



Northern Territory Government

Department of Infrastructure, Planning and Environment

Road Projects Division

MATERIALS TESTING MANUAL



CONTENTS

TITLE PAGE

INTRODUCTION

AMENDMENT RECORDS

CONTENT NOTIFICATION

INDEX OF SECTIONS

SECTION 1	-	CODES OF PRACTICE
SECTION 2	-	SAMPLING AND TESTING SOILS
SECTION 3	-	SAMPLING AND TESTING AGGREGATE
SECTION 4	-	SAMPLING AND TESTING PAVEMENT MARKING AND TRAFFIC CONTROL DEVICES
SECTION 5	-	SAMPLING AND TESTING BITUMEN AND RELATED PRODUCTS
SECTION 6	-	SAMPLING AND TESTING CEMENT AND CONCRETE
SECTION 7	-	PAVEMENT TESTING
SECTION 8	-	NOT USED
SECTION 9	-	NOT USED
SECTION 10	-	AUSTRALIAN STANDARDS AND OTHER PUBLICATIONS COVERED UNDER THE DEPARTMENT OF INFRASTRUCTURE, PLANNING AND ENVIRONMENT ROADWORKS SPECIFICATION



MATERIALS TESTING MANUAL

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Approval Authority

DIRECTOR, ROAD PROJECTS

Date ____ / ____ / ____



INTRODUCTION

This Manual comprises Laboratory Tests and Field Procedures most commonly used by this Department in the quality control of road building materials and of work processes, and to provide uniformity in sampling and testing of construction materials throughout the Northern Territory.

Department of Infrastructure, Planning and Environment Test Methods have been developed to cover sampling and testing of construction materials which are not adequately covered by Australian Standards and to assist in the selection of test methods required to provide a sound basis on which adequate construction engineering decisions are made.

The Test Methods shall be adhered to when sampling or testing is performed on Department of Infrastructure, Planning and Environment projects, and shall be used in conjunction with the relevant Australian Standard methods where specified in this manual.

Tests are to be carried out strictly in accordance with the methods described in this Manual.

As soil is a material that is essentially heterogeneous, all reasonable precautions should be taken to ensure that representative samples are obtained for testing. Where contracts are involved, it is suggested that sampling locations and techniques be mutually agreed upon by both parties to suit each job and that where possible representatives of both parties be present at the time of sampling.

The required number of tests will vary according to the reasons for testing. The number of tests should be related to the variability of the material in question and the confidence required in the test results. The minimum number of tests required are specified in the relevant tender specification.

It is important that those engaged in soil testing should have not only a thorough knowledge of testing procedures, but also a basic understanding of the reasons, application and limitations of testing, and the uses to which the results will be put.



Road Projects Division

AMENDMENT RECORDS

The Materials Testing Manager is responsible for issuing amendments to this manual.

It is the responsibility of each manual holder to ensure the amendments are incorporated in to their manual when issued.

Each new amendment will be inserted into the manual and all relevant data recorded on this amendment record sheet. This will serve to ensure that all manuals are currently up to date.

The manual holder should consider the need to retain test methods or pages of test methods which have been superseded by the amendment. Superseded pages may need to be retained due to contractual requirements of reference or where requested by a client. It is suggested that pages be marked as "Superseded" and removed from the manual and held in a separate folder or project file.

AMENDMENT NO.	AMENDMENT ACTION	PURPOSE OF AMENDMENT	ISSUE DATE	INSERTED BY
1	<i>INSERT:</i> NTTM 217.1 11/95 2 PAGES	NEW METHOD	13/11/95	M.Staunton
2	<i>REPLACE:</i> NTCP 102.1; SECTION 1 SECTION 2 CONTENTS	REVISION OF METHOD NTCP102.1	13/12/95	M.Staunton
3	<i>INSERT:</i> NTTM 217.2	NEW METHOD	9/4/96	M.Staunton
4	<i>REPLACE:</i> NTTM 304.1 4/95 WITH NTTM 304.1 1/98	REVISION OF NTTM 304.1	6/3/98	M.Staunton
5	<i>INSERT:</i> NTTM 404.1 NTTM 404.2	NEW METHODS	6/3/98	M.Staunton
6	<i>INSERT:</i> NTTM 500.1	NEW METHOD	12/98	M.Staunton
7	<i>INSERT:</i> NTTM 402.2 NTTM 404.3 NTTM 405.1	NEW METHODS	3/99	M.Staunton A.Grainger
8	<i>INSERT:</i> NTTM 701.1 & NTTM 702.1	NEW METHODS	8/99	M.Staunton A.Grainger



Road Projects Division

AMENDMENT NO.	AMENDMENT ACTION	PURPOSE OF AMENDMENT	ISSUE DATE	INSERTED BY
9	'MAJOR REVISION' AMMENDMENTS MADE TO THE MAJORITY OF TEST METHODS CONTAINED IN THE MANUAL	'MAJOR REVISION'	06/03	A.Grainger
10	<i>DELETE:</i> NTCP 104.1 04/95 NTCP 105.1 04/95	DELETION OF METHODS		A.Grainger
11	<i>DELETE:</i> NTTM 203.2 04/95 NTTM 203.3 04/95	DELETION OF METHODS. INCORPORATED INTO NTTM 203.1		A.Grainger
12	<i>DELETE:</i> NTTM 204.2 04/95 NTTM 204.3 04/95 NTTM 204.4 04/95	DELETION OF METHODS		A.Grainger
13	<i>DELETE:</i> NTTM 206.1 04/95 NTTM 207.1 04/95 NTTM 208.1 04/95 NTTM 209.1 04/95 NTTM 210.1 04/95 NTTM 212.1 04/95 NTTM 213.1 04/95	DELETION OF METHODS		A.Grainger
14	<i>DELETE:</i> NTTM 217.2 01/96	DELETION OF METHOD. INCORPORATED INTO NTTM 217.1		A.Grainger
15	<i>DELETE:</i> NTTM 301.1 04/95 NTTM 303.1 04/95 NTTM 306.1 04/95	DELETION OF METHODS		A.Grainger
16	<i>DELETE:</i> NTTM 402.2 03/99 NTTM 404.2 01/98	DELETION OF METHODS		A.Grainger



MATERIALS TESTING MANUAL

CONTENT NOTIFICATION

TO: Materials Testing Manager NT Road Projects Division Highway House PALMERSTON NT 0830 PHONE: (08) 8999 4608	FROM:
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**NOTIFICATION OF INACCURACY OR AMBIGUITY
AND SUGGESTIONS FOR IMPROVEMENT**

METHOD NO.	SHEET NO.	SECTION NO.	RECOMMENDED ACTION REQUIRED

The NTRPD Materials Testing Manual will be periodically reviewed. Suggestions for improvements are welcome. Notification of any inaccuracy or ambiguity found should be reported without delay.



Road Projects Division

INDEX OF CODES OF PRACTICE

METHOD NO.	REVISED DATE	SECTION 1 – METHOD CODE OF PRACTICE
NTCP101.1	06 / 03	Selection of Test Methods
NTCP102.1	06 / 03	Testing Field Compaction for Conformance
NTCP103.1	06 / 03	Site Selection by the Stratified Random Technique
NTCP105.2	06 / 03	Audit Testing of Compaction - Joint Method

INDEX OF TEST METHODS

TEST METHOD	REVISED DATE	SECTION 2 - SAMPLING & TESTING SOILS
NTTM 201.2	06 / 03	Modified Compaction - Lime Stabilised Materials.
NTTM 201.3	06 / 03	Modified Compaction - Cement Stabilised Materials.
NTTM 201.4	06 / 03	Modified Compaction – Bituminous Stabilised Materials.
NTTM 202.2	06 / 03	California Bearing Ratio - Lime Stabilised Materials.
NTTM 202.3	06 / 03	California Bearing Ratio – Cement Stabilised Materials.
NTTM 203.1	06 / 03	Unconfined Compressive Strength.
NTTM 204.1	06 / 03	Cement Content of Stabilised Materials - Heat of Neutralisation.
NTTM 204.5	06 / 03	Determination of the Lime Saturation Point of Stabilised Materials - pH Method.
NTTM 204.6	06 / 03	Available Calcium Oxide or Calcium Hydroxide in Lime.
NTTM 204.7	06 / 03	Rate of Spread of Lime or Cement.
NTTM 204.8	06 / 03	Stabiliser Distribution.
NTTM 205.1	06 / 03	Durability Cement Stabilised Materials.
NTTM 211.1	06 / 03	Plate Bearing Test.
NTTM 214.1	06 / 03	Visual Classification.
NTTM 215.1	06 / 03	Standard Ball Penetration Test.
NTTM 216.1	06 / 03	Measurement of Layer Thickness.
NTTM 217.1	06 / 03	Particle Size Distribution – Oversize Material

INDEX OF TEST METHODS

TEST METHOD	REVISED DATE	SECTION 3 - SAMPLING & TESTING AGGREGATES
NTTM 302.2	06 / 03	Wet/Dry Cycle - Durability Test. (Minus 100mm size)
NTTM 302.3	06 / 03	Wet/Dry Cycle - Durability Test. (Plus 100mm size)
NTTM 304.1	06 / 03	Skid Resistance Using the Portable Pendulum Tester.
NTTM 305.1	06 / 03	Pavement Surface Texture Depth.



Road Projects Division

INDEX OF TEST METHODS

TEST METHOD	REVISED DATE	SECTION 4 - SAMPLING & TESTING PAVEMENT MARKING AND TRAFFIC CONTROL DEVICES
NTTM 401.1	06 / 03	Wet Film Thickness Comb
NTTM 402.1	06 / 03	Measurement of Rate of Application of Spherical Glass Beads
NTTM 403.1	06 / 03	Plastic Guide Posts - Vertical Deflection and Angular Deviation
NTTM 404.1	06 / 03	Retroreflectivity Testing of Pavement Marking
NTTM 404.3	06 / 03	Retroreflectivity Testing of Pavement Marking – Wet Condition
NTTM 405.1	06 / 03	Certification of Pavement Line Marking Apparatus

INDEX OF TEST METHODS

TEST METHOD	REVISED DATE	SECTION 5 - SAMPLING & TESTING BITUMEN AND RELATED PRODUCTS
NTTM 500.1	06 / 03	Certification of Bitumen Sprayers

INDEX OF TEST METHODS

TEST METHOD	REVISED DATE	SECTION 6 - SAMPLING & TESTING CEMENT & CONCRETE
NTTM 601.1	06 / 03	Quality Control of Concrete - Wet Analysis

INDEX OF TEST METHODS

TEST METHOD	REVISED DATE	SECTION 7 – PAVEMENT TESTING
NTTM 701.1	06 / 03	Benkleman Beam Testing Methodology
NTTM 702.1	06 / 03	Field Permeameter testing of Bituminous Seals
