

TRANSPORT FOR NSW (TfNSW)

QA SPECIFICATION TfNSW M215

REPAIR OF SURFACE SPALLS IN CONCRETE PAVEMENT

NOTICE

This document is a Transport for NSW QA Specification. It has been developed for use with roadworks and bridgeworks contracts let by Transport for NSW or by local councils in NSW. It is not suitable for any other purpose and must not be used for any other purpose or in any other context.

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REVISION REGISTER

Ed/Rev Number	Clause Number	Description of Revision	Authorised By	Date
M224 Ed 0 / Rev 0		New specification	GM, IC	30.08.07
Ed 0 / Rev 1	Most	Format corrected	GM, IC	24.10.07
M215 Ed 1 / Rev 0	All	To match new Maintenance Activities: <ul style="list-style-type: none">• Changed number• Changed Pay Items• Changed references to other similarly changed specifications Removed Deduction mechanisms Changed internal referencing format	GM, IC	05.08.08
	5.3	Added clause re Accomplishment reporting.		
Ed 3 / Rev 0		General technical review, and revision of some technical requirements. Format revised.	GM, IAM	17.04.13
Ed 3/Rev 1	Global	References to “Roads and Maritime Services” or “RMS” changed to “Transport for NSW” or “TfNSW” respectively.	DCS	22.06.20

GUIDE NOTES

(Not Part of Contract Document)

THESE NOTES ARE NOT PART OF THE SPECIFICATION, CONTRACT OR AGREEMENT.

The following notes are intended to provide guidance to TfNSW personnel on the application of the Specification. They do not form part of the Specification, Contract or Agreement.

USING TfNSW M215

TfNSW M215 has been specifically developed for TfNSW maintenance works. It must not be used without a review of its suitability for the application and in the contractual environment.

M215 is a QA specification. The use of QA specifications requires the implementation of a quality system by the service provider which meets the quality system requirements specified in TfNSW Q.

TECHNICAL REFERENCE NOTES

Technical information on maintenance of concrete pavements is available in the TfNSW Rigid Pavement Standard Details – Maintenance drawings. The TfNSW Contract Manager and Surveillance Officer should be familiar with the specific requirements of, and underlying reasons for, maintaining concrete pavements.

Spalling is the cracking, breaking and chipping away of concrete at or around joints or cracks. It occurs because of solid material (for example, stones, sand, or debris) becoming lodged in joints and cracks when the joints are open as a result of thermal contraction of the adjoining slabs. During thermal expansion the joints close and the lodged material applies high local loads. These cause the concrete to crack and chip away at the top or bottom of the slab.

Traffic loading may also contribute to spalling through movement of the slabs at joints or cracks. Where this is suspected, consider improving the stability of the slabs before repairing the spalls.

The technical treatment details should be examined in detail before issuing the Specification. Any changes considered should be dealt with by checking with TfNSW Pavements Section and then by amending the Specification.

OUTLINE

This Specification is for the repair of surface spalls in existing concrete pavement. It does not include:

- partial slab replacement (refer to M258)
- installing new joints in repaired pavements (refer to M258),
- the repair of joint seals (refer to M214)
- routing and sealing (refer to M212)
- cross stitching (refer to M213)
- grouting (refer to M231).

The TfNSW Contract Manager is responsible for preparing and issuing drawings required in Annexure M215/A.

LIMITATIONS OF WORK

This Specification is for the non-structural repair of surface spalls in concrete pavement.

The area to be repaired must have dimensions of at least 100 mm and extend 20 mm beyond the deteriorated concrete.

The extent of defect may be masked until the spall has been prepared. For example, the defect may extend the full depth of the base concrete and/or the defect may leave dowels or reinforcing exposed. In such cases, the Principal may need to direct a temporary repair. The Contractor must be able to undertake this using bituminous patching mix and the Contractor's PQP must have an appropriate contingency plan. Subsequently, in a different Work Order, the permanent structural repairs may require any of the repairs set out in Outline above.

Dimensions and details of the spalls to be repaired are to be set out in the Work Order. The locations of the slabs containing the spalls to be repaired are to be detailed in Annexure A.

SECTION 2 PLANNING - WORK TRIAL

The Work Trial is an option that should be selected in Annexure A to trial:

- a new repair system or
- a new type of treatment or
- a new Contractor

Note that some spall repair materials which are claimed to be non-shrink or low-shrink actually have shrinkages of the order of 1000 microstrain. This level of shrinkage will cause the repair to debond.

The Work Trial may not be necessary where a Contractor has implemented QA and consistently meets the Specification with a particular repair system. However, there is provision to request a Work Trial if the quality of Work is not consistently meeting the Specification.

SECTION 3 RESOURCES

The type of repair system should be nominated by the Principal.

SECTION 5 CONFORMITY

The contract relies on the selection of the repair system and the Contractor following the manufacturer's recommendations.

A warranty period of 6 months is specified. The TfNSW Contract Manager may extend this. Note that the warranty assumes that the slabs are stable and structurally sound around the spall. However:

- movement of slabs that were not, or are not, stabilised may be the cause of the spalling and
- there may have been fine cracks which the Contractor could not reasonably be expected to detect.

Failure of the repair caused by these may be outside the warranty.

ANNEXURE E

Two copies of this are provided so that it can act as the Quantity Agreement Sheet for the work.



REPAIR OF SURFACE SPALLS IN CONCRETE PAVEMENT

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VERSION FOR: DATE:

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FOREWORD

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This document should be read with all the documents forming the Contract.

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<http://www.rms.nsw.gov.au/business-industry/partners-suppliers/specifications/index.html>

REVISIONS TO PREVIOUS VERSION

This document has been revised from Specification TfNSW M215 Edition 3 Revision 0.

All revisions to the previous version (other than minor editorial and project specific changes) are indicated by a vertical line in the margin as shown here, except when it is a new edition and the text has been extensively rewritten.

PROJECT SPECIFIC CHANGES

Any project specific changes have been indicated in the following manner:

- (a) Text which is additional to the base document and which is included in the Specification is shown in bold italics e.g. ***Additional Text***.
- (b) Text which has been deleted from the base document and which is not included in the Specification is shown struck out e.g. ~~Deleted Text~~.

TFNSW QA SPECIFICATION M215

REPAIR OF SURFACE SPALLS IN CONCRETE PAVEMENT

1 GENERAL

- | | | |
|-----|---|--------------------------------|
| 1.1 | This Specification has been developed specifically for TfNSW maintenance works. It must not be used in any type of contract without consideration of its suitability in the prevailing circumstances. | Intended use |
| 1.2 | This Specification is for the repair of non-structural surface spalls in concrete pavement, including: <ul style="list-style-type: none">■ Removal of the spall and any temporary repair material.■ Preparation of the surface of the base concrete around the spall.■ Mixing and placing repair material.■ Placing a temporary repair if required. | Scope |
| 1.3 | Some words or abbreviations have a special meaning in this Specification and they are explained in Annexure M215/M. These words are highlighted in capitals eg DEFINED TEXT. | Definitions |
| 1.4 | The standards, specifications and test methods referred to by this Specification are referenced using an abbreviated form (eg TfNSW G36). The titles are given in Annexure M215/M.

Unless specified otherwise, the issue of an Australian Standard, TfNSW Test Method or referenced TfNSW specification to be used is the issue current one week before closing date for pricing the work. | Referenced documents |
| 1.5 | Details of work to be carried out under this Specification are described in Annexure M215/A. Where requested, the PRINCIPAL will identify the work on site. | Details of work |
| 1.6 | Payment for the activities associated with completing the work detailed under this Specification must be made using the Pay Item(s) referred to in Annexure M215/B. | Measurement and payment |
| 1.7 | YOU must undertake all responsibilities, such as actions, works, supply of materials, unless stated specifically otherwise. Accordingly, this Specification does not generally use wording such as "YOU shall ..." or "YOU must ..." because this is the underlying requirement. However, it is used where actions in a clause involve both YOU and the PRINCIPAL and the roles need to be unambiguous. | Interpretation |

- 1.8 Provide the identified records specified in the TfNSW Quality System Specification included in the Contract Documents (TfNSW Q) and summarised in Annexure C.2. **Records**

2 PLANNING

2.1 PROJECT QUALITY PLAN REQUIREMENTS

- 2.1.1 The requirements of the PROJECT QUALITY PLAN are defined in TfNSW Q. In addition, the PROJECT QUALITY PLAN must: **General**
- .1 Address the HOLD POINTS and WITNESS POINTS required by this Specification and summarised in Annexure C1. The PRINCIPAL will consider the submitted documents before authorising the release of any HOLD POINT. **Hold and Witness Points**
 - .2 Address each of the construction process requirements listed in this Specification and summarised in Annexure M215/D1. **Construction Process**
 - .3 Include the manufacturers' requirements for the storage, handling, application and installation of all materials proposed for use. **Manufacturers' requirements**
 - .4 Include Safety Data Sheets and manufacturers' material specifications. **Material**
 - .5 Include a requirement for the routine submission of data which will certify conformity of all work and materials to the requirements of this Specification and include supporting documentation. **Conformity Data**

- | | | |
|-------|---|-------------------|
| 2.1.2 | Process Held: Commencement of work | HOLD POINT |
| | Submission: Submit the PROJECT QUALITY PLAN at least 5 BUSINESS DAYS before proposed commencement of work. | |
| | Release of Hold Point: The PRINCIPAL will consider the submitted documents before authorising the release of the HOLD POINT. | |

2.2 REPAIR DESIGN

- 2.2.1 Figure 1 shows a general arrangement of various types of spalls and typical shape and configuration of spall repairs.

Shape and configuration

The spall repair must be a rectangular shape with minimum dimensions as shown in Series MP Drawings referenced in Annexure M215/M. The sides of the repair must be generally straight and parallel with the adjacent joints.

Where the repair would be closer than 100 mm from a joint or crack, extend the size of the repair to the joint or crack or existing repair as appropriate.

Combine repairs closer than 100 mm apart into a single repair.

- 2.2.2 The repair is to extend into the concrete slab at least 20 mm beyond the edge of the spall as shown in the Series MP Drawings referenced in Annexure M215/M. Increase this dimension to the extent necessary to ensure a sound concrete foundation is achieved.

Extent of repair

- 2.2.3 Where the repair is at an outside edge, the repair edge is to be adequately formed. The form must extend the full depth of the slab in one piece, extend at least 300mm beyond each end of the repaired area, be flush with the top edge of the slab, and be braced/pinned to avoid any movement during the placing of the repair material. The form must remain in place for at least the time of final set of the repair material.

Repair at unsupported edge

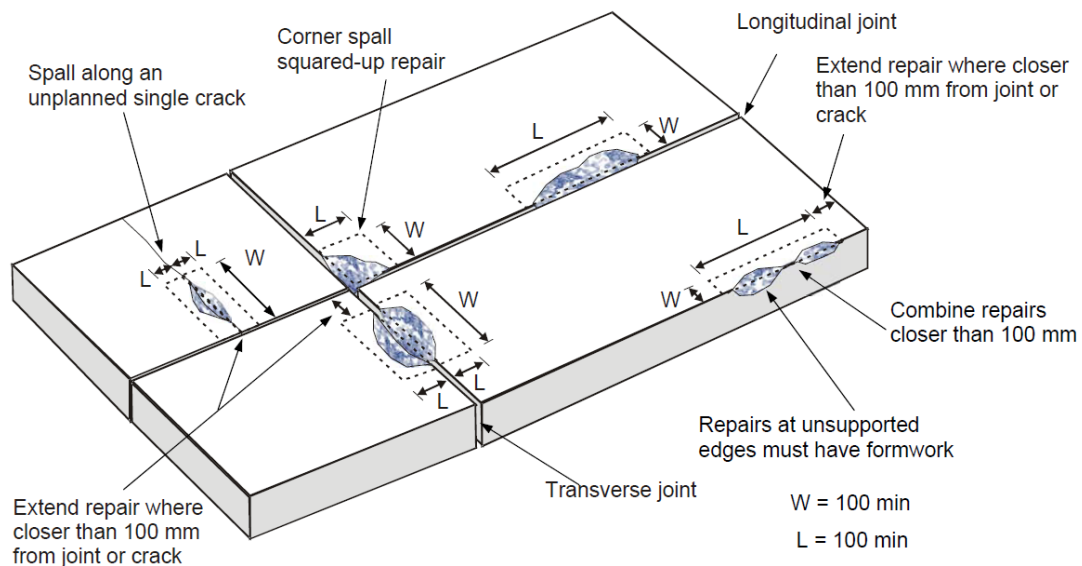


Figure 1 – Typical shape and configuration of spall repairs (Not to scale)

2.3 WORK TRIAL

2.3.1 Where specified in Annexure M215/A, carry out a **WORK TRIAL** for each material proposed to repair spalls in concrete pavement. **WORK TRIAL**

2.3.2 The **WORK TRIAL** must meet the following requirements: **Extent of WORK TRIAL**

- .1 Located within the specified work.
- .2 Total extent of least 1 m² of area to be repaired for each different material.
- .3 Performed in accordance with the construction processes, and using the materials and equipment detailed in the **PROJECT QUALITY PLAN**.

2.3.3 Inspect the work on completion of the **WORK TRIAL** to ensure that the work complies with the requirements of this Specification. **Part of the Work**

Every successful **WORK TRIAL** forms part of the permanent Work.

2.3.4 **Process Witnessed:** **WORK TRIAL** where required in Annexure M215/A. **WITNESS POINT**

Submission Details: At least 3 **BUSINESS DAYS** before the **WORK TRIAL**, submit:

- .1 Notice of the date, location and extent of the **WORK TRIAL**.
- .2 **PROJECT QUALITY PLAN**.

2.3.5 The **PRINCIPAL** may direct additional **WORK TRIALS** when materials or procedures change, or conformity is not achieved. **Additional WORK TRIALS**

2.4 OTHER PLANNING

2.4.1 Your Environmental Management Plan (**CEMP**) must address all aspects of the work in accordance with TfNSW G36, including the following: **Waste management**

- .1 Removal of debris.
- .2 Control of dust or slurry.
- .3 Disposal of chemicals and surplus or waste material.

2.4.2 The Work Health & Safety requirements of the Work must be addressed in accordance with TfNSW G22. Handling and use of epoxy based or heated materials must be addressed. **Work Health & Safety**

3 RESOURCES

3.1 MATERIALS

- | | | |
|-------|--|---|
| 3.1.1 | The type of repair system is nominated in Annexure M215/A. | Type of repair system |
| 3.1.2 | The repair system must satisfy the following requirements: | Requirements |
| | .1 Have its largest aggregate no greater than one third of the minimum depth of the repair. | |
| | .2 Bond permanently with the Base Concrete without cracking. | |
| | .3 UV stable, non-shrink, non-expansive, and of similar coefficient of thermal expansion to the Base Concrete. | |
| | .4 Cure and harden within the time specified in Annexure M215/A. When hardened, the surface hardness must be at least the same as the Base Concrete. | |
| | .5 Be of similar colour to the surrounding wearing surface when cured. | |
| 3.1.3 | Include details in the PROJECT QUALITY PLAN that demonstrate the suitability of the repair system by providing evidence of the repair system's previous successful use. | Demonstrate suitability of repair system |
| | The previous use must be for repairing concrete pavement and being subjected to dynamic wheel loads from vehicular traffic. | |
| 3.1.4 | Do not use epoxy concrete as the repair system where exposed steel shows signs of corrosion. Where epoxy concrete is proposed, control excessive heat development in the repair. | Epoxy concrete |
| 3.1.5 | Where recommended by the manufacturer, use the primer or bonding agent that meets the repair manufacturer's recommendations. | Primer or bonding agent |

3.2 EQUIPMENT

- | | | |
|-------|--|--|
| 3.2.1 | Equipment for mixing or application must be appropriate for the product being used. | Appropriate |
| 3.2.2 | Describe the equipment, the method of operation and application in the PROJECT QUALITY PLAN. | Include in PROJECT QUALITY PLAN |

4 EXECUTION

4.1 GENERAL

4.1.1	<p>Process Held: Commencement of work other than a WORK TRIAL.</p> <p>Submission Details: At least 5 BUSINESS DAYS prior to proposed commencement of work, submit:</p> <ul style="list-style-type: none"> .1 Up to date PROJECT QUALITY PLAN. .2 Proposed repair system and evidence of its suitability. .3 Conformity data in accordance with Clause 5 for the completed WORK TRIAL where required in Annexure M215/A. <p>Release of Hold Point: The PRINCIPAL will consider the submitted documents and may inspect the WORK TRIAL before authorising the release of the HOLD POINT.</p>	HOLD POINT
4.1.2	Mark out the spall repair area in accordance with Clause 2.2.	Mark out repairs
4.1.3	Prepare the base concrete around the spall in accordance with Clause 4.2 and repair the area in accordance with Clause 4.3.	Prepare and repair
4.1.4	Do not disturb or damage the Base Concrete outside the repair area such as with excessive saw cuts, breaking out concrete, or other types of damage.	Care
4.1.5	Record the details of all work accomplished in each shift in a Daily Work Record similar to Annexure M215/E.	Daily Work Record
4.2 PREPARATION		
4.2.1	Remove the spall and any temporary repair material. Remove any sealant adjacent to the spall. Clean out any debris from within a joint or crack which is adjacent to or within the spalled area. Dislodge and remove any material that is in the joint or crack.	Adjacent to repair area
4.2.2	Prepare the Base Concrete to provide a sound concrete foundation for the repair, as follows. <ul style="list-style-type: none"> .1 Provide a minimum depth of 30 mm for the repair and remove any abrupt changes below this depth. .2 Provide vertical edges at the perimeter of the repair. Where sawcutting or grinding is required, the depth is to be 15 mm with tolerance -0 mm/+10 mm. .3 Remove unsound material, debris or any residue from the repair area. .4 Do not damage or fracture the sound concrete foundation in the repair area. .5 Roughen the surface and expose the aggregate of the area to be repaired to promote adhesion of the repair material. 	Sound foundation

4.2.3 Where the prepared Base Concrete will not provide a suitable foundation (for example, cracks that intersect, cracks to full depth of Base Concrete, or repairs which will be more than half the slab depth), provide a temporary repair in accordance with Clause 4.4 instead of a permanent repair. Advise the PRINCIPAL when this action is taken and provide a brief report of the action taken. **Structural defect**

4.3 REPAIR

4.3.1 Clean the surface to be repaired immediately before placing the repair material. Do not damage the arrises or leave any residue that would inhibit adhesion of the repair material to the Concrete Base. **Surface clean and dry**

The surface to be repaired must be dry before placing the repair material. Apply a source of heat to the surface if necessary to achieve a dry surface, but do not allow the heat to cause any damage to the Concrete Base or joint sealant.

4.3.2 Any existing joint or a crack must not be bridged by the repair, and: **Do not bridge over existing joints or cracks**

.1 Form a straight vertical face parallel to each joint.

.2 Provide a bond-breaker material against the face of joint or crack as applicable.

The width of the bond-breaker material to be equal to the width of the existing gap at the joint or crack and extended to each end of the prepared cavity.

The depth of the bond-breaker material to be not less than the depth of the new repair materials.

4.3.3 No material must enter the joint or crack space. **Keep joint or crack clean**

4.3.4 Apply the repair system as provided in Clause 3.1 to reinstate the surface levels of the Base Concrete. **Apply the repair system**

4.3.5 Cure the repair material according to its type in accordance with the construction process detailed in the PROJECT QUALITY PLAN. **Curing**

4.4 TEMPORARY REPAIR

4.4.1 Clause 4.4 applies to a spalled area which has been prepared but which has been determined to require a temporary repair. **Relevance**

4.4.2 The prepared area must be backfilled to provide a temporary pavement surface. **Fill to restore surface**

4.4.3 Clean out all loose debris and compressible material and apply a primer or tack coat where required in accordance with the construction process detailed in the PROJECT QUALITY PLAN. **Preparation**

- 4.4.4 Backfill the repair area with a flexible repair mix having a maximum particle size of 5 mm. Mechanically compact the mix to finish level with the adjoining Base Concrete surface. **Temporary repair**

4.5 OPENING TO TRAFFIC

- 4.5.1 Inspect the work on completion to ensure that the work complies with the requirements of this Specification. **Final inspection of work**
- 4.5.2 The repair or temporary repair must have cured or hardened sufficiently before opening the work to traffic so that it will not be damaged by traffic. **Sufficient curing**
- 4.5.3 Remove and dispose of all waste in accordance with YOUR CEMP. **Waste**

5 CONFORMITY

5.1 CERTIFICATION OF CONFORMITY

- 5.1.1 The repair of spalled areas in concrete pavement must also comply with the requirements listed in Table 1. **Construction conformity**

Table 1 – Requirements for Conformity and Minimum Frequency of Testing.

Clause	Cross Ref Clause	Property	Test Method/ Procedure	Criterion Clause	Testing Frequency (i)
1. General	4.1	Concrete outside the repair area not disturbed or damaged	Visual inspection	4.1	All Lots
2. Preparation	4.2	Sound foundation for repair	Visual inspection	4.2	All Lots
3. Repairs	4.3	Repair area clean	Visual inspection	4.3	All Lots
		Repair correct shape and dimensions	Visual inspection	2.2	All Lots
		Repair does not bridge over cracks or a joint	Visual inspection	4.3	All Lots
		Repair system applied	Visual inspection	3.1	All Lots
		Surface level reinstated	1.2 m straight edge with each end supported	+2 mm / -5 mm	All Lots
4. Temporary repair	4.4	Area prepared	PQP	4.5	All Lots
		Temporary repair compacted with level	Visual inspection	4.5	All Lots

Clause	Cross Ref Clause	Property	Test Method/ Procedure	Criterion Clause	Testing Frequency (i)
5. Opening to traffic	4.5	Repair has hardened/cured	Visual inspection		All lots
		Site cleaned up	Visual inspection	Clean surfaces	All lots
		Cracking of repair or around perimeter	Visual inspection	No visible cracking	All lots
		Waste disposed	Visual inspection	2.4	All waste
Note: A LOT is defined as a day's production of one type of repair system.					

- 5.1.2 Submit a conformity summary report for all work done and provide any necessary supporting documentation. This report will certify conformity of all work and materials to the requirements of this Specification.

Conformity summary

The details in Table 2 must be included in the summary.

Table 2 – Actions to be included in the Conformity Summary

Activity	Reference	Requirements
Record of work detail and spalls treated	Clause 4.1	Daily work record
Material Conformity	Clause 3.1	Manufacturer's certification received
Conformities	Clause 5.1	Certificate of conformity
Nonconformities	TfNSW Q	List of NCRs issued and dispositions

5.2 WARRANTY PERIOD

- 5.2.1 YOU must warrant the work for the period set out in Annexure M215/A. Any failure of the repair in the base concrete must be repaired to meet the requirements of this Specification.

Warranty period

- 5.2.2 If YOU need to fix something during the warranty period because it does not comply with the warranty, the warranty applies again from the time when the thing is fixed – but only with respect to the thing fixed.

Warranty applies

5.3 ACCOMPLISHMENT REPORTING

The accomplishment of conforming work must be reported as specified in Table 3.

Table 3

Code	Description	Unit of Measure	Accomplishment Reporting
215	Repair of Surface Spalls in Concrete Pavement	M	Report length of spall repaired.

ANNEXURE M215/B – MEASUREMENT AND PAYMENT

B1 GENERAL

- | | | |
|------|--|---------------------------------|
| B1.1 | Pay items are identified in Annexure M215/B2. | Pay Items to be used |
| B1.2 | The price(s) of pay items with a quantity of work in the schedule must be costed and due allowance made for the cost of the activity.

Any pay item with a quantity of work that is not priced is understood to be included in other priced pay items. | Prices |
| B1.3 | Pay items with a quantity of work specified must not be tendered as a lump sum price. | No Lump Sum |
| B1.4 | Measurement will include a WORK TRIAL (refer Clause 2.3, which forms part of the work detailed in Annexure M215/A and conforms to this Specification. | Trial pavement |
| B1.5 | Payment will only be made for work covered by:
.1 A complete, signed and submitted Daily Work Records, and
.2 YOUR certification of conformity with the Specification. | Quantity Agreement Sheet |
| B1.6 | YOU are not paid for events that include:
.1 Removing and replacing nonconforming material placed by YOU with conforming material.
.2 Rework of YOUR work required to achieve conformity.
.3 Warranty repairs. | No payment |

B.2 SCHEDULE OF PAY ITEMS

Pay Item *	Item Name and Description	Units **
	<p>Note: It is taken that you have allowed for the following costs in tendering your rates:</p> <ul style="list-style-type: none"> • Preparing the area, • Repair of a surface spall. • Cleaning up and disposal of all waste from the site. No further payment will be made for them. <p>You will not be paid for the application of a temporary repair due to your inability to complete the Work Order in the allotted time.</p>	
M215P1	Permanent repair spalls in concrete pavement	m
M215P2	Temporary repair of spall due to latent condition of base concrete	m
M215P3	<p>Establishment – Repair spalls</p> <p>Note: It is taken that you have included all the following in tendering your establishment rate - no further payment will be made them:</p> <ul style="list-style-type: none"> • Plant float to/from the site or project; • Set up and removal of site facilities (eg: office, sheds, toilets); Principals facilities (if required, • Initial travel to site or project; • Daily travel to/from site or project; • Accommodation (eg: on site or motel/hotel). 	Item Establishment is paid once per Work Order.
<p>* Pay Items are primarily for guidance in preparing Work Orders (which can be Lump Sum or Schedule of Rates). When preparing a Work Order, any or all of the Pay Items may be incorporated: the aim is to improve the accuracy of the Service Provider's estimation and pricing by:</p> <p style="margin-left: 40px;">a) selecting those Pay Items which denote the activities that are to be undertaken and b) requiring the Service Provider to estimate and price each Pay Item individually.</p> <p>When Establishment is a significant cost, the Pay Item specific to it must be incorporated in the Work Order – the cost must not be amortised / absorbed across the other Pay Items.</p> <p>Similarly, when Traffic Control is a significant cost, its Pay Item(s) must be incorporated. See TfNSW G10M for a list of these.</p> <p>** Claim length of complying joint repairs</p>		

ANNEXURE M215/C – SCHEDULES OF HOLD POINTS, WITNESS POINTS AND IDENTIFIED RECORDS

C1 SCHEDULE OF HOLD POINTS AND WITNESS POINTS

Reference	Type	Process Held	Submission Details
Clause 2.3	WITNESS	WORK TRIAL where required in Annexure A).	At least 3 BUSINESS DAYS prior to the WORK TRIAL, submit <ul style="list-style-type: none"> ▪ Notice of the date, location and extent of the WORK TRIAL, and ▪ PROJECT QUALITY PLAN.
Clause 4.1	HOLD	Commencement of work other than a WORK TRIAL.	At least 5 BUSINESS DAYS prior to commencement of work, submit: <ul style="list-style-type: none"> ▪ Up to date PROJECT QUALITY PLAN, ▪ Proposed repair system and evidence of its suitability, and ▪ Conformity data in accordance with Clause 5 for the completed Work Trial where required in Annexure M215/A.

C2 SCHEDULE OF IDENTIFIED RECORDS

Reference	Description of the Identified Record
Clause 2.1	PROJECT QUALITY PLAN
Clause 3.1	Conformity data for proposed repair system
Clause 4.1	Daily Work Record
Clause 4.2	Assessment and report on area determined as a temporary repair
Clause 5.1	Certification of conformity

ANNEXURE M215/D – PLANNING DOCUMENTS**D1 TYPICAL CONSTRUCTION PROCESSES TO BE ADDRESSED IN PQP**

Reference	Process	Details
Clause 3.1	Materials	<ul style="list-style-type: none"> ▪ Manufacturer's requirements for the storage, handling and use of all materials ▪ Safety Data Sheets ▪ Demonstrate suitability of the repair system by providing evidence of its previous successful use
Clause 4.1	General	<ul style="list-style-type: none"> ▪ Record the details of all work accomplished in each shift in a Daily Work Record
Clause 4.2	Preparation	<ul style="list-style-type: none"> ▪ Cleaning / Preparation of the area ▪ Trimming of the spalled edge ▪ Formation of joints
Clause 4.3	Repairs	<ul style="list-style-type: none"> ▪ Application of primer or bonding agent to the exposed area ▪ Placement and finishing of the repair material ▪ Curing of the repair material
Clause 4.4	Temporary repair	<ul style="list-style-type: none"> ▪ Contingency Plan to manage inability to permanently repair spall due to either latent condition of base concrete or unforeseen circumstances
Clause 5	Process conformity	<ul style="list-style-type: none"> ▪ Inspection and test plan

ANNEXURES M215/F TO M215/L – (NOT USED)

ANNEXURE M215/M – REFERENCED DOCUMENTS AND DEFINITIONS

M1 REFERENCED DOCUMENTS

M1.1 TfNSW Documents

TfNSW G10M	Traffic Management (Maintenance Works)
TfNSW G22	Work Health and Safety (Construction Work)
TfNSW G36	Environmental Protection
TfNSW Q	Quality Management System
Series MP	Rigid Pavement Standard Details – Maintenance, Plain Concrete Pavement

M2 DEFINITIONS

Base Concrete	The upper (structural) layer of concrete with varying insitu strengths typically from 25 to 60 MPa. The concrete may contain various forms of steel reinforcement, dowels and tiebars. Also referred to as the concrete pavement or concrete slab.
Crack	An irregular, unplanned opening in base concrete which is essentially vertical and of various widths and which may intersect with others, typically orientated longitudinally (in the direction of traffic), or transversely or a combination. The crack may be straight or meandering.
Joint	A Joint in Base Concrete which runs either parallel (in the case of longitudinal joints) or transverse to the direction of traffic flow. They are either formed or induced.
Project Quality Plan	The requirements of the PROJECT QUALITY PLAN are defined in TfNSW Q
Spall	A small broken or chipped segment of concrete normally occurring adjacent to a JOINT or a CRACK.
Work Trial	A trial that confirms the suitability of a construction process in meeting the specified conformity criteria for the work.

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