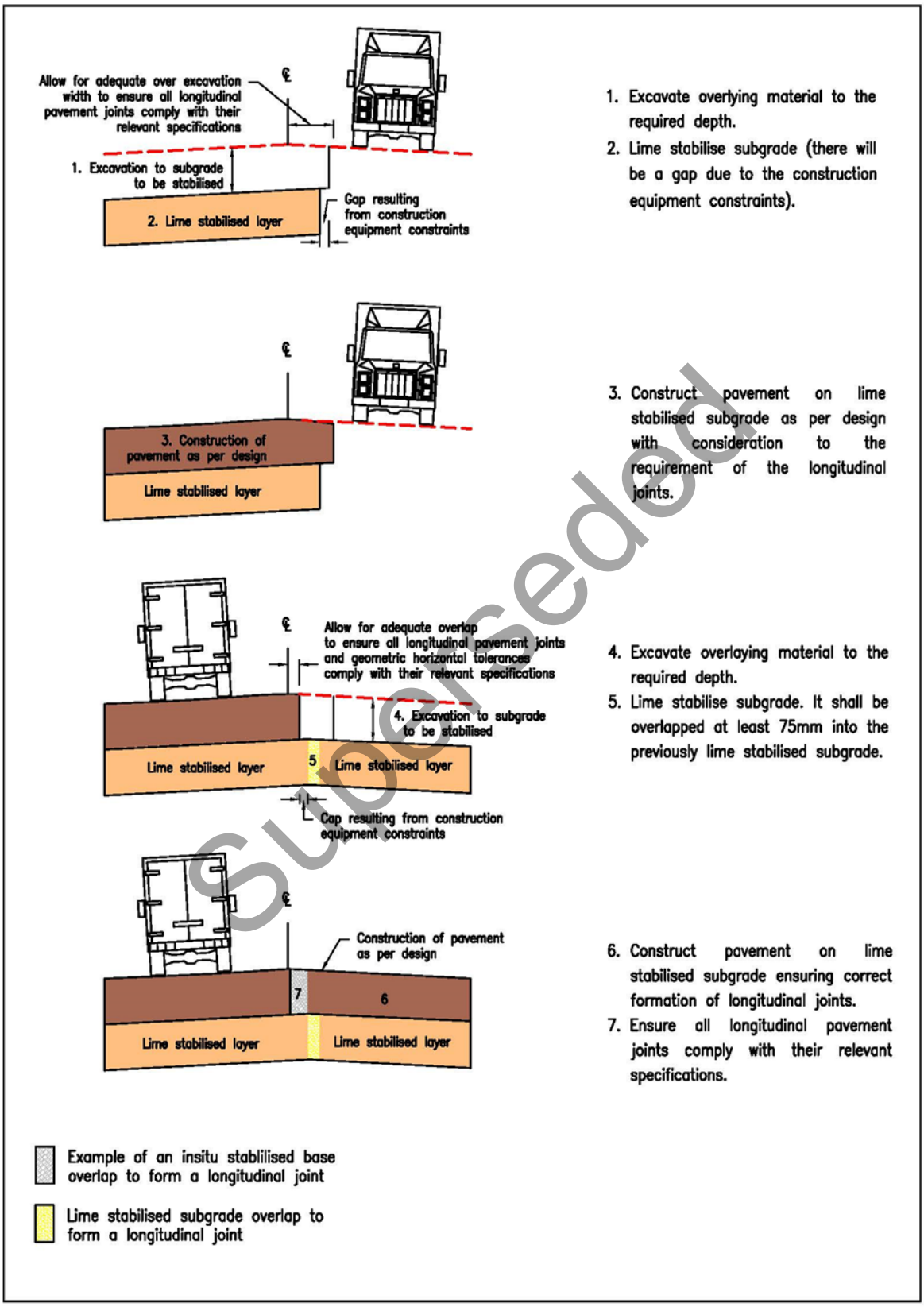
Where a fresh longitudinal joint between adjacent runs is to be compacted, the outside 300 mm of material from the first run shall be left uncompacted until the adjacent material is ready for compaction. The joint shall be water cured during this period. When the fresh joint is compacted the roller shall be partially supported on the portion of the first run that has been previously compacted.

To ensure complete stabilisation across the full width of the pavement, the minimum distance for cutting back / overlapping into previously stabilised material shall be the greater of 75 mm or the distance to a point where the stabilised material complies with this Technical Specification. The overlap at a change of crossfall or crown will need to be carefully considered to comply with the longitudinal joint requirements of this clause and Clause 8.8.4.

Where the existing pavement is boxed to subgrade level, the Contractor shall ensure that the subgrade material is fully stabilised to the full width specified in the Drawings or Contract. The offset between the mixing equipment and the vertical face of the excavation to allow correctly formed longitudinal joints conforming to this clause should be considered. Likewise, the Contractor shall ensure that any pavement layers which overlay the lime stabilised layer have correctly formed longitudinal joints in accordance with their relevant specification. A typical construction process for a boxed pavement is shown in Figure 8.7.7.2.

No separate payment shall be made for the disposal of material cut to waste. The cost of all activities associated with the disposal of material cut to waste shall be deemed to be incorporated into the relevant works items.

Figure 8.7.7.2 – Typical construction process



8.7.7.3 Traverse joints

For transverse joints that are not formed during the allowable working time of the material stabilised, the adjoining stabilised section previously shall be cut back by the greater of 1.5 m and the distance to a point where the stabilised material complies with this Technical Specification. The cutback material shall be removed, disposed of and replaced in accordance with this Technical Specification. After this material has been replaced with material that complies with the requirements of Clause 6.1, the material shall then be included in the stabilisation process of the adjoining section to be stabilised.

Alternatively, with approval by the Administrator, the adjoining stabilised section shall be remixed using a stabiliser / reclaimer by the greater of 1.5 m or the length ordered by the Administrator.

No separate payment shall be made for the disposal of material cut to waste. The cost of all activities associated with the disposal of material cut to waste shall be deemed to be incorporated into the relevant works.

8.7.8 Curing

A curing operation shall commence immediately after the completion of compaction. Curing operations shall be carried out with extreme care to avoid damaging the stabilised layer.

The stabilised layer shall be cured using water by maintaining the layer surface and edges in a continuously damp condition, using a uniformly applied fine mist, until the stabilised layer is covered by an overlying pavement layer or a sprayed bituminous surfacing with cover aggregate. Water shall be applied in a manner such that slurring of the surface, pavement instability and erosion and/or leaching of the stabilising agent are all avoided. During the water curing process, no heavy construction equipment shall be allowed on the stabilised layer.

8.7.9 Maintenance of the stabilised layer

The stabilised layer shall be maintained by the Contractor until a bituminous surfacing with a cover aggregate is applied, or until the stabilised layer is covered by another pavement layer, or until the Administrator accepts and takes responsibility for that area (whichever is the longer).

The surface of the compacted layer shall be kept moist, in good order, in good condition and free from contamination. Construction and other traffic shall not use the compacted stabilised layer where damage to the surface may occur.

No separate or additional payment shall be made for maintenance of the stabilised layer. The cost of all activities associated with maintenance of the stabilised layer shall be deemed to be incorporated into the relevant work items for the stabilised layer.

Unless otherwise approved by the Administrator, placement and compaction of any subsequent layer shall be carried out within 48 hours after the stabilised layer is accepted by Administrator (refer to Clause 9.9).

8.7.10 Minimum requirements and numbers of particular plant

The minimum requirements and numbers of particular plant that shall be on Site at all times during the stabilisation works shall be as stated in Clause 5 of Annexure MRTS07A.1. Where not so stated in the Annexure, the minimum requirements and numbers of particular plant that shall be on Site at all times during the stabilisation works shall be as stated in Table 8.7.10.

Table 8.7.10 – Minimum requirements and numbers of particular plant

Description	Minimum requirement for each piece of plant	Minimum number of units
Reclaimer / stabiliser or Integrated spreader / applicator / reclaimer / stabiliser	a) Minimum power capacity of 155 kW/m of the drum width. b) Capable of mixing to the specified depth. c) Capable of supplying water such that incorporation rates can be varied across the full width of the stabilising box and incrementally across the box. d) Calibrated and capable of uniformly spreading stabilising agent to varying widths (if integrated spreader / reclaimer / stabiliser).	1
Purpose built spreader	Calibrated with load cells and capable of uniformly spreading stabilising agent using a fixed bulk bin feeding a mechanical or hydraulic driven spreading rotor to varying widths.	1
Vibrating pad foot roller	21 tonnes for compacted thicknesses greater than 200 mm up to 300 mm.	1
Vibrating smooth drum roller	18 tonnes for compacted thicknesses up to 200 mm.	1
Multi-tyre roller	Minimum 12 tonnes.	1
Water truck	Capacity of 6000 litres.	2
Grader	Manned by Final Trim Operator.	1

8.7.11 Conditions under which stabilisation shall not proceed

The entire stabilisation process shall not proceed in any of the following situations:

a) during rainfall

b) when rainfall appears to be imminent

c) during periods when the wind is strong enough to cause particles of the stabilising agent to become airborne

d) during conditions that may result in the work causing nuisance or danger to people, property, the environment, or live stock

e) when the pavement temperature, measured 50 mm below the surface, drops below 10ºC, or

f) when the air temperature, measured in the shade, exceeds 40ºC.

8.8 Product standards

Compliance testing of the pavement shall be undertaken for each lot. Where a process standard is specified the compaction requirements in this clause apply to trial sections but not to other sections. Where a product standard is specified the compaction requirements in this clause apply to all sections/lots.

8.8.1 Stabilising agent spread rate

8.8.1.1 Ordered spread rate

At least 14 days prior to the commencement of stabilisation works, the specified stabilising agent spread rate stated in Clause 8 of Annexure MRTS07A.1 will be confirmed or adjusted by the Administrator.

The confirmed or adjusted stabilising agent spread rate shall be the ordered spread rate of stabilising agent. **Milestone**

8.8.1.2 Actual spread rate

The actual spread rate shall be represented by the average of the surface spread rate results of the stabilising agent for each lot.

The actual stabilising agent spread rate shall be within ± 10% of the ordered spread rate as defined in Clause 8.8.1.1.

8.8.2 Relative moisture ratio

The relative moisture ratio (RMR) during the wet incorporation of the stabilising agent shall be determined as per Clause 9.7 and shall be between 95% and 105% of OMC (optimum moisture content).

8.8.3 Compaction standard

The characteristic value of the relative compaction results for the full thickness of the stabilised layer shall not be less than 97% (standard compaction).

8.8.4 Geometrics

The stabilised layer shall be constructed so as not to depart from the alignment, widths, thicknesses, lengths, heights and shapes specified in the Contract by more than the tolerances stated in Clause 8.8.4.1 to Clause 8.8.4.4.

8.8.4.1 Geometrics, thickness

8.8.4.1.1 General

At any point of the completed stabilised layer, the measured actual stabilised layer thickness shall be within tolerance given in Clause 8.8.4.2.1 of the design depth specified in Clause 8 of Annexure MRTS07A.1 Part B.

8.8.4.1.2 Measuring actual stabilised layer thickness

During each final wet incorporation pass and prior to compaction, depth checks shall be undertaken to determine the lower reference level at the bottom of the stabilised layer. The frequency of the depth checks shall be stated in Clause 1.2 of Annexure MRTS07A.1. Where not so stated in the Annexure, the depth checks shall be measured as per the following minimum frequency:

a) one per 5 m within the first 20 m of each final wet incorporation pass, and

b) one per 20 m for the remaining length of each final wet incorporation pass.

The following reduced level of testing may be accepted by the Administrator:

a) 1 per 5 m within the first 20 m of each final wet incorporation pass, and

b) 1 per 50 m for the remaining length of each final wet incorporation pass.

Following compaction and final trim, levels shall be obtained from the top of the finished stabilised layer. They shall be recovered in the horizontal plane to an accuracy of ± 50 mm of the same location as those from which the lower reference levels were obtained. The difference between the finished surface level and lower reference level shall be recorded as the actual stabilised layer thickness.

The actual stabilised layer thickness shall be recorded by the Contractor and reported to the Administrator. The record for each thickness determination shall include:

a) the position and measurement of the lower reference level for each test location

b) the position and measurement of the finished surface level for each test location (shall be recoverable in the horizontal plane to an accuracy of ± 50 mm)

c) the actual stabilised layer thickness record obtained by subtracting the finish surface level measurement from the lower reference level measurement for each test location.

8.8.4.2 Geometrics, vertical tolerances

8.8.4.2.1 Primary tolerance

A primary tolerance shall apply to the height of any point on the finished surface of the stabilised layer.

The primary tolerance shall be as stated in Clause 6.1 of Annexure MRTS07A.1 and be one of the alternatives given in Table 8.8.4.2.1. If no alternative is stated in Clause 6.1 of Annexure MRTS07A.1, Alternative B shall be used.

Table 8.8.4.2.1 – Primary tolerance for the height of any point on the surface of the stabilised layer

Alternative	Primary tolerance
A	-5 and +10 mm
B	-5 and +15 mm
C	-5 and +25 mm
D	Thickness only

In all cases a primary tolerance shall also apply for the thickness of the completed stabilised layer (refer to Clause 8.8.4.1.1).

Alternative A primary tolerance (-5 + 10 mm) is recommended for the insitu stabilised layer when the subsequent overlying layer is an insitu stabilised layer that ‘tucks in’.

Where ‘thickness only’ Alternative D has been specified in Clause 6.1 of Annexure MRTS07A.1, the following shall apply:

a) height of collimation shall be used to determine the actual stabilised layer thickness

b) minimum testing frequency for determining the actual stabilised layer thickness shall be at each compaction test location (refer Clause 9.6), and

c) at any point of the completed stabilised layer, the measured thickness shall be within -5 mm and +15 mm of the design depth stated in Clause 8 of Annexure MRTS07A.1 Part B.

8.8.4.3 Geometrics, horizontal tolerances

The horizontal position of any point on the pavement shall not differ from the corresponding point shown on the Drawings or otherwise specified in the Contract by more than ± 50 mm.

8.8.4.4 Additional tolerances

8.8.4.4.1 General

Where required by Clauses 8.8.4.4.2 and 8.8.4.4.3, additional tolerances shall apply to the stabilised layer.

Additional work shall be carried out by the Contractor where necessary to achieve these additional tolerances. Payment for any such work shall be deemed to be included in the Contractor's scheduled rate for the relevant work items.

8.8.4.4.2 Deviation from a straight-edge

Clause 6.2.1 of Annexure MRTS07A.1 specifies whether a deviation from a straight-edge tolerance is to be applied. Where it does apply the deviation from a three metres long straight-edge placed anywhere on the surface of a layer shall not exceed the limits stated in Clause 6.2.2 of Annexure MRTS07A.1, due allowance being made for design shape, where relevant.

8.8.4.4.3 Crossfall

Where Clause 6.3 of Annexure MRTS07A.1 specifies a crossfall tolerance applies, the crossfall shall not depart from the corresponding crossfall shown in the Drawings or Contract by more than 0.5% absolute.

The crossfall shall be measured:

a) between any two points more than two metres apart except where a pavement verge is less than two metres wide. For pavement verges less than two metres wide, the measurement shall be made between the extreme edges of the pavement verge on each side of the pavement

b) transverse to the centre line of the carriageway, and

c) within the boundaries of a cross-section element that has a constant crossfall.

9 Construction compliance testing

9.1 General

Unless otherwise stated in this Technical Specification, the selection of sampling or test locations shall be carried out using random stratified sampling. Exceptions include testing of:

a) geometrics (Clause 9.4)

b) the stabilising agent spread rate (Clause 9.5), and

c) visible deflection of pavement layers (Clause 9.8).

The Contractor is responsible for performing sufficient tests to ensure that the pavement complies with the standards and requirements of this Technical Specification. However, the Contractor's testing program shall be such that the testing frequencies and number of tests are not less than those specified in Clause 5.4.

9.2 Process requirements

Where construction has been carried out using process requirements, checking for compliance with the specified requirements shall be carried out during and after the construction operation, as relevant. Except for compaction, compliance checking shall be carried out in accordance with Clause 5.4. If a process requirement is specified for compaction, the minimum testing frequencies and minimum number of tests for compaction specified in Clause 5.4 apply to trial sections and do not apply to other sections.

Notwithstanding this, the requirements of Clauses 8.5.2, 8.6 and 8.7 shall apply.

9.3 Product standards

Where construction has been carried out using product standards, compliance testing of the stabilised layer shall be undertaken for each lot. If a product standard is specified, the minimum testing frequencies and minimum number of tests for compaction specified in Clause 5.4 apply.

Notwithstanding this, the requirements of Clauses 8.5.3 and 8.7 shall apply.

9.4 Geometrics

All geometric tolerances, except for surface evenness, shall be checked at regular intervals not greater than those specified in Clause 5.4.

9.5 Stabilising agent spread rate

The stabilising agent spread rate shall be determined by Test Method Q719. The stabilising agent spread rate shall be within the allowable tolerance specified in Clause 8.8.1.2 in all cases.

The results of all surface spread rate tests shall be recorded, included in the quality records and reported to the Administrator. The record and report for each surface spread rate test shall include:

a) the position, date and time

b) all values and calculations, including ordered spread rate and assumptions, used to calculate the surface spread rate, and

c) the calculated surface spread rate.

d) The testing program shall be discussed and agreed with the Administrator prior to commencement of stabilising operations (refer to Clause 5.2.2 Hold Point 1).

In addition, the tonnage of stabilising agent placed during each spreading run shall be recorded and reported. The record and report for each spreading run shall include:

a) the start position, date and time

b) the end position, date and time

c) the length of the run

d) the width of the run

e) the tonnage of stabilising agent in the spreader at the start of the run

f) the tonnage of stabilising agent at 500 m intervals (if the length of the run exceeds 500 m)

g) the tonnage of stabilising agent in the spreader at the end of the run

h) the tonnage of stabilising agent spread for each 500 m interval (if the length of the run exceeds 500 m)

i) the tonnage of stabilising agent spread for the entire run, and

j) if quicklime is used, the results of the slaking spot checks.

9.6 Compaction

Where a product standard is specified, the compaction standard for each lot shall be represented by the characteristic value of relative compaction results.

The characteristic value shall be calculated as stated in Clause 12 of MRTS01 *Introduction to Technical Specifications* using the individual relative compaction results determined from testing each lot.

The locations of all samples taken for the determination of reference density, insitu dry density and relative compaction shall be at the same offset and positioned one metre longitudinally in a direction opposite to the travel of the stabiliser or stabiliser / reclaimer from the location of samples taken to determine the corresponding laboratory reference density.

Sampling of stabilised materials to determine the laboratory reference density as detailed in Test Method Q142A shall take place immediately after the final wet incorporation, but prior to the commencement of compaction of the stabilised material.

The relative compaction of the stabilised material as detailed in Test Method Q140A shall be determined using the ratio of the compacted dry density to the maximum dry density. The relative compaction shall be determined for the entire thickness of the stabilised layer.

9.6.1 Reference density laboratory compaction time

Following sampling, reference density testing shall be completed to a stage where laboratory compaction has been completed within the three hours of the commencement of the final wet incorporation for the corresponding lot. Additionally, following sampling, oven drying of any specimens used to determine the moisture content shall commence within three hours of the commencement of incorporation of stabilising agent for the corresponding lot.

For calibration for Test Method Q141A, compacted density testing as detailed in Test Methods Q141B and Q143 shall be completed to a stage where the mass of wet sample has been determined and any moisture sub-sample is being oven dried within the following time constraints:

a) where compaction is completed before 4 pm, the same day, or

b) where compaction is completed 4 pm or later, the same day or before 10 am on the following (calendar) day.

9.7 Relative moisture ratio

The relative moisture ratio of the stabilised material shall be determined in accordance with Test Method Q250. The moisture sample locations shall be identical to the reference density testing locations for compaction testing. The moisture samples shall be extracted immediately following the final wet incorporation of stabilising agent by the stabiliser or reclaimer / stabiliser and prior to the addition of any additional moisture for the purposes of compaction and trimming. The relative moisture ratio shall be calculated using the individual moisture content compared to the optimum moisture content for each corresponding location (refer Clause 9.6). As a minimum frequency, the relative moisture ratio of stabilised materials shall be assessed at each test location for compaction. The results shall be reported to the Administrator as soon as it is available.

9.8 Visible deflection of pavement layers

The objective visible deflection test specified in this clause shall apply to a stabilised layer unless stated otherwise in Clause 7 of Annexure MRTS07A.1.

Where the surface of any section of a stabilised layer displays visible deflection, as a result of the movement of a vehicle with an eight tonne gross axle load on a single axle with dual tyres, **Witness Point 6** the Administrator may require the Contractor to undertake additional compliance testing to ensure that the affected section of the pavement layer complies with Clauses 8.8.1, 8.8.2 and 8.8.3. This shall be at the Contractor's expense unless the Administrator agrees otherwise.

9.9 Acceptance

Construction shall not proceed until the Administrator has received the results of all compliance testing for all lots constructed in the preceding four working periods except where less than four working periods have passed since the commencement of stabilisation works. The Contractor shall allow at least one working day for a response from the Administrator. **Hold Point 7**

No stabilised layer shall be covered by a subsequent layer until all testing has been completed and the layer has been presented to the Administrator for approval and the Administrator has given approval.

10 Supplementary requirements

The supplementary requirements given in Clause 10 of Annexure MRTS07A.1 shall apply.