

# TRANSPORT FOR NSW (TfNSW)

## QA SPECIFICATION TfNSW M231

### PRESSURE GROUTING FOR SLAB JACKING / STABILISATION

#### 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. Copyright in this document belongs to Transport for NSW.

#### REVISION REGISTER

Ed / Rev Number	Clause Number	Description of Revision	Authorised By	Date
<b>M235</b> Ed 1 / Rev 0		First edition	GM, RNIC	25/05/04
Ed 1 / Rev 1	Notes & 1 Foreword	New clause re Intended use New Foreword	GM, IC	30.08.07
Ed 1 / Rev 2	Most	Format corrected	GM, IC	24.10.07
<b>M231</b> Ed 2 / Rev 0	All  5.3  Annexure A	To match new Maintenance Activities: <ul style="list-style-type: none"><li>• Changed number</li><li>• Changed Pay Items</li><li>• Changed references to other similarly changed specifications</li></ul> Removed Deduction mechanisms Changed internal referencing format Added clause re Accomplishment reporting. Reduced warranty period from 1 year to 6 months.	GM, IC	05.08.08
Ed 3 / Rev 0	All	General technical review, and revision of some technical requirements. Format revised.	GM, IAM	19.02.13
Ed 4 / Rev 0	All	General technical review, and revision of some technical requirements. Format revised.	GM, CPS B Bestwick	20.08.15
Ed 4/Rev 1	Global	References to “Roads and Maritime Services” or “RMS” changed to “Transport for NSW” or “TfNSW” respectively.	DCS	22.06.20

<p style="text-align: center;"><b>GUIDE NOTES</b> (Not Part of Contract Document)</p>
---

**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 M231**

This Specification 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.

It 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.

### **DETAILS OF WORK**

Annexure A sets out a generally suitable format for detailing the work required by location and estimated area of slabs to be treated, and type of pavement. Provision is also included for referencing slab maps or sketch plans where considered necessary.

The detail provided in Annexure M231/A must be adequate to fully define the scope of work required, including extent and location of voids beneath the pavement slabs and level differences between pavement slabs. This information could include investigation reports, surveys, field inspections, etc.

### **CUSTOMISING THE SPECIFICATION**

In addition to scheduling work details, ensure that a warranty period is defined, and that a field trial is specified where that is considered necessary.

The technical treatment details should be examined in depth before issuing the Specification. Any changes considered warranted by local circumstances should be dealt with by amending the Specification.



# PRESSURE GROUTING FOR SLAB JACKING / STABILISATION

Copyright – Transport for NSW  
IC-QA-M231

VERSION FOR: DATE:
-----------------------



## CONTENTS

CLAUSE	PAGE
FOREWORD .....	ii
TfNSW Copyright and Use of this Document .....	ii
Revisions to Previous Version .....	ii
Project Specific Changes .....	ii
1    GENERAL .....	1
1.1    Intended Use .....	1
1.2    Scope .....	1
1.3    Structure of the Specification .....	1
1.4    Definitions .....	2
2    FIELD TRIAL .....	3
2.1    Trial Work .....	3
2.2    Finished Levels of Work .....	4
3    MATERIALS AND EQUIPMENT .....	4
3.1    General .....	4
3.2    Grout .....	4
3.3    Performance Requirements .....	5
3.4    Nominated Mix .....	5
3.5    Grout Pumping Equipment .....	5
4    EXECUTION .....	6
4.1    Drilling of Grout Holes .....	6
4.2    Grouting Process .....	6
4.3    Completion of Work .....	7
4.4    Daily Work Record .....	7
5    CONFORMITY .....	7
5.1    Certification of Conformity .....	7
5.2    Warranty .....	8
5.3    Accomplishment Reporting .....	8
ANNEXURE M231/A – DETAILS OF WORK .....	9
ANNEXURE M231/B – MEASUREMENT AND PAYMENT .....	10
B.1    General .....	10
B.2    Schedule of Pay Items .....	11
ANNEXURE M231/C – SCHEDULES OF HOLD POINTS, WITNESS POINTS AND IDENTIFIED RECORDS .....	12
C.1    Schedule of Hold Points and Witness Points .....	12
C.2    Schedule of Identified Records .....	12
ANNEXURE M231/D – PLANNING DOCUMENTS .....	13
D.1    Construction Processes .....	13
ANNEXURE M231/E – GROUT HOLE LOCATIONS .....	14
E.1    Jointed Reinforced Concrete Pavement (JRCP) .....	14

E.2	Plain Concrete Pavement (PCP) and Steel Fibre Reinforced Concrete Pavement (SFCP) .....	14
	ANNEXURES M231/F TO M231/L – (NOT USED) .....	15
	ANNEXURE M231/M – REFERENCED DOCUMENTS.....	15
	LAST PAGE OF THIS DOCUMENT IS .....	15

## FOREWORD

### TfNSW COPYRIGHT AND USE OF THIS DOCUMENT

Copyright in this document belongs to the Transport for NSW.

#### When this document forms part of a contract

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

#### When this document does not form part of a contract

This copy is not a controlled document. Observe the Notice that appears on the first page of the copy controlled by TfNSW. A full copy of the latest version of the document is available on the TfNSW Internet website: <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 M231 Edition 4 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 TfNSW M231

### PRESSURE GROUTING FOR SLAB JACKING / STABILISATION

## 1 GENERAL

### 1.1 INTENDED USE

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.

### 1.2 SCOPE

The work to be executed under this Specification is the pressure grouting of concrete pavements for the purpose of SLAB JACKING and/or SLAB STABILISATION of plain concrete pavement (PCP), steel fibre reinforced concrete pavement (SFCP), or jointed reinforced concrete pavement (JRCP).

### 1.3 STRUCTURE OF THE SPECIFICATION

This Specification includes a series of annexures that detail additional requirements.

#### 1.3.1 Details of Work

Details of work to be carried out under this Specification are described in Annexure M231/A.

#### 1.3.2 Measurement and Payment

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 M231/B.

#### 1.3.3 Schedules of HOLD POINTS, WITNESS POINTS and Identified Records

The schedules in Annexure M231/C list the **HOLD POINTS** and **WITNESS POINTS** that must be observed. Refer to Specification TfNSW Q for definitions of **HOLD POINTS** and **WITNESS POINTS**.

The records listed in Annexure M231/C are **Identified Records** for the purposes of TfNSW Q Annexure Q/E.

#### 1.3.4 Planning Documents

The PROJECT QUALITY PLAN must include each of the documents and requirements listed in Annexure M231/D and must be implemented.

If the Contract does not require you to implement a PROJECT QUALITY PLAN, the documents listed in Annexure M231/D must be submitted to the Principal for consideration at least 5 working days prior to work commencing and must be implemented.

In all cases where this Specification refers to the Manufacturer's recommendations, these must be included in the PROJECT QUALITY PLAN.

### **1.3.5 Referenced Documents**

Unless specified otherwise, the applicable issue of a reference document, other than a TfNSW Specification, is the issue current at the date one week before the closing date for tenders, or where no issue is current at that date, the most recent issue.

Standards, specifications and test methods are referred to in abbreviated form (e.g. AS 2350). For convenience, the full titles are given in Annexure M231/M.

## **1.4 DEFINITIONS**

The terms “you” and “your” mean “the Contractor” and “the Contractor’s” respectively.

The following definitions are applicable to this Specification:

- |                       |   |
|-----------------------|---|
| <b>Base Concrete</b>  | The upper (structural) layer of concrete pavement slab with varying insitu strengths typically from 25 to 60 MPa. The concrete pavement slab may contain various forms of steel reinforcement, dowels, and tiebars.   |
| <b>Crack</b>          | An irregular, unplanned opening in Base Concrete which is essentially vertical and of various widths, orientated longitudinally (that is, in the direction of traffic), or transversely or a combination. The crack may be straight or meandering and may have arris spalling.                      |
| <b>Field Trial</b>    | A trial section of grouting that includes the nominated materials, equipment, and construction methods to be used in executing the works under this Specification.  |
| <b>Fixed Surface</b>  | A surface that has a level that is unaltered by the work. Fixed surfaces include most structures and the existing pavement adjacent to the work.  |
| <b>Design Surface</b> | A surface level that is set before the work commences and may not match the existing surface levels on the site. The design surface would be used where the levels are to be changed by Slab Jacking e.g. when the process is being used to lift sunken or punched down slabs to new design levels. |



<b>Joint</b>	<p>A planned 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.</p> <ul style="list-style-type: none"><li>(a) In pavements constructed since 1975, longitudinal joints are typically tied mid-depth by 1 m long, 12 mm diameter tiebars at centres typically ranging from 0.5 to 1.0 m.</li><li>(b) Transverse joints are broadly categorised as either:<ul style="list-style-type: none"><li>(i) moving joints (such as contraction, isolation and expansion joints), or</li><li>(ii) tied joints (such as tied transverse construction joints).</li></ul></li><li>(c) Tied joints typically contain mid-depth tiebars of 12 mm diameter, 1 m long at 300 mm centres.</li></ul> <p>In older pavements, joint details may be different, and fixtures such as tiebars and dowels may have deteriorated by (for example) corrosion.</p>
<b>Nominated Mix</b>	<p>The mix proposed by you for use in the works. Since this may be a proprietary material, it is defined by the submission of a sample before commencement of work, together with test results indicating conformity with the requirements of this Specification.</p>
<b>Slab Jacking</b>	<p>A process to raise, lift, or elevate a Base Concrete slab by pumping grout to the underside of the slab.</p>
<b>Slab Rocking</b>	<p>A slab condition where the Base Concrete slab edges move vertically when loaded by a heavy vehicle.</p>
<b>Slab Stabilisation / Stabilise</b>	<p>A process that fills voids with pumped grout without raising the Base Concrete slab. This can be used to eliminate Slab Rocking or to fill known voids.</p>
<b>Subbase Concrete</b>	<p>A lean-mix concrete layer below the Base Concrete. It may be separated from the Base Concrete by an interlayer treatment such as asphalt or a bitumen sprayed seal. The insitu strength can increase significantly with age, typically range from 7 MPa at 28 days to around 30 MPa at ages beyond five years.</p>

## **2 FIELD TRIAL**

### **2.1 TRIAL WORK**

Where specified in Annexure M231/A, carry out a FIELD TRIAL of the SLAB JACKING procedure and provide performance data on the outcome in accordance with the requirements of Clause 5.

The FIELD TRIAL procedure must comprise one day's production.

The PRINCIPAL may direct an additional FIELD TRIAL when there is any change in materials or operating methods.

Every FIELD TRIAL that meets the requirements of this Specification becomes part of the permanent work.

### **WITNESS POINT**

Process Witnessed:	Field Trial work (when specified in Annexure M231/A).
Submission Details:	Provide at least two Business Days notice of commencement and full details of the extent and location of the Field Trial work.

### **HOLD POINT**

Process Held:	Continuation of work following the Field Trial.
Submission Details:	Provide conformity data in respect of the requirements set out in Clause 5 for the completed Field Trial work at least two Business Days before proposed commencement of work.
Release of Hold Point:	The Principal will consider the submitted documents and may inspect the Field Trial before authorising the release of the Hold Point.

## **2.2 FINISHED LEVELS OF WORK**

The process must stabilise the slab by filling the voids beneath it and where practical, raise the slab to match the surrounding Fixed Surface levels.

## **3 MATERIALS AND EQUIPMENT**

### **3.1 GENERAL**

Include details of all materials to be used in the PROJECT QUALITY PLAN.

### **3.2 GROUT**

Unless approved otherwise by the Principal, grout must comprise one part of cement to 3 parts of other components as follows:

- (1) Cement to Specification TfNSW 3211 Type SL or Type GP.
- (2) Fly ash to AS 3582.1 and fine grade.
- (3) Admixtures to AS 1478 to produce grout with the required flow and early strength properties.
- (4) Mixing water must be potable.
- (5) Fine aggregate must comply with AS 2758.1 and consist of clean, hard, uncoated grains of uniform quality, and must have a size less than AS 2.36 mm sieve.

### **3.3 PERFORMANCE REQUIREMENTS**

The strength of the grout must be at least 8 MPa at 24 hours when tested in accordance with Test Method TfNSW T375 and using 75 mm cubes.

The consistency of the grout must be such that it will not segregate during pumping. This property must be demonstrated by the observed consistency of the grout when it flows out of the adjoining grout hole(s) or joint(s).

During any FIELD TRIAL, carry out testing of the grout in accordance with TfNSW T375.

### **3.4 NOMINATED MIX**

Include in the PROJECT QUALITY PLAN details of the proposed NOMINATED MIX, together with test results demonstrating compliance with this Specification. Alternatively provide this information at least 7 BUSINESS DAYS before commencement of the works.

Obtain Principal's approval of the NOMINATED MIX before commencement of any work under this Specification. Any change to the NOMINATED MIX will result in a further Hold Point.

#### **HOLD POINT**

Process Held: Commencement of work.

Submission Details: Provide details of the Nominated Mix and a summary of test results at least seven Business Days before proposed commencement of the works.

Release of Hold Point: The Principal will consider the submitted documents before authorising the release of the Hold Point.

#### **HOLD POINT**

Process Held: Continuation of work following change to Nominated Mix.

Submission Details: Provide details of any change to the Nominated Mix and a summary of test results at least seven Business Days before proposed continuation of the works.

Release of Hold Point: The Principal will consider the submitted documents before authorising the release of the Hold Point.

### **3.5 GROUT PUMPING EQUIPMENT**

The grout pump must have regulated line pressure and be capable of continuous pressures up to 1.4 MPa (200 psi), and peak pressures up to 2.1 MPa (300 psi) for short periods.

## **4 EXECUTION**

### **4.1 DRILLING OF GROUT HOLES**

#### **4.1.1 Location and Pattern of Holes**

Determine and set out the location of grout holes to perform the work in accordance with this Specification and the constraints detailed in Annexure M231/E for the pavement type specified in Annexure M231/A. Re-drilling of grout holes present from previous pressure grouting work is permitted.

The pattern of grout holes must ensure that vertical and horizontal filling of voids is achieved and that the grout provides sufficient, uniform and durable support under the slab especially at slab corners.

#### **4.1.2 Size of Holes**

Grout holes must not exceed 50 mm diameter.

#### **4.1.3 Drilling**

Drill with care to prevent Cracking or breaking of slabs. Repair any new Crack that extends through a grout hole by an approved method at no additional cost to the Principal.

No additional payments will be made for any adverse affect on drilling rates because of steel reinforcement that may be encountered.

#### **4.1.4 Inspection of Holes**

Inspect each grout hole to assess the extent of voids beneath the slab. Keep records of concrete slab thickness and void depth for each grout hole.

## **4.2 GROUTING PROCESS**

### **4.2.1 Order of grouting**

Proceed with grouting in such an order that all voids are filled and no additional CRACKING of the BASE CONCRETE occurs.

### **4.2.2 Grouting Pressures**

Continue pumping grout at continuous pressures up to 1.4 MPa (200 psi) until grout is observed flowing out of an adjacent grout hole or Joint or the edge of the slab.

If the Base Concrete is bonded to the Subbase Concrete, you may use brief pressure rises (10 seconds or less) up to 4.1 MPa (600 psi).

### **4.2.3 Grouting beneath Subbase**

In the case where grout must be pumped beneath SUBBASE CONCRETE, insert a sleeve into the grout hole that passes completely through the BASE CONCRETE and the SUBBASE CONCRETE to ensure that no grout is deposited between the SUBBASE CONCRETE and BASE CONCRETE. Remove the sleeve after the grouting process is completed and before the work is opened to traffic.

#### **4.2.4 Control of Grouting**

Grout must not be pumped into any service or drainage installation. Stop grouting when any of the following conditions occurs:

- (1) Damage is identified or likely, or
- (2) An unwanted rise occurs in the adjacent slab(s)

Temporarily plug the filled grout holes after inspection of the progress of the grouting operation.

#### **4.2.5 Level Conflict**

Where matching of levels cannot be achieved without damage to the slab or the surrounding BASE CONCRETE, or if any of the surrounding BASE CONCRETE moves, stop SLAB JACKING immediately and advise the PRINCIPAL within 24 hours.

### **4.3 COMPLETION OF WORK**

#### **4.3.1 Filling of Grouting Holes**

Remove temporary plugs from grouting holes and fill to surface level with grout.

#### **4.3.2 Cleaning Up**

Remove from site all drilling debris and all other wastes from operations and dispose of in accordance with Specification TfNSW G36.

#### **4.3.3 Protection of Work**

Apart from construction equipment, do not allow slabs to be trafficked until the grout has developed an initial set as confirmed by inspection of the grout holes.

### **4.4 DAILY WORK RECORD**

Inspect the slabs and JOINTS at the end of each shift by counting and recording the areas of completed slabs jacked and/or stabilised, number of holes drilled, and volume of grout consumed. Include in this daily work record start and finish chainages. Sign the record to use as the basis for measurement and payment.

## **5 CONFORMITY**

### **5.1 CERTIFICATION OF CONFORMITY**

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 with the requirements of this Specification.

The following activities must be included in the conformity summary.

**M231****Pressure Grouting for Slab Jacking / Stabilisation**

<b>Activity</b>	<b>Reference</b>	<b>Conformity</b>
Material conformity	Clause 3.2	Test results of component materials used in the work.
Drilling of grouting holes	Clause 4.1	Certification of conformity.
Grouting process	Clause 4.2	Certification of conformity.
Completion of work	Clause 4.3	Certification of conformity.
Nonconformities	TfNSW Q	List of NCR's issued and dispositions.

**5.2 WARRANTY**

YOU must warrant the work for the period set out in Annexure A. The Principal will inspect the work at the end of that period. Any noticeable slab movement must be repaired in accordance with this Specification at your cost within a one month period.

**5.3 ACCOMPLISHMENT REPORTING**

The accomplishment of conforming work must be reported as specified in Table M231.1.

**Table M231.1 – Accomplishment reporting**

<b>Code</b>	<b>Description</b>	<b>Unit of Measure</b>	<b>Accomplishment Reporting</b>
231	Pressure grouting for slab jacking / stabilisation	m <sup>2</sup>	Report area of pavement slabs treated

**ANNEXURE M231/A – DETAILS OF WORK**

Road No.	C/Way	Lane	Segment or Link	Chainage		Pavement Type	Area (m2)
				From	To		

Details of extent and location of voids beneath the pavement slabs:

Details of level differences between slabs:

Slab maps/sketch plans attached:	YES / NO	("Yes" unless specified otherwise)
Design Surface levels attached:	YES / NO	("Yes" unless specified otherwise)
Field Trial required:	YES / NO	("Yes" unless specified otherwise)
Warranty Period:		(6 months unless specified otherwise)

## **ANNEXURE M231/B – MEASUREMENT AND PAYMENT**

### **B.1 GENERAL**

#### **B1.1 Pay Items**

Pay items are identified in Annexure M231/B.2.

#### **B1.2 Prices**

The price(s) of pay items with a quantity of work in the schedule must be costed with due allowance for all costs 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.

#### **B1.3 Overheads**

Any overheads must be distributed between pay items.

#### **B1.4 No Lump Sum**

Pay items with a quantity of work specified must not be tendered as a lump sum price.

#### **B1.5 Trial Procedures**

Payment must be made for any trial sections which form part of the work detailed in Annexure M231/A and which conform to this Specification.

#### **B1.6 No Payment**

You will not be paid for any rework required to achieve conformity with this Specification.



**B.2 SCHEDULE OF PAY ITEMS**

<b>Pay Item *</b>	<b>Item Name and Description</b>	<b>Units</b>
	<b>Note:</b> The work includes all activities, equipment and materials associated with stabilising and jacking slabs.	
<b>M231P1</b>	<b>Slab stabilization / jacking – pressure grouting</b>	
M231P1.1	Grout holes	Each.
M231P1.2	Volume of grout	m <sup>3</sup>
<b>M231P2</b>	<b>Establishment – slab stabilisation / jacking - pressure grout</b>	Each.
	Notes:	
	(i) Establishment is paid once per shift.	
	(ii) It is taken that you have included all the following in tendering your establishment rate - no further payment will be made for them:	
	(a) Plant float to/from the site or project; (b) Set up and removal of site facilities (eg: office, sheds, toilets); Principals facilities (if required );	
	(c) Initial travel to site or project;	
	(d) Daily travel to/from site or project;	
	(e) Accommodation (eg: on site or motel/hotel.	
<p>* Pay Items are primarily for guidance in preparing Work Orders (which must be 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>(a) selecting those Pay Items which denote the activities that are to be undertaken; (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 Specification TfNSW G10 for a list of these.</p>		

## **ANNEXURE M231/C – SCHEDULES OF HOLD POINTS, WITNESS POINTS AND IDENTIFIED RECORDS**

### **C.1 SCHEDULE OF HOLD POINTS AND WITNESS POINTS**

<b>Clause</b>	<b>Type</b>	<b>Description</b>
2.1	Witness	Where a field trial is specified, provide two Business Days notice of commencement and details of extent and location of trial work.
2.1	Hold	Provide conformity data for trial work in respect of the requirement set out in Clause 5.
3.4	Hold	Provide details of the Nominated Mix and a summary of test results at least seven Business Days before commencement of the works.
3.4	Hold	Provide details of any change to the Nominated Mix and a summary of test results at least seven Business Days before continuation of the works.

### **C.2 SCHEDULE OF IDENTIFIED RECORDS**

<b>Clause</b>	<b>Description of Identified Record</b>
3.4	Details of Nominated Mix
4.1.1	Drilling Location Plan
4.1.4	Record of Slab Thickness and Void Depth
4.4	Daily Work Record
5.1	Conformity records

## **ANNEXURE M231/D – PLANNING DOCUMENTS**

### **D.1 CONSTRUCTION PROCESSES**

<b>Clause</b>	<b>Process</b>	<b>Details</b>
3	Materials	Materials conform to all the requirements set out in Clause 3.
4	Construction method	Details of all equipment to be used and construction methods proposed
4.1	Drilling of Grout Holes	Ensure compliance with Clause 4.1 and Annexure M321/ E.
4.2	Details of Grouting Process	Ensure compliance with Clause 4.2.
4.3	Completion of work	Ensure compliance with Clause 4.3.
4.4	Daily Work Record	Record of work.
5 and TfNSW Q	Process Conformity	Provision of Inspection and Test Plan to indicate conformity with the requirements of Clause 5.1.

## ANNEXURE M231/E – GROUT HOLE LOCATIONS

Refer to Clause 4.1.1

### E.1 JOINTED REINFORCED CONCRETE PAVEMENT (JRCP)

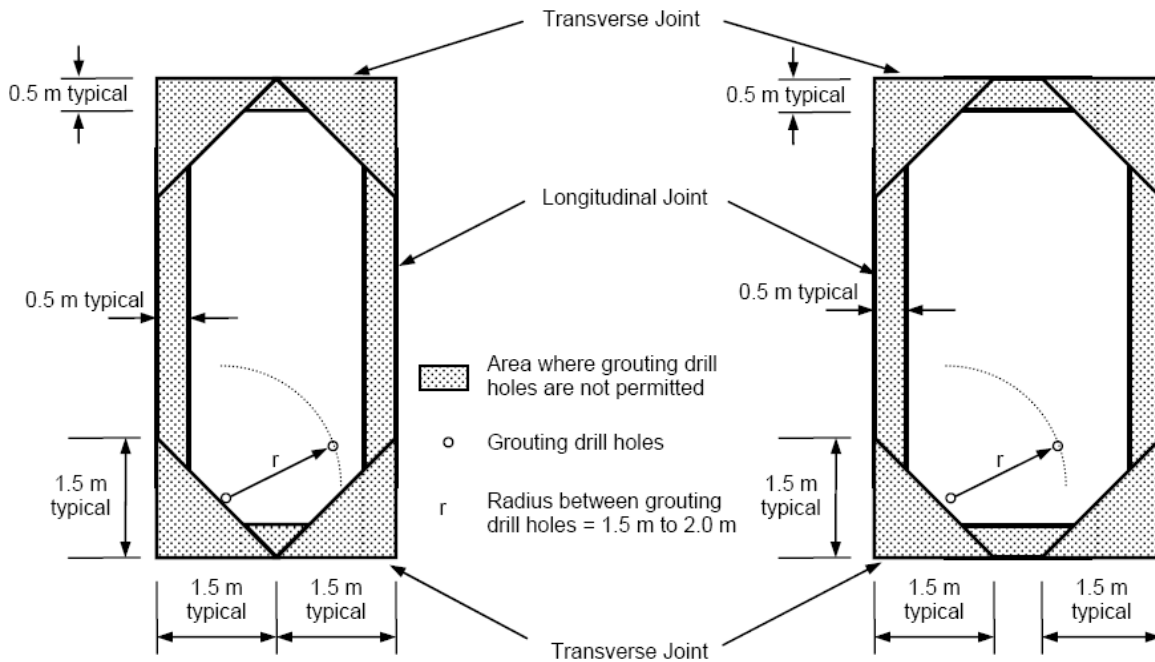


Figure 1 – Slabs up to 3 m wide

Figure 2 – Slabs over 3 m wide

### E.2 PLAIN CONCRETE PAVEMENT (PCP) AND STEEL FIBRE REINFORCED CONCRETE PAVEMENT (SFCP)

Note that discrete PCP and SFCP slabs may also contain mesh or bar reinforcement.

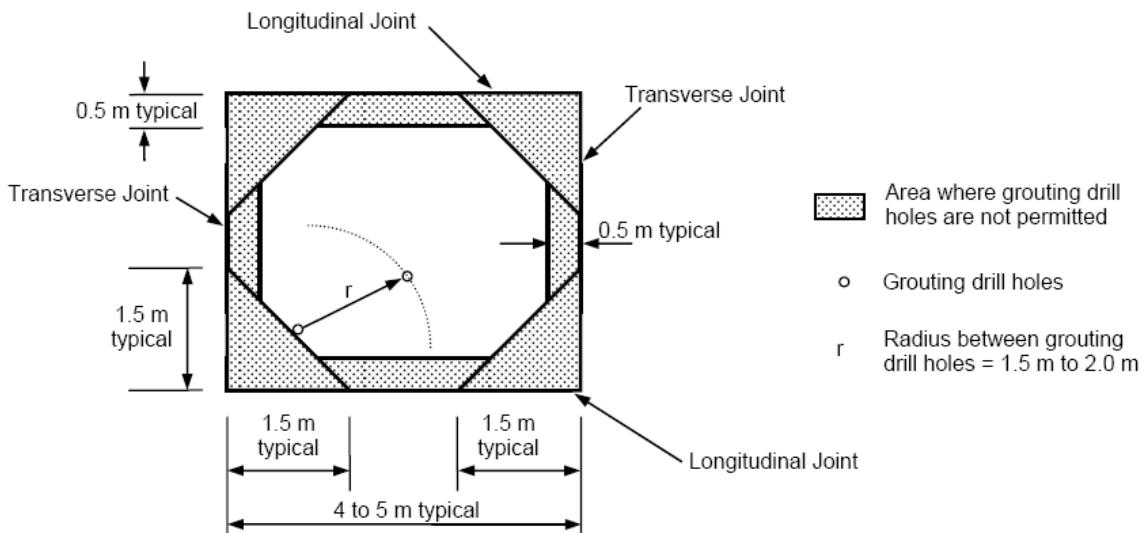


Figure 3 – Typical slab lengths are 4 to 5 m

## **ANNEXURES M231/F TO M231/L – (NOT USED)**

### **ANNEXURE M231/M – REFERENCED DOCUMENTS**

Refer to Clause 1.3.5.

#### **TfNSW Specifications**

TfNSW G10	Traffic Management
TfNSW G36	Environmental Protection
TfNSW Q	Quality Management System
TfNSW 3211	Cements, Binders and Fillers

#### **TfNSW Test Methods**

TfNSW T375	Sampling and Testing of Grout
------------	-------------------------------

#### **Australian Standards**

AS 2758.1	Aggregates and rock for engineering purposes – Concrete aggregates
AS 3582	Supplementary cementitious materials for use with Portland and blended cement Part1: Fly ash
AS 1478	Chemical admixtures for concrete, mortar and grout – Admixtures for concrete
AS 1012	Methods of testing concrete