TECHNICAL EXCEPTION CLAUSES

The following Technical Exception Clauses supplement or replace requirements specified in the Standard Specification, and shall be read in conjunction with that document.

Where there is an inconsistency between the Exception Clauses and the Standard Specification, the Exception Clauses shall prevail. Where not stated otherwise, the Exception Clause supplements the clause in the Standard Specification.

The clause number and heading of each of the Technical Exception Clauses refers to the respective clause number and heading in the Standard Specification where applicable. Additional requirements are assigned a new Clause number continuing on from the last related Clause number in the Standard Specification.

Where there is no Pay Item description in the Standard Specification and there is a Pay Item in the Bill of Quantities the intent of the Pay Item shall be deemed to be included in the description of the item in the Bill of Quantities. Allow for all work, materials, setting- out, testing and quality assurance requirements in each Pay Item.

The Contractor shall allow, in the pay items, for all costs associated with profit, financing costs, risks, legal and contractual responsibilities, effecting of insurances and providing the securities required and other costs and other obligations which are not specifically measured for payment under any other items of payment.

**ADD** New Section

SECTION 0 PRELIMINARIES

**0.01 Scope**

This section of the Specification covers all work necessary for items of a preliminary nature as specified below. All other works shall be allowed for in the pay items in the other sections of the Specification.

**0.02 Site Establishment**

The Contractor shall establish the site by locating the site compound area at a location shown on the drawings or as agreed with the Superintendent. The Contractor shall construct security fencing around the site compound with gate access. The Contractor shall construct temporary access roads to the site compound from the nearest public road as shown on the drawings or as directed by the Superintendent. Within the site compound the contractor shall provide hard standing areas, site offices, amenity buildings and areas for storage, waste and recycling.

The Contractor shall construct a suitable 1.8m high fence located around the entire stage and should follow as near as possible the extent of works boundary shown on the drawings. The contractor shall construct tree protection fences around nominated trees to be retained in accordance with the specification.

The Contractor is to maintain fencing as necessary to ensure compliance with ACT Work Cover requirements and restrict public access to the works area.  With the exception of the northern boundary identified above, the Contractor shall also relocate the fencing as necessary to allow the works to be undertaken. This includes relocating fencing, as necessary, for interface works of adjacent stages. Fencing is not to be removed until approval is received from Superintendent and streetlights are activated.

The Contractor shall arrange, connect and be responsible for all temporary services required to the site including power, water & telephone.

Upon completion of the works the Contractor shall remove the site compound and all associated temporary facilities and services connections and reinstate and restore the areas involved to original condition or as specified on the drawings.

**0.03 Survey and Setting Out**

The Contractor shall set out the Works to the lines, levels and dimensions shown in the Contract or directed by the Superintendent using ACT Survey Office permanent marks and bench marks in the area.

The contract drawings are based on the Canberra Metric Grid and the Australian Height Datum.

Notify the Superintendent at least two working days in advance of intention to set out a portion of the works. Provide all necessary labour, materials and equipment to assist the Superintendent in checking the set out or verifying completed works, as directed.

**0.04 Co-ordination with Utility Authorities**

Before commencing work, the Contractor shall check with controlling Authorities, including using the Dial Before You Dig process, concerning the locations and details of any existing or proposed services in or adjacent to the works as shown in the documents are current.

Authorities with whom contact may be necessary, but not limited to, include:

* ActewAGL - Electrical Services & Street Lighting
* Jemena Management Services - Gas Services
* Telstra - Telecommunications Services
* Optus - Telecommunications Services
* TransACT – Telecommunications Services
* Actew Water - Water, Sewerage and Drainage
* Parks, Conservation & Lands- Irrigation Systems
* ICON – Intra Australian Government Communications Network
* InTACT –Intra ACT Government Communications Network
* National Broadband Network

Liaise with these Authorities when they carry out work which affects or is in conjunction with works of this Contract.

**0.05 Reserved**

**0.06 Temporary Site Perimeter Security Fence**

Where specified, the Contractor shall install a temporary security fence (1.8m minimum high chain wire mesh panels) with adequate gates around the works for the duration of the construction. The Contractor shall remove the fence upon Practical Completion.

**0.07 Work as Executed Quality Records**

The Contractor shall prepare work as executed information, test results summaries and asset lists in the format specified by City Management Document Requirements for Work as Executed Quality Records, Issue 2 Revision 3, Territory & Municipal Services, August 2010 (TAMS Reference Document #AA-Ref-08) and ActewAGL Water Supply and Sewerage Standards showing the "as constructed/installed" construction elements, plant, equipment and the like as required. The information shown shall include any variation to the Contract drawings by coordinate or chainage and off-set of all constructed works including invert levels of pipes, ducts and conduits at all structures and terminations. The work as executed information shall be certified by a surveyor or engineer approved by the Superintendent. If the Contractor elects to prepare the work as executed drawings by other than the Superintendent’s office, the Contractor shall be supplied with a copy of the contract drawings in digital format. The Contractor shall modify the drawings to indicate any variation from the original Contract Drawings to the as constructed condition. The amendment issue of the drawings shall be modified by the Contractor so as to reflect the ‘Work-as-Executed’ status. Prior to submitting a copy of the Work-as-Executed information to the Superintendent, the Contractor shall supply an A3 copy of the modified drawings for comment. The Contractor shall make any modifications ‘marked up’ by the Superintendent then submit a revised A3 copy of drawings and a digital copy.

Where the Contractor elects to use the Superintendent‘s office to prepare the work as executed drawings, the Contractor shall provide the information required in digital format.

**0.08 Existing Overhead Power Lines**

Where construction activity passes under power lines take care to avoid damage to persons and/or property. The Contractor shall be responsible for making all arrangements with ActewAGL and ACT Work Cover. A Work Method Statement shall be submitted to the Superintendent prior to commencing work adjacent to the power lines.

**0.09 Reserved**

**0.10 Reinstatement Works not Associated with the Contract**

Unpaved areas disturbed by work not associated with the Contract shall be reinstated by spreading topsoil to a depth of 100mm, cultivation, grassing, bitumen straw mulching and consolidation, in accordance with Section 9.0 of the Specification.

**0.11 Additional Work**

The Contractor shall undertake additional work not covered by other items in the Contract as directed by the Superintendent in writing

**0.12 Quality and Safety Audit Testing**

The Contractor shall undertake additional testing or participate in additional auditing as directed by the Superintendent for the purpose of auditing and validating the Contractors test results, quality systems and safety.

**0.13 Relocation/adjustment to existing services**

Where detailed, the contractor shall relocate, adjust or protect existing services. Prior to commencement the Contractor shall liaise with the Service Authorities to confirm their requirements.

**0.14 Liaison and Co-ordination with adjoining works Contractors**

The Contractor shall liaise and coordinate with adjoining works contractors for the duration of this Contract. This shall include any programming and coordination of works due to work being undertaken by the other contractors. The Contractor shall notify the Superintendent in a timely manner if the adjoining works contractor does not co-operate or that their adjoining works are deficient in some way.

**0.15 Liaison and Co-ordination with Principal’s Registered Surveyor for Block Pegging**

The Contractor shall liaise and coordinate with the Principal’s appointed Registered Surveyor to undertake block pegging activities.

**0.16 Liaison and Co-ordination with Principal’s Geotechnical Engineer for Block Classification**

The Contractor shall liaise and coordinate with the Principal’s appointed Geotechnical Engineer to undertake block classification activities.

**0.17 Reserved**

**0.18 Reserved**

**0.19 Reserved**

**0.22 Measurement and Payment**

Payment shall be made for all activities associated with completing the works detailed in this Section of the Specification in accordance with Pay Items 002P1 to 019P1.

**Pay Item 002P1 Site Establishment**

The unit of measurement shall be a lump sum item.

The pay item shall include all costs relating to site establishment, the connection and installation of temporary services, construction and maintenance of temporary roads and hard standings, temporary site compound security fencing, provision and construction of site office, temporary buildings and amenities, including equipment, furniture and the like, together with cleaning, power, water and other charges and removal of the same on completion and the reinstatement and restoration of the areas involved. The item shall include for any fees or costs associated with the location of compounds or materials storage areas required for the works. The pay item shall also include all general site and office overheads. Payment of the lump sum shall be in equal time related instalments.

**Pay Item 003P1 Survey Set Out and Control**

The unit of measurement shall be a lump sum item.

The pay item shall include setting out the works and establishing and maintaining survey control for the setting out of the works, care of survey marks, verifying electronic data against the contract document drawings and the checking of dimensional tolerances of individual pavement layers.

**Pay Item 004P1 Coordination with Utility Authorities**

The unit of measurement shall be a lump sum item.

This item covers all liaison, negotiation, and programming of work schedules between the Contractor and all required service authorities associated with the construction of required service utilities for this project.

**Pay Item 005P1 Reserved**

**Pay Item 006P1 Temporary Site Perimeter Security Fence**

The unit of measurement shall be a lump sum item.

This item includes all costs associated with the supply, erection, removal on completion of works, gates, maintenance during construction, removal/relocation of fencing on completion.

**Pay Item 007P1 Work as Executed Quality Records**

A separate pay item shall be included in the contract for the following:

The unit of measurement for the following item shall be a Lump Sum.

007P1.1 Works by the Contractor

This pay item shall include the provision of construction records including all work as executed drawings and associated documents required at the completion of the works including survey, drafting, CCTV camera reports, asset lists and any information that the Superintendent considers necessary for submission to authorities.

The unit of measurement for the following item shall be a Provisional Sum.

0007P1.2 Work for WAE drawings

Payment of the provisional sum shall be upon completion and submission of the work as executed quality records to the authorities

**Pay Item 008P1 Existing Overhead Power Lines**

The costs associated with taking precautions or as a result of the construction activities within the vicinity of overhead powerlines shall be borne by the Contractor.

**Pay Item 009P1 Reserved**

**Pay Item 010P1 Reinstatement Works not associated with the Contract.**

The cost of reinstatement work not associated with the Contract shall be borne by the Contractor

**Pay Item 011P1 Additional Work**

The unit of measurement shall be a provisional sum item.

Payment of the sum, or part thereof, shall be on delivery of invoices and include percentage for overhead and profit as per the Annexure to the General Conditions of Contract.

If any of the Provisional Sum item or part thereof is not expended, the Contractor shall not be entitled to overhead and profit on the deducted amount.

**Pay Item 012P1 Quality and Safety Audit**

The unit of measurement shall be a Provisional Sum item.

Payment for testing/auditing will be paid for in accordance with the General Conditions of Contract.

Payment of the sum, or part thereof, shall be on delivery of invoices and include percentage for overhead and profit as per the Annexure to the General Conditions of Contract.

If any of the Provisional Sum item or part thereof is not expended, the Contractor shall not be entitled to overhead and profit on the deducted amount.

**Pay Item 013P1 Relocation/adjustment to existing services**

This pay item includes all works by the Contractor to the existing services including coordination with the Service Authorities, excavation, exposing existing services, backfilling of the work, surface restoration and the provision of any items required by the Service Authorities for performing the work. Payment of the sum, or part thereof, shall be on delivery of invoices.

A separate pay item shall be included in the contract for each type of work.

The unit of measurement for the following items shall be a Provisional Sum.

013P1.1 Works by the Service Authority to existing services.

013P1.2 Works by the Contractor on existing services, excluding works by the Service Authority.

If any of the Provisional Sum item or part thereof is not expended, the Contractor shall not be entitled to overhead and profit on the deducted amount.

**Pay Item 014P1 Liaison and Co-ordination with adjoining works Contractors**

The unit of measurement shall be a lump sum item.

This item shall cover all costs associated with liaison and coordination. Progress payment against this item shall be made in proportion to the state of completion of permanent works.

**Pay Item 015P1 Liaison and Co-ordination with Principal’s Registered Surveyor for Block Pegging**

The unit of measurement shall be a lump sum item.

This item shall cover all liaison and coordination. Payment for undertaking the block pegging activities will be made directly by the Principal.

**Pay Item 016P1 Liaison and Co-ordination with Principal’s Geotechnical Engineer for Block Classification**

The unit of measurement shall be a lump sum item.

This item shall cover all liaison and coordination. Payment for undertaking the block classification activities will be made directly by the Principal.

**Pay Item 017P1 Reserved**

**Pay Item 018P1 Reserved**

**Pay Item 019P1 Reserved**

SECTION 1 PROVISION FOR TRAFFIC

**1.02 STANDARDS**

DELETE

1st paragraph

**ADD**

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards, Legislation, References and Publications and their successors to the extent that they are relevant and not overridden by the Specification.

**Legislation**

**DELETE**

Occupational Health and Safety Act 1989

**ADD**

Work Health and Safety Act 2011

**1.04 GENERAL**

**1.04.1 Construction Operations**

**2nd paragraph**

**DELETE 3rd dot point**

Occupational Health and Safety Act 1989

**ADD**

Work Health and Safety Act 2011

**1.04.2 Temporary Traffic Management Plan**

DELETE the second paragraph

**ADD**

Prior to undertaking any work which would involve any obstruction whatsoever to traffic, the Contractor shall prepare and submit Temporary Traffic Management Plan(s) to the Superintendent for endorsement. When endorsed by the Superintendent, the Contractor shall submit plans to the Delegate of the Minister, ACT Government or other person so empowered by the relevant Legislation for written approval. Work shall not commence until three (3) copies of the approved Temporary Traffic Management plans for each road or street, car park or footpath have been provided to the Superintendent by the Contractor.

 (c) A signpost layout plan

ADD to 5th paragraph

4th dot point

Location of variable message electronic signs and messages to be displayed

ADD new paragraph:

The Temporary Traffic Management Plans shall be prepared by a trained and knowledgeable person in the requirements of the relevant Australian Standards and shall be endorsed by the Contractor’s representative as meeting these requirements (including AS 1742).

**DELETE**

Hold Point 1.1

**ADD**

|  |  |
| --- | --- |
| **HOLD POINT 1.1** | **Description** |
| **Process Held:** | Submission of Temporary Traffic Management (TTM) plans to Delegate of the Minister for approval |
| **Submission Details:** | The Contractor shall submit all draft TTM plans to the Superintendent at least five (5) working days prior to submitting the endorsed plans to the Delegate. |
| **Release of Hold Point:** | The Superintendent will release the Hold Point after endorsing the draft TTM plans. |

**ADD**

|  |  |
| --- | --- |
| **HOLD POINT 1.1A** | **Description** |
| **Process Held:** | Installation of Temporary Traffic Management (TTM) Devices |
| **Submission Details:** | The Contractor shall submit all Delegate approved TTM plans to the Superintendent. |
| **Release of Hold Point:** | The Superintendent will release the Hold Point upon receipt of the required number of approved TTM plans. |

**1.04 MEASUREMENT AND PAYMENT**

**Pay Item 101P 1 Provision for Traffic, Establish, Maintain & Remove**

**ADD**

This pay item is to also include resolving traffic problems, complying with the legal requirements of all authorities concerned including ACT WorkCover, for providing temporary access to private property and adjacent construction sites and provision and maintenance of associated temporary drainage.

**1.10 SCHEDULE OF HOLD POINTS**

**ADD**

Hold Point 1.1A, Clause 1.04.2: Installation of Temporary Traffic Management Devices.

SECTION 2 EARTHWORKS

**2.02 STANDARDS**

**DELETE**

1st paragraph

**ADD**

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards, Legislation and References and their successors to the extent that they are relevant and not overridden by the Specification.

**Legislation**

**DELETE**

Occupational Health and Safety Act 1989

**ADD**

Work Health and Safety Act 2011

**ADD**

AS 2870 Residential Slabs and Footings

AS 3798 Guidelines on Earthworks for Commercial and Residential Developments

**2.03 Protection of the Works**

**2.03.1 General**

**DELETE**

8th paragraph

**ADD**

Refer to “Environment Protection Guidelines for Construction and Land Development in the

ACT” for details.

**ADD**

|  |  |
| --- | --- |
| **HOLD POINT 2.1A** |  |
| **Process Held:** | Construction of Sediment & Erosion Control Measures |
| **Submission Details:** | At least three (3) working days prior to commencement of construction of sediment & erosion control (ESC) measures the Contractor shall provide the Superintendent with two (2) copies of the approved ESC plans |
| **Release of Hold Point:** | The Superintendent will release the hold point upon receipt of the approved plans. |

**2.03.5 Reinstatement**

**ADD** after last paragraph

The Contractor shall dewater and remove silt from the erosion and sediment control measures. Silt excavated shall be stockpiled on site with appropriate pollution protection to dry out and works carried out in accordance with the Environment Protection Agreement or Authorisation as required under Section 2.03.

**ADD** new clause

**2.03.6 Vibration**

The Contractor shall limit all vibration from impact hammering and the like, generally to a peak particle velocity (ppv) of 5mm per second with allowance for 10% not to exceed 10mm/second.

The actual maximum ppv shall be determined by the Contractor and its geotechnical engineer to avoid stresses/damage to existing buildings and any adjoining services infrastructure. The Contractor must carry out a dilapidation report on adjacent buildings prior to commencing work.

Monitor vibrations using appropriate equipment. Engage all necessary specialist-monitoring services to ensure vibration does not exceed the specified limits.

**2.04 Clearing & Grubbing**

**2.04.1 General**

**ADD** after last paragraph

The extent of works boundary will be the limit of clearing and grubbing for Stage 3D.

**Delete Hold Point 2.1**

**ADD**

|  |  |
| --- | --- |
| **HOLD POINT 2.1** |  |
| **Process Held:** | Clearing operations within any given area. |
| **Submission Details:** | At least three (3) working days prior to commencement of clearing the Contractor shall give notice of intention to commence clearing operations within any given area and that all erosion and sediment control measures have been constructed in accordance with the approved plans. |
| **Release of Hold Point:** | The Superintendent will inspect that the constructed erosion & sediment control measures meet with the approved plans & mark or indicate to the Contractor the trees that are to be retained, prior to authorising the release of the Hold Point. |

**2.04.2 Care of Trees**

**DELETE** Clause

**ADD**

Trees nominated on the drawings to be retained are a valuable asset. The Contractor shall ensure trees not scheduled for removal are protected from damage.

|  |  |
| --- | --- |
| **HOLD POINT 2.1B** |  |
| **Process Held:** | Commencement of Work |
| **Submission Details:** | Prior to the commencement of any work on the site, including site establishment, the Contractor shall provide a Work Method Statement (WMS) detailing; its understanding of the sensitivity of trees; methods of working adjacent to trees (laterally and vertically); and details of tree protection measures. |
| **Release of Hold Point:** | The Superintendent will check the WMS for compliance to the Specification prior to authorising release of the Hold Point. |

Display a sign in a prominent position at each entrance to the site, warning that trees and plantings are to be protected during the contract. Remove on completion.

Use road sign type sans serif letters, 100mm high, in red on a white background, to AS1744.

Use 100 x 50mm zincanneal tags, painted yellow and lettered to conform with the tree number on the drawings. Secure tags to trees using loose galvanized steel wire bands.

All trees nominated to be retained shall be protected from damage as follows.

Provide an Exclusion Zone consisting of temporary protective enclosures fabricated from mesh 1800mm high with tubular frame panels to the tree drip line. Temporary fencing shall not be removed until directed by the Superintendent.

Where excavations are to be made near trees immediately outside the fenced Exclusion Zone, add continuous 900mm high corrugated galvanized steel sheeting, bedded 150mm into the ground, wired to the enclosure.

Should it be necessary to install underground services within the Exclusion Zone of a tree to be retained the services shall be installed by thrust boring techniques as so as to minimize disturbance to the tree roots.

When landscape construction is to occur within the tree protection zone, the fence may be removed. Care should be taken not to compact the tree protection zone or damage the trunk.

If it is proposed to perform work on trees, give notice and obtain instructions from the Contractor’s nominated arboriculturist. All necessary trimming shall be carried out by the nominated arboriculturist and Superintendent’s approved tree surgeon.

If a tree is damaged and repair work is considered impractical, or is attempted and fails, give notice to the Superintendent and obtain instructions.

Do not remove topsoil from, or add topsoil to, the area within the Exclusion Zone of the trees.

Protection of root systems is important. Procedures for excavation for pavements are set-out in the following clauses and must be adhered to so that impacts on tree root systems are minimized.

Use hand methods to locate, expose and cleanly remove the roots in the line of excavation. If it is necessary to excavate within the drip line, use hand methods such that root systems are preserved intact and undamaged.

Do not cut tree roots exceeding 50mm diameter. Where it is necessary to cut tree roots, use means such that the cutting does not unduly disturb the remaining root system. Immediately after cutting, apply a bituminous fungicidal sealant to the cut surface to prevent the incursion of rot or disease.

Backfill to excavations around tree roots with a mixture consisting of three parts by volume of topsoil and one part of well rotted compost with a neutral pH value, free from weed growth and harmful materials. Place the backfill layers, each of 300mm maximum depth, compacted to a density similar to that of the original or surrounding soil. Do not backfill around tree trunks to a height greater than 300mm above the original ground surface. Immediately after backfilling, thoroughly water the root zone surrounding the tree.

Do not compact the ground under trees. If compaction occurs, give notice and obtain instructions.

During the grubbing of tree stumps care must be exercised at all times to minimize the impact of grubbing on root systems of trees to be retained.

If any tree is damaged during the course of the work, the Superintendent may direct the Contractor to effect repairs or remove and replace the tree. References to damage to trees shall also include damage to bark and root systems.

**2.04.4 Chipping of Cleared Vegetation**

**DELETE** Clause

**ADD**

The Contractor shall mulch the foliage and branches <100mm diameter from all vegetation to be removed with the exception of the following:

* vegetation displaying evidence of disease or weed infestation; and/or
* weed species

Mulch from eucalyptus trees is to be kept separate from mulch from pine trees.

Obtain Superintendents approval prior to removal and mulching of existing vegetation.

Mulch particle size shall not have 2 orthogonal dimensions exceeding 75mm and 50mm.

Mulch shall be free of soil, stones, twigs and other extraneous matter.

Mulched material shall be stockpiled on site at a location directed by the Superintendent. The stockpile height shall not exceed 1.5 metres. Apply water to the stockpile as required to reduce the build up of heat within the material.

The stockpiled materials shall be used for mulched planting beds as required for the landscape components of the project. Where applicable all unused materials shall be delivered to the nearest PCL Depot.

**2.05 Excavations**

**2.05.1 General**

**ADD** new paragraph

Notwithstanding the requirements of the following clauses, carry out excavation work as nominated in Clause 2.05.1 exercising all care to minimise the impact on the root systems of existing trees.

**DELETE** 2nd paragraph

**ADD**

Except as specified in Clause 2.07.2, where excavation exceeds the required depth, or deteriorates, reinstate to the correct depth, level and bearing strength specified for filling.

**2.05.2 Stripping & Stockpiling of Topsoil**

**ADD**after fourth paragraph

The Contractor is to ensure that the Superintendent and the Consultant are notified at least five working days prior to the commencement of the stripping of topsoil.

|  |  |
| --- | --- |
| **HOLD POINT 2.3A** |  |
| **Process Held:** | Stripping of topsoil within any given area. |
| **Submission Details:** | At least five working days prior to commencement of stripping of topsoil the Contractor shall give written notice to the Superintendent and Conservation Consultant of its intention to commence stripping operations within any given area.  |
| **Release of Hold Point:** | The Superintendent in conjunction with the Conservation Consultant will inspect the area to be stripped prior to authorising the release of the Hold Point. |

**2.05.3 Use of Explosives**

**i) General**

**ADD**

The Contractor shall not, without the prior consent of the Superintendent, carry out blasting or permit blasting to occur. In the event that the Superintendent gives consent to blasting, it shall be carried out in accordance with the requirements of WorkSafe ACT.

**2.05.4 Disposal of Surplus Spoil**

**DELETE** secondlast paragraph

**ADD**

Where disposal or storage of surplus spoil on site is not specified then surplus spoil shall be removed from site and disposed of in accordance with the requirements of Environment Protection Authority. For details refer to the EPA document “Environment & Protection Guidelines for Construction of Land Development in the ACT “.

**2.05.5 Ripping of Access Tracks**

**ADD**

Where access tracks are on blocks, remove all fill material to natural surface level and refill to design level in accordance with controlled fill specification.

**2.05.6 Unsuitable Material**

**ADD**

In addition, unsuitable subgrade materials shall include materials which have one of the following properties:

* CBR value less than 2% at 90% MMDD (AS1289-5.2.1), and
* High plasticity clays (i.e. liquid limit > 50%).

Unsuitable material that can be blended with site material for use as fill or controlled fill shall be sorted and treated for incorporation into the works as specified above.

**2.06 FILLING**

**ADD**

**2.06.6 Controlled Fill on Residential or Commercial Development sites**

**2.06.6 (i) Materials**

For controlled (or engineered) fill operations, should the upper layer of soil underlying the root zone be unsuitable for engineering applications, it shall be excavated and stockpiled on the site.

Subject to geotechnical engineering advice, it can then be blended with the underlying soils to produce an approved material for structural use, or used for topsoil, placed in verges, in landscaped mounds or other non-structural applications. Excess material is to be removed from site in accordance with Clause 2.05.4.

For the controlled filling operation, a site classification equivalent or better than the site classification for the natural soil profile is required to be achieved for each site following completion of the operation.  Where the existing site classification is Class M (moderately reactive clay or silt site), in order to maintain a Class M the controlled fill shall have the following properties listed below and shall exclude organic soils, topsoil, severely root affected subsoils and peat, excessively wet or dry soils, silts or other soils with deleterious engineering properties and wood, metal, plastics and other foreign or deleterious substances.

Particle size should generally be less than 75 mm with a maximum size of 150 mm in any dimension permissible.  Approximately 15% of material between 75 – 150 mm may be considered acceptable with inspection by a suitably qualified engineer to confirm adequacy.

Subject to the depth of the controlled fill, the material should meet with the following requirements:

* + Where the maximum depth of filling is less than 1.0m;

The liquid limit of the proposed filling material should generally be less than 50% but preferably less than 35% and suitable for use as controlled filling.

* + Where the maximum depth of filling is less than 2.3m;

 The liquid limit of the proposed filling material in the upper 1m should generally be less than 50% but preferably less than 35% with the liquid limit of the basal material (ie: below 1m) should generally be less than 50%.  All material must be suitable for use as controlled filling.

* + Where the maximum depth of filling is in excess of 2.3m;

 The liquid limit of the proposed filling material in the upper 1m should generally be less than 50% but preferably less than 35%, the liquid limit of the material between 1.0 – 2.3 m should generally be less than 50% and below 2.3m depth any material type may be used as long as it is suitable for use as controlled filling.  Material in the upper 2.3 m must also be suitable for use as controlled filling.

* + Where material does not meet plasticity specification, reassessment can be considered based on particle size distribution.

The above filling material specification for controlled fills is to be applied in addition to the requirements of this Specification.

Where the natural soil profile is equivalent to Class H (highly reactive clay sites) or Class P (uncontrolled filled sites), additional earthworks involving over excavation and replacement with controlled filling with the above specified material may be required. If this is the case the Contractor shall advise the Superintendent and request direction.

The fill shall be well graded, and the Contractor shall undertake grading and Atterberg Limits tests.

**ADD**

**2.06.6 Controlled Fill**

Where filling is designated by the Contract as Controlled Fill for residential and commercial developments, the Contractor shall place and test the fill to a Level 1 standard in accordance with AS 3798: 2007 Guideline on Earthworks for Commercial & Residential Developments or its successor.

The Contractor shall engage a Geotechnical Inspection & Testing Authority (GITA) to provide Level 1 inspection & testing.

The frequency of field density tests shall be not less than the following and whichever requires the most tests:

1 test per 500m3 distributed reasonably evenly throughout full depth and area;

1 test per layer or 200mm thickness; or

3 tests per visit.

The minimum compaction shall be:

90% modified maximum dry density for residential allotments

95% modified maximum dry density for commercial allotments including multi-unit sites and industrial sites.

One laboratory compaction test is to be taken with every field density test. Generally the sample used for the laboratory compaction should be the material obtained from or immediately adjacent to the relevant field density test. An Atterberg Limit and grading test shall be undertaken with every tenth field density test.

The density test locations are to be surveyed (X, Y and Z coordinates) plotted on a drawing and provided to the Superintendent in digital format.

Density test results are to be provided to both the GITA and the Superintendent as results are received. The results are to be tabulated in an Excel spreadsheet showing as a minimum: date of test, coordinates, reduced level, result, pass or fail and retest. An updated tabulation is to be forwarded with each new density test result/group of results.

The Contractor shall keep comprehensive records of the exact location, depth and extent of fill. The Contractor shall employ a Surveyor to determine the surface level and profile prior to and after filling of the areas concerned. The surface models shall be provided to the Superintendent as 3D ACAD or other agreed format.

In addition, for areas of controlled fill which exceed 400mm depth, the Contractor shall submit a comprehensive report prepared by the GITA with input from theSurveyor. The report shall deal with all relevant aspects of the Controlled Fill and include a covering letter, the test result forms, a location drawing and other elements as set out in Appendix B of AS 3798.,

The documents are to be provided to the Superintendent in an acceptable form as a requirement for Practical Completion.

**2.07 Subgrade Preparation**

**2.07.1 Subgrade Levels**

**ADD** New Paragraphs

The Contractor shall carry out density and CBR testing of the subgrade at its costs and submit the results to the Superintendent at the time the subgrade is presented for assessment.

The assessment will include proof rolling as described in AS 3798 in the presence of the Superintendent or the Principal’s Geotechnical Engineer.

**2.07.2 Cut Subgrade**

**ADD**

The minimum depth of replacement shall be 100mm and shall be made good with selected fill meeting the requirements of Clause 2.07.6.

**2.07.4 Fill Subgrade**

**ADD**

|  |
| --- |
| **Hold Point 2.9.****Process Held:** Embankment material in subgrade zone compacted and trimmed.**Submission Details:** At least one (1) working day prior, CBR test results of the subgrade zone(s) and notification that the embankment below the underside of pavement has been compacted and trimmed.**Release of Hold Point:** The Superintendent will consider the submitted test results, inspect the subgrade and may direct further action prior to authorising the release of the Hold Point. |

**ADD**

**2.07.8 Subgrade Test Pits**

Where test pits shown in the Principal’s Geotechnical Investigation Report, available from the Superintendent, have been excavated under road pavements, backfill to underside of road pavement materials with select fill (complying with Clause 2.06.2) compacted to 95% MMDD.

**2.09 CONFORMANCE CRITERIA**

**2.09.2 Tolerances**

**DELETE** Table 2.3

**ADD**

|  |
| --- |
| **Table 2.3** |
| **Item** | **Tolerance**  |
| 1. Cut subgrade in earth | Level: +5mm – UnspecifiedStraightness: 20mm maximum departure from 3m straightedge both ways |
| 2. Cut subgrade in rock | Level: +20mm – UnspecifiedStraightness: Unspecified |
| 3. Fill Subgrade | Level: +5mm – UnspecifiedStraightness: 20mm maximum departure from 3m straightedge both ways |
| 4. Unpaved areas in cut or fill | Level: ± 10mm in highway vergesLevel: ± 20mm in subdivision verges, unless specifically noted otherwise Level: ± 50mm in batters |
| 5. Rock Batters out side verges | Level: ± 100mm |

**2.09.2 Frequency of Testing**

**DELETE** Table 2.5

**ADD**

| **Table 2.5** |
| --- |
| **Clause** | **Characteristic Analysed** | **Test Method** | **Minimum Frequency of Testing** |
| 2.06.1; 2.06.4; 2.09.1;Table 2.2 | Compaction and moisture content of general fill material | AS1289.5.4.1;AS1289.5.7.1 | Not less than:One per layer andOne test per 500m3 |
| 2.06.5; 2.09.1; Table 2.2 | Compaction and moisture content of backfill to structures;  | AS1289.5.4.1;AS1289.5.7.1 | One test per structure at depths as nominated by the Superintendent  |
| 2.06.5; 2.09.1; Table 2.2 | Compaction and moisture content of replacement of unsuitable subgrade; replacement of unsuitable foundation or other confined operations;  | AS1289.5.4.1;AS1289.5.7.1 | Not less than:One every two layers andOne test per 200m3 distributed evenly through-out full depth and area |
| 2.06.1; 2.06.4; 2.07.2; 2.07.6; 2.09.1; Table 2.2 | Compaction and moisture content of top layer of fill (subgrade); cut subgrade and foundation of shallow fill | AS1289.5.4.1;AS1289.5.7.1 | Not less than:One per 400m2 andOne per road |
| 2.06.1; 2.06.4; 2.07.2; 2.07.6; 2.09.1; Table 2.2 | Compaction and moisture content of foundation for fill embankments other than shallow fill embankments | AS1289.5.4.1;AS1289.5.7.1 | Not less than:One per 2000m2 |
| 2.06.2; 2.07.2; 2.07.4; 2.07.6 | Material Properties (CBR and Sieve Size) of fill and cut subgrade and foundations of shallow embankments | AS 1289.6.1.1AS Sieve | Not less than:One per 1000m2 and One per road |
| 2.05.1; 2.06.1; 2.08; 2.09.3; Table 2.3 | Level Tolerances of cut and fill batters | Level | One full cross section per 50m length. Provide levels at all changes in grade and at intermediate points no more than 5m apart  |
| 2.05.1; 2.06.1; 2.08; 2.09.3; Table 2.3 | Straight Edge on subdivision verges | 3m Straight Edge | One location on left hand side verge and one location on right hand side verge at 100m intervals |
| 2.07.2; 2.07.4; 2.09.3; Table 2.3 | Level tolerances of cut and fill subgrade | Survey (by Registered Surveyor) | One survey point at left hand kerb, right hand kerb lip lines and at centreline at 20m intervals and at kerb return tangent points. |
| 2.07.2; 2.07.4; 2.09.3; Table 2.3 | Straightedge on cut and fill batters | 3m Straight Edge | One location to the left and right of centreline at 50m intervals. Both perpendicular and parallel to the centreline |

**ADD**

**2.12 Geotextiles**

Geotextile is to be installed where detailed and specified in the drawings or as directed by the Superintendent. Geotextile shall be used as a separation layer within earthworks.

Supply & construction to be in accordance with NSW RTA Specification number R63 Geotextiles (Separation and Filtration). A copy of the abovementioned Specification is not included in this document and is available from the NSW RTA [*http://www.rta.nsw.gov.au/doingbusinesswithus/specifications/roadworks.html*](http://www.rta.nsw.gov.au/doingbusinesswithus/specifications/roadworks.html)

**2.10 MEASUREMENT AND PAYMENT**

**ADD to first paragraph**

plus amended pay items 203P1, 204P1, 204P2, 204P3, 205P3 and added pay items 205P1,1, 205P5, 206P3, 206P4, 207P6, 212P1.

**ADD**

**Pay Item 203 P1 Protection of the Works**

The unit of measurement shall be a lump sum item.

This pay item covers all necessary protection of earthworks and erosion & sediment control measures including designing, obtaining approval, establishment, maintenance and removal of protection measures upon completion. All fees and charges associated with any approval process shall be included in this item.

**ADD**

**Pay Item 204 P1 Clearing and Grubbing**

**DELETE** first paragraph

**ADD**

This shall be a Lump Sum item.

**ADD**

**Pay Item 204 P2 Removal of Nominated Trees**

This unit of measurement shall be for each nominated retained tree requiring removal subsequent to completion of clearing and grubbing operations.

The pay item shall include all activities associated with approval process, lopping, mulching and stump removal.

**ADD**

**Pay Item 204 P3 Care of Trees**

The installation of the protective fencing and management of the fence shall be incorporated into the site establishment pay item.

**ADD**

**Pay Item 205 P1.1 Ripping of Access Tracks**

The unit of measurement shall be a cubic metre.

This pay item covers all activities associated with the rehabilitation of access tracks. This item includes excavation of fill and recompaction to controlled filled specification in block areas.

**Pay Item 205 P3 Disposal of Spoil Material Off Site**

**ADD**the following paragraph:

The pay item shall also include all tasks associated with the excavation, handling and hauling of material to an approved site in accordance with the requirements of Environment Protection Authority. The pay item shall also include all recycling or disposal fees.

**ADD**

**Pay Item 206 P3 Controlled Fill**

The unit measurement shall be the cubic metre measured as bank volume of controlled fill. The volume shall be determined by calculation from survey.

This pay item is the extra over amount above the rate for general fill for all activities associated with selection, placement and compaction of materials as controlled fill.

The pay item shall include the engagement of a Geotechnical Inspection & Testing Authority for inspection, survey, calculations, testing & reporting specified.

**ADD**

**Pay Item 206 P4 Unsuitable Material Treatment**

This unit measurement shall be cubic metre measures as bank volume of unsuitable material treated.

This pay item covers activities required to treat unsuitable material in accordance with Geotechnical Engineer’s advice to allow it to be incorporated into the work. Such treatments include sorting, drying, blending with other site/or imported materials.

**DELETE Pay Items 207P1 and 207P2**

**ADD**

**Pay Item 207 P6 Preparation of Subgrade**

The unit of measurement shall be the square metre of cut & fill subgrade measured to the edge of the overlying pavement or select material layer unless otherwise shown on the drawings.

The pay item shall include all activities associated with ripping; trimming, compaction and conformance testing of cut and fill subgrade in accordance with Clause 2.07.

**ADD**

**Pay Item 212 P1 Supply & Installation of Geotextile**

The unit of measurement shall be the square metre.

The area of geotextile shall be based on the total area covered measured in place. Allowance for overlaps, cutting and waste shall not be paid separately.

**2.11 SCHEDULE OF HOLD POINTS**

**ADD**

Hold Point 2.1A, Clause 2.03.3:Approval of Sediment & Erosion Control Measures.

Hold Point 2.1B, Clause 2.04.2: Commencement of Work.

Hold Point 2.3A, Clause 2.05.2: Stripping of topsoil within any given area.

Hold Point 2.9, Clause 2.07.4: Embankment material in subgrade zone compacted and trimmed

SECTION 3 UNDERGROUND SERVICES

**3.02 Standards**

**DELETE**

1st paragraph

**ADD**

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards, Legislation, References, Testing Authorities and their successors to the extent that they are relevant and not overridden by the Specification.

**Other Standards & References**

**ADD**

Underground Services in a Shared Trench – Agreement between Telstra, AGL, Actew Corporation, Australian Capital Territory, 1996

Typical Shared Trench Agreement Procedure – Revision 02, February 2011

Copies of these documents are available from Jemena

**Legislation**

**DELETE**

Occupational Health and Safety Act 1989

**ADD**

Work Health and Safety Act 2011

**3.03.2 Excavation**

**DELETE**

Hold Point 3.1

**ADD**

|  |
| --- |
| **Hold Point 3.1****Process Held:** Commencement of excavation for any services trenches.**Submission Details:** At least one (1) working day prior to the commencement of each trench has been set out the Contractor shall provide notification to the Superintendent that the trench alignment has been set out. **Release of Hold Point:** The Superintendent will inspect the site and any documentation submitted prior to releasing the hold point. |

**ADD**

|  |
| --- |
| **Hold Point 3.1A**Process Held: Commencement of excavation for any services trenches crossing or connecting to existing services.Submission Details: At least five (5) working days prior to the commencement of trenches crossing or connecting to existing services, the Contractor shall provide verification to the Superintendent that the levels of crossover points and connection points will allow construction as specified.Release of Hold Point: The Superintendent will inspect the site and any documentation submitted, review and resolve any discrepancies reported prior to releasing the hold point. |

 **ADD**

**3.03.2 (v) Trenching for Service Authorities**

Trenching for service authorities within the road verge area shall be undertaken in accordance with the “Underground Services in a Shared Trench” agreement, the Typical Shared Trench Procedure document and relevant site specific details.

Prior to excavation of trenches the contractor shall liaise with the Service Authorities and arrange a site meeting to confirm the servicing and co-ordination requirements of the Authorities

**3.03.3 Use of Explosives**

**ADD**

The Contractor shall not, without the prior consent of the Superintendent, carry out blasting or permit blasting to occur. In the event that the Superintendent gives consent to blasting, it shall be carried out in accordance with the requirements of WorkSafe ACT.

**3.03.6 Trench Dimensions**

**(i) Width**

**ADD**

The width of the shared services trench shall be in accordance with the “Underground Services in a Shared Trench” agreement and relevant site specific details shown on the Contract drawings.

**(ii) Allowance for Bedding**

**ADD**

The bedding depth for the shared services trench in verges shall be 50mm minimum for the lowest service within the trench and for higher services within the trench, the depth required to provide minimum separation between each service in accordance with the shared trench agreement..

Bedding for gas pipe and telecommunication conduits within the shared services trench in verges shall be “gas sand” in accordance with Table 3.11 below.

**ADD**

|  |
| --- |
| **Table 3.11** |
| **Sieve Size** | **Percentage Passing** |
| 2.36 mm | 100 |
| 1.18 mm | 100 |
| 0.425 mm | 90 - 100 |
| 0.150 mm | 15 - 40 |

**ADD**

**3.03.6 (iv) Construction Traffic**

Where the Contractor proposes to move heavy construction plant and vehicles over services and conduits when the minimum cover requirements detailed in Table 3.1do not exist, the Contractor shall provide protective measures for each crossing.

**3.03.8 Backfilling**

**(ii) Trenches Under Roads, Paths and Driveways**

**ADD**

General excavated material will be allowed as acceptable backfill material to sewer and stormwater trenches under footpaths and driveways only, provided the requirements of Table 3.2 and 3.3A below are met. The backfill material to be used shall be assessed prior to use by a geotechnical engineer. It shall have a maximum particle size of 75mm, a minimum Plasticity Index of 10% and exclude organic soils, topsoil, silts and other materials with deleterious engineering properties such as vegetation, timber, tree roots, plastic pipes or sheeting and high plasticity clays. The maximum compacted layer thickness shall be 150 mm.

**ADD**

**(vii) Shared Services Trench**

Backfill the gas main pipe overlay zone to the underside of the telecommunications conduit with “gas sand” bedding material conforming to Table 3.11. Backfill the telecommunications conduit haunch, side and overlay zones with select cohesive site material which is free from stones larger than 20mm and free from root zone material. Compact overlay zones in accordance with Table 3.2 below.

**3.03.9 Disposal of Surplus Spoil**

**DELETE the entire paragraph**

**SUBSTITUTE**

Surplus spoil shall be removed from site and legally disposed. The cost of disposal of surplus spoil shall be included in the rate for the installation of underground services from which the surplus spoil was generated.

**3.03.10 Conformance Criteria**

**(i) Compaction conformance**

**DELETE**

Table 3.2

**ADD**

| **Table 3.2** |
| --- |
| **Item** | **Compaction Requirement** |
| Overlay Zone – not under Roads, Paths & Driveways | 90% MMDD |
| Overlay Zone – under Roads, Paths & Driveways | 90% MMDD subbase material DI 70 % for bedding material |
| Overlay Zone of gas and telecommunications within the shared services trench | DI 70% for bedding material |
| Backfill – not under Roads, Paths & Driveways | 90% MMDD |
| Backfill – under Roads, Paths & Driveways | 90% MMDD – deeper than 600mm below sub-base95% MMDD- top 600mm below sub-base |
| Backfill of pipes adjacent to kerbs | 90% MMDD |

(**iii) Frequency of Testing**

**DELETE Table 3.3**

**ADD**

| **Table 3.3** |
| --- |
| **Clause** | **Characteristic Analysed** | **Test Method** | **Minimum Frequency of Testing** |
| 3.03.8 | Compaction and moisture content for Transverse trenches less than 1200mm wide (under roads, paths and driveways) | AS1289.5.4.1;AS1289.5.7.1 | One test per four layers per road crossing |
| 3.03.8 | Compaction and moisture content for Transverse trenches greater than 1200mm wide (under roads, paths and driveways) | AS 1289.5.4.1;AS1289.5.7.1 | One test per four layers per road crossing |
| 3.03.8 | Compaction and moisture content for Longitudinal trenches (under roads, paths and driveways) | AS 1289.5.4.1;AS1289.5.7.1 | One test per two layers per 50 linear metres or part thereof.  |
| 3.03.8 | Compaction and moisture content for Trenches elsewhere. | AS 1289.5.4.1;AS1289.5.7.1 | One test per two layers per 100 linear metres or part thereof. |
| **Backfill Material Properties** |
| 3.03.8 | Backfill Material Grading | AS 1289.3.6.1 | One test per source per 250 cubic metres or part thereof  |
| 3.03.8 | Backfill Material Plasticity | AS 1289.3.3.1 | One test per source per 500 cubic metres or part thereof |

**ADD**

Where general excavated material is approved as backfill material for sewer and stormwater trenches under footpaths and driveways, the requirements of Table 3.3A following shall be met.

**ADD**

|  |
| --- |
| **Table 3.3A** |
| **Characteristic Analysed** | **Test Method** | **Minimum Testing Frequency** |
| **Compaction** |
| Compaction and moisture content for longitudinal sewer and stormwater trenches (under paths and driveways only) | AS 1289.5.4.1AS1289.5.7.1 | One test per two layers per 30 linear metres or part thereof.  |
| **Backfill Material Properties** |
| Maximum allowable particle size for trench backfill. (under paths and driveways only) | AS 1289.3.6.1 | One test per 150cu.m or part thereof. |

**ADD**

**3.03.12 Demolition**

Redundant structures and pipes as shown on the Contract Drawings shall be demolished. Redundant materials, wherever practicable and when approved in writing by the Superintendent, shall be modified and re-used in the works. Concrete which cannot be re-used on site shall be delivered to concrete recyclers not to the waste disposal areas.

Any holes remaining after the removal of structures and pipes shall be backfilled as follows:

**(i) Structures and pipes under proposed pavements**

Backfill voids with an approved granular material in accordance with Specification Clause 4.03.2(ii) in layers of 150mm maximum depth. Minimum compaction requirements shall be 95% MMDD.

**(ii) Structures and pipes elsewhere**

Backfill voids with general fill in layers of 300mm maximum depth. Minimum compaction requirements shall be 90% MMDD.

**3.04 Sewerage**

**ADD** New Clause

**3.04.2 Acceptance**

(b) Testing of Concrete to Sewerage Structures

The testing for concrete shall be in accordance with Table 3.6.

(c) Pipeline and Structure Testing

The testing of pipelines and maintenance holes shall be undertaken in accordance with the procedures given in the current ACTEW Corporation Ltd Water Supply and Sewerage Standards.

The Closed Circuit Television (CCTV) survey shall be undertaken by a qualified operator as described in WSA-05-2008 Conduit Inspection Reporting Code of Australia and undertaken in accordance with the Guidelines of the Australian Conduit Condition Evaluation Manual.

Two copies of the CCTV survey are to be provided to the Superintendent on a CD or DVD and accompanied by a CCTV report. The report shall include a description and a photo of each significant defect.

The CCTV survey shall be undertaken prior to the placement of the final surface layer to roads such as asphalt, concrete and pavers, the construction of footpaths and after the completion of all sewer structures. The pipes and structures shall be clear of all debris and construction materials prior to commencement of the CCTV survey.

Any defects identified by the CCTV inspection shall be rectified together with another CCTV inspection and report submitted to the Superintendent prior to requesting final inspection.

**ADD**

|  |
| --- |
| **Hold Point 3.13****Process Held:** Placement of final surface layer to roads and footpaths.**Submission Details:** At least five (5) days prior to the placement of final surface layer to roads and footpaths, the Contractor shall submit to the Superintendent two (2) copies of the sewer pipe CCTV report with survey on CD or DVD. **Release of Hold Point:** The Superintendent will consider the submitted documents, including the rectification of defects, prior to authorising the release of the Hold Point. |

**3.05 Stormwater Drainage**

**3.05.1 Materials**

iii) Bedding and pipe support material

**DELETE**

References to Table 3.6 in 2nd and 3rd paragraphs,

**ADD**

Table 3.4

**3.05.4 Drainage Structures**

General

**ADD**

Rendering of concrete surfaces shall not be permitted.

(iii) Covers

2nd Paragraph

**ADD** at end of sentences

Heavy duty cast iron covers and frames shall be Class D and comply with AS 3996.

**3.05.5 Conformance Criteria**

1. **Materials**
2. **Bedding**

**DELETE** first sentence of last paragraph

**ADD**

The contractor shall arrange for testing of the bedding material by an independent tester in accordance with Table 3.6. A copy of the test certificates shall be provided to the Superintendent upon request.

1. **Concrete**

**DELETE** first sentence oflast paragraph

**ADD**

The contractor shall arrange for testing of the supplied concrete by an independent tester in accordance with Table 3.6.

**iii) Tolerances**

**DELETE** first Paragraph

**ADD**

Pipelines shall be within 25 mm of design line and level at all points where design grade exceeds 1% and within 10 mm of line and level for grades flatter than 1%.

 **(iv) Sampling and Testing**

**DELETE** first sentence oflast paragraph

**ADD**

The compaction requirements specified in Table 3.5 are minimum requirements.

**(v) Frequency of Testing**

**DELETE** first sentence of first paragraph

**ADD**

The frequency of testing shall be appropriate to verify conformity and shall not be less than that stated in Table 3.6 unless otherwise approved by the Superintendent.

**DELETE** Table 3.6

**ADD**

|  |
| --- |
| **Table 3.6** |
| **Clause** | **Characteristic Analysed** | **Test Method** | **Minimum Frequency of Testing** |
| 3.05.1 | Compaction and moisture content for side support zone | AS1289.5.4.1;AS1289.5.7.1 | One test per 50 linear metres of pipeline or part thereof |
| **Bedding Material Properties** |
| 3.05.1 | Bedding Material Grading | AS 1289.3.6.1 | One test per source per 250 cubic metres or part thereof  |
| 3.05.1 | Bedding Material Plasticity  | AS 1289.3.3.1 | One test per source per 500 cubic metres or part thereof |
| **Concrete Compressive Strength** |
| 3.05.1 | Concrete slump | AS 1012.3 | One per batch of concrete delivered for reinforcement concrete works. |
| 3.05.1 | Concrete Compressive Strength | AS 1012.9 | One pair of test specimens per 50m3 of concrete with a minimum of one pair per individual reinforced structure unless otherwise approved by Superintendent. |
| **Pipe Ovality** |
| 3.05.5 | Pipe Ovality | Clause 3.05.5 | One test per pipe line |

**3.05.6 Acceptance by Stormwater Authority**

* + - * 1. Final Inspection

**ADD**

A Closed Circuit Television (CCTV) survey is required by the Stormwater Authority as part of the Construction Quality Records information and shall be undertaken by a qualified operator as described in WSA-05-2008 Conduit Inspection Reporting Code of Australia and in accordance with the Guidelines of the Australian Conduit Condition Evaluation Manual.

Two copies of the CCTV survey are to be provided to the Superintendent on a CD or DVD and accompanied by a CCTV report. The report shall include a description and a photo of each significant defect.

The CCTV survey shall be undertaken prior to the placement of the final surface layer to roads such as asphalt, concrete and pavers, the construction of footpaths and after the completion of all stormwater structures. The pipes and structures shall be clear of all debris and construction materials prior to commencement of the CCTV survey.

Any defects identified by the CCTV inspection shall be rectified together with a new CCTV inspection and report submitted to the Superintendent prior to requesting final inspection.

Repair of damaged pipes and culverts by patching is not acceptable to the Stormwater Authority.

**ADD**

|  |
| --- |
| **Hold Point 3.14****Process Held:** Placement of final surface layer to roads and footpaths.**Submission Details:** At least five (5) days prior to the placement of final surface layer to roads and footpaths, the Contractor shall submit to the Superintendent two (2) copies of the stormwater drainage CCTV report with survey on CD or DVD. **Release of Hold Point:** The Superintendent will consider the submitted documents, including the rectification of defects, prior to authorising the release of the Hold Point. |

**3.06 Subsoil Drains**

**3.06.1 Materials**

**(i) Pipes**

**ADD**

Transverse subsoil drains, where specified, shall be constructed of solid walled uPVC pipe of similar diameter and quality to the longitudinal subsoil drains.

* + - * 1. **Filter Materials**

**DELETE** Table 3.11, 4th paragraph

**ADD** Table 3.8

**3.06.5 Conformance Criteria**

**(i) Materials**

1. Filter Material

**DELETE** Table 3.8, 2nd paragraph

**ADD** Table 3.7

**(ii)** **Compaction Conformance**

**DELETE** Table 3.12, 1st paragraph

**ADD** Table 3.9

**(iv)** **Sampling and Testing**

**DELETE** Table 3.12, 5th paragraph

**ADD** Table 3.9

**(v)** **Frequency of Testing**

**DELETE** Table 3.13, 1st paragraph

**ADD** Table 3.10.

**DELETE** Table 3.10

**ADD**

| **Table 3.10** |
| --- |
| **Clause** | **Characteristic Analysed** | **Test Method** | **Minimum Frequency of Testing** |
| **Compaction** |
| 3.06.3 | Compaction and Moisture content for filter material | AS 1289.5.4.1 | One test per 150 linear meters or part thereof |
| **Filter Material Properties** |
| 3.06.1 | Filter Aggregate Material Grading | AS 1289.3.6.1 | One test per source per 500 cubic metres or part thereof |
| **Geotextile** |
| 3.06.1 | Puncture Strength | AS 3706.4 | Provide copy of Manufacturer’s Certificate |
| 3.06.1 | Grab Strength | AS 2001.2.3 | Provide copy of Manufacturer’s Certificate |
| 3.06.1 | Tear Strength | AS 3706.3 | Provide copy of Manufacturer’s Certificate |
| 3.06.1 | Filtration and Permeability | AS 3706.9 | Provide copy of Manufacturer’s Certificate |

**ADD**

**3.06.6 Drainage Blanket**

Where specified or as directed by the Superintendent, the Contractor shall construct a drainage blanket under the road pavement where fractured weathered rock forms the sub-grade. The drainage blanket shall consist of a 100mm minimum compacted thickness of drainage material contained between two layers of geotextile. Enclose the drainage material completely in the geotextile with laps of 500mm being provided at each joint in the geotextile.

The drainage material shall be a well-graded mixture of sand and gravel, having a maximum particle size of 19mm and not more than 3% of clay and silt fines. The geotextile shall be Bidum A34 or equivalent.

The blanket shall slope towards and be connected to the subsoil drainage trenches flanking the road.

**3.07 CONDUITS**

**3.07.1 General**

**DELETE** 1st and 2nd paragraphs

**ADD**

The works covered by this section of the Specification includes the installation of conduits for telecommunications, gas, electrical, street lighting and irrigation services under road pavements. Trenching for conduits shall be in accordance with the “Underground Services in a Shared Trench” agreement between the respective Service Authorities.

Prior to excavation of trenches for services conduits the contractor shall liaise with the services authorities and arrange a site meeting to confirm the servicing and coordination requirements of the authorities.

**3.07.2 Materials**

**DELETE**

First paragraph

**ADD**

Unless otherwise specified, conduits for gas shall be heavy duty uPVC pipe complying with the requirements of AS2053, smooth bore, and coloured grey and shall be of the diameter specified.

**3.07.3 Trenching**

**ADD** to second paragraph

The trench width shall also be in accordance with any relevant site specific details shown on the Contract drawings.

**3.07.5 Conformance Criteria**

**(i) Materials**

**DELETE** first sentence of second paragraph

**ADD**

The Contractor shall obtain copies of test certificates for conduits from the manufacturer which are readily identifiable with the batch that they represent.

**(ii) Compaction Conformance**

**DELETE** reference to Table 3.7

**ADD** Table 3.2

**(iv) Sampling and Testing**

**DELETE** reference to Table 3.7

**ADD** Table 3.2

**(v) Frequency of Testing**

**DELETE** reference to Table 3.8

**ADD** Table 3.6

**3.09 WATER SERVICES – PRETAP CONNECTIONS**

**ADD New Clause**

Pretap Connectors are to be installed on water mains diameter of 100mm and 150mm for providing services to blocks in accordance with ActewAGL requirements. Only Pretap Connectors approved for use by ActewAGL shall be used. The contractor is required to record the location of the installed Pretap Connectors by survey [X,Y and Z location] and provide the information in tabulation format to the Superintendent for submission with the work as executed information to ActewAGL.

For pipe size larger than 150mm diameter, tapping bands are used. Only tapping bands approved by ActewAGL shall be used.

**3.11 MEASUREMENT & PAYMENT**

**DELETE**

The first paragraph

**ADD**

Payment shall be made for all activities associated with completing the work detailed in this Specification in accordance with Pay Items 303P1-P4; 304P1-P12; 305P1-P15; 306P1-P4, 307P1-P4, 308P1-P5, and 309 P1-P3 inclusive plus Technical Exception Clauses Pay Items.

**DELETE Pay Item 303P1**

**ADD**

**Pay Item 303P1 Backfill Under Roads, Paths and Driveways**

The unit of measurement shall be the compacted volume of subbase material in cubic metres. For the purpose of payment the volume of subbase material shall be calculated by multiplying the minimum trench width defined below by the depth of subbase material measured from the pavement subgrade level to the top of the overlay zone and multiplied by the length of the pipe/ conduit under roads, paths and driveways.

For pipes and conduits less than 100mm diameter the minimum trench width shall be 300mm. For pipes and conduits 100mm and greater diameter the minimum trench width shall be the outside pipe diameter plus 300mm.

No additional payment will be made for over excavation of trenches or for a greater width of trench as a result of curved trenches, benching or shoring or over break due to ground conditions or inadequate support.

General excavated material acceptable as backfill to sewer and stormwater trenches under footpaths and driveways only, shall be measured as above for subbase material.

A separate pay item shall be included in the contract for each type of backfill.

Pay Item 303P1.1 Subbase backfill

Pay Item 303P1.2 General excavated material acceptable as backfill

Pay Item 303P2 Trenching for Service Authorities

**DELETE**

The second and third paragraphs

**ADD**

This pay item shall include excavation, supply, placing and compaction of pipe bedding and backfill material of trenches for conduits and cabling for service authorities including telecommunications, gas and electricity. The trench width and depth shall be as specified in the drawings or by the service authorities and shall vary depending on the number of services in each trench.

This pay item shall include coordination with service authorities, excavation in all types of material encountered including rock, the supply and placement of warning tapes and disposal of surplus spoil.

**Pay Item 303P4 Existing Services Location**

**DELETE**

1st paragraph

**ADD**

The unit of measurement shall be a lump sum item for each service type

**ADD**

**Pay Item 303P6 Exhume Existing Pipes**

The unit of measurement shall be the lineal metre of pipe exhumed.

The tendered rate shall include removing all existing pipes, pavement/saw cutting, hand excavation if required, all excavation in all materials, disposal of excavated material, recycling and disposal fees, supporting and dewatering the excavation, supply placing and compacting of backfill material, supplying, placing and compacting as specified of pavement layers materials and asphalt concrete as specified or same as existing. It shall also include pipe cutting, repairing or capping of pipes, and/or branch connections, installation of sealing discs to existing pipes of all sizes and making good any structures during the works.

Backfill under roads, paths and driveways shall be measured under Pay Item 303P1

A separate pay item shall be included in the Contract for each type of pipe and diameter.

**ADD**

**Pay Item 303P7 Demolish Existing Structure**

The unit of measurement shall be the number of existing sumps, manholes, headwalls or other hydraulic structures demolished.

The pay item shall include removing the existing structure, pavement and kerb cutting as required, all excavation in all materials, backfill voids remaining & disposal of removed materials. It shall also include pipe cutting, repairing or capping of pipes and making good inlet and outlet pipes damaged during the works.

Backfill under roads, paths and driveways shall be measured under Pay Item 303P1

A separate pay item shall be included in the Contract for each type of structure removed.

**Pay Item 304P3 Flexible Joints**

**DELETE**

1st paragraph.

**ADD**

The unit of measurement shall be per flexible jointing arrangement installed at each structure interface.

**Pay Item 304P10** **Trench Stops and Scour Stops**

**DELETE** “supply and installation of flexible pipe joint either side of scour stop” from 3rd paragraph.

**Pay Item 304P12 CCTV Camera Testing**

**ADD**

The unit of measurement shall be per lineal metre.

**Pay Item 305P1 Stormwater Pipes**

**DELETE**

The first paragraph

**ADD**

The unit of measurement shall be linear metre of pipe installed and backfilled measured along the centreline. Length is measurement from the centre of stormwater structures.

**DELETE**

“flexible joints at structures” from last line of second paragraph.

**ADD**

The pay item shall also include pipe cutting, connection to existing and/or new pipes and making good pipes damaged during the works.

**Pay Item 305P5 Flexible Joints**

**DELETE**

The first paragraph.

**ADD**

The unit of measurement shall be per flexible jointing arrangement installed at each structure interface.

**Pay Item 305P9 Standard Stormwater Sumps**

**ADD separate pay items**

605 P9.5 Standard Single Type QS Sump (sealed)

605 P9.6 Standard Single Type QS Sump

605 P9.7 Standard Single Type R Sump (sealed)

**Pay Item 305P14 Scour Stops**

**DELETE second paragraph**

**REPLACE with**

The pay item for scour stops shall include over-excavation of pipe trench for the scour stop, concrete formwork, supply and placement of concrete, filter pipe, compressible membrane, supply and installation of flexible pipe joint either side of scour stop and additional cost of backfilling pipe trench over that of a straight uninterrupted pipe length.

**Pay Item 305P15 CCTV Camera Testing**

**ADD**

The unit of measurement shall be per lineal metre.

**ADD**

**Pay Item 305P16 Connect to Existing Stormwater Structure**

The unit of measurement is per pipe connection to an existing structure for all structure types.

The pay item includes all excavation, breaking out structure wall for new pipe and making good the connection, materials and structure geometry modifications at junction.

**Pay Item 306P1 Subsoil Drains**

**ADD**

The pay item shall include provision and placement of “no fines” concrete capping in locations specified in Standard Drawing DS6-01 including all materials and formwork if required.

**Pay Item 306P3 High-end Risers**

**ADD**

This pay item shall include the length of pipe required to connect the high end riser to the interface and edge trench drains.

**ADD**

**Pay Item 306P5 Remove & Relocate Existing Subsoil High End Riser**

The unit of measurement shall be the number of flush points removed & relocated.

The pay item shall include all materials and labour required to remove & relocate the existing high end riser, pipe connections, excavation, backfilling, and making good all works.

**ADD**

**Pay Item 306P6 Drainage Blanket**

The unit of measurement shall be the square metre of drainage blanket constructed.

The pay item shall include excavation, compaction of foundation, disposal of excavated material, cleaning of finished surface, supply and placing of geotextile, drainage material, supply and installation of all other materials and work.

**Pay Item 307P3 Electrical Conduits**

**ADD**

The pay items shall include supply and installation of long radius 90 degree bends as required.

**Pay Item 308P1 Water Pipe**

**DELETE** paragraphs 6 and 7

**ADD**

The pay item description is 308P1.A.B.C.D

A = Pipe Type 1 = UPVC

 2 = DICL

 3 = PE

**Pay item 308P2 Water Pipe Fittings**

**ADD** after 8th line in 6th paragraph

EC = Cast Iron or DICL End cap

**Pay Item 308P5 Works by Water Authority**

**DELETE**

Item 304P10.1 and description

**ADD**

Item 308P5.1 “Works by the Water Authority to existing water services

**DELETE**

Item 304P10.2 and description

**ADD**

308P5.2 “ Works by the Contactor on existing water services, excluding works by the Water Authority”

**ADD**

**Pay Item 308P6 Air Valve and Chamber**

The unit of measurement shall be number.

The pay item shall include construction of the air valve including complete chamber, excavation, bedding, stone or gravel layer, backfill, shaping of surrounding ground, drainage pipe, cover, frame, RC pipe, grating, locking bar, bracket, complete to ActewAGL drawing WSS 015.

**ADD**

**Pay Item 309P2 Tapping of Water Main – Pretap Connectors**

**DELETE**

Item 309P2 and description

**ADD**

309P2 “Pretap Connectors”

The unit of measurement shall be per pretap connector.

This pay item shall include supply and installation of pretap connector in accordance with ActewAGL requirements, including additional excavation, bedding, backfilling as required, cutting of pipes, wastage of pipes, connection of services to blocks, survey of location of installed unit complete.

A separate pay item shall be included in the Contract for each main diameter and type of water service pipe diameter.

**ADD**

**Pay Item 310P1 Excavation by Boring**

The unit of measurement is a lump sum for all materials and work required including the pipe or conduit to be installed.

**3.12 SCHEDULE OF HOLD POINTS**

**DELETE**

3.1, Clause 3.03.2: Set out of trenches for all services.

**ADD**

3.1, Clause 3.03.2: Commencement of excavation for any services trenches.

3.1A, Clause 3.03.2: Commencement of excavation for any services trenches crossing or connecting to existing services.

3.13, Clause 3.04.2: CCTV of completed sewers.

Clause 3.05.6: CCTV of completed stormwater drains.

SECTION 4 FLEXIBLE PAVEMENT CONSTRUCTION

**4.02 STANDARDS**

**DELETE**

1st paragraph

**ADD**

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards, Test Methods, Forms and References and their successors to the extent that they are relevant and not overridden by the Specification.

**4.03 BASE, SUBBASE AND SELECT MATERIAL**

**4.03.1 General**

Table 4.2

**DELETE**

”GMSS40” from third column, third row

**ADD**

“GMS40” to third column, third row

**4.03.4 CONFORMANCE CRITERIA**

(iv) Sampling and Testing

(d) Frequency of Testing

**DELETE** Table 4.10 Layer Properties

**ADD**

| **Table 4.10** |
| --- |
| **Layer Properties** |
| **Clause** | **Characteristic Analysed** | **Test Method** | **Minimum Frequency of Testing** |
| 4.03.3(ii); 4.03.4(i); Table 4.7 | Compaction and moisture content of base, subbase and select material | AS 1289.5.2.1; AS 1289.5.4.1;AS1289.5.7.1 | Not less than: One test per 500m2 andOne test per road |
| 4.03.4(iii); Table 4.8 | Surface Level and layer thickness of select material, subbase and base | Measure (Dip Sheet) | Left hand side kerb lip line, Right hand side kerb lip line and at road centrelines at 20m intervals  |
| 4.03.4(iii); Table 4.8 | Surface Trim  | Deviation from a straight edge | Ten (10) tests per 200m length or part thereof |
| 4.03.4(iii); Table 4.8 | Layer Width | Measure | One test per 200m length or part thereof |

**4.05.5 Manufacture of Asphalt**

(iii) Temperatures of Bitumen, Aggregates and Asphalt

Table 4.38

**ADD** after Class 320 in third column

“Or Multigrade”

**4.05.10 Placing and finishing of Asphalt**

**(iii) Asphalt Paving Temperature**

Table 4.39

**ADD** after Class 170 & Class 320 Bitumen in first column

“Or Multigrade”

**4.06 MEASUREMENT AND PAYMENT**

**ADD** to first paragraph

and Technical Exception Clauses pay items 403P1, 403P2, 403P3, 403P4, 405P2 to 405P6, 405P11, 405P14, 405P15.

**ADD** to first paragraph

plus all Technical Exception Clauses pay items

**Pay Item 403 P1 Base Material**

**DELETE** 1st Paragraph

**SUBSTITUTE**

The unit of measurement shall be the cubic metre based on the design thickness specified multiplied by pavement area as shown on the Contract drawings

**Pay Item 403 P2 Sub-base Material**

**DELETE** 1st Paragraph

**SUBSTITUTE**

The unit of measurement shall be the cubic metre based on the design thickness specified multiplied by pavement area as shown on the Contract drawings

**Pay Item 403 P3 Select Material**

**DELETE** 1st Paragraph

**SUBSTITUTE**

The unit of measurement shall be the cubic metre based on the design thickness specified multiplied by pavement area as shown on the Contract drawings

**Pay Item 403 P4 Match to Existing Pavement**

**ADD the following**

The pay item shall also include all plant, equipment, labour, supervision, material, transport, milling and sawing or cutting costs and for all incidentals for milling, cutting or sawing the asphalt/pavement layers in accordance with the drawings, complete.

Payment will not distinguish between various depths of sawing or cutting work or pavement materials, irrespective of the number of separate cuts which may be required for sawing or cutting the layer to the required depth.

**Pay Items 405P2 to 405P6 Dense Graded Asphalt Courses**

**DELETE** 1st Paragraph

**ADD**

The unit of measurement shall be tonnes based on the design thickness specified multiplied by pavement area as shown on the Contract drawings multiplied by a density of 2.4 tonnes per cu m.

**Pay Item 405P11 Fine Gap Graded Asphalt (FGG) in Wearing Course**

**DELETE** 1st Paragraph

**ADD**

The unit of measurement shall be tonnes based on the design thickness specified multiplied by pavement area as shown on the Contract drawings multiplied by a density of 2.4 tonnes per cu m.

**ADD**

**Pay Item 405P14 Match to Existing Pavement**

The unit of measurement shall be lineal metre.

This pay item includes the application at the join line between new and existing asphaltic concrete pavement of a suitable hot applied modified bituminous sealant equal to “SAMIFILLA HM”

**ADD**

**Pay Item 405P15 Remove Existing Asphaltic Concrete Paving**

The unit of measurement shall bethe square metre of paving removed.

This pay item includes the saw cutting and milling of the AC paving irrespective of depth, removal of paving including underlying courses irrespective of depth and disposal of waste materials off site and payment of all fees for disposal to an approved landfill or recycling

**SECTION 6 CONCRETE KERB, FOOTPATH AND MINOR WORKS**

**6.02 STANDARDS**

**DELETE**

1st paragraph

**ADD**

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards and their successors to the extent that they are relevant and not overridden by the Specification.

**6.03 MATERIALS**

**6.03.1 Concrete**

**(i) Slip form kerb sections**

**DELETE**

first dot point

**ADD**

* Minimum characteristic strength 25Mpa
1. **Paving and formed concrete**

**DELETE**

first dot point

**ADD**

* Minimum characteristic strength 32Mpa

**6.03.3 Joint Sealer**

**DELETE** 1st paragraph

**ADD**

Joint sealers, where specified, shall be manufactured from bitumen impregnated canite or other approved material complying with the requirements of Clause 5.03.6(iii).

**DELETE**

**Clause 6.10.1 Kerb Bench Marks**

**ADD**

**Clause 6.10.1 Coordinated Reference Marks (CRM’s)**

CRM castings shall be placed in the kerb when the concrete is being cast. Drawings provided by the Superintendent will show the locations of the CRM’s as approved by the Surveyor-General. The castings shall be placed at least 1m from kerb expansion joints with the inscription facing the paved road and the nipple top 5mm below the top of the kerb, as shown in the ACTLIC standard drawings MISC 825 Sheets 2 and 3. The castings shall be obtained by the Contractor from the Principal’s appointed Registered Surveyor.

**6.13 CONFORMANCE CRITERIA**

**6.13.4 Frequency of Testing**

**DELETE** Table 6.1

| **Table 6.1** |
| --- |
| **Clause** | **Characteristic Analysed** | **Test Method** | **Proposed Minimum Frequency of Testing** |
| 6.13.2 | Bedding Layer* + 1. Surface Irregularities

ii Level | AS2876/Survey | Every 10m |
| 6.13.2 | Finished Kerb* + 1. Horizontal alignment
		2. Level
		3. Straightness/deviation from vertical curve
 | AS2876/Survey | One survey point at lip line at 20m intervals and at kerb return tangent points |
| 6.13.2 | Finished Concrete other than kerbs* + 1. Horizontal alignment
		2. Level
		3. Straightness/deviation from vertical curve
 | AS2876/Survey | Every 40m |
| 6.13.2 | Profile Dimensions | AS2876 | Fixed Forms: Every 10mExtruded or slip formed: Once for each project for each form type |
| 6.13.1 | Concrete Slump | AS 1012.3 | For each homogeneously manufactured grade per day, one on each of the first three batches at start of the day and after a non conforming batch, then one per four batches |
| 6.13.1 | Concrete Compressive strength | AS 1012.9 | Sampling, testing and assessment for compliance shall be in accordance with Section 6 of AS 1279 |

**ADD**

**6.14 MEASUREMENT AND PAYMENT**

**ADD** to first paragraph

plus all Technical Exception Clauses pay items 603P1-603P3, 603P4 – 603P7

**Pay Item 603 P1 Kerb Works**

**ADD to** 2nd paragraph

Where road pavement extends under kerb, then applicable pavement layers and subgrade preparation are measured under Sections 2.0 and 4.0 respectively.

**ADD**

Pram crossings and vehicle crossings are measured under 603P3 and 603P4 respectively.

ADD separate pay items

603 P1.21 Permeable Kerb (PK)

603 P1.22 K4A (K4A)

**Pay Item 603P2 Footpaths, Driveways, and General Paving Works**

**DELETE**

Second paragraph

**ADD**

This pay item shall include all operations involved in the forming, compaction of foundations, supply and placement of base and sub base materials, edge thickenings, concreting, finishing, jointing, curing and backfilling.

ADD separate pay items

603 P2.2 100mm thick concrete paving

603 P2.4 150mm thick concrete paving

603 P2.13 E/O for reinforced concrete paving using SL81 mesh

**ADD the following pay items**

**Pay Item 603P3 Pram Crossings**

The unit of measurement shall be the number constructed for each type extra over the kerb rate.

The pay item shall include all activities associated with the element of work including excavation, base course, forming, jointing, concrete, finishing, curing and disposal of materials.

A separate pay item shall be included in the contract for each pram crossing type.

603P3.1 Pram Crossing for 1.2m path width

603P3.2 Pram Crossing for 1.5m path width

603P3.3 Pram Crossing for 1.8m path width

603P3.4 Pram Crossing for 2.0m path width

603P3.4 Pram Crossing for 2.5m path width

**Pay Item 603P4 Vehicle Crossings**

The unit of measurement shall be the number constructed for each type extra over the kerb rate.

The pay item shall include all activities associated with the element of work including excavation, base course, forming, jointing, concrete, finishing, curing and disposal of materials.

A separate pay item shall be included in the contract for each vehicle crossing type.

603P4.1 Residential Vehicle crossing

603P4.2 Commercial Vehicle crossing

**Pay Item 603P5 Pram Ramps**

The unit of measurement shall be square metres of pavement area.

The pay item shall include all activities associated with the element of work including excavation, base course, forming, edge thickenings, jointing, concrete, finishing, curing and disposal of materials.

**Pay Item 603P6 Remove Existing Concrete Kerbing**

The unit of measurement shall be the linear metre of kerbing removed.

This pay item includes the saw cutting of the kerbing irrespective of depth, removal of kerb including vehicle crossings and pram crossings unless itemised separately and disposal of waste materials off site and payment of all fees for disposal to an approved landfill or recycling facility.

**Pay Item 603P7 Remove Existing Concrete Paving**

The unit of measurement shall bethe square metre of paving removed.

This pay item includes the saw cutting of the concrete paving irrespective of depth, removal of paving including reinforcement and underlying courses irrespective of depth and disposal of waste materials off site and payment of all fees for disposal to an approved landfill or recycling facility

**SECTION 8 INCIDENTAL WORKS**

**DELETE**

1st paragraph

**ADD**

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards and their successors to the extent that they are relevant and not overridden by the Specification.

**8.03 MORTARED STONE PITCHING**

**8.03.3 Bedding**

**DELETE** 1st paragraph

**ADD**

For stone pitching on slopes of 1 to 1 or greater, stones shall be embedded into a minimum 50mm thick concrete blinding layer of characteristic compressive strength of 25MPa at 28 days.

**DELETE** 1ST sentence 2nd paragraph

**ADD**

Stones on slopes less than 1(V): 1.5(H) shall be firmly bedded and based on compacted crushed rock, sand or quarry dust 50mm thick over an earth base compacted to 90% MMDD.

**8.04 FENCING**

**8.04.2(i)(b) Materials**

**DELETE**

5th paragraph

**ADD**

CCA (copper- chrome-arsenic) pressure treated timber shall not be used . Timber shall be Ecowood or similar. Contractor is to provide certification from the supplier that the product is arsenic free. The use of this product and disposal of waste material is to be in accordance with the manufacturers recommendations.

**ADD**

**8.04.7 Protective Fences**

Protective fences (Types PC and PD) shall be in accordance with this Specification and the drawings. All posts and rails shall be galvanised steel tube to AS1163 of the diameters shown on the drawings. All posts to be set vertical. Top rail and terminal posts shall be formed from continuous length of pipe. Intermediate posts to be spaced as shown on the drawings. Continuous fillet welds at all contact points. Concrete for footings shall be Grade N25.

**ADD**

**8.04.8 Cycleway Rails**

Cycleway vehicle restriction rail shall be in accordance with Standard Drawing DS13-02

Cycle rest rails shall be in accordance with Standard Drawing DS13-04.

**ADD**

**8.12A JUTE EROSION CONTROL MATTING**

**8.12A.1 Materials**

Jute erosion control matting shall be of the thickness type specified in the Contract drawings with the following properties:

|  |  |  |
| --- | --- | --- |
| Property | Fine Mat | Thick mat |
| Thickness | 3mm =/- 0.5mm | 6mm +/- 1mm |
| Mass | 250 – 310 g/m2 | 560 – 680 g/m2 |
| Density | 93 kg/m3 nominal | 103 kg/m3 nominal |

Matting shall be manufactured from recycled jute and be 100% organic without synthetic contamination, untreated and bio degradable. Fastening pins shall be proprietary pre-formed, non-galvanised 'u' pins with mimimum 150mm leg lengths and wire diameter minimum of 3.15mm.

The Superintendent shall approve the proposed matting.

|  |
| --- |
| **Hold Point 8.18****Process Held** Supply of jute mesh matting.**Submission Details:** At least three(3) working days before the proposed installation of jute matting the Contractor shall provide a sample and the manufactures technical specification for the jute mat.**Release of Hold Point:** The Superintendent will inspect the sample and submitted documents prior to authorising the release of the Hold Point |

**8.12A.2 Installation**

Matting shall be installed after installation of topsoil and hydroseeding. Care shall be taken to minimise disturbance to topsoil and hydroseeding. Install erosion matting as detailed with edges trenched. Reinstall topsoil over matting in trenches and hand seed.

Roll the jute mesh down the slope with an overlap of 75mm - 100mm and the upstream panel overlaying downstream panel

Pin at the rate minimum of 3 pins per square metre with pins to laps and edges at 1m centres.

Establish an approved grass stand and maintain through consolidation.

**ADD**

**8.12B Geotextile Fabric**

The Contractor shall place Bidum A34 fabric or equal over prepared topsoil where shown on the Contract drawings. To achieve coverage over the prepared topsoil, fabric is to overlap a minimum 300mm.

Fix over entire area at 1.0m staggered centres with either 200mm long U-shaped wire staples of weldmesh “T” pins.

Seed directly onto the installed fabric with the seed mix specified. Grassing and bitumen/ straw mulch operations to be carried out in accordance with Clauses 9.06 and 9.08.

**ADD**

**8.12C Rip Rap**

Construct rock rip rap to locations where shown on the Contract drawings. Trim subgrade to remove sharp level changes and drops. Where the subgrade is rock, the Superintendent may direct the rip rap to be omitted.

 The rock shall be hard sound stone in the nominal size range 100 – 300mm. However, up to 10% may be stones down to 75mm nominal size. The percentage of stones with smooth and curved faces shall not exceed 20%.

Where specified geotextile membrane shall be placed beneath the rock. Refer to 8.12B for geotextile specification. The geotextile shall be placed on the trimmed subgrade. The stones shall then be placed, by hand if necessary, so that the rock mass is well inter-locked and there are no loose stones in the surface that could be dislodged by flood waters. Stones shall be placed to achieve maximum density by packing as closely as possible.

**ADD**

**8.12D Concrete Stairs**

Concrete stairs shall be constructed as shown on the Contract drawings. The construction of concrete stairs comprises elements specified elsewhere. Refer to the drawings and the following sections of this Specification for requirements:

SECTION 2 for excavation and backfilling works

SECTION 8 for stone walls works

SECTION 15 for concrete works

**8.14 MEASUREMENT & PAYMENT**

**ADD** to first paragraph

plus all Technical Exception Clauses pay items 804P4, 804P5, 811P.3

**ADD**

**Pay Item 804P4 Protective Fence**

The unit of measurement for this item shall be the lineal metre of fence erected.

This pay item shall include all works associated with the supply of all material and fabrication of the protective fence, excavation of footings, supply, placement and working of concrete footings, alignment of barriers and maintaining a constant line and above ground clearance of the barriers and also for all machinery, equipment, labour, supervision and other incidentals for executing the work and finishing off as specified.

A separate pay item shall be included in the contract for each type of protective fence.

804P4.1 Type PC1

804P4.2 Type PD1

804P4.3 Type PD2

**ADD**

**Pay Item 804P5 Cycleway Rails**

The unit of measurement shall be per type of rail installed.

The rate shall include all works associated with the supply of all material and fabrication, excavation in all types of material/coring, backfilling and compacting the backfill material/concrete, for disposal of all surplus excavated material to approved dumping sites, providing of the backfill material, reflective tape, tidying up, clearing, trimming pathway as required and finishing the area around each rail.

A separate pay item shall be included in the contract for each type of cycleway rail.

804P5.1 Cycleway Vehicle Restriction Rail

804P5.2 Single Post Cycle Rest Rail

804P5.3 Dual Post Cycle Rest Rail

**ADD**

**Pay Item 811P3 Remove Existing Retaining Wall**

The unit of measurement for this item shall be per square metre area of the retaining wall face and removed.

The pay item shall include all activities associated with the demolition, removal, loading, transporting and disposing off site of any type of retaining wall including reinforcement and saw cutting straight grooves to precise location and all other saw cutting required to remove the works complete.

A separate pay item shall be included in the Contract for each type removed.

**ADD**

**Pay Item 812AP1 Jute Erosion Control Matting**

The unit of measurement shall be the square metre of materialdetermined from the top area of the completed work.

The pay item shall include supply and installation of all materials specified.

**ADD**

**Pay Item 812BP1 Geotextile Fabric**

The unit of measurement shall be the square metre of fabricdetermined from the top area of the completed work.

The pay item shall include supply and installation of all materials specified.

Grassing shall be measured under Pay Item 906P1

**ADD**

**Pay Item 812CP1 Rip Rap**

The unit of measurement shall be square metre of rip rap determined from the top area of the completed work.

The rate shall include the supply and placement of the rock and geotextile fabric when specified.

Excavation works associated with the rip rap shall be paid under Pay Item 2.05.1 General Earthworks.

**SECTION 9 LANDSCAPE**

**DELETE**

1st paragraph

**ADD**

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards and their successors to the extent that they are relevant and not overridden by the Specification.

**SECTION 10 ROAD SIGNS**

**DELETE**

1st paragraph

**ADD**

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards, the Territory and Municipal Services Traffic Control Device Standard Drawings and their successors to the extent that they are relevant and not overridden by the Specification.

**ACT Government – Standards Traffic Control Device Drawings.**

Replace drawing reference from STD to DS9

**10.04 MATERIALS**

**10.04.06 Posts**

**DELETE**the reference to Standard Drawing STD-15

**ADD** Standard Drawing DS9-11

**10.10 INSTALLATION**

**10.10.1 Location**

**DELETE** the reference to Standard Drawing STD-11

**ADD** Standard Drawing DS9-15

**10.10.2 Mounting Height**

**DELETE** the reference to Standard Drawing STD-11

**ADD** Standard Drawing DS9-11

**10.10.03 Supports**

**DELETE** the reference to Standard Drawing STD-15

**ADD** Standard Drawing DS9-15

**DELETE**the reference to Standard Drawing STD-12

**ADD** Standard Drawing DS9-12

**10.10.04 Footings**

**DELETE**the reference to Standard Drawing STD-15

**ADD** Standard Drawing DS9-15

**10.13 Measurement & Payment**

**ADD** to first paragraph

plus amended pay items 1010P1, 1010P2, 1010P3, additional pay items 1010P5, 1010P6, 1010P7.

**DELETE**

**Pay Item 1005P1 Manufacture of Guide Signs**

**ADD**

**Pay Item 1005P1 Manufacture & Delivery of Guide Signs & Support Structures**

The unit of measurement shall be the number of guide sign boards manufactured & delivered as specified.

The rate shall also include procuring, and furnishing all the materials, and for manufacturing and supplying the completed road sign blade, including amongst others the supporting framework, reinforcement, cross bracing, struts, fixing brackets, angle-irons, channel profiles, galvanizing if specified, painting, background of retro-reflective material, retro-reflective or semi matt black lettering, symbols, numbers, arrows, emblems and borders and for all materials, equipment, labour, supervision, nuts, bolts, transport, handling, etc necessary for the manufacture, completion and delivery of the road sign board complete as specified.

**DELETE**

**Pay Item 1010P1 Manufacture & Delivery of Guide Sign Support Structures**

**DELETE**

**Pay Item 1010P2 Erection of Guide Sign Structures**

**ADD**

**Pay Item 1010P2 Erection of Guide Sign Blade & Structures**

The unit of measurement shall be the number of guide signstructures erected as specified.

The pay item shall include erection of the guide sign blade and support structure, bracing, fastening of the sign blade to the support structure, excavation for the footings in all types of material, backfilling and compacting the backfill material, for disposal of all surplus excavated material to approved recycling or disposal sites, providing of the backfill material, tidying up, clearing, trimming and finishing the area around each sign footing.

A separate pay item shall be included in the contract for each sign structure type.

1010P1.1 Tubular Post Mounted

1010P1.2 Modular mounted (Steel Rectangular Hollow Section)

1010P1.3 Overhead Gantry Mounted

1010P1.4 Overhead Cantilever Mounted

**Pay Item 1010P3 Modifications to Existing Signs**

**DELETE** the first sentence

**ADD**

The unit of measurement shall be the number of signs.

**ADD**

**Pay Item 1010P5 Extra over item 1010P4 for the provision of LMT or approved equal sign socket system**

The unit of measurement shall be the number of sign socket structures installed.

The extra over rate shall include procuring the socket systems and installation complete including all materials, transport and labour complete.

**ADD**

**Pay Item 1010P6 Dismantling and Re-erecting Road Signs**

The unit of measurement shall be the number of sign structures dismantled and re-erected.

The pay item shall include dismantling the road signs and supporting structures, re-erecting the road signs including all materials, transport and labour complete and restoring the location where they were dismantled.

No extra payment shall be made for excavations and new material required for re-erecting the road signs.

**ADD**

**Pay Item 1010P7 Dismantling and Remove Existing Warning / Regulatory / Parking / Fingerboard Signs**

The unit of measurement shall be the number of signs dismantled and removed.

The pay item shall include dismantling the road signs and supporting structures, transport to disposal site, recycling or disposal fees and labour complete and restoring the location where they were dismantled.

**SECTION 11 PAVEMENT MARKING**

**11.02 STANDARDS**

**DELETE**

1st paragraph

**ADD**

Work carried out and testing performed under this Section of the Specification shall comply with the requirements of the following Standards, the Territory and Municipal Services Traffic Control Device Standard Drawings and their successors to the extent that they are relevant and not overridden by the Specification.

**ACT Government – Standards Traffic Control Device Drawings.**

**DELETE**

Listed drawings

**ADD**

DS9 – 01 Line Marking Types

DS9 – 02 Pavement Messages

DS9 – 03 Linemarking Disabled Zones

DS9 – 04 RRPM’s at Traffic Islands

DS9 – 05 Miscellaneous Details

DS9 – 06 Bus Stop Details

**11.08 Eradication Of Pavement Marking**

**ADD** new paragraphs

The Contractor shall ensure that appropriate methods are used to remove raised pavement markers and bitumen based glue pad.

The glue pad fixing shall be removed flush with the pavement surface.

Any indentations formed in the asphaltic concrete surface during the removal of raised pavement markers shall be filled with asphalt filler to finish flush with the asphalt surface.

**11.16 MEASUREMENT AND PAYMENT**

**ADD** to first paragraph

plus amended pay items 1108P1, 1111P2,

**Pay Item 1108P1 Eradication of Redundant Pavement marking**

**ADD**

The pay itemshall include eradicating existing pavement marking by bead/sand blasting as well as paint as required.

**Pay Item 1111P2 Paint – Transverse Lines, Symbols, Legends, Arrows, Chevrons, Traffic Islands and Kerbs**

**DELETE**

First paragraph

**ADD**

The unit of measurement shall be as indicated in the pay item for each type installed.

**DELETE**

Pay items as listed.

**ADD**

Markings to be measured as per linear metre installed include:

1111P2.1 Island Nose (WG)

Markings to be measured as per square installed include:

1111P2.2 Chevron (CHEV)

Markings to be measured as per marking installed include:

1111P2.3 Bicycle Pavement Marking

1111P2.4 Disabled Pavement Marking

1111P2.5 Kerb Mounted House Numbering

**SECTION 14 STREET LIGHTING**

**14.02 REFERENCE DOCUMENTS**

**DELETE**

1st paragraph

**ADD**

The installation shall comply with the requirements and recommendations of the ActewAGL and TaMS standards, codes, regulations and their successors.