

TRUNK ROAD INFRASTRUCTURE TECHNICAL SPECIFICATION No. 08

INCIDENTAL WORKS



ACT
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Territory and Municipal Services

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PREFACE

The Australian Capital Territory has adopted the Austroads Guides for provision and management of road and transport infrastructure. The Territory and Municipal Services Directorate has issued a revised series of documents to reflect this development in infrastructure standards and specifications for practice in the ACT.

This present document is part of the ACT Trunk Road Infrastructure Technical Specifications (TRITS) series spanning the broad scope of road infrastructure development and management in the ACT:

- TRITS 01 – Roadworks
- TRITS 02 – Earthworks
- TRITS 03 – Underground Services
- TRITS 04 – Flexible Pavements
- TRITS 05 – Rigid Pavements
- TRITS 06 – Kerbs and Footpaths
- TRITS 07 – Segmental Paving
- TRITS 08 – Incidental Works
- TRITS 09 – Landscape
- TRITS 10 – Bridges and Related Structures
- TRITS 11 – Pavement Marking
- TRITS 12 – Street Lighting
- TRITS 13 – Traffic Signals
- TRITS 14 – Road Signs
- TRITS 15 – Road Furniture

This ACT Trunk Road Infrastructure Technical Specification No. 08 – INCIDENT WORKS prescribes the detailed practices for the construction of incidental works in the ACT. It is issued to clarify any exceptions or additional requirements for implementation in the ACT, and to identify relevant complementary documents.

In many areas of road infrastructure construction and management, the ACT has adopted the relevant specifications of the NSW Roads and Maritime Services (formerly RTA NSW). The relevant RMS documents are identified and referenced in these ACT Trunk Road Infrastructure Technical Specifications.

The works must be carried out according to the referenced RMS specifications with the exception of items detailed in the Technical Exception Clauses.

Where any differences in practice exist between the RMS Specifications and this Trunk Road Infrastructure Technical Specification, the latter will prevail.

The ACT Government replaces RMS where applicable as the Road Authority. ACT replaces NSW where applicable as the place where the work is conducted. Equivalent ACT authorised organisations and legislation replace NSW's where applicable. Roads ACT's authorised representative is equivalent to RMS's principal.

CONTENTS

PREFACE.....	3
CONTENTS.....	4
1 INTRODUCTION	5
2 REFERENCE DOCUMENTS	5
2.1 LEGISLATIVE DOCUMENTS.....	5
2.2 GUIDELINES.....	5
2.3 RELATED TECHNICAL SPECIFICATIONS.....	5
3 MORTARED STONE PITCHING.....	5
3.1 MATERIALS.....	5
3.1.1 Stone.....	5
3.1.2 Cement.....	6
3.1.3 Sand.....	6
3.1.4 Mortar	6
3.2 SET OUT	6
3.3 BEDDING.....	6
3.4 JOINTS.....	6
3.5 DRAINAGE.....	6
3.6 FINISH.....	7
3.7 TRENCH CROSSINGS.....	7
4 MORTARED STONE WALLS	7
4.1 MATERIALS.....	7
4.2 SET OUT	7
4.3 EARTHWORKS.....	8
4.4 WALL CONSTRUCTION.....	8
5 FENCING	8
6 LANDSCAPE PLANTING.....	8
7 ROCK FILLED WIRE MATTRESSES	8
8 CONFORMANCE CRITERIA.....	8
8.1 MORTARED STONE PITCHING AND WALLS	8
8.2 SAMPLING AND TESTING	9
8.3 FREQUENCY OF TESTING.....	9
8.4 NONCONFORMING WORK.....	9
9 MEASUREMENT AND PAYMENT.....	9
10 SCHEDULE OF HOLD POINTS.....	10
11 REFERENCES.....	10
12 STANDARD DRAWINGS.....	11

No table of figures entries found.

1 INTRODUCTION

The works covered by this Specification comprise the construction of barbecues, mortared stone pitching and walls, rock filled wire mattresses, various categories of post and wire fencing, post and rail log barriers, log bollards, and other incidental works.

2 REFERENCE DOCUMENTS

2.1 LEGISLATIVE DOCUMENTS

2.2 GUIDELINES

2.3 RELATED TECHNICAL SPECIFICATIONS

AS 1074	Steel Tubes and Tubulars
AS 1141	Methods of Sampling and Testing Aggregates
AS 1214	Hot Dip Galvanised Coatings on Threaded Fasteners
AS 1576	Scaffolding General Requirements
AS 1604	Timber – Preservative Treated – Sawn and Round
AS 2423	Galvanised Wire Fencing Products
AS 2758.1	Concrete Aggregates
AS 3706.1	General Requirements, Sampling, Conditioning, Basic Physical Properties and Statistical Analysis
AS 3706.3	Determination of Tearing Strength - Trapezoidal Method
AS 3706.4	Determination of Burst Strength - California Bearing Ratio (CBR) Plunger Method
AS 3706.9	Determination of Permittivity
AS 3972	Portland and Blended Cements
AS 4133.4.1	Method for Testing Rocks for Engineering Purposes – Rock Strength Test – Determination of Point Load Strength Index
AS 4506	Metal Finishing – Thermoset Powder Coatings
AS 4576	Guidelines for Scaffolding

3 MORTARED STONE PITCHING

3.1 MATERIALS

3.1.1 Stone

Stone for pitching shall be spalls or boulders of sound, durable material with a minimum face dimension of 200mm and at least one face dimension of 300mm. The minimum thickness of any stone measured normal to the pitched surface shall be the nominal thickness of the pitching.

Rock from all sources shall have, when tested in accordance with [AS 4133.4.1](#) a point load strength greater than 1.0Mpa.

Stone from all sources shall not leach or stain mortar when in place. Any rock in which iron pyrites (FeS_2 - fool's gold) is visible will not be acceptable for use.

No rock shall be from a source known to have acid leaching or staining problems associated with the breakdown of iron pyrites (FeS_2).

For works requiring more than 5m³ of rock further testing shall be carried out in accordance with [AS 1141.22](#). Rock tested shall have the following properties:

- a) A wet strength of at least 100 kN
- b) A maximum wet/dry strength variation of less than or equal to 45.

The rock may be crushed by the testing authority so as to produce material suitable to test by [AS 1141.22](#).

Hold Point 8.1

Process Hold:	Commencement of stone pitching works
Submission Details:	At least five (5) working days before the proposed commencement of stone pitching works the Contractor shall submit a sample of the rock and test results as appropriate.
Release of Hold Point:	The Superintendent will examine the sample and test results prior to authorising the release of Hold Point

3.1.2 Cement

Must comply with **RMS R53**.

3.1.3 Sand

Must comply with **RMS R53**.

3.1.4 Mortar

Must comply with **RMS R53**.

3.2 SET OUT

The Contractor shall set out the extent of the stone pitching as shown on the drawings. The extent of stone pitching and position of subsurface drains shall be marked out with pegs or paint for inspection by the Superintendent prior to commencement of work.

Hold Point 8.2

Process Hold:	Commencement of stone pitching works
Submission Details:	At least two (2) working days before the proposed commencement of stone pitching works the Contractor shall provide notification that the extent of stone pitching, subsurface drainage and bedding requirements are marked out on site.
Release of Hold Point:	The Superintendent will inspect the proposed layout prior to authorising the release of Hold Point

3.3 BEDDING

For stone pitching on slopes of 1 to 1 or greater, stones shall be embedded into a minimum 50mm thick concrete blinding layer of characteristic compressive strength of 20MPa at 28 days.

Stones on slopes less than 1 to 1.5, shall be firmly bedded and based on compacted earth. The stones shall be based at a depth of 75mm below the adjacent designed finished surface, at the foot of the pitching.

3.4 JOINTS

All interior voids between stones and earth bedding shall be filled with cement mortar as specified above. Stone shall be random coursed.

3.5 DRAINAGE

Where the pitching is more than 300mm high, install a continuous 100mm diameter slotted corrugated subsoil drainage pipe behind the pitching at the level of the finished ground level in front of the pitching. Discharge the subsoil drain to sumps, stormwater manholes or pipes or to the surface as specified.

Where the pitching is more than 300mm high, weepholes with a diameter of at least 50mm shall be provided at 3m centres horizontally and 2m centres vertically. The lowest row of weepholes shall be placed such that the outfall inverts shall be at the finished ground level in front of the pitching. Each weephole shall be connected directly to the subsoil drain.

Alternate rows of weep holes shall be staggered such that they are placed midway between the lower row of weep holes. Construct weepholes according to **ACT edited RMS R I I**.

All weepholes shall be placed such that they fall towards the face of the stone pitching. For each weephole, a drainage plug comprising 2kg of 7mm drainage aggregate wrapped in geotextile, shall be embedded into the bedding material prior to placement of either the concrete blinding layer or the stones.

3.6 FINISH

The finished pitching shall have a neat, clean surface free from mortar droppings.

The top of the pitching shall be finished to an even grade or vertical curve, variations along the back edge being filled in with mortar, so as to produce a surface suitable for use as a mowing strip.

3.7 TRENCH CROSSINGS

Where the pitching is to be constructed over service trenches, a reinforced concrete footing shall be provided across the trench to the details shown on the drawings.

4 MORTARED STONE WALLS

4.1 MATERIALS

The stone, sand, cement and mortar requirements shall be in accordance with **Section 3** of this Specification.

Hold Point 8.14

Process Hold:	Commencement of mortared stone wall construction
Submission Details:	At least five (5) working days before the proposed commencement of mortared stone wall construction the Contractor shall submit a sample of the rock and test results as appropriate.
Release of Hold Point:	The Superintendent will examine the sample and test results prior to authorising the release of Hold Point

4.2 SET OUT

The Contractor shall set out the extent of the mortared stone wall as shown on the drawings.

Hold Point 8.15

Process Held:	Commencement of mortared stone wall construction
Submission Details:	At least two (2) working days before the proposed commencement of mortared stone wall construction the Contractor shall provide notification that the alignment of the wall, subsurface drainage and foundation are marked out on site

Release of Hold Point:	The Superintendent will inspect the proposed layout prior to authorising the release of Hold Point
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4.3 EARTHWORKS

Earthworks and preparation of surfaces shall comply with **TRITS 02 - Earthworks**. Subgrades shall be compacted to 95% of modified maximum dry density in accordance with **AS 1289.5.2.1** for a minimum depth of 150mm. The Contractor shall manage the work so as to minimise the time from when the subgrade is exposed to when the blinding concrete is placed.

Where the mortared stone wall is to act as a retaining wall back filling shall be in accordance with **TRITS 02**.

4.4 WALL CONSTRUCTION

The stones for the walls shall be set in mortar with all joints filled and the stones firmly bedded. The stones shall be randomly coursed with vertical joints staggered.

Stones to the visible faces of the wall shall be selected and placed so that the exposed face of each stone have a minimum dimension of 75mm and at least one dimension of 100mm. The outer faces of the stones shall be set flush to the approval of the Superintendent.

The vertical and horizontal tolerance on the position of the finished surface of the walls shall be ± 25 mm unless otherwise detailed.

The form of the wall shall have visually smooth continuous surfaces and lines free from abrupt changes.

The finished stonework shall have a neat clean surface free from mortar strains and droppings.

Where the mortared stone wall is to act as a retaining wall weepholes shall be in accordance with Section 3.5.

Unless specified otherwise, a continuous 100mm diameter slotted subsoil drainage pipe shall be installed behind the wall at the level of the finished ground level in front of the wall. The pipe shall be discharged to stormwater sumps, manholes or pipes, or to the surface as appropriate.

Weepholes with minimum 50mm dia. shall be provided at 3m centres horizontally and 2m centres vertically. The lowest row of weepholes shall be placed such that the outfall inverts shall be at the finished ground level in front of the wall. Each weephole shall be connected directly to the subsoil drain.

All weepholes shall be placed such that they fall towards the face of the wall with a minimum grade of 1%. For each weephole, a drainage plug comprising 2kg of 7mm drainage aggregate wrapped in a suitable geotextile, shall be embedded into the bedding material prior to placement of either the concrete blinding layer or the stones.

5 FENCING

Construction of fencing shall be according to **ACT edited RMS R201**.

6 LANDSCAPE PLANTING

Landscape planting shall be according to **ACT edited RMS R179**.

7 ROCK FILLED WIRE MATTRESSES

Rock Filled Wire Mattresses must be constructed according to **ACT edited RMS R55**.

8 CONFORMANCE CRITERIA

8.1 MORTARED STONE PITCHING AND WALLS

Mortar for use in stone pitching and walls shall have a characteristic compressive strength at 28 days of 20MPa.

The vertical tolerance for the top level of stone wall or stone pitching shall be +/- 25mm. The horizontal tolerance of the thickness of stone walls shall be + unspecified, - 25mm.

8.2 SAMPLING AND TESTING

All sampling and testing of materials supplied and work carried out under this Clause of the Specification shall be performed in accordance with the relevant Australian Standards or as otherwise specified.

8.3 FREQUENCY OF TESTING

For elements prescribed as requiring testing the frequency of testing shall be appropriate to verify conformity and shall not be less than that stated in Table 08.1. Where no minimum frequency of inspection or testing is stated, the Contractor shall nominate appropriate frequencies in their Inspection and Test Plan(s).

The Contractor shall include in the management review of the Quality System, a review of the appropriateness of the frequency of testing nominated in the Inspection and Test Plan(s). Such review shall take into account the frequency of nonconformance detected, including nonconformance remedied by simple reworking.

Table 08.1 : Testing Requirements

Clause	Characteristic Analysed	Test Method	Minimum Frequency Of Testing
Stone Pitching and Stone Walls			
3.1.1; 12.1.3	Point load strength index	AS4133.4.1	One (1) test per 5m ³ or per Contract which ever is greater or change in source
3.1.1; 12.1.3	Aggregate Wet Strength	AS1141.22	One (1) test per Contract greater than 5m ³ or change in source
3.1.1; 12.1.3	Wet/Dry Variation	AS1141.22	One (1) test per Contract greater than 5m ³ or change in source
13.1	Surface Level (where specified)	Survey	One (1) survey point per 5m of top of wall or mattress length (top mattress only) One (1) survey point per 25 m ² for stone pitching

8.4 NONCONFORMING WORK

A nonconformance report shall be submitted to the Superintendent for any nonconformance detected. Work shall not proceed on any nonconforming item until the Superintendent has approved the disposition for the nonconformance.

9 MEASUREMENT AND PAYMENT

Payment shall be made for the activities associated with completing the work detailed in this section of the Specification in accordance with Pay Items 803PI, 804PI-P3, 805PI-P2, 806PI, 807PI, 808PI, 809PI, 810PI, 811PI and 812PI-P2 inclusive.

A lump sum price for any of these items shall not be accepted.

Components of an element of the project not shown on the drawings or specified, but which are obviously necessary as part of proper construction shall be considered as shown or specified and allowance shall be made for these components in the pay item.

Allowance shall be made in the pay items generally for all activities associated with the works including cutting to size, overlap, wastage, collection and disposal of off cuts, incidental construction debris, surplus materials and spoil generated by the operation and leaving the area neat and tidy, safe and suitable for its intended purpose.

If any pay item for which a quantity of work is listed in the Contract has not been priced by the Contractor, it shall be understood that due allowance has been made in the price of other pay items for the cost of the activity which has not been priced.

Pay Item 803P1 Mortared Stone Pitching

The unit of measurement shall be the face area of stone pitching completed.

This pay item shall include setout, preparation, supply of stone mortar and bedding materials, construction and cleaning of the stone pitching.

All works associated with the supply and installation of weep holes and subsoil drains including filter gravel and geotextile shall also be included in this pay item

Excavation and backfilling shall be paid for under the relevant pay item in **TRITS 02 - Earthworks**.

Pay Item 811P1 Mortared Stone Wall Foundation

The unit of measurement shall be the cubic metre of foundation.

The rate for this pay item shall include all activities associated with the setout, preparation, supply of materials and construction of the wall foundation.

Excavation and backfilling shall be paid for under the relevant item in **TRITS 02 - Earthworks**.

Pay Item 811P2 Mortared Stone Wall Face and Top

The unit of measurement shall be the square metre area of the wall face and wall top.

The rate for this pay item shall include all activities associated with the setout, preparation, supply of materials, construction and cleaning of the stone wall. All works associated with the supply and installation of weep holes and subsoil drains including filter gravel and geotextile shall also be included in this pay item.

Excavation and backfilling shall be paid for under the relevant pay item in **TRITS 02 - Earthworks**.

10 SCHEDULE OF HOLD POINTS

Hold Points	Clause	Description
8.1	3.1	Stone for stone pitching works
8.2	3.2	Setout of stone pitching works
8.14	11.1	Stone for mortared stone wall
8.15	11.2	Setout of mortared stone walls

11 REFERENCES

Roads & Maritime Services 2009, *QA Specification R53: Concrete (for general use), mortar and grout*, RMS, Sydney, NSW.

Roads & Maritime Services 2009, *QA Specification R55: Rock filled gabions and mattresses*, RMS, Sydney, NSW.

Roads & Maritime Services 2011, *QA Specification R201: Fencing*, RMS, Sydney, NSW.

Roads & Maritime Services 2012, *QA Specification R11: Stormwater drainage*, RMS, Sydney, NSW.

Standards Australia 2009, AS 1141: *Methods for sampling and testing aggregates*, Standards Australia, Sydney, NSW.

Standards Australia 2008, AS 1289: *Methods of testing soils for engineering purposes*, Standards Australia, Sydney, NSW.

Standards Australia 2009, AS 4133: *Methods of testing rocks for engineering purposes*, Standards Australia, Sydney, NSW.

12 STANDARD DRAWINGS