Specific Accreditation Criteria

ISO/IEC 17025 Application Document

Infrastructure and Asset Integrity - Annex

Geotechnical and civil construction materials testing

July 2018

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Geotechnical and civil construction materials testing

This document provides interpretative criteria and recommendations for the application of ISO/IEC 17025 for both applicant and accredited facilities conducting geotechnical and civil construction materials testing.

Applicant and accredited facilities must comply with all relevant documents in the NATA Accreditation Criteria (NAC) package for Infrastructure and Assest Intregrity (refer to *NATA Procedures for Accreditation).*

The clause numbers in this document follow those of ISO/IEC 17025 but since not all clauses require interpretation the numbering may not be consecutive.

5 Structural requirements

5.5

Organisation and technical supervision

The facility must ensure that adequate technical control is maintained at each accredited site, including that for sampling and field testing.

Note: See also 6.2.2 Staff qualifications and experience

The facility shall maintain a policy / procedure defining how technical supervision is maintained, covering the various staffing levels, and the activities and locations covered e.g. annex sites. Parts of such information may be detailed in job descriptions.

Management of the facility shall ensure that supervisors provide adequate technical control over tests covered by the scope of accreditation and that such persons have demonstrable experience in those tests (refer Section 6.2.2 for the appropriate Supervisory Levels).

Aspects of technical supervision which must be demonstrated to be effective include, where applicable, the following:

- approval of operational practices under one's responsibility;
- authorisation of staff to perform specific activities, including those who can issue reports, perform work outside normal hours etc.;
- ensuring that the competence of staff undertaking work is established (in accordance with the facility's procedures) and that they participate in continuing training and development;
- ensuring regular review of the facility's internal quality control and proficiency testing/ quality assurance data, the methods used and results generated;
- dealing with technical queries from staff regarding all relevant aspects of the facility's testing operations;
- monitoring the quality of reporting of test results;
- reviewing customer specifications and overseeing the development and/or introduction of any new test procedures or technical processes;
- developing and reviewing the laboratory equipment assurance program;
- attending other sites (covered by accreditation) under the technical control of the facility for supervisory visits e.g. or annex sites.

Supervisory staff must demonstrate a sound understanding of NATA accreditation criteria.

It is recognised that specific aspects of supervision may be shared amongst a number of individual supervisors; however, in such cases the responsibility for top level oversight of any given aspect of technical supervision must be clearly defined.

The supervisory arrangements must also take into account field/sampling activities.

Where the individual in technical control is not permanently based at the facility, direct supervisory control may be delegated to appropriately trained and designated staff (refer Section 6.2.2). In such cases, the circumstances requiring onsite involvement by designated Supervisory Level 4 or 5 staff are to be defined, including a minimum visit frequency. The required degree of onsite involvement will depend upon many factors, including the following:

- the experience of local fulltime staff;
- the diversity and quantity of work undertaken;
- the availability of local technical back-up in the absence of senior local staff;
- the nature and frequency of quality assurance activities undertaken for the site.

Delegation of day-to-day supervisory responsibility to staff not meeting the criteria for designation at Supervisory Level 2 is only appropriate where all of the following are met:

- the materials under test are unlikely to vary widely;
- the testing comprises only basic procedures for which the training required to attain proficiency is not commensurate with the minimum duration of experience required for the attainment of Supervisory Level 2;
- the local staff demonstrate a satisfactory level of ongoing competence (for example, regular comparison testing).

6 Resource requirements

6.2 Personnel

6.2.2

Staff qualifications and experience

Defined supervisory levels are well established within the Australian CMT industry and are commonly reflected in the contractual documentation used by some specifiers.

NATA has adopted the following approach with respect to defined supervisory levels.

Levels for overall (company-wide) technical control	
Level 5	Designation reflects an established capability for providing technical control over a facility involved in a wide range of tests and/or material types. Personnel designated at Supervisory Level 5 will hold a Degree or Advanced Diploma in Civil Engineering, Engineering Geology or similar relevant tertiary qualification with not less than 5 years full time experience in construction materials testing duties.

Level 4	Designation reflects an established capability for providing technical control over a facility involved in only a narrow range of tests and material types. Personnel designated at Supervisory Level 4 will hold a Degree or Diploma in Civil Engineering, Engineering Geology or similar relevant tertiary qualification with not less than 3 years full time experience in construction materials testing duties.
Levels for local (delegated) supervision and technical control	
Level 3	Designation reflects an established capability for providing delegated technical control, potentially over a wide range of tests and/or material types. Personnel designated at Supervisory Level 3 will hold a Certificate IV applicable to construction materials testing with not less than 3 years full time experience in construction materials testing duties.
Level 2	Designation reflects an established capability for providing delegated technical control over a narrow range of tests and material types. Personnel designated at Supervisory Level 2 will hold a Certificate III applicable to construction materials testing with not less than 2 years full time experience in construction materials testing duties.
Notes:	Level 1 is not listed above but represents a non-supervisory designation for which there are no associated pre-requisites. The arrangements for supervision of Level 1 personnel are to be defined by the facility. It is recognised that, prior to July 2013, some laboratory personnel were designated by their employer for supervisory levels based on considerations other than educational attainment and that this was done in accordance with the accreditation criteria which applied at the time. Companies wishing to maintain such historical designations for personnel should consider whether the professional development and training undertaken is commensurate with the technical duties expected of such personnel.

For NATA assessments, personnel having primary responsibility for technical control for the accredited facility i.e. designated Supervisory Level 5 or 4 personnel (as relevant) within the organisation, must be present for the initial assessment and reassessments.

6.4 Equipment

6.4.3 The documented procedure(s) covering the storage of purchased reagents/materials/solutions must specify the shelf life of perishable materials.

Solutions prepared in-house must be labelled with appropriate identification i.e. content, date of preparation, the concentration, the identity of the preparer and, where appropriate, an expiry date.

Stone or concrete blocks used for consistency checks of nuclear gauges must be stored in a dry environment.

6.4.7 Facilities must ensure that where methods writing bodies have included equipment calibration and checking intervals in standard methods that these intervals must be followed if the methods are covered by the accreditation.

Facilities should refer to the *General Accreditation Guidance: General Equipment - Calibration and Checks, General Equipment Table* for guidance when calibration and checking intervals are not specified in standard methods.

6.4.10 Documents in the form of a worksheet may also function as instructional documents for equipment checks performed in-house provided they are clear regarding the procedures to follow.

7 Process requirements

7.3 Sampling

7.3.1 When methods for sampling and sample preparation are included in test methods, the facility is required to comply with these unless sampling is specifically excluded from the scope of accreditation.

In cases where sampling and/or sample preparation are not included in the standard test methods, the facility must have its own documented in-house procedures for these activities that have been validated for the intended purpose.

When the facility has only partial or no control over sampling the following issues must be addressed:

- test records must include details of the supplier of the sample and other relevant historical information such as its condition on receipt and the reported date of sampling;
- if a sample has a characteristic that casts doubt on its validity, but it is not possible to reject the sample, a clear statement of the perceived deficiencies must be made on the report;
- if the test method specifies the use of a particular sampling method and it cannot be determined if the sampling method was followed, this must be acknowledged on reports.

Where sampling is not carried out under the control of the facility and within the scope of accreditation, the test results cannot be extended to cover a batch or consignment.

7.4 Handling of test or calibration items

7.4.2 Sample identification labels must be secure and legible. Labelling on caps and lids alone is not acceptable because of the risk of wrongly replacing lids during testing.

7.4.4 Sample containers, where appropriate, must be leak-proof and impervious to contamination during transport. Any temperature or other environmental tolerances specified in the method must also be satisfied.

7.6 Evaluation of measurement uncertainty

7.6.3 Estimation of measurement uncertainty only applies, at present, to quantitative tests. This includes those tests where a numerical value is reported as a

qualitative result (e.g. detected or not detected). In estimating the measurement uncertainty, the facility needs to consider those components under its control. For example, if the facility is not involved in the taking of the sample then it does not have to estimate the measurement uncertainty of this process. It should, however, be clear what components have been included in the uncertainty estimation.

Where results of tests are not numerically derived (i.e. qualitative), estimates of uncertainty are not required. This should not, however, preclude the facility from developing an understanding of the components that contribute significantly to the variability of results of such tests.

For test methods which do not meet Note 1 of Clause 7.6.3, such as in-house test methods or standard methods that do not specify limits to the major sources of uncertainty, facilities need to maintain estimates of measurement uncertainty for each test method, details of how these values were obtained and procedures for determining the estimates.

Facilities applying for accreditation, or applying for additions to the scope of their existing accreditations, are required to provide estimates of measurement uncertainty for all test methods not meeting Note 1 of Clause 7.6.3 prior to the visit.

Note: Many published test methods state the form of the reported result in terms of the rounding protocol which is to be applied. However, on its own, this does not mean that the corresponding accuracy can be achieved in all circumstances and does not eliminate the need for facilities to assess the accuracy of values obtainable from methods in regard to their intended use and the customer requirements, in accordance with ISO/IEC 17025 7.2.2.3. Where the estimated uncertainty is larger than that implied by the level of rounding of the reported result, a statement of estimated uncertainty should be included, in accordance with ISO/IEC 17025 7.8.3.1

7.7 Ensuring the validity of results

7.7.2

Proficiency testing programs

Participation in proficiency testing (PT) programs is required, where available, in the following products as covered by the facility's scope of accreditation.

- aggregates
- asphalt
- concrete
- soils

Normally, each of these areas of testing will need to be covered at least once every two years although different tests within the groups may be covered in different programs. These programs usually will not cover the facility's entire scope of accreditation or the frequency of the activity necessary for a total quality assurance program.

Apart from the providers of commercial PT services operating in Australia and overseas, there are a number of industry-based PT programs that are regularly organised. Such industry-based programs may be acceptable provided they are technically sound and fit-for purpose. Refer to the *Proficiency Testing Directory* available on the NATA website.

The requirement for participation in PT programs, as listed above, also applies to annex facilities.

Other quality assurance activity (QAA)

Facilities, including annex facilities, require a quality assurance activity (QAA) plan which must be followed and reviewed regularly. All results from QAA must be reviewed and evidence of this review must be maintained.

The amount of QAA in which a facility needs to be involved depends on the level of assurance needed and the breadth of its scope of accreditation. The level of assurance required is dependent on many factors including associated risks and the frequency of testing.

In addition to PT participation for the categories of material, a facility is expected to perform at least one QAA in each discrete area of competency for which it is accredited in any three year period (i.e. per assessment cycle, or in other words, between reassessments). The basis on which these competency areas were established (for example, the historical NATA subclass structure might be an acceptable approach) must be defined.

The following information covers types of quality assurance activity that may be applicable in the context of geotechnical and civil construction materials testing.

Interlaboratory comparisons

Representative sub-samples of a material are selected and sent to several facilities for testing or measurement. While not necessarily subject to the type of statistical analysis that would apply for formal PT programs, the results are still typically compared so that a determination can be made, as to whether the test results are satisfactory, within a defined confidence interval. Test results that fall outside this confidence interval might signal that the individual facility may need to review its performance of the tests involved.

Measurement audits and 'known value' schemes

These are measurements by a facility of a specific artefact or prepared sample, whose reference value(s) are known. The extent of variance between the reported results from the facility and the reference value may also be used as a diagnostic tool. For example, measurement audits are used in the context of calibration facilities (e.g. for nuclear gauge calibrations), but can also be used for testing facilities (e.g. a standard block for comparison of nuclear gauges).

Split-sample testing schemes

Split-sample testing involves comparisons of the data produced by small groups of facilities. This technique is frequently used as a measure of the effectiveness of training.

Qualitative schemes

These schemes are designed to evaluate the capabilities of facilities to characterise specific entities, e.g. colour of aggregate.

Such schemes may involve the special preparation of test items with addition of the subject component by the scheme coordinator.

Partial-process schemes

These schemes involve the evaluation of a facility's ability to perform parts of the overall testing or measurement process. Examples may include a facility:

- calculating and reporting a given set of data (rather than conducting the actual test or measurement);
- obtaining and preparing samples or specimens in accordance with a specification;
- determining a maximum dry density and optimum moisture content from given values of dry density and moisture content or classifying soils in accordance with AS 1726.

Applicants for accreditation will need to have developed a plan for assuring the quality of tests and shall also have participated in some form of quality assurance activity (QAA) for each applicable product with a satisfactory outcome, prior to accreditation being granted.

7.7.3 When PT or QAA activities retrun outlier results, the facility must:

- evaluate whether other results (such as those reported to customers for the same test method) may have been affected; and
- prevent incorrect results being reported in the future.

7.8 Reporting of results

7.8.7 Reporting opinions and interpretations

Reporting to product specifications and interpreting results to customer criteria may be permitted within the scope of accreditation

Opinions regarding fitness for purpose of tested materials or work or predictive opinions shall not be included in test reports unless specifically identified as being outside the scope of accreditation.

Appendix A: Concrete testing

This appendix provides additional interpretation of the application of ISO/IEC 17025 for concrete testing.

The clause numbers in this section follow those of ISO/IEC 17025 but since not all clauses require interpretation the numbering may not be consecutive.

5 Structural requirements

5.4 Remote curing sites must be:

- under the control of the base facility;
- covered by the base facility's management system with documented procedures in place.

Refer to Appendix D for further details.

6 Resource requirements

6.3 Facilities and environmental conditions

6.3.4 Remote curing sites must be secure and only accessible to authorised personnel.

6.4 Equipment

6.4.7 & 6.4.10

Calibration and checking intervals for concrete testing equipment

The following supplementary information pertains to equipment items having specific application to concrete testing not described within NATA's *General Accreditation Guidance: General Equipment - Calibration and Checks, General Equipment Table.*

Item of equipment	Calibration interval (years)	Checking interval (months)	Procedures and references
Air Meters (used for AS 1012.4.1, .4.2, and .4.3)	Initial		Appendix A of AS 1012.4.1, .4.2, and .4.3. Bowl diameter and height and for AS 1012.4.1 the conical cover surface angle.
		6	Pressure gauges on air meters do not require calibration but require checks as detailed in the test methods.
Compression Testing machine (See also under Force Testing Machines) (AS 1012.9, .10, .11, .17)	2		AS 2193 - Class A. Note: If moved, compression testing machines must be recalibrated after relocation.
		12	Planeness of platen surfaces using feeler gauge under straight edge.
		On day of use and when pace rate altered	Load pacing rate check. Facilities need an assurance program in place to ensure that the pace rate remains within specifications during testing.
Concrete shrinkage gauge studs		On day of submission of specimen	Check that the radius of curvature of studs matches the comparator to be used.
Concrete cylinder size measuring apparatus		On day of use	Check output against ‘check bar’ or other reference item.
Dimensional measurement device - check bar or other reference item		Initial	Length checked against a calibrated reference.
Internal and external vibrators		Initial	Certificate of compliance.
Maturity meters (used for ASTM C1074)			
Time measurement	5		

Item of equipment	Calibration interval (years)	Checking interval (months)	Procedures and references
Temperature measurement probes	5		Calibration of one probe per batch over the range of use. Other probes in batch to be checked against reference thermometer before use at expected average temperature of use.
Micrometers (controlled environment testing)	2	12	AS 2102
Moulds	Initial		
Rules used for Slump Test		6	Inspect regularly for wear, in particular at the zero end.
Slump Cones, Rods		Depending on frequency of use and wear.	Tolerance dimensions must be checked and recorded.
Slump Cone		On day of use	Visual check of condition.
Slump Tamping Rod		On day of use	Visual check of condition.
Vibrating table (used for AS 1012.3.3)	5		The table must be tested with load. The load used is to be equal to the mass of an average test sample (including mould).

7.4 Handling of test or calibration items

7.4.1

Curing test specimens in the field

If specimens are stripped on site, a procedure must be in place which avoids drying or damage occurring during both site storage and transportation back to the base facility.

7.8 Reporting of results

7.8.2 Common requirements for reports

7.8.2.2 Reports must clearly differentiate between any information and test results which may be supplied by the customer (such as concrete grade, date of casting and slump result) and those determined by the facility.

Appendix B: Soil and aggregate testing

This appendix provides additional interpretation of the application of ISO/IEC 17025 for soil and aggregate testing.

The clause numbers in this section follow those of ISO/IEC 17025 but since not all clauses require interpretation the numbering may not be consecutive.

6 Resource requirements

6.4 Equipment

6.4.7 & 6.4.10

Calibration and checking intervals for aggregates and soil testing equipment

The following supplementary information pertains to equipment items having specific application to concrete testing not described within NATA's *General Accreditation Guidance: General Equipment - Calibration and Checks, General Equipment Table*.

Item of equipment	Calibration interval (years)	Checking interval (months)	Procedures and references
Benkelman Beam			
Dial Gauge	0.5		As for calibration for dial gauges below. The dial gauge is to be calibrated while on the beam, whenever possible.
Rear axle loadings		12 or on use if the truck is used for other purposes.	Check at a public weighbridge and obtain a certificate of the weight. The truck must be level during the measurement. Note: Weighbridges that are raised off the ground may not be suitable to correctly weigh the load.
Beam		Initially and prior to use if more than one ratio is used.	Check the appropriate ratio has been selected (i.e. 2:1 or 3:1) by measuring lever lengths or by the use of calibrated feeler gauges.
Tyre Pressure - Reference gauge	3		AS 1349 (industrial grade)

Item of equipment	Calibration interval (years)	Checking interval (months)	Procedures and references
Tyre Pressure - Working gauge		12 or prior to use, if less frequent.	Compare against reference gauge.
CBR machine (motorized) AS 1289.6.1.1, .6.1.2, .6.1.3 and state road agency methods			
		24	Rate of travel under load up to the capacity, or expected CBR values.
Dial gauges and LVDT–type gauges			
CBR, penetration, swell, triaxial, direct shear; compressive strength	2		Calibration is required where the accuracy of the gauge is judged to be critical to the test outcome. However, facilities may not require the full capabilities of the gauge to be calibrated (such as is described in AS 2103) for the restricted manner in which these are used. A limited or restricted calibration may be appropriate and can be discussed with the calibration provider.
		On day of use	Check LVDT against standard length (e.g. micrometer).
Consolidation	2		Must satisfy the requirements of AS 2103 for 0.002 mm dial gauges.
		On day of use.	Check LVDT against standard length (e.g. micrometer).
Dynamic cone			
		Initial	Check all dimensions and the mass of hammer.
		On day of use	Visual check of sharpness. Check height of drop.
Hydrometers			
Used for AS 1289.3.6.3, .3.8.2			
Working	Initial		AS 1289.3.6.3.

Item of equipment	Calibration interval (years)	Checking interval (months)	Procedures and references
Used for ASTM D422			
Working			Hydrometer acceptable for use if marked as complying with ASTM E100.
Used for AS 1141.24			
Reference	5		
Working		24	AS 1141.2, AS 1141.24 Sect. 7 (d).
Liquid limit			
Casagrande Used for AS 1289.3.1.1 and .3.1.2			
Device Operation		On day of use	Check drop height, side play, and the degree of scoring of the metal cup. Assess for wear.
Bowl		Initial	Check critical dimensions - C, J, K, P, R and S. AS 1289.3.1.1, Fig 1.
Grooving tool		6	Critical dimensions only checked.
Rubber base		24 (where 91 to 94 IRHD) or 36 (where 86 to 90 IRHD)	Verified as per AS 1289.3.1.1 with calibrated reference equipment. Rubber bases may be inverted to extend life.
Cone Used for AS 1289.3.9.1			
Cone	Initial		
		6	Check mass of cone and angle against the angle template.
		On day of use	Check cone point using the tip template.

Item of equipment	Calibration interval (years)	Checking interval (months)	Procedures and references
Penetration indicator/dial gauge		6	Check against gauge blocks
Angle Template		24	Check with a calibrated reference instrument.
Tip template		24	Check using calibrated equipment
Load rings and load cells			
CBR	2		In accordance with AS 2193 (or equivalent) Class B. Where load rings are used, calibration reports must also indicate the reading required to give the appropriate seating load as specified in each particular test method. Seating loads do not need to comply with Class B or C requirements, respectively.
Manometers			
Working, liquid		36	Check the cleanliness of the fluid.
Mechanical compactor			
		24	Comparison check against manual compaction. Difference to be less than 2% as per AS 1289.5.1.1. and .5.2.1, in note to clause 3(b).
Proportional calliper Used for AS 1141.14			
		24	Measure over 3 widths to check that the ratio is linear (i.e. that the holes are aligned) for each of the two ratios. The values selected should be representative over the accepted working range of the equipment (i.e. will depend on the type of material produced or tested).
		On day of use	Visual check of jaw closure. Inspect for wear and damage.

Item of equipment	Calibration interval (years)	Checking interval (months)	Procedures and references
Sieves Refer to *Specific Accreditation Guidance: Infrastructure and Asset Integrity Technical Issues in Geotechnical Testing*			
			ISO 3310.1, ISO 3310.2 or equivalent.
Taper gauges, GO/NOGO gauges			
	Initial	60	Check against reference equipment.
Vibratory table			
Used for AS 1289.5.5.1	5		The table must satisfy amplitude requirements of AS 1289.5.5.1 Section 3(a) using an accelerometer or equivalent device when with load. The load to be used is to be equal to the mass of an average test sample, including mould. If different moulds are to be used the check must be made using a mass equal to each size mould filled with an average weight sample.

Appendix C: Asphalt testing equipment

This appendix provides additional interpretation of the application of ISO/IEC 17025 for asphalt testing equipment.

The clause numbers in this section follow those of ISO/IEC 17025 but since not all clauses require interpretation the numbering may not be consecutive.

6 Resource requirements

6.4 Equipment

6.4.7 & 6.4.10

Calibration and checking intervals for aggregates and soil testing equipment

The following supplementary information pertains to equipment items having specific application to concrete testing not described within NATA's *General Accreditation Guidance: General Equipment - Calibration and Checks, General Equipment Table*.

Item of equipment	Calibration interval (years)	Checking interval (months)	Procedures and references
Gyratory compactor Used for AS 2891.2.2			
Rate of gyration		6 or whenever moved	Austroads Test Method AGPT/T211
Gyratory angle		Daily and each change of angle	Austroads Test Method AGPT/T211
Gyratory angles calibrator	2		
Steel wearing disc		Initial 6	Measure dimensions with reference equipment. Visual check prior to use against an unused disc.
Moulds		6	Measure dimensions with reference equipment to check parallelism of sides.
Heating oven A check on the oven used for heating samples is not required, provided that temperature of the individual samples are monitored with appropriately calibrated equipment.			

Item of equipment	Calibration interval (years)	Checking interval (months)	Procedures and references
Ignition oven			
Enclosure		12	Check temperature setting is adequate to ensure that temperature in the enclosure is greater than ignition temperature required.
MATTA testing machine Used for AS 2891.12.1 and .13.1			
Timing	1	On use	Check graph/printed report of load pulse to ensure correct pulse timing.
Displacement measurement devices (LVDTs)	2	On day of use	Check against standard length.
Loading blocks		12	Check with reference equipment
Torque Screwdriver	Initial		External or using suitable reference equipment such as a measured mass and lever arm.

Appendix D: Remote work locations

Introduction

Facilities may be required from time to time to perform sampling, conditioning of specimens and testing away from the base fixed facility for which the accreditation has been granted. This Appendix details the type of testing that may be conducted remotely and the procedures for establishment, notification and assessment of such testing.

Base facility

The base facility is the 'parent' facility that maintains control over the remote testing. This includes overall control of the quality system and supervision (including technical control).

Remote testing must be covered by the base facility's management system with documented procedures in place and operated by competent staff for the tests involved at the work site.

Test reports issued for work performed remotely from the base facility must include a means of identifying the specific annex facility or remote site from which the work was undertaken.

Types of remote testing

The following remote testing is covered by this Appendix:

Field testing	Covers tests typically performed in-situ and is conducted by personnel on a call-out basis from the base or annex facility. All required equipment will be taken to the test site by the testing personnel. Such testing is covered by the base facility accreditation and is identified as field testing within the scope of accreditation.
Laboratory testing at fixed remote work sites	Covers situations where the materials require immediate testing (or curing in the case of concrete) prior to transport of specimens to the base facility. Such testing is limited to those in situ and laboratory tests, as detailed for the work site on the scope of accreditation, for which the test method sets time limitations for the performance of the tests or for those tests on test samples which may change due to the distance needed to return to the base laboratory to complete the tests. Currently this is limited to testing that falls under AS 1012 1, 3.1, 4.1, 4.2, 4.3, 8.1, 8.2, AS 1289 2.1.1 and AS 5101 3.3, 4 (preparation of specimens) (or similar road agency test methods). Remote concrete curing sites are examples of such fixed remote work sites.

Laboratory testing at mobile sites	Covers situations demanding short term testing, on a 'call-out' basis from the base facility, where the samples cannot be returned to the base facility for testing within the time frames required by the customer. Use of a mobile facility as part of a contracted project of more than one week duration will be regarded as an annex facility for the term of the project and all provisions applying to an annex facility (see below) must be met, including completion of the *Notification of Establishment of an Annex Facility* form.
Testing at annex facilities	Involving testing carried out for a single project of more than one week duration. A project is defined as a planned set of work to be completed over a limited period of time and which relates to a defined construction or infrastructure upgrade project that pertain to a single asset owner (although it may comprise a number of stages, sections). It can be the case that a single project involves contracts with more than one customer and, following the release of NATA's *General Accreditation Criteria - Accreditation of New Branch Sites*, accreditation as a Branch Site (where applicable) is the appropriate form of accreditation coverage for such situations. Where accreditation coverage for a project to cover multiple customers is sought but NATA's *General Accreditation Criteria - Accreditation of New Branch Sites* is not applicable (such as for facilities that are expected to close within twelve months), coverage under the annex facility arrangements is still permitted, unless NATA has refused to grant branch site accreditation on the grounds of past performance problems, in which case accreditation as a separate site will be required
Note: Accreditation coverage in the form of an annex facility is not applicable, for example, to quality control testing facilities associated with production plants where material may potentially be supplied to various projects requiring endorsed material testing reports.	

Procedures covering remote testing facilities

Procedures for the following shall be included in the base facility quality documents applying to all sites associated with remote testing operations:

- 'Setting up' and 'closing down' procedures for the remote work site and/or annex facility;
- detailed contract review arrangements prior to acceptance of the work and development of a quality plan for each site;
- Iissuing and control of reports, including preliminary reports and the identification of the site responsible for carrying out the testing;
- how the required level of technical control by the base facility for each site is established and allocated;
- how on-site audit and quality assurance activity requirements are established and delivered;
- availability and/or movement of equipment;
- storage of equipment and records not currently in use;

- verification of equipment performance and calibrations including any specialised requirements (e.g. set up of balances and compaction blocks requiring rigid footings);
- storage, handling, packaging and transport of specimens including records of time of dispatch from the site, any temperature extremes encountered and time of arrival at the base facility.

Each site must have supervision and technical control provided by appropriate personnel as per the supervision criteria detailed in the Infrastructure and Asset Integrity Annex -*Geotechnical and Civil Construction Materials Testing* (Section 5).

Request to extend the accreditation coverage of a base facility to include work sites (including annex facilities)

Accreditation can only extend to tests for which the base facility holds accreditation and formal notification from NATA is required for each remote site, prior to the base facility being able to claim accreditation. Accordingly, the base facility is required to contact NATA prior to the commencement of testing activities at work sites (fixed or mobile) or annex facilities.

Facilities seeking accreditation coverage for a specific work site (whether fixed or mobile) must forward a copy of their procedures covering the operation which addresses the items detailed above, along with a letter of request. Depending on the nature of the operation and its similarity to any other activities for which coverage is already held, an assessment visit may be deemed necessary.

In the specific case of annex facilities, for which accreditation coverage is intended to be provided in circumstances of rapid deployment, as is typically required for construction projects, the facility must, as per the preceding paragraph, forward a copy of its procedures addressing the items detailed above covering the intended operation of annex facilities, along with a letter of request. If found to be satisfactory in accordance with this Appendix, accreditation will be granted to the base facility for the establishment of annex facilities from that time forward. The scope of accreditation of the base facility will be extended to reflect this capability.

Requests will be considered under the timeframes of our *Charter of Service* (available from the NATA website) and therefore it is advisable that this be forwarded well before coverage is required. The time taken to review documentation, undertake any assessment activity and process requests will be charged at NATA's hourly rate in accordance with the current NATA Fee Schedule (available from the NATA website).

Establishment of new annex facilities

Once accreditation to establish annex facilities has been granted, a base facility may establish annex facilities within Australia on an ongoing basis provided that the following requirements are met.

Prior to the commencement of testing on site, the base facility must forward a completed *Notification of Establishment of an Annex Facility* form which includes a declaration of conformance which must be signed by the base facility's NATA Authorised Representative. This form can be obtained from the Accreditation Publications section of NATA's website (under Specific Accreditation Forms: Infrastructure and Asset Integrity for branch or project sites).

NATA will not proceed with the facility's application for the establishment of a new annex facility until all information requested in the *Notification of Establishment of an Annex Facility* form has been satisfactorily provided by the facility. NATA will also take into account the accreditation history of the facility when considering any such application.

Written notification from NATA of the establishment of the annex facility will be forwarded to the Authorised Representative of the base facility. This will include the effective start date, the finish date, a unique site identification number, the project and/or contract(s) covered by the activities of the annex facility, the updated scope of accreditation of the base facility and, if arranged, the date of the NATA staff visit.

The effective start date is defined as the date from which accreditation can be claimed from the annex facility. This start date will not, under any circumstances, be prior to the date of NATA receipt of the satisfactorily completed *Notification of Establishment of an Annex Facility* form.

The finish date is defined as the date at which the operation of the annex facility is anticipated to end, as indicated by the facility at the time of the establishment of the annex facility. This date will also be included on the annex facility details on the scope of accreditation for the base facility. Annex facilities cannot claim accreditation after this date unless prior notification is provided to NATA that the project/contract(s) have been extended.

If the annex facility is awarded additional contract(s) within the same project, the Authorised Representative also needs to provide notification prior to conducting testing for the additional contract and notification must be received from NATA that this has been added to the annex facility details on the base facility's scope of accreditation. Where the additional contract(s) may have a significant impact on the annex facility, a visit by NATA may be conducted in order to consider the requested change.

When an annex facility ceases operation, the Authorised Representative of the base facility is required to notify NATA within two weeks. Unless notified otherwise by the facility, the annex facility will be withdrawn once the finish date has been reached.

Failure to notify NATA of the above within the timeframes specified may result in the withdrawal of reports issued and/or additional visits to the annex facilities.

Assessment of remote work locations

A schedule of visits will be established to review a base facility's capability to establish and maintain annex facilities and/or remote work sites (fixed or mobile). For fixed remote sites, additional technical units (refer to NATA's Fee Schedule) will be assigned based on the effort to assess these sites, which in turn will be reflected in the schedule of visits.

The visit schedule will be reviewed following each NATA assessment of the base facility (including any assessment of a remote testing facility associated with the base facility) and whenever any new fixed or mobile site is added to the scope. The visit schedule covering the base facility (including any associated remote testing facilities) will take into account the range of activities undertaken as well as the following factors:

- location and staffing arrangements (i.e. from where individual remote testing facilities are manned);
- frequency of establishment of remote sites;
- expected maximum staff numbers and level of on-site supervision for remote sites;
- satisfactory outcomes from NATA assessment of remote site visits conducted within the last eighteen months as measured by the following:
  - no reports have been needed to be withdrawn due to technical issues involving a remote site.
  - no findings have been raised which reflect:
    - inadequate supervision;
    - deficiencies in regard to staff competency;
    - loss of control over equipment assurance activities;
    - loss of control over quality assurance activities;
    - loss of control of accommodation/environmental conditions.

In the case of mobile work sites, these may be assessed at the base facility, however, if additional travel time is required to visit a mobile remote work site, costs associated with such travel will be charged on a fee-for-service basis.

In the case of annex facilities, a visit will generally be undertaken within two to eight weeks of commencement of testing for the first annex facility that the base facility establishes after being granted accreditation to establish annex facilities and then every subsequent five facilities established. An assessment involving a technical assessor will typically be scheduled at the six month mark of any annex facility expected to operate for longer than six months and every 18 months thereafter to any facility operating for longer than 24 months.

Where multiple remote work sites exist, it is possible that such sites may not require on site assessment prior to addition to the scope provided that the nature and operation of such sites is similar.

If any non-conformities raised at the visit are of a systemic nature, they must also be addressed at all other existing annex facilities under the control of the base facility and also, if relevant, at the base facility within the four week response period.

Additional visits and suspension options

Failure to comply with the criteria of this Appendix and/or the criteria for accreditation at remote work sites or annex facilities may result in a recommendation for a follow-up visit to the annex facility, a visit to additional remote sites, including annex facilities established by the base facility, or a visit to the next remote site established.

If it becomes evident at any time that there is a lack of supervision and/or technical control (or a failure to comply with other aspects of the criteria for accreditation) of a remote work site or annex facility, the scope of accreditation of the base facility may be varied to reflect suspension of the relevant annex facility or remote site. Depending on the severity of the nonconformities, the facility may be required to withdraw test reports covered by accreditation and inform any affected customers.

Systemic non-conformities identified may result in suspension of the accreditation of the base facility to establish remote work locations (including annex facilities). Such suspension would involve the suspension of accreditation coverage for all existing

annex facilities under the scope of the base facility and the inability to establish new sites within the scope.

Assessment of the base facility

During assessment visits conducted at the base facility, records of annex facilities and remote work sites which are currently operating or have completed their operations since the last visit to the base facility, may be reviewed. If NATA considers that additional assessment time will need to be allocated in order to review such records then the facility will be notified of this in advance of the visit and the time taken will be charged at the published hourly rate.

References

This section lists publications referenced in this document. The year of publication is not included as it is expected that only current versions of the references shall be used.

Standards

ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories
AGPT/T211	Austroad test method – Verification procedure for a “gyropac” gyratory compactor
ASTM C1074	Standard Practice for Estimating Concrete Strength by the Maturity Method
ASTM E100	Standard Specification for ASTM Hydrometers
ASTM D422	Standard Test Method for Particle-Size Analysis of Soils
AS 1012	Methods of testing concrete
AS 1012.1	Sampling of fresh concrete
AS 1012.2	Preparation of concrete mixes in the laboratory
AS 1012.3.1	Slump test
AS 1012.3.3	Vebe Test
AS 1012.4.1	Measuring reduction in concrete volume with increased air pressure
AS 1012.4.2	Measuring reduction in air pressure in chamber above concrete
AS 1012.4.3	Measuring air volume when concrete dispersed in water
AS 1012.5	Determination of mass per unit volume of freshly mixed concrete
AS 1012.8.1	Compression and indirect tensile test specimens
AS 1012.8.2	Flexure test specimens
AS 1012.9	Determination of the compressive strength of concrete specimens
AS 1012.10	Determination of indirect tensile strength of concrete cylinders (Brazil or splitting)
AS 1012.11	Determination of the modulus of rupture
AS 1012.13	Determination of the drying shrinkage of concrete for samples prepared in the field or in the laboratory
AS 1012.17	Determination of the static chord modulus of elasticity and Poisson’s ratio of concrete specimens
AS 1141	Methods for sampling and testing aggregates
AS 1141.1	Definitions
AS 1141.2	Basic Testing Equipment
AS 1141.3.2	Sampling – Rock, spalls, boulders and drill core

AS 1141.14	Particle shape, by proportional calliper
AS 1141.24	Aggregate Soundness – by exposure to sodium sulphate solution
AS 1289	Methods for testing soils for engineering purposes
AS 1289.0	General requirements and list of methods
AS 1289.1.1	Sampling and preparation of soils-Preparation of disturbed soil samples for testing
AS 1289.2.1.1	Determination of the moisture content of a soil – Oven drying method (standard method)
AS 1289.2.3.1	Establishment of correlation – Subsidiary method and the standard method (AS 1289 2.1.1)
AS 1289.3.1.1	Determination of the liquid limit of a soil – Four point Casagrande method
AS 1289.3.1.2	Determination of the liquid limit of a soil – One point Casagrande method (subsidiary method)
AS 1289.3.3.2	Calculation of the cone plasticity index of a soil
AS 1289.3.6.1	Determination of the particle size distribution of a soil – Standard method of analysis by sieving
AS 1289.3.6.3	Determination of the particle size distribution of a soil – Standard method of fine analysis using a hydrometer
AS 1289.3.8.2	Dispersion – Determination of the percent dispersion of a soil
AS 1289.3.9.1	Determination of the cone liquid limit of soil
AS 1289.3.9.2	Determination of the cone liquid limit of soil – One-point method
AS 1289.5.1.1	Determination of the dry density/moisture content relation of a soil using standard compactive effort
AS 1289.5.2.1	Determination of the dry density/moisture content relation of a soil using modified compactive effort
AS 1289.5.4.1	Compaction control test – Dry density ratio (normal method)
AS 1289.5.5.1	Determination of the minimum and maximum dry density of a cohesionless material – Standard method
AS 1289.6.1.1	Determination of the California Bearing Ration of a soil – Standard laboratory method for a remoulded specimen
AS 1289.6.1.2	Determination of the California Bearing Ration of a soil – Standard laboratory method for an undisturbed specimen
AS 1289.6.1.3	Determination of the California Bearing Ration of a soil – Standard field-in-place method
AS 1290.4	Linear measuring instruments used in construction – retractable steel pocket rules
AS 1349	Bourdon tube pressure and vacuum gauges
AS 1457	Geometrical Product Specifications (GPS) – Length standards – Gauge blocks

AS 1478	Chemical admixtures for concrete
AS 1545	Methods for the calibration and grading of extensometers
AS 1984	Vernier Callipers
AS 2001.1	Methods of Test for Textiles – Conditioning Procedures
AS 2026	Density hydrometers
AS 2102	Micrometer Callipers for external measurement
AS 2103	Dial Gauges and Dial Test Indicators
AS 2162.1	Verification and use of volumetric apparatus – General, volumetric glassware
AS 2163	Laboratory glassware – Measuring cylinders
AS 2164	Laboratory glassware – One-mark volumetric flasks
AS 2165	Laboratory glassware – Burettes
AS 2193	Method of Calibration and grading of force-measuring systems of testing machines
AS 2243	Safety in Laboratories
AS 2328	Micrometer heads-Metric series
AS 2341	Methods of testing bitumen and related roadmaking products
AS 2341.23	Determination of residue from evaporation
AS 2341.27	Determination of sedimentation
AS 2378	Density bottles
AS 2853	Enclosures – Temperature Controlled-Performance testing and grading
AS 2891	Methods of Sampling and Testing Asphalt
AS 2891.2.2	Compaction of asphalt test specimens using a gyratory compactor
AS 2891.7.1	Determination of maximum density of asphalt – Water displacement method
AS 2891.12.1	Dynamic creep test
AS 2891.13.1	Indirect tensile method
AS 2891.14.4	Calibration of a nuclear surface moisture-density gauge - Backscatter mode
AS 2929	Test methods- Guide to the format, style and content
BS 733-2	Pyknometers. Methods for calibration and use of pyknometers
BS 1797	Cryogenic vessels. Gas/material compatibility
ISO 649.1	Laboratory glassware- Density hydrometers for general purpose - Specification
ISO 649.2	Laboratory glassware- Density hydrometers for general purpose – Test methods and use

ISO 650	Relative density 60/60 degrees F hydrometer for general use
ISO 3310	Test sieves – Technical requirements and testing

NATA publications

NATA Accreditation Criteria (NAC) package for Infrastucture and Assest Intregrity

General Accreditation Guidance	General Equipment - Calibration and Checks, General Equipment Table
Specific Accreditation Guidance	Infrastructure and Asset Integrity Technical Issues in Geotechnical Testing

Amendment Table

The table below provides a summary of changes made to the document with this issue.

Section or Clause	Amendment
Whole document	Clauses have been aligned with ISO/IEC 17025:2017. Any criteria included in the previous issue that are now covered by ISO/IEC 17025:2017 have been removed. No new interpretative criteria or recommendations have been included other than editorial changes.